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KARNACK, TEXAS
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Author(s): Bhate Environmental Associates, Inc.
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DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
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RATCLIFF, AR 72951

May 1, 2018

DAIM-ODB-LO

Mr. Rich Mayer
US Environmental Protection Agency
Federal Facilities Section R6
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Dallas, TX 75202-2733

Re: Draft Quarterly Evaluation Report 4th Quarter (October – December) 2017 Groundwater Treatment Plant Longhorn Army Ammunition Plant, Karnack, Texas, May 2018

Dear Mr. Mayer,

The above-referenced document is being transmitted to you for your review. Review comments are requested by June 1, 2018.

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

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

Sincerely,

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

Copies furnished:
A. Palmie, TCEQ, Austin, TX
P. Bruckwicki, Caddo Lake NWR, TX
R. Smith, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
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K. Nemmers, Bhate, Lakewood, CO (for project files)

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
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May 1, 2018

DAIM-ODB-LO

Ms. April Palmie
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12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Draft Quarterly Evaluation Report 4th Quarter (October – December) 2017 Groundwater Treatment Plant Longhorn Army Ammunition Plant, Karnack, Texas, May 2018

Dear Ms. Palmie,

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Rose M. Zeiler, Ph.D.
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DRAFT
QUARTERLY EVALUATION REPORT
4TH QUARTER (OCTOBER – DECEMBER) 2017
GROUNDWATER TREATMENT PLANT
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

MAY 2018

Prepared For:

U.S. Army Corps of Engineers
Tulsa District

Contract No. W9128F-13-D-0012
Task Order No. W912BV17F0150
Bhate Project No. NWO1312.0150.016.0001.03

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ACRONYMS AND ABBREVIATIONS

AMCV	Air Monitoring Comparison Value
amsl	Above mean sea level
bgs	Below ground surface
Bhate	Bhate Environmental Associates, Inc.
CD	Compact disc
COC	Chemical of concern
COD	Chemical oxygen demand
ESD	Explanation of Significant Difference
ESL	Effects Screening Level
FBR	Fluidized bed reactor
ft	Feet or foot
gpd	Gallons per day
gph	Gallons per hour
gpm	Gallons per minute
GWTP	Groundwater Treatment Plant
HDPE	High density polyethylene
HCl	Hydrochloric acid
ICT	Interception-collection trench
IRA	Interim Remedial Action
J	Estimated concentration
lbs/hr	Pounds per hour
LHAAP	Longhorn Army Ammunition Plant
MC	Methylene chloride
MCL	Maximum Contaminant Level
µg/L	Micrograms per liter
$Mg(OH)_2$	Magnesium hydroxide
MSC	Medium Specific Concentration
mV	Millivolts
NA	Not applicable
NaOH	Sodium hydroxide

No.	Number
ORP	Oxidation-reduction potential
PCL	Protective concentration level
PID	Photoionization detector
PM	Preventive maintenance
ppmv	Parts per million by volume
psi	Pounds per square inch
PVC	Polyvinyl chloride
ROD	Record of Decision
TAC	Texas Administrative Code
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
tpy	Tons per year
UEP	Unlined Evaporation Pond
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

The operation of the Groundwater Treatment Plant (GWTP) is part of the Interim Remedial Action (IRA) at Burning Ground Number (No.) 3, also referred to as Longhorn Army Ammunition Plant (LHAAP)-18/24. A historical pilot test for nearby landfill LHAAP-16 resulted in the installation of eight extraction wells which also contribute groundwater to the GWTP. Groundwater extraction, treatment, and monitoring activities consist of:

- Continuous extraction of groundwater from multiple interception-collection trenches (ICTs) and extraction wells at both LHAAP-18/24 and LHAAP-16;
- Treatment of extracted groundwater for heavy metals, chlorinated compounds, and perchlorate using precipitation, air stripping, and biological methods, respectively;
- Evaluation of the hydraulic effectiveness of the extraction system by groundwater monitoring;
- Monitoring of treated groundwater to ensure compliance with the discharge limits; and
- Discharge of treated water to Harrison Bayou, or to a holding pond (INF Pond), or the treated water may be released as irrigation water on LHAAP-18/24.

The location of the extraction wells and ICTs are shown in **Figure A-1** of **Appendix A**. The process flow diagram of the GWTP is shown in **Figure A-2** of **Appendix A**.

Figure ES-1 depicts the monthly total volume of groundwater that was extracted from the ICTs and extraction wells at LHAAP-18/24 and LHAAP-16 between September 2012 and December 2017.

The GWTP was not operational during June, July, and August 2012. This was related to meltdown of the scrubber system, associated with the catalytic oxidizer, due to system overheating. Overheating occurred when the blower became inoperable after the bearing on the scrubber blower unit was shattered and damaged the blower. This occurred around 1:00 PM on May 21, 2012.

After developing an interim air monitoring plan and obtaining concurrence from the Texas Commission on Environmental Quality (TCEQ) and the United States Environmental Protection Agency (USEPA) to operate the GWTP without use of air abatement equipment, a pilot run of the GWTP was conducted on September 6, 2012. In that first pilot run, 85,170 gallons of water that had been stored in the influent equalization tank (TK-140) were treated. The treated water was re-circulated through the fluidized bed reactor (FBR) to revive the FBR after 3 months of dormancy. Treated groundwater and air samples were collected and analyzed respectively for perchlorate, metals, and Volatile Organic Compounds (VOCs); and VOCs only. On September 19, 2012, a second pilot run was performed at the GWTP and 107,264 gallons of water were treated.

Based on the successful re-start of the GWTP, continuous groundwater extraction began again on September 24, 2012. While groundwater extraction occurs on a continuous basis, operation of the GWTP occurs intermittently due to the low volume of water available for treatment with respect to the design capacity of the GWTP. During the 3rd quarter of 2012, groundwater extraction occurred only from LHAAP-18/24. Groundwater extraction from LHAAP-16 was not performed due to equipment failure. However, extraction from LHAAP-16 began in October 2012 and the extraction volumes increased steadily throughout the 4th quarter of 2012, as pumping equipment was gradually repaired/replaced. The GWTP operated under normal conditions until September 2015.

On September 14, 2015, at 11:15 AM, the blower on the air stripper (BL-340) malfunctioned during routine operation. The wiring on the blower was repaired and the blower operated for less than 2 hours on September 17, 2015, when the blower malfunctioned again. It was determined that the blower needed to be replaced, and groundwater extraction and operation of the GWTP ceased beginning September 18, 2015, as the influent equalization tank (TK-140) became full. Beginning on October 2, 2015, it was determined that the GWTP could operate without the blower at a reduced extraction rate. The operation of the GWTP allowed extraction of groundwater from ICTs 12E, 13A, 13B, and 13C (13C was changed to ICT 13E on October 12, 2015), which were considered critical ICTs to prevent migration of contaminants to Harrison Bayou. Groundwater extraction was switched frequently between ICTs 12E, 13A, 13B, and 13E to ICTs 14B, 14C, and 14D beginning on December 14, 2015.

On December 12, 2016, flange bolts at TK-380 failed and allowed hydrochloric acid (HCl) to drain into the sump. The containment area was washed down and the sump contents were transferred into the equalization tank (TK-140). Because of the acid release, extraction of groundwater from the ICTs was halted, and the GWTP was put into recycle mode (effluent sent back as influent) until the acid was neutralized and perchlorate, metals, and VOCs were below discharge criteria on March 17, 2017.

On August 12, 2017, severe storms caused a power outage at LHAAP-18/24. When electrical service was restored, the main transformer failed due to a manufacturing defect. A portable emergency generator was brought on-site on August 21, 2017, to allow the FBR to operate in full recycle mode. After a replacement transformer was installed on September 12, 2017, extraction began from ICT-13B, 13C, 13D, 13E, 13F, 7, and EW01 and the FBR was put into normal operation. Beginning on September 21, 2017, groundwater was extracted from all of the ICTs.

As shown on **Figure ES-1**, the total extracted groundwater volume from LHAAP-18/24 during the 4th quarter of 2017 was within normal range. The extracted groundwater volume was measured on a monthly basis as the sum of the ICTs flow meter totalizers' differences between the beginning and end of each month. Extraction volumes were somewhat depressed due to drought conditions. Extraction quantities in LHAAP-18/24 ranged between 485,000 gallons in November 2017 and 626,122 gallons in October 2017.

Extraction from LHAAP-16 was slightly less than in the same time period a year prior due to the drought conditions. Groundwater extraction from LHAAP-16 was 28,202 gallons in December 2017, and 41,639 in October 2017. No water was extracted from LHAAP-16 in November 2017 due to the air compressor being down. A new electric motor was replaced on the air compressor in November 2017 but was not wired into the system until the beginning of December 2017. The total extracted from LHAAP-16 from October through December 2017 was 69,841 gallons. Approximately 1,713,492 gallons of groundwater were extracted from LHAAP-18/24 and LHAAP 16 during the 4th quarter of 2017 compared to approximately 1,108,407 gallons extracted during the 3rd quarter of 2017.

No treated water was returned to ICTs 6 and 9 during the 4th quarter of 2017, because this practice was discontinued after system restart in September 2012. The treated water quantities returned to LHAAP-18/24 through the injection system each month since January 2008 are shown on **Figure ES-2**.

The average discharged flowrate from the GWTP was calculated as 10 gallons per minute (gpm) during the 4th quarter of 2017, due to all water being treated via the ion exchange resin that is the limiting flow for discharging. Approximately 651,434 gallons of groundwater was discharged to Harrison Bayou, and 1,339,418 gallons was discharged to the INF Pond (see **Figure ES-3** below).

Grab perchlorate samples from the GWTP influent were collected on October 12, November 9, and December 6, 2017, and the following concentrations were reported: 4,800 micrograms per liter (µg/L), 9,800 µg/L, and 8,000 µg/L, respectively. The average perchlorate concentration in the GWTP influent during the quarter was 7,533 µg/L. No perchlorate concentrations in any effluent (TK-650) samples exceeded the daily average or daily maximum effluent limits of 278 µg/L and 589 µg/L, respectively, during the quarter. Release of treated groundwater from the GWTP occurred only after the perchlorate concentration was below the discharge limit, and flow in Harrison Bayou was adequate.

As shown in **Table ES-1**, no treated water was discharged directly from the GWTP to Harrison Bayou, but 651,434 gallons of treated water was discharged from the INF Pond to Harrison Bayou during the 4th quarter of 2017.

The groundwater volume extracted for treatment at the GWTP ranged from a low of approximately 485,000 gallons in November 2017 to a high of approximately 667,761 gallons in October 2017. The total water extracted for treatment by the GWTP for the 4th quarter of 2017 was approximately 1,713,492 gallons. The 3 month average was approximately 571,164 gallons per month. The water quantities treated each month since June 2012 are shown on **Figure ES-3**. The total volume of water extracted from LHAAP-18/24 and LHAAP-16 in the 4th quarter (1,713,492 gallons) is higher than the volume of water discharged to the INF Pond (1,339,418 gallons). The reason for the difference is the change in volume stored in the GWTP, the amount of water lost with the removed metals precipitation sludge, and the amount of evaporative water

lost in the air stripper (which is included in the volume processed, but not in the volume discharged).

Figure ES-1: Groundwater Recovery Between September 2012 & December 2017
LHAAP-18/24 & LHAAP-16

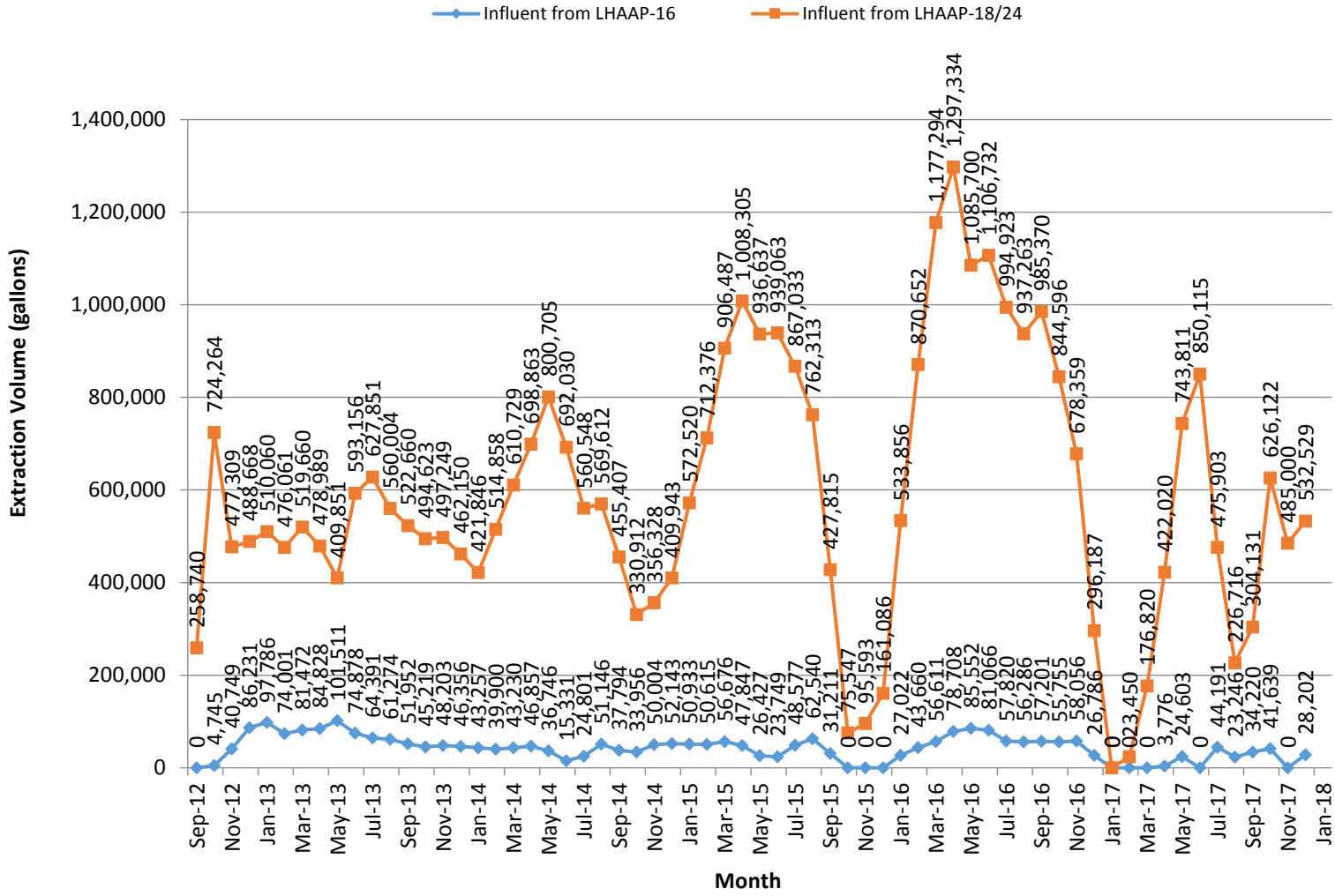


Figure ES-2: Treated Water Injected in LHAAP-18/24 from December 2007 through December 2017

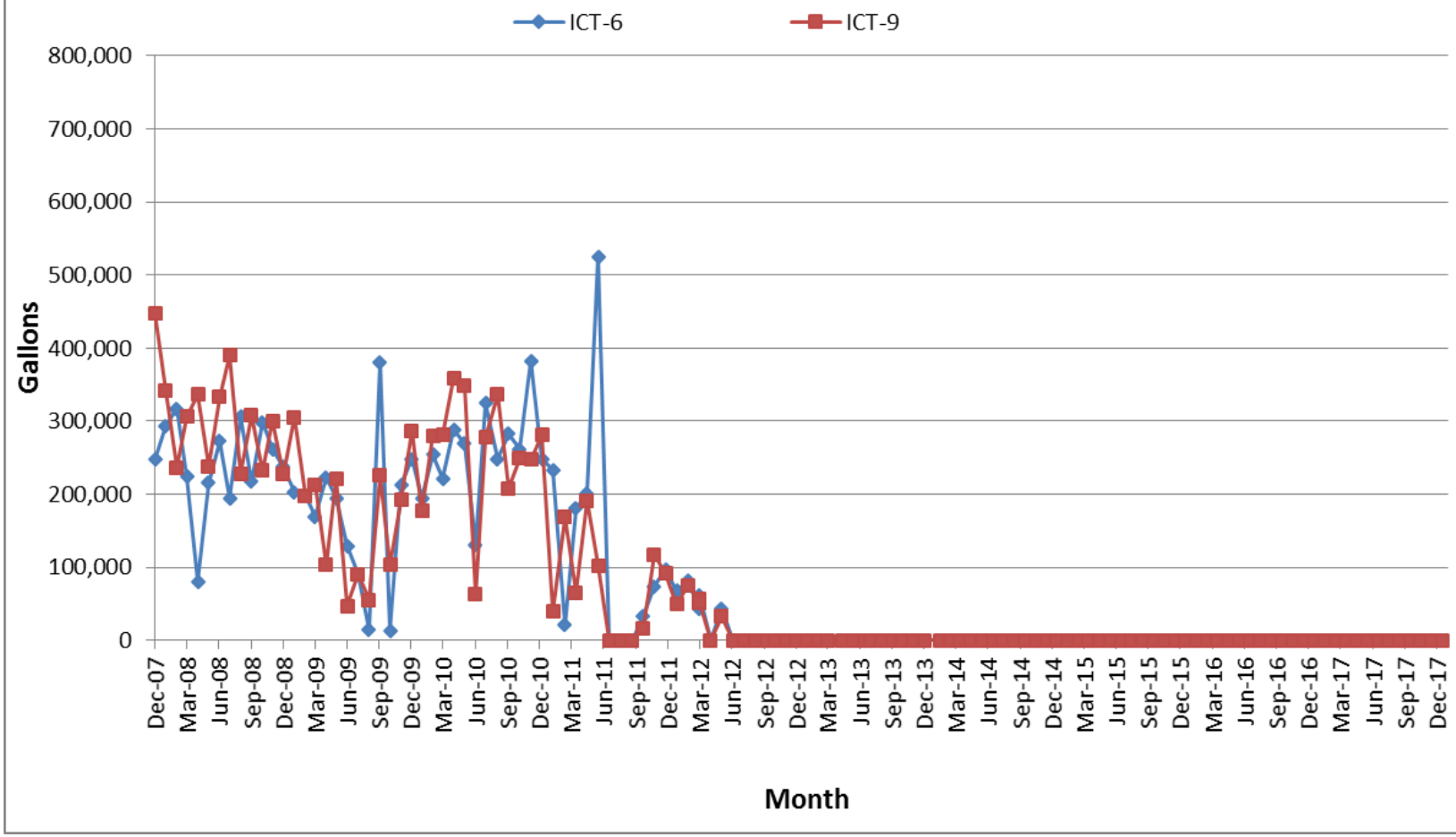


Figure ES-3:
Water Treated and Discharged Monthly from June 2012 through December 2017

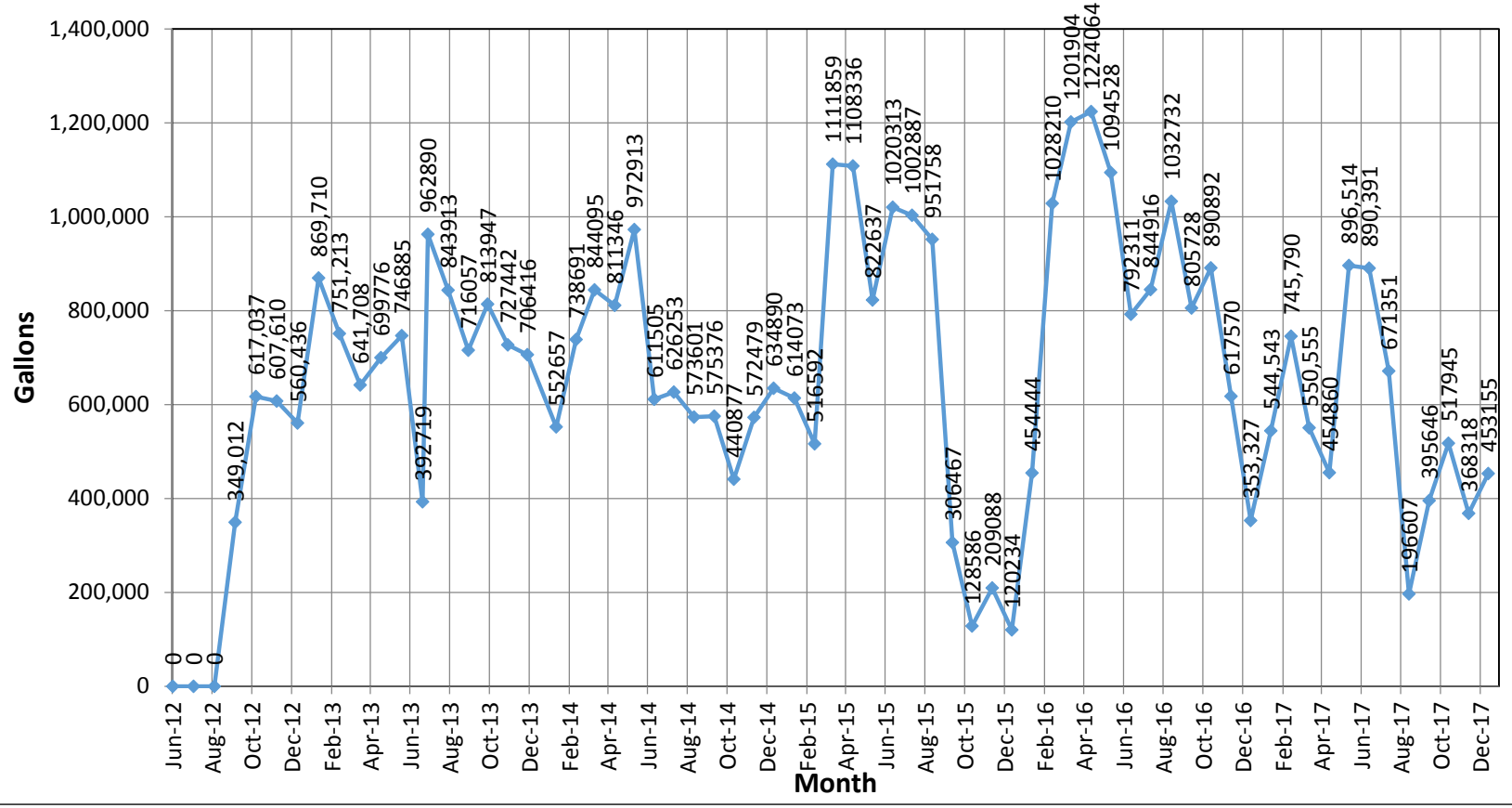


Table ES-1: Discharge Information to Harrison Bayou During 4th Quarter 2017

Date*	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Maximum Rate Allowed (gallons in 24 hours)	Released From GWTP To Harrison Bayou (gallons)	Released From INF Pond to Harrison Bayou (gallons)	Combined Total Released to Harrison Bayou (gallons)
12/21/2017	10,474	4,063	5,850,720	0	184,900	184,900
12/22/2017	3,746	764	1,100,160	0	190,735	190,735
12/23/2017	1,229	280	403,200	0	127,746	127,746
12/24/2017	782	178	256,320	0	27,657	27,657
12/25/2017	564	129	185,760	0	51,276	51,276
12/26/2017	143	32	46,080	0	69,120	69,120
			Total Discharged	**0**	**651,434**	**651,434**

Notes:

* Only days where discharge occurred are shown.

1 EVALUATION OF GROUNDWATER TREATMENT PLANT

The Groundwater Treatment Plant (GWTP) was constructed as part of the Interim Remedial Action (IRA) at Burning Ground Number (No.) 3, also referred to as Longhorn Army Ammunition Plant (LHAAP)-18/24, to treat groundwater extracted from interception-collection trenches (ICTs) and extraction wells. **Figure A-1** located in **Appendix A** presents the layout of the ICTs and extraction wells at LHAAP-18/24. The groundwater contamination at LHAAP-18/24 likely resulted from infiltration from an Unlined Evaporation Pond (UEP) that was used to store manufacturing wastewater, and from burning trenches, and other industrial processes used to flash pyrotechnic, propellant, and explosive waste streams. The groundwater at LHAAP-18/24 is contaminated mainly with chlorinated ethenes and perchlorate, with lesser concentrations of 1,4-dioxane.

The GWTP also receives flow from eight extraction wells installed at LHAAP-16 as part of a historical treatability study. The extraction wells were installed in 1996 and 1997. The wells are located between the landfill at LHAAP-16 and Harrison Bayou. The groundwater at LHAAP-16 is also contaminated mainly with chlorinated ethenes and perchlorate.

1.1 Treatment Configuration

The process flow diagram for the GWTP is presented in **Appendix A, Figure A-2**. The GWTP was not operational between May 24, 2012, and September 6, 2012, due to malfunction of the scrubber unit associated with the catalytic oxidizer. Since September 6, 2012, the GWTP has operated without air abatement equipment. Although major repairs were conducted on the GWTP (e.g., replacement of level alarms, repair of the hydrochloric acid [HCl] tank, replacement of TK-650, replacement of malfunctioning valves and flow meters, replacement of metering pumps, repair or replacement of various system pumps, rust removal and repainting of various tanks, and replacement and repair of various extraction pumps, motors, and level switches), the GWTP treatment configuration has remained unchanged.

Malfunction of the blower on the air stripper (BL-340) on September 14, 2015, and on September 17, 2015, disrupted continuous extraction and routine operations of the GWTP, which lasted through January 7, 2016. Prior to this occurrence, the GWTP performed as designed and the GWTP was operated on an as needed basis (i.e., on semi-continuous operational basis). During the 4th quarter of 2015, groundwater was extracted from a limited number of ICTs (ICTs 12E, 13A, 13B, 13C, and/or 13E, or ICTs 14B, 14C, and 14D). Operation of the GWTP occurred on a batch basis through the fluidized bed reactor (FBR). After replacement of the blower, attempts were made to restore continuous operations to the FBR but remained predominantly on a batch basis throughout January 2016.

In December 2016, a HCl spill caused plant operations to shut down until the issue could be properly addressed. The FBR performance was challenged by the increased chlorides in the

neutralized wastewater, but performance gradually returned to normal in the 1st quarter of 2017. Groundwater extraction was gradually increased to full rates during the 2nd quarter of 2017.

On August 12, 2017, severe storms caused a power outage at LHAAP-18/24. When electrical service was restored, the main transformer failed due to a manufacturing defect. A portable emergency generator was brought on-site on August 21, 2017, to allow the FBR to operate in full recycle mode. After a replacement transformer was installed on September 12, 2017, extraction began from ICT-13B, 13C, 13D, 13E, 13F, 7, and EW01 and the FBR was put into normal operation. Beginning on September 21, 2017, groundwater was extracted from all of the ICTs.

Flow rates for the treatment processes for metals and Volatile Organic Compounds (VOCs) ranged between 126 and 251 gallons per minute (gpm) with an average of approximately 210 gpm for the operating hours (i.e., this flow rate does not represent continuous flows). The GWTP operated for 133.25 hours during the quarter. The treatment configuration of the plant at these rates (with minor variations) is as follows:

GWTP Metals Precipitation Operating Parameters

Pretreatment Settings	Tank 200-A $Mg(OH)_2$ Mixing	Tank 200-B NaOH Mixing	Tank 200-C Polymer Mixing	Tank 300 feed line to Air Stripper
pH Adjustment	9.0	10.5	NA	5.0 to meet ≤ 8.0 release from stripper
Feed Pump Settings	Speed 100% Stroke 100% 10 gph $Mg(OH)_2$	Speed 100% Stroke 100% 9.0 gph NaOH	Speed 90% Stroke 100% 40 gph water	Speed 80% Stroke 80% 10 gph HCl
Notes: gph - gallons per hour, NaOH - sodium hydroxide, $Mg(OH)_2$ - magnesium hydroxide, NA - not applicable				

GWTP Air Compressors Operating Parameters

Air Compressors	K-700A	K-700B	K-701
Air Pressure Settings	88 psi	88 psi	105 psi
Note: psi - pounds per square inch			

GWTP Stripper Operating Parameters

Stripper Tower	
pH Setting	7.4
Inlet Pressure Gauge	Not operational
Stripper Pressure Gauge	Not operational
Air Flow Rate	Not operational

GWTP Fluidized Bed Reactor Operating Parameters

Fluidized Bed Reactor	
Carbon Bed Height	12 feet & 8 to 11 inches
Recycle Flow Rate	200 gpm
pH	7.1 to 7.4
Recycle oxidation-reduction potential (ORP)	-430 mV to -452 mV
Note: mV - millivolts	

1.2 Work Performed at the GWTP

Work performed at the GWTP during the 4th quarter of 2017 is described in the following subsections.

1.2.1 Major Maintenance

The major maintenance items that were completed at the GWTP during this quarterly reporting period are:

- 11/19/17: The K-701 air compressor went down due to broken belts and broken fan blades. The fan blade and belts were replaced and air compressor was restarted
- 12/6/17: Cass County Equipment was on site to return the tractor after repairs
- 12/6/17: Tri-State Electrical was on site to wire in the new electric motor on the air compressor at Site 16 pump house
- 12/11/17: Tri-State Electrical was on site to trouble shoot and restore power to potable water pump house
- 12/20/17: Tri-State Electrical was on site to replace electrical boxes and wiring at potable water pump house

1.2.2 Routine Maintenance

The following routine maintenance items were completed at the GWTP during this quarterly reporting period:

- Performed housekeeping in GWTP office
- Performed housekeeping in Army trailer
- Performed housekeeping around GWTP and containment area
- Performed housekeeping in GWTP Shop

- Repaired broken 1-inch coupling on potable water line in GWTP
- Fabricated foil back foam board enclosure for FBR chemical pumps for freeze protection
- Insulated all exposed piping in GWTP
- P-320 went down, pump was removed and taken to repair shop, repaired, then installed back in place
- Mowed grass around GWTP
- Fabricated and installed new 4-inch polyvinyl chloride (PVC) piping on suction side of P-320 to replace broken piping
- Washed down floor of GWTP
- Triple rinsed empty acetic acid drums and placed in storage location
- Worked on extracting broken ½-inch pipe from 4-inch bleed ring on discharge of P-320
- Installed new 4-inch bleed ring in discharge line of P-320
- Cut-up and moved fallen trees from roadway leading to GWTP

1.2.2.1 Safety

No safety training or events occurred during the reporting period.

1.2.2.2 Lubrication

No lubrication maintenance was conducted during the reporting period.

1.2.2.3 Air Compressors

A new motor for the air compressor was installed at LHAAP-16.

1.2.2.4 Belt Press and Waste Disposal

No belt press or waste disposal was conducted during the reporting period.

1.2.2.5 Catalytic Oxidation and Continuous Emission Monitor System

The catalytic oxidizer was not operated during the reporting period.

1.2.2.6 Sand Filter

No maintenance or repairs were conducted on the sand filter during the reporting period.

1.2.2.7 Well Field at LHAAP-18/24

- Collect monthly flowmeter readings
- Collect monthly water levels
- Cleaned and replace level probes on ICTs 14C and 14D
- New high level probe was installed on ICT 14A
- Insulated piping on all ICT wells
- Cleaned and replace level probes on ICT 14C
- Completed sampling of monitoring wells at Site 18/24
- Bush-hogged and trimmed grass with a weed eater around monitoring wells at Site 18/24

1.2.2.8 Miscellaneous Activities

- Bhate logo was installed on all directional signs and on sign at entrance gate
- Cut-up and moved fallen trees from roadway between Site 16 and INF Pond

1.2.3 Routine Maintenance at LHAAP-16

- Check site daily
- Collected monthly water levels
- New electric motor was replaced on air compressor
- Installed new pulley on electric motor on air compressor
- Electric motor on air compressor broke off of the base plate, used clamps to secure motor to base plate

1.2.4 Routine Maintenance (Potable Water Wells)

- Flush potable water lines
- Added chlorine tablets to potable water well # 1
- Repaired broken 1 ¼-inch piping at potable water pump house

1.3 Filter Cake Operations and Management

No filter cake operations took place during this reporting period.

1.4 Fluidized Bed Reactor Operations

The combined FBR and ion exchange system operated well during the 4th quarter of 2017 with no exceedances of the perchlorate discharge criteria. The FBR and ion exchange system discharged continuously to the INF Pond. During the quarter, the ORP ranged between -493 and -561 mV, and the pH ranged between 6.7 and 7.5 standard units. The average perchlorate concentration in the GWTP influent during the 4th quarter of 2017 was 7,533 micrograms per liter (µg/L).

1.5 Process Chemical Usage at GWTP

Approximate chemical consumption and the quantity delivered during the 4th quarter of 2017 are shown in **Table 1-1**.

Table 1-1. Process Chemicals Delivered and Used

Chemical	Usage 4th Quarter 2017	Quantity Delivered 4th Quarter 2017
Hydrochloric acid	515 gallons	0
Sodium hydroxide (35%)	730 gallons	0
Acetic acid (50%)	7 1/2 drums = 410 gallons	20 drums = 1,100 pounds
Phosphoric acid (75%)	53.1 liters	0
Magnesium hydroxide	275 gallons	0
Urea	408.7 pounds	0
Polymer (magnafloc 110-L)	9.3 liters	0

2 EVALUATION OF LHAAP-18/24 ICT EFFECTIVENESS

The ICT system at Burning Ground No. 3 is composed of 14 sections ranging in length from 100 feet (ft) to 1,300 ft. A total of approximately 5,000 linear ft of trench was installed within and around three sides of Burning Ground No. 3. The trench sections extend approximately 22 ft to 45 ft below ground surface (bgs). Most, but not all of the trenches are as deep as the confining clay layer of the shallow groundwater zone. High density polyethylene (HDPE) liners were installed in ICTs 12 and 13, located on the western and northern boundaries of LHAAP-18/24, respectively. The locations of the liners are shown on **Figure A-1** in **Appendix A**. **Table A-1** in **Appendix A** presents the depths of the ICTs.

2.1 Sampling Activities

Water levels from 95 monitoring wells and 11 piezometers (piezometer 12 was damaged and plugged and abandoned in May 2013) are measured monthly to generate potentiometric surface maps that assist in monitoring the effectiveness of the groundwater extraction system on plume containment. The groundwater contours are generated using the water levels from the shallow zone and Wilcox Formation wells. The water level data are presented in **Table 2-1**. No reinjection of treated groundwater or reapplication to LHAAP-18/24 grounds via the existing irrigation system occurred during the 4th quarter of 2017. Potentiometric surface maps are presented in **Appendix B** and groundwater elevations from the 4th quarter of 2017 are discussed in Section 2.2.

The following 52 monitoring wells were sampled in December 2017; 109, 120, 123, 126, 18CPTMW01SW, 18CPTMW03SW, 18CPTMW04, 18CPTMW04SW, 18CPTMW06, 18CPTMW07, 18CPTMW08DW, 18CPTMW08SW, 18CPTMW10SW, 18CPTMW10DW, 18CPTMW12SW, 18CPTMW12DW, 18CPTMW14, 18CPTMW15, 18CPTMW16, 18CPTMW18, 18CPTMW19, 18CPTMW22R, 18CPTMW22SW, 18CPTMW23, 18CPTMW24, 18WW02, 18WW06, 18WW08, 18WW17, 18WW22, 18WW24, 18WW25, AWD3, CO3, CO8, C09, MW2, MW3, MW5, MW7, MW8, MW9, MW10, MW14, MW16, MW17, MW18, MW19, MW20, MW21, MW22, and MW23. Monitoring well MW-125 was dry at the time of sampling. Note that well 18WW17 is an extraction well; therefore, no water level data was collected. This well was originally sampled because the extraction pump was down for a period of time so the Army decided to use the well to evaluate perchlorate and VOCs presented. This extraction well will not be sampled for offsite laboratory analysis going forward. However, the analytical results from the December 2017 sampling event will be used to develop the shallow isoconcentration maps in future quarterly evaluation reports. The analytical results are presented in **Table 2-2**. Parameters exceeding their respective United States Environmental Protection Agency (USEPA) Maximum Contaminant Levels (MCL) or Texas Risk Reduction Program Groundwater Industrial Medium Specific Concentration (MSC) are arsenic; barium; chromium; nickel; carbon tetrachloride; 1,1-dichloroethene; 1,2-dichloroethane; 1,1,2-trichloroethane; benzene; cis-1,2-dichloroethene; methylene chloride (MC); trichloroethene (TCE); and vinyl chloride. Perchlorate was compared

to the Texas Risk Reduction Program Protective Concentration Level (PCL) of 17 µg/L, which was exceeded at LHAAP-18/24.

2.2 Performance of Plume Capture

The intent of the ICTs is to control groundwater gradients, prevent off-site migration of contaminated groundwater, extract the most highly contaminated groundwater, and reduce the mass of contaminants in groundwater. Liners were installed in the ICTs on the northern (ICT 13) and western (ICT 12) site boundaries to limit migration of contaminated water from the site towards Harrison Bayou. At the same time, the liners reduce or prevent removal of contaminated groundwater that is outside the containment zone, between the site and Harrison Bayou. The ICTs are installed within the shallow subsurface at the site and capture primarily shallow groundwater (e.g., < 40 ft bgs).

In 2007 and 2008, in consultation with the Texas Commission on Environmental Quality (TCEQ) and the USEPA, the Army ceased operations of ICTs 1, 3, 5, 10, and 12A for groundwater extraction (note that extraction from ICT 12A was resumed after pump replacement in December 2012). Two other ICTs (ICT 6 and ICT 9) were changed from extraction ICTs to re-injection ICTs. Groundwater extraction from well EW-1 located in the northeast central portion of the site began in October 2008 and well 18WW17 located to the northeast of the ICT containment area began in January 2008. **Table B-1** in **Appendix B** presents a summary of extraction equipment replacement since 2011, as dictated by poor extraction performance (malfunctioning pumps, poor pump positioning with respect to groundwater, non-operational level probes, scale build up, etc.). Further discussion of extraction performance of various ICTs and extraction wells is presented in Section 2.3.

Potentiometric surface maps of the shallow zone groundwater in the vicinity of LHAAP-18/24, based on groundwater elevations measured on 30 October, 30 November, and 28 December 2017 are shown on **Figures B-1, B-2, and B-3 in Appendix B**, respectively.

The potentiometric surface maps of the shallow zone were contoured using the Kriging geostatistical interpolation method included in the Golden Software Surfer® data analysis software. The HDPE liners in the ICTs, where present, were interpreted as groundwater flow barriers. The potentiometric surface maps for October, November, and December 2017 continue to reflect high groundwater elevations in the northern/northwestern portion of the site with groundwater flow occurring radially from groundwater highs at monitoring well 18CPTMW04 (171.10 ft above mean sea level [amsl] in October 2017), monitoring wells 18CPTMW04 and AWD-1 (170.97 ft amsl in November 2017), and monitoring well MW-23 (171.88 ft amsl in December 2017) inside the ICT containment area.

The elevated potentiometric surface contours within the ICTs compared to the lower potentiometric surface contours on the outside of the ICTs is likely due to a no flow boundary condition caused by the ICT liners and groundwater extraction along the ICTs. From the

groundwater highs at monitoring wells 18CPTMW04, AWD-1, and MW-23, groundwater flows radially towards the surrounding ICTs which include ICT 13 to the north and northwest, and ICT 12 to the west and southwest. East of the groundwater mound and in the northeastern third of the site, groundwater flow is primarily towards ICT 14 along the northeast site boundary.

Groundwater extraction rates from the ICTs were 626,122 gallons in October 2017, 485,000 gallons in November 2017, and 532,529 gallons in December 2017. Rainfall amounts recorded at the GWTP were 1.89 inches in October 2017, 0.8 inches in November 2017, and 3.89 inches in December 2017.

During the reporting period, approximately 651,434 gallons of treated groundwater was discharged to Harrison Bayou. Treated water discharged to the Harrison Bayou was all from the INF pond because the butterfly valve used to discharge treated water from the GWTP was ceased up. Due to the rusting and age of the valve, a replacement valve was installed on January 26, 2018. No treated groundwater from the GWTP was returned to LHAAP-18/24 via the sprinkler system. Overall groundwater levels decreased throughout the 4th quarter of 2017 with an average shallow zone groundwater elevation decline of 1.24 ft.

Groundwater levels in Wilcox Formation wells (generally > 40 to 50 ft bgs) were measured during the 4th quarter of 2017 groundwater gauging events. Wilcox Formation wells correspond generally to those wells previously identified as "Intermediate" and "Deep" wells. "Intermediate" wells are designated as Upper Wilcox Formation wells and "Deep" wells are designated as Lower Wilcox Formation wells. Generally, groundwater in the Upper and Lower Wilcox Formation wells are in hydraulic communication and so can be treated as a single hydrogeologic unit. Therefore, the groundwater elevations in Upper Wilcox wells were used to construct the potentiometric surface maps for the Wilcox Formation. **Figures B-4, B-5, and B-6** of **Appendix B** show the locations of the Wilcox Formation monitoring wells and the potentiometric surface of the Wilcox Formation, based on static water levels measured during the October, November and December 2017 gauging events, respectively. Groundwater in the Wilcox Formation generally flows in a northerly direction, towards Caddo Lake and there is a downward vertical gradient between the overlying shallow zone and the Wilcox Formation. However, a groundwater high in the Wilcox Formation occurs in the area of MW-14.

Periodic sampling was conducted between December 5 and December 21, 2017, as presented in **Table 2-2**. Groundwater chemical of concern (COC) maps depicting the results of the December 2017 groundwater sampling event for perchlorate, TCE, and MC are presented as **Figures C-1 through C-6 in Appendix C**. The time series plots of COC concentrations from various monitoring wells are included in **Appendix D**.

The highest perchlorate concentrations in the shallow zone are observed in 18WW17, MW-3, MW-5, MW-7, MW-21, MW-23, 109, and 120 with concentrations in these wells ranging between 15,000 µg/L in MW-3 and MW-7 and 73,000 µg/L in MW23 (**Figure C-1**). Perchlorate in groundwater has migrated off-site in all directions. The perchlorate concentration in

18CPTMW23 was reported at 140 µg/L in December 2017 compared to the concentration of 3,220 µg/L in June 2017, 91.3 µg/L in December 2016, and 2,310 µg/L in June 2016. This well has a history of order of magnitude fluctuations in perchlorate concentrations, which are likely influenced by groundwater level fluctuations, rain amounts, and performance of the ICTs. Perchlorate in the Wilcox Formation was detected in monitoring well 18CPTMW08SW in December 2017 at a concentration of 31,000 µg/L (**Figure C-2**), which is in the same order of magnitude as the concentration reported in December 2016 and June 2017 of 33,300 and 32,900 µg/L, respectively. Perchlorate concentration decreases rapidly away from this well. Another area where perchlorate in the Wilcox Formation was identified at an elevated concentration is in MW-14, with a reported concentration of 150,000 µg/L in December 2017 as compared to 84,200 µg/L in December 2016 and 137,000 µg/L in June 2017. Monitoring well 18CPTMW22SW also contained an elevated concentration of perchlorate with 6,900 µg/L in December 2017 as compared to 10,400 µg/L in June 2017. **Figure C-2** presents the concentrations of perchlorate in the Wilcox Formation.

TCE concentrations in the shallow zone remained consistent in December 2017 with the concentrations reported in June 2017 with the following exceptions. The most significant decrease in TCE detected in December 2017 was within MW2 where the June 2017 detection of 15,300 µg/L decreased to 2,600 µg/L in December 2017. TCE decreased from 4,060 µg/L to 2,000 µg/L in 18CPTMW23 from June 2017 to December 2017. TCE also decreased in MW-16 from a detection of 695 µg/L in June 2017 to 300 µg/L in December 2017. TCE in AWD-3 increased from 122 µg/L in June 2017 to 470 µg/L in December 2017. MW-9 had a slight increase in TCE from 661 µg/L in June 2017 to 930 µg/L in December 2017. In addition, TCE increased in MW-23 from 1,950 µg/L in June 2017 to 3,300 µg/L in December 2017. The trend of TCE concentrations is such that the highest concentrations occur within the northwestern portion of the site, primarily at monitoring well 120 (**Figure C-3**).

TCE in the Wilcox Formation is present at low concentrations with the highest concentration of 13,000 µg/L identified in MW-14. This concentration has increased from a concentration of 6,630 µg/L in December 2016 and 8,260 µg/L. A concentration of 90 µg/L was reported in 18CPTMW01SW in December 2017 which is an increase from the detection of 34.8 µg/L in June 2017 but similar to the concentration detected at 78 µg/L in December 2016. The concentration of TCE in this well is still below the concentration measured in December 2015 (368 µg/L). Overall, the TCE detected in the Wilcox Formation is much lower than in the shallow zone with the exception of the TCE detected at MW-14 (**Figure C-4**).

The elevated concentration of MC in the shallow zone remains generally centered on MW-2 with a concentration of 140,000 µg/L detected in December 2017, which is back within the range detected in December 2016 after an increase to 604,000 µg/L measured in June 2017. No other monitoring wells had detections of MC in the shallow zone. The extent of MC in the shallow formation is depicted on **Figure C-5**.

MC in the Wilcox Formation is present at a concentration of 1,500 µg/L identified in 18CPTMW01SW which is similar to the concentration reported in December 2016 of 1,590 µg/L but more than the June 2017 detection of 913 µg/L. MC was present in MW-14 at a concentration of 11 µg/L in the primary sample in December 2017 as compared to 216 µg/L in June 2017 and to <25 µg/L in December 2016. The extent of MC in the Wilcox Formation is depicted on **Figure C-6**.

Time-series graphs for the shallow zone and Wilcox Formation wells are presented in **Appendix D**. Graphs for shallow zone wells, C-08, MW-02, MW-07, MW-08, MW-16, MW-17, MW-20, MW-21, MW-22, MW-23, 18WW08, 109, 120, 126, and AWD-3 are included. Graphs for Wilcox wells C-03 and MW-14 are also included. The following observations were made, based on the December 2017 groundwater monitoring results:

- MW-02 is located inside the containment in the shallow zone. The concentration of MC increased sharply from June 2016 and December 2016; however, a sharp decrease was observed during the same time period in 2017. MC concentrations decreased from 604,000 µg/L in June 2017 to 140,000 in December 2017. Similarly, the TCE decreased significantly from 15,300 µg/L in June 2017 to 2,600 µg/L in December 2017. The concentration of perchlorate also significantly decreased from 4,830 µg/L in June 2017 to 160 µg/L in December 2017. Previous similar fluctuations in MC, TCE, and perchlorate concentrations have been observed in this well. ·
- Perchlorate and TCE concentrations in MW-21 remained similar to previous results in June 2016 and June 2017.
- Concentrations of TCE and MC in MW-22 inside the containment in the shallow zone remained similar to previous results in December 2016 and June 2017. However, perchlorate reduced to its lowest detection value of 40 µg/L from greater than 200 µg/L in prior sampling events at MW-22.
- Perchlorate and TCE concentrations in MW-23 remained similar to previous results in December 2016 and June 2017.
- Perchlorate and TCE concentrations in monitoring well 120 increased from June 2017 but remained within historical levels and are comparable to the detections of these same analytes during the December 2016 sampling event.
- MC and perchlorate remained below the detection limits in samples from C-08, to the northeast of the containment area. TCE continued the decreasing trend from 5.61 µg/L in June 2016 to 2.18 µg/L in December 2016 and then 1.57 µg/L in June 2017 and 0.7 µg/L in December 2017.
- The other northeastern well, 109, had similar detections of perchlorate to that of December 2016, which is a significant increase from 265 µg/L in June 2017.

- Wells to the southwest of the containment area include MW-07, MW-08, and MW-17. MW-07 exhibited decreases in perchlorate and TCE as compared to the June 2017 results, but are similar to the detections of perchlorate and TCE from December 2016. A continued decreasing perchlorate trend was observed in MW-08 since March 2012. However, the perchlorate concentration in MW-08 remained stable with a detection of 5,500 µg/L in December 2017 compared to 5,320 µg/L in June 2017. The concentration of TCE remained stable in December 2017 at MW-08. The perchlorate concentration in MW-17 remained below the detection limit in December 2017.
- The concentration of TCE in MW-16 in December 2017 (300 µg/L) decreased from the June 2017 detection (695 µg/L) but was slightly higher than the TCE detected in March 2017 (224 µg/L). MC and perchlorate remained below the detection limit.
- Perchlorate was detected at significantly higher levels than in recent years in AWD-3 with a detection of 8,800 J (estimated concentration) µg/L. TCE also increased but was within historic levels.
- Concentrations of perchlorate increased back to the same levels detected in December 2016 in 18WW08 with a detection of 2,400 µg/L in December 2017. This is a sharp increase from the March and June 2017 perchlorate detections of 7.72 µg/L and 16.6 µg/L, respectively. An evaluation was conducted to determine the cause of high perchlorate concentrations in December 2016 in 18WW08. Based on the evaluation, the disruption in the GWTP or the effect of perchlorate concentrations in the upgradient wells AWD-4 and 18CPTMW-15 on 18WW08 was eliminated. The fluctuation in groundwater elevation in well 18WW08 was compared to the fluctuations in the perchlorate concentrations in this well. It was determined that there were instances where the perchlorate concentrations increased in the wells with a corresponding decrease in groundwater elevations.
- C-03 is a Wilcox Formation well located northeast of the containment area, which has remained non-detect for TCE and MC since December 2014. Perchlorate continued to increase in C-03 with a detection of 170 µg/L from 35.6 µg/L in December 2016 and 72 µg/L in June 2017.
- Concentrations of TCE and perchlorate in Wilcox Formation well MW-14 continued to increase in the December 2017 groundwater sampling event. The concentrations began increasing after May 2006, with December 2017 concentrations of 13,000 µg/L and 150,000 µg/L for TCE and perchlorate, respectively, as compared to 6,630 µg/L and 84,200 µg/L in December 2016, respectively. The MC concentration decreased to 11 µg/L in December 2017 from 216 µg/L in June 2017, but MC was below the detection limit in December 2016 for comparison.
- Monitoring wells MW-20 and 126 continue to have no or low level detections of MC, TCE, and perchlorate. These wells should be considered for removal from the monitoring program.

In general, other than the changes observed above in perchlorate, TCE, and MC concentrations, the COC concentration trends indicate that the plumes are stable, suggesting that the extraction system is effective in containing the plumes.

2.3 Quantity of Water Extracted from LHAAP-18/24

The average daily extraction rates from the ICTs were 20,197 gallons per day (gpd) in October 2017, approximately 16,167 gpd in November 2017, and approximately 17,178 gpd in December 2017. Drought conditions reduced the amount of water extracted from LHAAP-18/24 during the fourth quarter.

The volume of groundwater removed from LHAAP-18/24 during the 4th Quarter 2017 measured approximately 1,643,651 gallons, based on total flow measured at the GWTP headwork and as presented in **Table 2-1**. LHAAP-16 contributed 69,841 gallons to the GWTP. Together approximately 1,713,492 gallons was extracted from both LHAAP-16 and LHAAP-18/24. **Figure 2-1** shows the historical trends of extracted volumes by quarter.

In contrast to the approximate total extracted volume based on total flow measured at the GWTP, the total estimated volume discharged to the INF pond following treatment by the GWTPwas approximately 1,339,418 gallons. The difference is approximately 18%, with flow volumes measured at the headwork of the GWTP considered more representative of the extracted groundwater volume due to inaccuracies in the individual flow meter readings.

As indicated by **Table 2-3**, 23 of 28 ICTs produced water during the 4th quarter of 2017.

2.4 Groundwater Treatment Plant Sampling and Analysis

As part of the GWTP operations, samples from various water streams are required to be collected and analyzed for the parameters cited in the Interim Record of Decision (ROD) and the TCEQ letter dated January 8, 2002. Besides the ROD sampling requirement, additional sample analyses are typically performed on the influent and effluent samples to monitor the effectiveness of the FBR process. Sections 2.4.1 through 2.4.4 present the results of analyses conducted during the 4th quarter of 2017. The complete laboratory results are provided on a compact disk (CD) (**Appendix E**).

2.4.1 Perchlorate Sampling

Table 2-4 presents the effluent perchlorate results for the 4th quarter of 2017. All perchlorate concentrations in the effluent (TK-650) were lower than the daily maximum concentration discharge limit of 589 µg/L. Treated groundwater from the GWTP was discharged to Harrison Bayou during the current quarter when effluent perchlorate concentrations were less than the daily maximum concentration of 589 µg/L, and adequate flow in the bayou was observed.

Four grab samples from the influent to the GWTP (TK-140) were collected. The perchlorate concentrations in these samples ranged from 4,800 to 9,800 µg/L.

2.4.2 VOC Sampling

Tables 2-5 through 2-7 present the effluent VOC results for October, November, and December 2017. Sampling of the effluent for VOCs was conducted on a biweekly basis beginning on October 5, 2017. The results, where applicable, were below the discharge limits. The tables also provide monthly influent concentrations for VOCs and perchlorate.

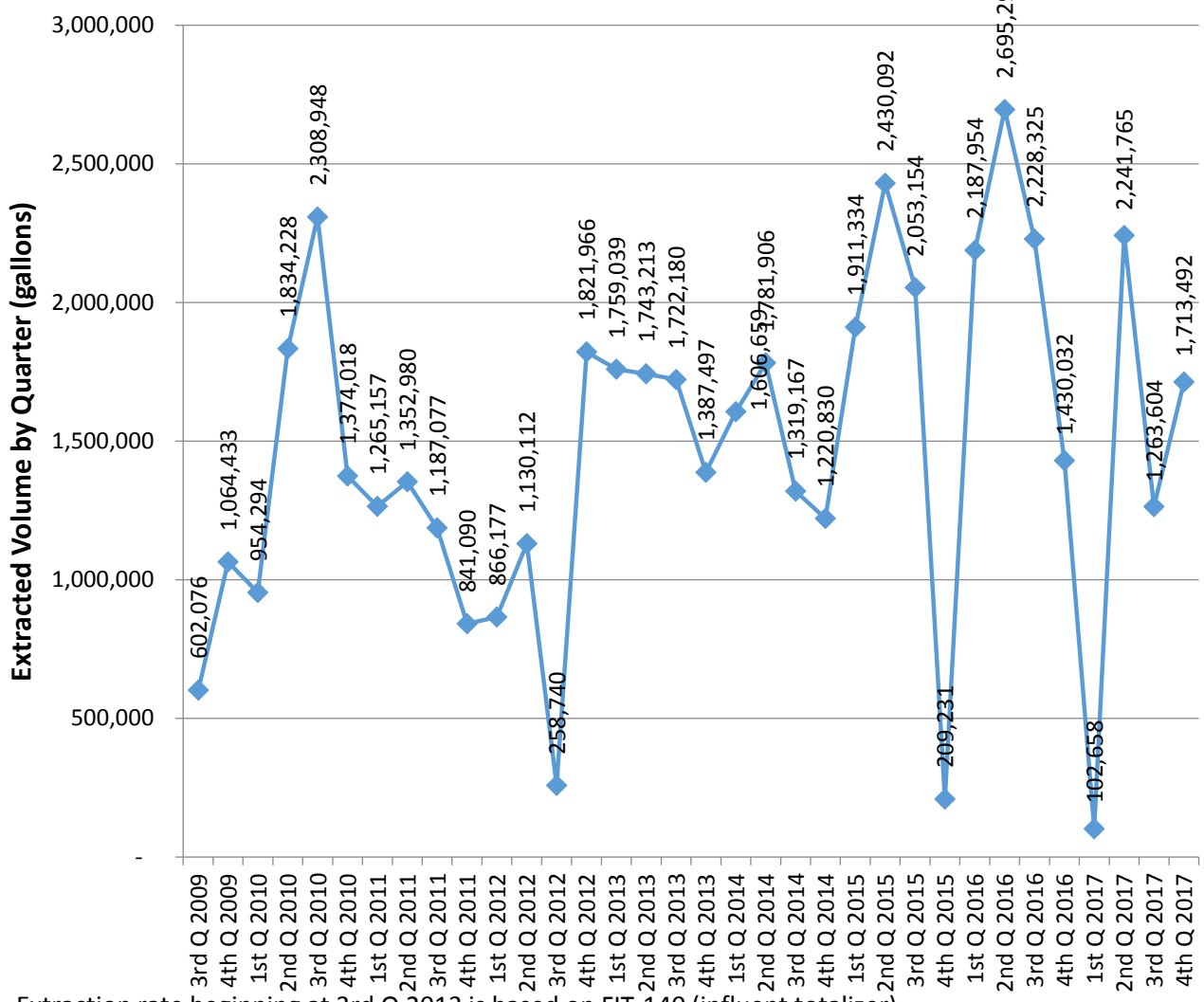
2.4.3 Monthly Metals Sampling

As per the Final Installation-Wide Work Plan (AECOM, July 2014), the monthly metals sampling is reported in **Tables 2-5 through 2-7**. None of the metals exceeded the effluent discharge limits.

2.4.4 Quarterly Sampling

Sampling of the effluent for VOCs, anions, chemical oxygen demand (COD), oil and grease, perchlorate, and metals was conducted during this quarter and the results were below the discharge limits. **Table 2-8** presents the analytical results for the 4th quarter of 2017.

Figure 2-1
Quarterly Extraction Rate



Extraction rate beginning at 3rd Q 2013 is based on FIT-140 (influent totalizer)

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Table 2-1: Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

PIEZOMETER LEVELS

Piezometers	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
BGPZ-1	10/30/2017	184.99	12.61	172.38
BGPZ-2	10/30/2017	184.39	17.22	167.17
BGPZ-3	10/30/2017	180.35	13.53	166.82
BGPZ-4	10/30/2017	177.77	11.40	166.37
BGPZ-5	10/30/2017	180.76	13.84	166.92
BGPZ-6	10/30/2017	197.82	29.23	168.59
BGPZ-7	10/30/2017	195.96	28.31	167.65
BGPZ-8	10/30/2017	197.08	30.16	166.92
BGPZ-9	10/30/2017	196.45	27.83	168.62
BGPZ-10	10/30/2017	197.00	27.71	169.29
BGPZ-11	10/30/2017	196.99	27.78	169.21
BGPZ-12	10/30/2017	188.17	NA	Plugged

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
AWD-1	10/30/2017	182.27	11.21	171.06
AWD-2	10/30/2017	186.78	16.22	170.56
AWD-3	10/30/2017	200.13	29.18	170.95
AWD-4	10/30/2017	193.89	25.26	168.63
MW-1	10/30/2017	199.22	28.30	170.92
MW-2	10/30/2017	196.73	27.84	168.89
MW-3	10/30/2017	196.54	28.18	168.36
MW-4	10/30/2017	197.27	27.75	169.52
MW-5	10/30/2017	194.97	26.93	168.04
MW-6	10/30/2017	192.18	24.31	167.87
MW-7	10/30/2017	188.47	20.21	168.26
MW-8	10/30/2017	187.13	18.87	168.26
MW-9	10/30/2017	184.73	15.75	168.98
MW-10	10/30/2017	178.12	10.58	167.54
MW-11	10/30/2017	184.65	17.52	167.13
MW-12	10/30/2017	178.33	10.85	167.48
MW-13	10/30/2017	176.72	9.16	167.56
MW-14	10/30/2017	186.19	15.19	171.00
MW-16	10/30/2017	178.59	11.46	167.13
MW-17	10/30/2017	179.03	11.48	167.55
MW-18	10/30/2017	178.58	10.41	168.17
MW-19	10/30/2017	178.60	10.36	168.24
MW-20	10/30/2017	186.64	12.61	174.03
MW-21	10/30/2017	198.70	31.96	166.74
MW-22	10/30/2017	197.51	28.04	169.47
MW-23	10/30/2017	198.79	28.38	170.41
101	10/30/2017	197.53	12.08	185.45
102	10/30/2017	193.94	23.27	170.67
109	10/30/2017	197.02	29.16	167.86
120	10/30/2017	184.19	14.02	170.17
123	10/30/2017	186.21	15.30	170.91

Table 2-1: Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
125	10/30/2017	196.28	26.70	169.58
126	10/30/2017	199.37	29.82	169.55
129	10/30/2017	197.24	27.05	170.19
130	10/30/2017	177.73	9.03	168.70
C-01	10/30/2017	193.89	25.07	168.82
C-02	10/30/2017	175.95	8.11	167.84
C-03	10/30/2017	196.34	28.42	167.92
C-04	10/30/2017	194.64	27.05	167.59
C-04A	10/30/2017	194.61	27.25	167.36
C-05	10/30/2017	180.74	15.27	165.47
C-06	10/30/2017	192.22	27.45	164.77
C-07	10/30/2017	196.80	28.61	168.19
C-08	10/30/2017	193.10	24.50	168.60
C-09	10/30/2017	202.35	33.47	168.88
C-10	10/30/2017	201.86	32.63	169.23
17WW08	10/30/2017	179.72	11.50	168.22
18WW01	10/30/2017	201.31	31.68	169.63
18WW02	10/30/2017	179.30	11.10	168.20
18WW03	10/30/2017	195.59	27.72	167.87
18WW04	10/30/2017	183.74	18.71	165.03
18WW05	10/30/2017	189.59	25.32	164.27
18WW06	10/30/2017	179.70	12.21	167.49
18WW07	10/30/2017	183.67	8.75	174.92
18WW08	10/30/2017	177.77	12.70	165.07
18WW09	10/30/2017	177.51	10.57	166.94
18WW10	10/30/2017	182.26	15.37	166.89
18WW11	10/30/2017	182.29	15.18	167.11
18WW14	10/30/2017	186.47	18.93	167.54
18WW15	10/30/2017	186.24	18.58	167.66
18WW16	10/30/2017	201.88	32.15	169.73
18WW18	10/30/2017	196.82	29.16	167.66
18WW19	10/30/2017	179.56	13.64	165.92
18WW20	10/30/2017	180.42	14.46	165.96
18WW21	10/30/2017	195.20	28.08	167.12
18WW22	10/30/2017	195.37	27.91	167.46
18WW24	10/30/2017	176.40	9.91	166.49
18WW25	10/30/2017	175.15	9.43	165.72
18CPTMW01SW	10/30/2017	198.20	29.42	168.78
18CPTMW01DW	10/30/2017	197.92	29.39	168.53
18CPTMW03SW	10/30/2017	198.53	30.74	167.79
18CPTMW04	10/30/2017	196.60	25.50	171.10
18CPTMW04SW	10/30/2017	196.42	28.72	167.70
18CPTMW06	10/30/2017	198.12	30.27	167.85
18CPTMW07	10/30/2017	197.32	29.53	167.79
18CPTMW08SW	10/30/2017	196.38	28.64	167.74
18CPTMW08DW	10/30/2017	196.59	29.08	167.51
18CPTMW10SW	10/30/2017	186.98	19.17	167.81
18CPTMW10DW	10/30/2017	187.38	19.88	167.50

Table 2-1: Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
18CPTMW12SW	10/30/2017	190.90	22.91	167.99
18CPTMW12DW	10/30/2017	190.25	22.34	167.91
18CPTMW14	10/30/2017	196.69	27.61	169.08
18CPTMW15	10/30/2017	179.79	12.98	166.81
18CPTMW16	10/30/2017	175.37	9.19	166.18
18CPTMW18	10/30/2017	194.53	27.76	166.77
18CPTMW19	10/30/2017	193.59	25.33	168.26
18CPTMW19SW	10/30/2017	193.29	25.97	167.32
18CPTMW22SW	10/30/2017	187.79	19.80	167.99
18CPTMW22R	10/30/2017	187.23	12.77	174.46
18CPTMW22DW	10/30/2017	188.00	19.67	168.33
18CPTMW23	10/30/2017	177.47	10.62	166.85
18CPTMW23SW	10/30/2017	177.43	10.04	167.39
18CPTMW24	10/30/2017	194.89	26.91	167.98
18CPTMW26	10/30/2017	182.60	16.79	165.81
18CPTMW26SW	10/30/2017	182.00	13.79	168.21

SURFACE WATER LEVELS

Harrison Bayou	Date	Reference Elevation (feet amsl)	Staff Reading (water depth) (feet)	Surface Water Elevation (feet amsl)
1824HBSW7	10/30/2017	167.92	0.10	168.02

PIEZOMETER LEVELS

Piezometers	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
BGPZ-1	11/30/2017	184.99	12.75	172.24
BGPZ-2	11/30/2017	184.39	17.33	167.06
BGPZ-3	11/30/2017	180.35	13.65	166.70
BGPZ-4	11/30/2017	177.77	11.53	166.24
BGPZ-5	11/30/2017	180.76	13.90	166.86
BGPZ-6	11/30/2017	197.82	29.35	168.47
BGPZ-7	11/30/2017	195.96	28.44	167.52
BGPZ-8	11/30/2017	197.08	30.29	166.79
BGPZ-9	11/30/2017	196.45	27.95	168.50
BGPZ-10	11/30/2017	197.00	27.84	169.16
BGPZ-11	11/30/2017	196.99	27.90	169.09
BGPZ-12	11/30/2017	188.17	NA	Plugged

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
AWD-1	11/30/2017	182.27	11.30	170.97
AWD-2	11/30/2017	186.78	16.30	170.48
AWD-3	11/30/2017	200.13	29.33	170.80
AWD-4	11/30/2017	193.89	25.38	168.51
MW-1	11/30/2017	199.22	28.41	170.81
MW-2	11/30/2017	196.73	27.93	168.80

Table 2-1: Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
MW-3	11/30/2017	196.54	28.32	168.22
MW-4	11/30/2017	197.27	27.85	169.42
MW-5	11/30/2017	194.97	27.02	167.95
MW-6	11/30/2017	192.18	24.40	167.78
MW-7	11/30/2017	188.47	20.34	168.13
MW-8	11/30/2017	187.13	18.98	168.15
MW-9	11/30/2017	184.73	15.88	168.85
MW-10	11/30/2017	178.12	10.70	167.42
MW-11	11/30/2017	184.65	17.61	167.04
MW-12	11/30/2017	178.33	10.97	167.36
MW-13	11/30/2017	176.72	9.22	167.50
MW-14	11/30/2017	186.19	15.30	170.89
MW-16	11/30/2017	178.59	11.52	167.07
MW-17	11/30/2017	179.03	11.51	167.52
MW-18	11/30/2017	178.58	10.55	168.03
MW-19	11/30/2017	178.60	10.49	168.11
MW-20	11/30/2017	186.64	12.74	173.90
MW-21	11/30/2017	198.70	32.02	166.68
MW-22	11/30/2017	197.51	28.12	169.39
MW-23	11/30/2017	198.79	28.47	170.32
101	11/30/2017	197.53	12.20	185.33
102	11/30/2017	193.94	23.40	170.54
109	11/30/2017	197.02	29.48	167.54
120	11/30/2017	184.19	14.10	170.09
123	11/30/2017	186.21	15.43	170.78
125	11/30/2017	196.28	26.87	169.41
126	11/30/2017	199.37	29.95	169.42
129	11/30/2017	197.24	27.17	170.07
130	11/30/2017	177.73	9.17	168.56
C-01	11/30/2017	193.89	25.20	168.69
C-02	11/30/2017	175.95	8.20	167.75
C-03	11/30/2017	196.34	28.55	167.79
C-04	11/30/2017	194.64	27.18	167.46
C-04A	11/30/2017	194.61	27.47	167.14
C-05	11/30/2017	180.74	15.40	165.34
C-06	11/30/2017	192.22	27.56	164.66
C-07	11/30/2017	196.80	28.70	168.10
C-08	11/30/2017	193.10	24.62	168.48
C-09	11/30/2017	202.35	33.60	168.75
C-10	11/30/2017	201.86	32.74	169.12
17WW08	11/30/2017	179.72	11.64	168.08
18WW01	11/30/2017	201.31	31.80	169.51
18WW02	11/30/2017	179.30	11.23	168.07
18WW03	11/30/2017	195.59	27.85	167.74
18WW04	11/30/2017	183.74	18.84	164.90
18WW05	11/30/2017	189.59	25.40	164.19
18WW06	11/30/2017	179.70	12.35	167.35
18WW07	11/30/2017	183.67	8.87	174.80

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
18WW08	11/30/2017	177.77	12.80	164.97
18WW09	11/30/2017	177.51	10.69	166.82
18WW10	11/30/2017	182.26	15.50	166.76

Table 2-1: Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

18WW11	11/30/2017	182.29	15.31	166.98
18WW14	11/30/2017	186.47	19.02	167.45
18WW15	11/30/2017	186.24	18.70	167.54
18WW16	11/30/2017	201.88	32.20	169.68
18WW18	11/30/2017	196.82	29.28	167.54
18WW19	11/30/2017	179.56	13.70	165.86
18WW20	11/30/2017	180.42	14.59	165.83
18WW21	11/30/2017	195.20	28.20	167.00
18WW22	11/30/2017	195.37	28.02	167.35
18WW24	11/30/2017	176.40	10.03	166.37
18WW25	11/30/2017	175.15	9.55	165.60
18CPTMW01SW	11/30/2017	198.20	29.54	168.66
18CPTMW01DW	11/30/2017	197.92	29.50	168.42
18CPTMW03SW	11/30/2017	198.53	30.85	167.68
18CPTMW04	11/30/2017	196.60	25.63	170.97
18CPTMW04SW	11/30/2017	196.42	28.85	167.57
18CPTMW06	11/30/2017	198.12	30.41	167.71
18CPTMW07	11/30/2017	197.32	29.60	167.72
18CPTMW08SW	11/30/2017	196.38	28.75	167.63
18CPTMW08DW	11/30/2017	196.59	29.22	167.37
18CPTMW10SW	11/30/2017	186.98	19.31	167.67
18CPTMW10DW	11/30/2017	187.38	19.99	167.39
18CPTMW12SW	11/30/2017	190.90	23.04	167.86
18CPTMW12DW	11/30/2017	190.25	22.45	167.80
18CPTMW14	11/30/2017	196.69	27.74	168.95
18CPTMW15	11/30/2017	179.79	13.10	166.69
18CPTMW16	11/30/2017	175.37	9.32	166.05
18CPTMW18	11/30/2017	194.53	27.88	166.65
18CPTMW19	11/30/2017	193.59	25.40	168.19
18CPTMW19SW	11/30/2017	193.29	26.05	167.24
18CPTMW22SW	11/30/2017	187.79	19.92	167.87
18CPTMW22R	11/30/2017	187.23	12.90	174.33
18CPTMW22DW	11/30/2017	188.00	19.79	168.21
18CPTMW23	11/30/2017	177.47	10.74	166.73
18CPTMW23SW	11/30/2017	177.43	10.15	167.28
18CPTMW24	11/30/2017	194.89	27.03	167.86
18CPTMW26	11/30/2017	182.60	16.92	165.68
18CPTMW26SW	11/30/2017	182.00	13.89	168.11

SURFACE WATER LEVELS

Harrison Bayou	Date	Reference Elevation (feet amsl)	Staff Reading (water depth) (feet)	Surface Water Elevation (feet amsl)
1824HBSW7	11/30/2017	167.92	0.00	167.92

Table 2-1: Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

PIEZOMETER LEVELS

Piezometers	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
BGPZ-1	12/28/2017	184.99	12.81	172.18
BGPZ-2	12/28/2017	184.39	17.40	166.99
BGPZ-3	12/28/2017	180.35	13.77	166.58
BGPZ-4	12/28/2017	177.77	11.61	166.16
BGPZ-5	12/28/2017	180.76	13.98	166.78
BGPZ-6	12/28/2017	197.82	29.44	168.38
BGPZ-7	12/28/2017	195.96	28.50	167.46
BGPZ-8	12/28/2017	197.08	30.33	166.75
BGPZ-9	12/28/2017	196.45	28.02	168.43
BGPZ-10	12/28/2017	197.00	27.93	169.07
BGPZ-11	12/28/2017	196.99	27.99	169.00
BGPZ-12	12/28/2017	188.17	NA	Plugged

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
AWD-1	12/28/2017	182.27	11.42	170.85
AWD-2	12/28/2017	186.78	16.39	170.39
AWD-3	12/28/2017	200.13	29.58	170.55
AWD-4	12/28/2017	193.89	25.49	168.40
MW-1	12/28/2017	199.22	28.58	170.64
MW-2	12/28/2017	196.73	28.20	168.53
MW-3	12/28/2017	196.54	28.28	168.26
MW-4	12/28/2017	197.27	27.90	169.37
MW-5	12/28/2017	194.97	27.03	167.94
MW-6	12/28/2017	192.18	24.46	167.72
MW-7	12/28/2017	188.47	20.44	168.03
MW-8	12/28/2017	187.13	19.00	168.13
MW-9	12/28/2017	184.73	16.00	168.73
MW-10	12/28/2017	178.12	10.75	167.37
MW-11	12/28/2017	184.65	17.75	166.90
MW-12	12/28/2017	178.33	11.21	167.12
MW-13	12/28/2017	176.72	9.34	167.38
MW-14	12/28/2017	186.19	15.36	170.83
MW-16	12/28/2017	178.59	10.61	167.98
MW-17	12/28/2017	179.03	11.90	167.13
MW-18	12/28/2017	178.58	10.75	167.83
MW-19	12/28/2017	178.60	10.59	168.01
MW-20	12/28/2017	186.64	12.95	173.69
MW-21	12/28/2017	198.70	32.70	166.00
MW-22	12/28/2017	197.51	28.63	168.88
MW-23	12/28/2017	198.79	26.91	171.88
101	12/28/2017	197.53	12.37	185.16
102	12/28/2017	193.94	23.48	170.46
109	12/28/2017	197.02	29.98	167.04
120	12/28/2017	184.19	14.64	169.55
123	12/28/2017	186.21	15.18	171.03

Table 2-1: Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
125	12/28/2017	196.28	27.39	168.89
126	12/28/2017	199.37	31.30	168.07
129	12/28/2017	197.24	27.30	169.94
130	12/28/2017	177.73	9.30	168.43
C-01	12/28/2017	193.89	25.29	168.60
C-02	12/28/2017	175.95	8.32	167.63
C-03	12/28/2017	196.34	28.60	167.74
C-04	12/28/2017	194.64	27.28	167.36
C-04A	12/28/2017	194.61	27.55	167.06
C-05	12/28/2017	180.74	15.53	165.21
C-06	12/28/2017	192.22	27.61	164.61
C-07	12/28/2017	196.80	28.83	167.97
C-08	12/28/2017	193.10	24.60	168.50
C-09	12/28/2017	202.35	33.73	168.62
C-10	12/28/2017	201.86	32.86	169.00
17WW08	12/28/2017	179.72	11.70	168.02
18WW01	12/28/2017	201.31	31.87	169.44
18WW02	12/28/2017	179.30	11.60	167.70
18WW03	12/28/2017	195.59	27.93	167.66
18WW04	12/28/2017	183.74	18.90	164.84
18WW05	12/28/2017	189.59	25.51	164.08
18WW06	12/28/2017	179.70	12.43	167.27
18WW07	12/28/2017	183.67	8.95	174.72
18WW08	12/28/2017	177.77	12.29	165.48
18WW09	12/28/2017	177.51	10.54	166.97
18WW10	12/28/2017	182.26	15.56	166.70
18WW11	12/28/2017	182.29	15.39	166.90
18WW14	12/28/2017	186.47	19.10	167.37
18WW15	12/28/2017	186.24	18.77	167.47
18WW16	12/28/2017	201.88	32.25	169.63
18WW18	12/28/2017	196.82	29.35	167.47
18WW19	12/28/2017	179.56	13.79	165.77
18WW20	12/28/2017	180.42	14.65	165.77
18WW21	12/28/2017	195.20	28.29	166.91
18WW22	12/28/2017	195.37	28.09	167.28
18WW24	12/28/2017	176.40	10.52	165.88
18WW25	12/28/2017	175.15	8.63	166.52
18CPTMW01SW	12/28/2017	198.20	27.09	171.11
18CPTMW01DW	12/28/2017	197.92	28.93	168.99
18CPTMW03SW	12/28/2017	198.53	30.97	167.56
18CPTMW04	12/28/2017	196.60	25.85	170.75
18CPTMW04SW	12/28/2017	196.42	28.75	167.67
18CPTMW06	12/28/2017	198.12	29.05	169.07
18CPTMW07	12/28/2017	197.32	28.74	168.58
18CPTMW08SW	12/28/2017	196.38	28.67	167.71
18CPTMW08DW	12/28/2017	196.59	29.30	167.29
18CPTMW10SW	12/28/2017	186.98	19.32	167.66
18CPTMW10DW	12/28/2017	187.38	20.18	167.20

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
18CPTMW12SW	12/28/2017	190.90	23.20	167.70
18CPTMW12DW	12/28/2017	190.25	22.65	167.60
18CPTMW14	12/28/2017	196.69	28.02	168.67

Table 2-1: Groundwater Elevations at LHAAP-18/24 Piezometers, Monitoring Wells, and Surface Water

18CPTMW15	12/28/2017	179.79	13.18	166.61
18CPTMW16	12/28/2017	175.37	8.95	166.42
18CPTMW18	12/28/2017	194.53	27.71	166.82
18CPTMW19	12/28/2017	193.59	25.55	168.04
18CPTMW19SW	12/28/2017	193.29	26.18	167.11
18CPTMW22SW	12/28/2017	187.79	21.11	166.68
18CPTMW22R	12/28/2017	187.23	13.00	174.23
18CPTMW22DW	12/28/2017	188.00	19.90	168.10
18CPTMW23	12/28/2017	177.47	10.77	166.70
18CPTMW23SW	12/28/2017	177.43	10.21	167.22
18CPTMW24	12/28/2017	194.89	27.14	167.75
18CPTMW26	12/28/2017	182.60	16.97	165.63
18CPTMW26SW	12/28/2017	182.00	13.96	168.04

SURFACE WATER LEVELS

Harrison Bayou	Date	Reference Elevation (feet amsl)	Staff Reading (water depth) (feet)	Surface Water Elevation (feet amsl)
1824HBSW7	12/28/2017	167.92	1.25	169.17

Table 2-2: Monitoring Well Analytical Results for LHAAP-18/24 (December 2017)

Location ID: / Sample Date:	Units	MCL/MSC	AWD3_121817 12/18/17	18CPTMW01SW_122017 12/20/17	18CPTMW03SW_121517 12/15/17	18CPTMW04_122017 12/20/17	18CPTMW04SW_122017 12/20/17	18CPTMW06_121817 12/18/17	18CPTMW06_121817_a 12/18/17	18CPTMW07_120617 12/6/17	18CPTMW08SW_122117 12/21/17	18CPTMW08DW_122117 12/21/17	18CPTMW10SW-121217 12/12/17	18CPTMW10DW-121217 12/12/17	18CPTMW12SW-121217 12/12/17	18CPTMW12DW-121217 12/12/17	18CPTMW14_120717 12/7/17	18CPTMW14_120717_a 12/7/17
Location Description:			Site 18/24- NNW, outside the fence line, along the perimeter road	Site 18/24-NE, inside the fence line, middle region shallow Wilcox	Site 18/24-S, inside the fence line	Site 18/24-NW, inside the fence line, middle region	Site 18/24- NW, inside the fence line, middle region Shallow Wilcox	Site 18/24-SSE, inside the fence line, middle region	Site 18/24-SSE, inside the fence line, middle region, Duplicate.	Site 18/24-NNE, inside the fence line, outer region	Site 18/24-N, inside the fence line, outer region Shallow Wilcox	Site 18/24-N, inside the fence line, outer region Deep Wilcox	Site 18/24-WSW, outside the fence line, along the outer loop road. Shallow Wilcox	Site 18/24-WSW, outside the fence line, along the outer loop road. Deep Wilcox	Site 18/24-SW, outside the fence line, along the road surrounding the fence line. Shallow Wilcox	Site 18/24-SW, outside the fence line, along the road surrounding the fence line. Deep Wilcox	Site 18/24-SE, outside the fence line, along the road surrounding the fence line	Site 18/24-SE, outside the fence line, along the road surrounding the fence line. Duplicate.
Aquifer Zone:			Shallow	Wilcox	Wilcox	Shallow	Wilcox	Wilcox		Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Wilcox	Shallow	
Perchlorate (6850)																		
Perchlorate *	µg/L	17	**8,800 J**	< 4.0 U	**120**	**620**	< 4.0 U	**1.8 J**	< 4.0 U	< 4.0 U	**31,000**	**220**	< 4.0 U	**12**	< 4.0 U	< 4.0 U	**2,700**	**2,600**
Volatile Organic Compounds (8260C)																		
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**3.8**	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethene	µg/L	7	< 1.0 U	< 1.0 U	< 1.0 U	**3.6**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dibromoethane	µg/L	0.05	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichloroethane	µg/L	5	**12**	< 1.0 U	**4.5**	**5.4**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**2.8**	**2.6**
1,2-Dichloropropane	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichlorobenzene	µg/L	3,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Butanone	µg/L	61,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
2-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Hexanone	µg/L	6,100	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Acetone	µg/L	92,000	< 2.0 U	< 2.0 U	**14**	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Benzene	µg/L	5	< 1.0 U	**5.8**	**2.1**	**0.44 J**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromobenzene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromochloromethane	µg/L	4,100	< 1.0 U	**3.7**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromodichloromethane	µg/L	4.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromoform	µg/L	36	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromomethane	µg/L	140	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Carbon disulfide	µg/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Carbon tetrachloride	µg/L	5	**6.1**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chlorobenzene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloroethane	µg/L	41,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloroform	µg/L	1,000	**1.5**	< 1.0 U	< 1.0 U	**2.3**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.5**	**5.0**
Chloromethane	µg/L	220	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	µg/L	70	**68**	**13**	**7.2**	**66**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**15**	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**4.9**	**4.5**
cis-1,3-Dichloropropene	µg/L	5.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Dibromochloromethane	µg/L	34	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Dibromomethane	µg/L	380	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Dichlorodifluoromethane	µg/L	20,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Ethylbenzene	µg/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ
Isopropylbenzene	µg/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
m,p-Xylene	µg/L	10,000	< 2.0 U	**1.7 J**	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Methylene chloride	µg/L	5	< 2.0 U	**1,500**	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**2.5**	< 2.0 U	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Naphthalene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
n-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ
n-Propylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
o-Xylene	µg/L	10,000	< 1.0 U	**1.1**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Styrene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**0.74 J**	**0.70 J**
Toluene	µg/L	1,000	< 1.0 U	**4.0**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U

Table 2-2: Monitoring Well Analytical Results for LHAAP-18/24 (December 2017)

Location ID: / Sample Date:	Units	MCL/MSC	AWD3_121817 12/18/17	18CPTMW01S W_122017 12/20/17	18CPTMW03S W_121517 12/15/17	18CPTMW04_1 22017 12/20/17	18CPTMW04S W_122017 12/20/17	18CPTMW06_1 21817 12/18/17	18CPTMW06_1 21817_a 12/18/17	18CPTMW07_1 20617 12/6/17	18CPTMW08S W_122117 12/21/17	18CPTMW08DW_ 122117 12/21/17	18CPTMW10S W-121217 12/12/17	18CPTMW10D W-121217 12/12/17	18CPTMW12S W-121217 12/12/17	18CPTMW12D W-121217 12/12/17	18CPTMW14_1 20717 12/7/17	18CPTMW14_1 20717_a 12/7/17
trans-1,2-Dichloroethene	µg/L	100	< 1.0 U	< 1.0 U	**2.3**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,3-Dichloropropene	µg/L	29	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	µg/L	5	**470**	**90**	**43**	**1,600**	< 1.0 U	**2.2**	**1.7**	< 1.0 U	**58**	NA	**2.6**	**2.1**	< 1.0 U	< 1.0 U	**600**	**520**
Trichlorofluoromethane	µg/L	31,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride	µg/L	2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**7.9**	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Metals (6020A)																		
Aluminum	mg/L	100	**0.0335**	0.00872 UB	**0.0241**	NA	**0.0283**	NA	NA	NA	NA	NA	NA	0.0111 UB	0.00841 UB	0.00889 UB	**0.0845**	**0.0859**
Antimony	mg/L	0.006	< 0.00200 U	0.000593 UB	< 0.00200 U	NA	0.00146 UB	NA	NA	NA	NA	NA	NA	0.000501 UB	0.00117 UB	0.000508 UB	**0.000408 J**	< 0.00200 U
Arsenic	mg/L	0.01	< 0.00200 U	**0.0150**	**0.000771 J**	NA	**0.00216**	NA	NA	NA	NA	NA	NA	**0.00139 J**	**0.00205**	**0.00332**	0.00215 UB	0.00216 UB
Barium	mg/L	2	**0.216**	**0.913**	**0.157**	NA	**0.822**	NA	NA	NA	NA	NA	NA	**0.0743**	**0.775**	**0.119**	**3.79**	**3.81**
Beryllium	mg/L	0.004	**0.000315 J**	< 0.00200 U	< 0.00200 U	NA	< 0.00200 U	NA	NA	NA	NA	NA	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Cadmium	mg/L	0.005	< 0.00200 U	< 0.00200 U	< 0.00200 U	NA	< 0.00200 U	NA	NA	NA	NA	NA	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Calcium	mg/L	NV	**4.90**	**30.2**	**6.53**	NA	**30.4**	NA	NA	NA	NA	NA	NA	**3.70 J**	**50.6**	**6.62**	**478**	**447**
Chromium	mg/L	0.1	**0.279**	< 0.00400	**0.00872**	NA	**0.00521**	NA	NA	NA	NA	NA	NA	< 0.00400 U	**0.00260 J**	**0.0108**	**0.0217**	**0.0206**
Cobalt	mg/L	6.1	**0.0309**	**0.00101 J**	**0.00113 J**	NA	**0.0148**	NA	NA	NA	NA	NA	NA	< 0.00500 U	**0.0133**	< 0.00500 U	**0.00265 J**	**0.00250 J**
Copper	mg/L	1.3	**0.0298**	< 0.00200 U	**0.00159 J**	NA	< 0.00200 U	NA	NA	NA	NA	NA	NA	**0.00100 J**	**0.00106 J**	**0.00103 J**	< 0.00200 U	< 0.00200 U
Iron	mg/L	NV	**1.95**	**55.5**	**0.446**	NA	**25.6**	NA	NA	NA	NA	NA	NA	**0.211**	**3.38**	**1.42**	**0.285**	**0.305**
Lead	mg/L	0.015	< 0.00200 U	< 0.00200 U	< 0.00200 U	NA	< 0.00200 U	NA	NA	NA	NA	NA	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Magnesium	mg/L	NV	**3.39**	**19.5**	**3.73**	NA	**16.2**	NA	NA	NA	NA	NA	NA	**3.37**	**33.1**	**3.74**	**76.7**	**71.8**
Manganese	mg/L	14	**0.255**	**0.602**	**0.0159**	NA	**0.748**	NA	NA	NA	NA	NA	NA	**0.00517**	**1.11**	**0.0497**	**0.141**	**0.132**
Nickel	mg/L	2	**1.98**	**0.00225**	**0.00724**	NA	**0.00980**	NA	NA	NA	NA	NA	NA	0.00124 UB	**0.00958**	0.00111 UB	**0.00190 J**	**0.00173 J**
Potassium	mg/L	NV	**0.924**	**5.96**	**205**	NA	**23.5**	NA	NA	NA	NA	NA	NA	**76.2**	**33.8**	**80.1**	**22.3**	**22.0**
Selenium	mg/L	0.05	**0.00152 J**	< 0.00200 U	**0.00290**	NA	< 0.00200 U	NA	NA	NA	NA	NA	NA	< 0.00200 U	**0.00140 J**	< 0.00200 U	**0.00707**	**0.00583**
Silver	mg/L	0.51	< 0.00200 U	< 0.00200 U	< 0.00200 U	NA	< 0.00200 U	NA	NA	NA	NA	NA	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Sodium	mg/L	NV	**48.0**	**101**	**231**	NA	**99.3**	NA	NA	NA	NA	NA	NA	**155**	**216**	**152**	**587**	**575**
Thallium	mg/L	0.002	< 0.00200 U	< 0.00200 U	< 0.00200 U	NA	< 0.00200 U	NA	NA	NA	NA	NA	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Vanadium	mg/L	0.72	< 0.00500 U	< 0.00500 U	0.000943 UB	NA	< 0.00500 U	NA	NA	NA	NA	NA	NA	0.000734 UB	0.000804 UB	0.000864 UB	**0.00128 J**	**0.00116 J**
Zinc	mg/L	31	**0.00506**	0.00377 UB	**0.00398 J**	NA	**0.0341**	NA	NA	NA	NA	NA	NA	**0.00305 J**	**0.0171**	**0.00254 J**	**0.00437**	**0.00344 J**
Mercury	mg/L	0.002	**0.000113 J**	< 0.000200 U	< 0.000200 U	NA	< 0.000200 U	NA	NA	NA	NA	NA	NA	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U

Notes:

Blue Highlighting Indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

* Protective Concentration Level (PCL) used for this contaminant

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

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

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

NV - No Value

UB - considered a non-detect due to blank contamination

Table 2-2: Monitoring Well Analytical Results for LHAAP-18/24 (December 2017)

Location ID: / Sample Date:	Units	MCL/MSC	18CPTMW15_120617 12/6/17	18CPTMW16_121817 12/18/17	18CPTMW18_120517 12/5/17	18CPTMW19_120617 12/6/17	18CPTMW19_120617_a 12/6/17	18CPTMW22R_121417 12/14/17	18CPTMW22SW_121417 12/14/17	18CPTMW23_120717 12/7/17	18CPTMW24_120717 12/7/17	18WW02_120817 12/8/17	18WW06_120817 12/8/17	18WW08_120617 12/6/17	18WW17_120517 12/5/17	18WW22_120517 12/5/17	18WW24_120717 12/7/17	18WW25_120717 12/7/17
Location Description:			Site 18/24-NW, outside the fence line	Site 18/24-NW, outside the fence line, near Harrison Bayou	Site 18/24-NE, outside the fence line, in the woods	Site 18/24-N, outside of the fence line	Site 18/24-N, outside of the fence line. Duplicate.	Site 18/24-S, outside the fence line, along the outer loop road	Site 18/24-S, outside the fence line, along the outer loop road	Site 18/24 -WNW, outside the fence line, near the road surrounding the fence line	Site 18/24 - E, outside the fence line, on the road surrounding the fence line	Site 18/24-NW, outside the fence line	Site 18/24-W, just outside the fence line	Site 18/24-NNW, outside the fence line	(ICT Extraction Well) Site 18/24-NE, outside the fence line. Outer region.	Site 18/24-NE, outside the fence line, in the woods	Site 18/24-WNW, outside the fence line, in the woods	Site 18/24-NW, outside the fence line, in the woods
Aquifer Zone:			Shallow	Shallow	Shallow	Shallow		Shallow	Wilcox	Shallow	Shallow	Wilcox	Wilcox	Shallow	Shallow	Shallow	Shallow	Shallow
Perchlorate (6850)																		
Perchlorate *	µg/L	17	**1.9 J**	< 4.0 U	**2 J**	**35**	**36**	**8.3**	**6,900**	**140**	**65**	< 4.0 U	< 4.0 U	**2,400**	**94,000**	< 4.0 U	< 4.0 U	< 4.0 U
Volatile Organic Compounds (8260C)																		
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	µg/L	10,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**0.44 J**	< 1.0 U	< 1.0 U	< 1.0 U	**0.54 J**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethene	µg/L	7	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**4.0**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	
1,2,4-Trimethylbenzene	µg/L	5,100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	
1,2-Dibromoethane	µg/L	0.05	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
1,2-Dichloroethane	µg/L	5	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**110**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichloropropane	µg/L	5	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichlorobenzene	µg/L	3,100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	
1,3-Dichloropropane	µg/L	29	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Butanone	µg/L	61,000	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
2-Chlorotoluene	µg/L	2,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Hexanone	µg/L	6,100	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Acetone	µg/L	92,000	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Benzene	µg/L	5	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**0.75 J**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromobenzene	µg/L	2,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Bromochloromethane	µg/L	4,100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromodichloromethane	µg/L	4.6	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromoform	µg/L	36	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromomethane	µg/L	140	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Carbon disulfide	µg/L	10,000	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Carbon tetrachloride	µg/L	5	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chlorobenzene	µg/L	100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	
Chloroethane	µg/L	41,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	
Chloroform	µg/L	1,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	
Chloromethane	µg/L	220	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	µg/L	70	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**190**	**10**	< 1.0 U	< 1.0 U	**2.0**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,3-Dichloropropene	µg/L	5.3	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Dibromochloromethane	µg/L	34	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Dibromomethane	µg/L	380	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Dichlorodifluoromethane	µg/L	20,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Ethylbenzene	µg/L	700	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 UJ	NA	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ
Isopropylbenzene	µg/L	1,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
m,p-Xylene	µg/L	10,000	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U UJ	< 2.0 U
Methylene chloride	µg/L	5	< 2.0 U	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Naphthalene	µg/L	2,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	
n-Butylbenzene	µg/L	4,100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ
n-Propylbenzene	µg/L	4,100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
o-Xylene	µg/L	10,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Styrene	µg/L	100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	µg/L	5	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Toluene	µg/L	1,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U

Table 2-2: Monitoring Well Analytical Results for LHAAP-18/24 (December 2017)

Location ID: / Sample Date:	Units	MCL/MSC	18CPTMW15_1 20617 12/6/17	18CPTMW16_1 21817 12/18/17	18CPTMW18_1 20517 12/5/17	18CPTMW19_1 20617 12/6/17	18CPTMW19_1 20617_a 12/6/17	18CPTMW22R_ 121417 12/14/17	18CPTMW22S W_121417 12/14/17	18CPTMW23_1 20717 12/7/17	18CPTMW24_1 20717 12/7/17	18WW02_1208 17 12/8/17	18WW06_1208 17 12/8/17	18WW08_1206 17 12/6/17	18WW17_1205 17 12/5/17	18WW22_1205 17 12/5/17	18WW24_1207 17 12/7/17	18WW25_1207 17 12/7/17
trans-1,2-Dichloroethene	µg/L	100	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**1.4**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,3-Dichloropropene	µg/L	29	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	µg/L	5	**0.96 J**	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**2,000**	**3.3**	< 1.0 U	< 1.0 U	**4.7**	**36**	< 1.0 U	< 1.0 U	< 1.0 U
Trichlorofluoromethane	µg/L	31,000	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride	µg/L	2	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**1.3**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Metals (6020A)																		
Aluminum	mg/L	100	NA	NA	0.0142 UB	NA	NA	**1.36**	**0.0857**	NA	**0.0204**	**0.129**	NA	NA	0.00628 UB	**0.404**	**0.0368**	**0.00922 J**
Antimony	mg/L	0.006	NA	NA	< 0.00200 U	NA	NA	< 0.00200 U	< 0.00200 U	NA	**0.000457 J**	< 0.00200 U	NA	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Arsenic	mg/L	0.01	NA	NA	**0.00169 J**	NA	NA	**0.00129 J**	**0.000798 J**	NA	**0.00811**	0.000627 UB	NA	NA	< 0.00200 U	**0.00523**	0.000915 UB	0.00177 UB
Barium	mg/L	2	NA	NA	**0.533**	NA	NA	**0.109**	**0.216**	NA	**9.80**	**0.0424**	NA	NA	**3.27**	**0.0806**	**0.0621**	**0.236**
Beryllium	mg/L	0.004	NA	NA	< 0.00200 U	NA	NA	**0.000626 J**	< 0.00200 U	NA	< 0.00200 U	< 0.00200 U	NA	NA	< 0.00200 U	< 0.00200 U	**0.000402 J**	< 0.00200 U
Cadmium	mg/L	0.005	NA	NA	**0.000215 J**	NA	NA	< 0.00200 U	< 0.00200 U	NA	**0.000757 J**	< 0.00200 U	NA	NA	**0.000356 J**	< 0.00200 U	< 0.00200 U	< 0.00200 U
Calcium	mg/L	NV	NA	NA	**273**	NA	NA	**2.33**	**106**	NA	**383**	**6.47**	NA	NA	**324**	**19.0**	**38.2**	**14.0**
Chromium	mg/L	0.1	NA	NA	**0.000581 J**	NA	NA	**0.00146 J**	**0.0118**	NA	**0.000926 J**	**0.00342 J**	NA	NA	**0.00224 J**	**0.00290 J**	< 0.00400 U	< 0.00400 U
Cobalt	mg/L	6.1	NA	NA	**0.0145**	NA	NA	**0.00749**	< 0.00500 U	NA	**0.00398 J**	< 0.00500 U	NA	NA	< 0.00500 U	**0.000280 J**	**0.0196**	**0.00113 J**
Copper	mg/L	1.3	NA	NA	< 0.00200 U	NA	NA	**0.00331**	**0.00121 J**	NA	< 0.00200 U	< 0.00200 U	NA	NA	< 0.00200 U	**0.00140 J**	< 0.00200 U	**0.00232**
Iron	mg/L	NV	NA	NA	**0.751**	NA	NA	**1.22**	**0.0437 J**	NA	**8.22**	**1.66**	NA	NA	**0.0425 J**	**0.0216 J**	**0.470**	**12.8**
Lead	mg/L	0.015	NA	NA	< 0.00200 U	NA	NA	**0.00115 J**	< 0.00200 U	NA	< 0.00200 U	**0.000609 J**	NA	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Magnesium	mg/L	NV	NA	NA	**189**	NA	NA	**1.80**	**5.01**	NA	**235**	**1.10**	NA	NA	**203**	**0.953**	**32.2**	**8.53**
Manganese	mg/L	14	NA	NA	**1.93**	NA	NA	**0.0771**	**0.0249**	NA	**0.448**	**0.0767**	NA	NA	**0.0222**	**0.00360 J**	**3.44**	**1.69**
Nickel	mg/L	2	NA	NA	**0.0138**	NA	NA	**0.00518**	0.00110 UB	NA	**0.00562**	**0.00180 J**	NA	NA	**0.0103**	0.00112 UB	**0.0796**	< 0.00200 U
Potassium	mg/L	NV	NA	NA	**2.90**	NA	NA	**0.342**	**155**	NA	**3.31**	**1.64**	NA	NA	**1.61**	**6.60**	**0.648**	**1.18**
Selenium	mg/L	0.05	NA	NA	**0.00129 J**	NA	NA	**0.00182 J**	**0.00213**	NA	**0.00935**	< 0.00200 U	NA	NA	**0.00311**	< 0.00200 U	**0.00350**	< 0.00200 U
Silver	mg/L	0.51	NA	NA	< 0.00200 U	NA	NA	< 0.00200 U	< 0.00200 U	NA	< 0.00200 U	< 0.00200 U	NA	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Sodium	mg/L	NV	NA	NA	**724**	NA	NA	**43.6**	**239**	NA	**951**	**15.9**	NA	NA	**999**	**67.3**	**661**	**33.2**
Thallium	mg/L	0.002	NA	NA	< 0.00200 U	NA	NA	< 0.00200 U	< 0.00200 U	NA	< 0.00200 U	< 0.00200 U	NA	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U
Vanadium	mg/L	0.72	NA	NA	< 0.00500 U	NA	NA	**0.00528**	0.00188 UB	NA	< 0.00500 U	**0.00200 J**	NA	NA	0.00139 UB	**0.0215**	< 0.00500 U	< 0.00500 U
Zinc	mg/L	31	NA	NA	**0.0145**	NA	NA	**0.00891**	**0.00427**	NA	**0.0126**	**0.00462**	NA	NA	**0.0104**	< 0.00400 U	**0.0333**	**0.00405**
Mercury	mg/L	0.002	NA	NA	< 0.000200 U	NA	NA	< 0.000200 U	< 0.000200 U	NA	< 0.000200 U	< 0.000200 U	NA	NA	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U

Notes:

Blue Highlighting Indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

* Protective Concentration Level (PCL) used for this contaminant

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

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

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

NV - No Value

UB - considered a non-detect due to blank contamination

Table 2-2: Monitoring Well Analytical Results for LHAAP-18/24 (December 2017)

Location ID: / Sample Date:	Units	MCL/MSC	C03_120517 12/5/17	C08_120517 12/5/17	C09_120517 12/5/17	MW2_122017 12/20/17	MW3_122117 12/21/17	MW5_122017 12/20/17	MW7_121317 12/13/17	MW8_121217 12/12/17	MW9_121317 12/13/17	MW10-121117 12/11/17	MW14_121817 12/18/17	MW14_121817-a 12/18/17	MW-16_120817 12/8/17	MW17-121117 12/11/17	MW18-121117 12/11/17
Location Description:			Site 18/24-NE, outside the fence line, along the outer loop road	Site 18/24-E, outside the fence line, along the road heading east-northeast	Site 18/24-SE, outside the fence line to the south, along Long Point Road	Site 18/24 - NE, inside the fence line	Site 18/24-N, inside the fence line	Site 18/24-N, inside the fence line	Site 18/24-SW, outside the fence line, along the road surrounding the fence line	Site 18/24-SW, outside the fence line	Site 18/24-WSW, outside the fence line, along the road surrounding the fence line	Site 18/24-W, outside the fence line, along the outer loop road	LHAAP-18/24-NW, inside containment	LHAAP-18/24-NW, inside containment. Duplicate.	Site 18/24-W, outside the fence line, along the road surrounding the fence line	Site 18/24-W, outside the fence line, along the outer loop road	Site 18/24-SW, outside the fence line, along the outer loop road
Aquifer Zone:			Wilcox	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Wilcox		Shallow	Shallow	Shallow
Perchlorate (6850)																	
Perchlorate *	µg/L	17	**170**	< 4.0 U	< 4.0 U	**160**	**15,000**	**31,000**	**15,000**	**5,500**	**44**	< 4.0 U	**150,000**	**150,000**	< 4.0 U	< 4.0 U	< 4.0 U
Volatile Organic Compounds (8260C)																	
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**3.3**	**3.1**	< 1.0 U	NA	< 1.0 U
1,1-Dichloroethane	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	**3.3**	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**28**	**29**	**0.70 J**	NA	< 1.0 U
1,1-Dichloroethene	µg/L	7	< 1.0 U	< 1.0 U	< 1.0 UJ	**270**	**42**	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**140**	**140**	**3.6**	NA	< 1.0 U
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,2-Dibromoethane	µg/L	0.05	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,2-Dichloroethane	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	**17**	**4.0**	**0.82 J**	< 1.0 U	**90**	**91**	**23**	NA	< 1.0 U
1,2-Dichloropropane	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,3-Dichlorobenzene	µg/L	3,100	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
2-Butanone	µg/L	61,000	< 2.0 U	< 2.0 U	< 2.0 UJ	< 200 U	< 10 U	< 2.0 U	< 10 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U
2-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
2-Hexanone	µg/L	6,100	< 2.0 U	< 2.0 U	< 2.0 UJ	< 200 U	< 10 U	< 2.0 U	< 10 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 2.0 U	< 2.0 U	< 2.0 UJ	< 200 U	< 10 U	< 2.0 U	< 10 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U
Acetone	µg/L	92,000	< 2.0 U	< 2.0 U	< 2.0 UJ	< 200 U	< 10 U	< 2.0 U	< 10 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U
Benzene	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	**1.5 J**	**0.38 J**	< 1.0 U	< 1.0 U	**4.3**	**4.4**	< 1.0 U	NA	< 1.0 U
Bromobenzene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Bromochloromethane	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 UJ	**250**	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Bromodichloromethane	µg/L	4.6	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Bromoform	µg/L	36	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Bromomethane	µg/L	140	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Carbon disulfide	µg/L	10,000	< 2.0 U	< 2.0 U	< 2.0 UJ	< 200 U	< 10 U	< 2.0 U	< 10 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U
Carbon tetrachloride	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Chlorobenzene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Chloroethane	µg/L	41,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Chloroform	µg/L	1,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	**11**	< 1.0 U	**1.7**	< 1.0 U	**5.0**	**5.0**	< 1.0 U	NA	< 1.0 U
Chloromethane	µg/L	220	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
cis-1,2-Dichloroethene	µg/L	70	< 1.0 U	< 1.0 U	< 1.0 UJ	**34,000**	**84**	**12**	**11**	**5.4**	**70**	< 1.0 U	**2,000**	**2,000**	**13**	NA	**1.2**
cis-1,3-Dichloropropene	µg/L	5.3	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Dibromochloromethane	µg/L	34	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Dibromomethane	µg/L	380	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Dichlorodifluoromethane	µg/L	20,000	< 1.0 U	< 1.0 U	< 1.0 U	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Ethylbenzene	µg/L	700	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	NA	< 1.0 U
Isopropylbenzene	µg/L	1,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
m,p-Xylene	µg/L	10,000	< 2.0 U	< 2.0 U	< 2.0 UJ	< 200 U	< 10 U	< 2.0 U	< 10 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	NA	< 2.0 U
Methylene chloride	µg/L	5	< 2.0 U	< 2.0 U	< 2.0 UJ	**140,000**	< 10 U	< 2.0 U	< 10 U	< 2.0 U	< 2.0 U	< 2.0 U	**11**	**12**	< 2.0 U	NA	< 2.0 U
Naphthalene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
n-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	NA	< 1.0 U
n-Propylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
o-Xylene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Styrene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Tetrachloroethene	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Toluene	µg/L	1,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**0.37 J**	< 1.0 U	NA	< 1.0 U

Table 2-2: Monitoring Well Analytical Results for LHAAP-18/24 (December 2017)

Location ID: / Sample Date:	Units	MCL/MSC	C03_120517 12/5/17	C08_120517 12/5/17	C09_120517 12/5/17	MW2_122017 12/20/17	MW3_122117 12/21/17	MW5_122017 12/20/17	MW7_121317 12/13/17	MW8_121217 12/12/17	MW9_121317 12/13/17	MW10-121117 12/11/17	MW14_121817 12/18/17	MW14_121817-a 12/18/17	MW-16_120817 12/8/17	MW17-121117 12/11/17	MW18-121117 12/11/17
trans-1,2-Dichloroethene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**1.0**	NA	< 1.0 U
trans-1,3-Dichloropropene	µg/L	29	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Trichloroethene	µg/L	5	< 1.0 U	**0.70 J**	< 1.0 UJ	**2,600**	**470**	**46**	**1,600**	**270**	**930**	< 1.0 U	**13,000**	**13,000**	**300**	NA	**4.8**
Trichlorofluoromethane	µg/L	31,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	< 5.0 U	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U
Vinyl chloride	µg/L	2	< 1.0 U	< 1.0 U	< 1.0 UJ	< 100 U	**29**	< 1.0 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**5.6**	**5.5**	< 1.0 U	NA	< 1.0 U
Metals (6020A)																	
Aluminum	mg/L	100	NA	0.0147 UB	**0.0704**	**0.0381**	0.00504 UB	0.00867 UB	NA	NA	0.0106 UB	NA	0.0172 UB	0.0162 UB	NA	NA	NA
Antimony	mg/L	0.006	NA	< 0.00200 U	< 0.00200 U	0.000858 UB	0.000414 UB	0.000519 UB	NA	NA	< 0.00200 U	NA	< 0.00200 U	< 0.00200 U	NA	NA	NA
Arsenic	mg/L	0.01	NA	< 0.00200 U	< 0.00200 U	**0.00986**	< 0.00200 U	< 0.00200 U	NA	NA	< 0.00200 U	NA	**0.00139 J**	**0.00171 J**	NA	NA	NA
Barium	mg/L	2	NA	**5.86**	**0.927**	**2.60**	**0.479**	**0.872**	NA	NA	**0.126**	NA	**0.257**	**0.276**	NA	NA	NA
Beryllium	mg/L	0.004	NA	< 0.00200 U	< 0.00200 U	**0.000620 J**	< 0.00200 U	< 0.00200 U	NA	NA	< 0.00200 U	NA	**0.000241 J**	< 0.00200 U	NA	NA	NA
Cadmium	mg/L	0.005	NA	**0.000416 J**	**0.000395 J**	**0.000320 J**	**0.000290 J**	**0.000798 J**	NA	NA	< 0.00200 U	NA	**0.000814 J**	**0.000927 J**	NA	NA	NA
Calcium	mg/L	NV	NA	**268**	**267**	**79.7**	**28.1**	**21.7**	NA	NA	**10.2**	NA	**88.5**	**92.2**	NA	NA	NA
Chromium	mg/L	0.1	NA	< 0.00400 U	< 0.00400 U	**0.0158**	**0.000552 J**	**0.581**	NA	NA	**0.0325**	NA	**0.0384**	**0.0431**	NA	NA	NA
Cobalt	mg/L	6.1	NA	**0.00476 J**	**0.000355 J**	**0.0660**	**0.0104**	**0.00537**	NA	NA	**0.00199 J**	NA	**0.0331**	**0.0361**	NA	NA	NA
Copper	mg/L	1.3	NA	**0.00185 J**	**0.00174 J**	< 0.00200 U	< 0.00200 U	**0.00622**	NA	NA	**0.00216**	NA	**0.00280**	**0.00334**	NA	NA	NA
Iron	mg/L	NV	NA	**0.358**	**0.0773 J**	**16.4**	**0.599**	**2.37**	NA	NA	**0.617**	NA	**77.3**	**89.8**	NA	NA	NA
Lead	mg/L	0.015	NA	< 0.00200 U	**0.000619 J**	< 0.00200 U	< 0.00200 U	< 0.00200 U	NA	NA	< 0.00200 U	NA	< 0.00200 U	< 0.00200 U	NA	NA	NA
Magnesium	mg/L	NV	NA	**159**	**147**	**54.1**	**15.1**	**22.0**	NA	NA	**2.82**	NA	**43.2**	**45.1**	NA	NA	NA
Manganese	mg/L	14	NA	**0.885**	**0.0385**	**3.47**	**2.20**	**0.150**	NA	NA	**0.0635**	NA	**3.82**	**3.81**	NA	NA	NA
Nickel	mg/L	2	NA	**0.00559**	**0.00769**	**0.0503**	**0.00717**	**0.323**	NA	NA	**0.0835**	NA	**0.304**	**0.344**	NA	NA	NA
Potassium	mg/L	NV	NA	**1.93**	**1.10**	**3.24**	**1.62**	**2.20**	NA	NA	**0.449**	NA	**17.4**	**17.6**	NA	NA	NA
Selenium	mg/L	0.05	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	NA	NA	**0.00364**	NA	**0.00156 J**	< 0.00200 U	NA	NA	NA
Silver	mg/L	0.51	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	NA	NA	< 0.00200 U	NA	< 0.00200 U	< 0.00200 U	NA	NA	NA
Sodium	mg/L	NV	NA	**793**	**473**	**226**	**217**	**117**	NA	NA	**11.8**	NA	**411**	**397**	NA	NA	NA
Thallium	mg/L	0.002	NA	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	< 0.00200 U	NA	NA	< 0.00200 U	NA	< 0.00200 U	< 0.00200 U	NA	NA	NA
Vanadium	mg/L	0.72	NA	0.000603 UB	0.00128 UB	**0.000998 J**	< 0.00500 U	**0.000869 J**	NA	NA	0.00134 UB	NA	< 0.00500 U	< 0.00500 U	NA	NA	NA
Zinc	mg/L	31	NA	**0.00766**	**0.00894**	**0.0744**	0.00590 UB	**0.0212**	NA	NA	**0.00528**	NA	**0.666**	**0.688**	NA	NA	NA
Mercury	mg/L	0.002	NA	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	< 0.000200 U	NA	NA	< 0.000200 U	NA	**0.0000760 J**	**0.0000840 J**	NA	NA	NA

Notes:

Blue Highlighting Indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

* Protective Concentration Level (PCL) used for this contaminant

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

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

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

NV - No Value

UB - considered a non-detect due to blank contamination

Table 2-2: Monitoring Well Analytical Results for LHAAP-18/24 (December 2017)

Location ID: / Sample Date:	Units	MCL/MSC	MW19-121217 12/12/17	MW20_121417 12/14/17	MW21_121817 12/18/17	MW22_121817 12/18/17	MW23_121517 12/15/17	MW23_121517-a 12/15/17	(MW-) 109_121417 12/14/17	(MW-) 120_121417 12/14/17	(MW-) 123_121417 12/14/17	(MW-) 126_120517 12/5/17
Location Description:			Site 18/24-SSW, outside the fence line, along the outer loop road	Site 18/24-S, outside the fence line, along the outer loop road	Site 18/24-E, along the fence line	Site 18/24-ESE, inside the fence line	Site 18/24-S, inside the fence line	Site 18/24-S, inside the fence line. Duplicate	Site 18/24-NE, just inside the fence line	Site 18/24- W, inside the fence line, outer region	Site 18/24-NW, outside the fence line, long the outer loop road	Site 18/24-NW of the Groundwater Treatment Plant, along the road
Aquifer Zone:			Shallow	Shallow	Shallow	Shallow	Shallow		Shallow	Shallow	Shallow	Shallow
Perchlorate (6850)												
Perchlorate *	µg/L	17	< 4.0 U	**1.9 J**	**21,000**	**40 J**	**73,000**	**73,000**	**19,000**	**65,000**	**2,200**	< 4.0 U
Volatile Organic Compounds (8260C)												
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 1.0 U	< 1.0 U	**11**	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,1-Dichloroethene	µg/L	7	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	**7.3**	**250**	< 1.0 U	< 1.0 U
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,2-Dibromoethane	µg/L	0.05	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,2-Dichloroethane	µg/L	5	< 1.0 U	< 1.0 U	**41**	**5.4**	**80**	**79**	< 1.0 U	**110**	**6.1**	< 1.0 U
1,2-Dichloropropane	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,3-Dichlorobenzene	µg/L	3,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
2-Butanone	µg/L	61,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 20 U	< 20 U	< 2.0 U	< 100 U	< 2.0 U	< 2.0 U
2-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
2-Hexanone	µg/L	6,100	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 20 U	< 20 U	< 2.0 U	< 100 U	< 2.0 U	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 20 U	< 20 U	< 2.0 U	< 100 U	< 2.0 U	< 2.0 U
Acetone	µg/L	92,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 20 U	< 20 U	< 2.0 U	< 100 U	< 2.0 U	< 2.0 U
Benzene	µg/L	5	< 1.0 U	< 1.0 U	**3.2**	**3.3**	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Bromobenzene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Bromochloromethane	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Bromodichloromethane	µg/L	4.6	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Bromoform	µg/L	36	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Bromomethane	µg/L	140	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Carbon disulfide	µg/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 20 U	< 20 U	< 2.0 U	< 100 U	< 2.0 U	< 2.0 U
Carbon tetrachloride	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Chlorobenzene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Chloroethane	µg/L	41,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Chloroform	µg/L	1,000	< 1.0 U	< 1.0 U	**12**	**4.0**	< 10 U	< 10 U	**1.8**	**77**	< 1.0 U	< 1.0 U
Chloromethane	µg/L	220	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	µg/L	70	**3.1**	< 1.0 U	**74**	**6.1**	**16**	**15**	**150**	**3900**	**13**	< 1.0 U
cis-1,3-Dichloropropene	µg/L	5.3	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Dibromochloromethane	µg/L	34	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Dibromomethane	µg/L	380	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Dichlorodifluoromethane	µg/L	20,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Ethylbenzene	µg/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 UJ
Isopropylbenzene	µg/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
m,p-Xylene	µg/L	10,000	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 20 U	< 20 U	< 2.0 U	< 100 U	< 2.0 U	< 2.0 U
Methylene chloride	µg/L	5	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 20 U	< 20 U	< 2.0 U	< 100 U	< 2.0 U	< 2.0 U
Naphthalene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
n-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
n-Propylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
o-Xylene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Styrene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Tetrachloroethene	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Toluene	µg/L	1,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U

Table 2-2: Monitoring Well Analytical Results for LHAAP-18/24 (December 2017)

Location ID: / Sample Date:	Units	MCL/MSC	MW19-121217 12/12/17	MW20_121417 12/14/17	MW21_121817 12/18/17	MW22_121817 12/18/17	MW23_121517 12/15/17	MW23_121517-a 12/15/17	(MW-) 109_121417 12/14/17	(MW-) 120_121417 12/14/17	(MW-) 123_121417 12/14/17	(MW-) 126_120517 12/5/17
trans-1,2-Dichloroethene	µg/L	100	< 1.0 U	< 1.0 U	**7.2**	< 1.0 U	< 10 U	< 10 U	**2.2**	< 50 U	< 1.0 U	< 1.0 U
trans-1,3-Dichloropropene	µg/L	29	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Trichloroethene	µg/L	5	**3.2**	< 1.0 U	**8,500**	**550**	**3,300**	**3,200**	**850**	**27,000**	**100**	< 1.0 U
Trichlorofluoromethane	µg/L	31,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 10 U	< 1.0 U	< 50 U	< 1.0 U	< 1.0 U
Vinyl chloride	µg/L	2	< 1.0 U	< 1.0 U	**37**	**1.5**	< 10 U	< 10 U	**1.1**	**260**	< 1.0 U	< 1.0 U
Metals (6020A)												
Aluminum	mg/L	100	**0.0492**	NA	0.00900 UB	0.00917 UB	NA	NA	NA	NA	NA	0.0197 UB
Antimony	mg/L	0.006	0.000432 UB	NA	< 0.00200 U	< 0.00200 U	NA	NA	NA	NA	NA	< 0.00200 U
Arsenic	mg/L	0.01	**0.00739**	NA	**0.000400 J**	< 0.00200 U	NA	NA	NA	NA	NA	**0.00279**
Barium	mg/L	2	**0.414**	NA	**7.40**	**1.08**	NA	NA	NA	NA	NA	**8.75**
Beryllium	mg/L	0.004	< 0.00200 U	NA	**0.000211 J**	< 0.00200 U	NA	NA	NA	NA	NA	< 0.00200 U
Cadmium	mg/L	0.005	**0.000731 J**	NA	**0.00102 J**	**0.00138 J**	NA	NA	NA	NA	NA	**0.000627 J**
Calcium	mg/L	NV	**31.9**	NA	**206**	**91.9**	NA	NA	NA	NA	NA	**285**
Chromium	mg/L	0.1	**0.00260 J**	NA	**1.69**	**0.0174**	NA	NA	NA	NA	NA	< 0.00400
Cobalt	mg/L	6.1	**0.0184**	NA	**0.129**	**0.0561**	NA	NA	NA	NA	NA	**0.0168**
Copper	mg/L	1.3	**0.00165 J**	NA	**0.0714**	**0.00485**	NA	NA	NA	NA	NA	**0.00154 J**
Iron	mg/L	NV	**29.2**	NA	**21.0**	**0.591**	NA	NA	NA	NA	NA	**4.50**
Lead	mg/L	0.015	< 0.00200 U	NA	< 0.00200 U	< 0.00200 U	NA	NA	NA	NA	NA	< 0.00200 U
Magnesium	mg/L	NV	**16.9**	NA	**138**	**26.8**	NA	NA	NA	NA	NA	**207**
Manganese	mg/L	14	**1.96**	NA	**3.15**	**0.688**	NA	NA	NA	NA	NA	**0.289**
Nickel	mg/L	2	**0.0478**	NA	**2.48**	**0.660**	NA	NA	NA	NA	NA	**0.0128**
Potassium	mg/L	NV	**2.79**	NA	**2.28**	**1.83**	NA	NA	NA	NA	NA	**2.82**
Selenium	mg/L	0.05	< 0.00200 U	NA	**0.00452**	< 0.00200 U	NA	NA	NA	NA	NA	< 0.00200 U
Silver	mg/L	0.51	< 0.00200 U	NA	< 0.00200 U	< 0.00200 U	NA	NA	NA	NA	NA	< 0.00200 U
Sodium	mg/L	NV	**282**	NA	**542**	**371**	NA	NA	NA	NA	NA	**740**
Thallium	mg/L	0.002	< 0.00200 U	NA	< 0.00200 U	< 0.00200 U	NA	NA	NA	NA	NA	< 0.00200 U
Vanadium	mg/L	0.72	0.00152 UB	NA	**0.00108 J**	< 0.00500 U	NA	NA	NA	NA	NA	< 0.00500 U
Zinc	mg/L	31	**0.0121**	NA	**0.0269**	**0.00294 J**	NA	NA	NA	NA	NA	**0.0223**
Mercury	mg/L	0.002	< 0.000200 U	NA	**0.000121 J**	**0.0000860 J**	NA	NA	NA	NA	NA	< 0.000200 U

Notes:

Blue Highlighting Indicates concentrations above the MCL/MSC/PCL

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

* Protective Concentration Level (PCL) used for this contaminant

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

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

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

NV - No Value

UB - considered a non-detect due to blank contamination

Table 2-3: Monthly Groundwater Extraction Quantities (Gallons)

ICT or Well Number	October 2017	November 2017	December 2017	Total
1	0	0	0	0
2	80,690	72,989	100,127	253,806
3	0	0	0	0
4	67,284	51,244	49,631	168,159
5	0	0	0	0
EW-1	951	51	86	1,088
7	3,640	2,549	2,569	8,758
8	104,225	85,862	100,697	290,784
18WW17	3,011	1,962	2,869	7,842
10	0	0	0	0
11	121,140	98,022	112,369	331,531
12A	8,842	7,287	8,163	24,292
12B	63	23	0	86
12C	14,245	11,037	10,688	35,970
12D	26,799	23,806	24,872	75,477
12E	11,851	9,959	10,318	32,128
13A	37	89	83	209
13B	29,179	27,484	15,090	71,753
13C	61,957	133	0	62,090
13D	8,454	10,013	11,050	29,517
13E	842	503	367	1,712
13F	0	0	0	0
14A	2,736	1,998	2,772	7,506
14B	11,875	7,139	6,531	25,545
14C	9,548	28,484	23,492	61,524
14D	56,434	44,366	50,744	151,544
14E	2,319	0	11	2,330
Total LHAAP-18/24	***626,122***	***485,000***	***532,529***	***1,643,651***
LHAAP-16	41,639	0	28,202	69,841
Total LHAAP-16	***41,639***	***0***	***28,202***	***69,841***
TOTAL	**667,761**	**485,000**	**560,731**	**1,713,492**

Table 2-4: Weekly Perchlorate Sample Results

Sample Identification	Date Sampled	Sample Location	TRRP PCL	Reporting Limit	Influent	Effluent		Does Concentration Meet Discharge Limit? (Yes/No)
					Result (µg/L)	Result (µg/L)	DVQ	
LH18/24-SP650_1017W	10/5/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP650_101217	10/12/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP650_101217 (Monthly)	10/12/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP140_101217 (Monthly)	10/12/2017	TK-140	17	NA	**4,800**	NA		NA
LH18/24-SP650_101817	10/18/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP650-102517	10/25/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP650-110117	11/1/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP650_110917	11/9/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP650_110917 (Monthly)	11/9/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP140_110917 (Monthly)	11/9/2017	TK-140	17	NA	**9,800**	NA		NA
LH18/24-SP650_112917	11/29/2017	TK-650	17	4	NA	**1.5**	J	Yes
LH18/24-SP650_120617	12/6/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP650_120617 (Monthly)	12/6/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP140_120617 (Monthly)	12/6/2017	TK-140	17	NA	**8,000**	NA		NA
LH18/24-SP650_121317	12/13/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP650_122017	12/20/2017	TK-650	17	4	NA	< 4.0	U	Yes
LH18/24-SP650_122717	12/27/2017	TK-650	17	4	NA	**1.5**	J	Yes

Notes:

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

SP140 samples are influent samples.

µg/L - micrograms per liter

DVQ - data validation qualifier

ID - identification

J - Estimated concentration

NA - not applicable

U - non detect

Table 2-5: Bi-Weekly GWTP Analytical Sampling Results for October 2017

			Sample Location	EFFLUENT - Biweekly		EFFLUENT - Monthly		INFLUENT - Monthly		EFFLUENT - Biweekly		Does Concentration Meet Effluent Discharge Limits? (Yes/No)
			Sample Identification	LH18/24-SP650_1017B		LH18/24-SP650_101217		LH18/24-SP140_101217		LH18/24-SP650_101817		
			Lab Package	217100631		HS17100712		HS17100709		HS17100970		
			Sample Date	10/5/2017		10/12/2017		10/12/2017		10/18/2017		
			Sample Type	GRAB		GRAB		GRAB		GRAB		
	Effluent Limitation for Discharge (µg/L) per Table 2 of ROD			Result	DVQ	Result	DVQ	Result	DVQ	Result	DVQ	
	Daily Average Concentration	Daily Maximum Concentration	Reporting Limit									
VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		
1,1,1-Trichloroethane	3,417	7,230	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
1,1,2-Trichloroethane	102.5	216.9	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
1,1-Dichloroethane	6,633	14,032	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
1,1-Dichloroethene	119	253	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
1,2-Dichloroethane	85	181	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
1,2-Dichloropropane	NA	NA	1	NA		< 1.0	U	NA		< 1.0	U	Yes
Acetone	1,132	2,395	2	**9.16**		**9.1**		NA		< 2.0	U	Yes
Benzene	85	181	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Carbon Tetrachloride	85	181	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Chlorobenzene	22,300	47,180	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Chloroform	1,708	3,615	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Ethylbenzene	26,954	57,025	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
m,p-Xylenes	39.5	83.6	2	< 2.0	U	< 2.0	U	NA		< 2.0	U	Yes
Methylene Chloride	803	1,699	2	< 5.0	U	< 2.0	U	NA		< 2.0	U	Yes
o-Xylene	39.5	83.6	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Styrene	2,829	5,987	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Tetrachloroethene	85.4	180.7	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Toluene	1,980	4,189	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Trichloroethene	85	181	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Vinyl Chloride	34	72	1	**1.58**		**1.3**		NA		**0.90**	J	Yes
ANIONS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		
Chloride	NA	NA	10	**654**		NA		NA		**601**		NA
Sulfate	NA	NA	10	**212**		NA		NA		**178**		NA
PERCHLORATE	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		
Perchlorate	278	589	4	NA		< 4.0	U	**4,800**		NA		Yes*
METALS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		
Hexavalent Chromium	0.058	0.124	0.010	NA		< 0.0100	U	< 0.0100	U	NA		Yes
Barium	1	2	0.004	NA		**0.125**		NA		NA		Yes
Lead	0.0022	0.0046	0.002	NA		< 0.00200	U	NA		NA		Yes
Selenium	0.0057	0.0120	0.002	NA		< 0.00200	U	< 0.00200	U	NA		Yes
Silver	0.0014	0.0030	0.002	NA		< 0.00200	U	< 0.00200	U	NA		Yes
SEMI-VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		
1,4-Dioxane**	NA	134.2	1	NA		**14**		NA		NA		Yes

Notes:

µg/L - micrograms per liter

mg/L - milligrams per liter

DVQ - data validation qualifier

NA - not applicable

GWTP - Groundwater Treatment Plant

ROD - Record of Decision

Grab samples are compared to the daily maximum and composite samples to the daily average.

U - not detected; J - estimated concentration

*Influent sample not compared to discharge limits

** Calculated Effluent Limit

Table 2-6: Bi-Weekly GWTP Analytical Sampling Results for November 2017

			Sample Location	EFFLUENT - Biweekly		EFFFLUENT - Monthly		INFLUENT - Monthly		EFFLUENT - Biweekly		
			Sample Identification	LH18/24-SP650_110117		LH18/24-SP650_110917		LH18/24-SP140_110917		LH18/24-SP650_112917		
			Sample Date	11/1/2017		11/9/2017		11/9/2017		11/29/2017		
			Sample Type	GRAB		GRAB		GRAB		GRAB		
	Effluent Limitation for Discharge (µg/L) per Table 2 of ROD											
	Daily Average Concentration	Daily Maximum Concentration	Detection Limit	Result	DVQ	Result	DVQ	Result	DVQ	Result	DVQ	Does Concentration Meet Effluent Discharge Limits? (Yes/No)
VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		
1,1,1-Trichloroethane	3,417	7,230	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
1,1,2-Trichloroethane	102.5	216.9	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
1,1-Dichloroethane	6,633	14,032	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
1,1-Dichloroethene	119	253	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
1,2-Dichloroethane	85	181	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
1,2-Dichloropropane	NA	NA	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Acetone	1,132	2,395	2	< 2.0	U	< 2.0	U	NA		< 2.0	U	Yes
Benzene	85	181	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Carbon Tetrachloride	85	181	1	< 1.0	U	< 1.0	UJ	NA		< 1.0	U	Yes
Chlorobezene	22,300	47,180	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Chloroform	1,708	3,615	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Ethylbenzene	26,954	57,025	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
m,p-Xylenes	39.5	83.6	2	< 2.0	U	< 2.0	U	NA		< 2.0	U	Yes
Methylene Chloride	803	1,699	2	**0.45**	J	< 2.0	U	NA		< 2.0	U	Yes
o-Xylene	39.5	83.6	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Styrene	2,829	5,987	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Tetrachloroethene	85.4	180.7	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Toluene	1,980	4,189	1	< 1.0	U	< 1.0	U	NA		< 1.0	U	Yes
Trichloroethene	85	181	1	**0.90**	J	< 1.0	UJ	NA		< 1.0	U	Yes
Vinyl Chloride	34	72	1	< 1.0	U	**0.470**	J	NA		< 1.0	U	Yes
ANIONS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		
Chloride	NA	NA	10	**534**		NA		NA		**607**		NA
Sulfate	NA	NA	10	**61**		NA		NA		**74.5**		NA
PERCHLORATE	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		
Perchlorate	278	589	4	NA		< 4.0	U	**9,800**		NA		Yes*
METALS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		
Hexavalent Chromium	0.058	0.124	0.010	NA		< 0.0100	U	< 0.0100	U	NA		Yes
Barium	1	2	0.004	NA		**0.165**		NA		NA		Yes
Lead	0.0022	0.0046	0.002	NA		< 0.00200	U	NA		NA		Yes
Selenium	0.0057	0.0120	0.002	NA		< 0.00200	U	< 0.00200	U	NA		Yes
Silver	0.0014	0.0030	0.002	NA		< 0.00200	U	< 0.00200	U	NA		Yes
SEMI-VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		
1,4-Dioxane**	NA	134.2	1	NA		**8.2**	J	NA		NA		Yes

Notes:

U - non detect; J - estimated concentration

µg/L - micrograms per liter

mg/L - milligrams per liter

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

DVQ - data validation qualifier

NA - not applicable

Grab samples are compared to the daily maximum and composite samples to the daily average.

GWTP - Groundwater Treatment Plant

ROD - Record of Decision

*Influent sample not compared to discharge limits

* *Calculated Effluent Limit

Table 2-7: Bi-Weekly Analytical GWTP Sampling Results for December 2017

			Sample Location	EFFLUENT - Monthly		INFLUENT - Monthly		EFFLUENT - Biweekly		EFFLUENT - Biweekly		Does Concentration Meet Effluent Discharge Limits? (Yes/No)
			Sample Identification	LH18/24-SP650_120617		LH18/24-SP140_120617		LH18/24-SP650_121317		LH18/24-SP650_122717		
			Sample Date	12/6/2017		12/6/2017		12/13/2017		12/27/2017		
			Sample Type	GRAB		GRAB		GRAB		GRAB		
	Effluent Limitation for Discharge (µg/L) per Table 2 of ROD											
	Daily Average Concentration	Daily Maximum Concentration	Detection Limit	Result	DVQ	Result	DVQ	Result	DVQ	Result	DVQ	
VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		
1,1,1-Trichloroethane	3,417	7,230	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
1,1,2-Trichloroethane	102.5	216.9	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
1,1-Dichloroethane	6,633	14,032	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
1,1-Dichloroethene	119	253	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
1,2-Dichloroethane	85	181	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
1,2-Dichloropropane	NA	NA	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
Acetone	1,132	2,395	2	< 2.0	U	NA		< 2.0	U	< 2.0	U	Yes
Benzene	85	181	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
Carbon Tetrachloride	85	181	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
Chlorobenzene	22,300	47,180	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
Chloroform	1,708	3,615	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
Ethylbenzene	26,954	57,025	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
m,p-Xylenes	39.5	83.6	2	< 2.0	U	NA		< 2.0	U	< 2.0	U	Yes
Methylene Chloride	803	1,699	2	< 2.0	U	NA		< 2.0	U	< 2.0	U	Yes
o-Xylene	39.5	83.6	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
Styrene	2,829	5,987	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
Tetrachloroethene	85.4	180.7	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
Toluene	1,980	4,189	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
Trichloroethene	85	181	1	< 1.0	U	NA		< 1.0	U	< 1.0	U	Yes
Vinyl Chloride	34	72	1	**0.73**	J	NA		< 1.0	U	< 1.0	U	Yes
ANIONS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		
Chloride	NA	NA	10	NA		NA		**457**	J	**674**		NA
Sulfate	NA	NA	10	NA		NA		**74.7**		**95.8**		NA
PERCHLORATE	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		
Perchlorate	278	589	4	< 4.0	U	**8,000**		NA		NA		Yes*
METALS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		
Hexavalent Chromium	0.058	0.124	0.010	< 0.0100	U	< 0.0100	U	NA		NA		Yes
Barium	1	2	0.004	**0.227**		NA		NA		NA		Yes
Lead	0.0022	0.0046	0.002	< 0.00200	U	NA		NA		NA		Yes
Selenium	0.0057	0.0120	0.002	< 0.00200	U	< 0.00200	U	NA		NA		Yes
Silver	0.0014	0.0030	0.002	< 0.00200	U	< 0.00200	U	NA		NA		Yes
SEMI-VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		
1,4-Dioxane**	NA	134.2	1	**4.7**		NA		NA		NA		Yes

Notes:

µg/L - micrograms per liter

DVQ - data validation qualifier

GWTP - Groundwater Treatment Plant

J - estimated concentration

mg/L - milligrams per liter

U - Non detect

NA - not applicable

Grab samples are compared to the daily maximum and composite samples to the daily average

*Influent sample not compared to discharge limits

** Calculated Effluent Limit

Table 2-8: Quarterly GWTP Analytical Sampling Results for the 4th Quarter of 2017

			Sample Location	EFFLUENT*		INFLUENT		Does Concentration Meet Discharge Limits? (Yes/No)
			Sample Identification	LH18/24-SP650_122017		LH18/24-SP140_122017		
			Sample Date	HS17121168		HS17121169		
			Sample Type	20-Dec-17		20-Dec-17		
				GRAB		GRAB		
	*Effluent Limitation for Discharge (µg/L) per Table 2 of ROD							
	Daily Average Concentration	Daily Maximum Concentration	Reporting Limit	Result	DVQ	Result	DVQ	
VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		
1,1,1-Trichloroethane	3,417	7,230	1	< 1.0	U	< 10	U	Yes
1,1,2-Trichloroethane	102.5	216.9	1	< 1.0	U	< 10	U	Yes
1,1-Dichloroethane	6,633	14,032	1	< 1.0	U	< 10	U	Yes
1,1-Dichloroethene	119	253	1	< 1.0	U	**92**		Yes
1,2-Dichloroethane	85	181	1	< 1.0	U	**59**		Yes
1,2-Dichloropropane	NA	NA	1	< 1.0	U	< 10	U	Yes
Acetone	1,132	2,395	2	<2.0	U	<20	U	Yes
Benzene	85	181	1	< 1.0	U	< 10	U	Yes
Carbon Tetrachloride	85	181	1	< 1.0	U	< 10	U	Yes
Chlorobenzene	22,300	47,180	1	< 1.0	U	< 10	U	Yes
Chloroform	1,708	3,615	1	< 1.0	U	**14**		Yes
Ethylbenzene	26,954	57,025	1	< 1.0	U	< 10	U	Yes
m,p-Xylenes	39.5	83.6	2	<2.0	U	<20	U	Yes
Methylene Chloride	803	1,699	2	<2.0	U	**21**		Yes
o-Xylene	39.5	83.6	1	< 1.0	U	< 10	U	Yes
Styrene	2,829	5,987	1	< 1.0	U	< 10	U	Yes
Tetrachloroethene	85.4	180.7	1	< 1.0	U	**43**		Yes
Toluene	1,980	4,189	1	< 1.0	U	< 10	U	Yes
Trichloroethene	85	181	1	< 1.0	U	**9,000**		Yes
Vinyl Chloride	34	72	1	< 1.0	U	**120**		Yes
ANIONS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		
Chloride	NA	NA	10	**583**		**459**		NA
Sulfate	NA	NA	10	**56.5**		**61.6**		NA
PERCHLORATE	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		
Perchlorate	278	589	4	< 4.0	U	**8,100**	J	Yes
METALS	**mg/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**		
Aluminum	0.777	1.644	0.0100	0.00533	UB	**0.0499**		Yes
Antimony	NA	NA	0.00200	< 0.00200	U	0.000843	UB	NA
Arsenic	0.365	0.772	0.00200	**0.000623**	J	**0.00143**	J	Yes

Table 2-8: Quarterly GWTP Analytical Sampling Results for the 4th Quarter of 2017

			Sample Location	EFFLUENT*		INFLUENT		Does Concentration Meet Discharge Limits? (Yes/No)
			Sample Identification	LH18/24-SP650_122017		LH18/24-SP140_122017		
			Sample Date	HS17121168		HS17121169		
			Sample Type	20-Dec-17		20-Dec-17		
				GRAB		GRAB		
	*Effluent Limitation for Discharge (µg/L) per Table 2 of ROD							
	Daily Average Concentration	Daily Maximum Concentration	Reporting Limit	Result	DVQ	Result	DVQ	
Barium	1	2	0.00400	**0.200**		**0.679**		Yes
Beryllium	NA	NA	0.00200	< 0.00200	U	< 0.00200	U	NA
Cadmium	0.0016	0.0034	0.00200	< 0.00200	U	**0.000326**	J	Yes
Calcium	NA	NA	0.500	**13.3**		**40.3**		NA
Chromium	0.355	0.752	0.00400	< 0.00400	U	**0.00190**	J	Yes
Cobalt	5.433	11.495	0.00500	< 0.00500	U	**0.00877**		Yes
Iron	1.132	2.395	0.200	**0.0174**	J	**0.891**		Yes
Lead	0.0022	0.0046	0.00200	< 0.00200	U	< 0.00200	U	Yes
Magnesium	NA	NA	0.200	**23.6**		**32.4**		NA
Manganese	7.323	15.494	0.00500	**0.0531**		**0.524**		Yes
Nickel	0.087	0.184	0.00200	**0.00184**	J	**0.0139**		Yes
Potassium	NA	NA	0.200	**2.00**		**1.64**		NA
Selenium	0.0057	0.012	0.00200	< 0.00200	U	< 0.00200	U	Yes
Silver	0.0014	0.003	0.00200	< 0.00200	U	< 0.00200	U	Yes
Sodium	NA	NA	1.00	**538**		**224**		NA
Thallium	NA	NA	0.00200	< 0.00200	U	< 0.00200	U	NA
Vanadium	1.698	3.592	0.00500	< 0.00500	U	**0.000627**	J	Yes
Zinc	0.146	0.31	0.00400	0.00385	UB	**0.121**		Yes
Mercury	NA	NA	0.000200	< 0.000200	U	< 0.000200	U	NA
1,4-Dioxane	**µg/L**	**µg/L**	**µg/L**	**µg/L**		**µg/L**		
1,4-Dioxane	NA	134.2	1	**2.9**	J	**6.0**		Yes
	mg/L	**mg/L**	**mg/L**	**mg/L**		**mg/L**		
Chemical Oxygen Demand	NA	200	75	**105**		**35.0**	J	Yes
Oil and Grease	NA	15	2	<2.0	U	<2.0	U	Yes

Notes:
µg/L - micrograms per liter
DVQ - data validation qualifier
GWTP - Groundwater Treatment Plant
J - Estimated concentration
mg/L - milligrams per liter
NA - not applicable
ROD - Record of Decision
U - non detect
Grab samples are compared to the daily maximum and composite samples to the daily average
UB - considered non detect due to blank contamination
* only Effluent sample is compared to discharge limits

3 EVALUATION OF LHAAP-16 EXTRACTION SYSTEM

Groundwater was extracted from LHAAP-16 during October (41,639 gallons) and December (28,202 gallons) 2017. The volume of extracted groundwater from LHAAP-16 is shown in **Table 2-3** and on **Figure ES-1.**

3.1 Quantity of Groundwater Extracted From LHAAP-16

The quantity of groundwater extracted on a monthly basis is presented in **Table 2-3**. These flows are based on the sum of individual flow meter readings. There was no groundwater extracted from LHAAP-16 in November 2017 for treatment by the GWTP because the air compressor required a new electric motor, which was replaced in November. However, the wiring was not completed by an electrician until December 6, 2017.

3.2 Groundwater Elevation

The groundwater elevations in the piezometers and monitoring wells at LHAAP-16 for October, November and December 2017 are presented in **Table 3-1**. The potentiometric surface maps for the shallow and Upper Wilcox (intermediate) groundwater zones at LHAAP-16 for October, November, and December 2017 are presented on **Figures B-7** through **B-12** in **Appendix B**. Based on the potentiometric surface maps, the general groundwater flow direction in the shallow and intermediate zone is southeast.

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Table 3-1: Groundwater Elevations at LHAAP-16 Piezometers and Monitoring Wells

PIEZOMETER LEVELS

Piezometers	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
16PZ-1	10/31/2017	199.44	28.25	171.19
16PZ-2	10/31/2017	199.75	28.71	171.04
16PZ-3	10/31/2017	198.61	27.44	171.17
16PZ-4	10/31/2017	198.81	27.89	170.92
16PZ-5	10/31/2017	198.31	27.48	170.83
16PZ-6	10/31/2017	198.61	27.82	170.79
16PZ-7	10/31/2017	200.10	28.67	171.43
16PZ-8	10/31/2017	199.93	28.86	171.07
16PZ-9	10/31/2017	196.49	26.53	169.96
16PZ-10	10/31/2017	196.65	26.13	170.52
16PZ-11	10/31/2017	198.88	27.63	171.25
16PZ-12	10/31/2017	199.00	27.95	171.05
16PZ-13	10/31/2017	196.58	25.46	171.12
16PZ-14	10/31/2017	196.09	25.33	170.76
16PZ-15	10/31/2017	191.93	21.31	170.62
16PZ-16	10/31/2017	190.79	20.33	170.46
16PZ-17	10/31/2017	186.67	17.85	168.82
16PZ-18	10/31/2017	185.99	16.23	169.76
16PZ-19	10/31/2017	183.98	15.86	168.12
16PZ-20	10/31/2017	183.12	13.58	169.54

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
16WW12	10/31/2017	188.81	19.04	169.77
16WW14	10/31/2017	198.87	26.45	172.42
16WW22	10/31/2017	200.13	29.09	171.04
16WW25	10/31/2017	188.77	20.06	168.71
16WW26	10/31/2017	188.83	18.94	169.89
16WW29	10/31/2017	178.24	9.77	168.47
16WW30	10/31/2017	178.47	10.22	168.25
16WW31	10/31/2017	202.78	31.23	171.55
16WW33	10/31/2017	203.09	31.14	171.95
16WW35	10/31/2017	191.23	19.32	171.91
16WW36	10/31/2017	190.94	18.80	172.14

Table 3-1: Groundwater Elevations at LHAAP-16 Piezometers and Monitoring Wells

PIEZOMETER LEVELS

Piezometers	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
16PZ-1	11/30/2017	199.44	28.37	171.07
16PZ-2	11/30/2017	199.75	28.77	170.98
16PZ-3	11/30/2017	198.61	27.53	171.08
16PZ-4	11/30/2017	198.81	27.98	170.83
16PZ-5	11/30/2017	198.31	27.59	170.72
16PZ-6	11/30/2017	198.61	27.95	170.66
16PZ-7	11/30/2017	200.10	28.79	171.31
16PZ-8	11/30/2017	199.93	28.99	170.94
16PZ-9	11/30/2017	196.49	26.60	169.89
16PZ-10	11/30/2017	196.65	26.24	170.41
16PZ-11	11/30/2017	198.88	27.75	171.13
16PZ-12	11/30/2017	199.00	28.07	170.93
16PZ-13	11/30/2017	196.58	25.52	171.06
16PZ-14	11/30/2017	196.09	25.44	170.65
16PZ-15	11/30/2017	191.93	21.40	170.53
16PZ-16	11/30/2017	190.79	20.41	170.38
16PZ-17	11/30/2017	186.67	17.97	168.70
16PZ-18	11/30/2017	185.99	16.35	169.64
16PZ-19	11/30/2017	183.98	15.95	168.03
16PZ-20	11/30/2017	183.12	13.70	169.42

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
16WW12	11/30/2017	188.81	19.12	169.69
16WW14	11/30/2017	198.87	26.55	172.32
16WW22	11/30/2017	200.13	29.22	170.91
16WW25	11/30/2017	188.77	20.15	168.62
16WW26	11/30/2017	188.83	19.08	169.75
16WW29	11/30/2017	178.24	9.80	168.44
16WW30	11/30/2017	178.47	10.30	168.17
16WW31	11/30/2017	202.78	31.35	171.43
16WW33	11/30/2017	203.09	31.26	171.83
16WW35	11/30/2017	191.23	19.46	171.77
16WW36	11/30/2017	190.94	18.95	171.99

Table 3-1: Groundwater Elevations at LHAAP-16 Piezometers and Monitoring Wells

PIEZOMETER LEVELS

Piezometers	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
16PZ-1	12/27/2017	199.44	28.45	170.99
16PZ-2	12/27/2017	199.75	28.88	170.87
16PZ-3	12/27/2017	198.61	27.60	171.01
16PZ-4	12/27/2017	198.81	28.03	170.78
16PZ-5	12/27/2017	198.31	27.67	170.64
16PZ-6	12/27/2017	198.61	28.00	170.61
16PZ-7	12/27/2017	200.10	28.89	171.21
16PZ-8	12/27/2017	199.93	29.10	170.83
16PZ-9	12/27/2017	196.49	26.67	169.82
16PZ-10	12/27/2017	196.65	26.30	170.35
16PZ-11	12/27/2017	198.88	27.81	171.07
16PZ-12	12/27/2017	199.00	28.18	170.82
16PZ-13	12/27/2017	196.58	25.61	170.97
16PZ-14	12/27/2017	196.09	25.50	170.59
16PZ-15	12/27/2017	191.93	21.48	170.45
16PZ-16	12/27/2017	190.79	20.50	170.29
16PZ-17	12/27/2017	186.67	18.04	168.63
16PZ-18	12/27/2017	185.99	16.44	169.55
16PZ-19	12/27/2017	183.98	16.03	167.95
16PZ-20	12/27/2017	183.12	13.77	169.35

MONITORING WELL LEVELS

Monitoring Wells	Date	Reference Elevation (feet amsl)	Depth to Water (feet)	Groundwater Elevation (feet amsl)
16WW12	12/27/2017	188.81	19.21	169.60
16WW14	12/27/2017	198.87	26.63	172.24
16WW22	12/27/2017	200.13	29.30	170.83
16WW25	12/27/2017	188.77	20.24	168.53
16WW26	12/27/2017	188.83	19.20	169.63
16WW29	12/27/2017	178.24	9.91	168.33
16WW30	12/27/2017	178.47	10.39	168.08
16WW31	12/27/2017	202.78	31.40	171.38
16WW33	12/27/2017	203.09	31.31	171.78
16WW35	12/27/2017	191.23	19.53	171.70
16WW36	12/27/2017	190.94	19.04	171.90

Notes:
amsl - above mean sea level

4 QUALITY CONTROL

This report summarizes the data for samples collected during October, November, and December 2017. The samples were reviewed and validated in accordance with the guidelines in the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, January 2017); *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017); and the QC criteria specified in the *Basewide Uniform Federal Policy - Quality Assurance Project Plan Longhorn Army Ammunition Plant* (November, 2017).

The purpose of the sampling program is to evaluate the effectiveness of the groundwater pump and treat system, assess water quality within the capture zone, and assure compliance with the effluent discharge requirements of the Interim ROD. Quality control and quality assurance problems noted in the case narratives received from the laboratory are minor and do not affect the usability of the data for compliance at the GWTP. No sample results from the 4th quarter of 2017 were rejected due to quality control problems.

ALS Environmental and Gulf Coast Analytical Laboratories, LLC analyzed the compliance samples collected from the GWTP. Independent data verification and validation was performed by the Bhate Environmental Associates, Inc. (Bhate) project chemist as described in the Quality Control Summary Report in **Appendix F**. The laboratory reports for the 4th quarter of 2017 are also included in **Appendix E** on a CD. Air monitoring data is presented in **Appendix G** on CD.

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5 TREATED GROUNDWATER DISCHARGED

Reinjection of groundwater in ICT 6 and ICT 9 was discontinued as of July 15, 2012. The last injection occurred on May 24, 2012, immediately prior to the scrubber system malfunction which caused GWTP operation to cease temporarily.

Treated groundwater that met the perchlorate discharge criteria was discharged to Harrison Bayou or the INF Pond in accordance with the Protocol for Discharging GWTP Effluent (**Appendix H**). **Table 5-1** summarizes flow rates from the INF Pond to the Harrison Bayou, the maximum flow rate allowed by chloride and sulfate concentrations, and the approximated flow rate discharged for December 2017. No treated groundwater was discharged to Harrison Bayou during October or November 2017. Only water from the INF Pond was discharged to the Harrison Bayou because the valve for discharge from the GWTP could not be opened due to rusting. This valve was replaced on January 30, 2018.

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Table 5-1: Treated Groundwater Discharged to Harrison Bayou - October 2017 through December 2017

Date	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released Flow Rate From GWTP To Harrison Bayou (gpm)	Released Flow Rate From INF Pond To Harrison Bayou (gpm)	Combined Total Flow Rate Released To Harrison Bayou (gpm)
10/01/2017	No Release	N/A	0.0	0.0	0.0
10/02/2017	No Release	N/A	0.0	0.0	0.0
10/03/2017	No Release	N/A	0.0	0.0	0.0
10/04/2017	No Release	N/A	0.0	0.0	0.0
10/05/2017	No Release	N/A	0.0	0.0	0.0
10/06/2017	No Release	N/A	0.0	0.0	0.0
10/07/2017	No Release	N/A	0.0	0.0	0.0
10/08/2017	No Release	N/A	0.0	0.0	0.0
10/09/2017	No Release	N/A	0.0	0.0	0.0
10/10/2017	No Release	N/A	0.0	0.0	0.0
10/11/2017	No Release	N/A	0.0	0.0	0.0
10/12/2017	No Release	N/A	0.0	0.0	0.0
10/13/2017	No Release	N/A	0.0	0.0	0.0
10/14/2017	No Release	N/A	0.0	0.0	0.0
10/15/2017	No Release	N/A	0.0	0.0	0.0
10/16/2017	No Release	N/A	0.0	0.0	0.0
10/17/2017	No Release	N/A	0.0	0.0	0.0
10/18/2017	No Release	N/A	0.0	0.0	0.0
10/19/2017	No Release	N/A	0.0	0.0	0.0
10/20/2017	No Release	N/A	0.0	0.0	0.0
10/21/2017	No Release	N/A	0.0	0.0	0.0
10/22/2017	No Release	N/A	0.0	0.0	0.0
10/23/2017	No Release	N/A	0.0	0.0	0.0
10/24/2017	No Release	N/A	0.0	0.0	0.0
10/25/2017	No Release	N/A	0.0	0.0	0.0
10/26/2017	No Release	N/A	0.0	0.0	0.0
10/27/2017	No Release	N/A	0.0	0.0	0.0
10/28/2017	No Release	N/A	0.0	0.0	0.0
10/29/2017	No Release	N/A	0.0	0.0	0.0
10/30/2017	No Release	N/A	0.0	0.0	0.0
10/31/2017	No Release	N/A	0.0	0.0	0.0

Table 5-1: Treated Groundwater Discharged to Harrison Bayou - October 2017 through December 2017

Date	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released Flow Rate From GWTP To Harrison Bayou (gpm)	Released Flow Rate From INF Pond To Harrison Bayou (gpm)	Combined Total Flow Rate Released To Harrison Bayou (gpm)
11/01/2017	No Release	N/A	0.0	0.0	0.0
11/02/2017	No Release	N/A	0.0	0.0	0.0
11/03/2017	No Release	N/A	0.0	0.0	0.0
11/04/2017	No Release	N/A	0.0	0.0	0.0
11/05/2017	No Release	N/A	0.0	0.0	0.0
11/06/2017	No Release	N/A	0.0	0.0	0.0
11/07/2017	No Release	N/A	0.0	0.0	0.0
11/08/2017	No Release	N/A	0.0	0.0	0.0
11/09/2017	No Release	N/A	0.0	0.0	0.0
11/10/2017	No Release	N/A	0.0	0.0	0.0
11/11/2017	No Release	N/A	0.0	0.0	0.0
11/12/2017	No Release	N/A	0.0	0.0	0.0
11/13/2017	No Release	N/A	0.0	0.0	0.0
11/14/2017	No Release	N/A	0.0	0.0	0.0
11/15/2017	No Release	N/A	0.0	0.0	0.0
11/16/2017	No Release	N/A	0.0	0.0	0.0
11/17/2017	No Release	N/A	0.0	0.0	0.0
11/18/2017	No Release	N/A	0.0	0.0	0.0
11/19/2017	No Release	N/A	0.0	0.0	0.0
11/20/2017	No Release	N/A	0.0	0.0	0.0
11/21/2017	No Release	N/A	0.0	0.0	0.0
11/22/2017	No Release	N/A	0.0	0.0	0.0
11/23/2017	No Release	N/A	0.0	0.0	0.0
11/24/2017	No Release	N/A	0.0	0.0	0.0
11/25/2017	No Release	N/A	0.0	0.0	0.0
11/26/2017	No Release	N/A	0.0	0.0	0.0
11/27/2017	No Release	N/A	0.0	0.0	0.0
11/28/2017	No Release	N/A	0.0	0.0	0.0
11/29/2017	No Release	N/A	0.0	0.0	0.0
11/30/2017	No Release	N/A	0.0	0.0	0.0

Table 5-1: Treated Groundwater Discharged to Harrison Bayou - October 2017 through December 2017

Date	Harrison Bayou Flow (gpm)	Maximum Rate Allowed (gpm)	Released Flow Rate From GWTP To Harrison Bayou (gpm)	Released Flow Rate From INF Pond To Harrison Bayou (gpm)	Combined Total Flow Rate Released To Harrison Bayou (gpm)
12/01/2017	No Release	N/A	0.0	0.0	0.0
12/02/2017	No Release	N/A	0.0	0.0	0.0
12/03/2017	No Release	N/A	0.0	0.0	0.0
12/04/2017	No Release	N/A	0.0	0.0	0.0
12/05/2017	No Release	N/A	0.0	0.0	0.0
12/06/2017	No Release	N/A	0.0	0.0	0.0
12/07/2017	No Release	N/A	0.0	0.0	0.0
12/08/2017	No Release	N/A	0.0	0.0	0.0
12/09/2017	No Release	N/A	0.0	0.0	0.0
12/10/2017	No Release	N/A	0.0	0.0	0.0
12/11/2017	No Release	N/A	0.0	0.0	0.0
12/12/2017	No Release	N/A	0.0	0.0	0.0
12/13/2017	No Release	N/A	0.0	0.0	0.0
12/14/2017	No Release	N/A	0.0	0.0	0.0
12/15/2017	No Release	N/A	0.0	0.0	0.0
12/16/2017	No Release	N/A	0.0	0.0	0.0
12/17/2017	No Release	N/A	0.0	0.0	0.0
12/18/2017	No Release	N/A	0.0	0.0	0.0
12/19/2017	No Release	N/A	0.0	0.0	0.0
12/20/2017	No Release	N/A	0.0	0.0	0.0
12/21/2017	10,474	4,063	0.0	4,063.0	4,063.0
12/22/2017	3,746	764	0.0	764.0	764.0
12/23/2017	1,229	280	0.0	280.0	280.0
12/24/2017	782	178	0.0	178.0	178.0
12/25/2017	564	129	0.0	129.0	129.0
12/26/2017	143	32	0.0	32.0	32.0
12/27/2017	No Release	N/A	0.0	0.0	0.0
12/28/2017	No Release	N/A	0.0	0.0	0.0
12/29/2017	No Release	N/A	0.0	0.0	0.0
12/30/2017	No Release	N/A	0.0	0.0	0.0
12/31/2017	No Release	N/A	0.0	0.0	0.0

Notes:

gpm - gallons per minute

N/A - not applicable

6 AIR MONITORING

6.1 Summary of Air Monitoring Approach

Operation of the GWTP without air abatement was approved by the TCEQ and USEPA conditioned on collection of air monitoring data to determine the effect of GWTP operation on ambient air quality with respect to potential human health exposure risk. An Interim Air Monitoring Plan was developed by AECOM in August 2012 and used to implement the air monitoring program. The air monitoring program included sampling emission concentrations from the air stripper, ambient air at the GWTP, and ambient air downwind of the GWTP. Collection of air data occurred on a weekly basis between September 2012 and September 2013, on a monthly basis between September 2013 and September 2014, and on a quarterly basis since that time. The sampling program includes use of Summa canisters and a photoionization detector (PID) to measure vapor phase concentrations. The air stripper emission sample is collected as a grab sample, while the ambient air samples are collected as composite samples. The GWTP sample is collected over 8 hours to represent a work day and the downwind sample is collected over 24 hours to represent potential exposure to an off-site receptor[1]. The downwind sample is collected at the closest downwind property boundary, based on prevailing wind direction.

PID data (after system calibration) are collected each time the GWTP is operated and serve as a real-time indicator of ambient air conditions at and downwind of the GWTP. Correlations between definitive analytical air data and PID measurements were established and a means to calculate contaminant concentration from PID measurements was developed. A PID threshold of 0.4 parts per million by volume (ppmv) in ambient air was established, such that Summa canister measurements would occur when the PID threshold is exceeded.

The Summa canister samples are analyzed for VOCs using USEPA Method TO-15. The PID measurements are collected after instrument calibration. The air sampling results are summarized and reported to the USEPA and TCEQ in the GWTP quarterly reports; however, the air results are reviewed immediately upon receipt for the potential presence of any exceedances of ambient air concentrations. **Appendix G** includes a summary of analytical results and PID readings, calculations of emission rates from the emission point, comparison of ambient air concentrations with TCEQ Air Monitoring Comparison Values (AMCVs) or the short-term Effects Screening Levels (ESLs) for chemicals with no published AMCVs, and a compilation of PID results and calibration records. The air monitoring results to date indicate that all ambient air

[1] Off-site receptor - Any recreational area, residence, commercial/industrial facility, or other normally occupied structures not used solely by the owner or operator of the facilities or the owner of the site upon which the facilities are located. Measurements of distances to determine compliance with this distance restriction must be taken toward structures that are in use as of the date that a notification is filed with the commission.

concentrations are lower than the AMCVs or ESLs. The stripper stack sample concentrations are used to calculate emission rates in pounds per hour (lbs/hr) and tons per year (tpy). The calculated emission rates in lbs/hr are then compared to the allowable emission rates per 30 Texas Administrative Code (TAC) §106.533(f)(1). The emission rates have been lower than the allowable emission rates to the conservatively-selected off-site receptor[1]. The calculated emission rate in tpy is compared to the allowable limit of 5 tpy per chemical. All emission rates have been lower than the allowable emission rates.

The air monitoring results from the first few months of operation between September and November 2012 were compiled and submitted in a separate report (December 2012) (along with validated data) to TCEQ to demonstrate compliance with Texas Permit by Rule emission standards. Approval of the analytical results and concurrence that the site will continue to meet Title 30 TAC §106.533 without the use of air abatement using a catalytic oxidation system was obtained from the TCEQ via email on February 22, 2013.

On February 18, 2013, AECOM presented analysis of the approach applicable to obtaining a variance for operating the GWTP without air abatement equipment to the TCEQ and USEPA. The analysis indicated that the use of an Explanation of Significant Difference (ESD) is the appropriate approach for the site. Approval of use of an ESD was obtained from the USEPA via email on March 21, 2013. The ESD was developed, reviewed, and accepted by USEPA and TCEQ. The ESD was signed by the designated parties on April 3, 2014, and concurrence from the TCEQ was obtained in a letter dated April 16, 2014.

6.2 Air Monitoring Results for the 4th Quarter of 2017

During the 4th quarter of 2017, no air sampling was completed in October, November, or December 2017. Upon identification of this error, a sampling event was immediately set up for January 2018. The data from the January 2018 event is presented herein. A second air sampling event will be completed later in the 1st quarter of 2018 and be presented in the 1st Quarter 2018 Evaluation Report. A summary of the air sampling results is presented in **Appendix G**. Air samples for the 4th quarter of 2017 were collected on January 29, 2018. All results met the criteria described in Section 7.1.

6.2.1 Summa Canister Monitoring Results

One sampling event was conducted on January 29, 2018, for presentation in this 4th Quarter 2017 reporting period using Summa canisters. The samples were collected and analyzed as described in Section 7.1 and per the approved air monitoring plan dated August 2012. The analytical results were then compiled in spreadsheets where calculations were completed and comparisons to applicable criteria were made as described in Section 7.1.

6.2.1.1 Ambient Air Results

Dichlorodifluoromethane, trichlorofluoromethane, methylene chloride, ethyl acetate, n-hexane, and tetrahydrofuran were detected in January 2018 in ambient air downwind of the GWTP.

Compounds originating at the GWTP would be expected to have lower concentrations in the downwind sampling location than at the GWTP sampling location. Likewise, compounds like n-hexane, dichlorodifluoromethane, and trichlorofluoromethane with similar concentrations in both GWTP ambient air and downwind ambient air are suspected to be present in the ambient (background) air.

All ambient air results during the quarter met the ambient air criteria.

6.2.1.2 Air Stripper Effluent Results

The VOCs present in groundwater that are removed via the air stripper include 1,1-dichloroethene; 1,2-dichloroethane; cis-1,2-dichloroethene; MC; TCE; vinyl chloride; and trichlorotrifluoroethane. The highest reported concentrations are for TCE; MC; cis-1,2-dichloroethene; and trichlorotrifluoroethane. These compounds are frequently reported in groundwater at the site, with the exception of trichlorotrifluoroethane which is not typically a groundwater analyte at LHAAP. Trichlorotrifluoroethane, however, appears to be present in groundwater as indicated by limited analysis conducted in December 2013, where it was detected in several wells, and from historical accounts. Many of the chemicals that are reported in ambient air are not detected in the air stripper effluent. This is likely because the reporting limit for the air stripper effluent is higher than the reporting limit for the ambient air samples or the source for some of these chemicals are extraneous to groundwater.

All air stripper effluent concentrations were below the emission criteria.

6.2.2 PID Results

Along with collection of Summa canister air samples, PID measurements from the same sources/areas are collected and recorded. These simultaneous measurements allowed establishing a correlation between PID readings and VOC concentrations in the Summa canister air samples. Conversion from PID to compound concentrations was established by TCEQ in 30 TAC §106.533(h). The TCEQ equation allows use of a PID to determine individual compound concentrations if the distribution of chemicals in the ambient air is known or assumed. This allows the use of a PID as a tool to measure VOC concentrations and convert the PID results to estimates of compound concentrations. All ambient air PID measurements during this quarter at the GWTP were reported at 0.0 ppmv. The results of the PID readings collected during GWTP operations are presented in **Appendix G**.

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7 COMMENTS AND RESPONSES

No comments have been received on the 3rd Quarter 2017 Report.

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APPENDIX A
ICT LAYOUT AND GWTP PROCESS FLOW DIAGRAM

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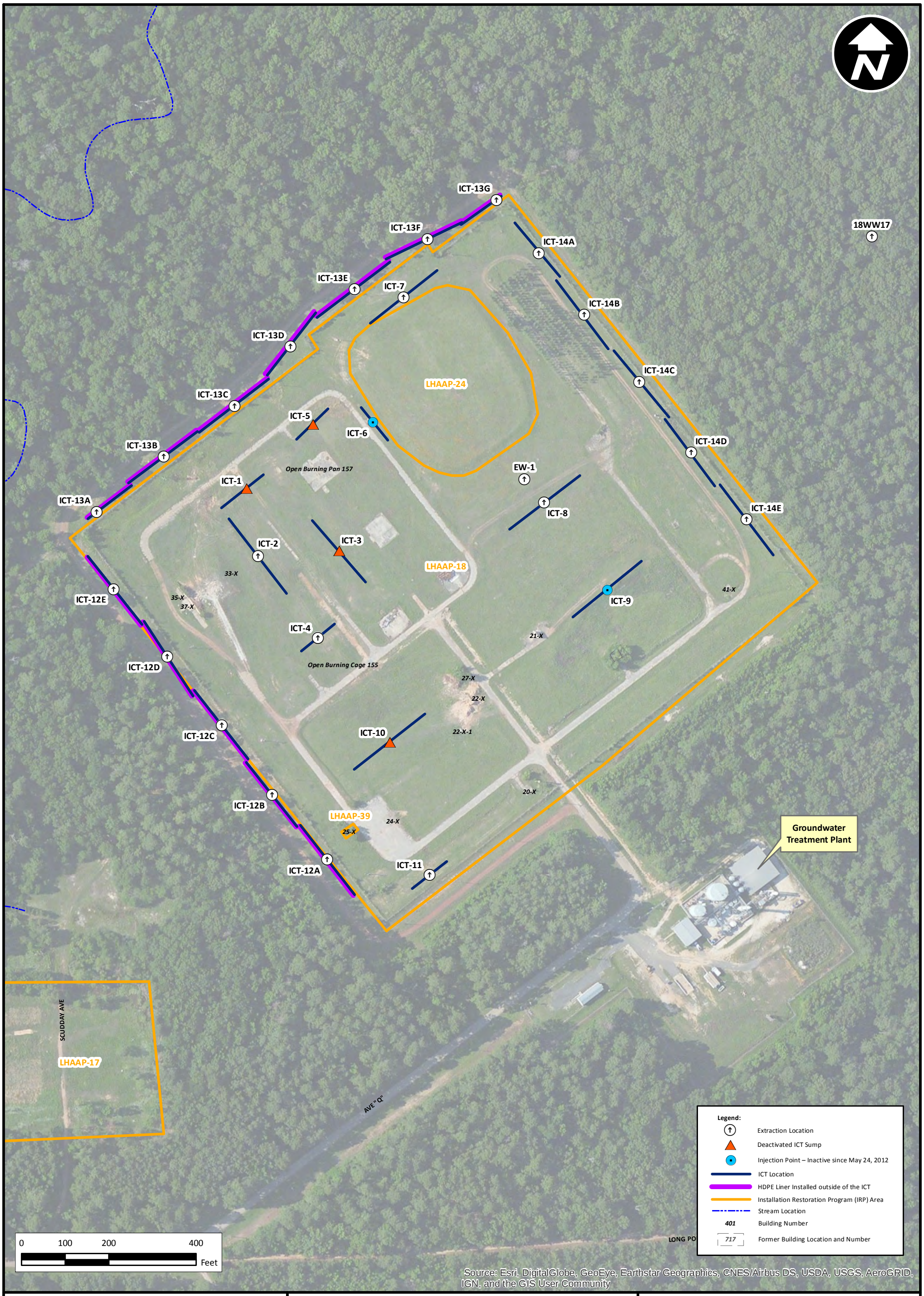
00870304



bhate ENVIRONMENT & INFRASTRUCTURE

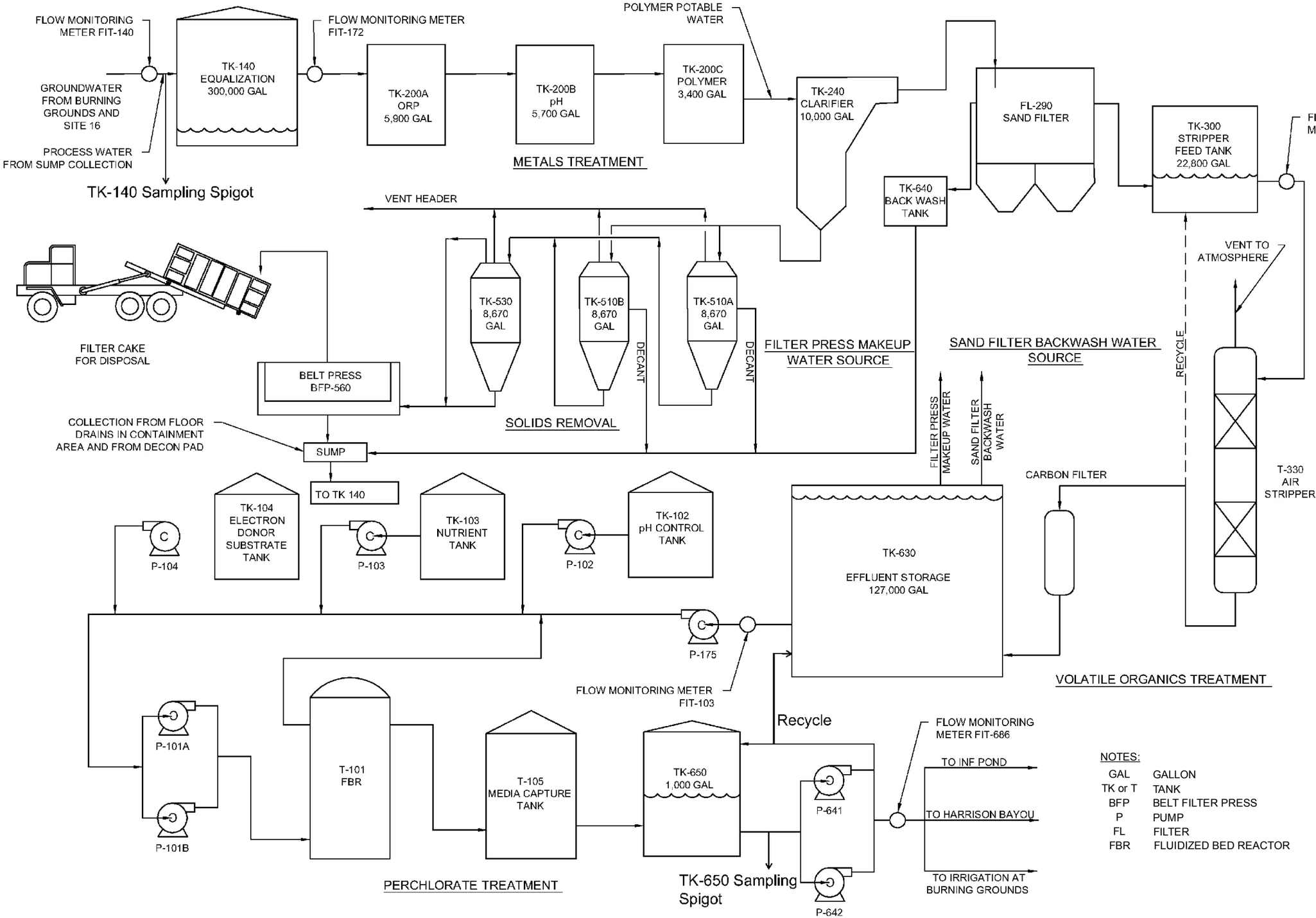
Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	3/12/2018	MRM

ICT Layout Map

Figure A-1

00870305



NOTES:

GAL	GALLON
TK or T	TANK
BFP	BELT FILTER PRESS
P	PUMP
FL	FILTER
FBR	FLUIDIZED BED REACTOR

Source: AECOM, May 2013

Process Flow Diagram

Figure A-2

Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

DRAWN BY: MRM

DATE: 3/12/2018

SCALE: Not to Scale

PROJECT NO: NWO1312.0150

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Table A-1: ICTs Completion Depths

ICT	TOC Elevation	Total Depth	Sump Elevation	Comment
1	186.07	22.5	163.57	Taken out of service in 2007.
2	185.02	29.5	155.52	
3	192.27	37.75	154.52	Taken out of service in 2007.
4	193.51	37.5	156.01	
5	192.67	35	157.67	Taken out of service in 2007.
6	197.30	40.75	156.55	Converted to infiltration in 2007. Ceased reinjection in July 2012.
7	198.03	32.33	165.7	
8	198.97	44.5	154.47	
9	197.64	45.5	152.14	Converted to infiltration in 2007. Ceased reinjection in July 2012.
10	198.07	45.42	152.65	Taken out of service in 2007.
11	198.01	43.33	154.68	
12A	189.06	31.5	157.56	Taken out of service in 2007. Reinstituted in December 2012.
12B	191.97	36.25	155.72	
12C	193.90	34.33	159.57	
12D	185.64	33.75	151.89	
12E	183.38	32.25	151.13	
13A	182.59	28.17	154.42	
13B	184.72	29.58	155.14	
13C	186.13	28.17	157.96	
13D	186.72	26.17	160.55	
13E	191.79	27.08	164.71	
13F	197.81	32.33	165.48	
13G	197.03	27.25	169.78	Taken out of service in 2008.
14A	196.8	43.00	153.8	
14B	197.61	43.42	154.19	
14C	197.86	41.33	156.53	
14D	198.47	44.25	154.22	
14E	198.47	43.08	155.39	

Note(s):

ICT - interception-collection trench

TOC - top of casing, measuring point for groundwater elevations

Elevations are reported as feet above mean sea level.

Total depths are reported as feet below TOC.

Sump elevation calculated by subtracting total depth from TOC elevation.

ICTs were installed in 1998.

ICT 12A was replaced on December 5, 2012, and extraction has resumed.

TOC Elevations and total depth measured in October 2003, 4th Quarter 2003, Groundwater Treatment Plant Report.

APPENDIX B
GROUNDWATER ELEVATION CONTOUR MAPS

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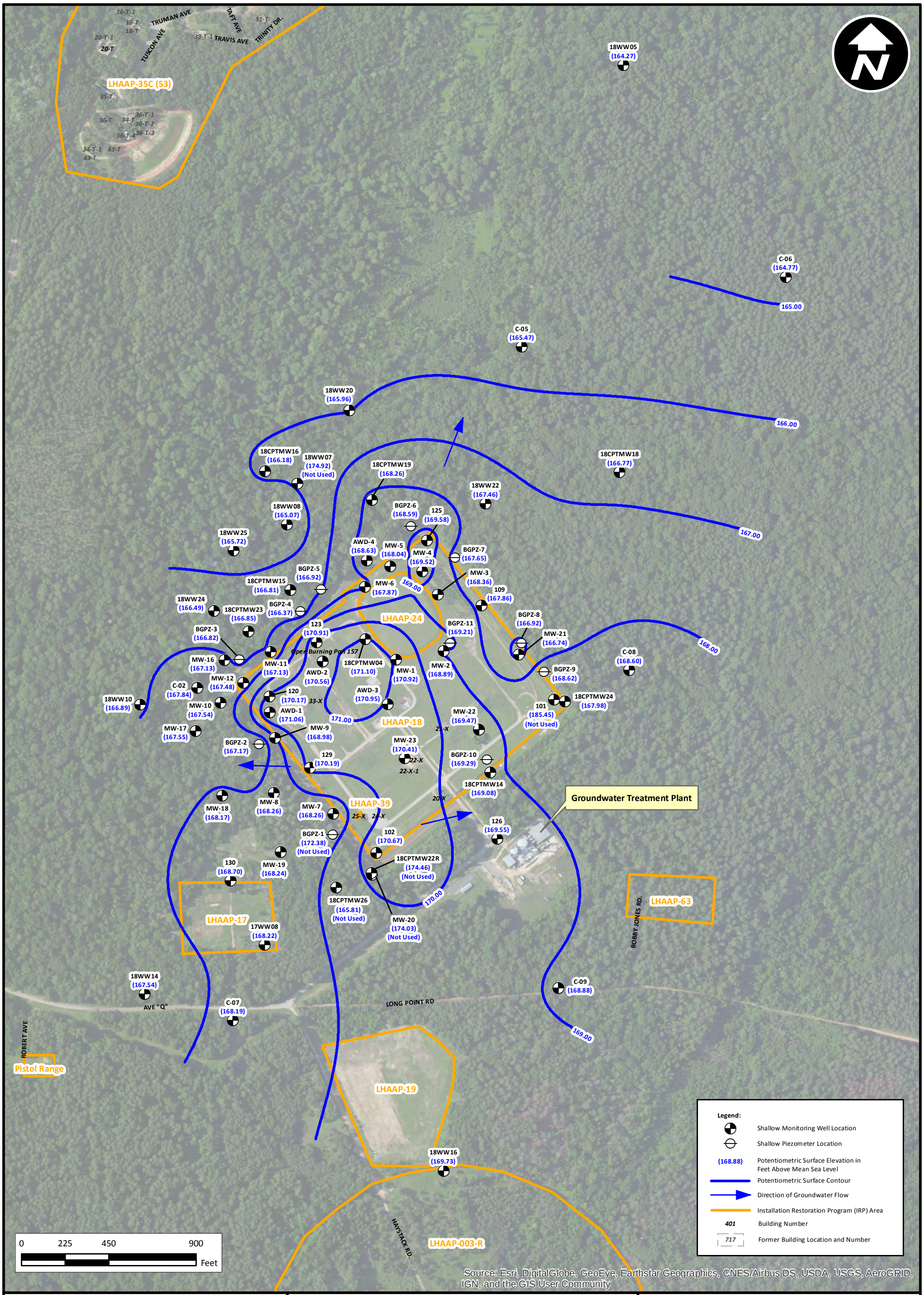

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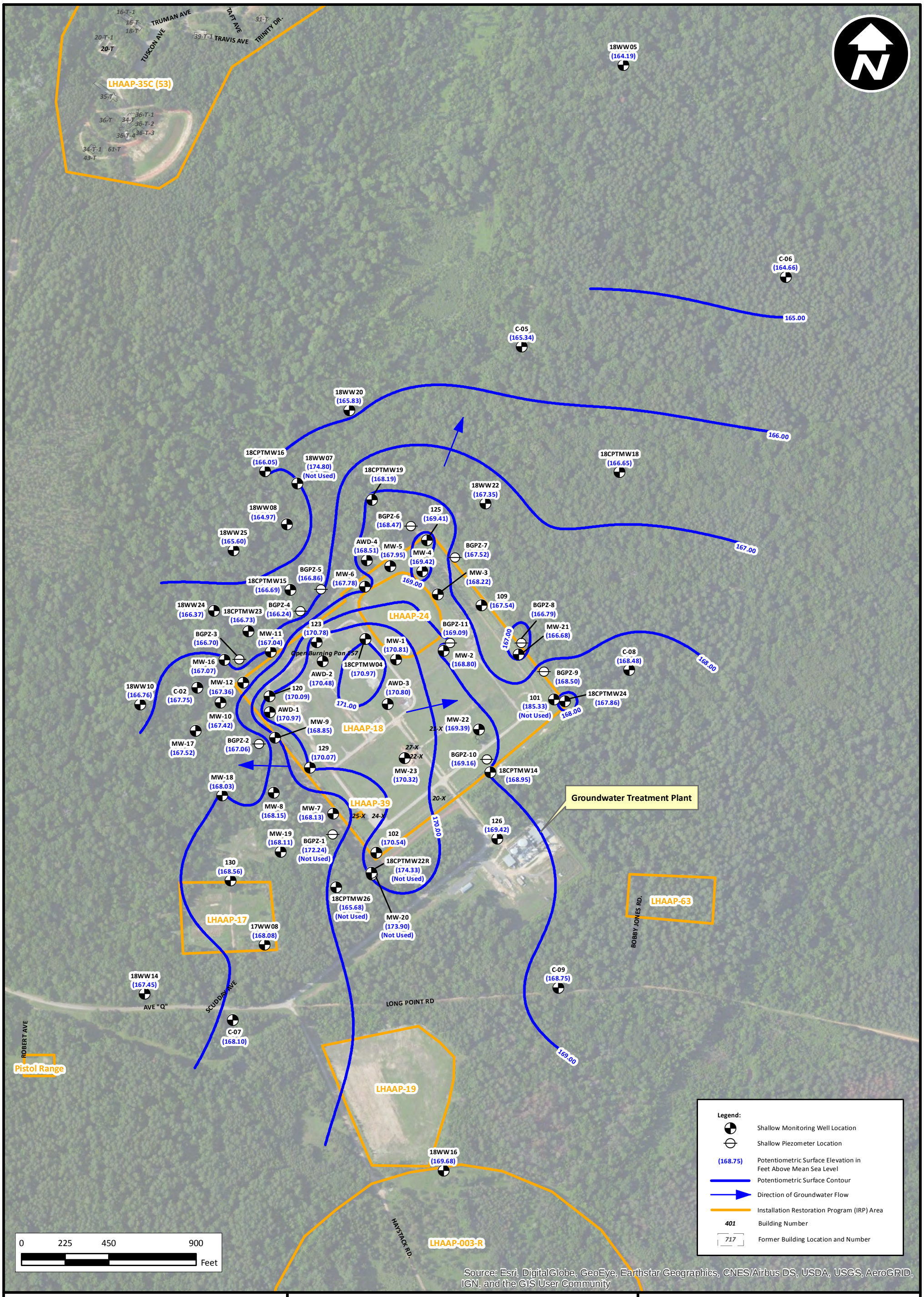
Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	3/12/2018	MRM

Groundwater Potentiometric Surface Map
Shallow Zone (October 2017) LHAAP-18/24

Figure B-1



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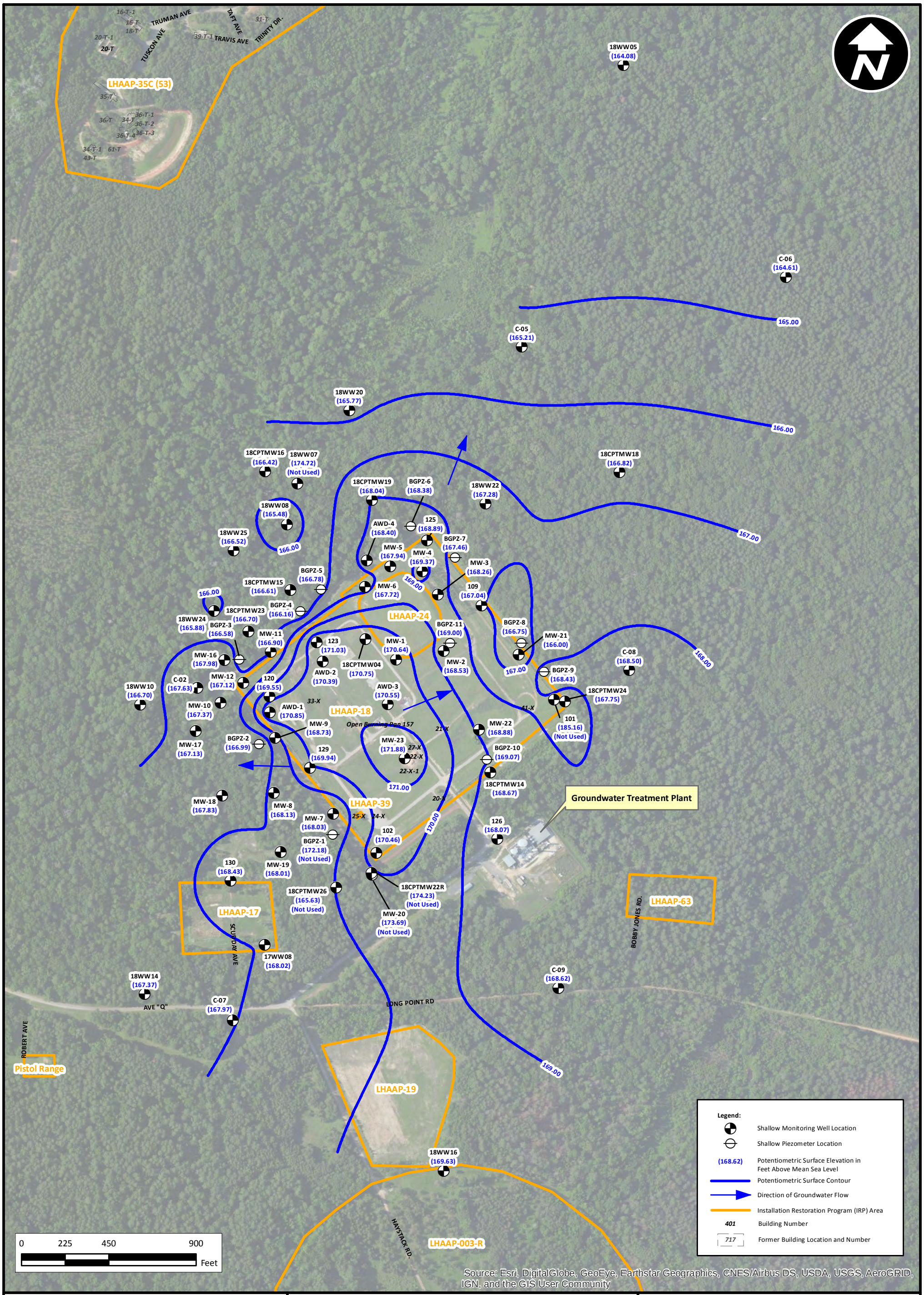
Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	3/12/2018	MRM

Groundwater Potentiometric Surface Map
Shallow Zone (November 2017) LHAAP-18/24

Figure B-2



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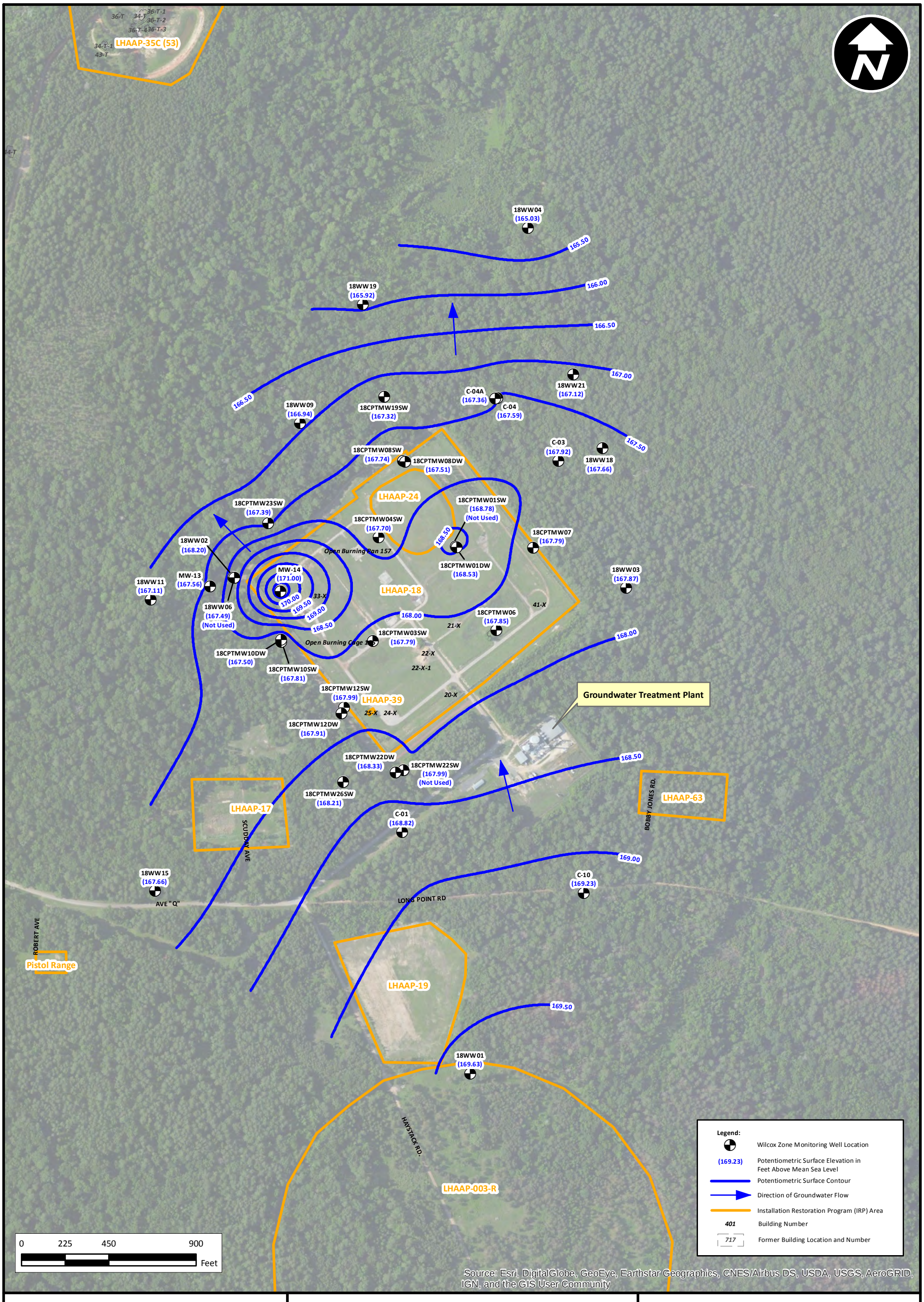
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	3/12/2018	MRM

Groundwater Potentiometric Surface Map
Shallow Zone (December 2017) LHAAP-18/24

Figure B-3



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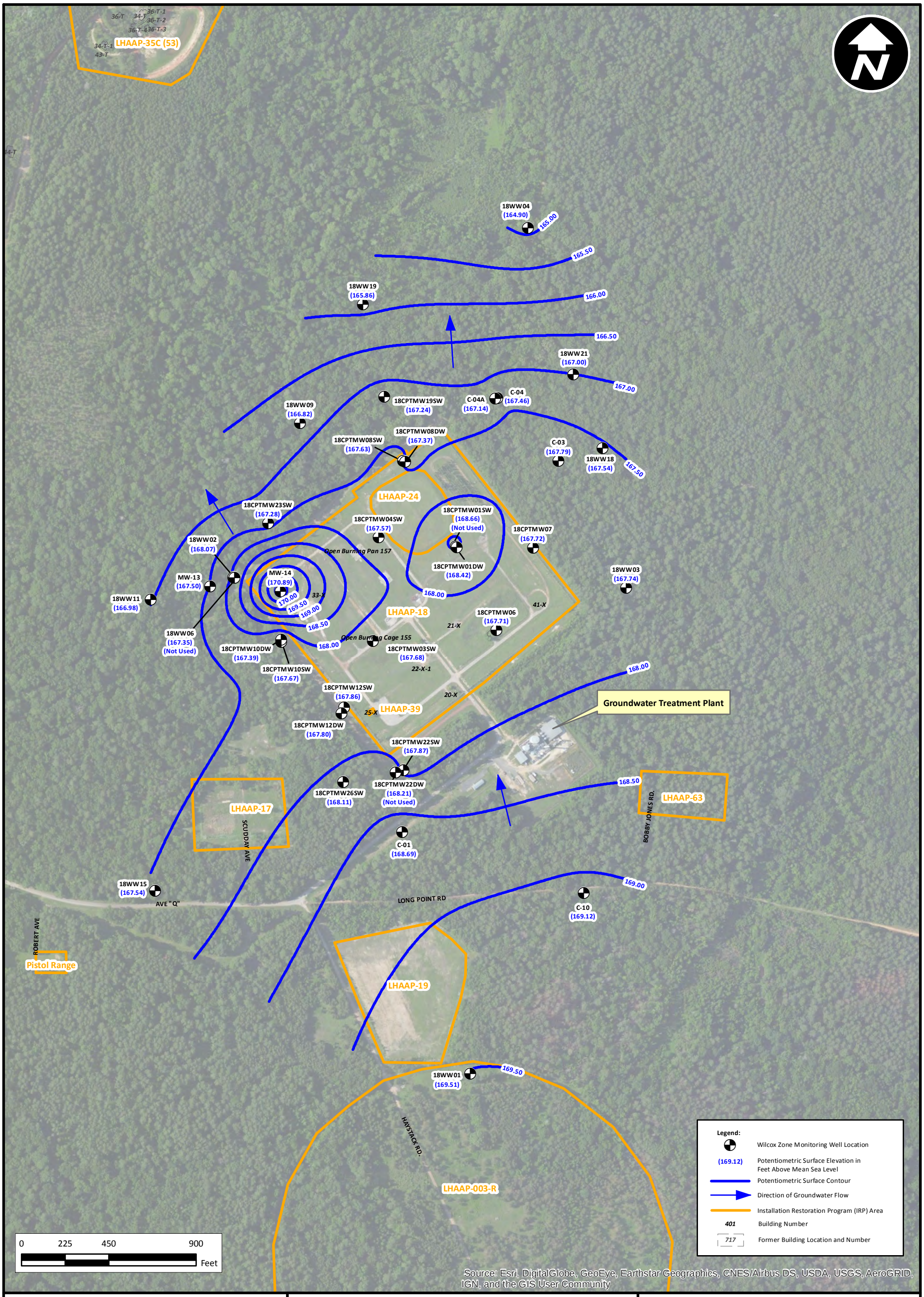
Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	3/12/2018	MRM

Groundwater Potentiometric Surface Map
Wilcox Zone (October 2017) LHAAP-18/24

Figure B-4



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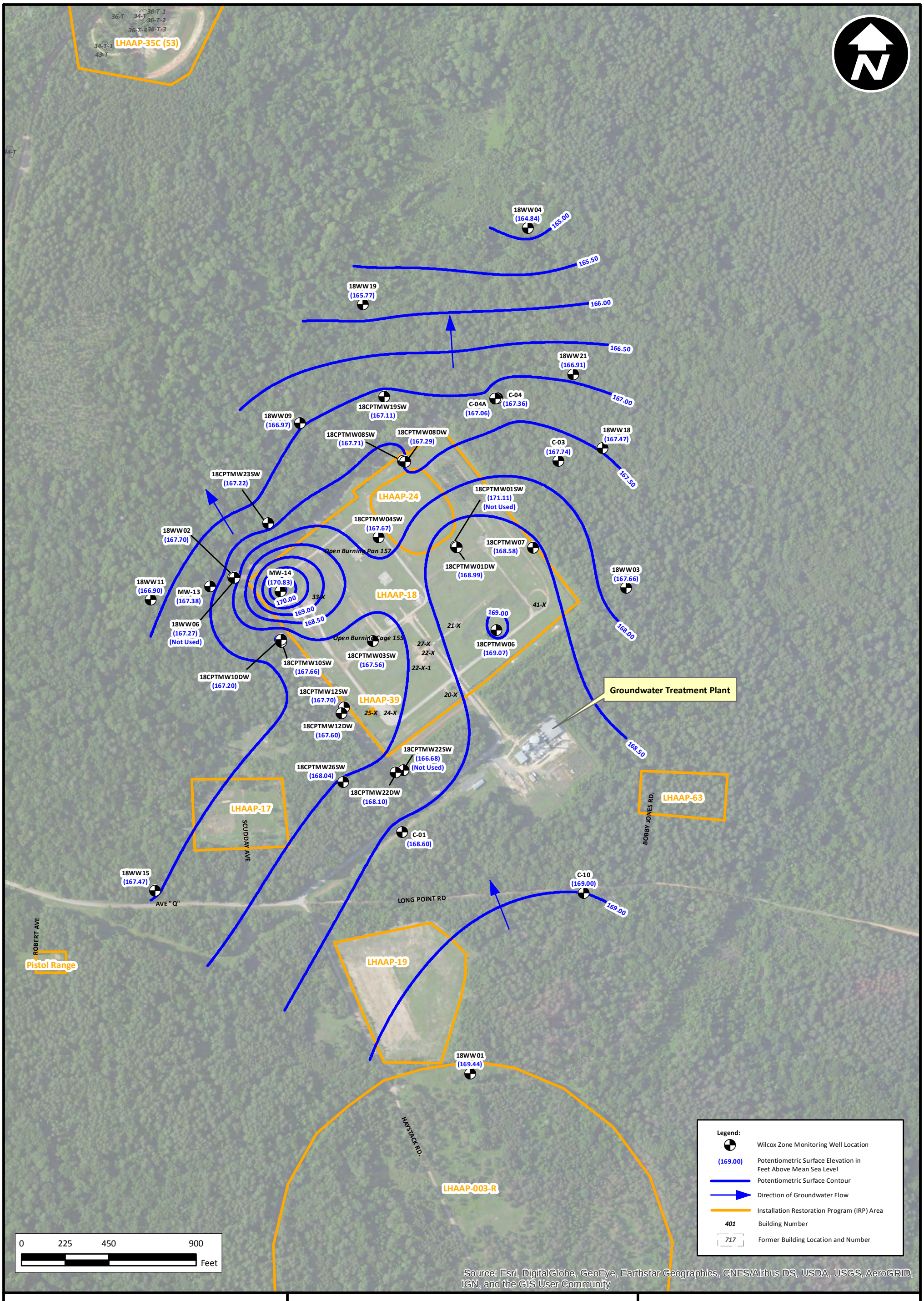
Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	3/12/2018	MRM

Groundwater Potentiometric Surface Map
Wilcox Zone (November 2017) LHAAP-18/24

Figure B-5



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Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	3/12/2018	MRM

Groundwater Potentiometric Surface Map
Wilcox Zone (December 2017) LHAAP-18/24

Figure B-6

00870315

16WW14 (172.42)
16WW22 (171.04)
16WW12 (169.77)
16WW36 (172.14)
16WW26 (169.89)
16WW30 (168.25)
16PZ-8 (171.07)
16PZ-2 (171.04)
16PZ-14 (170.76)
16PZ-4 (170.92)
16PZ-12 (171.05)
16PZ-10 (170.52)
16PZ-6 (170.79)
16PZ-16 (170.46)
16PZ-18 (169.76)
16PZ-20 (169.54)
172.00
171.50
171.00
170.50
170.00
169.50
169.00
168.50
LHAAP-16

0 40 80 160 Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend:

- Shallow Monitoring Well Location
- Shallow Piezometer Location
- (168.25) Potentiometric Surface Elevation in Feet Above Mean Sea Level
- Potentiometric Surface Contour
- Direction of Groundwater Flow
- Installation Restoration Program (IRP) Area
- 401 Building Number
- 717 Former Building Location and Number

Groundwater Potentiometric Surface Map Shallow Zone (October 2017) LHAAP-16

Figure B-7

Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

DRAWN BY: MRM

DATE: 3/12/2018

SCALE: As Shown

PROJECT NO: NW01312.0150

bhate ENVIRONMENT & INFRASTRUCTURE

00870316

16WW14 (172.32)

16WW22 (170.91)

16WW12 (169.69)

16PZ-8 (170.94)

16PZ-2 (170.98)

16PZ-14 (170.65)

16PZ-4 (170.83)

16PZ-12 (170.93)

16PZ-6 (170.66)

16PZ-10 (170.41)

16WW36 (171.99)

16PZ-16 (170.38)

16WW30 (168.17)

16PZ-18 (169.64)

16PZ-20 (169.42)

16WW26 (169.75)

172.00

171.50

171.00

170.50

170.00

169.50

169.00

168.50

LHAAP-16

0 40 80 160 Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend:

- Shallow Monitoring Well Location
- Shallow Piezometer Location
- (168.17) Potentiometric Surface Elevation in Feet Above Mean Sea Level
- Potentiometric Surface Contour
- Direction of Groundwater Flow
- Installation Restoration Program (IRP) Area
- 401 Building Number
- 717 Former Building Location and Number

Groundwater Potentiometric Surface Map Shallow Zone (November 2017) LHAAP-16

Figure B-8

Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

DRAWN BY: MRM

DATE: 3/12/2018

SCALE: As Shown

PROJECT NO: NWO1312.0150

bhate ENVIRONMENT & INFRASTRUCTURE

00870317

Groundwater Potentiometric Surface Map
Shallow Zone (December 2017) LHAAP-16

Figure B-9

16WW14 (172.24)
16WW22 (170.83)
16WW12 (169.60)
16WW36 (171.90)
16WW30 (168.08)
16WW26 (169.63)
16PZ-8 (170.83)
16PZ-2 (170.87)
16PZ-14 (170.59)
16PZ-4 (170.78)
16PZ-12 (170.82)
16PZ-6 (170.61)
16PZ-10 (170.35)
16PZ-16 (170.29)
16PZ-18 (169.55)
16PZ-20 (169.35)
172.00
171.50
171.00
170.50
170.00
169.50
169.00
168.50
LHAAP-16

0 40 80 160 Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend:

- Shallow Monitoring Well Location
- Shallow Piezometer Location
- (168.08) Potentiometric Surface Elevation in Feet Above Mean Sea Level
- Potentiometric Surface Contour
- Direction of Groundwater Flow
- Installation Restoration Program (IRP) Area
- 401 Building Number
- 717 Former Building Location and Number

Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

DRAWN BY: MRM
DATE: 3/12/2018
SCALE: As Shown
PROJECT NO: NWO1312.0150

bhate ENVIRONMENT & INFRASTRUCTURE

00870318

Groundwater Potentiometric Surface Map
Intermediate Zone (October 2017) LHAAP-16

Figure B-10

16WW31 (171.55)
16WW33 (171.95)
16PZ-7 (171.43)
16PZ-1 (171.19)
16PZ-13 (171.12)
16PZ-3 (171.17)
16PZ-11 (171.25)
16PZ-5 (170.83)
16PZ-9 (169.96)
16WW35 (171.91)
16PZ-15 (170.62)
16PZ-17 (168.82)
16PZ-19 (168.12)
16WW29 (168.47)
16WW25 (168.71)
172.00
171.50
171.00
170.50
170.00
169.50
169.00
168.50
LHAAP-16

0 40 80 160 Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend:

- Intermediate Monitoring Well Location
- Intermediate Piezometer Location
- (168.47) Potentiometric Surface Elevation in Feet Above Mean Sea Level
- Potentiometric Surface Contour
- Direction of Groundwater Flow
- Installation Restoration Program (IRP) Area
- 401 Building Number
- 717 Former Building Location and Number

Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

DRAWN BY: MRM
DATE: 3/12/2018
SCALE: As Shown
PROJECT NO.: NWO1312.0150

bhate ENVIRONMENT & INFRASTRUCTURE

00870319

16WW31 (171.43)

16WW33 (171.83)

16PZ-7 (171.31)

16PZ-13 (171.06)

16PZ-1 (171.07)

16PZ-3 (171.08)

16PZ-11 (171.13)

16PZ-5 (170.72)

16PZ-9 (169.89)

16WW35 (171.77)

16PZ-15 (170.53)

171.50

171.00

170.50

170.00

169.50

169.00

168.50

16PZ-19 (168.03)

16WW29 (168.44)

16PZ-17 (168.70)

16WW25 (168.62)

LHAAP-16

0 40 80 160 Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend:

- Intermediate Monitoring Well Location
- Intermediate Piezometer Location
- (168.44) Potentiometric Surface Elevation in Feet Above Mean Sea Level
- Potentiometric Surface Contour
- Direction of Groundwater Flow
- Installation Restoration Program (IRP) Area
- 401 Building Number
- 717 Former Building Location and Number

Groundwater Potentiometric Surface Map Intermediate Zone (November 2017) LHAAP-16

Figure B-11

Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

DRAWN BY: MRM

DATE: 3/12/2018

SCALE: As Shown

PROJECT NO.: NWO1312.0150

bhate ENVIRONMENT & INFRASTRUCTURE

00870320

16WW31 (171.38)
16WW33 (171.78)
16PZ-7 (171.21)
16PZ-1 (170.99)
16PZ-13 (170.97)
16PZ-3 (171.01)
16PZ-11 (171.07)
16PZ-5 (170.64)
16PZ-9 (169.82)
16WW35 (171.70)
16PZ-15 (170.45)
16WW29 (168.33)
16PZ-17 (168.63)
16PZ-19 (167.95)
16WW25 (168.53)
171.50
171.00
170.50
170.00
169.50
169.00
168.50
168.00
LHAAP-16

0 40 80 160 Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend:

- Intermediate Monitoring Well Location
- Intermediate Piezometer Location
- (168.33) Potentiometric Surface Elevation in Feet Above Mean Sea Level
- Potentiometric Surface Contour
- Direction of Groundwater Flow
- Installation Restoration Program (IRP) Area
- 401 Building Number
- 717 Former Building Location and Number

Groundwater Potentiometric Surface Map Intermediate Zone (December 2017) LHAAP-16

Figure B-12

Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

DRAWN BY: MRM

DATE: 3/12/2018

SCALE: As Shown

PROJECT NO.: NWO1312.0150

bhate ENVIRONMENT & INFRASTRUCTURE

Table B-1: Extraction Equipment Maintenance Since 2011

LHAAP-18/24

Well I.D.	Replaced Parts	Date	Contractor
ICT 14E	Pump	3/15/2012	Shaw
ICT 14D	Pump, motor, level probes	3/16/2012	Shaw
ICT 14B	Pump, level probes, level probe wire	3/16/2012	Shaw
ICT 14A	Pump, motor, level probes, level probe wire	3/17/2012	Shaw
ICT 2	Pump, motor	3/17/2012	Shaw
ICT 13D	Pump	3/19/2012	Shaw
ICT 13B	Pump	3/20/2012	Shaw
ICT 14E	Pump, motor, broken piping	11/19/2012	AECOM
ICT 13C	Pump	11/20/2012	AECOM
ICT13E	Pump	11/20/2012	AECOM
ICT 12A	Pump, motor, wiring harness, level probes, level probe wire	12/5/2012	AECOM
ICT 7	Pump, motor, wiring harness, level probes	12/6/2012	AECOM
ICT2	Pump	6/10/2013	AECOM
ICT 13C	Pump	6/11/2013	AECOM
ICT 13D	Pump	6/12/2013	AECOM
ICT 14E	Pump rebuilt	6/15/2013	AECOM
ICT 14E	Replaced low level switch	6/19/2013	AECOM
ICT 13C	Pump, wiring harness, flow meter	4/15/2014	AECOM
ICT 14D	Repaired level probes	6/24/2014	AECOM
ICT 14E	Repaired level probes	6/24/2014	AECOM
ICT 14E	Pump and motor troubleshooting	6/26/2014	AECOM
ICT2, 13F, 14C, 14D, 14E	Repaired level probes	7/7/2014	AECOM
ICT 12E	Pump, motor	10/2/2014	AECOM
ICT 12E	Wiring harness, fixed leak	10/8/2014	AECOM
ICT 12E	Level probes	10/9/2014	AECOM
ICT13A	Pump, piping	10/15/2014	AECOM
ICT 12E	Repaired leaking fittings	10/16/2014	AECOM
ICT 11	1" tee and 1" elbow	1/13/2015	AECOM
ICT 12B	Flow meter	1/13/2015	AECOM
ICT 7	1" tee, repaired 1" pipe	1/13/2015	AECOM
ICT 13A	Flow meter	1/15/2015	AECOM
ICT 13B	Pump	1/15/2015	AECOM
ICT 13C	Pump	1/16/2015	AECOM
ICT 7	Low level probe	1/16/2015	AECOM
ICT 13D	Pump, level probes	1/17/2015	AECOM
ICT 14C	Low level probe	1/17/2015	AECOM
ICT 14C	Low level probe	1/29/2015	AECOM
ICT 14D	Low level probe	1/29/2015	AECOM
ICT 13D	Level probes	1/29/2015	AECOM
ICT 2	Pump	1/30/2015	AECOM
ICT 8	Fuse	3/2/2015	AECOM
ICT 8	Fuse	3/9/2015	AECOM
ICT 12E	Flow meter	3/13/2015	AECOM
ICT 13D	Union	3/13/2015	AECOM
ICT 14C	Cleaned level probes	4/1/2015	AECOM
ICT 14D	Cleaned level probes	4/1/2015	AECOM
ICT 13A	Cleaned level probes	4/21/2015	AECOM
ICT 14C	Cleaned level probes	4/21/2015	AECOM
ICT 8	Low level probe	7/24/2015	AECOM
ICT 13C	Installed New Pump	7/28/2015	AECOM

Table B-1: Extraction Equipment Maintenance Since 2011

Well I.D.	Replaced Parts	Date	Contractor
ICT 14C	Installed New Pump and Electric Motor	7/29/2015	AECOM
ICT 14E	Installed New Pump and Electric Motor	7/31/2015	AECOM
ICT 12E	Repaired wiring	8/12/2015	AECOM
ICT 13E	Replaced high and low level probes	8/12/2015	AECOM
ICT 2	Installed Rebuilt Pump	9/9/2015	AECOM
ICT 12 E, ICT 14E	Replaced high level probe and wiring	9/15/2015	AECOM
ICT 13A	Installed new pump	12/23/2015	AECOM
ICT 13B	Installed new pump	12/24/2015	AECOM
ICT 13D	Replaced high level probe	2/11/2016	Aerotek
ICT 14C	Replace low level probe on ICT 14C	2/15/2016	Aerotek
ICT 8	Installed new pump and electric motor	2/19/2016	Aerotek
ICT 14C	Repaired piping leak	3/10/2016	Aerotek
ICT 14E	Installed high and low level probes, level probe wire	3/22/2016	Aerotek
ICT 13D, ICT 14B	Installed high and low level probes, level probe wire	3/24/2016	Aerotek
ICT 14B	Installed new pump and electric motor	3/31/2016	Aerotek
ICT 14C	Installed new low level probe	4/20/2016	Aerotek
ICT 12B	Installed new mechanical flow meter	6/16/2016	Aerotek
ICT 13C	Installed rebuilt pump and new flow meter	8/10/2016	Aerotek
ICT 13A	Installed rebuilt pump, new flow meter, and new 1" unions	8/24/2016	Aerotek
ICT 14E	Installed new mechanical flow meter	8/26/2016	Aerotek
ICT 12C	Repair flow meter	8/30/2016	Aerotek
ICT 2	Install rebuilt pump and new flow meter	8/31/2016	Aerotek
ICT 14C	Clean and adjust level probes	9/7/2016	Aerotek
ICT 14C	Replaced level probes	9/12/2016	Aerotek
ICT 14C	Installed new level probe wire and level probes	9/21/2016	Aerotek
ICT 12C	Installed rebuilt pump, new electric motor, new wiring harness, new level probe wire, and new level probes	9/27/2016	Aerotek
ICT 14C	Cleaned and adjusted level probes	10/14/2016	Aerotek
ICT 13C	Cleaned and adjusted level probes	10/21/2016	Aerotek
ICT 13B	Installed rebuilt pump	10/25/2016	Aerotek
ICT 14D	Installed rebuilt pump	10/27/2016	Aerotek
ICT 13C	Replace low level probe	11/8/2016	Aerotek
ICT 13B	Replace relay base plate	11/8/2016	Aerotek
ICT 13E	Clean and adjust low level probe	11/15/2016	Aerotek
ICT 13B	Replace broken relay base plate and bad level probe wire	11/17/2016	Aerotek
ICT 13C	Clean & repair leaking flow meter	11/18/2016	Aerotek
ICT 13B	Clean & adjust low level probe	11/18/2016	Aerotek
ICT 13A, 13B, & 13E	Clean and adjust low level probes	12/2/2016	Aerotek
ICT 13C & 14C	Pulled piping and pumps	2/8/2017	Aerotek
ICT 14C	Installed new electric motor	2/8/2017	Aerotek
ICT 13C & 14C	Installed rebuilt grundfos pumps	2/8/2017	Aerotek
ICT 7, 13A, & 14D	Repaired sample ports	2/9/2017	Aerotek
ICT 13B & 14E	Cleaned and adjusted low level probes	3/30/2017	Aerotek
ICT 13B & 13F	Installed new flow meters	3/30/2017	Aerotek
ICT 12B	Repair flow meter	4/13/2017	Aerotek
ICT 12C	Replace broken 1" tee	5/1/2017	Aerotek
ICT 11	Installed new manual flow meter	5/5/2017	Aerotek
ICT 2	Installed new flow meter	5/9/2017	Aerotek
ICT 14C & 14D	Cleaned and adjusted low level probes	5/31/2017	Aerotek
ICT 14C	Cleaned and adjusted low level probe	6/27/2017	Aerotek
ICT 8	Clean low level probe	7/11/2017	Aerotek
ICT 2 & 14D	Cleaned and replaced level probes	7/17/2017	Aerotek
ICT 14C	Cleaned low level probe	7/24/2017	Aerotek

Table B-1: Extraction Equipment Maintenance Since 2011

Well I.D.	Replaced Parts	Date	Contractor
ICT 13A	Installed new pump and flow meter	8/8/2017	Aerotek
ICT 13C & 13B	Installed new pump and flow meter	8/9/2017	Aerotek
ICT 13B	Installed new low level probe	8/10/2017	Aerotek
ICT 11	Installed new pump and flow meter	8/11/2017	Aerotek
ICT 4	Replaced low level probe	8/11/2017	Aerotek
ICT 2	Installed rebuilt pump	9/19/2017	Aerotek
ICT 13D	Adjusted level probes	9/22/2017	Aerotek
ICT 14C	Cleaned level probes	10/11/2017	Bhate
ICT 13E	Clean and adjust level probes	10/24/2017	Bhate
ICT 12B	Adjust level probes	11/15/2017	Bhate
ICT 14D	Cleaned level probes	11/15/2017	Bhate
ICT 8	Clean and adjust level probes	11/28/2017	Bhate
ICT 2	Cleaned level probes	12/20/2017	Bhate
	LHAAP-16		
Well I.D.	**Replaced Parts**	**Date**	**Contractor**
EW08	New pump	2/28/2011	Shaw
EW01	Rebuild pump	8/25/2011	Shaw
EW06	Rebuild pump	8/25/2011	Shaw
EW02	Rebuild pump	2/12/2012	Shaw
EW03	Rebuild pump	2/12/2012	Shaw
EW08	Rebuild pump	11/8/2012	AECOM
EW01	Rebuild pump	11/8/2012	AECOM
EW04	Repair pump	11/13/2012	AECOM
EW07	Rebuild pump	11/13/2012	AECOM
EW04	Installed New Pump	11/28/2012	AECOM
EW06	Installed New Pump	11/28/2012	AECOM
EW02	Installed New Pump	12/4/2012	AECOM
EW03	Installed New Pump	12/4/2012	AECOM
EW01	Installed New Pump	12/17/2012	AECOM
EW01	Replaced Low level probe	1/17/2015	AECOM
EW01	Cleaned and adjusted level probes	10/21/2016	Aerotek

APPENDIX C
ISOCONCENTRATION MAPS

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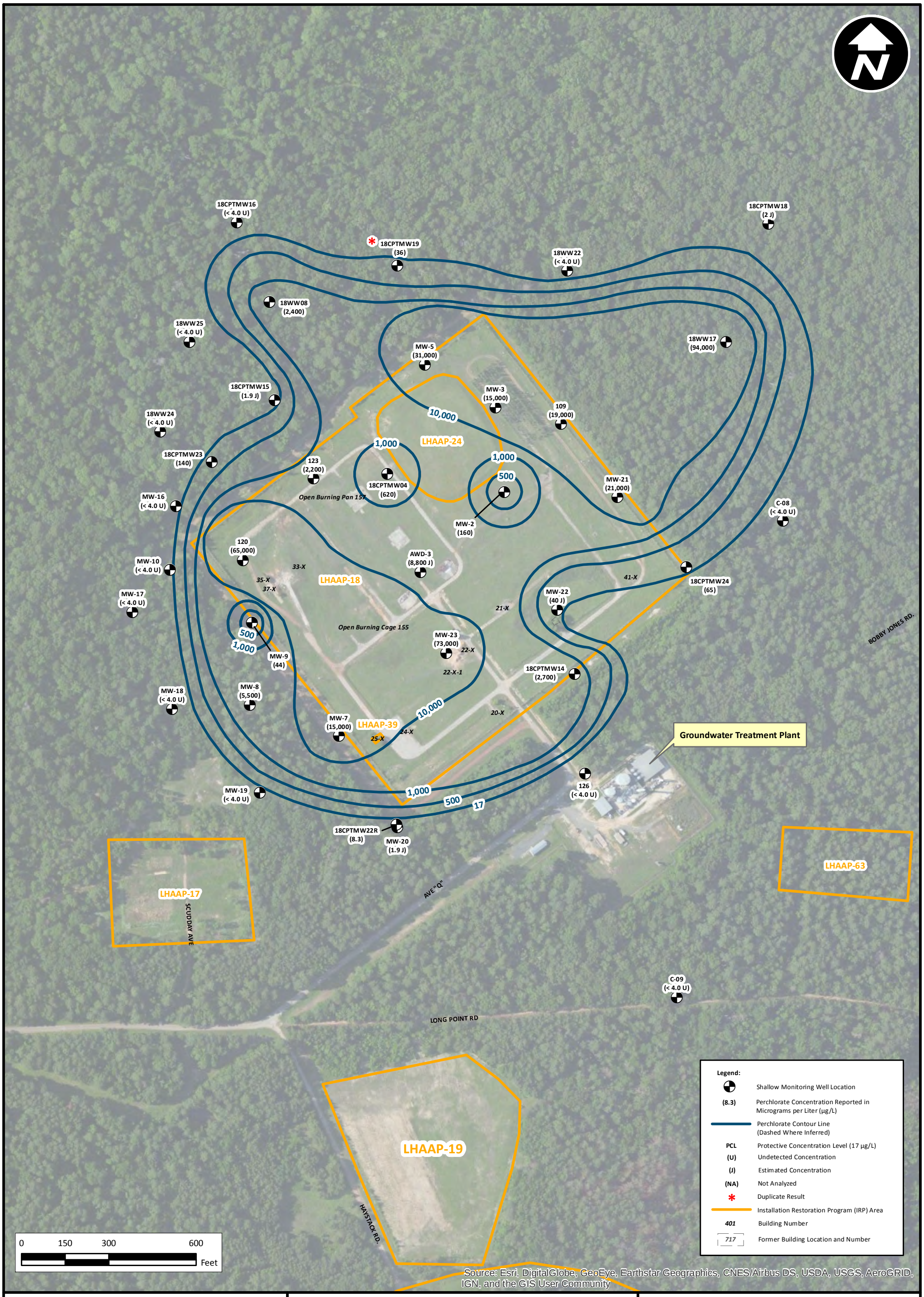

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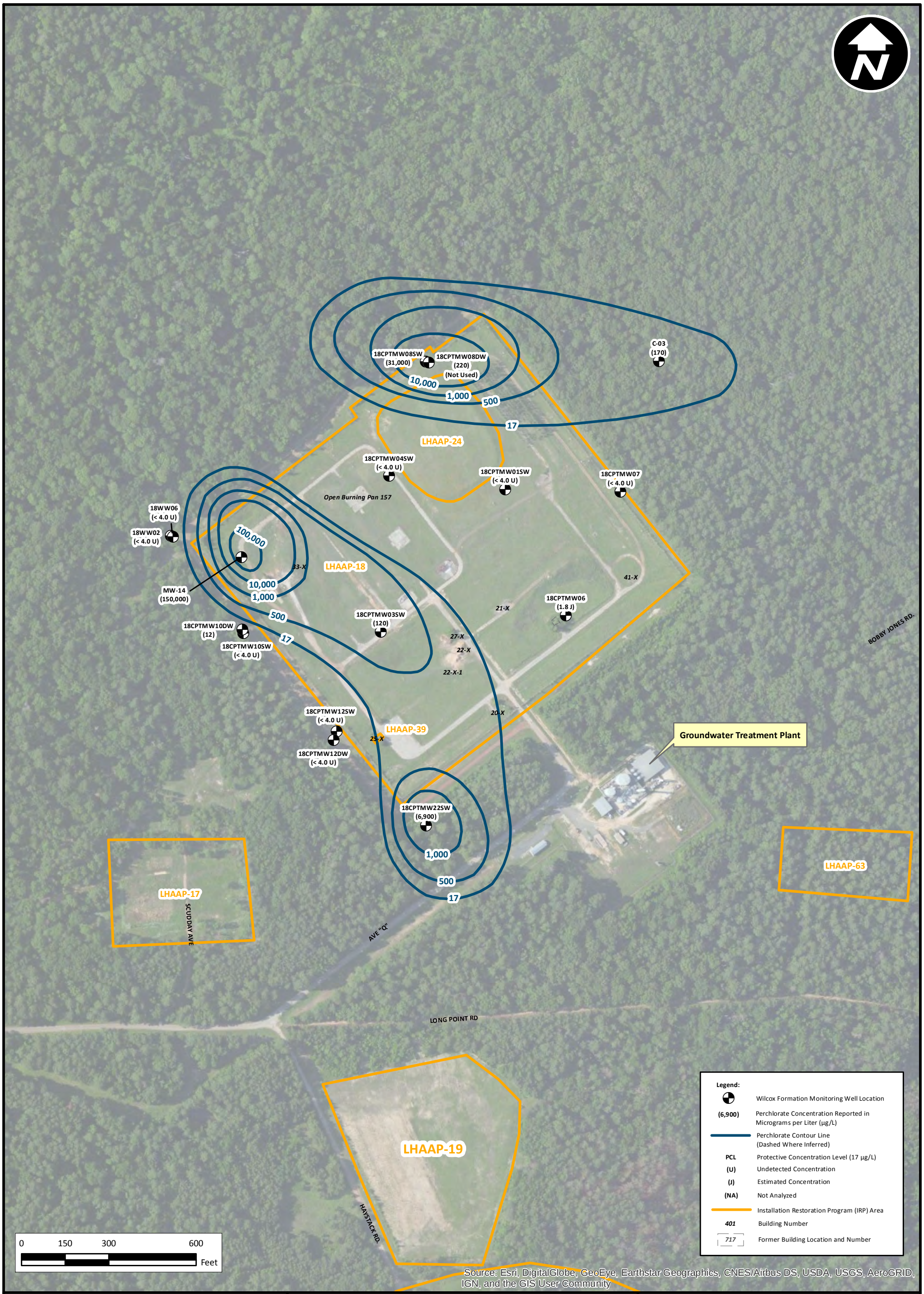
Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	3/12/2018	MRM

Perchlorate Isopleth Contours in Shallow Zone (December 2017)

Figure C-1



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PROJECT NO:	SCALE:	DATE:	DRAWN BY:
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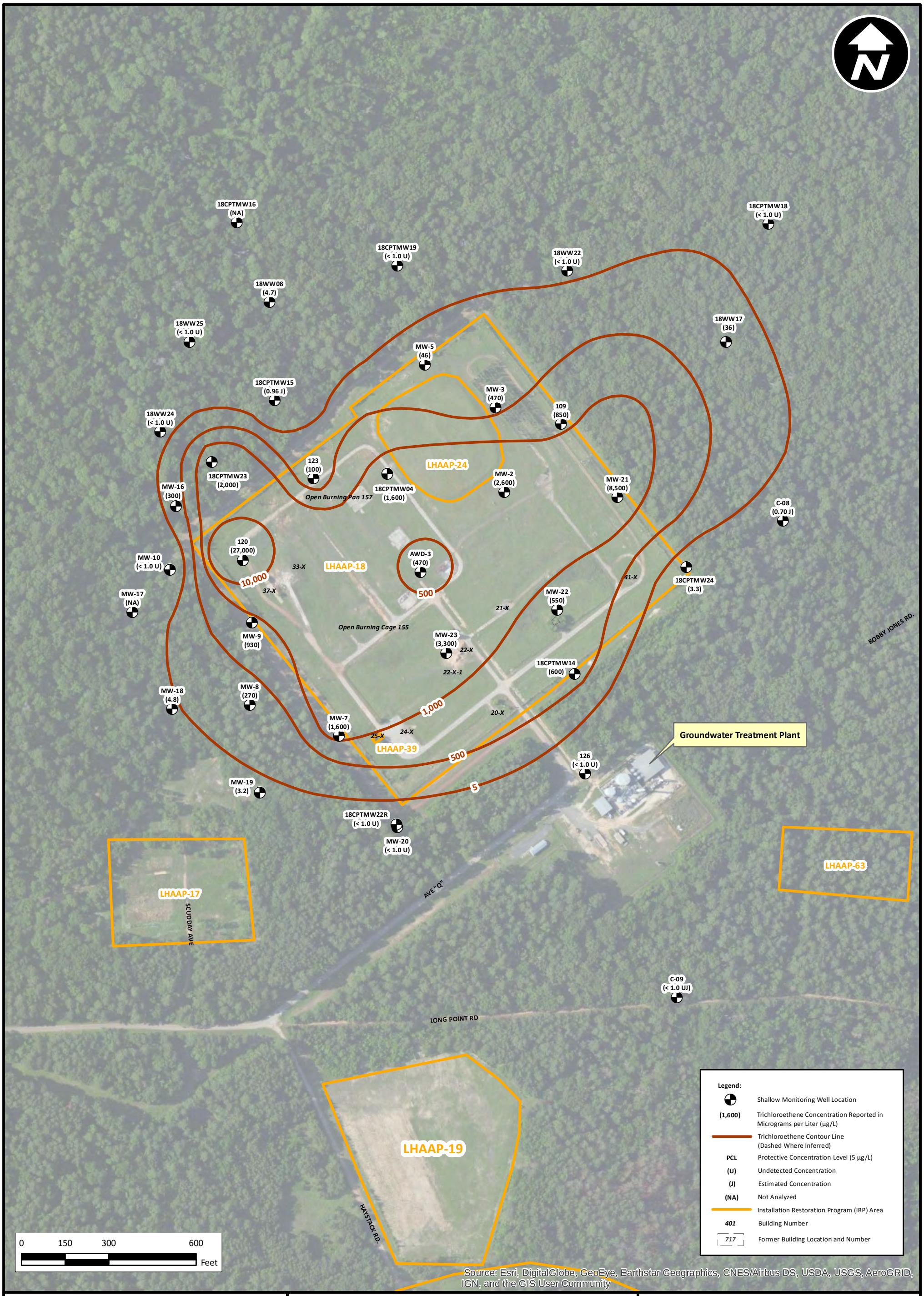
Perchlorate Isopleth Contours in Wilcox Formation (December 2017)

Figure C-2

00870328



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Groundwater Treatment Plant
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PROJECT NO:	SCALE:	DATE:	DRAWN BY:
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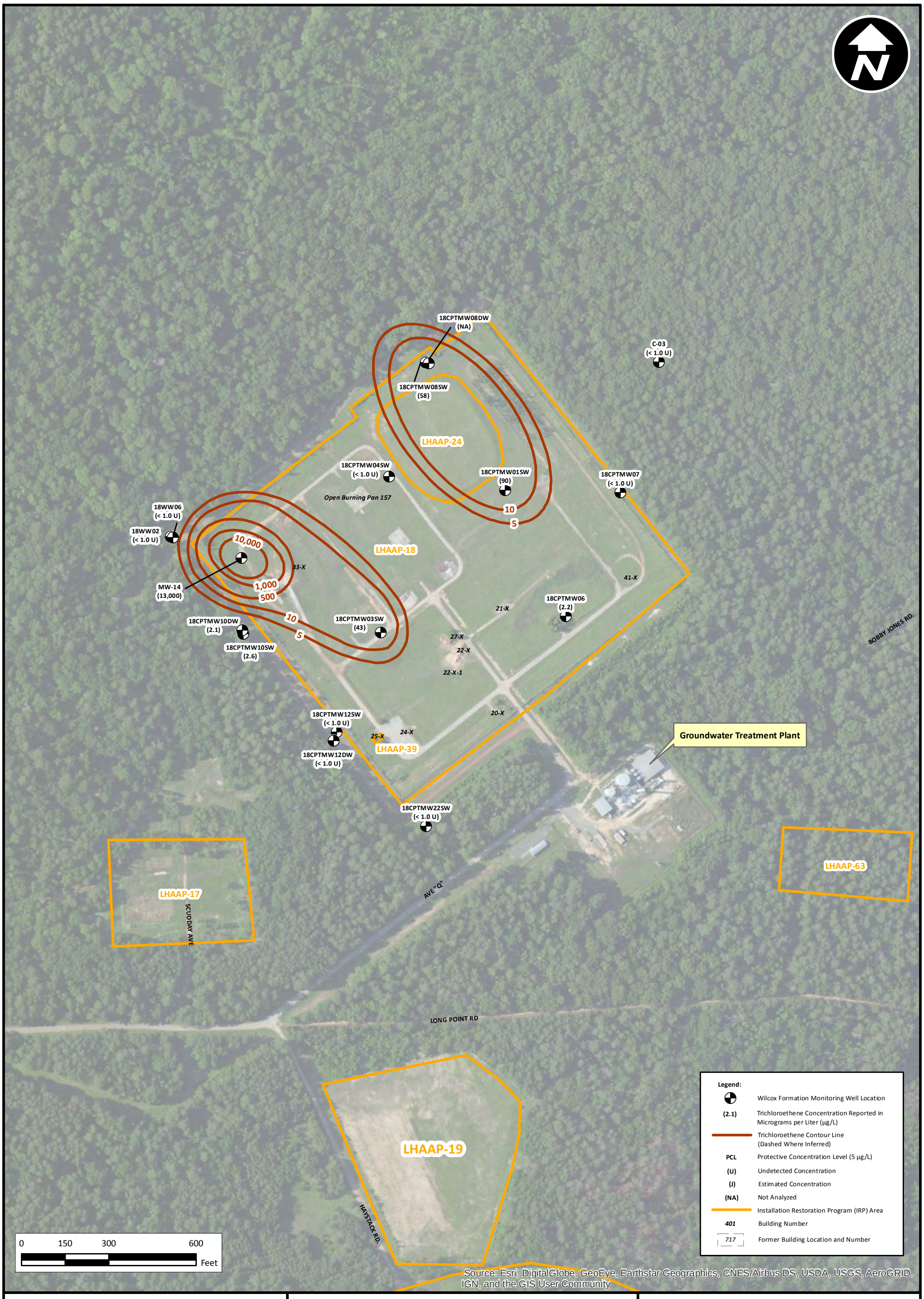
Trichloroethene Isopleth Contours in Shallow Zone (December 2017)

Figure C-3



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Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
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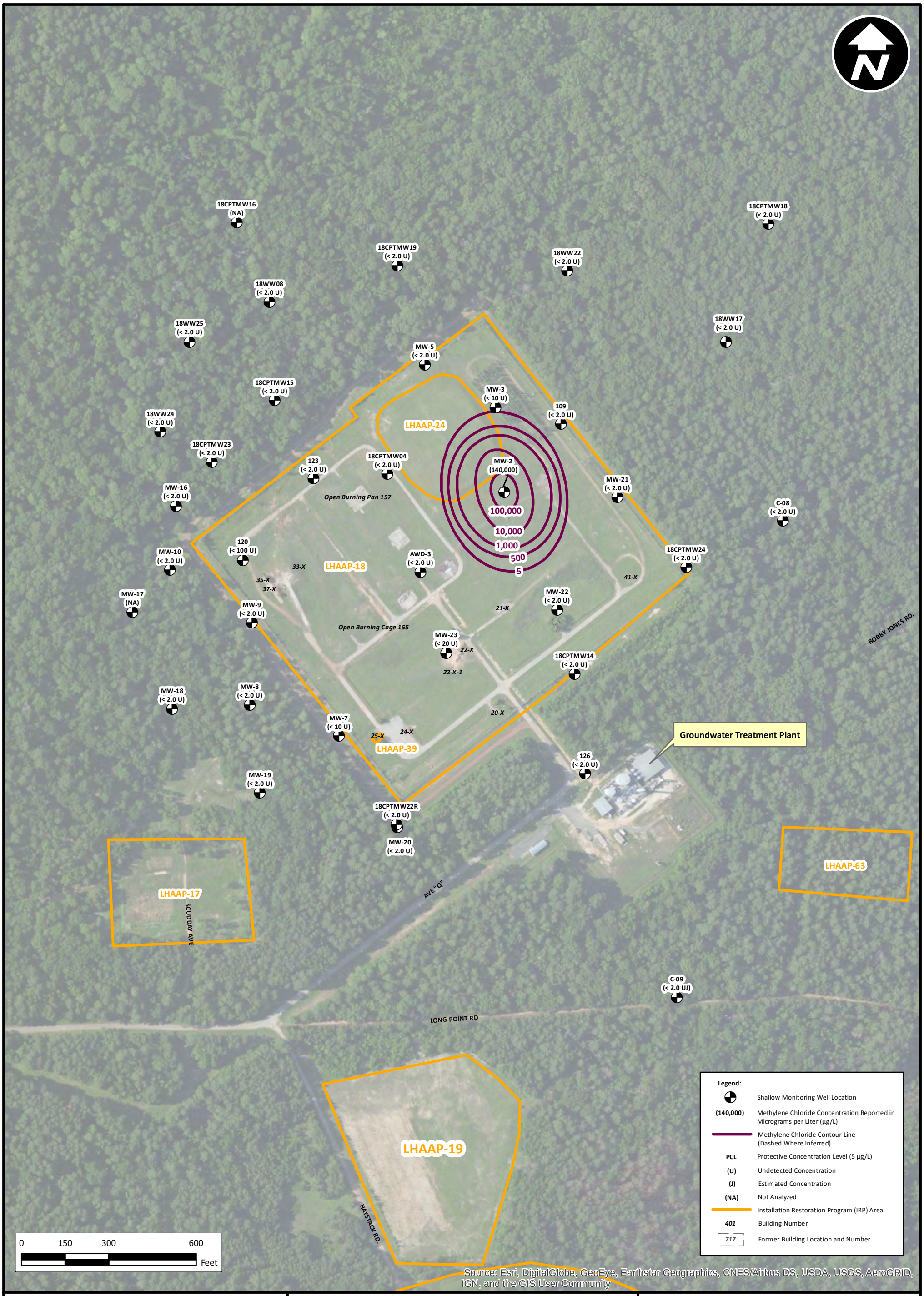
Trichloroethene Isopleth Contours in Wilcox Formation (December 2017)

Figure C-4

00870330



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Quarterly Evaluation Report 4th Quarter (October –December) 2017
Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
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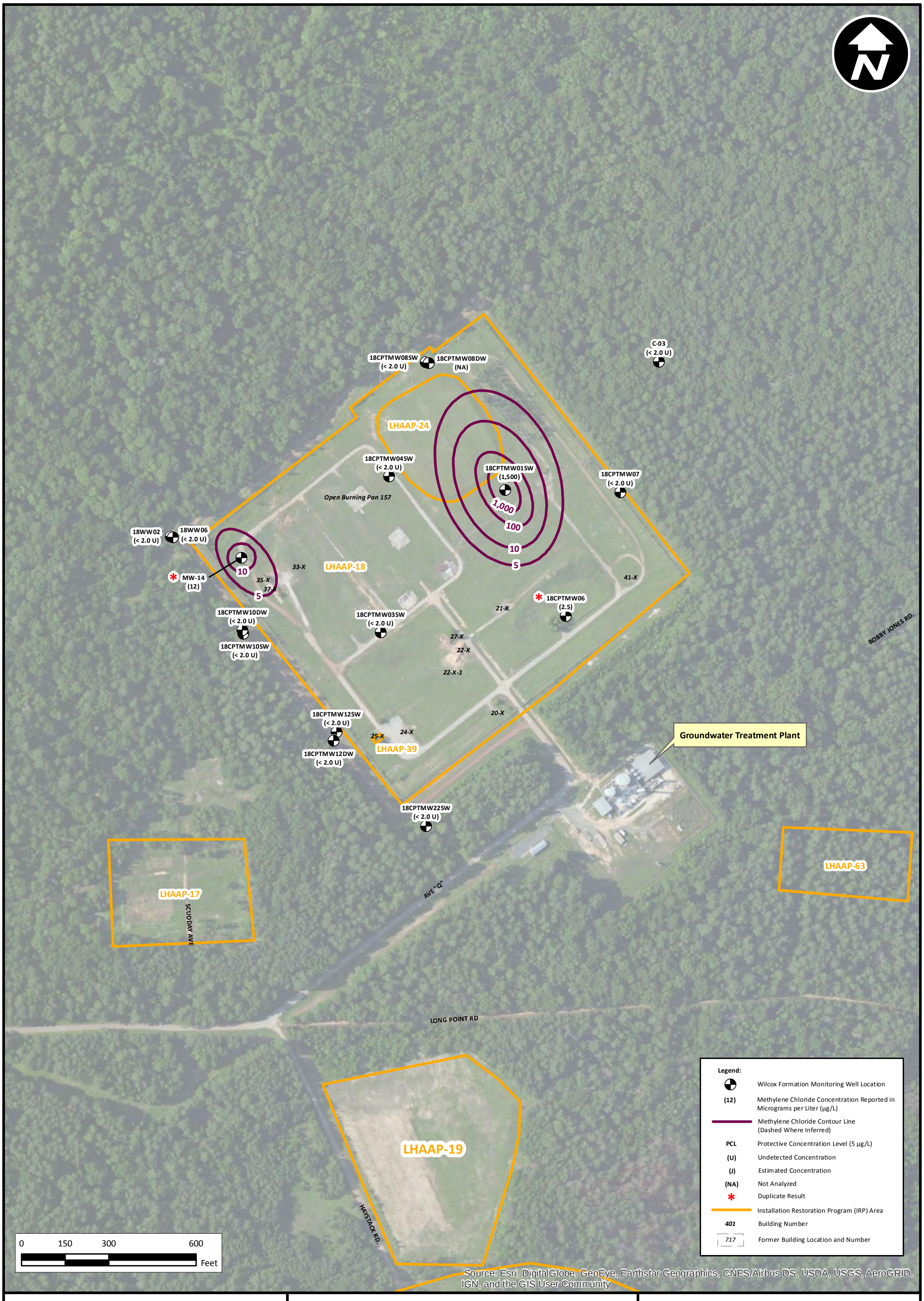
Methylene Chloride Isopleth Contours in Shallow Zone (December 2017)

Figure C-5



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Groundwater Treatment Plant
Longhorn Army Ammunition Plant, Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150	As Shown	3/12/2018	MRM

Methylene Chloride Isopleth Contours in Wilcox Formation (December 2017)

Figure C-6

APPENDIX D
TREND ANALYSIS

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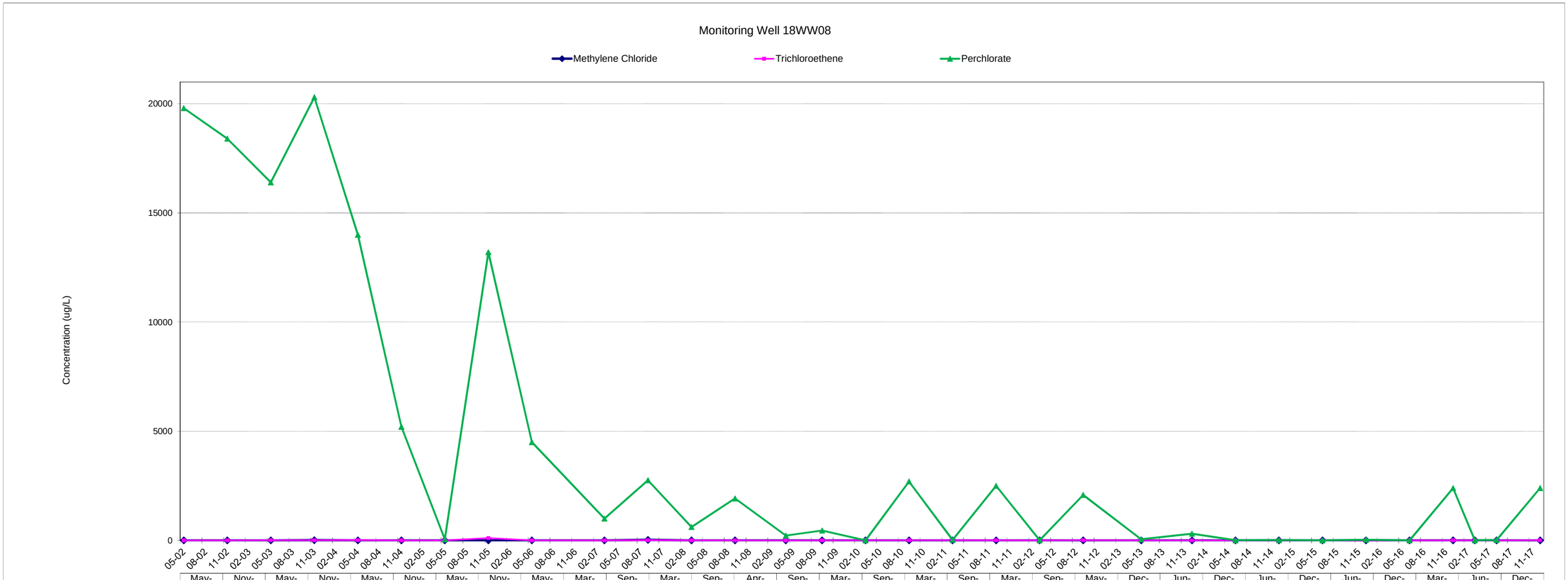
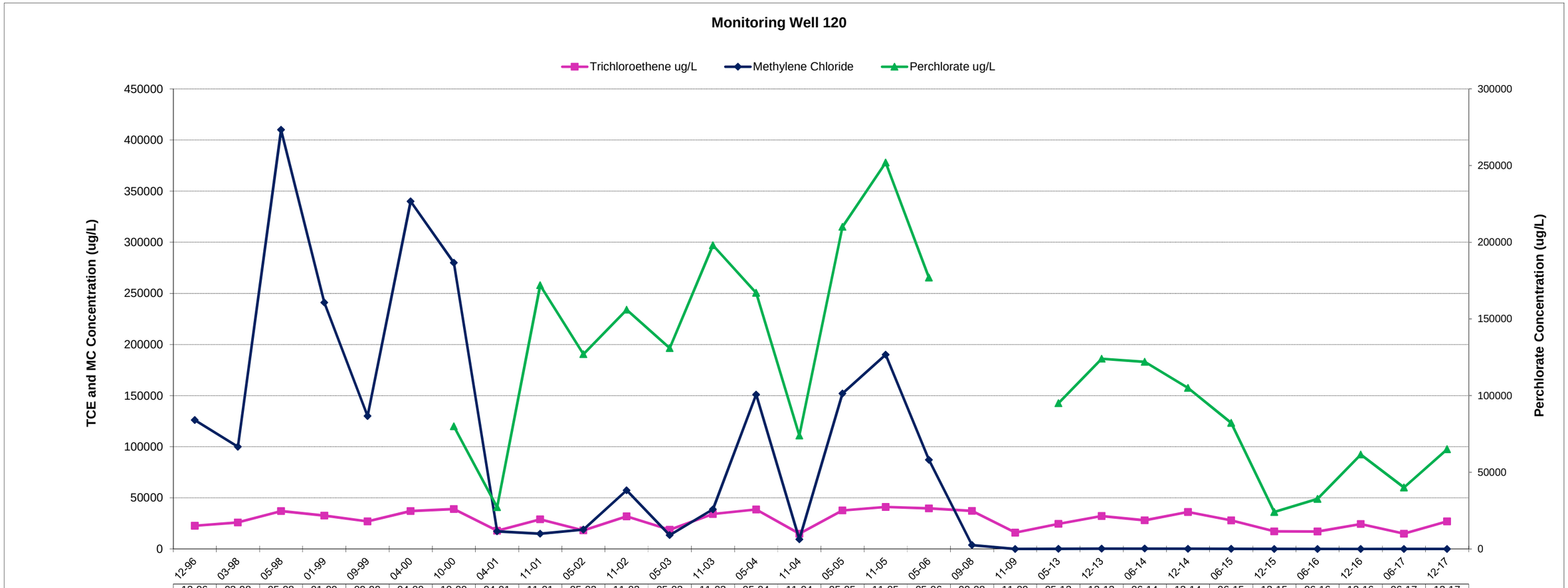
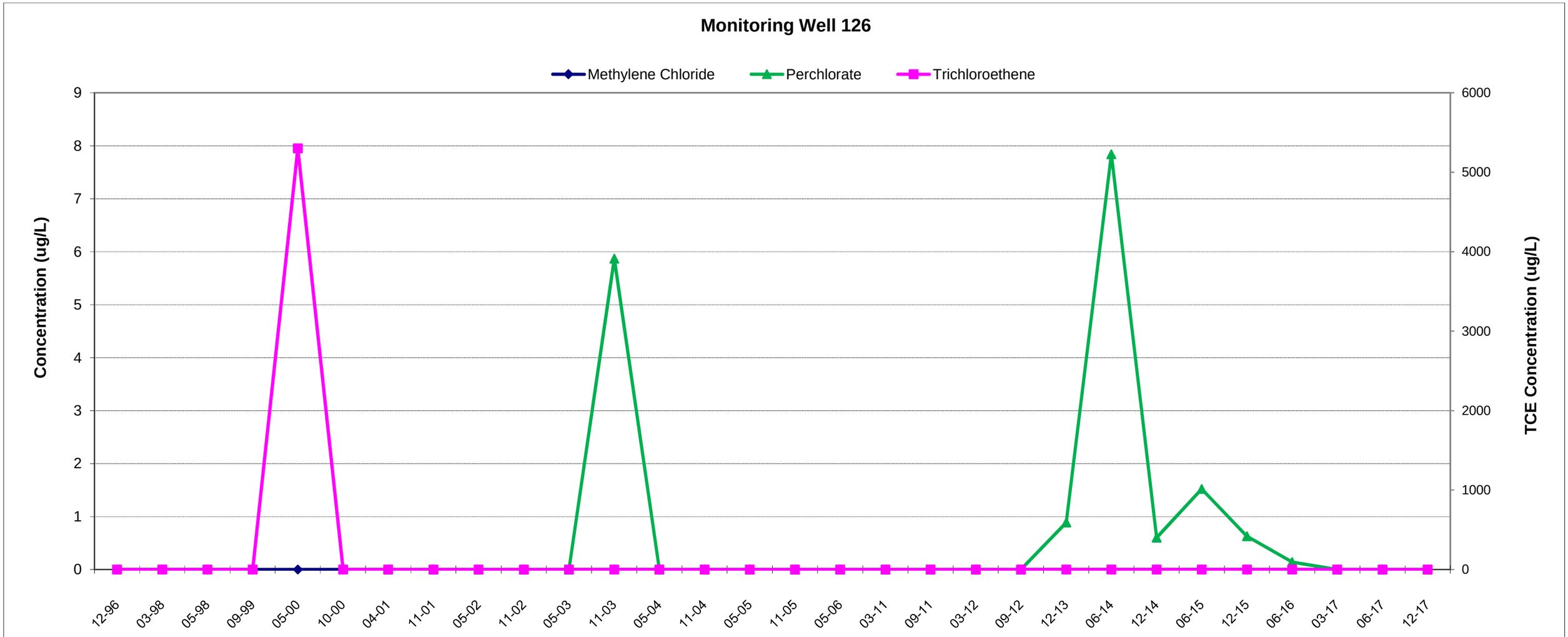


	May-2002	Nov-2002	May-2003	Nov-2003	May-2004	Nov-2004	May-2005	Nov-2005	May-2006	Mar-2007	Sep-2007	Mar-2008	Sep-2008	Apr-2009	Sep-2009	Mar-2010	Sep-2010	Mar-2011	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Mar-2017	Jun-2017	Dec-2017
Methylene Chloride	0	0	0	12.5	0	0	0	0	0	0	24.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	0	0	5.27	4.03	8.89	0	0	106	0.914	1	8.79	0.405	0.83	0	0	0	4.09	0.858	6.12	0	5.09	0	0.459	0	0	0	0.331	0	3.91	0	0	4.7
Perchlorate	19800	18400	16400	20300	14000	5200	45.7	13200	4500	1000	2750	610	1920	220	450	0	2700	22.6	2500	6.19	2080	51.2	304	3.36	11.7	0.655	30.8	0	2390	7.72	16.6	2400

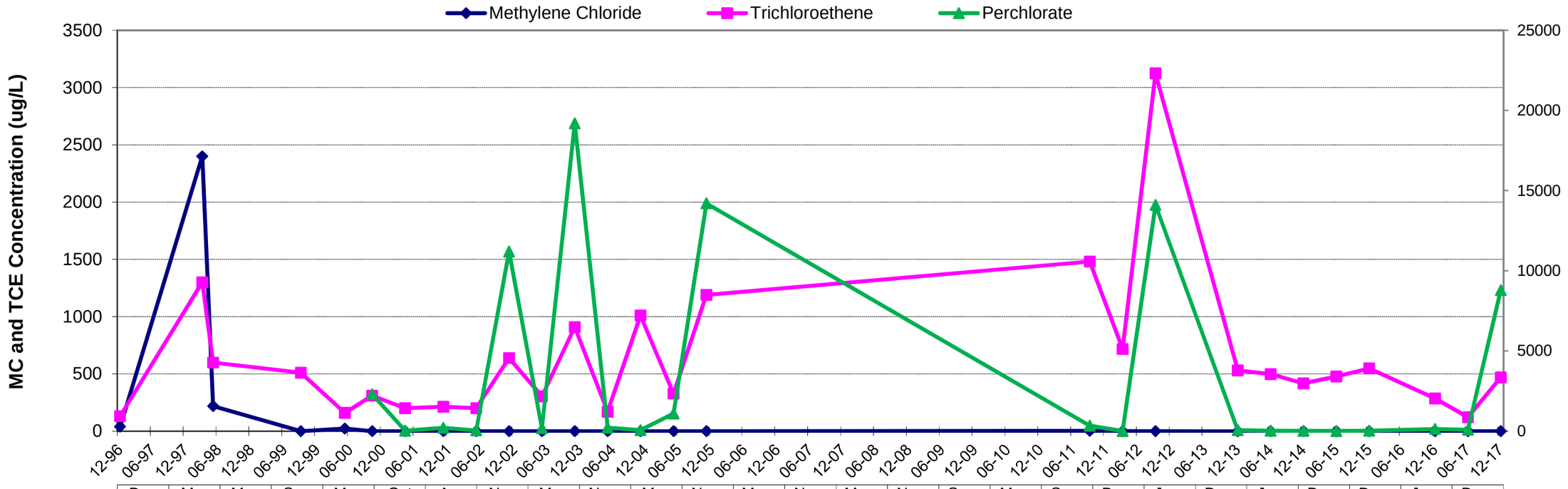


	12-96	03-98	05-98	01-99	09-99	04-00	10-00	04-01	11-01	05-02	11-02	05-03	11-03	05-04	11-04	05-05	11-05	05-06	09-08	11-09	05-13	12-13	06-14	12-14	06-15	12-15	06-16	12-16	06-17	12-17
Trichloroethene ug/L	22700	26000	37000	32700	27000	37000	39000	17900	29000	18100	31900	18700	34100	38600	14900	37700	41100	39600	37200	16000	24600	32200	28100	36200	27900	17200	17100	24400	15000	27000
Methylene Chloride	126000	100000	410000	241000	130000	340000	280000	17200	15000	18900	57400	13600	38800	151000	9380	152000	190000	87100	3810	0	170	214	363	71.1	125	0	0	0	0	0
Perchlorate ug/L							80000	27300	172000	127000	156000	131000	198000	167000	74000	210000	252000	177000			95000	124000	122000	105000	82200	24100	32700	61600	40100	65000



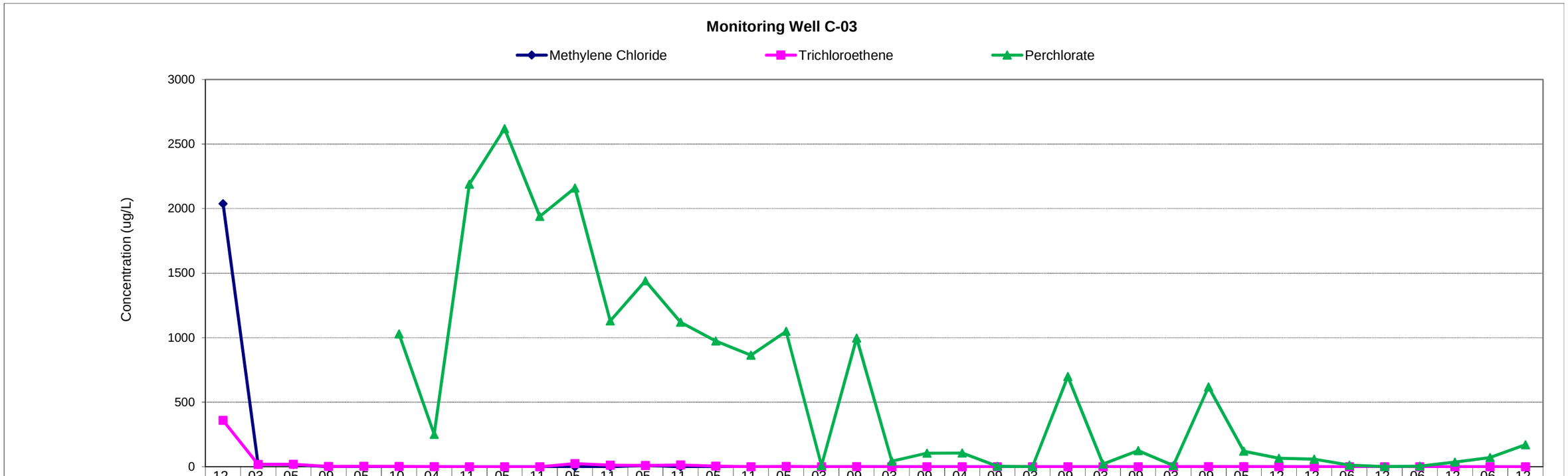
Sample Date	12-96	03-98	05-98	09-99	05-00	10-00	04-01	11-01	05-02	11-02	05-03	11-03	05-04	11-04	05-05	11-05	05-06	03-11	09-11	03-12	09-12	12-13	06-14	12-14	06-15	12-15	06-16	03-17	06-17	12-17
Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perchlorate							0	0	0	0	0	5.87	0	0	0	0	0	0	0	0	0	0.887	7.84	0.602	1.52	0.629	0.14	0	0	0
Trichloroethene	0	0	0	0	5300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Monitoring Well AWD-3

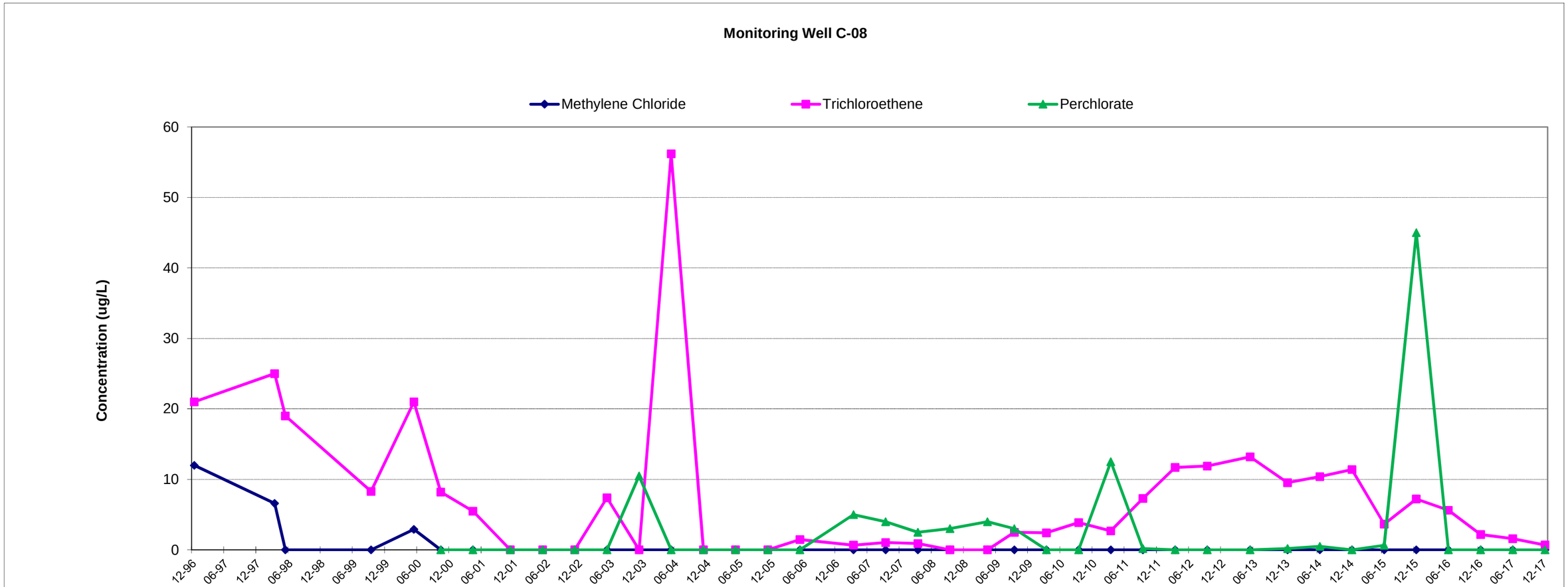


	Dec 1996	Mar 1998	May 1998	Sep 1999	May 2000	Oct 2000	Apr 2001	Nov 2001	May 2002	Nov-2002	May 2003	Nov-2003	May-2004	Nov-2004	May-2005	Nov-2005	Sep-2011	Mar-2012	Sep-2012	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Dec-2016	Jun-2017	Dec-2017
Methylene Chloride	39	2400	220	0	23	0	0	0	0	0	0	0	0	0	0	0	2.92J	0	0	0	0	0	0	0	0	0	0
Trichloroethene	130	1300	600	510	160	310	200	212	200	639	303	909	170	1010	329	1190	1480	716	3125	530	499	417	477	547	285	122	470
Perchlorate						2300	38.3	209	52.5	11200	176	19200	225	55.6	1100	14200	342	3.88	14100	67.2	25	13.6	8.33	33.8	140	95.4	8800

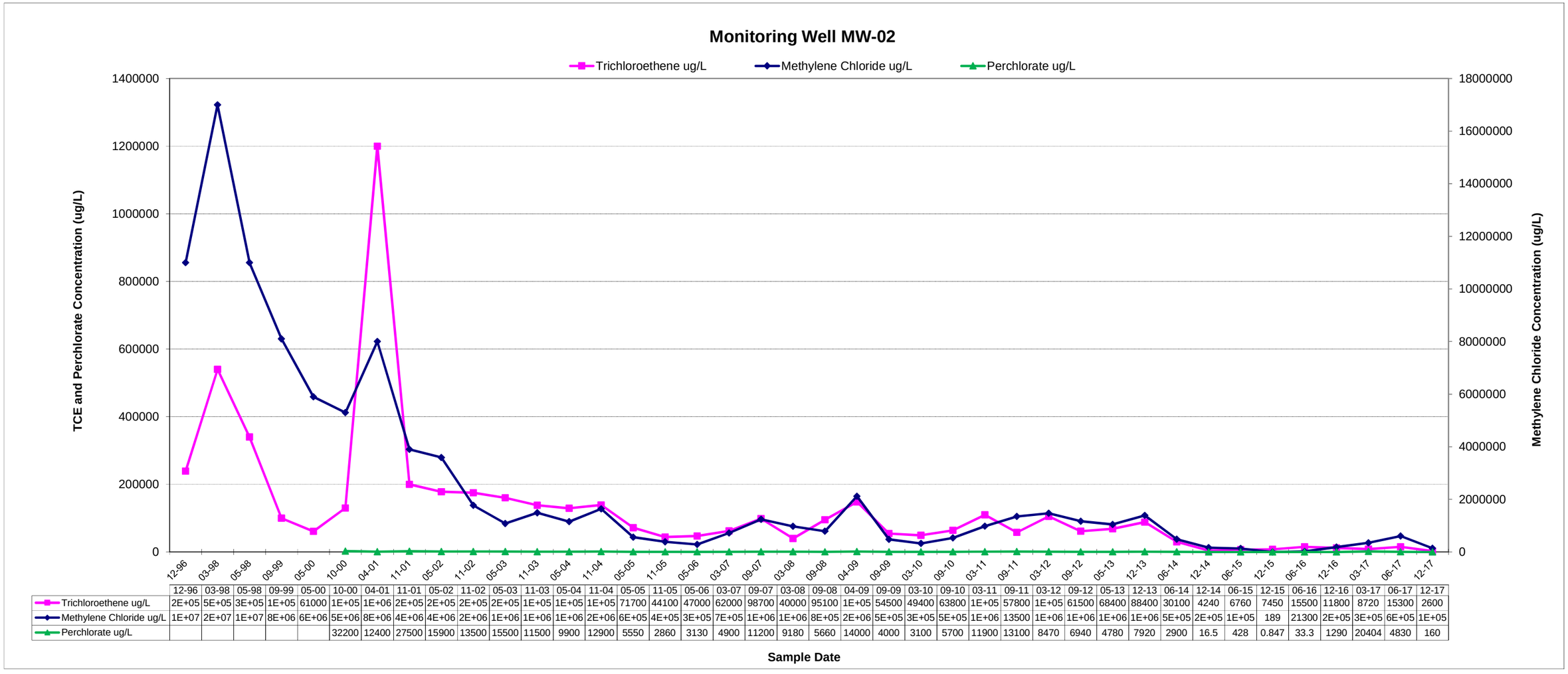
Sample Date



	12-96	03-98	05-98	09-99	05-00	10-00	04-01	11-01	05-02	11-02	05-03	11-03	05-04	11-04	05-05	11-05	05-06	03-07	09-07	03-08	09-08	04-09	09-09	03-10	09-10	03-11	09-11	03-12	09-12	05-13	12-13	12-14	06-15	12-15	06-16	12-16	06-17	12-17
Methylene Chloride	2039	18	18	0	1	0	0	0	0	0	0	0	10.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.34	0.74	0	0	0	0	0	0	0
Trichloroethene	359	18	19	2.6	4.3	2.8	1.1	0	0	0	25.4	12.5	9.95	13	5.79	0	2.33	0	1.03	0	0	0	0	0	0	0	0	0	0.27	0.48	0.49	0	0	0	0	0	0	0
Perchlorate						1030	250	2190	2620	1940	2160	1130	1440	1120	974	864	1050	10	997	42.7	106	107	3.2	0	700	20	125	9.45	619	121	65.3	58.3	12.3	1.35	5.48	35.6	72	170



	Dec 1996	Mar 1998	May 1998	Sep 1999	May 2000	Oct 2000	Apr 2001	Nov 2001	May-2002	Nov-2002	May-2003	Nov-2003	May-2004	Nov-2004	May-2005	Nov-2005	May-2006	Mar-2007	Sep-2007	Mar-2008	Sep-2008	Apr-2009	Sep-2009	Mar-2010	Sep-2010	Mar-2011	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Jun-2015	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017
Methylene Chloride	12	6.6	0	0	2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	21	25	19	8.3	21	8.2	5.5	0	0	0	7.4	0	56.2	0	0	0	1.45	0.67	1.04	0.896	0	0	2.49	2.41	3.87	2.7	7.3	11.7	11.9	13.2	9.54	10.4	11.4	3.64	7.21	5.61	2.18	1.57	0.7
Perchlorate						0	0	0	0	0	0	10.5	0	0	0	0	0	5	4	2.5	3	4	3	0	0	12.5	0.179	0	0	0	0.17	0.501	0	0.648	45	0	0	0	0



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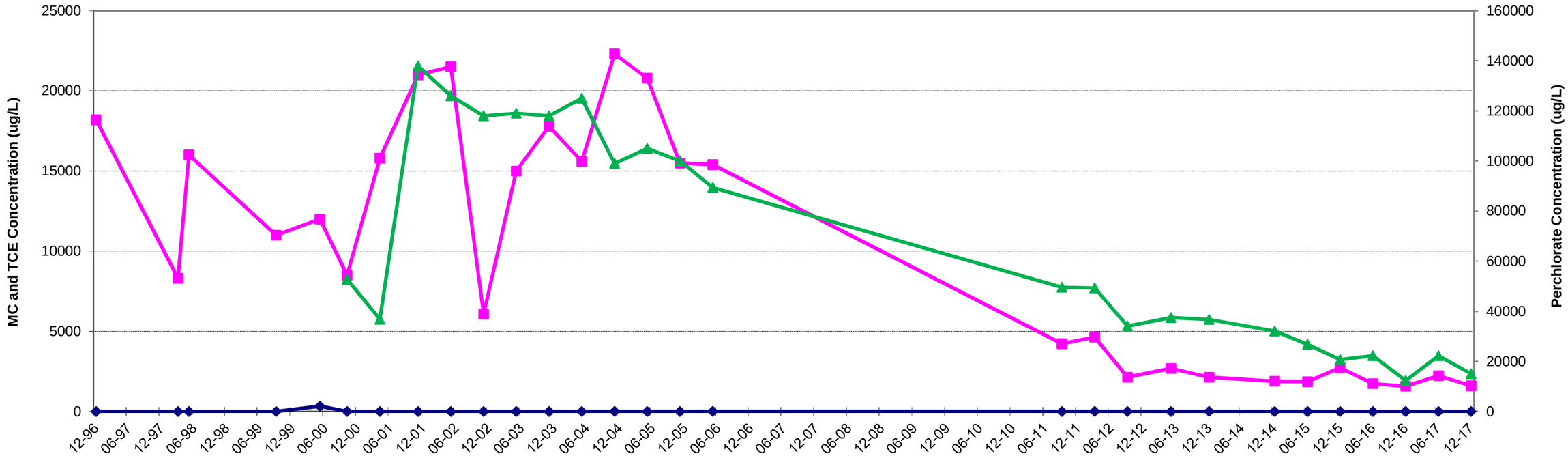
Trichloroethene ug/L	2E+05	5E+05	3E+05	1E+05	61000	1E+05	1E+06	2E+05	2E+05	2E+05	2E+05	1E+05	1E+05	1E+05	71700	44100	47000	62000	98700	40000	95100	1E+05	54500	49400	63800	1E+05	57800	1E+05	61500	68400	88400	30100	4240	6760	7450	15500	11800	8720	15300	2600
Methylene Chloride ug/L	1E+07	2E+07	1E+07	8E+06	6E+06	5E+06	8E+06	4E+06	4E+06	2E+06	1E+06	1E+06	1E+06	2E+06	6E+05	4E+05	3E+05	7E+05	1E+06	1E+06	8E+05	2E+06	5E+05	3E+05	5E+05	1E+06	13500	1E+06	1E+06	1E+06	1E+06	5E+05	2E+05	1E+05	189	21300	2E+05	3E+05	6E+05	1E+05
Perchlorate ug/L						32200	12400	27500	15900	13500	15500	11500	9900	12900	5550	2860	3130	4900	11200	9180	5660	14000	4000	3100	5700	11900	13100	8470	6940	4780	7920	2900	16.5	428	0.847	33.3	1290	20404	4830	160

Monitoring Well MW-07



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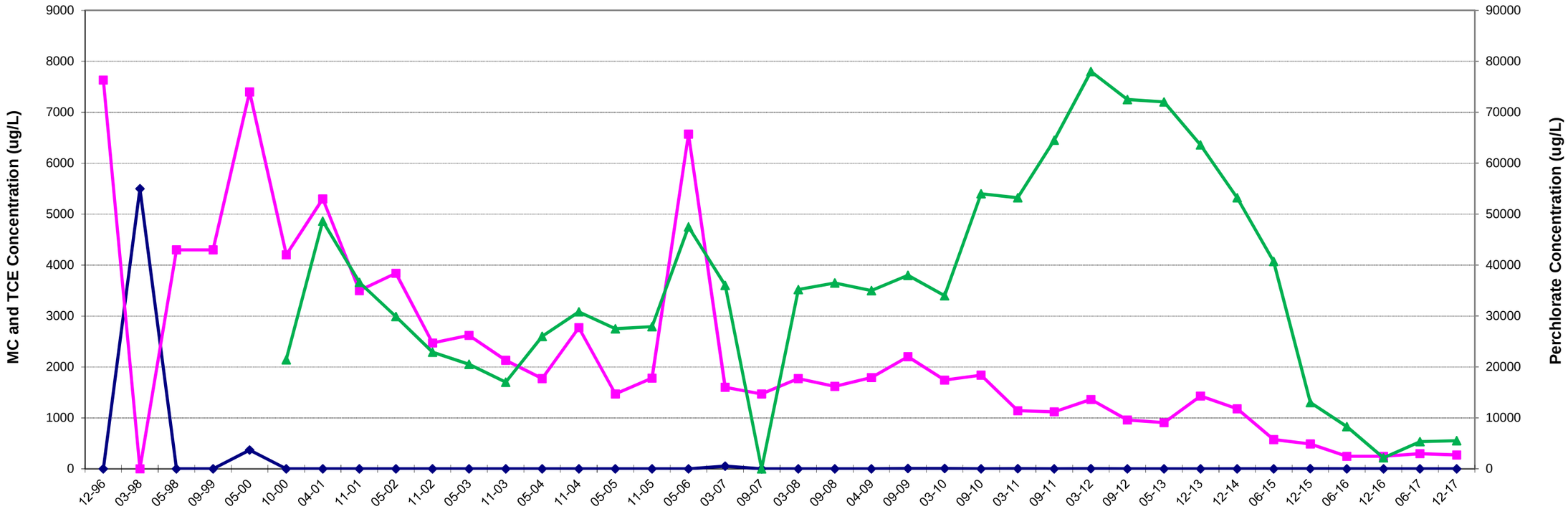
Methylene Chloride	0	0	0	0	330	0	0	0	0	0	0	0	0	5.42	0	0	2.33	0	7.75	0	0	7.81	0	0.352	0	0	0	0.314	0
Trichloroethene	18200	8300	16000	11000	12000	8500	15800	21,00	21500	6070	15000	17800	15600	22300	20800	15500	15400	4220	4640	2130	2690	2140	1880	1860	2730	1740	1570	2230	1600
Perchlorate						52700	36800	13800	12600	11800	11900	11800	12500	99000	10500	10000	89400	49600	49300	34100	37500	36700	32100	26800	20700	22200	12300	22200	15000

Sample Date

Monitoring Well MW-08



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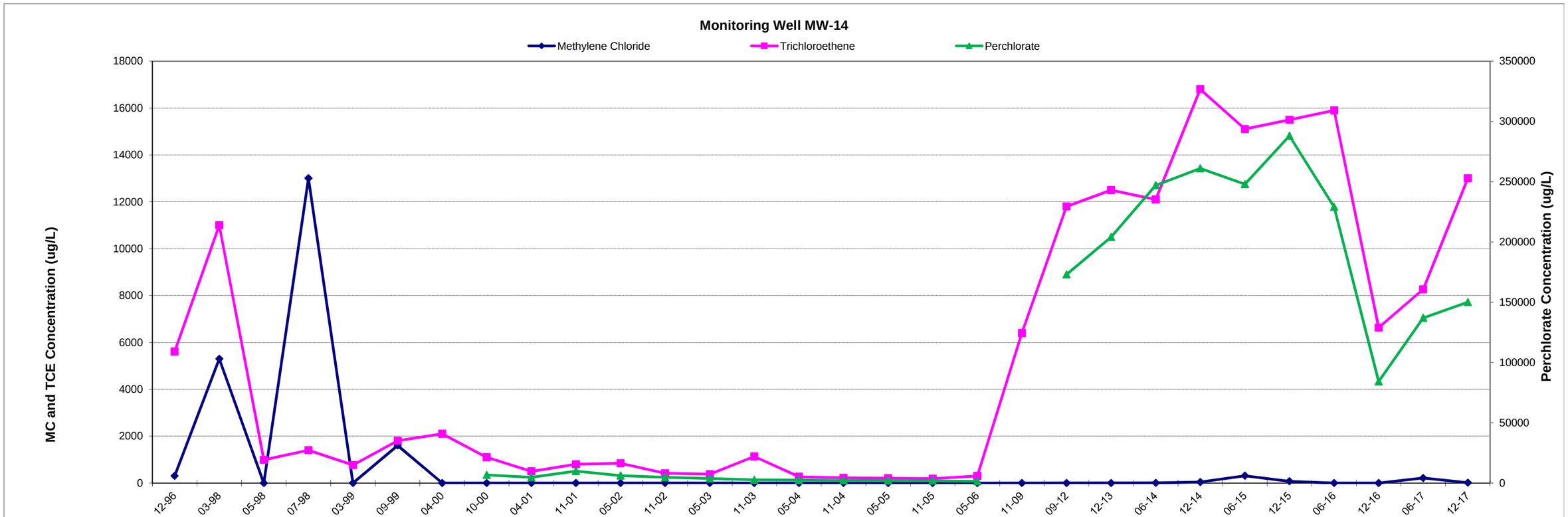
Methylene Chloride	0	5500	0	0	370	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	0	0	6.07	6.27	0	4.11	0	3.25	0	0.351	0	0	0	1.44	0	0	0	0
Trichloroethene	7630	0	4300	4300	7400	4200	5300	3,500	3840	2470	2620	2130	1770	2770	1470	1780	6570	1600	1470	1770	1620	1790	2200	1740	1840	1140	1120	1360	959	907	1430	1180	575	487	247	245	296	270
Perchlorate						21400	48600	36600	29900	22900	20500	17000	26000	30800	27500	27900	47500	36000	0	35200	36500	35000	38000	34000	54000	53200	64500	78000	72500	72000	63600	53200	40700	13000	8290	2160	5320	5500

Sample Date



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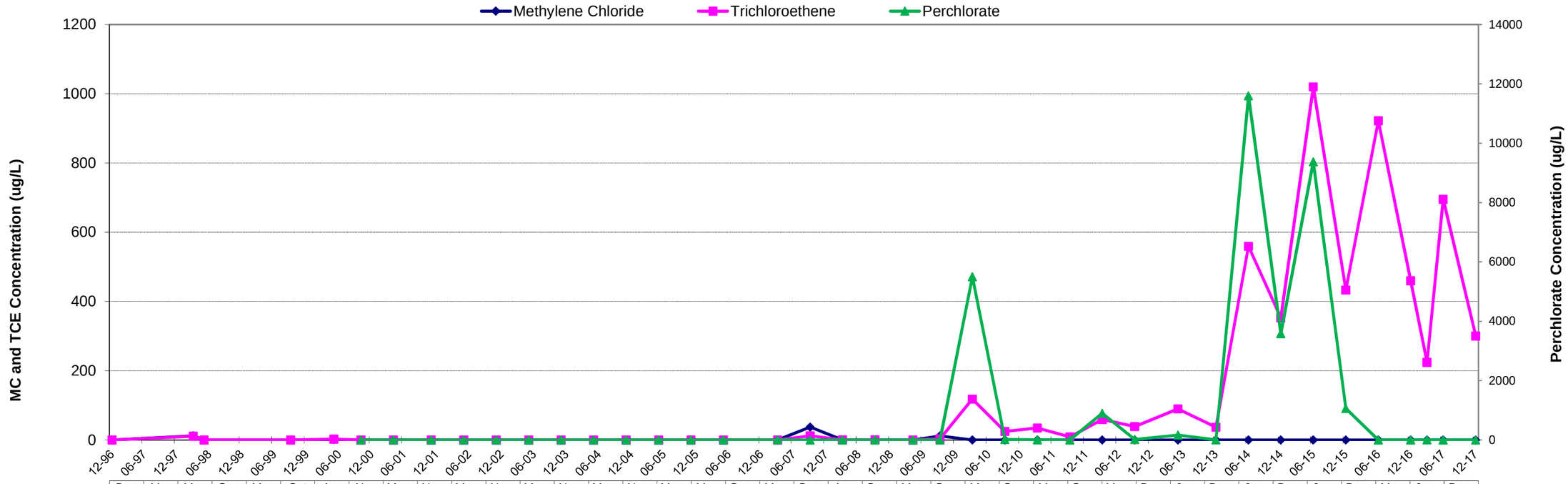
Methylene Chloride	303	5300	0	13000	0	1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.6	0.689	5.65	42.5	312	76.8	0	0	216	11
Trichloroethene	5610	11000	990	1400	770	1800	2100	1100	500	800	846	411	380	1130	269	224	204	189	301	6400	11800	12500	12100	16800	15100	15500	15900	6630	8260	13000
Perchlorate								6680	4720	10000	6210	4740	3750	2700	2580	2180	1980	1850	1410		173000	204000	247000	261000	248000	288000	229000	84200	137000	150000

Sample Date

Monitoring Well MW-16



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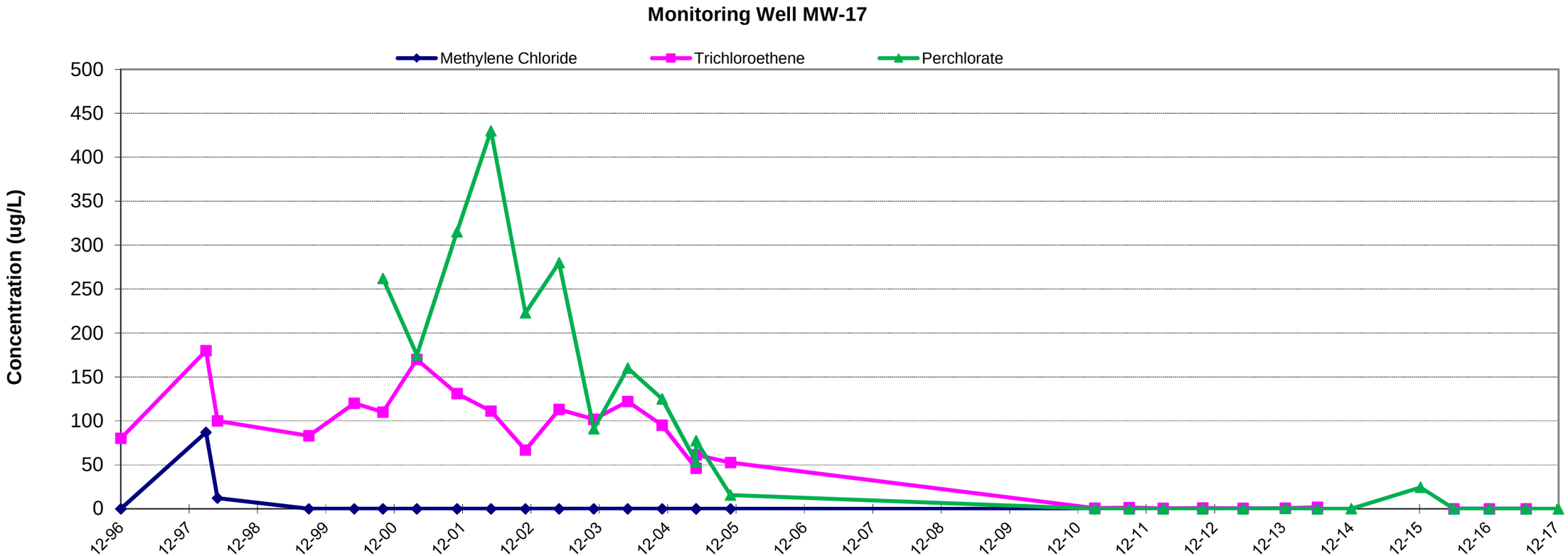
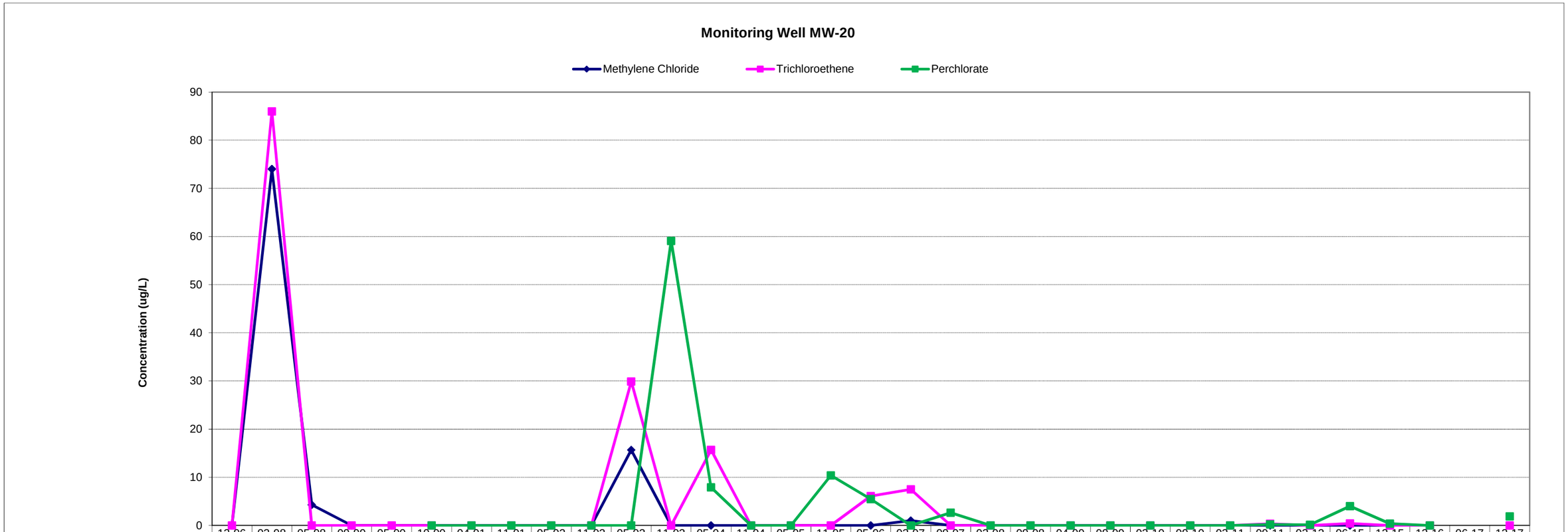
Methylene Chloride	0	12	0	0	0.66	0	0	0	0	0	0	0	0	0	0	0	0	0	37.3	0	0	0	11.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trichloroethene	0	11	0	0	2.7	0	0	0	0	0	0	0	0	0	0	0	0	0	12.1	0.467	0.316	0	3.49	118	24.3	34.5	8.52	59.1	38.7	89.9	36.6	559	353	1020	433	922	460	224	695	300
Perchlorate						0	0	0	0	0	0	0	0	0	0	0	0	2.5	0	0	0	0	0	5500	17	5.24	0	896	16.5	166	1.25	11600	3580	9370	1060	0.615	0	1.3	0	0

Sample Date



	Dec 1996	Mar 1998	May 1998	Sep 1999	May 2000	Oct 2000	Apr 2001	Nov 2001	May-2002	Nov-2002	May-2003	Nov-2003	May-2004	Nov-2004	May-2005	May-2005	Nov-2005	Mar-2011	Sep-2011	Mar-2012	Sep-2012	May-2013	Dec-2013	Jun-2014	Dec-2014	Dec-2015	Jun-2016	Dec-2016	Jun-2017	Dec-2017
Methylene Chloride	0	87	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.335	0.346	0			0	0	0	
Trichloroethene	80	180	100	83	120	110	170	131	111	66.8	113	102	122	95.1	46.1	52.7	61.4	0.551	1.14	0.537	0.943	0.519	0.656	1.69			0	0	0	
Perchlorate						262	175	315	430	223	280	91	160	125	53.2	15.6	77.3	0.179	0	0	0	0	0.376	0	0.143	24.4	0	0	0	0



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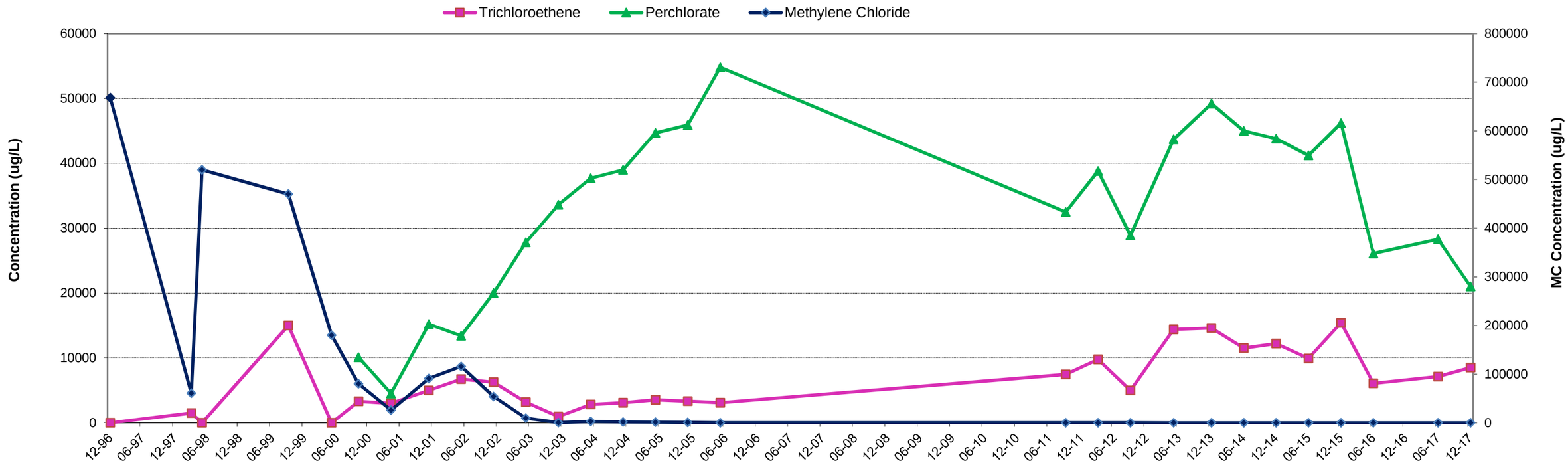
Methylene Chloride	0	74	4.3	0	0	0	0	0	0	0	15.7	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Trichloroethene	0	86	0	0	0	0	0	0	0	0	29.9	0	15.7	0	0	0	6.09	7.5	0	0	0	0	0	0	0	0	0.355J	0	0.441	0	0		0
Perchlorate						0	0	0	0	0	0	59.1	7.9	0	0	10.4	5.47	0	2.67	0	0	0	0	0	0	0	0.216	0.148	4	0.398	0		1.9

Monitoring Well MW-21



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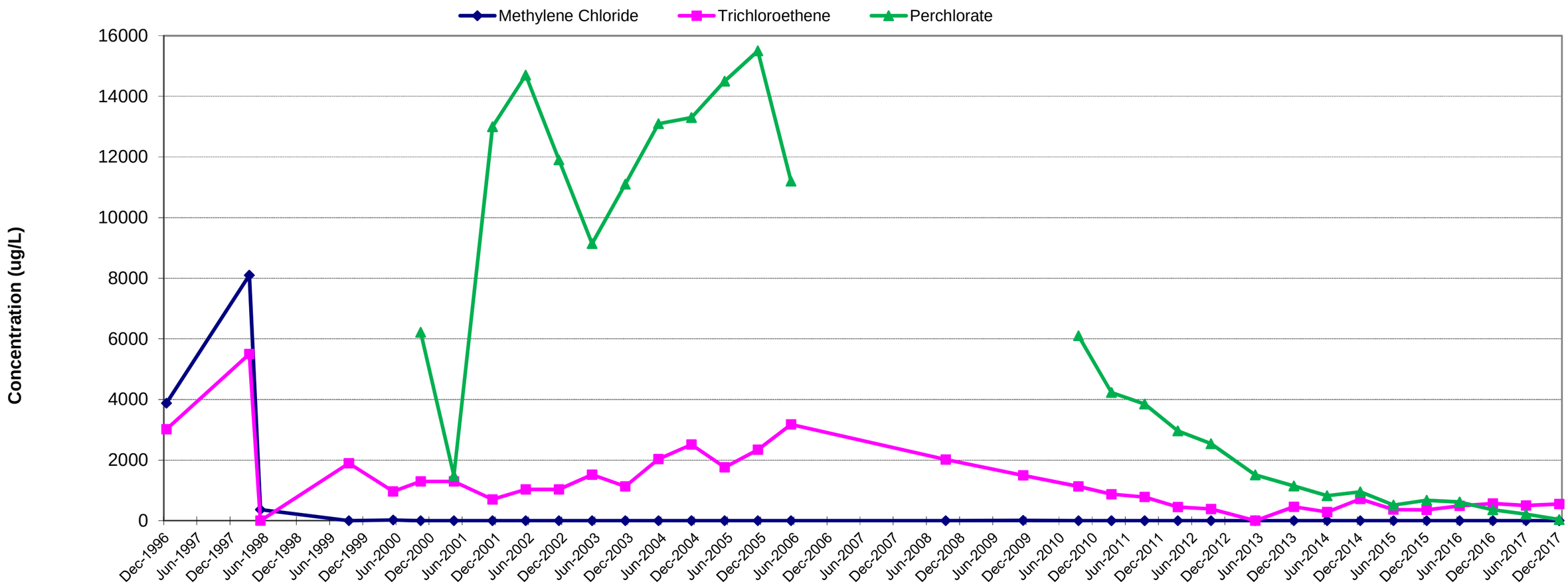
Trichloroethene	0	1500	0	15000	0	3300	3000	5,000	6730	6260	3200	965	2830	3110	3540	3330	3090	7470	9760	4980	14400	14600	11500	12200	9910	15400	6080	7140	8500
Perchlorate						10100	4510	15,200	13400	20000	27800	33600	37700	39000	44700	45900	54800	32500	38800	28900	43700	49200	45000	43800	41200	46200	26100	28300	21000
Methylene Chloride	668000	61000	520000	470000	180000	80000	26000	91,000	116000	54000	9770	320	2740	1490	1370	816	59.5	18.3J	12.5	11.9	0	0	0	0	0	0	0	0	0

Sample Date

Monitoring Well MW-22



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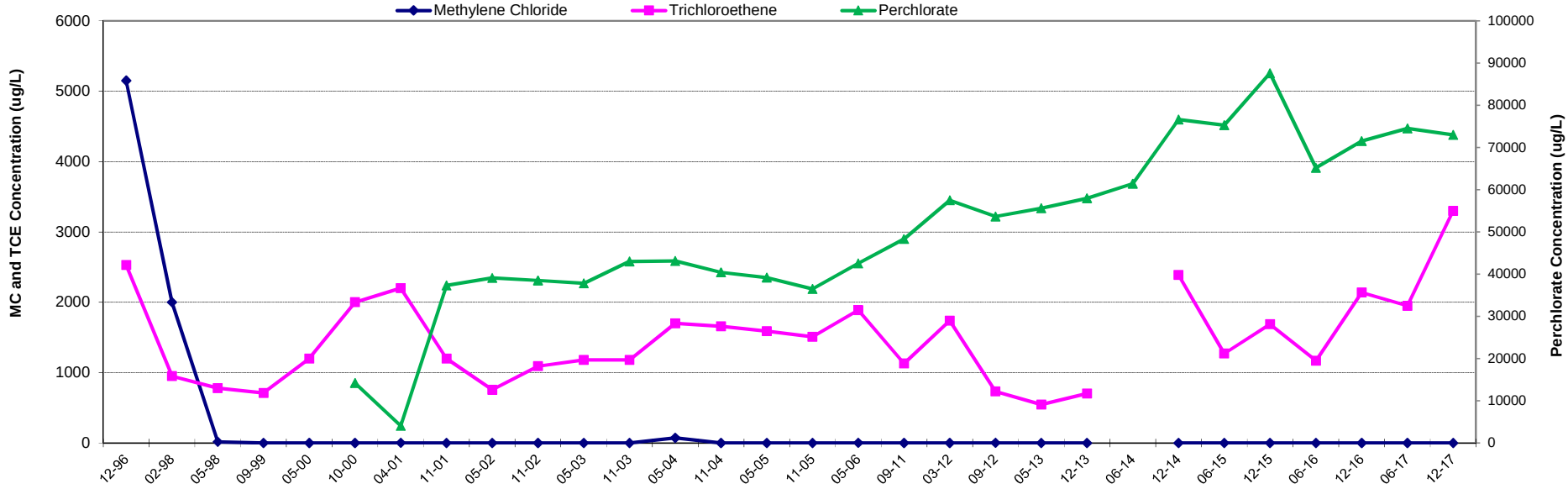
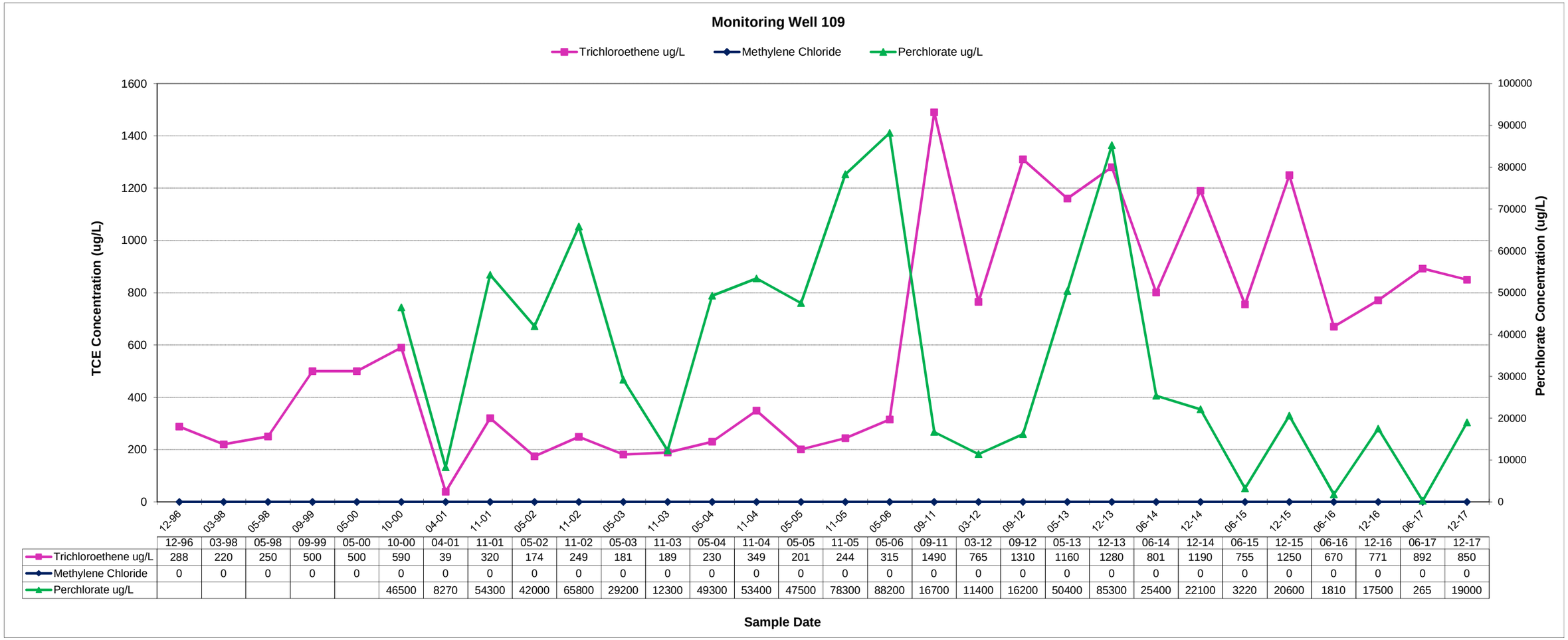
Methylene Chloride	3880	8100	370	0	24	0	0.91	0	0	0	0	0	0	0	0	0	0.394	5.45	12	0	3.04	0	0	0	0.531	0	0	0	0.601	0	0	0	0	0
Trichloroethene	3020	5500	0	1900	970	1300	1300	700	1030	1030	1520	1130	2030	2510	1760	2340	3180	2020	1500	1130	877	779	450	388	0	463	288	719	364	359	488	566	500	550
Perchlorate						6220	1490	13,00	14700	11900	9140	11100	13100	13300	14500	15500	11200			6100	4230	3850	2960	2540	1510	1150	824	953	519	671	615	363	214	40

Sample Date



	12-96	02-98	05-98	09-99	05-00	10-00	04-01	11-01	05-02	11-02	05-03	11-03	05-04	11-04	05-05	11-05	05-06	09-11	03-12	09-12	05-13	12-13	06-14	12-14	06-15	12-15	06-16	12-16	06-17	12-17
Methylene Chloride	5150	2000	16	0	0	0	0.6	0	0	0	0	0	72.5	0	0	0	0.708	0	0	1.34	0	0.338		0	0.492	0	0	0	0	0
Trichloroethene	2530	950	780	710	1200	2000	2200	1,200	756	1090	1180	1180	1700	1660	1590	1510	1890	1130	1740	731	547	703		2390	1270	1690	1170	2140	1950	3300
Perchlorate						14200	4080	37,30	39100	38500	37800	43000	43100	40400	39200	36500	42500	48300	57500	53650	55600	58000	61400	76600	75300	87600	65200	71500	74500	73000

Sample Date



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Trichloroethene ug/L	288	220	250	500	500	590	39	320	174	249	181	189	230	349	201	244	315	1490	765	1310	1160	1280	801	1190	755	1250	670	771	892	850
Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perchlorate ug/L						46500	8270	54300	42000	65800	29200	12300	49300	53400	47500	78300	88200	16700	11400	16200	50400	85300	25400	22100	3220	20600	1810	17500	265	19000

APPENDIX E
WATER SAMPLING ANALYTICAL RESULTS FOR THE 4TH QUARTER 2017 (PROVIDED ON CD ONLY)

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APPENDIX F
QUALITY CONTROL SUMMARY REPORT

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QUARTERLY CONTROL SUMMARY REPORT
4th QUARTER (OCTOBER-DECEMBER) 2017
GROUNDWATER TREATMENT PLANT
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

March 2018

Prepared For:

Longhorn Army Ammunition Plant
Karnack, Texas

Under Contract To:

U.S. Army Corps of Engineers
Tulsa District
Tulsa, Oklahoma

Contract Number: W9128F-13-D-0012
Task Order Number: W912BV17F0150

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Tables

Table 1: Field Sample Identification and Laboratory Packages
Table 2: Qualified Analytical Data
Table 3: Completeness by Method

1 INTRODUCTION

Bhate reviewed 29 data packages (in addition to the air data collected in January that was inadvertently left off of the 4th quarter sampling event) from ALS Environmental, Houston, Texas. Also, 2 data packages from Gulf Coast Analytical Laboratories, LLC (GCAL) were included and reviewed from the October 5th sampling event. Groundwater samples were collected from October 5, 2017, through December 27, 2017, at the Groundwater Treatment Plant (GWTP) and Site LHAAP 18/24 at Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. Data were reviewed for conformance to the requirements of the following guidance documents: *USEPA Contract Laboratory Program* [CLP] *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, January 2017); *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017); and the *Army Draft Basewide Uniform Federal Policy (UFP) – Quality Assurance Project Plan (QAPP) Longhorn Army Ammunition Plant* (Bhate, November 2017).

1.1 Intended Use of Data

The objective of sampling at the GWTP is to monitor effluent streams to confirm compliance with discharge limits.

Analyses performed include:

- SW6850 – Perchlorate
- E350.3/SM4500 NH3 – Nitrogen, Ammonia
- E365.3/SM4500 P – Orthophosphate
- E415.1/SM5310 – Total Organic Carbon
- SW8260C – Volatile Organic Compounds (VOCs)
- SW8270D SIM - 1,4-Dioxane
- SW6020A/7470 – Metals
- SW9056A – Chloride (Cl) and Sulfate (SO_4)
- SW7196A – Hexavalent Chromium
- E410.4 – Chemical Oxygen Demand
- E1664A – Oil and Grease
- TO-15 – Volatiles in Air

Table 1 lists the sample identification numbers (IDs) and their associated laboratory package.

Table 2 lists qualified results with the qualification flag and reason code.

The following narrative is a brief synopsis of data that required qualification due to quality control discrepancies.

1.2 Preservation and Holding Times

Sample identification data were evaluated for agreement with the chain-of-custody. All samples were received in appropriate containers, within the proper temperature range, in good

condition, and within the required hold time. For GWTP sample LH18/24-SP140_101217, the metals container was received with the pH >2. The laboratory added 1 milliliter (mL) of nitric acid on sample arrival and proceeded with the analysis. Since the sample was preserved immediately upon arrival, no qualification of the data was deemed necessary.

1.3 Calibrations

All analytes reported must be present in the initial and continuing calibration. The calibrations must meet the acceptance criteria specified in Worksheet 24 (Analytical Instrument Calibration) of the QAPP. All results reported must be within the calibration range. Samples were diluted, if necessary, to bring analyte responses within the calibration range.

1.3.1 Continuing Calibration Verifications (CCV)

The calibrations must meet the following criteria otherwise the compound is qualified J or UJ: The continuing calibration verification (CCV) criteria are 20 percent difference (%D) for VOCs and Semi-Volatile Organic Compounds (SVOCs) and 50% for closing CCVs. Metals and general chemistry – 10 %D; perchlorate – 15 %D; and volatiles in air – 30 %D.

The %D for hexachlorobutadiene in the CCV associated with the SW8260B analyses of samples in packages HS17120435 (-37.19%), HS17120573 (-56.95%), and HS17120365 (-37.19%) was outside control limit criteria. Additionally, n-butylbenzene in the CCV associated with package HS17120573 (-21.73%) was outside defined criteria. These compounds were not detected in these samples and were qualified estimated non-detected "UJ". Note: Package HS17120365 was associated with the monthly GWTP effluent sample of which hexachlorobutadiene was not reported. For purposes of this validation report, this compound is included in the flagging criteria listed in **Table 2**.

All other CCVs were within acceptance criteria.

1.4 Blanks

If the analyte result for an associated sample was less than 5 times (10 times for common laboratory contaminants) the analyte concentration in the blank, that result was qualified "UB" and considered an artifact of blank contamination. Where the sample result for the affected analyte was non-detect or greater than 5 times the amount in the blank, no qualifier was applied. The following table lists the type of blank and analyte detected in those blanks that required qualification. See **Table 2** for specific samples and applied qualifier.

Blank	Analyte	Blank Result	Lab Package
Method blank	Arsenic	0.000688	HS17120573
Method blank	Aluminum Vanadium Nickel	0.004083 0.000642 0.000669	HS17120435
Method Blank	Aluminum Antimony Zinc	0.003836 0.000414 0.002768	HS17121224

Blank	Analyte	Blank Result	Lab Package
Method Blank	Aluminum Antimony Nickel Vanadium	0.002791 0.000429 0.000729 0.000721	HS17120868
Method Blank	Aluminum Nickel Vanadium	0.002791 0.000729 0.000721	HS17120912
Method Blank	Aluminum	0.005208	HS17121113
Method Blank	Antimony	0.000414	HS17121169
Method Blank	Aluminum Zinc	0.003836 0.002768	HS17121168

1.5 Surrogates

Surrogates were evaluated using limits defined by each method in the project-specific QAPP Worksheet 28.

1.5.1 SW6850

The perchlorate analysis of samples LH18/24-SP140_122017, MW22_121817, 18CPTMW06_121817, and AWD3_121817 reported surrogate recoveries above control criteria. These samples reported detections and were qualified as estimated "J" due to the high bias. See **Table 2** for qualified data. In addition, samples 18CPTMW06_121817_a and 18CPTMW16_121817 reported surrogate recoveries above control limits but since perchlorate was not detected in either sample, no qualification was necessary.

1.5.2 SW8270D SIM

The 1,4-dioxane analysis of GWTP samples LH18/24-SP650_122017 and LH18/24-SP650_110917 reported a high recovery of 4-terphenyl-d14. The potential high bias resulted in 1,4-dioxane being qualified as estimated "J". See **Table 2** for qualified data.

1.6 Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

LCS/LCSD recoveries were evaluated using limits defined in the project-specific QAPP Worksheet 15.

All sample recoveries were within control limits.

1.7 Matrix Spike (MS)/Matrix Spike Duplicate Sample (MSD)

MS/MSD recoveries were evaluated using limits defined in Worksheet 15 of the project-specific QAPP. When sample results were greater than 4 times the spike amount, control limits were not applicable and require no qualification. Furthermore, if a MS/MSD analyses was performed on a batched (unrelated) sample no qualification was made to the sample data.

1.7.1 SW8260

Samples 18WW24_120717 and CO9_120517 reported multiple compounds outside MS/MSD recoveries in addition to relative percent difference (RPD) exceedances. Also, multiple compounds reported MS and/or MSD recoveries below control limits for the GWTP sample LH18/24-SP650_110917. When the recoveries were below control limits the data were qualified "J/UJ" (detected/non-detected); when the recoveries were above control limits a "J" flag was applied to detected compounds only due to a high bias.

1.7.2 SW6020

Sample 18CPTMW10DW-121217 reported aluminum and calcium outside recovery limits in the MS and/or MSD. Matrix interference was confirmed by the post digestate spike and these compounds were qualified as estimated "J".

1.7.3 SW9056

The MS recovery of chloride in sample LH18/24-SP650_121317 was above control limits. Chloride was qualified as estimated "J". See **Table 2** for sample data qualification.

1.8 Internal Standards

If the percent recovery (%R) for an internal standard in a sample is not within the limit, the associated sample is qualified for those analytes associated with the internal standard(s) outside of the limit.

Internal standards were within acceptance criteria for the associated compounds.

1.9 Field Precision

Precision is the measure of variability of individual sample measurements. Evaluation of field duplicates for precision was done using the RPD. The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD limits were set at <30% for groundwater and air matrices. No data required qualification since field duplicate RPDs did not exceed control limits. Overall field precision was acceptable.

2 DATA USABILITY SUMMARY

The data are usable for the intended purposes of the project (see **Table 3**). The data quality objectives have been met for the project.

Table 1: Field Sample Identification and Laboratory Packages

Client Sample ID	Lab Package	SW6850	E350.3/SM4500 NH3	E365.3/SM4500 P	E415.1/SM5310	SW8270D SIM	SW8260C	SW6020A	SW9056A	SW7196A	E410.4	1664A	TO-15
GWTP Samples													
LH18/24-SP650_1017W	217100620	X	X	X	X								
LH18/24-SP650_1017B	217100631						X		X				
LH18/24-SP140_101217	HS17100709	X						X		X			
LH18/24-SP650_101217	HS17100712	X				X	X	X		X			
LH18/24-SP650_101217	HS17100714	X	X	X	X								
LH18/24-SP650_101817	HS17100966	X	X	X	X								
LH18/24-SP650_101817	HS17100970						X		X				
LH18/24-SP650-102517	HS17101366	X	X	X	X								
LH18/24-SP650-110117	HS17110082	X	X	X	X								
LH18/24-SP650_110117	HS17110083						X		X				
LH18/24-SP140_110917	HS17110496	X						X		X			
LH18/24-SP650_110917	HS17110493	X				X	X	X		X			
LH18/24-SP650_110917	HS17110495	X	X	X	X								
LH18/24-SP650_112917	HS17120018						X		X				
LH18/24-SP650_112917	HS17120016	X	X	X	X								
LH18/24-SP140_120617	HS17120366	X						X		X			
LH18/24-SP650_120617	HS17120365	X				X	X	X		X			
LH18/24-SP650_120617	HS17120367	X	X	X	X								
LH18/24-SP650_121317	HS17120839						X		X				
LH18/24-SP650_121317	HS17120746	X	X	X	X								
LH18/24-SP650_122017	HS17121168	X				X	X	X	X		X	X	
LH18/24-SP140_122017	HS17121169	X				X	X	X	X		X	X	
LH18/24-SP650_122017	HS17121135	X	X	X	X								
LH18/24-SP650_122717	HS17121397	X	X	X	X								
LH18/24-SP650_122717	HS17121400						X		X				
Air Samples													
LH18/24-AIR_012918_Stripper	P1800459												X
LH18/24-AIR_012918_Stripper_Dup	P1800459												X
LH18/24-AIR_012918_GWTP	P1800459												X
LH18/24-AIR_013018_Downwind	P1800459												X
Site 18/24													
AWD3_121817	HS17121113	X					X	X					
18CPTMW01SW_122017	HS17121224	X					X	X					
18CPTMW03SW_121517	HS17120912	X					X	X					
18CPTMW04_122017	HS17121224	X					X						
18CPTMW04SW_122017	HS17121224	X					X	X					
18CPTMW06_121817	HS17121113	X					X						
18CPTMW06_121817_a	HS17121113	X					X						
18CPTMW07_120617	HS17120435	X					X						
18CPTMW08SW_122117	HS17121224	X					X						
18CPTMW08DW_122117	HS17121224	X											
18CPTMW10SW_121217	HS17120868	X					X						
18CPTMW10DW_121217	HS17120868	X					X	X					
18CPTMW12SW_121217	HS17120868	X					X	X					
18CPTMW12DW_121217	HS17120868	X					X	X					
18CPTMW14_120717	HS17120573	X					X	X					
18CPTMW14_120717_a	HS17120573	X					X	X					
18CPTMW15_120617	HS17120435	X					X						

Client Sample ID	Lab Package	SW6850	E350.3/SM4500 NH3	E365.3/SM4500 P	E415.1/SM5310	SW8270D SIM	SW8260C	SW6020A	SW9056A	SW7196A	E410.4	1664A	TO-15
18CPTMW16_121817	HS17121113	X											
18CPTMW18_120517	HS17120435	X					X	X					
18CPTMW19_120617	HS17120435	X					X						
18CPTMW19_120617_a	HS17120435	X					X						
18CPTMW22R_121417	HS17120912	X					X	X					
18CPTMW22SW_121417	HS17120912	X					X	X					
18CPTMW23_120717	HS17120573	X					X						
18CPTMW24_120717	HS17120573	X					X	X					
18WW02_120817	HS17120573	X					X	X					
18WW06_120817	HS17120573	X					X						
18WW08_120617	HS17120435	X					X						
18WW17_120517	HS17120435	X					X	X					
18WW22_120517	HS17120435	X					X	X					
18WW24_120717	HS17120573	X					X	X					
18WW25_120717	HS17120573	X					X	X					
C03_120517	HS17120435	X					X						
C08_120517	HS17120435	X					X	X					
C09_120517	HS17120435	X					X	X					
MW2_122017	HS17121224	X					X	X					
MW3_122117	HS17121224	X					X	X					
MW5_122017	HS17121224	X					X	X					
MW7_121317	HS17120912	X					X						
MW8_121217	HS17120868	X					X						
MW9_121317	HS17120912	X					X	X					
MW10_121117	HS17120868	X					X						
MW14_121817	HS17121113	X					X	X					
MW14_121817-a	HS17121113	X					X	X					
MW-16_120817	HS17120573	X					X						
MW17_121117	HS17120868	X											
MW18_121117	HS17120868	X					X						
MW19_121217	HS17120868	X					X	X					
MW20_121417	HS17120912	X					X						
MW21_121817	HS17121113	X					X	X					
MW22_121817	HS17121113	X					X	X					
MW23_121517	HS17120912	X					X						
MW23_121517-a	HS17120912	X					X						
(MW-) 109_121417	HS17120912	X					X						
(MW-) 120_121417	HS17120912	X					X						
(MW-) 123_121417	HS17120912	X					X						
(MW-) 126_120517	HS17120435	X					X	X					

Notes:
MW – Monitoring Well
SM – Standard Method
SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
E – U.S. Environmental Protection Agency Method
HS - Houston

Table 2: Qualified Analytical Data

Client Sample ID	Laboratory Package	Analyte Name	Result (µg/L) and Qualifier <Metals in mg/L>	Reason for Qualification
GWTP				
LH18/24-SP650_110917	HS17110493	1,1-Dichloropropene	UJ	MS/MSD
		Bromomethane	UJ	MS/MSD
		Carbon tetrachloride	UJ	MS/MSD
		Chloroethane	UJ	MS/MSD
		Dichlorodifluoromethane	UJ	MSD
		Hexachlorobutadiene	UJ	MS
		Trichloroethene	UJ	MS
		1,4-Dioxane	8.2 J	Surr>
LH18/24-SP140_122017	HS17121169	Antimony	0.000843 UB	MB
		Perchlorate	8,100 J	Surr>
LH18/24-SP650_122017	HS17121168	Aluminum	0.00533 UB	MB
		Zinc	0.00385 UB	MB
		1,4-Dioxane	2.9 J	Surr>
LH18/24-SP650_121317	HS17120839	Chloride	457 J	MS
LH18/24-SP650_120617	HS17120365	Hexachlorobutadiene	UJ	CCV<
18/24				
18WW24_120717	HS17120573	1,2,3-Trichlorobenzene	UJ	MS/RPD
		1,2,4-Trichlorobenzene	UJ	RPD
		1,2-Dibromo-3-chloropropane	UJ	RPD
		1,2-Dichlorobenzene	UJ	MS/RPD
		1,3-Dichlorobenzene	UJ	MS/MSD
		4-Isopropyltoluene	UJ	MS/MSD
		Bromobenzene	UJ	MS
		Chlorobenzene	UJ	MS
		Chloroethane	UJ	MS/MSD
		Chloroform	UJ	MS
		Ethylbenzene	UJ	MS/MSD
		m,p-Xylene	UJ	MS/MSD
		Naphthalene	UJ	RPD
		n-Butylbenzene	UJ	MS/CCV<
		o-Xylene	UJ	MS
		sec-Butylbenzene	UJ	MS/MSD
		Toluene	UJ	MS/MSD
		Hexachlorobutadiene	UJ	CCV<
		Arsenic	0.000915 UB	MB
18CPTMW24_120717	HS17120573	Hexachlorobutadiene	UJ	CCV<
		n-Butylbenzene	UJ	CCV<
18CPTMW14_120717	HS17120573	Hexachlorobutadiene	UJ	CCV<
		n-Butylbenzene	UJ	CCV<
		Arsenic	0.00215 UB	MB
18CPTMW14_120717_a	HS17120573	Hexachlorobutadiene	UJ	CCV<
		n-Butylbenzene	UJ	CCV<
		Arsenic	0.00216 UB	MB
18CPTMW23_120717	HS17120573	Hexachlorobutadiene	UJ	CCV<
		n-Butylbenzene	UJ	CCV<
18WW25_120717	HS17120573	Hexachlorobutadiene	UJ	CCV<
		n-Butylbenzene	UJ	CCV<
		Arsenic	0.00177 UB	MB
MW16_120817	HS17120573	Hexachlorobutadiene	UJ	CCV<
		n-Butylbenzene	UJ	CCV<
18WW06_120817	HS17120573	Hexachlorobutadiene	UJ	CCV<
		n-Butylbenzene	UJ	CCV<
18WW02_120817	HS17120573	Hexachlorobutadiene	UJ	CCV<
		n-Butylbenzene	UJ	CCV<
		Arsenic	0.000627 UB	MB

Client Sample ID	Laboratory Package	Analyte Name	Result and Qualifier	Reason for Qualification
CO9_120517	HS17120435	1,1,1,2-Tetrachloroethane	UJ	MS/MSD
		1,1,1-Trichloroethane	UJ	MS/MSD
		1,1,2,2-Tetrachloroethane	UJ	MS/MSD
		1,1,2-Trichloroethane	UJ	MS/MSD
		1,1-Dichloroethane	UJ	MS/MSD
		1,1-Dichloroethene	UJ	MS/MSD
		1,1-Dichloropropene	UJ	MS/MSD
		1,2,3-Trichlorobenzene	UJ	MS/MSD
		1,2,3-Trichloropropane	UJ	MS/MSD
		1,2,4-Trichlorobenzene	UJ	MS/MSD
		1,2,4-Trimethylbenzene	UJ	MS/MSD
		1,2-Dibromo-3-chloropropane	UJ	MS/MSD
		1,2-Dibromoethane	UJ	MS/MSD
		1,2-Dichlorobenzene	UJ	MS/MSD
		1,2-Dichloroethane	UJ	MS/MSD
		1,2-Dichloropropane	UJ	MS/MSD
		1,3,5-Trimethylbenzene	UJ	MS/MSD
		1,3-Dichlorobenzene	UJ	MS/MSD
		1,3-Dichloropropane	UJ	MS/MSD
		1,4-Dichlorobenzene	UJ	MS/MSD
		2,2-Dichloropropane	UJ	MS/MSD
		2-Butanone	UJ	MS/MSD
		2-Chlorotoluene	UJ	MS/MSD
		2-Hexanone	UJ	MS/MSD
		4-Chlorotoluene	UJ	MS/MSD
		4-Isopropyltoluene	UJ	MS/MSD
		4-Methyl-2-pentanone	UJ	MS/MSD
		Acetone	UJ	MS/MSD
		Benzene	UJ	MS/MSD
		Bromobenzene	UJ	MS/MSD
		Bromochloromethane	UJ	MS/MSD
		Bromodichloromethane	UJ	MS/MSD
		Bromoform	UJ	MS/MSD
		Bromomethane	UJ	MS/MSD
		Carbon disulfide	UJ	MS/MSD
		Carbon tetrachloride	UJ	MS/MSD
		Chlorobenzene	UJ	MS/MSD
		Chloroethane	UJ	MS/MSD
		Chloroform	UJ	MS/MSD
		Chloromethane	UJ	MS/MSD
		cis-1,2-Dichloroethene	UJ	MS/MSD
		cis-1,3-Dichloropropene	UJ	MS/MSD
		Dibromochloromethane	UJ	MS/MSD
		Dibromomethane	UJ	MS/MSD
		Ethylbenzene	UJ	MS/MSD
		Hexachlorobutadiene	UJ	MS/MSD/CCV<
		Isopropylbenzene	UJ	MS/MSD
		m,p-Xylene	UJ	MS/MSD
		Methylene chloride	UJ	MS/MSD
		Naphthalene	UJ	MS/MSD
		n-Butylbenzene	UJ	MS/MSD
		n-Propylbenzene	UJ	MS/MSD
		o-Xylene	UJ	MS/MSD
		sec-Butylbenzene	UJ	MS/MSD
		Styrene	UJ	MS/MSD
		tert-Butylbenzene	UJ	MS/MSD
		Tetrachloroethene	UJ	MS/MSD
		Toluene	UJ	MS/MSD
		trans-1,2-Dichloroethene	UJ	MS/MSD
		trans-1,3-Dichloropropene	UJ	MS/MSD
		Trichloroethene	UJ	MS/MSD
		Trichlorofluoromethane	UJ	MS/MSD
		Vinyl chloride	UJ	MS/MSD
		Vanadium	0.00128 UB	MB

Client Sample ID	Laboratory Package	Analyte Name	Result and Qualifier	Reason for Qualification
126_120517	HS17120435	Hexachlorobutadiene Aluminum	UJ 0.0197 UB	CCV MB
C08_120517	HS17120435	Hexachlorobutadiene Aluminum Vanadium	UJ 0.0147 UB 0.000603 UB	CCV MB MB
18WW17_120517	HS17120435	Hexachlorobutadiene Aluminum Vanadium	UJ 0.00628 UB 0.00139 UB	CCV MB MB
C03_120517	HS17120435	Hexachlorobutadiene	UJ	CCV<
18CPTMW18_120517	HS17120435	Hexachlorobutadiene Aluminum	UJ 0.0142 UB	CCV MB
18WW22_120517	HS17120435	Hexachlorobutadiene Nickel	UJ 0.00112 UB	CCV MB
18CPTMW19_120617	HS17120435	Hexachlorobutadiene	UJ	CCV<
18WCPTMW19_120617_a	HS17120435	Hexachlorobutadiene	UJ	CCV<
18WW08_120617	HS17120435	Hexachlorobutadiene	UJ	CCV<
18CPTMW15_120617	HS17120435	Hexachlorobutadiene	UJ	CCV<
18CPTMW07_120617	HS17120435	Hexachlorobutadiene	UJ	CCV<
18CPTMW01SW_122017	HS17121224	Aluminum Antimony Zinc	0.00872 UB 0.000593 UB 0.00377 UB	MB MB MB
18CPTMW04SW_122017	HS17121224	Antimony	0.00146 UB	MB
MW2_122017	HS17121224	Antimony	0.000858 UB	MB
MW3_122117	HS17121224	Aluminum Antimony Zinc	0.00504 UB 0.000414 UB 0.00590 UB	MB MB MB
MW5_122017	HS17121224	Aluminum Antimony	0.00867 UB 0.000519 UB	MB MB
MW9_121317	HS17120912	Aluminum Vanadium	0.0106 UB 0.00134 UB	MB MB
18CPTMW22SW_121417	HS17120912	Nickel Vanadium	0.00110 UB 0.00188 UB	MB MB
18CPTMW03SW_121517	HS17120912	Vanadium	0.000943 UB	MB
18CPTMW10DW_121217	HS17120868	Aluminum Antimony Calcium Nickel Vanadium	0.0111 UB 0.000501 UB 3.70 J 0.00124 UB 0.000734 UB	MB/MS/MSD MB MSD MB MB
18CPTMW12DW_121217	HS17120868	Aluminum Antimony Nickel Vanadium	0.00889 UB 0.000508 UB 0.00111 UB 0.000864 UB	MB MB MB MB
18CPTMW12SW_121217	HS17120868	Aluminum Antimony Vanadium	0.00841 UB 0.00117 UB 0.000804 UB	MB MB MB
MW19-121217	HS17120868	Antimony Vanadium	0.000432 UB 0.00152 UB	MB MB
MW14_121817	HS17121113	Aluminum	0.0172 UB	MB
MW14_121817_a	HS17121113	Aluminum	0.0162 UB	MB
MW21_121817	HS17121113	Aluminum	0.00900 UB	MB
MW22_121817	HS17121113	Aluminum Perchlorate	0.00917 UB 40 J	MB Surr>
18CPTMW06_121817	HS17121113	Perchlorate	1.8 J	Surr>
AWD3_121817	HS17121113	Perchlorate	8,800 J	Surr>

Notes: µg/L – micrograms per liter, mg/L – milligrams per liter
J – Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific QC criteria.
UJ – The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
UB – The analyte was deemed an artifact of blank contamination and considered non-detect
Surr> - surrogate recovery above control limits
MS/MSD – Matrix spike and/or Matrix spike duplicate outside control limits
MB – Method blank contamination
CCV< - Continuing calibration verification below control limits
RPD – the relative percent difference between the MS and MSD was outside control limits

Table 3: Completeness by Method

Method	No. of Rejected Results	% Completeness
SW6850	0	100
E350.1	0	100
E365.2	0	100
E415.1	0	100
SW8270D	0	100
SW8260B	0	100
SW6020A	0	100
SW9056	0	100
SW7196A	0	100
E410.4	0	100
E1664	0	100
TO-15	0	100

APPENDIX G
AIR MONITORING DATA – 4TH QUARTER 2017
(PROVIDED ON CD ONLY)

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ATTACHMENT 1: AIR MONITORING CALCULATIONS

Longhorn Army Ammunition Plant
Groundwater Treatment Plant
Emission Stack Air Data - January 29, 2018

Pollutant	CAS	Measured Air Stripper Stack Concentrations (1) µg/m^3		Air Stripper Emission Rates (2) lb/hr		Air Stripper Emission Rates(2a) tpy		Allowable Annual Emission (3) tpy	Status (4)	TLV (L) mg/m^3	TLV Reference	Compliance section	Distance Downwind to nearest off-site Receptor (D) ft	(K) value	Allowable Maximum Hourly Emission Limit at Nearest off-site Receptor [6][7] (E) = L/K lb/hr	Status (8)
1,1-Dichloroethane	75-34-3	210	U	1.72E-03	U	1.12E-03	U	5	PASS	405	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
1,1-Dichloroethene	75-35-4	**280**		4.59E-03		2.98E-03		5	PASS	20	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.4	PASS
1,2-Dichloroethane	107-06-2	**290**		4.75E-03		3.09E-03		5	PASS	40	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	2.9	PASS
Acetone	67-64-1	2,100	U	1.72E-02	U	1.12E-02	U	5	PASS	590	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
Benzene	71-43-2	210	U	1.72E-03	U	1.12E-03	U	5	PASS	3	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	0.21	PASS
Carbon disulfide	75-15-0	2,100	U	1.72E-02	U	1.12E-02	U	5	PASS	31	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	2.2	PASS
Chloroform	67-66-3	210	U	1.72E-03	U	1.12E-03	U	5	PASS	10	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	0.71	PASS
cis-1,2-Dichloroethene	540-59-0	**19,000**		3.12E-01		2.02E-01		5	PASS	793	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
Methylene chloride	75-09-2	**220**		3.61E-03		2.34E-03		5	PASS	26	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.9	PASS
Tetrachloroethene	127-18-4	210	U	1.72E-03	U	1.12E-03	U	5	PASS	33.5	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	2.4	PASS
trans-1,2-Dichloroethene	540-59-0	210	U	1.72E-03	U	1.12E-03	U	5	PASS	793	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
Trichloroethene	79-01-6	**37,000**		6.07E-01		3.94E-01		5	PASS	135	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	6.0	PASS
Vinyl chloride	75-01-4	**340**		5.57E-03		3.62E-03		5	PASS	2	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	0.14	PASS
n-Hexane	110-54-3	210	U	1.72E-03	U	1.12E-03	U	5	PASS	1800	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
Styrene	100-42-5	210	U	1.72E-03	U	1.12E-03	U	5	PASS	21	106.262 List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.5	PASS
Toluene	108-88-3	210	U	1.72E-03	U	1.12E-03	U	5	PASS	188	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	6.0	PASS
Ethylbenzene	100-41-4	210	U	1.72E-03	U	1.12E-03	U	5	PASS	434	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
m,p-Xylenes	179601-23-1	410	U	3.36E-03	U	2.18E-03	U	5	PASS	434	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
o-Xylene	95-47-6	210	U	1.72E-03	U	1.12E-03	U	5	PASS	434	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
1,3-Dichlorobenzene	541-73-1	210	U	1.72E-03	U	1.12E-03	U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
Propene (C3 H6)	115-07-1	210	U	1.72E-03	U	1.12E-03	U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2000	14	6.0	PASS
Dichlorodifluoromethane (CCl2F2)	75-71-8	210	U	1.72E-03	U	1.12E-03	U	5	PASS	4950	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
Ethanol	64-17-5	2,100	U	1.72E-02	U	1.12E-02	U	5	PASS	1880	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
Trichlorofluoromethane (CCl3F)	75-69-4	210	U	1.72E-03	U	1.12E-03	U	5	PASS	5620	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
Trichlorotrifluoroethane (C2Cl3F3)	76-13-1	**31,000**		5.08E-01		3.30E-01		5	PASS	7670	ACGIH List	30 TAC 106.533(f)(1)(A)(ii)	2000	14	1.0	PASS
alpha-Pinene	80-56-8	210	U	1.72E-03	U	1.12E-03	U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
d-Limonene	5989-27-5	210	U	1.72E-03	U	1.12E-03	U	5	PASS	(5)	--	30 TAC 106.533(f)(1)(A)(i)	2000	14	1.0	PASS
	TOTAL			1.527												

(1) Sample collected on January 30, 2018
(2) Based on a blower flow rate of 4,390 cfm. Note that plant operations is less than or equal to 25 hours per week. 1/2 of detection limit was used for estimating mass rate.
(2a) Based on operation of 25 hours per week, 52 weeks per year.
(3) Per 30TAC 106.533(f)(1)(B)
(4) Based on comparing the calculated air stripper stack sample emission rate in tons per year (tpy) to the allowable annual emission limit per chemical of 5 tpy.
(5) No TLVs for these chemicals
(6) The maximum hourly limit allowed by 30 TAC 106.262, per pollutant, is 6 lbs/hr per "Figure 1: 30 TAC 106.262(a)". The E value was overridden with 6 lb/hr when the calculated E was higher.
(7) The maximum hourly emission rate allowed by 30 TAC 106.261(a)(3) for chemicals with an limit value (L) greater than 200 mg/m^3 is 1 lb/hr.
(8) Based on comparing the calculated air stripper stack sample emission rate in pounds per hour (lb/hr) to the allowable maximum emission limit per chemical based on distance downwind to nearest off-site receptor.

ATTACHMENT 2: PID READINGS AND CALIBRATION LOGS

4th Quarter 2017 Photoionization Detector (PID) Readngs

Date	Time	Location	Air Flow Rate at Blower	Instrument ID	Person Collecting	PID Reading	Weather Conditions
1/4/2017	8:00	Outside GWTP Office	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 37 degrees
1/4/2017	8:00	Downwind	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 37 degrees
1/4/2017	8:00	Stripper	4880 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.2 ppm Steady State 3.9 ppm	Cloudy 37 degrees
1/4/2017	14:00	Outside GWTP Office	4760 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 48 degrees
1/4/2017	14:00	Downwind	4760 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 48 degrees
1/4/2017	14:00	Stripper	4760 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.5 ppm Steady State 3.2 ppm	Cloudy 48 degrees
1/5/2017	8:00	Outside GWTP Office	4875 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 40 degrees
1/5/2017	8:00	Downwind	4875 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 40 degrees
1/5/2017	8:00	Stripper	4875 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.7 ppm Steady State 3.5 ppm	Cloudy 40 degrees
1/5/2017	14:00	Outside GWTP Office	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 41 degrees
1/5/2017	14:00	Downwind	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 41 degrees
1/5/2017	14:00	Stripper	4710 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.1 ppm Steady State 3.1 ppm	Cloudy 41 degrees
1/6/2017	8:00	Outside GWTP Office	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 31 degrees
1/6/2017	8:00	Downwind	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 31 degrees
1/6/2017	8:00	Stripper	4855 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.2 ppm Steady State 2.9 ppm	Cloudy 31 degrees
1/6/2017	14:00	Outside GWTP Office	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 32 degrees
1/6/2017	14:00	Downwind	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 32 degrees
1/6/2017	14:00	Stripper	4700 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.7 ppm Steady State 2.5 ppm	Cloudy 32 degrees
1/10/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 63 degrees
1/10/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 63 degrees
1/10/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.0 ppm Steady State 2.7 ppm	Cloudy 63 degrees
1/10/2017	14:00	Outside GWTP Office	4645 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 73 degrees
1/10/2017	14:00	Downwind	4645 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 73 degrees
1/10/2017	14:00	Stripper	4645 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.6 ppm Steady State 2.3 ppm	Clear 73 degrees
1/11/2017	8:00	Outside GWTP Office	4875 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 66 degrees
1/11/2017	8:00	Downwind	4875 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 66 degrees
1/11/2017	8:00	Stripper	4875 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.3 ppm Steady State 2.5 ppm	Cloudy 66 degrees
1/11/2017	14:00	Outside GWTP Office	4690 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/11/2017	14:00	Downwind	4690 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/11/2017	14:00	Stripper	4690 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.2 ppm Steady State 2.9 ppm	Clear 75 degrees
1/12/2017	8:00	Outside GWTP Office	4865 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
1/12/2017	8:00	Downwind	4865 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
1/12/2017	8:00	Stripper	4865 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.7 ppm Steady State 3.8 ppm	Clear 70 degrees
1/12/2017	14:00	Outside GWTP Office	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 76 degrees
1/12/2017	14:00	Downwind	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 76 degrees
1/12/2017	14:00	Stripper	4715 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.9 ppm Steady State 2.9 ppm	Clear 76 degrees
1/13/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 62 degrees
1/13/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 62 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

1/13/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.0 ppm	Steady State 2.2 ppm	Cloudy 62 degrees
1/13/2017	14:00	Outside GWTP Office	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy 68 degrees
1/13/2017	14:00	Downwind	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy 68 degrees
1/13/2017	14:00	Stripper	4775 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.7 ppm	Steady State 2.4 ppm	Cloudy 68 degrees
1/16/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy / Rain 62 degrees
1/16/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy / Rain 62 degrees
1/16/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.3 ppm	Steady State 2.9 ppm	Cloudy / Rain 62 degrees
1/16/2017	14:00	Outside GWTP Office	4675 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy 70 degrees
1/16/2017	14:00	Downwind	4675 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy 70 degrees
1/16/2017	14:00	Stripper	4675 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.0 ppm	Steady State 2.1 ppm	Cloudy 70 degrees
1/17/2017	8:00	Outside GWTP Office	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy / Rain 50 degrees
1/17/2017	8:00	Downwind	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy / Rain 50 degrees
1/17/2017	8:00	Stripper	4810 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.7 ppm	Steady State 1.9 ppm	Cloudy / Rain 50 degrees
1/17/2017	14:00	Outside GWTP Office	4650 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy / Rain 52 degrees
1/17/2017	14:00	Downwind	4650 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy / Rain 52 degrees
1/17/2017	14:00	Stripper	4650 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.2 ppm	Steady State 2.5 ppm	Cloudy / Rain 52 degrees
1/18/2017	8:00	Outside GWTP Office	4835 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy / Rain 51 degrees
1/18/2017	8:00	Downwind	4835 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy / Rain 51 degrees
1/18/2017	8:00	Stripper	4835 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.5 ppm	Steady State 1.7 ppm	Cloudy / Rain 51 degrees
1/18/2017	14:00	Outside GWTP Office	4705 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy / Rain 55 degrees
1/18/2017	14:00	Downwind	4705 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy / Rain 55 degrees
1/18/2017	14:00	Stripper	4705 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.3 ppm	Steady State 2.2 ppm	Cloudy / Rain 55 degrees
1/19/2017	8:00	Outside GWTP Office	4860 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy 51 degrees
1/19/2017	8:00	Downwind	4860 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy 51 degrees
1/19/2017	8:00	Stripper	4860 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.6 ppm	Steady State 1.9 ppm	Cloudy 51 degrees
1/19/2017	14:00	Outside GWTP Office	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy 58 degrees
1/19/2017	14:00	Downwind	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy 58 degrees
1/19/2017	14:00	Stripper	4715 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.0 ppm	Steady State 2.8 ppm	Cloudy 58 degrees
1/20/2017	8:00	Outside GWTP Office	4870 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 58 degrees
1/20/2017	8:00	Downwind	4870 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 58 degrees
1/20/2017	8:00	Stripper	4870 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.7 ppm	Steady State 3.1 ppm	Clear 58 degrees
1/20/2017	14:00	Outside GWTP Office	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 73 degrees
1/20/2017	14:00	Downwind	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 73 degrees
1/20/2017	14:00	Stripper	4700 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.1 ppm	Steady State 2.4 ppm	Clear 73 degrees
1/23/2017	8:00	Outside GWTP Office	4890 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 42 degrees
1/23/2017	8:00	Downwind	4890 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 42 degrees
1/23/2017	8:00	Stripper	4890 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.9 ppm	Steady State 2.7 ppm	Clear 42 degrees
1/23/2017	14:00	Outside GWTP Office	4725 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 64 degrees
1/23/2017	14:00	Downwind	4725 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 64 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

1/23/2017	14:00	Stripper	4725 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.1 ppm Steady State 3.2 ppm	Clear 64 degrees
1/24/2017	11:00	Outside GWTP Office	4800 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
1/24/2017	11:00	Downwind	4800 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
1/24/2017	11:00	Stripper	4800 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.3 ppm Steady State 4.0 ppm	Clear 70 degrees
1/24/2017	14:00	Outside GWTP Office	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/24/2017	14:00	Downwind	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/24/2017	14:00	Stripper	4710 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.2 ppm Steady State 3.3 ppm	Clear 75 degrees
1/25/2017	8:00	Outside GWTP Office	4825 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 65 degrees
1/25/2017	8:00	Downwind	4825 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 65 degrees
1/25/2017	8:00	Stripper	4825 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.3 ppm Steady State 2.9 ppm	Clear 65 degrees
1/25/2017	14:00	Outside GWTP Office	4745 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
1/25/2017	14:00	Downwind	4745 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
1/25/2017	14:00	Stripper	4745 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.8 ppm Steady State 2.6 ppm	Clear 67 degrees
1/26/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 35 degrees
1/26/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 35 degrees
1/26/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.9 ppm Steady State 1.6 ppm	Clear 35 degrees
1/26/2017	14:00	Outside GWTP Office	4740 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 53 degrees
1/26/2017	14:00	Downwind	4740 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 53 degrees
1/26/2017	14:00	Stripper	4740 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.7 ppm Steady State 2.5 ppm	Clear 53 degrees
1/27/2017	8:00	Outside GWTP Office	4870 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 28 degrees
1/27/2017	8:00	Downwind	4870 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 28 degrees
1/27/2017	8:00	Stripper	4870 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.7 ppm Steady State 2.6 ppm	Clear 28 degrees
1/27/2017	14:00	Outside GWTP Office	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 53 degrees
1/27/2017	14:00	Downwind	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 53 degrees
1/27/2017	14:00	Stripper	4775 ACFM	MiniRAE 3000	Scott Beesinger	Max. 11.0 ppm Steady State 4.1 ppm	Clear 53 degrees
1/30/2017	8:00	Outside GWTP Office	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 34 degrees
1/30/2017	8:00	Downwind	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 34 degrees
1/30/2017	8:00	Stripper	4810 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.7 ppm Steady State 4.4 ppm	Clear 34 degrees
1/30/2017	14:00	Outside GWTP Office	4675 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 72 degrees
1/30/2017	14:00	Downwind	4675 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 72 degrees
1/30/2017	14:00	Stripper	4675 ACFM	MiniRAE 3000	Scott Beesinger	Max. 12.0 ppm Steady State 4.9 ppm	Clear 72 degrees
1/31/2017	8:00	Outside GWTP Office	4820 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 48 degrees
1/31/2017	8:00	Downwind	4820 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 48 degrees
1/31/2017	8:00	Stripper	4820 ACFM	MiniRAE 3000	Kennie Moore	Max. 12.2 ppm Steady State 4.3 ppm	Clear 48 degrees
1/31/2017	14:00	Outside GWTP Office	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/31/2017	14:00	Downwind	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
1/31/2017	14:00	Stripper	4700 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.9 ppm Steady State 3.2 ppm	Clear 75 degrees
2/1/2017	8:00	Outside GWTP Office	4885 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 56 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

2/1/2017	8:00	Downwind	4885 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 56 degrees
2/1/2017	8:00	Stripper	4885 ACFM	MiniRAE 3000	Kennie Moore	Max. 12.7 ppm Steady State 5.9 ppm	Clear 56 degrees
2/1/2017	14:00	Outside GWTP Office	4760 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
2/1/2017	14:00	Downwind	4760 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 70 degrees
2/1/2017	14:00	Stripper	4760 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.6 ppm Steady State 5.4 ppm	Clear 70 degrees
2/2/2017	8:00	Outside GWTP Office	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 56 degrees
2/2/2017	8:00	Downwind	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 56 degrees
2/2/2017	8:00	Stripper	4880 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.9 ppm Steady State 5.1 ppm	Overcast 56 degrees
2/2/2017	14:00	Outside GWTP Office	4720 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 45 degrees
2/2/2017	14:00	Downwind	4720 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 45 degrees
2/2/2017	14:00	Stripper	4720 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.3 ppm Steady State 4.3 ppm	Overcast 45 degrees
2/3/2017	8:00	Outside GWTP Office	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 39 degrees
2/3/2017	8:00	Downwind	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 39 degrees
2/3/2017	8:00	Stripper	4855 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.9 ppm Steady State 4.7 ppm	Cloudy 39 degrees
2/3/2017	14:00	Outside GWTP Office	4690 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 52 degrees
2/3/2017	14:00	Downwind	4690 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 52 degrees
2/3/2017	14:00	Stripper	4690 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.8 ppm Steady State 3.1 ppm	Clear 52 degrees
2/6/2017	8:00	Outside GWTP Office	4860 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 67 degrees
2/6/2017	8:00	Downwind	4860 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 67 degrees
2/6/2017	8:00	Stripper	4860 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.8 ppm Steady State 3.5 ppm	Cloudy 67 degrees
2/6/2017	14:00	Outside GWTP Office	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 71 degrees
2/6/2017	14:00	Downwind	4710 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 71 degrees
2/6/2017	14:00	Stripper	4710 ACFM	MiniRAE 3000	Scott Beesinger	Max. 8.9 ppm Steady State 1.8 ppm	Clear 71 degrees
2/7/2017	8:00	Outside GWTP Office	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 71 degrees
2/7/2017	8:00	Downwind	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 71 degrees
2/7/2017	8:00	Stripper	4855 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.0 ppm Steady State 2.1 ppm	Clear 71 degrees
2/7/2017	13:00	Outside GWTP Office	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 79 degrees
2/7/2017	13:00	Downwind	4775 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 79 degrees
2/7/2017	13:00	Stripper	4775 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.1 ppm Steady State 1.7 ppm	Clear 79 degrees
2/10/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 37 degrees
2/10/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 37 degrees
2/10/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.4 ppm Steady State 3.9 ppm	Overcast 37 degrees
2/10/2017	14:00	Outside GWTP Office	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 68 degrees
2/10/2017	14:00	Downwind	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 68 degrees
2/10/2017	14:00	Stripper	4700 ACFM	MiniRAE 3000	Scott Beesinger	Max. 8.7 ppm Steady State 1.8 ppm	Cloudy 68 degrees
2/13/2017	8:00	Outside GWTP Office	4820 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 55 degrees
2/13/2017	8:00	Downwind	4820 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 55 degrees
2/13/2017	8:00	Stripper	4820 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.7 ppm Steady State 1.9 ppm	Overcast 55 degrees
2/13/2017	14:00	Outside GWTP Office	4750 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 61 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

2/13/2017	14:00	Downwind	4750 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 61 degrees
2/13/2017	14:00	Stripper	4750 ACFM	MiniRAE 3000	Scott Beesinger	Max. 8.8 ppm Steady State 1.4 ppm	Overcast 61 degrees
2/14/2017	8:00	Outside GWTP Office	4845 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 56 degrees
2/14/2017	8:00	Downwind	4845 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 56 degrees
2/14/2017	8:00	Stripper	4845 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.6 ppm Steady State 1.6 ppm	Overcast 56 degrees
2/14/2017	13:00	Outside GWTP Office	4790 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Rain 49 degrees
2/14/2017	13:00	Downwind	4790 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Rain 49 degrees
2/14/2017	13:00	Stripper	4790 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.0 ppm Steady State 1.2 ppm	Rain 49 degrees
2/17/2017	8:00	Outside GWTP Office	4835 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 45 degrees
2/17/2017	8:00	Downwind	4835 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 45 degrees
2/17/2017	8:00	Stripper	4835 ACFM	MiniRAE 3000	Kennie Moore	Max. 8.3 ppm Steady State 1.4 ppm	Clear 45 degrees
2/17/2017	14:00	Outside GWTP Office	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 66 degrees
2/17/2017	14:00	Downwind	4715 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 66 degrees
2/17/2017	14:00	Stripper	4715 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.2 ppm Steady State 1.9 ppm	Clear 66 degrees
2/20/2017	8:00	Outside GWTP Office	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 57 degrees
2/20/2017	8:00	Downwind	4850 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 57 degrees
2/20/2017	8:00	Stripper	4850 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.9 ppm Steady State 2.2 ppm	Overcast 57 degrees
2/20/2017	14:00	Outside GWTP Office	4765 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Rain 62 degrees
2/20/2017	14:00	Downwind	4765 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Rain 62 degrees
2/20/2017	14:00	Stripper	4765 ACFM	MiniRAE 3000	Scott Beesinger	Max. 8.7 ppm Steady State 1.7 ppm	Rain 62 degrees
2/21/2017	8:00	Outside GWTP Office	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 56 degrees
2/21/2017	8:00	Downwind	4810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 56 degrees
2/21/2017	8:00	Stripper	4810 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.3 ppm Steady State 3.6 ppm	Cloudy 56 degrees
2/21/2017	14:00	Outside GWTP Office	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 65 degrees
2/21/2017	14:00	Downwind	4700 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 65 degrees
2/21/2017	14:00	Stripper	4700 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.9 ppm Steady State 3.3 ppm	Clear 65 degrees
2/24/2017	8:00	Outside GWTP Office	4825 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 58 degrees
2/24/2017	8:00	Downwind	4825 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 58 degrees
2/24/2017	8:00	Stripper	4825 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.2 ppm Steady State 3.9 ppm	Clear 58 degrees
2/24/2017	14:00	Outside GWTP Office	4760 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 68 degrees
2/24/2017	14:00	Downwind	4760 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 68 degrees
2/24/2017	14:00	Stripper	4760 ACFM	MiniRAE 3000	Scott Beesinger	Max. 11.9 ppm Steady State 4.2 ppm	Clear 68 degrees
2/27/2017	8:00	Outside GWTP Office	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 57 degrees
2/27/2017	8:00	Downwind	4855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 57 degrees
2/27/2017	8:00	Stripper	4855 ACFM	MiniRAE 3000	Kennie Moore	Max. 12.2 ppm Steady State 4.3 ppm	Rain 57 degrees
2/27/2017	14:00	Outside GWTP Office	4720 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 70 degrees
2/27/2017	14:00	Downwind	4720 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 70 degrees
2/27/2017	14:00	Stripper	4720 ACFM	MiniRAE 3000	Scott Beesinger	Max. 11.3 ppm Steady State 2.9 ppm	Cloudy 70 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

2/28/2017	8:00	Outside GWTP Office	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 67 degrees
2/28/2017	8:00	Downwind	4880 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 67 degrees
2/28/2017	8:00	Stripper	4880 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.5 ppm Steady State 3.6 ppm	Cloudy 67 degrees
2/28/2017	13:00	Outside GWTP Office	4765 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 77 degrees
2/28/2017	13:00	Downwind	4765 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 77 degrees
2/28/2017	13:00	Stripper	4765 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.7 ppm Steady State 2.4 ppm	Clear 77 degrees
3/3/2017	8:00	Outside GWTP Office	4675 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 36 degrees
3/3/2017	8:00	Downwind	4675 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 36 degrees
3/3/2017	8:00	Stripper	4675 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.5 ppm Steady State 4.3 ppm	Clear 36 degrees
3/3/2017	13:00	Outside GWTP Office	4545 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
3/3/2017	13:00	Downwind	4545 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
3/3/2017	13:00	Stripper	4545 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.7 ppm Steady State 3.4 ppm	Clear 67 degrees
3/6/2017	9:00	Outside GWTP Office	4650 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 65 degrees
3/6/2017	9:00	Downwind	4650 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 65 degrees
3/6/2017	9:00	Stripper	4650 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.7 ppm Steady State 4.1 ppm	Rain 65 degrees
3/6/2017	14:00	Outside GWTP Office	4555 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 71 degrees
3/6/2017	14:00	Downwind	4555 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 71 degrees
3/6/2017	14:00	Stripper	4555 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.1 ppm Steady State 2.8 ppm	Overcast 71 degrees
3/7/2017	8:00	Outside GWTP Office	4540 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 70 degrees
3/7/2017	8:00	Downwind	4540 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 70 degrees
3/7/2017	8:00	Stripper	4540 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.7 ppm Steady State 2.3 ppm	Rain 70 degrees
3/7/2017	12:30	Outside GWTP Office	4455 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 61 degrees
3/7/2017	12:30	Downwind	4455 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 61 degrees
3/7/2017	12:30	Stripper	4455 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.5 ppm Steady State 3.4 ppm	Clear 61 degrees
3/10/2017	8:00	Outside GWTP Office	4570 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 65 degrees
3/10/2017	8:00	Downwind	4570 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 65 degrees
3/10/2017	8:00	Stripper	4570 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.8 ppm Steady State 4.1 ppm	Cloudy 65 degrees
3/10/2017	14:00	Outside GWTP Office	4485 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 70 degrees
3/10/2017	14:00	Downwind	4485 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 70 degrees
3/10/2017	14:00	Stripper	4485 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.0 ppm Steady State 3.2 ppm	Clear 70 degrees
3/13/2017	8:00	Outside GWTP Office	4520 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 46 degrees
3/13/2017	8:00	Downwind	4520 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Rain 46 degrees
3/13/2017	8:00	Stripper	4520 ACFM	MiniRAE 3000	Kennie Moore	Max. 11.3 ppm Steady State 4.4 ppm	Rain 46 degrees
3/13/2017	14:00	Outside GWTP Office	4430 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 50 degrees
3/13/2017	14:00	Downwind	4430 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 50 degrees
3/13/2017	14:00	Stripper	4430 ACFM	MiniRAE 3000	Scott Beesinger	Max. 10.5 ppm Steady State 3.7 ppm	Overcast 50 degrees
3/17/2017	8:00	Outside GWTP Office	4590 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 60 degrees
3/17/2017	8:00	Downwind	4590 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 60 degrees
3/17/2017	8:00	Stripper	4590 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.3 ppm Steady State 3.0 ppm	Overcast 60 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

3/17/2017	14:00	Outside GWTP Office	4410 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 72 degrees
3/17/2017	14:00	Downwind	4410 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 72 degrees
3/17/2017	14:00	Stripper	4410 ACFM	MiniRAE 3000	Scott Beesinger	Max. 9.5 ppm Steady State 2.2 ppm	Cloudy 72 degrees
3/20/2017	8:00	Outside GWTP Office	4505 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 64 degrees
3/20/2017	8:00	Downwind	4505 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 64 degrees
3/20/2017	8:00	Stripper	4505 ACFM	MiniRAE 3000	Kennie Moore	Max. 10.2 ppm Steady State 3.9 ppm	Clear 64 degrees
3/20/2017	14:00	Outside GWTP Office	4400 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 83 degrees
3/20/2017	14:00	Downwind	4400 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 83 degrees
3/20/2017	14:00	Stripper	4400 ACFM	MiniRAE 3000	Kennie Moore	Max. 9.3 ppm Steady State 3.1 ppm	Clear 83 degrees
3/28/2017	9:00	Outside GWTP Office	4470 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 66 degrees
3/28/2017	9:00	Downwind	4470 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Cloudy 66 degrees
3/28/2017	9:00	Stripper	4470 ACFM	MiniRAE 3000	Scott Beesinger	Max. 15.3 ppm Steady State 6.9 ppm	Cloudy 66 degrees
3/28/2017	14:00	Outside GWTP Office	4390 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 77 degrees
3/28/2017	14:00	Downwind	4390 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Cloudy 77 degrees
3/28/2017	14:00	Stripper	4390 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.9 ppm Steady State 7.5 ppm	Cloudy 77 degrees
4/4/2017	8:00	Outside GWTP Office	4500 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 57 degrees
4/4/2017	8:00	Downwind	4500 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 57 degrees
4/4/2017	8:00	Stripper	4500 ACFM	MiniRAE 3000	Scott Beesinger	Max. 16.0 ppm Steady State 7.3 ppm	Clear 57 degrees
4/4/2017	14:00	Outside GWTP Office	4375 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 85 degrees
4/4/2017	14:00	Downwind	4375 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 85 degrees
4/4/2017	14:00	Stripper	4375 ACFM	MiniRAE 3000	Kennie Moore	Max. 14.6 ppm Steady State 6.7 ppm	Clear 85 degrees
4/11/2017	8:00	Outside GWTP Office	4455 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Rain 67 degrees
4/11/2017	8:00	Downwind	4455 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Rain 67 degrees
4/11/2017	8:00	Stripper	4455 ACFM	MiniRAE 3000	Scott Beesinger	Max. 15.5 ppm Steady State 6.8 ppm	Rain 67 degrees
4/11/2017	14:00	Outside GWTP Office	4320 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 67 degrees
4/11/2017	14:00	Downwind	4320 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 67 degrees
4/11/2017	14:00	Stripper	4320 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.9 ppm Steady State 7.6 ppm	Overcast 67 degrees
4/17/2017	8:00	Outside GWTP Office	4420 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 65 degrees
4/17/2017	8:00	Downwind	4420 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 65 degrees
4/17/2017	8:00	Stripper	4420 ACFM	MiniRAE 3000	Scott Beesinger	Max. 16.9 ppm Steady State 8.1 ppm	Clear 65 degrees
4/17/2017	14:00	Outside GWTP Office	4345 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 73 degrees
4/17/2017	14:00	Downwind	4345 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 73 degrees
4/17/2017	14:00	Stripper	4345 ACFM	MiniRAE 3000	Kennie Moore	Max. 14.5 ppm Steady State 6.1 ppm	Clear 73 degrees
4/24/2017	8:00	Outside GWTP Office	4540 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 47 degrees
4/24/2017	8:00	Downwind	4540 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 47 degrees
4/24/2017	8:00	Stripper	4540 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.3 ppm Steady State 8.2 ppm	Clear 47 degrees
4/24/2017	14:00	Outside GWTP Office	4355 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 75 degrees
4/24/2017	14:00	Downwind	4355 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 75 degrees
4/24/2017	14:00	Stripper	4355 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.1 ppm Steady State 6.0 ppm	Clear 75 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

5/1/2017	8:00	Outside GWTP Office	4365 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 53 degrees
5/1/2017	8:00	Downwind	4365 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 53 degrees
5/1/2017	8:00	Stripper	4365 ACFM	MiniRAE 3000	Scott Beesinger	Max. 15.8 ppm Steady State 5.6 ppm	Clear 53 degrees
5/1/2017	14:00	Outside GWTP Office	4300 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 75 degrees
5/1/2017	14:00	Downwind	4300 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 75 degrees
5/1/2017	14:00	Stripper	4300 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.7 ppm Steady State 5.9 ppm	Clear 75 degrees
5/8/2017	8:00	Outside GWTP Office	4325 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 58 degrees
5/8/2017	8:00	Downwind	4325 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 58 degrees
5/8/2017	8:00	Stripper	4335 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.6 ppm Steady State 8.1 ppm	Clear 58 degrees
5/8/2017	14:00	Outside GWTP Office	4135 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 78 degrees
5/8/2017	14:00	Downwind	4135 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 78 degrees
5/8/2017	14:00	Stripper	4135 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.9 ppm Steady State 5.8 ppm	Clear 78 degrees
5/11/2017	8:00	Outside GWTP Office	4120 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
5/11/2017	8:00	Downwind	4120 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
5/11/2017	8:00	Stripper	4120 ACFM	MiniRAE 3000	Scott Beesinger	Max. 16.3 ppm Steady State 7.4 ppm	Clear 67 degrees
5/11/2017	13:00	Outside GWTP Office	4050 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 80 degrees
5/11/2017	13:00	Downwind	4050 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 80 degrees
5/11/2017	13:00	Stripper	4050 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.7 ppm Steady State 6.9 ppm	Clear 80 degrees
5/15/2017	8:00	Outside GWTP Office	4200 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
5/15/2017	8:00	Downwind	4200 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 67 degrees
5/15/2017	8:00	Stripper	4200 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.7 ppm Steady State 8.1 ppm	Clear 67 degrees
5/15/2017	14:00	Outside GWTP Office	4070 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 82 degrees
5/15/2017	14:00	Downwind	4070 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 82 degrees
5/15/2017	14:00	Stripper	4070 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.9 ppm Steady State 5.7 ppm	Clear 82 degrees
5/18/2017	8:00	Outside GWTP Office	4115 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 73 degrees
5/18/2017	8:00	Downwind	4115 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 73 degrees
5/18/2017	8:00	Stripper	4115 ACFM	MiniRAE 3000	Scott Beesinger	Max. 15.5 ppm Steady State 4.8 ppm	Clear 73 degrees
5/18/2017	13:00	Outside GWTP Office	4000 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 80 degrees
5/18/2017	13:00	Downwind	4000 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 80 degrees
5/18/2017	13:00	Stripper	4000 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.9 ppm Steady State 5.6 ppm	Clear 80 degrees
5/22/2017	8:00	Outside GWTP Office	4255 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast/Rain 63 degrees
5/22/2017	8:00	Downwind	4255 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast/Rain 63 degrees
5/22/2017	8:00	Stripper	4255 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.4 ppm Steady State 7.1 ppm	Overcast/Rain 63 degrees
5/22/2017	14:00	Outside GWTP Office	4230 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast/Rain 63 degrees
5/22/2017	14:00	Downwind	4230 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast/Rain 63 degrees
5/22/2017	14:00	Stripper	4230 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.3 ppm Steady State 5.0 ppm	Overcast/Rain 63 degrees
5/25/2017	8:00	Outside GWTP Office	4195 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 56 degrees
5/25/2017	8:00	Downwind	4195 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 56 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

5/25/2017	8:00	Stripper	4195 ACFM	MiniRAE 3000	Scott Beesinger	Max. 18.3 ppm	Steady State 7.8 ppm	Clear 56 degrees
5/25/2017	14:00	Outside GWTP Office	4045 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 83 degrees
5/25/2017	14:00	Downwind	4045 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 83 degrees
5/25/2017	14:00	Stripper	4045 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.6 ppm	Steady State 5.9 ppm	Clear 83 degrees
5/30/2017	8:00	Outside GWTP Office	4140 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Overcast 69 degrees
5/30/2017	8:00	Downwind	4140 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Overcast 69 degrees
5/30/2017	8:00	Stripper	4140 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.1 ppm	Steady State 6.8 ppm	Overcast 69 degrees
5/30/2017	14:00	Outside GWTP Office	4010 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 80 degrees
5/30/2017	14:00	Downwind	4010 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 80 degrees
5/30/2017	14:00	Stripper	4010 ACFM	MiniRAE 3000	Kennie Moore	Max. 18.3 ppm	Steady State 7.7 ppm	Clear 80 degrees
6/2/2017	8:00	Outside GWTP Office	4210 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy 70 degrees
6/2/2017	8:00	Downwind	4210 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy 70 degrees
6/2/2017	8:00	Stripper	4210 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.0 ppm	Steady State 6.5 ppm	Cloudy 70 degrees
6/2/2017	14:00	Outside GWTP Office	4025 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 75 degrees
6/2/2017	14:00	Downwind	4025 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 75 degrees
6/2/2017	14:00	Stripper	4025 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.3 ppm	Steady State 4.8 ppm	Clear 75 degrees
6/5/2017	8:00	Outside GWTP Office	4100 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy 70 degrees
6/5/2017	8:00	Downwind	4100 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Cloudy 70 degrees
6/5/2017	8:00	Stripper	4100 ACFM	MiniRAE 3000	Scott Beesinger	Max. 16.6 ppm	Steady State 4.5 ppm	Cloudy 70 degrees
6/5/2017	14:00	Outside GWTP Office	4055 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy 77 degrees
6/5/2017	14:00	Downwind	4055 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy 77 degrees
6/5/2017	14:00	Stripper	4055 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.9 ppm	Steady State 5.8 ppm	Cloudy 77 degrees
6/8/2017	8:00	Outside GWTP Office	4110 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 68 degrees
6/8/2017	8:00	Downwind	4110 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 68 degrees
6/8/2017	8:00	Stripper	4110 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.7 ppm	Steady State 4.9 ppm	Clear 68 degrees
6/8/2017	14:00	Outside GWTP Office	4030 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 79 degrees
6/8/2017	14:00	Downwind	4030 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 79 degrees
6/8/2017	14:00	Stripper	4030 ACFM	MiniRAE 3000	Kennie Moore	Max. 14.3 ppm	Steady State 5.6 ppm	Clear 79 degrees
6/12/2017	8:00	Outside GWTP Office	4120 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Overcast 75 degrees
6/12/2017	8:00	Downwind	4120 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Overcast 75 degrees
6/12/2017	8:00	Stripper	4120 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.3 ppm	Steady State 6.5 ppm	Overcast 75 degrees
6/12/2017	14:00	Outside GWTP Office	3975 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 83 degrees
6/12/2017	14:00	Downwind	3975 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 83 degrees
6/12/2017	14:00	Stripper	3975 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.2 ppm	Steady State 6.9 ppm	Clear 83 degrees
6/15/2017	8:00	Outside GWTP Office	4040 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy 75 degrees
6/15/2017	8:00	Downwind	4040 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy 75 degrees
6/15/2017	8:00	Stripper	4040 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.2 ppm	Steady State 5.7 ppm	Cloudy 75 degrees
6/15/2017	14:00	Outside GWTP Office	3930 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 88 degrees
6/15/2017	14:00	Downwind	3930 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 88 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

6/15/2017	14:00	Stripper	3930 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.4 ppm	Steady State 5.3 ppm	Clear 88 degrees
6/19/2017	8:00	Outside GWTP Office	4040 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Overcast 77 degrees
6/19/2017	8:00	Downwind	4040 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Overcast 77 degrees
6/19/2017	8:00	Stripper	4040 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.9 ppm	Steady State 4.7 ppm	Overcast 77 degrees
6/19/2017	14:00	Outside GWTP Office	3930 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy 86 degrees
6/19/2017	14:00	Downwind	3930 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Cloudy 86 degrees
6/19/2017	14:00	Stripper	3930 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.3 ppm	Steady State 4.2 ppm	Cloudy 86 degrees
6/22/2017	8:00	Outside GWTP Office	4010 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Rain 73 degrees
6/22/2017	8:00	Downwind	4010 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Rain 73 degrees
6/22/2017	8:00	Stripper	4010 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.0 ppm	Steady State 5.2 ppm	Rain 73 degrees
6/22/2017	12:00	Outside GWTP Office	3875 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Overcast 78 degrees
6/22/2017	12:00	Downwind	3875 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Overcast 78 degrees
6/22/2017	12:00	Stripper	3875 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.8 ppm	Steady State 4.3 ppm	Overcast 78 degrees
6/27/2017	8:00	Outside GWTP Office	4040 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 73 degrees
6/27/2017	8:00	Downwind	4040 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 73 degrees
6/27/2017	8:00	Stripper	4040 ACFM	MiniRAE 3000	Scott Beesinger	Max. 18.1 ppm	Steady State 6.7 ppm	Clear 73 degrees
6/27/2017	14:00	Outside GWTP Office	3860 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 85 degrees
6/27/2017	14:00	Downwind	3860 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 85 degrees
6/27/2017	14:00	Stripper	3860 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.9 ppm	Steady State 4.7 ppm	Clear 85 degrees
7/7/2017	10:30	Outside GWTP Office	4050 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 85 degrees
7/7/2017	10:30	Downwind	4050 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 85 degrees
7/7/2017	10:30	Stripper	4050 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.7 ppm	Steady State 6.5 ppm	Clear 85 degrees
7/7/2017	14:00	Outside GWTP Office	3870 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 91 degrees
7/7/2017	14:00	Downwind	3870 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 91 degrees
7/7/2017	14:00	Stripper	3870 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.0 ppm	Steady State 5.3 ppm	Clear 91 degrees
7/10/2017	11:30	Outside GWTP Office	4000 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 84 degrees
7/10/2017	11:30	Downwind	4000 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 84 degrees
7/10/2017	11:30	Stripper	4000 ACFM	MiniRAE 3000	Scott Beesinger	Max. 16.5 ppm	Steady State 4.8 ppm	Clear 84 degrees
7/10/2017	14:00	Outside GWTP Office	3815 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 88 degrees
7/10/2017	14:00	Downwind	3815 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 88 degrees
7/10/2017	14:00	Stripper	3815 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.9 ppm	Steady State 6.1 ppm	Clear 88 degrees
7/13/2017	8:00	Outside GWTP Office	4010 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 80 degrees
7/13/2017	8:00	Downwind	4010 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 80 degrees
7/13/2017	8:00	Stripper	4010 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.1 ppm	Steady State 5.4 ppm	Clear 80 degrees
7/13/2017	14:00	Outside GWTP Office	3775 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 89 degrees
7/13/2017	14:00	Downwind	3775 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 89 degrees
7/13/2017	14:00	Stripper	3775 ACFM	MiniRAE 3000	Kennie Moore	Max. 18.3 ppm	Steady State 6.9 ppm	Clear 89 degrees
7/17/2017	8:00	Outside GWTP Office	4055 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 81 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

7/17/2017	8:00	Downwind	4055 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 81 degrees
7/17/2017	8:00	Stripper	4055 ACFM	MiniRAE 3000	Scott Beesinger	Max. 18.8 ppm	Steady State 7.5 ppm	Clear 81 degrees
7/17/2017	14:00	Outside GWTP Office	3785 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 91 degrees
7/17/2017	14:00	Downwind	3785 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 91 degrees
7/17/2017	14:00	Stripper	3785 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.1 ppm	Steady State 4.9 ppm	Clear 91 degrees
7/20/2017	8:00	Outside GWTP Office	3980 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 81 degrees
7/20/2017	8:00	Downwind	3980 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 81 degrees
7/20/2017	8:00	Stripper	3980 ACFM	MiniRAE 3000	Scott Beesinger	Max. 16.7 ppm	Steady State 4.4 ppm	Clear 81 degrees
7/20/2017	13:00	Outside GWTP Office	3720 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 92 degrees
7/20/2017	13:00	Downwind	3720 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 92 degrees
7/20/2017	13:00	Stripper	3720 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.9 ppm	Steady State 6.0 ppm	Clear 92 degrees
7/24/2017	8:00	Outside GWTP Office	3995 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 76 degrees
7/24/2017	8:00	Downwind	3995 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 76 degrees
7/24/2017	8:00	Stripper	3995 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.9 ppm	Steady State 6.3 ppm	Clear 76 degrees
7/24/2017	13:00	Outside GWTP Office	3735 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 86 degrees
7/24/2017	13:00	Downwind	3735 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 86 degrees
7/24/2017	13:00	Stripper	3735 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.8 ppm	Steady State 4.5 ppm	Clear 86 degrees
7/31/2017	8:00	Outside GWTP Office	4000 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 75 degrees
7/31/2017	8:00	Downwind	4000 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 75 degrees
7/31/2017	8:00	Stripper	4000 ACFM	MiniRAE 3000	Scott Beesinger	Max. 16.8 ppm	Steady State 4.3 ppm	Clear 75 degrees
7/31/2017	14:00	Outside GWTP Office	3765 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 92 degrees
7/31/2017	14:00	Downwind	3765 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 92 degrees
7/31/2017	14:00	Stripper	3765 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.8 ppm	Steady State 5.9 ppm	Clear 92 degrees
8/7/2017	8:00	Outside GWTP Office	4050 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Overcast/Rain 78 degrees
8/7/2017	8:00	Downwind	4050 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Overcast/Rain 78 degrees
8/7/2017	8:00	Stripper	4050 ACFM	MiniRAE 3000	Scott Beesinger	Max. 15.9 ppm	Steady State 3.8 ppm	Overcast/Rain 78 degrees
8/7/2017	14:00	Outside GWTP Office	3715 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Overcast 78 degrees
8/7/2017	14:00	Downwind	3715 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Overcast 78 degrees
8/7/2017	14:00	Stripper	3715 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.6 ppm	Steady State 4.7 ppm	Overcast 78 degrees
8/10/2017	8:00	Outside GWTP Office	4020 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Overcast 76 degrees
8/10/2017	8:00	Downwind	4020 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Overcast 76 degrees
8/10/2017	8:00	Stripper	4020 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.9 ppm	Steady State 4.4 ppm	Overcast 76 degrees
8/10/2017	12:00	Outside GWTP Office	3855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Overcast 84 degrees
8/10/2017	12:00	Downwind	3855 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Overcast 84 degrees
8/10/2017	12:00	Stripper	3855 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.1 ppm	Steady State 4.0 ppm	Overcast 84 degrees
9/14/2017	8:00	Outside GWTP Office	4050 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 58 degrees
9/14/2017	8:00	Downwind	4050 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 58 degrees
9/14/2017	8:00	Stripper	4050 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.1 ppm	Steady State 6.9 ppm	Clear 58 degrees
9/14/2017	13:00	Outside GWTP Office	3805 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 84 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

9/14/2017	13:00	Downwind	3805 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 84 degrees
9/14/2017	13:00	Stripper	3805 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.1 ppm	Steady State 4.8 ppm	Clear 84 degrees
9/21/2017	8:00	Outside GWTP Office	4000 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 75 degrees
9/21/2017	8:00	Downwind	4000 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 75 degrees
9/21/2017	8:00	Stripper	4000 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.9 ppm	Steady State 5.5 ppm	Clear 75 degrees
9/21/2017	13:00	Outside GWTP Office	3810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 90 degrees
9/21/2017	13:00	Downwind	3810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 90 degrees
9/21/2017	13:00	Stripper	3810 ACFM	MiniRAE 3000	Kennie Moore	Max. 18.7 ppm	Steady State 7.6 ppm	Clear 90 degrees
9/26/2017	8:00	Outside GWTP Office	3975 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 71 degrees
9/26/2017	8:00	Downwind	3975 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 71 degrees
9/26/2017	8:00	Stripper	3975 ACFM	MiniRAE 3000	Scott Beesinger	Max. 16.5 ppm	Steady State 4.3 ppm	Clear 71 degrees
9/26/2017	14:00	Outside GWTP Office	3835 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 90 degrees
9/26/2017	14:00	Downwind	3835 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 90 degrees
9/26/2017	14:00	Stripper	3835 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.8 ppm	Steady State 6.1 ppm	Clear 90 degrees
9/29/2017	8:00	Outside GWTP Office	4050 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 65 degrees
9/29/2017	8:00	Downwind	4050 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 65 degrees
9/29/2017	8:00	Stripper	4050 ACFM	MiniRAE 3000	Scott Beesinger	Max. 18.3 ppm	Steady State 7.2 ppm	Clear 65 degrees
9/29/2017	13:00	Outside GWTP Office	3810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 76 degrees
9/29/2017	13:00	Downwind	3810 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 76 degrees
9/29/2017	13:00	Stripper	3810 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.5 ppm	Steady State 6.0 ppm	Clear 76 degrees
10/17/2017	8:00	Outside GWTP Office	4000 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 43 degrees
10/17/2017	8:00	Downwind	4000 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 43 degrees
10/17/2017	8:00	Stripper	4000 ACFM	MiniRAE 3000	Scott Beesinger	Max. 18.8 ppm	Steady State 7.5 ppm	Clear 43 degrees
10/17/2017	14:00	Outside GWTP Office	3755 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 72 degrees
10/17/2017	14:00	Downwind	3755 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 72 degrees
10/17/2017	14:00	Stripper	3755 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.0 ppm	Steady State 5.8 ppm	Clear 72 degrees
10/23/2017	8:00	Outside GWTP Office	4010 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 48 degrees
10/23/2017	8:00	Downwind	4010 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 48 degrees
10/23/2017	8:00	Stripper	4010 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.1 ppm	Steady State 4.3 ppm	Clear 48 degrees
10/26/2017	8:00	Outside GWTP Office	4040 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 52 degrees
10/26/2017	8:00	Downwind	4040 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 52 degrees
10/26/2017	8:00	Stripper	4040 ACFM	MiniRAE 3000	Scott Beesinger	Max. 18.8 ppm	Steady State 7.3 ppm	Clear 52 degrees
10/26/2017	14:00	Outside GWTP Office	3775 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 82 degrees
10/26/2017	14:00	Downwind	3775 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm		Clear 82 degrees
10/26/2017	14:00	Stripper	3775 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.9 ppm	Steady State 4.4 ppm	Clear 82 degrees
10/30/2017	8:00	Outside GWTP Office	4030 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 44 degrees
10/30/2017	8:00	Downwind	4030 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm		Clear 44 degrees
10/30/2017	8:00	Stripper	4030 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.5 ppm	Steady State 4.3 ppm	Clear 44 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

10/30/2017	14:00	Outside GWTP Office	3765 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 77 degrees
10/30/2017	14:00	Downwind	3765 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 77 degrees
10/30/2017	14:00	Stripper	3765 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.9 ppm Steady State 5.8 ppm	Clear 77 degrees
11/2/2017	8:00	Outside GWTP Office	4095 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
11/2/2017	8:00	Downwind	4095 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 75 degrees
11/2/2017	8:00	Stripper	4095 ACFM	MiniRAE 3000	Scott Beesinger	Max. 16.7 ppm Steady State 4.2 ppm	Clear 75 degrees
11/2/2017	13:00	Outside GWTP Office	3790 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 80 degrees
11/2/2017	13:00	Downwind	3905 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 80 degrees
11/2/2017	13:00	Stripper	3790 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.9 ppm Steady State 5.5 ppm	Clear 80 degrees
11/6/2017	8:00	Outside GWTP Office	4040 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 72 degrees
11/6/2017	8:00	Downwind	4040 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 72 degrees
11/6/2017	8:00	Stripper	4040 ACFM	MiniRAE 3000	Scott Beesinger	Max. 18.3 ppm Steady State 6.9 ppm	Clear 72 degrees
11/6/2017	14:00	Outside GWTP Office	3715 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 86 degrees
11/6/2017	14:00	Downwind	3715 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 86 degrees
11/6/2017	14:00	Stripper	3715 ACFM	MiniRAE 3000	Kennie Moore	Max. 17.1 ppm Steady State 5.4 ppm	Clear 86 degrees
11/22/2017	9:00	Outside GWTP Office	3809 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 49 degrees
11/22/2017	9:00	Downwind	3809 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 49 degrees
11/22/2017	9:00	Stripper	3809 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.9 ppm Steady State 6.1 ppm	Clear 49 degrees
11/22/2017	14:00	Outside GWTP Office	3472 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 59 degrees
11/22/2017	14:00	Downwind	3472 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 59 degrees
11/22/2017	14:00	Stripper	3472 ACFM	MiniRAE 3000	Kennie Moore	Max. 18.7 ppm Steady State 7.3 ppm	Clear 59 degrees
11/27/2017	8:00	Outside GWTP Office	4225 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 35 degrees
11/27/2017	8:00	Downwind	4225 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 35 degrees
11/27/2017	8:00	Stripper	4225 ACFM	MiniRAE 3000	Scott Beesinger	Max.18.7 ppm Steady State6.3 ppm	Clear 35 degrees
11/27/2017	14:00	Outside GWTP Office	3785 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 72 degrees
11/27/2017	14:00	Downwind	3785 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 72 degrees
11/27/2017	14:00	Stripper	3785 ACFM	MiniRAE 3000	Kennie Moore	Max.16.6 ppm Steady State 5.7 ppm	Clear 72 degrees
11/30/2017	8:00	Outside GWTP Office	4765 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 40 degrees
11/30/2017	8:00	Downwind	4765 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 40 degrees
11/30/2017	8:00	Stripper	4765 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.8 ppm Steady State 6.1 ppm	Clear 40 degrees
11/30/2017	13:00	Outside GWTP Office	3940 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 68 degrees
11/30/2017	13:00	Downwind	3940 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 68 degrees
11/30/2017	13:00	Stripper	3940 ACFM	MiniRAE 3000	Kennie Moore	Max. 18.7 ppm Steady State 6.9 ppm	Clear 68 degrees
12/4/2017	8:00	Outside GWTP Office	4230 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 63 degrees
12/4/2017	8:00	Downwind	4230 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 63 degrees
12/4/2017	8:00	Stripper	4230 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.1 ppm Steady State 4.8 ppm	Overcast 63 degrees
12/4/2017	14:00	Outside GWTP Office	3865 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 76 degrees
12/4/2017	14:00	Downwind	3865 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 76 degrees
12/4/2017	14:00	Stripper	3865 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.3 ppm Steady State 4.4 ppm	Clear 76 degrees

4th Quarter 2017 Photoionization Detector (PID) Readngs

12/12/2017	8:00	Outside GWTP Office	4235 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 44 degrees
12/12/2017	8:00	Downwind	4235 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Clear 44 degrees
12/12/2017	8:00	Stripper	4235 ACFM	MiniRAE 3000	Scott Beesinger	Max. 15.6 ppm Steady State 6.2 ppm	Clear 44 degrees
12/12/2017	14:00	Outside GWTP Office	4010 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 57 degrees
12/12/2017	14:00	Downwind	4010 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 57 degrees
12/12/2017	14:00	Stripper	4010 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.4 ppm Steady State 5.7 ppm	Clear 57 degrees
12/18/2017	8:00	Outside GWTP Office	4570 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 49 degrees
12/18/2017	8:00	Downwind	4570 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 49 degrees
12/18/2017	8:00	Stripper	4570 ACFM	MiniRAE 3000	Scott Beesinger	Max. 15.9 ppm Steady State 8.6 ppm	Overcast 49 degrees
12/18/2017	14:00	Outside GWTP Office	4480 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 53 degrees
12/18/2017	14:00	Downwind	4480 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 53 degrees
12/18/2017	14:00	Stripper	4480 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.1 ppm Steady State 7.7 ppm	Overcast 53 degrees
12/21/2017	8:00	Outside GWTP Office	4355 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 51 degrees
12/21/2017	8:00	Downwind	4355 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 51 degrees
12/21/2017	8:00	Stripper	4355 ACFM	MiniRAE 3000	Kennie Moore	Max. 15.3 ppm Steady State 6.3 ppm	Clear 51 degrees
12/21/2017	11:30	Outside GWTP Office	4295 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 71 degrees
12/21/2017	11:30	Downwind	4295 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Clear 71 degrees
12/21/2017	11:30	Stripper	4295 ACFM	MiniRAE 3000	Kennie Moore	Max. 16.9 ppm Steady State 7.1 ppm	Clear 71 degrees
12/26/2017	8:00	Outside GWTP Office	4838 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 37 degrees
12/26/2017	8:00	Downwind	4838 ACFM	MiniRAE 3000	Scott Beesinger	0.0 ppm	Overcast 37 degrees
12/26/2017	8:00	Stripper	4838 ACFM	MiniRAE 3000	Scott Beesinger	Max. 17.7 ppm Steady State 6.1 ppm	Overcast 37 degrees
12/26/2017	14:00	Outside GWTP Office	4774 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 42 degrees
12/26/2017	14:00	Downwind	4774 ACFM	MiniRAE 3000	Kennie Moore	0.0 ppm	Overcast 42 degrees
12/26/2017	14:00	Stripper	4774 ACFM	MiniRAE 3000	Kennie Moore	Max. 18.3 ppm Steady State 7.4 ppm	Overcast 42 degrees

00870386

EQUIPMENT CALIBRATION DAILY LOG

Date: 10/4/17

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Beesinger

PID

Model: Mini Rae 3000 Bulb: 10.7 ~~10.6~~ meV

Equipment ID #: 1112989

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
					Time: 0640	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870387

EQUIPMENT CALIBRATION DAILY LOG

Date: 10/9/17

Project Number: NW01312.0150

Project Name: LHAAP-GWTP

Recorded By: Scott Beesinger

PID	Model: Mini Rae 3000	Bulb: 10.7 eV			Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 07:30	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O_2 METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870388

EQUIPMENT CALIBRATION DAILY LOG

Date: 10/10/17

Project Number: NWD1312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Beesinger

PID

Model: Mini RAE 3000 Bulb: 10.6 eV

Equipment ID #: 1112989

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
					Time: 07:20	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870389

EQUIPMENT CALIBRATION DAILY LOG

Date: 10/17/17

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Beesinger

PID

Model: Mini Rae 3000 Bulb: 10.7 eV

Equipment ID #: 1112989

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
					Time: 0635	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O_2 METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER

Model:

Equipment ID #:

	Parameter	Standard	Exp. Date	Lot #	Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
					Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870390

EQUIPMENT CALIBRATION DAILY LOG

Date: 10/23/17

Project Number: NW01312.0150

Project Name: LHAAP - GWTP

Recorded By: Scott Beesinger

PID	Model: Mini Rae 3000	Bulb: 11.7 eV			Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989						
	Parameter	Standard	Exp. Date	Lot #	Time: 07:45	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O_2 METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870391

EQUIPMENT CALIBRATION DAILY LOG

Date: 10/26/17	Project Name: LHAAP - GWTP
Project Number: NW01312.0150	Recorded By: Scott Beesinger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: Mini Rae 3000		Bulb: 10.6 eV				
	Equipment ID #: 1112489						
	Parameter	Standard	Exp. Date	Lot #	Time: 07:50	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870392

EQUIPMENT CALIBRATION DAILY LOG

Date: 10/30/17

Project Name: LHAAP - GWTP

Project Number: NW01312.0150

Recorded By: Scott Beesinger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: Mini RAE 3000		Bulb: 11.7 eV				
	Equipment ID #: 112489						
	Parameter	Standard	Exp. Date	Lot #	Time: 07:25	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870393

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/2/17 **Project Name:** LHAAP - GWTP

Project Number: NW01312.0150 **Recorded By:** Scott Beesinger

PID	Model: Mini Rae 3000	Bulb: 11.7 eV			Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: 1112989				Time: 07:30	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O_2 METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870394

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/6/17 | **Project Name:** LHAAP - GWTP

Project Number: NW01312.0150 | **Recorded By:** Scott Beesinger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: Mini Rae 3000	Bulb: 11.7 ~~10.6~~ eV					
	Equipment ID #: 1112989				Time: 0615	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870395

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/13/17

Project Name: LHAAP - GWTP

Project Number: NW01312.0150

Recorded By: SCOTT BEESINGER

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: Mini RAE 3000		Bulb: 11.7 eV				
	Equipment ID #: 1112489						
	Parameter	Standard	Exp. Date	Lot #	Time: 06:45	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870396

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/22/17	**Project Name:** LHAAP-GWTP
Project Number: NW01312.0150	**Recorded By:** Scott Beesinger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	**Model:** MiniRAE 3000		**Bulb:** 10.6 ~~9.8~~ 11.7 eV				
	Equipment ID #: PGM 7320						
	Parameter	Standard	Exp. Date	Lot #	**Time:** 08:20	**Time:**	**Time:**
					Initials: SB	**Initials:**	**Initials:**
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	**Model:**						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	**Time:**	**Time:**	**Time:**
					Initials:	**Initials:**	**Initials:**
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	**Model:**						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	**Time:**	**Time:**	**Time:**
					Initials:	**Initials:**	**Initials:**
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Piont Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Piont Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870397

EQUIPMENT CALIBRATION DAILY LOG

Date:	11/27/17	**Project Name:**	LHAAP - GWTP
Project Number:	NW01312.0150	**Recorded By:**	Scott Beesinger

PID	Model: MiniRAE 3000		Bulb: 10.6 eV		**Morning Calibration**	**Evening Check**	**Additional Calib./Check (if necessary)**
	Equipment ID #: PGM 7320						
	Parameter	Standard	Exp. Date	Lot #	Time: 06:25	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O_2 METER	Model:				**Morning Calibration**	**Evening Check**	**Additional Calib./Check (if necessary)**
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				**Morning Calibration/Check**	**Evening Check (one point only)**	**Additional Calib./Check (if necessary)**
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870398

EQUIPMENT CALIBRATION DAILY LOG

Date: 11/30/17 | Project Name: LHAAP-GWTP

Project Number: NW0312.0150 | Recorded By: Scott Beesinger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: MiniRAE3000		Bulb: 10.6 eV 11.7				
	Equipment ID #: PGM7320				Time: 07:40	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:				Time:	Time:	Time:
	Parameter	Standard	Exp. Date	Lot #	Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870399

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/4/17 | Project Name: LHAAP-GWTP

Project Number: NW013I2.0150 | Recorded By: Scott Beesinger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: MiniRAE 3000		Bulb: 10.6 meV				
	Equipment ID #: PGM 7320						
	Parameter	Standard	Exp. Date	Lot #	Time: 06:30	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870400

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/12/17	Project Name: LHAAP - GWTP
Project Number: NW01312.0150	Recorded By: Scott Beesinger

PID	Model: MiniRAE 3000		Bulb: ~~10.6~~ 11.7 meV		Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #: PGM 7320						
	Parameter	Standard	Exp. Date	Lot #	Time: 06:40	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

COMB. GAS/O_2 METER	Model:				Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

WATER QUALITY METER	Model:				Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Piont Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Piont Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870401

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/18/17 | **Project Name:** LHAAP-GWTP

Project Number: NW01312.0150 | **Recorded By:** Scott Beesinger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: MiniRAE 3000		Bulb: 10.6 / 11.7 eV				
	Equipment ID #: PGM 7320						
	Parameter	Standard	Exp. Date	Lot #	Time: 0615	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Piont Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Piont Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870402

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/21/17 **Project Name:** LHAAP-GWTP

Project Number: NW01312.0150 **Recorded By:** Scott BEESINGER

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: MiniRAE 3000		Bulb: 10.6 ~~11.7~~ eV				
	Equipment ID #: PGM 7320						
	Parameter	Standard	Exp. Date	Lot #	Time: 07:25	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

00870403

EQUIPMENT CALIBRATION DAILY LOG

Date: 12/26/17

Project Number: NW01312.0150

Project Name: LHAAP-GWTP

Recorded By: Scott Beesinger

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
PID	Model: MiniRAE 3000		Bulb: 10.6 eV				
	Equipment ID #: PGM 7320						
	Parameter	Standard	Exp. Date	Lot #	Time: 06:45	Time:	Time:
					Initials: SB	Initials:	Initials:
First Point Calibration	Vapor conc. (ppm)	0.0 (ambient air)	NA	NA	Value: TO ZERO SB	Value:	Value:
Second Point Calibration	Vapor conc. (ppm)	100 ppm (isobutylene)	2/6/19	CAP-248-100-4	Value: SB	Value:	Value:

					Morning Calibration	Evening Check	Additional Calib./Check (if necessary)
COMB. GAS/O_2 METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration	O2 (%)				Value:	Value:	Value:
	% LEL Pentane				Value:	Value:	Value:

					Morning Calibration/Check	Evening Check (one point only)	Additional Calib./Check (if necessary)
WATER QUALITY METER	Model:						
	Equipment ID #:						
	Parameter	Standard	Exp. Date	Lot #	Time:	Time:	Time:
					Initials:	Initials:	Initials:
First Point Calibration (Auto)	pH	4.00			Value:	Value:	Value:
	Conductivity (mS/cm)	4.49			Value:	Value:	Value:
	Turbidity (NTU)	0			Value:	Value:	Value:
	DO (mg/L)	8.9-9.1 (ambient air)	NA	NA	Value:	Value:	Value:
Second Point Calibration	pH	6.86			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:
Third Point Calibration	pH	9.18			Value:	Value:	Value:
	Conductivity (mS/cm)	53.7			Value:	Value:	Value:
	Turbidity (NTU)	100			Value:	Value:	Value:

Additional Remarks:

ATTACHMENT 3: AIR ANALYTICAL LABORATORY REPORT

Longhorn Army Ammunition Plant
Groundwater Treatment Plant
Ambient Air Data - January 2018

Pollutant	CAS	Short Term ESL March 2012 µg/m^3	AMCVs (ST Health) µg/m^3	GWTP Ambient Air Concentrations (1) µg/m^3		Status (3)	Downwind Ambient Air Concentrations (2) µg/m^3		Status (3)
1,1-Dichloroethane	75-34-3	4,000	4,047	0.65	U	PASS	0.65	U	PASS
1,1-Dichloroethene	75-35-4	210	714	0.65	U	PASS	0.65	U	PASS
1,2-Dichloroethane	107-06-2	160	162	0.65	U	PASS	0.65	U	PASS
Acetone	67-64-1	5,900	NA	6.5	U	PASS	6.5	U	PASS
Benzene	71-43-2	170	575	0.65	U	PASS	0.65	U	PASS
Carbon disulfide	75-15-0	30	NA	6.5	U	PASS	6.5	U	PASS
Chloroform	67-66-3	100	98	0.65	U	PASS	0.65	U	PASS
cis-1,2-Dichloroethene	540-59-0	7,900	NA	**0.66**		PASS	0.65	U	PASS
Methylene chloride	75-09-2	3,600	12,158	0.65	U	PASS	**0.72**		PASS
Tetrachloroethene	127-18-4	2,000	6,782	0.65	U	PASS	0.65	U	PASS
trans-1,2-Dichloroethene	540-59-0	7,900	NA	0.65	U	PASS	0.65	U	PASS
Trichloroethene	79-01-6	540	537	**1.4**		PASS	0.65	U	PASS
Vinyl chloride	75-01-4	20,000	66,460	0.65	U	PASS	0.65	U	PASS
n-Hexane	110-54-3	5,300	6,336	**0.81**		PASS	0.70	U	PASS
Styrene	100-42-5	110	21,725	0.65	U	PASS	0.65	U	PASS
Toluene	108-88-3	640	15,074	0.65	U	PASS	0.65	U	PASS
Ethylbenzene	100-41-4	740	86,844	0.65	U	PASS	0.65	U	PASS
m,p-Xylenes	179601-23-1	180	7,382	1.3	U	PASS	1.3	U	PASS
o-Xylene	95-47-6	1,600	7,382	0.65	U	PASS	0.65	U	PASS
1,3-Dichlorobenzene	541-73-1	720	NA	0.65	U	PASS	0.65	U	PASS
Propene (C3 H6)	115-07-1	Asphyxiant	Asphyxiant	0.65	U	NA	0.65	U	NA
Dichlorodifluoromethane (CCl2F2)	75-71-8	50,000	49,452	**2.2**		PASS	**2.3**		PASS
Ethanol	64-17-5	18,800	NA	**20**		PASS	6.5	U	PASS
Trichlorofluoromethane (CCl3F)	75-69-4	28,000	56,184	**1.1**		PASS	**1.2**		PASS
Trichlorotrifluoroethane (C2Cl3F3)	76-13-1	38,000	NA	**1.4**		PASS	**1.6**		PASS
alpha-Pinene	80-56-8	60	3,499	0.65	U	PASS	0.65	U	PASS
d-Limonene	5989-27-5	1,100	NA	0.65	U	PASS	0.65	U	PASS

(1) Sample collected over an 8-hour period on September 26, 2017 between 8 AM and 4 PM

(2) Sample collected over a 24-hour period beginning on June 5, 2017 at 8 AM and ending on June 6, 2017 at 8 AM

(3) Status based on comparison of air sample result to Air Monitoring Comparison Values (AMCVs). When there is no AMCV value for a chemical, the air sample concentration is compared to the short-term ESL.

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LABORATORY REPORT

February 23, 2018

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

RE: LHAAP-GWTP / NW01312.0150

Dear Marcia:

Enclosed are the results of the samples submitted to our laboratory on February 2, 2018. For your reference, these analyses have been assigned our service request number P1800459.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 1:21 pm, Feb 23, 2018

For Kate Kaneko
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: Bhate Environmental Associates, Inc. Service Request No: P1800459
Project: LHAAP-GWTP / NW01312.0150

CASE NARRATIVE

The samples were received intact under chain of custody on February 2, 2018 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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

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

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-004
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-17-8
Utah DOH (NELAP)	http://health.utah.gov/lab/environmental-lab-certification/	CA016272017-8
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Bhate Environmental Associates, Inc. Service Request: P1800459
Project ID: LHAAP-GWTP / NW01312.0150

Date Received: 2/2/2018
Time Received: 09:15

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
LH18/24-AIR_012918_Stripper	P1800459-001	Air	1/29/2018	14:00	SC01065	0.54	4.26	X
LH18/24-AIR_012918_Stripper_Dup	P1800459-002	Air	1/29/2018	14:00	SC01486	0.38	6.25	X
LH18/24-AIR_012918_GWTP	P1800459-003	Air	1/29/2018	14:15	AC02317	-0.51	3.61	X
LH18/24-AIR_013018_Downwind	P1800459-004	Air	1/30/2018	07:15	AC02326	-0.40	3.80	X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No: P1800459

Company Name & Address (Reporting Information): BHATE ENVIRONMENTAL, 445 UNION BLVD. SUITE 129, LAKEWOOD, CO. 80228

Project Name: LHAAP - GWTP

Project Number: NW01312.0150

Project Manager: KIM NEMMERS

P.O. # / Billing Information:

Phone: (205) 918-4000

Fax:

Email Address for Result Reporting: molive@bhate.com

Sampler (Print & Sign): SCOTT BEESINGER

ALS Contact:

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method: TO-15		Comments e.g. Actual Preservative or specific instructions
LHR24-AIR_012918_STRIP2		1/29/18	1400	SC01065		-28.5	0	6L	✓		
LHR24-AIR_012918_STRIP2_DUP		1/29/18	1400	SC01486		-28.5	0	6L	✓		
LHR24-AIR_012918_GWTP		1/29/18	1415	AC02317	FCAC0937	-28.5	-1	6L	✓		
LHR24-AIR_013018_DOWNWIND		1/30/18	0715	AC02326	FCR00100	-28	-5	6L	✓		

0137

Report Tier Levels - please select

Tier I - Results (Default if not specified) _____
Tier II (Results + QC Summaries _____
Tier III (Results + QC & Calibration Summaries) _____
Tier IV (Date Validation Package) 10% Surcharge _____

EDD required YES / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
SCOTT BEESINGER	1/30/18	0730			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
			HENRY REYES	2/2/18	0915

Cooler / Blank Temperature _____ °C

00870410

ALS Environmental
Sample Acceptance Check Form

Client: Bhate Environmental Associates, Inc. Work order: P1800459

Project: LHAAP-GWTP / NW01312.0150

Sample(s) received on: 2/2/18 Date opened: 2/2/18 by: E.PEREZ

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1800459-001.01	6.0 L Source Can					
P1800459-002.01	6.0 L Source Can					
P1800459-003.01	6.0 L Ambient Can					
P1800459-004.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_Stripper** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-001

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Wida Ang Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.0030 Liter(s)
Test Notes:
Container ID: SC01065

Initial Pressure (psig): 0.54 Final Pressure (psig): 4.26

Container Dilution Factor: 1.24

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	210	ND	120	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	210	ND	42	
74-87-3	Chloromethane	ND	210	ND	100	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	210	ND	30	
75-01-4	Vinyl Chloride	**340**	210	**130**	81	
106-99-0	1,3-Butadiene	ND	210	ND	93	
74-83-9	Bromomethane	ND	210	ND	53	
75-00-3	Chloroethane	ND	210	ND	78	
64-17-5	Ethanol	ND	2,100	ND	1,100	
75-05-8	Acetonitrile	ND	210	ND	120	
107-02-8	Acrolein	ND	830	ND	360	
67-64-1	Acetone	ND	2,100	ND	870	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	210	ND	37	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	2,100	ND	840	
107-13-1	Acrylonitrile	ND	210	ND	95	
75-35-4	1,1-Dichloroethene	**280**	210	**72**	52	
75-09-2	Methylene Chloride	**220**	210	**64**	60	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	210	ND	66	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**31,000**	210	**4,000**	27	
75-15-0	Carbon Disulfide	ND	2,100	ND	660	
156-60-5	trans-1,2-Dichloroethene	ND	210	ND	52	
75-34-3	1,1-Dichloroethane	ND	210	ND	51	
1634-04-4	Methyl tert-Butyl Ether	ND	210	ND	57	
108-05-4	Vinyl Acetate	ND	2,100	ND	590	
78-93-3	2-Butanone (MEK)	ND	2,100	ND	700	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_Stripper LHAAP-**
Client Project ID: **GWTP / NW01312.0150**

ALS Project ID: P1800459
ALS Sample ID: P1800459-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: SC01065

Date Collected: 1/29/18
Date Received: 2/2/18
Date Analyzed: 2/8/18
Volume(s) Analyzed: 0.0030 Liter(s)

Initial Pressure (psig): 0.54 Final Pressure (psig): 4.26

Container Dilution Factor: 1.24

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**19,000**	210	**4,700**	52	
141-78-6	Ethyl Acetate	ND	410	ND	110	
110-54-3	n-Hexane	ND	210	ND	59	
67-66-3	Chloroform	ND	210	ND	42	
109-99-9	Tetrahydrofuran (THF)	ND	210	ND	70	
107-06-2	1,2-Dichloroethane	**290**	210	**73**	51	
71-55-6	1,1,1-Trichloroethane	ND	210	ND	38	
71-43-2	Benzene	ND	210	ND	65	
56-23-5	Carbon Tetrachloride	ND	210	ND	33	
110-82-7	Cyclohexane	ND	410	ND	120	
78-87-5	1,2-Dichloropropane	ND	210	ND	45	
75-27-4	Bromodichloromethane	ND	210	ND	31	
79-01-6	Trichloroethene	**37,000**	210	**6,900**	38	
123-91-1	1,4-Dioxane	ND	210	ND	57	
80-62-6	Methyl Methacrylate	ND	410	ND	100	
142-82-5	n-Heptane	ND	210	ND	50	
10061-01-5	cis-1,3-Dichloropropene	ND	210	ND	46	
108-10-1	4-Methyl-2-pentanone	ND	210	ND	50	
10061-02-6	trans-1,3-Dichloropropene	ND	210	ND	46	
79-00-5	1,1,2-Trichloroethane	ND	210	ND	38	
108-88-3	Toluene	ND	210	ND	55	
591-78-6	2-Hexanone	ND	210	ND	50	
124-48-1	Dibromochloromethane	ND	210	ND	24	
106-93-4	1,2-Dibromoethane	ND	210	ND	27	
123-86-4	n-Butyl Acetate	ND	210	ND	44	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_Stripper LHAAP-** ALS Project ID: P1800459
Client Project ID: **GWTP / NW01312.0150** ALS Sample ID: P1800459-001

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Wida Ang Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.0030 Liter(s)
Test Notes:
Container ID: SC01065

Initial Pressure (psig): 0.54 Final Pressure (psig): 4.26

Container Dilution Factor: 1.24

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	210	ND	44	
127-18-4	Tetrachloroethene	ND	210	ND	30	
108-90-7	Chlorobenzene	ND	210	ND	45	
100-41-4	Ethylbenzene	ND	210	ND	48	
179601-23-1	m,p-Xylenes	ND	410	ND	95	
75-25-2	Bromoform	ND	210	ND	20	
100-42-5	Styrene	ND	210	ND	49	
95-47-6	o-Xylene	ND	210	ND	48	
111-84-2	n-Nonane	ND	210	ND	39	
79-34-5	1,1,2,2-Tetrachloroethane	ND	210	ND	30	
98-82-8	Cumene	ND	210	ND	42	
80-56-8	alpha-Pinene	ND	210	ND	37	
103-65-1	n-Propylbenzene	ND	210	ND	42	
622-96-8	4-Ethyltoluene	ND	210	ND	42	
108-67-8	1,3,5-Trimethylbenzene	ND	210	ND	42	
95-63-6	1,2,4-Trimethylbenzene	ND	210	ND	42	
100-44-7	Benzyl Chloride	ND	410	ND	80	
541-73-1	1,3-Dichlorobenzene	ND	210	ND	34	
106-46-7	1,4-Dichlorobenzene	ND	210	ND	34	
95-50-1	1,2-Dichlorobenzene	ND	210	ND	34	
5989-27-5	d-Limonene	ND	210	ND	37	
96-12-8	1,2-Dibromo-3-chloropropane	ND	210	ND	21	
120-82-1	1,2,4-Trichlorobenzene	ND	210	ND	28	
91-20-3	Naphthalene	ND	210	ND	39	
87-68-3	Hexachlorobutadiene	ND	210	ND	19	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_Stripper_Dup** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-002

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.0045 Liter(s)
Test Notes: 0.0020 Liter(s)
Container ID: SC01486

Initial Pressure (psig): 0.38 Final Pressure (psig): 6.25

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	150	ND	90	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	150	ND	31	
74-87-3	Chloromethane	ND	150	ND	75	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	150	ND	22	
75-01-4	Vinyl Chloride	**310**	150	**120**	60	
106-99-0	1,3-Butadiene	ND	150	ND	70	
74-83-9	Bromomethane	ND	150	ND	40	
75-00-3	Chloroethane	ND	150	ND	59	
64-17-5	Ethanol	ND	1,500	ND	820	
75-05-8	Acetonitrile	ND	150	ND	92	
107-02-8	Acrolein	ND	620	ND	270	
67-64-1	Acetone	ND	1,500	ND	650	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	150	ND	27	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	1,500	ND	630	
107-13-1	Acrylonitrile	ND	150	ND	71	
75-35-4	1,1-Dichloroethene	**260**	150	**65**	39	
75-09-2	Methylene Chloride	**200**	150	**58**	44	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	150	ND	49	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**27,000**	150	**3,500**	20	
75-15-0	Carbon Disulfide	ND	1,500	ND	500	
156-60-5	trans-1,2-Dichloroethene	ND	150	ND	39	
75-34-3	1,1-Dichloroethane	ND	150	ND	38	
1634-04-4	Methyl tert-Butyl Ether	ND	150	ND	43	
108-05-4	Vinyl Acetate	ND	1,500	ND	440	
78-93-3	2-Butanone (MEK)	ND	1,500	ND	520	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_Stripper_Dup** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-002

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.0045 Liter(s)
Test Notes: 0.0020 Liter(s)
Container ID: SC01486

Initial Pressure (psig): 0.38 Final Pressure (psig): 6.25

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**18,000**	150	**4,500**	39	
141-78-6	Ethyl Acetate	ND	310	ND	86	
110-54-3	n-Hexane	ND	150	ND	44	
67-66-3	Chloroform	ND	150	ND	32	
109-99-9	Tetrahydrofuran (THF)	ND	150	ND	52	
107-06-2	1,2-Dichloroethane	**290**	150	**71**	38	
71-55-6	1,1,1-Trichloroethane	ND	150	ND	28	
71-43-2	Benzene	ND	150	ND	48	
56-23-5	Carbon Tetrachloride	ND	150	ND	25	
110-82-7	Cyclohexane	ND	310	ND	90	
78-87-5	1,2-Dichloropropane	ND	150	ND	33	
75-27-4	Bromodichloromethane	ND	150	ND	23	
79-01-6	Trichloroethene	**36,000**	350	**6,600**	65	**D**
123-91-1	1,4-Dioxane	ND	150	ND	43	
80-62-6	Methyl Methacrylate	ND	310	ND	75	
142-82-5	n-Heptane	ND	150	ND	38	
10061-01-5	cis-1,3-Dichloropropene	ND	150	ND	34	
108-10-1	4-Methyl-2-pentanone	ND	150	ND	38	
10061-02-6	trans-1,3-Dichloropropene	ND	150	ND	34	
79-00-5	1,1,2-Trichloroethane	ND	150	ND	28	
108-88-3	Toluene	ND	150	ND	41	
591-78-6	2-Hexanone	ND	150	ND	38	
124-48-1	Dibromochloromethane	ND	150	ND	18	
106-93-4	1,2-Dibromoethane	ND	150	ND	20	
123-86-4	n-Butyl Acetate	ND	150	ND	33	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_Stripper_Dup** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-002

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.0045 Liter(s)
Test Notes: 0.0020 Liter(s)
Container ID: SC01486

Initial Pressure (psig): 0.38 Final Pressure (psig): 6.25

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	150	ND	33	
127-18-4	Tetrachloroethene	**180**	150	**27**	23	
108-90-7	Chlorobenzene	ND	150	ND	34	
100-41-4	Ethylbenzene	ND	150	ND	36	
179601-23-1	m,p-Xylenes	ND	310	ND	71	
75-25-2	Bromoform	ND	150	ND	15	
100-42-5	Styrene	ND	150	ND	36	
95-47-6	o-Xylene	ND	150	ND	36	
111-84-2	n-Nonane	ND	150	ND	29	
79-34-5	1,1,2,2-Tetrachloroethane	ND	150	ND	22	
98-82-8	Cumene	ND	150	ND	31	
80-56-8	alpha-Pinene	ND	150	ND	28	
103-65-1	n-Propylbenzene	ND	150	ND	31	
622-96-8	4-Ethyltoluene	ND	150	ND	31	
108-67-8	1,3,5-Trimethylbenzene	ND	150	ND	31	
95-63-6	1,2,4-Trimethylbenzene	ND	150	ND	31	
100-44-7	Benzyl Chloride	ND	310	ND	60	
541-73-1	1,3-Dichlorobenzene	ND	150	ND	26	
106-46-7	1,4-Dichlorobenzene	ND	150	ND	26	
95-50-1	1,2-Dichlorobenzene	ND	150	ND	26	
5989-27-5	d-Limonene	ND	150	ND	28	
96-12-8	1,2-Dibromo-3-chloropropane	ND	150	ND	16	
120-82-1	1,2,4-Trichlorobenzene	ND	150	ND	21	
91-20-3	Naphthalene	ND	150	ND	29	
87-68-3	Hexachlorobutadiene	ND	150	ND	14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_GWTP** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-003

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02317

Initial Pressure (psig): -0.51 Final Pressure (psig): 3.61

Container Dilution Factor: 1.29

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.65	ND	0.37	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**	0.65	**0.45**	0.13	
74-87-3	Chloromethane	ND	0.65	ND	0.31	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.65	ND	0.092	
75-01-4	Vinyl Chloride	ND	0.65	ND	0.25	
106-99-0	1,3-Butadiene	ND	0.65	ND	0.29	
74-83-9	Bromomethane	ND	0.65	ND	0.17	
75-00-3	Chloroethane	ND	0.65	ND	0.24	
64-17-5	Ethanol	**20**	6.5	**11**	3.4	
75-05-8	Acetonitrile	ND	0.65	ND	0.38	
107-02-8	Acrolein	ND	2.6	ND	1.1	
67-64-1	Acetone	ND	6.5	ND	2.7	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.1**	0.65	**0.20**	0.11	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	6.5	ND	2.6	
107-13-1	Acrylonitrile	ND	0.65	ND	0.30	
75-35-4	1,1-Dichloroethene	ND	0.65	ND	0.16	
75-09-2	Methylene Chloride	ND	0.65	ND	0.19	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.65	ND	0.21	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**1.4**	0.65	**0.18**	0.084	
75-15-0	Carbon Disulfide	ND	6.5	ND	2.1	
156-60-5	trans-1,2-Dichloroethene	ND	0.65	ND	0.16	
75-34-3	1,1-Dichloroethane	ND	0.65	ND	0.16	
1634-04-4	Methyl tert-Butyl Ether	ND	0.65	ND	0.18	
108-05-4	Vinyl Acetate	ND	6.5	ND	1.8	
78-93-3	2-Butanone (MEK)	ND	6.5	ND	2.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_GWTP** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-003

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02317

Initial Pressure (psig): -0.51 Final Pressure (psig): 3.61

Container Dilution Factor: 1.29

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**0.66**	0.65	**0.17**	0.16	
141-78-6	Ethyl Acetate	**22**	1.3	**6.0**	0.36	
110-54-3	n-Hexane	**0.81**	0.65	**0.23**	0.18	
67-66-3	Chloroform	ND	0.65	ND	0.13	
109-99-9	Tetrahydrofuran (THF)	ND	0.65	ND	0.22	
107-06-2	1,2-Dichloroethane	ND	0.65	ND	0.16	
71-55-6	1,1,1-Trichloroethane	ND	0.65	ND	0.12	
71-43-2	Benzene	ND	0.65	ND	0.20	
56-23-5	Carbon Tetrachloride	ND	0.65	ND	0.10	
110-82-7	Cyclohexane	ND	1.3	ND	0.37	
78-87-5	1,2-Dichloropropane	ND	0.65	ND	0.14	
75-27-4	Bromodichloromethane	ND	0.65	ND	0.096	
79-01-6	Trichloroethene	**1.4**	0.65	**0.26**	0.12	
123-91-1	1,4-Dioxane	ND	0.65	ND	0.18	
80-62-6	Methyl Methacrylate	ND	1.3	ND	0.32	
142-82-5	n-Heptane	ND	0.65	ND	0.16	
10061-01-5	cis-1,3-Dichloropropene	ND	0.65	ND	0.14	
108-10-1	4-Methyl-2-pentanone	ND	0.65	ND	0.16	
10061-02-6	trans-1,3-Dichloropropene	ND	0.65	ND	0.14	
79-00-5	1,1,2-Trichloroethane	ND	0.65	ND	0.12	
108-88-3	Toluene	ND	0.65	ND	0.17	
591-78-6	2-Hexanone	ND	0.65	ND	0.16	
124-48-1	Dibromochloromethane	ND	0.65	ND	0.076	
106-93-4	1,2-Dibromoethane	ND	0.65	ND	0.084	
123-86-4	n-Butyl Acetate	ND	0.65	ND	0.14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_GWTP** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-003

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02317

Initial Pressure (psig): -0.51 Final Pressure (psig): 3.61

Container Dilution Factor: 1.29

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.65	ND	0.14	
127-18-4	Tetrachloroethene	ND	0.65	ND	0.095	
108-90-7	Chlorobenzene	ND	0.65	ND	0.14	
100-41-4	Ethylbenzene	ND	0.65	ND	0.15	
179601-23-1	m,p-Xylenes	ND	1.3	ND	0.30	
75-25-2	Bromoform	ND	0.65	ND	0.062	
100-42-5	Styrene	ND	0.65	ND	0.15	
95-47-6	o-Xylene	ND	0.65	ND	0.15	
111-84-2	n-Nonane	ND	0.65	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.65	ND	0.094	
98-82-8	Cumene	ND	0.65	ND	0.13	
80-56-8	alpha-Pinene	ND	0.65	ND	0.12	
103-65-1	n-Propylbenzene	ND	0.65	ND	0.13	
622-96-8	4-Ethyltoluene	ND	0.65	ND	0.13	
108-67-8	1,3,5-Trimethylbenzene	ND	0.65	ND	0.13	
95-63-6	1,2,4-Trimethylbenzene	ND	0.65	ND	0.13	
100-44-7	Benzyl Chloride	ND	1.3	ND	0.25	
541-73-1	1,3-Dichlorobenzene	ND	0.65	ND	0.11	
106-46-7	1,4-Dichlorobenzene	ND	0.65	ND	0.11	
95-50-1	1,2-Dichlorobenzene	ND	0.65	ND	0.11	
5989-27-5	d-Limonene	ND	0.65	ND	0.12	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.65	ND	0.067	
120-82-1	1,2,4-Trichlorobenzene	ND	0.65	ND	0.087	
91-20-3	Naphthalene	ND	0.65	ND	0.12	
87-68-3	Hexachlorobutadiene	ND	0.65	ND	0.060	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_013018_Downwind** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-004

Test Code: EPA TO-15 Date Collected: 1/30/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02326

Initial Pressure (psig): -0.40 Final Pressure (psig): 3.80

Container Dilution Factor: 1.29

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.65	ND	0.37	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	0.65	**0.47**	0.13	
74-87-3	Chloromethane	ND	0.65	ND	0.31	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.65	ND	0.092	
75-01-4	Vinyl Chloride	ND	0.65	ND	0.25	
106-99-0	1,3-Butadiene	ND	0.65	ND	0.29	
74-83-9	Bromomethane	ND	0.65	ND	0.17	
75-00-3	Chloroethane	ND	0.65	ND	0.24	
64-17-5	Ethanol	ND	6.5	ND	3.4	
75-05-8	Acetonitrile	ND	0.65	ND	0.38	
107-02-8	Acrolein	ND	2.6	ND	1.1	
67-64-1	Acetone	ND	6.5	ND	2.7	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.2**	0.65	**0.21**	0.11	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	6.5	ND	2.6	
107-13-1	Acrylonitrile	ND	0.65	ND	0.30	
75-35-4	1,1-Dichloroethene	ND	0.65	ND	0.16	
75-09-2	Methylene Chloride	**0.72**	0.65	**0.21**	0.19	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.65	ND	0.21	
76-13-1	Trichlorotrifluoroethane (CFC 113)	**1.6**	0.65	**0.20**	0.084	
75-15-0	Carbon Disulfide	ND	6.5	ND	2.1	
156-60-5	trans-1,2-Dichloroethene	ND	0.65	ND	0.16	
75-34-3	1,1-Dichloroethane	ND	0.65	ND	0.16	
1634-04-4	Methyl tert-Butyl Ether	ND	0.65	ND	0.18	
108-05-4	Vinyl Acetate	ND	6.5	ND	1.8	
78-93-3	2-Butanone (MEK)	ND	6.5	ND	2.2	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_013018_Downwind** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-004

Test Code: EPA TO-15 Date Collected: 1/30/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02326

Initial Pressure (psig): -0.40 Final Pressure (psig): 3.80

Container Dilution Factor: 1.29

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.65	ND	0.16	
141-78-6	Ethyl Acetate	**3.9**	1.3	**1.1**	0.36	
110-54-3	n-Hexane	**0.70**	0.65	**0.20**	0.18	
67-66-3	Chloroform	ND	0.65	ND	0.13	
109-99-9	Tetrahydrofuran (THF)	**0.88**	0.65	**0.30**	0.22	
107-06-2	1,2-Dichloroethane	ND	0.65	ND	0.16	
71-55-6	1,1,1-Trichloroethane	ND	0.65	ND	0.12	
71-43-2	Benzene	ND	0.65	ND	0.20	
56-23-5	Carbon Tetrachloride	ND	0.65	ND	0.10	
110-82-7	Cyclohexane	ND	1.3	ND	0.37	
78-87-5	1,2-Dichloropropane	ND	0.65	ND	0.14	
75-27-4	Bromodichloromethane	ND	0.65	ND	0.096	
79-01-6	Trichloroethene	ND	0.65	ND	0.12	
123-91-1	1,4-Dioxane	ND	0.65	ND	0.18	
80-62-6	Methyl Methacrylate	ND	1.3	ND	0.32	
142-82-5	n-Heptane	ND	0.65	ND	0.16	
10061-01-5	cis-1,3-Dichloropropene	ND	0.65	ND	0.14	
108-10-1	4-Methyl-2-pentanone	ND	0.65	ND	0.16	
10061-02-6	trans-1,3-Dichloropropene	ND	0.65	ND	0.14	
79-00-5	1,1,2-Trichloroethane	ND	0.65	ND	0.12	
108-88-3	Toluene	ND	0.65	ND	0.17	
591-78-6	2-Hexanone	ND	0.65	ND	0.16	
124-48-1	Dibromochloromethane	ND	0.65	ND	0.076	
106-93-4	1,2-Dibromoethane	ND	0.65	ND	0.084	
123-86-4	n-Butyl Acetate	ND	0.65	ND	0.14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_013018_Downwind** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-004

Test Code: EPA TO-15 Date Collected: 1/30/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02326

Initial Pressure (psig): -0.40 Final Pressure (psig): 3.80

Container Dilution Factor: 1.29

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.65	ND	0.14	
127-18-4	Tetrachloroethene	ND	0.65	ND	0.095	
108-90-7	Chlorobenzene	ND	0.65	ND	0.14	
100-41-4	Ethylbenzene	ND	0.65	ND	0.15	
179601-23-1	m,p-Xylenes	ND	1.3	ND	0.30	
75-25-2	Bromoform	ND	0.65	ND	0.062	
100-42-5	Styrene	ND	0.65	ND	0.15	
95-47-6	o-Xylene	ND	0.65	ND	0.15	
111-84-2	n-Nonane	ND	0.65	ND	0.12	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.65	ND	0.094	
98-82-8	Cumene	ND	0.65	ND	0.13	
80-56-8	alpha-Pinene	ND	0.65	ND	0.12	
103-65-1	n-Propylbenzene	ND	0.65	ND	0.13	
622-96-8	4-Ethyltoluene	ND	0.65	ND	0.13	
108-67-8	1,3,5-Trimethylbenzene	ND	0.65	ND	0.13	
95-63-6	1,2,4-Trimethylbenzene	ND	0.65	ND	0.13	
100-44-7	Benzyl Chloride	ND	1.3	ND	0.25	
541-73-1	1,3-Dichlorobenzene	ND	0.65	ND	0.11	
106-46-7	1,4-Dichlorobenzene	ND	0.65	ND	0.11	
95-50-1	1,2-Dichlorobenzene	ND	0.65	ND	0.11	
5989-27-5	d-Limonene	ND	0.65	ND	0.12	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.65	ND	0.067	
120-82-1	1,2,4-Trichlorobenzene	ND	0.65	ND	0.087	
91-20-3	Naphthalene	ND	0.65	ND	0.12	
87-68-3	Hexachlorobutadiene	ND	0.65	ND	0.060	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P180208-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Wida Ang Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
115-07-1	Propene	ND	0.50	ND	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	0.50	ND	0.10	
74-87-3	Chloromethane	ND	0.50	ND	0.24	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	0.50	ND	0.072	
75-01-4	Vinyl Chloride	ND	0.50	ND	0.20	
106-99-0	1,3-Butadiene	ND	0.50	ND	0.23	
74-83-9	Bromomethane	ND	0.50	ND	0.13	
75-00-3	Chloroethane	ND	0.50	ND	0.19	
64-17-5	Ethanol	ND	5.0	ND	2.7	
75-05-8	Acetonitrile	ND	0.50	ND	0.30	
107-02-8	Acrolein	ND	2.0	ND	0.87	
67-64-1	Acetone	ND	5.0	ND	2.1	
75-69-4	Trichlorofluoromethane (CFC 11)	ND	0.50	ND	0.089	
67-63-0	2-Propanol (Isopropyl Alcohol)	ND	5.0	ND	2.0	
107-13-1	Acrylonitrile	ND	0.50	ND	0.23	
75-35-4	1,1-Dichloroethene	ND	0.50	ND	0.13	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	ND	0.50	ND	0.16	
76-13-1	Trichlorotrifluoroethane (CFC 113)	ND	0.50	ND	0.065	
75-15-0	Carbon Disulfide	ND	5.0	ND	1.6	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	ND	0.13	
75-34-3	1,1-Dichloroethane	ND	0.50	ND	0.12	
1634-04-4	Methyl tert-Butyl Ether	ND	0.50	ND	0.14	
108-05-4	Vinyl Acetate	ND	5.0	ND	1.4	
78-93-3	2-Butanone (MEK)	ND	5.0	ND	1.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P180208-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Wida Ang Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.50	ND	0.13	
141-78-6	Ethyl Acetate	ND	1.0	ND	0.28	
110-54-3	n-Hexane	ND	0.50	ND	0.14	
67-66-3	Chloroform	ND	0.50	ND	0.10	
109-99-9	Tetrahydrofuran (THF)	ND	0.50	ND	0.17	
107-06-2	1,2-Dichloroethane	ND	0.50	ND	0.12	
71-55-6	1,1,1-Trichloroethane	ND	0.50	ND	0.092	
71-43-2	Benzene	ND	0.50	ND	0.16	
56-23-5	Carbon Tetrachloride	ND	0.50	ND	0.080	
110-82-7	Cyclohexane	ND	1.0	ND	0.29	
78-87-5	1,2-Dichloropropane	ND	0.50	ND	0.11	
75-27-4	Bromodichloromethane	ND	0.50	ND	0.075	
79-01-6	Trichloroethene	ND	0.50	ND	0.093	
123-91-1	1,4-Dioxane	ND	0.50	ND	0.14	
80-62-6	Methyl Methacrylate	ND	1.0	ND	0.24	
142-82-5	n-Heptane	ND	0.50	ND	0.12	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	ND	0.11	
108-10-1	4-Methyl-2-pentanone	ND	0.50	ND	0.12	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	ND	0.11	
79-00-5	1,1,2-Trichloroethane	ND	0.50	ND	0.092	
108-88-3	Toluene	ND	0.50	ND	0.13	
591-78-6	2-Hexanone	ND	0.50	ND	0.12	
124-48-1	Dibromochloromethane	ND	0.50	ND	0.059	
106-93-4	1,2-Dibromoethane	ND	0.50	ND	0.065	
123-86-4	n-Butyl Acetate	ND	0.50	ND	0.11	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P180208-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Wida Ang Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
111-65-9	n-Octane	ND	0.50	ND	0.11	
127-18-4	Tetrachloroethene	ND	0.50	ND	0.074	
108-90-7	Chlorobenzene	ND	0.50	ND	0.11	
100-41-4	Ethylbenzene	ND	0.50	ND	0.12	
179601-23-1	m,p-Xylenes	ND	1.0	ND	0.23	
75-25-2	Bromoform	ND	0.50	ND	0.048	
100-42-5	Styrene	ND	0.50	ND	0.12	
95-47-6	o-Xylene	ND	0.50	ND	0.12	
111-84-2	n-Nonane	ND	0.50	ND	0.095	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	ND	0.073	
98-82-8	Cumene	ND	0.50	ND	0.10	
80-56-8	alpha-Pinene	ND	0.50	ND	0.090	
103-65-1	n-Propylbenzene	ND	0.50	ND	0.10	
622-96-8	4-Ethyltoluene	ND	0.50	ND	0.10	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	ND	0.10	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	ND	0.10	
100-44-7	Benzyl Chloride	ND	1.0	ND	0.19	
541-73-1	1,3-Dichlorobenzene	ND	0.50	ND	0.083	
106-46-7	1,4-Dichlorobenzene	ND	0.50	ND	0.083	
95-50-1	1,2-Dichlorobenzene	ND	0.50	ND	0.083	
5989-27-5	d-Limonene	ND	0.50	ND	0.090	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.50	ND	0.052	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	ND	0.067	
91-20-3	Naphthalene	ND	0.50	ND	0.095	
87-68-3	Hexachlorobutadiene	ND	0.50	ND	0.047	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Bhate Environmental Associates, Inc.**
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Project ID: P1800459

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date(s) Collected: 1/29 - 1/30/18
Analyst: Wida Ang Date(s) Received: 2/2/18
Sample Type: 6.0 L Summa Canister(s) Date(s) Analyzed: 2/8/18
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P180208-MB	**107**	**101**	**98**	70-130	
Lab Control Sample	P180208-LCS	**101**	**98**	**100**	70-130	
LH18/24-AIR_012918_Stripper	P1800459-001	**103**	**101**	**96**	70-130	
LH18/24-AIR_012918_Stripper_Dup	P1800459-002	**104**	**101**	**96**	70-130	
LH18/24-AIR_012918_GWTP	P1800459-003	**107**	**100**	**96**	70-130	
LH18/24-AIR_012918_GWTP	P1800459-003DUP	**107**	**101**	**96**	70-130	
LH18/24-AIR_013018_Downwind	P1800459-004	**107**	**101**	**95**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P180208-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Wida Ang Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
115-07-1	Propene	210	**167**	**80**	54-133	
75-71-8	Dichlorodifluoromethane (CFC 12)	213	**186**	**87**	64-115	
74-87-3	Chloromethane	210	**174**	**83**	47-140	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	211	**179**	**85**	60-112	
75-01-4	Vinyl Chloride	211	**187**	**89**	63-127	
106-99-0	1,3-Butadiene	210	**189**	**90**	57-149	
74-83-9	Bromomethane	210	**182**	**87**	63-132	
75-00-3	Chloroethane	210	**176**	**84**	68-129	
64-17-5	Ethanol	1,040	**860**	**83**	62-131	
75-05-8	Acetonitrile	210	**177**	**84**	56-136	
107-02-8	Acrolein	209	**177**	**85**	60-132	
67-64-1	Acetone	1,050	**864**	**82**	63-124	
75-69-4	Trichlorofluoromethane (CFC 11)	208	**173**	**83**	65-113	
67-63-0	2-Propanol (Isopropyl Alcohol)	422	**359**	**85**	62-135	
107-13-1	Acrylonitrile	212	**187**	**88**	68-138	
75-35-4	1,1-Dichloroethene	213	**179**	**84**	72-118	
75-09-2	Methylene Chloride	213	**171**	**80**	67-116	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	212	**186**	**88**	61-143	
76-13-1	Trichlorotrifluoroethane (CFC 113)	214	**179**	**84**	68-113	
75-15-0	Carbon Disulfide	214	**189**	**88**	68-120	
156-60-5	trans-1,2-Dichloroethene	214	**196**	**92**	71-125	
75-34-3	1,1-Dichloroethane	212	**174**	**82**	68-118	
1634-04-4	Methyl tert-Butyl Ether	213	**185**	**87**	60-123	
108-05-4	Vinyl Acetate	1,060	**1020**	**96**	73-135	
78-93-3	2-Butanone (MEK)	212	**180**	**85**	70-129	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P180208-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Wida Ang Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	212	**183**	**86**	69-121	
141-78-6	Ethyl Acetate	426	**374**	**88**	66-140	
110-54-3	n-Hexane	213	**187**	**88**	61-124	
67-66-3	Chloroform	212	**180**	**85**	69-113	
109-99-9	Tetrahydrofuran (THF)	212	**165**	**78**	66-121	
107-06-2	1,2-Dichloroethane	212	**182**	**86**	62-120	
71-55-6	1,1,1-Trichloroethane	212	**191**	**90**	65-116	
71-43-2	Benzene	213	**180**	**85**	66-111	
56-23-5	Carbon Tetrachloride	214	**199**	**93**	64-122	
110-82-7	Cyclohexane	425	**372**	**88**	69-115	
78-87-5	1,2-Dichloropropane	212	**180**	**85**	69-121	
75-27-4	Bromodichloromethane	214	**201**	**94**	69-123	
79-01-6	Trichloroethene	212	**180**	**85**	69-112	
123-91-1	1,4-Dioxane	213	**185**	**87**	74-123	
80-62-6	Methyl Methacrylate	424	**383**	**90**	75-125	
142-82-5	n-Heptane	213	**177**	**83**	68-118	
10061-01-5	cis-1,3-Dichloropropene	208	**201**	**97**	74-129	
108-10-1	4-Methyl-2-pentanone	213	**189**	**89**	66-138	
10061-02-6	trans-1,3-Dichloropropene	213	**214**	**100**	75-130	
79-00-5	1,1,2-Trichloroethane	212	**189**	**89**	73-117	
108-88-3	Toluene	211	**173**	**82**	66-114	
591-78-6	2-Hexanone	211	**174**	**82**	58-146	
124-48-1	Dibromochloromethane	212	**198**	**93**	67-130	
106-93-4	1,2-Dibromoethane	211	**190**	**90**	70-127	
123-86-4	n-Butyl Acetate	215	**185**	**86**	62-140	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P180208-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: NA
Analyst: Wida Ang Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
111-65-9	n-Octane	212	**173**	**82**	65-121	
127-18-4	Tetrachloroethene	212	**177**	**83**	62-119	
108-90-7	Chlorobenzene	212	**180**	**85**	66-115	
100-41-4	Ethylbenzene	212	**181**	**85**	69-117	
179601-23-1	m,p-Xylenes	424	**373**	**88**	67-117	
75-25-2	Bromoform	212	**209**	**99**	67-135	
100-42-5	Styrene	211	**194**	**92**	70-128	
95-47-6	o-Xylene	211	**186**	**88**	67-118	
111-84-2	n-Nonane	212	**192**	**91**	61-127	
79-34-5	1,1,2,2-Tetrachloroethane	212	**194**	**92**	70-125	
98-82-8	Cumene	212	**185**	**87**	68-116	
80-56-8	alpha-Pinene	213	**195**	**92**	69-122	
103-65-1	n-Propylbenzene	214	**189**	**88**	70-118	
622-96-8	4-Ethyltoluene	211	**194**	**92**	69-124	
108-67-8	1,3,5-Trimethylbenzene	212	**188**	**89**	65-117	
95-63-6	1,2,4-Trimethylbenzene	212	**194**	**92**	67-124	
100-44-7	Benzyl Chloride	212	**252**	**119**	75-142	
541-73-1	1,3-Dichlorobenzene	212	**195**	**92**	70-124	
106-46-7	1,4-Dichlorobenzene	214	**190**	**89**	63-124	
95-50-1	1,2-Dichlorobenzene	214	**202**	**94**	66-125	
5989-27-5	d-Limonene	213	**203**	**95**	64-135	
96-12-8	1,2-Dibromo-3-chloropropane	210	**216**	**103**	73-136	
120-82-1	1,2,4-Trichlorobenzene	218	**216**	**99**	70-141	
91-20-3	Naphthalene	209	**245**	**117**	71-146	
87-68-3	Hexachlorobutadiene	212	**185**	**87**	63-126	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_GWTP** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-003DUP

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02317

Initial Pressure (psig): -0.51 Final Pressure (psig): 3.61

Container Dilution Factor: 1.29

Compound	Sample Result µg/m³	Sample Result ppbV	**Duplicate Sample Result µg/m³**	**Duplicate Sample Result** ppbV	Average µg/m³	**% RPD**	RPD Limit	**Data Qualifier**
Propene	ND	ND	ND	ND	-	-	25	
Dichlorodifluoromethane (CFC 12)	2.21	0.448	2.36	0.477	2.285	**7**	25	
Chloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	ND	ND	ND	ND	-	-	25	
Vinyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Butadiene	ND	ND	ND	ND	-	-	25	
Bromomethane	ND	ND	ND	ND	-	-	25	
Chloroethane	ND	ND	ND	ND	-	-	25	
Ethanol	20.3	10.8	21.5	11.4	20.9	**6**	25	
Acetonitrile	ND	ND	ND	ND	-	-	25	
Acrolein	ND	ND	ND	ND	-	-	25	
Acetone	ND	ND	ND	ND	-	-	25	
Trichlorofluoromethane	1.10	0.196	1.16	0.207	1.13	**5**	25	
2-Propanol (Isopropyl Alcohol)	ND	ND	ND	ND	-	-	25	
Acrylonitrile	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
Methylene Chloride	ND	ND	ND	ND	-	-	25	
3-Chloro-1-propene (Allyl Chloride)	ND	ND	ND	ND	-	-	25	
Trichlorotrifluoroethane	1.38	0.181	1.46	0.191	1.42	**6**	25	
Carbon Disulfide	ND	ND	ND	ND	-	-	25	
trans-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethane	ND	ND	ND	ND	-	-	25	
Methyl tert-Butyl Ether	ND	ND	ND	ND	-	-	25	
Vinyl Acetate	ND	ND	ND	ND	-	-	25	
2-Butanone (MEK)	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_GWTP** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-003DUP

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02317

Initial Pressure (psig): -0.51 Final Pressure (psig): 3.61

Container Dilution Factor: 1.29

Compound	Sample Result µg/m³	Sample Result ppbV	**Duplicate Sample Result µg/m³**	**Duplicate Sample Result ppbV**	Average µg/m³	**% RPD**	RPD Limit	**Data Qualifier**
cis-1,2-Dichloroethene	0.663	0.167	0.713	0.180	0.688	**7**	25	
Ethyl Acetate	21.5	5.97	22.5	6.25	22	**5**	25	
n-Hexane	0.806	0.229	0.840	0.238	0.823	**4**	25	
Chloroform	ND	ND	ND	ND	-	-	25	
Tetrahydrofuran (THF)	ND	ND	ND	ND	-	-	25	
1,2-Dichloroethane	ND	ND	ND	ND	-	-	25	
1,1,1-Trichloroethane	ND	ND	ND	ND	-	-	25	
Benzene	ND	ND	ND	ND	-	-	25	
Carbon Tetrachloride	ND	ND	ND	ND	-	-	25	
Cyclohexane	ND	ND	ND	ND	-	-	25	
1,2-Dichloropropane	ND	ND	ND	ND	-	-	25	
Bromodichloromethane	ND	ND	ND	ND	-	-	25	
Trichloroethene	1.37	0.255	1.43	0.266	1.4	**4**	25	
1,4-Dioxane	ND	ND	ND	ND	-	-	25	
Methyl Methacrylate	ND	ND	ND	ND	-	-	25	
n-Heptane	ND	ND	ND	ND	-	-	25	
cis-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
4-Methyl-2-pentanone	ND	ND	ND	ND	-	-	25	
trans-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
1,1,2-Trichloroethane	ND	ND	ND	ND	-	-	25	
Toluene	ND	ND	ND	ND	-	-	25	
2-Hexanone	ND	ND	ND	ND	-	-	25	
Dibromochloromethane	ND	ND	ND	ND	-	-	25	
1,2-Dibromoethane	ND	ND	ND	ND	-	-	25	
n-Butyl Acetate	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **Bhate Environmental Associates, Inc.**
Client Sample ID: **LH18/24-AIR_012918_GWTP** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150** ALS Sample ID: P1800459-003DUP

Test Code: EPA TO-15 Date Collected: 1/29/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Date Received: 2/2/18
Analyst: Anusha Bayyarapu Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02317

Initial Pressure (psig): -0.51 Final Pressure (psig): 3.61

Container Dilution Factor: 1.29

Compound	Sample Result µg/m³	Sample Result ppbV	**Duplicate Sample Result µg/m³**	**Duplicate Sample Result ppbV**	Average µg/m³	**% RPD**	RPD Limit	**Data Qualifier**
n-Octane	ND	ND	ND	ND	-	-	25	
Tetrachloroethene	ND	ND	ND	ND	-	-	25	
Chlorobenzene	ND	ND	ND	ND	-	-	25	
Ethylbenzene	ND	ND	ND	ND	-	-	25	
m,p-Xylenes	ND	ND	ND	ND	-	-	25	
Bromoform	ND	ND	ND	ND	-	-	25	
Styrene	ND	ND	ND	ND	-	-	25	
o-Xylene	ND	ND	ND	ND	-	-	25	
n-Nonane	ND	ND	ND	ND	-	-	25	
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	-	-	25	
Cumene	ND	ND	ND	ND	-	-	25	
alpha-Pinene	ND	ND	ND	ND	-	-	25	
n-Propylbenzene	ND	ND	ND	ND	-	-	25	
4-Ethyltoluene	ND	ND	ND	ND	-	-	25	
1,3,5-Trimethylbenzene	ND	ND	ND	ND	-	-	25	
1,2,4-Trimethylbenzene	ND	ND	ND	ND	-	-	25	
Benzyl Chloride	ND	ND	ND	ND	-	-	25	
1,3-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,4-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
1,2-Dichlorobenzene	ND	ND	ND	ND	-	-	25	
d-Limonene	ND	ND	ND	ND	-	-	25	
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	-	-	25	
1,2,4-Trichlorobenzene	ND	ND	ND	ND	-	-	25	
Naphthalene	ND	ND	ND	ND	-	-	25	
Hexachlorobutadiene	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Bhate Environmental Associates, Inc.** ALS Project ID: P1800459
Client Project ID: **LHAAP-GWTP / NW01312.0150**

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Lab File ID: 02081801.D
Analyst: Wida Ang Date Analyzed: 2/8/18
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 02:09
Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	347703	9.06	1505606	10.80	642821	14.83
	Upper Limit	486784	9.39	2107848	11.13	899949	15.16
	Lower Limit	208622	8.73	903364	10.47	385693	14.50
	Client Sample ID						
01	Method Blank	321150	9.04	1528812	10.79	621213	14.83
02	Lab Control Sample	358064	9.06	1548155	10.80	660829	14.83
03	LH18/24-AIR_012918_Stripper	332790	9.05	1537967	10.79	608213	14.83
04	LH18/24-AIR_012918_Stripper_Dup	332652	9.04	1544567	10.79	609738	14.83
05	LH18/24-AIR_012918_Stripper_Dup (Dilution)	323233	9.04	1514523	10.79	598792	14.83
06	LH18/24-AIR_012918_GWTP	329609	9.04	1550296	10.79	628650	14.83
07	LH18/24-AIR_012918_GWTP (Lab Duplicate)	317631	9.04	1503731	10.79	603161	14.83
08	LH18/24-AIR_013018_Downwind	337608	9.04	1610161	10.79	645827	14.83
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits.

00870435

Data File: I:\MS08\Data\2018 02\08\02081813.D
Acq On : 8 Feb 2018 10:04 Operator: WA
Sample : P1800459-001 (3.0mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:51:00 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.05	130	332790	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	10.79	114	1537967	12.500	ng	-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	608213	12.500	ng	-0.01
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	9.74	65	457191	12.864	ng	-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.88%			
57) Toluene-d8 (SS2)	13.02	98	1484400	12.564	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.48%			
73) Bromofluorobenzene (SS3)	16.30	174	625190	12.005	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.08%			
Target Compounds						Qvalue
2) Propene	4.10	42	8920	N.D.		
3) Dichlorodifluoromethan...	4.20	85	189	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	4.68	62	31133	0.821	ng	99
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	5.62	45	329	N.D.		
11) Acetonitrile	5.84	41	59	N.D.		
12) Acrolein	6.11	56	1187	N.D.		
13) Acetone	6.12	58	2786	N.D.		
14) Trichlorofluoromethane	6.05	101	2017	N.D.		
15) 2-Propanol (Isopropanol)	6.42	45	750	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	6.90	96	19770	0.689	ng	95
18) 2-Methyl-2-Propanol (t...	6.90	59	1048	N.D.		
19) Methylene Chloride	7.02	84	16040	0.535	ng	87
20) 3-Chloro-1-propene (Al...	7.03	41	423	N.D.		
21) Trichlorotrifluoroethane	7.32	151	2349644	73.876	ng	98
22) Carbon Disulfide	7.30	76	12374	N.D.		
23) trans-1,2-Dichloroethene	7.93	61	4479	N.D.		
24) 1,1-Dichloroethane	8.14	63	5244	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	8.90	61	1572014	45.320	ng	99
29) Diisopropyl Ether	9.17	87	830	N.D.		
30) Ethyl Acetate	9.24	61	561	N.D.		
31) n-Hexane	9.11	57	1496	N.D.		
32) Chloroform	9.16	83	8118	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	9.84	62	26323	0.710	ng	97
38) 1,1,1-Trichloroethane	10.08	97	920	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.		
41) Benzene	10.50	78	3865	N.D.		
42) Carbon Tetrachloride	10.62	117	1465	N.D.		
43) Cyclohexane	10.75	84	4300	N.D.		
44) tert-Amyl Methyl Ether	10.79	73	15709	N.D.		
45) 1,2-Dichloropropane	11.43	63	8558	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	11.43	130	3279532	89.540	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	11.48	57	165	N.D.		

Data File: I:\MS08\Data\2018 02\08\02081813.D
Acq On : 8 Feb 2018 10:04 Operator: WA
Sample : P1800459-001 (3.0mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

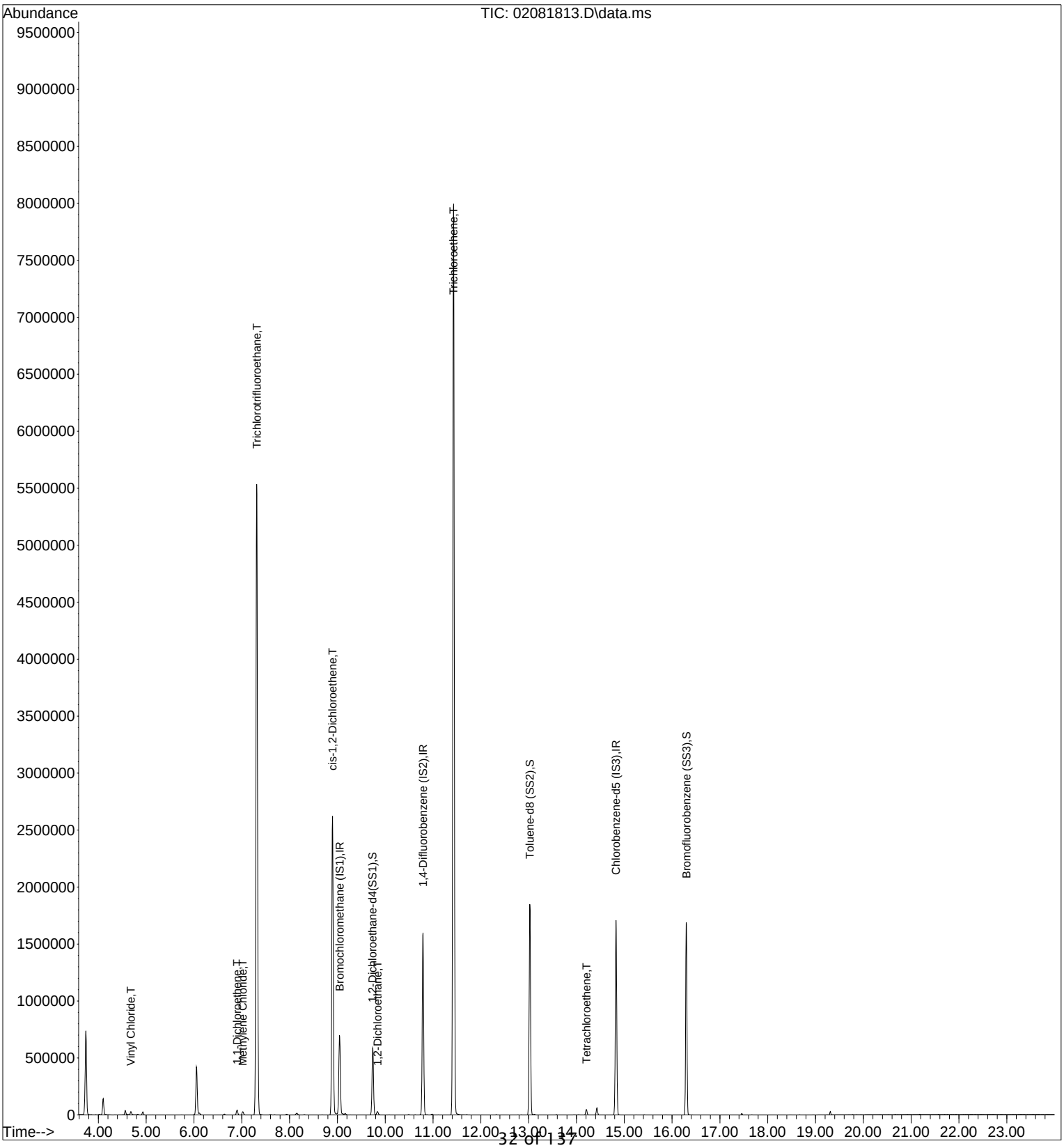
Quant Time: Feb 08 17:51:00 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D. d	
51) n-Heptane	11.69	71	454	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	12.84	97	687	N.D.	
58) Toluene	13.12	91	5843	N.D.	
59) 2-Hexanone	13.29	43	282	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.05	43	471	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.21	166	18486	0.454 ng	99
65) Chlorobenzene	14.89	112	177	N.D.	
66) Ethylbenzene	15.25	91	1319	N.D.	
67) m- & p-Xylenes	15.41	91	2387	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	15.77	104	264	N.D.	
70) o-Xylene	15.87	91	1373	N.D.	
71) n-Nonane	16.07	43	289	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	16.30	105	768	N.D.	
75) alpha-Pinene	16.81	93	234	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	17.02	105	360	N.D.	
78) 4-Ethyltoluene	17.05	105	128	N.D.	
79) 1,3,5-Trimethylbenzene	17.12	105	107	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	17.30	105	108	N.D.	
82) 1,2,4-Trimethylbenzene	17.52	105	720	N.D.	
83) n-Decane	17.60	57	144	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	17.91	105	174	N.D.	
88) 4-Isopropyltoluene (p-...	17.92	119	184	N.D.	
89) 1,2,3-Trimethylbenzene	17.91	105	174	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	18.06	68	218	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	18.80	57	333	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	19.78	128	575	N.D.	
96) n-Dodecane	19.78	57	590	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	17.46	119	268	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\08\02081813.D
Acq On : 8 Feb 2018 10:04 Operator: WA
Sample : P1800459-001 (3.0mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:51:00 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\08\02081813.D
Acq On : 8 Feb 2018 10:04 Operator: WA
Sample : P1800459-001 (3.0mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:51:00 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

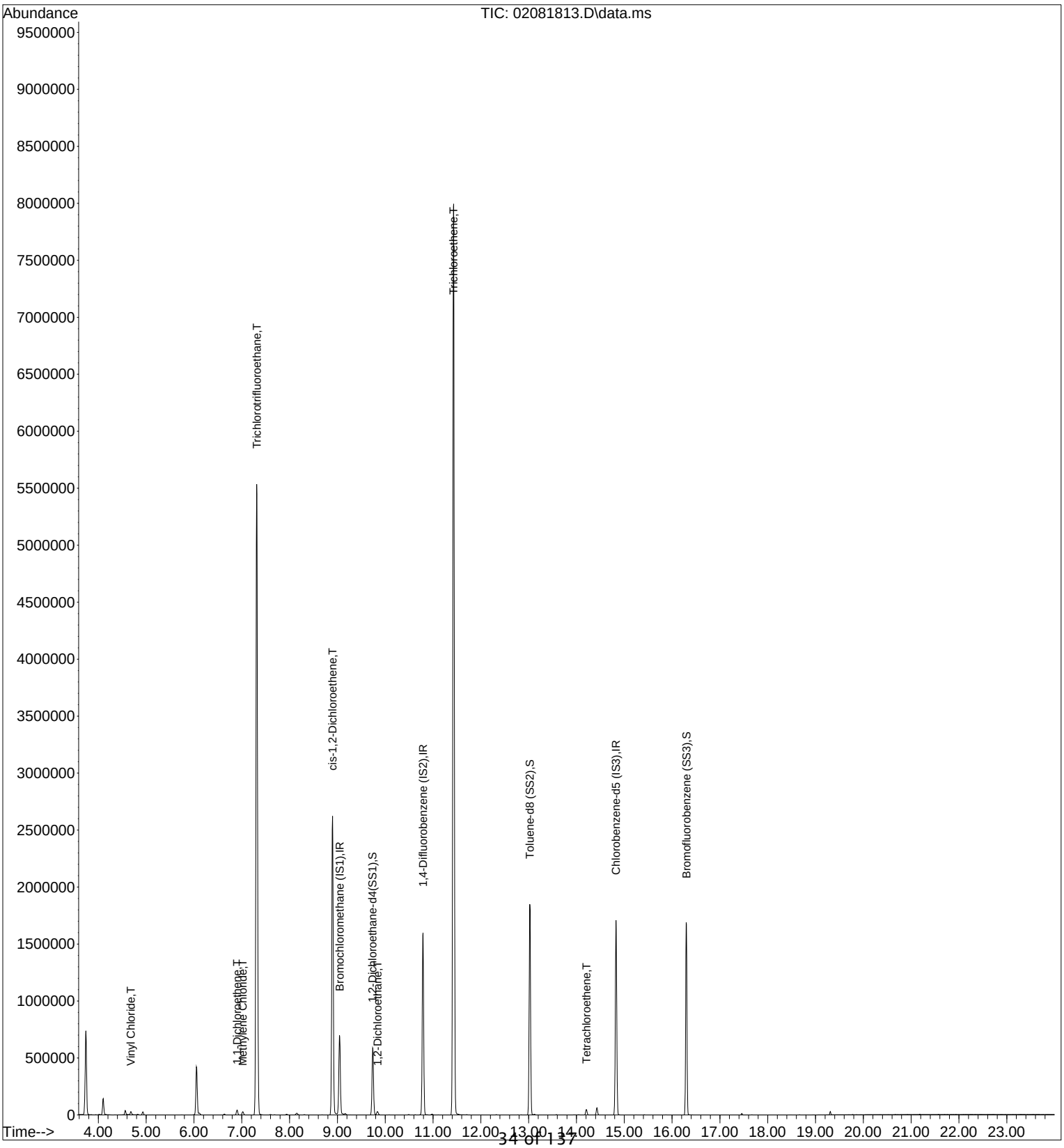
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.05	130	332790	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	10.79	114	1537967	12.500	ng	-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	608213	12.500	ng	-0.01
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	9.74	65	457191	12.864	ng	-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.88%			
57) Toluene-d8 (SS2)	13.02	98	1484400	12.564	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.48%			
73) Bromofluorobenzene (SS3)	16.30	174	625190	12.005	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.08%			
Target Compounds						Qvalue
6) Vinyl Chloride	4.68	62	31133	0.821	ng	99
17) 1,1-Dichloroethene	6.90	96	19770	0.689	ng	95
19) Methylene Chloride	7.02	84	16040	0.535	ng	87
21) Trichlorotrifluoroethane	7.32	151	2349644	73.876	ng	98
28) cis-1,2-Dichloroethene	8.90	61	1572014	45.320	ng	99
36) 1,2-Dichloroethane	9.84	62	26323	0.710	ng	97
47) Trichloroethene	11.43	130	3279532	89.540	ng	100
64) Tetrachloroethene	14.21	166	18486	0.454	ng	99

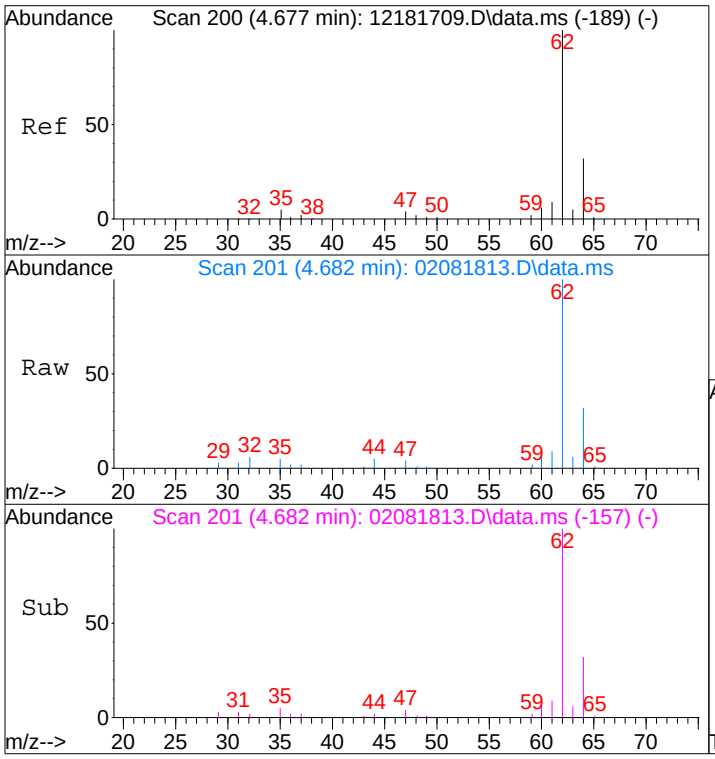
(#) = qualifier out of range (m) = manual integration (+) = signals summed

00870439

Data File: I:\MS08\Data\2018 02\08\02081813.D
Acq On : 8 Feb 2018 10:04 Operator: WA
Sample : P1800459-001 (3.0mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:51:00 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

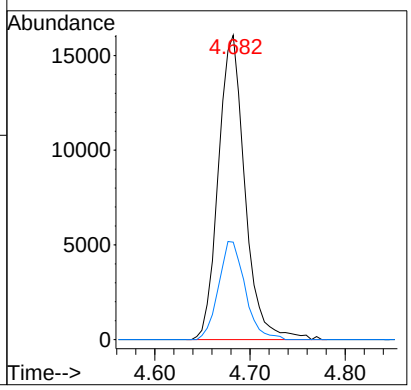


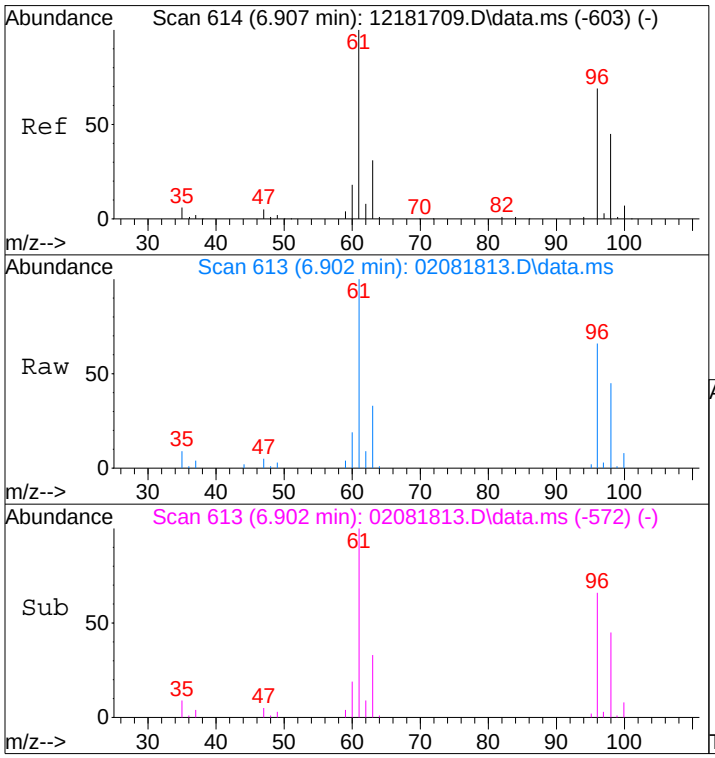


#6
Vinyl Chloride
Concen: 0.82 ng
RT: 4.68 min Scan# 201
Delta R.T. -0.011 min
Lab File: 02081813.D
Acq: 8 Feb 2018 10:04

Tgt Ion: 62 Resp: 31133

Ion	Ratio	Lower	Upper
62	100		
64	32.2	11.9	51.9

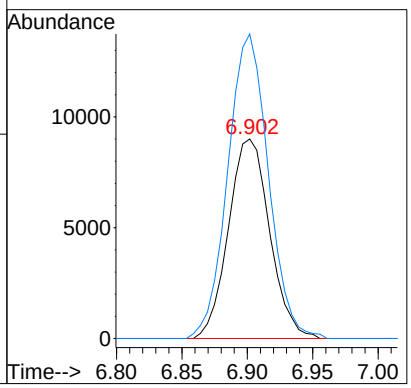


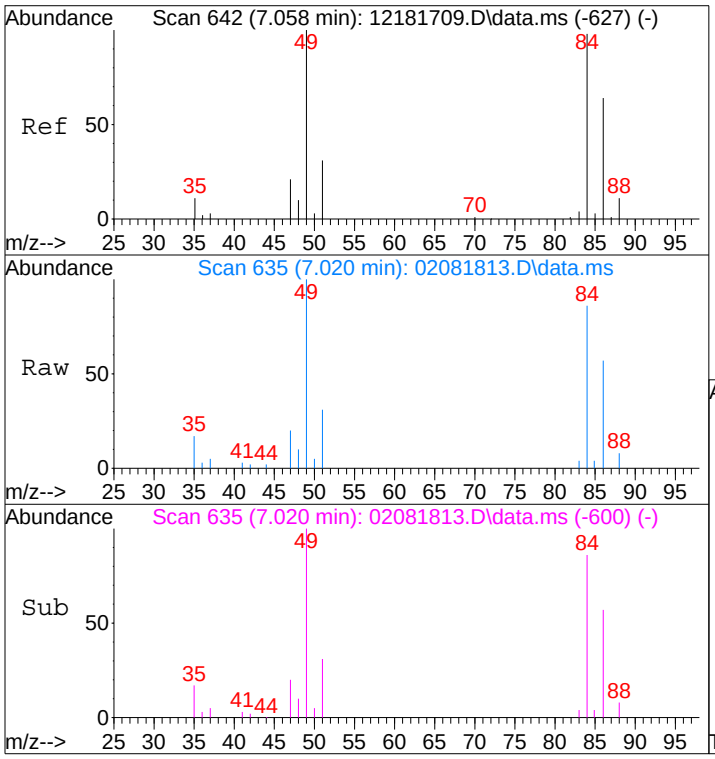


#17
1,1-Dichloroethene
Concen: 0.69 ng
RT: 6.90 min Scan# 613
Delta R.T. -0.027 min
Lab File: 02081813.D
Acq: 8 Feb 2018 10:04

Tgt Ion: 96 Resp: 19770

Ion	Ratio	Lower	Upper
96	100		
61	150.3	124.6	164.6

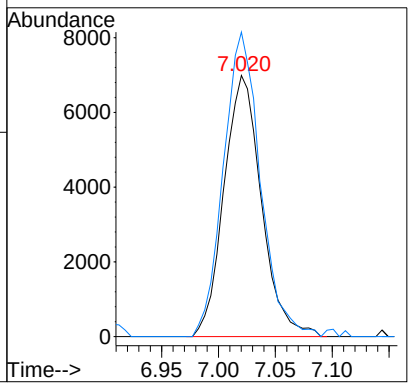


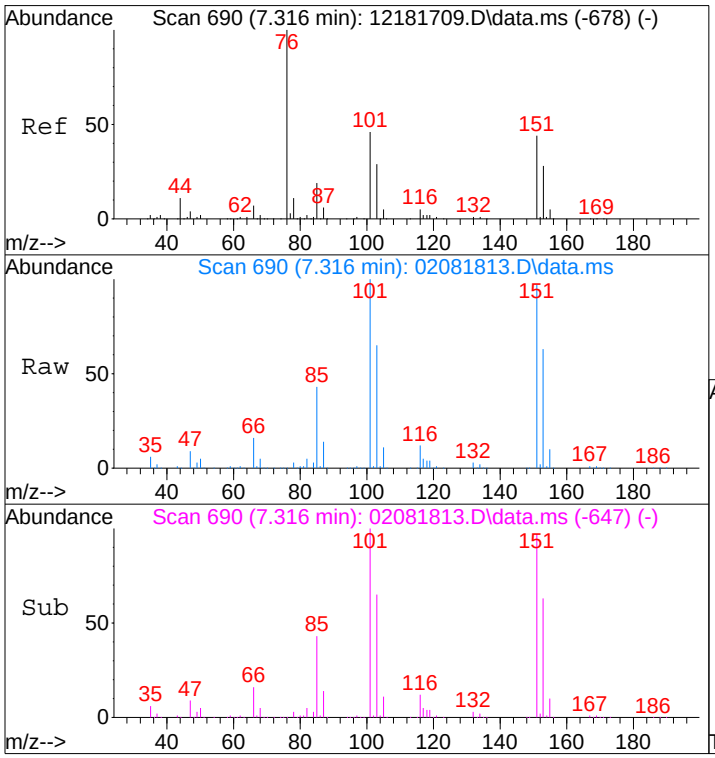


#19
Methylene Chloride
Concen: 0.53 ng
RT: 7.02 min Scan# 635
Delta R.T. -0.059 min
Lab File: 02081813.D
Acq: 8 Feb 2018 10:04

Tgt Ion: 84 Resp: 16040

Ion	Ratio	Lower	Upper
84	100		
49	115.0	76.8	126.8

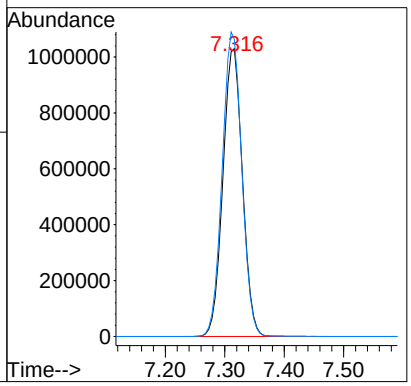


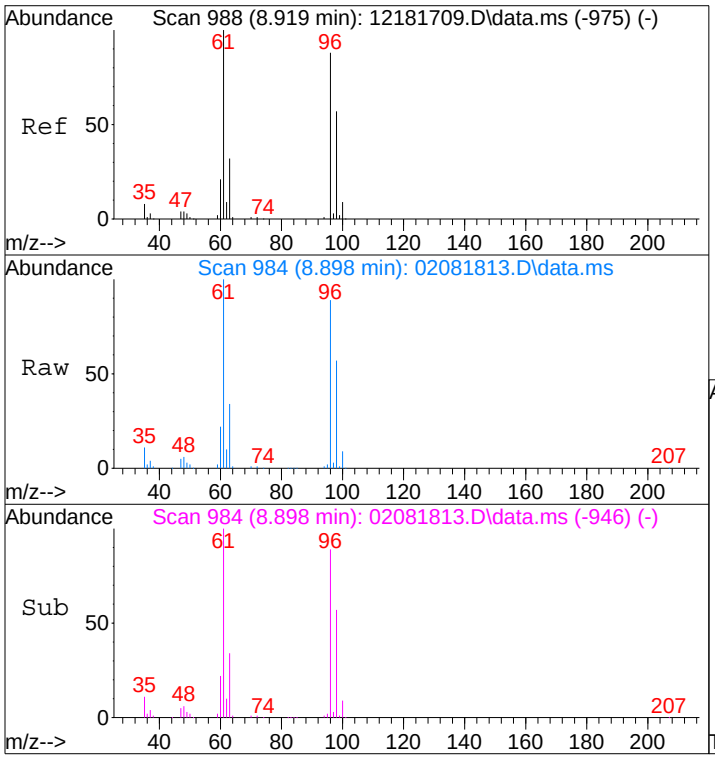


#21
Trichlorotrifluoroethane
Concen: 73.88 ng
RT: 7.32 min Scan# 690
Delta R.T. -0.016 min
Lab File: 02081813.D
Acq: 8 Feb 2018 10:04

Tgt Ion:151 Resp: 2349644

Ion	Ratio	Lower	Upper
151	100		
101	105.9	83.9	123.9

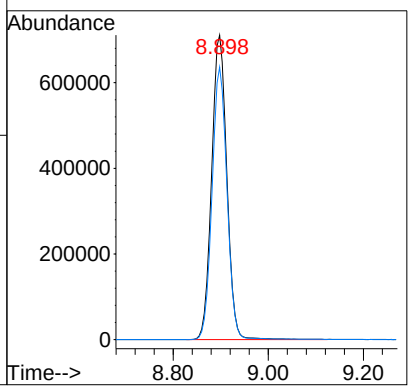


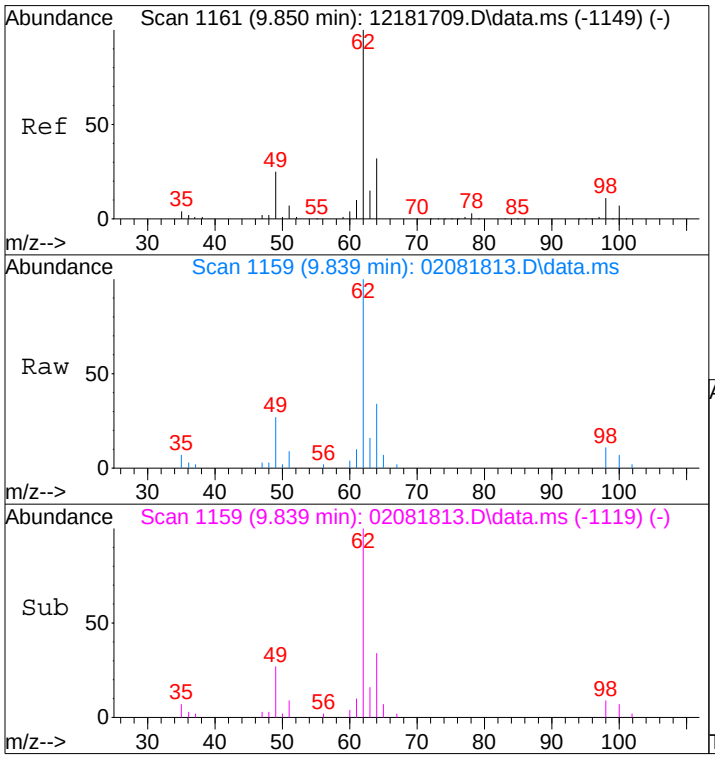


#28
cis-1,2-Dichloroethene
Concen: 45.32 ng
RT: 8.90 min Scan# 984
Delta R.T. -0.043 min
Lab File: 02081813.D
Acq: 8 Feb 2018 10:04

Tgt Ion: 61 Resp: 1572014

Ion	Ratio	Lower	Upper
61	100		
96	88.5	67.6	107.6

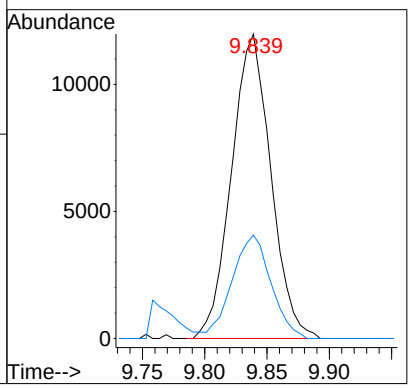


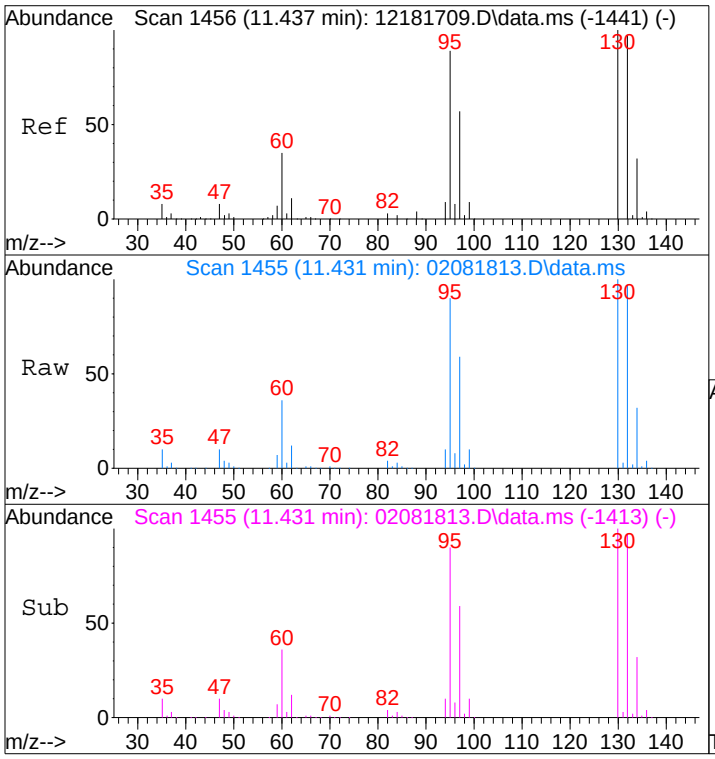


#36
1,2-Dichloroethane
Concen: 0.71 ng
RT: 9.84 min Scan# 1159
Delta R.T. -0.032 min
Lab File: 02081813.D
Acq: 8 Feb 2018 10:04

Tgt Ion: 62 Resp: 26323

Ion	Ratio	Lower	Upper
62	100		
64	33.3	11.8	51.8

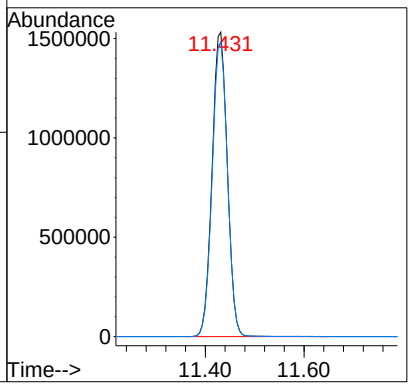


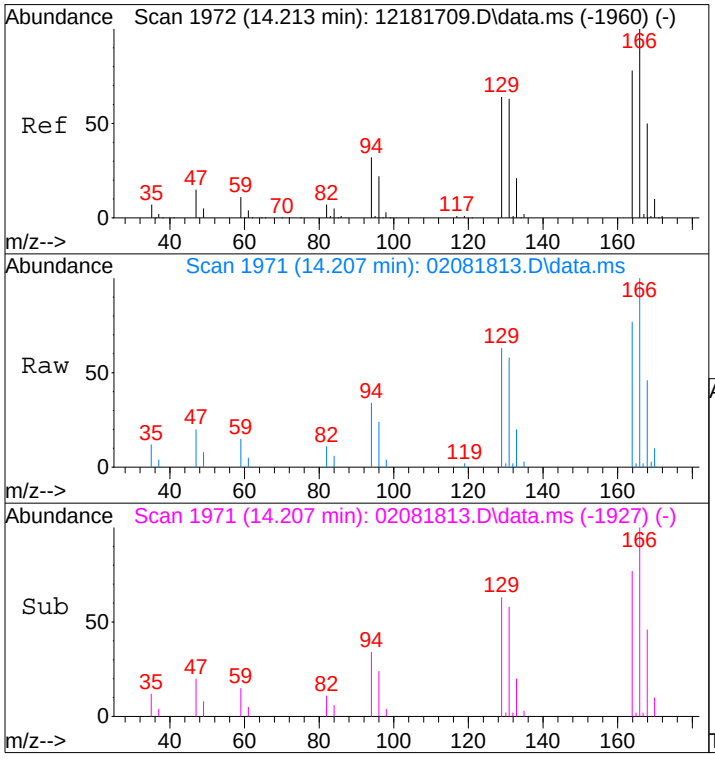


#47
Trichloroethene
Concen: 89.54 ng
RT: 11.43 min Scan# 1455
Delta R.T. -0.022 min
Lab File: 02081813.D
Acq: 8 Feb 2018 10:04

Tgt Ion:130 Resp: 3279532

Ion	Ratio	Lower	Upper
130	100		
132	97.1	77.3	117.3

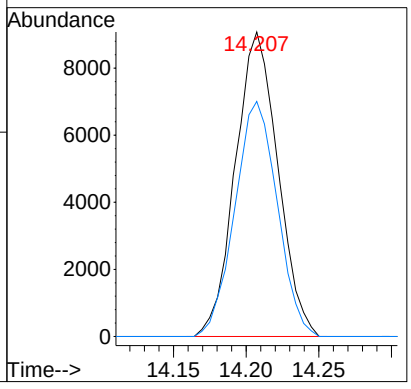




#64
Tetrachloroethene
Concen: 0.45 ng
RT: 14.21 min Scan# 1971
Delta R.T. -0.011 min
Lab File: 02081813.D
Acq: 8 Feb 2018 10:04

Tgt Ion:166 Resp: 18486

Ion	Ratio	Lower	Upper
166	100		
164	77.1	58.3	98.3



Data File: I:\MS08\Data\2018 02\08\02081814.D
Acq On : 8 Feb 2018 10:43 Operator: AB
Sample : P1800459-002 (4.5mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:52:29 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	332652	12.500	ng	-0.05
37) 1,4-Difluorobenzene (IS2)	10.79	114	1544567	12.500	ng	-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	609738	12.500	ng	-0.01
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	9.74	65	462239	13.011	ng	-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.08%			
57) Toluene-d8 (SS2)	13.02	98	1491565	12.593	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.72%			
73) Bromofluorobenzene (SS3)	16.30	174	629060	12.049	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.40%			
Target Compounds						Qvalue
2) Propene	4.09	42	8843	N.D.		
3) Dichlorodifluoromethan...	4.19	85	396	N.D.		
4) Chloromethane	4.39	50	165	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	4.67	62	37529	0.990	ng	100
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	5.61	45	688	N.D.		
11) Acetonitrile	0.00	41	0	N.D.		
12) Acrolein	6.10	56	1268	N.D.		
13) Acetone	6.12	58	2906	N.D.		
14) Trichlorofluoromethane	6.25	101	201	N.D.		
15) 2-Propanol (Isopropanol)	6.41	45	899	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	6.90	96	24038	0.838	ng	95
18) 2-Methyl-2-Propanol (t...	6.90	59	1250	N.D.		
19) Methylene Chloride	7.01	84	19399	0.647	ng	88
20) 3-Chloro-1-propene (Al...	7.02	41	526	N.D.		
21) Trichlorotrifluoroethane	7.31	151	2781687	87.496	ng	98
22) Carbon Disulfide	7.29	76	12847	N.D.		
23) trans-1,2-Dichloroethene	7.93	61	5652	N.D.		
24) 1,1-Dichloroethane	8.13	63	6271	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	8.90	61	1985976	57.279	ng	99
29) Diisopropyl Ether	9.17	87	960	N.D.		
30) Ethyl Acetate	9.26	61	297	N.D.		
31) n-Hexane	9.11	57	1602	N.D.		
32) Chloroform	9.17	83	10087	N.D.		
34) Tetrahydrofuran (THF)	9.55	72	236	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	9.83	62	34395	0.928	ng	98
38) 1,1,1-Trichloroethane	10.08	97	1141	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	10.43	56	108	N.D.		
41) Benzene	10.49	78	4864	N.D.		
42) Carbon Tetrachloride	10.62	117	1742	N.D.		
43) Cyclohexane	10.74	84	4792	N.D.		
44) tert-Amyl Methyl Ether	10.79	73	15853	N.D.		
45) 1,2-Dichloropropane	11.43	63	10934	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	11.43	130	4188317	113.863	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	11.48	57	230	N.D.		

Data File: I:\MS08\Data\2018 02\08\02081814.D
Acq On : 8 Feb 2018 10:43 Operator: AB
Sample : P1800459-002 (4.5mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:52:29 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

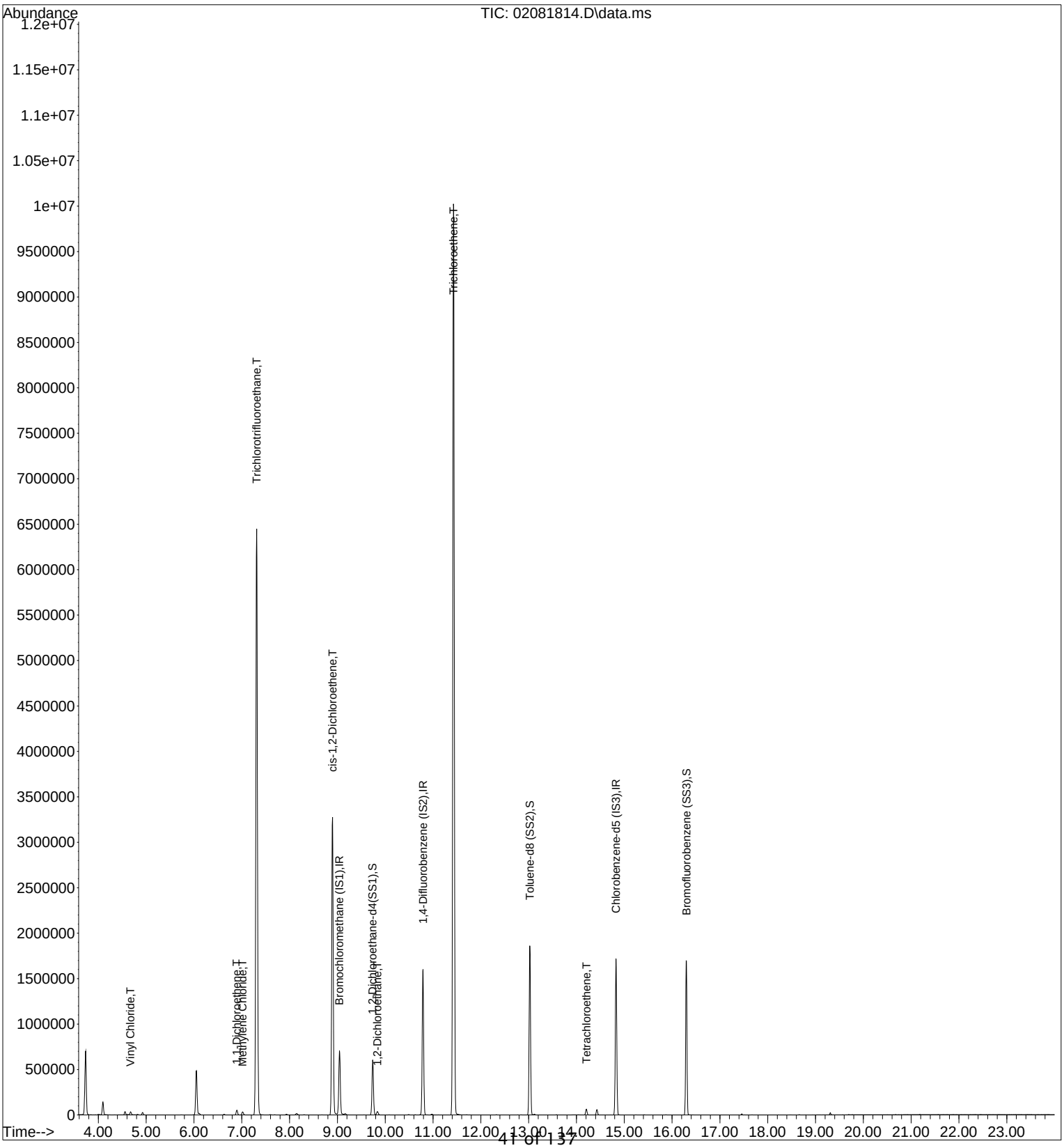
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D. d	
51) n-Heptane	11.70	71	448	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	12.85	97	914	N.D.	
58) Toluene	13.12	91	7398	N.D.	
59) 2-Hexanone	13.29	43	309	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.05	43	486	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.21	166	23982	0.588 ng	100
65) Chlorobenzene	14.87	112	240	N.D.	
66) Ethylbenzene	15.25	91	2058	N.D.	
67) m- & p-Xylenes	15.41	91	3077	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	15.77	104	411	N.D.	
70) o-Xylene	15.87	91	1704	N.D.	
71) n-Nonane	16.07	43	294	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	16.30	105	781	N.D.	
75) alpha-Pinene	16.81	93	214	N.D.	
76) n-Propylbenzene	16.91	91	114	N.D.	
77) 3-Ethyltoluene	17.02	105	596	N.D.	
78) 4-Ethyltoluene	17.05	105	310	N.D.	
79) 1,3,5-Trimethylbenzene	17.12	105	164	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	17.31	105	290	N.D.	
82) 1,2,4-Trimethylbenzene	17.52	105	1005	N.D.	
83) n-Decane	17.60	57	270	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	17.91	105	263	N.D.	
88) 4-Isopropyltoluene (p-...	17.92	119	202	N.D.	
89) 1,2,3-Trimethylbenzene	17.91	105	263	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	18.05	68	267	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	18.80	57	344	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	19.78	128	737	N.D.	
96) n-Dodecane	19.78	57	614	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	17.46	119	251	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\08\02081814.D
Acq On : 8 Feb 2018 10:43 Operator: AB
Sample : P1800459-002 (4.5mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:52:29 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\08\02081814.D
Acq On : 8 Feb 2018 10:43 Operator: AB
Sample : P1800459-002 (4.5mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:52:29 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

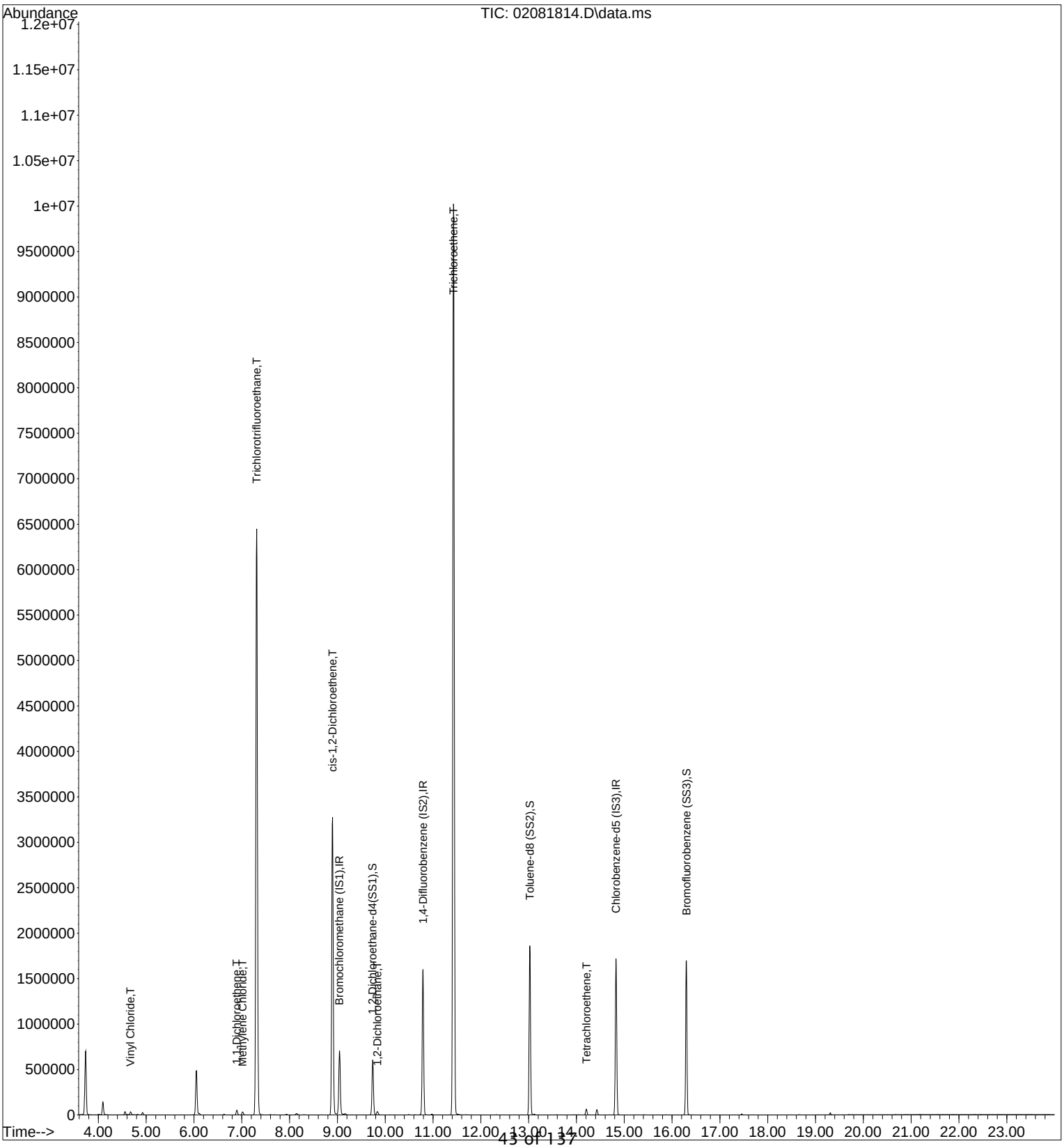
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	332652	12.500	ng	-0.05
37) 1,4-Difluorobenzene (IS2)	10.79	114	1544567	12.500	ng	-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	609738	12.500	ng	-0.01
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	9.74	65	462239	13.011	ng	-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.08%			
57) Toluene-d8 (SS2)	13.02	98	1491565	12.593	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.72%			
73) Bromofluorobenzene (SS3)	16.30	174	629060	12.049	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.40%			
Target Compounds						Qvalue
6) Vinyl Chloride	4.67	62	37529	0.990	ng	100
17) 1,1-Dichloroethene	6.90	96	24038	0.838	ng	95
19) Methylene Chloride	7.01	84	19399	0.647	ng	88
21) Trichlorotrifluoroethane	7.31	151	2781687	87.496	ng	98
28) cis-1,2-Dichloroethene	8.90	61	1985976	57.279	ng	99
36) 1,2-Dichloroethane	9.83	62	34395	0.928	ng	98
47) Trichloroethene	11.43	130	4188317	113.863	ng	100
64) Tetrachloroethene	14.21	166	23982	0.588	ng	100

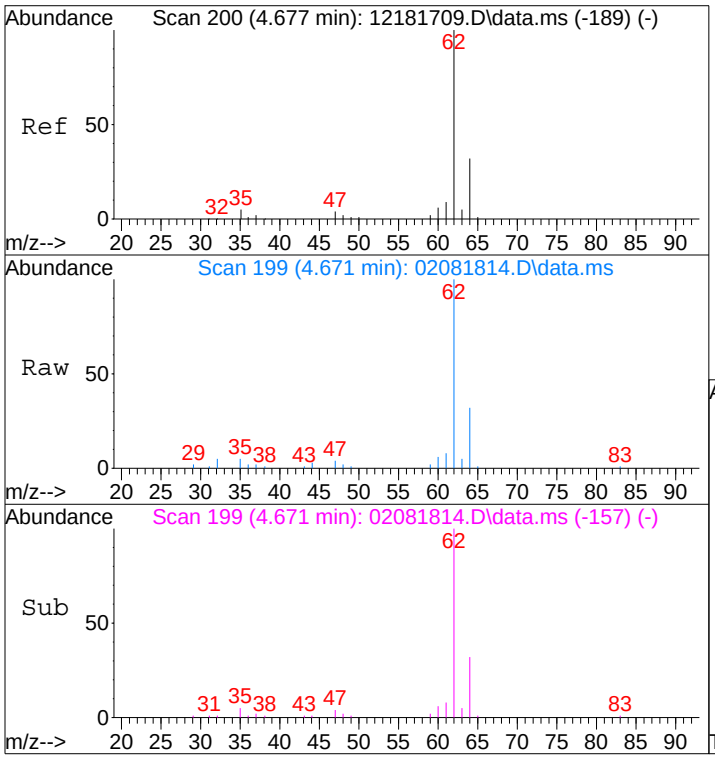
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\08\02081814.D
Acq On : 8 Feb 2018 10:43 Operator: AB
Sample : P1800459-002 (4.5mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:52:29 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

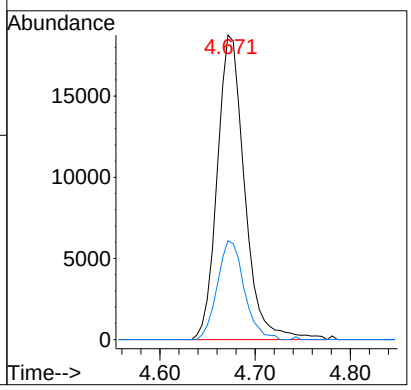


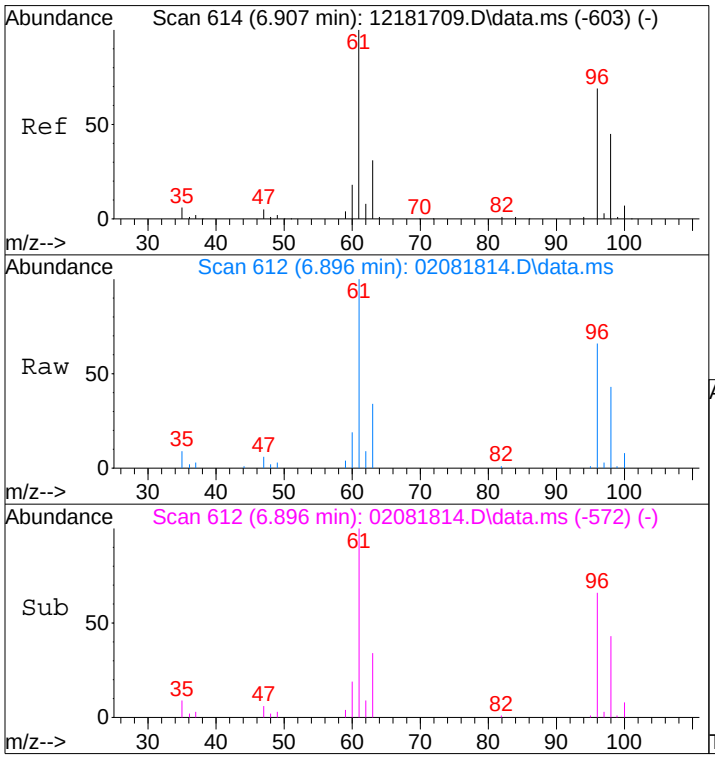


#6
Vinyl Chloride
Concen: 0.99 ng
RT: 4.67 min Scan# 199
Delta R.T. -0.022 min
Lab File: 02081814.D
Acq: 8 Feb 2018 10:43

Tgt Ion: 62 Resp: 37529

Ion	Ratio	Lower	Upper
62	100		
64	31.8	11.9	51.9

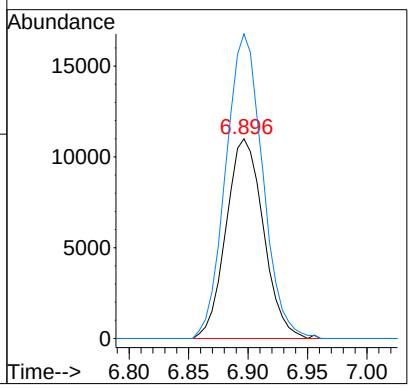


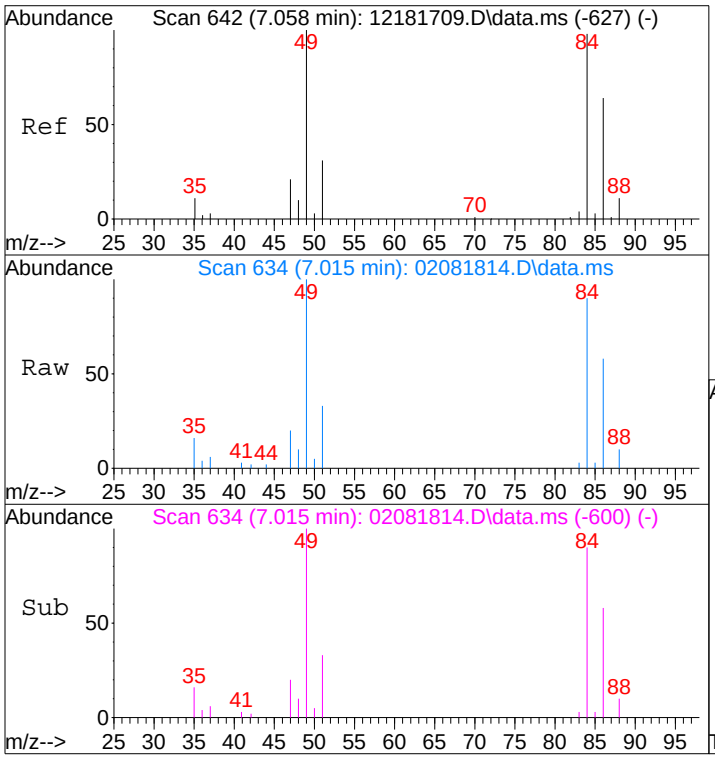


#17
1,1-Dichloroethene
Concen: 0.84 ng
RT: 6.90 min Scan# 612
Delta R.T. -0.032 min
Lab File: 02081814.D
Acq: 8 Feb 2018 10:43

Tgt Ion: 96 Resp: 24038

Ion	Ratio	Lower	Upper
96	100		
61	150.8	124.6	164.6

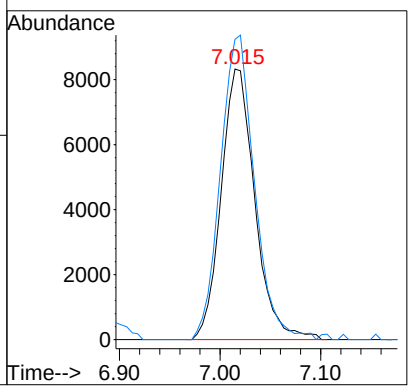


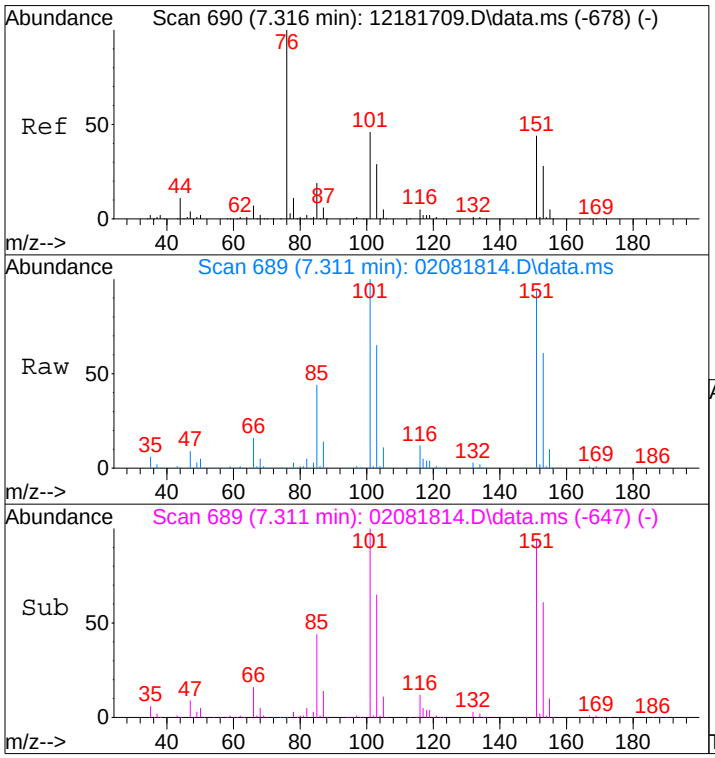


#19
Methylene Chloride
Concen: 0.65 ng
RT: 7.01 min Scan# 634
Delta R.T. -0.064 min
Lab File: 02081814.D
Acq: 8 Feb 2018 10:43

Tgt Ion: 84 Resp: 19399

Ion	Ratio	Lower	Upper
84	100		
49	113.5	76.8	126.8

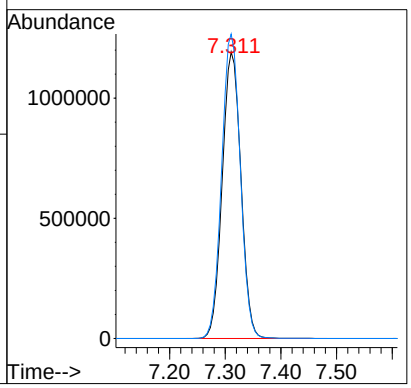


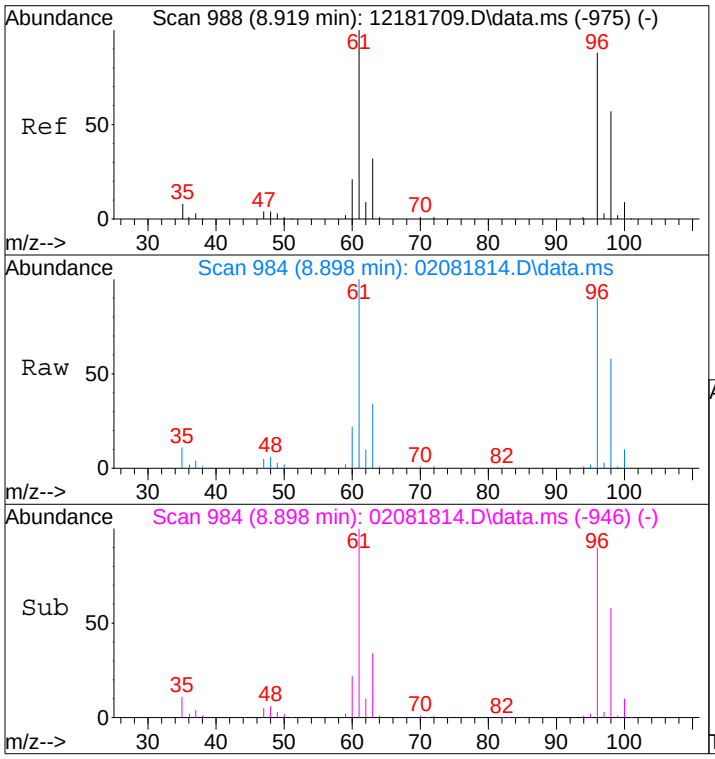


#21
Trichlorotrifluoroethane
Concen: 87.50 ng
RT: 7.31 min Scan# 689
Delta R.T. -0.021 min
Lab File: 02081814.D
Acq: 8 Feb 2018 10:43

Tgt Ion:151 Resp: 2781687

Ion	Ratio	Lower	Upper
151	100		
101	106.1	83.9	123.9

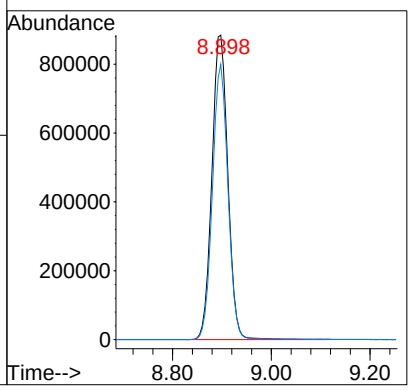


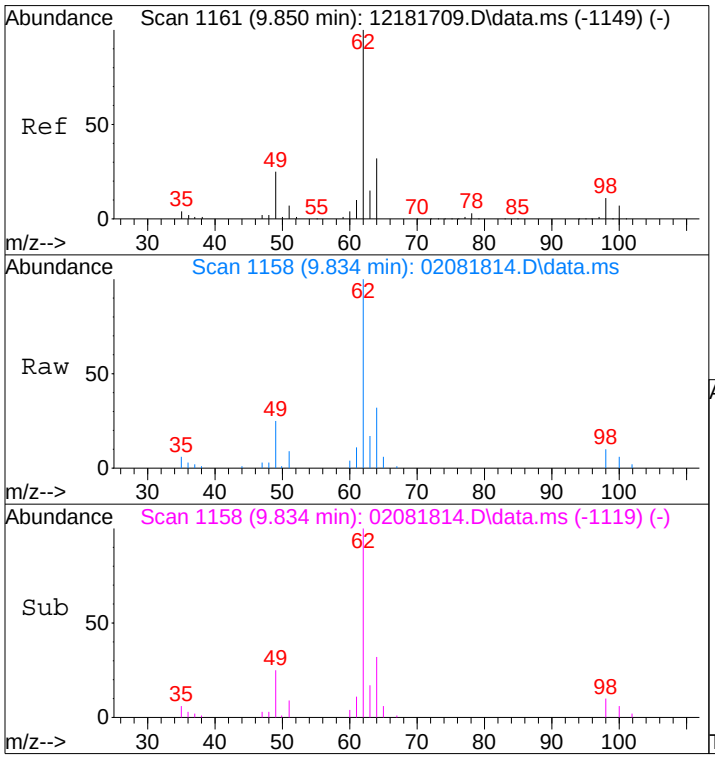


#28
cis-1,2-Dichloroethene
Concen: 57.28 ng
RT: 8.90 min Scan# 984
Delta R.T. -0.043 min
Lab File: 02081814.D
Acq: 8 Feb 2018 10:43

Tgt Ion: 61 Resp: 1985976

Ion	Ratio	Lower	Upper
61	100		
96	88.2	67.6	107.6

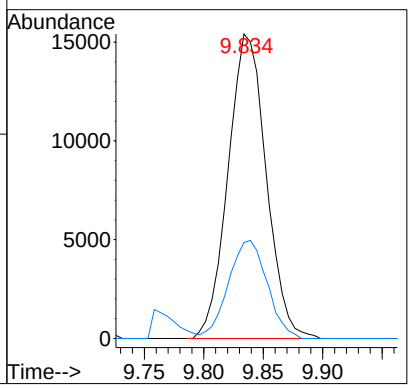


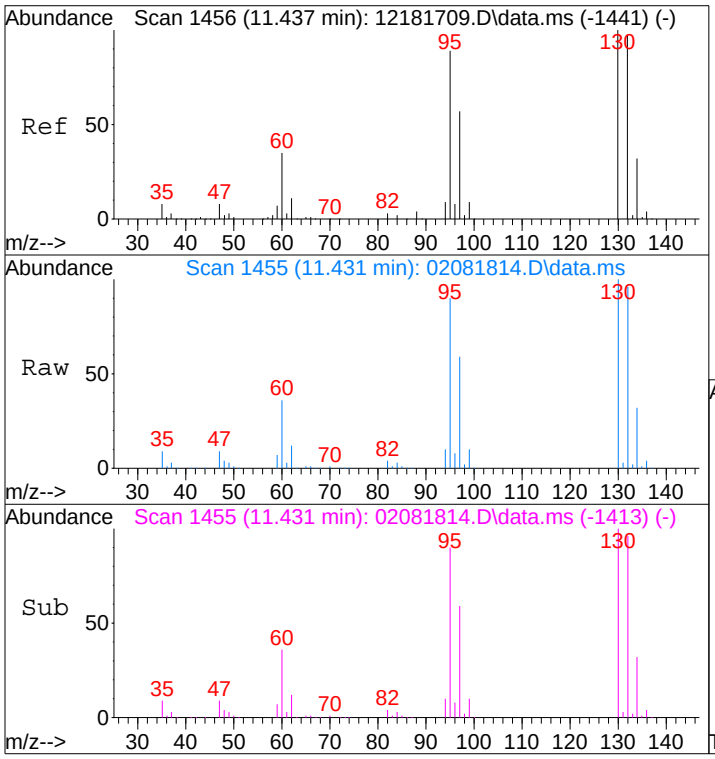


#36
1,2-Dichloroethane
Concen: 0.93 ng
RT: 9.83 min Scan# 1158
Delta R.T. -0.038 min
Lab File: 02081814.D
Acq: 8 Feb 2018 10:43

Tgt Ion: 62 Resp: 34395

Ion	Ratio	Lower	Upper
62	100		
64	32.7	11.8	51.8

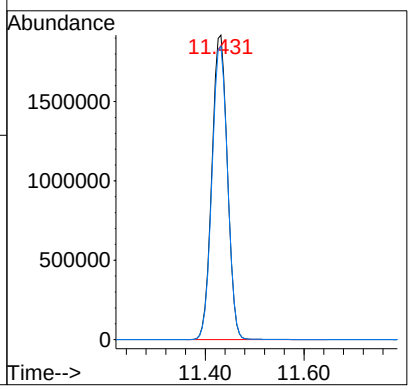


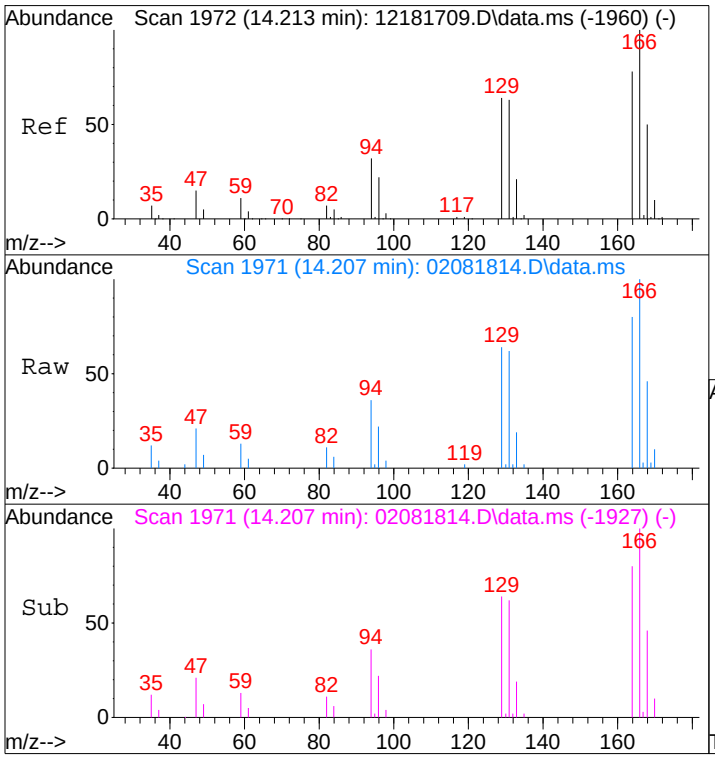


#47
Trichloroethene
Concen: 113.86 ng
RT: 11.43 min Scan# 1455
Delta R.T. -0.021 min
Lab File: 02081814.D
Acq: 8 Feb 2018 10:43

Tgt Ion:130 Resp: 4188317

Ion	Ratio	Lower	Upper
130	100		
132	96.9	77.3	117.3

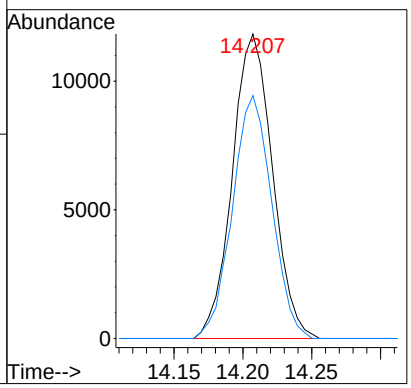




#64
Tetrachloroethene
Concen: 0.59 ng
RT: 14.21 min Scan# 1971
Delta R.T. -0.011 min
Lab File: 02081814.D
Acq: 8 Feb 2018 10:43

Tgt Ion:166 Resp: 23982

Ion	Ratio	Lower	Upper
166	100		
164	78.3	58.3	98.3



Data File: I:\MS08\Data\2018 02\08\02081815.D
Acq On : 8 Feb 2018 11:15 Operator: AB
Sample : P1800459-002dil (2.0mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:53:07 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	323233	12.500	ng	-0.05
37) 1,4-Difluorobenzene (IS2)	10.79	114	1514523	12.500	ng	-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	598792	12.500	ng	-0.01
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	9.74	65	455712	13.202	ng	-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.60%			
57) Toluene-d8 (SS2)	13.02	98	1470206	12.640	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.12%			
73) Bromofluorobenzene (SS3)	16.30	174	614857	11.992	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.92%			
Target Compounds						Qvalue
2) Propene	4.09	42	8799	N.D.		
3) Dichlorodifluoromethan...	4.10	85	1254	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	4.68	62	17254	0.469	ng	99
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	5.62	45	253	N.D.		
11) Acetonitrile	0.00	41	0	N.D.		
12) Acrolein	6.10	56	1219	N.D.		
13) Acetone	6.12	58	2516	N.D.		
14) Trichlorofluoromethane	6.05	101	1070	N.D.		
15) 2-Propanol (Isopropanol)	6.41	45	720	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	6.90	96	10938	N.D.		
18) 2-Methyl-2-Propanol (t...	6.90	59	499	N.D.		
19) Methylene Chloride	7.01	84	10050	N.D.		
20) 3-Chloro-1-propene (Al...	7.02	41	105	N.D.		
21) Trichlorotrifluoroethane	7.31	151	1289214	41.733	ng	99
22) Carbon Disulfide	7.30	76	11176	N.D.		
23) trans-1,2-Dichloroethene	7.93	61	2270	N.D.		
24) 1,1-Dichloroethane	8.12	63	2798	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	8.89	61	859725	25.518	ng	99
29) Diisopropyl Ether	9.17	87	384	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	9.11	57	1520	N.D.		
32) Chloroform	9.16	83	4476	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	9.83	62	14672	N.D.		
38) 1,1,1-Trichloroethane	10.07	97	397	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.		
41) Benzene	10.49	78	2552	N.D.		
42) Carbon Tetrachloride	10.62	117	716	N.D.		
43) Cyclohexane	10.74	84	2363	N.D.		
44) tert-Amyl Methyl Ether	10.79	73	15666	N.D.		
45) 1,2-Dichloropropane	11.43	63	4601	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	11.43	130	1843412	51.109	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		

Data File: I:\MS08\Data\2018 02\08\02081815.D
Acq On : 8 Feb 2018 11:15 Operator: AB
Sample : P1800459-002dil (2.0mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:53:07 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

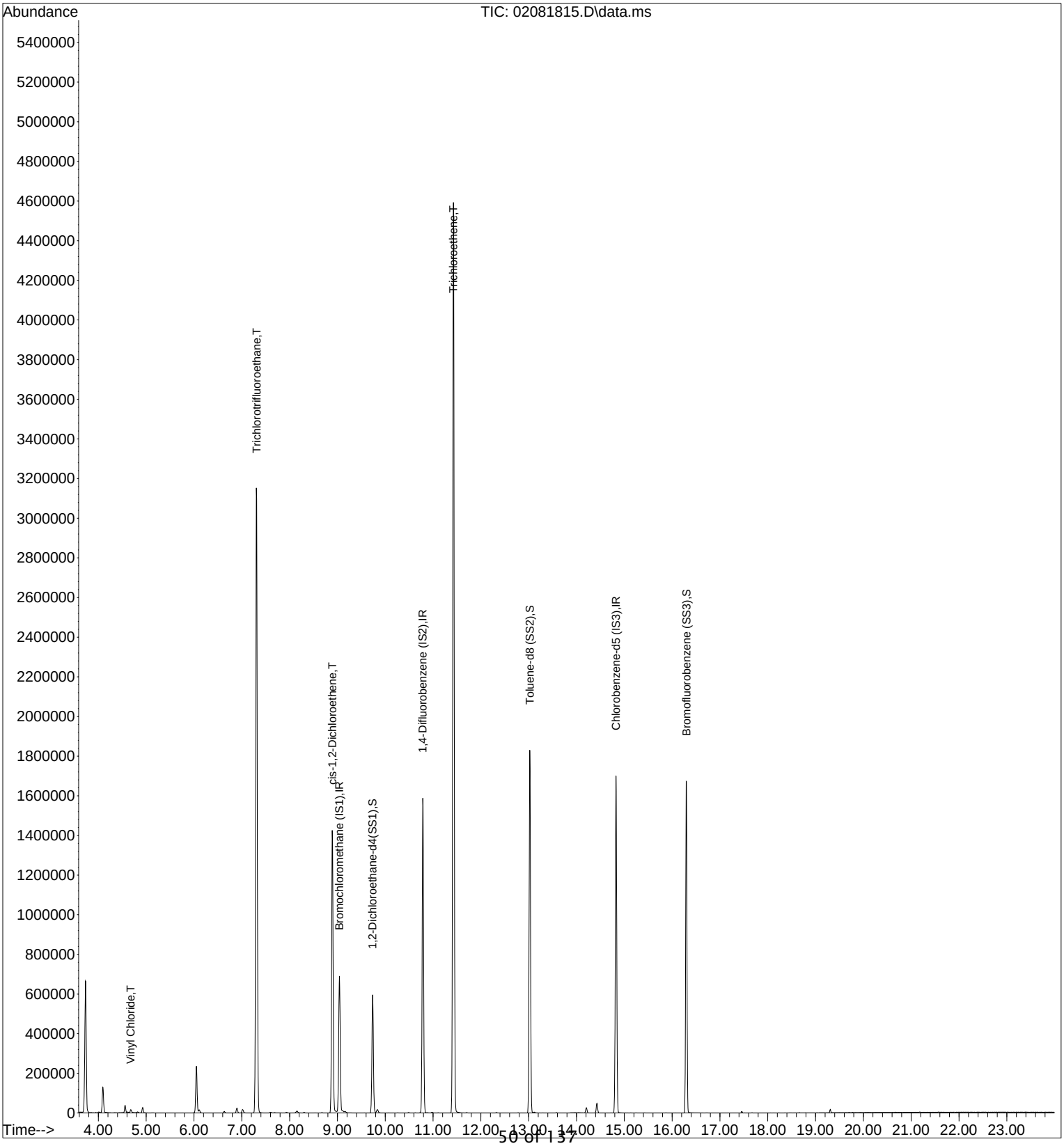
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
50) Methyl Methacrylate	11.43	100	3980	N.D.	
51) n-Heptane	11.69	71	348	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	12.84	97	209	N.D.	
58) Toluene	13.12	91	3899	N.D.	
59) 2-Hexanone	13.29	43	179	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.05	43	378	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.21	166	9946	N.D.	
65) Chlorobenzene	14.87	112	124	N.D.	
66) Ethylbenzene	15.25	91	844	N.D.	
67) m- & p-Xylenes	15.42	91	1319	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	15.87	91	724	N.D.	
71) n-Nonane	16.07	43	246	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	16.30	105	714	N.D.	
75) alpha-Pinene	16.81	93	175	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	17.01	105	183	N.D.	
78) 4-Ethyltoluene	17.01	105	183	N.D.	
79) 1,3,5-Trimethylbenzene	17.01	105	183	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	17.51	105	379	N.D.	
82) 1,2,4-Trimethylbenzene	17.51	105	379	N.D.	
83) n-Decane	17.60	57	234	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	17.92	119	163	N.D.	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	18.80	57	296	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	19.78	128	283	N.D.	
96) n-Dodecane	19.77	57	458	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	17.47	119	203	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

00870455

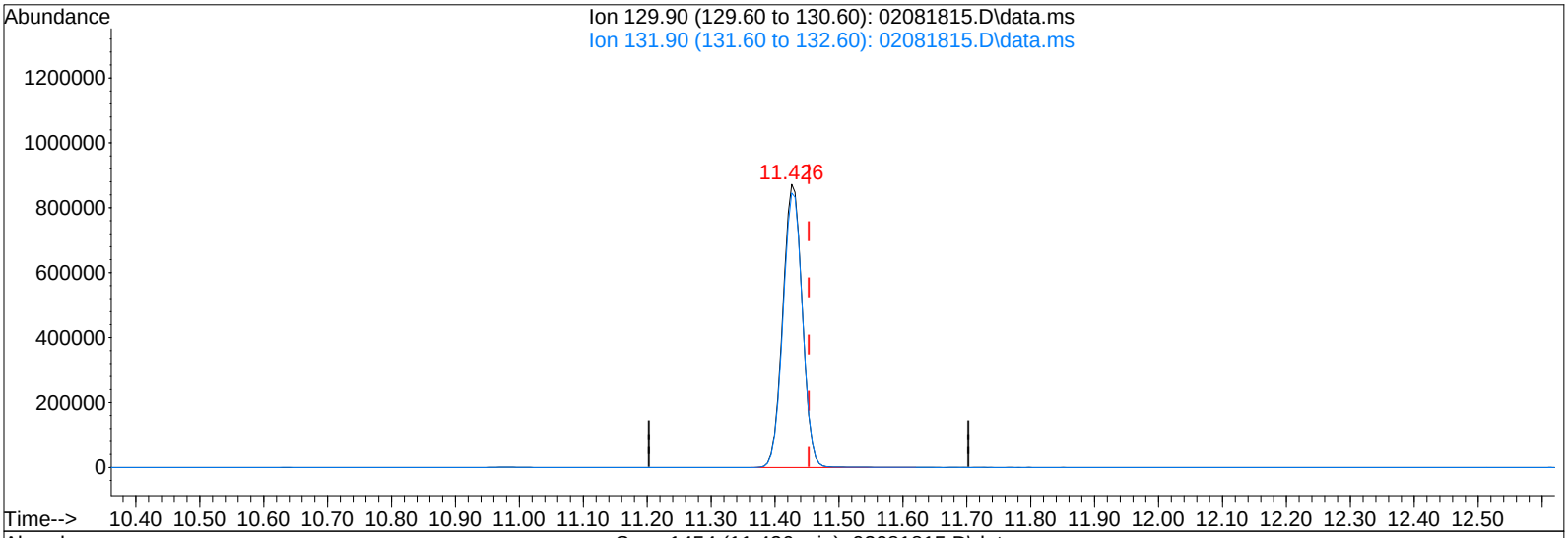
Data File: I:\MS08\Data\2018 02\08\02081815.D
Acq On : 8 Feb 2018 11:15 Operator: AB
Sample : P1800459-002dil (2.0mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

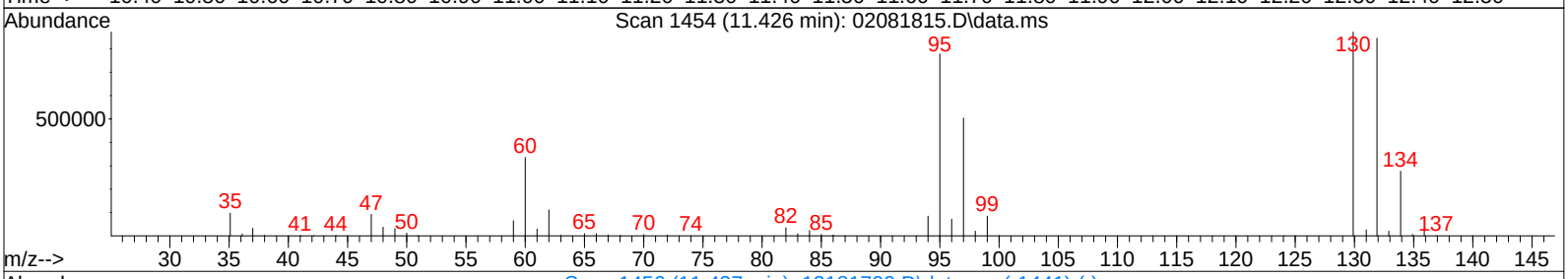
Quant Time: Feb 08 17:53:07 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

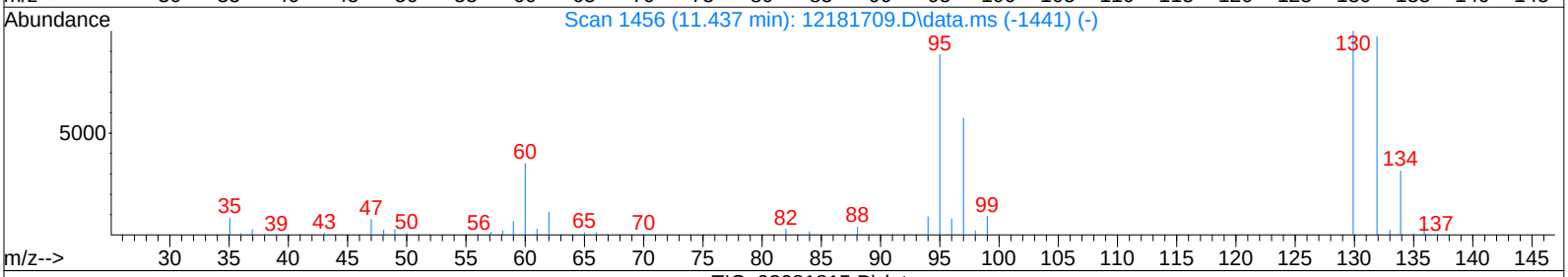


Data File: I:\MS08\Data\2018 02\08\02081815.D
Acq On : 8 Feb 2018 11:15 Operator: AB
Sample : P1800459-002dil (2.0mL)
Misc : S31-01051802
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 08 17:53:07 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 02081815.D\data.ms

(47) Trichloroethene (T)

11.426min (-0.027) 51.11ng

response 1843412

Ion	Exp%	Act%
129.90	100	100
131.90	97.30	97.36
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\08\02081816.D
Acq On : 8 Feb 2018 12:14 Operator: AB
Sample : P1800459-003 (1000mL)
Misc : S31-01051802
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 08 17:53:46 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	329609	12.500	ng		-0.05
37) 1,4-Difluorobenzene (IS2)	10.79	114	1550296	12.500	ng		-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	628650	12.500	ng		-0.01
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.74	65	471171	13.385	ng		-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.12%				
57) Toluene-d8 (SS2)	13.02	98	1529447	12.525	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.16%				
73) Bromofluorobenzene (SS3)	16.30	174	646939	12.019	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.16%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.17	85	91994	1.717	ng		99
4) Chloromethane	4.38	50	10143	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.56	135	2393	N.D.			
6) Vinyl Chloride	4.67	62	213	N.D.			
7) 1,3-Butadiene	4.92	54	304	N.D.			
8) Bromomethane	5.17	94	299	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.60	45	279688	15.715	ng		100
11) Acetonitrile	5.80	41	3490	N.D.			
12) Acrolein	5.94	56	1226	N.D.			
13) Acetone	6.07	58	84124	4.166	ng	#	80
14) Trichlorofluoromethane	6.25	101	43695	0.853	ng		100
15) 2-Propanol (Isopropanol)	6.37	45	82681	1.299	ng		90
16) Acrylonitrile	6.63	53	1278	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	7.00	59	3989	N.D.			
19) Methylene Chloride	7.02	84	7897	N.D.			
20) 3-Chloro-1-propene (Al...	7.08	41	171	N.D.			
21) Trichlorotrifluoroethane	7.31	151	33814	1.073	ng		97
22) Carbon Disulfide	7.29	76	14057	N.D.			
23) trans-1,2-Dichloroethene	8.14	61	1311	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	8.14	73	368	N.D.			
26) Vinyl Acetate	8.26	86	1382	N.D.			
27) 2-Butanone (MEK)	8.49	72	8006	N.D.			
28) cis-1,2-Dichloroethene	8.90	61	17644	0.514	ng		99
29) Diisopropyl Ether	9.09	87	3620	N.D.			
30) Ethyl Acetate	9.09	61	138283	16.681	ng		94
31) n-Hexane	9.11	57	20315	0.625	ng		98
32) Chloroform	9.17	83	3072	N.D.			
34) Tetrahydrofuran (THF)	9.53	72	7234	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	9.84	62	1944	N.D.			
38) 1,1,1-Trichloroethane	10.08	97	218	N.D.			
39) Isopropyl Acetate	10.48	61	100	N.D.			
40) 1-Butanol	0.00	56	0	N.D. d			
41) Benzene	10.48	78	36807	N.D.			
42) Carbon Tetrachloride	10.62	117	12663	N.D.			
43) Cyclohexane	10.74	84	5642	N.D.			
44) tert-Amyl Methyl Ether	10.79	73	16244	N.D.			
45) 1,2-Dichloropropane	11.22	63	242	N.D.			
46) Bromodichloromethane	11.40	83	834	N.D.			
47) Trichloroethene	11.43	130	39229	1.063	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.47	57	5607	N.D.			

Data File: I:\MS08\Data\2018 02\08\02081816.D
Acq On : 8 Feb 2018 12:14 Operator: AB
Sample : P1800459-003 (1000mL)
Misc : S31-01051802
ALS Vial : 13 Sample Multiplier: 1

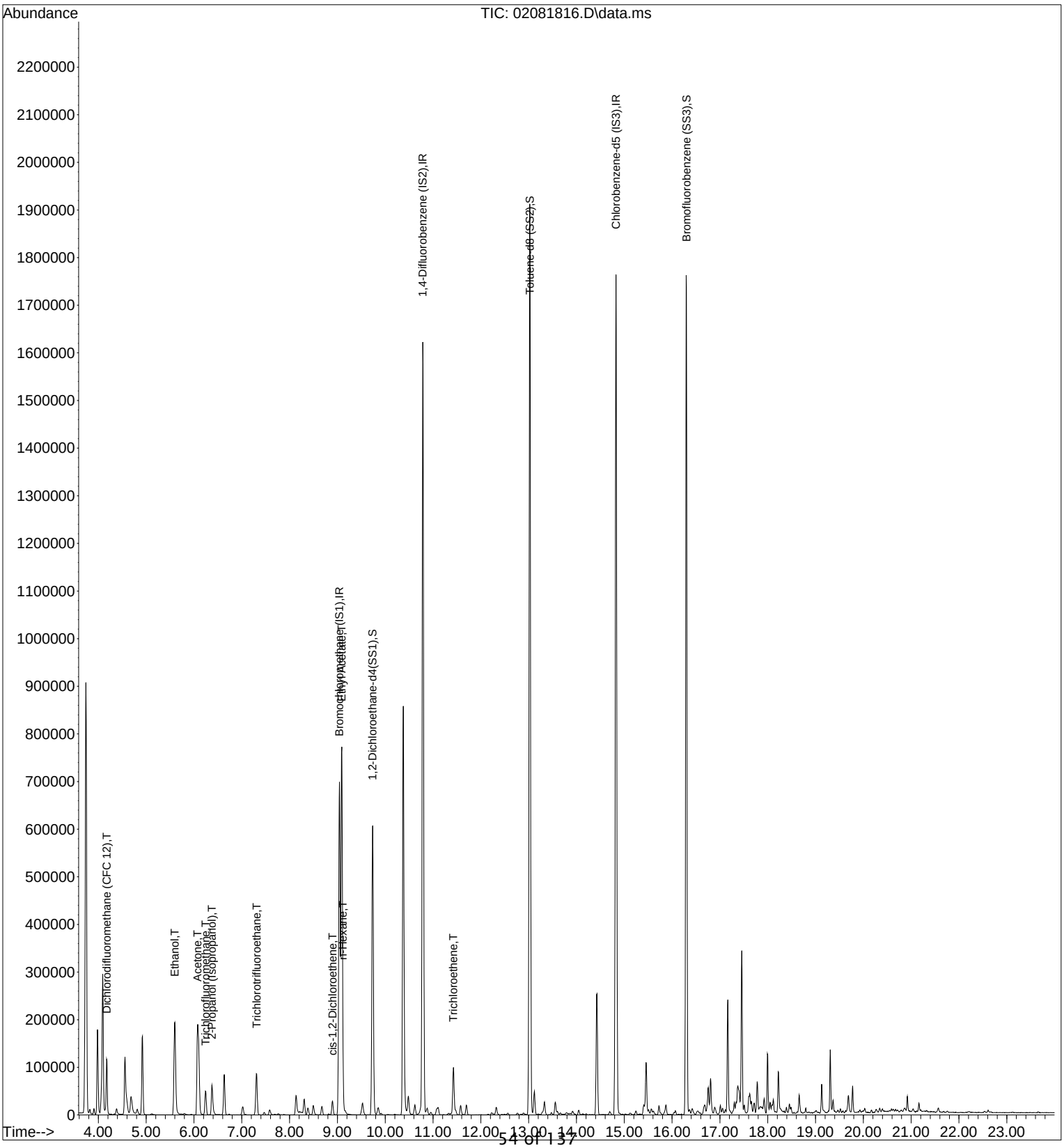
Quant Time: Feb 08 17:53:46 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc Units Dev(Min)
50) Methyl Methacrylate	11.58	100	3720	N.D.
51) n-Heptane	11.70	71	5798	N.D.
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.
53) 4-Methyl-2-pentanone	12.23	58	1202	N.D.
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.
58) Toluene	13.12	91	41569	N.D.
59) 2-Hexanone	13.33	43	6278	N.D.
60) Dibromochloromethane	0.00	129	0	N.D.
61) 1,2-Dibromoethane	0.00	107	0	N.D.
62) n-Butyl Acetate	13.92	43	6691	N.D.
63) n-Octane	14.05	57	1803	N.D.
64) Tetrachloroethene	14.20	166	1012	N.D.
65) Chlorobenzene	14.87	112	602	N.D.
66) Ethylbenzene	15.24	91	7988	N.D.
67) m- & p-Xylenes	15.41	91	17785	N.D.
68) Bromoform	15.49	173	223	N.D.
69) Styrene	15.77	104	2201	N.D.
70) o-Xylene	15.87	91	7375	N.D.
71) n-Nonane	16.06	43	3118	N.D.
72) 1,1,2,2-Tetrachloroethane	15.87	83	257	N.D.
74) Cumene	16.43	105	1052	N.D.
75) alpha-Pinene	16.81	93	30497	N.D.
76) n-Propylbenzene	16.91	91	3184	N.D.
77) 3-Ethyltoluene	17.01	105	5903	N.D.
78) 4-Ethyltoluene	17.05	105	2999	N.D.
79) 1,3,5-Trimethylbenzene	17.12	105	2036	N.D.
80) alpha-Methylstyrene	17.27	118	356	N.D.
81) 2-Ethyltoluene	17.30	105	2267	N.D.
82) 1,2,4-Trimethylbenzene	17.51	105	7213	N.D.
83) n-Decane	17.60	57	21649	N.D.
84) Benzyl Chloride	17.73	91	312	N.D.
85) 1,3-Dichlorobenzene	17.73	146	666	N.D.
86) 1,4-Dichlorobenzene	17.73	146	666	N.D.
87) sec-Butylbenzene	17.77	105	1070	N.D.
88) 4-Isopropyltoluene (p-...	17.91	119	4061	N.D.
89) 1,2,3-Trimethylbenzene	17.91	105	2039	N.D.
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.
91) d-Limonene	18.05	68	4275	N.D.
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.
93) n-Undecane	18.80	57	2514	N.D.
94) 1,2,4-Trichlorobenzene	19.66	180	2109	N.D.
95) Naphthalene	19.77	128	5236	N.D.
96) n-Dodecane	19.78	57	14365	N.D.
97) Hexachlorobutadiene	0.00	225	0	N.D.
98) Cyclohexanone	15.56	55	4802	N.D.
99) tert-Butylbenzene	17.50	119	914	N.D.
100) n-Butylbenzene	18.29	91	2074	N.D.

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\08\02081816.D
Acq On : 8 Feb 2018 12:14 Operator: AB
Sample : P1800459-003 (1000mL)
Misc : S31-01051802
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 08 17:53:46 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\08\02081816.D
Acq On : 8 Feb 2018 12:14 Operator: AB
Sample : P1800459-003 (1000mL)
Misc : S31-01051802
ALS Vial : 13 Sample Multiplier: 1

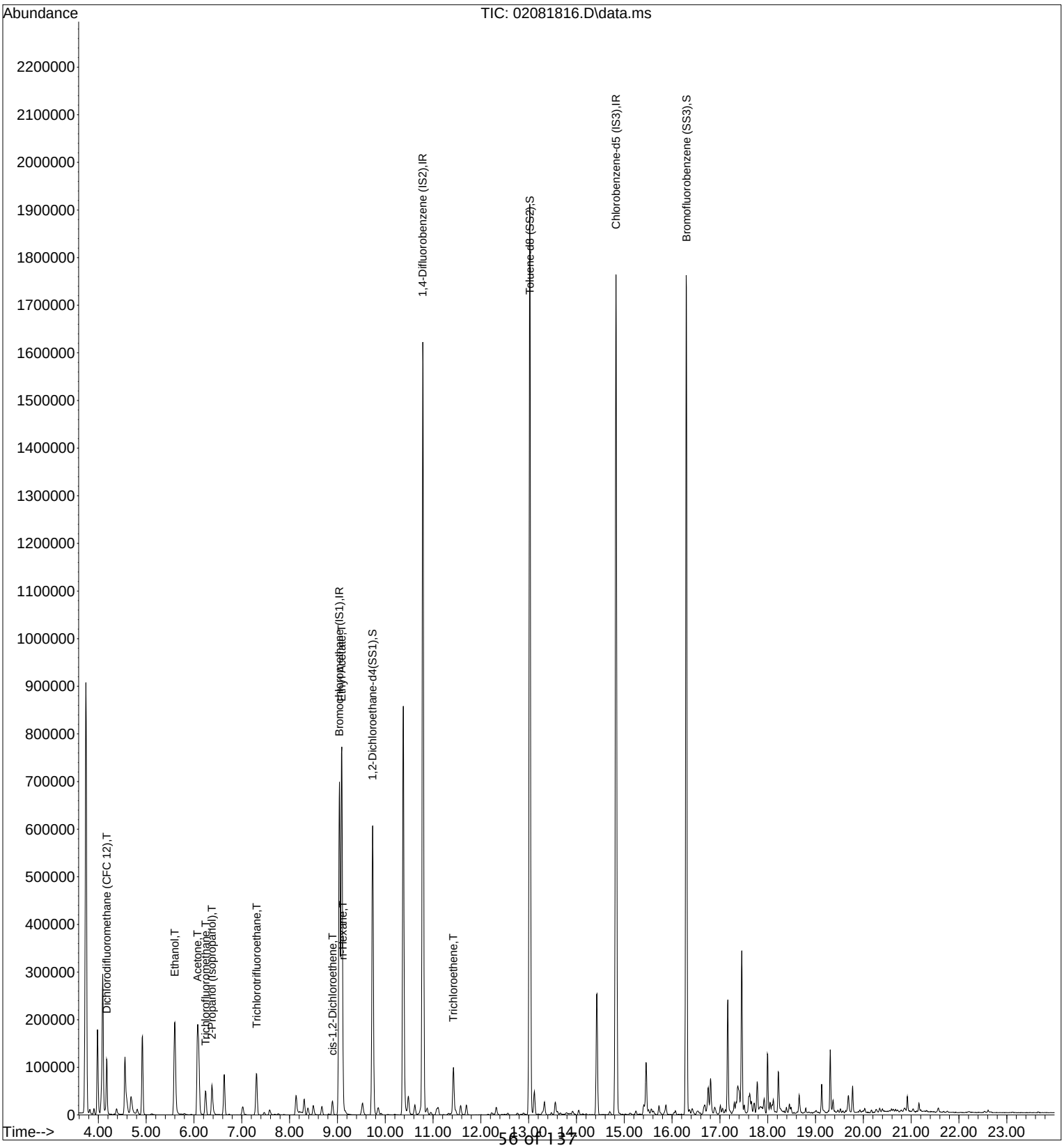
Quant Time: Feb 08 17:53:46 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

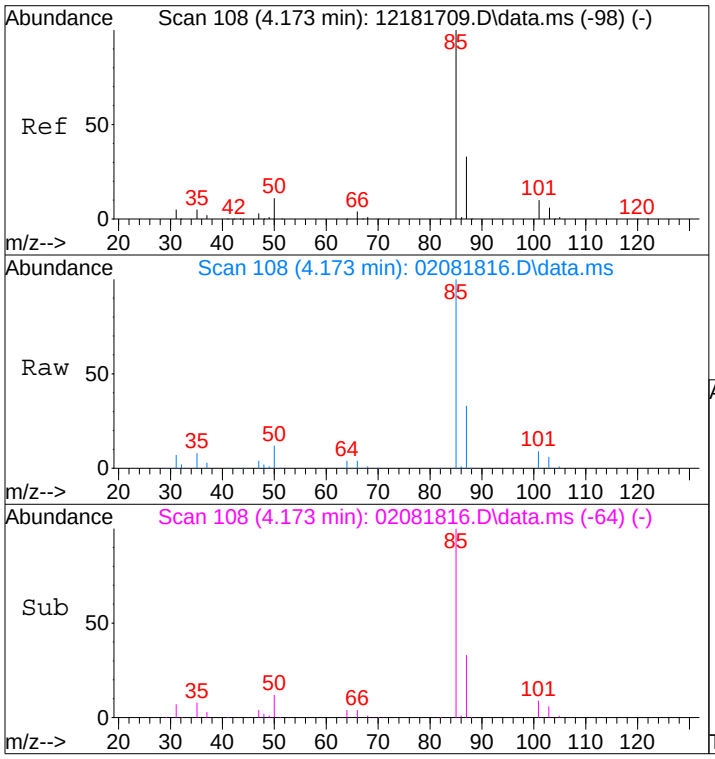
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	329609	12.500	ng		-0.05
37) 1,4-Difluorobenzene (IS2)	10.79	114	1550296	12.500	ng		-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	628650	12.500	ng		-0.01
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.74	65	471171	13.385	ng		-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.12%				
57) Toluene-d8 (SS2)	13.02	98	1529447	12.525	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.16%				
73) Bromofluorobenzene (SS3)	16.30	174	646939	12.019	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.16%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.17	85	91994	1.717	ng		99
10) Ethanol	5.60	45	279688	15.715	ng		100
13) Acetone	6.07	58	84124	4.166	ng	#	80
14) Trichlorofluoromethane	6.25	101	43695	0.853	ng		100
15) 2-Propanol (Isopropanol)	6.37	45	82681	1.299	ng		90
21) Trichlorotrifluoroethane	7.31	151	33814	1.073	ng		97
28) cis-1,2-Dichloroethene	8.90	61	17644	0.514	ng		99
30) Ethyl Acetate	9.09	61	138283	16.681	ng		94
31) n-Hexane	9.11	57	20315	0.625	ng		98
47) Trichloroethene	11.43	130	39229	1.063	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\08\02081816.D
Acq On : 8 Feb 2018 12:14 Operator: AB
Sample : P1800459-003 (1000mL)
Misc : S31-01051802
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 08 17:53:46 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

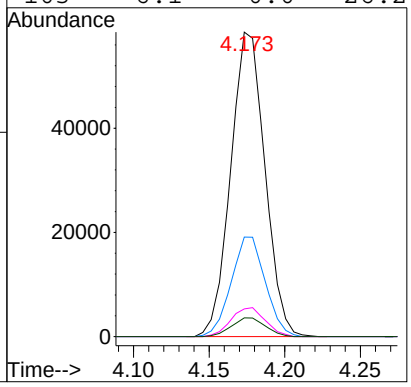


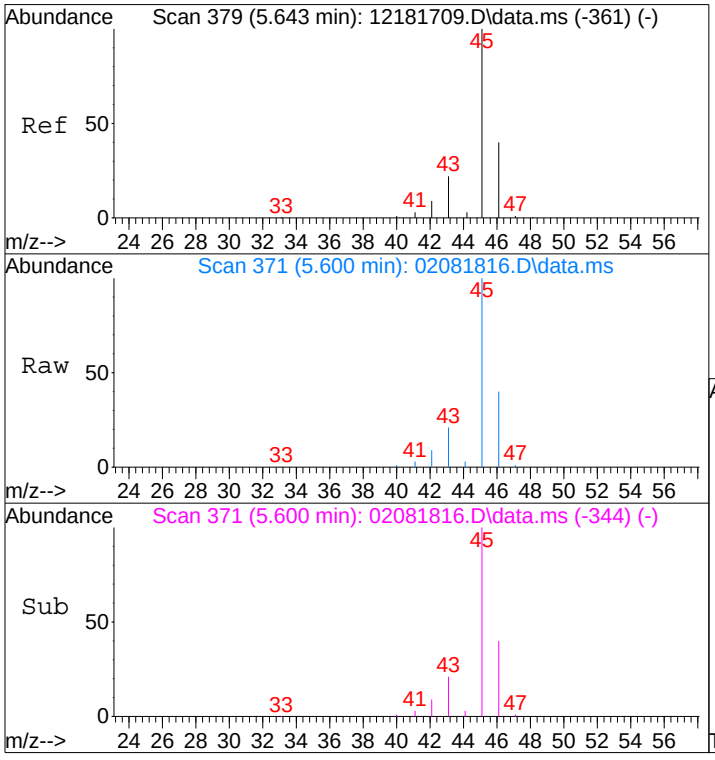


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.72 ng
RT: 4.17 min Scan# 108
Delta R.T. -0.011 min
Lab File: 02081816.D
Acq: 8 Feb 2018 12:14

Tgt Ion: 85 Resp: 91994

Ion	Ratio	Lower	Upper
85	100		
87	32.6	13.1	53.1
101	9.5	0.0	29.8
103	6.1	0.0	26.2

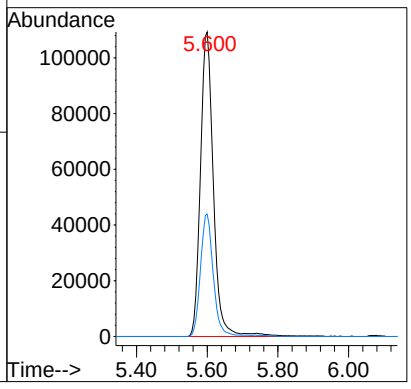


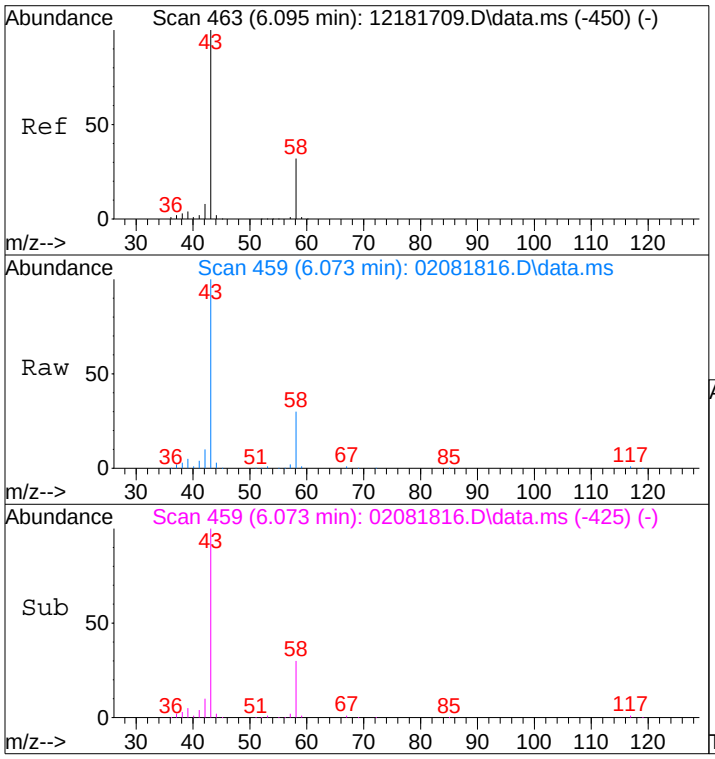


#10
Ethanol
Concen: 15.71 ng
RT: 5.60 min Scan# 371
Delta R.T. -0.102 min
Lab File: 02081816.D
Acq: 8 Feb 2018 12:14

Tgt Ion: 45 Resp: 279688

Ion	Ratio	Lower	Upper
45	100		
46	40.1	20.3	60.3

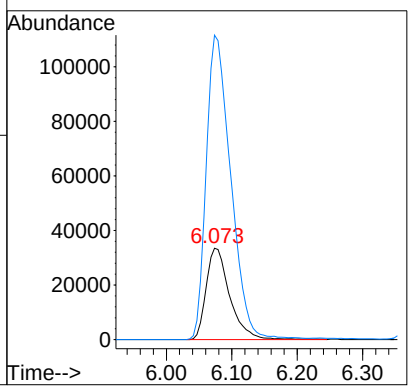


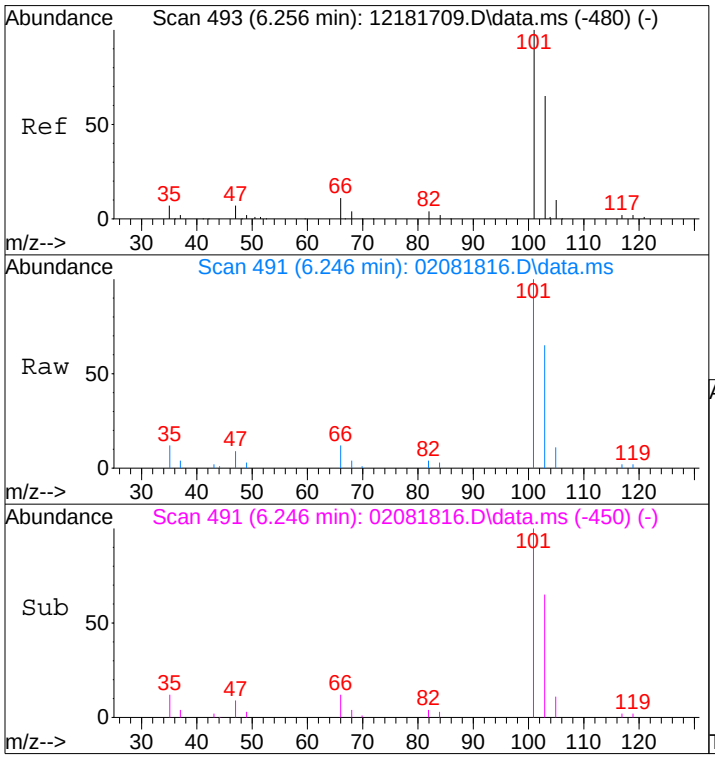


#13
Acetone
Concen: 4.17 ng
RT: 6.07 min Scan# 459
Delta R.T. -0.064 min
Lab File: 02081816.D
Acq: 8 Feb 2018 12:14

Tgt Ion: 58 Resp: 84124

Ion	Ratio	Lower	Upper
58	100		
43	349.2	279.8	339.8#

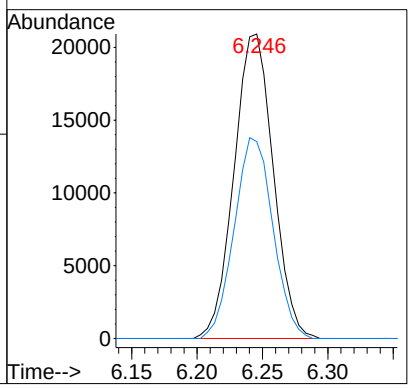


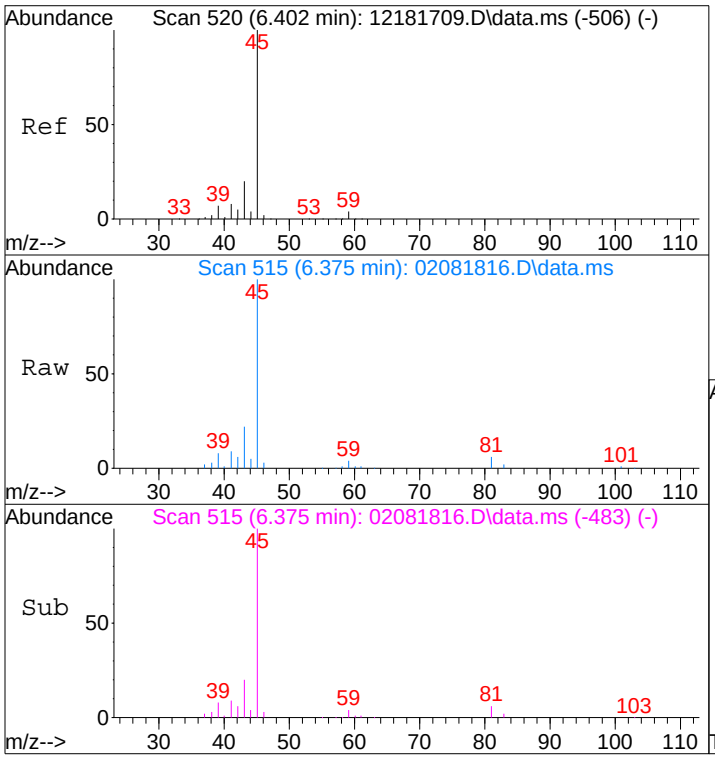


#14
Trichlorofluoromethane
Concen: 0.85 ng
RT: 6.25 min Scan# 491
Delta R.T. -0.027 min
Lab File: 02081816.D
Acq: 8 Feb 2018 12:14

Tgt Ion:101 Resp: 43695

Ion	Ratio	Lower	Upper
101	100		
103	65.1	45.0	85.0

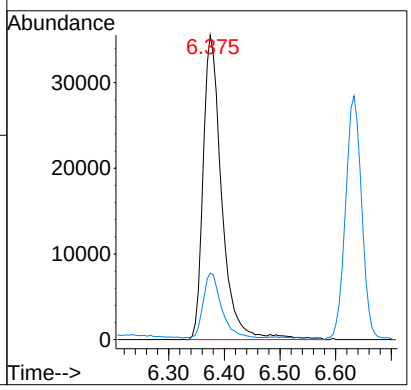


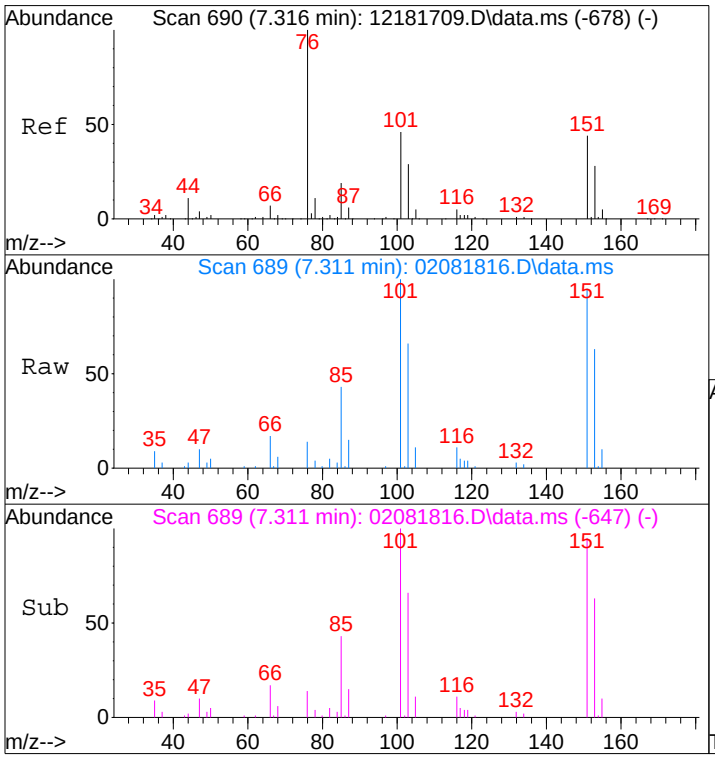


#15
2-Propanol (Isopropanol)
Concen: 1.30 ng
RT: 6.37 min Scan# 515
Delta R.T. -0.075 min
Lab File: 02081816.D
Acq: 8 Feb 2018 12:14

Tgt Ion: 45 Resp: 82681

Ion	Ratio	Lower	Upper
45	100		
43	24.1	0.0	39.5

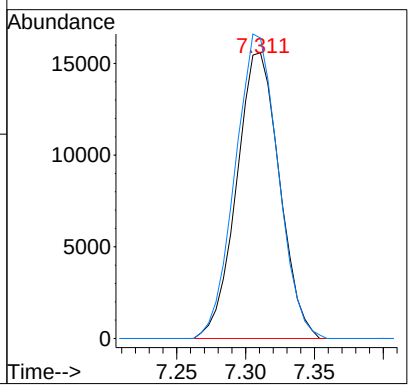


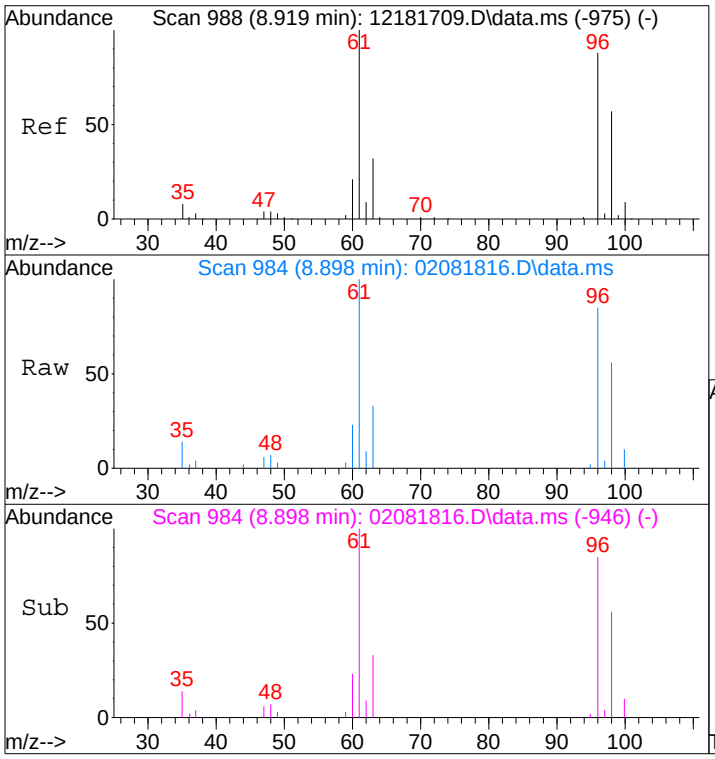


#21
Trichlorotrifluoroethane
Concen: 1.07 ng
RT: 7.31 min Scan# 689
Delta R.T. -0.021 min
Lab File: 02081816.D
Acq: 8 Feb 2018 12:14

Tgt Ion:151 Resp: 33814

Ion	Ratio	Lower	Upper
151	100		
101	106.8	83.9	123.9

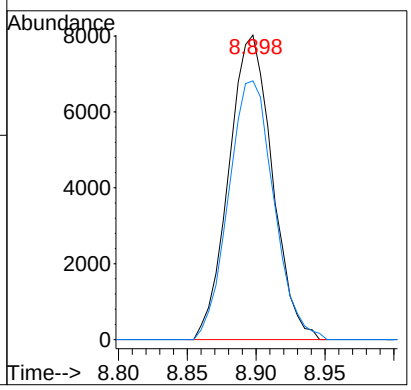


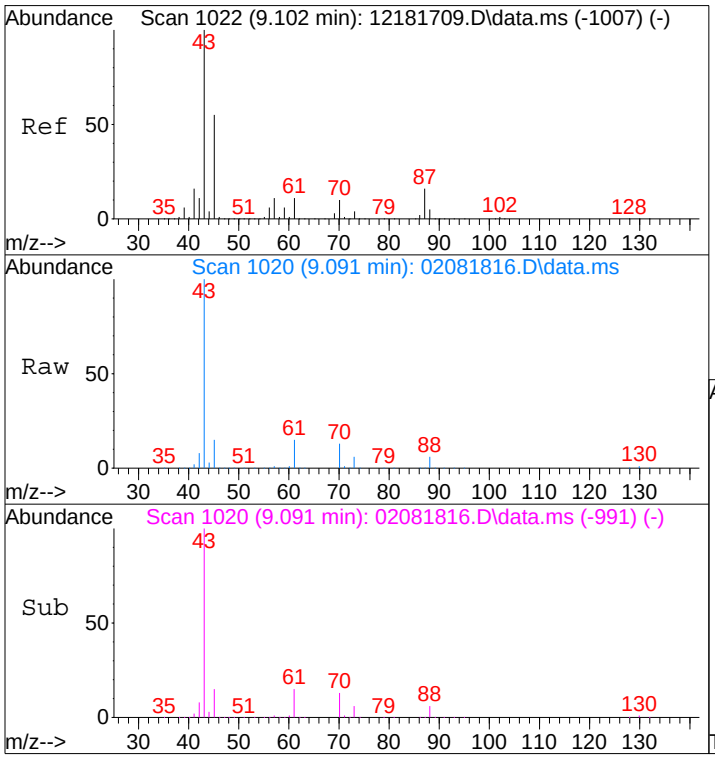


#28
cis-1,2-Dichloroethene
Concen: 0.51 ng
RT: 8.90 min Scan# 984
Delta R.T. -0.043 min
Lab File: 02081816.D
Acq: 8 Feb 2018 12:14

Tgt Ion: 61 Resp: 17644

Ion	Ratio	Lower	Upper
61	100		
96	88.3	67.6	107.6

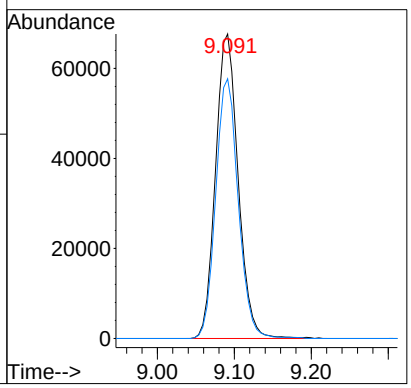


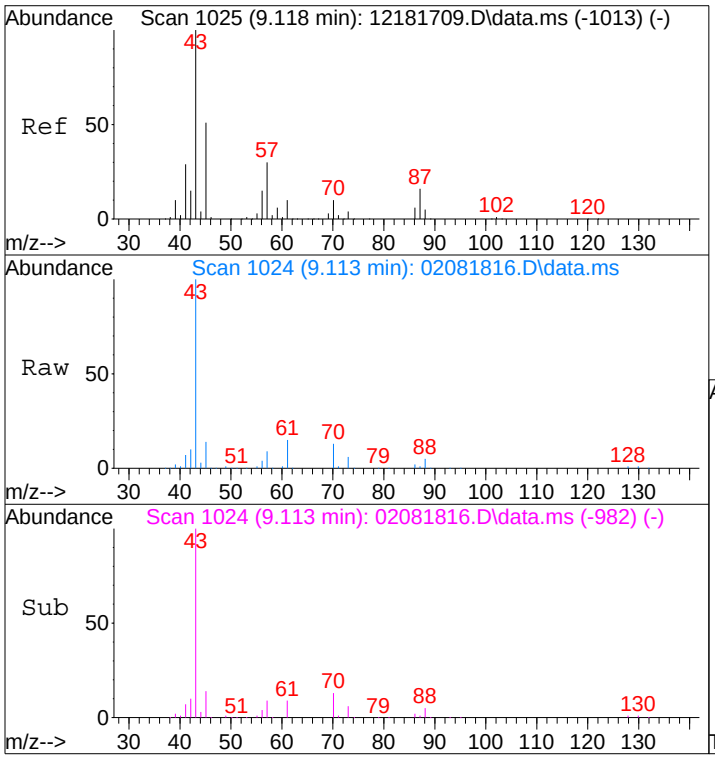


#30
Ethyl Acetate
Concen: 16.68 ng
RT: 9.09 min Scan# 1020
Delta R.T. -0.043 min
Lab File: 02081816.D
Acq: 8 Feb 2018 12:14

Tgt Ion: 61 Resp: 138283

Ion	Ratio	Lower	Upper
61	100		
70	85.1	70.5	110.5

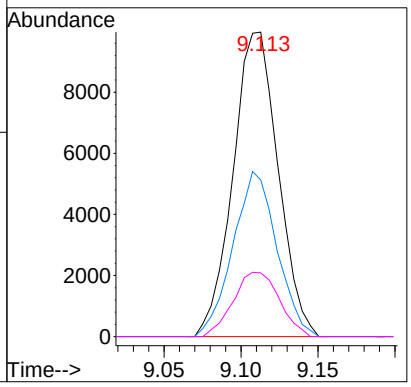


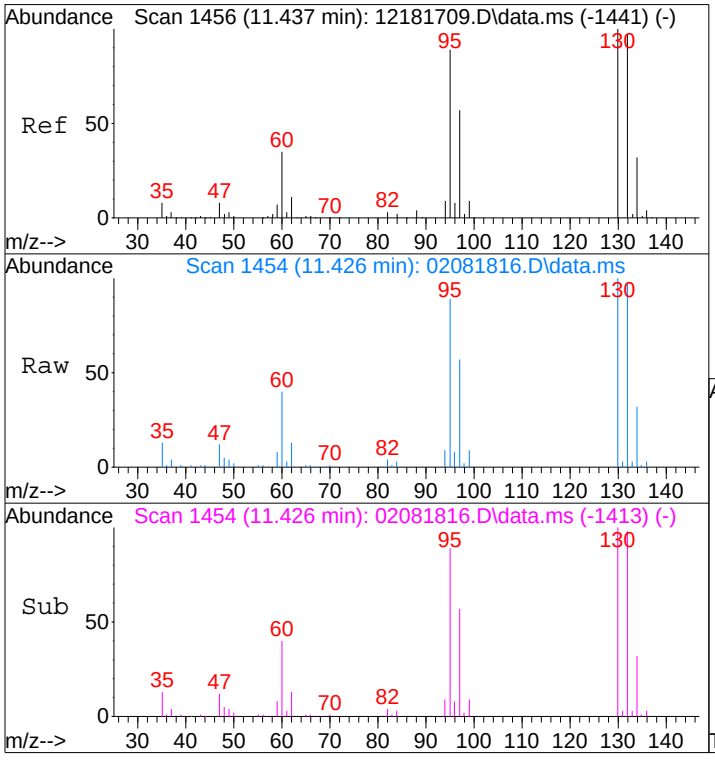


#31
n-Hexane
Concen: 0.63 ng
RT: 9.11 min Scan# 1024
Delta R.T. -0.021 min
Lab File: 02081816.D
Acq: 8 Feb 2018 12:14

Tgt Ion: 57 Resp: 20315

Ion	Ratio	Lower	Upper
57	100		
56	52.7	41.0	61.4
86	21.6	17.2	25.8

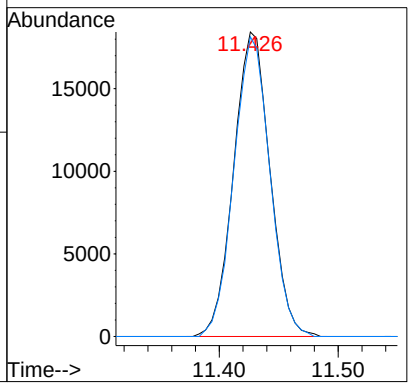




#47
Trichloroethene
Concen: 1.06 ng
RT: 11.43 min Scan# 1454
Delta R.T. -0.027 min
Lab File: 02081816.D
Acq: 8 Feb 2018 12:14

Tgt Ion:130 Resp: 39229

Ion	Ratio	Lower	Upper
130	100		
132	97.3	77.3	117.3



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\08\02081821.D
Acq On : 8 Feb 2018 15:06 Operator: AB
Sample : P1800459-004 (1000mL)
Misc : S31-01051802
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Feb 08 17:54:55 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	337608	12.500	ng		-0.05
37) 1,4-Difluorobenzene (IS2)	10.79	114	1610161	12.500	ng		-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	645827	12.500	ng		-0.01
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.74	65	481647	13.359	ng		-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.88%				
57) Toluene-d8 (SS2)	13.02	98	1585664	12.640	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.12%				
73) Bromofluorobenzene (SS3)	16.30	174	659510	11.927	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.44%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.18	85	98913	1.802	ng		99
4) Chloromethane	4.38	50	11103	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.57	135	2501	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	4.93	54	228	N.D.			
8) Bromomethane	5.17	94	447	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.58	45	56747	3.113	ng		100
11) Acetonitrile	5.80	41	2690	N.D.			
12) Acrolein	5.94	56	1503	N.D.			
13) Acetone	6.08	58	69430	3.356	ng	#	74
14) Trichlorofluoromethane	6.25	101	48510	0.925	ng		100
15) 2-Propanol (Isopropanol)	6.37	45	25827	N.D.			
16) Acrylonitrile	6.64	53	1218	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	6.99	59	2003	N.D.			
19) Methylene Chloride	7.02	84	17091	0.562	ng		91
20) 3-Chloro-1-propene (Al...	7.08	41	704	N.D.			
21) Trichlorotrifluoroethane	7.31	151	39047	1.210	ng		98
22) Carbon Disulfide	7.29	76	13594	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	8.22	73	295	N.D.			
26) Vinyl Acetate	8.26	86	2233	N.D.			
27) 2-Butanone (MEK)	8.49	72	9106	0.474	ng		92
28) cis-1,2-Dichloroethene	8.89	61	3909	N.D.			
29) Diisopropyl Ether	9.10	87	707	N.D.			
30) Ethyl Acetate	9.10	61	25395	2.991	ng		95
31) n-Hexane	9.11	57	18074	0.543	ng		98
32) Chloroform	9.16	83	3435	N.D.			
34) Tetrahydrofuran (THF)	9.52	72	13822	0.679	ng		92
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	9.83	62	1756	N.D.			
38) 1,1,1-Trichloroethane	10.07	97	159	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.40	56	3923	N.D.			
41) Benzene	10.48	78	35373	N.D.			
42) Carbon Tetrachloride	10.62	117	13001	N.D.			
43) Cyclohexane	10.74	84	6315	N.D.			
44) tert-Amyl Methyl Ether	10.79	73	16835	N.D.			
45) 1,2-Dichloropropane	11.22	63	352	N.D.			
46) Bromodichloromethane	11.39	83	112	N.D.			
47) Trichloroethene	11.43	130	8131	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.49	57	8005	N.D.			

Data File: I:\MS08\Data\2018 02\08\02081821.D
Acq On : 8 Feb 2018 15:06 Operator: AB
Sample : P1800459-004 (1000mL)
Misc : S31-01051802
ALS Vial : 3 Sample Multiplier: 1

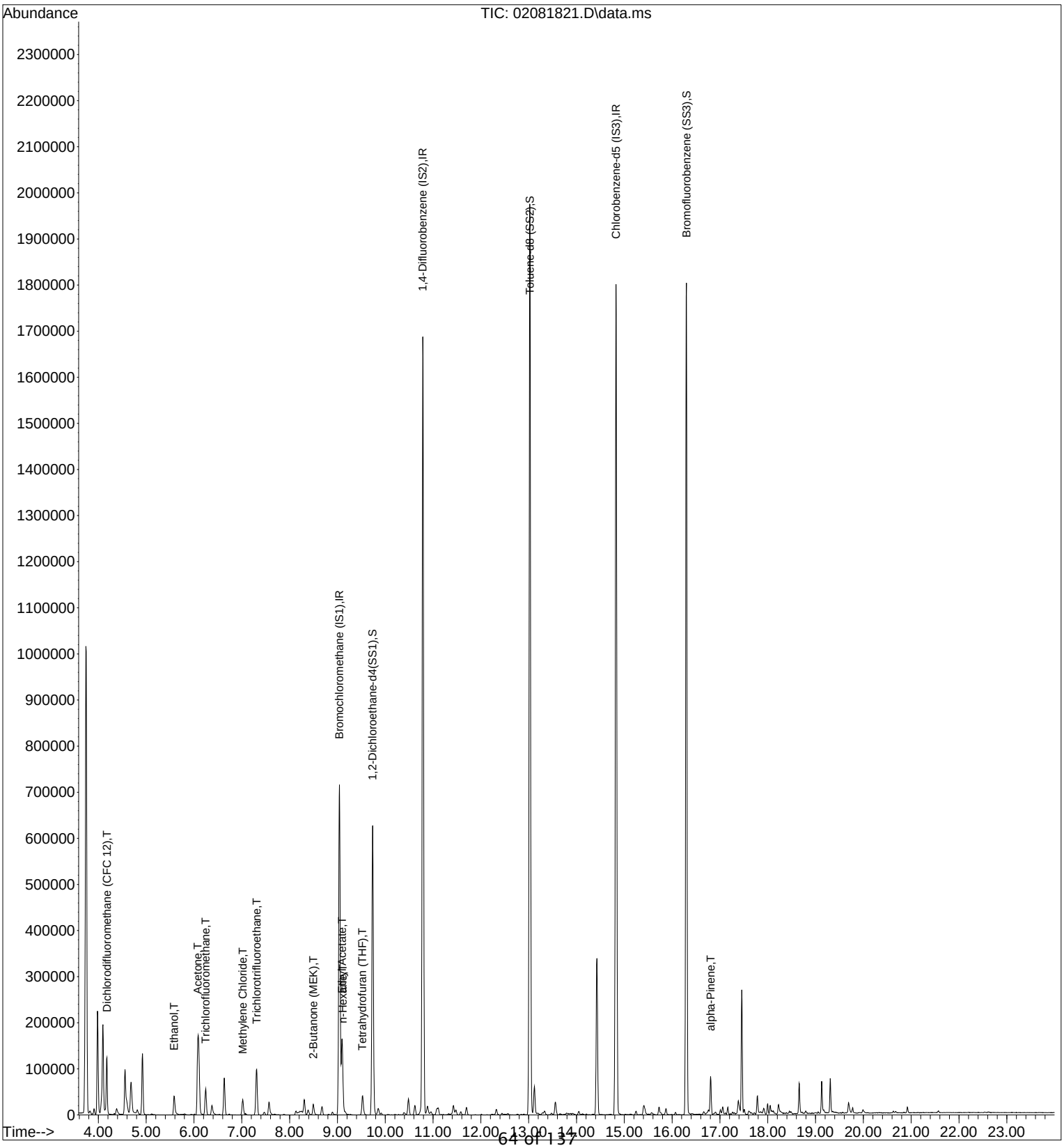
Quant Time: Feb 08 17:54:55 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
50) Methyl Methacrylate	11.58	100	1268	N.D.	
51) n-Heptane	11.69	71	4591	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.22	58	463	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.12	91	52646	N.D.	
59) 2-Hexanone	13.34	43	2945	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	13.92	43	2573	N.D.	
63) n-Octane	14.05	57	1486	N.D.	
64) Tetrachloroethene	14.21	166	763	N.D.	
65) Chlorobenzene	14.87	112	511	N.D.	
66) Ethylbenzene	15.25	91	7826	N.D.	
67) m- & p-Xylenes	15.41	91	17793	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	15.77	104	2543	N.D.	
70) o-Xylene	15.87	91	7313	N.D.	
71) n-Nonane	16.07	43	2213	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	16.43	105	1736	N.D.	
75) alpha-Pinene	16.81	93	34084	0.458 ng	94
76) n-Propylbenzene	16.91	91	2889	N.D.	
77) 3-Ethyltoluene	17.01	105	5097	N.D.	
78) 4-Ethyltoluene	17.05	105	2818	N.D.	
79) 1,3,5-Trimethylbenzene	17.12	105	2153	N.D.	
80) alpha-Methylstyrene	17.26	118	2172	N.D.	
81) 2-Ethyltoluene	17.30	105	2184	N.D.	
82) 1,2,4-Trimethylbenzene	17.51	105	6128	N.D.	
83) n-Decane	17.60	57	4157	N.D.	
84) Benzyl Chloride	17.74	91	616	N.D.	
85) 1,3-Dichlorobenzene	17.73	146	583	N.D.	
86) 1,4-Dichlorobenzene	17.73	146	583	N.D.	
87) sec-Butylbenzene	17.77	105	151	N.D.	
88) 4-Isopropyltoluene (p-...	17.91	119	5397	N.D.	
89) 1,2,3-Trimethylbenzene	17.91	105	1951	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	18.05	68	4012	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	18.80	57	1787	N.D.	
94) 1,2,4-Trichlorobenzene	19.66	180	397	N.D.	
95) Naphthalene	19.77	128	2827	N.D.	
96) n-Dodecane	19.78	57	3397	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	15.56	55	2087	N.D.	
99) tert-Butylbenzene	17.50	119	1006	N.D.	
100) n-Butylbenzene	18.30	91	1279	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\08\02081821.D
Acq On : 8 Feb 2018 15:06 Operator: AB
Sample : P1800459-004 (1000mL)
Misc : S31-01051802
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Feb 08 17:54:55 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\08\02081821.D
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Sample : P1800459-004 (1000mL)
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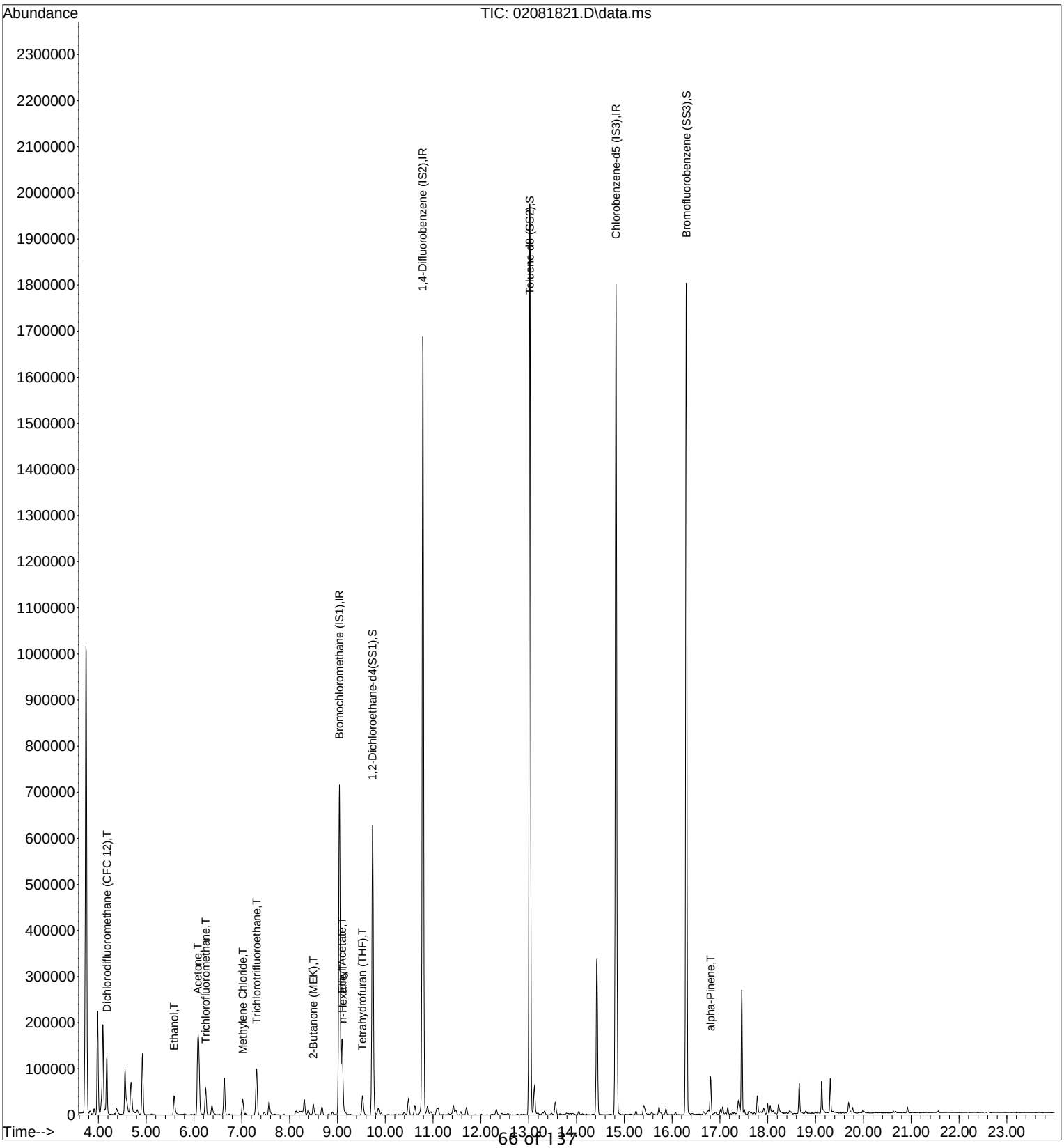
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

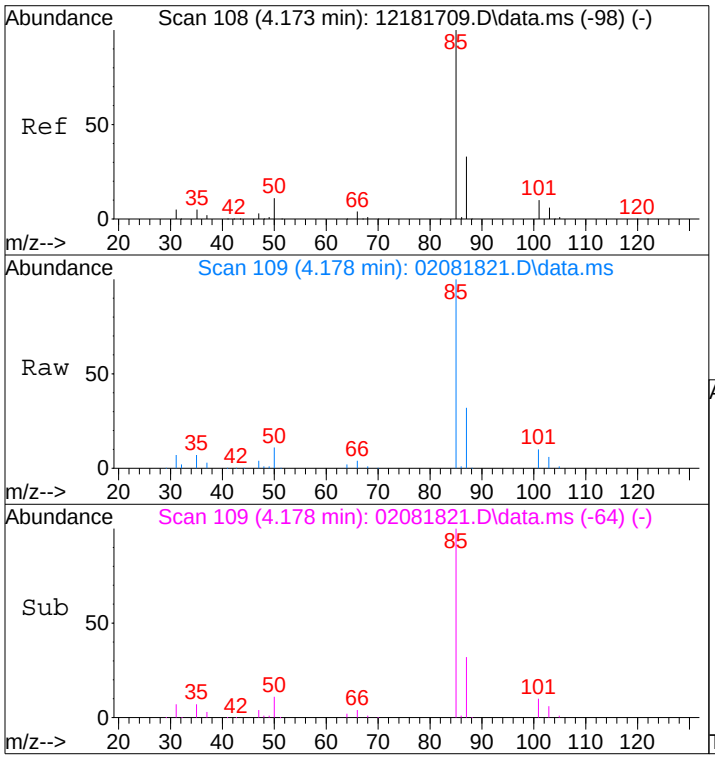
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	337608	12.500	ng		-0.05
37) 1,4-Difluorobenzene (IS2)	10.79	114	1610161	12.500	ng		-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	645827	12.500	ng		-0.01
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.74	65	481647	13.359	ng		-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.88%				
57) Toluene-d8 (SS2)	13.02	98	1585664	12.640	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.12%				
73) Bromofluorobenzene (SS3)	16.30	174	659510	11.927	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.44%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.18	85	98913	1.802	ng		99
10) Ethanol	5.58	45	56747	3.113	ng		100
13) Acetone	6.08	58	69430	3.356	ng	#	74
14) Trichlorofluoromethane	6.25	101	48510	0.925	ng		100
19) Methylene Chloride	7.02	84	17091	0.562	ng		91
21) Trichlorotrifluoroethane	7.31	151	39047	1.210	ng		98
27) 2-Butanone (MEK)	8.49	72	9106	0.474	ng		92
30) Ethyl Acetate	9.10	61	25395	2.991	ng		95
31) n-Hexane	9.11	57	18074	0.543	ng		98
34) Tetrahydrofuran (THF)	9.52	72	13822	0.679	ng		92
75) alpha-Pinene	16.81	93	34084	0.458	ng		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\08\02081821.D
Acq On : 8 Feb 2018 15:06 Operator: AB
Sample : P1800459-004 (1000mL)
Misc : S31-01051802
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Feb 08 17:54:55 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

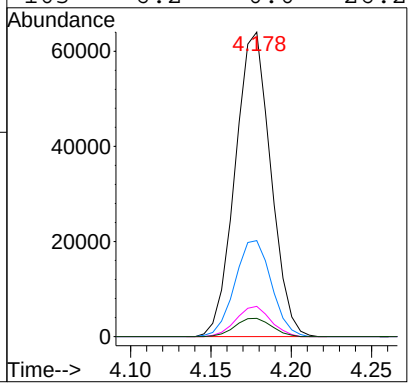


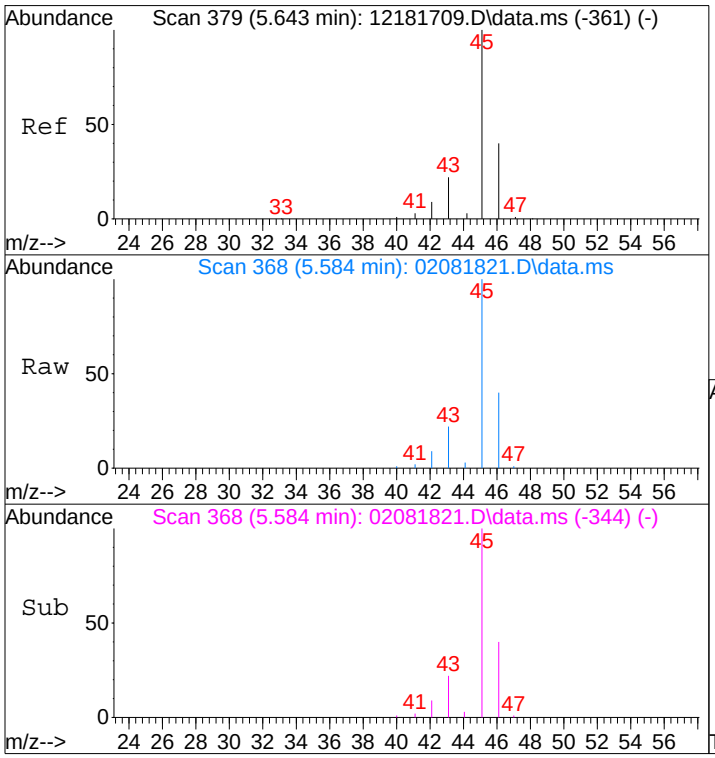


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.80 ng
RT: 4.18 min Scan# 109
Delta R.T. -0.006 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion: 85 Resp: 98913

Ion	Ratio	Lower	Upper
85	100		
87	32.4	13.1	53.1
101	9.7	0.0	29.8
103	6.2	0.0	26.2

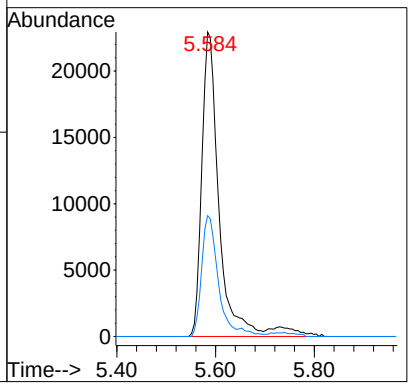


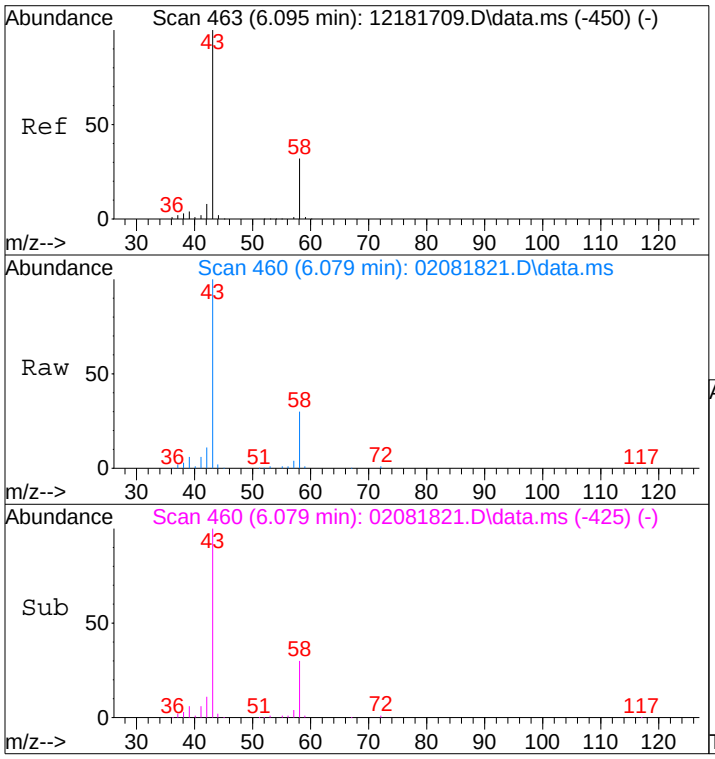


#10
Ethanol
Concen: 3.11 ng
RT: 5.58 min Scan# 368
Delta R.T. -0.118 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion: 45 Resp: 56747

Ion	Ratio	Lower	Upper
45	100		
46	40.0	20.3	60.3

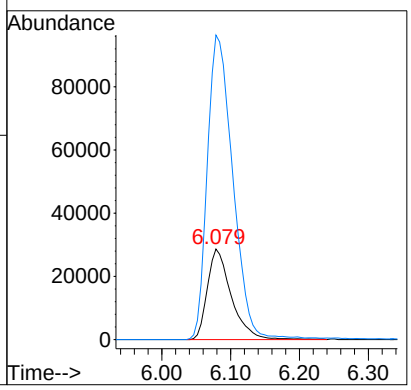


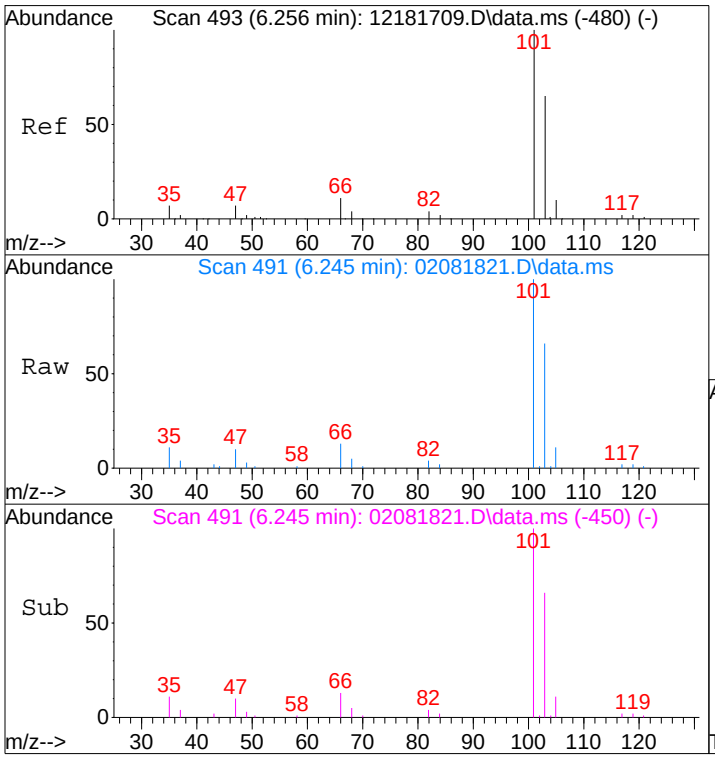


#13
Acetone
Concen: 3.36 ng
RT: 6.08 min Scan# 460
Delta R.T. -0.059 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion: 58 Resp: 69430

Ion	Ratio	Lower	Upper
58	100		
43	361.1	279.8	339.8#

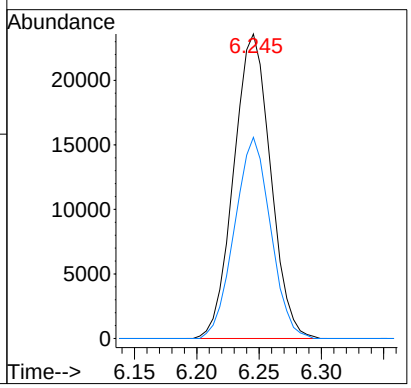


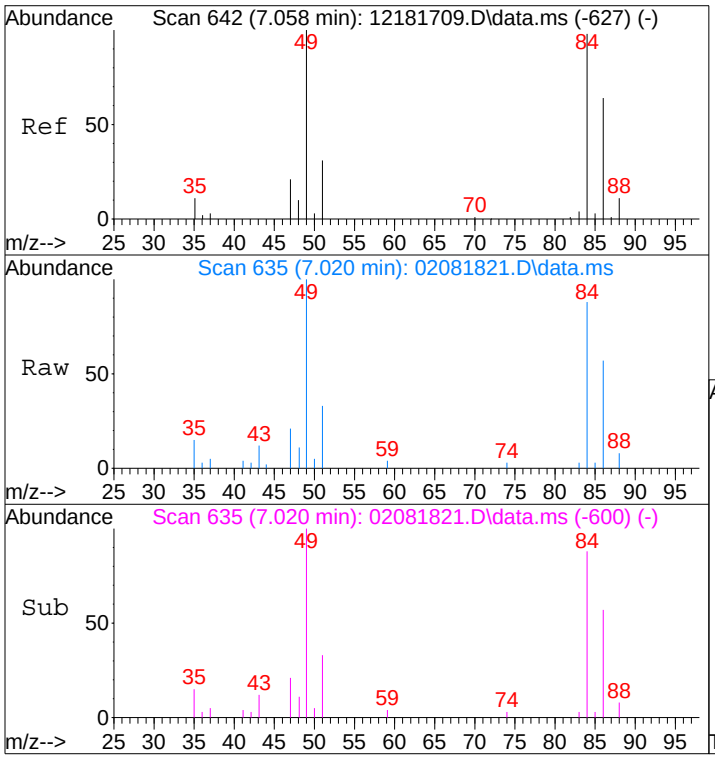


#14
Trichlorofluoromethane
Concen: 0.92 ng
RT: 6.25 min Scan# 491
Delta R.T. -0.027 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion:101 Resp: 48510

Ion	Ratio	Lower	Upper
101	100		
103	64.7	45.0	85.0

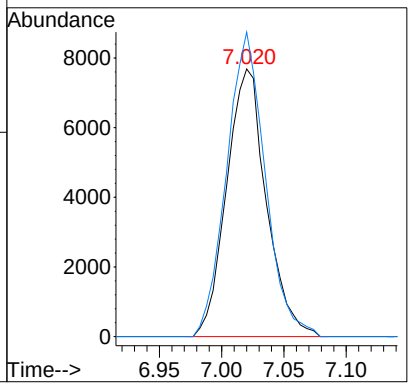


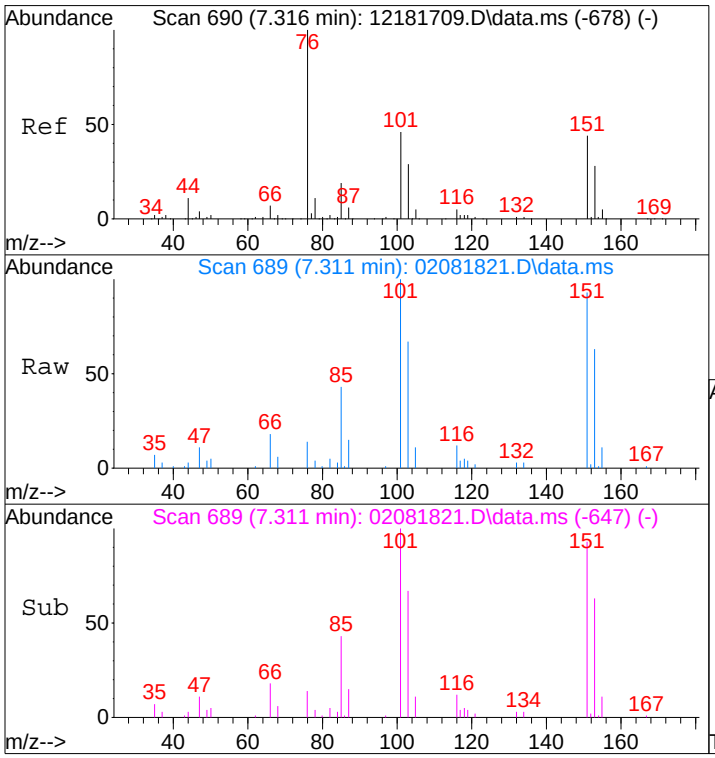


#19
Methylene Chloride
Concen: 0.56 ng
RT: 7.02 min Scan# 635
Delta R.T. -0.059 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion: 84 Resp: 17091

Ion	Ratio	Lower	Upper
84	100		
49	110.4	76.8	126.8

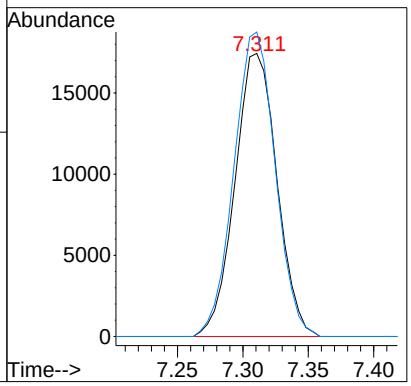


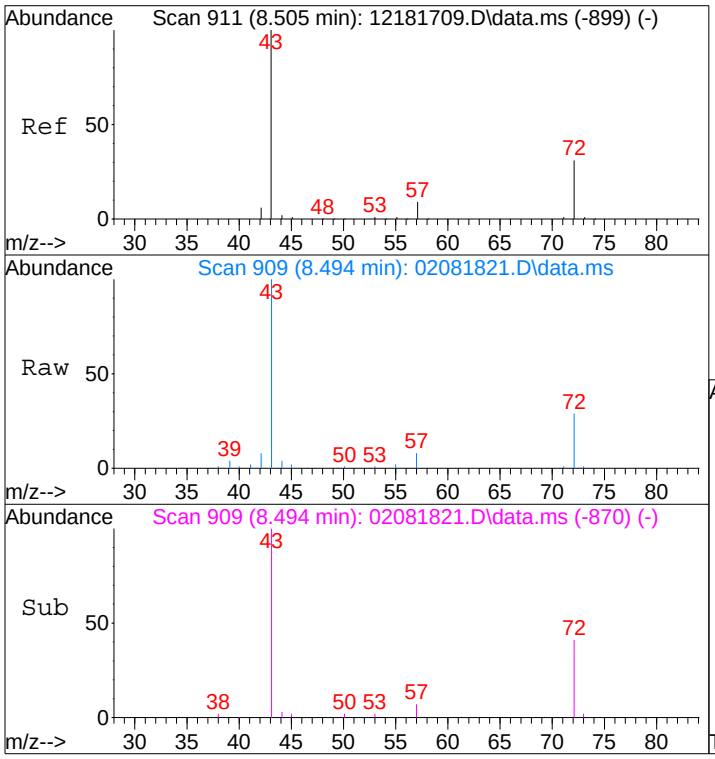


#21
Trichlorotrifluoroethane
Concen: 1.21 ng
RT: 7.31 min Scan# 689
Delta R.T. -0.022 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion:151 Resp: 39047

Ion	Ratio	Lower	Upper
151	100		
101	105.7	83.9	123.9

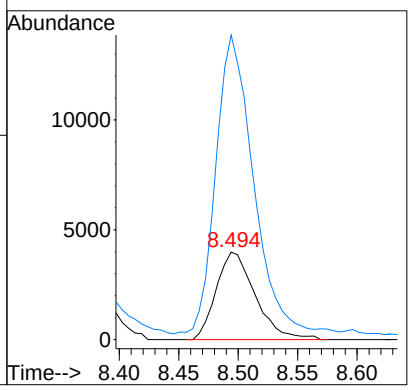


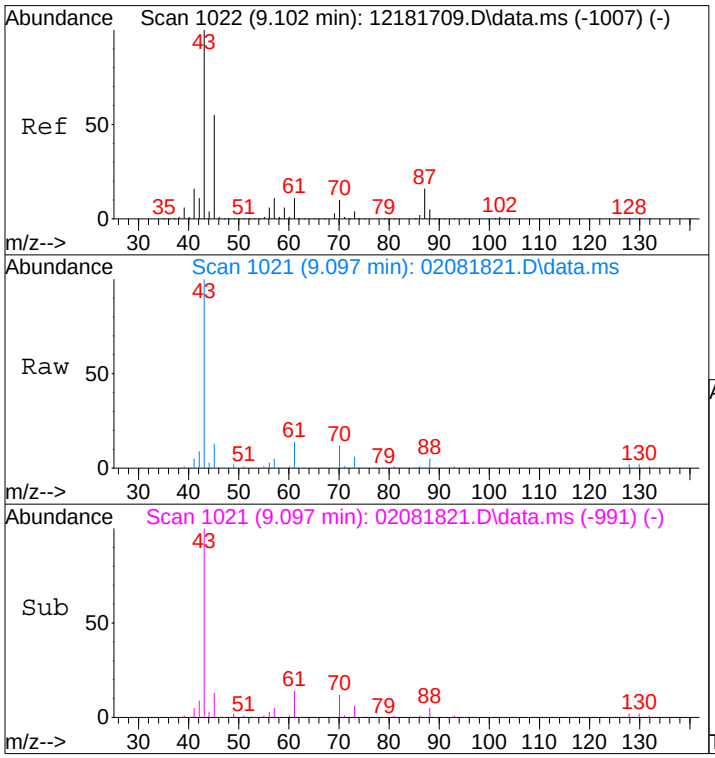


#27
2-Butanone (MEK)
Concen: 0.47 ng
RT: 8.49 min Scan# 909
Delta R.T. -0.038 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion: 72 Resp: 9106

Ion	Ratio	Lower	Upper
72	100		
43	335.9	299.8	339.8

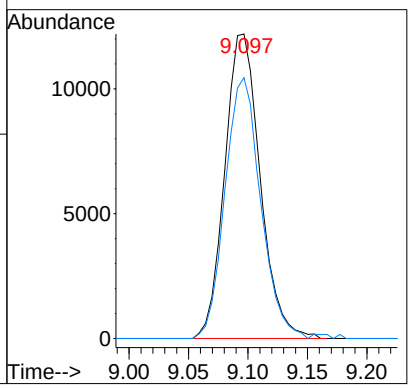


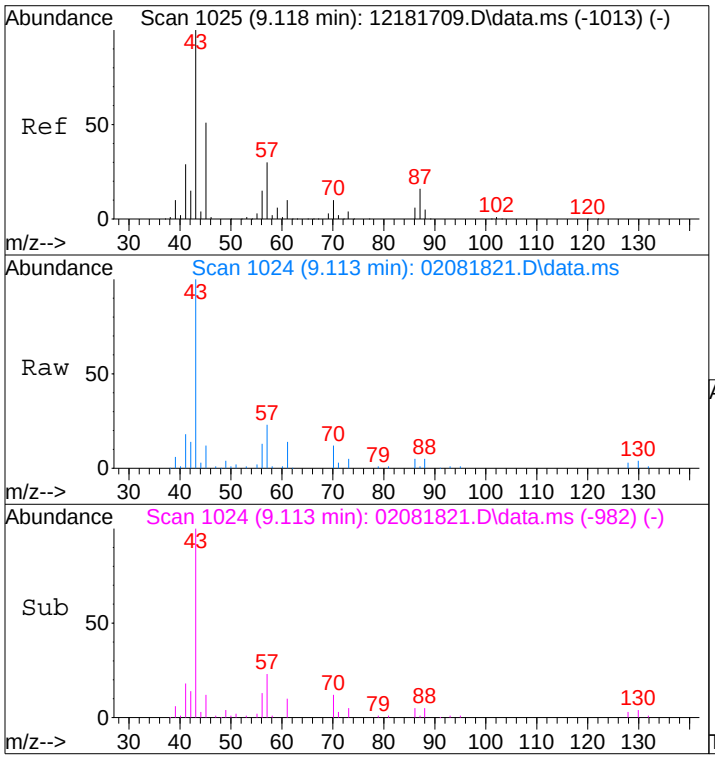


#30
Ethyl Acetate
Concen: 2.99 ng
RT: 9.10 min Scan# 1021
Delta R.T. -0.038 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion: 61 Resp: 25395

Ion	Ratio	Lower	Upper
61	100		
70	85.7	70.5	110.5

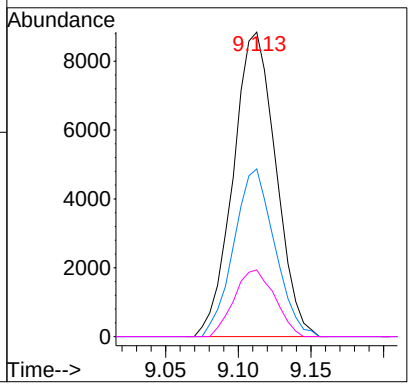


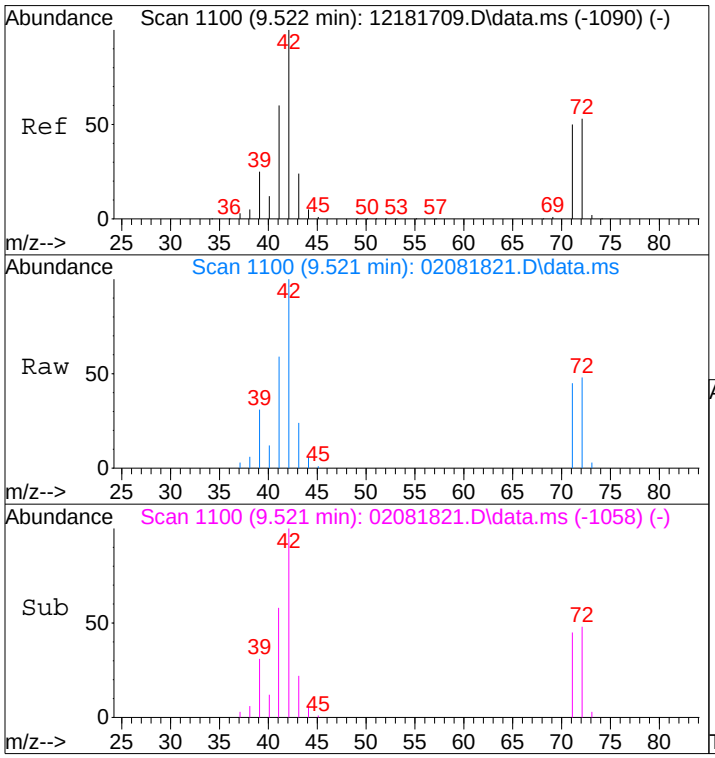


#31
n-Hexane
Concen: 0.54 ng
RT: 9.11 min Scan# 1024
Delta R.T. -0.022 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion: 57 Resp: 18074

Ion	Ratio	Lower	Upper
57	100		
56	52.8	41.0	61.4
86	20.8	17.2	25.8

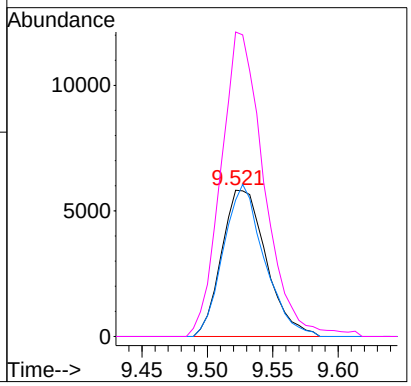


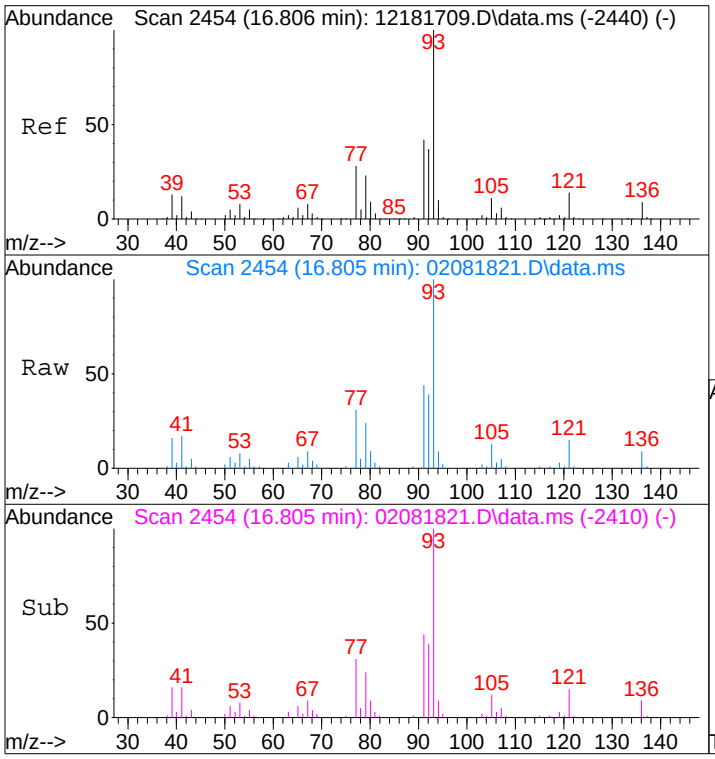


#34
Tetrahydrofuran (THF)
Concen: 0.68 ng
RT: 9.52 min Scan# 1100
Delta R.T. -0.022 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion: 72 Resp: 13822

Ion	Ratio	Lower	Upper
72	100		
71	95.4	74.0	114.0
42	202.5	167.0	207.0

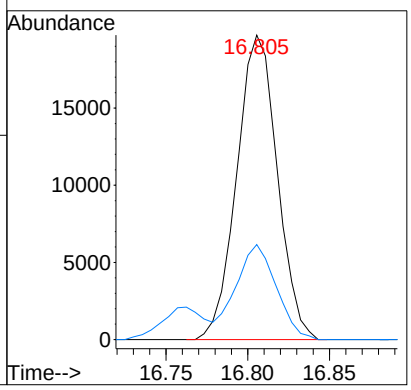




#75
alpha-Pinene
Concen: 0.46 ng
RT: 16.81 min Scan# 2454
Delta R.T. -0.011 min
Lab File: 02081821.D
Acq: 8 Feb 2018 15:06

Tgt Ion: 93 Resp: 34084

Ion	Ratio	Lower	Upper
93	100		
77	31.2	8.2	48.2



Quantitation Report (QT Reviewed)

Data File : I:\MS08\Data\2018 02\08\02081803.D Vial: 1
Acq On : 8 Feb 2018 3:13 Operator: WA
Sample : MB R8020818 1000mL Inst : MS08
Misc : S31-01051802

Quant Time: Feb 08 14:24:31 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 2/8/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	321150	12.500	ng	-0.05
37) 1,4-Difluorobenzene (IS2)	10.79	114	1528812	12.500	ng	-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	621213	12.500	ng	-0.01
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	9.73	65	458111	13.357	ng	-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.88%			
57) Toluene-d8 (SS2)	13.02	98	1529899	12.678	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.44%			
73) Bromofluorobenzene (SS3)	16.30	174	650737	12.234	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.84%			
Target Compounds						Qvalue
2) Propene	4.10	42	660	N.D.		
3) Dichlorodifluoromethan...	4.11	85	116	N.D.		
4) Chloromethane	4.39	50	112	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	5.61	45	2460	0.142	ng	90
11) Acetonitrile	5.81	41	1755	N.D.		
12) Acrolein	5.96	56	840	N.D.		
13) Acetone	6.10	58	5586	0.284	ng	91
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	6.40	45	923	N.D.		
16) Acrylonitrile	6.58	53	234	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	7.03	59	463	N.D.		
19) Methylene Chloride	7.02	84	3193	0.110	ng	90
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	7.29	76	11371	0.127	ng	95
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	8.52	72	244	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	9.12	57	165	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	10.41	56	1329	N.D.		
41) Benzene	10.49	78	1690	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	10.79	84	980	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d	
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		

Data File : I:\MS08\Data\2018 02\08\02081803.D Vial: 1
Acq On : 8 Feb 2018 3:13 Operator: WA
Sample : MB R8020818 1000mL Inst : MS08
Misc : S31-01051802

Quant Time: Feb 08 14:24:31 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

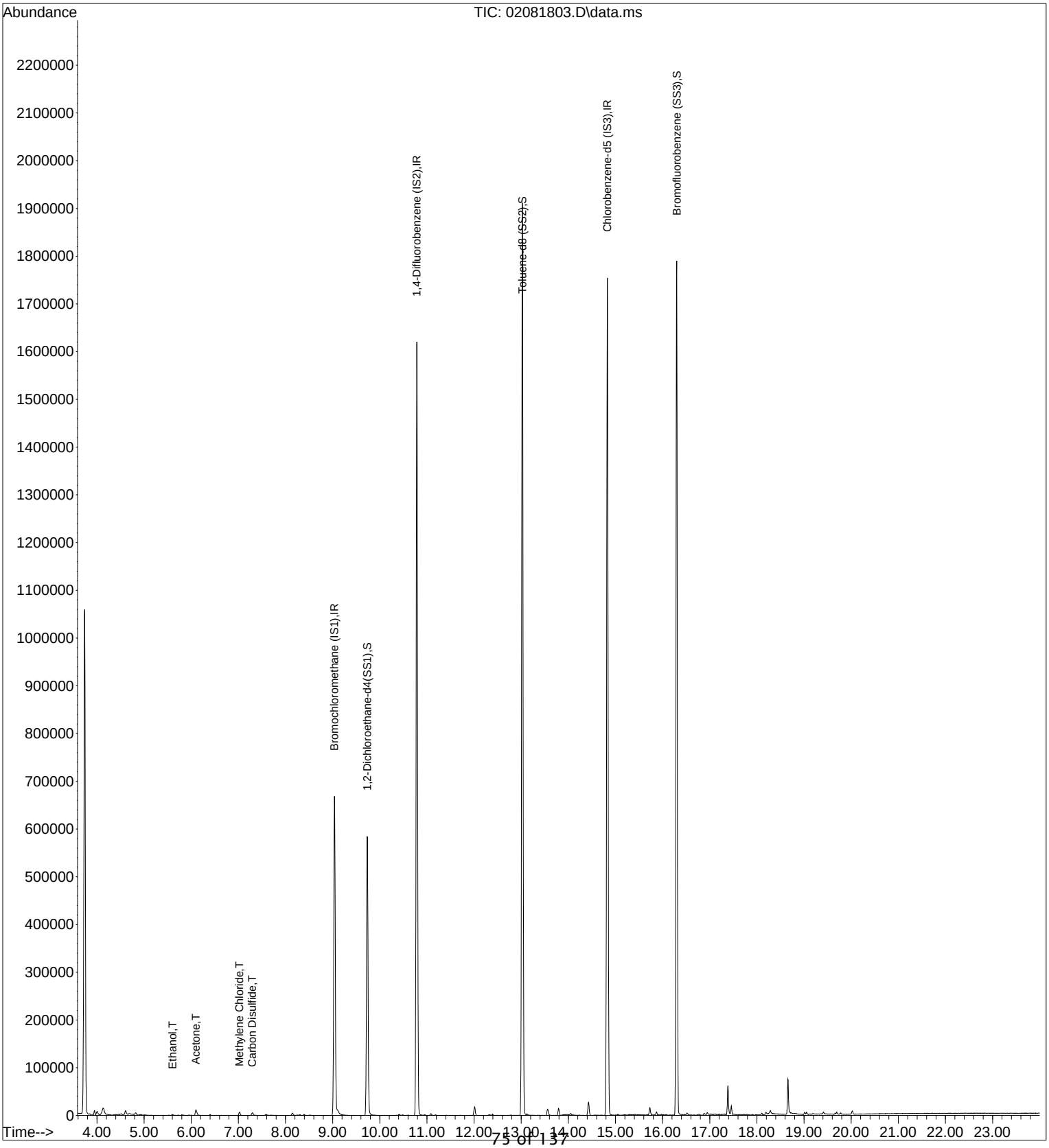
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.01	58	535	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.12	91	1762	N.D.	
59) 2-Hexanone	13.36	43	583	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	13.93	43	223	N.D.	
63) n-Octane	14.05	57	442	N.D.	
64) Tetrachloroethene	0.00	166	0	N.D.	
65) Chlorobenzene	14.87	112	450	N.D.	
66) Ethylbenzene	15.29	91	2658	N.D.	
67) m- & p-Xylenes	15.42	91	1786	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	15.77	104	348	N.D.	
70) o-Xylene	15.87	91	834	N.D.	
71) n-Nonane	16.06	43	438	N.D.	
72) 1,1,2,2-Tetrachloroethane	15.86	83	310	N.D.	
74) Cumene	16.43	105	1204	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	16.88	91	3007	N.D.	
77) 3-Ethyltoluene	17.01	105	678	N.D.	
78) 4-Ethyltoluene	17.05	105	771	N.D.	
79) 1,3,5-Trimethylbenzene	17.12	105	518	N.D.	
80) alpha-Methylstyrene	17.26	118	321	N.D.	
81) 2-Ethyltoluene	17.30	105	695	N.D.	
82) 1,2,4-Trimethylbenzene	17.51	105	658	N.D.	
83) n-Decane	17.60	57	107	N.D.	
84) Benzyl Chloride	17.63	91	456	N.D.	
85) 1,3-Dichlorobenzene	17.66	146	481	N.D.	
86) 1,4-Dichlorobenzene	17.72	146	716	N.D.	
87) sec-Butylbenzene	17.76	105	128	N.D.	
88) 4-Isopropyltoluene (p-...	17.91	119	528	N.D.	
89) 1,2,3-Trimethylbenzene	17.91	105	222	N.D.	
90) 1,2-Dichlorobenzene	18.05	146	419	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	18.79	57	184	N.D.	
94) 1,2,4-Trichlorobenzene	19.66	180	1880	N.D.	
95) Naphthalene	19.78	128	3542	N.D.	
96) n-Dodecane	19.69	57	1070	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	15.58	55	115	N.D.	
99) tert-Butylbenzene	17.52	119	592	N.D.	
100) n-Butylbenzene	18.29	91	3777	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS08\Data\2018 02\08\02081803.D Vial: 1
Acq On : 8 Feb 2018 3:13 Operator: WA
Sample : MB R8020818 1000mL Inst : MS08
Misc : S31-01051802

Quant Time: Feb 08 14:24:31 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS08\Data\2018 02\08\02081804.D Vial: 1
Acq On : 8 Feb 2018 3:45 Operator: WA
Sample : LCS R8020818 25ng Inst : MS08
Misc : S31-01051802/S31-01181806 (2/16)

Quant Time: Feb 08 06:36:00 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 2/8/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.06	130	358064	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.80	114	1548155	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.83	82	660829	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	9.75	65	483090	12.633	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.04%			
57) Toluene-d8 (SS2)	13.03	98	1575035	12.270	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.16%			
73) Bromofluorobenzene (SS3)	16.30	174	709258	12.535	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.24%			
Target Compounds						Qvalue
2) Propene	4.05	42	546490	20.907	ng	98
3) Dichlorodifluoromethan...	4.17	85	1350658	23.200	ng	100
4) Chloromethane	4.38	50	813230	21.758	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.55	135	827543	22.411	ng	99
6) Vinyl Chloride	4.67	62	955440	23.425	ng	99
7) 1,3-Butadiene	4.85	54	737160	23.665	ng	97
8) Bromomethane	5.17	94	598435	22.694	ng	99
9) Chloroethane	5.39	64	467582	22.041	ng	100
10) Ethanol	5.63	45	2078499	107.503	ng	99
11) Acetonitrile	5.83	41	981601	22.171	ng	99
12) Acrolein	5.95	56	370258	22.093	ng	99
13) Acetone	6.09	58	2370196	108.036	ng	97
14) Trichlorofluoromethane	6.25	101	1204916	21.661	ng	99
15) 2-Propanol (Isopropanol)	6.40	45	3101190	44.868	ng	96
16) Acrylonitrile	6.59	53	780078	23.398	ng	100
17) 1,1-Dichloroethene	6.90	96	689834	22.329	ng	98
18) 2-Methyl-2-Propanol (t...	6.99	59	3470454	46.606	ng	96
19) Methylene Chloride	7.05	84	688787	21.347	ng	92
20) 3-Chloro-1-propene (Al...	7.16	41	863936	23.280	ng	100
21) Trichlorotrifluoroethane	7.31	151	765083	22.357	ng	100
22) Carbon Disulfide	7.30	76	2364435	23.624	ng	99
23) trans-1,2-Dichloroethene	7.95	61	910886	24.473	ng	99
24) 1,1-Dichloroethane	8.15	63	1048778	21.718	ng	99
25) Methyl tert-Butyl Ether	8.19	73	2138113	23.101	ng	100
26) Vinyl Acetate	8.28	86	976653	127.613	ng	96
27) 2-Butanone (MEK)	8.50	72	458393	22.475	ng	95
28) cis-1,2-Dichloroethene	8.91	61	854907	22.907	ng	100
29) Diisopropyl Ether	9.10	87	629465	22.319	ng	99
30) Ethyl Acetate	9.10	61	421199	46.771	ng	100
31) n-Hexane	9.12	57	826927	23.430	ng	100
32) Chloroform	9.19	83	1172265	22.448	ng	100
34) Tetrahydrofuran (THF)	9.52	72	444268	20.586	ng	98
35) Ethyl tert-Butyl Ether	9.59	87	939247	23.576	ng	98
36) 1,2-Dichloroethane	9.85	62	908645	22.765	ng	98
38) 1,1,1-Trichloroethane	10.09	97	1178813	23.932	ng	98
39) Isopropyl Acetate	10.38	61	752903	48.670	ng	96
40) 1-Butanol	10.39	56	1450095	49.859	ng	90
41) Benzene	10.50	78	2458487	22.445	ng	99
42) Carbon Tetrachloride	10.64	117	1120402	24.834	ng	100
43) Cyclohexane	10.75	84	2278146	46.471	ng	99
44) tert-Amyl Methyl Ether	11.01	73	2001351	25.102	ng	97
45) 1,2-Dichloropropane	11.23	63	571778	22.460	ng	99
46) Bromodichloromethane	11.39	83	971225	25.171	ng	98
47) Trichloroethene	11.44	130	829256	22.492	ng	99
48) 1,4-Dioxane	11.40	88	601595	23.155	ng	100
49) 2,2,4-Trimethylpentane...	11.49	57	2586446	23.307	ng	97
50) Methyl Methacrylate	11.58	100	656514	47.898	ng	97

Quantitation Report (QT Reviewed)

Data File : I:\MS08\Data\2018 02\08\02081804.D Vial: 1
Acq On : 8 Feb 2018 3:45 Operator: WA
Sample : LCS R8020818 25ng Inst : MS08
Misc : S31-01051802/S31-01181806 (2/16)

Quant Time: Feb 08 06:36:00 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

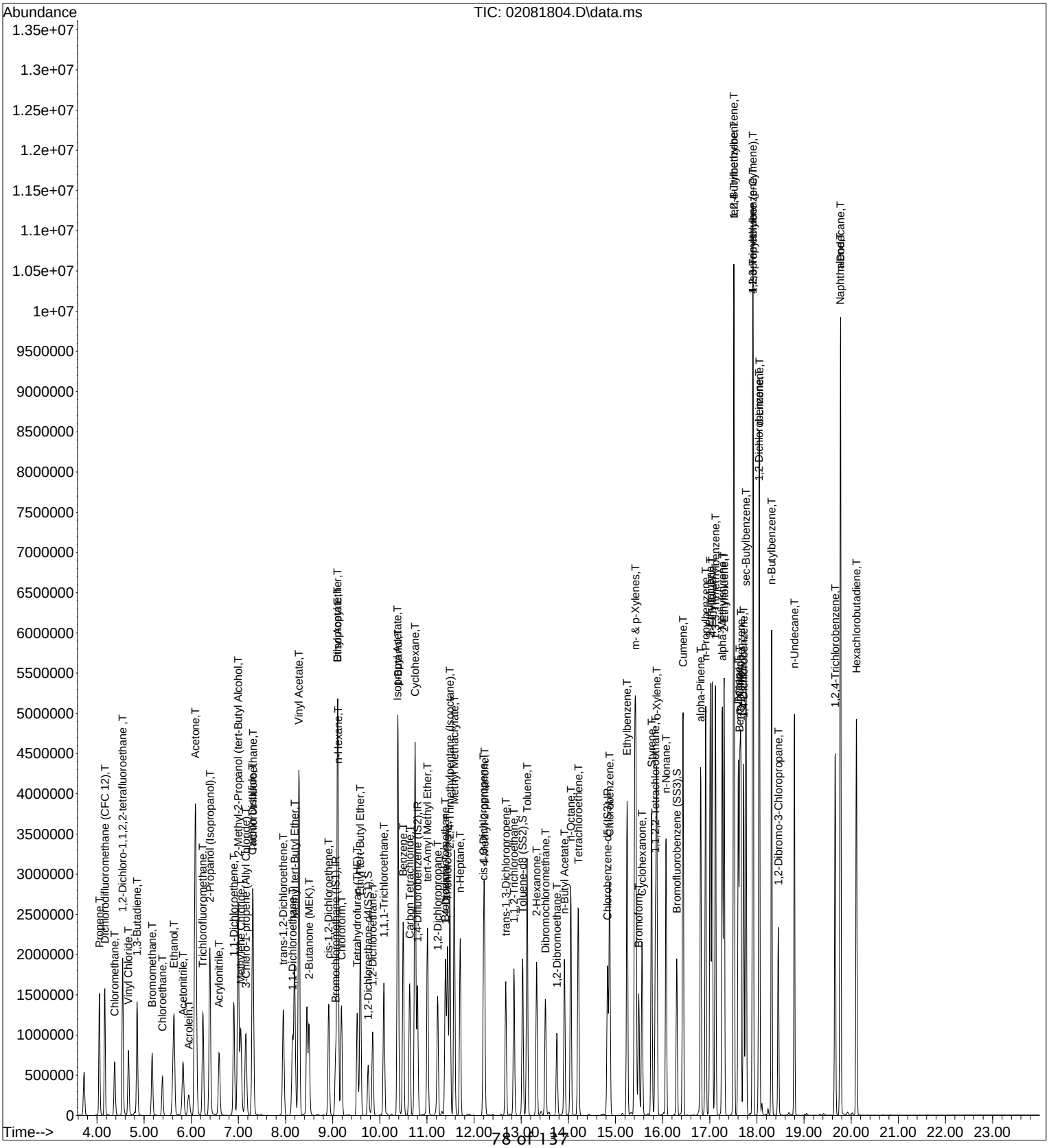
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	11.71	71	627178	22.100	ng	99
52) cis-1,3-Dichloropropene	12.20	75	1088624	25.125	ng	100
53) 4-Methyl-2-pentanone	12.22	58	587499	23.578	ng	94
54) trans-1,3-Dichloropropene	12.67	75	1040391	26.745	ng	99
55) 1,1,2-Trichloroethane	12.85	97	680135	23.684	ng	100
58) Toluene	13.13	91	2752192	21.674	ng	99
59) 2-Hexanone	13.32	43	1335798	21.753	ng	98
60) Dibromochloromethane	13.51	129	928227	24.762	ng	97
61) 1,2-Dibromoethane	13.76	107	807060	23.729	ng	99
62) n-Butyl Acetate	13.92	43	1491452	23.168	ng	98
63) n-Octane	14.05	57	518210	21.682	ng	97
64) Tetrachloroethene	14.21	166	980287	22.165	ng	100
65) Chlorobenzene	14.87	112	2042303	22.467	ng	99
66) Ethylbenzene	15.25	91	3312666	22.614	ng	98
67) m- & p-Xylenes	15.42	91	5279981	46.585	ng	98
68) Bromoform	15.49	173	866002	26.083	ng	100
69) Styrene	15.77	104	2243061	24.280	ng	99
70) o-Xylene	15.87	91	2753315	23.287	ng	99
71) n-Nonane	16.07	43	1147819	24.006	ng	99
72) 1,1,2,2-Tetrachloroethane	15.85	83	1198407	24.225	ng	99
74) Cumene	16.43	105	3676018	23.071	ng	98
75) alpha-Pinene	16.81	93	1859404	24.398	ng	98
76) n-Propylbenzene	16.91	91	4123301	23.567	ng	98
77) 3-Ethyltoluene	17.01	105	3732903	23.247	ng	98
78) 4-Ethyltoluene	17.05	105	3500155	24.203	ng	95
79) 1,3,5-Trimethylbenzene	17.12	105	3142663	23.498	ng	98
80) alpha-Methylstyrene	17.27	118	1765287	25.225	ng	96
81) 2-Ethyltoluene	17.31	105	3669105	23.633	ng	96
82) 1,2,4-Trimethylbenzene	17.51	105	3219043	24.199	ng	97
83) n-Decane	17.61	57	1370184	24.308	ng	99
84) Benzyl Chloride	17.63	91	2736506	31.454	ng	97
85) 1,3-Dichlorobenzene	17.66	146	2020016	24.430	ng	99
86) 1,4-Dichlorobenzene	17.72	146	2025420	23.807	ng	100
87) sec-Butylbenzene	17.77	105	4145900	23.569	ng	97
88) 4-Isopropyltoluene (p-...	17.91	119	4049991	23.564	ng	98
89) 1,2,3-Trimethylbenzene	17.91	105	3332714	24.755	ng	98
90) 1,2-Dichlorobenzene	18.04	146	1953480	25.239	ng	100
91) d-Limonene	18.05	68	1112250	25.416	ng	98
92) 1,2-Dibromo-3-Chloropr...	18.46	157	772821	26.998	ng	92
93) n-Undecane	18.80	57	1433122	24.312	ng	99
94) 1,2,4-Trichlorobenzene	19.66	180	1611240	27.060	ng	100
95) Naphthalene	19.77	128	4506771	30.583	ng	99
96) n-Dodecane	19.77	57	1456626	29.821	ng	99
97) Hexachlorobutadiene	20.11	225	1087510	23.095	ng	99
98) Cyclohexanone	15.56	55	924556	22.858	ng	98
99) tert-Butylbenzene	17.51	119	3240819	23.688	ng	97
100) n-Butylbenzene	18.31	91	3187171	23.905	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS08\Data\2018 02\08\02081804.D Vial: 1
Acq On : 8 Feb 2018 3:45 Operator: WA
Sample : LCS R8020818 25ng Inst : MS08
Misc : S31-01051802/S31-01181806 (2/16)

Quant Time: Feb 08 06:36:00 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\08\02081817.D
Acq On : 8 Feb 2018 12:48 Operator: AB
Sample : P1800459-003dup (1000mL)
Misc : S31-01051802
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 08 17:54:21 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	317631	12.500	ng		-0.05
37) 1,4-Difluorobenzene (IS2)	10.79	114	1503731	12.500	ng		-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	603161	12.500	ng		-0.01
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.74	65	455142	13.418	ng		-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.36%				
57) Toluene-d8 (SS2)	13.02	98	1473678	12.578	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.64%				
73) Bromofluorobenzene (SS3)	16.30	174	618213	11.971	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.76%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.17	85	94406	1.828	ng		100
4) Chloromethane	4.38	50	8900	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.56	135	2502	N.D.			
6) Vinyl Chloride	4.67	62	297	N.D.			
7) 1,3-Butadiene	4.92	54	365	N.D.			
8) Bromomethane	5.17	94	277	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.59	45	285233	16.631	ng		100
11) Acetonitrile	5.86	41	122	N.D.			
12) Acrolein	5.94	56	1340	N.D.			
13) Acetone	6.07	58	86218	4.430	ng	#	81
14) Trichlorofluoromethane	6.25	101	44513	0.902	ng		100
15) 2-Propanol (Isopropanol)	6.37	45	86398	1.409	ng		90
16) Acrylonitrile	6.63	53	1303	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	7.00	59	3566	N.D.			
19) Methylene Chloride	7.02	84	8041	N.D.			
20) 3-Chloro-1-propene (Al...	7.08	41	199	N.D.			
21) Trichlorotrifluoroethane	7.31	151	34449	1.135	ng		98
22) Carbon Disulfide	7.29	76	12318	N.D.			
23) trans-1,2-Dichloroethene	8.13	61	1364	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	8.13	73	456	N.D.			
26) Vinyl Acetate	8.26	86	1622	N.D.			
27) 2-Butanone (MEK)	8.49	72	8359	0.462	ng	#	87
28) cis-1,2-Dichloroethene	8.90	61	18304	0.553	ng		99
29) Diisopropyl Ether	9.10	87	3811	N.D.			
30) Ethyl Acetate	9.09	61	139511	17.464	ng		95
31) n-Hexane	9.11	57	20374	0.651	ng		97
32) Chloroform	9.17	83	3149	N.D.			
34) Tetrahydrofuran (THF)	9.53	72	7479	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	9.83	62	2132	N.D.			
38) 1,1,1-Trichloroethane	10.08	97	122	N.D.			
39) Isopropyl Acetate	10.38	61	108	N.D.			
40) 1-Butanol	0.00	56	0	N.D. d			
41) Benzene	10.48	78	37612	N.D.			
42) Carbon Tetrachloride	10.62	117	12548	N.D.			
43) Cyclohexane	10.74	84	6850	N.D.			
44) tert-Amyl Methyl Ether	10.79	73	15263	N.D.			
45) 1,2-Dichloropropane	11.22	63	325	N.D.			
46) Bromodichloromethane	11.42	83	780	N.D.			
47) Trichloroethene	11.43	130	39641	1.107	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.48	57	5717	N.D.			

Data File: I:\MS08\Data\2018 02\08\02081817.D
Acq On : 8 Feb 2018 12:48 Operator: AB
Sample : P1800459-003dup (1000mL)
Misc : S31-01051802
ALS Vial : 13 Sample Multiplier: 1

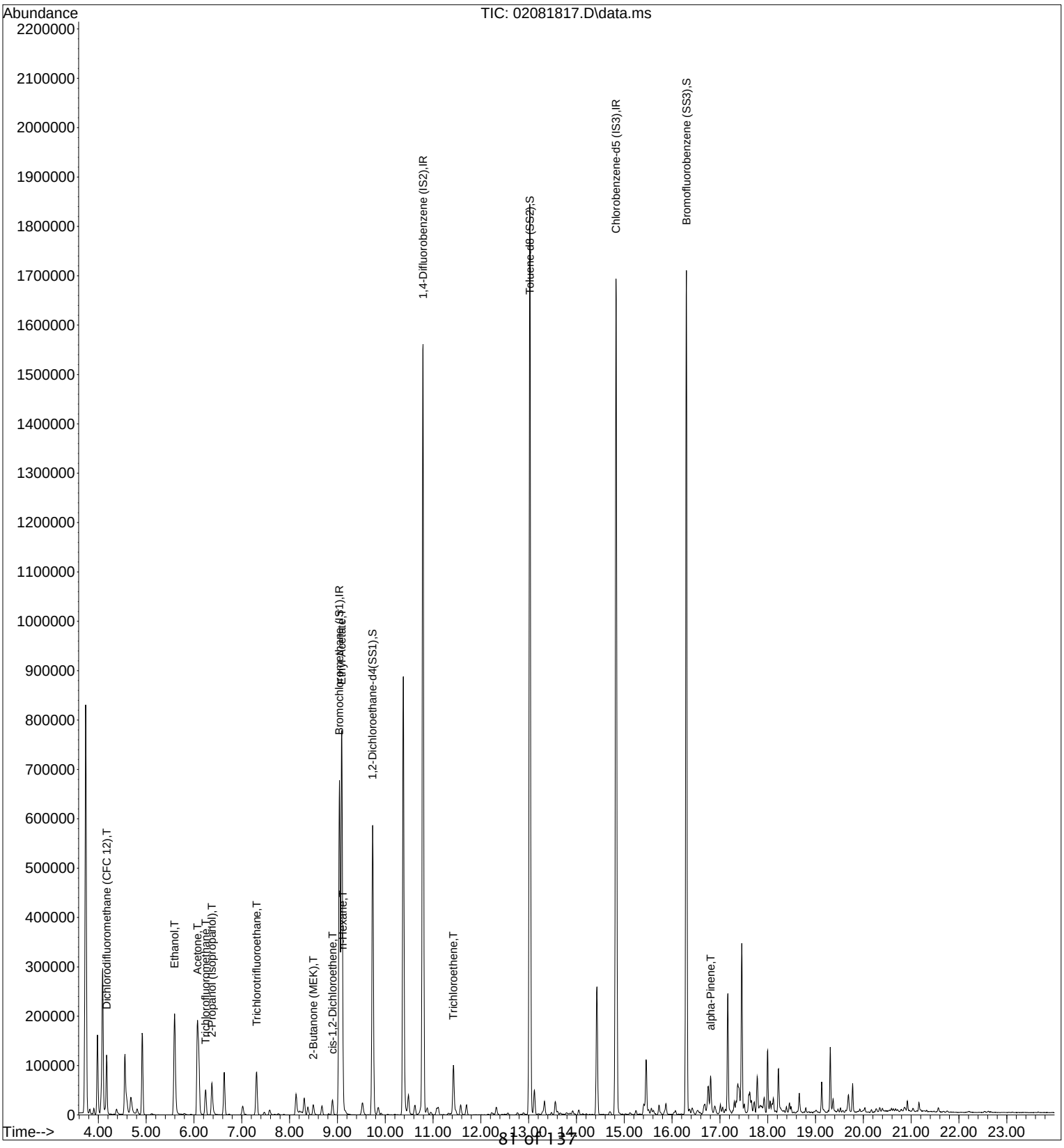
Quant Time: Feb 08 17:54:21 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
50) Methyl Methacrylate	11.58	100	3764	N.D.	
51) n-Heptane	11.70	71	5474	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.23	58	1298	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.12	91	42355	N.D.	
59) 2-Hexanone	13.33	43	6111	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	13.92	43	6947	N.D.	
63) n-Octane	14.05	57	1862	N.D.	
64) Tetrachloroethene	14.21	166	992	N.D.	
65) Chlorobenzene	14.87	112	866	N.D.	
66) Ethylbenzene	15.25	91	8115	N.D.	
67) m- & p-Xylenes	15.41	91	18441	N.D.	
68) Bromoform	15.49	173	142	N.D.	
69) Styrene	15.76	104	2093	N.D.	
70) o-Xylene	15.87	91	7709	N.D.	
71) n-Nonane	16.07	43	2673	N.D.	
72) 1,1,2,2-Tetrachloroethane	15.87	83	257	N.D.	
74) Cumene	16.43	105	1209	N.D.	
75) alpha-Pinene	16.81	93	31607	0.454 ng	94
76) n-Propylbenzene	16.91	91	3443	N.D.	
77) 3-Ethyltoluene	17.01	105	6044	N.D.	
78) 4-Ethyltoluene	17.05	105	2971	N.D.	
79) 1,3,5-Trimethylbenzene	17.12	105	2127	N.D.	
80) alpha-Methylstyrene	17.27	118	362	N.D.	
81) 2-Ethyltoluene	17.30	105	2290	N.D.	
82) 1,2,4-Trimethylbenzene	17.51	105	7289	N.D.	
83) n-Decane	17.62	57	22267	N.D.	
84) Benzyl Chloride	17.74	91	342	N.D.	
85) 1,3-Dichlorobenzene	17.72	146	657	N.D.	
86) 1,4-Dichlorobenzene	17.72	146	657	N.D.	
87) sec-Butylbenzene	17.77	105	1192	N.D.	
88) 4-Isopropyltoluene (p-...	17.91	119	4296	N.D.	
89) 1,2,3-Trimethylbenzene	17.91	105	2041	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	18.05	68	4425	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	18.79	57	3010	N.D.	
94) 1,2,4-Trichlorobenzene	19.66	180	2320	N.D.	
95) Naphthalene	19.77	128	5334	N.D.	
96) n-Dodecane	19.78	57	14131	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	15.56	55	4833	N.D.	
99) tert-Butylbenzene	17.51	119	1030	N.D.	
100) n-Butylbenzene	18.29	91	2180	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\08\02081817.D
Acq On : 8 Feb 2018 12:48 Operator: AB
Sample : P1800459-003dup (1000mL)
Misc : S31-01051802
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 08 17:54:21 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\08\02081817.D
Acq On : 8 Feb 2018 12:48 Operator: AB
Sample : P1800459-003dup (1000mL)
Misc : S31-01051802
ALS Vial : 13 Sample Multiplier: 1

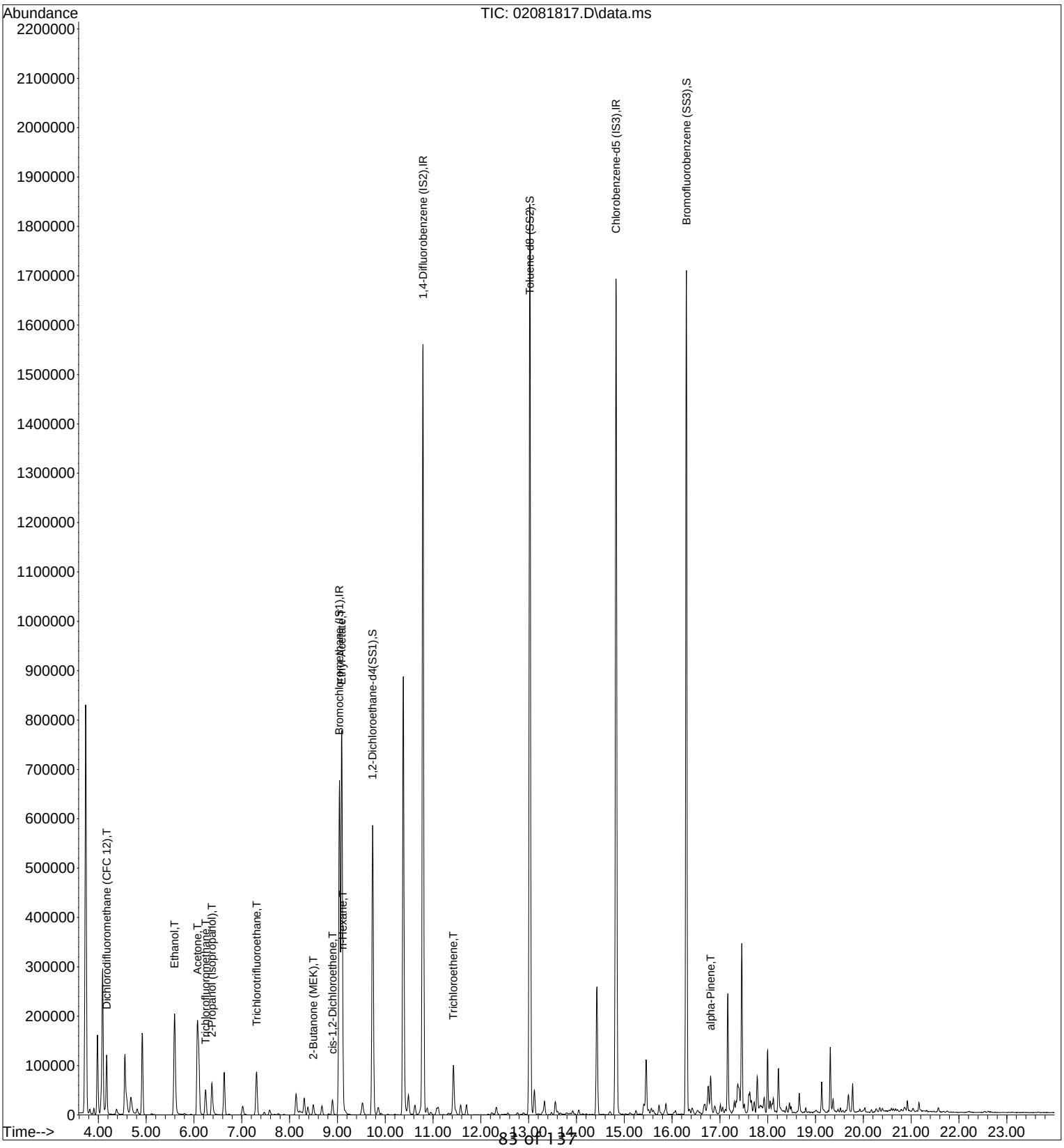
Quant Time: Feb 08 17:54:21 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) AB 2/8/18
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

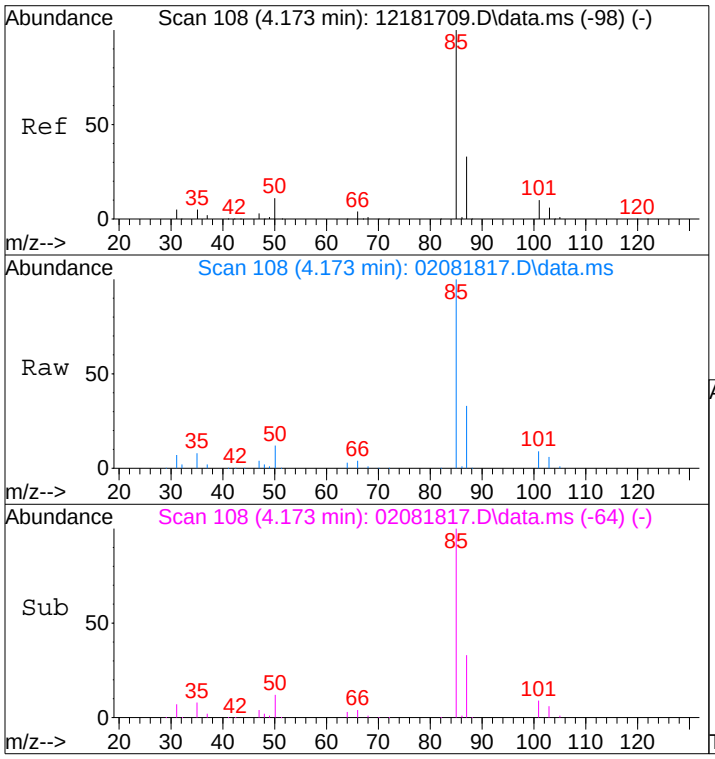
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	317631	12.500	ng		-0.05
37) 1,4-Difluorobenzene (IS2)	10.79	114	1503731	12.500	ng		-0.03
56) Chlorobenzene-d5 (IS3)	14.83	82	603161	12.500	ng		-0.01
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.74	65	455142	13.418	ng		-0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.36%				
57) Toluene-d8 (SS2)	13.02	98	1473678	12.578	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.64%				
73) Bromofluorobenzene (SS3)	16.30	174	618213	11.971	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.76%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.17	85	94406	1.828	ng		100
10) Ethanol	5.59	45	285233	16.631	ng		100
13) Acetone	6.07	58	86218	4.430	ng	#	81
14) Trichlorofluoromethane	6.25	101	44513	0.902	ng		100
15) 2-Propanol (Isopropanol)	6.37	45	86398	1.409	ng		90
21) Trichlorotrifluoroethane	7.31	151	34449	1.135	ng		98
27) 2-Butanone (MEK)	8.49	72	8359	0.462	ng	#	87
28) cis-1,2-Dichloroethene	8.90	61	18304	0.553	ng		99
30) Ethyl Acetate	9.09	61	139511	17.464	ng		95
31) n-Hexane	9.11	57	20374	0.651	ng		97
47) Trichloroethene	11.43	130	39641	1.107	ng		99
75) alpha-Pinene	16.81	93	31607	0.454	ng		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\08\02081817.D
Acq On : 8 Feb 2018 12:48 Operator: AB
Sample : P1800459-003dup (1000mL)
Misc : S31-01051802
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 08 17:54:21 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

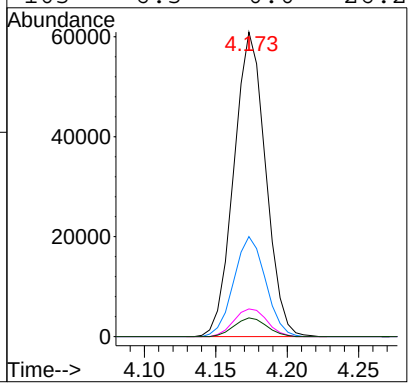


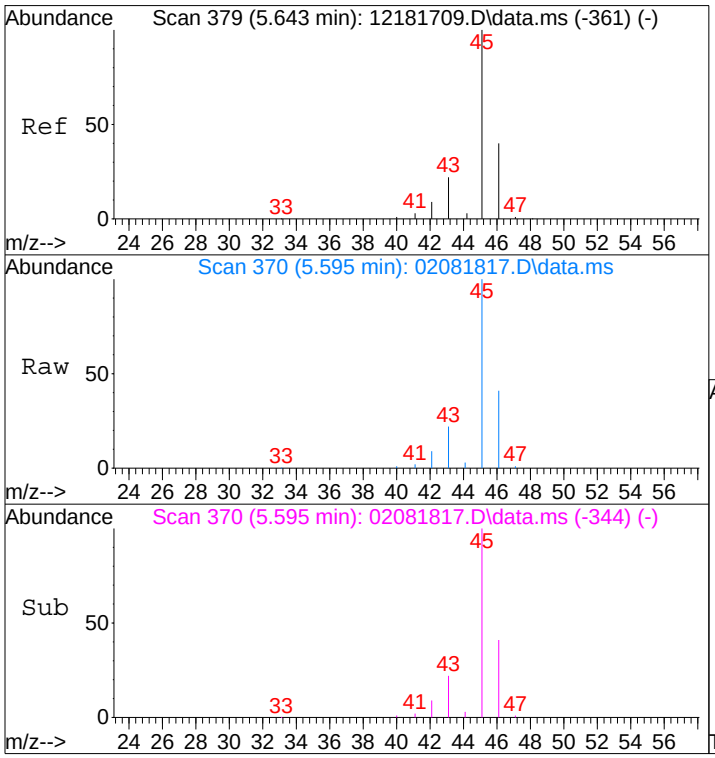


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.83 ng
RT: 4.17 min Scan# 108
Delta R.T. -0.011 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion: 85 Resp: 94406

Ion	Ratio	Lower	Upper
85	100		
87	32.9	13.1	53.1
101	9.5	0.0	29.8
103	6.3	0.0	26.2

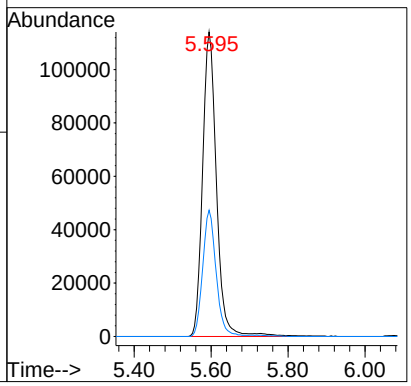


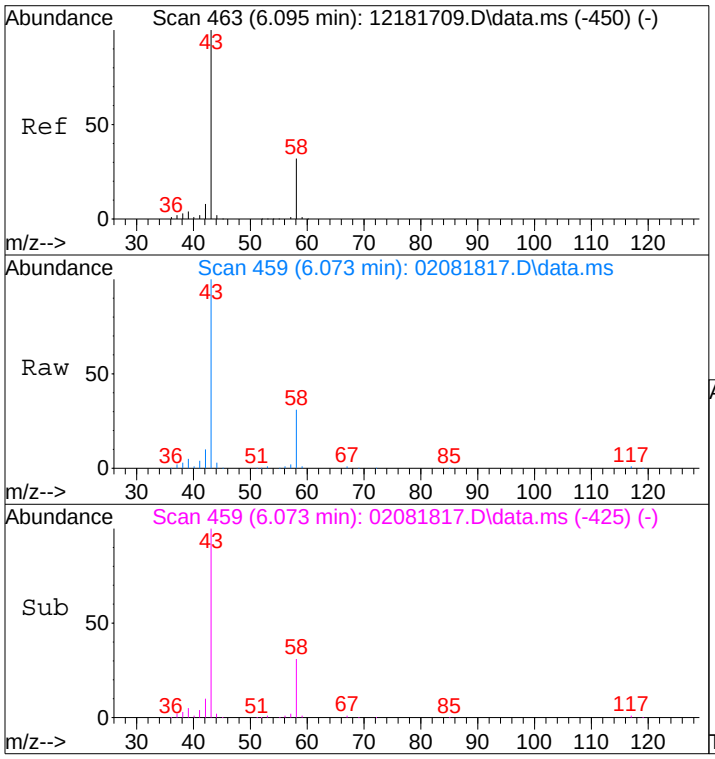


#10
Ethanol
Concen: 16.63 ng
RT: 5.59 min Scan# 370
Delta R.T. -0.108 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion: 45 Resp: 285233

Ion	Ratio	Lower	Upper
45	100		
46	40.5	20.3	60.3

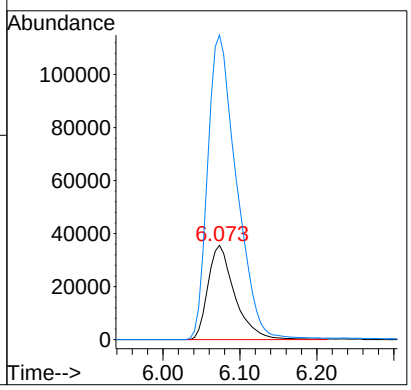


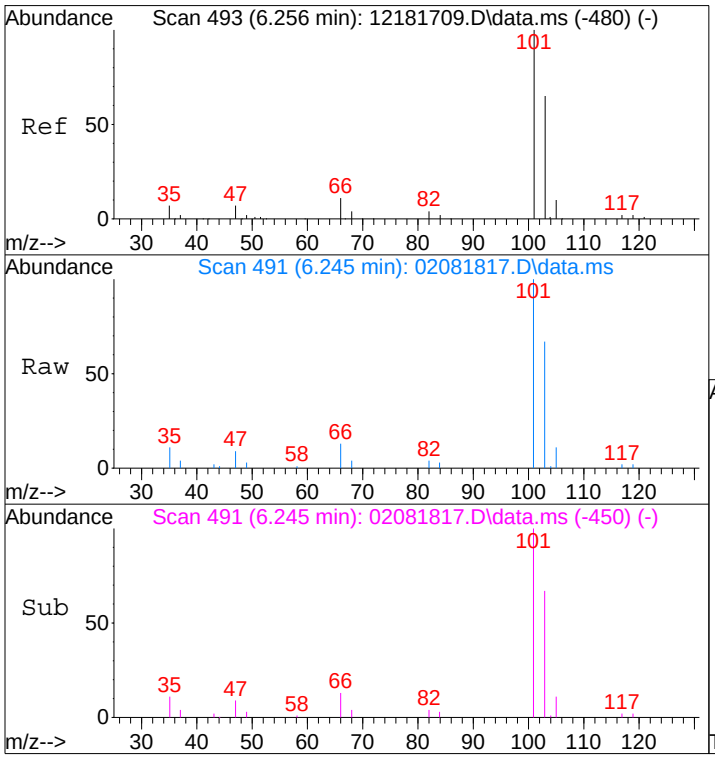


#13
Acetone
Concen: 4.43 ng
RT: 6.07 min Scan# 459
Delta R.T. -0.065 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion: 58 Resp: 86218

Ion	Ratio	Lower	Upper
58	100		
43	348.3	279.8	339.8#

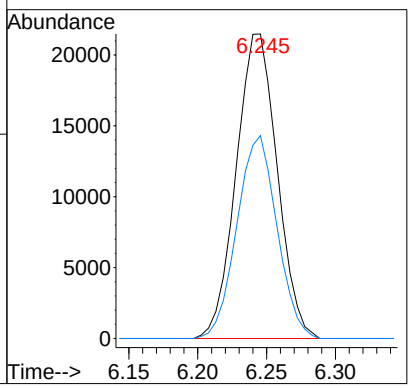


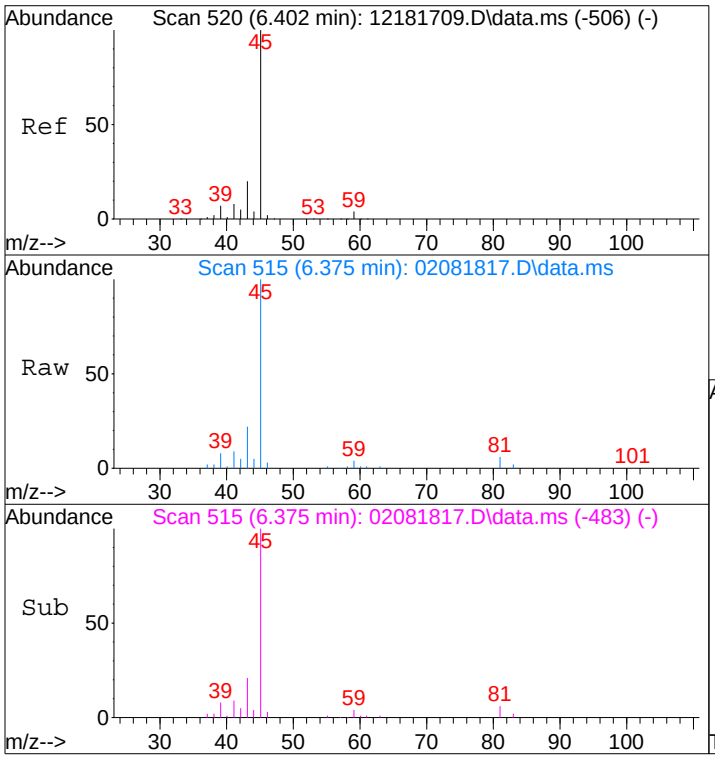


#14
Trichlorofluoromethane
Concen: 0.90 ng
RT: 6.25 min Scan# 491
Delta R.T. -0.027 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion:101 Resp: 44513

Ion	Ratio	Lower	Upper
101	100		
103	65.0	45.0	85.0

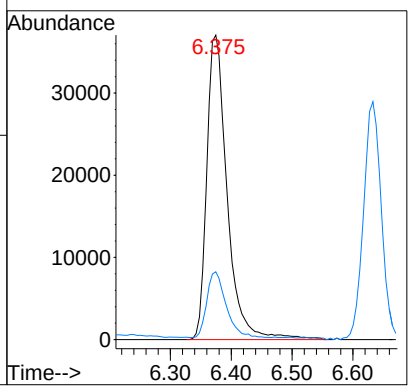


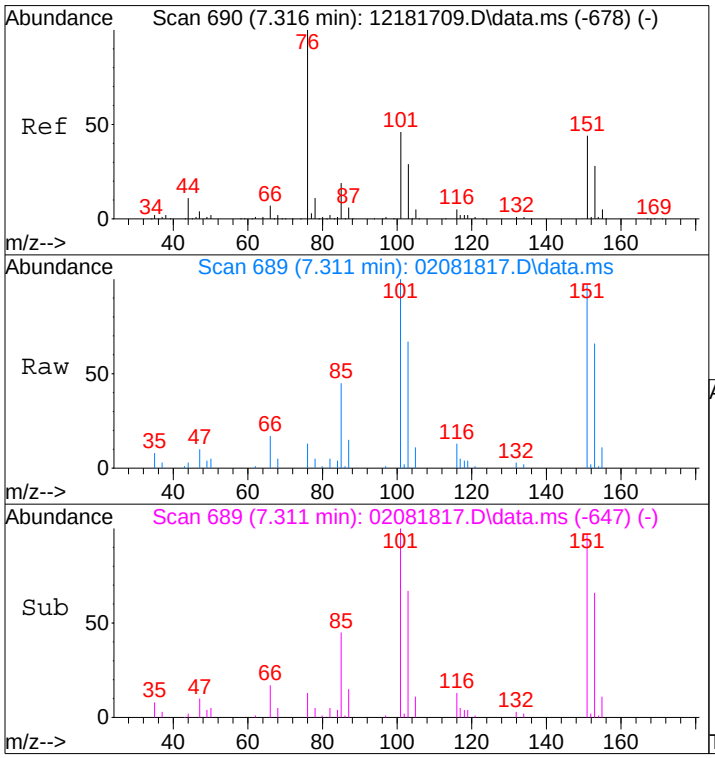


#15
2-Propanol (Isopropanol)
Concen: 1.41 ng
RT: 6.37 min Scan# 515
Delta R.T. -0.075 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion: 45 Resp: 86398

Ion	Ratio	Lower	Upper
45	100		
43	23.9	0.0	39.5

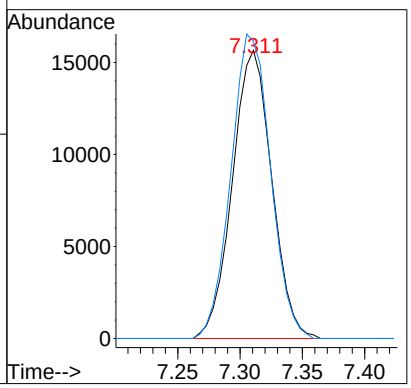


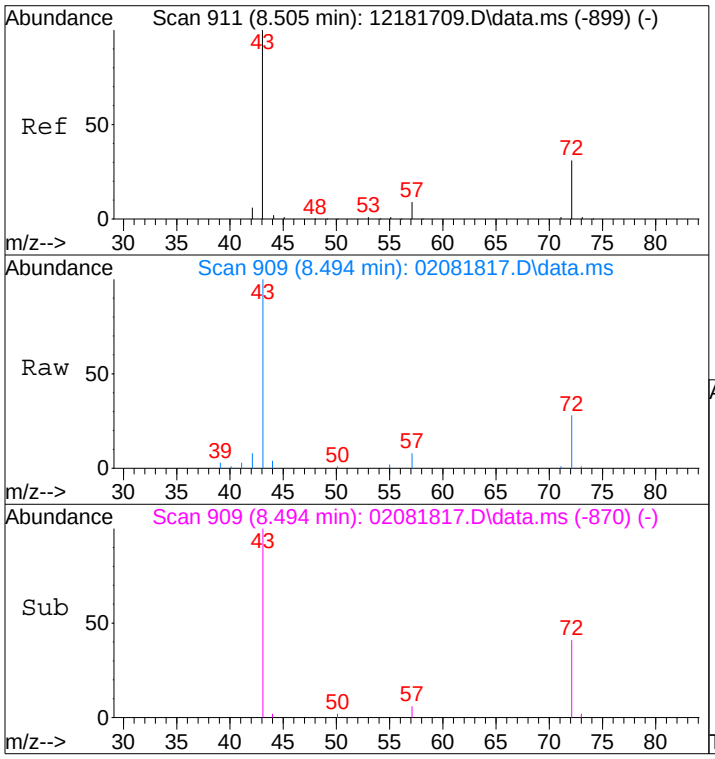


#21
Trichlorotrifluoroethane
Concen: 1.13 ng
RT: 7.31 min Scan# 689
Delta R.T. -0.022 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion:151 Resp: 34449

Ion	Ratio	Lower	Upper
151	100		
101	106.3	83.9	123.9

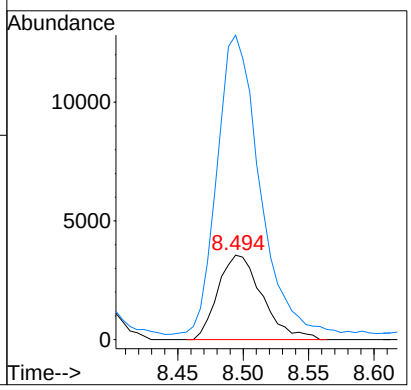


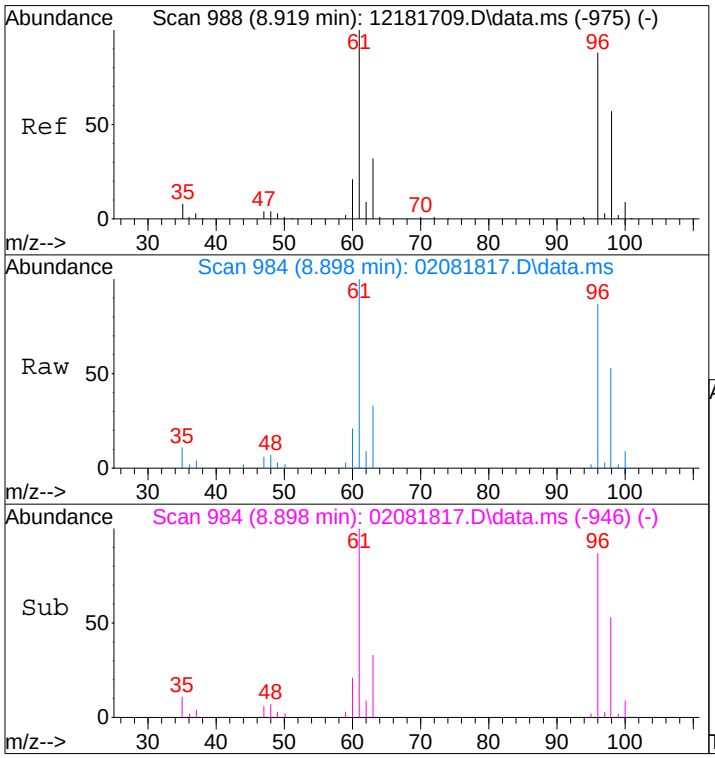


#27
2-Butanone (MEK)
Concen: 0.46 ng
RT: 8.49 min Scan# 909
Delta R.T. -0.038 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion: 72 Resp: 8359

Ion	Ratio	Lower	Upper
72	100		
43	345.5	299.8	339.8#

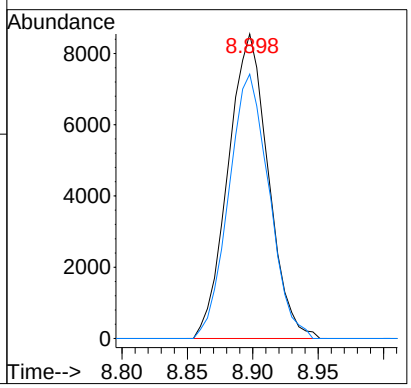


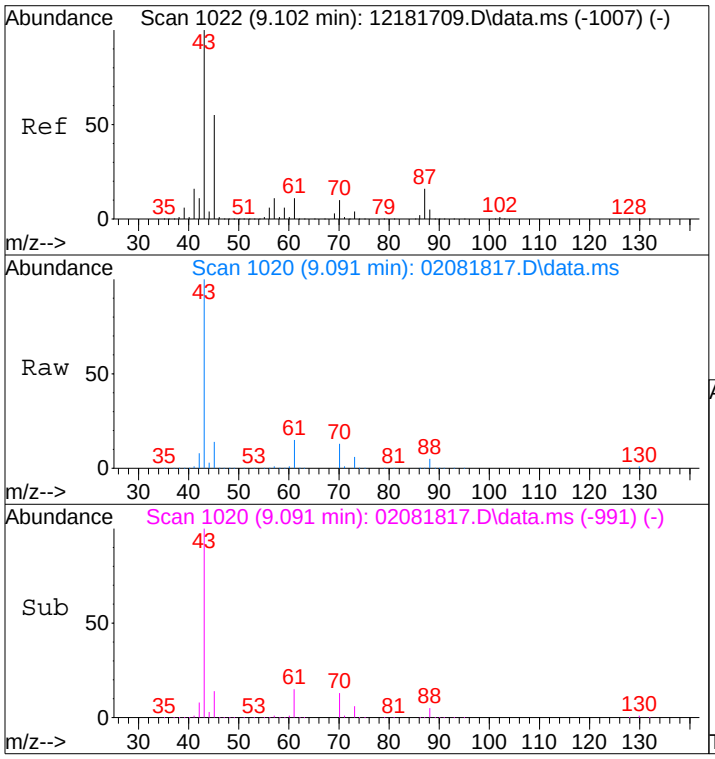


#28
cis-1,2-Dichloroethene
Concen: 0.55 ng
RT: 8.90 min Scan# 984
Delta R.T. -0.043 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion: 61 Resp: 18304

Ion	Ratio	Lower	Upper
61	100		
96	86.9	67.6	107.6

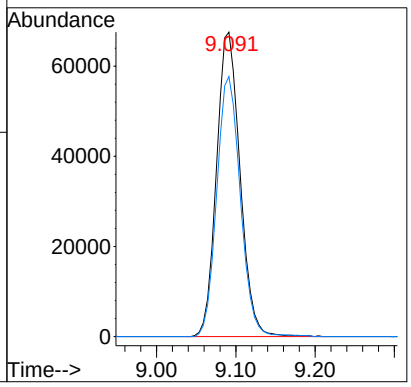


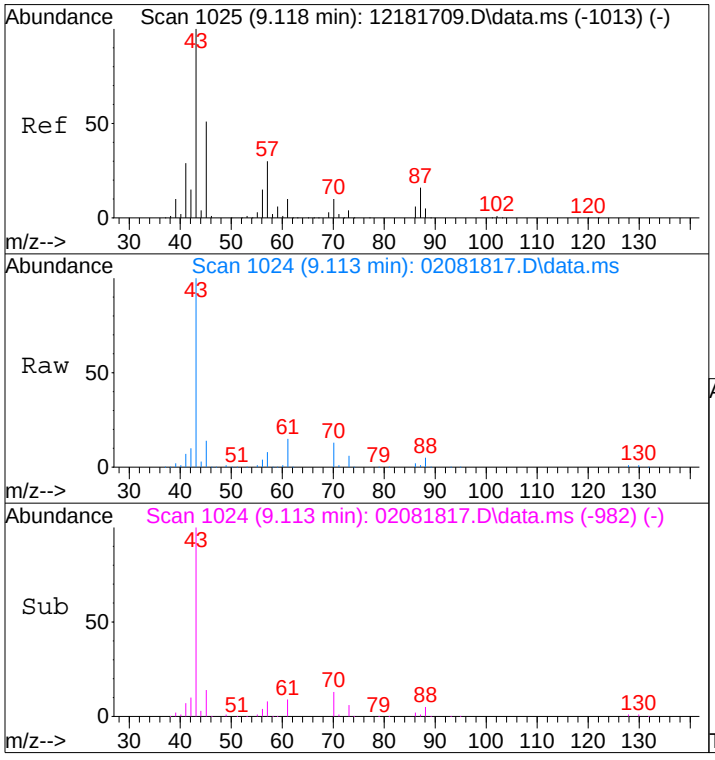


#30
Ethyl Acetate
Concen: 17.46 ng
RT: 9.09 min Scan# 1020
Delta R.T. -0.043 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion: 61 Resp: 139511

Ion	Ratio	Lower	Upper
61	100		
70	85.5	70.5	110.5

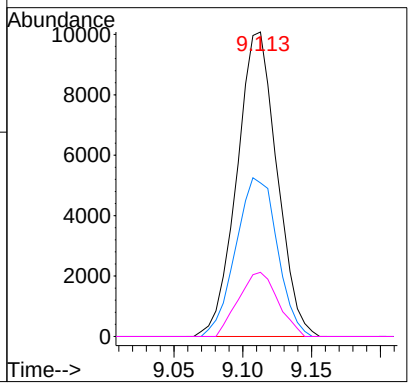


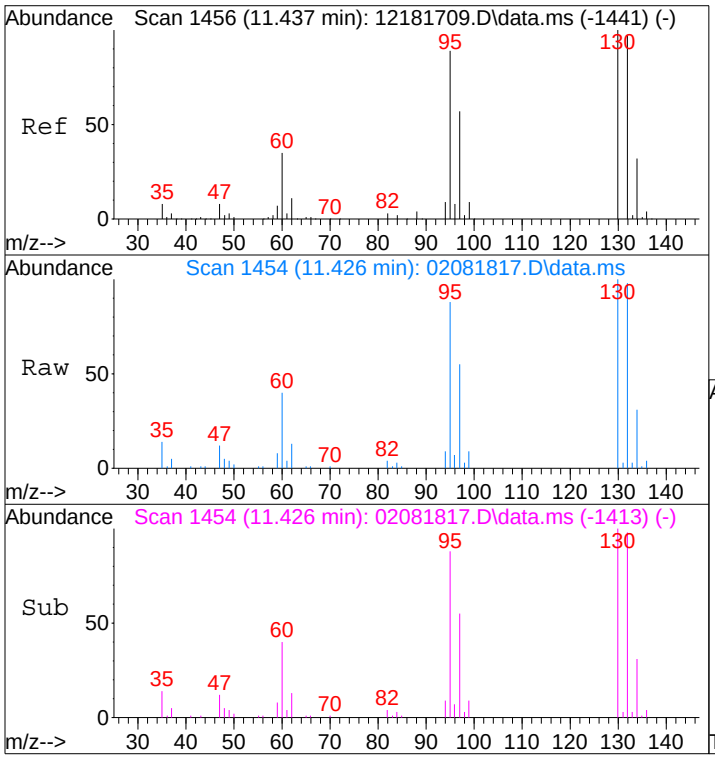


#31
n-Hexane
Concen: 0.65 ng
RT: 9.11 min Scan# 1024
Delta R.T. -0.022 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion: 57 Resp: 20374

Ion	Ratio	Lower	Upper
57	100		
56	54.1	41.0	61.4
86	20.8	17.2	25.8

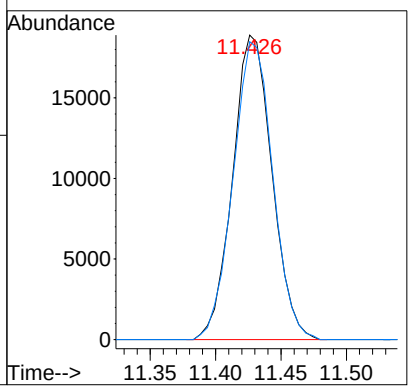


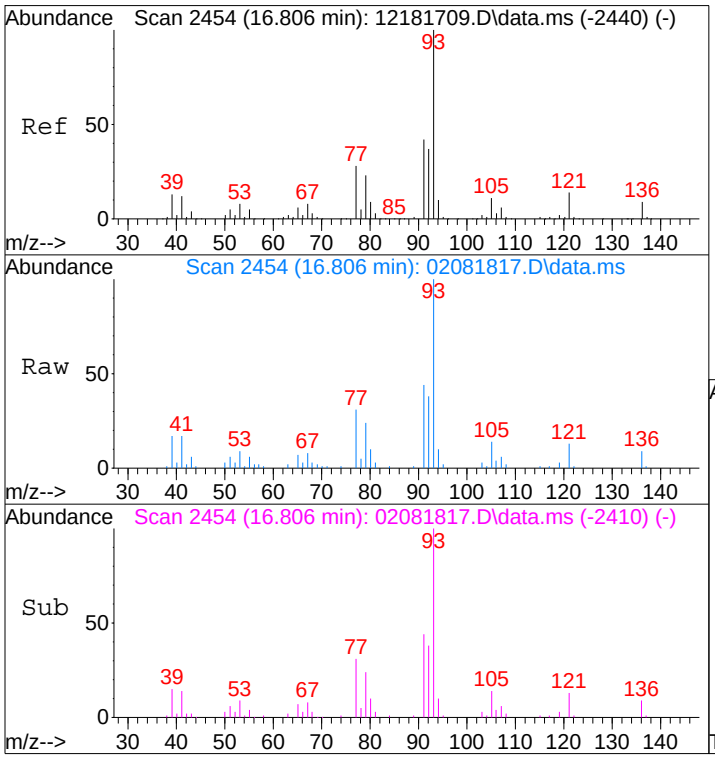


#47
Trichloroethene
Concen: 1.11 ng
RT: 11.43 min Scan# 1454
Delta R.T. -0.027 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion:130 Resp: 39641

Ion	Ratio	Lower	Upper
130	100		
132	98.6	77.3	117.3

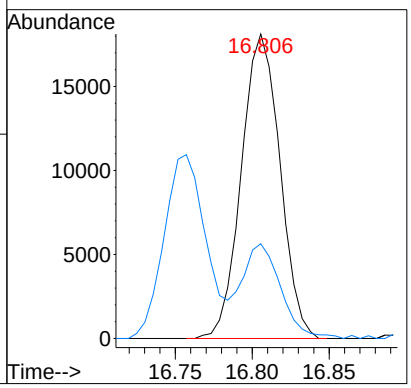




#75
alpha-Pinene
Concen: 0.45 ng
RT: 16.81 min Scan# 2454
Delta R.T. -0.011 min
Lab File: 02081817.D
Acq: 8 Feb 2018 12:48

Tgt Ion: 93 Resp: 31607

Ion	Ratio	Lower	Upper
93	100		
77	31.3	8.2	48.2



00870495

Method Path : I:\MS08\Methods\
Method File : R8020518.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Feb 05 14:55:08 2018
Response Via : Initial Calibration

LH 2/5/18

Calibration Files
0.08=02051802.D 0.10=02051803.D 0.20=02051804.D 0.40=02051805.D 1.0 =02051806.D 5.0 =02051
50 =02051809.D 100 =02051810.D

		Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------								
2)	T	Propene		1.161	1.056	0.909	0.982	0.783	0.803	0.766	0.840	0.913	15.65
3)	T	Dichlorodifluo...		2.400	2.253	2.108	2.303	1.862	1.892	1.780	1.662	2.032	13.31
4)	T	Chloromethane	1.738	1.512	1.497	1.312	1.407	1.097	1.171	1.090	0.919	1.305	19.80
5)	T	1,2-Dichloro-1...	1.591	1.443	1.398	1.259	1.411	1.152	1.174	1.118	1.056	1.289	13.93
6)	T	Vinyl Chloride	1.763	1.590	1.516	1.375	1.536	1.271	1.307	1.257	1.201	1.424	13.15
7)	T	1,3-Butadiene	1.414	1.262	1.097	1.015	1.091	0.936	1.020	0.994	0.957	1.087	14.37
8)	T	Bromomethane	1.194	1.061	0.925	0.895	0.953	0.787	0.849	0.819	0.803	0.921	14.55
9)	T	Chloroethane	0.900	0.852	0.815	0.724	0.787	0.649	0.666	0.640	0.631	0.741	13.65
10)	T	Ethanol	0.925	0.824	0.752	0.647	0.707	0.560	0.580	0.554	0.525	0.675	20.43
11)	T	Acetonitrile			1.883	1.668	1.736	1.391	1.409	1.377	1.356	1.546	13.77
12)	T	Acrolein	0.835	0.652	0.592	0.503	0.592	0.510	0.539	0.525	0.518	0.585	18.10
13)	T	Acetone	1.055	0.952	0.859	0.766	0.782	0.636	0.653	0.623	0.567	0.766	21.51
14)	T	Trichlorofluor...	2.400	2.296	2.172	1.933	2.042	1.695	1.689	1.641	1.609	1.942	15.50
15)	T	2-Propanol (Is...	3.165	2.884	2.650	2.400	2.569	2.131	2.181	2.038	1.699	2.413	18.83
16)	T	Acrylonitrile	1.272	1.214	1.235	1.148	1.267	1.071	1.109	1.085	1.073	1.164	7.21
17)	T	1,1-Dichloroet...	1.314	1.257	1.156	1.028	1.134	0.938	0.987	0.961	0.932	1.079	13.20
18)	T	2-Methyl-2-Pro...	3.482	3.090	2.856	2.581	2.635	2.244	2.392	2.253	1.862	2.600	18.84
19)	T	Methylene Chlo...	1.091	1.167	1.619	1.276	1.221	0.937	0.972	0.945	0.911	1.126	20.25
20)	T	3-Chloro-1-pro...	1.708	1.431	1.327	1.261	1.330	1.124	1.191	1.167	1.120	1.296	14.44
21)	T	Trichlorotrifl...	1.510	1.391	1.271	1.161	1.246	1.041	1.086	1.053	0.992	1.195	14.63
22)	T	Carbon Disulfide				4.364	4.130	3.239	3.263	3.098	2.869	3.494	17.30
23)	T	trans-1,2-Dich...	1.476	1.424	1.367	1.250	1.402	1.198	1.239	1.190	1.148	1.299	9.14
24)	T	1,1-Dichloroet...	2.143	2.031	1.859	1.656	1.787	1.473	1.452	1.398	1.375	1.686	16.89
25)	T	Methyl tert-Bu...	4.116	3.793	3.507	3.097	3.294	2.820	2.937	2.826	2.689	3.231	15.12
26)	T	Vinyl Acetate	0.291	0.271	0.276	0.268	0.284	0.256	0.266	0.257	0.236	0.267	6.07
27)	T	2-Butanone (MEK)	0.879	0.792	0.755	0.729	0.746	0.630	0.636	0.619	0.622	0.712	12.83
28)	T	cis-1,2-Dichlo...	1.569	1.527	1.397	1.279	1.395	1.160	1.172	1.127	1.098	1.303	13.56
29)	T	Diisopropyl Ether	1.453	1.159	1.061	0.951	1.029	0.831	0.856	0.817	0.705	0.985	22.85
30)	T	Ethyl Acetate	0.392	0.358	0.349	0.317	0.347	0.286	0.283	0.270	0.227	0.314	16.53
31)	T	n-Hexane	1.224	1.301	1.263	1.550	1.550	1.180	1.092	1.042	0.888	1.232	17.80
32)	T	Chloroform	2.242	2.107	1.963	1.800	1.975	1.618	1.623	1.561	1.519	1.823	14.28
33)	S	1,2-Dichloroet...	1.348	1.350	1.354	1.363	1.340	1.339	1.293	1.297	1.331	1.335	1.83
34)	T	Tetrahydrofura...	0.997	0.924	0.846	0.795	0.753	0.635	0.619	0.603	0.608	0.753	19.62
35)	T	Ethyl tert-But...	1.745	1.570	1.464	1.326	1.396	1.217	1.300	1.266	1.234	1.391	12.61
36)	T	1,2-Dichloroet...	1.716	1.678	1.530	1.355	1.502	1.236	1.230	1.171	1.123	1.393	15.86
37)	IR	1,4-Difluorobenzen...	----------	ISTD	----------								
38)	T	1,1,1-Trichlor...	0.480	0.451	0.420	0.376	0.421	0.352	0.379	0.364	0.337	0.398	12.04
39)	T	Isopropyl Acetate	0.154	0.142	0.131	0.122	0.131	0.112	0.119	0.113	0.100	0.125	13.28
40)	T	1-Butanol	0.292	0.262	0.244	0.230	0.232	0.209	0.231	0.219	0.195	0.235	12.32
41)	T	Benzene	1.146	1.068	0.966	0.861	0.938	0.768	0.783	0.742	0.688	0.884	17.64
42)	T	Carbon Tetrach...	0.430	0.406	0.377	0.346	0.381	0.326	0.357	0.342	0.315	0.364	10.32
43)	T	Cyclohexane	0.507	0.489	0.433	0.384	0.411	0.337	0.361	0.342	0.298	0.396	17.85
44)	T	tert-Amyl Meth...	0.792	0.717	0.668	0.614	0.630	0.562	0.635	0.611	0.564	0.644	11.39
45)	T	1,2-Dichloropr...	0.261	0.250	0.222	0.199	0.216	0.177	0.184	0.176	0.165	0.206	16.56
46)	T	Bromodichlorom...	0.371	0.346	0.323	0.290	0.329	0.283	0.305	0.290	0.267	0.312	10.73
47)	T	Trichloroethene	0.376	0.357	0.325	0.284	0.314	0.260	0.268	0.256	0.239	0.298	16.07
48)	T	1,4-Dioxane	0.259	0.243	0.225	0.205	0.219	0.182	0.195	0.187	0.173	0.210	13.79
49)	T	2,2,4-Trimethy...	1.138	1.055	0.972	0.871	0.956	0.789	0.821	0.770	0.694	0.896	16.15
50)	T	Methyl Methacr...	0.133	0.123	0.112	0.106	0.116	0.100	0.107	0.103	0.096	0.111	10.58
51)	T	n-Heptane	0.289	0.282	0.251	0.231	0.245	0.197	0.198	0.189	0.180	0.229	17.74
52)	T	cis-1,3-Dichlo...	0.415	0.373	0.354	0.328	0.375	0.324	0.346	0.329	0.304	0.350	9.68
53)	T	4-Methyl-2-pen...	0.246	0.232	0.214	0.199	0.209	0.176	0.188	0.180	0.166	0.201	13.31
54)	T	trans-1,3-Dich...	0.346	0.316	0.306	0.286	0.334	0.301	0.328	0.315	0.294	0.314	6.14

55)	T	1,1,2-Trichlor...	0.276	0.267	0.239	0.223	0.248	0.208	0.220	0.209	0.195	0.232	12.01
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------										
57)	S	Toluene-d8 (SS2)	2.445	2.446	2.455	2.434	2.440	2.441	2.411	2.387	2.393	2.428	1.02
58)	T	Toluene	3.019	2.908	2.671	2.373	2.564	2.125	2.147	2.008	1.803	2.402	17.36
59)	T	2-Hexanone	1.693	1.360	1.240	1.133	1.177	0.994	1.019	0.962	0.876	1.162	21.48
60)	T	Dibromochlorom...	0.785	0.768	0.710	0.640	0.745	0.665	0.721	0.698	0.649	0.709	7.25
61)	T	1,2-Dibromoethane	0.741	0.712	0.656	0.612	0.688	0.595	0.623	0.599	0.566	0.643	9.20
62)	T	n-Butyl Acetate	1.628	1.386	1.296	1.180	1.236	1.082	1.125	1.059	0.967	1.218	16.41
63)	T	n-Octane	0.648	0.531	0.485	0.430	0.468	0.385	0.393	0.375	0.354	0.452	20.70
64)	T	Tetrachloroethene	1.030	0.959	0.909	0.808	0.895	0.743	0.772	0.734	0.678	0.837	14.03
65)	T	Chlorobenzene	2.154	2.045	1.865	1.676	1.828	1.521	1.568	1.478	1.340	1.719	15.85
66)	T	Ethylbenzene	3.568	3.214	2.973	2.702	2.953	2.487	2.564	2.390	2.087	2.771	16.37
67)	T	m- & p-Xylenes	2.670	2.533	2.335	2.114	2.310	1.946	2.000	1.849	1.538	2.144	16.55
68)	T	Bromoform	0.679	0.632	0.591	0.545	0.635	0.598	0.682	0.667	0.623	0.628	7.17
69)	T	Styrene	2.009	1.872	1.796	1.686	1.889	1.644	1.733	1.639	1.458	1.747	9.41
70)	T	o-Xylene	2.767	2.626	2.393	2.175	2.399	2.010	2.098	1.964	1.697	2.236	15.19
71)	T	n-Nonane	0.923	1.018	1.007	0.940	1.030	0.859	0.860	0.798	0.704	0.904	12.14
72)	T	1,1,2,2-Tetrac...	1.107	1.044	0.933	0.902	1.001	0.864	0.917	0.870	0.783	0.936	10.66
73)	S	Bromofluoroben...	1.051	1.047	1.056	1.059	1.072	1.081	1.092	1.091	1.084	1.070	1.63
74)	T	Cumene	3.692	3.709	3.263	2.937	3.239	2.737	2.815	2.592	2.140	3.014	17.08
75)	T	alpha-Pinene	1.763	1.575	1.520	1.378	1.519	1.327	1.394	1.324	1.174	1.442	11.97
76)	T	n-Propylbenzene	4.163	3.861	3.636	3.274	3.584	3.045	3.096	2.810	2.316	3.309	17.12
77)	T	3-Ethyltoluene	3.692	3.478	3.296	2.984	3.339	2.847	2.840	2.732	2.129	3.037	15.51
78)	T	4-Ethyltoluene	3.362	3.102	3.034	2.700	2.914	2.506	2.679	2.301	2.022	2.736	15.31
79)	T	1,3,5-Trimethy...	3.134	2.828	2.722	2.512	2.743	2.317	2.427	2.228	1.855	2.530	14.91
80)	T	alpha-Methylst...	1.531	1.400	1.359	1.237	1.428	1.279	1.342	1.255	1.082	1.324	9.77
81)	T	2-Ethyltoluene	3.597	3.482	3.184	2.910	3.182	2.692	2.780	2.528	2.077	2.937	16.35
82)	T	1,2,4-Trimethy...	3.305	2.928	2.749	2.512	2.732	2.351	2.426	2.110	1.534	2.516	20.15
83)	T	n-Decane	1.307	1.235	1.159	1.044	1.138	0.968	1.005	0.937	0.802	1.066	14.85
84)	T	Benzyl Chloride	1.364	1.566	1.614	1.310	1.646	1.746	2.035	1.924	1.605	1.646	14.25
85)	T	1,3-Dichlorobe...	1.849	1.711	1.671	1.516	1.694	1.465	1.545	1.427	1.199	1.564	12.30
86)	T	1,4-Dichlorobe...	1.973	1.830	1.662	1.540	1.740	1.498	1.547	1.447	1.246	1.609	13.55
87)	T	sec-Butylbenzene	4.304	3.870	3.641	3.307	3.584	3.056	3.126	2.809	2.249	3.327	18.28
88)	T	4-Isopropyltol...	4.207	3.842	3.649	3.348	3.631	3.097	3.088	2.591	1.806	3.251	22.15
89)	T	1,2,3-Trimethy...	3.230	3.022	2.785	2.595	2.775	2.386	2.466	2.125	1.536	2.547	19.81
90)	T	1,2-Dichlorobe...	1.717	1.647	1.566	1.429	1.627	1.408	1.458	1.320	1.005	1.464	14.68
91)	T	d-Limonene	1.028	0.916	0.857	0.801	0.891	0.795	0.829	0.760	0.573	0.828	15.03
92)	T	1,2-Dibromo-3-...	0.519	0.502	0.563	0.498	0.573	0.535	0.593	0.569	0.522	0.541	6.27
93)	T	n-Undecane	1.475	1.240	1.160	1.089	1.172	1.029	1.052	0.982	0.835	1.115	16.13
94)	T	1,2,4-Trichlor...	1.151	1.124	1.092	1.029	1.304	1.136	1.188	1.128	0.985	1.126	8.11
95)	T	Naphthalene	2.043	2.243	2.255	2.535	3.846	3.471	3.471	3.040	2.183	2.787	24.34
96)	T	n-Dodecane	0.983	0.870	0.839	0.801	1.201	1.068	1.014	0.904	0.634	0.924	17.91
97)	T	Hexachlorobuta...	1.087	1.002	0.951	0.860	0.937	0.808	0.858	0.813	0.702	0.891	12.99
98)	T	Cyclohexanone	1.007	0.833	0.788	0.752	0.765	0.678	0.719	0.691	0.652	0.765	13.98
99)	T	tert-Butylbenzene	3.252	3.157	2.887	2.609	2.844	2.422	2.453	2.114	1.554	2.588	20.53
100)	T	n-Butylbenzene	3.176	2.879	2.736	2.536	2.724	2.338	2.389	2.162	1.759	2.522	16.62

(#) = Out of Range

R8020518.M Mon Feb 05 15:45:00 2018

Primary Source Standards Concentrations (Working & Initial Calibration)

LH 2/5/18

1ng/L Std. ID:
4ng/L Std. ID: S31-01181811
20ng/L Std. ID: S31-01181809
200ng/L Std. ID: S31-01181814

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	4	20	200	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.020	0.025	0.050	0.100	0.050	0.025	0.125	0.25	0.50
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.08ng	0.1ng	0.2ng	0.4ng	1ng	5ng	25ng	50ng	100ng
Propene	1.037	207.4	20.74	4.148	1.037		0.08296	0.1037	0.2074	0.4148	1.037	5.185	25.925	51.85	103.7
Dichlorodifluoromethane	1.048	209.6	20.96	4.192	1.048		0.08384	0.1048	0.2096	0.4192	1.048	5.240	26.200	52.40	104.8
Chloromethane	1.006	201.2	20.12	4.024	1.006		0.08048	0.1006	0.2012	0.4024	1.006	5.030	25.150	50.30	100.6
Freon-114	1.021	204.2	20.42	4.084	1.021		0.08168	0.1021	0.2042	0.4084	1.021	5.105	25.525	51.05	102.1
Vinyl Chloride	1.032	206.4	20.64	4.128	1.032		0.08256	0.1032	0.2064	0.4128	1.032	5.160	25.800	51.60	103.2
1,3-Butadiene	1.059	211.8	21.18	4.236	1.059		0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9
Bromomethane	0.993	198.6	19.86	3.972	0.993		0.07944	0.0993	0.1986	0.3972	0.993	4.965	24.825	49.65	99.3
Chloroethane	1.012	202.4	20.24	4.048	1.012		0.08096	0.1012	0.2024	0.4048	1.012	5.060	25.300	50.60	101.2
Ethanol	5.271	1054.2	105.42	21.084	5.271		0.42168	0.5271	1.0542	2.1084	5.271	26.355	131.775	263.55	527.1
Acetonitrile	1.059	211.8	21.18	4.236	1.059		0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9
Acrolein	1.054	210.8	21.08	4.216	1.054		0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4
Acetone	5.322	1064.4	106.44	21.288	5.322		0.42576	0.5322	1.0644	2.1288	5.322	26.610	133.050	266.10	532.2
Trichlorofluoromethane	1.051	210.2	21.02	4.204	1.051		0.08408	0.1051	0.2102	0.4204	1.051	5.255	26.275	52.55	105.1
Isopropanol	2.107	421.4	42.14	8.428	2.107		0.16856	0.2107	0.4214	0.8428	2.107	10.535	52.675	105.35	210.7
Acrylonitrile	1.056	211.2	21.12	4.224	1.056		0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6
1,1-Dichloroethene	1.061	212.2	21.22	4.244	1.061		0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1
tert-Butanol	2.120	424.0	42.40	8.480	2.120		0.16960	0.2120	0.4240	0.8480	2.120	10.600	53.000	106.00	212.0
Methylene Chloride	1.058	211.6	21.16	4.232	1.058		0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8
Allyl Chloride	1.054	210.8	21.08	4.216	1.054		0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4
Trichlorotrifluoroethane	1.053	210.6	21.06	4.212	1.053		0.08424	0.1053	0.2106	0.4212	1.053	5.265	26.325	52.65	105.3
Carbon Disulfide	1.063	212.6	21.26	4.252	1.063		0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3
trans-1,2-Dichloroethene	1.081	216.2	21.62	4.324	1.081		0.08648	0.1081	0.2162	0.4324	1.081	5.405	27.025	54.05	108.1
1,1-Dichloroethane	1.022	204.4	20.44	4.088	1.022		0.08176	0.1022	0.2044	0.4088	1.022	5.110	25.550	51.10	102.2
Methyl tert-Butyl Ether	1.070	214.0	21.40	4.280	1.070		0.08560	0.1070	0.2140	0.4280	1.070	5.350	26.750	53.50	107.0
Vinyl Acetate	5.281	1056.2	105.62	21.124	5.281		0.42248	0.5281	1.0562	2.1124	5.281	26.405	132.025	264.05	528.1
2-Butanone	1.052	210.4	21.04	4.208	1.052		0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2
cis-1,2-Dichloroethene	1.067	213.4	21.34	4.268	1.067		0.08536	0.1067	0.2134	0.4268	1.067	5.335	26.675	53.35	106.7
Diisopropyl Ether	1.065	213.0	21.30	4.260	1.065		0.08520	0.1065	0.2130	0.4260	1.065	5.325	26.625	53.25	106.5
Ethyl Acetate	2.136	427.2	42.72	8.544	2.136		0.17088	0.2136	0.4272	0.8544	2.136	10.680	53.400	106.80	213.6
n-Hexane	1.066	213.2	21.32	4.264	1.066		0.08528	0.1066	0.2132	0.4264	1.066	5.330	26.650	53.30	106.6
Chloroform	1.061	212.2	21.22	4.244	1.061		0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1
Tetrahydrofuran	1.064	212.8	21.28	4.256	1.064		0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4
Ethyl tert-Butyl Ether	1.059	211.8	21.18	4.236	1.059		0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9
1,2-Dichloroethane	1.055	211.0	21.10	4.220	1.055		0.08440	0.1055	0.2110	0.4220	1.055	5.275	26.375	52.75	105.5
1,1,1-Trichloroethane	1.077	215.4	21.54	4.308	1.077		0.08616	0.1077	0.2154	0.4308	1.077	5.385	26.925	53.85	107.7
Isopropyl Acetate	2.113	422.6	42.26	8.452	2.113		0.16904	0.2113	0.4226	0.8452	2.113	10.565	52.825	105.65	211.3
1-Butanol	2.114	422.8	42.28	8.456	2.114		0.16912	0.2114	0.4228	0.8456	2.114	10.570	52.850	105.70	211.4
Benzene	1.057	211.4	21.14	4.228	1.057		0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7
Carbon Tetrachloride	1.060	212.0	21.20	4.240	1.060		0.08480	0.1060	0.2120	0.4240	1.060	5.300	26.500	53.00	106.0
Cyclohexane	2.135	427.0	42.70	8.540	2.135		0.17080	0.2135	0.4270	0.8540	2.135	10.675	53.375	106.75	213.5
tert-Amyl Methyl Ether	1.057	211.4	21.14	4.228	1.057		0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7
1,2-Dichloropropane	1.066	213.2	21.32	4.264	1.066		0.08528	0.1066	0.2132	0.4264	1.066	5.330	26.650	53.30	106.6
Bromodichloromethane	1.067	213.4	21.34	4.268	1.067		0.08536	0.1067	0.2134	0.4268	1.067	5.335	26.675	53.35	106.7
Trichloroethene	1.061	212.2	21.22	4.244	1.061		0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1
1,4-Dioxane	1.063	212.6	21.26	4.252	1.063		0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3
Isooctane	1.060	212.0	21.20	4.240	1.060		0.08480	0.1060	0.2120	0.4240	1.060	5.300	26.500	53.00	106.0
Methyl Methacrylate	2.112	422.4	42.24	8.448	2.112		0.16896	0.2112	0.4224	0.8448	2.112	10.560	52.800	105.60	211.2
n-Heptane	1.065	213.0	21.30	4.260	1.065		0.08520	0.1065	0.2130	0.4260	1.065	5.325	26.625	53.25	106.5

Q:\TO15 Std. Concentrations\MS08 Std. Conc\2018\R8020518.M\ICAL Conc. (Primary Source)

Date Updated: 08/29/17
Version: 0

00870497

LH 2/5/18

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:
4ng/L Std. ID: S31-01181811
20ng/L Std. ID: S31-01181809
200ng/L Std. ID: S31-01181814

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	4	20	200	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.020	0.025	0.050	0.100	0.050	0.025	0.125	0.25	0.50
Compounds	mg/m³	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.08ng	0.1ng	0.2ng	0.4ng	1ng	5ng	25ng	50ng	100ng
cis-1,3-Dichloropropene	1.120	224.0	22.40	4.480	1.120		0.08960	0.1120	0.2240	0.4480	1.120	5.600	28.000	56.00	112.0
4-Methyl-2-pentanone	1.059	211.8	21.18	4.236	1.059		0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9
trans-1,3-Dichloropropene	1.067	213.4	21.34	4.268	1.067		0.08536	0.1067	0.2134	0.4268	1.067	5.335	26.675	53.35	106.7
1,1,2-Trichloroethane	1.064	212.8	21.28	4.256	1.064		0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4
Toluene	1.054	210.8	21.08	4.216	1.054		0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4
2-Hexanone	1.060	212.0	21.20	4.240	1.060		0.08480	0.1060	0.2120	0.4240	1.060	5.300	26.500	53.00	106.0
Dibromochloromethane	1.061	212.2	21.22	4.244	1.061		0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1
1,2-Dibromoethane	1.064	212.8	21.28	4.256	1.064		0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4
n-Butyl Acetate	1.068	213.6	21.36	4.272	1.068		0.08544	0.1068	0.2136	0.4272	1.068	5.340	26.700	53.40	106.8
n-Octane	1.060	212.0	21.20	4.240	1.060		0.08480	0.1060	0.2120	0.4240	1.060	5.300	26.500	53.00	106.0
Tetrachloroethene	1.063	212.6	21.26	4.252	1.063		0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3
Chlorobenzene	1.066	213.2	21.32	4.264	1.066		0.08528	0.1066	0.2132	0.4264	1.066	5.330	26.650	53.30	106.6
Ethylbenzene	1.052	210.4	21.04	4.208	1.052		0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123		0.16984	0.2123	0.4246	0.8492	2.123	10.615	53.075	106.15	212.3
Bromoform	1.063	212.6	21.26	4.252	1.063		0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3
Styrene	1.058	211.6	21.16	4.232	1.058		0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8
o-Xylene	1.055	211.0	21.10	4.220	1.055		0.08440	0.1055	0.2110	0.4220	1.055	5.275	26.375	52.75	105.5
n-Nonane	1.054	210.8	21.08	4.216	1.054		0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4
1,1,2,2-Tetrachloroethane	1.057	211.4	21.14	4.228	1.057		0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7
Cumene	1.052	210.4	21.04	4.208	1.052		0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2
alpha-Pinene	1.046	209.2	20.92	4.184	1.046		0.08368	0.1046	0.2092	0.4184	1.046	5.230	26.150	52.30	104.6
n-Propylbenzene	1.064	212.8	21.28	4.256	1.064		0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050		0.08400	0.1050	0.2100	0.4200	1.050	5.250	26.250	52.50	105.0
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049		0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049		0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9
alpha-Methylstyrene	1.049	209.8	20.98	4.196	1.049		0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9
2-Ethyltoluene	1.060	212.0	21.20	4.240	1.060		0.08480	0.1060	0.2120	0.4240	1.060	5.300	26.500	53.00	106.0
1,2,4-Trimethylbenzene	1.051	210.2	21.02	4.204	1.051		0.08408	0.1051	0.2102	0.4204	1.051	5.255	26.275	52.55	105.1
n-Decane	1.059	211.8	21.18	4.236	1.059		0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9
Benzyl Chloride	1.074	214.8	21.48	4.296	1.074		0.08592	0.1074	0.2148	0.4296	1.074	5.370	26.850	53.70	107.4
1,3-Dichlorobenzene	1.071	214.2	21.42	4.284	1.071		0.08568	0.1071	0.2142	0.4284	1.071	5.355	26.775	53.55	107.1
1,4-Dichlorobenzene	1.064	212.8	21.28	4.256	1.064		0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4
sec-Butylbenzene	1.055	211.0	21.10	4.220	1.055		0.08440	0.1055	0.2110	0.4220	1.055	5.275	26.375	52.75	105.5
p-Isopropyltoluene	1.026	205.2	20.52	4.104	1.026		0.08208	0.1026	0.2052	0.4104	1.026	5.130	25.650	51.30	102.6
1,2,3-Trimethylbenzene	1.026	205.2	20.52	4.104	1.026		0.08208	0.1026	0.2052	0.4104	1.026	5.130	25.650	51.30	102.6
1,2-Dichlorobenzene	1.083	216.6	21.66	4.332	1.083		0.08664	0.1083	0.2166	0.4332	1.083	5.415	27.075	54.15	108.3
d-Limonene	1.005	201.0	20.10	4.020	1.005		0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5
1,2-Dibromo-3-chloropropane	1.051	210.2	21.02	4.204	1.051		0.08408	0.1051	0.2102	0.4204	1.051	5.255	26.275	52.55	105.1
n-Undecane	1.053	210.6	21.06	4.212	1.053		0.08424	0.1053	0.2106	0.4212	1.053	5.265	26.325	52.65	105.3
1,2,4-Trichlorobenzene	1.097	219.4	21.94	4.388	1.097		0.08776	0.1097	0.2194	0.4388	1.097	5.485	27.425	54.85	109.7
Naphthalene	1.056	211.2	21.12	4.224	1.056		0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6
n-Dodecane	1.056	211.2	21.12	4.224	1.056		0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6
Hexachloro-1,3-butadiene	1.057	211.4	21.14	4.228	1.057		0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7
Methacrylonitrile	1.067	213.4	21.34	4.268	1.067		0.08536	0.1067	0.2134	0.4268	1.067	5.335	26.675	53.35	106.7
Cyclohexanone	1.039	207.8	20.78	4.156	1.039		0.08312	0.1039	0.2078	0.4156	1.039	5.195	25.975	51.95	103.9
tert-Butylbenzene	1.050	210.0	21.00	4.200	1.050		0.08400	0.1050	0.2100	0.4200	1.050	5.250	26.250	52.50	105.0
n-Butylbenzene	1.054	210.8	21.08	4.216	1.054		0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4

Lab Use Only

00870498

Calibration Status Report MS08

Method : I:\MS08\Methods\R8020518.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.08	0	13	I:\MS08\Data\2018_02\05\02051802.D
2	0.10	0	13	I:\MS08\Data\2018_02\05\02051803.D
3	0.20	0	13	I:\MS08\Data\2018_02\05\02051804.D
4	0.40	0	13	I:\MS08\Data\2018_02\05\02051805.D
5	1.0	1	13	I:\MS08\Data\2018_02\05\02051806.D
6	5.0	5	13	I:\MS08\Data\2018_02\05\02051807.D
7	25	26	13	I:\MS08\Data\2018_02\05\02051808.D
8	50	52	13	I:\MS08\Data\2018_02\05\02051809.D
9	100	104	13	I:\MS08\Data\2018_02\05\02051810.D

AB 2/20/18

#	ID	Update Time	Quant Time	Acquisition Time
1	0.08	Feb 05 14:54 2018	Feb 05 14:46 2018	5 Feb 2018 9:21
2	0.10	Feb 05 14:54 2018	Feb 05 14:45 2018	5 Feb 2018 9:53
3	0.20	Feb 05 14:54 2018	Feb 05 14:45 2018	5 Feb 2018 10:25
4	0.40	Feb 05 14:54 2018	Feb 05 14:45 2018	5 Feb 2018 10:57
5	1.0	Feb 05 14:54 2018	Feb 05 14:45 2018	5 Feb 2018 11:30
6	5.0	Feb 05 14:54 2018	Feb 05 14:45 2018	5 Feb 2018 12:02
7	25	Feb 05 14:54 2018	Feb 05 14:45 2018	5 Feb 2018 12:34
8	50	Feb 05 14:55 2018	Feb 05 14:45 2018	5 Feb 2018 13:06
9	100	Feb 05 14:55 2018	Feb 05 14:45 2018	5 Feb 2018 13:38

R8020518.M Tue Feb 20 12:00:18 2018

Data File: I:\MS08\Data\2018 02\05\02051802.D
Acq On : 5 Feb 2018 9:21 Operator: WA
Sample : 0.08ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 05 14:46:15 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) LH 2/5/18
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	371059	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	10.79	114	1699647	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	14.83	82	703793	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.73	65	500314	12.644	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.12%				
57) Toluene-d8 (SS2)	13.02	98	1720972	12.295	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.32%				
73) Bromofluorobenzene (SS3)	16.30	174	739690	12.956	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.68%				
Target Compounds							Qvalue
2) Propene	4.09	42	3715m	0.130	ng		
3) Dichlorodifluoromethan...	4.20	85	6632	0.106	ng		95
4) Chloromethane	4.40	50	4153	0.109	ng		96
5) 1,2-Dichloro-1,1,2,2-t...	4.56	135	3858	0.113	ng		99
6) Vinyl Chloride	4.68	62	4320	0.118	ng		99
7) 1,3-Butadiene	4.87	54	3556	0.145	ng	#	63
8) Bromomethane	5.17	94	2816	0.104	ng		97
9) Chloroethane	5.40	64	2162	0.097	ng		92
10) Ethanol	5.58	45	11584	0.616	ng		93
11) Acetonitrile	5.80	41	5430	0.119	ng		98
12) Acrolein	5.94	56	2090	0.119	ng		96
13) Acetone	6.09	58	13339	0.668	ng		87
14) Trichlorofluoromethane	6.26	101	5990	0.110	ng		96
15) 2-Propanol (Isopropanol)	6.39	45	15837	0.226	ng		76
16) Acrylonitrile	6.57	53	3191	0.094	ng		94
17) 1,1-Dichloroethene	6.90	96	3310	0.104	ng		99
18) 2-Methyl-2-Propanol (t...	7.01	59	17529	0.215	ng		80
19) Methylene Chloride	7.02	84	6476	0.188	ng		89
20) 3-Chloro-1-propene (Al...	7.14	41	4276	0.118	ng		82
21) Trichlorotrifluoroethane	7.32	151	3777	0.109	ng		97
22) Carbon Disulfide	7.29	76	30699	0.265	ng		96
23) trans-1,2-Dichloroethene	7.93	61	3790	0.095	ng		98
24) 1,1-Dichloroethane	8.12	63	5200	0.102	ng		98
25) Methyl tert-Butyl Ether	8.21	73	10460	0.104	ng		98
26) Vinyl Acetate	8.27	86	3644	0.472	ng	#	65
27) 2-Butanone (MEK)	8.50	72	2196	0.106	ng	#	46
28) cis-1,2-Dichloroethene	8.90	61	3976	0.100	ng		97
29) Diisopropyl Ether	9.11	87	3674	0.129	ng	#	88
30) Ethyl Acetate	9.11	61	1987	0.214	ng		93
31) n-Hexane	9.11	57	5088	0.134	ng		95
32) Chloroform	9.16	83	5649	0.104	ng		100
34) Tetrahydrofuran (THF)	9.54	72	2519	0.119	ng	#	78
35) Ethyl tert-Butyl Ether	9.60	87	4388	0.104	ng		96
36) 1,2-Dichloroethane	9.84	62	4300	0.104	ng		95
38) 1,1,1-Trichloroethane	10.07	97	5624	0.110	ng		98
39) Isopropyl Acetate	10.38	61	3548	0.208	ng	#	67
40) 1-Butanol	10.40	56	6723	0.224	ng	#	64
41) Benzene	10.48	78	13175	0.106	ng		100
42) Carbon Tetrachloride	10.62	117	4953	0.108	ng		99
43) Cyclohexane	10.74	84	11782	0.218	ng	#	82
44) tert-Amyl Methyl Ether	11.02	73	9106	0.100	ng		94
45) 1,2-Dichloropropane	11.22	63	3032	0.109	ng		99
46) Bromodichloromethane	11.37	83	4302	0.107	ng		98
47) Trichloroethene	11.43	130	4338	0.112	ng		100
48) 1,4-Dioxane	11.41	88	2991	0.109	ng		96
49) 2,2,4-Trimethylpentane...	11.48	57	13121	0.105	ng		91

Data File: I:\MS08\Data\2018 02\05\02051802.D
Acq On : 5 Feb 2018 9:21 Operator: WA
Sample : 0.08ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

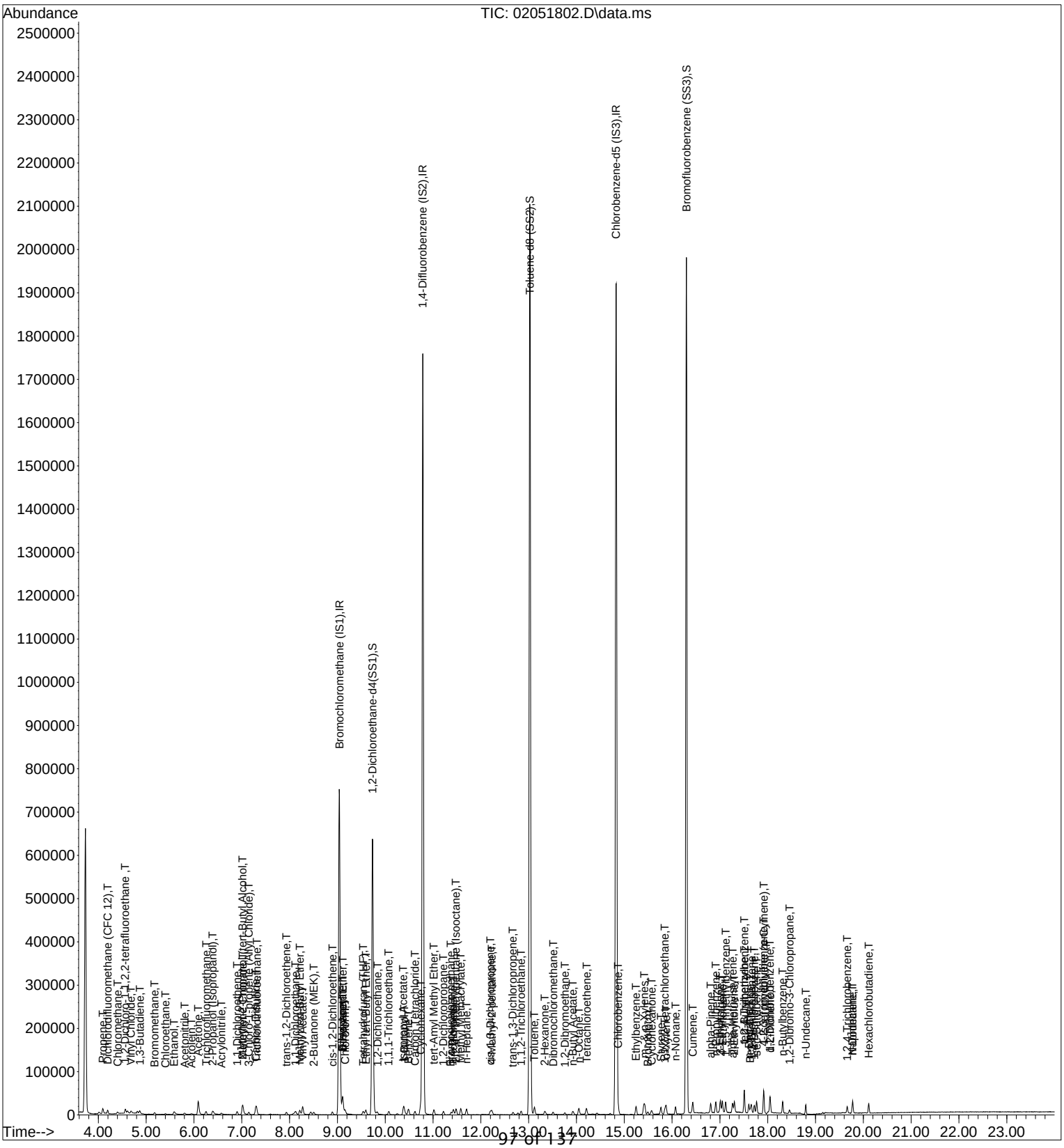
Quant Time: Feb 05 14:46:15 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	11.58	100	3053	0.208	ng		99
51) n-Heptane	11.70	71	3352	0.106	ng		93
52) cis-1,3-Dichloropropene	12.20	75	5057	0.108	ng		93
53) 4-Methyl-2-pentanone	12.23	58	2838	0.107	ng	#	66
54) trans-1,3-Dichloropropene	12.67	75	4011	0.095	ng		97
55) 1,1,2-Trichloroethane	12.84	97	3196	0.104	ng		99
58) Toluene	13.12	91	14332	0.103	ng		99
59) 2-Hexanone	13.34	43	8081	0.135	ng		82
60) Dibromochloromethane	13.51	129	3753	0.099	ng		98
61) 1,2-Dibromoethane	13.76	107	3549	0.099	ng		97
62) n-Butyl Acetate	13.92	43	7830	0.116	ng		92
63) n-Octane	14.05	57	3094	0.125	ng		90
64) Tetrachloroethene	14.21	166	4932	0.108	ng		100
65) Chlorobenzene	14.87	112	10343	0.105	ng		92
66) Ethylbenzene	15.25	91	16906	0.107	ng		99
67) m- & p-Xylenes	15.42	91	25535	0.207	ng		99
68) Bromoform	15.49	173	3251	0.098	ng		96
69) Styrene	15.77	104	9574	0.099	ng		99
70) o-Xylene	15.87	91	13149	0.102	ng		99
71) n-Nonane	16.07	43	5717	0.111	ng		97
72) 1,1,2,2-Tetrachloroethane	15.85	83	5272	0.102	ng		99
74) Cumene	16.43	105	17495	0.101	ng		88
75) alpha-Pinene	16.81	93	8307	0.102	ng	#	61
76) n-Propylbenzene	16.91	91	19949	0.104	ng		99
77) 3-Ethyltoluene	17.01	105	17462	0.101	ng		94
78) 4-Ethyltoluene	17.05	105	15885	0.098	ng		92
79) 1,3,5-Trimethylbenzene	17.12	105	14810	0.101	ng		95
80) alpha-Methylstyrene	17.27	118	7234	0.100	ng	#	76
81) 2-Ethyltoluene	17.30	105	17174	0.102	ng		90
82) 1,2,4-Trimethylbenzene	17.51	105	15645	0.109	ng		97
83) n-Decane	17.61	57	6236	0.101	ng		90
84) Benzyl Chloride	17.63	91	6912	0.071	ng		99
85) 1,3-Dichlorobenzene	17.66	146	8921	0.102	ng		99
86) 1,4-Dichlorobenzene	17.72	146	9457	0.104	ng		97
87) sec-Butylbenzene	17.77	105	20451	0.107	ng		95
88) 4-Isopropyltoluene (p-...	17.92	119	19443	0.105	ng		96
89) 1,2,3-Trimethylbenzene	17.91	105	14926	0.103	ng		97
90) 1,2-Dichlorobenzene	18.04	146	8374	0.102	ng		99
91) d-Limonene	18.05	68	4653	0.100	ng		96
92) 1,2-Dibromo-3-Chloropr...	18.46	157	2632	0.089	ng	#	59
93) n-Undecane	18.80	57	6997	0.108	ng		96
94) 1,2,4-Trichlorobenzene	19.66	180	5685	0.087	ng		99
95) Naphthalene	19.78	128	13800	0.078	ng		95
96) n-Dodecane	19.78	57	4678	0.078	ng		96
97) Hexachlorobutadiene	20.11	225	5173	0.111	ng		95
98) Cyclohexanone	15.57	55	4711	0.113	ng		97
99) tert-Butylbenzene	17.51	119	15379	0.104	ng	#	61
100) n-Butylbenzene	18.31	91	15076	0.106	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

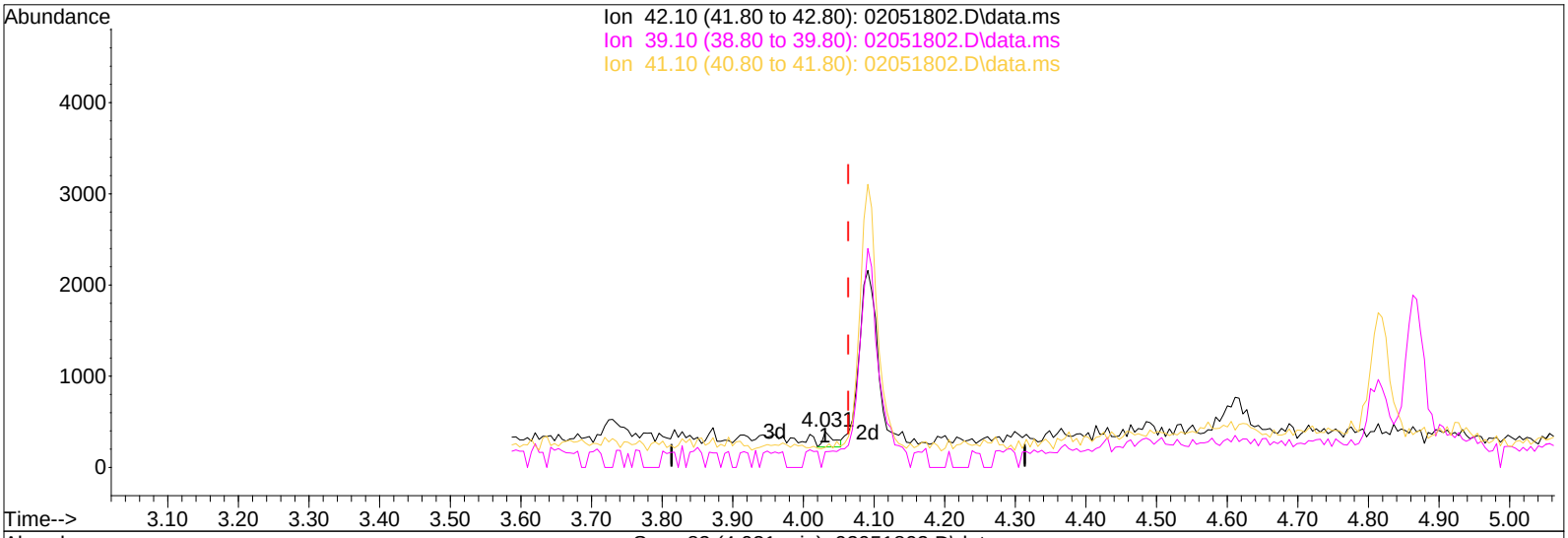
Data File: I:\MS08\Data\2018 02\05\02051802.D
Acq On : 5 Feb 2018 9:21 Operator: WA
Sample : 0.08ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

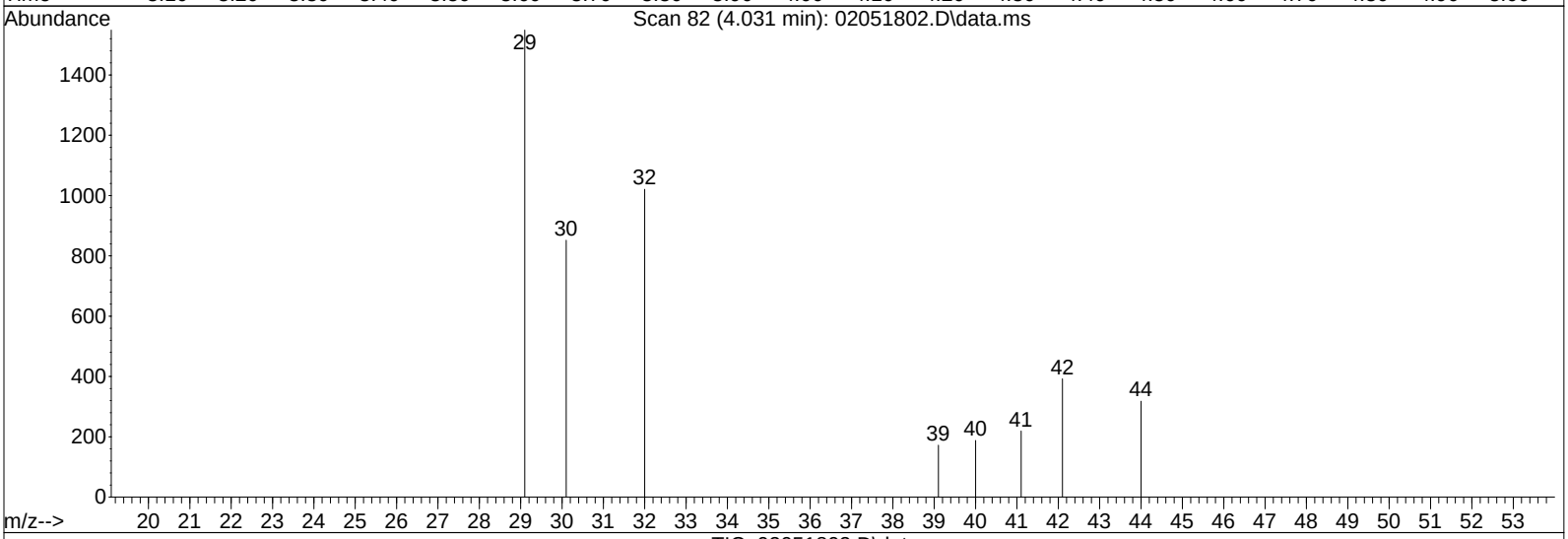
Quant Time: Feb 05 14:46:15 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data File: I:\MS08\Data\2018 02\05\02051802.D
Acq On : 5 Feb 2018 9:21 Operator: WA
Sample : 0.08ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 05 14:45:17 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M





TIC: 02051802.D\data.ms

(2) Propene (T)

4.031min (-0.033) 0.01ng

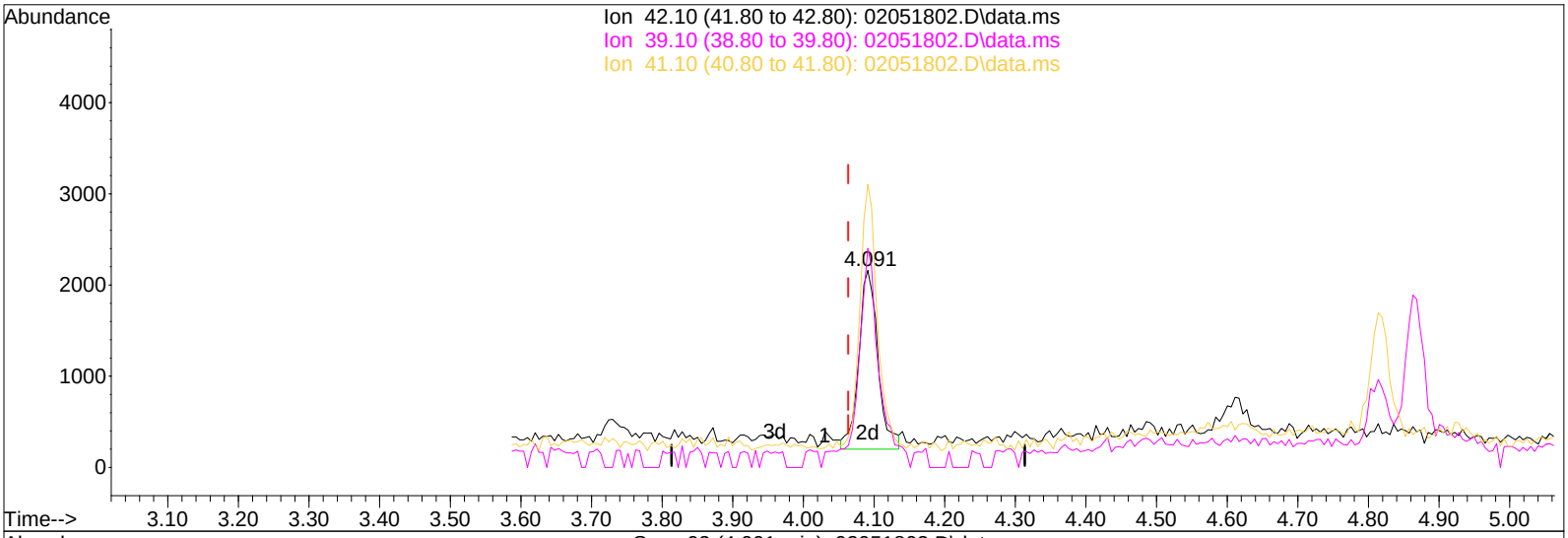
response 181

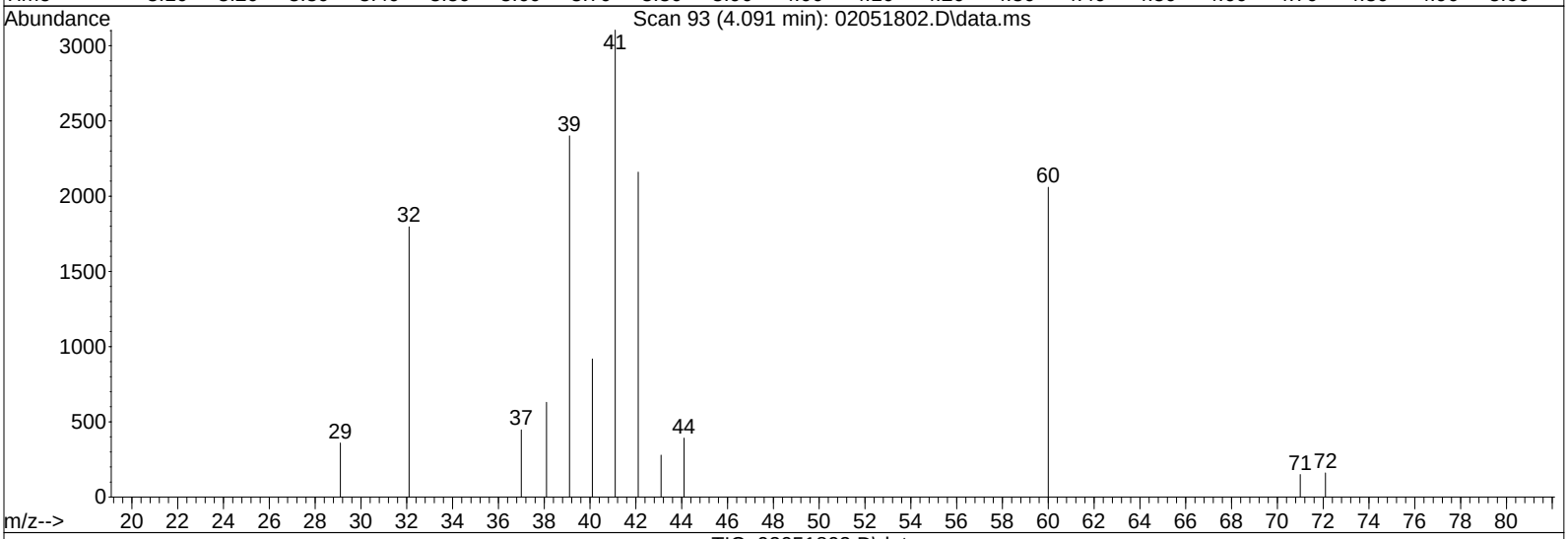
Ion	Exp%	Act%
42.10	100	100
39.10	114.40	129.83
41.10	152.00	0.00#
0.00	0.00	0.00

00870504

Data File: I:\MS08\Data\2018 02\05\02051802.D
Acq On : 5 Feb 2018 9:21 Operator: WA
Sample : 0.08ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 05 14:45:17 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M





TIC: 02051802.D\data.ms

(2) Propene (T)

4.091min (+0.028) 0.13ng m

response 3715

Ion	Exp%	Act%
42.10	100	100
39.10	114.40	6.33#
41.10	152.00	0.00#
0.00	0.00	0.00

MP

LH 2/5/18

2/13/18

Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\05\02051803.D
Acq On : 5 Feb 2018 9:53 Operator: WA
Sample : 0.10ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 05 14:45:19 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 2/5/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	372392	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	10.79	114	1699224	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	14.83	82	701347	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.74	65	502554	12.655	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.20%				
57) Toluene-d8 (SS2)	13.03	98	1715253	12.297	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.40%				
73) Bromofluorobenzene (SS3)	16.30	174	734279	12.907	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.28%				
Target Compounds							Qvalue
2) Propene	4.10	42	3587	0.125	ng		93
3) Dichlorodifluoromethan...	4.20	85	7494	0.119	ng		99
4) Chloromethane	4.40	50	4530	0.119	ng		97
5) 1,2-Dichloro-1,1,2,2-t...	4.57	135	4388	0.128	ng		99
6) Vinyl Chloride	4.69	62	4887	0.133	ng		99
7) 1,3-Butadiene	4.87	54	3981	0.162	ng	#	70
8) Bromomethane	5.17	94	3138	0.116	ng		94
9) Chloroethane	5.41	64	2570	0.114	ng		99
10) Ethanol	5.59	45	12936	0.685	ng		95
11) Acetonitrile	5.80	41	7253	0.159	ng	#	60
12) Acrolein	5.95	56	2048	0.117	ng		92
13) Acetone	6.09	58	15093	0.754	ng		91
14) Trichlorofluoromethane	6.26	101	7190	0.132	ng		98
15) 2-Propanol (Isopropanol)	6.40	45	18103	0.257	ng		85
16) Acrylonitrile	6.57	53	3820	0.113	ng		92
17) 1,1-Dichloroethene	6.91	96	3972	0.124	ng		99
18) 2-Methyl-2-Propanol (t...	7.01	59	19516	0.238	ng		88
19) Methylene Chloride	7.03	84	7300	0.212	ng		95
20) 3-Chloro-1-propene (Al...	7.15	41	4494	0.123	ng		86
21) Trichlorotrifluoroethane	7.31	151	4365	0.125	ng		94
22) Carbon Disulfide	7.29	76	27141	0.233	ng		97
23) trans-1,2-Dichloroethene	7.93	61	4585	0.114	ng		95
24) 1,1-Dichloroethane	8.13	63	6183	0.121	ng		99
25) Methyl tert-Butyl Ether	8.21	73	12091	0.120	ng		100
26) Vinyl Acetate	8.27	86	4262	0.551	ng	#	65
27) 2-Butanone (MEK)	8.50	72	2481	0.119	ng	#	52
28) cis-1,2-Dichloroethene	8.90	61	4855	0.122	ng		99
29) Diisopropyl Ether	9.11	87	3678	0.129	ng	#	85
30) Ethyl Acetate	9.11	61	2280	0.245	ng		94
31) n-Hexane	9.11	57	6201	0.163	ng		99
32) Chloroform	9.16	83	6660	0.122	ng		98
34) Tetrahydrofuran (THF)	9.54	72	2930	0.138	ng	#	76
35) Ethyl tert-Butyl Ether	9.60	87	4954	0.117	ng		99
36) 1,2-Dichloroethane	9.83	62	5274	0.127	ng		96
38) 1,1,1-Trichloroethane	10.08	97	6598	0.129	ng		99
39) Isopropyl Acetate	10.38	61	4068	0.239	ng	#	78
40) 1-Butanol	10.40	56	7525	0.251	ng	#	67
41) Benzene	10.48	78	15343	0.124	ng		98
42) Carbon Tetrachloride	10.62	117	5857	0.128	ng		100
43) Cyclohexane	10.74	84	14184	0.263	ng	#	82
44) tert-Amyl Methyl Ether	11.02	73	10298	0.113	ng		89
45) 1,2-Dichloropropane	11.22	63	3616	0.130	ng		98
46) Bromodichloromethane	11.38	83	5022	0.125	ng		99
47) Trichloroethene	11.43	130	5150	0.133	ng		97
48) 1,4-Dioxane	11.42	88	3512	0.128	ng		99
49) 2,2,4-Trimethylpentane...	11.49	57	15195	0.121	ng		93

Data File: I:\MS08\Data\2018 02\05\02051803.D
Acq On : 5 Feb 2018 9:53 Operator: WA
Sample : 0.10ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

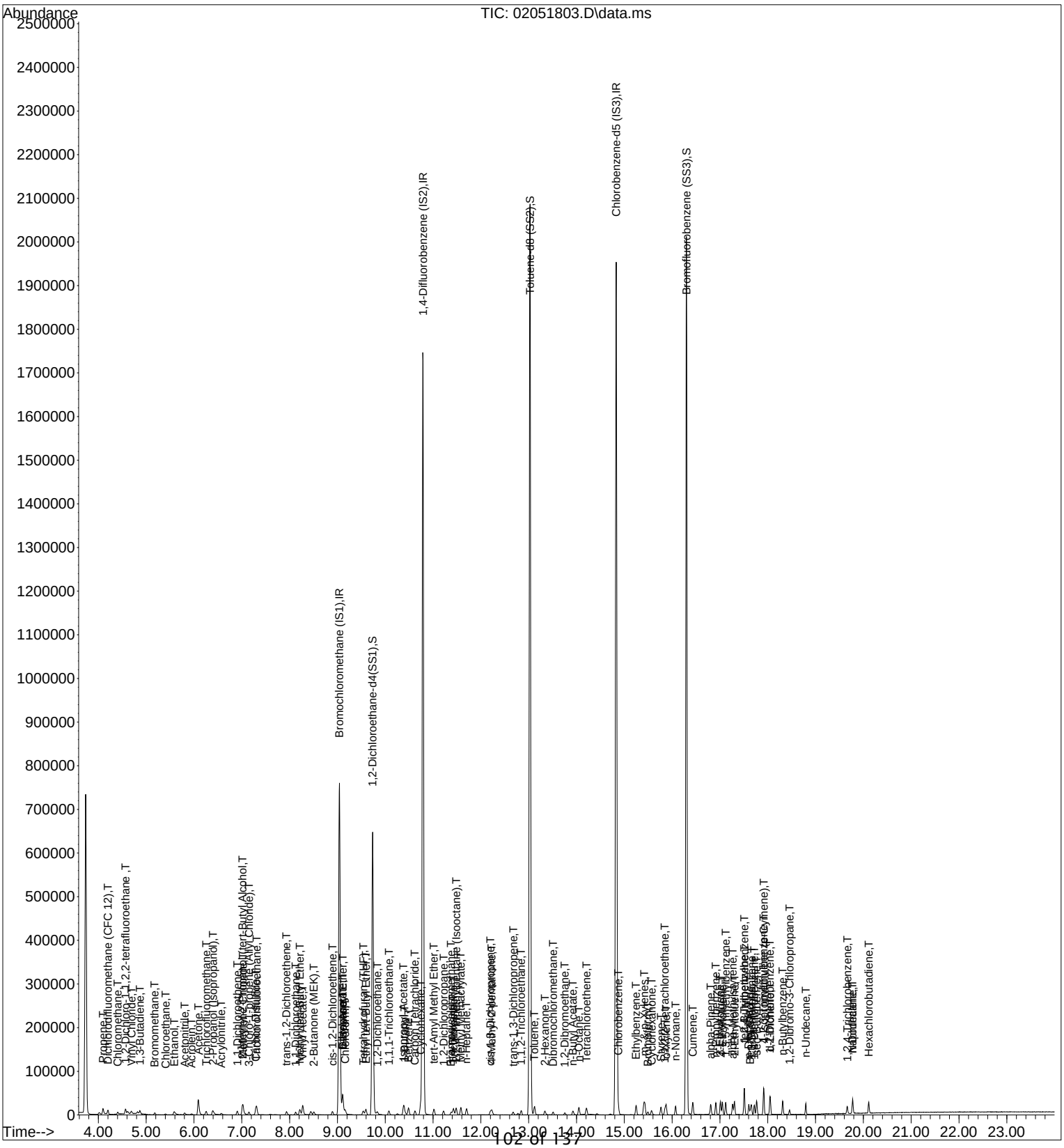
Quant Time: Feb 05 14:45:19 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	11.58	100	3539	0.241	ng		97
51) n-Heptane	11.69	71	4081	0.129	ng		98
52) cis-1,3-Dichloropropene	12.20	75	5682	0.122	ng		99
53) 4-Methyl-2-pentanone	12.23	58	3345	0.126	ng		82
54) trans-1,3-Dichloropropene	12.68	75	4579	0.109	ng		100
55) 1,1,2-Trichloroethane	12.84	97	3865	0.125	ng		95
58) Toluene	13.12	91	17197	0.124	ng		98
59) 2-Hexanone	13.34	43	8086	0.135	ng		85
60) Dibromochloromethane	13.51	129	4569	0.121	ng		99
61) 1,2-Dibromoethane	13.76	107	4251	0.119	ng		99
62) n-Butyl Acetate	13.93	43	8308	0.123	ng		95
63) n-Octane	14.05	57	3157	0.128	ng		97
64) Tetrachloroethene	14.21	166	5719	0.126	ng		99
65) Chlorobenzene	14.87	112	12231	0.124	ng		94
66) Ethylbenzene	15.25	91	18973	0.120	ng		98
67) m- & p-Xylenes	15.42	91	30168	0.246	ng		100
68) Bromoform	15.49	173	3767	0.114	ng		99
69) Styrene	15.77	104	11112	0.115	ng		99
70) o-Xylene	15.87	91	15544	0.121	ng		99
71) n-Nonane	16.07	43	6857	0.134	ng		92
72) 1,1,2,2-Tetrachloroethane	15.85	83	6191	0.121	ng		100
74) Cumene	16.43	105	21894	0.126	ng		98
75) alpha-Pinene	16.81	93	9242	0.114	ng		79
76) n-Propylbenzene	16.91	91	23052	0.121	ng		99
77) 3-Ethyltoluene	17.01	105	20488	0.119	ng		98
78) 4-Ethyltoluene	17.05	105	18260	0.113	ng		94
79) 1,3,5-Trimethylbenzene	17.12	105	16644	0.114	ng		96
80) alpha-Methylstyrene	17.27	118	8240	0.114	ng		90
81) 2-Ethyltoluene	17.31	105	20706	0.123	ng		99
82) 1,2,4-Trimethylbenzene	17.51	105	17267	0.121	ng		96
83) n-Decane	17.60	57	7338	0.119	ng		99
84) Benzyl Chloride	17.63	91	7907	0.081	ng		99
85) 1,3-Dichlorobenzene	17.66	146	10281	0.118	ng		96
86) 1,4-Dichlorobenzene	17.72	146	10927	0.121	ng		98
87) sec-Butylbenzene	17.77	105	22909	0.121	ng		96
88) 4-Isopropyltoluene (p-...	17.92	119	22119	0.119	ng		97
89) 1,2,3-Trimethylbenzene	17.91	105	17395	0.121	ng		99
90) 1,2-Dichlorobenzene	18.04	146	10005	0.122	ng		97
91) d-Limonene	18.05	68	5163	0.111	ng		99
92) 1,2-Dibromo-3-Chloropr...	18.46	157	3097	0.105	ng	#	72
93) n-Undecane	18.80	57	7328	0.113	ng		96
94) 1,2,4-Trichlorobenzene	19.67	180	6920	0.106	ng		99
95) Naphthalene	19.77	128	16359	0.093	ng		96
96) n-Dodecane	19.77	57	5157	0.087	ng		98
97) Hexachlorobutadiene	20.11	225	5942	0.128	ng		97
98) Cyclohexanone	15.57	55	4857	0.117	ng		98
99) tert-Butylbenzene	17.51	119	18598	0.126	ng		96
100) n-Butylbenzene	18.31	91	17026	0.120	ng		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\05\02051803.D
Acq On : 5 Feb 2018 9:53 Operator: WA
Sample : 0.10ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 05 14:45:19 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



00870508

Data File: I:\MS08\Data\2018 02\05\02051804.D
Acq On : 5 Feb 2018 10:25 Operator: WA
Sample : 0.20ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 05 14:45:21 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018 LH 2/5/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	364657	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	10.79	114	1674919	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	14.83	82	685108	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.74	65	493645	12.694	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%				
57) Toluene-d8 (SS2)	13.03	98	1682059	12.345	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.72%				
73) Bromofluorobenzene (SS3)	16.30	174	723796	13.024	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.16%				
Target Compounds							Qvalue
2) Propene	4.09	42	6390	0.228	ng		97
3) Dichlorodifluoromethan...	4.20	85	13777	0.224	ng		99
4) Chloromethane	4.40	50	8788	0.236	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.56	135	8326	0.249	ng		100
6) Vinyl Chloride	4.68	62	9126	0.254	ng		99
7) 1,3-Butadiene	4.86	54	6777	0.281	ng		95
8) Bromomethane	5.17	94	5357	0.202	ng		92
9) Chloroethane	5.40	64	4813	0.219	ng		96
10) Ethanol	5.58	45	23130	1.251	ng		94
11) Acetonitrile	5.80	41	11632	0.260	ng		79
12) Acrolein	5.94	56	3640	0.212	ng		95
13) Acetone	6.08	58	26688	1.361	ng		92
14) Trichlorofluoromethane	6.25	101	13319	0.249	ng		98
15) 2-Propanol (Isopropanol)	6.37	45	32580	0.472	ng		87
16) Acrylonitrile	6.57	53	7612	0.229	ng		94
17) 1,1-Dichloroethene	6.90	96	7159	0.229	ng		98
18) 2-Methyl-2-Propanol (t...	7.00	59	35328	0.440	ng		89
19) Methylene Chloride	7.03	84	9995	0.296	ng		89
20) 3-Chloro-1-propene (Al...	7.15	41	8162	0.228	ng		93
21) Trichlorotrifluoroethane	7.32	151	7806	0.229	ng		94
22) Carbon Disulfide	7.29	76	36560	0.321	ng		100
23) trans-1,2-Dichloroethene	7.93	61	8622	0.220	ng		99
24) 1,1-Dichloroethane	8.12	63	11085	0.222	ng		99
25) Methyl tert-Butyl Ether	8.21	73	21891	0.223	ng		99
26) Vinyl Acetate	8.27	86	8504	1.122	ng	#	80
27) 2-Butanone (MEK)	8.50	72	4636	0.227	ng	#	81
28) cis-1,2-Dichloroethene	8.90	61	8699	0.223	ng		100
29) Diisopropyl Ether	9.11	87	6591	0.235	ng	#	82
30) Ethyl Acetate	9.10	61	4354	0.478	ng		95
31) n-Hexane	9.11	57	10681	0.286	ng		98
32) Chloroform	9.16	83	12150	0.227	ng		99
34) Tetrahydrofuran (THF)	9.53	72	5255	0.254	ng	#	80
35) Ethyl tert-Butyl Ether	9.59	87	9046	0.219	ng		99
36) 1,2-Dichloroethane	9.83	62	9415	0.231	ng		96
38) 1,1,1-Trichloroethane	10.08	97	12114	0.241	ng		98
39) Isopropyl Acetate	10.39	61	7420	0.442	ng	#	78
40) 1-Butanol	10.39	56	13841	0.469	ng	#	73
41) Benzene	10.49	78	27375	0.225	ng		100
42) Carbon Tetrachloride	10.62	117	10698	0.237	ng		98
43) Cyclohexane	10.74	84	24746	0.465	ng		97
44) tert-Amyl Methyl Ether	11.02	73	18925	0.210	ng		93
45) 1,2-Dichloropropane	11.22	63	6335	0.232	ng		98
46) Bromodichloromethane	11.38	83	9231	0.232	ng		98
47) Trichloroethene	11.43	130	9234	0.241	ng		98
48) 1,4-Dioxane	11.41	88	6415	0.237	ng		99
49) 2,2,4-Trimethylpentane...	11.48	57	27612	0.223	ng		95

Data File: I:\MS08\Data\2018 02\05\02051804.D
Acq On : 5 Feb 2018 10:25 Operator: WA
Sample : 0.20ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

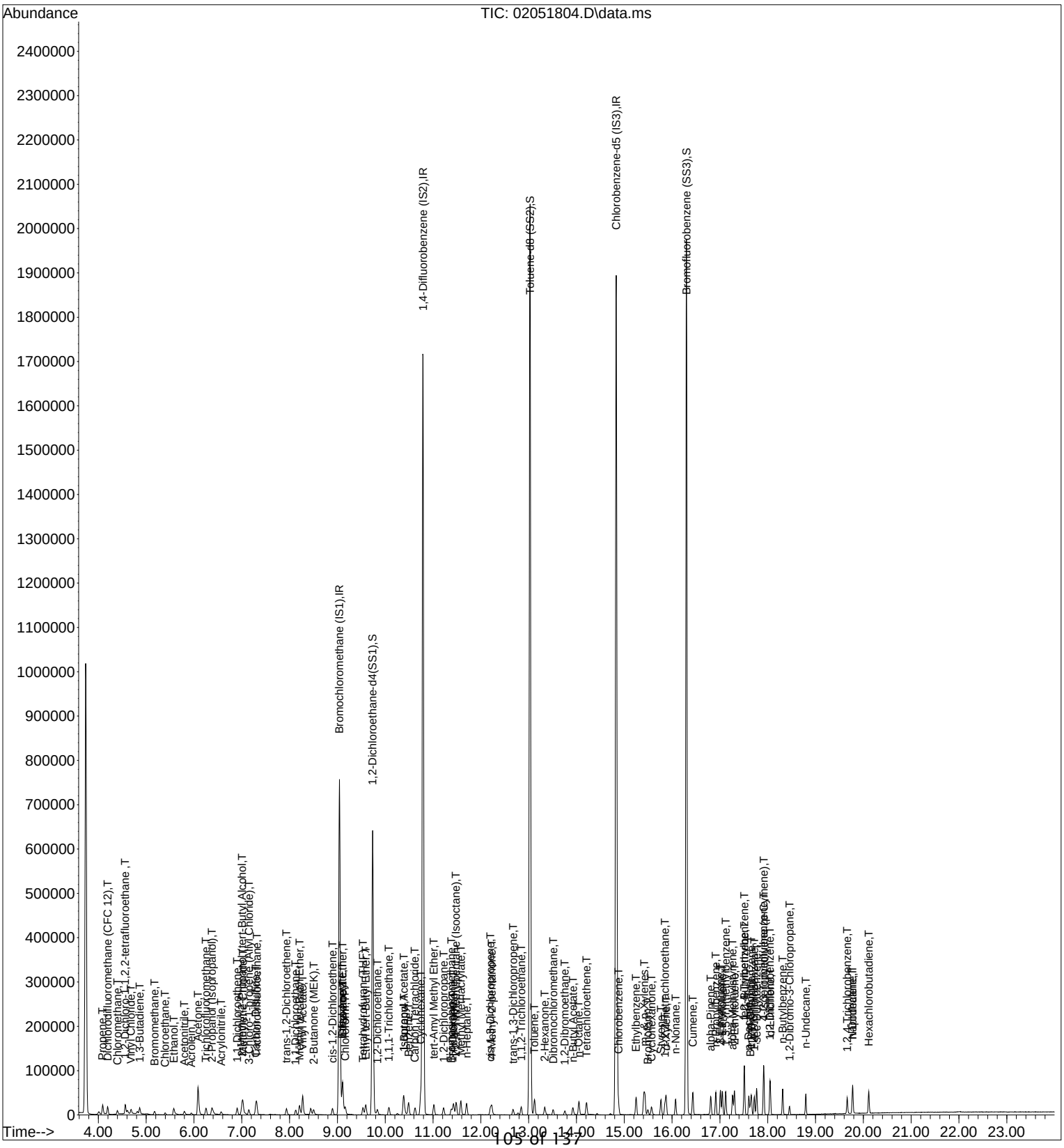
Quant Time: Feb 05 14:45:21 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	11.58	100	6345	0.439	ng		95
51) n-Heptane	11.71	71	7176	0.229	ng		98
52) cis-1,3-Dichloropropene	12.20	75	10623	0.231	ng		97
53) 4-Methyl-2-pentanone	12.23	58	6072	0.233	ng		84
54) trans-1,3-Dichloropropene	12.67	75	8756	0.211	ng		97
55) 1,1,2-Trichloroethane	12.85	97	6826	0.224	ng		99
58) Toluene	13.12	91	30855	0.227	ng		97
59) 2-Hexanone	13.34	43	14409	0.247	ng		93
60) Dibromochloromethane	13.51	129	8259	0.224	ng		99
61) 1,2-Dibromoethane	13.76	107	7647	0.220	ng		98
62) n-Butyl Acetate	13.93	43	15167	0.230	ng		97
63) n-Octane	14.05	57	5639	0.233	ng		98
64) Tetrachloroethene	14.21	166	10592	0.239	ng		97
65) Chlorobenzene	14.88	112	21795	0.227	ng		95
66) Ethylbenzene	15.25	91	34281	0.223	ng		99
67) m- & p-Xylenes	15.42	91	54340	0.453	ng		99
68) Bromoform	15.49	173	6890	0.213	ng		97
69) Styrene	15.77	104	20834	0.220	ng		98
70) o-Xylene	15.87	91	27672	0.221	ng		99
71) n-Nonane	16.07	43	12145	0.242	ng		95
72) 1,1,2,2-Tetrachloroethane	15.85	83	10811	0.216	ng		98
74) Cumene	16.43	105	37624	0.222	ng		99
75) alpha-Pinene	16.81	93	17434	0.220	ng		84
76) n-Propylbenzene	16.91	91	42405	0.228	ng		99
77) 3-Ethyltoluene	17.01	105	37934	0.226	ng		97
78) 4-Ethyltoluene	17.05	105	34888	0.221	ng		97
79) 1,3,5-Trimethylbenzene	17.12	105	31299	0.219	ng		99
80) alpha-Methylstyrene	17.26	118	15624	0.222	ng		95
81) 2-Ethyltoluene	17.31	105	36998	0.226	ng		97
82) 1,2,4-Trimethylbenzene	17.51	105	31670	0.227	ng		96
83) n-Decane	17.60	57	13455	0.224	ng		99
84) Benzyl Chloride	17.64	91	15041	0.158	ng		99
85) 1,3-Dichlorobenzene	17.66	146	19612	0.230	ng		100
86) 1,4-Dichlorobenzene	17.72	146	19387	0.220	ng		97
87) sec-Butylbenzene	17.77	105	42102	0.227	ng		99
88) 4-Isopropyltoluene (p-...	17.92	119	41039	0.227	ng		99
89) 1,2,3-Trimethylbenzene	17.91	105	31327	0.222	ng		97
90) 1,2-Dichlorobenzene	18.04	146	18593	0.232	ng		100
91) d-Limonene	18.05	68	9438	0.208	ng		98
92) 1,2-Dibromo-3-Chloropr...	18.46	157	5861	0.203	ng	#	77
93) n-Undecane	18.80	57	13384	0.212	ng		98
94) 1,2,4-Trichlorobenzene	19.66	180	13127	0.206	ng		100
95) Naphthalene	19.78	128	30904	0.180	ng		97
96) n-Dodecane	19.78	57	9707	0.167	ng		97
97) Hexachlorobutadiene	20.11	225	11017	0.243	ng		99
98) Cyclohexanone	15.57	55	8974	0.222	ng		96
99) tert-Butylbenzene	17.51	119	33227	0.230	ng		98
100) n-Butylbenzene	18.31	91	31607	0.227	ng		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\05\02051804.D
Acq On : 5 Feb 2018 10:25 Operator: WA
Sample : 0.20ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 05 14:45:21 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



00870511

Data File: I:\MS08\Data\2018 02\05\02051805.D
Acq On : 5 Feb 2018 10:57 Operator: WA
Sample : 0.40ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 05 14:45:23 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 2/5/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.04	130	384587	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	10.79	114	1770019	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	14.83	82	727538	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.74	65	524111	12.779	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.24%				
57) Toluene-d8 (SS2)	13.03	98	1771165	12.240	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.92%				
73) Bromofluorobenzene (SS3)	16.30	174	770478	13.055	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.48%				
Target Compounds							Qvalue
2) Propene	4.09	42	11599	0.393	ng		98
3) Dichlorodifluoromethan...	4.20	85	27182	0.419	ng		98
4) Chloromethane	4.40	50	16245	0.413	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.57	135	15825	0.448	ng		98
6) Vinyl Chloride	4.68	62	17467	0.461	ng		100
7) 1,3-Butadiene	4.86	54	13232	0.521	ng		98
8) Bromomethane	5.17	94	10936	0.392	ng		100
9) Chloroethane	5.40	64	9015	0.389	ng		97
10) Ethanol	5.58	45	41990	2.153	ng		99
11) Acetonitrile	5.80	41	21742	0.461	ng		89
12) Acrolein	5.94	56	6522	0.359	ng		95
13) Acetone	6.08	58	50146	2.424	ng		95
14) Trichlorofluoromethane	6.25	101	25000	0.444	ng		100
15) 2-Propanol (Isopropanol)	6.36	45	62222	0.855	ng		90
16) Acrylonitrile	6.57	53	14920	0.426	ng		99
17) 1,1-Dichloroethene	6.90	96	13420	0.407	ng		100
18) 2-Methyl-2-Propanol (t...	6.99	59	67334	0.795	ng		91
19) Methylene Chloride	7.02	84	16612	0.466	ng		90
20) 3-Chloro-1-propene (Al...	7.15	41	16355	0.434	ng		93
21) Trichlorotrifluoroethane	7.32	151	15041	0.419	ng		99
22) Carbon Disulfide	7.29	76	57093	0.475	ng		99
23) trans-1,2-Dichloroethene	7.94	61	16625	0.401	ng		96
24) 1,1-Dichloroethane	8.13	63	20825	0.395	ng		100
25) Methyl tert-Butyl Ether	8.20	73	40785	0.393	ng		100
26) Vinyl Acetate	8.27	86	17446	2.182	ng	#	86
27) 2-Butanone (MEK)	8.49	72	9437	0.437	ng	#	84
28) cis-1,2-Dichloroethene	8.90	61	16796	0.409	ng		99
29) Diisopropyl Ether	9.11	87	12461	0.422	ng	#	79
30) Ethyl Acetate	9.10	61	8333	0.867	ng		93
31) n-Hexane	9.12	57	20335	0.517	ng		98
32) Chloroform	9.17	83	23506	0.417	ng		99
34) Tetrahydrofuran (THF)	9.53	72	10407	0.476	ng	#	85
35) Ethyl tert-Butyl Ether	9.59	87	17281	0.396	ng		97
36) 1,2-Dichloroethane	9.84	62	17588	0.410	ng		96
38) 1,1,1-Trichloroethane	10.08	97	22947	0.432	ng		98
39) Isopropyl Acetate	10.38	61	14632	0.824	ng	#	78
40) 1-Butanol	10.39	56	27481	0.881	ng	#	78
41) Benzene	10.49	78	51524	0.400	ng		100
42) Carbon Tetrachloride	10.62	117	20767	0.436	ng		99
43) Cyclohexane	10.74	84	46477	0.827	ng		96
44) tert-Amyl Methyl Ether	11.02	73	36733	0.386	ng		93
45) 1,2-Dichloropropane	11.22	63	12018	0.416	ng		99
46) Bromodichloromethane	11.38	83	17523	0.418	ng		98
47) Trichloroethene	11.43	130	17080	0.422	ng		100
48) 1,4-Dioxane	11.41	88	12326	0.430	ng		100
49) 2,2,4-Trimethylpentane...	11.49	57	52281	0.400	ng		95

Data File: I:\MS08\Data\2018 02\05\02051805.D
Acq On : 5 Feb 2018 10:57 Operator: WA
Sample : 0.40ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

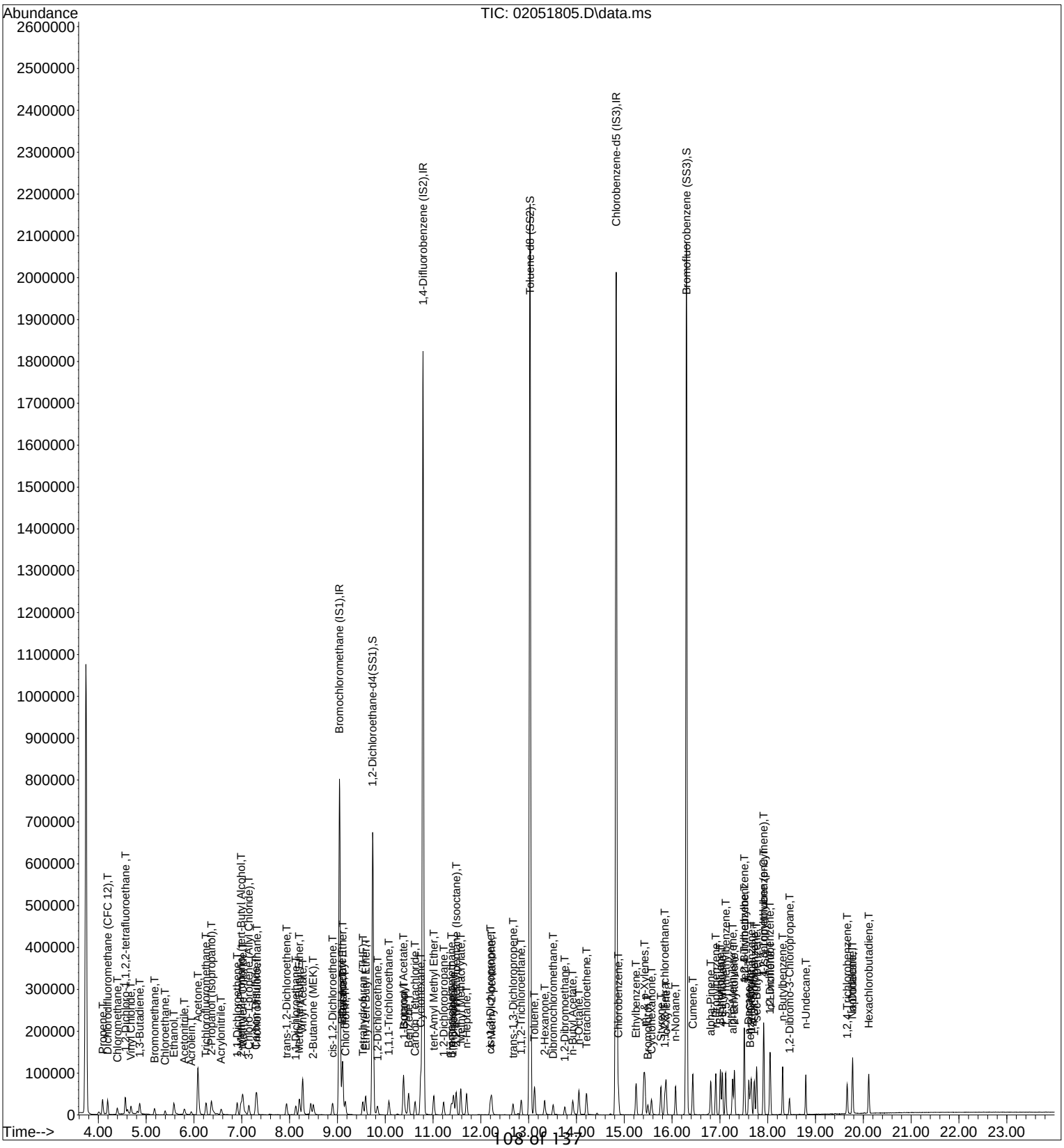
Quant Time: Feb 05 14:45:23 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.58	100	12687	0.830	ng	93
51) n-Heptane	11.70	71	13920	0.421	ng	99
52) cis-1,3-Dichloropropene	12.20	75	20828	0.428	ng	99
53) 4-Methyl-2-pentanone	12.22	58	11929	0.433	ng	86
54) trans-1,3-Dichloropropene	12.67	75	17311	0.395	ng	99
55) 1,1,2-Trichloroethane	12.84	97	13468	0.419	ng	98
58) Toluene	13.12	91	58228	0.404	ng	99
59) 2-Hexanone	13.34	43	27969	0.451	ng	94
60) Dibromochloromethane	13.51	129	15815	0.404	ng	99
61) 1,2-Dibromoethane	13.76	107	15154	0.410	ng	98
62) n-Butyl Acetate	13.92	43	29346	0.420	ng	98
63) n-Octane	14.05	57	10603	0.413	ng	99
64) Tetrachloroethene	14.21	166	19997	0.425	ng	100
65) Chlorobenzene	14.87	112	41605	0.407	ng	97
66) Ethylbenzene	15.25	91	66180	0.405	ng	99
67) m- & p-Xylenes	15.42	91	104496	0.821	ng	99
68) Bromoform	15.49	173	13496	0.393	ng	99
69) Styrene	15.77	104	41520	0.414	ng	97
70) o-Xylene	15.87	91	53427	0.402	ng	100
71) n-Nonane	16.07	43	23072	0.433	ng	96
72) 1,1,2,2-Tetrachloroethane	15.85	83	22194	0.417	ng	99
74) Cumene	16.43	105	71938	0.400	ng	100
75) alpha-Pinene	16.81	93	33565	0.398	ng	88
76) n-Propylbenzene	16.91	91	81111	0.410	ng	99
77) 3-Ethyltoluene	17.01	105	72938	0.409	ng	98
78) 4-Ethyltoluene	17.05	105	65950	0.394	ng	97
79) 1,3,5-Trimethylbenzene	17.12	105	61354	0.405	ng	100
80) alpha-Methylstyrene	17.27	118	30203	0.404	ng	95
81) 2-Ethyltoluene	17.30	105	71806	0.413	ng	98
82) 1,2,4-Trimethylbenzene	17.51	105	61455	0.415	ng	96
83) n-Decane	17.60	57	25746	0.403	ng	99
84) Benzyl Chloride	17.63	91	32761	0.324	ng	98
85) 1,3-Dichlorobenzene	17.66	146	37788	0.418	ng	99
86) 1,4-Dichlorobenzene	17.72	146	38139	0.407	ng	99
87) sec-Butylbenzene	17.77	105	81236	0.413	ng	99
88) 4-Isopropyltoluene (p-...	17.91	119	79961	0.416	ng	98
89) 1,2,3-Trimethylbenzene	17.91	105	61993	0.415	ng	97
90) 1,2-Dichlorobenzene	18.04	146	36036	0.423	ng	99
91) d-Limonene	18.05	68	18742	0.389	ng	97
92) 1,2-Dibromo-3-Chloropr...	18.46	157	12174	0.397	ng	83
93) n-Undecane	18.80	57	26698	0.398	ng	99
94) 1,2,4-Trichlorobenzene	19.66	180	26281	0.388	ng	99
95) Naphthalene	19.77	128	62334	0.342	ng	98
96) n-Dodecane	19.78	57	19689	0.319	ng	98
97) Hexachlorobutadiene	20.11	225	21157	0.439	ng	99
98) Cyclohexanone	15.57	55	18190	0.424	ng	96
99) tert-Butylbenzene	17.51	119	63786	0.416	ng	99
100) n-Butylbenzene	18.31	91	62224	0.421	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\05\02051805.D
Acq On : 5 Feb 2018 10:57 Operator: WA
Sample : 0.40ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181811 (2/16)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 05 14:45:23 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\05\02051806.D
Acq On : 5 Feb 2018 11:30 Operator: WA
Sample : 1.0ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181809 (2/16)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 05 14:45:25 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018 LH 2/5/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.05	130	355976	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	10.79	114	1607934	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	14.83	82	663565	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.74	65	477149	12.569	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.56%				
57) Toluene-d8 (SS2)	13.03	98	1618996	12.267	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.16%				
73) Bromofluorobenzene (SS3)	16.30	174	711151	13.212	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.68%				
Target Compounds							Qvalue
2) Propene	4.07	42	28997	1.061	ng		100
3) Dichlorodifluoromethan...	4.18	85	68720	1.144	ng		99
4) Chloromethane	4.38	50	40302	1.106	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.56	135	41020	1.255	ng		99
6) Vinyl Chloride	4.67	62	45146	1.286	ng		99
7) 1,3-Butadiene	4.85	54	32898	1.398	ng		98
8) Bromomethane	5.16	94	26952	1.042	ng		98
9) Chloroethane	5.38	64	22689	1.057	ng		98
10) Ethanol	5.58	45	106158	5.881	ng		100
11) Acetonitrile	5.79	41	52343	1.199	ng		95
12) Acrolein	5.93	56	17770	1.058	ng		100
13) Acetone	6.07	58	118472	6.187	ng		94
14) Trichlorofluoromethane	6.25	101	61131	1.172	ng		99
15) 2-Propanol (Isopropanol)	6.36	45	154132	2.289	ng		92
16) Acrylonitrile	6.56	53	38092	1.174	ng		99
17) 1,1-Dichloroethene	6.90	96	34259	1.121	ng		98
18) 2-Methyl-2-Propanol (t...	6.97	59	159081	2.030	ng		92
19) Methylene Chloride	7.02	84	36789	1.115	ng		90
20) 3-Chloro-1-propene (Al...	7.14	41	39925	1.145	ng		95
21) Trichlorotrifluoroethane	7.31	151	37358	1.123	ng		100
22) Carbon Disulfide	7.29	76	125034	1.124	ng		100
23) trans-1,2-Dichloroethene	7.93	61	43152	1.125	ng		98
24) 1,1-Dichloroethane	8.13	63	52016	1.066	ng		99
25) Methyl tert-Butyl Ether	8.20	73	100367	1.045	ng		100
26) Vinyl Acetate	8.27	86	42667	5.766	ng	#	83
27) 2-Butanone (MEK)	8.49	72	22356	1.120	ng	#	87
28) cis-1,2-Dichloroethene	8.90	61	42402	1.115	ng		99
29) Diisopropyl Ether	9.10	87	31201	1.141	ng	#	87
30) Ethyl Acetate	9.10	61	21104	2.371	ng		97
31) n-Hexane	9.11	57	47042	1.292	ng		99
32) Chloroform	9.17	83	59662	1.144	ng		99
34) Tetrahydrofuran (THF)	9.53	72	22831	1.128	ng	#	87
35) Ethyl tert-Butyl Ether	9.59	87	42103	1.042	ng		99
36) 1,2-Dichloroethane	9.84	62	45120	1.135	ng		99
38) 1,1,1-Trichloroethane	10.08	97	58299	1.208	ng		99
39) Isopropyl Acetate	10.38	61	35734	2.216	ng	#	85
40) 1-Butanol	10.38	56	63066	2.225	ng	#	76
41) Benzene	10.49	78	127501	1.089	ng		100
42) Carbon Tetrachloride	10.62	117	51929	1.200	ng		99
43) Cyclohexane	10.74	84	112923	2.212	ng	#	81
44) tert-Amyl Methyl Ether	11.01	73	85706	0.990	ng		96
45) 1,2-Dichloropropane	11.22	63	29627	1.130	ng		98
46) Bromodichloromethane	11.38	83	45220	1.186	ng		98
47) Trichloroethene	11.43	130	42889	1.166	ng		100
48) 1,4-Dioxane	11.40	88	29976	1.151	ng		98
49) 2,2,4-Trimethylpentane...	11.49	57	130294	1.098	ng		96

Data File: I:\MS08\Data\2018 02\05\02051806.D
Acq On : 5 Feb 2018 11:30 Operator: WA
Sample : 1.0ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181809 (2/16)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 05 14:45:25 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

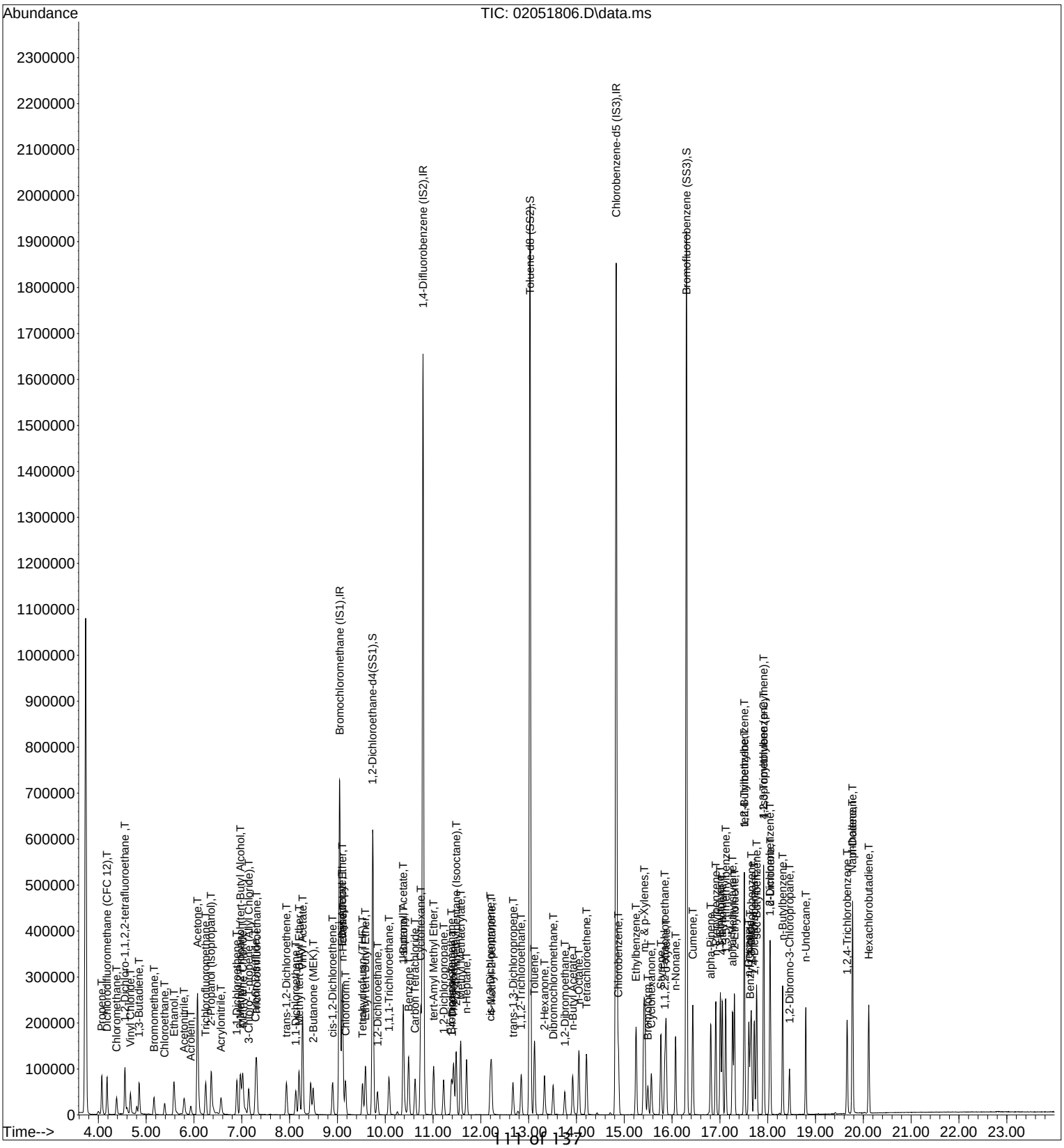
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.58	100	31424	2.264	ng	96
51) n-Heptane	11.70	71	33572	1.118	ng	99
52) cis-1,3-Dichloropropene	12.20	75	54067	1.222	ng	99
53) 4-Methyl-2-pentanone	12.22	58	28502	1.138	ng	88
54) trans-1,3-Dichloropropene	12.67	75	45819	1.152	ng	98
55) 1,1,2-Trichloroethane	12.84	97	34003	1.165	ng	99
58) Toluene	13.12	91	143482	1.091	ng	99
59) 2-Hexanone	13.33	43	66239	1.172	ng	95
60) Dibromochloromethane	13.51	129	41986	1.177	ng	98
61) 1,2-Dibromoethane	13.76	107	38849	1.153	ng	99
62) n-Butyl Acetate	13.92	43	70079	1.099	ng	98
63) n-Octane	14.05	57	26357	1.126	ng	99
64) Tetrachloroethene	14.21	166	50523	1.176	ng	99
65) Chlorobenzene	14.87	112	103420	1.110	ng	99
66) Ethylbenzene	15.25	91	164885	1.106	ng	99
67) m- & p-Xylenes	15.42	91	260360	2.243	ng	98
68) Bromoform	15.49	173	35836	1.145	ng	99
69) Styrene	15.77	104	106108	1.159	ng	97
70) o-Xylene	15.87	91	134335	1.109	ng	100
71) n-Nonane	16.07	43	57614	1.186	ng	96
72) 1,1,2,2-Tetrachloroethane	15.85	83	56190	1.158	ng	100
74) Cumene	16.43	105	180892	1.103	ng	100
75) alpha-Pinene	16.81	93	84346	1.098	ng	94
76) n-Propylbenzene	16.91	91	202417	1.123	ng	99
77) 3-Ethyltoluene	17.01	105	186093	1.145	ng	99
78) 4-Ethyltoluene	17.05	105	162283	1.062	ng	96
79) 1,3,5-Trimethylbenzene	17.12	105	152774	1.105	ng	99
80) alpha-Methylstyrene	17.26	118	79515	1.168	ng	97
81) 2-Ethyltoluene	17.31	105	179055	1.129	ng	98
82) 1,2,4-Trimethylbenzene	17.51	105	152428	1.130	ng	96
83) n-Decane	17.60	57	63968	1.098	ng	99
84) Benzyl Chloride	17.63	91	93870	1.018	ng	99
85) 1,3-Dichlorobenzene	17.66	146	96330	1.167	ng	99
86) 1,4-Dichlorobenzene	17.72	146	98266	1.149	ng	99
87) sec-Butylbenzene	17.77	105	200739	1.118	ng	99
88) 4-Isopropyltoluene (p-...	17.91	119	197764	1.128	ng	98
89) 1,2,3-Trimethylbenzene	17.91	105	151144	1.108	ng	96
90) 1,2-Dichlorobenzene	18.04	146	93536	1.203	ng	99
91) d-Limonene	18.05	68	47562	1.082	ng	99
92) 1,2-Dibromo-3-Chloropr...	18.46	157	31950	1.142	ng	90
93) n-Undecane	18.80	57	65530	1.071	ng	99
94) 1,2,4-Trichlorobenzene	19.66	180	75943	1.229	ng	98
95) Naphthalene	19.77	128	215621	1.297	ng	99
96) n-Dodecane	19.78	57	67347	1.197	ng	99
97) Hexachlorobutadiene	20.11	225	52567	1.195	ng	98
98) Cyclohexanone	15.56	55	42204	1.078	ng	97
99) tert-Butylbenzene	17.51	119	158505	1.133	ng	99
100) n-Butylbenzene	18.31	91	152422	1.131	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\05\02051806.D
Acq On : 5 Feb 2018 11:30 Operator: WA
Sample : 1.0ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181809 (2/16)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 05 14:45:25 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\05\02051807.D
Acq On : 5 Feb 2018 12:02 Operator: WA
Sample : 5.0ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181809 (2/16)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 05 14:45:27 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018 LH 2/5/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.06	130	381103	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	10.80	114	1711065	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	14.83	82	704672	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.75	65	510230	12.554	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.40%				
57) Toluene-d8 (SS2)	13.03	98	1720241	12.274	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.16%				
73) Bromofluorobenzene (SS3)	16.30	174	761484	13.322	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.56%				
Target Compounds							Qvalue
2) Propene	4.06	42	123751	4.228	ng		99
3) Dichlorodifluoromethan...	4.18	85	297438	4.624	ng		99
4) Chloromethane	4.38	50	168212	4.313	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.56	135	179308	5.123	ng		99
6) Vinyl Chloride	4.67	62	199884	5.318	ng		99
7) 1,3-Butadiene	4.85	54	151178	6.002	ng		96
8) Bromomethane	5.17	94	119121	4.304	ng		97
9) Chloroethane	5.39	64	100169	4.358	ng		99
10) Ethanol	5.61	45	450322	23.304	ng		100
11) Acetonitrile	5.81	41	224598	4.807	ng		100
12) Acrolein	5.94	56	81901	4.555	ng		99
13) Acetone	6.08	58	516321	25.188	ng		97
14) Trichlorofluoromethane	6.25	101	271518	4.864	ng		99
15) 2-Propanol (Isopropanol)	6.38	45	684447	9.496	ng		97
16) Acrylonitrile	6.58	53	172481	4.965	ng		98
17) 1,1-Dichloroethene	6.90	96	151747	4.640	ng		99
18) 2-Methyl-2-Propanol (t...	6.98	59	725231	8.643	ng		93
19) Methylene Chloride	7.04	84	151066	4.278	ng		90
20) 3-Chloro-1-propene (Al...	7.15	41	180568	4.837	ng		98
21) Trichlorotrifluoroethane	7.31	151	167104	4.694	ng		100
22) Carbon Disulfide	7.29	76	524919	4.408	ng		100
23) trans-1,2-Dichloroethene	7.95	61	197413	4.809	ng		99
24) 1,1-Dichloroethane	8.14	63	229449	4.392	ng		100
25) Methyl tert-Butyl Ether	8.19	73	460052	4.474	ng		99
26) Vinyl Acetate	8.28	86	205995	26.004	ng	#	90
27) 2-Butanone (MEK)	8.49	72	100979	4.723	ng		90
28) cis-1,2-Dichloroethene	8.91	61	188703	4.637	ng		98
29) Diisopropyl Ether	9.10	87	134897	4.606	ng	#	88
30) Ethyl Acetate	9.10	61	93212	9.783	ng		99
31) n-Hexane	9.12	57	191758	4.919	ng		99
32) Chloroform	9.18	83	261715	4.686	ng		100
34) Tetrahydrofuran (THF)	9.52	72	102933	4.752	ng	#	90
35) Ethyl tert-Butyl Ether	9.59	87	196448	4.543	ng		98
36) 1,2-Dichloroethane	9.84	62	198799	4.671	ng		98
38) 1,1,1-Trichloroethane	10.09	97	259823	5.059	ng		99
39) Isopropyl Acetate	10.38	61	161651	9.419	ng	#	87
40) 1-Butanol	10.38	56	301816	10.008	ng		83
41) Benzene	10.49	78	555247	4.458	ng		100
42) Carbon Tetrachloride	10.63	117	236253	5.129	ng		99
43) Cyclohexane	10.75	84	492758	9.070	ng		94
44) tert-Amyl Methyl Ether	11.01	73	406756	4.417	ng		96
45) 1,2-Dichloropropane	11.22	63	129417	4.637	ng		99
46) Bromodichloromethane	11.39	83	206862	5.100	ng		99
47) Trichloroethene	11.43	130	188849	4.827	ng		100
48) 1,4-Dioxane	11.40	88	132645	4.788	ng		100
49) 2,2,4-Trimethylpentane...	11.49	57	572666	4.535	ng		97

Data File: I:\MS08\Data\2018 02\05\02051807.D
Acq On : 5 Feb 2018 12:02 Operator: WA
Sample : 5.0ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181809 (2/16)
ALS Vial : 10 Sample Multiplier: 1

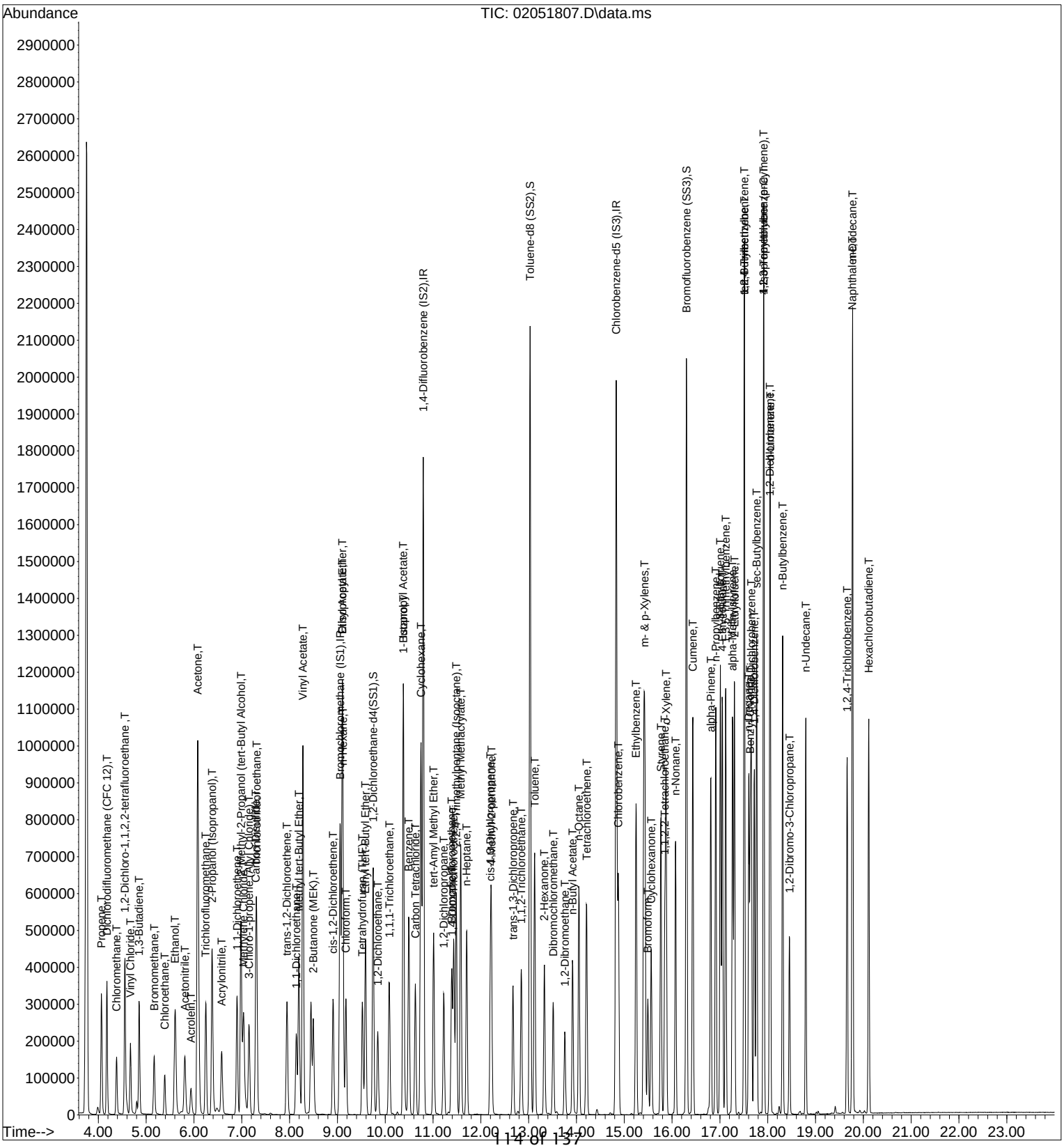
Quant Time: Feb 05 14:45:27 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
50) Methyl Methacrylate	11.58	100	144456	9.779 ng	97
51) n-Heptane	11.70	71	143600	4.492 ng	99
52) cis-1,3-Dichloropropene	12.20	75	248703	5.283 ng	100
53) 4-Methyl-2-pentanone	12.22	58	127687	4.792 ng	92
54) trans-1,3-Dichloropropene	12.67	75	219927	5.197 ng	100
55) 1,1,2-Trichloroethane	12.85	97	151743	4.884 ng	99
58) Toluene	13.13	91	631224	4.518 ng	100
59) 2-Hexanone	13.32	43	297022	4.950 ng	98
60) Dibromochloromethane	13.51	129	198954	5.252 ng	98
61) 1,2-Dibromoethane	13.76	107	178333	4.985 ng	99
62) n-Butyl Acetate	13.92	43	325842	4.813 ng	98
63) n-Octane	14.05	57	114890	4.622 ng	97
64) Tetrachloroethene	14.21	166	222770	4.883 ng	99
65) Chlorobenzene	14.87	112	456953	4.618 ng	99
66) Ethylbenzene	15.25	91	737327	4.657 ng	99
67) m- & p-Xylenes	15.42	91	1164645	9.446 ng	98
68) Bromoform	15.49	173	179123	5.391 ng	100
69) Styrene	15.77	104	490222	5.042 ng	98
70) o-Xylene	15.87	91	597717	4.646 ng	100
71) n-Nonane	16.07	43	255309	4.951 ng	97
72) 1,1,2,2-Tetrachloroethane	15.85	83	257409	4.995 ng	99
74) Cumene	16.43	105	811735	4.662 ng	99
75) alpha-Pinene	16.81	93	391161	4.793 ng	96
76) n-Propylbenzene	16.91	91	913282	4.772 ng	99
77) 3-Ethyltoluene	17.01	105	842677	4.884 ng	98
78) 4-Ethyltoluene	17.05	105	740873	4.565 ng	96
79) 1,3,5-Trimethylbenzene	17.12	105	685187	4.665 ng	98
80) alpha-Methylstyrene	17.26	118	378304	5.231 ng	97
81) 2-Ethyltoluene	17.31	105	804248	4.774 ng	98
82) 1,2,4-Trimethylbenzene	17.51	105	696438	4.861 ng	96
83) n-Decane	17.60	57	288964	4.669 ng	99
84) Benzyl Chloride	17.63	91	528681	5.400 ng	98
85) 1,3-Dichlorobenzene	17.66	146	442201	5.045 ng	100
86) 1,4-Dichlorobenzene	17.72	146	449311	4.947 ng	99
87) sec-Butylbenzene	17.77	105	908863	4.766 ng	98
88) 4-Isopropyltoluene (p-...	17.91	119	895589	4.811 ng	98
89) 1,2,3-Trimethylbenzene	17.91	105	689917	4.763 ng	96
90) 1,2-Dichlorobenzene	18.04	146	429721	5.206 ng	99
91) d-Limonene	18.05	68	225264	4.824 ng	98
92) 1,2-Dibromo-3-Chloropr...	18.46	157	158521	5.336 ng	92
93) n-Undecane	18.80	57	305530	4.702 ng	100
94) 1,2,4-Trichlorobenzene	19.66	180	351131	5.351 ng	99
95) Naphthalene	19.77	128	1033132	5.851 ng	100
96) n-Dodecane	19.78	57	317915	5.321 ng	99
97) Hexachlorobutadiene	20.11	225	240648	5.152 ng	98
98) Cyclohexanone	15.56	55	198646	4.776 ng	98
99) tert-Butylbenzene	17.51	119	716740	4.825 ng	98
100) n-Butylbenzene	18.31	91	694664	4.856 ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\05\02051807.D
Acq On : 5 Feb 2018 12:02 Operator: WA
Sample : 5.0ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181809 (2/16)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 05 14:45:27 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\05\02051808.D
Acq On : 5 Feb 2018 12:34 Operator: WA
Sample : 25ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181814 (2/16)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 05 14:45:29 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018 LH 2/5/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.07	130	388400	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	10.80	114	1672578	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	14.83	82	696167	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.76	65	502340	12.128	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.04%				
57) Toluene-d8 (SS2)	13.03	98	1678460	12.122	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.96%				
73) Bromofluorobenzene (SS3)	16.31	174	760306	13.463	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.68%				
Target Compounds							Qvalue
2) Propene	4.06	42	646588	21.676	ng		99
3) Dichlorodifluoromethan...	4.17	85	1540204	23.492	ng		100
4) Chloromethane	4.39	50	914801	23.016	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.56	135	931071	26.101	ng		99
6) Vinyl Chloride	4.68	62	1047768	27.353	ng		99
7) 1,3-Butadiene	4.86	54	839403	32.699	ng		96
8) Bromomethane	5.18	94	655019	23.221	ng		98
9) Chloroethane	5.40	64	523892	22.366	ng		99
10) Ethanol	5.64	45	2374001	120.545	ng		99
11) Acetonitrile	5.84	41	1158703	24.336	ng		99
12) Acrolein	5.96	56	441331	24.081	ng		100
13) Acetone	6.10	58	2698725	129.179	ng		93
14) Trichlorofluoromethane	6.26	101	1378916	24.237	ng		100
15) 2-Propanol (Isopropanol)	6.40	45	3569217	48.589	ng		98
16) Acrylonitrile	6.60	53	909397	25.683	ng		99
17) 1,1-Dichloroethene	6.91	96	813866	24.417	ng		98
18) 2-Methyl-2-Propanol (t...	7.00	59	3939754	46.068	ng		97
19) Methylene Chloride	7.06	84	798436	22.188	ng		94
20) 3-Chloro-1-propene (Al...	7.17	41	975134	25.630	ng		100
21) Trichlorotrifluoroethane	7.32	151	888652	24.493	ng		99
22) Carbon Disulfide	7.31	76	2694432	22.203	ng		99
23) trans-1,2-Dichloroethene	7.96	61	1040584	24.874	ng		100
24) 1,1-Dichloroethane	8.16	63	1152503	21.644	ng		99
25) Methyl tert-Butyl Ether	8.20	73	2441218	23.296	ng		99
26) Vinyl Acetate	8.29	86	1090969	135.132	ng	#	91
27) 2-Butanone (MEK)	8.50	72	519625	23.849	ng		95
28) cis-1,2-Dichloroethene	8.92	61	971270	23.418	ng		97
29) Diisopropyl Ether	9.11	87	708075	23.722	ng		95
30) Ethyl Acetate	9.11	61	469747	48.375	ng		99
31) n-Hexane	9.12	57	904422	22.762	ng		99
32) Chloroform	9.19	83	1337589	23.501	ng		99
34) Tetrahydrofuran (THF)	9.53	72	511984	23.194	ng		97
35) Ethyl tert-Butyl Ether	9.59	87	1069085	24.260	ng		96
36) 1,2-Dichloroethane	9.86	62	1007964	23.240	ng		98
38) 1,1,1-Trichloroethane	10.09	97	1365911	27.205	ng		99
39) Isopropyl Acetate	10.38	61	838807	50.001	ng		98
40) 1-Butanol	10.39	56	1630187	55.301	ng		92
41) Benzene	10.50	78	2767775	22.734	ng		99
42) Carbon Tetrachloride	10.64	117	1265307	28.100	ng		99
43) Cyclohexane	10.75	84	2579887	48.580	ng		99
44) tert-Amyl Methyl Ether	11.02	73	2244205	24.929	ng		98
45) 1,2-Dichloropropane	11.23	63	655367	24.024	ng		99
46) Bromodichloromethane	11.39	83	1087192	27.419	ng		98
47) Trichloroethene	11.44	130	949942	24.838	ng		100
48) 1,4-Dioxane	11.40	88	692885	25.584	ng		99
49) 2,2,4-Trimethylpentane...	11.49	57	2909758	23.574	ng		97

Data File: I:\MS08\Data\2018 02\05\02051808.D
Acq On : 5 Feb 2018 12:34 Operator: WA
Sample : 25ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181814 (2/16)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 05 14:45:29 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

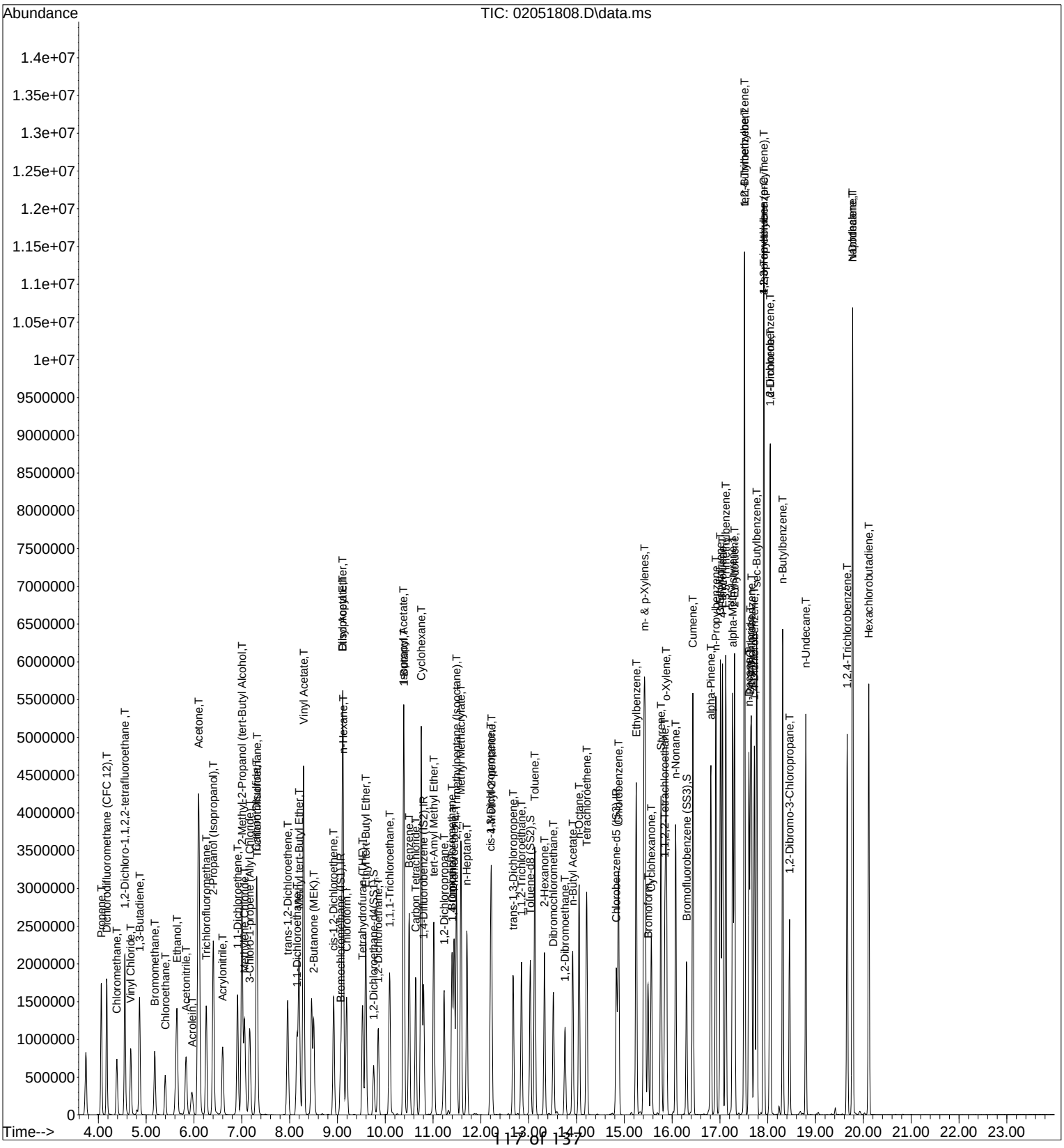
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.58	100	754146	52.226	ng	99
51) n-Heptane	11.71	71	705976	22.592	ng	99
52) cis-1,3-Dichloropropene	12.21	75	1296238	28.168	ng	99
53) 4-Methyl-2-pentanone	12.22	58	664728	25.519	ng	95
54) trans-1,3-Dichloropropene	12.67	75	1171952	28.333	ng	100
55) 1,1,2-Trichloroethane	12.85	97	782182	25.754	ng	99
58) Toluene	13.13	91	3150922	22.829	ng	99
59) 2-Hexanone	13.33	43	1504393	25.377	ng	99
60) Dibromochloromethane	13.52	129	1065658	28.475	ng	97
61) 1,2-Dibromoethane	13.76	107	922835	26.113	ng	99
62) n-Butyl Acetate	13.92	43	1672910	25.014	ng	99
63) n-Octane	14.06	57	580226	23.626	ng	97
64) Tetrachloroethene	14.21	166	1142642	25.353	ng	100
65) Chlorobenzene	14.88	112	2326685	23.800	ng	99
66) Ethylbenzene	15.25	91	3755760	24.011	ng	97
67) m- & p-Xylenes	15.42	91	5910617	48.526	ng	97
68) Bromoform	15.50	173	1009320	30.748	ng	100
69) Styrene	15.77	104	2553230	26.581	ng	99
70) o-Xylene	15.87	91	3081057	24.241	ng	99
71) n-Nonane	16.07	43	1261847	24.767	ng	99
72) 1,1,2,2-Tetrachloroethane	15.85	83	1349927	26.514	ng	99
74) Cumene	16.43	105	4123759	23.974	ng	98
75) alpha-Pinene	16.81	93	2029695	25.174	ng	98
76) n-Propylbenzene	16.91	91	4586639	24.259	ng	98
77) 3-Ethyltoluene	17.01	105	4152376	24.361	ng	97
78) 4-Ethyltoluene	17.05	105	3912393	24.403	ng	95
79) 1,3,5-Trimethylbenzene	17.12	105	3545351	24.435	ng	98
80) alpha-Methylstyrene	17.27	118	1960527	27.440	ng	96
81) 2-Ethyltoluene	17.31	105	4102502	24.651	ng	96
82) 1,2,4-Trimethylbenzene	17.52	105	3550135	25.082	ng	96
83) n-Decane	17.61	57	1481603	24.233	ng	98
84) Benzyl Chloride	17.64	91	3043034	31.461	ng	97
85) 1,3-Dichlorobenzene	17.66	146	2304178	26.607	ng	100
86) 1,4-Dichlorobenzene	17.72	146	2291669	25.538	ng	100
87) sec-Butylbenzene	17.77	105	4592116	24.373	ng	97
88) 4-Isopropyltoluene (p-...	17.92	119	4411728	23.989	ng	98
89) 1,2,3-Trimethylbenzene	17.92	105	3522153	24.613	ng	97
90) 1,2-Dichlorobenzene	18.05	146	2198269	26.958	ng	99
91) d-Limonene	18.05	68	1159654	25.135	ng	97
92) 1,2-Dibromo-3-Chloropr...	18.46	157	867694	29.565	ng	95
93) n-Undecane	18.80	57	1542704	24.034	ng	98
94) 1,2,4-Trichlorobenzene	19.66	180	1815022	27.996	ng	99
95) Naphthalene	19.78	128	5103584	29.255	ng	99
96) n-Dodecane	19.78	57	1491305	25.266	ng	98
97) Hexachlorobutadiene	20.11	225	1262055	27.347	ng	98
98) Cyclohexanone	15.56	55	1040712	25.329	ng	98
99) tert-Butylbenzene	17.52	119	3586288	24.439	ng	97
100) n-Butylbenzene	18.31	91	3505264	24.802	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\05\02051808.D
Acq On : 5 Feb 2018 12:34 Operator: WA
Sample : 25ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181814 (2/16)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 05 14:45:29 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\05\02051809.D
Acq On : 5 Feb 2018 13:06 Operator: WA
Sample : 50ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181814 (2/16)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 05 14:45:31 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018 LH 2/5/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.08	130	385160	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	10.81	114	1657431	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	14.84	82	686380	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.76	65	499426	12.159	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
57) Toluene-d8 (SS2)	13.03	98	1638257	12.001	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.00%				
73) Bromofluorobenzene (SS3)	16.31	174	748652	13.446	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.60%				
Target Compounds							Qvalue
2) Propene	4.06	42	1224215	41.385	ng		98
3) Dichlorodifluoromethan...	4.17	85	2873215	44.192	ng		99
4) Chloromethane	4.39	50	1689598	42.868	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.56	135	1759183	49.731	ng		99
6) Vinyl Chloride	4.68	62	1998691	52.617	ng		98
7) 1,3-Butadiene	4.86	54	1621345	63.692	ng		95
8) Bromomethane	5.19	94	1252919	44.791	ng		99
9) Chloroethane	5.40	64	998366	42.981	ng		99
10) Ethanol	5.66	45	4498153	230.325	ng		99
11) Acetonitrile	5.85	41	2246173	47.572	ng		99
12) Acrolein	5.97	56	852858	46.928	ng		100
13) Acetone	6.11	58	5105258	246.427	ng	#	83
14) Trichlorofluoromethane	6.26	101	2656560	47.087	ng		100
15) 2-Propanol (Isopropanol)	6.42	45	6615830	90.821	ng		98
16) Acrylonitrile	6.61	53	1765830	50.291	ng		99
17) 1,1-Dichloroethene	6.92	96	1570631	47.517	ng		96
18) 2-Methyl-2-Propanol (t...	7.02	59	7360059	86.787	ng		98
19) Methylene Chloride	7.06	84	1540673	43.175	ng		96
20) 3-Chloro-1-propene (Al...	7.17	41	1895210	50.233	ng		99
21) Trichlorotrifluoroethane	7.32	151	1708950	47.499	ng		98
22) Carbon Disulfide	7.31	76	5074011	42.163	ng		99
23) trans-1,2-Dichloroethene	7.97	61	1982580	47.790	ng		97
24) 1,1-Dichloroethane	8.16	63	2200942	41.681	ng		99
25) Methyl tert-Butyl Ether	8.20	73	4659355	44.837	ng		99
26) Vinyl Acetate	8.30	86	2090510	261.118	ng	#	74
27) 2-Butanone (MEK)	8.51	72	1003815	46.460	ng		100
28) cis-1,2-Dichloroethene	8.93	61	1853079	45.056	ng		96
29) Diisopropyl Ether	9.11	87	1341300	45.315	ng	#	83
30) Ethyl Acetate	9.11	61	888421	92.259	ng		97
31) n-Hexane	9.12	57	1710494	43.411	ng		99
32) Chloroform	9.20	83	2551013	45.197	ng		99
34) Tetrahydrofuran (THF)	9.53	72	988290	45.148	ng		99
35) Ethyl tert-Butyl Ether	9.60	87	2065155	47.257	ng		94
36) 1,2-Dichloroethane	9.86	62	1903209	44.251	ng		97
38) 1,1,1-Trichloroethane	10.10	97	2596644	52.191	ng		99
39) Isopropyl Acetate	10.39	61	1577148	94.873	ng	#	92
40) 1-Butanol	10.40	56	3073934	105.231	ng		97
41) Benzene	10.51	78	5201518	43.115	ng		99
42) Carbon Tetrachloride	10.64	117	2402561	53.844	ng		99
43) Cyclohexane	10.76	84	4845994	92.085	ng		98
44) tert-Amyl Methyl Ether	11.02	73	4285114	48.035	ng		98
45) 1,2-Dichloropropane	11.23	63	1241157	45.914	ng		99
46) Bromodichloromethane	11.40	83	2053371	52.259	ng		98
47) Trichloroethene	11.44	130	1803066	47.575	ng		99
48) 1,4-Dioxane	11.41	88	1315989	49.035	ng		98
49) 2,2,4-Trimethylpentane...	11.49	57	5407784	44.212	ng		99

Data File: I:\MS08\Data\2018 02\05\02051809.D
Acq On : 5 Feb 2018 13:06 Operator: WA
Sample : 50ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181814 (2/16)
ALS Vial : 9 Sample Multiplier: 1

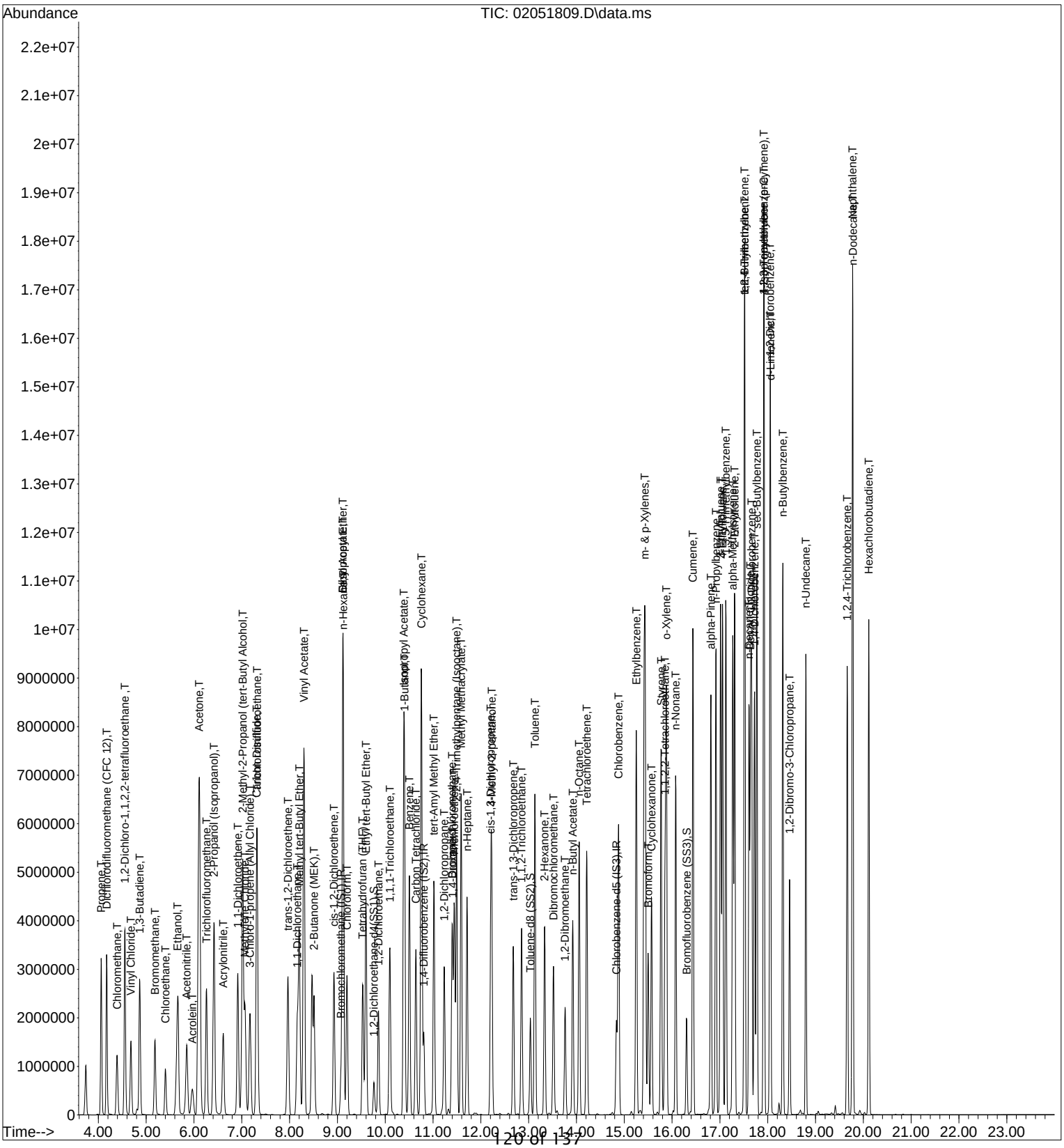
Quant Time: Feb 05 14:45:31 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.59	100	1442948	100.841	ng	98
51) n-Heptane	11.71	71	1335099	43.116	ng	99
52) cis-1,3-Dichloropropene	12.21	75	2439718	53.502	ng	99
53) 4-Methyl-2-pentanone	12.23	58	1263186	48.937	ng	99
54) trans-1,3-Dichloropropene	12.68	75	2230464	54.415	ng	100
55) 1,1,2-Trichloroethane	12.85	97	1477045	49.077	ng	99
58) Toluene	13.13	91	5811336	42.704	ng	98
59) 2-Hexanone	13.33	43	2799433	47.897	ng	99
60) Dibromochloromethane	13.52	129	2032852	55.094	ng	97
61) 1,2-Dibromoethane	13.76	107	1748613	50.186	ng	98
62) n-Butyl Acetate	13.92	43	3106178	47.107	ng	99
63) n-Octane	14.06	57	1091134	45.063	ng	96
64) Tetrachloroethene	14.21	166	2142622	48.219	ng	100
65) Chlorobenzene	14.88	112	4327070	44.893	ng	98
66) Ethylbenzene	15.25	91	6903669	44.765	ng	96
67) m- & p-Xylenes	15.43	91	10778626	89.753	ng	96
68) Bromoform	15.50	173	1946363	60.140	ng	100
69) Styrene	15.77	104	4762304	50.285	ng	100
70) o-Xylene	15.88	91	5690103	45.407	ng	98
71) n-Nonane	16.07	43	2308993	45.965	ng	98
72) 1,1,2,2-Tetrachloroethane	15.85	83	2523645	50.275	ng	98
74) Cumene	16.43	105	7487842	44.151	ng	96
75) alpha-Pinene	16.81	93	3802338	47.832	ng	97
76) n-Propylbenzene	16.92	91	8209113	44.037	ng	96
77) 3-Ethyltoluene	17.02	105	7876042	46.867	ng	96
78) 4-Ethyltoluene	17.05	105	6626108	41.919	ng	93
79) 1,3,5-Trimethylbenzene	17.12	105	6417036	44.858	ng	97
80) alpha-Methylstyrene	17.27	118	3614446	51.309	ng	96
81) 2-Ethyltoluene	17.31	105	7356298	44.832	ng	94
82) 1,2,4-Trimethylbenzene	17.52	105	6088035	43.626	ng	97
83) n-Decane	17.61	57	2725506	45.214	ng	97
84) Benzyl Chloride	17.64	91	5672427	59.481	ng	95
85) 1,3-Dichlorobenzene	17.66	146	4196697	49.151	ng	99
86) 1,4-Dichlorobenzene	17.73	146	4227563	47.783	ng	100
87) sec-Butylbenzene	17.77	105	8136218	43.799	ng	95
88) 4-Isopropyltoluene (p-...	17.92	119	7299957	40.260	ng	96
89) 1,2,3-Trimethylbenzene	17.92	105	5986445	42.431	ng	98
90) 1,2-Dichlorobenzene	18.05	146	3926220	48.834	ng	99
91) d-Limonene	18.06	68	2097648	46.114	ng	97
92) 1,2-Dibromo-3-Chloropr...	18.46	157	1640884	56.707	ng	96
93) n-Undecane	18.80	57	2839839	44.873	ng	97
94) 1,2,4-Trichlorobenzene	19.66	180	3397317	53.150	ng	99
95) Naphthalene	19.78	128	8814195	51.245	ng	98
96) n-Dodecane	19.78	57	2621502	45.046	ng	96
97) Hexachlorobutadiene	20.11	225	2360159	51.871	ng	98
98) Cyclohexanone	15.57	55	1970840	48.650	ng	98
99) tert-Butylbenzene	17.52	119	6093187	42.115	ng	96
100) n-Butylbenzene	18.32	91	6257258	44.906	ng	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\05\02051809.D
Acq On : 5 Feb 2018 13:06 Operator: WA
Sample : 50ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181814 (2/16)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 05 14:45:31 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\05\02051810.D
Acq On : 5 Feb 2018 13:38 Operator: WA
Sample : 100ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181814 (2/16)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 05 14:45:33 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 2/5/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.09	130	381629	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	10.82	114	1695280	12.500	ng		0.02
56) Chlorobenzene-d5 (IS3)	14.84	82	693329	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.77	65	507857	12.479	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.84%				
57) Toluene-d8 (SS2)	13.04	98	1659453	12.034	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.24%				
73) Bromofluorobenzene (SS3)	16.31	174	751542	13.363	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.88%				
Target Compounds							Qvalue
2) Propene	4.07	42	2660991	90.787	ng		96
3) Dichlorodifluoromethan...	4.18	85	5318712	82.563	ng		98
4) Chloromethane	4.40	50	2824053	72.314	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.57	135	3290449	93.880	ng		98
6) Vinyl Chloride	4.69	62	3784059	100.540	ng		98
7) 1,3-Butadiene	4.88	54	3095498	122.727	ng		94
8) Bromomethane	5.20	94	2433130	87.787	ng		99
9) Chloroethane	5.42	64	1949007	84.683	ng		99
10) Ethanol	5.70	45	8443059	436.321	ng		98
11) Acetonitrile	5.88	41	4384919	93.729	ng		100
12) Acrolein	5.99	56	1665899	92.513	ng		93
13) Acetone	6.14	58	9212015	448.771	ng	#	73
14) Trichlorofluoromethane	6.27	101	5163791	92.375	ng		100
15) 2-Propanol (Isopropanol)	6.45	45	10929011	151.419	ng		99
16) Acrylonitrile	6.64	53	3458574	99.411	ng		99
17) 1,1-Dichloroethene	6.93	96	3017967	92.148	ng		94
18) 2-Methyl-2-Propanol (t...	7.05	59	12052334	143.431	ng		95
19) Methylene Chloride	7.08	84	2942220	83.214	ng		99
20) 3-Chloro-1-propene (Al...	7.19	41	3604866	96.431	ng		97
21) Trichlorotrifluoroethane	7.33	151	3189351	89.466	ng		98
22) Carbon Disulfide	7.32	76	9310594	78.083	ng		98
23) trans-1,2-Dichloroethene	7.98	61	3789642	92.195	ng		96
24) 1,1-Dichloroethane	8.18	63	4290917	82.013	ng		98
25) Methyl tert-Butyl Ether	8.21	73	8783472	85.306	ng		98
26) Vinyl Acetate	8.32	86	3809189	480.194	ng	#	54
27) 2-Butanone (MEK)	8.53	72	1998262	93.342	ng		93
28) cis-1,2-Dichloroethene	8.94	61	3577767	87.794	ng		95
29) Diisopropyl Ether	9.12	87	2290887	78.113	ng	#	72
30) Ethyl Acetate	9.13	61	1478965	155.006	ng		95
31) n-Hexane	9.13	57	2888937	73.998	ng		98
32) Chloroform	9.21	83	4921460	88.002	ng		99
34) Tetrahydrofuran (THF)	9.54	72	1973581	90.993	ng		97
35) Ethyl tert-Butyl Ether	9.61	87	3988375	92.111	ng		91
36) 1,2-Dichloroethane	9.87	62	3618396	84.908	ng		97
38) 1,1,1-Trichloroethane	10.10	97	4917202	96.626	ng		99
39) Isopropyl Acetate	10.40	61	2875412	169.108	ng	#	83
40) 1-Butanol	10.43	56	5591697	187.148	ng		100
41) Benzene	10.52	78	9868054	79.969	ng		98
42) Carbon Tetrachloride	10.65	117	4524564	99.137	ng		99
43) Cyclohexane	10.76	84	8614358	160.038	ng		98
44) tert-Amyl Methyl Ether	11.03	73	8091393	88.677	ng		98
45) 1,2-Dichloropropane	11.24	63	2389200	86.410	ng		99
46) Bromodichloromethane	11.40	83	3858023	95.995	ng		98
47) Trichloroethene	11.45	130	3438851	88.711	ng		99
48) 1,4-Dioxane	11.42	88	2497577	90.984	ng		99
49) 2,2,4-Trimethylpentane...	11.50	57	9972559	79.711	ng		100

Data File: I:\MS08\Data\2018 02\05\02051810.D
Acq On : 5 Feb 2018 13:38 Operator: WA
Sample : 100ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181814 (2/16)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 05 14:45:33 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

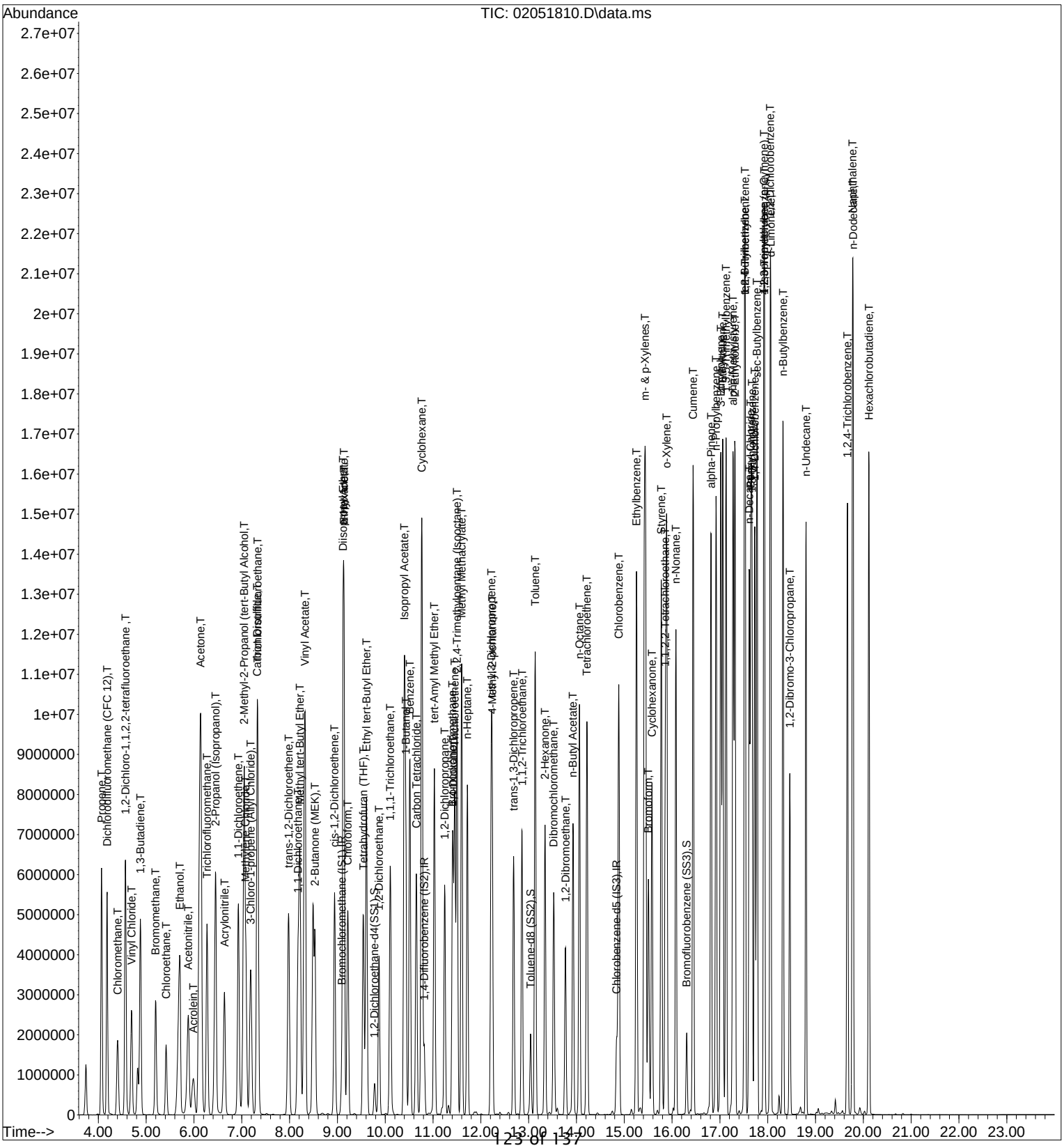
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.60	100	2758162	188.451	ng	96
51) n-Heptane	11.72	71	2592722	81.860	ng	98
52) cis-1,3-Dichloropropene	12.22	75	4613711	98.918	ng	98
53) 4-Methyl-2-pentanone	12.24	58	2386159	90.379	ng	95
54) trans-1,3-Dichloropropene	12.68	75	4257816	101.556	ng	99
55) 1,1,2-Trichloroethane	12.86	97	2807883	91.214	ng	100
58) Toluene	13.14	91	10541312	76.686	ng	97
59) 2-Hexanone	13.34	43	5149048	87.214	ng	96
60) Dibromochloromethane	13.52	129	3816752	102.404	ng	96
61) 1,2-Dibromoethane	13.77	107	3341625	94.944	ng	98
62) n-Butyl Acetate	13.93	43	5727071	85.983	ng	97
63) n-Octane	14.06	57	2081851	85.116	ng	95
64) Tetrachloroethene	14.22	166	3999231	89.099	ng	99
65) Chlorobenzene	14.89	112	7923378	81.380	ng	97
66) Ethylbenzene	15.26	91	12178825	78.179	ng	94
67) m- & p-Xylenes	15.43	91	18109637	149.287	ng	95
68) Bromoform	15.50	173	3675066	112.417	ng	99
69) Styrene	15.77	104	8557861	89.457	ng	99
70) o-Xylene	15.89	91	9927731	78.428	ng	97
71) n-Nonane	16.08	43	4115748	81.112	ng	95
72) 1,1,2,2-Tetrachloroethane	15.86	83	4593439	90.591	ng	98
74) Cumene	16.44	105	12485978	72.884	ng	93
75) alpha-Pinene	16.82	93	6813277	84.850	ng	96
76) n-Propylbenzene	16.92	91	13668047	72.586	ng	92
77) 3-Ethyltoluene	17.02	105	12399753	73.045	ng	88
78) 4-Ethyltoluene	17.06	105	11764765	73.681	ng	96
79) 1,3,5-Trimethylbenzene	17.13	105	10795822	74.711	ng	95
80) alpha-Methylstyrene	17.27	118	6297763	88.505	ng	86
81) 2-Ethyltoluene	17.31	105	12213619	73.689	ng	92
82) 1,2,4-Trimethylbenzene	17.53	105	8943670	63.446	ng	97
83) n-Decane	17.61	57	4712889	77.400	ng	95
84) Benzyl Chloride	17.64	91	9560579	99.247	ng	93
85) 1,3-Dichlorobenzene	17.67	146	7119868	82.552	ng	99
86) 1,4-Dichlorobenzene	17.73	146	7353640	82.282	ng	100
87) sec-Butylbenzene	17.77	105	13158231	70.123	ng	91
88) 4-Isopropyltoluene (p-...	17.92	119	10279730	56.125	ng	94
89) 1,2,3-Trimethylbenzene	17.93	105	8740421	61.329	ng	98
90) 1,2-Dichlorobenzene	18.05	146	6037756	74.345	ng	100
91) d-Limonene	18.06	68	3194495	69.523	ng	95
92) 1,2-Dibromo-3-Chloropr...	18.46	157	3044723	104.168	ng	97
93) n-Undecane	18.80	57	4875536	76.267	ng	95
94) 1,2,4-Trichlorobenzene	19.67	180	5994966	92.849	ng	99
95) Naphthalene	19.78	128	12783965	73.580	ng	97
96) n-Dodecane	19.79	57	3715938	63.213	ng	95
97) Hexachlorobutadiene	20.12	225	4115431	89.541	ng	98
98) Cyclohexanone	15.58	55	3758888	91.857	ng	97
99) tert-Butylbenzene	17.52	119	9053241	61.947	ng	95
100) n-Butylbenzene	18.32	91	10281784	73.048	ng	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\05\02051810.D
Acq On : 5 Feb 2018 13:38 Operator: WA
Sample : 100ng TO-15 ICAL Std
Misc : S31-01051802/S31 01181814 (2/16)
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 05 14:45:33 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:45:05 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS08\Data\2018 02\05\02051812.D
Acq On : 5 Feb 2018 14:43 Operator: WA
Sample : 25ng TO-15 ICV Std
Misc : S31-01051802/S31-01181806 (2/16)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Feb 05 15:39:45 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018 LH 2/5/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.07	130	395536	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	10.80	114	1704667	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	14.83	82	710983	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	9.76	65	509664	12.066	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.56%				
57) Toluene-d8 (SS2)	13.03	98	1703200	12.332	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.64%				
73) Bromofluorobenzene (SS3)	16.31	174	775776	12.743	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.92%				
Target Compounds							Qvalue
2) Propene	4.05	42	614296	21.274	ng		99
3) Dichlorodifluoromethan...	4.17	85	1460565	22.711	ng		100
4) Chloromethane	4.38	50	896526	21.714	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.55	135	916317	22.464	ng		99
6) Vinyl Chloride	4.67	62	1021138	22.664	ng		98
7) 1,3-Butadiene	4.86	54	795270	23.112	ng		96
8) Bromomethane	5.18	94	670093	23.004	ng		99
9) Chloroethane	5.40	64	519844	22.183	ng		99
10) Ethanol	5.64	45	2324460	108.835	ng		100
11) Acetonitrile	5.83	41	1125022	23.003	ng		99
12) Acrolein	5.96	56	430226	23.239	ng		99
13) Acetone	6.09	58	2589541	106.852	ng		91
14) Trichlorofluoromethane	6.25	101	1332174	21.680	ng		100
15) 2-Propanol (Isopropanol)	6.40	45	3434493	44.982	ng		98
16) Acrylonitrile	6.60	53	888374	24.122	ng		99
17) 1,1-Dichloroethene	6.91	96	785009	23.002	ng		98
18) 2-Methyl-2-Propanol (t...	7.00	59	3760791	45.720	ng		97
19) Methylene Chloride	7.05	84	775356	21.753	ng		94
20) 3-Chloro-1-propene (Al...	7.17	41	980194	23.910	ng		100
21) Trichlorotrifluoroethane	7.32	151	867860	22.958	ng		98
22) Carbon Disulfide	7.30	76	2615482	23.657	ng		99
23) trans-1,2-Dichloroethene	7.96	61	1001164	24.350	ng		100
24) 1,1-Dichloroethane	8.16	63	1145393	21.471	ng		100
25) Methyl tert-Butyl Ether	8.20	73	2348615	22.971	ng		99
26) Vinyl Acetate	8.29	86	1040178	123.038	ng	#	90
27) 2-Butanone (MEK)	8.51	72	501052	22.239	ng		97
28) cis-1,2-Dichloroethene	8.92	61	924254	22.419	ng		97
29) Diisopropyl Ether	9.11	87	676900	21.728	ng	#	92
30) Ethyl Acetate	9.11	61	442142	44.445	ng		98
31) n-Hexane	9.12	57	849661	21.794	ng		99
32) Chloroform	9.19	83	1271050	22.034	ng		99
34) Tetrahydrofuran (THF)	9.53	72	491199	20.604	ng		98
35) Ethyl tert-Butyl Ether	9.59	87	1036212	23.546	ng		96
36) 1,2-Dichloroethane	9.86	62	962157	21.822	ng		98
38) 1,1,1-Trichloroethane	10.09	97	1288459	23.756	ng		99
39) Isopropyl Acetate	10.38	61	792264	46.512	ng		99
40) 1-Butanol	10.39	56	1555826	48.583	ng		93
41) Benzene	10.50	78	2691029	22.313	ng		99
42) Carbon Tetrachloride	10.64	117	1224234	24.644	ng		99
43) Cyclohexane	10.75	84	2453894	45.460	ng		99
44) tert-Amyl Methyl Ether	11.02	73	2173735	24.761	ng		98
45) 1,2-Dichloropropane	11.23	63	627776	22.396	ng		99
46) Bromodichloromethane	11.39	83	1043992	24.573	ng		98
47) Trichloroethene	11.44	130	911093	22.443	ng		100
48) 1,4-Dioxane	11.40	88	659464	23.052	ng		99
49) 2,2,4-Trimethylpentane...	11.49	57	2801795	22.930	ng		98

Data File: I:\MS08\Data\2018 02\05\02051812.D
Acq On : 5 Feb 2018 14:43 Operator: WA
Sample : 25ng TO-15 ICV Std
Misc : S31-01051802/S31-01181806 (2/16)
ALS Vial : 1 Sample Multiplier: 1

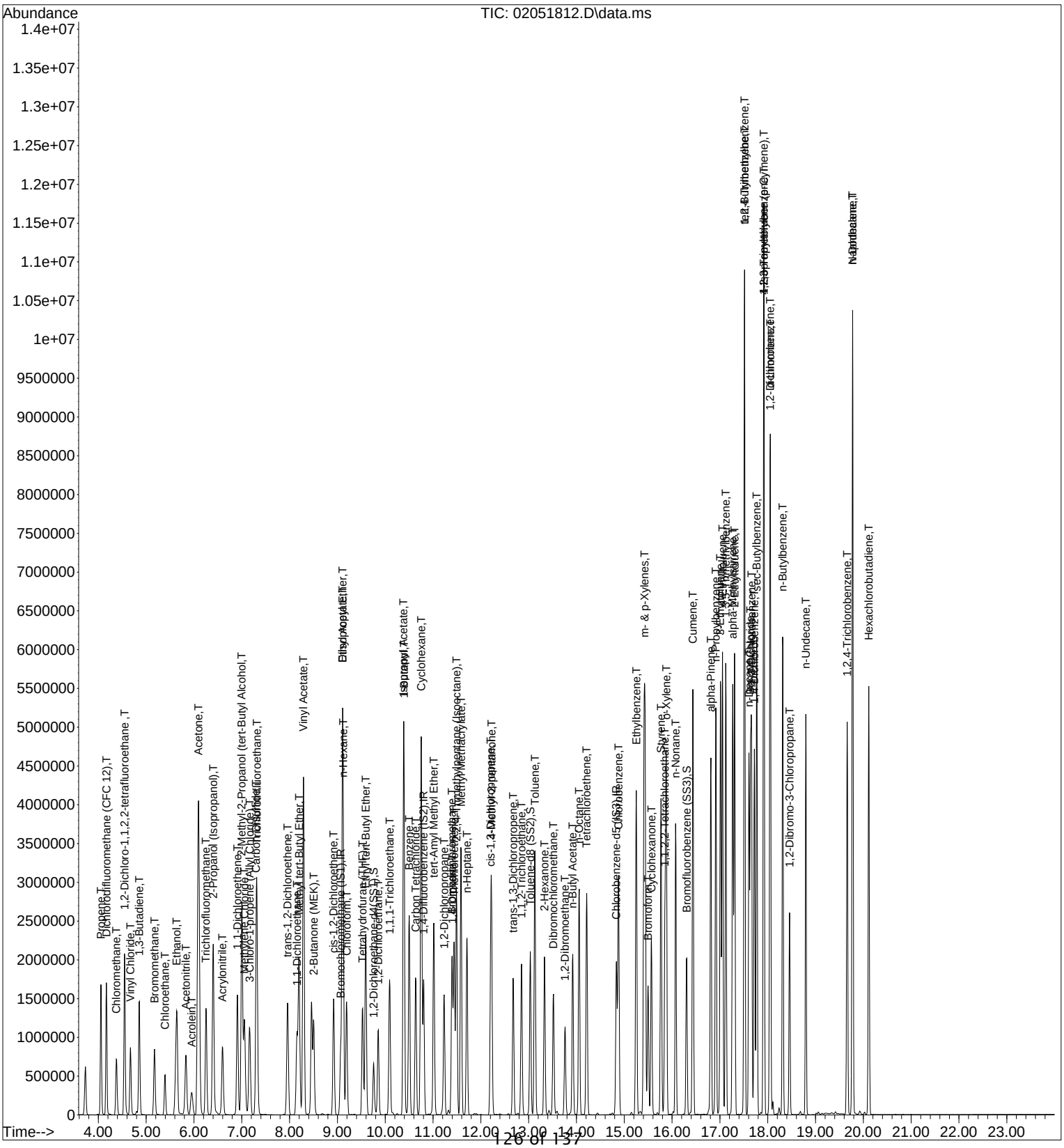
Quant Time: Feb 05 15:39:45 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	11.59	100	728313	48.258	ng	99
51) n-Heptane	11.71	71	674803	21.595	ng	99
52) cis-1,3-Dichloropropene	12.21	75	1175335	24.636	ng	99
53) 4-Methyl-2-pentanone	12.22	58	639159	23.296	ng	96
54) trans-1,3-Dichloropropene	12.67	75	1137963	26.567	ng	100
55) 1,1,2-Trichloroethane	12.85	97	750561	23.737	ng	99
58) Toluene	13.13	91	3024711	22.139	ng	99
59) 2-Hexanone	13.33	43	1445421	21.878	ng	100
60) Dibromochloromethane	13.52	129	1033453	25.624	ng	97
61) 1,2-Dibromoethane	13.76	107	890269	24.329	ng	98
62) n-Butyl Acetate	13.92	43	1614153	23.305	ng	99
63) n-Octane	14.06	57	558223	21.708	ng	96
64) Tetrachloroethene	14.21	166	1096403	23.042	ng	99
65) Chlorobenzene	14.88	112	2252663	23.033	ng	99
66) Ethylbenzene	15.25	91	3626550	23.011	ng	98
67) m- & p-Xylenes	15.42	91	5704756	46.782	ng	97
68) Bromoform	15.50	173	982899	27.516	ng	99
69) Styrene	15.77	104	2478889	24.940	ng	99
70) o-Xylene	15.88	91	2983368	23.453	ng	99
71) n-Nonane	16.07	43	1224567	23.805	ng	99
72) 1,1,2,2-Tetrachloroethane	15.85	83	1286099	24.163	ng	98
74) Cumene	16.43	105	4024978	23.479	ng	98
75) alpha-Pinene	16.81	93	2015242	24.577	ng	98
76) n-Propylbenzene	16.91	91	4444696	23.612	ng	98
77) 3-Ethyltoluene	17.01	105	3918111	22.679	ng	97
78) 4-Ethyltoluene	17.05	105	3945001	25.354	ng	95
79) 1,3,5-Trimethylbenzene	17.12	105	3411063	23.706	ng	98
80) alpha-Methylstyrene	17.27	118	1943113	25.808	ng	96
81) 2-Ethyltoluene	17.31	105	3979729	23.825	ng	96
82) 1,2,4-Trimethylbenzene	17.52	105	3410524	23.829	ng	97
83) n-Decane	17.61	57	1443425	23.801	ng	98
84) Benzyl Chloride	17.64	91	2981893	31.857	ng	97
85) 1,3-Dichlorobenzene	17.66	146	2231125	25.080	ng	100
86) 1,4-Dichlorobenzene	17.72	146	2234468	24.411	ng	99
87) sec-Butylbenzene	17.77	105	4455703	23.543	ng	97
88) 4-Isopropyltoluene (p-...	17.92	119	4318261	23.352	ng	98
89) 1,2,3-Trimethylbenzene	17.92	105	3517770	24.286	ng	97
90) 1,2-Dichlorobenzene	18.05	146	2132075	25.603	ng	99
91) d-Limonene	18.05	68	1159844	24.634	ng	97
92) 1,2-Dibromo-3-Chloropr...	18.46	157	853873	27.725	ng	95
93) n-Undecane	18.80	57	1508834	23.791	ng	98
94) 1,2,4-Trichlorobenzene	19.66	180	1807411	28.213	ng	100
95) Naphthalene	19.78	128	4916689	31.011	ng	99
96) n-Dodecane	19.78	57	1492952	28.408	ng	98
97) Hexachlorobutadiene	20.11	225	1244374	24.562	ng	98
98) Cyclohexanone	15.57	55	1003541	23.061	ng	98
99) tert-Butylbenzene	17.52	119	3467050	23.554	ng	97
100) n-Butylbenzene	18.31	91	3400989	23.709	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File: I:\MS08\Data\2018 02\05\02051812.D
Acq On : 5 Feb 2018 14:43 Operator: WA
Sample : 25ng TO-15 ICV Std
Misc : S31-01051802/S31-01181806 (2/16)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Feb 05 15:39:45 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **02051812.D** Acq. Method File: **TO15.M**
Data File Path: **I:\MS08\Data\2018_02\05** Sample Name: **25ng TO-15 ICV Std**
Operator: **WA** Misc Info: **S31-01051802/S31-01181806 (**
Date Acquired: **2/5/18** **14:43** Instrument Name: **MS08**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	**Propene**	**4.05**	**21.274**	26.275	81	**54**	**133**	*	*
3)	**Dichlorodifluoromethane (CFC 1**	**4.17**	**22.711**	**26.600**	85	**64**	**115**	*****	*
4)	**Chloromethane**	**4.38**	**21.714**	**26.250**	83	**47**	**140**	*****	*
5)	**1,2-Dichloro-1,1,2,2-tetrafluoroet**	**4.55**	**22.464**	**26.325**	85	**60**	**112**	*****	*
6)	**Vinyl Chloride**	**4.67**	**22.664**	**26.350**	86	**63**	**127**	*****	*
7)	**1,3-Butadiene**	**4.86**	**23.112**	**26.225**	88	**57**	**149**	*****	*
8)	**Bromomethane**	**5.18**	**23.004**	**26.225**	88	**63**	**132**	*****	*
9)	**Chloroethane**	**5.40**	**22.183**	**26.250**	85	**68**	**129**	*****	*
10)	**Ethanol**	**5.64**	**108.835**	**130.375**	83	**62**	**131**	*****	*
11)	**Acetonitrile**	**5.83**	**23.003**	**26.200**	88	**56**	**136**	*****	*
12)	**Acrolein**	**5.96**	**23.239**	**26.075**	89	**60**	**132**	*****	*
13)	**Acetone**	**6.09**	**106.852**	**131.825**	81	**63**	**124**	*****	*
14)	**Trichlorofluoromethane**	**6.25**	**21.680**	**26.025**	83	**65**	**113**	*****	*
15)	**2-Propanol (Isopropanol)**	**6.40**	**44.982**	**52.775**	85	**62**	**135**	*****	*
16)	**Acrylonitrile**	**6.60**	**24.122**	**26.450**	91	**68**	**138**	*****	*
17)	**1,1-Dichloroethene**	**6.91**	**23.002**	**26.675**	86	**72**	**118**	*****	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	7.00	45.720	53.350	86	61	128	*	*
19)	**Methylene Chloride**	**7.05**	**21.753**	**26.600**	82	**67**	**116**	*****	*
20)	**3-Chloro-1-propene (Allyl Chlorid**	**7.17**	**23.910**	**26.525**	90	**61**	**143**	*****	*
21)	**Trichlorotrifluoroethane**	**7.32**	**22.958**	**26.750**	86	**68**	**113**	*****	*
22)	**Carbon Disulfide**	**7.30**	**23.657**	**26.725**	89	**68**	**120**	*****	*
23)	**trans-1,2-Dichloroethene**	**7.96**	**24.350**	**26.700**	91	**71**	**125**	*****	*
24)	**1,1-Dichloroethane**	**8.16**	**21.471**	**26.525**	81	**68**	**118**	*****	*
25)	**Methyl tert-Butyl Ether**	**8.20**	**22.971**	**26.625**	86	**60**	**123**	*****	*
26)	**Vinyl Acetate**	**8.29**	**123.038**	**132.750**	93	**73**	**135**	*****	*
27)	**2-Butanone (MEK)**	**8.51**	**22.239**	**26.450**	84	**70**	**129**	*****	*
28)	**cis-1,2-Dichloroethene**	**8.92**	**22.419**	**26.475**	85	**69**	**121**	*****	*
29)	Diisopropyl Ether	9.11	21.728	26.600	82	65	117	*	*
30)	**Ethyl Acetate**	**9.11**	**44.445**	**53.300**	83	**66**	**140**	*	*
31)	**n-Hexane**	**9.12**	**21.794**	**26.625**	82	**61**	**124**	*****	*
32)	**Chloroform**	**9.19**	**22.034**	**26.500**	83	**69**	**113**	*****	*
34)	**Tetrahydrofuran (THF)**	**9.53**	**20.604**	**26.550**	78	**66**	**121**	*	*
35)	Ethyl tert-Butyl Ether	9.59	23.546	26.525	89	69	120	*	*
36)	**1,2-Dichloroethane**	**9.86**	**21.822**	**26.500**	82	**62**	**120**	*****	*
38)	**1,1,1-Trichloroethane**	**10.09**	**23.756**	**26.525**	90	**65**	**116**	*****	*
39)	Isopropyl Acetate	10.38	46.512	53.275	87	70	126	*	*
40)	1-Butanol	10.39	48.583	53.300	91	62	141	*	*
41)	**Benzene**	**10.50**	**22.313**	**26.625**	84	**66**	**111**	*****	*
42)	**Carbon Tetrachloride**	**10.64**	**24.644**	**26.700**	92	**64**	**122**	*****	*
43)	**Cyclohexane**	**10.75**	**45.460**	**53.150**	86	**69**	**115**	*	*
44)	tert-Amyl Methyl Ether	11.02	24.761	**26.550**	93	68	119	*****	*
45)	**1,2-Dichloropropane**	**11.23**	**22.396**	**26.525**	84	**69**	**121**	*****	*
46)	**Bromodichloromethane**	**11.39**	**24.573**	**26.700**	92	**69**	**123**	*****	*
47)	**Trichloroethene**	**11.44**	**22.443**	**26.550**	85	**69**	**112**	*****	*
48)	**1,4-Dioxane**	**11.40**	**23.052**	**26.600**	87	**74**	**123**	*****	*
49)	2,2,4-Trimethylpentane (Isooctane)	11.49	22.930	26.525	86	67	120	*	*

Bold = 75 Compound List
*** = Pass**

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **02051812.D** **TO15.M**
Data File Path: **I:\MS08\Data\2018_02\05** Sample Name: **25ng TO-15 ICV Std**
Operator: **WA** Misc Info: **S31-01051802/S31-01181806 (**
Date Acquired: **2/5/18** **14:43** Instrument Name: **MS08**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	**Methyl Methacrylate**	**11.59**	**48.258**	**52.950**	91	**75**	**125**	*	*
51)	**n-Heptane**	**11.71**	**21.595**	**26.625**	81	**68**	**118**	*	*
52)	**cis-1,3-Dichloropropene**	**12.21**	**24.636**	**26.025**	95	**74**	**129**	*	*
53)	**4-Methyl-2-pentanone**	**12.22**	**23.296**	**26.650**	87	**66**	**138**	*	*
54)	**trans-1,3-Dichloropropene**	**12.67**	**26.567**	**26.625**	100	**75**	**130**	*	*
55)	**1,1,2-Trichloroethane**	**12.85**	**23.737**	**26.500**	90	**73**	**117**	*	*
58)	**Toluene**	**13.13**	**22.139**	**26.400**	84	**66**	**114**	*	*
59)	**2-Hexanone**	**13.33**	**21.878**	**26.425**	83	**58**	**146**	*	*
60)	**Dibromochloromethane**	**13.52**	**25.624**	**26.450**	97	**67**	**130**	*	*
61)	**1,2-Dibromoethane**	**13.76**	**24.329**	**26.425**	92	**70**	**127**	*	*
62)	**n-Butyl Acetate**	**13.92**	**23.305**	**26.850**	87	**62**	**140**	*	*
63)	**n-Octane**	**14.06**	**21.708**	**26.525**	82	**65**	**121**	*	*
64)	**Tetrachloroethene**	**14.21**	**23.042**	**26.500**	87	**62**	**119**	*	*
65)	**Chlorobenzene**	**14.88**	**23.033**	**26.525**	87	**66**	**115**	*	*
66)	**Ethylbenzene**	**15.25**	**23.011**	**26.475**	87	**69**	**117**	*	*
67)	**m- & p-Xylenes**	**15.42**	**46.782**	**52.975**	88	**67**	**117**	*	*
68)	**Bromoform**	**15.50**	**27.516**	**26.525**	104	**67**	**135**	*	*
69)	**Styrene**	**15.77**	**24.940**	**26.350**	95	**70**	**128**	*	*
70)	**o-Xylene**	**15.88**	**23.453**	**26.400**	89	**67**	**118**	*	*
71)	**n-Nonane**	**16.07**	**23.805**	**26.500**	90	**61**	**127**	*	*
72)	**1,1,2,2-Tetrachloroethane**	**15.85**	**24.163**	**26.450**	91	**70**	**125**	*	*
74)	**Cumene**	**16.43**	**23.479**	**26.525**	89	**68**	**116**	*	*
75)	**alpha-Pinene**	**16.81**	**24.577**	**26.600**	92	**69**	**122**	*	*
76)	**n-Propylbenzene**	**16.91**	**23.612**	**26.750**	88	**70**	**118**	*	*
77)	3-Ethyltoluene	17.01	22.679	26.450	86	68	117	*	*
78)	**4-Ethyltoluene**	**17.05**	**25.354**	**26.425**	**96**	**69**	**124**	*	*
79)	**1,3,5-Trimethylbenzene**	**17.12**	**23.706**	**26.500**	**89**	**65**	**117**	*	*
80)	alpha-Methylstyrene	17.27	25.808	26.525	**97**	71	132	*	*
81)	2-Ethyltoluene	17.31	23.825	26.700	**89**	67	119	*	*
82)	**1,2,4-Trimethylbenzene**	**17.52**	**23.829**	**26.550**	**90**	**67**	**124**	*	*
83)	n-Decane	17.61	23.801	26.625	**89**	63	129	*	*
84)	**Benzyl Chloride**	**17.64**	**31.857**	**26.550**	**120**	**75**	**142**	*	*
85)	**1,3-Dichlorobenzene**	**17.66**	**25.080**	**26.475**	**95**	**70**	**124**	*	*
86)	**1,4-Dichlorobenzene**	**17.72**	**24.411**	**26.750**	**91**	**63**	**124**	*	*
87)	sec-Butylbenzene	17.77	23.543	26.575	**89**	68	119	*	*
88)	4-Isopropyltoluene (p-Cymene)	17.92	23.352	26.600	**88**	65	122	*	*
89)	1,2,3-Trimethylbenzene	17.92	24.286	26.600	**91**	66	128	*	*
90)	**1,2-Dichlorobenzene**	**18.05**	**25.603**	**26.750**	**96**	**66**	**125**	*	*
91)	**d-Limonene**	**18.05**	**24.634**	**26.625**	**93**	**64**	**135**	*	*
92)	**1,2-Dibromo-3-Chloropropane**	**18.46**	**27.725**	**26.300**	**105**	**73**	**136**	*	*
93)	n-Undecane	18.80	23.791	26.775	**89**	67	135	*	*
94)	**1,2,4-Trichlorobenzene**	**19.66**	**28.213**	**27.200**	**104**	**70**	**141**	*	*
95)	**Naphthalene**	**19.78**	**31.011**	**26.125**	**119**	**71**	**146**	*	*
96)	n-Dodecane	19.78	28.408	26.825	**106**	69	152	*	*
97)	**Hexachlorobutadiene**	**20.11**	**24.562**	**26.550**	**93**	63	126	*	*
98)	Cyclohexanone	15.57	23.061	26.150	88	58	138	*	*
99)	tert-Butylbenzene	17.52	23.554	26.525	89	65	121	*	*
100)	n-Butylbenzene	18.31	23.709	26.575	89	71	125	*	*

Evaluate Continuing Calibration Report

Data File : I:\MS08\Data\2018 02\08\02081801.D Vial: 15
Acq On : 8 Feb 2018 2:09 Operator: WA
Sample : CCV R8020818 25ng Inst : MS08
Misc : S31-01051802/S31-01291804 (2/27)

Quant Time: Feb 08 06:35:54 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 2/8/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	90	-0.03
2	T	Propene	0.913	0.738	19.2	82	-0.01
3	T	Dichlorodifluoromethane (CF	2.032	1.817	10.6	86	-0.01
4	T	Chloromethane	1.305	1.082	17.1	83	-0.02
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.289	1.117	13.3	85	-0.02
6	T	Vinyl Chloride	1.424	1.275	10.5	87	-0.02
7	T	1,3-Butadiene	1.087	0.991	8.8	87	-0.02
8	T	Bromomethane	0.921	0.806	12.5	85	-0.02
9	T	Chloroethane	0.741	0.628	15.2	84	-0.02
10	T	Ethanol	0.675	0.538	20.3	83	-0.06
11	T	Acetonitrile	1.546	1.291	16.5	82	-0.05
12	T	Acrolein	0.585	0.490	16.2	81	-0.03
13	T	Acetone	0.766	0.628	18.0	86	-0.04
14	T	Trichlorofluoromethane	1.942	1.624	16.4	86	-0.02
15	T	2-Propanol (Isopropanol)	2.413	2.065	14.4	85	-0.05
16	T	Acrylonitrile	1.164	1.032	11.3	83	-0.04
17	T	1,1-Dichloroethene	1.079	0.913	15.4	83	-0.02
18	T	2-Methyl-2-Propanol (tert-B	2.600	2.321	10.7	87	-0.05
19	T	Methylene Chloride	1.126	0.912	19.0	84	-0.03
20	T	3-Chloro-1-propene (Allyl C	1.296	1.101	15.0	83	-0.03
21	T	Trichlorotrifluoroethane	1.195	1.023	14.4	84	-0.02
22	T	Carbon Disulfide	3.494	3.116	10.8	85	-0.02
23	T	trans-1,2-Dichloroethene	1.299	1.188	8.5	86	-0.02
24	T	1,1-Dichloroethane	1.686	1.385	17.9	85	-0.03
25	T	Methyl tert-Butyl Ether	3.231	2.832	12.3	86	-0.02
26	T	Vinyl Acetate	0.267	0.257	3.7	86	-0.03
27	T	2-Butanone (MEK)	0.712	0.604	15.2	85	-0.03
28	T	cis-1,2-Dichloroethene	1.303	1.126	13.6	86	-0.02
29	T	Diisopropyl Ether	0.985	0.833	15.4	87	-0.01
30	T	Ethyl Acetate	0.314	0.279	11.1	88	-0.03
31	T	n-Hexane	1.232	1.095	11.1	90	-0.02
32	T	Chloroform	1.823	1.561	14.4	86	-0.03
33	S	1,2-Dichloroethane-d4(SS1)	1.335	1.355	-1.5	94	-0.02
34	T	Tetrahydrofuran (THF)	0.753	0.588	21.9	85	-0.02
35	T	Ethyl tert-Butyl Ether	1.391	1.244	10.6	86	-0.02
36	T	1,2-Dichloroethane	1.393	1.207	13.4	88	-0.02
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	90	-0.02
38	T	1,1,1-Trichloroethane	0.398	0.362	9.0	86	-0.02
39	T	Isopropyl Acetate	0.125	0.116	7.2	88	-0.02
40	T	1-Butanol	0.235	0.223	5.1	87	-0.04
41	T	Benzene	0.884	0.745	15.7	86	-0.02
42	T	Carbon Tetrachloride	0.364	0.343	5.8	86	-0.02
43	T	Cyclohexane	0.396	0.351	11.4	87	-0.02
44	T	tert-Amyl Methyl Ether	0.644	0.611	5.1	87	-0.02
45	T	1,2-Dichloropropane	0.206	0.174	15.5	85	-0.02
46	T	Bromodichloromethane	0.312	0.293	6.1	87	-0.02
47	T	Trichloroethene	0.298	0.253	15.1	85	-0.02
48	T	1,4-Dioxane	0.210	0.185	11.9	85	-0.02
49	T	2,2,4-Trimethylpentane (Iso	0.896	0.795	11.3	87	-0.02
50	T	Methyl Methacrylate	0.111	0.101	9.0	85	-0.02
51	T	n-Heptane	0.229	0.190	17.0	87	-0.01
52	T	cis-1,3-Dichloropropene	0.350	0.332	5.1	86	-0.02
53	T	4-Methyl-2-pentanone	0.201	0.181	10.0	87	-0.02
54	T	trans-1,3-Dichloropropene	0.314	0.314	0.0	86	-0.01
55	T	1,1,2-Trichloroethane	0.232	0.208	10.3	85	-0.02

00870535

Data File : I:\MS08\Data\2018 02\08\02081801.D Vial: 15
Acq On : 8 Feb 2018 2:09 Operator: WA
Sample : CCV R8020818 25ng Inst : MS08
Misc : S31-01051802/S31-01291804 (2/27)

Quant Time: Feb 08 06:35:54 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	92	0.00
57	S	Toluene-d8 (SS2)	2.428	2.386	1.7	91	-0.01
58	T	Toluene	2.402	1.999	16.8	86	-0.01
59	T	2-Hexanone	1.162	0.960	17.4	87	-0.02
60	T	Dibromochloromethane	0.709	0.667	5.9	85	-0.01
61	T	1,2-Dibromoethane	0.643	0.576	10.4	85	-0.02
62	T	n-Butyl Acetate	1.218	1.054	13.5	87	-0.01
63	T	n-Octane	0.452	0.371	17.9	87	-0.01
64	T	Tetrachloroethene	0.837	0.701	16.2	84	0.00
65	T	Chlorobenzene	1.719	1.460	15.1	86	-0.01
66	T	Ethylbenzene	2.771	2.404	13.2	87	-0.01
67	T	m- & p-Xylenes	2.144	1.899	11.4	88	-0.01
68	T	Bromoform	0.628	0.626	0.3	85	-0.01
69	T	Styrene	1.747	1.620	7.3	86	0.00
70	T	o-Xylene	2.236	1.987	11.1	87	-0.01
71	T	n-Nonane	0.904	0.825	8.7	89	0.00
72	T	1,1,2,2-Tetrachloroethane	0.936	0.873	6.7	88	-0.01
73	S	Bromofluorobenzene (SS3)	1.070	1.074	-0.4	91	0.00
74	T	Cumene	3.014	2.646	12.2	87	0.00
75	T	alpha-Pinene	1.442	1.322	8.3	88	-0.01
76	T	n-Propylbenzene	3.309	2.939	11.2	88	0.00
77	T	3-Ethyltoluene	3.037	2.749	9.5	89	-0.01
78	T	4-Ethyltoluene	2.736	2.460	10.1	85	0.00
79	T	1,3,5-Trimethylbenzene	2.530	2.284	9.7	87	0.00
80	T	alpha-Methylstyrene	1.324	1.250	5.6	86	0.00
81	T	2-Ethyltoluene	2.937	2.630	10.5	87	0.00
82	T	1,2,4-Trimethylbenzene	2.516	2.337	7.1	89	-0.02
83	T	n-Decane	1.066	0.975	8.5	90	0.00
84	T	Benzyl Chloride	1.646	1.919	-16.6	87	-0.01
85	T	1,3-Dichlorobenzene	1.564	1.434	8.3	86	-0.02
86	T	1,4-Dichlorobenzene	1.609	1.453	9.7	87	-0.01
87	T	sec-Butylbenzene	3.327	2.975	10.6	88	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.251	2.970	8.6	89	-0.01
89	T	1,2,3-Trimethylbenzene	2.547	2.388	6.2	89	-0.02
90	T	1,2-Dichlorobenzene	1.464	1.373	6.2	87	-0.01
91	T	d-Limonene	0.828	0.813	1.8	91	-0.01
92	T	1,2-Dibromo-3-Chloropropane	0.541	0.551	-1.8	86	0.00
93	T	n-Undecane	1.115	1.026	8.0	90	0.00
94	T	1,2,4-Trichlorobenzene	1.126	1.094	2.8	85	0.00
95	T	Naphthalene	2.787	3.279	-17.7	87	0.00
96	T	n-Dodecane	0.924	1.003	-8.5	91	-0.01
97	T	Hexachlorobutadiene	0.891	0.777	12.8	84	0.00
98	T	Cyclohexanone	0.765	0.674	11.9	87	-0.02
99	T	tert-Butylbenzene	2.588	2.340	9.6	88	-0.01
100	T	n-Butylbenzene	2.522	2.296	9.0	89	-0.01

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

Quantitation Report (QT Reviewed)

Data File : I:\MS08\Data\2018 02\08\02081801.D Vial: 15
Acq On : 8 Feb 2018 2:09 Operator: WA
Sample : CCV R8020818 25ng Inst : MS08
Misc : S31-01051802/S31-01291804 (2/27)

Quant Time: Feb 08 06:35:54 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 2/8/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.06	130	347703	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	10.80	114	1505606	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	14.83	82	642821	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	9.75	65	471206	12.690	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%			
57) Toluene-d8 (SS2)	13.03	98	1533949	12.285	ng	-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.24%			
73) Bromofluorobenzene (SS3)	16.30	174	690390	12.543	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.32%			
Target Compounds						Qvalue
2) Propene	4.06	42	532042	20.960	ng	98
3) Dichlorodifluoromethan...	4.17	85	1324064	23.421	ng	100
4) Chloromethane	4.38	50	756749	20.850	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.55	135	793154	22.120	ng	99
6) Vinyl Chloride	4.68	62	914931	23.100	ng	99
7) 1,3-Butadiene	4.86	54	729737	24.125	ng	97
8) Bromomethane	5.17	94	556455	21.731	ng	99
9) Chloroethane	5.40	64	441931	21.453	ng	99
10) Ethanol	5.64	45	1970380	104.948	ng	100
11) Acetonitrile	5.83	41	951095	22.122	ng	100
12) Acrolein	5.95	56	359087	22.064	ng	99
13) Acetone	6.09	58	2323742	109.075	ng	97
14) Trichlorofluoromethane	6.25	101	1186832	21.972	ng	100
15) 2-Propanol (Isopropanol)	6.40	45	3026119	45.086	ng	96
16) Acrylonitrile	6.60	53	757701	23.404	ng	99
17) 1,1-Dichloroethene	6.91	96	673508	22.450	ng	97
18) 2-Methyl-2-Propanol (t...	7.00	59	3421949	47.324	ng	96
19) Methylene Chloride	7.05	84	670711	21.406	ng	92
20) 3-Chloro-1-propene (Al...	7.16	41	807114	22.397	ng	100
21) Trichlorotrifluoroethane	7.32	151	748890	22.536	ng	100
22) Carbon Disulfide	7.30	76	2303249	23.698	ng	99
23) trans-1,2-Dichloroethene	7.96	61	892996	24.707	ng	99
24) 1,1-Dichloroethane	8.15	63	984648	20.997	ng	99
25) Methyl tert-Butyl Ether	8.19	73	2107016	23.443	ng	100
26) Vinyl Acetate	8.29	86	942967	126.883	ng	97
27) 2-Butanone (MEK)	8.50	72	441647	22.299	ng	94
28) cis-1,2-Dichloroethene	8.92	61	835836	23.063	ng	100
29) Diisopropyl Ether	9.11	87	616949	22.528	ng	99
30) Ethyl Acetate	9.10	61	414123	47.356	ng	99
31) n-Hexane	9.12	57	811853	23.688	ng	99
32) Chloroform	9.19	83	1151635	22.710	ng	100
34) Tetrahydrofuran (THF)	9.52	72	435294	20.771	ng	98
35) Ethyl tert-Butyl Ether	9.59	87	915887	23.675	ng	98
36) 1,2-Dichloroethane	9.85	62	885726	22.852	ng	98
38) 1,1,1-Trichloroethane	10.09	97	1175073	24.530	ng	98
39) Isopropyl Acetate	10.38	61	735151	48.866	ng	95
40) 1-Butanol	10.39	56	1417268	50.108	ng	90
41) Benzene	10.50	78	2370233	22.251	ng	99
42) Carbon Tetrachloride	10.64	117	1093599	24.925	ng	100
43) Cyclohexane	10.75	84	2256594	47.332	ng	99
44) tert-Amyl Methyl Ether	11.01	73	1943511	25.066	ng	97
45) 1,2-Dichloropropane	11.23	63	560067	22.622	ng	99
46) Bromodichloromethane	11.39	83	942256	25.110	ng	98
47) Trichloroethene	11.44	130	808482	22.548	ng	99
48) 1,4-Dioxane	11.40	88	592171	23.436	ng	100
49) 2,2,4-Trimethylpentane...	11.49	57	2536600	23.504	ng	97
50) Methyl Methacrylate	11.58	100	640325	48.037	ng	97

Quantitation Report (QT Reviewed)

Data File : I:\MS08\Data\2018 02\08\02081801.D Vial: 15
Acq On : 8 Feb 2018 2:09 Operator: WA
Sample : CCV R8020818 25ng Inst : MS08
Misc : S31-01051802/S31-01291804 (2/27)

Quant Time: Feb 08 06:35:54 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

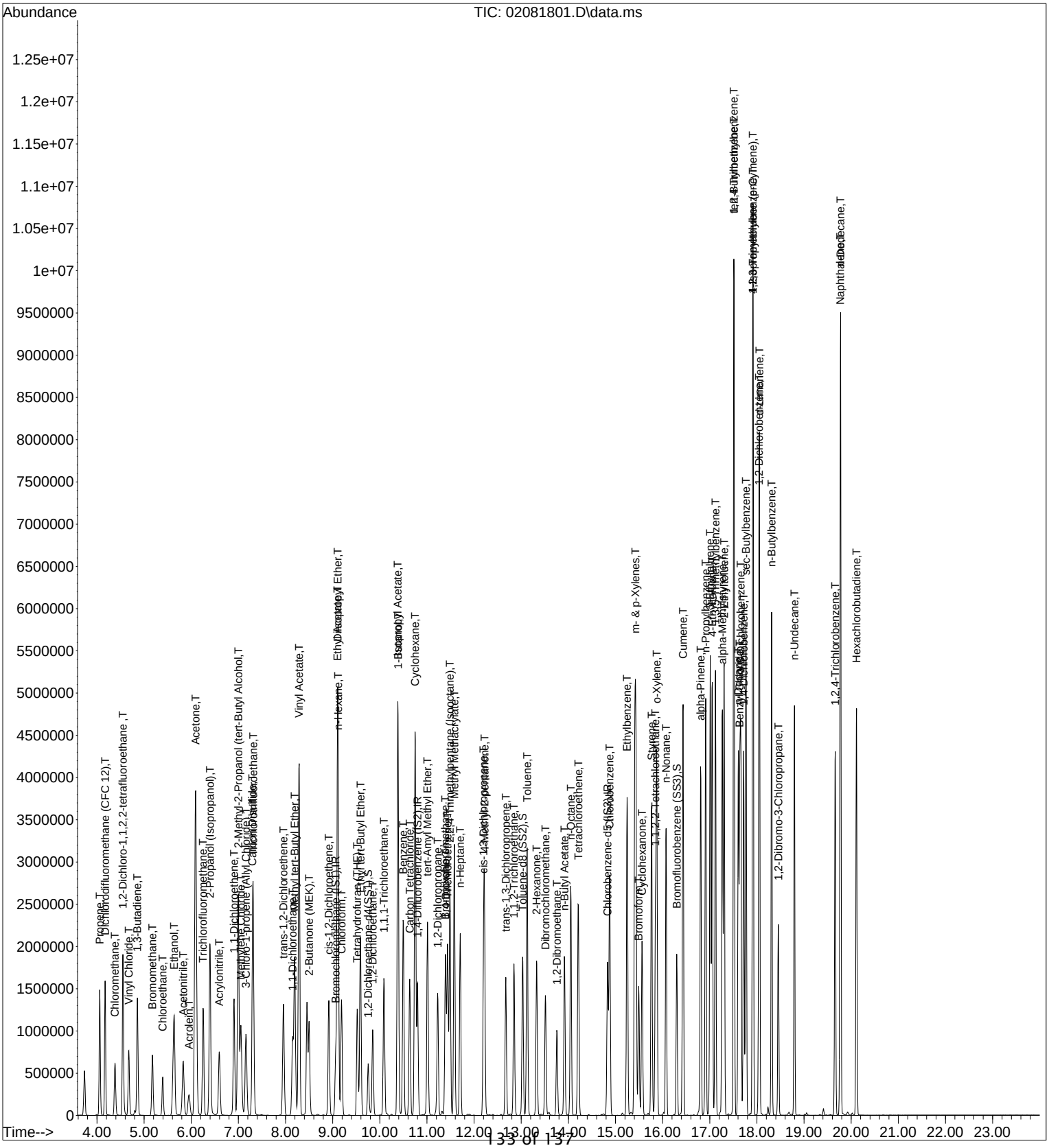
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	11.71	71	610866	22.133	ng	99
52) cis-1,3-Dichloropropene	12.20	75	1120438	26.590	ng	100
53) 4-Methyl-2-pentanone	12.22	58	576140	23.776	ng	93
54) trans-1,3-Dichloropropene	12.67	75	1010474	26.710	ng	99
55) 1,1,2-Trichloroethane	12.85	97	665016	23.812	ng	99
58) Toluene	13.13	91	2708401	21.926	ng	99
59) 2-Hexanone	13.32	43	1308805	21.911	ng	98
60) Dibromochloromethane	13.51	129	909508	24.942	ng	98
61) 1,2-Dibromoethane	13.76	107	788025	23.818	ng	100
62) n-Butyl Acetate	13.92	43	1447198	23.110	ng	98
63) n-Octane	14.05	57	505774	21.754	ng	97
64) Tetrachloroethene	14.21	166	958135	22.271	ng	100
65) Chlorobenzene	14.87	112	2001479	22.635	ng	99
66) Ethylbenzene	15.25	91	3250943	22.815	ng	98
67) m- & p-Xylenes	15.42	91	5182576	47.006	ng	98
68) Bromoform	15.49	173	855595	26.492	ng	100
69) Styrene	15.77	104	2202894	24.514	ng	99
70) o-Xylene	15.87	91	2695566	23.437	ng	100
71) n-Nonane	16.07	43	1117284	24.022	ng	99
72) 1,1,2,2-Tetrachloroethane	15.85	83	1185802	24.641	ng	99
74) Cumene	16.43	105	3578995	23.091	ng	98
75) alpha-Pinene	16.81	93	1777941	23.982	ng	98
76) n-Propylbenzene	16.91	91	4020412	23.623	ng	98
77) 3-Ethyltoluene	17.01	105	3710673	23.756	ng	98
78) 4-Ethyltoluene	17.05	105	3317217	23.580	ng	95
79) 1,3,5-Trimethylbenzene	17.12	105	3080611	23.679	ng	98
80) alpha-Methylstyrene	17.27	118	1685278	24.757	ng	96
81) 2-Ethyltoluene	17.31	105	3583966	23.731	ng	97
82) 1,2,4-Trimethylbenzene	17.51	105	3158000	24.405	ng	97
83) n-Decane	17.61	57	1327945	24.218	ng	99
84) Benzyl Chloride	17.63	91	2649850	31.312	ng	97
85) 1,3-Dichlorobenzene	17.66	146	1974943	24.554	ng	99
86) 1,4-Dichlorobenzene	17.72	146	1987248	24.013	ng	100
87) sec-Butylbenzene	17.77	105	4035397	23.583	ng	97
88) 4-Isopropyltoluene (p-...	17.91	119	3917172	23.429	ng	98
89) 1,2,3-Trimethylbenzene	17.91	105	3149999	24.053	ng	98
90) 1,2-Dichlorobenzene	18.04	146	1911060	25.382	ng	100
91) d-Limonene	18.05	68	1050172	24.670	ng	98
92) 1,2-Dibromo-3-Chloropr...	18.46	157	745137	26.760	ng	91
93) n-Undecane	18.80	57	1388503	24.215	ng	99
94) 1,2,4-Trichlorobenzene	19.66	180	1543372	26.646	ng	100
95) Naphthalene	19.77	128	4451163	31.051	ng	99
96) n-Dodecane	19.77	57	1361999	28.664	ng	99
97) Hexachlorobutadiene	20.11	225	1055761	23.049	ng	99
98) Cyclohexanone	15.56	55	900818	22.895	ng	98
99) tert-Butylbenzene	17.51	119	3159162	23.738	ng	97
100) n-Butylbenzene	18.31	91	3111431	23.990	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS08\Data\2018 02\08\02081801.D Vial: 15
Acq On : 8 Feb 2018 2:09 Operator: WA
Sample : CCV R8020818 25ng Inst : MS08
Misc : S31-01051802/S31-01291804 (2/27)

Quant Time: Feb 08 06:35:54 2018
Quant Method : I:\MS08\Methods\R8020518.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Feb 05 14:55:08 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

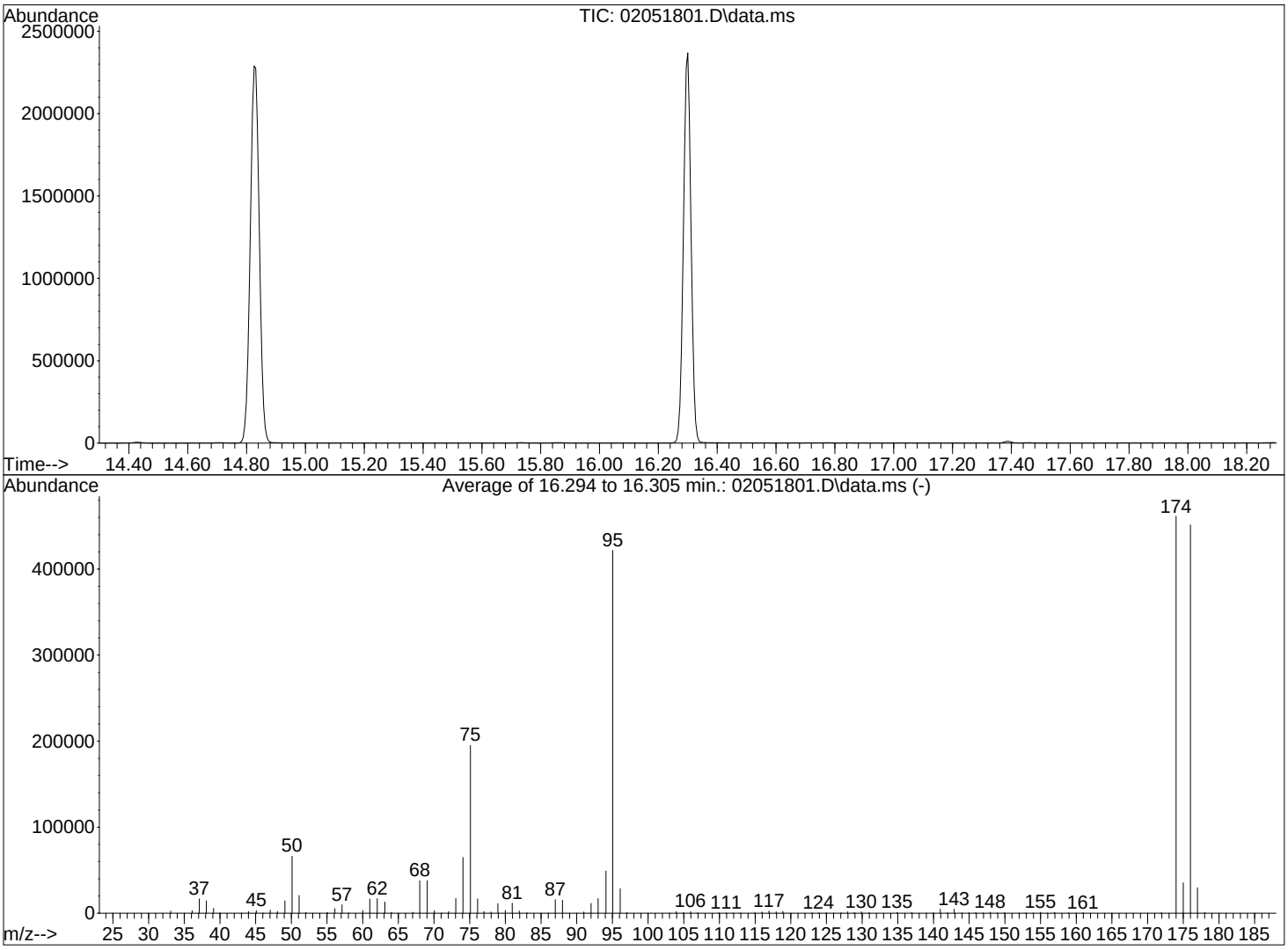


00870539

Data Path : I:\MS08\Data\2018 02\05\
Data File : 02051801.D
Acq On : 5 Feb 2018 8:49
Operator : WA
Sample : BFB Std
Misc : S31-01051802
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8020518.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Dec 19 11:30:49 2017



AutoFind: Scans 2359, 2360, 2361; Background Corrected with Scan 2347

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	15.7	66283	PASS
75	95	30	66	46.2	195029	PASS
95	95	100	100	100.0	421739	PASS
96	95	5	9	6.7	28429	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	109.4	461504	PASS
175	174	4	9	7.6	35267	PASS
176	174	93	101	97.8	451413	PASS
177	176	5	9	6.6	29613	PASS

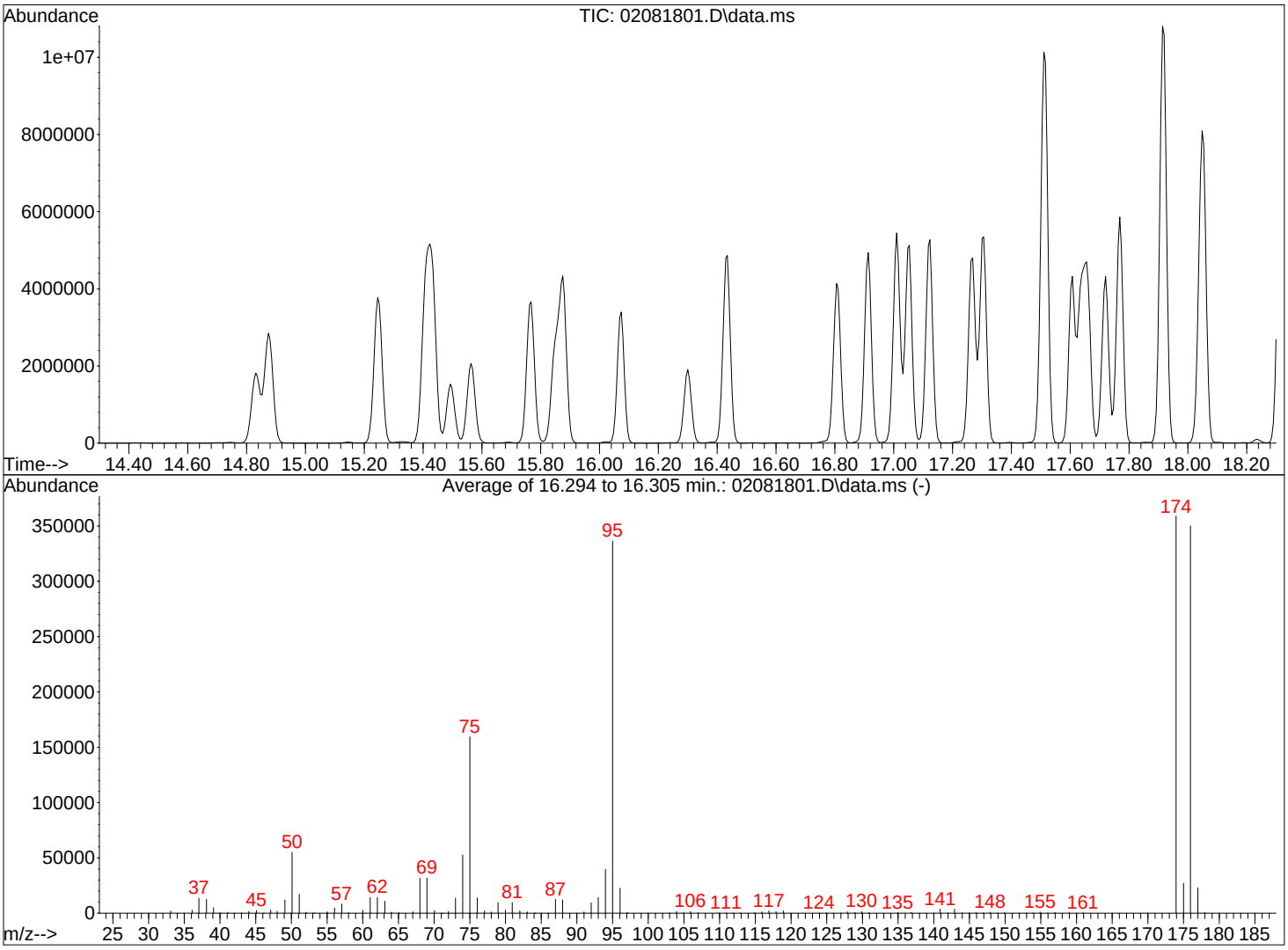
LH 2/5/18

00870540

Data Path : I:\MS08\Data\2018 02\08\
Data File : 02081801.D
Acq On : 8 Feb 2018 2:09
Operator : WA
Sample : CCV R8020818 25ng
Misc : S31-01051802/S31-01291804 (2/27)
ALS Vial : 15 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8020518.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Mon Feb 05 14:55:08 2018



AutoFind: Scans 2359, 2360, 2361; Background Corrected with Scan 2351

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.4	55114	PASS
75	95	30	66	47.5	159588	PASS
95	95	100	100	100.0	336269	PASS
96	95	5	9	6.7	22581	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	106.7	358900	PASS
175	174	4	9	7.5	27043	PASS
176	174	93	101	97.6	350142	PASS
177	176	5	9	6.6	23088	PASS

WA 2/8/18

Injection Log

Directory: J:\MS08\Data\2018_02\05\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	2/5/18 8:49	02051801.D	BFB Std	S31-01051802	WA	1	passed
2	2/5/18 9:21	02051802.D	0.08ng TO-15 ICAL Std	S31-01051802/S31_01181811 (2/16)	WA	11	
3	2/5/18 9:53	02051803.D	0.10ng TO-15 ICAL Std	S31-01051802/S31_01181811 (2/16)	WA	11	
4	2/5/18 10:25	02051804.D	0.20ng TO-15 ICAL Std	S31-01051802/S31_01181811 (2/16)	WA	11	
5	2/5/18 10:57	02051805.D	0.40ng TO-15 ICAL Std	S31-01051802/S31_01181811 (2/16)	WA	11	
6	2/5/18 11:30	02051806.D	1.0ng TO-15 ICAL Std	S31-01051802/S31_01181809 (2/16)	WA	10	
7	2/5/18 12:02	02051807.D	5.0ng TO-15 ICAL Std	S31-01051802/S31_01181809 (2/16)	WA	10	
8	2/5/18 12:34	02051808.D	25ng TO-15 ICAL Std	S31-01051802/S31_01181814 (2/16)	WA	9	**R8020518.M**
9	2/5/18 13:06	02051809.D	50ng TO-15 ICAL Std	S31-01051802/S31_01181814 (2/16)	WA	9	
10	2/5/18 13:38	02051810.D	100ng TO-15 ICAL Std	S31-01051802/S31_01181814 (2/16)	WA	9	
11	2/5/18 14:10	02051811.D	Blank	S31-01051802	WA	1	
12	2/5/18 14:43	02051812.D	25ng TO-15 ICV Std	S31-01051802/S31-01181806 (2/16)	WA	1	passed
	ICAL R8020518.M passed for all compounds 0.08ng-100ng, except: propene, dichlodifluoromethane 0.1ng-100ng, acetonitrile 0.2ng-100ng,						
	carbon disulfide 0.5ng-100ng.						
				LH 2/5/18			
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Injection Log

00870542

Directory: I:\MS08\Data\2018_02\08\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	2/8/18 2:09	02081801.D	CCV R8020818_25ng	S31-01051802/S31-01291804 (2/27)	WA	15	Passes
2	2/8/18 2:41	02081802.D	CCV C8020818_25ng	S31-01051802/S31-01291804 (2/27)	WA	1	CF
3	2/8/18 3:13	02081803.D	MB R8020818_1000mL	S31-01051802	WA	1	Passes
4	2/8/18 3:45	02081804.D	LCS R8020818_25ng	S31-01051802/S31-01181806 (2/16)	WA	1	Passes
5	2/8/18 4:18	02081805.D	LCSD R8020818_25ng	S31-01051802/S31-01181806 (2/16)	WA	4	Passes
6	2/8/18 4:50	02081806.D	Blank	S31-01051802	WA	2	
7	2/8/18 5:22	02081807.D	P1800499-001 (400mL)	S31-01051802	WA	5	
8	2/8/18 5:54	02081808.D	P1800454-003 (400mL)	S31-01051802	WA	6	
9	2/8/18 6:27	02081809.D	P1800454-004 (400mL)	S31-01051802	WA	7	
10	2/8/18 7:49	02081810.D	P1800454-005 (400mL)	S31-01051802	WA	7	
11	2/8/18 8:21	02081811.D	P1800454-006 (400mL)	S31-01051802	WA	8	
12	2/8/18 9:31	02081812.D	Screen 00459-001 (1.0mL)	S31-01051802	WA	4	
13	2/8/18 10:04	02081813.D	P1800459-001 (3.0mL)	S31-01051802	WA	4	
14	2/8/18 10:43	02081814.D	P1800459-002 (4.5mL)	S31-01051802	AB	4	
15	2/8/18 11:15	02081815.D	P1800459-002dil (2.0mL)	S31-01051802	AB	4	
16	2/8/18 12:14	02081816.D	P1800459-003 (1000mL)	S31-01051802	AB	13	
17	2/8/18 12:48	02081817.D	P1800459-003dup (1000mL)	S31-01051802	AB	13	Passes for dup
18	2/8/18 13:20	02081818.D	P1800551-001 (1000mL)	S31-01051802	AB	9	
19	2/8/18 13:52	02081819.D	P1800551-002 (1000mL)	S31-01051802	AB	10	
20	2/8/18 14:25	02081820.D	P1800551-003 (1000mL)	S31-01051802	AB	11	
21	2/8/18 15:06	02081821.D	P1800459-004 (1000mL)	S31-01051802	AB	3	
22	2/8/18 16:12	02081822.D	Blank	S31-01051802	AB	4	
23	2/8/18 16:44	02081823.D	P1800101-002 (0.1ng MDL/LOD)	S31-01051802/ S31-02171808 (3/8)	AB	12	
24	2/8/18 17:16	02081824.D	P1800101-003 (0.16ng MDL/LOD)	S31-01051802/ S31-02171808 (3/8)	AB	12	
25	2/8/18 17:48	02081825.D	P1800101-004 (0.3ng MDL/LOD)	S31-01051802/ S31-02171808 (3/8)	AB	12	
26	2/8/18 18:20	02081826.D	Blank	S31-01051802	AB	4	
27	2/8/18 18:53	02081827.D	P1800101-005 (0.5ng LOD/LOQ)	S31-01051802/ S31-02171805 (3/8)	AB	13	
28	2/8/18 19:25	02081828.D	P1800101-006 (1ng LOQ)	S31-01051802/ S31-02171805 (3/8)	AB	13	
29	2/8/18 19:58	02081829.D	P1800101-007 (2.5ng LOQ)	S31-01051802/ S31-02171805 (3/8)	AB	13	
30	2/8/18 20:30	02081830.D	P1800101-008 (5ng LOQ)	S31-01051802/ S31-02171805 (3/8)	AB	13	

APPENDIX H
PROTOCOL FOR DISCHARGING GWTP EFFLUENT

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MEMORANDUM

DATE: August 28, 2017

PROJECT NAME: Remediation of Multiple Sites, Longhorn Army Ammunition Plant, Karnack, TX

TO:	Richard Mayer	Senior Project Engineer US Environmental Protection Agency Federal Facilities Section (6PD-F)
	April Palmie	Project and Grant Manager Superfund Section, Remediation Division Texas Commission on Environmental Quality
FROM:	Rose M. Zeiler, Ph.D.	Longhorn AAP Site Manager

SUBJECT: **Protocol for Discharging GWTP Effluent**
Longhorn Army Ammunition Plant, Karnack, TX
(Contract: W912DY-09-D-0059, Task Order DS01)

INTRODUCTION

The purpose of this memo is to document the protocol for discharging Longhorn Army Ammunition Plant groundwater treatment plant (GWTP) effluent to Harrison Bayou, the INF-Pond, or LHAAP-18/24.

The GWTP is designed to:

- Extract groundwater from LHAAP-18/24 and LHAAP-16 for hydraulic control;
- Remove metals by pH adjustment, polymer addition, and gravity separation;
- Remove volatile organic compounds (VOCs) by air stripping;
- Remove perchlorate in a fluidized bed reactor (FBR) and an ion exchange scavenger system; and
- Discharge the effluent continuously.

DISCHARGE CRITERIA

The discharge criteria established for discharge to Harrison Bayou are:

Parameter	Discharge Criteria (µg/L)	
	Daily Average	Daily Maximum
Volatiles		
1,1,1-Trichloroethane	3,417	7,230
1,1,2-Trichloroethane	102.5	216.9
1,1-Dichloroethane	6,633	14,032
1,1-Dichloroethene	119	253
1,2-Dichloroethane	85	181
Acetone	1,132	2,395
Benzene	85	181
Carbon Tetrachloride	85	181
Chlorobenzene	22,300	47,180
Chloroform	1,708	3,615
Ethylbenzene	26,954	57,025
Xylenes	39.5	83.6
Methylene Chloride	803	1,699
Styrene	2,829	5,987
Tetrachloroethene	85.4	180.7
Toluene	1,980	4,189
Trichloroethene	85	181
Vinyl Chloride	34	72
Anions		
Chloride	*	*
Sulfate	*	*
Perchlorate	278	589
Metals		
Aluminum	777	1,644
Arsenic	365	772
Barium	1,000	2,000
Cadmium	1.6	3.4
Chromium, Total	355	752
Chromium, Hexavalent	58	124
Cobalt	5,433	11,495
Iron	1,132	2,395
Lead	2.2	4.6
Nickel	87	184
Manganese	7,323	15,494
Silver	1.4	3
Selenium	5.7	12
Vanadium	1,698	3,592
Zinc	146	310
Other		
Hexachlorobenzene	0.22	0.47
1,4-Dioxane		134.2
Oil and Grease		15
Chemical Oxygen Demand		200

*- Based upon flow in Harrison Bayou

PROTOCOL FOR DISCHARGING GWTP EFFLUENT

In accordance with the *Sampling and Analysis Plan, Groundwater Treatment Plant and Well Fields* (SAP) Table 2-2, indicator parameters for the FBR, such as temperature, pH and oxidation reduction potential (ORP), are monitored in real time to predict FBR performance and perchlorate removal. Based upon these indicator parameters, the operator of the GWTP can make adjustments such as:

- Bring the ion exchange system online;
- Increase or decrease the addition rate of electron donor (acetic acid);
- Increase or decrease the nutrient addition rate (urea or phosphoric acid); or
- Increase or decrease the FBR recirculation rate

Samples of the GWTP effluent are collected weekly, analyzed for perchlorate, nutrients (ammonia-nitrogen and ortho-phosphate), total organic carbon (TOC), chloride, and sulfate, with the results received from the laboratory 14 days later. Other parameters (e.g. Record of Decision metals and volatiles) are collected and analyzed in GWTP effluent samples according to the frequencies listed in Table 2-1 of the SAP.

As shown in Figure 1, groundwater is continuously extracted, treated, and discharged. If Harrison Bayou is flowing and indicator parameters are within their historical optimal ranges, then the ion exchange vessels can be bypassed and the GWTP effluent sample will be collected after the FBR. If Harrison Bayou is not flowing or the indicator parameters are not within historical optimal ranges, then the ion exchange vessels will be put on line, and the GWTP effluent sample will be collected between the lead and lag ion exchange vessel. Professional judgement may also be used as to when to bring the ion exchange vessels online, such as after a power outage or during anticipated cold temperatures when the FBR has historically not performed optimally.

If a parameter is measured in the effluent at a concentration above the discharge criteria, then a confirmation sample and an effluent sample after the lag ion exchange vessel will be collected and analyzed for the parameter with a 24-hour turnaround time. Corrective measures (e.g. increased nutrient or electron donor addition rates, bring ion exchange vessels on line) will be implemented as appropriate to bring the parameter back within the discharge criteria. ***If an upset condition in the FBR leads to high concentrations of perchlorate going into the lead ion exchange vessel and breaking through at the sample location between the vessels,, the lag vessel will still remove perchlorate before it is discharged to Harrison Bayou, the INF Pond, or LHAAP-18/24.*** It is estimated that the lag ion exchange vessel can remove all of the perchlorate from two weeks of typical groundwater extraction at a concentration of 920 µg/L. If the residual perchlorate concentration after the FBR and lead ion exchange vessel is only 600 µg/L, the lag ion exchange vessel could last almost 2.5 years before perchlorate would be detected in the discharged effluent.

If a parameter exceeds the discharge criteria by more than 40% (see Appendix A-2, SAP, Section 7c of Monitoring and Reporting Requirements) or reaches 920 µg/L of perchlorate, then the GWTP will be put into full recycle mode (no discharge) until the parameter is below the discharge criteria again. Appendix A-2 of the SAP requires GWTP data to be provided to TCEQ monthly including a list of noncompliance(s), if applicable.

Discharge to Harrison Bayou

As shown in Figure 1, the GWTP effluent will be discharged to Harrison Bayou as long as it has a measurable flow. The flowrate in Harrison Bayou is estimated by measuring the height of water with a staff gauge and velocity in feet/sec at intervals along the width as described in the Installation-Wide Work Plan, Standard Operating Procedures, Attachment 18 – Water Depth and Velocity Measurements (AECOM, July 2014).

The allowable flow rate of GWTP effluent that can be discharged to Harrison Bayou is given by:

$$Q_E \leq \frac{Q_S(C_C - C_A)}{(C_E - C_C)}$$

where Q_E = GWTP effluent flow

Q_S = Harrison Bayou flow

C_C = Criteria concentration (100 mg/L for chloride, 50 mg/L for sulfate)

C_A = Ambient concentration = 10 mg/L

C_E = Chloride or sulfate concentration in GWTP effluent

The allowable GWTP effluent flow will be the lower of the calculated values given the measured concentrations of chloride and sulfate in the discharge stream. For each day that GWTP effluent is discharged to Harrison Bayou, the measured Harrison Bayou flow, the allowable effluent flow, and the actual effluent flow are recorded.

Discharge to INF Pond

If Harrison Bayou is not flowing, then GWTP effluent will be discharged to the Intermediate-Range Nuclear Forces (INF) Pond for temporary storage until Harrison Bayou flow resumes. The INF Pond has a flexible membrane liner protected by a soil cover with a gravity discharge pipe (and valve) to Harrison Bayou. The INF Pond has a nominal capacity of 3 million gallons with a staff gage to measure the height of water stored in the pond. The GWTP operator maintains the INF Pond by visually inspecting for erosion, vegetative growth including tree growth along the anchor trench, and liner integrity and making necessary repairs. Periodically, accumulated debris must be removed from the influent and effluent piping to the INF Pond.

Prior to discharging to the INF Pond, a lead and lag ion exchange vessel will be brought online. The GWTP Operator will also confirm that the discharge valve is closed, will record the reading on the effluent totalizer, and will record the height of water using the staff gage. The GWTP Operator will then configure valves and pumps to direct GWTP effluent to the INF Pond. The height of water in the INF Pond and totalizer reading will be recorded at the beginning and end of each shift for the duration of active discharge. When the height of water in the pond reaches 3 feet below the height of the berm (freeboard), the GWTP Operator will stop discharging to the INF Pond and TCEQ will be notified. After the TCEQ acknowledges the INF Pond level, GWTP effluent may be discharged to the INF Pond again until 2 feet of freeboard is reached. The GWTP Operator will stop discharging to the INF Pond and TCEQ will be notified again. After the TCEQ acknowledges 2 feet of freeboard in the INF Pond,

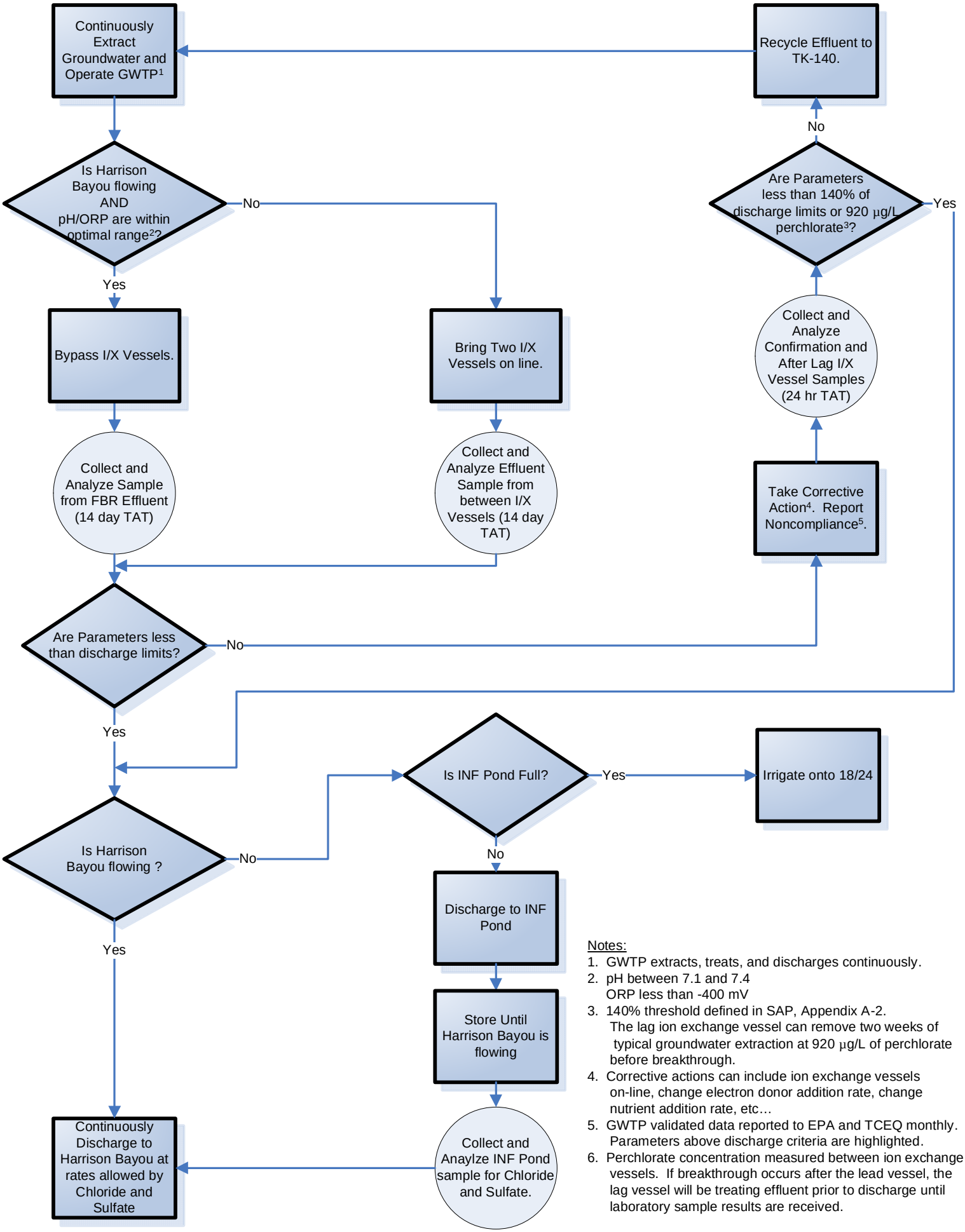
GWTP effluent may be discharged again until 1 foot of freeboard remains. No additional GWTP effluent can be accepted at the INF Pond until greater than 1 foot of freeboard is measured.

As soon as flow in Harrison Bayou returns, stored GWTP effluent from the INF Pond will be discharged. As with direct discharges from the GWTP to Harrison Bayou, the allowable flowrate of effluent from the INF Pond is calculated based upon the chloride and sulfate concentrations in the pond and the flow in Harrison Bayou. If effluent from the INF Pond and the GWTP are discharged simultaneously, total flow of both streams together should not exceed the calculated discharge level for either discharge location. For each day that INF Pond contents are discharged to Harrison Bayou, the measured Harrison Bayou flow, the allowable effluent flow, and the actual effluent flow are recorded.

Irrigation onto LHAAP-18/24

If Harrison Bayou is not flowing and the INF Pond has less than 1 foot of freeboard, then GWTP effluent will be irrigated onto LHAAP-18/24 using one of the three main sprinkler lines. To avoid pooling and runoff of irrigation water, only one line will be used for half a day at a time, with a separate line being used the second half of the day. If needed, the irrigation will occur 5 days a week for 8 hours each day (using 3 sprinklers in each line). If conditions are wet due to rain events, irrigation will not be conducted to avoid ponding and potential runoff, the GWTP will be put into recycle mode, and groundwater extraction will be interrupted if storage space is not available.

While irrigating, site inspections will be performed to ensure pooling and runoff are not occurring. During the irrigation activities, inspections will be performed twice a day, once approximately three hours and again approximately six hours into the 8-hour irrigation shift. The system will be inspected to ensure that the sprinkler heads are operating properly and not leaking large amounts of water. If ponding or runoff is observed, irrigation at that sprinkler line will cease, and irrigation at another sprinkler line will be started if possible. Volumes of GWTP effluent and twice daily inspections will be recorded daily and reported monthly until flow resumes in Harrison Bayou or greater than 1 foot of freeboard is available in the INF Pond.



Notes:

1. GWTP extracts, treats, and discharges continuously.
2. pH between 7.1 and 7.4
   ORP less than -400 mV
3. 140% threshold defined in SAP, Appendix A-2.
   The lag ion exchange vessel can remove two weeks of typical groundwater extraction at 920 µg/L of perchlorate before breakthrough.
4. Corrective actions can include ion exchange vessels on-line, change electron donor addition rate, change nutrient addition rate, etc…
5. GWTP validated data reported to EPA and TCEQ monthly. Parameters above discharge criteria are highlighted.
6. Perchlorate concentration measured between ion exchange vessels. If breakthrough occurs after the lead vessel, the lag vessel will be treating effluent prior to discharge until laboratory sample results are received.

Figure 1. Continuous Discharge Protocol Flowchart

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WorkOrder: HS17120435

LHAAP 18/24

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

01-Feb-2018

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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December 28, 2017

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

Work Order: **HS17120435**

Laboratory Results for: **LHAAP 18/24**

Dear Marcia,

ALS Environmental received 13 sample(s) on Dec 07, 2017 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Sonia West

Generated By: Jumoke.Lawal
Sonia West
Project Manager

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Work Order: HS17120435

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS17120435-01	CO9_120517	Water		05-Dec-2017 08:35	07-Dec-2017 08:50	☐
HS17120435-02	126_120517	Water		05-Dec-2017 09:40	07-Dec-2017 08:50	☐
HS17120435-03	C08_120517	Water		05-Dec-2017 10:35	07-Dec-2017 08:50	☐
HS17120435-04	18WW17_120517	Water		05-Dec-2017 10:50	07-Dec-2017 08:50	☐
HS17120435-05	C03_120517	Water		05-Dec-2017 13:00	07-Dec-2017 08:50	☐
HS17120435-06	18CPTMW18_120517	Water		05-Dec-2017 13:55	07-Dec-2017 08:50	☐
HS17120435-07	18WW22_120517	Water		06-Dec-2017 08:30	07-Dec-2017 08:50	☐
HS17120435-08	18CPTMW19_120617	Water		06-Dec-2017 09:30	07-Dec-2017 08:50	☐
HS17120435-09	18WCPTMW19_120617_a	Water		06-Dec-2017 09:30	07-Dec-2017 08:50	☐
HS17120435-10	18WW08_120617	Water		06-Dec-2017 10:30	07-Dec-2017 08:50	☐
HS17120435-11	18CPTMW15_120617	Water		06-Dec-2017 11:30	07-Dec-2017 08:50	☐
HS17120435-12	18CPTMW07_120617	Water		06-Dec-2017 13:40	07-Dec-2017 08:50	☐
HS17120435-13	Trip Blank	Water		06-Dec-2017 00:01	07-Dec-2017 08:50	☐

ALS Group USA, Corp Date: 06-Feb-18

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP 18/24
Work Order: HS17120435

Work Order Comments

- For sample ID 18WW22_120517 with collection date of December 6, 2017 at 08:30 was received labeled as 18WW22_120617. The laboratory has reported this sample as per the chain of custody.

Work Order Comments

- Data Package revised to correct the CCV RRF table 11.6 RSD to <= 50% D for the ending CCV for Method 8260 as required in the DOD QSM 5.1
- The analysis for Perchlorate was subcontracted to ALS Environmental in Salt Lake City, UT. Final Report attached.

GCMS Volatiles by Method SW8260

Batch ID: R307031

Sample ID: CO9_120517 (HS17120435-01MS)

- MS/MSD failed QC and RPD limits due to matrix.

Sample ID: VSTD050

- Hexachlorobutadiene exceeded %D limits for CCV. Samples are ND for this compound.

Metals by Method SW7470

Batch ID: 123333

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

Metals by Method SW6020

Batch ID: 123278

Sample ID: CO9_120517 (HS17120435-01MS)

- The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. Barium, Calcium, Magnesium and Sodium

Sample ID: CO9_120517 (HS17120435-01PDS)

- The PDS recovery was outside method control limits, however the result in the parent sample is greater than 4x the spike amount. Magnesium and Sodium.

Revision:1

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: CO9_120517
Collection Date: 05-Dec-2017 08:35

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:11
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 15:11
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 15:11
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:11
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 15:11
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 15:11
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 15:11
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: CO9_120517
Collection Date: 05-Dec-2017 08:35

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 15:11
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 15:11
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 15:11
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:11
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:11
Surr: 1,2-Dichloroethane-d4	*90.4*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 15:11*
Surr: 4-Bromofluorobenzene	*107*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 15:11*
Surr: Dibromofluoromethane	*94.7*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 15:11*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 15:11*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: CO9_120517
Collection Date: 05-Dec-2017 08:35

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 13-Dec-2017		Analyst: RPM
Aluminum	**0.0704**		**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	14-Dec-2017 14:08
Antimony	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	14-Dec-2017 14:08
Arsenic	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	14-Dec-2017 14:08
Barium	**0.927**		**0.00190**	**0.00250**	**0.00400**	**mg/L**	1	14-Dec-2017 14:08
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 14:08
Cadmium	**0.000395**	J	**0.000200**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 14:08
Calcium	**267**		**0.340**	**1.00**	**5.00**	**mg/L**	10	15-Dec-2017 12:30
Chromium	0.00100	U	0.000400	0.00100	0.00400	mg/L	1	14-Dec-2017 14:08
Cobalt	**0.000355**	J	**0.000200**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 14:08
Copper	**0.00174**	J	**0.00100**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 14:08
Iron	**0.0773**	J	**0.0120**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 14:08
Lead	**0.000619**	J	**0.000600**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 14:08
Magnesium	**147**		**0.0100**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 14:08
Manganese	**0.0385**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 14:08
Nickel	**0.00769**		**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	14-Dec-2017 14:08
Potassium	**1.10**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 14:08
Selenium	0.00200	U	0.00110	0.00200	0.00200	mg/L	1	14-Dec-2017 14:08
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 14:08
Sodium	**473**		**0.140**	**1.00**	**2.00**	**mg/L**	10	15-Dec-2017 12:30
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 14:08
Vanadium	**0.00128**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 14:08
Zinc	**0.00894**		**0.00200**	**0.00250**	**0.00400**	**mg/L**	1	14-Dec-2017 14:08
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 14-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	14-Dec-2017 15:50
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 126_120517
Collection Date: 05-Dec-2017 09:40

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 18:54
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 18:54
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:54
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 18:54
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 18:54
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 18:54
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 126_120517
Collection Date: 05-Dec-2017 09:40

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 18:54
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 18:54
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 18:54
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:54
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:54
Surr: 1,2-Dichloroethane-d4	*91.1*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 18:54*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 18:54*
Surr: Dibromofluoromethane	*95.3*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 18:54*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 18:54*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 126_120517
Collection Date: 05-Dec-2017 09:40

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 13-Dec-2017		Analyst: RPM
Aluminum	**0.0197**		**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	14-Dec-2017 16:41
Antimony	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	14-Dec-2017 16:41
Arsenic	**0.00279**		**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 16:41
Barium	**8.75**		**0.0190**	**0.0250**	**0.0400**	**mg/L**	10	15-Dec-2017 12:32
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:41
Cadmium	**0.000627**	J	**0.000200**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 16:41
Calcium	**285**		**0.340**	**1.00**	**5.00**	**mg/L**	10	15-Dec-2017 12:32
Chromium	0.00100	U	0.000400	0.00100	0.00400	mg/L	1	14-Dec-2017 16:41
Cobalt	**0.0168**		**0.000200**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:41
Copper	**0.00154**	J	**0.00100**	**0.00200**	**0.00200**	**mg/L**	1	14-Dec-2017 16:41
Iron	**4.50**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:41
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	14-Dec-2017 16:41
Magnesium	**207**		**0.100**	**1.00**	**2.00**	**mg/L**	10	15-Dec-2017 12:32
Manganese	**0.289**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:41
Nickel	**0.0128**		**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	14-Dec-2017 16:41
Potassium	**2.82**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:41
Selenium	0.00100	U	0.00110	0.00100	0.00200	mg/L	1	14-Dec-2017 16:41
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:41
Sodium	**740**		**0.140**	**1.00**	**2.00**	**mg/L**	10	15-Dec-2017 12:32
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:41
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	14-Dec-2017 16:41
Zinc	**0.0223**		**0.00200**	**0.00100**	**0.00400**	**mg/L**	1	14-Dec-2017 16:41
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 14-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	14-Dec-2017 15:51
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: C08_120517
Collection Date: 05-Dec-2017 10:35

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:19
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 19:19
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 19:19
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:19
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 19:19
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 19:19
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 19:19
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: C08_120517
Collection Date: 05-Dec-2017 10:35

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 19:19
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 19:19
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 19:19
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:19
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Trichloroethene	**0.70**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Dec-2017 19:19
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:19
Surr: 1,2-Dichloroethane-d4	*89.2*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 19:19*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 19:19*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 19:19*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 19:19*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: C08_120517
Collection Date: 05-Dec-2017 10:35

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 13-Dec-2017		Analyst: RPM
Aluminum	**0.0147**		**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	14-Dec-2017 16:43
Antimony	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	14-Dec-2017 16:43
Arsenic	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	14-Dec-2017 16:43
Barium	**5.86**		**0.0190**	**0.0250**	**0.0400**	**mg/L**	10	15-Dec-2017 12:34
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:43
Cadmium	**0.000416**	J	**0.000200**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 16:43
Calcium	**268**		**0.340**	**1.00**	**5.00**	**mg/L**	10	15-Dec-2017 12:34
Chromium	0.00100	U	0.000400	0.00100	0.00400	mg/L	1	14-Dec-2017 16:43
Cobalt	**0.00476**	J	**0.000200**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:43
Copper	**0.00185**	J	**0.00100**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 16:43
Iron	**0.358**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:43
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	14-Dec-2017 16:43
Magnesium	**159**		**0.0100**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:43
Manganese	**0.885**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:43
Nickel	**0.00559**		**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	14-Dec-2017 16:43
Potassium	**1.93**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:43
Selenium	0.00200	U	0.00110	0.00200	0.00200	mg/L	1	14-Dec-2017 16:43
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:43
Sodium	**793**		**0.140**	**1.00**	**2.00**	**mg/L**	10	15-Dec-2017 12:34
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:43
Vanadium	**0.000603**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:43
Zinc	**0.00766**		**0.00200**	**0.00100**	**0.00400**	**mg/L**	1	14-Dec-2017 16:43
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 14-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	14-Dec-2017 15:56
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP 18/24 WorkOrder:HS17120435
Sample ID: 18WW17_120517 Lab ID:HS17120435-04
Collection Date: 05-Dec-2017 10:50 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:35
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 15:35
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 15:35
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:35
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 15:35
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 15:35
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 15:35
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18WW17_120517
Collection Date: 05-Dec-2017 10:50

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 15:35
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 15:35
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 15:35
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 15:35
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Trichloroethene	**36**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Dec-2017 15:35
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 15:35
Surr: 1,2-Dichloroethane-d4	*91.6*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 15:35*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 15:35*
Surr: Dibromofluoromethane	*96.5*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 15:35*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 15:35*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18WW17_120517
Collection Date: 05-Dec-2017 10:50

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 13-Dec-2017		Analyst: RPM
Aluminum	**0.00628**	J	**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	14-Dec-2017 16:49
Antimony	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	14-Dec-2017 16:49
Arsenic	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	14-Dec-2017 16:49
Barium	**3.27**		**0.0190**	**0.0250**	**0.0400**	**mg/L**	10	15-Dec-2017 12:36
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:49
Cadmium	**0.000356**	J	**0.000200**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 16:49
Calcium	**324**		**0.340**	**1.00**	**5.00**	**mg/L**	10	15-Dec-2017 12:36
Chromium	**0.00224**	J	**0.000400**	**0.00100**	**0.00400**	**mg/L**	1	14-Dec-2017 16:49
Cobalt	0.00100	U	0.000200	0.00100	0.00500	mg/L	1	14-Dec-2017 16:49
Copper	0.00200	U	0.00100	0.00200	0.00200	mg/L	1	14-Dec-2017 16:49
Iron	**0.0425**	J	**0.0120**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:49
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	14-Dec-2017 16:49
Magnesium	**203**		**0.100**	**1.00**	**2.00**	**mg/L**	10	15-Dec-2017 12:36
Manganese	**0.0222**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:49
Nickel	**0.0103**		**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	14-Dec-2017 16:49
Potassium	**1.61**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:49
Selenium	**0.00311**		**0.00110**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 16:49
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:49
Sodium	**999**		**0.140**	**1.00**	**2.00**	**mg/L**	10	15-Dec-2017 12:36
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:49
Vanadium	**0.00139**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:49
Zinc	**0.0104**		**0.00200**	**0.00100**	**0.00400**	**mg/L**	1	14-Dec-2017 16:49
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 14-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	14-Dec-2017 15:58
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: C03_120517
Collection Date: 05-Dec-2017 13:00

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 19:43
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 19:43
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:43
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 19:43
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 19:43
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 19:43
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: C03_120517
Collection Date: 05-Dec-2017 13:00

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 19:43
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 19:43
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 19:43
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 19:43
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 19:43
Surr: 1,2-Dichloroethane-d4	*95.6*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 19:43*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 19:43*
Surr: Dibromofluoromethane	*98.4*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 19:43*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 19:43*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18CPTMW18_120517
Collection Date: 05-Dec-2017 13:55

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:08
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 20:08
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 20:08
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:08
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 20:08
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 20:08
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 20:08
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18CPTMW18_120517
Collection Date: 05-Dec-2017 13:55

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 20:08
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 20:08
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 20:08
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:08
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:08
Surr: 1,2-Dichloroethane-d4	*98.0*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 20:08*
Surr: 4-Bromofluorobenzene	*106*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 20:08*
Surr: Dibromofluoromethane	*99.4*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 20:08*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 20:08*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18CPTMW18_120517
Collection Date: 05-Dec-2017 13:55

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 13-Dec-2017		Analyst: RPM
Aluminum	**0.0142**		**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	14-Dec-2017 16:51
Antimony	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	14-Dec-2017 16:51
Arsenic	**0.00169**	J	**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 16:51
Barium	**0.533**		**0.00190**	**0.00250**	**0.00400**	**mg/L**	1	14-Dec-2017 16:51
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:51
Cadmium	**0.000215**	J	**0.000200**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 16:51
Calcium	**273**		**0.340**	**1.00**	**5.00**	**mg/L**	10	15-Dec-2017 12:42
Chromium	**0.000581**	J	**0.000400**	**0.00100**	**0.00400**	**mg/L**	1	14-Dec-2017 16:51
Cobalt	**0.0145**		**0.000200**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:51
Copper	0.00100	U	0.00100	0.00100	0.00200	mg/L	1	14-Dec-2017 16:51
Iron	**0.751**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:51
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	14-Dec-2017 16:51
Magnesium	**189**		**0.100**	**1.00**	**2.00**	**mg/L**	10	15-Dec-2017 12:42
Manganese	**1.93**		**0.00700**	**0.0100**	**0.0500**	**mg/L**	10	15-Dec-2017 12:42
Nickel	**0.0138**		**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	14-Dec-2017 16:51
Potassium	**2.90**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:51
Selenium	**0.00129**	J	**0.00110**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 16:51
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:51
Sodium	**724**		**0.140**	**1.00**	**2.00**	**mg/L**	10	15-Dec-2017 12:42
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:51
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	14-Dec-2017 16:51
Zinc	**0.0145**		**0.00200**	**0.00100**	**0.00400**	**mg/L**	1	14-Dec-2017 16:51
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 14-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	14-Dec-2017 16:00
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18WW22_120517
Collection Date: 06-Dec-2017 08:30

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:33
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 20:33
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 20:33
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:33
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 20:33
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 20:33
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 20:33
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18WW22_120517
Collection Date: 06-Dec-2017 08:30

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 20:33
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 20:33
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 20:33
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:33
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:33
Surr: 1,2-Dichloroethane-d4	*96.4*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 20:33*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 20:33*
Surr: Dibromofluoromethane	*97.2*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 20:33*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 20:33*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18WW22_120517
Collection Date: 06-Dec-2017 08:30

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 13-Dec-2017		Analyst: RPM
Aluminum	**0.404**		**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	14-Dec-2017 16:53
Antimony	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	14-Dec-2017 16:53
Arsenic	**0.00523**		**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	14-Dec-2017 16:53
Barium	**0.0806**		**0.00190**	**0.00250**	**0.00400**	**mg/L**	1	14-Dec-2017 16:53
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:53
Cadmium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:53
Calcium	**19.0**		**0.0340**	**0.100**	**0.500**	**mg/L**	1	14-Dec-2017 16:53
Chromium	**0.00290**	J	**0.000400**	**0.00100**	**0.00400**	**mg/L**	1	14-Dec-2017 16:53
Cobalt	**0.000280**	J	**0.000200**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:53
Copper	**0.00140**	J	**0.00100**	**0.00200**	**0.00200**	**mg/L**	1	14-Dec-2017 16:53
Iron	**0.0216**	J	**0.0120**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:53
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	14-Dec-2017 16:53
Magnesium	**0.953**		**0.0100**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:53
Manganese	**0.00360**	J	**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:53
Nickel	**0.00112**	J	**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	14-Dec-2017 16:53
Potassium	**6.60**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:53
Selenium	0.00100	U	0.00110	0.00100	0.00200	mg/L	1	14-Dec-2017 16:53
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:53
Sodium	**67.3**		**0.0140**	**0.100**	**0.200**	**mg/L**	1	14-Dec-2017 16:53
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	14-Dec-2017 16:53
Vanadium	**0.0215**		**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	14-Dec-2017 16:53
Zinc	0.00250	U	0.00200	0.00250	0.00400	mg/L	1	14-Dec-2017 16:53
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 14-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	14-Dec-2017 16:02
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18CPTMW19_120617
Collection Date: 06-Dec-2017 09:30

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 20:58
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 20:58
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:58
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 20:58
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 20:58
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 20:58
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18CPTMW19_120617
Collection Date: 06-Dec-2017 09:30

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 20:58
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 20:58
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 20:58
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 20:58
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 20:58
Surr: 1,2-Dichloroethane-d4	*94.1*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 20:58*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 20:58*
Surr: Dibromofluoromethane	*96.5*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 20:58*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 20:58*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP 18/24 WorkOrder:HS17120435
Sample ID: 18WCPTMW19_120617_a Lab ID:HS17120435-09
Collection Date: 06-Dec-2017 09:30 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:23
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 21:23
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 21:23
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:23
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 21:23
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 21:23
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 21:23
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18WCPTMW19_120617_a
Collection Date: 06-Dec-2017 09:30

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 21:23
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 21:23
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 21:23
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:23
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:23
Surr: 1,2-Dichloroethane-d4	*91.6*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 21:23*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 21:23*
Surr: Dibromofluoromethane	*93.8*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 21:23*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 21:23*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18WW08_120617
Collection Date: 06-Dec-2017 10:30

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,1-Dichloroethane	**0.54**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Dec-2017 21:47
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:47
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 21:47
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 21:47
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:47
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 21:47
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 21:47
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 21:47
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18WW08_120617
Collection Date: 06-Dec-2017 10:30

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
cis-1,2-Dichloroethene	**2.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Dec-2017 21:47
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 21:47
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 21:47
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 21:47
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 21:47
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Trichloroethene	**4.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Dec-2017 21:47
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 21:47
Surr: 1,2-Dichloroethane-d4	*92.0*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 21:47*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 21:47*
Surr: Dibromofluoromethane	*98.1*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 21:47*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 21:47*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18CPTMW15_120617
Collection Date: 06-Dec-2017 11:30

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-11
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:12
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 22:12
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 22:12
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:12
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 22:12
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 22:12
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 22:12
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18CPTMW15_120617
Collection Date: 06-Dec-2017 11:30

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-11
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 22:12
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 22:12
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 22:12
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:12
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Trichloroethene	**0.96**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Dec-2017 22:12
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:12
Surr: 1,2-Dichloroethane-d4	*92.6*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 22:12*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 22:12*
Surr: Dibromofluoromethane	*96.8*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 22:12*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 22:12*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18CPTMW07_120617
Collection Date: 06-Dec-2017 13:40

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-12
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:37
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 22:37
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 22:37
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:37
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 22:37
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 22:37
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 22:37
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: 18CPTMW07_120617
Collection Date: 06-Dec-2017 13:40

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-12
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 22:37
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 22:37
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 22:37
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 22:37
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 22:37
Surr: 1,2-Dichloroethane-d4	*92.9*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 22:37*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 22:37*
Surr: Dibromofluoromethane	*97.0*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 22:37*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 22:37*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: Trip Blank
Collection Date: 06-Dec-2017 00:01

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-13
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 18:29
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	11-Dec-2017 18:29
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:29
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	11-Dec-2017 18:29
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 18:29
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	11-Dec-2017 18:29
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
Sample ID: Trip Blank
Collection Date: 06-Dec-2017 00:01

ANALYTICAL REPORT
WorkOrder:HS17120435
Lab ID:HS17120435-13
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Dec-2017 18:29
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Dec-2017 18:29
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	11-Dec-2017 18:29
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	11-Dec-2017 18:29
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Dec-2017 18:29
Surr: 1,2-Dichloroethane-d4	*92.5*			**0**	*81-118*	*%REC*	*1*	*11-Dec-2017 18:29*
Surr: 4-Bromofluorobenzene	*98.9*			**0**	*85-114*	*%REC*	*1*	*11-Dec-2017 18:29*
Surr: Dibromofluoromethane	*97.6*			**0**	*80-119*	*%REC*	*1*	*11-Dec-2017 18:29*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*11-Dec-2017 18:29*

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

ALS Group USA, Corp Date: 28-Dec-17

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Batch ID: 123278 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS17120435-01	1	10	10 (mL)	1
HS17120435-02	1	10	10 (mL)	1
HS17120435-03	1	10	10 (mL)	1
HS17120435-04	1	10	10 (mL)	1
HS17120435-06	1	10	10 (mL)	1
HS17120435-07	1	10	10 (mL)	1

Batch ID: 123333 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS17120435-01	1	10	10 (mL)	1
HS17120435-02	1	10	10 (mL)	1
HS17120435-03	1	10	10 (mL)	1
HS17120435-04	1	10	10 (mL)	1
HS17120435-06	1	10	10 (mL)	1
HS17120435-07	1	10	10 (mL)	1

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 123278	**Test Name :** ICP-MS METALS BY SW6020A			**Matrix:** Water		
HS17120435-01	CO9_120517	05 Dec 2017 08:35		13 Dec 2017 11:45	15 Dec 2017 12:30	10
HS17120435-01	CO9_120517	05 Dec 2017 08:35		13 Dec 2017 11:45	14 Dec 2017 14:08	1
HS17120435-02	126_120517	05 Dec 2017 09:40		13 Dec 2017 11:45	15 Dec 2017 12:32	10
HS17120435-02	126_120517	05 Dec 2017 09:40		13 Dec 2017 11:45	14 Dec 2017 16:41	1
HS17120435-03	C08_120517	05 Dec 2017 10:35		13 Dec 2017 11:45	15 Dec 2017 12:34	10
HS17120435-03	C08_120517	05 Dec 2017 10:35		13 Dec 2017 11:45	14 Dec 2017 16:43	1
HS17120435-04	18WW17_120517	05 Dec 2017 10:50		13 Dec 2017 11:45	15 Dec 2017 12:36	10
HS17120435-04	18WW17_120517	05 Dec 2017 10:50		13 Dec 2017 11:45	14 Dec 2017 16:49	1
HS17120435-06	18CPTMW18_120517	05 Dec 2017 13:55		13 Dec 2017 11:45	15 Dec 2017 12:42	10
HS17120435-06	18CPTMW18_120517	05 Dec 2017 13:55		13 Dec 2017 11:45	14 Dec 2017 16:51	1
HS17120435-07	18WW22_120517	06 Dec 2017 08:30		13 Dec 2017 11:45	14 Dec 2017 16:53	1
Batch ID 123333	**Test Name :** MERCURY BY SW7470A			**Matrix:** Water		
HS17120435-01	CO9_120517	05 Dec 2017 08:35		14 Dec 2017 13:02	14 Dec 2017 15:50	1
HS17120435-02	126_120517	05 Dec 2017 09:40		14 Dec 2017 13:02	14 Dec 2017 15:51	1
HS17120435-03	C08_120517	05 Dec 2017 10:35		14 Dec 2017 13:02	14 Dec 2017 15:56	1
HS17120435-04	18WW17_120517	05 Dec 2017 10:50		14 Dec 2017 13:02	14 Dec 2017 15:58	1
HS17120435-06	18CPTMW18_120517	05 Dec 2017 13:55		14 Dec 2017 13:02	14 Dec 2017 16:00	1
HS17120435-07	18WW22_120517	06 Dec 2017 08:30		14 Dec 2017 13:02	14 Dec 2017 16:02	1
Batch ID R307031	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS17120435-01	CO9_120517	05 Dec 2017 08:35			11 Dec 2017 15:11	1
HS17120435-02	126_120517	05 Dec 2017 09:40			11 Dec 2017 18:54	1
HS17120435-03	C08_120517	05 Dec 2017 10:35			11 Dec 2017 19:19	1
HS17120435-04	18WW17_120517	05 Dec 2017 10:50			11 Dec 2017 15:35	1
HS17120435-05	C03_120517	05 Dec 2017 13:00			11 Dec 2017 19:43	1
HS17120435-06	18CPTMW18_120517	05 Dec 2017 13:55			11 Dec 2017 20:08	1
HS17120435-07	18WW22_120517	06 Dec 2017 08:30			11 Dec 2017 20:33	1
HS17120435-08	18CPTMW19_120617	06 Dec 2017 09:30			11 Dec 2017 20:58	1
HS17120435-09	18WCPTMW19_120617_a	06 Dec 2017 09:30			11 Dec 2017 21:23	1
HS17120435-10	18WW08_120617	06 Dec 2017 10:30			11 Dec 2017 21:47	1
HS17120435-11	18CPTMW15_120617	06 Dec 2017 11:30			11 Dec 2017 22:12	1
HS17120435-12	18CPTMW07_120617	06 Dec 2017 13:40			11 Dec 2017 22:37	1
HS17120435-13	Trip Blank	06 Dec 2017 00:01			11 Dec 2017 18:29	1

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R308041	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)	**Matrix:** Water				
HS17120435-01	CO9_120517	05 Dec 2017 08:35			28 Dec 2017 10:59	1
HS17120435-02	126_120517	05 Dec 2017 09:40			28 Dec 2017 10:59	1
HS17120435-03	C08_120517	05 Dec 2017 10:35			28 Dec 2017 10:59	1
HS17120435-04	18WW17_120517	05 Dec 2017 10:50			28 Dec 2017 10:59	1
HS17120435-05	C03_120517	05 Dec 2017 13:00			28 Dec 2017 10:59	1
HS17120435-06	18CPTMW18_120517	05 Dec 2017 13:55			28 Dec 2017 10:59	1
HS17120435-07	18WW22_120517	06 Dec 2017 08:30			28 Dec 2017 10:59	1
HS17120435-08	18CPTMW19_120617	06 Dec 2017 09:30			28 Dec 2017 10:59	1
HS17120435-09	18WCPTMW19_120617_a	06 Dec 2017 09:30			28 Dec 2017 10:59	1
HS17120435-10	18WW08_120617	06 Dec 2017 10:30			28 Dec 2017 10:59	1
HS17120435-11	18CPTMW15_120617	06 Dec 2017 11:30			28 Dec 2017 10:59	1
HS17120435-12	18CPTMW07_120617	06 Dec 2017 13:40			28 Dec 2017 10:59	1

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: 123278 **Instrument: ICPMS05** **Method: SW6020**

MBLK Sample ID: **MBLK-123278** Units: **mg/L** Analysis Date: **14-Dec-2017 14:00**
Client ID: Run ID: **ICPMS05_307200** SeqNo: **4351736** PrepDate: **13-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004083	0.0100								J
Antimony	0.00100	0.00200								U
Arsenic	0.00100	0.00200								U
Barium	0.00250	0.00400								U
Beryllium	0.00100	0.00200								U
Cadmium	0.00100	0.00200								U
Calcium	0.100	0.500								U
Chromium	0.00100	0.00400								U
Cobalt	0.00100	0.00500								U
Copper	0.00200	0.00200								U
Iron	0.100	0.200								U
Lead	0.00100	0.00200								U
Magnesium	0.100	0.200								U
Manganese	0.00100	0.00500								U
Nickel	0.000669	0.00200								J
Potassium	0.100	0.200								U
Selenium	0.00100	0.00200								U
Silver	0.00100	0.00200								U
Sodium	0.100	0.200								U
Thallium	0.00100	0.00200								U
Vanadium	0.000642	0.00500								J
Zinc	0.00100	0.00400								U

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: 123278 **Instrument: ICPMS05** **Method: SW6020**

LCS Sample ID: **LCS-123278** Units: **mg/L** Analysis Date: **14-Dec-2017 14:02**
Client ID: Run ID: **ICPMS05_307200** SeqNo: **4351737** PrepDate: **13-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09145	0.0100	0.1	0	91.5	80 - 120				
Antimony	0.04568	0.00200	0.05	0	91.4	80 - 120				
Arsenic	0.04418	0.00200	0.05	0	88.4	80 - 120				
Barium	0.04295	0.00400	0.05	0	85.9	80 - 120				
Beryllium	0.04492	0.00200	0.05	0	89.8	80 - 120				
Cadmium	0.04545	0.00200	0.05	0	90.9	80 - 120				
Calcium	4.596	0.500	5	0	91.9	80 - 120				
Chromium	0.04449	0.00400	0.05	0	89.0	80 - 120				
Cobalt	0.04447	0.00500	0.05	0	88.9	80 - 120				
Copper	0.04531	0.00200	0.05	0	90.6	80 - 120				
Iron	4.327	0.200	5	0	86.5	80 - 120				
Lead	0.04885	0.00200	0.05	0	97.7	80 - 120				
Magnesium	4.407	0.200	5	0	88.1	80 - 120				
Manganese	0.04305	0.00500	0.05	0	86.1	80 - 120				
Nickel	0.04507	0.00200	0.05	0	90.1	80 - 120				
Potassium	4.478	0.200	5	0	89.6	80 - 120				
Selenium	0.04267	0.00200	0.05	0	85.3	80 - 120				
Silver	0.0448	0.00200	0.05	0	89.6	80 - 120				
Sodium	4.472	0.200	5	0	89.4	80 - 120				
Thallium	0.04535	0.00200	0.05	0	90.7	80 - 120				
Vanadium	0.04325	0.00500	0.05	0	86.5	80 - 120				
Zinc	0.04671	0.00400	0.05	0	93.4	80 - 120				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: 123278 **Instrument: ICPMS05** **Method: SW6020**

MS Sample ID: **HS17120435-01MS** Units: **mg/L** Analysis Date: **14-Dec-2017 14:12**
Client ID: **CO9_120517** Run ID: **ICPMS05_307200** SeqNo: **4351742** PrepDate: **13-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1636	0.0100	0.1	0.07045	93.2	80 - 120				
Antimony	0.04582	0.00200	0.05	0.000245	91.1	80 - 120				
Arsenic	0.04541	0.00200	0.05	0.000014	90.8	80 - 120				
Barium	1.085	0.00400	0.05	0.9274	316	80 - 120				SO
Beryllium	0.05634	0.00200	0.05	0.000063	113	80 - 120				
Cadmium	0.04493	0.00200	0.05	0.000395	89.1	80 - 120				
Calcium	297	0.500	5	277.8	383	80 - 120				SEO
Chromium	0.04576	0.00400	0.05	0.000236	91.0	80 - 120				
Cobalt	0.04237	0.00500	0.05	0.000355	84.0	80 - 120				
Copper	0.04406	0.00200	0.05	0.001741	84.6	80 - 120				
Iron	4.425	0.200	5	0.07734	87.0	80 - 120				
Lead	0.04661	0.00200	0.05	0.000619	92.0	80 - 120				
Magnesium	160.1	0.200	5	147.2	259	80 - 120				SO
Manganese	0.08496	0.00500	0.05	0.03854	92.8	80 - 120				
Nickel	0.04922	0.00200	0.05	0.007693	83.1	80 - 120				
Potassium	5.524	0.200	5	1.096	88.6	80 - 120				
Selenium	0.04524	0.00200	0.05	0.000147	90.2	80 - 120				
Silver	0.04174	0.00200	0.05	0.000001	83.5	80 - 120				
Sodium	520.4	0.200	5	479.6	817	80 - 120				SEO
Thallium	0.04291	0.00200	0.05	0.000019	85.8	80 - 120				
Vanadium	0.04646	0.00500	0.05	0.001277	90.4	80 - 120				
Zinc	0.05277	0.00400	0.05	0.008941	87.6	80 - 120				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: 123278 **Instrument: ICPMS05** **Method: SW6020**

MSD Sample ID: **HS17120435-01MSD** Units: **mg/L** Analysis Date: **14-Dec-2017 14:14**
Client ID: **CO9_120517** Run ID: **ICPMS05_307200** SeqNo: **4351743** PrepDate: **13-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1669	0.0100	0.1	0.07045	96.4	80 - 120	0.1636	1.97	20	
Antimony	0.04527	0.00200	0.05	0.000245	90.1	80 - 120	0.04582	1.2	20	
Arsenic	0.04546	0.00200	0.05	0.000014	90.9	80 - 120	0.04541	0.119	20	
Barium	1.075	0.00400	0.05	0.9274	295	80 - 120	1.085	0.969	20	SO
Beryllium	0.0586	0.00200	0.05	0.000063	117	80 - 120	0.05634	3.94	20	
Cadmium	0.04605	0.00200	0.05	0.000395	91.3	80 - 120	0.04493	2.45	20	
Calcium	292.8	0.500	5	277.8	299	80 - 120	297	1.42	20	SEO
Chromium	0.04538	0.00400	0.05	0.000236	90.3	80 - 120	0.04576	0.825	20	
Cobalt	0.04265	0.00500	0.05	0.000355	84.6	80 - 120	0.04237	0.673	20	
Copper	0.0441	0.00200	0.05	0.001741	84.7	80 - 120	0.04406	0.0885	20	
Iron	4.38	0.200	5	0.07734	86.0	80 - 120	4.425	1.03	20	
Lead	0.04635	0.00200	0.05	0.000619	91.5	80 - 120	0.04661	0.572	20	
Magnesium	161.5	0.200	5	147.2	287	80 - 120	160.1	0.874	20	SO
Manganese	0.08548	0.00500	0.05	0.03854	93.9	80 - 120	0.08496	0.613	20	
Nickel	0.04884	0.00200	0.05	0.007693	82.3	80 - 120	0.04922	0.767	20	
Potassium	5.49	0.200	5	1.096	87.9	80 - 120	5.524	0.613	20	
Selenium	0.04406	0.00200	0.05	0.000147	87.8	80 - 120	0.04524	2.66	20	
Silver	0.04186	0.00200	0.05	0.000001	83.7	80 - 120	0.04174	0.287	20	
Sodium	523.4	0.200	5	479.6	877	80 - 120	520.4	0.576	20	SEO
Thallium	0.04424	0.00200	0.05	0.000019	88.4	80 - 120	0.04291	3.05	20	
Vanadium	0.04724	0.00500	0.05	0.001277	91.9	80 - 120	0.04646	1.69	20	
Zinc	0.05267	0.00400	0.05	0.008941	87.5	80 - 120	0.05277	0.178	20	

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: 123278 **Instrument: ICPMS05** **Method: SW6020**

PDS Sample ID: **HS17120435-01PDS** Units: **mg/L** Analysis Date: **14-Dec-2017 14:16**
Client ID: **CO9_120517** Run ID: **ICPMS05_307200** SeqNo: **4351744** PrepDate: **13-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1498	0.0100	0.1	0.07045	79.4	75 - 125				
Antimony	0.08227	0.00200	0.1	0.000245	82.0	75 - 125				
Arsenic	0.08785	0.00200	0.1	0.000014	87.8	75 - 125				
Barium	1.032	0.00400	0.1	0.9274	105	75 - 125				O
Beryllium	0.0972	0.00200	0.1	0.000063	97.1	75 - 125				
Cadmium	0.08514	0.00200	0.1	0.000395	84.8	75 - 125				
Calcium	287.2	0.500	10	277.8	94.2	75 - 125				EO
Chromium	0.08781	0.00400	0.1	0.000236	87.6	75 - 125				
Cobalt	0.08188	0.00500	0.1	0.000355	81.5	75 - 125				
Copper	0.0831	0.00200	0.1	0.001741	81.4	75 - 125				
Iron	8.297	0.200	10	0.07734	82.2	75 - 125				
Lead	0.08645	0.00200	0.1	0.000619	85.8	75 - 125				
Magnesium	161	0.200	10	147.2	138	75 - 125				SO
Manganese	0.1249	0.00500	0.1	0.03854	86.4	75 - 125				
Nickel	0.08683	0.00200	0.1	0.007693	79.1	75 - 125				
Potassium	9.35	0.200	10	1.096	82.5	75 - 125				
Selenium	0.09018	0.00200	0.1	0.000147	90.0	75 - 125				
Silver	0.07849	0.00200	0.1	0.000001	78.5	75 - 125				
Sodium	507.8	0.200	10	479.6	282	75 - 125				SEO
Thallium	0.09069	0.00200	0.1	0.000019	90.7	75 - 125				
Vanadium	0.08783	0.00500	0.1	0.001277	86.6	75 - 125				
Zinc	0.09474	0.00400	0.1	0.008941	85.8	75 - 125				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: 123278 **Instrument: ICPMS05** **Method: SW6020**

SD Sample ID: **HS17120435-01SD** Units: **mg/L** Analysis Date: **14-Dec-2017 14:10**
Client ID: **CO9_120517** Run ID: **ICPMS05_307200** SeqNo: **4351741** PrepDate: **13-Dec-2017** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.07362	0.0500					0.07045	4.51	10	
Antimony	0.00500	0.0100					0.000245	0	10	U
Arsenic	0.00500	0.0100					0.000014	0	10	U
Barium	0.8599	0.0200					0.9274	7.28	10	
Beryllium	0.00500	0.0100					0.000063	0	10	U
Cadmium	0.00500	0.0100					0.000395	0	10	U
Calcium	265.3	2.50					277.8	4.51	10	
Chromium	0.00500	0.0200					0.000236	0	10	U
Cobalt	0.00500	0.0250					0.000355	0	10	U
Copper	0.00500	0.0100					0.001741	0	10	U
Iron	0.500	1.00					0.07734	0	10	U
Lead	0.00500	0.0100					0.000619	0	10	U
Magnesium	151	1.00					147.2	2.63	10	
Manganese	0.04143	0.0250					0.03854	7.51	10	
Nickel	0.01012	0.0100					0.007693	0	10	
Potassium	1.095	1.00					1.096	0.0565	10	
Selenium	0.00500	0.0100					0.000147	0	10	U
Silver	0.00500	0.0100					0.000001	0	10	U
Sodium	488.3	1.00					479.6	1.81	10	
Thallium	0.00500	0.0100					0.000019	0	10	U
Vanadium	0.00500	0.0250					0.001277	0	10	U
Zinc	0.01028	0.0200					0.008941	0	10	J

The following samples were analyzed in this batch: HS17120435-01 HS17120435-02 HS17120435-03 HS17120435-04 HS17120435-06 HS17120435-07

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: 123333 **Instrument: HG03** **Method: SW7470**

MBLK Sample ID: **MBLK-123333** Units: **mg/L** Analysis Date: **14-Dec-2017 15:41**
Client ID: Run ID: **HG03_307254** SeqNo: **4352276** PrepDate: **14-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-123333** Units: **mg/L** Analysis Date: **14-Dec-2017 15:43**
Client ID: Run ID: **HG03_307254** SeqNo: **4352277** PrepDate: **14-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00485	0.000200	0.005	0	97.0	80 - 120				

MS Sample ID: **HS17120435-02MS** Units: **mg/L** Analysis Date: **14-Dec-2017 15:53**
Client ID: **126_120517** Run ID: **HG03_307254** SeqNo: **4352545** PrepDate: **14-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0046	0.000200	0.005	0.000007	91.9	75 - 125				

MSD Sample ID: **HS17120435-02MSD** Units: **mg/L** Analysis Date: **14-Dec-2017 15:55**
Client ID: **126_120517** Run ID: **HG03_307254** SeqNo: **4352546** PrepDate: **14-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00478	0.000200	0.005	0.000007	95.5	75 - 125	0.0046	3.84	20	

The following samples were analyzed in this batch: HS17120435-01 HS17120435-02 HS17120435-03 HS17120435-04 HS17120435-06 HS17120435-07

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: R307031 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-171211** Units: **ug/L** Analysis Date: **11-Dec-2017 13:56**
Client ID: Run ID: **VOA6_307031** SeqNo: **4346935** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: R307031 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-171211** Units: **ug/L** Analysis Date: **11-Dec-2017 13:56**
Client ID: Run ID: **VOA6_307031** SeqNo: **4346935** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44.58*	*1.0*	*50*	*0*	*89.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.65*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*47.66*	*1.0*	*50*	*0*	*95.3*	*80 - 119*				
Surr: Toluene-d8	*52.13*	*1.0*	*50*	*0*	*104*	*89 - 112*				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: R307031 **Instrument: VOA6** **Method: SW8260**

LCS Sample ID: **VLCSW-171211** Units: **ug/L** Analysis Date: **11-Dec-2017 12:41**
Client ID: Run ID: **VOA6_307031** SeqNo: **4346934** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	49.71	1.0	50	0	99.4	78 - 124				
1,1,1-Trichloroethane	49.83	1.0	50	0	99.7	74 - 131				
1,1,2,2-Tetrachloroethane	46.9	1.0	50	0	93.8	71 - 121				
1,1,2-Trichloroethane	47.73	1.0	50	0	95.5	80 - 119				
1,1-Dichloroethane	48.61	1.0	50	0	97.2	77 - 125				
1,1-Dichloroethene	47.52	1.0	50	0	95.0	71 - 131				
1,1-Dichloropropene	50.48	1.0	50	0	101	79 - 125				
1,2,3-Trichlorobenzene	45.53	1.0	50	0	91.1	69 - 129				
1,2,3-Trichloropropane	42.77	1.0	50	0	85.5	73 - 122				
1,2,4-Trichlorobenzene	47.49	1.0	50	0	95.0	69 - 130				
1,2,4-Trimethylbenzene	52.44	1.0	50	0	105	76 - 124				
1,2-Dibromo-3-chloropropane	40.81	1.0	50	0	81.6	62 - 128				
1,2-Dibromoethane	49.32	1.0	50	0	98.6	77 - 121				
1,2-Dichlorobenzene	48.15	1.0	50	0	96.3	80 - 119				
1,2-Dichloroethane	46.6	1.0	50	0	93.2	73 - 128				
1,2-Dichloropropane	49.42	1.0	50	0	98.8	78 - 122				
1,3,5-Trimethylbenzene	51.85	1.0	50	0	104	75 - 124				
1,3-Dichlorobenzene	47.45	1.0	50	0	94.9	80 - 119				
1,3-Dichloropropane	46.23	1.0	50	0	92.5	80 - 119				
1,4-Dichlorobenzene	53.08	1.0	50	0	106	79 - 118				
2,2-Dichloropropane	47.23	1.0	50	0	94.5	60 - 139				
2-Butanone	91.71	2.0	100	0	91.7	56 - 143				
2-Chlorotoluene	52.61	1.0	50	0	105	79 - 122				
2-Hexanone	90.28	2.0	100	0	90.3	57 - 139				
4-Chlorotoluene	52.5	1.0	50	0	105	78 - 122				
4-Isopropyltoluene	47.52	1.0	50	0	95.0	77 - 127				
4-Methyl-2-pentanone	83.43	2.0	100	0	83.4	67 - 130				
Acetone	88.41	2.0	100	0	88.4	39 - 160				
Benzene	51.57	1.0	50	0	103	79 - 120				
Bromobenzene	49.72	1.0	50	0	99.4	80 - 120				
Bromochloromethane	55.14	1.0	50	0	110	78 - 123				
Bromodichloromethane	51.35	1.0	50	0	103	79 - 125				
Bromoform	48.56	1.0	50	0	97.1	66 - 130				
Bromomethane	47.6	1.0	50	0	95.2	53 - 141				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: R307031 **Instrument: VOA6** **Method: SW8260**

LCS Sample ID: **VLCSW-171211** Units: **ug/L** Analysis Date: **11-Dec-2017 12:41**
Client ID: Run ID: **VOA6_307031** SeqNo: **4346934** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	99.02	2.0	100	0	99.0	64 - 133				
Carbon tetrachloride	50.73	1.0	50	0	101	72 - 136				
Chlorobenzene	49.48	1.0	50	0	99.0	80 - 120				
Chloroethane	45.36	1.0	50	0	90.7	82 - 118				
Chloroform	48.71	1.0	50	0	97.4	79 - 124				
Chloromethane	49.4	1.0	50	0	98.8	50 - 139				
cis-1,2-Dichloroethene	50.4	1.0	50	0	101	78 - 123				
cis-1,3-Dichloropropene	51.01	1.0	50	0	102	75 - 124				
Dibromochloromethane	47.43	1.0	50	0	94.9	74 - 126				
Dibromomethane	48.38	1.0	50	0	96.8	79 - 123				
Dichlorodifluoromethane	50.54	1.0	50	0	101	32 - 152				
Ethylbenzene	49.29	1.0	50	0	98.6	79 - 121				
Hexachlorobutadiene	57.94	1.0	50	0	116	66 - 134				
Isopropylbenzene	49.41	1.0	50	0	98.8	72 - 131				
m,p-Xylene	97.61	2.0	100	0	97.6	80 - 121				
Methylene chloride	52.19	2.0	50	0	104	74 - 124				
Naphthalene	44.88	1.0	50	0	89.8	61 - 128				
n-Butylbenzene	48.62	1.0	50	0	97.2	75 - 128				
n-Propylbenzene	50.94	1.0	50	0	102	76 - 126				
o-Xylene	50.11	1.0	50	0	100	78 - 122				
sec-Butylbenzene	46.24	1.0	50	0	92.5	77 - 126				
Styrene	51.56	1.0	50	0	103	78 - 128				
tert-Butylbenzene	51.18	1.0	50	0	102	78 - 124				
Tetrachloroethene	51.92	1.0	50	0	104	74 - 129				
Toluene	49.26	1.0	50	0	98.5	80 - 121				
trans-1,2-Dichloroethene	51.13	1.0	50	0	102	75 - 124				
trans-1,3-Dichloropropene	49.61	1.0	50	0	99.2	73 - 127				
Trichloroethene	51.76	1.0	50	0	104	79 - 123				
Trichlorofluoromethane	46.35	1.0	50	0	92.7	65 - 141				
Vinyl chloride	45.61	1.0	50	0	91.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.39*	*1.0*	*50*	*0*	*88.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.19*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*48.23*	*1.0*	*50*	*0*	*96.5*	*80 - 119*				
Surr: Toluene-d8	*52.28*	*1.0*	*50*	*0*	*105*	*89 - 112*				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: R307031 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS17120435-01MS** Units: **ug/L** Analysis Date: **11-Dec-2017 16:25**
Client ID: **CO9_120517** Run ID: **VOA6_307031** SeqNo: **4346940** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	25.49	1.0	50	0	51.0	78 - 124				S
1,1,1-Trichloroethane	27.26	1.0	50	0	54.5	74 - 131				S
1,1,2,2-Tetrachloroethane	34.14	1.0	50	0	68.3	71 - 121				S
1,1,2-Trichloroethane	27.67	1.0	50	0	55.3	80 - 119				S
1,1-Dichloroethane	24.8	1.0	50	0	49.6	77 - 125				S
1,1-Dichloroethene	26.68	1.0	50	0	53.4	71 - 131				S
1,1-Dichloropropene	28.84	1.0	50	0	57.7	79 - 125				S
1,2,3-Trichlorobenzene	21.13	1.0	50	0	42.3	69 - 129				S
1,2,3-Trichloropropane	31.56	1.0	50	0	63.1	73 - 122				S
1,2,4-Trichlorobenzene	22.31	1.0	50	0	44.6	69 - 130				S
1,2,4-Trimethylbenzene	27.31	1.0	50	0	54.6	76 - 124				S
1,2-Dibromo-3-chloropropane	31.3	1.0	50	0	62.6	62 - 128				
1,2-Dibromoethane	29.47	1.0	50	0	58.9	77 - 121				S
1,2-Dichlorobenzene	24.9	1.0	50	0	49.8	80 - 119				S
1,2-Dichloroethane	24.67	1.0	50	0	49.3	73 - 128				S
1,2-Dichloropropane	25.16	1.0	50	0	50.3	78 - 122				S
1,3,5-Trimethylbenzene	27.13	1.0	50	0	54.3	75 - 124				S
1,3-Dichlorobenzene	24.2	1.0	50	0	48.4	80 - 119				S
1,3-Dichloropropane	26.31	1.0	50	0	52.6	80 - 119				S
1,4-Dichlorobenzene	27.13	1.0	50	0	54.3	79 - 118				S
2,2-Dichloropropane	25.35	1.0	50	0	50.7	60 - 139				S
2-Butanone	68.12	2.0	100	0	68.1	56 - 143				
2-Chlorotoluene	28.27	1.0	50	0	56.5	79 - 122				S
2-Hexanone	68.27	2.0	100	0	68.3	57 - 139				
4-Chlorotoluene	27.61	1.0	50	0	55.2	78 - 122				S
4-Isopropyltoluene	23.24	1.0	50	0	46.5	77 - 127				S
4-Methyl-2-pentanone	62.43	2.0	100	0	62.4	67 - 130				S
Acetone	64.35	2.0	100	0	64.3	39 - 160				
Benzene	26.73	1.0	50	0	53.5	79 - 120				S
Bromobenzene	27.47	1.0	50	0	54.9	80 - 120				S
Bromochloromethane	29.03	1.0	50	0	58.1	78 - 123				S
Bromodichloromethane	25.7	1.0	50	0	51.4	79 - 125				S
Bromoform	29.58	1.0	50	0	59.2	66 - 130				S
Bromomethane	15.56	1.0	50	0	31.1	53 - 141				S

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: R307031 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS17120435-01MS** Units: **ug/L** Analysis Date: **11-Dec-2017 16:25**
Client ID: **CO9_120517** Run ID: **VOA6_307031** SeqNo: **4346940** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	54.79	2.0	100	0	54.8	64 - 133				S
Carbon tetrachloride	28.38	1.0	50	0	56.8	72 - 136				S
Chlorobenzene	25.5	1.0	50	0	51.0	80 - 120				S
Chloroethane	42.28	1.0	50	0	84.6	82 - 118				
Chloroform	24.83	1.0	50	0	49.7	79 - 124				S
Chloromethane	22.88	1.0	50	0	45.8	50 - 139				S
cis-1,2-Dichloroethene	25.59	1.0	50	0	51.2	78 - 123				S
cis-1,3-Dichloropropene	25.43	1.0	50	0	50.9	75 - 124				S
Dibromochloromethane	26.16	1.0	50	0	52.3	74 - 126				S
Dibromomethane	26.71	1.0	50	0	53.4	79 - 123				S
Dichlorodifluoromethane	25.38	1.0	50	0	50.8	32 - 152				
Ethylbenzene	25.23	1.0	50	0	50.5	79 - 121				S
Hexachlorobutadiene	23.24	1.0	50	0	46.5	66 - 134				S
Isopropylbenzene	24.48	1.0	50	0	49.0	72 - 131				S
m,p-Xylene	50.36	2.0	100	0	50.4	80 - 121				S
Methylene chloride	25.74	2.0	50	0	51.5	74 - 124				S
Naphthalene	22.94	1.0	50	0	45.9	61 - 128				S
n-Butylbenzene	22.7	1.0	50	0	45.4	75 - 128				S
n-Propylbenzene	27.38	1.0	50	0	54.8	76 - 126				S
o-Xylene	25.71	1.0	50	0	51.4	78 - 122				S
sec-Butylbenzene	23.11	1.0	50	0	46.2	77 - 126				S
Styrene	25.52	1.0	50	0	51.0	78 - 128				S
tert-Butylbenzene	26.69	1.0	50	0	53.4	78 - 124				S
Tetrachloroethene	28.54	1.0	50	0	57.1	74 - 129				S
Toluene	26.64	1.0	50	0	53.3	80 - 121				S
trans-1,2-Dichloroethene	26.73	1.0	50	0	53.5	75 - 124				S
trans-1,3-Dichloropropene	25.12	1.0	50	0	50.2	73 - 127				S
Trichloroethene	27.63	1.0	50	0	55.3	79 - 123				S
Trichlorofluoromethane	29.38	1.0	50	0	58.8	65 - 141				S
Vinyl chloride	24.67	1.0	50	0	49.3	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*43.84*	*1.0*	*50*	*0*	*87.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.84*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*46.53*	*1.0*	*50*	*0*	*93.1*	*80 - 119*				
Surr: Toluene-d8	*52.67*	*1.0*	*50*	*0*	*105*	*89 - 112*				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: R307031 **Instrument: VOA6** **Method: SW8260**

MSD Sample ID: **HS17120435-01MSD** Units: **ug/L** Analysis Date: **11-Dec-2017 16:49**
Client ID: **CO9_120517** Run ID: **VOA6_307031** SeqNo: **4346941** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	31.81	1.0	50	0	63.6	78 - 124	25.49	22	20	SR
1,1,1-Trichloroethane	33.28	1.0	50	0	66.6	74 - 131	27.26	19.9	20	S
1,1,2,2-Tetrachloroethane	42.81	1.0	50	0	85.6	71 - 121	34.14	22.5	20	R
1,1,2-Trichloroethane	35.36	1.0	50	0	70.7	80 - 119	27.67	24.4	20	SR
1,1-Dichloroethane	31.32	1.0	50	0	62.6	77 - 125	24.8	23.3	20	SR
1,1-Dichloroethene	31.9	1.0	50	0	63.8	71 - 131	26.68	17.8	20	S
1,1-Dichloropropene	34.66	1.0	50	0	69.3	79 - 125	28.84	18.3	20	S
1,2,3-Trichlorobenzene	31.43	1.0	50	0	62.9	69 - 129	21.13	39.2	20	SR
1,2,3-Trichloropropane	38.74	1.0	50	0	77.5	73 - 122	31.56	20.4	20	R
1,2,4-Trichlorobenzene	32.67	1.0	50	0	65.3	69 - 130	22.31	37.7	20	SR
1,2,4-Trimethylbenzene	32.98	1.0	50	0	66.0	76 - 124	27.31	18.8	20	S
1,2-Dibromo-3-chloropropane	42.1	1.0	50	0	84.2	62 - 128	31.3	29.4	20	R
1,2-Dibromoethane	38.43	1.0	50	0	76.9	77 - 121	29.47	26.4	20	SR
1,2-Dichlorobenzene	32.43	1.0	50	0	64.9	80 - 119	24.9	26.3	20	SR
1,2-Dichloroethane	32.93	1.0	50	0	65.9	73 - 128	24.67	28.7	20	SR
1,2-Dichloropropane	33.33	1.0	50	0	66.7	78 - 122	25.16	27.9	20	SR
1,3,5-Trimethylbenzene	32.74	1.0	50	0	65.5	75 - 124	27.13	18.8	20	S
1,3-Dichlorobenzene	30.63	1.0	50	0	61.3	80 - 119	24.2	23.4	20	SR
1,3-Dichloropropane	34.78	1.0	50	0	69.6	80 - 119	26.31	27.7	20	SR
1,4-Dichlorobenzene	33.77	1.0	50	0	67.5	79 - 118	27.13	21.8	20	SR
2,2-Dichloropropane	31.46	1.0	50	0	62.9	60 - 139	25.35	21.5	20	R
2-Butanone	92.27	2.0	100	0	92.3	56 - 143	68.12	30.1	20	R
2-Chlorotoluene	33.5	1.0	50	0	67.0	79 - 122	28.27	16.9	20	S
2-Hexanone	87.76	2.0	100	0	87.8	57 - 139	68.27	25	20	R
4-Chlorotoluene	33.95	1.0	50	0	67.9	78 - 122	27.61	20.6	20	SR
4-Isopropyltoluene	28.46	1.0	50	0	56.9	77 - 127	23.24	20.2	20	SR
4-Methyl-2-pentanone	81.79	2.0	100	0	81.8	67 - 130	62.43	26.8	20	R
Acetone	86.15	2.0	100	0	86.1	39 - 160	64.35	29	20	R
Benzene	33.67	1.0	50	0	67.3	79 - 120	26.73	23	20	SR
Bromobenzene	32.96	1.0	50	0	65.9	80 - 120	27.47	18.2	20	S
Bromochloromethane	40.07	1.0	50	0	80.1	78 - 123	29.03	31.9	20	R
Bromodichloromethane	34.48	1.0	50	0	69.0	79 - 125	25.7	29.1	20	SR
Bromoform	38.61	1.0	50	0	77.2	66 - 130	29.58	26.5	20	R
Bromomethane	22.46	1.0	50	0	44.9	53 - 141	15.56	36.3	20	SR

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: R307031 **Instrument: VOA6** **Method: SW8260**

MSD Sample ID: **HS17120435-01MSD** Units: **ug/L** Analysis Date: **11-Dec-2017 16:49**
Client ID: **CO9_120517** Run ID: **VOA6_307031** SeqNo: **4346941** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	67.39	2.0	100	0	67.4	64 - 133	54.79	20.6	20	R
Carbon tetrachloride	34.25	1.0	50	0	68.5	72 - 136	28.38	18.7	20	S
Chlorobenzene	31.74	1.0	50	0	63.5	80 - 120	25.5	21.8	20	SR
Chloroethane	33.29	1.0	50	0	66.6	82 - 118	42.28	23.8	20	SR
Chloroform	31.65	1.0	50	0	63.3	79 - 124	24.83	24.2	20	SR
Chloromethane	27.83	1.0	50	0	55.7	50 - 139	22.88	19.5	20	
cis-1,2-Dichloroethene	32.03	1.0	50	0	64.1	78 - 123	25.59	22.3	20	SR
cis-1,3-Dichloropropene	34.15	1.0	50	0	68.3	75 - 124	25.43	29.3	20	SR
Dibromochloromethane	33.94	1.0	50	0	67.9	74 - 126	26.16	25.9	20	SR
Dibromomethane	36.22	1.0	50	0	72.4	79 - 123	26.71	30.2	20	SR
Dichlorodifluoromethane	29.59	1.0	50	0	59.2	32 - 152	25.38	15.3	20	
Ethylbenzene	31.85	1.0	50	0	63.7	79 - 121	25.23	23.2	20	SR
Hexachlorobutadiene	31.27	1.0	50	0	62.5	66 - 134	23.24	29.5	20	SR
Isopropylbenzene	30.96	1.0	50	0	61.9	72 - 131	24.48	23.4	20	SR
m,p-Xylene	62.33	2.0	100	0	62.3	80 - 121	50.36	21.2	20	SR
Methylene chloride	33.77	2.0	50	0	67.5	74 - 124	25.74	27	20	SR
Naphthalene	35.42	1.0	50	0	70.8	61 - 128	22.94	42.8	20	R
n-Butylbenzene	28.29	1.0	50	0	56.6	75 - 128	22.7	21.9	20	SR
n-Propylbenzene	32.68	1.0	50	0	65.4	76 - 126	27.38	17.6	20	S
o-Xylene	31.67	1.0	50	0	63.3	78 - 122	25.71	20.8	20	SR
sec-Butylbenzene	28.56	1.0	50	0	57.1	77 - 126	23.11	21.1	20	SR
Styrene	32.83	1.0	50	0	65.7	78 - 128	25.52	25.1	20	SR
tert-Butylbenzene	32.56	1.0	50	0	65.1	78 - 124	26.69	19.8	20	S
Tetrachloroethene	34.57	1.0	50	0	69.1	74 - 129	28.54	19.1	20	S
Toluene	31.71	1.0	50	0	63.4	80 - 121	26.64	17.4	20	S
trans-1,2-Dichloroethene	33.09	1.0	50	0	66.2	75 - 124	26.73	21.3	20	SR
trans-1,3-Dichloropropene	34.6	1.0	50	0	69.2	73 - 127	25.12	31.7	20	SR
Trichloroethene	35.28	1.0	50	0	70.6	79 - 123	27.63	24.3	20	SR
Trichlorofluoromethane	34.94	1.0	50	0	69.9	65 - 141	29.38	17.3	20	
Vinyl chloride	29.85	1.0	50	0	59.7	58 - 137	24.67	19	20	
Surr: 1,2-Dichloroethane-d4	*48.06*	*1.0*	*50*	*0*	*96.1*	*81 - 118*	*43.84*	*9.19*	*20*	
Surr: 4-Bromofluorobenzene	*54.24*	*1.0*	*50*	*0*	*108*	*85 - 114*	*51.84*	*4.52*	*20*	
Surr: Dibromofluoromethane	*49.39*	*1.0*	*50*	*0*	*98.8*	*80 - 119*	*46.53*	*5.95*	*20*	
Surr: Toluene-d8	*52.85*	*1.0*	*50*	*0*	*106*	*89 - 112*	*52.67*	*0.338*	*20*	

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

QC BATCH REPORT

Batch ID: R307031 **Instrument: VOA6** **Method: SW8260**

The following samples were analyzed in this batch:

HS17120435-01	HS17120435-02	HS17120435-03	HS17120435-04
HS17120435-05	HS17120435-06	HS17120435-07	HS17120435-08
HS17120435-09	HS17120435-10	HS17120435-11	HS17120435-12
HS17120435-13			

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: **HS17120435**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

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

ALS Group USA, Corp Date: 28-Dec-17

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS17120435
Date/Time Received: **07-Dec-2017 08:50**
Received by: **JRM**

Checklist completed by: *Cesar A. Lira* eSignature 8-Dec-2017 Date
Reviewed by: *Sonia West* eSignature 11-Dec-2017 Date

Matrices: **WATER**
Carrier name: **FedEx First Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.3C/1.6C UC/C	IR25	
Cooler(s)/Kit(s):	43519		
Date/Time sample(s) sent to storage:	12/7/2017 1900		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: Samples refrigerated prior to login.
Sample IDs differ, COC: 18WW22_120517 Label: 18WW22_120617
Collected 12/6/2017 08:30; logged per COC instructions.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: 1 of 2

Project/Phase No: NWO1312.0150

COC Number(1):

LIMS Number:

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Sample Analysis Requested (5) | Quality Assurance Samples (6)

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	PERCHLORATE	TOTAL METALS	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
C09_120517		05 DEC 2017	0825	-			WG	5	X	X	X				
126_120517		05 DEC 2017	0940	-			WG	5	X	X	X				
C08_120517		05 DEC 2017	1035	-			WG	5	X	X	X				
18WW17_120517		05 DEC 2017	1050				WG	5	X	X	X				
C03_120517		05 DEC 2017	1300				WG	4	X	X					
18CPTMW18_120517		05 DEC 2017	1355	-			WG	5	X	X	X				
18WW22_120517		06 DEC 2017	0830	-			WG	5	X	X	X				
18CPTMW19_120617		06 DEC 2017	0930	-			WG	4	X	X					
18CPTMW19_120617_a		06 DEC 2017	0930	-			WG	4	X	X					
18WW08_120617		06 DEC 2017	1030	-			WG	4	X	X					
18CPTMW15_120617		06 DEC 2017	1130	-			WG	4	X	X					

HS17120435
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS:

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/6/17	1430	1. J.M	12/7/17	08:50
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

Method of Shipment:

Fed Ex Airbill Number:

Analytical Lab: ALS 10450 Stancliff Rd, Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

Cooler 43519 1K25
Temp 1.3 CF0.3

ALS

00870610

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Sample Analysis Requested (5): Number of containers	VOC	PERCHLORATE	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
18CPTMW07_20617		06 DEC 2017	1340	-			WG	4	X	X				
TRIP BLANK		06 DEC 2017		-			WG	2	X					
				-										
				-										
				-										
				-										
				-										
				-										
				-										

HS17120435
Bhate Environmental Associates, Inc.
LHAAP 18 24

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	Scott Beesinger	12/6/17	1430	[illegible] JM	12/7/17	0850
2.						
3.						

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

Cooler 43519 1425

Temp 1.3 CF0.3

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

43519

CUSTODY SEAL

Date: 12/6/17 Time: 1430
Name: Sco # Beesinger
Company: BHATS

Seal Broken By: GM
Date: 12/07/17

43519 DEC 07 2017

FedEx
TRK# 0221 7376 9750 3410

THU - 07 DEC 10:30A
PRIORITY OVERNIGHT

AB SGRA 43519

77099
TX-US
IAH

FID 162785 06DEC17 GGGA 546C1/574C/0C8A

Volatile Organics Raw Data

Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
ALS WO# HS17120435

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120435

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-171211	96	89	104	102	0
02	VBLKW-0171211	95	89	104	101	0
03	HS17120435-01	95	90	108	107	0
04	HS17120435-04	96	92	102	101	0
05	HS17120435-01	93	88	105	104	0
06	HS17120435-01	99	96	106	108	0
07	HS17120435-13	98	92	101	99	0
08	HS17120435-02	95	91	104	103	0
09	HS17120435-03	92	89	107	105	0
10	HS17120435-05	98	96	103	102	0
11	HS17120435-06	99	98	106	106	0
12	HS17120435-07	97	96	106	105	0
13	HS17120435-08	96	94	106	105	0
14	HS17120435-09	94	92	105	104	0
15	HS17120435-10	98	92	104	101	0
16	HS17120435-11	97	92	106	104	0
17	HS17120435-12	97	93	104	104	0
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(71-125)
SMC3 (TOL)	= Toluene-d8	(78-123)
OTHER	= 4-Bromofluorobenzene	(70-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120435

Matrix Spike - Sample No.: VSTD-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Bromochloromethane	50.00	50.11	100	80-120
Vinyl Chloride	50.00	48.72	97	80-120
Chloromethane	50.00	47.84	96	80-120
Bromomethane	50.00	51.19	102	80-120
Chloroethane	50.00	48.63	97	80-120
Methylene Chloride	50.00	48.37	97	80-120
Acetone	100.00	93.55	94	80-120
Carbon Disulfide	100.00	94.09	94	80-120
1,1-Dichloroethene	50.00	48.21	96	80-120
trans-1,2-Dichloroethen	50.00	48.12	96	80-120
Carbon Tetrachloride	50.00	48.57	97	80-120
Bromodichloromethane	50.00	46.08	92	80-120
1,1-Dichloroethane	50.00	45.86	92	80-120
1,2-Dichloropropane	50.00	45.43	91	80-120
2-Butanone	100.00	94.22	94	80-120
cis-1,3-Dichloropropene	50.00	45.33	91	80-120
Dibromochloromethane	50.00	43.12	86	80-120
1,1,2-Trichloroethane	50.00	43.24	86	80-120
cis-1,2-Dichloroethene	50.00	46.51	93	80-120
Benzene	50.00	45.97	92	80-120
Chloroform	50.00	45.56	91	80-120
trans-1,3-Dichloroprope	50.00	44.84	90	80-120
Bromoform	50.00	43.36	87	80-120
1,1,1-Trichloroethane	50.00	47.11	94	80-120
4-Methyl-2-Pentanone	100.00	81.65	82	80-120
2-Hexanone	100.00	90.37	90	80-120
1,2-Dichloroethane	50.00	44.55	89	80-120
1,1,2,2-Tetrachloroetha	50.00	47.49	95	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120435

Matrix Spike - Sample No.: VSTD-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Trichloroethene	50.00	46.61	93	80-120
Toluene	50.00	43.08	86	80-120
Dichlorodifluoromethane	50.00	53.36	107	80-120
Trichlorofluoromethane	50.00	52.34	105	80-120
Tetrachloroethene	50.00	46.39	93	80-120
1,2-Dibromoethane	50.00	44.45	89	80-120
Chlorobenzene	50.00	45.40	91	80-120
1,3-Dichlorobenzene	50.00	41.26	82	80-120
1,4-Dichlorobenzene	50.00	46.67	93	80-120
Ethylbenzene	50.00	45.53	91	80-120
1,2-Dichlorobenzene	50.00	42.31	85	80-120
m,p-Xylenes	100.00	89.02	89	80-120
o-Xylene	50.00	42.08	84	80-120
Styrene	50.00	44.14	88	80-120
2,2-Dichloropropane	50.00	46.16	92	80-120
1,1-Dichloropropene	50.00	47.86	96	80-120
Dibromomethane	50.00	45.52	91	80-120
1,3-Dichloropropane	50.00	43.71	87	80-120
1,1,1,2-Tetrachloroetha	50.00	45.18	90	80-120
Isopropylbenzene	50.00	41.42	83	80-120
Bromobenzene	50.00	43.16	86	80-120
1,2,3-Trichloropropane	50.00	44.45	89	80-120
n-Propylbenzene	50.00	46.32	93	80-120
2-Chlorotoluene	50.00	47.46	95	80-120
1,3,5-Trimethylbenzene	50.00	45.71	91	80-120
4-Chlorotoluene	50.00	46.42	93	80-120
tert-Butylbenzene	50.00	45.59	91	80-120
1,2,4-Trimethylbenzene	50.00	45.96	92	80-120

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

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120435

Matrix Spike - Sample No.: VSTD-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
sec-Butylbenzene	50.00	42.21	84	80-120
p-Isopropyltoluene	50.00	42.07	84	80-120
n-Butylbenzene	50.00	46.59	93	80-120
1,2-Dibromo-3-Chloropro	50.00	42.38	85	80-120
1,2,4-Trichlorobenzene	50.00	43.79	88	80-120
Hexachlorobutadiene	50.00	52.84	106	80-120
Naphthalene	50.00	45.17	90	80-120
1,2,3-Trichlorobenzene	50.00	42.55	85	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120435

Lab File ID: X120401 BFB Injection Date: 12/04/17

Instrument ID: VOA6 BFB Injection Time: 1034

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.5
75	30.0 - 60.0% of mass 95	47.8
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.6 (0.8)1
174	Greater than 50.0% of mass 95	75.9
175	5.0 - 9.0% of mass 174	5.4 (7.1)1
176	95.0 - 101.0% of mass 174	74.8 (98.6)1
177	5.0 - 9.0% of mass 176	4.8 (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
01	VSTD000.5	VSTD000.5	X120403	12/04/17	1134
02	VSTD001	VSTD001	X120404	12/04/17	1224
03	VSTD002	VSTD002	X120405	12/04/17	1249
04	VSTD005	VSTD005	X120406	12/04/17	1313
05	VSTD020	VSTD020	X120407	12/04/17	1338
06	VSTD050	VSTD050	X120408	12/04/17	1403
07	VSTD100	VSTD100	X120409	12/04/17	1428
08	VSTD150	VSTD150	X120410	12/04/17	1452
09	VSTD200	VSTD200	X120411	12/04/17	1517
10	VSTD-ICV	VSTD-ICV	X120414	12/04/17	1632
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120435

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

LAB FILE ID: RF0.5: X120403 RF1: X120404 RF2: X120405
RF5: X120406 RF20: X120407 RF50: X120408

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Bromochloromethane	1301	2153	4229	9806	33389	80360
Vinyl Chloride	0.832	0.823	0.771	0.737	0.610	0.689
Chloromethane	0.899	0.958	0.874	0.772	0.679	0.735
Bromomethane	0.521	0.480	0.513	0.457	0.384	0.421
Chloroethane	0.494	0.459	0.453	0.396	0.362	0.414
Methylene Chloride	3056	6341	10133	22892	71507	180238
Acetone	3611	4847	7138	13572	39992	90875
Carbon Disulfide	1.872	1.786	1.749	1.582	1.299	1.459
1,1-Dichloroethene	0.599	0.560	0.586	0.518	0.435	0.486
trans-1,2-Dichloroethene	0.643	0.594	0.623	0.582	0.494	0.543
Carbon Tetrachloride	0.443	0.420	0.429	0.390	0.324	0.359
Bromodichloromethane	0.606	0.559	0.546	0.520	0.454	0.480
1,1-Dichloroethane	1.290	1.326	1.163	1.094	0.981	1.033
1,2-Dichloropropane	0.501	0.438	0.431	0.394	0.366	0.366
2-Butanone	0.217	0.270	0.235	0.247	0.244	0.253
cis-1,3-Dichloropropene	0.714	0.707	0.651	0.642	0.562	0.580
Dibromochloromethane	0.520	0.536	0.459	0.458	0.409	0.393
1,1,2-Trichloroethane	0.372	0.335	0.366	0.338	0.299	0.316
cis-1,2-Dichloroethene	0.726	0.782	0.710	0.648	0.590	0.623
Benzene	1.690	1.644	1.474	1.441	1.254	1.327
Chloroform	1.277	1.222	1.175	1.099	0.967	1.010
trans-1,3-Dichloropropene	0.641	0.594	0.617	0.540	0.494	0.532
Bromoform	0.312	0.292	0.288	0.280	0.255	0.256
1,1,1-Trichloroethane	0.903	0.877	0.897	0.818	0.684	0.759
4-Methyl-2-Pentanone	0.506	0.430	0.480	0.424	0.403	0.376
2-Hexanone	0.415	0.396	0.384	0.382	0.366	0.367
1,2-Dichloroethane	0.679	0.612	0.541	0.529	0.466	0.488
1,1,2,2-Tetrachloroethane	2797	4996	9539	24724	81404	193227
Trichloroethene	0.390	0.356	0.372	0.338	0.294	0.316
Toluene	1.872	1.777	1.845	1.566	1.396	1.448
Dichlorodifluoromethane	0.526	0.439	0.552	0.497	0.378	0.497
Trichlorofluoromethane	0.770	0.653	0.774	0.672	0.556	0.681
Tetrachloroethene	0.286	0.239	0.285	0.242	0.202	0.227
1,2-Dibromoethane	0.428	0.418	0.404	0.388	0.358	0.350
Chlorobenzene	1.160	1.120	1.052	0.985	0.893	0.908
1,3-Dichlorobenzene	1.595	1.725	1.463	1.367	1.229	1.212
1,4-Dichlorobenzene	3391	6725	11635	29989	97637	253361
Ethylbenzene	0.577	0.570	0.518	0.488	0.423	0.440
1,2-Dichlorobenzene	1.434	1.704	1.378	1.364	1.156	1.201
m,p-Xylenes	0.693	0.671	0.636	0.586	0.512	0.528
o-Xylene	0.681	0.670	0.623	0.580	0.526	0.537
Styrene	1.182	1.153	1.078	1.059	0.973	1.000
2,2-Dichloropropane	1.023	1.042	0.962	0.850	0.724	0.805
1,1-Dichloropropene	0.500	0.519	0.503	0.440	0.367	0.416

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712043

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

LAB FILE ID: RF0.5: X120403 RF1: X120404 RF2: X120405
RF5: X120406 RF20: X120407 RF50: X120408

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Dibromomethane	0.307	0.273	0.252	0.257	0.230	0.234
1,3-Dichloropropane	0.792	0.795	0.779	0.708	0.630	0.669
1,1,1,2-Tetrachloroethane	0.422	0.413	0.374	0.361	0.326	0.328
Isopropylbenzene	1.229	1.370	1.247	1.139	0.985	1.032
Bromobenzene	1.098	1.077	0.933	0.916	0.778	0.820
1,2,3-Trichloropropane	1.595	1.434	1.349	1.378	1.168	1.182
n-Propylbenzene	7180	14911	26888	66662	210434	543610
2-Chlorotoluene	4501	11293	18394	45763	149733	380992
1,3,5-Trimethylbenzene	5073	10498	17497	46063	144848	373055
4-Chlorotoluene	5835	12435	21715	56039	172685	450798
tert-Butylbenzene	3538	7255	12489	31609	111001	264880
1,2,4-Trimethylbenzene	5307	10904	18804	46656	171210	403355
sec-Butylbenzene	2.486	2.426	2.130	2.015	1.755	1.775
p-Isopropyltoluene	2.126	2.162	1.889	1.705	1.530	1.584
n-Butylbenzene	1.435	1.714	1.457	1.382	1.240	1.388
1,2-Dibromo-3-Chloropropane	0.158	0.144	0.141	0.138	0.121	0.128
1,2,4-Trichlorobenzene	345	1060	2320	8175	33731	87045
Hexachlorobutadiene	307	674	1825	4245	11677	31516
Naphthalene	1819	4149	6458	16391	84834	235418
1,2,3-Trichlorobenzene	411	1132	1695	6192	25883	66722
Dibromofluoromethane	2995	3914	8330	21067	78949	185772
1,2-Dichloroethane-d4	4185	5683	10983	26603	100528	237722
Toluene-d8	11184	14151	31479	72459	272481	652586
4-Bromofluorobenzene	4203	5522	10824	26717	97863	233818

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712043

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

LAB FILE ID: RF100: X120409 RF150: X120410 RF200: X120411

COMPOUND	RF100	RF150	RF200
Bromochloromethane	152708	212980	292625
Vinyl Chloride	0.718	0.730	0.712
Chloromethane	0.771	0.761	0.789
Bromomethane	0.430	0.432	0.440
Chloroethane	0.420	0.411	0.405
Methylene Chloride	359875	506476	694800
Acetone	182637	267969	361044
Carbon Disulfide	1.497	1.486	1.447
1,1-Dichloroethene	0.480	0.480	0.465
trans-1,2-Dichloroethene	0.561	0.548	0.551
Carbon Tetrachloride	0.371	0.355	0.354
Bromodichloromethane	0.488	0.453	0.476
1,1-Dichloroethane	1.058	1.030	1.024
1,2-Dichloropropane	0.371	0.352	0.369
2-Butanone	0.262	0.258	0.270
cis-1,3-Dichloropropene	0.585	0.583	0.607
Dibromochloromethane	0.411	0.358	0.441
1,1,2-Trichloroethane	0.308	0.263	0.314
cis-1,2-Dichloroethene	0.634	0.612	0.613
Benzene	1.343	1.278	1.326
Chloroform	1.030	0.997	1.020
trans-1,3-Dichloropropene	0.515	0.462	0.518
Bromoform	0.267	0.239	0.285
1,1,1-Trichloroethane	0.785	0.780	0.774
4-Methyl-2-Pentanone	0.410	0.388	0.435
2-Hexanone	0.388	0.358	0.413
1,2-Dichloroethane	0.496	0.468	0.493
1,1,2,2-Tetrachloroethane	399608	575153	787284
Trichloroethene	0.321	0.307	0.313
Toluene	1.512	1.300	1.538
Dichlorodifluoromethane	0.508	0.531	0.503
Trichlorofluoromethane	0.680	0.695	0.657
Tetrachloroethene	0.230	0.211	0.227
1,2-Dibromoethane	0.367	0.316	0.352
Chlorobenzene	0.958	0.882	0.929
1,3-Dichlorobenzene	1.220	1.155	1.254
1,4-Dichlorobenzene	509536	726487	1008432
Ethylbenzene	0.467	0.436	0.456
1,2-Dichlorobenzene	1.220	1.162	1.262
m,p-Xylenes	0.563	0.520	0.542
o-Xylene	0.571	0.509	0.562
Styrene	1.060	0.942	1.010
2,2-Dichloropropane	0.824	0.819	0.816
1,1-Dichloropropene	0.430	0.416	0.420

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712043

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

LAB FILE ID: RF100: X120409 RF150: X120410 RF200: X120411

COMPOUND	RF100	RF150	RF200
Dibromomethane	0.239	0.221	0.229
1,3-Dichloropropane	0.644	0.556	0.683
1,1,1,2-Tetrachloroethane	0.338	0.320	0.338
Isopropylbenzene	1.109	1.002	1.161
Bromobenzene	0.832	0.782	0.859
1,2,3-Trichloropropane	1.248	1.198	1.279
n-Propylbenzene	1159416	1664464	2219188
2-Chlorotoluene	788760	1114234	1527940
1,3,5-Trimethylbenzene	778968	1118942	1525239
4-Chlorotoluene	937994	1335693	1835422
tert-Butylbenzene	549903	808476	1072881
1,2,4-Trimethylbenzene	829267	1192916	1638094
sec-Butylbenzene	1.868	1.811	1.887
p-Isopropyltoluene	1.629	1.568	1.646
n-Butylbenzene	1.422	1.374	1.426
1,2-Dibromo-3-Chloropropane	0.127	0.125	0.134
1,2,4-Trichlorobenzene	188818	277618	393710
Hexachlorobutadiene	58518	89042	123984
Naphthalene	565219	850255	1215604
1,2,3-Trichlorobenzene	152500	227515	320961
Dibromofluoromethane	379572	535487	707188
1,2-Dichloroethane-d4	487421	686425	945480
Toluene-d8	1363184		
4-Bromofluorobenzene	479001		

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712043

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
Bromochloromethane	LINR	-2.01e-002	3.81445346		0.9990174	0.9900000
Vinyl Chloride	AVRG		0.73583971		9.231	15.000
Chloromethane	AVRG		0.80424255		10.962	15.000
Bromomethane	AVRG		0.45298672		9.810	15.000
Chloroethane	AVRG		0.42379603		9.248	15.000
Methylene Chloride	LINR	-6.17e-003	1.60383629		0.9992143	0.9900000
Acetone	LINR	-3.68e-002	6.18995628		0.9994341	0.9900000
Carbon Disulfide	AVRG		1.57518724		11.942	15.000
1,1-Dichloroethene	AVRG		0.51194074		11.204	15.000
trans-1,2-Dichloroethene	AVRG		0.57110424		7.881	15.000
Carbon Tetrachloride	AVRG		0.38278820		10.546	15.000
Bromodichloromethane	AVRG		0.50920970		10.290	15.000
1,1-Dichloroethane	AVRG		1.11123467		11.086	15.000
1,2-Dichloropropane	AVRG		0.39874575		12.267	15.000
2-Butanone	AVRG		0.25076355		6.927	15.000
cis-1,3-Dichloropropene	AVRG		0.62567698		9.000	15.000
Dibromochloromethane	AVRG		0.44275505		13.119	15.000
1,1,2-Trichloroethane	AVRG		0.32348280		10.473	15.000
cis-1,2-Dichloroethene	AVRG		0.65980875		9.802	15.000
Benzene	AVRG		1.41975781		11.073	15.000
Chloroform	AVRG		1.08866124		10.164	15.000
trans-1,3-Dichloropropene	AVRG		0.54598559		10.862	15.000
Bromoform	AVRG		0.27489566		8.216	15.000
1,1,1-Trichloroethane	AVRG		0.80867113		8.969	15.000
4-Methyl-2-Pentanone	AVRG		0.42791508		9.767	15.000
2-Hexanone	AVRG		0.38536176		5.202	15.000
1,2-Dichloroethane	AVRG		0.53026532		13.562	15.000
1,1,2,2-Tetrachloroethane	LINR	7.116e-003	0.99148021		0.9983112	0.9900000
Trichloroethene	AVRG		0.33409996		9.654	15.000
Toluene	AVRG		1.58371512		12.825	15.000
Dichlorodifluoromethane	AVRG		0.49227696		10.751	15.000
Trichlorofluoromethane	AVRG		0.68226608		9.532	15.000
Tetrachloroethene	AVRG		0.23885614		12.287	15.000
1,2-Dibromoethane	AVRG		0.37583337		9.666	15.000
Chlorobenzene	AVRG		0.98741528		10.268	15.000
1,3-Dichlorobenzene	AVRG		1.35785719		14.530	15.000
1,4-Dichlorobenzene	LINR	1.072e-002	0.77602682		0.9977073	0.9900000
Ethylbenzene	AVRG		0.48611172		11.762	15.000
1,2-Dichlorobenzene	AVRG		1.32039414		13.255	15.000
m,p-Xylenes	AVRG		0.58351137		11.637	15.000
o-Xylene	AVRG		0.58430138		10.520	15.000
Styrene	AVRG		1.05080343		7.586	15.000
2,2-Dichloropropane	AVRG		0.87382794		12.458	15.000
1,1-Dichloropropene	AVRG		0.44582181		11.339	15.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712043

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Dibromomethane	AVRG		0.24903857		10.820	15.000
1,3-Dichloropropane	AVRG		0.69533606		11.759	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.35798498		10.654	15.000
Isopropylbenzene	AVRG		1.14144458		11.088	15.000
Bromobenzene	AVRG		0.89949808		13.240	15.000
1,2,3-Trichloropropane	AVRG		1.31459908		10.637	15.000
n-Propylbenzene	LINR	1.001e-002	0.34770480		0.9990166	0.9900000
2-Chlorotoluene	LINR	7.454e-003	0.50976189		0.9981772	0.9900000
1,3,5-Trimethylbenzene	LINR	1.302e-002	0.50999412		0.9984176	0.9900000
4-Chlorotoluene	LINR	1.293e-002	0.42463012		0.9980663	0.9900000
tert-Butylbenzene	LINR	6.39e-003	0.72066260		0.9993746	0.9900000
1,2,4-Trimethylbenzene	LINR	8.838e-003	0.47674138		0.9982157	0.9900000
sec-Butylbenzene	AVRG		2.01712245		13.678	15.000
p-Isopropyltoluene	AVRG		1.76006192		13.702	15.000
n-Butylbenzene	AVRG		1.42651618		8.751	15.000
1,2-Dibromo-3-Chloropropane	AVRG		0.13513307		8.381	15.000
1,2,4-Trichlorobenzene	LINR	5.474e-002	1.98938576		0.9959177	0.9900000
Hexachlorobutadiene	LINR	1.578e-002	6.35628609		0.9967279	0.9900000
Naphthalene	2ORDR	2.813e-002	0.80598534	-2.85e-002	0.9988618	0.9900000
1,2,3-Trichlorobenzene	LINR	6.62e-002	2.43381219		0.9954426	0.9900000
Dibromofluoromethane	LINR	-9.8e-003	1.55201840		0.9996990	0.9900000
1,2-Dichloroethane-d4	LINR	3.623e-003	1.17768091		0.9990874	0.9900000
Toluene-d8	2ORDR	-9.88e-003	0.69906232	-2.01e-002	0.9998391	0.9900000
4-Bromofluorobenzene	2ORDR	-9.96e-003	1.92592378	-0.1055573	0.9998690	0.9900000

FORM VI VOA

MSVOA06 -Logbook

Batch: 30159
Date: 12-04-2017
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-04-2017 10:34 am	1.00	50 mL	50 mL	X120401.D	Liquid	Y	NA
2	*Auto find/ purged* VSTD000.25	ICAL1	12-04-2017 10:44 am	1.00	50 mL	50 mL	X120402.D	Liquid	Y	NA
3	*0.1 uL cal std/100 mL DI* VSTD000.5	ICAL2	12-04-2017 11:34 am	1.00	50 mL	50 mL	X120403.D	Liquid	Y	NA
4	*0.10 uL cal std/50 mL DI* VSTD001	ICAL3	12-04-2017 12:24 pm	1.00	50 mL	50 mL	X120404.D	Liquid	Y	NA
5	*0.20 uL cal std/50 mL DI* VSTD002	ICAL4	12-04-2017 12:49 pm	1.00	50 mL	50 mL	X120405.D	Liquid	Y	NA
6	*0.40 uL cal std/50 mL DI* VSTD005	ICAL5	12-04-2017 01:13 pm	1.00	50 mL	50 mL	X120406.D	Liquid	Y	NA
7	*1.0 uL cal std/50 mL DI* VSTD020	ICAL6	12-04-2017 01:38 pm	1.00	50 mL	50 mL	X120407.D	Liquid	Y	NA
8	*4.0 uL cal std/50 mL DI* VSTD050	ICAL7	12-04-2017 02:03 pm	1.00	50 mL	50 mL	X120408.D	Liquid	Y	NA
9	*10 uL cal std/50 mL DI* VSTD100	ICAL8	12-04-2017 02:28 pm	1.00	50 mL	50 mL	X120409.D	Liquid	Y	NA
10	*20 uL cal std/50 mL DI* VSTD150	ICAL9	12-04-2017 02:52 pm	1.00	50 mL	50 mL	X120410.D	Liquid	Y	NA
11	*30 uL cal std/50 mL DI* VSTD200	ICAL	12-04-2017 03:17 pm	1.00	50 mL	50 mL	X120411.D	Liquid	Y	NA
12	*40 uL cal std/50 mL DI* BLK	SAMP	12-04-2017 03:42 pm	1.00	50 mL	50 mL	X120412.D	Liquid	Y	NA
13	*clean up blank* BLK	SAMP	12-04-2017 04:07 pm	1.00	50 mL	50 mL	X120413.D	Liquid	Y	NA
14	*clean up blank* VSTD-ICV	ICV	12-04-2017 04:32 pm	1.00	50 mL	50 mL	X120414.D	Liquid	Y	NA
15	*10 uL icv std/50 mL DI* VLCSW-120417	CCV	12-04-2017 04:57 pm	1.00	50 mL	50 mL	X120415.D	Liquid	Y	NA
16	*10 uL cal std/50 mL DI* VLCSDW-120417	CCV	12-04-2017 05:22 pm	1.00	50 mL	50 mL	X120416.D	Liquid	Y	NA
17	*10 uL cal std/50 mL DI* BLK	SAMP	12-04-2017 05:47 pm	1.00	50 mL	50 mL	X120417.D	Liquid	Y	NA
18	BLK	SAMP	12-04-2017 06:12 pm	1.00	50 mL	50 mL	X120418.D	Liquid	Y	NA
19	BLK	SAMP	12-04-2017 06:36 pm	1.00	50 mL	50 mL	X120419.D	Liquid	Y	NA
20	VBLKW-171204	MBLK	12-04-2017 07:01 pm	1.00	50 mL	50 mL	X120420.D	Liquid	Y	NA
21	HS17110622-12	SAMP	12-04-2017 07:26 pm	1.00	50 mL	50 mL	X120421.D	Liquid	Y	NA
22	HS17110622-12	SAMP	12-04-2017 07:51 pm	1.00	50 mL	50 mL	X120422.D	Liquid	Y	NA
23	HS17110622-10	SAMP	12-04-2017 08:16 pm	1.00	50 mL	50 mL	X120423.D	Liquid	Y	NA
24	HS17110622-11	SAMP	12-04-2017 08:41 pm	1.00	50 mL	50 mL	X120424.D	Liquid	Y	NA
25	HS17110627-08	SAMP	12-04-2017 09:06 pm	1.00	50 mL	50 mL	X120425.D	Liquid	Y	NA

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-03-03
IS ID	30502-03-04
ICV STD ID	29814-95-01
LCS/MS ID	30502-05-01/02
CAL STD ID	30502-05-01/02
BFB ID	30502-03-03
pH Paper	634-37-03

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120401.D

Date : 04-DEC-2017 10:34

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

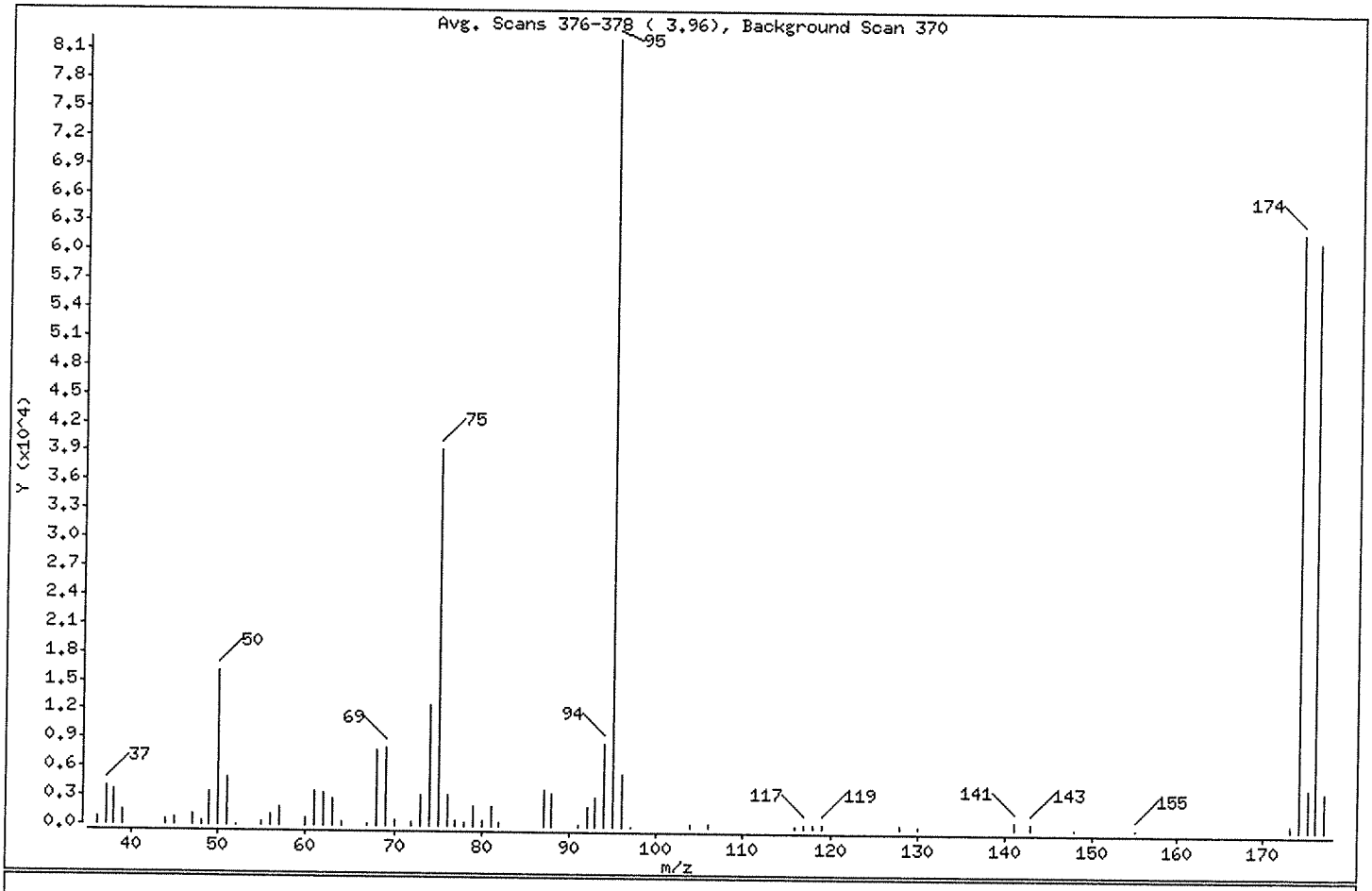
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.48
75	30.00 - 60.00% of mass 95	47.83
96	5.00 - 9.00% of mass 95	6.72
173	Less than 2.00% of mass 174	0.60 (0.79)
174	Greater than 50.00% of mass 95	75.91
175	5.00 - 9.00% of mass 174	5.38 (7.09)
176	95.00 - 101.00% of mass 174	74.82 (98.56)
177	5.00 - 9.00% of mass 176	4.80 (6.41)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120401.D

Date : 04-DEC-2017 10:34

Client ID: BFB

Instrument: voa6.i

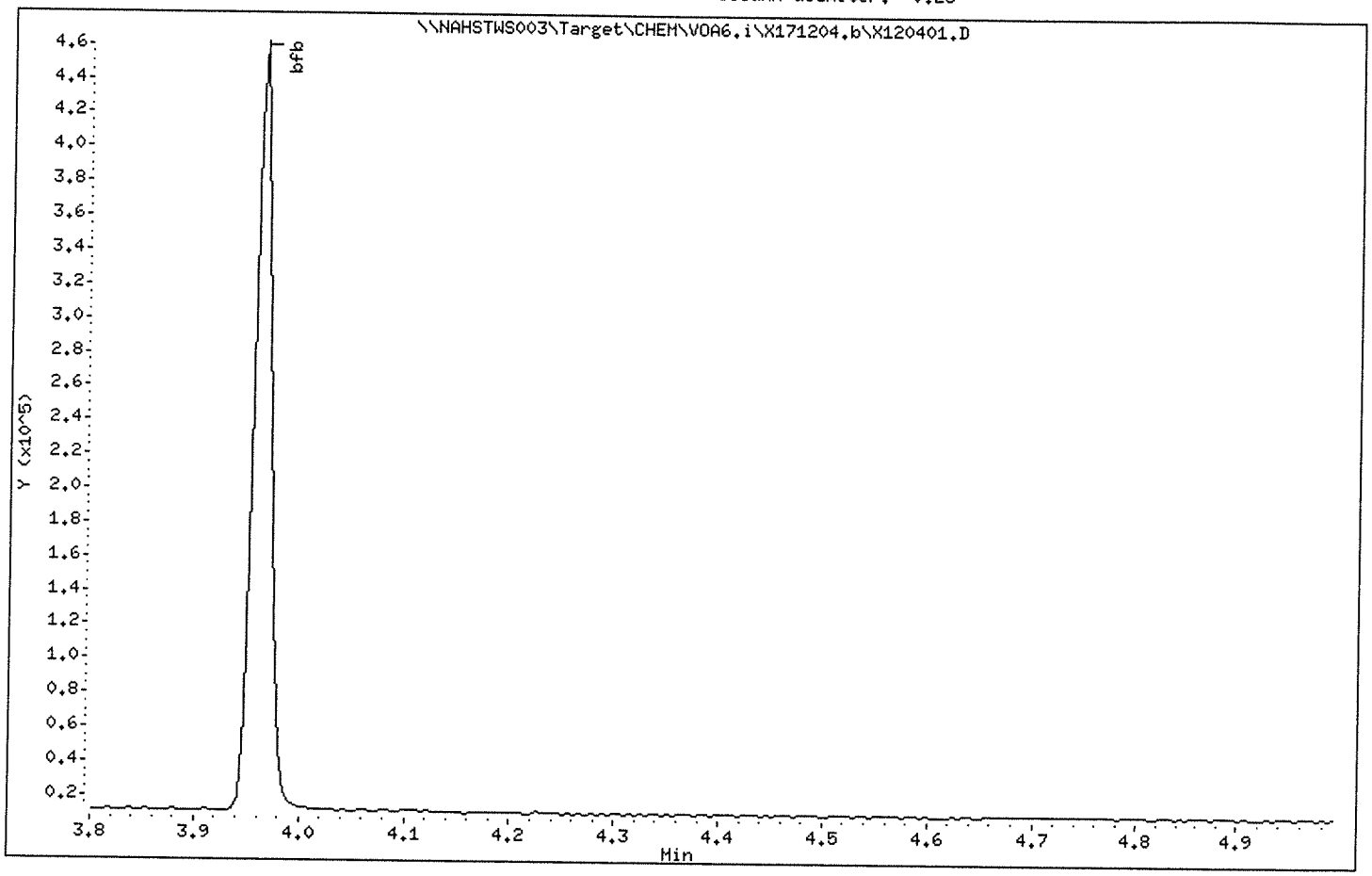
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120401.D

Date : 04-DEC-2017 10:34

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X120401.D

Spectrum: Avg. Scans 376-378 (3.96), Background Scan 370

Location of Maximum: 95.00

Number of points: 61

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	720	61.00	3588	80.00	575	118.00	295
37.00	3988	62.00	3449	81.00	2054	119.00	387
38.00	3546	63.00	2792	82.00	423	128.00	320
39.00	1503	64.00	310	87.00	3871	130.00	229
44.00	642	67.00	178	88.00	3428	141.00	692
45.00	730	68.00	8011	91.00	237	143.00	657
47.00	1114	69.00	8179	92.00	2158	148.00	68
48.00	451	70.00	528	93.00	3095	155.00	75
49.00	3404	72.00	418	94.00	8688	173.00	491
50.00	16003	73.00	3156	95.00	82152	174.00	62360
51.00	4954	74.00	12721	96.00	5522	175.00	4420
52.00	91	75.00	39296	97.00	70	176.00	61464
55.00	302	76.00	3252	104.00	362	177.00	3941
56.00	1114	77.00	650	106.00	303		
57.00	1947	78.00	411	116.00	281		
60.00	680	79.00	2132	117.00	452		

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120403.D
Report Date: 29-Jan-2018 15:12

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120403.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 04-DEC-2017 11:34
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\8260W.m
Meth Date : 29-Jan-2018 15:12 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 15:17 Cal File: X120411.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	297725	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	504872	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	474370	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	187629	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	2995	0.50000	0.29(a)
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	4185	0.50000	1.00(M)
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	11184	0.50000	0.32(a)
$ 69 4-Bromofluorobenzene	95	8.759	8.759	(1.131)	4203	0.50000	0.35(a)
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	2004	0.50000	0.59(a)
31 1,1,1-Trichloroethane	97	4.232	4.232	(0.978)	2689	0.50000	0.55(a)
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	2797	0.50000	1.09(aM)
53 1,1,2-Trichloroethane	83	6.926	6.926	(0.895)	1767	0.50000	0.57(a)
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	3842	0.50000	0.58(aM)
11 1,1-Dichloroethene	96	2.048	2.048	(0.473)	1784	0.50000	0.58(aM)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	2522	0.50000	0.56(a)
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	411	0.50000	3.57(aM)
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	2993	0.50000	0.60(a)
90 1,2,4-Trichlorobenzene	180	11.402	11.402	(1.172)	345	0.50000	2.91(aM)
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	5307	0.50000	1.11(a)
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	296	0.50000	0.58(aM)
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	2028	0.50000	0.56(a)
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	2691	0.50000	0.54(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120403.D
Report Date: 29-Jan-2018 15:12

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	3429	0.50000	0.64(a)
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	2531	0.50000	0.62(aM)
75 1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	5073	0.50000	1.34(a)
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	2993	0.50000	0.58(a)
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	3758	0.50000	0.56(a)
84 1,4-Dichlorobenzene	146	9.748	9.748	(1.002)	3391	0.50000	1.23(a)
26 2,2-Dichloropropane	77	3.674	3.674	(0.849)	3045	0.50000	0.58(aM)
24 2-Butanone	43	3.767	3.767	(0.871)	1291	1.00000	0.86(a)
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	4501	0.50000	0.98(aM)
52 2-Hexanone	43	7.298	7.298	(0.943)	3940	1.00000	1.07(a)
77 4-Chlorotoluene	91	9.139	9.139	(0.940)	5835	0.50000	1.30(aM)
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	3989	0.50000	0.60(a)
45 4-Methyl-2-Pentanone	43	6.424	6.424	(0.830)	4797	1.00000	1.18(a)
10 Acetone	43	2.119	2.119	(0.490)	3611	1.00000	1.91(a)
37 Benzene	78	4.648	4.648	(0.914)	8533	0.50000	0.59(a)
74 Bromobenzene	156	8.874	8.874	(0.912)	2061	0.50000	0.61(a)
39 Bromodichloromethane	83	5.830	5.830	(1.146)	3060	0.50000	0.59(aM)
66 Bromoform	173	8.480	8.480	(1.095)	1480	0.50000	0.56(aM)
6 Bromomethane	94	1.460	1.460	(0.338)	1550	0.50000	0.57(aM)
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	2239	0.50000	0.57(aM)
59 Chlorobenzene	112	7.771	7.771	(1.004)	5504	0.50000	0.58(a)
7 Chloroethane	64	1.525	1.525	(0.353)	1472	0.50000	0.58(aM)
28 Chloroform	83	4.067	4.067	(0.940)	3801	0.50000	0.58(a)
3 Chloromethane	50	1.188	1.188	(0.275)	2676	0.50000	0.55(aM)
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	2163	0.50000	0.55(a)
46 cis-1,3-Dichloropropene	75	6.252	6.252	(1.230)	3606	0.50000	0.57(a)
55 Dibromochloromethane	129	7.255	7.255	(0.937)	2465	0.50000	0.58(aM)
44 Dibromomethane	93	5.665	5.665	(1.114)	1548	0.50000	0.61(a)
2 Dichlorodifluoromethane	85	1.080	1.080	(0.250)	1566	0.50000	0.53(aM)
19 Carbon Disulfide	76	2.212	2.212	(0.512)	11144	1.00000	1.18(a)
61 Ethylbenzene	106	7.871	7.871	(1.017)	2736	0.50000	0.59(a)
91 Hexachlorobutadiene	225	11.546	11.546	(1.187)	307	0.50000	1.30(aM)
67 Isopropylbenzene	105	8.623	8.623	(1.114)	5830	0.50000	0.53(a)
62 m,p-Xylenes	106	7.978	7.978	(1.031)	6576	1.00000	1.18(a)
17 Methylene Chloride	84	2.449	2.449	(0.566)	3056	0.50000	0.51(aM)
87 n-Butylbenzene	91	10.056	10.056	(1.034)	2692	0.50000	0.50(a)
73 n-Propylbenzene	91	8.974	8.974	(0.923)	7180	0.50000	1.16(aM)
92 Naphthalene	128	11.603	11.603	(1.193)	1819	0.50000	1.79(a)
63 o-Xylene	106	8.308	8.308	(1.073)	3231	0.50000	0.58(a)
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	4665	0.50000	0.61(a)
64 Styrene	104	8.329	8.329	(1.076)	5609	0.50000	0.56(a)
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	3538	0.50000	0.99(a)
56 Tetrachloroethene	164	7.011	7.011	(0.906)	1359	0.50000	0.59(a)
50 Toluene	91	6.532	6.532	(0.844)	8879	0.50000	0.59(aM)
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	1914	0.50000	0.56(a)
51 trans-1,3-Dichloropropene	75	6.768	6.768	(1.331)	3236	0.50000	0.58(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	1968	0.50000	0.58(a)
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	2293	0.50000	0.56(a)
5 Vinyl Chloride	62	1.260	1.260	(0.291)	2477	0.50000	0.56(aM)

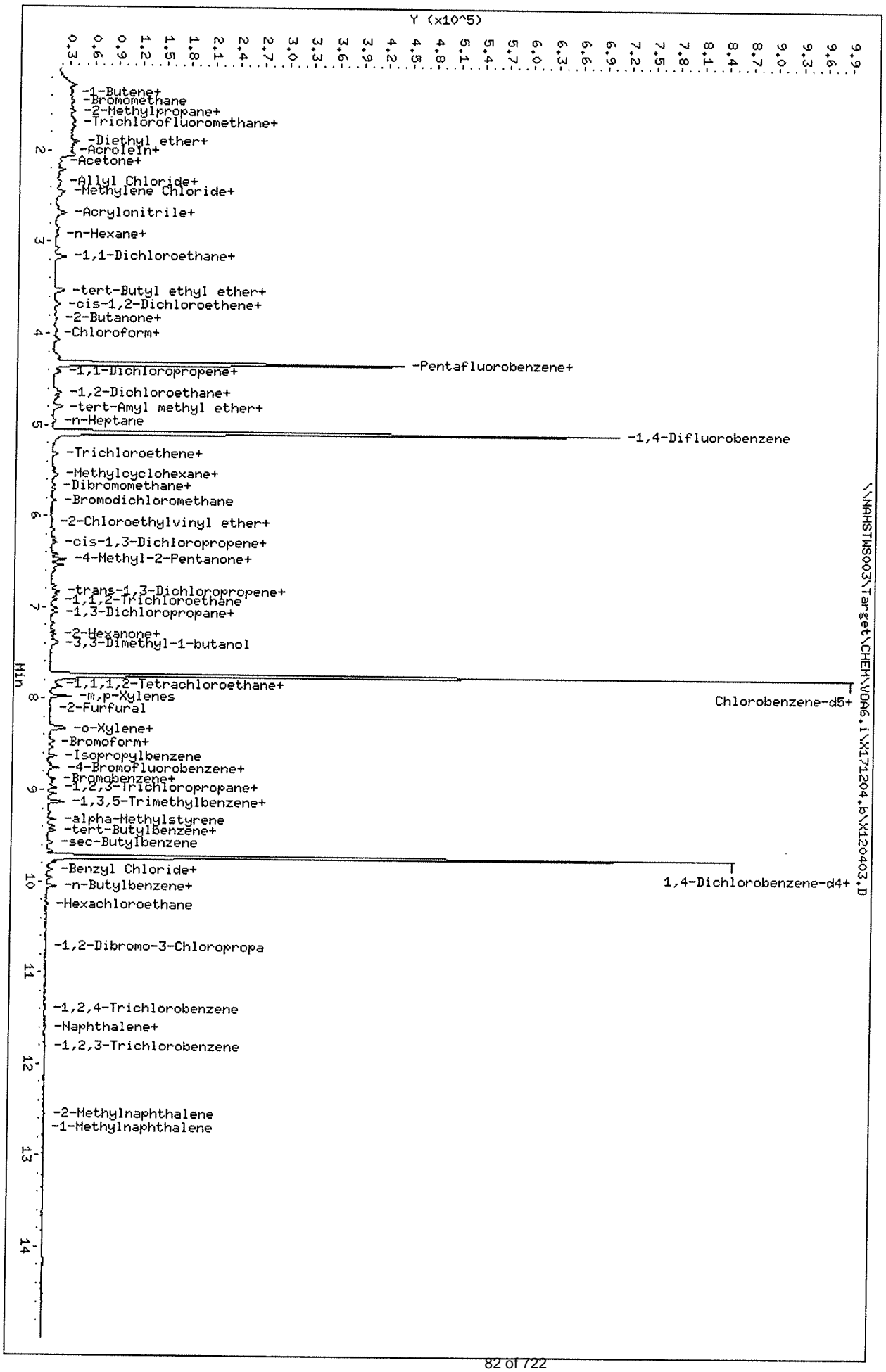
QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120403.D
Report Date: 29-Jan-2018 15:12

QC Flag Legend

M - Compound response manually integrated.


Y (x10^5)
Min
-1-Butene+
-Bromomethane
-2-Methylpropane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Acetone+
-Allyl Chloride+
-Methylene Chloride+
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether+
-cis-1,2-Dichloroethene+
-2-Butanone+
-Chloroform+
-1,1-Dichloropropene+
-Pentafluorobenzene+
-1,2-Dichloroethane+
-tert-Amyl methyl ether+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-trans-1,3-Dichloropropene+
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone+
-3,3-Dimethyl-1-butanol
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene+
-1,2,3-Trichloropropane+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride+
-n-Butylbenzene+
1,4-Dichlorobenzene-d4+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Naphthalene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA6_1\X171204_b\X120403_D
Data File: \\NAHSTWS003\Target\CHEM\VOA6_1\X171204_b\X120403_D
Date : 04-DEC-2017 11:34
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6_1
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Report Date: 29-Jan-2018 15:12

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 04-DEC-2017 12:24
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 29-Jan-2018 15:12 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 11:34 Cal File: X120403.D
Als bottle: 6 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	294569	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	498632	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	448997	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	186015	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	3914	1.00000	0.54(a)
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	5683	1.00000	1.31
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	14151	1.00000	0.60(a)
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	5522	1.00000	0.68(a)
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	3711	1.00000	1.15(a)
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	5169	1.00000	1.08
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	4996	1.00000	1.68(aM)
53 1,1,2-Trichloroethane	83	6.926	6.926	(0.895)	3005	1.00000	1.03(a)
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	7815	1.00000	1.19
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	3298	1.00000	1.09(a)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	5178	1.00000	1.16(a)
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	1132	1.00000	4.05(aM)
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	5334	1.00000	1.09(a)
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	1060	1.00000	3.30(aM)
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	10904	1.00000	1.83(a)
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	536	1.00000	1.06(aM)
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	3754	1.00000	1.11
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	6341	1.00000	1.29(a)

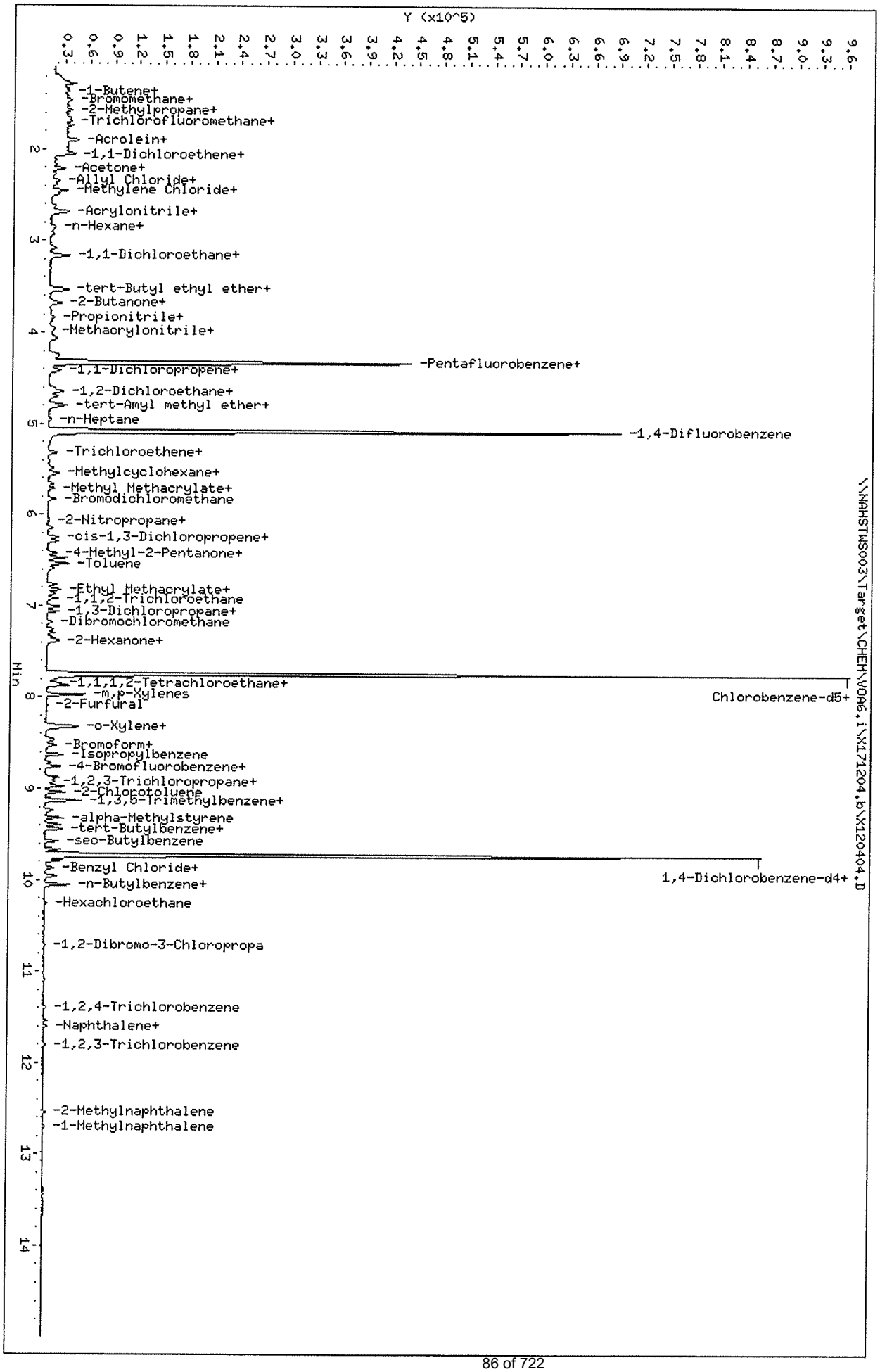
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Report Date: 29-Jan-2018 15:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.698	4.698	(0.924)	6107	1.00000	1.15
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	4373	1.00000	1.09(aM)
75	1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	10498	1.00000	2.09(a)
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	6419	1.00000	1.27(a)
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	7136	1.00000	1.14(a)
84	1,4-Dichlorobenzene	146	9.748	9.748	(1.002)	6725	1.00000	1.93(a)
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	6139	1.00000	1.19(a)
24	2-Butanone	43	3.759	3.759	(0.869)	3179	2.00000	2.15
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	11293	1.00000	1.92(a)
52	2-Hexanone	43	7.298	7.298	(0.943)	7110	2.00000	2.05(a)
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	12435	1.00000	2.06(a)
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	8042	1.00000	1.22(a)
45	4-Methyl-2-Pentanone	43	6.424	6.424	(0.830)	7723	2.00000	2.00(a)
10	Acetone	43	2.119	2.119	(0.490)	4847	2.00000	3.25(a)
37	Benzene	78	4.648	4.648	(0.914)	16396	1.00000	1.15
74	Bromobenzene	156	8.874	8.874	(0.912)	4006	1.00000	1.19(a)
29	Bromochloromethane	128	3.960	3.960	(0.916)	2153	1.00000	0.39(a)
39	Bromodichloromethane	83	5.830	5.830	(1.146)	5576	1.00000	1.09(aM)
66	Bromoform	173	8.480	8.480	(1.095)	2620	1.00000	1.06(aM)
6	Bromomethane	94	1.460	1.460	(0.338)	2828	1.00000	1.05(a)
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	4187	1.00000	1.09(a)
59	Chlorobenzene	112	7.764	7.764	(1.003)	10054	1.00000	1.13
7	Chloroethane	64	1.525	1.525	(0.353)	2702	1.00000	1.08(a)
28	Chloroform	83	4.067	4.067	(0.940)	7198	1.00000	1.12
3	Chloromethane	50	1.195	1.195	(0.276)	5646	1.00000	1.19(aM)
27	cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	4608	1.00000	1.18(a)
46	cis-1,3-Dichloropropene	75	6.252	6.252	(1.230)	7055	1.00000	1.13(a)
55	Dibromochloromethane	129	7.255	7.255	(0.937)	4818	1.00000	1.21(a)
44	Dibromomethane	93	5.658	5.658	(1.113)	2719	1.00000	1.09(a)
2	Dichlorodifluoromethane	85	1.080	1.080	(0.250)	2584	1.00000	0.89(a)
19	Carbon Disulfide	76	2.212	2.212	(0.512)	21048	2.00000	2.26(a)
61	Ethylbenzene	106	7.871	7.871	(1.017)	5115	1.00000	1.17
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	674	1.00000	1.94(aM)
67	Isopropylbenzene	105	8.630	8.630	(1.115)	12299	1.00000	1.19(a)
62	m,p-Xylenes	106	7.971	7.971	(1.030)	12059	2.00000	2.30
17	Methylene Chloride	84	2.449	2.449	(0.566)	6341	1.00000	1.41(aM)
87	n-Butylbenzene	91	10.056	10.056	(1.034)	6377	1.00000	1.20(a)
73	n-Propylbenzene	91	8.974	8.974	(0.923)	14911	1.00000	1.89(a)
92	Naphthalene	128	11.603	11.603	(1.193)	4149	1.00000	2.30(a)
63	o-Xylene	106	8.308	8.308	(1.073)	6017	1.00000	1.14
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	9027	1.00000	1.20(a)
64	Styrene	104	8.329	8.329	(1.076)	10353	1.00000	1.09
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	7255	1.00000	1.72(a)
56	Tetrachloroethene	164	7.011	7.011	(0.906)	2146	1.00000	1.00
50	Toluene	91	6.532	6.532	(0.844)	15954	1.00000	1.12
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	3501	1.00000	1.04(a)
51	trans-1,3-Dichloropropene	75	6.768	6.768	(1.331)	5927	1.00000	1.08(a)
38	Trichloroethene	130	5.321	5.321	(1.046)	3552	1.00000	1.06
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	3850	1.00000	0.95(a)
5	Vinyl Chloride	62	1.260	1.260	(0.291)	4847	1.00000	1.11(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Report Date: 29-Jan-2018 15:12

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^5)
Min
-1-Butene+
-Bromomethane+
-2-Methylpropane+
-Trichlorofluoromethane+
-Acrolein+
-1,1-Dichloroethene+
-Acetone+
-Allyl Chloride+
-Methylene Chloride+
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether+
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Amyl methyl ether+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-Dibromochloromethane
-2-Hexanone+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-2-Furfural
Chlorobenzene-d5+
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride+
-n-Butylbenzene+
1,4-Dichlorobenzene-d4+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Naphthalene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Date : 04-DEC-2017 12:24
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120405.D
Report Date: 29-Jan-2018 15:12

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120405.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 04-DEC-2017 12:49
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 29-Jan-2018 15:12 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 12:24 Cal File: X120404.D
Als bottle: 7 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	290312	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	494270	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	438932	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	198705	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	8330	2.00000	1.73
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	10983	2.00000	2.40
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	31479	2.00000	2.00
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	10824	2.00000	1.87
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	6574	2.00000	2.09(a)
31 1,1,1-Trichloroethane	97	4.240	4.240	(0.980)	10419	2.00000	2.21
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	9539	2.00000	2.73(a)
53 1,1,2-Trichloroethane	83	6.919	6.919	(0.894)	6423	2.00000	2.26(a)
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	13509	2.00000	2.09
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	6801	2.00000	2.28(aM)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	9953	2.00000	2.25(a)
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	1695	2.00000	4.34(a)
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	10719	2.00000	2.05(a)
90 1,2,4-Trichlorobenzene	180	11.403	11.403	(1.172)	2320	2.00000	3.89(a)
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	18804	2.00000	2.69(a)
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	1120	2.00000	2.08(a)
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	7097	2.00000	2.15
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	10957	2.00000	2.08(a)

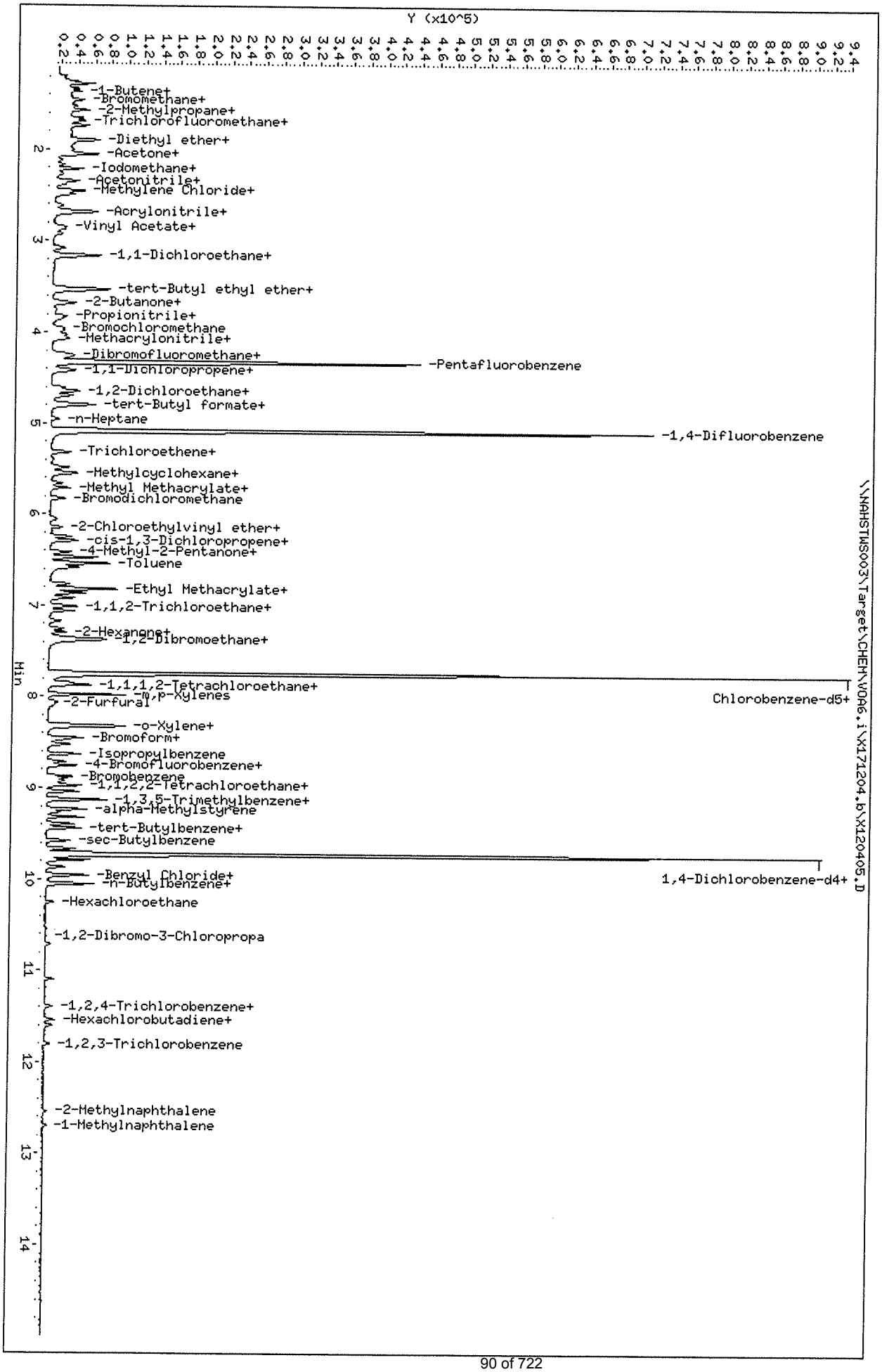
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120405.D
Report Date: 29-Jan-2018 15:12

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	10691	2.00000	2.03
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	8515	2.00000	2.16(aM)
75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	17497	2.00000	2.89(a)
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	11628	2.00000	2.15(a)
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	13685	2.00000	2.24(a)
84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	11635	2.00000	2.80(a)
26 2,2-Dichloropropane	77	3.674	3.674	(0.849)	11168	2.00000	2.20(a)
24 2-Butanone	43	3.752	3.752	(0.868)	5450	4.00000	3.74
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	18394	2.00000	2.73(a)
52 2-Hexanone	43	7.291	7.291	(0.942)	13473	4.00000	3.98(a)
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	21715	2.00000	2.96(a)
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	15013	2.00000	2.14(a)
45 4-Methyl-2-Pentanone	43	6.417	6.417	(0.829)	16839	4.00000	4.48(a)
10 Acetone	43	2.126	2.126	(0.492)	7138	4.00000	5.77
37 Benzene	78	4.648	4.648	(0.914)	29149	2.00000	2.07
74 Bromobenzene	156	8.874	8.874	(0.912)	7416	2.00000	2.07(a)
29 Bromochloromethane	128	3.960	3.960	(0.916)	4229	2.00000	1.77(a)
39 Bromodichloromethane	83	5.823	5.823	(1.145)	10796	2.00000	2.14(a)
66 Bromoform	173	8.480	8.480	(1.095)	5067	2.00000	2.09(aM)
6 Bromomethane	94	1.460	1.460	(0.338)	5954	2.00000	2.26(a)
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	8487	2.00000	2.24(a)
59 Chlorobenzene	112	7.764	7.764	(1.003)	18475	2.00000	2.13
7 Chloroethane	64	1.525	1.525	(0.353)	5261	2.00000	2.13(a)
28 Chloroform	83	4.068	4.068	(0.940)	13646	2.00000	2.15
3 Chloromethane	50	1.195	1.195	(0.276)	10148	2.00000	2.17(a)
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	8241	2.00000	2.15(a)
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	12866	2.00000	2.08(a)
55 Dibromochloromethane	129	7.255	7.255	(0.937)	8067	2.00000	2.07(a)
44 Dibromomethane	93	5.665	5.665	(1.114)	4980	2.00000	2.02(a)
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	6407	2.00000	2.24(a)
19 Carbon Disulfide	76	2.212	2.212	(0.512)	40632	4.00000	4.44(a)
61 Ethylbenzene	106	7.871	7.871	(1.017)	9105	2.00000	2.13
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	1825	2.00000	3.70(a)
67 Isopropylbenzene	105	8.623	8.623	(1.114)	21888	2.00000	2.18(a)
62 m,p-Xylenes	106	7.971	7.971	(1.030)	22335	4.00000	4.36
17 Methylene Chloride	84	2.449	2.449	(0.566)	10133	2.00000	2.49(aM)
87 n-Butylbenzene	91	10.056	10.056	(1.034)	11582	2.00000	2.04(a)
73 n-Propylbenzene	91	8.974	8.974	(0.923)	26888	2.00000	2.85(a)
92 Naphthalene	128	11.603	11.603	(1.193)	6458	2.00000	2.71(a)
63 o-Xylene	106	8.308	8.308	(1.073)	10938	2.00000	2.13
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	16927	2.00000	2.11(a)
64 Styrene	104	8.330	8.330	(1.076)	18929	2.00000	2.05
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	12489	2.00000	2.58(a)
56 Tetrachloroethene	164	7.012	7.012	(0.906)	5001	2.00000	2.38
50 Toluene	91	6.532	6.532	(0.844)	32387	2.00000	2.32
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	7233	2.00000	2.18(a)
51 trans-1,3-Dichloropropene	75	6.768	6.768	(1.331)	12206	2.00000	2.26(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	7353	2.00000	2.22
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	8994	2.00000	2.27(a)
5 Vinyl Chloride	62	1.260	1.260	(0.291)	8954	2.00000	2.09(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120405.D
Report Date: 29-Jan-2018 15:12

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^5)
Min
-1-Butene+
-Bromomethane+
-2-Methylpropane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acetone+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride+
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether+
-2-Butanone+
-Propionitrile+
-Bromochloromethane
-Methacrylonitrile+
-Dibromofluoromethane+
-1,1-Dichloropropene+
-Pentafluorobenzene
-1,2-Dichloroethane+
-tert-Butyl formate+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-Methylcyclohexane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-2-Furfural
Chlorobenzene-d5+
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride+
-n-Butylbenzene+
1,4-Dichlorobenzene-d4+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene+
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120405.D
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120405.D
Date : 04-DEC-2017 12:49
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Report Date: 29-Jan-2018 15:12

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 04-DEC-2017 13:13
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 29-Jan-2018 15:12 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 12:49 Cal File: X120405.D
Als bottle: 8 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	298636	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	499228	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	447222	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	207628	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	21067	5.00000	4.98
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	26603	5.00000	5.42
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	72459	5.00000	5.14
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	26717	5.00000	5.23
60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.013)	16162	5.00000	5.04
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	24422	5.00000	5.05
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	24724	5.00000	6.25
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	15107	5.00000	5.22
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	32666	5.00000	4.92
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	15470	5.00000	5.05
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	21982	5.00000	4.93(a)
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	6192	5.00000	6.93
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	28621	5.00000	5.24
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	8175	5.00000	6.65
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	46656	5.00000	5.79
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	2855	5.00000	5.08
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	17372	5.00000	5.16
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	28311	5.00000	5.16

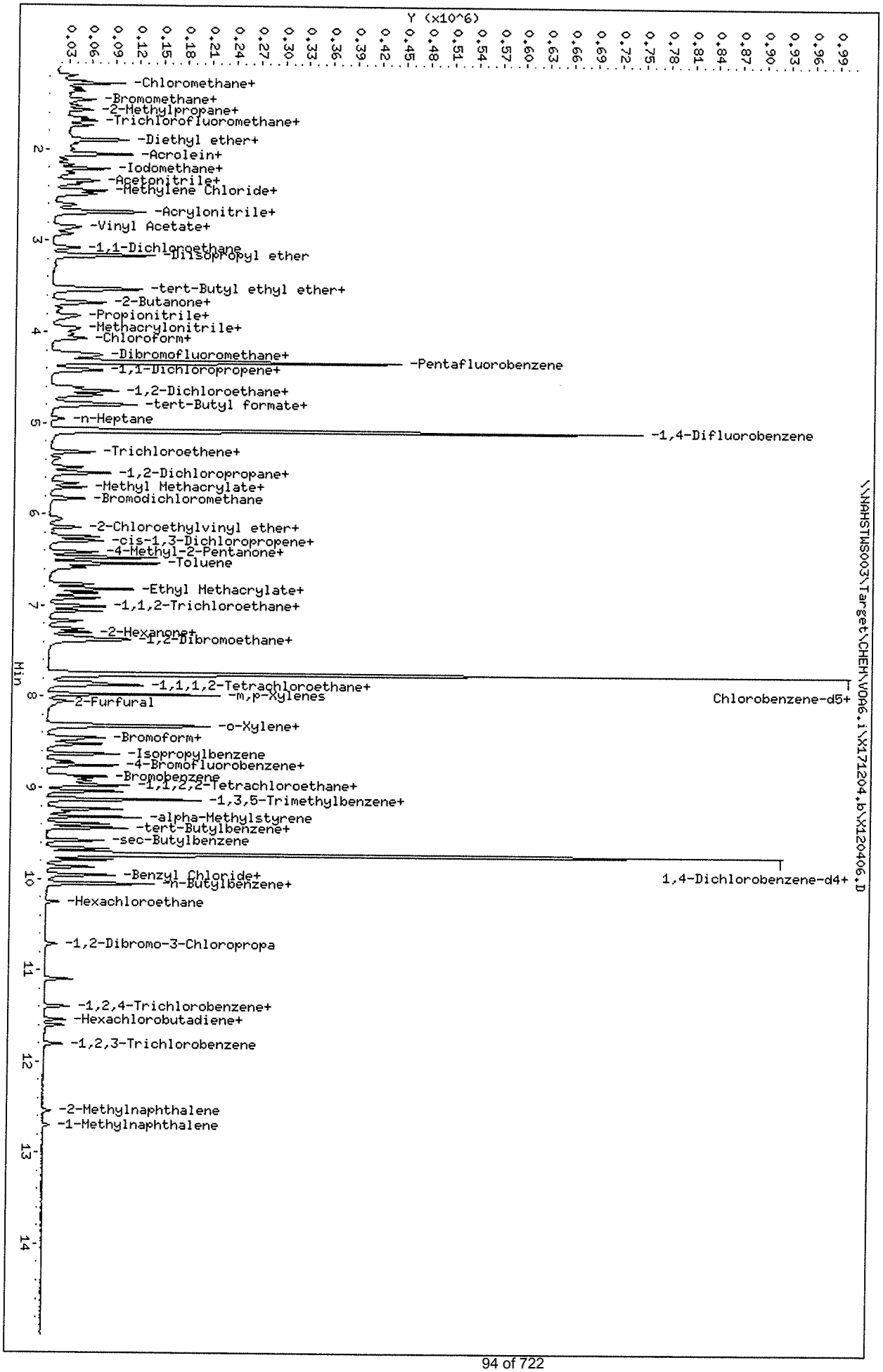
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Report Date: 29-Jan-2018 15:12

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	26394	5.00000	4.98
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	19678	5.00000	4.94(aM)
75 1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	46063	5.00000	6.30
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	28384	5.00000	5.03
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	31679	5.00000	5.09
84 1,4-Dichlorobenzene	146	9.748	9.748	(1.002)	29989	5.00000	6.14
26 2,2-Dichloropropane	77	3.666	3.666	(0.848)	25374	5.00000	4.86(a)
24 2-Butanone	43	3.745	3.745	(0.866)	14757	10.0000	9.85
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	45763	5.00000	5.99
52 2-Hexanone	43	7.291	7.291	(0.942)	34127	10.0000	9.90
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	56039	5.00000	6.37
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	35410	5.00000	4.84(a)
45 4-Methyl-2-Pentanone	43	6.417	6.417	(0.829)	37892	10.0000	9.90
10 Acetone	43	2.119	2.119	(0.490)	13572	10.0000	12.22
37 Benzene	78	4.648	4.648	(0.914)	71940	5.00000	5.07
74 Bromobenzene	156	8.874	8.874	(0.912)	19025	5.00000	5.09
29 Bromochloromethane	128	3.953	3.953	(0.914)	9806	5.00000	5.25
39 Bromodichloromethane	83	5.830	5.830	(1.146)	25972	5.00000	5.10
66 Bromoform	173	8.480	8.480	(1.095)	12540	5.00000	5.10
6 Bromomethane	94	1.460	1.460	(0.338)	13638	5.00000	5.04
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	19453	5.00000	5.08
59 Chlorobenzene	112	7.764	7.764	(1.003)	44047	5.00000	4.98
7 Chloroethane	64	1.525	1.525	(0.353)	11822	5.00000	4.67(a)
28 Chloroform	83	4.067	4.067	(0.940)	32820	5.00000	5.04
3 Chloromethane	50	1.195	1.195	(0.276)	23051	5.00000	4.79(a)
27 cis-1,2-Dichloroethene	96	3.681	3.681	(0.851)	19366	5.00000	4.91(a)
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	32028	5.00000	5.12
55 Dibromochloromethane	129	7.255	7.255	(0.937)	20461	5.00000	5.16
44 Dibromomethane	93	5.658	5.658	(1.113)	12835	5.00000	5.16
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	14845	5.00000	5.04
19 Carbon Disulfide	76	2.212	2.212	(0.512)	94468	10.0000	10.04
61 Ethylbenzene	106	7.871	7.871	(1.017)	21835	5.00000	5.02
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	4245	5.00000	7.28
67 Isopropylbenzene	105	8.623	8.623	(1.114)	50927	5.00000	4.98(a)
62 m,p-Xylenes	106	7.971	7.971	(1.030)	52388	10.0000	10.03
17 Methylene Chloride	84	2.449	2.449	(0.566)	22892	5.00000	5.83
87 n-Butylbenzene	91	10.056	10.056	(1.034)	28704	5.00000	4.84(a)
73 n-Propylbenzene	91	8.974	8.974	(0.923)	66662	5.00000	6.08
92 Naphthalene	128	11.603	11.603	(1.193)	16391	5.00000	4.57(a)
63 o-Xylene	106	8.308	8.308	(1.073)	25940	5.00000	4.96
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	41833	5.00000	4.99(a)
64 Styrene	104	8.330	8.330	(1.076)	47379	5.00000	5.04
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	31609	5.00000	5.80
56 Tetrachloroethene	164	7.012	7.012	(0.906)	10843	5.00000	5.07
50 Toluene	91	6.532	6.532	(0.844)	70045	5.00000	4.94
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	17393	5.00000	5.09
51 trans-1,3-Dichloropropene	75	6.768	6.768	(1.331)	26963	5.00000	4.94(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	16893	5.00000	5.06
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	20066	5.00000	4.92(a)
5 Vinyl Chloride	62	1.260	1.260	(0.291)	22011	5.00000	5.00

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Report Date: 29-Jan-2018 15:12

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Date : 04-DEC-2017 13:13
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
Hin
\\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
-Chloromethane+
-Bromomethane+
-2-Methylpropane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride+
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether+
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform+
-Dibromofluoromethane+
-Pentafluorobenzene
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Butyl formate+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride+
-n-Butylbenzene+
1,4-Dichlorobenzene-d4+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene+
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120407.D
Report Date: 29-Jan-2018 15:12

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120407.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 04-DEC-2017 13:38
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 29-Jan-2018 15:12 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 13:13 Cal File: X120406.D
Als bottle: 9 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	291636	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	490981	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	437288	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	205376	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	78949	20.0000	20.51
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	100528	20.0000	20.47
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	272481	20.0000	20.89
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	97863	20.0000	20.78
60 1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.013)	57081	20.0000	18.23
31 1,1,1-Trichloroethane	97	4.240	4.240	(0.980)	79831	20.0000	16.92
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	81404	20.0000	20.00
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	52357	20.0000	18.50
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	114488	20.0000	17.66
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	50714	20.0000	16.98
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	72153	20.0000	16.48
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	25883	20.0000	18.64
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	95930	20.0000	17.76
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	33731	20.0000	19.07
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	171210	20.0000	20.31
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	9974	20.0000	17.96
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	62674	20.0000	19.06
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	95014	20.0000	17.51

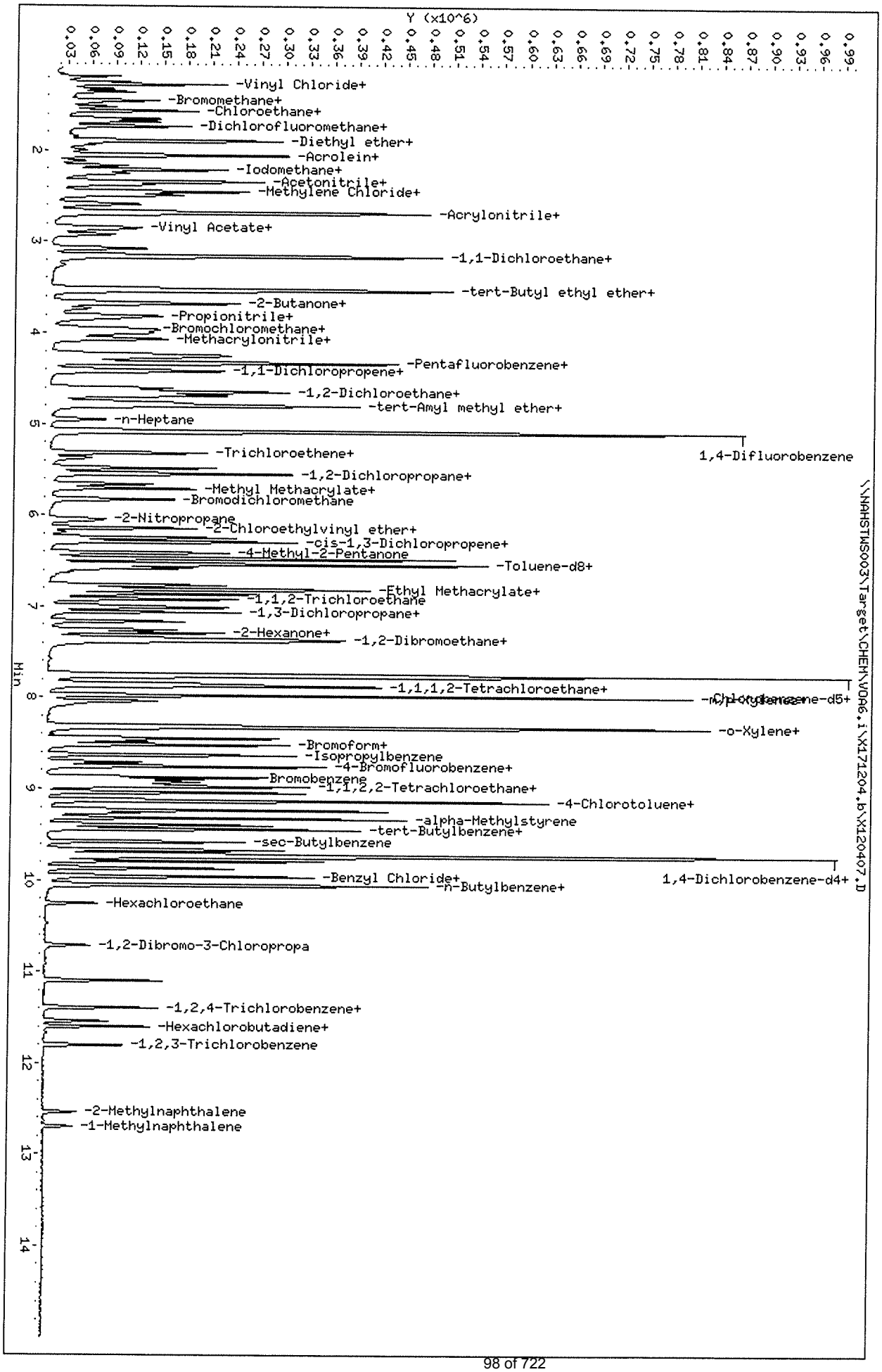
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120407.D
Report Date: 29-Jan-2018 15:12

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	91444	20.0000	17.56
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	71886	20.0000	18.35
75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	144848	20.0000	18.63(M)
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	100959	20.0000	18.10
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	110251	20.0000	18.12
84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	97637	20.0000	18.98
26 2,2-Dichloropropane	77	3.666	3.666	(0.848)	84436	20.0000	16.56
24 2-Butanone	43	3.738	3.738	(0.864)	57012	40.0000	38.97
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	149733	20.0000	18.95
52 2-Hexanone	43	7.284	7.284	(0.941)	128040	40.0000	37.99
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	172685	20.0000	18.49
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	125701	20.0000	17.38
45 4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	141028	40.0000	37.68
10 Acetone	43	2.119	2.119	(0.490)	39992	40.0000	40.60
37 Benzene	78	4.648	4.648	(0.914)	246239	20.0000	17.66
74 Bromobenzene	156	8.874	8.874	(0.912)	63926	20.0000	17.30
29 Bromochloromethane	128	3.960	3.960	(0.916)	33389	20.0000	20.83
39 Bromodichloromethane	83	5.823	5.823	(1.145)	89133	20.0000	17.82
66 Bromoform	173	8.480	8.480	(1.095)	44581	20.0000	18.54
6 Bromomethane	94	1.460	1.460	(0.338)	44827	20.0000	16.96
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	63632	20.0000	16.92
59 Chlorobenzene	112	7.764	7.764	(1.003)	156273	20.0000	18.09
7 Chloroethane	64	1.525	1.525	(0.353)	42224	20.0000	17.08
28 Chloroform	83	4.068	4.068	(0.940)	112854	20.0000	17.77
3 Chloromethane	50	1.188	1.188	(0.275)	79237	20.0000	16.89
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	68768	20.0000	17.86
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	110424	20.0000	17.97
55 Dibromochloromethane	129	7.255	7.255	(0.937)	71471	20.0000	18.45
44 Dibromomethane	93	5.658	5.658	(1.113)	45232	20.0000	18.49
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	44145	20.0000	15.37
19 Carbon Disulfide	76	2.212	2.212	(0.512)	303111	40.0000	32.99
61 Ethylbenzene	106	7.871	7.871	(1.017)	73999	20.0000	17.40
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	11677	20.0000	18.85
67 Isopropylbenzene	105	8.623	8.623	(1.114)	172243	20.0000	17.25
62 m,p-Xylenes	106	7.971	7.971	(1.030)	179006	40.0000	35.07
17 Methylene Chloride	84	2.449	2.449	(0.566)	71507	20.0000	19.35
87 n-Butylbenzene	91	10.049	10.049	(1.033)	101872	20.0000	17.38
73 n-Propylbenzene	91	8.974	8.974	(0.923)	210434	20.0000	18.31
92 Naphthalene	128	11.603	11.603	(1.193)	84834	20.0000	17.80
63 o-Xylene	106	8.308	8.308	(1.073)	92097	20.0000	18.02
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	144203	20.0000	17.40
64 Styrene	104	8.322	8.322	(1.075)	170141	20.0000	18.51
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	111001	20.0000	19.79
56 Tetrachloroethene	164	7.012	7.012	(0.906)	35310	20.0000	16.90
50 Toluene	91	6.532	6.532	(0.844)	244163	20.0000	17.62
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	57677	20.0000	17.31
51 trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	96961	20.0000	18.08
38 Trichloroethene	130	5.321	5.321	(1.046)	57836	20.0000	17.62
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	64896	20.0000	16.30(M)
5 Vinyl Chloride	62	1.260	1.260	(0.291)	71192	20.0000	16.58

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120407.D
Report Date: 29-Jan-2018 15:12

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120407.D
Date : 04-DEC-2017 13:38
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120408.D
Report Date: 29-Jan-2018 15:12

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120408.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 04-DEC-2017 14:03
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 29-Jan-2018 15:12 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 13:38 Cal File: X120407.D
Als bottle: 10 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

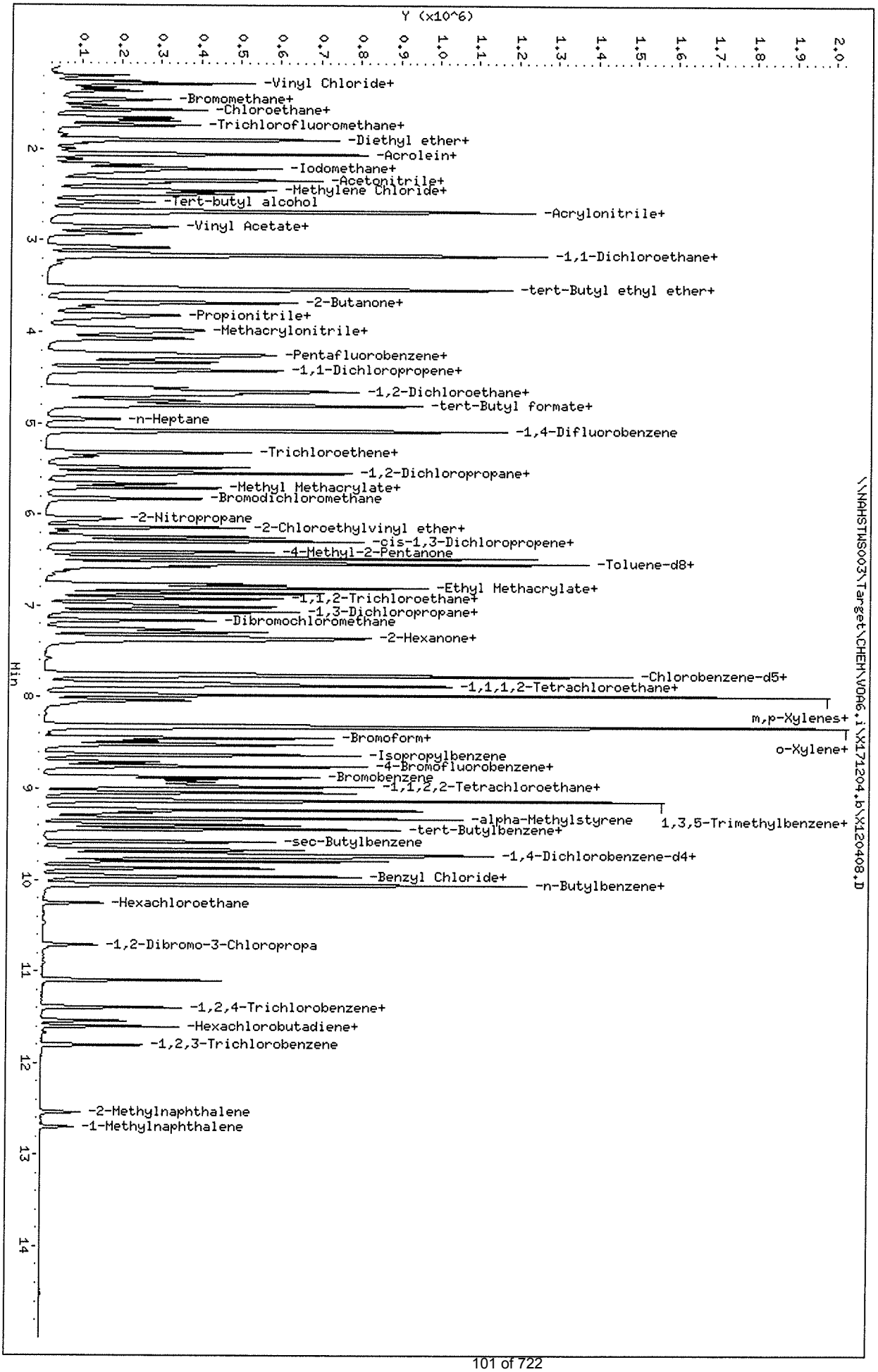
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.326	(1.000)	290122	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	484063	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	437364	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.727	9.727	(1.000)	200566	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	185772	50.0000	49.19
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	237722	50.0000	48.42
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	652586	50.0000	49.42
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	233818	50.0000	49.47
60 1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.013)	143288	50.0000	45.75
31 1,1,1-Trichloroethane	97	4.240	4.240	(0.980)	220226	50.0000	46.93
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	193227	50.0000	48.11
53 1,1,2-Trichloroethane	83	6.919	6.919	(0.894)	138400	50.0000	48.91
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	299749	50.0000	46.48
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	140942	50.0000	47.44
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	201511	50.0000	46.68
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	66722	50.0000	43.79
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	237138	50.0000	44.96
90 1,2,4-Trichlorobenzene	180	11.396	11.396	(1.172)	87045	50.0000	45.90
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	403355	50.0000	48.38
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	25693	50.0000	47.39
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	153192	50.0000	46.59
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	240973	50.0000	45.49

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120408.D
Report Date: 29-Jan-2018 15:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	236367	50.0000	46.04
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	176942	50.0000	45.83
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	373055	50.0000	48.08
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	243015	50.0000	44.61
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	292695	50.0000	48.12
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	253361	50.0000	49.55
26	2,2-Dichloropropane	77	3.667	3.667	(0.848)	233527	50.0000	46.05
24	2-Butanone	43	3.731	3.731	(0.863)	146772	100.000	100.87
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	380992	50.0000	48.78
52	2-Hexanone	43	7.284	7.284	(0.941)	321152	100.000	95.27
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	450798	50.0000	48.36
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	317793	50.0000	45.01
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	329194	100.000	87.94
10	Acetone	43	2.119	2.119	(0.490)	90875	100.000	95.10
37	Benzene	78	4.648	4.648	(0.914)	642349	50.0000	46.73
74	Bromobenzene	156	8.867	8.867	(0.912)	164471	50.0000	45.58
29	Bromochloromethane	128	3.960	3.960	(0.916)	80360	50.0000	51.82
39	Bromodichloromethane	83	5.823	5.823	(1.145)	232553	50.0000	47.17
66	Bromoform	173	8.480	8.480	(1.095)	111956	50.0000	46.55
6	Bromomethane	94	1.460	1.460	(0.338)	122115	50.0000	46.45
34	Carbon Tetrachloride	117	4.412	4.412	(0.868)	173700	50.0000	46.87
59	Chlorobenzene	112	7.764	7.764	(1.003)	396931	50.0000	45.95
7	Chloroethane	64	1.525	1.525	(0.353)	119990	50.0000	48.79
28	Chloroform	83	4.068	4.068	(0.940)	293164	50.0000	46.40
3	Chloromethane	50	1.195	1.195	(0.276)	213320	50.0000	45.71
27	cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	180699	50.0000	47.19
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	280565	50.0000	46.31
55	Dibromochloromethane	129	7.255	7.255	(0.937)	171913	50.0000	44.38
44	Dibromomethane	93	5.658	5.658	(1.113)	113180	50.0000	46.94
2	Dichlorodifluoromethane	85	1.081	1.081	(0.250)	144156	50.0000	50.46
19	Carbon Disulfide	76	2.212	2.212	(0.512)	846808	100.000	92.64
61	Ethylbenzene	106	7.871	7.871	(1.017)	192225	50.0000	45.20
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	31516	50.0000	50.72
67	Isopropylbenzene	105	8.623	8.623	(1.114)	451344	50.0000	45.20
62	m,p-Xylenes	106	7.972	7.972	(1.030)	461708	100.000	90.45
17	Methylene Chloride	84	2.449	2.449	(0.566)	180238	50.0000	49.51
87	n-Butylbenzene	91	10.049	10.049	(1.033)	278309	50.0000	48.63
73	n-Propylbenzene	91	8.974	8.974	(0.923)	543610	50.0000	47.62
92	Naphthalene	128	11.603	11.603	(1.193)	235418	50.0000	46.74
63	o-Xylene	106	8.308	8.308	(1.073)	234842	50.0000	45.94
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	355949	50.0000	43.99
64	Styrene	104	8.323	8.323	(1.075)	437247	50.0000	47.56
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	264880	50.0000	47.90
56	Tetrachloroethene	164	7.012	7.012	(0.906)	99140	50.0000	47.45
50	Toluene	91	6.532	6.532	(0.844)	633536	50.0000	45.73
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	157492	50.0000	47.52
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	257647	50.0000	48.74
38	Trichloroethene	130	5.321	5.321	(1.046)	153072	50.0000	47.32
8	Trichlorofluoromethane	101	1.690	1.690	(0.391)	197662	50.0000	49.92
5	Vinyl Chloride	62	1.260	1.260	(0.291)	199885	50.0000	46.81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Min
2 3 4 5 6 7 8 9 10 11 12 13 14
-Vinyl Chloride+
-Bromomethane+
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride+
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether+
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Butyl formate+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-Ethyl Methacrylate+
-1,I,2-Trichloroethane+
-1,3-Dichloropropane+
-Dibromochloromethane
-2-Hexanone+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
m,p-Xylenes+
o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-alpha-Methylstyrene
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
-n-Butylbenzene+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene+
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\NAHSTWS003\Target\CHEM\VOA6,i\X171204,b\X120408,D
Data File: \\NAHSTWS003\Target\CHEM\VOA6,i\X171204,b\X120408,D
Date : 04-DEC-2017 14:03
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120409.D
Report Date: 29-Jan-2018 15:12

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120409.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 04-DEC-2017 14:28
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 29-Jan-2018 15:12 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 11 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	284383	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	479198	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	430609	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	197922	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	379572	100.000	103.08
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	487421	100.000	101.10
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	1363184	100.000	100.09
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	479001	100.000	100.08
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	291261	100.000	94.47
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	446686	100.000	97.11
68 1,1,2,2-Tetrachloroethane	83	8.902	8.902	(0.915)	399608	100.000	100.44
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	265070	100.000	95.14
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	601918	100.000	95.23
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	272870	100.000	93.71(M)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	412449	100.000	96.53
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	152500	100.000	97.07
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	494005	100.000	94.93
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	188818	100.000	97.63
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	829267	100.000	100.31
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	50447	100.000	94.30
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	316040	100.000	97.64
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	482818	100.000	92.37

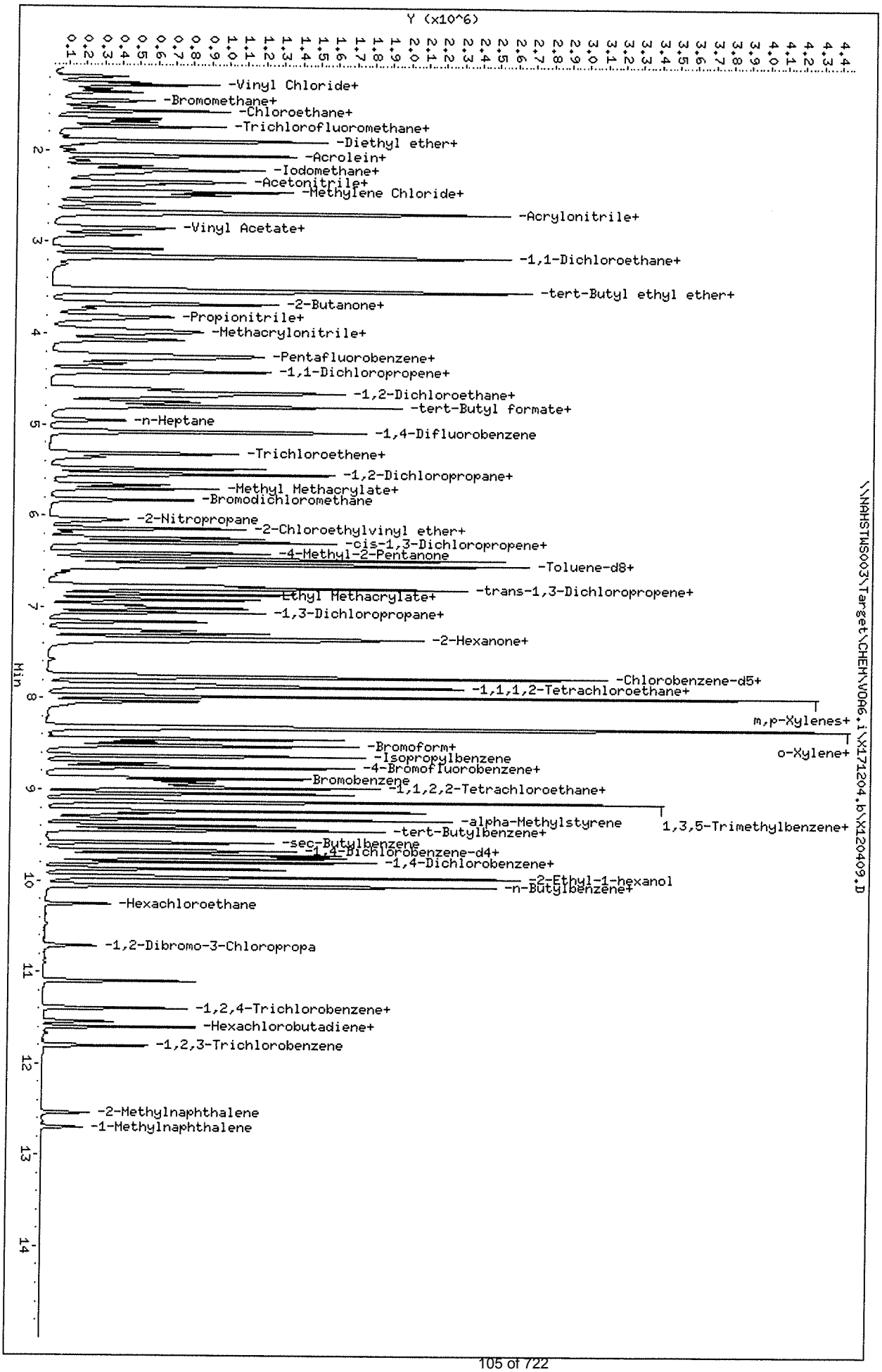
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120409.D
Report Date: 29-Jan-2018 15:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	475315	100.000	93.52
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	356044	100.000	93.16
75	1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	778968	100.000	101.01
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	483143	100.000	89.88
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	554543	100.000	92.60
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	509536	100.000	100.42
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	468940	100.000	94.35
24	2-Butanone	43	3.731	3.731	(0.863)	298604	200.000	209.36(A)
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	788760	100.000	101.94
52	2-Hexanone	43	7.284	7.284	(0.941)	667828	200.000	201.22
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	937994	100.000	101.26
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	644950	100.000	92.57
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	705625	200.000	191.47
10	Acetone	43	2.119	2.119	(0.490)	182637	200.000	196.92
37	Benzene	78	4.648	4.648	(0.914)	1287233	100.000	94.60
74	Bromobenzene	156	8.874	8.874	(0.912)	329300	100.000	92.48
29	Bromochloromethane	128	3.960	3.960	(0.916)	152708	100.000	101.41
39	Bromodichloromethane	83	5.830	5.830	(1.147)	468072	100.000	95.91
66	Bromoform	173	8.480	8.480	(1.095)	229728	100.000	97.03
6	Bromomethane	94	1.460	1.460	(0.338)	244338	100.000	94.83
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	355644	100.000	96.94
59	Chlorobenzene	112	7.764	7.764	(1.003)	824999	100.000	97.01
7	Chloroethane	64	1.525	1.525	(0.353)	239107	100.000	99.19
28	Chloroform	83	4.067	4.067	(0.940)	586107	100.000	94.65
3	Chloromethane	50	1.188	1.188	(0.275)	438547	100.000	95.87
27	cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	360485	100.000	96.05
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	561011	100.000	93.55
55	Dibromochloromethane	129	7.255	7.255	(0.937)	353827	100.000	92.79
44	Dibromomethane	93	5.658	5.658	(1.113)	228704	100.000	95.82
2	Dichlorodifluoromethane	85	1.080	1.080	(0.250)	288724	100.000	103.11
19	Carbon Disulfide	76	2.212	2.212	(0.512)	1702663	200.000	190.04
61	Ethylbenzene	106	7.871	7.871	(1.017)	401858	100.000	95.98
91	Hexachlorobutadiene	225	11.538	11.538	(1.186)	58518	100.000	94.75
67	Isopropylbenzene	105	8.623	8.623	(1.114)	955028	100.000	97.15
62	m,p-Xylenes	106	7.971	7.971	(1.030)	970546	200.000	193.13
17	Methylene Chloride	84	2.449	2.449	(0.566)	359875	100.000	101.17
87	n-Butylbenzene	91	10.049	10.049	(1.033)	562736	100.000	99.65
73	n-Propylbenzene	91	8.974	8.974	(0.923)	1159416	100.000	102.34
92	Naphthalene	128	11.603	11.603	(1.193)	565219	100.000	104.88
63	o-Xylene	106	8.308	8.308	(1.073)	491467	100.000	97.66
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	739488	100.000	92.61
64	Styrene	104	8.322	8.322	(1.075)	912641	100.000	100.84(A)
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	549903	100.000	100.43
56	Tetrachloroethene	164	7.011	7.011	(0.906)	198061	100.000	96.28
50	Toluene	91	6.532	6.532	(0.844)	1302065	100.000	95.46
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	319232	100.000	98.27
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	493392	100.000	94.29
38	Trichloroethene	130	5.321	5.321	(1.046)	307298	100.000	95.97
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	386875	100.000	99.69
5	Vinyl Chloride	62	1.260	1.260	(0.291)	408606	100.000	97.63

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120409.D
Report Date: 29-Jan-2018 15:12

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120409.D
Date : 04-DEC-2017 14:28
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120410.D
Report Date: 29-Jan-2018 15:12

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120410.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 04-DEC-2017 14:52
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 29-Jan-2018 15:12 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:28 Cal File: X120409.D
Als bottle: 12 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	279085	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	482753	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	459233	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	199455	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	535487	150.000	148.40
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	686425	150.000	145.00
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	1853128	150.000	124.19
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	681648	150.000	130.80
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	441087	150.000	134.15
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	652799	150.000	144.62(A)
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	575153	150.000	143.30
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	361930	150.000	121.81
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	862211	150.000	139.00(A)
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	401532	150.000	140.51(M)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	602849	150.000	140.05
93 1,2,3-Trichlorobenzene	180	11.796	11.796	(1.213)	227515	150.000	142.12
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	717115	150.000	136.74
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	277618	150.000	141.18
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	1192916	150.000	143.00
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	74988	150.000	139.10
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	435573	150.000	126.18(A)
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	695649	150.000	132.07

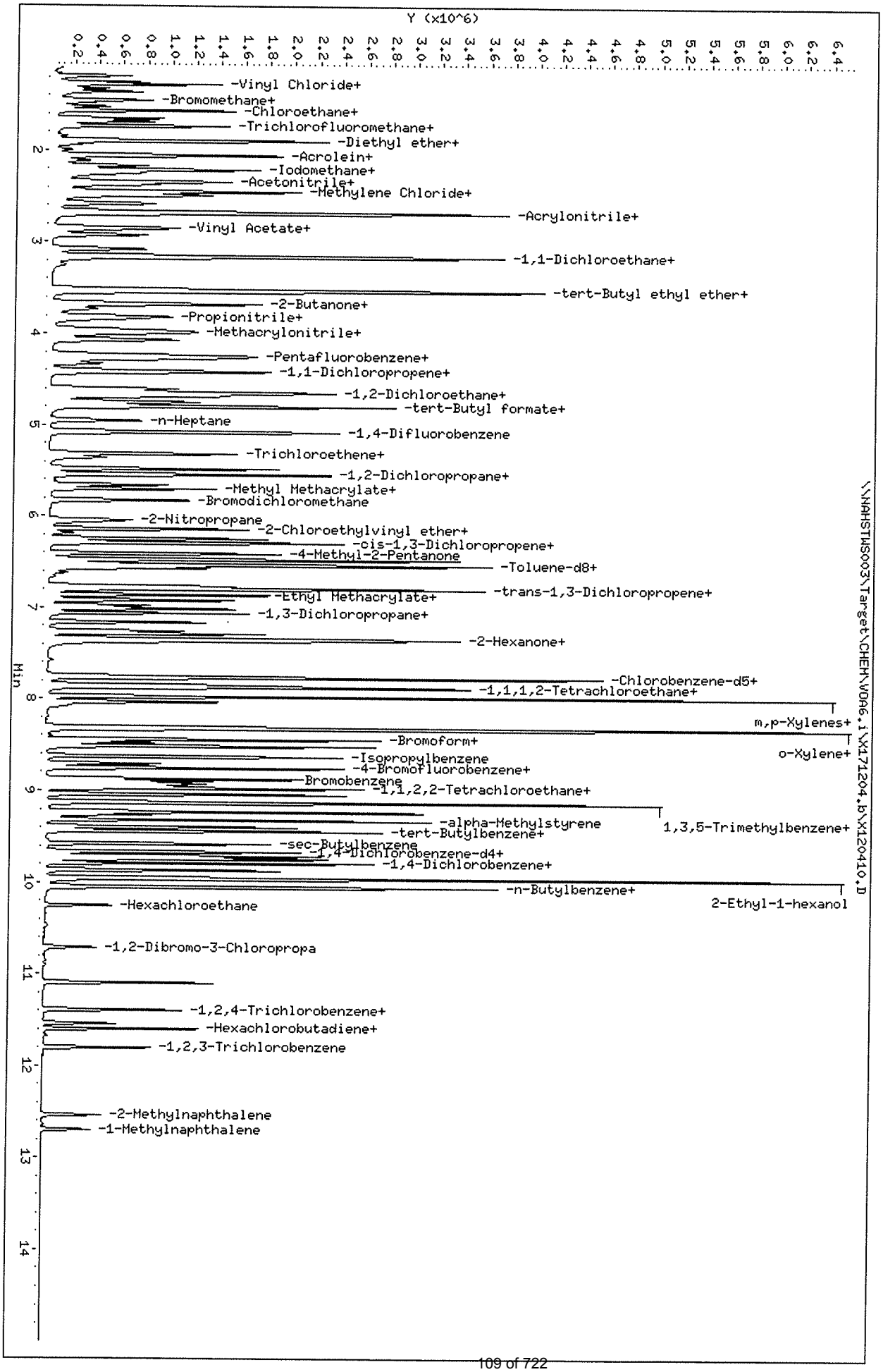
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120410.D
Report Date: 29-Jan-2018 15:12

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	677865	150.000	132.40(A)
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	509300	150.000	132.28
75 1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	1118942	150.000	143.70
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	690908	150.000	127.55
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	766580	150.000	120.03
84 1,4-Dichlorobenzene	146	9.748	9.748	(1.002)	726487	150.000	141.86
26 2,2-Dichloropropane	77	3.666	3.666	(0.848)	685800	150.000	140.60
24 2-Butanone	43	3.731	3.731	(0.863)	432561	300.000	309.04(A)
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	1114234	150.000	142.75
52 2-Hexanone	43	7.284	7.284	(0.941)	987249	300.000	278.92
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	1335693	150.000	142.82
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	938376	150.000	133.65
45 4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	1069282	300.000	272.06
10 Acetone	43	2.119	2.119	(0.490)	267969	300.000	295.33
37 Benzene	78	4.648	4.648	(0.914)	1850707	150.000	135.01(A)
74 Bromobenzene	156	8.874	8.874	(0.912)	468007	150.000	130.42
29 Bromochloromethane	128	3.960	3.960	(0.916)	212980	150.000	144.54
39 Bromodichloromethane	83	5.830	5.830	(1.146)	656182	150.000	133.46
66 Bromoform	173	8.480	8.480	(1.095)	329396	150.000	130.46
6 Bromomethane	94	1.460	1.460	(0.338)	361327	150.000	142.90
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	514063	150.000	139.09
59 Chlorobenzene	112	7.764	7.764	(1.003)	1214595	150.000	133.92(A)
7 Chloroethane	64	1.525	1.525	(0.353)	344390	150.000	145.58
28 Chloroform	83	4.068	4.068	(0.940)	834892	150.000	137.39(A)
3 Chloromethane	50	1.188	1.188	(0.275)	637166	150.000	141.93
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	512701	150.000	139.21(A)
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	843848	150.000	139.68
55 Dibromochloromethane	129	7.255	7.255	(0.937)	493631	150.000	121.38
44 Dibromomethane	93	5.658	5.658	(1.113)	320157	150.000	133.15
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	444560	150.000	161.79
19 Carbon Disulfide	76	2.212	2.212	(0.512)	2487608	300.000	282.93
61 Ethylbenzene	106	7.871	7.871	(1.017)	600798	150.000	134.56(A)
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	89042	150.000	142.66
67 Isopropylbenzene	105	8.630	8.630	(1.115)	1380850	150.000	131.71
62 m,p-Xylenes	106	7.971	7.971	(1.030)	1434086	300.000	267.58(A)
17 Methylene Chloride	84	2.449	2.449	(0.566)	506476	150.000	145.22
87 n-Butylbenzene	91	10.049	10.049	(1.033)	822380	150.000	144.51
73 n-Propylbenzene	91	8.974	8.974	(0.923)	1664464	150.000	145.58
92 Naphthalene	128	11.603	11.603	(1.193)	850255	150.000	147.33
63 o-Xylene	106	8.308	8.308	(1.073)	700876	150.000	130.59(A)
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	1083909	150.000	134.70
64 Styrene	104	8.322	8.322	(1.075)	1297748	150.000	134.46(A)
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	808476	150.000	146.37
56 Tetrachloroethene	164	7.012	7.012	(0.906)	291009	150.000	132.64(A)
50 Toluene	91	6.532	6.532	(0.844)	1790531	150.000	123.09(A)
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	458968	150.000	143.97
51 trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	669852	150.000	127.06
38 Trichloroethene	130	5.321	5.321	(1.046)	444111	150.000	137.67(A)
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	582039	150.000	152.83
5 Vinyl Chloride	62	1.260	1.260	(0.291)	611559	150.000	148.89

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120410.D
Report Date: 29-Jan-2018 15:12

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6_i\X171204_b\X120410_D
Date : 04-DEC-2017 14:52
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6_i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120411.D
Report Date: 29-Jan-2018 15:12

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120411.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 04-DEC-2017 15:17
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 29-Jan-2018 15:12 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:52 Cal File: X120410.D
Als bottle: 13 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	274075	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	470818	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	410001	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	190858	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	707188	200.000	199.74
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	945480	200.000	203.31(A)
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	2633300	200.000	182.57
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	979292	200.000	199.39
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	554364	200.000	188.84
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	848533	200.000	191.42(A)
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	787284	200.000	204.84(A)
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	515500	200.000	194.34
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	1122920	200.000	184.35(A)
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	509660	200.000	181.61(M)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	790240	200.000	188.24
93 1,2,3-Trichlorobenzene	180	11.796	11.796	(1.213)	320961	200.000	207.95(A)
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	976329	200.000	194.56
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	393710	200.000	207.92(A)
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	1638094	200.000	205.03(A)
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	102048	200.000	197.83
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	578232	200.000	187.62(A)
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	963798	200.000	191.22

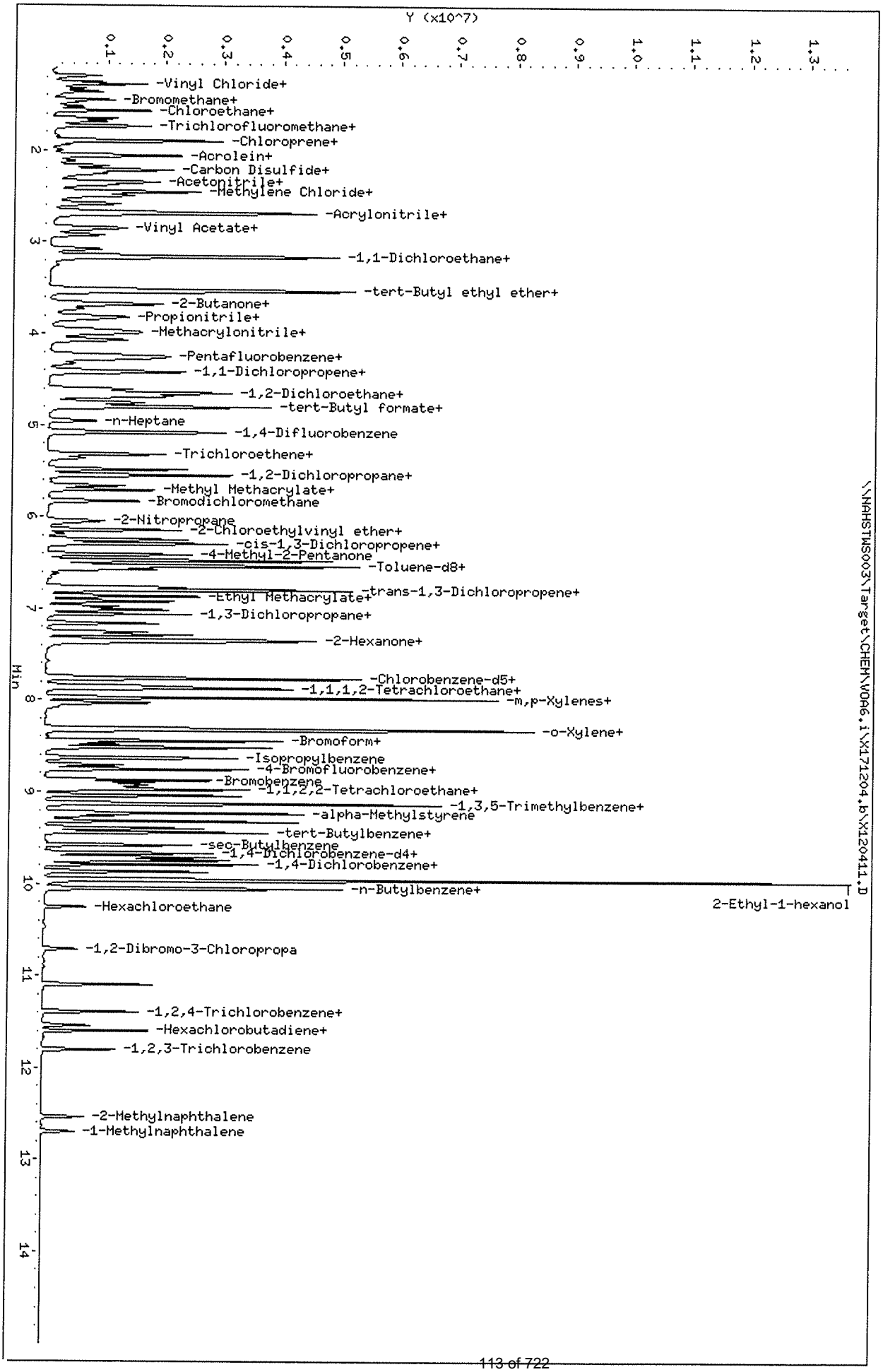
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120411.D
Report Date: 29-Jan-2018 15:12

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	929332	200.000	186.12(A)
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	695514	200.000	185.23
75	1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	1525239	200.000	204.43(A)
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	957585	200.000	184.74
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	1120933	200.000	196.59
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	1008432	200.000	205.54(A)
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	894521	200.000	186.75
24	2-Butanone	43	3.731	3.731	(0.863)	592860	400.000	431.30(A)
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	1527940	200.000	204.42(A)
52	2-Hexanone	43	7.284	7.284	(0.941)	1353608	400.000	428.36(A)
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	1835422	200.000	204.82(A)
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	1256945	200.000	187.08
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	1427510	400.000	406.82(A)
10	Acetone	43	2.119	2.119	(0.490)	361044	400.000	405.86(A)
37	Benzene	78	4.648	4.648	(0.914)	2498006	200.000	186.85(A)
74	Bromobenzene	156	8.874	8.874	(0.912)	655537	200.000	190.92
29	Bromochloromethane	128	3.960	3.960	(0.916)	292625	200.000	202.62(A)
39	Bromodichloromethane	83	5.830	5.830	(1.146)	895717	200.000	186.80
66	Bromoform	173	8.480	8.480	(1.095)	466779	200.000	207.07(A)
6	Bromomethane	94	1.453	1.453	(0.336)	482927	200.000	194.48
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	666600	200.000	184.93
59	Chlorobenzene	112	7.764	7.764	(1.003)	1523814	200.000	188.19(A)
7	Chloroethane	64	1.525	1.525	(0.353)	443922	200.000	191.09
28	Chloroform	83	4.068	4.068	(0.940)	1118006	200.000	187.34(A)
3	Chloromethane	50	1.188	1.188	(0.275)	864612	200.000	196.12
27	cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	671987	200.000	185.79(AM)
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	1143549	200.000	194.09
55	Dibromochloromethane	129	7.255	7.255	(0.937)	722968	200.000	199.13
44	Dibromomethane	93	5.658	5.658	(1.113)	431802	200.000	184.13
2	Dichlorodifluoromethane	85	1.081	1.081	(0.250)	551612	200.000	204.42(A)
19	Carbon Disulfide	76	2.212	2.212	(0.512)	3172043	400.000	367.37
61	Ethylbenzene	106	7.871	7.871	(1.017)	748735	200.000	187.83(A)
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	123984	200.000	207.24(A)
67	Isopropylbenzene	105	8.630	8.630	(1.115)	1904192	200.000	203.44(A)
62	m,p-Xylenes	106	7.971	7.971	(1.030)	1777124	400.000	371.40(A)
17	Methylene Chloride	84	2.449	2.449	(0.566)	694800	200.000	202.98(A)
87	n-Butylbenzene	91	10.056	10.056	(1.034)	1089004	200.000	199.99
73	n-Propylbenzene	91	8.974	8.974	(0.923)	2219188	200.000	202.64(A)
92	Naphthalene	128	11.603	11.603	(1.193)	1215604	200.000	200.33(A)
63	o-Xylene	106	8.308	8.308	(1.073)	921138	200.000	192.25(A)
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	1440801	200.000	187.12
64	Styrene	104	8.322	8.322	(1.075)	1656842	200.000	192.28(A)
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	1072881	200.000	202.87(A)
56	Tetrachloroethene	164	7.012	7.012	(0.906)	372609	200.000	190.24(A)
50	Toluene	91	6.532	6.532	(0.844)	2522694	200.000	194.25(A)
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	603841	200.000	192.88
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	975193	200.000	189.68
38	Trichloroethene	130	5.321	5.321	(1.046)	588756	200.000	187.14(A)
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	720596	200.000	192.68
5	Vinyl Chloride	62	1.260	1.260	(0.291)	780176	200.000	193.42

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120411.D
Report Date: 29-Jan-2018 15:12

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120411.D
Date : 04-DEC-2017 15:17
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120414.D
Report Date: 29-Jan-2018 15:12

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120414.D
Lab Smp Id: VSTD-ICV Client Smp ID: VSTD-ICV
Inj Date : 04-DEC-2017 16:32
Operator : PC Inst ID: voa6.i
Smp Info : VSTD-ICV;VSTD-ICV;2;;ICV
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 29-Jan-2018 15:12 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 15:17 Cal File: X120411.D
Als bottle: 16 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

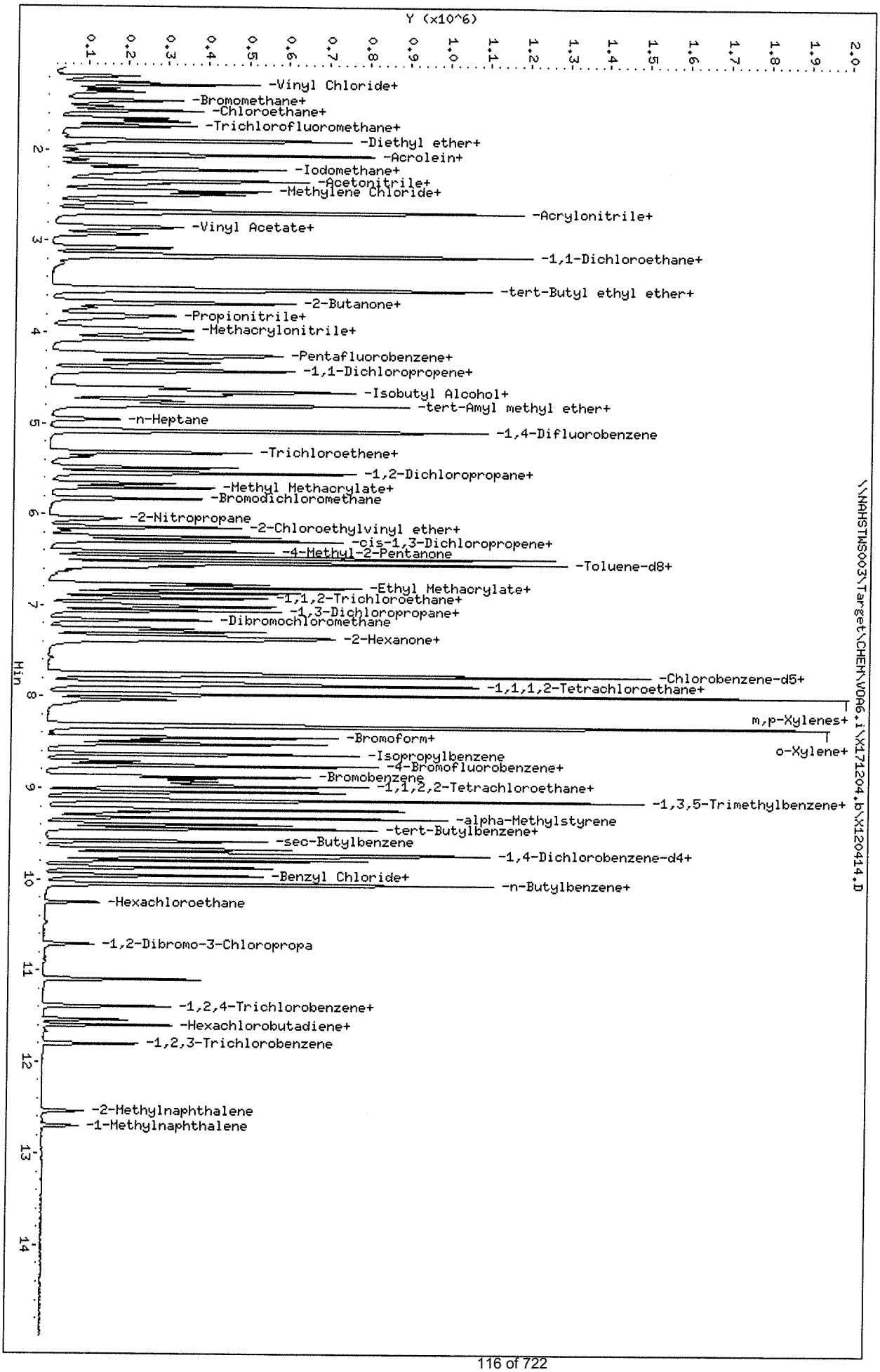
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	283798	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	475885	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	447334	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	192678	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	186505	50.5072	50.50
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	233266	48.5805	48.58
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	687609	50.8607	50.86
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	233893	48.4083	48.40
60 1,1,1,2-Tetrachloroethane	131	7.842	7.850	(1.013)	144711	45.1830	45.18
31 1,1,1-Trichloroethane	97	4.232	4.239	(0.978)	216265	47.1167	47.11
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	183232	47.4994	47.49
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	125161	43.2470	43.24
22 1,1-Dichloroethane	63	3.072	3.079	(0.710)	289305	45.8681	45.86
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	140109	48.2178	48.21
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	203105	47.8660	47.86
93 1,2,3-Trichlorobenzene	180	11.804	11.796	(1.214)	62135	42.5528	42.55
71 1,2,3-Trichloropropane	75	8.924	8.931	(0.918)	225213	44.4568	44.45
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	79526	43.7920	43.79
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	368009	45.9700	45.96
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	22072	42.3856	42.38
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	149469	44.4523	44.45
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	215313	42.3160	42.31

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120414.D
Report Date: 29-Jan-2018 15:12

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	224879	44.5578	44.55
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	172442	45.4376	45.43
75 1,3,5-Trimethylbenzene	105	9.125	9.132	(0.938)	340524	45.7174	45.71
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	215932	41.2668	41.26
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	271932	43.7123	43.71
84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	229124	46.6769	46.67
26 2,2-Dichloropropane	77	3.666	3.666	(0.848)	228985	46.1681	46.16
24 2-Butanone	43	3.731	3.731	(0.863)	134119	94.2294	94.22
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	356021	47.4684	47.46
52 2-Hexanone	43	7.284	7.284	(0.941)	311587	90.3751	90.37
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	415462	46.4270	46.42
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	285395	42.0781	42.07
45 4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	312604	81.6535	81.65
10 Acetone	43	2.112	2.119	(0.488)	87470	93.5520	93.55
37 Benzene	78	4.648	4.648	(0.914)	621299	45.9785	45.97
74 Bromobenzene	156	8.867	8.874	(0.912)	149609	43.1614	43.16
29 Bromochloromethane	128	3.960	3.960	(0.916)	76057	50.1104	50.11
39 Bromodichloromethane	83	5.822	5.830	(1.145)	223372	46.0893	46.08
66 Bromoform	173	8.480	8.480	(1.095)	106643	43.3613	43.36
6 Bromomethane	94	1.460	1.453	(0.338)	131617	51.1902	51.19
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	176988	48.5795	48.57
59 Chlorobenzene	112	7.764	7.764	(1.003)	401091	45.4026	45.40
7 Chloroethane	64	1.525	1.525	(0.353)	116982	48.6321	48.63
28 Chloroform	83	4.068	4.068	(0.940)	281553	45.5647	45.56
3 Chloromethane	50	1.188	1.188	(0.275)	218389	47.8415	47.84
27 cis-1,2-Dichloroethene	96	3.681	3.688	(0.851)	174191	46.5124	46.51
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	269956	45.3326	45.33
55 Dibromochloromethane	129	7.255	7.255	(0.937)	170839	43.1282	43.12
44 Dibromomethane	93	5.658	5.658	(1.113)	107901	45.5226	45.52
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	149115	53.3670	53.36
19 Carbon Disulfide	76	2.212	2.212	(0.512)	841278	94.0953	94.09
61 Ethylbenzene	106	7.871	7.871	(1.017)	198029	45.5335	45.53
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	31559	52.8440	52.84
67 Isopropylbenzene	105	8.623	8.630	(1.114)	423053	41.4265	41.42
62 m,p-Xylenes	106	7.971	7.971	(1.030)	464756	89.0254	89.02
17 Methylene Chloride	84	2.449	2.449	(0.566)	172278	48.3713	48.37
87 n-Butylbenzene	91	10.049	10.056	(1.033)	256143	46.5955	46.59
73 n-Propylbenzene	91	8.974	8.974	(0.923)	507835	46.3222	46.32
92 Naphthalene	128	11.603	11.603	(1.193)	217976	45.1752	45.17
63 o-Xylene	106	8.308	8.308	(1.073)	219995	42.0837	42.08
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	328139	42.2147	42.21
64 Styrene	104	8.322	8.322	(1.075)	415059	44.1496	44.14
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	242095	45.5942	45.59
56 Tetrachloroethene	164	7.012	7.012	(0.906)	99147	46.3961	46.39
50 Toluene	91	6.532	6.532	(0.844)	610489	43.0863	43.08
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	156010	48.1280	48.12
51 trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	233047	44.8467	44.84
38 Trichloroethene	130	5.321	5.321	(1.046)	148228	46.6146	46.61
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	202713	52.3466	52.34
5 Vinyl Chloride	62	1.260	1.260	(0.291)	203494	48.7224	48.72



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120414.D
Date : 04-DEC-2017 16:32
Client ID: VSTD-ICV
Sample Info: VSTD-ICV;VSTD-ICV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120435

Lab File ID: X121101 BFB Injection Date: 12/11/17

Instrument ID: VOA6 BFB Injection Time: 1126

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.0
75	30.0 - 60.0% of mass 95	51.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.6 (0.9)1
174	Greater than 50.0% of mass 95	63.9
175	5.0 - 9.0% of mass 174	4.7 (7.4)1
176	95.0 - 101.0% of mass 174	62.3 (97.6)1
177	5.0 - 9.0% of mass 176	4.0 (6.5)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	X121102	12/11/17	1151
02	VLCSW-171211	VLCSW-171211	X121104	12/11/17	1241
03	VBLKW-017121	VBLKW-171211	X121107	12/11/17	1356
04	HS17120435-0	HS17120435-01	X121110	12/11/17	1511
05	HS17120435-0	HS17120435-04	X121111	12/11/17	1535
06	HS17120435-0	HS17120435-01M	X121113	12/11/17	1625
07	HS17120435-0	HS17120435-01M	X121114	12/11/17	1649
08	HS17120435-1	HS17120435-13	X121118	12/11/17	1829
09	HS17120435-0	HS17120435-02	X121119	12/11/17	1854
10	HS17120435-0	HS17120435-03	X121120	12/11/17	1919
11	HS17120435-0	HS17120435-05	X121121	12/11/17	1943
12	HS17120435-0	HS17120435-06	X121122	12/11/17	2008
13	HS17120435-0	HS17120435-07	X121123	12/11/17	2033
14	HS17120435-0	HS17120435-08	X121124	12/11/17	2058
15	HS17120435-0	HS17120435-09	X121125	12/11/17	2123
16	HS17120435-1	HS17120435-10	X121126	12/11/17	2147
17	HS17120435-1	HS17120435-11	X121127	12/11/17	2212
18	HS17120435-1	HS17120435-12	X121128	12/11/17	2237
19	VSTD050-END	VSTD050-END	X121129	12/11/17	2302
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120435

Instrument ID: VOA6 Calibration Date: 12/11/17 Time: 1151

Lab File ID: X121102 Init. Calib. Date(s): 12/04/17 12/04/17

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Bromochloromethane	55.442298	50.000000	0.2959534	0.1	-10.88	20.00	LINR
Vinyl Chloride	0.7360000	0.6655850	0.6655850	0.1	9.57	20.00	AVRG
Chloromethane	0.8040000	0.7751993	0.7751993	0.1	3.58	20.00	AVRG
Bromomethane	0.4530000	0.4242851	0.4242851	0.1	6.34	20.00	AVRG
Chloroethane	0.4240000	0.3848641	0.3848641	0.1	9.23	20.00	AVRG
Methylene Chloride	50.589040	50.000000	0.6347002	0.1	-1.18	20.00	LINR
Acetone	90.089592	100.00000	0.1485125	0.1	9.91	20.00	LINR
Carbon Disulfide	1.5750000	1.5283048	1.5283048	0.1	2.96	20.00	AVRG
1,1-Dichloroethene	0.5120000	0.4792234	0.4792234	0.1	6.40	20.00	AVRG
trans-1,2-Dichloroethene	0.5710000	0.5699216	0.5699216	0.1	0.19	20.00	AVRG
Carbon Tetrachloride	0.3830000	0.3883374	0.3883374	0.1	-1.39	20.00	AVRG
Bromodichloromethane	0.5090000	0.5138984	0.5138984	0.2	-0.96	20.00	AVRG
1,1-Dichloroethane	1.1110000	1.0537017	1.0537017	0.2	5.16	20.00	AVRG
1,2-Dichloropropane	0.3990000	0.3916902	0.3916902	0.1	1.83	20.00	AVRG
2-Butanone	0.2510000	0.2396436	0.2396436	0.1	4.52	20.00	AVRG
cis-1,3-Dichloropropene	0.6260000	0.6357048	0.6357048	0.2	-1.55	20.00	AVRG
Dibromochloromethane	0.4430000	0.4212300	0.4212300	0.1	4.91	20.00	AVRG
1,1,2-Trichloroethane	0.3230000	0.3044799	0.3044799	0.1	5.73	20.00	AVRG
cis-1,2-Dichloroethene	0.6600000	0.6520349	0.6520349	0.1	1.21	20.00	AVRG
Benzene	1.4200000	1.4490034	1.4490034	0.5	-2.04	20.00	AVRG
Chloroform	1.0880000	1.0408787	1.0408787	0.2	4.33	20.00	AVRG
trans-1,3-Dichloropropene	0.5460000	0.5352886	0.5352886	0.1	1.96	20.00	AVRG
Bromoform	0.2750000	0.2680018	0.2680018	0.1	2.54	20.00	AVRG
1,1,1-Trichloroethane	0.8080000	0.7940591	0.7940591	0.1	1.72	20.00	AVRG
4-Methyl-2-Pentanone	0.4280000	0.3743487	0.3743487	0.1	12.54	20.00	AVRG
2-Hexanone	0.3850000	0.3622024	0.3622024	0.1	5.92	20.00	AVRG
1,2-Dichloroethane	0.5300000	0.4840923	0.4840923	0.1	8.66	20.00	AVRG
1,1,2,2-Tetrachloroethane	48.544189	50.000000	0.9720497	0.3	2.91	20.00	LINR
Trichloroethene	0.3340000	0.3429751	0.3429751	0.2	-2.69	20.00	AVRG
Toluene	1.5840000	1.5287483	1.5287483	0.4	3.49	20.00	AVRG
Dichlorodifluoromethane	0.4920000	0.4944560	0.4944560	0.1	-0.50	20.00	AVRG
Trichlorofluoromethane	0.6820000	0.6416214	0.6416214	0.1	5.92	20.00	AVRG
Tetrachloroethene	0.2390000	0.2372238	0.2372238	0.2	0.74	20.00	AVRG
1,2-Dibromoethane	0.3760000	0.3743285	0.3743285	0.1	0.44	20.00	AVRG
Chlorobenzene	0.9870000	0.9543860	0.9543860	0.5	3.30	20.00	AVRG
1,3-Dichlorobenzene	1.3580000	1.2737816	1.2737816	0.6	6.20	20.00	AVRG
1,4-Dichlorobenzene	52.005516	50.000000	1.3264859	0.4	-4.01	20.00	LINR
Ethylbenzene	0.4860000	0.4624414	0.4624414	0.1	4.85	20.00	AVRG
1,2-Dichlorobenzene	1.3200000	1.2398773	1.2398773	0.4	6.07	20.00	AVRG
m,p-Xylenes	0.5830000	0.5510656	0.5510656	0.1	5.48	20.00	AVRG
o-Xylene	0.5840000	0.5670541	0.5670541	0.3	2.90	20.00	AVRG
Styrene	1.0510000	1.0477825	1.0477825	0.3	0.31	20.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712043

Instrument ID: VOA6 Calibration Date: 12/11/17 Time: 1151

Lab File ID: X121102 Init. Calib. Date(s): 12/04/17 12/04/17

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
2,2-Dichloropropane	0.8740000	0.8291595	0.8291595	0.1	5.13	20.00	AVRG	
1,1-Dichloropropene	0.4460000	0.4435945	0.4435945	0.1	0.54	20.00	AVRG	
Dibromomethane	0.2490000	0.2380660	0.2380660	0.1	4.39	20.00	AVRG	
1,3-Dichloropropane	0.6950000	0.6404016	0.6404016	0.1	7.86	20.00	AVRG	
1,1,1,2-Tetrachloroethane	0.3580000	0.3475114	0.3475114	0.1	2.93	20.00	AVRG	
Isopropylbenzene	1.1420000	1.0917607	1.0917607	0.1	4.40	20.00	AVRG	
Bromobenzene	0.8990000	0.8798588	0.8798588	0.1	2.13	20.00	AVRG	
1,2,3-Trichloropropane	1.3140000	1.1760972	1.1760972	0.1	10.49	20.00	AVRG	
n-Propylbenzene	51.034457	50.000000	2.9067159	0.1	-2.07	20.00	LINR	
2-Chlorotoluene	51.483683	50.000000	2.0052882	0.1	-2.97	20.00	LINR	
1,3,5-Trimethylbenzene	51.602221	50.000000	1.9981022	0.1	-3.20	20.00	LINR	
4-Chlorotoluene	51.413600	50.000000	2.3911205	0.1	-2.83	20.00	LINR	
tert-Butylbenzene	52.732535	50.000000	1.4545787	0.1	-5.46	20.00	LINR	
1,2,4-Trimethylbenzene	51.670570	50.000000	2.1491180	0.1	-3.34	20.00	LINR	
sec-Butylbenzene	2.0170000	1.9630104	1.9630104	0.1	2.68	20.00	AVRG	
p-Isopropyltoluene	1.7600000	1.7494631	1.7494631	0.1	0.60	20.00	AVRG	
n-Butylbenzene	1.4260000	1.5432793	1.5432793	0.5	-8.22	20.00	AVRG	
1,2-Dibromo-3-Chloropropane	0.1350000	0.1175609	0.1175609	0.05	12.92	20.00	AVRG	
1,2,4-Trichlorobenzene	48.335057	50.000000	0.4584131	0.2	3.33	20.00	LINR	
Hexachlorobutadiene	68.597213	50.000000	0.2133586	0.1	-37.19	20.00	LINR	<-
Naphthalene	44.488624	50.000000	1.1127943	0.2	11.02	20.00	2RDR	
1,2,3-Trichlorobenzene	45.729715	50.000000	0.3485875	0.1	8.54	20.00	LINR	
Dibromofluoromethane	47.353111	50.000000	0.6165298	0.1	5.29	20.00	LINR	
1,2-Dichloroethane-d4	43.409877	50.000000	0.7341332	0.1	13.18	20.00	LINR	
Toluene-d8	51.765765	50.000000	1.5655546	0.1	-3.53	20.00	2RDR	
4-Bromofluorobenzene	50.796106	50.000000	0.5492038	0.1	-1.59	20.00	2RDR	

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:
Lab Code: Case No.: SAS No.: SDG No.: HS17120435
Instrument ID: VOA6
Lab File ID: X121129 Calibration Date: 12/11/17 Time: 2302

Init. Calib. Date(s): 12/04/17 12/4/2017

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCM, RRF50.000	MIN RRF	%ID or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Bromochloromethane	55.488541	50.000000	0.2961958	0.1	-10.98	50.00	LINR
Vinyl Chloride	0.7360000	0.5723175	0.5723175	0.1	22.24	50.00	AVRG
Chloromethane	0.8040000	0.5949940	0.6949940	0.1	13.56	50.00	AVRG
Bromomethane	0.4530000	0.3881268	0.3881268	0.1	14,32	50.00	AVRG
Chloroethane	0.4240000	0.3342238	0.3342238	0.1	21.17	50.00	AVRG
Methylene Chloride	47.188443	50.000000	0.5922944	0.1	5.62	50.00	LINR
Acetone	90.954876	100.00000	0.1499104	0.1	9.04	50.00	LINR
Carbon Disulfide	1.5750000	1.3456636	1.3456636	0.1	14.56	50.00	AVRG
1,1-Dichloroethene	0.5120000	0.4142380	0.4142380	0.1	19.09	50.00	AVRG
trans-1,2-Dichloroethene	0.5710000	0.5137107	0.5137107	0.1	10.03	50.00	AVRG
Carbon Tetrachloride	0.3830000	0.332389	0.332389	0.1	13.21	50.00	AVRG
Bromodichloromethane	0.5090000	0.4730507	0.4730507	0.2	7.06	50.00	AVRG
1,1-Dichloroethane	1.1110000	0.9560415	0.9560415	0.2	13.95	50.00	AVRG
1,2-Dichloropropane	0.3990000	0.3651602	0.3651602	0.1	8.48	50.00	AVRG
2-Butanone	0.2510000	0.2225728	0.2225728	0.1	11.32	50.00	AVRG
cis-1,3-Dichloropropene	0.6260000	0.5748615	0.5748615	0.2	8.17	50.00	AVRG
Dibromochloromethane	0.4430000	0.3965482	0.3965482	0.1	10.48	50.00	AVRG
1,1,2-Trichloroethane	0.3230000	0.2918184	0.2918184	0.1	9.65	50.00	AVRG
cis-1,2-Dichloroethene	0.6600000	0.5925259	0.5925259	0.1	10.22	50.00	AVRG
Benzene	1.4200000	1.3218166	1.3218166	0.5	6.91	50.00	AVRG
Chloroform	1.0880000	0.9452220	0.9452220	0.2	13.12	50.00	AVRG
trans-1,3-Dichloropropene	0.5460000	0.4869541	0.4869541	0.1	10.81	50.00	AVRG
Bromoform	0.2750000	0.2598790	0.2598790	0.1	5.50	50.00	AVRG
1,1,1-Trichloroethane	0.8080000	0.6960773	0.6960773	0.1	13.85	50.00	AVRG
4-Methyl-2-Pentanone	0.4280000	0.3605114	0.3605114	0.1	15.77	50.00	AVRG
2-Hexanone	0.3850000	0.3446860	0.3446860	0.1	10.47	50.00	AVRG
1,2-Dichloroethane	0.5300000	0.4616659	0.4616659	0.1	12.89	50.00	AVRG
1,1,2,2-Tetrachloroethane	45.756651	50.000000	0.9158199	0.3	8.49	50.00	LINR
Trichloroethene	0.3340000	0.3145140	0.3145140	0.2	5.83	50.00	AVRG
Toluene	1.5840000	1.3937796	1.3937796	0.4	12.01	50.00	AVRG
DichlorodifIuoromethane	0.4920000	0.3930852	0.3930852	0.1	20.1	50.00	AVRG
Trichlorofluoromethane	0.6820000	0.5420442	0.5420442	0.1	20.52	50.00	AVRG
Tetrachloroethene	0.2390000	0.2128119	0.2128119	0.2	10.96	50.00	AVRG
1,2-Dibromoethane	0.3760000	0.3498237	0.3498237	0.1	6.96	50.00	AVRG
Chlorobenzene	0.9870000	0.8955936	0.8955936	0.5	9.26	50.00	AVRG
1,3-Dichlorobenzene	1.3580000	1.1662982	1.1662982	0.5	14.12	50.00	AVRG
1,4-Dichlorobenzene	47.411628	50.000000	1.2080908	0.4	5.18	50.00	LINR
Ethylbenzene	0.4860000	0.4210284	0.4210284	0.1	13.37	50.00	AVRG
1,2-Dichlorobenzene	1.3200000	1.1636955	1.1636955	0.4	11.84	50.00	AVRG
m,p-Xylenes	0.5830000	0.5041435	0.5041435	0.1	13.52	50.00	AVRG
o-Xylene	0.5840000	0.5265321	0.5265321	0.3	9.84	50.00	AVRG
Styrene	1.0510000	0.9831344	0.9831344	0.3	6.46	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:
Lab Code: Case No.: SAS No.: SDG No.: HS17120435
Instrument ID: VOA6
Lab File ID: X121129 Calibration Date: 12/11/17 Time: 2302

Init. Calib. Date(s): 12/04/17 12/4/2017

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCM, RRF50.000	MIN RRF	%ID or %DRIFT	MAX %D or %DRIFT	CURV TYPE
2,2-Dichloropropane	0.8740000	0.6470123	0.6470123	0.1	25.97	50.00	AVRG
1,1-Dichloropropene	0.4460000	0.3871378	0.3871378	0.1	13.20	50.00	AVRG
Dihromomethane	0.2490000	0.2282430	0.2282430	0.1	8.34	50.00	AVRG
1,3-Dichloropropane	0.6950000	0.6148340	0.6148340	0.1	11.53	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3580000	0.3228317	0.3228317	0.1	9.82	50.00	AVRG
Isopropylbenzene	1.1420000	0.9937808	0.9937808	0.1	12.98	50.00	AVRG
Bromobenzene	0.8990000	0.8046660	0.8046660	0.1	10.49	50.00	AVRG
1,2,3-Trichloropropane	1.3140000	1.0804078	1.0804078	0.1	17.78	50.00	AVRG
n-Propylbenzene	44.205774	50.000000	2.5139297	0.1	11.59	50.00	LINR
2-Chlorotoluene	46.783574	50.000000	1.8208841	0.1	6.43	50.00	LINR
1,3,5-Trimethylbenzene	45.317792	50.000000	1.7516512	0.1	9.36	50.00	LINR
4-Chlorotoluene	46.524310	50.000000	2.1608359	0.1	6.95	50.00	LINR
tert-Butylbenzene	44.861731	50.000000	1.2361463	0.1	10.28	50.00	LINR
1,2,4-Trimethylbenzene	45.529943	50.000000	1.8915097	0.1	8.94	50.00	LINR
sec-Butylbenzene	2.0170000	1.5741443	1.5741443	0.1	21.96	50.00	AVRG
p-Isopropyltoluene	1.7600000	1.4105232	1.4105232	0.1	19.86	50.00	AVRG
n-Butylbenzene	1.4260000	1.1361740	1.1361740	0.5	20.32	50.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1350000	0.1079428	0.1079428	0.05	20.04	50.00	AVRG
1,2,4-Trichlorobenzene	41.880272	50.000000	0.3935209	0.2	16.24	50.00	LINR
Hexachlorobutadiene	42.244882	50.000000	0.1304412	0.1	15.51	50.00	LINR
Naphthalene	38.190086	50.000000	0.944254	0.2	23.62	50.00	2RDR
1,2,3-Trichlorobenzene	39.076420	50.000000	0.2939136	0.1	21.85	50.00	LINR
Dibromofluoromethane	47.799022	50.000000	0.622276	0.1	4.40	50.00	LINR
1,2-Dichloroethane-d4	45.220284	50.000000	0.7648785	0.1	9.56	50.00	LINR
Toluene-d8	52.889163	50.000000	1.6009115	0.1	-5.78	50.00	2RDR
4-Bromofluorobenzene	52.962085	50.000000	0.573171	0.1	-5.92	50.00	2RDR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120435

Lab File ID (Standard): X121102 Date Analyzed: 12/11/17

Instrument ID: VOA6 Time Analyzed: 1151

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	IS1 RT #	IS2(DFB) AREA #	IS2(DFB) RT #	IS3(CBZ) AREA #	IS3(CBZ) RT #
	12 HOUR STD	266863	4.33	427999	5.09	396128	7.74
	UPPER LIMIT	533726	4.83	855998	5.59	792256	8.24
	LOWER LIMIT	133432	3.83	214000	4.59	198064	7.24
	CLIENT SAMPLE NO.						
01	VLCSW-171211	260771	4.33	421932	5.09	388007	7.74
02	VBLKW-0171211	270643	4.33	432291	5.09	396594	7.74
03	HS17120435-01	269759	4.33	432922	5.09	378323	7.74
04	HS17120435-04	237765	4.33	379297	5.09	358722	7.74
05	HS17120435-01	262329	4.33	416820	5.09	370786	7.74
06	HS17120435-01	204836	4.33	325645	5.09	303312	7.74
07	HS17120435-13	223568	4.33	363391	5.09	343373	7.74
08	HS17120435-02	246290	4.33	393136	5.09	362736	7.74
09	HS17120435-03	267825	4.33	421776	5.09	370405	7.74
10	HS17120435-05	227968	4.33	366626	5.09	343857	7.74
11	HS17120435-06	215863	4.33	344687	5.09	322774	7.74
12	HS17120435-07	215883	4.33	341891	5.09	312398	7.74
13	HS17120435-08	234829	4.33	374999	5.09	338882	7.74
14	HS17120435-09	242959	4.33	386013	5.09	347162	7.74
15	HS17120435-10	236773	4.33	380974	5.09	355861	7.74
16	HS17120435-11	247805	4.33	397360	5.09	358207	7.74
17	HS17120435-12	225122	4.33	357384	5.09	331577	7.74
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120435

Lab File ID (Standard): X121102 Date Analyzed: 12/11/17

Instrument ID: VOA6 Time Analyzed: 1151

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	180213	9.73				
	UPPER LIMIT	360426	10.23				
	LOWER LIMIT	90107	9.23				
	CLIENT SAMPLE NO.						
01	VLCSW-171211	179724	9.73				
02	VBLKW-0171211	170211	9.73				
03	HS17120435-01	155331	9.73				
04	HS17120435-04	152080	9.73				
05	HS17120435-01	154688	9.73				
06	HS17120435-01	135373	9.73				
07	HS17120435-13	147272	9.73				
08	HS17120435-02	149580	9.73				
09	HS17120435-03	138454	9.73				
10	HS17120435-05	139201	9.73				
11	HS17120435-06	126441	9.73				
12	HS17120435-07	121124	9.73				
13	HS17120435-08	131141	9.73				
14	HS17120435-09	132636	9.73				
15	HS17120435-10	148679	9.73				
16	HS17120435-11	136973	9.73				
17	HS17120435-12	133240	9.73				
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

MSVOA06 -Logbook

Batch: 30289
Date: 12-11-2017
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-11-2017 11:26 am	1.00	50 mL	50 mL	X121101.D	Liquid	Y	na
	auto find/ purged									
2	VSTD050	CCV	12-11-2017 11:51 am	1.00	50 mL	50 mL	X121102.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
3	CCB	SAMP	12-11-2017 12:16 pm	1.00	50 mL	50 mL	X121103.D	Liquid	Y	na
4	VLCSW-171211	LCS	12-11-2017 12:41 pm	1.00	50 mL	50 mL	X121104.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
5	BLK	SAMP	12-11-2017 01:06 pm	1.00	50 mL	50 mL	X121105.D	Liquid	Y	na
	clean up blank									
6	BLK	SAMP	12-11-2017 01:31 pm	1.00	50 mL	50 mL	X121106.D	Liquid	Y	na
	clean up blank									
7	VBLKW-171211	MBLK	12-11-2017 01:56 pm	1.00	50 mL	50 mL	X121107.D	Liquid	Y	na
8	HS17120365-02	SAMP	12-11-2017 02:21 pm	1.00	50 mL	50 mL	X121108.D	Liquid	Y	<2
9	HS17120365-01	SAMP	12-11-2017 02:46 pm	1.00	50 mL	50 mL	X121109.D	Liquid	Y	<2
10	HS17120435-01	SAMP	12-11-2017 03:11 pm	1.00	50 mL	50 mL	X121110.D	Liquid	Y	<2
11	HS17120435-04	SAMP	12-11-2017 03:35 pm	1.00	50 mL	50 mL	X121111.D	Liquid	Y	<2
12	HS17120179-01	SAMP	12-11-2017 04:00 pm	50.00	1 mL	50 mL	X121112.D	Liquid	Y	<2
13	HS17120435-01MS	MS	12-11-2017 04:25 pm	1.00	50 mL	50 mL	X121113.D	Liquid	Y	<2
	5 uL cal std/25 mL sample									
14	HS17120435-01MSD	MSD	12-11-2017 04:49 pm	1.00	50 mL	50 mL	X121114.D	Liquid	Y	<2
	5 uL cal std/25 mL sample									
15	HS17120194-02	SAMP	12-11-2017 05:14 pm	25.00	2 mL	50 mL	X121115.D	Liquid	Y	<2
16	HS17120194-04	SAMP	12-11-2017 05:39 pm	25.00	2 mL	50 mL	X121116.D	Liquid	Y	<2
17	HS17120179-01	SAMP	12-11-2017 06:04 pm	200.0(	250 µL	50 mL	X121117.D	Liquid	Y	<2
18	HS17120435-13	SAMP	12-11-2017 06:29 pm	1.00	50 mL	50 mL	X121118.D	Liquid	Y	<2
19	HS17120435-02	SAMP	12-11-2017 06:54 pm	1.00	50 mL	50 mL	X121119.D	Liquid	Y	<2
20	HS17120435-03	SAMP	12-11-2017 07:19 pm	1.00	50 mL	50 mL	X121120.D	Liquid	Y	<2
21	HS17120435-05	SAMP	12-11-2017 07:43 pm	1.00	50 mL	50 mL	X121121.D	Liquid	Y	<2
22	HS17120435-06	SAMP	12-11-2017 08:08 pm	1.00	50 mL	50 mL	X121122.D	Liquid	Y	<2
23	HS17120435-07	SAMP	12-11-2017 08:33 pm	1.00	50 mL	50 mL	X121123.D	Liquid	Y	<2
24	HS17120435-08	SAMP	12-11-2017 08:58 pm	1.00	50 mL	50 mL	X121124.D	Liquid	Y	<2
25	HS17120435-09	SAMP	12-11-2017 09:23 pm	1.00	50 mL	50 mL	X121125.D	Liquid	Y	<2
26	HS17120435-10	SAMP	12-11-2017 09:47 pm	1.00	50 mL	50 mL	X121126.D	Liquid	Y	<2
27	HS17120435-11	SAMP	12-11-2017 10:12 pm	1.00	50 mL	50 mL	X121127.D	Liquid	Y	<2
28	HS17120435-12	SAMP	12-11-2017 10:37 pm	1.00	50 mL	50 mL	X121128.D	Liquid	Y	<2
29	VSTD050-END	CCV	12-11-2017 11:02 pm	1.00	50 mL	50 mL	X121129.D	Liquid	Y	<2

Chemical	Value
SURR SPK ID	30502-03-03
IS ID	30502-03-04
LCS/MS ID	30502--03-01/02
BFB ID	30502-03-03
pH Paper	634-37-03

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121101.D

Date : 11-DEC-2017 11:26

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

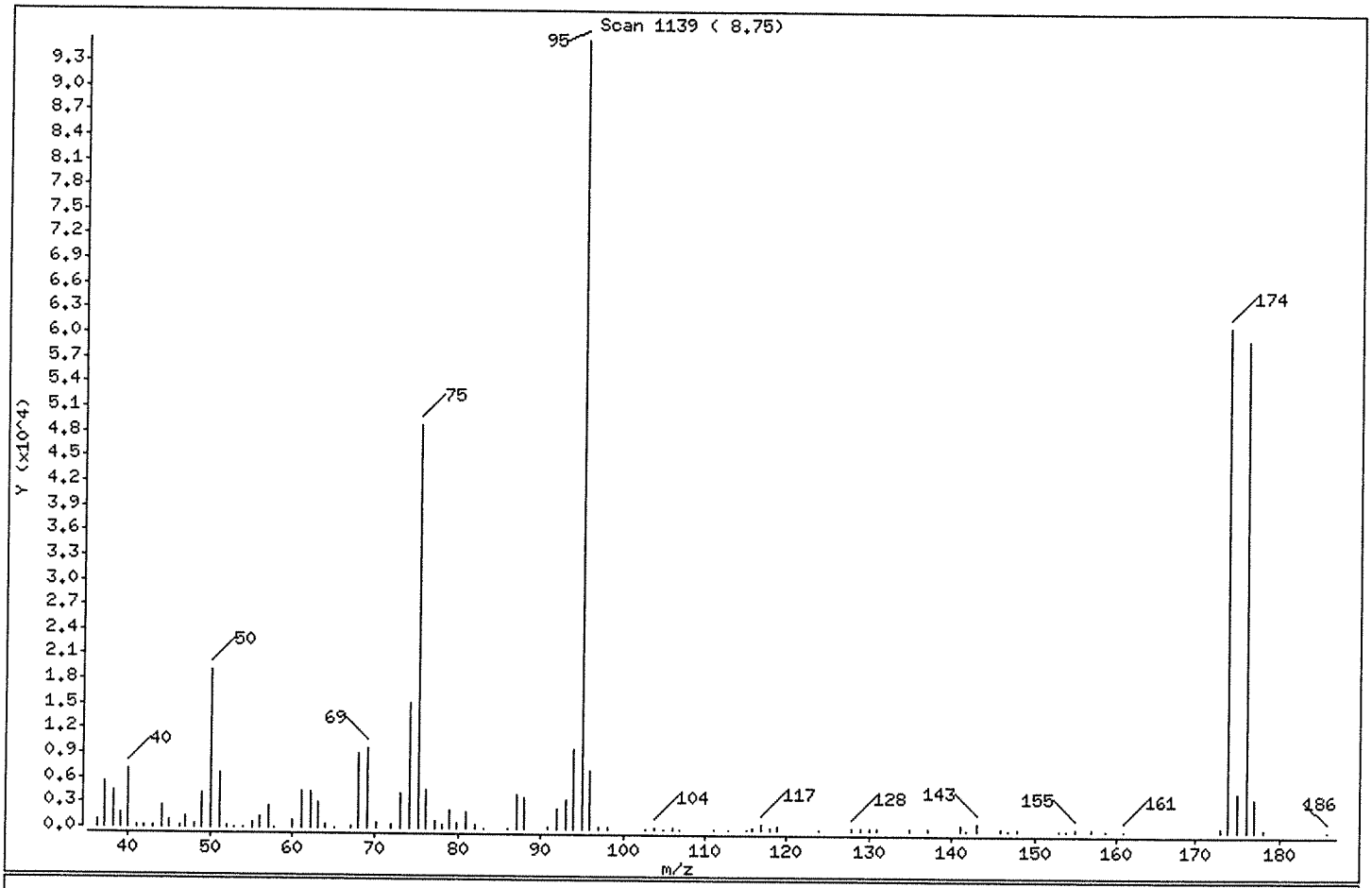
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.03
75	30.00 - 60.00% of mass 95	51.13
96	5.00 - 9.00% of mass 95	7.24
173	Less than 2.00% of mass 174	0.55 (0.86)
174	Greater than 50.00% of mass 95	63.88
175	5.00 - 9.00% of mass 174	4.72 (7.39)
176	95.00 - 101.00% of mass 174	62.34 (97.59)
177	5.00 - 9.00% of mass 176	4.03 (6.47)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121101.D

Date : 11-DEC-2017 11:26

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X121101.D
Spectrum: Scan 1139 (8.75)
Location of Maximum: 95.10
Number of points: 94

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	894	61.00	4323	90.90	306	130.90	167
37.10	5461	62.10	4391	92.00	2373	134.90	159
38.10	4305	63.10	3096	93.00	3545	137.00	115
39.10	1853	64.00	360	94.00	9673	141.00	727
40.00	7010	65.10	92	95.10	95624	141.80	91
41.10	159	67.00	201	96.00	6927	143.00	885
42.00	302	68.00	9051	97.00	213	145.90	121
43.00	209	69.10	9762	98.10	155	146.80	52
44.10	2720	70.10	735	102.80	64	147.90	215
45.00	921	72.00	398	103.90	327	152.90	83
46.30	120	73.00	4269	104.90	102	153.90	80
47.10	1380	74.10	15263	106.00	317	154.90	175
48.00	498	75.10	48896	107.00	76	157.00	143
49.00	4089	76.00	4539	111.10	60	158.80	79
50.10	19152	77.10	772	112.90	50	160.90	71
51.10	6562	78.00	352	115.10	77	173.10	528
52.10	294	79.00	2264	115.80	303	174.00	61080
53.00	60	79.90	710	116.90	623	175.00	4512
54.00	82	80.90	2084	117.90	236	176.00	59608
55.10	582	82.00	486	118.90	360	177.00	3858
56.10	1338	83.10	79	123.90	53	178.00	133
57.10	2666	86.10	67	127.90	317	185.90	77
57.90	85	87.00	4280	128.90	180		
60.00	825	88.00	3843	130.00	271		

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121101.D

Date : 11-DEC-2017 11:26

Client ID: BFB

Instrument: voa6.i

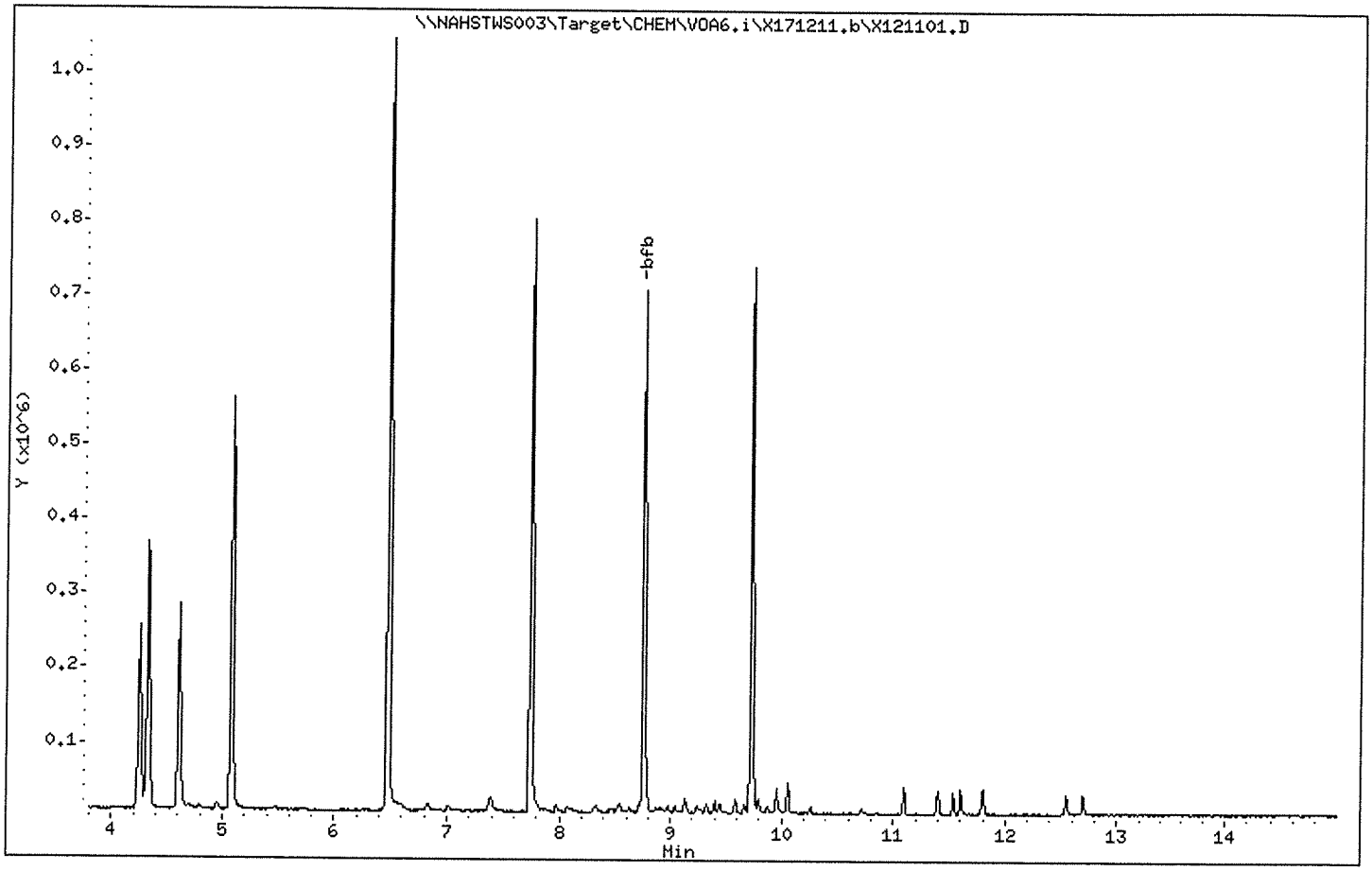
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121102.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 11-DEC-2017 11:51
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

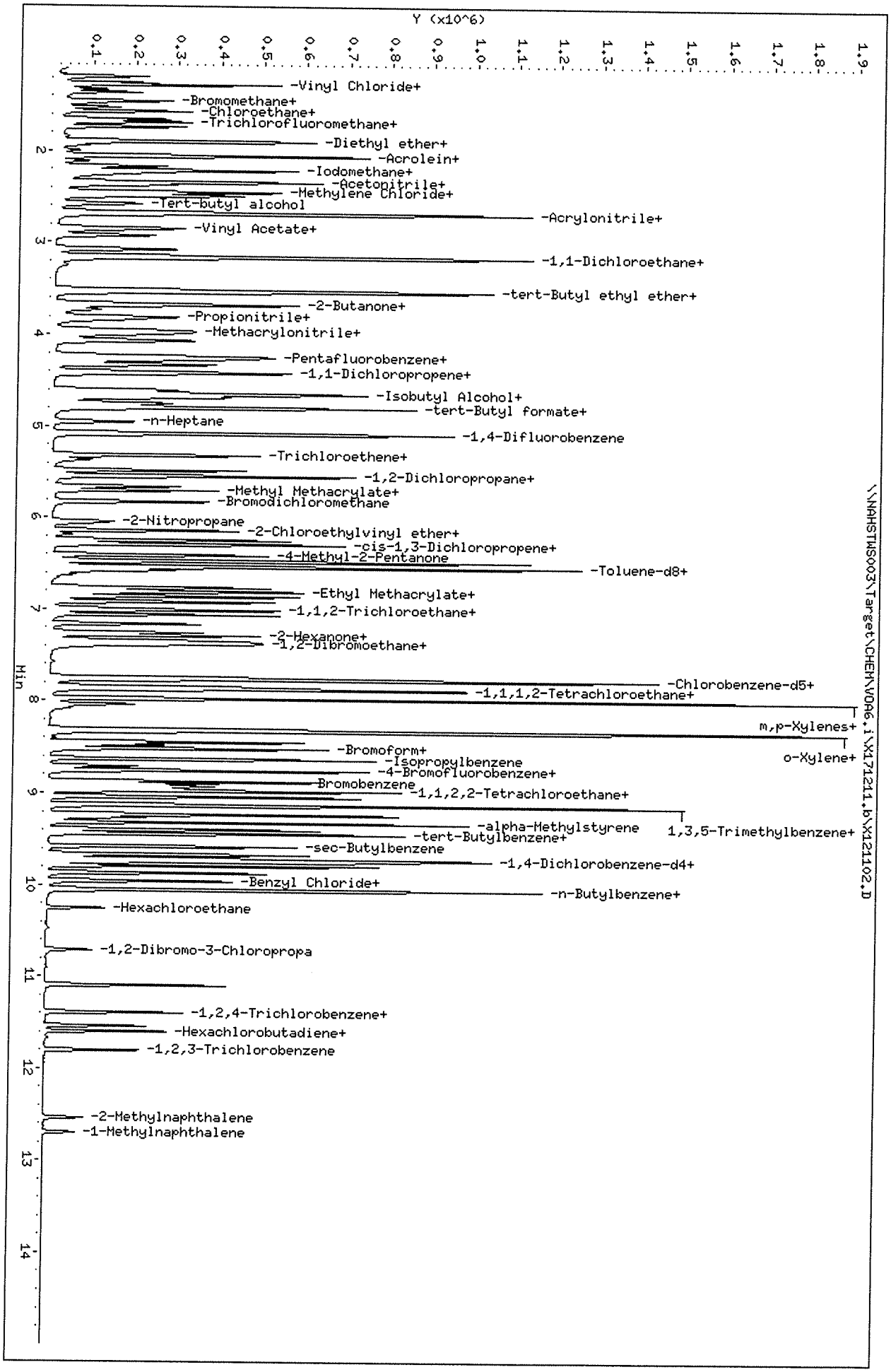
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	266863	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	427999	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	396128	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	180213	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	164529	50.0000	47.35
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	195913	50.0000	43.40
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	620160	50.0000	51.76
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	217555	50.0000	50.79
60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.013)	137659	50.0000	48.53
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	211905	50.0000	49.09
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	175176	50.0000	48.54
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	120613	50.0000	47.06
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	281194	50.0000	47.41
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	127887	50.0000	46.80
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	189858	50.0000	49.75
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	62820	50.0000	45.72
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	211948	50.0000	44.73
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	82612	50.0000	48.33
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	387299	50.0000	51.67
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	21186	50.0000	43.49
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	148282	50.0000	49.79
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	223442	50.0000	46.95

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121102.D Page 2
Report Date: 29-Jan-2018 15:38

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	207191	50.0000	45.64
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	167643	50.0000	49.11
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	360084	50.0000	51.60
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	229552	50.0000	46.90
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	253681	50.0000	46.04
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	239050	50.0000	52.00
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	221272	50.0000	47.44
24	2-Butanone	43	3.731	3.731	(0.863)	127904	100.000	95.56
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	361379	50.0000	51.48
52	2-Hexanone	43	7.284	7.284	(0.941)	286957	100.000	93.99
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	430911	50.0000	51.41
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	315276	50.0000	49.69
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	296580	100.000	87.48
10	Acetone	43	2.112	2.112	(0.488)	79265	100.000	90.08
37	Benzene	78	4.648	4.648	(0.914)	620172	50.0000	51.02
74	Bromobenzene	156	8.874	8.874	(0.912)	158562	50.0000	48.90
29	Bromochloromethane	128	3.953	3.953	(0.914)	78979	50.0000	55.44
39	Bromodichloromethane	83	5.822	5.822	(1.145)	219948	50.0000	50.46
66	Bromoform	173	8.480	8.480	(1.095)	106163	50.0000	48.74
6	Bromomethane	94	1.460	1.460	(0.338)	113226	50.0000	46.83
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	166208	50.0000	50.72
59	Chlorobenzene	112	7.764	7.764	(1.003)	378059	50.0000	48.32
7	Chloroethane	64	1.525	1.525	(0.353)	102706	50.0000	45.40
28	Chloroform	83	4.067	4.067	(0.940)	277772	50.0000	47.80
3	Chloromethane	50	1.195	1.195	(0.276)	206872	50.0000	48.19
27	cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	174004	50.0000	49.41
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	272081	50.0000	50.80
55	Dibromochloromethane	129	7.255	7.255	(0.937)	166861	50.0000	47.56
44	Dibromomethane	93	5.658	5.658	(1.113)	101892	50.0000	47.79
2	Dichlorodifluoromethane	85	1.080	1.080	(0.250)	131952	50.0000	50.22
19	Carbon Disulfide	76	2.212	2.212	(0.512)	815696	100.000	97.02
61	Ethylbenzene	106	7.871	7.871	(1.017)	183186	50.0000	47.56
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	38450	50.0000	68.59
67	Isopropylbenzene	105	8.623	8.623	(1.114)	432477	50.0000	47.82
62	m,p-Xylenes	106	7.971	7.971	(1.030)	436585	100.000	94.43
17	Methylene Chloride	84	2.449	2.449	(0.566)	169378	50.0000	50.58
87	n-Butylbenzene	91	10.049	10.049	(1.033)	278119	50.0000	54.09
73	n-Propylbenzene	91	8.974	8.974	(0.923)	523828	50.0000	51.03
92	Naphthalene	128	11.603	11.603	(1.193)	200540	50.0000	44.48
63	o-Xylene	106	8.308	8.308	(1.073)	224626	50.0000	48.52
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	353760	50.0000	48.65
64	Styrene	104	8.322	8.322	(1.075)	415056	50.0000	49.85
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	262134	50.0000	52.73
56	Tetrachloroethene	164	7.011	7.011	(0.906)	93971	50.0000	49.65
50	Toluene	91	6.532	6.532	(0.844)	605580	50.0000	48.26
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	152091	50.0000	49.89
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	229103	50.0000	49.02
38	Trichloroethene	130	5.321	5.321	(1.046)	146793	50.0000	51.32
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	171225	50.0000	47.02
5	Vinyl Chloride	62	1.260	1.260	(0.291)	177620	50.0000	45.22



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Date : 11-DEC-2017 11:51
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121104.D Page 1
Report Date: 29-Jan-2018 15:38

ALS Laboratory Group

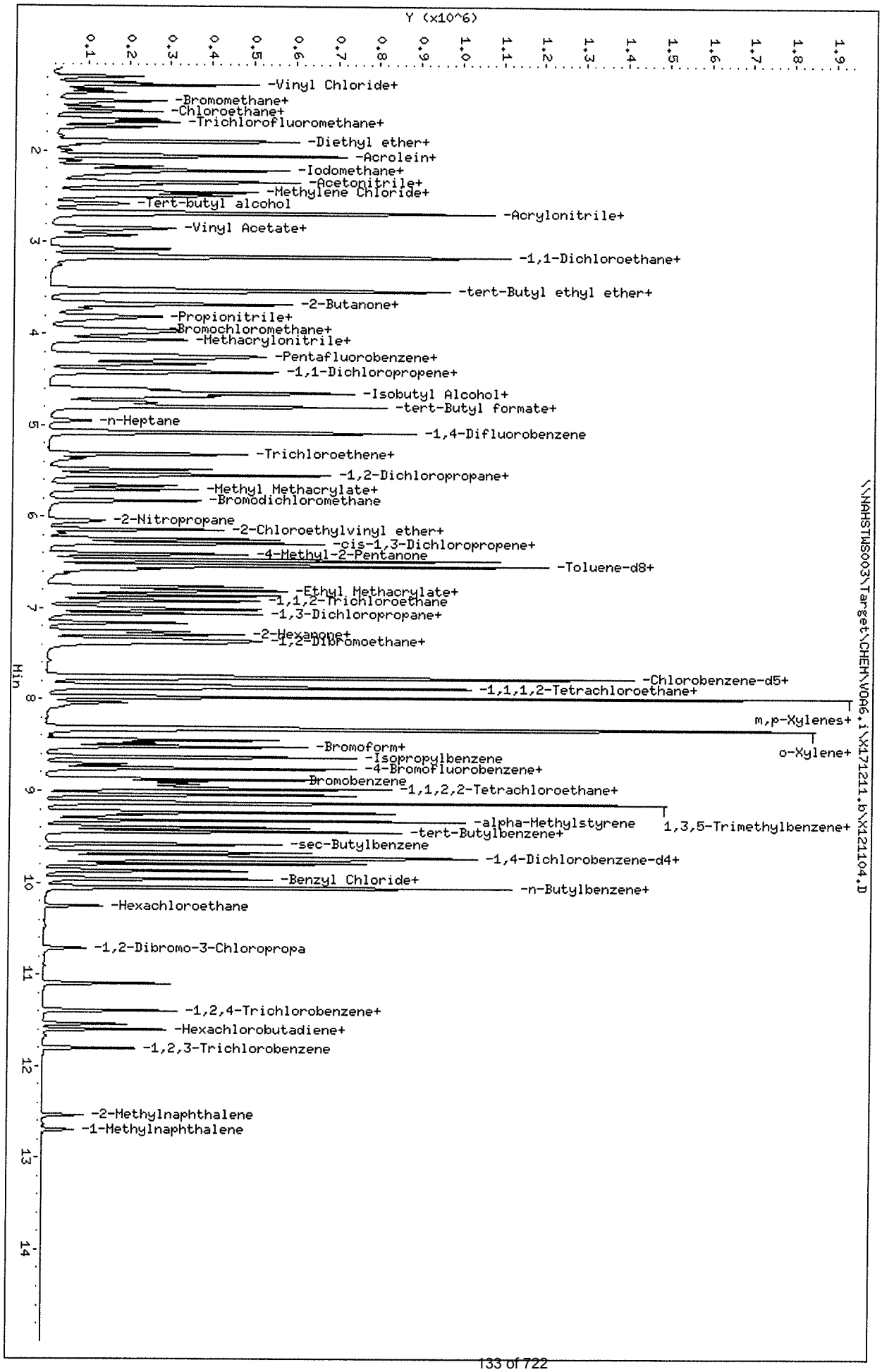
Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121104.D
Lab Smp Id: VLCSW-171211 Client Smp ID: VLCSW-171211
Inj Date : 11-DEC-2017 12:41
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-171211;VLCSW-171211;3;;LCS
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 4 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	260771	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	421932	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	388007	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	179724	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	163712	48.2277	48.22
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	195773	44.3882	44.38
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	613779	52.2847	52.28
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	214766	51.1858	51.18
60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.013)	138093	49.7093	49.70
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	210148	49.8269	49.82
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	168724	46.8956	46.89
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	119807	47.7267	47.72
22 1,1-Dichloroethane	63	3.072	3.079	(0.710)	281715	48.6088	48.60
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	126881	47.5212	47.52
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	189899	50.4765	50.47
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	62360	45.5337	45.53
71 1,2,3-Trichloropropane	75	8.931	8.924	(0.918)	202113	42.7725	42.77
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	80865	47.4922	47.49
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	392050	52.4401	52.44
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	19824	40.8125	40.81
57 1,2-Dibromoethane	107	7.334	7.341	(0.947)	143850	49.3225	49.32
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	228532	48.1512	48.15

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	208511	46.5976	46.59
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	166287	49.4185	49.41
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	360866	51.8518	51.85
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	231612	47.4538	47.45
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	249453	46.2301	46.23
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	243371	53.0784	53.07
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	215225	47.2256	47.22
24	2-Butanone	43	3.731	3.731	(0.863)	119943	91.7110	91.71
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	368344	52.6105	52.61
52	2-Hexanone	43	7.284	7.284	(0.941)	269986	90.2824	90.28
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	438944	52.5007	52.50
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	300636	47.5201	47.52
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	277033	83.4266	83.42
10	Acetone	43	2.112	2.112	(0.488)	76039	88.4084	88.40
37	Benzene	78	4.648	4.648	(0.914)	617833	51.5685	51.56
74	Bromobenzene	156	8.874	8.874	(0.912)	160752	49.7187	49.71
29	Bromochloromethane	128	3.953	3.953	(0.914)	76759	55.1373	55.13
39	Bromodichloromethane	83	5.822	5.822	(1.145)	220659	51.3514	51.35
66	Bromoform	173	8.480	8.480	(1.095)	103587	48.5588	48.55
6	Bromomethane	94	1.460	1.460	(0.338)	112467	47.6048	47.60
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	163879	50.7332	50.73
59	Chlorobenzene	112	7.764	7.764	(1.003)	379132	49.4790	49.47
7	Chloroethane	64	1.525	1.525	(0.353)	100267	45.3641	45.36
28	Chloroform	83	4.067	4.067	(0.940)	276563	48.7093	48.70
3	Chloromethane	50	1.195	1.195	(0.276)	207227	49.4049	49.40
27	cis-1,2-Dichloroethene	96	3.681	3.688	(0.851)	173422	50.3961	50.39
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	269304	51.0059	51.00
55	Dibromochloromethane	129	7.255	7.255	(0.937)	162976	47.4341	47.43
44	Dibromomethane	93	5.658	5.658	(1.113)	101666	48.3767	48.37
2	Dichlorodifluoromethane	85	1.081	1.080	(0.250)	129765	50.5427	50.54
19	Carbon Disulfide	76	2.212	2.212	(0.512)	813503	99.0234	99.02
61	Ethylbenzene	106	7.871	7.871	(1.017)	185941	49.2912	49.29
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	32317	57.9364	57.93
67	Isopropylbenzene	105	8.623	8.623	(1.114)	437623	49.4056	49.40
62	m,p-Xylenes	106	7.971	7.971	(1.030)	441990	97.6098	97.60
17	Methylene Chloride	84	2.449	2.449	(0.566)	170730	52.1939	52.19
87	n-Butylbenzene	91	10.056	10.049	(1.034)	249302	48.6198	48.61
73	n-Propylbenzene	91	8.974	8.974	(0.923)	521457	50.9426	50.94
92	Naphthalene	128	11.603	11.603	(1.193)	201908	44.8835	44.88
63	o-Xylene	106	8.308	8.308	(1.073)	227219	50.1116	50.11
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	335231	46.2355	46.23
64	Styrene	104	8.322	8.322	(1.075)	420403	51.5555	51.55
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	253687	51.1816	51.18
56	Tetrachloroethene	164	7.011	7.011	(0.906)	96238	51.9207	51.92
50	Toluene	91	6.532	6.532	(0.844)	605362	49.2571	49.25
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	152291	51.1293	51.12
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	228572	49.6100	49.61
38	Trichloroethene	130	5.321	5.321	(1.046)	145933	51.7612	51.76
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	164933	46.3516	46.35
5	Vinyl Chloride	62	1.260	1.260	(0.291)	175022	45.6058	45.60



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Date : 11-DEC-2017 12:41
Client ID: VLCSW-171211
Sample Info: VLCSW-171211;VLCSW-171211;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121107.D
Lab Smp Id: VBLKW-171211 Client Smp ID: VBLKW-0171211
Inj Date : 11-DEC-2017 13:56
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-171211;VBLKW-0171211;3;;BLANK
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

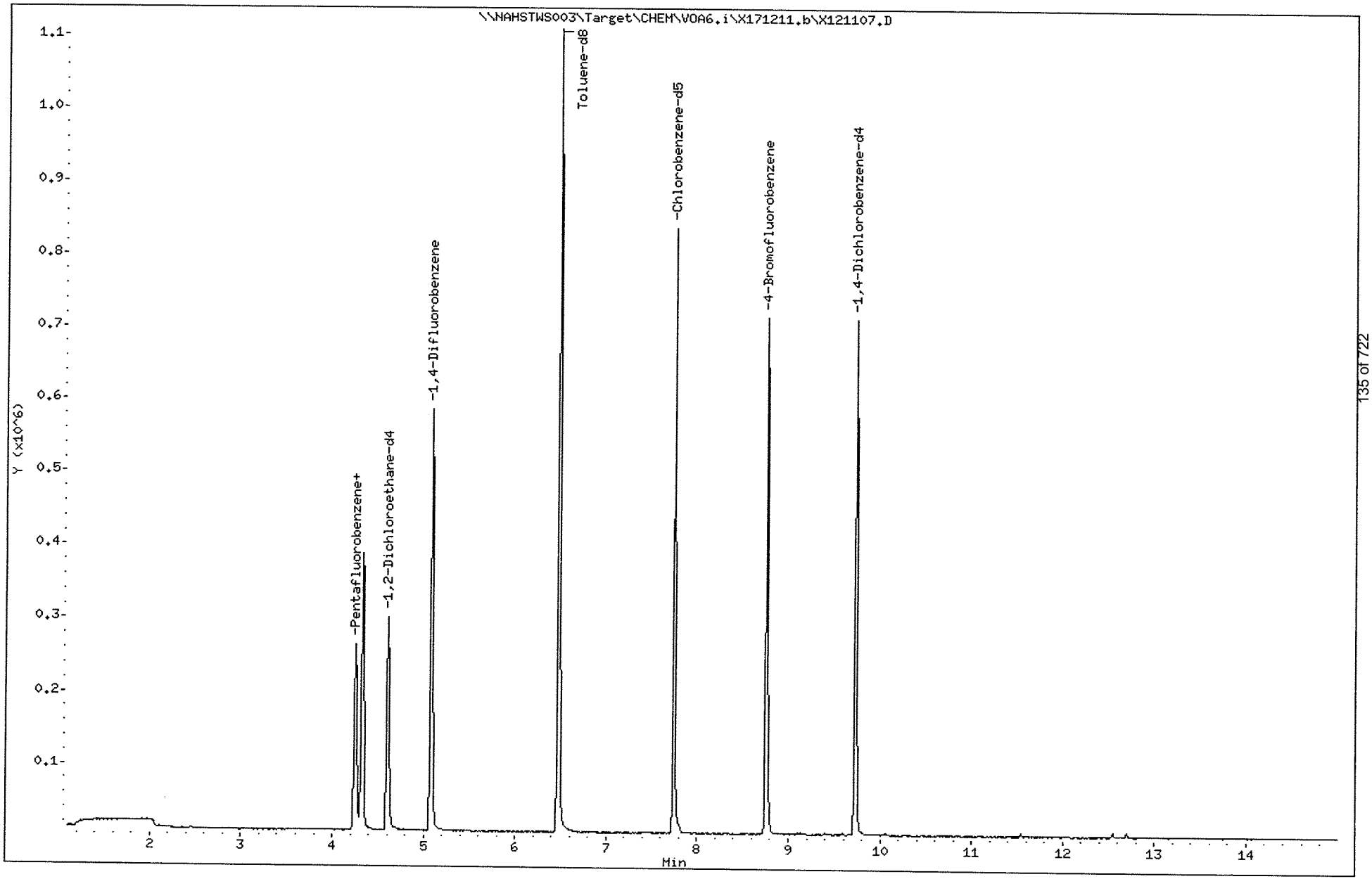
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.325	(1.000)	270643	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	432291	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	396594	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	170211	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	167920	47.6572	47.65
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	204053	44.5771	44.57
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	625399	52.1273	52.12
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	217176	50.6512	50.65

00870685

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121107.D
Date : 11-DEC-2017 13:56
Client ID: VBLKW-0171211
Sample Info: VBLKW-171211;VBLKW-0171211;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121110.D
Lab Smp Id: HS17120435-01 Client Smp ID: HS17120435-01
Inj Date : 11-DEC-2017 15:11
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-01;HS17120435-01;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

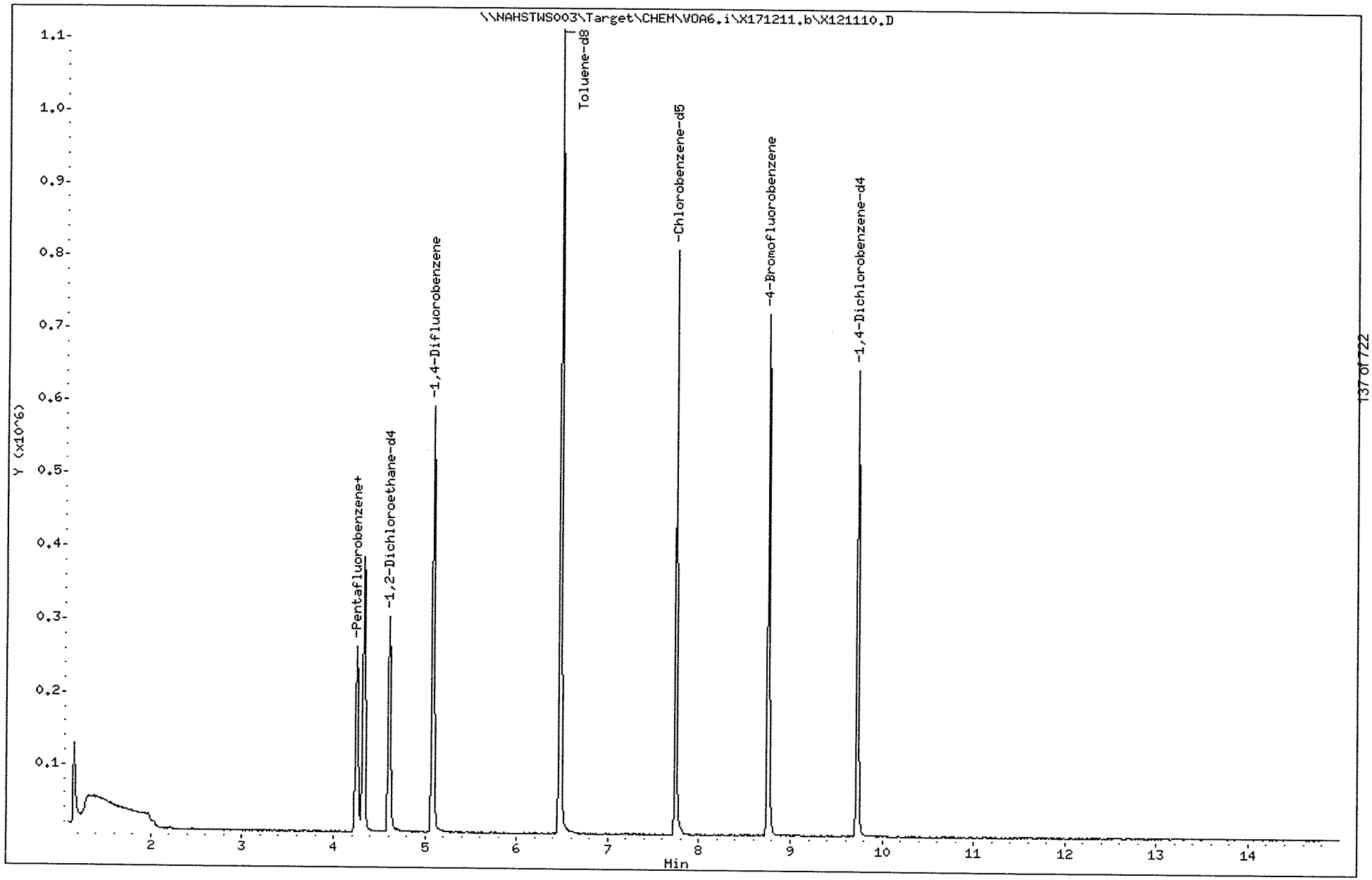
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	269759	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	432922	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	378323	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	155331	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	166327	47.3567	47.35
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	206352	45.2245	45.22
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	619921	54.0840	54.08
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	218524	53.3628	53.36

00870687

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121110.D
Date : 11-DEC-2017 15:11
Client ID: HS17120435-01
Sample Info: HS17120435-01;HS17120435-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121111.D Page 1
Report Date: 29-Jan-2018 15:38

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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121111.D
Lab Smp Id: HS17120435-04 Client Smp ID: HS17120435-04
Inj Date : 11-DEC-2017 15:35
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-04;HS17120435-04;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

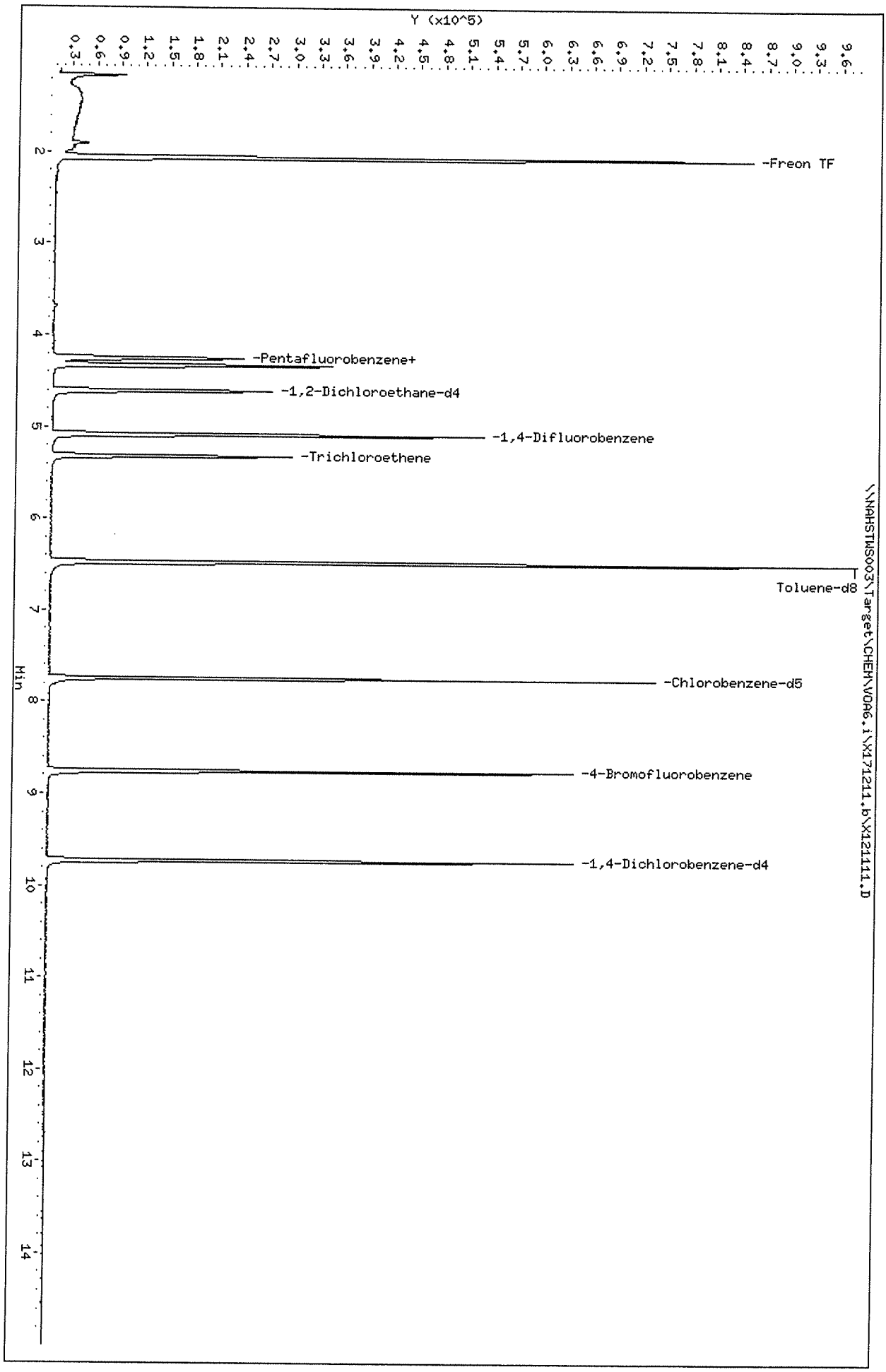
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	237765	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	379297	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	358722	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	152080	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	149294	48.2359	48.23
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	184137	45.7839	45.78
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	553505	51.0476	51.04
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	196383	50.6375	50.63
38 Trichloroethene	130	5.321	5.321	(1.046)	90521	35.7161	35.71

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121111.D
Date : 11-DEC-2017 15:35
Client ID: HS17120435-04
Sample Info: HS17120435-04;HS17120435-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



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Date : 11-DEC-2017 15:35

Client ID: HS17120435-04

Instrument: voa6.i

Sample Info: HS17120435-04;HS17120435-04;;;

Purge Volume: 5.0

Operator: PC

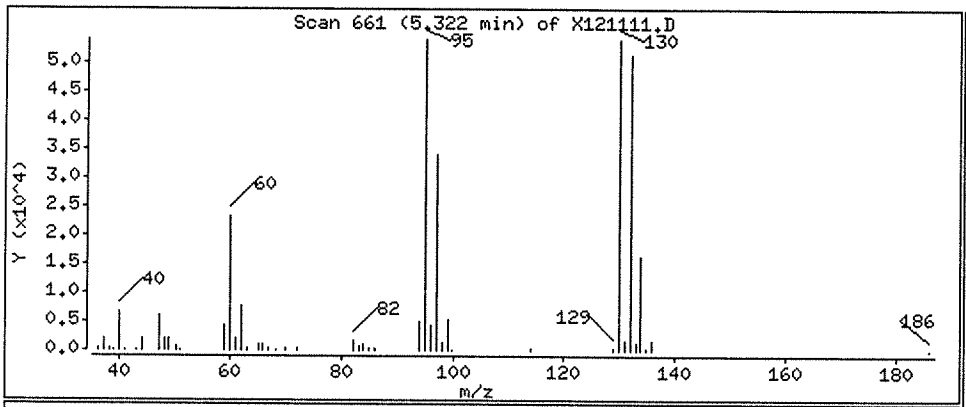
Column phase: DB624

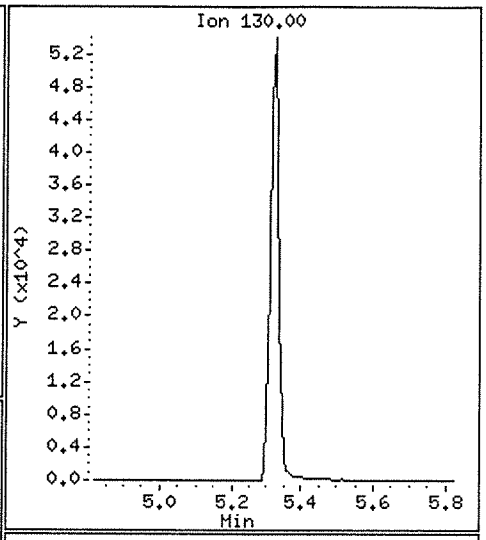
Column diameter: 0.18

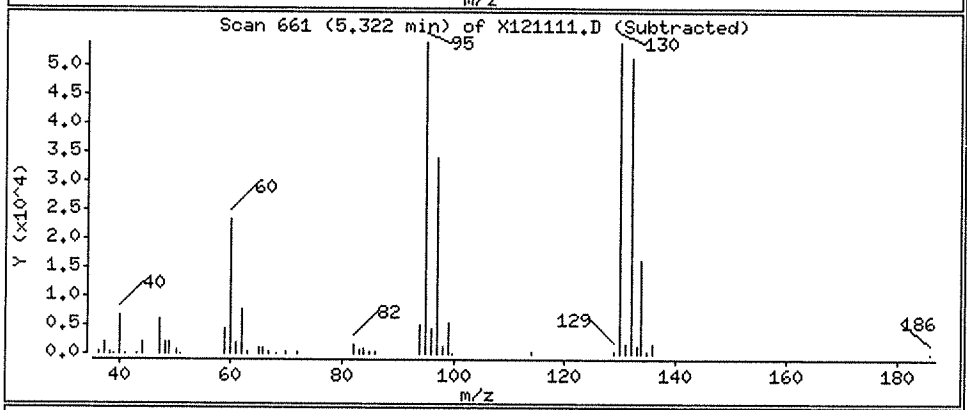
38 Trichloroethene

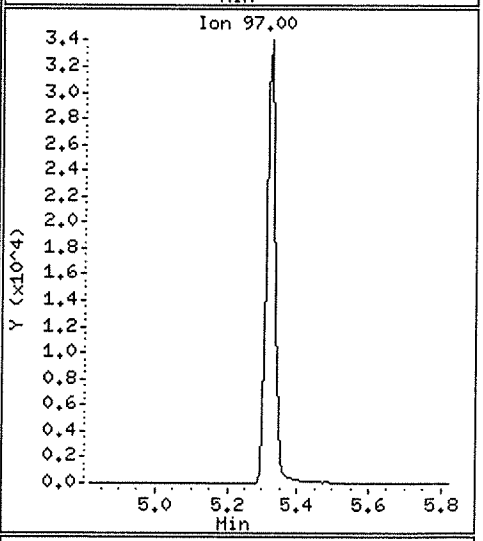
Concentration: 35.71 ug/l

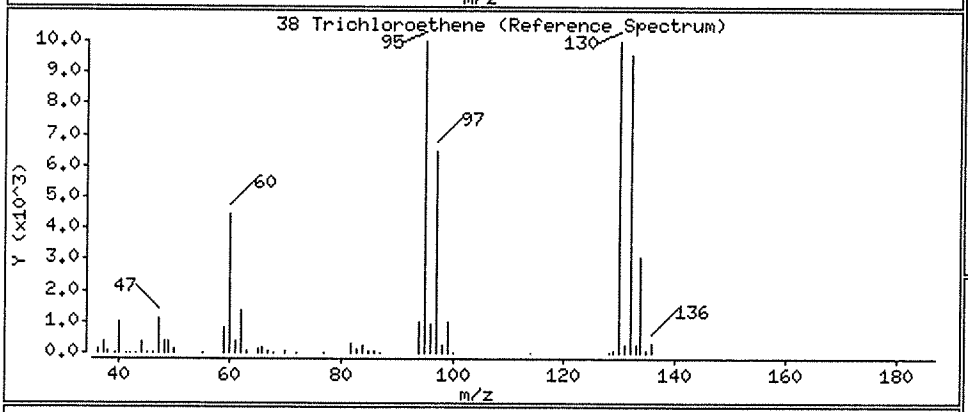
Review Code:

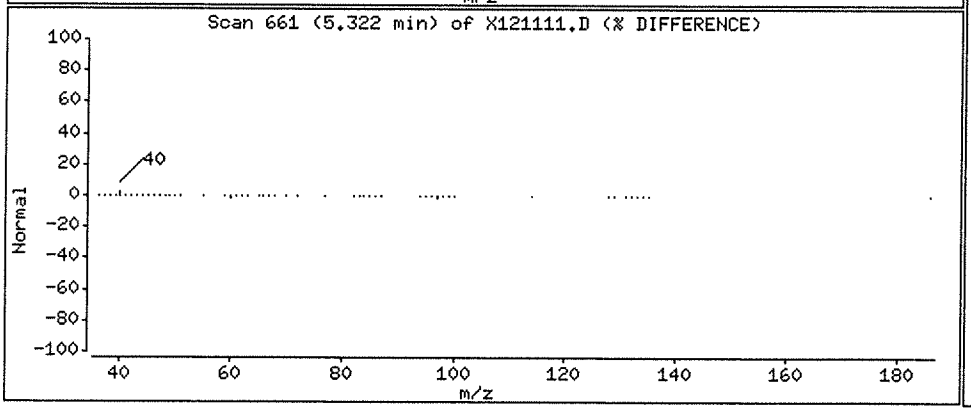


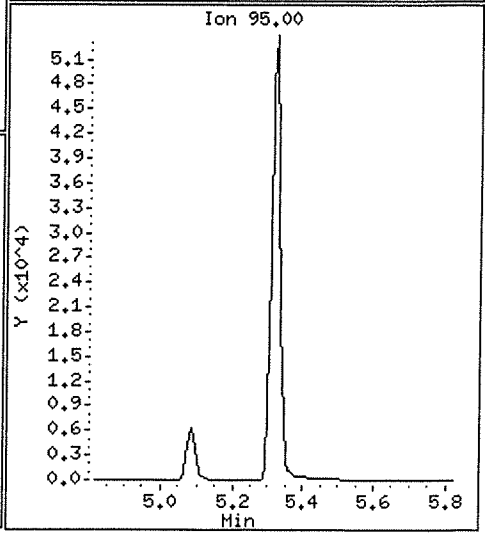












ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121113.D
Lab Smp Id: HS17120435-01MS Client Smp ID: HS17120435-01MS
Inj Date : 11-DEC-2017 16:25
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-01MS;HS17120435-01MS;3;;MS
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 13 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

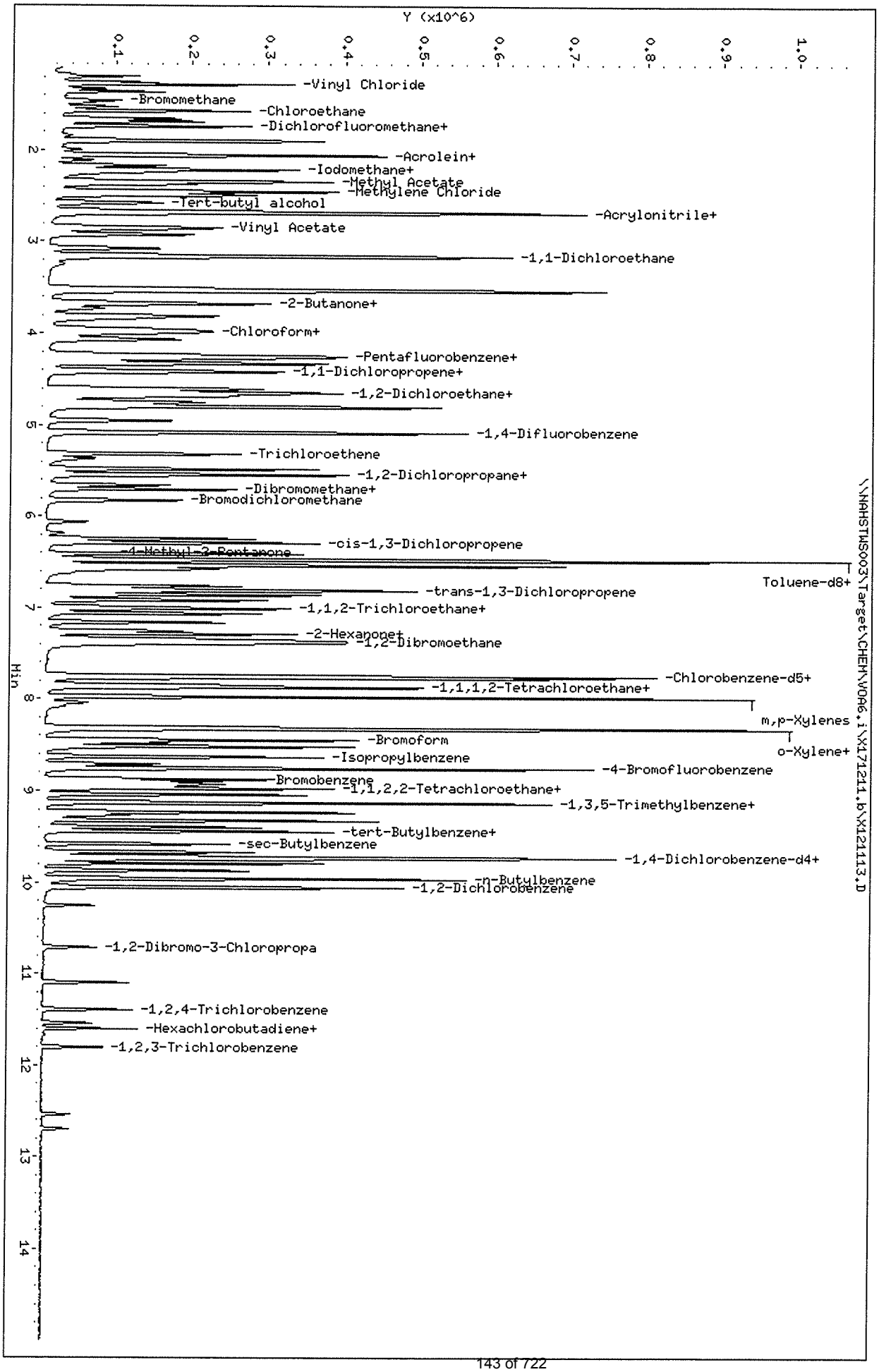
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.325	(1.000)	262329	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	416820	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	370786	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.727	9.726	(1.000)	154688	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	158955	46.5311	46.53
$ 35 1,2-Dichloroethane-d4	65	4.605	4.612	(1.065)	194485	43.8365	43.83
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	591023	52.6689	52.66
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	207919	51.8405	51.84
60 1,1,1,2-Tetrachloroethane	131	7.843	7.842	(1.013)	67681	25.4946	25.49
31 1,1,1-Trichloroethane	97	4.232	4.239	(0.978)	115645	27.2570	27.25
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	105413	34.1383	34.13
53 1,1,2-Trichloroethane	83	6.919	6.918	(0.894)	66381	27.6719	27.67
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	144575	24.7977	24.79
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	71650	26.6760	26.67
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	107201	28.8442	28.84
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	22646	21.1251	21.12
71 1,2,3-Trichloropropane	75	8.931	8.924	(0.918)	128372	31.5639	31.56
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	30438	22.3096	22.30
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	174355	27.3096	27.30
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	13084	31.2962	31.29
57 1,2-Dibromoethane	107	7.334	7.341	(0.947)	82132	29.4689	29.46
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	101706	24.8975	24.89

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121113.D Page 2
Report Date: 29-Jan-2018 15:38

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	109032	24.6651	24.66
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	83644	25.1629	25.16
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	160622	27.1291	27.12
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	101675	24.2032	24.20
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	135660	26.3090	26.30
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	106039	27.1345	27.13
26	2,2-Dichloropropane	77	3.667	3.666	(0.848)	116213	25.3485	25.34
24	2-Butanone	43	3.731	3.731	(0.863)	89622	68.1199	68.11
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	169325	28.2726	28.27
52	2-Hexanone	43	7.284	7.284	(0.941)	195088	68.2667	68.26
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	196471	27.6129	27.61
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	126556	23.2417	23.24
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	198097	62.4262	62.42
10	Acetone	43	2.112	2.112	(0.488)	56098	64.3458	64.34
37	Benzene	78	4.648	4.648	(0.914)	316367	26.7300	26.72
74	Bromobenzene	156	8.874	8.874	(0.912)	76444	27.4699	27.46
29	Bromochloromethane	128	3.953	3.953	(0.914)	41311	29.0319	29.03
39	Bromodichloromethane	83	5.823	5.822	(1.145)	109117	25.7050	25.70
66	Bromoform	173	8.480	8.480	(1.095)	60300	29.5799	29.57
6	Bromomethane	94	1.460	1.460	(0.338)	36971	15.5561	15.55
34	Carbon Tetrachloride	117	4.412	4.411	(0.868)	90553	28.3770	28.37
59	Chlorobenzene	112	7.764	7.764	(1.003)	186711	25.4986	25.49
7	Chloroethane	64	1.525	1.525	(0.353)	93998	42.2752	42.27
28	Chloroform	83	4.068	4.067	(0.940)	141812	24.8281	24.82
3	Chloromethane	50	1.195	1.195	(0.276)	96559	22.8839	22.88
27	cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	88593	25.5920	25.59
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	132650	25.4319	25.43
55	Dibromochloromethane	129	7.255	7.255	(0.937)	85908	26.1648	26.16
44	Dibromomethane	93	5.658	5.658	(1.113)	55447	26.7075	26.70
2	Dichlorodifluoromethane	85	1.081	1.080	(0.250)	65542	25.3766	25.37
19	Carbon Disulfide	76	2.212	2.212	(0.512)	452842	54.7947	54.79
61	Ethylbenzene	106	7.871	7.871	(1.017)	90935	25.2256	25.22
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	10927	23.2389	23.23
67	Isopropylbenzene	105	8.623	8.623	(1.114)	207229	24.4817	24.48
62	m,p-Xylenes	106	7.972	7.971	(1.030)	217934	50.3642	50.36
17	Methylene Chloride	84	2.449	2.449	(0.566)	85226	25.7442	25.74
87	n-Butylbenzene	91	10.049	10.049	(1.033)	100190	22.7018	22.70
73	n-Propylbenzene	91	8.974	8.974	(0.923)	239196	27.3835	27.38
92	Naphthalene	128	11.603	11.603	(1.193)	84276	22.9396	22.93
63	o-Xylene	106	8.308	8.308	(1.073)	111410	25.7119	25.71
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	144197	23.1067	23.10
64	Styrene	104	8.323	8.322	(1.075)	198846	25.5177	25.51
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	113199	26.6882	26.68
56	Tetrachloroethene	164	7.005	7.011	(0.905)	50555	28.5413	28.54
50	Toluene	91	6.532	6.532	(0.844)	312882	26.6410	26.64
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	80107	26.7349	26.73
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	114348	25.1228	25.12
38	Trichloroethene	130	5.321	5.321	(1.046)	76948	27.6275	27.62
8	Trichlorofluoromethane	101	1.690	1.689	(0.391)	105185	29.3849	29.38
5	Vinyl Chloride	62	1.260	1.260	(0.291)	95233	24.6677	24.66



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Date : 11-DEC-2017 16:25
Client ID: HS17120435-01HS
Sample Info: HS17120435-01MS;HS17120435-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121114.D
Lab Smp Id: HS17120435-01MSD Client Smp ID: HS17120435-01MSD
Inj Date : 11-DEC-2017 16:49
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-01MSD;HS17120435-01MSD;3;;MSD
Misc Info : HS16030331;WATER;0;1;
Comment :
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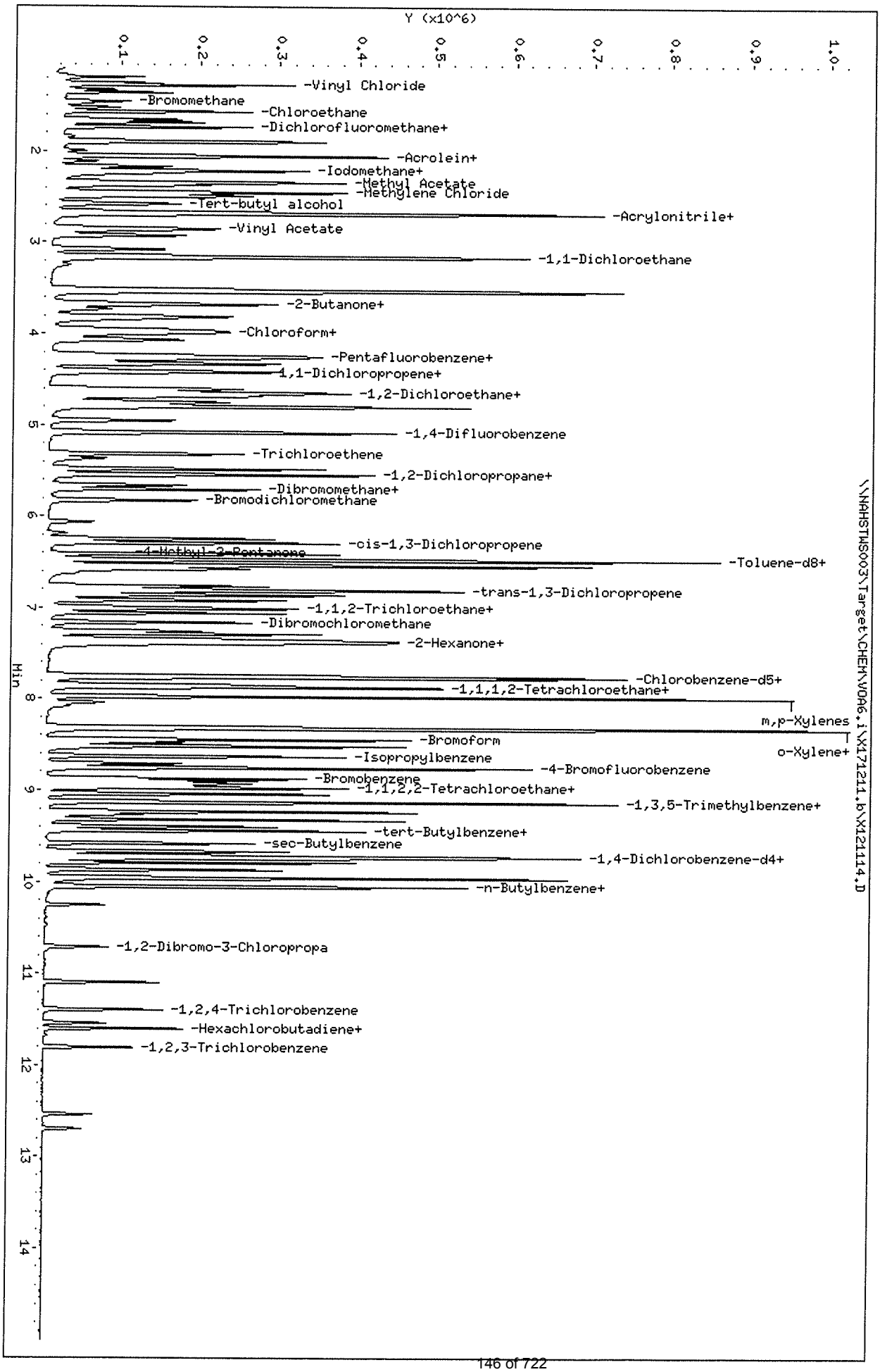
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 14 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	204836	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	325645	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	303312	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	135373	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	131651	49.3850	49.38
$ 35 1,2-Dichloroethane-d4	65	4.605	4.612	(1.065)	166550	48.0591	48.05
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	485176	52.8473	52.84
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	178137	54.2367	54.23
60 1,1,1,2-Tetrachloroethane	131	7.843	7.842	(1.013)	69071	31.8062	31.80
31 1,1,1-Trichloroethane	97	4.240	4.239	(0.980)	110266	33.2838	33.28
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	115940	42.8134	42.81
53 1,1,2-Trichloroethane	83	6.919	6.918	(0.894)	69380	35.3560	35.35
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	142598	31.3236	31.32
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	66896	31.8966	31.89
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	100644	34.6619	34.66
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	31287	31.4347	31.43
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	137871	38.7362	38.73
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	40738	32.6705	32.67
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	184781	32.9789	32.97
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	15404	42.1027	42.10
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	87615	38.4294	38.42
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	115944	32.4327	32.43

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	113737	32.9332	32.93
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	86554	33.3286	33.32
75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	170378	32.7447	32.74
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	112607	30.6302	30.63
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	146689	34.7763	34.77
84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	115945	33.7689	33.76
26 2,2-Dichloropropane	77	3.666	3.666	(0.848)	112630	31.4624	31.46
24 2-Butanone	43	3.731	3.731	(0.863)	94793	92.2732	92.27
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	175951	33.5008	33.50
52 2-Hexanone	43	7.284	7.284	(0.941)	205162	87.7624	87.76
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	212363	33.9529	33.95
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	135620	28.4599	28.45
45 4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	212302	81.7856	81.78
10 Acetone	43	2.112	2.112	(0.488)	58232	86.1469	86.14
37 Benzene	78	4.648	4.648	(0.914)	311369	33.6734	33.67
74 Bromobenzene	156	8.867	8.874	(0.912)	80277	32.9632	32.96
29 Bromochloromethane	128	3.953	3.953	(0.914)	44112	40.0699	40.06
39 Bromodichloromethane	83	5.823	5.822	(1.145)	114335	34.4753	34.47
66 Bromoform	173	8.480	8.480	(1.095)	64389	38.6122	38.61
6 Bromomethane	94	1.460	1.460	(0.338)	41689	22.4647	22.46
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	85376	34.2454	34.24
59 Chlorobenzene	112	7.764	7.764	(1.003)	190116	31.7394	31.73
7 Chloroethane	64	1.525	1.525	(0.353)	57797	33.2899	33.28
28 Chloroform	83	4.068	4.067	(0.940)	141154	31.6493	31.64
3 Chloromethane	50	1.195	1.195	(0.276)	91702	27.8327	27.83
27 cis-1,2-Dichloroethene	96	3.681	3.688	(0.851)	86576	32.0290	32.02
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	139141	34.1453	34.14
55 Dibromochloromethane	129	7.255	7.255	(0.937)	91160	33.9407	33.94
44 Dibromomethane	93	5.658	5.658	(1.113)	58742	36.2166	36.21
2 Dichlorodifluoromethane	85	1.081	1.080	(0.250)	59670	29.5876	29.58
19 Carbon Disulfide	76	2.212	2.212	(0.512)	434860	67.3878	67.38
61 Ethylbenzene	106	7.871	7.871	(1.017)	93912	31.8468	31.84
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	12985	31.2736	31.27
67 Isopropylbenzene	105	8.623	8.623	(1.114)	214399	30.9634	30.96
62 m,p-Xylenes	106	7.971	7.971	(1.030)	220648	62.3349	62.33
17 Methylene Chloride	84	2.449	2.449	(0.566)	87038	33.7660	33.76
87 n-Butylbenzene	91	10.056	10.049	(1.034)	109251	28.2870	28.28
73 n-Propylbenzene	91	8.974	8.974	(0.923)	250561	32.6787	32.67
92 Naphthalene	128	11.603	11.603	(1.193)	117887	35.4209	35.42
63 o-Xylene	106	8.308	8.308	(1.073)	112239	31.6656	31.66
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	155990	28.5629	28.56
64 Styrene	104	8.322	8.322	(1.075)	209292	32.8331	32.83
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	121127	32.5607	32.56
56 Tetrachloroethene	164	7.012	7.011	(0.906)	50095	34.5731	34.57
50 Toluene	91	6.532	6.532	(0.844)	304684	31.7141	31.71
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	77430	33.0946	33.09
51 trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	123036	34.6000	34.60
38 Trichloroethene	130	5.321	5.321	(1.046)	76765	35.2787	35.27
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	97669	34.9435	34.94
5 Vinyl Chloride	62	1.260	1.260	(0.291)	89978	29.8481	29.84



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Date : 11-DEC-2017 16:49
Client ID: HS17120435-01MSD
Sample Info: HS17120435-01MSD;HS17120435-01MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121118.D Page 1
Report Date: 29-Jan-2018 15:38

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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121118.D
Lab Smp Id: HS17120435-13 Client Smp ID: HS17120435-13
Inj Date : 11-DEC-2017 18:29
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-13;HS17120435-13;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	223568	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	363391	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	343373	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	147272	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	142067	48.8216	48.82
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	174865	46.2376	46.23
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	522959	50.4105	50.41
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	183459	49.4448	49.44

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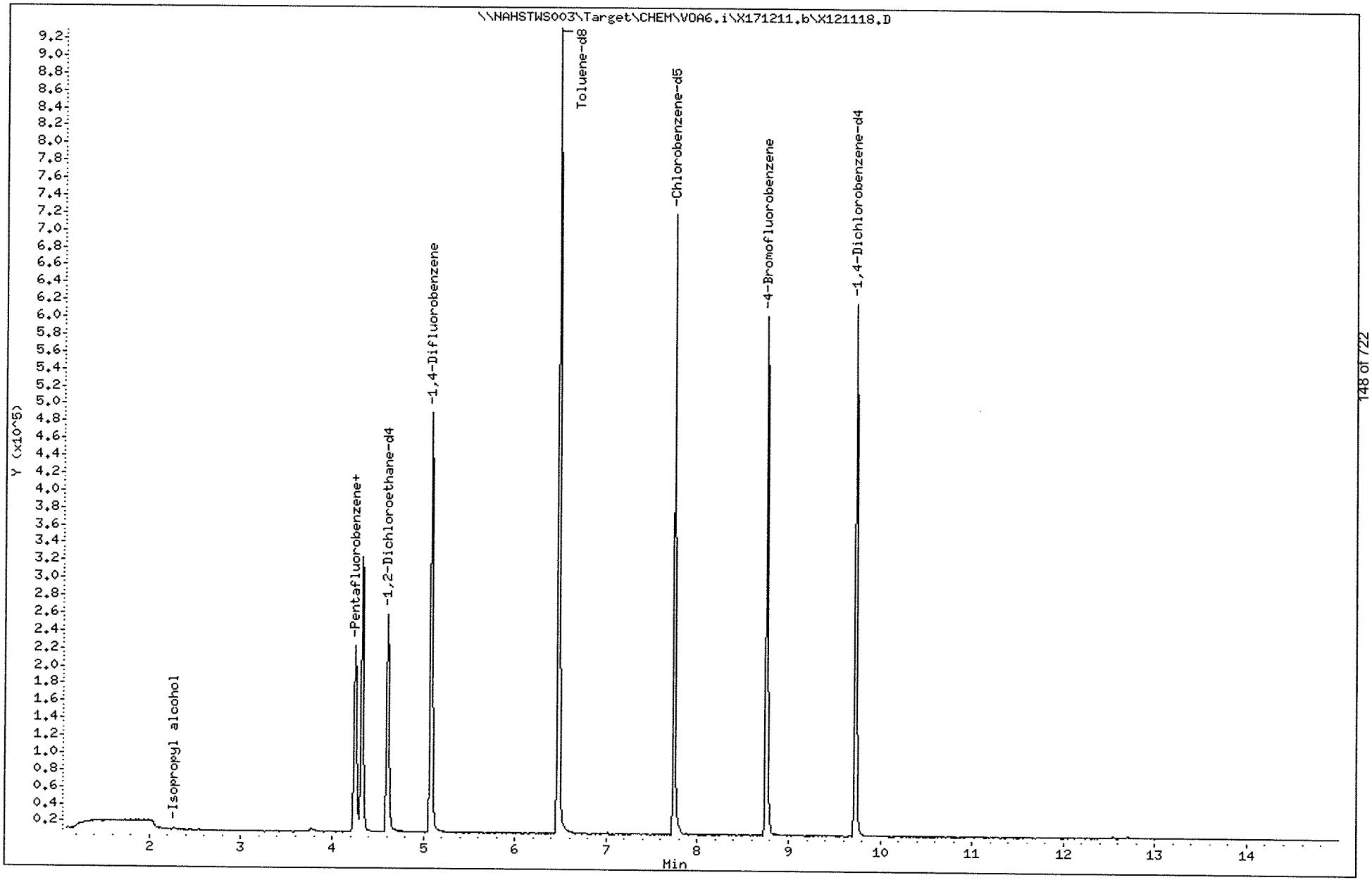
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121118.D
Date : 11-DEC-2017 18:29
Client ID: HS17120435-13
Sample Info: HS17120435-13;HS17120435-13;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121119.D
Lab Smp Id: HS17120435-02 Client Smp ID: HS17120435-02
Inj Date : 11-DEC-2017 18:54
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-02;HS17120435-02;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

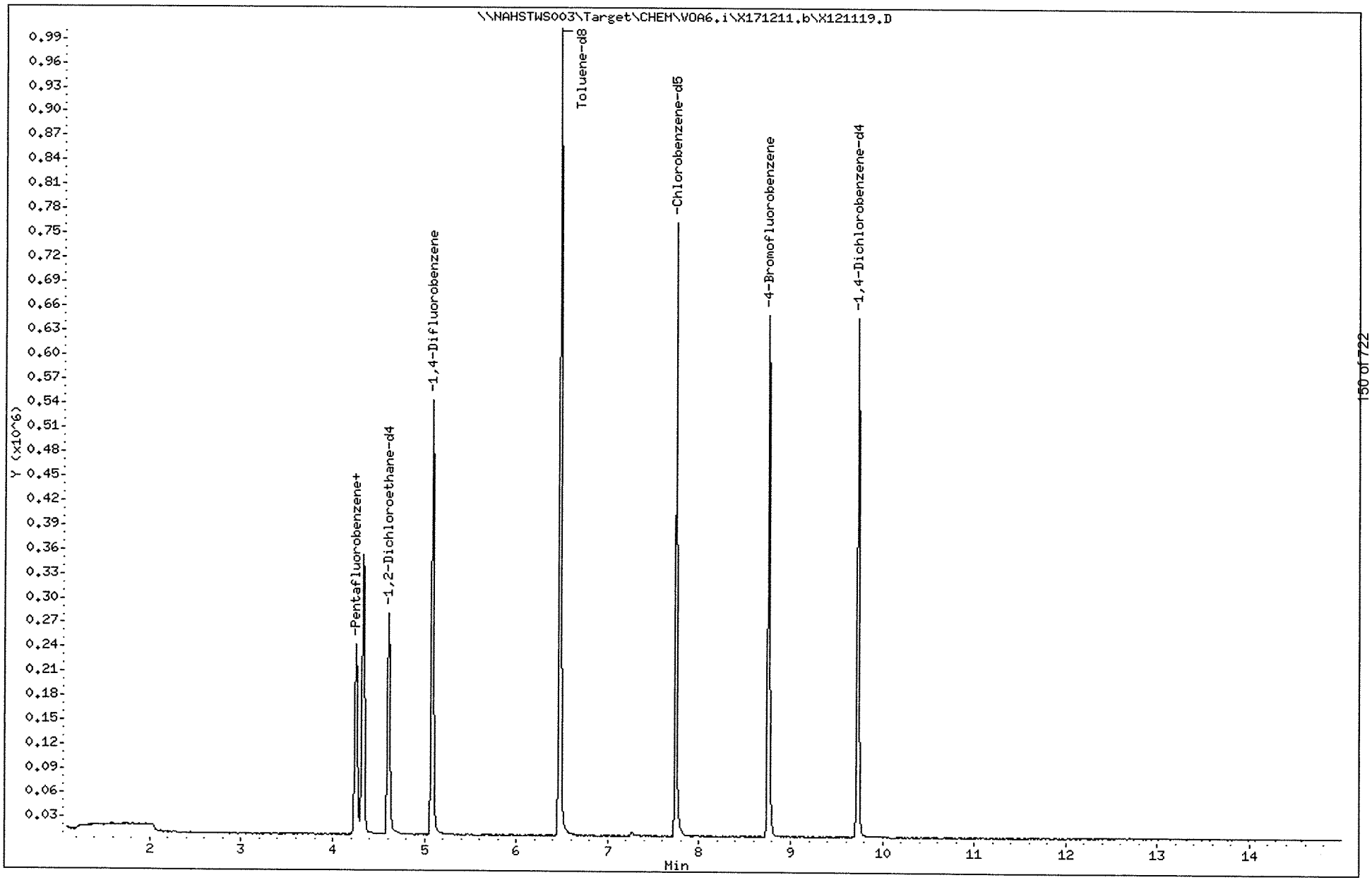
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	246290	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	393136	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	362736	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	149580	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	152824	47.6615	47.66
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	189793	45.5576	45.55
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	568834	51.8492	51.84
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	201517	51.3700	51.36

00870700

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121119.D
Date : 11-DEC-2017 18:54
Client ID: HS17120435-02
Sample Info: HS17120435-02;HS17120435-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121120.D
Lab Smp Id: HS17120435-03 Client Smp ID: HS17120435-03
Inj Date : 11-DEC-2017 19:19
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-03;HS17120435-03;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	267825	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	421776	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	370405	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	138454	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	161091	46.1851	46.18
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	201959	44.5839	44.58
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	601359	53.6061	53.60
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	209918	52.3802	52.38
38 Trichloroethene	130	5.321	5.321	(1.046)	1967	0.69794	0.69(a)

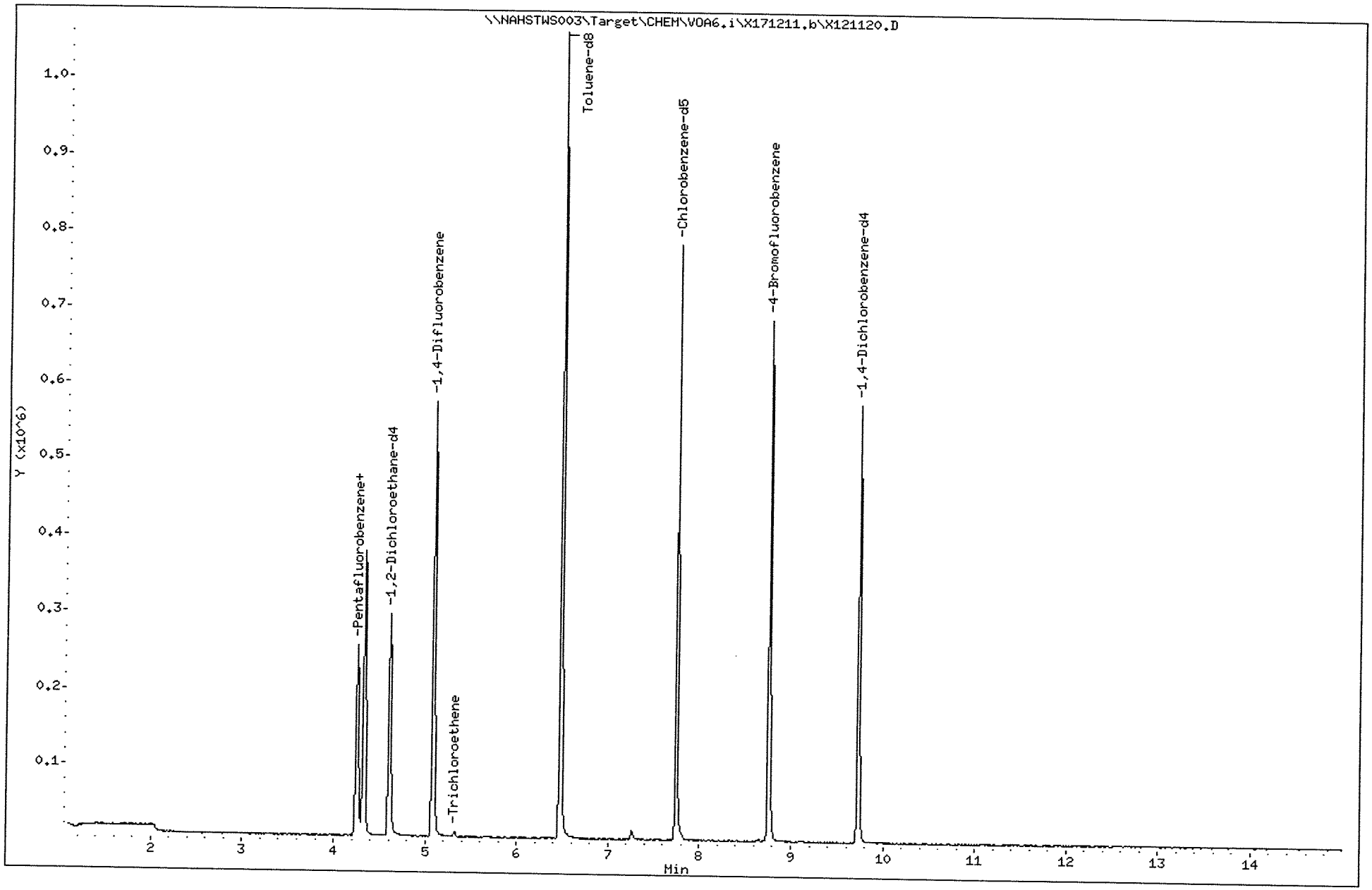
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121120.D
Date : 11-DEC-2017 19:19
Client ID: HS17120435-03
Sample Info: HS17120435-03;HS17120435-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121120.D

Date : 11-DEC-2017 19:19

Client ID: HS17120435-03

Instrument: voa6.i

Sample Info: HS17120435-03;HS17120435-03;;;

Purge Volume: 5.0

Operator: PC

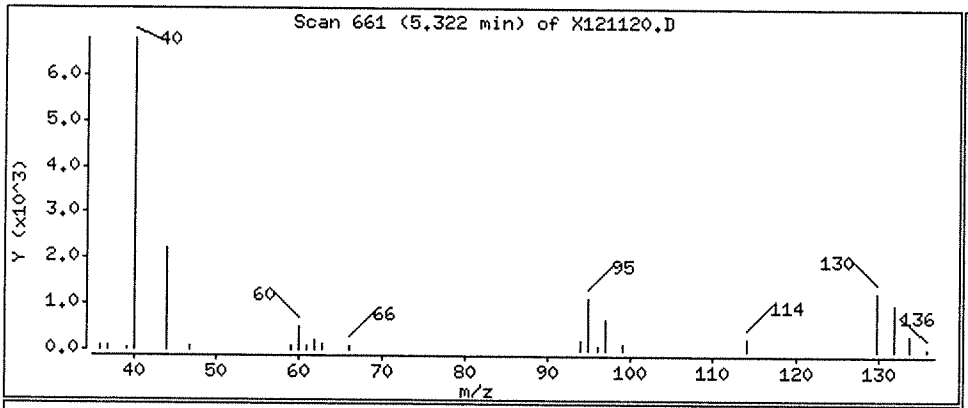
Column phase: DB624

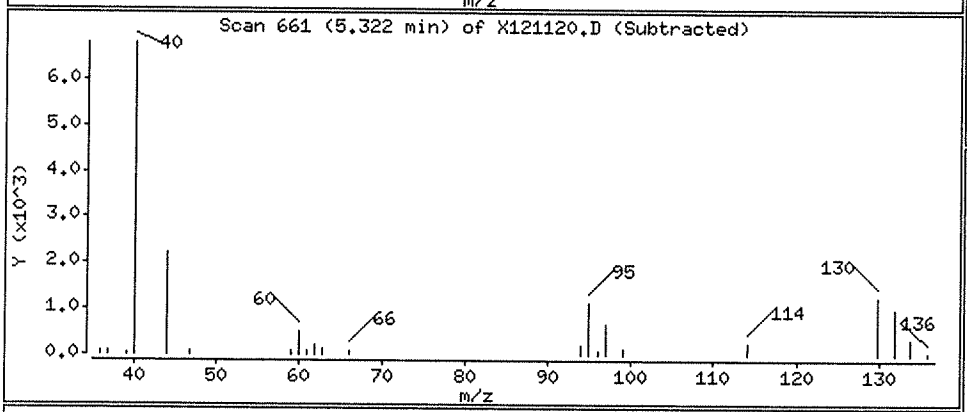
Column diameter: 0.18

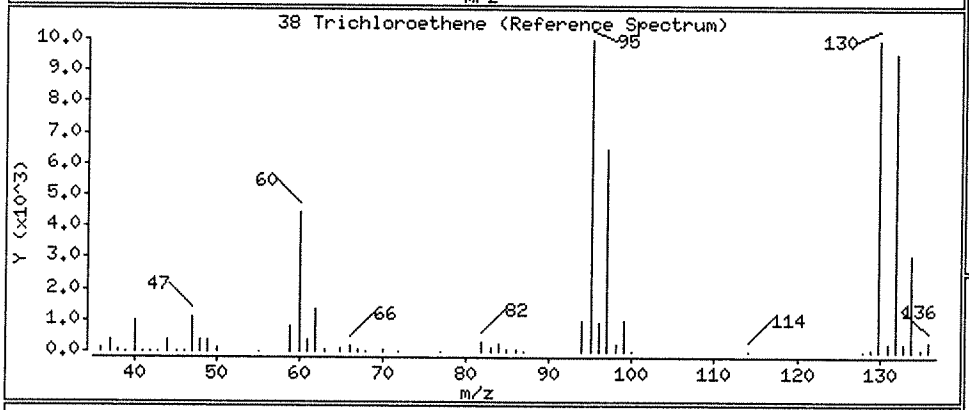
38 Trichloroethene

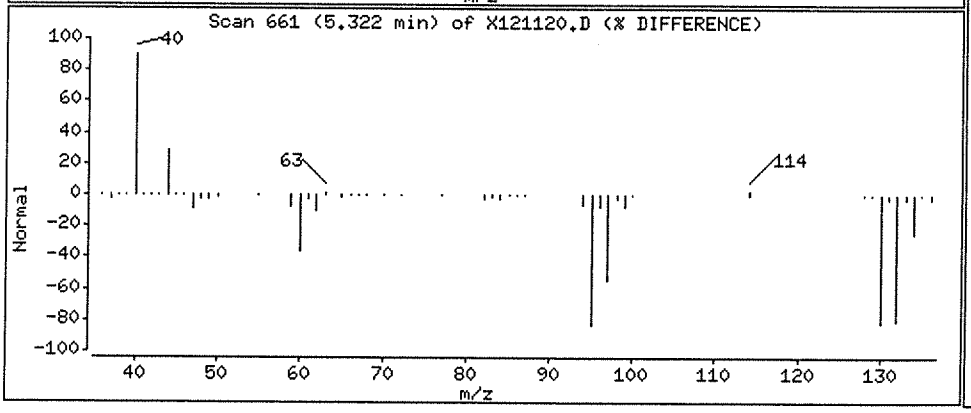
Concentration: 0.69 ug/l

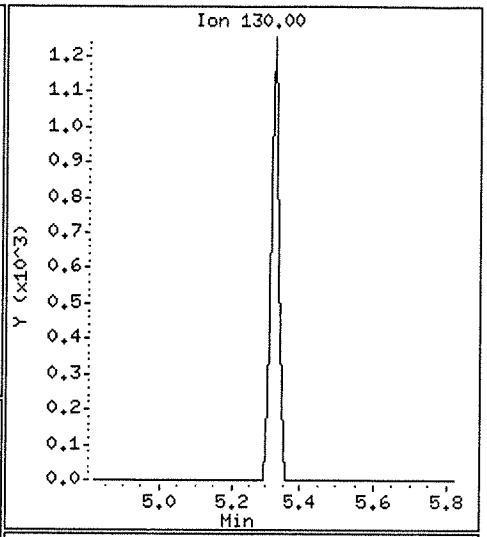
Review Code:

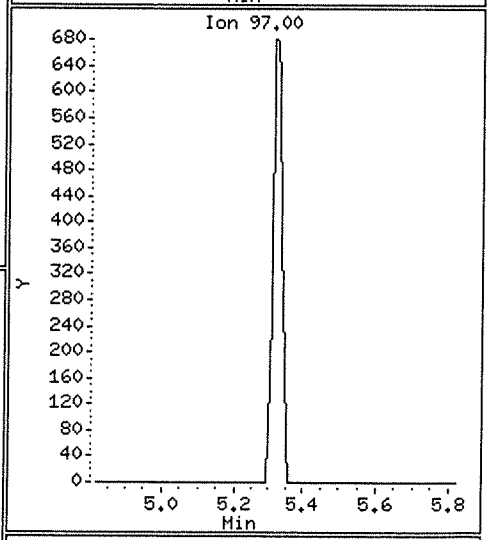


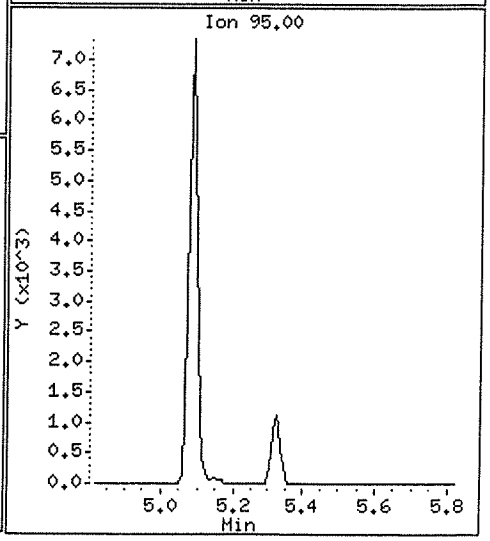












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121121.D Page 1
Report Date: 29-Jan-2018 15:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121121.D
Lab Smp Id: HS17120435-05 Client Smp ID: HS17120435-05
Inj Date : 11-DEC-2017 19:43
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-05;HS17120435-05;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

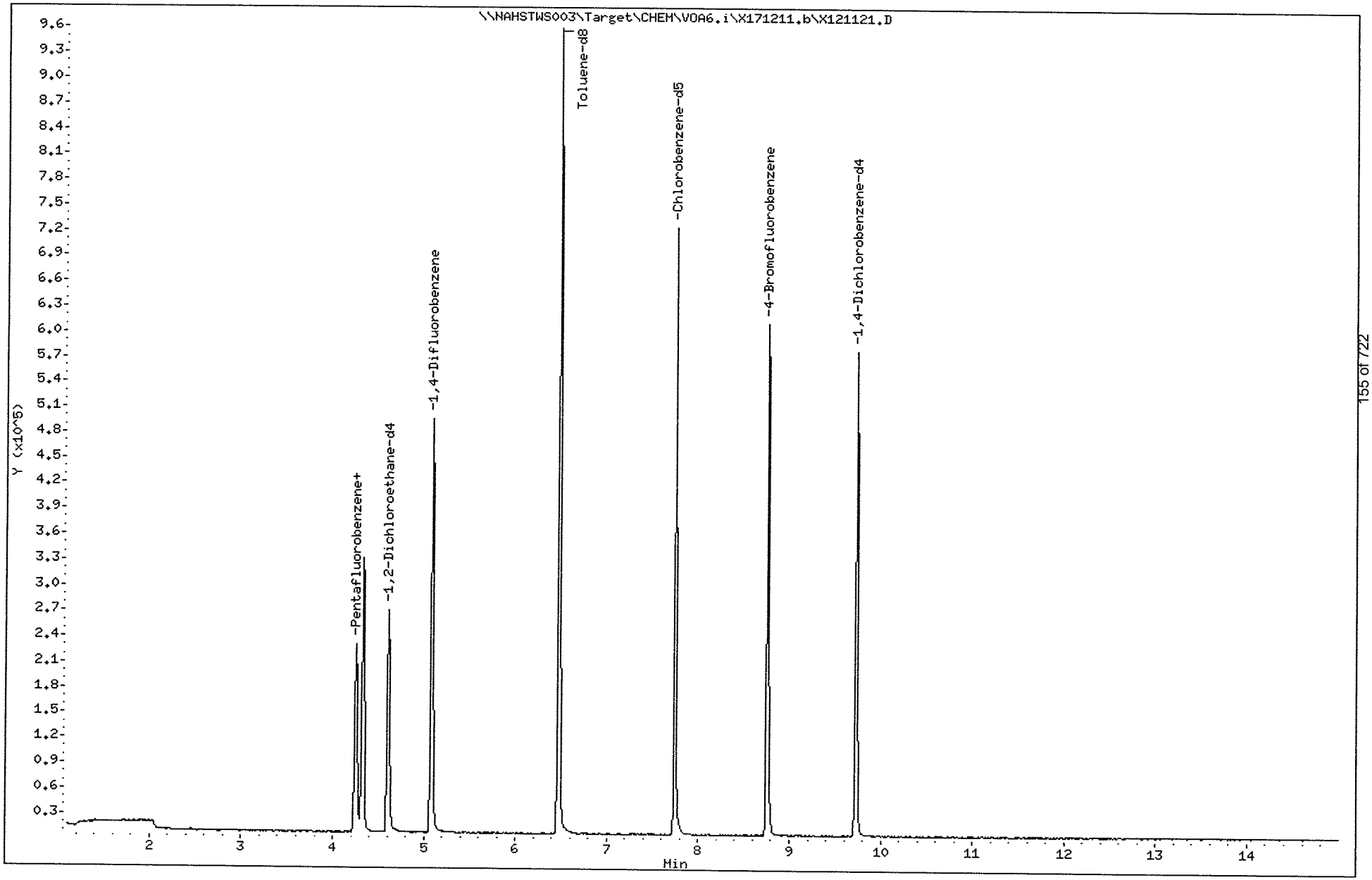
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.325	(1.000)	227968	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	366626	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	343857	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.727	9.726	(1.000)	139201	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	146020	49.2154	49.21
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	184364	47.8023	47.80
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	536787	51.6233	51.62
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	189372	50.9341	50.93

00870705

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121121.D
Date : 11-DEC-2017 19:43
Client ID: HS17120435-05
Sample Info: HS17120435-05;HS17120435-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121122.D Page 1
Report Date: 29-Jan-2018 15:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121122.D
Lab Smp Id: HS17120435-06 Client Smp ID: HS17120435-06
Inj Date : 11-DEC-2017 20:08
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-06;HS17120435-06;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 22
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

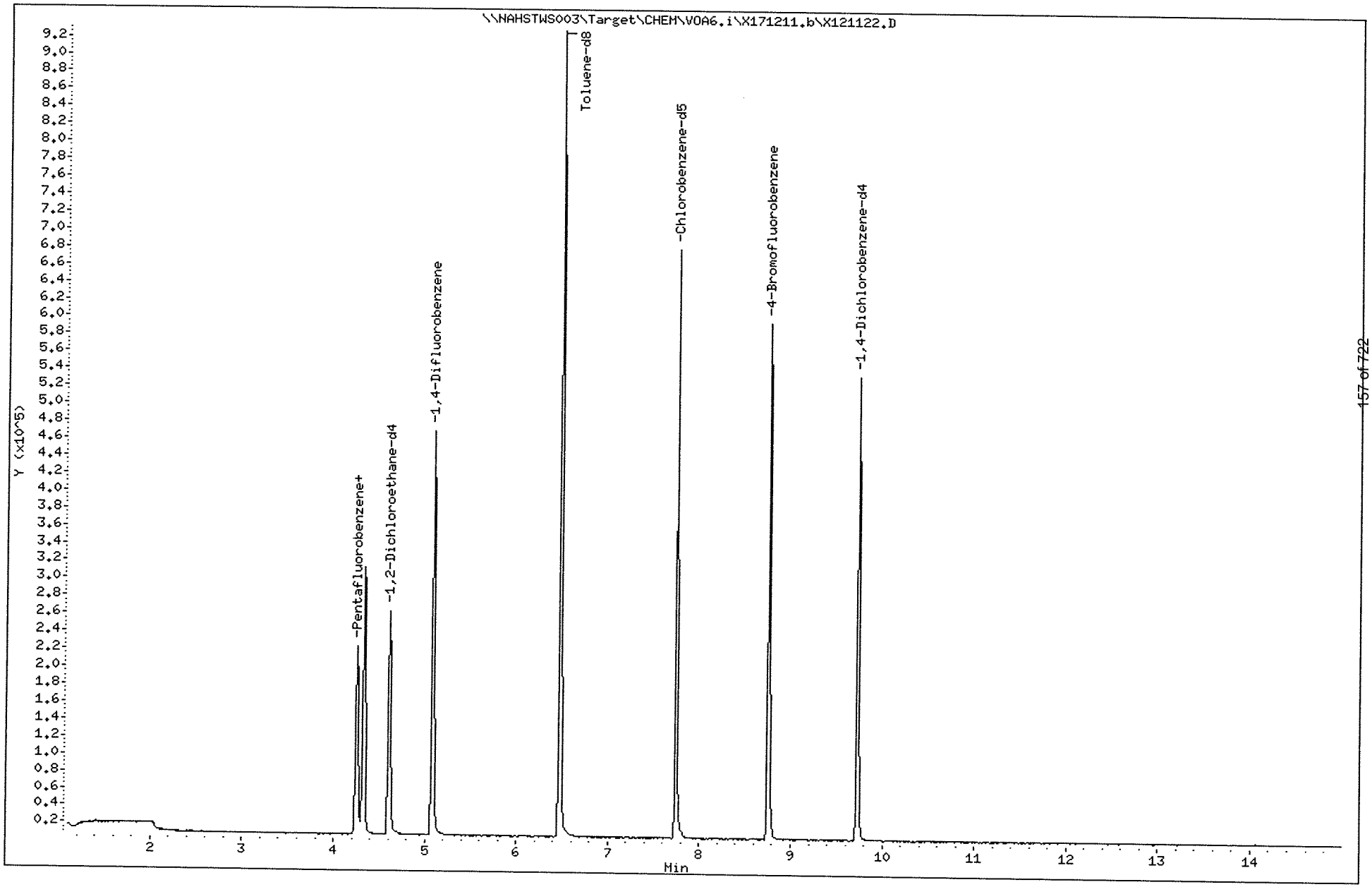
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	215863	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	344687	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	322774	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	126441	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	139602	49.6956	49.69
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	179018	49.0144	49.01
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	516286	52.8452	52.84
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	184270	52.7566	52.75

00870707

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121122.D
Date : 11-DEC-2017 20:08
Client ID: HS17120435-06
Sample Info: HS17120435-06;HS17120435-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121123.D Page 1
Report Date: 29-Jan-2018 15:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121123.D
Lab Smp Id: HS17120435-07 Client Smp ID: HS17120435-07
Inj Date : 11-DEC-2017 20:33
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-07;HS17120435-07;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

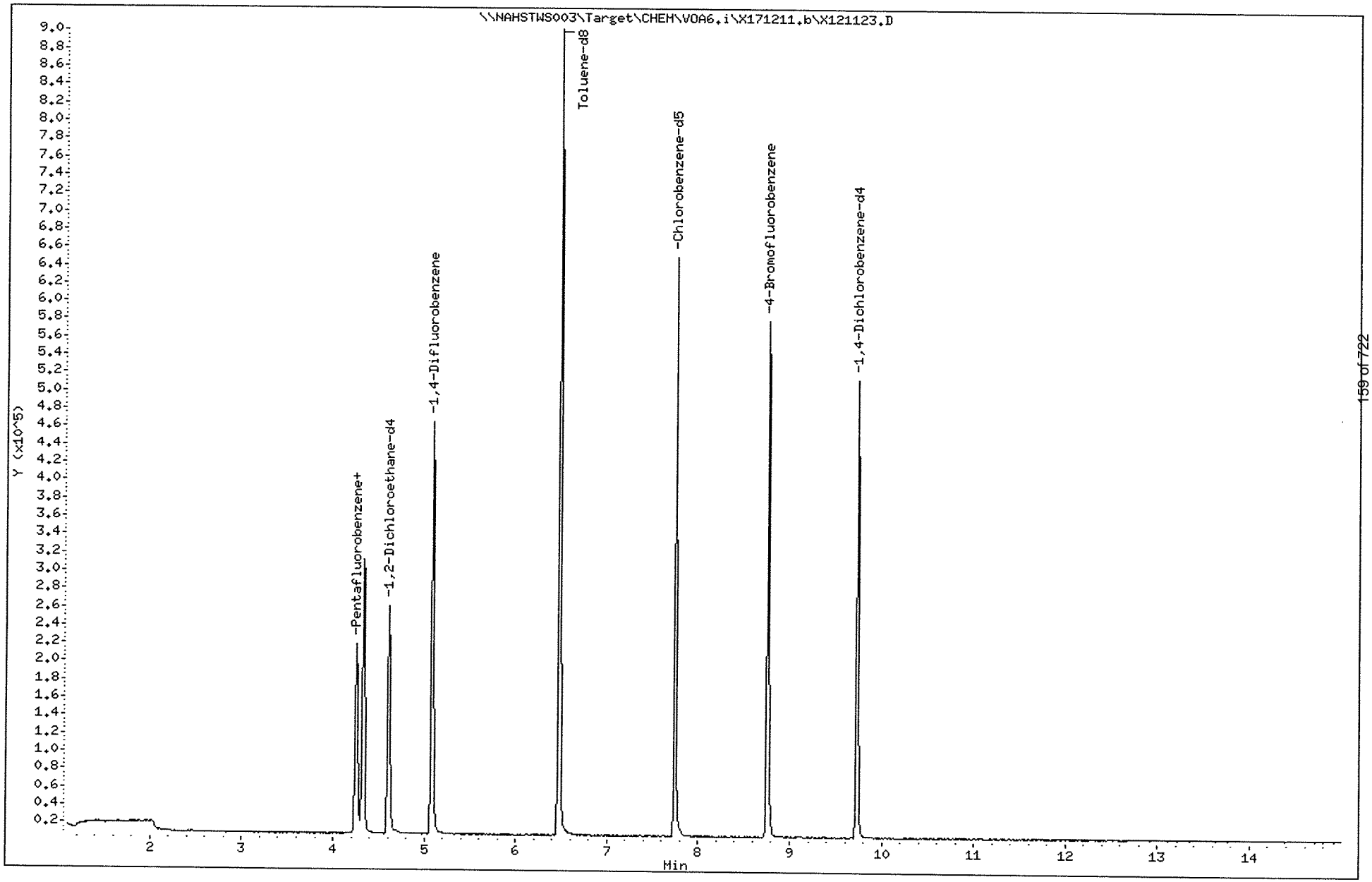
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	215883	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	341891	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	312398	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	121124	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	136499	48.5755	48.57
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	176120	48.2195	48.21
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	501705	53.0500	53.05
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	177267	52.4447	52.44

00870709

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121123.D
Date : 11-DEC-2017 20:33
Client ID: HS17120435-07
Sample Info: HS17120435-07;HS17120435-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121124.D Page 1
Report Date: 29-Jan-2018 15:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121124.D
Lab Smp Id: HS17120435-08 Client Smp ID: HS17120435-08
Inj Date : 11-DEC-2017 20:58
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-08;HS17120435-08;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

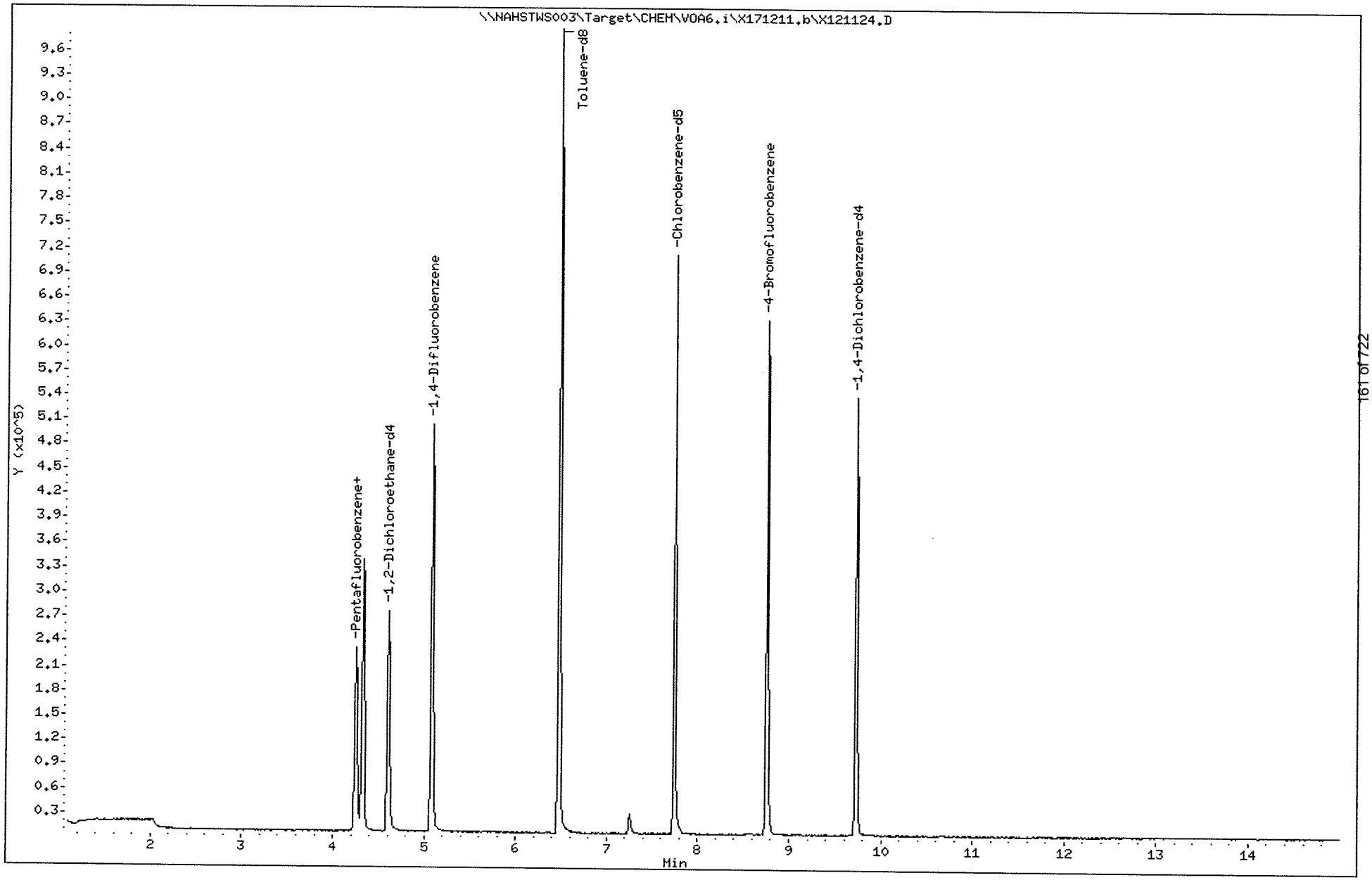
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.325	(1.000)	234829	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	374999	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	338882	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	131141	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	147466	48.2410	48.24
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	186884	47.0428	47.04
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	541546	52.7979	52.79
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	192828	52.5867	52.58

00870711

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121124.D
Date : 11-DEC-2017 20:58
Client ID: HS17120435-08
Sample Info: HS17120435-08;HS17120435-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121125.D Page 1
Report Date: 29-Jan-2018 15:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121125.D
Lab Smp Id: HS17120435-09 Client Smp ID: HS17120435-09
Inj Date : 11-DEC-2017 21:23
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-09;HS17120435-09;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

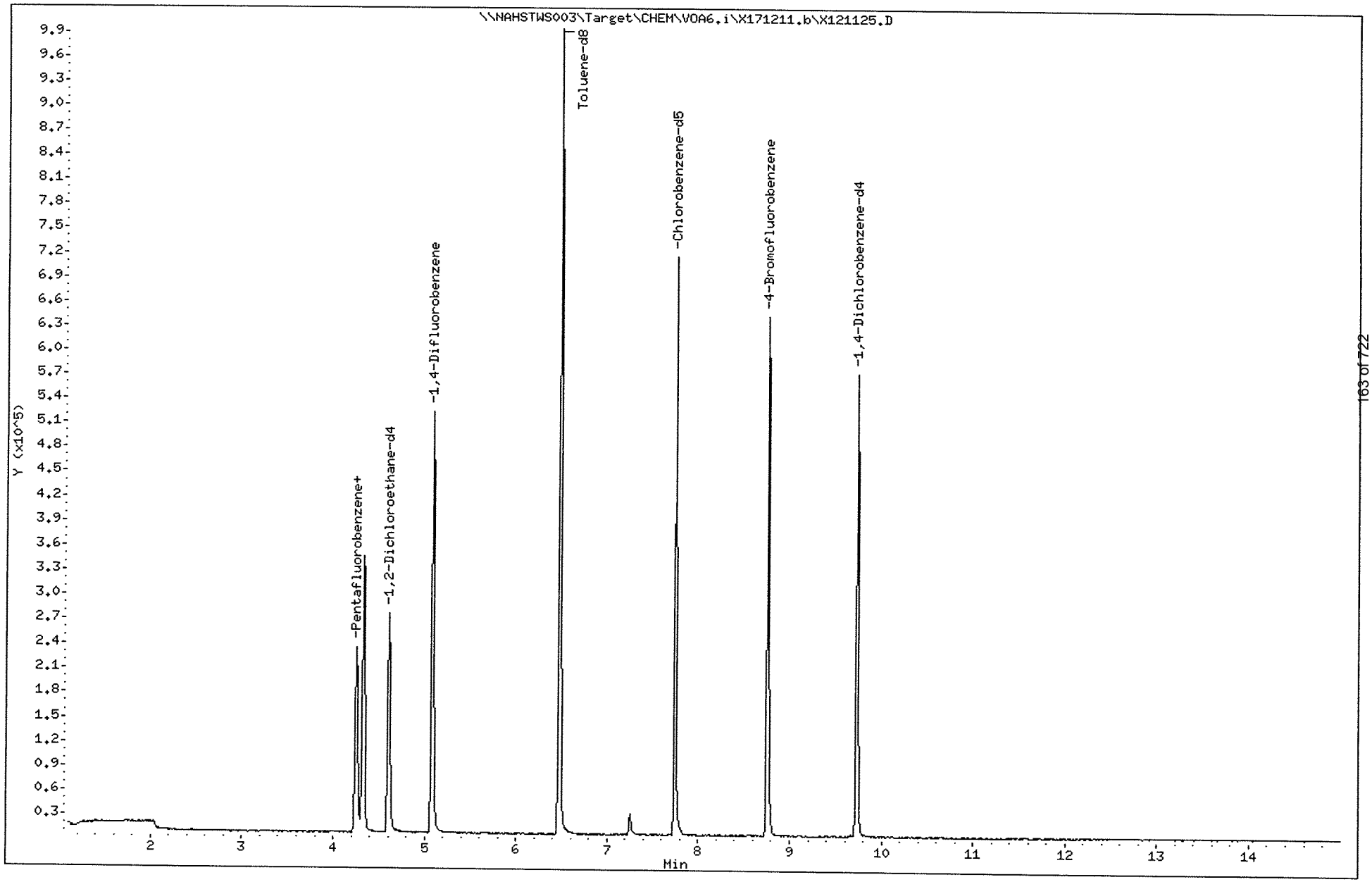
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	242959	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	386013	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	347162	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	132636	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	148447	46.9237	46.92
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	188149	45.7813	45.78
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	552949	52.6307	52.63
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	194714	51.8515	51.85

00870713

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121125.D
Date : 11-DEC-2017 21:23
Client ID: HS17120435-09
Sample Info: HS17120435-09;HS17120435-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121126.D Page 1
Report Date: 29-Jan-2018 15:38

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121126.D
Lab Smp Id: HS17120435-10 Client Smp ID: HS17120435-10
Inj Date : 11-DEC-2017 21:47
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-10;HS17120435-10;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	236773	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	380974	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	355861	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	148679	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	151223	49.0723	49.07
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	184249	46.0028	46.00
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	558144	51.8573	51.85
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	195029	50.6915	50.69
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	2839	0.53951	0.53(a)
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	6333	2.02689	2.02(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	11966	4.70053	4.70

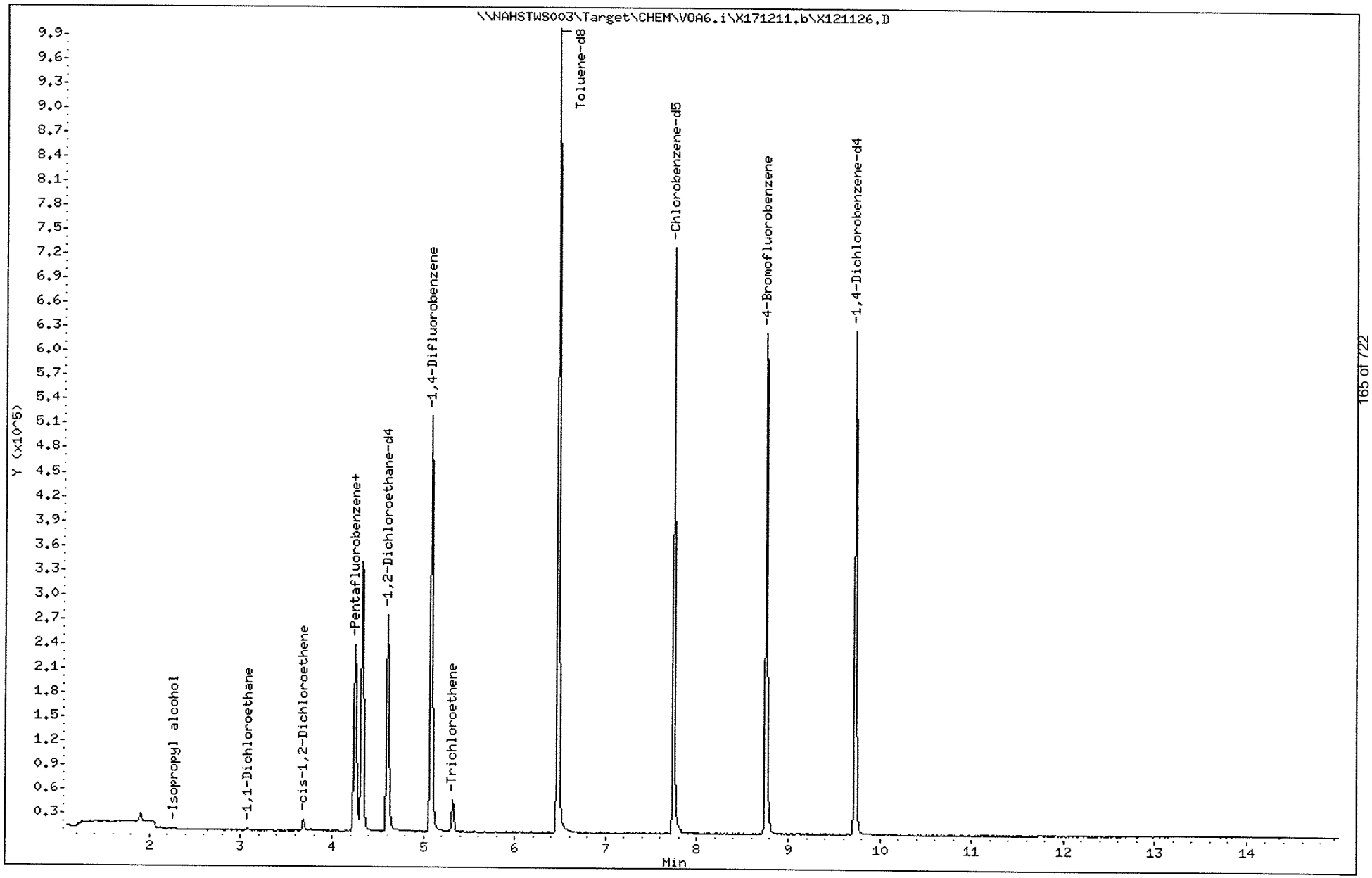
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

00870715

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121126.D
Date : 11-DEC-2017 21:47
Client ID: HS17120435-10
Sample Info: HS17120435-10;HS17120435-10;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



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Date : 11-DEC-2017 21:47

Client ID: HS17120435-10

Instrument: voa6.i

Sample Info: HS17120435-10;HS17120435-10;;;

Purge Volume: 5.0

Operator: PC

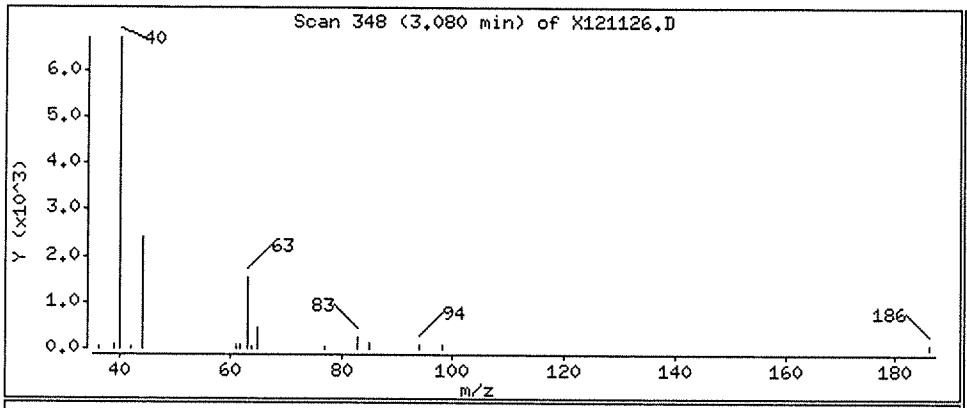
Column phase: DB624

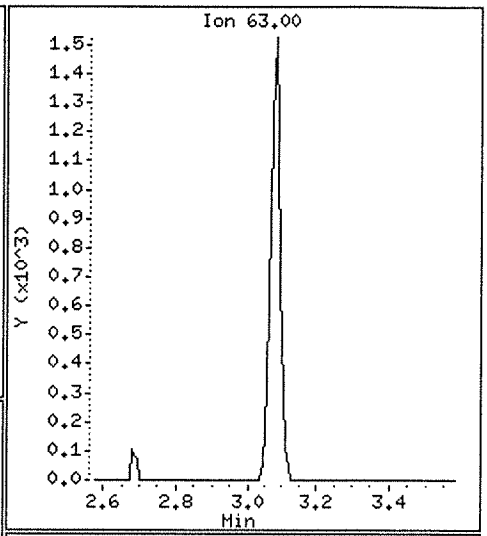
Column diameter: 0.18

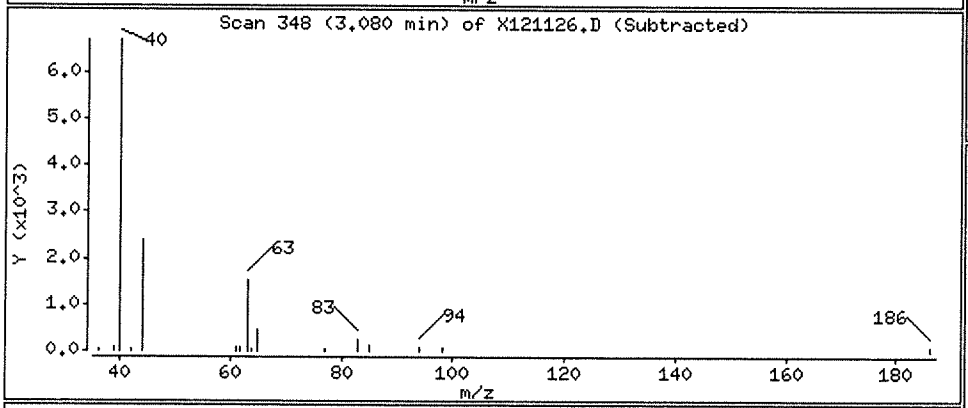
22 1,1-Dichloroethane

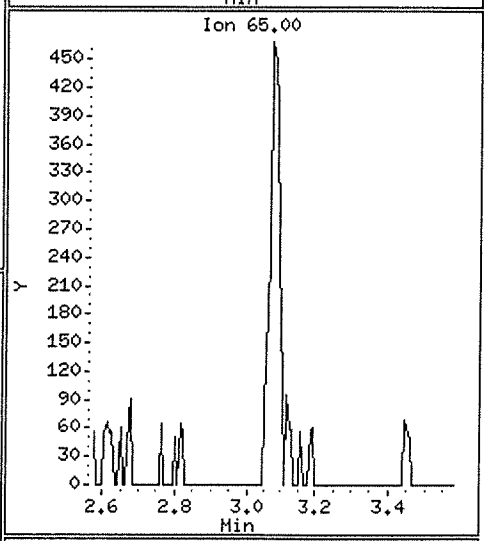
Concentration: 0.53 ug/l

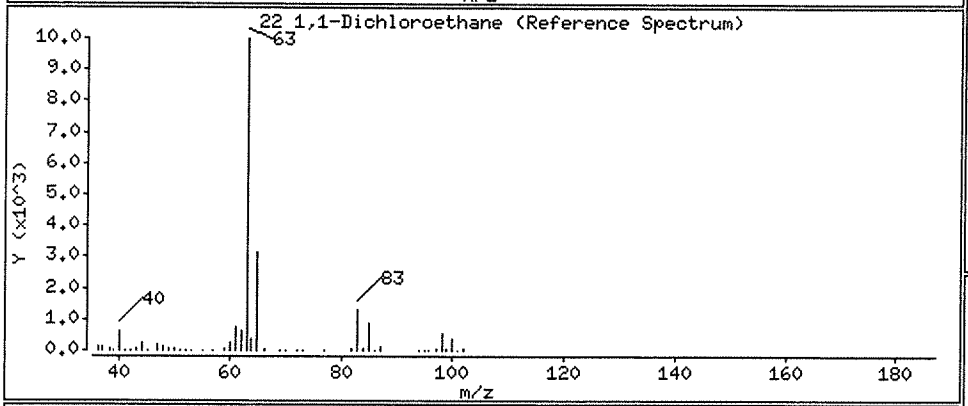
Review Code:

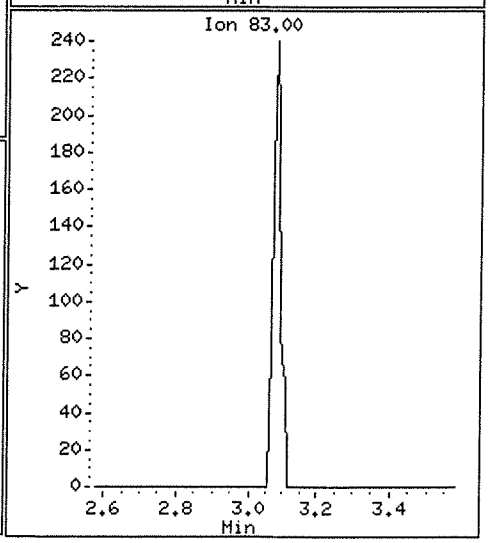


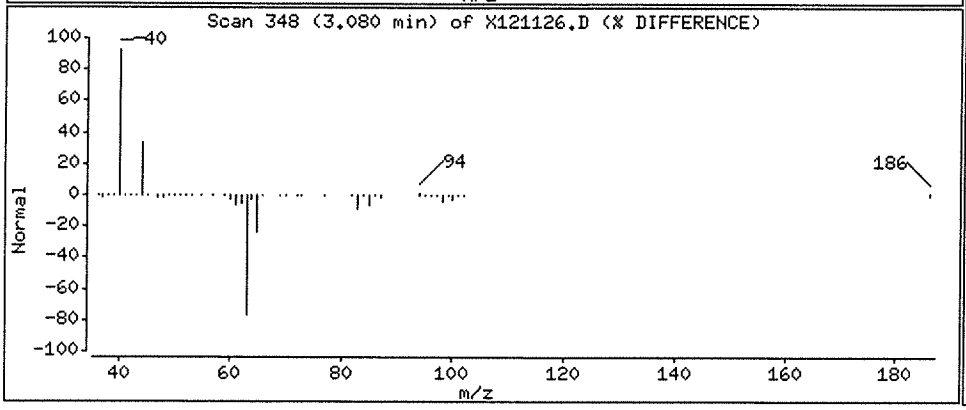












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121126.D

Date : 11-DEC-2017 21:47

Client ID: HS17120435-10

Instrument: voa6.i

Sample Info: HS17120435-10;HS17120435-10;;;

Purge Volume: 5.0

Operator: PC

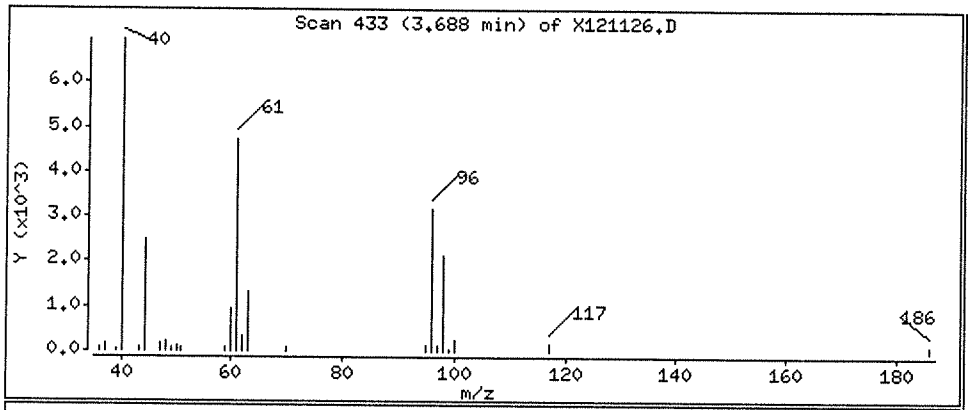
Column phase: DB624

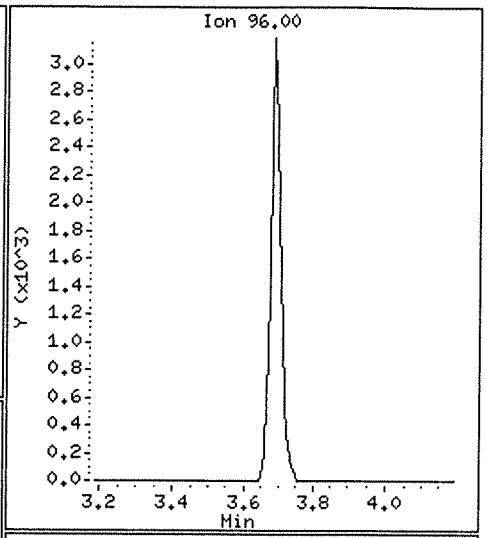
Column diameter: 0.18

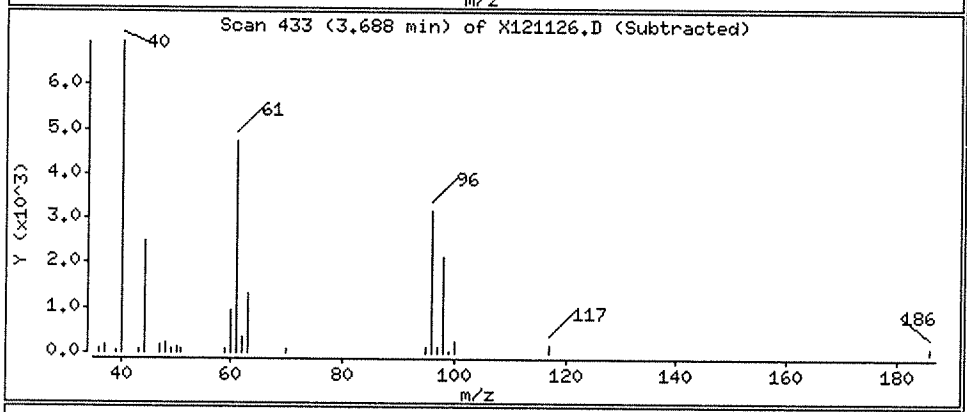
27 cis-1,2-Dichloroethene

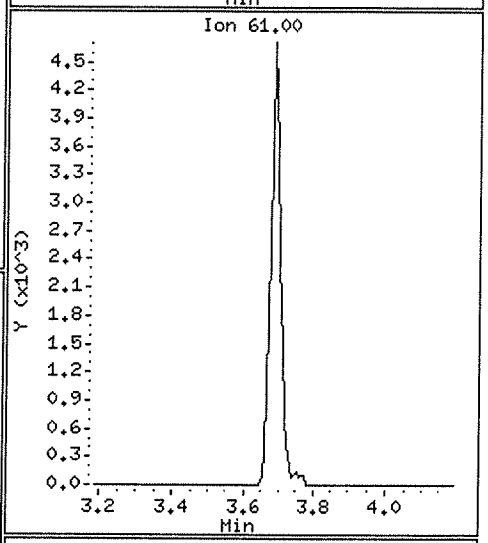
Concentration: 2.02 ug/l

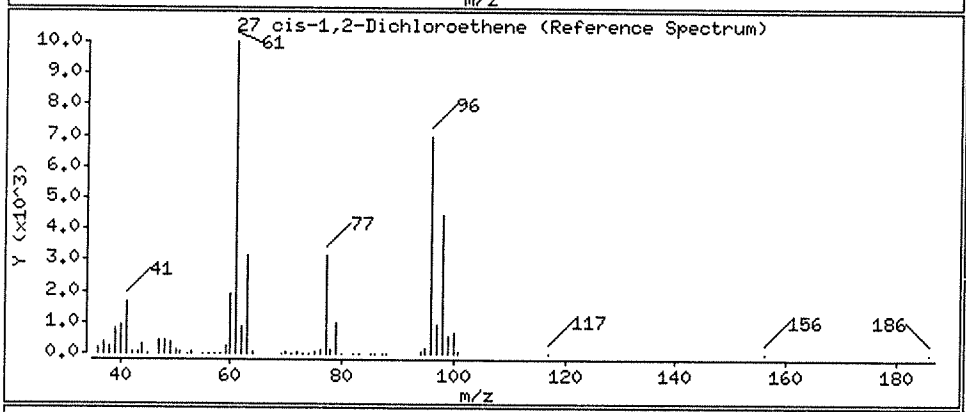
Review Code:

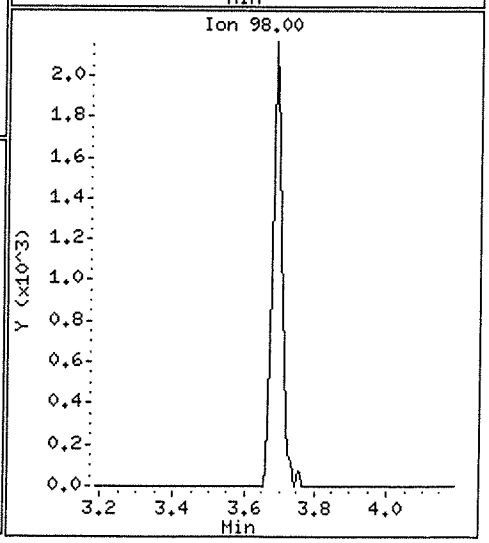


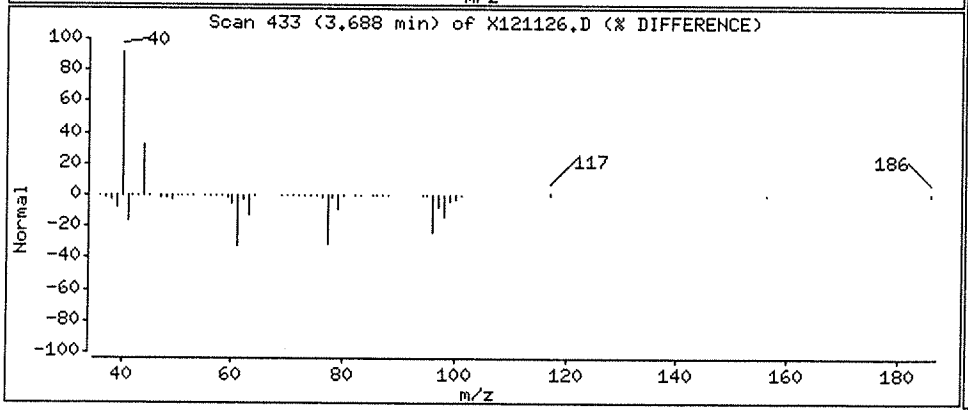












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121126.D

Date : 11-DEC-2017 21:47

Client ID: HS17120435-10

Instrument: voa6.i

Sample Info: HS17120435-10;HS17120435-10;;;

Purge Volume: 5.0

Operator: PC

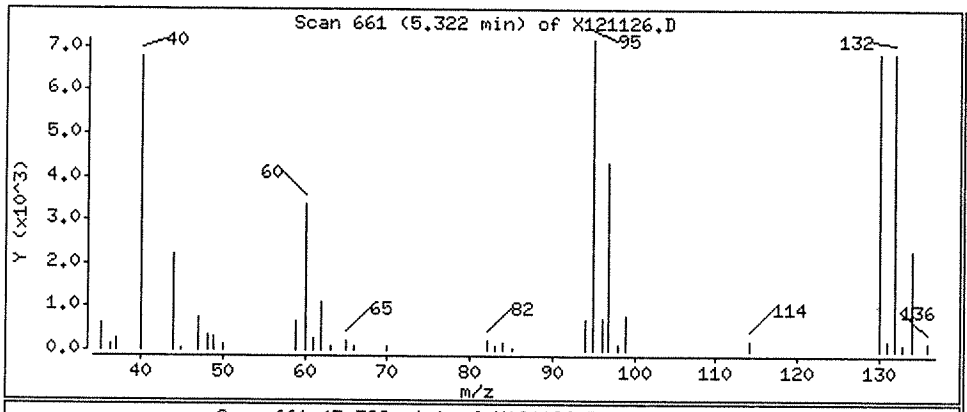
Column phase: DB624

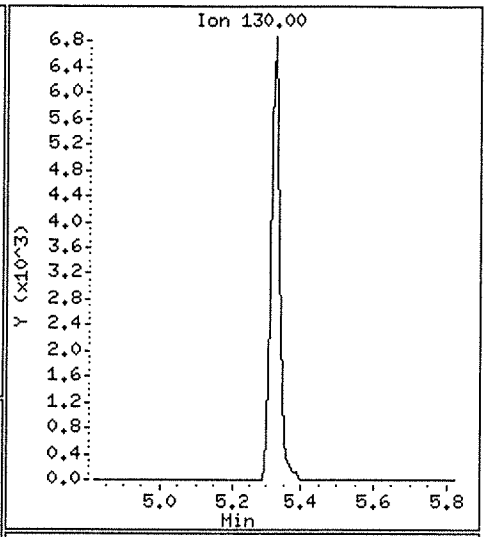
Column diameter: 0.18

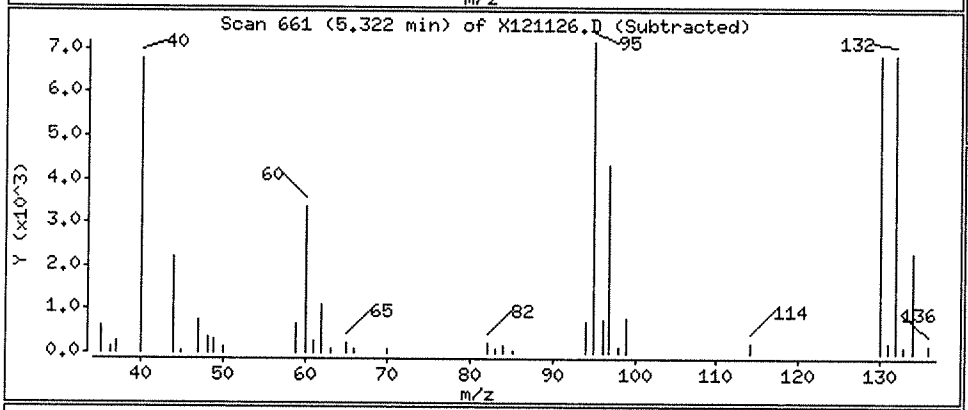
38 Trichloroethene

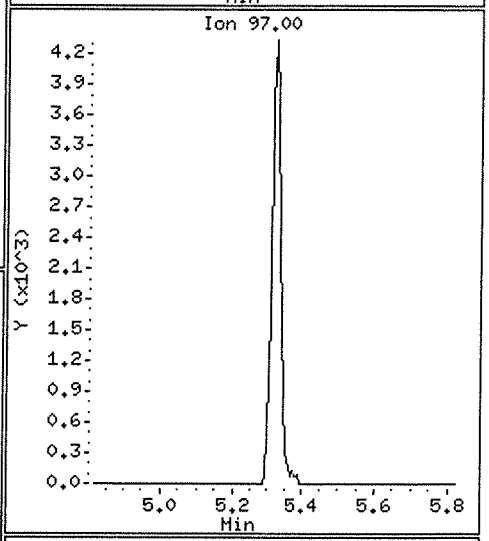
Concentration: 4.70 ug/l

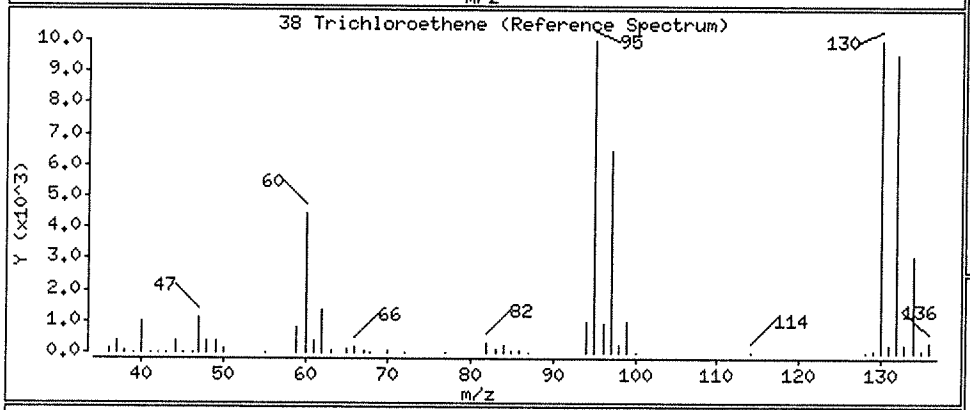
Review Code:

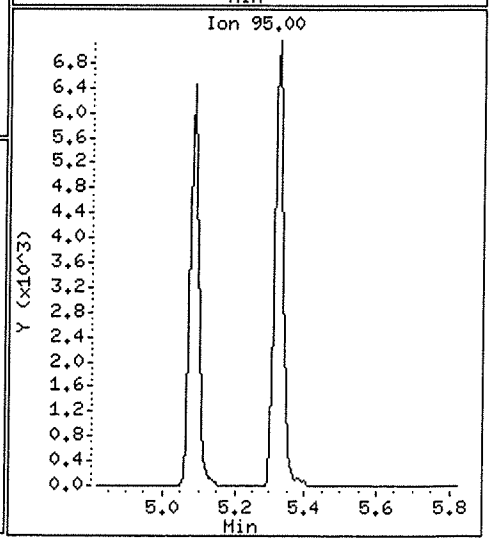


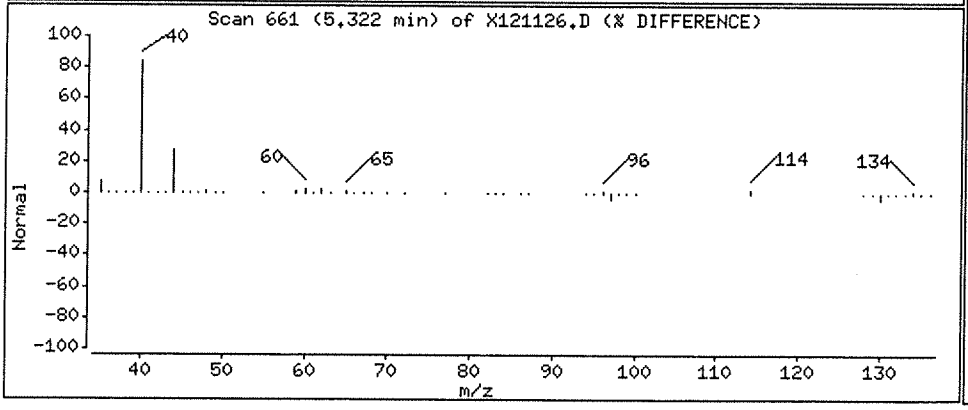












ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121127.D
Lab Smp Id: HS17120435-11 Client Smp ID: HS17120435-11
Inj Date : 11-DEC-2017 22:12
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-11;HS17120435-11;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.325	(1.000)	247805	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	397360	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	358207	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	136973	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	156092	48.3905	48.39
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	193988	46.2771	46.27
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	575877	53.1035	53.10
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	202026	52.1333	52.13
38 Trichloroethene	130	5.321	5.321	(1.046)	2554	0.96190	0.96(a)

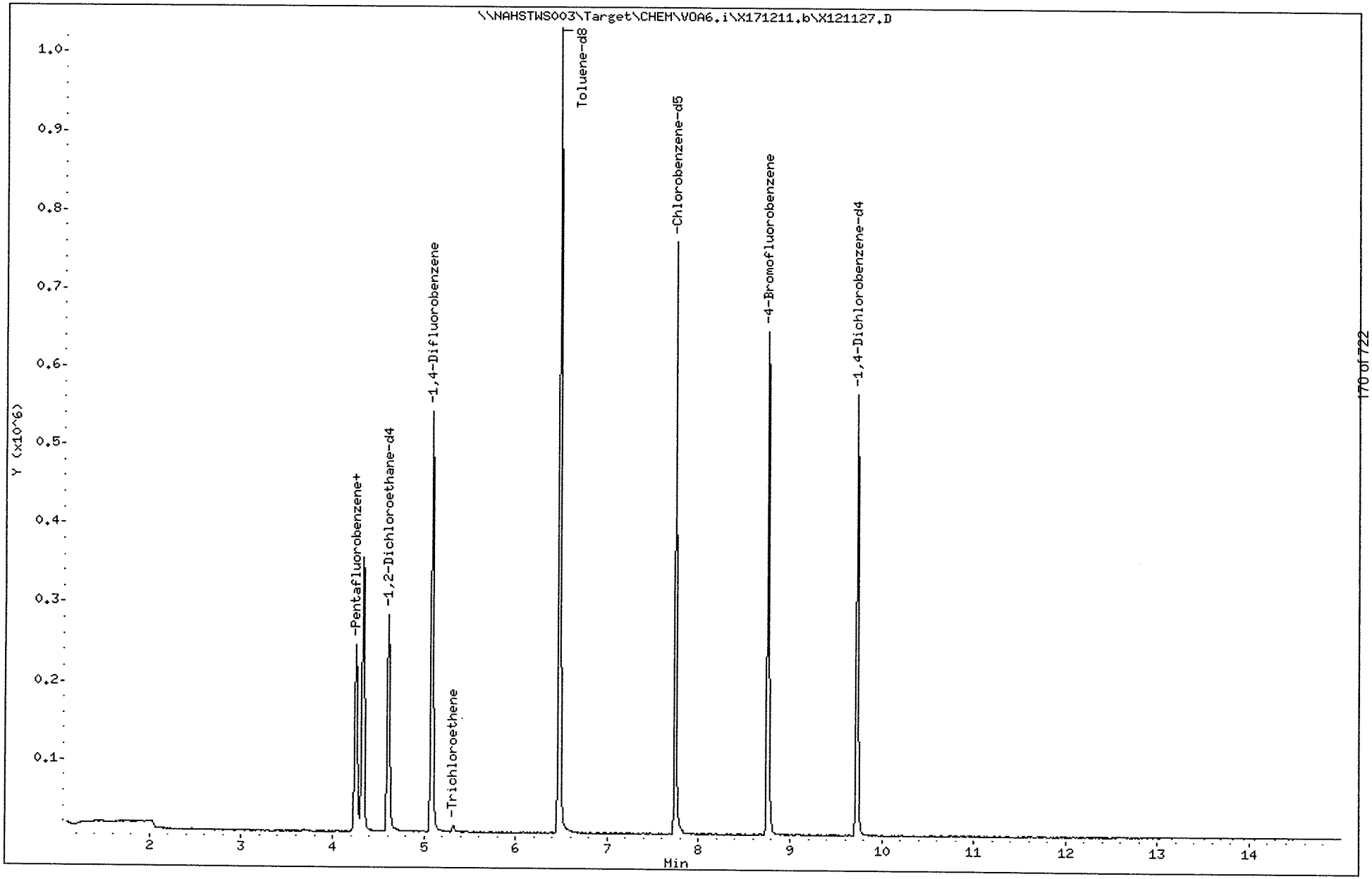
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

00870720

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121127.D
Date : 11-DEC-2017 22:12
Client ID: HS17120435-11
Sample Info: HS17120435-11;HS17120435-11;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121127.D

Date : 11-DEC-2017 22:12

Client ID: HS17120435-11

Instrument: voa6.i

Sample Info: HS17120435-11;HS17120435-11;;;

Purge Volume: 5.0

Operator: PC

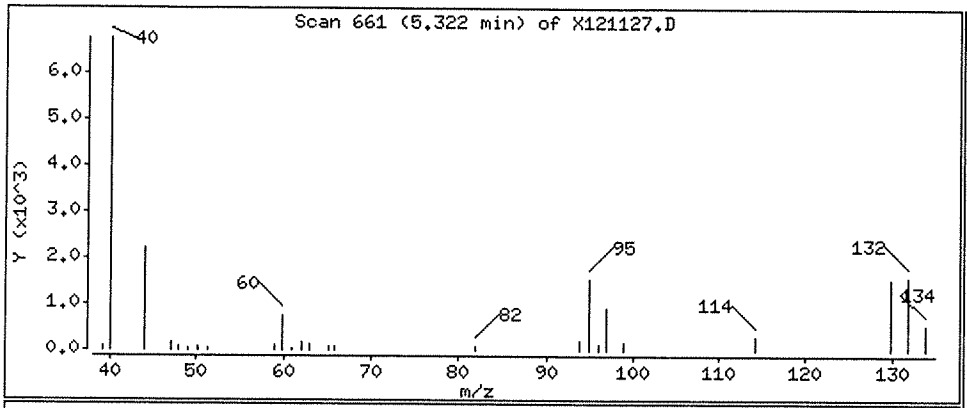
Column phase: DB624

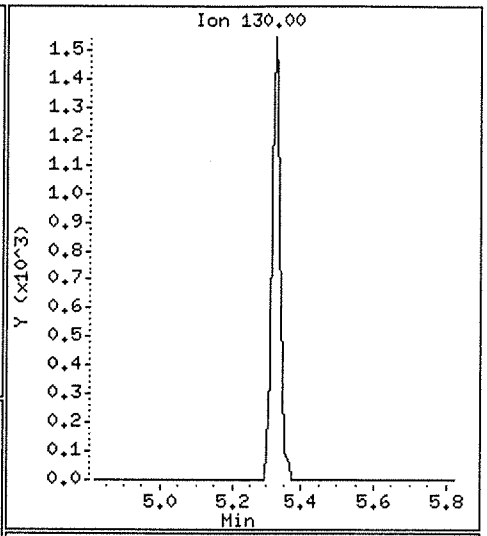
Column diameter: 0.18

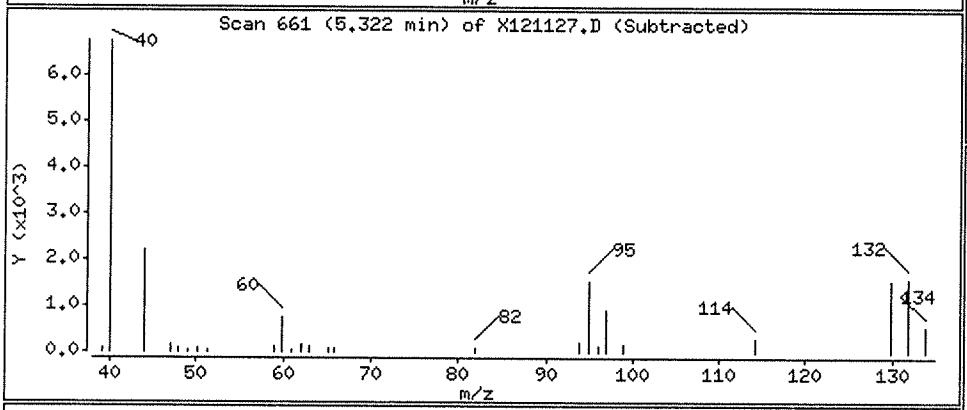
38 Trichloroethene

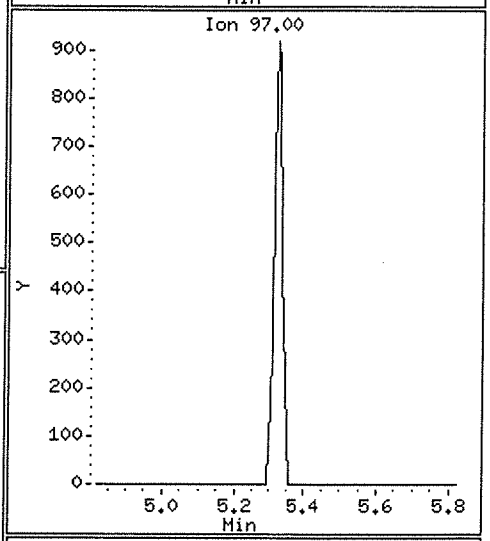
Concentration: 0.96 ug/l

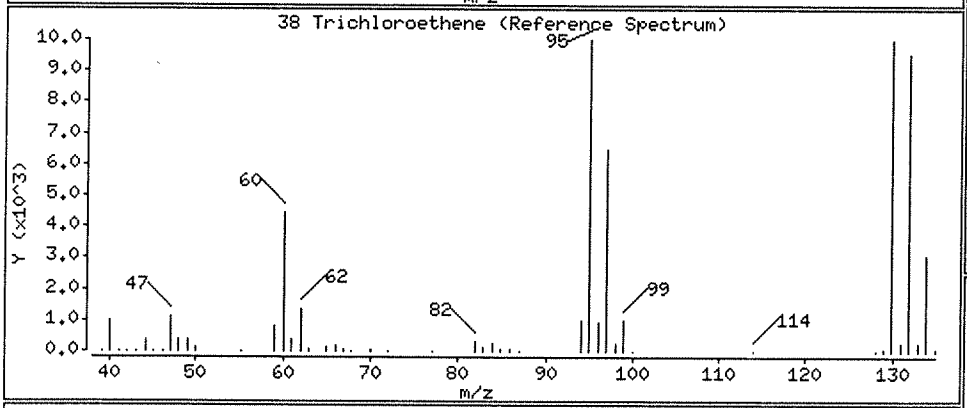
Review Code:

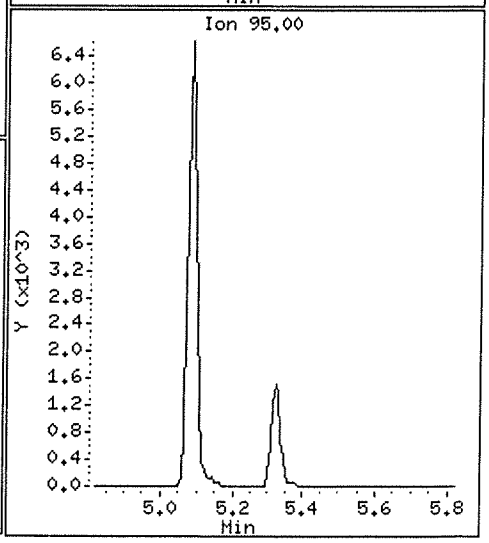


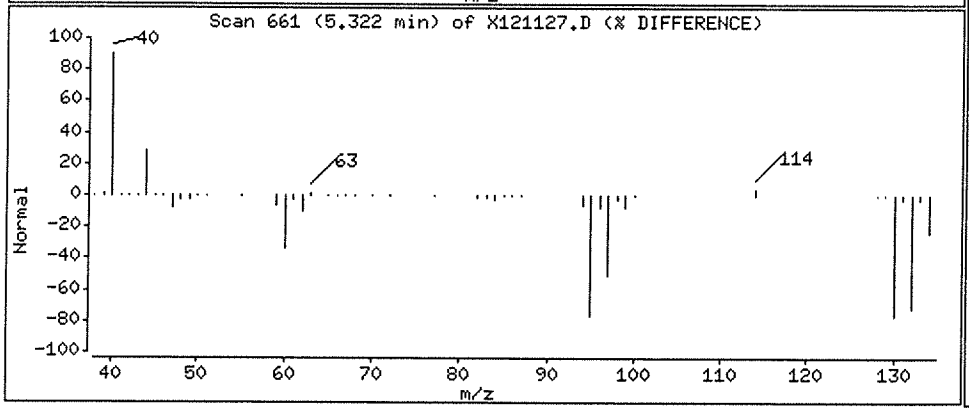












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121128.D Page 1
Report Date: 29-Jan-2018 15:38

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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121128.D
Lab Smp Id: HS17120435-12 Client Smp ID: HS17120435-12
Inj Date : 11-DEC-2017 22:37
Operator : PC Inst ID: voa6.i
Smp Info : HS17120435-12;HS17120435-12;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 28
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

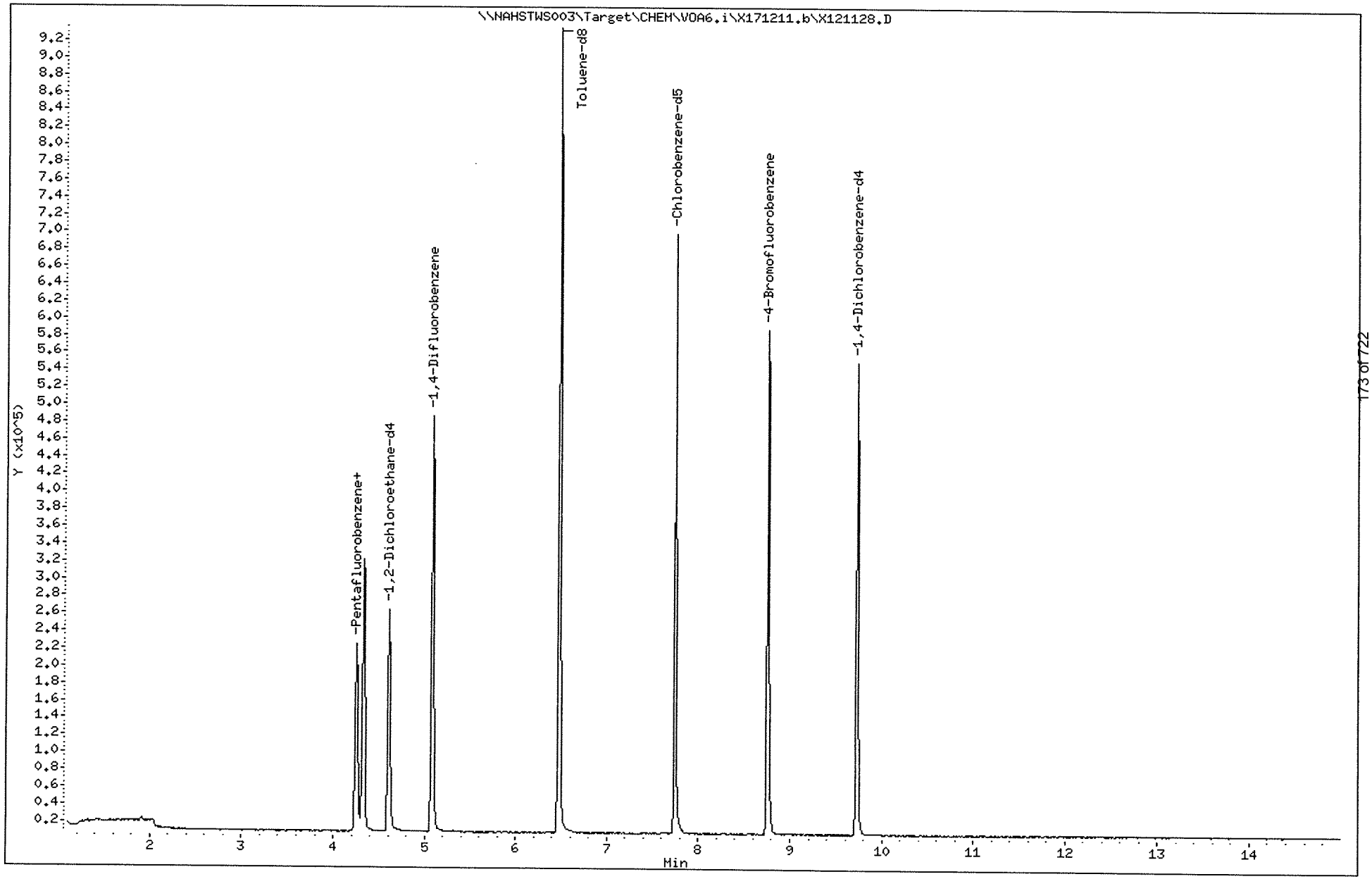
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.325	(1.000)	225122	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	357384	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	331577	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	133240	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	142116	48.4981	48.49
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	176924	46.4583	46.45
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	523585	52.1957	52.19
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	185693	51.7752	51.77

00870723

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121128.D
Date : 11-DEC-2017 22:37
Client ID: HS17120435-12
Sample Info: HS17120435-12;HS17120435-12;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121129.D
Lab Smp Id: VSTD050-END Client Smp ID: VSTD050-END
Inj Date : 11-DEC-2017 23:02
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171211.b\8260W.m
Meth Date : 29-Jan-2018 15:38 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

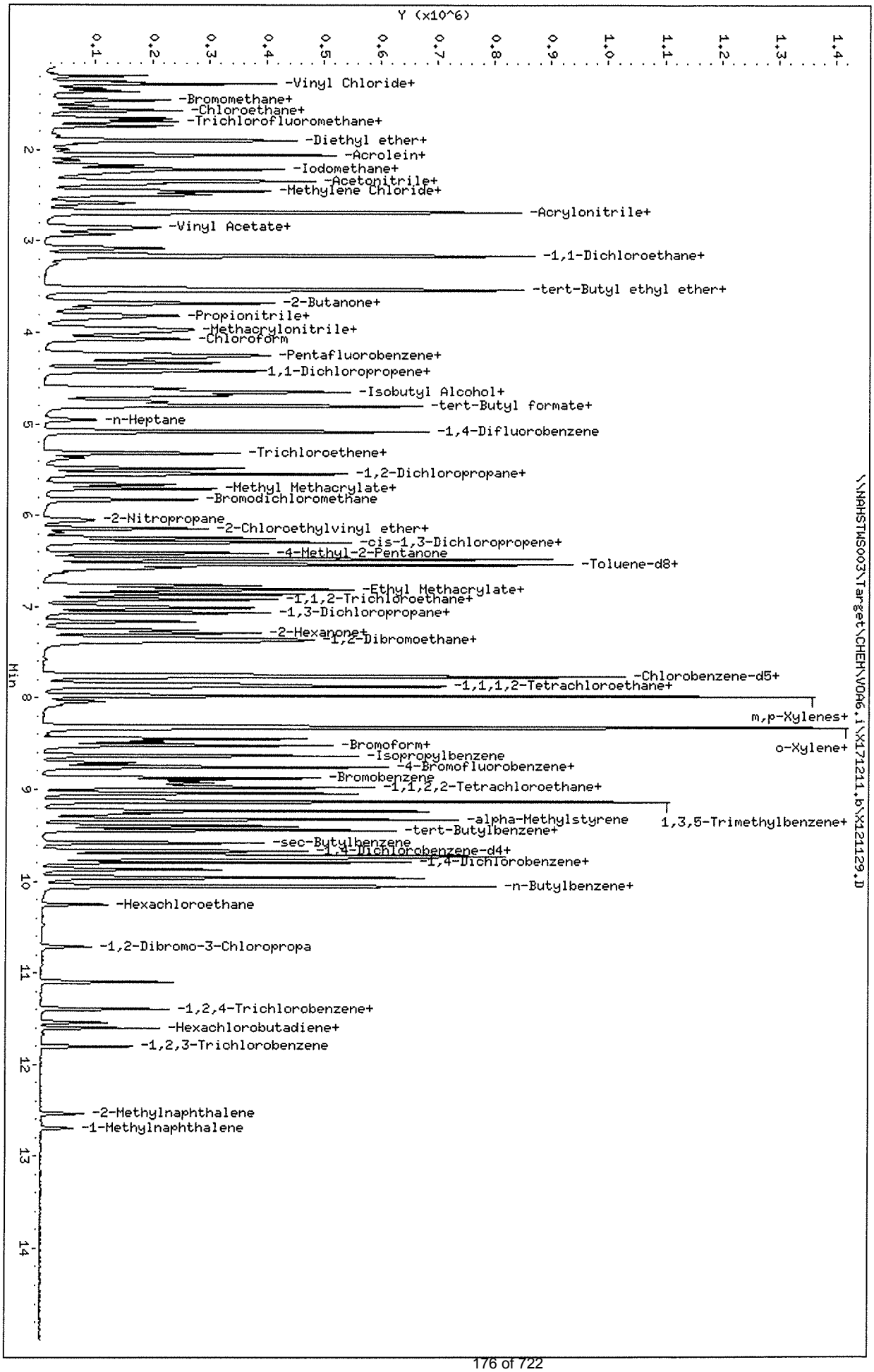
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.326	(1.000)	215999	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	343441	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	315316	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.727	9.727	(1.000)	147921	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	134411	50.0000	47.79
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	165213	50.0000	45.22
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	504793	50.0000	52.88
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	180730	50.0000	52.96
60 1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.013)	101794	50.0000	45.09
31 1,1,1-Trichloroethane	97	4.240	4.240	(0.980)	150352	50.0000	43.03
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	135469	50.0000	45.75
53 1,1,2-Trichloroethane	83	6.919	6.919	(0.894)	92015	50.0000	45.10
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	206504	50.0000	43.01
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	89475	50.0000	40.45
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	132959	50.0000	43.41
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	43476	50.0000	39.07
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	159815	50.0000	41.09
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	58210	50.0000	41.88
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	279794	50.0000	45.52
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	15967	50.0000	39.93
57 1,2-Dibromoethane	107	7.334	7.334	(0.947)	110305	50.0000	46.53
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	172135	50.0000	44.06

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121129.D Page 2
Report Date: 29-Jan-2018 15:38

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	158555	50.0000	43.53
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	125411	50.0000	45.78
75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	259106	50.0000	45.31
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	172520	50.0000	42.94
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	193867	50.0000	44.21
84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	178702	50.0000	47.41
26 2,2-Dichloropropane	77	3.667	3.667	(0.848)	139754	50.0000	37.02
24 2-Butanone	43	3.731	3.731	(0.863)	96151	100.000	88.75
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	269347	50.0000	46.78
52 2-Hexanone	43	7.284	7.284	(0.941)	217370	100.000	89.44
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	319633	50.0000	46.52
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	208646	50.0000	40.07
45 4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	227350	100.000	84.24
10 Acetone	43	2.119	2.119	(0.490)	64761	100.000	90.95
37 Benzene	78	4.648	4.648	(0.914)	453966	50.0000	46.55
74 Bromobenzene	156	8.867	8.867	(0.912)	119027	50.0000	44.72
29 Bromochloromethane	128	3.953	3.953	(0.914)	63978	50.0000	55.48
39 Bromodichloromethane	83	5.823	5.823	(1.145)	162465	50.0000	46.44
66 Bromoform	173	8.480	8.480	(1.095)	81944	50.0000	47.26
6 Bromomethane	94	1.460	1.460	(0.338)	83835	50.0000	42.84
34 Carbon Tetrachloride	117	4.412	4.412	(0.868)	114156	50.0000	43.41
59 Chlorobenzene	112	7.764	7.764	(1.003)	282395	50.0000	45.35
7 Chloroethane	64	1.525	1.525	(0.353)	72192	50.0000	39.43
28 Chloroform	83	4.068	4.068	(0.940)	204167	50.0000	43.41
3 Chloromethane	50	1.195	1.195	(0.276)	150118	50.0000	43.20
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	127985	50.0000	44.90
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	197431	50.0000	45.93
55 Dibromochloromethane	129	7.255	7.255	(0.937)	125038	50.0000	44.78
44 Dibromomethane	93	5.658	5.658	(1.113)	78388	50.0000	45.82
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	84906	50.0000	39.92
19 Carbon Disulfide	76	2.212	2.212	(0.512)	581324	100.000	85.42
61 Ethylbenzene	106	7.871	7.871	(1.017)	132757	50.0000	43.30
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	19295	50.0000	42.24
67 Isopropylbenzene	105	8.623	8.623	(1.114)	313355	50.0000	43.53
62 m,p-Xylenes	106	7.972	7.972	(1.030)	317929	100.000	86.39
17 Methylene Chloride	84	2.449	2.449	(0.566)	127935	50.0000	47.18
87 n-Butylbenzene	91	10.049	10.049	(1.033)	168064	50.0000	39.82
73 n-Propylbenzene	91	8.974	8.974	(0.923)	371863	50.0000	44.20
92 Naphthalene	128	11.603	11.603	(1.193)	139675	50.0000	38.19
63 o-Xylene	106	8.308	8.308	(1.073)	166024	50.0000	45.05
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	232849	50.0000	39.01
64 Styrene	104	8.323	8.323	(1.075)	309998	50.0000	46.78
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	182852	50.0000	44.86
56 Tetrachloroethene	164	7.012	7.012	(0.906)	67103	50.0000	44.54
50 Toluene	91	6.532	6.532	(0.844)	439481	50.0000	44.00
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	110961	50.0000	44.97
51 trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	167240	50.0000	44.59
38 Trichloroethene	130	5.321	5.321	(1.046)	108017	50.0000	47.06
8 Trichlorofluoromethane	101	1.690	1.690	(0.391)	117081	50.0000	39.72
5 Vinyl Chloride	62	1.260	1.260	(0.291)	123620	50.0000	38.88



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171211.b\X121129.D
Date : 11-DEC-2017 23:02
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Mercury Raw Data

Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
ALS WO# HS17120435

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: HG03_307254
Instrument: HG03
Method: SW7470

ICV	Date: 14-Dec-2017 10:41		Seq: 4351817	ICV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.98	100	90-110	

CCV1	Date: 14-Dec-2017 11:16		Seq: 4351830	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5	100	90-110	

CCV2	Date: 14-Dec-2017 11:43		Seq: 4351842	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.79	96	90-110	

CCV3	Date: 14-Dec-2017 12:12		Seq: 4351869	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.67	93	90-110	

CCV4	Date: 14-Dec-2017 12:52		Seq: 4351881	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.1	102	90-110	

CCV5	Date: 14-Dec-2017 13:22		Seq: 4351964	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.83	97	90-110	

CCV6	Date: 14-Dec-2017 13:42		Seq: 4351976	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.01	100	90-110	

CCV7	Date: 14-Dec-2017 14:07		Seq: 4352045	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.01	100	90-110	

CCV8	Date: 14-Dec-2017 14:31		Seq: 4352102	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.97	99	90-110	

CCV9	Date: 14-Dec-2017 14:52		Seq: 4352113	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.89	98	90-110	

CCV10	Date: 14-Dec-2017 15:44		Seq: 4352278	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.85	97	90-110	

CCV11	Date: 14-Dec-2017 16:17		Seq: 4352551	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.88	98	90-110	

CCV12	Date: 14-Dec-2017 16:38		Seq: 4352563	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.96	99	90-110	

CCV13	Date: 14-Dec-2017 16:58		Seq: 4352573	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.8	96	90-110	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: HG03_307254
Instrument: HG03
Method: SW7470

ICB	Date: 14-Dec-2017 10:43		Seq: 4351818	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB1	Date: 14-Dec-2017 11:18		Seq: 4351831	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB2	Date: 14-Dec-2017 11:44		Seq: 4351843	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB3	Date: 14-Dec-2017 12:14		Seq: 4351870	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB4	Date: 14-Dec-2017 12:54		Seq: 4351882	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB5	Date: 14-Dec-2017 13:23		Seq: 4351965	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB6	Date: 14-Dec-2017 13:44		Seq: 4351977	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB7	Date: 14-Dec-2017 14:09		Seq: 4352046	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB8	Date: 14-Dec-2017 14:33		Seq: 4352103	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB9	Date: 14-Dec-2017 14:54		Seq: 4352114	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
MBLK-123333	Date: 14-Dec-2017 15:41		Seq: 4352276	MBLK	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB10	Date: 14-Dec-2017 15:46		Seq: 4352279	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB11	Date: 14-Dec-2017 16:19		Seq: 4352552	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB12	Date: 14-Dec-2017 16:39		Seq: 4352564	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB13	Date: 14-Dec-2017 17:00		Seq: 4352574	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	

ALS Group USA, Corp Date: 21-Dec-17

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Date Analyzed: 14-Dec-2017 15:55
Date Extracted: 14-Dec-2017 13:02
Units: ug/L

Matrix Spike: HS17120435-02MS
Client Sample ID: 126_120517

Analysis Method: SW7470

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Mercury	0.2000	4.600	5.000	91.9	4.780	5.000	95.5	75-125	3.84	20

ALS Group USA, Corp Date: 21-Dec-17

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435
Start Date: 14-Dec-2017 13:02 End Date: 14-Dec-2017 15:30

Batch ID: 123333
Prep Code: Hg_WPr
Method: SW7470
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS17120435-01	CO9_120517	Water		10	10	1
HS17120435-02	126_120517	Water		10	10	1
HS17120435-02MS				10	10	1
HS17120435-02MSD				10	10	1
HS17120435-03	C08_120517	Water		10	10	1
HS17120435-04	18WW17_120517	Water		10	10	1
HS17120435-06	18CPTMW18_120517	Water		10	10	1
HS17120435-07	18WW22_120517	Water		10	10	1
LCS-123333				10	10	1
MBLK-123333				10	10	1

ALS Group USA, Corp

Date: 21-Dec-17

Form 7 - Laboratory Control Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Date Analyzed: 14-Dec-2017 15:43
Date Extracted: 14-Dec-2017 13:02
Units: ug/L

Lab Sample ID: LCS-123333

Analysis Method: SW7470

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Mercury	5	4.85	97	80-120

ALS Group USA, Corp

Date: 21-Dec-17

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435
Start Date: 14-Dec-2017 End Date: 14-Dec-2017

Run ID:HG03_307254
Instrument:HG03
Method:SW7470

Sample No.	D/F	Time	FileID	Analytes
ICV	1	14-Dec-2017 10:41	HG03_307254 Raw Data_4351817	HG
ICB	1	14-Dec-2017 10:43		HG
CRA	1	14-Dec-2017 10:44		HG
CCV 1	1	14-Dec-2017 11:16		HG
CCB 1	1	14-Dec-2017 11:18		HG
CCV 2	1	14-Dec-2017 11:43		HG
CCB 2	1	14-Dec-2017 11:44		HG
CCV 3	1	14-Dec-2017 12:12		HG
CCB 3	1	14-Dec-2017 12:14		HG
CCV 4	1	14-Dec-2017 12:52		HG
CCB 4	1	14-Dec-2017 12:54		HG
CCV 5	1	14-Dec-2017 13:22		HG
CCB 5	1	14-Dec-2017 13:23		HG
CCV 6	1	14-Dec-2017 13:42		HG
CCB 6	1	14-Dec-2017 13:44		HG
CCV 7	1	14-Dec-2017 14:07		HG
CCB 7	1	14-Dec-2017 14:09		HG
CCV 8	1	14-Dec-2017 14:31		HG
CCB 8	1	14-Dec-2017 14:33		HG
CCV 9	1	14-Dec-2017 14:52		HG
CCB 9	1	14-Dec-2017 14:54		HG
MBLK-123333	1	14-Dec-2017 15:41		HG
LCS-123333	1	14-Dec-2017 15:43		HG
CCV 10	1	14-Dec-2017 15:44		HG
CCB 10	1	14-Dec-2017 15:46		HG
CO9_120517	1	14-Dec-2017 15:50		HG
126_120517	1	14-Dec-2017 15:51		HG
126_120517MS	1	14-Dec-2017 15:53		HG
126_120517MSD	1	14-Dec-2017 15:55		HG
C08_120517	1	14-Dec-2017 15:56		HG
18WW17_120517	1	14-Dec-2017 15:58		HG
18CPTMW18_120517	1	14-Dec-2017 16:00		HG
18WW22_120517	1	14-Dec-2017 16:02		HG
CCV 11	1	14-Dec-2017 16:17		HG
CCB 11	1	14-Dec-2017 16:19		HG
CCV 12	1	14-Dec-2017 16:38		HG
CCB 12	1	14-Dec-2017 16:39		HG
CCV 13	1	14-Dec-2017 16:58		HG
CCB 13	1	14-Dec-2017 17:00		HG

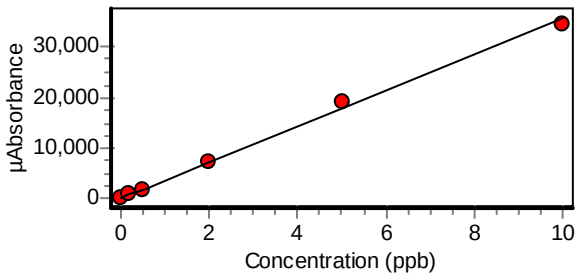
Report Generated By CETAC QuickTrace
Analyst: ALSHS.NoUser
Worksheet file: C:\Program Files (x86)\QuickTrace\Worksheets\121417AW.wsz
Date Started: 12/14/2017 9:42:39 AM
Comment:

Results

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
Calibration Blank					STD	12/14/17 10:08:55 am	0.000	38	22.15	
Replicates	40.5	40.2	25.7	44.9						
Standard #1 (0.2 ppb)					STD	12/14/17 10:10:37 am	0.200	714	0.63	
Replicates	719.5	708.8	711.8	714.3						
Standard #2 (0.5 ppb)					STD	12/14/17 10:12:19 am	0.500	1770	1.54	
Replicates	1747.3	1787.8	1745.0	1798.0						
Standard #3 (2.0 ppb)					STD	12/14/17 10:14:01 am	2.000	7089	0.45	
Replicates	7071.3	7060.9	7133.6	7092.1						
Standard #4 (5.0 ppb)					STD	12/14/17 10:15:45 am	5.000	19092	0.41	
Replicates	19013.7	19044.3	19125.5	19186.0						
Standard #5 (10.0 ppb)					STD	12/14/17 10:17:28 am	10.000	34325	0.55	
Replicates	34061.4	34324.2	34414.7	34498.0						

Calibration

Equation: A = 27.454 + 3566.581C
R2: 0.99636
SEE: 921.7853
Flags:



Calibration Blank					STD	12/14/17 10:24:35 am	0.000	56	51.39	
Replicates	79.6	18.8	78.1	47.8						
Standard #1 (0.2 ppb)					STD	12/14/17 10:26:17 am	0.200	779	3.30	
Replicates	773.5	776.7	751.7	813.7						

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
Standard #2 (0.5 ppb)				STD	12/14/17 10:27:59 am	0.500	1807	0.73	
Replicates	1801.0	1803.4	1826.2	1796.4					
Standard #3 (2.0 ppb)				STD	12/14/17 10:29:41 am	2.000	7048	1.78	
Replicates	6911.9	6971.0	7162.3	7147.5					
Standard #4 (5.0 ppb)				STD	12/14/17 10:31:25 am	5.000	17610	0.51	
Replicates	17493.1	17606.2	17631.4	17708.2					
Standard #5 (10.0 ppb)				STD	12/14/17 10:33:09 am	10.000	35536	0.65	
Replicates	35239.8	35498.2	35619.0	35786.0					

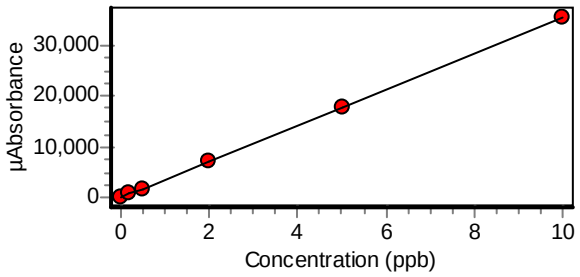
Calibration

Equation: A = 45.574 + 3533.394C

R2: 0.99996

SEE: 99.9337

Flags:



ICCV				UNK	12/14/17 10:39:49 am	4.820	17064	0.52	
Replicates	16938.3	17069.8	17144.8	17103.8					
ICV				UNK	12/14/17 10:41:30 am	4.980	17638	0.51	
Replicates	17513.6	17639.2	17670.9	17728.2					
ICB				UNK	12/14/17 10:43:12 am	-0.003	34	43.01	
Replicates	43.6	44.7	36.0	13.0					
CRA				UNK	12/14/17 10:44:53 am	0.193	727	2.77	
Replicates	712.1	742.3	745.5	706.5					
MBLK-123285				UNK	12/14/17 10:48:24 am	0.004	59	28.80	s
Replicates	44.4	73.1	73.8	43.8					
LCS-123285				UNK	12/14/17 10:50:06 am	5.080	17994	0.49	
Replicates	17896.3	17960.0	18012.2	18107.0					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120428-02				UNK	12/14/17 10:51:49 am	-0.010	11	232.79	
Replicates	43.3	-15.0	-1.8	17.0					
HS17120428-03				UNK	12/14/17 10:53:32 am	0.008	74	26.10	s
Replicates	93.0	60.6	88.3	54.6					
HS17120428-04				UNK	12/14/17 10:55:15 am	-0.004	31	35.46	
Replicates	20.2	42.6	36.6	22.6					
HS17120428-04MS				UNK	12/14/17 11:07:51 am	5.020	17780	0.57	
Replicates	17863.8	17865.7	17725.4	17665.4					
HS17120428-04MSD				UNK	12/14/17 11:09:35 am	5.000	17715	0.94	
Replicates	17938.7	17745.0	17593.0	17584.7					
HS17120428-05				UNK	12/14/17 11:11:19 am	-0.011	8	194.03	
Replicates	1.6	-0.9	33.1	0.1					
HS17120434-01				UNK	12/14/17 11:13:00 am	-0.011	8	107.13	
Replicates	5.8	19.8	-2.0	10.3					
HS17120434-02				UNK	12/14/17 11:14:41 am	-0.007	19	96.19	
Replicates	17.7	39.9	-4.9	24.6					
CCV				UNK	12/14/17 11:16:25 am	5.000	17704	1.15	
Replicates	17418.5	17698.7	17833.7	17863.5					
CCB				UNK	12/14/17 11:18:10 am	0.008	76	27.11	s
Replicates	49.7	91.0	93.0	68.5					
HS17120434-03				UNK	12/14/17 11:19:52 am	0.002	54	42.63	s
Replicates	21.7	74.0	53.7	65.2					
HS17120434-04				UNK	12/14/17 11:21:33 am	-0.020	-24	104.37	
Replicates	-32.1	-47.5	11.2	-27.3					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120434-05				UNK	12/14/17 11:23:15 am	-0.014	-4	91.36	
Replicates	-0.8	-7.4	-0.9	-6.7					
HS17120434-06				UNK	12/14/17 11:24:57 am	0.003	56	17.48	s
Replicates	56.9	62.8	42.3	63.5					
HS17120434-07				UNK	12/14/17 11:26:39 am	-0.004	30	54.90	
Replicates	14.2	33.0	51.5	20.7					
HS17120438-01				UNK	12/14/17 11:28:22 am	0.000	45	49.08	
Replicates	18.6	34.5	60.5	64.8					
HS17120438-02				UNK	12/14/17 11:30:05 am	-0.005	26	175.32	
Replicates	-29.5	12.9	42.4	79.1					
HS17120438-03				UNK	12/14/17 11:31:48 am	-0.003	36	64.79	
Replicates	35.1	33.7	8.7	65.2					
HS17120438-04				UNK	12/14/17 11:33:32 am	-0.001	42	31.26	
Replicates	47.9	37.7	25.4	55.4					
HS17120438-05				UNK	12/14/17 11:35:15 am	-0.005	29	64.21	
Replicates	1.6	41.1	32.4	39.1					
CCV				UNK	12/14/17 11:43:07 am	4.790	16961	3.18	
Replicates	16311.2	16752.2	17253.4	17525.7					
CCB				UNK	12/14/17 11:44:52 am	-0.001	40	33.11	
Replicates	25.7	54.6	33.1	48.6					
HS17120516-01				UNK	12/14/17 11:49:32 am	0.003	58	33.98	s
Replicates	66.5	53.8	32.6	78.6					
HS17120516-02				UNK	12/14/17 11:51:13 am	0.030	150	13.00	s
Replicates	143.4	175.4	128.9	152.4					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120516-03				UNK	12/14/17 11:52:54 am	0.040	186	19.97	s
Replicates	139.2	173.9	219.6	212.1					
GBLKP1-123294				UNK	12/14/17 11:58:07 am	-0.003	36	89.41	
Replicates	-4.3	47.3	71.3	28.6					
MBLK-123294				UNK	12/14/17 11:59:49 am	-0.006	24	78.27	
Replicates	24.5	6.3	50.8	16.0					
LCS-123294				UNK	12/14/17 12:01:31 pm	4.880	17300	3.24	
Replicates	16602.1	17110.5	17631.5	17855.2					
HS17120098-01				UNK	12/14/17 12:03:13 pm	-0.019	-22	59.23	
Replicates	-12.6	-34.6	-32.1	-9.1					
HS17120098-01MS				UNK	12/14/17 12:04:56 pm	4.870	17268	2.83	
Replicates	16687.8	17079.8	17496.8	17808.1					
HS17120098-01MSD				UNK	12/14/17 12:06:39 pm	4.860	17207	4.74	
Replicates	16284.2	16865.2	17502.9	18176.9					
HS17120098-02				UNK	12/14/17 12:08:22 pm	-0.007	21	115.60	
Replicates	-7.8	10.1	36.1	44.4					
CCV				UNK	12/14/17 12:12:50 pm	4.670	16544	2.79	
Replicates	15992.2	16398.5	16706.2	17080.2					
CCB				UNK	12/14/17 12:14:35 pm	0.001	49	12.04	
Replicates	52.4	54.5	47.5	41.3					
HS17120098-03				UNK	12/14/17 12:16:18 pm	0.001	50	25.88	s
Replicates	45.4	41.7	43.9	69.4					
HS17120098-04				UNK	12/14/17 12:18:02 pm	-0.002	37	41.13	
Replicates	30.4	46.1	18.9	52.4					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120099-01				UNK	12/14/17 12:19:43 pm	0.006	66	21.76	s
Replicates	69.6	61.6	49.3	83.6					
HS17120099-02				UNK	12/14/17 12:21:24 pm	0.006	68	45.44	s
Replicates	67.4	102.9	73.4	27.9					
HS17120099-03				UNK	12/14/17 12:23:05 pm	0.005	64	18.27	s
Replicates	47.6	73.2	64.9	71.9					
HS17120295-01				UNK	12/14/17 12:24:47 pm	0.006	66	18.89	s
Replicates	49.3	63.7	77.4	73.2					
HS17120295-02				UNK	12/14/17 12:26:29 pm	0.081	332	9.45	s
Replicates	293.4	332.6	330.6	370.1					
HS17120392-05				UNK	12/14/17 12:28:11 pm	0.126	492	4.87	
Replicates	479.9	513.2	509.9	463.7					
HS17120392-06				UNK	12/14/17 12:29:53 pm	0.037	176	10.11	s
Replicates	174.0	163.6	165.3	202.1					
HS17120491-01				UNK	12/14/17 12:31:36 pm	0.031	154	9.18	s
Replicates	160.9	169.4	137.2	148.4					
CCV				UNK	12/14/17 12:52:52 pm	5.100	18074	0.49	
Replicates	17948.9	18074.1	18141.3	18133.1					
CCB				UNK	12/14/17 12:54:37 pm	-0.002	37	52.64	
Replicates	25.4	26.4	29.9	65.9					
GBLKF1-123306				UNK	12/14/17 01:03:04 pm	0.008	73	37.39	s
Replicates	61.6	64.6	113.8	53.3					
MBLK-123306				UNK	12/14/17 01:04:48 pm	0.000	45	28.98	
Replicates	47.5	45.1	60.4	28.4					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
LCS-123306				UNK	12/14/17 01:06:31 pm	5.040	17841	0.55	
Replicates	17716.7	17818.0	17888.3	17943.0					
HS17120092-01				UNK	12/14/17 01:08:15 pm	0.025	134	19.49	s
Replicates	107.0	116.1	157.4	155.1					
HS17120092-02				UNK	12/14/17 01:09:56 pm	0.003	56	35.69	s
Replicates	31.8	47.1	73.6	70.6					
HS17120092-02MS				UNK	12/14/17 01:11:38 pm	4.870	17249	0.50	
Replicates	17127.4	17248.8	17308.8	17312.3					
HS17120092-02MSD				UNK	12/14/17 01:13:19 pm	5.090	18022	0.40	
Replicates	17917.6	18053.2	18037.0	18078.5					
HS17120092-03				UNK	12/14/17 01:15:01 pm	0.015	100	16.64	s
Replicates	112.5	110.1	76.1	101.4					
HS17120092-04				UNK	12/14/17 01:16:42 pm	0.011	86	27.32	s
Replicates	97.8	51.5	103.3	90.0					
HS17120094-01				UNK	12/14/17 01:18:24 pm	0.075	310	4.49	
Replicates	321.4	289.8	312.1	316.3					
CCV				UNK	12/14/17 01:22:06 pm	4.830	17118	0.39	
Replicates	17018.2	17141.5	17159.3	17154.0					
CCB				UNK	12/14/17 01:23:51 pm	-0.004	31	55.04	
Replicates	45.2	24.8	42.8	9.3					
HS17120094-02				UNK	12/14/17 01:25:33 pm	0.109	432	3.29	
Replicates	414.2	443.4	443.7	427.2					
HS17120094-03				UNK	12/14/17 01:27:16 pm	0.068	284	1.87	
Replicates	287.5	289.7	282.9	277.7					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120094-04				UNK	12/14/17 01:28:58 pm	0.006	68	29.61	s
Replicates	63.4	91.6	71.8	43.3					
HS17120095-01				UNK	12/14/17 01:30:42 pm	-0.001	43	51.50	
Replicates	47.6	13.4	66.6	43.6					
HS17120095-02				UNK	12/14/17 01:32:25 pm	-0.002	40	33.94	
Replicates	56.1	46.7	28.2	29.4					
HS17120095-03				UNK	12/14/17 01:34:09 pm	0.002	52	51.63	s
Replicates	19.6	82.5	64.5	43.5					
HS17120095-04				UNK	12/14/17 01:35:51 pm	0.028	145	15.57	s
Replicates	118.8	149.7	139.4	173.2					
HS17120098-01				UNK	12/14/17 01:37:33 pm	0.003	56	50.58	s
Replicates	80.8	75.5	46.5	20.0					
HS17120098-02				UNK	12/14/17 01:39:15 pm	0.002	52	27.54	s
Replicates	53.9	65.6	31.9	56.4					
HS17120098-03				UNK	12/14/17 01:40:57 pm	0.000	46	73.39	
Replicates	64.0	8.6	82.8	28.1					
CCV				UNK	12/14/17 01:42:41 pm	5.010	17730	1.26	
Replicates	17417.4	17723.6	17881.6	17898.9					
CCB				UNK	12/14/17 01:44:26 pm	-0.007	21	71.86	
Replicates	-0.6	29.5	31.7	21.5					
HS17120098-04				UNK	12/14/17 01:46:08 pm	-0.007	21	64.24	
Replicates	41.0	18.5	17.0	9.0					
HS17120099-01				UNK	12/14/17 01:47:50 pm	0.010	82	20.70	s
Replicates	58.2	95.1	92.8	80.6					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120099-02				UNK	12/14/17 01:49:32 pm	0.067	281	6.02	s
Replicates	281.7	288.9	295.1	256.6					
HS17120099-03				UNK	12/14/17 01:51:15 pm	0.042	193	5.66	s
Replicates	201.3	184.2	202.7	182.2					
MBLK-123317				UNK	12/14/17 01:57:35 pm	-0.003	36	61.16	
Replicates	25.8	39.0	64.5	13.5					
LCS-123317				UNK	12/14/17 01:59:18 pm	4.960	17559	0.42	
Replicates	17485.9	17510.6	17598.6	17642.4					
HS17120422-01				UNK	12/14/17 02:01:02 pm	-0.006	23	98.51	
Replicates	-9.5	43.8	32.3	26.8					
HS17120422-01MS				UNK	12/14/17 02:02:45 pm	4.860	17215	1.00	
Replicates	16979.0	17214.7	17280.4	17384.4					
HS17120422-01MSD				UNK	12/14/17 02:04:28 pm	4.680	16569	0.30	
Replicates	16536.4	16597.0	16519.5	16624.0					
HS17120422-02				UNK	12/14/17 02:06:10 pm	-0.013	1	952.84	
Replicates	11.9	36.2	-7.8	-37.3					
CCV				UNK	12/14/17 02:07:54 pm	5.010	17736	0.31	
Replicates	17661.5	17726.3	17768.5	17786.3					
CCB				UNK	12/14/17 02:09:39 pm	-0.004	33	49.08	
Replicates	9.5	34.8	43.8	43.6					
HS17120685-01				UNK	12/14/17 02:11:21 pm	0.011	83	28.85	s
Replicates	70.3	107.0	56.0	99.0					
HS17120685-03				UNK	12/14/17 02:13:03 pm	0.008	73	12.67	s
Replicates	74.7	60.6	82.9	75.6					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120685-06				UNK	12/14/17 02:14:46 pm	0.071	296	7.25	s
Replicates	282.2	280.6	326.9	294.4					
HS17120685-07				UNK	12/14/17 02:16:28 pm	0.010	80	29.80	s
Replicates	66.6	52.8	99.8	99.6					
HS17120685-08				UNK	12/14/17 02:18:10 pm	0.003	55	45.86	s
Replicates	64.3	17.2	67.7	69.4					
HS17120685-09				UNK	12/14/17 02:19:52 pm	0.009	77	29.91	s
Replicates	52.1	107.1	69.1	81.4					
HS17120685-10				UNK	12/14/17 02:21:35 pm	0.019	113	7.34	s
Replicates	106.3	123.6	106.3	115.1					
MBLK-1233218				UNK	12/14/17 02:26:12 pm	0.002	53	38.43	s
Replicates	78.8	59.0	34.2	39.5					
LCS-123318				UNK	12/14/17 02:27:56 pm	5.030	17834	1.35	
Replicates	17514.0	17788.0	17983.8	18049.0					
HS17120424-01				UNK	12/14/17 02:29:39 pm	-0.011	5	348.80	
Replicates	-15.4	25.5	12.8	-2.5					
CCV				UNK	12/14/17 02:31:24 pm	4.970	17597	0.34	
Replicates	17516.3	17609.1	17603.1	17660.1					
CCB				UNK	12/14/17 02:33:09 pm	-0.002	37	23.37	
Replicates	48.5	35.9	36.6	27.4					
HS17120426-01				UNK	12/14/17 02:34:51 pm	0.012	89	19.39	s
Replicates	103.9	97.2	64.4	91.9					
HS17120439-01				UNK	12/14/17 02:36:34 pm	0.004	58	59.50	s
Replicates	33.5	49.3	40.6	109.1					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120440-01				UNK	12/14/17 02:38:16 pm	-0.001	41	85.57	
Replicates	50.2	84.6	2.4	26.6					
HS17120471-01				UNK	12/14/17 02:39:59 pm	-0.009	16	70.72	
Replicates	16.3	9.2	5.9	30.7					
HS17120471-01MS				UNK	12/14/17 02:41:42 pm	4.840	17145	1.13	
Replicates	16879.5	17145.3	17222.8	17332.8					
HS17120471-01MSD				UNK	12/14/17 02:43:24 pm	4.830	17124	0.65	
Replicates	16971.3	17130.3	17154.1	17239.8					
HS17120521-01				UNK	12/14/17 02:45:07 pm	0.001	49	44.48	
Replicates	52.3	70.3	18.5	56.8					
HS17120521-02				UNK	12/14/17 02:46:49 pm	0.052	229	9.52	s
Replicates	242.6	197.2	243.7	232.7					
HS17120521-03				UNK	12/14/17 02:48:32 pm	0.026	137	9.93	s
Replicates	149.3	119.6	132.6	146.1					
CCV				UNK	12/14/17 02:52:54 pm	4.890	17313	0.82	
Replicates	17123.9	17305.5	17358.0	17463.8					
CCB				UNK	12/14/17 02:54:39 pm	0.000	46	65.73	
Replicates	18.7	26.9	85.9	52.6					
GBLKF1-123323				UNK	12/14/17 02:56:22 pm	-0.012	3	929.39	
Replicates	-26.2	32.8	-16.0	21.8					
MBLK-123323				UNK	12/14/17 02:58:05 pm	0.020	117	7.72	s
Replicates	109.9	129.6	111.1	116.3					
LCS-123323				UNK	12/14/17 02:59:49 pm	4.990	17686	0.25	
Replicates	17624.6	17687.1	17728.6	17703.6					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120359-01				UNK	12/14/17 03:01:32 pm	0.001	48	46.09	
Replicates	15.4	56.5	55.2	64.7					
HS17120359-01MS				UNK	12/14/17 03:03:15 pm	4.890	17325	1.29	
Replicates	17013.9	17342.4	17402.9	17539.6					
HS17120359-01MSD				UNK	12/14/17 03:04:57 pm	5.040	17857	0.35	
Replicates	17765.7	17876.9	17902.9	17881.9					
HS17120363-04				UNK	12/14/17 03:06:40 pm	-0.005	29	82.75	
Replicates	5.9	12.1	56.6	43.3					
HS17120363-05				UNK	12/14/17 03:08:22 pm	-0.008	18	110.23	
Replicates	6.5	-3.8	32.2	37.9					
MBLK-123333				UNK	12/14/17 03:41:27 pm	0.003	54	15.50	s
Replicates	42.1	60.2	55.9	59.7					
LCS-123333				UNK	12/14/17 03:43:10 pm	4.850	17165	1.28	
Replicates	17228.1	17375.0	17199.5	16857.5					
CCV				UNK	12/14/17 03:44:54 pm	4.850	17169	0.42	
Replicates	17068.0	17167.6	17215.9	17223.1					
CCB				UNK	12/14/17 03:46:39 pm	-0.002	37	27.36	
Replicates	30.2	45.4	47.1	27.1					
HS17110508-01				UNK	12/14/17 03:48:22 pm	-0.004	31	22.88	
Replicates	26.2	38.8	23.8	34.8					
HS17120435-01				UNK	12/14/17 03:50:04 pm	0.008	72	35.42	s
Replicates	81.8	103.5	45.0	59.5					
HS17120435-02				UNK	12/14/17 03:51:48 pm	0.007	71	14.08	s
Replicates	56.7	73.0	79.5	75.5					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120435-02MS				UNK	12/14/17 03:53:31 pm	4.600	16285	0.66	
Replicates	16148.6	16253.4	16353.4	16384.4					
HS17120435-02MSD				UNK	12/14/17 03:55:15 pm	4.780	16950	0.42	
Replicates	16858.9	16968.6	16941.4	17032.1					
HS17120435-03				UNK	12/14/17 03:56:58 pm	-0.004	32	58.02	
Replicates	32.0	48.9	6.2	41.7					
HS17120435-04				UNK	12/14/17 03:58:41 pm	0.016	103	13.13	s
Replicates	111.4	105.2	83.2	111.9					
HS17120435-06				UNK	12/14/17 04:00:24 pm	0.011	84	14.70	s
Replicates	97.7	67.7	85.7	84.2					
HS17120435-07				UNK	12/14/17 04:02:07 pm	0.012	88	29.45	s
Replicates	79.4	86.7	62.4	123.9					
CCV				UNK	12/14/17 04:17:18 pm	4.880	17305	0.98	
Replicates	17057.2	17338.5	17384.8	17439.0					
CCB				UNK	12/14/17 04:19:03 pm	-0.008	19	72.32	
Replicates	-1.3	27.9	22.4	25.6					
GBLKT1-123339				UNK	12/14/17 04:20:46 pm	-0.001	41	18.18	
Replicates	44.5	45.1	29.8	44.6					
GBLKT2-123339				UNK	12/14/17 04:22:29 pm	-0.001	43	21.33	
Replicates	44.0	41.4	54.2	31.9					
MBLK-123339				UNK	12/14/17 04:24:12 pm	-0.012	2	278.81	
Replicates	8.4	4.6	-5.9	1.6					
LCS-123339				UNK	12/14/17 04:25:55 pm	5.020	17786	1.42	
Replicates	17442.6	17749.0	17963.5	17988.3					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120400-01				UNK	12/14/17 04:27:38 pm	-0.013	1	074.49	
Replicates	5.7	-16.8	9.2	6.4					
HS17120400-01MS				UNK	12/14/17 04:29:21 pm	5.390	19090	0.31	
Replicates	19013.7	19096.9	19089.9	19159.6					
HS17120400-01MSD				UNK	12/14/17 04:31:05 pm	5.610	19883	1.02	
Replicates	19619.8	19833.2	20010.9	20069.2					
HS17120400-02				UNK	12/14/17 04:32:49 pm	-0.014	-3	677.79	
Replicates	9.5	-24.2	-10.2	14.3					
HS17120400-03				UNK	12/14/17 04:34:32 pm	0.003	55	11.86	s
Replicates	52.0	53.6	49.6	64.3					
HS17120400-04				UNK	12/14/17 04:36:16 pm	-0.009	14	164.09	
Replicates	-8.0	44.7	13.7	4.4					
CCV				UNK	12/14/17 04:38:00 pm	4.960	17581	0.67	
Replicates	17406.6	17615.8	17632.1	17668.6					
CCB				UNK	12/14/17 04:39:45 pm	-0.001	41	35.27	
Replicates	25.0	34.9	58.6	47.1					
HS17120500-01				UNK	12/14/17 04:41:28 pm	0.014	96	12.79	s
Replicates	104.3	104.8	95.6	78.6					
HS17120500-02				UNK	12/14/17 04:43:12 pm	0.030	150	10.92	s
Replicates	166.9	147.6	128.8	158.3					
HS17120572-01				UNK	12/14/17 04:44:55 pm	0.000	45	58.62	
Replicates	43.8	36.9	18.9	82.1					
HS17120575-01				UNK	12/14/17 04:46:39 pm	0.405	1475	2.85	
Replicates	1418.9	1469.4	1495.4	1516.1					

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120578-01					UNK	12/14/17 04:48:22 pm	-0.006	26	57.79	
	Replicates	46.8	11.2	22.0	23.7					
HS17120583-01					UNK	12/14/17 04:50:06 pm	-0.004	32	71.34	
	Replicates	47.4	1.3	27.8	50.8					
HS17120612-01					UNK	12/14/17 04:51:50 pm	0.005	62	33.14	s
	Replicates	60.6	52.2	91.7	44.7					
HS17120628-01					UNK	12/14/17 04:53:33 pm	0.000	46	14.29	
	Replicates	46.7	53.8	38.3	43.3					
CCV					UNK	12/14/17 04:58:42 pm	4.800	17000	1.29	
	Replicates	16687.7	17012.1	17132.1	17168.6					
CCB					UNK	12/14/17 05:00:27 pm	-0.008	18	100.32	
	Replicates	-3.0	29.1	35.1	9.1					

Metals Raw Data

Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
ALS WO# HS17120435

ALS Group USA, Corp Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

ICV Date: 14-Dec-2017 09:38 Seq: 4350726 ICV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	92.147	92	90-110	
Antimony	100	95.253	95	90-110	
Arsenic	100	96.805	97	90-110	
Barium	100	92.829	93	90-110	
Beryllium	100	98.504	99	90-110	
Cadmium	100	95.347	95	90-110	
Calcium	10000	9791.479	98	90-110	
Chromium	100	97.493	98	90-110	
Cobalt	100	95.884	96	90-110	
Copper	100	100.166	100	90-110	
Iron	10000	9436.975	94	90-110	
Lead	100	98.075	98	90-110	
Magnesium	10000	9806.424	98	90-110	
Manganese	100	97.512	98	90-110	
Nickel	100	97.802	98	90-110	
Potassium	10000	9591.966	96	90-110	
Selenium	100	98.782	99	90-110	
Silver	100	95.671	96	90-110	
Sodium	10000	9960.471	100	90-110	
Thallium	100	95.995	96	90-110	
Vanadium	100	96.558	97	90-110	
Zinc	100	99.132	99	90-110	

CCV1 Date: 14-Dec-2017 10:00 Seq: 4350765 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	90.296	90	90-110	
Antimony	100	92.769	93	90-110	
Arsenic	100	97.373	97	90-110	
Barium	100	96.704	97	90-110	
Beryllium	100	100.02	100	90-110	
Cadmium	100	96.621	97	90-110	
Calcium	10000	9454.873	95	90-110	
Chromium	100	98.164	98	90-110	
Cobalt	100	96.771	97	90-110	
Copper	100	97.198	97	90-110	
Iron	10000	9838.63	98	90-110	
Lead	100	102.062	102	90-110	
Magnesium	10000	9838.481	98	90-110	
Manganese	100	98.298	98	90-110	
Nickel	100	95.99	96	90-110	
Potassium	10000	9046.493	91	90-110	
Selenium	100	96.098	96	90-110	
Silver	100	95.359	95	90-110	
Sodium	10000	9833.876	98	90-110	
Thallium	100	96.617	97	90-110	
Vanadium	100	96.269	96	90-110	
Zinc	100	96.398	96	90-110	

CCV2 Date: 14-Dec-2017 10:25 Seq: 4351296 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	91.851	92	90-110	
Antimony	100	91.505	92	90-110	
Arsenic	100	95.558	96	90-110	
Barium	100	95.145	95	90-110	
Beryllium	100	96.545	97	90-110	
Cadmium	100	95.423	95	90-110	
Calcium	10000	9620.253	96	90-110	

ALS Group USA, Corp

Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCV2 Date: 14-Dec-2017 10:25 Seq: 4351296 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Chromium	100	95.747	96	90-110	
Cobalt	100	94.537	95	90-110	
Copper	100	97.039	97	90-110	
Iron	10000	9515.201	95	90-110	
Lead	100	97.78	98	90-110	
Magnesium	10000	9610.631	96	90-110	
Manganese	100	93.932	94	90-110	
Nickel	100	95.545	96	90-110	
Potassium	10000	9373.233	94	90-110	
Selenium	100	100.282	100	90-110	
Silver	100	94.415	94	90-110	
Sodium	10000	9782.343	98	90-110	
Thallium	100	98.802	99	90-110	
Vanadium	100	94.934	95	90-110	
Zinc	100	95.968	96	90-110	

CCV3 Date: 14-Dec-2017 10:55 Seq: 4351311 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	91.335	91	90-110	
Antimony	100	91.008	91	90-110	
Arsenic	100	95.231	95	90-110	
Barium	100	92.083	92	90-110	
Beryllium	100	89.583	90	90-110	S
Cadmium	100	92.038	92	90-110	
Calcium	10000	9210.915	92	90-110	
Chromium	100	94.544	95	90-110	
Cobalt	100	94.746	95	90-110	
Copper	100	96.981	97	90-110	
Iron	10000	9258.805	93	90-110	
Lead	100	94.887	95	90-110	
Magnesium	10000	9612.393	96	90-110	
Manganese	100	92.392	92	90-110	
Nickel	100	96.588	97	90-110	
Potassium	10000	9244.586	92	90-110	
Selenium	100	98.054	98	90-110	
Silver	100	93.212	93	90-110	
Sodium	10000	9764.259	98	90-110	
Thallium	100	92.674	93	90-110	
Vanadium	100	94.906	95	90-110	
Zinc	100	97.898	98	90-110	

CCV4 Date: 14-Dec-2017 11:56 Seq: 4351321 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	90.64	91	90-110	
Antimony	100	92.32	92	90-110	
Arsenic	100	94.144	94	90-110	
Barium	100	95.408	95	90-110	
Beryllium	100	97.004	97	90-110	
Cadmium	100	93.938	94	90-110	
Calcium	10000	9669.321	97	90-110	
Chromium	100	90.643	91	90-110	
Cobalt	100	92.329	92	90-110	
Copper	100	94.08	94	90-110	
Iron	10000	9010.569	90	90-110	
Lead	100	96.462	97	90-110	
Magnesium	10000	9149.581	92	90-110	
Manganese	100	91.163	91	90-110	

ALS Group USA, Corp Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCV4 Date: 14-Dec-2017 11:56 Seq: 4351321 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Nickel	100	92.459	93	90-110	
Potassium	10000	9565.337	96	90-110	
Selenium	100	95.932	96	90-110	
Silver	100	91.801	92	90-110	
Sodium	10000	9388.414	94	90-110	
Thallium	100	91.416	91	90-110	
Vanadium	100	90.559	91	90-110	
Zinc	100	95.232	95	90-110	

CCV5 Date: 14-Dec-2017 12:20 Seq: 4351488 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	92.976	93	90-110	
Antimony	100	92.699	93	90-110	
Arsenic	100	94.625	95	90-110	
Barium	100	92.653	93	90-110	
Beryllium	100	88.243	88	90-110	S
Cadmium	100	93.805	94	90-110	
Calcium	10000	9357.434	94	90-110	
Chromium	100	95.455	96	90-110	
Cobalt	100	95.621	96	90-110	
Copper	100	97.438	97	90-110	
Iron	10000	9376.759	94	90-110	
Lead	100	99.744	100	90-110	
Magnesium	10000	9720.632	97	90-110	
Manganese	100	95.585	96	90-110	
Nickel	100	94.987	95	90-110	
Potassium	10000	9330.785	93	90-110	
Selenium	100	100.672	101	90-110	
Silver	100	92.53	93	90-110	
Sodium	10000	10032.238	100	90-110	
Thallium	100	97.176	97	90-110	
Vanadium	100	94.234	94	90-110	
Zinc	100	95.331	95	90-110	

CCV6 Date: 14-Dec-2017 12:44 Seq: 4351522 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	94.172	94	90-110	
Antimony	100	93.645	94	90-110	
Arsenic	100	96.451	97	90-110	
Barium	100	96.347	96	90-110	
Beryllium	100	92.035	92	90-110	
Cadmium	100	95.835	96	90-110	
Calcium	10000	10020.704	100	90-110	
Chromium	100	96.472	97	90-110	
Cobalt	100	95.5	96	90-110	
Copper	100	95.914	96	90-110	
Iron	10000	9531.466	95	90-110	
Lead	100	97.372	97	90-110	
Magnesium	10000	9500.883	95	90-110	
Manganese	100	96.716	97	90-110	
Nickel	100	94.632	95	90-110	
Potassium	10000	9832.499	98	90-110	
Selenium	100	100.75	101	90-110	
Silver	100	94.544	95	90-110	
Sodium	10000	9853.58	99	90-110	
Thallium	100	94.571	95	90-110	
Vanadium	100	94.651	95	90-110	

ALS Group USA, Corp Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCV6 Date: 14-Dec-2017 12:44 Seq: 4351522 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Zinc	100	97.069	97	90-110	

CCV7 Date: 14-Dec-2017 13:08 Seq: 4351572 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	97.293	97	90-110	
Antimony	100	92.326	92	90-110	
Arsenic	100	95.667	96	90-110	
Barium	100	92.212	92	90-110	
Beryllium	100	87.004	87	90-110	S
Cadmium	100	95.127	95	90-110	
Calcium	10000	9615.76	96	90-110	
Chromium	100	94.472	95	90-110	
Cobalt	100	94.803	95	90-110	
Copper	100	97.18	97	90-110	
Iron	10000	9263.668	93	90-110	
Lead	100	102.452	102	90-110	
Magnesium	10000	9594.784	96	90-110	
Manganese	100	93.196	93	90-110	
Nickel	100	95.544	96	90-110	
Potassium	10000	9842.267	98	90-110	
Selenium	100	96.491	97	90-110	
Silver	100	93.76	94	90-110	
Sodium	10000	9656.359	97	90-110	
Thallium	100	93.523	94	90-110	
Vanadium	100	91.865	92	90-110	
Zinc	100	96.832	97	90-110	

CCV8 Date: 14-Dec-2017 13:32 Seq: 4351685 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	95.567	96	90-110	
Antimony	100	93.84	94	90-110	
Arsenic	100	97.788	98	90-110	
Barium	100	98.488	99	90-110	
Beryllium	100	94.85	95	90-110	
Cadmium	100	97.26	97	90-110	
Calcium	10000	9593.889	96	90-110	
Chromium	100	97.671	98	90-110	
Cobalt	100	97.049	97	90-110	
Copper	100	98.361	98	90-110	
Iron	10000	9605.491	96	90-110	
Lead	100	104.144	104	90-110	
Magnesium	10000	9929.112	99	90-110	
Manganese	100	95.37	95	90-110	
Nickel	100	98.696	99	90-110	
Potassium	10000	9509.404	95	90-110	
Selenium	100	102.624	103	90-110	
Silver	100	91.033	91	90-110	
Sodium	10000	10099.802	101	90-110	
Thallium	100	97.624	98	90-110	
Vanadium	100	96	96	90-110	
Zinc	100	98.459	99	90-110	

CCV9 Date: 14-Dec-2017 13:56 Seq: 4351734 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	95.163	95	90-110	
Antimony	100	92.379	92	90-110	
Arsenic	100	95.564	96	90-110	

ALS Group USA, Corp Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCV9 Date: 14-Dec-2017 13:56 Seq: 4351734 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	96.212	96	90-110	
Beryllium	100	98.068	98	90-110	
Cadmium	100	96.848	97	90-110	
Calcium	10000	9526.438	95	90-110	
Chromium	100	96.369	96	90-110	
Cobalt	100	95.722	96	90-110	
Copper	100	98.814	99	90-110	
Iron	10000	9277.621	93	90-110	
Lead	100	96.399	96	90-110	
Magnesium	10000	9364.196	94	90-110	
Manganese	100	92.093	92	90-110	
Nickel	100	97.366	97	90-110	
Potassium	10000	9445.684	95	90-110	
Selenium	100	99.388	99	90-110	
Silver	100	93.058	93	90-110	
Sodium	10000	9745.947	98	90-110	
Thallium	100	92.733	93	90-110	
Vanadium	100	94.243	94	90-110	
Zinc	100	93.454	94	90-110	

CCV10 Date: 14-Dec-2017 14:20 Seq: 4351765 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	95.089	95	90-110	
Antimony	100	94.194	94	90-110	
Arsenic	100	96.146	96	90-110	
Barium	100	92.443	92	90-110	
Beryllium	100	90.559	91	90-110	
Cadmium	100	94.442	94	90-110	
Calcium	10000	9927.192	99	90-110	
Chromium	100	95.424	95	90-110	
Cobalt	100	95.188	95	90-110	
Copper	100	97.674	98	90-110	
Iron	10000	9445.267	95	90-110	
Lead	100	102.944	103	90-110	
Magnesium	10000	9960.987	100	90-110	
Manganese	100	92.934	93	90-110	
Nickel	100	95.614	96	90-110	
Potassium	10000	9675.53	97	90-110	
Selenium	100	98.204	98	90-110	
Silver	100	93.381	93	90-110	
Sodium	10000	10145.44	101	90-110	
Thallium	100	96.904	97	90-110	
Vanadium	100	96.478	97	90-110	
Zinc	100	98.843	99	90-110	

CCV11 Date: 14-Dec-2017 14:45 Seq: 4351947 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	90.798	91	90-110	
Antimony	100	93.072	93	90-110	
Arsenic	100	96.064	96	90-110	
Barium	100	94.434	94	90-110	
Beryllium	100	92.181	92	90-110	
Cadmium	100	97.147	97	90-110	
Calcium	10000	9738.404	97	90-110	
Chromium	100	94.819	95	90-110	
Cobalt	100	93.327	93	90-110	
Copper	100	94.4	94	90-110	

ALS Group USA, Corp Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCV11 Date: 14-Dec-2017 14:45 Seq: 4351947 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Iron	10000	9200.712	92	90-110	
Lead	100	103.752	104	90-110	
Magnesium	10000	9571.381	96	90-110	
Manganese	100	93.591	94	90-110	
Nickel	100	94.63	95	90-110	
Potassium	10000	9434.436	94	90-110	
Selenium	100	94.161	94	90-110	
Silver	100	92.949	93	90-110	
Sodium	10000	9613.606	96	90-110	
Thallium	100	99.323	99	90-110	
Vanadium	100	93.649	94	90-110	
Zinc	100	92.793	93	90-110	

CCV12 Date: 14-Dec-2017 15:09 Seq: 4352185 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	92.289	92	90-110	
Antimony	100	92.382	92	90-110	
Arsenic	100	95.329	95	90-110	
Barium	100	95.78	96	90-110	
Beryllium	100	90.651	91	90-110	
Cadmium	100	97.219	97	90-110	
Calcium	10000	9554.811	96	90-110	
Chromium	100	95.004	95	90-110	
Cobalt	100	94.232	94	90-110	
Copper	100	96.134	96	90-110	
Iron	10000	9410.032	94	90-110	
Lead	100	99.005	99	90-110	
Magnesium	10000	9552.361	96	90-110	
Manganese	100	93.971	94	90-110	
Nickel	100	94.029	94	90-110	
Potassium	10000	9469.341	95	90-110	
Selenium	100	96.797	97	90-110	
Silver	100	93.008	93	90-110	
Sodium	10000	9751.234	98	90-110	
Thallium	100	99.807	100	90-110	
Vanadium	100	95.183	95	90-110	
Zinc	100	96.174	96	90-110	

CCV13 Date: 14-Dec-2017 15:33 Seq: 4352197 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	94.964	95	90-110	
Antimony	100	94.605	95	90-110	
Arsenic	100	95.677	96	90-110	
Barium	100	93.735	94	90-110	
Beryllium	100	89.965	90	90-110	
Cadmium	100	94.667	95	90-110	
Calcium	10000	9851.348	99	90-110	
Chromium	100	98.219	98	90-110	
Cobalt	100	94.263	94	90-110	
Copper	100	97.409	97	90-110	
Iron	10000	9653.543	97	90-110	
Lead	100	108.266	108	90-110	
Magnesium	10000	9671.614	97	90-110	
Manganese	100	94.457	95	90-110	
Nickel	100	95.496	96	90-110	
Potassium	10000	9469.582	95	90-110	
Selenium	100	95.079	96	90-110	

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCV13	Date: 14-Dec-2017 15:33		Seq: 4352197	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Silver	100	91.826	92	90-110	
Sodium	10000	9916.881	99	90-110	
Thallium	100	96.509	97	90-110	
Vanadium	100	95.26	95	90-110	
Zinc	100	98.075	98	90-110	

CCV14	Date: 14-Dec-2017 15:57		Seq: 4352748	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Aluminum	100	93.969	94	90-110	
Antimony	100	94.981	95	90-110	
Arsenic	100	97.091	97	90-110	
Barium	100	96.415	96	90-110	
Beryllium	100	92.36	92	90-110	
Cadmium	100	96.685	97	90-110	
Calcium	10000	9903.589	99	90-110	
Chromium	100	97.705	98	90-110	
Cobalt	100	94.986	95	90-110	
Copper	100	96.682	97	90-110	
Iron	10000	9657.61	97	90-110	
Lead	100	102.137	102	90-110	
Magnesium	10000	9589.699	96	90-110	
Manganese	100	94.708	95	90-110	
Nickel	100	96.593	97	90-110	
Potassium	10000	9717.613	97	90-110	
Selenium	100	100.05	100	90-110	
Silver	100	95.022	95	90-110	
Sodium	10000	10091.057	101	90-110	
Thallium	100	98.125	98	90-110	
Vanadium	100	96.42	96	90-110	
Zinc	100	99.07	99	90-110	

CCV15	Date: 14-Dec-2017 16:21		Seq: 4352760	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Aluminum	100	92.695	93	90-110	
Antimony	100	95.124	95	90-110	
Arsenic	100	97.977	98	90-110	
Barium	100	97.581	98	90-110	
Beryllium	100	97.038	97	90-110	
Cadmium	100	98.726	99	90-110	
Calcium	10000	9768.227	98	90-110	
Chromium	100	97.498	98	90-110	
Cobalt	100	96.783	97	90-110	
Copper	100	96.291	96	90-110	
Iron	10000	9581.753	96	90-110	
Lead	100	94.635	95	90-110	
Magnesium	10000	9466.319	95	90-110	
Manganese	100	97.054	97	90-110	
Nickel	100	95.751	96	90-110	
Potassium	10000	9638.849	96	90-110	
Selenium	100	94.858	95	90-110	
Silver	100	94.84	95	90-110	
Sodium	10000	10240.986	102	90-110	
Thallium	100	98.124	98	90-110	
Vanadium	100	95.006	95	90-110	
Zinc	100	97.285	97	90-110	

ALS Group USA, Corp Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCV16 Date: 14-Dec-2017 16:45 Seq: 4352772 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	93.19	93	90-110	
Antimony	100	91.443	91	90-110	
Arsenic	100	94.513	95	90-110	
Barium	100	95.479	96	90-110	
Beryllium	100	91.459	92	90-110	
Cadmium	100	96.809	97	90-110	
Calcium	10000	9742.035	97	90-110	
Chromium	100	95.783	96	90-110	
Cobalt	100	95.459	96	90-110	
Copper	100	97.073	97	90-110	
Iron	10000	9274.657	93	90-110	
Lead	100	102.272	102	90-110	
Magnesium	10000	9530.828	95	90-110	
Manganese	100	92.722	93	90-110	
Nickel	100	94.352	94	90-110	
Potassium	10000	9459.623	95	90-110	
Selenium	100	92.988	93	90-110	
Silver	100	91.352	91	90-110	
Sodium	10000	10608.715	106	90-110	
Thallium	100	102.491	102	90-110	
Vanadium	100	95.337	95	90-110	
Zinc	100	97.73	98	90-110	

CCV17 Date: 14-Dec-2017 17:09 Seq: 4352784 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	93.532	94	90-110	
Antimony	100	93.774	94	90-110	
Arsenic	100	98.985	99	90-110	
Barium	100	95.46	96	90-110	
Beryllium	100	92.971	93	90-110	
Cadmium	100	99.64	100	90-110	
Calcium	10000	9783.374	98	90-110	
Chromium	100	98.686	99	90-110	
Cobalt	100	98.726	99	90-110	
Copper	100	100.664	101	90-110	
Iron	10000	9696.067	97	90-110	
Lead	100	108.565	109	90-110	
Magnesium	10000	9890.925	99	90-110	
Manganese	100	96.121	96	90-110	
Nickel	100	100.279	100	90-110	
Potassium	10000	9362.306	94	90-110	
Selenium	100	96.037	96	90-110	
Silver	100	93.699	94	90-110	
Sodium	10000	10240.269	102	90-110	
Thallium	100	96.48	97	90-110	
Vanadium	100	98.881	99	90-110	
Zinc	100	97.942	98	90-110	

CCV18 Date: 14-Dec-2017 17:33 Seq: 4352796 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	96.391	96	90-110	
Antimony	100	94.31	94	90-110	
Arsenic	100	95.813	96	90-110	
Barium	100	95.557	96	90-110	
Beryllium	100	91.169	91	90-110	
Cadmium	100	97.061	97	90-110	
Calcium	10000	9840.722	98	90-110	

ALS Group USA, Corp Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCV18	Date: 14-Dec-2017 17:33		Seq: 4352796	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Chromium	100	96.95	97	90-110	
Cobalt	100	96.59	97	90-110	
Copper	100	96.948	97	90-110	
Iron	10000	9488.872	95	90-110	
Lead	100	90.112	90	90-110	
Magnesium	10000	9713.556	97	90-110	
Manganese	100	96.816	97	90-110	
Nickel	100	97.398	97	90-110	
Potassium	10000	9834.403	98	90-110	
Selenium	100	98.376	98	90-110	
Silver	100	93.919	94	90-110	
Sodium	10000	10439.369	104	90-110	
Thallium	100	97.871	98	90-110	
Vanadium	100	97.324	97	90-110	
Zinc	100	97.388	97	90-110	

CCV19	Date: 14-Dec-2017 17:45		Seq: 4352802	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Aluminum	100	96.761	97	90-110	
Antimony	100	95.45	95	90-110	
Arsenic	100	97.066	97	90-110	
Barium	100	95.334	95	90-110	
Beryllium	100	90.667	91	90-110	
Cadmium	100	97.471	98	90-110	
Calcium	10000	9950.079	100	90-110	
Chromium	100	100.011	100	90-110	
Cobalt	100	99.316	99	90-110	
Copper	100	100.682	101	90-110	
Iron	10000	9797.717	98	90-110	
Lead	100	98.994	99	90-110	
Magnesium	10000	9961.712	100	90-110	
Manganese	100	98.329	98	90-110	
Nickel	100	99.426	99	90-110	
Potassium	10000	9794.918	98	90-110	
Selenium	100	100.781	101	90-110	
Silver	100	95.156	95	90-110	
Sodium	10000	10643.601	106	90-110	
Thallium	100	97.126	97	90-110	
Vanadium	100	98.079	98	90-110	
Zinc	100	99.521	100	90-110	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

ICB	Date: 14-Dec-2017 09:44		Seq: 4350729	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	2	0.4	2	U	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	-28.95	14	200	J	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB1	Date: 14-Dec-2017 10:02		Seq: 4350766	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.988	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	0.607	0.6	2	J	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	-16.06	14	200	J	
Thallium	0.356	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB2	Date: 14-Dec-2017 10:27		Seq: 4351297	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.861	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCB2	Date: 14-Dec-2017 10:27		Seq: 4351297	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	22.41	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	30.06	14	200	J	
Thallium	0.357	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB3	Date: 14-Dec-2017 10:51		Seq: 4351309	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.865	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	61.57	34	500	J	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	70.74	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	85.09	14	200	J	
Thallium	0.457	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB4	Date: 14-Dec-2017 11:58		Seq: 4351322	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.769	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCB4	Date: 14-Dec-2017 11:58		Seq: 4351322	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	0.884	0.6	2	J	
Potassium	21.32	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	
Thallium	0.222	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB5	Date: 14-Dec-2017 12:22		Seq: 4351489	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.58	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	11.77	10	200	J	
Manganese	5	0.7	5	U	
Nickel	0.688	0.6	2	J	
Potassium	19.3	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	165.2	14	200	J	
Thallium	0.209	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB6	Date: 14-Dec-2017 12:46		Seq: 4351523	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.576	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	0.619	0.6	2	J	
Potassium	35.56	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCB6	Date: 14-Dec-2017 12:46		Seq: 4351523	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Sodium	65.56	14	200	J	
Thallium	0.219	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB7	Date: 14-Dec-2017 13:10		Seq: 4351573	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.602	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	
Thallium	0.228	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB8	Date: 14-Dec-2017 13:34		Seq: 4351686	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.533	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	
Thallium	0.214	0.2	2	J	
Vanadium	0.604	0.6	5	J	
Zinc	4	2	4	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCB9	Date: 14-Dec-2017 13:58		Seq: 4351735	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.464	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	0.755	0.6	2	J	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	
Thallium	0.26	0.2	2	J	
Vanadium	0.742	0.6	5	J	
Zinc	4	2	4	U	

MBLK-123278	Date: 14-Dec-2017 14:00		Seq: 4351736	MBLK	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	4.083	1.8	10	J	
Antimony	2	0.4	2	U	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	0.669	0.6	2	J	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	
Thallium	2	0.2	2	U	
Vanadium	0.642	0.6	5	J	
Zinc	4	2	4	U	

CCB10	Date: 14-Dec-2017 14:22		Seq: 4351766	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.465	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCB10	Date: 14-Dec-2017 14:22		Seq: 4351766	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	10.47	10	200	J	
Manganese	5	0.7	5	U	
Nickel	0.674	0.6	2	J	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	127.6	14	200	J	
Thallium	0.228	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB11	Date: 14-Dec-2017 14:47		Seq: 4351948	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	2	0.4	2	U	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	0.675	0.6	2	J	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	67.04	14	200	J	
Thallium	0.265	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB12	Date: 14-Dec-2017 15:11		Seq: 4352186	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.404	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCB12	Date: 14-Dec-2017 15:11		Seq: 4352186	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	0.713	0.6	2	J	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	
Thallium	0.238	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB13	Date: 14-Dec-2017 15:35		Seq: 4352198	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.411	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	0.658	0.6	2	J	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	
Thallium	0.228	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB14	Date: 14-Dec-2017 15:59		Seq: 4352749	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	2	0.4	2	U	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	0.653	0.6	2	J	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCB14	Date: 14-Dec-2017 15:59		Seq: 4352749	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Sodium	133.6	14	200	J	
Thallium	0.264	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB15	Date: 14-Dec-2017 16:23		Seq: 4352761	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	2	0.4	2	U	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	10.14	10	200	J	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	32.84	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	344	14	200		
Thallium	0.252	0.2	2	J	
Vanadium	0.608	0.6	5	J	
Zinc	4	2	4	U	

CCB16	Date: 14-Dec-2017 16:47		Seq: 4352773	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.433	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	20.06	10	200	J	
Manganese	5	0.7	5	U	
Nickel	0.675	0.6	2	J	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	407	14	200		
Thallium	0.234	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCB17	Date: 14-Dec-2017 17:11		Seq: 4352785	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	2	0.4	2	U	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	10.79	10	200	J	
Manganese	5	0.7	5	U	
Nickel	0.689	0.6	2	J	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	228.5	14	200		
Thallium	0.267	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB18	Date: 14-Dec-2017 17:35		Seq: 4352797	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	2	0.4	2	U	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	0.683	0.6	2	J	
Potassium	50.87	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	300.9	14	200		
Thallium	0.275	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB19	Date: 14-Dec-2017 17:47		Seq: 4352803	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	2	0.4	2	U	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	

ALS Group USA, Corp Date: 21-Dec-17

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307200
Instrument: ICPMS05
Method: SW6020

CCB19 | Date: 14-Dec-2017 17:47 | Seq: 4352803 | CCB | Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Calcium	500	34	500	U
Chromium	4	0.4	4	U
Cobalt	5	0.2	5	U
Copper	2	1	2	U
Iron	200	12	200	U
Lead	2	0.6	2	U
Magnesium	200	10	200	U
Manganese	5	0.7	5	U
Nickel	0.725	0.6	2	J
Potassium	42.05	18	200	J
Selenium	2	1.1	2	U
Silver	2	0.2	2	U
Sodium	435.6	14	200	
Thallium	0.285	0.2	2	J
Vanadium	5	0.6	5	U
Zinc	4	2	4	U

ALS Group USA, Corp Date: 21-Dec-17

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc. Run ID:ICPMS05_307200
Project: LHAAP 18/24 Instrument:ICPMS05
WorkOrder: HS17120435 Method:SW6020

ICSA	Date: 14-Dec-2017 09:46	Seq: 4350730	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Aluminum	100000	87350	87.4	
Antimony		0.29	0	
Arsenic		-0.055	0	
Barium		-0.013	0	
Beryllium		0.009	0	
Cadmium		1.329	0	
Calcium	100000	100500	100	
Chromium		0.198	0	
Cobalt		0.017	0	
Copper		0.867	0	
Iron	100000	98350	98.4	
Lead		0.108	0	
Magnesium	100000	98690	98.7	
Manganese		0.322	0	
Nickel		0.759	0	
Potassium	100000	94920	94.9	
Selenium		-0.22	0	
Silver		0.019	0	
Sodium	100000	100000	100	
Thallium		0.018	0	
Vanadium		0.389	0	
Zinc		0.883	0	

ICSAB	Date: 14-Dec-2017 09:48	Seq: 4350731	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Aluminum	100500	89770	89.3	
Antimony	100	87.98	88.0	
Arsenic	100	89.38	89.4	
Barium	100	90.95	91.0	
Beryllium	100	92.66	92.7	
Cadmium	100	89.1	89.1	
Calcium	110000	111500	101	
Chromium	100	88.23	88.2	
Cobalt	100	87.16	87.2	
Copper	100	88	88.0	
Iron	110000	108100	98.3	
Lead	100	87.32	87.3	
Magnesium	110000	108900	99.0	
Manganese	100	86.77	86.8	
Nickel	100	86.52	86.5	
Potassium	110000	105200	95.7	
Selenium	100	89.35	89.3	
Silver	100	80.95	81.0	
Sodium	110000	109700	99.7	
Thallium	100	86.1	86.1	
Vanadium	100	89.07	89.1	
Zinc	100	91.69	91.7	

ICSA	Date: 14-Dec-2017 17:52	Seq: 4352806	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Aluminum	100000	89940	89.9	
Antimony		0.172	0	
Arsenic		0.018	0	
Barium		0.01	0	
Beryllium		0.017	0	
Cadmium		1.311	0	
cium	100000	100100	100	

ALS Group USA, Corp Date: 21-Dec-17

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID:ICPMS05_307200
Instrument:ICPMS05
Method:SW6020

ICSA	Date: 14-Dec-2017 17:52	Seq: 4352806	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Chromium		0.125	0	
Cobalt		0.006	0	
Copper		0.567	0	
Iron	100000	97300	97.3	
Lead		0.081	0	
Magnesium	100000	100500	100	
Manganese		0.129	0	
Nickel		0.765	0	
Potassium	100000	99690	99.7	
Selenium		0.41	0	
Silver		0.016	0	
Sodium	100000	103800	104	
Thallium		0.026	0	
Vanadium		0.403	0	
Zinc		1.044	0	

ICSAB	Date: 14-Dec-2017 17:55	Seq: 4352807	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Aluminum	100500	90300	89.9	
Antimony	100	87.1	87.1	
Arsenic	100	89.67	89.7	
Barium	100	88.55	88.5	
Beryllium	100	84.52	84.5	
Cadmium	100	90.45	90.5	
Calcium	110000	114000	104	
Chromium	100	90.22	90.2	
Cobalt	100	89.12	89.1	
Copper	100	88.15	88.1	
Iron	110000	109400	99.5	
Lead	100	86.98	87.0	
Magnesium	110000	113700	103	
Manganese	100	87.59	87.6	
Nickel	100	88.88	88.9	
Potassium	110000	109800	99.8	
Selenium	100	86.1	86.1	
Silver	100	80.56	80.6	
Sodium	110000	117200	107	
Thallium	100	90.02	90.0	
Vanadium	100	89.87	89.9	
Zinc	100	88.24	88.2	

ALS Group USA, Corp Date: 21-Dec-17

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Date Analyzed: 14-Dec-2017 14:14
Date Extracted: 13-Dec-2017 11:45
Units: ug/L

Matrix Spike: HS17120435-01MS
Client Sample ID: CO9_120517
Analysis Method: SW6020

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Aluminum	70.45	163.6	100.0	93.2	166.9	100.0	96.4	80-120	1.97	20
Antimony	2.000	45.82	50.00	91.1	45.27	50.00	90.1	80-120	1.20	20
Arsenic	2.000	45.41	50.00	90.8	45.46	50.00	90.9	80-120	0.119	20
Barium	927.4	1085	50.00	316	1075	50.00	295	80-120	0.969	20
Beryllium	2.000	56.34	50.00	113	58.60	50.00	117	80-120	3.94	20
Cadmium	0.3950	44.93	50.00	89.1	46.05	50.00	91.3	80-120	2.45	20
Calcium	277800	297000	5000	383	292800	5000	299	80-120	1.42	20
Chromium	4.000	45.76	50.00	91.0	45.38	50.00	90.3	80-120	0.825	20
Cobalt	0.3550	42.37	50.00	84.0	42.65	50.00	84.6	80-120	0.673	20
Copper	1.741	44.06	50.00	84.6	44.10	50.00	84.7	80-120	0.0885	20
Iron	77.34	4425	5000	87.0	4380	5000	86.0	80-120	1.03	20
Lead	0.6190	46.61	50.00	92.0	46.35	50.00	91.5	80-120	0.572	20
Magnesium	147200	160100	5000	259	161500	5000	287	80-120	0.874	20
Manganese	38.54	84.96	50.00	92.8	85.48	50.00	93.9	80-120	0.613	20
Nickel	7.693	49.22	50.00	83.1	48.84	50.00	82.3	80-120	0.767	20
Potassium	1096	5524	5000	88.6	5490	5000	87.9	80-120	0.613	20
Selenium	2.000	45.24	50.00	90.2	44.06	50.00	87.8	80-120	2.66	20
Silver	2.000	41.74	50.00	83.5	41.86	50.00	83.7	80-120	0.287	20
Sodium	479600	520400	5000	817	523400	5000	877	80-120	0.576	20
Thallium	2.000	42.91	50.00	85.8	44.24	50.00	88.4	80-120	3.05	20
Vanadium	1.277	46.46	50.00	90.4	47.24	50.00	91.9	80-120	1.69	20
Zinc	8.941	52.77	50.00	87.6	52.67	50.00	87.5	80-120	0.178	20

ALS Group USA, Corp Date: 21-Dec-17

Form 5B - Post Digest Sample Recovery

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Date Analyzed: 14-Dec-2017 14:16
Date Extracted: 13-Dec-2017 11:45
Units: ug/L

Lab Sample ID: HS17120435-01PDS
Client Sample ID: CO9_120517

Analysis Method: SW6020

Analyte	Sample Result	PDS Result	Spike Amount	% Rec	% Rec Limits
Aluminum	70.45	149.8	100	79	75-125
Antimony	0	82.27	100	82	75-125
Arsenic	0	87.85	100	88	75-125
Barium	927.4	1032	100	105	75-125
Beryllium	0	97.2	100	97	75-125
Cadmium	0.395	85.14	100	85	75-125
Calcium	277800	287200	10000	94	75-125
Chromium	0	87.81	100	88	75-125
Cobalt	0.355	81.88	100	82	75-125
Copper	1.741	83.1	100	81	75-125
Iron	77.34	8297	10000	82	75-125
Lead	0.619	86.45	100	86	75-125
Magnesium	147200	161000	10000	138	75-125
Manganese	38.54	124.9	100	86	75-125
Nickel	7.693	86.83	100	79	75-125
Potassium	1096	9350	10000	83	75-125
Selenium	0	90.18	100	90	75-125
Silver	0	78.49	100	79	75-125
Sodium	479600	507800	10000	282	75-125
Thallium	0	90.69	100	91	75-125
Vanadium	1.277	87.83	100	87	75-125
Zinc	8.941	94.74	100	86	75-125

ALS Group USA, Corp Date: 21-Dec-17

Form 7 - Laboratory Control Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Date Analyzed: 14-Dec-2017 14:02
Date Extracted: 13-Dec-2017 11:45
Units: ug/L

Lab Sample ID: LCS-123278 Analysis Method: SW6020

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Aluminum	100	91.45	92	80-120
Antimony	50	45.68	91	80-120
Arsenic	50	44.18	88	80-120
Barium	50	42.95	86	80-120
Beryllium	50	44.92	90	80-120
Cadmium	50	45.45	91	80-120
Calcium	5000	4596	92	80-120
Chromium	50	44.49	89	80-120
Cobalt	50	44.47	89	80-120
Copper	50	45.31	91	80-120
Iron	5000	4327	87	80-120
Lead	50	48.85	98	80-120
Magnesium	5000	4407	88	80-120
Manganese	50	43.05	86	80-120
Nickel	50	45.07	90	80-120
Potassium	5000	4478	90	80-120
Selenium	50	42.67	85	80-120
Silver	50	44.8	90	80-120
Sodium	5000	4472	89	80-120
Thallium	50	45.35	91	80-120
Vanadium	50	43.25	87	80-120
Zinc	50	46.71	93	80-120

ALS Group USA, Corp Date: 21-Dec-17

Form 8 - ICP Serial Dilutions

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Date Analyzed: 14-Dec-2017 14:10
Date Extracted: 13-Dec-2017 11:45
Units: ug/L

Lab Sample ID: HS17120435-01SD
Client Sample ID:CO9_120517

Analysis Method: SW6020

Analyte	Sample Result	C	SD Result	C	RPD	Q
Aluminum	70.45		73.62		5	
Antimony	0	U	0	U	0	
Arsenic	0	U	0	U	0	
Barium	927.4		859.9		7	
Beryllium	0	U	0	U	0	
Cadmium	0.395	J	0	U	0	
Calcium	277800		265300		5	
Chromium	0	U	0	U	0	
Cobalt	0.355	J	0	U	0	
Copper	1.741	J	0	U	0	
Iron	77.34	J	0	U	0	
Lead	0.619	J	0	U	0	
Magnesium	147200		151000		3	
Manganese	38.54		41.43		8	
Nickel	7.693		10.12		31	
Potassium	1096		1095		0	
Selenium	0	U	0	U	0	
Silver	0	U	0	U	0	
Sodium	479600		488300		2	
Thallium	0	U	0	U	0	
Vanadium	1.277	J	0	U	0	
Zinc	8.941		10.28	J	15	

ALS Group USA, Corp Date: 21-Dec-17

Form 11 - INTERNAL STANDARD ASSOCIATION

Client: Bhate Environmental Associates, Inc. Instrument:ICPMS05
Project: LHAAP 18/24
WorkOrder: HS17120435

Mass	Analyte	Assoc Int Standard 1	Assoc Int Standard 2	Mode
9	Beryllium	Lithium		Ar
11	Boron	Lithium		Ar
23	Sodium	Germanium		Ar
24	Magnesium	Germanium		Ar
27	Aluminum	Germanium		Ar
39	Potassium	Germanium		Ar
44	Calcium	Germanium		Ar
47	Titanium	Germanium		Ar
51	Vanadium	Germanium		ArHe
52	Chromium	Germanium		ArHe
55	Manganese	Germanium		ArHe
56	Iron	Germanium		ArHe
59	Cobalt	Germanium		ArHe
60	Nickel	Germanium		ArHe
63	Copper	Germanium		ArHe
66	Zinc	Germanium		ArHe
75	Arsenic	Germanium		ArHe
78	Selenium	Germanium		ArHe
88	Strontium	Germanium		Ar
95	Molybdenum	Germanium		Ar
105	Palladium	Germanium		Ar
107	Silver	Germanium		Ar
114	Cadmium	Indium		Ar
118	Tin	Germanium		Ar
121	Antimony	Germanium		ArHe
137	Barium	Indium		Ar
205	Thallium	Bismuth		Ar
208	Lead	Bismuth		Ar

ALS Group USA, Corp

Date: 21-Dec-17

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435
Start Date: 13-Dec-2017 11:45 End Date: 13-Dec-2017 15:30

Batch ID: 123278
Prep Code: 3010A
Method: SW3010A
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS17120435-01	CO9_120517	Water		10	10	1
HS17120435-01MS				10	10	1
HS17120435-01MSD				10	10	1
HS17120435-01PDS				10	10	1
HS17120435-01SD				10	10	1
HS17120435-02	126_120517	Water		10	10	1
HS17120435-03	C08_120517	Water		10	10	1
HS17120435-04	18WW17_120517	Water		10	10	1
HS17120435-06	18CPTMW18_120517	Water		10	10	1
HS17120435-07	18WW22_120517	Water		10	10	1
LCS-123278				10	10	1
MBLK-123278				10	10	1

ALS Group USA, Corp Date: 21-Dec-17

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435
Start Date: 14-Dec-2017 End Date: 14-Dec-2017

Run ID:ICPMS05_307200
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
ICPMS05_307200_Tune	1	14-Dec-2017 00:00	ICPMS05_307200_Tune_1	
CAL BLK	1	14-Dec-2017 09:25	004CALB.d_4350719	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
2/10/200	1	14-Dec-2017 09:27	005CALS.d_4350720	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
5/25/500	1	14-Dec-2017 09:29	006CALS.d_4350721	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
10/50/1000	1	14-Dec-2017 09:31	007CALS.d_4350722	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
100/500/10K	1	14-Dec-2017 09:33	008CALS.d_4350723	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
200/1000/20K	1	14-Dec-2017 09:34	009CALS.d_4350724	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICV	1	14-Dec-2017 09:38	011_ICV.d_4350726	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLICV2	1	14-Dec-2017 09:40	012SMPL.d_4350727	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLICV5	1	14-Dec-2017 09:42	013LICV.d_4350728	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICB	1	14-Dec-2017 09:44	014_ICB.d_4350729	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICSA	1	14-Dec-2017 09:46	015ICSA.d_4350730	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICSAB	1	14-Dec-2017 09:48	016ICSB.d_4350731	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 1	1	14-Dec-2017 10:00	022_CCV.d_4350765	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 1	1	14-Dec-2017 10:02	023_CCB.d_4350766	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 2	1	14-Dec-2017 10:25	034_CCV.d_4351296	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 2	1	14-Dec-2017 10:27	035_CCB.d_4351297	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 3	1	14-Dec-2017 10:51	047_CCB.d_4351309	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 3	1	14-Dec-2017 10:55	049_CCV.d_4351311	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 4	1	14-Dec-2017 11:56	062_CCV.d_4351321	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 4	1	14-Dec-2017 11:58	063_CCB.d_4351322	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 5	1	14-Dec-2017 12:20	074_CCV.d_4351488	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 5	1	14-Dec-2017 12:22	075_CCB.d_4351489	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 6	1	14-Dec-2017 12:44	086_CCV.d_4351522	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 6	1	14-Dec-2017 12:46	087_CCB.d_4351523	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 7	1	14-Dec-2017 13:08	098_CCV.d_4351572	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 7	1	14-Dec-2017 13:10	099_CCB.d_4351573	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 8	1	14-Dec-2017 13:32	110_CCV.d_4351685	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 8	1	14-Dec-2017 13:34	111_CCB.d_4351686	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 9	1	14-Dec-2017 13:56	122_CCV.d_4351734	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 9	1	14-Dec-2017 13:58	123_CCB.d_4351735	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
MBLK-123278	1	14-Dec-2017 14:00	124SMPL.d_4351736	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LCS-123278	1	14-Dec-2017 14:02	125SMPL.d_4351737	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CO9_120517	1	14-Dec-2017 14:08	128SMPL.d_4351740	AG AL AS BA BE CD CO CR CU FE K MG MN NI PB SB SE TL V ZN

ALS Group USA, Corp Date: 21-Dec-17

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435
Start Date: 14-Dec-2017 End Date: 14-Dec-2017

Run ID:ICPMS05_307200
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
CO9_120517SD	5	14-Dec-2017 14:10	129SMPL.d_4351741	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CO9_120517MS	1	14-Dec-2017 14:12	130SMPL.d_4351742	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CO9_120517MSD	1	14-Dec-2017 14:14	131SMPL.d_4351743	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CO9_120517PDS	1	14-Dec-2017 14:16	132SMPL.d_4351744	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 10	1	14-Dec-2017 14:20	134_CCV.d_4351765	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 10	1	14-Dec-2017 14:22	135_CCB.d_4351766	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 11	1	14-Dec-2017 14:45	146_CCV.d_4351947	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 11	1	14-Dec-2017 14:47	147_CCB.d_4351948	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 12	1	14-Dec-2017 15:09	158_CCV.d_4352185	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 12	1	14-Dec-2017 15:11	159_CCB.d_4352186	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 13	1	14-Dec-2017 15:33	170_CCV.d_4352197	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 13	1	14-Dec-2017 15:35	171_CCB.d_4352198	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 14	1	14-Dec-2017 15:57	182_CCV.d_4352748	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 14	1	14-Dec-2017 15:59	183_CCB.d_4352749	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 15	1	14-Dec-2017 16:21	194_CCV.d_4352760	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 15	1	14-Dec-2017 16:23	195_CCB.d_4352761	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
126_120517	1	14-Dec-2017 16:41	204SMPL.d_4352770	AG AL AS BE CD CO CR CU FE K MN NI PB SB SE TL V ZN
C08_120517	1	14-Dec-2017 16:43	205SMPL.d_4352771	AG AL AS BE CD CO CR CU FE K MG MN NI PB SB SE TL V ZN
CCV 16	1	14-Dec-2017 16:45	206_CCV.d_4352772	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 16	1	14-Dec-2017 16:47	207_CCB.d_4352773	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
18WW17_120517	1	14-Dec-2017 16:49	208SMPL.d_4352774	AG AL AS BE CD CO CR CU FE K MN NI PB SB SE TL V ZN
18CPTMW18_120517	1	14-Dec-2017 16:51	209SMPL.d_4352775	AG AL AS BA BE CD CO CR CU FE K NI PB SB SE TL V ZN
18WW22_120517	1	14-Dec-2017 16:53	210SMPL.d_4352776	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 17	1	14-Dec-2017 17:09	218_CCV.d_4352784	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 17	1	14-Dec-2017 17:11	219_CCB.d_4352785	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 18	1	14-Dec-2017 17:33	230_CCV.d_4352796	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 18	1	14-Dec-2017 17:35	231_CCB.d_4352797	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 19	1	14-Dec-2017 17:45	236_CCV.d_4352802	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 19	1	14-Dec-2017 17:47	237_CCB.d_4352803	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLCCV5	1	14-Dec-2017 17:48	238LICV.d_4352804	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLCCV2	1	14-Dec-2017 17:50	239SMPL.d_4352805	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICSA	1	14-Dec-2017 17:52	240ICSA.d_4352806	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICSAB	1	14-Dec-2017 17:55	241ICSB.d_4352807	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN

Tune Report

Batch Folder C:\Agilent\ICPMH\1\DATA\121417A.b
Report Comment
Instrument Name G3281A JP11080910

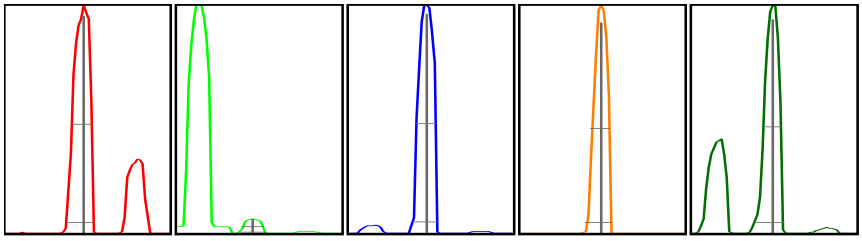
[nogas]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		8145				NaN	-	
24		28754				NaN	-	
59		41338				NaN	-	
115		53605				NaN	-	
208		35877				NaN	-	

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	1.23	5.00				
24	1.24	5.00				
59	1.28	5.00				
115	1.72	5.00				
208	0.79	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	8256	8240	8047	8132	8051
24	28736	28440	28788	29331	28476
59	41922	41820	41131	40655	41161
115	54944	53932	53334	52422	53392
208	36234	35829	36101	35585	35636

Integration Time [sec] 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	2143.21	8.95	8.9 - 9.1		0.39	0.492	0.750	
24	7708.53	23.90	23.9 - 24.1		0.37	0.488	0.750	
59	11601.69	58.95	58.9 - 59.1		0.37	0.461	0.750	
115	15962.57	115.00	114.9 - 115.1		0.33	0.468	0.750	
208	10231.30	208.00	207.9 - 208.1		0.34	0.526	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1600 W	Carrier Gas	0.35 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.50 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	15.6 V
Extract 2	-200.0 V	Cell Entrance	-38 V	Plate Bias	-50 V
Omega Bias	-100 V	Cell Exit	-58 V		

Cell Parameters

OctP Bias	-8.0 V	He Flow	0.0 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

[He]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		74				NaN	-	
24		600				NaN	-	
59		11332				NaN	-	

Tune Report

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	11.38	5.00	[F]			
24	1.99	5.00				
59	2.36	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	75	62	84	72	80
24	602	608	580	600	611
59	11036	11087	11382	11485	11668

Integration Time [sec] 0.1

Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	20.16	8.90	8.9 - 9.1		0.37	0.494	0.750	
24	165.05	23.90	23.9 - 24.1		0.38	0.481	0.750	
59	3326.34	58.95	58.9 - 59.1		0.34	0.443	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.35 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.50 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	2.0 V
Extract 2	-200.0 V	Cell Entrance	-32 V	Plate Bias	-60 V
Omega Bias	-100 V	Cell Exit	-70 V		

Cell Parameters

OctP Bias	-18.0 V	He Flow	5.5 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	004CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:25:04-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	27	532.40
Na	23	1	nogas	1681525	0.00
Mg	24	1	nogas	7603	0.28
Al	27	1	nogas	16297	0.04
K	39	1	nogas	4653435	0.00
Ti	47	1	nogas	343	9.07
V	51	1	nogas	1661966	0.00
Cr	52	1	nogas	43184	0.01
Mn	55	1	nogas	11067	0.04
Co	59	1	nogas	513	3.61
Ni	60	1	nogas	2143	0.40
Cu	63	1	nogas	4697	0.06
Zn	66	1	nogas	1200	0.62
As	75	1	nogas	245399	0.00
Sr	88	1	nogas	2207	0.13
Ag	107	1	nogas	517	2.29
Cd	111	1	nogas	30	293.97
Sb	121	1	nogas	1097	0.41
Tl	205	1	nogas	170	12.48
Pb	208	1	nogas	580	1.57
[Pb]	206	1	nogas	180	17.19
[Pb]	207	1	nogas	157	6.22
Na	23	2	He	49936	0.01
Mg	24	2	He	373	9.14
Al	27	2	He	63	28.79
K	39	2	He	12561	0.04
Ca	43	2	He	13	859.23
Ca	44	2	He	167	21.70
V	51	2	He	1145	0.60
Cr	52	2	He	1697	0.27
Mn	55	2	He	283	8.01
Fe	56	2	He	13612	0.03
Co	59	2	He	60	121.08
Ni	60	2	He	343	5.65
Cu	63	2	He	883	1.54
Zn	66	2	He	137	12.36
As	75	2	He	50	26.68
Se	78	2	He	3	1623.80
B	11	1	nogas	35871	0.00
Si	28	1	nogas	875903	0.00
Ca	43	1	nogas	637	2.59
Ca	44	1	nogas	170807	0.00

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	1044651	0.00
Se	77	1	nogas	81995	0.01
Se	82	1	nogas	500	2.88
Mo	95	1	nogas	290	10.30
Sn	118	1	nogas	1683	0.95
Ba	137	1	nogas	490	3.70
Sb	121	2	He	120	18.37
Li	7	1	nogas	28819	0.02
P	31	1	nogas	58086	0.00
La	139	1	nogas	57	64.83

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	nogas	317621	0.77
Ge	72	1	nogas	1478633	1.97
In	115	1	nogas	1539303	2.92
Bi	209	1	nogas	1532165	2.24
Ge	72	2	He	126743	2.07

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	005CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:27:03-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	5568	0.07
Na	23	1	nogas	3788459	0.00
Mg	24	1	nogas	1562348	0.00
Al	27	1	nogas	32246	0.01
K	39	1	nogas	6407989	0.00
Ti	47	1	nogas	2064	0.41
V	51	1	nogas	1768997	0.00
Cr	52	1	nogas	66336	0.01
Mn	55	1	nogas	39012	0.01
Co	59	1	nogas	26570	0.01
Ni	60	1	nogas	7952	0.01
Cu	63	1	nogas	18633	0.01
Zn	66	1	nogas	6208	0.04
As	75	1	nogas	256295	0.00
Sr	88	1	nogas	33882	0.00
Ag	107	1	nogas	18640	0.01
Cd	111	1	nogas	3897	0.10
Sb	121	1	nogas	18123	0.00
Tl	205	1	nogas	32693	0.01
Pb	208	1	nogas	45489	0.00
[Pb]	206	1	nogas	11197	0.02
[Pb]	207	1	nogas	10437	0.02
Na	23	2	He	96667	0.00
Mg	24	2	He	23575	0.02
Al	27	2	He	117	29.69
K	39	2	He	24997	0.01
Ca	43	2	He	70	35.35
Ca	44	2	He	913	0.91
V	51	2	He	3797	0.08
Cr	52	2	He	5044	0.06
Mn	55	2	He	1537	0.37
Fe	56	2	He	274672	0.00
Co	59	2	He	6181	0.10
Ni	60	2	He	1963	0.31
Cu	63	2	He	5741	0.07
Zn	66	2	He	800	2.11
As	75	2	He	473	2.58
Se	78	2	He	18	61.73
B	11	1	nogas	50775	0.00
Si	28	1	nogas	1444928	0.00

Calibration Standard Report

Ca	43	1	nogas	4354	0.02
Ca	44	1	nogas	224818	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	3788244	0.00
Se	77	1	nogas	83404	0.01
Se	82	1	nogas	700	1.24
Mo	95	1	nogas	6875	0.08
Sn	118	1	nogas	11954	0.02
Ba	137	1	nogas	5354	0.12
Sb	121	2	He	2284	0.28
P	31	1	nogas	63182	0.00
La	139	1	nogas	63	38.08

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	314356	1.57	317621	98.97	70	125	
Ge	72	1	nogas	1429390	0.10	1478633	96.67	70	125	
In	115	1	nogas	1523832	1.49	1539303	98.99	70	125	
Bi	209	1	nogas	1524242	0.70	1532165	99.48	70	125	
Ge	72	2	He	126043	1.35	126743	99.45	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	006CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:29:02-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	12304	0.08
Na	23	1	nogas	7038279	0.00
Mg	24	1	nogas	3918088	0.00
Al	27	1	nogas	69308	0.00
K	39	1	nogas	8960287	0.00
Ti	47	1	nogas	4811	0.03
V	51	1	nogas	1981813	0.00
Cr	52	1	nogas	108983	0.00
Mn	55	1	nogas	86410	0.00
Co	59	1	nogas	65819	0.00
Ni	60	1	nogas	16798	0.02
Cu	63	1	nogas	40786	0.00
Zn	66	1	nogas	13225	0.01
As	75	1	nogas	287711	0.00
Sr	88	1	nogas	82888	0.00
Ag	107	1	nogas	47635	0.00
Cd	111	1	nogas	10016	0.03
Sb	121	1	nogas	45276	0.00
Tl	205	1	nogas	79408	0.00
Pb	208	1	nogas	114768	0.00
[Pb]	206	1	nogas	27844	0.00
[Pb]	207	1	nogas	25253	0.01
Na	23	2	He	170698	0.00
Mg	24	2	He	59313	0.00
Al	27	2	He	307	9.88
K	39	2	He	43153	0.01
Ca	43	2	He	113	11.89
Ca	44	2	He	2144	0.35
V	51	2	He	7922	0.03
Cr	52	2	He	10196	0.01
Mn	55	2	He	3844	0.14
Fe	56	2	He	683621	0.00
Co	59	2	He	15340	0.01
Ni	60	2	He	4564	0.13
Cu	63	2	He	12751	0.03
Zn	66	2	He	2000	0.42
As	75	2	He	1363	0.62
Se	78	2	He	63	10.38
B	11	1	nogas	72077	0.00
Si	28	1	nogas	2165356	0.00

Calibration Standard Report

Ca	43	1	nogas	9659	0.02
Ca	44	1	nogas	309879	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	7969533	0.00
Se	77	1	nogas	92189	0.00
Se	82	1	nogas	1117	0.26
Mo	95	1	nogas	17179	0.01
Sn	118	1	nogas	27606	0.00
Ba	137	1	nogas	13569	0.02
Sb	121	2	He	5674	0.10
P	31	1	nogas	74547	0.00
La	139	1	nogas	50	105.83

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	314702	1.81	317621	99.08	70	125	
Ge	72	1	nogas	1456757	1.87	1478633	98.52	70	125	
In	115	1	nogas	1567267	1.55	1539303	101.82	70	125	
Bi	209	1	nogas	1525031	2.04	1532165	99.53	70	125	
Ge	72	2	He	128375	2.90	126743	101.29	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	007CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:31:01-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	25698	0.02
Na	23	1	nogas	13100336	0.00
Mg	24	1	nogas	8124185	0.00
Al	27	1	nogas	133878	0.00
K	39	1	nogas	13450004	0.00
Ti	47	1	nogas	9696	0.03
V	51	1	nogas	2121200	0.00
Cr	52	1	nogas	169880	0.00
Mn	55	1	nogas	164307	0.00
Co	59	1	nogas	137138	0.00
Ni	60	1	nogas	32272	0.01
Cu	63	1	nogas	80269	0.00
Zn	66	1	nogas	24867	0.01
As	75	1	nogas	318098	0.00
Sr	88	1	nogas	170185	0.00
Ag	107	1	nogas	100553	0.00
Cd	111	1	nogas	19601	0.01
Sb	121	1	nogas	89673	0.00
Tl	205	1	nogas	166180	0.00
Pb	208	1	nogas	236098	0.00
[Pb]	206	1	nogas	56679	0.00
[Pb]	207	1	nogas	52903	0.00
Na	23	2	He	300081	0.00
Mg	24	2	He	122133	0.00
Al	27	2	He	473	2.20
K	39	2	He	77571	0.00
Ca	43	2	He	237	3.72
Ca	44	2	He	4187	0.08
V	51	2	He	14758	0.02
Cr	52	2	He	19831	0.02
Mn	55	2	He	7725	0.07
Fe	56	2	He	1486213	0.00
Co	59	2	He	31935	0.01
Ni	60	2	He	8716	0.04
Cu	63	2	He	25051	0.02
Zn	66	2	He	3967	0.21
As	75	2	He	2602	0.13
Se	78	2	He	105	26.57
B	11	1	nogas	112053	0.00
Si	28	1	nogas	3340532	0.00

Calibration Standard Report

Ca	43	1	nogas	19000	0.00
Ca	44	1	nogas	463147	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	15324405	0.00
Se	77	1	nogas	97822	0.00
Se	82	1	nogas	1787	0.32
Mo	95	1	nogas	34794	0.00
Sn	118	1	nogas	54930	0.00
Ba	137	1	nogas	26461	0.02
Sb	121	2	He	11891	0.03
P	31	1	nogas	93122	0.00
La	139	1	nogas	47	185.58

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	308454	1.72	317621	97.11	70	125	
Ge	72	1	nogas	1433648	1.92	1478633	96.96	70	125	
In	115	1	nogas	1564080	1.46	1539303	101.61	70	125	
Bi	209	1	nogas	1491384	2.00	1532165	97.34	70	125	
Ge	72	2	He	131572	3.87	126743	103.81	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	008CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:33:00-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	241385	0.00
Na	23	1	nogas	107708948	0.00
Mg	24	1	nogas	74627545	0.00
Al	27	1	nogas	938706	0.00
K	39	1	nogas	86160796	0.00
Ti	47	1	nogas	86837	0.00
V	51	1	nogas	2932660	0.00
Cr	52	1	nogas	1178599	0.00
Mn	55	1	nogas	1452202	0.00
Co	59	1	nogas	1236028	0.00
Ni	60	1	nogas	278608	0.00
Cu	63	1	nogas	687717	0.00
Zn	66	1	nogas	226176	0.00
As	75	1	nogas	493791	0.00
Sr	88	1	nogas	1515556	0.00
Ag	107	1	nogas	900779	0.00
Cd	111	1	nogas	188144	0.00
Sb	121	1	nogas	795473	0.00
Tl	205	1	nogas	1562776	0.00
Pb	208	1	nogas	2193726	0.00
[Pb]	206	1	nogas	537976	0.00
[Pb]	207	1	nogas	489719	0.00
Na	23	2	He	2334400	0.00
Mg	24	2	He	1132790	0.00
Al	27	2	He	3117	0.21
K	39	2	He	603596	0.00
Ca	43	2	He	2013	0.29
Ca	44	2	He	34218	0.00
V	51	2	He	128032	0.00
Cr	52	2	He	169465	0.00
Mn	55	2	He	68765	0.00
Fe	56	2	He	13196361	0.00
Co	59	2	He	286034	0.00
Ni	60	2	He	80869	0.00
Cu	63	2	He	226628	0.00
Zn	66	2	He	34386	0.00
As	75	2	He	24137	0.01
Se	78	2	He	963	0.26
B	11	1	nogas	804314	0.00
Si	28	1	nogas	22069426	0.00

Calibration Standard Report

Ca	43	1	nogas	167831	0.00
Ca	44	1	nogas	2869964	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	133382386	0.00
Se	77	1	nogas	93666	0.00
Se	82	1	nogas	13288	0.02
Mo	95	1	nogas	324785	0.00
Sn	118	1	nogas	502090	0.00
Ba	137	1	nogas	248985	0.00
Sb	121	2	He	102620	0.00
P	31	1	nogas	357240	0.00
La	139	1	nogas	323	3.07

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	288108	3.96	317621	90.71	70	125	
Ge	72	1	nogas	1509166	0.54	1478633	102.06	70	125	
In	115	1	nogas	1546521	3.05	1539303	100.47	70	125	
Bi	209	1	nogas	1464629	1.56	1532165	95.59	70	125	
Ge	72	2	He	129227	1.09	126743	101.96	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	009CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:34:57-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	495882	0.00
Na	23	1	nogas	222142805	0.00
Mg	24	1	nogas	152520591	0.00
Al	27	1	nogas	1946534	0.00
K	39	1	nogas	175299246	0.00
Ti	47	1	nogas	180845	0.00
V	51	1	nogas	4470534	0.00
Cr	52	1	nogas	2366920	0.00
Mn	55	1	nogas	2843023	0.00
Co	59	1	nogas	2578233	0.00
Ni	60	1	nogas	561996	0.00
Cu	63	1	nogas	1369562	0.00
Zn	66	1	nogas	441808	0.00
As	75	1	nogas	815251	0.00
Sr	88	1	nogas	3110234	0.00
Ag	107	1	nogas	1821791	0.00
Cd	111	1	nogas	374776	0.00
Sb	121	1	nogas	1739209	0.00
Tl	205	1	nogas	3118204	0.00
Pb	208	1	nogas	4508172	0.00
[Pb]	206	1	nogas	1084880	0.00
[Pb]	207	1	nogas	988690	0.00
Na	23	2	He	4642055	0.00
Mg	24	2	He	2233252	0.00
Al	27	2	He	6865	0.10
K	39	2	He	1205454	0.00
Ca	43	2	He	4021	0.06
Ca	44	2	He	72130	0.00
V	51	2	He	261168	0.00
Cr	52	2	He	337453	0.00
Mn	55	2	He	137388	0.00
Fe	56	2	He	27225255	0.00
Co	59	2	He	586439	0.00
Ni	60	2	He	164201	0.00
Cu	63	2	He	451593	0.00
Zn	66	2	He	69389	0.00
As	75	2	He	49204	0.00
Se	78	2	He	1877	0.42
B	11	1	nogas	1680374	0.00
Si	28	1	nogas	42718266	0.00

Calibration Standard Report

Ca	43	1	nogas	341699	0.00
Ca	44	1	nogas	5588725	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	269489864	0.00
Se	77	1	nogas	126268	0.00
Se	82	1	nogas	26750	0.01
Mo	95	1	nogas	674069	0.00
Sn	118	1	nogas	1044404	0.00
Ba	137	1	nogas	502786	0.00
Sb	121	2	He	219648	0.00
P	31	1	nogas	679234	0.00
La	139	1	nogas	537	2.70

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	247473	1.70	317621	77.91	70	125	
Ge	72	1	nogas	1400017	3.57	1478633	94.68	70	125	
In	115	1	nogas	1492961	2.66	1539303	96.99	70	125	
Bi	209	1	nogas	1383536	4.86	1532165	90.30	70	125	
Ge	72	2	He	123925	0.57	126743	97.78	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICV
Data File Name	011_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:38:56-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	98.504	2.524	237665	1.31	100	98.5	90	110	
Na	23	1	nogas	9330.443	3.960	106185654	1.44	10000	93.3	90	110	
Mg	24	1	nogas	9438.250	1.054	73389108	1.47	10000	94.4	90	110	
Al	27	1	nogas	92.147	2.159	924353	1.35	100	92.1	90	110	
K	39	1	nogas	9591.966	3.307	88153112	2.18	10000	95.9	90	110	
Ti	47	1	nogas	92.566	2.992	85596	2.46	100	92.6	90	110	
V	51	1	nogas	78.482	6.277	2787027	1.67	100	78.5	90	110	ICV Main CR1 Failed
Cr	52	1	nogas	92.400	5.476	1143583	4.37	100	92.4	90	110	
Mn	55	1	nogas	98.129	3.371	1445498	2.67	100	98.1	90	110	
Co	59	1	nogas	96.429	2.413	1268828	1.49	100	96.4	90	110	
Ni	60	1	nogas	97.683	1.704	282063	1.29	100	97.7	90	110	
Cu	63	1	nogas	98.945	2.115	699395	1.73	100	98.9	90	110	
Zn	66	1	nogas	98.263	1.738	224528	1.08	100	98.3	90	110	
As	75	1	nogas	76.512	9.186	474219	3.23	100	76.5	90	110	ICV Main CR1 Failed
Sr	88	1	nogas	98.631	2.181	1571491	1.53	100	98.6	90	110	
Ag	107	1	nogas	95.671	2.728	894568	1.81	100	95.7	90	110	
Cd	111	1	nogas	95.347	1.846	189117	1.91	100	95.3	90	110	
Sb	121	1	nogas	92.339	0.637	813855	0.56	100	92.3	90	110	
Tl	205	1	nogas	95.995	2.608	1568145	4.39	100	96.0	90	110	
Pb	208	1	nogas	98.075	1.112	2199335	1.11	100	98.1	90	110	
U	238	1	nogas	99.222	4.556	2291659	2.86	100	99.2	90	110	
[Pb]	206	1	nogas	94.207	1.474	534061	2.71	100	94.2	90	110	
[Pb]	207	1	nogas	93.852	0.916	484638	1.41	100	93.9	90	110	
Na	23	2	He	9960.471	1.233	2372013	0.43	10000	99.6	90	110	
Mg	24	2	He	9806.424	2.925	1115942	2.02	10000	98.1	90	110	
Al	27	2	He	98.424	5.521	3390	4.96	100	98.4	90	110	
K	39	2	He	9805.693	0.879	596474	0.86	10000	98.1	90	110	
Ca	43	2	He	10964.534	6.690	2247	7.92	10000	109.6	90	110	
Ca	44	2	He	9715.189	1.336	35327	1.53	10000	97.2	90	110	
V	51	2	He	96.558	2.110	127787	0.86	100	96.6	90	110	
Cr	52	2	He	97.493	2.888	167985	1.71	100	97.5	90	110	
Mn	55	2	He	97.512	2.062	68220	3.07	100	97.5	90	110	
Fe	56	2	He	9436.975	1.260	12982246	0.48	10000	94.4	90	110	
Co	59	2	He	95.884	1.855	284376	1.29	100	95.9	90	110	
Ni	60	2	He	97.802	1.063	81297	1.81	100	97.8	90	110	
Cu	63	2	He	100.166	1.780	230116	1.50	100	100.2	90	110	
Zn	66	2	He	99.132	1.336	34900	0.41	100	99.1	90	110	
As	75	2	He	96.805	0.950	24134	0.85	100	96.8	90	110	
Se	78	2	He	94.461	2.416	907	1.27	100	94.5	90	110	
B	11	1	nogas	507.728	2.318	816032	0.39	500	101.5	90	110	
Si	28	1	nogas	4899.042	1.342	22030686	0.48	5000	98.0	90	110	
Ca	43	1	nogas	9791.479	1.415	171782	1.15	10000	97.9	90	110	
Ca	44	1	nogas	9736.975	1.338	2883961	1.71	10000	97.4	90	110	
Fe	56	1	nogas	9561.991	5.075	132749974	4.24	10000	95.6	90	110	
Se	77	1	nogas	36.959	49.720	89328	3.74	100	37.0	90	110	ICV Main CR1 Failed
Se	82	1	nogas	98.782	2.502	13779	1.89	100	98.8	90	110	
Mo	95	1	nogas	95.577	0.948	329324	0.67	100	95.6	90	110	
Sn	118	1	nogas	95.100	1.590	521911	1.95	100	95.1	90	110	
Ba	137	1	nogas	92.829	1.654	246648	2.20	100	92.8	90	110	
Sb	121	2	He	95.253	0.980	105011	0.71	100	95.3	90	110	
Li	7	1	nogas	99.613	0.785	599533	2.03	100	99.6	90	110	
P	31	1	nogas	468.858	1.278	356038	0.32	500	93.8	90	110	
La	139	1	nogas	120.431	42.625	370	35.75	100	120.4	90	110	ICV Main CR1 Failed
Au	197	1	nogas	-13868.329	-291.695	27	78.06	100	-13868.3	90	110	ICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	287902	1.95	317621	90.64	70	125	
Ge	72	1	nogas	1460205	0.97	1478633	98.75	70	125	
In	115	1	nogas	1589525	1.40	1539303	103.26	70	125	
Bi	209	1	nogas	1462428	1.77	1532165	95.45	70	125	

Initial Calibration Verification (ICV) Report

Ge	72	2	He	126975	1.25	126743	100.18	70	125	

Sample Report

Sample Table

Sample Name	LLICV2
Data File Name	012SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:40:52-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	2.169	2.169	15.53	5594	0.04	2000	
Na	23	1	nogas	181.323	181.323	1.18	3766845	0.00	200000	
Mg	24	1	nogas	217.686	217.686	1.46	1710931	0.01	200000	
Al	27	1	nogas	2.606	2.606	1.40	42559	0.01	2000	
K	39	1	nogas	181.472	181.472	11.61	6289835	0.00	200000	
Ti	47	1	nogas	1.981	1.981	19.42	2200	0.09	2000	
V	51	1	nogas	0.597	0.597	451.19	1680305	0.00	2000	
Cr	52	1	nogas	1.945	1.945	2.14	67041	0.00	2000	
Mn	55	1	nogas	2.123	2.123	7.56	42726	0.00	2000	
Co	59	1	nogas	2.054	2.054	8.63	28008	0.01	2000	
Ni	60	1	nogas	2.752	2.752	8.04	8352	0.03	2000	
Cu	63	1	nogas	2.110	2.110	7.94	19804	0.01	2000	
Zn	66	1	nogas	2.596	2.596	8.42	6631	0.04	2000	
As	75	1	nogas	-4.213	-4.213	-64.80	251633	0.00	2000	
Sr	88	1	nogas	2.052	2.052	7.34	35449	0.01	2000	
Ag	107	1	nogas	2.099	2.099	3.90	20489	0.01	2000	
Cd	111	1	nogas	2.089	2.089	3.14	4217	0.05	2000	
Sb	121	1	nogas	3.611	3.611	16.75	33416	0.01	2000	
Tl	205	1	nogas	2.293	2.293	4.25	38774	0.01	2000	
Pb	208	1	nogas	2.310	2.310	4.64	52364	0.00	2000	
U	238	1	nogas	2.139	2.139	4.42	51189	0.00	2000	
[Pb]	206	1	nogas	2.178	2.178	1.62	12895	0.02	2000	
[Pb]	207	1	nogas	2.138	2.138	8.75	11538	0.02	2000	
Na	23	2	He	172.797	172.797	4.71	93615	0.18	200000	
Mg	24	2	He	199.370	199.370	3.60	23905	0.83	200000	
Al	27	2	He	4.673	4.673	50.27	207	2.26	2000	
K	39	2	He	192.637	192.637	4.65	24032	0.80	200000	
Ca	43	2	He	266.055	266.055	63.04	70	380.08	200000	
Ca	44	2	He	199.128	199.128	13.04	920	21.64	200000	
V	51	2	He	2.453	2.453	2.32	3694	0.07	2000	
Cr	52	2	He	1.874	1.874	4.43	5077	0.04	2000	
Mn	55	2	He	1.720	1.720	5.81	1537	0.11	2000	
Fe	56	2	He	187.199	187.199	3.83	280831	0.07	200000	
Co	59	2	He	1.988	1.988	8.31	6171	0.03	2000	
Ni	60	2	He	2.561	2.561	7.44	2013	0.13	2000	
Cu	63	2	He	2.246	2.246	13.36	5568	0.04	2000	
Zn	66	2	He	2.116	2.116	12.18	783	0.27	2000	
As	75	2	He	1.943	1.943	22.61	553	0.35	2000	
Se	78	2	He	2.020	2.020	45.22	24	8.42	2000	
B	11	1	nogas	20.564	20.564	17.17	68434	0.03	2000	
Si	28	1	nogas	154.627	154.627	12.66	1560647	0.01	2000	
Ca	43	1	nogas	212.807	212.807	3.76	4427	4.81	200000	
Ca	44	1	nogas	155.267	155.267	14.70	215850	0.07	200000	
Fe	56	1	nogas	206.574	206.574	6.69	3947604	0.01	200000	

Sample Report

Se	77	1	nogas	0.292	0.292	5964.85	82550	0.00	2000	
Se	82	1	nogas	2.049	2.049	29.26	783	0.26	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	2.200	2.200	9.87	7999	0.03	2000	
Sn	118	1	nogas	2.073	2.073	1.03	13222	0.02	2000	
Ba	137	1	nogas	2.010	2.010	7.81	5894	0.03	2000	
Sb	121	2	He	2.992	2.992	1.68	3540	0.08	2000	
La	139	1	nogas	14.411	14.411	63.51	97	14.91	2000	
Au	197	1	nogas	6937.817	6937.817	546.48	17	41626.90	2000	>LDR

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	306941	1.98	317621	96.64	70	125	
Ge	72	1	nogas	1487179	1.82	1478633	100.58	70	125	
In	115	1	nogas	1606228	1.65	1539303	104.35	70	125	
Bi	209	1	nogas	1507124	1.64	1532165	98.37	70	125	
Ge	72	2	He	131638	0.79	126743	103.86	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLICV5
Data File Name	013LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:42:51-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.759	4.528	12875	4.00	5	95.2	70	130	
Na	23	1	nogas	470.157	3.767	6960555	1.70	500	94.0	70	130	
Mg	24	1	nogas	504.696	4.272	3920962	3.50	500	100.9	70	130	
Al	27	1	nogas	5.249	5.054	69382	3.16	5	105.0	70	130	
K	39	1	nogas	471.914	2.232	8907206	1.33	500	94.4	70	130	
Ti	47	1	nogas	4.505	2.211	4591	2.78	5	90.1	70	130	
V	51	1	nogas	11.535	52.368	1850032	4.15	5	230.7	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	5.017	7.438	104756	3.62	5	100.3	70	130	
Mn	55	1	nogas	4.965	4.228	85419	2.98	5	99.3	70	130	
Co	59	1	nogas	4.891	4.512	66320	4.04	5	97.8	70	130	
Ni	60	1	nogas	5.604	2.640	16808	1.95	5	112.1	70	130	
Cu	63	1	nogas	5.002	2.592	40666	1.59	5	100.0	70	130	
Zn	66	1	nogas	5.474	2.748	13372	2.40	5	109.5	70	130	
As	75	1	nogas	6.612	82.579	283733	4.83	5	132.2	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	4.829	0.593	80819	0.37	5	96.6	70	130	
Ag	107	1	nogas	4.999	1.696	48307	1.06	5	100.0	70	130	
Cd	111	1	nogas	4.988	1.015	9943	1.16	5	99.8	70	130	
Sb	121	1	nogas	5.333	2.874	49130	3.55	5	106.7	70	130	
Tl	205	1	nogas	4.952	4.461	83178	3.09	5	99.0	70	130	
Pb	208	1	nogas	5.292	1.425	119229	1.42	5	105.8	70	130	
U	238	1	nogas	4.996	4.303	118737	2.12	5	99.9	70	130	
[Pb]	206	1	nogas	5.046	4.818	29527	2.62	5	100.9	70	130	
[Pb]	207	1	nogas	4.902	2.643	26138	0.57	5	98.0	70	130	
Na	23	2	He	469.115	1.650	163821	1.44	500	93.8	70	130	
Mg	24	2	He	507.449	2.412	59725	2.55	500	101.5	70	130	
Al	27	2	He	5.858	26.690	247	22.33	5	117.2	70	130	
K	39	2	He	514.690	5.389	43210	3.82	500	102.9	70	130	
Ca	43	2	He	493.407	59.500	117	52.37	500	98.7	70	130	
Ca	44	2	He	511.416	8.680	2073	8.16	500	102.3	70	130	
V	51	2	He	5.434	1.155	7707	0.80	5	108.7	70	130	
Cr	52	2	He	5.114	11.439	10713	9.22	5	102.3	70	130	
Mn	55	2	He	4.844	4.667	3760	4.28	5	96.9	70	130	
Fe	56	2	He	473.415	2.745	682685	2.45	500	94.7	70	130	
Co	59	2	He	5.112	2.604	15644	2.92	5	102.2	70	130	
Ni	60	2	He	5.427	5.594	4451	6.09	5	108.5	70	130	
Cu	63	2	He	5.445	4.206	13065	3.80	5	108.9	70	130	
Zn	66	2	He	5.784	3.253	2103	3.06	5	115.7	70	130	
As	75	2	He	4.657	0.377	1242	0.68	5	93.1	70	130	
Se	78	2	He	4.825	31.560	51	29.24	5	96.5	70	130	
B	11	1	nogas	25.196	6.383	79892	2.82	25	100.8	70	130	
Si	28	1	nogas	284.966	2.593	2144175	0.93	25	1139.9	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	505.886	4.173	9689	4.53	500	101.2	70	130	
Ca	44	1	nogas	441.637	1.976	298509	0.20	500	88.3	70	130	
Fe	56	1	nogas	484.531	4.085	7882735	2.82	500	96.9	70	130	
Se	77	1	nogas	37.170	70.495	91412	5.96	5	743.4	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.866	14.899	1173	8.05	5	97.3	70	130	
Mo	95	1	nogas	4.910	2.970	17579	2.42	5	98.2	70	130	
Sn	118	1	nogas	4.830	4.738	28227	4.70	5	96.6	70	130	
Ba	137	1	nogas	4.738	6.872	13089	5.33	5	94.8	70	130	
Sb	121	2	He	5.174	6.162	5981	6.36	5	103.5	70	130	
Li	7	1	nogas	4.736	7.448	59722	2.84	5	94.7	70	130	
P	31	1	nogas	26.244	7.358	75772	0.98	25	105.0	70	130	
La	139	1	nogas	14.817	158.721	97	62.36	5	296.3	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	12405.729	175.562	13	86.60	5	248114.6	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	322153	1.04	317621	101.43	70	125	
Ge	72	1	nogas	1493512	0.75	1478633	101.01	70	125	
In	115	1	nogas	1593008	1.76	1539303	103.49	70	125	
Bi	209	1	nogas	1502063	2.24	1532165	98.04	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	130499	0.33	126743	102.96	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICB
Data File Name	014_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:44:50-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.042	29.3	140	25.8	1	
Na	23	1	nogas	-23.329	-12.3	1472983	1.6	100	
Mg	24	1	nogas	1.650	24.4	20883	15.8	100	
Al	27	1	nogas	-0.183	-2.9	14439	2.0	5	
K	39	1	nogas	-8.195	-191.6	4567197	0.7	100	
Ti	47	1	nogas	-0.014	-675.4	327	24.7	2.5	
V	51	1	nogas	9.866	71.8	1800548	3.6	2.5	ICB Main CR1 Failed
Cr	52	1	nogas	0.328	51.2	46980	2.6	2.5	
Mn	55	1	nogas	-0.060	-61.8	10136	3.7	2.5	
Co	59	1	nogas	0.018	23.2	747	8.7	2.5	
Ni	60	1	nogas	0.498	14.5	1717	10.3	2.5	
Cu	63	1	nogas	-0.111	-15.3	3897	2.6	2.5	
Zn	66	1	nogas	0.383	16.5	1487	9.8	2.5	
As	75	1	nogas	4.470	141.2	273832	4.6	2.5	ICB Main CR1 Failed
Sr	88	1	nogas	0.028	31.5	2644	3.1	2.5	
Ag	107	1	nogas	-0.009	-65.7	433	13.9	2.5	
Cd	111	1	nogas	0.018	56.0	67	31.2	1	
Sb	121	1	nogas	0.137	16.8	2314	10.7	2.5	
Tl	205	1	nogas	0.067	26.1	1310	25.9	1	
Pb	208	1	nogas	0.033	28.2	1320	15.8	2.5	
U	238	1	nogas	0.008	95.3	440	46.4	2.5	
[Pb]	206	1	nogas	0.025	4.0	327	1.8	2.5	
[Pb]	207	1	nogas	0.031	49.3	323	28.6	2.5	
Na	23	2	He	-28.953	-4.1	44258	0.7	100	
Mg	24	2	He	0.161	358.2	400	17.5	100	
Al	27	2	He	1.589	39.4	97	21.5	5	
K	39	2	He	0.730	1545.6	12605	5.3	100	
Ca	43	2	He	-64.683	0.0	0	#DIV/0!	100	
Ca	44	2	He	-7.264	-295.6	143	56.0	100	
V	51	2	He	0.564	5.7	1093	3.1	2.5	
Cr	52	2	He	-0.107	-226.9	1553	27.1	2.5	
Mn	55	2	He	-0.138	-40.9	193	20.9	2.5	
Fe	56	2	He	-4.837	-6.3	7141	5.1	100	
Co	59	2	He	0.006	192.0	80	43.3	2.5	
Ni	60	2	He	0.567	5.1	287	8.8	2.5	
Cu	63	2	He	0.279	19.5	877	15.5	2.5	
Zn	66	2	He	0.552	25.8	210	25.2	2.5	
As	75	2	He	-0.013	-590.5	48	42.1	2.5	
Se	78	2	He	0.149	290.3	5	78.1	2.5	
B	11	1	nogas	1.833	23.7	39161	1.6	10	
Si	28	1	nogas	-4.452	-101.1	853932	0.3	5	
Ca	43	1	nogas	18.193	51.8	957	18.4	100	
Ca	44	1	nogas	-73.930	-23.4	149460	1.2	100	
Fe	56	1	nogas	-11.761	-5.8	878123	1.3	100	
Se	77	1	nogas	43.023	58.3	91529	4.2	2.5	ICB Main CR1 Failed
Se	82	1	nogas	-0.608	-117.5	417	25.9	2.5	

Initial Calibration Blank (ICB) Report

Mo	95	1	nogas	0.000	8127.0	290	42.4	2.5	
Sn	118	1	nogas	-0.068	-24.7	1377	7.6	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	-0.056	-40.3	357	17.8	2.5	
Sb	121	2	He	0.222	7.3	373	4.1	2.5	
P	31	1	nogas	4.094	26.9	60550	1.5	10	
La	139	1	nogas	-6.980	-112.7	40	50.0	2.5	
Au	197	1	nogas	-50254.224	-119.1	47	65.5	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	319112	3.44	317621	100.47	70	125	
Ge	72	1	nogas	1474394	2.35	1478633	99.71	70	125	
In	115	1	nogas	1591312	0.96	1539303	103.38	70	125	
Bi	209	1	nogas	1511310	3.18	1532165	98.64	70	125	
Ge	72	2	He	129871	0.92	126743	102.47	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	015ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:46:49-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.009	110.5	50	52.9	0	ICSA Main CR1 Failed
Na	23	1	nogas	103180.413	1.1	1107080925	0.6	0	
Mg	24	1	nogas	101233.561	5.0	752429833	3.3	0	
Al	27	1	nogas	87354.343	2.2	867469160	1.7	0	
K	39	1	nogas	94920.322	1.0	837790419	0.9	0	
Ti	47	1	nogas	1992.323	3.2	1849073	2.8	0	
V	51	1	nogas	-16.922	-3.8	1403743	1.0	0	ICSA Main CR1 Failed
Cr	52	1	nogas	0.355	11.6	47214	0.6	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.311	13.0	15597	3.4	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.116	5.8	2040	3.9	0	ICSA Main CR1 Failed
Ni	60	1	nogas	1.253	7.0	3910	6.1	0	ICSA Main CR1 Failed
Cu	63	1	nogas	1.117	7.1	12578	4.2	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.960	3.5	5104	3.4	0	ICSA Main CR1 Failed
As	75	1	nogas	-4.590	-27.3	247754	1.3	0	ICSA Main CR1 Failed
Sr	88	1	nogas	0.906	3.3	16718	2.5	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.019	46.7	697	12.5	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.329	3.6	2530	3.2	0	ICSA Main CR1 Failed
Sb	121	1	nogas	0.184	7.8	2720	4.5	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.018	52.1	433	34.6	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.108	7.1	2990	5.7	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.115	16.0	770	11.3	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.101	16.6	627	11.8	0	ICSA Main CR1 Failed
Na	23	2	He	100030.685	1.1	22809644	2.2	0	
Mg	24	2	He	98693.584	1.5	10959205	1.9	0	
Al	27	2	He	88729.784	3.5	2948197	4.2	0	
K	39	2	He	98904.773	2.9	5902178	2.9	0	
Ca	43	2	He	96126.625	0.5	19113	1.6	0	
Ca	44	2	He	95571.378	2.1	337687	1.5	0	
V	51	2	He	0.389	10.7	818	5.4	0	ICSA Main CR1 Failed
Cr	52	2	He	0.198	68.2	1990	11.6	0	ICSA Main CR1 Failed
Mn	55	2	He	0.322	25.1	497	11.4	0	ICSA Main CR1 Failed
Fe	56	2	He	98351.884	1.8	131924591	2.0	0	
Co	59	2	He	0.017	68.9	107	30.1	0	ICSA Main CR1 Failed
Ni	60	2	He	0.759	10.9	430	16.3	0	ICSA Main CR1 Failed
Cu	63	2	He	0.867	8.2	2150	6.0	0	ICSA Main CR1 Failed
Zn	66	2	He	0.883	19.4	313	17.6	0	ICSA Main CR1 Failed
As	75	2	He	-0.055	-107.2	36	39.0	0	ICSA Main CR1 Failed
Se	78	2	He	0.390	86.2	7	41.7	0	ICSA Main CR1 Failed
B	11	1	nogas	4.343	20.7	41990	2.8	0	ICSA Main CR1 Failed
Si	28	1	nogas	115.352	2.1	1373756	0.6	0	
Ca	43	1	nogas	100470.841	0.6	1769989	0.9	0	
Ca	44	1	nogas	95475.219	1.6	26990435	1.3	0	
Fe	56	1	nogas	94833.320	1.0	1317439729	0.8	0	
Se	77	1	nogas	0.452	1183.8	81646	1.1	0	ICSA Main CR1 Failed
Se	82	1	nogas	-0.220	-309.2	467	19.4	0	ICSA Main CR1 Failed
Mo	95	1	nogas	1926.637	3.4	6682073	3.1	0	
Sn	118	1	nogas	-0.023	-59.8	1537	5.0	0	ICSA Main CR1 Failed
Ba	137	1	nogas	-0.013	-237.1	447	18.2	0	ICSA Main CR1 Failed
Sb	121	2	He	0.290	32.5	430	24.3	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	92207.147	1.0	59236119	1.2	0	
La	139	1	nogas	57.587	16.4	197	11.7	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	308283	0.74	317621	97.06	70	125	
Ge	72	1	nogas	1471045	0.46	1478633	99.49	70	125	
In	115	1	nogas	1508178	0.64	1539303	97.98	70	125	
Bi	209	1	nogas	1371982	1.45	1532165	89.55	70	125	
Ge	72	2	He	123915	1.27	126743	97.77	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	016ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T09:48:52-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	92.655	3.735	219140	1.98	100	92.7	80	120	
Na	23	1	nogas	110348.778	4.390	1200995560	2.89	100	110348.8	80	120	ICSB Main CR1 Failed
Mg	24	1	nogas	110421.488	2.455	833537519	4.11	100	110421.5	80	120	
Al	27	1	nogas	89767.824	0.305	886298173	0.40	100	89767.8	80	120	ICSB Main CR1 Failed
K	39	1	nogas	105239.797	0.755	922995121	1.14	100	105239.8	80	120	
Ti	47	1	nogas	2134.265	0.955	1969421	0.94	100	2134.3	80	120	ICSB Main CR1 Failed
V	51	1	nogas	58.186	7.949	2494935	3.07	100	58.2	80	120	ICSB Main CR1 Failed
Cr	52	1	nogas	82.120	2.140	1023045	2.30	100	82.1	80	120	
Mn	55	1	nogas	84.669	2.714	1250955	3.03	100	84.7	80	120	
Co	59	1	nogas	84.184	3.373	1109747	3.75	100	84.2	80	120	
Ni	60	1	nogas	88.405	4.491	255744	4.86	100	88.4	80	120	
Cu	63	1	nogas	87.147	0.964	617553	0.96	100	87.1	80	120	
Zn	66	1	nogas	91.438	1.212	209312	0.83	100	91.4	80	120	
As	75	1	nogas	70.488	6.490	458124	3.20	100	70.5	80	120	ICSB Main CR1 Failed
Sr	88	1	nogas	88.444	1.252	1411739	1.10	100	88.4	80	120	
Ag	107	1	nogas	80.952	0.943	758312	0.76	100	81.0	80	120	
Cd	111	1	nogas	89.099	1.371	165258	0.91	100	89.1	80	120	
Sb	121	1	nogas	86.316	2.803	762104	3.18	100	86.3	80	120	
Tl	205	1	nogas	86.096	2.993	1343721	2.53	100	86.1	80	120	
Pb	208	1	nogas	87.321	0.773	1958247	0.77	100	87.3	80	120	
U	238	1	nogas	95.380	2.509	2106270	1.09	100	95.4	80	120	
[Pb]	206	1	nogas	86.826	1.673	470383	0.40	100	86.8	80	120	
[Pb]	207	1	nogas	88.363	2.009	436095	0.55	100	88.4	80	120	
Na	23	2	He	109717.477	1.470	25030690	1.76	100	109717.5	80	120	
Mg	24	2	He	108891.845	0.712	12100621	1.17	100	108891.8	80	120	
Al	27	2	He	88193.108	3.073	2932317	3.48	100	88193.1	80	120	ICSB Main CR1 Failed
K	39	2	He	108370.970	1.642	6465874	1.64	100	108371.0	80	120	
Ca	43	2	He	106412.205	3.585	21172	3.68	100	106412.2	80	120	
Ca	44	2	He	104272.076	0.343	368730	0.92	100	104272.1	80	120	
V	51	2	He	89.073	0.828	115166	0.84	100	89.1	80	120	
Cr	52	2	He	88.232	1.419	148672	2.04	100	88.2	80	120	
Mn	55	2	He	86.767	1.223	59306	1.40	100	86.8	80	120	
Fe	56	2	He	108082.584	0.292	145084965	0.93	100	108082.6	80	120	
Co	59	2	He	87.165	0.598	252507	1.19	100	87.2	80	120	
Ni	60	2	He	86.525	2.246	70222	2.80	100	86.5	80	120	
Cu	63	2	He	88.002	0.541	197489	1.20	100	88.0	80	120	
Zn	66	2	He	91.692	1.469	31531	1.90	100	91.7	80	120	
As	75	2	He	89.375	0.822	21765	1.17	100	89.4	80	120	
Se	78	2	He	98.863	4.158	927	3.96	100	98.9	80	120	
B	11	1	nogas	470.291	6.829	742598	2.08	100	470.3	80	120	
Si	28	1	nogas	4574.078	2.542	20659368	2.11	100	4574.1	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	111517.059	1.597	1953104	1.81	100	111517.1	80	120	
Ca	44	1	nogas	108424.471	2.537	30452061	2.77	100	108424.5	80	120	ICSB Main CR1 Failed
Fe	56	1	nogas	105968.747	2.267	1463508299	2.49	100	105968.7	80	120	
Se	77	1	nogas	39.705	27.940	90125	3.14	100	39.7	80	120	ICSB Main CR1 Failed
Se	82	1	nogas	89.348	2.429	12531	2.63	100	89.3	80	120	
Mo	95	1	nogas	2140.088	1.641	7379913	1.93	100	2140.1	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	91.294	2.925	468633	3.51	100	91.3	80	120	
Ba	137	1	nogas	90.953	1.865	225979	1.68	100	91.0	80	120	
Sb	121	2	He	87.979	1.620	94736	1.55	100	88.0	80	120	
La	139	1	nogas	300.884	3.774	783	5.16	100	300.9	80	120	ICSB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	282455	4.84	317621	88.93	70	125	
Ge	72	1	nogas	1462479	0.39	1478633	98.91	70	125	
In	115	1	nogas	1486540	1.99	1539303	96.57	70	125	
Bi	209	1	nogas	1397868	1.61	1532165	91.23	70	125	
Ge	72	2	He	124005	0.66	126743	97.84	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	022_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T10:00:57-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	100.020	1.654	247233	0.50	100	100.0	90	110	
Na	23	1	nogas	9421.709	2.991	113212786	2.74	10000	94.2	90	110	
Mg	24	1	nogas	9438.929	2.007	77463848	1.09	10000	94.4	90	110	
Al	27	1	nogas	90.296	2.719	959733	0.51	100	90.3	90	110	
K	39	1	nogas	9046.493	2.480	88352192	1.15	10000	90.5	90	110	
Ti	47	1	nogas	93.468	1.514	91560	1.03	100	93.5	90	110	
V	51	1	nogas	64.588	5.547	2737330	0.19	100	64.6	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	94.125	2.616	1233316	0.63	100	94.1	90	110	
Mn	55	1	nogas	95.279	5.395	1486502	3.55	100	95.3	90	110	
Co	59	1	nogas	90.831	2.528	1266095	1.62	100	90.8	90	110	
Ni	60	1	nogas	92.970	1.503	284402	1.24	100	93.0	90	110	
Cu	63	1	nogas	95.273	2.205	713561	1.72	100	95.3	90	110	
Zn	66	1	nogas	96.753	1.616	234202	0.78	100	96.8	90	110	
As	75	1	nogas	63.487	8.642	463454	1.48	100	63.5	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	94.357	2.391	1592699	1.81	100	94.4	90	110	
Ag	107	1	nogas	95.359	3.358	944370	1.21	100	95.4	90	110	
Cd	111	1	nogas	96.621	1.130	193147	3.25	100	96.6	90	110	
Sb	121	1	nogas	88.219	2.532	823553	0.61	100	88.2	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	96.617	5.000	1618337	3.16	100	96.6	90	110	
Pb	208	1	nogas	102.062	2.656	2288719	2.66	100	102.1	90	110	
U	238	1	nogas	99.675	1.978	2363574	1.49	100	99.7	90	110	
[Pb]	206	1	nogas	95.144	3.714	553273	1.91	100	95.1	90	110	
[Pb]	207	1	nogas	97.122	4.657	514465	2.96	100	97.1	90	110	
Na	23	2	He	9833.876	3.038	2376039	3.48	10000	98.3	90	110	
Mg	24	2	He	9838.481	3.282	1135759	3.81	10000	98.4	90	110	
Al	27	2	He	95.689	11.965	3344	11.48	100	95.7	90	110	
K	39	2	He	10047.990	1.023	610902	1.00	10000	100.5	90	110	
Ca	43	2	He	9704.073	10.570	2017	10.32	10000	97.0	90	110	
Ca	44	2	He	9638.577	2.118	35545	1.78	10000	96.4	90	110	
V	51	2	He	96.269	1.536	129219	1.01	100	96.3	90	110	
Cr	52	2	He	98.164	1.450	171549	1.02	100	98.2	90	110	
Mn	55	2	He	98.298	1.961	69733	2.27	100	98.3	90	110	
Fe	56	2	He	9838.630	1.969	13727593	2.49	10000	98.4	90	110	
Co	59	2	He	96.771	0.446	291087	0.08	100	96.8	90	110	
Ni	60	2	He	95.990	1.090	80909	0.58	100	96.0	90	110	
Cu	63	2	He	97.198	1.567	226474	1.52	100	97.2	90	110	
Zn	66	2	He	96.398	1.507	34423	2.00	100	96.4	90	110	
As	75	2	He	97.373	1.351	24619	1.33	100	97.4	90	110	
Se	78	2	He	100.147	3.353	975	2.88	100	100.1	90	110	
B	11	1	nogas	515.891	1.452	848966	0.72	500	103.2	90	110	
Si	28	1	nogas	4717.893	2.965	22504101	0.76	5000	94.4	90	110	
Ca	43	1	nogas	9454.873	2.567	175714	1.22	10000	94.5	90	110	
Ca	44	1	nogas	9549.165	2.955	2998796	1.11	10000	95.5	90	110	
Fe	56	1	nogas	9258.553	3.086	136193353	0.89	10000	92.6	90	110	
Se	77	1	nogas	-25.154	-76.712	79637	4.23	100	-25.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.098	5.212	14209	3.66	100	96.1	90	110	
Mo	95	1	nogas	92.066	1.782	336037	0.86	100	92.1	90	110	
Sn	118	1	nogas	95.277	1.848	526775	1.35	100	95.3	90	110	
Ba	137	1	nogas	96.704	4.424	258776	3.36	100	96.7	90	110	
Sb	121	2	He	92.769	0.950	103730	1.32	100	92.8	90	110	
Li	7	1	nogas	101.481	1.933	625074	1.13	100	101.5	90	110	
P	31	1	nogas	440.208	4.518	357705	1.69	500	88.0	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	110.217	13.388	347	13.01	100	110.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	25003.476	86.895	7	173.21	100	25003.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	294910	1.18	317621	92.85	70	125	
Ge	72	1	nogas	1547038	2.20	1478633	104.63	70	125	
In	115	1	nogas	1601716	2.32	1539303	104.05	70	125	
Bi	209	1	nogas	1500922	1.88	1532165	97.96	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	128768	0.53	126743	101.60	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	023_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T10:02:57-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.166	69.9	480	67.1	1	
Na	23	1	nogas	-5.657	-118.0	1700107	5.2	100	
Mg	24	1	nogas	17.822	60.5	151096	58.2	100	
Al	27	1	nogas	1.125	14.7	28335	6.3	5	
K	39	1	nogas	0.640	143.7	4795620	1.0	100	
Ti	47	1	nogas	0.067	55.0	417	9.1	2.5	
V	51	1	nogas	-25.035	-13.5	1328110	3.2	2.5	
Cr	52	1	nogas	-0.500	-14.6	38216	2.4	2.5	
Mn	55	1	nogas	0.550	16.4	19781	7.7	2.5	
Co	59	1	nogas	0.136	72.9	2400	57.4	2.5	
Ni	60	1	nogas	0.571	12.7	1997	11.4	2.5	
Cu	63	1	nogas	0.050	238.2	5208	17.4	2.5	
Zn	66	1	nogas	0.482	22.1	1770	15.0	2.5	
As	75	1	nogas	-25.146	-17.4	195868	5.8	2.5	
Sr	88	1	nogas	0.148	61.2	4737	32.5	2.5	
Ag	107	1	nogas	0.076	69.7	1273	41.1	2.5	
Cd	111	1	nogas	0.132	65.2	293	58.1	1	
Sb	121	1	nogas	1.362	22.2	13636	21.0	2.5	
Tl	205	1	nogas	0.356	52.4	6355	54.4	1	
Pb	208	1	nogas	0.194	49.4	4927	43.6	2.5	
U	238	1	nogas	0.165	64.1	4318	63.8	2.5	
[Pb]	206	1	nogas	0.175	51.8	1240	47.5	2.5	
[Pb]	207	1	nogas	0.161	52.6	1043	48.2	2.5	
Na	23	2	He	-16.062	-60.3	48663	2.7	100	
Mg	24	2	He	5.969	5.1	1107	4.5	100	
Al	27	2	He	5.139	13.8	227	11.1	5	CCB Main CR1 Failed
K	39	2	He	20.726	23.1	13795	2.1	100	
Ca	43	2	He	-48.708	-56.8	3	173.2	100	
Ca	44	2	He	2.138	606.9	183	28.0	100	
V	51	2	He	0.405	9.4	903	3.5	2.5	
Cr	52	2	He	-0.139	-89.5	1540	13.8	2.5	
Mn	55	2	He	0.418	20.5	607	12.5	2.5	
Fe	56	2	He	0.215	241.9	14646	3.2	100	
Co	59	2	He	0.051	47.5	223	31.8	2.5	
Ni	60	2	He	0.607	3.0	330	5.3	2.5	
Cu	63	2	He	0.326	18.0	1013	12.5	2.5	
Zn	66	2	He	0.536	22.7	210	21.8	2.5	
As	75	2	He	-0.035	-210.9	43	42.8	2.5	
Se	78	2	He	0.266	49.5	7	17.3	2.5	
B	11	1	nogas	8.658	13.9	51650	5.2	10	
Si	28	1	nogas	-8.132	-38.1	865025	2.3	5	
Ca	43	1	nogas	32.227	46.2	1243	22.6	100	
Ca	44	1	nogas	-124.592	-7.7	139606	2.8	100	
Fe	56	1	nogas	9.250	161.6	1209160	18.5	100	
Se	77	1	nogas	-80.531	-22.1	65227	5.7	2.5	
Se	82	1	nogas	-0.409	-144.7	457	18.9	2.5	
Mo	95	1	nogas	0.305	51.3	1393	40.9	2.5	
Sn	118	1	nogas	0.116	114.2	2390	29.7	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.062	129.2	673	31.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.988	13.9	1270	11.7	2.5	
P	31	1	nogas	-0.720	-231.2	59297	1.6	10	
La	139	1	nogas	-3.284	-14.4	50	0.0	2.5	
Au	197	1	nogas	-5526.128	-532.0	23	65.5	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	323998	1.23	317621	102.01	70	125	
Ge	72	1	nogas	1521518	0.93	1478633	102.90	70	125	
In	115	1	nogas	1601157	2.47	1539303	104.02	70	125	
Bi	209	1	nogas	1542487	3.60	1532165	100.67	70	125	
Ge	72	2	He	133613	2.28	126743	105.42	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	034_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T10:25:10-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	96.545	1.758	242399	1.02	100	96.5	90	110	
Na	23	1	nogas	9585.171	3.872	111144819	5.21	10000	95.9	90	110	
Mg	24	1	nogas	9598.386	1.556	76022866	2.91	10000	96.0	90	110	
Al	27	1	nogas	91.851	4.724	931724	1.00	100	91.9	90	110	
K	39	1	nogas	9373.233	5.289	87211864	1.43	10000	93.7	90	110	
Ti	47	1	nogas	94.809	5.420	88626	1.78	100	94.8	90	110	
V	51	1	nogas	73.175	16.777	2738878	3.63	100	73.2	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	94.875	6.797	1185908	3.12	100	94.9	90	110	
Mn	55	1	nogas	97.062	4.706	1445962	1.22	100	97.1	90	110	
Co	59	1	nogas	92.111	4.380	1225760	1.63	100	92.1	90	110	
Ni	60	1	nogas	94.508	2.936	276059	0.96	100	94.5	90	110	
Cu	63	1	nogas	97.370	2.782	696322	1.14	100	97.4	90	110	
Zn	66	1	nogas	98.462	1.741	227656	2.17	100	98.5	90	110	
As	75	1	nogas	66.881	11.352	452150	1.15	100	66.9	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	95.883	1.438	1546059	2.32	100	95.9	90	110	
Ag	107	1	nogas	94.415	4.942	892678	1.27	100	94.4	90	110	
Cd	111	1	nogas	95.423	3.662	186138	1.26	100	95.4	90	110	
Sb	121	1	nogas	89.365	3.395	796664	0.86	100	89.4	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	98.802	3.746	1607559	3.65	100	98.8	90	110	
Pb	208	1	nogas	97.780	1.549	2192720	1.55	100	97.8	90	110	
U	238	1	nogas	98.925	4.644	2277066	3.71	100	98.9	90	110	
[Pb]	206	1	nogas	95.121	1.986	537174	0.88	100	95.1	90	110	
[Pb]	207	1	nogas	94.629	2.543	486846	1.90	100	94.6	90	110	
Na	23	2	He	9782.343	2.544	2321531	2.31	10000	97.8	90	110	
Mg	24	2	He	9610.631	1.509	1089598	1.33	10000	96.1	90	110	
Al	27	2	He	88.773	9.136	3050	8.84	100	88.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	9672.216	1.614	588526	1.58	10000	96.7	90	110	
Ca	43	2	He	10044.666	5.938	2050	5.75	10000	100.4	90	110	
Ca	44	2	He	9443.695	3.328	34212	3.32	10000	94.4	90	110	
V	51	2	He	94.934	1.698	125171	1.57	100	94.9	90	110	
Cr	52	2	He	95.747	2.252	164396	2.05	100	95.7	90	110	
Mn	55	2	He	93.932	1.705	65460	1.58	100	93.9	90	110	
Fe	56	2	He	9515.201	1.320	13039807	1.27	10000	95.2	90	110	
Co	59	2	He	94.537	1.885	279315	1.81	100	94.5	90	110	
Ni	60	2	He	95.545	2.509	79104	2.49	100	95.5	90	110	
Cu	63	2	He	97.039	0.992	222090	1.15	100	97.0	90	110	
Zn	66	2	He	95.968	1.390	33658	1.30	100	96.0	90	110	
As	75	2	He	95.558	2.822	23731	2.64	100	95.6	90	110	
Se	78	2	He	100.282	6.279	959	6.11	100	100.3	90	110	
B	11	1	nogas	512.165	5.893	855904	3.98	500	102.4	90	110	
Si	28	1	nogas	4765.187	2.450	21704043	1.70	5000	95.3	90	110	
Ca	43	1	nogas	9607.253	5.206	170420	1.90	10000	96.1	90	110	
Ca	44	1	nogas	9566.389	5.954	2867055	1.95	10000	95.7	90	110	
Fe	56	1	nogas	9489.260	5.736	133213353	2.38	10000	94.9	90	110	
Se	77	1	nogas	-8.422	-308.661	79848	3.93	100	-8.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	95.151	4.871	13439	1.04	100	95.2	90	110	
Mo	95	1	nogas	93.208	4.465	324754	1.00	100	93.2	90	110	
Sn	118	1	nogas	93.641	2.446	505516	0.07	100	93.6	90	110	
Ba	137	1	nogas	95.145	2.642	248651	1.40	100	95.1	90	110	
Sb	121	2	He	91.505	1.655	100495	1.48	100	91.5	90	110	
Li	7	1	nogas	99.130	0.938	620902	1.59	100	99.1	90	110	
P	31	1	nogas	457.576	2.447	352953	1.62	500	91.5	90	110	
La	139	1	nogas	75.640	3.167	250	4.00	100	75.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	11836.337	188.156	13	86.60	100	11836.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	299566	1.83	317621	94.32	70	125	
Ge	72	1	nogas	1478002	3.63	1478633	99.96	70	125	
In	115	1	nogas	1564113	2.53	1539303	101.61	70	125	
Bi	209	1	nogas	1457153	1.20	1532165	95.10	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	126479	0.19	126743	99.79	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	035_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T10:27:10-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.135	60.3	410	59.6	1	
Na	23	1	nogas	36.918	13.3	2137964	4.4	100	
Mg	24	1	nogas	15.868	56.2	132977	55.9	100	
Al	27	1	nogas	0.611	7.2	22187	2.4	5	
K	39	1	nogas	22.407	51.7	4804149	1.5	100	
Ti	47	1	nogas	0.097	173.3	427	34.8	2.5	
V	51	1	nogas	-18.422	-11.4	1375029	2.2	2.5	
Cr	52	1	nogas	-0.572	-7.8	35912	1.1	2.5	
Mn	55	1	nogas	0.612	19.3	19934	8.7	2.5	
Co	59	1	nogas	0.163	65.6	2664	53.5	2.5	
Ni	60	1	nogas	0.688	3.4	2260	3.8	2.5	
Cu	63	1	nogas	0.197	52.3	6041	12.1	2.5	
Zn	66	1	nogas	0.562	33.2	1887	23.1	2.5	
As	75	1	nogas	-23.146	-14.8	194160	4.8	2.5	
Sr	88	1	nogas	0.152	62.2	4611	33.1	2.5	
Ag	107	1	nogas	0.083	52.3	1287	31.9	2.5	
Cd	111	1	nogas	0.112	71.0	257	63.3	1	
Sb	121	1	nogas	1.343	24.6	12939	22.6	2.5	
Tl	205	1	nogas	0.357	59.9	6042	57.6	1	
Pb	208	1	nogas	0.177	54.0	4544	47.1	2.5	
U	238	1	nogas	0.175	73.0	4304	68.2	2.5	
[Pb]	206	1	nogas	0.173	55.2	1157	46.2	2.5	
[Pb]	207	1	nogas	0.167	61.0	1020	51.3	2.5	
Na	23	2	He	30.059	35.4	57434	0.6	100	
Mg	24	2	He	4.401	33.6	877	16.2	100	
Al	27	2	He	2.513	46.8	127	29.9	5	
K	39	2	He	18.821	23.6	13682	1.9	100	
Ca	43	2	He	30.585	303.7	20	100.0	100	
Ca	44	2	He	-1.100	-696.3	163	15.4	100	
V	51	2	He	0.440	5.3	913	3.8	2.5	
Cr	52	2	He	-0.204	-29.8	1367	10.5	2.5	
Mn	55	2	He	0.335	10.9	523	8.6	2.5	
Fe	56	2	He	-1.031	-90.1	12281	6.4	100	
Co	59	2	He	0.055	7.1	227	9.2	2.5	
Ni	60	2	He	0.589	15.3	300	23.3	2.5	
Cu	63	2	He	0.445	14.6	1243	8.3	2.5	
Zn	66	2	He	0.515	15.6	193	13.0	2.5	
As	75	2	He	-0.025	-358.3	44	49.9	2.5	
Se	78	2	He	0.228	248.0	6	88.2	2.5	
B	11	1	nogas	25.092	10.3	82371	6.0	10	CCB Main CR1 Failed
Si	28	1	nogas	-7.146	-61.1	836509	2.0	5	
Ca	43	1	nogas	32.587	58.8	1203	28.7	100	
Ca	44	1	nogas	-179.810	-5.6	118868	1.7	100	
Fe	56	1	nogas	18.377	71.6	1288880	14.5	100	
Se	77	1	nogas	-69.304	-26.3	65348	6.5	2.5	
Se	82	1	nogas	-0.421	-229.2	437	29.1	2.5	
Mo	95	1	nogas	0.249	52.1	1147	39.5	2.5	
Sn	118	1	nogas	0.104	118.0	2344	29.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.072	160.9	707	44.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.861	19.6	1073	14.3	2.5	
P	31	1	nogas	1.563	270.7	58497	3.4	10	
La	139	1	nogas	-7.440	-174.8	40	86.6	2.5	
Au	197	1	nogas	19253.638	164.6	10	173.2	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	332914	3.49	317621	104.81	70	125	
Ge	72	1	nogas	1464088	1.32	1478633	99.02	70	125	
In	115	1	nogas	1612824	2.37	1539303	104.78	70	125	
Bi	209	1	nogas	1474047	3.58	1532165	96.21	70	125	
Ge	72	2	He	128031	4.34	126743	101.02	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	047_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T10:51:12-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.172	45.1	503	43.8	1	
Na	23	1	nogas	77.111	3.8	2531663	2.0	100	
Mg	24	1	nogas	17.911	50.7	145636	50.7	100	
Al	27	1	nogas	0.997	2.9	25017	2.4	5	
K	39	1	nogas	70.741	12.6	5027836	0.1	100	
Ti	47	1	nogas	0.128	10.0	440	3.9	2.5	
V	51	1	nogas	-57.734	-5.9	768527	5.5	2.5	
Cr	52	1	nogas	-1.150	-4.6	27908	2.5	2.5	
Mn	55	1	nogas	0.715	11.7	20618	5.4	2.5	
Co	59	1	nogas	0.143	57.3	2307	45.6	2.5	
Ni	60	1	nogas	0.642	23.6	2043	20.6	2.5	
Cu	63	1	nogas	0.495	21.0	7828	9.4	2.5	
Zn	66	1	nogas	1.052	4.7	2890	2.6	2.5	
As	75	1	nogas	-39.730	-5.1	141717	2.9	2.5	
Sr	88	1	nogas	0.134	63.1	4161	31.6	2.5	
Ag	107	1	nogas	0.110	54.8	1483	37.2	2.5	
Cd	111	1	nogas	0.130	59.8	280	57.5	1	
Sb	121	1	nogas	1.414	23.8	13045	21.9	2.5	
Tl	205	1	nogas	0.457	57.6	7402	54.0	1	
Pb	208	1	nogas	0.341	27.7	8234	25.8	2.5	
U	238	1	nogas	0.172	71.1	4067	65.1	2.5	
[Pb]	206	1	nogas	0.317	40.0	1920	33.8	2.5	
[Pb]	207	1	nogas	0.355	25.8	1937	20.4	2.5	
Na	23	2	He	85.093	5.9	66225	0.9	100	
Mg	24	2	He	7.418	7.6	1153	5.8	100	
Al	27	2	He	2.111	59.0	107	37.9	5	
K	39	2	He	63.135	5.9	16321	1.4	100	
Ca	43	2	He	-12.581	-414.5	10	100.0	100	
Ca	44	2	He	46.272	85.9	317	43.1	100	
V	51	2	He	0.194	13.7	551	6.8	2.5	
Cr	52	2	He	-0.163	-79.4	1350	16.1	2.5	
Mn	55	2	He	0.460	17.9	573	8.8	2.5	
Fe	56	2	He	1.852	43.9	15343	7.8	100	
Co	59	2	He	0.065	6.4	240	4.2	2.5	
Ni	60	2	He	0.492	2.5	207	5.6	2.5	
Cu	63	2	He	0.686	7.3	1697	5.7	2.5	
Zn	66	2	He	1.008	4.0	347	4.4	2.5	
As	75	2	He	-0.037	-151.0	39	34.6	2.5	
Se	78	2	He	0.044	875.5	4	86.6	2.5	
B	11	1	nogas	383.010	2.4	711695	3.5	10	CCB Main CR1 Failed
Si	28	1	nogas	91.848	2.2	1217418	1.7	5	CCB Main CR1 Failed
Ca	43	1	nogas	61.575	24.6	1647	16.7	100	
Ca	44	1	nogas	-165.769	-6.0	118150	2.8	100	
Fe	56	1	nogas	16.225	95.8	1210398	16.8	100	
Se	77	1	nogas	-142.771	-5.0	46737	3.2	2.5	
Se	82	1	nogas	-0.296	-114.5	437	8.7	2.5	
Mo	95	1	nogas	0.285	58.3	1223	45.6	2.5	
Sn	118	1	nogas	0.119	83.0	2304	27.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.098	64.0	737	26.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.865	16.4	1017	14.4	2.5	
P	31	1	nogas	5.917	14.3	58969	0.6	10	
La	139	1	nogas	3.008	175.7	63	24.1	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-46757.618	-87.0	43	48.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	328440	1.41	317621	103.41	70	125	
Ge	72	1	nogas	1408492	1.38	1478633	95.26	70	125	
In	115	1	nogas	1520949	4.69	1539303	98.81	70	125	
Bi	209	1	nogas	1437203	4.29	1532165	93.80	70	125	
Ge	72	2	He	120377	0.90	126743	94.98	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	049_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T10:55:14-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	89.583	0.912	241541	1.18	100	89.6	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	9673.925	1.936	110033686	1.01	10000	96.7	90	110	
Mg	24	1	nogas	9665.178	1.974	75128445	2.26	10000	96.7	90	110	
Al	27	1	nogas	91.335	2.853	921214	2.14	100	91.3	90	110	
K	39	1	nogas	9244.586	5.141	85587779	4.56	10000	92.4	90	110	
Ti	47	1	nogas	93.563	2.408	87025	4.42	100	93.6	90	110	
V	51	1	nogas	39.930	6.049	2236701	3.64	100	39.9	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	90.624	1.429	1129247	3.97	100	90.6	90	110	
Mn	55	1	nogas	98.059	5.874	1452850	6.65	100	98.1	90	110	
Co	59	1	nogas	93.510	6.313	1236624	5.17	100	93.5	90	110	
Ni	60	1	nogas	95.919	4.403	278339	2.39	100	95.9	90	110	
Cu	63	1	nogas	95.248	4.688	676624	1.64	100	95.2	90	110	
Zn	66	1	nogas	95.070	3.013	218369	1.32	100	95.1	90	110	
As	75	1	nogas	49.877	7.546	401462	2.87	100	49.9	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	92.255	2.463	1477957	2.25	100	92.3	90	110	
Ag	107	1	nogas	93.212	2.193	876399	2.51	100	93.2	90	110	
Cd	111	1	nogas	92.038	1.724	181348	4.95	100	92.0	90	110	
Sb	121	1	nogas	88.234	3.997	781515	1.49	100	88.2	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	92.674	4.462	1519397	1.69	100	92.7	90	110	
Pb	208	1	nogas	94.887	2.138	2127862	2.14	100	94.9	90	110	
U	238	1	nogas	97.347	1.417	2260976	4.36	100	97.3	90	110	
[Pb]	206	1	nogas	90.547	3.236	515426	0.62	100	90.5	90	110	
[Pb]	207	1	nogas	90.749	1.560	470794	2.05	100	90.7	90	110	
Na	23	2	He	9764.259	1.014	2263818	0.77	10000	97.6	90	110	
Mg	24	2	He	9612.393	2.881	1064478	2.01	10000	96.1	90	110	
Al	27	2	He	90.979	1.449	3054	2.50	100	91.0	90	110	
K	39	2	He	9321.287	1.560	567628	1.53	10000	93.2	90	110	
Ca	43	2	He	9793.413	16.117	1950	14.44	10000	97.9	90	110	
Ca	44	2	He	9551.543	2.867	33798	2.33	10000	95.5	90	110	
V	51	2	He	94.906	1.644	122236	0.74	100	94.9	90	110	
Cr	52	2	He	94.544	1.990	158585	0.69	100	94.5	90	110	
Mn	55	2	He	92.392	1.921	62898	0.83	100	92.4	90	110	
Fe	56	2	He	9258.805	0.759	12395696	0.86	10000	92.6	90	110	
Co	59	2	He	94.746	1.106	273457	0.58	100	94.7	90	110	
Ni	60	2	He	96.588	0.664	78124	1.18	100	96.6	90	110	
Cu	63	2	He	96.981	2.568	216820	2.48	100	97.0	90	110	
Zn	66	2	He	97.898	2.793	33534	1.27	100	97.9	90	110	
As	75	2	He	95.231	1.180	23104	0.63	100	95.2	90	110	
Se	78	2	He	98.054	1.666	916	2.79	100	98.1	90	110	
B	11	1	nogas	798.049	2.207	1412447	1.38	500	159.6	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4886.273	3.419	22092117	2.92	5000	97.7	90	110	
Ca	43	1	nogas	9210.915	4.909	162414	2.79	10000	92.1	90	110	
Ca	44	1	nogas	9185.999	3.645	2743733	0.85	10000	91.9	90	110	
Fe	56	1	nogas	9390.068	3.986	131087324	3.20	10000	93.9	90	110	
Se	77	1	nogas	-67.750	-24.553	65889	6.32	100	-67.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	95.631	6.144	13419	3.84	100	95.6	90	110	
Mo	95	1	nogas	89.456	4.468	309746	2.14	100	89.5	90	110	CCV Main CR1-2 Failed
Sn	118	1	nogas	91.200	2.341	496899	2.43	100	91.2	90	110	
Ba	137	1	nogas	92.083	6.470	242571	2.35	100	92.1	90	110	
Sb	121	2	He	91.008	2.398	97629	1.34	100	91.0	90	110	
Li	7	1	nogas	93.020	1.863	627474	2.69	100	93.0	90	110	
P	31	1	nogas	467.655	4.825	357088	2.92	500	93.5	90	110	
La	139	1	nogas	107.815	28.951	333	20.42	100	107.8	90	110	
Au	197	1	nogas	18748.357	98.297	10	100.00	100	18748.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	321646	0.96	317621	101.27	70	125	
Ge	72	1	nogas	1468394	3.04	1478633	99.31	70	125	
In	115	1	nogas	1578954	4.72	1539303	102.58	70	125	
Bi	209	1	nogas	1469517	3.17	1532165	95.91	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	123566	1.50	126743	97.49	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	062_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T11:56:14-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	97.004	3.796	247493	0.79	100	97.0	90	110	
Na	23	1	nogas	9372.806	1.709	107664048	1.29	10000	93.7	90	110	
Mg	24	1	nogas	9551.001	2.773	74966114	4.60	10000	95.5	90	110	
Al	27	1	nogas	90.640	1.106	923489	2.32	100	90.6	90	110	
K	39	1	nogas	9565.337	4.635	89237983	3.00	10000	95.7	90	110	
Ti	47	1	nogas	91.000	0.463	85447	1.91	100	91.0	90	110	
V	51	1	nogas	5.036	9.391	1740424	2.16	100	5.0	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	89.546	1.839	1126735	1.86	100	89.5	90	110	CCV Main CR1-2 Failed
Mn	55	1	nogas	95.995	2.301	1435696	0.65	100	96.0	90	110	
Co	59	1	nogas	91.532	5.221	1222190	3.44	100	91.5	90	110	
Ni	60	1	nogas	93.884	3.593	275138	1.79	100	93.9	90	110	
Cu	63	1	nogas	95.873	2.607	688001	1.11	100	95.9	90	110	
Zn	66	1	nogas	98.384	1.936	228298	3.67	100	98.4	90	110	
As	75	1	nogas	31.450	5.419	352781	3.14	100	31.4	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	92.226	7.103	1491054	5.66	100	92.2	90	110	
Ag	107	1	nogas	91.801	1.582	871735	3.05	100	91.8	90	110	
Cd	111	1	nogas	93.938	1.799	181250	1.12	100	93.9	90	110	
Sb	121	1	nogas	92.280	3.439	825413	1.63	100	92.3	90	110	
Tl	205	1	nogas	91.416	0.624	1541205	1.15	100	91.4	90	110	
Pb	208	1	nogas	96.462	3.236	2163184	3.24	100	96.5	90	110	
U	238	1	nogas	92.600	0.873	2209227	1.74	100	92.6	90	110	
[Pb]	206	1	nogas	90.325	0.968	528621	1.84	100	90.3	90	110	
[Pb]	207	1	nogas	90.845	4.485	484432	5.21	100	90.8	90	110	
Na	23	2	He	9388.414	3.546	2254610	2.12	10000	93.9	90	110	
Mg	24	2	He	9149.581	3.063	1048764	1.45	10000	91.5	90	110	
Al	27	2	He	93.335	3.796	3240	2.16	100	93.3	90	110	
K	39	2	He	9406.728	2.391	572716	2.34	10000	94.1	90	110	
Ca	43	2	He	9524.821	18.533	1967	18.59	10000	95.2	90	110	
Ca	44	2	He	9153.055	4.564	33537	4.66	10000	91.5	90	110	
V	51	2	He	90.559	2.720	120738	1.22	100	90.6	90	110	
Cr	52	2	He	90.643	2.689	157447	1.34	100	90.6	90	110	
Mn	55	2	He	91.163	1.250	64253	1.11	100	91.2	90	110	
Fe	56	2	He	9010.569	2.451	12485687	1.01	10000	90.1	90	110	
Co	59	2	He	92.329	4.397	275761	2.89	100	92.3	90	110	
Ni	60	2	He	92.459	1.688	77401	1.50	100	92.5	90	110	
Cu	63	2	He	94.080	2.019	217712	0.43	100	94.1	90	110	
Zn	66	2	He	95.232	1.953	33785	3.53	100	95.2	90	110	
As	75	2	He	94.144	2.314	23641	1.14	100	94.1	90	110	
Se	78	2	He	95.932	5.561	927	4.71	100	95.9	90	110	
B	11	1	nogas	650.199	5.870	1094967	2.61	500	130.0	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4594.904	2.726	21034462	3.32	5000	91.9	90	110	
Ca	43	1	nogas	9669.321	1.358	172212	0.57	10000	96.7	90	110	
Ca	44	1	nogas	9357.850	1.079	2820382	1.68	10000	93.6	90	110	
Fe	56	1	nogas	9128.584	2.799	128710128	1.50	10000	91.3	90	110	
Se	77	1	nogas	-150.219	-6.267	47492	5.91	100	-150.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	88.946	6.241	12638	4.17	100	88.9	90	110	CCV Main CR1-2 Failed
Mo	95	1	nogas	93.221	2.881	326012	1.11	100	93.2	90	110	
Sn	118	1	nogas	94.794	2.498	506059	2.13	100	94.8	90	110	
Ba	137	1	nogas	95.408	2.348	246568	1.86	100	95.4	90	110	
Sb	121	2	He	92.320	1.972	102520	1.03	100	92.3	90	110	
Li	7	1	nogas	97.880	0.984	623654	2.42	100	97.9	90	110	
P	31	1	nogas	457.326	1.801	353977	1.12	500	91.5	90	110	
La	139	1	nogas	186.367	26.897	527	24.71	100	186.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	6696.607	315.887	17	69.28	100	6696.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	304613	3.37	317621	95.90	70	125	
Ge	72	1	nogas	1482443	1.77	1478633	100.26	70	125	
In	115	1	nogas	1546293	0.72	1539303	100.45	70	125	
Bi	209	1	nogas	1509750	0.87	1532165	98.54	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	127911	1.63	126743	100.92	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	063_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T11:58:10-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.085	21.1	277	21.2	1	
Na	23	1	nogas	8.115	24.8	1856550	0.6	100	
Mg	24	1	nogas	8.775	16.8	78178	14.8	100	
Al	27	1	nogas	1.025	10.1	27634	3.3	5	
K	39	1	nogas	21.325	26.1	5043254	1.1	100	
Ti	47	1	nogas	0.058	148.4	413	21.1	2.5	
V	51	1	nogas	-76.217	-2.7	555728	6.0	2.5	
Cr	52	1	nogas	-1.802	-1.6	22317	2.0	2.5	
Mn	55	1	nogas	0.449	7.3	18449	2.6	2.5	
Co	59	1	nogas	0.066	29.4	1450	17.9	2.5	
Ni	60	1	nogas	0.748	2.5	2557	3.0	2.5	
Cu	63	1	nogas	0.455	1.4	8265	1.3	2.5	
Zn	66	1	nogas	0.728	6.5	2380	4.0	2.5	
As	75	1	nogas	-51.183	-3.8	120972	5.1	2.5	
Sr	88	1	nogas	0.092	14.1	3834	4.9	2.5	
Ag	107	1	nogas	0.102	13.1	1540	7.9	2.5	
Cd	111	1	nogas	0.052	21.7	137	15.2	1	
Sb	121	1	nogas	0.932	13.5	9793	11.2	2.5	
Tl	205	1	nogas	0.222	29.3	3961	30.9	1	
Pb	208	1	nogas	0.139	18.4	3697	15.5	2.5	
U	238	1	nogas	0.076	19.1	2084	19.9	2.5	
[Pb]	206	1	nogas	0.144	26.0	1027	21.5	2.5	
[Pb]	207	1	nogas	0.102	7.6	707	8.5	2.5	
Na	23	2	He	-3.223	-130.5	51116	1.9	100	
Mg	24	2	He	6.290	16.4	1130	12.3	100	
Al	27	2	He	2.584	6.2	133	4.3	5	
K	39	2	He	37.757	27.1	14809	4.1	100	
Ca	43	2	He	-49.009	-55.4	3	173.2	100	
Ca	44	2	He	-14.268	-161.3	120	74.1	100	
V	51	2	He	0.072	2.2	436	2.6	2.5	
Cr	52	2	He	-0.314	-15.4	1210	9.1	2.5	
Mn	55	2	He	0.445	32.6	617	16.3	2.5	
Fe	56	2	He	-0.048	-1250.6	14076	6.2	100	
Co	59	2	He	0.046	42.7	207	31.5	2.5	
Ni	60	2	He	0.884	16.7	567	24.3	2.5	
Cu	63	2	He	0.850	3.4	2247	0.9	2.5	
Zn	66	2	He	0.945	14.5	357	15.4	2.5	
As	75	2	He	-0.081	-63.9	31	44.6	2.5	
Se	78	2	He	-0.060	-522.6	3	91.7	2.5	
B	11	1	nogas	133.853	6.2	288807	2.5	10	CCB Main CR1 Failed
Si	28	1	nogas	11.626	44.8	965276	1.7	5	CCB Main CR1 Failed
Ca	43	1	nogas	27.863	26.6	1177	12.1	100	
Ca	44	1	nogas	-302.684	-2.3	88900	2.3	100	
Fe	56	1	nogas	-9.278	-24.8	953131	2.7	100	
Se	77	1	nogas	-188.417	-4.5	40151	5.5	2.5	
Se	82	1	nogas	-0.846	-45.3	400	13.9	2.5	
Mo	95	1	nogas	0.175	31.7	937	20.7	2.5	
Sn	118	1	nogas	-0.007	-442.9	1747	8.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.019	141.8	570	13.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.769	5.1	1003	2.3	2.5	
P	31	1	nogas	3.696	26.6	62978	1.0	10	
La	139	1	nogas	23.948	37.2	123	20.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-5192.943	-400.4	23	49.5	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	348077	3.05	317621	109.59	70	125	
Ge	72	1	nogas	1539816	0.79	1478633	104.14	70	125	
In	115	1	nogas	1628693	1.40	1539303	105.81	70	125	
Bi	209	1	nogas	1522617	2.82	1532165	99.38	70	125	
Ge	72	2	He	131748	2.13	126743	103.95	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	074_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T12:20:07-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	88.243	3.847	259098	2.69	100	88.2	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10680.530	0.689	126525524	1.16	10000	106.8	90	110	
Mg	24	1	nogas	9987.285	3.099	80953437	2.64	10000	99.9	90	110	
Al	27	1	nogas	92.976	2.665	1009286	1.66	100	93.0	90	110	
K	39	1	nogas	9330.785	1.418	92981237	2.51	10000	93.3	90	110	
Ti	47	1	nogas	92.081	0.663	92173	0.86	100	92.1	90	110	
V	51	1	nogas	70.671	6.711	2893390	2.47	100	70.7	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	93.465	2.944	1251800	2.49	100	93.5	90	110	
Mn	55	1	nogas	97.739	0.871	1558634	1.16	100	97.7	90	110	
Co	59	1	nogas	93.709	3.233	1334647	2.75	100	93.7	90	110	
Ni	60	1	nogas	94.555	0.458	295564	1.54	100	94.6	90	110	
Cu	63	1	nogas	93.980	1.160	719288	0.96	100	94.0	90	110	
Zn	66	1	nogas	95.400	1.793	235951	0.46	100	95.4	90	110	
As	75	1	nogas	60.228	6.105	463685	0.97	100	60.2	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	92.973	3.182	1603319	2.09	100	93.0	90	110	
Ag	107	1	nogas	92.530	2.549	936444	1.07	100	92.5	90	110	
Cd	111	1	nogas	93.805	2.872	197123	0.50	100	93.8	90	110	
Sb	121	1	nogas	87.523	2.399	834876	0.96	100	87.5	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	97.176	1.490	1627114	0.84	100	97.2	90	110	
Pb	208	1	nogas	99.744	1.067	2236760	1.07	100	99.7	90	110	
U	238	1	nogas	101.893	3.893	2413517	2.23	100	101.9	90	110	
[Pb]	206	1	nogas	94.649	2.900	549996	0.86	100	94.6	90	110	
[Pb]	207	1	nogas	94.784	2.610	501795	0.86	100	94.8	90	110	
Na	23	2	He	10032.238	3.985	2457593	2.83	10000	100.3	90	110	
Mg	24	2	He	9720.632	2.213	1138354	1.46	10000	97.2	90	110	
Al	27	2	He	93.315	1.826	3310	1.60	100	93.3	90	110	
K	39	2	He	10081.867	0.583	612920	0.57	10000	100.8	90	110	
Ca	43	2	He	9517.966	6.236	2007	5.11	10000	95.2	90	110	
Ca	44	2	He	9368.817	3.651	35080	5.38	10000	93.7	90	110	
V	51	2	He	94.234	3.564	128320	2.22	100	94.2	90	110	
Cr	52	2	He	95.455	2.403	169314	2.42	100	95.5	90	110	
Mn	55	2	He	95.585	2.908	68829	4.29	100	95.6	90	110	
Fe	56	2	He	9376.759	2.180	13278255	3.66	10000	93.8	90	110	
Co	59	2	He	95.621	1.114	291843	1.13	100	95.6	90	110	
Ni	60	2	He	94.987	3.593	81216	2.40	100	95.0	90	110	
Cu	63	2	He	97.438	2.770	230304	0.67	100	97.4	90	110	
Zn	66	2	He	95.331	4.095	34526	2.54	100	95.3	90	110	
As	75	2	He	94.625	2.135	24273	0.63	100	94.6	90	110	
Se	78	2	He	100.672	2.633	994	0.73	100	100.7	90	110	
B	11	1	nogas	591.369	0.642	1150498	1.44	500	118.3	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4952.913	1.893	24097335	1.40	5000	99.1	90	110	
Ca	43	1	nogas	9357.434	0.714	177738	1.74	10000	93.6	90	110	
Ca	44	1	nogas	9122.133	1.732	2936306	2.80	10000	91.2	90	110	
Fe	56	1	nogas	9374.869	1.586	140922011	0.83	10000	93.7	90	110	
Se	77	1	nogas	-31.310	-38.099	79881	2.69	100	-31.3	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	86.738	4.807	13162	4.66	100	86.7	90	110	CCV Main CR1-2 Failed
Mo	95	1	nogas	92.358	1.012	344489	1.80	100	92.4	90	110	
Sn	118	1	nogas	91.151	2.361	530130	1.49	100	91.2	90	110	
Ba	137	1	nogas	92.653	3.193	260786	0.20	100	92.7	90	110	
Sb	121	2	He	92.699	3.567	105150	2.75	100	92.7	90	110	
Li	7	1	nogas	93.324	3.045	685447	2.24	100	93.3	90	110	
P	31	1	nogas	470.495	2.411	386464	0.89	500	94.1	90	110	
La	139	1	nogas	117.970	17.084	387	17.22	100	118.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-61895.267	-75.328	53	47.19	100	-61895.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	350374	1.46	317621	110.31	70	125	
Ge	72	1	nogas	1580552	1.51	1478633	106.89	70	125	
In	115	1	nogas	1685004	3.23	1539303	109.47	70	125	
Bi	209	1	nogas	1499730	2.04	1532165	97.88	70	125	
Ge	72	2	He	130673	2.13	126743	103.10	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	075_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T12:22:03-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.091	20.4	330	16.9	1	
Na	23	1	nogas	175.116	3.7	3968854	2.0	100	CCB Main CR1 Failed
Mg	24	1	nogas	12.394	8.0	112418	6.9	100	
Al	27	1	nogas	0.708	19.8	25054	6.4	5	
K	39	1	nogas	19.295	16.5	5171254	0.6	100	
Ti	47	1	nogas	0.030	240.9	397	18.6	2.5	
V	51	1	nogas	-38.899	-7.0	1163824	4.2	2.5	
Cr	52	1	nogas	-1.275	-6.8	29788	4.2	2.5	
Mn	55	1	nogas	0.503	4.5	19848	1.9	2.5	
Co	59	1	nogas	0.066	14.7	1493	9.1	2.5	
Ni	60	1	nogas	0.752	4.5	2644	4.1	2.5	
Cu	63	1	nogas	0.352	11.1	7718	3.6	2.5	
Zn	66	1	nogas	0.519	8.5	1933	6.0	2.5	
As	75	1	nogas	-34.300	-8.6	176124	5.6	2.5	
Sr	88	1	nogas	0.108	16.8	4237	7.6	2.5	
Ag	107	1	nogas	0.073	5.8	1293	3.5	2.5	
Cd	111	1	nogas	0.054	56.0	150	43.7	1	
Sb	121	1	nogas	0.753	15.5	8369	12.9	2.5	
Tl	205	1	nogas	0.209	39.5	3791	36.9	1	
Pb	208	1	nogas	0.101	10.4	2833	8.3	2.5	
U	238	1	nogas	0.074	25.2	2050	21.3	2.5	
[Pb]	206	1	nogas	0.089	14.2	717	10.1	2.5	
[Pb]	207	1	nogas	0.081	26.6	600	18.3	2.5	
Na	23	2	He	165.160	5.3	91351	1.7	100	CCB Main CR1 Failed
Mg	24	2	He	11.770	3.7	1767	4.0	100	
Al	27	2	He	4.699	17.0	207	12.2	5	
K	39	2	He	49.466	17.2	15507	3.3	100	
Ca	43	2	He	-32.816	-168.2	7	173.2	100	
Ca	44	2	He	4.881	359.3	190	34.5	100	
V	51	2	He	0.330	4.2	785	0.9	2.5	
Cr	52	2	He	-0.377	-29.3	1090	16.3	2.5	
Mn	55	2	He	0.453	26.8	620	14.8	2.5	
Fe	56	2	He	-0.705	-80.2	13061	4.3	100	
Co	59	2	He	0.049	24.6	213	19.5	2.5	
Ni	60	2	He	0.688	5.0	393	6.4	2.5	
Cu	63	2	He	0.646	8.0	1753	6.7	2.5	
Zn	66	2	He	0.660	30.6	250	27.7	2.5	
As	75	2	He	-0.011	-767.6	49	41.1	2.5	
Se	78	2	He	-0.194	-104.8	2	100.0	2.5	
B	11	1	nogas	115.152	3.3	286324	3.3	10	CCB Main CR1 Failed
Si	28	1	nogas	-13.315	-24.6	876564	1.3	5	
Ca	43	1	nogas	19.733	26.0	1057	9.6	100	
Ca	44	1	nogas	-338.468	-0.3	80666	0.5	100	
Fe	56	1	nogas	13.767	9.9	1325711	1.3	100	
Se	77	1	nogas	-118.189	-11.2	58672	6.1	2.5	
Se	82	1	nogas	-0.492	-89.7	463	14.4	2.5	
Mo	95	1	nogas	0.101	23.5	687	12.7	2.5	
Sn	118	1	nogas	-0.043	-3.4	1637	0.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.010	-240.4	520	13.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.580	15.5	783	12.8	2.5	
P	31	1	nogas	1.778	99.4	63494	2.3	10	
La	139	1	nogas	0.115	4820.8	63	24.1	2.5	
Au	197	1	nogas	7400.109	145.0	17	34.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	392028	1.63	317621	123.43	70	125	
Ge	72	1	nogas	1584739	0.48	1478633	107.18	70	125	
In	115	1	nogas	1723228	0.43	1539303	111.95	70	125	
Bi	209	1	nogas	1554596	1.37	1532165	101.46	70	125	
Ge	72	2	He	131052	2.02	126743	103.40	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	086_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T12:44:26-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.035	5.312	253118	2.46	100	92.0	90	110	
Na	23	1	nogas	9970.439	2.175	114303019	3.48	10000	99.7	90	110	
Mg	24	1	nogas	9911.161	1.825	77672970	3.14	10000	99.1	90	110	
Al	27	1	nogas	94.172	2.072	941617	2.12	100	94.2	90	110	
K	39	1	nogas	9832.499	3.530	89964967	0.80	10000	98.3	90	110	
Ti	47	1	nogas	95.650	3.165	88161	1.41	100	95.7	90	110	
V	51	1	nogas	57.297	7.966	2470107	1.52	100	57.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	96.475	5.159	1188129	1.86	100	96.5	90	110	
Mn	55	1	nogas	100.720	7.303	1477222	3.49	100	100.7	90	110	
Co	59	1	nogas	94.905	5.715	1244316	3.15	100	94.9	90	110	
Ni	60	1	nogas	95.694	6.209	275211	2.33	100	95.7	90	110	
Cu	63	1	nogas	96.939	5.049	682839	2.19	100	96.9	90	110	
Zn	66	1	nogas	97.444	3.418	221940	1.17	100	97.4	90	110	
As	75	1	nogas	60.576	7.228	428169	2.69	100	60.6	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	95.776	6.333	1520111	2.93	100	95.8	90	110	
Ag	107	1	nogas	94.544	2.989	881408	2.09	100	94.5	90	110	
Cd	111	1	nogas	95.835	2.084	184645	1.69	100	95.8	90	110	
Sb	121	1	nogas	92.081	5.250	808536	1.97	100	92.1	90	110	
Tl	205	1	nogas	94.571	1.993	1548539	1.59	100	94.6	90	110	
Pb	208	1	nogas	97.372	3.014	2183584	3.01	100	97.4	90	110	
U	238	1	nogas	99.008	1.684	2294442	2.58	100	99.0	90	110	
[Pb]	206	1	nogas	94.062	2.453	534663	2.59	100	94.1	90	110	
[Pb]	207	1	nogas	93.784	3.607	485716	4.22	100	93.8	90	110	
Na	23	2	He	9853.580	1.189	2303131	0.51	10000	98.5	90	110	
Mg	24	2	He	9500.883	2.548	1060954	1.64	10000	95.0	90	110	
Al	27	2	He	92.491	8.852	3130	9.36	100	92.5	90	110	
K	39	2	He	9456.961	0.997	575708	0.98	10000	94.6	90	110	
Ca	43	2	He	10386.285	7.955	2087	6.82	10000	103.9	90	110	
Ca	44	2	He	9476.610	5.881	33804	4.74	10000	94.8	90	110	
V	51	2	He	94.651	2.384	122920	1.28	100	94.7	90	110	
Cr	52	2	He	96.472	3.168	163140	2.59	100	96.5	90	110	
Mn	55	2	He	96.716	3.269	66380	2.88	100	96.7	90	110	
Fe	56	2	He	9531.466	3.898	12865420	3.41	10000	95.3	90	110	
Co	59	2	He	95.500	2.753	277931	2.40	100	95.5	90	110	
Ni	60	2	He	94.632	1.190	77172	0.39	100	94.6	90	110	
Cu	63	2	He	95.914	2.180	216214	1.34	100	95.9	90	110	
Zn	66	2	He	97.069	2.017	33535	1.73	100	97.1	90	110	
As	75	2	He	96.451	0.566	23596	1.28	100	96.5	90	110	
Se	78	2	He	100.750	2.423	949	1.29	100	100.8	90	110	
B	11	1	nogas	583.124	8.432	1062653	6.25	500	116.6	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4996.368	3.914	22382733	3.11	5000	99.9	90	110	
Ca	43	1	nogas	10020.704	4.242	175185	1.78	10000	100.2	90	110	
Ca	44	1	nogas	9419.335	6.590	2783930	2.48	10000	94.2	90	110	
Fe	56	1	nogas	9847.747	7.266	136153982	3.91	10000	98.5	90	110	
Se	77	1	nogas	-30.602	-45.758	73769	4.65	100	-30.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	95.912	2.038	13355	2.48	100	95.9	90	110	
Mo	95	1	nogas	94.715	6.288	325051	2.92	100	94.7	90	110	
Sn	118	1	nogas	95.620	2.856	509615	0.51	100	95.6	90	110	
Ba	137	1	nogas	96.347	3.675	248541	0.72	100	96.3	90	110	
Sb	121	2	He	93.645	1.374	101313	1.77	100	93.6	90	110	
Li	7	1	nogas	96.710	2.441	664650	2.21	100	96.7	90	110	
P	31	1	nogas	487.313	5.805	366433	0.88	500	97.5	90	110	
La	139	1	nogas	87.181	17.414	277	17.08	100	87.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	5864.809	496.247	17	91.65	100	5864.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	328440	3.24	317621	103.41	70	125	
Ge	72	1	nogas	1456657	4.10	1478633	98.51	70	125	
In	115	1	nogas	1544523	3.09	1539303	100.34	70	125	
Bi	209	1	nogas	1466475	1.19	1532165	95.71	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	124595	1.12	126743	98.30	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	087_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T12:46:23-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.076	31.5	267	32.3	1	
Na	23	1	nogas	55.012	6.1	2475391	1.4	100	
Mg	24	1	nogas	6.811	6.8	64490	4.9	100	
Al	27	1	nogas	0.360	22.9	20201	3.2	5	
K	39	1	nogas	35.564	72.0	5041874	0.2	100	
Ti	47	1	nogas	0.068	132.2	410	18.4	2.5	
V	51	1	nogas	-37.589	-6.1	1123383	6.4	2.5	
Cr	52	1	nogas	-1.214	-10.2	28976	5.8	2.5	
Mn	55	1	nogas	0.250	16.1	14990	3.4	2.5	
Co	59	1	nogas	0.045	8.1	1130	5.5	2.5	
Ni	60	1	nogas	0.583	5.2	2003	1.0	2.5	
Cu	63	1	nogas	0.119	66.1	5621	6.2	2.5	
Zn	66	1	nogas	0.190	23.4	1060	6.2	2.5	
As	75	1	nogas	-32.705	-9.1	171364	2.8	2.5	
Sr	88	1	nogas	0.033	66.3	2767	8.3	2.5	
Ag	107	1	nogas	0.069	31.5	1187	13.4	2.5	
Cd	111	1	nogas	0.030	42.6	93	27.0	1	
Sb	121	1	nogas	0.717	19.4	7582	13.8	2.5	
Tl	205	1	nogas	0.219	39.5	3887	38.9	1	
Pb	208	1	nogas	0.074	7.1	2230	5.3	2.5	
U	238	1	nogas	0.050	23.7	1443	20.4	2.5	
[Pb]	206	1	nogas	0.073	18.7	607	12.4	2.5	
[Pb]	207	1	nogas	0.058	13.7	467	9.9	2.5	
Na	23	2	He	65.557	5.0	65991	1.6	100	
Mg	24	2	He	4.908	31.8	940	18.6	100	
Al	27	2	He	1.711	110.8	100	65.6	5	
K	39	2	He	23.079	45.1	13935	4.4	100	
Ca	43	2	He	-32.094	-175.9	7	173.2	100	
Ca	44	2	He	2.317	597.1	177	29.0	100	
V	51	2	He	0.275	6.8	696	4.0	2.5	
Cr	52	2	He	-0.299	-28.9	1203	11.9	2.5	
Mn	55	2	He	0.131	30.7	380	7.0	2.5	
Fe	56	2	He	-2.631	-19.6	10123	7.4	100	
Co	59	2	He	0.037	118.4	173	76.8	2.5	
Ni	60	2	He	0.619	8.9	327	13.8	2.5	
Cu	63	2	He	0.396	10.7	1137	9.0	2.5	
Zn	66	2	He	0.242	66.8	97	58.8	2.5	
As	75	2	He	-0.091	-9.0	28	6.9	2.5	
Se	78	2	He	0.221	246.6	6	88.2	2.5	
B	11	1	nogas	92.130	7.5	222378	1.3	10	CCB Main CR1 Failed
Si	28	1	nogas	7.219	171.5	920743	1.5	5	CCB Main CR1 Failed
Ca	43	1	nogas	12.883	24.4	877	1.7	100	
Ca	44	1	nogas	-349.610	-3.1	73203	2.2	100	
Fe	56	1	nogas	-5.441	-71.9	982971	1.6	100	
Se	77	1	nogas	-112.300	-7.9	56986	5.4	2.5	
Se	82	1	nogas	-0.451	-89.4	443	9.1	2.5	
Mo	95	1	nogas	0.088	49.2	607	25.2	2.5	
Sn	118	1	nogas	-0.018	-138.9	1710	7.6	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.084	-24.6	293	17.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.576	23.9	763	20.5	2.5	
P	31	1	nogas	7.562	60.5	63898	0.7	10	
La	139	1	nogas	8.607	136.7	83	36.7	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-17870.018	-99.8	30	33.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	367151	5.07	317621	115.59	70	125	
Ge	72	1	nogas	1502612	4.76	1478633	101.62	70	125	
In	115	1	nogas	1654260	2.17	1539303	107.47	70	125	
Bi	209	1	nogas	1512899	1.63	1532165	98.74	70	125	
Ge	72	2	He	128301	0.49	126743	101.23	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	098_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T13:08:22-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	87.004	5.799	268370	3.98	100	87.0	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10058.211	1.846	121490074	3.72	10000	100.6	90	110	
Mg	24	1	nogas	10202.770	1.097	84251908	3.09	10000	102.0	90	110	
Al	27	1	nogas	97.293	5.034	1039581	1.82	100	97.3	90	110	
K	39	1	nogas	9842.267	3.686	96353752	1.51	10000	98.4	90	110	
Ti	47	1	nogas	95.395	2.040	94103	1.81	100	95.4	90	110	
V	51	1	nogas	45.549	15.829	2459712	3.68	100	45.5	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	99.273	2.904	1307700	2.60	100	99.3	90	110	
Mn	55	1	nogas	103.760	3.461	1629519	0.72	100	103.8	90	110	
Co	59	1	nogas	94.736	3.700	1329440	0.95	100	94.7	90	110	
Ni	60	1	nogas	96.018	3.515	295679	0.37	100	96.0	90	110	
Cu	63	1	nogas	96.791	2.728	729856	0.54	100	96.8	90	110	
Zn	66	1	nogas	98.337	2.408	239704	1.77	100	98.3	90	110	
As	75	1	nogas	52.890	10.686	434959	2.87	100	52.9	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	94.566	1.813	1607602	1.66	100	94.6	90	110	
Ag	107	1	nogas	93.760	5.216	934709	2.10	100	93.8	90	110	
Cd	111	1	nogas	95.127	2.840	200355	1.71	100	95.1	90	110	
Sb	121	1	nogas	92.688	2.459	871416	1.53	100	92.7	90	110	
Tl	205	1	nogas	93.523	1.047	1638687	0.82	100	93.5	90	110	
Pb	208	1	nogas	102.452	0.527	2297467	0.53	100	102.5	90	110	
U	238	1	nogas	101.381	1.675	2513743	1.88	100	101.4	90	110	
[Pb]	206	1	nogas	91.180	1.545	554545	0.75	100	91.2	90	110	
[Pb]	207	1	nogas	92.272	1.780	511236	0.87	100	92.3	90	110	
Na	23	2	He	9656.359	2.041	2365403	2.04	10000	96.6	90	110	
Mg	24	2	He	9594.784	2.149	1122456	1.97	10000	95.9	90	110	
Al	27	2	He	88.943	3.493	3154	3.25	100	88.9	90	110	CCV Main CR1-2 Failed
K	39	2	He	9598.947	0.485	584163	0.47	10000	96.0	90	110	
Ca	43	2	He	10241.757	2.251	2157	2.19	10000	102.4	90	110	
Ca	44	2	He	8927.150	0.690	33380	0.74	10000	89.3	90	110	CCV Main CR1-2 Failed
V	51	2	He	91.865	0.827	124996	0.64	100	91.9	90	110	
Cr	52	2	He	94.472	1.952	167398	1.74	100	94.5	90	110	
Mn	55	2	He	93.196	0.059	67020	0.18	100	93.2	90	110	
Fe	56	2	He	9263.668	0.404	13100013	0.24	10000	92.6	90	110	
Co	59	2	He	94.803	1.313	289033	1.51	100	94.8	90	110	
Ni	60	2	He	95.544	1.211	81625	1.40	100	95.5	90	110	
Cu	63	2	He	97.180	2.644	229502	2.78	100	97.2	90	110	
Zn	66	2	He	96.832	1.538	35044	1.72	100	96.8	90	110	
As	75	2	He	95.667	1.541	24517	1.72	100	95.7	90	110	
Se	78	2	He	96.491	4.136	952	4.01	100	96.5	90	110	
B	11	1	nogas	585.711	5.431	1197251	3.63	500	117.1	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	5100.016	5.701	24410112	2.36	5000	102.0	90	110	
Ca	43	1	nogas	9615.760	4.478	179890	1.83	10000	96.2	90	110	
Ca	44	1	nogas	9395.884	5.450	2973548	3.21	10000	94.0	90	110	
Fe	56	1	nogas	9809.359	2.667	145262149	0.83	10000	98.1	90	110	
Se	77	1	nogas	-69.371	-25.894	69476	4.78	100	-69.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	93.478	1.270	13942	2.70	100	93.5	90	110	
Mo	95	1	nogas	92.487	0.488	340112	3.34	100	92.5	90	110	
Sn	118	1	nogas	93.308	3.111	543722	1.19	100	93.3	90	110	
Ba	137	1	nogas	92.212	4.968	260018	2.02	100	92.2	90	110	
Sb	121	2	He	92.326	0.741	104630	0.94	100	92.3	90	110	
Li	7	1	nogas	95.978	3.249	739800	1.86	100	96.0	90	110	
P	31	1	nogas	488.264	6.500	392718	2.59	500	97.7	90	110	
La	139	1	nogas	113.634	17.644	373	12.08	100	113.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	13571.037	203.460	13	114.56	100	13571.0	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	368240	2.23	317621	115.94	70	125	
Ge	72	1	nogas	1558255	3.18	1478633	105.38	70	125	
In	115	1	nogas	1688685	3.32	1539303	109.70	70	125	
Bi	209	1	nogas	1569160	0.92	1532165	102.41	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	130510	0.20	126743	102.97	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	099_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T13:10:17-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.086	33.9	313	32.0	1	
Na	23	1	nogas	-2.423	-263.3	1857587	1.2	100	
Mg	24	1	nogas	6.175	24.1	61379	20.0	100	
Al	27	1	nogas	0.494	34.7	23501	8.7	5	
K	39	1	nogas	-6.420	-113.1	5087078	0.8	100	
Ti	47	1	nogas	0.002	3042.5	380	13.7	2.5	
V	51	1	nogas	-51.726	-10.9	991513	9.7	2.5	
Cr	52	1	nogas	-1.408	-8.1	28970	5.7	2.5	
Mn	55	1	nogas	0.169	8.3	15010	1.9	2.5	
Co	59	1	nogas	0.042	24.1	1187	12.0	2.5	
Ni	60	1	nogas	0.413	12.3	1633	9.4	2.5	
Cu	63	1	nogas	-0.024	-97.7	5007	3.1	2.5	
Zn	66	1	nogas	0.131	12.4	1007	3.5	2.5	
As	75	1	nogas	-37.681	-8.4	171120	5.9	2.5	
Sr	88	1	nogas	0.020	80.3	2804	11.0	2.5	
Ag	107	1	nogas	0.076	25.6	1363	15.1	2.5	
Cd	111	1	nogas	0.041	61.5	123	46.8	1	
Sb	121	1	nogas	0.729	12.7	8406	10.8	2.5	
Tl	205	1	nogas	0.228	34.1	4327	35.7	1	
Pb	208	1	nogas	0.081	32.1	2390	24.3	2.5	
U	238	1	nogas	0.046	25.9	1440	24.2	2.5	
[Pb]	206	1	nogas	0.062	31.9	580	24.4	2.5	
[Pb]	207	1	nogas	0.066	48.6	547	36.8	2.5	
Na	23	2	He	2.064	346.1	52680	3.6	100	
Mg	24	2	He	2.800	21.6	720	8.4	100	
Al	27	2	He	3.015	62.1	150	46.2	5	
K	39	2	He	21.959	52.6	13869	5.0	100	
Ca	43	2	He	76.842	62.2	30	33.3	100	
Ca	44	2	He	-6.170	-159.9	150	24.0	100	
V	51	2	He	0.226	14.9	650	6.3	2.5	
Cr	52	2	He	-0.331	-15.7	1187	9.2	2.5	
Mn	55	2	He	0.120	86.2	383	17.8	2.5	
Fe	56	2	He	-2.231	-16.7	11017	3.1	100	
Co	59	2	He	0.036	34.2	173	21.8	2.5	
Ni	60	2	He	0.559	21.5	287	38.3	2.5	
Cu	63	2	He	0.355	4.3	1073	1.9	2.5	
Zn	66	2	He	0.260	34.3	107	30.1	2.5	
As	75	2	He	-0.073	-30.4	33	17.3	2.5	
Se	78	2	He	0.935	42.5	13	31.2	2.5	
B	11	1	nogas	110.170	2.0	273785	1.8	10	CCB Main CR1 Failed
Si	28	1	nogas	-22.746	-11.1	859252	1.1	5	
Ca	43	1	nogas	6.436	42.4	830	6.0	100	
Ca	44	1	nogas	-373.617	-1.3	72289	1.9	100	
Fe	56	1	nogas	-13.164	-7.3	952787	1.0	100	
Se	77	1	nogas	-136.449	-9.8	55903	6.2	2.5	
Se	82	1	nogas	-0.545	-124.1	470	21.6	2.5	
Mo	95	1	nogas	0.124	38.2	800	22.9	2.5	
Sn	118	1	nogas	-0.046	-30.4	1627	6.2	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.078	-16.0	327	9.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.602	7.5	817	4.9	2.5	
P	31	1	nogas	4.712	31.3	67638	1.9	10	
La	139	1	nogas	10.473	98.4	93	32.7	2.5	CCB Main CR1 Failed
Au	197	1	nogas	20317.331	83.0	10	100.0	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	389135	1.85	317621	122.52	70	125	
Ge	72	1	nogas	1635951	0.64	1478633	110.64	70	125	
In	115	1	nogas	1733974	1.84	1539303	112.65	70	125	
Bi	209	1	nogas	1615507	3.28	1532165	105.44	70	125	
Ge	72	2	He	132450	1.76	126743	104.50	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	110_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T13:32:24-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	94.850	3.289	282782	0.92	100	94.9	90	110	
Na	23	1	nogas	9948.110	1.954	123505415	1.99	10000	99.5	90	110	
Mg	24	1	nogas	10147.660	1.655	86116717	1.16	10000	101.5	90	110	
Al	27	1	nogas	95.567	2.716	1068291	2.22	100	95.6	90	110	
K	39	1	nogas	9509.404	1.925	97508496	1.76	10000	95.1	90	110	
Ti	47	1	nogas	94.514	1.969	97446	1.28	100	94.5	90	110	
V	51	1	nogas	84.417	4.995	3204393	1.12	100	84.4	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	94.196	3.276	1299320	2.89	100	94.2	90	110	
Mn	55	1	nogas	98.869	2.500	1623839	1.37	100	98.9	90	110	
Co	59	1	nogas	94.349	4.077	1384184	3.31	100	94.3	90	110	
Ni	60	1	nogas	94.011	2.729	302679	1.95	100	94.0	90	110	
Cu	63	1	nogas	94.467	0.452	744866	1.28	100	94.5	90	110	
Zn	66	1	nogas	96.078	2.504	244785	1.38	100	96.1	90	110	
As	75	1	nogas	66.865	7.912	498567	2.95	100	66.9	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	94.706	2.413	1682551	1.32	100	94.7	90	110	
Ag	107	1	nogas	91.033	1.835	949294	1.91	100	91.0	90	110	
Cd	111	1	nogas	97.260	1.766	199986	1.56	100	97.3	90	110	
Sb	121	1	nogas	89.995	1.835	884467	1.70	100	90.0	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	97.624	2.649	1663492	1.13	100	97.6	90	110	
Pb	208	1	nogas	104.144	0.727	2335389	0.73	100	104.1	90	110	
U	238	1	nogas	100.391	3.631	2420290	1.77	100	100.4	90	110	
[Pb]	206	1	nogas	95.914	1.667	567361	0.44	100	95.9	90	110	
[Pb]	207	1	nogas	96.417	2.680	519531	1.24	100	96.4	90	110	
Na	23	2	He	10099.802	3.369	2474061	1.87	10000	101.0	90	110	
Mg	24	2	He	9929.112	3.767	1162624	2.19	10000	99.3	90	110	
Al	27	2	He	98.391	5.764	3487	4.31	100	98.4	90	110	
K	39	2	He	9952.757	0.284	605231	0.28	10000	99.5	90	110	
Ca	43	2	He	9360.036	6.177	1973	4.25	10000	93.6	90	110	
Ca	44	2	He	9536.813	2.507	35688	1.72	10000	95.4	90	110	
V	51	2	He	96.000	2.940	130739	1.49	100	96.0	90	110	
Cr	52	2	He	97.671	1.915	173210	1.23	100	97.7	90	110	
Mn	55	2	He	95.370	3.240	68638	1.09	100	95.4	90	110	
Fe	56	2	He	9605.491	3.346	13596211	1.97	10000	96.1	90	110	
Co	59	2	He	97.049	4.941	296089	3.06	100	97.0	90	110	
Ni	60	2	He	98.696	5.385	84375	3.40	100	98.7	90	110	
Cu	63	2	He	98.361	2.958	232503	0.80	100	98.4	90	110	
Zn	66	2	He	98.459	1.840	35675	1.83	100	98.5	90	110	
As	75	2	He	97.788	1.930	25086	0.79	100	97.8	90	110	
Se	78	2	He	102.624	6.961	1013	6.47	100	102.6	90	110	
B	11	1	nogas	592.824	2.495	1170812	0.75	500	118.6	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4948.537	2.871	24803965	2.56	5000	99.0	90	110	
Ca	43	1	nogas	9593.889	1.989	187697	1.99	10000	95.9	90	110	
Ca	44	1	nogas	9132.750	4.011	3027251	3.06	10000	91.3	90	110	
Fe	56	1	nogas	9558.232	1.258	147996045	0.63	10000	95.6	90	110	
Se	77	1	nogas	-1.035	-1644.209	89982	4.42	100	-1.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.167	3.593	14970	2.42	100	96.2	90	110	
Mo	95	1	nogas	93.545	2.734	359382	2.12	100	93.5	90	110	
Sn	118	1	nogas	96.676	2.107	549955	1.75	100	96.7	90	110	
Ba	137	1	nogas	98.488	3.523	271241	3.54	100	98.5	90	110	
Sb	121	2	He	93.840	2.946	106443	0.79	100	93.8	90	110	
Li	7	1	nogas	100.688	2.964	748678	3.73	100	100.7	90	110	
P	31	1	nogas	467.820	0.749	396289	1.22	500	93.6	90	110	
La	139	1	nogas	89.238	18.422	300	15.27	100	89.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	19391.149	93.458	10	100.00	100	19391.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	355883	3.08	317621	112.05	70	125	
Ge	72	1	nogas	1628213	1.15	1478633	110.12	70	125	
In	115	1	nogas	1647787	0.59	1539303	107.05	70	125	
Bi	209	1	nogas	1526390	1.84	1532165	99.62	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	130688	2.16	126743	103.11	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	111_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T13:34:22-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.077	11.9	283	11.3	1	
Na	23	1	nogas	-11.806	-22.1	1774611	2.0	100	
Mg	24	1	nogas	5.990	16.2	60944	13.1	100	
Al	27	1	nogas	1.145	16.0	30505	8.6	5	
K	39	1	nogas	-15.322	-199.5	4959598	0.9	100	
Ti	47	1	nogas	0.208	65.4	590	25.0	2.5	
V	51	1	nogas	-2.767	-179.8	1779007	0.7	2.5	
Cr	52	1	nogas	-0.757	-12.4	37398	2.6	2.5	
Mn	55	1	nogas	0.271	15.6	16554	3.1	2.5	
Co	59	1	nogas	0.047	31.5	1247	17.8	2.5	
Ni	60	1	nogas	0.424	12.7	1657	10.1	2.5	
Cu	63	1	nogas	-0.050	-70.1	4764	1.0	2.5	
Zn	66	1	nogas	0.123	37.9	983	16.4	2.5	
As	75	1	nogas	-19.825	-20.3	225840	5.4	2.5	
Sr	88	1	nogas	0.020	87.1	2774	6.6	2.5	
Ag	107	1	nogas	0.062	12.9	1220	10.7	2.5	
Cd	111	1	nogas	0.035	31.1	110	18.2	1	
Sb	121	1	nogas	0.647	22.2	7508	14.5	2.5	
Tl	205	1	nogas	0.214	38.7	4017	34.0	1	
Pb	208	1	nogas	0.081	29.5	2393	22.3	2.5	
U	238	1	nogas	0.058	21.1	1723	15.1	2.5	
[Pb]	206	1	nogas	0.064	29.3	590	17.2	2.5	
[Pb]	207	1	nogas	0.063	47.1	523	29.6	2.5	
Na	23	2	He	-10.819	-20.0	49896	1.4	100	
Mg	24	2	He	4.267	20.5	900	10.0	100	
Al	27	2	He	2.784	71.7	143	52.4	5	
K	39	2	He	6.890	124.5	12971	3.9	100	
Ca	43	2	He	-64.683	0.0	0	#DIV/0!	100	
Ca	44	2	He	11.865	27.0	220	7.9	100	
V	51	2	He	0.604	0.6	1179	2.3	2.5	
Cr	52	2	He	-0.267	-18.7	1307	4.5	2.5	
Mn	55	2	He	0.210	40.2	453	14.7	2.5	
Fe	56	2	He	-0.776	-46.6	13195	1.9	100	
Co	59	2	He	0.028	50.7	150	29.1	2.5	
Ni	60	2	He	0.588	6.5	313	13.3	2.5	
Cu	63	2	He	0.335	23.1	1037	20.0	2.5	
Zn	66	2	He	0.386	37.0	153	32.2	2.5	
As	75	2	He	-0.002	-825.0	52	9.7	2.5	
Se	78	2	He	0.204	266.0	6	88.2	2.5	
B	11	1	nogas	93.374	2.8	238395	3.8	10	CCB Main CR1 Failed
Si	28	1	nogas	-15.988	-51.1	885157	0.6	5	
Ca	43	1	nogas	14.630	83.0	977	18.9	100	
Ca	44	1	nogas	-394.276	-2.4	65334	0.9	100	
Fe	56	1	nogas	-11.221	-32.3	975065	2.4	100	
Se	77	1	nogas	-62.843	-26.1	74138	5.5	2.5	
Se	82	1	nogas	-1.154	-43.0	377	21.3	2.5	
Mo	95	1	nogas	0.080	118.9	613	53.3	2.5	
Sn	118	1	nogas	-0.015	-253.0	1833	9.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.049	-33.6	413	9.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.533	12.7	743	11.6	2.5	
P	31	1	nogas	0.310	1696.8	63972	1.3	10	
La	139	1	nogas	19.779	78.5	120	33.3	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-14558.442	-119.1	30	33.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	388449	1.75	317621	122.30	70	125	
Ge	72	1	nogas	1625829	5.05	1478633	109.95	70	125	
In	115	1	nogas	1758014	3.64	1539303	114.21	70	125	
Bi	209	1	nogas	1616145	2.76	1532165	105.48	70	125	
Ge	72	2	He	133400	2.44	126743	105.25	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	122_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T13:56:35-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	98.068	2.666	258313	1.48	100	98.1	90	110	
Na	23	1	nogas	9848.197	2.612	110878048	1.76	10000	98.5	90	110	
Mg	24	1	nogas	9985.209	3.544	76838139	2.98	10000	99.9	90	110	
Al	27	1	nogas	95.163	3.836	961549	2.99	100	95.2	90	110	
K	39	1	nogas	9445.684	3.715	87561446	2.22	10000	94.5	90	110	
Ti	47	1	nogas	92.765	3.658	86439	1.87	100	92.8	90	110	
V	51	1	nogas	98.359	1.988	3102776	2.47	100	98.4	90	110	
Cr	52	1	nogas	94.422	5.940	1177443	6.05	100	94.4	90	110	
Mn	55	1	nogas	100.599	3.462	1494363	5.29	100	100.6	90	110	
Co	59	1	nogas	91.314	3.686	1211158	3.44	100	91.3	90	110	
Ni	60	1	nogas	93.406	1.712	271857	0.95	100	93.4	90	110	
Cu	63	1	nogas	94.109	4.957	670414	3.08	100	94.1	90	110	
Zn	66	1	nogas	97.405	5.312	224229	3.46	100	97.4	90	110	
As	75	1	nogas	74.284	5.292	471843	3.24	100	74.3	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	93.278	2.730	1498066	2.00	100	93.3	90	110	
Ag	107	1	nogas	93.058	2.307	877081	1.47	100	93.1	90	110	
Cd	111	1	nogas	96.848	1.760	184289	1.51	100	96.8	90	110	
Sb	121	1	nogas	91.286	4.794	810619	3.13	100	91.3	90	110	
Tl	205	1	nogas	92.733	6.142	1493901	3.28	100	92.7	90	110	
Pb	208	1	nogas	96.399	0.536	2161770	0.54	100	96.4	90	110	
U	238	1	nogas	98.468	1.014	2247468	3.41	100	98.5	90	110	
[Pb]	206	1	nogas	92.759	5.688	518672	2.11	100	92.8	90	110	
[Pb]	207	1	nogas	94.297	3.563	480598	0.18	100	94.3	90	110	
Na	23	2	He	9745.947	3.266	2193277	1.09	10000	97.5	90	110	
Mg	24	2	He	9364.196	3.577	1006672	1.94	10000	93.6	90	110	
Al	27	2	He	101.378	6.423	3300	7.44	100	101.4	90	110	
K	39	2	He	9105.619	1.931	554786	1.89	10000	91.1	90	110	
Ca	43	2	He	10294.767	11.463	1993	11.85	10000	102.9	90	110	
Ca	44	2	He	9137.408	0.556	31404	1.60	10000	91.4	90	110	
V	51	2	He	94.243	2.565	117843	1.46	100	94.2	90	110	
Cr	52	2	He	96.369	2.106	156915	1.21	100	96.4	90	110	
Mn	55	2	He	92.093	2.878	60861	0.75	100	92.1	90	110	
Fe	56	2	He	9277.621	2.941	12056398	1.12	10000	92.8	90	110	
Co	59	2	He	95.722	1.838	268238	1.76	100	95.7	90	110	
Ni	60	2	He	97.366	1.445	76459	1.27	100	97.4	90	110	
Cu	63	2	He	98.814	3.213	214450	2.18	100	98.8	90	110	
Zn	66	2	He	93.454	1.936	31084	0.18	100	93.5	90	110	
As	75	2	He	95.564	2.320	22507	1.22	100	95.6	90	110	
Se	78	2	He	99.388	7.443	901	5.89	100	99.4	90	110	
B	11	1	nogas	528.392	5.502	925345	3.39	500	105.7	90	110	
Si	28	1	nogas	4919.294	4.812	22290270	3.97	5000	98.4	90	110	
Ca	43	1	nogas	9526.438	4.268	168432	3.11	10000	95.3	90	110	
Ca	44	1	nogas	9171.216	4.385	2747355	3.62	10000	91.7	90	110	
Fe	56	1	nogas	9573.694	1.339	134035511	3.15	10000	95.7	90	110	
Se	77	1	nogas	30.355	44.977	88545	3.47	100	30.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	92.225	1.494	13002	2.32	100	92.2	90	110	
Mo	95	1	nogas	91.055	4.258	316123	2.41	100	91.1	90	110	
Sn	118	1	nogas	94.489	2.994	497348	0.27	100	94.5	90	110	
Ba	137	1	nogas	96.212	4.174	245096	1.28	100	96.2	90	110	
Sb	121	2	He	92.379	2.480	96207	0.41	100	92.4	90	110	
Li	7	1	nogas	100.254	2.384	658450	2.02	100	100.3	90	110	
P	31	1	nogas	470.150	1.090	359710	1.16	500	94.0	90	110	
La	139	1	nogas	127.649	14.205	373	13.48	100	127.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-33866.626	-69.822	37	31.49	100	-33866.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	314306	1.88	317621	98.96	70	125	
Ge	72	1	nogas	1471907	1.85	1478633	99.55	70	125	
In	115	1	nogas	1525345	2.94	1539303	99.09	70	125	
Bi	209	1	nogas	1444613	3.80	1532165	94.29	70	125	
Ge	72	2	He	119978	2.11	126743	94.66	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	123_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T13:58:35-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.077	32.2	257	29.2	1	
Na	23	1	nogas	-0.397	-516.7	1720734	1.1	100	
Mg	24	1	nogas	6.141	27.4	55728	21.5	100	
Al	27	1	nogas	1.010	1.4	26673	2.4	5	
K	39	1	nogas	-12.159	-91.3	4595665	0.9	100	
Ti	47	1	nogas	0.019	434.9	363	21.0	2.5	
V	51	1	nogas	13.186	25.0	1876978	4.1	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.742	-13.5	34606	5.1	2.5	
Mn	55	1	nogas	0.255	15.8	14990	2.4	2.5	
Co	59	1	nogas	0.042	20.1	1087	9.2	2.5	
Ni	60	1	nogas	0.432	6.5	1550	5.3	2.5	
Cu	63	1	nogas	-0.098	-19.1	4047	3.8	2.5	
Zn	66	1	nogas	0.097	19.6	840	7.2	2.5	
As	75	1	nogas	-12.452	-19.5	229138	4.7	2.5	
Sr	88	1	nogas	0.022	107.1	2584	13.6	2.5	
Ag	107	1	nogas	0.065	35.7	1140	18.4	2.5	
Cd	111	1	nogas	0.023	33.8	77	19.9	1	
Sb	121	1	nogas	0.523	12.8	5818	8.7	2.5	
Tl	205	1	nogas	0.260	44.0	4257	41.7	1	
Pb	208	1	nogas	0.079	42.9	2343	32.3	2.5	
U	238	1	nogas	0.055	37.2	1447	30.2	2.5	
[Pb]	206	1	nogas	0.078	48.1	597	34.5	2.5	
[Pb]	207	1	nogas	0.082	45.6	553	32.8	2.5	
Na	23	2	He	13.319	69.9	50310	2.4	100	
Mg	24	2	He	2.745	29.6	650	15.6	100	
Al	27	2	He	3.868	9.4	163	9.4	5	
K	39	2	He	2.633	83.3	12718	1.0	100	
Ca	43	2	He	3.318	2311.5	13	114.6	100	
Ca	44	2	He	-8.050	-60.5	130	13.3	100	
V	51	2	He	0.742	4.0	1236	0.6	2.5	
Cr	52	2	He	-0.319	-31.6	1097	14.5	2.5	
Mn	55	2	He	0.232	57.5	423	21.2	2.5	
Fe	56	2	He	-0.787	-24.4	11894	3.9	100	
Co	59	2	He	0.054	47.8	207	32.9	2.5	
Ni	60	2	He	0.755	19.1	413	26.5	2.5	
Cu	63	2	He	0.329	6.0	920	2.9	2.5	
Zn	66	2	He	0.292	54.2	107	47.2	2.5	
As	75	2	He	-0.051	-111.4	36	39.0	2.5	
Se	78	2	He	-0.181	-118.9	2	100.0	2.5	
B	11	1	nogas	40.643	16.4	115500	6.2	10	CCB Main CR1 Failed
Si	28	1	nogas	-3.577	-140.9	869573	0.9	5	
Ca	43	1	nogas	15.806	17.6	927	7.2	100	
Ca	44	1	nogas	-397.451	-2.1	59217	2.3	100	
Fe	56	1	nogas	-11.551	-36.4	892763	5.5	100	
Se	77	1	nogas	-29.842	-29.4	75911	3.7	2.5	
Se	82	1	nogas	-0.370	-140.2	453	15.0	2.5	
Mo	95	1	nogas	0.111	80.6	680	44.9	2.5	
Sn	118	1	nogas	-0.035	-102.3	1550	10.6	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.077	-5.3	300	6.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.464	22.8	597	16.8	2.5	
P	31	1	nogas	-0.039	-7578.9	58678	2.1	10	
La	139	1	nogas	5.950	50.1	73	7.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	17001.366	209.3	10	173.2	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	350367	5.54	317621	110.31	70	125	
Ge	72	1	nogas	1494654	1.91	1478633	101.08	70	125	
In	115	1	nogas	1587653	3.72	1539303	103.14	70	125	
Bi	209	1	nogas	1415252	3.89	1532165	92.37	70	125	
Ge	72	2	He	120308	2.55	126743	94.92	70	125	

Sample Report

Sample Table

Sample Name	MBLK-123278
Data File Name	124SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:00:38-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.017	0.017	69.54	80	0.02	2000	
Na	23	1	nogas	-22.502	-22.502	-24.42	1553739	0.00	200000	
Mg	24	1	nogas	10.695	10.695	5.18	96696	0.01	200000	
Al	27	1	nogas	4.083	4.083	3.81	60699	0.01	2000	
K	39	1	nogas	-33.248	-33.248	-35.01	4636960	0.00	200000	
Ti	47	1	nogas	-0.088	-0.088	-59.02	277	-0.03	2000	
V	51	1	nogas	2.406	2.406	137.23	1804362	0.00	2000	
Cr	52	1	nogas	-0.981	-0.981	-16.46	33327	0.00	2000	
Mn	55	1	nogas	-0.086	-0.086	-8.42	10413	0.00	2000	
Co	59	1	nogas	-0.009	-0.009	-48.83	423	0.00	2000	
Ni	60	1	nogas	0.409	0.409	2.51	1560	0.03	2000	
Cu	63	1	nogas	-0.171	-0.171	-9.67	3700	0.00	2000	
Zn	66	1	nogas	0.220	0.220	20.78	1187	0.02	2000	
As	75	1	nogas	-19.658	-19.658	-21.38	219094	-0.01	2000	
Sr	88	1	nogas	-0.047	-0.047	-19.70	1543	0.00	2000	
Ag	107	1	nogas	0.022	0.022	36.70	770	0.00	2000	
Cd	111	1	nogas	0.001	0.001	1840.01	33	0.00	2000	
Sb	121	1	nogas	0.078	0.078	13.47	1907	0.00	2000	
Tl	205	1	nogas	0.025	0.025	6.26	620	0.00	2000	
Pb	208	1	nogas	0.004	0.004	129.42	663	0.00	2000	
U	238	1	nogas	-0.004	-0.004	-21.64	153	0.00	2000	
[Pb]	206	1	nogas	-0.004	-0.004	-122.88	163	0.00	2000	
[Pb]	207	1	nogas	-0.006	-0.006	-70.42	127	-0.01	2000	
Na	23	2	He	-15.211	-15.211	-48.50	47847	-0.03	200000	
Mg	24	2	He	9.638	9.638	6.29	1513	0.64	200000	
Al	27	2	He	7.529	7.529	26.57	307	2.46	2000	
K	39	2	He	0.448	0.448	2014.68	12588	0.00	200000	
Ca	43	2	He	-1.532	-1.532	-1667.79	13	-11.49	200000	
Ca	44	2	He	-11.830	-11.830	-113.06	127	-9.34	200000	
V	51	2	He	0.642	0.642	8.16	1207	0.05	2000	
Cr	52	2	He	-0.349	-0.349	-2.60	1140	-0.03	2000	
Mn	55	2	He	-0.185	-0.185	-36.54	160	-0.12	2000	
Fe	56	2	He	-4.680	-4.680	-5.44	7412	-0.06	200000	
Co	59	2	He	0.004	0.004	335.73	73	0.01	2000	
Ni	60	2	He	0.669	0.669	7.56	377	0.18	2000	
Cu	63	2	He	0.271	0.271	7.54	863	0.03	2000	
Zn	66	2	He	0.404	0.404	30.25	157	0.26	2000	
As	75	2	He	-0.054	-0.054	-84.49	38	-0.14	2000	
Se	78	2	He	0.215	0.215	170.60	6	3.59	2000	
B	11	1	nogas	43.515	43.515	5.16	124409	0.03	2000	
Si	28	1	nogas	70.981	70.981	16.77	1261497	0.01	2000	
Ca	43	1	nogas	1.713	1.713	345.64	710	0.24	200000	

Sample Report

Ca	44	1	nogas	-416.532	-416.532	-1.19	56586	-0.74	200000	
Fe	56	1	nogas	-18.831	-18.831	-4.41	831792	0.00	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	-55.618	-55.618	-20.34	73528	-0.08	2000	
Se	82	1	nogas	-0.811	-0.811	-35.33	413	-0.20	2000	
Mo	95	1	nogas	-0.045	-0.045	-26.21	140	-0.03	2000	
Sn	118	1	nogas	-0.202	-0.202	-9.47	667	-0.03	2000	
Ba	137	1	nogas	0.189	0.189	17.92	1050	0.02	2000	
Sb	121	2	He	0.129	0.129	58.72	270	0.05	2000	
La	139	1	nogas	3.475	3.475	286.01	70	4.96	2000	
Au	197	1	nogas	1758.219	1758.219	1816.99	20	8791.09	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	359401	2.28	317621	113.15	70	125	
Ge	72	1	nogas	1572483	1.86	1478633	106.35	70	125	
In	115	1	nogas	1659386	0.91	1539303	107.80	70	125	
Bi	209	1	nogas	1591611	2.66	1532165	103.88	70	125	
Ge	72	2	He	130780	2.63	126743	103.18	70	125	

Sample Report

Sample Table

Sample Name	LCS-123278
Data File Name	125SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:02:38-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	44.925	44.925	7.62	129259	0.03	2000	
Na	23	1	nogas	4469.291	4469.291	4.95	57495680	0.01	200000	
Mg	24	1	nogas	4584.140	4584.140	5.15	39586121	0.01	200000	
Al	27	1	nogas	91.455	91.455	2.64	990338	0.01	2000	
K	39	1	nogas	4477.967	4477.967	4.92	47065054	0.01	200000	
Ti	47	1	nogas	136.185	136.185	3.40	135734	0.10	2000	
V	51	1	nogas	25.666	25.666	29.07	2174762	0.00	2000	
Cr	52	1	nogas	42.514	42.514	3.71	592852	0.01	2000	
Mn	55	1	nogas	45.536	45.536	2.64	730424	0.01	2000	
Co	59	1	nogas	43.826	43.826	2.00	622807	0.01	2000	
Ni	60	1	nogas	47.127	47.127	5.04	147014	0.03	2000	
Cu	63	1	nogas	46.834	46.834	3.50	359894	0.01	2000	
Zn	66	1	nogas	48.475	48.475	2.57	119869	0.04	2000	
As	75	1	nogas	8.697	8.697	28.58	305778	0.00	2000	
Sr	88	1	nogas	87.891	87.891	0.52	1511854	0.01	2000	
Ag	107	1	nogas	44.795	44.795	0.18	452456	0.01	2000	
Cd	111	1	nogas	45.446	45.446	1.61	95864	0.05	2000	
Sb	121	1	nogas	45.032	45.032	2.86	428920	0.01	2000	
Tl	205	1	nogas	45.346	45.346	3.56	779879	0.01	2000	
Pb	208	1	nogas	48.854	48.854	2.85	1095851	0.00	2000	
U	238	1	nogas	91.200	91.200	2.88	2219974	0.00	2000	
[Pb]	206	1	nogas	45.583	45.583	3.85	272194	0.02	2000	
[Pb]	207	1	nogas	44.773	44.773	4.77	243552	0.02	2000	
Na	23	2	He	4472.089	4472.089	3.57	1146967	0.39	200000	
Mg	24	2	He	4406.900	4406.900	2.29	526554	0.84	200000	
Al	27	2	He	83.437	83.437	4.34	3027	2.76	2000	
K	39	2	He	4668.946	4668.946	2.00	290589	1.61	200000	
Ca	43	2	He	4386.219	4386.219	9.07	953	460.07	200000	
Ca	44	2	He	4501.841	4501.841	1.65	17275	26.06	200000	
V	51	2	He	43.246	43.246	3.44	60241	0.07	2000	
Cr	52	2	He	44.489	44.489	3.85	81409	0.05	2000	
Mn	55	2	He	43.054	43.054	1.73	31778	0.14	2000	
Fe	56	2	He	4327.021	4327.021	2.32	6254569	0.07	200000	
Co	59	2	He	44.472	44.472	3.25	138423	0.03	2000	
Ni	60	2	He	45.069	45.069	5.55	39172	0.12	2000	
Cu	63	2	He	45.310	45.310	4.12	109316	0.04	2000	
Zn	66	2	He	46.708	46.708	5.39	17252	0.27	2000	
As	75	2	He	44.183	44.183	2.90	11586	0.38	2000	
Se	78	2	He	42.670	42.670	20.11	431	9.89	2000	
B	11	1	nogas	487.929	487.929	6.38	936925	0.05	2000	
Si	28	1	nogas	4802.350	4802.350	1.21	23327615	0.02	2000	>LDR
Ca	43	1	nogas	4595.850	4595.850	4.70	87369	5.26	200000	
Ca	44	1	nogas	4189.724	4189.724	6.01	1442721	0.29	200000	
Fe	56	1	nogas	4437.314	4437.314	1.62	67110870	0.01	200000	

Sample Report

Se	77	1	nogas	-84.521	-84.521	-12.15	66592	-0.13	2000	
Se	82	1	nogas	43.205	43.205	7.22	6801	0.64	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	43.014	43.014	3.58	160126	0.03	2000	
Sn	118	1	nogas	88.149	88.149	0.28	514524	0.02	2000	
Ba	137	1	nogas	42.948	42.948	1.65	121611	0.04	2000	
Sb	121	2	He	45.683	45.683	4.81	52887	0.09	2000	
La	139	1	nogas	24.685	24.685	36.93	130	18.99	2000	
Au	197	1	nogas	1548.895	1548.895	1109.11	20	7744.48	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	343927	4.41	317621	108.28	70	125	
Ge	72	1	nogas	1576049	1.10	1478633	106.59	70	125	
In	115	1	nogas	1690110	1.17	1539303	109.80	70	125	
Bi	209	1	nogas	1541336	3.76	1532165	100.60	70	125	
Ge	72	2	He	133310	3.45	126743	105.18	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-01
Data File Name	128SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:08:42-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.063	0.063	40.34	180	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	155728.265	155728.265	3.07	1284537662	0.01	200000	
Al	27	1	nogas	70.447	70.447	0.76	734727	0.01	2000	
K	39	1	nogas	1095.958	1095.958	5.06	14622257	0.01	200000	
Ti	47	1	nogas	1.604	1.604	10.29	1880	0.09	2000	
V	51	1	nogas	-30.453	-30.453	-3.64	1236271	0.00	2000	
Cr	52	1	nogas	-0.508	-0.508	-7.68	37832	0.00	2000	
Mn	55	1	nogas	41.091	41.091	2.20	632416	0.01	2000	
Co	59	1	nogas	0.583	0.583	0.97	8452	0.01	2000	
Ni	60	1	nogas	9.979	9.979	3.56	30042	0.03	2000	
Cu	63	1	nogas	2.275	2.275	4.33	21316	0.01	2000	
Zn	66	1	nogas	9.300	9.300	5.01	22521	0.04	2000	
As	75	1	nogas	-26.987	-26.987	-6.93	189087	-0.01	2000	
Sr	88	1	nogas	5747.472	5747.472	3.03	94536775	0.01	2000	>LDR
Ag	107	1	nogas	0.001	0.001	105.81	537	0.00	2000	
Cd	111	1	nogas	0.395	0.395	13.37	803	0.05	2000	
Sb	121	1	nogas	0.169	0.169	9.00	2660	0.01	2000	
Tl	205	1	nogas	0.019	0.019	24.08	467	0.00	2000	
Pb	208	1	nogas	0.619	0.619	3.60	14456	0.00	2000	
U	238	1	nogas	5.668	5.668	4.26	128787	0.00	2000	
[Pb]	206	1	nogas	0.637	0.637	6.72	3714	0.02	2000	
[Pb]	207	1	nogas	0.538	0.538	7.68	2874	0.02	2000	
Na	23	2	He	479581.594	479581.594	2.30	113467628	0.42	200000	>LDR
Mg	24	2	He	147157.575	147157.575	3.08	16983590	0.87	200000	
Al	27	2	He	70.084	70.084	8.89	2464	2.84	2000	
K	39	2	He	1100.984	1100.984	2.06	78123	1.41	200000	
Ca	43	2	He	295048.923	295048.923	0.58	60961	484.00	200000	>LDR
Ca	44	2	He	271394.043	271394.043	0.54	996783	27.23	200000	>LDR
V	51	2	He	1.277	1.277	2.75	2039	0.06	2000	
Cr	52	2	He	0.236	0.236	54.85	2133	0.01	2000	
Mn	55	2	He	38.537	38.537	2.53	27531	0.14	2000	
Fe	56	2	He	77.342	77.342	1.83	121694	0.06	200000	
Co	59	2	He	0.355	0.355	2.29	1130	0.03	2000	
Ni	60	2	He	7.693	7.693	5.24	6308	0.12	2000	
Cu	63	2	He	1.741	1.741	1.23	4274	0.04	2000	
Zn	66	2	He	8.941	8.941	1.64	3204	0.28	2000	
As	75	2	He	0.014	0.014	196.15	54	0.03	2000	
Se	78	2	He	0.147	0.147	284.65	5	2.76	2000	
B	11	1	nogas	96.669	96.669	4.22	186636	0.05	2000	
Si	28	1	nogas	14934.360	14934.360	1.94	67609801	0.02	2000	>LDR
Ca	43	1	nogas	277827.392	277827.392	0.73	5023121	5.53	200000	>LDR
Ca	44	1	nogas	273050.810	273050.810	1.92	78890959	0.35	200000	>LDR
Fe	56	1	nogas	96.186	96.186	2.93	2437062	0.00	200000	
Se	77	1	nogas	-94.437	-94.437	-8.80	61490	-0.15	2000	
Se	82	1	nogas	3.548	3.548	17.07	1003	0.35	2000	

Sample Report

Mo	95	1	nogas	0.190	0.190	26.07	970	0.02	2000	
Sn	118	1	nogas	-0.151	-0.151	-1.28	907	-0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	927.386	927.386	2.89	2425725	0.04	2000	
Sb	121	2	He	0.245	0.245	17.00	397	0.06	2000	
La	139	1	nogas	3701.906	3701.906	6.27	9513	38.92	2000	>LDR
Au	197	1	nogas	5191.411	5191.411	574.07	17	31148.47	2000	>LDR

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	295752	1.48	317621	93.11	70	125	
Ge	72	1	nogas	1510094	2.65	1478633	102.13	70	125	
In	115	1	nogas	1567844	0.52	1539303	101.85	70	125	
Bi	209	1	nogas	1436274	1.58	1532165	93.74	70	125	
Ge	72	2	He	128825	1.33	126743	101.64	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-01SD
Data File Name	129SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:10:43-06:00
Sample Type	Sample
Dilution	5
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.020	0.099	31.53	90	0.02	2000	
Na	23	1	nogas	99767.209	498836.046	4.02	1194540260	0.01	200000	
Mg	24	1	nogas	31105.339	155526.693	1.35	258193581	0.01	200000	
Al	27	1	nogas	14.724	73.622	2.09	176098	0.01	2000	
K	39	1	nogas	219.068	1095.339	8.88	7100821	0.00	200000	
Ti	47	1	nogas	0.214	1.072	61.33	587	0.04	2000	
V	51	1	nogas	-24.013	-120.066	-21.88	1407703	0.00	2000	
Cr	52	1	nogas	-1.034	-5.169	-15.43	33093	0.00	2000	
Mn	55	1	nogas	8.170	40.848	0.89	142368	0.01	2000	
Co	59	1	nogas	0.101	0.504	5.25	2000	0.01	2000	
Ni	60	1	nogas	2.711	13.554	4.12	8829	0.03	2000	
Cu	63	1	nogas	0.606	3.030	6.66	9719	0.01	2000	
Zn	66	1	nogas	2.240	11.200	2.68	6231	0.04	2000	
As	75	1	nogas	-27.037	-135.186	-16.76	199428	-0.01	2000	
Sr	88	1	nogas	1143.244	5716.219	2.67	19860093	0.01	2000	
Ag	107	1	nogas	-0.012	-0.061	-49.92	433	0.00	2000	
Cd	111	1	nogas	0.069	0.347	36.83	180	0.04	2000	
Sb	121	1	nogas	0.044	0.218	24.54	1603	0.00	2000	
Tl	205	1	nogas	0.007	0.037	16.63	290	0.00	2000	
Pb	208	1	nogas	0.128	0.642	8.14	3460	0.00	2000	
U	238	1	nogas	1.100	5.499	1.89	26142	0.00	2000	
[Pb]	206	1	nogas	0.113	0.567	22.13	830	0.01	2000	
[Pb]	207	1	nogas	0.107	0.533	11.94	713	0.01	2000	
Na	23	2	He	97654.042	488270.210	1.54	23728265	0.41	200000	
Mg	24	2	He	30205.133	151025.663	1.03	3574533	0.85	200000	
Al	27	2	He	17.651	88.256	12.67	667	2.65	2000	
K	39	2	He	242.245	1211.225	1.65	26986	0.90	200000	
Ca	43	2	He	59676.315	298381.575	6.92	12655	471.58	200000	
Ca	44	2	He	53761.237	268806.187	0.25	202539	26.54	200000	
V	51	2	He	0.586	2.928	4.88	1142	0.05	2000	
Cr	52	2	He	-0.187	-0.933	-83.98	1437	-0.01	2000	
Mn	55	2	He	8.286	41.430	9.94	6298	0.13	2000	
Fe	56	2	He	11.314	56.570	7.38	30345	0.04	200000	
Co	59	2	He	0.076	0.378	18.94	297	0.03	2000	
Ni	60	2	He	2.023	10.116	5.18	1553	0.13	2000	
Cu	63	2	He	0.706	3.531	15.96	1910	0.04	2000	
Zn	66	2	He	2.055	10.276	16.04	763	0.27	2000	
As	75	2	He	-0.030	-0.151	-240.43	44	-0.07	2000	
Se	78	2	He	-0.132	-0.658	-175.93	3	-4.93	2000	
B	11	1	nogas	61.352	306.761	3.95	159023	0.04	2000	
Si	28	1	nogas	2792.067	13960.337	0.43	14117671	0.02	2000	>LDR
Ca	43	1	nogas	53058.989	265294.945	2.37	1013114	5.24	200000	
Ca	44	1	nogas	52354.402	261772.008	2.33	16120276	0.32	200000	
Fe	56	1	nogas	31.380	156.899	6.34	1598495	0.00	200000	
Se	77	1	nogas	-83.070	-415.352	-21.55	67713	-0.12	2000	
Se	82	1	nogas	0.298	1.489	188.31	583	0.05	2000	

Sample Report

Mo	95	1	nogas	0.022	0.112	50.70	397	0.01	2000	
Sn	118	1	nogas	-0.165	-0.825	-8.64	903	-0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	171.974	859.869	2.66	489331	0.04	2000	
Sb	121	2	He	0.039	0.196	47.15	170	0.02	2000	
La	139	1	nogas	647.017	3235.084	8.40	1860	34.78	2000	
Au	197	1	nogas	12513.135	62565.676	85.42	13	93848.51	2000	>LDR

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	359999	2.09	317621	113.34	70	125	
Ge	72	1	nogas	1594587	2.77	1478633	107.84	70	125	
In	115	1	nogas	1704279	1.50	1539303	110.72	70	125	
Bi	209	1	nogas	1490687	1.14	1532165	97.29	70	125	
Ge	72	2	He	132057	0.96	126743	104.19	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-01MS
Data File Name	130SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:12:49-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	56.342	56.342	4.24	124205	0.05	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	159453.603	159453.603	4.84	1327231130	0.01	200000	
Al	27	1	nogas	163.641	163.641	3.59	1714490	0.01	2000	
K	39	1	nogas	5523.881	5523.881	1.64	55503453	0.01	200000	
Ti	47	1	nogas	133.917	133.917	1.40	130201	0.10	2000	
V	51	1	nogas	22.586	22.586	8.07	2074442	0.00	2000	
Cr	52	1	nogas	42.258	42.258	3.38	574931	0.01	2000	
Mn	55	1	nogas	85.939	85.939	2.55	1333961	0.01	2000	
Co	59	1	nogas	41.798	41.798	1.76	579257	0.01	2000	
Ni	60	1	nogas	51.878	51.878	1.18	157825	0.03	2000	
Cu	63	1	nogas	44.792	44.792	1.26	335995	0.01	2000	
Zn	66	1	nogas	52.940	52.940	1.87	127661	0.04	2000	
As	75	1	nogas	22.915	22.915	6.00	340441	0.01	2000	
Sr	88	1	nogas	6100.182	6100.182	1.86	102173715	0.01	2000	>LDR
Ag	107	1	nogas	41.740	41.740	0.63	411209	0.01	2000	
Cd	111	1	nogas	44.934	44.934	3.29	87997	0.05	2000	
Sb	121	1	nogas	44.248	44.248	0.46	411176	0.01	2000	
Tl	205	1	nogas	42.910	42.910	0.59	686616	0.01	2000	
Pb	208	1	nogas	46.614	46.614	1.02	1045616	0.00	2000	
U	238	1	nogas	102.357	102.357	1.68	2317178	0.00	2000	
[Pb]	206	1	nogas	46.375	46.375	2.75	257603	0.02	2000	
[Pb]	207	1	nogas	46.213	46.213	1.54	233873	0.02	2000	
Na	23	2	He	520411.987	520411.987	4.76	122434348	0.43	200000	>LDR
Mg	24	2	He	160108.299	160108.299	5.41	18373710	0.87	200000	
Al	27	2	He	160.696	160.696	4.90	5561	2.89	2000	
K	39	2	He	5699.344	5699.344	1.78	351948	1.62	200000	
Ca	43	2	He	322440.264	322440.264	1.70	66266	486.59	200000	>LDR
Ca	44	2	He	292989.317	292989.317	2.74	1070157	27.38	200000	>LDR
V	51	2	He	46.455	46.455	4.17	62200	0.07	2000	
Cr	52	2	He	45.761	45.761	1.19	80506	0.06	2000	
Mn	55	2	He	84.957	84.957	2.77	60005	0.14	2000	
Fe	56	2	He	4424.894	4424.894	2.78	6149813	0.07	200000	
Co	59	2	He	42.366	42.366	3.91	126805	0.03	2000	
Ni	60	2	He	49.220	49.220	3.79	41183	0.12	2000	
Cu	63	2	He	44.059	44.059	1.79	102276	0.04	2000	
Zn	66	2	He	52.766	52.766	5.86	18743	0.28	2000	
As	75	2	He	45.408	45.408	3.07	11450	0.40	2000	
Se	78	2	He	45.244	45.244	3.06	441	10.27	2000	
B	11	1	nogas	680.429	680.429	8.33	987823	0.07	2000	
Si	28	1	nogas	19367.006	19367.006	2.88	88974425	0.02	2000	>LDR
Ca	43	1	nogas	296983.699	296983.699	2.06	5466102	5.43	200000	>LDR
Ca	44	1	nogas	289445.338	289445.338	2.58	85142740	0.34	200000	>LDR
Fe	56	1	nogas	4443.668	4443.668	2.08	65529666	0.01	200000	
Se	77	1	nogas	-31.227	-31.227	-11.62	77722	-0.04	2000	
Se	82	1	nogas	47.832	47.832	6.13	7292	0.66	2000	

Sample Report

Mo	95	1	nogas	43.496	43.496	1.75	157959	0.03	2000	
Sn	118	1	nogas	89.002	89.002	2.96	482220	0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	1085.168	1085.168	6.20	2839217	0.04	2000	
Sb	121	2	He	45.817	45.817	3.55	51025	0.09	2000	
La	139	1	nogas	3992.653	3992.653	6.45	10257	38.93	2000	>LDR
Au	197	1	nogas	-27574.864	-27574.864	-80.78	33	-82724.59	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	263277	4.52	317621	82.89	70	125	
Ge	72	1	nogas	1537172	1.56	1478633	103.96	70	125	
In	115	1	nogas	1569589	2.49	1539303	101.97	70	125	
Bi	209	1	nogas	1432782	0.74	1532165	93.51	70	125	
Ge	72	2	He	128172	2.42	126743	101.13	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-01MSD
Data File Name	131SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:14:48-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	58.604	58.604	4.98	123277	0.05	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	170456.105	170456.105	4.99	1376526364	0.01	200000	
Al	27	1	nogas	166.891	166.891	1.72	1721100	0.01	2000	
K	39	1	nogas	5490.113	5490.113	2.10	54312260	0.01	200000	
Ti	47	1	nogas	136.976	136.976	2.28	131083	0.10	2000	
V	51	1	nogas	21.295	21.295	17.71	2021531	0.00	2000	
Cr	52	1	nogas	42.926	42.926	4.23	574023	0.01	2000	
Mn	55	1	nogas	86.168	86.168	4.22	1316004	0.01	2000	
Co	59	1	nogas	42.139	42.139	2.61	574695	0.01	2000	
Ni	60	1	nogas	53.351	53.351	3.85	159673	0.03	2000	
Cu	63	1	nogas	46.447	46.447	2.02	342658	0.01	2000	
Zn	66	1	nogas	53.972	53.972	0.31	128052	0.04	2000	
As	75	1	nogas	23.448	23.448	17.98	336485	0.01	2000	
Sr	88	1	nogas	6341.718	6341.718	4.03	104505275	0.01	2000	>LDR
Ag	107	1	nogas	41.860	41.860	0.89	405829	0.01	2000	
Cd	111	1	nogas	46.048	46.048	2.37	88363	0.05	2000	
Sb	121	1	nogas	45.390	45.390	1.28	415073	0.01	2000	
Tl	205	1	nogas	44.237	44.237	1.00	700981	0.01	2000	
Pb	208	1	nogas	46.348	46.348	1.19	1039663	0.00	2000	
U	238	1	nogas	102.500	102.500	1.59	2298355	0.00	2000	
[Pb]	206	1	nogas	46.710	46.710	1.44	256987	0.02	2000	
[Pb]	207	1	nogas	46.338	46.338	1.90	232230	0.02	2000	
Na	23	2	He	523419.810	523419.810	5.46	122117592	0.43	200000	>LDR
Mg	24	2	He	161513.158	161513.158	6.46	18377097	0.88	200000	
Al	27	2	He	163.812	163.812	6.79	5618	2.92	2000	
K	39	2	He	5696.920	5696.920	1.10	351803	1.62	200000	
Ca	43	2	He	323217.087	323217.087	6.01	65830	490.99	200000	>LDR
Ca	44	2	He	292189.893	292189.893	5.33	1058034	27.62	200000	>LDR
V	51	2	He	47.245	47.245	4.46	62737	0.08	2000	
Cr	52	2	He	45.385	45.385	6.61	79123	0.06	2000	
Mn	55	2	He	85.479	85.479	3.45	59885	0.14	2000	
Fe	56	2	He	4379.570	4379.570	4.38	6036464	0.07	200000	
Co	59	2	He	42.652	42.652	7.27	126508	0.03	2000	
Ni	60	2	He	48.844	48.844	6.39	40512	0.12	2000	
Cu	63	2	He	44.098	44.098	3.41	101531	0.04	2000	
Zn	66	2	He	52.672	52.672	6.54	18553	0.28	2000	
As	75	2	He	45.462	45.462	7.80	11356	0.40	2000	
Se	78	2	He	44.056	44.056	8.82	425	10.37	2000	
B	11	1	nogas	715.283	715.283	7.86	989756	0.07	2000	
Si	28	1	nogas	19981.202	19981.202	0.89	90337635	0.02	2000	>LDR
Ca	43	1	nogas	292784.350	292784.350	2.13	5303596	5.52	200000	>LDR
Ca	44	1	nogas	288042.195	288042.195	0.37	83386579	0.35	200000	>LDR
Fe	56	1	nogas	4381.180	4381.180	3.06	63590320	0.01	200000	
Se	77	1	nogas	-23.490	-23.490	-42.47	78301	-0.03	2000	
Se	82	1	nogas	48.438	48.438	3.51	7262	0.67	2000	

Sample Report

Mo	95	1	nogas	45.554	45.554	1.41	162753	0.03	2000	
Sn	118	1	nogas	91.659	91.659	2.93	486587	0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	1074.701	1074.701	2.94	2756575	0.04	2000	
Sb	121	2	He	45.271	45.271	3.21	50026	0.09	2000	
La	139	1	nogas	4061.721	4061.721	5.04	10226	39.72	2000	>LDR
Au	197	1	nogas	-1964.533	-1964.533	-18.38	20	-9822.66	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	251332	4.99	317621	79.13	70	125	
Ge	72	1	nogas	1512767	1.62	1478633	102.31	70	125	
In	115	1	nogas	1537969	2.08	1539303	99.91	70	125	
Bi	209	1	nogas	1418903	0.91	1532165	92.61	70	125	
Ge	72	2	He	127221	4.61	126743	100.38	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-01PDS
Data File Name	132SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:16:48-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	97.201	97.201	1.90	235840	0.04	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	165581.547	165581.547	2.69	1339628897	0.01	200000	
Al	27	1	nogas	149.805	149.805	5.21	1572364	0.01	2000	
K	39	1	nogas	9349.814	9349.814	1.22	90714292	0.01	200000	
Ti	47	1	nogas	86.970	86.970	4.05	84748	0.10	2000	
V	51	1	nogas	66.624	66.624	11.56	2753807	0.00	2000	
Cr	52	1	nogas	82.672	82.672	5.04	1082803	0.01	2000	
Mn	55	1	nogas	125.911	125.911	3.82	1951399	0.01	2000	
Co	59	1	nogas	79.883	79.883	4.10	1107603	0.01	2000	
Ni	60	1	nogas	90.029	90.029	2.01	273986	0.03	2000	
Cu	63	1	nogas	82.360	82.360	1.14	614501	0.01	2000	
Zn	66	1	nogas	93.549	93.549	0.80	225375	0.04	2000	
As	75	1	nogas	66.131	66.131	6.61	469048	0.01	2000	
Sr	88	1	nogas	5980.352	5980.352	3.43	100260382	0.01	2000	>LDR
Ag	107	1	nogas	78.493	78.493	3.42	773466	0.01	2000	
Cd	111	1	nogas	85.145	85.145	1.89	167747	0.05	2000	
Sb	121	1	nogas	77.987	77.987	1.40	724570	0.01	2000	
Tl	205	1	nogas	90.694	90.694	1.33	1394682	0.01	2000	
Pb	208	1	nogas	86.449	86.449	1.75	1938697	0.00	2000	
U	238	1	nogas	6.042	6.042	3.35	131651	0.00	2000	
[Pb]	206	1	nogas	89.536	89.536	2.46	477902	0.02	2000	
[Pb]	207	1	nogas	88.986	88.986	0.36	432828	0.02	2000	
Na	23	2	He	507827.903	507827.903	0.47	118380215	0.43	200000	>LDR
Mg	24	2	He	160960.243	160960.243	0.99	18306586	0.88	200000	
Al	27	2	He	148.675	148.675	8.99	5094	2.92	2000	
K	39	2	He	9764.251	9764.251	1.41	594006	1.64	200000	
Ca	43	2	He	321344.944	321344.944	2.00	65405	491.31	200000	>LDR
Ca	44	2	He	295137.011	295137.011	4.75	1067419	27.65	200000	>LDR
V	51	2	He	87.828	87.828	2.30	116200	0.08	2000	
Cr	52	2	He	87.813	87.813	1.23	151411	0.06	2000	
Mn	55	2	He	124.928	124.928	0.76	87270	0.14	2000	
Fe	56	2	He	8297.470	8297.470	0.97	11411742	0.07	200000	
Co	59	2	He	81.885	81.885	0.49	242765	0.03	2000	
Ni	60	2	He	86.833	86.833	2.34	72112	0.12	2000	
Cu	63	2	He	83.102	83.102	1.69	190833	0.04	2000	
Zn	66	2	He	94.740	94.740	1.71	33334	0.28	2000	
As	75	2	He	87.854	87.854	1.05	21894	0.40	2000	
Se	78	2	He	90.175	90.175	5.36	866	10.41	2000	
B	11	1	nogas	109.220	109.220	6.96	201998	0.05	2000	
Si	28	1	nogas	14759.287	14759.287	2.85	68099874	0.02	2000	>LDR
Ca	43	1	nogas	287248.675	287248.675	1.19	5293225	5.43	200000	>LDR
Ca	44	1	nogas	279489.325	279489.325	1.43	82345527	0.34	200000	>LDR
Fe	56	1	nogas	8358.842	8358.842	4.37	122420715	0.01	200000	
Se	77	1	nogas	11.148	11.148	88.06	88005	0.01	2000	
Se	82	1	nogas	87.385	87.385	4.54	12901	0.68	2000	

Sample Report

Mo	95	1	nogas	83.691	83.691	1.06	303958	0.03	2000	
Sn	118	1	nogas	0.129	0.129	58.54	2430	0.01	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	1031.950	1031.950	2.80	2717833	0.04	2000	
Sb	121	2	He	82.271	82.271	2.59	90689	0.09	2000	
La	139	1	nogas	3670.196	3670.196	1.52	9499	38.64	2000	>LDR
Au	197	1	nogas	-3465.896	-3465.896	-1199.29	20	-17329.48	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	289467	2.70	317621	91.14	70	125	
Ge	72	1	nogas	1539134	2.33	1478633	104.09	70	125	
In	115	1	nogas	1579051	2.15	1539303	102.58	70	125	
Bi	209	1	nogas	1377337	2.00	1532165	89.89	70	125	
Ge	72	2	He	126911	1.85	126743	100.13	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	134_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:20:50-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	90.559	5.088	260732	2.75	100	90.6	90	110	
Na	23	1	nogas	10003.349	3.455	121784499	0.64	10000	100.0	90	110	
Mg	24	1	nogas	9917.429	2.138	82572323	1.99	10000	99.2	90	110	
Al	27	1	nogas	95.089	8.252	1005331	3.24	100	95.1	90	110	
K	39	1	nogas	9675.530	4.999	93842094	1.78	10000	96.8	90	110	
Ti	47	1	nogas	91.538	5.457	89354	2.37	100	91.5	90	110	
V	51	1	nogas	95.709	4.895	3210648	2.94	100	95.7	90	110	
Cr	52	1	nogas	92.678	5.819	1210612	0.66	100	92.7	90	110	
Mn	55	1	nogas	99.741	5.357	1550631	1.00	100	99.7	90	110	
Co	59	1	nogas	94.747	3.035	1317166	3.43	100	94.7	90	110	
Ni	60	1	nogas	97.764	5.886	297936	2.63	100	97.8	90	110	
Cu	63	1	nogas	99.271	7.979	739939	3.03	100	99.3	90	110	
Zn	66	1	nogas	98.562	5.914	237650	1.39	100	98.6	90	110	
As	75	1	nogas	81.512	3.317	516065	3.30	100	81.5	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	99.057	6.495	1665949	4.35	100	99.1	90	110	
Ag	107	1	nogas	93.381	5.493	921573	0.73	100	93.4	90	110	
Cd	111	1	nogas	94.442	3.313	195701	1.96	100	94.4	90	110	
Sb	121	1	nogas	94.084	3.779	875574	1.54	100	94.1	90	110	
Tl	205	1	nogas	96.904	4.402	1664710	3.68	100	96.9	90	110	
Pb	208	1	nogas	102.944	1.088	2308493	1.09	100	102.9	90	110	
U	238	1	nogas	98.481	0.186	2394523	1.01	100	98.5	90	110	
[Pb]	206	1	nogas	93.506	2.525	557628	1.71	100	93.5	90	110	
[Pb]	207	1	nogas	94.105	2.169	511297	1.87	100	94.1	90	110	
Na	23	2	He	10145.440	0.891	2429958	0.49	10000	101.5	90	110	
Mg	24	2	He	9960.987	2.787	1140412	1.48	10000	99.6	90	110	
Al	27	2	He	96.641	12.945	3347	11.52	100	96.6	90	110	
K	39	2	He	9598.712	0.790	584149	0.77	10000	96.0	90	110	
Ca	43	2	He	9905.124	7.244	2043	8.40	10000	99.1	90	110	
Ca	44	2	He	9430.774	0.239	34509	1.35	10000	94.3	90	110	
V	51	2	He	96.478	0.903	128477	0.92	100	96.5	90	110	
Cr	52	2	He	95.424	1.948	165506	2.56	100	95.4	90	110	
Mn	55	2	He	92.934	3.841	65420	4.00	100	92.9	90	110	
Fe	56	2	He	9445.267	0.996	13073345	0.52	10000	94.5	90	110	
Co	59	2	He	95.188	0.956	284051	0.72	100	95.2	90	110	
Ni	60	2	He	95.614	2.615	79951	2.39	100	95.6	90	110	
Cu	63	2	He	97.674	3.313	225737	2.37	100	97.7	90	110	
Zn	66	2	He	98.843	3.660	35004	2.36	100	98.8	90	110	
As	75	2	He	96.146	1.984	24116	1.76	100	96.1	90	110	
Se	78	2	He	98.204	3.186	949	4.55	100	98.2	90	110	
B	11	1	nogas	530.545	1.490	1016631	2.86	500	106.1	90	110	
Si	28	1	nogas	4997.546	6.668	23693784	2.13	5000	100.0	90	110	
Ca	43	1	nogas	9927.192	6.291	183755	2.16	10000	99.3	90	110	
Ca	44	1	nogas	9577.318	7.095	2995841	3.32	10000	95.8	90	110	
Fe	56	1	nogas	9512.891	5.017	139458920	2.39	10000	95.1	90	110	
Se	77	1	nogas	53.703	11.772	98509	5.71	100	53.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	94.810	3.878	13992	4.02	100	94.8	90	110	
Mo	95	1	nogas	94.534	6.033	343693	1.31	100	94.5	90	110	
Sn	118	1	nogas	94.841	1.890	543829	0.55	100	94.8	90	110	
Ba	137	1	nogas	92.443	3.634	256559	1.27	100	92.4	90	110	
Sb	121	2	He	94.194	1.514	104478	1.10	100	94.2	90	110	
Li	7	1	nogas	98.214	2.233	706398	4.30	100	98.2	90	110	
P	31	1	nogas	475.485	5.498	380301	0.64	500	95.1	90	110	
La	139	1	nogas	92.045	49.369	310	40.29	100	92.0	90	110	
Au	197	1	nogas	-4887.245	-427.266	23	49.49	100	-4887.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	343880	4.31	317621	108.27	70	125	
Ge	72	1	nogas	1543598	4.80	1478633	104.39	70	125	
In	115	1	nogas	1661264	2.41	1539303	107.92	70	125	
Bi	209	1	nogas	1538725	0.83	1532165	100.43	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	127753	1.36	126743	100.80	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	135_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:22:46-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.075	40.6	270	38.7	1	
Na	23	1	nogas	130.607	5.0	3371242	0.6	100	CCB Main CR1 Failed
Mg	24	1	nogas	11.623	7.3	104138	6.0	100	
Al	27	1	nogas	0.473	10.7	22040	2.5	5	
K	39	1	nogas	14.797	54.4	5015253	0.8	100	
Ti	47	1	nogas	0.019	224.2	377	10.7	2.5	
V	51	1	nogas	-0.264	-1032.5	1737879	4.2	2.5	
Cr	52	1	nogas	-0.632	-17.9	37288	5.8	2.5	
Mn	55	1	nogas	0.261	3.5	15650	2.8	2.5	
Co	59	1	nogas	0.051	24.9	1247	12.3	2.5	
Ni	60	1	nogas	0.644	16.0	2254	12.3	2.5	
Cu	63	1	nogas	-0.051	-51.4	4544	2.6	2.5	
Zn	66	1	nogas	0.156	11.1	1013	4.5	2.5	
As	75	1	nogas	-13.808	-18.3	233534	4.4	2.5	
Sr	88	1	nogas	0.191	14.4	5544	9.1	2.5	
Ag	107	1	nogas	0.066	18.2	1197	11.9	2.5	
Cd	111	1	nogas	0.050	60.0	133	45.8	1	
Sb	121	1	nogas	0.627	12.3	6998	8.4	2.5	
Tl	205	1	nogas	0.228	41.9	4214	41.8	1	
Pb	208	1	nogas	0.079	23.1	2357	17.4	2.5	
U	238	1	nogas	0.061	27.6	1777	25.5	2.5	
[Pb]	206	1	nogas	0.074	43.1	640	32.3	2.5	
[Pb]	207	1	nogas	0.073	16.2	570	12.7	2.5	
Na	23	2	He	127.590	2.5	82816	0.6	100	CCB Main CR1 Failed
Mg	24	2	He	10.468	10.0	1623	7.8	100	
Al	27	2	He	3.715	12.3	173	8.8	5	
K	39	2	He	3.697	34.1	12781	0.6	100	
Ca	43	2	He	14.380	195.1	17	34.6	100	
Ca	44	2	He	-8.747	-74.7	140	18.9	100	
V	51	2	He	0.540	5.7	1078	2.6	2.5	
Cr	52	2	He	-0.368	-33.7	1113	19.2	2.5	
Mn	55	2	He	0.039	116.5	323	8.9	2.5	
Fe	56	2	He	-1.811	-1.5	11570	1.1	100	
Co	59	2	He	0.028	73.5	150	41.6	2.5	
Ni	60	2	He	0.674	9.2	383	12.9	2.5	
Cu	63	2	He	0.272	8.2	873	7.0	2.5	
Zn	66	2	He	0.389	26.4	153	24.7	2.5	
As	75	2	He	-0.034	-66.6	43	13.3	2.5	
Se	78	2	He	0.610	34.0	10	20.0	2.5	
B	11	1	nogas	57.513	12.0	158892	5.0	10	CCB Main CR1 Failed
Si	28	1	nogas	-16.067	-37.7	844382	1.3	5	
Ca	43	1	nogas	11.209	93.3	877	23.7	100	
Ca	44	1	nogas	-395.316	-0.8	62059	1.1	100	
Fe	56	1	nogas	22.244	20.6	1419749	2.8	100	
Se	77	1	nogas	-37.064	-31.9	76976	4.5	2.5	
Se	82	1	nogas	-0.373	-80.9	470	9.3	2.5	
Mo	95	1	nogas	0.158	76.9	873	48.6	2.5	
Sn	118	1	nogas	0.004	604.3	1817	6.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.011	-293.6	490	18.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.465	16.3	657	13.8	2.5	
P	31	1	nogas	8.105	17.3	66363	0.6	10	
La	139	1	nogas	1.231	1143.7	63	59.8	2.5	
Au	197	1	nogas	2368.267	1286.5	20	86.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	377933	3.66	317621	118.99	70	125	
Ge	72	1	nogas	1549954	1.98	1478633	104.82	70	125	
In	115	1	nogas	1636531	0.78	1539303	106.32	70	125	
Bi	209	1	nogas	1578054	1.84	1532165	103.00	70	125	
Ge	72	2	He	131834	1.32	126743	104.02	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	146_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:45:07-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.181	0.330	266292	1.21	100	92.2	90	110	
Na	23	1	nogas	9877.348	3.616	120826107	3.69	10000	98.8	90	110	
Mg	24	1	nogas	9596.484	3.679	80240525	3.85	10000	96.0	90	110	
Al	27	1	nogas	90.798	5.258	982557	1.29	100	90.8	90	110	
K	39	1	nogas	9434.436	5.831	93598642	2.28	10000	94.3	90	110	
Ti	47	1	nogas	92.462	4.323	92234	0.82	100	92.5	90	110	
V	51	1	nogas	75.936	13.247	2966147	2.66	100	75.9	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	93.996	6.392	1253745	2.22	100	94.0	90	110	
Mn	55	1	nogas	97.217	6.358	1544091	2.18	100	97.2	90	110	
Co	59	1	nogas	89.046	4.065	1264123	1.12	100	89.0	90	110	CCV Main CR1-2 Failed
Ni	60	1	nogas	92.743	4.395	288899	1.52	100	92.7	90	110	
Cu	63	1	nogas	94.720	2.915	722743	1.82	100	94.7	90	110	
Zn	66	1	nogas	97.534	2.352	240548	2.22	100	97.5	90	110	
As	75	1	nogas	65.767	12.522	479004	3.09	100	65.8	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	94.048	1.843	1618579	4.78	100	94.0	90	110	
Ag	107	1	nogas	92.949	4.056	937678	0.84	100	92.9	90	110	
Cd	111	1	nogas	97.147	2.665	200437	0.60	100	97.1	90	110	
Sb	121	1	nogas	89.673	4.872	852697	3.23	100	89.7	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	99.323	2.331	1664551	2.88	100	99.3	90	110	
Pb	208	1	nogas	103.752	2.362	2326619	2.36	100	103.8	90	110	
U	238	1	nogas	101.615	4.610	2409163	4.12	100	101.6	90	110	
[Pb]	206	1	nogas	97.007	1.995	564193	0.67	100	97.0	90	110	
[Pb]	207	1	nogas	96.610	1.582	511973	2.01	100	96.6	90	110	
Na	23	2	He	9613.606	1.802	2334989	2.48	10000	96.1	90	110	
Mg	24	2	He	9571.381	1.547	1109966	0.37	10000	95.7	90	110	
Al	27	2	He	89.307	7.994	3137	6.54	100	89.3	90	110	CCV Main CR1-2 Failed
K	39	2	He	9684.507	0.796	589258	0.78	10000	96.8	90	110	
Ca	43	2	He	9504.681	10.092	1983	8.65	10000	95.0	90	110	
Ca	44	2	He	9160.609	2.297	33948	1.24	10000	91.6	90	110	
V	51	2	He	93.649	2.477	126293	1.06	100	93.6	90	110	
Cr	52	2	He	94.819	1.098	166551	0.53	100	94.8	90	110	
Mn	55	2	He	93.591	4.000	66701	2.81	100	93.6	90	110	
Fe	56	2	He	9200.712	2.009	12897993	1.71	10000	92.0	90	110	
Co	59	2	He	93.327	4.097	281983	2.86	100	93.3	90	110	
Ni	60	2	He	94.630	2.816	80127	1.65	100	94.6	90	110	
Cu	63	2	He	94.447	0.593	221131	1.52	100	94.4	90	110	
Zn	66	2	He	92.793	0.171	33294	1.65	100	92.8	90	110	
As	75	2	He	96.064	1.409	24405	1.82	100	96.1	90	110	
Se	78	2	He	94.161	4.631	921	5.39	100	94.2	90	110	
B	11	1	nogas	524.570	1.959	1008013	0.65	500	104.9	90	110	
Si	28	1	nogas	4910.871	6.354	23807065	2.09	5000	98.2	90	110	
Ca	43	1	nogas	9738.404	5.313	184243	1.40	10000	97.4	90	110	
Ca	44	1	nogas	9327.409	2.159	2989572	2.72	10000	93.3	90	110	
Fe	56	1	nogas	9403.821	4.843	140852891	0.75	10000	94.0	90	110	
Se	77	1	nogas	-8.035	-287.573	85357	5.65	100	-8.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	94.310	9.069	14213	7.15	100	94.3	90	110	
Mo	95	1	nogas	91.274	2.838	339410	1.96	100	91.3	90	110	
Sn	118	1	nogas	93.338	0.938	533108	2.82	100	93.3	90	110	
Ba	137	1	nogas	94.434	3.950	260912	1.09	100	94.4	90	110	
Sb	121	2	He	93.072	1.813	104550	0.83	100	93.1	90	110	
Li	7	1	nogas	98.994	1.388	713289	0.11	100	99.0	90	110	
P	31	1	nogas	467.631	7.626	382971	2.27	500	93.5	90	110	
La	139	1	nogas	77.758	4.884	270	3.70	100	77.8	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	13041.727	214.169	13	114.56	100	13041.7	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	344614	1.35	317621	108.50	70	125	
Ge	72	1	nogas	1576896	4.28	1478633	106.65	70	125	
In	115	1	nogas	1654333	3.25	1539303	107.47	70	125	
Bi	209	1	nogas	1500900	2.25	1532165	97.96	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	129389	1.49	126743	102.09	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	147_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T14:47:04-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.061	21.7	233	20.3	1	
Na	23	1	nogas	58.353	11.3	2570416	3.0	100	
Mg	24	1	nogas	8.804	7.3	82767	6.7	100	
Al	27	1	nogas	0.347	24.5	21396	2.2	5	
K	39	1	nogas	-3.017	-407.6	5011652	0.7	100	
Ti	47	1	nogas	-0.037	-135.8	333	17.6	2.5	
V	51	1	nogas	-11.074	-50.1	1620936	3.7	2.5	
Cr	52	1	nogas	-0.964	-16.3	34149	4.2	2.5	
Mn	55	1	nogas	0.322	18.8	17145	4.1	2.5	
Co	59	1	nogas	0.047	10.4	1240	7.0	2.5	
Ni	60	1	nogas	0.601	6.3	2197	7.6	2.5	
Cu	63	1	nogas	-0.104	-9.0	4287	3.4	2.5	
Zn	66	1	nogas	0.161	66.5	1063	27.3	2.5	
As	75	1	nogas	-22.745	-22.2	213457	5.4	2.5	
Sr	88	1	nogas	0.086	21.8	3884	6.5	2.5	
Ag	107	1	nogas	0.059	19.1	1167	12.1	2.5	
Cd	111	1	nogas	0.046	35.8	130	26.6	1	
Sb	121	1	nogas	0.509	15.0	6114	14.2	2.5	
Tl	205	1	nogas	0.265	44.0	4811	41.1	1	
Pb	208	1	nogas	0.073	26.7	2213	19.7	2.5	
U	238	1	nogas	0.063	24.2	1803	19.2	2.5	
[Pb]	206	1	nogas	0.058	48.2	537	30.1	2.5	
[Pb]	207	1	nogas	0.083	32.1	620	22.2	2.5	
Na	23	2	He	67.038	14.2	66683	2.4	100	
Mg	24	2	He	8.164	19.4	1323	15.0	100	
Al	27	2	He	1.605	22.2	97	11.9	5	
K	39	2	He	7.114	184.5	12985	6.0	100	
Ca	43	2	He	-16.084	-301.7	10	100.0	100	
Ca	44	2	He	-8.701	-130.0	137	29.6	100	
V	51	2	He	0.560	2.0	1082	1.8	2.5	
Cr	52	2	He	-0.293	-42.2	1220	17.3	2.5	
Mn	55	2	He	0.166	36.1	407	9.9	2.5	
Fe	56	2	He	-1.699	-18.2	11480	4.5	100	
Co	59	2	He	0.036	16.5	170	10.2	2.5	
Ni	60	2	He	0.675	7.5	377	12.5	2.5	
Cu	63	2	He	0.245	24.4	790	17.0	2.5	
Zn	66	2	He	0.250	41.4	100	36.1	2.5	
As	75	2	He	0.010	866.5	53	41.0	2.5	
Se	78	2	He	0.492	86.7	9	48.0	2.5	
B	11	1	nogas	48.995	6.4	147122	2.9	10	CCB Main CR1 Failed
Si	28	1	nogas	-6.957	-51.3	915870	0.6	5	
Ca	43	1	nogas	18.774	13.7	1050	6.9	100	
Ca	44	1	nogas	-398.359	-1.4	63190	1.7	100	
Fe	56	1	nogas	4.414	169.6	1196954	7.5	100	
Se	77	1	nogas	-72.353	-19.8	70687	3.6	2.5	
Se	82	1	nogas	-0.658	-21.3	443	2.6	2.5	
Mo	95	1	nogas	0.115	30.2	747	18.3	2.5	
Sn	118	1	nogas	-0.011	-141.7	1787	6.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.020	-150.9	480	14.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.388	8.7	557	5.8	2.5	
P	31	1	nogas	5.253	25.1	66584	0.9	10	
La	139	1	nogas	5.613	160.4	77	30.1	2.5	CCB Main CR1 Failed
Au	197	1	nogas	1436.321	3323.1	20	132.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	391856	1.89	317621	123.37	70	125	
Ge	72	1	nogas	1601659	2.14	1478633	108.32	70	125	
In	115	1	nogas	1685742	2.91	1539303	109.51	70	125	
Bi	209	1	nogas	1572501	2.42	1532165	102.63	70	125	
Ge	72	2	He	128999	1.07	126743	101.78	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	158_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T15:09:07-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	90.651	4.960	259742	3.11	100	90.7	90	110	
Na	23	1	nogas	9825.857	3.641	118595573	0.97	10000	98.3	90	110	
Mg	24	1	nogas	9872.934	4.355	81445337	2.73	10000	98.7	90	110	
Al	27	1	nogas	92.289	3.755	985772	2.94	100	92.3	90	110	
K	39	1	nogas	9469.341	1.886	92747304	0.94	10000	94.7	90	110	
Ti	47	1	nogas	92.248	1.947	90842	0.83	100	92.2	90	110	
V	51	1	nogas	57.295	9.210	2638494	2.78	100	57.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	92.661	3.665	1221239	2.46	100	92.7	90	110	
Mn	55	1	nogas	96.675	3.051	1516726	2.34	100	96.7	90	110	
Co	59	1	nogas	90.514	1.407	1268540	1.73	100	90.5	90	110	
Ni	60	1	nogas	92.777	1.557	285295	0.44	100	92.8	90	110	
Cu	63	1	nogas	92.941	2.813	699850	2.00	100	92.9	90	110	
Zn	66	1	nogas	97.594	0.378	237500	0.94	100	97.6	90	110	
As	75	1	nogas	56.356	8.259	444663	3.04	100	56.4	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	92.516	0.522	1570145	1.58	100	92.5	90	110	
Ag	107	1	nogas	93.008	1.839	926187	0.76	100	93.0	90	110	
Cd	111	1	nogas	97.219	1.763	193076	1.69	100	97.2	90	110	
Sb	121	1	nogas	87.717	2.600	823247	1.48	100	87.7	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	99.807	1.575	1628413	1.98	100	99.8	90	110	
Pb	208	1	nogas	99.005	1.430	2220179	1.43	100	99.0	90	110	
U	238	1	nogas	101.477	2.313	2342654	2.13	100	101.5	90	110	
[Pb]	206	1	nogas	95.792	0.803	542474	0.71	100	95.8	90	110	
[Pb]	207	1	nogas	95.800	1.320	494272	1.84	100	95.8	90	110	
Na	23	2	He	9751.234	1.699	2273046	1.95	10000	97.5	90	110	
Mg	24	2	He	9552.361	1.265	1063616	1.04	10000	95.5	90	110	
Al	27	2	He	86.585	6.191	2924	6.46	100	86.6	90	110	CCV Main CR1-2 Failed
K	39	2	He	9229.417	0.105	562158	0.10	10000	92.3	90	110	
Ca	43	2	He	9809.538	9.416	1967	9.41	10000	98.1	90	110	
Ca	44	2	He	9238.072	1.550	32870	0.69	10000	92.4	90	110	
V	51	2	He	95.183	0.356	123260	1.03	100	95.2	90	110	
Cr	52	2	He	95.004	0.785	160226	1.41	100	95.0	90	110	
Mn	55	2	He	93.971	1.830	64322	2.50	100	94.0	90	110	
Fe	56	2	He	9410.032	0.910	12666171	1.80	10000	94.1	90	110	
Co	59	2	He	94.232	1.062	273461	1.96	100	94.2	90	110	
Ni	60	2	He	94.029	1.191	76453	1.18	100	94.0	90	110	
Cu	63	2	He	96.134	1.218	216079	1.15	100	96.1	90	110	
Zn	66	2	He	96.174	3.827	33120	2.89	100	96.2	90	110	
As	75	2	He	95.329	1.168	23250	0.26	100	95.3	90	110	
Se	78	2	He	96.797	6.831	909	6.01	100	96.8	90	110	
B	11	1	nogas	496.546	5.646	948462	3.17	500	99.3	90	110	
Si	28	1	nogas	4916.676	4.239	23537498	3.03	5000	98.3	90	110	
Ca	43	1	nogas	9554.811	1.248	178539	1.61	10000	95.5	90	110	
Ca	44	1	nogas	9140.510	2.933	2894643	3.84	10000	91.4	90	110	
Fe	56	1	nogas	9447.657	1.170	139721686	0.52	10000	94.5	90	110	
Se	77	1	nogas	-41.141	-40.732	76226	5.27	100	-41.1	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	95.238	2.521	14169	3.33	100	95.2	90	110	
Mo	95	1	nogas	89.076	1.273	326870	0.91	100	89.1	90	110	CCV Main CR1-2 Failed
Sn	118	1	nogas	92.158	1.734	506455	1.73	100	92.2	90	110	
Ba	137	1	nogas	95.780	1.051	254826	2.46	100	95.8	90	110	
Sb	121	2	He	92.382	1.429	99650	1.98	100	92.4	90	110	
Li	7	1	nogas	98.013	2.779	701157	2.13	100	98.0	90	110	
P	31	1	nogas	465.711	2.544	376992	1.19	500	93.1	90	110	
La	139	1	nogas	107.510	31.404	337	25.61	100	107.5	90	110	
Au	197	1	nogas	-20209.851	-252.031	30	88.19	100	-20209.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	342047	2.43	317621	107.69	70	125	
Ge	72	1	nogas	1555021	1.11	1478633	105.17	70	125	
In	115	1	nogas	1591608	1.46	1539303	103.40	70	125	
Bi	209	1	nogas	1461030	0.61	1532165	95.36	70	125	
Ge	72	2	He	124220	0.94	126743	98.01	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	159_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T15:11:04-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.066	3.4	233	2.5	1	
Na	23	1	nogas	11.467	46.6	1909629	1.0	100	
Mg	24	1	nogas	7.479	23.9	68407	21.4	100	
Al	27	1	nogas	0.274	36.6	19724	3.2	5	
K	39	1	nogas	-0.614	-3695.9	4816892	0.9	100	
Ti	47	1	nogas	-0.065	-149.3	293	34.3	2.5	
V	51	1	nogas	-33.313	-22.2	1209050	5.6	2.5	
Cr	52	1	nogas	-1.237	-9.7	29260	1.4	2.5	
Mn	55	1	nogas	0.514	15.1	19354	4.3	2.5	
Co	59	1	nogas	0.053	11.0	1260	5.7	2.5	
Ni	60	1	nogas	0.467	8.4	1693	5.3	2.5	
Cu	63	1	nogas	-0.129	-7.4	3920	3.3	2.5	
Zn	66	1	nogas	0.157	52.6	1010	22.8	2.5	
As	75	1	nogas	-30.024	-16.9	182683	4.4	2.5	
Sr	88	1	nogas	0.044	28.5	3024	4.4	2.5	
Ag	107	1	nogas	0.067	3.9	1190	5.5	2.5	
Cd	111	1	nogas	0.052	83.5	130	61.5	1	
Sb	121	1	nogas	0.467	9.9	5464	11.2	2.5	
Tl	205	1	nogas	0.238	33.7	4134	35.0	1	
Pb	208	1	nogas	0.078	20.0	2333	15.0	2.5	
U	238	1	nogas	0.066	25.2	1793	24.6	2.5	
[Pb]	206	1	nogas	0.079	11.2	630	10.4	2.5	
[Pb]	207	1	nogas	0.064	12.0	487	10.3	2.5	
Na	23	2	He	12.691	48.7	52927	0.8	100	
Mg	24	2	He	5.719	25.3	1023	17.2	100	
Al	27	2	He	2.357	58.5	120	36.3	5	
K	39	2	He	6.889	33.1	12971	1.0	100	
Ca	43	2	He	-15.767	-537.3	10	173.2	100	
Ca	44	2	He	11.073	69.0	207	15.6	100	
V	51	2	He	0.306	13.8	728	5.7	2.5	
Cr	52	2	He	-0.323	-6.4	1150	4.5	2.5	
Mn	55	2	He	0.260	68.5	463	24.1	2.5	
Fe	56	2	He	-1.997	-21.6	10873	3.3	100	
Co	59	2	He	0.019	37.3	117	17.8	2.5	
Ni	60	2	He	0.713	18.6	403	29.4	2.5	
Cu	63	2	He	0.265	26.2	820	17.3	2.5	
Zn	66	2	He	0.291	29.4	113	28.4	2.5	
As	75	2	He	0.022	196.2	56	19.3	2.5	
Se	78	2	He	0.018	1146.1	4	50.0	2.5	
B	11	1	nogas	34.262	6.2	109232	3.6	10	CCB Main CR1 Failed
Si	28	1	nogas	1.306	588.0	913789	1.0	5	
Ca	43	1	nogas	20.835	20.4	1043	9.6	100	
Ca	44	1	nogas	-391.003	-2.6	62611	2.3	100	
Fe	56	1	nogas	-11.701	-12.7	914177	3.7	100	
Se	77	1	nogas	-99.039	-20.0	61236	4.7	2.5	
Se	82	1	nogas	-0.832	-15.1	400	4.3	2.5	
Mo	95	1	nogas	0.101	47.5	667	28.1	2.5	
Sn	118	1	nogas	-0.031	-43.2	1543	3.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.017	-258.4	450	23.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.404	18.4	567	16.8	2.5	
P	31	1	nogas	4.546	87.6	63226	0.8	10	
La	139	1	nogas	-3.924	-135.9	47	24.7	2.5	
Au	197	1	nogas	-6048.507	-455.1	23	65.5	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	368246	0.79	317621	115.94	70	125	
Ge	72	1	nogas	1533498	3.66	1478633	103.71	70	125	
In	115	1	nogas	1556395	4.00	1539303	101.11	70	125	
Bi	209	1	nogas	1486401	2.43	1532165	97.01	70	125	
Ge	72	2	He	126897	2.39	126743	100.12	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	170_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T15:33:01-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	89.965	4.399	294831	1.82	100	90.0	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10161.123	2.176	129590695	1.14	10000	101.6	90	110	
Mg	24	1	nogas	10035.520	3.338	87508644	1.95	10000	100.4	90	110	
Al	27	1	nogas	94.964	7.340	1081870	4.38	100	95.0	90	110	
K	39	1	nogas	9469.582	2.413	99057952	1.22	10000	94.7	90	110	
Ti	47	1	nogas	93.240	3.021	98045	0.51	100	93.2	90	110	
V	51	1	nogas	47.298	5.441	2653572	4.34	100	47.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	92.606	1.594	1304023	2.30	100	92.6	90	110	
Mn	55	1	nogas	98.397	1.171	1649378	3.45	100	98.4	90	110	
Co	59	1	nogas	94.377	3.387	1412560	3.18	100	94.4	90	110	
Ni	60	1	nogas	92.799	4.799	304595	1.28	100	92.8	90	110	
Cu	63	1	nogas	95.333	5.794	765975	2.22	100	95.3	90	110	
Zn	66	1	nogas	97.335	3.323	252898	0.33	100	97.3	90	110	
As	75	1	nogas	48.447	1.541	449760	3.22	100	48.4	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	94.598	3.053	1714071	0.44	100	94.6	90	110	
Ag	107	1	nogas	91.826	3.663	976572	2.82	100	91.8	90	110	
Cd	111	1	nogas	94.667	1.411	206082	1.00	100	94.7	90	110	
Sb	121	1	nogas	91.307	4.715	914730	1.24	100	91.3	90	110	
Tl	205	1	nogas	96.509	2.880	1734613	0.89	100	96.5	90	110	
Pb	208	1	nogas	108.266	0.797	2427807	0.80	100	108.3	90	110	
U	238	1	nogas	99.595	3.097	2532874	0.58	100	99.6	90	110	
[Pb]	206	1	nogas	93.703	2.949	584591	0.76	100	93.7	90	110	
[Pb]	207	1	nogas	93.704	1.310	532718	1.27	100	93.7	90	110	
Na	23	2	He	9916.881	2.707	2438395	1.65	10000	99.2	90	110	
Mg	24	2	He	9671.614	1.930	1136590	2.14	10000	96.7	90	110	
Al	27	2	He	87.178	2.035	3107	3.76	100	87.2	90	110	CCV Main CR1-2 Failed
K	39	2	He	9860.471	1.069	599736	1.05	10000	98.6	90	110	
Ca	43	2	He	9309.572	15.100	1973	16.26	10000	93.1	90	110	
Ca	44	2	He	9372.790	1.788	35194	1.18	10000	93.7	90	110	
V	51	2	He	95.260	2.579	130163	0.92	100	95.3	90	110	
Cr	52	2	He	98.219	2.378	174730	1.03	100	98.2	90	110	
Mn	55	2	He	94.457	2.638	68214	0.82	100	94.5	90	110	
Fe	56	2	He	9653.543	0.872	13712331	0.99	10000	96.5	90	110	
Co	59	2	He	94.263	1.596	288664	1.13	100	94.3	90	110	
Ni	60	2	He	95.496	3.426	81953	3.65	100	95.5	90	110	
Cu	63	2	He	97.409	0.411	231086	1.42	100	97.4	90	110	
Zn	66	2	He	98.075	1.300	35652	1.03	100	98.1	90	110	
As	75	2	He	95.677	1.548	24631	2.27	100	95.7	90	110	
Se	78	2	He	95.790	2.812	949	2.47	100	95.8	90	110	
B	11	1	nogas	526.249	2.465	1147639	0.51	500	105.2	90	110	
Si	28	1	nogas	4918.762	8.418	25120735	4.70	5000	98.4	90	110	
Ca	43	1	nogas	9851.348	1.164	196622	2.77	10000	98.5	90	110	
Ca	44	1	nogas	9346.641	0.935	3157050	2.81	10000	93.5	90	110	
Fe	56	1	nogas	9507.902	0.930	150215533	2.76	10000	95.1	90	110	
Se	77	1	nogas	-69.141	-14.921	74248	6.63	100	-69.1	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	91.869	2.421	14619	3.67	100	91.9	90	110	
Mo	95	1	nogas	91.506	4.246	358438	0.75	100	91.5	90	110	
Sn	118	1	nogas	93.428	1.545	562807	1.96	100	93.4	90	110	
Ba	137	1	nogas	93.735	1.280	273320	0.50	100	93.7	90	110	
Sb	121	2	He	94.605	0.865	107698	1.74	100	94.6	90	110	
Li	7	1	nogas	99.605	4.257	814103	1.61	100	99.6	90	110	
P	31	1	nogas	471.786	5.167	406855	0.87	500	94.4	90	110	
La	139	1	nogas	107.603	21.872	370	18.92	100	107.6	90	110	
Au	197	1	nogas	-26887.177	-192.984	37	78.73	100	-26887.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	391247	2.72	317621	123.18	70	125	
Ge	72	1	nogas	1661453	3.42	1478633	112.36	70	125	
In	115	1	nogas	1744560	0.78	1539303	113.33	70	125	
Bi	209	1	nogas	1610314	2.58	1532165	105.10	70	125	
Ge	72	2	He	131111	1.80	126743	103.45	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	171_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T15:35:00-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.080	32.0	320	25.6	1	
Na	23	1	nogas	6.393	46.7	2032234	1.3	100	
Mg	24	1	nogas	6.866	22.1	69511	17.8	100	
Al	27	1	nogas	0.325	10.8	21536	1.8	5	
K	39	1	nogas	0.597	1182.9	5133752	0.6	100	
Ti	47	1	nogas	-0.030	-320.8	347	30.3	2.5	
V	51	1	nogas	-37.957	-4.9	1211918	3.9	2.5	
Cr	52	1	nogas	-1.305	-3.9	30225	2.6	2.5	
Mn	55	1	nogas	0.307	5.9	17195	2.4	2.5	
Co	59	1	nogas	0.040	23.1	1157	10.0	2.5	
Ni	60	1	nogas	0.455	14.2	1760	10.8	2.5	
Cu	63	1	nogas	-0.143	-10.3	4057	2.9	2.5	
Zn	66	1	nogas	0.147	32.2	1043	11.5	2.5	
As	75	1	nogas	-34.255	-5.9	181231	4.9	2.5	
Sr	88	1	nogas	0.048	20.3	3284	6.8	2.5	
Ag	107	1	nogas	0.060	17.4	1197	9.2	2.5	
Cd	111	1	nogas	0.049	52.8	140	39.8	1	
Sb	121	1	nogas	0.489	22.0	5998	16.4	2.5	
Tl	205	1	nogas	0.228	33.0	4214	29.1	1	
Pb	208	1	nogas	0.069	22.5	2117	16.3	2.5	
U	238	1	nogas	0.061	18.2	1783	13.7	2.5	
[Pb]	206	1	nogas	0.062	31.3	570	18.2	2.5	
[Pb]	207	1	nogas	0.048	14.3	433	8.7	2.5	
Na	23	2	He	6.077	105.0	53923	1.3	100	
Mg	24	2	He	3.804	20.2	843	9.2	100	
Al	27	2	He	2.652	50.1	137	33.0	5	
K	39	2	He	-3.193	-192.7	12371	3.0	100	
Ca	43	2	He	-48.759	-56.6	3	173.2	100	
Ca	44	2	He	-4.468	-394.1	157	40.5	100	
V	51	2	He	0.272	10.1	717	6.9	2.5	
Cr	52	2	He	-0.344	-28.1	1170	15.5	2.5	
Mn	55	2	He	0.169	147.3	420	41.3	2.5	
Fe	56	2	He	-1.739	-4.5	11791	2.2	100	
Co	59	2	He	0.039	76.2	183	49.5	2.5	
Ni	60	2	He	0.658	4.9	373	8.6	2.5	
Cu	63	2	He	0.254	11.9	837	7.2	2.5	
Zn	66	2	He	0.340	2.8	137	4.2	2.5	
As	75	2	He	-0.008	-1746.7	50	74.2	2.5	
Se	78	2	He	-0.132	-228.6	3	114.6	2.5	
B	11	1	nogas	49.346	8.4	160805	2.8	10	CCB Main CR1 Failed
Si	28	1	nogas	-11.394	-46.3	910157	1.0	5	
Ca	43	1	nogas	17.410	18.8	1040	4.4	100	
Ca	44	1	nogas	-400.730	-1.9	63531	2.2	100	
Fe	56	1	nogas	-6.441	-129.0	1050756	10.3	100	
Se	77	1	nogas	-117.508	-5.6	60491	4.1	2.5	
Se	82	1	nogas	-0.008	-10232.1	550	23.6	2.5	
Mo	95	1	nogas	0.132	45.5	823	26.0	2.5	
Sn	118	1	nogas	-0.004	-909.1	1893	12.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.039	-75.0	443	18.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.411	24.4	600	17.4	2.5	
P	31	1	nogas	8.058	24.4	69719	0.4	10	
La	139	1	nogas	11.480	78.0	97	26.0	2.5	CCB Main CR1 Failed
Au	197	1	nogas	19613.072	92.4	10	100.0	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	426524	3.58	317621	134.29	70	125	ISTD Failed
Ge	72	1	nogas	1629175	1.75	1478633	110.18	70	125	
In	115	1	nogas	1749380	0.37	1539303	113.65	70	125	
Bi	209	1	nogas	1594050	2.90	1532165	104.04	70	125	
Ge	72	2	He	133148	1.76	126743	105.05	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	182_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T15:57:07-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.360	3.389	274071	1.20	100	92.4	90	110	
Na	23	1	nogas	10578.402	2.257	126640340	0.37	10000	105.8	90	110	
Mg	24	1	nogas	10173.457	2.762	83335758	2.06	10000	101.7	90	110	
Al	27	1	nogas	93.969	3.919	994888	2.57	100	94.0	90	110	
K	39	1	nogas	9717.613	1.111	94276510	2.46	10000	97.2	90	110	
Ti	47	1	nogas	93.932	1.175	91724	0.78	100	93.9	90	110	
V	51	1	nogas	57.164	6.210	2614176	0.68	100	57.2	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	94.389	1.716	1233042	1.93	100	94.4	90	110	
Mn	55	1	nogas	99.863	4.767	1552929	3.57	100	99.9	90	110	
Co	59	1	nogas	95.311	5.000	1324388	4.74	100	95.3	90	110	
Ni	60	1	nogas	96.841	3.279	295234	1.85	100	96.8	90	110	
Cu	63	1	nogas	97.905	1.708	730805	0.32	100	97.9	90	110	
Zn	66	1	nogas	99.231	1.702	239424	0.81	100	99.2	90	110	
As	75	1	nogas	56.769	12.801	442001	3.45	100	56.8	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	96.933	1.391	1631020	0.90	100	96.9	90	110	
Ag	107	1	nogas	95.022	2.856	938281	2.25	100	95.0	90	110	
Cd	111	1	nogas	96.685	2.897	197457	0.53	100	96.7	90	110	
Sb	121	1	nogas	93.424	1.652	869449	0.82	100	93.4	90	110	
Tl	205	1	nogas	98.125	7.434	1618709	3.10	100	98.1	90	110	
Pb	208	1	nogas	102.137	1.317	2290399	1.32	100	102.1	90	110	
U	238	1	nogas	102.017	1.765	2385308	2.75	100	102.0	90	110	
[Pb]	206	1	nogas	97.681	6.871	559404	2.47	100	97.7	90	110	
[Pb]	207	1	nogas	98.116	3.592	512386	0.99	100	98.1	90	110	
Na	23	2	He	10091.057	1.595	2383635	1.56	10000	100.9	90	110	
Mg	24	2	He	9589.699	1.260	1082860	1.30	10000	95.9	90	110	
Al	27	2	He	96.715	13.804	3307	13.77	100	96.7	90	110	
K	39	2	He	9499.067	1.908	578215	1.87	10000	95.0	90	110	
Ca	43	2	He	10315.884	2.777	2097	2.87	10000	103.2	90	110	
Ca	44	2	He	9188.217	3.117	33157	3.14	10000	91.9	90	110	
V	51	2	He	96.420	0.515	126614	0.32	100	96.4	90	110	
Cr	52	2	He	97.705	0.597	167052	0.77	100	97.7	90	110	
Mn	55	2	He	94.708	1.505	65731	1.30	100	94.7	90	110	
Fe	56	2	He	9657.610	1.469	13181091	1.20	10000	96.6	90	110	
Co	59	2	He	94.986	1.018	279507	0.78	100	95.0	90	110	
Ni	60	2	He	96.593	1.084	79650	0.89	100	96.6	90	110	
Cu	63	2	He	96.682	0.137	220378	0.33	100	96.7	90	110	
Zn	66	2	He	99.070	3.079	34607	3.19	100	99.1	90	110	
As	75	2	He	97.091	1.985	24014	1.71	100	97.1	90	110	
Se	78	2	He	100.050	2.128	953	2.19	100	100.0	90	110	
B	11	1	nogas	517.563	4.033	1022238	1.77	500	103.5	90	110	
Si	28	1	nogas	5028.487	5.381	23850675	4.47	5000	100.6	90	110	
Ca	43	1	nogas	9903.589	1.759	183463	1.20	10000	99.0	90	110	
Ca	44	1	nogas	9505.552	3.696	2976702	2.76	10000	95.1	90	110	
Fe	56	1	nogas	9567.532	4.852	140285149	4.49	10000	95.7	90	110	
Se	77	1	nogas	-53.671	-38.242	72538	5.44	100	-53.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.660	6.165	14249	5.80	100	96.7	90	110	
Mo	95	1	nogas	92.558	2.796	336735	1.58	100	92.6	90	110	
Sn	118	1	nogas	95.640	3.141	540420	1.50	100	95.6	90	110	
Ba	137	1	nogas	96.415	2.350	263778	1.40	100	96.4	90	110	
Sb	121	2	He	94.981	1.060	103888	0.86	100	95.0	90	110	
Li	7	1	nogas	97.888	3.665	724963	1.64	100	97.9	90	110	
P	31	1	nogas	489.274	3.039	389694	2.12	500	97.9	90	110	
La	139	1	nogas	87.755	45.070	293	35.48	100	87.8	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-38152.107	-129.661	40	66.14	100	-38152.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	354180	2.48	317621	111.51	70	125	
Ge	72	1	nogas	1542022	1.42	1478633	104.29	70	125	
In	115	1	nogas	1637655	3.41	1539303	106.39	70	125	
Bi	209	1	nogas	1480434	4.38	1532165	96.62	70	125	
Ge	72	2	He	125969	0.27	126743	99.39	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	183_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T15:59:04-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.084	39.7	320	35.2	1	
Na	23	1	nogas	144.371	2.1	3700827	1.9	100	CCB Main CR1 Failed
Mg	24	1	nogas	9.708	11.9	92546	11.9	100	
Al	27	1	nogas	0.309	11.9	20992	2.4	5	
K	39	1	nogas	9.336	92.4	5127293	1.0	100	
Ti	47	1	nogas	-0.021	-395.6	350	24.9	2.5	
V	51	1	nogas	-35.212	-15.5	1233651	5.9	2.5	
Cr	52	1	nogas	-1.194	-10.4	31133	4.4	2.5	
Mn	55	1	nogas	0.251	23.6	16007	6.3	2.5	
Co	59	1	nogas	0.052	29.2	1307	18.0	2.5	
Ni	60	1	nogas	0.660	5.5	2380	5.0	2.5	
Cu	63	1	nogas	-0.121	-15.5	4154	4.0	2.5	
Zn	66	1	nogas	0.256	6.6	1297	4.2	2.5	
As	75	1	nogas	-32.718	-10.1	182652	4.4	2.5	
Sr	88	1	nogas	0.071	14.1	3630	6.0	2.5	
Ag	107	1	nogas	0.055	35.0	1120	18.8	2.5	
Cd	111	1	nogas	0.027	30.8	90	19.2	1	
Sb	121	1	nogas	0.474	17.9	5771	15.4	2.5	
Tl	205	1	nogas	0.264	41.6	4694	40.2	1	
Pb	208	1	nogas	0.082	31.0	2413	23.6	2.5	
U	238	1	nogas	0.064	15.2	1783	12.9	2.5	
[Pb]	206	1	nogas	0.072	54.8	610	38.8	2.5	
[Pb]	207	1	nogas	0.073	32.5	550	23.2	2.5	
Na	23	2	He	133.642	2.2	83830	0.1	100	CCB Main CR1 Failed
Mg	24	2	He	6.229	8.5	1117	6.3	100	
Al	27	2	He	0.510	240.3	60	72.6	5	
K	39	2	He	11.987	55.9	13275	3.0	100	
Ca	43	2	He	-1.149	-2433.5	13	43.3	100	
Ca	44	2	He	0.404	3948.1	173	34.8	100	
V	51	2	He	0.294	17.2	736	9.2	2.5	
Cr	52	2	He	-0.347	-15.0	1147	8.4	2.5	
Mn	55	2	He	0.083	73.7	353	11.8	2.5	
Fe	56	2	He	-2.015	-19.3	11217	4.2	100	
Co	59	2	He	0.040	78.0	187	52.0	2.5	
Ni	60	2	He	0.653	10.9	363	16.1	2.5	
Cu	63	2	He	0.283	17.1	893	12.7	2.5	
Zn	66	2	He	0.382	18.5	150	17.6	2.5	
As	75	2	He	-0.085	-16.0	30	11.1	2.5	
Se	78	2	He	-0.196	-104.3	2	100.0	2.5	
B	11	1	nogas	42.573	4.6	139004	3.0	10	CCB Main CR1 Failed
Si	28	1	nogas	-16.442	-7.0	870572	1.5	5	
Ca	43	1	nogas	12.296	58.0	923	13.5	100	
Ca	44	1	nogas	-396.215	-0.7	63815	0.5	100	
Fe	56	1	nogas	2.402	208.4	1167878	7.5	100	
Se	77	1	nogas	-116.092	-14.5	59735	5.8	2.5	
Se	82	1	nogas	-0.999	-81.4	393	31.1	2.5	
Mo	95	1	nogas	0.112	42.8	737	25.8	2.5	
Sn	118	1	nogas	-0.035	-98.8	1650	10.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.022	-139.8	477	19.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.295	21.6	460	16.4	2.5	
P	31	1	nogas	7.500	5.7	68120	1.0	10	
La	139	1	nogas	4.190	435.0	73	68.6	2.5	CCB Main CR1 Failed
Au	197	1	nogas	19367.555	94.1	10	100.0	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	407404	0.87	317621	128.27	70	125	ISTD Failed
Ge	72	1	nogas	1600577	1.26	1478633	108.25	70	125	
In	115	1	nogas	1692224	1.31	1539303	109.93	70	125	
Bi	209	1	nogas	1534400	1.08	1532165	100.15	70	125	
Ge	72	2	He	131124	0.71	126743	103.46	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	194_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T16:21:03-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	97.038	3.955	248781	1.29	100	97.0	90	110	
Na	23	1	nogas	10295.336	5.561	112834536	3.17	10000	103.0	90	110	
Mg	24	1	nogas	9944.864	5.709	74552312	3.83	10000	99.4	90	110	
Al	27	1	nogas	92.695	3.053	915238	0.22	100	92.7	90	110	
K	39	1	nogas	9638.849	3.935	87174600	1.06	10000	96.4	90	110	
Ti	47	1	nogas	94.030	1.278	85625	2.37	100	94.0	90	110	
V	51	1	nogas	104.846	7.369	3122576	1.26	100	104.8	90	110	
Cr	52	1	nogas	91.559	3.059	1116113	0.46	100	91.6	90	110	
Mn	55	1	nogas	98.546	5.026	1428470	2.20	100	98.5	90	110	
Co	59	1	nogas	90.153	5.170	1167353	2.64	100	90.2	90	110	
Ni	60	1	nogas	98.227	5.431	279070	2.65	100	98.2	90	110	
Cu	63	1	nogas	98.354	3.888	684260	1.27	100	98.4	90	110	
Zn	66	1	nogas	100.293	2.826	225580	0.71	100	100.3	90	110	
As	75	1	nogas	83.528	9.480	486199	1.77	100	83.5	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	95.153	5.195	1491874	2.49	100	95.2	90	110	
Ag	107	1	nogas	94.840	2.211	873255	2.15	100	94.8	90	110	
Cd	111	1	nogas	98.726	2.821	182119	0.63	100	98.7	90	110	
Sb	121	1	nogas	93.754	4.384	813134	1.59	100	93.8	90	110	
Tl	205	1	nogas	98.124	4.813	1526603	3.66	100	98.1	90	110	
Pb	208	1	nogas	94.635	1.794	2122223	1.79	100	94.6	90	110	
U	238	1	nogas	97.372	3.290	2143934	2.11	100	97.4	90	110	
[Pb]	206	1	nogas	96.347	2.630	520366	0.51	100	96.3	90	110	
[Pb]	207	1	nogas	96.058	3.049	472657	1.95	100	96.1	90	110	
Na	23	2	He	10240.986	4.189	2231953	1.33	10000	102.4	90	110	
Mg	24	2	He	9466.319	3.244	986830	1.93	10000	94.7	90	110	
Al	27	2	He	93.040	5.334	2940	6.57	100	93.0	90	110	
K	39	2	He	9107.607	1.329	554904	1.30	10000	91.1	90	110	
Ca	43	2	He	10897.547	8.344	2047	10.14	10000	109.0	90	110	
Ca	44	2	He	9350.575	4.018	31140	1.08	10000	93.5	90	110	
V	51	2	He	95.006	3.185	115170	0.64	100	95.0	90	110	
Cr	52	2	He	97.498	2.059	153927	1.77	100	97.5	90	110	
Mn	55	2	He	97.054	3.141	62175	0.59	100	97.1	90	110	
Fe	56	2	He	9581.753	4.492	12068837	1.27	10000	95.8	90	110	
Co	59	2	He	96.783	4.938	262798	1.74	100	96.8	90	110	
Ni	60	2	He	95.751	4.765	72858	1.55	100	95.8	90	110	
Cu	63	2	He	96.291	3.556	202637	2.60	100	96.3	90	110	
Zn	66	2	He	97.285	3.336	31370	1.59	100	97.3	90	110	
As	75	2	He	97.977	5.302	22359	2.07	100	98.0	90	110	
Se	78	2	He	94.858	7.623	834	7.08	100	94.9	90	110	
B	11	1	nogas	493.424	2.502	844018	2.20	500	98.7	90	110	
Si	28	1	nogas	4857.372	2.861	21510036	0.72	5000	97.1	90	110	
Ca	43	1	nogas	9768.227	5.623	168618	3.22	10000	97.7	90	110	
Ca	44	1	nogas	9284.730	3.251	2714656	1.73	10000	92.8	90	110	
Fe	56	1	nogas	9329.716	5.820	127488282	3.11	10000	93.3	90	110	
Se	77	1	nogas	61.746	46.433	93435	4.18	100	61.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	94.503	0.404	13005	3.08	100	94.5	90	110	
Mo	95	1	nogas	92.826	6.963	314649	4.74	100	92.8	90	110	
Sn	118	1	nogas	97.414	0.742	497312	1.60	100	97.4	90	110	
Ba	137	1	nogas	97.581	2.385	241111	0.26	100	97.6	90	110	
Sb	121	2	He	95.124	3.640	96040	1.46	100	95.1	90	110	
Li	7	1	nogas	100.832	1.830	644611	1.42	100	100.8	90	110	
P	31	1	nogas	467.091	2.828	349394	0.43	500	93.4	90	110	
La	139	1	nogas	88.276	38.648	267	30.54	100	88.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-9400.616	-124.597	23	24.74	100	-9400.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	306078	3.14	317621	96.37	70	125	
Ge	72	1	nogas	1438035	2.78	1478633	97.25	70	125	
In	115	1	nogas	1478855	2.20	1539303	96.07	70	125	
Bi	209	1	nogas	1394149	3.13	1532165	90.99	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	116361	3.23	126743	91.81	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	195_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T16:23:00-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.103	56.4	313	51.6	1	
Na	23	1	nogas	301.379	3.3	4967390	1.5	100	CCB Main CR1 Failed
Mg	24	1	nogas	11.370	6.5	93881	6.8	100	
Al	27	1	nogas	0.295	21.3	18800	2.9	5	
K	39	1	nogas	32.835	17.5	4830410	0.5	100	
Ti	47	1	nogas	-0.085	-106.8	257	31.5	2.5	
V	51	1	nogas	3.955	84.9	1680706	4.1	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.625	-12.1	34816	2.8	2.5	
Mn	55	1	nogas	0.760	2.5	21810	0.9	2.5	
Co	59	1	nogas	0.049	29.3	1143	15.7	2.5	
Ni	60	1	nogas	0.786	3.4	2507	2.2	2.5	
Cu	63	1	nogas	-0.058	-31.8	4191	4.0	2.5	
Zn	66	1	nogas	0.336	4.1	1350	3.4	2.5	
As	75	1	nogas	-9.369	-24.4	230036	3.9	2.5	
Sr	88	1	nogas	0.086	8.5	3514	4.4	2.5	
Ag	107	1	nogas	0.053	21.9	990	9.6	2.5	
Cd	111	1	nogas	0.052	45.6	127	37.3	1	
Sb	121	1	nogas	0.469	25.8	5154	19.6	2.5	
Tl	205	1	nogas	0.252	40.5	4044	37.6	1	
Pb	208	1	nogas	0.071	29.0	2167	21.2	2.5	
U	238	1	nogas	0.067	49.7	1673	41.9	2.5	
[Pb]	206	1	nogas	0.077	63.1	573	43.9	2.5	
[Pb]	207	1	nogas	0.069	45.6	477	30.7	2.5	
Na	23	2	He	343.955	0.7	121776	0.5	100	CCB Main CR1 Failed
Mg	24	2	He	10.138	15.8	1427	11.7	100	
Al	27	2	He	0.902	122.4	67	52.7	5	
K	39	2	He	16.190	12.0	13525	0.9	100	
Ca	43	2	He	22.803	352.1	17	91.7	100	
Ca	44	2	He	24.983	43.5	240	15.0	100	
V	51	2	He	0.608	5.0	1055	3.3	2.5	
Cr	52	2	He	-0.193	-40.7	1283	9.8	2.5	
Mn	55	2	He	0.558	17.3	630	9.7	2.5	
Fe	56	2	He	-1.283	-16.3	11100	2.2	100	
Co	59	2	He	0.031	59.5	143	35.8	2.5	
Ni	60	2	He	0.598	3.3	287	5.3	2.5	
Cu	63	2	He	0.276	13.6	793	10.3	2.5	
Zn	66	2	He	0.304	26.6	110	24.1	2.5	
As	75	2	He	0.057	68.2	60	14.7	2.5	
Se	78	2	He	0.347	134.4	7	62.4	2.5	
B	11	1	nogas	19.226	4.6	71779	1.8	10	CCB Main CR1 Failed
Si	28	1	nogas	10.798	40.7	902042	1.2	5	CCB Main CR1 Failed
Ca	43	1	nogas	23.060	24.3	1020	8.7	100	
Ca	44	1	nogas	-366.277	-0.9	65856	0.5	100	
Fe	56	1	nogas	11.998	18.1	1184174	1.3	100	
Se	77	1	nogas	-18.707	-64.5	75885	4.5	2.5	
Se	82	1	nogas	-0.231	-218.8	457	13.9	2.5	
Mo	95	1	nogas	0.095	82.7	603	43.2	2.5	
Sn	118	1	nogas	-0.002	-2491.6	1633	16.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.019	-55.7	430	8.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.321	30.9	443	22.8	2.5	
P	31	1	nogas	10.415	14.8	63320	1.8	10	CCB Main CR1 Failed
La	139	1	nogas	-6.063	-116.7	40	43.3	2.5	
Au	197	1	nogas	-36625.110	-34.6	37	15.7	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	332307	1.44	317621	104.62	70	125	
Ge	72	1	nogas	1444625	1.24	1478633	97.70	70	125	
In	115	1	nogas	1496406	2.15	1539303	97.21	70	125	
Bi	209	1	nogas	1388069	1.58	1532165	90.60	70	125	
Ge	72	2	He	118747	0.33	126743	93.69	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-02
Data File Name	204SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T16:41:07-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.123	0.123	2.48	367	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	216697.376	216697.376	1.98	1774857773	0.01	200000	>LDR
Al	27	1	nogas	19.684	19.684	15.58	222464	0.01	2000	
K	39	1	nogas	2818.690	2818.690	0.77	30914536	0.01	200000	
Ti	47	1	nogas	1.313	1.313	12.47	1640	0.08	2000	
V	51	1	nogas	-40.053	-40.053	-25.15	1117530	0.00	2000	
Cr	52	1	nogas	-1.116	-1.116	-9.95	31096	0.00	2000	
Mn	55	1	nogas	291.699	291.699	0.24	4534316	0.01	2000	
Co	59	1	nogas	16.178	16.178	2.02	226146	0.01	2000	
Ni	60	1	nogas	15.889	15.889	5.64	48859	0.03	2000	
Cu	63	1	nogas	2.463	2.463	10.98	23238	0.01	2000	
Zn	66	1	nogas	21.885	21.885	2.68	53509	0.04	2000	
As	75	1	nogas	-25.979	-25.979	-20.73	196712	-0.01	2000	
Sr	88	1	nogas	6342.942	6342.942	5.34	106962468	0.01	2000	>LDR
Ag	107	1	nogas	-0.007	-0.007	-108.54	467	0.00	2000	
Cd	111	1	nogas	0.627	0.627	11.86	1260	0.05	2000	
Sb	121	1	nogas	0.202	0.202	16.87	3027	0.01	2000	
Tl	205	1	nogas	0.010	0.010	6.12	307	0.00	2000	
Pb	208	1	nogas	0.214	0.214	3.28	5370	0.00	2000	
U	238	1	nogas	1.590	1.590	3.28	35266	0.00	2000	
[Pb]	206	1	nogas	0.225	0.225	6.97	1380	0.02	2000	
[Pb]	207	1	nogas	0.203	0.203	5.80	1143	0.02	2000	
Na	23	2	He	785168.082	785168.082	3.42	181582331	0.43	200000	>LDR
Mg	24	2	He	216701.723	216701.723	1.73	24454649	0.89	200000	>LDR
Al	27	2	He	17.408	17.408	41.91	627	2.78	2000	
K	39	2	He	2853.100	2853.100	0.76	182458	1.56	200000	
Ca	43	2	He	311654.870	311654.870	2.16	62941	495.15	200000	>LDR
Ca	44	2	He	282185.377	282185.377	0.81	1013115	27.85	200000	>LDR
V	51	2	He	0.581	0.581	2.46	1083	0.05	2000	
Cr	52	2	He	-0.196	-0.196	-40.86	1357	-0.01	2000	
Mn	55	2	He	289.431	289.431	1.13	200244	0.14	2000	
Fe	56	2	He	4499.369	4499.369	1.58	6146478	0.07	200000	
Co	59	2	He	16.802	16.802	2.02	49481	0.03	2000	
Ni	60	2	He	12.773	12.773	2.42	10363	0.12	2000	
Cu	63	2	He	1.541	1.541	7.43	3720	0.04	2000	
Zn	66	2	He	22.323	22.323	4.51	7805	0.29	2000	
As	75	2	He	2.794	2.794	6.26	739	0.38	2000	
Se	78	2	He	0.727	0.727	44.49	11	6.81	2000	
B	11	1	nogas	53.847	53.847	6.27	131698	0.04	2000	
Si	28	1	nogas	21181.338	21181.338	3.31	97931705	0.02	2000	>LDR
Ca	43	1	nogas	282894.451	282894.451	0.23	5244408	5.39	200000	>LDR
Ca	44	1	nogas	274313.247	274313.247	2.37	81279269	0.34	200000	>LDR
Fe	56	1	nogas	4597.340	4597.340	1.30	68257872	0.01	200000	
Se	77	1	nogas	-94.846	-94.846	-24.37	62886	-0.15	2000	
Se	82	1	nogas	7.426	7.426	18.05	1580	0.47	2000	

Sample Report

Mo	95	1	nogas	0.183	0.183	28.32	970	0.02	2000	
Sn	118	1	nogas	-0.166	-0.166	-7.48	827	-0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	8936.520	8936.520	2.83	23442007	0.04	2000	>LDR
Sb	121	2	He	0.251	0.251	11.42	393	0.06	2000	
La	139	1	nogas	1845.285	1845.285	4.13	4784	38.57	2000	>LDR
Au	197	1	nogas	-2806.942	-2806.942	-741.45	20	-14034.71	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	328137	2.56	317621	103.31	70	125	
Ge	72	1	nogas	1548398	1.87	1478633	104.72	70	125	
In	115	1	nogas	1572838	1.55	1539303	102.18	70	125	
Bi	209	1	nogas	1395790	1.99	1532165	91.10	70	125	
Ge	72	2	He	125936	0.77	126743	99.36	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-03
Data File Name	205SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T16:43:08-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.020	0.020	90.58	83	0.02	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	158837.291	158837.291	3.71	1300472529	0.01	200000	
Al	27	1	nogas	14.658	14.658	6.29	169296	0.01	2000	
K	39	1	nogas	1925.017	1925.017	0.21	22519342	0.01	200000	
Ti	47	1	nogas	1.033	1.033	16.20	1357	0.08	2000	
V	51	1	nogas	-35.528	-35.528	-10.68	1181809	0.00	2000	
Cr	52	1	nogas	-1.108	-1.108	-11.24	31006	0.00	2000	
Mn	55	1	nogas	917.839	917.839	0.15	14154420	0.01	2000	
Co	59	1	nogas	4.861	4.861	3.47	67923	0.01	2000	
Ni	60	1	nogas	9.500	9.500	6.40	29167	0.03	2000	
Cu	63	1	nogas	2.898	2.898	7.51	26333	0.01	2000	
Zn	66	1	nogas	7.308	7.308	4.02	18189	0.04	2000	
As	75	1	nogas	-25.319	-25.319	-12.03	197626	-0.01	2000	
Sr	88	1	nogas	5103.725	5103.725	4.07	85577742	0.01	2000	>LDR
Ag	107	1	nogas	-0.015	-0.015	-42.22	390	0.00	2000	
Cd	111	1	nogas	0.416	0.416	13.41	847	0.05	2000	
Sb	121	1	nogas	0.074	0.074	17.84	1823	0.00	2000	
Tl	205	1	nogas	0.012	0.012	34.71	330	0.00	2000	
Pb	208	1	nogas	0.063	0.063	13.95	1990	0.00	2000	
U	238	1	nogas	21.266	21.266	1.70	451415	0.00	2000	
[Pb]	206	1	nogas	0.063	0.063	11.17	483	0.01	2000	
[Pb]	207	1	nogas	0.066	0.066	24.09	450	0.01	2000	
Na	23	2	He	844552.361	844552.361	0.41	194156324	0.43	200000	>LDR
Mg	24	2	He	158606.477	158606.477	1.79	17788046	0.89	200000	
Al	27	2	He	13.636	13.636	28.78	497	2.75	2000	
K	39	2	He	1995.727	1995.727	2.16	131403	1.52	200000	
Ca	43	2	He	300340.179	300340.179	1.18	60299	498.09	200000	>LDR
Ca	44	2	He	276089.118	276089.118	0.75	985211	28.02	200000	>LDR
V	51	2	He	0.603	0.603	4.98	1105	0.05	2000	
Cr	52	2	He	-0.235	-0.235	-45.50	1283	-0.02	2000	
Mn	55	2	He	885.371	885.371	1.98	608205	0.15	2000	
Fe	56	2	He	357.727	357.727	2.67	497991	0.07	200000	
Co	59	2	He	4.756	4.756	2.54	13962	0.03	2000	
Ni	60	2	He	5.586	5.586	4.46	4401	0.13	2000	
Cu	63	2	He	1.854	1.854	8.66	4411	0.04	2000	
Zn	66	2	He	7.658	7.658	6.72	2667	0.29	2000	
As	75	2	He	0.131	0.131	101.67	81	0.16	2000	
Se	78	2	He	0.169	0.169	195.46	5	3.18	2000	
B	11	1	nogas	41.928	41.928	4.19	112150	0.04	2000	
Si	28	1	nogas	16662.743	16662.743	2.67	76780811	0.02	2000	>LDR
Ca	43	1	nogas	279883.808	279883.808	4.95	5154186	5.43	200000	>LDR
Ca	44	1	nogas	272130.671	272130.671	5.55	80105552	0.34	200000	>LDR
Fe	56	1	nogas	388.054	388.054	0.68	6721932	0.01	200000	
Se	77	1	nogas	-86.322	-86.322	-11.07	64598	-0.13	2000	
Se	82	1	nogas	6.554	6.554	17.75	1450	0.45	2000	

Sample Report

Mo	95	1	nogas	0.223	0.223	13.97	1110	0.02	2000	
Sn	118	1	nogas	-0.184	-0.184	-8.40	730	-0.03	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	5715.273	5715.273	2.72	15009723	0.04	2000	>LDR
Sb	121	2	He	0.041	0.041	47.26	163	0.03	2000	
La	139	1	nogas	1395.650	1395.650	4.58	3637	38.37	2000	
Au	197	1	nogas	-17931.351	-17931.351	-240.40	27	-67242.57	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	332158	1.73	317621	104.58	70	125	
Ge	72	1	nogas	1538809	1.46	1478633	104.07	70	125	
In	115	1	nogas	1574683	1.38	1539303	102.30	70	125	
Bi	209	1	nogas	1342940	0.99	1532165	87.65	70	125	
Ge	72	2	He	125178	1.66	126743	98.77	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	206_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T16:45:09-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.459	8.292	272307	3.28	100	91.5	90	110	
Na	23	1	nogas	11077.554	3.652	135465124	1.91	10000	110.8	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	10322.157	2.392	86435279	1.04	10000	103.2	90	110	
Al	27	1	nogas	93.190	0.376	1042341	1.56	100	93.2	90	110	
K	39	1	nogas	9459.623	1.795	97017819	0.25	10000	94.6	90	110	
Ti	47	1	nogas	91.376	3.907	94216	3.14	100	91.4	90	110	
V	51	1	nogas	85.046	3.824	3215213	2.05	100	85.0	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	93.308	1.814	1287676	2.23	100	93.3	90	110	
Mn	55	1	nogas	96.075	2.678	1578243	1.15	100	96.1	90	110	
Co	59	1	nogas	92.387	3.128	1355365	1.64	100	92.4	90	110	
Ni	60	1	nogas	94.051	2.830	302823	2.39	100	94.1	90	110	
Cu	63	1	nogas	95.680	1.398	754299	0.75	100	95.7	90	110	
Zn	66	1	nogas	96.439	1.934	245729	1.48	100	96.4	90	110	
As	75	1	nogas	75.453	3.979	525624	2.37	100	75.5	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	98.885	2.940	1756584	1.50	100	98.9	90	110	
Ag	107	1	nogas	91.352	1.737	952733	2.51	100	91.4	90	110	
Cd	111	1	nogas	96.809	4.134	204672	2.34	100	96.8	90	110	
Sb	121	1	nogas	91.497	2.515	899081	1.08	100	91.5	90	110	
Tl	205	1	nogas	102.491	7.156	1725099	3.60	100	102.5	90	110	
Pb	208	1	nogas	102.272	1.805	2293434	1.80	100	102.3	90	110	
U	238	1	nogas	99.512	2.290	2372994	1.88	100	99.5	90	110	
[Pb]	206	1	nogas	97.181	3.536	568326	1.91	100	97.2	90	110	
[Pb]	207	1	nogas	95.617	3.114	509467	1.85	100	95.6	90	110	
Na	23	2	He	10608.715	2.573	2626534	3.87	10000	106.1	90	110	
Mg	24	2	He	9530.828	3.595	1128678	2.99	10000	95.3	90	110	
Al	27	2	He	89.429	0.796	3210	1.62	100	89.4	90	110	CCV Main CR1-2 Failed
K	39	2	He	9800.463	1.678	596163	1.64	10000	98.0	90	110	
Ca	43	2	He	10183.469	9.360	2170	8.54	10000	101.8	90	110	
Ca	44	2	He	9239.265	1.688	34977	2.96	10000	92.4	90	110	
V	51	2	He	95.337	2.290	131299	1.04	100	95.3	90	110	
Cr	52	2	He	95.783	3.095	171771	1.79	100	95.8	90	110	
Mn	55	2	He	92.722	1.643	67515	2.44	100	92.7	90	110	
Fe	56	2	He	9274.657	1.063	13278389	1.20	10000	92.7	90	110	
Co	59	2	He	95.459	2.180	294598	0.73	100	95.5	90	110	
Ni	60	2	He	94.352	3.813	81579	2.43	100	94.4	90	110	
Cu	63	2	He	97.073	3.074	232033	1.61	100	97.1	90	110	
Zn	66	2	He	97.730	1.931	35809	2.30	100	97.7	90	110	
As	75	2	He	94.513	2.291	24518	0.98	100	94.5	90	110	
Se	78	2	He	92.988	4.848	929	5.90	100	93.0	90	110	
B	11	1	nogas	486.439	8.846	966745	4.62	500	97.3	90	110	
Si	28	1	nogas	4874.727	2.931	24448434	2.57	5000	97.5	90	110	
Ca	43	1	nogas	9742.035	1.263	190607	2.17	10000	97.4	90	110	
Ca	44	1	nogas	9198.360	3.321	3048286	3.29	10000	92.0	90	110	
Fe	56	1	nogas	9264.925	0.736	143498503	0.85	10000	92.6	90	110	
Se	77	1	nogas	31.997	49.943	98399	4.99	100	32.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	92.742	4.109	14456	2.98	100	92.7	90	110	
Mo	95	1	nogas	91.245	2.583	350536	1.37	100	91.2	90	110	
Sn	118	1	nogas	95.431	1.486	558401	0.61	100	95.4	90	110	
Ba	137	1	nogas	95.479	3.643	270388	1.72	100	95.5	90	110	
Sb	121	2	He	91.443	1.375	104922	1.96	100	91.4	90	110	
Li	7	1	nogas	100.675	5.094	748171	2.49	100	100.7	90	110	
P	31	1	nogas	477.031	2.809	402760	0.93	500	95.4	90	110	
La	139	1	nogas	90.883	29.216	313	23.95	100	90.9	90	110	
Au	197	1	nogas	13412.374	205.369	13	114.56	100	13412.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	356349	6.49	317621	112.19	70	125	
Ge	72	1	nogas	1628291	1.52	1478633	110.12	70	125	
In	115	1	nogas	1695055	1.93	1539303	110.12	70	125	
Bi	209	1	nogas	1510002	3.95	1532165	98.55	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	132137	1.46	126743	104.26	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	207_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T16:47:06-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.060	11.6	227	10.2	1	
Na	23	1	nogas	390.919	1.4	6626741	2.3	100	CCB Main CR1 Failed
Mg	24	1	nogas	20.173	2.5	179024	2.9	100	
Al	27	1	nogas	0.280	17.1	21026	2.5	5	
K	39	1	nogas	5.085	174.2	5173776	0.8	100	
Ti	47	1	nogas	-0.026	-243.0	350	18.7	2.5	
V	51	1	nogas	-5.187	-51.8	1744864	3.3	2.5	
Cr	52	1	nogas	-0.758	-15.7	37475	5.1	2.5	
Mn	55	1	nogas	0.483	4.6	20058	2.0	2.5	
Co	59	1	nogas	0.055	35.8	1367	20.8	2.5	
Ni	60	1	nogas	0.991	5.0	3484	3.6	2.5	
Cu	63	1	nogas	-0.013	-131.9	5071	3.0	2.5	
Zn	66	1	nogas	0.197	33.9	1167	13.9	2.5	
As	75	1	nogas	-16.240	-14.0	237624	3.5	2.5	
Sr	88	1	nogas	0.441	10.7	10250	8.6	2.5	
Ag	107	1	nogas	0.044	35.1	1027	16.3	2.5	
Cd	111	1	nogas	0.086	62.8	213	51.8	1	
Sb	121	1	nogas	0.453	20.8	5651	15.5	2.5	
Tl	205	1	nogas	0.234	40.5	4341	39.4	1	
Pb	208	1	nogas	0.075	6.0	2257	4.4	2.5	
U	238	1	nogas	0.067	28.0	1930	25.0	2.5	
[Pb]	206	1	nogas	0.066	4.3	597	2.6	2.5	
[Pb]	207	1	nogas	0.051	10.8	450	6.7	2.5	
Na	23	2	He	407.008	2.8	144583	1.2	100	CCB Main CR1 Failed
Mg	24	2	He	20.064	11.9	2650	10.6	100	
Al	27	2	He	2.240	87.3	117	57.1	5	
K	39	2	He	24.759	38.0	14035	4.0	100	
Ca	43	2	He	0.981	7701.6	13	114.6	100	
Ca	44	2	He	27.010	51.8	263	18.7	100	
V	51	2	He	0.484	5.5	962	4.4	2.5	
Cr	52	2	He	-0.318	-22.8	1157	11.3	2.5	
Mn	55	2	He	0.262	54.3	467	22.0	2.5	
Fe	56	2	He	-1.286	-23.3	11837	2.8	100	
Co	59	2	He	0.037	15.2	170	10.2	2.5	
Ni	60	2	He	0.675	9.5	370	15.0	2.5	
Cu	63	2	He	0.265	12.7	823	10.2	2.5	
Zn	66	2	He	0.301	28.0	117	26.2	2.5	
As	75	2	He	-0.022	-292.3	44	35.4	2.5	
Se	78	2	He	0.022	983.1	4	50.0	2.5	
B	11	1	nogas	33.294	4.3	112181	1.8	10	CCB Main CR1 Failed
Si	28	1	nogas	-24.790	-14.9	845140	1.3	5	
Ca	43	1	nogas	25.971	6.2	1207	2.1	100	
Ca	44	1	nogas	-389.369	-0.7	67037	0.3	100	
Fe	56	1	nogas	17.811	23.7	1423626	3.6	100	
Se	77	1	nogas	-42.657	-25.4	79430	3.9	2.5	
Se	82	1	nogas	-0.329	-96.0	500	8.7	2.5	
Mo	95	1	nogas	0.104	47.2	717	25.4	2.5	
Sn	118	1	nogas	-0.017	-161.1	1757	7.6	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.376	11.1	1600	7.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.433	18.5	597	15.6	2.5	
P	31	1	nogas	8.546	8.1	70027	0.5	10	
La	139	1	nogas	7.830	59.9	83	13.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-15283.527	-117.3	30	33.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	384969	1.29	317621	121.20	70	125	
Ge	72	1	nogas	1627960	0.93	1478633	110.10	70	125	
In	115	1	nogas	1691900	1.89	1539303	109.91	70	125	
Bi	209	1	nogas	1593608	0.74	1532165	104.01	70	125	
Ge	72	2	He	126697	0.78	126743	99.96	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-04
Data File Name	208SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T16:49:06-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.024	0.024	67.84	90	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	216418.200	216418.200	3.48	1741310439	0.01	200000	>LDR
Al	27	1	nogas	6.275	6.275	1.98	79700	0.01	2000	
K	39	1	nogas	1606.655	1606.655	3.51	19002955	0.01	200000	
Ti	47	1	nogas	1.139	1.139	6.81	1417	0.08	2000	
V	51	1	nogas	-21.232	-21.232	-5.04	1359751	0.00	2000	
Cr	52	1	nogas	1.585	1.585	3.04	62894	0.00	2000	
Mn	55	1	nogas	22.420	22.420	3.08	346245	0.01	2000	
Co	59	1	nogas	0.367	0.367	1.61	5458	0.01	2000	
Ni	60	1	nogas	13.475	13.475	4.40	40021	0.03	2000	
Cu	63	1	nogas	1.881	1.881	13.86	18256	0.01	2000	
Zn	66	1	nogas	10.506	10.506	2.39	25081	0.04	2000	
As	75	1	nogas	-14.471	-14.471	-7.27	222913	-0.01	2000	
Sr	88	1	nogas	5521.924	5521.924	0.82	89827622	0.01	2000	>LDR
Ag	107	1	nogas	0.010	0.010	133.04	620	0.00	2000	
Cd	111	1	nogas	0.356	0.356	7.32	713	0.05	2000	
Sb	121	1	nogas	0.102	0.102	18.45	2027	0.01	2000	
Tl	205	1	nogas	0.033	0.033	14.52	643	0.01	2000	
Pb	208	1	nogas	0.115	0.115	9.60	3160	0.00	2000	
U	238	1	nogas	33.505	33.505	3.10	710886	0.00	2000	
[Pb]	206	1	nogas	0.113	0.113	29.80	747	0.02	2000	
[Pb]	207	1	nogas	0.121	0.121	12.51	713	0.02	2000	
Na	23	2	He	1071100.554	1071100.554	3.79	238516543	0.45	200000	>LDR
Mg	24	2	He	216842.217	216842.217	4.60	23561085	0.92	200000	>LDR
Al	27	2	He	7.191	7.191	37.93	273	2.63	2000	
K	39	2	He	1604.087	1604.087	1.42	108082	1.48	200000	
Ca	43	2	He	354220.933	354220.933	5.37	68885	514.22	200000	>LDR
Ca	44	2	He	321985.587	321985.587	4.32	1112866	28.93	200000	>LDR
V	51	2	He	1.393	1.393	1.18	2069	0.07	2000	
Cr	52	2	He	2.236	2.236	4.38	5274	0.04	2000	
Mn	55	2	He	22.213	22.213	2.78	15063	0.15	2000	
Fe	56	2	He	42.501	42.501	3.09	68812	0.06	200000	
Co	59	2	He	0.128	0.128	2.08	420	0.03	2000	
Ni	60	2	He	10.267	10.267	10.45	7979	0.13	2000	
Cu	63	2	He	0.747	0.747	12.18	1840	0.04	2000	
Zn	66	2	He	10.401	10.401	5.81	3510	0.30	2000	
As	75	2	He	0.215	0.215	70.46	99	0.22	2000	
Se	78	2	He	3.111	3.111	14.52	32	9.72	2000	
B	11	1	nogas	32.998	32.998	2.39	91338	0.04	2000	
Si	28	1	nogas	22563.418	22563.418	0.76	100543405	0.02	2000	>LDR
Ca	43	1	nogas	331548.601	331548.601	4.21	5923274	5.60	200000	>LDR
Ca	44	1	nogas	327804.669	327804.669	3.60	93579272	0.35	200000	>LDR
Fe	56	1	nogas	62.105	62.105	4.33	1929714	0.00	200000	
Se	77	1	nogas	-32.282	-32.282	-29.01	75212	-0.04	2000	
Se	82	1	nogas	7.738	7.738	17.48	1567	0.49	2000	
Mo	95	1	nogas	1.112	1.112	4.54	4204	0.03	2000	
Sn	118	1	nogas	-0.189	-0.189	-18.58	683	-0.03	2000	
Ba	137	1	nogas	3348.673	3348.673	1.85	8608133	0.04	2000	>LDR

Sample Report

Sb	121	2	He	0.101	0.101	46.44	220	0.05	2000	
La	139	1	nogas	816.139	816.139	2.25	2107	38.74	2000	
Au	197	1	nogas	-25240.609	-25240.609	-86.02	30	-84135.36	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	315078	1.61	317621	99.20	70	125	
Ge	72	1	nogas	1492600	1.57	1478633	100.94	70	125	
In	115	1	nogas	1541438	2.81	1539303	100.14	70	125	
Bi	209	1	nogas	1342869	1.44	1532165	87.65	70	125	
Ge	72	2	He	121337	2.96	126743	95.73	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-06
Data File Name	209SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T16:51:06-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.107	0.107	26.00	290	0.04	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	201534.705	201534.705	2.37	1531631934	0.01	200000	>LDR
Al	27	1	nogas	14.243	14.243	3.06	150283	0.01	2000	
K	39	1	nogas	2899.691	2899.691	4.92	28668839	0.01	200000	
Ti	47	1	nogas	1.074	1.074	12.71	1277	0.08	2000	
V	51	1	nogas	-20.822	-20.822	-25.25	1282853	0.00	2000	
Cr	52	1	nogas	-0.200	-0.200	-64.10	38657	0.00	2000	
Mn	55	1	nogas	2061.829	2061.829	4.49	28951884	0.01	2000	>LDR
Co	59	1	nogas	14.395	14.395	3.02	182317	0.01	2000	
Ni	60	1	nogas	17.794	17.794	5.32	49534	0.04	2000	
Cu	63	1	nogas	1.761	1.761	6.02	16324	0.01	2000	
Zn	66	1	nogas	14.601	14.601	4.90	32523	0.04	2000	
As	75	1	nogas	-12.410	-12.410	-38.01	214905	-0.01	2000	
Sr	88	1	nogas	4775.057	4775.057	3.45	72958156	0.01	2000	>LDR
Ag	107	1	nogas	-0.011	-0.011	-32.54	390	0.00	2000	
Cd	111	1	nogas	0.215	0.215	5.35	413	0.05	2000	
Sb	121	1	nogas	0.149	0.149	7.70	2300	0.01	2000	
Tl	205	1	nogas	0.067	0.067	12.89	1073	0.01	2000	
Pb	208	1	nogas	0.070	0.070	3.15	2147	0.00	2000	
U	238	1	nogas	11.249	11.249	0.96	222126	0.01	2000	
[Pb]	206	1	nogas	0.097	0.097	18.35	617	0.02	2000	
[Pb]	207	1	nogas	0.062	0.062	10.75	400	0.02	2000	
Na	23	2	He	758351.344	758351.344	2.35	161555198	0.47	200000	>LDR
Mg	24	2	He	198536.142	198536.142	2.78	20634783	0.96	200000	>LDR
Al	27	2	He	15.940	15.940	33.07	530	3.01	2000	
K	39	2	He	2680.228	2680.228	0.86	172164	1.56	200000	
Ca	43	2	He	296284.801	296284.801	4.28	55099	537.73	200000	>LDR
Ca	44	2	He	280410.657	280410.657	3.94	927116	30.25	200000	>LDR
V	51	2	He	0.494	0.494	8.92	893	0.06	2000	
Cr	52	2	He	0.581	0.581	26.70	2457	0.02	2000	
Mn	55	2	He	1995.656	1995.656	1.28	1270431	0.16	2000	>LDR
Fe	56	2	He	751.235	751.235	3.20	955489	0.08	200000	
Co	59	2	He	14.532	14.532	4.02	39423	0.04	2000	
Ni	60	2	He	13.819	13.819	5.89	10336	0.13	2000	
Cu	63	2	He	0.513	0.513	15.82	1270	0.04	2000	
Zn	66	2	He	14.474	14.474	2.83	4664	0.31	2000	
As	75	2	He	1.687	1.687	8.93	430	0.39	2000	
Se	78	2	He	1.293	1.293	90.64	15	8.82	2000	
B	11	1	nogas	37.900	37.900	9.14	93717	0.04	2000	
Si	28	1	nogas	17373.043	17373.043	3.20	72906937	0.02	2000	>LDR
Ca	43	1	nogas	287257.135	287257.135	4.88	4821317	5.96	200000	>LDR
Ca	44	1	nogas	279829.459	279829.459	2.64	75096236	0.37	200000	>LDR
Fe	56	1	nogas	827.063	827.063	2.24	11935003	0.01	200000	
Se	77	1	nogas	-33.604	-33.604	-56.61	70356	-0.05	2000	
Se	82	1	nogas	6.482	6.482	39.21	1307	0.50	2000	

Sample Report

Mo	95	1	nogas	0.166	0.166	36.80	820	0.02	2000	
Sn	118	1	nogas	-0.079	-0.079	-56.42	1190	-0.01	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	532.994	532.994	0.55	1277807	0.04	2000	
Sb	121	2	He	0.126	0.126	26.65	237	0.05	2000	
La	139	1	nogas	2001.710	2001.710	7.62	4737	42.25	2000	>LDR
Au	197	1	nogas	-22222.665	-22222.665	-55.85	27	-83335.00	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	296626	2.09	317621	93.39	70	125	
Ge	72	1	nogas	1402681	2.15	1478633	94.86	70	125	
In	115	1	nogas	1436741	1.39	1539303	93.34	70	125	
Bi	209	1	nogas	1248840	1.93	1532165	81.51	70	125	
Ge	72	2	He	116041	2.73	126743	91.56	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-07
Data File Name	210SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T16:53:08-06:00
Sample Type	Sample
Dilution	1
Comment	B123278 TW
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.028	0.028	69.63	100	0.03	2000	
Na	23	1	nogas	71636.454	71636.454	2.49	819381168	0.01	200000	
Mg	24	1	nogas	1041.216	1041.216	3.22	8252736	0.01	200000	
Al	27	1	nogas	404.052	404.052	5.33	4084020	0.01	2000	
K	39	1	nogas	6599.461	6599.461	0.94	63461374	0.01	200000	
Ti	47	1	nogas	0.794	0.794	12.09	1093	0.07	2000	
V	51	1	nogas	3.980	3.980	167.36	1735117	0.00	2000	
Cr	52	1	nogas	2.155	2.155	13.23	69779	0.00	2000	
Mn	55	1	nogas	4.130	4.130	1.95	72896	0.01	2000	
Co	59	1	nogas	0.266	0.266	9.61	4087	0.01	2000	
Ni	60	1	nogas	2.292	2.292	0.75	7031	0.03	2000	
Cu	63	1	nogas	1.609	1.609	2.93	16287	0.01	2000	
Zn	66	1	nogas	1.555	1.555	6.15	4231	0.04	2000	
As	75	1	nogas	-21.733	-21.733	-14.93	201903	-0.01	2000	
Sr	88	1	nogas	860.463	860.463	2.38	13991045	0.01	2000	
Ag	107	1	nogas	-0.016	-0.016	-46.93	370	0.00	2000	
Cd	111	1	nogas	0.078	0.078	29.54	180	0.04	2000	
Sb	121	1	nogas	0.198	0.198	8.01	2890	0.01	2000	
Tl	205	1	nogas	0.009	0.009	25.62	310	0.00	2000	
Pb	208	1	nogas	0.119	0.119	16.37	3237	0.00	2000	
U	238	1	nogas	1.577	1.577	1.32	37197	0.00	2000	
[Pb]	206	1	nogas	0.124	0.124	14.57	887	0.01	2000	
[Pb]	207	1	nogas	0.092	0.092	31.77	637	0.01	2000	
Na	23	2	He	67282.423	67282.423	5.11	15643356	0.43	200000	
Mg	24	2	He	952.540	952.540	5.05	108109	0.88	200000	
Al	27	2	He	382.609	382.609	2.03	12991	2.95	2000	
K	39	2	He	6295.376	6295.376	1.67	387440	1.62	200000	
Ca	43	2	He	21532.839	21532.839	7.56	4371	492.67	200000	
Ca	44	2	He	18961.990	18961.990	2.93	68400	27.72	200000	
V	51	2	He	21.484	21.484	2.60	28524	0.08	2000	
Cr	52	2	He	2.897	2.897	3.95	6608	0.04	2000	
Mn	55	2	He	3.604	3.604	1.68	2780	0.13	2000	
Fe	56	2	He	21.600	21.600	1.39	43078	0.05	200000	
Co	59	2	He	0.280	0.280	11.89	887	0.03	2000	
Ni	60	2	He	1.119	1.119	23.46	737	0.15	2000	
Cu	63	2	He	1.400	1.400	6.91	3410	0.04	2000	
Zn	66	2	He	1.881	1.881	27.22	670	0.28	2000	
As	75	2	He	5.228	5.228	0.61	1343	0.39	2000	
Se	78	2	He	0.857	0.857	127.85	12	7.14	2000	
B	11	1	nogas	67.144	67.144	5.70	147573	0.05	2000	
Si	28	1	nogas	11656.950	11656.950	4.98	52316106	0.02	2000	>LDR
Ca	43	1	nogas	18995.719	18995.719	1.44	339983	5.59	200000	
Ca	44	1	nogas	18328.636	18328.636	4.60	5394304	0.34	200000	
Fe	56	1	nogas	50.280	50.280	3.16	1762433	0.00	200000	
Se	77	1	nogas	-86.020	-86.020	-19.37	62695	-0.14	2000	
Se	82	1	nogas	1.356	1.356	44.41	690	0.20	2000	

Sample Report

Mo	95	1	nogas	2.879	2.879	4.13	10417	0.03	2000	
Sn	118	1	nogas	-0.152	-0.152	-14.32	890	-0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	80.552	80.552	1.10	208003	0.04	2000	
Sb	121	2	He	0.171	0.171	17.06	307	0.06	2000	
La	139	1	nogas	1426.941	1426.941	4.20	3647	39.13	2000	
Au	197	1	nogas	-12632.634	-12632.634	-308.34	27	-47372.38	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	312154	1.77	317621	98.28	70	125	
Ge	72	1	nogas	1492480	2.78	1478633	100.94	70	125	
In	115	1	nogas	1544315	0.45	1539303	100.33	70	125	
Bi	209	1	nogas	1483647	1.25	1532165	96.83	70	125	
Ge	72	2	He	126264	1.00	126743	99.62	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	218_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T17:09:13-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.971	1.600	283803	1.82	100	93.0	90	110	
Na	23	1	nogas	10262.320	1.892	133966182	1.13	10000	102.6	90	110	
Mg	24	1	nogas	9850.121	0.850	87975264	3.15	10000	98.5	90	110	
Al	27	1	nogas	93.532	3.531	1096345	1.19	100	93.5	90	110	
K	39	1	nogas	9362.306	2.232	100725256	0.54	10000	93.6	90	110	
Ti	47	1	nogas	92.342	2.752	99817	0.46	100	92.3	90	110	
V	51	1	nogas	72.000	14.272	3146101	3.51	100	72.0	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	92.657	4.772	1340304	2.55	100	92.7	90	110	
Mn	55	1	nogas	96.873	1.730	1668595	0.89	100	96.9	90	110	
Co	59	1	nogas	92.357	4.797	1420185	2.57	100	92.4	90	110	
Ni	60	1	nogas	93.143	2.372	314412	0.77	100	93.1	90	110	
Cu	63	1	nogas	94.106	1.428	777954	0.95	100	94.1	90	110	
Zn	66	1	nogas	97.145	1.623	259517	0.78	100	97.1	90	110	
As	75	1	nogas	60.225	15.392	500574	4.00	100	60.2	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	94.644	3.813	1762603	1.96	100	94.6	90	110	
Ag	107	1	nogas	93.699	2.711	1024209	0.47	100	93.7	90	110	
Cd	111	1	nogas	99.640	2.550	217075	1.66	100	99.6	90	110	
Sb	121	1	nogas	89.584	2.777	922962	1.45	100	89.6	90	110	CCV Main CR1-2 Failed
Tl	205	1	nogas	96.480	0.429	1715955	2.15	100	96.5	90	110	
Pb	208	1	nogas	108.565	1.079	2434508	1.08	100	108.6	90	110	
U	238	1	nogas	102.717	2.316	2584289	0.56	100	102.7	90	110	
[Pb]	206	1	nogas	94.476	1.550	583136	0.64	100	94.5	90	110	
[Pb]	207	1	nogas	95.593	0.946	537567	1.20	100	95.6	90	110	
Na	23	2	He	10240.269	1.995	2544566	1.34	10000	102.4	90	110	
Mg	24	2	He	9890.925	1.953	1175208	0.88	10000	98.9	90	110	
Al	27	2	He	85.564	2.449	3084	3.00	100	85.6	90	110	CCV Main CR1-2 Failed
K	39	2	He	10253.650	1.661	623149	1.63	10000	102.5	90	110	
Ca	43	2	He	10033.179	1.695	2147	2.85	10000	100.3	90	110	
Ca	44	2	He	9627.576	2.539	36556	3.13	10000	96.3	90	110	
V	51	2	He	98.881	1.163	136629	0.37	100	98.9	90	110	
Cr	52	2	He	98.686	1.784	177537	1.51	100	98.7	90	110	
Mn	55	2	He	96.121	3.007	70204	3.20	100	96.1	90	110	
Fe	56	2	He	9696.067	0.432	13927035	1.02	10000	97.0	90	110	
Co	59	2	He	98.726	1.288	305723	1.28	100	98.7	90	110	
Ni	60	2	He	100.279	1.500	87024	1.25	100	100.3	90	110	
Cu	63	2	He	100.664	2.907	241417	1.88	100	100.7	90	110	
Zn	66	2	He	97.942	0.563	36006	1.71	100	97.9	90	110	
As	75	2	He	98.985	2.508	25762	2.04	100	99.0	90	110	
Se	78	2	He	96.037	5.409	963	5.94	100	96.0	90	110	
B	11	1	nogas	509.911	3.441	1036695	3.36	500	102.0	90	110	
Si	28	1	nogas	4940.511	1.193	25976005	3.39	5000	98.8	90	110	
Ca	43	1	nogas	9783.374	3.441	200657	3.15	10000	97.8	90	110	
Ca	44	1	nogas	9291.804	3.964	3225825	2.94	10000	92.9	90	110	
Fe	56	1	nogas	9420.596	2.810	152952912	2.49	10000	94.2	90	110	
Se	77	1	nogas	-26.318	-109.403	87543	6.82	100	-26.3	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	93.369	4.190	15263	5.02	100	93.4	90	110	
Mo	95	1	nogas	93.051	0.539	374943	2.67	100	93.1	90	110	
Sn	118	1	nogas	96.156	3.676	579412	1.02	100	96.2	90	110	
Ba	137	1	nogas	95.460	3.098	278508	0.40	100	95.5	90	110	
Sb	121	2	He	93.774	2.369	107925	1.24	100	93.8	90	110	
Li	7	1	nogas	97.869	1.008	745611	1.18	100	97.9	90	110	
P	31	1	nogas	475.399	3.855	421028	1.68	500	95.1	90	110	
La	139	1	nogas	118.869	31.262	400	23.85	100	118.9	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-3904.784	-1064.102	23	98.97	100	-3904.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	364147	0.79	317621	114.65	70	125	
Ge	72	1	nogas	1707386	2.26	1478633	115.47	70	125	
In	115	1	nogas	1746582	3.06	1539303	113.47	70	125	
Bi	209	1	nogas	1592732	2.15	1532165	103.95	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	132570	1.20	126743	104.60	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	219_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T17:11:10-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.086	36.8	320	35.5	1	
Na	23	1	nogas	218.603	3.4	4761453	1.6	100	CCB Main CR1 Failed
Mg	24	1	nogas	11.947	8.4	115043	6.0	100	
Al	27	1	nogas	0.340	30.5	22040	1.8	5	
K	39	1	nogas	13.509	125.4	5343171	0.8	100	
Ti	47	1	nogas	-0.071	-138.4	307	30.1	2.5	
V	51	1	nogas	1.489	259.8	1885229	4.5	2.5	
Cr	52	1	nogas	-0.637	-28.6	39746	6.4	2.5	
Mn	55	1	nogas	0.395	13.3	18917	1.0	2.5	
Co	59	1	nogas	0.060	35.8	1467	18.9	2.5	
Ni	60	1	nogas	0.866	5.6	3134	1.2	2.5	
Cu	63	1	nogas	-0.051	-40.6	4854	3.1	2.5	
Zn	66	1	nogas	0.454	23.7	1847	11.5	2.5	
As	75	1	nogas	-15.121	-16.5	245239	4.1	2.5	
Sr	88	1	nogas	0.139	11.3	4974	3.7	2.5	
Ag	107	1	nogas	0.042	35.5	1027	16.2	2.5	
Cd	111	1	nogas	0.059	21.1	163	15.4	1	
Sb	121	1	nogas	0.458	25.6	5781	17.8	2.5	
Tl	205	1	nogas	0.267	39.5	5041	35.9	1	
Pb	208	1	nogas	0.086	19.2	2513	14.8	2.5	
U	238	1	nogas	0.079	19.0	2287	14.5	2.5	
[Pb]	206	1	nogas	0.070	22.5	633	13.4	2.5	
[Pb]	207	1	nogas	0.073	23.8	590	15.5	2.5	
Na	23	2	He	228.490	4.2	114240	0.8	100	CCB Main CR1 Failed
Mg	24	2	He	10.789	14.1	1767	8.3	100	
Al	27	2	He	1.300	70.1	93	34.4	5	
K	39	2	He	18.653	45.5	13672	3.7	100	
Ca	43	2	He	-49.745	-52.0	3	173.2	100	
Ca	44	2	He	4.063	92.7	200	5.0	100	
V	51	2	He	0.531	8.7	1135	5.7	2.5	
Cr	52	2	He	-0.284	-17.2	1347	9.1	2.5	
Mn	55	2	He	0.075	43.9	373	9.4	2.5	
Fe	56	2	He	-1.447	-27.4	12875	2.8	100	
Co	59	2	He	0.042	23.2	207	18.3	2.5	
Ni	60	2	He	0.689	12.3	423	19.7	2.5	
Cu	63	2	He	0.215	15.6	783	10.9	2.5	
Zn	66	2	He	0.167	26.4	77	19.9	2.5	
As	75	2	He	-0.024	-214.3	49	28.4	2.5	
Se	78	2	He	-0.018	-1084.6	4	50.0	2.5	
B	11	1	nogas	30.042	0.4	108445	2.8	10	CCB Main CR1 Failed
Si	28	1	nogas	-26.834	-32.1	848823	1.2	5	
Ca	43	1	nogas	23.340	10.3	1177	7.7	100	
Ca	44	1	nogas	-387.966	-2.2	68582	0.6	100	
Fe	56	1	nogas	17.315	32.1	1438929	2.9	100	
Se	77	1	nogas	-43.800	-34.1	80511	6.2	2.5	
Se	82	1	nogas	-0.902	-58.8	420	16.5	2.5	
Mo	95	1	nogas	0.149	49.8	900	29.5	2.5	
Sn	118	1	nogas	0.003	1837.6	1940	16.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.054	63.6	713	13.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.318	8.1	520	5.1	2.5	
P	31	1	nogas	13.498	43.6	74728	2.9	10	CCB Main CR1 Failed
La	139	1	nogas	-1.396	-270.6	60	16.7	2.5	
Au	197	1	nogas	-2640.927	-765.9	23	49.5	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	395740	2.58	317621	124.59	70	125	
Ge	72	1	nogas	1656273	3.93	1478633	112.01	70	125	
In	115	1	nogas	1751057	1.52	1539303	113.76	70	125	
Bi	209	1	nogas	1635757	2.19	1532165	106.76	70	125	
Ge	72	2	He	140483	2.67	126743	110.84	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	230_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T17:33:05-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.169	3.287	236648	2.61	100	91.2	90	110	
Na	23	1	nogas	10254.733	2.735	112762215	1.63	10000	102.5	90	110	
Mg	24	1	nogas	9974.087	2.514	75009623	1.48	10000	99.7	90	110	
Al	27	1	nogas	96.391	4.604	925276	3.19	100	96.4	90	110	
K	39	1	nogas	9834.403	1.177	86479048	0.70	10000	98.3	90	110	
Ti	47	1	nogas	95.349	3.837	84434	2.51	100	95.3	90	110	
V	51	1	nogas	84.096	4.125	2748935	2.45	100	84.1	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	94.736	2.170	1122380	1.54	100	94.7	90	110	
Mn	55	1	nogas	102.246	1.894	1442841	3.22	100	102.2	90	110	
Co	59	1	nogas	94.467	1.559	1190963	2.29	100	94.5	90	110	
Ni	60	1	nogas	96.927	1.494	268099	0.67	100	96.9	90	110	
Cu	63	1	nogas	96.675	2.438	654618	1.09	100	96.7	90	110	
Zn	66	1	nogas	99.780	1.654	218388	0.76	100	99.8	90	110	
As	75	1	nogas	70.427	5.175	437998	2.83	100	70.4	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	97.587	1.224	1489551	1.10	100	97.6	90	110	
Ag	107	1	nogas	93.919	2.509	841256	1.65	100	93.9	90	110	
Cd	111	1	nogas	97.061	0.574	180137	3.65	100	97.1	90	110	
Sb	121	1	nogas	94.967	1.852	801827	2.37	100	95.0	90	110	
Tl	205	1	nogas	97.871	1.405	1431808	0.93	100	97.9	90	110	
Pb	208	1	nogas	90.112	0.585	2020804	0.58	100	90.1	90	110	
U	238	1	nogas	104.410	1.064	2161674	1.80	100	104.4	90	110	
[Pb]	206	1	nogas	97.305	2.692	494081	1.90	100	97.3	90	110	
[Pb]	207	1	nogas	97.148	2.444	449398	1.71	100	97.1	90	110	
Na	23	2	He	10439.369	3.655	2194894	3.61	10000	104.4	90	110	
Mg	24	2	He	9713.556	1.747	977114	2.81	10000	97.1	90	110	
Al	27	2	He	98.925	6.856	3010	5.76	100	98.9	90	110	
K	39	2	He	8524.660	1.317	520191	1.29	10000	85.2	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	10723.928	9.053	1940	8.25	10000	107.2	90	110	
Ca	44	2	He	9350.041	0.129	30051	1.06	10000	93.5	90	110	
V	51	2	He	97.324	1.389	113829	1.24	100	97.3	90	110	
Cr	52	2	He	96.950	1.381	147672	2.36	100	96.9	90	110	
Mn	55	2	He	96.816	2.658	59854	3.33	100	96.8	90	110	
Fe	56	2	He	9488.872	1.211	11536228	1.58	10000	94.9	90	110	
Co	59	2	He	96.590	3.042	253145	2.61	100	96.6	90	110	
Ni	60	2	He	97.398	2.343	71554	3.47	100	97.4	90	110	
Cu	63	2	He	96.948	1.199	196821	0.11	100	96.9	90	110	
Zn	66	2	He	97.388	1.223	30299	0.20	100	97.4	90	110	
As	75	2	He	95.813	4.335	21113	5.04	100	95.8	90	110	
Se	78	2	He	98.376	5.126	835	5.94	100	98.4	90	110	
B	11	1	nogas	471.965	2.982	818550	2.16	500	94.4	90	110	
Si	28	1	nogas	5060.738	4.322	21767533	2.97	5000	101.2	90	110	
Ca	43	1	nogas	9840.515	1.140	165388	1.76	10000	98.4	90	110	
Ca	44	1	nogas	9289.657	2.204	2642674	0.83	10000	92.9	90	110	
Fe	56	1	nogas	9992.274	1.730	132865420	0.85	10000	99.9	90	110	
Se	77	1	nogas	2.001	877.905	78000	5.92	100	2.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	93.806	5.435	12555	4.17	100	93.8	90	110	
Mo	95	1	nogas	95.217	1.566	314260	0.40	100	95.2	90	110	
Sn	118	1	nogas	95.334	3.921	489074	0.72	100	95.3	90	110	
Ba	137	1	nogas	95.557	5.403	237218	1.29	100	95.6	90	110	
Sb	121	2	He	94.310	2.338	91888	2.77	100	94.3	90	110	
Li	7	1	nogas	98.710	2.410	639248	1.49	100	98.7	90	110	
P	31	1	nogas	500.270	3.653	360160	1.82	500	100.1	90	110	
La	139	1	nogas	103.119	25.678	303	19.32	100	103.1	90	110	
Au	197	1	nogas	8936.122	368.849	13	114.56	100	8936.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	309693	0.82	317621	97.50	70	125	
Ge	72	1	nogas	1398803	1.38	1478633	94.60	70	125	
In	115	1	nogas	1487463	4.21	1539303	96.63	70	125	
Bi	209	1	nogas	1310180	0.90	1532165	85.51	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	112206	1.11	126743	88.53	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	231_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T17:35:02-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.109	9.4	330	8.0	1	
Na	23	1	nogas	273.086	2.7	4528083	0.1	100	CCB Main CR1 Failed
Mg	24	1	nogas	11.439	11.0	91844	11.7	100	
Al	27	1	nogas	0.266	21.5	17645	3.8	5	
K	39	1	nogas	50.872	36.4	4746654	1.1	100	
Ti	47	1	nogas	-0.128	-69.4	207	37.0	2.5	
V	51	1	nogas	-4.840	-126.5	1478414	4.5	2.5	
Cr	52	1	nogas	-0.916	-15.0	29868	3.4	2.5	
Mn	55	1	nogas	0.403	11.1	15837	2.2	2.5	
Co	59	1	nogas	0.077	37.0	1437	25.1	2.5	
Ni	60	1	nogas	0.840	6.4	2537	7.8	2.5	
Cu	63	1	nogas	-0.062	-48.5	3964	6.0	2.5	
Zn	66	1	nogas	0.544	4.8	1733	4.1	2.5	
As	75	1	nogas	-17.344	-27.9	197766	5.4	2.5	
Sr	88	1	nogas	0.105	14.6	3624	7.0	2.5	
Ag	107	1	nogas	0.067	28.0	1070	15.4	2.5	
Cd	111	1	nogas	0.070	98.8	153	82.8	1	
Sb	121	1	nogas	0.376	21.7	4147	17.6	2.5	
Tl	205	1	nogas	0.275	38.5	4224	38.5	1	
Pb	208	1	nogas	0.065	17.2	2040	12.3	2.5	
U	238	1	nogas	0.080	19.5	1883	19.0	2.5	
[Pb]	206	1	nogas	0.066	21.8	497	17.4	2.5	
[Pb]	207	1	nogas	0.073	8.3	477	7.9	2.5	
Na	23	2	He	300.923	3.5	108644	2.6	100	CCB Main CR1 Failed
Mg	24	2	He	9.732	23.7	1340	19.2	100	
Al	27	2	He	2.591	22.6	117	17.8	5	
K	39	2	He	3.194	322.4	12751	4.8	100	
Ca	43	2	He	-29.405	-207.8	7	173.2	100	
Ca	44	2	He	19.111	113.3	213	33.9	100	
V	51	2	He	0.432	15.7	808	8.1	2.5	
Cr	52	2	He	-0.126	-53.8	1343	8.2	2.5	
Mn	55	2	He	0.146	38.2	350	12.5	2.5	
Fe	56	2	He	-0.689	-22.8	11467	0.9	100	
Co	59	2	He	0.054	4.3	200	5.0	2.5	
Ni	60	2	He	0.683	8.2	340	10.6	2.5	
Cu	63	2	He	0.258	22.9	730	15.4	2.5	
Zn	66	2	He	0.316	12.1	110	9.1	2.5	
As	75	2	He	-0.005	-1811.2	44	51.0	2.5	
Se	78	2	He	0.296	79.7	6	33.3	2.5	
B	11	1	nogas	17.032	2.9	67383	1.1	10	CCB Main CR1 Failed
Si	28	1	nogas	2.119	202.5	823695	1.5	5	
Ca	43	1	nogas	17.819	71.0	883	22.3	100	
Ca	44	1	nogas	-362.515	-2.3	63685	1.4	100	
Fe	56	1	nogas	1.213	75.1	987934	2.1	100	
Se	77	1	nogas	-47.147	-44.1	66120	5.6	2.5	
Se	82	1	nogas	0.603	132.2	540	17.7	2.5	
Mo	95	1	nogas	0.107	68.7	617	39.1	2.5	
Sn	118	1	nogas	0.021	274.7	1680	19.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.067	100.3	617	27.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.281	33.7	390	26.0	2.5	
P	31	1	nogas	11.841	25.4	61139	1.5	10	CCB Main CR1 Failed
La	139	1	nogas	4.673	103.7	63	18.2	2.5	CCB Main CR1 Failed
Au	197	1	nogas	23378.831	52.5	7	86.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	329890	0.61	317621	103.86	70	125	
Ge	72	1	nogas	1375814	2.07	1478633	93.05	70	125	
In	115	1	nogas	1432166	1.98	1539303	93.04	70	125	
Bi	209	1	nogas	1324905	2.65	1532165	86.47	70	125	
Ge	72	2	He	114796	2.31	126743	90.57	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	236_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T17:45:03-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	90.667	7.291	260632	3.96	100	90.7	90	110	
Na	23	1	nogas	10690.095	3.235	126401386	2.31	10000	106.9	90	110	
Mg	24	1	nogas	10068.513	3.427	81471535	2.81	10000	100.7	90	110	
Al	27	1	nogas	96.761	5.883	1008757	3.10	100	96.8	90	110	
K	39	1	nogas	9794.918	2.763	93593425	0.31	10000	97.9	90	110	
Ti	47	1	nogas	94.976	2.575	91397	0.28	100	95.0	90	110	
V	51	1	nogas	76.552	13.848	2869779	2.93	100	76.6	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	98.181	5.017	1261794	2.95	100	98.2	90	110	
Mn	55	1	nogas	103.822	6.056	1590695	4.62	100	103.8	90	110	
Co	59	1	nogas	94.294	3.582	1291483	2.97	100	94.3	90	110	
Ni	60	1	nogas	96.103	2.797	288814	1.46	100	96.1	90	110	
Cu	63	1	nogas	96.181	1.530	707890	2.17	100	96.2	90	110	
Zn	66	1	nogas	99.062	2.562	235579	1.15	100	99.1	90	110	
As	75	1	nogas	64.652	10.640	458702	1.60	100	64.7	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	96.072	3.874	1592783	1.20	100	96.1	90	110	
Ag	107	1	nogas	95.156	3.428	925924	0.60	100	95.2	90	110	
Cd	111	1	nogas	97.471	1.301	196999	1.21	100	97.5	90	110	
Sb	121	1	nogas	94.012	1.422	862490	1.60	100	94.0	90	110	
Tl	205	1	nogas	97.126	2.134	1572497	1.62	100	97.1	90	110	
Pb	208	1	nogas	98.994	0.699	2219930	0.70	100	99.0	90	110	
U	238	1	nogas	101.172	2.274	2318247	2.90	100	101.2	90	110	
[Pb]	206	1	nogas	95.026	2.571	534018	1.93	100	95.0	90	110	
[Pb]	207	1	nogas	96.290	1.998	492976	1.30	100	96.3	90	110	
Na	23	2	He	10643.601	2.656	2396077	0.61	10000	106.4	90	110	
Mg	24	2	He	9961.712	1.153	1073402	1.07	10000	99.6	90	110	
Al	27	2	He	95.444	3.400	3114	2.09	100	95.4	90	110	
K	39	2	He	9362.761	0.434	570098	0.42	10000	93.6	90	110	
Ca	43	2	He	9781.812	7.591	1900	9.52	10000	97.8	90	110	
Ca	44	2	He	9415.134	6.212	32395	4.19	10000	94.2	90	110	
V	51	2	He	98.079	1.920	122906	2.41	100	98.1	90	110	
Cr	52	2	He	100.011	1.646	163156	2.61	100	100.0	90	110	
Mn	55	2	He	98.329	4.500	65089	2.79	100	98.3	90	110	
Fe	56	2	He	9797.717	2.352	12758665	0.46	10000	98.0	90	110	
Co	59	2	He	99.316	5.081	278733	3.06	100	99.3	90	110	
Ni	60	2	He	99.426	5.189	78204	3.41	100	99.4	90	110	
Cu	63	2	He	100.682	4.085	218902	2.10	100	100.7	90	110	
Zn	66	2	He	99.521	2.978	33167	1.79	100	99.5	90	110	
As	75	2	He	97.066	2.937	22906	1.52	100	97.1	90	110	
Se	78	2	He	100.781	6.879	917	8.84	100	100.8	90	110	
B	11	1	nogas	477.712	2.571	918013	0.85	500	95.5	90	110	
Si	28	1	nogas	5103.511	5.718	23836879	3.34	5000	102.1	90	110	
Ca	43	1	nogas	9950.079	3.851	181613	1.03	10000	99.5	90	110	
Ca	44	1	nogas	9453.902	3.794	2918471	0.99	10000	94.5	90	110	
Fe	56	1	nogas	9930.005	3.924	143466662	3.09	10000	99.3	90	110	
Se	77	1	nogas	-18.710	-103.698	79758	3.09	100	-18.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	92.108	4.572	13402	1.86	100	92.1	90	110	
Mo	95	1	nogas	92.381	1.590	331381	2.36	100	92.4	90	110	
Sn	118	1	nogas	95.829	3.625	535671	1.44	100	95.8	90	110	
Ba	137	1	nogas	95.334	4.226	257958	1.70	100	95.3	90	110	
Sb	121	2	He	95.450	1.435	99653	3.13	100	95.5	90	110	
Li	7	1	nogas	98.671	5.956	707901	2.47	100	98.7	90	110	
P	31	1	nogas	500.042	6.097	391089	3.37	500	100.0	90	110	
La	139	1	nogas	66.296	31.910	233	21.14	100	66.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	37547.378	0.000	0	#DIV/0!	100	37547.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	343458	3.28	317621	108.13	70	125	
Ge	72	1	nogas	1520297	2.88	1478633	102.82	70	125	
In	115	1	nogas	1619951	2.47	1539303	105.24	70	125	
Bi	209	1	nogas	1449971	0.69	1532165	94.64	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	120224	2.01	126743	94.86	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	237_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T17:47:00-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.112	6.4	377	4.1	1	
Na	23	1	nogas	425.525	3.1	6892268	1.7	100	CCB Main CR1 Failed
Mg	24	1	nogas	10.298	20.9	93318	18.3	100	
Al	27	1	nogas	0.285	8.4	19964	3.0	5	
K	39	1	nogas	42.051	18.2	5237439	0.5	100	
Ti	47	1	nogas	-0.161	-21.2	200	17.3	2.5	
V	51	1	nogas	-13.916	-48.7	1515701	5.0	2.5	
Cr	52	1	nogas	-1.026	-11.5	32082	3.3	2.5	
Mn	55	1	nogas	0.370	9.2	17232	1.2	2.5	
Co	59	1	nogas	0.054	37.6	1283	23.5	2.5	
Ni	60	1	nogas	0.962	9.7	3210	8.3	2.5	
Cu	63	1	nogas	0.044	104.3	5219	5.8	2.5	
Zn	66	1	nogas	0.540	10.7	1930	5.8	2.5	
As	75	1	nogas	-22.003	-19.7	207653	4.4	2.5	
Sr	88	1	nogas	0.117	17.1	4267	7.6	2.5	
Ag	107	1	nogas	0.062	38.4	1147	20.6	2.5	
Cd	111	1	nogas	0.065	31.9	167	25.0	1	
Sb	121	1	nogas	0.506	22.1	5848	18.9	2.5	
Tl	205	1	nogas	0.285	32.3	4851	32.3	1	
Pb	208	1	nogas	0.078	29.1	2337	21.8	2.5	
U	238	1	nogas	0.070	18.0	1870	16.7	2.5	
[Pb]	206	1	nogas	0.074	30.3	597	21.4	2.5	
[Pb]	207	1	nogas	0.091	9.2	620	5.8	2.5	
Na	23	2	He	435.591	3.3	150985	2.2	100	CCB Main CR1 Failed
Mg	24	2	He	7.551	9.1	1227	6.2	100	
Al	27	2	He	3.233	74.7	150	54.6	5	
K	39	2	He	30.193	23.0	14359	2.9	100	
Ca	43	2	He	66.817	42.7	27	21.7	100	
Ca	44	2	He	5.839	235.1	187	26.4	100	
V	51	2	He	0.434	7.3	895	4.7	2.5	
Cr	52	2	He	-0.162	-81.5	1420	15.7	2.5	
Mn	55	2	He	0.134	96.1	377	23.8	2.5	
Fe	56	2	He	-0.727	-10.3	12584	0.7	100	
Co	59	2	He	0.052	71.9	213	51.6	2.5	
Ni	60	2	He	0.725	9.2	410	13.6	2.5	
Cu	63	2	He	0.298	10.4	897	7.9	2.5	
Zn	66	2	He	0.226	22.0	90	19.2	2.5	
As	75	2	He	-0.076	-57.3	31	34.4	2.5	
Se	78	2	He	0.231	90.6	6	33.3	2.5	
B	11	1	nogas	36.136	12.0	112629	3.9	10	CCB Main CR1 Failed
Si	28	1	nogas	-14.191	-12.2	848425	1.2	5	
Ca	43	1	nogas	11.954	29.2	883	6.2	100	
Ca	44	1	nogas	-383.585	-1.8	65160	3.1	100	
Fe	56	1	nogas	-1.510	-409.4	1067702	9.6	100	
Se	77	1	nogas	-66.962	-27.3	69299	4.6	2.5	
Se	82	1	nogas	-0.705	-95.0	420	22.7	2.5	
Mo	95	1	nogas	0.129	31.5	773	20.7	2.5	
Sn	118	1	nogas	-0.011	-14.0	1763	0.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.015	-309.4	490	26.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.343	14.5	497	11.1	2.5	
P	31	1	nogas	13.508	20.6	69608	0.8	10	CCB Main CR1 Failed
La	139	1	nogas	-5.252	-248.1	47	75.3	2.5	
Au	197	1	nogas	12402.007	231.2	13	114.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	367950	3.86	317621	115.85	70	125	
Ge	72	1	nogas	1541152	1.86	1478633	104.23	70	125	
In	115	1	nogas	1666032	0.95	1539303	108.23	70	125	
Bi	209	1	nogas	1470312	1.45	1532165	95.96	70	125	
Ge	72	2	He	126479	0.15	126743	99.79	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	238LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T17:48:59-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.411	3.611	13829	2.59	5	88.2	70	130	
Na	23	1	nogas	905.567	4.912	12653832	1.73	500	181.1	70	130	LLICV Main CR1 Failed
Mg	24	1	nogas	558.508	2.053	4644546	1.81	500	111.7	70	130	
Al	27	1	nogas	5.902	3.904	80269	2.31	5	118.0	70	130	
K	39	1	nogas	553.576	3.469	10179872	1.24	500	110.7	70	130	
Ti	47	1	nogas	5.133	4.545	5474	3.66	5	102.7	70	130	
V	51	1	nogas	10.190	76.123	1933452	5.59	5	203.8	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	4.438	6.688	103238	3.14	5	88.8	70	130	
Mn	55	1	nogas	5.521	1.172	99053	1.75	5	110.4	70	130	
Co	59	1	nogas	4.936	0.493	70728	1.07	5	98.7	70	130	
Ni	60	1	nogas	6.110	0.894	19340	0.81	5	122.2	70	130	
Cu	63	1	nogas	5.279	3.723	45073	2.55	5	105.6	70	130	
Zn	66	1	nogas	6.040	6.732	15520	5.69	5	120.8	70	130	
As	75	1	nogas	-3.115	-197.441	270187	6.20	5	-62.3	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	4.944	1.358	87377	0.63	5	98.9	70	130	
Ag	107	1	nogas	5.097	2.366	52037	2.75	5	101.9	70	130	
Cd	111	1	nogas	5.411	2.102	11104	2.60	5	108.2	70	130	
Sb	121	1	nogas	4.978	1.557	48521	0.82	5	99.6	70	130	
Tl	205	1	nogas	5.086	2.936	85765	1.01	5	101.7	70	130	
Pb	208	1	nogas	5.463	1.348	123055	1.34	5	109.3	70	130	
U	238	1	nogas	5.127	0.918	122373	1.07	5	102.5	70	130	
[Pb]	206	1	nogas	5.270	2.311	30963	0.91	5	105.4	70	130	
[Pb]	207	1	nogas	5.135	5.241	27473	3.66	5	102.7	70	130	
Na	23	2	He	918.037	2.547	265196	1.16	500	183.6	70	130	LLICV Main CR1 Failed
Mg	24	2	He	523.820	0.992	60237	0.46	500	104.8	70	130	
Al	27	2	He	6.413	1.277	260	0.00	5	128.3	70	130	
K	39	2	He	535.003	2.777	44420	1.99	500	107.0	70	130	
Ca	43	2	He	309.454	70.298	77	58.82	500	61.9	70	130	LLICV Main CR1 Failed
Ca	44	2	He	462.196	11.189	1847	9.84	500	92.4	70	130	
V	51	2	He	5.603	3.198	7755	1.99	5	112.1	70	130	
Cr	52	2	He	4.874	7.751	10056	5.40	5	97.5	70	130	
Mn	55	2	He	5.019	5.537	3797	4.48	5	100.4	70	130	
Fe	56	2	He	485.093	2.854	683270	2.25	500	97.0	70	130	
Co	59	2	He	5.173	3.380	15467	2.72	5	103.5	70	130	
Ni	60	2	He	5.774	7.810	4641	8.89	5	115.5	70	130	
Cu	63	2	He	5.481	1.768	12851	0.94	5	109.6	70	130	
Zn	66	2	He	5.522	8.399	1963	8.68	5	110.4	70	130	
As	75	2	He	4.851	5.415	1262	4.44	5	97.0	70	130	
Se	78	2	He	4.808	26.364	50	24.33	5	96.2	70	130	
B	11	1	nogas	49.957	4.803	142125	2.56	25	199.8	70	130	LLICV Main CR1 Failed
Si	28	1	nogas	264.730	3.548	2171067	1.33	25	1058.9	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	529.251	2.594	10677	1.68	500	105.9	70	130	
Ca	44	1	nogas	131.667	17.398	221982	2.44	500	26.3	70	130	LLICV Main CR1 Failed
Fe	56	1	nogas	510.094	1.266	8710891	0.54	500	102.0	70	130	
Se	77	1	nogas	-4.334	-538.964	86388	5.96	5	-86.7	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	3.897	30.868	1100	16.44	5	77.9	70	130	
Mo	95	1	nogas	4.812	1.306	18213	1.08	5	96.2	70	130	
Sn	118	1	nogas	4.860	2.025	29222	0.91	5	97.2	70	130	
Ba	137	1	nogas	5.050	3.331	14333	1.56	5	101.0	70	130	
Sb	121	2	He	5.101	5.893	5761	4.81	5	102.0	70	130	
Li	7	1	nogas	5.098	1.621	71925	1.72	5	102.0	70	130	
P	31	1	nogas	42.452	3.723	91226	1.05	25	169.8	70	130	LLICV Main CR1 Failed
La	139	1	nogas	7.446	82.686	80	21.65	5	148.9	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	6933.464	403.637	17	91.65	5	138669.3	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	373303	1.04	317621	117.53	70	125	
Ge	72	1	nogas	1578101	0.75	1478633	106.73	70	125	
In	115	1	nogas	1640015	2.04	1539303	106.54	70	125	
Bi	209	1	nogas	1508022	1.96	1532165	98.42	70	125	
Ge	72	2	He	127540	1.08	126743	100.63	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	239SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T17:50:58-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.808	1.808	6.50	5838	0.03	2000	
Na	23	1	nogas	500.832	500.832	3.96	7974249	0.01	200000	
Mg	24	1	nogas	215.153	215.153	2.62	1830047	0.01	200000	
Al	27	1	nogas	2.307	2.307	2.95	41814	0.01	2000	
K	39	1	nogas	223.280	223.280	4.51	7041104	0.00	200000	
Ti	47	1	nogas	2.008	2.008	11.74	2354	0.09	2000	
V	51	1	nogas	7.357	7.357	67.32	1881233	0.00	2000	
Cr	52	1	nogas	1.380	1.380	13.92	63589	0.00	2000	
Mn	55	1	nogas	2.395	2.395	2.87	49450	0.00	2000	
Co	59	1	nogas	2.022	2.022	1.42	29177	0.01	2000	
Ni	60	1	nogas	2.746	2.746	4.20	8816	0.03	2000	
Cu	63	1	nogas	2.003	2.003	1.65	20131	0.01	2000	
Zn	66	1	nogas	2.550	2.550	5.99	6901	0.04	2000	
As	75	1	nogas	-7.175	-7.175	-69.24	256786	0.00	2000	
Sr	88	1	nogas	2.024	2.024	4.41	36995	0.01	2000	
Ag	107	1	nogas	1.974	1.974	2.07	20412	0.01	2000	
Cd	111	1	nogas	1.957	1.957	1.04	4122	0.05	2000	
Sb	121	1	nogas	1.979	1.979	3.42	19915	0.01	2000	
Tl	205	1	nogas	2.026	2.026	1.83	33836	0.01	2000	
Pb	208	1	nogas	2.110	2.110	0.98	47885	0.00	2000	
U	238	1	nogas	2.016	2.016	2.76	47652	0.00	2000	
[Pb]	206	1	nogas	1.986	1.986	2.97	11628	0.02	2000	
[Pb]	207	1	nogas	1.982	1.982	1.91	10570	0.02	2000	
Na	23	2	He	534.647	534.647	1.80	177320	0.30	200000	
Mg	24	2	He	207.713	207.713	5.54	24366	0.85	200000	
Al	27	2	He	2.757	2.757	78.38	137	2.02	2000	
K	39	2	He	215.059	215.059	4.15	25367	0.85	200000	
Ca	43	2	He	80.422	80.422	60.19	30	268.07	200000	
Ca	44	2	He	179.132	179.132	21.11	827	21.67	200000	
V	51	2	He	2.474	2.474	3.26	3646	0.07	2000	
Cr	52	2	He	1.988	1.988	6.12	5171	0.04	2000	
Mn	55	2	He	1.952	1.952	6.79	1670	0.12	2000	
Fe	56	2	He	185.373	185.373	1.42	272478	0.07	200000	
Co	59	2	He	2.073	2.073	5.84	6301	0.03	2000	
Ni	60	2	He	2.564	2.564	1.05	1973	0.13	2000	
Cu	63	2	He	2.407	2.407	1.57	5828	0.04	2000	
Zn	66	2	He	2.608	2.608	11.73	943	0.28	2000	
As	75	2	He	1.839	1.839	14.00	516	0.36	2000	
Se	78	2	He	1.868	1.868	22.03	22	8.49	2000	
B	11	1	nogas	31.014	31.014	9.43	106990	0.03	2000	
Si	28	1	nogas	95.924	95.924	4.28	1377389	0.01	2000	
Ca	43	1	nogas	210.691	210.691	2.88	4641	4.54	200000	
Ca	44	1	nogas	-183.728	-183.728	-5.33	126432	-0.15	200000	
Fe	56	1	nogas	210.604	210.604	3.60	4233643	0.00	200000	

Sample Report

Se	77	1	nogas	-20.507	-20.507	-89.53	82078	-0.02	2000	
Se	82	1	nogas	1.792	1.792	39.24	790	0.23	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	1.886	1.886	4.27	7295	0.03	2000	
Sn	118	1	nogas	1.786	1.786	3.70	12134	0.01	2000	
Ba	137	1	nogas	2.056	2.056	2.79	6275	0.03	2000	
Sb	121	2	He	1.909	1.909	6.55	2257	0.08	2000	
La	139	1	nogas	19.134	19.134	42.25	113	16.88	2000	
Au	197	1	nogas	6145.385	6145.385	178.11	17	36872.31	2000	>LDR

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	383580	2.93	317621	120.77	70	125	
Ge	72	1	nogas	1571668	0.81	1478633	106.29	70	125	
In	115	1	nogas	1674865	1.93	1539303	108.81	70	125	
Bi	209	1	nogas	1488745	1.10	1532165	97.17	70	125	
Ge	72	2	He	128907	0.62	126743	101.71	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	240ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T17:52:56-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.017	41.4	83	25.0	0	ICSA Main CR1 Failed
Na	23	1	nogas	108654.115	0.5	1241293594	2.2	0	
Mg	24	1	nogas	107672.543	1.3	852357252	0.5	0	
Al	27	1	nogas	89939.894	1.7	947876173	1.5	0	
K	39	1	nogas	99686.409	1.6	933452354	1.0	0	
Ti	47	1	nogas	2002.188	1.5	1972211	1.5	0	
V	51	1	nogas	-9.476	-7.5	1605992	0.3	0	ICSA Main CR1 Failed
Cr	52	1	nogas	-0.157	-18.2	43595	1.6	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.563	10.4	20478	3.9	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.072	11.5	1560	7.9	0	ICSA Main CR1 Failed
Ni	60	1	nogas	1.666	9.9	5424	9.1	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.790	9.5	10887	4.4	0	ICSA Main CR1 Failed
Zn	66	1	nogas	2.156	4.7	5894	3.8	0	ICSA Main CR1 Failed
As	75	1	nogas	-0.205	-933.9	276119	1.7	0	ICSA Main CR1 Failed
Sr	88	1	nogas	0.889	6.1	17445	4.6	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.016	69.5	703	15.7	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.311	6.9	2584	7.4	0	ICSA Main CR1 Failed
Sb	121	1	nogas	0.104	20.9	2137	8.8	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.026	38.9	563	29.5	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.081	16.4	2390	12.4	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.077	5.7	583	4.0	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.096	0.5	617	2.5	0	ICSA Main CR1 Failed
Na	23	2	He	103798.016	1.7	23235801	0.2	0	
Mg	24	2	He	100481.360	1.7	10955242	0.1	0	
Al	27	2	He	86042.072	1.2	2807345	2.5	0	
K	39	2	He	95286.460	2.3	5686713	2.3	0	
Ca	43	2	He	98897.122	1.7	19307	0.8	0	
Ca	44	2	He	93216.382	1.9	323423	0.4	0	
V	51	2	He	0.403	4.4	821	1.2	0	ICSA Main CR1 Failed
Cr	52	2	He	0.125	47.1	1833	4.0	0	ICSA Main CR1 Failed
Mn	55	2	He	0.129	114.5	360	29.0	0	ICSA Main CR1 Failed
Fe	56	2	He	97304.757	0.9	128167518	1.2	0	
Co	59	2	He	0.006	277.4	77	66.9	0	ICSA Main CR1 Failed
Ni	60	2	He	0.765	2.4	427	4.9	0	ICSA Main CR1 Failed
Cu	63	2	He	0.567	9.5	1453	6.5	0	ICSA Main CR1 Failed
Zn	66	2	He	1.044	24.0	363	24.8	0	ICSA Main CR1 Failed
As	75	2	He	0.018	286.2	52	22.4	0	ICSA Main CR1 Failed
Se	78	2	He	0.410	189.9	7	95.8	0	ICSA Main CR1 Failed
B	11	1	nogas	26.165	4.0	93416	1.5	0	
Si	28	1	nogas	72.979	13.9	1261946	2.9	0	
Ca	43	1	nogas	100103.755	2.1	1871324	1.3	0	
Ca	44	1	nogas	98834.466	1.3	29644635	0.8	0	
Fe	56	1	nogas	95731.798	1.1	1411354498	0.9	0	
Se	77	1	nogas	17.491	34.6	90788	0.8	0	
Se	82	1	nogas	-0.720	-70.9	423	17.1	0	ICSA Main CR1 Failed
Mo	95	1	nogas	1974.363	1.4	7267614	1.6	0	
Sn	118	1	nogas	-0.085	-63.5	1257	24.0	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.010	152.0	523	7.2	0	ICSA Main CR1 Failed
Sb	121	2	He	0.172	42.2	297	26.2	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	93156.956	1.1	63507762	0.3	0	
La	139	1	nogas	79.807	15.0	260	11.5	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	368957	1.61	317621	116.16	70	125	
Ge	72	1	nogas	1561157	0.81	1478633	105.58	70	125	
In	115	1	nogas	1560912	1.04	1539303	101.40	70	125	
Bi	209	1	nogas	1397842	2.80	1532165	91.23	70	125	
Ge	72	2	He	121687	1.57	126743	96.01	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	241ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-14T17:55:00-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	84.518	0.622	248025	2.57	100	84.5	80	120	
Na	23	1	nogas	119787.424	0.515	1375434631	1.17	100	119787.4	80	120	
Mg	24	1	nogas	119520.380	1.189	951346388	2.27	100	119520.4	80	120	
Al	27	1	nogas	90302.418	4.598	936004919	2.49	100	90302.4	80	120	ICSB Main CR1 Failed
K	39	1	nogas	109827.198	4.454	1011034256	2.48	100	109827.2	80	120	
Ti	47	1	nogas	2135.563	5.289	2068612	3.16	100	2135.6	80	120	ICSB Main CR1 Failed
V	51	1	nogas	58.169	11.866	2619087	2.12	100	58.2	80	120	ICSB Main CR1 Failed
Cr	52	1	nogas	82.990	4.604	1084921	2.29	100	83.0	80	120	
Mn	55	1	nogas	89.426	7.298	1386016	5.47	100	89.4	80	120	
Co	59	1	nogas	82.854	1.968	1146973	0.37	100	82.9	80	120	
Ni	60	1	nogas	86.707	5.568	263268	3.43	100	86.7	80	120	
Cu	63	1	nogas	85.677	4.189	637517	2.09	100	85.7	80	120	
Zn	66	1	nogas	89.766	2.444	215806	0.37	100	89.8	80	120	
As	75	1	nogas	69.843	8.892	479079	2.08	100	69.8	80	120	ICSB Main CR1 Failed
Sr	88	1	nogas	88.759	5.301	1487235	3.18	100	88.8	80	120	
Ag	107	1	nogas	80.564	2.820	792531	1.34	100	80.6	80	120	
Cd	111	1	nogas	90.454	0.920	176306	0.69	100	90.5	80	120	
Sb	121	1	nogas	85.781	2.458	795381	1.79	100	85.8	80	120	
Tl	205	1	nogas	90.017	3.442	1413254	1.21	100	90.0	80	120	
Pb	208	1	nogas	86.978	0.541	1950550	0.54	100	87.0	80	120	
U	238	1	nogas	96.244	1.394	2139013	1.90	100	96.2	80	120	
[Pb]	206	1	nogas	87.571	2.799	477278	0.45	100	87.6	80	120	
[Pb]	207	1	nogas	86.916	3.309	431520	0.90	100	86.9	80	120	
Na	23	2	He	117190.534	1.301	25973522	0.56	100	117190.5	80	120	ICSB Main CR1 Failed
Mg	24	2	He	113692.387	1.273	12276819	1.85	100	113692.4	80	120	ICSB Main CR1 Failed
Al	27	2	He	90517.604	1.761	2924248	2.03	100	90517.6	80	120	ICSB Main CR1 Failed
K	39	2	He	106962.146	1.596	6381981	1.59	100	106962.1	80	120	
Ca	43	2	He	105482.392	1.648	20391	0.86	100	105482.4	80	120	ICSB Main CR1 Failed
Ca	44	2	He	102079.411	1.751	350728	0.96	100	102079.4	80	120	
V	51	2	He	89.873	1.103	112903	0.34	100	89.9	80	120	
Cr	52	2	He	90.215	1.015	147671	1.61	100	90.2	80	120	
Mn	55	2	He	87.591	2.761	58166	2.22	100	87.6	80	120	
Fe	56	2	He	109395.448	3.504	142680738	3.33	100	109395.4	80	120	ICSB Main CR1 Failed
Co	59	2	He	89.125	3.669	250869	3.69	100	89.1	80	120	
Ni	60	2	He	88.880	4.994	70078	4.47	100	88.9	80	120	
Cu	63	2	He	88.149	1.392	192201	0.60	100	88.1	80	120	
Zn	66	2	He	88.240	1.496	29484	1.59	100	88.2	80	120	
As	75	2	He	89.670	1.353	21218	1.11	100	89.7	80	120	
Se	78	2	He	86.096	7.000	785	6.99	100	86.1	80	120	
B	11	1	nogas	453.869	4.757	890695	1.52	100	453.9	80	120	
Si	28	1	nogas	4498.036	4.123	21347063	2.07	100	4498.0	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	114039.857	0.811	2098224	2.64	100	114039.9	80	120	ICSB Main CR1 Failed
Ca	44	1	nogas	110719.948	1.448	32657935	1.66	100	110719.9	80	120	
Fe	56	1	nogas	106229.093	6.688	1539952134	5.02	100	106229.1	80	120	
Se	77	1	nogas	43.303	58.975	95453	4.45	100	43.3	80	120	ICSB Main CR1 Failed
Se	82	1	nogas	87.439	3.504	12888	1.88	100	87.4	80	120	
Mo	95	1	nogas	2119.604	5.055	7673214	3.20	100	2119.6	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	90.643	1.579	488923	1.92	100	90.6	80	120	
Ba	137	1	nogas	88.547	1.974	231196	1.54	100	88.5	80	120	
Sb	121	2	He	87.104	2.996	91141	3.01	100	87.1	80	120	
La	139	1	nogas	282.602	13.448	777	13.03	100	282.6	80	120	ICSB Main CR1 Failed

QC ISTD Table

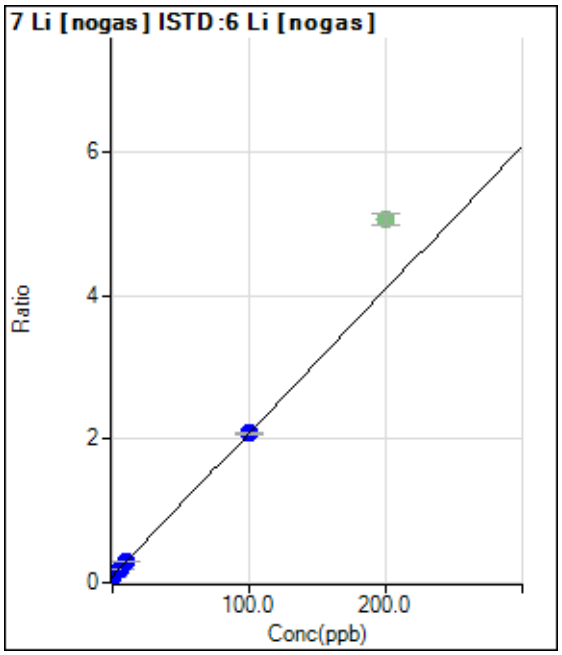
Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	350116	3.20	317621	110.23	70	125	
Ge	72	1	nogas	1536332	2.10	1478633	103.90	70	125	
In	115	1	nogas	1562064	1.61	1539303	101.48	70	125	
Bi	209	1	nogas	1406693	2.45	1532165	91.81	70	125	
Ge	72	2	He	120495	0.80	126743	95.07	70	125	

Calibration for 011_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\121417A.b\
Analysis File: 121417A.batch.bin
DA Date-Time: 2017-12-14 13:49:24
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	004CALB.d	CAL BLK	2017-12-14 09:25:04
2	005CALS.d	2/10/200	2017-12-14 09:27:03
3	006CALS.d	5/25/500	2017-12-14 09:29:02
4	007CALS.d	10/50/1000	2017-12-14 09:31:01
5	008CALS.d	100/500/10K	2017-12-14 09:33:00
6	009CALS.d	200/1000/20K	2017-12-14 09:34:57
7			

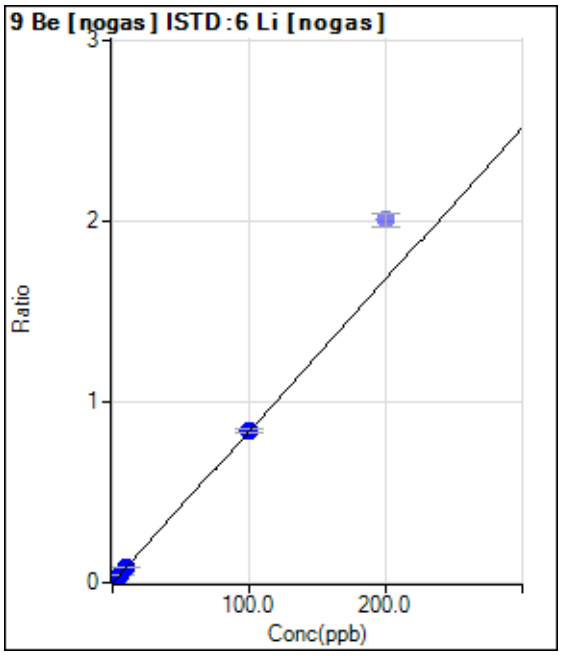
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	28819.07	0.0907	P	5.5
2	☐	2.000	1.687	39127.41	0.1245	P	1.7
3	☐	5.000	4.671	57936.18	0.1841	P	5.6
4	☐	10.000	10.060	90034.57	0.2919	P	1.4
5	☐	100.000	100.017	602226.71	2.0905	P	1.3
6	☑	200.000		1251648.24	5.0580	A	3.1
7	☐	1.000					

y = 0.0200 * x + 0.0907
R = 1.0000
DL = 0.7478
BEC = 4.538

Weight: <None>
Min Conc: <None>

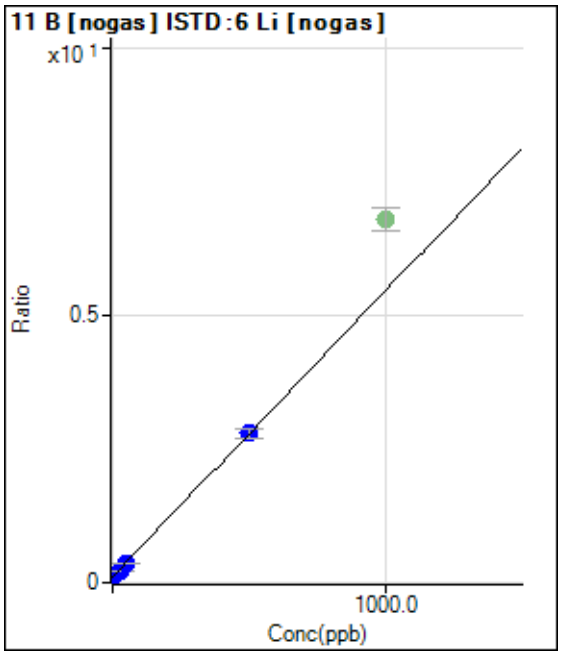


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	26.67	0.0001	P	142.
2	☐	2.000	2.103	5567.60	0.0177	P	2.8
3	☐	5.000	4.653	12304.25	0.0391	P	9.5
4	☐	10.000	9.929	25697.64	0.0833	P	4.2
5	☐	100.000	100.022	241385.14	0.8385	P	3.5
6	☑	200.000		495882.08	2.0046	P	3.7
7	☐	1.000					

y = 0.0084 * x + 8.3999E-005
R = 1.0000
DL = 0.04276
BEC = 0.01002

Weight: <None>
Min Conc: <None>

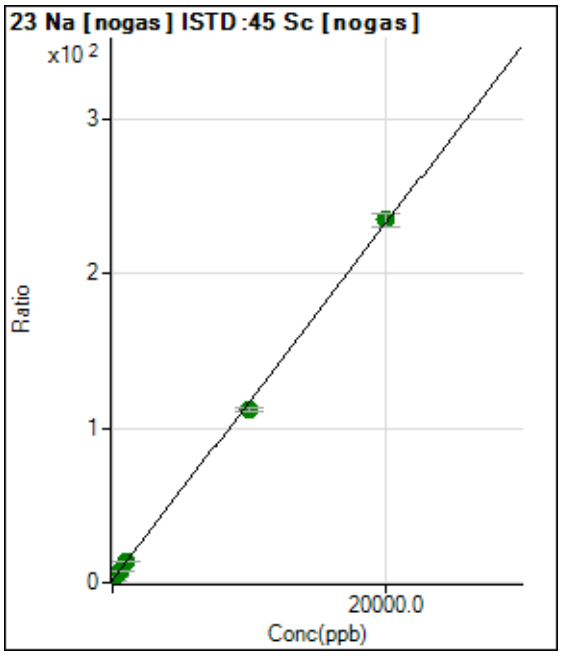
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	35871.08	0.1129	P	1.8
2	☐	10.000	9.066	50774.83	0.1616	P	2.3
3	☐	25.000	21.660	72076.58	0.2291	P	1.7
4	☐	50.000	46.692	112053.40	0.3633	P	1.0
5	☐	500.000	500.516	804314.18	2.7966	P	7.0
6	☑	1000.000		1680373.52	6.7946	A	6.4
7	☐	5.000					

y = 0.0054 * x + 0.1129
R = 1.0000
DL = 1.158
BEC = 21.06

Weight: <None>
Min Conc: <None>

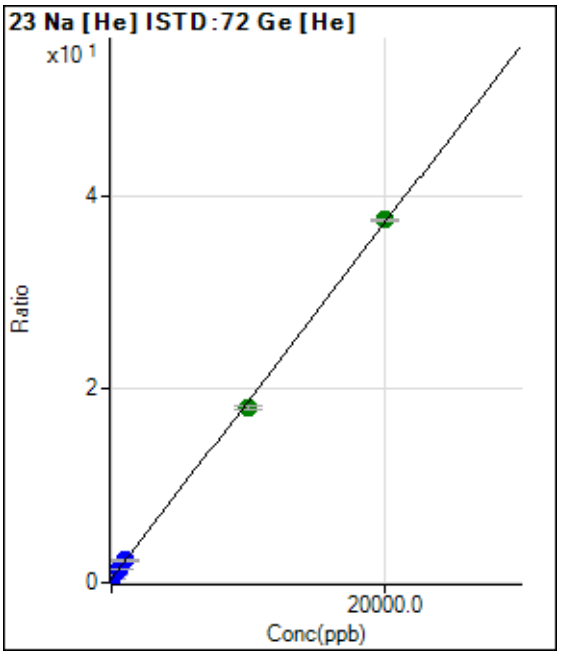


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1681525.04	1.7628	A	3.1
2	☐	200.000	188.006	3788458.55	3.9309	A	1.0
3	☐	500.000	474.432	7038279.06	7.2339	A	0.4
4	☐	1000.000	1016.655	13100336.23	13.4867	A	4.5
5	☐	10000.00	9574.983	107708948.2	112.180	A	1.9
6	☐	20000.00	20212.435	222142804.9	234.849	A	3.4
7	☐	100.000					

y = 0.0115 * x + 1.7628
R = 0.9997
DL = 14.29
BEC = 152.9

Weight: <None>
Min Conc: <None>

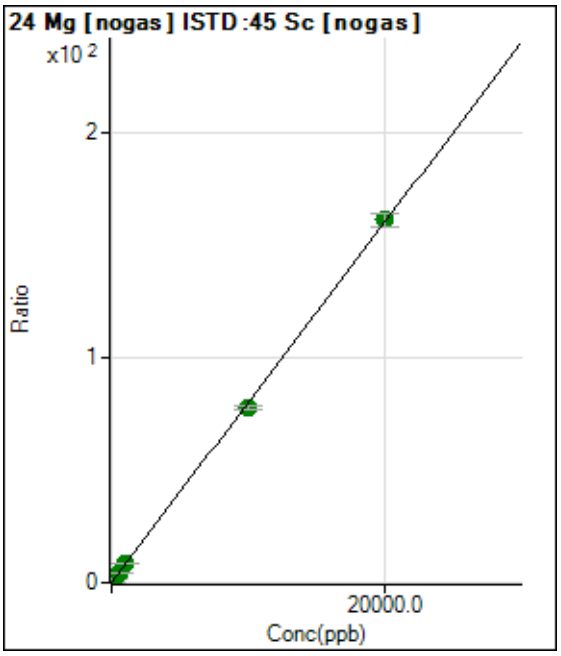
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	49936.03	0.3940	P	0.8
2	☐	200.000	203.224	96667.15	0.7671	P	3.0
3	☐	500.000	510.035	170698.11	1.3304	P	3.2
4	☐	1000.000	1029.108	300080.96	2.2835	P	4.9
5	☐	10000.00	9623.540	2334400.33	18.0640	A	1.6
6	☐	20000.00	20186.492	4642054.93	37.4590	A	0.2
7	☐	100.000					

y = 0.0018 * x + 0.3940
R = 0.9997
DL = 4.849
BEC = 214.6

Weight: <None>
Min Conc: <None>

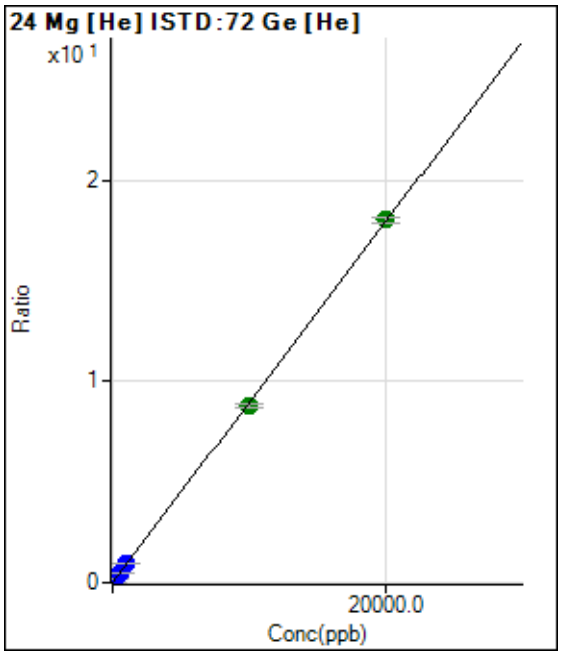


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7602.87	0.0080	P	20.6
2	☐	200.000	201.567	1562348.34	1.6212	A	1.1
3	☐	500.000	502.128	3918088.24	4.0267	A	2.3
4	☐	1000.000	1043.943	8124185.34	8.3632	A	3.9
5	☐	10000.00	9709.472	74627545.42	77.7177	A	1.7
6	☐	20000.00	20142.998	152520590.9	161.222	A	3.7
7	☐	100.000					

y = 0.0080 * x + 0.0080
R = 0.9998
DL = 0.6158
BEC = 0.9946

Weight: <None>
Min Conc: <None>

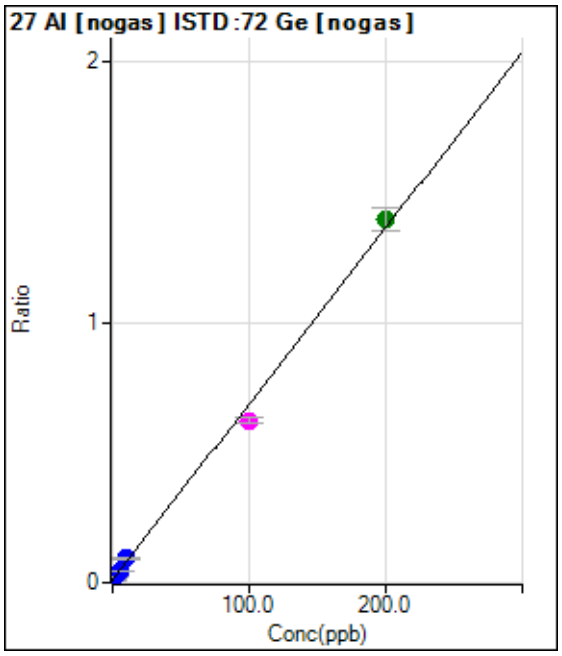
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	373.35	0.0029	P	31.8
2	☐	200.000	205.489	23575.15	0.1871	P	4.2
3	☐	500.000	512.450	59313.27	0.4621	P	1.3
4	☐	1000.000	1033.793	122132.99	0.9293	P	4.5
5	☐	10000.00	9778.807	1132789.72	8.7657	A	1.7
6	☐	20000.00	20108.541	2233252.05	18.0221	A	1.8
7	☐	100.000					

y = 8.9610E-004 * x + 0.0029
R = 0.9999
DL = 3.127
BEC = 3.273

Weight: <None>
Min Conc: <None>

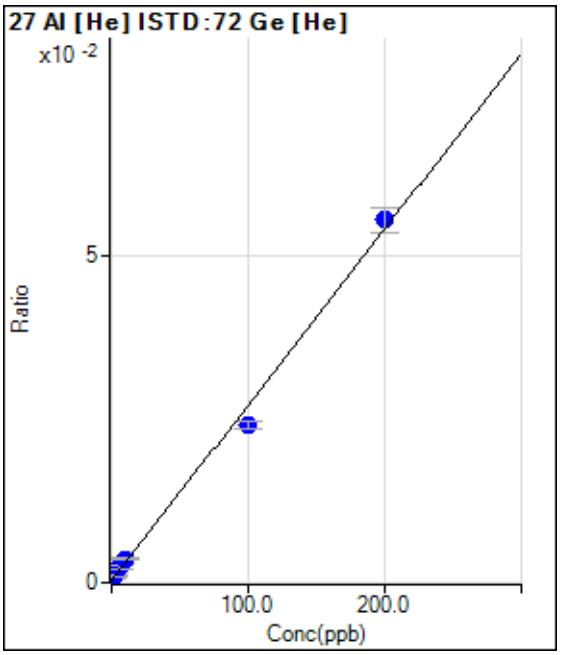


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16297.31	0.0110	P	6.6
2	☐	2.000	1.708	32246.00	0.0226	P	3.3
3	☐	5.000	5.414	69308.17	0.0476	P	0.7
4	☐	10.000	12.205	133878.13	0.0934	P	3.4
5	☐	100.000	90.515	938706.37	0.6221	M	4.2
6	☐	200.000	204.625	1946534.19	1.3924	A	6.4
7	☐	1.000					

y = 0.0068 * x + 0.0110
R = 0.9983
DL = 0.3211
BEC = 1.633

Weight: <None>
Min Conc: <None>

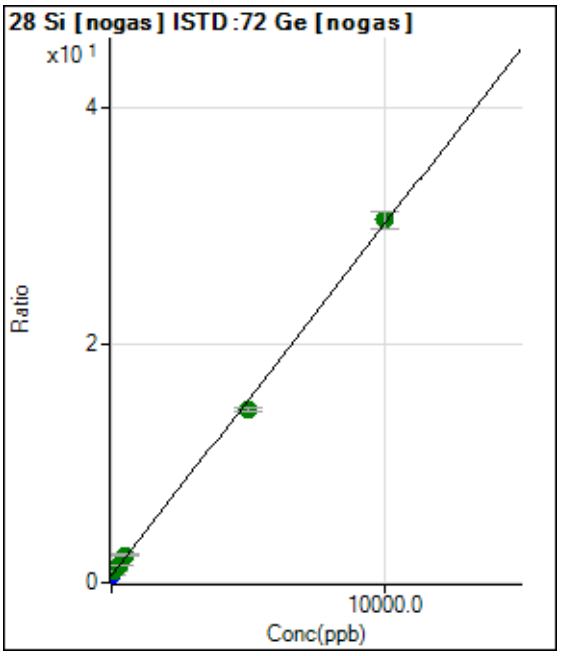
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.670	63.33	0.0005	P	17.3
2	☐	2.000	2.256	116.67	0.0009	P	34.2
3	☐	5.000	7.677	306.67	0.0024	P	28.3
4	☐	10.000	12.205	473.35	0.0036	P	6.4
5	☐	100.000	88.742	3116.97	0.0241	P	5.6
6	☐	200.000	205.449	6864.70	0.0554	P	7.1
7	☐	1.000					

y = 2.6810E-004 * x + 3.1942E-004
R = 0.9975
DL = 0.9672
BEC = 1.191

Weight: <None>
Min Conc: <None>

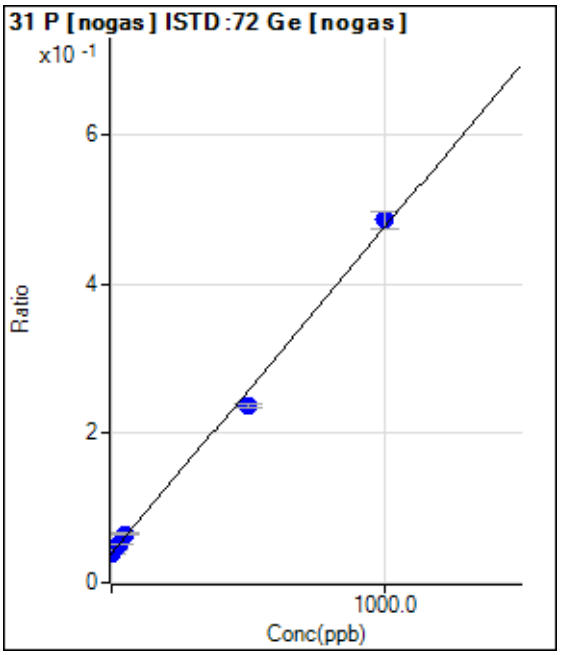


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	875902.85	0.5926	P	2.4
2	☐	100.000	141.368	1444928.10	1.0109	A	2.1
3	☐	250.000	302.068	2165355.75	1.4864	A	0.4
4	☐	500.000	587.563	3340531.72	2.3311	A	3.9
5	☐	5000.000	4741.683	22069426.34	14.6230	A	2.3
6	☐	10000.00	10123.065	42718266.03	30.5462	A	4.7
7	☐	5.000					

y = 0.0030 * x + 0.5926
R = 0.9994
DL = 14.14
BEC = 200.3

Weight: <None>
Min Conc: <None>

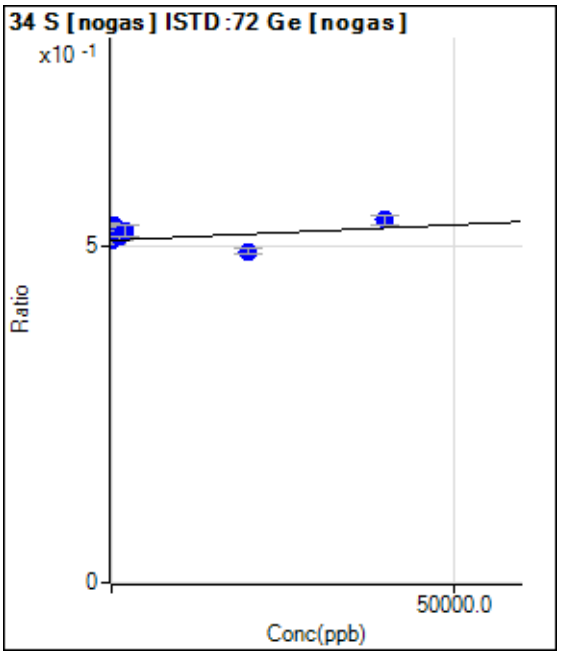
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	58086.21	0.0393	P	1.1
2	☐	10.000	11.262	63182.44	0.0442	P	2.2
3	☐	25.000	27.270	74547.09	0.0512	P	2.0
4	☐	50.000	58.875	93121.84	0.0650	P	2.4
5	☐	500.000	452.538	357239.94	0.2367	P	1.9
6	☐	1000.000	1023.218	679234.23	0.4857	P	4.7
7	☐	5.000					

y = 4.3628E-004 * x + 0.0393
R = 0.9983
DL = 2.877
BEC = 90.05

Weight: <None>
Min Conc: <None>

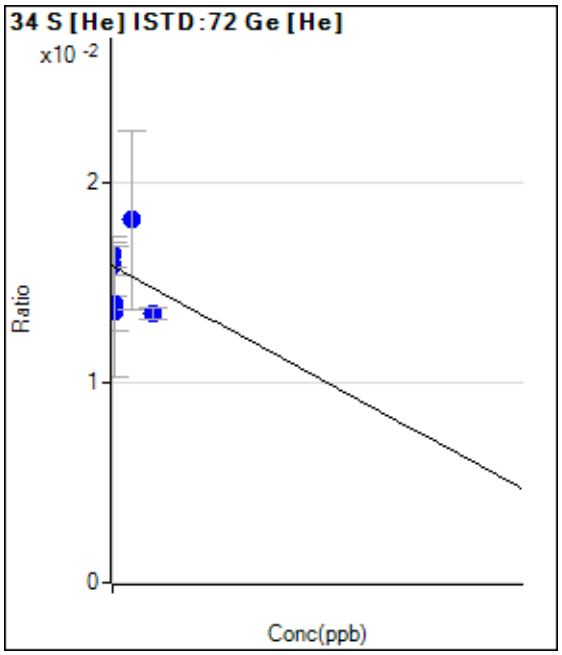


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	750532.32	0.5078	P	2.8
2	☐	400.000	50583.968	759025.78	0.5310	P	0.9
3	☐	1000.000	13051.961	748179.36	0.5138	P	2.9
4	☐	2000.000	30356.594	747656.02	0.5217	P	3.4
5	☐	20000.00	-35879.27	741427.75	0.4913	P	1.9
6	☐	40000.00	65718.667	752733.04	0.5380	P	2.7
7	☐	100.000					

y = 4.5961E-007 * x + 0.5078
R = 0.2329
DL = 9.215E+04
BEC = 1.105E+06

Weight: <None>
Min Conc: <None>

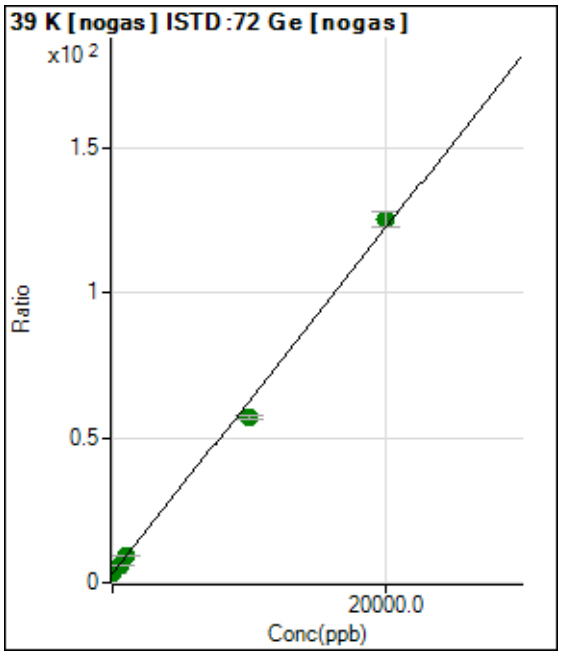
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2000.61	0.0158	P	19.1
2	☐	400.000	-21081.76	2067.23	0.0164	P	7.3
3	☐	1000.000	84408.880	1733.81	0.0135	P	48.6
4	☐	2000.000	67861.904	1833.78	0.0140	P	19.6
5	☐	20000.00	-84412.14	2334.14	0.0181	P	49.0
6	☐	40000.00	87042.571	1667.06	0.0135	P	4.0
7	☐	100.000					

y = -2.7254E-008 * x + 0.0158
R = -0.1047
DL = -3.33E+05
BEC = -5.807E+05

Weight: <None>
Min Conc: <None>

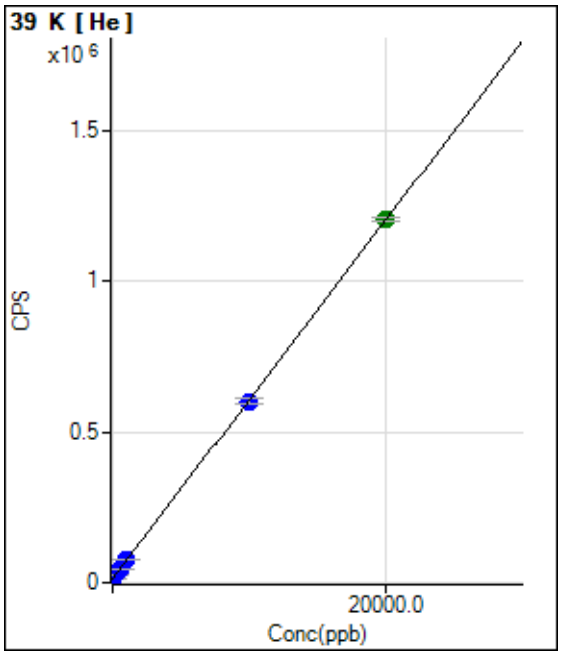


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4653435.39	3.1480	A	2.5
2	☐	200.000	223.731	6407989.20	4.4830	A	0.1
3	☐	500.000	503.729	8960286.66	6.1538	A	3.8
4	☐	1000.000	1045.252	13450004.47	9.3850	A	2.8
5	☐	10000.00	9040.548	86160795.68	57.0922	A	2.5
6	☐	20000.00	20477.133	175299245.5	125.333	A	4.2
7	☐	100.000					

y = 0.0060 * x + 3.1480
R = 0.9984
DL = 38.78
BEC = 527.6

Weight: <None>
Min Conc: <None>

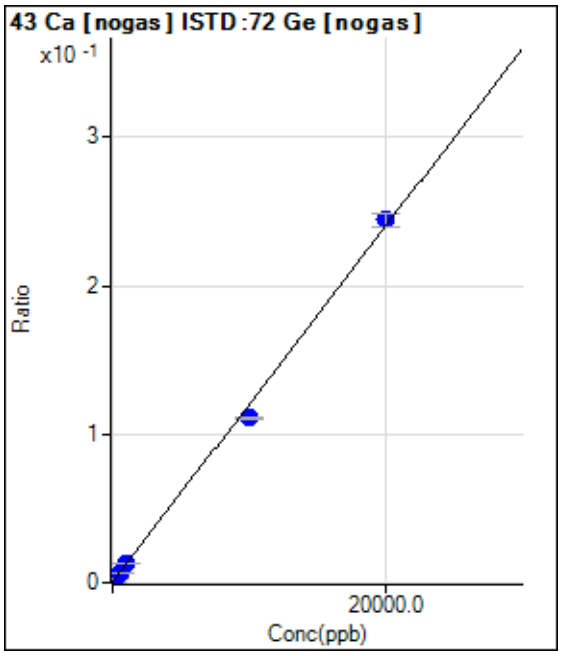
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	12561.06		P	4.4
2	☐	200.000	208.837	24996.98		P	1.9
3	☐	500.000	513.739	43153.37		P	2.6
4	☐	1000.000	1091.710	77570.62		P	1.5
5	☐	10000.00	9925.296	603596.12		P	2.8
6	☐	20000.00	20032.335	1205453.68		A	1.2
7	☐	100.000					

y = 59.5484 * x + 12561.0567
R = 1.0000
DL = 28.11
BEC = 210.9

Weight: <None>
Min Conc: <None>

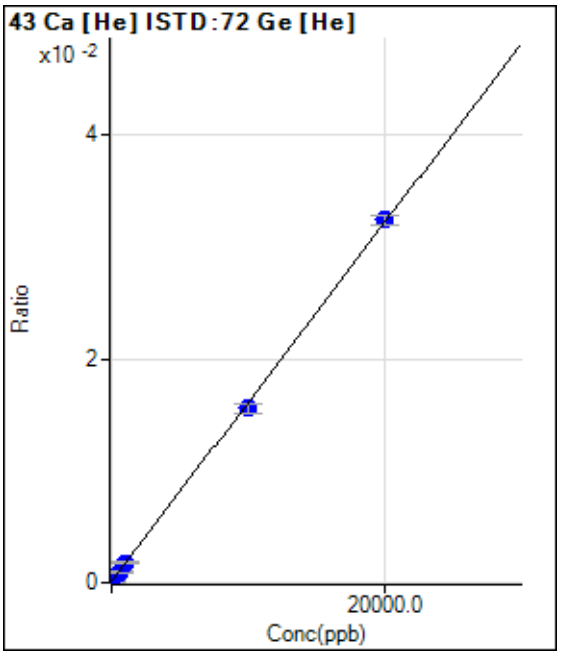


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	636.69	0.0004	P	16.2
2	☐	200.000	218.486	4353.90	0.0030	P	0.9
3	☐	500.000	518.054	9659.33	0.0066	P	2.5
4	☐	1000.000	1071.294	19000.04	0.0133	P	1.5
5	☐	10000.00	9253.804	167831.21	0.1112	P	1.4
6	☐	20000.00	20368.897	341699.11	0.2443	P	3.6
7	☐	100.000					

y = 1.1971E-005 * x + 4.3042E-004
R = 0.9990
DL = 17.46
BEC = 35.95

Weight: <None>
Min Conc: <None>

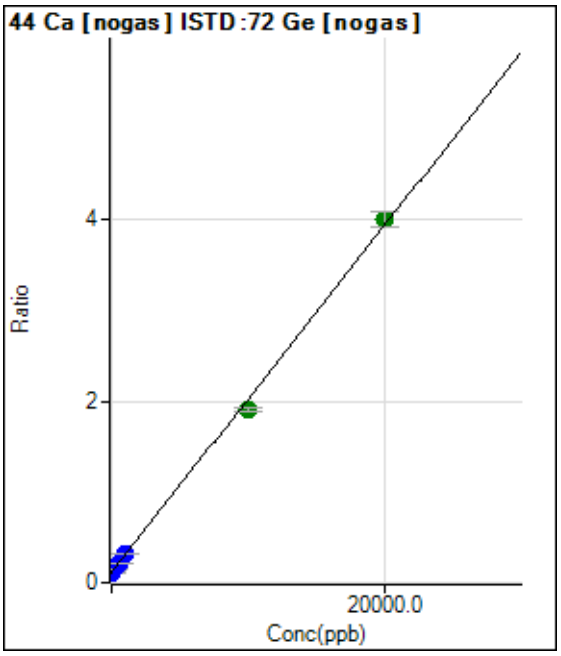
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0001	P	113.
2	☐	200.000	282.471	70.00	0.0006	P	25.8
3	☐	500.000	487.582	113.33	0.0009	P	16.3
4	☐	1000.000	1058.738	236.67	0.0018	P	10.4
5	☐	10000.00	9653.031	2013.48	0.0156	P	5.9
6	☐	20000.00	20170.033	4020.52	0.0324	P	2.8
7	☐	100.000					

y = 1.6035E-006 * x + 1.0372E-004
R = 0.9998
DL = 219.6
BEC = 64.68

Weight: <None>
Min Conc: <None>

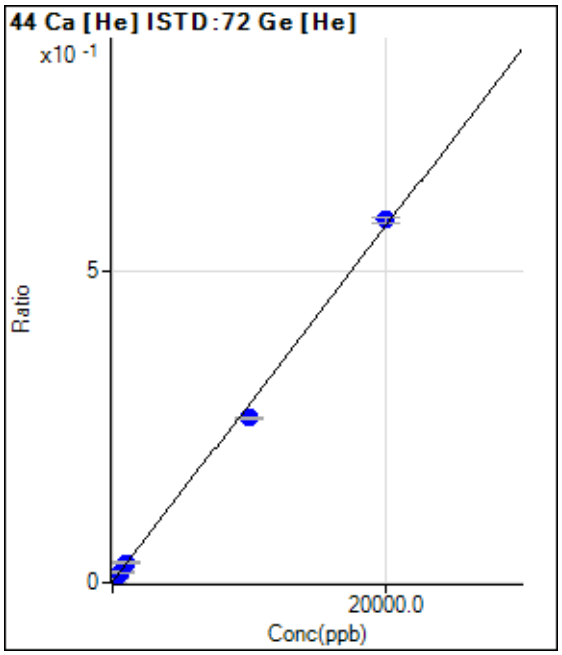


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	170807.09	0.1155	P	1.9
2	☐	200.000	218.571	224817.63	0.1573	P	2.4
3	☐	500.000	509.338	309878.98	0.2128	P	3.5
4	☐	1000.000	1087.248	463147.16	0.3232	P	2.9
5	☐	10000.00	9353.653	2869963.71	1.9018	A	1.8
6	☐	20000.00	20318.392	5588725.33	3.9957	A	4.3
7	☐	100.000					

y = 1.9097E-004 * x + 0.1155
R = 0.9992
DL = 35.32
BEC = 605

Weight: <None>
Min Conc: <None>

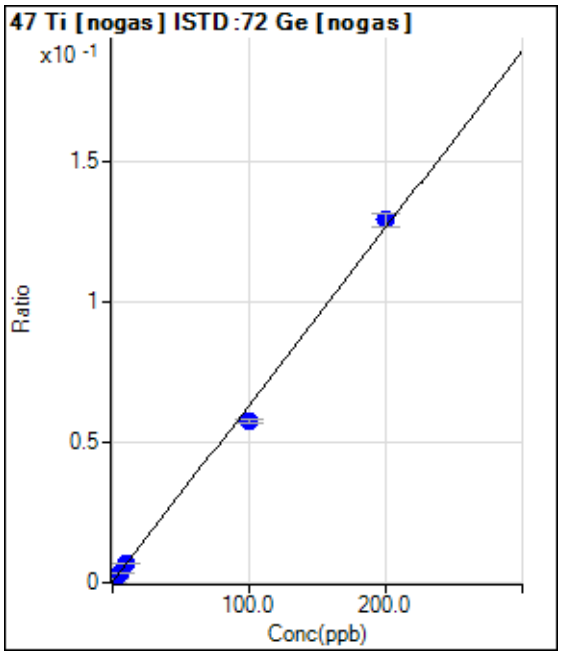
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	166.67	0.0013	P	34.2
2	☐	200.000	208.380	913.38	0.0072	P	8.9
3	☐	500.000	539.438	2143.50	0.0167	P	5.3
4	☐	1000.000	1072.556	4187.21	0.0319	P	7.0
5	☐	10000.00	9244.032	34218.36	0.2648	P	1.0
6	☐	20000.00	20373.286	72129.83	0.5820	P	1.6
7	☐	100.000					

y = 2.8504E-005 * x + 0.0013
R = 0.9990
DL = 47.2
BEC = 45.95

Weight: <None>
Min Conc: <None>

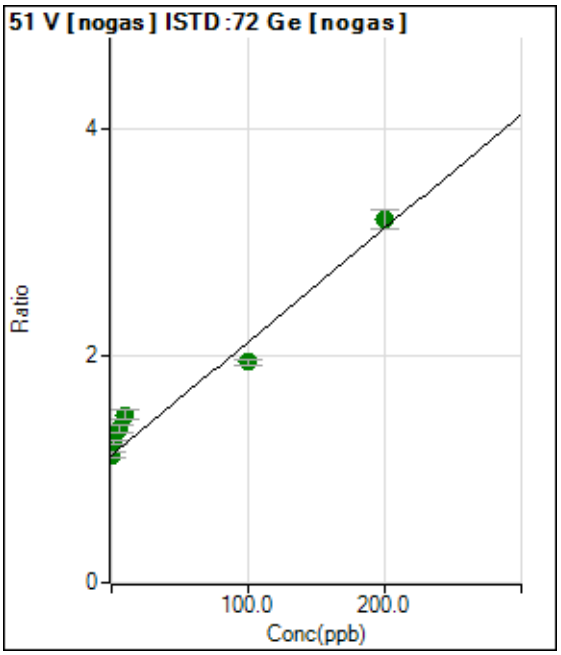


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	343.34	0.0002	P	29.1
2	☐	2.000	1.922	2063.53	0.0014	P	8.3
3	☐	5.000	4.869	4810.72	0.0033	P	2.7
4	☐	10.000	10.360	9696.04	0.0068	P	4.6
5	☐	100.000	90.840	86837.01	0.0575	P	1.7
6	☐	200.000	204.566	180844.79	0.1293	P	3.7
7	☐	1.000					

y = 6.3085E-004 * x + 2.3132E-004
R = 0.9985
DL = 0.3202
BEC = 0.3667

Weight: <None>
Min Conc: <None>

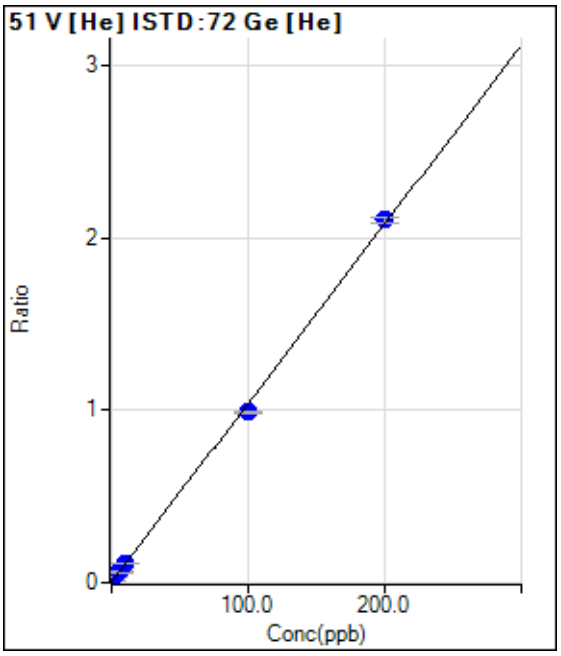
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1661966.35	1.1236	A	5.3
2	☐	2.000	11.390	1768997.11	1.2376	A	3.5
3	☐	5.000	23.739	1981813.26	1.3611	A	5.0
4	☐	10.000	35.671	2121199.85	1.4805	A	5.4
5	☐	100.000	81.907	2932659.89	1.9432	A	2.8
6	☐	200.000	207.201	4470533.56	3.1971	A	5.2
7	☐	1.000					

y = 0.0100 * x + 1.1236
R = 0.9829
DL = 17.78
BEC = 112.3

Weight: <None>
Min Conc: <None>

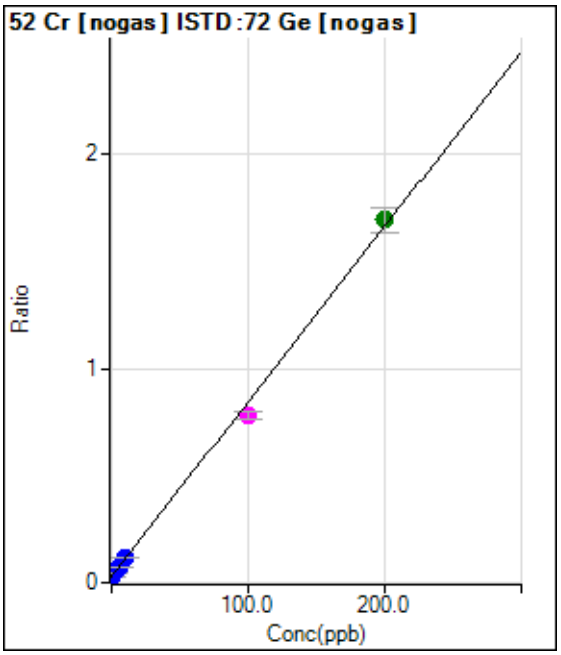


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.623	1145.37	0.0090	P	6.9
2	☐	2.000	2.652	3797.07	0.0301	P	4.2
3	☐	5.000	5.693	7921.70	0.0618	P	4.5
4	☐	10.000	10.561	14757.90	0.1124	P	7.0
5	☐	100.000	95.047	128031.56	0.9909	P	1.4
6	☐	200.000	202.425	261167.62	2.1074	P	1.8
7	☐	1.000					

y = 0.0104 * x + 0.0026
R = 0.9995
DL = 0.18
BEC = 0.2463

Weight: <None>
Min Conc: <None>

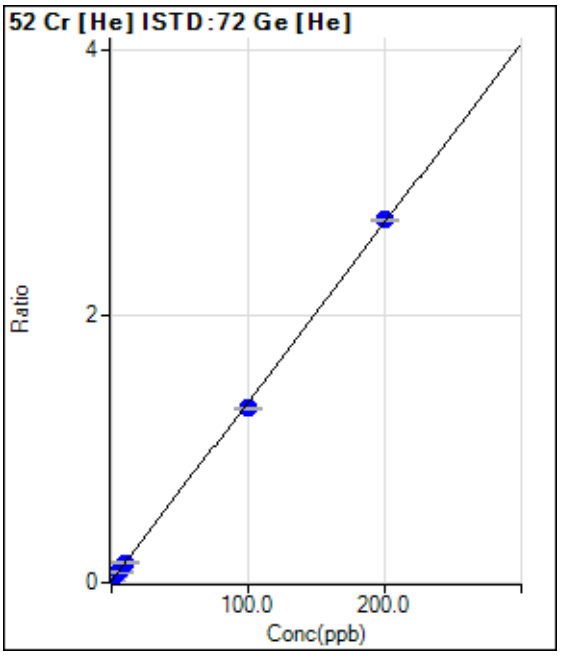
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	43184.05	0.0292	P	1.6
2	☐	2.000	2.108	66335.80	0.0464	P	4.0
3	☐	5.000	5.591	108982.55	0.0748	P	3.2
4	☐	10.000	10.945	169879.64	0.1185	P	3.2
5	☐	100.000	92.096	1178599.15	0.7809	M	4.9
6	☐	200.000	203.889	2366919.65	1.6934	A	7.0
7	☐	1.000					

y = 0.0082 * x + 0.0292
R = 0.9989
DL = 0.1766
BEC = 3.578

Weight: <None>
Min Conc: <None>

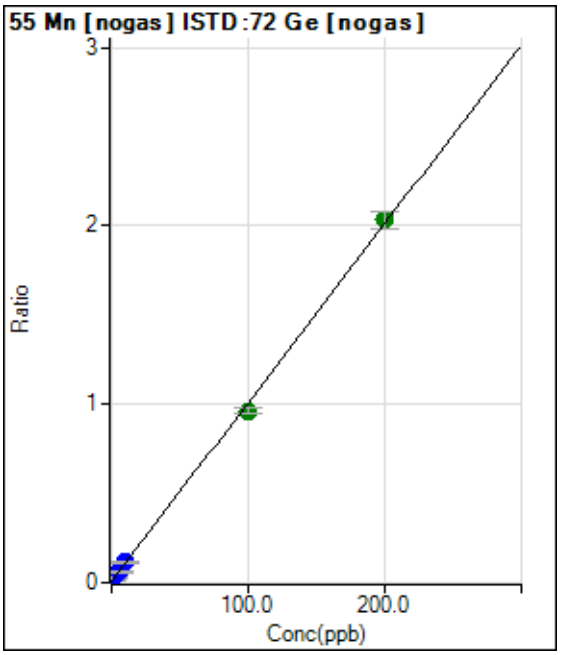


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1696.78	0.0134	P	6.6
2	☐	2.000	1.981	5044.11	0.0400	P	1.9
3	☐	5.000	4.918	10196.30	0.0795	P	3.6
4	☐	10.000	10.234	19830.92	0.1509	P	5.9
5	☐	100.000	96.615	169464.61	1.3115	P	1.2
6	☐	200.000	201.683	337452.59	2.7231	P	0.8
7	☐	1.000					

y = 0.0134 * x + 0.0134
R = 0.9998
DL = 0.1961
BEC = 0.9973

Weight: <None>
Min Conc: <None>

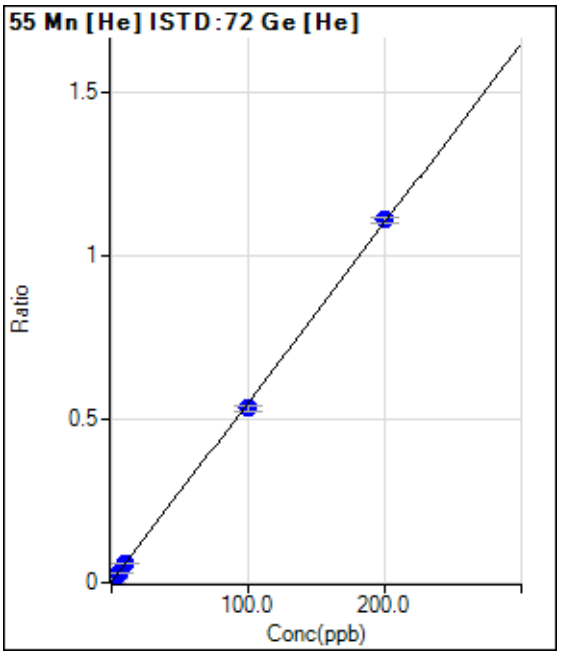
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	11066.83	0.0075	P	4.1
2	☐	2.000	1.978	39011.59	0.0273	P	2.7
3	☐	5.000	5.178	86409.80	0.0593	P	3.2
4	☐	10.000	10.702	164307.27	0.1146	P	3.7
5	☐	100.000	95.350	1452201.59	0.9623	A	3.6
6	☐	200.000	202.286	2843022.88	2.0331	A	5.0
7	☐	1.000					

y = 0.0100 * x + 0.0075
R = 0.9996
DL = 0.09146
BEC = 0.7474

Weight: <None>
Min Conc: <None>

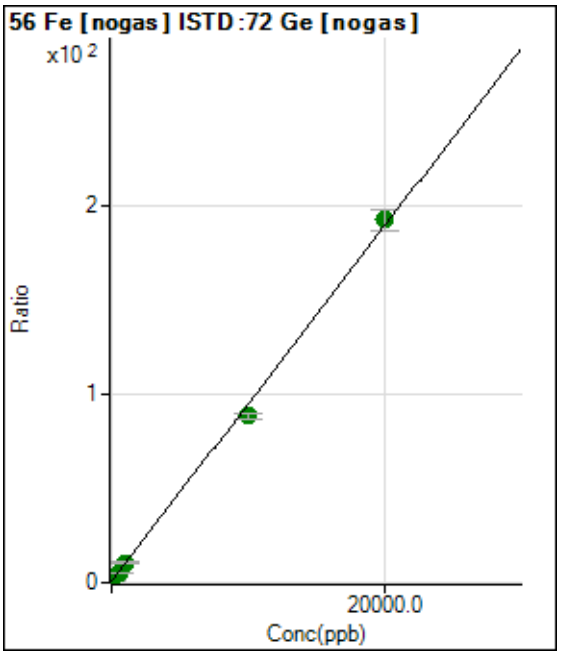


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	283.34	0.0022	P	24.4
2	☐	2.000	1.815	1536.76	0.0122	P	6.9
3	☐	5.000	5.052	3843.79	0.0300	P	6.0
4	☐	10.000	10.302	7725.09	0.0588	P	6.5
5	☐	100.000	96.604	68765.01	0.5322	P	3.2
6	☐	200.000	201.683	137388.42	1.1087	P	1.5
7	☐	1.000					

y = 0.0055 * x + 0.0022
R = 0.9998
DL = 0.2987
BEC = 0.4088

Weight: <None>
Min Conc: <None>

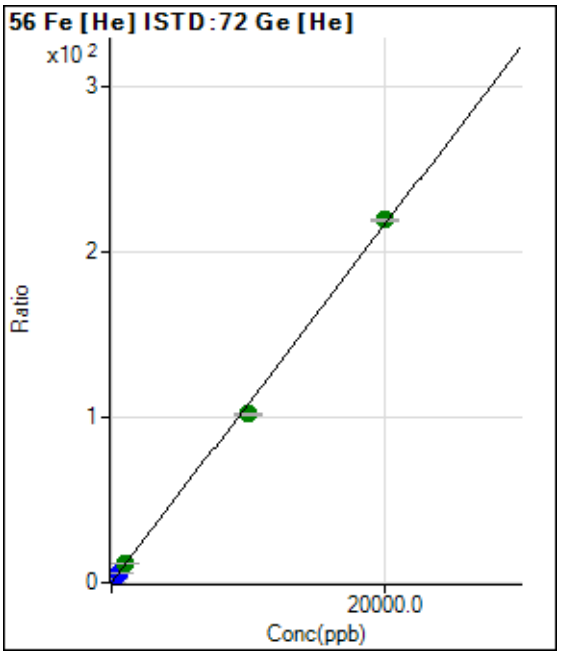
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1044651.23	0.7067	P	1.9
2	☐	200.000	205.967	3788243.58	2.6503	A	1.4
3	☐	500.000	505.005	7969533.25	5.4721	A	2.1
4	☐	1000.000	1058.294	15324404.51	10.6932	A	4.1
5	☐	10000.00	9291.415	133382386.3	88.3845	A	3.1
6	☐	20000.00	20351.193	269489864.3	192.749	A	5.8
7	☐	100.000					

y = 0.0094 * x + 0.7067
R = 0.9991
DL = 4.266
BEC = 74.89

Weight: <None>
Min Conc: <None>

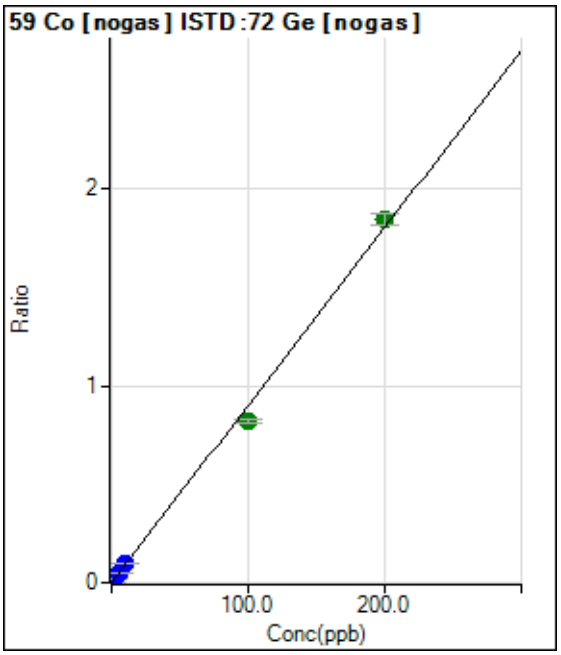


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13611.96	0.1074	P	1.9
2	☐	200.000	191.436	274672.35	2.1795	P	2.7
3	☐	500.000	482.241	683620.67	5.3271	P	1.9
4	☐	1000.000	1033.931	1486213.10	11.2985	A	1.1
5	☐	10000.00	9423.796	13196361.47	102.109	A	1.2
6	☐	20000.00	20286.935	27225255.43	219.691	A	0.5
7	☐	100.000					

y = 0.0108 * x + 0.1074
R = 0.9994
DL = 0.5799
BEC = 9.92

Weight: <None>
Min Conc: <None>

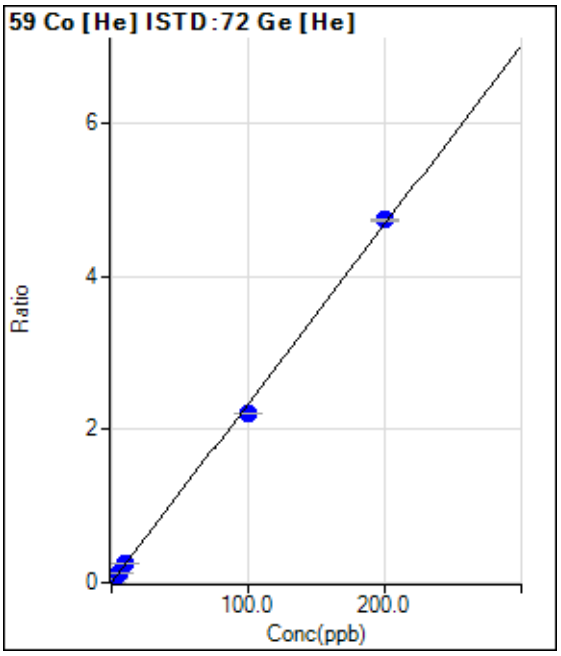
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	513.35	0.0003	P	16.6
2	☐	2.000	2.025	26569.60	0.0186	P	3.3
3	☐	5.000	4.978	65819.24	0.0452	P	2.7
4	☐	10.000	10.585	137138.12	0.0957	P	4.0
5	☐	100.000	90.879	1236028.29	0.8191	A	2.5
6	☐	200.000	204.531	2578233.35	1.8429	A	3.1
7	☐	1.000					

y = 0.0090 * x + 3.4645E-004
R = 0.9985
DL = 0.01914
BEC = 0.03846

Weight: <None>
Min Conc: <None>

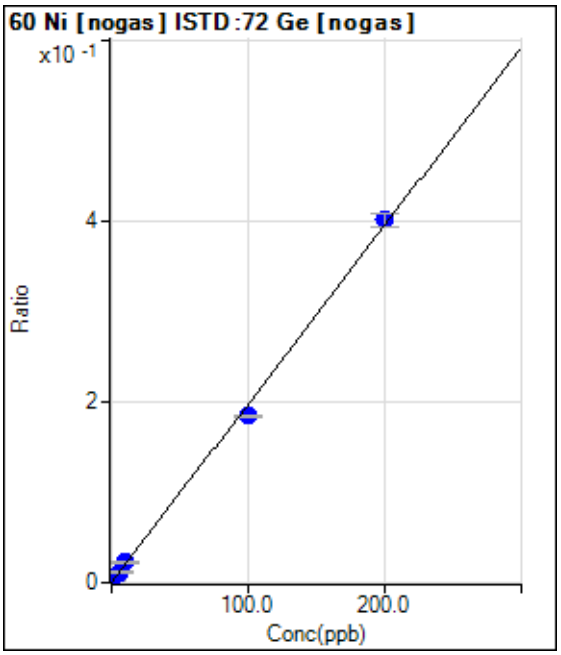


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	60.00	0.0005	P	73.8
2	☐	2.000	2.080	6181.14	0.0490	P	6.4
3	☐	5.000	5.100	15340.00	0.1196	P	4.2
4	☐	10.000	10.372	31934.96	0.2427	P	0.1
5	☐	100.000	94.751	286034.18	2.2134	P	0.3
6	☐	200.000	202.602	586438.79	4.7323	P	0.5
7	☐	1.000					

y = 0.0234 * x + 4.7663E-004
R = 0.9995
DL = 0.0452
BEC = 0.02041

Weight: <None>
Min Conc: <None>

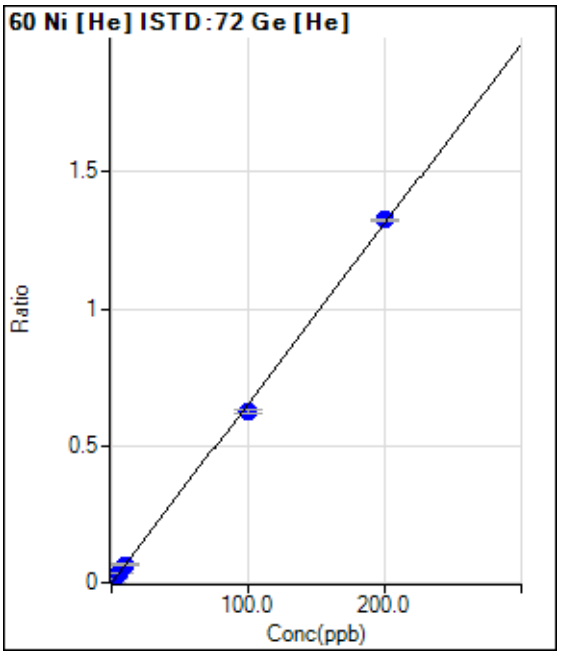
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.641	2143.49	0.0014	P	7.3
2	☐	2.000	2.723	7951.84	0.0056	P	1.2
3	☐	5.000	5.747	16797.94	0.0115	P	4.6
4	☐	10.000	11.308	32272.07	0.0225	P	5.0
5	☐	100.000	93.347	278607.94	0.1846	P	0.5
6	☐	200.000	203.235	561995.78	0.4017	P	3.5
7	☐	1.000					

y = 0.0020 * x + 1.8326E-004
R = 0.9991
DL = 0.1616
BEC = 0.09275

Weight: <None>
Min Conc: <None>

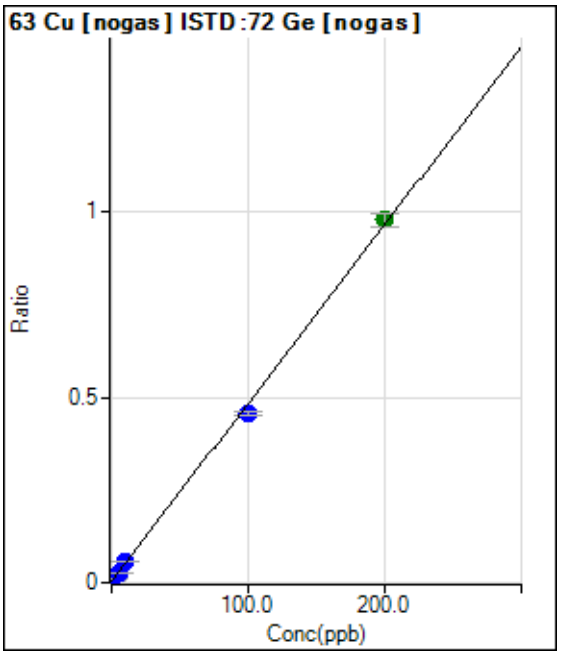


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.644	343.34	0.0027	P	20.3
2	☐	2.000	2.605	1963.48	0.0156	P	6.9
3	☐	5.000	5.651	4563.98	0.0356	P	6.0
4	☐	10.000	10.340	8715.56	0.0663	P	6.1
5	☐	100.000	95.600	80868.58	0.6258	P	1.8
6	☐	200.000	202.161	164201.37	1.3250	P	0.7
7	☐	1.000					

y = 0.0066 * x - 0.0015
R = 0.9996
DL = 0.2519
BEC = -0.2305

Weight: <None>
Min Conc: <None>

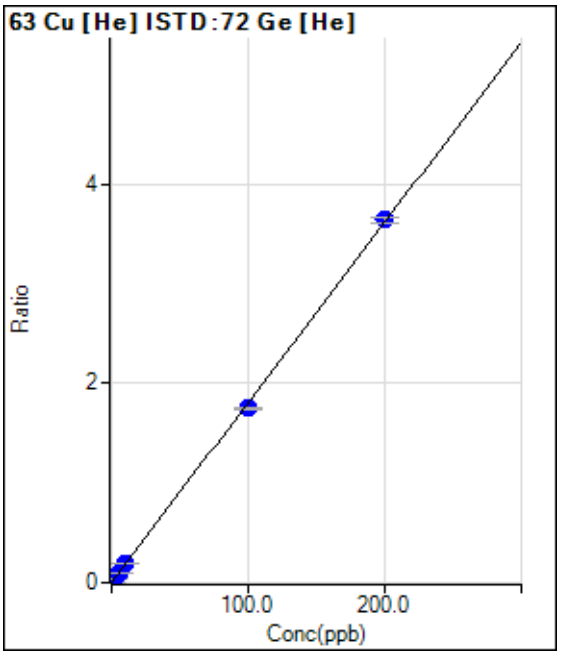
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4697.34	0.0032	P	4.2
2	☐	2.000	2.050	18633.19	0.0130	P	2.2
3	☐	5.000	5.162	40785.90	0.0280	P	2.0
4	☐	10.000	10.986	80269.38	0.0560	P	3.0
5	☐	100.000	94.098	687716.55	0.4557	P	2.1
6	☐	200.000	202.897	1369562.17	0.9789	A	3.5
7	☐	1.000					

y = 0.0048 * x + 0.0032
R = 0.9994
DL = 0.08336
BEC = 0.6609

Weight: <None>
Min Conc: <None>

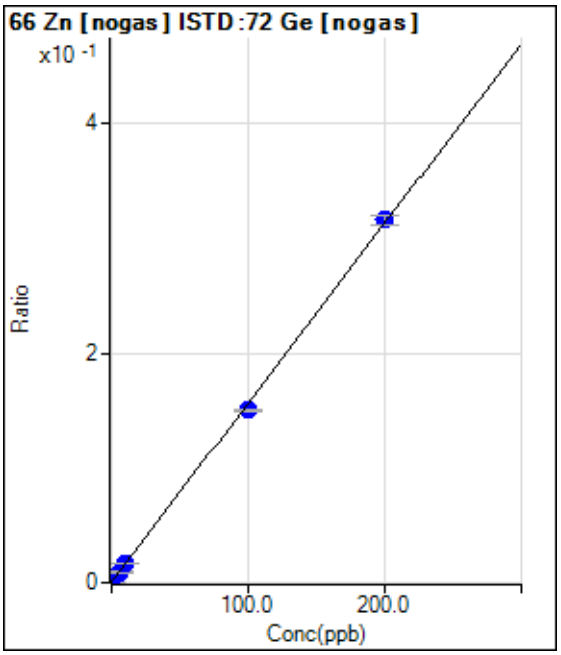


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.292	883.37	0.0070	P	15.4
2	☐	2.000	2.426	5740.98	0.0456	P	4.4
3	☐	5.000	5.408	12751.27	0.0995	P	7.1
4	☐	10.000	10.447	25050.81	0.1905	P	5.9
5	☐	100.000	96.927	226627.63	1.7539	P	1.5
6	☐	200.000	201.500	451592.55	3.6443	P	1.5
7	☐	1.000					

y = 0.0181 * x + 0.0017
R = 0.9998
DL = 0.1781
BEC = 0.09388

Weight: <None>
Min Conc: <None>

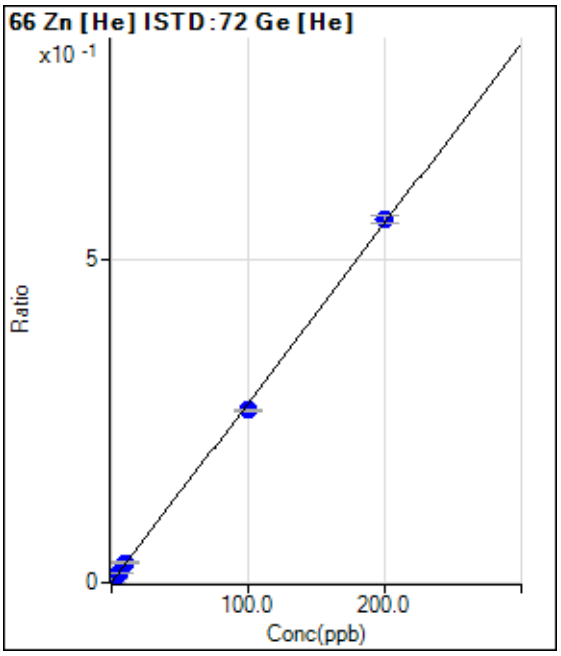
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.257	1200.06	0.0008	P	5.4
2	☐	2.000	2.520	6207.81	0.0043	P	2.5
3	☐	5.000	5.556	13225.05	0.0091	P	2.8
4	☐	10.000	10.851	24867.25	0.0173	P	1.4
5	☐	100.000	95.758	226176.27	0.1499	P	1.5
6	☐	200.000	202.059	441808.05	0.3158	P	3.0
7	☐	1.000					

y = 0.0016 * x + 4.1046E-004
R = 0.9996
DL = 0.08419
BEC = 0.263

Weight: <None>
Min Conc: <None>

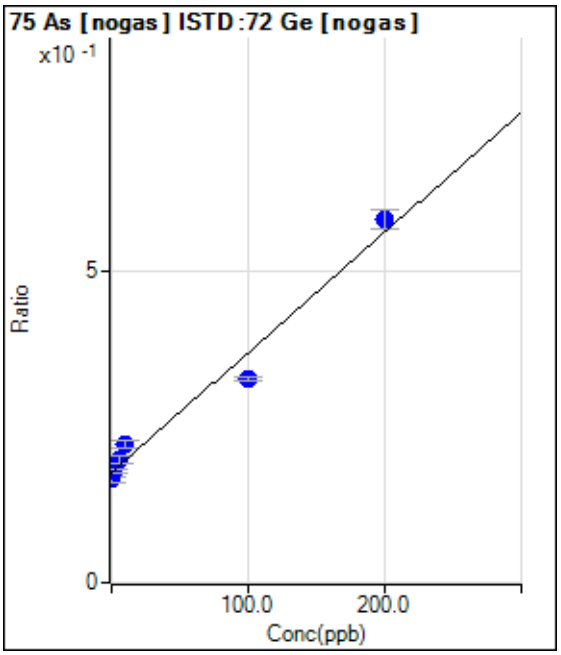


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.358	136.67	0.0011	P	16.0
2	☐	2.000	2.259	800.03	0.0063	P	17.0
3	☐	5.000	5.590	2000.15	0.0156	P	8.0
4	☐	10.000	10.873	3967.18	0.0302	P	11.1
5	☐	100.000	95.962	34385.96	0.2661	P	0.7
6	☐	200.000	201.958	69388.54	0.5599	P	2.1
7	☐	1.000					

y = 0.0028 * x + 8.4850E-005
R = 0.9997
DL = 0.1862
BEC = 0.03061

Weight: <None>
Min Conc: <None>

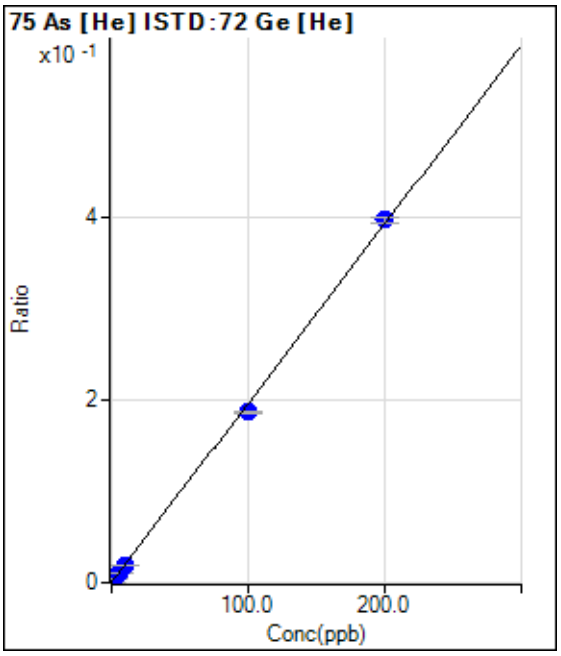
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-5.889	245398.91	0.1659	P	4.9
2	☐	2.000	1.050	256294.72	0.1793	P	4.6
3	☐	5.000	10.556	287710.78	0.1976	P	6.5
4	☐	10.000	23.206	318097.73	0.2220	P	5.6
5	☐	100.000	77.733	493791.31	0.3272	P	2.1
6	☐	200.000	210.344	815250.69	0.5830	P	5.2
7	☐	1.000					

y = 0.0019 * x + 0.1773
R = 0.9876
DL = 12.64
BEC = 91.91

Weight: <None>
Min Conc: <None>

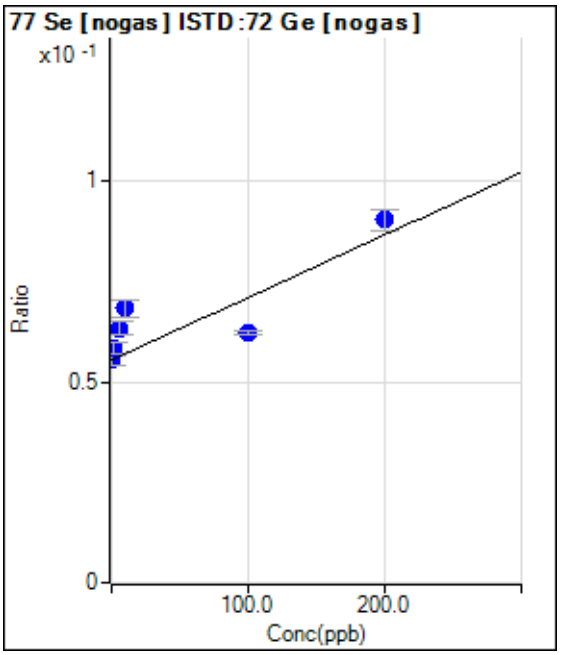


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	50.00	0.0004	P	13.8
2	☐	2.000	1.714	473.34	0.0038	P	11.6
3	☐	5.000	5.213	1363.40	0.0106	P	5.8
4	☐	10.000	9.894	2602.42	0.0198	P	0.4
5	☐	100.000	95.115	24137.16	0.1868	P	1.1
6	☐	200.000	202.445	49204.01	0.3971	P	1.7
7	☐	1.000					

y = 0.0020 * x + 3.9467E-004
R = 0.9996
DL = 0.08346
BEC = 0.2014

Weight: <None>
Min Conc: <None>

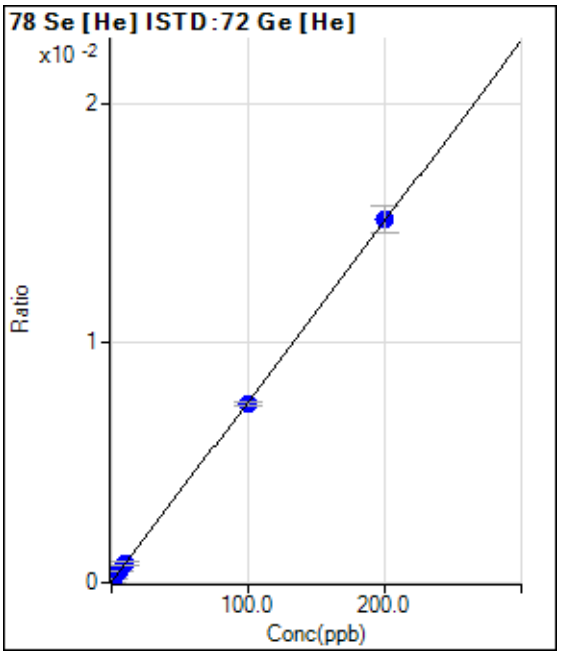
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	81994.69	0.0554	P	4.3
2	☐	2.000	18.700	83403.96	0.0583	P	5.0
3	☐	5.000	50.609	92188.89	0.0633	P	5.5
4	☐	10.000	82.446	97821.63	0.0683	P	6.0
5	☐	100.000	42.566	93666.15	0.0621	P	1.7
6	☐	200.000	223.787	126267.90	0.0903	P	6.0
7	☐	1.000					

y = 1.5583E-004 * x + 0.0554
R = 0.8517
DL = 46.01
BEC = 355.7

Weight: <None>
Min Conc: <None>

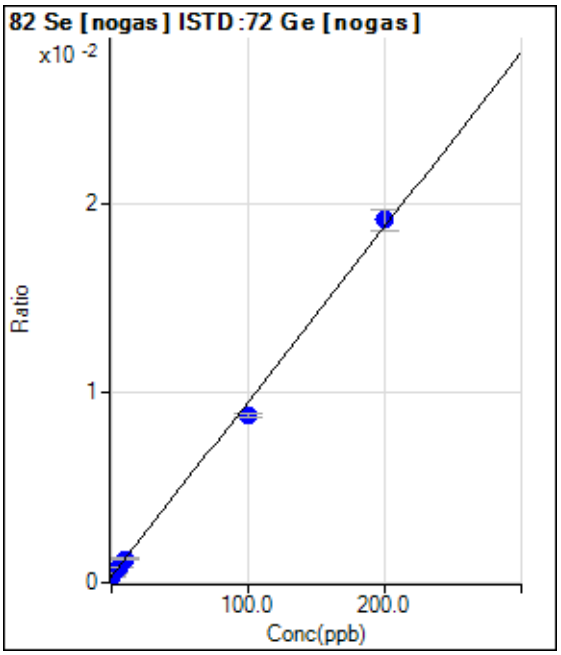


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.118	2.67	0.0000	P	44.6
2	☐	2.000	1.500	18.00	0.0001	P	12.2
3	☐	5.000	6.156	63.33	0.0005	P	6.6
4	☐	10.000	10.226	105.33	0.0008	P	27.9
5	☐	100.000	98.544	962.70	0.0074	P	2.1
6	☐	200.000	200.693	1876.77	0.0151	P	7.3
7	☐	1.000					

y = 7.5291E-005 * x + 3.0022E-005
R = 0.9999
DL = 0.3755
BEC = 0.3987

Weight: <None>
Min Conc: <None>

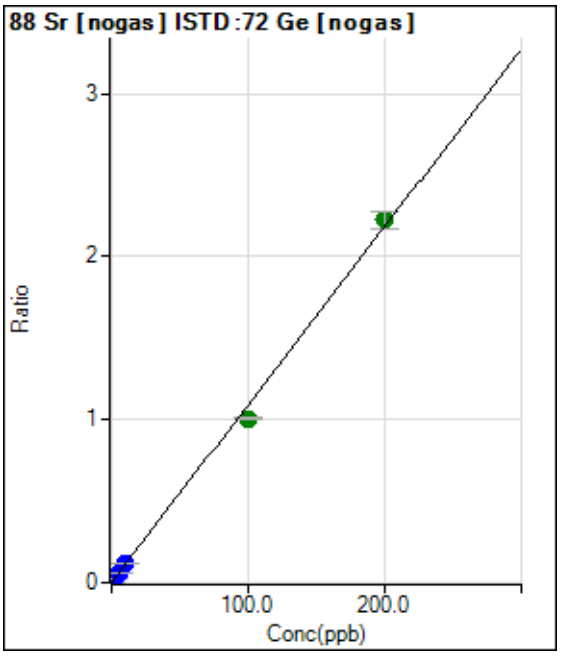
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	500.02	0.0003	P	12.4
2	☐	2.000	1.652	700.03	0.0005	P	8.7
3	☐	5.000	4.656	1116.72	0.0008	P	1.4
4	☐	10.000	9.863	1786.79	0.0012	P	5.2
5	☐	100.000	91.926	13288.41	0.0088	P	2.7
6	☐	200.000	204.056	26750.17	0.0191	P	6.1
7	☐	1.000					

y = 9.2118E-005 * x + 3.3761E-004
R = 0.9989
DL = 1.362
BEC = 3.665

Weight: <None>
Min Conc: <None>

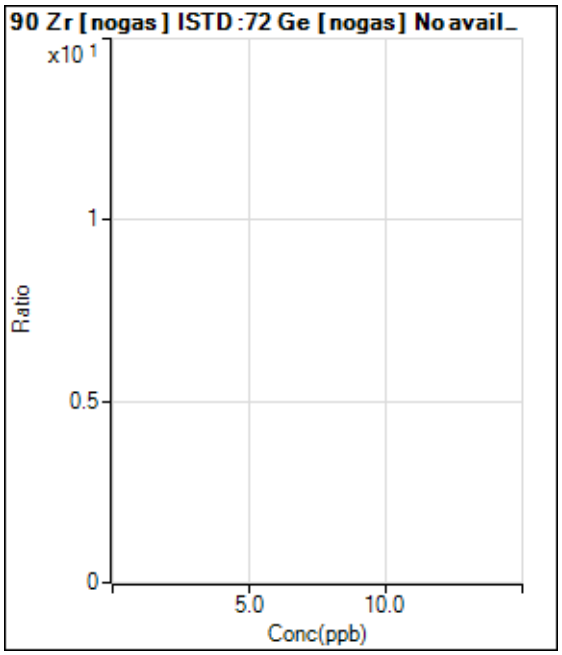


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2206.84	0.0015	P	1.1
2	☐	2.000	2.038	33882.32	0.0237	P	1.0
3	☐	5.000	5.087	82888.34	0.0569	P	4.1
4	☐	10.000	10.760	170185.45	0.1187	P	2.6
5	☐	100.000	92.016	1515555.65	1.0042	A	1.5
6	☐	200.000	203.951	3110234.43	2.2241	A	4.8
7	☐	1.000					

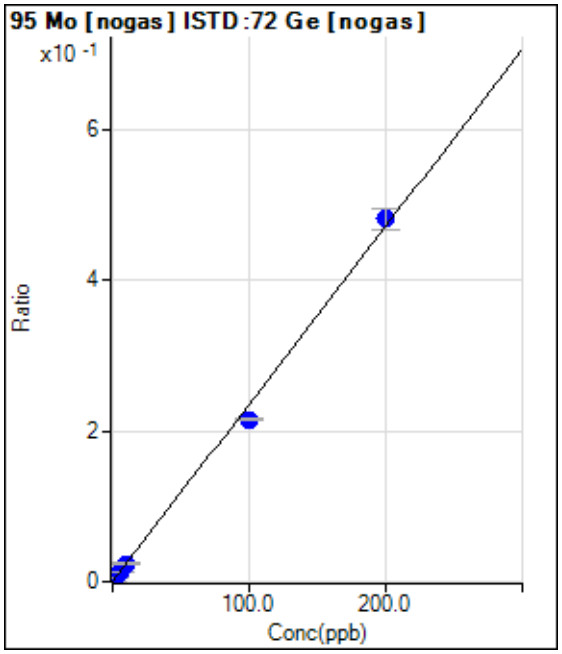
y = 0.0109 * x + 0.0015
R = 0.9989
DL = 0.004575
BEC = 0.1369

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

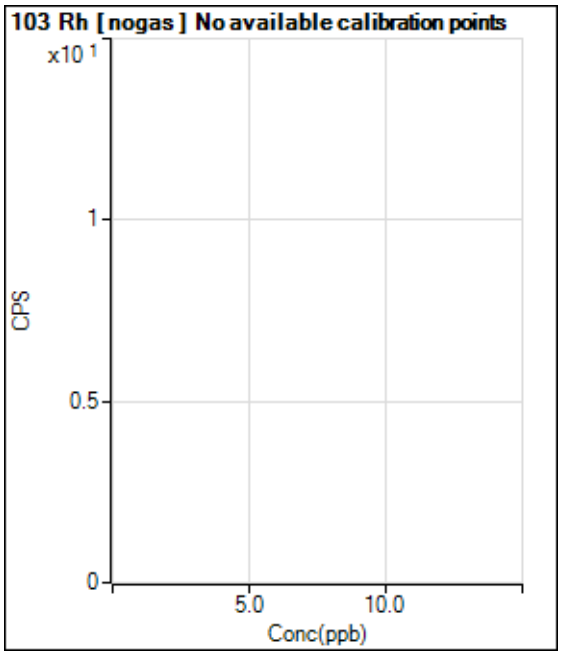


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	290.01	0.0002	P	28.8
2	☐	2.000	1.957	6874.80	0.0048	P	5.6
3	☐	5.000	4.921	17178.56	0.0118	P	4.4
4	☐	10.000	10.212	34794.37	0.0243	P	0.8
5	☐	100.000	91.193	324784.56	0.2152	P	0.7
6	☐	200.000	204.395	674068.87	0.4821	P	5.8
7	☐	1.000					

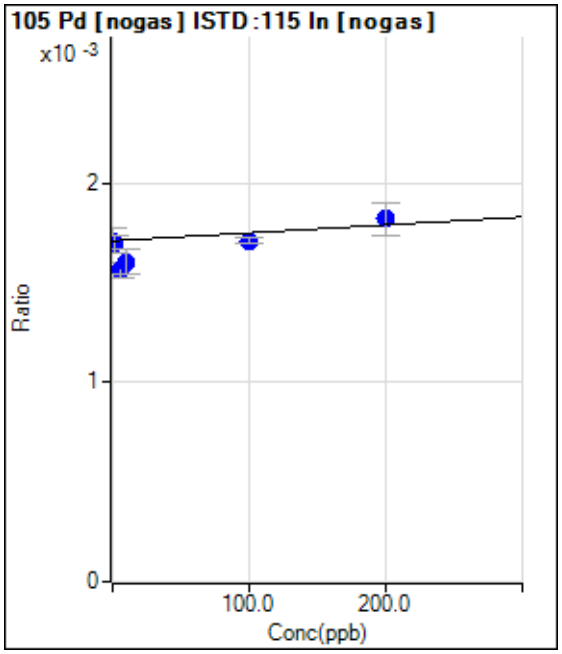
y = 0.0024 * x + 1.9563E-004
R = 0.9986
DL = 0.07173
BEC = 0.08297

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			143.33		P	8.1
2	☐			233.34		P	32.2
3	☐			240.01		P	47.0
4	☐			150.00		P	13.3
5	☐			270.01		P	25.7
6	☐			373.35		P	12.4
7	☐						

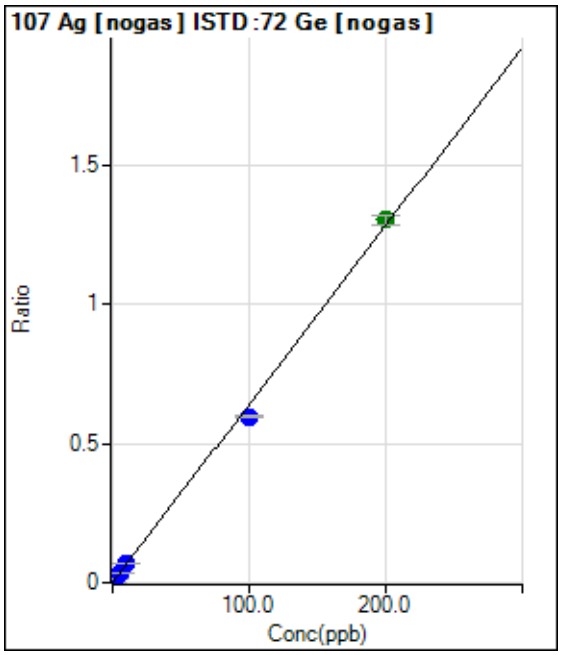


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2636.92	0.0017	P	7.3
2	☐	2.000	-39.915	2586.89	0.0017	P	5.5
3	☐	5.000	-360.880	2456.88	0.0016	P	4.8
4	☐	10.000	-265.791	2513.56	0.0016	P	8.0
5	☐	100.000	-2.042	2646.91	0.0017	P	1.6
6	☐	200.000	274.377	2723.59	0.0018	P	8.8
7	☐	1.000					

y = 4.0021E-007 * x + 0.0017
R = 0.7739
DL = 936.6
BEC = 4279

Weight: <None>
Min Conc: <None>

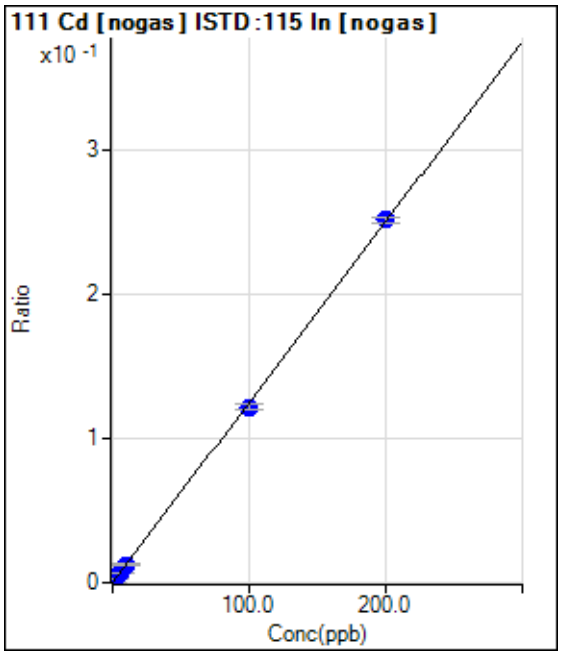
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	516.68	0.0003	P	12.3
2	☐	2.000	1.983	18640.17	0.0130	P	1.1
3	☐	5.000	5.056	47634.76	0.0327	P	3.0
4	☐	10.000	10.905	100552.76	0.0702	P	1.9
5	☐	100.000	93.197	900779.00	0.5969	P	2.0
6	☐	200.000	203.355	1821791.38	1.3020	A	2.7
7	☐	1.000					

y = 0.0064 * x + 3.4957E-004
R = 0.9992
DL = 0.02013
BEC = 0.05461

Weight: <None>
Min Conc: <None>

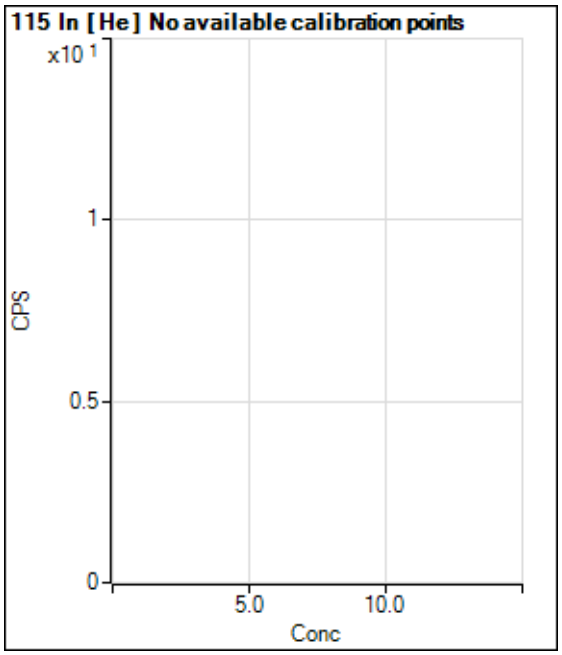


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	30.00	0.0000	P	86.1
2	☐	2.000	2.035	3897.17	0.0026	P	4.5
3	☐	5.000	5.109	10016.38	0.0064	P	4.4
4	☐	10.000	10.032	19601.16	0.0125	P	3.3
5	☐	100.000	97.501	188143.71	0.1217	P	2.8
6	☐	200.000	201.245	374775.72	0.2511	P	1.9
7	☐	1.000					

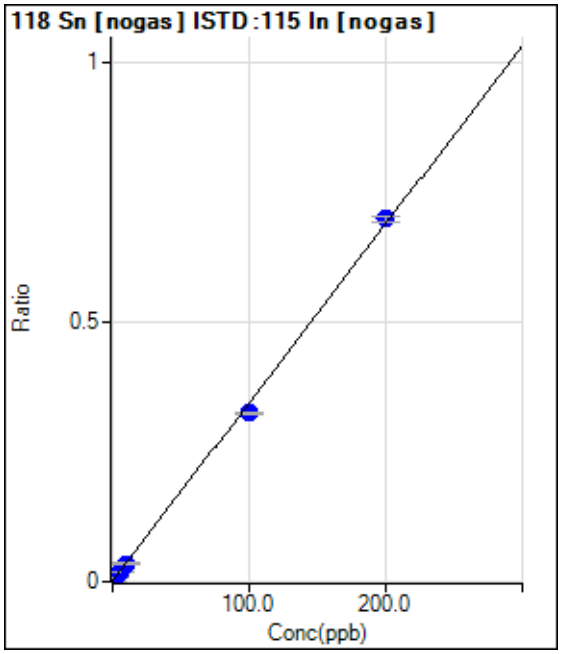
y = 0.0012 * x + 1.9197E-005
R = 0.9999
DL = 0.03974
BEC = 0.01539

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			153576.24		P	2.5
2	☐			156425.82		P	2.9
3	☐			159903.73		P	1.1
4	☐			154991.54		P	1.3
5	☐			153733.98		P	1.7
6	☐			152010.34		P	1.0
7	☐						

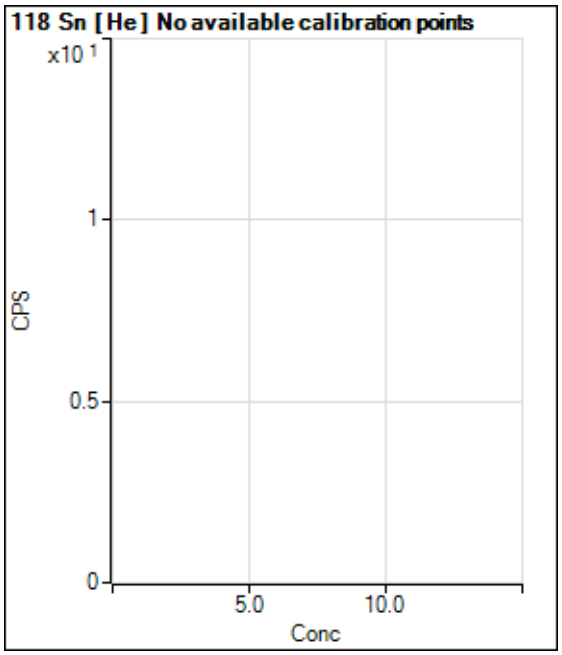


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1683.44	0.0011	P	19.0
2	☐	2.000	1.962	11954.31	0.0078	P	3.3
3	☐	5.000	4.800	27605.61	0.0176	P	1.4
4	☐	10.000	9.889	54930.13	0.0351	P	3.1
5	☐	100.000	94.045	502090.06	0.3247	P	1.7
6	☐	200.000	202.988	1044403.87	0.6996	P	1.7
7	☐	1.000					

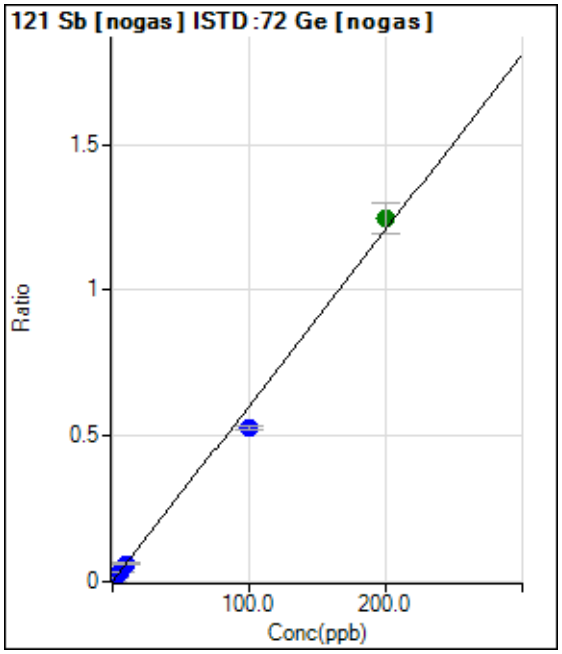
y = 0.0034 * x + 0.0011
R = 0.9994
DL = 0.1814
BEC = 0.319

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			253.34		P	31.9
2	☐			1583.44		P	13.9
3	☐			3850.49		P	2.9
4	☐			7815.20		P	3.1
5	☐			72607.41		P	1.8
6	☐			144210.44		P	1.4
7	☐						

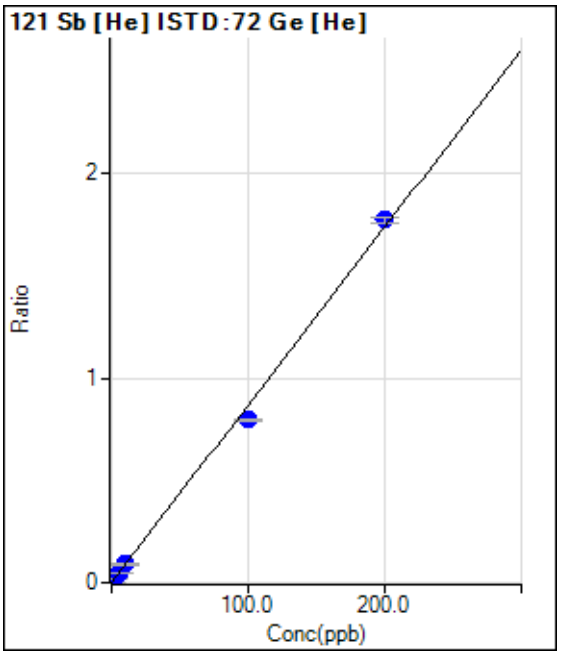


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1096.72	0.0007	P	6.3
2	☐	2.000	1.980	18123.03	0.0127	P	0.6
3	☐	5.000	5.034	45275.86	0.0311	P	2.4
4	☐	10.000	10.256	89673.29	0.0626	P	3.0
5	☐	100.000	87.320	795473.35	0.5271	P	2.3
6	☐	200.000	206.327	1739208.88	1.2445	A	8.6
7	☐	1.000					

y = 0.0060 * x + 7.4231E-004
R = 0.9972
DL = 0.02326
BEC = 0.1231

Weight: <None>
Min Conc: <None>

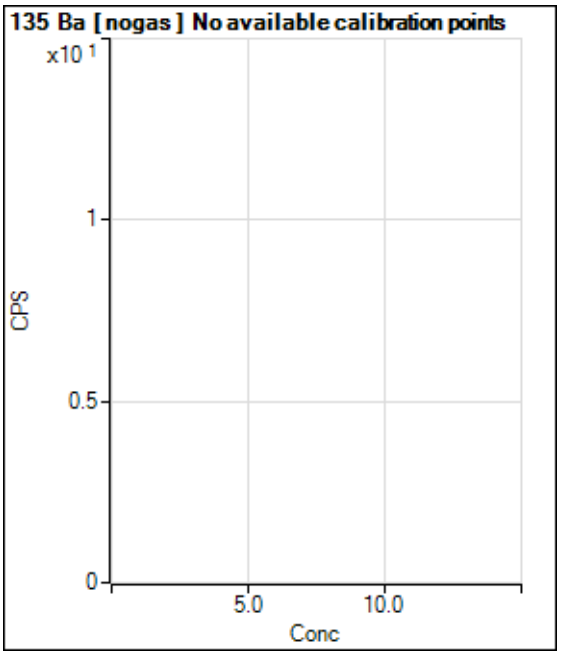
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	120.00	0.0009	P	23.3
2	☐	2.000	1.980	2283.52	0.0181	P	6.8
3	☐	5.000	4.985	5674.35	0.0442	P	3.3
4	☐	10.000	10.320	11890.96	0.0905	P	5.2
5	☐	100.000	91.460	102619.95	0.7942	P	1.4
6	☐	200.000	204.254	219647.95	1.7725	P	1.9
7	☐	1.000					

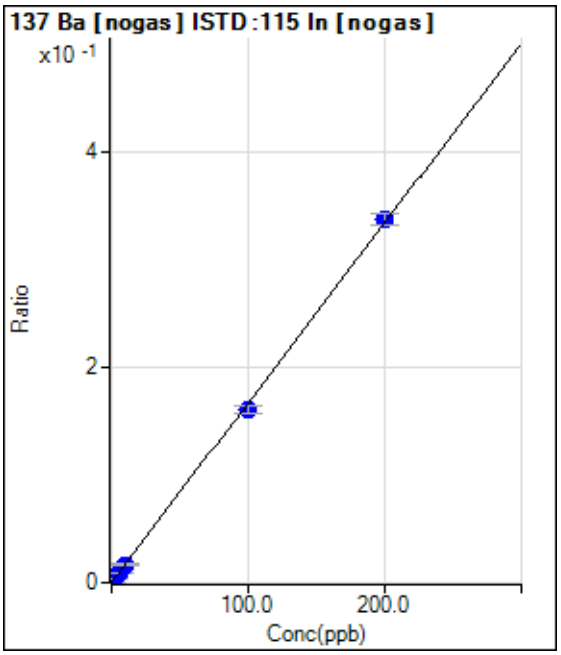
y = 0.0087 * x + 9.4875E-004
R = 0.9987
DL = 0.0764
BEC = 0.1094

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			226.67		P	17.8
2	☐			3233.69		P	3.3
3	☐			7615.17		P	7.2
4	☐			15437.14		P	1.6
5	☐			139306.57		P	2.2
6	☐			287725.10		P	2.7
7	☐						

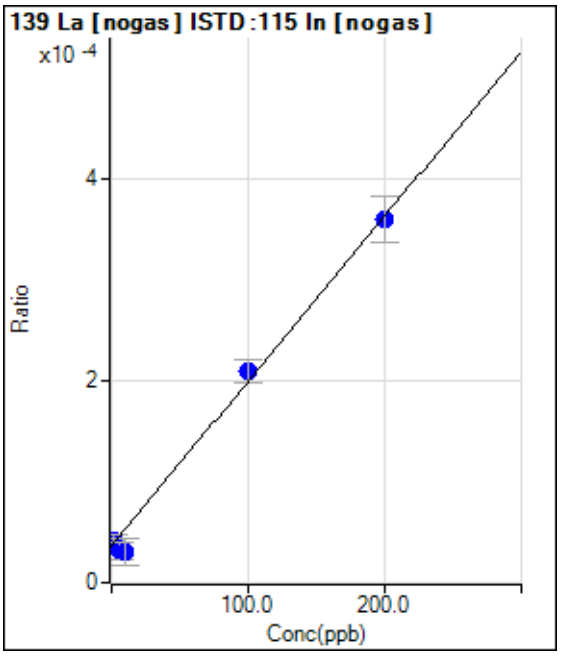
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	490.01	0.0003	P	17.4
2	☐	2.000	1.917	5354.26	0.0035	P	7.7
3	☐	5.000	4.999	13568.93	0.0087	P	1.6
4	☐	10.000	9.953	26460.64	0.0169	P	5.5
5	☐	100.000	96.396	248985.35	0.1611	P	4.7
6	☐	200.000	201.805	502785.60	0.3370	P	3.1
7	☐	1.000					

y = 0.0017 * x + 3.1813E-004
R = 0.9998
DL = 0.09982
BEC = 0.1907

Weight: <None>
Min Conc: <None>

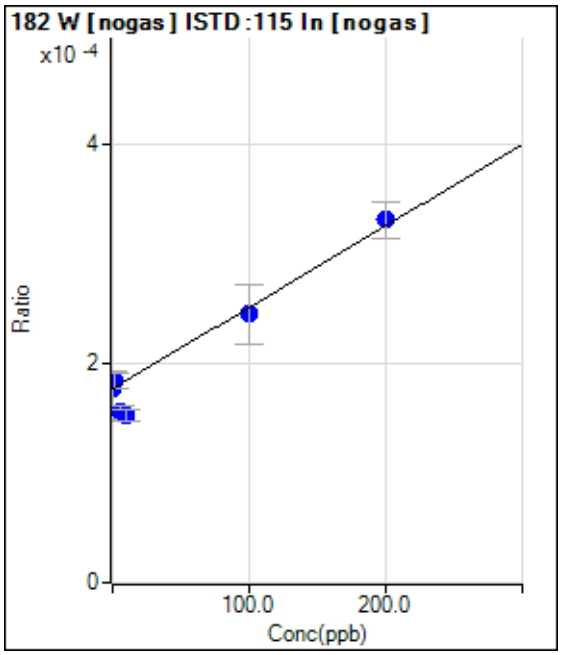


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	56.67	0.0000	P	34.0
2	☐	2.000	3.080	63.33	0.0000	P	24.6
3	☐	5.000	-2.916	50.00	0.0000	P	52.4
4	☐	10.000	-3.988	46.67	0.0000	P	87.7
5	☐	100.000	106.036	323.34	0.0002	P	11.4
6	☐	200.000	197.869	536.69	0.0004	P	12.9
7	☐	100.000					

y = 1.6292E-006 * x + 3.6590E-005
R = 0.9968
DL = 22.9
BEC = 22.46

Weight: <None>
Min Conc: <None>

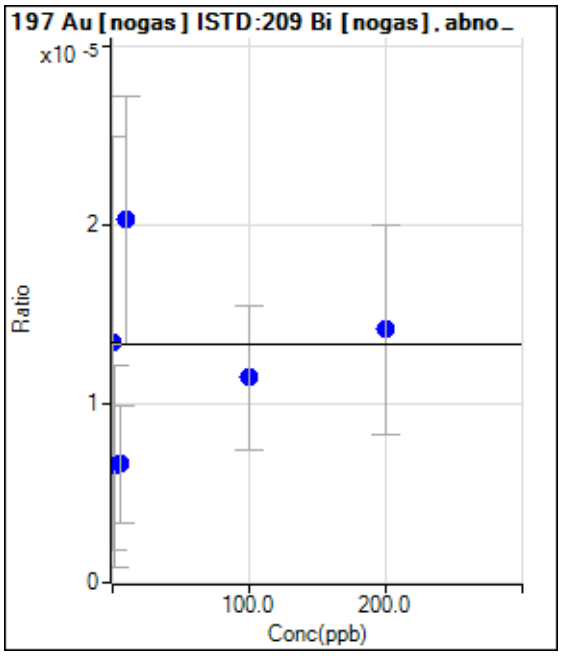
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	273.34	0.0002	P	18.7
2	☐	2.000	9.182	280.01	0.0002	P	7.9
3	☐	5.000	-29.206	243.34	0.0002	P	8.8
4	☐	10.000	-31.697	240.01	0.0002	P	7.0
5	☐	100.000	91.441	380.01	0.0002	P	22.1
6	☐	200.000	207.148	493.35	0.0003	P	9.8
7	☐	1.000					

y = 7.4350E-007 * x + 1.7701E-004
R = 0.9782
DL = 133.6
BEC = 238.1

Weight: <None>
Min Conc: <None>

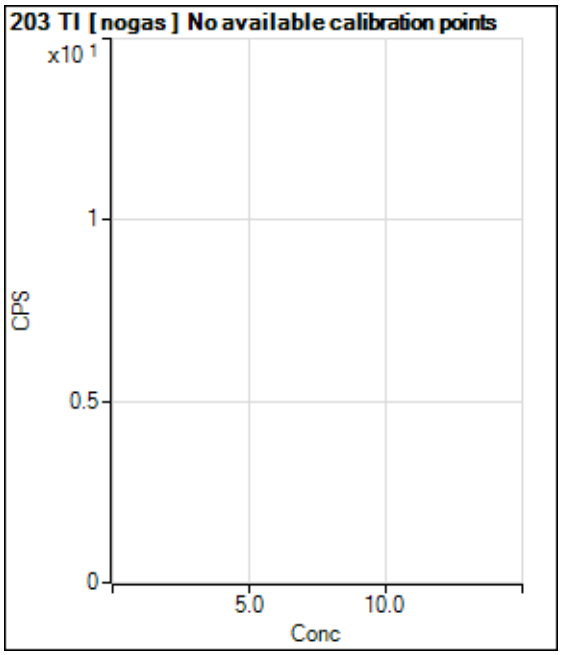


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0000	P	173.
2	☐	2.000	19219.943	10.00	0.0000	P	173.
3	☐	5.000	18951.654	10.00	0.0000	P	100.
4	☐	10.000	-19341.19	30.00	0.0000	P	68.2
5	☐	100.000	5416.054	16.67	0.0000	P	71.0
6	☐	200.000	-2156.313	20.00	0.0000	P	82.8
7	☐	100.000					

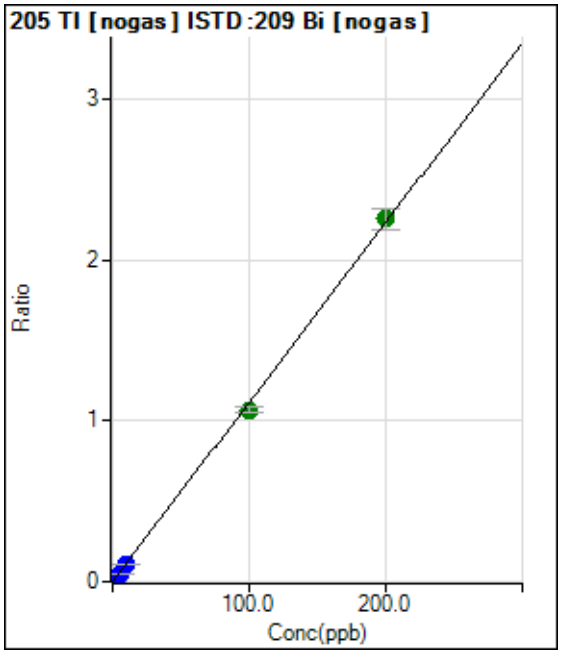
y = -3.5676E-010 * x + 1.3395E-005
R = 0.1882
DL = -1.951E+05
BEC = -3.755E+04

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			96.67		P	26.0
2	☐			13092.13		P	1.7
3	☐			32623.07		P	5.3
4	☐			69514.39		P	1.1
5	☐			652263.84		P	2.1
6	☐			1329251.07		A	1.3
7	☐						

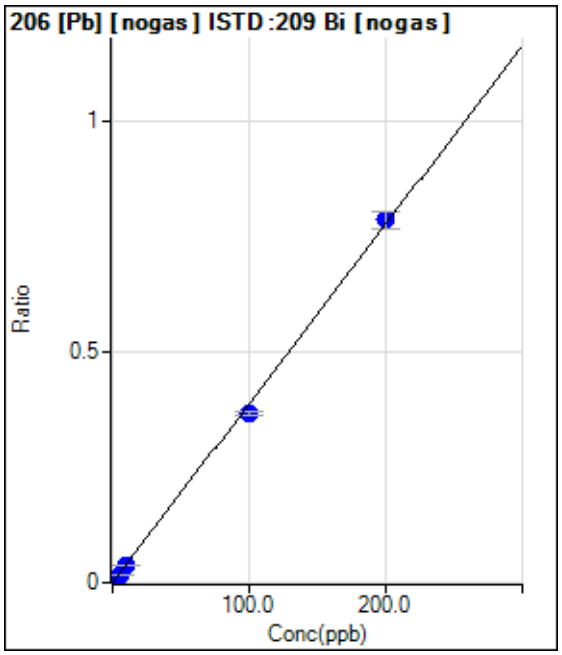


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	170.00	0.0001	P	20.9
2	☐	2.000	1.911	32692.96	0.0215	P	3.5
3	☐	5.000	4.656	79407.82	0.0521	P	4.5
4	☐	10.000	9.973	166180.09	0.1115	P	3.0
5	☐	100.000	95.584	1562775.86	1.0674	A	3.2
6	☐	200.000	202.219	3118203.81	2.2580	A	5.9
7	☐	1.000					

y = 0.0112 * x + 1.1097E-004
R = 0.9997
DL = 0.006238
BEC = 0.009938

Weight: <None>
Min Conc: <None>

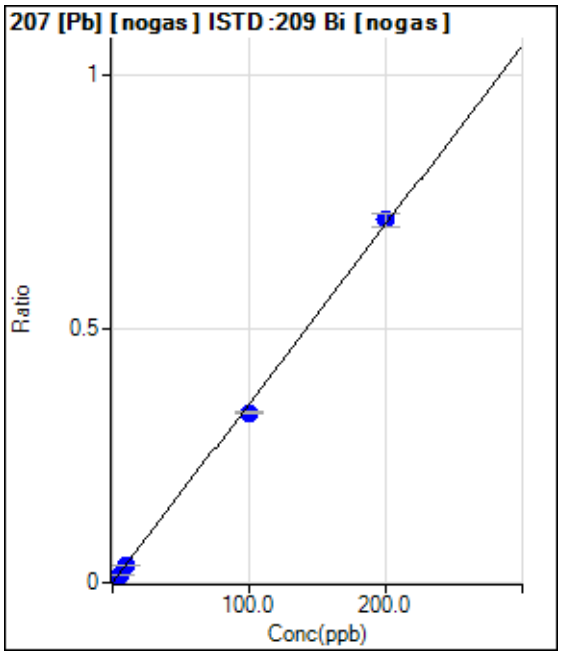
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	180.00	0.0001	P	30.7
2	☐	2.000	1.865	11197.41	0.0073	P	2.1
3	☐	5.000	4.683	27844.18	0.0183	P	2.7
4	☐	10.000	9.779	56679.14	0.0380	P	1.3
5	☐	100.000	94.779	537976.32	0.3674	P	1.8
6	☐	200.000	202.631	1084879.80	0.7853	P	4.7
7	☐	1.000					

y = 0.0039 * x + 1.1752E-004
R = 0.9995
DL = 0.02789
BEC = 0.03033

Weight: <None>
Min Conc: <None>

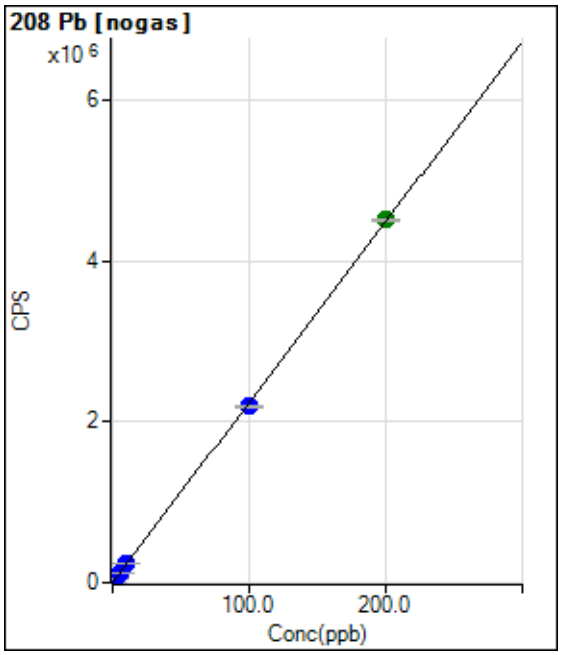


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	156.67	0.0001	P	11.4
2	☐	2.000	1.911	10436.86	0.0068	P	2.1
3	☐	5.000	4.661	25253.42	0.0166	P	1.6
4	☐	10.000	10.022	52902.67	0.0355	P	1.9
5	☐	100.000	94.696	489718.80	0.3344	P	1.2
6	☐	200.000	202.660	988690.25	0.7155	P	3.9
7	☐	1.000					

y = 0.0035 * x + 1.0238E-004
R = 0.9995
DL = 0.009903
BEC = 0.029

Weight: <None>
Min Conc: <None>

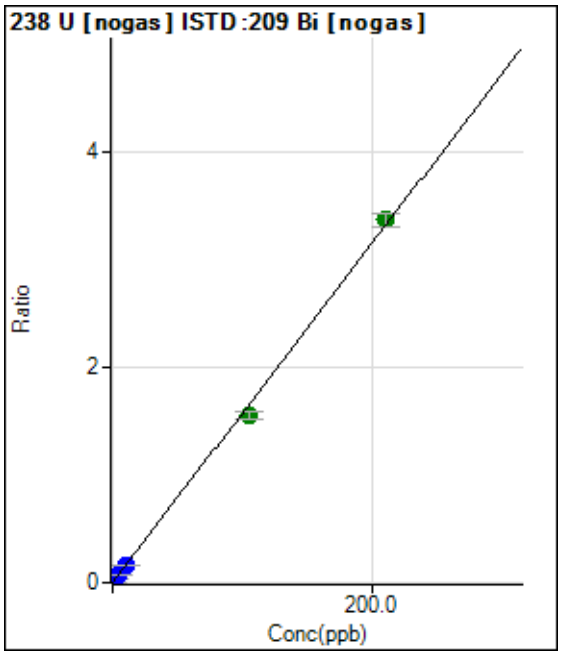
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	580.01		P	9.1
2	☐	2.000	2.003	45488.88		P	1.9
3	☐	5.000	5.093	114768.36		P	1.7
4	☐	10.000	10.505	236098.35		P	0.2
5	☐	100.000	97.825	2193726.06		P	0.7
6	☐	200.000	201.060	4508172.04		A	0.9
7	☐	1.000					

y = 22419.1377 * x + 580.0067
R = 0.9999
DL = 0.007081
BEC = 0.02587

Weight: <None>
Min Conc: <None>

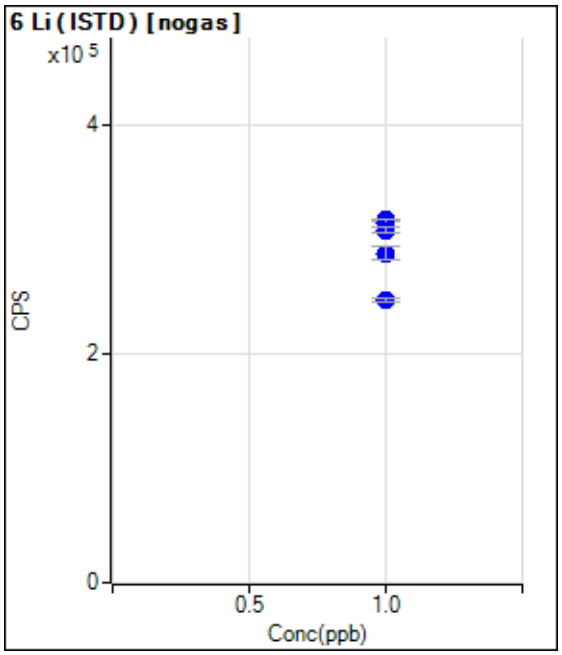


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	240.01	0.0002	P	31.3
2	☐	2.000	1.881	45525.76	0.0299	P	3.6
3	☐	5.000	4.895	118165.53	0.0775	P	2.5
4	☐	10.000	10.268	242068.86	0.1624	P	4.0
5	☐	105.000	98.184	2271662.83	1.5515	A	4.8
6	☐	210.000	213.399	4660473.68	3.3718	A	3.5
7	☐	1.000					

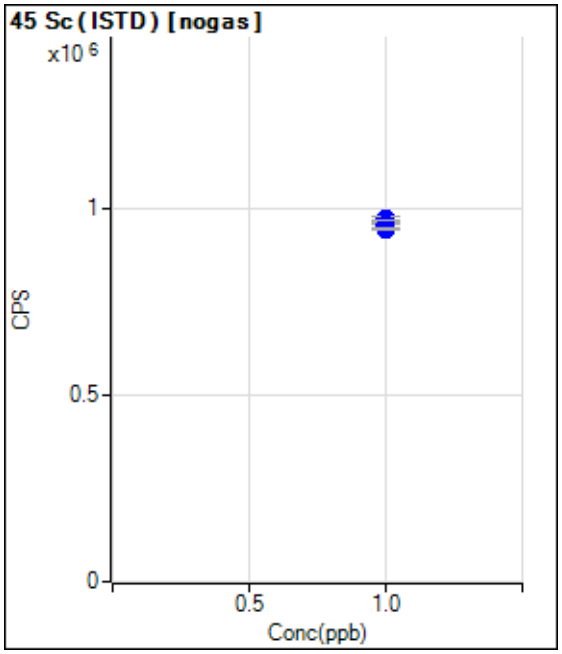
y = 0.0158 * x + 1.5737E-004
R = 0.9993
DL = 0.009366
BEC = 0.00996

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d

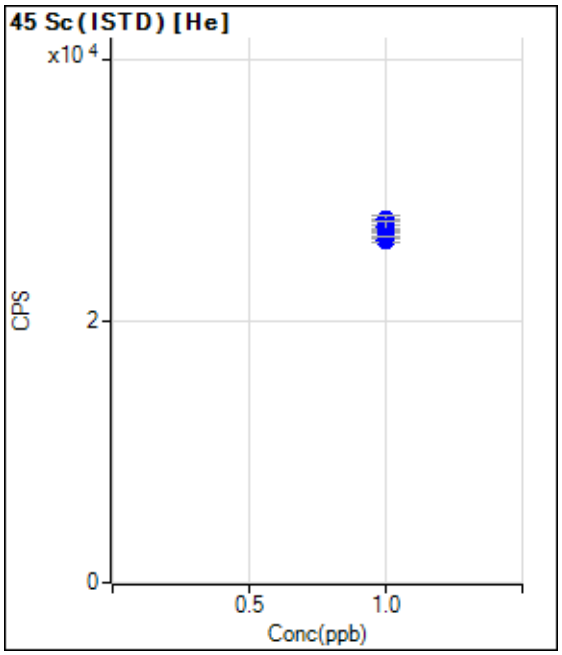


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		317621.49		P	0.8
2	☐	1.000		314356.37		P	1.6
3	☐	1.000		314702.33		P	1.8
4	☐	1.000		308453.56		P	1.7
5	☐	1.000		288107.72		P	4.0
6	☐	1.000		247473.02		P	1.7
7	☐	1.000					

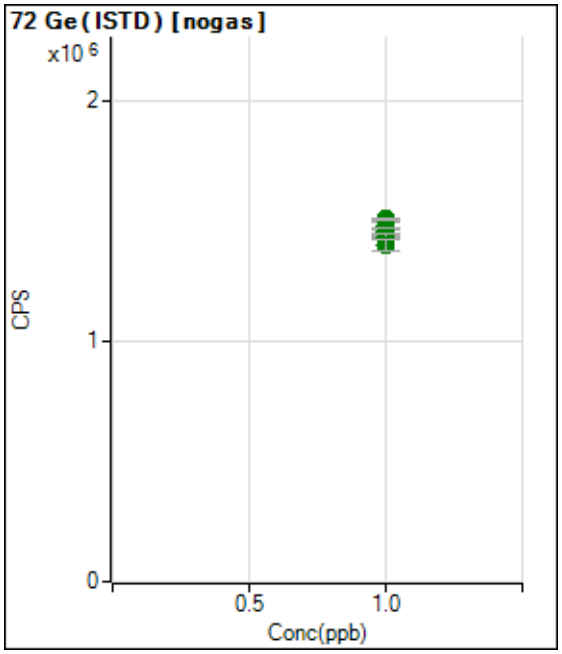


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		954047.98		P	0.9
2	☐	1.000		963740.38		P	0.7
3	☐	1.000		972947.88		P	1.1
4	☐	1.000		971871.76		P	1.8
5	☐	1.000		960312.36		P	2.4
6	☐	1.000		946081.18		P	0.9
7	☐	1.000					

Calibration for 011_ICV.d

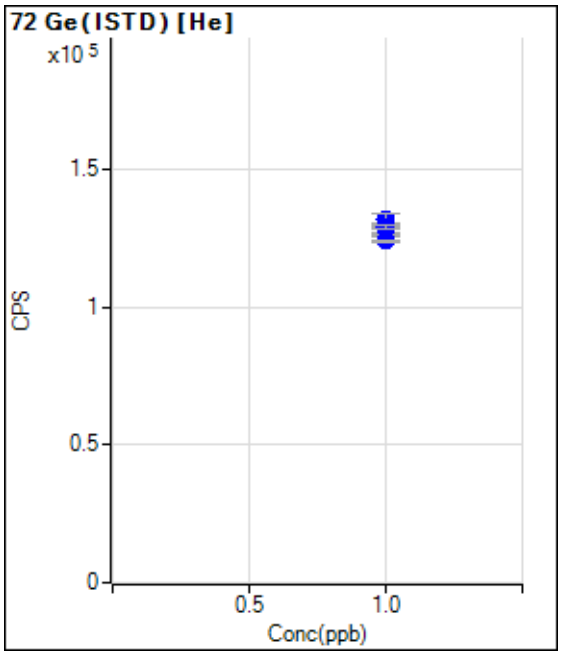


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		27307.27		P	3.1
2	☐	1.000		27600.95		P	4.0
3	☐	1.000		27744.54		P	2.4
4	☐	1.000		27263.60		P	3.3
5	☐	1.000		26122.07		P	1.2
6	☐	1.000		26519.34		P	0.1
7	☐	1.000					

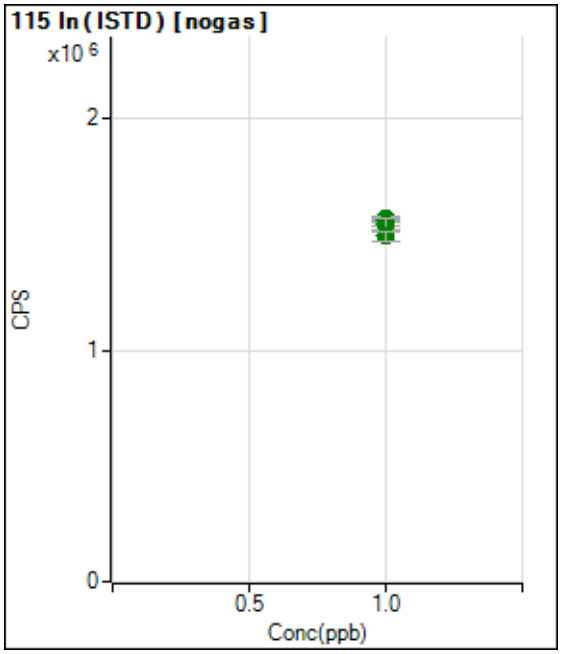


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1478633.15		A	2.0
2	☐	1.000		1429390.03		A	0.1
3	☐	1.000		1456756.85		A	1.9
4	☐	1.000		1433648.21		A	1.9
5	☐	1.000		1509165.97		A	0.5
6	☐	1.000		1400016.64		A	3.6
7	☐	1.000					

Calibration for 011_ICV.d

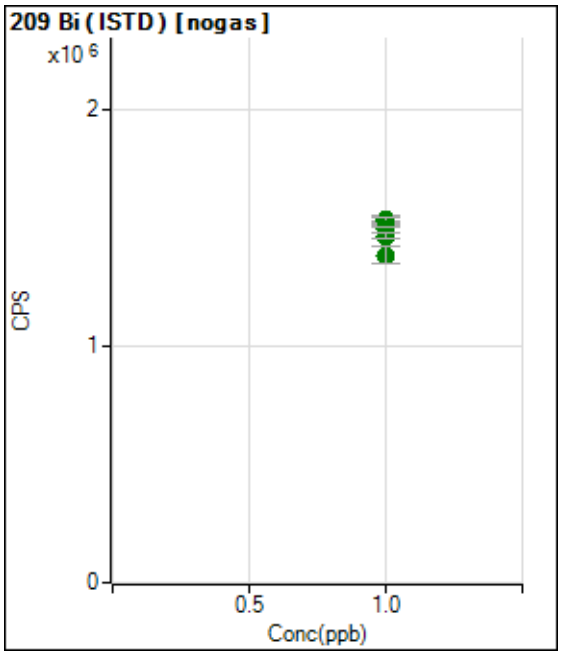


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		126743.37		P	2.1
2	☐	1.000		126042.98		P	1.4
3	☐	1.000		128375.41		P	2.9
4	☐	1.000		131571.64		P	3.9
5	☐	1.000		129226.77		P	1.1
6	☐	1.000		123924.60		P	0.6
7	☐	1.000					



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1539302.61		A	2.9
2	☐	1.000		1523831.73		A	1.5
3	☐	1.000		1567266.78		A	1.5
4	☐	1.000		1564079.97		A	1.5
5	☐	1.000		1546520.71		A	3.1
6	☐	1.000		1492961.03		A	2.7
7	☐	1.000					

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1532164.72		A	2.2
2	☐	1.000		1524242.37		A	0.7
3	☐	1.000		1525030.76		A	2.0
4	☐	1.000		1491384.35		A	2.0
5	☐	1.000		1464628.88		A	1.6
6	☐	1.000		1383536.23		A	4.9
7	☐	1.000					

ALS Group USA, Corp Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307312
Instrument: ICPMS05
Method: SW6020

ICV Date: 15-Dec-2017 12:15 Seq: 4353690 ICV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	92.12	92	90-110	
Calcium	10000	9734.962	97	90-110	
Magnesium	10000	9582.087	96	90-110	
Manganese	100	95.694	96	90-110	
Sodium	10000	9681.752	97	90-110	

CCV1 Date: 15-Dec-2017 12:38 Seq: 4353701 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	93.479	94	90-110	
Calcium	10000	9754.244	98	90-110	
Magnesium	10000	9582.68	96	90-110	
Manganese	100	95.338	95	90-110	
Sodium	10000	9480.875	95	90-110	

CCV2 Date: 15-Dec-2017 13:02 Seq: 4353754 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	93.37	93	90-110	
Calcium	10000	9540.51	95	90-110	
Magnesium	10000	9578.847	96	90-110	
Manganese	100	93.29	93	90-110	
Sodium	10000	9845.059	99	90-110	

CCV3 Date: 15-Dec-2017 13:25 Seq: 4353766 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	95.446	95	90-110	
Calcium	10000	9460.636	95	90-110	
Magnesium	10000	9365.404	94	90-110	
Manganese	100	96.664	97	90-110	
Sodium	10000	9610.884	96	90-110	

CCV4 Date: 15-Dec-2017 13:50 Seq: 4353791 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	94.307	94	90-110	
Calcium	10000	9446.524	95	90-110	
Magnesium	10000	9627.569	96	90-110	
Manganese	100	95.828	96	90-110	
Sodium	10000	9697.084	97	90-110	

CCV5 Date: 15-Dec-2017 14:18 Seq: 4353865 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	94.609	95	90-110	
Calcium	10000	9420.104	94	90-110	
Magnesium	10000	9433.581	94	90-110	
Manganese	100	93.854	94	90-110	
Sodium	10000	9576.701	96	90-110	

CCV6 Date: 15-Dec-2017 14:40 Seq: 4353933 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	94.054	94	90-110	
Calcium	10000	9281.888	93	90-110	
Magnesium	10000	9509.716	95	90-110	
Manganese	100	92.714	93	90-110	
Sodium	10000	9624	96	90-110	

CCV7 Date: 15-Dec-2017 15:04 Seq: 4353980 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	94.221	94	90-110	
cium	10000	9154.96	92	90-110	

ALS Group USA, Corp Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307312
Instrument: ICPMS05
Method: SW6020

CCV7	Date: 15-Dec-2017 15:04		Seq: 4353980	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Magnesium	10000	9204.031	92	90-110	
Manganese	100	91.352	91	90-110	
Sodium	10000	9861.098	99	90-110	

ICCV8	Date: 15-Dec-2017 15:31		Seq: 4354055	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	95.227	95	90-110	
Calcium	10000	9597.979	96	90-110	
Magnesium	10000	9104.418	91	90-110	
Manganese	100	94.854	95	90-110	
Sodium	10000	9345.345	94	90-110	

CCV9	Date: 15-Dec-2017 15:49		Seq: 4354211	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	96.377	96	90-110	
Calcium	10000	9756.583	98	90-110	
Magnesium	10000	9044.528	90	90-110	
Manganese	100	92.09	92	90-110	
Sodium	10000	9489.568	95	90-110	

CCV10	Date: 15-Dec-2017 16:14		Seq: 4355116	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	95.292	95	90-110	
Calcium	10000	9520.98	95	90-110	
Magnesium	10000	9543.378	95	90-110	
Manganese	100	91.71	92	90-110	
Sodium	10000	9227.547	92	90-110	

CCV11	Date: 15-Dec-2017 16:38		Seq: 4355149	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	95.251	95	90-110	
Calcium	10000	9447.289	95	90-110	
Magnesium	10000	9422.995	94	90-110	
Manganese	100	95.786	96	90-110	
Sodium	10000	9881.625	99	90-110	

CCV12	Date: 15-Dec-2017 17:02		Seq: 4355161	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	97.825	98	90-110	
Calcium	10000	9959.722	100	90-110	
Magnesium	10000	9376.334	94	90-110	
Manganese	100	95.963	96	90-110	
Sodium	10000	9904.747	99	90-110	

CCV13	Date: 15-Dec-2017 17:26		Seq: 4355173	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	96.204	96	90-110	
Calcium	10000	10104.941	101	90-110	
Magnesium	10000	9567.554	96	90-110	
Manganese	100	97.161	97	90-110	
Sodium	10000	9871.09	99	90-110	

CCV14	Date: 15-Dec-2017 17:50		Seq: 4355185	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	97.469	98	90-110	
Calcium	10000	10345.161	103	90-110	
Magnesium	10000	9949.137	100	90-110	
nganese	100	96.059	96	90-110	

ALS Group USA, Corp Date: 21-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307312
Instrument: ICPMS05
Method: SW6020

CCV14	Date: 15-Dec-2017 17:50		Seq: 4355185	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Sodium	10000	9655.343	97	90-110	

CCV15	Date: 15-Dec-2017 18:13		Seq: 4355197	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	99.726	100	90-110	
Calcium	10000	10059.535	101	90-110	
Magnesium	10000	9743.558	97	90-110	
Manganese	100	96.569	97	90-110	
Sodium	10000	9741.235	97	90-110	

CCV16	Date: 15-Dec-2017 18:33		Seq: 4355207	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	96.245	96	90-110	
Calcium	10000	9983.078	100	90-110	
Magnesium	10000	9872.506	99	90-110	
Manganese	100	93.378	93	90-110	
Sodium	10000	9755.754	98	90-110	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307312
Instrument: ICPMS05
Method: SW6020

ICB	Date: 15-Dec-2017 12:21		Seq: 4353693	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	200	14	200	U	

CCB1	Date: 15-Dec-2017 12:40		Seq: 4353702	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	44.6	14	200	J	

CCB2	Date: 15-Dec-2017 13:04		Seq: 4353755	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	15.95	14	200	J	

CCB3	Date: 15-Dec-2017 13:27		Seq: 4353767	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	200	14	200	U	

CCB4	Date: 15-Dec-2017 13:51		Seq: 4353792	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	20.4	14	200	J	

CCB5	Date: 15-Dec-2017 14:16		Seq: 4353864	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	80.85	14	200	J	

CCB6	Date: 15-Dec-2017 14:42		Seq: 4353934	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	135.1	14	200	J	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307312
Instrument: ICPMS05
Method: SW6020

CCB7	Date: 15-Dec-2017 15:06		Seq: 4353981	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	127.2	14	200	J	

ICCB8	Date: 15-Dec-2017 15:37		Seq: 4354058	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	-20.67	14	200	J	

CCB9	Date: 15-Dec-2017 15:51		Seq: 4354212	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	33.61	14	200	J	

CCB10	Date: 15-Dec-2017 16:16		Seq: 4355117	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	111.1	14	200	J	

CCB11	Date: 15-Dec-2017 16:40		Seq: 4355150	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	12.44	10	200	J	
Manganese	0.818	0.7	5	J	
Sodium	141.5	14	200	J	

CCB12	Date: 15-Dec-2017 17:04		Seq: 4355162	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	311.2	14	200		

CCB13	Date: 15-Dec-2017 17:28		Seq: 4355174	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	181.5	14	200	J	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID: ICPMS05_307312
Instrument: ICPMS05
Method: SW6020

CCB14	Date: 15-Dec-2017 17:52		Seq: 4355186	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	74.26	34	500	J	
Magnesium	18.56	10	200	J	
Manganese	5	0.7	5	U	
Sodium	54.16	14	200	J	

CCB15	Date: 15-Dec-2017 18:15		Seq: 4355198	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	25.82	14	200	J	

CCB16	Date: 15-Dec-2017 18:35		Seq: 4355208	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Sodium	200	14	200	U	

ALS Group USA, Corp Date: 21-Dec-17

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435

Run ID:ICPMS05_307312
Instrument:ICPMS05
Method:SW6020

ICSA	Date: 15-Dec-2017 12:24	Seq: 4353694	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium		-0.016	0	
Calcium	100000	106100	106	
Magnesium	100000	100500	100	
Manganese		0.363	0	
Sodium	100000	99920	99.9	

ICSAB	Date: 15-Dec-2017 12:26	Seq: 4353695	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium	100	93.02	93.0	
Calcium	110000	119300	108	
Magnesium	110000	112200	102	
Manganese	100	90.35	90.4	
Sodium	110000	114900	104	

ICSA	Date: 15-Dec-2017 18:42	Seq: 4355211	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium		0.071	0	
Calcium	100000	105900	106	
Magnesium	100000	107900	108	
Manganese		0.297	0	
Sodium	100000	97920	97.9	

ICSAB	Date: 15-Dec-2017 18:44	Seq: 4355212	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium	100	88.72	88.7	
Calcium	110000	116800	106	
Magnesium	110000	114100	104	
Manganese	100	87.91	87.9	
Sodium	110000	110500	100	

ALS Group USA, Corp Date: 21-Dec-17

Form 11 - INTERNAL STANDARD ASSOCIATION

Client: Bhate Environmental Associates, Inc. Instrument:ICPMS05
Project: LHAAP 18/24
WorkOrder: HS17120435

Mass	Analyte	Assoc Int Standard 1	Assoc Int Standard 2	Mode
9	Beryllium	Lithium		Ar
11	Boron	Lithium		Ar
23	Sodium	Germanium		Ar
24	Magnesium	Germanium		Ar
27	Aluminum	Germanium		Ar
39	Potassium	Germanium		Ar
44	Calcium	Germanium		Ar
47	Titanium	Germanium		Ar
51	Vanadium	Germanium		ArHe
52	Chromium	Germanium		ArHe
55	Manganese	Germanium		ArHe
56	Iron	Germanium		ArHe
59	Cobalt	Germanium		ArHe
60	Nickel	Germanium		ArHe
63	Copper	Germanium		ArHe
66	Zinc	Germanium		ArHe
75	Arsenic	Germanium		ArHe
78	Selenium	Germanium		ArHe
88	Strontium	Germanium		Ar
95	Molybdenum	Germanium		Ar
105	Palladium	Germanium		Ar
107	Silver	Germanium		Ar
114	Cadmium	Indium		Ar
118	Tin	Germanium		Ar
121	Antimony	Germanium		ArHe
137	Barium	Indium		Ar
205	Thallium	Bismuth		Ar
208	Lead	Bismuth		Ar

ALS Group USA, Corp Date: 21-Dec-17

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435
Start Date: 13-Dec-2017 11:45 End Date: 13-Dec-2017 15:30

Batch ID: 123278
Prep Code: 3010A
Method: SW3010A
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS17120435-01	CO9_120517	Water		10	10	1
HS17120435-01MS				10	10	1
HS17120435-01MSD				10	10	1
HS17120435-01PDS				10	10	1
HS17120435-01SD				10	10	1
HS17120435-02	126_120517	Water		10	10	1
HS17120435-03	C08_120517	Water		10	10	1
HS17120435-04	18WW17_120517	Water		10	10	1
HS17120435-06	18CPTMW18_120517	Water		10	10	1
HS17120435-07	18WW22_120517	Water		10	10	1
LCS-123278				10	10	1
MBLK-123278				10	10	1

ALS Group USA, Corp Date: 21-Dec-17

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435
Start Date: 15-Dec-2017 End Date: 15-Dec-2017

Run ID:ICPMS05_307312
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
ICPMS05_307312_Tune	1	15-Dec-2017 00:00	ICPMS05_307312_Tune_1	
CAL BLK	1	15-Dec-2017 12:01	004CALB.d_4353683	BA CA MG MN NA
2/10/200	1	15-Dec-2017 12:03	005CALS.d_4353684	BA CA MG MN NA
5/25/500	1	15-Dec-2017 12:05	006CALS.d_4353685	BA CA MG MN NA
10/50/1000	1	15-Dec-2017 12:07	007CALS.d_4353686	BA CA MG MN NA
100/500/10K	1	15-Dec-2017 12:09	008CALS.d_4353687	BA CA MG MN NA
200/1000/20K	1	15-Dec-2017 12:11	009CALS.d_4353688	BA CA MG MN NA
ICV	1	15-Dec-2017 12:15	011_ICV.d_4353690	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLICV2	1	15-Dec-2017 12:17	012SMPL.d_4353691	BA CA MG MN NA
LLICV5	1	15-Dec-2017 12:19	013LICV.d_4353692	BA CA MG MN NA
ICB	1	15-Dec-2017 12:21	014_ICB.d_4353693	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICSA	1	15-Dec-2017 12:24	015ICSA.d_4353694	BA CA MG MN NA
ICSAB	1	15-Dec-2017 12:26	016ICSB.d_4353695	BA CA MG MN NA
CO9_120517	10	15-Dec-2017 12:30	018SMPL.d_4353697	CA NA
126_120517	10	15-Dec-2017 12:32	019SMPL.d_4353698	BA CA MG NA
C08_120517	10	15-Dec-2017 12:34	020SMPL.d_4353699	BA CA NA
18WW17_120517	10	15-Dec-2017 12:36	021SMPL.d_4353700	BA CA MG NA
CCV 1	1	15-Dec-2017 12:38	022_CCV.d_4353701	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 1	1	15-Dec-2017 12:40	023_CCB.d_4353702	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
18CPTMW18_120517	10	15-Dec-2017 12:42	024SMPL.d_4353703	CA MG MN NA
CCV 2	1	15-Dec-2017 13:02	034_CCV.d_4353754	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 2	1	15-Dec-2017 13:04	035_CCB.d_4353755	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 3	1	15-Dec-2017 13:25	046_CCV.d_4353766	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 3	1	15-Dec-2017 13:27	047_CCB.d_4353767	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 4	1	15-Dec-2017 13:50	058_CCV.d_4353791	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 4	1	15-Dec-2017 13:51	059_CCB.d_4353792	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 5	1	15-Dec-2017 14:16	071_CCB.d_4353864	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 5	1	15-Dec-2017 14:18	072_CCV.d_4353865	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 6	1	15-Dec-2017 14:40	083_CCV.d_4353933	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 6	1	15-Dec-2017 14:42	084_CCB.d_4353934	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 7	1	15-Dec-2017 15:04	095_CCV.d_4353980	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 7	1	15-Dec-2017 15:06	096_CCB.d_4353981	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CAL BLK	1	15-Dec-2017 15:19	102CALB.d_4354049	BA CA MG MN NA
2/10/200	1	15-Dec-2017 15:21	103CALS.d_4354050	BA CA MG MN NA
5/25/500	1	15-Dec-2017 15:23	104CALS.d_4354051	BA CA MG MN NA
10/50/1000	1	15-Dec-2017 15:25	105CALS.d_4354052	BA CA MG MN NA
100/500/10K	1	15-Dec-2017 15:27	106CALS.d_4354053	BA CA MG MN NA
200/1000/20K	1	15-Dec-2017 15:29	107CALS.d_4354054	BA CA MG MN NA
ICCV 8	1	15-Dec-2017 15:31	108_ICV.d_4354055	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLCCV2	1	15-Dec-2017 15:33	109SMPL.d_4354056	BA CA MG MN NA
LLCCV5	1	15-Dec-2017 15:35	110LICV.d_4354057	BA CA MG MN NA
ICCB 8	1	15-Dec-2017 15:37	111_ICB.d_4354058	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN

ALS Group USA, Corp Date: 21-Dec-17

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
WorkOrder: HS17120435
Start Date: 15-Dec-2017 End Date: 15-Dec-2017

Run ID:ICPMS05_307312
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
CCV 9	1	15-Dec-2017 15:49	117_CCV.d_4354211	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 9	1	15-Dec-2017 15:51	118_CCB.d_4354212	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 10	1	15-Dec-2017 16:14	129_CCV.d_4355116	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 10	1	15-Dec-2017 16:16	130_CCB.d_4355117	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 11	1	15-Dec-2017 16:38	141_CCV.d_4355149	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 11	1	15-Dec-2017 16:40	142_CCB.d_4355150	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 12	1	15-Dec-2017 17:02	153_CCV.d_4355161	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 12	1	15-Dec-2017 17:04	154_CCB.d_4355162	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 13	1	15-Dec-2017 17:26	165_CCV.d_4355173	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 13	1	15-Dec-2017 17:28	166_CCB.d_4355174	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 14	1	15-Dec-2017 17:50	177_CCV.d_4355185	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 14	1	15-Dec-2017 17:52	178_CCB.d_4355186	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 15	1	15-Dec-2017 18:13	189_CCV.d_4355197	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 15	1	15-Dec-2017 18:15	190_CCB.d_4355198	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 16	1	15-Dec-2017 18:33	199_CCV.d_4355207	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 16	1	15-Dec-2017 18:35	200_CCB.d_4355208	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLCCV5	1	15-Dec-2017 18:37	201LICV.d_4355209	BA CA MG MN NA
LLCCV2	1	15-Dec-2017 18:39	202SMPL.d_4355210	BA CA MG MN NA
ICSA	1	15-Dec-2017 18:42	203ICSA.d_4355211	BA CA MG MN NA
ICSAB	1	15-Dec-2017 18:44	204ICSB.d_4355212	BA CA MG MN NA

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	004CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:01:49-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	63	51.90
Na	23	1	nogas	1499173	0.00
Mg	24	1	nogas	11906	0.06
Al	27	1	nogas	23152	0.02
K	39	1	nogas	5172542	0.00
Ti	47	1	nogas	270	10.36
V	51	1	nogas	1217276	0.00
Cr	52	1	nogas	35281	0.01
Mn	55	1	nogas	12301	0.03
Co	59	1	nogas	433	1.63
Ni	60	1	nogas	1557	0.34
Cu	63	1	nogas	4977	0.13
Zn	66	1	nogas	1160	1.39
As	75	1	nogas	190442	0.00
Sr	88	1	nogas	2144	0.38
Ag	107	1	nogas	413	7.95
Cd	111	1	nogas	20	250.00
Sb	121	1	nogas	2487	0.10
Tl	205	1	nogas	183	4.54
Pb	208	1	nogas	437	2.18
[Pb]	206	1	nogas	77	25.99
[Pb]	207	1	nogas	120	12.03
Na	23	2	He	43477	0.00
Mg	24	2	He	293	3.35
Al	27	2	He	67	46.84
K	39	2	He	12878	0.01
Ca	44	2	He	177	35.15
V	51	2	He	689	0.97
Cr	52	2	He	1753	0.50
Mn	55	2	He	237	18.58
Fe	56	2	He	18109	0.02
Co	59	2	He	70	107.99
Ni	60	2	He	300	4.01
Cu	63	2	He	1230	0.50
Zn	66	2	He	173	6.93
As	75	2	He	14	184.51
Se	78	2	He	7	568.09
B	11	1	nogas	50116	0.00
Si	28	1	nogas	902822	0.00
Ca	43	1	nogas	1250	1.22
Ca	44	1	nogas	322904	0.00
Fe	56	1	nogas	1327718	0.00

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Se	77	1	nogas	62554	0.01
Se	82	1	nogas	503	2.24
Mo	95	1	nogas	110	8.26
Sn	118	1	nogas	1820	0.12
Ba	137	1	nogas	580	0.89
Sb	121	2	He	277	3.29
Li	7	1	nogas	31049	0.01
P	31	1	nogas	66009	0.00
La	139	1	nogas	93	28.89

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	nogas	350604	2.67
Ge	72	1	nogas	1579817	2.22
In	115	1	nogas	1691421	4.07
Bi	209	1	nogas	1525300	1.07
Ge	72	2	He	134787	1.04

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	005CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:03:48-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	5661	0.14
Na	23	1	nogas	3949102	0.00
Mg	24	1	nogas	1800610	0.00
Al	27	1	nogas	43995	0.00
K	39	1	nogas	7123112	0.00
Ti	47	1	nogas	2304	0.60
V	51	1	nogas	1239984	0.00
Cr	52	1	nogas	60021	0.00
Mn	55	1	nogas	45586	0.00
Co	59	1	nogas	29047	0.01
Ni	60	1	nogas	8155	0.03
Cu	63	1	nogas	20886	0.01
Zn	66	1	nogas	7158	0.05
As	75	1	nogas	196610	0.00
Sr	88	1	nogas	38048	0.01
Ag	107	1	nogas	21283	0.01
Cd	111	1	nogas	4087	0.23
Sb	121	1	nogas	20910	0.02
Tl	205	1	nogas	35813	0.00
Pb	208	1	nogas	49527	0.00
[Pb]	206	1	nogas	11955	0.02
[Pb]	207	1	nogas	10780	0.03
Na	23	2	He	93502	0.00
Mg	24	2	He	25828	0.00
Al	27	2	He	243	5.16
K	39	2	He	26703	0.01
Ca	43	2	He	53	107.40
Ca	44	2	He	767	1.00
V	51	2	He	3514	0.08
Cr	52	2	He	4991	0.04
Mn	55	2	He	1667	0.18
Fe	56	2	He	296640	0.00
Co	59	2	He	6608	0.08
Ni	60	2	He	2307	0.13
Cu	63	2	He	6098	0.15
Zn	66	2	He	1030	0.41
As	75	2	He	587	0.76
Se	78	2	He	26	135.58
B	11	1	nogas	65804	0.00
Si	28	1	nogas	1587376	0.00

Calibration Standard Report

Ca	43	1	nogas	5167	0.18
Ca	44	1	nogas	358758	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	4295168	0.00
Se	77	1	nogas	63360	0.00
Se	82	1	nogas	770	2.21
Mo	95	1	nogas	7882	0.04
Sn	118	1	nogas	12768	0.04
Ba	137	1	nogas	6168	0.06
Sb	121	2	He	2560	0.12
P	31	1	nogas	71328	0.00
La	139	1	nogas	80	41.34

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	341331	2.26	350604	97.36	70	125	
Ge	72	1	nogas	1599783	1.14	1579817	101.26	70	125	
In	115	1	nogas	1653307	1.40	1691421	97.75	70	125	
Bi	209	1	nogas	1524542	0.89	1525300	99.95	70	125	
Ge	72	2	He	133547	1.51	134787	99.08	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	006CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:05:47-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	14629	0.02
Na	23	1	nogas	7678363	0.00
Mg	24	1	nogas	4491656	0.00
Al	27	1	nogas	85793	0.00
K	39	1	nogas	10128615	0.00
Ti	47	1	nogas	5251	0.16
V	51	1	nogas	1397332	0.00
Cr	52	1	nogas	101621	0.00
Mn	55	1	nogas	95515	0.01
Co	59	1	nogas	74960	0.00
Ni	60	1	nogas	18606	0.01
Cu	63	1	nogas	45564	0.01
Zn	66	1	nogas	14856	0.01
As	75	1	nogas	220994	0.00
Sr	88	1	nogas	93348	0.00
Ag	107	1	nogas	52699	0.00
Cd	111	1	nogas	11197	0.01
Sb	121	1	nogas	50948	0.00
Tl	205	1	nogas	88557	0.00
Pb	208	1	nogas	125496	0.00
[Pb]	206	1	nogas	31013	0.00
[Pb]	207	1	nogas	27333	0.01
Na	23	2	He	172831	0.00
Mg	24	2	He	63058	0.00
Al	27	2	He	320	6.40
K	39	2	He	46716	0.01
Ca	43	2	He	140	31.04
Ca	44	2	He	2080	0.04
V	51	2	He	7829	0.06
Cr	52	2	He	10613	0.04
Mn	55	2	He	3920	0.24
Fe	56	2	He	749995	0.00
Co	59	2	He	16568	0.02
Ni	60	2	He	5234	0.11
Cu	63	2	He	13522	0.01
Zn	66	2	He	2013	0.22
As	75	2	He	1363	0.15
Se	78	2	He	73	28.68
B	11	1	nogas	93278	0.00
Si	28	1	nogas	2361482	0.00

Calibration Standard Report

Ca	43	1	nogas	11457	0.01
Ca	44	1	nogas	433334	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	9105785	0.00
Se	77	1	nogas	70359	0.01
Se	82	1	nogas	1270	0.60
Mo	95	1	nogas	19441	0.02
Sn	118	1	nogas	31015	0.01
Ba	137	1	nogas	15097	0.01
Sb	121	2	He	6325	0.12
P	31	1	nogas	84599	0.00
La	139	1	nogas	97	12.36

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	349805	3.40	350604	99.77	70	125	
Ge	72	1	nogas	1581732	1.10	1579817	100.12	70	125	
In	115	1	nogas	1633353	0.71	1691421	96.57	70	125	
Bi	209	1	nogas	1525258	2.32	1525300	100.00	70	125	
Ge	72	2	He	135624	1.34	134787	100.62	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	007CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:07:47-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	29791	0.02
Na	23	1	nogas	14497808	0.00
Mg	24	1	nogas	9341588	0.00
Al	27	1	nogas	190348	0.00
K	39	1	nogas	15285555	0.00
Ti	47	1	nogas	10763	0.04
V	51	1	nogas	1611912	0.00
Cr	52	1	nogas	172744	0.00
Mn	55	1	nogas	181804	0.00
Co	59	1	nogas	149697	0.00
Ni	60	1	nogas	35662	0.00
Cu	63	1	nogas	88772	0.00
Zn	66	1	nogas	29738	0.01
As	75	1	nogas	258515	0.00
Sr	88	1	nogas	183738	0.00
Ag	107	1	nogas	107081	0.00
Cd	111	1	nogas	22218	0.03
Sb	121	1	nogas	100545	0.00
Tl	205	1	nogas	181641	0.00
Pb	208	1	nogas	257090	0.00
[Pb]	206	1	nogas	63370	0.01
[Pb]	207	1	nogas	58208	0.00
Na	23	2	He	305220	0.00
Mg	24	2	He	128689	0.00
Al	27	2	He	653	2.48
K	39	2	He	81403	0.00
Ca	43	2	He	197	16.62
Ca	44	2	He	4331	0.17
V	51	2	He	15081	0.01
Cr	52	2	He	20175	0.00
Mn	55	2	He	7922	0.06
Fe	56	2	He	1557398	0.00
Co	59	2	He	33454	0.01
Ni	60	2	He	9683	0.04
Cu	63	2	He	27144	0.01
Zn	66	2	He	4171	0.20
As	75	2	He	2828	0.08
Se	78	2	He	133	18.63
B	11	1	nogas	141336	0.00
Si	28	1	nogas	3694491	0.00

Calibration Standard Report

Ca	43	1	nogas	21710	0.00
Ca	44	1	nogas	591592	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	17207699	0.00
Se	77	1	nogas	76246	0.00
Se	82	1	nogas	2140	0.42
Mo	95	1	nogas	39053	0.00
Sn	118	1	nogas	61114	0.00
Ba	137	1	nogas	29355	0.02
Sb	121	2	He	12051	0.03
P	31	1	nogas	106502	0.00
La	139	1	nogas	93	35.07

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	339961	3.74	350604	96.96	70	125	
Ge	72	1	nogas	1612397	4.12	1579817	102.06	70	125	
In	115	1	nogas	1686124	1.60	1691421	99.69	70	125	
Bi	209	1	nogas	1529935	2.13	1525300	100.30	70	125	
Ge	72	2	He	133072	2.50	134787	98.73	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	008CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:09:46-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	263073	0.00
Na	23	1	nogas	115556332	0.00
Mg	24	1	nogas	80339758	0.00
Al	27	1	nogas	959009	0.00
K	39	1	nogas	91537973	0.00
Ti	47	1	nogas	92577	0.00
V	51	1	nogas	2547186	0.00
Cr	52	1	nogas	1252427	0.00
Mn	55	1	nogas	1546514	0.00
Co	59	1	nogas	1323108	0.00
Ni	60	1	nogas	294318	0.00
Cu	63	1	nogas	728498	0.00
Zn	66	1	nogas	235480	0.00
As	75	1	nogas	457989	0.00
Sr	88	1	nogas	1611194	0.00
Ag	107	1	nogas	932856	0.00
Cd	111	1	nogas	194496	0.00
Sb	121	1	nogas	857560	0.00
Tl	205	1	nogas	1622270	0.00
Pb	208	1	nogas	2295620	0.00
[Pb]	206	1	nogas	553491	0.00
[Pb]	207	1	nogas	513546	0.00
Na	23	2	He	2283961	0.00
Mg	24	2	He	1100408	0.00
Al	27	2	He	3254	0.14
K	39	2	He	604464	0.00
Ca	43	2	He	2133	0.44
Ca	44	2	He	34405	0.00
V	51	2	He	128213	0.00
Cr	52	2	He	166390	0.00
Mn	55	2	He	67377	0.00
Fe	56	2	He	13120104	0.00
Co	59	2	He	289167	0.00
Ni	60	2	He	81157	0.00
Cu	63	2	He	221935	0.00
Zn	66	2	He	34142	0.01
As	75	2	He	24949	0.01
Se	78	2	He	959	0.43
B	11	1	nogas	892928	0.00
Si	28	1	nogas	23722273	0.00

Calibration Standard Report

Ca	43	1	nogas	177976	0.00
Ca	44	1	nogas	3048048	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	140519736	0.00
Se	77	1	nogas	75878	0.00
Se	82	1	nogas	14403	0.02
Mo	95	1	nogas	341735	0.00
Sn	118	1	nogas	527599	0.00
Ba	137	1	nogas	262067	0.00
Sb	121	2	He	103945	0.00
P	31	1	nogas	388256	0.00
La	139	1	nogas	293	4.84

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	311148	2.31	350604	88.75	70	125	
Ge	72	1	nogas	1538956	2.60	1579817	97.41	70	125	
In	115	1	nogas	1603186	3.59	1691421	94.78	70	125	
Bi	209	1	nogas	1501431	0.69	1525300	98.44	70	125	
Ge	72	2	He	128433	1.75	134787	95.29	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	009CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:11:44-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	555356	0.00
Na	23	1	nogas	241508830	0.00
Mg	24	1	nogas	166320058	0.00
Al	27	1	nogas	2114661	0.00
K	39	1	nogas	186852542	0.00
Ti	47	1	nogas	191944	0.00
V	51	1	nogas	4201990	0.00
Cr	52	1	nogas	2523925	0.00
Mn	55	1	nogas	3192432	0.00
Co	59	1	nogas	2640655	0.00
Ni	60	1	nogas	602298	0.00
Cu	63	1	nogas	1508090	0.00
Zn	66	1	nogas	491474	0.00
As	75	1	nogas	822644	0.00
Sr	88	1	nogas	3448516	0.00
Ag	107	1	nogas	1974961	0.00
Cd	111	1	nogas	402402	0.00
Sb	121	1	nogas	1958065	0.00
Tl	205	1	nogas	3320345	0.00
Pb	208	1	nogas	4748303	0.00
[Pb]	206	1	nogas	1154129	0.00
[Pb]	207	1	nogas	1063407	0.00
Na	23	2	He	4826266	0.00
Mg	24	2	He	2325491	0.00
Al	27	2	He	6588	0.06
K	39	2	He	1252885	0.00
Ca	43	2	He	4177	0.23
Ca	44	2	He	73530	0.00
V	51	2	He	266488	0.00
Cr	52	2	He	357171	0.00
Mn	55	2	He	138932	0.00
Fe	56	2	He	27712349	0.00
Co	59	2	He	596438	0.00
Ni	60	2	He	165388	0.00
Cu	63	2	He	460900	0.00
Zn	66	2	He	73213	0.00
As	75	2	He	51313	0.00
Se	78	2	He	2026	0.15
B	11	1	nogas	1939369	0.00
Si	28	1	nogas	46371264	0.00

Calibration Standard Report

Ca	43	1	nogas	373733	0.00
Ca	44	1	nogas	6271586	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	297621582	0.00
Se	77	1	nogas	112741	0.00
Se	82	1	nogas	30156	0.00
Mo	95	1	nogas	735868	0.00
Sn	118	1	nogas	1155164	0.00
Ba	137	1	nogas	546321	0.00
Sb	121	2	He	227060	0.00
P	31	1	nogas	744546	0.00
La	139	1	nogas	477	4.58

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	285702	2.13	350604	81.49	70	125	
Ge	72	1	nogas	1513730	2.45	1579817	95.82	70	125	
In	115	1	nogas	1603866	5.13	1691421	94.82	70	125	
Bi	209	1	nogas	1433615	0.77	1525300	93.99	70	125	
Ge	72	2	He	124593	1.36	134787	92.44	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICV
Data File Name	011_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:15:43-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	94.384	1.619	261333	1.61	100	94.4	90	110	
Na	23	1	nogas	9145.986	1.333	115815865	2.56	10000	91.5	90	110	
Mg	24	1	nogas	9103.216	2.349	79076908	1.59	10000	91.0	90	110	
Al	27	1	nogas	86.749	1.840	931389	2.11	100	86.7	90	110	ICV Main CR1 Failed
K	39	1	nogas	9719.062	1.088	94443215	1.32	10000	97.2	90	110	
Ti	47	1	nogas	94.617	2.646	92178	2.55	100	94.6	90	110	
V	51	1	nogas	77.413	1.546	2373471	0.45	100	77.4	90	110	ICV Main CR1 Failed
Cr	52	1	nogas	96.629	1.006	1257473	0.96	100	96.6	90	110	
Mn	55	1	nogas	92.012	2.754	1496227	2.93	100	92.0	90	110	
Co	59	1	nogas	94.327	0.789	1272549	1.08	100	94.3	90	110	
Ni	60	1	nogas	92.994	1.175	285214	1.24	100	93.0	90	110	
Cu	63	1	nogas	93.722	0.737	718802	0.75	100	93.7	90	110	
Zn	66	1	nogas	95.119	1.957	237026	1.78	100	95.1	90	110	
As	75	1	nogas	82.653	4.817	451658	2.53	100	82.7	90	110	ICV Main CR1 Failed
Sr	88	1	nogas	92.329	1.089	1604699	0.77	100	92.3	90	110	
Ag	107	1	nogas	95.403	2.198	951308	1.99	100	95.4	90	110	
Cd	111	1	nogas	96.357	0.212	200160	1.89	100	96.4	90	110	
Sb	121	1	nogas	87.620	1.800	855375	1.79	100	87.6	90	110	ICV Main CR1 Failed
Tl	205	1	nogas	92.533	1.034	1623387	1.34	100	92.5	90	110	
Pb	208	1	nogas	97.579	0.368	2302007	0.37	100	97.6	90	110	
U	238	1	nogas	96.451	0.424	2414313	2.04	100	96.5	90	110	
[Pb]	206	1	nogas	90.299	2.873	548639	1.53	100	90.3	90	110	
[Pb]	207	1	nogas	90.232	2.875	505767	1.26	100	90.2	90	110	
Na	23	2	He	9681.752	1.952	2373784	0.88	10000	96.8	90	110	
Mg	24	2	He	9582.087	3.348	1124122	2.58	10000	95.8	90	110	
Al	27	2	He	97.502	4.198	3174	4.65	100	97.5	90	110	
K	39	2	He	9537.538	0.915	598958	0.90	10000	95.4	90	110	
Ca	43	2	He	9372.258	4.572	2003	5.03	10000	93.7	90	110	
Ca	44	2	He	9422.297	4.503	34933	3.27	10000	94.2	90	110	
V	51	2	He	95.834	0.877	129166	0.34	100	95.8	90	110	
Cr	52	2	He	102.276	1.474	169369	0.25	100	102.3	90	110	
Mn	55	2	He	95.694	0.319	67464	1.07	100	95.7	90	110	
Fe	56	2	He	9517.102	1.352	13312088	0.79	10000	95.2	90	110	
Co	59	2	He	96.314	2.450	291131	1.27	100	96.3	90	110	
Ni	60	2	He	97.254	1.790	81787	0.99	100	97.3	90	110	
Cu	63	2	He	97.965	1.548	228552	0.73	100	98.0	90	110	
Zn	66	2	He	102.468	4.103	34824	3.26	100	102.5	90	110	
As	75	2	He	94.277	1.718	24531	1.53	100	94.3	90	110	
Se	78	2	He	100.406	3.774	959	2.66	100	100.4	90	110	
B	11	1	nogas	493.962	2.316	928844	2.92	500	98.8	90	110	
Si	28	1	nogas	4713.089	2.462	22812461	2.70	5000	94.3	90	110	
Ca	43	1	nogas	9734.962	2.188	184435	2.43	10000	97.3	90	110	
Ca	44	1	nogas	9357.175	1.748	3115810	1.30	10000	93.6	90	110	
Fe	56	1	nogas	9112.229	1.580	137523145	1.86	10000	91.1	90	110	
Se	77	1	nogas	47.363	19.573	73180	2.81	100	47.4	90	110	ICV Main CR1 Failed
Se	82	1	nogas	91.394	2.203	14169	2.41	100	91.4	90	110	
Mo	95	1	nogas	92.185	1.546	341420	1.23	100	92.2	90	110	
Sn	118	1	nogas	91.863	1.367	542745	3.14	100	91.9	90	110	
Ba	137	1	nogas	92.120	3.339	259877	1.38	100	92.1	90	110	
Sb	121	2	He	101.624	1.503	105223	1.22	100	101.6	90	110	
Li	7	1	nogas	98.811	3.245	683304	3.70	100	98.8	90	110	
P	31	1	nogas	462.653	1.352	383539	1.46	500	92.5	90	110	
La	139	1	nogas	87.580	76.787	270	50.10	100	87.6	90	110	ICV Main CR1 Failed
Au	197	1	nogas	134.601	214.655	17	91.65	100	134.6	90	110	ICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	327136	0.89	350604	93.31	70	125	
Ge	72	1	nogas	1549921	0.34	1579817	98.11	70	125	
In	115	1	nogas	1665600	2.00	1691421	98.47	70	125	
Bi	209	1	nogas	1535328	1.98	1525300	100.66	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	127760	1.21	134787	94.79	70	125	

Sample Report

Sample Table

Sample Name	LLICV2
Data File Name	012SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:17:40-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.912	1.912	2.82	5688	0.03	2000	
Na	23	1	nogas	198.750	198.750	2.61	3881845	0.01	200000	
Mg	24	1	nogas	210.425	210.425	4.16	1821425	0.01	200000	
Al	27	1	nogas	2.311	2.311	7.01	44904	0.01	2000	
K	39	1	nogas	191.285	191.285	6.97	6868038	0.00	200000	
Ti	47	1	nogas	2.134	2.134	3.05	2350	0.09	2000	
V	51	1	nogas	-3.841	-3.841	-145.46	1142603	0.00	2000	
Cr	52	1	nogas	1.799	1.799	6.16	57697	0.00	2000	
Mn	55	1	nogas	2.096	2.096	0.34	46095	0.00	2000	
Co	59	1	nogas	2.182	2.182	3.98	29985	0.01	2000	
Ni	60	1	nogas	2.274	2.274	10.38	8212	0.03	2000	
Cu	63	1	nogas	1.954	1.954	9.38	19848	0.01	2000	
Zn	66	1	nogas	2.510	2.510	2.53	6991	0.04	2000	
As	75	1	nogas	3.614	3.614	61.21	203752	0.00	2000	
Sr	88	1	nogas	1.941	1.941	6.31	35950	0.01	2000	
Ag	107	1	nogas	2.106	2.106	5.63	21494	0.01	2000	
Cd	111	1	nogas	1.952	1.952	9.76	4037	0.05	2000	
Sb	121	1	nogas	3.116	3.116	8.19	29452	0.01	2000	
Tl	205	1	nogas	2.105	2.105	4.51	37029	0.01	2000	
Pb	208	1	nogas	2.213	2.213	0.66	52641	0.00	2000	
U	238	1	nogas	2.043	2.043	3.83	51109	0.00	2000	
[Pb]	206	1	nogas	2.111	2.111	4.15	12875	0.02	2000	
[Pb]	207	1	nogas	2.051	2.051	1.69	11594	0.02	2000	
Na	23	2	He	183.586	183.586	6.16	89688	0.20	200000	
Mg	24	2	He	199.118	199.118	6.33	24797	0.80	200000	
Al	27	2	He	-0.547	-0.547	-271.14	163	-0.33	2000	
K	39	2	He	201.834	201.834	2.64	25281	0.80	200000	
Ca	43	2	He	221.896	221.896	38.22	50	443.79	200000	
Ca	44	2	He	204.740	204.740	18.01	967	21.18	200000	
V	51	2	He	2.488	2.488	2.35	3323	0.07	2000	
Cr	52	2	He	1.948	1.948	4.36	5101	0.04	2000	
Mn	55	2	He	1.909	1.909	8.31	1643	0.12	2000	
Fe	56	2	He	181.529	181.529	1.50	284298	0.06	200000	
Co	59	2	He	2.002	2.002	3.21	6425	0.03	2000	
Ni	60	2	He	2.234	2.234	4.45	2160	0.10	2000	
Cu	63	2	He	2.535	2.535	5.26	6134	0.04	2000	
Zn	66	2	He	1.985	1.985	12.41	1043	0.19	2000	
As	75	2	He	1.877	1.877	17.72	526	0.36	2000	
Se	78	2	He	0.808	0.808	55.66	25	3.19	2000	
B	11	1	nogas	20.445	20.445	20.76	88399	0.02	2000	
Si	28	1	nogas	149.718	149.718	7.68	1589735	0.01	2000	
Ca	43	1	nogas	192.847	192.847	1.81	4877	3.95	200000	
Ca	44	1	nogas	-212.010	-212.010	-9.42	254649	-0.08	200000	
Fe	56	1	nogas	186.014	186.014	3.01	4102731	0.00	200000	

Sample Report

Se	77	1	nogas	16.950	16.950	38.82	65946	0.03	2000	
Se	82	1	nogas	1.623	1.623	64.65	743	0.22	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	2.162	2.162	7.46	8155	0.03	2000	
Sn	118	1	nogas	1.899	1.899	3.90	12872	0.01	2000	
Ba	137	1	nogas	2.068	2.068	1.69	6348	0.03	2000	
Sb	121	2	He	2.834	2.834	13.71	3344	0.08	2000	
La	139	1	nogas	-6.031	-6.031	-144.01	80	-7.54	2000	
Au	197	1	nogas	385.414	385.414	28.26	3	11562.42	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	347864	4.57	350604	99.22	70	125	
Ge	72	1	nogas	1557640	2.04	1579817	98.60	70	125	
In	115	1	nogas	1653482	3.05	1691421	97.76	70	125	
Bi	209	1	nogas	1531746	0.69	1525300	100.42	70	125	
Ge	72	2	He	134165	2.41	134787	99.54	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLICV5
Data File Name	013LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:19:39-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.748	2.845	13935	1.31	5	95.0	70	130	
Na	23	1	nogas	512.638	3.896	7713511	2.45	500	102.5	70	130	
Mg	24	1	nogas	526.586	5.443	4506846	3.29	500	105.3	70	130	
Al	27	1	nogas	6.665	3.244	86406	0.66	5	133.3	70	130	LLICV Main CR1 Failed
K	39	1	nogas	525.453	4.364	9945687	0.41	500	105.1	70	130	
Ti	47	1	nogas	5.173	3.692	5311	2.64	5	103.5	70	130	
V	51	1	nogas	7.740	41.253	1318740	5.28	5	154.8	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	5.208	3.152	100929	2.01	5	104.2	70	130	
Mn	55	1	nogas	5.144	2.807	95395	0.90	5	102.9	70	130	
Co	59	1	nogas	5.447	3.838	74151	2.28	5	108.9	70	130	
Ni	60	1	nogas	5.519	3.326	18156	1.99	5	110.4	70	130	
Cu	63	1	nogas	5.168	0.693	44431	1.63	5	103.4	70	130	
Zn	66	1	nogas	5.573	0.826	14623	2.22	5	111.5	70	130	
As	75	1	nogas	13.061	14.276	233448	3.76	5	261.2	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	5.104	0.822	91065	2.19	5	102.1	70	130	
Ag	107	1	nogas	5.233	1.728	52783	3.08	5	104.7	70	130	
Cd	111	1	nogas	5.115	2.723	10670	4.72	5	102.3	70	130	
Sb	121	1	nogas	5.624	3.230	51155	1.69	5	112.5	70	130	
Tl	205	1	nogas	5.055	2.494	87827	2.27	5	101.1	70	130	
Pb	208	1	nogas	5.429	0.490	128482	0.49	5	108.6	70	130	
U	238	1	nogas	5.148	1.233	127442	1.33	5	103.0	70	130	
[Pb]	206	1	nogas	5.276	3.795	31765	3.54	5	105.5	70	130	
[Pb]	207	1	nogas	5.170	1.728	28763	1.94	5	103.4	70	130	
Na	23	2	He	518.009	2.938	170835	1.73	500	103.6	70	130	
Mg	24	2	He	518.040	2.707	62822	3.02	500	103.6	70	130	
Al	27	2	He	3.443	52.477	287	20.44	5	68.9	70	130	LLICV Main CR1 Failed
K	39	2	He	520.849	2.522	44884	1.80	500	104.2	70	130	
Ca	43	2	He	516.427	50.637	113	50.17	500	103.3	70	130	
Ca	44	2	He	508.484	4.592	2103	4.81	500	101.7	70	130	
V	51	2	He	5.623	2.099	7612	1.55	5	112.5	70	130	
Cr	52	2	He	5.414	2.748	10847	2.98	5	108.3	70	130	
Mn	55	2	He	5.043	0.931	3877	1.42	5	100.9	70	130	
Fe	56	2	He	493.666	2.042	727294	1.31	500	98.7	70	130	
Co	59	2	He	5.363	2.685	16748	1.97	5	107.3	70	130	
Ni	60	2	He	5.331	8.059	4791	7.93	5	106.6	70	130	
Cu	63	2	He	5.587	2.138	13345	1.95	5	111.7	70	130	
Zn	66	2	He	5.556	12.294	2260	9.89	5	111.1	70	130	
As	75	2	He	5.133	1.306	1388	1.77	5	102.7	70	130	
Se	78	2	He	3.408	9.627	50	6.93	5	68.2	70	130	LLICV Main CR1 Failed
B	11	1	nogas	28.653	4.740	103380	1.25	25	114.6	70	130	
Si	28	1	nogas	310.616	2.674	2340246	1.69	25	1242.5	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	505.437	3.752	10777	2.18	500	101.1	70	130	
Ca	44	1	nogas	86.837	30.441	344153	0.60	500	17.4	70	130	LLICV Main CR1 Failed
Fe	56	1	nogas	507.958	4.867	8927778	2.45	500	101.6	70	130	
Se	77	1	nogas	45.315	37.010	73013	7.34	5	906.3	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.812	34.506	1217	18.98	5	96.2	70	130	
Mo	95	1	nogas	5.007	1.842	18717	0.20	5	100.1	70	130	
Sn	118	1	nogas	4.920	2.750	30818	1.11	5	98.4	70	130	
Ba	137	1	nogas	4.835	3.021	14223	4.95	5	96.7	70	130	
Sb	121	2	He	5.922	11.958	6561	10.94	5	118.4	70	130	
Li	7	1	nogas	5.263	1.988	67384	1.04	5	105.3	70	130	
P	31	1	nogas	33.369	8.589	88102	2.32	25	133.5	70	130	LLICV Main CR1 Failed
La	139	1	nogas	0.349	1072.305	93	6.19	5	7.0	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	0.238	46848.381	23	24.74	5	4.8	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	345345	1.64	350604	98.50	70	125	
Ge	72	1	nogas	1556173	1.75	1579817	98.50	70	125	

Low Level Initial Calibration Verification (LLICV) Report

In	115	1	nogas	1669119	2.07	1691421	98.68	70	125	
Bi	209	1	nogas	1517395	0.26	1525300	99.48	70	125	
Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	131465	0.70	134787	97.54	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICB
Data File Name	014_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:21:37-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.033	62.8	160	37.5	1	
Na	23	1	nogas	-4.082	-109.5	1386524	2.2	100	
Mg	24	1	nogas	0.621	43.3	16811	12.0	100	
Al	27	1	nogas	-0.279	-21.8	20275	2.3	5	
K	39	1	nogas	-7.238	-143.4	5060418	1.1	100	
Ti	47	1	nogas	0.031	287.6	300	30.5	2.5	
V	51	1	nogas	7.025	51.2	1314890	3.2	2.5	ICB Main CR1 Failed
Cr	52	1	nogas	0.078	136.6	35975	2.8	2.5	
Mn	55	1	nogas	-0.019	-83.0	11887	3.1	2.5	
Co	59	1	nogas	0.012	69.9	597	20.5	2.5	
Ni	60	1	nogas	0.033	198.9	1347	13.9	2.5	
Cu	63	1	nogas	-0.013	-124.6	4834	2.8	2.5	
Zn	66	1	nogas	0.380	17.4	1680	10.8	2.5	
As	75	1	nogas	10.282	41.6	225897	5.0	2.5	ICB Main CR1 Failed
Sr	88	1	nogas	-0.018	-61.3	1810	10.7	2.5	
Ag	107	1	nogas	0.010	63.6	507	11.4	2.5	
Cd	111	1	nogas	0.010	128.1	40	66.1	1	
Sb	121	1	nogas	0.006	421.2	2514	7.7	2.5	
Tl	205	1	nogas	0.051	34.3	1077	29.8	1	
Pb	208	1	nogas	0.050	15.6	1610	11.3	2.5	
U	238	1	nogas	0.010	34.6	327	26.7	2.5	
[Pb]	206	1	nogas	0.051	14.5	383	12.9	2.5	
[Pb]	207	1	nogas	0.047	28.4	383	21.1	2.5	
Na	23	2	He	-4.531	-58.4	40975	0.7	100	
Mg	24	2	He	0.749	56.9	373	12.1	100	
Al	27	2	He	-1.688	-63.4	123	28.5	5	
K	39	2	He	11.398	25.2	13578	1.3	100	
Ca	43	2	He	76.551	91.0	17	91.7	100	
Ca	44	2	He	-8.001	-128.3	140	25.8	100	
V	51	2	He	0.660	3.0	713	4.1	2.5	
Cr	52	2	He	-0.148	-56.5	1450	10.2	2.5	
Mn	55	2	He	-0.138	-19.9	130	13.3	2.5	
Fe	56	2	He	-7.449	-0.3	6908	1.4	100	
Co	59	2	He	0.009	71.1	97	21.5	2.5	
Ni	60	2	He	0.173	19.6	333	6.9	2.5	
Cu	63	2	He	0.461	8.3	1027	8.8	2.5	
Zn	66	2	He	-0.493	-25.2	163	24.7	2.5	
As	75	2	He	0.073	20.0	33	10.0	2.5	
Se	78	2	He	-1.276	-10.2	5	24.7	2.5	
B	11	1	nogas	2.600	12.7	54579	1.3	10	
Si	28	1	nogas	-2.498	-90.2	883270	0.4	5	
Ca	43	1	nogas	-10.882	-26.4	1030	4.2	100	
Ca	44	1	nogas	-469.699	-1.3	178161	0.1	100	
Fe	56	1	nogas	-24.779	-3.1	941982	2.2	100	
Se	77	1	nogas	50.506	25.6	74696	3.4	2.5	ICB Main CR1 Failed
Se	82	1	nogas	-0.062	-966.2	490	18.1	2.5	

Initial Calibration Blank (ICB) Report

Mo	95	1	nogas	0.006	81.2	133	15.6	2.5	
Sn	118	1	nogas	-0.096	-3.2	1210	3.3	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	-0.046	-64.8	437	16.9	2.5	
Sb	121	2	He	-0.014	-219.4	253	12.1	2.5	
P	31	1	nogas	6.354	16.5	69839	0.5	10	
La	139	1	nogas	0.911	2398.8	93	48.3	2.5	
Au	197	1	nogas	123.164	457.2	17	173.2	2.5	ICB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	347130	0.63	350604	99.01	70	125	
Ge	72	1	nogas	1565636	1.04	1579817	99.10	70	125	
In	115	1	nogas	1643696	1.93	1691421	97.18	70	125	
Bi	209	1	nogas	1517666	1.56	1525300	99.50	70	125	
Ge	72	2	He	130500	1.69	134787	96.82	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	015ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:24:06-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	-0.003	-332.3	50	60.0	0	ICSA Main CR1 Failed
Na	23	1	nogas	104610.724	1.1	1196643160	1.3	0	
Mg	24	1	nogas	105468.610	1.4	837125852	0.3	0	
Al	27	1	nogas	106126.985	3.0	937265399	1.9	0	
K	39	1	nogas	105758.896	4.1	907981587	2.6	0	
Ti	47	1	nogas	2143.328	2.5	1934567	1.2	0	
V	51	1	nogas	3.390	99.8	1158116	2.9	0	ICSA Main CR1 Failed
Cr	52	1	nogas	0.541	16.7	38537	1.6	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.399	13.0	17182	3.5	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.091	4.6	1540	2.3	0	ICSA Main CR1 Failed
Ni	60	1	nogas	0.808	14.7	3437	8.4	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.803	8.2	10220	4.6	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.831	9.3	4894	8.0	0	ICSA Main CR1 Failed
As	75	1	nogas	15.922	19.0	224341	3.2	0	
Sr	88	1	nogas	0.858	9.0	15774	6.3	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.048	15.3	820	6.8	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.391	2.5	2707	2.8	0	ICSA Main CR1 Failed
Sb	121	1	nogas	0.020	22.8	2427	1.3	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.026	27.5	597	17.2	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.120	9.6	3267	8.4	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.120	14.9	743	13.1	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.133	24.5	797	19.9	0	ICSA Main CR1 Failed
Na	23	2	He	99915.444	0.7	23135658	1.8	0	
Mg	24	2	He	100469.411	1.6	11307610	2.8	0	
Al	27	2	He	101116.387	3.2	2985115	2.8	0	
K	39	2	He	96126.406	2.8	5919833	2.8	0	
Ca	43	2	He	89588.869	5.2	18366	4.8	0	
Ca	44	2	He	93652.314	4.1	331638	2.6	0	
V	51	2	He	0.684	7.0	701	9.3	0	ICSA Main CR1 Failed
Cr	52	2	He	0.201	20.5	1910	1.8	0	ICSA Main CR1 Failed
Mn	55	2	He	0.363	15.4	460	7.8	0	ICSA Main CR1 Failed
Fe	56	2	He	98129.609	2.8	131493785	1.1	0	
Co	59	2	He	0.005	219.5	80	45.1	0	ICSA Main CR1 Failed
Ni	60	2	He	0.370	27.7	473	19.1	0	ICSA Main CR1 Failed
Cu	63	2	He	0.660	13.3	1410	12.3	0	ICSA Main CR1 Failed
Zn	66	2	He	0.041	138.4	327	7.1	0	ICSA Main CR1 Failed
As	75	2	He	0.156	20.2	52	16.1	0	ICSA Main CR1 Failed
Se	78	2	He	0.042	1158.9	5	99.0	0	ICSA Main CR1 Failed
B	11	1	nogas	4.569	35.1	54716	4.4	0	ICSA Main CR1 Failed
Si	28	1	nogas	141.575	5.8	1435396	2.9	0	
Ca	43	1	nogas	106066.862	2.1	1855706	1.4	0	
Ca	44	1	nogas	101732.747	0.8	28572226	1.6	0	
Fe	56	1	nogas	100021.511	3.2	1390161364	1.6	0	
Se	77	1	nogas	73.295	18.4	73987	3.9	0	
Se	82	1	nogas	0.055	969.9	467	14.3	0	ICSA Main CR1 Failed
Mo	95	1	nogas	2052.038	4.4	7057172	2.8	0	
Sn	118	1	nogas	-0.072	-31.9	1270	7.5	0	ICSA Main CR1 Failed
Ba	137	1	nogas	-0.016	-89.0	490	6.1	0	ICSA Main CR1 Failed
Sb	121	2	He	0.032	114.5	283	12.4	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	101209.960	1.5	64849519	0.1	0	
La	139	1	nogas	84.392	22.1	247	16.4	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	325833	1.13	350604	92.93	70	125	
Ge	72	1	nogas	1440268	1.57	1579817	91.17	70	125	
In	115	1	nogas	1550606	2.68	1691421	91.67	70	125	
Bi	209	1	nogas	1416811	2.88	1525300	92.89	70	125	
Ge	72	2	He	122562	1.62	134787	90.93	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	016ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:26:09-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	93.787	3.251	242793	1.47	100	93.8	80	120	
Na	23	1	nogas	117226.491	9.282	1267044862	2.16	100	117226.5	80	120	ICSB Main CR1 Failed
Mg	24	1	nogas	120399.823	8.577	903428387	1.53	100	120399.8	80	120	ICSB Main CR1 Failed
Al	27	1	nogas	112480.456	7.155	962002332	3.19	100	112480.5	80	120	ICSB Main CR1 Failed
K	39	1	nogas	119521.595	7.852	992779089	1.70	100	119521.6	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2318.438	7.265	2025904	1.18	100	2318.4	80	120	ICSB Main CR1 Failed
V	51	1	nogas	95.911	12.137	2388722	1.34	100	95.9	80	120	
Cr	52	1	nogas	89.069	8.555	1044526	2.37	100	89.1	80	120	
Mn	55	1	nogas	90.864	9.082	1328093	2.90	100	90.9	80	120	
Co	59	1	nogas	93.169	3.135	1132344	2.91	100	93.2	80	120	
Ni	60	1	nogas	94.753	5.542	261541	0.77	100	94.8	80	120	
Cu	63	1	nogas	92.449	7.367	637825	1.89	100	92.4	80	120	
Zn	66	1	nogas	96.113	6.540	215475	0.58	100	96.1	80	120	
As	75	1	nogas	104.675	5.686	469319	2.44	100	104.7	80	120	
Sr	88	1	nogas	96.259	5.859	1505515	0.52	100	96.3	80	120	
Ag	107	1	nogas	90.173	5.389	809602	3.18	100	90.2	80	120	
Cd	111	1	nogas	97.377	8.131	178338	3.00	100	97.4	80	120	
Sb	121	1	nogas	102.288	6.666	796216	1.09	100	102.3	80	120	
Tl	205	1	nogas	95.740	5.519	1416009	2.66	100	95.7	80	120	
Pb	208	1	nogas	84.648	1.007	1997003	1.01	100	84.6	80	120	
U	238	1	nogas	102.976	5.768	2172455	2.24	100	103.0	80	120	
[Pb]	206	1	nogas	95.072	5.231	487151	2.93	100	95.1	80	120	
[Pb]	207	1	nogas	94.844	6.139	448107	1.50	100	94.8	80	120	
Na	23	2	He	114927.109	2.322	26068615	1.99	100	114927.1	80	120	ICSB Main CR1 Failed
Mg	24	2	He	112160.954	1.630	12367266	0.58	100	112161.0	80	120	
Al	27	2	He	105658.021	2.566	3056737	2.35	100	105658.0	80	120	ICSB Main CR1 Failed
K	39	2	He	105881.539	1.093	6519284	1.09	100	105881.5	80	120	
Ca	43	2	He	105910.111	1.889	21279	1.73	100	105910.1	80	120	ICSB Main CR1 Failed
Ca	44	2	He	107337.465	1.471	372550	0.29	100	107337.5	80	120	ICSB Main CR1 Failed
V	51	2	He	90.188	1.156	114261	1.41	100	90.2	80	120	
Cr	52	2	He	95.822	2.435	149267	2.08	100	95.8	80	120	
Mn	55	2	He	90.354	1.170	59895	1.96	100	90.4	80	120	
Fe	56	2	He	111755.509	1.947	146779814	2.06	100	111755.5	80	120	ICSB Main CR1 Failed
Co	59	2	He	90.687	1.297	257718	0.92	100	90.7	80	120	
Ni	60	2	He	90.658	2.545	71674	1.28	100	90.7	80	120	
Cu	63	2	He	89.663	1.238	196642	0.88	100	89.7	80	120	
Zn	66	2	He	96.823	1.408	30957	2.01	100	96.8	80	120	
As	75	2	He	90.514	2.127	22138	0.95	100	90.5	80	120	
Se	78	2	He	89.907	4.909	866	5.22	100	89.9	80	120	
B	11	1	nogas	456.691	3.314	806255	2.58	100	456.7	80	120	
Si	28	1	nogas	5161.139	7.970	22403336	5.18	100	5161.1	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	119274.602	5.244	2021593	0.84	100	119274.6	80	120	ICSB Main CR1 Failed
Ca	44	1	nogas	115864.576	4.897	31487926	1.39	100	115864.6	80	120	ICSB Main CR1 Failed
Fe	56	1	nogas	112680.990	8.687	1515334867	2.74	100	112681.0	80	120	ICSB Main CR1 Failed
Se	77	1	nogas	146.366	8.169	88116	3.05	100	146.4	80	120	ICSB Main CR1 Failed
Se	82	1	nogas	91.774	8.385	12795	4.15	100	91.8	80	120	
Mo	95	1	nogas	2298.508	3.137	7667135	2.95	100	2298.5	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	94.290	9.773	490527	1.77	100	94.3	80	120	
Ba	137	1	nogas	93.023	9.062	231287	0.42	100	93.0	80	120	
Sb	121	2	He	99.974	1.796	97324	2.44	100	100.0	80	120	
La	139	1	nogas	380.051	4.170	767	6.57	100	380.1	80	120	ICSB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	305976	1.88	350604	87.27	70	125	
Ge	72	1	nogas	1398054	5.96	1579817	88.49	70	125	
In	115	1	nogas	1475182	8.82	1691421	87.22	70	125	
Bi	209	1	nogas	1296563	5.54	1525300	85.00	70	125	
Ge	72	2	He	120099	1.25	134787	89.10	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-01
Data File Name	018SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:30:11-06:00
Sample Type	Sample
Dilution	10
Comment	B123279 TW CaNa
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.009	0.094	38.47	87	0.01	2000	
Na	23	1	nogas	48255.164	482551.642	4.16	605329764	0.01	200000	
Mg	24	1	nogas	14923.765	149237.646	0.83	129773282	0.01	200000	
Al	27	1	nogas	15.712	157.118	15.07	174612	0.01	2000	
K	39	1	nogas	109.942	1099.419	13.79	6178946	0.00	200000	
Ti	47	1	nogas	0.321	3.208	16.46	587	0.05	2000	
V	51	1	nogas	-24.797	-247.973	-7.39	829968	0.00	2000	
Cr	52	1	nogas	-0.565	-5.655	-19.70	27885	0.00	2000	
Mn	55	1	nogas	3.937	39.373	3.06	76714	0.01	2000	
Co	59	1	nogas	0.053	0.531	13.01	1160	0.00	2000	
Ni	60	1	nogas	1.003	10.034	5.59	4364	0.02	2000	
Cu	63	1	nogas	0.139	1.394	16.86	6038	0.00	2000	
Zn	66	1	nogas	1.193	11.926	6.08	3737	0.03	2000	
As	75	1	nogas	-8.447	-84.465	-15.66	167233	-0.01	2000	
Sr	88	1	nogas	566.788	5667.878	1.22	9988624	0.01	2000	
Ag	107	1	nogas	0.003	0.035	356.96	447	0.00	2000	
Cd	111	1	nogas	0.038	0.384	55.14	100	0.04	2000	
Sb	121	1	nogas	-0.141	-1.406	-11.03	1243	-0.01	2000	
Tl	205	1	nogas	0.039	0.393	8.80	847	0.00	2000	
Pb	208	1	nogas	0.079	0.794	3.20	2310	0.00	2000	
U	238	1	nogas	0.543	5.428	3.99	13266	0.00	2000	
[Pb]	206	1	nogas	0.083	0.831	9.92	563	0.01	2000	
[Pb]	207	1	nogas	0.087	0.872	22.50	590	0.01	2000	
Na	23	2	He	47316.066	473160.662	0.48	11848714	0.40	200000	
Mg	24	2	He	14831.989	148319.895	0.79	1802014	0.82	200000	
Al	27	2	He	11.235	112.353	12.22	537	2.09	2000	
K	39	2	He	138.506	1385.056	8.01	21389	0.65	200000	
Ca	43	2	He	30023.778	300237.776	6.60	6645	451.85	200000	
Ca	44	2	He	27909.498	279094.979	0.40	106848	26.12	200000	
V	51	2	He	0.570	5.696	10.92	597	0.10	2000	
Cr	52	2	He	-0.167	-1.673	-40.06	1437	-0.01	2000	
Mn	55	2	He	4.056	40.561	5.85	3184	0.13	2000	
Fe	56	2	He	6.033	60.333	14.82	26506	0.02	200000	
Co	59	2	He	0.049	0.493	42.28	223	0.02	2000	
Ni	60	2	He	0.923	9.226	13.14	990	0.09	2000	
Cu	63	2	He	0.610	6.105	7.20	1403	0.04	2000	
Zn	66	2	He	0.369	3.693	72.74	467	0.08	2000	
As	75	2	He	0.075	0.751	49.95	34	0.22	2000	
Se	78	2	He	0.444	4.444	123.50	9	4.76	2000	
B	11	1	nogas	2.238	22.381	84.21	51413	0.00	2000	
Si	28	1	nogas	1475.721	14757.209	3.25	7867346	0.02	2000	
Ca	43	1	nogas	26717.016	267170.162	2.57	511541	5.22	200000	
Ca	44	1	nogas	26581.269	265812.686	1.66	8392984	0.32	200000	
Fe	56	1	nogas	-2.931	-29.307	-15.63	1278141	0.00	200000	

Sample Report

Se	77	1	nogas	-26.957	-269.569	-15.33	55542	-0.05	2000	
Se	82	1	nogas	0.128	1.282	667.57	523	0.02	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.419	4.188	6.14	1683	0.02	2000	
Sn	118	1	nogas	-0.163	-1.632	-10.56	830	-0.02	2000	
Ba	137	1	nogas	90.306	903.058	0.90	254318	0.04	2000	
Sb	121	2	He	-0.095	-0.949	-60.09	170	-0.06	2000	
La	139	1	nogas	428.290	4282.900	14.49	963	44.46	2000	
Au	197	1	nogas	-75.242	-752.417	-162.25	27	-282.16	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	331686	3.98	350604	94.60	70	125	
Ge	72	1	nogas	1573512	1.82	1579817	99.60	70	125	
In	115	1	nogas	1662028	1.86	1691421	98.26	70	125	
Bi	209	1	nogas	1488476	2.86	1525300	97.59	70	125	
Ge	72	2	He	132296	0.27	134787	98.15	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-02
Data File Name	019SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:32:12-06:00
Sample Type	Sample
Dilution	10
Comment	B123279 TW CaNaBaMg
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.019	0.186	93.40	117	0.02	2000	
Na	23	1	nogas	73411.703	734117.033	4.87	933882221	0.01	200000	
Mg	24	1	nogas	21332.316	213323.158	2.29	188341483	0.01	200000	
Al	27	1	nogas	6.391	63.912	5.65	85040	0.01	2000	
K	39	1	nogas	291.251	2912.512	10.04	7897698	0.00	200000	
Ti	47	1	nogas	0.283	2.830	48.15	550	0.05	2000	
V	51	1	nogas	-19.290	-192.896	-16.03	918023	0.00	2000	
Cr	52	1	nogas	-0.507	-5.067	-10.99	28749	0.00	2000	
Mn	55	1	nogas	29.110	291.100	2.74	490527	0.01	2000	
Co	59	1	nogas	1.746	17.457	4.80	24407	0.01	2000	
Ni	60	1	nogas	1.557	15.571	13.79	6094	0.03	2000	
Cu	63	1	nogas	0.149	1.487	32.23	6131	0.00	2000	
Zn	66	1	nogas	2.408	24.077	4.18	6825	0.04	2000	
As	75	1	nogas	-7.301	-73.009	-39.15	171435	0.00	2000	
Sr	88	1	nogas	623.556	6235.560	3.17	11027504	0.01	2000	
Ag	107	1	nogas	0.000	-0.003	-4163.97	410	0.00	2000	
Cd	111	1	nogas	0.084	0.841	13.52	193	0.04	2000	
Sb	121	1	nogas	-0.155	-1.550	-2.75	1123	-0.01	2000	
Tl	205	1	nogas	0.012	0.117	12.55	380	0.00	2000	
Pb	208	1	nogas	0.024	0.236	27.91	993	0.00	2000	
U	238	1	nogas	0.148	1.478	3.73	3690	0.00	2000	
[Pb]	206	1	nogas	0.028	0.284	25.81	243	0.01	2000	
[Pb]	207	1	nogas	0.029	0.291	32.56	277	0.01	2000	
Na	23	2	He	73981.379	739813.794	4.43	18782040	0.39	200000	
Mg	24	2	He	20735.622	207356.216	3.68	2557507	0.81	200000	
Al	27	2	He	3.066	30.655	60.20	280	1.09	2000	
K	39	2	He	316.032	3160.319	5.65	32298	0.98	200000	
Ca	43	2	He	30049.070	300490.702	6.95	6751	445.08	200000	
Ca	44	2	He	28125.649	281256.492	2.49	109328	25.73	200000	
V	51	2	He	0.591	5.906	5.99	635	0.09	2000	
Cr	52	2	He	-0.206	-2.061	-35.30	1393	-0.01	2000	
Mn	55	2	He	29.134	291.336	2.48	21760	0.13	2000	
Fe	56	2	He	429.686	4296.861	0.99	649262	0.07	200000	
Co	59	2	He	1.635	16.351	1.18	5268	0.03	2000	
Ni	60	2	He	1.496	14.957	6.91	1510	0.10	2000	
Cu	63	2	He	0.619	6.186	12.55	1447	0.04	2000	
Zn	66	2	He	1.995	19.948	9.10	1050	0.19	2000	
As	75	2	He	0.280	2.798	43.38	91	0.31	2000	
Se	78	2	He	0.308	3.076	160.63	8	3.84	2000	
B	11	1	nogas	-0.212	-2.118	-430.19	48887	0.00	2000	
Si	28	1	nogas	2088.259	20882.588	2.00	10798375	0.02	2000	>LDR
Ca	43	1	nogas	28509.385	285093.849	5.35	547549	5.21	200000	
Ca	44	1	nogas	27668.122	276681.225	4.35	8751454	0.32	200000	
Fe	56	1	nogas	459.365	4593.646	4.17	8320356	0.01	200000	

Sample Report

Se	77	1	nogas	-19.748	-197.483	-57.48	57545	-0.03	2000	
Se	82	1	nogas	0.852	8.521	43.60	633	0.13	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.223	2.232	13.45	953	0.02	2000	
Sn	118	1	nogas	-0.141	-1.409	-7.39	960	-0.01	2000	
Ba	137	1	nogas	874.829	8748.290	1.28	2451485	0.04	2000	
Sb	121	2	He	-0.113	-1.130	-27.26	153	-0.07	2000	
La	139	1	nogas	201.310	2013.096	5.20	500	40.26	2000	
Au	197	1	nogas	-6.454	-64.543	-4653.77	23	-27.66	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	344577	0.21	350604	98.28	70	125	
Ge	72	1	nogas	1579173	1.87	1579817	99.96	70	125	
In	115	1	nogas	1657318	2.23	1691421	97.98	70	125	
Bi	209	1	nogas	1495648	1.48	1525300	98.06	70	125	
Ge	72	2	He	134348	1.40	134787	99.67	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-03
Data File Name	020SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:34:12-06:00
Sample Type	Sample
Dilution	10
Comment	B123279 TW CaNaBa
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.007	0.070	257.85	83	0.01	2000	
Na	23	1	nogas	80796.917	807969.167	3.38	1033756190	0.01	200000	
Mg	24	1	nogas	15926.970	159269.702	2.55	141390803	0.01	200000	
Al	27	1	nogas	3.340	33.400	17.65	57112	0.01	2000	
K	39	1	nogas	192.202	1922.018	6.43	7172576	0.00	200000	
Ti	47	1	nogas	0.139	1.390	21.38	420	0.03	2000	
V	51	1	nogas	-13.593	-135.932	-36.16	1035432	0.00	2000	
Cr	52	1	nogas	-0.517	-5.175	-12.15	29434	0.00	2000	
Mn	55	1	nogas	85.431	854.307	1.69	1456928	0.01	2000	
Co	59	1	nogas	0.524	5.243	3.50	7855	0.01	2000	
Ni	60	1	nogas	0.838	8.377	13.35	3977	0.02	2000	
Cu	63	1	nogas	0.160	1.604	20.82	6401	0.00	2000	
Zn	66	1	nogas	0.786	7.857	13.35	2800	0.03	2000	
As	75	1	nogas	-7.174	-71.736	-31.79	176853	0.00	2000	
Sr	88	1	nogas	497.127	4971.265	1.58	9045374	0.01	2000	
Ag	107	1	nogas	0.000	0.004	1290.17	430	0.00	2000	
Cd	111	1	nogas	0.067	0.673	28.78	157	0.04	2000	
Sb	121	1	nogas	-0.186	-1.858	-5.54	877	-0.02	2000	
Tl	205	1	nogas	0.012	0.125	31.20	397	0.00	2000	
Pb	208	1	nogas	0.007	0.065	62.89	590	0.00	2000	
U	238	1	nogas	1.890	18.904	6.21	46552	0.00	2000	
[Pb]	206	1	nogas	0.018	0.179	101.14	183	0.01	2000	
[Pb]	207	1	nogas	0.005	0.045	166.55	143	0.00	2000	
Na	23	2	He	79323.081	793230.810	1.19	20307962	0.39	200000	
Mg	24	2	He	15252.056	152520.559	3.49	1896925	0.80	200000	
Al	27	2	He	2.663	26.632	46.80	270	0.99	2000	
K	39	2	He	223.291	2232.907	3.86	26599	0.84	200000	
Ca	43	2	He	27609.920	276099.204	2.95	6254	441.44	200000	
Ca	44	2	He	27001.492	270014.922	0.90	105830	25.51	200000	
V	51	2	He	0.616	6.161	4.12	678	0.09	2000	
Cr	52	2	He	-0.288	-2.884	-9.41	1260	-0.02	2000	
Mn	55	2	He	88.325	883.251	1.41	66022	0.13	2000	
Fe	56	2	He	29.212	292.118	5.08	61443	0.05	200000	
Co	59	2	He	0.441	4.407	6.15	1483	0.03	2000	
Ni	60	2	He	0.684	6.838	29.30	803	0.09	2000	
Cu	63	2	He	0.609	6.085	8.67	1430	0.04	2000	
Zn	66	2	He	0.077	0.768	175.99	373	0.02	2000	
As	75	2	He	0.077	0.774	122.65	36	0.22	2000	
Se	78	2	He	0.053	0.530	198.88	5	0.99	2000	
B	11	1	nogas	-1.550	-15.496	-46.72	46741	0.00	2000	
Si	28	1	nogas	1633.093	16330.934	0.89	8891533	0.02	2000	
Ca	43	1	nogas	26822.542	268225.424	1.12	530345	5.06	200000	
Ca	44	1	nogas	26245.241	262452.411	1.72	8560915	0.31	200000	
Fe	56	1	nogas	45.790	457.896	4.74	2082758	0.00	200000	

Sample Report

Se	77	1	nogas	-21.644	-216.442	-49.38	58718	-0.04	2000	
Se	82	1	nogas	0.842	8.418	80.82	650	0.13	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.159	1.589	7.00	730	0.02	2000	
Sn	118	1	nogas	-0.155	-1.553	-6.01	867	-0.02	2000	
Ba	137	1	nogas	585.802	5858.016	3.60	1625739	0.04	2000	
Sb	121	2	He	-0.139	-1.388	-35.53	127	-0.11	2000	
La	139	1	nogas	172.626	1726.256	34.40	440	39.23	2000	
Au	197	1	nogas	-66.814	-668.137	-334.58	27	-250.55	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	347524	3.12	350604	99.12	70	125	
Ge	72	1	nogas	1624450	0.88	1579817	102.83	70	125	
In	115	1	nogas	1642035	3.01	1691421	97.08	70	125	
Bi	209	1	nogas	1508577	1.51	1525300	98.90	70	125	
Ge	72	2	He	135443	2.10	134787	100.49	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-04
Data File Name	021SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:36:13-06:00
Sample Type	Sample
Dilution	10
Comment	B123279 TW CaNaBaMg
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.002	0.025	126.21	70	0.00	2000	
Na	23	1	nogas	98804.780	988047.804	2.73	1272800428	0.01	200000	
Mg	24	1	nogas	21005.801	210058.009	2.92	187737696	0.01	200000	
Al	27	1	nogas	2.090	20.899	7.37	43421	0.00	2000	
K	39	1	nogas	163.814	1638.144	14.73	6706773	0.00	200000	
Ti	47	1	nogas	0.127	1.271	81.51	397	0.03	2000	
V	51	1	nogas	-5.560	-55.605	-88.61	1130659	0.00	2000	
Cr	52	1	nogas	-0.186	-1.861	-100.88	32856	0.00	2000	
Mn	55	1	nogas	2.090	20.898	6.65	46616	0.00	2000	
Co	59	1	nogas	0.033	0.332	34.81	887	0.00	2000	
Ni	60	1	nogas	1.333	13.335	7.54	5411	0.02	2000	
Cu	63	1	nogas	0.098	0.981	70.74	5731	0.00	2000	
Zn	66	1	nogas	1.279	12.788	7.77	3967	0.03	2000	
As	75	1	nogas	-4.086	-40.858	-103.37	181674	0.00	2000	
Sr	88	1	nogas	558.939	5589.388	5.41	9883586	0.01	2000	
Ag	107	1	nogas	-0.006	-0.064	-37.28	350	0.00	2000	
Cd	111	1	nogas	0.021	0.207	30.39	63	0.03	2000	
Sb	121	1	nogas	-0.197	-1.972	-9.40	750	-0.03	2000	
Tl	205	1	nogas	0.007	0.068	41.17	290	0.00	2000	
Pb	208	1	nogas	0.007	0.065	64.23	590	0.00	2000	
U	238	1	nogas	3.101	31.006	1.53	74234	0.00	2000	
[Pb]	206	1	nogas	0.014	0.143	43.06	157	0.01	2000	
[Pb]	207	1	nogas	0.002	0.021	140.84	127	0.00	2000	
Na	23	2	He	99864.998	998649.975	0.99	25350193	0.39	200000	
Mg	24	2	He	20344.648	203446.477	1.52	2510356	0.81	200000	
Al	27	2	He	0.577	5.765	7.83	200	0.29	2000	
K	39	2	He	195.914	1959.144	3.47	24917	0.79	200000	
Ca	43	2	He	34118.058	341180.577	3.75	7668	444.92	200000	
Ca	44	2	He	32234.361	322343.609	1.15	125302	25.73	200000	
V	51	2	He	0.752	7.518	1.42	865	0.09	2000	
Cr	52	2	He	-0.064	-0.638	-221.43	1637	0.00	2000	
Mn	55	2	He	2.216	22.158	1.13	1873	0.12	2000	
Fe	56	2	He	-2.384	-23.843	-14.76	14553	-0.02	200000	
Co	59	2	He	0.016	0.157	71.39	120	0.01	2000	
Ni	60	2	He	0.871	8.711	9.03	960	0.09	2000	
Cu	63	2	He	0.476	4.764	8.80	1097	0.04	2000	
Zn	66	2	He	0.763	7.634	24.19	613	0.12	2000	
As	75	2	He	0.037	0.367	19.58	24	0.15	2000	
Se	78	2	He	0.058	0.583	672.17	5	1.09	2000	
B	11	1	nogas	-2.319	-23.189	-16.53	44984	-0.01	2000	
Si	28	1	nogas	2137.250	21372.495	5.22	11028531	0.02	2000	>LDR
Ca	43	1	nogas	32381.973	323819.733	3.66	622108	5.21	200000	
Ca	44	1	nogas	32261.389	322613.887	2.60	10155705	0.32	200000	
Fe	56	1	nogas	12.113	121.134	25.98	1511823	0.00	200000	

Sample Report

Se	77	1	nogas	-10.268	-102.683	-121.61	59935	-0.02	2000	
Se	82	1	nogas	0.872	8.722	54.68	637	0.14	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.184	1.842	15.98	803	0.02	2000	
Sn	118	1	nogas	-0.162	-1.617	-8.66	840	-0.02	2000	
Ba	137	1	nogas	327.424	3274.242	4.61	922482	0.04	2000	
Sb	121	2	He	-0.156	-1.557	-3.83	107	-0.15	2000	
La	139	1	nogas	80.029	800.295	22.69	257	31.18	2000	
Au	197	1	nogas	117.866	1178.655	351.01	17	707.19	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	345043	1.57	350604	98.41	70	125	
Ge	72	1	nogas	1579990	2.90	1579817	100.01	70	125	
In	115	1	nogas	1667295	4.21	1691421	98.57	70	125	
Bi	209	1	nogas	1466972	0.85	1525300	96.18	70	125	
Ge	72	2	He	134366	0.73	134787	99.69	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	022_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:38:14-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	96.559	3.410	268683	2.50	100	96.6	90	110	
Na	23	1	nogas	9212.328	3.591	118305382	0.65	10000	92.1	90	110	
Mg	24	1	nogas	9081.826	2.508	80060291	1.89	10000	90.8	90	110	
Al	27	1	nogas	100.343	4.727	977798	0.08	100	100.3	90	110	
K	39	1	nogas	9864.608	1.035	96006602	3.75	10000	98.6	90	110	
Ti	47	1	nogas	92.913	4.722	90636	1.38	100	92.9	90	110	
V	51	1	nogas	87.640	9.639	2532194	1.77	100	87.6	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	96.794	7.420	1260141	2.67	100	96.8	90	110	
Mn	55	1	nogas	94.261	5.911	1534015	2.55	100	94.3	90	110	
Co	59	1	nogas	100.143	5.652	1352359	2.10	100	100.1	90	110	
Ni	60	1	nogas	98.596	5.731	302595	1.20	100	98.6	90	110	
Cu	63	1	nogas	96.329	4.374	739739	2.28	100	96.3	90	110	
Zn	66	1	nogas	94.712	3.179	236510	3.80	100	94.7	90	110	
As	75	1	nogas	82.064	7.782	450408	0.87	100	82.1	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	96.076	8.710	1669712	3.98	100	96.1	90	110	
Ag	107	1	nogas	93.179	5.024	930192	0.56	100	93.2	90	110	
Cd	111	1	nogas	94.925	2.148	193162	0.29	100	94.9	90	110	
Sb	121	1	nogas	101.079	4.302	875749	0.77	100	101.1	90	110	
Tl	205	1	nogas	96.005	3.263	1647487	2.22	100	96.0	90	110	
Pb	208	1	nogas	94.916	1.939	2239204	1.94	100	94.9	90	110	
U	238	1	nogas	97.057	3.441	2375769	1.16	100	97.1	90	110	
[Pb]	206	1	nogas	91.246	4.578	542331	3.38	100	91.2	90	110	
[Pb]	207	1	nogas	91.407	3.712	501312	3.14	100	91.4	90	110	
Na	23	2	He	9480.875	2.047	2355783	1.09	10000	94.8	90	110	
Mg	24	2	He	9582.680	2.421	1138895	1.30	10000	95.8	90	110	
Al	27	2	He	97.171	5.907	3204	5.08	100	97.2	90	110	
K	39	2	He	9744.494	0.574	611676	0.56	10000	97.4	90	110	
Ca	43	2	He	9394.658	11.708	2033	11.19	10000	93.9	90	110	
Ca	44	2	He	9551.739	1.630	35882	0.52	10000	95.5	90	110	
V	51	2	He	95.601	4.154	130503	3.03	100	95.6	90	110	
Cr	52	2	He	101.777	2.285	170750	1.61	100	101.8	90	110	
Mn	55	2	He	95.338	0.795	68089	0.48	100	95.3	90	110	
Fe	56	2	He	9370.618	2.338	13277509	1.18	10000	93.7	90	110	
Co	59	2	He	94.116	3.158	288198	2.23	100	94.1	90	110	
Ni	60	2	He	94.293	2.228	80339	1.68	100	94.3	90	110	
Cu	63	2	He	97.050	2.800	229357	1.87	100	97.1	90	110	
Zn	66	2	He	100.411	4.651	34573	3.46	100	100.4	90	110	
As	75	2	He	95.007	0.931	25044	0.30	100	95.0	90	110	
Se	78	2	He	94.951	9.981	985	8.91	100	95.0	90	110	
B	11	1	nogas	465.393	7.627	880842	2.23	500	93.1	90	110	
Si	28	1	nogas	5051.540	4.721	24418135	1.54	5000	101.0	90	110	
Ca	43	1	nogas	9754.244	4.079	185073	2.13	10000	97.5	90	110	
Ca	44	1	nogas	9221.462	4.778	3079458	1.06	10000	92.2	90	110	
Fe	56	1	nogas	9559.439	8.830	144212082	4.30	10000	95.6	90	110	
Se	77	1	nogas	47.788	19.583	73418	2.01	100	47.8	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	95.174	6.149	14746	1.36	100	95.2	90	110	
Mo	95	1	nogas	93.528	3.936	346902	0.85	100	93.5	90	110	
Sn	118	1	nogas	94.430	2.548	546357	0.16	100	94.4	90	110	
Ba	137	1	nogas	93.479	3.265	258394	1.35	100	93.5	90	110	
Sb	121	2	He	101.758	0.784	106751	1.75	100	101.8	90	110	
Li	7	1	nogas	98.569	2.282	685305	3.52	100	98.6	90	110	
P	31	1	nogas	478.568	5.118	395033	1.10	500	95.7	90	110	
La	139	1	nogas	81.490	9.878	253	6.03	100	81.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	67.040	493.277	20	86.60	100	67.0	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	329125	5.32	350604	93.87	70	125	
Ge	72	1	nogas	1554034	4.64	1579817	98.37	70	125	
In	115	1	nogas	1632142	2.42	1691421	96.50	70	125	
Bi	209	1	nogas	1502906	4.48	1525300	98.53	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	129429	1.15	134787	96.02	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	023_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:40:10-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.076	51.4	283	38.7	1	
Na	23	1	nogas	39.366	7.6	1907333	2.8	100	
Mg	24	1	nogas	9.024	20.5	88962	18.7	100	
Al	27	1	nogas	0.543	26.9	27584	5.4	5	
K	39	1	nogas	6.409	118.1	5078940	1.1	100	
Ti	47	1	nogas	0.046	137.0	307	19.1	2.5	
V	51	1	nogas	-14.630	-15.8	961654	3.4	2.5	
Cr	52	1	nogas	-0.402	-18.7	29220	2.4	2.5	
Mn	55	1	nogas	0.070	20.9	13048	2.4	2.5	
Co	59	1	nogas	0.051	20.6	1107	12.7	2.5	
Ni	60	1	nogas	0.216	16.6	1873	6.4	2.5	
Cu	63	1	nogas	-0.041	-53.4	4524	2.8	2.5	
Zn	66	1	nogas	0.091	31.9	933	8.0	2.5	
As	75	1	nogas	-6.471	-39.3	169071	4.8	2.5	
Sr	88	1	nogas	0.057	24.1	3054	8.2	2.5	
Ag	107	1	nogas	0.069	11.4	1087	7.8	2.5	
Cd	111	1	nogas	0.058	97.9	137	84.8	1	
Sb	121	1	nogas	0.792	23.3	9173	17.3	2.5	
Tl	205	1	nogas	0.178	43.0	3270	39.4	1	
Pb	208	1	nogas	0.091	24.0	2580	19.9	2.5	
U	238	1	nogas	0.068	41.1	1767	37.9	2.5	
[Pb]	206	1	nogas	0.090	18.6	617	15.1	2.5	
[Pb]	207	1	nogas	0.088	18.0	607	13.4	2.5	
Na	23	2	He	44.603	12.3	52617	3.6	100	
Mg	24	2	He	8.252	14.4	1263	13.1	100	
Al	27	2	He	-0.171	-424.4	170	17.6	5	
K	39	2	He	20.465	40.7	14136	3.6	100	
Ca	43	2	He	64.316	173.2	13	173.2	100	
Ca	44	2	He	-1.468	-916.6	163	30.2	100	
V	51	2	He	0.647	3.1	689	0.6	2.5	
Cr	52	2	He	-0.169	-44.6	1400	4.9	2.5	
Mn	55	2	He	-0.065	-72.4	180	14.7	2.5	
Fe	56	2	He	-3.564	-15.3	12328	1.9	100	
Co	59	2	He	0.024	61.9	140	31.1	2.5	
Ni	60	2	He	0.235	33.0	383	16.6	2.5	
Cu	63	2	He	0.459	6.6	1013	4.7	2.5	
Zn	66	2	He	-0.638	-15.6	113	31.0	2.5	
As	75	2	He	0.049	90.9	27	43.3	2.5	
Se	78	2	He	-0.055	-344.6	4	50.0	2.5	
B	11	1	nogas	3.516	39.9	56003	3.4	10	
Si	28	1	nogas	1.960	100.8	885321	0.7	5	
Ca	43	1	nogas	-11.713	-41.4	993	9.1	100	
Ca	44	1	nogas	-635.776	-1.2	125306	1.5	100	
Fe	56	1	nogas	0.121	1381.6	1290324	2.1	100	
Se	77	1	nogas	-18.644	-55.2	56144	4.4	2.5	
Se	82	1	nogas	-0.289	-46.4	447	4.7	2.5	
Mo	95	1	nogas	0.217	15.5	903	14.1	2.5	
Sn	118	1	nogas	-0.039	-131.8	1520	17.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.033	-90.4	467	19.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.592	30.4	880	17.0	2.5	
P	31	1	nogas	2.424	11.8	65704	1.0	10	
La	139	1	nogas	-15.029	-38.4	60	16.7	2.5	
Au	197	1	nogas	256.631	75.4	10	100.0	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	345359	1.37	350604	98.50	70	125	
Ge	72	1	nogas	1532859	0.78	1579817	97.03	70	125	
In	115	1	nogas	1619260	2.64	1691421	95.73	70	125	
Bi	209	1	nogas	1523782	1.40	1525300	99.90	70	125	
Ge	72	2	He	129427	4.36	134787	96.02	70	125	

Sample Report

Sample Table

Sample Name	HS17120435-06
Data File Name	024SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T12:42:09-06:00
Sample Type	Sample
Dilution	10
Comment	B123279 TW CaNaMgMn
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.030	0.295	10.33	147	0.02	2000	
Na	23	1	nogas	74702.190	747021.903	4.34	913853520	0.01	200000	
Mg	24	1	nogas	19134.165	191341.647	3.16	162410266	0.01	200000	
Al	27	1	nogas	1.818	18.176	4.13	39966	0.00	2000	
K	39	1	nogas	282.077	2820.774	11.69	7658287	0.00	200000	
Ti	47	1	nogas	0.137	1.373	96.90	397	0.03	2000	
V	51	1	nogas	-11.369	-113.688	-76.45	1018854	0.00	2000	
Cr	52	1	nogas	-0.404	-4.044	-40.81	29450	0.00	2000	
Mn	55	1	nogas	202.441	2024.408	4.03	3273098	0.01	2000	
Co	59	1	nogas	1.573	15.728	3.87	21603	0.01	2000	
Ni	60	1	nogas	1.545	15.449	7.69	5941	0.03	2000	
Cu	63	1	nogas	-0.016	-0.165	-145.01	4754	0.00	2000	
Zn	66	1	nogas	1.615	16.149	12.91	4717	0.03	2000	
As	75	1	nogas	-5.040	-50.400	-79.84	175080	0.00	2000	
Sr	88	1	nogas	481.857	4818.565	4.55	8352548	0.01	2000	
Ag	107	1	nogas	0.006	0.056	207.49	460	0.00	2000	
Cd	111	1	nogas	0.010	0.098	130.02	40	0.02	2000	
Sb	121	1	nogas	0.074	0.744	45.18	3074	0.00	2000	
Tl	205	1	nogas	0.033	0.329	0.76	747	0.00	2000	
Pb	208	1	nogas	0.026	0.261	25.19	1053	0.00	2000	
U	238	1	nogas	1.000	9.995	3.01	24619	0.00	2000	
[Pb]	206	1	nogas	0.043	0.426	39.48	330	0.01	2000	
[Pb]	207	1	nogas	0.024	0.239	18.35	250	0.01	2000	
Na	23	2	He	72356.904	723569.045	3.36	18229659	0.40	200000	
Mg	24	2	He	18913.537	189135.372	3.50	2314981	0.82	200000	
Al	27	2	He	-0.815	-8.149	-109.36	153	-0.53	2000	
K	39	2	He	314.348	3143.481	5.55	32195	0.98	200000	
Ca	43	2	He	28081.823	280818.235	1.29	6264	448.27	200000	
Ca	44	2	He	26799.746	267997.459	2.35	103380	25.92	200000	
V	51	2	He	0.633	6.333	0.97	691	0.09	2000	
Cr	52	2	He	-0.100	-0.997	-81.32	1567	-0.01	2000	
Mn	55	2	He	192.547	1925.471	4.62	141337	0.14	2000	
Fe	56	2	He	68.292	682.917	2.64	117459	0.06	200000	
Co	59	2	He	1.368	13.683	3.07	4384	0.03	2000	
Ni	60	2	He	1.376	13.764	7.87	1393	0.10	2000	
Cu	63	2	He	0.470	4.702	4.98	1073	0.04	2000	
Zn	66	2	He	1.063	10.634	21.44	713	0.15	2000	
As	75	2	He	0.240	2.401	43.02	80	0.30	2000	
Se	78	2	He	-0.316	-3.159	-34.12	1	-23.69	2000	
B	11	1	nogas	1.820	18.201	162.79	51817	0.00	2000	
Si	28	1	nogas	1723.031	17230.314	4.09	8888464	0.02	2000	
Ca	43	1	nogas	27323.352	273233.516	4.73	514537	5.31	200000	
Ca	44	1	nogas	27224.633	272246.330	4.94	8445943	0.32	200000	
Fe	56	1	nogas	77.193	771.928	6.73	2453290	0.00	200000	

Sample Report

Se	77	1	nogas	-12.937	-129.369	-112.78	58083	-0.02	2000	
Se	82	1	nogas	0.648	6.485	71.00	590	0.11	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.059	0.591	45.97	327	0.02	2000	
Sn	118	1	nogas	-0.147	-1.471	-11.48	917	-0.02	2000	
Ba	137	1	nogas	49.181	491.809	1.70	137368	0.04	2000	
Sb	121	2	He	0.015	0.146	253.93	290	0.01	2000	
La	139	1	nogas	244.330	2443.301	3.40	583	41.88	2000	
Au	197	1	nogas	322.585	3225.849	67.50	7	4838.77	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	339846	4.64	350604	96.93	70	125	
Ge	72	1	nogas	1548632	2.84	1579817	98.03	70	125	
In	115	1	nogas	1645193	0.83	1691421	97.27	70	125	
Bi	209	1	nogas	1506094	2.25	1525300	98.74	70	125	
Ge	72	2	He	133353	2.89	134787	98.94	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	034_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T13:02:01-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	96.347	4.163	265068	2.08	100	96.3	90	110	
Na	23	1	nogas	9405.678	3.605	118162936	2.63	10000	94.1	90	110	
Mg	24	1	nogas	9393.477	2.447	81003018	0.66	10000	93.9	90	110	
Al	27	1	nogas	96.217	2.685	963178	1.98	100	96.2	90	110	
K	39	1	nogas	9726.100	1.824	97113827	1.50	10000	97.3	90	110	
Ti	47	1	nogas	91.925	3.041	92047	3.49	100	91.9	90	110	
V	51	1	nogas	87.329	2.357	2594203	1.41	100	87.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	91.416	2.549	1224401	2.43	100	91.4	90	110	
Mn	55	1	nogas	93.382	1.357	1560180	1.17	100	93.4	90	110	
Co	59	1	nogas	97.177	1.471	1347276	2.14	100	97.2	90	110	
Ni	60	1	nogas	93.885	1.106	295877	0.43	100	93.9	90	110	
Cu	63	1	nogas	92.929	1.948	732397	1.36	100	92.9	90	110	
Zn	66	1	nogas	95.467	1.744	244457	1.46	100	95.5	90	110	
As	75	1	nogas	81.010	2.267	458813	0.64	100	81.0	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	91.064	1.686	1626551	1.97	100	91.1	90	110	
Ag	107	1	nogas	91.676	1.128	939439	1.06	100	91.7	90	110	
Cd	111	1	nogas	96.258	2.251	198636	2.89	100	96.3	90	110	
Sb	121	1	nogas	97.190	3.192	864156	2.66	100	97.2	90	110	
Tl	205	1	nogas	97.869	4.615	1640016	0.80	100	97.9	90	110	
Pb	208	1	nogas	94.687	2.340	2233801	2.34	100	94.7	90	110	
U	238	1	nogas	98.312	1.453	2352350	2.77	100	98.3	90	110	
[Pb]	206	1	nogas	94.719	4.620	549803	0.61	100	94.7	90	110	
[Pb]	207	1	nogas	92.938	1.266	498176	3.13	100	92.9	90	110	
Na	23	2	He	9845.059	4.157	2428305	2.16	10000	98.5	90	110	
Mg	24	2	He	9578.847	0.337	1131400	1.56	10000	95.8	90	110	
Al	27	2	He	93.051	6.619	3057	6.94	100	93.1	90	110	
K	39	2	He	9500.841	1.267	596703	1.24	10000	95.0	90	110	
Ca	43	2	He	8754.520	4.148	1883	4.12	10000	87.5	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9081.004	3.760	33915	4.67	10000	90.8	90	110	
V	51	2	He	94.322	3.638	127923	1.82	100	94.3	90	110	
Cr	52	2	He	99.617	2.380	166078	0.50	100	99.6	90	110	
Mn	55	2	He	93.290	2.649	66193	1.07	100	93.3	90	110	
Fe	56	2	He	9387.136	1.471	13216771	0.63	10000	93.9	90	110	
Co	59	2	He	94.517	1.459	287607	0.71	100	94.5	90	110	
Ni	60	2	He	97.225	2.555	82292	0.91	100	97.2	90	110	
Cu	63	2	He	98.797	1.799	232002	0.19	100	98.8	90	110	
Zn	66	2	He	102.550	0.402	35091	1.74	100	102.5	90	110	
As	75	2	He	94.283	1.689	24693	1.11	100	94.3	90	110	
Se	78	2	He	100.896	5.778	1040	5.87	100	100.9	90	110	
B	11	1	nogas	491.644	8.630	917380	3.03	500	98.3	90	110	
Si	28	1	nogas	4744.027	2.801	23590181	2.93	5000	94.9	90	110	
Ca	43	1	nogas	9540.510	0.654	185760	0.53	10000	95.4	90	110	
Ca	44	1	nogas	8784.117	3.391	3026215	3.65	10000	87.8	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9221.562	1.252	142998432	1.40	10000	92.2	90	110	
Se	77	1	nogas	49.851	22.329	75831	3.12	100	49.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	90.544	2.457	14429	2.48	100	90.5	90	110	
Mo	95	1	nogas	89.995	1.550	342510	0.94	100	90.0	90	110	CCV Main CR1-2 Failed
Sn	118	1	nogas	93.492	2.373	548456	0.58	100	93.5	90	110	
Ba	137	1	nogas	93.370	3.004	261667	0.83	100	93.4	90	110	
Sb	121	2	He	100.658	3.264	104885	1.36	100	100.7	90	110	
Li	7	1	nogas	98.874	1.127	680154	5.15	100	98.9	90	110	
P	31	1	nogas	455.816	2.711	389263	1.92	500	91.2	90	110	
La	139	1	nogas	107.042	48.722	310	36.35	100	107.0	90	110	
Au	197	1	nogas	120.807	342.062	17	124.90	100	120.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	325462	5.01	350604	92.83	70	125	
Ge	72	1	nogas	1592750	0.68	1579817	100.82	70	125	
In	115	1	nogas	1654732	2.44	1691421	97.83	70	125	
Bi	209	1	nogas	1468189	4.16	1525300	96.26	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	128610	1.89	134787	95.42	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	035_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T13:04:00-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.065	46.0	257	33.1	1	
Na	23	1	nogas	14.837	13.5	1620940	2.3	100	
Mg	24	1	nogas	6.773	25.1	70347	21.8	100	
Al	27	1	nogas	-0.310	-38.1	19921	3.7	5	
K	39	1	nogas	4.344	366.2	5154373	1.0	100	
Ti	47	1	nogas	0.047	157.2	313	21.2	2.5	
V	51	1	nogas	1.121	459.5	1220455	4.3	2.5	
Cr	52	1	nogas	-0.325	-43.5	30726	3.1	2.5	
Mn	55	1	nogas	0.098	22.4	13749	2.7	2.5	
Co	59	1	nogas	0.048	33.8	1083	23.7	2.5	
Ni	60	1	nogas	0.095	42.2	1537	9.4	2.5	
Cu	63	1	nogas	-0.062	-31.3	4447	3.7	2.5	
Zn	66	1	nogas	0.082	75.8	933	20.1	2.5	
As	75	1	nogas	-1.845	-222.5	186724	4.0	2.5	
Sr	88	1	nogas	0.017	36.9	2410	7.6	2.5	
Ag	107	1	nogas	0.077	23.5	1187	17.1	2.5	
Cd	111	1	nogas	0.049	37.9	123	32.8	1	
Sb	121	1	nogas	0.784	17.4	9293	15.4	2.5	
Tl	205	1	nogas	0.166	41.7	3070	39.9	1	
Pb	208	1	nogas	0.105	15.0	2907	12.8	2.5	
U	238	1	nogas	0.066	33.1	1723	32.3	2.5	
[Pb]	206	1	nogas	0.101	14.6	683	13.2	2.5	
[Pb]	207	1	nogas	0.098	26.3	663	21.3	2.5	
Na	23	2	He	15.952	19.1	46020	0.4	100	
Mg	24	2	He	5.922	12.6	993	8.4	100	
Al	27	2	He	-2.536	-51.4	97	43.1	5	
K	39	2	He	12.430	68.6	13642	3.8	100	
Ca	43	2	He	61.628	115.1	13	114.6	100	
Ca	44	2	He	-1.898	-237.0	163	9.4	100	
V	51	2	He	0.733	3.6	814	4.0	2.5	
Cr	52	2	He	-0.258	-34.8	1267	12.5	2.5	
Mn	55	2	He	0.076	108.0	283	20.1	2.5	
Fe	56	2	He	-4.100	-3.3	11687	0.5	100	
Co	59	2	He	0.027	26.5	150	13.3	2.5	
Ni	60	2	He	0.192	19.1	350	8.6	2.5	
Cu	63	2	He	0.424	5.9	940	7.4	2.5	
Zn	66	2	He	-0.680	-20.9	100	50.0	2.5	
As	75	2	He	0.111	61.8	43	40.7	2.5	
Se	78	2	He	0.263	182.0	7	68.6	2.5	
B	11	1	nogas	6.616	31.5	63011	4.4	10	
Si	28	1	nogas	3.427	151.5	908682	0.4	5	
Ca	43	1	nogas	-11.498	-20.9	1017	6.0	100	
Ca	44	1	nogas	-715.537	-1.6	103595	0.7	100	
Fe	56	1	nogas	-7.050	-40.6	1206171	1.6	100	
Se	77	1	nogas	3.684	397.9	62741	2.8	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.212	-274.5	467	18.7	2.5	
Mo	95	1	nogas	0.161	16.9	713	17.3	2.5	
Sn	118	1	nogas	-0.029	-113.4	1633	11.6	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.037	-41.6	470	8.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.647	14.5	950	9.4	2.5	
P	31	1	nogas	3.994	102.3	67992	1.2	10	
La	139	1	nogas	-4.812	-108.4	83	13.9	2.5	
Au	197	1	nogas	64.672	296.2	20	50.0	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	352028	2.28	350604	100.41	70	125	
Ge	72	1	nogas	1562207	3.12	1579817	98.89	70	125	
In	115	1	nogas	1676469	1.25	1691421	99.12	70	125	
Bi	209	1	nogas	1520080	1.01	1525300	99.66	70	125	
Ge	72	2	He	130508	1.19	134787	96.82	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	046_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T13:25:53-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	99.445	2.483	270697	1.62	100	99.4	90	110	
Na	23	1	nogas	9517.808	1.058	120068832	2.15	10000	95.2	90	110	
Mg	24	1	nogas	9383.484	2.873	81262154	3.34	10000	93.8	90	110	
Al	27	1	nogas	98.768	2.359	964072	1.55	100	98.8	90	110	
K	39	1	nogas	9562.119	3.499	93223627	2.17	10000	95.6	90	110	
Ti	47	1	nogas	94.073	1.523	91901	2.31	100	94.1	90	110	
V	51	1	nogas	77.744	7.217	2384392	2.79	100	77.7	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	95.361	2.427	1244461	0.29	100	95.4	90	110	
Mn	55	1	nogas	94.286	3.127	1536433	0.95	100	94.3	90	110	
Co	59	1	nogas	97.648	8.615	1319964	7.37	100	97.6	90	110	
Ni	60	1	nogas	95.087	4.876	292322	4.26	100	95.1	90	110	
Cu	63	1	nogas	93.543	2.952	719169	1.42	100	93.5	90	110	
Zn	66	1	nogas	95.781	1.136	239315	1.73	100	95.8	90	110	
As	75	1	nogas	79.717	6.524	443442	1.84	100	79.7	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	93.329	3.296	1626192	2.81	100	93.3	90	110	
Ag	107	1	nogas	95.236	3.126	951879	0.80	100	95.2	90	110	
Cd	111	1	nogas	99.261	2.785	200064	0.84	100	99.3	90	110	
Sb	121	1	nogas	97.348	2.195	844523	1.47	100	97.3	90	110	
Tl	205	1	nogas	96.060	2.267	1641179	2.42	100	96.1	90	110	
Pb	208	1	nogas	95.511	0.774	2253242	0.77	100	95.5	90	110	
U	238	1	nogas	96.055	2.578	2341755	3.69	100	96.1	90	110	
[Pb]	206	1	nogas	93.491	1.171	553266	0.62	100	93.5	90	110	
[Pb]	207	1	nogas	92.325	0.383	504085	0.94	100	92.3	90	110	
Na	23	2	He	9610.884	1.991	2318542	1.68	10000	96.1	90	110	
Mg	24	2	He	9365.404	0.579	1080999	0.40	10000	93.7	90	110	
Al	27	2	He	90.310	2.266	2904	1.77	100	90.3	90	110	
K	39	2	He	9436.957	1.619	592778	1.58	10000	94.4	90	110	
Ca	43	2	He	9227.574	7.397	1940	7.31	10000	92.3	90	110	
Ca	44	2	He	9494.496	2.111	34636	1.69	10000	94.9	90	110	
V	51	2	He	93.444	0.813	123895	0.92	100	93.4	90	110	
Cr	52	2	He	100.586	2.160	163891	1.68	100	100.6	90	110	
Mn	55	2	He	96.664	1.616	67033	1.22	100	96.7	90	110	
Fe	56	2	He	9669.815	1.372	13305704	1.05	10000	96.7	90	110	
Co	59	2	He	95.011	0.406	282565	0.57	100	95.0	90	110	
Ni	60	2	He	96.719	3.187	80029	3.58	100	96.7	90	110	
Cu	63	2	He	98.894	0.631	226980	0.43	100	98.9	90	110	
Zn	66	2	He	103.427	1.897	34580	1.38	100	103.4	90	110	
As	75	2	He	93.681	1.831	23979	1.42	100	93.7	90	110	
Se	78	2	He	89.830	2.078	905	1.60	100	89.8	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	535.326	6.106	985013	3.21	500	107.1	90	110	
Si	28	1	nogas	4893.078	0.892	23712513	1.76	5000	97.9	90	110	
Ca	43	1	nogas	9460.636	3.185	179710	2.34	10000	94.6	90	110	
Ca	44	1	nogas	8775.647	1.885	2949444	0.70	10000	87.8	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9332.727	3.725	141149082	2.41	10000	93.3	90	110	
Se	77	1	nogas	40.739	30.051	71704	2.95	100	40.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	91.940	5.720	14279	3.51	100	91.9	90	110	
Mo	95	1	nogas	91.592	3.139	340096	2.69	100	91.6	90	110	
Sn	118	1	nogas	91.610	1.972	525148	0.48	100	91.6	90	110	
Ba	137	1	nogas	95.446	3.216	261412	3.30	100	95.4	90	110	
Sb	121	2	He	101.100	1.081	102983	1.10	100	101.1	90	110	
Li	7	1	nogas	100.638	3.036	683627	2.66	100	100.6	90	110	
P	31	1	nogas	462.427	1.900	384389	1.80	500	92.5	90	110	
La	139	1	nogas	93.984	46.902	277	32.80	100	94.0	90	110	
Au	197	1	nogas	-7.197	-1641.933	23	24.74	100	-7.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	321723	2.65	350604	91.76	70	125	
Ge	72	1	nogas	1554285	2.38	1579817	98.38	70	125	
In	115	1	nogas	1616713	2.21	1691421	95.58	70	125	
Bi	209	1	nogas	1495072	1.31	1525300	98.02	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	125677	0.53	134787	93.24	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	047_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T13:27:52-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.069	41.3	283	31.8	1	
Na	23	1	nogas	2.800	75.1	1526528	1.6	100	
Mg	24	1	nogas	5.505	9.8	61615	10.5	100	
Al	27	1	nogas	-0.655	-9.6	17101	3.8	5	
K	39	1	nogas	-6.050	-99.0	5203959	0.2	100	
Ti	47	1	nogas	0.024	259.9	300	21.9	2.5	
V	51	1	nogas	-6.730	-58.3	1133024	6.5	2.5	
Cr	52	1	nogas	-0.499	-13.2	29364	4.2	2.5	
Mn	55	1	nogas	0.045	85.1	13255	3.6	2.5	
Co	59	1	nogas	0.054	52.8	1187	32.0	2.5	
Ni	60	1	nogas	0.042	45.5	1413	3.3	2.5	
Cu	63	1	nogas	-0.088	-10.5	4364	0.3	2.5	
Zn	66	1	nogas	0.074	79.0	933	14.6	2.5	
As	75	1	nogas	-5.704	-41.3	179756	5.4	2.5	
Sr	88	1	nogas	0.002	806.1	2214	12.4	2.5	
Ag	107	1	nogas	0.067	3.6	1113	3.2	2.5	
Cd	111	1	nogas	0.054	27.6	133	24.1	1	
Sb	121	1	nogas	0.798	26.3	9650	18.0	2.5	
Tl	205	1	nogas	0.185	47.8	3501	45.3	1	
Pb	208	1	nogas	0.099	21.8	2780	18.4	2.5	
U	238	1	nogas	0.064	30.0	1733	28.5	2.5	
[Pb]	206	1	nogas	0.101	16.0	703	14.4	2.5	
[Pb]	207	1	nogas	0.081	20.6	587	15.8	2.5	
Na	23	2	He	8.144	37.8	42902	0.9	100	
Mg	24	2	He	4.462	12.4	797	8.4	100	
Al	27	2	He	-4.298	-15.0	40	50.0	5	
K	39	2	He	6.730	63.8	13292	2.0	100	
Ca	43	2	He	62.928	44.3	13	43.3	100	
Ca	44	2	He	-7.930	-143.1	137	29.6	100	
V	51	2	He	0.652	5.2	684	7.3	2.5	
Cr	52	2	He	-0.298	-27.0	1167	11.9	2.5	
Mn	55	2	He	0.114	156.4	303	41.7	2.5	
Fe	56	2	He	-4.854	-7.5	10323	4.4	100	
Co	59	2	He	0.017	81.2	117	35.7	2.5	
Ni	60	2	He	0.127	25.7	287	8.8	2.5	
Cu	63	2	He	0.489	12.6	1067	14.1	2.5	
Zn	66	2	He	-0.631	-22.0	113	41.7	2.5	
As	75	2	He	0.107	69.7	41	46.1	2.5	
Se	78	2	He	0.022	1390.1	5	65.5	2.5	
B	11	1	nogas	12.025	14.4	76973	5.2	10	CCB Main CR1 Failed
Si	28	1	nogas	4.293	109.0	938949	1.1	5	
Ca	43	1	nogas	-19.470	-28.9	890	12.8	100	
Ca	44	1	nogas	-761.349	-0.2	92400	1.6	100	
Fe	56	1	nogas	-21.119	-35.1	1022183	9.8	100	
Se	77	1	nogas	-13.499	-59.8	60186	4.6	2.5	
Se	82	1	nogas	-0.172	-197.1	487	12.0	2.5	
Mo	95	1	nogas	0.155	39.6	703	32.3	2.5	
Sn	118	1	nogas	-0.014	-206.1	1717	10.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.046	-40.1	443	12.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.656	16.6	933	11.5	2.5	
P	31	1	nogas	-1.140	-82.2	66310	0.9	10	
La	139	1	nogas	-12.705	-97.9	67	37.7	2.5	
Au	197	1	nogas	-110.054	-446.3	30	88.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	368805	0.82	350604	105.19	70	125	
Ge	72	1	nogas	1606510	1.33	1579817	101.69	70	125	
In	115	1	nogas	1668538	0.68	1691421	98.65	70	125	
Bi	209	1	nogas	1565121	0.80	1525300	102.61	70	125	
Ge	72	2	He	126964	0.85	134787	94.20	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	058_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T13:50:00-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	95.381	1.555	265393	0.40	100	95.4	90	110	
Na	23	1	nogas	9808.038	0.804	122342657	2.21	10000	98.1	90	110	
Mg	24	1	nogas	9545.821	3.131	81742321	1.89	10000	95.5	90	110	
Al	27	1	nogas	98.110	1.468	971157	2.04	100	98.1	90	110	
K	39	1	nogas	9749.001	3.181	96268275	2.66	10000	97.5	90	110	
Ti	47	1	nogas	92.792	4.135	91861	2.62	100	92.8	90	110	
V	51	1	nogas	90.310	8.137	2611073	2.73	100	90.3	90	110	
Cr	52	1	nogas	95.785	4.194	1266853	2.48	100	95.8	90	110	
Mn	55	1	nogas	97.003	1.879	1602468	0.89	100	97.0	90	110	
Co	59	1	nogas	99.857	2.893	1368949	1.31	100	99.9	90	110	
Ni	60	1	nogas	95.613	2.128	297998	0.94	100	95.6	90	110	
Cu	63	1	nogas	95.533	1.365	744617	0.86	100	95.5	90	110	
Zn	66	1	nogas	96.247	2.967	243741	2.09	100	96.2	90	110	
As	75	1	nogas	82.201	5.657	457547	1.81	100	82.2	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	93.379	3.533	1649307	2.51	100	93.4	90	110	
Ag	107	1	nogas	93.385	2.289	946455	1.63	100	93.4	90	110	
Cd	111	1	nogas	97.087	2.218	200434	1.22	100	97.1	90	110	
Sb	121	1	nogas	97.860	1.456	860703	1.13	100	97.9	90	110	
Tl	205	1	nogas	97.368	8.315	1671886	6.68	100	97.4	90	110	
Pb	208	1	nogas	96.191	1.235	2269279	1.23	100	96.2	90	110	
U	238	1	nogas	94.956	1.264	2328439	2.36	100	95.0	90	110	
[Pb]	206	1	nogas	93.504	3.686	556445	1.82	100	93.5	90	110	
[Pb]	207	1	nogas	91.852	1.367	504440	0.93	100	91.9	90	110	
Na	23	2	He	9697.084	2.081	2381500	0.58	10000	97.0	90	110	
Mg	24	2	He	9627.569	2.329	1131413	1.12	10000	96.3	90	110	
Al	27	2	He	92.978	8.096	3037	6.20	100	93.0	90	110	
K	39	2	He	9647.350	2.588	605706	2.53	10000	96.5	90	110	
Ca	43	2	He	9605.775	3.299	2057	3.65	10000	96.1	90	110	
Ca	44	2	He	9489.925	2.715	35247	1.22	10000	94.9	90	110	
V	51	2	He	94.323	2.764	127324	1.47	100	94.3	90	110	
Cr	52	2	He	101.535	3.772	168418	2.72	100	101.5	90	110	
Mn	55	2	He	95.828	1.190	67671	1.03	100	95.8	90	110	
Fe	56	2	He	9428.805	1.392	13211464	0.85	10000	94.3	90	110	
Co	59	2	He	95.333	1.795	288690	1.28	100	95.3	90	110	
Ni	60	2	He	95.441	2.429	80397	0.99	100	95.4	90	110	
Cu	63	2	He	96.568	1.626	225673	0.19	100	96.6	90	110	
Zn	66	2	He	103.306	3.213	35164	1.75	100	103.3	90	110	
As	75	2	He	95.018	2.025	24765	1.11	100	95.0	90	110	
Se	78	2	He	95.754	6.139	982	4.94	100	95.8	90	110	
B	11	1	nogas	483.497	3.107	914436	1.84	500	96.7	90	110	
Si	28	1	nogas	4919.390	3.875	24158164	3.05	5000	98.4	90	110	
Ca	43	1	nogas	9446.524	4.468	181901	3.53	10000	94.5	90	110	
Ca	44	1	nogas	8907.163	3.051	3029730	1.31	10000	89.1	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9545.690	2.488	146340232	0.86	10000	95.5	90	110	
Se	77	1	nogas	48.170	35.796	74556	4.40	100	48.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	91.638	5.335	14433	3.76	100	91.6	90	110	
Mo	95	1	nogas	92.382	2.385	347729	0.89	100	92.4	90	110	
Sn	118	1	nogas	91.334	1.347	536291	1.50	100	91.3	90	110	
Ba	137	1	nogas	94.307	4.203	264441	2.68	100	94.3	90	110	
Sb	121	2	He	101.484	3.412	105236	2.00	100	101.5	90	110	
Li	7	1	nogas	99.543	0.618	691525	1.24	100	99.5	90	110	
P	31	1	nogas	472.573	2.406	396732	0.44	500	94.5	90	110	
La	139	1	nogas	76.350	42.884	247	26.99	100	76.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-139.297	-372.883	30	88.19	100	-139.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	328779	1.19	350604	93.78	70	125	
Ge	72	1	nogas	1575551	1.66	1579817	99.73	70	125	
In	115	1	nogas	1655743	2.10	1691421	97.89	70	125	
Bi	209	1	nogas	1504012	1.92	1525300	98.60	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	127983	1.51	134787	94.95	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	059_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T13:51:58-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.060	36.3	253	25.7	1	
Na	23	1	nogas	18.061	27.3	1712465	2.0	100	
Mg	24	1	nogas	5.184	24.5	58440	22.5	100	
Al	27	1	nogas	-0.749	-20.5	16131	5.1	5	
K	39	1	nogas	-1.331	-1337.8	5243990	1.2	100	
Ti	47	1	nogas	0.065	120.1	343	27.1	2.5	
V	51	1	nogas	-4.934	-145.9	1160034	9.8	2.5	
Cr	52	1	nogas	-0.378	-27.0	30916	4.0	2.5	
Mn	55	1	nogas	0.051	13.5	13362	4.3	2.5	
Co	59	1	nogas	0.044	43.2	1053	24.9	2.5	
Ni	60	1	nogas	0.106	112.9	1607	20.3	2.5	
Cu	63	1	nogas	-0.089	-30.9	4354	1.5	2.5	
Zn	66	1	nogas	0.032	134.8	827	13.0	2.5	
As	75	1	nogas	-3.649	-93.1	186219	5.3	2.5	
Sr	88	1	nogas	-0.014	-95.2	1917	11.3	2.5	
Ag	107	1	nogas	0.064	19.9	1077	11.6	2.5	
Cd	111	1	nogas	0.058	17.4	143	14.5	1	
Sb	121	1	nogas	0.789	21.1	9563	13.9	2.5	
Tl	205	1	nogas	0.181	40.9	3390	40.6	1	
Pb	208	1	nogas	0.078	18.7	2277	15.1	2.5	
U	238	1	nogas	0.059	25.0	1583	25.0	2.5	
[Pb]	206	1	nogas	0.090	27.0	623	24.1	2.5	
[Pb]	207	1	nogas	0.065	37.2	487	28.8	2.5	
Na	23	2	He	20.401	33.1	47232	4.5	100	
Mg	24	2	He	4.760	23.0	857	15.9	100	
Al	27	2	He	-2.010	-34.7	113	20.4	5	
K	39	2	He	26.382	20.7	14499	2.3	100	
Ca	43	2	He	15.063	173.2	3	173.2	100	
Ca	44	2	He	0.869	2104.0	173	37.5	100	
V	51	2	He	0.679	6.9	741	8.9	2.5	
Cr	52	2	He	-0.262	-14.5	1263	7.2	2.5	
Mn	55	2	He	0.043	270.5	260	31.5	2.5	
Fe	56	2	He	-5.073	-5.7	10323	4.5	100	
Co	59	2	He	0.024	52.5	143	26.4	2.5	
Ni	60	2	He	0.137	47.7	303	16.6	2.5	
Cu	63	2	He	0.423	11.8	940	13.8	2.5	
Zn	66	2	He	-0.755	-13.1	73	43.8	2.5	
As	75	2	He	0.048	96.0	27	43.3	2.5	
Se	78	2	He	0.072	406.2	5	57.3	2.5	
B	11	1	nogas	9.477	26.2	71699	6.0	10	

Continuing Calibration Blank (CCB) Report

Si	28	1	nogas	1.474	552.4	924316	0.1	5	
Ca	43	1	nogas	-23.922	-35.5	803	21.9	100	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ca	44	1	nogas	-781.843	-1.6	85927	0.5	100	
Fe	56	1	nogas	-18.869	-39.4	1054743	6.6	100	
Se	77	1	nogas	-6.214	-181.3	61976	3.0	2.5	
Se	82	1	nogas	-0.564	-119.1	423	22.7	2.5	
Mo	95	1	nogas	0.158	31.5	717	26.4	2.5	
Sn	118	1	nogas	-0.029	-98.6	1650	9.5	5	
Ba	137	1	nogas	-0.062	-60.3	403	25.3	2.5	
Sb	121	2	He	0.664	7.5	970	4.7	2.5	
P	31	1	nogas	1.851	100.5	68404	2.4	10	
La	139	1	nogas	-22.989	-62.8	47	65.5	2.5	
Au	197	1	nogas	-3.360	-14818.3	23	107.9	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	368289	1.09	350604	105.04	70	125	
Ge	72	1	nogas	1606309	4.28	1579817	101.68	70	125	
In	115	1	nogas	1696211	1.24	1691421	100.28	70	125	
Bi	209	1	nogas	1540473	3.54	1525300	100.99	70	125	
Ge	72	2	He	130806	2.20	134787	97.05	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	071_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T14:16:01-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.082	57.4	320	47.2	1	
Na	23	1	nogas	78.470	6.6	2416382	0.8	100	
Mg	24	1	nogas	6.503	12.6	67901	10.1	100	
Al	27	1	nogas	-0.770	-8.8	15523	2.9	5	
K	39	1	nogas	39.894	26.7	5486543	0.4	100	
Ti	47	1	nogas	0.016	316.9	283	16.3	2.5	
V	51	1	nogas	5.316	80.4	1286377	5.3	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.207	-34.5	32262	2.3	2.5	
Mn	55	1	nogas	0.138	28.1	14399	3.6	2.5	
Co	59	1	nogas	0.061	17.8	1257	11.5	2.5	
Ni	60	1	nogas	0.216	57.1	1913	21.6	2.5	
Cu	63	1	nogas	-0.055	-62.6	4507	7.3	2.5	
Zn	66	1	nogas	0.174	27.9	1160	9.3	2.5	
As	75	1	nogas	-0.365	-831.9	191688	4.7	2.5	
Sr	88	1	nogas	0.028	51.1	2607	10.2	2.5	
Ag	107	1	nogas	0.070	19.3	1117	12.2	2.5	
Cd	111	1	nogas	0.069	4.6	163	7.1	1	
Sb	121	1	nogas	0.797	23.6	9386	16.9	2.5	
Tl	205	1	nogas	0.181	31.9	3390	33.6	1	
Pb	208	1	nogas	0.076	11.8	2227	9.5	2.5	
U	238	1	nogas	0.062	20.8	1650	23.3	2.5	
[Pb]	206	1	nogas	0.073	10.5	527	12.2	2.5	
[Pb]	207	1	nogas	0.062	12.9	470	6.4	2.5	
Na	23	2	He	80.848	4.6	62359	1.8	100	
Mg	24	2	He	4.792	4.1	863	2.9	100	
Al	27	2	He	-2.543	-47.3	97	39.2	5	
K	39	2	He	35.231	18.6	15043	2.7	100	
Ca	43	2	He	60.342	86.6	13	86.6	100	
Ca	44	2	He	4.022	211.7	187	16.4	100	
V	51	2	He	0.712	8.0	789	8.9	2.5	
Cr	52	2	He	-0.325	-21.8	1160	9.9	2.5	
Mn	55	2	He	0.097	97.1	300	21.9	2.5	
Fe	56	2	He	-4.432	-6.7	11277	2.7	100	
Co	59	2	He	0.034	32.4	173	18.5	2.5	
Ni	60	2	He	0.108	63.7	280	22.3	2.5	
Cu	63	2	He	0.443	12.7	990	12.4	2.5	
Zn	66	2	He	-0.680	-7.4	100	17.3	2.5	
As	75	2	He	0.146	43.2	53	33.1	2.5	
Se	78	2	He	0.386	25.9	9	13.3	2.5	
B	11	1	nogas	8.205	7.5	68526	0.5	10	
Si	28	1	nogas	2.800	110.3	906233	0.3	5	
Ca	43	1	nogas	-18.501	-28.4	883	10.7	100	
Ca	44	1	nogas	-790.743	-0.7	80995	2.1	100	
Fe	56	1	nogas	-3.916	-36.7	1254207	1.1	100	
Se	77	1	nogas	8.374	156.7	64006	5.5	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.388	115.2	557	10.8	2.5	
Mo	95	1	nogas	0.158	23.9	700	19.6	2.5	
Sn	118	1	nogas	0.116	298.8	2418	79.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.025	-138.3	497	16.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.641	6.0	950	3.8	2.5	
P	31	1	nogas	7.306	18.2	70364	2.3	10	
La	139	1	nogas	-9.251	-166.7	73	43.8	2.5	
Au	197	1	nogas	68.411	482.0	20	86.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	364933	2.06	350604	104.09	70	125	
Ge	72	1	nogas	1562440	1.56	1579817	98.90	70	125	
In	115	1	nogas	1655217	3.14	1691421	97.86	70	125	
Bi	209	1	nogas	1541586	3.88	1525300	101.07	70	125	
Ge	72	2	He	131267	1.30	134787	97.39	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	072_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T14:18:50-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.277	2.807	266908	3.38	100	92.3	90	110	
Na	23	1	nogas	9664.162	2.408	122950736	3.08	10000	96.6	90	110	
Mg	24	1	nogas	9485.051	0.661	82849375	1.40	10000	94.9	90	110	
Al	27	1	nogas	100.475	8.371	999775	2.36	100	100.5	90	110	
K	39	1	nogas	9800.280	6.332	97417844	1.82	10000	98.0	90	110	
Ti	47	1	nogas	95.180	8.584	94787	2.82	100	95.2	90	110	
V	51	1	nogas	79.531	10.251	2462996	2.20	100	79.5	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	94.521	7.193	1259009	1.72	100	94.5	90	110	
Mn	55	1	nogas	96.097	6.317	1598259	0.49	100	96.1	90	110	
Co	59	1	nogas	98.739	7.312	1362418	1.82	100	98.7	90	110	
Ni	60	1	nogas	95.524	7.532	299582	1.63	100	95.5	90	110	
Cu	63	1	nogas	93.831	8.851	735556	2.92	100	93.8	90	110	
Zn	66	1	nogas	95.677	6.318	243938	0.42	100	95.7	90	110	
As	75	1	nogas	74.106	8.217	435114	3.96	100	74.1	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	95.190	10.266	1689975	4.44	100	95.2	90	110	
Ag	107	1	nogas	93.368	6.578	952523	0.71	100	93.4	90	110	
Cd	111	1	nogas	95.830	1.336	200571	1.37	100	95.8	90	110	
Sb	121	1	nogas	100.396	7.640	888339	1.76	100	100.4	90	110	
Tl	205	1	nogas	93.760	4.368	1658010	3.01	100	93.8	90	110	
Pb	208	1	nogas	97.678	0.760	2304341	0.76	100	97.7	90	110	
U	238	1	nogas	95.370	3.560	2405955	1.46	100	95.4	90	110	
[Pb]	206	1	nogas	90.632	2.871	555209	0.42	100	90.6	90	110	
[Pb]	207	1	nogas	89.862	3.048	507851	0.68	100	89.9	90	110	CCV Main CR1-2 Failed
Na	23	2	He	9576.701	2.645	2395566	3.21	10000	95.8	90	110	
Mg	24	2	He	9433.581	1.618	1128886	2.08	10000	94.3	90	110	
Al	27	2	He	92.228	13.162	3070	12.30	100	92.2	90	110	
K	39	2	He	9591.974	1.079	602304	1.06	10000	95.9	90	110	
Ca	43	2	He	10063.836	8.793	2193	8.63	10000	100.6	90	110	
Ca	44	2	He	9145.189	6.452	34603	7.02	10000	91.5	90	110	
V	51	2	He	93.091	1.232	127950	0.84	100	93.1	90	110	
Cr	52	2	He	101.367	1.195	171214	0.65	100	101.4	90	110	
Mn	55	2	He	93.854	1.835	67484	2.14	100	93.9	90	110	
Fe	56	2	He	9237.775	2.514	13179378	2.80	10000	92.4	90	110	
Co	59	2	He	92.366	0.906	284790	1.47	100	92.4	90	110	
Ni	60	2	He	94.182	0.918	80789	1.34	100	94.2	90	110	
Cu	63	2	He	95.302	0.704	226757	0.12	100	95.3	90	110	
Zn	66	2	He	100.848	3.243	34961	2.65	100	100.8	90	110	
As	75	2	He	92.767	2.545	24619	2.86	100	92.8	90	110	
Se	78	2	He	88.165	3.148	921	3.34	100	88.2	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	469.489	6.467	924255	5.66	500	93.9	90	110	
Si	28	1	nogas	5080.778	7.397	25081734	1.36	5000	101.6	90	110	
Ca	43	1	nogas	9420.104	6.277	182642	0.30	10000	94.2	90	110	
Ca	44	1	nogas	8988.024	5.832	3076434	0.76	10000	89.9	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9472.640	6.598	146228441	2.17	10000	94.7	90	110	
Se	77	1	nogas	18.180	71.113	67589	6.54	100	18.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	93.574	9.498	14813	3.32	100	93.6	90	110	
Mo	95	1	nogas	92.749	7.650	351294	2.13	100	92.7	90	110	
Sn	118	1	nogas	90.620	1.368	539378	1.11	100	90.6	90	110	
Ba	137	1	nogas	94.609	1.923	269013	1.91	100	94.6	90	110	
Sb	121	2	He	98.858	2.233	104405	2.54	100	98.9	90	110	
Li	7	1	nogas	97.256	2.059	703208	4.24	100	97.3	90	110	
P	31	1	nogas	476.176	8.738	401786	1.63	500	95.2	90	110	
La	139	1	nogas	110.381	30.496	320	21.87	100	110.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	130.329	309.637	17	124.90	100	130.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	341760	2.46	350604	97.48	70	125	
Ge	72	1	nogas	1589887	6.10	1579817	100.64	70	125	
In	115	1	nogas	1678156	0.30	1691421	99.22	70	125	
Bi	209	1	nogas	1548387	3.04	1525300	101.51	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	130289	0.65	134787	96.66	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	083_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T14:40:51-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	95.646	6.541	272837	4.32	100	95.6	90	110	
Na	23	1	nogas	9720.132	2.143	126457082	1.27	10000	97.2	90	110	
Mg	24	1	nogas	9488.431	1.347	84768706	0.75	10000	94.9	90	110	
Al	27	1	nogas	98.230	4.604	984962	3.21	100	98.2	90	110	
K	39	1	nogas	9627.204	1.519	96429631	2.77	10000	96.3	90	110	
Ti	47	1	nogas	94.742	2.481	95061	1.13	100	94.7	90	110	
V	51	1	nogas	84.531	0.368	2556614	1.15	100	84.5	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	97.186	3.656	1302223	2.21	100	97.2	90	110	
Mn	55	1	nogas	97.202	3.253	1627124	2.28	100	97.2	90	110	
Co	59	1	nogas	99.562	3.819	1383614	4.06	100	99.6	90	110	
Ni	60	1	nogas	94.531	3.807	298662	4.21	100	94.5	90	110	
Cu	63	1	nogas	93.327	2.762	737494	3.77	100	93.3	90	110	
Zn	66	1	nogas	93.101	1.570	239035	2.75	100	93.1	90	110	
As	75	1	nogas	77.057	3.493	447182	2.97	100	77.1	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	92.765	0.745	1660974	1.97	100	92.8	90	110	
Ag	107	1	nogas	90.995	1.532	934644	0.88	100	91.0	90	110	
Cd	111	1	nogas	95.411	1.461	199109	0.68	100	95.4	90	110	
Sb	121	1	nogas	96.977	1.106	864427	1.22	100	97.0	90	110	
Tl	205	1	nogas	94.060	4.305	1619532	4.13	100	94.1	90	110	
Pb	208	1	nogas	96.208	1.062	2269682	1.06	100	96.2	90	110	
U	238	1	nogas	94.773	1.279	2328130	1.06	100	94.8	90	110	
[Pb]	206	1	nogas	91.995	3.800	548512	1.77	100	92.0	90	110	
[Pb]	207	1	nogas	92.557	3.331	509170	1.62	100	92.6	90	110	
Na	23	2	He	9624.000	3.670	2473361	3.52	10000	96.2	90	110	
Mg	24	2	He	9509.716	2.586	1169358	2.52	10000	95.1	90	110	
Al	27	2	He	90.916	10.244	3114	9.93	100	90.9	90	110	
K	39	2	He	10045.219	1.775	630155	1.74	10000	100.5	90	110	
Ca	43	2	He	9199.552	15.848	2060	15.56	10000	92.0	90	110	
Ca	44	2	He	9164.022	3.456	35621	3.28	10000	91.6	90	110	
V	51	2	He	93.854	0.681	132567	0.24	100	93.9	90	110	
Cr	52	2	He	99.607	1.885	172920	1.58	100	99.6	90	110	
Mn	55	2	He	92.714	1.218	68505	0.99	100	92.7	90	110	
Fe	56	2	He	9306.943	0.719	13643886	0.31	10000	93.1	90	110	
Co	59	2	He	94.309	2.189	298789	1.89	100	94.3	90	110	
Ni	60	2	He	94.447	0.917	83249	0.47	100	94.4	90	110	
Cu	63	2	He	92.932	1.597	227218	1.10	100	92.9	90	110	
Zn	66	2	He	99.354	0.990	35405	1.47	100	99.4	90	110	
As	75	2	He	93.988	0.479	25630	0.04	100	94.0	90	110	
Se	78	2	He	94.656	4.212	1016	3.80	100	94.7	90	110	
B	11	1	nogas	511.061	7.277	988676	6.02	500	102.2	90	110	
Si	28	1	nogas	4931.023	4.637	24534617	3.35	5000	98.6	90	110	
Ca	43	1	nogas	9281.888	1.812	181216	2.67	10000	92.8	90	110	
Ca	44	1	nogas	8627.155	0.432	2984890	1.55	10000	86.3	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9440.770	2.140	146695595	0.91	10000	94.4	90	110	
Se	77	1	nogas	33.530	20.479	71858	3.48	100	33.5	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	91.028	3.465	14536	2.67	100	91.0	90	110	
Mo	95	1	nogas	90.629	0.856	345776	1.39	100	90.6	90	110	
Sn	118	1	nogas	90.261	1.472	535692	0.82	100	90.3	90	110	
Ba	137	1	nogas	94.054	1.879	266646	0.85	100	94.1	90	110	
Sb	121	2	He	99.192	1.881	107648	1.99	100	99.2	90	110	
Li	7	1	nogas	97.853	4.389	697594	2.01	100	97.9	90	110	
P	31	1	nogas	466.262	1.820	397599	0.65	500	93.3	90	110	
La	139	1	nogas	114.595	32.793	327	21.50	100	114.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	54.913	958.051	20	132.29	100	54.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	337354	2.25	350604	96.22	70	125	
Ge	72	1	nogas	1596628	1.34	1579817	101.06	70	125	
In	115	1	nogas	1673567	2.00	1691421	98.94	70	125	
Bi	209	1	nogas	1507025	2.33	1525300	98.80	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	133888	0.51	134787	99.33	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	084_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T14:42:50-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.079	16.9	303	14.9	1	
Na	23	1	nogas	134.412	3.4	3182620	0.4	100	CCB Main CR1 Failed
Mg	24	1	nogas	6.332	15.3	67733	10.6	100	
Al	27	1	nogas	-0.867	-8.1	14669	3.2	5	
K	39	1	nogas	44.527	9.0	5556912	0.8	100	
Ti	47	1	nogas	0.058	105.8	327	18.5	2.5	
V	51	1	nogas	-3.915	-187.4	1151057	10.9	2.5	
Cr	52	1	nogas	-0.323	-25.9	30950	4.6	2.5	
Mn	55	1	nogas	0.100	25.1	13849	2.2	2.5	
Co	59	1	nogas	0.053	27.5	1147	16.2	2.5	
Ni	60	1	nogas	0.353	18.9	2340	7.5	2.5	
Cu	63	1	nogas	-0.013	-378.9	4844	8.1	2.5	
Zn	66	1	nogas	0.156	25.8	1120	7.6	2.5	
As	75	1	nogas	-3.830	-56.3	181626	4.7	2.5	
Sr	88	1	nogas	0.006	46.8	2230	0.9	2.5	
Ag	107	1	nogas	0.082	16.1	1237	9.3	2.5	
Cd	111	1	nogas	0.036	54.4	93	43.3	1	
Sb	121	1	nogas	0.693	27.1	8512	18.0	2.5	
Tl	205	1	nogas	0.198	34.6	3607	31.4	1	
Pb	208	1	nogas	0.071	30.3	2113	24.0	2.5	
U	238	1	nogas	0.070	32.2	1820	29.2	2.5	
[Pb]	206	1	nogas	0.065	7.2	467	7.5	2.5	
[Pb]	207	1	nogas	0.074	67.8	527	51.3	2.5	
Na	23	2	He	135.069	4.5	75757	1.9	100	CCB Main CR1 Failed
Mg	24	2	He	5.612	22.1	960	13.8	100	
Al	27	2	He	-2.637	-38.5	93	32.7	5	
K	39	2	He	61.183	15.3	16638	3.5	100	
Ca	43	2	He	46.101	100.1	10	100.0	100	
Ca	44	2	He	-8.377	-54.9	140	14.3	100	
V	51	2	He	0.664	9.5	722	10.4	2.5	
Cr	52	2	He	-0.281	-13.4	1233	4.2	2.5	
Mn	55	2	He	-0.033	-133.2	207	14.8	2.5	
Fe	56	2	He	-4.682	-7.8	10920	5.5	100	
Co	59	2	He	0.035	35.0	177	19.9	2.5	
Ni	60	2	He	0.297	18.8	443	13.0	2.5	
Cu	63	2	He	0.412	11.4	917	12.1	2.5	
Zn	66	2	He	-0.766	-13.4	70	49.5	2.5	
As	75	2	He	0.113	35.8	44	26.3	2.5	
Se	78	2	He	0.712	73.3	12	44.1	2.5	
B	11	1	nogas	16.216	6.2	82610	2.1	10	CCB Main CR1 Failed
Si	28	1	nogas	11.509	49.9	951556	1.4	5	CCB Main CR1 Failed
Ca	43	1	nogas	-25.607	-24.4	753	16.9	100	
Ca	44	1	nogas	-806.557	-0.6	76589	1.3	100	
Fe	56	1	nogas	-13.372	-54.1	1116901	9.4	100	
Se	77	1	nogas	-8.860	-69.7	59975	3.3	2.5	
Se	82	1	nogas	0.217	272.6	533	15.6	2.5	
Mo	95	1	nogas	0.168	26.0	737	21.0	2.5	
Sn	118	1	nogas	-0.046	-89.0	1503	16.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.052	-43.0	420	15.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.547	16.8	850	11.6	2.5	
P	31	1	nogas	3.540	20.1	68070	0.8	10	
La	139	1	nogas	-10.637	-200.8	70	62.3	2.5	
Au	197	1	nogas	-189.579	-50.8	33	17.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	356846	2.10	350604	101.78	70	125	
Ge	72	1	nogas	1569998	1.40	1579817	99.38	70	125	
In	115	1	nogas	1640304	0.97	1691421	96.98	70	125	
Bi	209	1	nogas	1519069	2.09	1525300	99.59	70	125	
Ge	72	2	He	131239	2.04	134787	97.37	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	095_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:04:59-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.071	0.369	245701	0.27	100	92.1	90	110	
Na	23	1	nogas	9825.537	3.115	116921228	0.40	10000	98.3	90	110	
Mg	24	1	nogas	9816.728	2.862	80267777	3.87	10000	98.2	90	110	
Al	27	1	nogas	100.265	3.265	935152	1.01	100	100.3	90	110	
K	39	1	nogas	9356.163	4.462	87290296	1.94	10000	93.6	90	110	
Ti	47	1	nogas	95.633	1.231	89309	1.44	100	95.6	90	110	
V	51	1	nogas	74.674	8.804	2234532	3.09	100	74.7	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	93.672	2.311	1170043	4.32	100	93.7	90	110	
Mn	55	1	nogas	92.789	7.296	1445290	5.71	100	92.8	90	110	
Co	59	1	nogas	93.260	3.087	1205734	1.52	100	93.3	90	110	
Ni	60	1	nogas	93.300	2.980	274227	1.17	100	93.3	90	110	
Cu	63	1	nogas	92.743	5.278	681500	3.35	100	92.7	90	110	
Zn	66	1	nogas	94.424	4.227	225483	2.86	100	94.4	90	110	
As	75	1	nogas	71.312	5.106	398656	1.56	100	71.3	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	89.077	4.339	1483428	2.07	100	89.1	90	110	CCV Main CR1-2 Failed
Ag	107	1	nogas	91.888	3.269	878069	1.00	100	91.9	90	110	
Cd	111	1	nogas	94.251	1.413	180878	1.52	100	94.3	90	110	
Sb	121	1	nogas	96.586	3.467	801001	2.24	100	96.6	90	110	
Tl	205	1	nogas	93.406	2.271	1484954	1.61	100	93.4	90	110	
Pb	208	1	nogas	87.760	0.642	2070420	0.64	100	87.8	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	96.805	1.631	2196148	2.70	100	96.8	90	110	
[Pb]	206	1	nogas	91.573	0.821	504355	1.34	100	91.6	90	110	
[Pb]	207	1	nogas	89.918	0.934	456867	0.54	100	89.9	90	110	CCV Main CR1-2 Failed
Na	23	2	He	9861.098	1.488	2309209	0.42	10000	98.6	90	110	
Mg	24	2	He	9204.031	3.992	1031558	3.21	10000	92.0	90	110	
Al	27	2	He	88.390	2.072	2764	1.99	100	88.4	90	110	CCV Main CR1-2 Failed
K	39	2	He	8911.114	0.803	560465	0.78	10000	89.1	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	8391.512	9.261	1713	9.12	10000	83.9	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9015.846	5.057	31941	3.98	10000	90.2	90	110	
V	51	2	He	93.224	1.522	120031	0.68	100	93.2	90	110	
Cr	52	2	He	97.365	2.260	154120	1.82	100	97.4	90	110	
Mn	55	2	He	91.352	2.269	61534	1.90	100	91.4	90	110	
Fe	56	2	He	9188.130	3.466	12277006	2.46	10000	91.9	90	110	
Co	59	2	He	91.637	4.702	264608	3.83	100	91.6	90	110	
Ni	60	2	He	91.992	1.786	73923	1.53	100	92.0	90	110	
Cu	63	2	He	94.018	1.395	209580	1.99	100	94.0	90	110	
Zn	66	2	He	99.457	3.205	32306	2.94	100	99.5	90	110	
As	75	2	He	92.088	3.485	22893	3.54	100	92.1	90	110	
Se	78	2	He	92.389	3.753	904	2.69	100	92.4	90	110	
B	11	1	nogas	471.384	2.929	856193	2.31	500	94.3	90	110	
Si	28	1	nogas	4979.134	4.119	23043326	1.91	5000	99.6	90	110	
Ca	43	1	nogas	9154.960	3.622	166272	1.85	10000	91.5	90	110	
Ca	44	1	nogas	8804.582	3.788	2827534	1.62	10000	88.0	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9044.304	2.035	130833036	0.61	10000	90.4	90	110	
Se	77	1	nogas	18.169	74.439	63163	3.36	100	18.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	89.308	3.914	13278	2.24	100	89.3	90	110	CCV Main CR1-2 Failed
Mo	95	1	nogas	89.201	3.224	316604	1.26	100	89.2	90	110	CCV Main CR1-2 Failed
Sn	118	1	nogas	90.122	1.155	491852	0.76	100	90.1	90	110	
Ba	137	1	nogas	94.221	2.248	245637	1.79	100	94.2	90	110	
Sb	121	2	He	99.565	1.750	98490	0.70	100	99.6	90	110	
Li	7	1	nogas	96.320	1.596	642618	1.96	100	96.3	90	110	
P	31	1	nogas	451.091	4.569	359862	1.53	500	90.2	90	110	
La	139	1	nogas	138.631	18.255	347	14.23	100	138.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	237.580	89.253	10	100.00	100	237.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	315290	0.61	350604	89.93	70	125	
Ge	72	1	nogas	1485970	2.26	1579817	94.06	70	125	
In	115	1	nogas	1538740	0.52	1691421	90.97	70	125	
Bi	209	1	nogas	1391320	1.09	1525300	91.22	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	122057	1.08	134787	90.56	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	096_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:06:56-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.078	40.2	297	30.6	1	
Na	23	1	nogas	116.876	5.6	2715454	0.4	100	CCB Main CR1 Failed
Mg	24	1	nogas	6.441	14.2	63084	10.1	100	
Al	27	1	nogas	-0.822	-9.6	14045	5.9	5	
K	39	1	nogas	39.533	57.2	5121783	0.5	100	
Ti	47	1	nogas	0.074	114.0	317	21.0	2.5	
V	51	1	nogas	-14.310	-31.3	919702	4.8	2.5	
Cr	52	1	nogas	-0.519	-31.4	26412	6.2	2.5	
Mn	55	1	nogas	0.190	9.7	14256	3.3	2.5	
Co	59	1	nogas	0.055	8.2	1093	5.2	2.5	
Ni	60	1	nogas	0.322	29.7	2083	10.9	2.5	
Cu	63	1	nogas	-0.045	-53.0	4277	4.7	2.5	
Zn	66	1	nogas	0.099	32.9	910	10.8	2.5	
As	75	1	nogas	-6.434	-72.4	160894	5.6	2.5	
Sr	88	1	nogas	0.003	638.4	2030	16.8	2.5	
Ag	107	1	nogas	0.102	10.6	1340	6.5	2.5	
Cd	111	1	nogas	0.098	9.7	203	5.7	1	
Sb	121	1	nogas	0.722	16.1	8179	14.1	2.5	
Tl	205	1	nogas	0.197	37.8	3330	38.3	1	
Pb	208	1	nogas	0.071	22.8	2120	18.1	2.5	
U	238	1	nogas	0.072	29.5	1713	30.1	2.5	
[Pb]	206	1	nogas	0.103	27.4	640	27.1	2.5	
[Pb]	207	1	nogas	0.071	9.0	470	9.3	2.5	
Na	23	2	He	127.237	9.9	67312	3.3	100	CCB Main CR1 Failed
Mg	24	2	He	4.816	19.5	790	13.3	100	
Al	27	2	He	-3.875	-26.4	50	60.0	5	
K	39	2	He	30.074	36.8	14726	4.6	100	
Ca	43	2	He	33.604	173.2	7	173.2	100	
Ca	44	2	He	6.864	156.8	180	20.0	100	
V	51	2	He	0.613	4.8	595	5.3	2.5	
Cr	52	2	He	-0.224	-18.4	1213	6.1	2.5	
Mn	55	2	He	0.020	858.4	223	50.9	2.5	
Fe	56	2	He	-4.370	-7.4	10366	4.2	100	
Co	59	2	He	0.023	64.5	127	31.9	2.5	
Ni	60	2	He	0.136	63.3	277	24.1	2.5	
Cu	63	2	He	0.388	20.4	783	22.4	2.5	
Zn	66	2	He	-0.674	-14.6	93	34.4	2.5	
As	75	2	He	0.094	52.8	36	32.9	2.5	
Se	78	2	He	-0.021	-19.3	4	0.0	2.5	
B	11	1	nogas	13.287	22.7	76186	6.1	10	CCB Main CR1 Failed
Si	28	1	nogas	13.045	46.0	891558	1.0	5	CCB Main CR1 Failed
Ca	43	1	nogas	-22.275	-33.0	760	18.6	100	
Ca	44	1	nogas	-799.089	-1.0	73310	0.5	100	
Fe	56	1	nogas	-23.026	-13.2	902604	3.1	100	
Se	77	1	nogas	-21.136	-88.3	52827	5.9	2.5	
Se	82	1	nogas	-0.171	-251.1	443	17.1	2.5	
Mo	95	1	nogas	0.157	44.0	653	39.9	2.5	
Sn	118	1	nogas	-0.001	-3178.4	1630	4.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.027	79.9	590	5.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.560	27.4	787	18.0	2.5	
P	31	1	nogas	5.084	62.6	64280	0.4	10	
La	139	1	nogas	-28.685	-71.6	30	120.2	2.5	
Au	197	1	nogas	306.023	80.5	7	173.2	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	353745	2.22	350604	100.90	70	125	
Ge	72	1	nogas	1460438	3.37	1579817	92.44	70	125	
In	115	1	nogas	1522941	4.56	1691421	90.04	70	125	
Bi	209	1	nogas	1395359	2.56	1525300	91.48	70	125	
Ge	72	2	He	119687	0.99	134787	88.80	70	125	

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	102CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:19:53-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	103	19.50
Na	23	1	nogas	1840342	0.00
Mg	24	1	nogas	14074	0.09
Al	27	1	nogas	19400	0.03
K	39	1	nogas	5015437	0.00
Ti	47	1	nogas	250	4.23
V	51	1	nogas	1257827	0.00
Cr	52	1	nogas	31394	0.01
Mn	55	1	nogas	13769	0.04
Co	59	1	nogas	353	7.44
Ni	60	1	nogas	1720	0.92
Cu	63	1	nogas	3940	0.26
Zn	66	1	nogas	1243	0.36
As	75	1	nogas	200096	0.00
Sr	88	1	nogas	1070	0.26
Ag	107	1	nogas	423	1.29
Cd	111	1	nogas	20	866.03
Sb	121	1	nogas	2027	0.22
Tl	205	1	nogas	233	2.81
Pb	208	1	nogas	510	3.35
[Pb]	206	1	nogas	137	13.47
[Pb]	207	1	nogas	90	32.66
Na	23	2	He	49508	0.00
Mg	24	2	He	397	3.13
Al	27	2	He	103	37.85
K	39	2	He	14342	0.01
Ca	43	2	He	17	749.40
Ca	44	2	He	107	33.27
V	51	2	He	672	1.15
Cr	52	2	He	1270	0.47
Mn	55	2	He	230	13.23
Fe	56	2	He	16815	0.01
Co	59	2	He	47	26.51
Ni	60	2	He	287	3.51
Cu	63	2	He	860	1.43
Zn	66	2	He	143	15.65
As	75	2	He	31	155.27
Se	78	2	He	4	2165.06
B	11	1	nogas	56216	0.00
Si	28	1	nogas	840198	0.00
Ca	43	1	nogas	670	3.36
Ca	44	1	nogas	70108	0.00

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	1102312	0.00
Se	77	1	nogas	66632	0.01
Se	82	1	nogas	463	2.34
Mo	95	1	nogas	130	21.33
Sn	118	1	nogas	1640	0.24
Ba	137	1	nogas	467	2.77
Sb	121	2	He	270	2.38
Li	7	1	nogas	31357	0.01
P	31	1	nogas	66159	0.00
La	139	1	nogas	57	64.83

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	nogas	346112	1.53
Ge	72	1	nogas	1489137	2.75
In	115	1	nogas	1515181	1.76
Bi	209	1	nogas	1423983	3.29
Ge	72	2	He	120710	2.48

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	103CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:21:54-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	5611	0.08
Na	23	1	nogas	4123687	0.00
Mg	24	1	nogas	1728052	0.00
Al	27	1	nogas	38717	0.01
K	39	1	nogas	6916176	0.00
Ti	47	1	nogas	2144	0.57
V	51	1	nogas	1252135	0.00
Cr	52	1	nogas	54494	0.00
Mn	55	1	nogas	43315	0.00
Co	59	1	nogas	28035	0.00
Ni	60	1	nogas	7478	0.01
Cu	63	1	nogas	18830	0.01
Zn	66	1	nogas	6315	0.06
As	75	1	nogas	196610	0.00
Sr	88	1	nogas	34450	0.01
Ag	107	1	nogas	20115	0.03
Cd	111	1	nogas	4161	0.04
Sb	121	1	nogas	19558	0.02
Tl	205	1	nogas	32069	0.01
Pb	208	1	nogas	45459	0.00
[Pb]	206	1	nogas	11201	0.03
[Pb]	207	1	nogas	10130	0.06
Na	23	2	He	97435	0.00
Mg	24	2	He	23685	0.01
Al	27	2	He	123	32.43
K	39	2	He	25544	0.00
Ca	43	2	He	40	125.00
Ca	44	2	He	693	2.91
V	51	2	He	3185	0.06
Cr	52	2	He	4787	0.28
Mn	55	2	He	1587	0.76
Fe	56	2	He	263321	0.00
Co	59	2	He	5981	0.07
Ni	60	2	He	1760	0.20
Cu	63	2	He	5211	0.03
Zn	66	2	He	857	2.09
As	75	2	He	496	1.26
Se	78	2	He	24	34.72
B	11	1	nogas	70582	0.00
Si	28	1	nogas	1481842	0.00

Calibration Standard Report

Ca	43	1	nogas	4634	0.16
Ca	44	1	nogas	129637	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	3975758	0.00
Se	77	1	nogas	63274	0.01
Se	82	1	nogas	750	0.18
Mo	95	1	nogas	7175	0.03
Sn	118	1	nogas	11814	0.02
Ba	137	1	nogas	5661	0.11
Sb	121	2	He	2227	0.72
P	31	1	nogas	71794	0.00
La	139	1	nogas	60	83.33

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	351809	3.44	346112	101.65	70	125	
Ge	72	1	nogas	1489981	1.89	1489137	100.06	70	125	
In	115	1	nogas	1548097	1.95	1515181	102.17	70	125	
Bi	209	1	nogas	1422758	3.01	1423983	99.91	70	125	
Ge	72	2	He	122770	2.15	120710	101.71	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	104CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:23:55-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	13725	0.02
Na	23	1	nogas	7999623	0.00
Mg	24	1	nogas	4412479	0.00
Al	27	1	nogas	80920	0.00
K	39	1	nogas	9691248	0.00
Ti	47	1	nogas	5137	0.07
V	51	1	nogas	1386230	0.00
Cr	52	1	nogas	95698	0.00
Mn	55	1	nogas	93390	0.00
Co	59	1	nogas	68471	0.00
Ni	60	1	nogas	16968	0.01
Cu	63	1	nogas	42116	0.01
Zn	66	1	nogas	13949	0.01
As	75	1	nogas	217909	0.00
Sr	88	1	nogas	86164	0.00
Ag	107	1	nogas	51075	0.00
Cd	111	1	nogas	10480	0.04
Sb	121	1	nogas	47291	0.01
Tl	205	1	nogas	82563	0.00
Pb	208	1	nogas	118012	0.00
[Pb]	206	1	nogas	29083	0.01
[Pb]	207	1	nogas	26171	0.01
Na	23	2	He	171671	0.00
Mg	24	2	He	60089	0.01
Al	27	2	He	220	26.86
K	39	2	He	44537	0.00
Ca	43	2	He	150	4.44
Ca	44	2	He	1810	0.58
V	51	2	He	7421	0.02
Cr	52	2	He	9819	0.02
Mn	55	2	He	3760	0.02
Fe	56	2	He	675833	0.00
Co	59	2	He	15654	0.01
Ni	60	2	He	4601	0.03
Cu	63	2	He	11991	0.04
Zn	66	2	He	1857	0.35
As	75	2	He	1269	0.48
Se	78	2	He	51	46.96
B	11	1	nogas	100450	0.00
Si	28	1	nogas	2229408	0.00

Calibration Standard Report

Ca	43	1	nogas	10110	0.05
Ca	44	1	nogas	222997	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	8468134	0.00
Se	77	1	nogas	69409	0.01
Se	82	1	nogas	1153	0.98
Mo	95	1	nogas	17416	0.02
Sn	118	1	nogas	27866	0.01
Ba	137	1	nogas	14079	0.02
Sb	121	2	He	5898	0.03
P	31	1	nogas	84252	0.00
La	139	1	nogas	60	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	346497	0.85	346112	100.11	70	125	
Ge	72	1	nogas	1502626	1.49	1489137	100.91	70	125	
In	115	1	nogas	1549850	2.84	1515181	102.29	70	125	
Bi	209	1	nogas	1431571	0.99	1423983	100.53	70	125	
Ge	72	2	He	122642	1.43	120710	101.60	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	105CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:25:56-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	28368	0.01
Na	23	1	nogas	13942969	0.00
Mg	24	1	nogas	8688332	0.00
Al	27	1	nogas	173999	0.00
K	39	1	nogas	14557175	0.00
Ti	47	1	nogas	10406	0.02
V	51	1	nogas	1526379	0.00
Cr	52	1	nogas	163350	0.00
Mn	55	1	nogas	177533	0.00
Co	59	1	nogas	139336	0.00
Ni	60	1	nogas	33114	0.01
Cu	63	1	nogas	81555	0.00
Zn	66	1	nogas	27047	0.01
As	75	1	nogas	247443	0.00
Sr	88	1	nogas	169633	0.00
Ag	107	1	nogas	100163	0.00
Cd	111	1	nogas	20436	0.01
Sb	121	1	nogas	95585	0.00
Tl	205	1	nogas	164325	0.00
Pb	208	1	nogas	234162	0.00
[Pb]	206	1	nogas	57321	0.00
[Pb]	207	1	nogas	52873	0.01
Na	23	2	He	298421	0.00
Mg	24	2	He	120188	0.00
Al	27	2	He	503	4.22
K	39	2	He	75275	0.00
Ca	43	2	He	253	5.47
Ca	44	2	He	3654	0.23
V	51	2	He	14162	0.01
Cr	52	2	He	17645	0.01
Mn	55	2	He	7005	0.00
Fe	56	2	He	1424557	0.00
Co	59	2	He	30596	0.01
Ni	60	2	He	8809	0.06
Cu	63	2	He	24250	0.01
Zn	66	2	He	3810	0.05
As	75	2	He	2459	0.06
Se	78	2	He	98	11.59
B	11	1	nogas	139738	0.00
Si	28	1	nogas	3461390	0.00

Calibration Standard Report

Ca	43	1	nogas	19691	0.00
Ca	44	1	nogas	380639	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	16176600	0.00
Se	77	1	nogas	74068	0.01
Se	82	1	nogas	2040	0.57
Mo	95	1	nogas	35660	0.00
Sn	118	1	nogas	57606	0.00
Ba	137	1	nogas	27606	0.00
Sb	121	2	He	11374	0.05
P	31	1	nogas	106507	0.00
La	139	1	nogas	117	50.01

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	349845	0.68	346112	101.08	70	125	
Ge	72	1	nogas	1509795	1.33	1489137	101.39	70	125	
In	115	1	nogas	1548855	1.99	1515181	102.22	70	125	
Bi	209	1	nogas	1413207	2.19	1423983	99.24	70	125	
Ge	72	2	He	120717	2.69	120710	100.01	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	106CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:27:56-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	257555	0.00
Na	23	1	nogas	113918148	0.00
Mg	24	1	nogas	78435873	0.00
Al	27	1	nogas	925988	0.00
K	39	1	nogas	90567308	0.00
Ti	47	1	nogas	85367	0.00
V	51	1	nogas	2420591	0.00
Cr	52	1	nogas	1163297	0.00
Mn	55	1	nogas	1510526	0.00
Co	59	1	nogas	1253981	0.00
Ni	60	1	nogas	279164	0.00
Cu	63	1	nogas	690373	0.00
Zn	66	1	nogas	226262	0.00
As	75	1	nogas	426080	0.00
Sr	88	1	nogas	1550722	0.00
Ag	107	1	nogas	898305	0.00
Cd	111	1	nogas	188199	0.00
Sb	121	1	nogas	792912	0.00
Tl	205	1	nogas	1532516	0.00
Pb	208	1	nogas	2108286	0.00
[Pb]	206	1	nogas	514850	0.00
[Pb]	207	1	nogas	468323	0.00
Na	23	2	He	2250648	0.00
Mg	24	2	He	1020805	0.00
Al	27	2	He	2857	0.36
K	39	2	He	555927	0.00
Ca	43	2	He	2010	0.60
Ca	44	2	He	31270	0.00
V	51	2	He	119575	0.00
Cr	52	2	He	159108	0.00
Mn	55	2	He	63142	0.00
Fe	56	2	He	12493818	0.00
Co	59	2	He	269823	0.00
Ni	60	2	He	73880	0.00
Cu	63	2	He	203391	0.00
Zn	66	2	He	31948	0.00
As	75	2	He	22815	0.02
Se	78	2	He	841	1.03
B	11	1	nogas	858661	0.00
Si	28	1	nogas	22958925	0.00

Calibration Standard Report

Ca	43	1	nogas	174028	0.00
Ca	44	1	nogas	2865682	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	136829257	0.00
Se	77	1	nogas	72059	0.00
Se	82	1	nogas	13285	0.02
Mo	95	1	nogas	317745	0.00
Sn	118	1	nogas	494209	0.00
Ba	137	1	nogas	244285	0.00
Sb	121	2	He	96915	0.00
P	31	1	nogas	370784	0.00
La	139	1	nogas	300	3.85

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	324433	4.57	346112	93.74	70	125	
Ge	72	1	nogas	1483121	4.29	1489137	99.60	70	125	
In	115	1	nogas	1605163	2.46	1515181	105.94	70	125	
Bi	209	1	nogas	1432869	3.34	1423983	100.62	70	125	
Ge	72	2	He	118421	0.90	120710	98.10	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	107CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:29:52-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	542042	0.00
Na	23	1	nogas	238993914	0.00
Mg	24	1	nogas	166064941	0.00
Al	27	1	nogas	2071006	0.00
K	39	1	nogas	180424912	0.00
Ti	47	1	nogas	180980	0.00
V	51	1	nogas	4082828	0.00
Cr	52	1	nogas	2424213	0.00
Mn	55	1	nogas	3038001	0.00
Co	59	1	nogas	2529428	0.00
Ni	60	1	nogas	564743	0.00
Cu	63	1	nogas	1433880	0.00
Zn	66	1	nogas	463885	0.00
As	75	1	nogas	765467	0.00
Sr	88	1	nogas	3150278	0.00
Ag	107	1	nogas	1938773	0.00
Cd	111	1	nogas	386888	0.00
Sb	121	1	nogas	1762724	0.00
Tl	205	1	nogas	3162916	0.00
Pb	208	1	nogas	4470477	0.00
[Pb]	206	1	nogas	1072795	0.00
[Pb]	207	1	nogas	984065	0.00
Na	23	2	He	4628920	0.00
Mg	24	2	He	2224154	0.00
Al	27	2	He	6318	0.03
K	39	2	He	1156656	0.00
Ca	43	2	He	3877	0.02
Ca	44	2	He	66924	0.00
V	51	2	He	250795	0.00
Cr	52	2	He	326633	0.00
Mn	55	2	He	129196	0.00
Fe	56	2	He	25878970	0.00
Co	59	2	He	554702	0.00
Ni	60	2	He	156734	0.00
Cu	63	2	He	434311	0.00
Zn	66	2	He	67127	0.00
As	75	2	He	48040	0.00
Se	78	2	He	1879	0.09
B	11	1	nogas	1880566	0.00
Si	28	1	nogas	43900763	0.00

Calibration Standard Report

Ca	43	1	nogas	359901	0.00
Ca	44	1	nogas	5836482	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	282072006	0.00
Se	77	1	nogas	106544	0.00
Se	82	1	nogas	26740	0.01
Mo	95	1	nogas	661492	0.00
Sn	118	1	nogas	1050693	0.00
Ba	137	1	nogas	512288	0.00
Sb	121	2	He	206921	0.00
P	31	1	nogas	711942	0.00
La	139	1	nogas	407	1.26

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	287586	1.98	346112	83.09	70	125	
Ge	72	1	nogas	1469981	3.82	1489137	98.71	70	125	
In	115	1	nogas	1494696	1.48	1515181	98.65	70	125	
Bi	209	1	nogas	1309030	3.03	1423983	91.93	70	125	
Ge	72	2	He	115134	1.09	120710	95.38	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICCV
Data File Name	108_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:31:54-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	100.001	1.844	258062	1.78	100	100.0	90	110	
Na	23	1	nogas	9381.996	3.624	117356573	2.04	10000	93.8	90	110	
Mg	24	1	nogas	9215.452	1.806	79451173	0.50	10000	92.2	90	110	
Al	27	1	nogas	99.739	4.430	948308	1.58	100	99.7	90	110	
K	39	1	nogas	9609.434	1.862	91247206	0.99	10000	96.1	90	110	
Ti	47	1	nogas	98.993	2.396	90951	1.61	100	99.0	90	110	
V	51	1	nogas	81.434	8.883	2422885	1.51	100	81.4	90	110	ICV Main CR1 Failed
Cr	52	1	nogas	97.941	3.545	1221888	0.80	100	97.9	90	110	
Mn	55	1	nogas	95.890	4.406	1498576	1.76	100	95.9	90	110	
Co	59	1	nogas	97.561	4.082	1263646	1.33	100	97.6	90	110	
Ni	60	1	nogas	95.363	1.835	276552	0.94	100	95.4	90	110	
Cu	63	1	nogas	95.924	3.029	702226	1.00	100	95.9	90	110	
Zn	66	1	nogas	96.121	2.509	228175	0.36	100	96.1	90	110	
As	75	1	nogas	81.579	4.829	429466	1.36	100	81.6	90	110	ICV Main CR1 Failed
Sr	88	1	nogas	96.630	2.579	1558443	0.82	100	96.6	90	110	
Ag	107	1	nogas	92.115	3.183	903191	0.98	100	92.1	90	110	
Cd	111	1	nogas	96.274	1.066	189399	2.87	100	96.3	90	110	
Sb	121	1	nogas	94.147	3.712	835257	0.93	100	94.1	90	110	
Tl	205	1	nogas	90.484	0.359	1571393	1.33	100	90.5	90	110	
Pb	208	1	nogas	98.966	1.113	2187522	1.11	100	99.0	90	110	
U	238	1	nogas	94.505	2.582	2264278	1.22	100	94.5	90	110	
[Pb]	206	1	nogas	88.586	1.040	520826	0.61	100	88.6	90	110	ICV Main CR1 Failed
[Pb]	207	1	nogas	90.186	1.887	485582	1.43	100	90.2	90	110	
Na	23	2	He	9345.345	4.555	2268621	3.52	10000	93.5	90	110	
Mg	24	2	He	9104.418	1.988	1041192	3.32	10000	91.0	90	110	
Al	27	2	He	97.721	11.352	2864	12.23	100	97.7	90	110	
K	39	2	He	9704.616	2.913	562992	2.84	10000	97.0	90	110	
Ca	43	2	He	9903.750	11.992	2030	13.23	10000	99.0	90	110	
Ca	44	2	He	9573.863	2.813	33090	3.96	10000	95.7	90	110	
V	51	2	He	92.855	1.086	120498	2.42	100	92.9	90	110	
Cr	52	2	He	93.042	1.700	158491	2.21	100	93.0	90	110	
Mn	55	2	He	94.854	3.303	63808	2.39	100	94.9	90	110	
Fe	56	2	He	9368.204	1.008	12584051	0.58	10000	93.7	90	110	
Co	59	2	He	93.995	0.608	270925	1.20	100	94.0	90	110	
Ni	60	2	He	94.112	2.734	76066	1.52	100	94.1	90	110	
Cu	63	2	He	96.767	1.718	216392	0.67	100	96.8	90	110	
Zn	66	2	He	91.900	3.413	31895	4.45	100	91.9	90	110	
As	75	2	He	92.129	0.684	22901	1.79	100	92.1	90	110	
Se	78	2	He	93.029	4.106	890	3.49	100	93.0	90	110	
B	11	1	nogas	558.390	1.674	954497	1.15	500	111.7	90	110	ICV Main CR1 Failed
Si	28	1	nogas	5091.776	4.335	23484855	1.59	5000	101.8	90	110	
Ca	43	1	nogas	9597.979	1.180	176616	2.06	10000	96.0	90	110	
Ca	44	1	nogas	9719.847	1.286	2931993	2.04	10000	97.2	90	110	
Fe	56	1	nogas	9395.238	2.991	135698549	0.22	10000	94.0	90	110	
Se	77	1	nogas	20.296	98.468	71289	3.96	100	20.3	90	110	ICV Main CR1 Failed
Se	82	1	nogas	97.436	6.064	13549	3.18	100	97.4	90	110	
Mo	95	1	nogas	96.914	2.389	326541	1.13	100	96.9	90	110	
Sn	118	1	nogas	96.296	1.528	511924	1.08	100	96.3	90	110	
Ba	137	1	nogas	95.227	1.198	247344	1.55	100	95.2	90	110	
Sb	121	2	He	90.914	0.760	97170	1.22	100	90.9	90	110	
Li	7	1	nogas	101.331	0.632	681914	3.10	100	101.3	90	110	
P	31	1	nogas	477.328	2.793	380546	0.72	500	95.5	90	110	
La	139	1	nogas	100.010	6.898	250	4.00	100	100.0	90	110	
Au	197	1	nogas	-1092.815	-0.955	10	0.00	100	-1092.8	90	110	ICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	324591	2.52	346112	93.78	70	125	
Ge	72	1	nogas	1510453	2.73	1489137	101.43	70	125	
In	115	1	nogas	1548846	2.25	1515181	102.22	70	125	
Bi	209	1	nogas	1470064	1.39	1423983	103.24	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	120930	1.36	120710	100.18	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	109SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:33:51-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	102CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.880	1.880	1.75	5528	0.03	2000	
Na	23	1	nogas	191.804	191.804	3.58	4108234	0.00	200000	
Mg	24	1	nogas	206.313	206.313	4.35	1761855	0.01	200000	
Al	27	1	nogas	2.505	2.505	12.87	42145	0.01	2000	
K	39	1	nogas	204.956	204.956	13.80	6787915	0.00	200000	
Ti	47	1	nogas	2.107	2.107	5.62	2140	0.10	2000	
V	51	1	nogas	-10.267	-10.267	-49.29	1112556	0.00	2000	
Cr	52	1	nogas	1.736	1.736	9.93	51910	0.00	2000	
Mn	55	1	nogas	2.084	2.084	7.41	45359	0.00	2000	
Co	59	1	nogas	2.162	2.162	8.86	27768	0.01	2000	
Ni	60	1	nogas	1.944	1.944	10.41	7415	0.03	2000	
Cu	63	1	nogas	2.090	2.090	7.16	18837	0.01	2000	
Zn	66	1	nogas	2.211	2.211	6.61	6335	0.03	2000	
As	75	1	nogas	-1.217	-1.217	-150.37	191847	0.00	2000	
Sr	88	1	nogas	2.076	2.076	4.80	33856	0.01	2000	
Ag	107	1	nogas	2.081	2.081	5.04	20405	0.01	2000	
Cd	111	1	nogas	2.024	2.024	4.49	4031	0.05	2000	
Sb	121	1	nogas	2.835	2.835	6.68	26601	0.01	2000	
Tl	205	1	nogas	2.127	2.127	2.79	36438	0.01	2000	
Pb	208	1	nogas	2.176	2.176	0.93	48603	0.00	2000	
U	238	1	nogas	2.026	2.026	1.64	47655	0.00	2000	
[Pb]	206	1	nogas	2.081	2.081	3.27	12125	0.02	2000	
[Pb]	207	1	nogas	2.003	2.003	3.57	10660	0.02	2000	
Na	23	2	He	191.058	191.058	3.38	93599	0.20	200000	
Mg	24	2	He	204.118	204.118	3.18	23378	0.87	200000	
Al	27	2	He	2.071	2.071	135.08	170	1.22	2000	
K	39	2	He	188.991	188.991	4.94	25027	0.76	200000	
Ca	43	2	He	283.880	283.880	46.08	73	387.11	200000	
Ca	44	2	He	199.242	199.242	18.23	783	25.43	200000	
V	51	2	He	2.706	2.706	4.36	3291	0.08	2000	
Cr	52	2	He	2.238	2.238	2.37	4984	0.04	2000	
Mn	55	2	He	2.199	2.199	16.94	1683	0.13	2000	
Fe	56	2	He	189.821	189.821	0.97	267651	0.07	200000	
Co	59	2	He	2.069	2.069	7.51	5918	0.03	2000	
Ni	60	2	He	3.065	3.065	4.28	2163	0.14	2000	
Cu	63	2	He	2.804	2.804	2.85	5164	0.05	2000	
Zn	66	2	He	2.481	2.481	9.51	767	0.32	2000	
As	75	2	He	1.958	1.958	7.67	510	0.38	2000	
Se	78	2	He	2.889	2.889	18.82	18	16.05	2000	
B	11	1	nogas	28.208	28.208	2.65	109875	0.03	2000	

Sample Report

Si	28	1	nogas	180.238	180.238	10.43	1620304	0.01	2000	
Ca	43	1	nogas	209.138	209.138	4.46	4421	4.73	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ca	44	1	nogas	210.593	210.593	8.59	130429	0.16	200000	
Fe	56	1	nogas	196.608	196.608	7.10	3856219	0.01	200000	
Se	77	1	nogas	-28.201	-28.201	-28.71	61421	-0.05	2000	
Se	82	1	nogas	2.086	2.086	57.50	733	0.28	2000	
Mo	95	1	nogas	2.277	2.277	4.49	7645	0.03	2000	
Sn	118	1	nogas	2.001	2.001	0.52	12365	0.02	2000	
Ba	137	1	nogas	1.988	1.988	6.71	5668	0.04	2000	
Sb	121	2	He	2.351	2.351	8.91	2734	0.09	2000	
La	139	1	nogas	9.681	9.681	117.71	77	12.63	2000	
Au	197	1	nogas	447.052	447.052	5.58	30	1490.17	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	362780	2.16	346112	104.82	70	125	
Ge	72	1	nogas	1481227	3.86	1489137	99.47	70	125	
In	115	1	nogas	1559431	1.91	1515181	102.92	70	125	
Bi	209	1	nogas	1441037	1.08	1423983	101.20	70	125	
Ge	72	2	He	119198	2.20	120710	98.75	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	110LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:35:50-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	5.084	1.550	14342	1.55	5	101.7	70	130	
Na	23	1	nogas	492.711	3.530	7973227	2.49	500	98.5	70	130	
Mg	24	1	nogas	505.233	3.545	4418037	3.07	500	101.0	70	130	
Al	27	1	nogas	6.571	0.975	80031	1.10	5	131.4	70	130	LLICV Main CR1 Failed
K	39	1	nogas	528.128	3.044	9716559	1.78	500	105.6	70	130	
Ti	47	1	nogas	5.304	7.897	5057	7.38	5	106.1	70	130	
V	51	1	nogas	3.792	114.409	1315994	4.63	5	75.8	70	130	
Cr	52	1	nogas	5.016	1.631	91815	0.63	5	100.3	70	130	
Mn	55	1	nogas	5.061	2.129	91371	1.36	5	101.2	70	130	
Co	59	1	nogas	5.325	3.106	68585	3.09	5	106.5	70	130	
Ni	60	1	nogas	5.281	2.927	16978	2.49	5	105.6	70	130	
Cu	63	1	nogas	5.266	4.097	41875	3.80	5	105.3	70	130	
Zn	66	1	nogas	5.613	4.356	14339	4.47	5	112.3	70	130	
As	75	1	nogas	7.286	67.134	217178	6.31	5	145.7	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	5.274	2.656	85153	2.32	5	105.5	70	130	
Ag	107	1	nogas	4.952	3.621	48441	3.29	5	99.0	70	130	
Cd	111	1	nogas	5.006	0.965	10156	3.32	5	100.1	70	130	
Sb	121	1	nogas	5.350	1.764	48886	2.23	5	107.0	70	130	
Tl	205	1	nogas	4.919	2.024	82837	1.31	5	98.4	70	130	
Pb	208	1	nogas	5.264	2.344	116829	2.33	5	105.3	70	130	
U	238	1	nogas	5.110	2.069	118461	0.04	5	102.2	70	130	
[Pb]	206	1	nogas	4.996	3.070	28539	2.65	5	99.9	70	130	
[Pb]	207	1	nogas	5.026	2.645	26255	2.27	5	100.5	70	130	
Na	23	2	He	502.223	0.887	167654	0.67	500	100.4	70	130	
Mg	24	2	He	517.008	1.558	59056	1.66	500	103.4	70	130	
Al	27	2	He	7.037	31.352	310	19.62	5	140.7	70	130	LLICV Main CR1 Failed
K	39	2	He	503.347	3.020	42799	2.01	500	100.7	70	130	
Ca	43	2	He	464.063	67.554	110	56.77	500	92.8	70	130	
Ca	44	2	He	595.752	4.825	2144	4.41	500	119.2	70	130	
V	51	2	He	5.504	3.303	6924	2.10	5	110.1	70	130	
Cr	52	2	He	5.410	5.112	10336	3.59	5	108.2	70	130	
Mn	55	2	He	5.116	11.121	3630	9.20	5	102.3	70	130	
Fe	56	2	He	492.612	1.133	672743	0.42	500	98.5	70	130	
Co	59	2	He	5.244	2.441	15050	2.53	5	104.9	70	130	
Ni	60	2	He	5.891	2.935	4454	2.99	5	117.8	70	130	
Cu	63	2	He	6.053	1.543	12451	2.84	5	121.1	70	130	
Zn	66	2	He	5.567	8.545	1837	8.68	5	111.3	70	130	
As	75	2	He	5.294	3.052	1336	4.28	5	105.9	70	130	
Se	78	2	He	6.422	21.642	52	25.22	5	128.4	70	130	
B	11	1	nogas	34.300	2.396	117367	0.45	25	137.2	70	130	LLICV Main CR1 Failed
Si	28	1	nogas	330.212	3.187	2295433	1.45	25	1320.8	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	538.785	3.943	10436	3.24	500	107.8	70	130	
Ca	44	1	nogas	538.375	0.542	227061	0.63	500	107.7	70	130	
Fe	56	1	nogas	516.262	3.553	8422316	2.61	500	103.3	70	130	
Se	77	1	nogas	7.349	288.489	68228	5.42	5	147.0	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	6.082	7.412	1273	5.23	5	121.6	70	130	
Mo	95	1	nogas	5.213	4.869	17496	4.29	5	104.3	70	130	
Sn	118	1	nogas	5.031	3.972	29151	2.23	5	100.6	70	130	
Ba	137	1	nogas	5.026	2.234	13909	5.07	5	100.5	70	130	
Sb	121	2	He	5.098	4.550	5664	5.36	5	102.0	70	130	
Li	7	1	nogas	5.489	4.075	70292	2.78	5	109.8	70	130	
P	31	1	nogas	27.735	6.857	84409	1.97	25	110.9	70	130	
La	139	1	nogas	12.099	62.902	83	18.33	5	242.0	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	-1332.135	-66.062	7	173.21	5	-26642.7	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	352341	1.22	346112	101.80	70	125	
Ge	72	1	nogas	1493570	0.56	1489137	100.30	70	125	
In	115	1	nogas	1594071	3.00	1515181	105.21	70	125	
Bi	209	1	nogas	1421889	2.01	1423983	99.85	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	120052	1.30	120710	99.46	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICCB
Data File Name	111_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:37:52-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.017	111.3	157	35.2	1	
Na	23	1	nogas	-14.410	-16.8	1629839	1.5	100	
Mg	24	1	nogas	0.553	31.5	18580	10.0	100	
Al	27	1	nogas	-0.259	-32.8	17085	1.5	5	
K	39	1	nogas	-2.968	-526.8	5003874	0.8	100	
Ti	47	1	nogas	-0.027	-307.9	227	33.1	2.5	
V	51	1	nogas	0.694	429.3	1273377	5.5	2.5	
Cr	52	1	nogas	0.037	300.1	31975	5.9	2.5	
Mn	55	1	nogas	-0.047	-50.1	13111	3.3	2.5	
Co	59	1	nogas	0.008	21.5	463	7.6	2.5	
Ni	60	1	nogas	-0.182	-11.5	1420	5.5	2.5	
Cu	63	1	nogas	0.008	420.6	4014	8.6	2.5	
Zn	66	1	nogas	0.107	69.0	1477	10.9	2.5	
As	75	1	nogas	4.182	47.0	208637	5.7	2.5	ICB Main CR1 Failed
Sr	88	1	nogas	-0.001	-1211.1	1060	25.0	2.5	
Ag	107	1	nogas	0.037	12.8	787	5.1	2.5	
Cd	111	1	nogas	0.011	24.3	43	13.3	1	
Sb	121	1	nogas	0.011	196.8	2133	9.7	2.5	
Tl	205	1	nogas	0.050	29.5	1067	23.4	1	
Pb	208	1	nogas	0.013	23.7	807	8.7	2.5	
U	238	1	nogas	0.012	28.6	330	22.9	2.5	
[Pb]	206	1	nogas	0.016	103.4	227	43.5	2.5	
[Pb]	207	1	nogas	0.017	56.8	177	29.0	2.5	
Na	23	2	He	-20.666	-33.0	45294	3.3	100	
Mg	24	2	He	0.345	135.1	443	11.1	100	
Al	27	2	He	-1.862	-53.5	63	45.6	5	
K	39	2	He	-10.915	-92.8	13725	4.2	100	
Ca	43	2	He	13.367	363.6	20	50.0	100	
Ca	44	2	He	10.768	131.9	147	34.3	100	
V	51	2	He	0.643	3.7	669	5.4	2.5	
Cr	52	2	He	0.017	219.7	1320	5.0	2.5	
Mn	55	2	He	-0.083	-77.7	177	25.5	2.5	
Fe	56	2	He	-7.337	-5.3	7095	6.4	100	
Co	59	2	He	0.014	116.5	87	52.0	2.5	
Ni	60	2	He	0.764	10.6	330	19.9	2.5	
Cu	63	2	He	0.849	11.2	853	24.4	2.5	
Zn	66	2	He	0.917	30.4	237	42.5	2.5	
As	75	2	He	0.021	7.3	37	0.0	2.5	
Se	78	2	He	1.410	28.8	4	100.0	2.5	
B	11	1	nogas	4.991	19.5	67430	2.2	10	
Si	28	1	nogas	6.878	112.0	872776	0.6	5	ICB Main CR1 Failed
Ca	43	1	nogas	9.011	22.9	833	4.9	100	
Ca	44	1	nogas	-0.443	-1418.9	70188	1.2	100	
Fe	56	1	nogas	-17.697	-7.1	855779	1.8	100	
Se	77	1	nogas	15.576	120.4	69751	7.3	2.5	ICB Main CR1 Failed
Se	82	1	nogas	0.691	181.3	553	26.5	2.5	

Initial Calibration Blank (ICB) Report

Mo	95	1	nogas	0.003	241.9	140	18.9	2.5	
Sn	118	1	nogas	-0.056	-18.9	1400	4.3	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	-0.030	-117.0	407	22.8	2.5	
Sb	121	2	He	-0.010	-759.5	263	32.7	2.5	
P	31	1	nogas	-0.683	-248.5	65932	1.8	10	
La	139	1	nogas	10.956	140.8	80	37.5	2.5	ICB Main CR1 Failed
Au	197	1	nogas	-1051.186	-74.7	10	100.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	360092	1.23	346112	104.04	70	125	
Ge	72	1	nogas	1493783	3.30	1489137	100.31	70	125	
In	115	1	nogas	1572507	0.80	1515181	103.78	70	125	
Bi	209	1	nogas	1404231	1.97	1423983	98.61	70	125	
Ge	72	2	He	122575	1.06	120710	101.55	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	117_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:49:57-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	98.111	4.056	250622	2.05	100	98.1	90	110	
Na	23	1	nogas	9423.602	2.241	114039786	1.88	10000	94.2	90	110	
Mg	24	1	nogas	9331.553	1.459	77831558	1.94	10000	93.3	90	110	
Al	27	1	nogas	101.897	2.531	918918	1.45	100	101.9	90	110	
K	39	1	nogas	9882.762	4.482	88867231	3.67	10000	98.8	90	110	
Ti	47	1	nogas	97.226	2.166	84734	1.26	100	97.2	90	110	
V	51	1	nogas	69.110	5.957	2134306	1.20	100	69.1	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	95.785	4.548	1134161	2.97	100	95.8	90	110	
Mn	55	1	nogas	97.822	1.545	1450658	2.03	100	97.8	90	110	
Co	59	1	nogas	100.911	2.378	1240338	2.31	100	100.9	90	110	
Ni	60	1	nogas	99.073	2.803	272427	1.67	100	99.1	90	110	
Cu	63	1	nogas	96.578	2.547	670646	0.95	100	96.6	90	110	
Zn	66	1	nogas	98.803	0.509	222491	1.34	100	98.8	90	110	
As	75	1	nogas	74.183	6.386	387509	1.92	100	74.2	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	97.738	3.456	1495080	2.04	100	97.7	90	110	
Ag	107	1	nogas	92.262	1.622	858260	0.50	100	92.3	90	110	
Cd	111	1	nogas	93.721	4.530	178930	1.89	100	93.7	90	110	
Sb	121	1	nogas	94.558	3.336	795824	1.61	100	94.6	90	110	
Tl	205	1	nogas	91.809	6.484	1503809	1.42	100	91.8	90	110	
Pb	208	1	nogas	93.871	1.734	2074943	1.73	100	93.9	90	110	
U	238	1	nogas	95.343	2.392	2158068	2.96	100	95.3	90	110	
[Pb]	206	1	nogas	90.675	5.408	503039	0.89	100	90.7	90	110	
[Pb]	207	1	nogas	91.147	6.139	463027	2.35	100	91.1	90	110	
Na	23	2	He	9489.568	6.854	2233669	3.98	10000	94.9	90	110	
Mg	24	2	He	9044.528	4.400	1003133	0.64	10000	90.4	90	110	
Al	27	2	He	101.737	12.645	2880	9.36	100	101.7	90	110	
K	39	2	He	9524.319	1.674	552799	1.63	10000	95.2	90	110	
Ca	43	2	He	9760.439	9.723	1940	9.79	10000	97.6	90	110	
Ca	44	2	He	9316.957	3.311	31243	1.59	10000	93.2	90	110	
V	51	2	He	93.000	5.172	117024	0.27	100	93.0	90	110	
Cr	52	2	He	92.316	4.187	152556	0.78	100	92.3	90	110	
Mn	55	2	He	92.090	4.856	60105	1.46	100	92.1	90	110	
Fe	56	2	He	9175.371	4.703	11956824	2.02	10000	91.8	90	110	
Co	59	2	He	93.336	6.296	260801	1.41	100	93.3	90	110	
Ni	60	2	He	93.042	5.688	72938	2.33	100	93.0	90	110	
Cu	63	2	He	95.616	4.084	207442	1.03	100	95.6	90	110	
Zn	66	2	He	94.405	4.558	31788	3.67	100	94.4	90	110	
As	75	2	He	90.543	3.656	21836	1.24	100	90.5	90	110	
Se	78	2	He	97.167	7.396	902	5.24	100	97.2	90	110	
B	11	1	nogas	498.491	4.373	849109	2.16	500	99.7	90	110	
Si	28	1	nogas	5167.252	3.303	22602169	2.45	5000	103.3	90	110	
Ca	43	1	nogas	9756.583	3.187	170228	1.89	10000	97.6	90	110	
Ca	44	1	nogas	9879.999	3.711	2824656	1.98	10000	98.8	90	110	
Fe	56	1	nogas	9611.404	1.492	131703182	2.35	10000	96.1	90	110	
Se	77	1	nogas	-16.373	-99.402	61367	3.13	100	-16.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	97.044	6.605	12805	4.98	100	97.0	90	110	
Mo	95	1	nogas	99.503	1.525	318046	1.38	100	99.5	90	110	
Sn	118	1	nogas	94.581	1.987	488354	1.34	100	94.6	90	110	
Ba	137	1	nogas	96.377	3.647	243019	1.16	100	96.4	90	110	
Sb	121	2	He	91.900	6.996	95199	2.16	100	91.9	90	110	
Li	7	1	nogas	99.664	1.796	664455	1.75	100	99.7	90	110	
P	31	1	nogas	479.121	4.566	362035	2.52	500	95.8	90	110	
La	139	1	nogas	191.502	14.860	413	11.43	100	191.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-511.258	-96.376	17	34.64	100	-511.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	321487	3.32	346112	92.89	70	125	
Ge	72	1	nogas	1432486	1.74	1489137	96.20	70	125	
In	115	1	nogas	1504551	3.24	1515181	99.30	70	125	
Bi	209	1	nogas	1389458	4.89	1423983	97.58	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	117466	4.78	120710	97.31	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	118_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T15:51:56-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.071	39.8	297	25.3	1	
Na	23	1	nogas	37.933	9.7	2176543	0.9	100	
Mg	24	1	nogas	5.366	20.6	57301	14.9	100	
Al	27	1	nogas	-0.730	-7.3	12027	6.4	5	
K	39	1	nogas	13.656	132.5	4849513	0.2	100	
Ti	47	1	nogas	0.078	126.1	303	28.0	2.5	
V	51	1	nogas	-24.983	-20.9	860703	6.1	2.5	
Cr	52	1	nogas	-0.453	-13.3	24540	1.3	2.5	
Mn	55	1	nogas	0.046	35.8	13679	3.3	2.5	
Co	59	1	nogas	0.059	24.1	1047	18.4	2.5	
Ni	60	1	nogas	-0.128	-15.1	1480	1.8	2.5	
Cu	63	1	nogas	0.003	1249.8	3744	8.9	2.5	
Zn	66	1	nogas	-0.016	-290.5	1123	11.8	2.5	
As	75	1	nogas	-10.639	-36.3	157145	4.1	2.5	
Sr	88	1	nogas	0.055	12.8	1833	8.3	2.5	
Ag	107	1	nogas	0.090	35.9	1220	24.9	2.5	
Cd	111	1	nogas	0.053	28.9	120	22.0	1	
Sb	121	1	nogas	0.687	16.7	7585	13.8	2.5	
Tl	205	1	nogas	0.191	37.4	3324	35.5	1	
Pb	208	1	nogas	0.073	21.5	2113	16.3	2.5	
U	238	1	nogas	0.066	30.1	1527	29.7	2.5	
[Pb]	206	1	nogas	0.061	14.1	470	11.3	2.5	
[Pb]	207	1	nogas	0.073	34.7	457	29.2	2.5	
Na	23	2	He	33.607	25.5	55487	2.5	100	
Mg	24	2	He	3.556	31.5	777	17.0	100	
Al	27	2	He	-1.500	-63.5	70	37.8	5	
K	39	2	He	-25.018	-38.4	12928	4.2	100	
Ca	43	2	He	-49.720	-59.6	7	86.6	100	
Ca	44	2	He	14.794	113.0	153	38.2	100	
V	51	2	He	0.569	7.2	542	7.1	2.5	
Cr	52	2	He	-0.005	-2595.2	1217	14.1	2.5	
Mn	55	2	He	-0.049	-24.0	190	5.3	2.5	
Fe	56	2	He	-5.075	-8.2	9673	5.1	100	
Co	59	2	He	0.034	48.1	140	31.1	2.5	
Ni	60	2	He	0.580	5.2	170	15.6	2.5	
Cu	63	2	He	0.826	12.0	760	26.3	2.5	
Zn	66	2	He	0.526	13.2	93	27.0	2.5	
As	75	2	He	0.066	59.0	46	18.4	2.5	
Se	78	2	He	1.575	7.2	5	21.7	2.5	
B	11	1	nogas	12.109	10.3	76818	3.4	10	CCB Main CR1 Failed
Si	28	1	nogas	21.870	31.3	883923	1.0	5	CCB Main CR1 Failed
Ca	43	1	nogas	12.712	78.5	847	19.6	100	
Ca	44	1	nogas	11.178	41.6	69281	2.2	100	
Fe	56	1	nogas	-14.081	-27.7	853961	6.1	100	
Se	77	1	nogas	-71.293	-33.5	51002	4.9	2.5	
Se	82	1	nogas	0.938	140.2	553	28.6	2.5	
Mo	95	1	nogas	0.117	49.7	490	38.2	2.5	
Sn	118	1	nogas	-0.018	-248.2	1523	13.2	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.025	240.8	520	26.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.421	12.8	693	8.3	2.5	
P	31	1	nogas	0.364	977.9	62691	0.9	10	
La	139	1	nogas	2.018	1369.6	60	88.2	2.5	
Au	197	1	nogas	-1569.612	-29.9	3	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	344900	0.93	346112	99.65	70	125	
Ge	72	1	nogas	1406343	3.09	1489137	94.44	70	125	
In	115	1	nogas	1494372	2.11	1515181	98.63	70	125	
Bi	209	1	nogas	1373491	1.29	1423983	96.45	70	125	
Ge	72	2	He	116575	2.24	120710	96.57	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	129_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T16:14:06-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	100.183	1.171	249653	1.10	100	100.2	90	110	
Na	23	1	nogas	9580.601	0.782	115960223	1.84	10000	95.8	90	110	
Mg	24	1	nogas	9543.378	1.800	79608906	0.42	10000	95.4	90	110	
Al	27	1	nogas	101.427	1.456	936947	1.86	100	101.4	90	110	
K	39	1	nogas	9939.393	1.683	91514081	1.80	10000	99.4	90	110	
Ti	47	1	nogas	98.199	1.648	87674	3.46	100	98.2	90	110	
V	51	1	nogas	81.898	1.368	2361434	2.46	100	81.9	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	96.242	1.312	1167477	2.74	100	96.2	90	110	
Mn	55	1	nogas	96.936	3.191	1471878	2.15	100	96.9	90	110	
Co	59	1	nogas	101.167	2.426	1273184	0.81	100	101.2	90	110	
Ni	60	1	nogas	100.211	3.002	282125	0.37	100	100.2	90	110	
Cu	63	1	nogas	98.135	3.757	697650	1.56	100	98.1	90	110	
Zn	66	1	nogas	97.011	1.369	223723	1.46	100	97.0	90	110	
As	75	1	nogas	77.028	1.935	404796	2.37	100	77.0	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	99.667	3.406	1561058	0.85	100	99.7	90	110	
Ag	107	1	nogas	93.551	3.169	890957	0.45	100	93.6	90	110	
Cd	111	1	nogas	94.724	1.727	184980	1.57	100	94.7	90	110	
Sb	121	1	nogas	93.470	3.741	805500	1.19	100	93.5	90	110	
Tl	205	1	nogas	91.784	1.495	1532145	0.88	100	91.8	90	110	
Pb	208	1	nogas	93.806	0.796	2073505	0.80	100	93.8	90	110	
U	238	1	nogas	96.120	2.173	2214450	2.75	100	96.1	90	110	
[Pb]	206	1	nogas	88.446	1.868	499868	1.25	100	88.4	90	110	CCV Main CR1-2 Failed
[Pb]	207	1	nogas	89.236	1.447	461879	0.80	100	89.2	90	110	CCV Main CR1-2 Failed
Na	23	2	He	9227.547	1.253	2247434	2.80	10000	92.3	90	110	
Mg	24	2	He	8895.401	3.379	1019395	1.86	10000	89.0	90	110	CCV Main CR1-2 Failed
Al	27	2	He	96.574	11.965	2834	10.59	100	96.6	90	110	
K	39	2	He	9768.236	1.443	566589	1.41	10000	97.7	90	110	
Ca	43	2	He	9035.200	2.341	1857	3.46	10000	90.4	90	110	
Ca	44	2	He	9316.736	3.700	32272	2.70	10000	93.2	90	110	
V	51	2	He	92.671	2.092	120533	0.68	100	92.7	90	110	
Cr	52	2	He	92.578	2.926	158066	1.40	100	92.6	90	110	
Mn	55	2	He	91.710	1.919	61861	0.32	100	91.7	90	110	
Fe	56	2	He	9106.812	2.876	12262484	1.42	10000	91.1	90	110	
Co	59	2	He	91.655	2.170	264819	1.20	100	91.7	90	110	
Ni	60	2	He	91.925	2.819	74482	1.72	100	91.9	90	110	
Cu	63	2	He	92.645	1.389	207664	0.42	100	92.6	90	110	
Zn	66	2	He	93.051	0.328	32372	1.68	100	93.1	90	110	
As	75	2	He	90.414	1.354	22531	1.27	100	90.4	90	110	
Se	78	2	He	89.991	9.142	863	8.60	100	90.0	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	510.363	1.597	846847	1.41	500	102.1	90	110	
Si	28	1	nogas	5144.745	2.656	23049239	1.76	5000	102.9	90	110	
Ca	43	1	nogas	9520.980	3.597	170098	0.88	10000	95.2	90	110	
Ca	44	1	nogas	9776.273	4.234	2862405	1.50	10000	97.8	90	110	
Fe	56	1	nogas	9594.326	4.187	134561403	2.13	10000	95.9	90	110	
Se	77	1	nogas	-5.501	-92.762	64796	4.05	100	-5.5	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	100.255	3.479	13535	2.12	100	100.3	90	110	
Mo	95	1	nogas	99.768	4.607	326391	2.32	100	99.8	90	110	
Sn	118	1	nogas	94.629	1.548	499519	1.26	100	94.6	90	110	
Ba	137	1	nogas	95.292	1.803	245725	0.85	100	95.3	90	110	
Sb	121	2	He	89.221	1.931	95595	0.32	100	89.2	90	110	CCV Main CR1-2 Failed
Li	7	1	nogas	100.533	1.869	653328	1.66	100	100.5	90	110	
P	31	1	nogas	482.254	2.104	372823	1.28	500	96.5	90	110	
La	139	1	nogas	142.970	33.310	330	26.93	100	143.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-805.896	-147.275	13	114.56	100	-805.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	313381	0.46	346112	90.54	70	125	
Ge	72	1	nogas	1467174	2.80	1489137	98.53	70	125	
In	115	1	nogas	1537631	1.09	1515181	101.48	70	125	
Bi	209	1	nogas	1413115	0.64	1423983	99.24	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	121243	1.61	120710	100.44	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	130_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T16:16:04-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.071	37.9	303	23.8	1	
Na	23	1	nogas	106.597	4.5	3042868	0.8	100	CCB Main CR1 Failed
Mg	24	1	nogas	5.486	21.5	59372	14.4	100	
Al	27	1	nogas	-0.867	-3.7	11217	2.5	5	
K	39	1	nogas	23.169	9.6	5110679	0.3	100	
Ti	47	1	nogas	0.020	470.5	263	32.3	2.5	
V	51	1	nogas	-16.280	-53.6	1011092	11.6	2.5	
Cr	52	1	nogas	-0.366	-21.4	26459	3.3	2.5	
Mn	55	1	nogas	-0.012	-436.1	13315	5.7	2.5	
Co	59	1	nogas	0.063	30.8	1137	21.5	2.5	
Ni	60	1	nogas	-0.103	-46.9	1603	8.4	2.5	
Cu	63	1	nogas	0.003	354.9	3874	1.7	2.5	
Zn	66	1	nogas	0.066	147.6	1350	16.7	2.5	
As	75	1	nogas	-10.849	-31.7	162438	5.7	2.5	
Sr	88	1	nogas	0.075	25.5	2217	13.6	2.5	
Ag	107	1	nogas	0.083	15.0	1197	9.9	2.5	
Cd	111	1	nogas	0.048	22.8	113	18.4	1	
Sb	121	1	nogas	0.560	23.6	6768	16.8	2.5	
Tl	205	1	nogas	0.165	44.2	2970	43.4	1	
Pb	208	1	nogas	0.083	28.5	2337	22.3	2.5	
U	238	1	nogas	0.064	31.8	1520	33.2	2.5	
[Pb]	206	1	nogas	0.074	22.7	553	19.9	2.5	
[Pb]	207	1	nogas	0.087	15.7	533	13.8	2.5	
Na	23	2	He	111.087	5.2	73843	0.9	100	CCB Main CR1 Failed
Mg	24	2	He	3.611	39.1	787	18.3	100	
Al	27	2	He	-2.255	-31.4	50	40.0	5	
K	39	2	He	-13.807	-32.7	13562	1.9	100	
Ca	43	2	He	-49.929	-58.9	7	86.6	100	
Ca	44	2	He	13.647	39.9	150	11.5	100	
V	51	2	He	0.636	3.4	632	2.8	2.5	
Cr	52	2	He	0.004	1653.5	1243	7.8	2.5	
Mn	55	2	He	0.021	378.9	237	20.8	2.5	
Fe	56	2	He	-4.822	-7.8	10083	4.4	100	
Co	59	2	He	0.026	69.0	117	40.5	2.5	
Ni	60	2	He	0.599	6.2	187	17.2	2.5	
Cu	63	2	He	0.799	6.1	710	13.4	2.5	
Zn	66	2	He	0.583	7.4	113	13.5	2.5	
As	75	2	He	0.010	835.9	32	58.8	2.5	
Se	78	2	He	1.792	46.0	7	103.3	2.5	
B	11	1	nogas	4.561	54.4	65028	5.4	10	
Si	28	1	nogas	12.742	3.3	877340	0.2	5	CCB Main CR1 Failed
Ca	43	1	nogas	5.442	65.9	750	8.3	100	
Ca	44	1	nogas	0.561	593.6	68796	1.5	100	
Fe	56	1	nogas	-2.734	-262.7	1042181	9.7	100	
Se	77	1	nogas	-64.308	-34.3	54138	6.9	2.5	
Se	82	1	nogas	0.589	58.1	530	8.2	2.5	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.155	52.5	630	42.0	2.5	
Sn	118	1	nogas	-0.045	-104.4	1420	17.5	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	-0.019	-98.3	423	11.7	2.5	
Sb	121	2	He	0.461	14.5	740	8.2	2.5	
P	31	1	nogas	-0.385	-497.7	64531	1.8	10	
La	139	1	nogas	-0.191	-1821.5	57	10.2	2.5	
Au	197	1	nogas	771.817	155.7	33	45.8	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	351442	1.30	346112	101.54	70	125	
Ge	72	1	nogas	1457276	0.13	1489137	97.86	70	125	
In	115	1	nogas	1532611	3.33	1515181	101.15	70	125	
Bi	209	1	nogas	1400579	2.81	1423983	98.36	70	125	
Ge	72	2	He	117538	1.56	120710	97.37	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	141_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T16:38:09-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	98.507	0.741	248523	1.14	100	98.5	90	110	
Na	23	1	nogas	9714.974	0.295	114808198	1.59	10000	97.1	90	110	
Mg	24	1	nogas	9422.995	2.129	76761891	0.65	10000	94.2	90	110	
Al	27	1	nogas	97.268	1.275	894929	0.85	100	97.3	90	110	
K	39	1	nogas	9628.990	1.714	88384354	1.78	10000	96.3	90	110	
Ti	47	1	nogas	96.488	3.037	85712	3.07	100	96.5	90	110	
V	51	1	nogas	74.134	4.974	2243819	1.78	100	74.1	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	93.971	1.248	1135017	1.59	100	94.0	90	110	
Mn	55	1	nogas	104.087	2.730	1572254	3.06	100	104.1	90	110	
Co	59	1	nogas	96.806	3.941	1212726	4.04	100	96.8	90	110	
Ni	60	1	nogas	96.910	2.977	271667	2.92	100	96.9	90	110	
Cu	63	1	nogas	92.662	1.480	656039	1.24	100	92.7	90	110	
Zn	66	1	nogas	96.410	0.865	221280	1.10	100	96.4	90	110	
As	75	1	nogas	74.585	4.078	396119	2.11	100	74.6	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	96.777	2.215	1509074	2.04	100	96.8	90	110	
Ag	107	1	nogas	91.131	1.527	864059	1.73	100	91.1	90	110	
Cd	111	1	nogas	95.286	0.655	178947	2.10	100	95.3	90	110	
Sb	121	1	nogas	92.286	0.857	791833	0.49	100	92.3	90	110	
Tl	205	1	nogas	93.125	3.459	1502335	2.45	100	93.1	90	110	
Pb	208	1	nogas	93.153	1.990	2059064	1.99	100	93.2	90	110	
U	238	1	nogas	98.154	3.005	2185064	1.57	100	98.2	90	110	
[Pb]	206	1	nogas	91.118	3.590	497671	2.46	100	91.1	90	110	
[Pb]	207	1	nogas	91.308	3.550	456712	2.21	100	91.3	90	110	
Na	23	2	He	9881.625	5.140	2269132	4.36	10000	98.8	90	110	
Mg	24	2	He	9249.932	3.011	1001414	2.18	10000	92.5	90	110	
Al	27	2	He	96.918	5.639	2687	4.49	100	96.9	90	110	
K	39	2	He	9206.530	1.119	534833	1.09	10000	92.1	90	110	
Ca	43	2	He	8872.579	6.315	1723	7.66	10000	88.7	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9224.721	2.732	30185	1.44	10000	92.2	90	110	
V	51	2	He	92.482	1.139	113634	0.59	100	92.5	90	110	
Cr	52	2	He	93.162	0.323	150292	1.73	100	93.2	90	110	
Mn	55	2	He	95.786	1.778	61028	1.48	100	95.8	90	110	
Fe	56	2	He	9427.884	1.103	11993411	0.85	10000	94.3	90	110	
Co	59	2	He	95.004	3.812	259244	2.43	100	95.0	90	110	
Ni	60	2	He	95.847	2.606	73370	1.16	100	95.8	90	110	
Cu	63	2	He	96.416	1.656	204194	1.31	100	96.4	90	110	
Zn	66	2	He	95.115	1.667	31257	1.79	100	95.1	90	110	
As	75	2	He	91.623	2.886	21565	2.31	100	91.6	90	110	
Se	78	2	He	96.686	10.513	876	9.71	100	96.7	90	110	
B	11	1	nogas	505.096	0.223	849030	0.78	500	101.0	90	110	
Si	28	1	nogas	4906.388	1.747	21915693	1.23	5000	98.1	90	110	
Ca	43	1	nogas	9447.289	2.513	168050	2.67	10000	94.5	90	110	
Ca	44	1	nogas	9530.705	1.123	2780285	1.24	10000	95.3	90	110	
Fe	56	1	nogas	9688.006	4.309	135283774	4.62	10000	96.9	90	110	
Se	77	1	nogas	-31.617	-4.061	59915	0.50	100	-31.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.754	6.319	13409	6.10	100	99.8	90	110	
Mo	95	1	nogas	94.493	1.372	307827	1.38	100	94.5	90	110	
Sn	118	1	nogas	95.803	1.804	486280	2.06	100	95.8	90	110	
Ba	137	1	nogas	95.251	2.453	236166	1.60	100	95.3	90	110	
Sb	121	2	He	97.596	3.356	91610	2.95	100	97.6	90	110	
Li	7	1	nogas	99.996	1.175	658038	1.00	100	100.0	90	110	
P	31	1	nogas	462.784	2.742	358677	1.95	500	92.6	90	110	
La	139	1	nogas	231.127	23.187	480	20.83	100	231.1	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-495.446	-96.728	17	34.64	100	-495.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	317259	0.59	346112	91.66	70	125	
Ge	72	1	nogas	1459774	0.46	1489137	98.03	70	125	
In	115	1	nogas	1478752	2.51	1515181	97.60	70	125	
Bi	209	1	nogas	1366081	2.11	1423983	95.93	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	114526	1.46	120710	94.88	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	142_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T16:40:06-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.066	11.2	283	8.2	1	
Na	23	1	nogas	145.034	3.8	3499672	1.9	100	CCB Main CR1 Failed
Mg	24	1	nogas	12.441	11.2	117730	10.4	100	
Al	27	1	nogas	-0.753	-11.6	12344	4.7	5	
K	39	1	nogas	4.068	345.9	4987123	0.8	100	
Ti	47	1	nogas	0.048	38.3	290	6.0	2.5	
V	51	1	nogas	-17.527	-49.4	1002602	11.5	2.5	
Cr	52	1	nogas	-0.516	-13.5	24904	1.5	2.5	
Mn	55	1	nogas	0.740	5.5	24770	2.4	2.5	
Co	59	1	nogas	0.070	33.6	1230	22.8	2.5	
Ni	60	1	nogas	0.012	712.9	1940	12.0	2.5	
Cu	63	1	nogas	0.025	122.8	4067	6.8	2.5	
Zn	66	1	nogas	0.161	25.9	1580	6.7	2.5	
As	75	1	nogas	-10.825	-32.8	163894	5.6	2.5	
Sr	88	1	nogas	0.098	10.8	2587	5.8	2.5	
Ag	107	1	nogas	0.067	33.9	1060	19.5	2.5	
Cd	111	1	nogas	0.065	58.6	143	49.0	1	
Sb	121	1	nogas	0.521	21.2	6488	13.3	2.5	
Tl	205	1	nogas	0.195	37.1	3417	34.6	1	
Pb	208	1	nogas	0.097	18.1	2643	14.6	2.5	
U	238	1	nogas	0.074	21.4	1723	19.5	2.5	
[Pb]	206	1	nogas	0.077	13.1	560	7.8	2.5	
[Pb]	207	1	nogas	0.110	29.3	643	23.5	2.5	
Na	23	2	He	141.544	4.0	79787	0.4	100	CCB Main CR1 Failed
Mg	24	2	He	10.166	16.7	1497	13.1	100	
Al	27	2	He	-1.730	-23.8	63	18.2	5	
K	39	2	He	-20.061	-23.9	13208	2.1	100	
Ca	43	2	He	36.419	165.7	23	49.5	100	
Ca	44	2	He	20.300	40.1	170	15.6	100	
V	51	2	He	0.641	3.1	630	5.1	2.5	
Cr	52	2	He	0.003	457.1	1227	3.3	2.5	
Mn	55	2	He	0.818	6.9	747	6.0	2.5	
Fe	56	2	He	-2.750	-8.2	12614	2.4	100	
Co	59	2	He	0.052	26.0	190	21.1	2.5	
Ni	60	2	He	0.663	12.8	233	27.2	2.5	
Cu	63	2	He	0.754	2.3	603	5.1	2.5	
Zn	66	2	He	0.549	24.4	100	43.6	2.5	
As	75	2	He	0.002	1001.7	30	11.1	2.5	
Se	78	2	He	1.436	15.2	4	50.0	2.5	
B	11	1	nogas	16.178	13.8	83413	4.7	10	CCB Main CR1 Failed
Si	28	1	nogas	13.779	34.4	889283	1.3	5	CCB Main CR1 Failed
Ca	43	1	nogas	21.791	36.9	1050	15.6	100	
Ca	44	1	nogas	-5.278	-111.7	67702	0.6	100	
Fe	56	1	nogas	-10.263	-27.4	945905	3.3	100	
Se	77	1	nogas	-64.967	-32.4	54489	6.5	2.5	
Se	82	1	nogas	0.001	66968.1	457	17.7	2.5	
Mo	95	1	nogas	0.149	47.8	617	37.6	2.5	
Sn	118	1	nogas	-0.032	-32.7	1460	1.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.033	-65.2	380	12.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.381	25.6	620	13.8	2.5	
P	31	1	nogas	-3.024	-61.9	63400	1.7	10	
La	139	1	nogas	0.279	3853.1	57	36.7	2.5	
Au	197	1	nogas	-1840.224	0.0	0	#DIV/0!	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	343327	1.00	346112	99.20	70	125	
Ge	72	1	nogas	1470042	2.05	1489137	98.72	70	125	
In	115	1	nogas	1503335	1.96	1515181	99.22	70	125	
Bi	209	1	nogas	1386460	2.93	1423983	97.36	70	125	
Ge	72	2	He	115956	1.25	120710	96.06	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	153_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T17:02:10-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	102.740	4.644	260319	1.53	100	102.7	90	110	
Na	23	1	nogas	9893.940	1.170	120280386	1.02	10000	98.9	90	110	
Mg	24	1	nogas	9376.334	2.022	78619621	2.49	10000	93.8	90	110	
Al	27	1	nogas	105.643	1.070	977354	1.48	100	105.6	90	110	
K	39	1	nogas	10012.470	4.976	92345831	4.04	10000	100.1	90	110	
Ti	47	1	nogas	100.978	3.453	90352	4.36	100	101.0	90	110	
V	51	1	nogas	119.221	3.279	2878414	2.17	100	119.2	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	97.056	1.873	1179569	1.52	100	97.1	90	110	
Mn	55	1	nogas	99.159	4.268	1508830	3.60	100	99.2	90	110	
Co	59	1	nogas	99.287	3.824	1252434	3.05	100	99.3	90	110	
Ni	60	1	nogas	100.515	3.513	283669	2.62	100	100.5	90	110	
Cu	63	1	nogas	98.859	1.817	704620	0.98	100	98.9	90	110	
Zn	66	1	nogas	101.378	0.577	234295	1.40	100	101.4	90	110	
As	75	1	nogas	95.178	3.817	455643	2.58	100	95.2	90	110	
Sr	88	1	nogas	101.779	2.375	1598263	1.63	100	101.8	90	110	
Ag	107	1	nogas	91.545	1.417	874277	2.31	100	91.5	90	110	
Cd	111	1	nogas	97.146	2.474	186141	1.93	100	97.1	90	110	
Sb	121	1	nogas	95.671	1.079	826661	0.41	100	95.7	90	110	
Tl	205	1	nogas	98.649	0.407	1537452	3.51	100	98.6	90	110	
Pb	208	1	nogas	95.150	1.371	2103210	1.37	100	95.2	90	110	
U	238	1	nogas	103.521	1.851	2225480	1.89	100	103.5	90	110	
[Pb]	206	1	nogas	99.254	2.897	523380	1.10	100	99.3	90	110	
[Pb]	207	1	nogas	97.105	3.970	468842	1.43	100	97.1	90	110	
Na	23	2	He	9904.747	6.370	2329520	3.75	10000	99.0	90	110	
Mg	24	2	He	9405.576	3.119	1043420	0.65	10000	94.1	90	110	
Al	27	2	He	102.159	9.278	2900	10.45	100	102.2	90	110	
K	39	2	He	9758.172	0.879	566020	0.86	10000	97.6	90	110	
Ca	43	2	He	9903.205	16.929	1963	14.25	10000	99.0	90	110	
Ca	44	2	He	9707.107	7.221	32523	4.71	10000	97.1	90	110	
V	51	2	He	94.578	3.673	119061	1.23	100	94.6	90	110	
Cr	52	2	He	95.200	3.497	157327	2.47	100	95.2	90	110	
Mn	55	2	He	95.963	3.015	62647	1.06	100	96.0	90	110	
Fe	56	2	He	9455.412	2.998	12325311	1.74	10000	94.6	90	110	
Co	59	2	He	96.733	5.231	270430	2.82	100	96.7	90	110	
Ni	60	2	He	97.199	4.767	76229	2.28	100	97.2	90	110	
Cu	63	2	He	97.692	0.623	212085	1.86	100	97.7	90	110	
Zn	66	2	He	95.141	1.441	32042	1.07	100	95.1	90	110	
As	75	2	He	95.260	3.052	22973	0.91	100	95.3	90	110	
Se	78	2	He	96.524	2.957	897	2.28	100	96.5	90	110	
B	11	1	nogas	538.216	6.140	905021	2.78	500	107.6	90	110	
Si	28	1	nogas	5188.002	1.514	23292205	1.13	5000	103.8	90	110	
Ca	43	1	nogas	9959.722	2.349	178379	1.76	10000	99.6	90	110	
Ca	44	1	nogas	9846.375	1.178	2890638	1.28	10000	98.5	90	110	
Fe	56	1	nogas	9731.194	4.865	136805836	3.92	10000	97.3	90	110	
Se	77	1	nogas	86.605	16.512	81050	3.72	100	86.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	104.129	3.558	14076	3.15	100	104.1	90	110	
Mo	95	1	nogas	102.024	3.226	334678	2.40	100	102.0	90	110	
Sn	118	1	nogas	98.832	0.422	511883	0.87	100	98.8	90	110	
Ba	137	1	nogas	97.825	0.829	247542	1.10	100	97.8	90	110	
Sb	121	2	He	100.875	5.085	96983	2.58	100	100.9	90	110	
Li	7	1	nogas	105.761	1.859	697819	2.15	100	105.8	90	110	
P	31	1	nogas	491.745	2.279	379750	1.16	500	98.3	90	110	
La	139	1	nogas	135.354	7.151	310	6.45	100	135.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	1195.230	141.219	37	56.77	100	1195.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	318940	3.09	346112	92.15	70	125	
Ge	72	1	nogas	1470255	0.93	1489137	98.73	70	125	
In	115	1	nogas	1508780	0.60	1515181	99.58	70	125	
Bi	209	1	nogas	1319204	3.28	1423983	92.64	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	117391	2.48	120710	97.25	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	154_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T17:04:07-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.064	57.3	277	35.7	1	
Na	23	1	nogas	323.141	4.4	5644140	1.4	100	CCB Main CR1 Failed
Mg	24	1	nogas	9.594	9.3	94052	7.4	100	
Al	27	1	nogas	-0.834	-4.6	11921	5.1	5	
K	39	1	nogas	28.500	57.3	5333071	0.7	100	
Ti	47	1	nogas	0.045	217.9	293	28.4	2.5	
V	51	1	nogas	19.274	7.9	1546465	3.6	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.012	-339.7	31674	3.3	2.5	
Mn	55	1	nogas	0.311	8.1	18770	0.5	2.5	
Co	59	1	nogas	0.065	27.8	1197	17.4	2.5	
Ni	60	1	nogas	0.299	28.6	2814	7.5	2.5	
Cu	63	1	nogas	0.118	35.0	4847	7.5	2.5	
Zn	66	1	nogas	0.165	39.7	1627	7.2	2.5	
As	75	1	nogas	2.851	69.6	206804	4.9	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.093	16.4	2584	7.5	2.5	
Ag	107	1	nogas	0.061	4.7	1027	0.6	2.5	
Cd	111	1	nogas	0.062	44.3	143	38.4	1	
Sb	121	1	nogas	0.327	42.0	4927	22.2	2.5	
Tl	205	1	nogas	0.251	40.3	4327	40.4	1	
Pb	208	1	nogas	0.075	31.9	2157	24.4	2.5	
U	238	1	nogas	0.077	27.6	1787	28.8	2.5	
[Pb]	206	1	nogas	0.076	27.2	553	22.9	2.5	
[Pb]	207	1	nogas	0.078	27.8	483	24.9	2.5	
Na	23	2	He	311.162	3.6	124399	1.8	100	CCB Main CR1 Failed
Mg	24	2	He	7.088	17.6	1217	11.2	100	
Al	27	2	He	-2.429	-33.7	47	49.5	5	
K	39	2	He	9.441	75.2	14876	2.7	100	
Ca	43	2	He	-18.755	-149.7	13	43.3	100	
Ca	44	2	He	5.363	221.1	127	31.9	100	
V	51	2	He	0.847	5.9	932	7.0	2.5	
Cr	52	2	He	0.071	93.6	1403	7.8	2.5	
Mn	55	2	He	0.467	6.1	547	3.8	2.5	
Fe	56	2	He	-4.231	-1.4	11250	0.6	100	
Co	59	2	He	0.043	35.5	173	26.0	2.5	
Ni	60	2	He	0.632	12.3	220	28.4	2.5	
Cu	63	2	He	0.793	2.7	723	6.8	2.5	
Zn	66	2	He	0.543	21.8	103	40.3	2.5	
As	75	2	He	0.049	144.3	43	40.7	2.5	
Se	78	2	He	1.551	27.5	5	78.1	2.5	
B	11	1	nogas	20.869	14.6	91146	6.1	10	CCB Main CR1 Failed
Si	28	1	nogas	11.021	49.7	899683	0.5	5	CCB Main CR1 Failed
Ca	43	1	nogas	10.181	42.7	863	10.4	100	
Ca	44	1	nogas	-22.554	-26.6	64357	0.8	100	
Fe	56	1	nogas	5.564	172.3	1194850	9.3	100	
Se	77	1	nogas	10.356	104.6	69446	5.0	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.021	-903.7	467	6.5	2.5	
Mo	95	1	nogas	0.154	53.2	647	40.2	2.5	
Sn	118	1	nogas	-0.053	-84.3	1397	16.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.017	-168.0	433	16.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.218	55.0	490	24.7	2.5	
P	31	1	nogas	-1.074	-196.9	66297	1.5	10	
La	139	1	nogas	-19.581	-52.9	20	100.0	2.5	
Au	197	1	nogas	-223.390	-640.2	20	86.6	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	342231	1.13	346112	98.88	70	125	
Ge	72	1	nogas	1507686	2.25	1489137	101.25	70	125	
In	115	1	nogas	1550882	1.40	1515181	102.36	70	125	
Bi	209	1	nogas	1374088	2.20	1423983	96.50	70	125	
Ge	72	2	He	121809	0.56	120710	100.91	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	165_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T17:26:15-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	105.709	2.250	262259	2.41	100	105.7	90	110	
Na	23	1	nogas	9929.357	1.150	120768453	1.50	10000	99.3	90	110	
Mg	24	1	nogas	9567.554	2.860	80249383	2.35	10000	95.7	90	110	
Al	27	1	nogas	105.687	1.653	969359	1.82	100	105.7	90	110	
K	39	1	nogas	10234.516	1.673	93491981	1.41	10000	102.3	90	110	
Ti	47	1	nogas	101.780	1.455	90272	2.06	100	101.8	90	110	
V	51	1	nogas	104.900	4.191	2659033	2.49	100	104.9	90	110	
Cr	52	1	nogas	95.940	1.605	1156388	1.44	100	95.9	90	110	
Mn	55	1	nogas	99.065	2.533	1494820	2.75	100	99.1	90	110	
Co	59	1	nogas	101.937	4.118	1275189	4.45	100	101.9	90	110	
Ni	60	1	nogas	101.578	3.326	284209	2.71	100	101.6	90	110	
Cu	63	1	nogas	99.793	3.496	705110	2.89	100	99.8	90	110	
Zn	66	1	nogas	102.352	1.731	234483	1.15	100	102.4	90	110	
As	75	1	nogas	92.852	4.494	445343	2.21	100	92.9	90	110	
Sr	88	1	nogas	100.892	2.817	1570784	2.33	100	100.9	90	110	
Ag	107	1	nogas	95.239	0.632	901675	1.17	100	95.2	90	110	
Cd	111	1	nogas	97.611	2.471	188296	3.30	100	97.6	90	110	
Sb	121	1	nogas	98.409	2.587	842925	2.00	100	98.4	90	110	
Tl	205	1	nogas	93.870	2.130	1528103	3.23	100	93.9	90	110	
Pb	208	1	nogas	97.146	0.301	2147303	0.30	100	97.1	90	110	
U	238	1	nogas	99.377	2.748	2231980	2.82	100	99.4	90	110	
[Pb]	206	1	nogas	94.371	1.241	520038	1.51	100	94.4	90	110	
[Pb]	207	1	nogas	95.030	1.506	479540	0.42	100	95.0	90	110	
Na	23	2	He	9871.090	1.473	2309545	2.05	10000	98.7	90	110	
Mg	24	2	He	9548.732	1.283	1053171	1.84	10000	95.5	90	110	
Al	27	2	He	110.060	2.226	3094	1.31	100	110.1	90	110	CCV Main CR1-2 Failed
K	39	2	He	9659.878	1.661	560463	1.62	10000	96.6	90	110	
Ca	43	2	He	9261.758	4.882	1830	4.13	10000	92.6	90	110	
Ca	44	2	He	9679.153	2.431	32259	1.86	10000	96.8	90	110	
V	51	2	He	96.501	1.051	120783	0.45	100	96.5	90	110	
Cr	52	2	He	96.809	5.075	158978	4.29	100	96.8	90	110	
Mn	55	2	He	97.161	2.228	63048	1.63	100	97.2	90	110	
Fe	56	2	He	9585.952	2.510	12419686	1.80	10000	95.9	90	110	
Co	59	2	He	97.112	1.269	269982	0.38	100	97.1	90	110	
Ni	60	2	He	97.425	1.425	75988	2.19	100	97.4	90	110	
Cu	63	2	He	97.443	0.658	210232	1.47	100	97.4	90	110	
Zn	66	2	He	95.974	4.351	32122	3.95	100	96.0	90	110	
As	75	2	He	96.362	0.581	23104	1.26	100	96.4	90	110	
Se	78	2	He	93.223	6.272	861	6.85	100	93.2	90	110	
B	11	1	nogas	558.695	2.701	918139	2.51	500	111.7	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	5221.850	0.904	23238334	0.69	5000	104.4	90	110	
Ca	43	1	nogas	10104.941	1.749	179427	1.43	10000	101.0	90	110	
Ca	44	1	nogas	10034.238	2.796	2919500	3.24	10000	100.3	90	110	
Fe	56	1	nogas	9831.908	2.044	137072891	2.57	10000	98.3	90	110	
Se	77	1	nogas	60.351	33.026	75784	4.40	100	60.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	103.706	2.051	13902	2.47	100	103.7	90	110	
Mo	95	1	nogas	101.288	2.972	329430	2.38	100	101.3	90	110	
Sn	118	1	nogas	98.859	1.214	515339	1.02	100	98.9	90	110	
Ba	137	1	nogas	96.204	2.538	244994	1.45	100	96.2	90	110	
Sb	121	2	He	101.294	1.284	96856	2.13	100	101.3	90	110	
Li	7	1	nogas	105.533	1.652	681500	2.72	100	105.5	90	110	
P	31	1	nogas	502.795	2.012	383507	1.09	500	100.6	90	110	
La	139	1	nogas	134.346	17.397	310	14.06	100	134.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-515.056	-86.763	17	34.64	100	-515.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	312061	2.64	346112	90.16	70	125	
Ge	72	1	nogas	1457631	0.60	1489137	97.88	70	125	
In	115	1	nogas	1518643	1.09	1515181	100.23	70	125	
Bi	209	1	nogas	1377797	1.30	1423983	96.76	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	116649	0.90	120710	96.64	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	166_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T17:28:12-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.077	26.1	323	15.6	1	
Na	23	1	nogas	166.925	9.3	3866029	1.9	100	CCB Main CR1 Failed
Mg	24	1	nogas	8.307	27.9	84981	19.4	100	
Al	27	1	nogas	-0.732	-7.3	12638	0.7	5	
K	39	1	nogas	28.266	88.6	5239462	0.6	100	
Ti	47	1	nogas	0.100	101.0	340	28.1	2.5	
V	51	1	nogas	15.083	50.0	1460630	5.1	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.076	339.1	32118	5.8	2.5	
Mn	55	1	nogas	0.202	35.4	16778	2.5	2.5	
Co	59	1	nogas	0.062	33.9	1147	27.5	2.5	
Ni	60	1	nogas	0.088	130.3	2163	10.3	2.5	
Cu	63	1	nogas	0.012	452.1	4001	5.4	2.5	
Zn	66	1	nogas	0.073	88.5	1387	10.1	2.5	
As	75	1	nogas	0.983	669.0	197733	6.6	2.5	
Sr	88	1	nogas	0.091	16.0	2504	12.3	2.5	
Ag	107	1	nogas	0.060	16.6	1003	14.0	2.5	
Cd	111	1	nogas	0.070	67.9	157	57.6	1	
Sb	121	1	nogas	0.311	26.9	4741	18.7	2.5	
Tl	205	1	nogas	0.268	48.0	4648	44.4	1	
Pb	208	1	nogas	0.073	32.8	2130	24.9	2.5	
U	238	1	nogas	0.077	27.4	1810	25.4	2.5	
[Pb]	206	1	nogas	0.068	54.6	513	39.4	2.5	
[Pb]	207	1	nogas	0.079	30.4	493	24.4	2.5	
Na	23	2	He	181.451	6.5	91830	1.6	100	CCB Main CR1 Failed
Mg	24	2	He	7.816	5.1	1280	4.3	100	
Al	27	2	He	-2.528	-28.9	43	48.0	5	
K	39	2	He	-0.648	-1337.4	14306	3.4	100	
Ca	43	2	He	-0.718	-8142.6	17	69.3	100	
Ca	44	2	He	9.661	192.0	140	46.8	100	
V	51	2	He	0.828	4.5	892	4.9	2.5	
Cr	52	2	He	0.069	42.0	1377	2.2	2.5	
Mn	55	2	He	0.178	46.4	347	16.7	2.5	
Fe	56	2	He	-4.215	-5.2	11087	1.9	100	
Co	59	2	He	0.049	27.9	187	20.3	2.5	
Ni	60	2	He	0.606	21.1	197	53.9	2.5	
Cu	63	2	He	0.770	10.1	660	25.8	2.5	
Zn	66	2	He	0.577	11.9	113	22.2	2.5	
As	75	2	He	-0.012	-623.1	28	70.3	2.5	
Se	78	2	He	1.706	37.7	7	91.7	2.5	
B	11	1	nogas	13.455	22.8	81297	4.5	10	CCB Main CR1 Failed
Si	28	1	nogas	18.010	51.6	914662	0.1	5	CCB Main CR1 Failed
Ca	43	1	nogas	11.250	22.3	867	2.4	100	
Ca	44	1	nogas	-17.054	-83.5	64806	2.5	100	
Fe	56	1	nogas	10.078	35.9	1239366	1.2	100	
Se	77	1	nogas	-0.993	-3241.3	66164	6.7	2.5	
Se	82	1	nogas	0.154	494.2	483	23.5	2.5	
Mo	95	1	nogas	0.191	41.3	767	37.5	2.5	
Sn	118	1	nogas	0.019	245.7	1753	12.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.025	-85.2	407	11.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.219	20.9	483	9.8	2.5	
P	31	1	nogas	-2.003	-272.8	64534	2.4	10	
La	139	1	nogas	7.080	208.3	70	37.8	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-1050.228	-75.0	10	100.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	354773	2.68	346112	102.50	70	125	
Ge	72	1	nogas	1483068	4.48	1489137	99.59	70	125	
In	115	1	nogas	1528779	3.37	1515181	100.90	70	125	
Bi	209	1	nogas	1400280	1.53	1423983	98.34	70	125	
Ge	72	2	He	119830	1.45	120710	99.27	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	177_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T17:50:08-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	95.934	4.153	255011	3.22	100	95.9	90	110	
Na	23	1	nogas	10002.373	1.595	117880823	0.59	10000	100.0	90	110	
Mg	24	1	nogas	9949.137	0.785	80883441	0.82	10000	99.5	90	110	
Al	27	1	nogas	218.668	19.843	1990733	18.11	100	218.7	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10271.834	2.482	94294692	4.42	10000	102.7	90	110	
Ti	47	1	nogas	100.981	5.121	89909	2.14	100	101.0	90	110	
V	51	1	nogas	54.466	11.031	1981350	1.35	100	54.5	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	101.180	3.446	1223093	1.03	100	101.2	90	110	
Mn	55	1	nogas	103.301	4.332	1564432	1.36	100	103.3	90	110	
Co	59	1	nogas	103.777	5.215	1303171	2.57	100	103.8	90	110	
Ni	60	1	nogas	101.803	3.759	286059	1.01	100	101.8	90	110	
Cu	63	1	nogas	99.954	2.150	709519	1.13	100	100.0	90	110	
Zn	66	1	nogas	100.905	0.793	232331	3.05	100	100.9	90	110	
As	75	1	nogas	70.090	5.068	385002	1.81	100	70.1	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	105.777	3.509	1655374	5.29	100	105.8	90	110	
Ag	107	1	nogas	93.247	3.938	886444	1.01	100	93.2	90	110	
Cd	111	1	nogas	97.085	1.755	190242	1.94	100	97.1	90	110	
Sb	121	1	nogas	98.932	0.542	851587	2.68	100	98.9	90	110	
Tl	205	1	nogas	96.272	4.276	1541851	3.06	100	96.3	90	110	
Pb	208	1	nogas	96.116	1.855	2124545	1.85	100	96.1	90	110	
U	238	1	nogas	101.850	1.369	2251539	0.97	100	101.9	90	110	
[Pb]	206	1	nogas	95.375	4.426	517077	2.44	100	95.4	90	110	
[Pb]	207	1	nogas	94.427	4.078	468867	2.12	100	94.4	90	110	
Na	23	2	He	9655.343	4.249	2237079	2.85	10000	96.6	90	110	
Mg	24	2	He	9399.594	5.485	1025838	3.27	10000	94.0	90	110	
Al	27	2	He	156.392	3.890	4307	3.98	100	156.4	90	110	CCV Main CR1-2 Failed
K	39	2	He	9377.556	1.152	544502	1.12	10000	93.8	90	110	
Ca	43	2	He	9697.837	15.876	1893	13.61	10000	97.0	90	110	
Ca	44	2	He	9739.629	5.016	32135	4.16	10000	97.4	90	110	
V	51	2	He	95.434	2.794	118254	1.57	100	95.4	90	110	
Cr	52	2	He	96.139	3.804	156309	1.46	100	96.1	90	110	
Mn	55	2	He	96.059	4.539	61697	2.26	100	96.1	90	110	
Fe	56	2	He	9586.408	2.648	12296921	0.79	10000	95.9	90	110	
Co	59	2	He	98.326	2.670	270623	0.32	100	98.3	90	110	
Ni	60	2	He	97.753	1.929	75486	1.62	100	97.8	90	110	
Cu	63	2	He	97.805	0.883	208975	2.60	100	97.8	90	110	
Zn	66	2	He	97.787	1.365	32419	2.81	100	97.8	90	110	
As	75	2	He	96.469	1.912	22899	1.05	100	96.5	90	110	
Se	78	2	He	95.937	9.393	876	7.15	100	95.9	90	110	
B	11	1	nogas	487.975	5.786	865650	2.80	500	97.6	90	110	
Si	28	1	nogas	5315.762	1.234	23754652	2.49	5000	106.3	90	110	
Ca	43	1	nogas	10345.161	3.089	184479	0.88	10000	103.5	90	110	
Ca	44	1	nogas	10058.132	3.272	2938869	1.92	10000	100.6	90	110	
Fe	56	1	nogas	10205.014	3.292	142829045	0.45	10000	102.1	90	110	
Se	77	1	nogas	-60.855	-14.830	55027	4.42	100	-60.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	105.815	2.806	14249	5.10	100	105.8	90	110	
Mo	95	1	nogas	103.648	2.299	338821	4.00	100	103.6	90	110	
Sn	118	1	nogas	99.899	4.593	528726	1.63	100	99.9	90	110	
Ba	137	1	nogas	97.469	3.941	252080	0.98	100	97.5	90	110	
Sb	121	2	He	98.701	0.687	93463	2.37	100	98.7	90	110	
Li	7	1	nogas	102.322	4.296	709118	4.91	100	102.3	90	110	
P	31	1	nogas	507.347	1.716	388212	1.78	500	101.5	90	110	
La	139	1	nogas	1291.386	37.778	2550	39.76	100	1291.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-740.871	-171.495	13	114.56	100	-740.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	334503	3.62	346112	96.65	70	125	
Ge	72	1	nogas	1464759	2.91	1489137	98.36	70	125	
In	115	1	nogas	1543264	3.03	1515181	101.85	70	125	
Bi	209	1	nogas	1356340	2.30	1423983	95.25	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	115521	2.32	120710	95.70	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	178_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T17:52:06-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.098	7.0	383	4.0	1	
Na	23	1	nogas	39.582	17.0	2314334	1.6	100	
Mg	24	1	nogas	18.558	9.4	174959	10.2	100	
Al	27	1	nogas	12.319	15.0	132291	11.4	5	CCB Main CR1 Failed
K	39	1	nogas	10.749	83.8	5105583	0.4	100	
Ti	47	1	nogas	0.092	72.3	333	17.1	2.5	
V	51	1	nogas	-39.277	-7.6	712722	4.9	2.5	
Cr	52	1	nogas	-0.549	-11.8	24800	1.8	2.5	
Mn	55	1	nogas	0.267	1.5	17849	1.7	2.5	
Co	59	1	nogas	0.070	15.1	1253	11.8	2.5	
Ni	60	1	nogas	-0.122	-70.8	1583	15.5	2.5	
Cu	63	1	nogas	-0.032	-66.4	3704	3.4	2.5	
Zn	66	1	nogas	0.201	18.1	1690	4.7	2.5	
As	75	1	nogas	-18.079	-11.9	145617	2.8	2.5	
Sr	88	1	nogas	0.306	11.7	5924	8.5	2.5	
Ag	107	1	nogas	0.070	40.1	1097	25.5	2.5	
Cd	111	1	nogas	0.076	59.6	170	51.3	1	
Sb	121	1	nogas	0.407	26.2	5581	17.7	2.5	
Tl	205	1	nogas	0.281	32.0	4974	30.9	1	
Pb	208	1	nogas	0.377	7.9	8836	7.4	2.5	
U	238	1	nogas	0.078	29.9	1860	29.5	2.5	
[Pb]	206	1	nogas	0.385	7.3	2330	7.1	2.5	
[Pb]	207	1	nogas	0.338	4.0	1853	3.8	2.5	
Na	23	2	He	54.156	3.4	62212	1.0	100	
Mg	24	2	He	15.862	16.5	2204	14.1	100	
Al	27	2	He	10.096	11.1	397	7.7	5	CCB Main CR1 Failed
K	39	2	He	-22.540	-41.9	13068	4.1	100	
Ca	43	2	He	-1.173	-8815.5	17	124.9	100	
Ca	44	2	He	84.484	19.5	397	13.9	100	
V	51	2	He	0.522	5.0	500	6.3	2.5	
Cr	52	2	He	0.294	33.6	1763	10.0	2.5	
Mn	55	2	He	0.266	43.3	407	18.8	2.5	
Fe	56	2	He	10.046	4.7	30202	2.3	100	
Co	59	2	He	0.044	32.3	173	23.3	2.5	
Ni	60	2	He	0.718	9.7	287	19.2	2.5	
Cu	63	2	He	0.786	4.1	700	10.8	2.5	
Zn	66	2	He	0.594	25.3	120	44.1	2.5	
As	75	2	He	0.019	215.5	36	28.6	2.5	
Se	78	2	He	2.113	31.8	11	60.3	2.5	
B	11	1	nogas	10.223	32.8	75795	6.2	10	CCB Main CR1 Failed
Si	28	1	nogas	28.656	63.9	965408	9.0	5	CCB Main CR1 Failed
Ca	43	1	nogas	74.263	18.3	2007	11.7	100	
Ca	44	1	nogas	35.952	10.6	80469	1.8	100	
Fe	56	1	nogas	2.439	163.4	1137041	6.2	100	
Se	77	1	nogas	-110.154	-11.9	47121	3.9	2.5	
Se	82	1	nogas	0.731	28.5	560	6.2	2.5	
Mo	95	1	nogas	0.177	44.0	717	36.8	2.5	
Sn	118	1	nogas	0.019	89.4	1773	3.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.162	31.3	897	14.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.271	27.9	537	14.1	2.5	
P	31	1	nogas	-3.134	-65.1	64079	2.0	10	
La	139	1	nogas	110.300	7.4	270	6.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-553.991	-161.4	17	69.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	355621	1.70	346112	102.75	70	125	
Ge	72	1	nogas	1487290	1.32	1489137	99.88	70	125	
In	115	1	nogas	1548943	2.12	1515181	102.23	70	125	
Bi	209	1	nogas	1425003	0.42	1423983	100.07	70	125	
Ge	72	2	He	120441	0.62	120710	99.78	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	189_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T18:13:55-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	100.777	1.047	259666	0.90	100	100.8	90	110	
Na	23	1	nogas	9833.885	4.301	120014224	2.82	10000	98.3	90	110	
Mg	24	1	nogas	9743.558	1.404	82033216	1.81	10000	97.4	90	110	
Al	27	1	nogas	155.025	14.460	1430881	12.94	100	155.0	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	10474.556	2.318	96882615	1.07	10000	104.7	90	110	
Ti	47	1	nogas	101.818	1.271	91557	2.01	100	101.8	90	110	
V	51	1	nogas	66.033	2.252	2159983	0.63	100	66.0	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	99.865	4.208	1218716	2.70	100	99.9	90	110	
Mn	55	1	nogas	104.859	2.332	1603251	2.19	100	104.9	90	110	
Co	59	1	nogas	103.036	3.028	1306471	2.19	100	103.0	90	110	
Ni	60	1	nogas	102.595	3.080	290981	1.72	100	102.6	90	110	
Cu	63	1	nogas	100.508	2.207	719979	1.13	100	100.5	90	110	
Zn	66	1	nogas	103.780	1.017	241058	1.72	100	103.8	90	110	
As	75	1	nogas	72.562	1.357	395470	2.10	100	72.6	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	102.048	2.782	1610704	1.99	100	102.0	90	110	
Ag	107	1	nogas	94.605	2.939	907910	2.02	100	94.6	90	110	
Cd	111	1	nogas	99.941	2.886	192922	1.02	100	99.9	90	110	
Sb	121	1	nogas	99.065	1.500	860306	0.67	100	99.1	90	110	
Tl	205	1	nogas	97.794	6.423	1555126	3.07	100	97.8	90	110	
Pb	208	1	nogas	97.232	0.247	2149216	0.25	100	97.2	90	110	
U	238	1	nogas	104.670	4.334	2298107	1.48	100	104.7	90	110	
[Pb]	206	1	nogas	97.950	4.909	527533	1.35	100	98.0	90	110	
[Pb]	207	1	nogas	97.183	4.679	479371	1.26	100	97.2	90	110	
Na	23	2	He	9741.235	4.634	2266177	1.59	10000	97.4	90	110	
Mg	24	2	He	9565.015	5.078	1048836	3.45	10000	95.7	90	110	
Al	27	2	He	134.770	6.661	3740	3.79	100	134.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	9929.162	2.326	575687	2.27	10000	99.3	90	110	
Ca	43	2	He	8840.202	13.344	1743	15.83	10000	88.4	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9739.539	4.244	32275	2.07	10000	97.4	90	110	
V	51	2	He	97.670	2.879	121571	0.50	100	97.7	90	110	
Cr	52	2	He	100.154	2.453	163605	2.83	100	100.2	90	110	
Mn	55	2	He	96.569	1.422	62346	2.47	100	96.6	90	110	
Fe	56	2	He	10022.421	1.075	12917991	1.96	10000	100.2	90	110	
Co	59	2	He	100.138	2.234	276936	2.37	100	100.1	90	110	
Ni	60	2	He	100.898	2.408	78296	3.30	100	100.9	90	110	
Cu	63	2	He	102.152	2.542	219220	1.08	100	102.2	90	110	
Zn	66	2	He	98.542	0.553	32823	3.16	100	98.5	90	110	
As	75	2	He	98.167	1.153	23412	1.99	100	98.2	90	110	
Se	78	2	He	98.444	3.274	905	4.64	100	98.4	90	110	
B	11	1	nogas	517.117	3.503	886588	3.59	500	103.4	90	110	
Si	28	1	nogas	5294.848	4.605	23869676	3.07	5000	105.9	90	110	
Ca	43	1	nogas	10059.535	2.546	181077	1.43	10000	100.6	90	110	
Ca	44	1	nogas	10004.261	1.732	2950771	0.80	10000	100.0	90	110	
Fe	56	1	nogas	10534.886	1.218	148809645	0.26	10000	105.3	90	110	
Se	77	1	nogas	-45.400	-16.481	58247	3.69	100	-45.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	104.358	1.842	14179	1.66	100	104.4	90	110	
Mo	95	1	nogas	103.815	1.532	342353	1.36	100	103.8	90	110	
Sn	118	1	nogas	101.982	0.278	532219	1.91	100	102.0	90	110	
Ba	137	1	nogas	99.726	2.571	254212	0.97	100	99.7	90	110	
Sb	121	2	He	101.432	4.885	96400	2.00	100	101.4	90	110	
Li	7	1	nogas	104.008	1.491	698023	2.83	100	104.0	90	110	
P	31	1	nogas	511.826	2.269	394599	0.49	500	102.4	90	110	
La	139	1	nogas	696.919	37.609	1367	33.87	100	696.9	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-1285.269	-37.395	7	86.60	100	-1285.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	324053	1.47	346112	93.63	70	125	
Ge	72	1	nogas	1477897	1.44	1489137	99.25	70	125	
In	115	1	nogas	1520485	2.18	1515181	100.35	70	125	
Bi	209	1	nogas	1348172	3.69	1423983	94.68	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	116061	2.97	120710	96.15	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	190_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T18:15:53-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.073	20.5	320	12.5	1	
Na	23	1	nogas	7.674	40.6	1945204	1.9	100	
Mg	24	1	nogas	9.265	14.5	95564	13.3	100	
Al	27	1	nogas	5.225	11.8	68574	11.4	5	CCB Main CR1 Failed
K	39	1	nogas	-7.768	-253.2	5021162	0.7	100	
Ti	47	1	nogas	0.046	92.0	297	13.6	2.5	
V	51	1	nogas	-29.838	-1.2	857848	2.6	2.5	
Cr	52	1	nogas	-0.642	-5.2	24083	1.3	2.5	
Mn	55	1	nogas	-0.023	-103.3	13635	0.4	2.5	
Co	59	1	nogas	0.083	36.2	1433	26.7	2.5	
Ni	60	1	nogas	-0.187	-47.8	1420	15.9	2.5	
Cu	63	1	nogas	-0.117	-43.0	3147	10.8	2.5	
Zn	66	1	nogas	-0.001	-8926.8	1240	9.2	2.5	
As	75	1	nogas	-15.237	-7.4	156079	2.2	2.5	
Sr	88	1	nogas	0.112	11.2	2897	5.0	2.5	
Ag	107	1	nogas	0.070	20.4	1113	9.9	2.5	
Cd	111	1	nogas	0.070	12.4	163	9.4	1	
Sb	121	1	nogas	0.435	32.4	5901	19.2	2.5	
Tl	205	1	nogas	0.294	36.1	5154	37.1	1	
Pb	208	1	nogas	0.181	19.8	4504	17.6	2.5	
U	238	1	nogas	0.080	34.5	1903	35.9	2.5	
[Pb]	206	1	nogas	0.177	22.9	1137	21.7	2.5	
[Pb]	207	1	nogas	0.179	15.7	1017	18.1	2.5	
Na	23	2	He	25.825	23.4	54706	1.6	100	
Mg	24	2	He	7.539	25.7	1237	17.4	100	
Al	27	2	He	4.019	44.8	223	22.1	5	
K	39	2	He	-23.306	-30.6	13025	3.1	100	
Ca	43	2	He	-83.908	0.0	0	#DIV/0!	100	
Ca	44	2	He	21.009	40.6	177	17.3	100	
V	51	2	He	0.575	2.3	561	3.9	2.5	
Cr	52	2	He	0.187	32.2	1560	5.6	2.5	
Mn	55	2	He	0.068	108.1	270	17.0	2.5	
Fe	56	2	He	22.977	3.5	46793	1.3	100	
Co	59	2	He	0.051	61.1	190	45.6	2.5	
Ni	60	2	He	0.734	19.5	297	39.5	2.5	
Cu	63	2	He	0.734	3.4	573	8.8	2.5	
Zn	66	2	He	0.677	14.6	147	23.9	2.5	
As	75	2	He	0.035	19.7	39	4.9	2.5	
Se	78	2	He	1.634	21.9	6	57.7	2.5	
B	11	1	nogas	6.636	41.4	70956	6.5	10	
Si	28	1	nogas	24.658	136.6	961263	13.6	5	CCB Main CR1 Failed
Ca	43	1	nogas	15.370	54.4	963	19.0	100	
Ca	44	1	nogas	-45.075	-13.0	57903	2.2	100	
Fe	56	1	nogas	-1.143	-888.4	1102310	11.7	100	
Se	77	1	nogas	-89.276	-11.1	51677	4.5	2.5	
Se	82	1	nogas	-0.195	-237.7	443	11.4	2.5	
Mo	95	1	nogas	0.155	43.6	650	33.1	2.5	
Sn	118	1	nogas	0.035	68.8	1920	8.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.060	86.4	650	18.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.273	44.6	530	21.4	2.5	
P	31	1	nogas	0.670	351.4	67645	3.7	10	
La	139	1	nogas	108.717	39.4	273	27.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-809.125	-51.0	13	43.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	363111	1.10	346112	104.91	70	125	
Ge	72	1	nogas	1511920	2.92	1489137	101.53	70	125	
In	115	1	nogas	1597229	3.40	1515181	105.42	70	125	
Bi	209	1	nogas	1410916	5.31	1423983	99.08	70	125	
Ge	72	2	He	118717	0.93	120710	98.35	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	199_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T18:33:57-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	100.828	2.158	266448	1.77	100	100.8	90	110	
Na	23	1	nogas	9780.472	1.335	121046961	1.62	10000	97.8	90	110	
Mg	24	1	nogas	9872.506	1.277	84249991	1.30	10000	98.7	90	110	
Al	27	1	nogas	110.901	1.855	1066417	2.48	100	110.9	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9856.339	1.768	94670771	1.99	10000	98.6	90	110	
Ti	47	1	nogas	98.047	2.629	91231	0.71	100	98.0	90	110	
V	51	1	nogas	68.751	6.714	2273810	1.45	100	68.8	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	99.167	6.061	1252004	2.98	100	99.2	90	110	
Mn	55	1	nogas	101.757	3.487	1610015	0.44	100	101.8	90	110	
Co	59	1	nogas	101.801	5.204	1335344	3.02	100	101.8	90	110	
Ni	60	1	nogas	99.845	3.834	293062	0.96	100	99.8	90	110	
Cu	63	1	nogas	97.169	3.790	720279	0.74	100	97.2	90	110	
Zn	66	1	nogas	99.052	0.824	238276	3.92	100	99.1	90	110	
As	75	1	nogas	74.420	2.471	414615	2.40	100	74.4	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	100.281	4.512	1637599	2.54	100	100.3	90	110	
Ag	107	1	nogas	93.255	5.623	925713	3.23	100	93.3	90	110	
Cd	111	1	nogas	97.389	0.907	194206	1.57	100	97.4	90	110	
Sb	121	1	nogas	95.641	3.027	859480	0.57	100	95.6	90	110	
Tl	205	1	nogas	98.846	0.967	1588230	1.28	100	98.8	90	110	
Pb	208	1	nogas	96.741	1.098	2138357	1.10	100	96.7	90	110	
U	238	1	nogas	101.346	2.149	2246957	1.83	100	101.3	90	110	
[Pb]	206	1	nogas	96.381	1.513	524304	1.60	100	96.4	90	110	
[Pb]	207	1	nogas	95.485	1.743	475708	1.85	100	95.5	90	110	
Na	23	2	He	9755.754	3.342	2276196	0.78	10000	97.6	90	110	
Mg	24	2	He	9398.891	3.173	1033611	1.64	10000	94.0	90	110	
Al	27	2	He	121.427	8.434	3390	6.57	100	121.4	90	110	CCV Main CR1-2 Failed
K	39	2	He	9475.775	0.747	550055	0.73	10000	94.8	90	110	
Ca	43	2	He	10030.068	3.414	1977	5.19	10000	100.3	90	110	
Ca	44	2	He	9445.834	3.117	31404	3.14	10000	94.5	90	110	
V	51	2	He	97.169	3.903	121253	1.58	100	97.2	90	110	
Cr	52	2	He	98.073	0.324	160682	2.40	100	98.1	90	110	
Mn	55	2	He	93.378	4.774	60436	4.10	100	93.4	90	110	
Fe	56	2	He	9638.156	3.737	12452526	2.44	10000	96.4	90	110	
Co	59	2	He	99.232	2.192	275129	0.98	100	99.2	90	110	
Ni	60	2	He	100.394	1.363	78104	1.74	100	100.4	90	110	
Cu	63	2	He	101.001	3.691	217300	2.33	100	101.0	90	110	
Zn	66	2	He	98.239	2.615	32793	1.12	100	98.2	90	110	
As	75	2	He	96.744	1.779	23133	1.51	100	96.7	90	110	
Se	78	2	He	92.857	6.849	856	9.54	100	92.9	90	110	
B	11	1	nogas	518.973	7.164	912097	6.19	500	103.8	90	110	
Si	28	1	nogas	5095.283	4.226	23801408	1.08	5000	101.9	90	110	
Ca	43	1	nogas	9983.078	0.888	186065	2.96	10000	99.8	90	110	
Ca	44	1	nogas	9862.825	2.114	3011688	1.12	10000	98.6	90	110	
Fe	56	1	nogas	9960.821	3.919	145616962	0.84	10000	99.6	90	110	
Se	77	1	nogas	-22.531	-51.314	64485	6.00	100	-22.5	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	98.119	7.527	13812	4.86	100	98.1	90	110	
Mo	95	1	nogas	100.518	3.086	342971	0.48	100	100.5	90	110	
Sn	118	1	nogas	97.105	1.328	523349	0.79	100	97.1	90	110	
Ba	137	1	nogas	96.245	3.442	253391	2.60	100	96.2	90	110	
Sb	121	2	He	101.221	4.627	96482	3.00	100	101.2	90	110	
Li	7	1	nogas	105.277	0.484	724161	1.11	100	105.3	90	110	
P	31	1	nogas	485.618	2.954	390933	0.64	500	97.1	90	110	
La	139	1	nogas	258.605	6.141	563	7.39	100	258.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-1571.311	-29.642	3	173.21	100	-1571.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	332364	1.57	346112	96.03	70	125	
Ge	72	1	nogas	1529944	3.10	1489137	102.74	70	125	
In	115	1	nogas	1570211	2.05	1515181	103.63	70	125	
Bi	209	1	nogas	1360095	0.35	1423983	95.51	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	116365	2.56	120710	96.40	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	200_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T18:35:56-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.086	34.1	343	22.6	1	
Na	23	1	nogas	-1.512	-160.5	1829888	0.6	100	
Mg	24	1	nogas	9.200	14.3	95059	14.0	100	
Al	27	1	nogas	1.984	15.8	38032	7.5	5	
K	39	1	nogas	-13.298	-37.2	4949951	0.8	100	
Ti	47	1	nogas	0.048	19.9	297	1.9	2.5	
V	51	1	nogas	-14.218	-41.3	1073246	8.4	2.5	
Cr	52	1	nogas	-0.532	-9.7	25304	3.4	2.5	
Mn	55	1	nogas	-0.039	-64.6	13328	2.4	2.5	
Co	59	1	nogas	0.061	28.2	1150	18.4	2.5	
Ni	60	1	nogas	-0.143	-34.5	1540	8.8	2.5	
Cu	63	1	nogas	-0.136	-14.4	2990	3.9	2.5	
Zn	66	1	nogas	-0.065	-57.1	1083	7.5	2.5	
As	75	1	nogas	-8.958	-25.4	173043	4.3	2.5	
Sr	88	1	nogas	0.083	16.8	2420	9.3	2.5	
Ag	107	1	nogas	0.065	30.3	1063	17.1	2.5	
Cd	111	1	nogas	0.071	20.6	163	17.7	1	
Sb	121	1	nogas	0.371	19.0	5321	11.3	2.5	
Tl	205	1	nogas	0.261	37.1	4621	36.5	1	
Pb	208	1	nogas	0.165	18.4	4167	16.2	2.5	
U	238	1	nogas	0.081	21.4	1930	22.0	2.5	
[Pb]	206	1	nogas	0.163	21.7	1063	19.5	2.5	
[Pb]	207	1	nogas	0.162	39.1	933	36.6	2.5	
Na	23	2	He	11.903	42.1	50748	2.7	100	
Mg	24	2	He	8.689	2.4	1347	1.5	100	
Al	27	2	He	2.540	63.5	180	24.2	5	
K	39	2	He	-35.225	-19.1	12351	3.1	100	
Ca	43	2	He	-32.771	-156.3	10	100.0	100	
Ca	44	2	He	19.834	105.3	170	40.8	100	
V	51	2	He	0.703	3.4	714	5.0	2.5	
Cr	52	2	He	0.264	42.5	1663	10.9	2.5	
Mn	55	2	He	-0.019	-412.8	210	23.8	2.5	
Fe	56	2	He	6.944	7.1	25324	3.0	100	
Co	59	2	He	0.076	57.8	257	48.1	2.5	
Ni	60	2	He	0.778	7.3	327	14.5	2.5	
Cu	63	2	He	0.733	4.0	563	10.7	2.5	
Zn	66	2	He	0.643	27.4	133	45.2	2.5	
As	75	2	He	0.032	169.9	38	35.7	2.5	
Se	78	2	He	1.787	6.7	7	15.7	2.5	
B	11	1	nogas	5.231	45.4	66088	5.3	10	
Si	28	1	nogas	-0.579	-535.8	846597	0.8	5	
Ca	43	1	nogas	12.735	87.7	907	21.8	100	
Ca	44	1	nogas	-49.028	-2.3	56479	0.9	100	
Fe	56	1	nogas	-18.383	-10.0	852274	2.4	100	
Se	77	1	nogas	-56.415	-12.1	57307	2.6	2.5	
Se	82	1	nogas	0.136	272.0	487	10.5	2.5	
Mo	95	1	nogas	0.157	29.5	657	23.3	2.5	
Sn	118	1	nogas	0.005	487.3	1730	5.7	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.054	71.9	627	16.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.138	72.7	393	23.6	2.5	
P	31	1	nogas	-3.997	-40.2	64259	2.5	10	
La	139	1	nogas	63.557	15.1	183	12.6	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-1064.661	-126.2	10	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	350802	1.21	346112	101.36	70	125	
Ge	72	1	nogas	1504389	1.04	1489137	101.02	70	125	
In	115	1	nogas	1575126	2.66	1515181	103.96	70	125	
Bi	209	1	nogas	1417988	1.27	1423983	99.58	70	125	
Ge	72	2	He	117049	0.78	120710	96.97	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	201LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T18:37:57-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	5.018	3.343	14109	4.01	5	100.4	70	130	
Na	23	1	nogas	518.484	5.763	8105724	1.74	500	103.7	70	130	
Mg	24	1	nogas	542.886	3.532	4639543	0.97	500	108.6	70	130	
Al	27	1	nogas	15.391	37.178	153549	32.05	5	307.8	70	130	LLICV Main CR1 Failed
K	39	1	nogas	593.988	6.417	9816414	0.83	500	118.8	70	130	
Ti	47	1	nogas	6.985	17.720	6294	19.53	5	139.7	70	130	LLICV Main CR1 Failed
V	51	1	nogas	2.456	103.421	1236872	2.84	5	49.1	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	5.194	7.799	89517	2.72	5	103.9	70	130	
Mn	55	1	nogas	5.548	4.017	94181	1.28	5	111.0	70	130	
Co	59	1	nogas	5.736	4.353	70376	2.57	5	114.7	70	130	
Ni	60	1	nogas	5.723	4.142	17382	1.81	5	114.5	70	130	
Cu	63	1	nogas	5.561	3.620	41935	2.24	5	111.2	70	130	
Zn	66	1	nogas	5.978	1.083	14483	1.55	5	119.6	70	130	
As	75	1	nogas	6.717	58.160	205458	3.84	5	134.3	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	5.580	2.892	85822	0.37	5	111.6	70	130	
Ag	107	1	nogas	5.382	1.975	50152	0.61	5	107.6	70	130	
Cd	111	1	nogas	5.320	2.160	10427	2.62	5	106.4	70	130	
Sb	121	1	nogas	5.660	2.898	49176	0.28	5	113.2	70	130	
Tl	205	1	nogas	4.916	2.701	83320	1.65	5	98.3	70	130	
Pb	208	1	nogas	5.441	2.098	120741	2.09	5	108.8	70	130	
U	238	1	nogas	5.040	5.112	117537	0.90	5	100.8	70	130	
[Pb]	206	1	nogas	5.175	2.339	29751	2.10	5	103.5	70	130	
[Pb]	207	1	nogas	5.030	4.117	26449	3.34	5	100.6	70	130	
Na	23	2	He	544.066	3.872	170413	0.94	500	108.8	70	130	
Mg	24	2	He	520.847	3.655	57103	1.75	500	104.2	70	130	
Al	27	2	He	12.132	26.006	433	17.93	5	242.6	70	130	LLICV Main CR1 Failed
K	39	2	He	483.198	2.597	41660	1.70	500	96.6	70	130	
Ca	43	2	He	466.417	10.076	107	10.83	500	93.3	70	130	
Ca	44	2	He	519.035	0.706	1807	2.62	500	103.8	70	130	
V	51	2	He	5.849	3.974	7075	2.81	5	117.0	70	130	
Cr	52	2	He	5.336	4.660	9809	4.65	5	106.7	70	130	
Mn	55	2	He	4.857	7.143	3320	4.93	5	97.1	70	130	
Fe	56	2	He	511.503	3.021	670007	1.65	500	102.3	70	130	
Co	59	2	He	5.632	5.125	15507	3.11	5	112.6	70	130	
Ni	60	2	He	6.471	3.476	4724	2.76	5	129.4	70	130	
Cu	63	2	He	6.073	4.525	12001	6.30	5	121.5	70	130	
Zn	66	2	He	5.952	6.605	1890	5.05	5	119.0	70	130	
As	75	2	He	5.026	0.569	1219	2.28	5	100.5	70	130	
Se	78	2	He	7.152	14.086	57	15.91	5	143.0	70	130	LLICV Main CR1 Failed
B	11	1	nogas	22.076	5.369	95599	2.89	25	88.3	70	130	
Si	28	1	nogas	346.787	2.130	2258967	3.89	25	1387.1	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	600.777	3.352	11020	2.26	500	120.2	70	130	
Ca	44	1	nogas	531.294	6.705	214379	2.15	500	106.3	70	130	
Fe	56	1	nogas	561.064	3.949	8632433	1.42	500	112.2	70	130	
Se	77	1	nogas	8.085	322.435	65137	5.34	5	161.7	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	5.688	31.817	1163	19.34	5	113.8	70	130	
Mo	95	1	nogas	5.677	2.371	18153	1.49	5	113.5	70	130	
Sn	118	1	nogas	5.389	4.099	30053	1.27	5	107.8	70	130	
Ba	137	1	nogas	5.389	4.646	14366	4.40	5	107.8	70	130	
Sb	121	2	He	5.458	8.721	5398	7.16	5	109.2	70	130	
Li	7	1	nogas	5.152	4.750	67692	3.21	5	103.0	70	130	
P	31	1	nogas	31.683	17.358	82872	1.74	25	126.7	70	130	
La	139	1	nogas	55.551	38.008	163	23.18	5	1111.0	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	-1063.843	-71.753	10	100.00	5	-21276.9	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	351038	0.74	346112	101.42	70	125	
Ge	72	1	nogas	1424175	2.55	1489137	95.64	70	125	
In	115	1	nogas	1541065	4.43	1515181	101.71	70	125	
Bi	209	1	nogas	1431861	4.22	1423983	100.55	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	115284	2.19	120710	95.51	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	202SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T18:39:59-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	102CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.867	1.867	13.49	5481	0.03	2000	
Na	23	1	nogas	191.780	191.780	5.17	4175995	0.00	200000	
Mg	24	1	nogas	207.168	207.168	5.70	1798021	0.01	200000	
Al	27	1	nogas	3.392	3.392	2.81	52410	0.01	2000	
K	39	1	nogas	173.227	173.227	5.29	6784482	0.00	200000	
Ti	47	1	nogas	2.027	2.027	5.85	2157	0.09	2000	
V	51	1	nogas	-9.271	-9.271	-45.51	1171453	0.00	2000	
Cr	52	1	nogas	1.375	1.375	2.86	49627	0.00	2000	
Mn	55	1	nogas	1.848	1.848	5.50	43522	0.00	2000	
Co	59	1	nogas	2.063	2.063	4.74	27665	0.01	2000	
Ni	60	1	nogas	1.886	1.886	8.89	7548	0.02	2000	
Cu	63	1	nogas	1.855	1.855	6.13	17882	0.01	2000	
Zn	66	1	nogas	2.261	2.261	7.12	6725	0.03	2000	
As	75	1	nogas	-5.495	-5.495	-24.27	187429	0.00	2000	
Sr	88	1	nogas	2.055	2.055	4.46	34941	0.01	2000	
Ag	107	1	nogas	1.980	1.980	2.65	20265	0.01	2000	
Cd	111	1	nogas	2.061	2.061	5.12	4217	0.05	2000	
Sb	121	1	nogas	1.940	1.940	4.71	19655	0.01	2000	
Tl	205	1	nogas	1.942	1.942	4.87	32887	0.01	2000	
Pb	208	1	nogas	2.158	2.158	2.95	48206	0.00	2000	
U	238	1	nogas	2.010	2.010	2.23	46729	0.00	2000	
[Pb]	206	1	nogas	2.068	2.068	6.71	11901	0.02	2000	
[Pb]	207	1	nogas	2.000	2.000	6.98	10510	0.02	2000	
Na	23	2	He	200.777	200.777	9.62	95937	0.21	200000	
Mg	24	2	He	197.636	197.636	2.34	22697	0.87	200000	
Al	27	2	He	0.725	0.725	200.63	133	0.54	2000	
K	39	2	He	153.159	153.159	0.70	23001	0.67	200000	
Ca	43	2	He	98.525	98.525	55.08	37	268.70	200000	
Ca	44	2	He	235.047	235.047	23.74	903	26.02	200000	
V	51	2	He	2.621	2.621	4.91	3185	0.08	2000	
Cr	52	2	He	2.074	2.074	3.54	4717	0.04	2000	
Mn	55	2	He	2.129	2.129	19.70	1630	0.13	2000	
Fe	56	2	He	188.924	188.924	3.22	266626	0.07	200000	
Co	59	2	He	2.069	2.069	5.90	5924	0.03	2000	
Ni	60	2	He	2.776	2.776	5.45	1933	0.14	2000	
Cu	63	2	He	2.763	2.763	6.88	5071	0.05	2000	
Zn	66	2	He	2.851	2.851	9.31	893	0.32	2000	
As	75	2	He	2.040	2.040	3.32	530	0.38	2000	
Se	78	2	He	3.446	3.446	35.78	23	14.77	2000	
B	11	1	nogas	2.694	2.694	60.75	63778	0.00	2000	

Sample Report

Si	28	1	nogas	126.163	126.163	5.48	1443933	0.01	2000	
Ca	43	1	nogas	221.005	221.005	3.36	4831	4.57	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ca	44	1	nogas	146.942	146.942	6.68	116840	0.13	200000	
Fe	56	1	nogas	176.442	176.442	3.77	3725526	0.00	200000	
Se	77	1	nogas	-49.463	-49.463	-12.31	60043	-0.08	2000	
Se	82	1	nogas	1.357	1.357	15.81	667	0.20	2000	
Mo	95	1	nogas	2.121	2.121	2.53	7432	0.03	2000	
Sn	118	1	nogas	1.962	1.962	3.14	12505	0.02	2000	
Ba	137	1	nogas	2.056	2.056	6.28	6011	0.03	2000	
Sb	121	2	He	1.882	1.882	6.62	2104	0.09	2000	
La	139	1	nogas	60.341	60.341	4.64	180	33.52	2000	
Au	197	1	nogas	462.953	462.953	334.15	30	1543.18	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	363002	2.81	346112	104.88	70	125	
Ge	72	1	nogas	1542643	0.46	1489137	103.59	70	125	
In	115	1	nogas	1604885	3.11	1515181	105.92	70	125	
Bi	209	1	nogas	1425009	3.40	1423983	100.07	70	125	
Ge	72	2	He	119354	2.91	120710	98.88	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	203ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T18:42:00-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	-0.002	-167.6	100	10.0	0	ICSA Main CR1 Failed
Na	23	1	nogas	105060.634	2.2	1198518227	2.0	0	
Mg	24	1	nogas	107877.237	3.9	859906986	3.1	0	
Al	27	1	nogas	105042.285	5.0	933924359	3.5	0	
K	39	1	nogas	107999.296	3.4	929353987	2.4	0	
Ti	47	1	nogas	2183.244	2.2	1910097	0.2	0	
V	51	1	nogas	-26.101	-10.0	868108	2.4	0	ICSA Main CR1 Failed
Cr	52	1	nogas	0.008	2004.3	30499	4.4	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.251	22.8	17055	4.3	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.080	16.1	1330	9.9	0	ICSA Main CR1 Failed
Ni	60	1	nogas	0.523	35.8	3304	14.3	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.561	5.1	7712	2.3	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.788	9.3	5224	9.2	0	ICSA Main CR1 Failed
As	75	1	nogas	-4.841	-47.4	176892	2.0	0	ICSA Main CR1 Failed
Sr	88	1	nogas	0.940	2.6	15504	0.7	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.033	19.1	723	9.0	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.245	5.7	2320	1.7	0	ICSA Main CR1 Failed
Sb	121	1	nogas	-0.053	-34.5	1520	12.0	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.025	9.6	597	5.9	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.210	10.7	5150	9.7	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.221	11.6	1260	9.9	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.216	8.7	1100	7.8	0	ICSA Main CR1 Failed
Na	23	2	He	97918.018	1.4	21911272	0.4	0	
Mg	24	2	He	96148.440	3.1	10329828	1.6	0	
Al	27	2	He	100650.643	3.3	2658710	1.9	0	
K	39	2	He	99148.033	1.8	5619671	1.8	0	
Ca	43	2	He	94675.077	1.9	18092	2.6	0	
Ca	44	2	He	95454.353	1.2	309194	0.4	0	
V	51	2	He	0.589	1.8	555	2.6	0	ICSA Main CR1 Failed
Cr	52	2	He	0.379	48.5	1797	14.9	0	ICSA Main CR1 Failed
Mn	55	2	He	0.297	18.0	403	7.6	0	ICSA Main CR1 Failed
Fe	56	2	He	99412.967	4.4	125372715	3.5	0	
Co	59	2	He	0.010	113.5	70	42.9	0	ICSA Main CR1 Failed
Ni	60	2	He	0.861	5.7	380	9.5	0	ICSA Main CR1 Failed
Cu	63	2	He	1.026	0.3	1167	1.8	0	ICSA Main CR1 Failed
Zn	66	2	He	1.267	8.0	333	10.5	0	ICSA Main CR1 Failed
As	75	2	He	0.076	108.2	47	39.8	0	ICSA Main CR1 Failed
Se	78	2	He	1.958	13.1	9	26.6	0	ICSA Main CR1 Failed
B	11	1	nogas	-5.079	-47.3	47704	5.7	0	ICSA Main CR1 Failed
Si	28	1	nogas	135.525	5.8	1389194	0.4	0	
Ca	43	1	nogas	105909.471	1.0	1854237	1.2	0	
Ca	44	1	nogas	103344.583	2.6	29103279	0.8	0	
Fe	56	1	nogas	100431.474	2.0	1375159897	2.2	0	
Se	77	1	nogas	-34.014	-33.8	58755	2.0	0	ICSA Main CR1 Failed
Se	82	1	nogas	-0.358	-124.5	403	14.9	0	ICSA Main CR1 Failed
Mo	95	1	nogas	2162.425	3.2	6953946	2.1	0	
Sn	118	1	nogas	-0.038	-108.1	1383	11.1	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.071	46.5	620	9.8	0	ICSA Main CR1 Failed
Sb	121	2	He	-0.030	-192.1	227	22.6	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	102427.930	4.2	64268211	2.3	0	
La	139	1	nogas	176.585	12.1	373	8.6	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	348505	4.13	346112	100.69	70	125	
Ge	72	1	nogas	1442079	2.02	1489137	96.84	70	125	
In	115	1	nogas	1457094	4.13	1515181	96.17	70	125	
Bi	209	1	nogas	1285088	0.58	1423983	90.25	70	125	
Ge	72	2	He	113702	1.54	120710	94.19	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	204ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-15T18:44:05-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	102CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	92.087	2.847	235334	0.99	100	92.1	80	120	
Na	23	1	nogas	112868.157	1.603	1311783629	3.38	100	112868.2	80	120	ICSB Main CR1 Failed
Mg	24	1	nogas	114071.620	4.740	925845787	2.67	100	114071.6	80	120	ICSB Main CR1 Failed
Al	27	1	nogas	102359.353	3.250	923739933	1.67	100	102359.4	80	120	ICSB Main CR1 Failed
K	39	1	nogas	113648.333	0.796	992495822	1.99	100	113648.3	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2238.216	4.825	1986283	2.10	100	2238.2	80	120	ICSB Main CR1 Failed
V	51	1	nogas	76.816	7.903	2285140	1.66	100	76.8	80	120	
Cr	52	1	nogas	82.926	4.279	1007158	2.10	100	82.9	80	120	
Mn	55	1	nogas	88.642	4.222	1343523	2.28	100	88.6	80	120	
Co	59	1	nogas	90.527	4.511	1136587	3.99	100	90.5	80	120	
Ni	60	1	nogas	89.024	3.405	250243	1.82	100	89.0	80	120	
Cu	63	1	nogas	86.289	3.259	612682	3.47	100	86.3	80	120	
Zn	66	1	nogas	92.599	1.729	213073	1.12	100	92.6	80	120	
As	75	1	nogas	82.057	3.937	417511	1.85	100	82.1	80	120	
Sr	88	1	nogas	93.811	3.938	1465714	1.23	100	93.8	80	120	
Ag	107	1	nogas	81.200	1.390	771766	1.34	100	81.2	80	120	
Cd	111	1	nogas	90.484	1.539	172769	1.72	100	90.5	80	120	
Sb	121	1	nogas	90.118	2.346	775001	0.64	100	90.1	80	120	
Tl	205	1	nogas	89.083	5.584	1343369	1.12	100	89.1	80	120	
Pb	208	1	nogas	85.265	1.207	1884749	1.21	100	85.3	80	120	
U	238	1	nogas	97.973	4.639	2039555	1.88	100	98.0	80	120	
[Pb]	206	1	nogas	90.484	5.293	462012	0.75	100	90.5	80	120	
[Pb]	207	1	nogas	89.772	4.747	419855	0.55	100	89.8	80	120	
Na	23	2	He	110518.995	0.910	24180678	0.27	100	110519.0	80	120	ICSB Main CR1 Failed
Mg	24	2	He	108452.366	1.665	11396609	0.84	100	108452.4	80	120	ICSB Main CR1 Failed
Al	27	2	He	106385.835	0.680	2748905	0.38	100	106385.8	80	120	ICSB Main CR1 Failed
K	39	2	He	107075.088	1.673	6067826	1.67	100	107075.1	80	120	ICSB Main CR1 Failed
Ca	43	2	He	104649.555	3.011	19551	1.99	100	104649.6	80	120	
Ca	44	2	He	105514.257	3.716	334186	2.87	100	105514.3	80	120	
V	51	2	He	90.083	1.615	107462	1.17	100	90.1	80	120	
Cr	52	2	He	88.926	1.032	139323	0.82	100	88.9	80	120	
Mn	55	2	He	87.912	2.920	54404	3.16	100	87.9	80	120	
Fe	56	2	He	109768.881	1.183	135407971	0.23	100	109768.9	80	120	
Co	59	2	He	91.202	2.778	241663	1.76	100	91.2	80	120	
Ni	60	2	He	89.294	3.661	66344	2.66	100	89.3	80	120	
Cu	63	2	He	88.180	2.179	181220	1.22	100	88.2	80	120	
Zn	66	2	He	88.103	2.807	28102	2.36	100	88.1	80	120	
As	75	2	He	89.163	0.579	20379	1.36	100	89.2	80	120	
Se	78	2	He	88.152	8.560	775	7.67	100	88.2	80	120	
B	11	1	nogas	472.876	5.436	808130	2.48	100	472.9	80	120	
Si	28	1	nogas	4750.002	3.509	21288467	1.48	100	4750.0	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	116755.254	3.536	2073721	1.99	100	116755.3	80	120	
Ca	44	1	nogas	112105.646	3.693	32026415	1.17	100	112105.6	80	120	
Fe	56	1	nogas	109128.001	4.301	1515716567	2.96	100	109128.0	80	120	
Se	77	1	nogas	48.249	33.402	73973	3.89	100	48.2	80	120	
Se	82	1	nogas	96.473	2.962	13015	3.43	100	96.5	80	120	
Mo	95	1	nogas	2262.201	4.135	7380768	1.78	100	2262.2	80	120	
Sn	118	1	nogas	92.173	2.399	475686	0.77	100	92.2	80	120	
Ba	137	1	nogas	88.719	1.387	223716	0.52	100	88.7	80	120	
Sb	121	2	He	92.253	2.374	84086	1.37	100	92.3	80	120	
La	139	1	nogas	410.810	1.782	823	2.53	100	410.8	80	120	ICSB Main CR1 Failed

QC ISTD Table

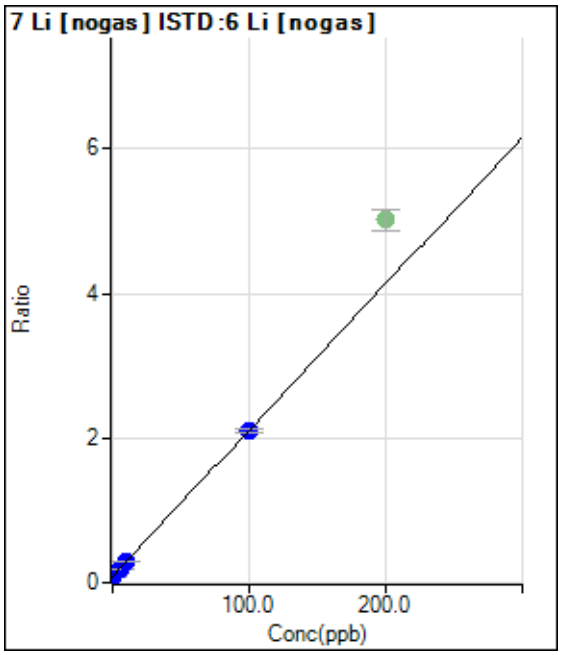
Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	321519	2.75	346112	92.89	70	125	
Ge	72	1	nogas	1463607	2.71	1489137	98.29	70	125	
In	115	1	nogas	1503436	1.62	1515181	99.22	70	125	
Bi	209	1	nogas	1278688	4.68	1423983	89.80	70	125	
Ge	72	2	He	111190	1.03	120710	92.11	70	125	

Calibration for 011_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\121517b.b\
Analysis File: 121517b.batch.bin
DA Date-Time: 2017-12-15 16:18:23
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	004CALB.d	CAL BLK	2017-12-15 12:01:49
2	005CALS.d	2/10/200	2017-12-15 12:03:48
3	006CALS.d	5/25/500	2017-12-15 12:05:47
4	007CALS.d	10/50/1000	2017-12-15 12:07:47
5	008CALS.d	100/500/10K	2017-12-15 12:09:46
6	009CALS.d	200/1000/20K	2017-12-15 12:11:44
7			

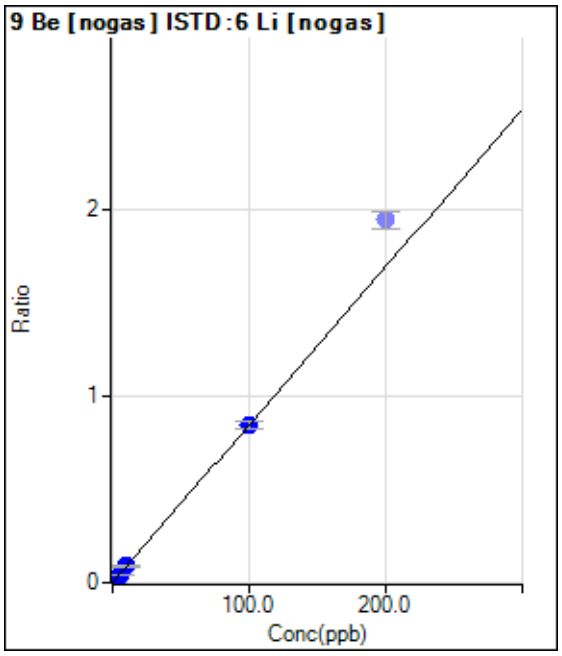
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	31049.30	0.0886	P	4.8
2	☐	2.000	2.005	44101.61	0.1292	P	1.5
3	☐	5.000	4.919	65815.27	0.1882	P	3.0
4	☐	10.000	10.526	102551.25	0.3017	P	1.1
5	☐	100.000	99.951	656863.08	2.1116	P	2.3
6	☑	200.000		1432621.23	5.0180	A	5.7
7	☐	1.000					

y = 0.0202 * x + 0.0886
R = 1.0000
DL = 0.633
BEC = 4.379

Weight: <None>
Min Conc: <None>

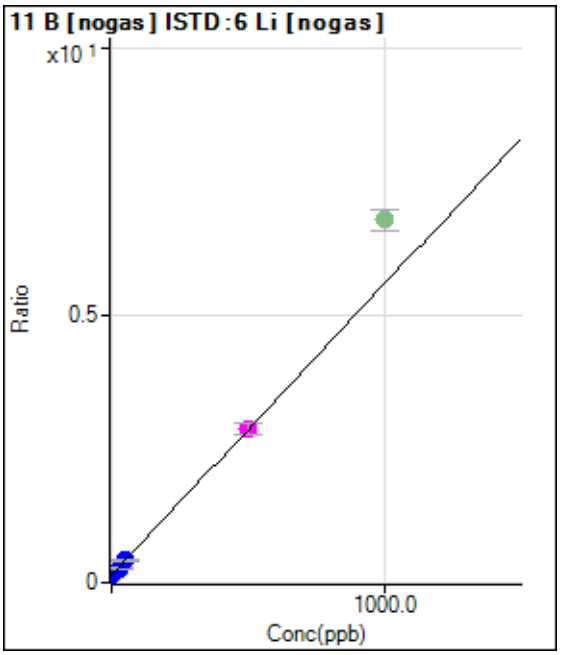


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63.33	0.0002	P	35.0
2	☐	2.000	1.941	5660.95	0.0166	P	9.9
3	☐	5.000	4.929	14629.22	0.0419	P	7.0
4	☐	10.000	10.337	29790.79	0.0877	P	4.6
5	☐	100.000	99.971	263072.74	0.8462	P	5.8
6	☑	200.000		555356.20	1.9452	P	5.1
7	☐	1.000					

y = 0.0085 * x + 1.8173E-004
R = 1.0000
DL = 0.02254
BEC = 0.02148

Weight: <None>
Min Conc: <None>

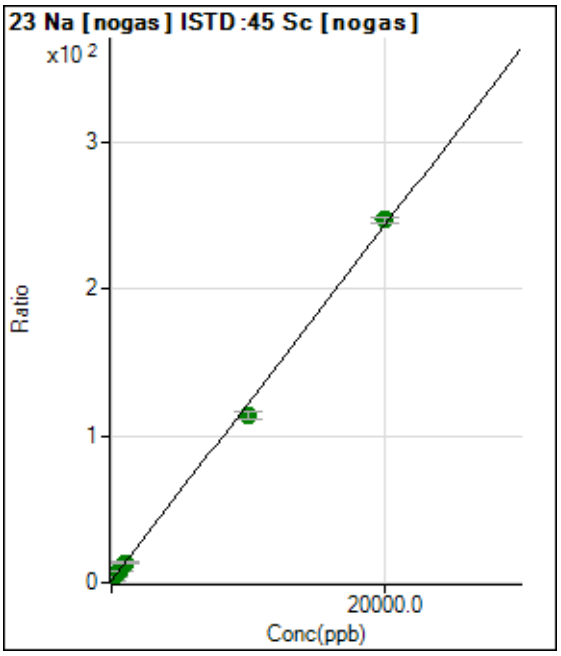
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	50116.46	0.1430	P	3.7
2	☐	10.000	9.140	65804.19	0.1929	P	4.9
3	☐	25.000	22.705	93278.05	0.2670	P	5.3
4	☐	50.000	50.061	141336.04	0.4163	P	5.1
5	☐	500.000	500.126	892927.62	2.8727	M	6.9
6	☑	1000.000		1939368.77	6.7939	A	6.1
7	☐	5.000					

y = 0.0055 * x + 0.1430
R = 1.0000
DL = 2.908
BEC = 26.21

Weight: <None>
Min Conc: <None>

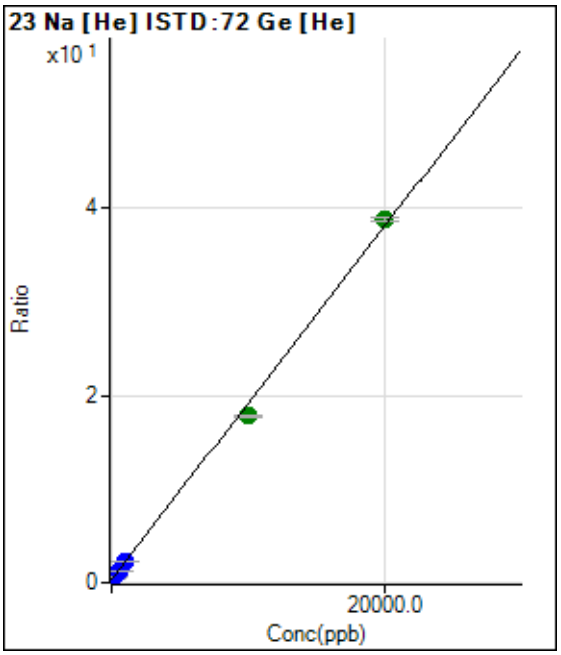


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1499172.66	1.3851	A	1.6
2	☐	200.000	194.944	3949102.43	3.7390	A	1.2
3	☐	500.000	493.366	7678362.93	7.3425	A	3.2
4	☐	1000.000	1018.645	14497808.14	13.6853	A	1.0
5	☐	10000.00	9327.571	115556331.7	114.016	A	5.2
6	☐	20000.00	20335.499	241508830.4	246.938	A	1.9
7	☐	100.000					

y = 0.0121 * x + 1.3851
R = 0.9992
DL = 5.403
BEC = 114.7

Weight: <None>
Min Conc: <None>

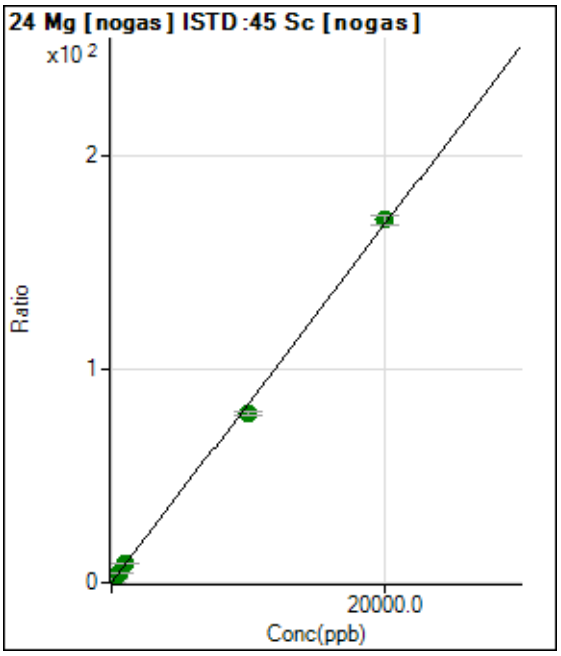
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	43476.63	0.3226	P	1.1
2	☐	200.000	200.250	93501.70	0.7003	P	1.8
3	☐	500.000	504.638	172830.62	1.2743	P	0.9
4	☐	1000.000	1045.283	305220.05	2.2940	P	1.0
5	☐	10000.00	9259.384	2283961.21	17.7862	A	1.5
6	☐	20000.00	20367.925	4826265.97	38.7374	A	1.1
7	☐	100.000					

y = 0.0019 * x + 0.3226
R = 0.9990
DL = 5.601
BEC = 171

Weight: <None>
Min Conc: <None>

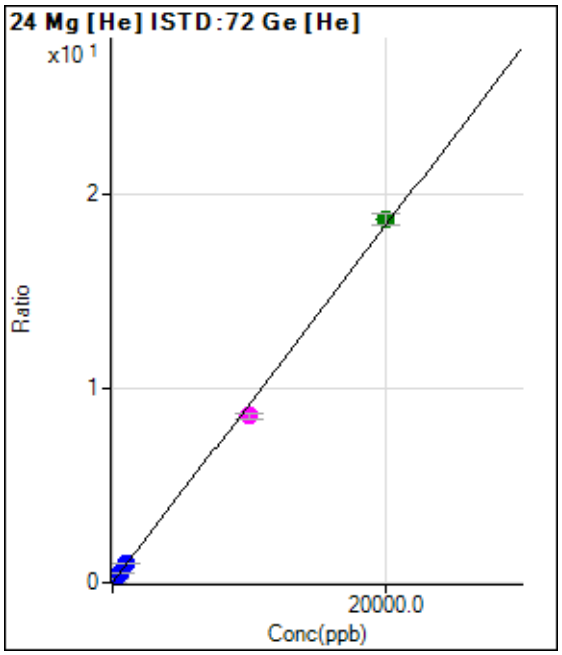


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	11905.99	0.0110	P	8.4
2	☐	200.000	201.975	1800610.07	1.7052	A	5.1
3	☐	500.000	510.678	4491655.57	4.2947	A	2.5
4	☐	1000.000	1049.862	9341588.49	8.8175	A	2.6
5	☐	10000.00	9446.133	80339758.05	79.2477	A	3.0
6	☐	20000.00	20274.154	166320057.8	170.076	A	2.4
7	☐	100.000					

y = 0.0084 * x + 0.0110
R = 0.9994
DL = 0.3324
BEC = 1.312

Weight: <None>
Min Conc: <None>

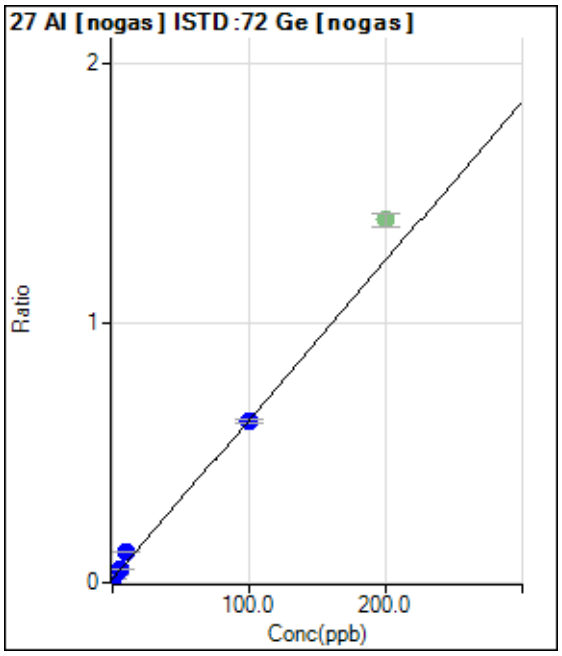
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	293.34	0.0022	P	10.4
2	☐	200.000	208.294	25828.06	0.1934	P	1.9
3	☐	500.000	504.043	63058.50	0.4650	P	1.3
4	☐	1000.000	1051.182	128689.41	0.9674	P	2.5
5	☐	10000.00	9333.193	1100407.56	8.5719	M	4.0
6	☐	20000.00	20330.661	2325490.80	18.6698	A	3.0
7	☐	100.000					

y = 9.1820E-004 * x + 0.0022
R = 0.9992
DL = 0.7419
BEC = 2.371

Weight: <None>
Min Conc: <None>

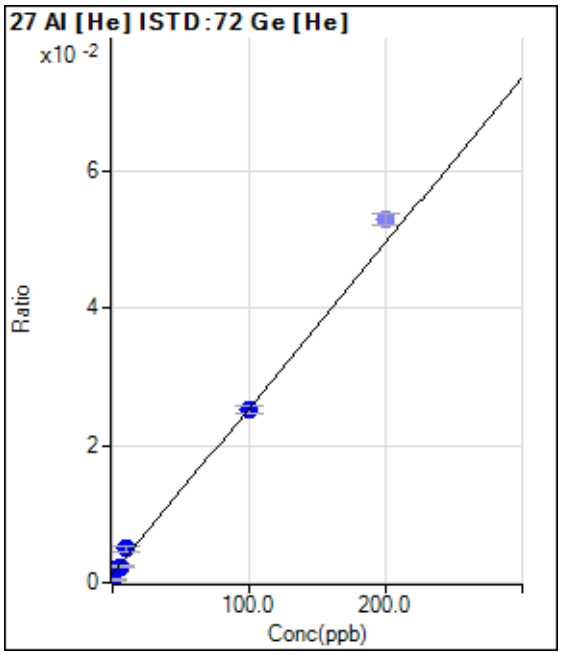


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23151.53	0.0147	P	5.1
2	☐	2.000	2.093	43995.20	0.0275	P	0.9
3	☐	5.000	6.452	85793.23	0.0542	P	2.3
4	☐	10.000	16.873	190348.29	0.1181	P	3.3
5	☐	100.000	99.238	959008.61	0.6233	P	1.6
6	☑	200.000		2114661.06	1.3979	A	3.9
7	☐	1.000					

y = 0.0061 * x + 0.0147
R = 0.9976
DL = 0.3627
BEC = 2.391

Weight: <None>
Min Conc: <None>

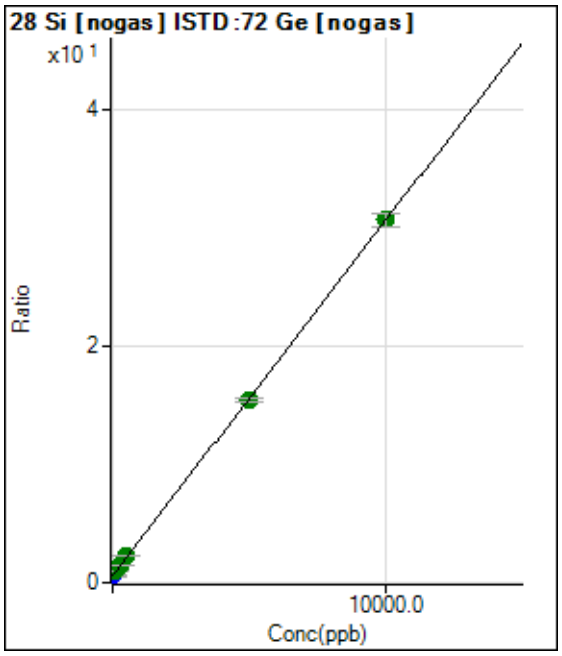
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-3.550	66.67	0.0005	P	30.9
2	☐	2.000	1.967	243.34	0.0018	P	13.4
3	☐	5.000	4.211	320.01	0.0024	P	21.8
4	☐	10.000	14.814	653.36	0.0049	P	17.7
5	☐	100.000	99.559	3253.66	0.0253	P	4.3
6	☑	200.000		6587.93	0.0529	P	3.1
7	☐	1.000					

y = 2.4090E-004 * x + 0.0013
R = 0.9975
DL = 1.901
BEC = 5.603

Weight: <None>
Min Conc: <None>

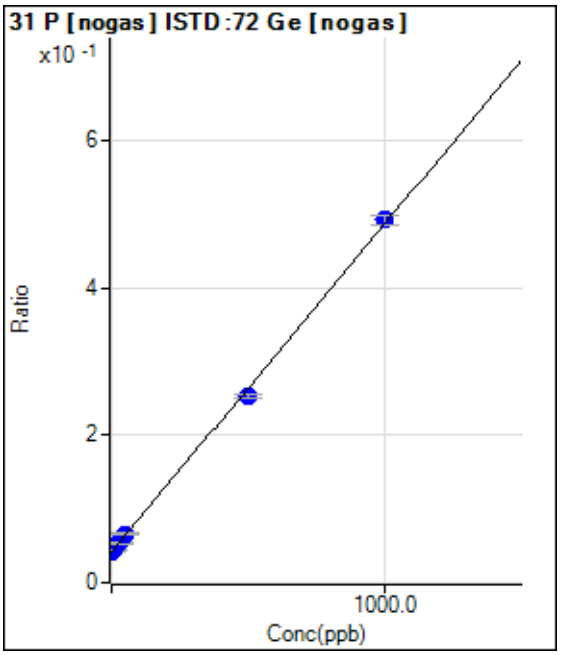


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	902821.55	0.5717	P	2.8
2	☐	100.000	140.173	1587376.33	0.9924	A	2.4
3	☐	250.000	306.930	2361481.58	1.4929	A	0.4
4	☐	500.000	573.596	3694490.98	2.2933	A	3.6
5	☐	5000.000	4947.055	23722272.98	15.4199	A	2.2
6	☐	10000.00	10020.968	46371264.31	30.6489	A	3.5
7	☐	5.000					

y = 0.0030 * x + 0.5717
R = 0.9999
DL = 15.86
BEC = 190.5

Weight: <None>
Min Conc: <None>

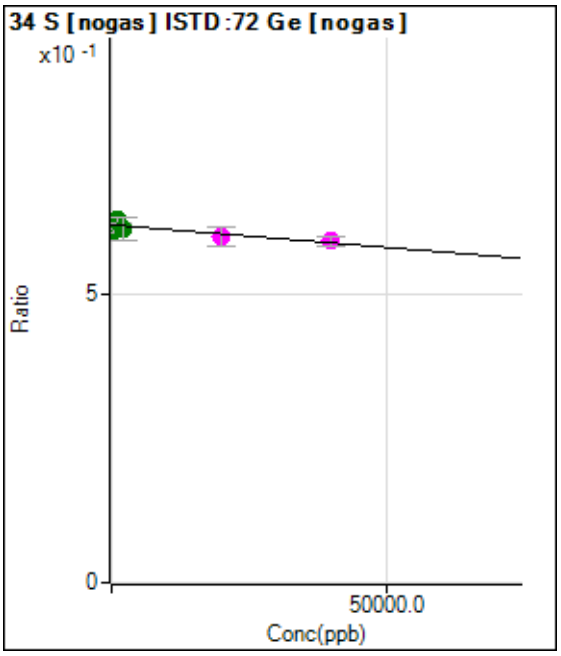
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	66008.54	0.0418	P	2.3
2	☐	10.000	6.310	71328.25	0.0446	P	1.9
3	☐	25.000	26.329	84598.99	0.0535	P	1.7
4	☐	50.000	54.753	106502.36	0.0661	P	4.3
5	☐	500.000	473.757	388255.63	0.2524	P	2.6
6	☐	1000.000	1012.888	744545.77	0.4920	P	2.4
7	☐	5.000					

y = 4.4453E-004 * x + 0.0418
R = 0.9995
DL = 6.622
BEC = 94

Weight: <None>
Min Conc: <None>

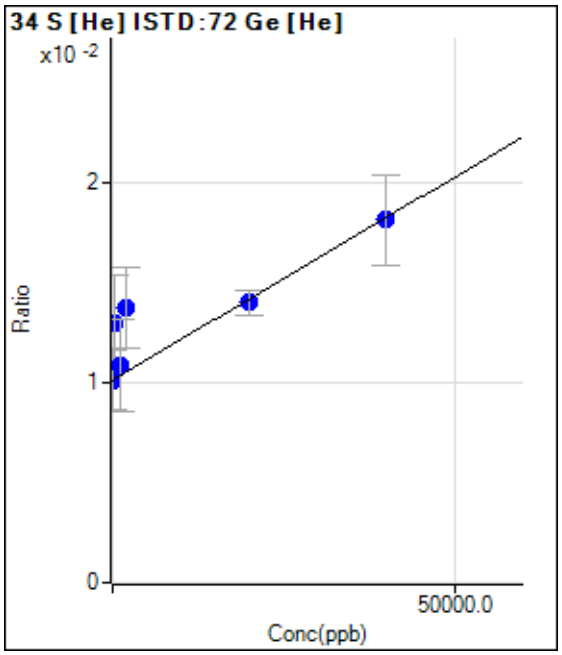


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	981288.17	0.6213	A	2.2
2	☐	400.000	11698.004	979291.75	0.6121	A	1.1
3	☐	1000.000	-10835.85	996139.83	0.6298	A	1.7
4	☐	2000.000	7511.872	990753.80	0.6154	A	6.5
5	☐	20000.00	27515.576	922250.38	0.5997	M	5.6
6	☐	40000.00	36149.535	897829.84	0.5930	M	3.1
7	☐	100.000					

y = -7.8430E-007 * x + 0.6213
R = -0.8762
DL = -5.197E+04
BEC = -7.922E+05

Weight: <None>
Min Conc: <None>

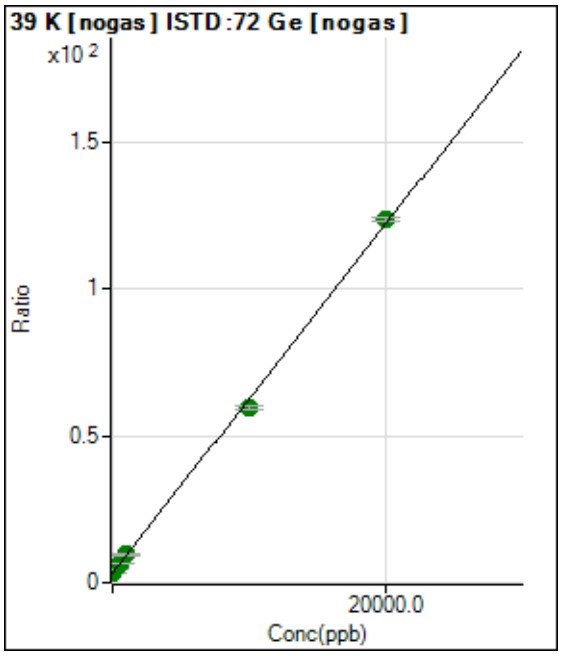
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1367.04	0.0102	P	29.9
2	☐	400.000	14003.373	1733.77	0.0130	P	36.8
3	☐	1000.000	3478.462	1467.06	0.0109	P	42.3
4	☐	2000.000	17645.546	1833.87	0.0137	P	29.3
5	☐	20000.00	19046.811	1800.43	0.0140	P	8.7
6	☐	40000.00	39496.322	2267.29	0.0182	P	24.7
7	☐	100.000					

y = 2.0268E-007 * x + 0.0102
R = 0.8877
DL = 4.5E+04
BEC = 5.009E+04

Weight: <None>
Min Conc: <None>

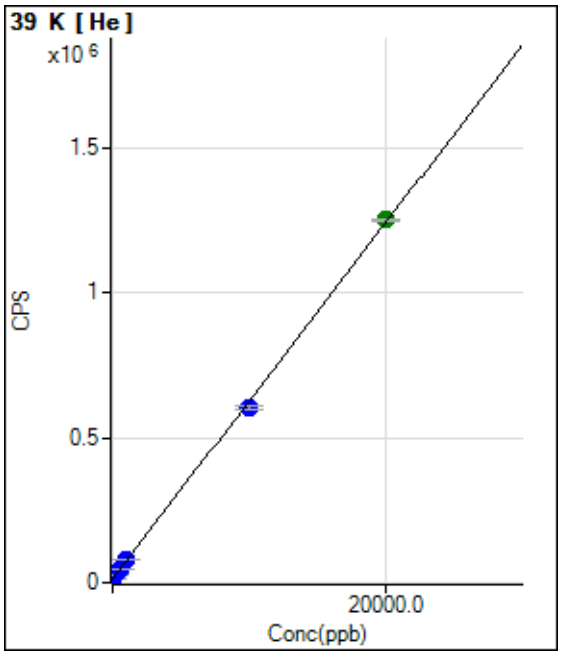


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5172541.65	3.2755	A	2.8
2	☐	200.000	198.478	7123111.88	4.4530	A	1.4
3	☐	500.000	527.341	10128615.07	6.4039	A	2.2
4	☐	1000.000	1048.469	15285555.03	9.4955	A	6.0
5	☐	10000.00	9476.508	91537972.88	59.4941	A	1.5
6	☐	20000.00	20258.654	186852541.6	123.458	A	1.0
7	☐	100.000					

y = 0.0059 * x + 3.2755
R = 0.9995
DL = 46.67
BEC = 552.1

Weight: <None>
Min Conc: <None>

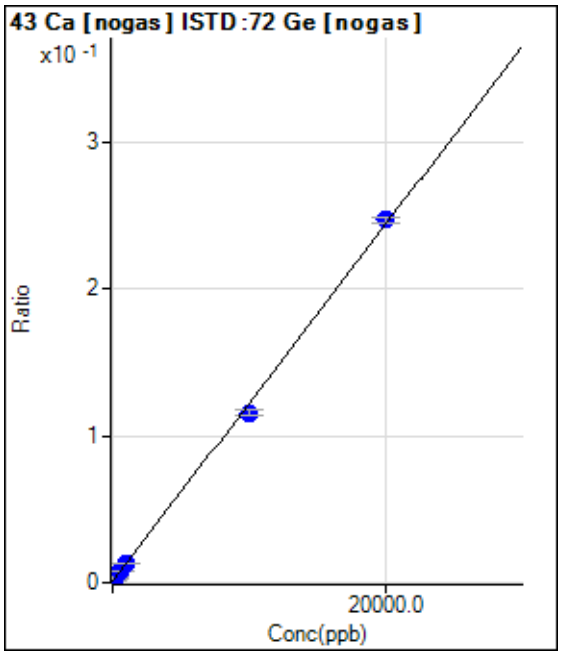
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	12877.97		P	1.1
2	☐	200.000	224.975	26702.63		P	3.1
3	☐	500.000	550.653	46715.50		P	2.8
4	☐	1000.000	1115.145	81403.49		P	1.1
5	☐	10000.00	9627.136	604464.20		P	1.5
6	☐	20000.00	20179.159	1252884.59		A	0.8
7	☐	100.000					

y = 61.4499 * x + 12877.9733
R = 0.9997
DL = 6.921
BEC = 209.6

Weight: <None>
Min Conc: <None>

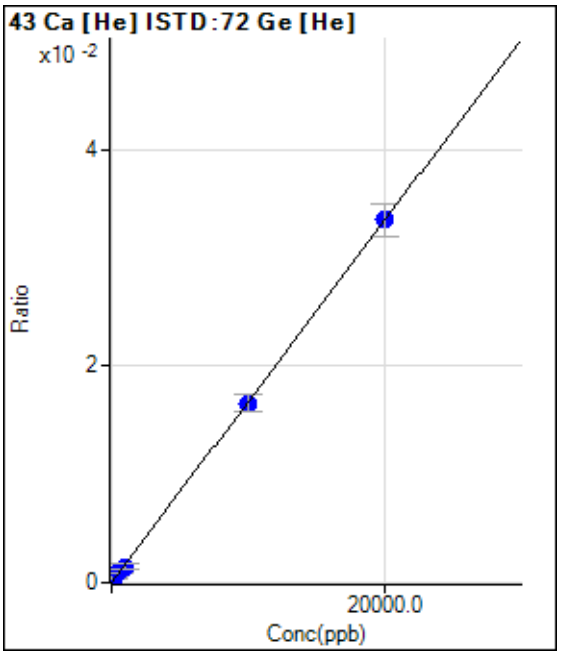


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1250.07	0.0008	P	13.8
2	☐	200.000	200.779	5167.48	0.0032	P	8.2
3	☐	500.000	531.492	11457.09	0.0072	P	0.7
4	☐	1000.000	1044.928	21709.64	0.0135	P	3.7
5	☐	10000.00	9464.623	177975.70	0.1157	P	3.2
6	☐	20000.00	20264.647	373733.48	0.2468	P	1.5
7	☐	100.000					

y = 1.2142E-005 * x + 7.9029E-004
R = 0.9995
DL = 26.86
BEC = 65.09

Weight: <None>
Min Conc: <None>

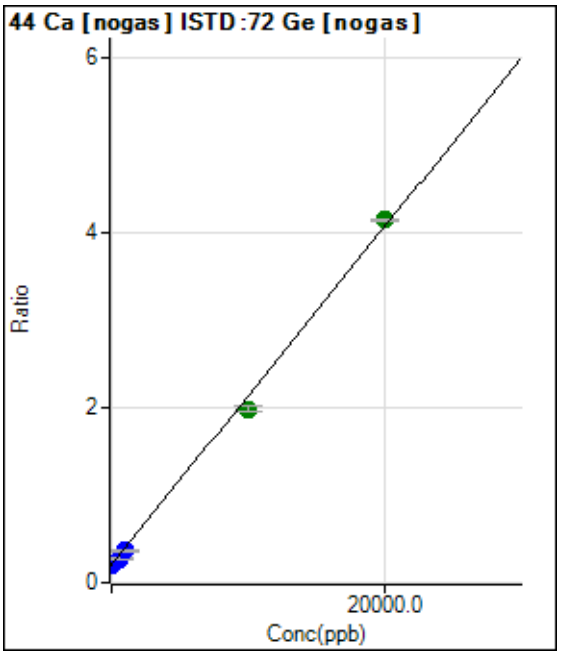
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	0.00	0.0000	P	
2	☐	200.000	240.050	53.33	0.0004	P	58.3
3	☐	500.000	617.607	140.00	0.0010	P	43.7
4	☐	1000.000	883.942	196.67	0.0015	P	32.7
5	☐	10000.00	9929.751	2133.50	0.0166	P	9.2
6	☐	20000.00	20037.587	4177.21	0.0335	P	9.2
7	☐	100.000					

y = 1.6730E-006 * x + 0.0000E+000
R = 0.9999
DL = 0
BEC = 0

Weight: <None>
Min Conc: <None>

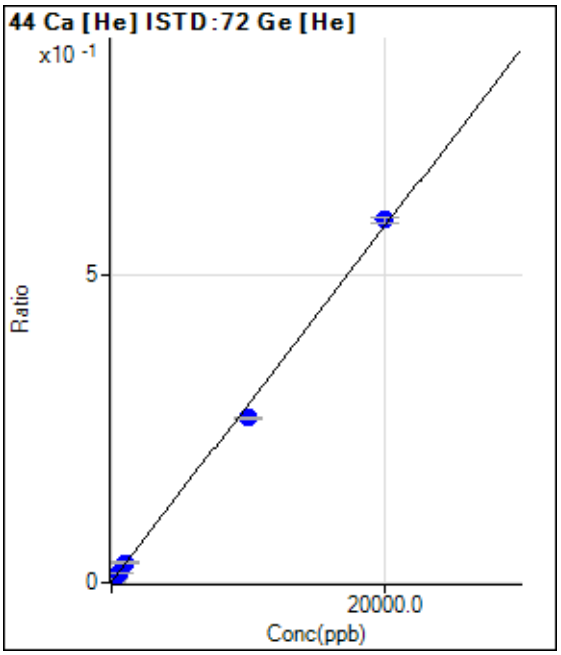


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	322903.76	0.2045	P	2.1
2	☐	200.000	102.740	358757.56	0.2243	P	1.7
3	☐	500.000	360.259	433333.54	0.2740	P	1.2
4	☐	1000.000	844.251	591591.97	0.3674	P	4.9
5	☐	10000.00	9208.801	3048047.77	1.9817	A	3.8
6	☐	20000.00	20407.853	6271585.53	4.1431	A	0.2
7	☐	100.000					

y = 1.9300E-004 * x + 0.2045
R = 0.9990
DL = 65.4
BEC = 1059

Weight: <None>
Min Conc: <None>

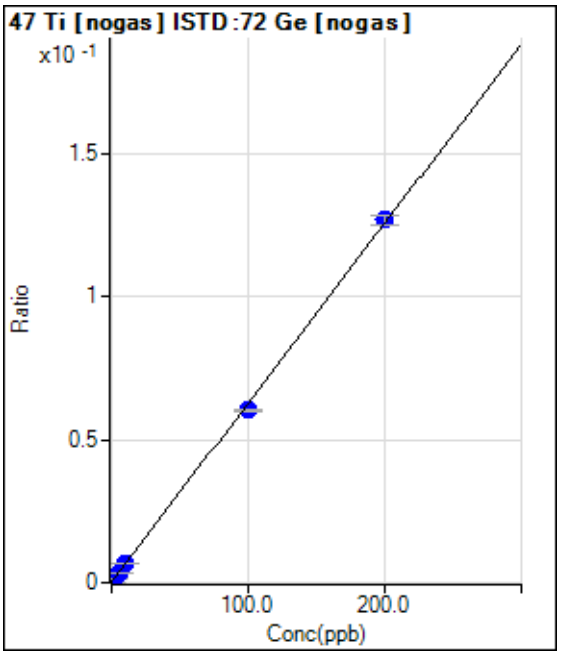
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	176.67	0.0013	P	61.6
2	☐	200.000	153.631	766.69	0.0057	P	9.0
3	☐	500.000	485.668	2080.16	0.0153	P	0.9
4	☐	1000.000	1081.895	4330.58	0.0326	P	8.1
5	☐	10000.00	9227.727	34405.43	0.2679	P	0.7
6	☐	20000.00	20382.864	73529.60	0.5902	P	1.4
7	☐	100.000					

y = 2.8891E-005 * x + 0.0013
R = 0.9989
DL = 83.63
BEC = 45.25

Weight: <None>
Min Conc: <None>

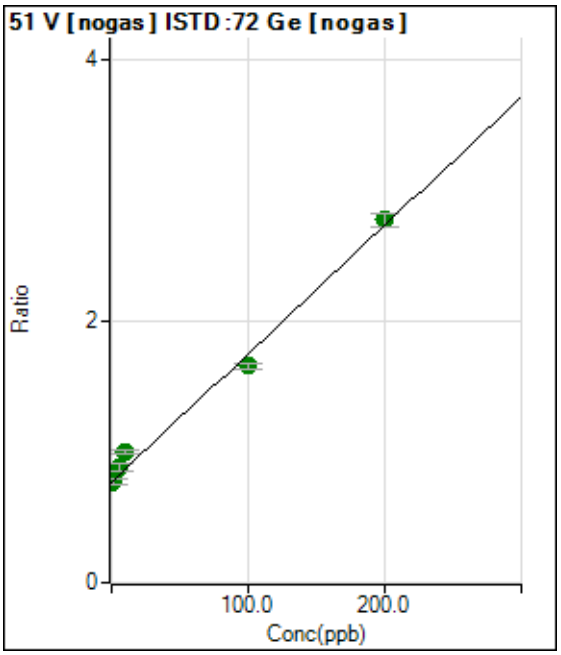


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	270.01	0.0002	P	29.4
2	☐	2.000	2.023	2303.52	0.0014	P	13.4
3	☐	5.000	5.026	5250.83	0.0033	P	9.5
4	☐	10.000	10.397	10763.29	0.0067	P	7.6
5	☐	100.000	95.735	92576.64	0.0602	P	1.8
6	☐	200.000	202.112	191944.10	0.1268	P	2.4
7	☐	1.000					

y = 6.2676E-004 * x + 1.7155E-004
R = 0.9997
DL = 0.2416
BEC = 0.2737

Weight: <None>
Min Conc: <None>

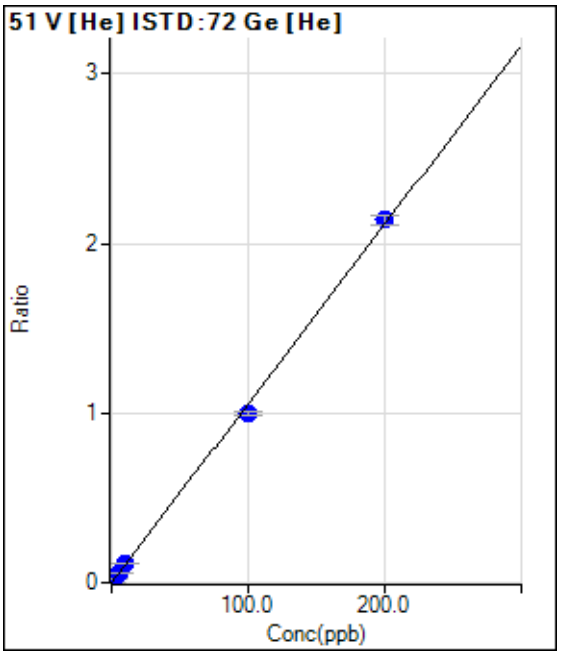
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1217276.43	0.7711	A	6.1
2	☐	2.000	0.440	1239983.72	0.7754	A	6.3
3	☐	5.000	11.466	1397331.96	0.8837	A	5.7
4	☐	10.000	23.288	1611912.05	0.9998	A	2.9
5	☐	100.000	90.094	2547185.74	1.6559	A	2.7
6	☐	200.000	204.143	4201990.33	2.7760	A	3.6
7	☐	1.000					

y = 0.0098 * x + 0.7711
R = 0.9954
DL = 14.29
BEC = 78.51

Weight: <None>
Min Conc: <None>

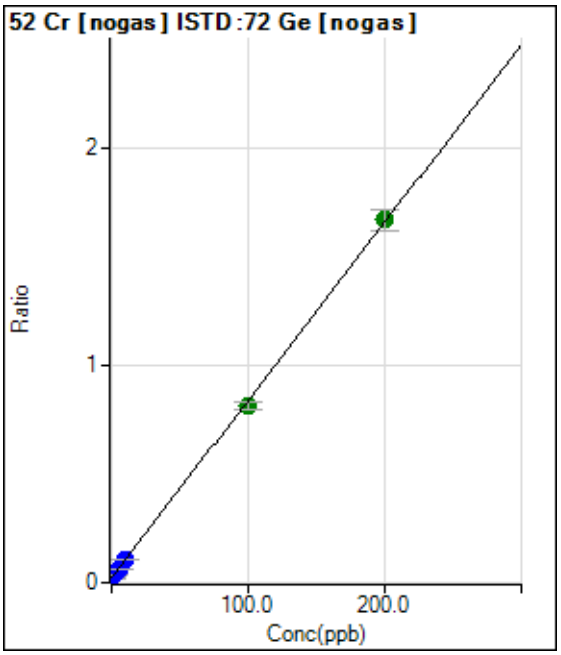


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.627	688.68	0.0051	P	7.8
2	☐	2.000	2.633	3513.67	0.0263	P	2.7
3	☐	5.000	5.609	7829.01	0.0578	P	5.9
4	☐	10.000	10.875	15081.48	0.1134	P	3.5
5	☐	100.000	94.644	128213.44	0.9985	P	1.9
6	☐	200.000	202.613	266488.23	2.1393	P	2.4
7	☐	1.000					

y = 0.0106 * x - 0.0015
R = 0.9994
DL = 0.113
BEC = -0.1427

Weight: <None>
Min Conc: <None>

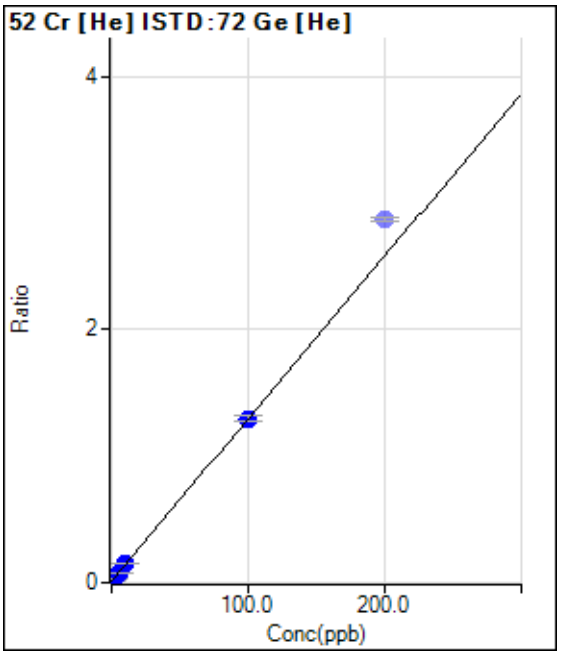
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	35280.69	0.0223	P	4.9
2	☐	2.000	1.860	60020.99	0.0375	P	3.3
3	☐	5.000	5.132	101621.33	0.0642	P	1.1
4	☐	10.000	10.392	172744.08	0.1072	P	2.5
5	☐	100.000	96.952	1252427.33	0.8140	A	4.1
6	☐	200.000	201.502	2523925.48	1.6676	A	5.9
7	☐	1.000					

y = 0.0082 * x + 0.0223
R = 0.9998
DL = 0.4033
BEC = 2.737

Weight: <None>
Min Conc: <None>

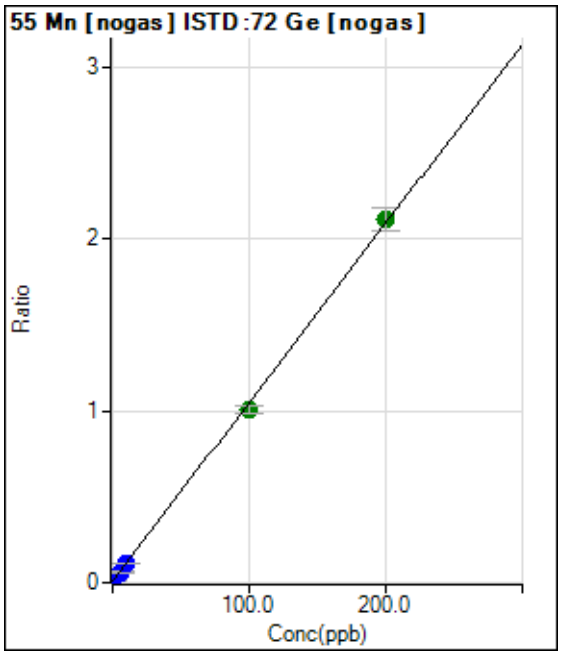


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1753.45	0.0130	P	8.8
2	☐	2.000	1.899	4990.81	0.0374	P	3.4
3	☐	5.000	5.084	10613.24	0.0783	P	4.5
4	☐	10.000	10.801	20174.67	0.1517	P	2.2
5	☐	100.000	99.918	166389.73	1.2956	P	3.4
6	☑	200.000		357170.83	2.8670	P	1.0
7	☐	1.000					

y = 0.0128 * x + 0.0130
R = 1.0000
DL = 0.2663
BEC = 1.013

Weight: <None>
Min Conc: <None>

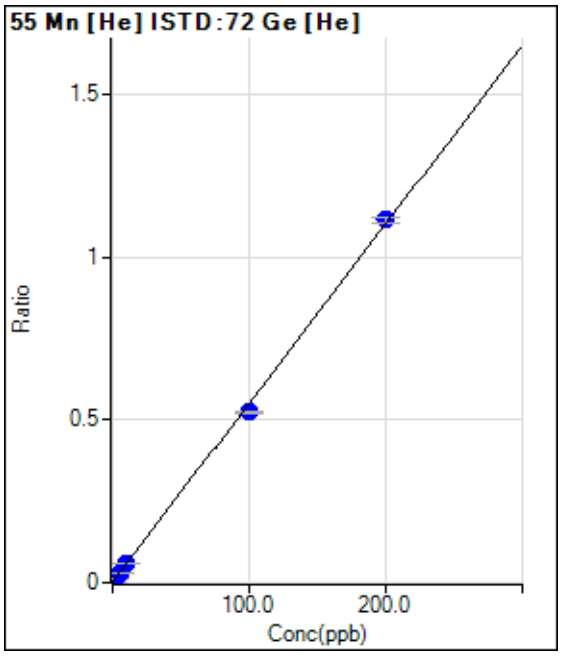
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	12300.91	0.0078	P	1.9
2	☐	2.000	1.991	45586.48	0.0285	P	1.9
3	☐	5.000	5.053	95514.70	0.0604	P	4.1
4	☐	10.000	10.099	181803.98	0.1129	P	4.2
5	☐	100.000	95.878	1546513.52	1.0056	A	3.7
6	☐	200.000	202.055	3192431.83	2.1105	A	6.5
7	☐	1.000					

y = 0.0104 * x + 0.0078
R = 0.9997
DL = 0.04284
BEC = 0.748

Weight: <None>
Min Conc: <None>

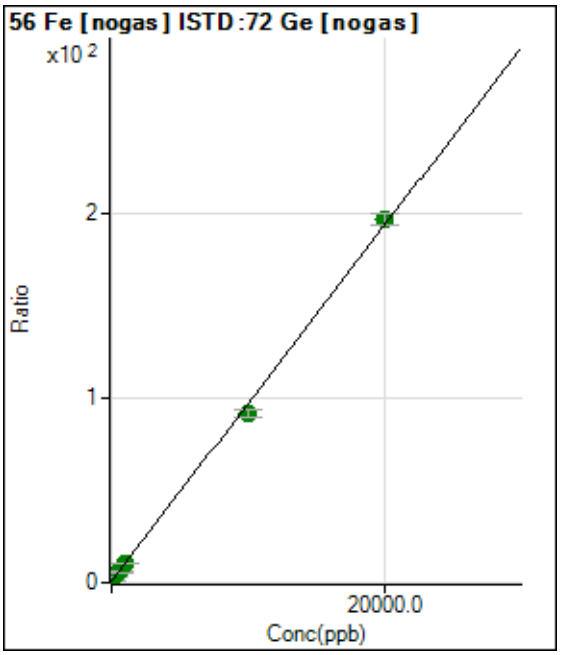


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	236.67	0.0018	P	44.0
2	☐	2.000	1.949	1666.78	0.0125	P	1.6
3	☐	5.000	4.941	3920.50	0.0289	P	10.8
4	☐	10.000	10.507	7921.83	0.0595	P	4.8
5	☐	100.000	95.071	67377.41	0.5246	P	0.6
6	☐	200.000	202.441	138932.07	1.1152	P	1.9
7	☐	1.000					

y = 0.0055 * x + 0.0018
R = 0.9996
DL = 0.4215
BEC = 0.3195

Weight: <None>
Min Conc: <None>

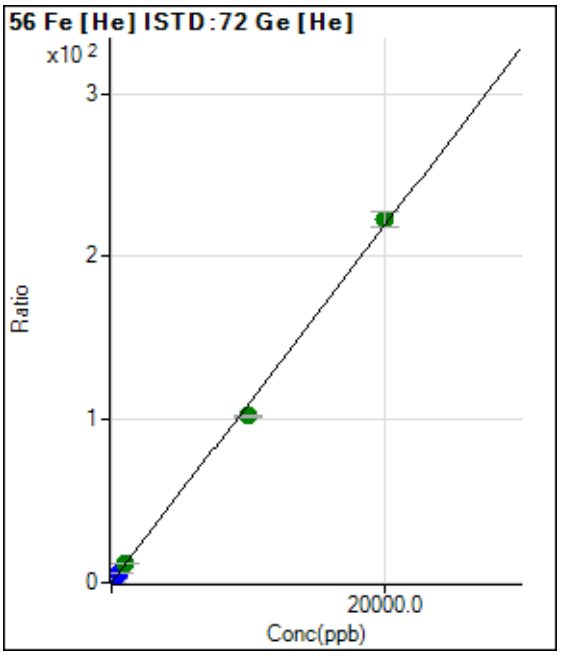
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1327718.00	0.8406	A	1.7
2	☐	200.000	191.244	4295167.67	2.6851	A	1.4
3	☐	500.000	509.667	9105784.58	5.7563	A	1.8
4	☐	1000.000	1020.769	17207699.34	10.6857	A	4.6
5	☐	10000.00	9387.366	140519736.4	91.3801	A	4.5
6	☐	20000.00	20305.124	297621581.6	196.680	A	3.3
7	☐	100.000					

y = 0.0096 * x + 0.8406
R = 0.9993
DL = 4.415
BEC = 87.16

Weight: <None>
Min Conc: <None>

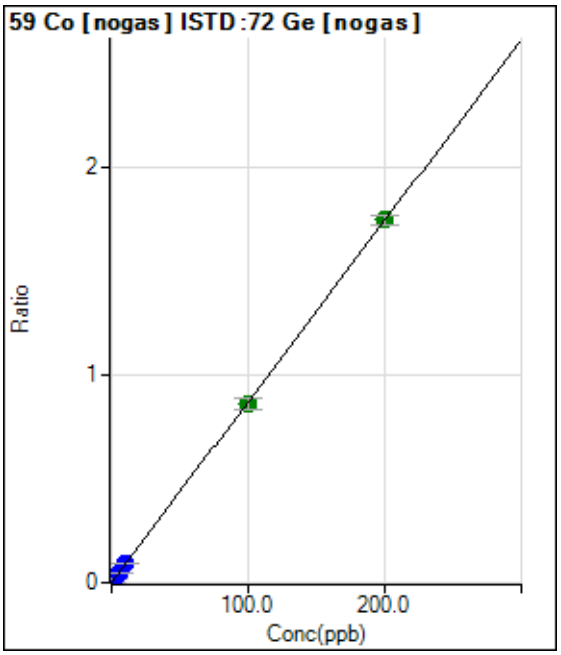


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	18109.10	0.1344	P	4.7
2	☐	200.000	190.898	296639.55	2.2219	P	3.1
3	☐	500.000	493.511	749995.40	5.5310	P	2.9
4	☐	1000.000	1058.953	1557398.20	11.7142	A	6.1
5	☐	10000.00	9329.091	13120104.39	102.149	A	0.7
6	☐	20000.00	20332.760	27712348.75	222.476	A	4.2
7	☐	100.000					

y = 0.0109 * x + 0.1344
R = 0.9992
DL = 1.741
BEC = 12.29

Weight: <None>
Min Conc: <None>

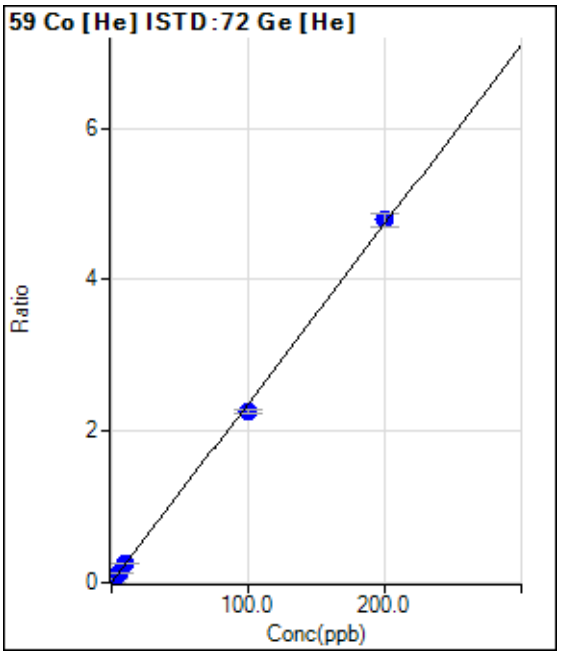
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	433.35	0.0003	P	5.9
2	☐	2.000	2.055	29046.98	0.0182	P	1.9
3	☐	5.000	5.414	74959.89	0.0474	P	1.6
4	☐	10.000	10.649	149696.62	0.0929	P	3.5
5	☐	100.000	98.880	1323107.85	0.8606	A	6.1
6	☐	200.000	200.517	2640655.12	1.7450	A	2.5
7	☐	1.000					

y = 0.0087 * x + 2.7421E-004
R = 1.0000
DL = 0.005602
BEC = 0.03151

Weight: <None>
Min Conc: <None>

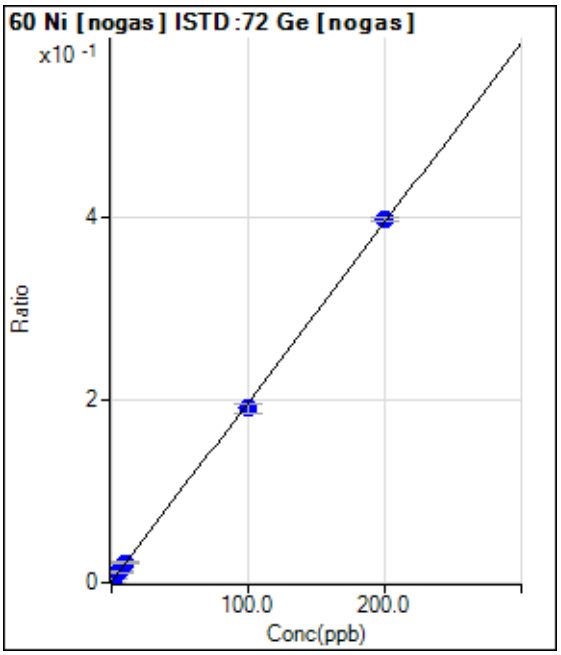


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	70.00	0.0005	P	76.0
2	☐	2.000	2.069	6608.00	0.0495	P	4.3
3	☐	5.000	5.140	16567.72	0.1221	P	2.2
4	☐	10.000	10.607	33454.29	0.2515	P	4.5
5	☐	100.000	95.170	289166.81	2.2521	P	2.7
6	☐	200.000	202.380	596438.26	4.7886	P	3.4
7	☐	1.000					

y = 0.0237 * x + 5.2102E-004
R = 0.9996
DL = 0.05018
BEC = 0.02202

Weight: <None>
Min Conc: <None>

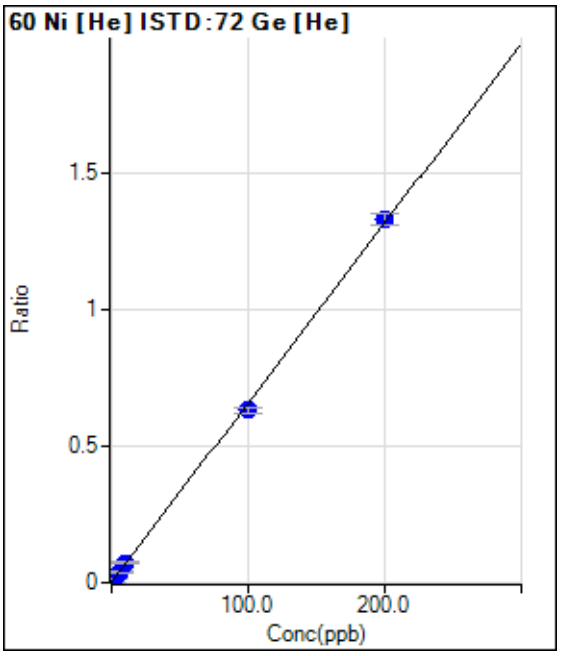
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.096	1556.76	0.0010	P	7.2
2	☐	2.000	2.184	8155.33	0.0051	P	3.7
3	☐	5.000	5.567	18606.33	0.0118	P	2.9
4	☐	10.000	10.833	35661.93	0.0221	P	3.8
5	☐	100.000	96.755	294317.66	0.1914	P	5.5
6	☐	200.000	201.565	602298.50	0.3979	P	1.2
7	☐	1.000					

y = 0.0020 * x + 7.9657E-004
R = 0.9998
DL = 0.1087
BEC = 0.4043

Weight: <None>
Min Conc: <None>

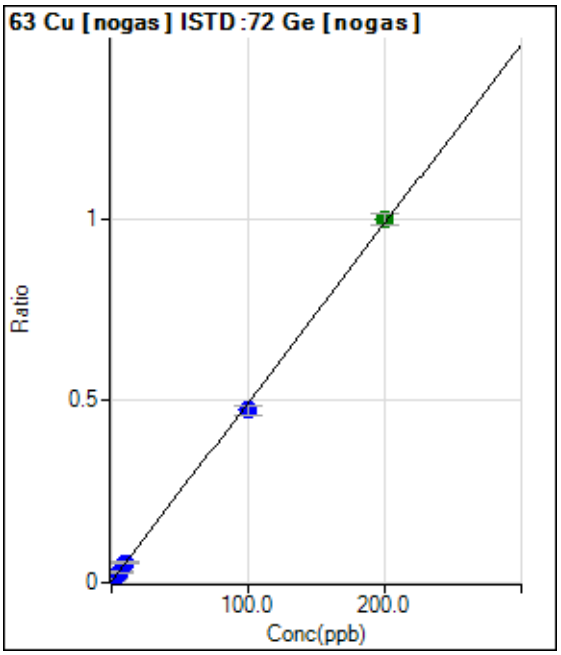


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.122	300.01	0.0022	P	11.1
2	☐	2.000	2.414	2306.85	0.0173	P	4.2
3	☐	5.000	5.658	5234.17	0.0386	P	4.7
4	☐	10.000	10.861	9682.69	0.0728	P	3.5
5	☐	100.000	96.017	81156.61	0.6321	P	3.0
6	☐	200.000	201.928	165388.05	1.3278	P	3.1
7	☐	1.000					

y = 0.0066 * x + 0.0014
R = 0.9997
DL = 0.1124
BEC = 0.2165

Weight: <None>
Min Conc: <None>

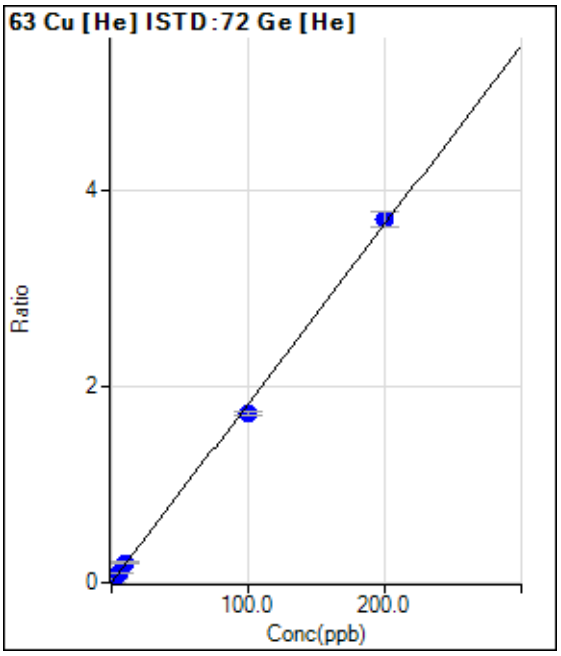
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4977.41	0.0032	P	7.0
2	☐	2.000	2.015	20885.56	0.0131	P	2.7
3	☐	5.000	5.222	45563.87	0.0288	P	4.1
4	☐	10.000	10.573	88772.45	0.0551	P	4.0
5	☐	100.000	95.772	728498.37	0.4738	P	6.1
6	☐	200.000	202.080	1508090.03	0.9963	A	3.3
7	☐	1.000					

y = 0.0049 * x + 0.0032
R = 0.9997
DL = 0.1339
BEC = 0.6413

Weight: <None>
Min Conc: <None>

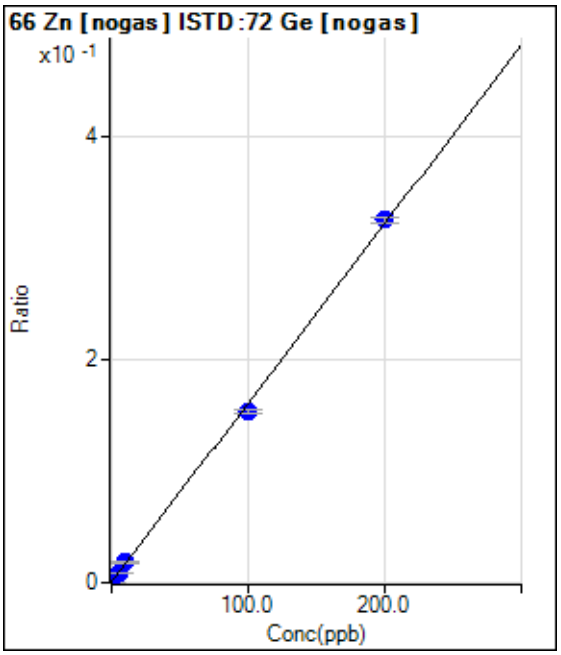


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.530	1230.06	0.0091	P	7.2
2	☐	2.000	2.530	6097.79	0.0457	P	9.7
3	☐	5.000	5.489	13521.82	0.0997	P	2.5
4	☐	10.000	11.202	27143.90	0.2041	P	3.9
5	☐	100.000	94.654	221935.11	1.7286	P	3.1
6	☐	200.000	202.595	460900.08	3.7005	P	4.3
7	☐	1.000					

y = 0.0183 * x - 5.4440E-004
R = 0.9994
DL = 0.1073
BEC = -0.0298

Weight: <None>
Min Conc: <None>

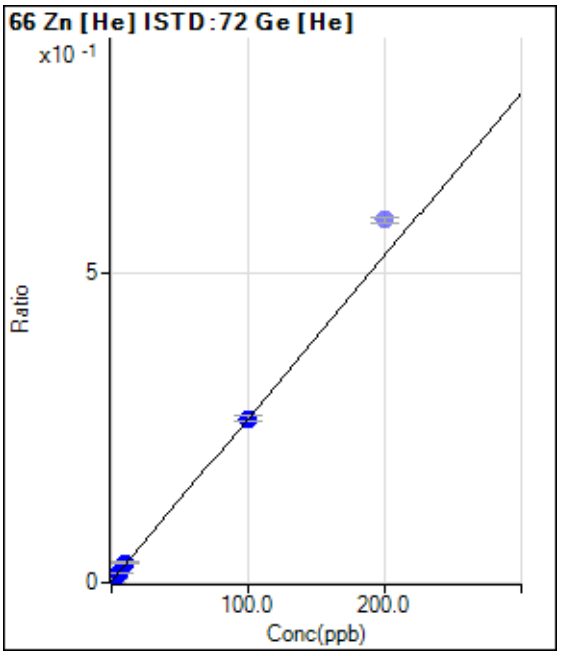
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.169	1160.05	0.0007	P	16.3
2	☐	2.000	2.502	7158.19	0.0045	P	2.4
3	☐	5.000	5.571	14856.27	0.0094	P	1.4
4	☐	10.000	11.235	29737.79	0.0185	P	6.2
5	☐	100.000	95.209	235479.59	0.1531	P	3.2
6	☐	200.000	202.314	491474.07	0.3248	P	1.6
7	☐	1.000					

y = 0.0016 * x + 4.6365E-004
R = 0.9995
DL = 0.2247
BEC = 0.2893

Weight: <None>
Min Conc: <None>

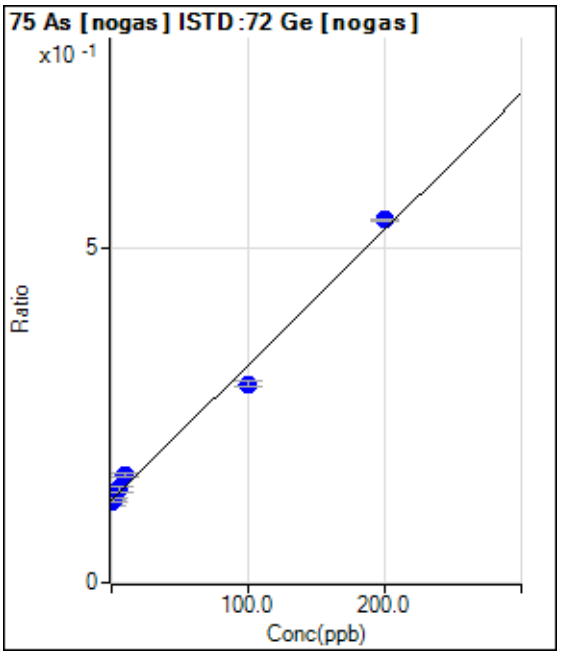


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.482	173.33	0.0013	P	11.1
2	☐	2.000	1.956	1030.05	0.0077	P	3.0
3	☐	5.000	4.666	2013.48	0.0149	P	5.7
4	☐	10.000	10.935	4170.55	0.0314	P	10.1
5	☐	100.000	99.924	34142.47	0.2659	P	3.5
6	☑	200.000		73213.09	0.5877	P	1.7
7	☐	1.000					

y = 0.0026 * x + 0.0026
R = 0.9999
DL = 0.1623
BEC = 0.9693

Weight: <None>
Min Conc: <None>

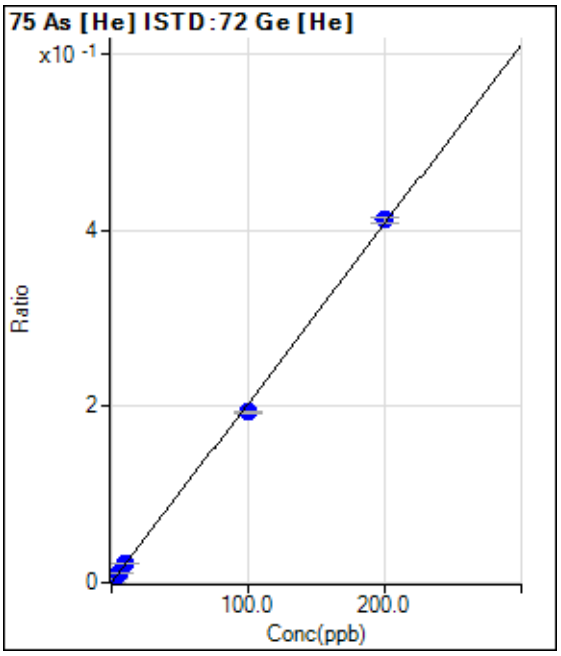
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-1.373	190442.50	0.1207	P	7.6
2	☐	2.000	-0.252	196609.58	0.1229	P	4.7
3	☐	5.000	8.018	220994.35	0.1397	P	4.9
4	☐	10.000	18.186	258515.48	0.1604	P	3.5
5	☐	100.000	85.767	457989.16	0.2977	P	3.2
6	☐	200.000	206.654	822644.23	0.5434	P	0.6
7	☐	1.000					

y = 0.0020 * x + 0.1234
R = 0.9951
DL = 13.62
BEC = 60.74

Weight: <None>
Min Conc: <None>

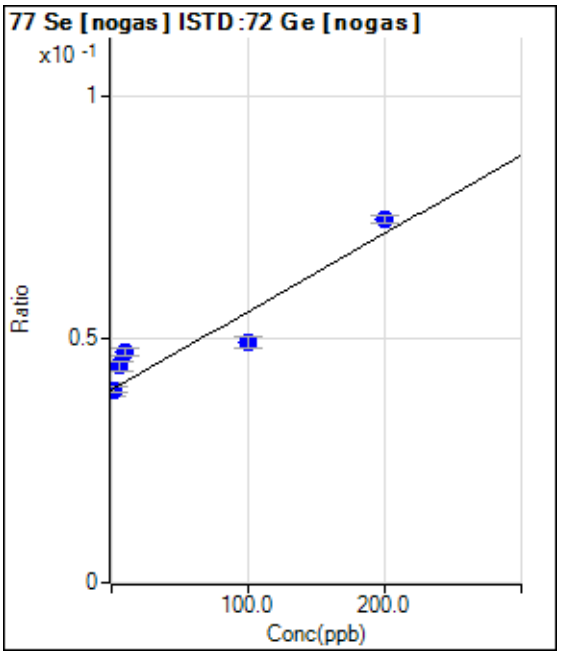


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	14.45	0.0001	P	27.1
2	☐	2.000	2.106	586.68	0.0044	P	5.0
3	☐	5.000	4.886	1363.39	0.0101	P	2.1
4	☐	10.000	10.393	2828.02	0.0213	P	4.1
5	☐	100.000	95.376	24949.30	0.1943	P	1.1
6	☐	200.000	202.294	51313.28	0.4119	P	1.7
7	☐	1.000					

y = 0.0020 * x + 1.0730E-004
R = 0.9996
DL = 0.04292
BEC = 0.05271

Weight: <None>
Min Conc: <None>

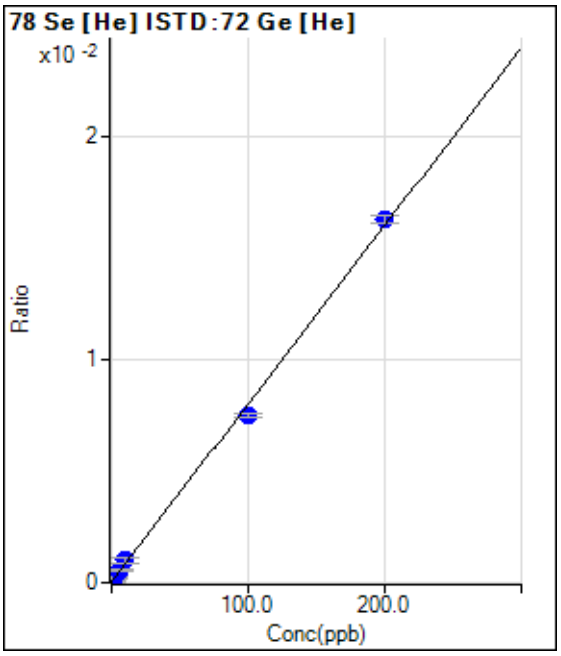
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	62554.14	0.0396	P	6.4
2	☐	2.000	-0.053	63360.33	0.0396	P	2.7
3	☐	5.000	30.364	70359.43	0.0445	P	4.8
4	☐	10.000	47.957	76245.98	0.0473	P	3.6
5	☐	100.000	60.583	75877.69	0.0493	P	5.2
6	☐	200.000	217.197	112740.91	0.0745	P	2.1
7	☐	1.000					

y = 1.6044E-004 * x + 0.0396
R = 0.9445
DL = 47.55
BEC = 246.9

Weight: <None>
Min Conc: <None>

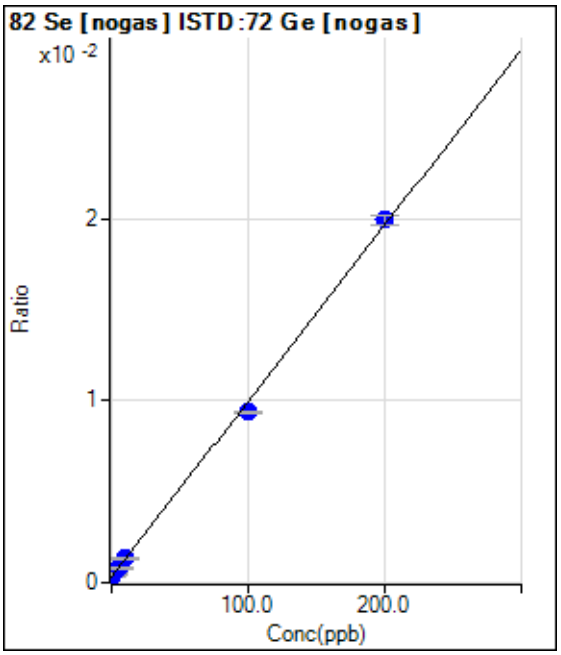


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.243	7.33	0.0001	P	42.4
2	☐	2.000	1.996	26.00	0.0002	P	34.8
3	☐	5.000	6.262	72.67	0.0005	P	19.5
4	☐	10.000	12.069	133.33	0.0010	P	22.5
5	☐	100.000	93.131	959.36	0.0075	P	2.5
6	☐	200.000	203.300	2026.12	0.0163	P	2.0
7	☐	1.000					

y = 7.9808E-005 * x + 3.5131E-005
R = 0.9990
DL = 0.8697
BEC = 0.4402

Weight: <None>
Min Conc: <None>

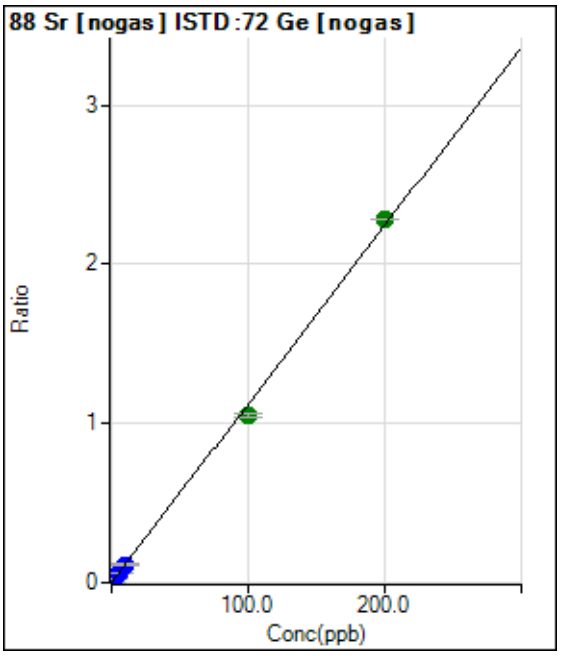
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	503.35	0.0003	P	13.4
2	☐	2.000	1.674	770.03	0.0005	P	16.1
3	☐	5.000	5.008	1270.07	0.0008	P	6.6
4	☐	10.000	10.453	2140.17	0.0013	P	9.3
5	☐	100.000	93.660	14402.68	0.0094	P	1.9
6	☐	200.000	203.151	30155.74	0.0199	P	2.6
7	☐	1.000					

y = 9.6529E-005 * x + 3.1924E-004
R = 0.9993
DL = 1.325
BEC = 3.307

Weight: <None>
Min Conc: <None>

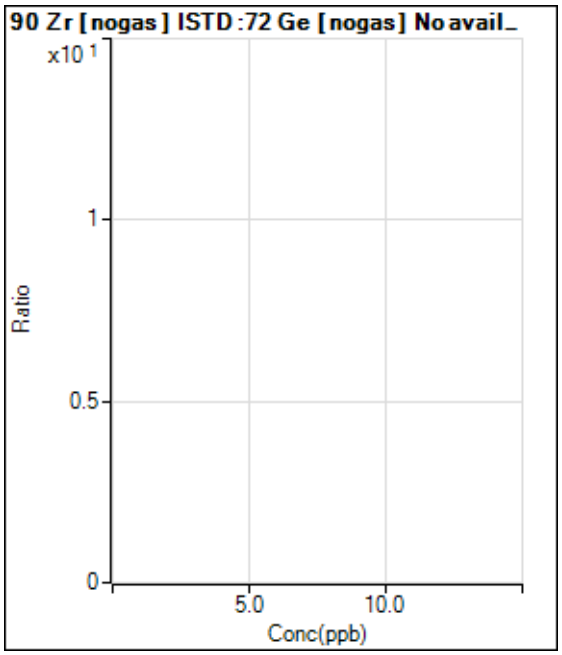


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2143.50	0.0014	P	6.4
2	☐	2.000	2.003	38047.63	0.0238	P	2.9
3	☐	5.000	5.149	93347.92	0.0590	P	0.3
4	☐	10.000	10.067	183737.87	0.1141	P	4.7
5	☐	100.000	93.388	1611193.57	1.0472	A	2.1
6	☐	200.000	203.299	3448516.30	2.2781	A	0.1
7	☐	1.000					

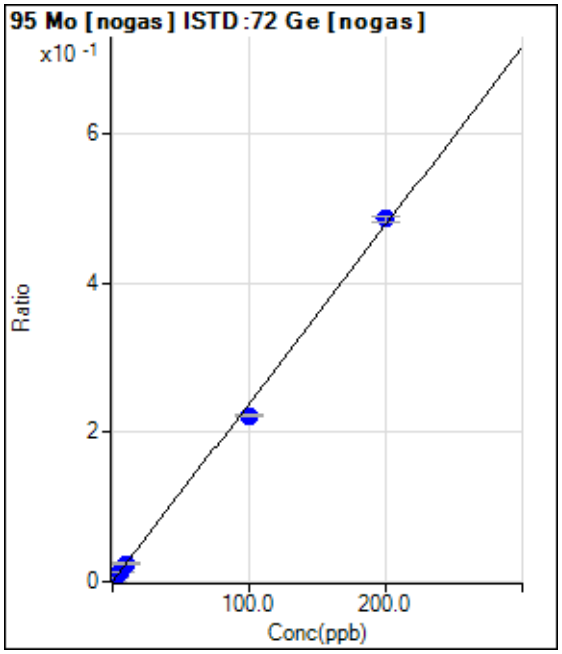
y = 0.0112 * x + 0.0014
R = 0.9992
DL = 0.0234
BEC = 0.1211

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

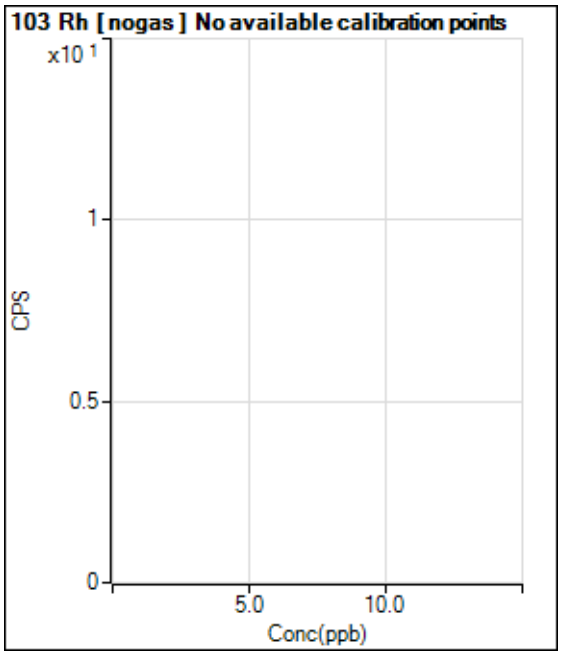


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	110.00	0.0001	P	10.8
2	☐	2.000	2.033	7881.89	0.0049	P	3.4
3	☐	5.000	5.115	19440.94	0.0123	P	2.2
4	☐	10.000	10.124	39053.27	0.0243	P	5.1
5	☐	100.000	92.950	341735.33	0.2221	P	1.6
6	☐	200.000	203.515	735867.78	0.4862	P	1.6
7	☐	1.000					

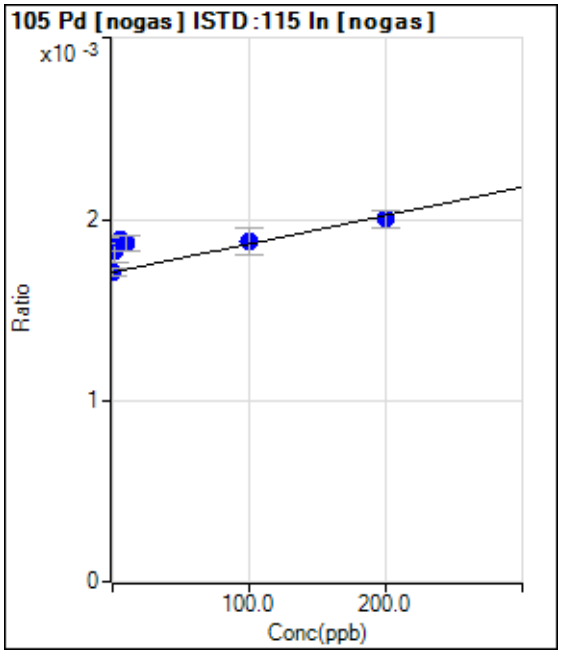
y = 0.0024 * x + 6.9722E-005
R = 0.9991
DL = 0.009425
BEC = 0.02919

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			23.33		P	65.5
2	☐			43.33		P	48.0
3	☐			43.33		P	48.0
4	☐			70.00		P	42.9
5	☐			103.33		P	20.1
6	☐			183.34		P	32.0
7	☐						

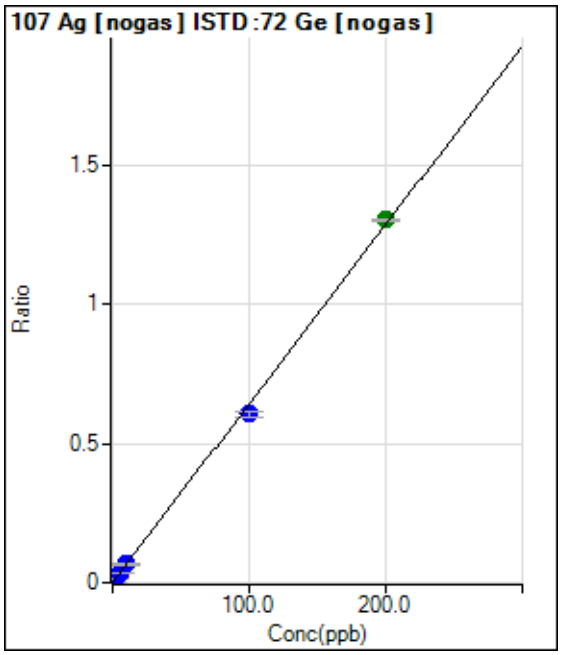


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2886.96	0.0017	P	2.8
2	☐	2.000	77.656	3023.65	0.0018	P	7.1
3	☐	5.000	114.511	3083.66	0.0019	P	1.6
4	☐	10.000	103.816	3153.68	0.0019	P	4.8
5	☐	100.000	107.922	3006.98	0.0019	P	7.7
6	☐	200.000	187.854	3207.01	0.0020	P	5.0
7	☐	1.000					

y = 1.5698E-006 * x + 0.0017
R = 0.7592
DL = 91.8
BEC = 1088

Weight: <None>
Min Conc: <None>

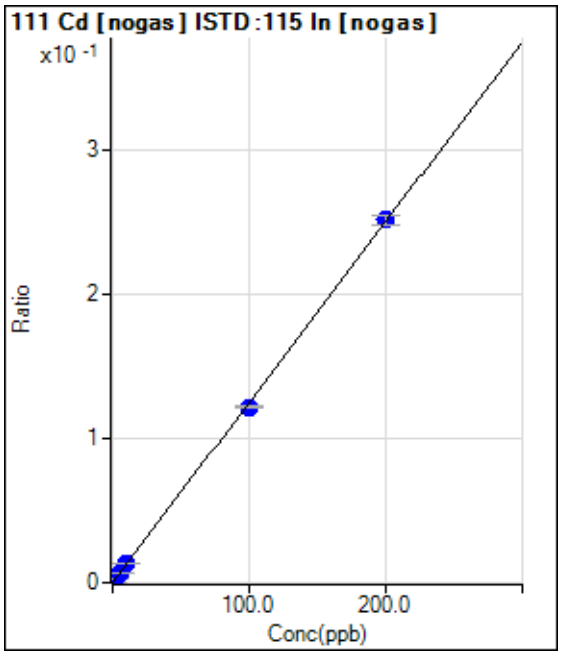
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	413.35	0.0003	P	33.8
2	☐	2.000	2.028	21283.19	0.0133	P	0.8
3	☐	5.000	5.141	52699.40	0.0333	P	2.8
4	☐	10.000	10.293	107080.87	0.0665	P	2.6
5	☐	100.000	94.273	932855.79	0.6065	P	3.6
6	☐	200.000	202.845	1974961.11	1.3048	A	0.4
7	☐	1.000					

y = 0.0064 * x + 2.6220E-004
R = 0.9994
DL = 0.04129
BEC = 0.04077

Weight: <None>
Min Conc: <None>

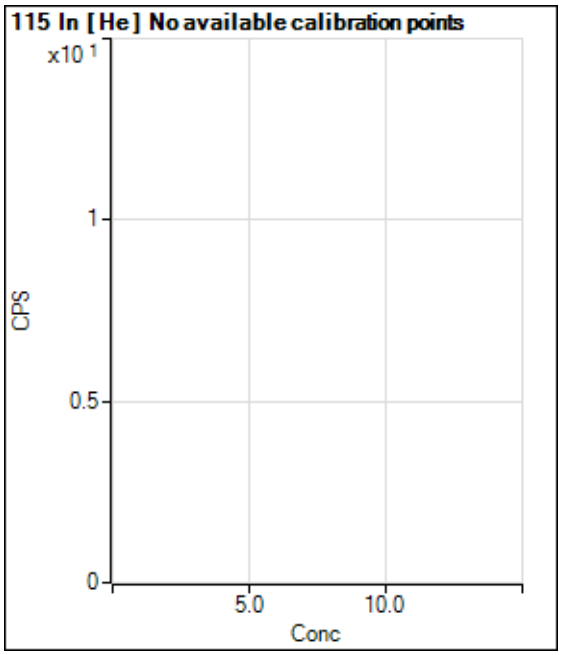


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0000	P	52.3
2	☐	2.000	1.971	4087.22	0.0025	P	8.2
3	☐	5.000	5.488	11197.12	0.0069	P	1.5
4	☐	10.000	10.551	22217.68	0.0132	P	4.9
5	☐	100.000	97.301	194495.51	0.1214	P	1.4
6	☐	200.000	201.310	402402.17	0.2511	P	2.6
7	☐	1.000					

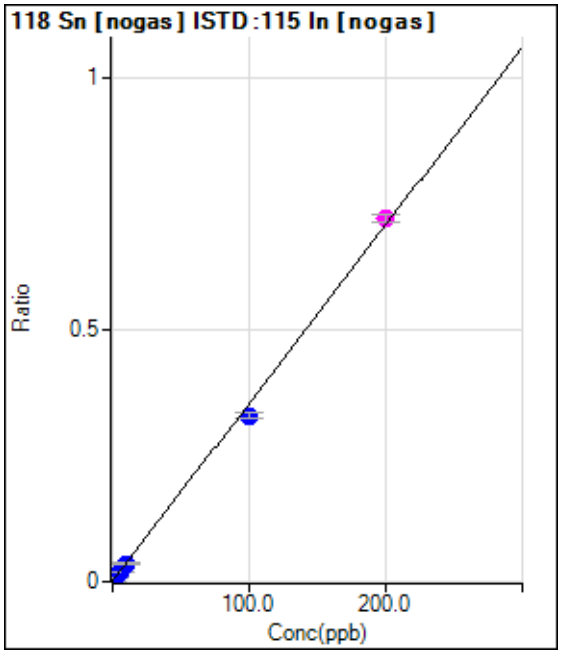
y = 0.0012 * x + 1.1975E-005
R = 0.9999
DL = 0.01508
BEC = 0.009603

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			164856.08		P	2.8
2	☐			161688.53		P	0.5
3	☐			167679.21		P	1.6
4	☐			162322.68		P	1.8
5	☐			156619.11		P	1.9
6	☐			149575.80		P	1.5
7	☐						

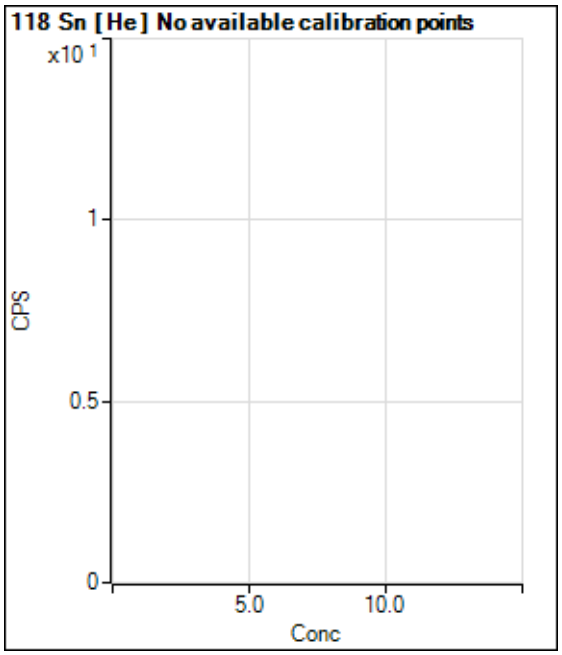


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1820.13	0.0011	P	2.5
2	☐	2.000	1.880	12768.13	0.0077	P	4.8
3	☐	5.000	5.067	31014.56	0.0190	P	1.9
4	☐	10.000	9.953	61114.27	0.0363	P	3.6
5	☐	100.000	92.854	527598.91	0.3293	P	3.1
6	☐	200.000	203.575	1155164.38	0.7207	M	2.2
7	☐	1.000					

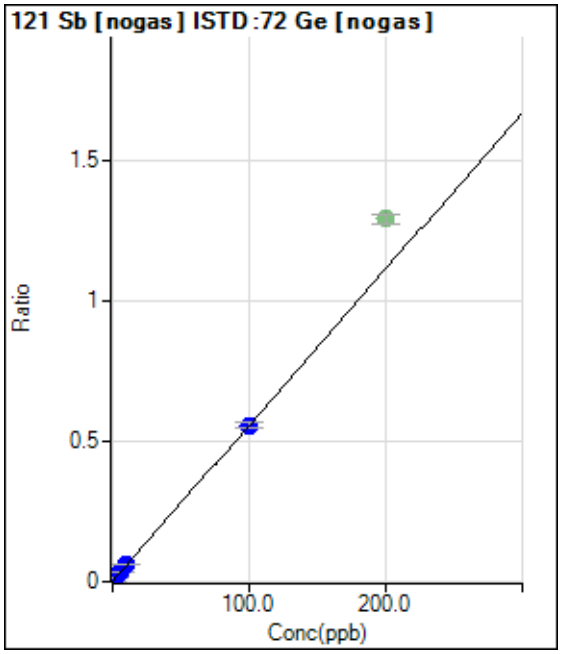
y = 0.0035 * x + 0.0011
R = 0.9991
DL = 0.02239
BEC = 0.3046

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			1318.01		P	132.
2	☐			1730.12		P	6.0
3	☐			4480.66		P	2.3
4	☐			7898.57		P	1.4
5	☐			71191.17		P	0.1
6	☐			149813.75		P	1.7
7	☐						

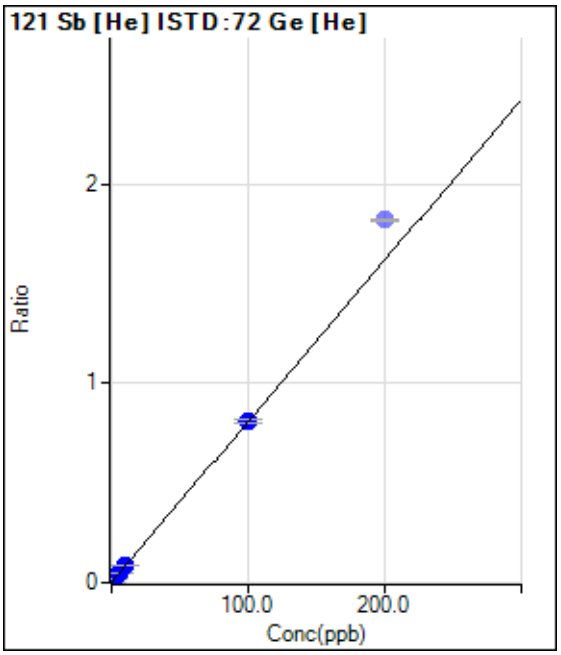


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2486.89	0.0016	P	0.4
2	☐	2.000	2.066	20909.52	0.0131	P	5.6
3	☐	5.000	5.504	50948.24	0.0322	P	1.5
4	☐	10.000	10.930	100545.34	0.0624	P	3.7
5	☐	100.000	99.880	857560.22	0.5576	P	3.9
6	☑	200.000		1958064.92	1.2939	A	2.3
7	☐	1.000					

y = 0.0056 * x + 0.0016
R = 1.0000
DL = 0.003096
BEC = 0.2828

Weight: <None>
Min Conc: <None>

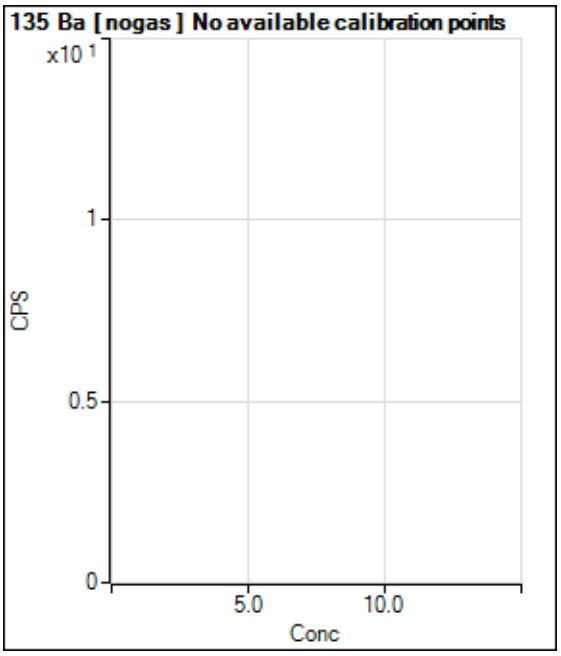
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	276.67	0.0021	P	9.2
2	☐	2.000	2.118	2560.24	0.0192	P	4.5
3	☐	5.000	5.511	6324.60	0.0466	P	6.5
4	☐	10.000	10.944	12051.07	0.0905	P	1.5
5	☐	100.000	99.878	103945.44	0.8095	P	2.3
6	☑	200.000		227059.63	1.8225	P	0.7
7	☐	1.000					

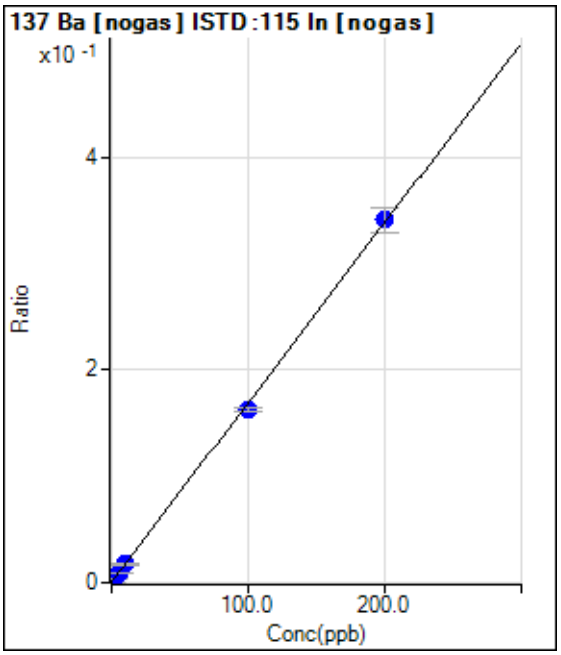
y = 0.0081 * x + 0.0021
R = 1.0000
DL = 0.06973
BEC = 0.2539

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			326.68		P	33.0
2	☐			3627.11		P	2.8
3	☐			8812.41		P	2.8
4	☐			16484.79		P	0.9
5	☐			148979.57		P	1.8
6	☐			311842.75		P	0.7
7	☐						

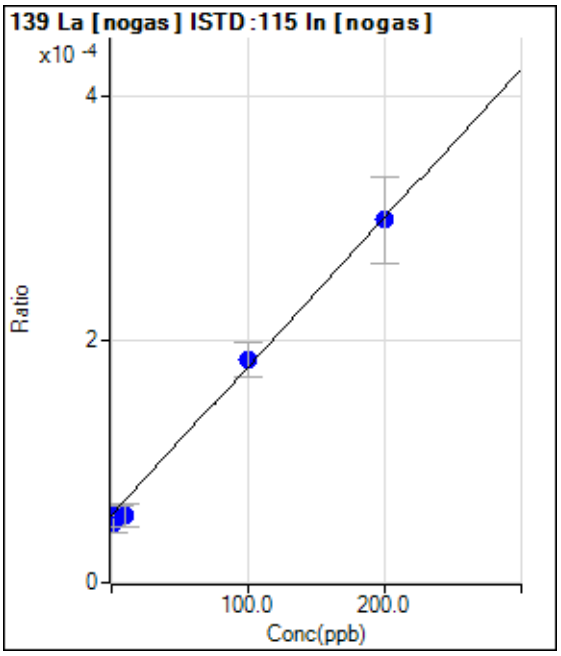
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	580.02	0.0003	P	6.7
2	☐	2.000	2.004	6167.83	0.0037	P	4.3
3	☐	5.000	5.264	15096.92	0.0092	P	2.0
4	☐	10.000	10.100	29355.49	0.0174	P	6.4
5	☐	100.000	96.521	262066.90	0.1635	P	2.4
6	☐	200.000	201.728	546320.96	0.3414	P	6.8
7	☐	1.000					

y = 0.0017 * x + 3.4330E-004
R = 0.9998
DL = 0.04087
BEC = 0.203

Weight: <None>
Min Conc: <None>

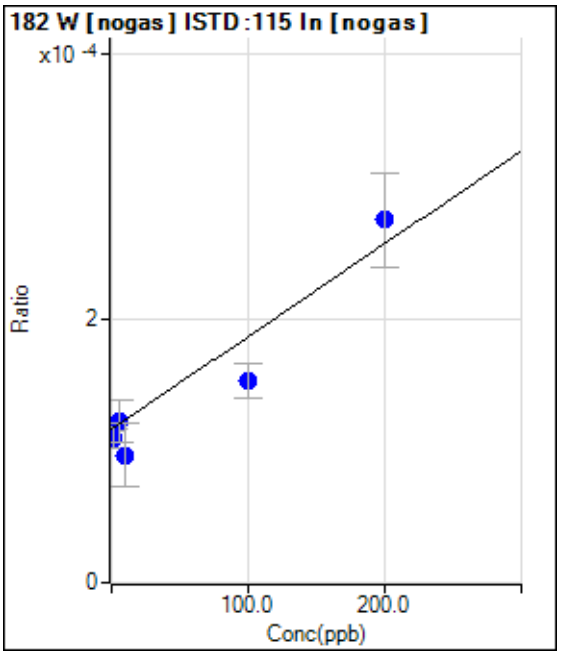


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	93.33	0.0001	P	29.8
2	☐	2.000	-5.961	80.00	0.0000	P	31.7
3	☐	5.000	2.992	96.67	0.0001	P	12.5
4	☐	10.000	-0.128	93.33	0.0001	P	33.2
5	☐	100.000	104.407	293.34	0.0002	P	15.8
6	☐	200.000	198.433	476.68	0.0003	P	24.2
7	☐	100.000					

y = 1.2237E-006 * x + 5.5550E-005
R = 0.9983
DL = 40.56
BEC = 45.4

Weight: <None>
Min Conc: <None>

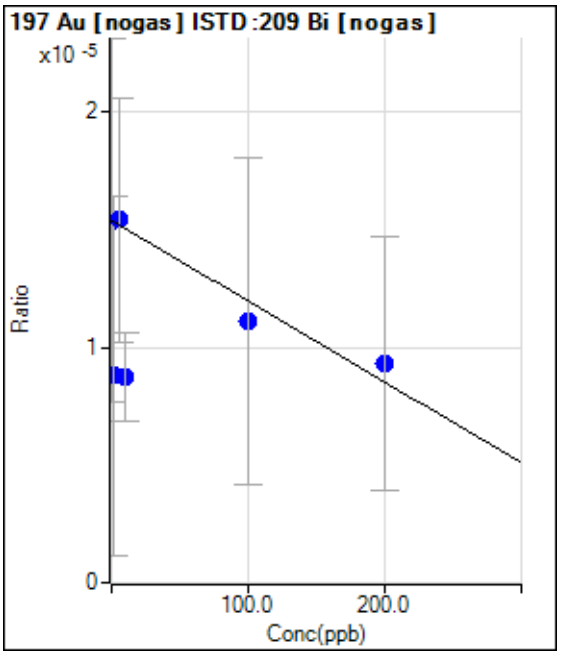
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	196.67	0.0001	P	1.8
2	☐	2.000	-10.277	180.00	0.0001	P	12.5
3	☐	5.000	8.660	200.00	0.0001	P	25.7
4	☐	10.000	-28.207	163.34	0.0001	P	49.7
5	☐	100.000	52.796	246.67	0.0002	P	17.0
6	☐	200.000	225.544	436.68	0.0003	P	25.7
7	☐	1.000					

y = 7.0256E-007 * x + 1.1622E-004
R = 0.9617
DL = 8.795
BEC = 165.4

Weight: <None>
Min Conc: <None>

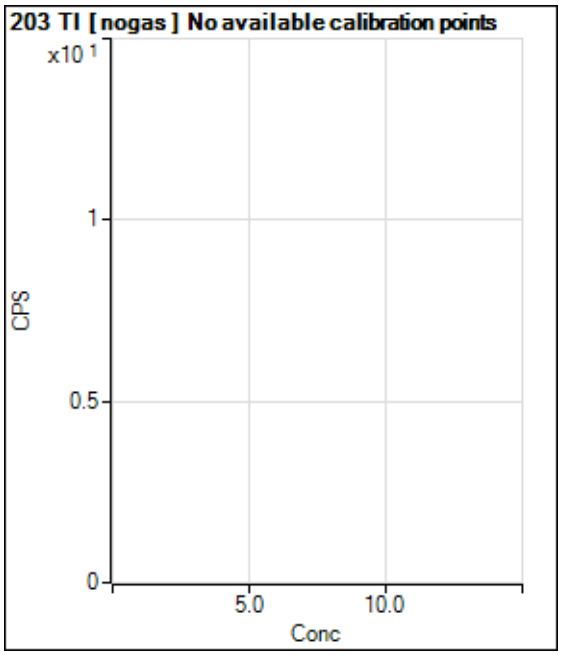


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23.33	0.0000	P	99.8
2	☐	2.000	192.363	13.33	0.0000	P	173.
3	☐	5.000	-0.480	23.33	0.0000	P	67.4
4	☐	10.000	194.529	13.33	0.0000	P	43.1
5	☐	100.000	124.858	16.67	0.0000	P	124.
6	☐	200.000	176.578	13.33	0.0000	P	115.
7	☐	100.000					

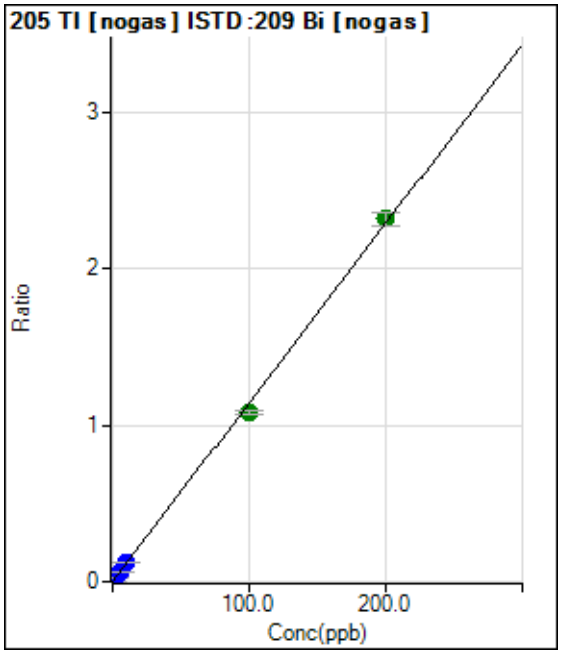
y = -3.4328E-008 * x + 1.5389E-005
R = -0.3649
DL = -1342
BEC = -448.3

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			100.00		P	52.9
2	☐			14533.41		P	5.6
3	☐			36624.96		P	2.1
4	☐			74768.22		P	3.2
5	☐			668245.45		P	2.2
6	☐			1439362.69		A	4.4
7	☐						

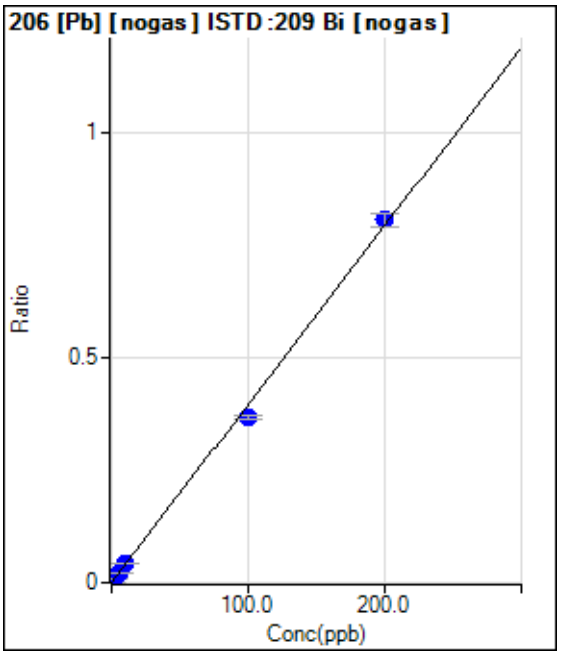


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	183.33	0.0001	P	9.1
2	☐	2.000	2.045	35813.17	0.0235	P	1.0
3	☐	5.000	5.075	88556.70	0.0581	P	5.1
4	☐	10.000	10.380	181641.46	0.1187	P	1.0
5	☐	100.000	94.556	1622270.13	1.0806	A	2.8
6	☐	200.000	202.701	3320345.16	2.3163	A	4.0
7	☐	1.000					

y = 0.0114 * x + 1.2025E-004
R = 0.9995
DL = 0.002867
BEC = 0.01052

Weight: <None>
Min Conc: <None>

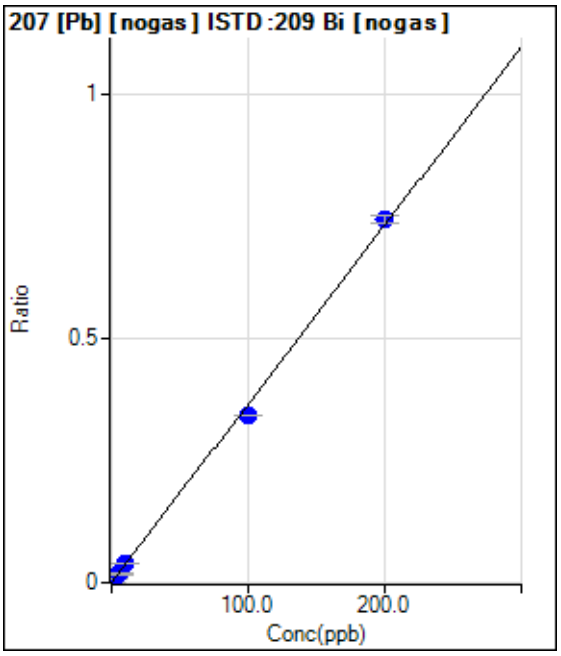
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	76.67	0.0001	P	20.3
2	☐	2.000	1.969	11954.57	0.0078	P	2.4
3	☐	5.000	5.127	31013.26	0.0203	P	2.8
4	☐	10.000	10.450	63370.09	0.0414	P	1.9
5	☐	100.000	93.126	553491.10	0.3687	P	2.2
6	☐	200.000	203.411	1154128.89	0.8052	P	3.6
7	☐	1.000					

y = 0.0040 * x + 5.0287E-005
R = 0.9992
DL = 0.007748
BEC = 0.0127

Weight: <None>
Min Conc: <None>

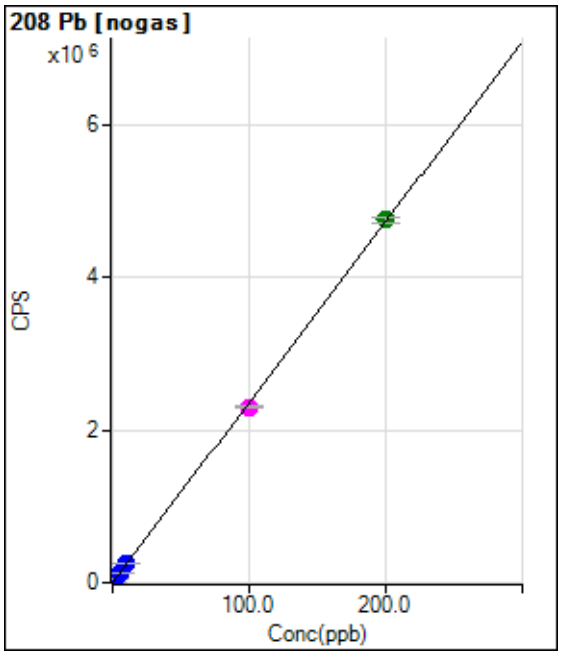


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	120.00	0.0001	P	14.4
2	☐	2.000	1.915	10780.44	0.0071	P	3.9
3	☐	5.000	4.891	27333.42	0.0179	P	6.0
4	☐	10.000	10.399	58207.64	0.0380	P	1.8
5	☐	100.000	93.657	513545.78	0.3420	P	0.3
6	☐	200.000	203.155	1063406.88	0.7418	P	2.1
7	☐	1.000					

y = 0.0037 * x + 7.8675E-005
R = 0.9993
DL = 0.009331
BEC = 0.02155

Weight: <None>
Min Conc: <None>

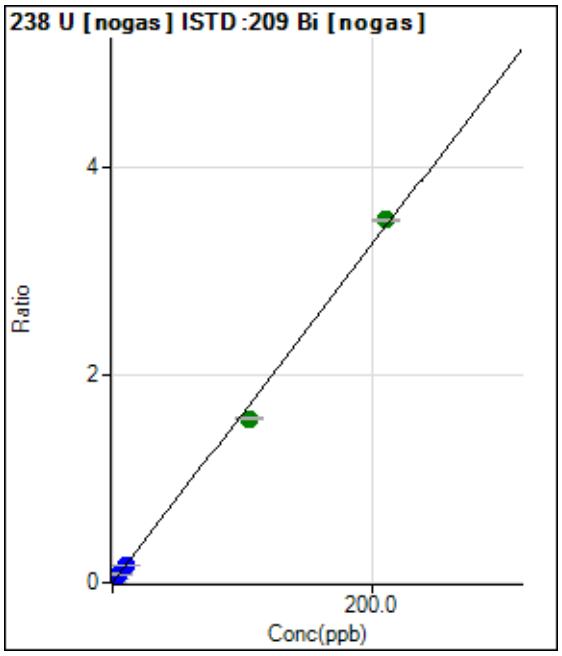
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	436.67		P	9.5
2	☐	2.000	2.081	49527.33		P	1.6
3	☐	5.000	5.302	125495.56		P	0.2
4	☐	10.000	10.881	257090.47		P	1.2
5	☐	100.000	97.308	2295620.20		M	1.2
6	☐	200.000	201.294	4748303.08		A	1.8
7	☐	1.000					

y = 23586.7790 * x + 436.6733
R = 0.9999
DL = 0.005295
BEC = 0.01851

Weight: <None>
Min Conc: <None>

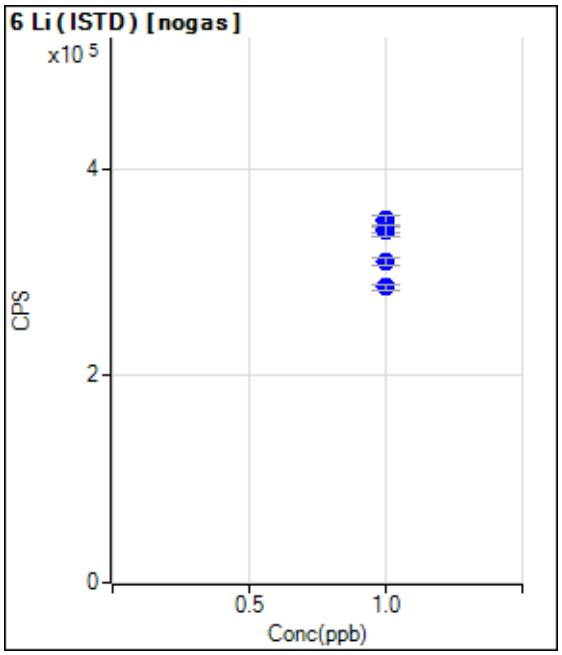


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	86.67	0.0001	P	29.5
2	☐	2.000	2.028	50500.45	0.0331	P	1.3
3	☐	5.000	5.094	126720.91	0.0831	P	2.3
4	☐	10.000	10.238	255418.31	0.1670	P	1.3
5	☐	105.000	96.804	2369603.09	1.5783	A	1.8
6	☐	210.000	214.084	5003868.47	3.4903	A	0.7
7	☐	1.000					

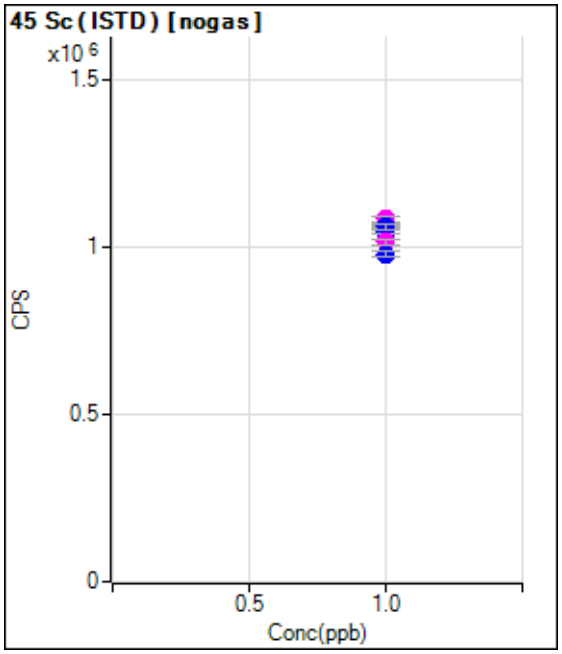
y = 0.0163 * x + 5.6898E-005
R = 0.9989
DL = 0.00309
BEC = 0.00349

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d

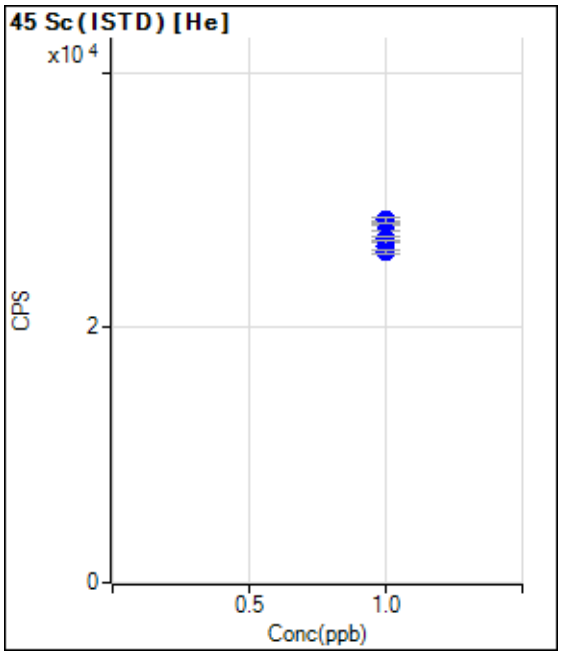


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		350603.56		P	2.7
2	☐	1.000		341330.66		P	2.3
3	☐	1.000		349804.91		P	3.4
4	☐	1.000		339961.20		P	3.7
5	☐	1.000		311147.53		P	2.3
6	☐	1.000		285702.10		P	2.1
7	☐	1.000					

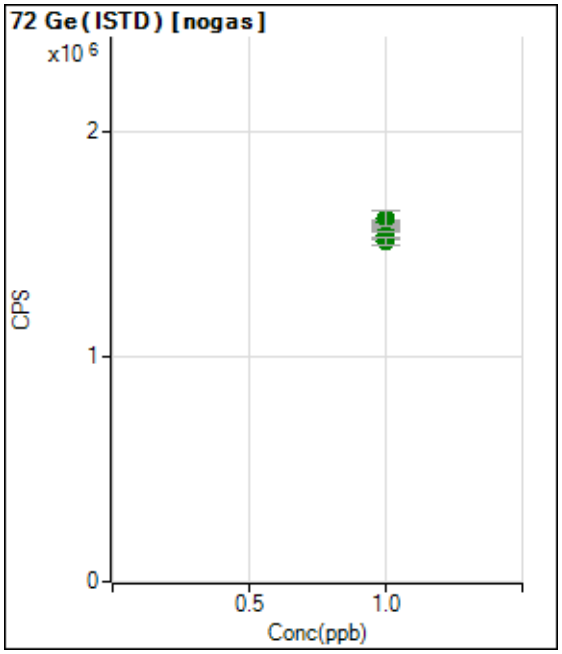


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1082484.75		M	1.3
2	☐	1.000		1056254.49		P	0.9
3	☐	1.000		1046036.52		P	1.5
4	☐	1.000		1059379.98		P	1.8
5	☐	1.000		1014174.59		M	2.0
6	☐	1.000		978231.11		P	2.0
7	☐	1.000					

Calibration for 011_ICV.d

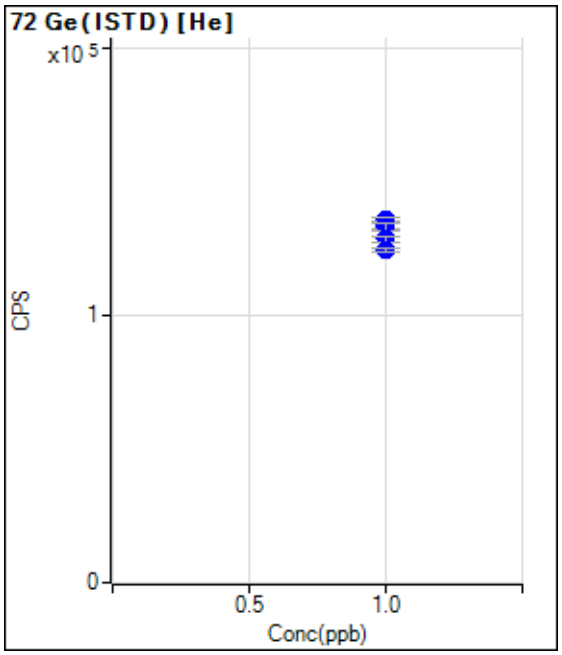


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		28104.97		P	3.9
2	☐	1.000		28198.48		P	1.3
3	☐	1.000		28435.62		P	1.5
4	☐	1.000		26923.20		P	1.6
5	☐	1.000		26365.94		P	4.0
6	☐	1.000		25851.72		P	1.2
7	☐	1.000					

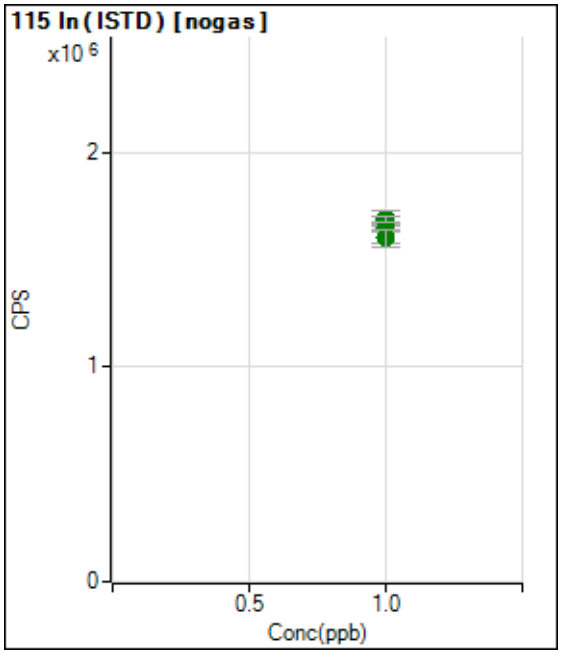


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1579817.37		A	2.2
2	☐	1.000		1599782.58		A	1.1
3	☐	1.000		1581732.06		A	1.1
4	☐	1.000		1612396.54		A	4.1
5	☐	1.000		1538955.60		A	2.6
6	☐	1.000		1513729.98		A	2.5
7	☐	1.000					

Calibration for 011_ICV.d

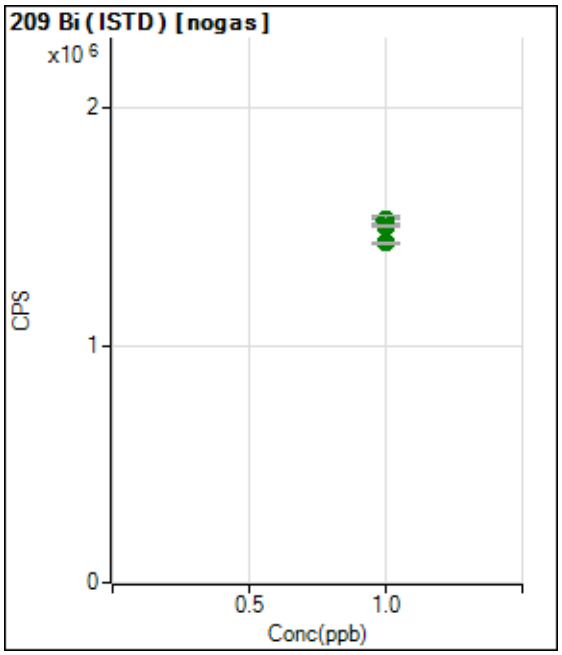


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		134787.34		P	1.0
2	☐	1.000		133547.22		P	1.5
3	☐	1.000		135623.86		P	1.3
4	☐	1.000		133072.04		P	2.5
5	☐	1.000		128432.97		P	1.7
6	☐	1.000		124592.92		P	1.4
7	☐	1.000					



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1691420.54		A	4.1
2	☐	1.000		1653307.11		A	1.4
3	☐	1.000		1633353.06		A	0.7
4	☐	1.000		1686124.01		A	1.6
5	☐	1.000		1603186.35		A	3.6
6	☐	1.000		1603865.59		A	5.1
7	☐	1.000					

Calibration for 011_ICV.d



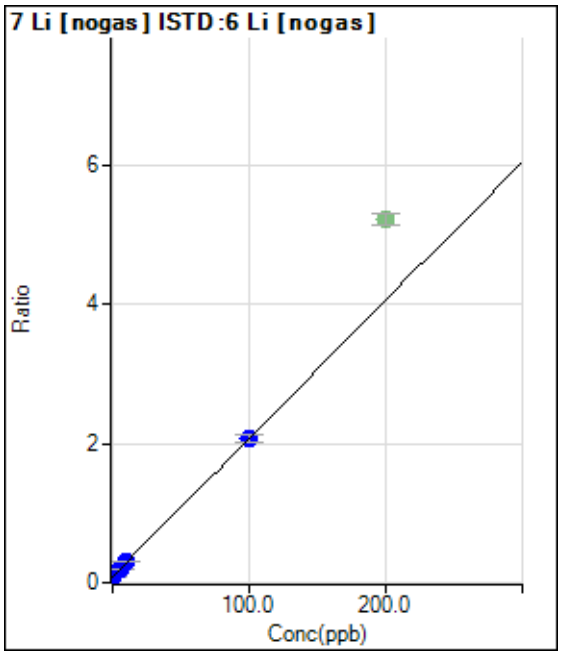
	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1525300.29		A	1.1
2	☐	1.000		1524542.01		A	0.9
3	☐	1.000		1525257.79		A	2.3
4	☐	1.000		1529935.44		A	2.1
5	☐	1.000		1501430.86		A	0.7
6	☐	1.000		1433614.62		A	0.8
7	☐	1.000					

Calibration for 108_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\121517b.b\
Analysis File: 121517b.batch.bin
DA Date-Time: 2017-12-15 16:18:23
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	102CALB.d	CAL BLK	2017-12-15 15:19:53
2	103CALS.d	2/10/200	2017-12-15 15:21:54
3	104CALS.d	5/25/500	2017-12-15 15:23:55
4	105CALS.d	10/50/1000	2017-12-15 15:25:56
5	106CALS.d	100/500/10K	2017-12-15 15:27:56
6	107CALS.d	200/1000/20K	2017-12-15 15:29:52
7			

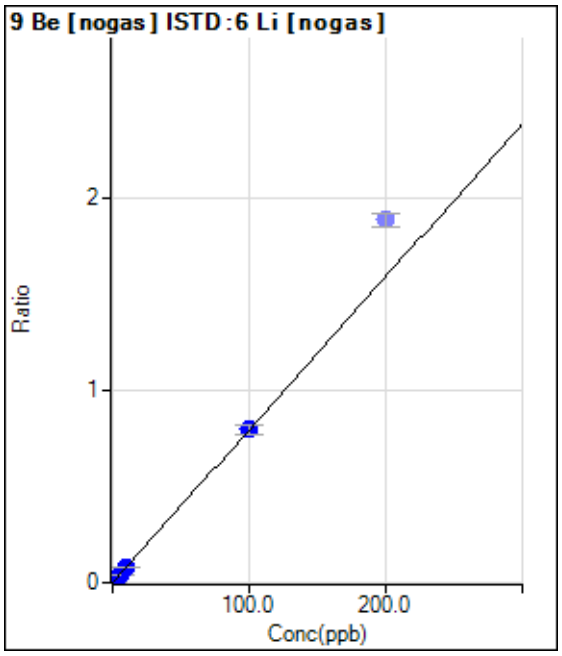
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	31356.54	0.0906	P	2.5
2	☐	2.000	2.013	45889.47	0.1305	P	3.7
3	☐	5.000	5.270	67608.80	0.1951	P	3.0
4	☐	10.000	10.660	105661.62	0.3021	P	3.0
5	☐	100.000	99.920	671680.30	2.0727	P	4.6
6	☑	200.000		1497847.89	5.2090	A	3.0
7	☐	1.000					

y = 0.0198 * x + 0.0906
R = 1.0000
DL = 0.3411
BEC = 4.568

Weight: <None>
Min Conc: <None>

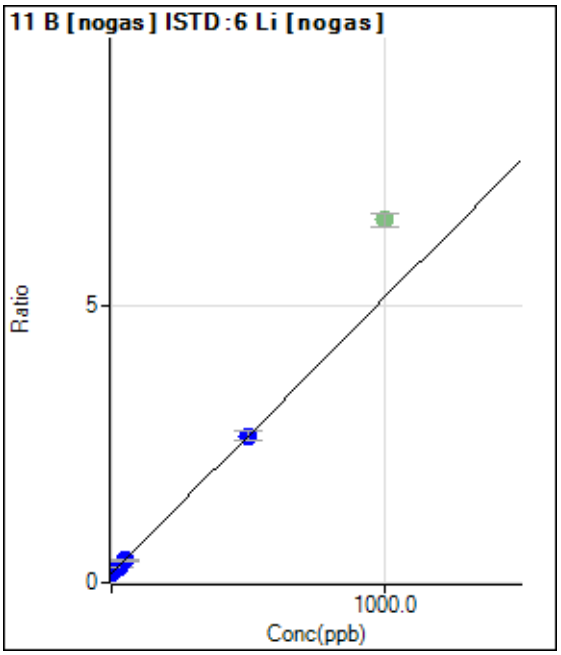


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	103.33	0.0003	P	20.4
2	☐	2.000	1.971	5610.94	0.0160	P	6.6
3	☐	5.000	4.946	13725.26	0.0396	P	3.6
4	☐	10.000	10.165	28367.99	0.0811	P	3.3
5	☐	100.000	99.987	257555.07	0.7951	P	5.3
6	☑	200.000		542041.56	1.8857	P	3.7
7	☐	1.000					

y = 0.0079 * x + 2.9876E-004
R = 1.0000
DL = 0.02304
BEC = 0.03758

Weight: <None>
Min Conc: <None>

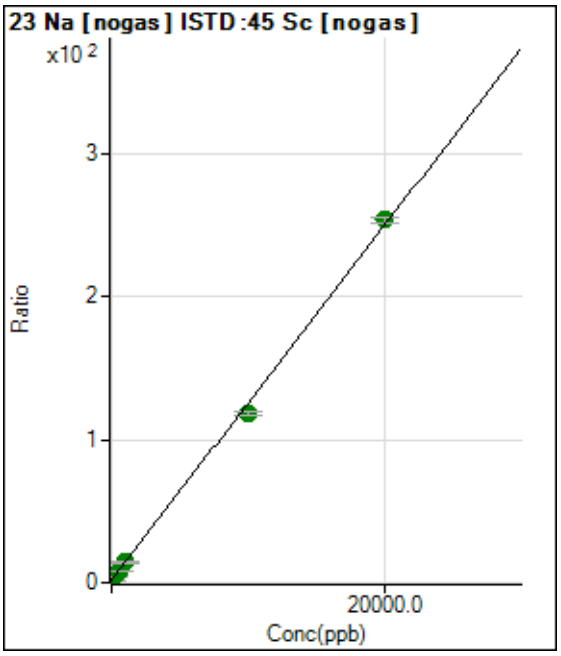
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	56216.19	0.1624	P	1.1
2	☐	10.000	7.717	70581.71	0.2008	P	5.8
3	☐	25.000	25.617	100450.31	0.2899	P	1.8
4	☐	50.000	47.633	139738.04	0.3995	P	3.4
5	☐	500.000	500.252	858661.13	2.6520	P	6.7
6	☑	1000.000		1880565.54	6.5421	A	3.9
7	☐	5.000					

y = 0.0050 * x + 0.1624
R = 1.0000
DL = 1.12
BEC = 32.64

Weight: <None>
Min Conc: <None>

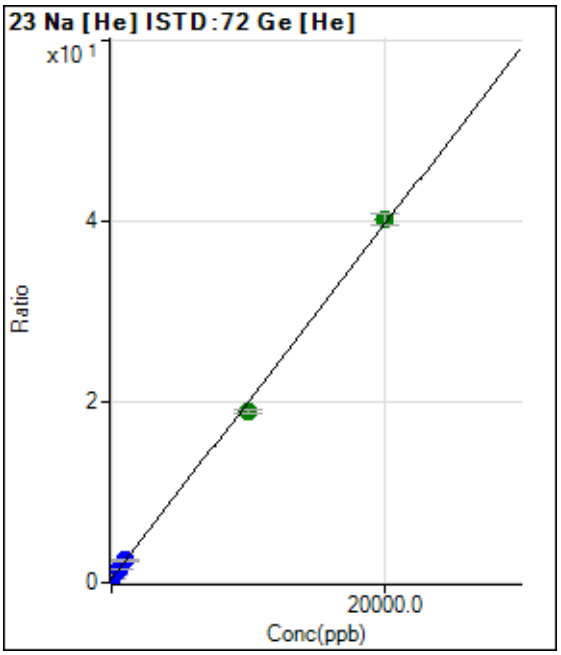


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1840341.64	1.8252	A	2.7
2	☐	200.000	194.422	4123686.68	4.2332	A	2.3
3	☐	500.000	493.961	7999622.84	7.9431	A	1.3
4	☐	1000.000	996.537	13942968.54	14.1676	A	2.2
5	☐	10000.00	9371.896	113918148.3	117.898	A	1.9
6	☐	20000.00	20314.432	238993913.6	253.424	A	1.5
7	☐	100.000					

y = 0.0124 * x + 1.8252
R = 0.9993
DL = 11.79
BEC = 147.4

Weight: <None>
Min Conc: <None>

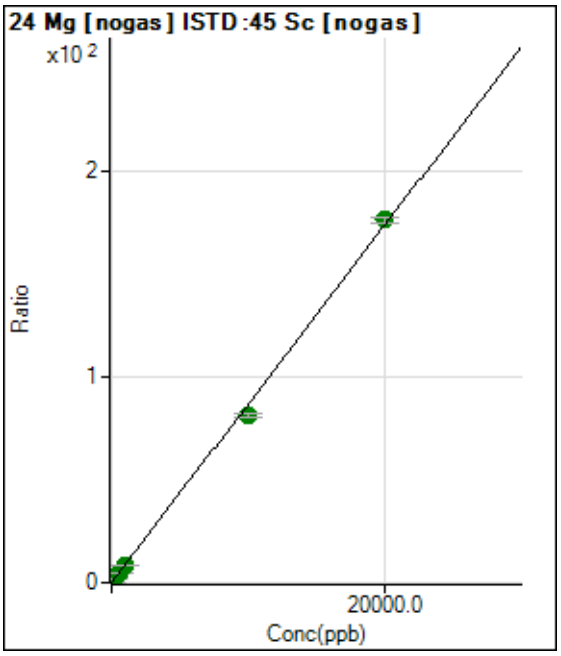
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	49507.96	0.4102	P	0.3
2	☐	200.000	195.342	97435.08	0.7938	P	3.2
3	☐	500.000	503.861	171670.86	1.3998	P	0.4
4	☐	1000.000	1050.405	298421.25	2.4733	P	3.1
5	☐	10000.00	9466.322	2250647.52	19.0033	A	2.4
6	☐	20000.00	20264.269	4628919.72	40.2119	A	3.0
7	☐	100.000					

y = 0.0020 * x + 0.4102
R = 0.9995
DL = 1.568
BEC = 208.8

Weight: <None>
Min Conc: <None>

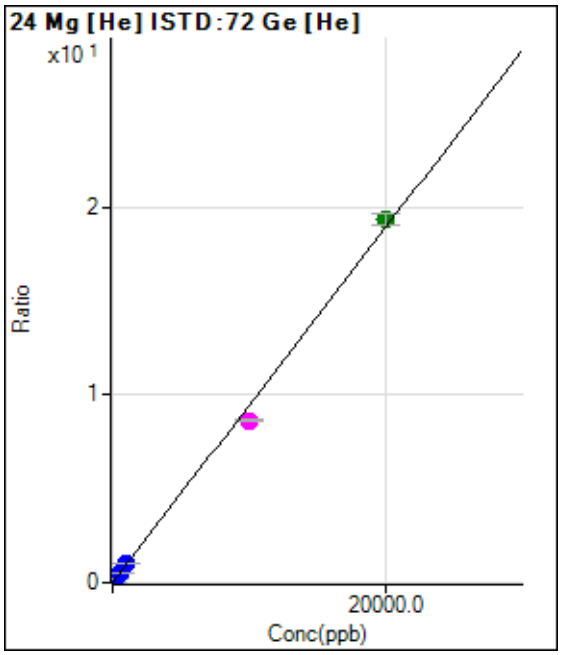


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	14074.34	0.0140	P	12.1
2	☐	200.000	203.050	1728051.99	1.7739	A	2.9
3	☐	500.000	503.856	4412478.75	4.3811	A	2.2
4	☐	1000.000	1016.922	8688332.49	8.8280	A	0.3
5	☐	10000.00	9363.566	78435872.59	81.1718	A	3.2
6	☐	20000.00	20317.244	166064941.2	176.111	A	1.4
7	☐	100.000					

y = 0.0087 * x + 0.0140
R = 0.9993
DL = 0.583
BEC = 1.61

Weight: <None>
Min Conc: <None>

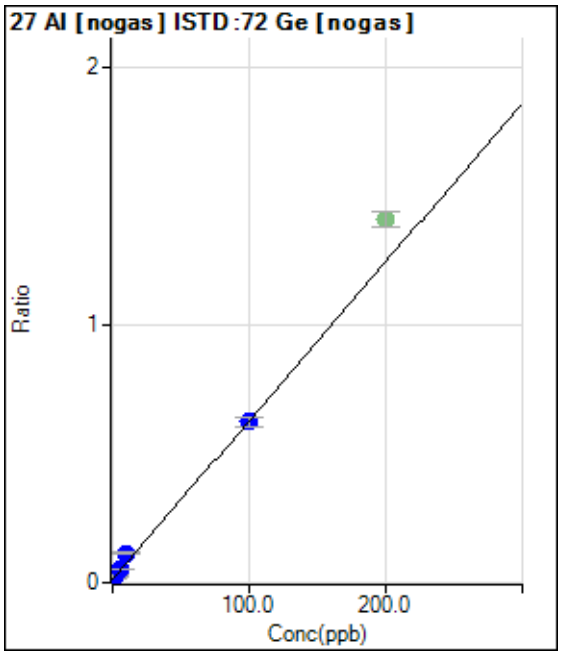
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	396.68	0.0033	P	14.6
2	☐	200.000	200.733	23685.24	0.1930	P	4.1
3	☐	500.000	514.818	60089.21	0.4899	P	1.8
4	☐	1000.000	1050.209	120188.02	0.9959	P	1.7
5	☐	10000.00	9116.752	1020805.14	8.6200	M	1.4
6	☐	20000.00	20438.736	2224153.93	19.3210	A	3.3
7	☐	100.000					

y = 9.4515E-004 * x + 0.0033
R = 0.9986
DL = 1.523
BEC = 3.485

Weight: <None>
Min Conc: <None>

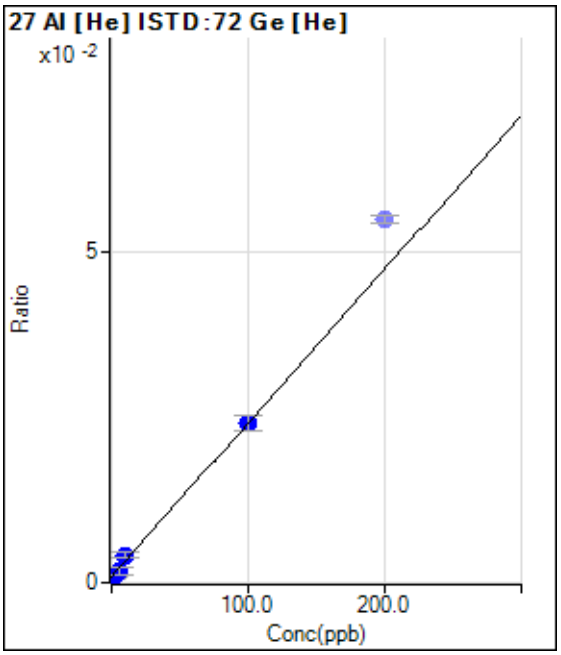


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	19400.31	0.0130	P	8.7
2	☐	2.000	2.097	38716.99	0.0260	P	1.4
3	☐	5.000	6.615	80920.45	0.0539	P	0.9
4	☐	10.000	16.567	173998.58	0.1152	P	1.1
5	☐	100.000	99.261	925987.80	0.6254	P	5.9
6	☑	200.000		2071005.65	1.4103	A	4.3
7	☐	1.000					

y = 0.0062 * x + 0.0130
R = 0.9978
DL = 0.5527
BEC = 2.115

Weight: <None>
Min Conc: <None>

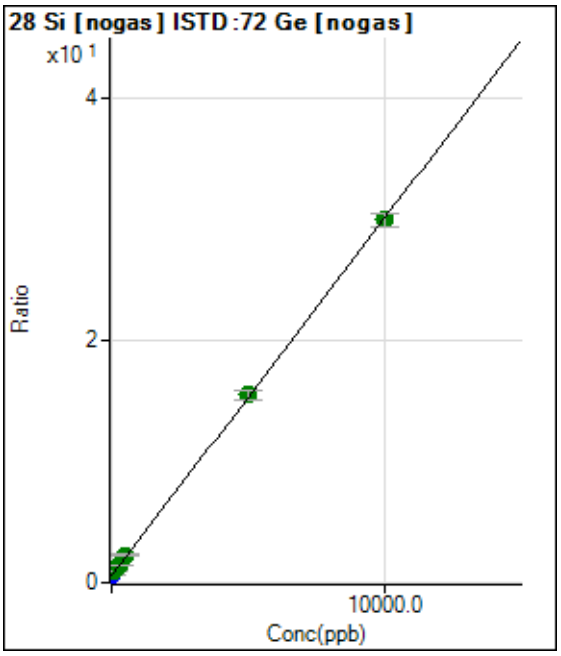
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.408	103.33	0.0009	P	38.3
2	☐	2.000	0.244	123.33	0.0010	P	39.7
3	☐	5.000	3.604	220.00	0.0018	P	57.7
4	☐	10.000	13.839	503.35	0.0042	P	19.8
5	☐	100.000	99.721	2856.94	0.0241	P	10.1
6	☑	200.000		6317.84	0.0549	P	2.3
7	☐	1.000					

y = 2.3239E-004 * x + 9.4776E-004
R = 0.9986
DL = 4.213
BEC = 4.078

Weight: <None>
Min Conc: <None>

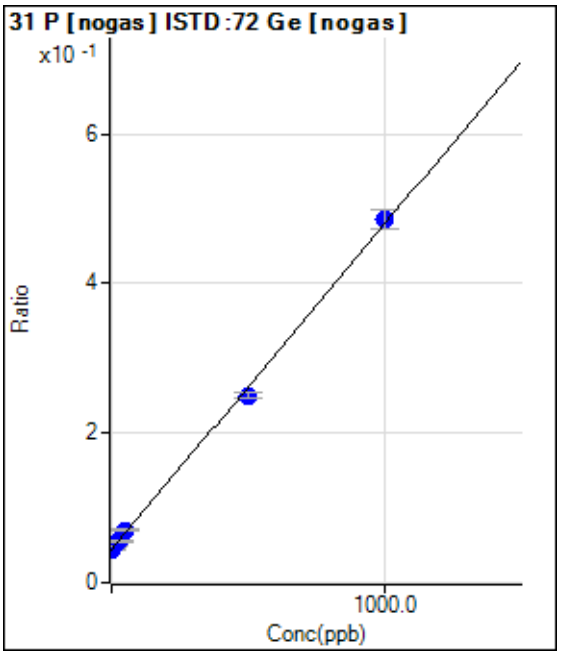


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	840197.54	0.5645	P	2.9
2	☐	100.000	145.974	1481842.17	0.9944	A	1.0
3	☐	250.000	312.181	2229407.83	1.4839	A	1.7
4	☐	500.000	586.924	3461390.37	2.2930	A	2.3
5	☐	5000.000	5072.062	22958925.49	15.5018	A	4.9
6	☐	10000.00	9957.609	43900762.68	29.8897	A	3.8
7	☐	5.000					

y = 0.0029 * x + 0.5645
R = 1.0000
DL = 16.62
BEC = 191.7

Weight: <None>
Min Conc: <None>

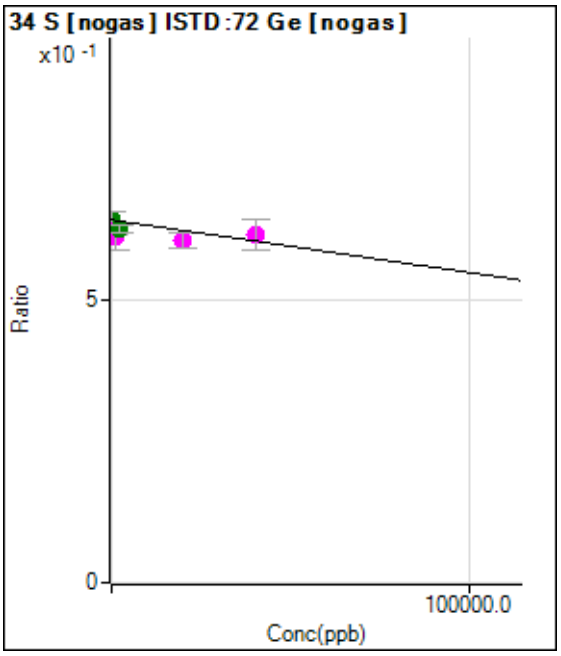
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	66158.86	0.0444	P	2.8
2	☐	10.000	8.594	71793.61	0.0482	P	1.6
3	☐	25.000	26.722	84251.53	0.0561	P	3.8
4	☐	50.000	59.995	106506.60	0.0705	P	2.6
5	☐	500.000	473.232	370784.08	0.2503	P	3.6
6	☐	1000.000	1012.855	711941.55	0.4850	P	5.1
7	☐	5.000					

y = 4.3491E-004 * x + 0.0444
R = 0.9994
DL = 8.557
BEC = 102.2

Weight: <None>
Min Conc: <None>

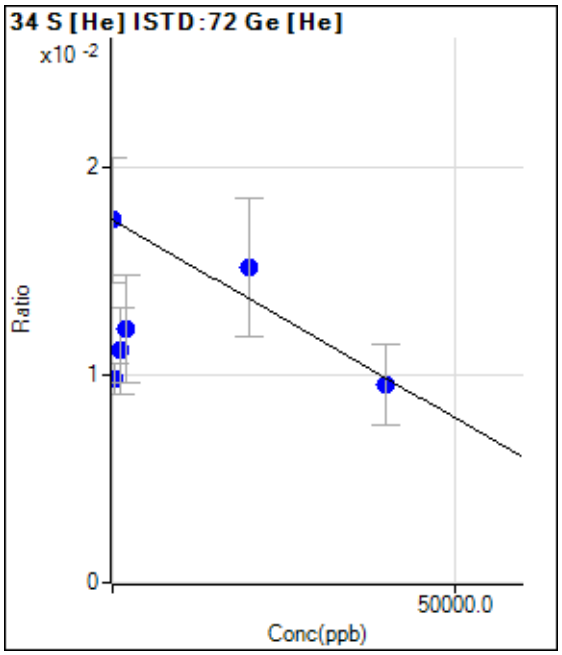


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	957374.27	0.6435	A	4.7
2	☐	400.000	19969.274	931212.29	0.6248	M	2.8
3	☐	1000.000	32200.507	921019.78	0.6134	M	7.3
4	☐	2000.000	17795.986	946275.51	0.6268	A	2.0
5	☐	20000.00	40516.775	897220.69	0.6056	M	4.5
6	☐	40000.00	27976.108	905413.92	0.6173	M	8.7
7	☐	100.000					

y = -9.3476E-007 * x + 0.6435
R = -0.4736
DL = -9.776E+04
BEC = -6.884E+05

Weight: <None>
Min Conc: <None>

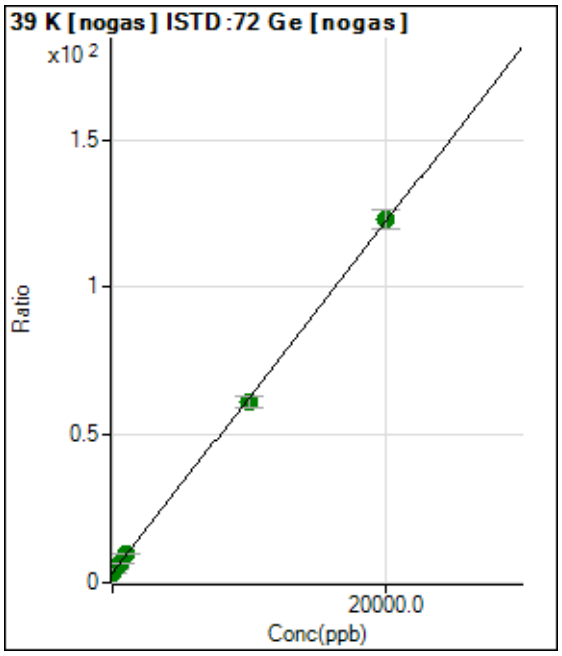
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2100.49	0.0174	P	34.7
2	☐	400.000	40253.976	1200.27	0.0098	P	16.0
3	☐	1000.000	33037.336	1366.96	0.0112	P	37.2
4	☐	2000.000	27563.776	1466.96	0.0122	P	42.3
5	☐	20000.00	11823.898	1800.50	0.0152	P	43.8
6	☐	40000.00	41610.389	1100.35	0.0095	P	41.1
7	☐	100.000					

y = -1.8975E-007 * x + 0.0174
R = -0.2766
DL = -9.564E+04
BEC = -9.188E+04

Weight: <None>
Min Conc: <None>

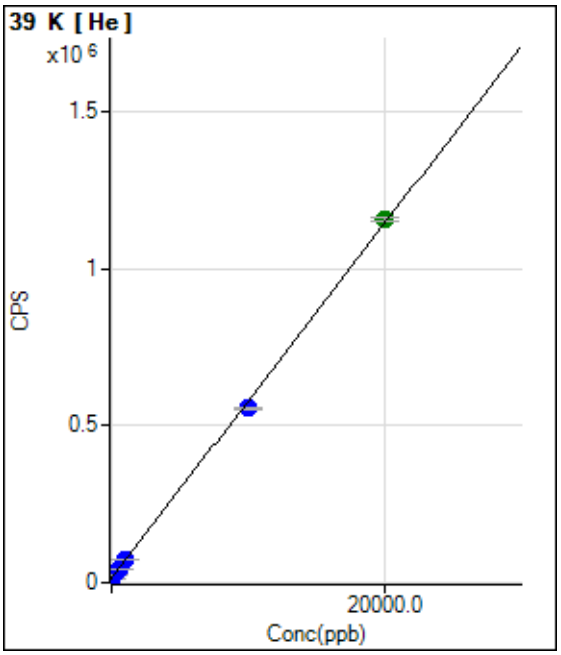


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5015437.35	3.3694	A	2.3
2	☐	200.000	214.273	6916175.67	4.6418	A	1.1
3	☐	500.000	518.931	9691248.39	6.4508	A	2.3
4	☐	1000.000	1056.385	14557175.32	9.6422	A	3.0
5	☐	10000.00	9733.044	90567308.27	61.1638	A	6.4
6	☐	20000.00	20130.043	180424912.3	122.900	A	5.2
7	☐	100.000					

y = 0.0059 * x + 3.3694
R = 0.9999
DL = 39.95
BEC = 567.4

Weight: <None>
Min Conc: <None>

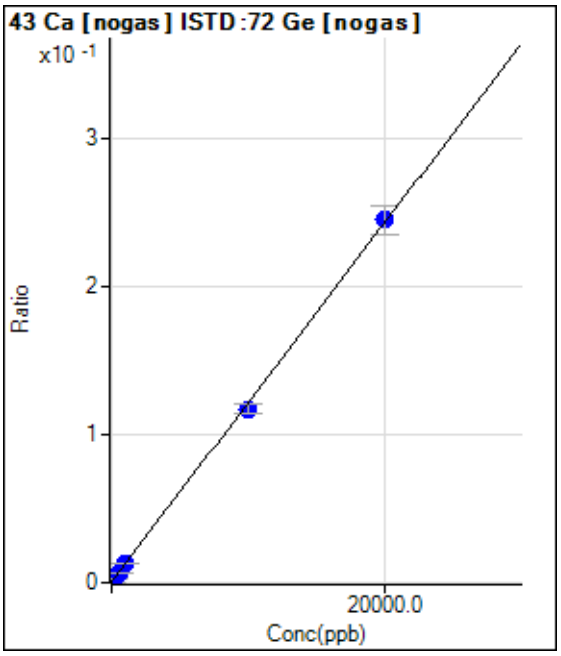
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	14342.34		P	1.4
2	☐	200.000	198.143	25544.35		P	0.7
3	☐	500.000	534.080	44536.51		P	1.3
4	☐	1000.000	1077.785	75274.83		P	0.6
5	☐	10000.00	9579.648	555927.20		P	0.7
6	☐	20000.00	20205.453	1156656.50		A	1.2
7	☐	100.000					

y = 56.5349 * x + 14342.3400
R = 0.9997
DL = 10.43
BEC = 253.7

Weight: <None>
Min Conc: <None>

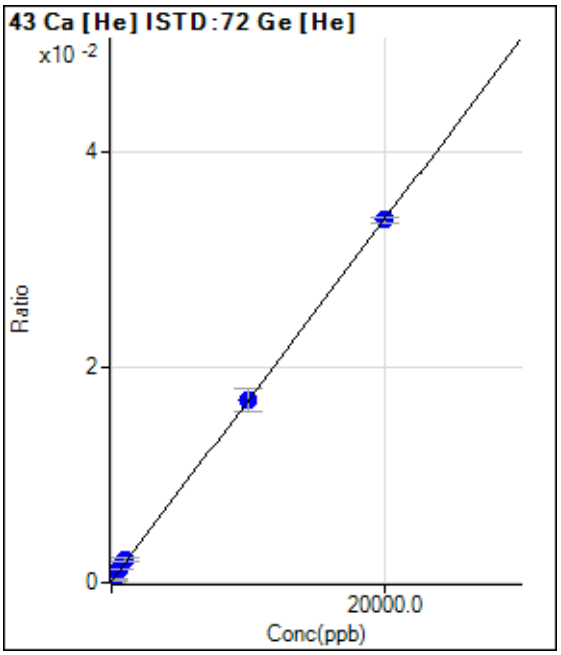


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	670.03	0.0004	P	20.5
2	☐	200.000	219.092	4634.00	0.0031	P	5.6
3	☐	500.000	517.202	10109.62	0.0067	P	3.8
4	☐	1000.000	1037.654	19690.74	0.0130	P	1.4
5	☐	10000.00	9646.667	174027.83	0.1175	P	6.1
6	☐	20000.00	20174.163	359901.09	0.2453	P	7.8
7	☐	100.000					

y = 1.2138E-005 * x + 4.4867E-004
R = 0.9998
DL = 22.77
BEC = 36.96

Weight: <None>
Min Conc: <None>

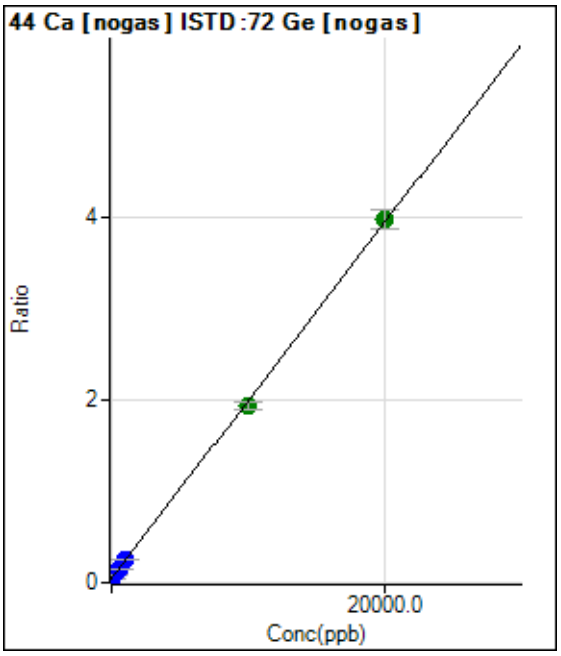
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16.67	0.0001	P	125.
2	☐	200.000	109.275	40.00	0.0003	P	49.3
3	☐	500.000	644.812	150.00	0.0012	P	7.5
4	☐	1000.000	1169.618	253.34	0.0021	P	16.6
5	☐	10000.00	10031.123	2010.14	0.0170	P	12.8
6	☐	20000.00	19973.244	3877.13	0.0337	P	1.8
7	☐	100.000					

y = 1.6792E-006 * x + 1.4090E-004
R = 0.9999
DL = 316.6
BEC = 83.91

Weight: <None>
Min Conc: <None>

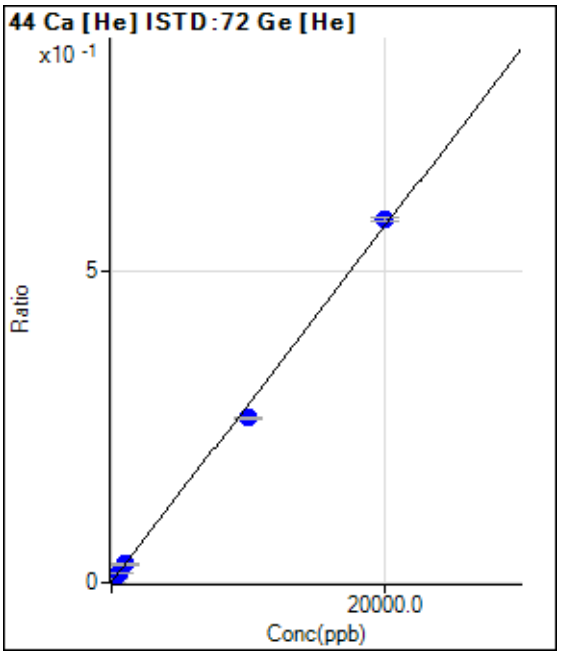


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	70107.82	0.0471	P	3.2
2	☐	200.000	204.814	129637.15	0.0870	P	0.9
3	☐	500.000	519.840	222997.06	0.1484	P	0.8
4	☐	1000.000	1051.943	380639.03	0.2521	P	1.3
5	☐	10000.00	9682.103	2865681.73	1.9341	A	4.1
6	☐	20000.00	20155.807	5836482.21	3.9754	A	5.4
7	☐	100.000					

y = 1.9490E-004 * x + 0.0471
R = 0.9998
DL = 23.18
BEC = 241.7

Weight: <None>
Min Conc: <None>

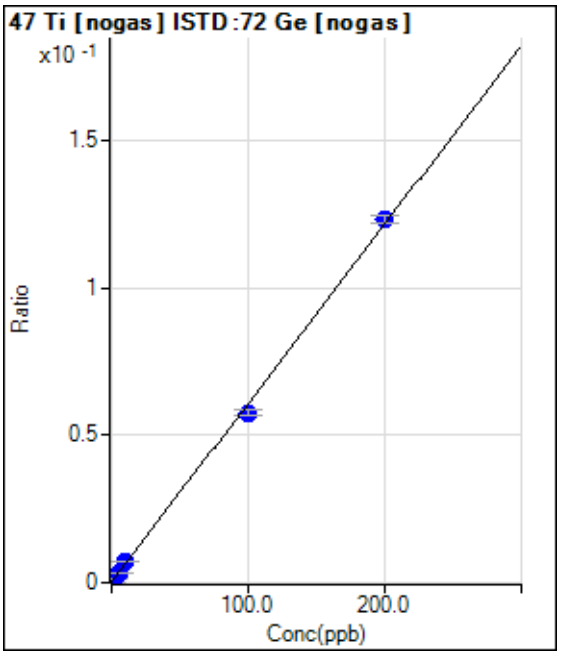
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	106.67	0.0009	P	37.8
2	☐	200.000	167.202	693.36	0.0057	P	20.3
3	☐	500.000	486.641	1810.12	0.0147	P	9.3
4	☐	1000.000	1031.491	3653.75	0.0303	P	8.1
5	☐	10000.00	9240.739	31270.21	0.2641	P	1.8
6	☐	20000.00	20378.718	66924.17	0.5813	P	1.2
7	☐	100.000					

y = 2.8482E-005 * x + 8.8823E-004
R = 0.9990
DL = 35.4
BEC = 31.19

Weight: <None>
Min Conc: <None>

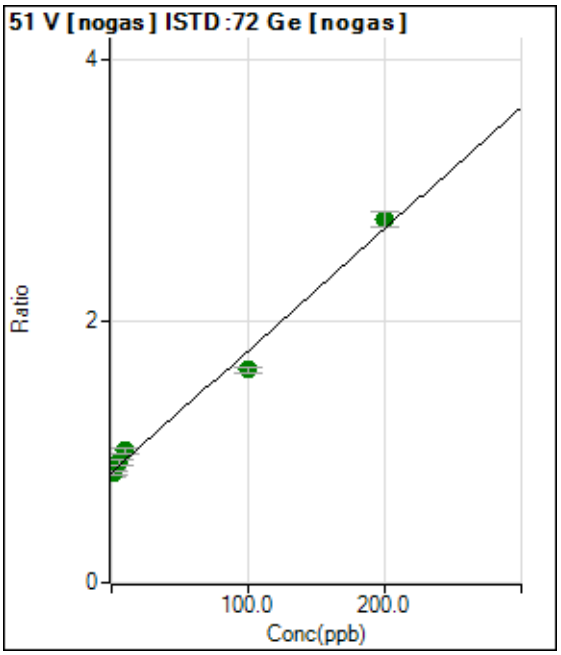


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	250.01	0.0002	P	13.5
2	☐	2.000	2.094	2143.50	0.0014	P	12.4
3	☐	5.000	5.356	5137.46	0.0034	P	2.4
4	☐	10.000	11.081	10406.45	0.0069	P	1.0
5	☐	100.000	94.665	85366.96	0.0576	P	3.3
6	☐	200.000	202.604	180980.32	0.1231	P	2.0
7	☐	1.000					

y = 6.0679E-004 * x + 1.6830E-004
R = 0.9995
DL = 0.1121
BEC = 0.2774

Weight: <None>
Min Conc: <None>

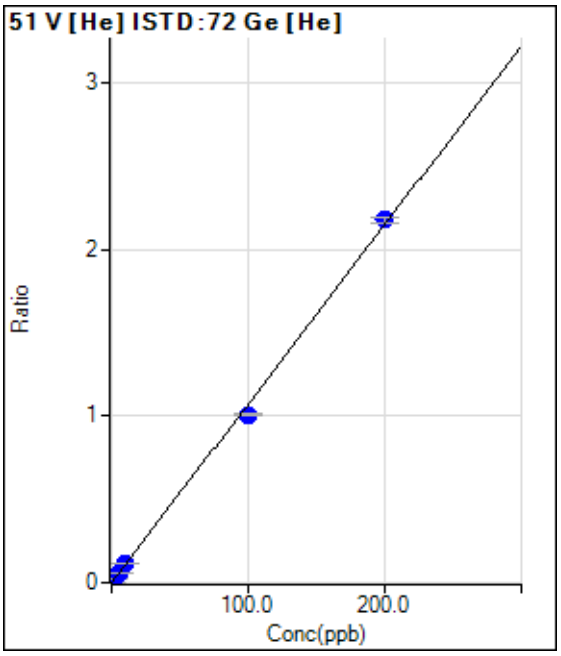
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1257827.40	0.8457	A	7.1
2	☐	2.000	-0.619	1252134.89	0.8400	A	4.0
3	☐	5.000	8.269	1386229.75	0.9229	A	5.3
4	☐	10.000	17.703	1526378.58	1.0109	A	3.9
5	☐	100.000	84.446	2420590.55	1.6334	A	2.9
6	☐	200.000	207.336	4082827.95	2.7796	A	4.4
7	☐	1.000					

y = 0.0093 * x + 0.8457
R = 0.9945
DL = 19.2
BEC = 90.67

Weight: <None>
Min Conc: <None>

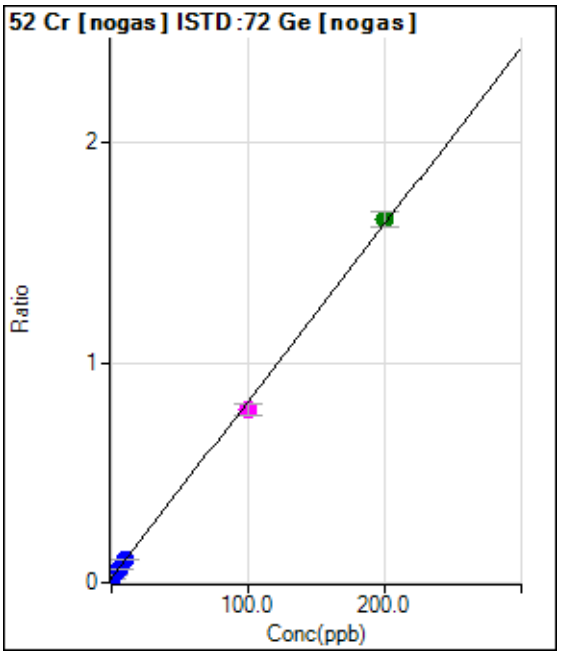


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.653	672.01	0.0056	P	5.8
2	☐	2.000	2.551	3184.95	0.0260	P	4.0
3	☐	5.000	5.767	7421.49	0.0605	P	1.8
4	☐	10.000	11.057	14162.09	0.1174	P	1.9
5	☐	100.000	94.099	119574.72	1.0097	P	0.8
6	☐	200.000	202.873	250794.52	2.1785	P	1.9
7	☐	1.000					

y = 0.0107 * x - 0.0015
R = 0.9993
DL = 0.09041
BEC = -0.1353

Weight: <None>
Min Conc: <None>

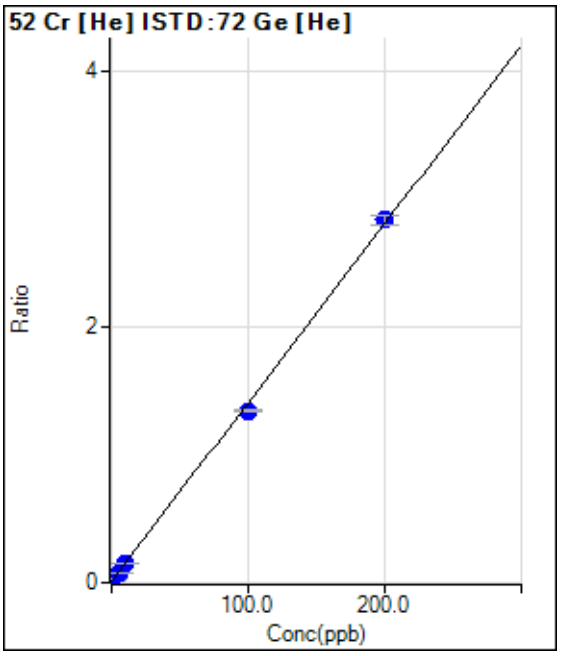
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	31393.58	0.0211	P	5.3
2	☐	2.000	1.922	54493.61	0.0366	P	1.4
3	☐	5.000	5.294	95698.28	0.0637	P	4.7
4	☐	10.000	10.821	163349.84	0.1082	P	1.3
5	☐	100.000	94.967	1163297.06	0.7855	M	6.4
6	☐	200.000	202.469	2424213.40	1.6508	A	4.2
7	☐	1.000					

y = 0.0080 * x + 0.0211
R = 0.9995
DL = 0.4146
BEC = 2.621

Weight: <None>
Min Conc: <None>

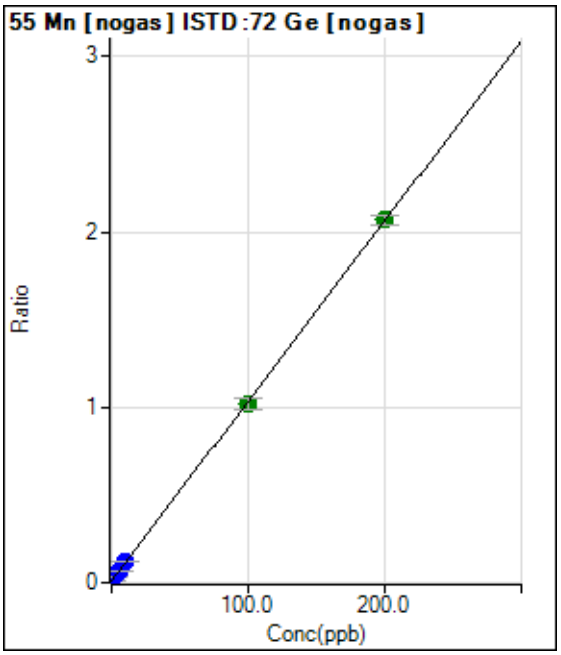


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1270.06	0.0105	P	7.2
2	☐	2.000	2.034	4787.38	0.0390	P	11.9
3	☐	5.000	4.978	9819.46	0.0801	P	3.2
4	☐	10.000	9.714	17645.37	0.1463	P	3.6
5	☐	100.000	95.407	159108.07	1.3436	P	0.7
6	☐	200.000	202.311	326633.24	2.8374	P	2.4
7	☐	1.000					

y = 0.0140 * x + 0.0105
R = 0.9996
DL = 0.1621
BEC = 0.7536

Weight: <None>
Min Conc: <None>

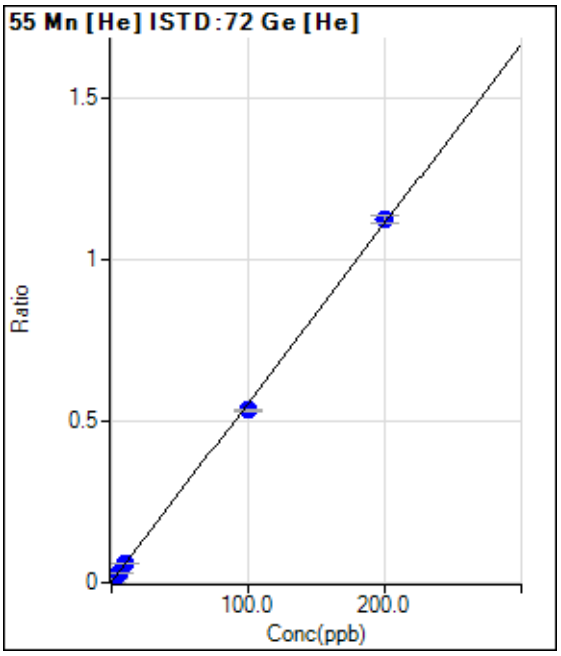
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13768.67	0.0093	P	8.4
2	☐	2.000	1.932	43314.74	0.0291	P	2.9
3	☐	5.000	5.158	93389.61	0.0622	P	3.4
4	☐	10.000	10.562	177533.19	0.1176	P	1.8
5	☐	100.000	98.578	1510526.18	1.0205	A	7.1
6	☐	200.000	200.680	3038000.58	2.0678	A	2.6
7	☐	1.000					

y = 0.0103 * x + 0.0093
R = 1.0000
DL = 0.2282
BEC = 0.9027

Weight: <None>
Min Conc: <None>

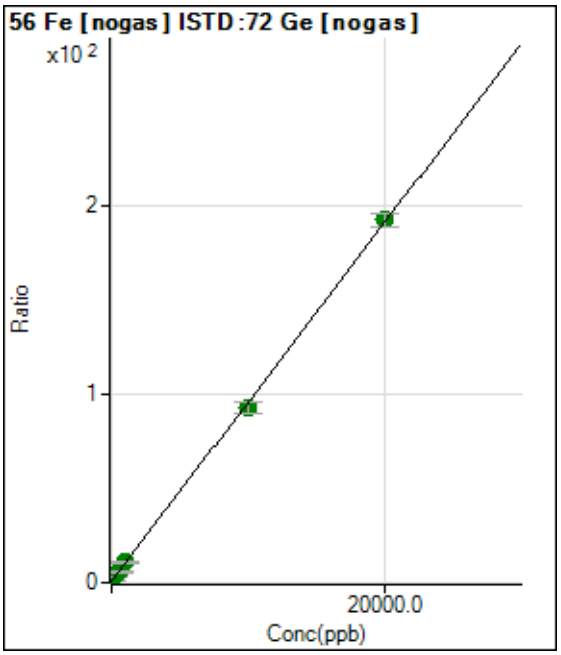


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	230.01	0.0019	P	29.6
2	☐	2.000	1.985	1586.76	0.0129	P	10.1
3	☐	5.000	5.189	3760.44	0.0307	P	1.7
4	☐	10.000	10.129	7004.81	0.0581	P	2.9
5	☐	100.000	95.831	63142.06	0.5332	P	1.0
6	☐	200.000	202.074	129196.20	1.1222	P	2.0
7	☐	1.000					

y = 0.0055 * x + 0.0019
R = 0.9997
DL = 0.305
BEC = 0.3429

Weight: <None>
Min Conc: <None>

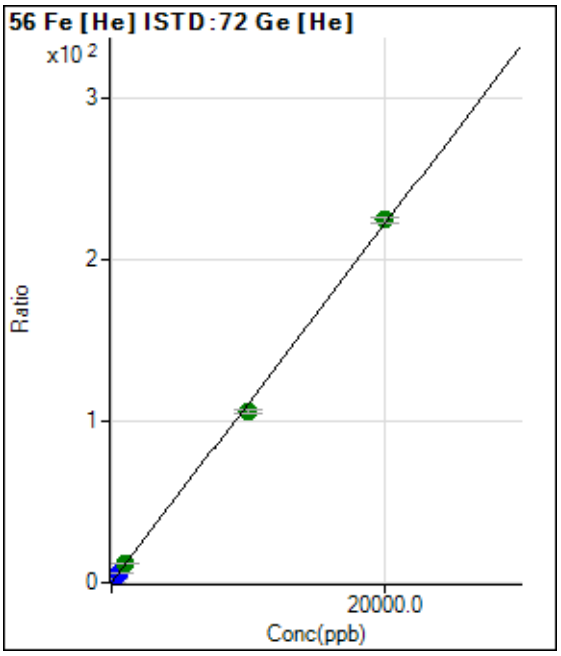
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1102312.46	0.7410	M	8.8
2	☐	200.000	203.170	3975758.42	2.6688	A	2.3
3	☐	500.000	516.031	8468133.52	5.6374	A	3.6
4	☐	1000.000	1051.199	16176599.84	10.7154	A	1.0
5	☐	10000.00	9664.986	136829257.2	92.4476	A	7.2
6	☐	20000.00	20164.514	282072006.3	192.072	A	3.8
7	☐	100.000					

y = 0.0095 * x + 0.7410
R = 0.9998
DL = 20.52
BEC = 78.1

Weight: <None>
Min Conc: <None>

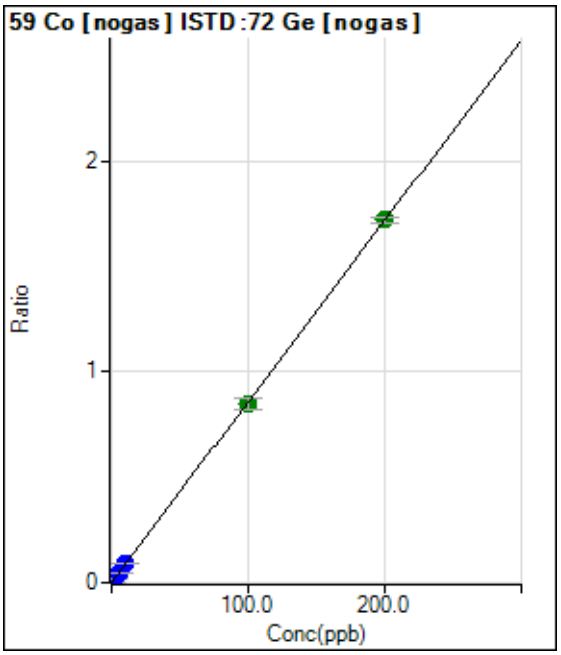


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16814.51	0.1393	P	0.6
2	☐	200.000	180.859	263321.41	2.1457	P	3.1
3	☐	500.000	484.337	675833.12	5.5125	P	4.1
4	☐	1000.000	1051.723	1424556.65	11.8070	A	3.4
5	☐	10000.00	9496.284	12493817.73	105.489	A	2.3
6	☐	20000.00	20249.855	25878970.45	224.788	A	1.5
7	☐	100.000					

y = 0.0111 * x + 0.1393
R = 0.9995
DL = 0.2093
BEC = 12.56

Weight: <None>
Min Conc: <None>

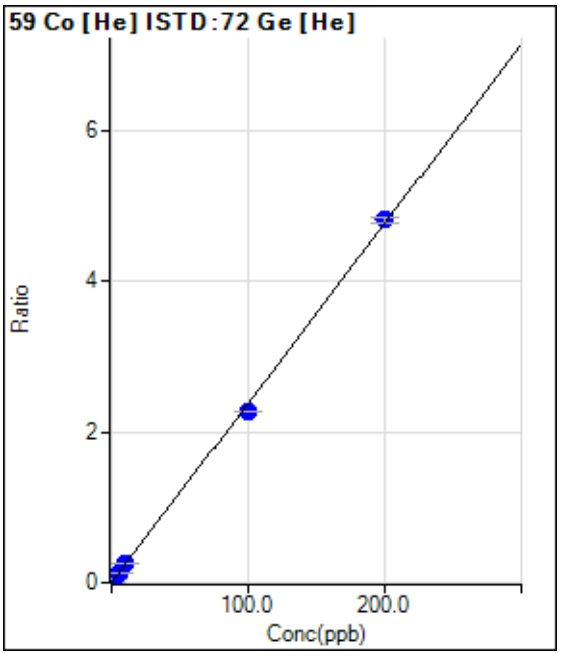
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	353.34	0.0002	P	29.3
2	☐	2.000	2.166	28035.24	0.0188	P	1.3
3	☐	5.000	5.285	68471.40	0.0456	P	2.6
4	☐	10.000	10.730	139335.74	0.0923	P	1.6
5	☐	100.000	98.713	1253980.92	0.8471	A	6.7
6	☐	200.000	200.598	2529427.93	1.7212	A	1.8
7	☐	1.000					

y = 0.0086 * x + 2.3856E-004
R = 1.0000
DL = 0.02448
BEC = 0.02781

Weight: <None>
Min Conc: <None>

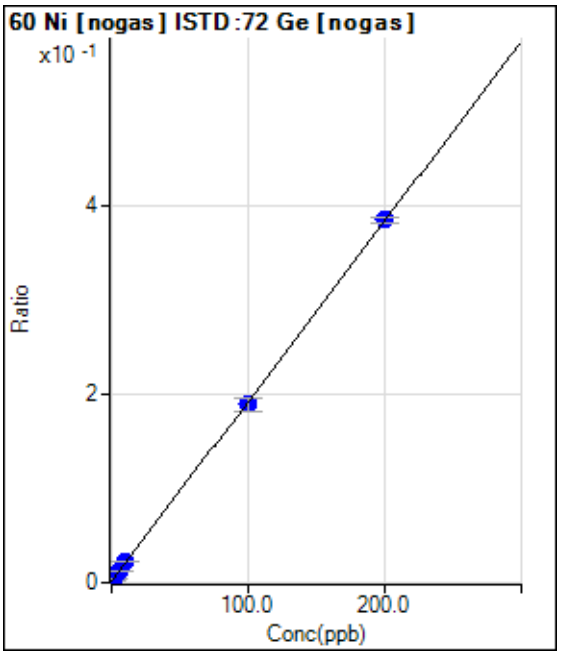


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	46.67	0.0004	P	14.4
2	☐	2.000	2.030	5981.07	0.0488	P	6.3
3	☐	5.000	5.341	15653.63	0.1277	P	3.1
4	☐	10.000	10.629	30595.99	0.2537	P	5.6
5	☐	100.000	95.595	269823.04	2.2785	P	0.5
6	☐	200.000	202.162	554701.84	4.8181	P	1.5
7	☐	1.000					

y = 0.0238 * x + 3.8744E-004
R = 0.9996
DL = 0.007015
BEC = 0.01626

Weight: <None>
Min Conc: <None>

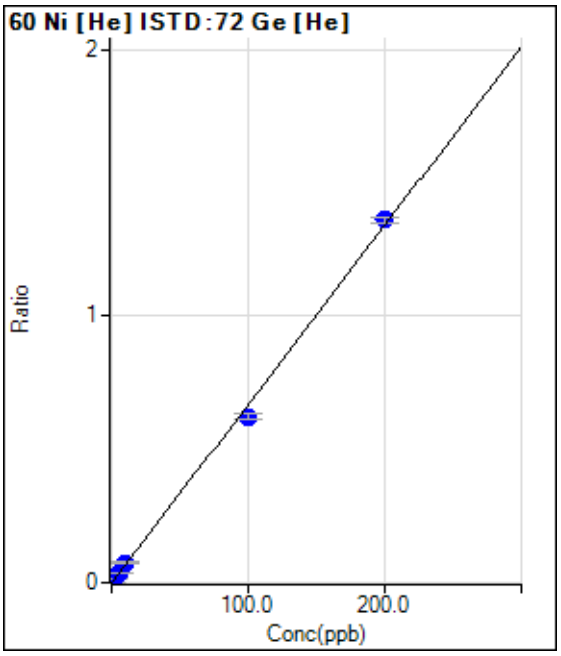
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.073	1720.11	0.0012	P	18.2
2	☐	2.000	1.952	7478.32	0.0050	P	1.4
3	☐	5.000	5.241	16968.12	0.0113	P	1.0
4	☐	10.000	10.820	33113.76	0.0219	P	1.6
5	☐	100.000	98.212	279163.72	0.1886	P	6.9
6	☐	200.000	200.848	564743.06	0.3843	P	1.4
7	☐	1.000					

y = 0.0019 * x + 0.0013
R = 0.9999
DL = 0.331
BEC = 0.6804

Weight: <None>
Min Conc: <None>

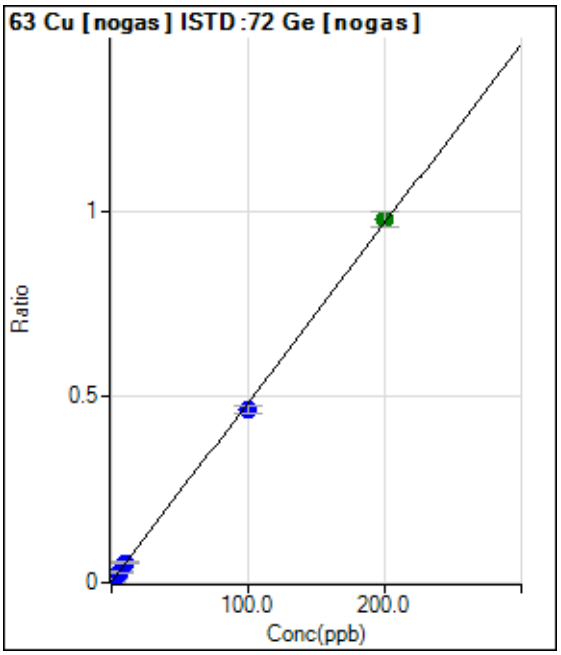


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.717	286.68	0.0024	P	10.3
2	☐	2.000	2.499	1760.12	0.0143	P	1.8
3	☐	5.000	5.954	4600.67	0.0375	P	2.6
4	☐	10.000	11.250	8808.89	0.0731	P	7.7
5	☐	100.000	93.344	73879.63	0.6240	P	4.1
6	☐	200.000	203.237	156734.18	1.3615	P	1.8
7	☐	1.000					

y = 0.0067 * x - 0.0024
R = 0.9991
DL = 0.1091
BEC = -0.3628

Weight: <None>
Min Conc: <None>

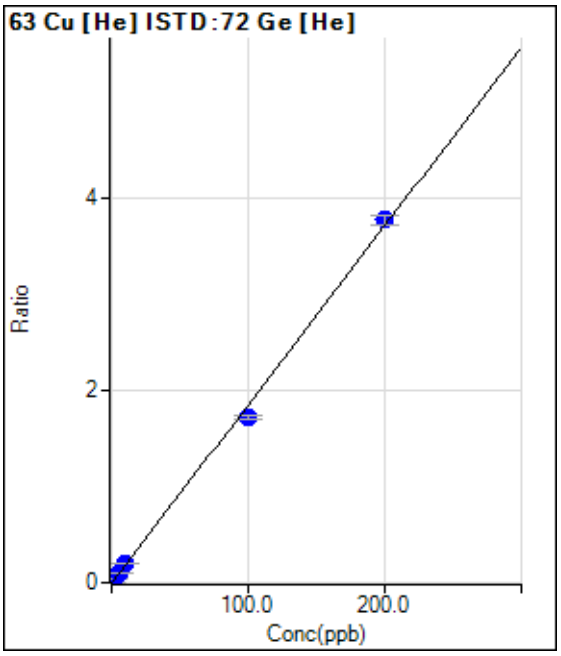
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3940.49	0.0026	P	9.6
2	☐	2.000	2.072	18829.93	0.0126	P	1.4
3	☐	5.000	5.266	42115.72	0.0280	P	4.4
4	☐	10.000	10.655	81555.38	0.0540	P	1.2
5	☐	100.000	96.102	690372.88	0.4660	P	4.0
6	☐	200.000	201.909	1433880.24	0.9762	A	4.4
7	☐	1.000					

y = 0.0048 * x + 0.0026
R = 0.9997
DL = 0.158
BEC = 0.5488

Weight: <None>
Min Conc: <None>

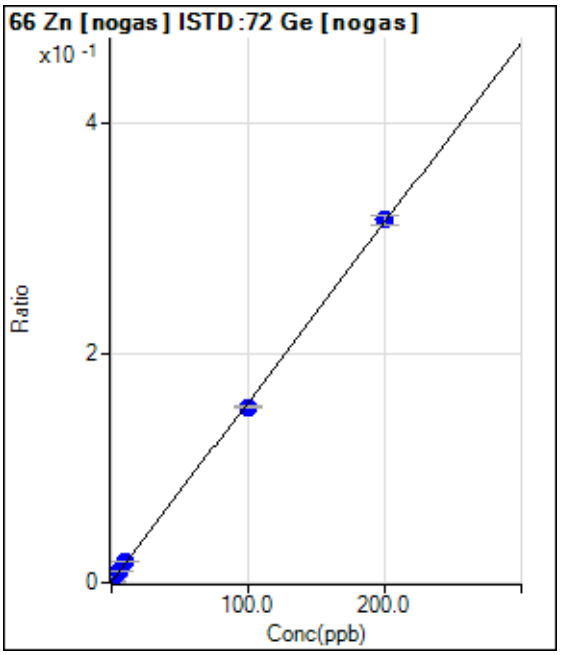


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.858	860.03	0.0071	P	14.1
2	☐	2.000	2.758	5210.83	0.0425	P	2.5
3	☐	5.000	5.735	11990.76	0.0978	P	5.2
4	☐	10.000	11.293	24249.89	0.2011	P	6.0
5	☐	100.000	92.893	203391.18	1.7177	P	2.0
6	☐	200.000	203.463	434311.27	3.7726	P	2.4
7	☐	1.000					

y = 0.0186 * x - 0.0088
R = 0.9990
DL = 0.1619
BEC = -0.4735

Weight: <None>
Min Conc: <None>

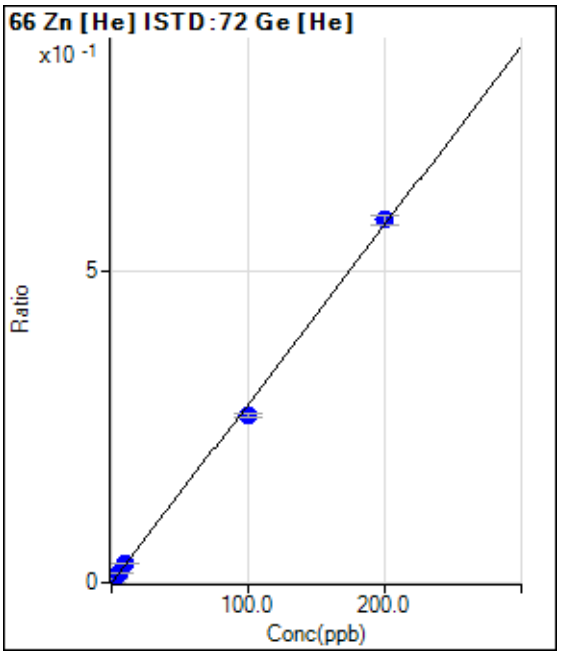
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.009	1243.39	0.0008	P	7.1
2	☐	2.000	2.184	6314.51	0.0042	P	1.9
3	☐	5.000	5.410	13948.84	0.0093	P	1.0
4	☐	10.000	10.929	27047.09	0.0179	P	1.4
5	☐	100.000	97.055	226262.09	0.1526	P	1.2
6	☐	200.000	201.414	463885.02	0.3158	P	2.7
7	☐	1.000					

y = 0.0016 * x + 8.2245E-004
R = 0.9998
DL = 0.1137
BEC = 0.5259

Weight: <None>
Min Conc: <None>

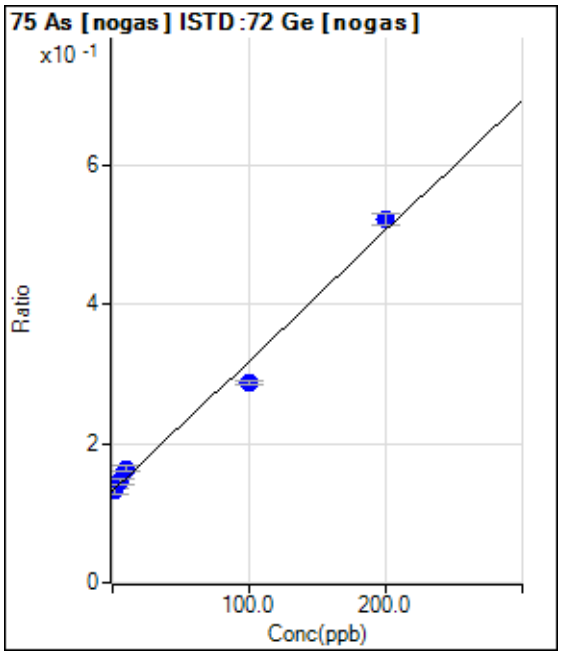


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.661	143.34	0.0012	P	22.7
2	☐	2.000	2.671	856.71	0.0070	P	16.4
3	☐	5.000	5.508	1856.79	0.0151	P	5.2
4	☐	10.000	11.226	3810.48	0.0316	P	3.8
5	☐	100.000	94.028	31948.28	0.2698	P	2.1
6	☐	200.000	202.905	67127.03	0.5831	P	2.5
7	☐	1.000					

y = 0.0029 * x - 7.1455E-004
R = 0.9993
DL = 0.2818
BEC = -0.2484

Weight: <None>
Min Conc: <None>

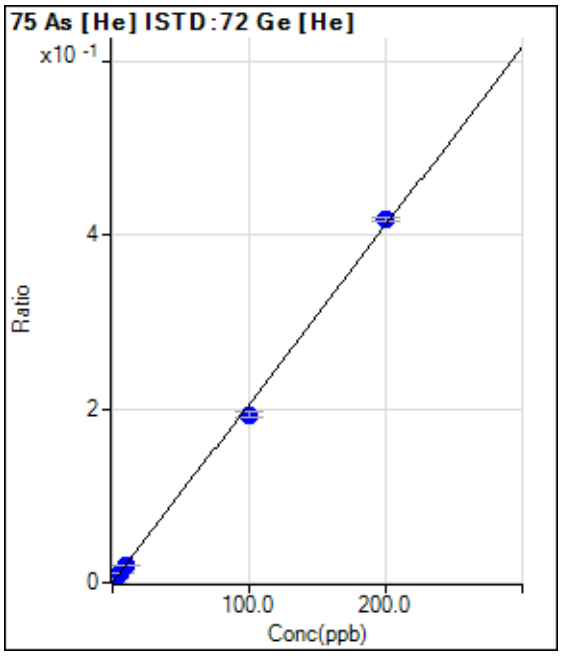
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	1.506	200095.67	0.1346	P	9.6
2	☐	2.000	0.050	196609.66	0.1319	P	5.3
3	☐	5.000	7.111	217909.21	0.1451	P	6.7
4	☐	10.000	17.139	247443.15	0.1639	P	4.6
5	☐	100.000	83.170	426079.65	0.2874	P	1.8
6	☐	200.000	208.025	765466.97	0.5211	P	3.1
7	☐	1.000					

y = 0.0019 * x + 0.1318
R = 0.9939
DL = 20.76
BEC = 70.41

Weight: <None>
Min Conc: <None>

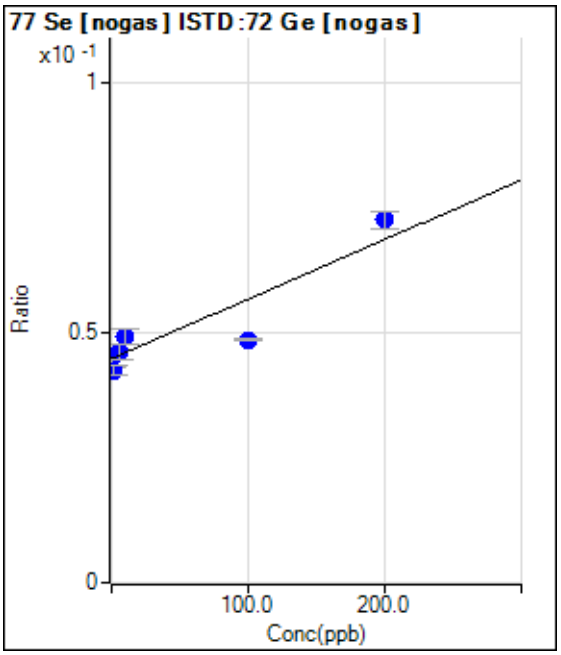


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	31.11	0.0003	P	46.1
2	☐	2.000	1.844	495.57	0.0040	P	8.1
3	☐	5.000	4.914	1268.94	0.0103	P	4.6
4	☐	10.000	9.807	2459.07	0.0204	P	4.2
5	☐	100.000	93.717	22815.43	0.1926	P	3.5
6	☐	200.000	203.155	48039.97	0.4173	P	1.0
7	☐	1.000					

y = 0.0021 * x + 2.5580E-004
R = 0.9993
DL = 0.1725
BEC = 0.1246

Weight: <None>
Min Conc: <None>

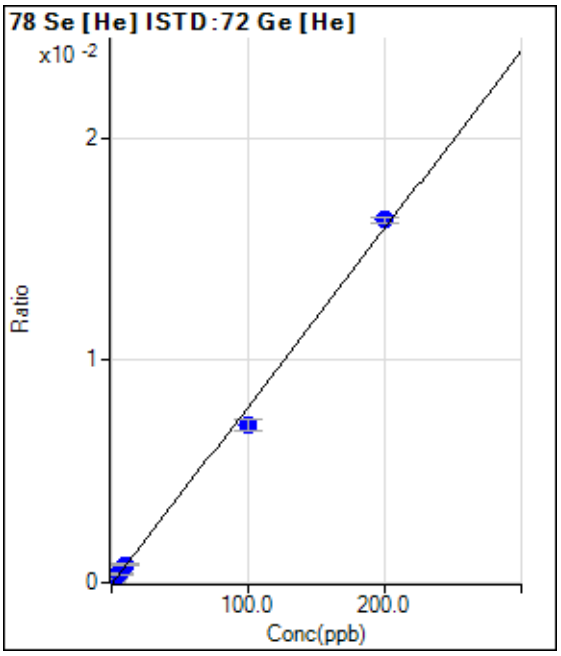
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	66632.13	0.0448	P	7.9
2	☐	2.000	-19.866	63273.78	0.0424	P	4.5
3	☐	5.000	11.815	69409.09	0.0462	P	7.0
4	☐	10.000	35.505	74067.77	0.0490	P	6.2
5	☐	100.000	31.883	72059.02	0.0486	P	1.4
6	☐	200.000	232.831	106544.13	0.0725	P	4.7
7	☐	1.000					

y = 1.1906E-004 * x + 0.0448
R = 0.9179
DL = 89.08
BEC = 376.4

Weight: <None>
Min Conc: <None>

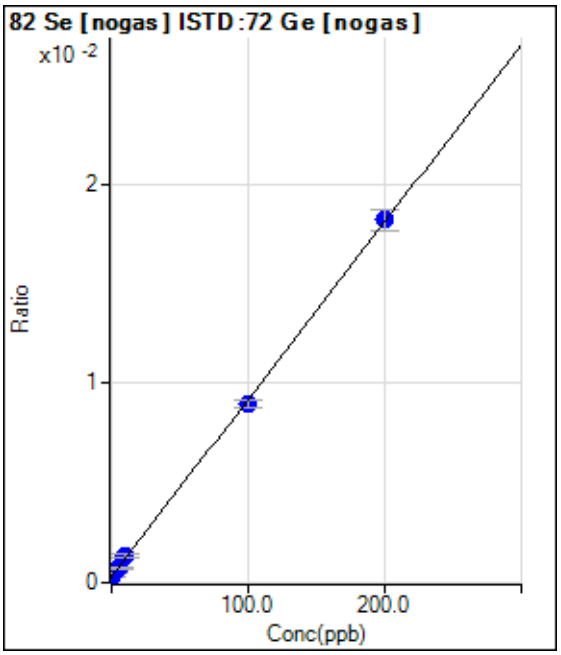


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	1.413	4.00	0.0000	P	86.6
2	☐	2.000	3.450	24.00	0.0002	P	9.2
3	☐	5.000	6.177	50.67	0.0004	P	24.5
4	☐	10.000	11.169	98.00	0.0008	P	13.1
5	☐	100.000	89.787	841.36	0.0071	P	7.9
6	☐	200.000	205.004	1878.77	0.0163	P	1.7
7	☐	1.000					

y = 7.9994E-005 * x - 8.0338E-005
R = 0.9980
DL = 1.063
BEC = -1.004

Weight: <None>
Min Conc: <None>

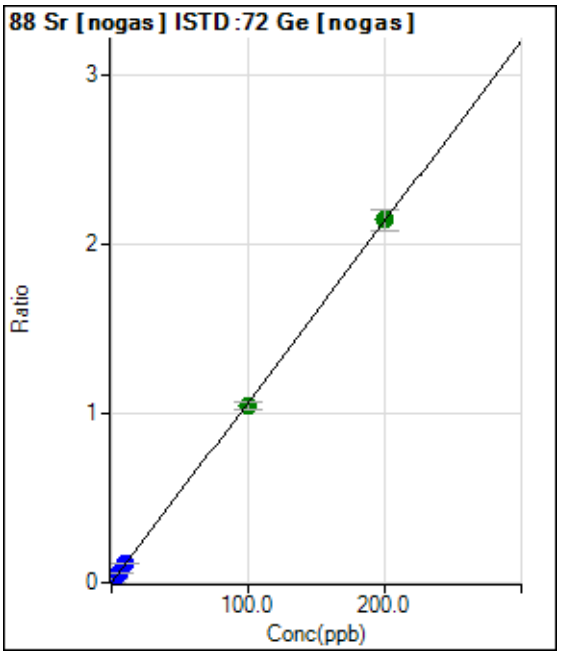
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	463.35	0.0003	P	11.3
2	☐	2.000	2.160	750.03	0.0005	P	2.8
3	☐	5.000	5.139	1153.39	0.0008	P	12.8
4	☐	10.000	11.676	2040.16	0.0014	P	10.3
5	☐	100.000	97.299	13285.14	0.0090	P	4.9
6	☐	200.000	201.261	26740.23	0.0182	P	6.0
7	☐	1.000					

y = 8.8959E-005 * x + 3.1138E-004
R = 0.9998
DL = 1.191
BEC = 3.5

Weight: <None>
Min Conc: <None>

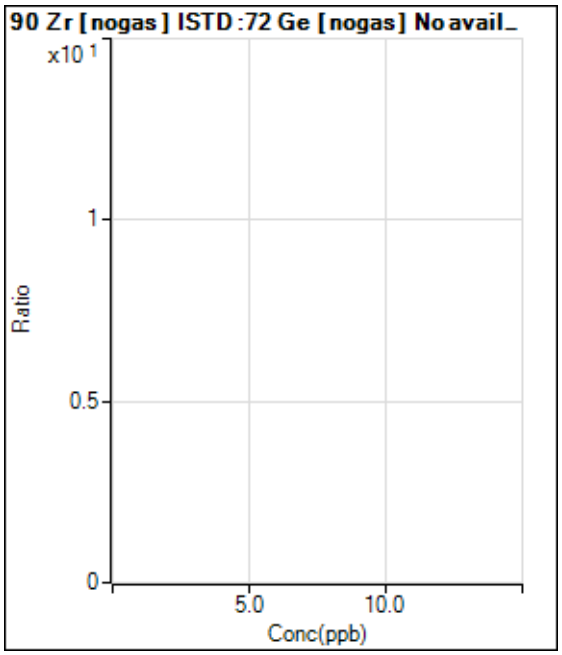


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1070.05	0.0007	P	5.4
2	☐	2.000	2.098	34450.11	0.0231	P	0.7
3	☐	5.000	5.305	86164.43	0.0573	P	1.2
4	☐	10.000	10.459	169633.03	0.1124	P	2.1
5	☐	100.000	97.987	1550722.21	1.0467	A	3.8
6	☐	200.000	200.975	3150278.29	2.1461	A	5.6
7	☐	1.000					

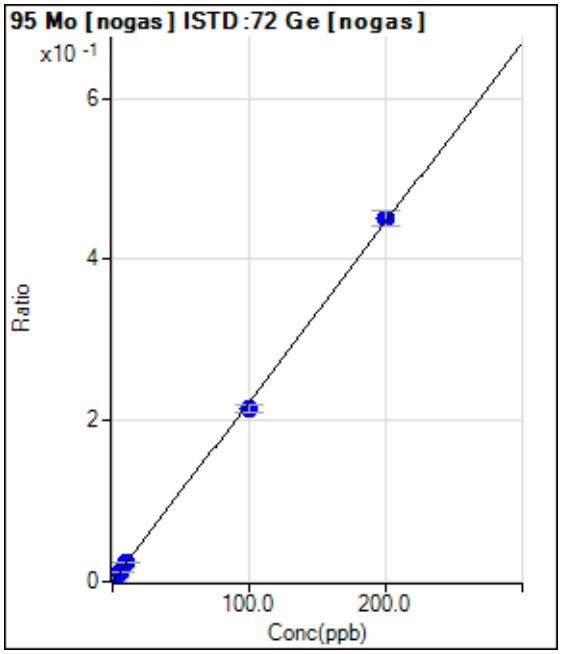
y = 0.0107 * x + 7.1927E-004
R = 0.9999
DL = 0.011
BEC = 0.06738

Weight: <None>
Min Conc: <None>

Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

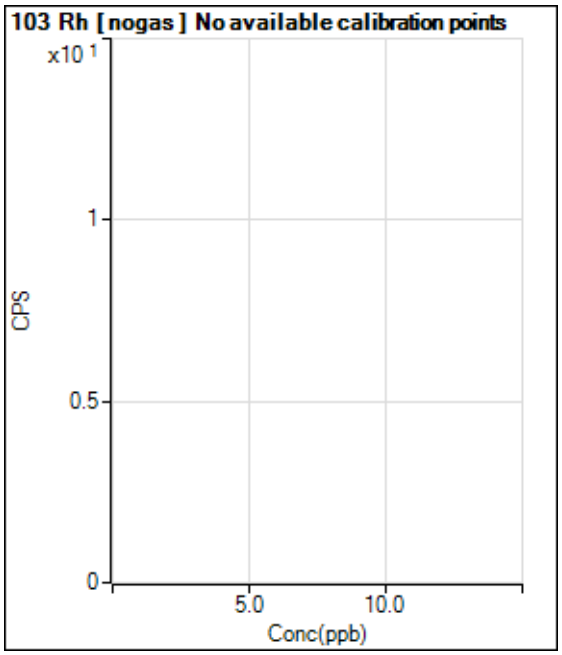


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	130.00	0.0001	P	26.8
2	☐	2.000	2.120	7174.89	0.0048	P	3.0
3	☐	5.000	5.156	17415.59	0.0116	P	1.8
4	☐	10.000	10.550	35659.63	0.0236	P	1.3
5	☐	100.000	96.121	317745.34	0.2145	P	4.3
6	☐	200.000	201.907	661491.92	0.4505	P	4.4
7	☐	1.000					

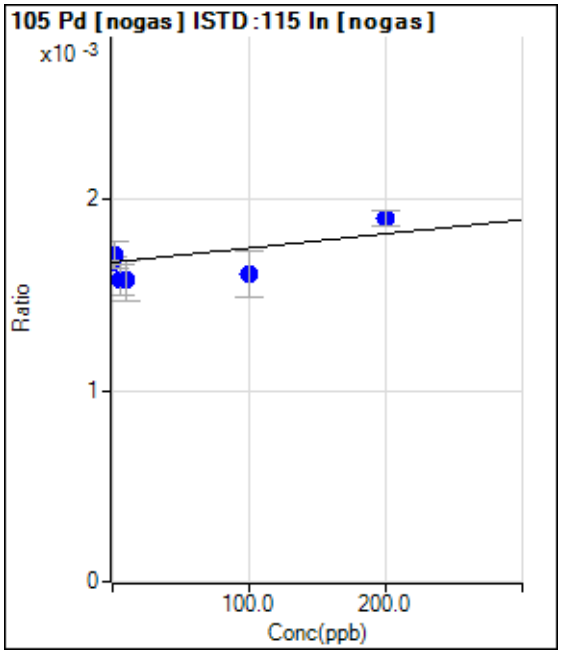
y = 0.0022 * x + 8.7239E-005
R = 0.9997
DL = 0.03149
BEC = 0.03911

Weight: <None>
Min Conc: <None>

Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			13.33		P	86.6
2	☐			6.67		P	86.6
3	☐			13.33		P	43.3
4	☐			30.00		P	33.3
5	☐			86.67		P	17.6
6	☐			206.67		P	36.3
7	☐						

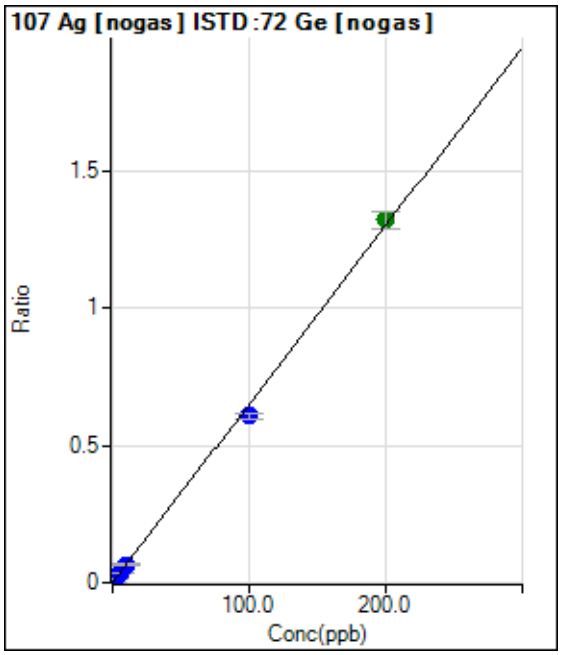


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2533.56	0.0017	P	3.8
2	☐	2.000	53.316	2646.91	0.0017	P	8.0
3	☐	5.000	-124.233	2443.55	0.0016	P	9.9
4	☐	10.000	-130.791	2436.88	0.0016	P	14.0
5	☐	100.000	-89.590	2573.58	0.0016	P	15.0
6	☐	200.000	304.552	2836.95	0.0019	P	4.2
7	☐	1.000					

y = 7.4330E-007 * x + 0.0017
R = 0.7332
DL = 255.6
BEC = 2249

Weight: <None>
Min Conc: <None>

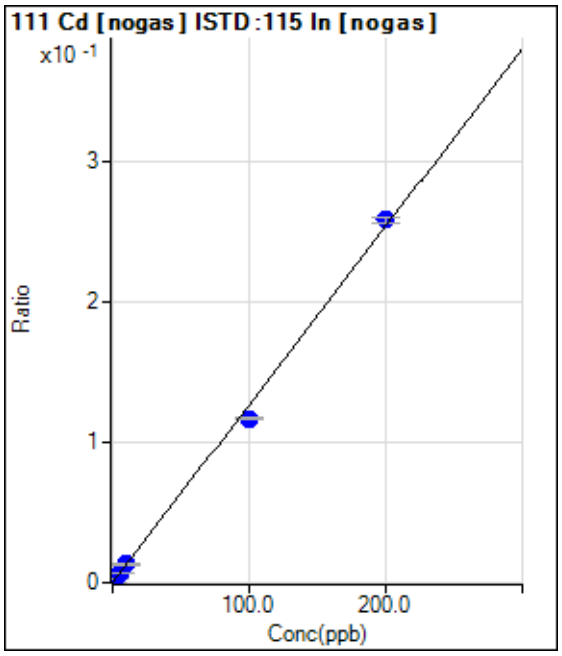
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	423.34	0.0003	P	4.6
2	☐	2.000	2.036	20115.07	0.0135	P	7.5
3	☐	5.000	5.193	51074.82	0.0340	P	2.5
4	☐	10.000	10.177	100162.76	0.0664	P	2.7
5	☐	100.000	93.337	898305.19	0.6062	P	3.2
6	☐	200.000	203.317	1938772.78	1.3202	A	5.0
7	☐	1.000					

y = 0.0065 * x + 2.8429E-004
R = 0.9992
DL = 0.006076
BEC = 0.04379

Weight: <None>
Min Conc: <None>

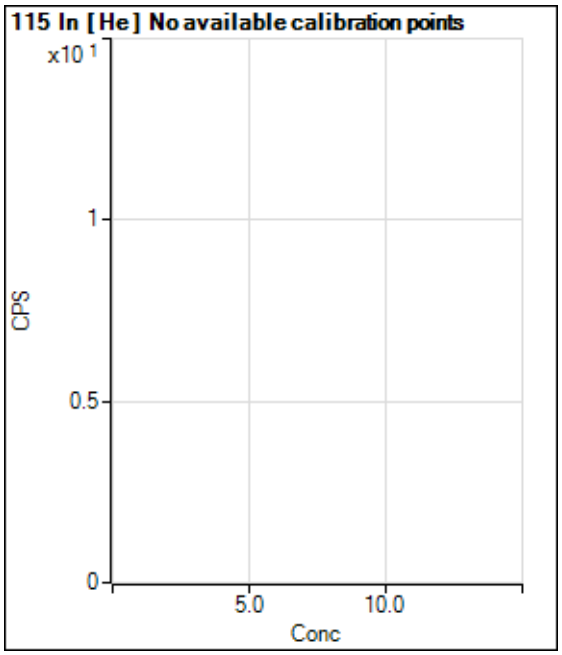


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0000	P	173.
2	☐	2.000	2.106	4160.56	0.0027	P	1.6
3	☐	5.000	5.314	10479.98	0.0068	P	3.2
4	☐	10.000	10.383	20435.56	0.0132	P	3.1
5	☐	100.000	92.330	188199.27	0.1173	P	1.4
6	☐	200.000	203.807	386888.00	0.2588	P	1.9
7	☐	1.000					

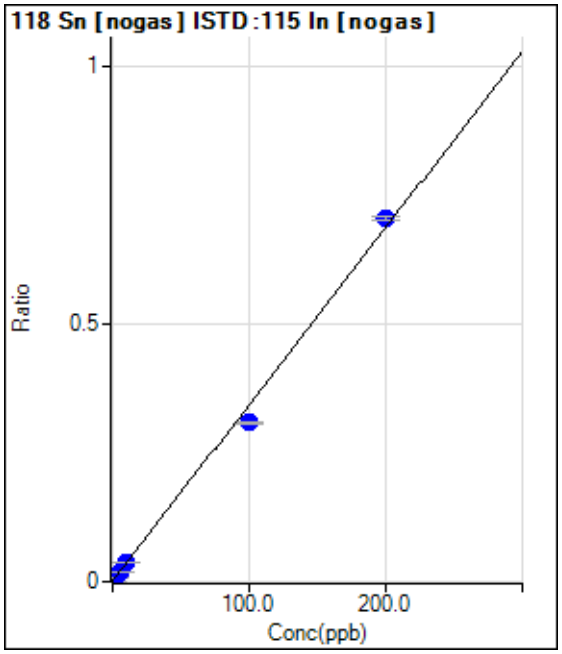
y = 0.0013 * x + 1.3386E-005
R = 0.9989
DL = 0.05477
BEC = 0.01054

Weight: <None>
Min Conc: <None>

Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			146076.95		P	1.7
2	☐			145522.73		P	1.9
3	☐			145180.55		P	2.5
4	☐			142816.30		P	0.6
5	☐			145215.65		P	2.1
6	☐			136260.89		P	1.0
7	☐						

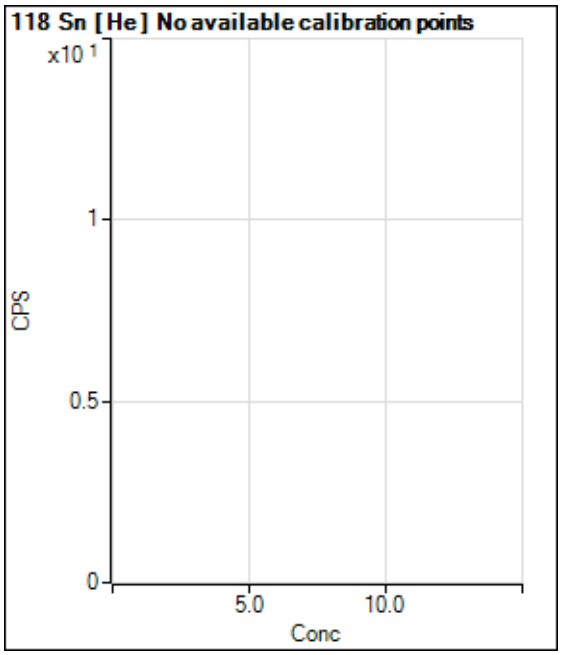


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1640.14	0.0011	P	2.8
2	☐	2.000	1.915	11814.20	0.0076	P	3.4
3	☐	5.000	4.938	27865.89	0.0180	P	1.9
4	☐	10.000	10.558	57605.84	0.0372	P	3.9
5	☐	100.000	89.680	494209.09	0.3080	P	1.3
6	☐	200.000	205.134	1050693.06	0.7030	P	1.0
7	☐	1.000					

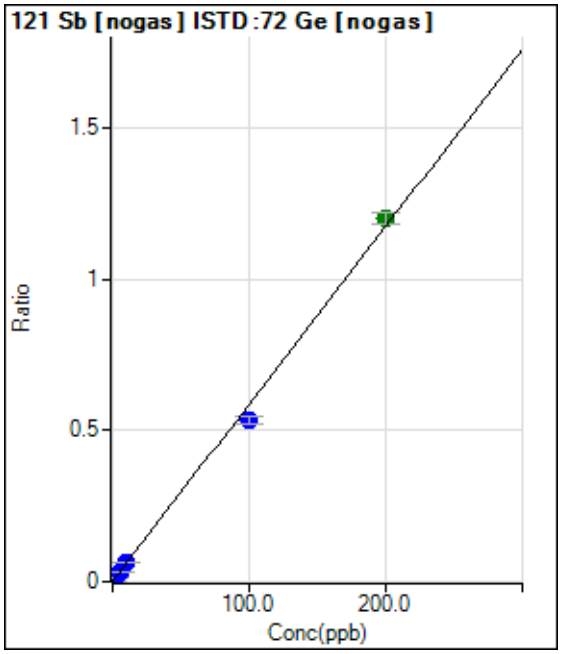
y = 0.0034 * x + 0.0011
R = 0.9981
DL = 0.02618
BEC = 0.3163

Weight: <None>
Min Conc: <None>

Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			286.68		P	11.2
2	☐			1616.77		P	3.2
3	☐			3837.15		P	4.2
4	☐			7698.53		P	0.9
5	☐			65495.95		P	1.1
6	☐			136626.48		P	3.0
7	☐						

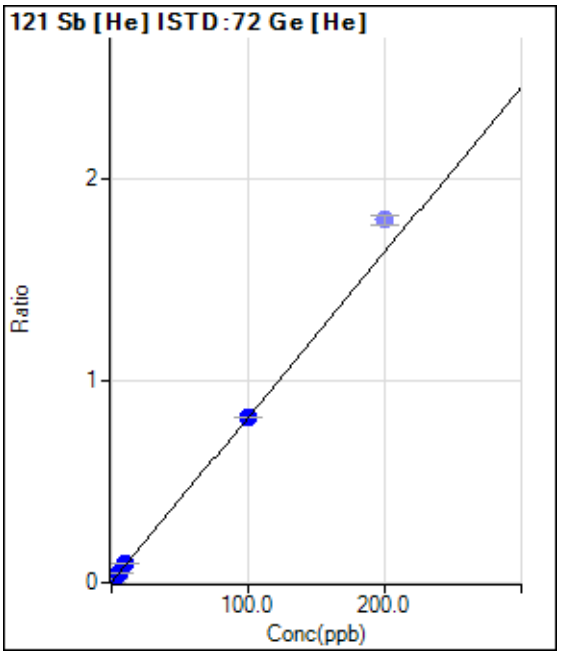


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2026.82	0.0014	P	6.9
2	☐	2.000	2.007	19557.90	0.0131	P	5.0
3	☐	5.000	5.137	47291.18	0.0315	P	4.7
4	☐	10.000	10.566	95584.95	0.0633	P	2.0
5	☐	100.000	91.052	792911.53	0.5352	P	3.9
6	☐	200.000	204.442	1762723.57	1.2000	A	3.1
7	☐	1.000					

y = 0.0059 * x + 0.0014
R = 0.9986
DL = 0.04846
BEC = 0.2324

Weight: <None>
Min Conc: <None>

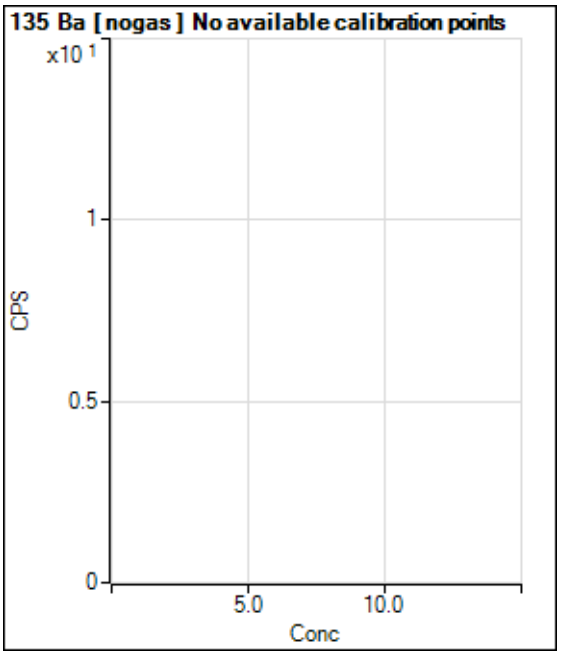
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	270.01	0.0022	P	8.6
2	☐	2.000	1.951	2226.84	0.0182	P	18.2
3	☐	5.000	5.610	5897.78	0.0481	P	3.0
4	☐	10.000	11.266	11373.87	0.0943	P	7.7
5	☐	100.000	99.844	96915.13	0.8184	P	0.5
6	☑	200.000		206921.18	1.7974	P	2.4
7	☐	1.000					

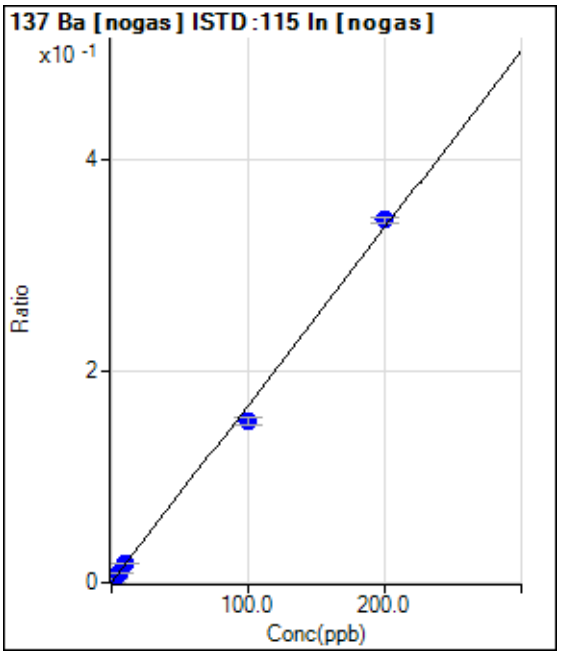
y = 0.0082 * x + 0.0022
R = 0.9999
DL = 0.07032
BEC = 0.274

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			263.34		P	2.2
2	☐			3143.67		P	5.3
3	☐			7911.96		P	4.7
4	☐			15590.63		P	2.8
5	☐			138185.14		P	2.0
6	☐			289041.16		P	0.8
7	☐						

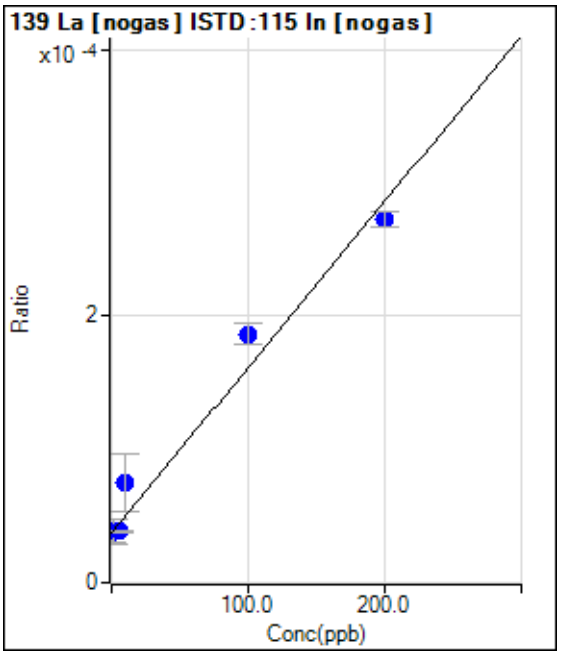
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	466.68	0.0003	P	12.9
2	☐	2.000	2.001	5661.04	0.0037	P	6.2
3	☐	5.000	5.243	14079.33	0.0091	P	1.7
4	☐	10.000	10.467	27605.92	0.0178	P	2.9
5	☐	100.000	90.798	244284.59	0.1523	P	4.7
6	☐	200.000	204.571	512288.12	0.3428	P	1.4
7	☐	1.000					

y = 0.0017 * x + 3.0800E-004
R = 0.9985
DL = 0.07122
BEC = 0.184

Weight: <None>
Min Conc: <None>

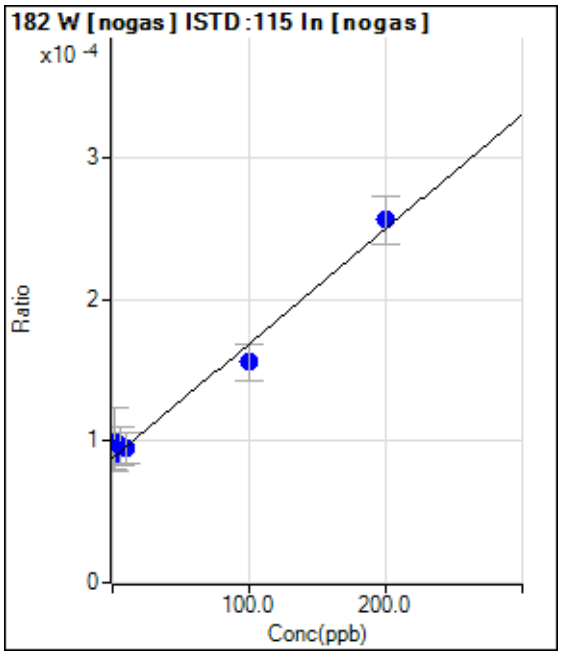


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	56.67	0.0000	P	35.0
2	☐	2.000	1.020	60.00	0.0000	P	48.7
3	☐	5.000	1.183	60.00	0.0000	P	2.9
4	☐	10.000	30.345	116.67	0.0001	P	58.0
5	☐	100.000	120.228	300.01	0.0002	P	9.0
6	☐	200.000	188.974	406.68	0.0003	P	4.4
7	☐	100.000					

y = 1.2424E-006 * x + 3.7265E-005
R = 0.9872
DL = 31.47
BEC = 30

Weight: <None>
Min Conc: <None>

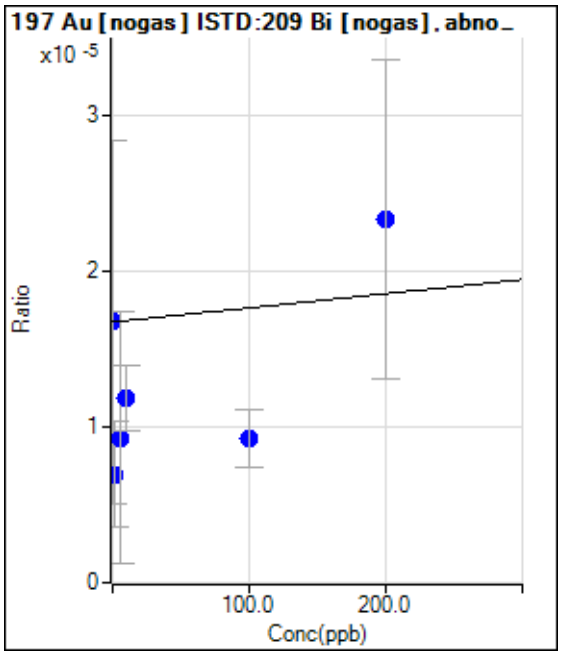
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	133.33	0.0001	P	18.9
2	☐	2.000	16.197	156.67	0.0001	P	44.0
3	☐	5.000	10.252	150.00	0.0001	P	28.3
4	☐	10.000	8.599	146.67	0.0001	P	23.3
5	☐	100.000	83.888	250.01	0.0002	P	16.7
6	☐	200.000	207.853	383.34	0.0003	P	12.9
7	☐	1.000					

y = 8.0902E-007 * x + 8.7993E-005
R = 0.9919
DL = 61.7
BEC = 108.8

Weight: <None>
Min Conc: <None>

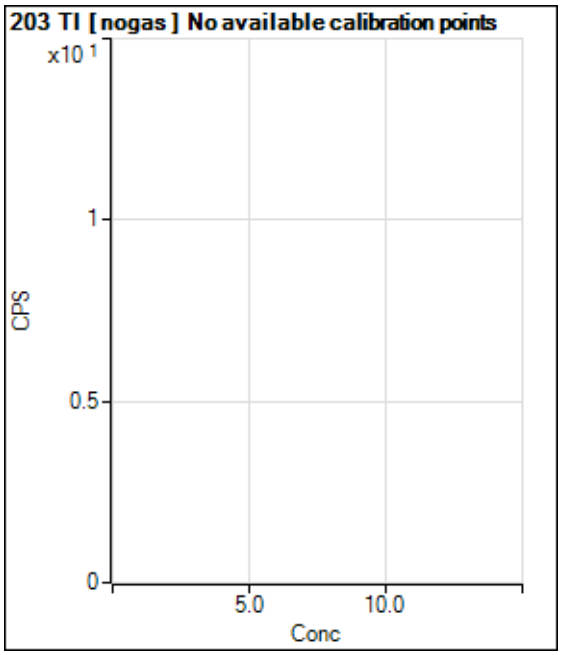


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23.33	0.0000	P	139.
2	☐	2.000	-1079.439	10.00	0.0000	P	98.2
3	☐	5.000	-816.768	13.33	0.0000	P	173.
4	☐	10.000	-538.683	16.67	0.0000	P	36.0
5	☐	100.000	-823.548	13.33	0.0000	P	40.9
6	☐	200.000	720.567	30.00	0.0000	P	88.1
7	☐	100.000					

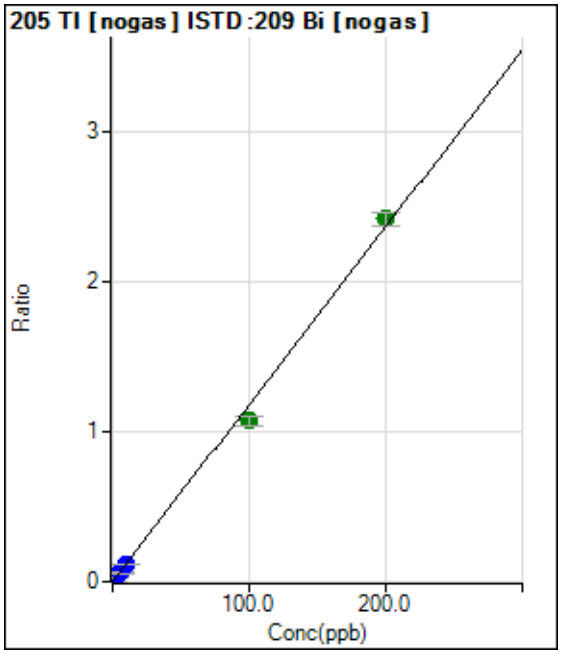
y = 9.1025E-009 * x + 1.6751E-005
R = 0.6727
DL = 7707
BEC = 1840

Weight: <None>
Min Conc: <None>

Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			136.67		P	15.2
2	☐			13665.95		P	2.1
3	☐			34376.52		P	3.5
4	☐			68564.16		P	2.0
5	☐			630603.69		P	0.4
6	☐			1328826.07		A	3.9
7	☐						

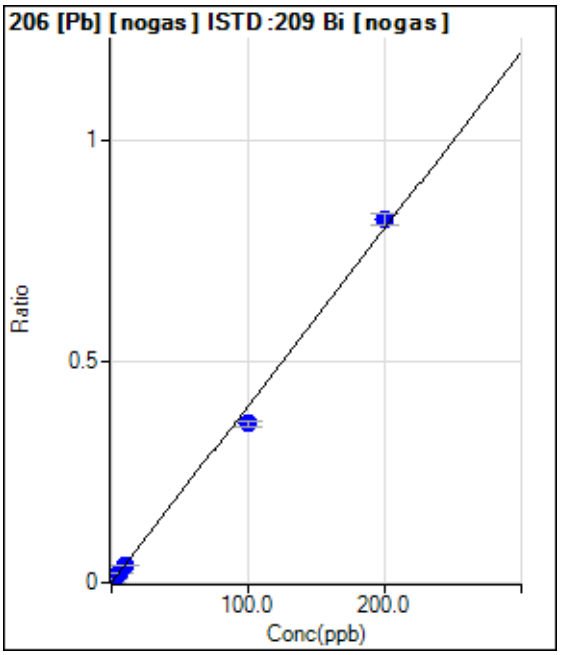


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	233.34	0.0002	P	9.7
2	☐	2.000	1.896	32068.79	0.0226	P	5.6
3	☐	5.000	4.869	82562.78	0.0577	P	1.5
4	☐	10.000	9.836	164324.60	0.1163	P	3.7
5	☐	100.000	90.670	1532515.81	1.0711	A	6.7
6	☐	200.000	204.678	3162916.10	2.4178	A	3.6
7	☐	1.000					

y = 0.0118 * x + 1.6421E-004
R = 0.9985
DL = 0.004064
BEC = 0.0139

Weight: <None>
Min Conc: <None>

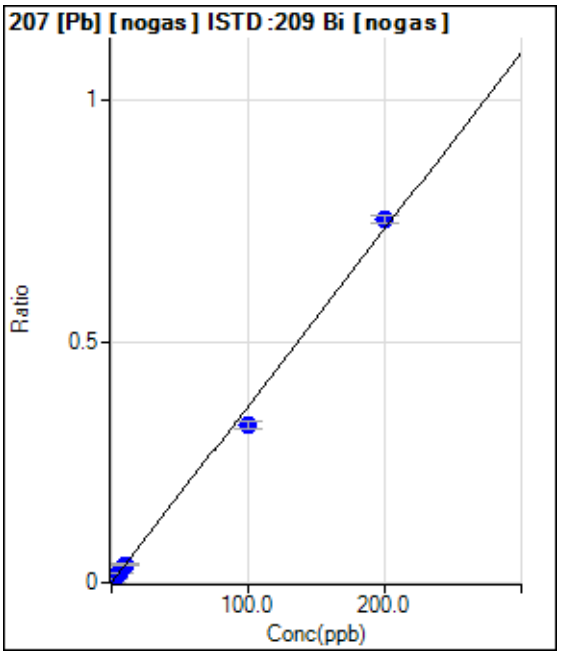
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	136.67	0.0001	P	20.0
2	☐	2.000	1.947	11200.70	0.0079	P	6.3
3	☐	5.000	5.058	29082.95	0.0203	P	3.6
4	☐	10.000	10.125	57321.42	0.0406	P	3.4
5	☐	100.000	89.888	514849.99	0.3595	P	3.6
6	☐	200.000	205.049	1072794.72	0.8200	P	3.3
7	☐	1.000					

y = 0.0040 * x + 9.6164E-005
R = 0.9982
DL = 0.0144
BEC = 0.02405

Weight: <None>
Min Conc: <None>

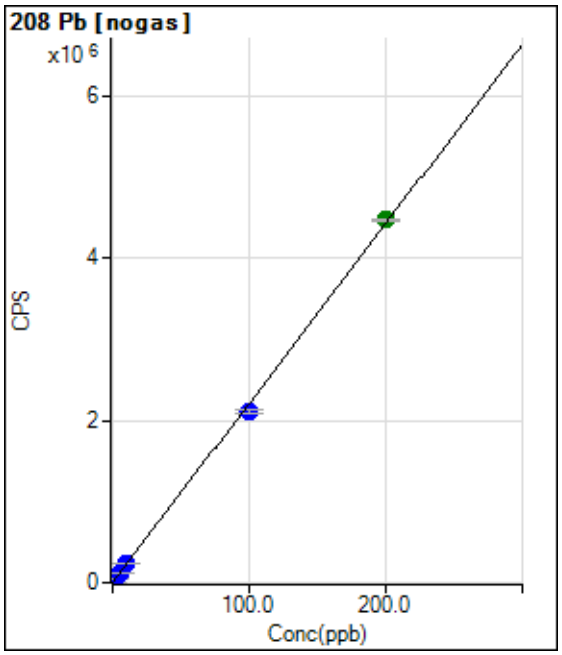


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	90.00	0.0001	P	30.2
2	☐	2.000	1.929	10130.01	0.0071	P	8.0
3	☐	5.000	4.975	26171.26	0.0183	P	3.1
4	☐	10.000	10.205	52872.95	0.0374	P	4.7
5	☐	100.000	89.297	468323.43	0.3271	P	4.6
6	☐	200.000	205.343	984065.25	0.7521	P	2.3
7	☐	1.000					

y = 0.0037 * x + 6.3362E-005
R = 0.9980
DL = 0.01568
BEC = 0.0173

Weight: <None>
Min Conc: <None>

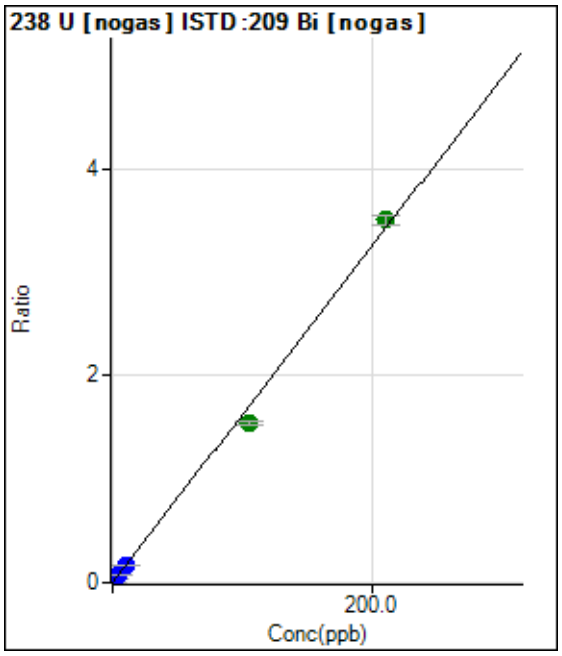
Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	510.01		P	17.1
2	☐	2.000	2.034	45459.02		P	1.8
3	☐	5.000	5.317	118012.18		P	1.3
4	☐	10.000	10.573	234162.11		P	0.8
5	☐	100.000	95.380	2108285.88		P	2.3
6	☐	200.000	202.273	4470476.86		A	0.5
7	☐	1.000					

y = 22098.6831 * x + 510.0100
R = 0.9996
DL = 0.01183
BEC = 0.02308

Weight: <None>
Min Conc: <None>

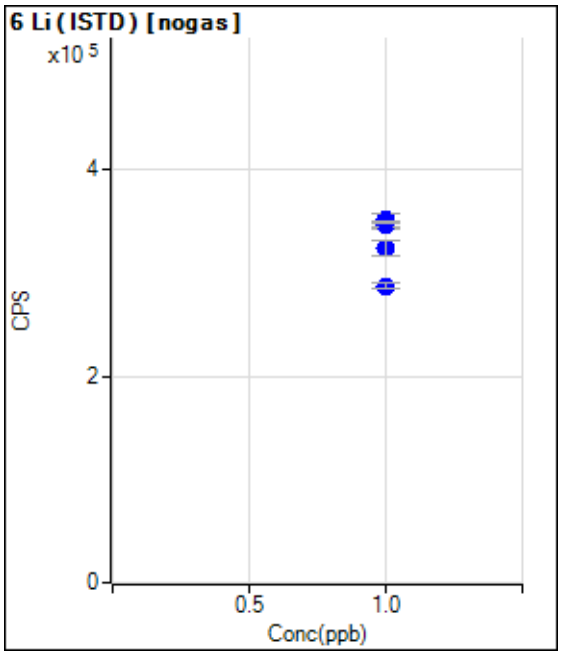


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	53.33	0.0000	P	41.5
2	☐	2.000	1.913	44399.13	0.0312	P	3.3
3	☐	5.000	5.071	118377.27	0.0827	P	1.7
4	☐	10.000	10.270	236611.12	0.1675	P	1.3
5	☐	105.000	94.674	2211554.24	1.5434	A	1.3
6	☐	210.000	215.149	4588857.74	3.5073	A	2.5
7	☐	1.000					

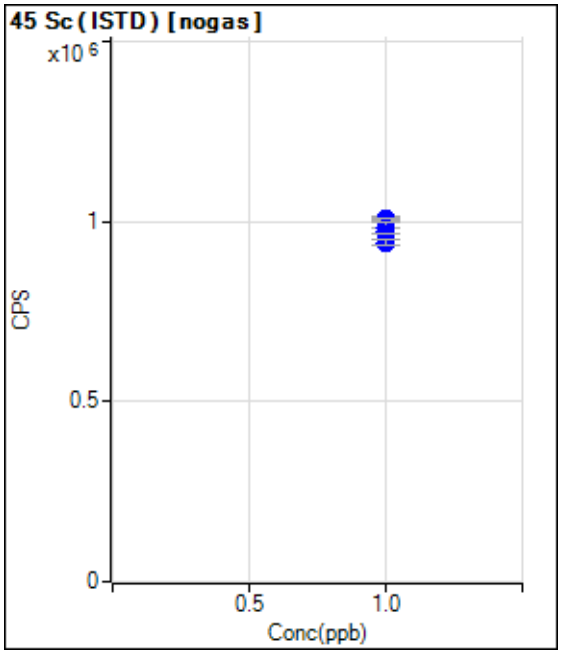
y = 0.0163 * x + 3.7794E-005
R = 0.9983
DL = 0.002884
BEC = 0.002318

Weight: <None>
Min Conc: <None>

Calibration for 108_ICV.d

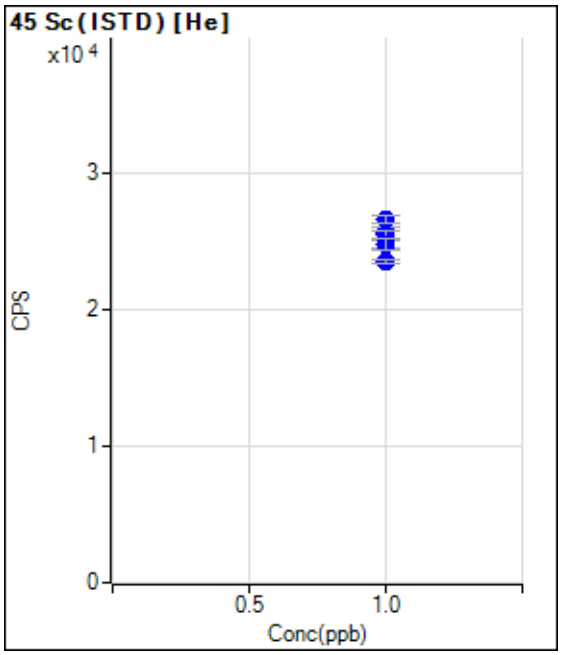


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		346111.70		P	1.5
2	☐	1.000		351809.02		P	3.4
3	☐	1.000		346497.00		P	0.9
4	☐	1.000		349844.82		P	0.7
5	☐	1.000		324433.22		P	4.6
6	☐	1.000		287586.32		P	2.0
7	☐	1.000					

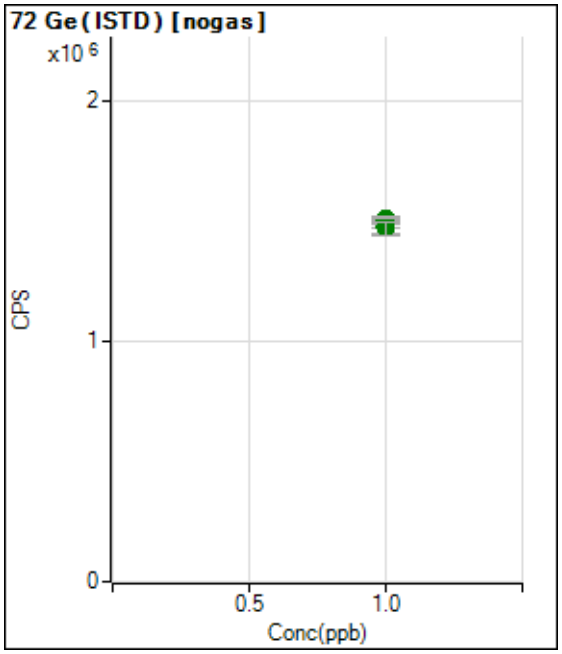


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1008533.06		P	1.5
2	☐	1.000		974355.90		P	1.8
3	☐	1.000		1007179.80		P	0.8
4	☐	1.000		984228.89		P	3.0
5	☐	1.000		966253.79		P	0.3
6	☐	1.000		943098.87		P	1.8
7	☐	1.000					

Calibration for 108_ICV.d

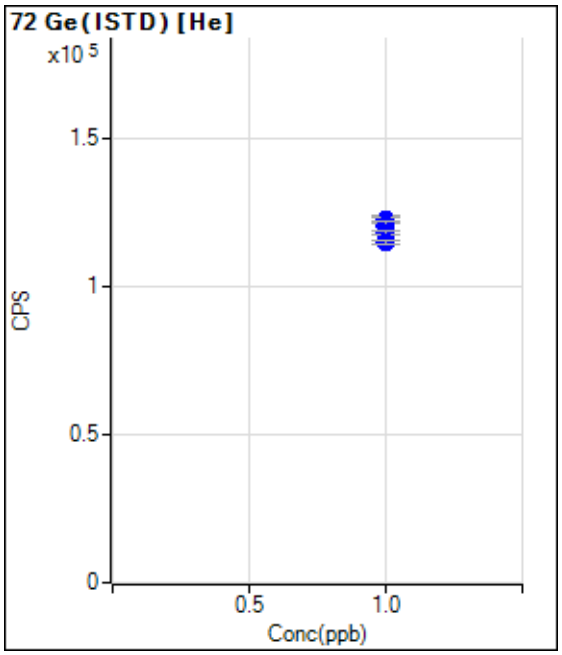


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		25628.02		P	3.3
2	☐	1.000		24823.53		P	3.1
3	☐	1.000		26539.27		P	2.0
4	☐	1.000		25424.47		P	2.6
5	☐	1.000		24763.66		P	3.6
6	☐	1.000		23531.91		P	1.2
7	☐	1.000					

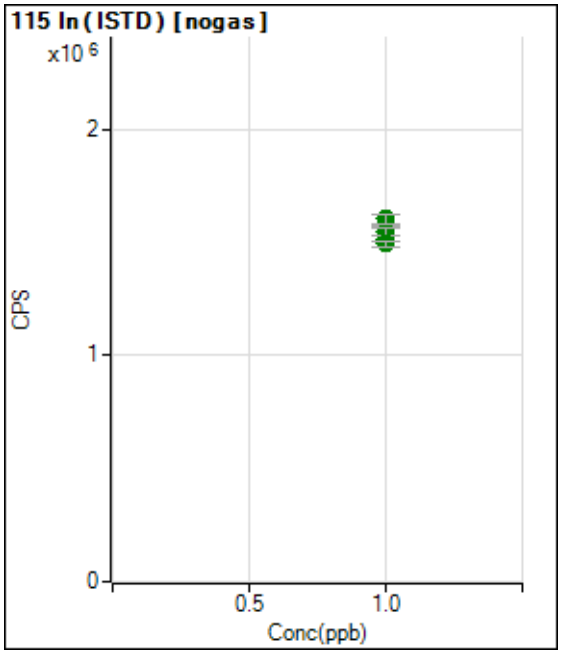


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1489137.16		A	2.7
2	☐	1.000		1489981.17		A	1.9
3	☐	1.000		1502625.97		A	1.5
4	☐	1.000		1509795.50		A	1.3
5	☐	1.000		1483121.33		A	4.3
6	☐	1.000		1469981.18		A	3.8
7	☐	1.000					

Calibration for 108_ICV.d

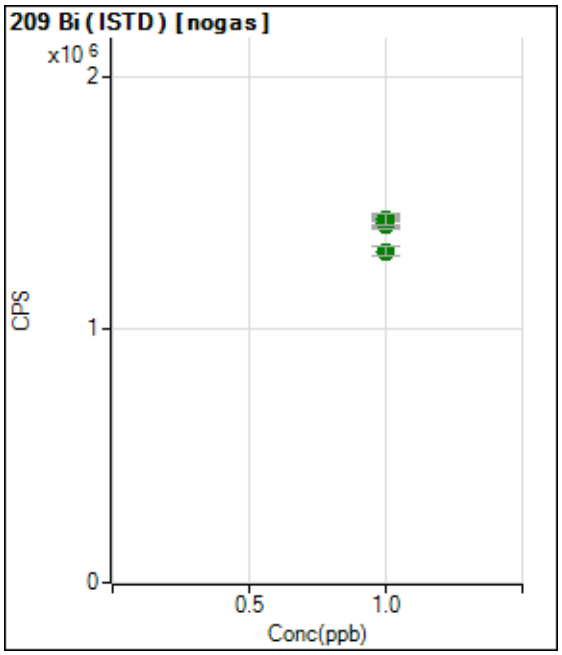


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		120709.69		P	2.5
2	☐	1.000		122770.40		P	2.2
3	☐	1.000		122642.13		P	1.4
4	☐	1.000		120716.73		P	2.7
5	☐	1.000		118421.29		P	0.9
6	☐	1.000		115133.62		P	1.1
7	☐	1.000					



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1515181.45		A	1.8
2	☐	1.000		1548097.02		A	1.9
3	☐	1.000		1549850.01		A	2.8
4	☐	1.000		1548854.74		A	2.0
5	☐	1.000		1605163.08		A	2.5
6	☐	1.000		1494696.16		A	1.5
7	☐	1.000					

Calibration for 108_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1423982.69		A	3.3
2	☐	1.000		1422758.00		A	3.0
3	☐	1.000		1431571.18		A	1.0
4	☐	1.000		1413207.27		A	2.2
5	☐	1.000		1432869.20		A	3.3
6	☐	1.000		1309029.64		A	3.0
7	☐	1.000					

Sub Contract Data

Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
ALS WO# HS17120435

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1734272; 1734273; 1734274; 1734528

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2013 (205263)

General Set Information: There were fifteen field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: These field samples were analyzed and reported at the following dilutions. The reporting limits have been adjusted accordingly.

Sample #	Dilution
1732473001	1,000
1734528004	10,000
1734528005	10
1734528010	100

Method QC data: The method blank (LMB 579516) was less than 1/2 the CRDL. The recovery for the LCS (579517) was within acceptable parameters.

MS/MSD Analysis: The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1734272001 (Client ID: LH18/24-SP650_120617). The MS/MSD percent recoveries and relative percent difference (RPD) were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): None were required for this set.

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 28NOVP01/02) along with datafiles 18DECP03/09/15/19.

Thomas Bosch December 21, 2017
Date

ANALYTICAL REPORT

Report Date: December 22, 2017

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

Phone: (281) 530-5656

E-mail: Sonia.West@alsglobal.com

Workorder: **34-1734528**
Project ID: HS17120435 120517
Purchase Order: HS17120435
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
C09_120517	1734528001	12/05/17	12/09/17	
126_120517	1734528002	12/05/17	12/09/17	
C08_120517	1734528003	12/05/17	12/09/17	
18WW17_120517	1734528004	12/05/17	12/09/17	
C03_120517	1734528005	12/05/17	12/09/17	
18CPTMW18_120517	1734528006	12/05/17	12/09/17	
18WW22_120617	1734528007	12/06/17	12/09/17	
18CPTMW19_120617	1734528008	12/06/17	12/09/17	
18CPTMW19_120617_a	1734528009	12/06/17	12/09/17	
18WW08_120617	1734528010	12/06/17	12/09/17	
18CPTMW15_120617	1734528011	12/06/17	12/09/17	
18CPTMW07_120617	1734528012	12/06/17	12/09/17	

ANALYTICAL REPORT

Workorder: 34-1734528
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **C09_120517** | Sampling Site: NA | Collected: 12/05/2017
Lab ID: 1734528001 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/18/2017 12:34 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **126_120517** | Sampling Site: NA | Collected: 12/05/2017
Lab ID: 1734528002 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/18/2017 12:53 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **C08_120517** | Sampling Site: NA | Collected: 12/05/2017
Lab ID: 1734528003 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/18/2017 13:12 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW17_120517** | Sampling Site: NA | Collected: 12/05/2017
Lab ID: 1734528004 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/20/2017 09:54 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**94000**	10000	20000	40000	10000	

ANALYTICAL REPORT

Workorder: 34-1734528
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **C03_120517** | Sampling Site: NA | Collected: 12/05/2017
Lab ID: 1734528005 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/18/2017 19:16 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**170**	10	20	40	10	

Sample ID: **18CPTMW18_120517** | Sampling Site: NA | Collected: 12/05/2017
Lab ID: 1734528006 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/18/2017 16:23 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	2.0	1.0	2.0	4.0	1	J

Sample ID: **18WW22_120617** | Sampling Site: NA | Collected: 12/06/2017
Lab ID: 1734528007 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/18/2017 16:42 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18CPTMW19_120617** | Sampling Site: NA | Collected: 12/06/2017
Lab ID: 1734528008 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/18/2017 17:02 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**35**	1.0	2.0	4.0	1	

ANALYTICAL REPORT

Workorder: 34-1734528
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **18CPTMW19_120617_a** | Sampling Site: NA | Collected: 12/06/2017
Lab ID: 1734528009 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/18/2017 17:21 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**36**	1.0	2.0	4.0	1	

Sample ID: **18WW08_120617** | Sampling Site: NA | Collected: 12/06/2017
Lab ID: 1734528010 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/20/2017 10:13 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**2400**	100	200	400	100	

Sample ID: **18CPTMW15_120617** | Sampling Site: NA | Collected: 12/06/2017
Lab ID: 1734528011 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/18/2017 17:59 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	1.9	1.0	2.0	4.0	1	J

Sample ID: **18CPTMW07_120617** | Sampling Site: NA | Collected: 12/06/2017
Lab ID: 1734528012 | Media: 125 mL Nalgene | Received: 12/09/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2013 (HBN: 205263) | **Percent Solid:** NA
Analyzed: 12/18/2017 18:18 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

ANALYTICAL REPORT

Workorder: 34-1734528
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Comments

Quality Control: **EPA 6850, DoD QSM - (HBN: 205263)**

These field samples were analyzed and reported at the following dilutions.

1732473001 – 1:1,000.

1734528004 – 1:10,000.

1734528005 – 1:10.

1734528010 – 1:100.

The reporting limits have been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 12/20/2017 14:31	/S/ Stephen Brose 12/22/2017 09:13

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1734528
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

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

ANALYTICAL REPORT

Workorder: 34-1734528
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< This testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1734528

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2013 (HBN: 205263)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 579516
Analyzed: 12/18/2017 09:59
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 579517
Analyzed: 12/18/2017 10:18
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.94	5.00	98.8	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1734272001	**MS:**	579518			**MSD:**	579519				
Analyzed:	12/18/2017 10:39	**Analyzed:**	12/18/2017 11:56			**Analyzed:**	12/18/2017 11:17				
Dilution:	1	**Dilution:**	1			**Dilution:**	1				
Units:	ug/L	**Units:**	ug/L			**Units:**	ug/L				

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	5.3	5	106	78.8	123.8	5.32	106	0.341	0.0	20.0

Continuing Calibration Verification

CCV:	579513			**CCV:**	579520			**CCV:**	579522		
Analyzed:	12/18/2017 08:58			**Analyzed:**	12/18/2017 14:10			**Analyzed:**	12/18/2017 19:35		
Units:	ug/L			**Units:**	ug/L			**Units:**	ug/L		
Criteria:	± 15%			**Criteria:**	± 15%			**Criteria:**	± 15%		

Analyte	Result	Target	% Rec.	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	22.6	25.0	90.5	24.0	25.0	96.0	25.7	25.0	103

CCV:	580015			**CCV:**	580016				
Analyzed:	12/20/2017 09:14			**Analyzed:**	12/20/2017 10:40				
Units:	ug/L			**Units:**	ug/L				
Criteria:	± 15%			**Criteria:**	± 15%				

Analyte	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	27.4	25.0	110	27.1	25.0	109

Interference Check Sample

ICSA: 579515
Analyzed: 12/18/2017 09:39
Units: ug/L
Criteria: ± 30%

Analyte	Result	Target	% Rec.
Perchlorate	0.866	1.00	86.6

Quality Control Sample Batch Report

Analysis Information

Workorder: 1734528

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2013 (HBN: 205263)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Limit of Detection Verification

LODV:	579514			**LODV:**	579521			**LODV:**	579523		
Analyzed:	12/18/2017 09:19			**Analyzed:**	12/18/2017 16:02			**Analyzed:**	12/18/2017 19:54		
Units:	ug/L			**Units:**	ug/L			**Units:**	ug/L		
Criteria:	± 50%			**Criteria:**	± 50%			**Criteria:**	± 50%		
Analyte	**Result**	**Target**	**% Rec.**	**Result**	**Target**	**% Rec.**		**Result**	**Target**	**% Rec.**
Perchlorate	0.858	1.00	85.8	0.883	1.00	88.3		1.05	1.00	105

Comments

These field samples were analyzed and reported at the following dilutions.

1732473001 – 1:1,000.

1734528004 – 1:10,000.

1734528005 – 1:10.

1734528010 – 1:100.

The reporting limits have been adjusted accordingly.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
12/20/2017 14:31	12/22/2017 09:13

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

18698/#2

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

W 1734528

Subcontract Chain of Custody

COC ID: 8188

1734528

SUBCONTRACT TO:

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

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS17120435
TSR:	Houston House Acct

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS17120435-01**	**CO9_120517**	**Water**	**05 Dec 2017 08:35**
	SUB_Perch-6850			15 Dec 2017
2.	**HS17120435-02**	**126_120517**	**Water**	**05 Dec 2017 09:40**
	SUB_Perch-6850			15 Dec 2017
3.	**HS17120435-03**	**C08_120517**	**Water**	**05 Dec 2017 10:35**
	SUB_Perch-6850			15 Dec 2017
4.	**HS17120435-04**	**18WW17_120517**	**Water**	**05 Dec 2017 10:50**
	SUB_Perch-6850			15 Dec 2017
5.	**HS17120435-05**	**C03_120517**	**Water**	**05 Dec 2017 13:00**
	SUB_Perch-6850			15 Dec 2017
6.	**HS17120435-06**	**18CPTMW18_120517**	**Water**	**05 Dec 2017 13:55**
	SUB_Perch-6850			15 Dec 2017
7.	**HS17120435-07**	**18WW22_120~~5~~17** 6 [illegible]	**Water**	**06 Dec 2017 08:30**
	SUB_Perch-6850			15 Dec 2017
8.	**HS17120435-08**	**18CPTMW19_120617**	**Water**	**06 Dec 2017 09:30**
	SUB_Perch-6850			15 Dec 2017
9.	**HS17120435-09**	**18WCPTMW19_120617_a**	**Water**	**06 Dec 2017 09:30**

Subcontract Chain of Custody

COC ID: 8188

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
	SUB_Perch-6850			15 Dec 2017
10.	**HS17120435-10**	**18WW08_120617**	**Water**	**06 Dec 2017 10:30**
	SUB_Perch-6850			15 Dec 2017
11.	**HS17120435-11**	**18CPTMW15_120617**	**Water**	**06 Dec 2017 11:30**
	SUB_Perch-6850			15 Dec 2017
12.	**HS17120435-12**	**18CPTMW07_120617**	**Water**	**06 Dec 2017 13:40**
	SUB_Perch-6850			15 Dec 2017

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: R Giga Date/Time: 12/8/17 1800

Received By: [signature] Date/Time: 12/9/17 905

Cooler ID(s): 8084 Temperature(s): 2

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS17120435	Split:	Workorder ID: 1734528	Level: ENV_LVL4
Client: ALS Environmental (Houston)		Account: 8101	Type: 125Poly
Comments:			Preservatives

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: EPA 6850, DoD QSM
1	12/05/2017 08:35	C09_120517	1734528001		Water	A	1	A
2	12/05/2017 09:40	126_120517	1734528002		Water	A	1	A
3	12/05/2017 10:35	C08_120517	1734528003		Water	A	1	A
4	12/05/2017 10:50	18WW17_120517	1734528004		Water	A	1	A
5	12/05/2017 13:00	C03_120517	1734528005		Water	A	1	A
6	12/05/2017 13:55	18CPTMW18_120517	1734528006		Water	A	1	A
7	12/06/2017 08:30	18WW22_120617	1734528007		Water	A	1	A
8	12/06/2017 09:30	18CPTMW19_120617	1734528008		Water	A	1	A
9	12/06/2017 09:30	18CPTMW19_120617_a	1734528009		Water	A	1	A
10	12/06/2017 10:30	18WW08_120617	1734528010		Water	A	1	A

611 of 722

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	12/09/2017 09:15	ALS Sample Receiving	Sample Login
Julie Warath 12/11/17 1430		6D	Storage
R-33.1	12.18.17/09:23	T. Bush	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

00871161

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS17120435	*Split:*	**Workorder ID:** 1734528	Level: ENV_LVL4	Requested Analysis
Client: ALS Environmental (Houston)		**Account:** 8101	Type: 125Poly	
Comments:			Preservatives: COOL	

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 6850, DoD QSM
11	12/06/2017 11:30	18CPTMW15_120617	1734528011		Water	A	1	A
12	12/06/2017 13:40	18CPTMW07_120617	1734528012		Water	A	1	A
13								
14								
15								
16								
17								
18								
19								
20								

612 of 722

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	12/09/2017 09:15	ALS Sample Receiving	Sample Login
Julie Warath R33.1	12/8/17 1430 12.8.17/09:23	COD T. Bond	Storage 6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

00871162

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

Sample Receipt Checklist

Work Order ID: HS17120435 **Date/Time received:** 07 Dec 2017 08:50

Client name: Bhate Environmental Associates, Inc. **Received by:** Jared R. Makan

Completed/By: 08 Dec 2017 12:12 Cesar A. Lira **Reviewed/By:**
Date/Time eSignature Date/Time eSignature

Matrices: WATER **Carrier name:** FedEx First Overnight

Shipping container/cooler in good condition?	☑ Yes	☐ No	☐ Not Present
Custody seals intact on shipping container/cooler?	☑ Yes	☐ No	☐ Not Present
Custody seals intact on Sample bottles?	☐ Yes	☐ No	☑ Not Present
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	☐ Yes	☐ No	☑ Not Present
Chain of custody present?	☑ Yes	☐ No	
Chain of custody signed when relinquished and received?	☑ Yes	☐ No	
Chain of custody agrees with sample labels?	☐ Yes	☑ No	
Samples in proper container/bottle?	☑ Yes	☐ No	
Sample containers intact?	☑ Yes	☐ No	
Sufficient sample volume for indicated test?	☑ Yes	☐ No	
All samples received within holding time?	☑ Yes	☐ No	
Container/Temp Blank temperature in compliance?	☑ Yes	☐ No	

Temperature(s)/Thermometer(s): 1.3C/1.6C UC/C IR25

Cooler(s): 43519

Date/Time sample(s) sent to storage: 12/7/2017 1900

Water - VOA vials have zero headspace?	☑ Yes	☐ No	☐ No VOA vials submitted
Water - pH acceptable upon receipt?	☑ Yes	☐ No	☐ Not Applicable
pH adjusted?	☐ Yes	☑ No	☐ Not Applicable

pH adjusted by:

Login notes: Samples refrigerated prior to login.
Sample IDs differ, COC: 18WW22_120517 Label: 18WW22_120617
Collected 12/6/2017 08:30; logged per COC instructions.

Client contacted: **Date contacted:** **Person contacted:**

Contacted by: **Regarding:**

Comments:

Corrective action:

RIGHT SOLUTIONS | RIGHT PARTNER

ALS - Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston — Project/Task/Site: P345246

Date/Time of Receipt: 12/9/17 915 — Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	TOC Preserved	Yes/No/NA

Cooler Received	ALS Cooler No.	Temp.	Cooler Received	ALS Cooler No.	Temp.	Cooler Received	ALSL Cooler No.	Temp.
1	C17- 8084	2 °C	4	C17-	°C	7	C17-	°C
2	C17-	°C	5	C17-	°C	8	C17-	°C
3	C17-	°C	6	C17-	°C	9	C17-	°C

Taken By: [signature] (Signature) — [signature] (Printed Name) — 12/9/17 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

E-mailed to Client? Yes ☐ No ☐

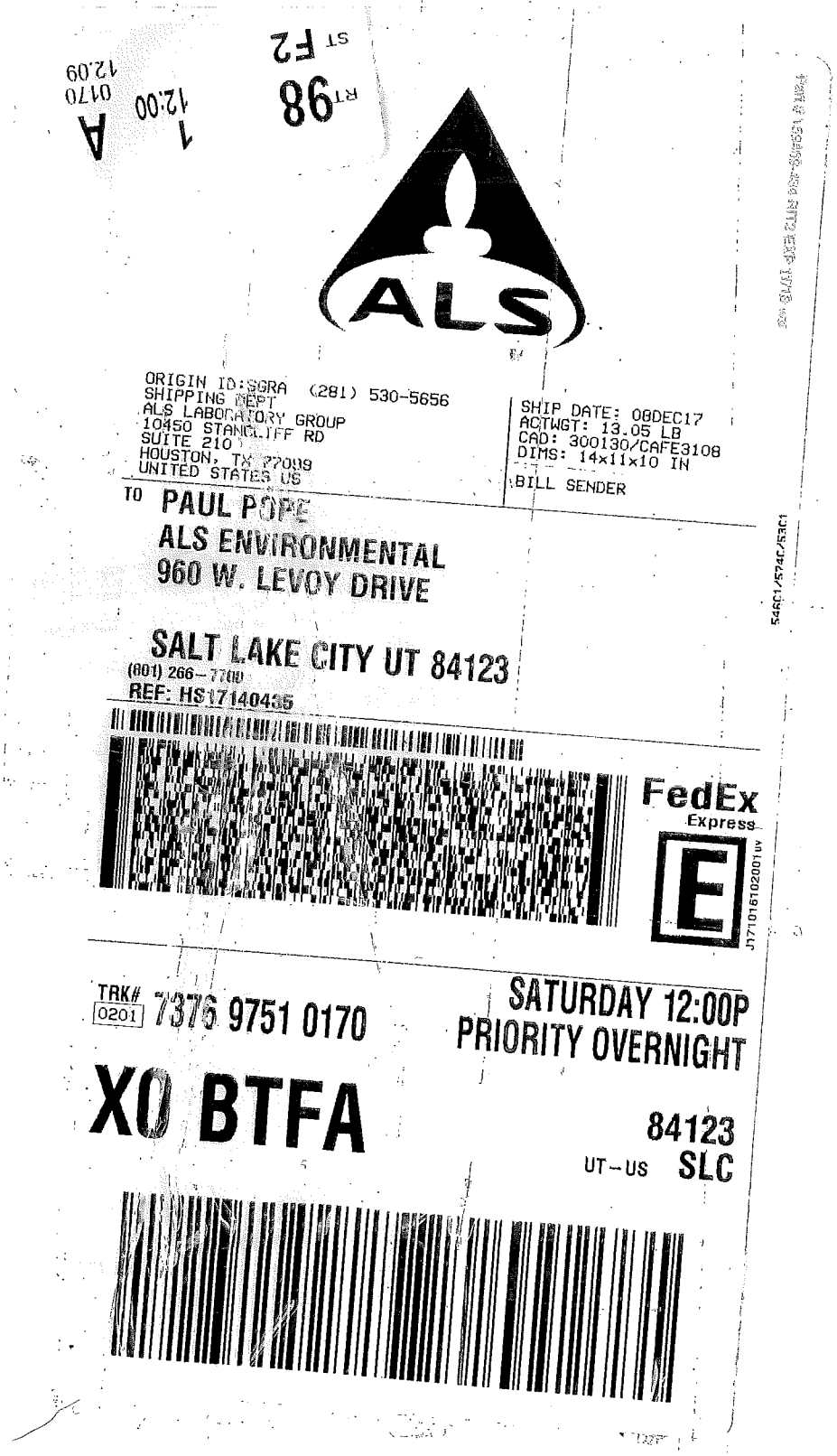
Response Required Within 24 Hours

Project Management

Project Manager Comments:

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

CRIR.dot — Revised 1/1/15


ST F2
RT 98
1 A 12:00
0170 12.09
ORIGIN ID:SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US
SHIP DATE: 08DEC17
ACTWGT: 13.05 LB
CAD: 300130/CAFE3108
DIMS: 14x11x10 IN
BILL SENDER
TO PAUL POPE
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE
SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS17140435
FedEx
Express
TRK# 0201 7376 9751 0170
SATURDAY 12:00P
PRIORITY OVERNIGHT
XO BTFA
84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2013 **Created:** 12/18/2017 08:45 **Instrument:** HBN: 205263

Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1734272 [ENV_LVL4]
Workorder: 1734273 [ENV_LVL4]
Workorder: 1734274 [ENV_LVL4]
Workorder: 1734528 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	579513	CCV for HBN 205263 [ELMS/2013]				CCV	3		E685041C3Q	5311		12/22/2017	
2	579514	LODV for HBN 205263 [ELMS/2013				LODV	3		E6850..D3Q	5311		12/22/2017	
3	579515	ICS for HBN 205263 [ELMS/2013]				ICS	3		E6850..D3Q	5311		12/22/2017	
4	579516	LMB for HBN 205263 [ELMS/2013]				LMB	3		E6850Q413Q	5311		12/22/2017	
5	579517	LCS for HBN 205263 [ELMS/2013]				LCS	3		E6850Q413Q	5311		12/22/2017	
6	1734272001	LH18/24-SP650_120617				SAMPLE	3	1734272001-A	E6850Q41.3	5480	1/3/2018	12/22/2017	
7	579518	LH18/24-SP650...(1734272001MS)				MS	3		E6850Q413Q	5311		12/22/2017	
8	579519	LH18/24-SP65...(1734272001MSD)				MSD	3		E6850Q413Q	5311		12/22/2017	
9	1734273001	LH18/24-SP140_120617				SAMPLE	3	1734273001-A	E6850Q41.3	5480	1/3/2018	12/22/2017	
10	1734274001	LH18/24-SP650_120617				SAMPLE	3	1734274001-A	E6850Q41.3	5480	1/3/2018	12/22/2017	
11	1734528001	C09_120517				SAMPLE	3	1734528001-A	E6850Q41.3	5480	1/2/2018	12/22/2017	
12	1734528002	126_120517				SAMPLE	3	1734528002-A	E6850Q41.3	5480	1/2/2018	12/22/2017	
13	1734528003	C08_120517				SAMPLE	3	1734528003-A	E6850Q41.3	5480	1/2/2018	12/22/2017	
14	1734528004	18WW17_120517				SAMPLE	3	1734528004-A	E6850Q41.3	5480	1/2/2018	12/22/2017	
15	1734528005	C03_120517				SAMPLE	3	1734528005-A	E6850Q41.3	5480	1/2/2018	12/22/2017	
16	579520	CCV for HBN 205263 [ELMS/2013]				CCV	3		E685041C3Q	5311		12/22/2017	
17	579521	LODV for HBN 205263 [ELMS/2013				LODV	3		E6850..D3Q	5311		12/22/2017	
18	1734528006	18CPTMW18_120517				SAMPLE	3	1734528006-A	E6850Q41.3	5480	1/2/2018	12/22/2017	
19	1734528007	18WW22_120617				SAMPLE	3	1734528007-A	E6850Q41.3	5480	1/3/2018	12/22/2017	
20	1734528008	18CPTMW19_120617				SAMPLE	3	1734528008-A	E6850Q41.3	5480	1/3/2018	12/22/2017	
21	1734528009	18CPTMW19_120617_a				SAMPLE	3	1734528009-A	E6850Q41.3	5480	1/3/2018	12/22/2017	
22	1734528010	18WW08_120617				SAMPLE	3	1734528010-A	E6850Q41.3	5480	1/3/2018	12/22/2017	
23	1734528011	18CPTMW15_120617				SAMPLE	3	1734528011-A	E6850Q41.3	5480	1/3/2018	12/22/2017	
24	1734528012	18CPTMW07_120617				SAMPLE	3	1734528012-A	E6850Q41.3	5480	1/3/2018	12/22/2017	
25	579522	CCV for HBN 205263 [ELMS/2013]				CCV	3		E685041C3Q	5311		12/22/2017	
26	579523	LODV for HBN 205263 [ELMS/2013				LODV	3		E6850..D3Q	5311		12/22/2017	

Batch Worklist

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
27	580015	CCV for HBN 205263 [ELMS/2013]				CCV	3		E685041C3Q	5311		12/22/2017	
28	580016	CCV for HBN 205263 [ELMS/2013]				CCV	3		E685041C3Q	5311		12/22/2017	

00871167

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\DEC\18DEC17P.S

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	579513 CCV@25	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	579514 LODV@1.	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	579515 ICS@1.	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	579516 LMB	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	579517 LCS@5.	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	1734272001	CLO4-DOD	1	Sample		
7	Vial 77	579518 342721S	CLO4-DOD	1	Sample		
8	Vial 78	579519 342721D	CLO4-DOD	1	Sample		
9	Vial 79	1734273001	CLO4-DOD	1	Sample		
10	Vial 77	579518 342721S	CLO4-DOD	1	Sample		
11	Vial 80	1734274001	CLO4-DOD	1	Sample		
12	Vial 81	1734528001	CLO4-DOD	1	Sample		
13	Vial 82	1734528002	CLO4-DOD	1	Sample		
14	Vial 83	1734528003	CLO4-DOD	1	Sample		
15	Vial 84	1734528004	CLO4-DOD	1	Sample		
16	Vial 85	1734528005	CLO4-DOD	1	Sample		
17	Vial 71	579520 CCV@25	CLO4-DOD	1	Ctrl Samp		
18	Vial 72	579521 LODV@1.	CLO4-DOD	1	Ctrl Samp		
19	Vial 72	579521 LODV@1.	CLO4-DOD	1	Ctrl Samp		
20	Vial 86	1734528006	CLO4-DOD	1	Sample		
21	Vial 87	1734528007	CLO4-DOD	1	Sample		
22	Vial 88	1734528008	CLO4-DOD	1	Sample		
23	Vial 89	1734528009	CLO4-DOD	1	Sample		
24	Vial 90	1734528010	CLO4-DOD	1	Sample		
25	Vial 91	1734528011	CLO4-DOD	1	Sample		
26	Vial 92	1734528012	CLO4-DOD	1	Sample		
27	Vial 93	1734273001 1K	CLO4-DOD	1	Sample		
28	Vial 94	1734528004 1K	CLO4-DOD	1	Sample		
29	Vial 95	1734528005 10X	CLO4-DOD	1	Sample		
30	Vial 71	579522 CCV@25	CLO4-DOD	1	Ctrl Samp		
31	Vial 72	579523 LODV@1.	CLO4-DOD	1	Ctrl Samp		

ALS Work Order #'s & Sample #( )'s: 1734272 (001); 1734273 (001); 1734274 (001); 1734528 (001-12)
ELMS Batch/HBN ID: 2013 (205263)
Prep Date: 12/18/2017 Analysis Date: 12/18;20/2017 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence:\\HPCHEM\1\SEQUENCE\CLO4\2017\DEC\18DEC17P.s & 20DEC17P.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by TNB. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

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

CALIBRATION CURVE: Used curve from 11/28/2017, sequence 28NOV17P.s Offline Quantitation Method: CLO4-DPR.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 3 Injection Volume: 25µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
4.0	0.65
5.0	0.25
14.5	0.25
15.0	0.65
17.5	0.65

QC DATA: 5.0µL of QC Solution Horizon ID 36749 was used for LCS 579517; Target = 5.0µg/L. ASTM type II water was used for LMB 579516.

MS/MSD: MS/MSD was performed on sample 1734272001 (Client ID: LH18/24-SP650_120617). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

COMMENTS:

1) Results reported in µg/L. These field samples were analyzed and reported at the following dilutions. The reporting limits have been adjusted accordingly.

Sample #	Dilution
1732473001	1,000
1734528004	10,000
1734528005	10
1734528010	100

2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2017\DEC\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 28NOVP01,02) along with datafiles 18DECP03/09/15/19.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2017\CLO4-205263-DOD-ALS-HSTN-LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#

STANDARD REPORT

Working Standard - CLO4 WRK

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

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

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

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

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36734	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	05/10/2018

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		Description - 6850 Stock AccStd 1,000ug/mL
Standard: 36733	Created By: T. Bosch	Amount: 100 mL
MFG: AccuStandard	Create Date: 5/10/2017	Expires: 10/4/2018
MFG Lot: 216095148	Lab Lot: CLO4 STOCK	Usable: Yes
Part ID: IC-PER-10X-1		

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

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109		Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House		Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:		Lab Lot: LAB 109	Usable: Yes
Part ID:			

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

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

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

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

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

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36733	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	10/04/2018

STANDARD REPORT

Working Standard - CLO4 QC WRK

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

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

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

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

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36749	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	05/11/2018

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

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

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

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

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

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:	Lab Lot: LAB 109	Usable: Yes
Part ID:		

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

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

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

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

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

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

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L
Standard: 38780	Created By: Thomas Bosch	Amount: 10 mL
MFG: ALS/SLC	Create Date: 10/09/2017 01:10PM	Expires: 10/09/2018
MFG Lot: TNB: 10/09/17	Verified By: Thomas Bosch	Usable: Yes
Pipette ID: Not Provided	Verify Date:	Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
23118	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.1 mL	02/27/2024

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 23118
MFG: Cambridge Isotope
MFG Lot: SDDG-013
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 04/04/2014 03:04PM
Verified By: Thomas Bosch
Verify Date: 02/05/2009 12:02AM

Amount: 1 mL
Expires: 02/27/2024
Usable: Yes
Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ALS

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New Haven, CT 06513
USA

AccuStandard® Inc.

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

CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

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

Signal Word: Warning

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

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

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001

OR-ORG/IND-001
Rev. 5/16

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

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

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\18DEC17P\18DEC17P.B

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

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

#	*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
#	*	579513	CCV@25	Vial 71	1	Control	1	8.19513e5	12.270	22.61557
#	*	579514	LODV@1.	Vial 72	1	Control	2	2.99723e4	12.414	8.57599e-1
#	*	579515	ICS@1.	Vial 73	1	Control	3	2.28938e4	12.202	8.65794e-1
#		579516	LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
#	*	579517	LCS@5.	Vial 75	1	Control	5	1.72923e5	12.304	4.94133
#		1734272001		Vial 76	1	Sample	6	0.00000	0.000	0.00000
#	*	579519	342721D	Vial 78	1	Sample	8	1.70836e5	12.497	5.32002
#		1734273001		Vial 79	1	Sample	9	3.34489e8	10.358	1644.58694 D:1/5
#	*	579518	342721S	Vial 77	1	Sample	10	1.71421e5	12.597	5.30192
#		1734274001		Vial 80	1	Sample	11	0.00000	0.000	0.00000
#		1734528001		Vial 81	1	Sample	12	0.00000	0.000	0.00000
#		1734528002		Vial 82	1	Sample	13	0.00000	0.000	0.00000
#		1734528003		Vial 83	1	Sample	14	0.00000	0.000	0.00000
#		1734528004		Vial 84	1	Sample	15	0.00000	0.000	0.00000 D:1/5
#		1734528005		Vial 85	1	Sample	16	6.13484e6	12.265	137.24631 D:1/5
#	*	579520	CCV@25	Vial 71	1	Control	17	7.71231e5	12.572	23.99556
#	*	579521	LODV@1.	Vial 72	1	Control	18	6.02035e4	12.741	1.93940 N.R.
#	*	579521	LODV@1.	Vial 72	1	Control	19	3.19782e4	12.758	8.83370e-1
#		1734528006		Vial 86	1	Sample	20	5.11133e4	12.122	2.04849
#		1734528007		Vial 87	1	Sample	21	0.00000	0.000	0.00000
#		1734528008		Vial 88	1	Sample	22	1.40651e6	12.759	35.44352
#		1734528009		Vial 89	1	Sample	23	1.50139e6	12.641	35.94367
#		1734528010		Vial 90	1	Sample	24	1.03788e8	11.575	783.79545 D:1/5
#		1734528011		Vial 91	1	Sample	25	5.36376e4	12.428	1.85996
#		1734528012		Vial 92	1	Sample	26	0.00000	0.000	0.00000
#	*	1734273001	1K	Vial 93	1	Sample	27	2.96423e5	12.816	7998.96138
#	*	1734528004	1K	Vial 94	1	Sample	28	4.10797e6	12.777	7.71227e4 D:1/5
#	*	1734528005	10X	Vial 95	1	Sample	29	7.03474e5	12.664	171.80316
#	*	579522	CCV@25	Vial 71	1	Control	30	1.03284e6	12.662	25.66192
*		579523	LODV@1.	Vial 72	1	Control	31	4.11635e4	12.811	1.05307

N.R. - NOT REPORTED, RERUN

#	*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#	*	579513	CCV@25	Vial 71	1	Control	1	2.73170e5	12.287	23.70026
#	*	579514	LODV@1.	Vial 72	1	Control	2	1.37695e4	12.427	9.84936e-1
#	*	579515	ICS@1.	Vial 73	1	Control	3	8384.95508	12.231	7.53800e-1
#		579516	LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
#	*	579517	LCS@5.	Vial 75	1	Control	5	6.35733e4	12.316	5.43577
#		1734272001		Vial 76	1	Sample	6	0.00000	0.000	0.00000
#	*	579519	342721D	Vial 78	1	Sample	8	5.96372e4	12.512	5.57190
#		1734273001		Vial 79	1	Sample	9	1.21188e8	10.368	1980.88358
#	*	579518	342721S	Vial 77	1	Sample	10	6.02931e4	12.608	5.59454
#		1734274001		Vial 80	1	Sample	11	0.00000	0.000	0.00000
#		1734528001		Vial 81	1	Sample	12	0.00000	0.000	0.00000
#		1734528002		Vial 82	1	Sample	13	0.00000	0.000	0.00000
#		1734528003		Vial 83	1	Sample	14	0.00000	0.000	0.00000
#		1734528004		Vial 84	1	Sample	15	0.00000	12.225	0.00000
#		1734528005		Vial 85	1	Sample	16	2.00064e6	12.279	149.19548
#	*	579520	CCV@25	Vial 71	1	Control	17	2.66561e5	12.598	26.03933
#	*	579521	LODV@1.	Vial 72	1	Control	18	2.41168e4	12.726	2.18233
#	*	579521	LODV@1.	Vial 72	1	Control	19	1.26778e4	12.762	8.54268e-1
#		1734528006		Vial 86	1	Sample	20	2.10850e4	12.132	2.39278
#		1734528007		Vial 87	1	Sample	21	0.00000	0.000	0.00000
#		1734528008		Vial 88	1	Sample	22	4.55259e5	12.783	36.62958
#		1734528009		Vial 89	1	Sample	23	4.76179e5	12.662	36.49676
#		1734528010		Vial 90	1	Sample	24	3.64636e7	11.594	924.32429
#		1734528011		Vial 91	1	Sample	25	2.03285e4	12.422	1.96094
#		1734528012		Vial 92	1	Sample	26	0.00000	0.000	0.00000
#	*	1734273001	1K	Vial 93	1	Sample	27	1.02865e5	12.825	8462.65308
#	*	1734528004	1K	Vial 94	1	Sample	28	1.28486e6	12.793	7.95428e4

Batch Report: C:\HPCHEM\1\DATA\18DEC17P\18DEC17P.B

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	1734528005	10X	Vial 95	1	Sample	29	2.33472e5	12.682	177.99797
#*	579522	CCV@25	Vial 71	1	Control	30	3.36885e5	12.677	26.45174
*	579523	LODV@1.	Vial 72	1	Control	31	1.50817e4	12.805	9.67895e-1

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
#*	579513	CCV@25	Vial 71	1	Control	1	1.50222e5	12.291	5.00000
#*	579514	LODV@1.	Vial 72	1	Control	2	1.66184e5	12.442	5.00000
#*	579515	ICS@1.	Vial 73	1	Control	3	1.25695e5	12.227	5.00000
#*	579516	LMB	Vial 74	1	Control	4	1.78027e5	12.525	5.00000
#*	579517	LCS@5.	Vial 75	1	Control	5	1.59033e5	12.328	5.00000
#*	1734272001		Vial 76	1	Sample	6	1.28204e5	12.458	5.00000
#*	579519	342721D	Vial 78	1	Sample	8	1.45591e5	12.522	5.00000
#*	1734273001		Vial 79	1	Sample	9	9.64717e4	10.331	5.00000
#*	579518	342721S	Vial 77	1	Sample	10	1.46605e5	12.617	5.00000
#*	1734274001		Vial 80	1	Sample	11	1.32893e5	12.657	5.00000
#*	1734528001		Vial 81	1	Sample	12	1.12509e5	12.134	5.00000
#*	1734528002		Vial 82	1	Sample	13	8.14045e4	12.135	5.00000
#*	1734528003		Vial 83	1	Sample	14	7.98631e4	12.223	5.00000
#*	1734528004		Vial 84	1	Sample	15	0.00000	0.000	0.00000
#*	1734528005		Vial 85	1	Sample	16	1.19726e5	12.288	5.00000
#*	579520	CCV@25	Vial 71	1	Control	17	1.32362e5	12.602	5.00000
#*	579521	LODV@1.	Vial 72	1	Control	18	1.44412e5	12.735	5.00000
#*	579521	LODV@1.	Vial 72	1	Control	19	1.71963e5	12.778	5.00000
#*	1734528006		Vial 86	1	Sample	20	1.15933e5	12.136	5.00000
#*	1734528007		Vial 87	1	Sample	21	1.30647e5	12.655	5.00000
#*	1734528008		Vial 88	1	Sample	22	1.54970e5	12.775	5.00000
#*	1734528009		Vial 89	1	Sample	23	1.62755e5	12.662	5.00000
#*	1734528010		Vial 90	1	Sample	24	1.18491e5	11.602	5.00000
#*	1734528011		Vial 91	1	Sample	25	1.34288e5	12.447	5.00000
#*	1734528012		Vial 92	1	Sample	26	1.56764e5	12.490	5.00000
#*	1734273001	1K	Vial 93	1	Sample	27	1.65455e5	12.842	5000.00000
#*	1734528004	1K	Vial 94	1	Sample	28	1.75146e5	12.796	5000.00000
#*	1734528005	10X	Vial 95	1	Sample	29	1.74320e5	12.696	50.00000
#*	579522	CCV@25	Vial 71	1	Control	30	1.64442e5	12.683	5.00000
*	579523	LODV@1.	Vial 72	1	Control	31	1.84677e5	12.840	5.00000

*** End of Report ***

Batch Report: C:\HPCHEM\1\DATA\20DEC17P\20DEC17P.B

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

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

#	*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
	*	580015	CCV@25	Vial 71	1	Control	1	1.01810e6	12.642	27.41290
	*	1734528010	10X	Vial 96	1	Sample	2	1.08442e7	12.531	1772.19164
	*	1734528004	10K	Vial 97	1	Sample	3	3.29576e5	12.818	9.35585e4
	*	1734528010	100	Vial 98	1	Sample	4	9.33493e5	12.776	2386.90132
	*	580016	CCV@25	Vial 71	1	Control	5	1.01357e6	12.639	27.14098

#	*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
	*	580015	CCV@25	Vial 71	1	Control	1	3.19294e5	12.650	27.31357
	*	1734528010	10X	Vial 96	1	Sample	2	3.38019e6	12.545	1881.86812
	*	1734528004	10K	Vial 97	1	Sample	3	1.09810e5	12.834	9.55831e4
	*	1734528010	100	Vial 98	1	Sample	4	2.95219e5	12.800	2386.21800
	*	580016	CCV@25	Vial 71	1	Control	5	3.16517e5	12.656	26.92819

#	*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
	*	580015	CCV@25	Vial 71	1	Control	1	1.50493e5	12.665	5.00000
	*	1734528010	10X	Vial 96	1	Sample	2	1.45913e5	12.542	50.00000
	*	1734528004	10K	Vial 97	1	Sample	3	1.56125e5	12.834	5.00000e4
	*	1734528010	100	Vial 98	1	Sample	4	1.61157e5	12.799	500.00000
	*	580016	CCV@25	Vial 71	1	Control	5	1.51519e5	12.664	5.00000

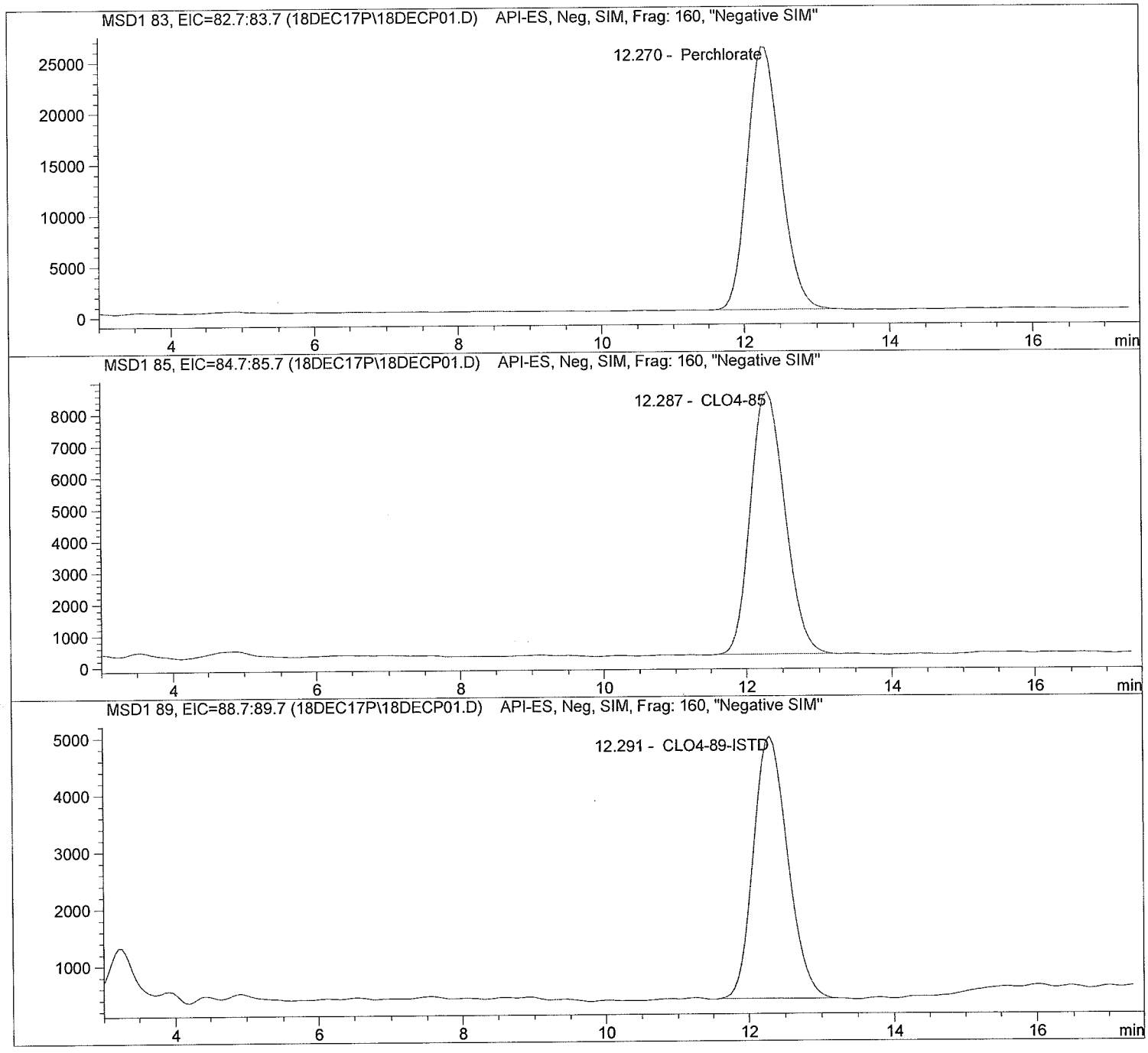
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP01.D Sample Name: 579513 CCV@25

Injection Date:	12/18/2017 08:58:15	Seq Line:	1
Sample Name:	579513 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP01.D Sample Name: 579513 CCV@25

Injection Date:	12/18/2017 08:58:15	Seq Line:	1
Sample Name:	579513 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.270	BBA	819513.3	22.6156	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.287	PBA	273170.0	23.7003	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.291	PBA	150221.5	5.0000	CLO4-89-ISTD

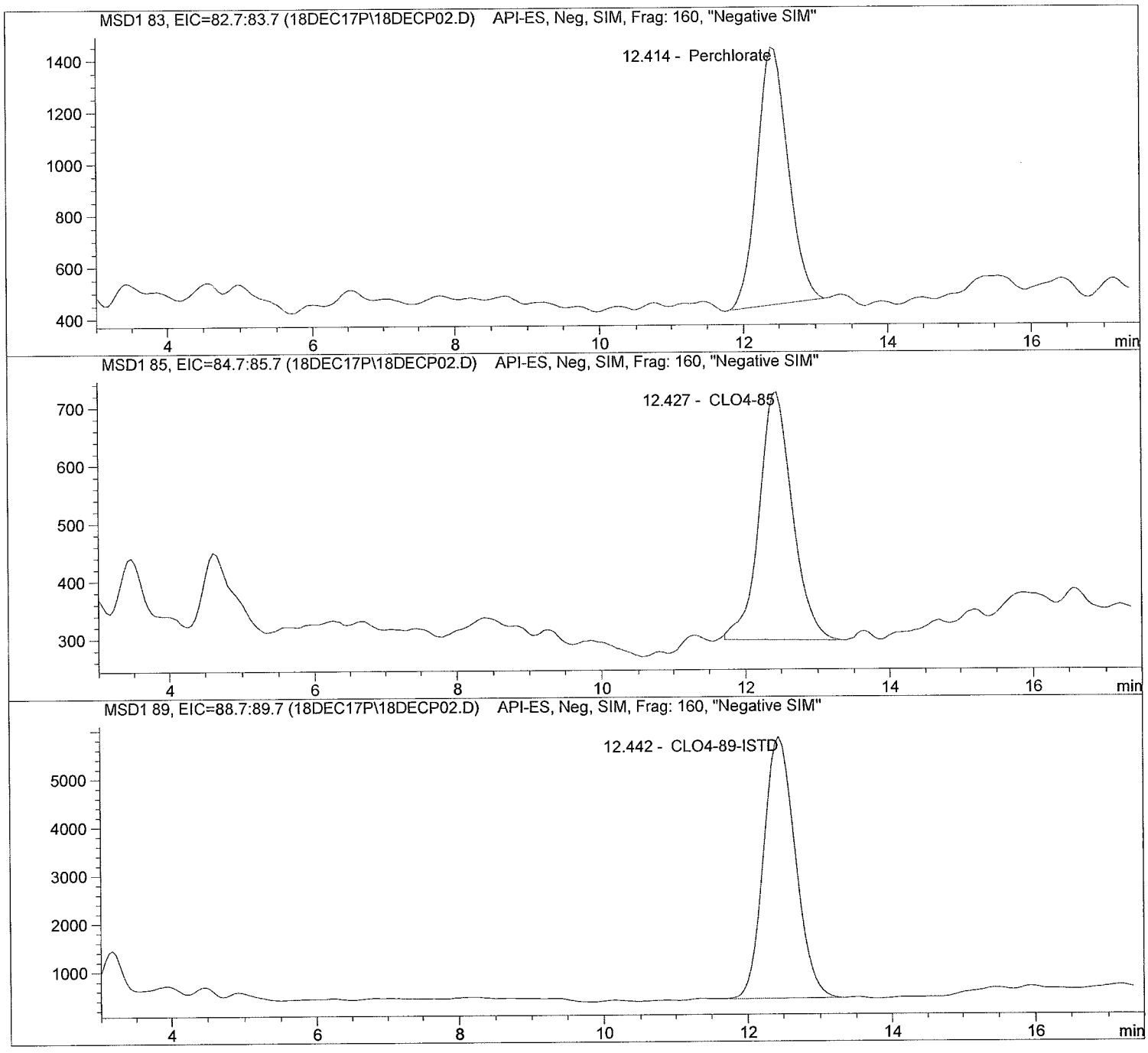
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP02.D Sample Name: 579514 LODV@1.

Injection Date:	12/18/2017 09:19:50	Seq Line:	2
Sample Name:	579514 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP02.D Sample Name: 579514 LODV@1.

Injection Date:	12/18/2017 09:19:50	Seq Line:	2
Sample Name:	579514 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.414	PBA	29972.3	0.8576	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.427	BBA	13769.5	0.9849	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.442	BBA	166183.7	5.0000	CLO4-89-ISTD

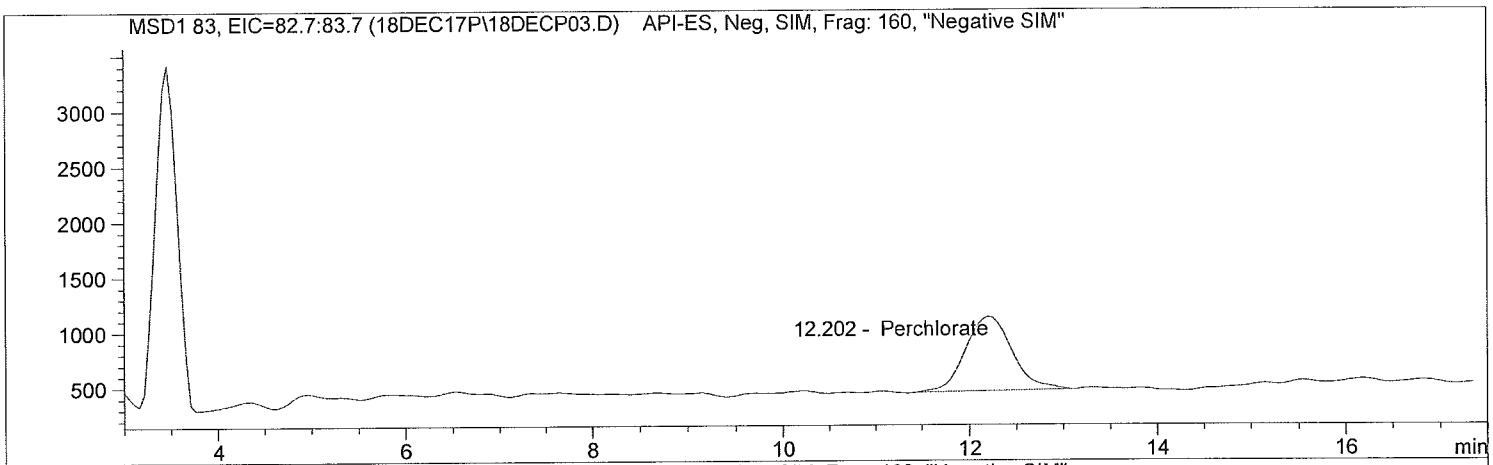
*** End of Report ***

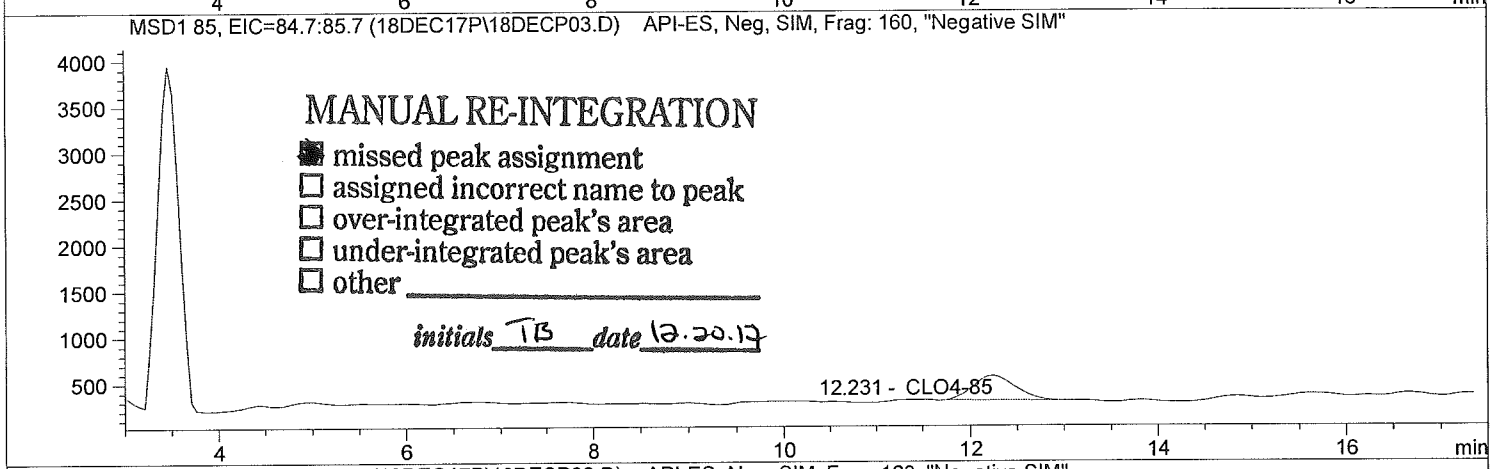
Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP03.D Sample Name: 579515 ICS@1.

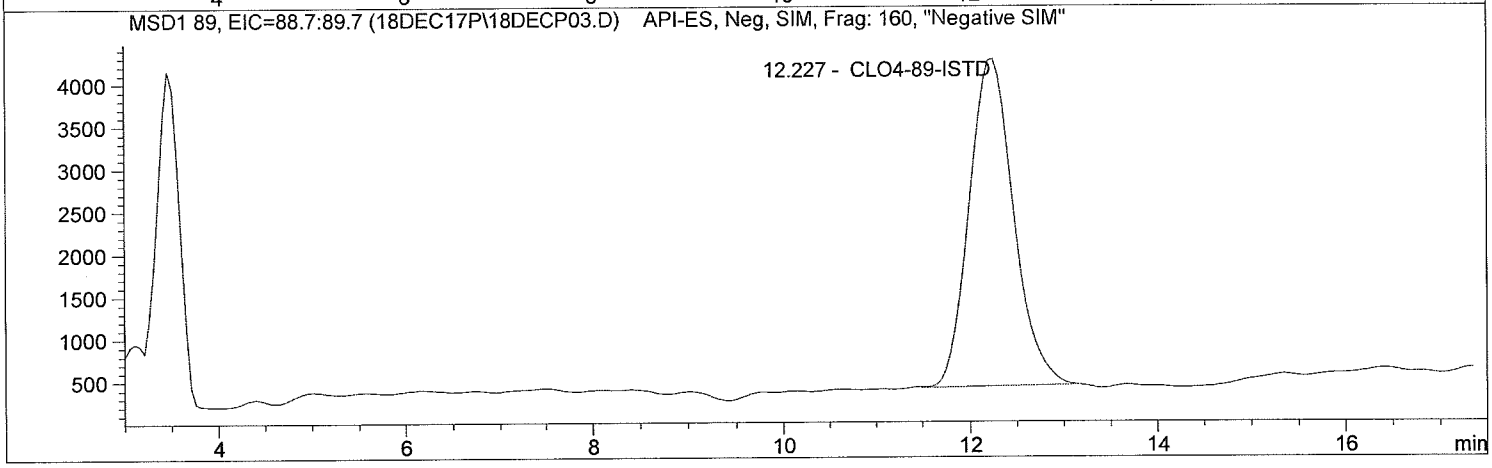
Injection Date:	12/18/2017 09:39:00	Seq Line:	3
Sample Name:	579515 ICS@1.	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP03.D Sample Name: 579515 ICS@1.

Injection Date:	12/18/2017 09:39:00	Seq Line:	3
Sample Name:	579515 ICS@1.	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.202	PBA	22893.8	0.8658	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.231	MM	8385.0	0.7538	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.227	BBA	125694.8	5.0000	CLO4-89-ISTD

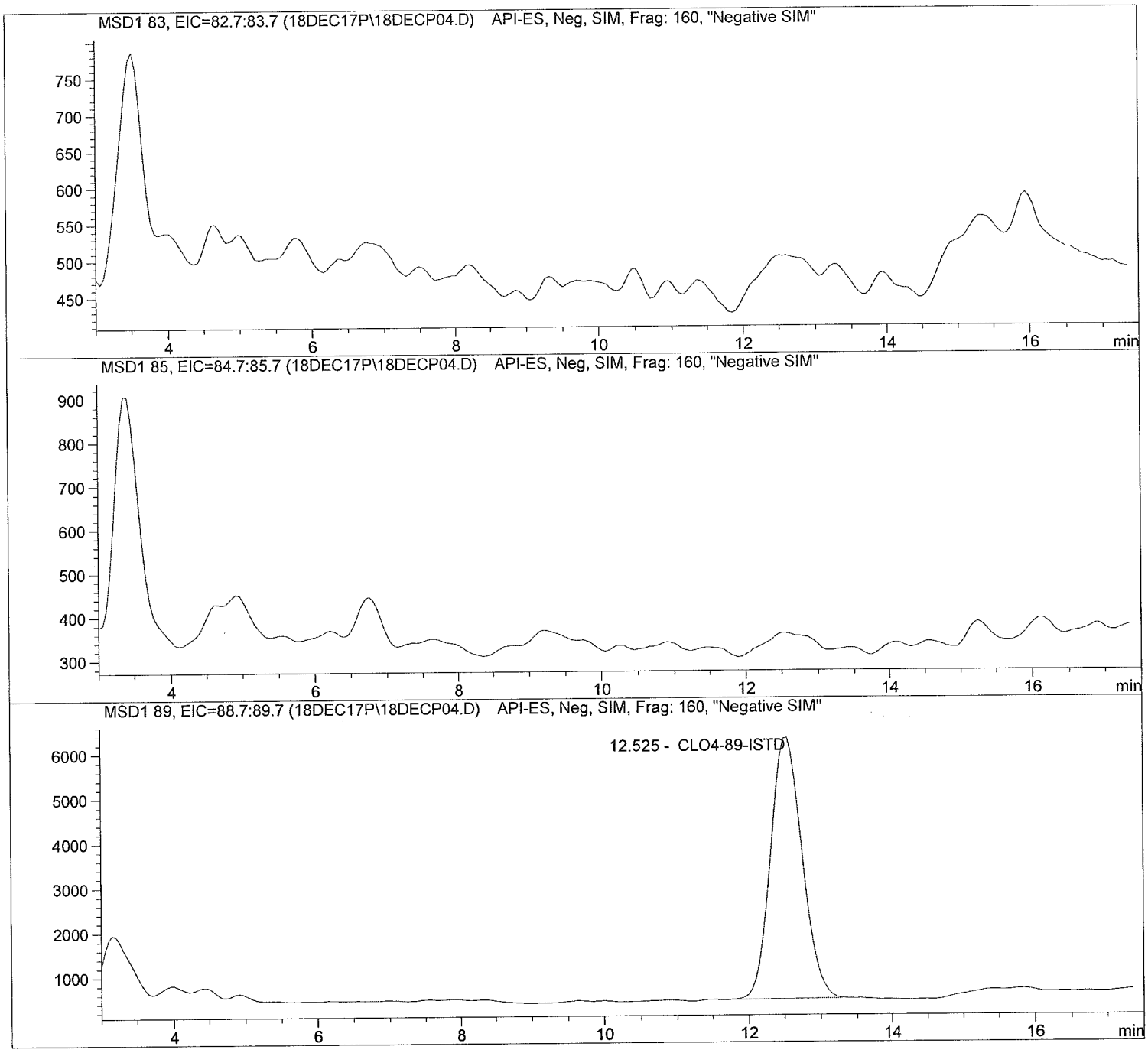
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP04.D Sample Name: 579516 LMB

Injection Date:	12/18/2017 09:59:19	Seq Line:	4
Sample Name:	579516 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP04.D Sample Name: 579516 LMB

Injection Date:	12/18/2017 09:59:19	Seq Line:	4
Sample Name:	579516 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.525	BBA	178027.5	5.0000	CLO4-89-ISTD

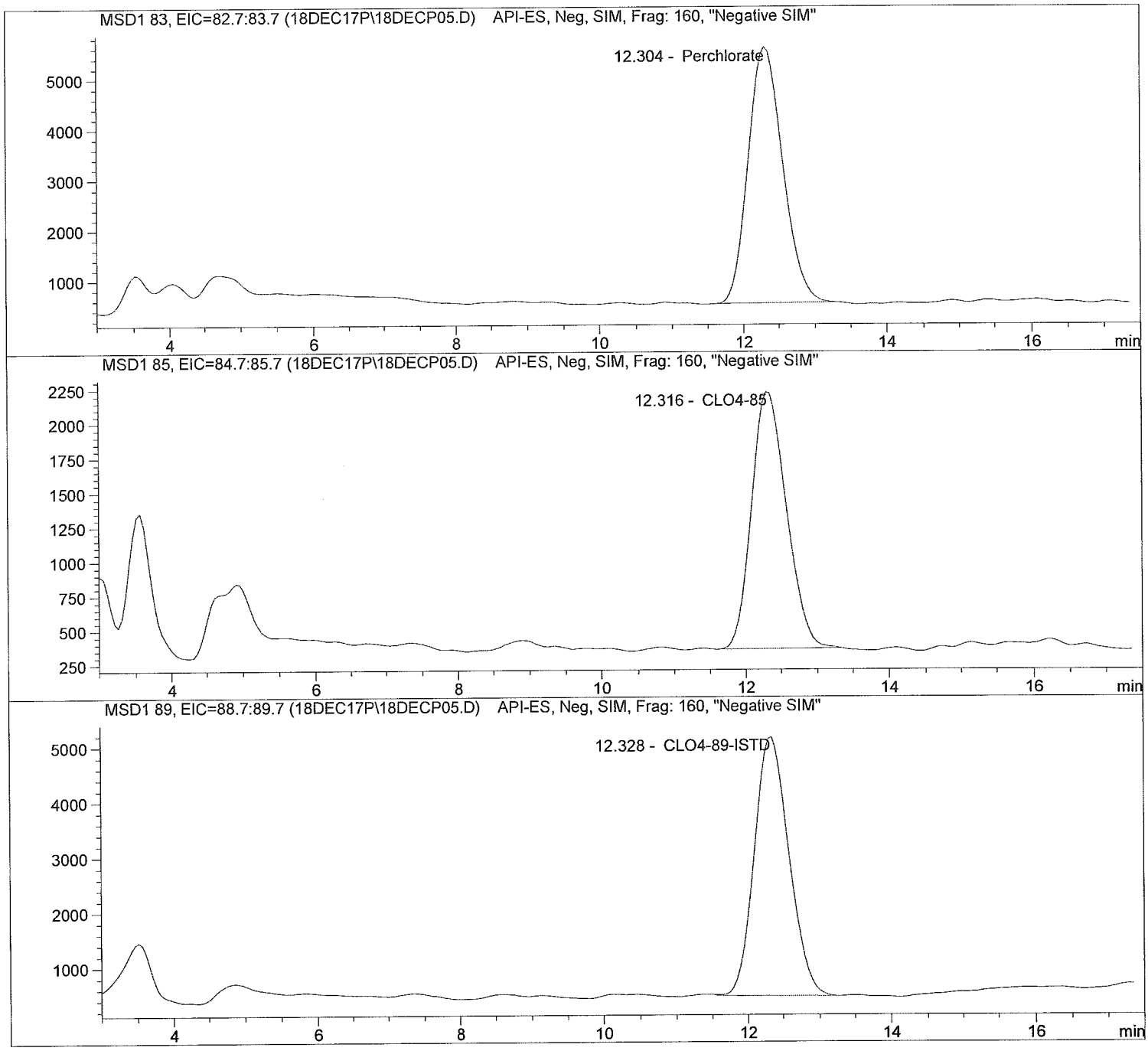
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP05.D Sample Name: 579517 LCS@5.

Injection Date:	12/18/2017 10:18:30	Seq Line:	5
Sample Name:	579517 LCS@5.	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP05.D Sample Name: 579517 LCS@5.

Injection Date:	12/18/2017 10:18:30	Seq Line:	5
Sample Name:	579517 LCS@5.	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.304	PBA	172923.4	4.9413	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.316	PBA	63573.3	5.4358	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.328	BBA	159032.7	5.0000	CLO4-89-ISTD

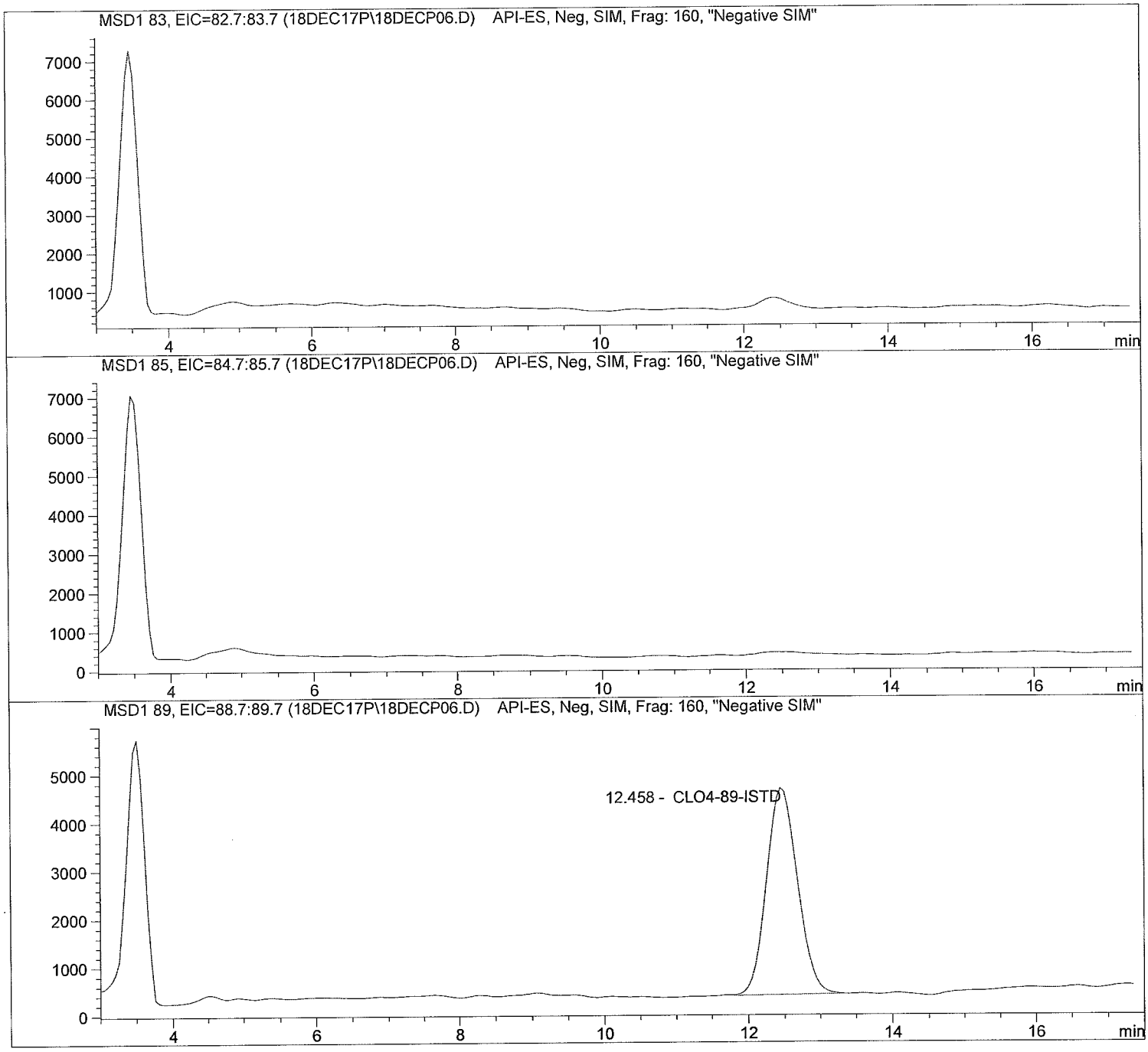
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP06.D Sample Name: 1734272001

Injection Date:	12/18/2017 10:39:17	Seq Line:	6
Sample Name:	1734272001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP06.D Sample Name: 1734272001

Injection Date:	12/18/2017 10:39:17	Seq Line:	6
Sample Name:	1734272001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.458	BBA	128203.7	5.0000	CLO4-89-ISTD

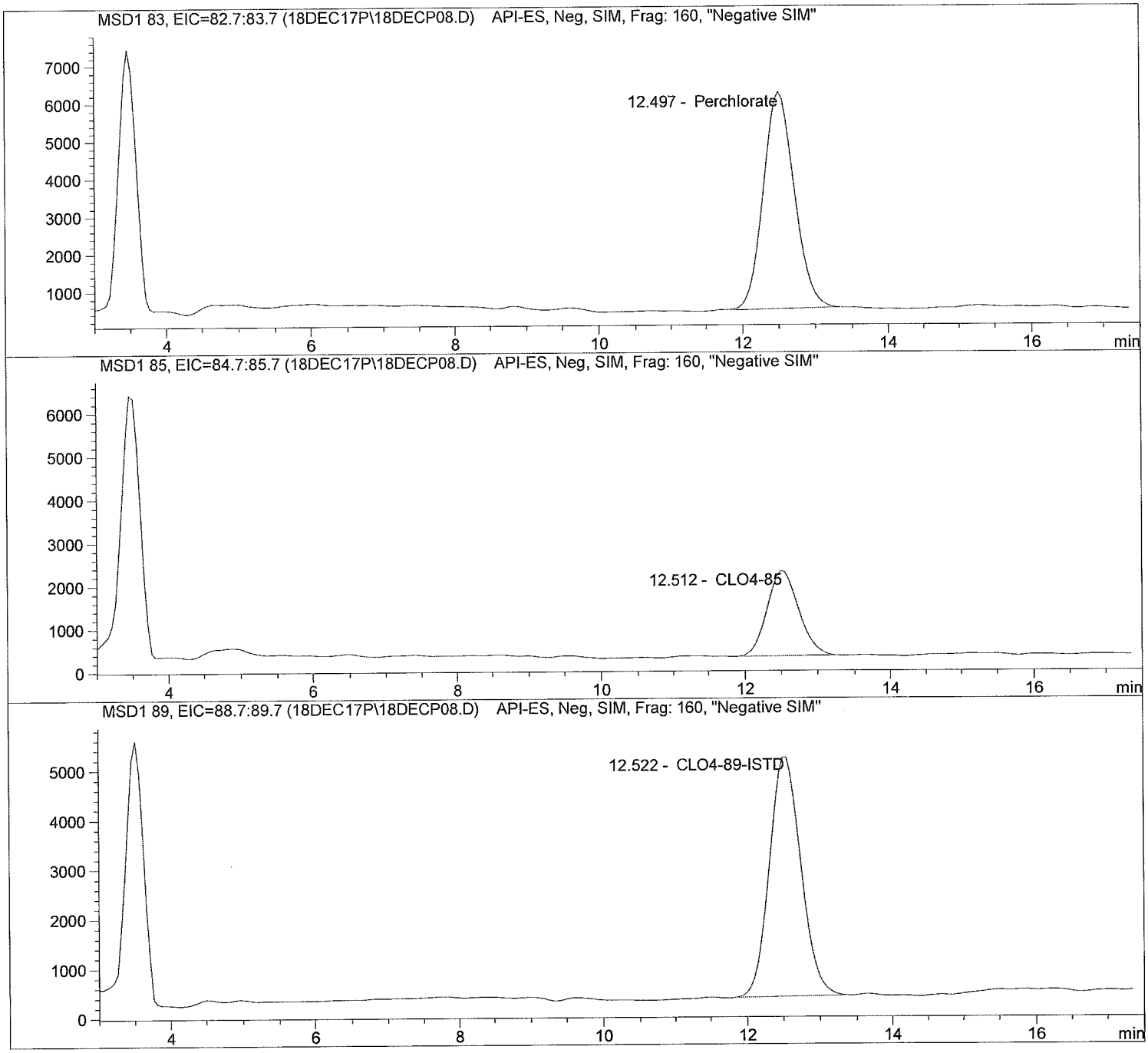
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP08.D Sample Name: 579519 342721D

Injection Date:	12/18/2017 11:17:39	Seq Line:	8
Sample Name:	579519 342721D	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP08.D Sample Name: 579519 342721D

Injection Date:	12/18/2017 11:17:39	Seq Line:	8
Sample Name:	579519 342721D	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.497	BBA	170836.3	5.3200	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.512	PBA	59637.2	5.5719	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.522	PBA	145591.5	5.0000	CLO4-89-ISTD

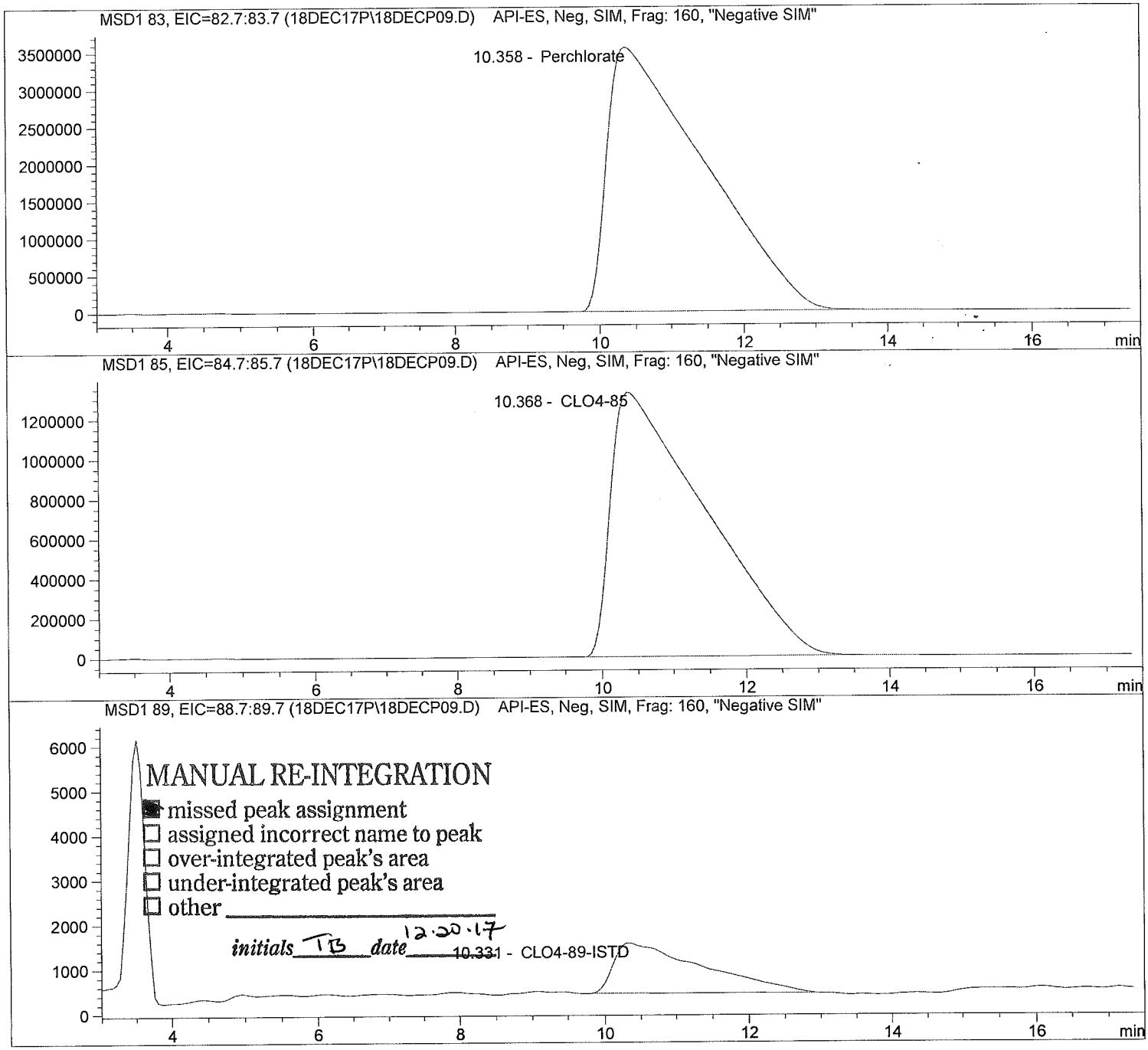
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP09.D Sample Name: 1734273001

Injection Date:	12/18/2017 11:36:53	Seq Line:	9
Sample Name:	1734273001	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP09.D Sample Name: 1734273001

Injection Date:	12/18/2017 11:36:53	Seq Line:	9
Sample Name:	1734273001	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
10.358	PBA	334489216.0	1644.5869	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
10.368	PBA	121188464.0	1980.8836	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
10.331	MM	96471.7	5.0000	CLO4-89-ISTD

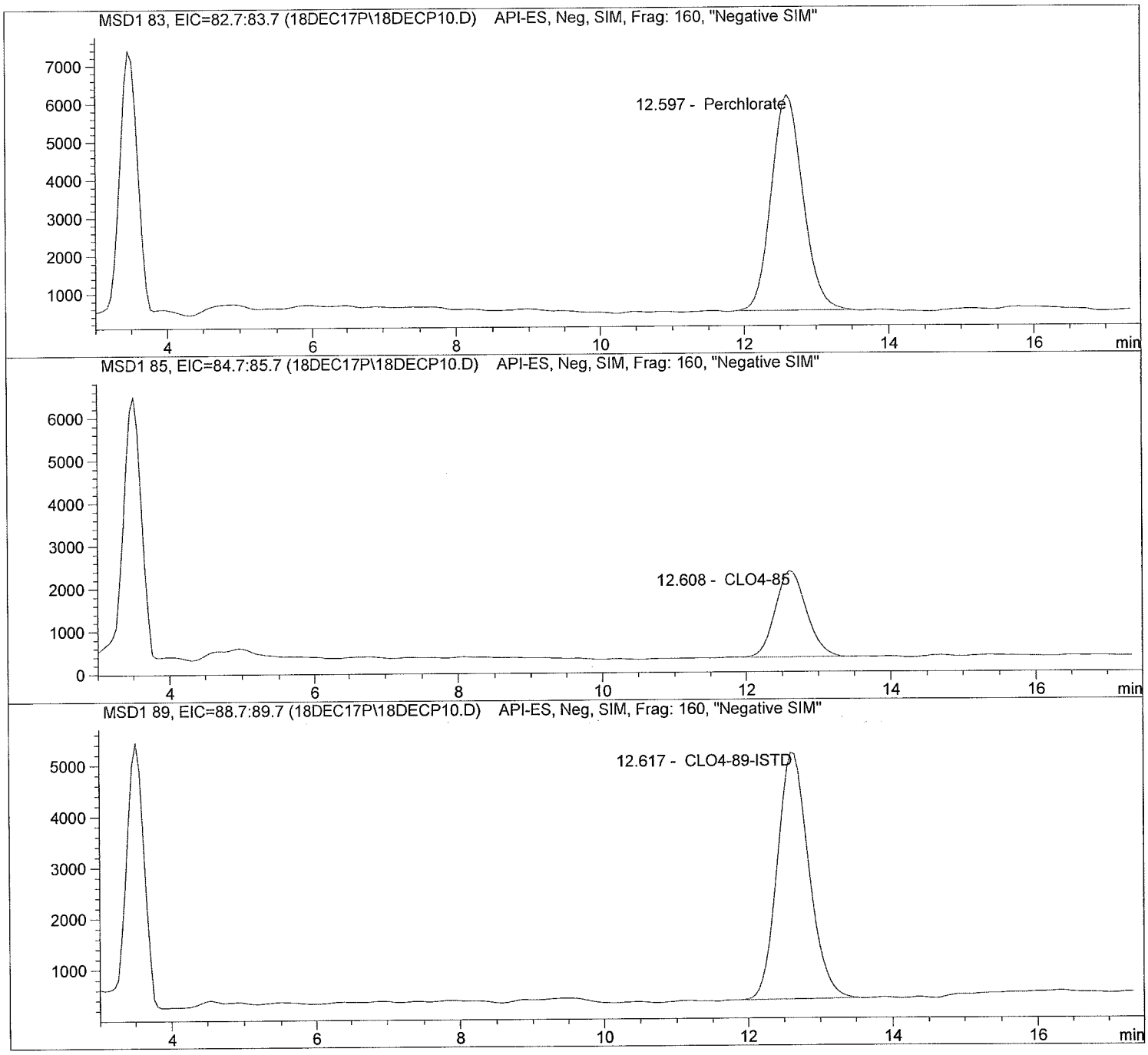
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP10.D Sample Name: 579518 342721S

Injection Date:	12/18/2017 11:56:04	Seq Line:	10
Sample Name:	579518 342721S	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP10.D Sample Name: 579518 342721S

Injection Date:	12/18/2017 11:56:04	Seq Line:	10
Sample Name:	579518 342721S	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.597	BBA	171421.4	5.3019	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.608	BBA	60293.1	5.5945	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.617	BBA	146604.7	5.0000	CLO4-89-ISTD

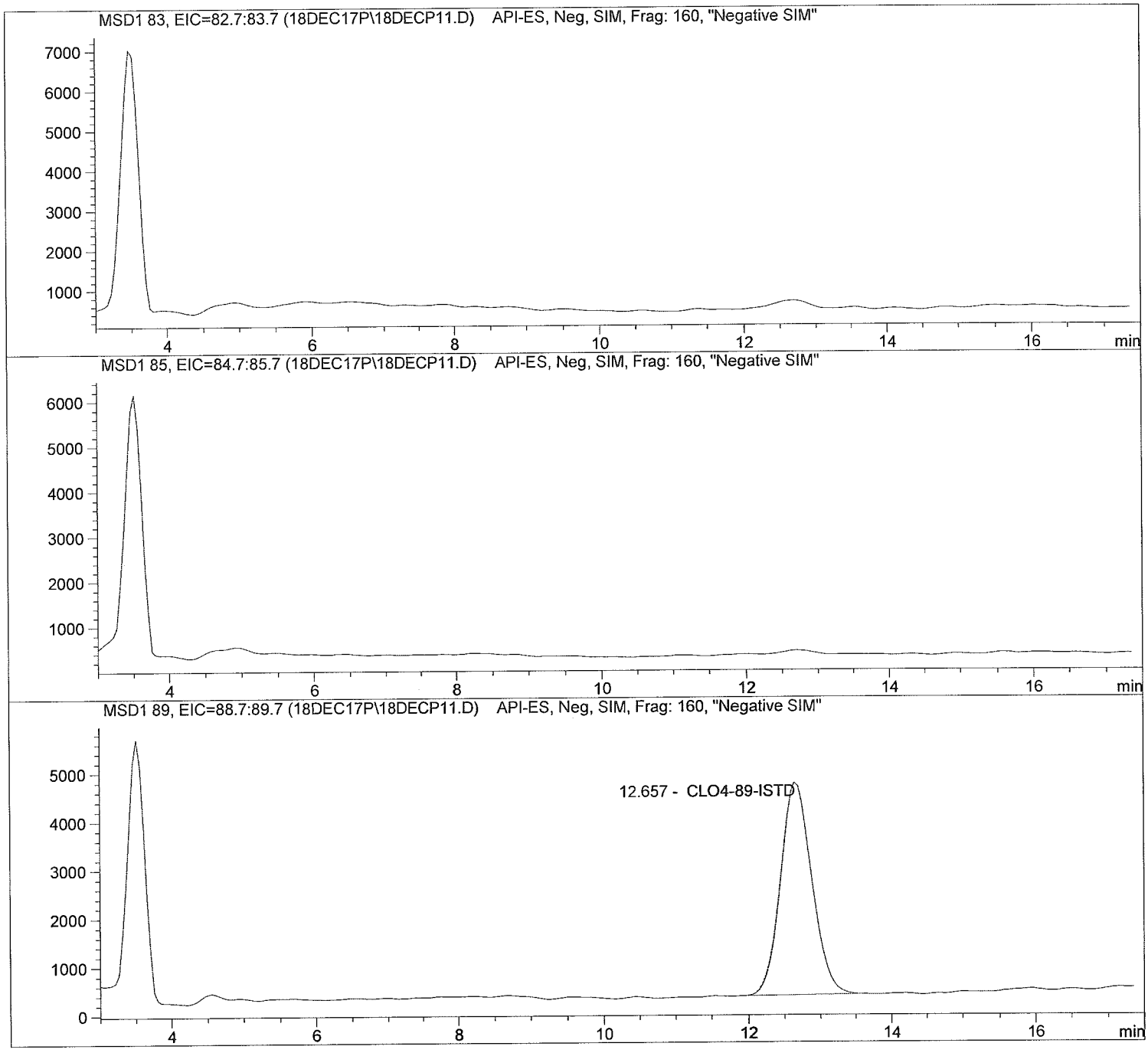
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP11.D Sample Name: 1734274001

Injection Date:	12/18/2017 12:15:14	Seq Line:	11
Sample Name:	1734274001	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP11.D Sample Name: 1734274001

Injection Date:	12/18/2017 12:15:14	Seq Line:	11
Sample Name:	1734274001	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.657	BBA	132893.4	5.0000	CLO4-89-ISTD

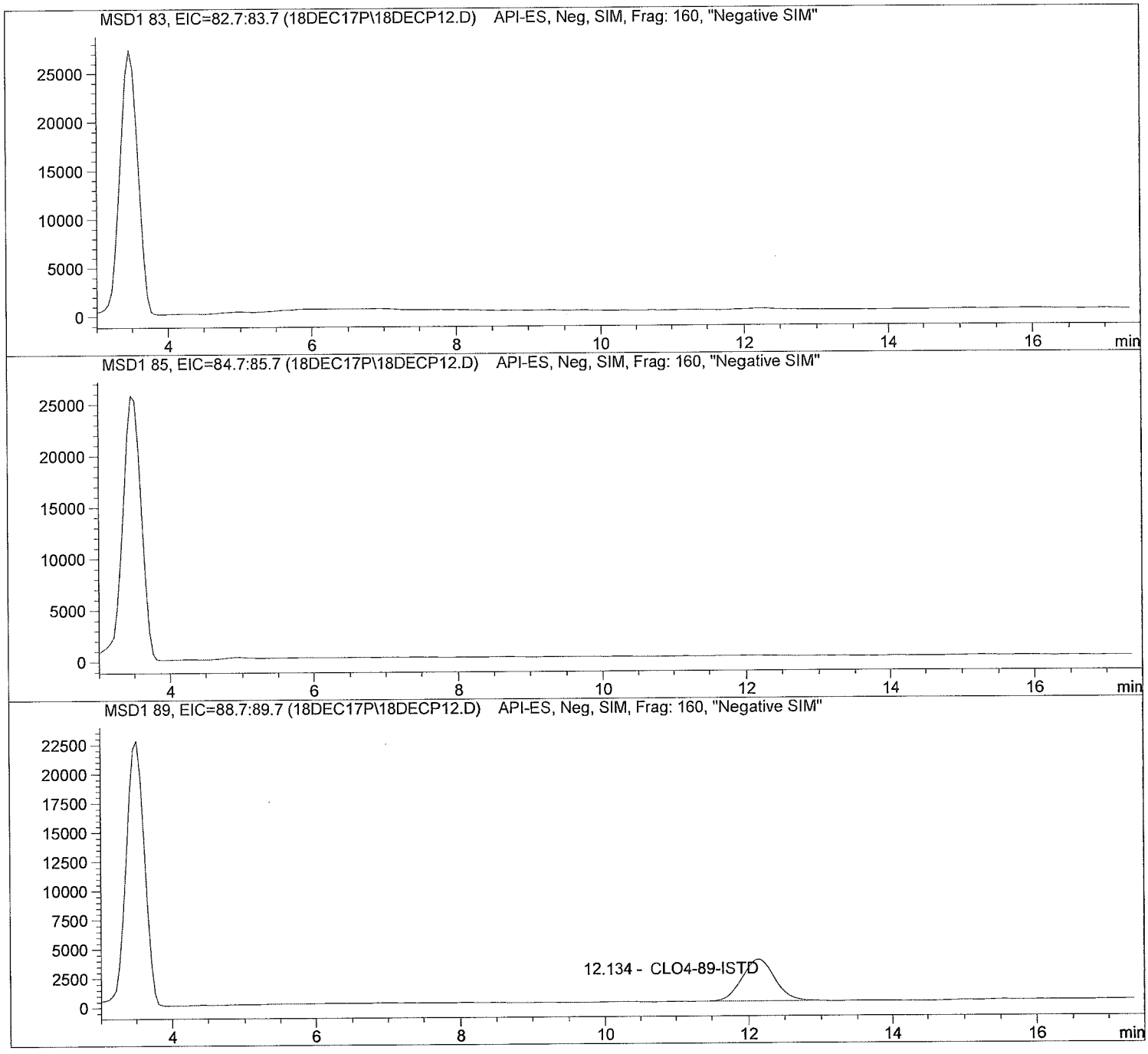
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP12.D Sample Name: 1734528001

Injection Date:	12/18/2017 12:34:23	Seq Line:	12
Sample Name:	1734528001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP12.D Sample Name: 1734528001

Injection Date:	12/18/2017 12:34:23	Seq Line:	12
Sample Name:	1734528001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.134	BBA	112508.5	5.0000	CLO4-89-ISTD

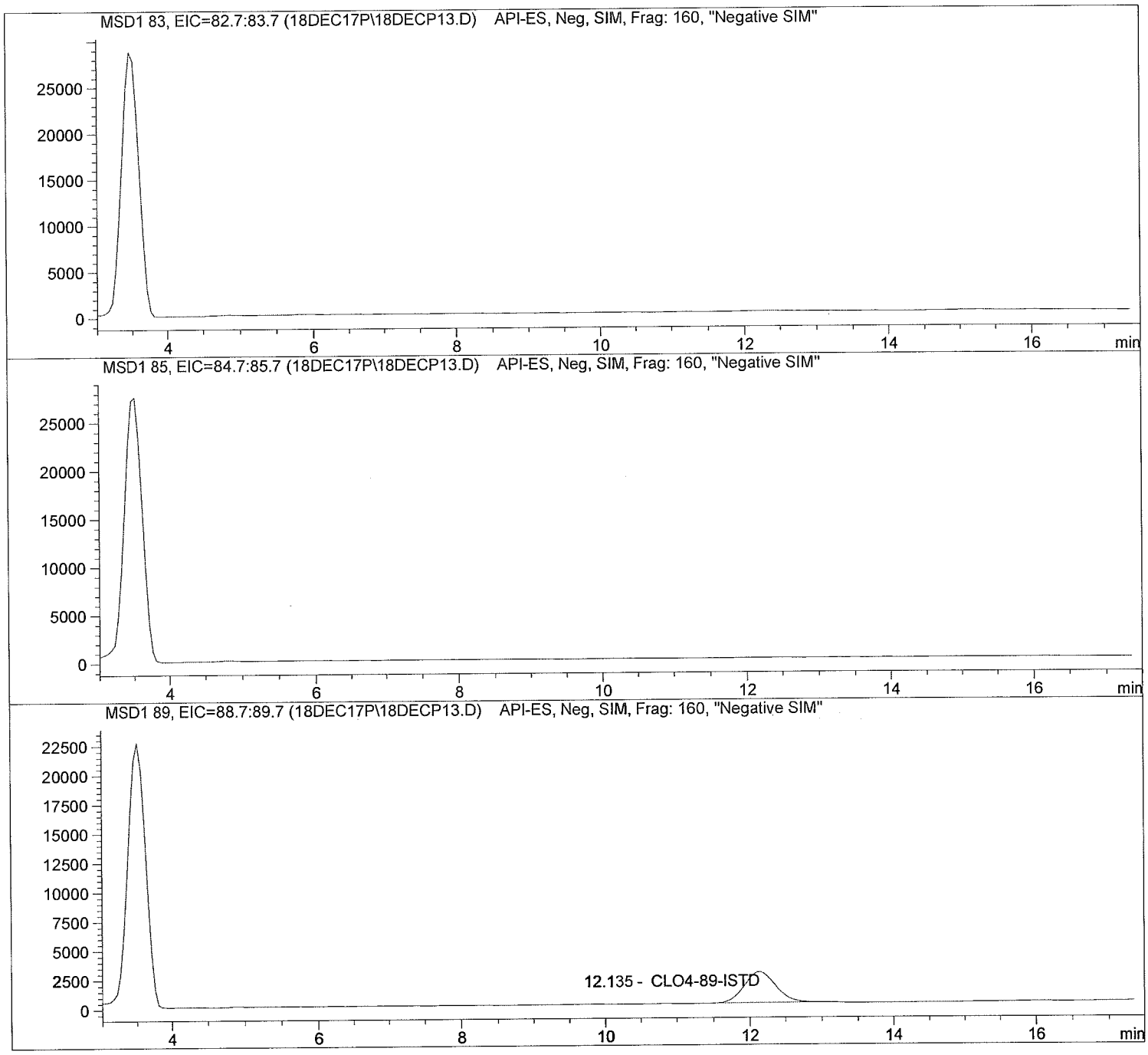
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP13.D Sample Name: 1734528002

Injection Date:	12/18/2017 12:53:32	Seq Line:	13
Sample Name:	1734528002	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP13.D Sample Name: 1734528002

Injection Date:	12/18/2017 12:53:32	Seq Line:	13
Sample Name:	1734528002	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.135	PBA	81404.5	5.0000	CLO4-89-ISTD

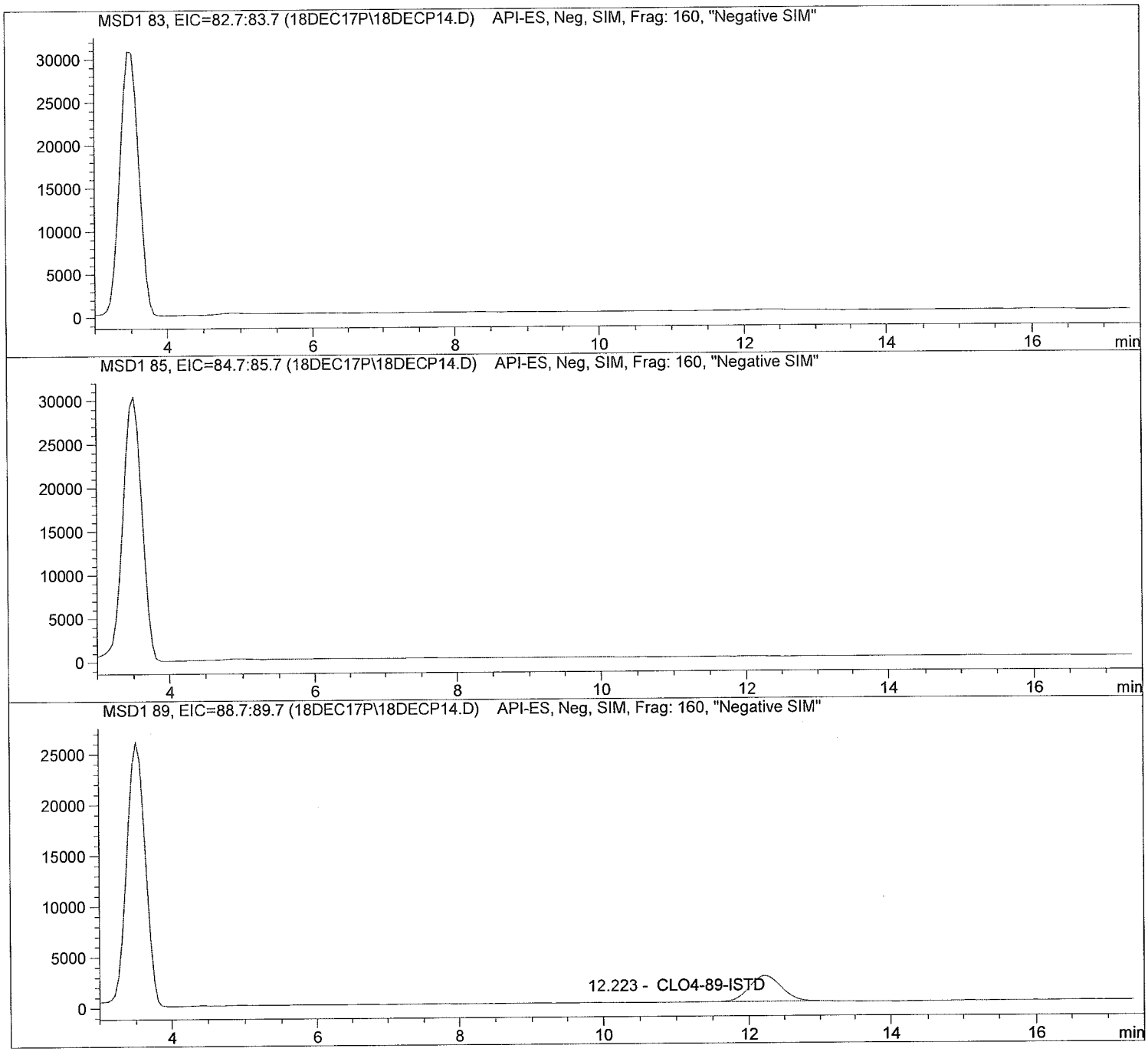
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP14.D Sample Name: 1734528003

Injection Date:	12/18/2017 13:12:40	Seq Line:	14
Sample Name:	1734528003	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP14.D Sample Name: 1734528003

Injection Date:	12/18/2017 13:12:40	Seq Line:	14
Sample Name:	1734528003	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.223	BBA	79863.1	5.0000	CLO4-89-ISTD

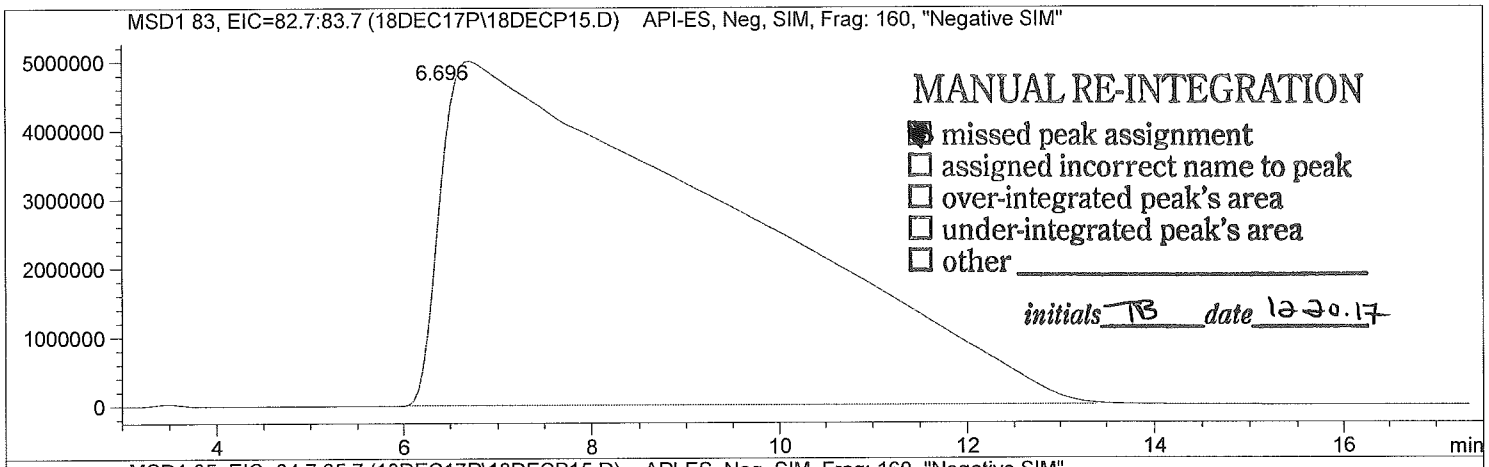
*** End of Report ***

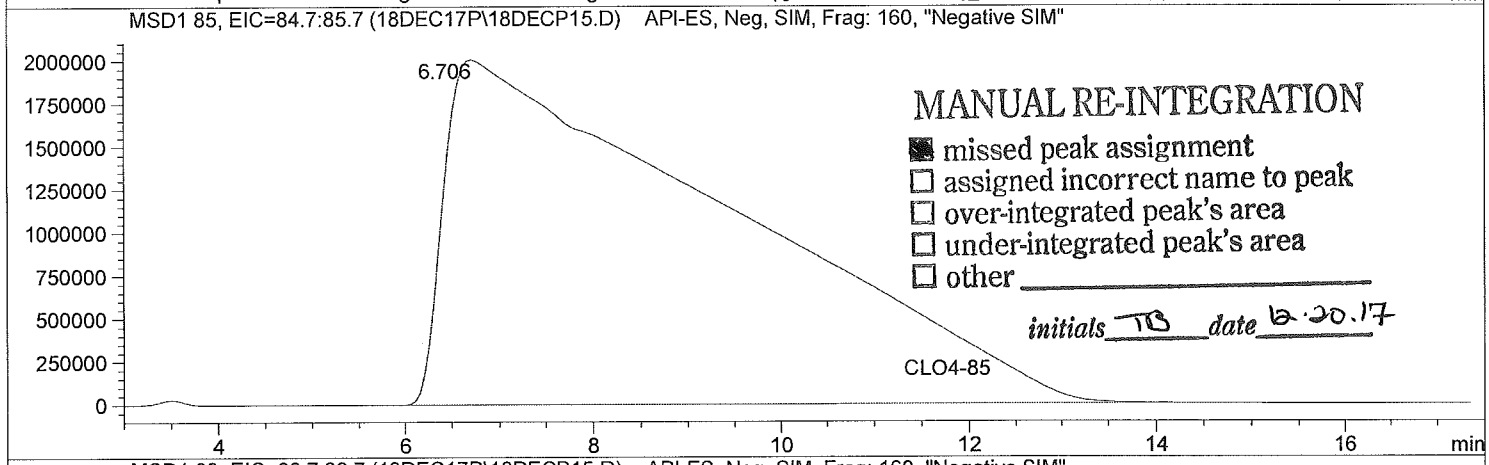
Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP15.D Sample Name: 1734528004

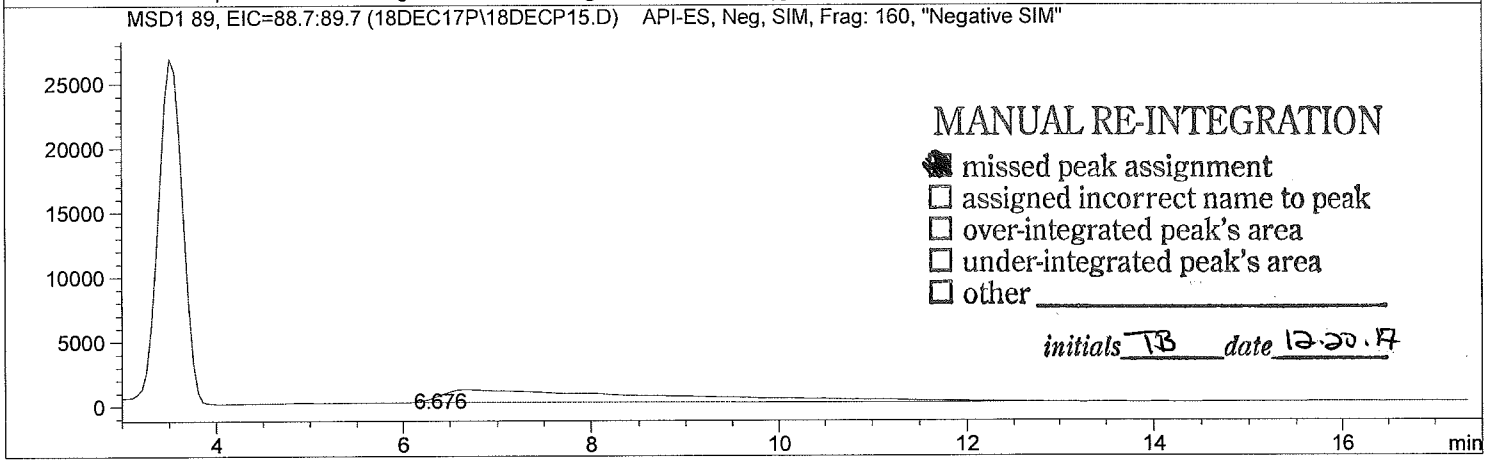
Injection Date:	12/18/2017 13:31:48	Seq Line:	15
Sample Name:	1734528004	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP15.D Sample Name: 1734528004

Injection Date:	12/18/2017 13:31:48	Seq Line:	15
Sample Name:	1734528004	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.696	MM	1071827904.0	0.0000	
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.706	MM	423853856.0	0.0000	
7.356	Rsho	0.0	0.0000	
7.872	Rsho	0.0	0.0000	
8.804	Rsho	0.0	0.0000	
9.803	Rsho	0.0	0.0000	
10.409	Rsho	0.0	0.0000	
10.779	Rsho	0.0	0.0000	
11.176	Rsho	0.0	0.0000	
11.684	Rsho	0.0	0.0000	
12.225	Rsho	0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.676	MM	168329.7	0.0000	
0.000		0.0	0.0000	CLO4-89-ISTD

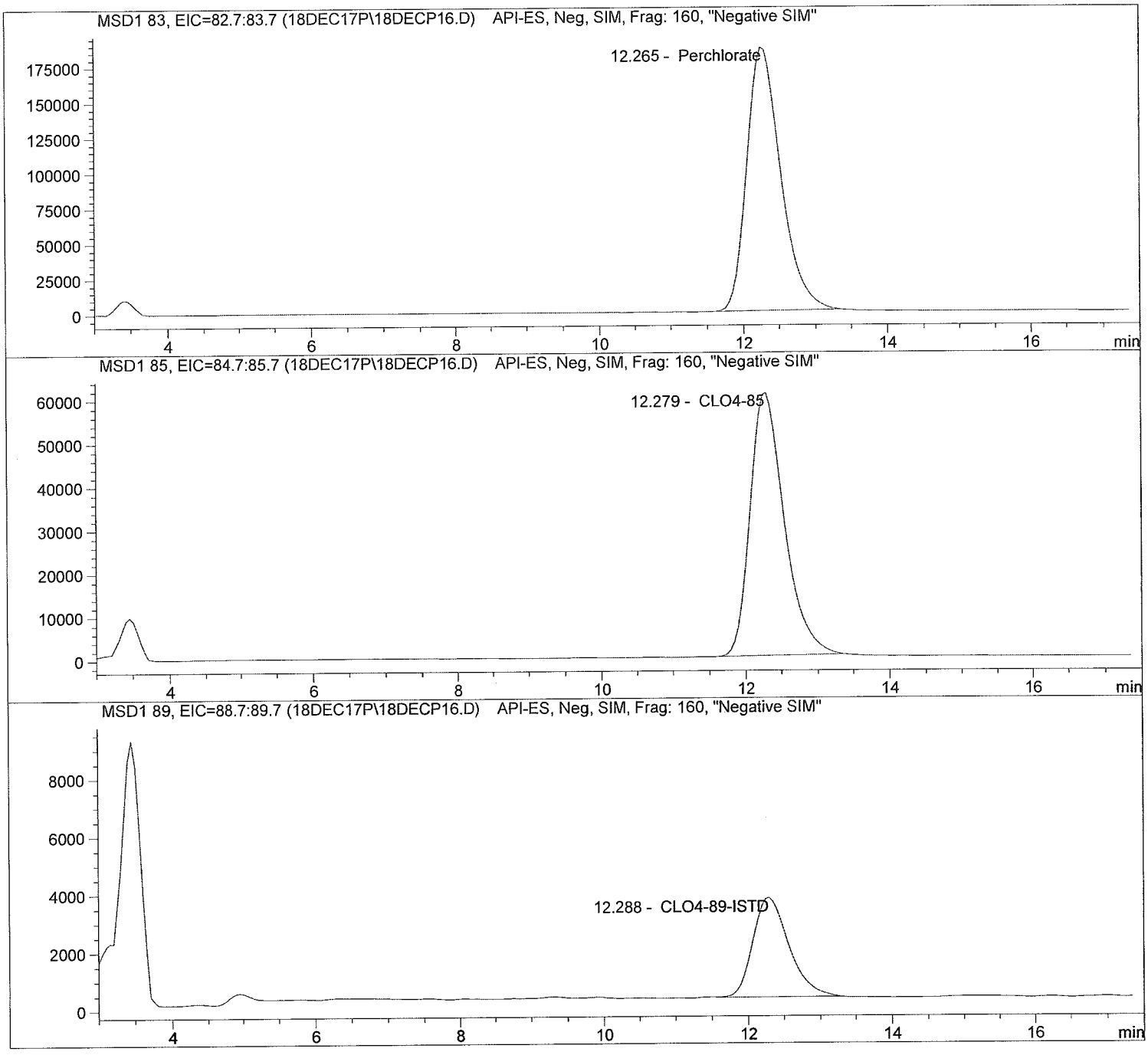
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP16.D Sample Name: 1734528005

Injection Date:	12/18/2017 13:50:58	Seq Line:	16
Sample Name:	1734528005	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP16.D Sample Name: 1734528005

Injection Date:	12/18/2017 13:50:58	Seq Line:	16
Sample Name:	1734528005	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.265	PBA	6134840.0	137.2463	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.279	PBA	2000638.1	149.1955	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.288	BBA	119725.5	5.0000	CLO4-89-ISTD

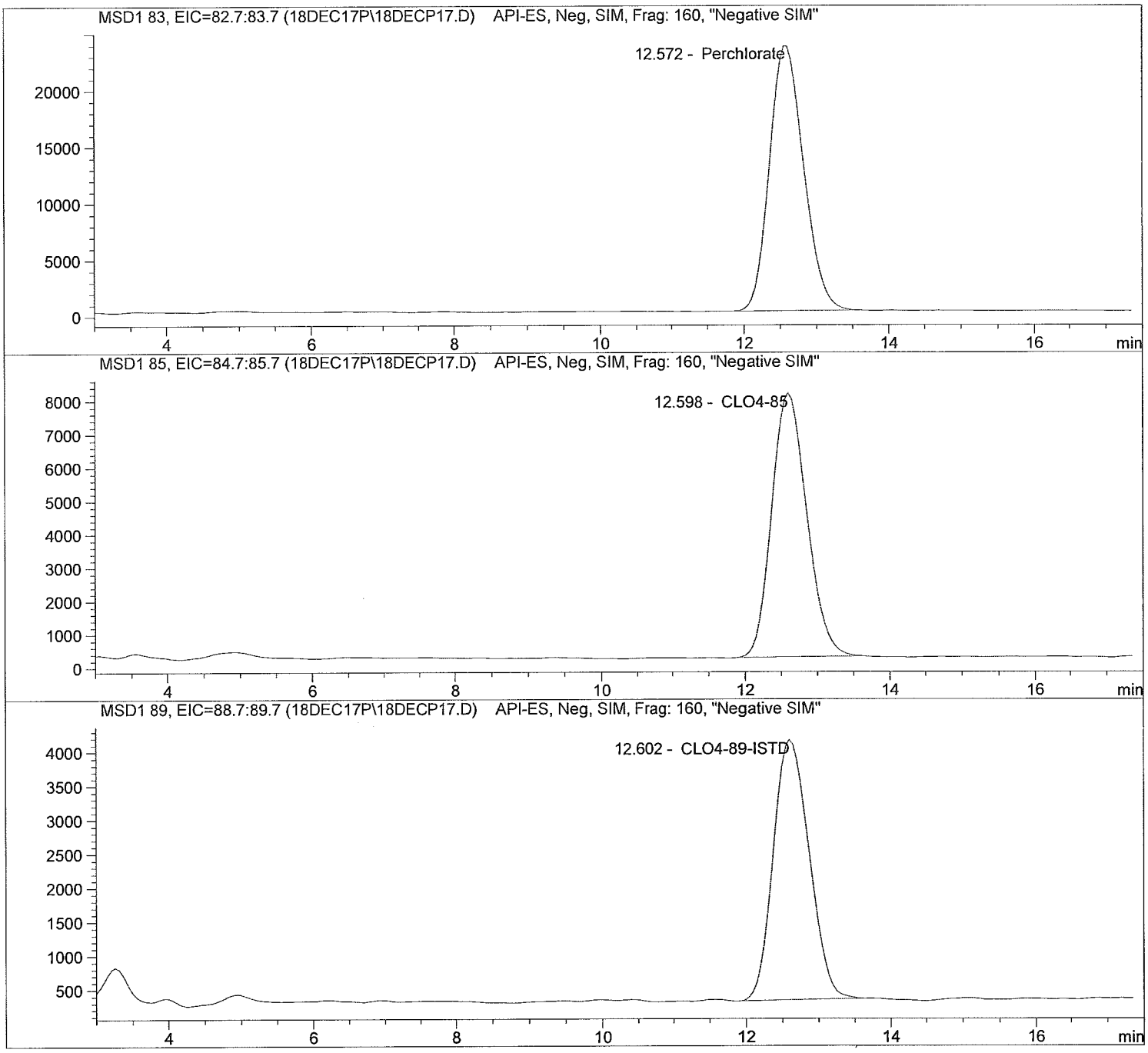
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP17.D Sample Name: 579520 CCV@25

Injection Date:	12/18/2017 14:10:07	Seq Line:	17
Sample Name:	579520 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP17.D Sample Name: 579520 CCV@25

Injection Date:	12/18/2017 14:10:07	Seq Line:	17
Sample Name:	579520 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.572	PBA	771230.9	23.9956	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.598	PBA	266560.7	26.0393	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.602	PBA	132362.0	5.0000	CLO4-89-ISTD

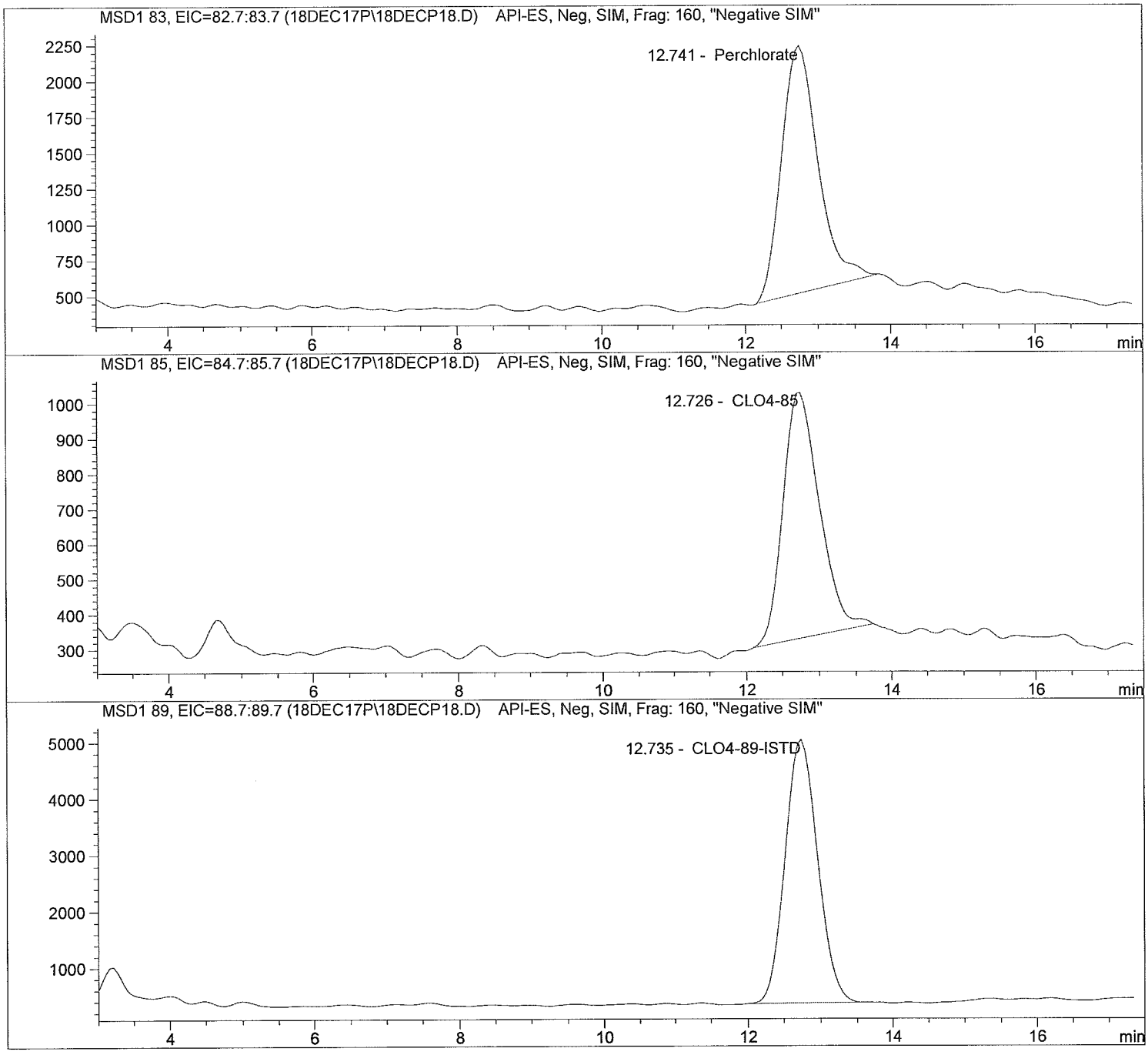
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP18.D Sample Name: 579521 LODV@1.

Injection Date:	12/18/2017 14:29:17	Seq Line:	18
Sample Name:	579521 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP18.D Sample Name: 579521 LODV@1.

Injection Date:	12/18/2017 14:29:17	Seq Line:	18
Sample Name:	579521 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.741	PBA	60203.5	1.9394	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.726	BBA	24116.8	2.1823	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.735	PBA	144412.5	5.0000	CLO4-89-ISTD

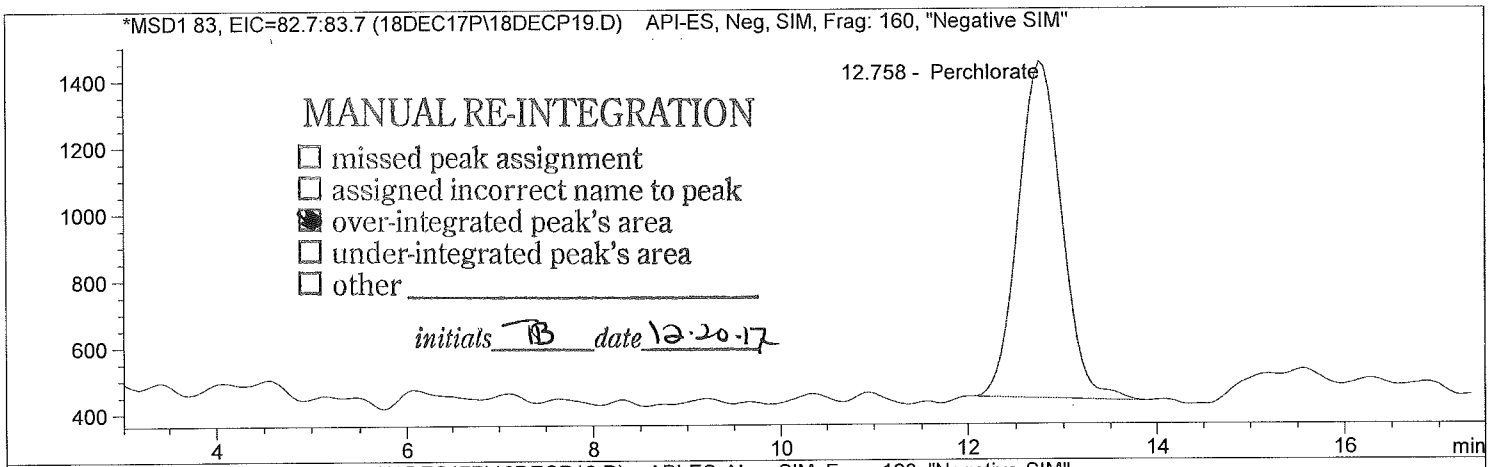
*** End of Report ***

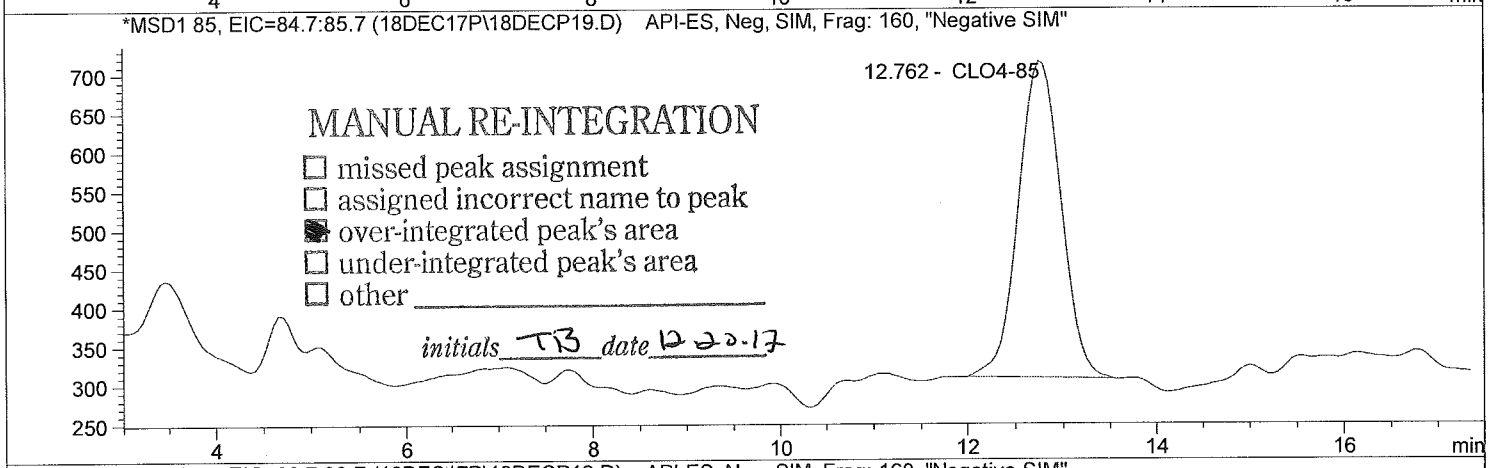
Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP19.D Sample Name: 579521 LODV@1.

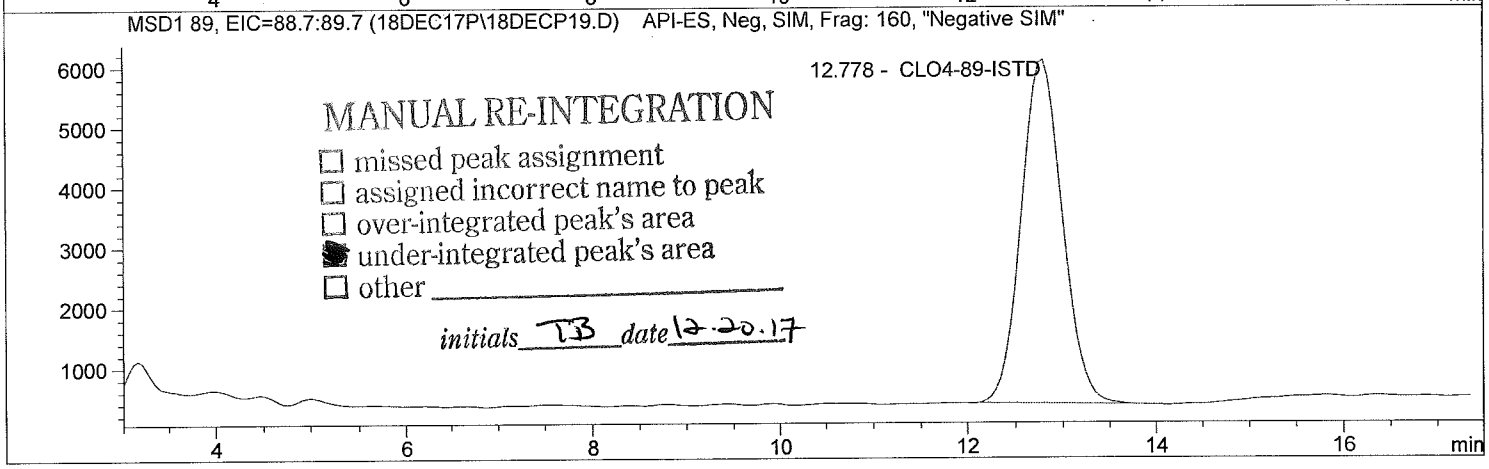
Injection Date:	12/18/2017 16:02:52	Seq Line:	19
Sample Name:	579521 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP19.D Sample Name: 579521 LODV@1.

Injection Date:	12/18/2017 16:02:52	Seq Line:	19
Sample Name:	579521 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.758	MM	31978.2	0.8834	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.762	MM	12677.8	0.8543	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.778	MM	171963.0	5.0000	CLO4-89-ISTD

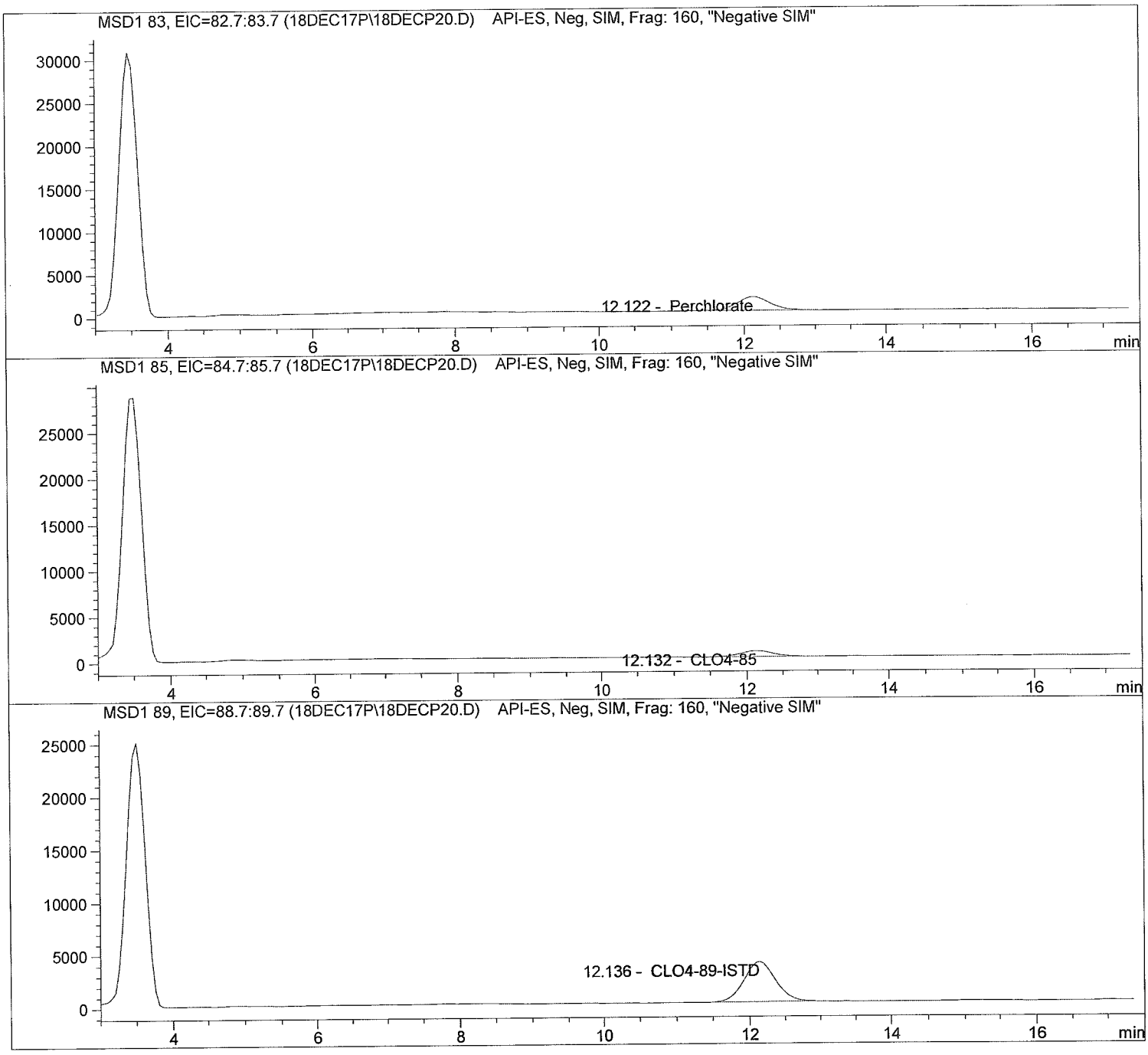
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP20.D Sample Name: 1734528006

Injection Date:	12/18/2017 16:23:47	Seq Line:	20
Sample Name:	1734528006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP20.D Sample Name: 1734528006

Injection Date:	12/18/2017 16:23:47	Seq Line:	20
Sample Name:	1734528006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.122	BBA	51113.3	2.0485	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.132	PBA	21085.0	2.3928	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.136	BBA	115933.3	5.0000	CLO4-89-ISTD

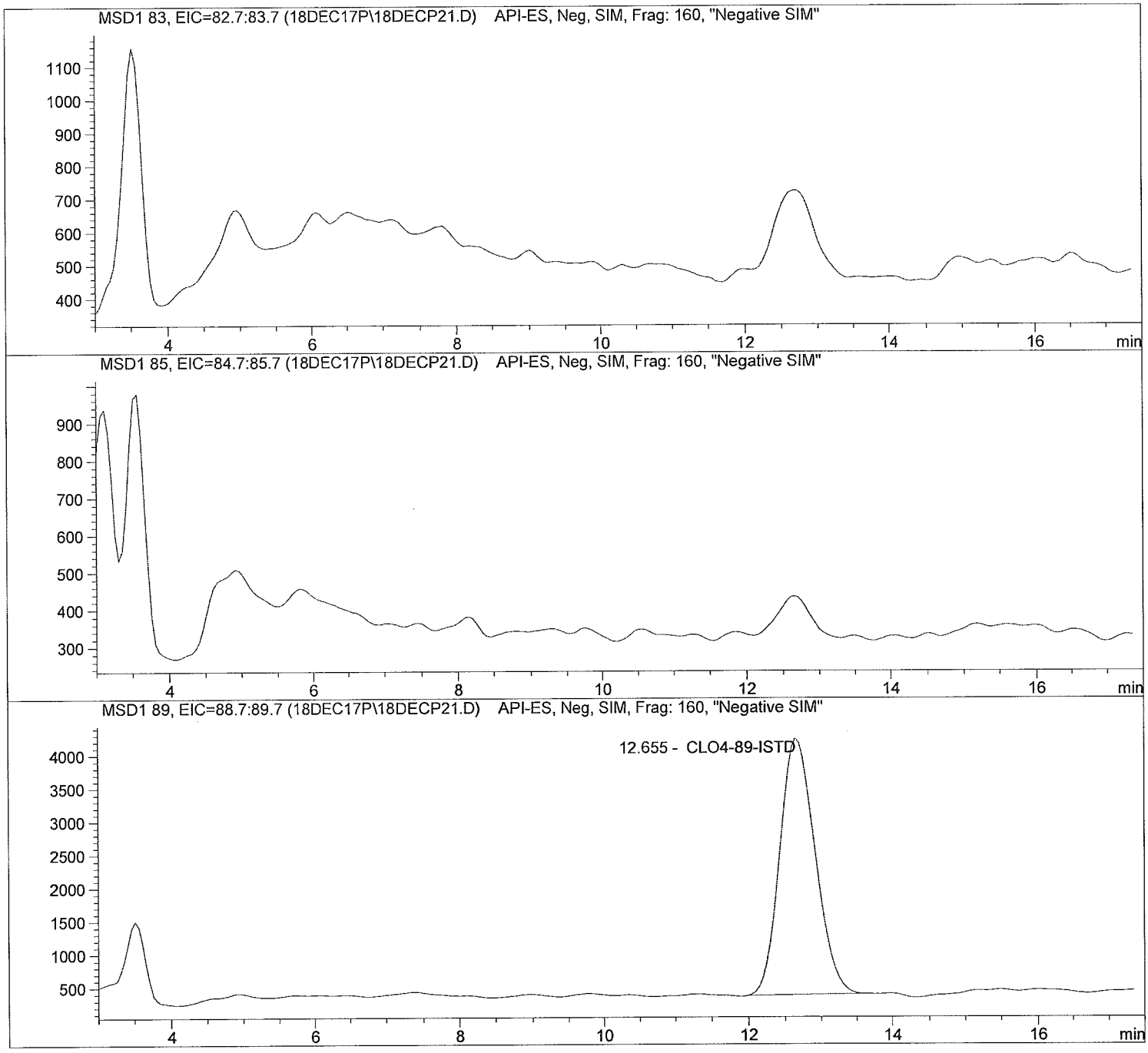
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP21.D Sample Name: 1734528007

Injection Date:	12/18/2017 16:42:56	Seq Line:	21
Sample Name:	1734528007	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP21.D Sample Name: 1734528007

Injection Date:	12/18/2017 16:42:56	Seq Line:	21
Sample Name:	1734528007	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.655	PBA	130647.1	5.0000	CLO4-89-ISTD

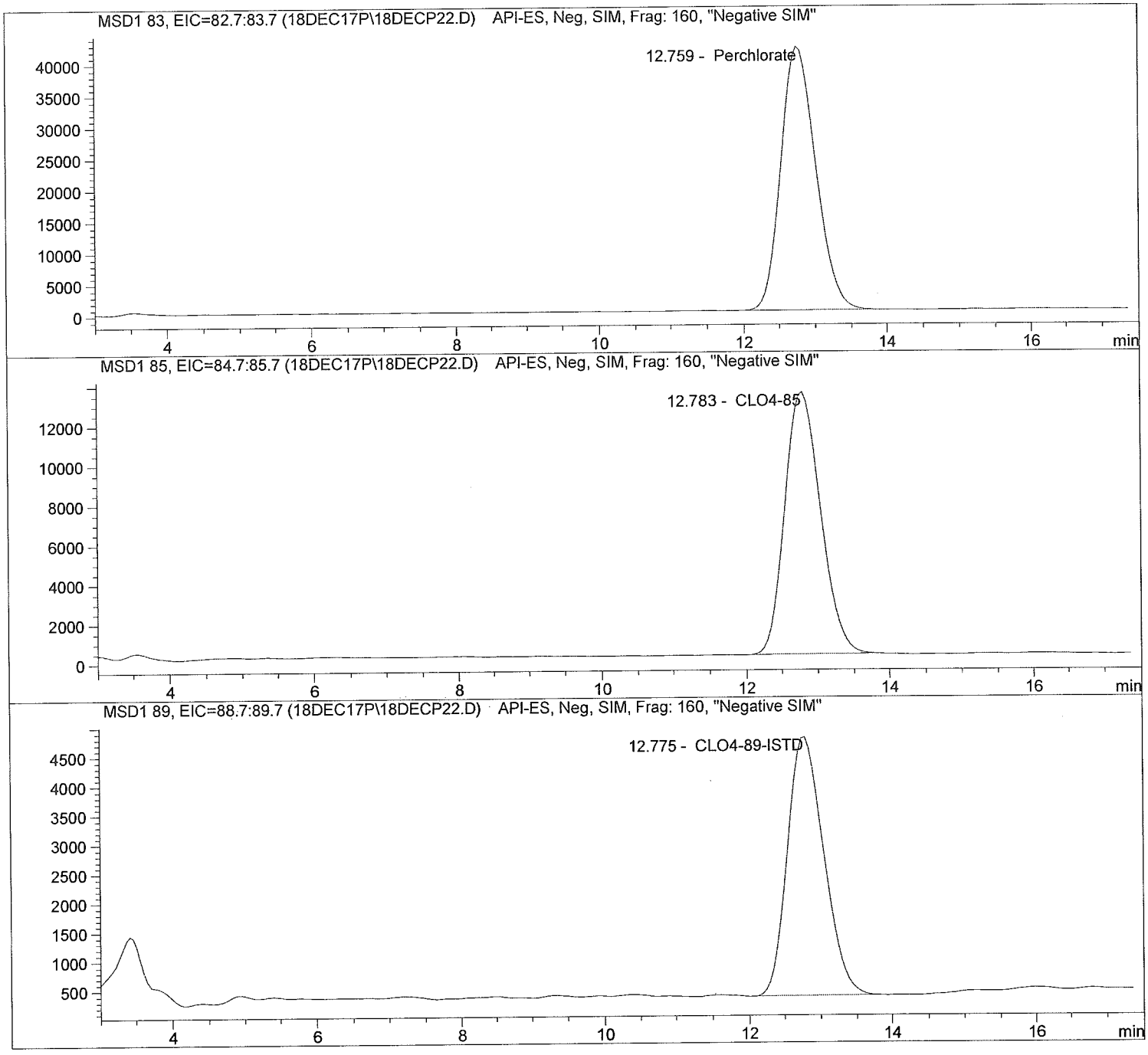
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP22.D Sample Name: 1734528008

Injection Date:	12/18/2017 17:02:04	Seq Line:	22
Sample Name:	1734528008	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP22.D Sample Name: 1734528008

Injection Date:	12/18/2017 17:02:04	Seq Line:	22
Sample Name:	1734528008	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.759	BBA	1406507.4	35.4435	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.783	PBA	455258.8	36.6296	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.775	PBA	154969.8	5.0000	CLO4-89-ISTD

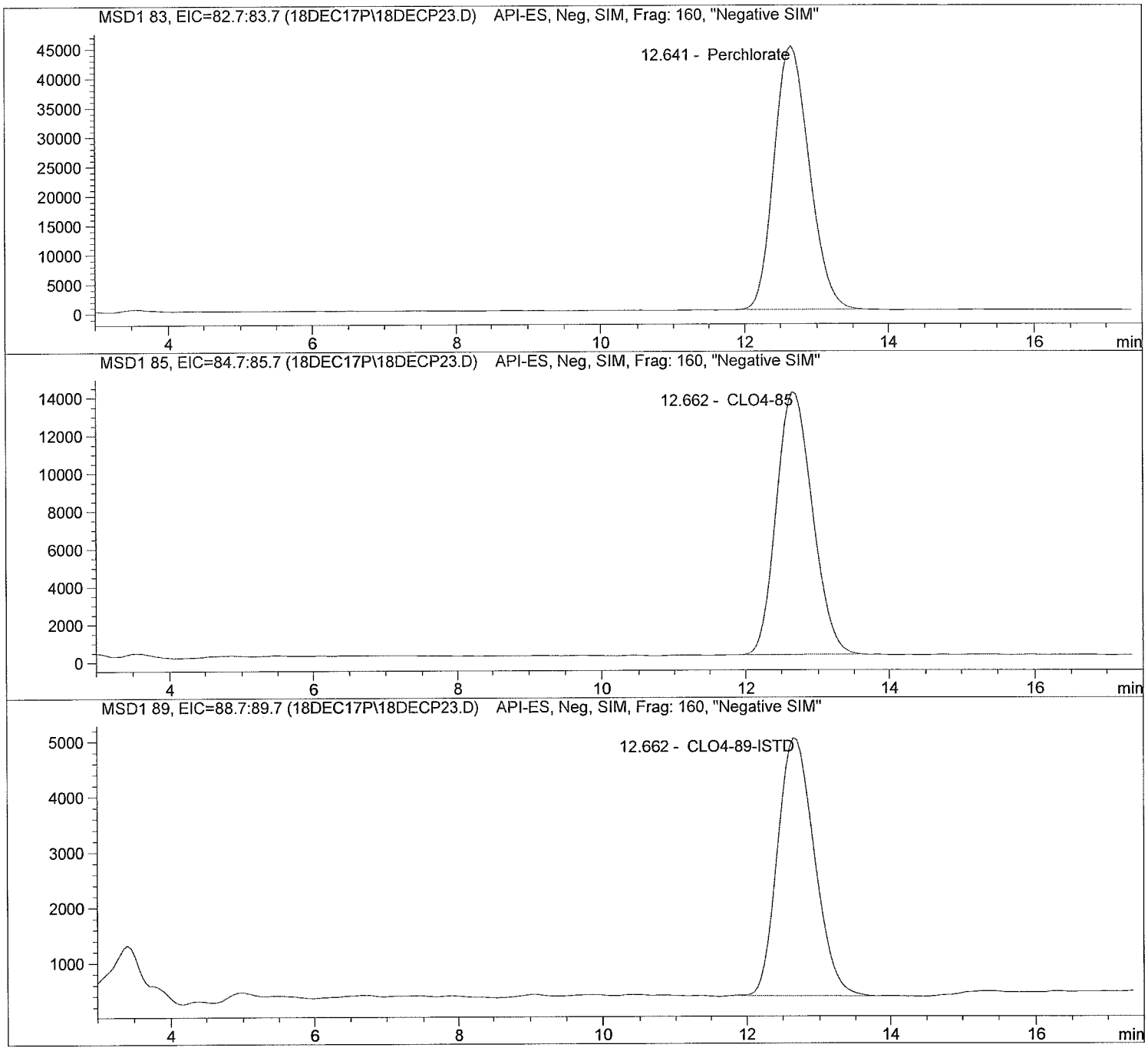
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP23.D Sample Name: 1734528009

Injection Date:	12/18/2017 17:21:17	Seq Line:	23
Sample Name:	1734528009	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP23.D Sample Name: 1734528009

Injection Date:	12/18/2017 17:21:17	Seq Line:	23
Sample Name:	1734528009	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.641	BBA	1501387.5	35.9437	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.662	BBA	476178.7	36.4968	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.662	BBA	162754.7	5.0000	CLO4-89-ISTD

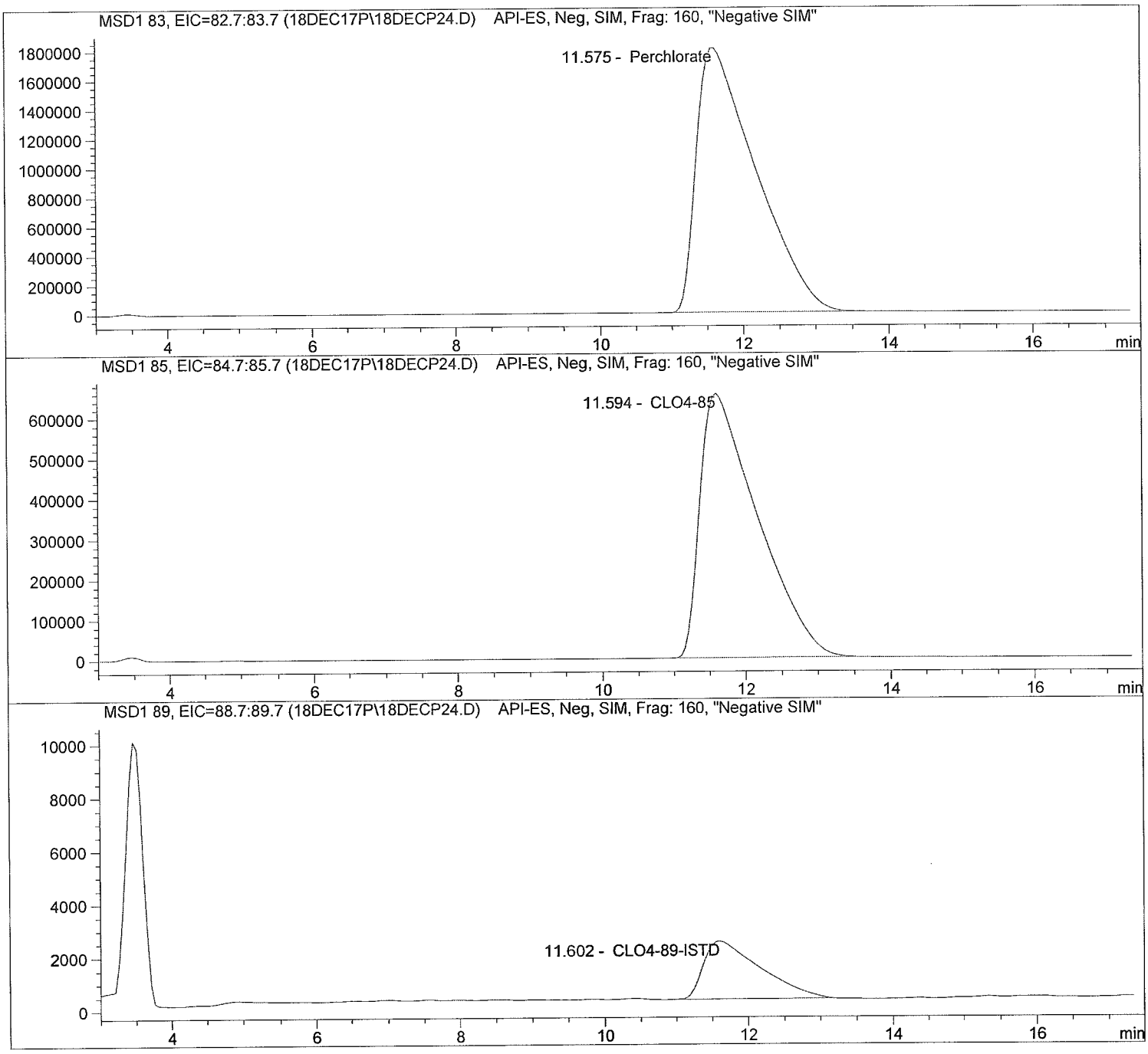
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP24.D Sample Name: 1734528010

Injection Date:	12/18/2017 17:40:29	Seq Line:	24
Sample Name:	1734528010	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP24.D Sample Name: 1734528010

Injection Date:	12/18/2017 17:40:29	Seq Line:	24
Sample Name:	1734528010	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
11.575	PBA	103788384.0	783.7955	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
11.594	PBA	36463644.0	924.3243	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
11.602	PBA	118491.4	5.0000	CLO4-89-ISTD

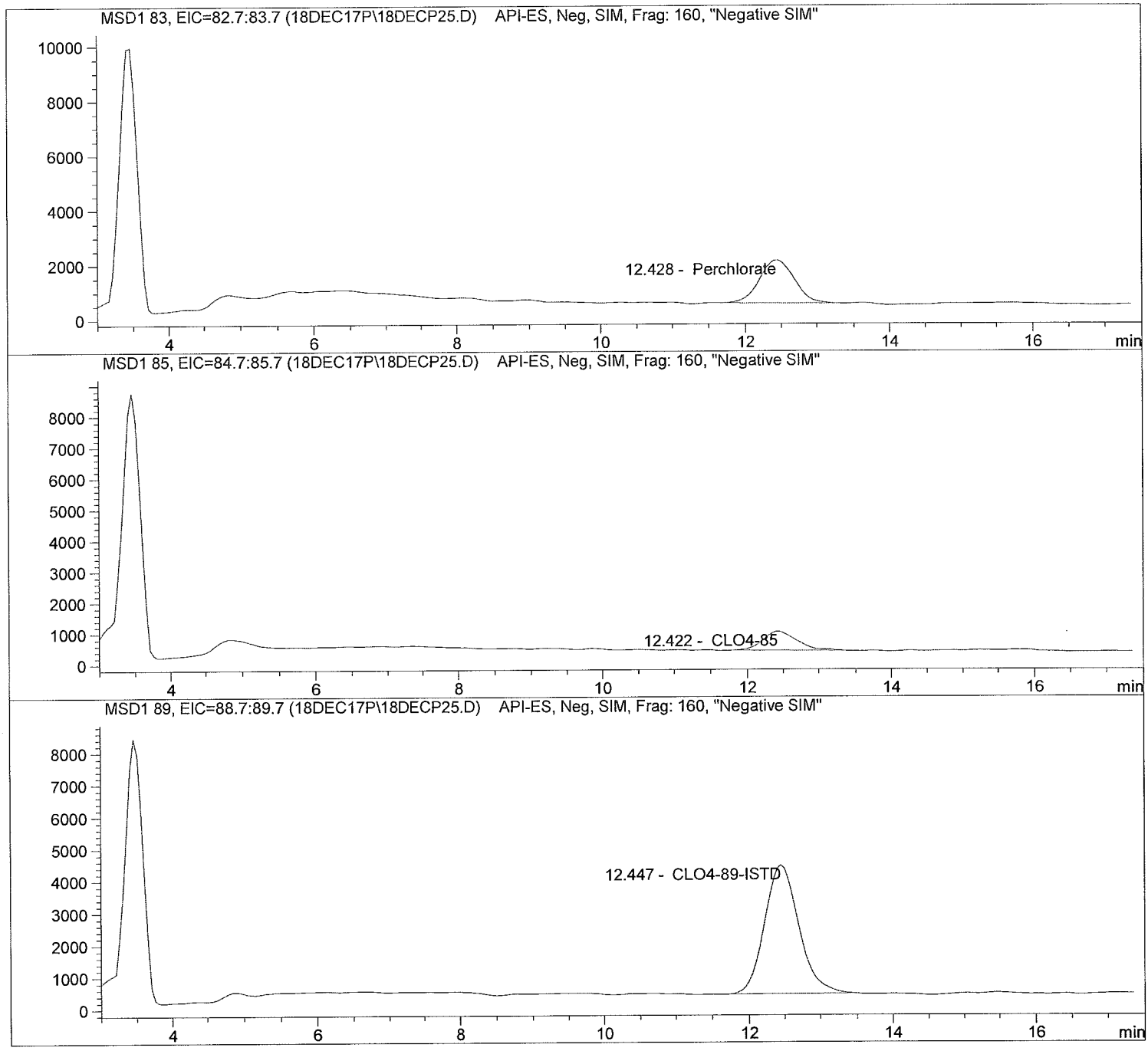
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP25.D Sample Name: 1734528011

Injection Date:	12/18/2017 17:59:42	Seq Line:	25
Sample Name:	1734528011	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP25.D Sample Name: 1734528011

Injection Date:	12/18/2017 17:59:42	Seq Line:	25
Sample Name:	1734528011	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.428	BBA	53637.6	1.8600	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.422	PBA	20328.5	1.9609	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.447	PBA	134287.7	5.0000	CLO4-89-ISTD

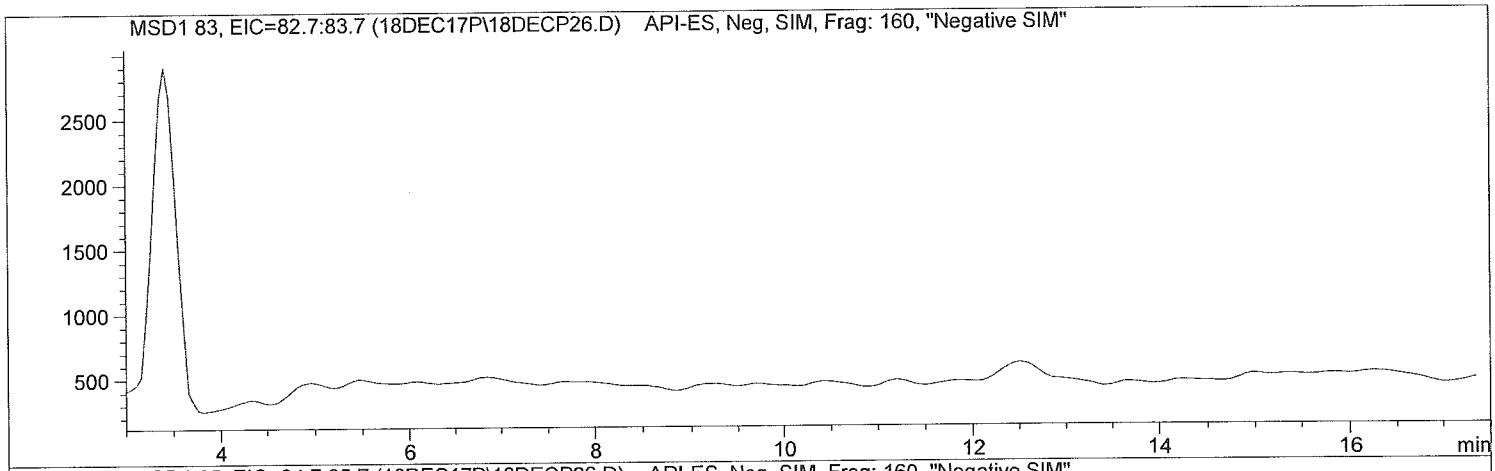
*** End of Report ***

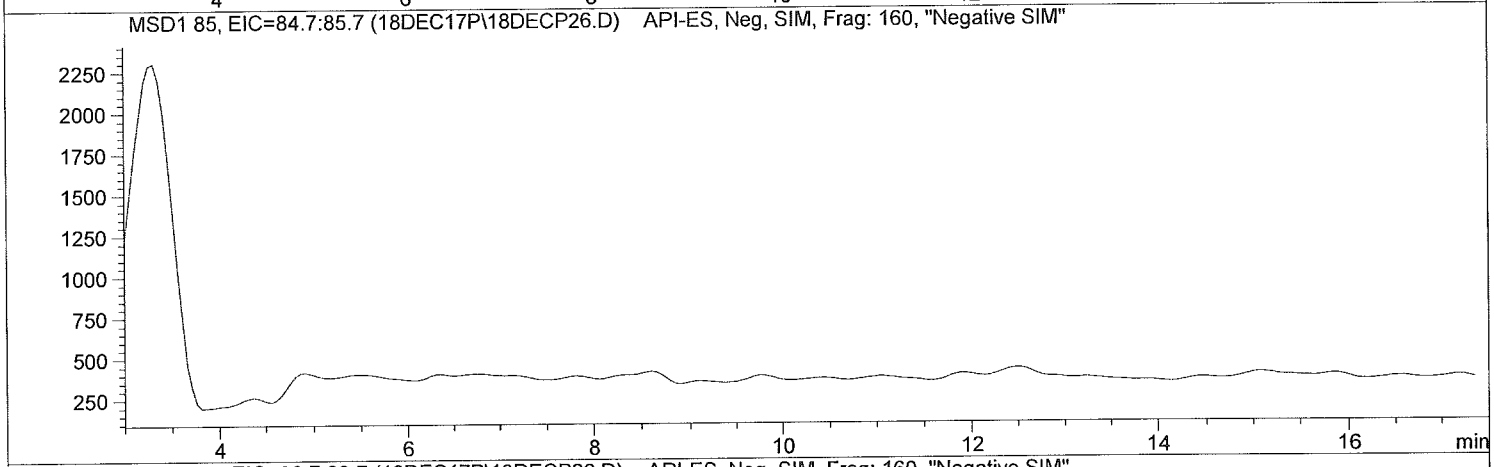
Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP26.D Sample Name: 1734528012

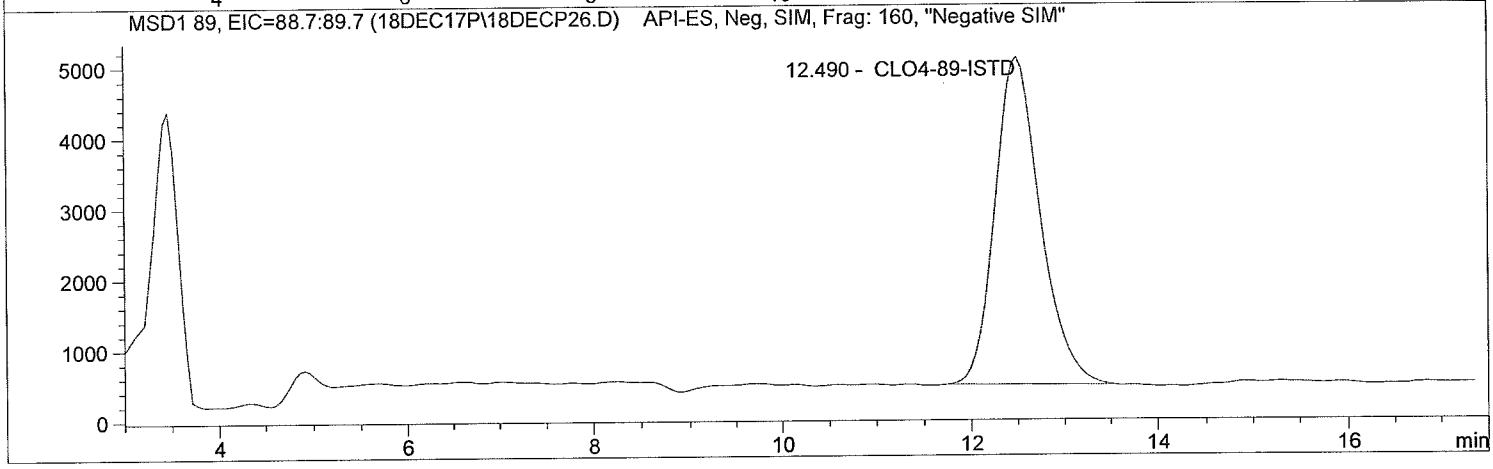
Injection Date:	12/18/2017 18:18:50	Seq Line:	26
Sample Name:	1734528012	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP26.D Sample Name: 1734528012

Injection Date:	12/18/2017 18:18:50	Seq Line:	26
Sample Name:	1734528012	Location:	Vial 92
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.490	BBA	156763.8	5.0000	CLO4-89-ISTD

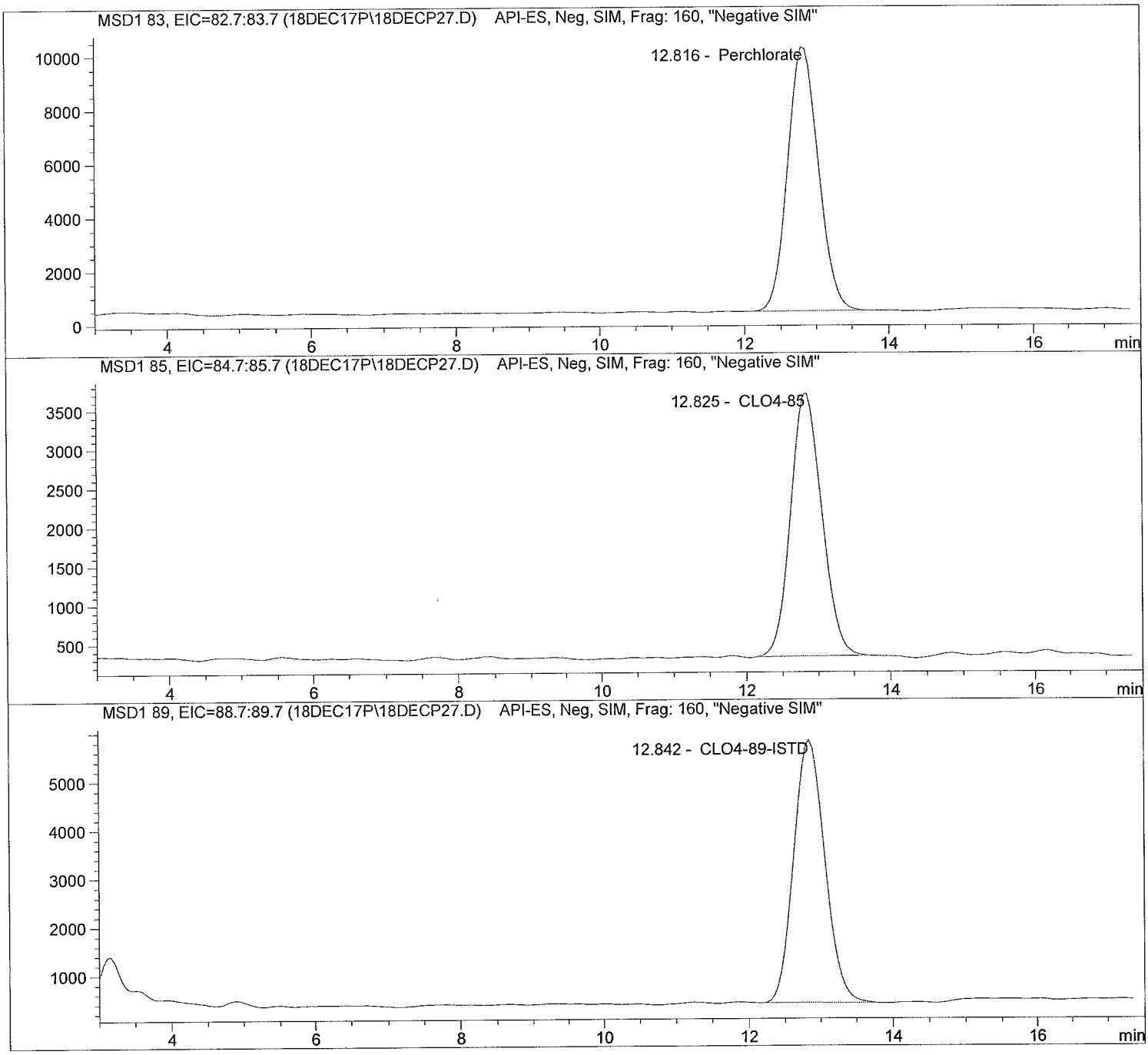
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP27.D Sample Name: 1734273001 1K

Injection Date:	12/18/2017 18:38:01	Seq Line:	27
Sample Name:	1734273001 1K	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP27.D Sample Name: 1734273001 1K

Injection Date:	12/18/2017 18:38:01	Seq Line:	27
Sample Name:	1734273001 1K	Location:	Vial 93
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.816	BBA	296423.4	7998.9614	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.825	PBA	102865.2	8462.6531	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.842	PBA	165454.5	5000.0000	CLO4-89-ISTD

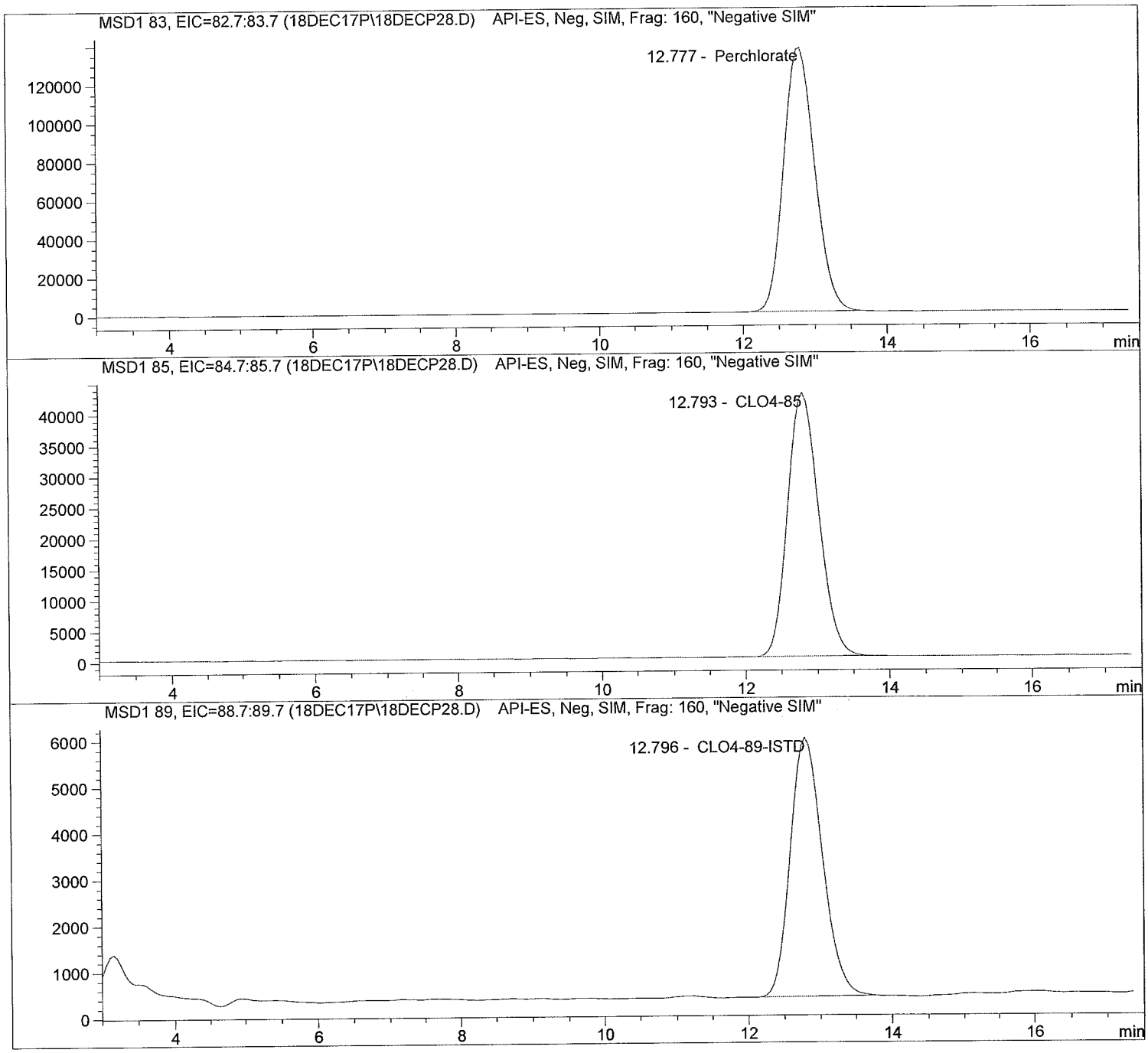
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP28.D Sample Name: 1734528004 1K

Injection Date:	12/18/2017 18:57:10	Seq Line:	28
Sample Name:	1734528004 1K	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP28.D Sample Name: 1734528004 1K

Injection Date:	12/18/2017 18:57:10	Seq Line:	28
Sample Name:	1734528004 1K	Location:	Vial 94
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.777	BBA	4107968.5	77122.6692	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.793	PBA	1284860.0	79542.8295	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.796	PBA	175145.7	5000.0000	CLO4-89-ISTD

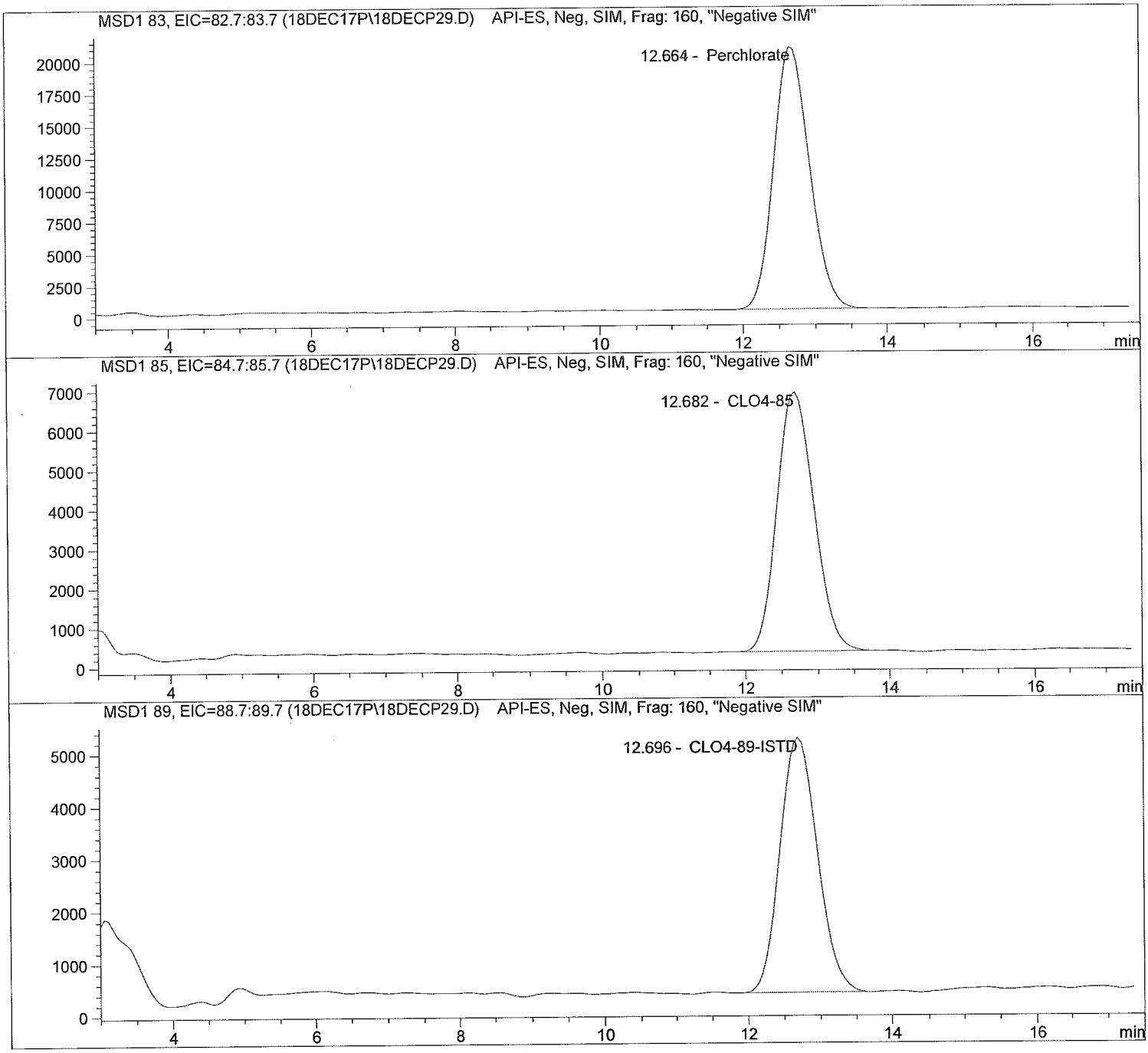
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP29.D Sample Name: 1734528005 10X

Injection Date:	12/18/2017 19:16:19	Seq Line:	29
Sample Name:	1734528005 10X	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP29.D Sample Name: 1734528005 10X

Injection Date:	12/18/2017 19:16:19	Seq Line:	29
Sample Name:	1734528005 10X	Location:	Vial 95
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.664	PBA	703473.7	171.8032	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.682	BBA	233471.7	177.9980	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.696	PBA	174320.1	50.0000	CLO4-89-ISTD

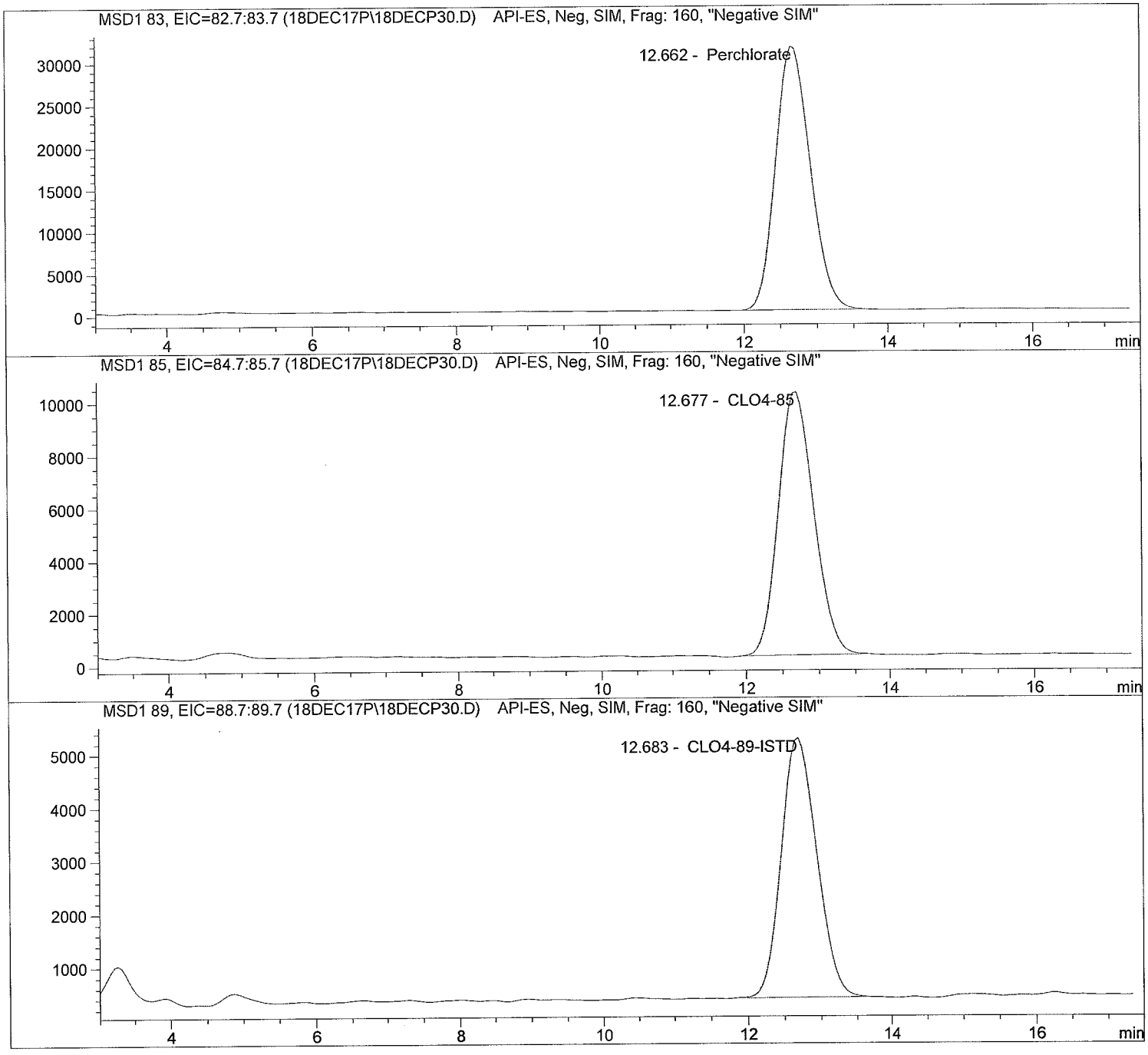
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP30.D Sample Name: 579522 CCV@25

Injection Date:	12/18/2017 19:35:27	Seq Line:	30
Sample Name:	579522 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP30.D Sample Name: 579522 CCV@25

Injection Date:	12/18/2017 19:35:27	Seq Line:	30
Sample Name:	579522 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.662	PBA	1032842.7	25.6619	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.677	PBA	336885.3	26.4517	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.683	BBA	164442.1	5.0000	CLO4-89-ISTD

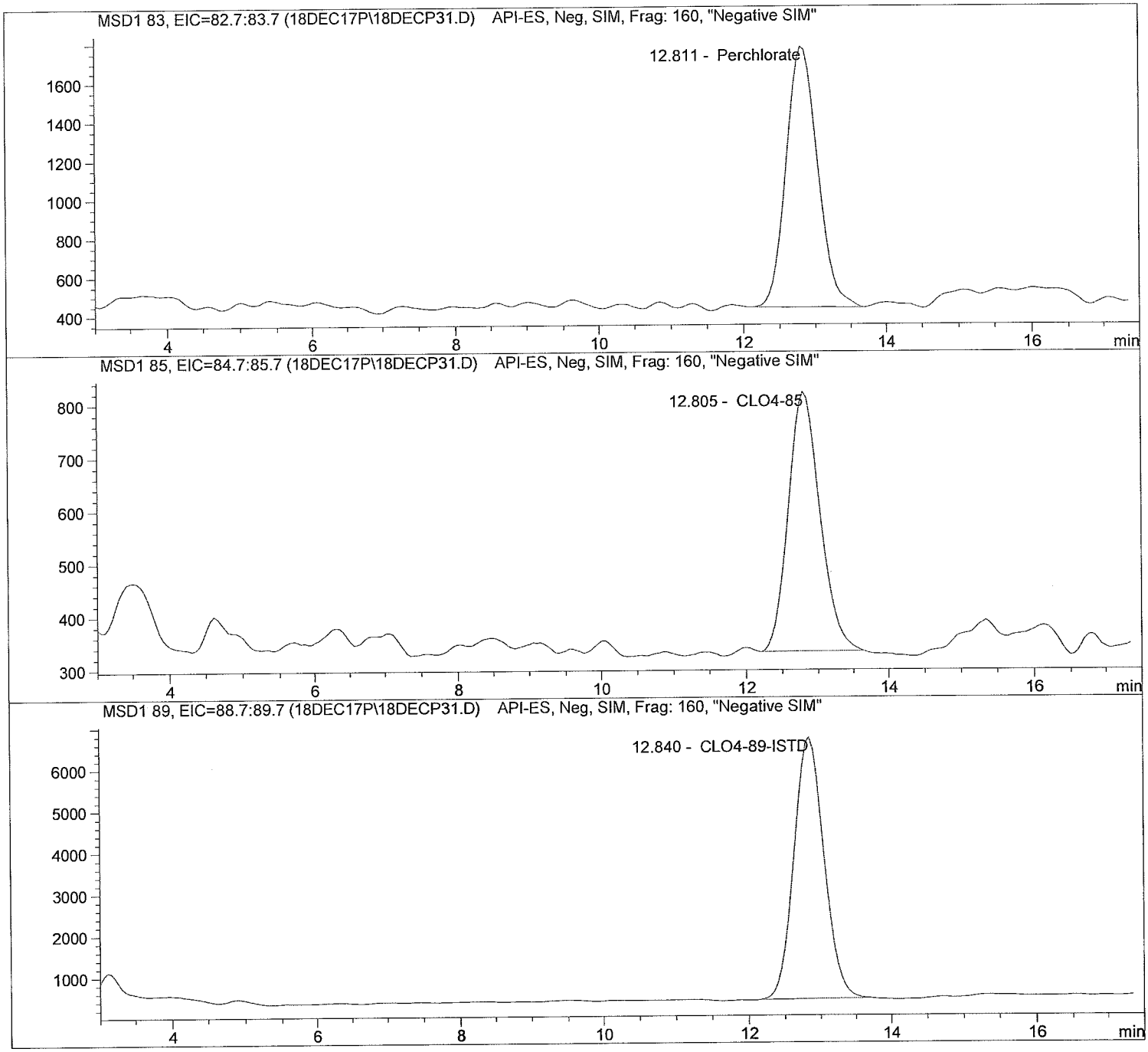
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP31.D Sample Name: 579523 LODV@1.

Injection Date:	12/18/2017 19:54:35	Seq Line:	31
Sample Name:	579523 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP31.D Sample Name: 579523 LODV@1.

Injection Date:	12/18/2017 19:54:35	Seq Line:	31
Sample Name:	579523 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.811	BBA	41163.5	1.0531	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.805	BBA	15081.7	0.9679	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.840	PBA	184676.8	5.0000	CLO4-89-ISTD

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\DEC\20DEC17P.S

Sequence Table:

Method and Injection Info Part:

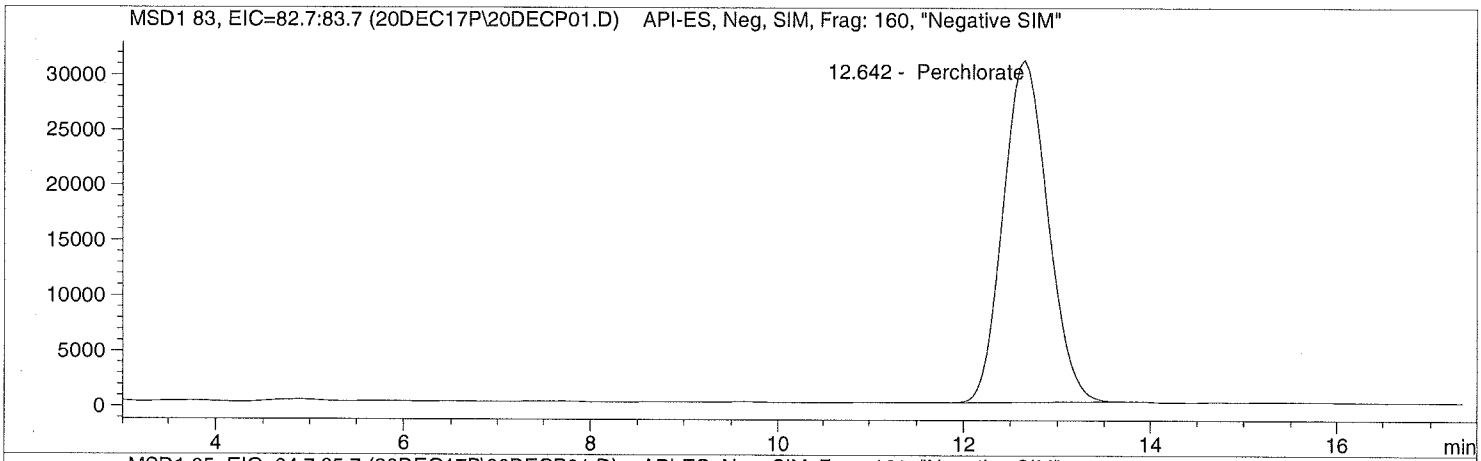
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	580015 CCV@25	CLO4-DOD	1	Ctrl Samp		
2	Vial 96	1734528010 10X	CLO4-DOD	1	Sample		
3	Vial 97	1734528004 10K	CLO4-DOD	1	Sample		
4	Vial 98	1734528010 100	CLO4-DOD	1	Sample		
5	Vial 71	580016 CCV@25	CLO4-DOD	1	Ctrl Samp		

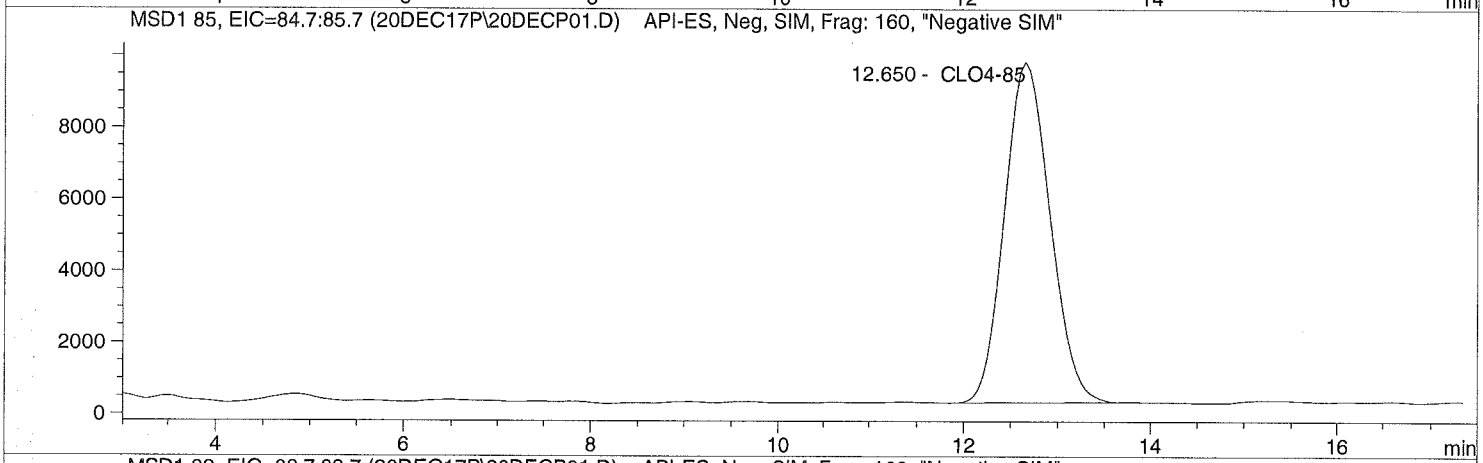
Data file: C:\HPCHEM\1\DATA\20DEC17P\20DECP01.D Sample Name: 580015 CCV@25

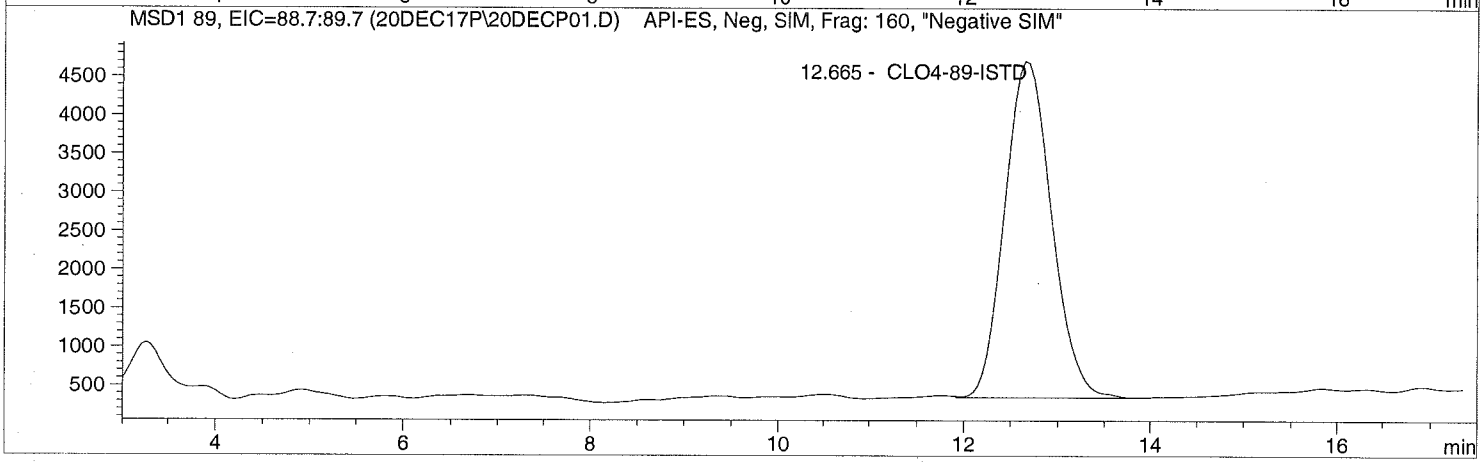
Injection Date:	12/20/2017 09:14:54	Seq Line:	1
Sample Name:	580015 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20DEC17P\20DECP01.D Sample Name: 580015 CCV@25

Injection Date:	12/20/2017 09:14:54	Seq Line:	1
Sample Name:	580015 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.642	PBA	1018095.5	27.4129	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.650	PBA	319294.4	27.3136	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.665	BBA	150493.3	5.0000	CLO4-89-ISTD

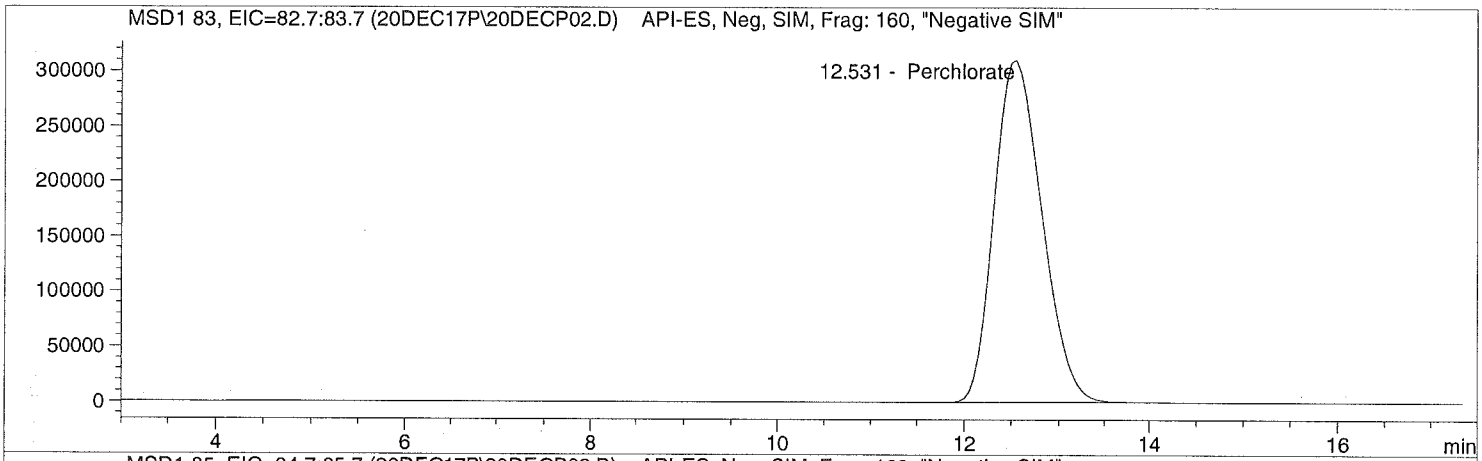
*** End of Report ***

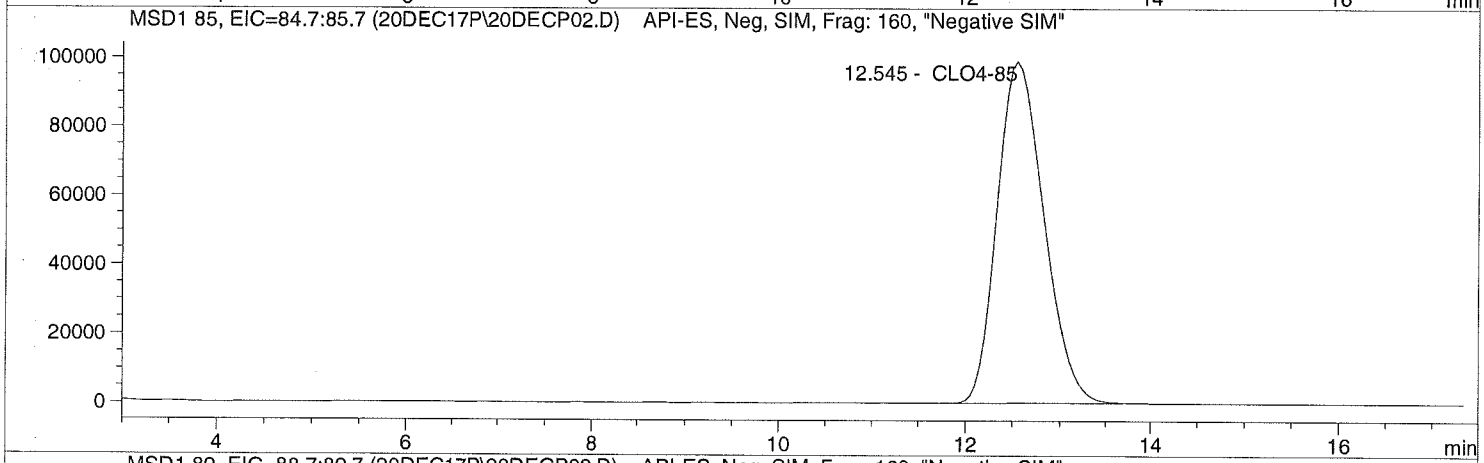
Data file: C:\HPCHEM\1\DATA\20DEC17P\20DECP02.D Sample Name: 1734528010 10X

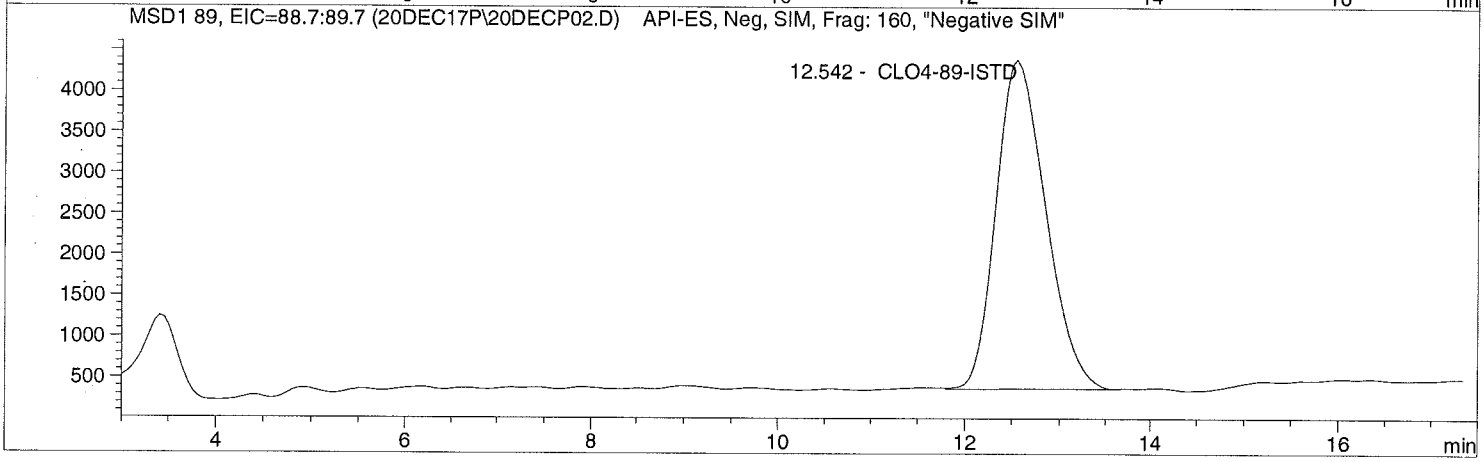
Injection Date:	12/20/2017 09:35:33	Seq Line:	2
Sample Name:	1734528010 10X	Location:	Vial 96
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20DEC17P\20DECP02.D Sample Name: 1734528010 10X

Injection Date:	12/20/2017 09:35:33	Seq Line:	2
Sample Name:	1734528010 10X	Location:	Vial 96
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.531	PBA	10844225.0	1772.1916	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.545	PBA	3380188.5	1881.8681	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.542	BBA	145913.5	50.0000	CLO4-89-ISTD

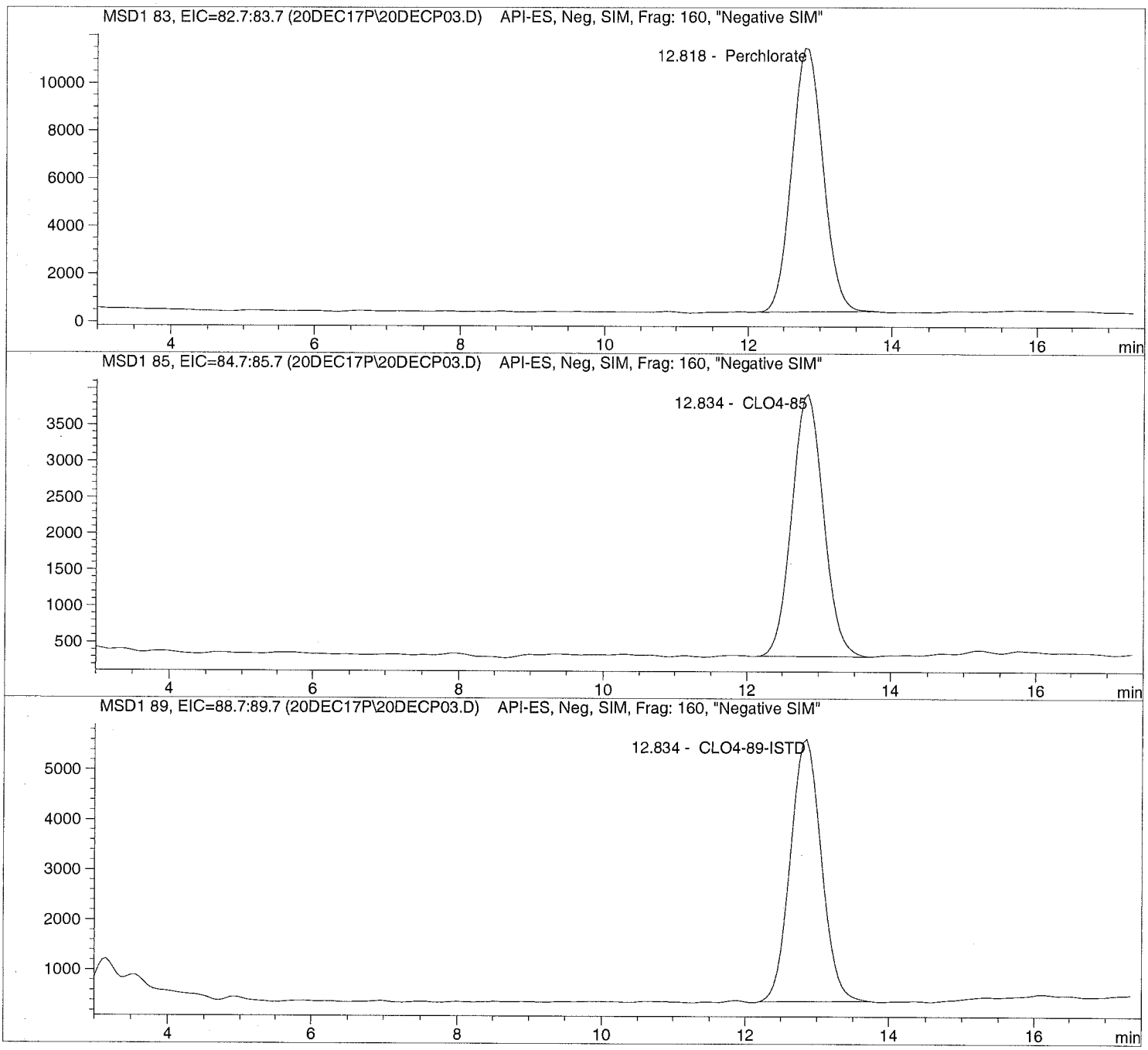
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17P\20DECP03.D Sample Name: 1734528004 10K

Injection Date:	12/20/2017 09:54:43	Seq Line:	3
Sample Name:	1734528004 10K	Location:	Vial 97
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17P\20DECP03.D Sample Name: 1734528004 10K

Injection Date:	12/20/2017 09:54:43	Seq Line:	3
Sample Name:	1734528004 10K	Location:	Vial 97
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.818	BBA	329575.6	93558.4549	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.834	PBA	109809.7	95583.1366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.834	BBA	156124.6	50000.0000	CLO4-89-ISTD

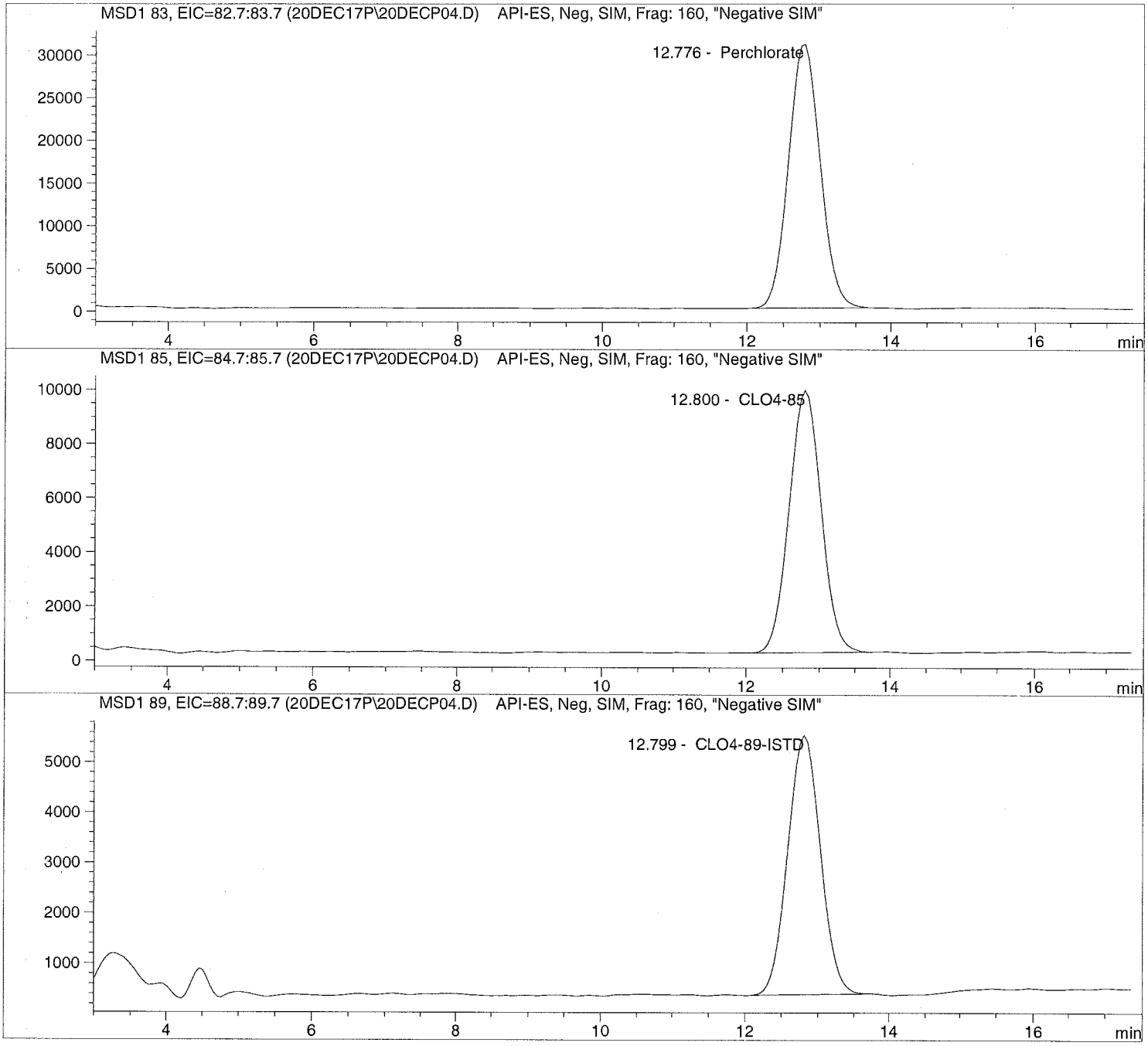
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17P\20DECP04.D Sample Name: 1734528010 100

Injection Date:	12/20/2017 10:13:52	Seq Line:	4
Sample Name:	1734528010 100	Location:	Vial 98
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17P\20DECP04.D Sample Name: 1734528010 100

Injection Date:	12/20/2017 10:13:52	Seq Line:	4
Sample Name:	1734528010 100	Location:	Vial 98
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.776	BBA	933493.1	2386.9013	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.800	PBA	295219.5	2386.2180	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.799	PBA	161157.0	500.0000	CLO4-89-ISTD

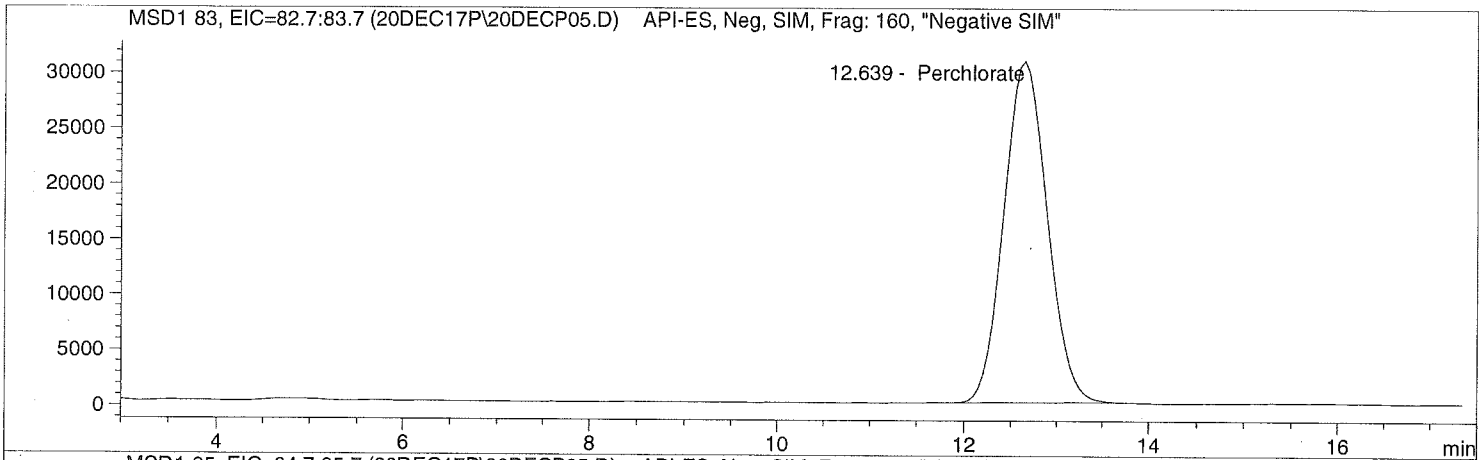
*** End of Report ***

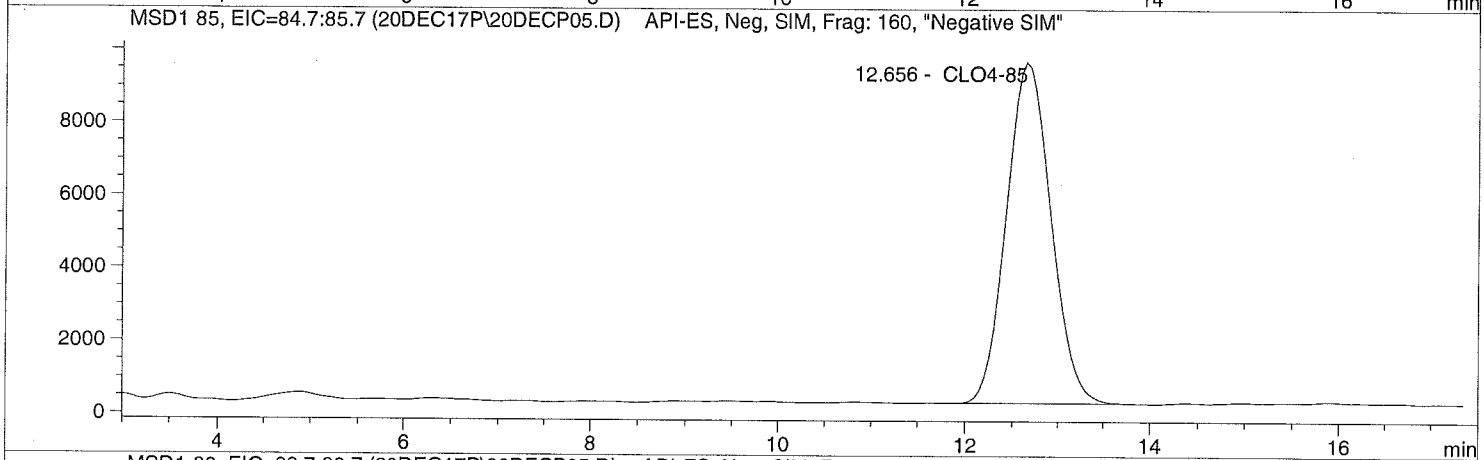
Data file: C:\HPCHEM\1\DATA\20DEC17P\20DECP05.D Sample Name: 580016 CCV@25

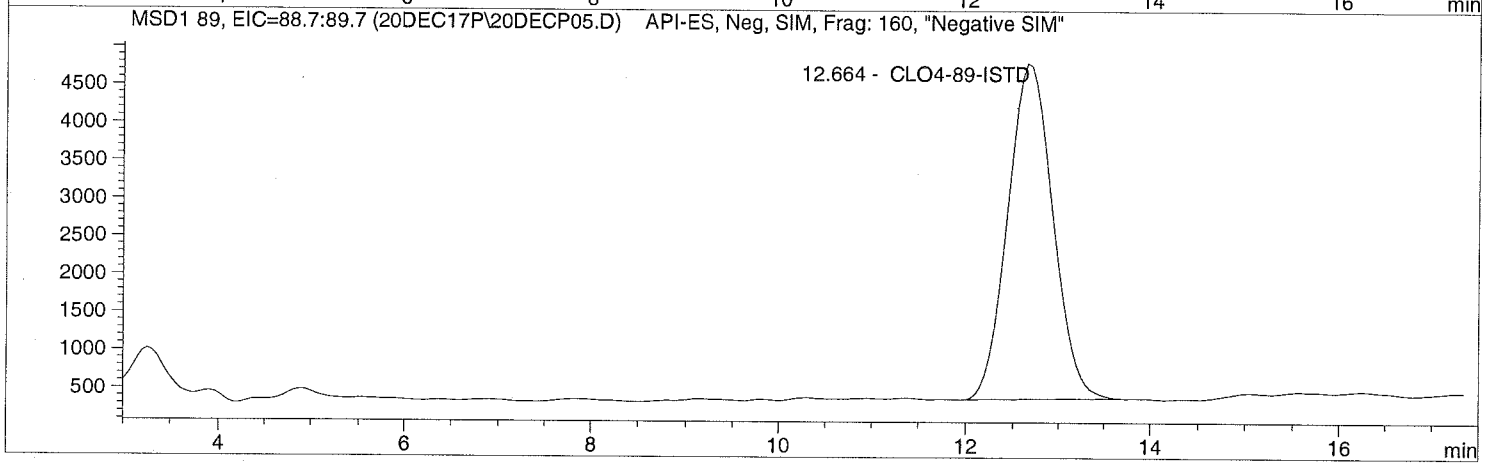
Injection Date:	12/20/2017 10:40:30	Seq Line:	5
Sample Name:	580016 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20DEC17P\20DECP05.D Sample Name: 580016 CCV@25

Injection Date:	12/20/2017 10:40:30	Seq Line:	5
Sample Name:	580016 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.639	BBA	1013571.4	27.1410	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.656	PBA	316516.8	26.9282	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.664	PBA	151519.0	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

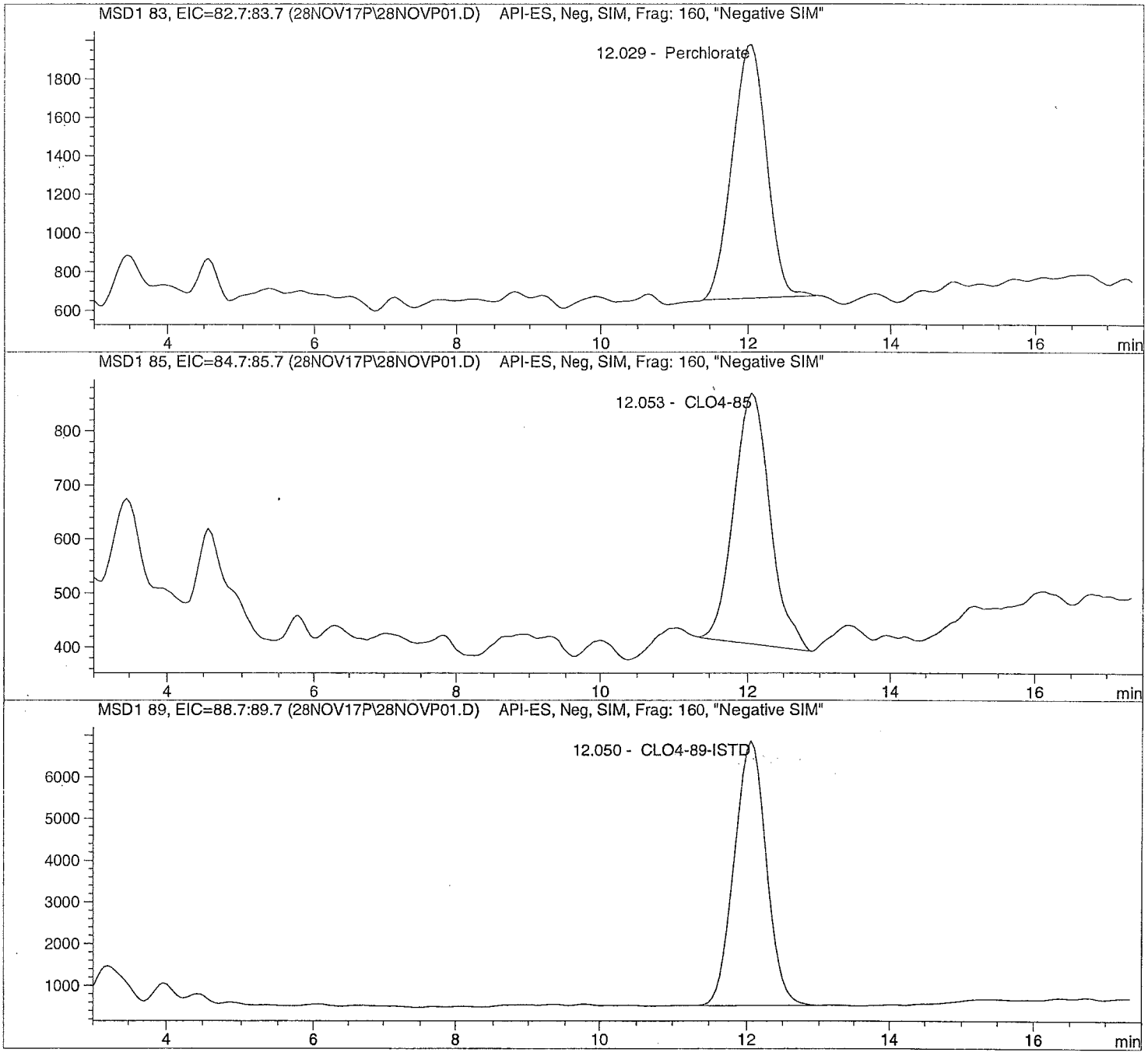
Unmodified

Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	11/28/2017 09:08:10	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	11/28/2017 09:08:10	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 29. Nov. 2017,08:02:06 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.029	BBA	42017.4	1.0510	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.053	BBA	15678.7	0.9871	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.050	BBA	188880.3	5.0000	CLO4-89-ISTD

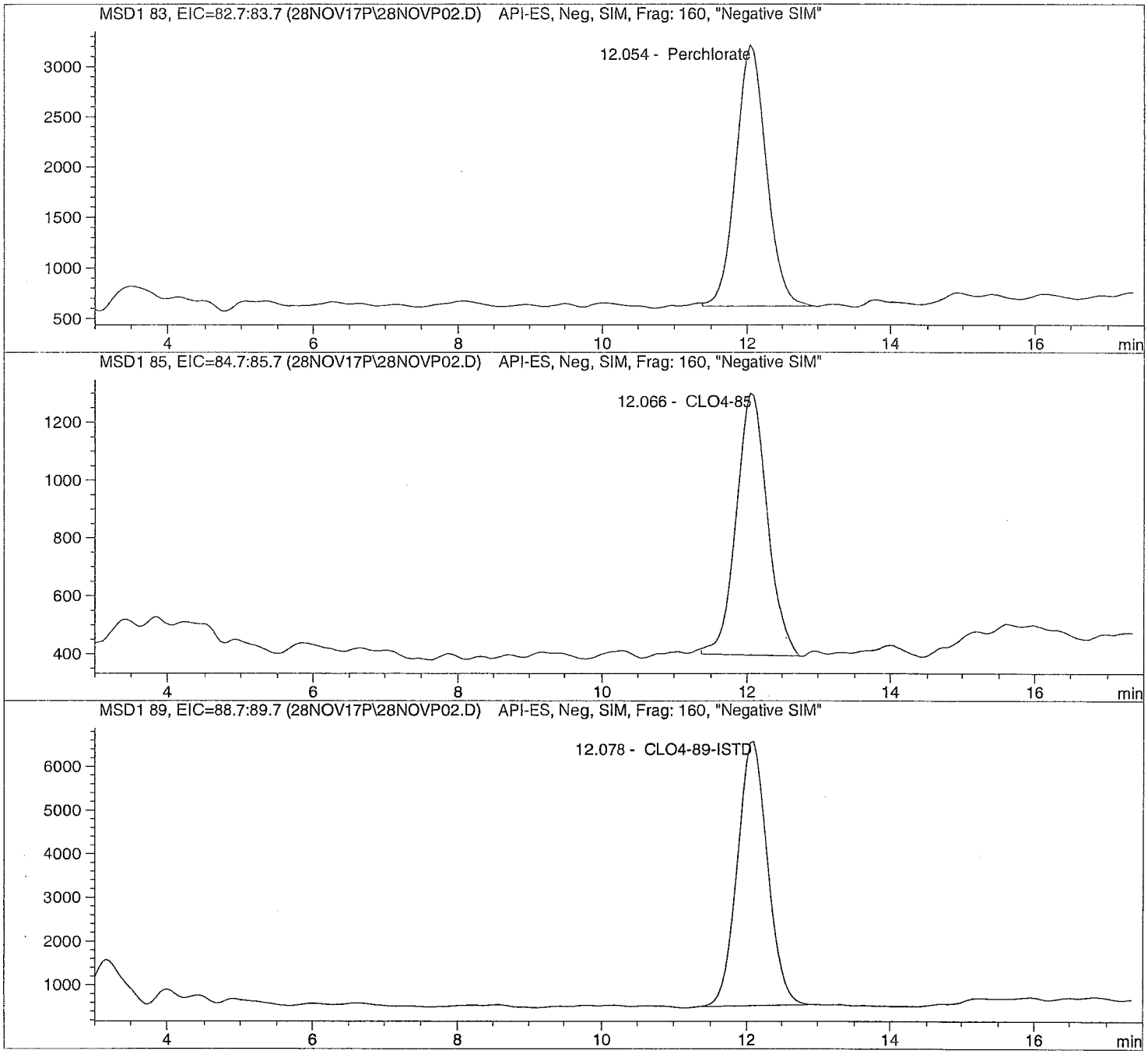
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	11/28/2017 09:33:49	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	11/28/2017 09:33:49	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 29. Nov. 2017,08:02:06 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.054	BBA	78519.1	2.0151	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.066	BBA	28009.6	2.0074	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.078	PBA	181109.4	5.0000	CLO4-89-ISTD

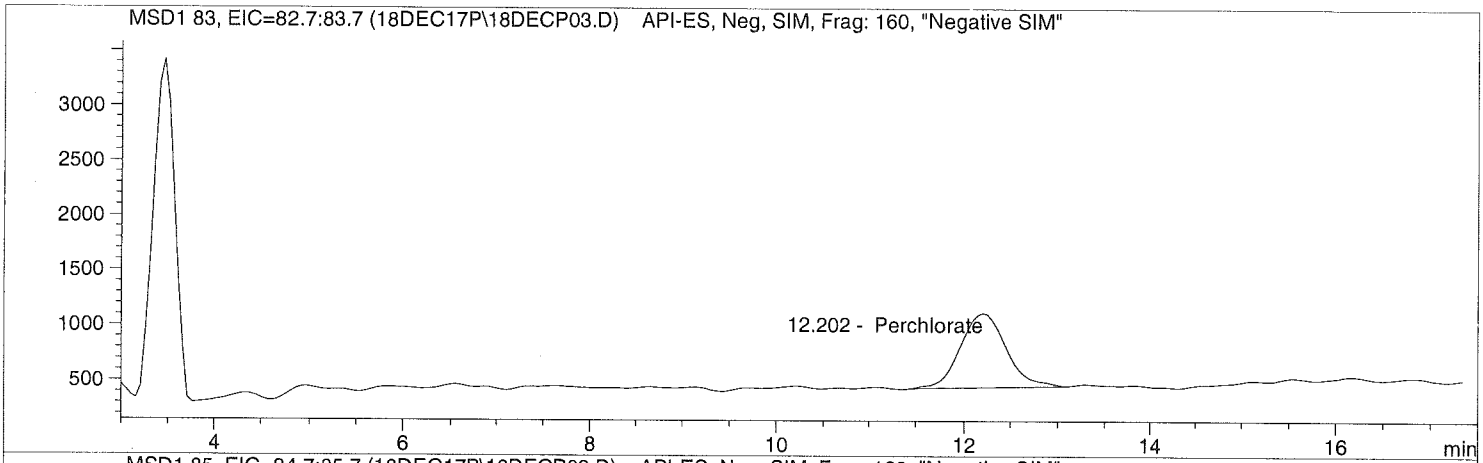
*** End of Report ***

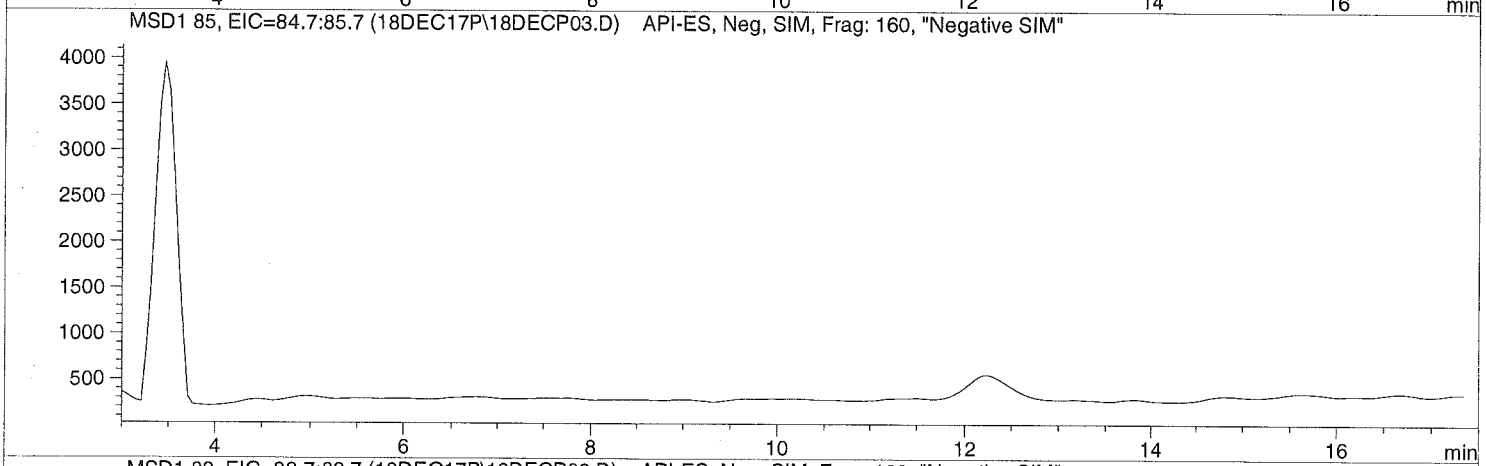
Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP03.D Sample Name: 579515 ICS@1.

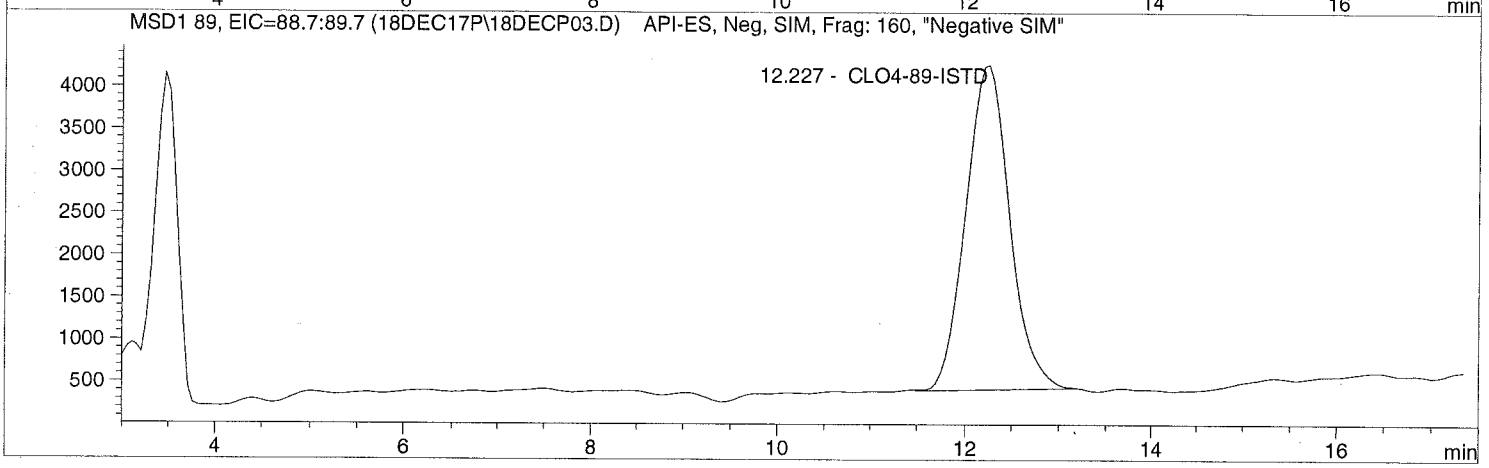
Injection Date:	12/18/2017 09:39:00	Seq Line:	3
Sample Name:	579515 ICS@1.	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP03.D Sample Name: 579515 ICS@1.

Injection Date:	12/18/2017 09:39:00	Seq Line:	3
Sample Name:	579515 ICS@1.	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.202	PBA	22893.8	0.8658	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.227	BBA	125694.8	5.0000	CLO4-89-ISTD

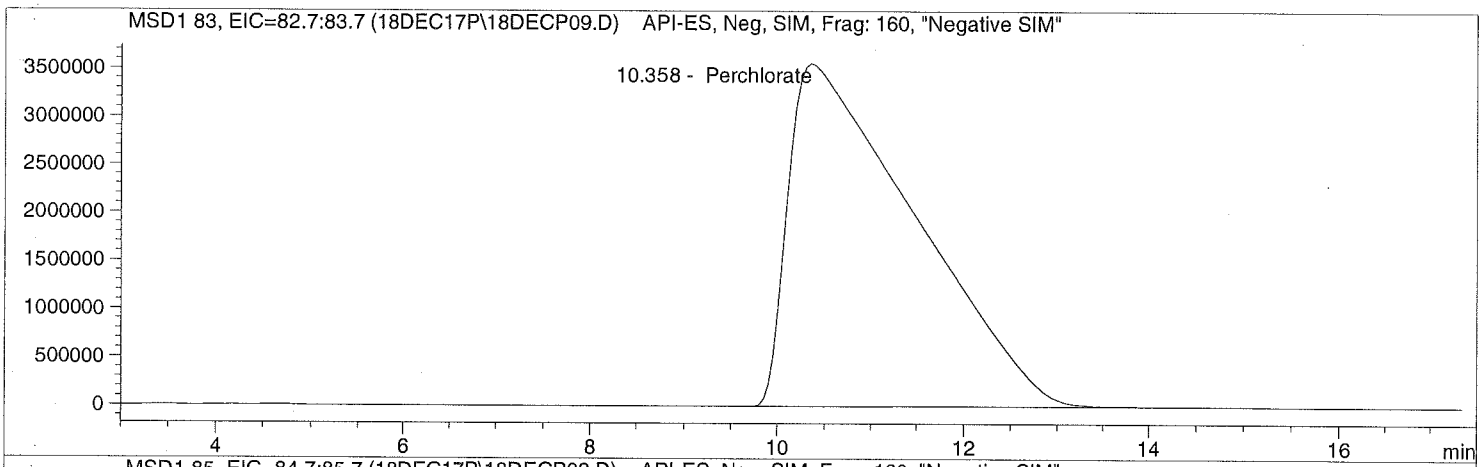
*** End of Report ***

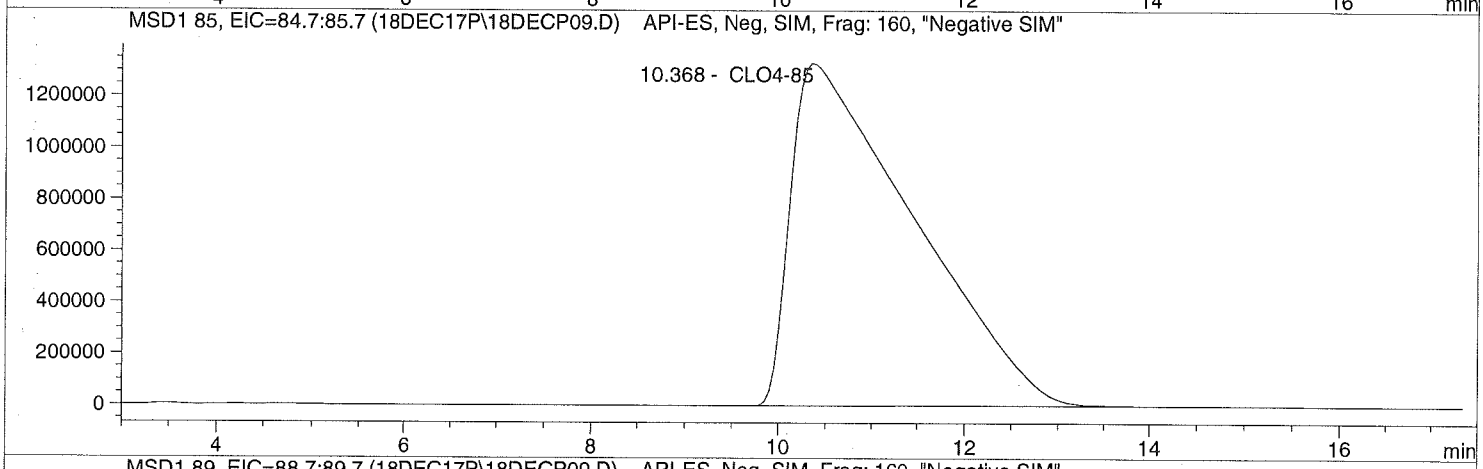
Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP09.D Sample Name: 1734273001

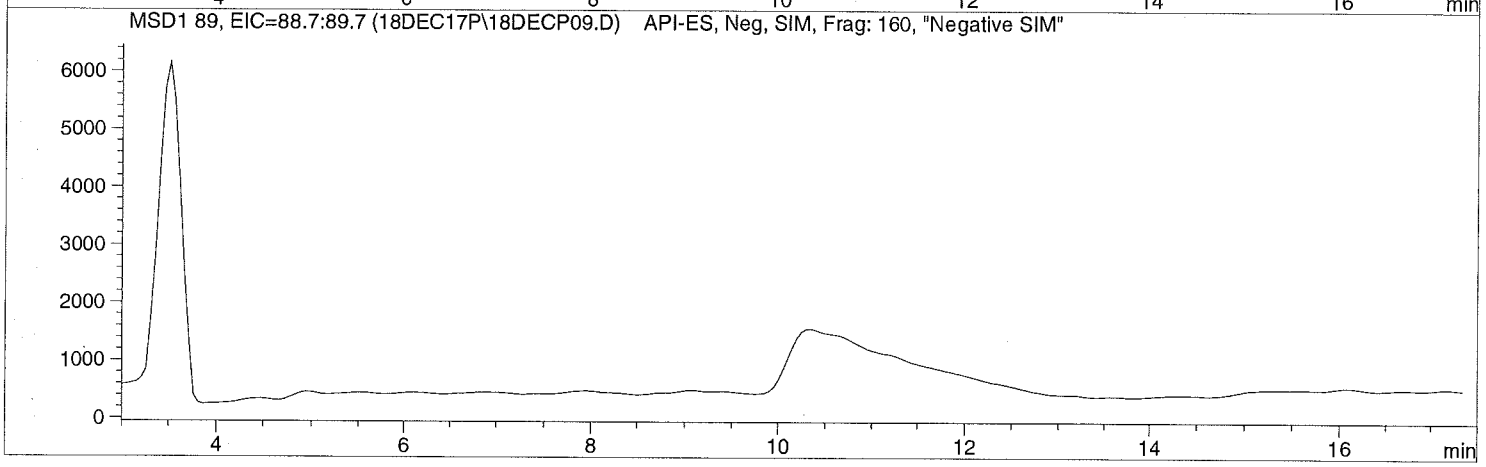
Injection Date:	12/18/2017 11:36:53	Seq Line:	9
Sample Name:	1734273001	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP09.D Sample Name: 1734273001

Injection Date:	12/18/2017 11:36:53	Seq Line:	9
Sample Name:	1734273001	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
10.358	PBA	334489216.0	0.0243	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
10.368	PBA	121188464.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-89-ISTD

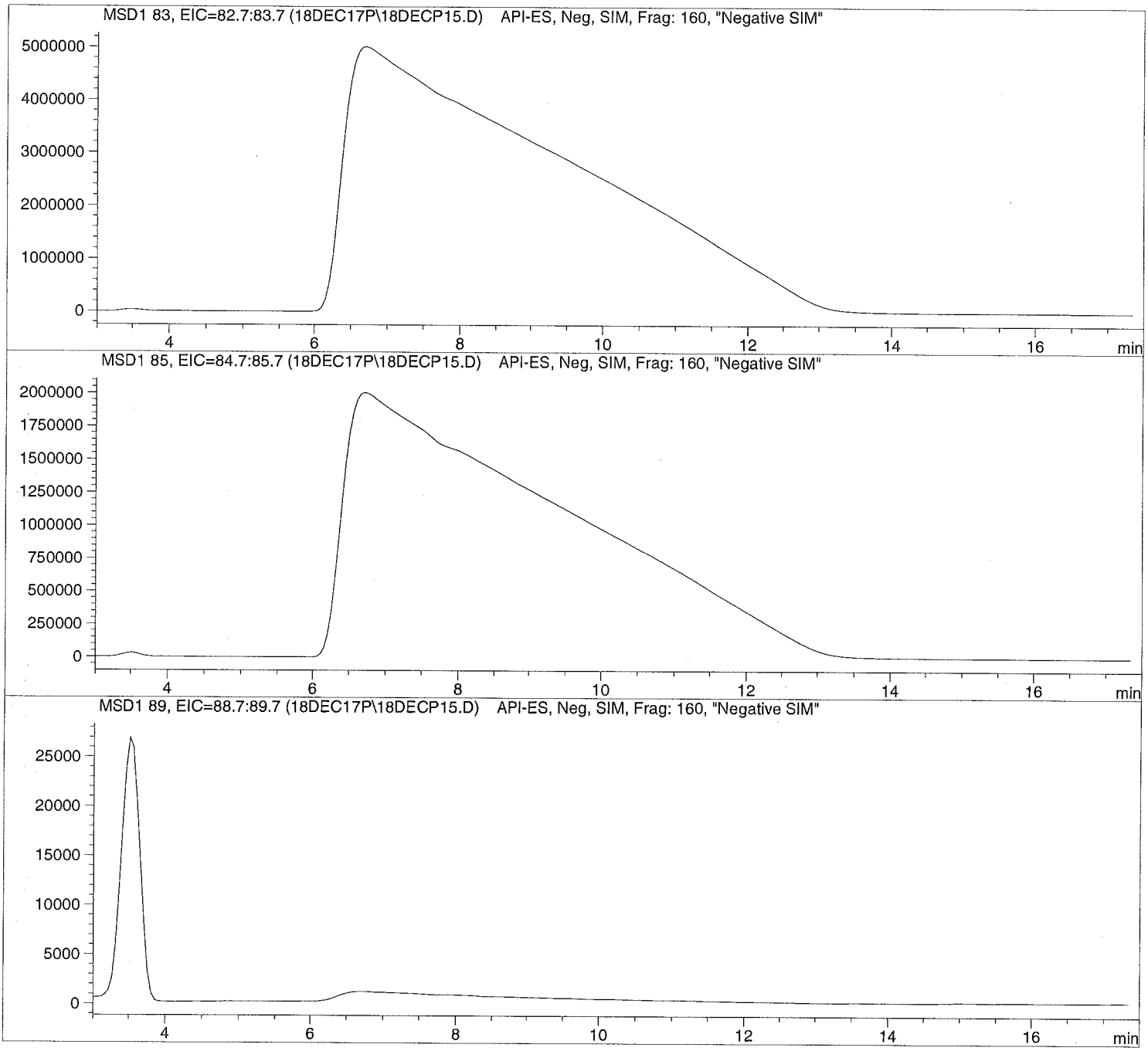
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP15.D Sample Name: 1734528004

Injection Date:	12/18/2017 13:31:48	Seq Line:	15
Sample Name:	1734528004	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP15.D Sample Name: 1734528004

Injection Date:	12/18/2017 13:31:48	Seq Line:	15
Sample Name:	1734528004	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-89-ISTD

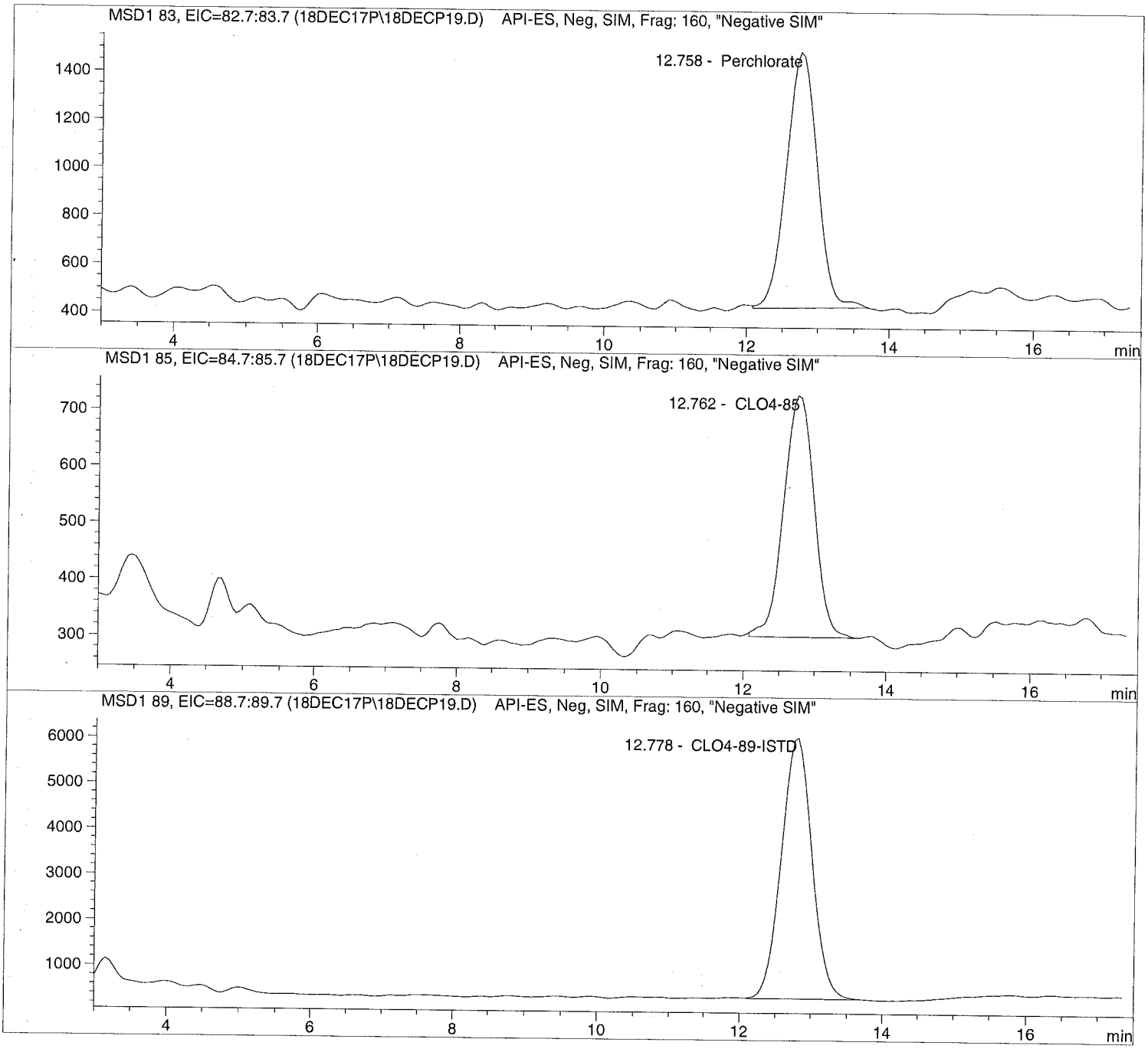
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP19.D Sample Name: 579521 LODV@1.

Injection Date:	12/18/2017 16:02:52	Seq Line:	19
Sample Name:	579521 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18DEC17P\18DECP19.D Sample Name: 579521 LODV@1.

Injection Date:	12/18/2017 16:02:52	Seq Line:	19
Sample Name:	579521 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.758	BBA	32129.8	0.8893	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.762	BBA	12832.9	0.8695	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.778	BBA	171597.3	5.0000	CLO4-89-ISTD

*** End of Report ***

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Houston, TX 77099
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WorkOrder: HS17120573

LHAAP Site 18/24

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

01-Feb-2018

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

December 28, 2017

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

Work Order: **HS17120573**

Laboratory Results for: **LHAAP Site 18/24**

Dear Marcia,

ALS Environmental received 10 sample(s) on Dec 09, 2017 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Sonia West

Generated By: Jumoke.Lawal
Sonia West
Project Manager

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Work Order: HS17120573

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS17120573-01	18CPTMW24_120717	Water		07-Dec-2017 09:00	09-Dec-2017 09:50	☐
HS17120573-02	18CPTMW14_120717	Water		07-Dec-2017 10:00	09-Dec-2017 09:50	☐
HS17120573-03	18CPTMW14_120717_a	Water		07-Dec-2017 10:00	09-Dec-2017 09:50	☐
HS17120573-04	18CPTMW23_120717	Water		07-Dec-2017 11:05	09-Dec-2017 09:50	☐
HS17120573-05	18WW24_120717	Water		07-Dec-2017 13:45	09-Dec-2017 09:50	☐
HS17120573-06	18WW25_120717	Water		07-Dec-2017 14:35	09-Dec-2017 09:50	☐
HS17120573-07	MW16_120817	Water		08-Dec-2017 08:35	09-Dec-2017 09:50	☐
HS17120573-08	18WW06_120817	Water		08-Dec-2017 09:50	09-Dec-2017 09:50	☐
HS17120573-09	18WW02_120817	Water		08-Dec-2017 10:45	09-Dec-2017 09:50	☐
HS17120573-10	Trip Blank	Water		08-Dec-2017 00:01	09-Dec-2017 09:50	☐

ALS Group USA, Corp Date: 07-Feb-18

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Work Order: HS17120573

CASE NARRATIVE

Work Order Comments

- The analyses for Perchlorate were subcontracted to ALS Environmental in Salt Lake City, UT. Final Report attached

Work Order Comments

- Data Package revised to correct the CCV RRF table 11.6 RSD to <= 50% D for the ending CCV for Method 8260 as required in the DOD QSM 5.1

GCMS Volatiles by Method SW8260

Batch ID: R307234

Sample ID: HS17120488-03MS

- MS and MSD are for an unrelated sample.

Batch ID: R307380

Sample ID: 18WW24_120717 (HS17120573-05MS)

- MS/MSD failed QC and RPD limits for some compounds,

Sample ID: VSTD050

- Hexachlorobutadiene and n-Butylbenzene exceeded %D limits for CCV. Samples are ND for these compounds.

Metals by Method SW7470

Batch ID: 123485

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

Metals by Method SW6020

Batch ID: 123330

Sample ID: HS17120494-10MS

- MS/MSD and DUPs are for an unrelated sample

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW24_120717
Collection Date: 07-Dec-2017 09:00

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 20:27
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	15-Dec-2017 20:27
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:27
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	15-Dec-2017 20:27
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 20:27
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	15-Dec-2017 20:27
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW24_120717
Collection Date: 07-Dec-2017 09:00

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
cis-1,2-Dichloroethene	**10**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 20:27
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	15-Dec-2017 20:27
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 20:27
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 20:27
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:27
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Trichloroethene	**3.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 20:27
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:27
Surr: 1,2-Dichloroethane-d4	*90.0*			**0**	*81-118*	*%REC*	*1*	*15-Dec-2017 20:27*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*15-Dec-2017 20:27*
Surr: Dibromofluoromethane	*93.5*			**0**	*80-119*	*%REC*	*1*	*15-Dec-2017 20:27*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*15-Dec-2017 20:27*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW24_120717
Collection Date: 07-Dec-2017 09:00

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 14-Dec-2017		Analyst: RPM
Aluminum	**0.0204**		**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	18-Dec-2017 16:43
Antimony	**0.000457**	J	**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:43
Arsenic	**0.00811**		**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:43
Barium	**9.80**		**0.0190**	**0.0100**	**0.0400**	**mg/L**	10	19-Dec-2017 10:41
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 10:51
Cadmium	**0.000757**	J	**0.000200**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:43
Calcium	**383**		**0.340**	**1.00**	**5.00**	**mg/L**	10	19-Dec-2017 10:41
Chromium	**0.000926**	J	**0.000400**	**0.00100**	**0.00400**	**mg/L**	1	18-Dec-2017 16:43
Cobalt	**0.00398**	J	**0.000200**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:43
Copper	0.00100	U	0.00100	0.00100	0.00200	mg/L	1	18-Dec-2017 16:43
Iron	**8.22**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:43
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	18-Dec-2017 16:43
Magnesium	**235**		**0.100**	**1.00**	**2.00**	**mg/L**	10	19-Dec-2017 10:41
Manganese	**0.448**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:43
Nickel	**0.00562**		**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	18-Dec-2017 16:43
Potassium	**3.31**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:43
Selenium	**0.00935**		**0.00110**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:43
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 10:51
Sodium	**951**		**0.140**	**1.00**	**5.00**	**mg/L**	10	19-Dec-2017 10:41
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:43
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	18-Dec-2017 16:43
Zinc	**0.0126**		**0.00200**	**0.00250**	**0.00400**	**mg/L**	1	18-Dec-2017 16:43
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 18-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	18-Dec-2017 16:54
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW14_120717
Collection Date: 07-Dec-2017 10:00

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,2-Dichloroethane	**2.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 15:55
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:55
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 15:55
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	15-Dec-2017 15:55
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:55
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	15-Dec-2017 15:55
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 15:55
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	15-Dec-2017 15:55
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW14_120717
Collection Date: 07-Dec-2017 10:00

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	**5.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 15:55
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
cis-1,2-Dichloroethene	**4.9**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 15:55
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	15-Dec-2017 15:55
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 15:55
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 15:55
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:55
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Tetrachloroethene	**0.74**	J	**0.30**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 15:55
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Trichloroethene	**600**		**1.0**	**2.5**	**5.0**	**ug/L**	5	15-Dec-2017 18:24
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:55
Surr: 1,2-Dichloroethane-d4	*88.2*			**0**	*81-118*	*%REC*	*1*	*15-Dec-2017 15:55*
Surr: 1,2-Dichloroethane-d4	*89.7*			**0**	*81-118*	*%REC*	*5*	*15-Dec-2017 18:24*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*5*	*15-Dec-2017 18:24*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*15-Dec-2017 15:55*
Surr: Dibromofluoromethane	*96.6*			**0**	*80-119*	*%REC*	*5*	*15-Dec-2017 18:24*
Surr: Dibromofluoromethane	*93.9*			**0**	*80-119*	*%REC*	*1*	*15-Dec-2017 15:55*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*15-Dec-2017 18:24*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*15-Dec-2017 15:55*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW14_120717
Collection Date: 07-Dec-2017 10:00

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 14-Dec-2017		Analyst: RPM
Aluminum	**0.0845**		**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	18-Dec-2017 16:45
Antimony	**0.000408**	J	**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:45
Arsenic	**0.00215**		**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:45
Barium	**3.79**		**0.0190**	**0.0100**	**0.0400**	**mg/L**	10	19-Dec-2017 10:43
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 10:53
Cadmium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:45
Calcium	**478**		**0.340**	**1.00**	**5.00**	**mg/L**	10	19-Dec-2017 10:43
Chromium	**0.0217**		**0.000400**	**0.00100**	**0.00400**	**mg/L**	1	18-Dec-2017 16:45
Cobalt	**0.00265**	J	**0.000200**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:45
Copper	0.00200	U	0.00100	0.00200	0.00200	mg/L	1	18-Dec-2017 16:45
Iron	**0.285**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:45
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	18-Dec-2017 16:45
Magnesium	**76.7**		**0.0100**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:45
Manganese	**0.141**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:45
Nickel	**0.00190**	J	**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	18-Dec-2017 16:45
Potassium	**22.3**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:45
Selenium	**0.00707**		**0.00110**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:45
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 10:53
Sodium	**587**		**0.140**	**1.00**	**5.00**	**mg/L**	10	19-Dec-2017 10:43
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:45
Vanadium	**0.00128**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:45
Zinc	**0.00437**		**0.00200**	**0.00100**	**0.00400**	**mg/L**	1	18-Dec-2017 16:45
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 18-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	18-Dec-2017 16:59
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW14_120717_a
Collection Date: 07-Dec-2017 10:00

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,2-Dichloroethane	**2.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:00
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	13-Dec-2017 21:00
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	13-Dec-2017 21:00
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:00
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	13-Dec-2017 21:00
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	13-Dec-2017 21:00
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	13-Dec-2017 21:00
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW14_120717_a
Collection Date: 07-Dec-2017 10:00

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	**5.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:00
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
cis-1,2-Dichloroethene	**4.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:00
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	13-Dec-2017 21:00
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	13-Dec-2017 21:00
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	13-Dec-2017 21:00
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:00
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Tetrachloroethene	**0.70**	J	**0.30**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:00
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Trichloroethene	**520**		**1.0**	**2.5**	**5.0**	**ug/L**	5	15-Dec-2017 17:35
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:00
Surr: 1,2-Dichloroethane-d4	*92.0*			**0**	*81-118*	*%REC*	*1*	*13-Dec-2017 21:00*
Surr: 1,2-Dichloroethane-d4	*90.0*			**0**	*81-118*	*%REC*	*5*	*15-Dec-2017 17:35*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*1*	*13-Dec-2017 21:00*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*5*	*15-Dec-2017 17:35*
Surr: Dibromofluoromethane	*95.2*			**0**	*80-119*	*%REC*	*1*	*13-Dec-2017 21:00*
Surr: Dibromofluoromethane	*97.5*			**0**	*80-119*	*%REC*	*5*	*15-Dec-2017 17:35*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*13-Dec-2017 21:00*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*5*	*15-Dec-2017 17:35*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW14_120717_a
Collection Date: 07-Dec-2017 10:00

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 14-Dec-2017		Analyst: RPM
Aluminum	**0.0859**		**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	18-Dec-2017 16:47
Antimony	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	18-Dec-2017 16:47
Arsenic	**0.00216**		**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:47
Barium	**3.81**		**0.0190**	**0.0100**	**0.0400**	**mg/L**	10	19-Dec-2017 10:45
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 10:55
Cadmium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:47
Calcium	**447**		**0.340**	**1.00**	**5.00**	**mg/L**	10	19-Dec-2017 10:45
Chromium	**0.0206**		**0.000400**	**0.00100**	**0.00400**	**mg/L**	1	18-Dec-2017 16:47
Cobalt	**0.00250**	J	**0.000200**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:47
Copper	0.00200	U	0.00100	0.00200	0.00200	mg/L	1	18-Dec-2017 16:47
Iron	**0.305**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:47
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	18-Dec-2017 16:47
Magnesium	**71.8**		**0.0100**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:47
Manganese	**0.132**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:47
Nickel	**0.00173**	J	**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	18-Dec-2017 16:47
Potassium	**22.0**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:47
Selenium	**0.00583**		**0.00110**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:47
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 10:55
Sodium	**575**		**0.140**	**1.00**	**5.00**	**mg/L**	10	19-Dec-2017 10:45
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:47
Vanadium	**0.00116**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:47
Zinc	**0.00344**	J	**0.00200**	**0.00100**	**0.00400**	**mg/L**	1	18-Dec-2017 16:47
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 18-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	18-Dec-2017 17:01
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW23_120717
Collection Date: 07-Dec-2017 11:05

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,1-Dichloroethane	**0.44**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:25
1,1-Dichloroethene	**4.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,2-Dichloroethane	**110**		**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	13-Dec-2017 21:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	13-Dec-2017 21:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	13-Dec-2017 21:25
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	13-Dec-2017 21:25
Benzene	**0.75**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:25
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	13-Dec-2017 21:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18CPTMW23_120717
Collection Date: 07-Dec-2017 11:05

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
cis-1,2-Dichloroethene	**190**		**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	13-Dec-2017 21:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	13-Dec-2017 21:25
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	13-Dec-2017 21:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2017 21:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
trans-1,2-Dichloroethene	**1.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Trichloroethene	**2,000**		**5.0**	**12**	**25**	**ug/L**	25	15-Dec-2017 17:10
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2017 21:25
Vinyl chloride	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2017 21:25
Surr: 1,2-Dichloroethane-d4	*97.2*			**0**	*81-118*	*%REC*	*1*	*13-Dec-2017 21:25*
Surr: 1,2-Dichloroethane-d4	*89.3*			**0**	*81-118*	*%REC*	*25*	*15-Dec-2017 17:10*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*13-Dec-2017 21:25*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*25*	*15-Dec-2017 17:10*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*1*	*13-Dec-2017 21:25*
Surr: Dibromofluoromethane	*96.2*			**0**	*80-119*	*%REC*	*25*	*15-Dec-2017 17:10*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*13-Dec-2017 21:25*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*25*	*15-Dec-2017 17:10*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW24_120717
Collection Date: 07-Dec-2017 13:45

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:05
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 15:05
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	15-Dec-2017 15:05
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:05
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	15-Dec-2017 15:05
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 15:05
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	15-Dec-2017 15:05
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW24_120717
Collection Date: 07-Dec-2017 13:45

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	15-Dec-2017 15:05
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 15:05
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 15:05
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:05
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:05
Surr: 1,2-Dichloroethane-d4	*89.6*			**0**	*81-118*	*%REC*	*1*	*15-Dec-2017 15:05*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*15-Dec-2017 15:05*
Surr: Dibromofluoromethane	*96.1*			**0**	*80-119*	*%REC*	*1*	*15-Dec-2017 15:05*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*15-Dec-2017 15:05*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW24_120717
Collection Date: 07-Dec-2017 13:45

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 14-Dec-2017		Analyst: RPM
Aluminum	**0.0368**		**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	18-Dec-2017 16:49
Antimony	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	18-Dec-2017 16:49
Arsenic	**0.000915**	J	**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:49
Barium	**0.0621**		**0.00190**	**0.00250**	**0.00400**	**mg/L**	1	18-Dec-2017 16:49
Beryllium	**0.000402**	J	**0.000200**	**0.00100**	**0.00200**	**mg/L**	1	19-Dec-2017 11:01
Cadmium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:49
Calcium	**38.2**		**0.0340**	**0.100**	**0.500**	**mg/L**	1	18-Dec-2017 16:49
Chromium	0.00100	U	0.000400	0.00100	0.00400	mg/L	1	18-Dec-2017 16:49
Cobalt	**0.0196**		**0.000200**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:49
Copper	0.00200	U	0.00100	0.00200	0.00200	mg/L	1	18-Dec-2017 16:49
Iron	**0.470**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:49
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	18-Dec-2017 16:49
Magnesium	**32.2**		**0.0100**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:49
Manganese	**3.44**		**0.00700**	**0.0100**	**0.0500**	**mg/L**	10	19-Dec-2017 10:47
Nickel	**0.0796**		**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	18-Dec-2017 16:49
Potassium	**0.648**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:49
Selenium	**0.00350**		**0.00110**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:49
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 11:01
Sodium	**661**		**0.140**	**1.00**	**5.00**	**mg/L**	10	19-Dec-2017 10:47
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:49
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	18-Dec-2017 16:49
Zinc	**0.0333**		**0.00200**	**0.00250**	**0.00400**	**mg/L**	1	18-Dec-2017 16:49
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 18-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	18-Dec-2017 17:03
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW25_120717
Collection Date: 07-Dec-2017 14:35

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 19:14
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	15-Dec-2017 19:14
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:14
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	15-Dec-2017 19:14
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 19:14
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	15-Dec-2017 19:14
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW25_120717
Collection Date: 07-Dec-2017 14:35

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	15-Dec-2017 19:14
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 19:14
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 19:14
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:14
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:14
Surr: 1,2-Dichloroethane-d4	*89.1*			**0**	*81-118*	*%REC*	*1*	*15-Dec-2017 19:14*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*15-Dec-2017 19:14*
Surr: Dibromofluoromethane	*95.5*			**0**	*80-119*	*%REC*	*1*	*15-Dec-2017 19:14*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*15-Dec-2017 19:14*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW25_120717
Collection Date: 07-Dec-2017 14:35

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 14-Dec-2017		Analyst: RPM
Aluminum	**0.00922**	J	**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	18-Dec-2017 16:51
Antimony	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	18-Dec-2017 16:51
Arsenic	**0.00177**	J	**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:51
Barium	**0.236**		**0.00190**	**0.00250**	**0.00400**	**mg/L**	1	18-Dec-2017 16:51
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 11:03
Cadmium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:51
Calcium	**14.0**		**0.0340**	**0.100**	**0.500**	**mg/L**	1	18-Dec-2017 16:51
Chromium	0.00100	U	0.000400	0.00100	0.00400	mg/L	1	18-Dec-2017 16:51
Cobalt	**0.00113**	J	**0.000200**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:51
Copper	**0.00232**		**0.00100**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:51
Iron	**12.8**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:51
Lead	0.00100	U	0.000600	0.00100	0.00200	mg/L	1	18-Dec-2017 16:51
Magnesium	**8.53**		**0.0100**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:51
Manganese	**1.69**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:51
Nickel	0.00200	U	0.000600	0.00200	0.00200	mg/L	1	18-Dec-2017 16:51
Potassium	**1.18**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:51
Selenium	0.00100	U	0.00110	0.00100	0.00200	mg/L	1	18-Dec-2017 16:51
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 11:03
Sodium	**33.2**		**0.0140**	**0.100**	**0.500**	**mg/L**	1	18-Dec-2017 16:51
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:51
Vanadium	0.00100	U	0.000600	0.00100	0.00500	mg/L	1	18-Dec-2017 16:51
Zinc	**0.00405**		**0.00200**	**0.00250**	**0.00400**	**mg/L**	1	18-Dec-2017 16:51
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 18-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	18-Dec-2017 17:04
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: MW16_120817
Collection Date: 08-Dec-2017 08:35

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,1-Dichloroethane	**0.70**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 15:30
1,1-Dichloroethene	**3.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 15:30
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,2-Dichloroethane	**23**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 15:30
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:30
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 15:30
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	15-Dec-2017 15:30
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:30
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	15-Dec-2017 15:30
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 15:30
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	15-Dec-2017 15:30
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: MW16_120817
Collection Date: 08-Dec-2017 08:35

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
cis-1,2-Dichloroethene	**13**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 15:30
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	15-Dec-2017 15:30
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 15:30
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 15:30
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 15:30
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
trans-1,2-Dichloroethene	**1.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Dec-2017 15:30
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Trichloroethene	**300**		**1.0**	**2.5**	**5.0**	**ug/L**	5	15-Dec-2017 17:59
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 15:30
Surr: 1,2-Dichloroethane-d4	*88.0*			**0**	*81-118*	*%REC*	*1*	*15-Dec-2017 15:30*
Surr: 1,2-Dichloroethane-d4	*89.4*			**0**	*81-118*	*%REC*	*5*	*15-Dec-2017 17:59*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*5*	*15-Dec-2017 17:59*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*15-Dec-2017 15:30*
Surr: Dibromofluoromethane	*95.3*			**0**	*80-119*	*%REC*	*1*	*15-Dec-2017 15:30*
Surr: Dibromofluoromethane	*96.2*			**0**	*80-119*	*%REC*	*5*	*15-Dec-2017 17:59*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*15-Dec-2017 15:30*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*5*	*15-Dec-2017 17:59*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW06_120817
Collection Date: 08-Dec-2017 09:50

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 19:38
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	15-Dec-2017 19:38
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:38
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	15-Dec-2017 19:38
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 19:38
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	15-Dec-2017 19:38
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW06_120817
Collection Date: 08-Dec-2017 09:50

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	15-Dec-2017 19:38
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 19:38
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 19:38
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 19:38
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 19:38
Surr: 1,2-Dichloroethane-d4	*89.1*			**0**	*81-118*	*%REC*	*1*	*15-Dec-2017 19:38*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*15-Dec-2017 19:38*
Surr: Dibromofluoromethane	*96.6*			**0**	*80-119*	*%REC*	*1*	*15-Dec-2017 19:38*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*15-Dec-2017 19:38*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW02_120817
Collection Date: 08-Dec-2017 10:45

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:03
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 20:03
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	15-Dec-2017 20:03
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:03
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	15-Dec-2017 20:03
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 20:03
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	15-Dec-2017 20:03
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW02_120817
Collection Date: 08-Dec-2017 10:45

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	15-Dec-2017 20:03
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 20:03
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 20:03
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 20:03
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 20:03
Surr: 1,2-Dichloroethane-d4	*88.3*			**0**	*81-118*	*%REC*	*1*	*15-Dec-2017 20:03*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*15-Dec-2017 20:03*
Surr: Dibromofluoromethane	*96.4*			**0**	*80-119*	*%REC*	*1*	*15-Dec-2017 20:03*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*15-Dec-2017 20:03*

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: 18WW02_120817
Collection Date: 08-Dec-2017 10:45

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-09
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 14-Dec-2017		Analyst: RPM
Aluminum	**0.129**		**0.00180**	**0.00400**	**0.0100**	**mg/L**	1	18-Dec-2017 16:53
Antimony	0.00100	U	0.000400	0.00100	0.00200	mg/L	1	18-Dec-2017 16:53
Arsenic	**0.000627**	J	**0.000400**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:53
Barium	**0.0424**		**0.00190**	**0.00250**	**0.00400**	**mg/L**	1	18-Dec-2017 16:53
Beryllium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 11:05
Cadmium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:53
Calcium	**6.47**		**0.0340**	**0.100**	**0.500**	**mg/L**	1	18-Dec-2017 16:53
Chromium	**0.00342**	J	**0.000400**	**0.00100**	**0.00400**	**mg/L**	1	18-Dec-2017 16:53
Cobalt	0.00100	U	0.000200	0.00100	0.00500	mg/L	1	18-Dec-2017 16:53
Copper	0.00100	U	0.00100	0.00100	0.00200	mg/L	1	18-Dec-2017 16:53
Iron	**1.66**		**0.0120**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:53
Lead	**0.000609**	J	**0.000600**	**0.00100**	**0.00200**	**mg/L**	1	18-Dec-2017 16:53
Magnesium	**1.10**		**0.0100**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:53
Manganese	**0.0767**		**0.000700**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:53
Nickel	**0.00180**	J	**0.000600**	**0.00200**	**0.00200**	**mg/L**	1	18-Dec-2017 16:53
Potassium	**1.64**		**0.0180**	**0.100**	**0.200**	**mg/L**	1	18-Dec-2017 16:53
Selenium	0.00200	U	0.00110	0.00200	0.00200	mg/L	1	18-Dec-2017 16:53
Silver	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	19-Dec-2017 11:05
Sodium	**15.9**		**0.0140**	**0.100**	**0.500**	**mg/L**	1	18-Dec-2017 16:53
Thallium	0.00100	U	0.000200	0.00100	0.00200	mg/L	1	18-Dec-2017 16:53
Vanadium	**0.00200**	J	**0.000600**	**0.00100**	**0.00500**	**mg/L**	1	18-Dec-2017 16:53
Zinc	**0.00462**		**0.00200**	**0.00250**	**0.00400**	**mg/L**	1	18-Dec-2017 16:53
MERCURY BY SW7470A		**Method:SW7470**				Prep:SW7470 / 18-Dec-2017		Analyst: JC
Mercury	0.000100	U	0.0000300	0.000100	0.000200	mg/L	1	18-Dec-2017 17:06
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2017 10:59

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: Trip Blank
Collection Date: 08-Dec-2017 00:01

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 14:41
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 14:41
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
2-Hexanone	1.0	U	1.0	1.0	2.0	ug/L	1	15-Dec-2017 14:41
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 14:41
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	ug/L	1	15-Dec-2017 14:41
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 14:41
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Bromobenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	15-Dec-2017 14:41
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Sample ID: Trip Blank
Collection Date: 08-Dec-2017 00:01

ANALYTICAL REPORT
WorkOrder:HS17120573
Lab ID:HS17120573-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	15-Dec-2017 14:41
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	15-Dec-2017 14:41
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	15-Dec-2017 14:41
n-Butylbenzene	0.50	U	0.40	0.50	1.0	ug/L	1	15-Dec-2017 14:41
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Dec-2017 14:41
Surr: 1,2-Dichloroethane-d4	*86.6*			**0**	*81-118*	*%REC*	*1*	*15-Dec-2017 14:41*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*15-Dec-2017 14:41*
Surr: Dibromofluoromethane	*94.1*			**0**	*80-119*	*%REC*	*1*	*15-Dec-2017 14:41*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*15-Dec-2017 14:41*

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

ALS Group USA, Corp Date: 28-Dec-17

WEIGHT LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Batch ID: 123330 **Method:** ICP-MS METALS BY SW6020A **Prep:** 3010A

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS17120573-01	1	10	10 (mL)	1
HS17120573-02	1	10	10 (mL)	1
HS17120573-03	1	10	10 (mL)	1
HS17120573-05	1	10	10 (mL)	1
HS17120573-06	1	10	10 (mL)	1
HS17120573-09	1	10	10 (mL)	1

Batch ID: 123485 **Method:** MERCURY BY SW7470A **Prep:** HG_WPR

SampID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS17120573-01	1	10	10 (mL)	1
HS17120573-02	1	10	10 (mL)	1
HS17120573-03	1	10	10 (mL)	1
HS17120573-05	1	10	10 (mL)	1
HS17120573-06	1	10	10 (mL)	1
HS17120573-09	1	10	10 (mL)	1

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 123330	**Test Name :** ICP-MS METALS BY SW6020A			**Matrix:** Water		
HS17120573-01	18CPTMW24_120717	07 Dec 2017 09:00		14 Dec 2017 12:00	19 Dec 2017 10:51	1
HS17120573-01	18CPTMW24_120717	07 Dec 2017 09:00		14 Dec 2017 12:00	19 Dec 2017 10:41	10
HS17120573-01	18CPTMW24_120717	07 Dec 2017 09:00		14 Dec 2017 12:00	18 Dec 2017 16:43	1
HS17120573-02	18CPTMW14_120717	07 Dec 2017 10:00		14 Dec 2017 12:00	19 Dec 2017 10:53	1
HS17120573-02	18CPTMW14_120717	07 Dec 2017 10:00		14 Dec 2017 12:00	19 Dec 2017 10:43	10
HS17120573-02	18CPTMW14_120717	07 Dec 2017 10:00		14 Dec 2017 12:00	18 Dec 2017 16:45	1
HS17120573-03	18CPTMW14_120717_a	07 Dec 2017 10:00		14 Dec 2017 12:00	19 Dec 2017 10:55	1
HS17120573-03	18CPTMW14_120717_a	07 Dec 2017 10:00		14 Dec 2017 12:00	19 Dec 2017 10:45	10
HS17120573-03	18CPTMW14_120717_a	07 Dec 2017 10:00		14 Dec 2017 12:00	18 Dec 2017 16:47	1
HS17120573-05	18WW24_120717	07 Dec 2017 13:45		14 Dec 2017 12:00	19 Dec 2017 11:01	1
HS17120573-05	18WW24_120717	07 Dec 2017 13:45		14 Dec 2017 12:00	19 Dec 2017 10:47	10
HS17120573-05	18WW24_120717	07 Dec 2017 13:45		14 Dec 2017 12:00	18 Dec 2017 16:49	1
HS17120573-06	18WW25_120717	07 Dec 2017 14:35		14 Dec 2017 12:00	19 Dec 2017 11:03	1
HS17120573-06	18WW25_120717	07 Dec 2017 14:35		14 Dec 2017 12:00	18 Dec 2017 16:51	1
HS17120573-09	18WW02_120817	08 Dec 2017 10:45		14 Dec 2017 12:00	19 Dec 2017 11:05	1
HS17120573-09	18WW02_120817	08 Dec 2017 10:45		14 Dec 2017 12:00	18 Dec 2017 16:53	1
Batch ID 123485	**Test Name :** MERCURY BY SW7470A			**Matrix:** Water		
HS17120573-01	18CPTMW24_120717	07 Dec 2017 09:00		18 Dec 2017 11:39	18 Dec 2017 16:54	1
HS17120573-02	18CPTMW14_120717	07 Dec 2017 10:00		18 Dec 2017 11:39	18 Dec 2017 16:59	1
HS17120573-03	18CPTMW14_120717_a	07 Dec 2017 10:00		18 Dec 2017 11:39	18 Dec 2017 17:01	1
HS17120573-05	18WW24_120717	07 Dec 2017 13:45		18 Dec 2017 11:39	18 Dec 2017 17:03	1
HS17120573-06	18WW25_120717	07 Dec 2017 14:35		18 Dec 2017 11:39	18 Dec 2017 17:04	1
HS17120573-09	18WW02_120817	08 Dec 2017 10:45		18 Dec 2017 11:39	18 Dec 2017 17:06	1
Batch ID R307234	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS17120573-03	18CPTMW14_120717_a	07 Dec 2017 10:00			13 Dec 2017 21:00	1
HS17120573-04	18CPTMW23_120717	07 Dec 2017 11:05			13 Dec 2017 21:25	1
Batch ID R307380	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS17120573-01	18CPTMW24_120717	07 Dec 2017 09:00			15 Dec 2017 20:27	1
HS17120573-02	18CPTMW14_120717	07 Dec 2017 10:00			15 Dec 2017 18:24	5
HS17120573-02	18CPTMW14_120717	07 Dec 2017 10:00			15 Dec 2017 15:55	1
HS17120573-03	18CPTMW14_120717_a	07 Dec 2017 10:00			15 Dec 2017 17:35	5
HS17120573-04	18CPTMW23_120717	07 Dec 2017 11:05			15 Dec 2017 17:10	25
HS17120573-05	18WW24_120717	07 Dec 2017 13:45			15 Dec 2017 15:05	1
HS17120573-06	18WW25_120717	07 Dec 2017 14:35			15 Dec 2017 19:14	1
HS17120573-07	MW16_120817	08 Dec 2017 08:35			15 Dec 2017 17:59	5
HS17120573-07	MW16_120817	08 Dec 2017 08:35			15 Dec 2017 15:30	1
HS17120573-08	18WW06_120817	08 Dec 2017 09:50			15 Dec 2017 19:38	1
HS17120573-09	18WW02_120817	08 Dec 2017 10:45			15 Dec 2017 20:03	1
HS17120573-10	Trip Blank	08 Dec 2017 00:01			15 Dec 2017 14:41	1

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R308041	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)	**Matrix:** Water				
HS17120573-01	18CPTMW24_120717	07 Dec 2017 09:00			28 Dec 2017 10:59	1
HS17120573-02	18CPTMW14_120717	07 Dec 2017 10:00			28 Dec 2017 10:59	1
HS17120573-03	18CPTMW14_120717_a	07 Dec 2017 10:00			28 Dec 2017 10:59	1
HS17120573-04	18CPTMW23_120717	07 Dec 2017 11:05			28 Dec 2017 10:59	1
HS17120573-05	18WW24_120717	07 Dec 2017 13:45			28 Dec 2017 10:59	1
HS17120573-06	18WW25_120717	07 Dec 2017 14:35			28 Dec 2017 10:59	1
HS17120573-07	MW16_120817	08 Dec 2017 08:35			28 Dec 2017 10:59	1
HS17120573-08	18WW06_120817	08 Dec 2017 09:50			28 Dec 2017 10:59	1
HS17120573-09	18WW02_120817	08 Dec 2017 10:45			28 Dec 2017 10:59	1

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: 123330 **Instrument: ICPMS05** **Method: SW6020**

MBLK Sample ID: **MBLK-123330** Units: **mg/L** Analysis Date: **18-Dec-2017 15:55**
Client ID: Run ID: **ICPMS05_307391** SeqNo: **4356967** PrepDate: **14-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.00400	0.0100								U
Antimony	0.00100	0.00200								U
Arsenic	0.000688	0.00200								J
Barium	0.00100	0.00400								U
Beryllium	0.00100	0.00200								U
Cadmium	0.00100	0.00200								U
Calcium	0.100	0.500								U
Chromium	0.00100	0.00400								U
Cobalt	0.00100	0.00500								U
Copper	0.00100	0.00200								U
Iron	0.100	0.200								U
Lead	0.00100	0.00200								U
Magnesium	0.100	0.200								U
Manganese	0.00100	0.00500								U
Nickel	0.00200	0.00200								U
Potassium	0.100	0.200								U
Selenium	0.00100	0.00200								U
Silver	0.00100	0.00200								U
Sodium	0.2004	0.500								J
Thallium	0.00100	0.00200								U
Vanadium	0.00100	0.00500								U
Zinc	0.00250	0.00400								U

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: 123330 **Instrument: ICPMS05** **Method: SW6020**

LCS Sample ID: **LCS-123330** Units: **mg/L** Analysis Date: **18-Dec-2017 15:57**
Client ID: Run ID: **ICPMS05_307391** SeqNo: **4356968** PrepDate: **14-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.0812	0.0100	0.1	0	81.2	80 - 120				
Antimony	0.04896	0.00200	0.05	0	97.9	80 - 120				
Arsenic	0.04452	0.00200	0.05	0	89.0	80 - 120				
Barium	0.04449	0.00400	0.05	0	89.0	80 - 120				
Beryllium	0.0422	0.00200	0.05	0	84.4	80 - 120				
Cadmium	0.04521	0.00200	0.05	0	90.4	80 - 120				
Calcium	4.459	0.500	5	0	89.2	80 - 120				
Chromium	0.04229	0.00400	0.05	0	84.6	80 - 120				
Cobalt	0.0439	0.00500	0.05	0	87.8	80 - 120				
Copper	0.04328	0.00200	0.05	0	86.6	80 - 120				
Iron	4.107	0.200	5	0	82.1	80 - 120				
Lead	0.04545	0.00200	0.05	0	90.9	80 - 120				
Magnesium	4.27	0.200	5	0	85.4	80 - 120				
Manganese	0.04225	0.00500	0.05	0	84.5	80 - 120				
Nickel	0.04254	0.00200	0.05	0	85.1	80 - 120				
Potassium	4.505	0.200	5	0	90.1	80 - 120				
Selenium	0.04655	0.00200	0.05	0	93.1	80 - 120				
Silver	0.04626	0.00200	0.05	0	92.5	80 - 120				
Sodium	4.447	0.500	5	0	88.9	80 - 120				
Thallium	0.04191	0.00200	0.05	0	83.8	80 - 120				
Vanadium	0.04301	0.00500	0.05	0	86.0	80 - 120				
Zinc	0.04718	0.00400	0.05	0	94.4	80 - 120				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: 123330 **Instrument: ICPMS05** **Method: SW6020**

MS Sample ID: **HS17120494-10MS** Units: **mg/L** Analysis Date: **18-Dec-2017 16:29**
Client ID: Run ID: **ICPMS05_307391** SeqNo: **4356984** PrepDate: **14-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.2213	0.0100	0.1	0.1171	104	80 - 120				
Antimony	0.05113	0.00200	0.05	0.00013	102	80 - 120				
Arsenic	0.05218	0.00200	0.05	0.005223	93.9	80 - 120				
Barium	0.1731	0.00400	0.05	0.1143	118	80 - 120				
Beryllium	0.04548	0.00200	0.05	0.000027	90.9	80 - 120				
Cadmium	0.04731	0.00200	0.05	0.000016	94.6	80 - 120				
Calcium	88.92	0.500	5	84.83	81.7	80 - 120				O
Chromium	0.04348	0.00400	0.05	0.000353	86.3	80 - 120				
Cobalt	0.04463	0.00500	0.05	0.000353	88.5	80 - 120				
Copper	0.04365	0.00200	0.05	0.000849	85.6	80 - 120				
Iron	4.692	0.200	5	0.5181	83.5	80 - 120				
Lead	0.04316	0.00200	0.05	0.000481	85.4	80 - 120				
Magnesium	26.93	0.200	5	22	98.7	80 - 120				O
Manganese	0.7502	0.00500	0.05	0.695	110	80 - 120				O
Nickel	0.04232	0.00200	0.05	0.000078	84.5	80 - 120				
Potassium	10.41	0.200	5	6.28	82.5	80 - 120				
Selenium	0.04314	0.00200	0.05	0.000028	86.2	80 - 120				
Silver	0.04393	0.00200	0.05	0.00003	87.8	80 - 120				
Sodium	91.44	0.500	5	84.34	142	80 - 120				SO
Thallium	0.04322	0.00200	0.05	0.000027	86.4	80 - 120				
Vanadium	0.0465	0.00500	0.05	0.001238	90.5	80 - 120				
Zinc	0.04749	0.00400	0.05	0.003765	87.5	80 - 120				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: 123330 **Instrument: ICPMS05** **Method: SW6020**

MSD Sample ID: **HS17120494-10MSD** Units: **mg/L** Analysis Date: **18-Dec-2017 16:31**
Client ID: Run ID: **ICPMS05_307391** SeqNo: **4356985** PrepDate: **14-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.2328	0.0100	0.1	0.1171	116	80 - 120	0.2213	5.09	20	
Antimony	0.05058	0.00200	0.05	0.00013	101	80 - 120	0.05113	1.08	20	
Arsenic	0.05105	0.00200	0.05	0.005223	91.7	80 - 120	0.05218	2.18	20	
Barium	0.1601	0.00400	0.05	0.1143	91.8	80 - 120	0.1731	7.78	20	
Beryllium	0.04768	0.00200	0.05	0.000027	95.3	80 - 120	0.04548	4.72	20	
Cadmium	0.04568	0.00200	0.05	0.000016	91.3	80 - 120	0.04731	3.51	20	
Calcium	88.44	0.500	5	84.83	72.1	80 - 120	88.92	0.54	20	SO
Chromium	0.04335	0.00400	0.05	0.000353	86.0	80 - 120	0.04348	0.288	20	
Cobalt	0.04454	0.00500	0.05	0.000353	88.4	80 - 120	0.04463	0.197	20	
Copper	0.04419	0.00200	0.05	0.000849	86.7	80 - 120	0.04365	1.24	20	
Iron	4.754	0.200	5	0.5181	84.7	80 - 120	4.692	1.31	20	
Lead	0.04483	0.00200	0.05	0.000481	88.7	80 - 120	0.04316	3.78	20	
Magnesium	27.47	0.200	5	22	109	80 - 120	26.93	1.99	20	O
Manganese	0.7643	0.00500	0.05	0.695	138	80 - 120	0.7502	1.86	20	SO
Nickel	0.04273	0.00200	0.05	0.000078	85.3	80 - 120	0.04232	0.966	20	
Potassium	10.63	0.200	5	6.28	87.0	80 - 120	10.41	2.12	20	
Selenium	0.04723	0.00200	0.05	0.000028	94.4	80 - 120	0.04314	9.05	20	
Silver	0.04592	0.00200	0.05	0.00003	91.8	80 - 120	0.04393	4.44	20	
Sodium	92.72	0.500	5	84.34	167	80 - 120	91.44	1.39	20	SO
Thallium	0.04367	0.00200	0.05	0.000027	87.3	80 - 120	0.04322	1.04	20	
Vanadium	0.04668	0.00500	0.05	0.001238	90.9	80 - 120	0.0465	0.397	20	
Zinc	0.0492	0.00400	0.05	0.003765	90.9	80 - 120	0.04749	3.52	20	

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: 123330 **Instrument: ICPMS05** **Method: SW6020**

PDS Sample ID: **HS17120494-10PDS** Units: **mg/L** Analysis Date: **18-Dec-2017 16:33**
Client ID: Run ID: **ICPMS05_307391** SeqNo: **4356986** PrepDate: **14-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.08086	0.00200	0.1	0	80.9	75 - 125				
Arsenic	0.08647	0.00200	0.1	0.005223	81.2	75 - 125				
Beryllium	0.08363	0.00200	0.1	0	83.6	75 - 125				
Cadmium	0.07872	0.00200	0.1	0	78.7	75 - 125				
Calcium	88.53	0.500	10	84.83	37.0	75 - 125				SO
Cobalt	0.07574	0.00500	0.1	0.000353	75.4	75 - 125				
Lead	0.07762	0.00200	0.1	0	77.6	75 - 125				
Manganese	0.7476	0.00500	0.1	0.695	52.6	75 - 125				SO
Selenium	0.0813	0.00200	0.1	0	81.3	75 - 125				
Silver	0.07847	0.00200	0.1	0	78.5	75 - 125				
Sodium	90.78	0.500	10	84.34	64.4	75 - 125				SO
Thallium	0.07811	0.00200	0.1	0	78.1	75 - 125				
Vanadium	0.07905	0.00500	0.1	0.001238	77.8	75 - 125				
Zinc	0.08006	0.00400	0.1	0.003765	76.3	75 - 125				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: 123330 **Instrument: ICPMS05** **Method: SW6020**

SD Sample ID: **HS17120494-10SD** Units: **mg/L** Analysis Date: **18-Dec-2017 16:27**
Client ID: Run ID: **ICPMS05_307391** SeqNo: **4356983** PrepDate: **14-Dec-2017** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.1014	0.0500					0.1171	13.5	10	R
Antimony	0.00500	0.0100					0.00013	0	10	U
Arsenic	0.006359	0.0100					0.005223	0	10	J
Barium	0.1109	0.0200					0.1143	2.91	10	
Beryllium	0.00500	0.0100					0.000027	0	10	U
Cadmium	0.00500	0.0100					0.000016	0	10	U
Calcium	82.9	2.50					84.83	2.28	10	
Chromium	0.00500	0.0200					0.000353	0	10	U
Cobalt	0.00500	0.0250					0.000353	0	10	U
Copper	0.00500	0.0100					0.000849	0	10	U
Iron	0.5305	1.00					0.5181	0	10	J
Lead	0.00500	0.0100					0.000481	0	10	U
Magnesium	23.3	1.00					22	5.91	10	
Manganese	0.7136	0.0250					0.695	2.67	10	
Nickel	0.0100	0.0100					0.000078	0	10	U
Potassium	6.195	1.00					6.28	1.36	10	
Selenium	0.0100	0.0100					0.000028	0	10	U
Silver	0.00500	0.0100					0.00003	0	10	U
Sodium	90.04	2.50					84.34	6.75	10	
Thallium	0.00500	0.0100					0.000027	0	10	U
Vanadium	0.00500	0.0250					0.001238	0	10	U
Zinc	0.00500	0.0200					0.003765	0	10	U

The following samples were analyzed in this batch: HS17120573-01 HS17120573-02 HS17120573-03 HS17120573-05 HS17120573-06 HS17120573-09

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: 123485 **Instrument: HG03** **Method: SW7470**

MBLK Sample ID: **MBLK-123485** Units: **mg/L** Analysis Date: **18-Dec-2017 16:32**
Client ID: Run ID: **HG03_307437** SeqNo: **4357058** PrepDate: **18-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000100	0.000200								U

LCS Sample ID: **LCS-123485** Units: **mg/L** Analysis Date: **18-Dec-2017 16:34**
Client ID: Run ID: **HG03_307437** SeqNo: **4357059** PrepDate: **18-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00489	0.000200	0.005	0	97.8	80 - 120				

MS Sample ID: **HS17120573-01MS** Units: **mg/L** Analysis Date: **18-Dec-2017 16:56**
Client ID: **18CPTMW24_120717** Run ID: **HG03_307437** SeqNo: **4357069** PrepDate: **18-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00497	0.000200	0.005	-0.000006	99.5	75 - 125				

MSD Sample ID: **HS17120573-01MSD** Units: **mg/L** Analysis Date: **18-Dec-2017 16:57**
Client ID: **18CPTMW24_120717** Run ID: **HG03_307437** SeqNo: **4357070** PrepDate: **18-Dec-2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00497	0.000200	0.005	-0.000006	99.5	75 - 125	0.00497	0	20	

The following samples were analyzed in this batch: HS17120573-01 HS17120573-02 HS17120573-03 HS17120573-05 HS17120573-06 HS17120573-09

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307234 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-171213** Units: **ug/L** Analysis Date: **13-Dec-2017 12:39**
Client ID: Run ID: **VOA6_307234** SeqNo: **4351368** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307234 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-171213** Units: **ug/L** Analysis Date: **13-Dec-2017 12:39**
Client ID: Run ID: **VOA6_307234** SeqNo: **4351368** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.39*	*1.0*	*50*	*0*	*90.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.45*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*48.15*	*1.0*	*50*	*0*	*96.3*	*80 - 119*				
Surr: Toluene-d8	*51.91*	*1.0*	*50*	*0*	*104*	*89 - 112*				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307234 **Instrument: VOA6** **Method: SW8260**

LCS Sample ID: **VLCSW-171213** Units: **ug/L** Analysis Date: **13-Dec-2017 11:25**
Client ID: Run ID: **VOA6_307234** SeqNo: **4351367** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	48.54	1.0	50	0	97.1	78 - 124				
1,1,1-Trichloroethane	50.22	1.0	50	0	100	74 - 131				
1,1,2,2-Tetrachloroethane	46.56	1.0	50	0	93.1	71 - 121				
1,1,2-Trichloroethane	47.01	1.0	50	0	94.0	80 - 119				
1,1-Dichloroethane	48.66	1.0	50	0	97.3	77 - 125				
1,1-Dichloroethene	48.12	1.0	50	0	96.2	71 - 131				
1,1-Dichloropropene	50.79	1.0	50	0	102	79 - 125				
1,2,3-Trichlorobenzene	41.45	1.0	50	0	82.9	69 - 129				
1,2,3-Trichloropropane	43.08	1.0	50	0	86.2	73 - 122				
1,2,4-Trichlorobenzene	44.24	1.0	50	0	88.5	69 - 130				
1,2,4-Trimethylbenzene	50.86	1.0	50	0	102	76 - 124				
1,2-Dibromo-3-chloropropane	40.69	1.0	50	0	81.4	62 - 128				
1,2-Dibromoethane	47.65	1.0	50	0	95.3	77 - 121				
1,2-Dichlorobenzene	46.47	1.0	50	0	92.9	80 - 119				
1,2-Dichloroethane	46.82	1.0	50	0	93.6	73 - 128				
1,2-Dichloropropane	49.69	1.0	50	0	99.4	78 - 122				
1,3,5-Trimethylbenzene	50.22	1.0	50	0	100	75 - 124				
1,3-Dichlorobenzene	46.14	1.0	50	0	92.3	80 - 119				
1,3-Dichloropropane	46.05	1.0	50	0	92.1	80 - 119				
1,4-Dichlorobenzene	51.4	1.0	50	0	103	79 - 118				
2,2-Dichloropropane	48.07	1.0	50	0	96.1	60 - 139				
2-Butanone	91.52	2.0	100	0	91.5	56 - 143				
2-Chlorotoluene	51.18	1.0	50	0	102	79 - 122				
2-Hexanone	91.01	2.0	100	0	91.0	57 - 139				
4-Chlorotoluene	51.45	1.0	50	0	103	78 - 122				
4-Isopropyltoluene	44.22	1.0	50	0	88.4	77 - 127				
4-Methyl-2-pentanone	83.72	2.0	100	0	83.7	67 - 130				
Acetone	87.17	2.0	100	0	87.2	39 - 160				
Benzene	51.59	1.0	50	0	103	79 - 120				
Bromobenzene	48.15	1.0	50	0	96.3	80 - 120				
Bromochloromethane	56.5	1.0	50	0	113	78 - 123				
Bromodichloromethane	50.42	1.0	50	0	101	79 - 125				
Bromoform	47.66	1.0	50	0	95.3	66 - 130				
Bromomethane	47.74	1.0	50	0	95.5	53 - 141				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307234 **Instrument: VOA6** **Method: SW8260**

LCS Sample ID: **VLCSW-171213** Units: **ug/L** Analysis Date: **13-Dec-2017 11:25**
Client ID: Run ID: **VOA6_307234** SeqNo: **4351367** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	99.4	2.0	100	0	99.4	64 - 133				
Carbon tetrachloride	51.86	1.0	50	0	104	72 - 136				
Chlorobenzene	48.62	1.0	50	0	97.2	80 - 120				
Chloroethane	46.75	1.0	50	0	93.5	82 - 118				
Chloroform	48.74	1.0	50	0	97.5	79 - 124				
Chloromethane	50.29	1.0	50	0	101	50 - 139				
cis-1,2-Dichloroethene	49.58	1.0	50	0	99.2	78 - 123				
cis-1,3-Dichloropropene	51.12	1.0	50	0	102	75 - 124				
Dibromochloromethane	46.38	1.0	50	0	92.8	74 - 126				
Dibromomethane	48.14	1.0	50	0	96.3	79 - 123				
Dichlorodifluoromethane	50.32	1.0	50	0	101	32 - 152				
Ethylbenzene	48.63	1.0	50	0	97.3	79 - 121				
Hexachlorobutadiene	48.02	1.0	50	0	96.0	66 - 134				
Isopropylbenzene	47.85	1.0	50	0	95.7	72 - 131				
m,p-Xylene	95.83	2.0	100	0	95.8	80 - 121				
Methylene chloride	51.69	2.0	50	0	103	74 - 124				
Naphthalene	41.18	1.0	50	0	82.4	61 - 128				
n-Butylbenzene	44.48	1.0	50	0	89.0	75 - 128				
n-Propylbenzene	49.82	1.0	50	0	99.6	76 - 126				
o-Xylene	49.09	1.0	50	0	98.2	78 - 122				
sec-Butylbenzene	43.32	1.0	50	0	86.6	77 - 126				
Styrene	50.32	1.0	50	0	101	78 - 128				
tert-Butylbenzene	49.27	1.0	50	0	98.5	78 - 124				
Tetrachloroethene	51.12	1.0	50	0	102	74 - 129				
Toluene	48.8	1.0	50	0	97.6	80 - 121				
trans-1,2-Dichloroethene	51.29	1.0	50	0	103	75 - 124				
trans-1,3-Dichloropropene	49.02	1.0	50	0	98.0	73 - 127				
Trichlorofluoromethane	48.21	1.0	50	0	96.4	65 - 141				
Vinyl chloride	46	1.0	50	0	92.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*43.92*	*1.0*	*50*	*0*	*87.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.14*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*47.35*	*1.0*	*50*	*0*	*94.7*	*80 - 119*				
Surr: Toluene-d8	*51.03*	*1.0*	*50*	*0*	*102*	*89 - 112*				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307234 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS17120486-03MS** Units: **ug/L** Analysis Date: **13-Dec-2017 14:18**
Client ID: Run ID: **VOA6_307234** SeqNo: **4351372** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	41.06	1.0	50	0	82.1	78 - 124				
1,1,1-Trichloroethane	40.56	1.0	50	0	81.1	74 - 131				
1,1,2,2-Tetrachloroethane	43.78	1.0	50	0	87.6	71 - 121				
1,1,2-Trichloroethane	41.16	1.0	50	0	82.3	80 - 119				
1,1-Dichloroethane	39.31	1.0	50	0	78.6	77 - 125				
1,1-Dichloroethene	38.78	1.0	50	0	77.6	71 - 131				
1,1-Dichloropropene	41.47	1.0	50	0	82.9	79 - 125				
1,2,3-Trichlorobenzene	34.7	1.0	50	0	69.4	69 - 129				
1,2,3-Trichloropropane	40.48	1.0	50	0	81.0	73 - 122				
1,2,4-Trichlorobenzene	37.67	1.0	50	0	75.3	69 - 130				
1,2,4-Trimethylbenzene	42.02	1.0	50	0	84.0	76 - 124				
1,2-Dibromo-3-chloropropane	38.73	1.0	50	0	77.5	62 - 128				
1,2-Dibromoethane	43.68	1.0	50	0	87.4	77 - 121				
1,2-Dichlorobenzene	38.85	1.0	50	0	77.7	80 - 119				S
1,2-Dichloroethane	39.68	1.0	50	0	79.4	73 - 128				
1,2-Dichloropropane	40.98	1.0	50	0	82.0	78 - 122				
1,3,5-Trimethylbenzene	41.56	1.0	50	0	83.1	75 - 124				
1,3-Dichlorobenzene	38.16	1.0	50	0	76.3	80 - 119				S
1,3-Dichloropropane	39.8	1.0	50	0	79.6	80 - 119				S
1,4-Dichlorobenzene	42.81	1.0	50	0	85.6	79 - 118				
2,2-Dichloropropane	39.12	1.0	50	0	78.2	60 - 139				
2-Butanone	89.61	2.0	100	0	89.6	56 - 143				
2-Chlorotoluene	42.24	1.0	50	0	84.5	79 - 122				
2-Hexanone	93	2.0	100	0	93.0	57 - 139				
4-Chlorotoluene	42	1.0	50	0	84.0	78 - 122				
4-Isopropyltoluene	37.64	1.0	50	0	75.3	77 - 127				S
4-Methyl-2-pentanone	82.88	2.0	100	0	82.9	67 - 130				
Acetone	85.01	2.0	100	0	85.0	39 - 160				
Benzene	41.71	1.0	50	0	83.4	79 - 120				
Bromobenzene	41.26	1.0	50	0	82.5	80 - 120				
Bromochloromethane	46.3	1.0	50	0	92.6	78 - 123				
Bromodichloromethane	42.13	1.0	50	0	84.3	79 - 125				
Bromoform	42.92	1.0	50	0	85.8	66 - 130				
Bromomethane	35.37	1.0	50	0	70.7	53 - 141				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307234 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS17120486-03MS** Units: **ug/L** Analysis Date: **13-Dec-2017 14:18**
Client ID: Run ID: **VOA6_307234** SeqNo: **4351372** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	77.77	2.0	100	0	77.8	64 - 133				
Carbon tetrachloride	42.68	1.0	50	0	85.4	72 - 136				
Chlorobenzene	39.8	1.0	50	0	79.6	80 - 120				S
Chloroethane	36.18	1.0	50	0	72.4	82 - 118				S
Chloroform	39.82	1.0	50	0	79.6	79 - 124				
Chloromethane	34.84	1.0	50	0	69.7	50 - 139				
cis-1,2-Dichloroethene	40.62	1.0	50	0	81.2	78 - 123				
cis-1,3-Dichloropropene	42.01	1.0	50	0	84.0	75 - 124				
Dibromochloromethane	41.05	1.0	50	0	82.1	74 - 126				
Dibromomethane	42.01	1.0	50	0	84.0	79 - 123				
Dichlorodifluoromethane	29.84	1.0	50	0	59.7	32 - 152				
Ethylbenzene	39.55	1.0	50	0	79.1	79 - 121				
Hexachlorobutadiene	42.19	1.0	50	0	84.4	66 - 134				
Isopropylbenzene	39.28	1.0	50	0	78.6	72 - 131				
m,p-Xylene	77.96	2.0	100	0	78.0	80 - 121				S
Methylene chloride	42.43	2.0	50	0	84.9	74 - 124				
Naphthalene	36.71	1.0	50	0	73.4	61 - 128				
n-Butylbenzene	37.93	1.0	50	0	75.9	75 - 128				
n-Propylbenzene	40.8	1.0	50	0	81.6	76 - 126				
o-Xylene	39.78	1.0	50	0	79.6	78 - 122				
sec-Butylbenzene	36.48	1.0	50	0	73.0	77 - 126				S
Styrene	38.06	1.0	50	0	76.1	78 - 128				S
tert-Butylbenzene	41.31	1.0	50	0	82.6	78 - 124				
Tetrachloroethene	42.03	1.0	50	0	84.1	74 - 129				
Toluene	39.82	1.0	50	0	79.6	80 - 121				S
trans-1,2-Dichloroethene	40.86	1.0	50	0	81.7	75 - 124				
trans-1,3-Dichloropropene	41.58	1.0	50	0	83.2	73 - 127				
Trichlorofluoromethane	38.95	1.0	50	0	77.9	65 - 141				
Vinyl chloride	34.48	1.0	50	0	69.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.87*	*1.0*	*50*	*0*	*89.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.6*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*48.24*	*1.0*	*50*	*0*	*96.5*	*80 - 119*				
Surr: Toluene-d8	*52.3*	*1.0*	*50*	*0*	*105*	*89 - 112*				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307234 **Instrument: VOA6** **Method: SW8260**

MSD Sample ID: **HS17120486-03MSD** Units: **ug/L** Analysis Date: **13-Dec-2017 14:43**
Client ID: Run ID: **VOA6_307234** SeqNo: **4351373** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	42.64	1.0	50	0	85.3	78 - 124	41.06	3.77	20	
1,1,1-Trichloroethane	42.17	1.0	50	0	84.3	74 - 131	40.56	3.9	20	
1,1,2,2-Tetrachloroethane	48.09	1.0	50	0	96.2	71 - 121	43.78	9.39	20	
1,1,2-Trichloroethane	43.81	1.0	50	0	87.6	80 - 119	41.16	6.24	20	
1,1-Dichloroethane	40.5	1.0	50	0	81.0	77 - 125	39.31	2.97	20	
1,1-Dichloroethene	39.52	1.0	50	0	79.0	71 - 131	38.78	1.88	20	
1,1-Dichloropropene	43.53	1.0	50	0	87.1	79 - 125	41.47	4.85	20	
1,2,3-Trichlorobenzene	42.41	1.0	50	0	84.8	69 - 129	34.7	20	20	
1,2,3-Trichloropropane	45.16	1.0	50	0	90.3	73 - 122	40.48	10.9	20	
1,2,4-Trichlorobenzene	42.66	1.0	50	0	85.3	69 - 130	37.67	12.4	20	
1,2,4-Trimethylbenzene	42.39	1.0	50	0	84.8	76 - 124	42.02	0.873	20	
1,2-Dibromo-3-chloropropane	47.5	1.0	50	0	95.0	62 - 128	38.73	20.3	20	R
1,2-Dibromoethane	46.98	1.0	50	0	94.0	77 - 121	43.68	7.27	20	
1,2-Dichlorobenzene	41.16	1.0	50	0	82.3	80 - 119	38.85	5.76	20	
1,2-Dichloroethane	42.02	1.0	50	0	84.0	73 - 128	39.68	5.72	20	
1,2-Dichloropropane	42.31	1.0	50	0	84.6	78 - 122	40.98	3.2	20	
1,3,5-Trimethylbenzene	42.12	1.0	50	0	84.2	75 - 124	41.56	1.33	20	
1,3-Dichlorobenzene	39.89	1.0	50	0	79.8	80 - 119	38.16	4.43	20	S
1,3-Dichloropropane	43.04	1.0	50	0	86.1	80 - 119	39.8	7.82	20	
1,4-Dichlorobenzene	44.09	1.0	50	0	88.2	79 - 118	42.81	2.95	20	
2,2-Dichloropropane	40.47	1.0	50	0	80.9	60 - 139	39.12	3.37	20	
2-Butanone	100.2	2.0	100	0	100	56 - 143	89.61	11.1	20	
2-Chlorotoluene	43.49	1.0	50	0	87.0	79 - 122	42.24	2.92	20	
2-Hexanone	103.8	2.0	100	0	104	57 - 139	93	11	20	
4-Chlorotoluene	43.08	1.0	50	0	86.2	78 - 122	42	2.55	20	
4-Isopropyltoluene	37.55	1.0	50	0	75.1	77 - 127	37.64	0.245	20	S
4-Methyl-2-pentanone	92.1	2.0	100	0	92.1	67 - 130	82.88	10.5	20	
Acetone	91.94	2.0	100	0	91.9	39 - 160	85.01	7.84	20	
Benzene	43.3	1.0	50	0	86.6	79 - 120	41.71	3.74	20	
Bromobenzene	42.64	1.0	50	0	85.3	80 - 120	41.26	3.29	20	
Bromochloromethane	48.58	1.0	50	0	97.2	78 - 123	46.3	4.81	20	
Bromodichloromethane	44.35	1.0	50	0	88.7	79 - 125	42.13	5.13	20	
Bromoform	46.57	1.0	50	0	93.1	66 - 130	42.92	8.17	20	
Bromomethane	38.41	1.0	50	0	76.8	53 - 141	35.37	8.24	20	

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307234 **Instrument: VOA6** **Method: SW8260**

MSD Sample ID: **HS17120486-03MSD** Units: **ug/L** Analysis Date: **13-Dec-2017 14:43**
Client ID: Run ID: **VOA6_307234** SeqNo: **4351373** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	79.98	2.0	100	0	80.0	64 - 133	77.77	2.8	20	
Carbon tetrachloride	42.93	1.0	50	0	85.9	72 - 136	42.68	0.577	20	
Chlorobenzene	41.7	1.0	50	0	83.4	80 - 120	39.8	4.67	20	
Chloroethane	37.42	1.0	50	0	74.8	82 - 118	36.18	3.38	20	S
Chloroform	40.84	1.0	50	0	81.7	79 - 124	39.82	2.53	20	
Chloromethane	35.84	1.0	50	0	71.7	50 - 139	34.84	2.83	20	
cis-1,2-Dichloroethene	41.99	1.0	50	0	84.0	78 - 123	40.62	3.33	20	
cis-1,3-Dichloropropene	44.33	1.0	50	0	88.7	75 - 124	42.01	5.37	20	
Dibromochloromethane	43.77	1.0	50	0	87.5	74 - 126	41.05	6.43	20	
Dibromomethane	44.56	1.0	50	0	89.1	79 - 123	42.01	5.89	20	
Dichlorodifluoromethane	30.48	1.0	50	0	61.0	32 - 152	29.84	2.13	20	
Ethylbenzene	40.92	1.0	50	0	81.8	79 - 121	39.55	3.41	20	
Hexachlorobutadiene	43.09	1.0	50	0	86.2	66 - 134	42.19	2.13	20	
Isopropylbenzene	40.5	1.0	50	0	81.0	72 - 131	39.28	3.06	20	
m,p-Xylene	80.76	2.0	100	0	80.8	80 - 121	77.96	3.53	20	
Methylene chloride	43.51	2.0	50	0	87.0	74 - 124	42.43	2.52	20	
Naphthalene	48.27	1.0	50	0	96.5	61 - 128	36.71	27.2	20	R
n-Butylbenzene	37.98	1.0	50	0	76.0	75 - 128	37.93	0.131	20	
n-Propylbenzene	42	1.0	50	0	84.0	76 - 126	40.8	2.89	20	
o-Xylene	41.76	1.0	50	0	83.5	78 - 122	39.78	4.85	20	
sec-Butylbenzene	36.83	1.0	50	0	73.7	77 - 126	36.48	0.949	20	S
Styrene	41.53	1.0	50	0	83.1	78 - 128	38.06	8.72	20	
tert-Butylbenzene	41.57	1.0	50	0	83.1	78 - 124	41.31	0.634	20	
Tetrachloroethene	43.31	1.0	50	0	86.6	74 - 129	42.03	2.99	20	
Toluene	41.24	1.0	50	0	82.5	80 - 121	39.82	3.5	20	
trans-1,2-Dichloroethene	42.15	1.0	50	0	84.3	75 - 124	40.86	3.12	20	
trans-1,3-Dichloropropene	44.11	1.0	50	0	88.2	73 - 127	41.58	5.9	20	
Trichlorofluoromethane	40.47	1.0	50	0	80.9	65 - 141	38.95	3.84	20	
Vinyl chloride	35.6	1.0	50	0	71.2	58 - 137	34.48	3.21	20	
Surr: 1,2-Dichloroethane-d4	*45.83*	*1.0*	*50*	*0*	*91.7*	*81 - 118*	*44.87*	*2.13*	*20*	
Surr: 4-Bromofluorobenzene	*53.21*	*1.0*	*50*	*0*	*106*	*85 - 114*	*51.6*	*3.06*	*20*	
Surr: Dibromofluoromethane	*48.39*	*1.0*	*50*	*0*	*96.8*	*80 - 119*	*48.24*	*0.316*	*20*	
Surr: Toluene-d8	*53.19*	*1.0*	*50*	*0*	*106*	*89 - 112*	*52.3*	*1.68*	*20*	

The following samples were analyzed in this batch: HS17120573-03 HS17120573-04

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307380 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-171215** Units: **ug/L** Analysis Date: **15-Dec-2017 14:16**
Client ID: Run ID: **VOA6_307380** SeqNo: **4354925** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307380 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-171215** Units: **ug/L** Analysis Date: **15-Dec-2017 14:16**
Client ID: Run ID: **VOA6_307380** SeqNo: **4354925** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*43.43*	*1.0*	*50*	*0*	*86.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.85*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*48.05*	*1.0*	*50*	*0*	*96.1*	*80 - 119*				
Surr: Toluene-d8	*51.39*	*1.0*	*50*	*0*	*103*	*89 - 112*				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307380 **Instrument: VOA6** **Method: SW8260**

LCS Sample ID: **VLCSW-171215** Units: **ug/L** Analysis Date: **15-Dec-2017 13:01**
Client ID: Run ID: **VOA6_307380** SeqNo: **4354949** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	46.45	1.0	50	0	92.9	78 - 124				
1,1,1-Trichloroethane	43.51	1.0	50	0	87.0	74 - 131				
1,1,2,2-Tetrachloroethane	45.17	1.0	50	0	90.3	71 - 121				
1,1,2-Trichloroethane	45.51	1.0	50	0	91.0	80 - 119				
1,1-Dichloroethane	45.27	1.0	50	0	90.5	77 - 125				
1,1-Dichloroethene	41.39	1.0	50	0	82.8	71 - 131				
1,1-Dichloropropene	43.29	1.0	50	0	86.6	79 - 125				
1,2,3-Trichlorobenzene	50.38	1.0	50	0	101	69 - 129				
1,2,3-Trichloropropane	41.18	1.0	50	0	82.4	73 - 122				
1,2,4-Trichlorobenzene	50.23	1.0	50	0	100	69 - 130				
1,2,4-Trimethylbenzene	47.08	1.0	50	0	94.2	76 - 124				
1,2-Dibromo-3-chloropropane	43	1.0	50	0	86.0	62 - 128				
1,2-Dibromoethane	46.88	1.0	50	0	93.8	77 - 121				
1,2-Dichlorobenzene	45.06	1.0	50	0	90.1	80 - 119				
1,2-Dichloroethane	44.05	1.0	50	0	88.1	73 - 128				
1,2-Dichloropropane	46.83	1.0	50	0	93.7	78 - 122				
1,3,5-Trimethylbenzene	46.4	1.0	50	0	92.8	75 - 124				
1,3-Dichlorobenzene	43.86	1.0	50	0	87.7	80 - 119				
1,3-Dichloropropane	44.47	1.0	50	0	88.9	80 - 119				
1,4-Dichlorobenzene	48.76	1.0	50	0	97.5	79 - 118				
2,2-Dichloropropane	41.59	1.0	50	0	83.2	60 - 139				
2-Butanone	93.02	2.0	100	0	93.0	56 - 143				
2-Chlorotoluene	47.3	1.0	50	0	94.6	79 - 122				
2-Hexanone	91.39	2.0	100	0	91.4	57 - 139				
4-Chlorotoluene	47.44	1.0	50	0	94.9	78 - 122				
4-Isopropyltoluene	42.96	1.0	50	0	85.9	77 - 127				
4-Methyl-2-pentanone	84.38	2.0	100	0	84.4	67 - 130				
Acetone	88.46	2.0	100	0	88.5	39 - 160				
Benzene	47.59	1.0	50	0	95.2	79 - 120				
Bromobenzene	45.05	1.0	50	0	90.1	80 - 120				
Bromochloromethane	51.88	1.0	50	0	104	78 - 123				
Bromodichloromethane	48.08	1.0	50	0	96.2	79 - 125				
Bromoform	46.97	1.0	50	0	93.9	66 - 130				
Bromomethane	43.49	1.0	50	0	87.0	53 - 141				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307380 **Instrument: VOA6** **Method: SW8260**

LCS Sample ID: **VLCSW-171215** Units: **ug/L** Analysis Date: **15-Dec-2017 13:01**
Client ID: Run ID: **VOA6_307380** SeqNo: **4354949** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	88.32	2.0	100	0	88.3	64 - 133				
Carbon tetrachloride	42.65	1.0	50	0	85.3	72 - 136				
Chlorobenzene	46.14	1.0	50	0	92.3	80 - 120				
Chloroethane	42.05	1.0	50	0	84.1	82 - 118				
Chloroform	45.97	1.0	50	0	91.9	79 - 124				
Chloromethane	43.47	1.0	50	0	86.9	50 - 139				
cis-1,2-Dichloroethene	46.69	1.0	50	0	93.4	78 - 123				
cis-1,3-Dichloropropene	47.81	1.0	50	0	95.6	75 - 124				
Dibromochloromethane	45.15	1.0	50	0	90.3	74 - 126				
Dibromomethane	46.33	1.0	50	0	92.7	79 - 123				
Dichlorodifluoromethane	38.58	1.0	50	0	77.2	32 - 152				
Ethylbenzene	43.9	1.0	50	0	87.8	79 - 121				
Hexachlorobutadiene	62.79	1.0	50	0	126	66 - 134				
Isopropylbenzene	43.33	1.0	50	0	86.7	72 - 131				
m,p-Xylene	87.75	2.0	100	0	87.8	80 - 121				
Methylene chloride	49.4	2.0	50	0	98.8	74 - 124				
Naphthalene	51.7	1.0	50	0	103	61 - 128				
n-Butylbenzene	45.13	1.0	50	0	90.3	75 - 128				
n-Propylbenzene	44.14	1.0	50	0	88.3	76 - 126				
o-Xylene	45.25	1.0	50	0	90.5	78 - 122				
sec-Butylbenzene	40.88	1.0	50	0	81.8	77 - 126				
Styrene	47.69	1.0	50	0	95.4	78 - 128				
tert-Butylbenzene	45.31	1.0	50	0	90.6	78 - 124				
Tetrachloroethene	44.24	1.0	50	0	88.5	74 - 129				
Toluene	45.06	1.0	50	0	90.1	80 - 121				
trans-1,2-Dichloroethene	46.38	1.0	50	0	92.8	75 - 124				
trans-1,3-Dichloropropene	46.71	1.0	50	0	93.4	73 - 127				
Trichloroethene	46.99	1.0	50	0	94.0	79 - 123				
Trichlorofluoromethane	38.13	1.0	50	0	76.3	65 - 141				
Vinyl chloride	39.67	1.0	50	0	79.3	58 - 137				
Surr: 1,2-Dichloroethane-d4	*43.97*	*1.0*	*50*	*0*	*87.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.51*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*47.31*	*1.0*	*50*	*0*	*94.6*	*80 - 119*				
Surr: Toluene-d8	*51.91*	*1.0*	*50*	*0*	*104*	*89 - 112*				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307380 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS17120573-05MS** Units: **ug/L** Analysis Date: **15-Dec-2017 16:20**
Client ID: **18WW24_120717** Run ID: **VOA6_307380** SeqNo: **4354930** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	39.93	1.0	50	0	79.9	78 - 124				
1,1,1-Trichloroethane	41.09	1.0	50	0	82.2	74 - 131				
1,1,2,2-Tetrachloroethane	43.94	1.0	50	0	87.9	71 - 121				
1,1,2-Trichloroethane	41.52	1.0	50	0	83.0	80 - 119				
1,1-Dichloroethane	38.95	1.0	50	0	77.9	77 - 125				
1,1-Dichloroethene	38.73	1.0	50	0	77.5	71 - 131				
1,1-Dichloropropene	41.76	1.0	50	0	83.5	79 - 125				
1,2,3-Trichlorobenzene	32.7	1.0	50	0	65.4	69 - 129				S
1,2,3-Trichloropropane	40.01	1.0	50	0	80.0	73 - 122				
1,2,4-Trichlorobenzene	34.72	1.0	50	0	69.4	69 - 130				
1,2,4-Trimethylbenzene	39.57	1.0	50	0	79.1	76 - 124				
1,2-Dibromo-3-chloropropane	37.96	1.0	50	0	75.9	62 - 128				
1,2-Dibromoethane	43.18	1.0	50	0	86.4	77 - 121				
1,2-Dichlorobenzene	37.69	1.0	50	0	75.4	80 - 119				S
1,2-Dichloroethane	39.58	1.0	50	0	79.2	73 - 128				
1,2-Dichloropropane	40.9	1.0	50	0	81.8	78 - 122				
1,3,5-Trimethylbenzene	39.25	1.0	50	0	78.5	75 - 124				
1,3-Dichlorobenzene	36.49	1.0	50	0	73.0	80 - 119				S
1,3-Dichloropropane	40.48	1.0	50	0	81.0	80 - 119				
1,4-Dichlorobenzene	40.56	1.0	50	0	81.1	79 - 118				
2,2-Dichloropropane	38.2	1.0	50	0	76.4	60 - 139				
2-Butanone	88.51	2.0	100	0	88.5	56 - 143				
2-Chlorotoluene	40.2	1.0	50	0	80.4	79 - 122				
2-Hexanone	93.04	2.0	100	0	93.0	57 - 139				
4-Chlorotoluene	40.31	1.0	50	0	80.6	78 - 122				
4-Isopropyltoluene	35.61	1.0	50	0	71.2	77 - 127				S
4-Methyl-2-pentanone	82.73	2.0	100	0	82.7	67 - 130				
Acetone	82.84	2.0	100	0	82.8	39 - 160				
Benzene	41.15	1.0	50	0	82.3	79 - 120				
Bromobenzene	39.66	1.0	50	0	79.3	80 - 120				S
Bromochloromethane	48.39	1.0	50	0	96.8	78 - 123				
Bromodichloromethane	41.81	1.0	50	0	83.6	79 - 125				
Bromoform	43.71	1.0	50	0	87.4	66 - 130				
Bromomethane	35.66	1.0	50	0	71.3	53 - 141				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307380 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS17120573-05MS** Units: **ug/L** Analysis Date: **15-Dec-2017 16:20**
Client ID: **18WW24_120717** Run ID: **VOA6_307380** SeqNo: **4354930** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	77.7	2.0	100	0	77.7	64 - 133				
Carbon tetrachloride	41.9	1.0	50	0	83.8	72 - 136				
Chlorobenzene	39.35	1.0	50	0	78.7	80 - 120				S
Chloroethane	35.29	1.0	50	0	70.6	82 - 118				S
Chloroform	39.42	1.0	50	0	78.8	79 - 124				S
Chloromethane	32	1.0	50	0	64.0	50 - 139				
cis-1,2-Dichloroethene	40.02	1.0	50	0	80.0	78 - 123				
cis-1,3-Dichloropropene	41.76	1.0	50	0	83.5	75 - 124				
Dibromochloromethane	40.53	1.0	50	0	81.1	74 - 126				
Dibromomethane	41.8	1.0	50	0	83.6	79 - 123				
Dichlorodifluoromethane	26.66	1.0	50	0	53.3	32 - 152				
Ethylbenzene	38.39	1.0	50	0	76.8	79 - 121				S
Hexachlorobutadiene	42.19	1.0	50	0	84.4	66 - 134				
Isopropylbenzene	38.05	1.0	50	0	76.1	72 - 131				
m,p-Xylene	75.57	2.0	100	0	75.6	80 - 121				S
Methylene chloride	42.69	2.0	50	0	85.4	74 - 124				
Naphthalene	34.82	1.0	50	0	69.6	61 - 128				
n-Butylbenzene	36.05	1.0	50	0	72.1	75 - 128				S
n-Propylbenzene	39.27	1.0	50	0	78.5	76 - 126				
o-Xylene	38.54	1.0	50	0	77.1	78 - 122				S
sec-Butylbenzene	35.01	1.0	50	0	70.0	77 - 126				S
Styrene	40.78	1.0	50	0	81.6	78 - 128				
tert-Butylbenzene	39.54	1.0	50	0	79.1	78 - 124				
Tetrachloroethene	41.29	1.0	50	0	82.6	74 - 129				
Toluene	39.18	1.0	50	0	78.4	80 - 121				S
trans-1,2-Dichloroethene	40.46	1.0	50	0	80.9	75 - 124				
trans-1,3-Dichloropropene	41.63	1.0	50	0	83.3	73 - 127				
Trichloroethene	42.8	1.0	50	0	85.6	79 - 123				
Trichlorofluoromethane	40.85	1.0	50	0	81.7	65 - 141				
Vinyl chloride	33.25	1.0	50	0	66.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.37*	*1.0*	*50*	*0*	*90.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.82*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*48.46*	*1.0*	*50*	*0*	*96.9*	*80 - 119*				
Surr: Toluene-d8	*51.88*	*1.0*	*50*	*0*	*104*	*89 - 112*				

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307380 **Instrument: VOA6** **Method: SW8260**

MSD Sample ID: **HS17120573-05MSD** Units: **ug/L** Analysis Date: **15-Dec-2017 16:45**
Client ID: **18WW24_120717** Run ID: **VOA6_307380** SeqNo: **4354931** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	41.29	1.0	50	0	82.6	78 - 124	39.93	3.33	20	
1,1,1-Trichloroethane	40.82	1.0	50	0	81.6	74 - 131	41.09	0.667	20	
1,1,2,2-Tetrachloroethane	47.91	1.0	50	0	95.8	71 - 121	43.94	8.64	20	
1,1,2-Trichloroethane	44.1	1.0	50	0	88.2	80 - 119	41.52	6.02	20	
1,1-Dichloroethane	40.55	1.0	50	0	81.1	77 - 125	38.95	4.03	20	
1,1-Dichloroethene	37.57	1.0	50	0	75.1	71 - 131	38.73	3.05	20	
1,1-Dichloropropene	41.42	1.0	50	0	82.8	79 - 125	41.76	0.812	20	
1,2,3-Trichlorobenzene	44.91	1.0	50	0	89.8	69 - 129	32.7	31.5	20	R
1,2,3-Trichloropropane	43.57	1.0	50	0	87.1	73 - 122	40.01	8.51	20	
1,2,4-Trichlorobenzene	44.07	1.0	50	0	88.1	69 - 130	34.72	23.7	20	R
1,2,4-Trimethylbenzene	40.81	1.0	50	0	81.6	76 - 124	39.57	3.07	20	
1,2-Dibromo-3-chloropropane	47.29	1.0	50	0	94.6	62 - 128	37.96	21.9	20	R
1,2-Dibromoethane	46.69	1.0	50	0	93.4	77 - 121	43.18	7.82	20	
1,2-Dichlorobenzene	41.01	1.0	50	0	82.0	80 - 119	37.69	8.44	20	
1,2-Dichloroethane	43.35	1.0	50	0	86.7	73 - 128	39.58	9.1	20	
1,2-Dichloropropane	42.76	1.0	50	0	85.5	78 - 122	40.9	4.45	20	
1,3,5-Trimethylbenzene	40.02	1.0	50	0	80.0	75 - 124	39.25	1.94	20	
1,3-Dichlorobenzene	38.2	1.0	50	0	76.4	80 - 119	36.49	4.59	20	S
1,3-Dichloropropane	43.71	1.0	50	0	87.4	80 - 119	40.48	7.67	20	
1,4-Dichlorobenzene	43.59	1.0	50	0	87.2	79 - 118	40.56	7.22	20	
2,2-Dichloropropane	38.7	1.0	50	0	77.4	60 - 139	38.2	1.29	20	
2-Butanone	106.9	2.0	100	0	107	56 - 143	88.51	18.8	20	
2-Chlorotoluene	41.09	1.0	50	0	82.2	79 - 122	40.2	2.17	20	
2-Hexanone	104.9	2.0	100	0	105	57 - 139	93.04	12	20	
4-Chlorotoluene	41.09	1.0	50	0	82.2	78 - 122	40.31	1.92	20	
4-Isopropyltoluene	36.77	1.0	50	0	73.5	77 - 127	35.61	3.21	20	S
4-Methyl-2-pentanone	95.46	2.0	100	0	95.5	67 - 130	82.73	14.3	20	
Acetone	99.16	2.0	100	0	99.2	39 - 160	82.84	17.9	20	
Benzene	42.26	1.0	50	0	84.5	79 - 120	41.15	2.66	20	
Bromobenzene	41.23	1.0	50	0	82.5	80 - 120	39.66	3.87	20	
Bromochloromethane	51.05	1.0	50	0	102	78 - 123	48.39	5.34	20	
Bromodichloromethane	44.66	1.0	50	0	89.3	79 - 125	41.81	6.61	20	
Bromoform	47.35	1.0	50	0	94.7	66 - 130	43.71	7.98	20	
Bromomethane	36.65	1.0	50	0	73.3	53 - 141	35.66	2.76	20	

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307380 **Instrument: VOA6** **Method: SW8260**

MSD Sample ID: **HS17120573-05MSD** Units: **ug/L** Analysis Date: **15-Dec-2017 16:45**
Client ID: **18WW24_120717** Run ID: **VOA6_307380** SeqNo: **4354931** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	77.65	2.0	100	0	77.7	64 - 133	77.7	0.0655	20	
Carbon tetrachloride	41.18	1.0	50	0	82.4	72 - 136	41.9	1.74	20	
Chlorobenzene	40.31	1.0	50	0	80.6	80 - 120	39.35	2.41	20	
Chloroethane	36.01	1.0	50	0	72.0	82 - 118	35.29	2.03	20	S
Chloroform	41.67	1.0	50	0	83.3	79 - 124	39.42	5.54	20	
Chloromethane	32.51	1.0	50	0	65.0	50 - 139	32	1.58	20	
cis-1,2-Dichloroethene	41.82	1.0	50	0	83.6	78 - 123	40.02	4.41	20	
cis-1,3-Dichloropropene	44.81	1.0	50	0	89.6	75 - 124	41.76	7.06	20	
Dibromochloromethane	43.69	1.0	50	0	87.4	74 - 126	40.53	7.52	20	
Dibromomethane	45.7	1.0	50	0	91.4	79 - 123	41.8	8.91	20	
Dichlorodifluoromethane	24.6	1.0	50	0	49.2	32 - 152	26.66	8.04	20	
Ethylbenzene	39.28	1.0	50	0	78.6	79 - 121	38.39	2.3	20	S
Hexachlorobutadiene	46.62	1.0	50	0	93.2	66 - 134	42.19	9.99	20	
Isopropylbenzene	39.02	1.0	50	0	78.0	72 - 131	38.05	2.51	20	
m,p-Xylene	77.11	2.0	100	0	77.1	80 - 121	75.57	2.03	20	S
Methylene chloride	45.52	2.0	50	0	91.0	74 - 124	42.69	6.42	20	
Naphthalene	49.62	1.0	50	0	99.2	61 - 128	34.82	35	20	R
n-Butylbenzene	37.65	1.0	50	0	75.3	75 - 128	36.05	4.34	20	
n-Propylbenzene	39.54	1.0	50	0	79.1	76 - 126	39.27	0.67	20	
o-Xylene	39.89	1.0	50	0	79.8	78 - 122	38.54	3.43	20	
sec-Butylbenzene	35.81	1.0	50	0	71.6	77 - 126	35.01	2.27	20	S
Styrene	42.15	1.0	50	0	84.3	78 - 128	40.78	3.31	20	
tert-Butylbenzene	39.86	1.0	50	0	79.7	78 - 124	39.54	0.794	20	
Tetrachloroethene	40.7	1.0	50	0	81.4	74 - 129	41.29	1.43	20	
Toluene	39.49	1.0	50	0	79.0	80 - 121	39.18	0.791	20	S
trans-1,2-Dichloroethene	41.37	1.0	50	0	82.7	75 - 124	40.46	2.24	20	
trans-1,3-Dichloropropene	46.26	1.0	50	0	92.5	73 - 127	41.63	10.5	20	
Trichloroethene	43.06	1.0	50	0	86.1	79 - 123	42.8	0.603	20	
Trichlorofluoromethane	39.38	1.0	50	0	78.8	65 - 141	40.85	3.66	20	
Vinyl chloride	32.94	1.0	50	0	65.9	58 - 137	33.25	0.925	20	
Surr: 1,2-Dichloroethane-d4	*48.09*	*1.0*	*50*	*0*	*96.2*	*81 - 118*	*45.37*	*5.82*	*20*	
Surr: 4-Bromofluorobenzene	*51.99*	*1.0*	*50*	*0*	*104*	*85 - 114*	*51.82*	*0.323*	*20*	
Surr: Dibromofluoromethane	*49.96*	*1.0*	*50*	*0*	*99.9*	*80 - 119*	*48.46*	*3.05*	*20*	
Surr: Toluene-d8	*51.35*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.88*	*1.04*	*20*	

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

QC BATCH REPORT

Batch ID: R307380 **Instrument: VOA6** **Method: SW8260**

The following samples were analyzed in this batch:

HS17120573-01	HS17120573-02	HS17120573-03	HS17120573-04
HS17120573-05	HS17120573-06	HS17120573-07	HS17120573-08
HS17120573-09	HS17120573-10		

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: **HS17120573**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

ALS Group USA, Corp Date: 28-Dec-17

CERTIFICATIONS,ACCREDITATIONS & LICENSES

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

ALS Group USA, Corp Date: 28-Dec-17

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
Work Order: HS17120573

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS17120573-01	18CPTMW24_120717	Login	12/11/2017 5:21:12 PM	CL	Sub
HS17120573-01	18CPTMW24_120717	Login	12/11/2017 5:21:12 PM	CL	MET019
HS17120573-01	18CPTMW24_120717	Login	12/11/2017 5:21:12 PM	CL	VOA071
HS17120573-02	18CPTMW14_120717	Login	12/11/2017 5:21:12 PM	CL	Sub
HS17120573-02	18CPTMW14_120717	Login	12/11/2017 5:21:12 PM	CL	MET019
HS17120573-02	18CPTMW14_120717	Login	12/11/2017 5:21:12 PM	CL	VOA071
HS17120573-03	18CPTMW14_120717_a	Login	12/11/2017 5:21:12 PM	CL	Sub
HS17120573-03	18CPTMW14_120717_a	Login	12/11/2017 5:21:12 PM	CL	MET019
HS17120573-03	18CPTMW14_120717_a	Login	12/11/2017 5:21:12 PM	CL	VOA071
HS17120573-04	18CPTMW23_120717	Login	12/11/2017 5:21:12 PM	CL	Sub
HS17120573-04	18CPTMW23_120717	Login	12/11/2017 5:21:12 PM	CL	MET019
HS17120573-04	18CPTMW23_120717	Login	12/11/2017 5:21:12 PM	CL	VOA071
HS17120573-05	18WW24_120717	Login	12/11/2017 5:21:12 PM	CL	Sub
HS17120573-05	18WW24_120717	Login	12/11/2017 5:21:12 PM	CL	VOA071
HS17120573-06	18WW25_120717	Login	12/11/2017 5:21:12 PM	CL	Sub
HS17120573-06	18WW25_120717	Login	12/11/2017 5:21:12 PM	CL	MET019
HS17120573-06	18WW25_120717	Login	12/11/2017 5:21:12 PM	CL	VOA071
HS17120573-07	MW16_120817	Login	12/11/2017 5:21:12 PM	CL	Sub
HS17120573-07	MW16_120817	Login	12/11/2017 5:21:12 PM	CL	MET019
HS17120573-07	MW16_120817	Login	12/11/2017 5:21:12 PM	CL	VOA071
HS17120573-08	18WW06_120817	Login	12/11/2017 5:21:12 PM	CL	Sub
HS17120573-08	18WW06_120817	Login	12/11/2017 5:21:12 PM	CL	VOA071
HS17120573-09	18WW02_120817	Login	12/11/2017 5:21:12 PM	CL	Sub
HS17120573-09	18WW02_120817	Login	12/11/2017 5:21:12 PM	CL	VOA071
HS17120573-10	Trip Blank	Login	12/11/2017 5:21:12 PM	CL	VOA071

ALS Group USA, Corp Date: 28-Dec-17

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS17120573
Date/Time Received: **09-Dec-2017 09:50**
Received by: **JRM**

Checklist completed by: *Cesar A. Lira* eSignature 11-Dec-2017 Date
Reviewed by: *Sonia West* eSignature 12-Dec-2017 Date

Matrices: **WATER**
Carrier name: **FedEx First Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
TX1005 solids received in hermetically sealed vials?	Yes ☐	No ☐	N/A ☑
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.0C/1.3C UC/C	IR25	
Cooler(s)/Kit(s):	3702		
Date/Time sample(s) sent to storage:	12/11/2017 18:00		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: Samples refrigerated prior to login.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: 1 of 1

Project/Phase No: NWO1312.0150

COC Number(1):

LIMS Number:

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 18/24

Client Name:

Collected by: Scott Beesinger

Sample Analysis Requested (5) | Quality Assurance Samples (6)

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	PERCHLORATE	TOTAL METALS	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
18CPTMW24_120717		07 DEC 2017	0900	-			WG	5	X	X	X				
18CPTMW14_120717		07 DEC 2017	1000	-			WG	5	X	X	X				
18CPTMW14_120717_a		07 DEC 2017	1000	-			WG	5	X	X	X				
18CPTMW23_120717		07 DEC 2017	1105				WG	4	X	X					
18WW24_120717		07 DEC 2017	1345				WG	5	X	X	X				
18WW25_120717		07 DEC 2017	1435	-			WG	5	X	X	X				
MW16_120817		08 DEC 2017	0835	-			WG	4	X	X					
18WW06_120817		08 DEC 2017	0950	-			WG	4	X	X					
18WW02_120817		08 DEC 2017	1045	-			WG	5	X	X	X				
TRIP BLANK		08 DEC 2017		-			W	2	X						
				-											

HS17120573
Bhate Environmental Associates, Inc.
LHAAP Site 18/24

COMMENTS:

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/8/17	12:00	1. JM	~~[illegible]~~ 12.9.17 (C)	0950
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

Method of Shipment:

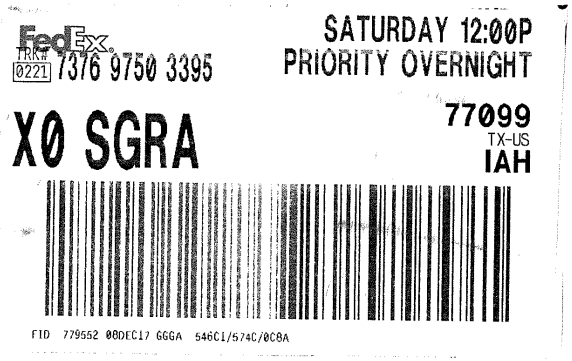
Fed Ex Airbill Number:

Analytical Lab: ALS 10450 Stancliff Rd, Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

Cooler: 3702 1.0c
1m25 CSC+03

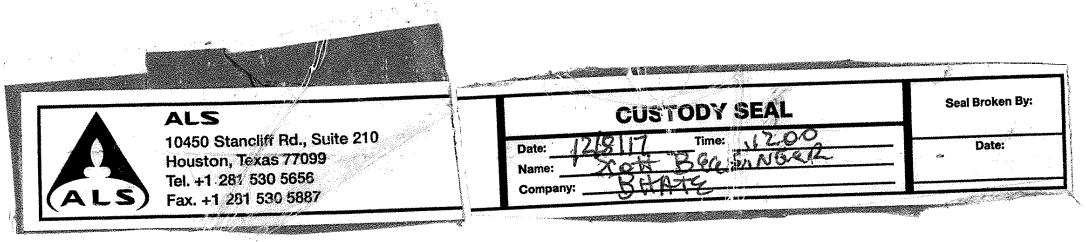

FedEx
TRK# 0221 7376 9750 3395

SATURDAY 12:00P
PRIORITY OVERNIGHT

77099
TX-US
IAH

X0 SGRA

FID 779552 08DEC17 GGGA 546C1/574C/0C8A


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 12/8/17 Time: 12:00
Name: SCOTT BERGINGER
Company: BHATE

Seal Broken By:

Date:

Volatile Organics Raw Data

Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
ALS WO# HS17120573

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-171213	95	88	102	100	0
02	VBLKW-0171213	96	91	104	103	0
03	HS17120486-03	96	90	105	103	0
04	HS17120486-03	97	92	106	106	0
05	HS17120573-03	95	92	107	105	0
06	HS17120573-04	101	97	102	103	0
07						
08						
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28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(71-125)
SMC3 (TOL)	= Toluene-d8	(78-123)
OTHER	= 4-Bromofluorobenzene	(70-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER #	TOT OUT
01	VLCSW-171215	95	88	104	103	0
02	VBLKW-0171215	96	87	103	102	0
03	HS17120573-10	94	86	102	101	0
04	HS17120573-05	96	90	104	103	0
05	HS17120573-07	95	88	104	103	0
06	HS17120573-02	94	88	104	103	0
07	HS17120573-05	97	91	104	104	0
08	HS17120573-05	100	96	103	104	0
09	HS17120573-04	96	89	104	104	0
10	HS17120573-03	97	90	103	103	0
11	HS17120573-07	96	89	103	102	0
12	HS17120573-02	97	90	104	103	0
13	HS17120573-06	95	89	104	103	0
14	HS17120573-08	97	89	103	102	0
15	HS17120573-09	96	88	102	102	0
16	HS17120573-01	93	90	104	102	0
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(74-125)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(71-125)
SMC3 (TOL)	= Toluene-d8	(78-123)
OTHER	= 4-Bromofluorobenzene	(70-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Matrix Spike - Sample No.: VSTD-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Bromochloromethane	50.00	50.11	100	80-120
Vinyl Chloride	50.00	48.72	97	80-120
Chloromethane	50.00	47.84	96	80-120
Bromomethane	50.00	51.19	102	80-120
Chloroethane	50.00	48.63	97	80-120
Methylene Chloride	50.00	48.37	97	80-120
Acetone	100.00	93.55	94	80-120
Carbon Disulfide	100.00	94.09	94	80-120
1,1-Dichloroethene	50.00	48.21	96	80-120
trans-1,2-Dichloroethen	50.00	48.12	96	80-120
Carbon Tetrachloride	50.00	48.57	97	80-120
Bromodichloromethane	50.00	46.08	92	80-120
1,1-Dichloroethane	50.00	45.86	92	80-120
1,2-Dichloropropane	50.00	45.43	91	80-120
2-Butanone	100.00	94.22	94	80-120
cis-1,3-Dichloropropene	50.00	45.33	91	80-120
Dibromochloromethane	50.00	43.12	86	80-120
1,1,2-Trichloroethane	50.00	43.24	86	80-120
cis-1,2-Dichloroethene	50.00	46.51	93	80-120
Benzene	50.00	45.97	92	80-120
Chloroform	50.00	45.56	91	80-120
trans-1,3-Dichloroprope	50.00	44.84	90	80-120
Bromoform	50.00	43.36	87	80-120
1,1,1-Trichloroethane	50.00	47.11	94	80-120
4-Methyl-2-Pentanone	100.00	81.65	82	80-120
2-Hexanone	100.00	90.37	90	80-120
1,2-Dichloroethane	50.00	44.55	89	80-120
1,1,2,2-Tetrachloroetha	50.00	47.49	95	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Matrix Spike - Sample No.: VSTD-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Trichloroethene	50.00	46.61	93	80-120
Toluene	50.00	43.08	86	80-120
Dichlorodifluoromethane	50.00	53.36	107	80-120
Trichlorofluoromethane	50.00	52.34	105	80-120
Tetrachloroethene	50.00	46.39	93	80-120
1,2-Dibromoethane	50.00	44.45	89	80-120
Chlorobenzene	50.00	45.40	91	80-120
1,3-Dichlorobenzene	50.00	41.26	82	80-120
1,4-Dichlorobenzene	50.00	46.67	93	80-120
Ethylbenzene	50.00	45.53	91	80-120
1,2-Dichlorobenzene	50.00	42.31	85	80-120
m,p-Xylenes	100.00	89.02	89	80-120
o-Xylene	50.00	42.08	84	80-120
Styrene	50.00	44.14	88	80-120
2,2-Dichloropropane	50.00	46.16	92	80-120
1,1-Dichloropropene	50.00	47.86	96	80-120
Dibromomethane	50.00	45.52	91	80-120
1,3-Dichloropropane	50.00	43.71	87	80-120
1,1,1,2-Tetrachloroetha	50.00	45.18	90	80-120
Isopropylbenzene	50.00	41.42	83	80-120
Bromobenzene	50.00	43.16	86	80-120
1,2,3-Trichloropropane	50.00	44.45	89	80-120
n-Propylbenzene	50.00	46.32	93	80-120
2-Chlorotoluene	50.00	47.46	95	80-120
1,3,5-Trimethylbenzene	50.00	45.71	91	80-120
4-Chlorotoluene	50.00	46.42	93	80-120
tert-Butylbenzene	50.00	45.59	91	80-120
1,2,4-Trimethylbenzene	50.00	45.96	92	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Matrix Spike - Sample No.: VSTD-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
sec-Butylbenzene	50.00	42.21	84	80-120
p-Isopropyltoluene	50.00	42.07	84	80-120
n-Butylbenzene	50.00	46.59	93	80-120
1,2-Dibromo-3-Chloropro	50.00	42.38	85	80-120
1,2,4-Trichlorobenzene	50.00	43.79	88	80-120
Hexachlorobutadiene	50.00	52.84	106	80-120
Naphthalene	50.00	45.17	90	80-120
1,2,3-Trichlorobenzene	50.00	42.55	85	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Lab File ID: X120401 BFB Injection Date: 12/04/17

Instrument ID: VOA6 BFB Injection Time: 1034

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.5
75	30.0 - 60.0% of mass 95	47.8
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.6 (0.8)1
174	Greater than 50.0% of mass 95	75.9
175	5.0 - 9.0% of mass 174	5.4 (7.1)1
176	95.0 - 101.0% of mass 174	74.8 (98.6)1
177	5.0 - 9.0% of mass 176	4.8 (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
01	VSTD000.5	VSTD000.5	X120403	12/04/17	1134
02	VSTD001	VSTD001	X120404	12/04/17	1224
03	VSTD002	VSTD002	X120405	12/04/17	1249
04	VSTD005	VSTD005	X120406	12/04/17	1313
05	VSTD020	VSTD020	X120407	12/04/17	1338
06	VSTD050	VSTD050	X120408	12/04/17	1403
07	VSTD100	VSTD100	X120409	12/04/17	1428
08	VSTD150	VSTD150	X120410	12/04/17	1452
09	VSTD200	VSTD200	X120411	12/04/17	1517
10	VSTD-ICV	VSTD-ICV	X120414	12/04/17	1632
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
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FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

LAB FILE ID: RF0.5: X120403 RF1: X120404 RF2: X120405
RF5: X120406 RF20: X120407 RF50: X120408

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Bromochloromethane	1301	2153	4229	9806	33389	80360
Vinyl Chloride	0.832	0.823	0.771	0.737	0.610	0.689
Chloromethane	0.899	0.958	0.874	0.772	0.679	0.735
Bromomethane	0.521	0.480	0.513	0.457	0.384	0.421
Chloroethane	0.494	0.459	0.453	0.396	0.362	0.414
Methylene Chloride	3056	6341	10133	22892	71507	180238
Acetone	3611	4847	7138	13572	39992	90875
Carbon Disulfide	1.872	1.786	1.749	1.582	1.299	1.459
1,1-Dichloroethene	0.599	0.560	0.586	0.518	0.435	0.486
trans-1,2-Dichloroethene	0.643	0.594	0.623	0.582	0.494	0.543
Carbon Tetrachloride	0.443	0.420	0.429	0.390	0.324	0.359
Bromodichloromethane	0.606	0.559	0.546	0.520	0.454	0.480
1,1-Dichloroethane	1.290	1.326	1.163	1.094	0.981	1.033
1,2-Dichloropropane	0.501	0.438	0.431	0.394	0.366	0.366
2-Butanone	0.217	0.270	0.235	0.247	0.244	0.253
cis-1,3-Dichloropropene	0.714	0.707	0.651	0.642	0.562	0.580
Dibromochloromethane	0.520	0.536	0.459	0.458	0.409	0.393
1,1,2-Trichloroethane	0.372	0.335	0.366	0.338	0.299	0.316
cis-1,2-Dichloroethene	0.726	0.782	0.710	0.648	0.590	0.623
Benzene	1.690	1.644	1.474	1.441	1.254	1.327
Chloroform	1.277	1.222	1.175	1.099	0.967	1.010
trans-1,3-Dichloropropene	0.641	0.594	0.617	0.540	0.494	0.532
Bromoform	0.312	0.292	0.288	0.280	0.255	0.256
1,1,1-Trichloroethane	0.903	0.877	0.897	0.818	0.684	0.759
4-Methyl-2-Pentanone	0.506	0.430	0.480	0.424	0.403	0.376
2-Hexanone	0.415	0.396	0.384	0.382	0.366	0.367
1,2-Dichloroethane	0.679	0.612	0.541	0.529	0.466	0.488
1,1,2,2-Tetrachloroethane	2797	4996	9539	24724	81404	193227
Trichloroethene	0.390	0.356	0.372	0.338	0.294	0.316
Toluene	1.872	1.777	1.845	1.566	1.396	1.448
Dichlorodifluoromethane	0.526	0.439	0.552	0.497	0.378	0.497
Trichlorofluoromethane	0.770	0.653	0.774	0.672	0.556	0.681
Tetrachloroethene	0.286	0.239	0.285	0.242	0.202	0.227
1,2-Dibromoethane	0.428	0.418	0.404	0.388	0.358	0.350
Chlorobenzene	1.160	1.120	1.052	0.985	0.893	0.908
1,3-Dichlorobenzene	1.595	1.725	1.463	1.367	1.229	1.212
1,4-Dichlorobenzene	3391	6725	11635	29989	97637	253361
Ethylbenzene	0.577	0.570	0.518	0.488	0.423	0.440
1,2-Dichlorobenzene	1.434	1.704	1.378	1.364	1.156	1.201
m,p-Xylenes	0.693	0.671	0.636	0.586	0.512	0.528
o-Xylene	0.681	0.670	0.623	0.580	0.526	0.537
Styrene	1.182	1.153	1.078	1.059	0.973	1.000
2,2-Dichloropropane	1.023	1.042	0.962	0.850	0.724	0.805
1,1-Dichloropropene	0.500	0.519	0.503	0.440	0.367	0.416

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712057

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

LAB FILE ID: RF0.5: X120403 RF1: X120404 RF2: X120405
RF5: X120406 RF20: X120407 RF50: X120408

COMPOUND	RF0.5	RF1	RF2	RF5	RF20	RF50
Dibromomethane	0.307	0.273	0.252	0.257	0.230	0.234
1,3-Dichloropropane	0.792	0.795	0.779	0.708	0.630	0.669
1,1,1,2-Tetrachloroethane	0.422	0.413	0.374	0.361	0.326	0.328
Isopropylbenzene	1.229	1.370	1.247	1.139	0.985	1.032
Bromobenzene	1.098	1.077	0.933	0.916	0.778	0.820
1,2,3-Trichloropropane	1.595	1.434	1.349	1.378	1.168	1.182
n-Propylbenzene	7180	14911	26888	66662	210434	543610
2-Chlorotoluene	4501	11293	18394	45763	149733	380992
1,3,5-Trimethylbenzene	5073	10498	17497	46063	144848	373055
4-Chlorotoluene	5835	12435	21715	56039	172685	450798
tert-Butylbenzene	3538	7255	12489	31609	111001	264880
1,2,4-Trimethylbenzene	5307	10904	18804	46656	171210	403355
sec-Butylbenzene	2.486	2.426	2.130	2.015	1.755	1.775
p-Isopropyltoluene	2.126	2.162	1.889	1.705	1.530	1.584
n-Butylbenzene	1.435	1.714	1.457	1.382	1.240	1.388
1,2-Dibromo-3-Chloropropane	0.158	0.144	0.141	0.138	0.121	0.128
1,2,4-Trichlorobenzene	345	1060	2320	8175	33731	87045
Hexachlorobutadiene	307	674	1825	4245	11677	31516
Naphthalene	1819	4149	6458	16391	84834	235418
1,2,3-Trichlorobenzene	411	1132	1695	6192	25883	66722
Dibromofluoromethane	2995	3914	8330	21067	78949	185772
1,2-Dichloroethane-d4	4185	5683	10983	26603	100528	237722
Toluene-d8	11184	14151	31479	72459	272481	652586
4-Bromofluorobenzene	4203	5522	10824	26717	97863	233818

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712057

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

LAB FILE ID: RF100: X120409 RF150: X120410 RF200: X120411

COMPOUND	RF100	RF150	RF200
Bromochloromethane	152708	212980	292625
Vinyl Chloride	0.718	0.730	0.712
Chloromethane	0.771	0.761	0.789
Bromomethane	0.430	0.432	0.440
Chloroethane	0.420	0.411	0.405
Methylene Chloride	359875	506476	694800
Acetone	182637	267969	361044
Carbon Disulfide	1.497	1.486	1.447
1,1-Dichloroethene	0.480	0.480	0.465
trans-1,2-Dichloroethene	0.561	0.548	0.551
Carbon Tetrachloride	0.371	0.355	0.354
Bromodichloromethane	0.488	0.453	0.476
1,1-Dichloroethane	1.058	1.030	1.024
1,2-Dichloropropane	0.371	0.352	0.369
2-Butanone	0.262	0.258	0.270
cis-1,3-Dichloropropene	0.585	0.583	0.607
Dibromochloromethane	0.411	0.358	0.441
1,1,2-Trichloroethane	0.308	0.263	0.314
cis-1,2-Dichloroethene	0.634	0.612	0.613
Benzene	1.343	1.278	1.326
Chloroform	1.030	0.997	1.020
trans-1,3-Dichloropropene	0.515	0.462	0.518
Bromoform	0.267	0.239	0.285
1,1,1-Trichloroethane	0.785	0.780	0.774
4-Methyl-2-Pentanone	0.410	0.388	0.435
2-Hexanone	0.388	0.358	0.413
1,2-Dichloroethane	0.496	0.468	0.493
1,1,2,2-Tetrachloroethane	399608	575153	787284
Trichloroethene	0.321	0.307	0.313
Toluene	1.512	1.300	1.538
Dichlorodifluoromethane	0.508	0.531	0.503
Trichlorofluoromethane	0.680	0.695	0.657
Tetrachloroethene	0.230	0.211	0.227
1,2-Dibromoethane	0.367	0.316	0.352
Chlorobenzene	0.958	0.882	0.929
1,3-Dichlorobenzene	1.220	1.155	1.254
1,4-Dichlorobenzene	509536	726487	1008432
Ethylbenzene	0.467	0.436	0.456
1,2-Dichlorobenzene	1.220	1.162	1.262
m,p-Xylenes	0.563	0.520	0.542
o-Xylene	0.571	0.509	0.562
Styrene	1.060	0.942	1.010
2,2-Dichloropropane	0.824	0.819	0.816
1,1-Dichloropropene	0.430	0.416	0.420

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712057

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

LAB FILE ID: RF100: X120409 RF150: X120410 RF200: X120411

COMPOUND	RF100	RF150	RF200
Dibromomethane	0.239	0.221	0.229
1,3-Dichloropropane	0.644	0.556	0.683
1,1,1,2-Tetrachloroethane	0.338	0.320	0.338
Isopropylbenzene	1.109	1.002	1.161
Bromobenzene	0.832	0.782	0.859
1,2,3-Trichloropropane	1.248	1.198	1.279
n-Propylbenzene	1159416	1664464	2219188
2-Chlorotoluene	788760	1114234	1527940
1,3,5-Trimethylbenzene	778968	1118942	1525239
4-Chlorotoluene	937994	1335693	1835422
tert-Butylbenzene	549903	808476	1072881
1,2,4-Trimethylbenzene	829267	1192916	1638094
sec-Butylbenzene	1.868	1.811	1.887
p-Isopropyltoluene	1.629	1.568	1.646
n-Butylbenzene	1.422	1.374	1.426
1,2-Dibromo-3-Chloropropane	0.127	0.125	0.134
1,2,4-Trichlorobenzene	188818	277618	393710
Hexachlorobutadiene	58518	89042	123984
Naphthalene	565219	850255	1215604
1,2,3-Trichlorobenzene	152500	227515	320961
Dibromofluoromethane	379572	535487	707188
1,2-Dichloroethane-d4	487421	686425	945480
Toluene-d8	1363184		
4-Bromofluorobenzene	479001		

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712057

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
Bromochloromethane	LINR	-2.01e-002	3.81445346		0.9990174	0.9900000
Vinyl Chloride	AVRG		0.73583971		9.231	15.000
Chloromethane	AVRG		0.80424255		10.962	15.000
Bromomethane	AVRG		0.45298672		9.810	15.000
Chloroethane	AVRG		0.42379603		9.248	15.000
Methylene Chloride	LINR	-6.17e-003	1.60383629		0.9992143	0.9900000
Acetone	LINR	-3.68e-002	6.18995628		0.9994341	0.9900000
Carbon Disulfide	AVRG		1.57518724		11.942	15.000
1,1-Dichloroethene	AVRG		0.51194074		11.204	15.000
trans-1,2-Dichloroethene	AVRG		0.57110424		7.881	15.000
Carbon Tetrachloride	AVRG		0.38278820		10.546	15.000
Bromodichloromethane	AVRG		0.50920970		10.290	15.000
1,1-Dichloroethane	AVRG		1.11123467		11.086	15.000
1,2-Dichloropropane	AVRG		0.39874575		12.267	15.000
2-Butanone	AVRG		0.25076355		6.927	15.000
cis-1,3-Dichloropropene	AVRG		0.62567698		9.000	15.000
Dibromochloromethane	AVRG		0.44275505		13.119	15.000
1,1,2-Trichloroethane	AVRG		0.32348280		10.473	15.000
cis-1,2-Dichloroethene	AVRG		0.65980875		9.802	15.000
Benzene	AVRG		1.41975781		11.073	15.000
Chloroform	AVRG		1.08866124		10.164	15.000
trans-1,3-Dichloropropene	AVRG		0.54598559		10.862	15.000
Bromoform	AVRG		0.27489566		8.216	15.000
1,1,1-Trichloroethane	AVRG		0.80867113		8.969	15.000
4-Methyl-2-Pentanone	AVRG		0.42791508		9.767	15.000
2-Hexanone	AVRG		0.38536176		5.202	15.000
1,2-Dichloroethane	AVRG		0.53026532		13.562	15.000
1,1,2,2-Tetrachloroethane	LINR	7.116e-003	0.99148021		0.9983112	0.9900000
Trichloroethene	AVRG		0.33409996		9.654	15.000
Toluene	AVRG		1.58371512		12.825	15.000
Dichlorodifluoromethane	AVRG		0.49227696		10.751	15.000
Trichlorofluoromethane	AVRG		0.68226608		9.532	15.000
Tetrachloroethene	AVRG		0.23885614		12.287	15.000
1,2-Dibromoethane	AVRG		0.37583337		9.666	15.000
Chlorobenzene	AVRG		0.98741528		10.268	15.000
1,3-Dichlorobenzene	AVRG		1.35785719		14.530	15.000
1,4-Dichlorobenzene	LINR	1.072e-002	0.77602682		0.9977073	0.9900000
Ethylbenzene	AVRG		0.48611172		11.762	15.000
1,2-Dichlorobenzene	AVRG		1.32039414		13.255	15.000
m,p-Xylenes	AVRG		0.58351137		11.637	15.000
o-Xylene	AVRG		0.58430138		10.520	15.000
Styrene	AVRG		1.05080343		7.586	15.000
2,2-Dichloropropane	AVRG		0.87382794		12.458	15.000
1,1-Dichloropropene	AVRG		0.44582181		11.339	15.000

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712057

Instrument ID: VOA6 Calibration Date(s): 12/04/17 12/04/17

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1044 1517

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Dibromomethane	AVRG		0.24903857		10.820	15.000
1,3-Dichloropropane	AVRG		0.69533606		11.759	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.35798498		10.654	15.000
Isopropylbenzene	AVRG		1.14144458		11.088	15.000
Bromobenzene	AVRG		0.89949808		13.240	15.000
1,2,3-Trichloropropane	AVRG		1.31459908		10.637	15.000
n-Propylbenzene	LINR	1.001e-002	0.34770480		0.9990166	0.9900000
2-Chlorotoluene	LINR	7.454e-003	0.50976189		0.9981772	0.9900000
1,3,5-Trimethylbenzene	LINR	1.302e-002	0.50999412		0.9984176	0.9900000
4-Chlorotoluene	LINR	1.293e-002	0.42463012		0.9980663	0.9900000
tert-Butylbenzene	LINR	6.39e-003	0.72066260		0.9993746	0.9900000
1,2,4-Trimethylbenzene	LINR	8.838e-003	0.47674138		0.9982157	0.9900000
sec-Butylbenzene	AVRG		2.01712245		13.678	15.000
p-Isopropyltoluene	AVRG		1.76006192		13.702	15.000
n-Butylbenzene	AVRG		1.42651618		8.751	15.000
1,2-Dibromo-3-Chloropropane	AVRG		0.13513307		8.381	15.000
1,2,4-Trichlorobenzene	LINR	5.474e-002	1.98938576		0.9959177	0.9900000
Hexachlorobutadiene	LINR	1.578e-002	6.35628609		0.9967279	0.9900000
Naphthalene	2ORDR	2.813e-002	0.80598534	-2.85e-002	0.9988618	0.9900000
1,2,3-Trichlorobenzene	LINR	6.62e-002	2.43381219		0.9954426	0.9900000
Dibromofluoromethane	LINR	-9.8e-003	1.55201840		0.9996990	0.9900000
1,2-Dichloroethane-d4	LINR	3.623e-003	1.17768091		0.9990874	0.9900000
Toluene-d8	2ORDR	-9.88e-003	0.69906232	-2.01e-002	0.9998391	0.9900000
4-Bromofluorobenzene	2ORDR	-9.96e-003	1.92592378	-0.1055573	0.9998690	0.9900000

FORM VI VOA

MSVOA06 -Logbook

Batch: 30159
Date: 12-04-2017
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-04-2017 10:34 am	1.00	50 mL	50 mL	X120401.D	Liquid	Y	NA
2	*Auto find/ purged* VSTD000.25	ICAL1	12-04-2017 10:44 am	1.00	50 mL	50 mL	X120402.D	Liquid	Y	NA
3	*0.1 uL cal std/100 mL DI* VSTD000.5	ICAL2	12-04-2017 11:34 am	1.00	50 mL	50 mL	X120403.D	Liquid	Y	NA
4	*0.10 uL cal std/50 mL DI* VSTD001	ICAL3	12-04-2017 12:24 pm	1.00	50 mL	50 mL	X120404.D	Liquid	Y	NA
5	*0.20 uL cal std/50 mL DI* VSTD002	ICAL4	12-04-2017 12:49 pm	1.00	50 mL	50 mL	X120405.D	Liquid	Y	NA
6	*0.40 uL cal std/50 mL DI* VSTD005	ICAL5	12-04-2017 01:13 pm	1.00	50 mL	50 mL	X120406.D	Liquid	Y	NA
7	*1.0 uL cal std/50 mL DI* VSTD020	ICAL6	12-04-2017 01:38 pm	1.00	50 mL	50 mL	X120407.D	Liquid	Y	NA
8	*4.0 uL cal std/50 mL DI* VSTD050	ICAL7	12-04-2017 02:03 pm	1.00	50 mL	50 mL	X120408.D	Liquid	Y	NA
9	*10 uL cal std/50 mL DI* VSTD100	ICAL8	12-04-2017 02:28 pm	1.00	50 mL	50 mL	X120409.D	Liquid	Y	NA
10	*20 uL cal std/50 mL DI* VSTD150	ICAL9	12-04-2017 02:52 pm	1.00	50 mL	50 mL	X120410.D	Liquid	Y	NA
11	*30 uL cal std/50 mL DI* VSTD200	ICAL	12-04-2017 03:17 pm	1.00	50 mL	50 mL	X120411.D	Liquid	Y	NA
12	*40 uL cal std/50 mL DI* BLK	SAMP	12-04-2017 03:42 pm	1.00	50 mL	50 mL	X120412.D	Liquid	Y	NA
13	*clean up blank* BLK	SAMP	12-04-2017 04:07 pm	1.00	50 mL	50 mL	X120413.D	Liquid	Y	NA
14	*clean up blank* VSTD-ICV	ICV	12-04-2017 04:32 pm	1.00	50 mL	50 mL	X120414.D	Liquid	Y	NA
15	*10 uL icv std/50 mL DI* VLCSW-120417	CCV	12-04-2017 04:57 pm	1.00	50 mL	50 mL	X120415.D	Liquid	Y	NA
16	*10 uL cal std/50 mL DI* VLCSDW-120417	CCV	12-04-2017 05:22 pm	1.00	50 mL	50 mL	X120416.D	Liquid	Y	NA
17	*10 uL cal std/50 mL DI* BLK	SAMP	12-04-2017 05:47 pm	1.00	50 mL	50 mL	X120417.D	Liquid	Y	NA
18	BLK	SAMP	12-04-2017 06:12 pm	1.00	50 mL	50 mL	X120418.D	Liquid	Y	NA
19	BLK	SAMP	12-04-2017 06:36 pm	1.00	50 mL	50 mL	X120419.D	Liquid	Y	NA
20	VBLKW-171204	MBLK	12-04-2017 07:01 pm	1.00	50 mL	50 mL	X120420.D	Liquid	Y	NA
21	HS17110622-12	SAMP	12-04-2017 07:26 pm	1.00	50 mL	50 mL	X120421.D	Liquid	Y	NA
22	HS17110622-12	SAMP	12-04-2017 07:51 pm	1.00	50 mL	50 mL	X120422.D	Liquid	Y	NA
23	HS17110622-10	SAMP	12-04-2017 08:16 pm	1.00	50 mL	50 mL	X120423.D	Liquid	Y	NA
24	HS17110622-11	SAMP	12-04-2017 08:41 pm	1.00	50 mL	50 mL	X120424.D	Liquid	Y	NA
25	HS17110627-08	SAMP	12-04-2017 09:06 pm	1.00	50 mL	50 mL	X120425.D	Liquid	Y	NA

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-03-03
IS ID	30502-03-04
ICV STD ID	29814-95-01
LCS/MS ID	30502-05-01/02
CAL STD ID	30502-05-01/02
BFB ID	30502-03-03
pH Paper	634-37-03

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120401.D

Date : 04-DEC-2017 10:34

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

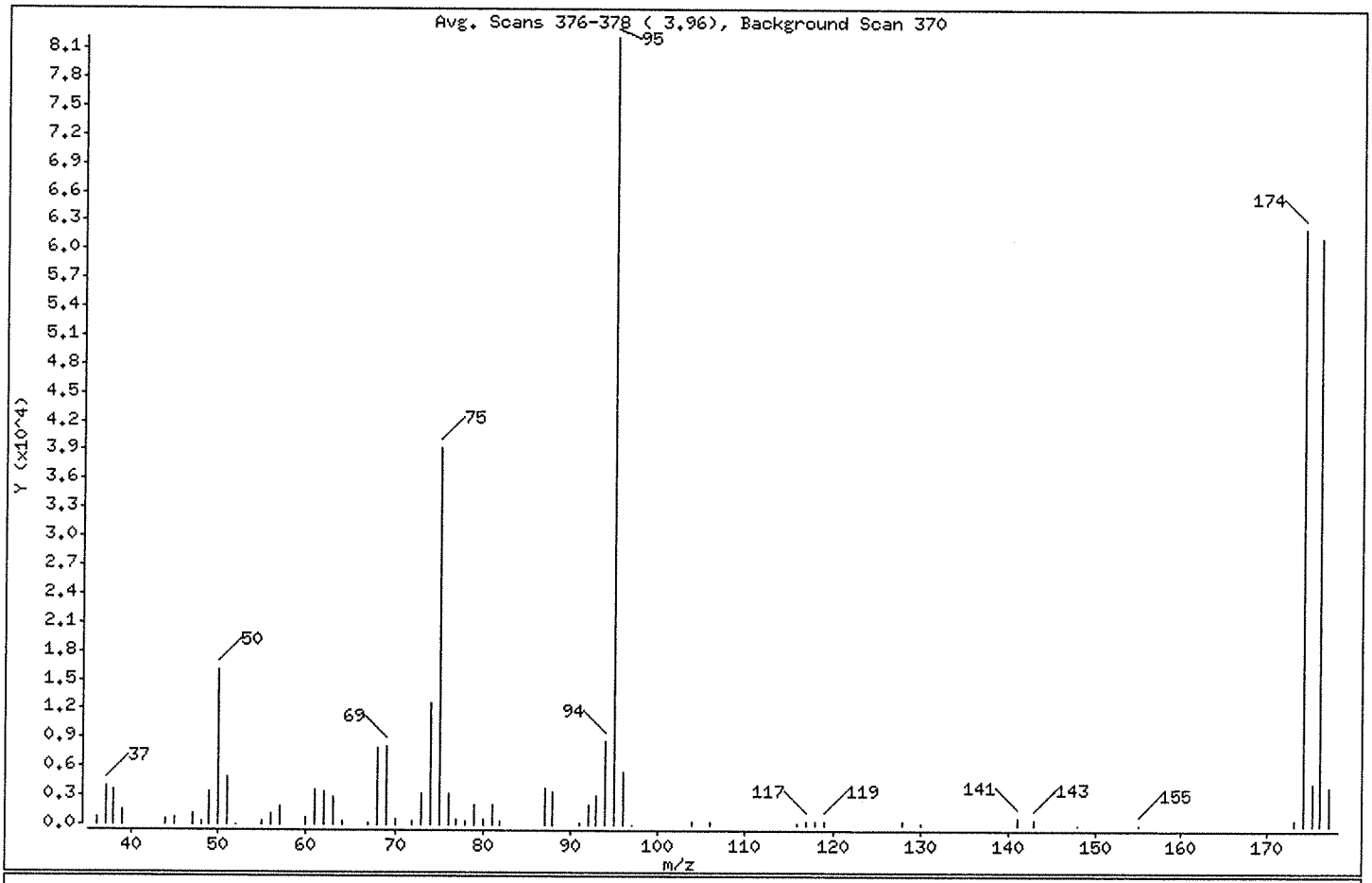
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.48
75	30.00 - 60.00% of mass 95	47.83
96	5.00 - 9.00% of mass 95	6.72
173	Less than 2.00% of mass 174	0.60 (0.79)
174	Greater than 50.00% of mass 95	75.91
175	5.00 - 9.00% of mass 174	5.38 (7.09)
176	95.00 - 101.00% of mass 174	74.82 (98.56)
177	5.00 - 9.00% of mass 176	4.80 (6.41)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120401.D

Date : 04-DEC-2017 10:34

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X120401.D
Spectrum: Avg. Scans 376-378 (3.96), Background Scan 370
Location of Maximum: 95.00
Number of points: 61

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	720	61.00	3588	80.00	575	118.00	295
37.00	3988	62.00	3449	81.00	2054	119.00	387
38.00	3546	63.00	2792	82.00	423	128.00	320
39.00	1503	64.00	310	87.00	3871	130.00	229
44.00	642	67.00	178	88.00	3428	141.00	692
45.00	730	68.00	8011	91.00	237	143.00	657
47.00	1114	69.00	8179	92.00	2158	148.00	68
48.00	451	70.00	528	93.00	3095	155.00	75
49.00	3404	72.00	418	94.00	8688	173.00	491
50.00	16003	73.00	3156	95.00	82152	174.00	62360
51.00	4954	74.00	12721	96.00	5522	175.00	4420
52.00	91	75.00	39296	97.00	70	176.00	61464
55.00	302	76.00	3252	104.00	362	177.00	3941
56.00	1114	77.00	650	106.00	303		
57.00	1947	78.00	411	116.00	281		
60.00	680	79.00	2132	117.00	452		

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120401.D

Date : 04-DEC-2017 10:34

Client ID: BFB

Instrument: voa6.i

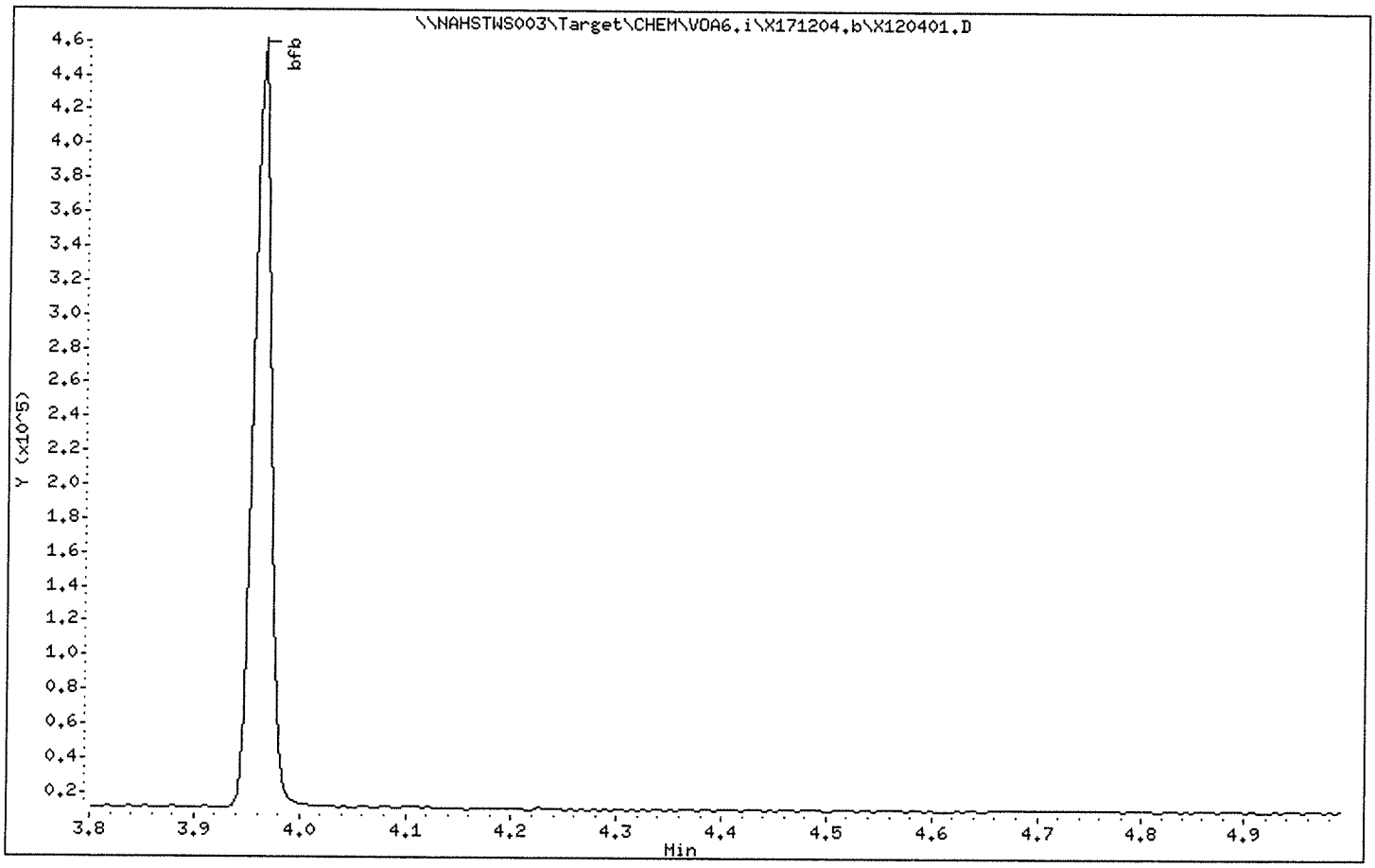
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120403.D
Report Date: 30-Jan-2018 14:30

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120403.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 04-DEC-2017 11:34
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\8260W.m
Meth Date : 30-Jan-2018 14:30 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 15:17 Cal File: X120411.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	297725	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	504872	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	474370	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	187629	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	2995	0.50000	0.29(a)
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	4185	0.50000	1.00(M)
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	11184	0.50000	0.32(a)
$ 69 4-Bromofluorobenzene	95	8.759	8.759	(1.131)	4203	0.50000	0.35(a)
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	2004	0.50000	0.59(a)
31 1,1,1-Trichloroethane	97	4.232	4.232	(0.978)	2689	0.50000	0.55(a)
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	2797	0.50000	1.09(aM)
53 1,1,2-Trichloroethane	83	6.926	6.926	(0.895)	1767	0.50000	0.57(a)
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	3842	0.50000	0.58(aM)
11 1,1-Dichloroethene	96	2.048	2.048	(0.473)	1784	0.50000	0.58(aM)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	2522	0.50000	0.56(a)
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	411	0.50000	3.57(aM)
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	2993	0.50000	0.60(a)
90 1,2,4-Trichlorobenzene	180	11.402	11.402	(1.172)	345	0.50000	2.91(aM)
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	5307	0.50000	1.11(a)
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	296	0.50000	0.58(aM)
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	2028	0.50000	0.56(a)
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	2691	0.50000	0.54(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120403.D
Report Date: 30-Jan-2018 14:30

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	3429	0.50000	0.64(a)
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	2531	0.50000	0.62(aM)
75 1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	5073	0.50000	1.34(a)
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	2993	0.50000	0.58(a)
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	3758	0.50000	0.56(a)
84 1,4-Dichlorobenzene	146	9.748	9.748	(1.002)	3391	0.50000	1.23(a)
26 2,2-Dichloropropane	77	3.674	3.674	(0.849)	3045	0.50000	0.58(aM)
24 2-Butanone	43	3.767	3.767	(0.871)	1291	1.00000	0.86(a)
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	4501	0.50000	0.98(aM)
52 2-Hexanone	43	7.298	7.298	(0.943)	3940	1.00000	1.07(a)
77 4-Chlorotoluene	91	9.139	9.139	(0.940)	5835	0.50000	1.30(aM)
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	3989	0.50000	0.60(a)
45 4-Methyl-2-Pentanone	43	6.424	6.424	(0.830)	4797	1.00000	1.18(a)
10 Acetone	43	2.119	2.119	(0.490)	3611	1.00000	1.91(a)
37 Benzene	78	4.648	4.648	(0.914)	8533	0.50000	0.59(a)
74 Bromobenzene	156	8.874	8.874	(0.912)	2061	0.50000	0.61(a)
39 Bromodichloromethane	83	5.830	5.830	(1.146)	3060	0.50000	0.59(aM)
66 Bromoform	173	8.480	8.480	(1.095)	1480	0.50000	0.56(aM)
6 Bromomethane	94	1.460	1.460	(0.338)	1550	0.50000	0.57(aM)
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	2239	0.50000	0.57(aM)
59 Chlorobenzene	112	7.771	7.771	(1.004)	5504	0.50000	0.58(a)
7 Chloroethane	64	1.525	1.525	(0.353)	1472	0.50000	0.58(aM)
28 Chloroform	83	4.067	4.067	(0.940)	3801	0.50000	0.58(a)
3 Chloromethane	50	1.188	1.188	(0.275)	2676	0.50000	0.55(aM)
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	2163	0.50000	0.55(a)
46 cis-1,3-Dichloropropene	75	6.252	6.252	(1.230)	3606	0.50000	0.57(a)
55 Dibromochloromethane	129	7.255	7.255	(0.937)	2465	0.50000	0.58(aM)
44 Dibromomethane	93	5.665	5.665	(1.114)	1548	0.50000	0.61(a)
2 Dichlorodifluoromethane	85	1.080	1.080	(0.250)	1566	0.50000	0.53(aM)
19 Carbon Disulfide	76	2.212	2.212	(0.512)	11144	1.00000	1.18(a)
61 Ethylbenzene	106	7.871	7.871	(1.017)	2736	0.50000	0.59(a)
91 Hexachlorobutadiene	225	11.546	11.546	(1.187)	307	0.50000	1.30(aM)
67 Isopropylbenzene	105	8.623	8.623	(1.114)	5830	0.50000	0.53(a)
62 m,p-Xylenes	106	7.978	7.978	(1.031)	6576	1.00000	1.18(a)
17 Methylene Chloride	84	2.449	2.449	(0.566)	3056	0.50000	0.51(aM)
87 n-Butylbenzene	91	10.056	10.056	(1.034)	2692	0.50000	0.50(a)
73 n-Propylbenzene	91	8.974	8.974	(0.923)	7180	0.50000	1.16(aM)
92 Naphthalene	128	11.603	11.603	(1.193)	1819	0.50000	1.79(a)
63 o-Xylene	106	8.308	8.308	(1.073)	3231	0.50000	0.58(a)
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	4665	0.50000	0.61(a)
64 Styrene	104	8.329	8.329	(1.076)	5609	0.50000	0.56(a)
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	3538	0.50000	0.99(a)
56 Tetrachloroethene	164	7.011	7.011	(0.906)	1359	0.50000	0.59(a)
50 Toluene	91	6.532	6.532	(0.844)	8879	0.50000	0.59(aM)
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	1914	0.50000	0.56(a)
51 trans-1,3-Dichloropropene	75	6.768	6.768	(1.331)	3236	0.50000	0.58(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	1968	0.50000	0.58(a)
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	2293	0.50000	0.56(a)
5 Vinyl Chloride	62	1.260	1.260	(0.291)	2477	0.50000	0.56(aM)

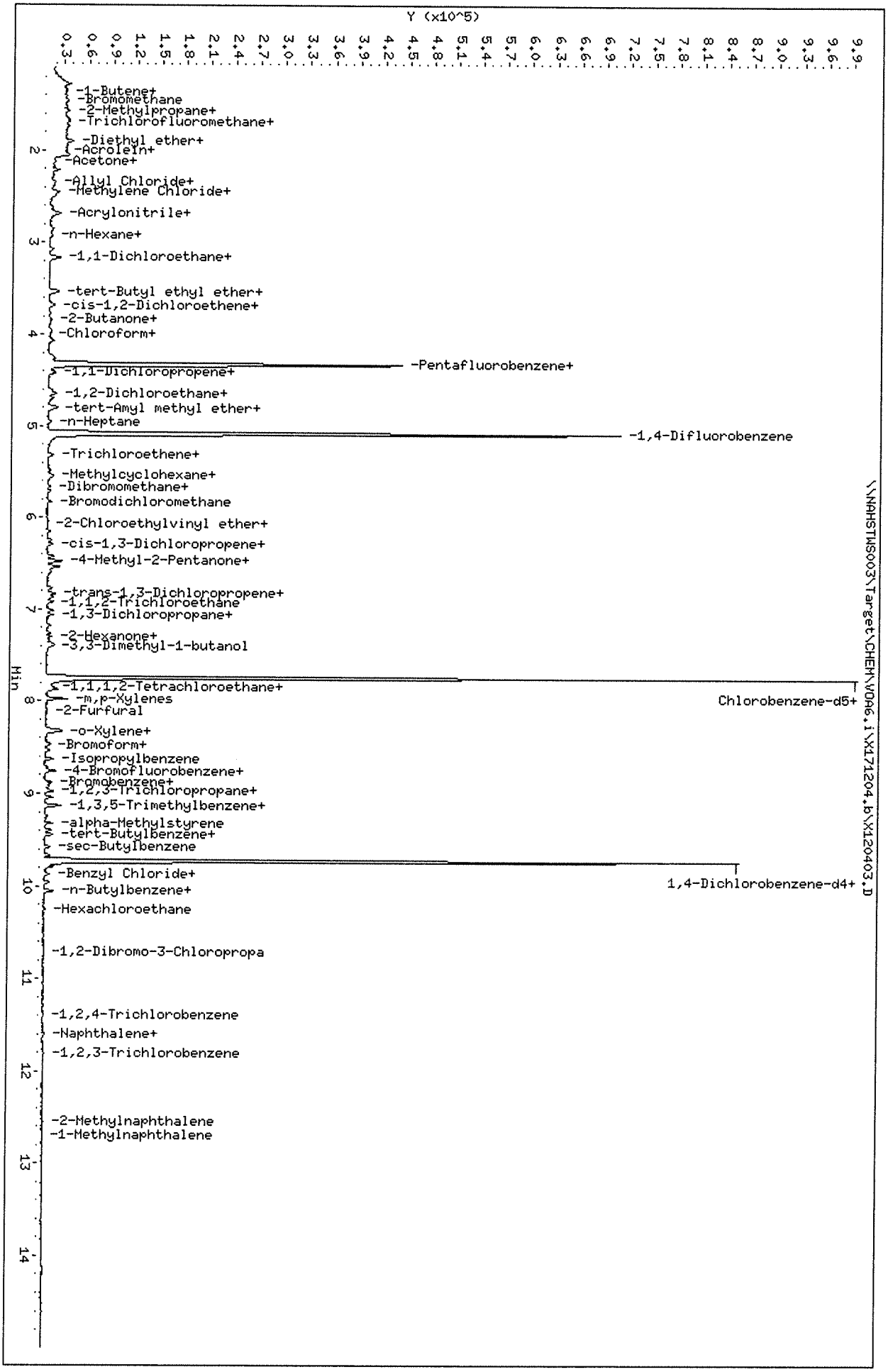
QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120403.D
Report Date: 30-Jan-2018 14:30

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120403.D
Date : 04-DEC-2017 11:34
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Report Date: 30-Jan-2018 14:30

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 04-DEC-2017 12:24
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 30-Jan-2018 14:30 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 11:34 Cal File: X120403.D
Als bottle: 6 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	294569	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	498632	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	448997	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	186015	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	3914	1.00000	0.54(a)
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	5683	1.00000	1.31
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	14151	1.00000	0.60(a)
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	5522	1.00000	0.68(a)
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	3711	1.00000	1.15(a)
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	5169	1.00000	1.08
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	4996	1.00000	1.68(aM)
53 1,1,2-Trichloroethane	83	6.926	6.926	(0.895)	3005	1.00000	1.03(a)
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	7815	1.00000	1.19
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	3298	1.00000	1.09(a)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	5178	1.00000	1.16(a)
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	1132	1.00000	4.05(aM)
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	5334	1.00000	1.09(a)
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	1060	1.00000	3.30(aM)
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	10904	1.00000	1.83(a)
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	536	1.00000	1.06(aM)
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	3754	1.00000	1.11
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	6341	1.00000	1.29(a)

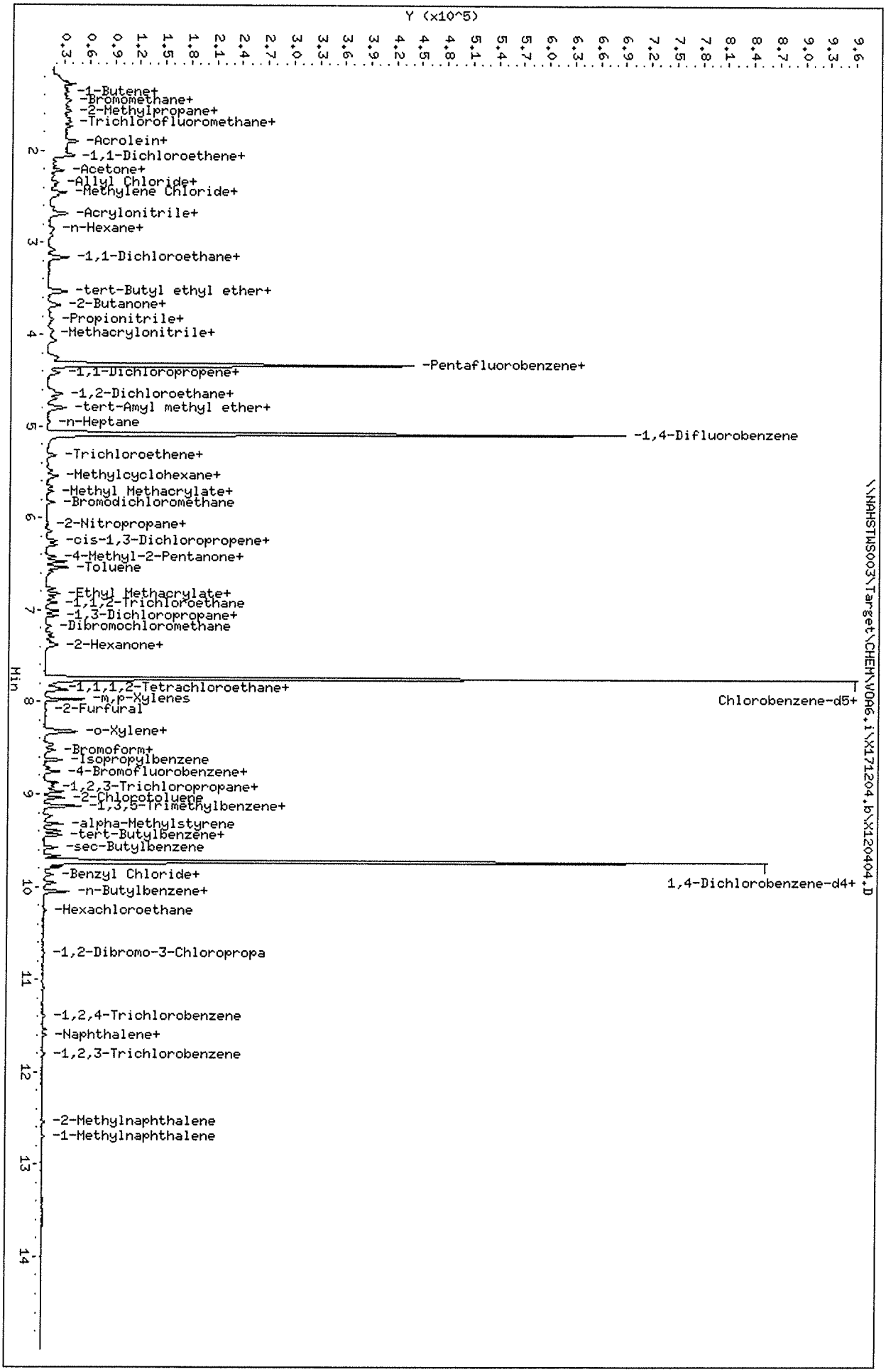
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Report Date: 30-Jan-2018 14:30

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.698	4.698	(0.924)	6107	1.00000	1.15
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	4373	1.00000	1.09(aM)
75 1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	10498	1.00000	2.09(a)
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	6419	1.00000	1.27(a)
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	7136	1.00000	1.14(a)
84 1,4-Dichlorobenzene	146	9.748	9.748	(1.002)	6725	1.00000	1.93(a)
26 2,2-Dichloropropane	77	3.666	3.666	(0.848)	6139	1.00000	1.19(a)
24 2-Butanone	43	3.759	3.759	(0.869)	3179	2.00000	2.15
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	11293	1.00000	1.92(a)
52 2-Hexanone	43	7.298	7.298	(0.943)	7110	2.00000	2.05(a)
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	12435	1.00000	2.06(a)
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	8042	1.00000	1.22(a)
45 4-Methyl-2-Pentanone	43	6.424	6.424	(0.830)	7723	2.00000	2.00(a)
10 Acetone	43	2.119	2.119	(0.490)	4847	2.00000	3.25(a)
37 Benzene	78	4.648	4.648	(0.914)	16396	1.00000	1.15
74 Bromobenzene	156	8.874	8.874	(0.912)	4006	1.00000	1.19(a)
29 Bromochloromethane	128	3.960	3.960	(0.916)	2153	1.00000	0.39(a)
39 Bromodichloromethane	83	5.830	5.830	(1.146)	5576	1.00000	1.09(aM)
66 Bromoform	173	8.480	8.480	(1.095)	2620	1.00000	1.06(aM)
6 Bromomethane	94	1.460	1.460	(0.338)	2828	1.00000	1.05(a)
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	4187	1.00000	1.09(a)
59 Chlorobenzene	112	7.764	7.764	(1.003)	10054	1.00000	1.13
7 Chloroethane	64	1.525	1.525	(0.353)	2702	1.00000	1.08(a)
28 Chloroform	83	4.067	4.067	(0.940)	7198	1.00000	1.12
3 Chloromethane	50	1.195	1.195	(0.276)	5646	1.00000	1.19(aM)
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	4608	1.00000	1.18(a)
46 cis-1,3-Dichloropropene	75	6.252	6.252	(1.230)	7055	1.00000	1.13(a)
55 Dibromochloromethane	129	7.255	7.255	(0.937)	4818	1.00000	1.21(a)
44 Dibromomethane	93	5.658	5.658	(1.113)	2719	1.00000	1.09(a)
2 Dichlorodifluoromethane	85	1.080	1.080	(0.250)	2584	1.00000	0.89(a)
19 Carbon Disulfide	76	2.212	2.212	(0.512)	21048	2.00000	2.26(a)
61 Ethylbenzene	106	7.871	7.871	(1.017)	5115	1.00000	1.17
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	674	1.00000	1.94(aM)
67 Isopropylbenzene	105	8.630	8.630	(1.115)	12299	1.00000	1.19(a)
62 m,p-Xylenes	106	7.971	7.971	(1.030)	12059	2.00000	2.30
17 Methylene Chloride	84	2.449	2.449	(0.566)	6341	1.00000	1.41(aM)
87 n-Butylbenzene	91	10.056	10.056	(1.034)	6377	1.00000	1.20(a)
73 n-Propylbenzene	91	8.974	8.974	(0.923)	14911	1.00000	1.89(a)
92 Naphthalene	128	11.603	11.603	(1.193)	4149	1.00000	2.30(a)
63 o-Xylene	106	8.308	8.308	(1.073)	6017	1.00000	1.14
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	9027	1.00000	1.20(a)
64 Styrene	104	8.329	8.329	(1.076)	10353	1.00000	1.09
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	7255	1.00000	1.72(a)
56 Tetrachloroethene	164	7.011	7.011	(0.906)	2146	1.00000	1.00
50 Toluene	91	6.532	6.532	(0.844)	15954	1.00000	1.12
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	3501	1.00000	1.04(a)
51 trans-1,3-Dichloropropene	75	6.768	6.768	(1.331)	5927	1.00000	1.08(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	3552	1.00000	1.06
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	3850	1.00000	0.95(a)
5 Vinyl Chloride	62	1.260	1.260	(0.291)	4847	1.00000	1.11(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Report Date: 30-Jan-2018 14:30

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120404.D
Date : 04-DEC-2017 12:24
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120405.D
Report Date: 30-Jan-2018 14:30

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120405.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 04-DEC-2017 12:49
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 30-Jan-2018 14:30 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 12:24 Cal File: X120404.D
Als bottle: 7 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.325	4.325	(1.000)	290312	50.0000	
*	36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	494270	50.0000	
*	47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	438932	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	198705	50.0000	
$	30 Dibromofluoromethane	113	4.254	4.254	(0.983)	8330	2.00000	1.73
$	35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	10983	2.00000	2.40
$	48 Toluene-d8	98	6.474	6.474	(0.836)	31479	2.00000	2.00
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	10824	2.00000	1.87
	60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	6574	2.00000	2.09(a)
	31 1,1,1-Trichloroethane	97	4.240	4.240	(0.980)	10419	2.00000	2.21
	68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	9539	2.00000	2.73(a)
	53 1,1,2-Trichloroethane	83	6.919	6.919	(0.894)	6423	2.00000	2.26(a)
	22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	13509	2.00000	2.09
	11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	6801	2.00000	2.28(aM)
	32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	9953	2.00000	2.25(a)
	93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	1695	2.00000	4.34(a)
	71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	10719	2.00000	2.05(a)
	90 1,2,4-Trichlorobenzene	180	11.403	11.403	(1.172)	2320	2.00000	3.89(a)
	79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	18804	2.00000	2.69(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	1120	2.00000	2.08(a)
	57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	7097	2.00000	2.15
	88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	10957	2.00000	2.08(a)

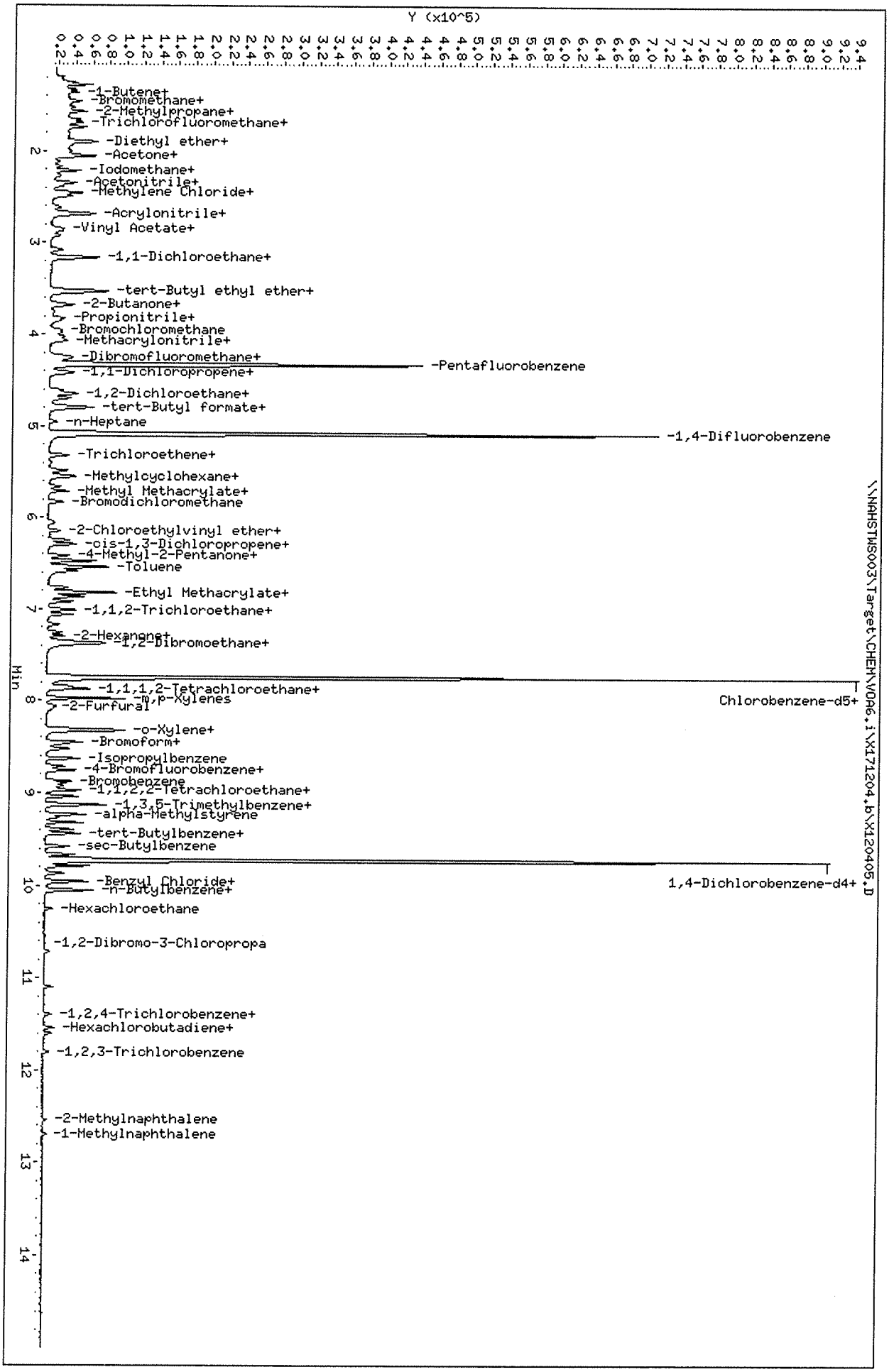
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120405.D
Report Date: 30-Jan-2018 14:30

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	10691	2.00000	2.03
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	8515	2.00000	2.16(aM)
75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	17497	2.00000	2.89(a)
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	11628	2.00000	2.15(a)
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	13685	2.00000	2.24(a)
84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	11635	2.00000	2.80(a)
26 2,2-Dichloropropane	77	3.674	3.674	(0.849)	11168	2.00000	2.20(a)
24 2-Butanone	43	3.752	3.752	(0.868)	5450	4.00000	3.74
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	18394	2.00000	2.73(a)
52 2-Hexanone	43	7.291	7.291	(0.942)	13473	4.00000	3.98(a)
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	21715	2.00000	2.96(a)
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	15013	2.00000	2.14(a)
45 4-Methyl-2-Pentanone	43	6.417	6.417	(0.829)	16839	4.00000	4.48(a)
10 Acetone	43	2.126	2.126	(0.492)	7138	4.00000	5.77
37 Benzene	78	4.648	4.648	(0.914)	29149	2.00000	2.07
74 Bromobenzene	156	8.874	8.874	(0.912)	7416	2.00000	2.07(a)
29 Bromochloromethane	128	3.960	3.960	(0.916)	4229	2.00000	1.77(a)
39 Bromodichloromethane	83	5.823	5.823	(1.145)	10796	2.00000	2.14(a)
66 Bromoform	173	8.480	8.480	(1.095)	5067	2.00000	2.09(aM)
6 Bromomethane	94	1.460	1.460	(0.338)	5954	2.00000	2.26(a)
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	8487	2.00000	2.24(a)
59 Chlorobenzene	112	7.764	7.764	(1.003)	18475	2.00000	2.13
7 Chloroethane	64	1.525	1.525	(0.353)	5261	2.00000	2.13(a)
28 Chloroform	83	4.068	4.068	(0.940)	13646	2.00000	2.15
3 Chloromethane	50	1.195	1.195	(0.276)	10148	2.00000	2.17(a)
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	8241	2.00000	2.15(a)
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	12866	2.00000	2.08(a)
55 Dibromochloromethane	129	7.255	7.255	(0.937)	8067	2.00000	2.07(a)
44 Dibromomethane	93	5.665	5.665	(1.114)	4980	2.00000	2.02(a)
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	6407	2.00000	2.24(a)
19 Carbon Disulfide	76	2.212	2.212	(0.512)	40632	4.00000	4.44(a)
61 Ethylbenzene	106	7.871	7.871	(1.017)	9105	2.00000	2.13
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	1825	2.00000	3.70(a)
67 Isopropylbenzene	105	8.623	8.623	(1.114)	21888	2.00000	2.18(a)
62 m,p-Xylenes	106	7.971	7.971	(1.030)	22335	4.00000	4.36
17 Methylene Chloride	84	2.449	2.449	(0.566)	10133	2.00000	2.49(aM)
87 n-Butylbenzene	91	10.056	10.056	(1.034)	11582	2.00000	2.04(a)
73 n-Propylbenzene	91	8.974	8.974	(0.923)	26888	2.00000	2.85(a)
92 Naphthalene	128	11.603	11.603	(1.193)	6458	2.00000	2.71(a)
63 o-Xylene	106	8.308	8.308	(1.073)	10938	2.00000	2.13
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	16927	2.00000	2.11(a)
64 Styrene	104	8.330	8.330	(1.076)	18929	2.00000	2.05
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	12489	2.00000	2.58(a)
56 Tetrachloroethene	164	7.012	7.012	(0.906)	5001	2.00000	2.38
50 Toluene	91	6.532	6.532	(0.844)	32387	2.00000	2.32
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	7233	2.00000	2.18(a)
51 trans-1,3-Dichloropropene	75	6.768	6.768	(1.331)	12206	2.00000	2.26(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	7353	2.00000	2.22
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	8994	2.00000	2.27(a)
5 Vinyl Chloride	62	1.260	1.260	(0.291)	8954	2.00000	2.09(a)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120405.D
Report Date: 30-Jan-2018 14:30

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6,i\X171204,b\X120405,D
Date : 04-DEC-2017 12:49
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Report Date: 30-Jan-2018 14:30

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 04-DEC-2017 13:13
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 30-Jan-2018 14:30 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 12:49 Cal File: X120405.D
Als bottle: 8 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	298636	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	499228	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	447222	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	207628	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	21067	5.00000	4.98
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	26603	5.00000	5.42
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	72459	5.00000	5.14
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	26717	5.00000	5.23
60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.013)	16162	5.00000	5.04
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	24422	5.00000	5.05
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	24724	5.00000	6.25
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	15107	5.00000	5.22
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	32666	5.00000	4.92
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	15470	5.00000	5.05
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	21982	5.00000	4.93(a)
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	6192	5.00000	6.93
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	28621	5.00000	5.24
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	8175	5.00000	6.65
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	46656	5.00000	5.79
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	2855	5.00000	5.08
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	17372	5.00000	5.16
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	28311	5.00000	5.16

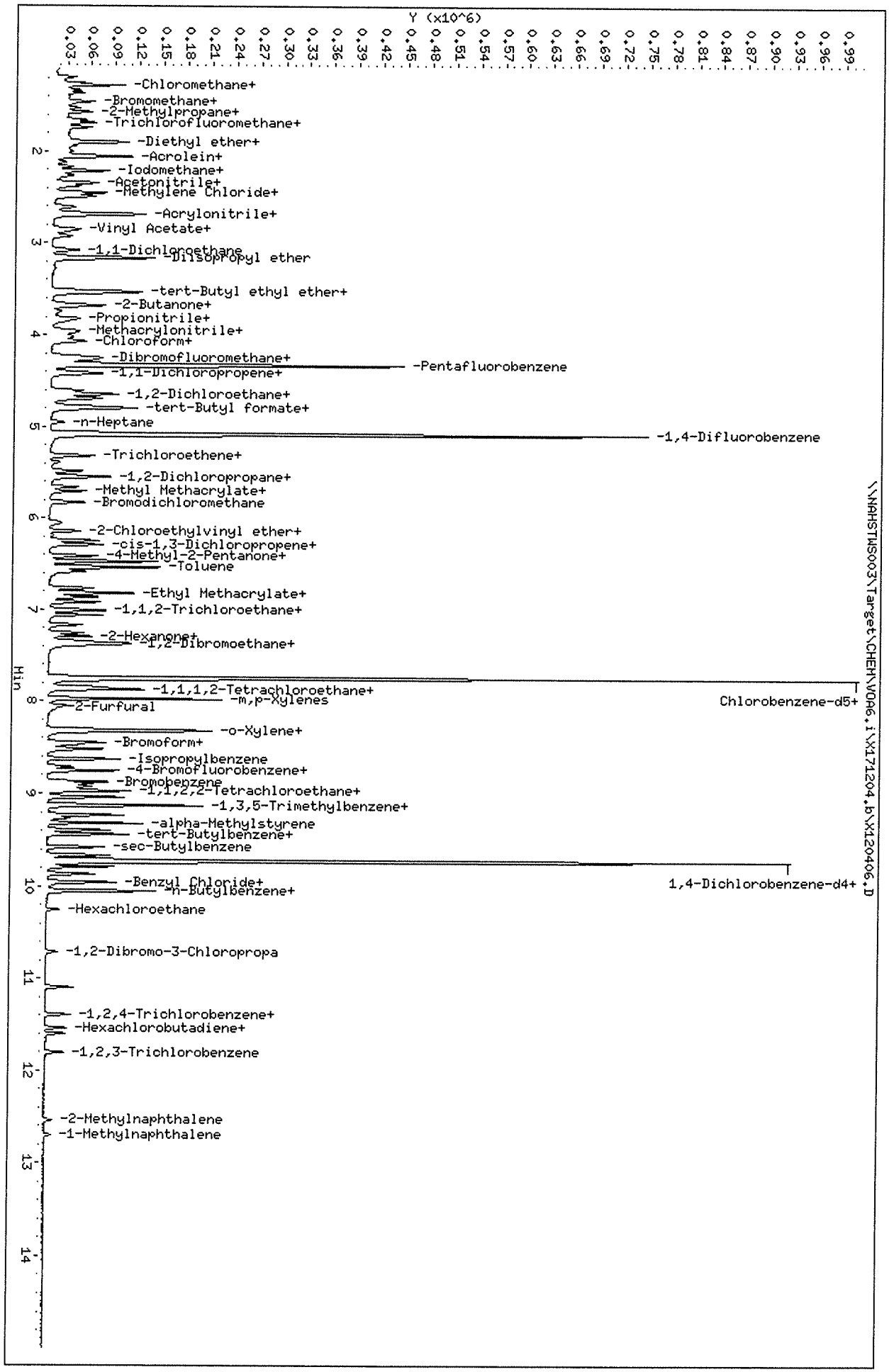
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Report Date: 30-Jan-2018 14:30

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	26394	5.00000	4.98
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	19678	5.00000	4.94(aM)
75	1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	46063	5.00000	6.30
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	28384	5.00000	5.03
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	31679	5.00000	5.09
84	1,4-Dichlorobenzene	146	9.748	9.748	(1.002)	29989	5.00000	6.14
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	25374	5.00000	4.86(a)
24	2-Butanone	43	3.745	3.745	(0.866)	14757	10.0000	9.85
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	45763	5.00000	5.99
52	2-Hexanone	43	7.291	7.291	(0.942)	34127	10.0000	9.90
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	56039	5.00000	6.37
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	35410	5.00000	4.84(a)
45	4-Methyl-2-Pentanone	43	6.417	6.417	(0.829)	37892	10.0000	9.90
10	Acetone	43	2.119	2.119	(0.490)	13572	10.0000	12.22
37	Benzene	78	4.648	4.648	(0.914)	71940	5.00000	5.07
74	Bromobenzene	156	8.874	8.874	(0.912)	19025	5.00000	5.09
29	Bromochloromethane	128	3.953	3.953	(0.914)	9806	5.00000	5.25
39	Bromodichloromethane	83	5.830	5.830	(1.146)	25972	5.00000	5.10
66	Bromoform	173	8.480	8.480	(1.095)	12540	5.00000	5.10
6	Bromomethane	94	1.460	1.460	(0.338)	13638	5.00000	5.04
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	19453	5.00000	5.08
59	Chlorobenzene	112	7.764	7.764	(1.003)	44047	5.00000	4.98
7	Chloroethane	64	1.525	1.525	(0.353)	11822	5.00000	4.67(a)
28	Chloroform	83	4.067	4.067	(0.940)	32820	5.00000	5.04
3	Chloromethane	50	1.195	1.195	(0.276)	23051	5.00000	4.79(a)
27	cis-1,2-Dichloroethene	96	3.681	3.681	(0.851)	19366	5.00000	4.91(a)
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	32028	5.00000	5.12
55	Dibromochloromethane	129	7.255	7.255	(0.937)	20461	5.00000	5.16
44	Dibromomethane	93	5.658	5.658	(1.113)	12835	5.00000	5.16
2	Dichlorodifluoromethane	85	1.081	1.081	(0.250)	14845	5.00000	5.04
19	Carbon Disulfide	76	2.212	2.212	(0.512)	94468	10.0000	10.04
61	Ethylbenzene	106	7.871	7.871	(1.017)	21835	5.00000	5.02
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	4245	5.00000	7.28
67	Isopropylbenzene	105	8.623	8.623	(1.114)	50927	5.00000	4.98(a)
62	m,p-Xylenes	106	7.971	7.971	(1.030)	52388	10.0000	10.03
17	Methylene Chloride	84	2.449	2.449	(0.566)	22892	5.00000	5.83
87	n-Butylbenzene	91	10.056	10.056	(1.034)	28704	5.00000	4.84(a)
73	n-Propylbenzene	91	8.974	8.974	(0.923)	66662	5.00000	6.08
92	Naphthalene	128	11.603	11.603	(1.193)	16391	5.00000	4.57(a)
63	o-Xylene	106	8.308	8.308	(1.073)	25940	5.00000	4.96
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	41833	5.00000	4.99(a)
64	Styrene	104	8.330	8.330	(1.076)	47379	5.00000	5.04
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	31609	5.00000	5.80
56	Tetrachloroethene	164	7.012	7.012	(0.906)	10843	5.00000	5.07
50	Toluene	91	6.532	6.532	(0.844)	70045	5.00000	4.94
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	17393	5.00000	5.09
51	trans-1,3-Dichloropropene	75	6.768	6.768	(1.331)	26963	5.00000	4.94(a)
38	Trichloroethene	130	5.321	5.321	(1.046)	16893	5.00000	5.06
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	20066	5.00000	4.92(a)
5	Vinyl Chloride	62	1.260	1.260	(0.291)	22011	5.00000	5.00

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Report Date: 30-Jan-2018 14:30

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Date : 04-DEC-2017 13:13
Client ID: WSTD005
Sample Info: WSTD005;WSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120406.D
Y (x10^6)
Min
-Chloromethane+
-Bromomethane+
-2-Methylpropane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride+
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether+
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform+
-Dibromofluoromethane+
-Pentafluorobenzene
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-tert-Butyl formate+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-Bromobenzene
-1,1,2,2-Tetrachloroethane+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride+
-n-Butylbenzene+
1,4-Dichlorobenzene-d4+
-Hexachloroethane
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene+
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120407.D
Report Date: 30-Jan-2018 14:30

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120407.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 04-DEC-2017 13:38
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 30-Jan-2018 14:30 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 13:13 Cal File: X120406.D
Als bottle: 9 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	291636	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	490981	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	437288	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	205376	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	78949	20.0000	20.51
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	100528	20.0000	20.47
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	272481	20.0000	20.89
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	97863	20.0000	20.78
60 1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.013)	57081	20.0000	18.23
31 1,1,1-Trichloroethane	97	4.240	4.240	(0.980)	79831	20.0000	16.92
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	81404	20.0000	20.00
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	52357	20.0000	18.50
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	114488	20.0000	17.66
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	50714	20.0000	16.98
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	72153	20.0000	16.48
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	25883	20.0000	18.64
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	95930	20.0000	17.76
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	33731	20.0000	19.07
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	171210	20.0000	20.31
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	9974	20.0000	17.96
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	62674	20.0000	19.06
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	95014	20.0000	17.51

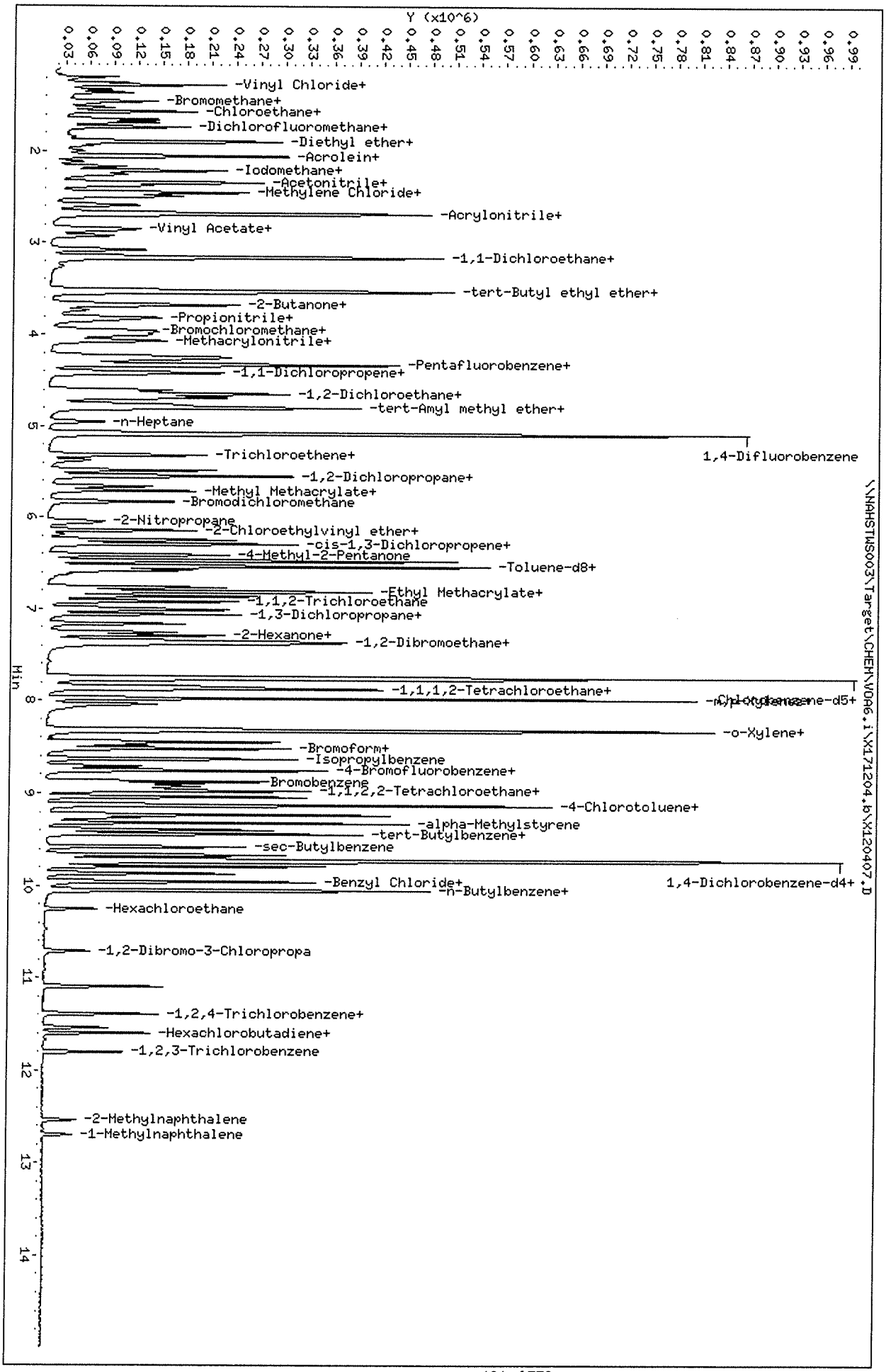
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120407.D
Report Date: 30-Jan-2018 14:30

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	91444	20.0000	17.56
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	71886	20.0000	18.35
75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	144848	20.0000	18.63(M)
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	100959	20.0000	18.10
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	110251	20.0000	18.12
84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	97637	20.0000	18.98
26 2,2-Dichloropropane	77	3.666	3.666	(0.848)	84436	20.0000	16.56
24 2-Butanone	43	3.738	3.738	(0.864)	57012	40.0000	38.97
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	149733	20.0000	18.95
52 2-Hexanone	43	7.284	7.284	(0.941)	128040	40.0000	37.99
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	172685	20.0000	18.49
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	125701	20.0000	17.38
45 4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	141028	40.0000	37.68
10 Acetone	43	2.119	2.119	(0.490)	39992	40.0000	40.60
37 Benzene	78	4.648	4.648	(0.914)	246239	20.0000	17.66
74 Bromobenzene	156	8.874	8.874	(0.912)	63926	20.0000	17.30
29 Bromochloromethane	128	3.960	3.960	(0.916)	33389	20.0000	20.83
39 Bromodichloromethane	83	5.823	5.823	(1.145)	89133	20.0000	17.82
66 Bromoform	173	8.480	8.480	(1.095)	44581	20.0000	18.54
6 Bromomethane	94	1.460	1.460	(0.338)	44827	20.0000	16.96
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	63632	20.0000	16.92
59 Chlorobenzene	112	7.764	7.764	(1.003)	156273	20.0000	18.09
7 Chloroethane	64	1.525	1.525	(0.353)	42224	20.0000	17.08
28 Chloroform	83	4.068	4.068	(0.940)	112854	20.0000	17.77
3 Chloromethane	50	1.188	1.188	(0.275)	79237	20.0000	16.89
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	68768	20.0000	17.86
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	110424	20.0000	17.97
55 Dibromochloromethane	129	7.255	7.255	(0.937)	71471	20.0000	18.45
44 Dibromomethane	93	5.658	5.658	(1.113)	45232	20.0000	18.49
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	44145	20.0000	15.37
19 Carbon Disulfide	76	2.212	2.212	(0.512)	303111	40.0000	32.99
61 Ethylbenzene	106	7.871	7.871	(1.017)	73999	20.0000	17.40
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	11677	20.0000	18.85
67 Isopropylbenzene	105	8.623	8.623	(1.114)	172243	20.0000	17.25
62 m,p-Xylenes	106	7.971	7.971	(1.030)	179006	40.0000	35.07
17 Methylene Chloride	84	2.449	2.449	(0.566)	71507	20.0000	19.35
87 n-Butylbenzene	91	10.049	10.049	(1.033)	101872	20.0000	17.38
73 n-Propylbenzene	91	8.974	8.974	(0.923)	210434	20.0000	18.31
92 Naphthalene	128	11.603	11.603	(1.193)	84834	20.0000	17.80
63 o-Xylene	106	8.308	8.308	(1.073)	92097	20.0000	18.02
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	144203	20.0000	17.40
64 Styrene	104	8.322	8.322	(1.075)	170141	20.0000	18.51
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	111001	20.0000	19.79
56 Tetrachloroethene	164	7.012	7.012	(0.906)	35310	20.0000	16.90
50 Toluene	91	6.532	6.532	(0.844)	244163	20.0000	17.62
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	57677	20.0000	17.31
51 trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	96961	20.0000	18.08
38 Trichloroethene	130	5.321	5.321	(1.046)	57836	20.0000	17.62
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	64896	20.0000	16.30(M)
5 Vinyl Chloride	62	1.260	1.260	(0.291)	71192	20.0000	16.58

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120407.D
Report Date: 30-Jan-2018 14:30

QC Flag Legend

M - Compound response manually integrated.



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Date : 04-DEC-2017 13:38
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120408.D
Report Date: 30-Jan-2018 14:30

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120408.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 04-DEC-2017 14:03
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 30-Jan-2018 14:30 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 13:38 Cal File: X120407.D
Als bottle: 10 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

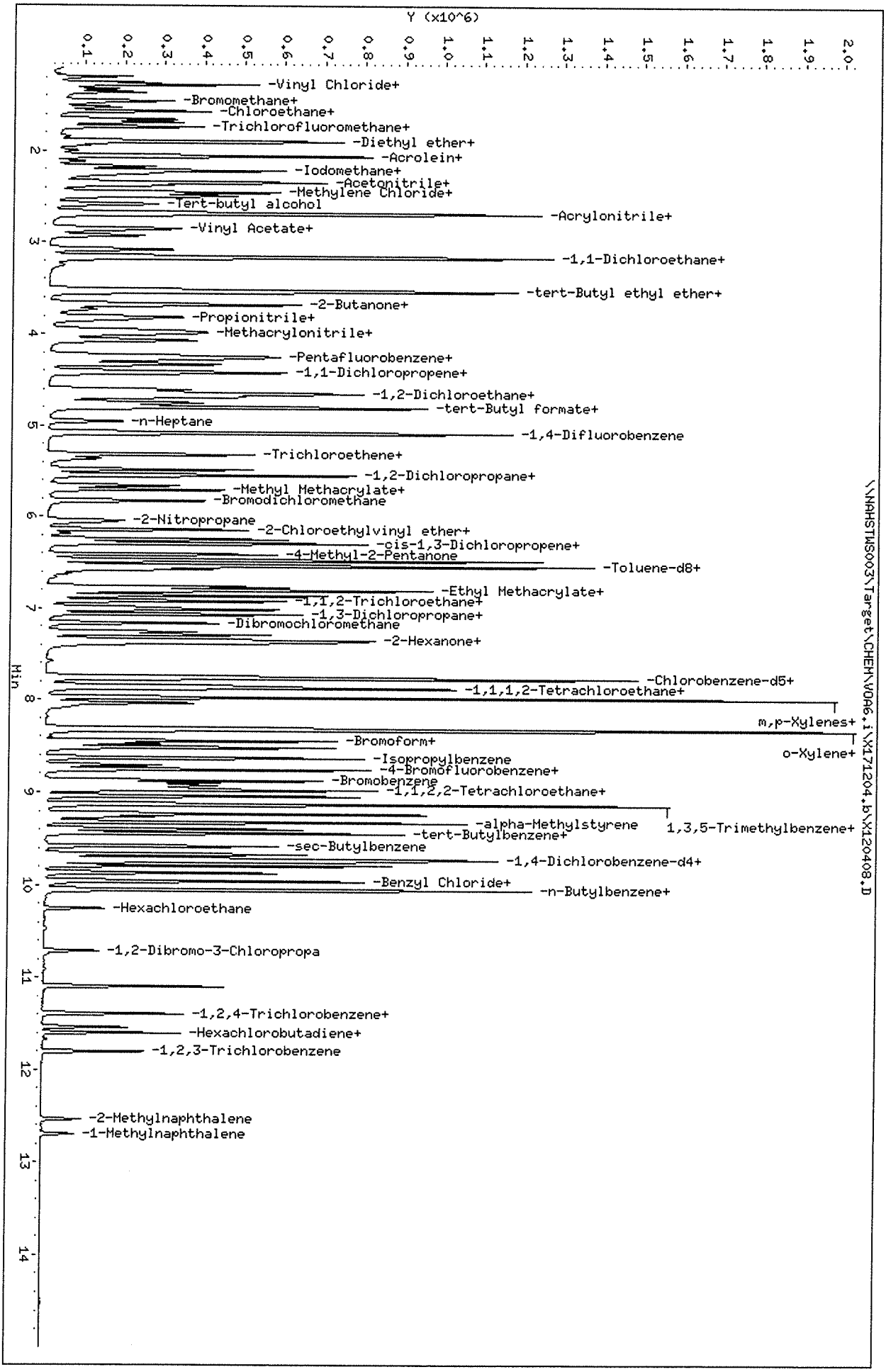
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.326	(1.000)	290122	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	484063	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	437364	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.727	9.727	(1.000)	200566	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	185772	50.0000	49.19
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	237722	50.0000	48.42
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	652586	50.0000	49.42
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	233818	50.0000	49.47
60 1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.013)	143288	50.0000	45.75
31 1,1,1-Trichloroethane	97	4.240	4.240	(0.980)	220226	50.0000	46.93
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	193227	50.0000	48.11
53 1,1,2-Trichloroethane	83	6.919	6.919	(0.894)	138400	50.0000	48.91
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	299749	50.0000	46.48
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	140942	50.0000	47.44
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	201511	50.0000	46.68
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	66722	50.0000	43.79
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	237138	50.0000	44.96
90 1,2,4-Trichlorobenzene	180	11.396	11.396	(1.172)	87045	50.0000	45.90
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	403355	50.0000	48.38
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	25693	50.0000	47.39
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	153192	50.0000	46.59
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	240973	50.0000	45.49

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120408.D
Report Date: 30-Jan-2018 14:30

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	236367	50.0000	46.04
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	176942	50.0000	45.83
75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	373055	50.0000	48.08
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	243015	50.0000	44.61
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	292695	50.0000	48.12
84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	253361	50.0000	49.55
26 2,2-Dichloropropane	77	3.667	3.667	(0.848)	233527	50.0000	46.05
24 2-Butanone	43	3.731	3.731	(0.863)	146772	100.000	100.87
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	380992	50.0000	48.78
52 2-Hexanone	43	7.284	7.284	(0.941)	321152	100.000	95.27
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	450798	50.0000	48.36
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	317793	50.0000	45.01
45 4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	329194	100.000	87.94
10 Acetone	43	2.119	2.119	(0.490)	90875	100.000	95.10
37 Benzene	78	4.648	4.648	(0.914)	642349	50.0000	46.73
74 Bromobenzene	156	8.867	8.867	(0.912)	164471	50.0000	45.58
29 Bromochloromethane	128	3.960	3.960	(0.916)	80360	50.0000	51.82
39 Bromodichloromethane	83	5.823	5.823	(1.145)	232553	50.0000	47.17
66 Bromoform	173	8.480	8.480	(1.095)	111956	50.0000	46.55
6 Bromomethane	94	1.460	1.460	(0.338)	122115	50.0000	46.45
34 Carbon Tetrachloride	117	4.412	4.412	(0.868)	173700	50.0000	46.87
59 Chlorobenzene	112	7.764	7.764	(1.003)	396931	50.0000	45.95
7 Chloroethane	64	1.525	1.525	(0.353)	119990	50.0000	48.79
28 Chloroform	83	4.068	4.068	(0.940)	293164	50.0000	46.40
3 Chloromethane	50	1.195	1.195	(0.276)	213320	50.0000	45.71
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	180699	50.0000	47.19
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	280565	50.0000	46.31
55 Dibromochloromethane	129	7.255	7.255	(0.937)	171913	50.0000	44.38
44 Dibromomethane	93	5.658	5.658	(1.113)	113180	50.0000	46.94
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	144156	50.0000	50.46
19 Carbon Disulfide	76	2.212	2.212	(0.512)	846808	100.000	92.64
61 Ethylbenzene	106	7.871	7.871	(1.017)	192225	50.0000	45.20
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	31516	50.0000	50.72
67 Isopropylbenzene	105	8.623	8.623	(1.114)	451344	50.0000	45.20
62 m,p-Xylenes	106	7.972	7.972	(1.030)	461708	100.000	90.45
17 Methylene Chloride	84	2.449	2.449	(0.566)	180238	50.0000	49.51
87 n-Butylbenzene	91	10.049	10.049	(1.033)	278309	50.0000	48.63
73 n-Propylbenzene	91	8.974	8.974	(0.923)	543610	50.0000	47.62
92 Naphthalene	128	11.603	11.603	(1.193)	235418	50.0000	46.74
63 o-Xylene	106	8.308	8.308	(1.073)	234842	50.0000	45.94
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	355949	50.0000	43.99
64 Styrene	104	8.323	8.323	(1.075)	437247	50.0000	47.56
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	264880	50.0000	47.90
56 Tetrachloroethene	164	7.012	7.012	(0.906)	99140	50.0000	47.45
50 Toluene	91	6.532	6.532	(0.844)	633536	50.0000	45.73
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	157492	50.0000	47.52
51 trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	257647	50.0000	48.74
38 Trichloroethene	130	5.321	5.321	(1.046)	153072	50.0000	47.32
8 Trichlorofluoromethane	101	1.690	1.690	(0.391)	197662	50.0000	49.92
5 Vinyl Chloride	62	1.260	1.260	(0.291)	199885	50.0000	46.81



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120408.D
Date : 04-DEC-2017 14:03
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120409.D
Report Date: 30-Jan-2018 14:30

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120409.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 04-DEC-2017 14:28
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 30-Jan-2018 14:30 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 11 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	284383	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	479198	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	430609	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	197922	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	379572	100.000	103.08
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	487421	100.000	101.10
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	1363184	100.000	100.09
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	479001	100.000	100.08
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	291261	100.000	94.47
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	446686	100.000	97.11
68 1,1,2,2-Tetrachloroethane	83	8.902	8.902	(0.915)	399608	100.000	100.44
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	265070	100.000	95.14
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	601918	100.000	95.23
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	272870	100.000	93.71(M)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	412449	100.000	96.53
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	152500	100.000	97.07
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	494005	100.000	94.93
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	188818	100.000	97.63
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	829267	100.000	100.31
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	50447	100.000	94.30
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	316040	100.000	97.64
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	482818	100.000	92.37

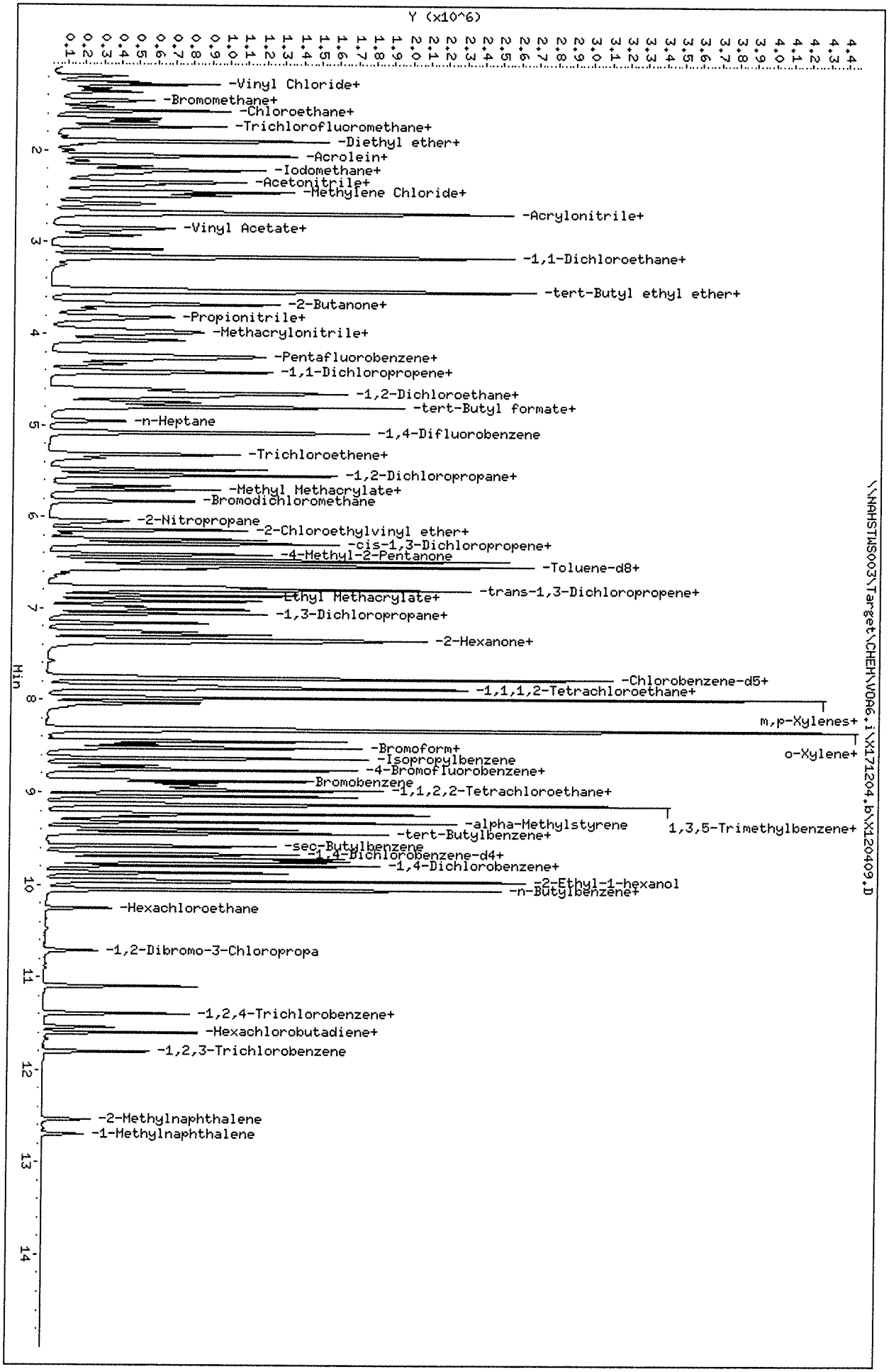
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120409.D
Report Date: 30-Jan-2018 14:30

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	475315	100.000	93.52
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	356044	100.000	93.16
75	1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	778968	100.000	101.01
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	483143	100.000	89.88
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	554543	100.000	92.60
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	509536	100.000	100.42
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	468940	100.000	94.35
24	2-Butanone	43	3.731	3.731	(0.863)	298604	200.000	209.36(A)
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	788760	100.000	101.94
52	2-Hexanone	43	7.284	7.284	(0.941)	667828	200.000	201.22
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	937994	100.000	101.26
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	644950	100.000	92.57
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	705625	200.000	191.47
10	Acetone	43	2.119	2.119	(0.490)	182637	200.000	196.92
37	Benzene	78	4.648	4.648	(0.914)	1287233	100.000	94.60
74	Bromobenzene	156	8.874	8.874	(0.912)	329300	100.000	92.48
29	Bromochloromethane	128	3.960	3.960	(0.916)	152708	100.000	101.41
39	Bromodichloromethane	83	5.830	5.830	(1.147)	468072	100.000	95.91
66	Bromoform	173	8.480	8.480	(1.095)	229728	100.000	97.03
6	Bromomethane	94	1.460	1.460	(0.338)	244338	100.000	94.83
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	355644	100.000	96.94
59	Chlorobenzene	112	7.764	7.764	(1.003)	824999	100.000	97.01
7	Chloroethane	64	1.525	1.525	(0.353)	239107	100.000	99.19
28	Chloroform	83	4.067	4.067	(0.940)	586107	100.000	94.65
3	Chloromethane	50	1.188	1.188	(0.275)	438547	100.000	95.87
27	cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	360485	100.000	96.05
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	561011	100.000	93.55
55	Dibromochloromethane	129	7.255	7.255	(0.937)	353827	100.000	92.79
44	Dibromomethane	93	5.658	5.658	(1.113)	228704	100.000	95.82
2	Dichlorodifluoromethane	85	1.080	1.080	(0.250)	288724	100.000	103.11
19	Carbon Disulfide	76	2.212	2.212	(0.512)	1702663	200.000	190.04
61	Ethylbenzene	106	7.871	7.871	(1.017)	401858	100.000	95.98
91	Hexachlorobutadiene	225	11.538	11.538	(1.186)	58518	100.000	94.75
67	Isopropylbenzene	105	8.623	8.623	(1.114)	955028	100.000	97.15
62	m,p-Xylenes	106	7.971	7.971	(1.030)	970546	200.000	193.13
17	Methylene Chloride	84	2.449	2.449	(0.566)	359875	100.000	101.17
87	n-Butylbenzene	91	10.049	10.049	(1.033)	562736	100.000	99.65
73	n-Propylbenzene	91	8.974	8.974	(0.923)	1159416	100.000	102.34
92	Naphthalene	128	11.603	11.603	(1.193)	565219	100.000	104.88
63	o-Xylene	106	8.308	8.308	(1.073)	491467	100.000	97.66
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	739488	100.000	92.61
64	Styrene	104	8.322	8.322	(1.075)	912641	100.000	100.84(A)
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	549903	100.000	100.43
56	Tetrachloroethene	164	7.011	7.011	(0.906)	198061	100.000	96.28
50	Toluene	91	6.532	6.532	(0.844)	1302065	100.000	95.46
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	319232	100.000	98.27
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	493392	100.000	94.29
38	Trichloroethene	130	5.321	5.321	(1.046)	307298	100.000	95.97
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	386875	100.000	99.69
5	Vinyl Chloride	62	1.260	1.260	(0.291)	408606	100.000	97.63

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120409.D
Report Date: 30-Jan-2018 14:30

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120409.D
Date : 04-DEC-2017 14:28
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120410.D
Report Date: 30-Jan-2018 14:30

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120410.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 04-DEC-2017 14:52
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 30-Jan-2018 14:30 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:28 Cal File: X120409.D
Als bottle: 12 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	279085	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	482753	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	459233	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	199455	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	535487	150.000	148.40
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	686425	150.000	145.00
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	1853128	150.000	124.19
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	681648	150.000	130.80
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	441087	150.000	134.15
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	652799	150.000	144.62(A)
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	575153	150.000	143.30
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	361930	150.000	121.81
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	862211	150.000	139.00(A)
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	401532	150.000	140.51(M)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	602849	150.000	140.05
93 1,2,3-Trichlorobenzene	180	11.796	11.796	(1.213)	227515	150.000	142.12
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	717115	150.000	136.74
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	277618	150.000	141.18
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	1192916	150.000	143.00
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	74988	150.000	139.10
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	435573	150.000	126.18(A)
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	695649	150.000	132.07

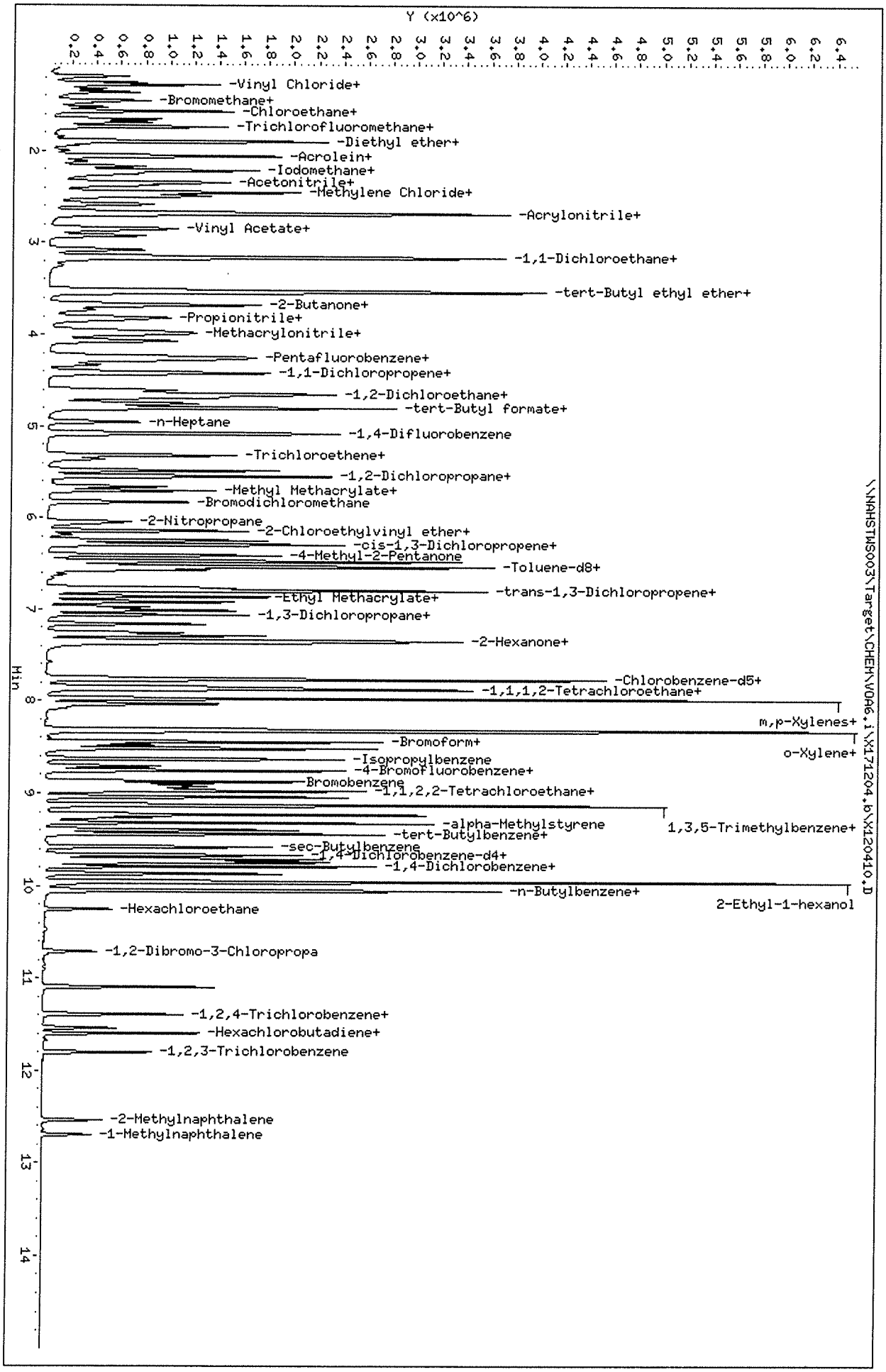
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120410.D
Report Date: 30-Jan-2018 14:30

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	677865	150.000	132.40(A)
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	509300	150.000	132.28
75 1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	1118942	150.000	143.70
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	690908	150.000	127.55
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	766580	150.000	120.03
84 1,4-Dichlorobenzene	146	9.748	9.748	(1.002)	726487	150.000	141.86
26 2,2-Dichloropropane	77	3.666	3.666	(0.848)	685800	150.000	140.60
24 2-Butanone	43	3.731	3.731	(0.863)	432561	300.000	309.04(A)
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	1114234	150.000	142.75
52 2-Hexanone	43	7.284	7.284	(0.941)	987249	300.000	278.92
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	1335693	150.000	142.82
82 p-Isopropyltoluene	119	9.712	9.712	(0.999)	938376	150.000	133.65
45 4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	1069282	300.000	272.06
10 Acetone	43	2.119	2.119	(0.490)	267969	300.000	295.33
37 Benzene	78	4.648	4.648	(0.914)	1850707	150.000	135.01(A)
74 Bromobenzene	156	8.874	8.874	(0.912)	468007	150.000	130.42
29 Bromochloromethane	128	3.960	3.960	(0.916)	212980	150.000	144.54
39 Bromodichloromethane	83	5.830	5.830	(1.146)	656182	150.000	133.46
66 Bromoform	173	8.480	8.480	(1.095)	329396	150.000	130.46
6 Bromomethane	94	1.460	1.460	(0.338)	361327	150.000	142.90
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	514063	150.000	139.09
59 Chlorobenzene	112	7.764	7.764	(1.003)	1214595	150.000	133.92(A)
7 Chloroethane	64	1.525	1.525	(0.353)	344390	150.000	145.58
28 Chloroform	83	4.068	4.068	(0.940)	834892	150.000	137.39(A)
3 Chloromethane	50	1.188	1.188	(0.275)	637166	150.000	141.93
27 cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	512701	150.000	139.21(A)
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	843848	150.000	139.68
55 Dibromochloromethane	129	7.255	7.255	(0.937)	493631	150.000	121.38
44 Dibromomethane	93	5.658	5.658	(1.113)	320157	150.000	133.15
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	444560	150.000	161.79
19 Carbon Disulfide	76	2.212	2.212	(0.512)	2487608	300.000	282.93
61 Ethylbenzene	106	7.871	7.871	(1.017)	600798	150.000	134.56(A)
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	89042	150.000	142.66
67 Isopropylbenzene	105	8.630	8.630	(1.115)	1380850	150.000	131.71
62 m,p-Xylenes	106	7.971	7.971	(1.030)	1434086	300.000	267.58(A)
17 Methylene Chloride	84	2.449	2.449	(0.566)	506476	150.000	145.22
87 n-Butylbenzene	91	10.049	10.049	(1.033)	822380	150.000	144.51
73 n-Propylbenzene	91	8.974	8.974	(0.923)	1664464	150.000	145.58
92 Naphthalene	128	11.603	11.603	(1.193)	850255	150.000	147.33
63 o-Xylene	106	8.308	8.308	(1.073)	700876	150.000	130.59(A)
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	1083909	150.000	134.70
64 Styrene	104	8.322	8.322	(1.075)	1297748	150.000	134.46(A)
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	808476	150.000	146.37
56 Tetrachloroethene	164	7.012	7.012	(0.906)	291009	150.000	132.64(A)
50 Toluene	91	6.532	6.532	(0.844)	1790531	150.000	123.09(A)
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	458968	150.000	143.97
51 trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	669852	150.000	127.06
38 Trichloroethene	130	5.321	5.321	(1.046)	444111	150.000	137.67(A)
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	582039	150.000	152.83
5 Vinyl Chloride	62	1.260	1.260	(0.291)	611559	150.000	148.89

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120410.D
Report Date: 30-Jan-2018 14:30

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6,i\X171204,b\X120410,D
Date : 04-DEC-2017 14:52
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120411.D
Report Date: 30-Jan-2018 14:30

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120411.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 04-DEC-2017 15:17
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 30-Jan-2018 14:30 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:52 Cal File: X120410.D
Als bottle: 13 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	274075	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	470818	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	410001	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	190858	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	707188	200.000	199.74
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	945480	200.000	203.31(A)
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	2633300	200.000	182.57
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	979292	200.000	199.39
60 1,1,1,2-Tetrachloroethane	131	7.850	7.850	(1.014)	554364	200.000	188.84
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	848533	200.000	191.42(A)
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	787284	200.000	204.84(A)
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	515500	200.000	194.34
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	1122920	200.000	184.35(A)
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	509660	200.000	181.61(M)
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	790240	200.000	188.24
93 1,2,3-Trichlorobenzene	180	11.796	11.796	(1.213)	320961	200.000	207.95(A)
71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	976329	200.000	194.56
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	393710	200.000	207.92(A)
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	1638094	200.000	205.03(A)
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	102048	200.000	197.83
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	578232	200.000	187.62(A)
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	963798	200.000	191.22

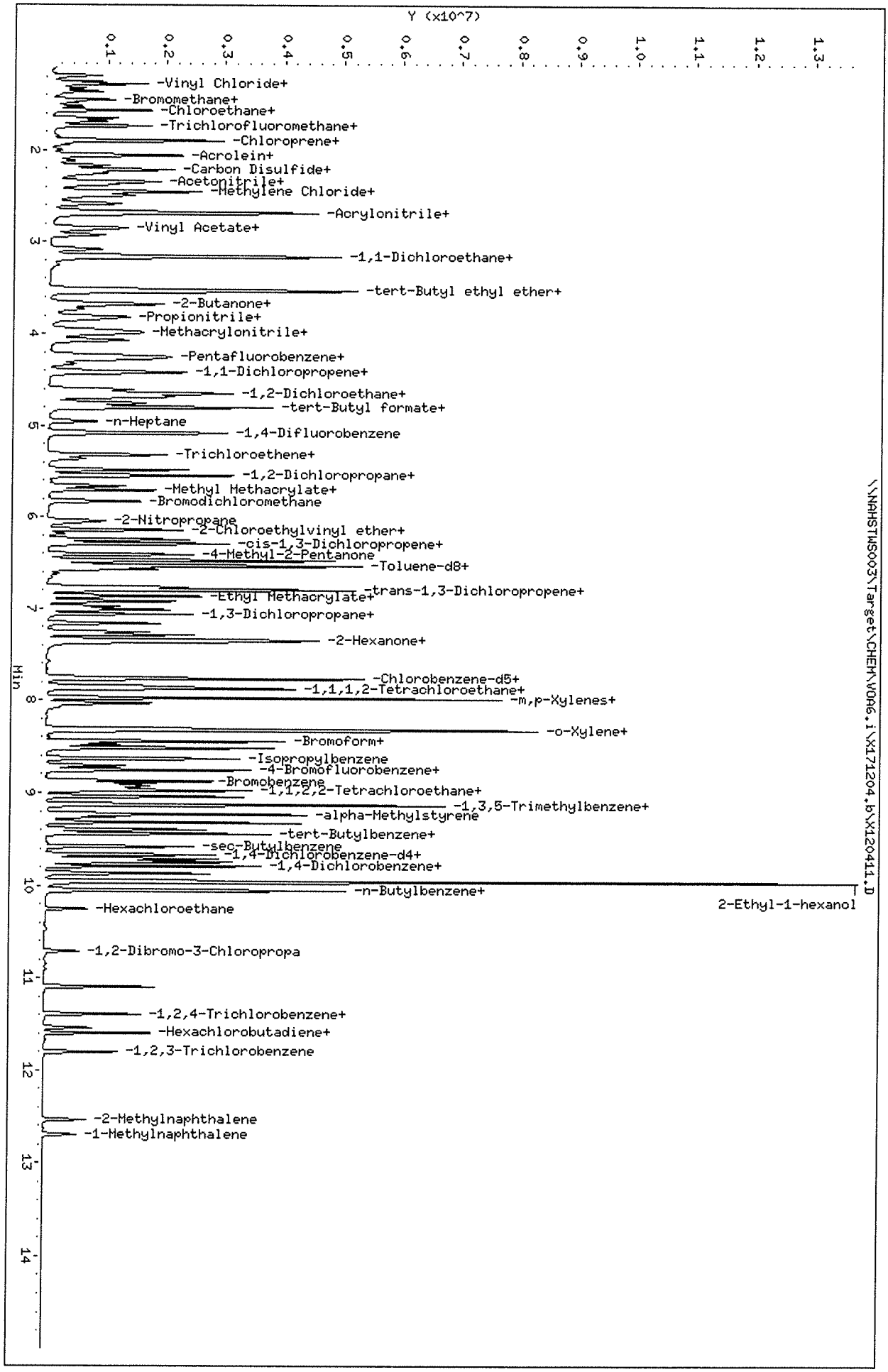
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120411.D
Report Date: 30-Jan-2018 14:30

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	929332	200.000	186.12(A)
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	695514	200.000	185.23
75	1,3,5-Trimethylbenzene	105	9.132	9.132	(0.939)	1525239	200.000	204.43(A)
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	957585	200.000	184.74
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	1120933	200.000	196.59
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	1008432	200.000	205.54(A)
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	894521	200.000	186.75
24	2-Butanone	43	3.731	3.731	(0.863)	592860	400.000	431.30(A)
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	1527940	200.000	204.42(A)
52	2-Hexanone	43	7.284	7.284	(0.941)	1353608	400.000	428.36(A)
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	1835422	200.000	204.82(A)
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	1256945	200.000	187.08
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	1427510	400.000	406.82(A)
10	Acetone	43	2.119	2.119	(0.490)	361044	400.000	405.86(A)
37	Benzene	78	4.648	4.648	(0.914)	2498006	200.000	186.85(A)
74	Bromobenzene	156	8.874	8.874	(0.912)	655537	200.000	190.92
29	Bromochloromethane	128	3.960	3.960	(0.916)	292625	200.000	202.62(A)
39	Bromodichloromethane	83	5.830	5.830	(1.146)	895717	200.000	186.80
66	Bromoform	173	8.480	8.480	(1.095)	466779	200.000	207.07(A)
6	Bromomethane	94	1.453	1.453	(0.336)	482927	200.000	194.48
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	666600	200.000	184.93
59	Chlorobenzene	112	7.764	7.764	(1.003)	1523814	200.000	188.19(A)
7	Chloroethane	64	1.525	1.525	(0.353)	443922	200.000	191.09
28	Chloroform	83	4.068	4.068	(0.940)	1118006	200.000	187.34(A)
3	Chloromethane	50	1.188	1.188	(0.275)	864612	200.000	196.12
27	cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	671987	200.000	185.79(AM)
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	1143549	200.000	194.09
55	Dibromochloromethane	129	7.255	7.255	(0.937)	722968	200.000	199.13
44	Dibromomethane	93	5.658	5.658	(1.113)	431802	200.000	184.13
2	Dichlorodifluoromethane	85	1.081	1.081	(0.250)	551612	200.000	204.42(A)
19	Carbon Disulfide	76	2.212	2.212	(0.512)	3172043	400.000	367.37
61	Ethylbenzene	106	7.871	7.871	(1.017)	748735	200.000	187.83(A)
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	123984	200.000	207.24(A)
67	Isopropylbenzene	105	8.630	8.630	(1.115)	1904192	200.000	203.44(A)
62	m,p-Xylenes	106	7.971	7.971	(1.030)	1777124	400.000	371.40(A)
17	Methylene Chloride	84	2.449	2.449	(0.566)	694800	200.000	202.98(A)
87	n-Butylbenzene	91	10.056	10.056	(1.034)	1089004	200.000	199.99
73	n-Propylbenzene	91	8.974	8.974	(0.923)	2219188	200.000	202.64(A)
92	Naphthalene	128	11.603	11.603	(1.193)	1215604	200.000	200.33(A)
63	o-Xylene	106	8.308	8.308	(1.073)	921138	200.000	192.25(A)
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	1440801	200.000	187.12
64	Styrene	104	8.322	8.322	(1.075)	1656842	200.000	192.28(A)
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	1072881	200.000	202.87(A)
56	Tetrachloroethene	164	7.012	7.012	(0.906)	372609	200.000	190.24(A)
50	Toluene	91	6.532	6.532	(0.844)	2522694	200.000	194.25(A)
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	603841	200.000	192.88
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	975193	200.000	189.68
38	Trichloroethene	130	5.321	5.321	(1.046)	588756	200.000	187.14(A)
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	720596	200.000	192.68
5	Vinyl Chloride	62	1.260	1.260	(0.291)	780176	200.000	193.42

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120411.D
Report Date: 30-Jan-2018 14:30

QC Flag Legend

A - Target compound detected but, quantitated amount
    exceeded maximum amount.
M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120411.D
Date : 04-DEC-2017 15:17
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120414.D
Report Date: 30-Jan-2018 14:30

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120414.D
Lab Smp Id: VSTD-ICV Client Smp ID: VSTD-ICV
Inj Date : 04-DEC-2017 16:32
Operator : PC Inst ID: voa6.i
Smp Info : VSTD-ICV;VSTD-ICV;2;;ICV
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171204.b\8260W.m
Meth Date : 30-Jan-2018 14:30 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 15:17 Cal File: X120411.D
Als bottle: 16 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

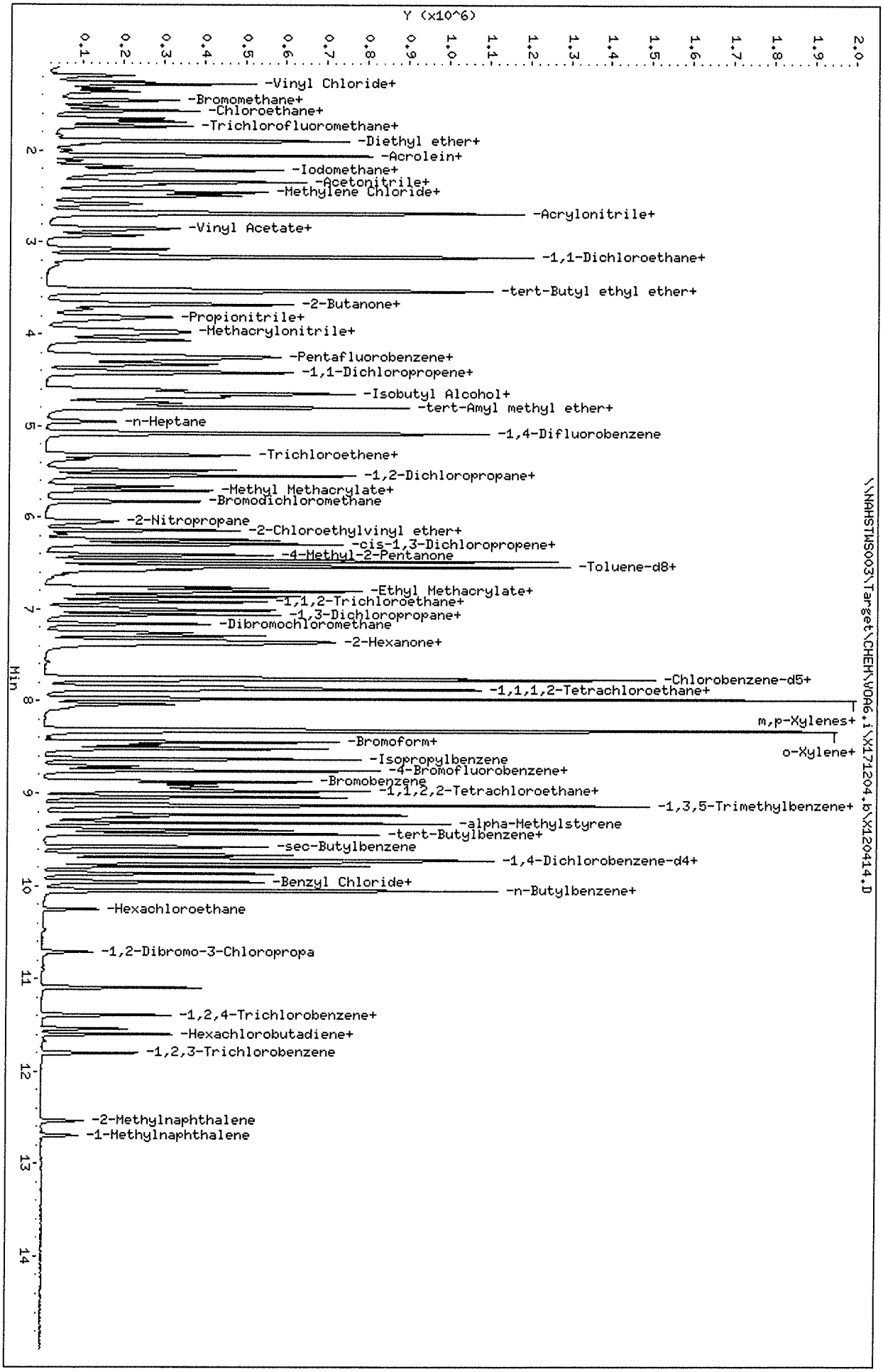
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	283798	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	475885	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	447334	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	192678	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	186505	50.5072	50.50
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	233266	48.5805	48.58
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	687609	50.8607	50.86
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	233893	48.4083	48.40
60 1,1,1,2-Tetrachloroethane	131	7.842	7.850	(1.013)	144711	45.1830	45.18
31 1,1,1-Trichloroethane	97	4.232	4.239	(0.978)	216265	47.1167	47.11
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	183232	47.4994	47.49
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	125161	43.2470	43.24
22 1,1-Dichloroethane	63	3.072	3.079	(0.710)	289305	45.8681	45.86
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	140109	48.2178	48.21
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	203105	47.8660	47.86
93 1,2,3-Trichlorobenzene	180	11.804	11.796	(1.214)	62135	42.5528	42.55
71 1,2,3-Trichloropropane	75	8.924	8.931	(0.918)	225213	44.4568	44.45
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	79526	43.7920	43.79
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	368009	45.9700	45.96
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	22072	42.3856	42.38
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	149469	44.4523	44.45
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	215313	42.3160	42.31

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120414.D
Report Date: 30-Jan-2018 14:30

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	224879	44.5578	44.55
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	172442	45.4376	45.43
75	1,3,5-Trimethylbenzene	105	9.125	9.132	(0.938)	340524	45.7174	45.71
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	215932	41.2668	41.26
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	271932	43.7123	43.71
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	229124	46.6769	46.67
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	228985	46.1681	46.16
24	2-Butanone	43	3.731	3.731	(0.863)	134119	94.2294	94.22
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	356021	47.4684	47.46
52	2-Hexanone	43	7.284	7.284	(0.941)	311587	90.3751	90.37
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	415462	46.4270	46.42
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	285395	42.0781	42.07
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	312604	81.6535	81.65
10	Acetone	43	2.112	2.119	(0.488)	87470	93.5520	93.55
37	Benzene	78	4.648	4.648	(0.914)	621299	45.9785	45.97
74	Bromobenzene	156	8.867	8.874	(0.912)	149609	43.1614	43.16
29	Bromochloromethane	128	3.960	3.960	(0.916)	76057	50.1104	50.11
39	Bromodichloromethane	83	5.822	5.830	(1.145)	223372	46.0893	46.08
66	Bromoform	173	8.480	8.480	(1.095)	106643	43.3613	43.36
6	Bromomethane	94	1.460	1.453	(0.338)	131617	51.1902	51.19
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	176988	48.5795	48.57
59	Chlorobenzene	112	7.764	7.764	(1.003)	401091	45.4026	45.40
7	Chloroethane	64	1.525	1.525	(0.353)	116982	48.6321	48.63
28	Chloroform	83	4.068	4.068	(0.940)	281553	45.5647	45.56
3	Chloromethane	50	1.188	1.188	(0.275)	218389	47.8415	47.84
27	cis-1,2-Dichloroethene	96	3.681	3.688	(0.851)	174191	46.5124	46.51
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	269956	45.3326	45.33
55	Dibromochloromethane	129	7.255	7.255	(0.937)	170839	43.1282	43.12
44	Dibromomethane	93	5.658	5.658	(1.113)	107901	45.5226	45.52
2	Dichlorodifluoromethane	85	1.081	1.081	(0.250)	149115	53.3670	53.36
19	Carbon Disulfide	76	2.212	2.212	(0.512)	841278	94.0953	94.09
61	Ethylbenzene	106	7.871	7.871	(1.017)	198029	45.5335	45.53
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	31559	52.8440	52.84
67	Isopropylbenzene	105	8.623	8.630	(1.114)	423053	41.4265	41.42
62	m,p-Xylenes	106	7.971	7.971	(1.030)	464756	89.0254	89.02
17	Methylene Chloride	84	2.449	2.449	(0.566)	172278	48.3713	48.37
87	n-Butylbenzene	91	10.049	10.056	(1.033)	256143	46.5955	46.59
73	n-Propylbenzene	91	8.974	8.974	(0.923)	507835	46.3222	46.32
92	Naphthalene	128	11.603	11.603	(1.193)	217976	45.1752	45.17
63	o-Xylene	106	8.308	8.308	(1.073)	219995	42.0837	42.08
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	328139	42.2147	42.21
64	Styrene	104	8.322	8.322	(1.075)	415059	44.1496	44.14
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	242095	45.5942	45.59
56	Tetrachloroethene	164	7.012	7.012	(0.906)	99147	46.3961	46.39
50	Toluene	91	6.532	6.532	(0.844)	610489	43.0863	43.08
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	156010	48.1280	48.12
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	233047	44.8467	44.84
38	Trichloroethene	130	5.321	5.321	(1.046)	148228	46.6146	46.61
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	202713	52.3466	52.34
5	Vinyl Chloride	62	1.260	1.260	(0.291)	203494	48.7224	48.72



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171204.b\X120414.D
Date : 04-DEC-2017 16:32
Client ID: VSTD-ICV
Sample Info: VSTD-ICV;VSTD-ICV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Lab File ID: X121301 BFB Injection Date: 12/13/17

Instrument ID: VOA6 BFB Injection Time: 1011

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.8
75	30.0 - 60.0% of mass 95	50.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.8 (1.2)1
174	Greater than 50.0% of mass 95	66.3
175	5.0 - 9.0% of mass 174	4.9 (7.4)1
176	95.0 - 101.0% of mass 174	64.1 (96.7)1
177	5.0 - 9.0% of mass 176	4.5 (7.1)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	X121302	12/13/17	1036
02	VLCSW-171213	VLCSW-171213	X121304	12/13/17	1125
03	VBLKW-017121	VBLKW-171213	X121307	12/13/17	1239
04	HS17120486-0	HS17120486-03M	X121311	12/13/17	1418
05	HS17120486-0	HS17120486-03M	X121312	12/13/17	1443
06	HS17120573-0	HS17120573-03	X121327	12/13/17	2100
07	HS17120573-0	HS17120573-04	X121328	12/13/17	2125
08	VSTD050-END	VSTD050-END	X121329	12/13/17	2150
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Instrument ID: VOA6 Calibration Date: 12/13/17 Time: 1036

Lab File ID: X121302 Init. Calib. Date(s): 12/04/17 12/04/17

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Bromochloromethane	52.898685	50.000000	0.2826166	0.1	-5.80	20.00	LINR
Vinyl Chloride	0.7360000	0.6671517	0.6671517	0.1	9.35	20.00	AVRG
Chloromethane	0.8040000	0.7816914	0.7816914	0.1	2.77	20.00	AVRG
Bromomethane	0.4530000	0.4072035	0.4072035	0.1	10.11	20.00	AVRG
Chloroethane	0.4240000	0.3820876	0.3820876	0.1	9.88	20.00	AVRG
Methylene Chloride	49.750504	50.000000	0.6242436	0.1	0.50	20.00	LINR
Acetone	94.476212	100.00000	0.1555992	0.1	5.52	20.00	LINR
Carbon Disulfide	1.5750000	1.5314153	1.5314153	0.1	2.77	20.00	AVRG
1,1-Dichloroethene	0.5120000	0.4834203	0.4834203	0.1	5.58	20.00	AVRG
trans-1,2-Dichloroethene	0.5710000	0.5699826	0.5699826	0.1	0.18	20.00	AVRG
Carbon Tetrachloride	0.3830000	0.3761002	0.3761002	0.1	1.80	20.00	AVRG
Bromodichloromethane	0.5090000	0.4969314	0.4969314	0.2	2.37	20.00	AVRG
1,1-Dichloroethane	1.1110000	1.0494221	1.0494221	0.2	5.54	20.00	AVRG
1,2-Dichloropropane	0.3990000	0.3788765	0.3788765	0.1	5.04	20.00	AVRG
2-Butanone	0.2510000	0.2483510	0.2483510	0.1	1.06	20.00	AVRG
cis-1,3-Dichloropropene	0.6260000	0.6075053	0.6075053	0.2	2.95	20.00	AVRG
Dibromochloromethane	0.4430000	0.4087835	0.4087835	0.1	7.72	20.00	AVRG
1,1,2-Trichloroethane	0.3230000	0.3025035	0.3025035	0.1	6.34	20.00	AVRG
cis-1,2-Dichloroethene	0.6600000	0.6312202	0.6312202	0.1	4.36	20.00	AVRG
Benzene	1.4200000	1.4236906	1.4236906	0.5	-0.26	20.00	AVRG
Chloroform	1.0880000	1.0174080	1.0174080	0.2	6.49	20.00	AVRG
trans-1,3-Dichloropropene	0.5460000	0.5238278	0.5238278	0.1	4.06	20.00	AVRG
Bromoform	0.2750000	0.2652517	0.2652517	0.1	3.54	20.00	AVRG
1,1,1-Trichloroethane	0.8080000	0.7811765	0.7811765	0.1	3.32	20.00	AVRG
4-Methyl-2-Pentanone	0.4280000	0.3865207	0.3865207	0.1	9.69	20.00	AVRG
2-Hexanone	0.3850000	0.3749712	0.3749712	0.1	2.60	20.00	AVRG
1,2-Dichloroethane	0.5300000	0.4782917	0.4782917	0.1	9.76	20.00	AVRG
1,1,2,2-Tetrachloroethane	47.708417	50.000000	0.9551907	0.3	4.58	20.00	LINR
Trichloroethene	0.3340000	0.3364194	0.3364194	0.2	-0.72	20.00	AVRG
Toluene	1.5840000	1.5183345	1.5183345	0.4	4.14	20.00	AVRG
Dichlorodifluoromethane	0.4920000	0.4850767	0.4850767	0.1	1.41	20.00	AVRG
Trichlorofluoromethane	0.6820000	0.6586976	0.6586976	0.1	3.42	20.00	AVRG
Tetrachloroethene	0.2390000	0.2417525	0.2417525	0.2	-1.15	20.00	AVRG
1,2-Dibromoethane	0.3760000	0.3681646	0.3681646	0.1	2.08	20.00	AVRG
Chlorobenzene	0.9870000	0.9420182	0.9420182	0.5	4.56	20.00	AVRG
1,3-Dichlorobenzene	1.3580000	1.2196077	1.2196077	0.6	10.19	20.00	AVRG
1,4-Dichlorobenzene	49.664447	50.000000	1.2661512	0.4	0.67	20.00	LINR
Ethylbenzene	0.4860000	0.4630105	0.4630105	0.1	4.73	20.00	AVRG
1,2-Dichlorobenzene	1.3200000	1.1927123	1.1927123	0.4	9.64	20.00	AVRG
m,p-Xylenes	0.5830000	0.5478777	0.5478777	0.1	6.02	20.00	AVRG
o-Xylene	0.5840000	0.5600682	0.5600682	0.3	4.10	20.00	AVRG
Styrene	1.0510000	1.0420631	1.0420631	0.3	0.85	20.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712057

Instrument ID: VOA6 Calibration Date: 12/13/17 Time: 1036

Lab File ID: X121302 Init. Calib. Date(s): 12/04/17 12/04/17

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
2,2-Dichloropropane	0.8740000	0.8164141	0.8164141	0.1	6.59	20.00	AVRG
1,1-Dichloropropene	0.4460000	0.4477619	0.4477619	0.1	-0.40	20.00	AVRG
Dibromomethane	0.2490000	0.2351549	0.2351549	0.1	5.56	20.00	AVRG
1,3-Dichloropropane	0.6950000	0.6364542	0.6364542	0.1	8.42	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3580000	0.3369049	0.3369049	0.1	5.89	20.00	AVRG
Isopropylbenzene	1.1420000	1.0799609	1.0799609	0.1	5.43	20.00	AVRG
Bromobenzene	0.8990000	0.8409997	0.8409997	0.1	6.45	20.00	AVRG
1,2,3-Trichloropropane	1.3140000	1.1618578	1.1618578	0.1	11.58	20.00	AVRG
n-Propylbenzene	49.243681	50.000000	2.8037104	0.1	1.51	20.00	LINR
2-Chlorotoluene	50.026936	50.000000	1.9481342	0.1	-0.05	20.00	LINR
1,3,5-Trimethylbenzene	49.486899	50.000000	1.9151475	0.1	1.03	20.00	LINR
4-Chlorotoluene	49.966631	50.000000	2.3229685	0.1	0.07	20.00	LINR
tert-Butylbenzene	49.931799	50.000000	1.3768521	0.1	0.14	20.00	LINR
1,2,4-Trimethylbenzene	49.707495	50.000000	2.0667641	0.1	0.58	20.00	LINR
sec-Butylbenzene	2.0170000	1.8564542	1.8564542	0.1	7.96	20.00	AVRG
p-Isopropyltoluene	1.7600000	1.6574707	1.6574707	0.1	5.82	20.00	AVRG
n-Butylbenzene	1.4260000	1.4070249	1.4070249	0.5	1.33	20.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1350000	0.1165413	0.1165413	0.05	13.67	20.00	AVRG
1,2,4-Trichlorobenzene	45.368819	50.000000	0.4285925	0.2	9.26	20.00	LINR
Hexachlorobutadiene	59.827512	50.000000	0.1857648	0.1	-19.66	20.00	LINR
Naphthalene	43.250490	50.000000	1.0794920	0.2	13.50	20.00	2RDR
1,2,3-Trichlorobenzene	42.270368	50.000000	0.3201601	0.1	15.46	20.00	LINR
Dibromofluoromethane	47.550438	50.000000	0.6190727	0.1	4.90	20.00	LINR
1,2-Dichloroethane-d4	44.317484	50.000000	0.7495467	0.1	11.36	20.00	LINR
Toluene-d8	52.429199	50.000000	1.5864254	0.1	-4.86	20.00	2RDR
4-Bromofluorobenzene	51.962794	50.000000	0.5621052	0.1	-3.92	20.00	2RDR

FORM 7B

VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Instrument ID: VOA6

Lab File ID: X121329 Calibration Date: 12/13/17 Time: 2150

Init. Calib. Date(s): 12/04/17 12/4/2017

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	kD or %DRIFT	MAX %D or DRIFT	CURV TYPE
Bromochloromethane	56.436893	50.000000	0.3011682	0.1	-12.87	50.00	LINR
Vinyl Chloride	0.7360000	0.6079692	0.6079692	0.1	17.40	50.00	AVRG
Chloromethane	0.8040000	0.7291888	0.7291888	0.1	9.30	50.00	AVRG
Bromomethane	0.4530000	0.3804826	0.3804826	0.1	16.01	50.00	AVRG
Chloroethane	0.4240000	0.3622197	0.3622197	0.1	14.57	50.00	AVRG
Methylene Chloride	48.662322	50.000000	0.6106738	0.1	2.68	50.00	LINR
Acetone	101.73805	100.00000	0.1673308	0.1	-1.74	50.00	LINR
Carbon Disulfide	1.5750000	1.3643537	1.3643537	0.1	13.37	50.00	AVRG
1,1-Dichloroethene	0.5120000	0.4226162	0.4226162	0.1	17.46	50.00	AVRG
trans-1,2-Dichloroethene	0.5710000	0.5192703	0.5192703	0.1	9.06	50.00	AVRG
Carbon Tetrachloride	0.3830000	0.3263844	0.3263844	0.1	14.78	50.00	AVRG
Bromodichloromethane	0.5090000	0.4872978	0.4872978	0.2	4.26	50.00	AVRG
1,1-Dichloroethane	1.1110000	0.9825907	0.9825907	0.2	11.56	50.00	AVRG
1,2-Dichloropropane	0.3990000	0.3641995	0.3641995	0.1	8.72	50.00	AVRG
2-Butanone	0.2510000	0.2615508	0.2615508	0.1	-4.20	50.00	AVRG
cis-1,3-Dichloropropene	0.6260000	0.5911806	0.5911806	0.2	5.56	50.00	AVRG
Dibromochloromethane	0.4430000	0.4036709	0.4036709	0.1	8.88	50.00	AVRG
1,1,2-Trichloroethane	0.3230000	0.3032618	0.3032618	0.1	6.11	50.00	AVRG
cis-1,2-Dichloroethene	0.6600000	0.6188524	0.6188524	0.1	6.23	50.00	AVRG
Benzene	1.4200000	1.2832546	1.2832546	0.5	9.63	50.00	AVRG
Chloroform	1.0880000	0.9797173	0.9797173	0.2	9.95	50.00	AVRG
trans-1,3-Dichloropropene	0.5460000	0.5103258	0.5103258	0.1	6.53	50.00	AVRG
Bromoform	0.2750000	0.2690164	0.2690164	0.1	2.18	50.00	AVRG
1,1,1-Trichloroethane	0.8080000	0.6999534	0.6999534	0.1	13.37	50.00	AVRG
4-Methyl-2-Pentanone	0.4280000	0.3834711	0.3834711	0.1	10.4	50.00	AVRG
2-Hexanone	0.3850000	0.3476491	0.3476491	0.1	9.70	50.00	AVRG
1,2-Dichloroethane	0.5300000	0.4877935	0.4877935	0.1	7.96	50.00	AVRG
1,1,2$_0$2-Tetrachloroethane	47.998522	50.000000	0.9610426	0.3	4.00	50.00	LINR
Trichloroethene	0.3340000	0.3294638	0.3294638	0.2	1.36	50.00	AVRG
Toluene	1.5840000	1.3555342	1.3555342	0.4	14.42	50.00	AVRG
Dichlorodifluoromethane	0.4920000	0.4351421	0.4351421	0.1	11.56	50.00	AVRG
Trichlorofluoromethane	0.6820000	0.5814781	0.5814781	0.1	14.74	50.00	AVRG
Tetrachloroethene	0.2390000	0.2037618	0.2037618	0.2	14.74	50.00	AVRG
1,2-Dibromoethane	0.3760000	0.3593710	0.3593710	0.1	4.42	50.00	AVRG
Chlorobenzene	0.9870000	0.8611432	0.8611432	0.5	12.75	50.00	AVRG
1,3-Dichlorobenzene	1.3580000	1.1154405	1.1154405	0.6	17.86	50.00	AVRG
1,4-Dichlorobenzene	46.267410	50.000000	1.1786017	0.4	7.46	50.00	LINR
Ethylbenzene	0.4860000	0.4049424	0.4049424	0.1	16.68	50.00	AVRG
1,2-Dichlorobenzene	1.3200000	1.1417145	1.1417145	0.4	13.51	50.00	AVRG
m, p-Xylenes	0.5830000	0.4871957	0.4871957	0.1	16.43	50.00	AVRG
O-Xylene	0.5840000	0.5023285	0.5023285	0.3	13.98	50.00	AVRG
Styrene	1.0510000	0.9685743	0.9685743	0.3	7.84	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:
Lab Code: Case No.: SAS No.: SDG No.: HS17120573
Instrument ID: VOA6
Lab File ID: X121329

Calibration Date: 12/13/17 Time: 2150

Init. Calib. Date(s): 12/04/17 12/4/2017

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	kD or %DRIFT	MAX %D or DRIFT	CURV TYPE
2,2-Dichloropropane	0.8740000	0.6883455	0.6883455	0.1	21.24	50.00	AVRG
1,1-Dichloropropene	0.4460000	0.3792901	0.3792901	0.1	14.96	50.00	AVRG
Dibromomethane	0.2490000	0.2389712	0.2389712	0.1	4.03	50.00	AVRG
1,3-Dichloropropane	0.6950000	0.6218613	0.6218613	0.1	10.52	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3580000	0.3179129	0.3179129	0.1	11.20	50.00	AVRG
Isopropylbenzene	1.1420000	0.9405562	0.9405562	0.1	17.64	50.00	AVRG
Bromobenzene	0.8990000	0.7980683	0.7980683	0.1	11.23	50.00	AVRG
1,2,3-Trichloropropane	1.3140000	1.1372582	1.1372582	0.1	13.45	50.00	AVRG
n-Propylbenzene	41.229930	50.000000	2.3427590	0.1	17.54	50.00	LINR
2-Chlorotoluene	44.404762	50.000000	1.7275538	0.1	11.19	50.00	LINR
1,3,5-Trimethylbenzene	42.513924	50.000000	1.6416943	0.1	14.97	50.00	LINR
4-Chlorotoluene	43.354263	50.000000	2.0115272	0.1	13.29	50.00	LINR
tert-Butylbenzene	41.548184	50.000000	1.1441880	0.1	16.90	50.00	LINR
1,2,4-Trimethylbenzene	43.464876	50.000000	1.8048771	0.1	13.07	50.00	LINR
sec-Butylbenzene	2.0170000	1.4482988	1.4482988	0.1	28.20	50.00	AVRG
p-Isopropyltoluene	1.7600000	1.3004073	1.3004073	0.1	26.11	50.00	AVRG
n-Butylbenzene	1.4260000	1.0492344	1.0492344	0.5	26.42	50.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1350000	0.1190902	0.1190902	0.05	11.78	50.00	AVRG
1,2,4-Trichlorobenzene	42.532636	50.000000	0.4000793	0.2	14.93	50.00	LINR
HexachIorobutadiene	39.579401	50.000000	0.1220543	0.1	20.84	50.00	LINR
Naphthalene	43.248324	50.000000	1.0794338	0.2	13.50	50.00	2RDR
1,2,3-Trichlorobenzene	41.102537	50.000000	0.3105634	0.1	17.79	50.00	LINR
Dibromofluoromethane	49.794726	50.000000	0.6479936	0.1	0.41	50.00	LINR
1,2-Dichloroethane-d4	48.624550	50.000000	0.8226916	0.1	2.75	50.00	LINR
Toluene-d8	50.690304	50.000000	1.5317802	0.1	-1.38	50.00	2RDR
4-Bromofluorobenzene	52.993679	50.000000	0.5735211	0.1	-5.99	50.00	2RDR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Lab File ID (Standard): X121302 Date Analyzed: 12/13/17

Instrument ID: VOA6 Time Analyzed: 1036

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	268038	4.33	429351	5.09	394693	7.74
	UPPER LIMIT	536076	4.83	858702	5.59	789386	8.24
	LOWER LIMIT	134019	3.83	214676	4.59	197347	7.24
	CLIENT SAMPLE NO.						
01	VLCSW-171213	258399	4.33	417079	5.09	390636	7.74
02	VBLKW-0171213	274936	4.33	445095	5.09	411714	7.74
03	HS17120486-03	254304	4.33	409338	5.09	378327	7.74
04	HS17120486-03	246063	4.33	392228	5.09	362663	7.74
05	HS17120573-03	247768	4.33	393072	5.09	355827	7.74
06	HS17120573-04	182124	4.33	296843	5.09	281273	7.74
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Lab File ID (Standard): X121302 Date Analyzed: 12/13/17

Instrument ID: VOA6 Time Analyzed: 1036

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	183377	9.73				
	UPPER LIMIT	366754	10.23				
	LOWER LIMIT	91689	9.23				
	CLIENT SAMPLE NO.						
01	VLCSW-171213	179110	9.73				
02	VBLKW-0171213	182944	9.73				
03	HS17120486-03	171541	9.73				
04	HS17120486-03	165325	9.73				
05	HS17120573-03	134418	9.73				
06	HS17120573-04	114802	9.73				
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

MSVOA06 -Logbook

Batch: 30292
Date: 12-13-2017
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-13-2017 10:11 am	1.00	50 mL	50 mL	X121301.D	Liquid	Y	na
	auto find/ purged									
2	VSTD050	CCV	12-13-2017 10:36 am	1.00	50 mL	50 mL	X121302.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
3	CCB	SAMP	12-13-2017 11:00 am	1.00	50 mL	50 mL	X121303.D	Liquid	Y	na
4	VLCSW-171213	LCS	12-13-2017 11:25 am	1.00	50 mL	50 mL	X121304.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
5	BLK	SAMP	12-13-2017 11:50 am	1.00	50 mL	50 mL	X121305.D	Liquid	Y	na
	clean up blank									
6	BLK	SAMP	12-13-2017 12:14 pm	1.00	50 mL	50 mL	X121306.D	Liquid	Y	na
	clean up blank									
7	VBLKW-171213	MBLK	12-13-2017 12:39 pm	1.00	50 mL	50 mL	X121307.D	Liquid	Y	na
8	HS17120486-03	SAMP	12-13-2017 01:04 pm	1.00	50 mL	50 mL	X121308.D	Liquid	Y	<2
9	HS17120486-08	SAMP	12-13-2017 01:28 pm	1.00	50 mL	50 mL	X121309.D	Liquid	Y	<2
10	HS17120486-09	SAMP	12-13-2017 01:54 pm	1.00	50 mL	50 mL	X121310.D	Liquid	Y	<2
11	HS17120486-03MS	MS	12-13-2017 02:18 pm	1.00	50 mL	50 mL	X121311.D	Liquid	Y	<2
	5 uL cal std/25 mL sample									
12	HS17120486-03MSD	MSD	12-13-2017 02:43 pm	1.00	50 mL	50 mL	X121312.D	Liquid	Y	<2
	5 uL cal std/25 mL sample									
13	HS17120332-06	SAMP	12-13-2017 03:08 pm	5.00	10 mL	50 mL	X121313.D	Liquid	Y	<2
14	HS17120332-11	SAMP	12-13-2017 03:33 pm	5.00	10 mL	50 mL	X121314.D	Liquid	Y	<2
15	HS17120332-01	SAMP	12-13-2017 03:58 pm	5.00	10 mL	50 mL	X121315.D	Liquid	Y	<2
16	HS17120332-15	SAMP	12-13-2017 04:23 pm	1.00	50 mL	50 mL	X121316.D	Liquid	Y	<2
17	HS17120332-16	SAMP	12-13-2017 04:48 pm	1.00	50 mL	50 mL	X121317.D	Liquid	Y	<2
18	HS17120332-17	SAMP	12-13-2017 05:16 pm	1.00	50 mL	50 mL	X121318.D	Liquid	Y	<2
19	HS17120486-01	SAMP	12-13-2017 05:41 pm	1.00	50 mL	50 mL	X121319.D	Liquid	Y	<2
20	HS17120486-02	SAMP	12-13-2017 06:06 pm	1.00	50 mL	50 mL	X121320.D	Liquid	Y	<2
21	HS17120486-04	SAMP	12-13-2017 06:31 pm	1.00	50 mL	50 mL	X121321.D	Liquid	Y	<2
22	HS17120486-05	SAMP	12-13-2017 06:56 pm	1.00	50 mL	50 mL	X121322.D	Liquid	Y	<2
23	HS17120486-06	SAMP	12-13-2017 07:21 pm	1.00	50 mL	50 mL	X121323.D	Liquid	Y	<2
24	HS17120486-07	SAMP	12-13-2017 07:45 pm	1.00	50 mL	50 mL	X121324.D	Liquid	Y	<2
25	HS17120450-01	SAMP	12-13-2017 08:10 pm	1.00	50 mL	50 mL	X121325.D	Liquid	Y	<2
26	HS17120450-02	SAMP	12-13-2017 08:35 pm	1.00	50 mL	50 mL	X121326.D	Liquid	Y	<2
27	HS17120573-03	SAMP	12-13-2017 09:00 pm	1.00	50 mL	50 mL	X121327.D	Liquid	Y	<2
28	HS17120573-04	SAMP	12-13-2017 09:25 pm	1.00	50 mL	50 mL	X121328.D	Liquid	Y	<2
29	VSTD050-END	CCV	12-13-2017 09:50 pm	1.00	50 mL	50 mL	X121329.D	Liquid	Y	na
	10 uL cal std/50 mL DI									

Chemical	Value
SURR SPK ID	30502-03-03
IS ID	30502-03-04
LCS/MS ID	30502-06-01/02
BFB ID	30502-03-03
pH Paper	634-37-03

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121301.D

Date : 13-DEC-2017 10:11

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

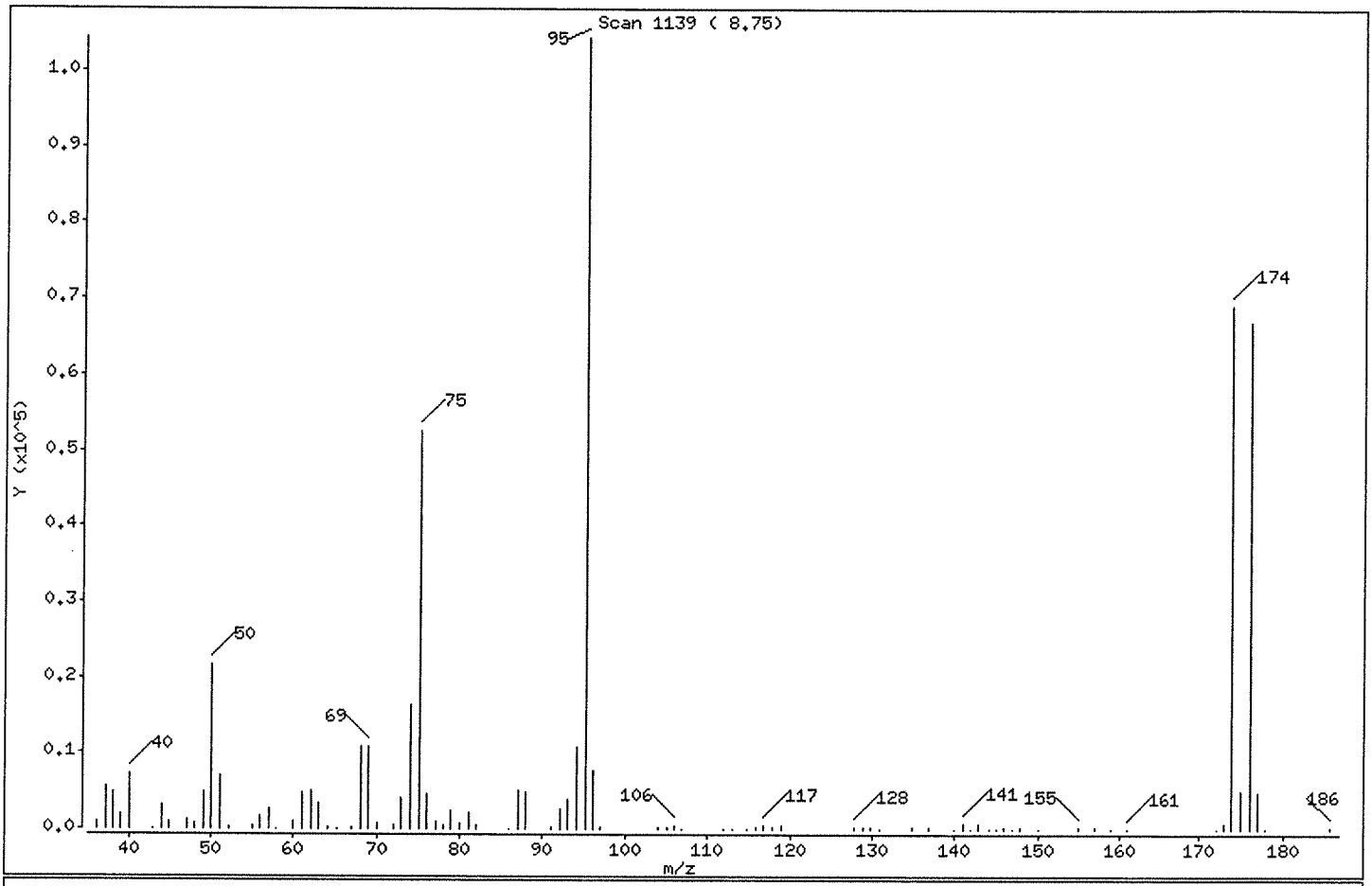
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.77
75	30.00 - 60.00% of mass 95	50.43
96	5.00 - 9.00% of mass 95	7.33
173	Less than 2.00% of mass 174	0.76 (1.15)
174	Greater than 50.00% of mass 95	66.29
175	5.00 - 9.00% of mass 174	4.91 (7.41)
176	95.00 - 101.00% of mass 174	64.07 (96.66)
177	5.00 - 9.00% of mass 176	4.54 (7.09)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121301.D

Date : 13-DEC-2017 10:11

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X121301.D
Spectrum: Scan 1139 (8.75)
Location of Maximum: 95.10
Number of points: 88

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	884	65.10	93	95.10	104336	142.90	615
37.10	5486	67.00	325	96.10	7644	144.10	56
38.10	4841	68.00	10682	97.00	236	145.00	88
39.00	1919	69.00	10772	104.00	337	145.90	169
40.00	7221	70.00	747	105.00	153	147.00	53
43.00	102	72.00	581	106.00	387	147.90	192
44.00	3034	73.00	4055	106.90	89	150.00	94
45.00	899	74.00	16408	112.00	55	155.00	227
47.10	1285	75.10	52616	113.00	92	157.00	156
47.90	627	76.10	4615	114.90	85	159.00	104
49.10	4734	77.00	866	116.00	309	160.90	75
50.10	21672	78.00	513	116.90	543	172.10	50
51.10	6916	78.90	2445	117.90	274	173.00	796
52.10	327	80.00	605	118.90	396	174.00	69160
55.00	379	81.00	2270	127.90	350	175.00	5122
56.00	1595	81.90	460	129.00	155	176.00	66848
57.10	2634	86.00	106	129.80	244	177.00	4742
58.00	115	87.00	4983	130.90	112	177.90	99
60.00	952	88.00	4851	134.90	164	185.90	161
61.00	4857	91.10	331	136.90	157		
62.10	4920	92.00	2559	139.90	63		
63.00	3446	93.00	3805	141.00	728		
64.00	300	94.00	10814	142.00	91		

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121301.D

Date : 13-DEC-2017 10:11

Client ID: BFB

Instrument: voa6.i

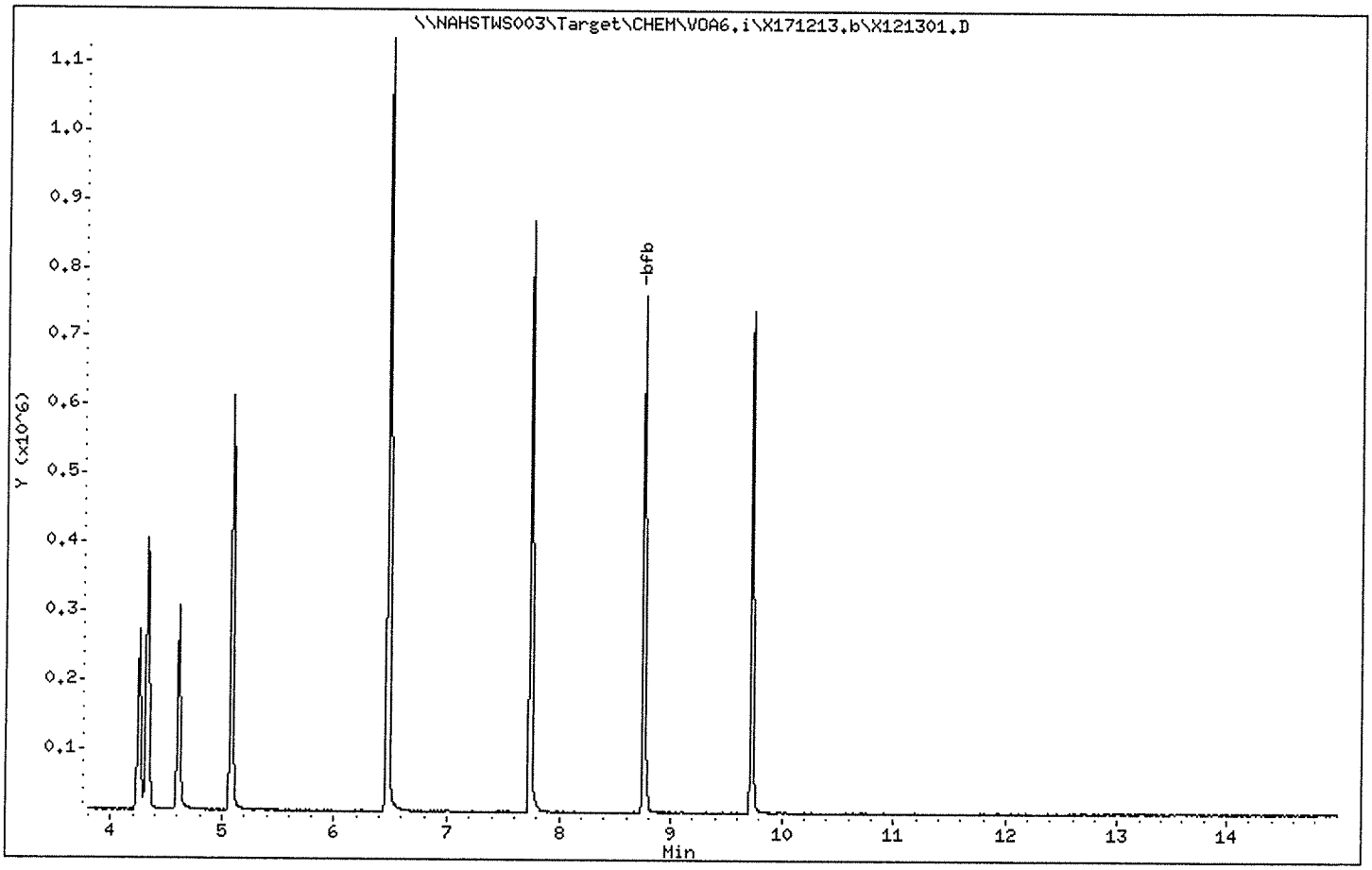
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121302.D Version 6
Report Date: 30-Jan-2018 14:52

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121302.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 13-DEC-2017 10:36
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171213.b\8260W.m
Meth Date : 30-Jan-2018 14:52 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

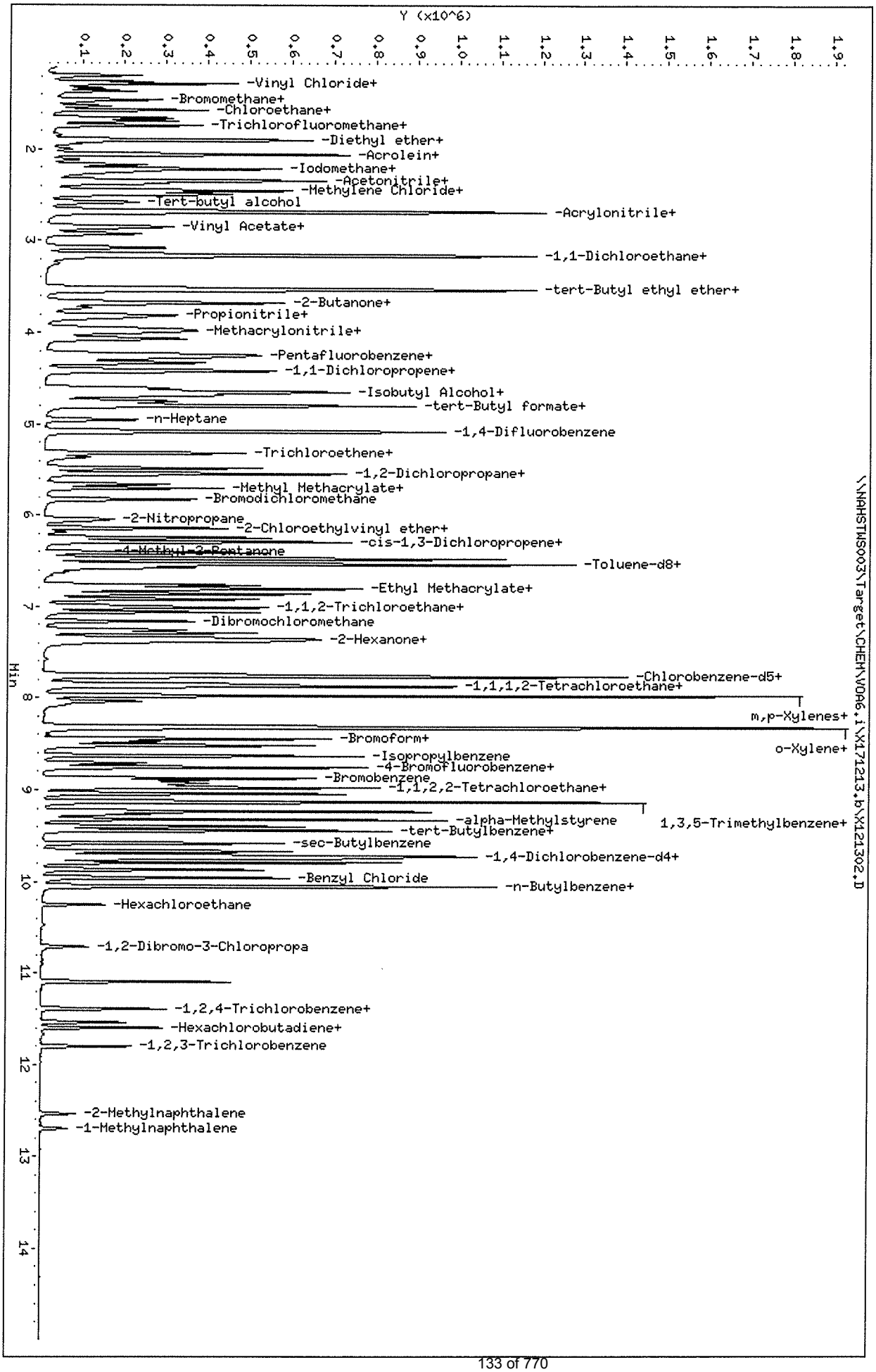
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	268038	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	429351	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	394693	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	183377	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	165935	50.0000	47.55
$ 35 1,2-Dichloroethane-d4	65	4.605	4.605	(1.065)	200907	50.0000	44.31
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	626151	50.0000	52.42
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	221859	50.0000	51.96
60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.013)	132974	50.0000	47.05
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	209385	50.0000	48.30
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	175160	50.0000	47.70
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	119396	50.0000	46.75
22 1,1-Dichloroethane	63	3.072	3.072	(0.710)	281285	50.0000	47.21
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	129575	50.0000	47.21
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	192247	50.0000	50.21
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	58710	50.0000	42.27
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	213058	50.0000	44.19
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	78594	50.0000	45.36
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	378997	50.0000	49.70
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	21371	50.0000	43.12
57 1,2-Dibromoethane	107	7.334	7.334	(0.947)	145312	50.0000	48.97
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	218716	50.0000	45.16

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121302.D Version 6
Report Date: 30-Jan-2018 14:52

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	205355	50.0000	45.09
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	162671	50.0000	47.50
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	351194	50.0000	49.48
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	223648	50.0000	44.90
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	251204	50.0000	45.76
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	232183	50.0000	49.66
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	218830	50.0000	46.71
24	2-Butanone	43	3.731	3.731	(0.863)	133135	100.000	99.03
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	357243	50.0000	50.02
52	2-Hexanone	43	7.284	7.284	(0.941)	295997	100.000	97.30
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	425979	50.0000	49.96
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	303942	50.0000	47.08
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	305114	100.000	90.32
10	Acetone	43	2.112	2.112	(0.488)	83413	100.000	94.47
37	Benzene	78	4.648	4.648	(0.914)	611263	50.0000	50.13
74	Bromobenzene	156	8.867	8.867	(0.912)	154220	50.0000	46.74
29	Bromochloromethane	128	3.960	3.960	(0.916)	75752	50.0000	52.89
39	Bromodichloromethane	83	5.822	5.822	(1.145)	213358	50.0000	48.79
66	Bromoform	173	8.480	8.480	(1.095)	104693	50.0000	48.24
6	Bromomethane	94	1.460	1.460	(0.338)	109146	50.0000	44.94
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	161479	50.0000	49.12
59	Chlorobenzene	112	7.764	7.764	(1.003)	371808	50.0000	47.70
7	Chloroethane	64	1.525	1.525	(0.353)	102414	50.0000	45.07
28	Chloroform	83	4.067	4.067	(0.940)	272704	50.0000	46.72
3	Chloromethane	50	1.195	1.195	(0.276)	209523	50.0000	48.59
27	cis-1,2-Dichloroethene	96	3.681	3.681	(0.851)	169191	50.0000	47.83
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	260833	50.0000	48.54
55	Dibromochloromethane	129	7.255	7.255	(0.937)	161344	50.0000	46.16
44	Dibromomethane	93	5.658	5.658	(1.113)	100964	50.0000	47.21
2	Dichlorodifluoromethane	85	1.080	1.080	(0.250)	130019	50.0000	49.26
19	Carbon Disulfide	76	2.212	2.212	(0.512)	820955	100.000	97.22
61	Ethylbenzene	106	7.871	7.871	(1.017)	182747	50.0000	47.62
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	34065	50.0000	59.82
67	Isopropylbenzene	105	8.623	8.623	(1.114)	426253	50.0000	47.30
62	m,p-Xylenes	106	7.971	7.971	(1.030)	432487	100.000	93.89
17	Methylene Chloride	84	2.449	2.449	(0.566)	167321	50.0000	49.75
87	n-Butylbenzene	91	10.056	10.056	(1.034)	258016	50.0000	49.31
73	n-Propylbenzene	91	8.974	8.974	(0.923)	514136	50.0000	49.24
92	Naphthalene	128	11.603	11.603	(1.193)	197954	50.0000	43.25
63	o-Xylene	106	8.308	8.308	(1.073)	221055	50.0000	47.92
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	340431	50.0000	46.01
64	Styrene	104	8.322	8.322	(1.075)	411295	50.0000	49.58
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	252483	50.0000	49.93
56	Tetrachloroethene	164	7.011	7.011	(0.906)	95418	50.0000	50.60
50	Toluene	91	6.532	6.532	(0.844)	599276	50.0000	47.93
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	152777	50.0000	49.90
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	224906	50.0000	47.97
38	Trichloroethene	130	5.321	5.321	(1.046)	144442	50.0000	50.34
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	176556	50.0000	48.27
5	Vinyl Chloride	62	1.260	1.260	(0.291)	178822	50.0000	45.33



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121302.D
Date : 13-DEC-2017 10:36
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121304.D Version 5
Report Date: 30-Jan-2018 14:52

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121304.D
Lab Smp Id: VLCSW-171213 Client Smp ID: VLCSW-171213
Inj Date : 13-DEC-2017 11:25
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-171213;VLCSW-171213;3;;LCS
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171213.b\8260W.m
Meth Date : 30-Jan-2018 14:52 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 4 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

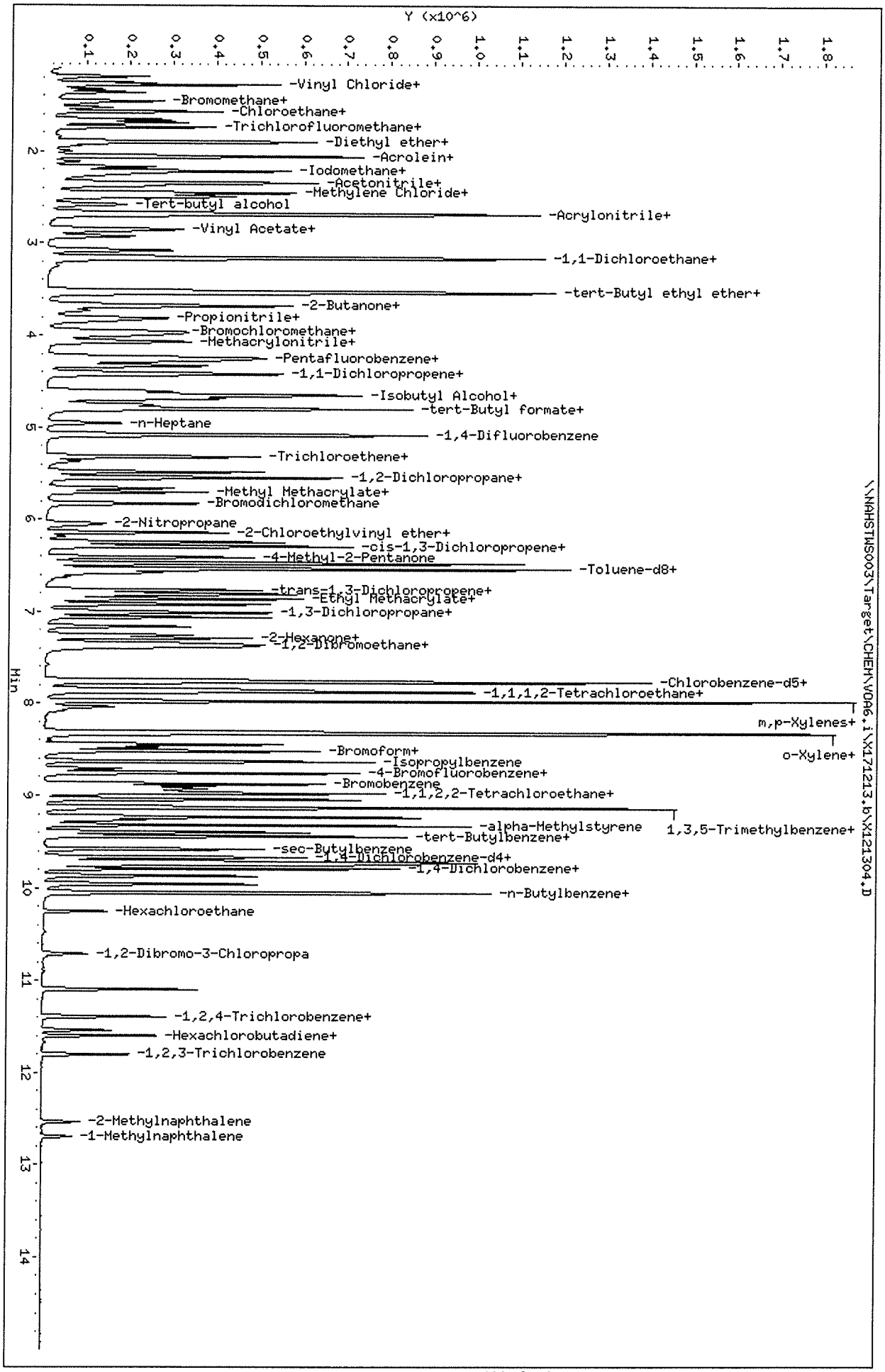
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	258399	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	417079	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	390636	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	179110	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	159288	47.3463	47.34
$ 35 1,2-Dichloroethane-d4	65	4.612	4.605	(1.066)	191954	43.9237	43.92
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	602550	51.0314	51.03
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	211729	50.1449	50.14
60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.013)	135749	48.5366	48.53
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	209862	50.2159	50.21
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	166924	46.5570	46.55
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	118804	47.0086	47.00
22 1,1-Dichloroethane	63	3.079	3.072	(0.712)	279434	48.6578	48.65
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	127321	48.1238	48.12
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	188899	50.7949	50.79
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	56140	41.4524	41.45
71 1,2,3-Trichloropropane	75	8.931	8.924	(0.918)	202865	43.0788	43.07
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	74724	44.2352	44.23
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	378871	50.8644	50.86
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	19695	40.6860	40.68
57 1,2-Dibromoethane	107	7.341	7.334	(0.948)	139907	47.6477	47.64
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	219778	46.4655	46.46

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121304.D Version 5
Report Date: 30-Jan-2018 14:52

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	207084	46.8172	46.81
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	165262	49.6854	49.68
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	348191	50.2228	50.22
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	224450	46.1440	46.14
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	250143	46.0459	46.04
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	234803	51.4024	51.40
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	217073	48.0683	48.06
24	2-Butanone	43	3.731	3.731	(0.863)	118601	91.5173	91.51
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	357022	51.1784	51.17
52	2-Hexanone	43	7.284	7.284	(0.941)	273995	91.0064	91.00
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	428598	51.4521	51.45
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	278786	44.2174	44.21
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	279885	83.7182	83.71
10	Acetone	43	2.112	2.112	(0.488)	74311	87.1671	87.16
37	Benzene	78	4.648	4.648	(0.914)	610984	51.5902	51.59
74	Bromobenzene	156	8.867	8.867	(0.912)	155138	48.1469	48.14
29	Bromochloromethane	128	3.960	3.960	(0.916)	77907	56.4999	56.49
39	Bromodichloromethane	83	5.822	5.822	(1.145)	214160	50.4189	50.41
66	Bromoform	173	8.480	8.480	(1.095)	102350	47.6560	47.65
6	Bromomethane	94	1.460	1.460	(0.338)	111749	47.7350	47.73
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	165585	51.8578	51.85
59	Chlorobenzene	112	7.764	7.764	(1.003)	375094	48.6226	48.62
7	Chloroethane	64	1.525	1.525	(0.353)	102380	46.7452	46.74
28	Chloroform	83	4.067	4.067	(0.940)	274204	48.7372	48.73
3	Chloromethane	50	1.195	1.195	(0.276)	209032	50.2927	50.29
27	cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	169062	49.5801	49.58
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	266780	51.1158	51.11
55	Dibromochloromethane	129	7.255	7.255	(0.937)	160445	46.3832	46.38
44	Dibromomethane	93	5.658	5.658	(1.113)	100010	48.1425	48.14
2	Dichlorodifluoromethane	85	1.080	1.080	(0.250)	128018	50.3200	50.32
19	Carbon Disulfide	76	2.212	2.212	(0.512)	809149	99.3975	99.39
61	Ethylbenzene	106	7.871	7.871	(1.017)	184673	48.6256	48.62
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	26618	48.0200	48.01
67	Isopropylbenzene	105	8.623	8.623	(1.114)	426678	47.8457	47.84
62	m,p-Xylenes	106	7.971	7.971	(1.030)	436862	95.8281	95.82
17	Methylene Chloride	84	2.449	2.449	(0.566)	167546	51.6877	51.68
87	n-Butylbenzene	91	10.049	10.056	(1.033)	227293	44.4795	44.47
73	n-Propylbenzene	91	8.974	8.974	(0.923)	508065	49.8156	49.81
92	Naphthalene	128	11.603	11.603	(1.193)	183394	41.1773	41.17
63	o-Xylene	106	8.308	8.308	(1.073)	224090	49.0889	49.08
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	312995	43.3167	43.31
64	Styrene	104	8.322	8.322	(1.075)	413110	50.3202	50.32
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	243323	49.2709	49.27
56	Tetrachloroethene	164	7.011	7.011	(0.906)	95404	51.1244	51.12
50	Toluene	91	6.532	6.532	(0.844)	603800	48.7993	48.79
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	151374	51.2879	51.28
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	223270	49.0231	49.02
38	Trichloroethene	130	5.321	5.321	(1.046)	145039	52.0427	52.04
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	169993	48.2121	48.21
5	Vinyl Chloride	62	1.260	1.260	(0.291)	174941	46.0031	46.00



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Sample Info: VLCSW-171213;VLCSW-171213;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121307.D Version 4
Report Date: 30-Jan-2018 14:52

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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121307.D
Lab Smp Id: VBLKW-171213 Client Smp ID: VBLKW-0171213
Inj Date : 13-DEC-2017 12:39
Operator : PC Inst ID: voa6.i
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Misc Info : HS16030331;WATER;0;1;
Comment   :
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Meth Date : 30-Jan-2018 14:52 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	274936	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	445095	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	411714	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	182944	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	172336	48.1518	48.15
$ 35 1,2-Dichloroethane-d4	65	4.612	4.605	(1.066)	211073	45.3874	45.38
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	646419	51.9093	51.90
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	229101	51.4522	51.45

00871410

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121307.D

Date : 13-DEC-2017 12:39

Client ID: VBLKW-0171213

Sample Info: VBLKW-171213;VBLKW-0171213;3;;BLANK

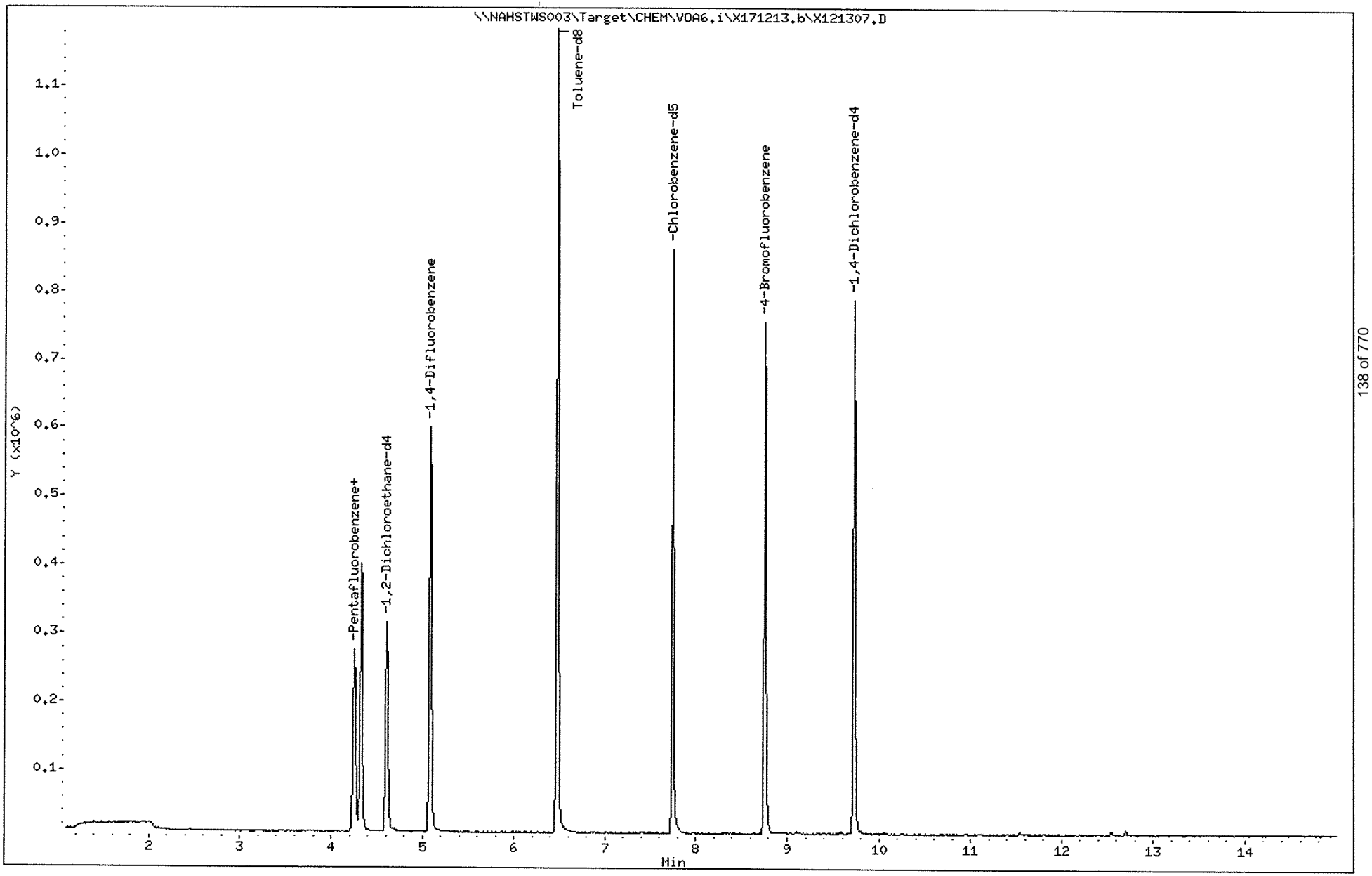
Purge Volume: 5.0

Column phase: DB624

Instrument: voa6.i

Operator: PC

Column diameter: 0.18



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Report Date: 30-Jan-2018 14:52

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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121311.D
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Inj Date : 13-DEC-2017 14:18
Operator : PC Inst ID: voa6.i
Smp Info : HS17120486-03MS;HS17120486-03MS;3;;MS
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171213.b\8260W.m
Meth Date : 30-Jan-2018 14:52 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 11 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

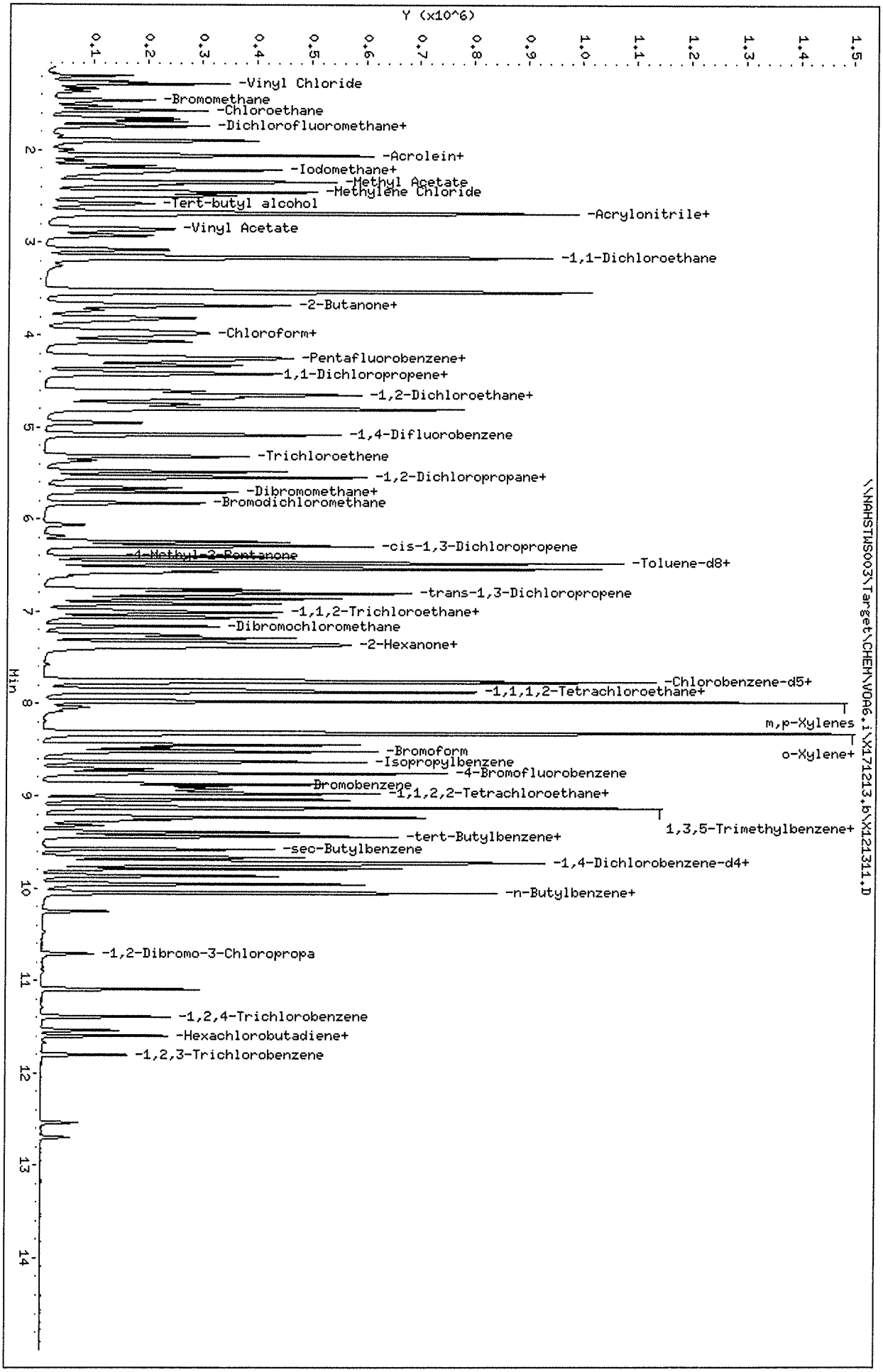
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.326	4.325	(1.000)	254304	50.0000	
*	36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	409338	50.0000	
*	47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	378327	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	171541	50.0000	
$	30 Dibromofluoromethane	113	4.254	4.254	(0.983)	159684	48.2374	48.23
$	35 1,2-Dichloroethane-d4	65	4.612	4.605	(1.066)	192989	44.8677	44.86
$	48 Toluene-d8	98	6.474	6.474	(0.836)	598696	52.3039	52.30
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	211159	51.6043	51.60
	60 1,1,1,2-Tetrachloroethane	131	7.843	7.842	(1.013)	111219	41.0598	41.05
	31 1,1,1-Trichloroethane	97	4.240	4.239	(0.980)	166805	40.5559	40.55
	68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	150254	43.7780	43.77
	53 1,1,2-Trichloroethane	83	6.919	6.918	(0.894)	100746	41.1604	41.16
	22 1,1-Dichloroethane	63	3.079	3.072	(0.712)	222199	39.3145	39.31
	11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	100975	38.7803	38.78
	32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	151364	41.4715	41.47
	93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	44255	34.7042	34.70
	71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	182584	40.4829	40.48
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	60241	37.6682	37.66
	79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	299191	42.0170	42.01
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	17958	38.7345	38.73
	57 1,2-Dibromoethane	107	7.341	7.334	(0.948)	124223	43.6827	43.68
	88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	176009	38.8538	38.85

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121311.D Version 5
Report Date: 30-Jan-2018 14:52

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	172272	39.6834	39.68
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	133777	40.9801	40.98
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	275222	41.5632	41.56
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	177787	38.1635	38.16
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	209394	39.7990	39.79
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	186874	42.8056	42.80
26	2,2-Dichloropropane	77	3.667	3.666	(0.848)	173880	39.1238	39.12
24	2-Butanone	43	3.731	3.731	(0.863)	114294	89.6140	89.61
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	281774	42.2396	42.23
52	2-Hexanone	43	7.284	7.284	(0.941)	271164	92.9964	92.99
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	334102	41.9981	41.99
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	227281	37.6389	37.63
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	268356	82.8813	82.88
10	Acetone	43	2.112	2.112	(0.488)	71360	85.0089	85.00
37	Benzene	78	4.648	4.648	(0.914)	484805	41.7101	41.71
74	Bromobenzene	156	8.874	8.867	(0.912)	127328	41.2597	41.25
29	Bromochloromethane	128	3.953	3.960	(0.914)	63073	46.3007	46.30
39	Bromodichloromethane	83	5.823	5.822	(1.145)	175644	42.1332	42.13
66	Bromoform	173	8.480	8.480	(1.095)	89265	42.9157	42.91
6	Bromomethane	94	1.460	1.460	(0.338)	81479	35.3653	35.36
34	Carbon Tetrachloride	117	4.412	4.411	(0.868)	133759	42.6828	42.68
59	Chlorobenzene	112	7.764	7.764	(1.003)	297381	39.8030	39.80
7	Chloroethane	64	1.525	1.525	(0.353)	77976	36.1760	36.17
28	Chloroform	83	4.068	4.067	(0.940)	220486	39.8203	39.82
3	Chloromethane	50	1.195	1.195	(0.276)	142511	34.8400	34.84
27	cis-1,2-Dichloroethene	96	3.681	3.681	(0.851)	136314	40.6199	40.61
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	215191	42.0109	42.01
55	Dibromochloromethane	129	7.255	7.255	(0.937)	137512	41.0468	41.04
44	Dibromomethane	93	5.658	5.658	(1.113)	85642	42.0057	42.00
2	Dichlorodifluoromethane	85	1.081	1.080	(0.250)	74714	29.8407	29.84
19	Carbon Disulfide	76	2.212	2.212	(0.512)	623087	77.7738	77.77
61	Ethylbenzene	106	7.871	7.871	(1.017)	145469	39.5491	39.54
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	22345	42.1874	42.18
67	Isopropylbenzene	105	8.623	8.623	(1.114)	339279	39.2830	39.28
62	m,p-Xylenes	106	7.972	7.971	(1.030)	344194	77.9573	77.95
17	Methylene Chloride	84	2.449	2.449	(0.566)	135519	42.4256	42.42
87	n-Butylbenzene	91	10.056	10.056	(1.034)	185645	37.9323	37.93
73	n-Propylbenzene	91	8.974	8.974	(0.923)	397646	40.8009	40.80
92	Naphthalene	128	11.603	11.603	(1.193)	155247	36.7120	36.71
63	o-Xylene	106	8.308	8.308	(1.073)	175878	39.7811	39.78
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	252454	36.4798	36.47
64	Styrene	104	8.323	8.322	(1.075)	302643	38.0638	38.06
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	195127	41.3070	41.30
56	Tetrachloroethene	164	7.012	7.011	(0.906)	75966	42.0325	42.03
50	Toluene	91	6.532	6.532	(0.844)	477182	39.8208	39.82
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	118681	40.8585	40.85
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	185871	41.5832	41.58
38	Trichloroethene	130	5.321	5.321	(1.046)	117151	42.8309	42.83
8	Trichlorofluoromethane	101	1.690	1.689	(0.391)	135159	38.9500	38.95
5	Vinyl Chloride	62	1.260	1.260	(0.291)	129035	34.4779	34.47



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Sample Info: HS17120486-03MS;HS17120486-03MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121312.D Version 5
Report Date: 30-Jan-2018 14:52

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121312.D
Lab Smp Id: HS17120486-03MSD Client Smp ID: HS17120486-03MSD
Inj Date : 13-DEC-2017 14:43
Operator : PC Inst ID: voa6.i
Smp Info : HS17120486-03MSD;HS17120486-03MSD;3;;MSD
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171213.b\8260W.m
Meth Date : 30-Jan-2018 14:52 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 12 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

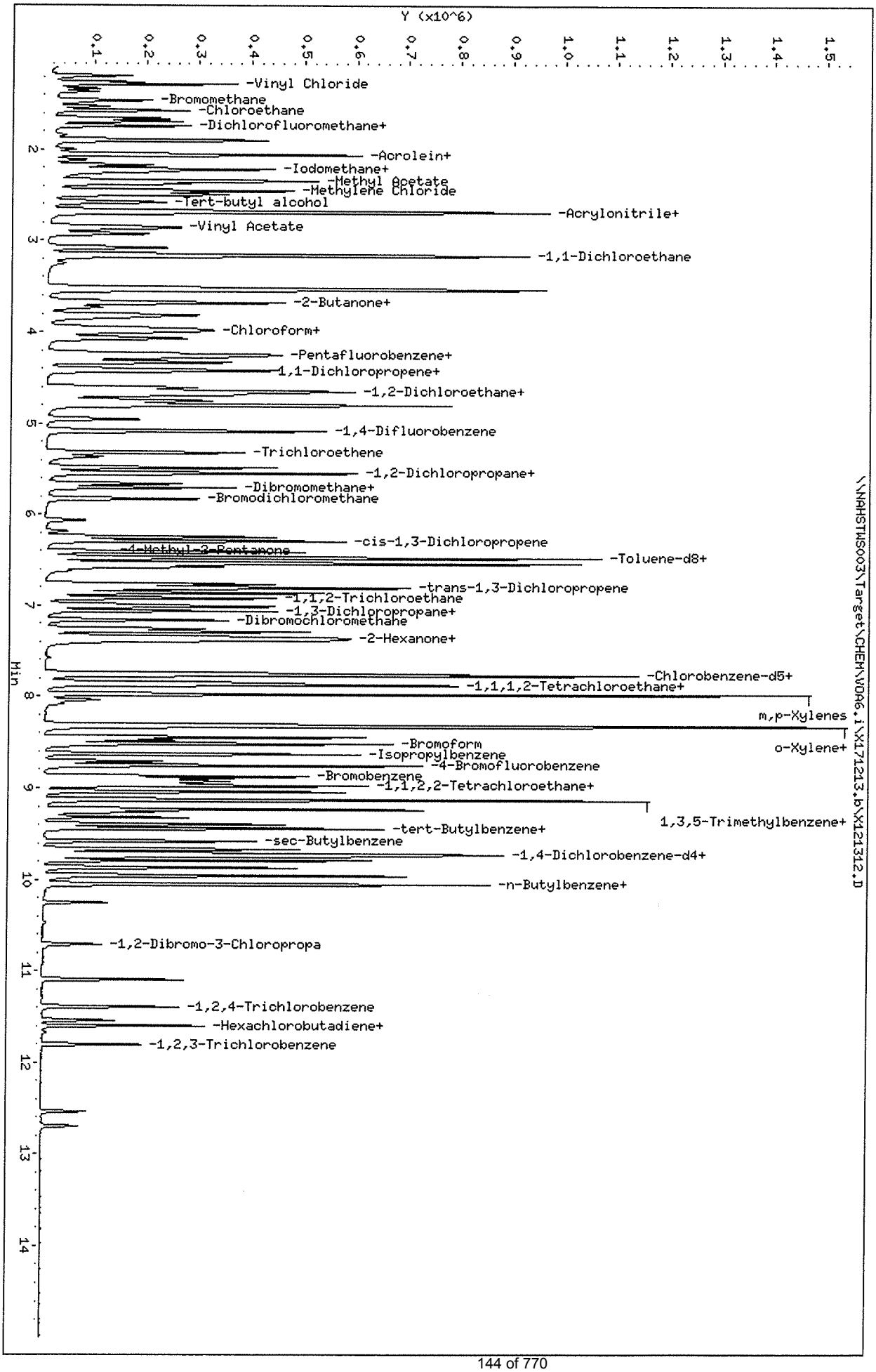
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	246063	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	392228	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	362663	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	165325	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	154993	48.3900	48.38
$ 35 1,2-Dichloroethane-d4	65	4.612	4.605	(1.066)	190769	45.8331	45.83
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	584039	53.1908	53.19
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	208851	53.2067	53.20
60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.013)	110713	42.6384	42.63
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	167811	42.1669	42.16
68 1,1,2,2-Tetrachloroethane	83	8.902	8.903	(0.915)	159191	48.0905	48.09
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	102800	43.8136	43.81
22 1,1-Dichloroethane	63	3.079	3.072	(0.712)	221470	40.4979	40.49
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	99558	39.5167	39.51
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	152240	43.5310	43.53
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	53117	42.4077	42.40
71 1,2,3-Trichloropropane	75	8.931	8.924	(0.918)	196312	45.1632	45.16
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	66357	42.6613	42.66
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	290906	42.3856	42.38
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	21225	47.5026	47.50
57 1,2-Dibromoethane	107	7.341	7.334	(0.948)	128059	46.9766	46.97
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	179700	41.1601	41.16

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121312.D Version 5
Report Date: 30-Jan-2018 14:52

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	174784	42.0184	42.01
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	132359	42.3145	42.31
75	1,3,5-Trimethylbenzene	105	9.132	9.125	(0.939)	268851	42.1187	42.11
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	179105	39.8919	39.89
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	217060	43.0380	43.03
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	185554	44.0851	44.08
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	174014	40.4652	40.46
24	2-Butanone	43	3.731	3.731	(0.863)	123603	100.159	100.15
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	279676	43.4903	43.49
52	2-Hexanone	43	7.284	7.284	(0.941)	290079	103.780	103.78
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	330451	43.0840	43.08
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	218510	37.5470	37.54
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	285864	92.1019	92.10
10	Acetone	43	2.112	2.112	(0.488)	74559	91.9412	91.94
37	Benzene	78	4.648	4.648	(0.914)	482225	43.2979	43.29
74	Bromobenzene	156	8.867	8.867	(0.912)	126820	42.6402	42.64
29	Bromochloromethane	128	3.953	3.960	(0.914)	63974	48.5833	48.58
39	Bromodichloromethane	83	5.822	5.822	(1.145)	177172	44.3537	44.35
66	Bromoform	173	8.480	8.480	(1.095)	92854	46.5693	46.56
6	Bromomethane	94	1.460	1.460	(0.338)	85618	38.4064	38.40
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	128910	42.9299	42.92
59	Chlorobenzene	112	7.764	7.764	(1.003)	298685	41.7043	41.70
7	Chloroethane	64	1.525	1.525	(0.353)	78044	37.4202	37.42
28	Chloroform	83	4.067	4.067	(0.940)	218798	40.8389	40.83
3	Chloromethane	50	1.195	1.195	(0.276)	141850	35.8398	35.83
27	cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	136360	41.9945	41.99
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	217584	44.3311	44.33
55	Dibromochloromethane	129	7.255	7.255	(0.937)	140576	43.7738	43.77
44	Dibromomethane	93	5.658	5.658	(1.113)	87046	44.5568	44.55
2	Dichlorodifluoromethane	85	1.080	1.080	(0.250)	73851	30.4839	30.48
19	Carbon Disulfide	76	2.212	2.212	(0.512)	620007	79.9812	79.98
61	Ethylbenzene	106	7.871	7.871	(1.017)	144285	40.9215	40.92
91	Hexachlorobutadiene	225	11.538	11.539	(1.186)	22007	43.0942	43.09
67	Isopropylbenzene	105	8.623	8.623	(1.114)	335331	40.5029	40.50
62	m,p-Xylenes	106	7.971	7.971	(1.030)	341816	80.7625	80.76
17	Methylene Chloride	84	2.449	2.449	(0.566)	134455	43.5101	43.51
87	n-Butylbenzene	91	10.049	10.056	(1.033)	179152	37.9819	37.98
73	n-Propylbenzene	91	8.974	8.974	(0.923)	394634	41.9994	41.99
92	Naphthalene	128	11.603	11.603	(1.193)	200871	48.2690	48.26
63	o-Xylene	106	8.308	8.308	(1.073)	176971	41.7573	41.75
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	245626	36.8276	36.82
64	Styrene	104	8.322	8.322	(1.075)	316554	41.5330	41.53
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	189261	41.5696	41.56
56	Tetrachloroethene	164	7.011	7.011	(0.906)	75032	43.3089	43.30
50	Toluene	91	6.532	6.532	(0.844)	473709	41.2384	41.23
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	118475	42.1536	42.15
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	188921	44.1093	44.10
38	Trichloroethene	130	5.321	5.321	(1.046)	117166	44.7051	44.70
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	135896	40.4740	40.47
5	Vinyl Chloride	62	1.260	1.260	(0.291)	128923	35.6017	35.60



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Date : 13-DEC-2017 14:43
Client ID: HS17120486-03MSD
Sample Info: HS17120486-03MSD;HS17120486-03MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121327.D Version 6
Report Date: 30-Jan-2018 14:52

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121327.D
Lab Smp Id: HS17120573-03 Client Smp ID: HS17120573-03
Inj Date : 13-DEC-2017 21:00
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-03;HS17120573-03;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171213.b\8260W.m
Meth Date : 30-Jan-2018 14:52 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

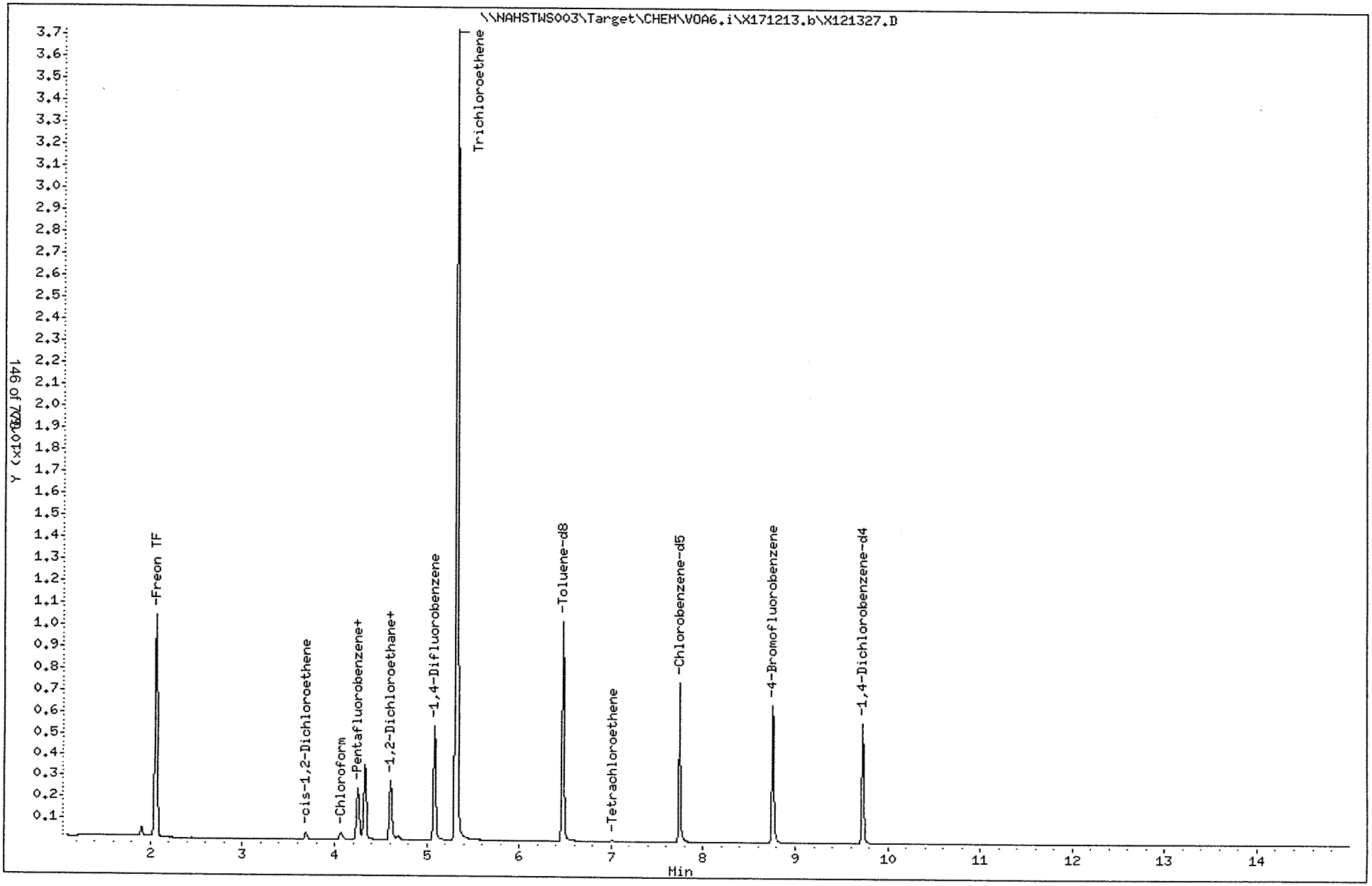
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	247768	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	393072	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	355827	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	134418	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	153577	47.6101	47.61
$ 35 1,2-Dichloroethane-d4	65	4.612	4.605	(1.066)	192695	45.9766	45.97
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	578084	53.6411	53.64
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	201854	52.4304	52.43
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	10817	2.59485	2.59
28 Chloroform	83	4.068	4.067	(0.940)	26827	4.97284	4.97
27 cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	14774	4.51861	4.51(a)
56 Tetrachloroethene	164	7.012	7.011	(0.906)	1184	0.69654	0.69(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	1121739	427.084	427.08(A)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
exceeded maximum amount.

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121327.D
Date : 13-DEC-2017 21:00
Client ID: HS17120573-03
Sample Info: HS17120573-03;HS17120573-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



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Date : 13-DEC-2017 21:00

Client ID: HS17120573-03

Instrument: voa6.i

Sample Info: HS17120573-03;HS17120573-03;;;

Purge Volume: 5.0

Operator: PC

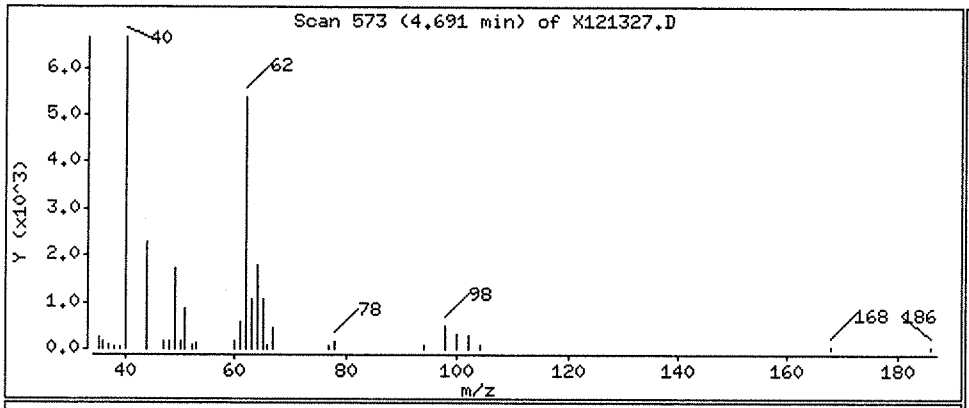
Column phase: DB624

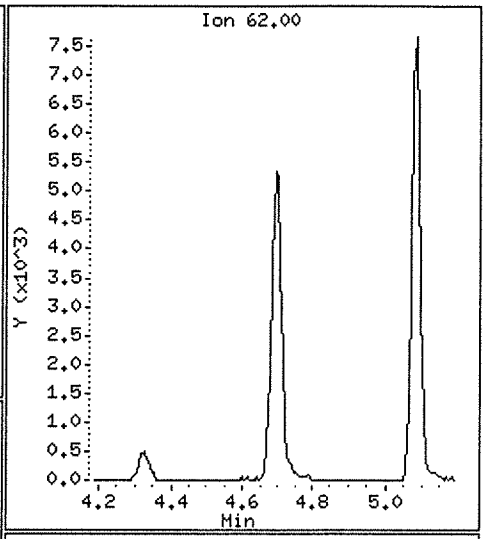
Column diameter: 0.18

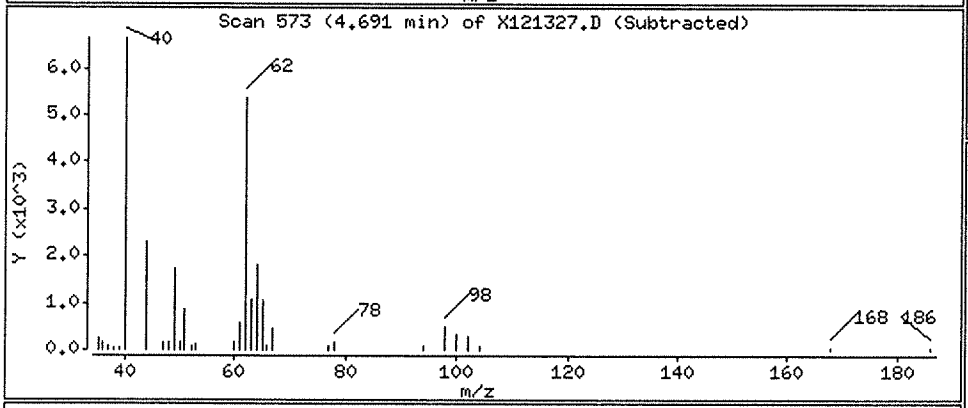
33 1,2-Dichloroethane

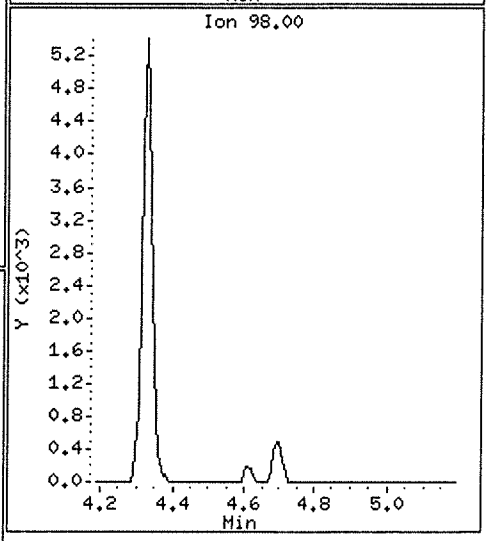
Concentration: 2.59 ug/l

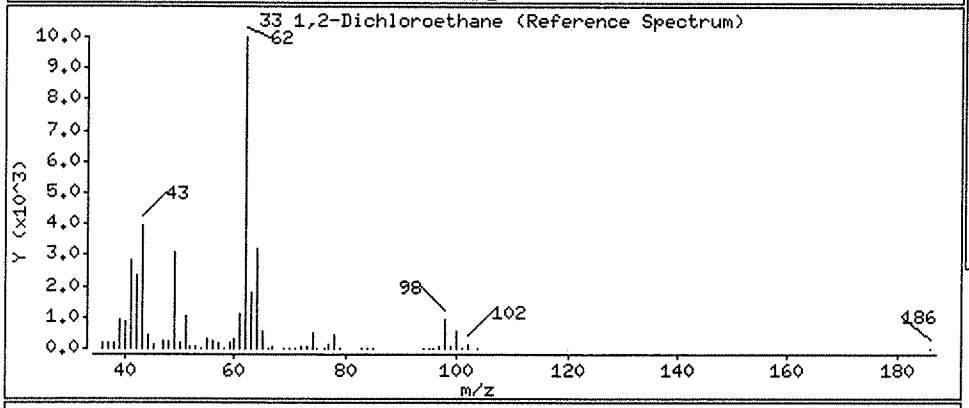
Review Code:

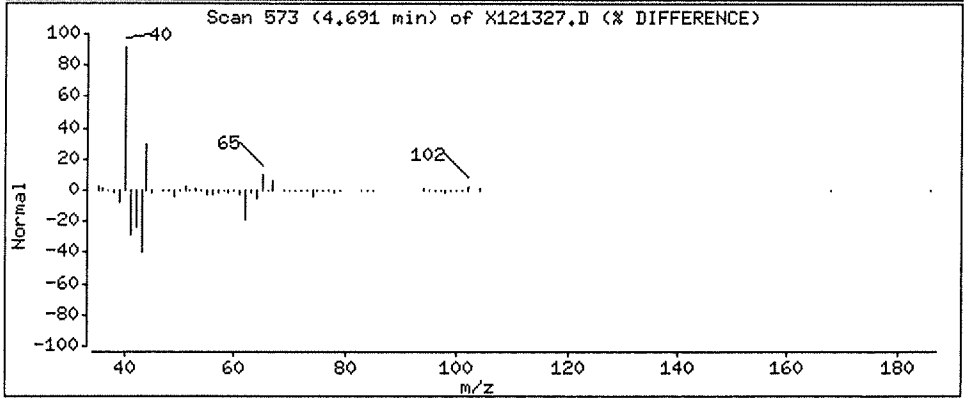












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Date : 13-DEC-2017 21:00

Client ID: HS17120573-03

Instrument: voa6.i

Sample Info: HS17120573-03;HS17120573-03;;;

Purge Volume: 5.0

Operator: PC

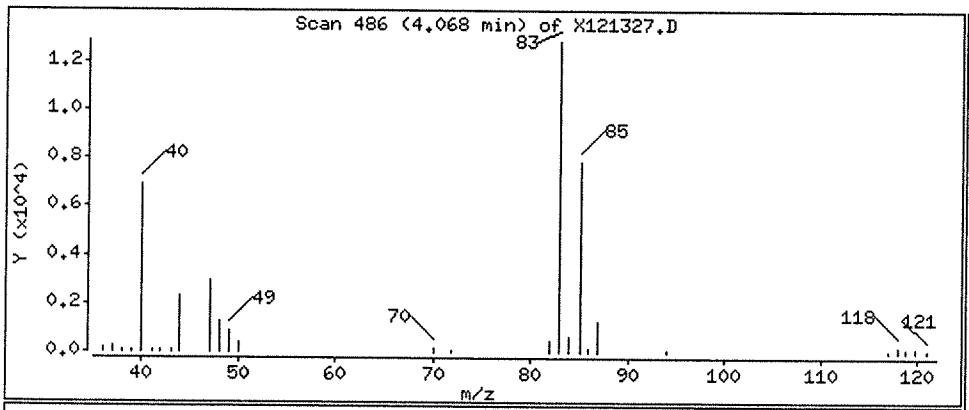
Column phase: DB624

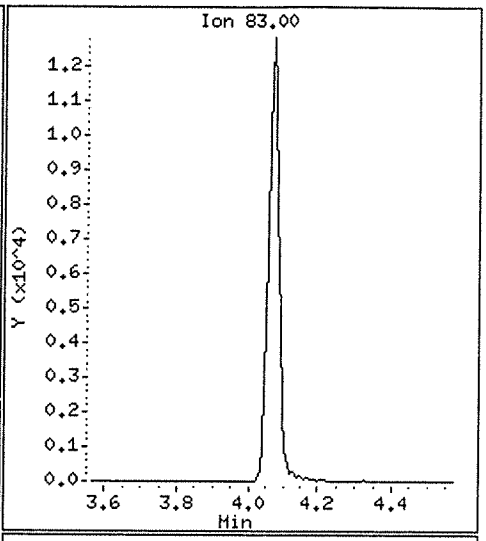
Column diameter: 0.18

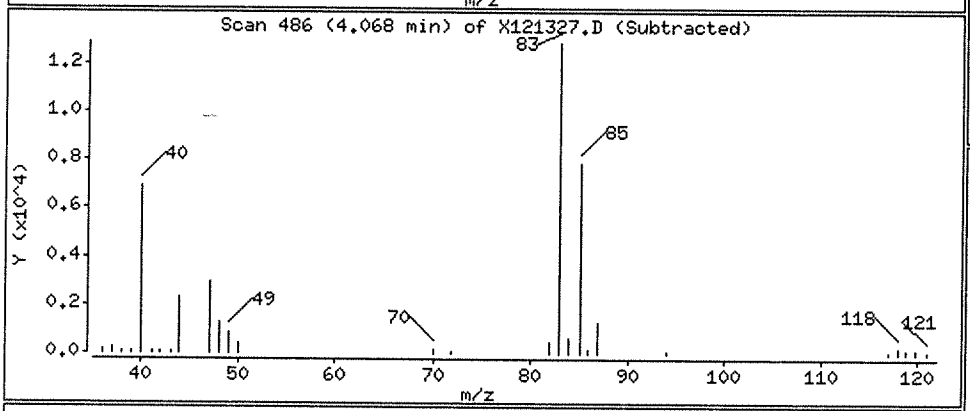
28 Chloroform

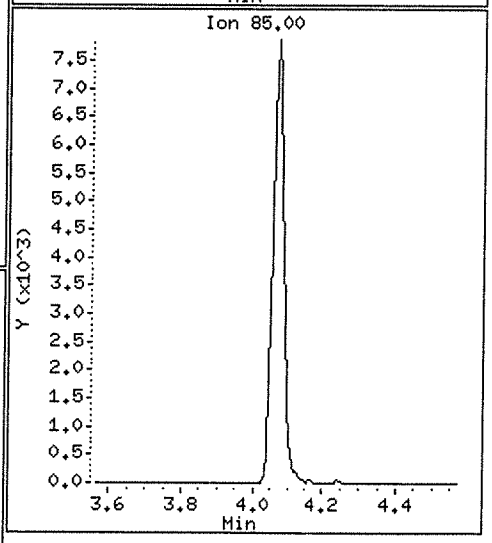
Concentration: 4.97 ug/l

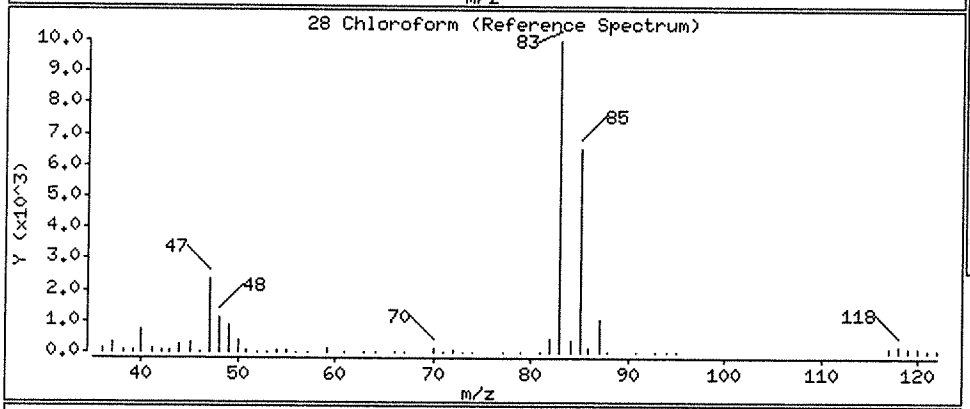
Review Code:

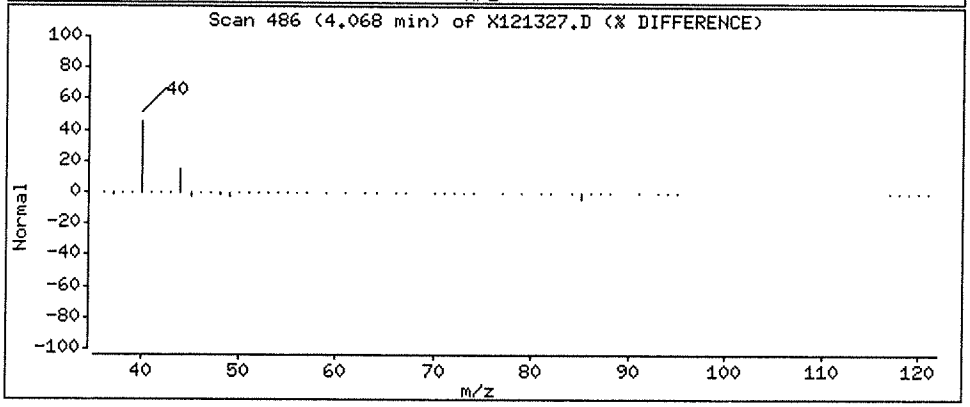












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Date : 13-DEC-2017 21:00

Client ID: HS17120573-03

Instrument: voa6.i

Sample Info: HS17120573-03;HS17120573-03;;;

Purge Volume: 5.0

Operator: PC

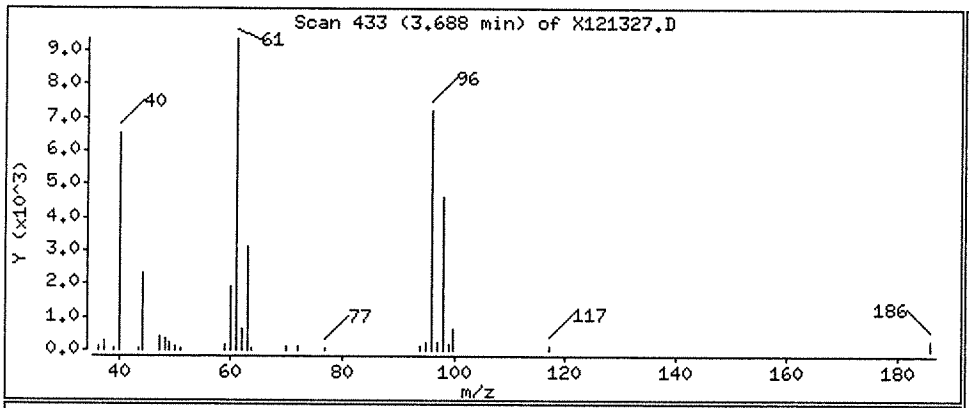
Column phase: DB624

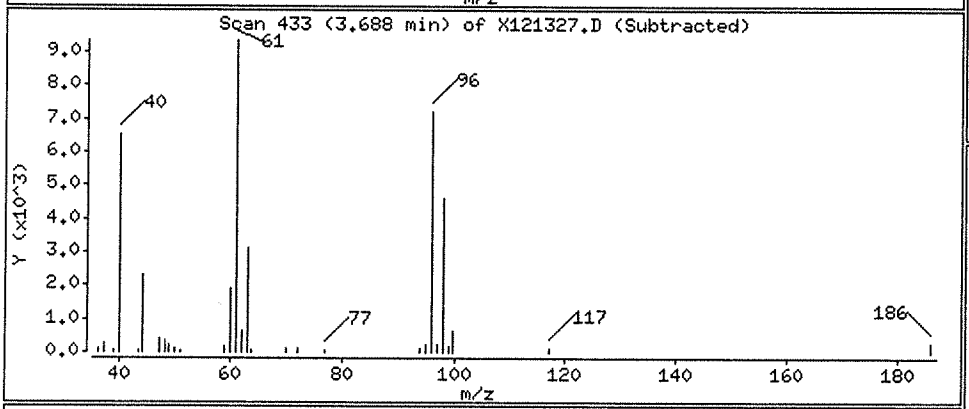
Column diameter: 0.18

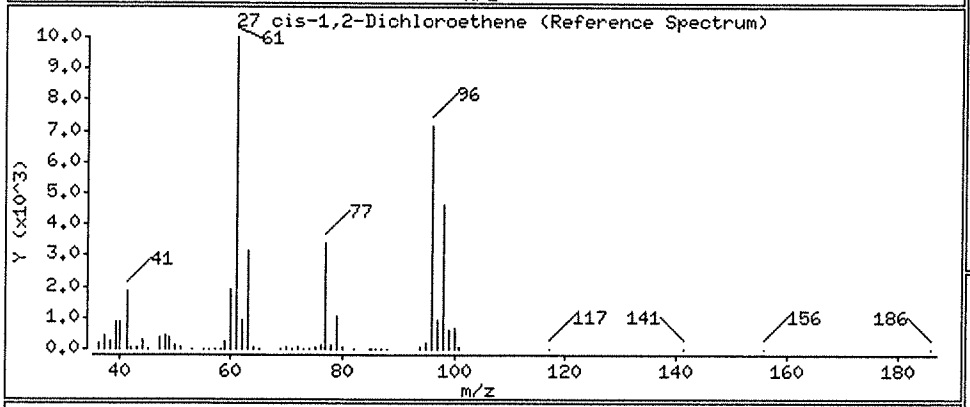
27 cis-1,2-Dichloroethene

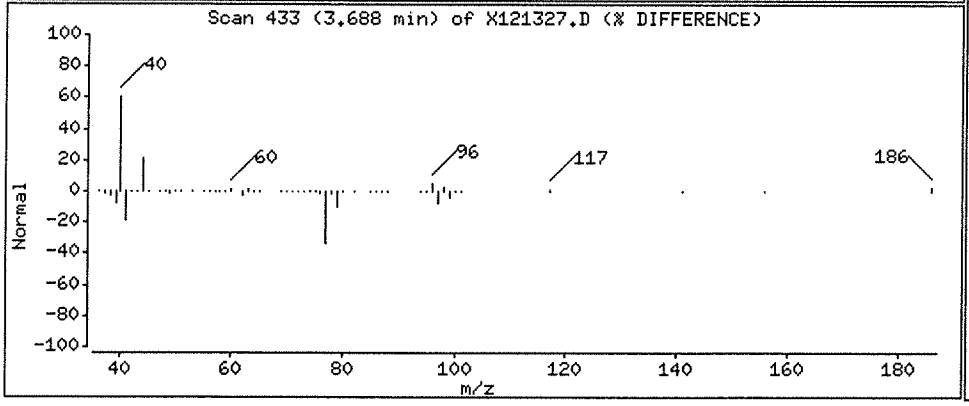
Concentration: 4.51 ug/l

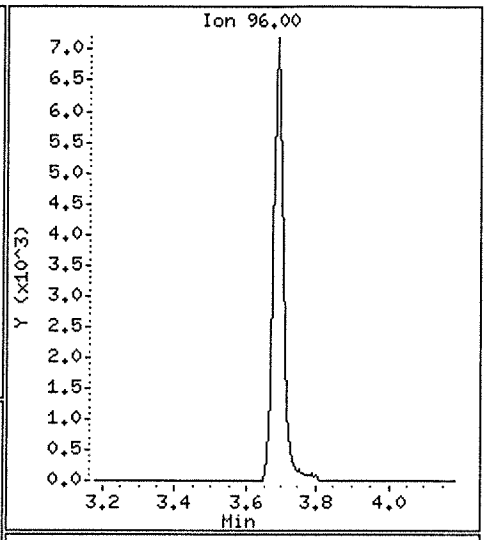
Review Code:

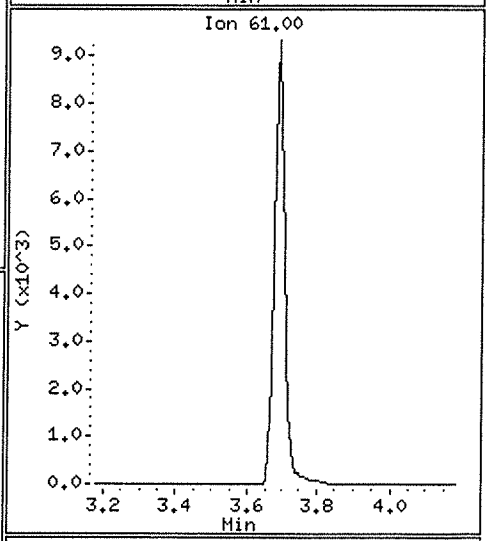


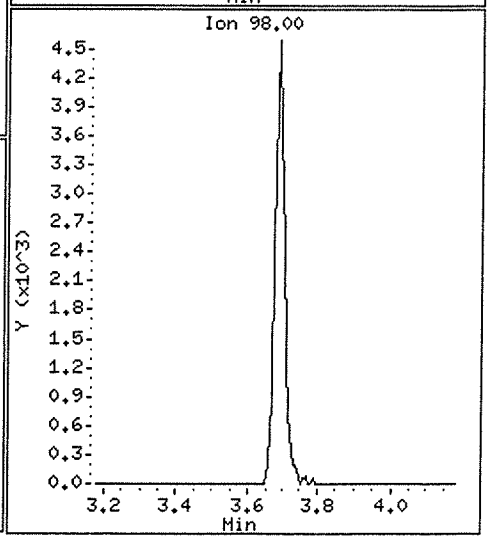












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121327.D

Date : 13-DEC-2017 21:00

Client ID: HS17120573-03

Instrument: voa6.i

Sample Info: HS17120573-03;HS17120573-03;;;

Purge Volume: 5.0

Operator: PC

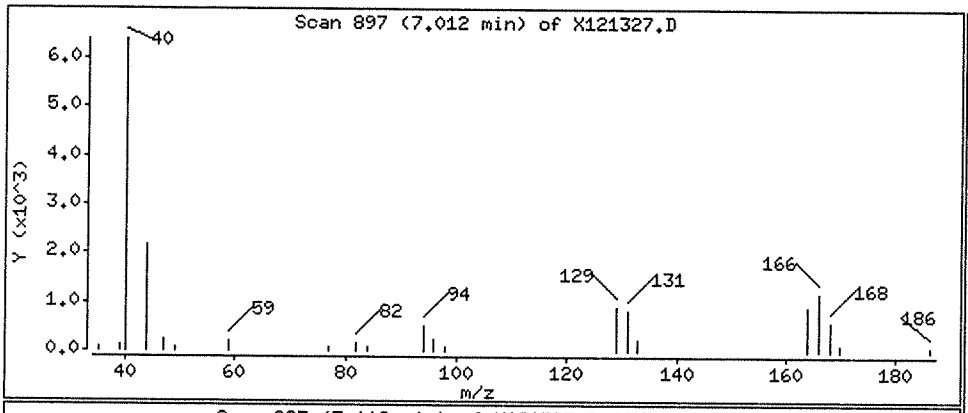
Column phase: DB624

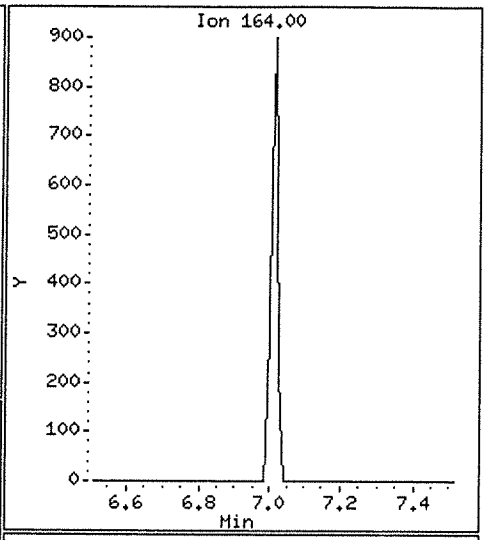
Column diameter: 0.18

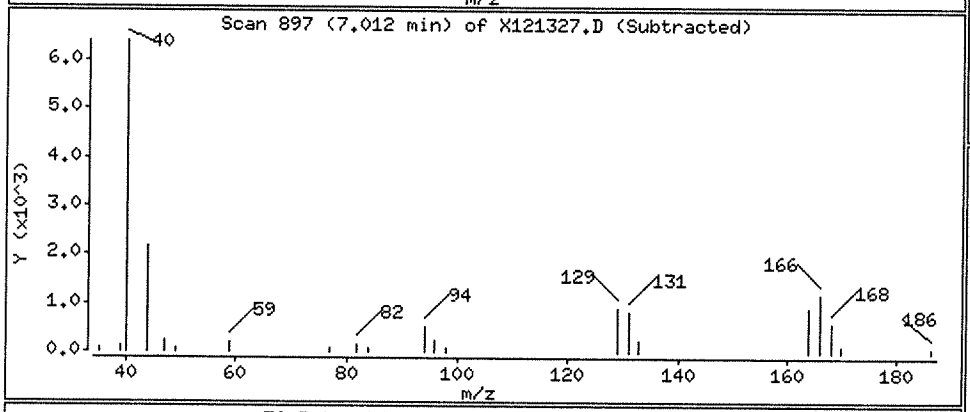
56 Tetrachloroethene

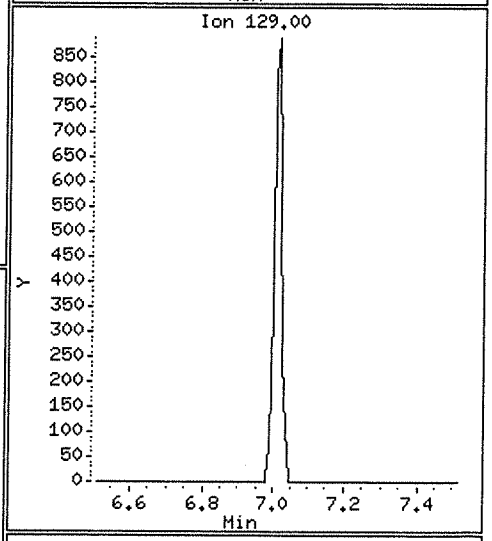
Concentration: 0.69 ug/l

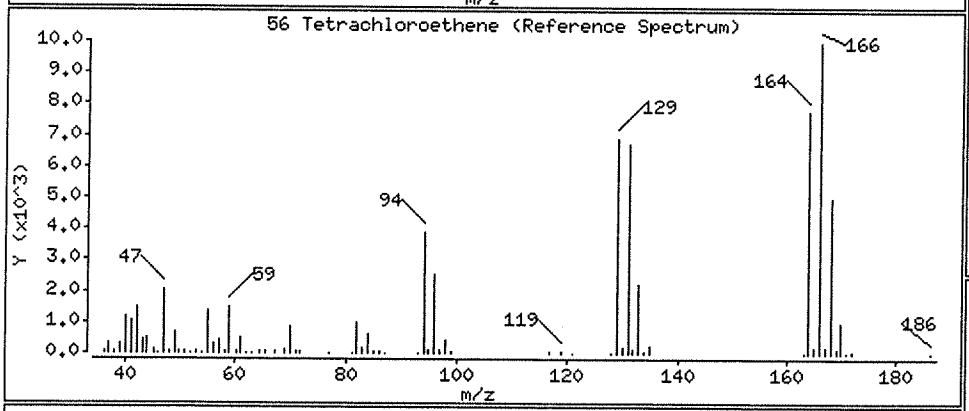
Review Code:

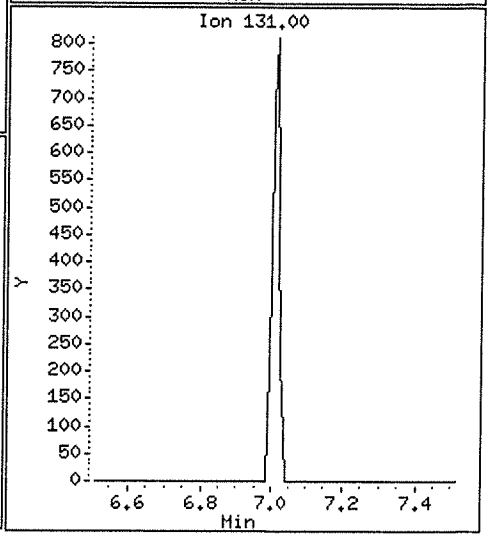


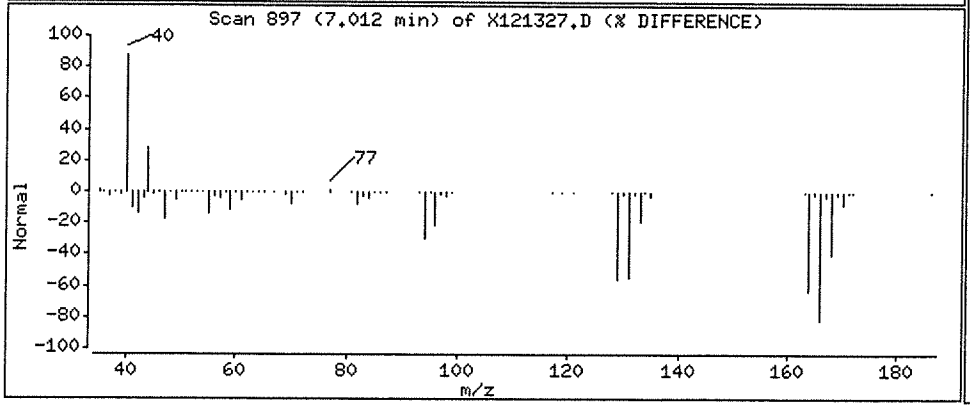












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121327.D Page 7

Date : 13-DEC-2017 21:00

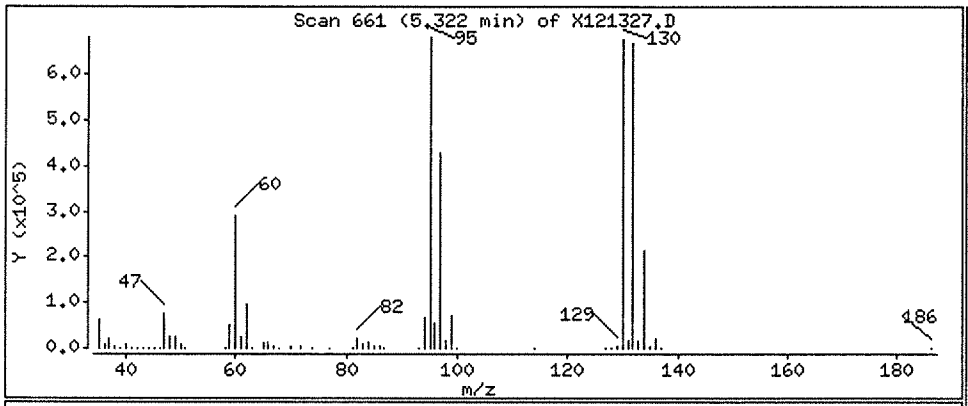
Client ID: HS17120573-03 Instrument: voa6.i

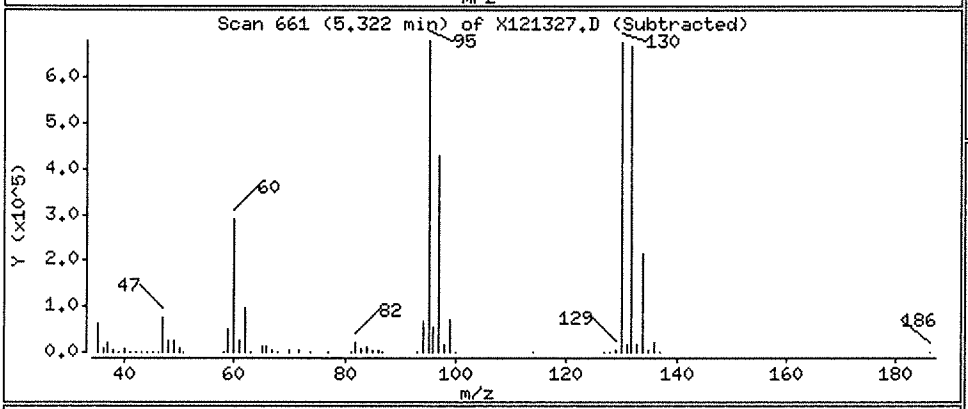
Sample Info: HS17120573-03;HS17120573-03;;;

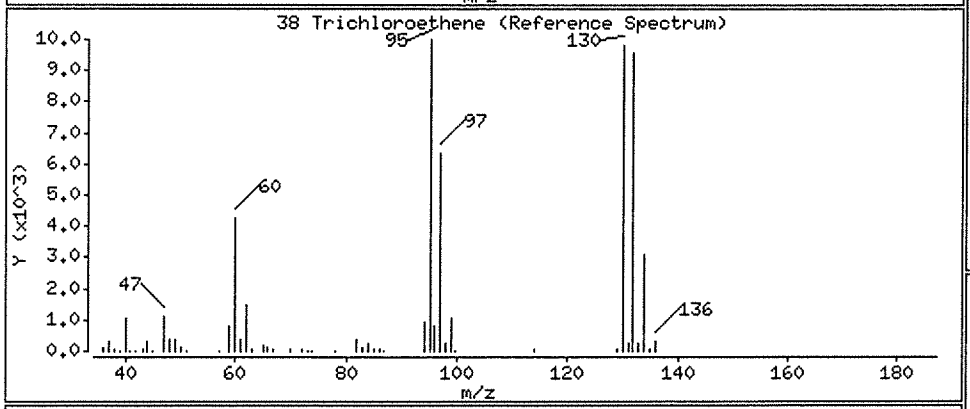
Purge Volume: 5.0 Operator: PC

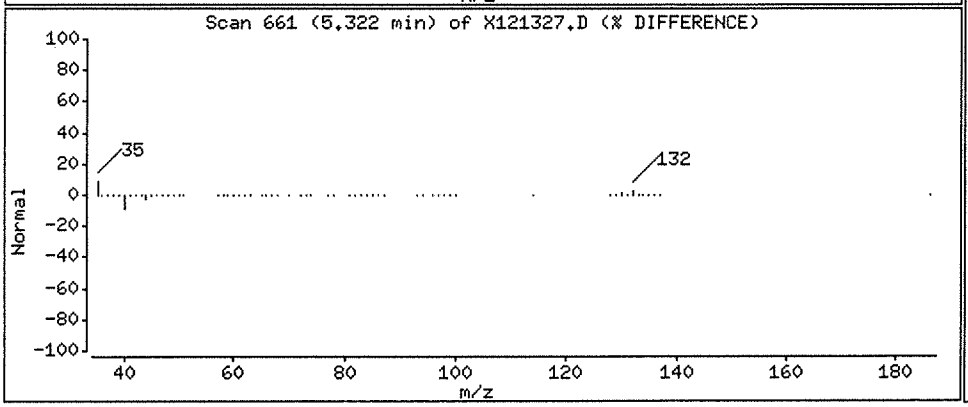
Column phase: DB624 Column diameter: 0.18

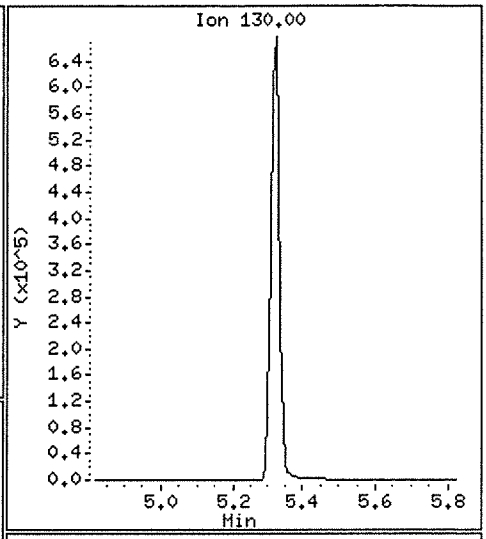
38 Trichloroethene Concentration: 427.08 ug/l Review Code:

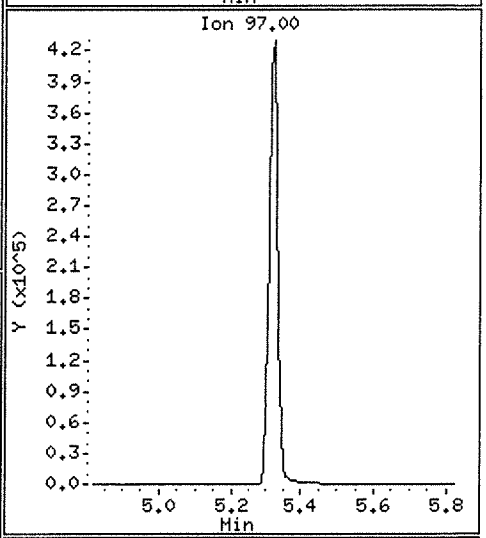


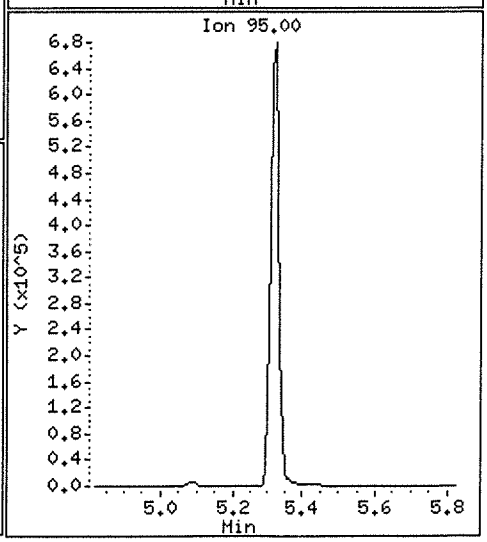












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D Version 6
Report Date: 30-Jan-2018 14:52

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D
Lab Smp Id: HS17120573-04 Client Smp ID: HS17120573-04
Inj Date : 13-DEC-2017 21:25
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-04;HS17120573-04;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171213.b\8260W.m
Meth Date : 30-Jan-2018 14:52 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 28
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	182124	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	296843	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	281273	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	114802	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	119878	50.5885	50.58
$ 35 1,2-Dichloroethane-d4	65	4.612	4.605	(1.066)	149702	48.5826	48.58
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	432027	50.8239	50.82
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	156276	51.3750	51.37
22 1,1-Dichloroethane	63	3.086	3.072	(0.714)	1775	0.43853	0.43(aM)
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	7550	4.04884	4.04(a)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	346641	110.111	110.11(A)
37 Benzene	78	4.648	4.648	(0.914)	6334	0.75146	0.75(a)
27 cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	446485	185.777	185.77(AM)
20 trans-1,2-Dichloroethene	96	2.685	2.678	(0.621)	2913	1.40032	1.40(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	3534902	1782.15	1782.14(A)
5 Vinyl Chloride	62	1.260	1.260	(0.291)	3459	1.29054	1.29(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
    exceeded maximum amount.

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D Version 6
Report Date: 30-Jan-2018 14:52

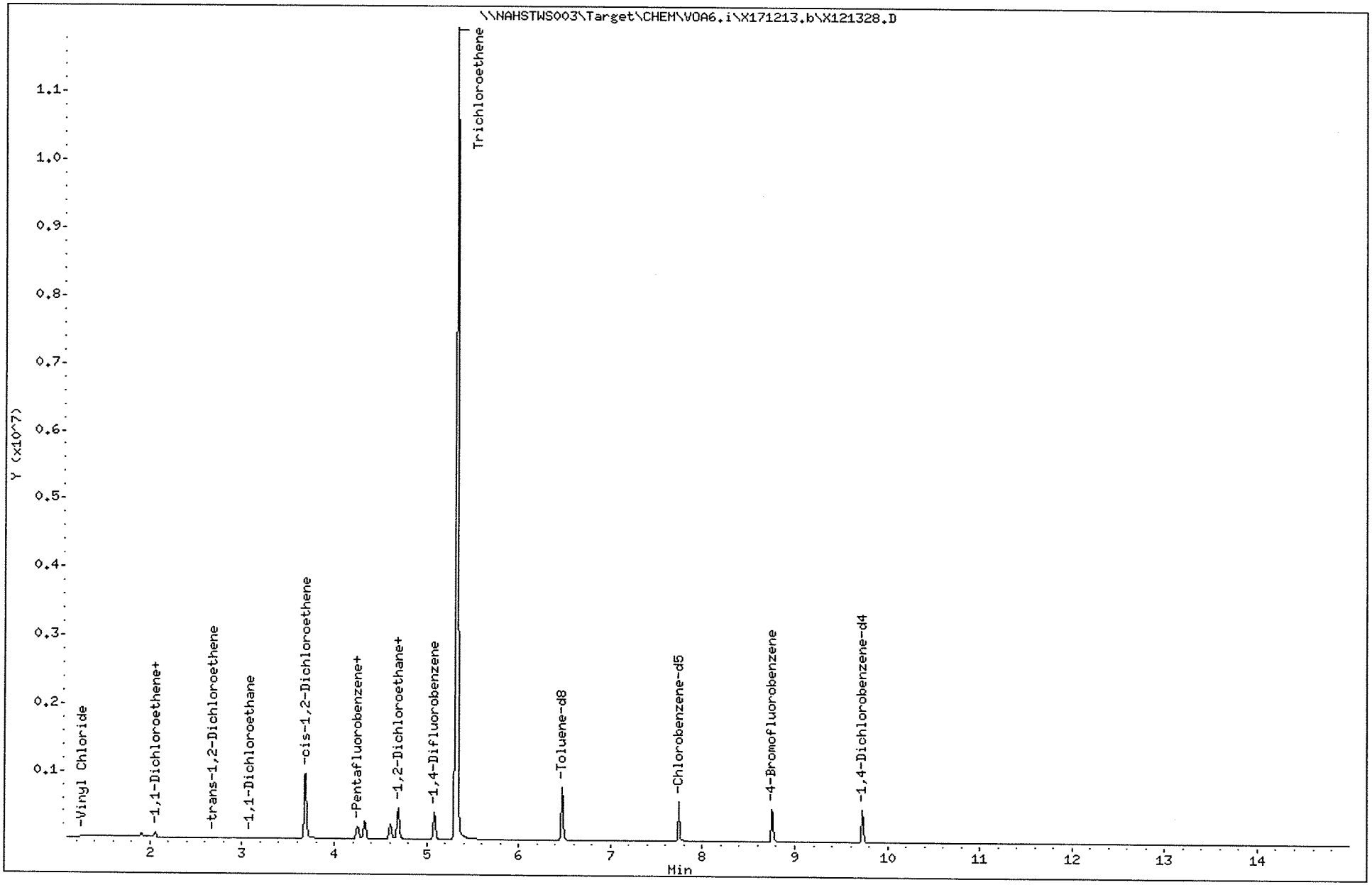
QC Flag Legend

M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D
Date : 13-DEC-2017 21:25
Client ID: HS17120573-04
Sample Info: HS17120573-04;HS17120573-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D

Date : 13-DEC-2017 21:25

Client ID: HS17120573-04

Instrument: voa6.i

Sample Info: HS17120573-04;HS17120573-04;;;

Purge Volume: 5.0

Operator: PC

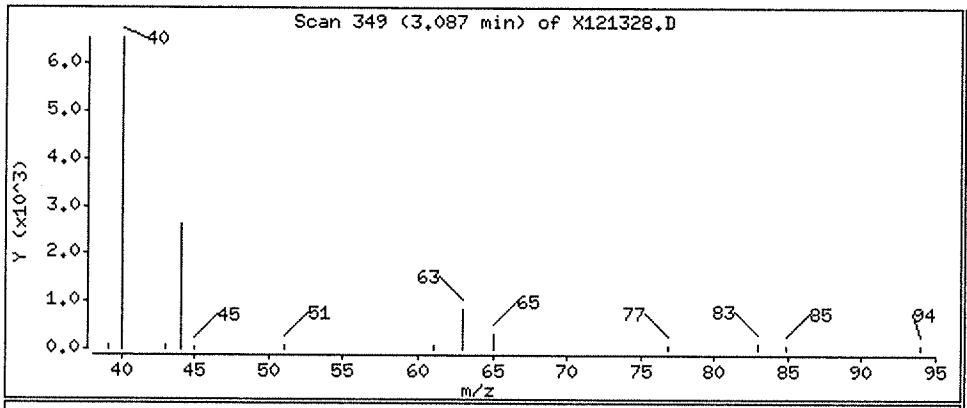
Column phase: DB624

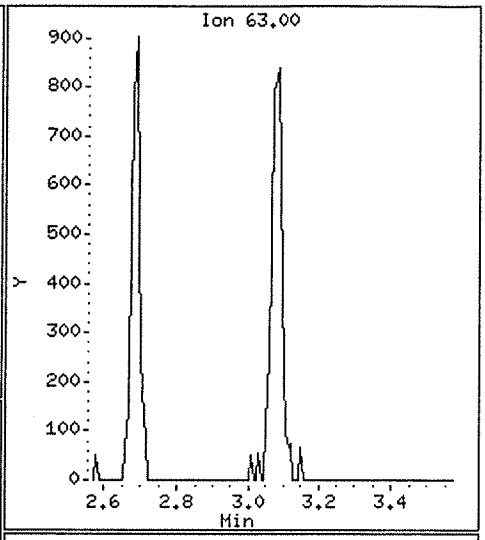
Column diameter: 0.18

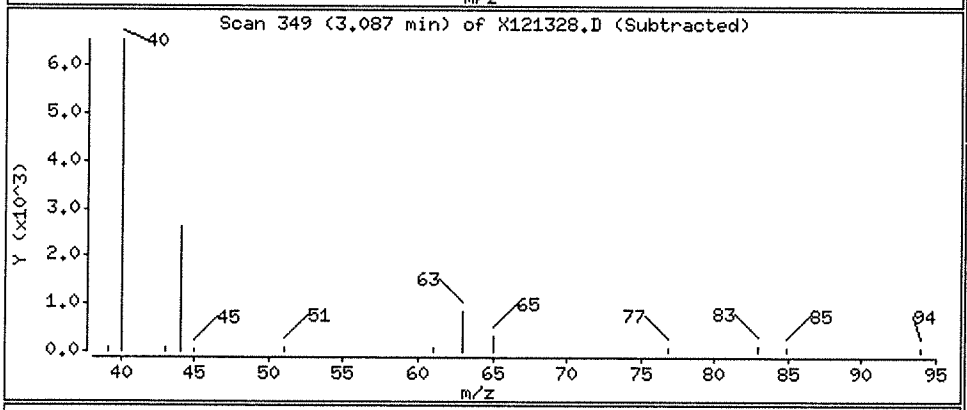
22 1,1-Dichloroethane

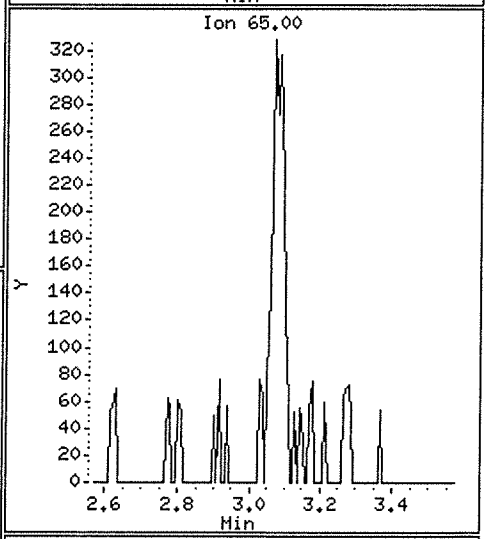
Concentration: 0.43 ug/l

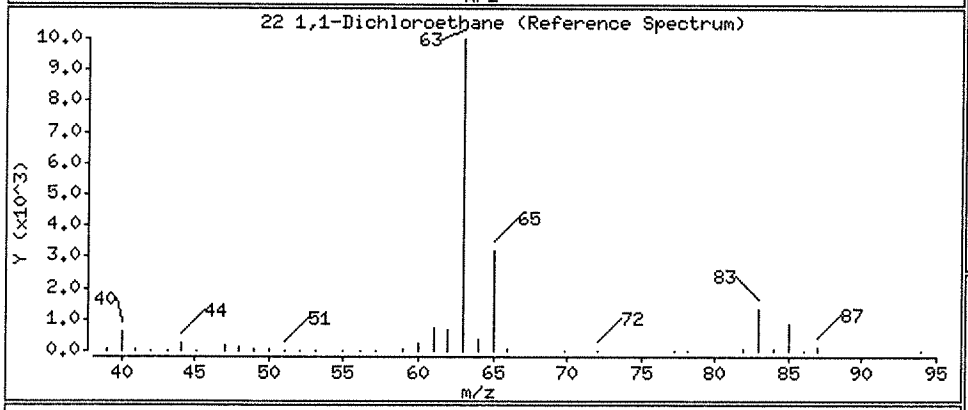
Review Code:

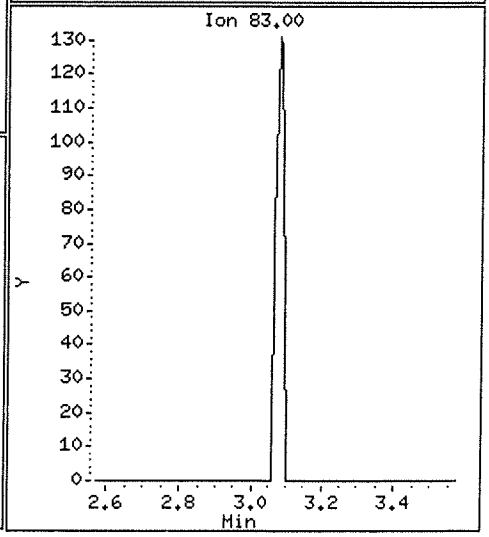


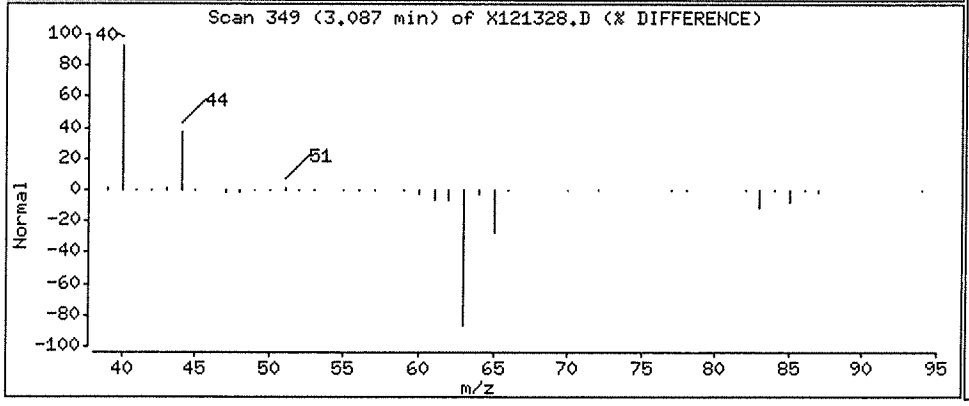












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D

Date : 13-DEC-2017 21:25

Client ID: HS17120573-04

Instrument: voa6.i

Sample Info: HS17120573-04;HS17120573-04;;;

Purge Volume: 5.0

Operator: PC

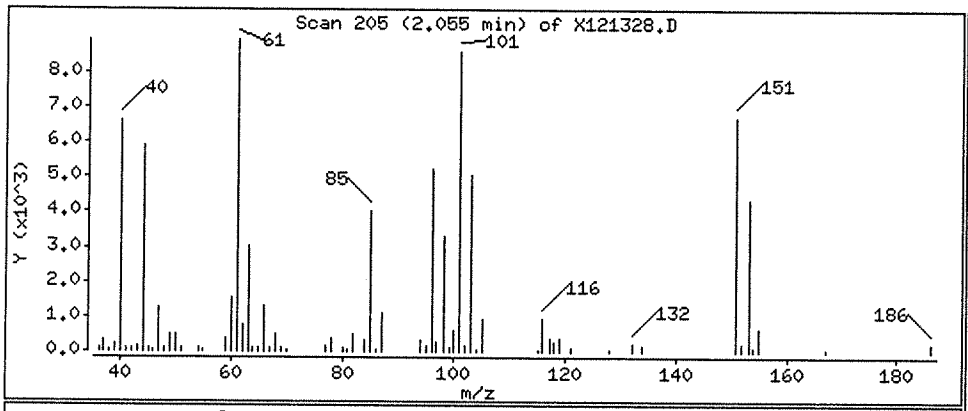
Column phase: DB624

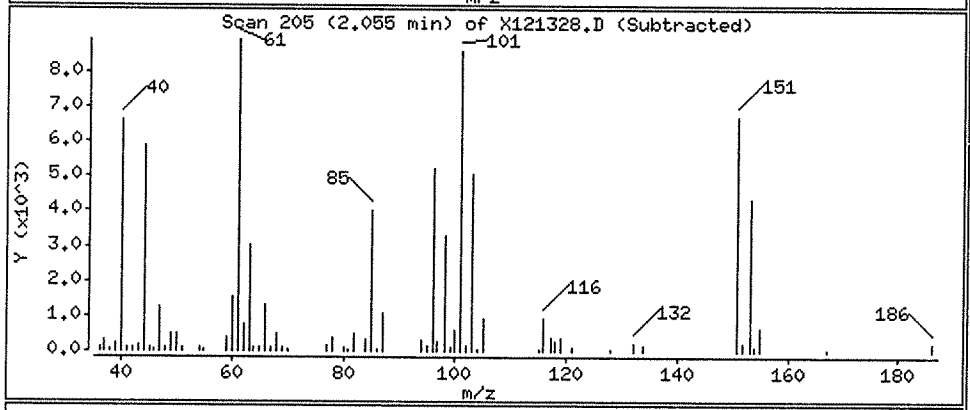
Column diameter: 0.18

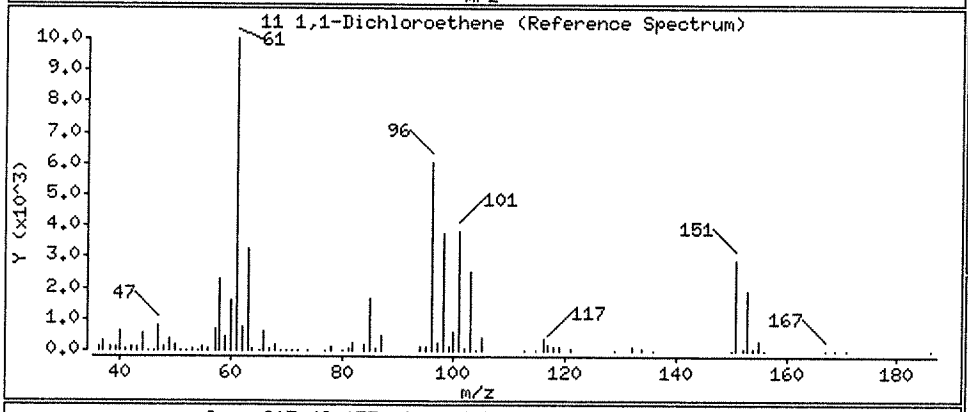
11 1,1-Dichloroethene

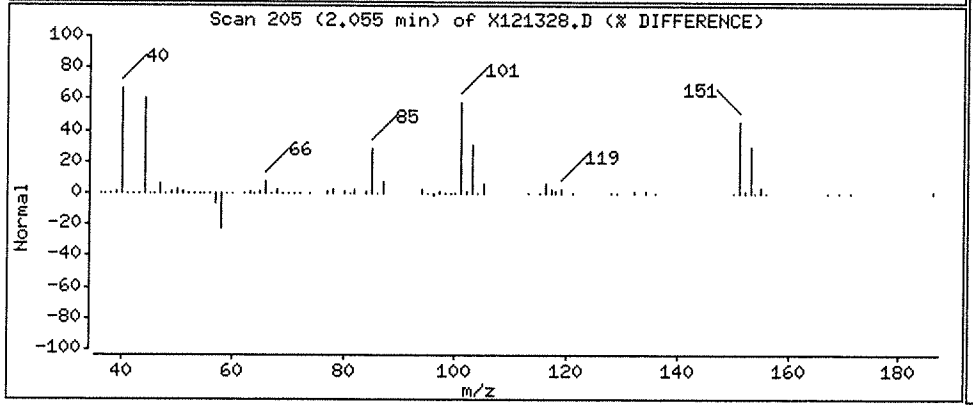
Concentration: 4.04 ug/l

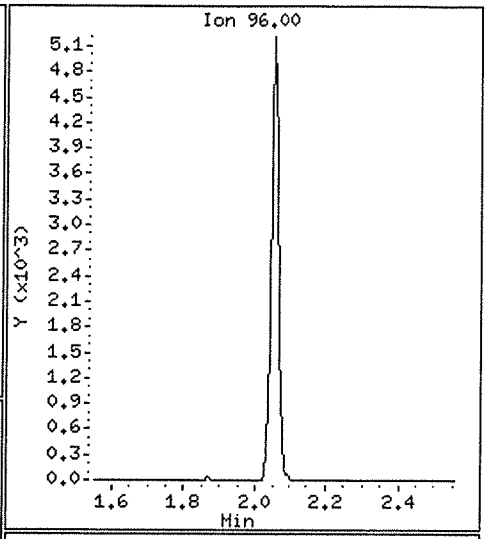
Review Code:

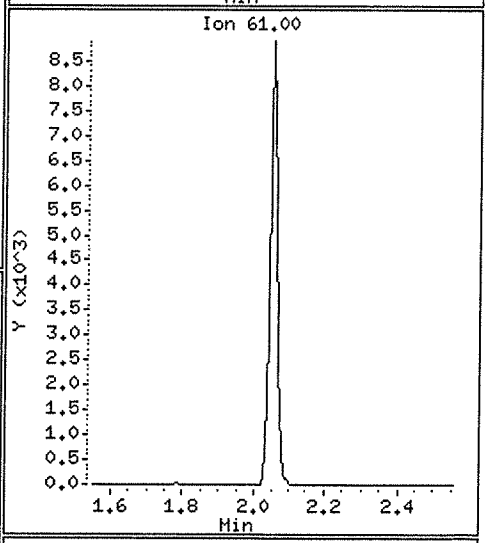


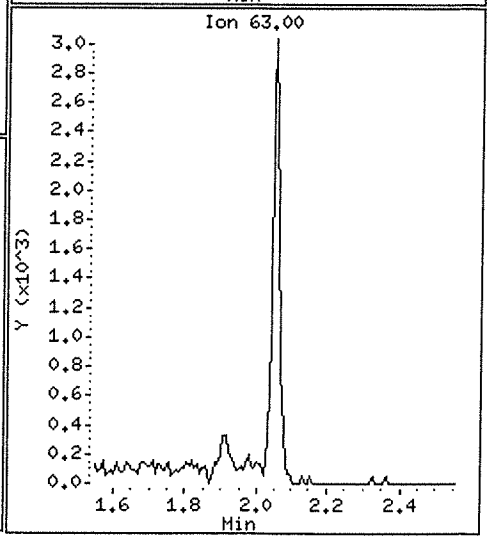












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D

Date : 13-DEC-2017 21:25

Client ID: HS17120573-04

Instrument: voa6.i

Sample Info: HS17120573-04;HS17120573-04;;;

Purge Volume: 5.0

Operator: PC

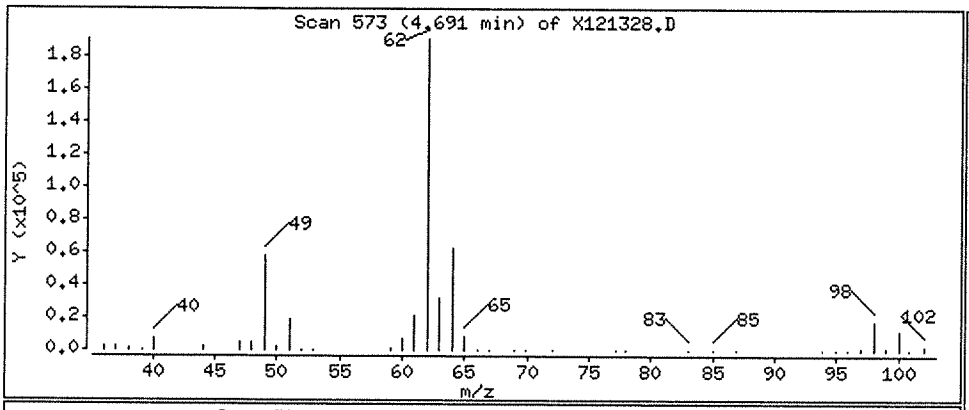
Column phase: DB624

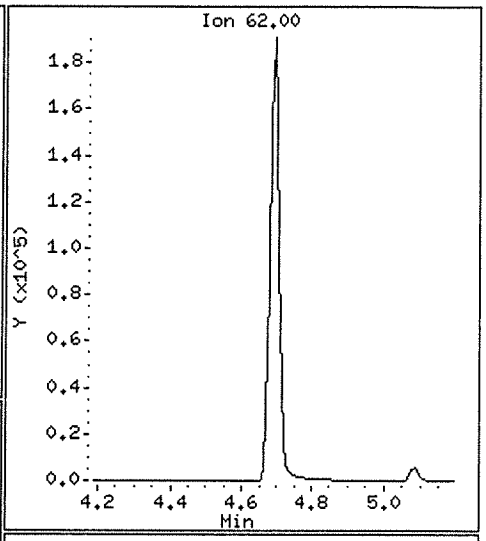
Column diameter: 0.18

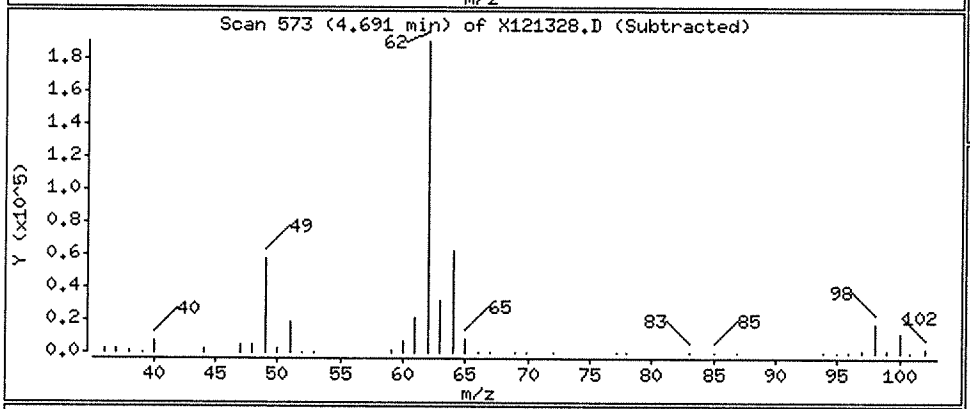
33 1,2-Dichloroethane

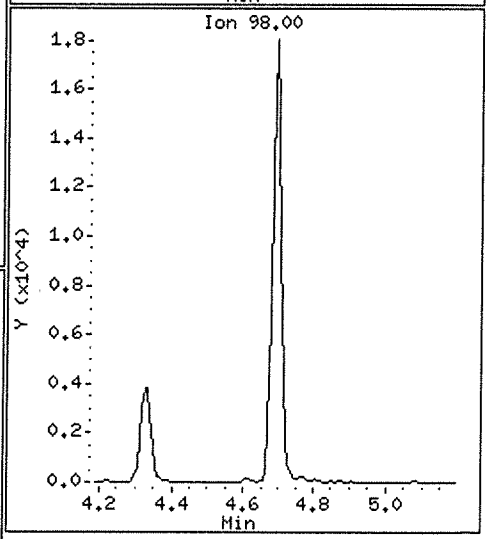
Concentration: 110.11 ug/l

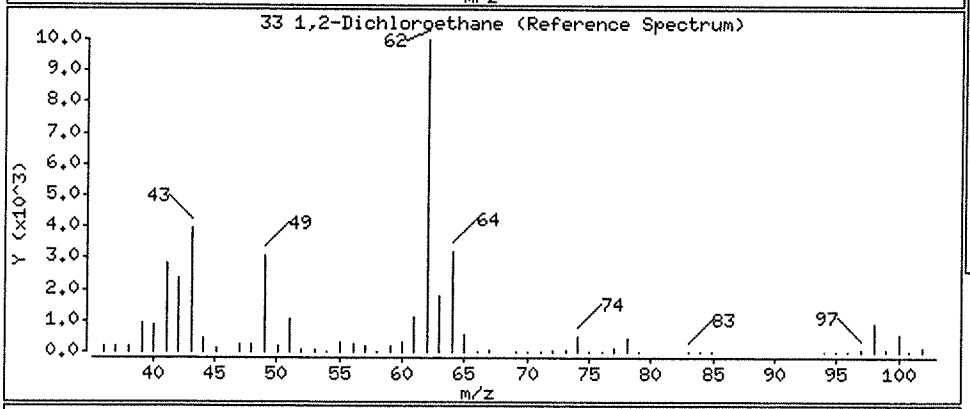
Review Code:

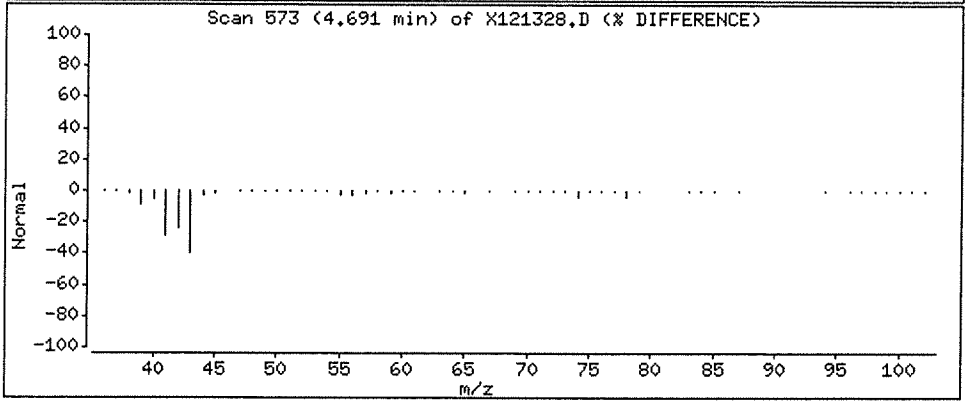












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D

Date : 13-DEC-2017 21:25

Client ID: HS17120573-04

Instrument: voa6.i

Sample Info: HS17120573-04;HS17120573-04;;;

Purge Volume: 5.0

Operator: PC

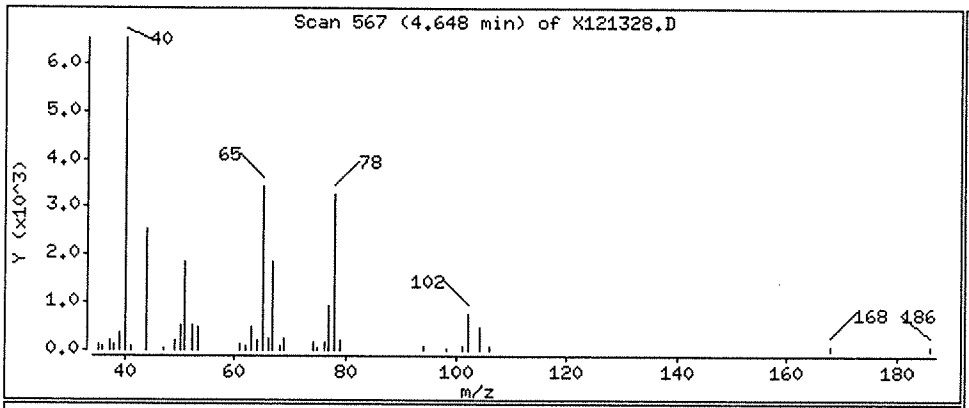
Column phase: DB624

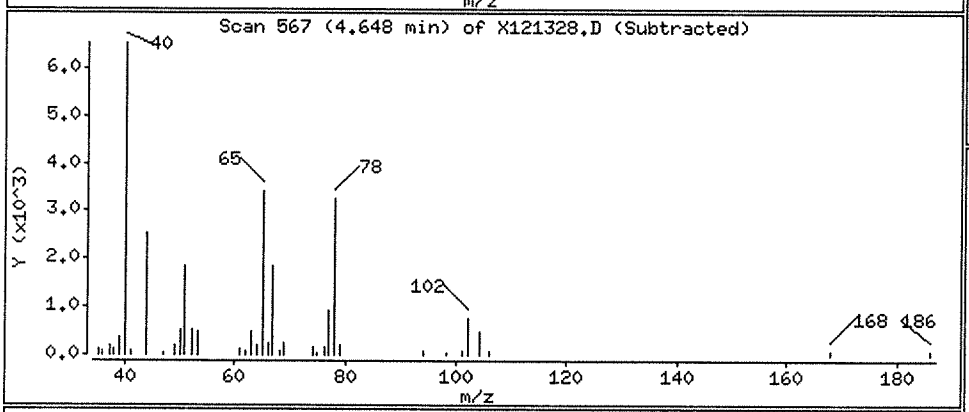
Column diameter: 0.18

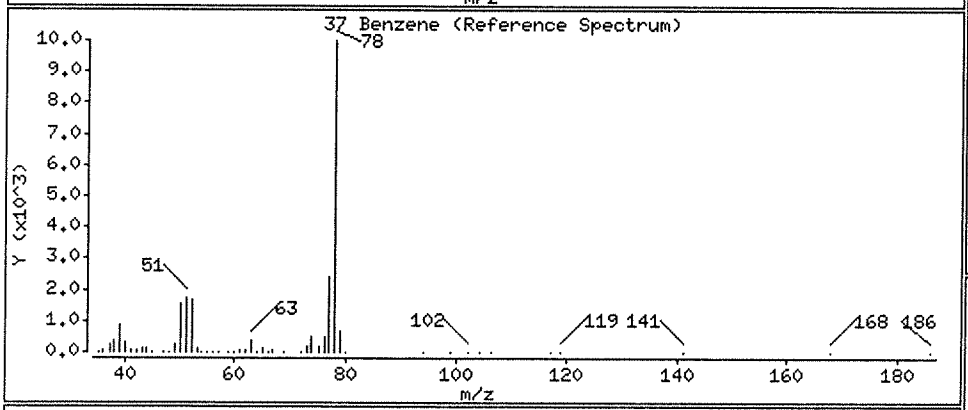
37 Benzene

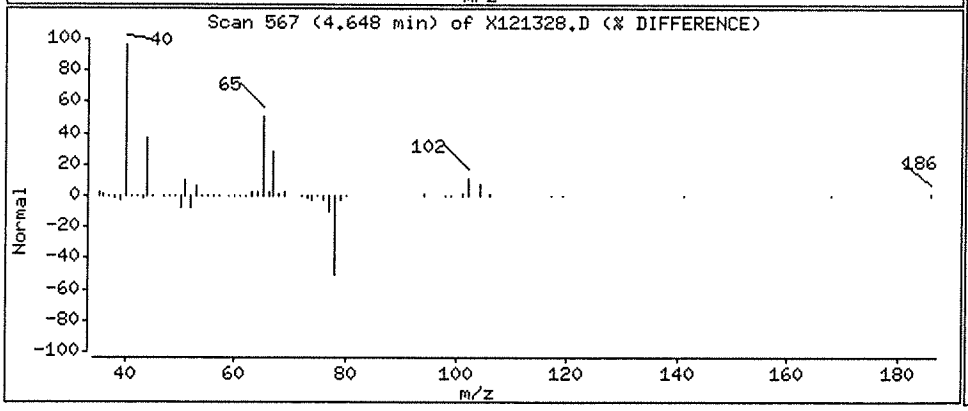
Concentration: 0.75 ug/l

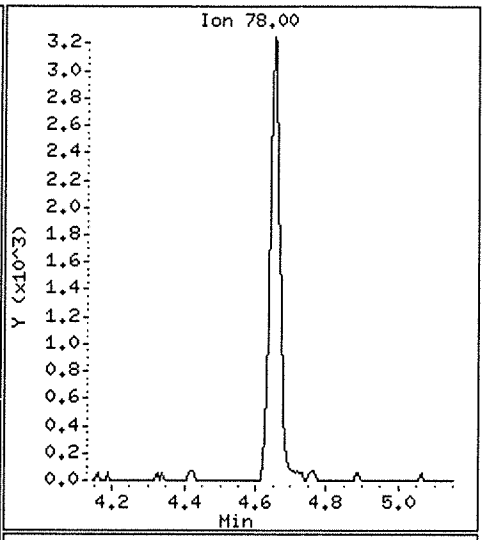
Review Code:

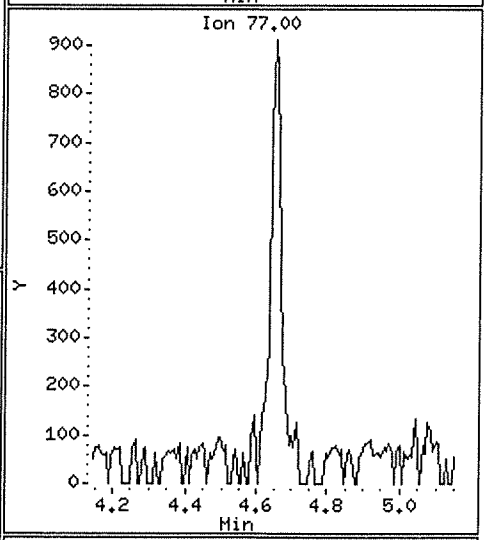


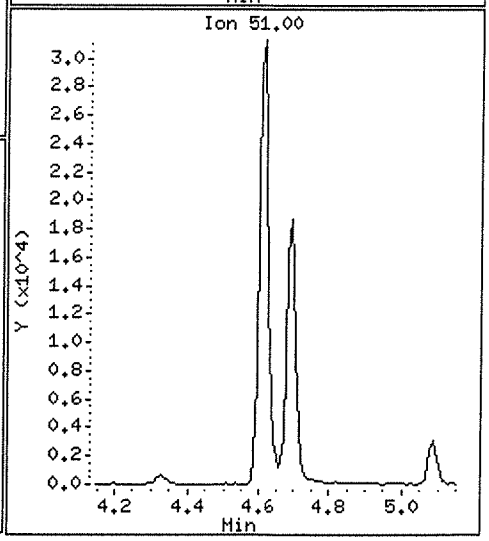












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D

Date : 13-DEC-2017 21:25

Client ID: HS17120573-04

Instrument: voa6.i

Sample Info: HS17120573-04;HS17120573-04;;;

Purge Volume: 5.0

Operator: PC

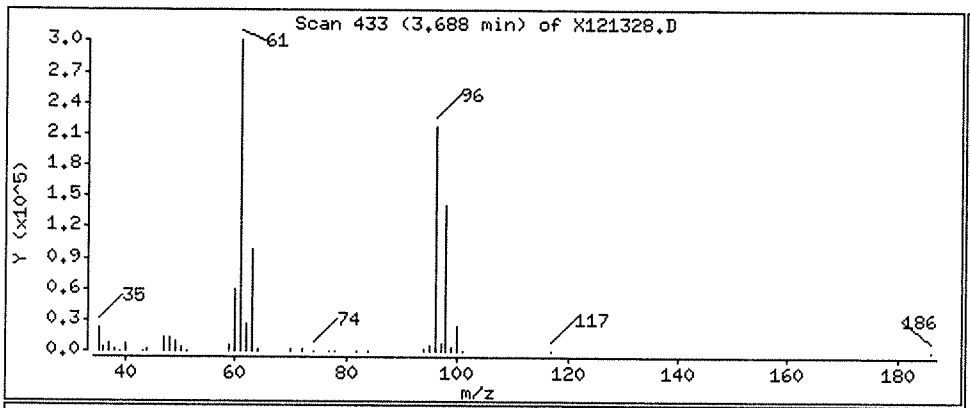
Column phase: DB624

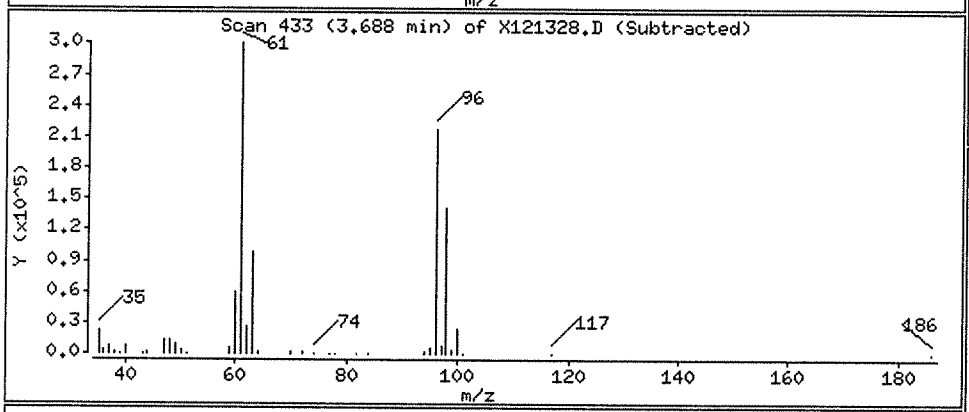
Column diameter: 0.18

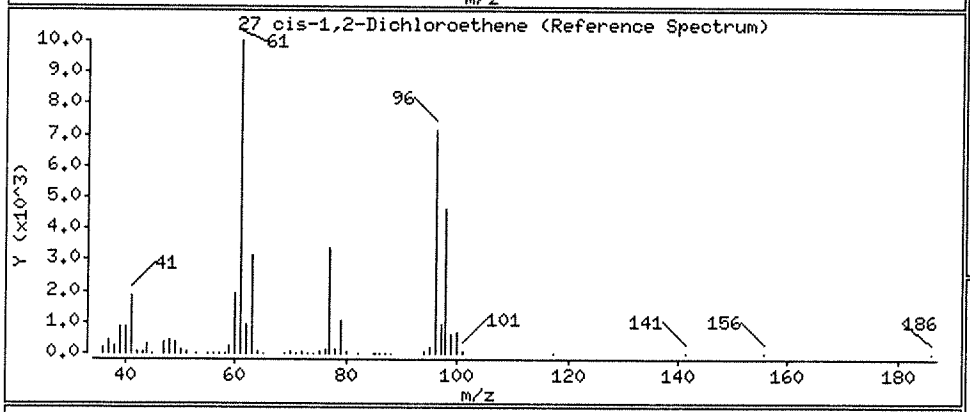
27 cis-1,2-Dichloroethene

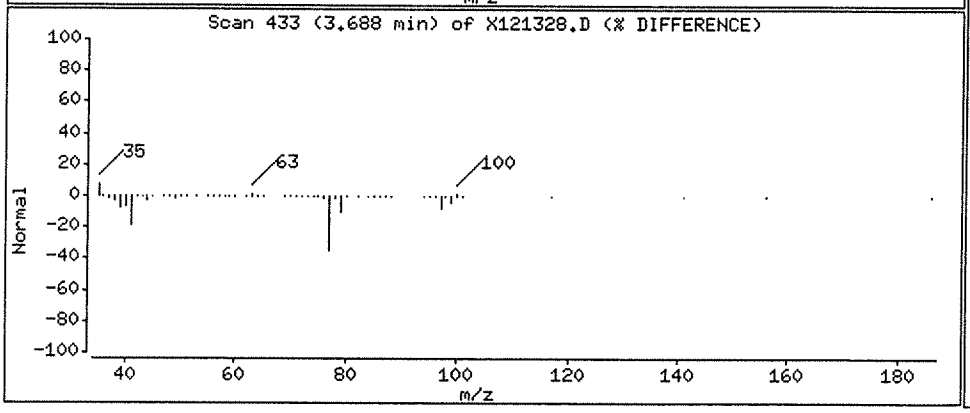
Concentration: 185.77 ug/l

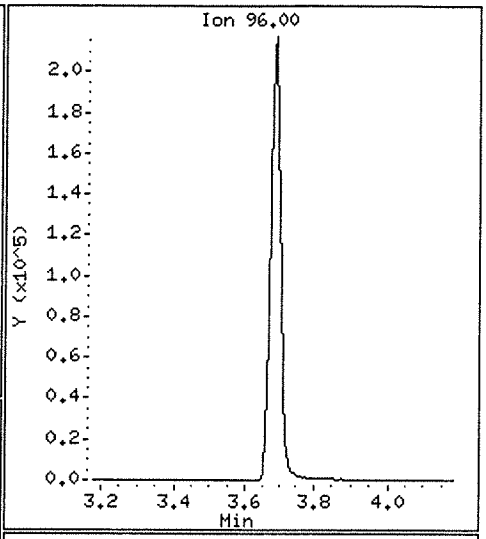
Review Code:

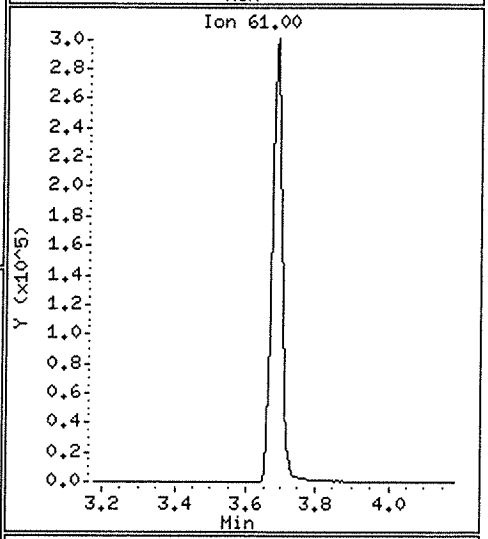


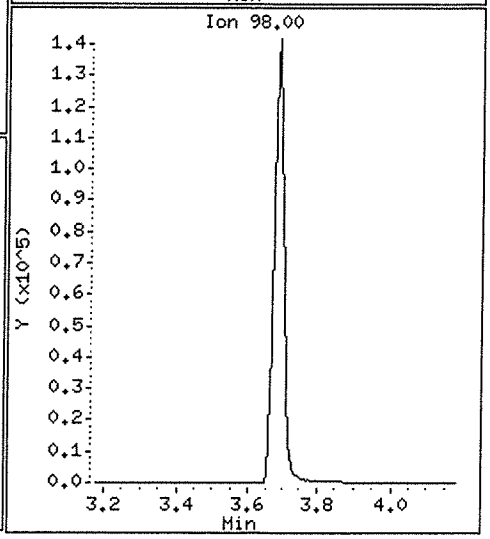












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D

Date : 13-DEC-2017 21:25

Client ID: HS17120573-04

Instrument: voa6.i

Sample Info: HS17120573-04;HS17120573-04;;;

Purge Volume: 5.0

Operator: PC

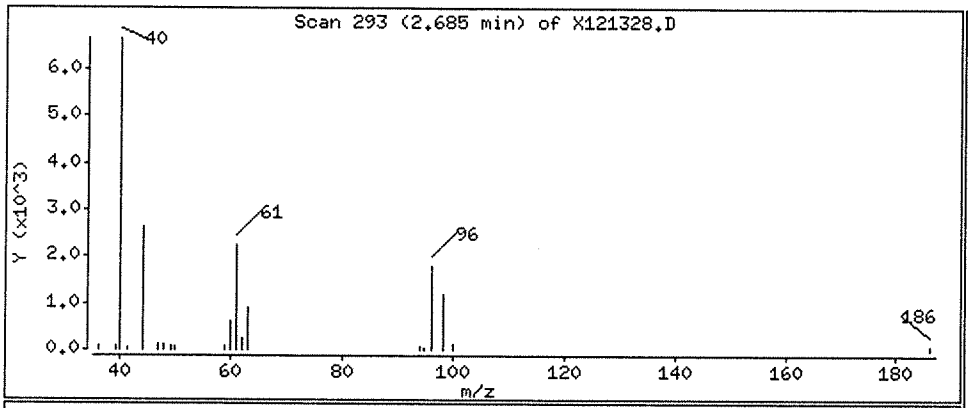
Column phase: DB624

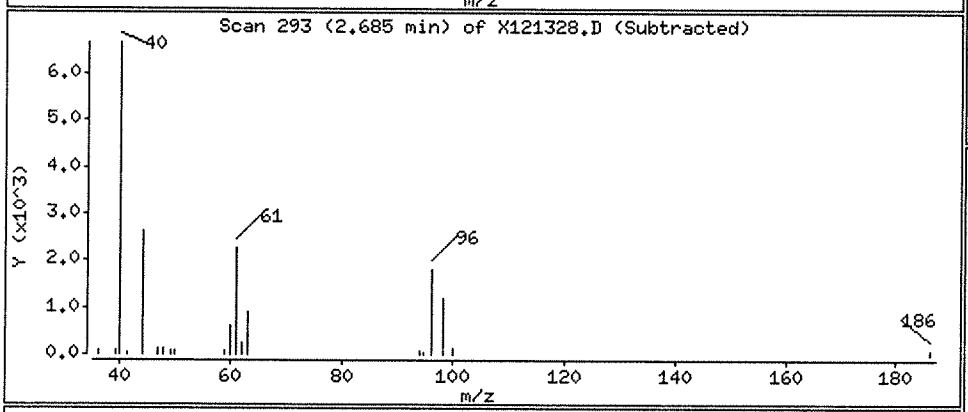
Column diameter: 0.18

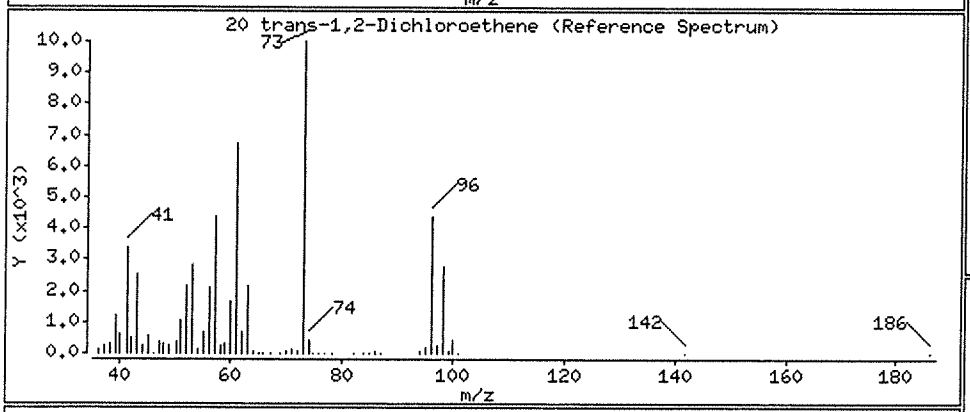
20 trans-1,2-Dichloroethene

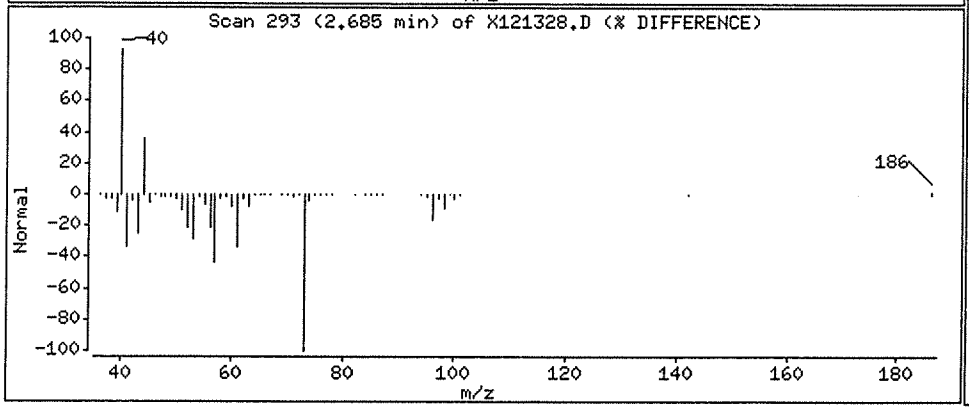
Concentration: 1.40 ug/l

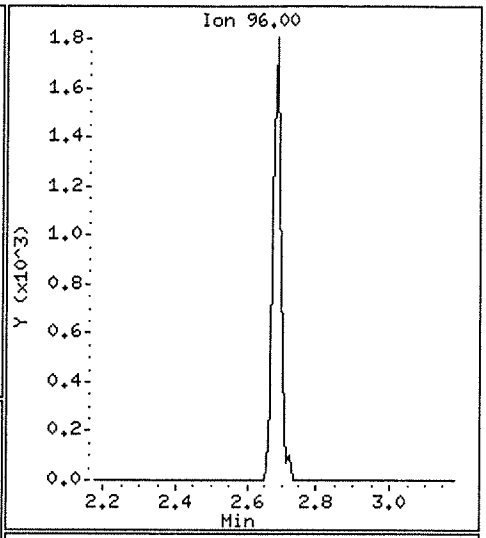
Review Code:

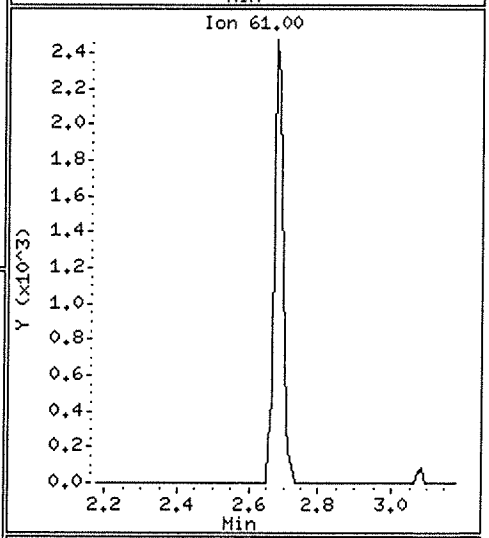


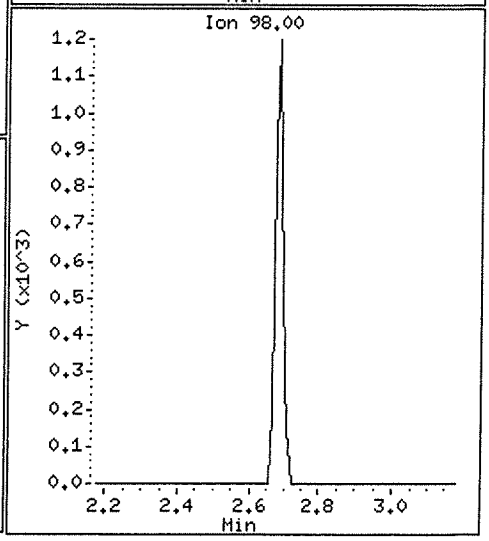












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D

Date : 13-DEC-2017 21:25

Client ID: HS17120573-04

Instrument: voa6.i

Sample Info: HS17120573-04;HS17120573-04;;;

Purge Volume: 5.0

Operator: PC

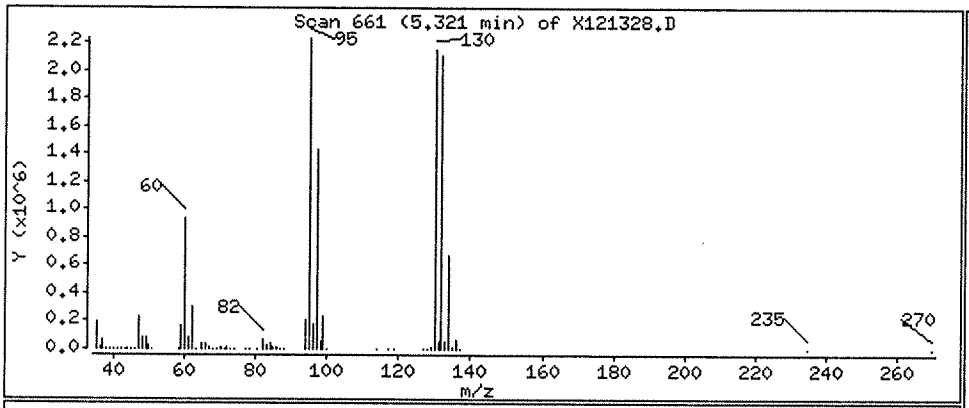
Column phase: DB624

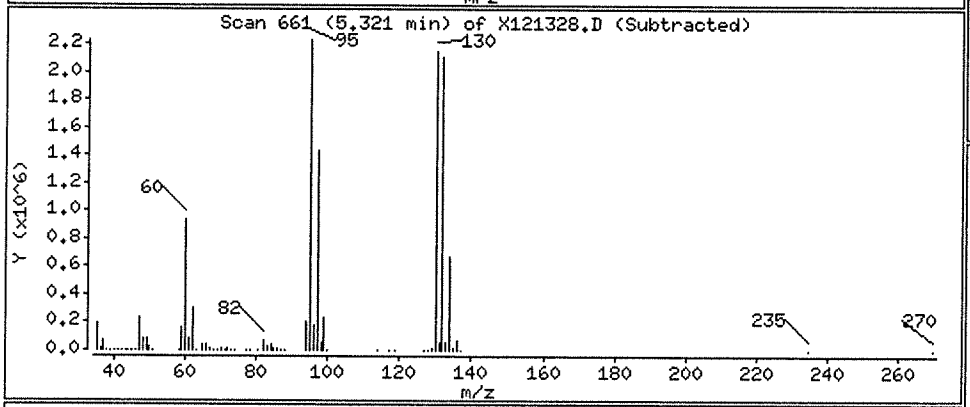
Column diameter: 0.18

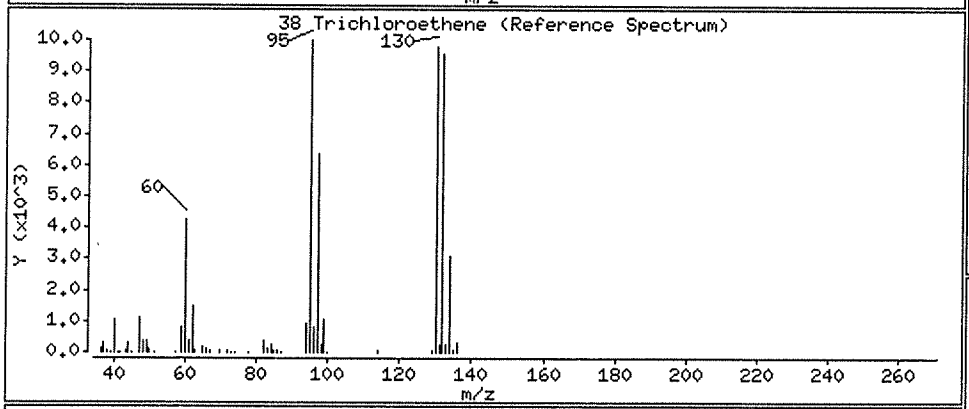
38 Trichloroethene

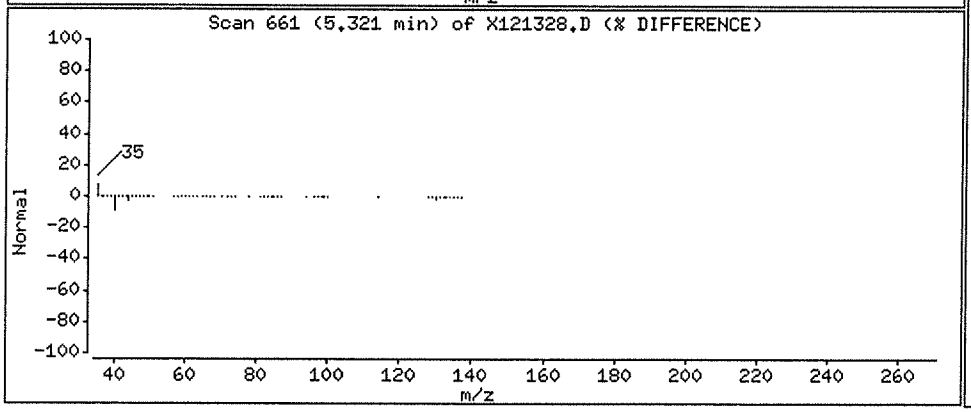
Concentration: 1782.14 ug/l

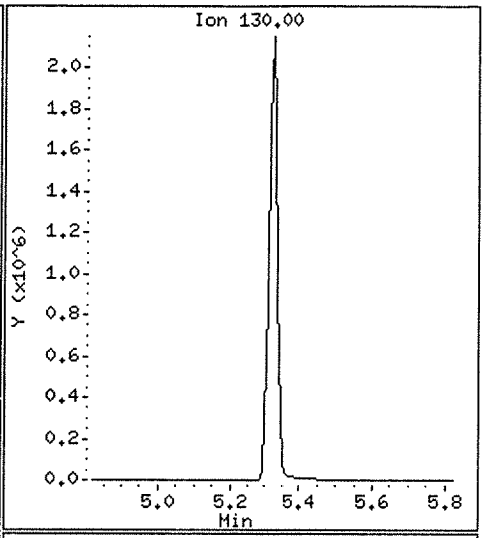
Review Code:

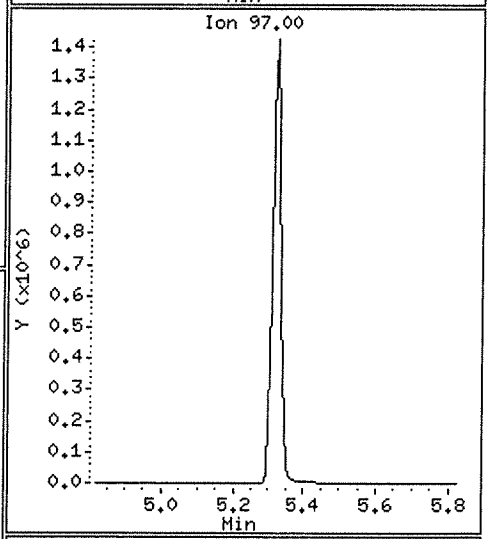


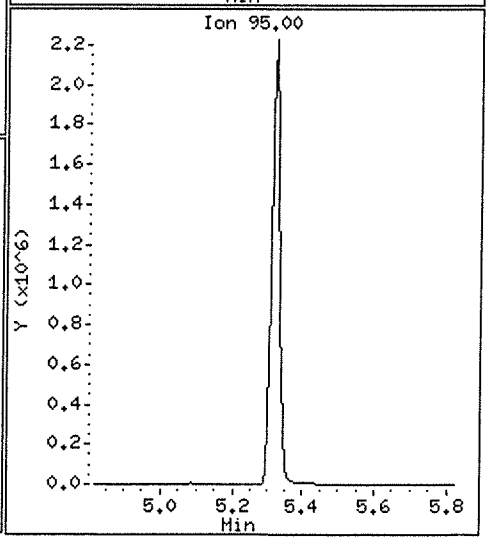












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121328.D

Date : 13-DEC-2017 21:25

Client ID: HS17120573-04

Instrument: voa6.i

Sample Info: HS17120573-04;HS17120573-04;;;

Purge Volume: 5.0

Operator: PC

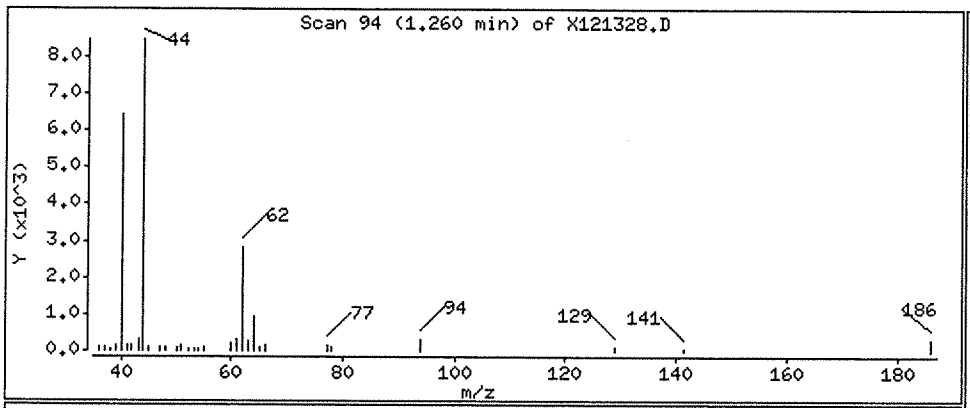
Column phase: DB624

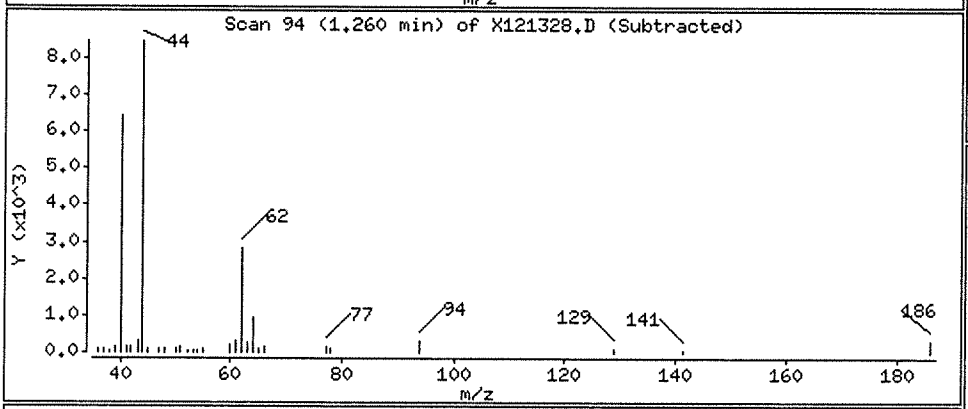
Column diameter: 0.18

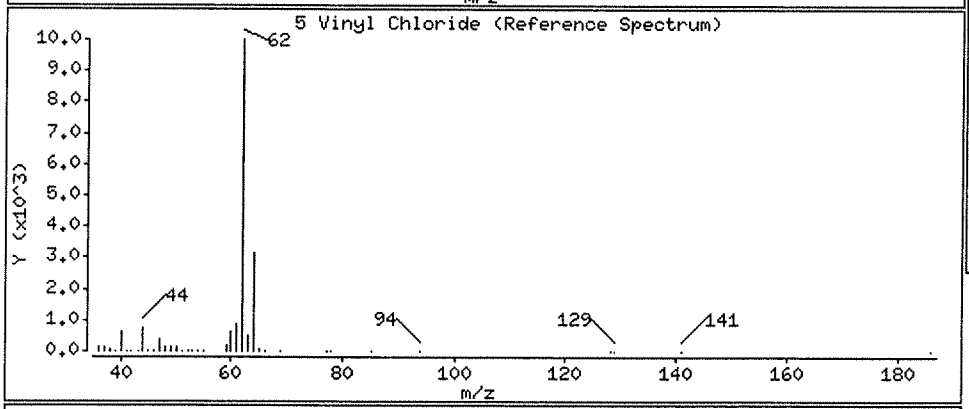
5 Vinyl Chloride

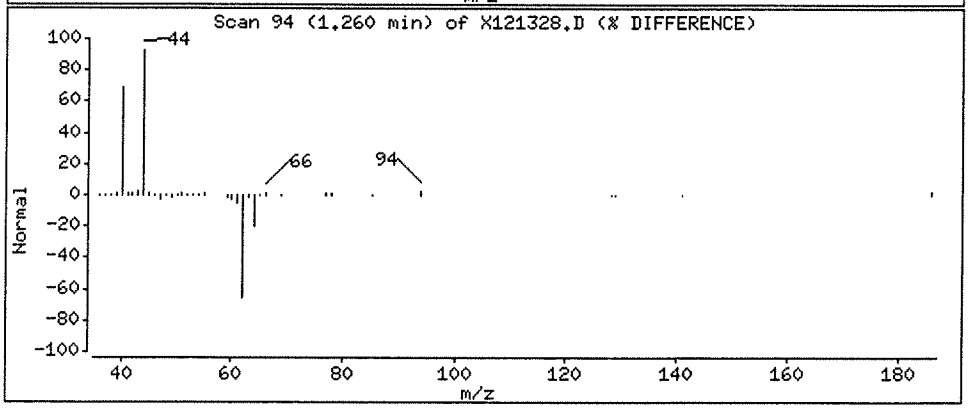
Concentration: 1.29 ug/l

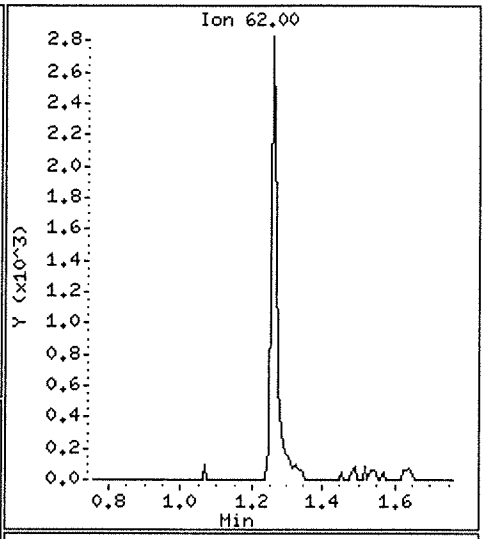
Review Code:

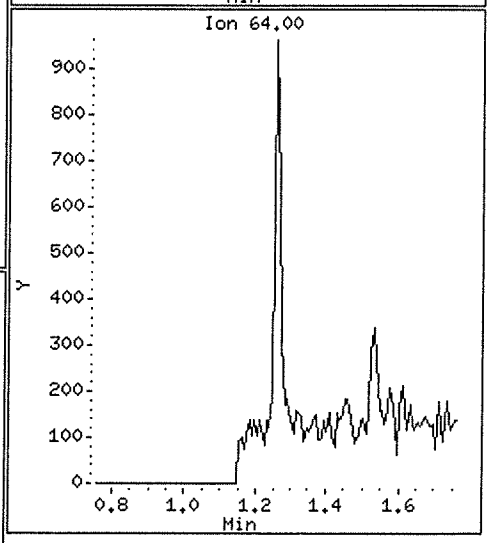












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121329.D Version 4
Report Date: 30-Jan-2018 14:52

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121329.D
Lab Smp Id: VSTD050-END Client Smp ID: VSTD050-END
Inj Date : 13-DEC-2017 21:50
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171213.b\8260W.m
Meth Date : 30-Jan-2018 14:52 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

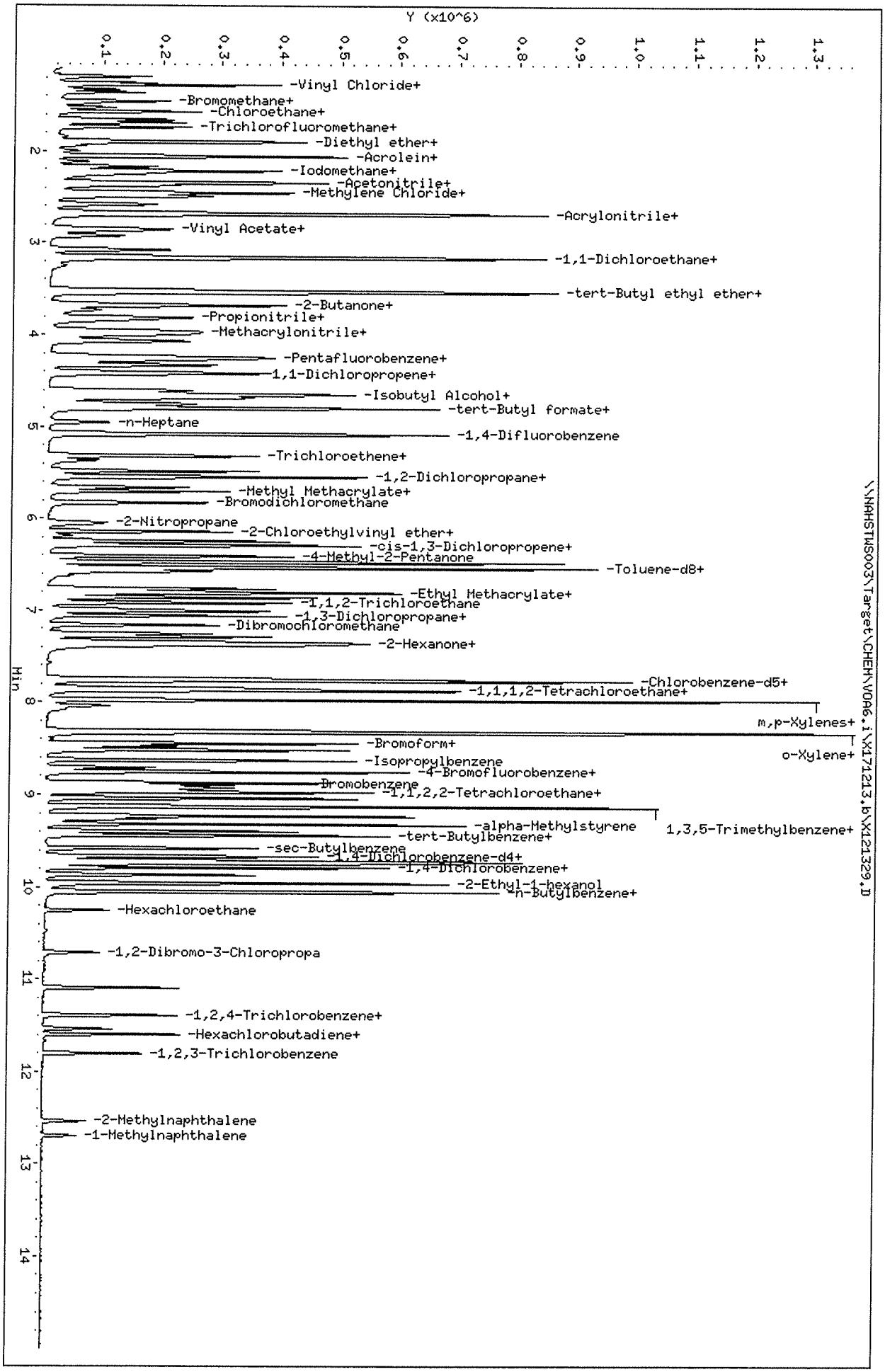
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	201502	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	332856	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	314583	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	148778	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	130572	50.0000	49.79
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	165774	50.0000	48.62
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	481872	50.0000	50.69
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	180420	50.0000	52.99
60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.013)	100010	50.0000	44.40
31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	141042	50.0000	43.27
68 1,1,2,2-Tetrachloroethane	83	8.902	8.902	(0.915)	142982	50.0000	47.99
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	95401	50.0000	46.87
22 1,1-Dichloroethane	63	3.079	3.079	(0.712)	197994	50.0000	44.21
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	85158	50.0000	41.27
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	126249	50.0000	42.53
93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	46205	50.0000	41.10
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	169199	50.0000	43.25
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	59523	50.0000	42.53
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	268526	50.0000	43.46
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	17718	50.0000	44.06
57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	113052	50.0000	47.80
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	169862	50.0000	43.23

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121329.D Version 4
Report Date: 30-Jan-2018 14:52

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	162365	50.0000	45.99
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	121226	50.0000	45.66
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	244248	50.0000	42.51
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	165953	50.0000	41.07
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	195627	50.0000	44.71
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	175350	50.0000	46.26
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	138703	50.0000	39.38
24	2-Butanone	43	3.731	3.731	(0.863)	105406	100.000	104.30
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	257022	50.0000	44.40
52	2-Hexanone	43	7.284	7.284	(0.941)	218729	100.000	90.21
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	299271	50.0000	43.35
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	193472	50.0000	36.94
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	241267	100.000	89.61
10	Acetone	43	2.119	2.119	(0.490)	67435	100.000	101.73
37	Benzene	78	4.648	4.648	(0.914)	427139	50.0000	45.19
74	Bromobenzene	156	8.874	8.874	(0.912)	118735	50.0000	44.36
29	Bromochloromethane	128	3.960	3.960	(0.916)	60686	50.0000	56.43
39	Bromodichloromethane	83	5.822	5.822	(1.145)	162200	50.0000	47.84
66	Bromoform	173	8.480	8.480	(1.095)	84628	50.0000	48.93
6	Bromomethane	94	1.460	1.460	(0.338)	76668	50.0000	41.99
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	108639	50.0000	42.63
59	Chlorobenzene	112	7.764	7.764	(1.003)	270901	50.0000	43.60
7	Chloroethane	64	1.525	1.525	(0.353)	72988	50.0000	42.73
28	Chloroform	83	4.067	4.067	(0.940)	197415	50.0000	44.99
3	Chloromethane	50	1.195	1.195	(0.276)	146933	50.0000	45.33
27	cis-1,2-Dichloroethene	96	3.688	3.688	(0.853)	124700	50.0000	46.89
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	196778	50.0000	47.24
55	Dibromochloromethane	129	7.255	7.255	(0.937)	126988	50.0000	45.58
44	Dibromomethane	93	5.658	5.658	(1.113)	79543	50.0000	47.97
2	Dichlorodifluoromethane	85	1.080	1.080	(0.250)	87682	50.0000	44.19
19	Carbon Disulfide	76	2.212	2.212	(0.512)	549840	100.000	86.61
61	Ethylbenzene	106	7.871	7.871	(1.017)	127388	50.0000	41.65
91	Hexachlorobutadiene	225	11.538	11.538	(1.186)	18159	50.0000	39.57
67	Isopropylbenzene	105	8.623	8.623	(1.114)	295883	50.0000	41.20
62	m,p-Xylenes	106	7.971	7.971	(1.030)	306527	100.000	83.49
17	Methylene Chloride	84	2.449	2.449	(0.566)	123052	50.0000	48.66
87	n-Butylbenzene	91	10.049	10.049	(1.033)	156103	50.0000	36.77
73	n-Propylbenzene	91	8.974	8.974	(0.923)	348551	50.0000	41.22
92	Naphthalene	128	11.603	11.603	(1.193)	160596	50.0000	43.24
63	o-Xylene	106	8.308	8.308	(1.073)	158024	50.0000	42.98
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	215475	50.0000	35.90
64	Styrene	104	8.322	8.322	(1.075)	304697	50.0000	46.08
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	170230	50.0000	41.54
56	Tetrachloroethene	164	7.011	7.011	(0.906)	64100	50.0000	42.65
50	Toluene	91	6.532	6.532	(0.844)	426428	50.0000	42.79
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	104634	50.0000	45.46
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	169865	50.0000	46.73
38	Trichloroethene	130	5.321	5.321	(1.046)	109664	50.0000	49.30
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	117169	50.0000	42.61
5	Vinyl Chloride	62	1.260	1.260	(0.291)	122507	50.0000	41.31



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171213.b\X121329.D
Date : 13-DEC-2017 21:50
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Lab File ID: X121501 BFB Injection Date: 12/15/17

Instrument ID: VOA6 BFB Injection Time: 1212

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.6
75	30.0 - 60.0% of mass 95	50.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	8.0
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	55.7
175	5.0 - 9.0% of mass 174	4.9 (8.8)1
176	95.0 - 101.0% of mass 174	53.4 (96.0)1
177	5.0 - 9.0% of mass 176	3.8 (7.1)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	X121502	12/15/17	1236
02	VLCSW-171215	VLCSW-171215	X121503	12/15/17	1301
03	VBLKW-017121	VBLKW-171215	X121506	12/15/17	1416
04	HS17120573-1	HS17120573-10	X121507	12/15/17	1441
05	HS17120573-0	HS17120573-05	X121508	12/15/17	1505
06	HS17120573-0	HS17120573-07	X121509	12/15/17	1530
07	HS17120573-0	HS17120573-02	X121510	12/15/17	1555
08	HS17120573-0	HS17120573-05M	X121511	12/15/17	1620
09	HS17120573-0	HS17120573-05M	X121512	12/15/17	1645
10	HS17120573-0	HS17120573-04	X121513	12/15/17	1710
11	HS17120573-0	HS17120573-03	X121514	12/15/17	1735
12	HS17120573-0	HS17120573-07	X121515	12/15/17	1759
13	HS17120573-0	HS17120573-02	X121516	12/15/17	1824
14	HS17120573-0	HS17120573-06	X121518	12/15/17	1914
15	HS17120573-0	HS17120573-08	X121519	12/15/17	1938
16	HS17120573-0	HS17120573-09	X121520	12/15/17	2003
17	HS17120573-0	HS17120573-01	X121521	12/15/17	2027
18	VSTD050-END	VSTD050-END	X121529	12/15/17	2346
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Instrument ID: VOA6 Calibration Date: 12/15/17 Time: 1236

Lab File ID: X121502 Init. Calib. Date(s): 12/04/17 12/04/17

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Bromochloromethane	56.560194	50.000000	0.3018147	0.1	-13.12	20.00	LINR
Vinyl Chloride	0.7360000	0.7008676	0.7008676	0.1	4.77	20.00	AVRG
Chloromethane	0.8040000	0.7823344	0.7823344	0.1	2.69	20.00	AVRG
Bromomethane	0.4530000	0.4512155	0.4512155	0.1	0.39	20.00	AVRG
Chloroethane	0.4240000	0.4013077	0.4013077	0.1	5.35	20.00	AVRG
Methylene Chloride	52.665355	50.000000	0.6605921	0.1	-5.33	20.00	LINR
Acetone	87.976608	100.00000	0.1450990	0.1	12.02	20.00	LINR
Carbon Disulfide	1.5750000	1.6203487	1.6203487	0.1	-2.88	20.00	AVRG
1,1-Dichloroethene	0.5120000	0.5063751	0.5063751	0.1	1.10	20.00	AVRG
trans-1,2-Dichloroethene	0.5710000	0.5941222	0.5941222	0.1	-4.05	20.00	AVRG
Carbon Tetrachloride	0.3830000	0.3957992	0.3957992	0.1	-3.34	20.00	AVRG
Bromodichloromethane	0.5090000	0.5130698	0.5130698	0.2	-0.80	20.00	AVRG
1,1-Dichloroethane	1.1110000	1.0999044	1.0999044	0.2	1.00	20.00	AVRG
1,2-Dichloropropane	0.3990000	0.3984842	0.3984842	0.1	0.13	20.00	AVRG
2-Butanone	0.2510000	0.2316783	0.2316783	0.1	7.70	20.00	AVRG
cis-1,3-Dichloropropene	0.6260000	0.6287961	0.6287961	0.2	-0.45	20.00	AVRG
Dibromochloromethane	0.4430000	0.4233844	0.4233844	0.1	4.43	20.00	AVRG
1,1,2-Trichloroethane	0.3230000	0.3037202	0.3037202	0.1	5.97	20.00	AVRG
cis-1,2-Dichloroethene	0.6600000	0.6692280	0.6692280	0.1	-1.40	20.00	AVRG
Benzene	1.4200000	1.4757272	1.4757272	0.5	-3.92	20.00	AVRG
Chloroform	1.0880000	1.0824631	1.0824631	0.2	0.51	20.00	AVRG
trans-1,3-Dichloropropene	0.5460000	0.5279017	0.5279017	0.1	3.31	20.00	AVRG
Bromoform	0.2750000	0.2636958	0.2636958	0.1	4.11	20.00	AVRG
1,1,1-Trichloroethane	0.8080000	0.8268695	0.8268695	0.1	-2.34	20.00	AVRG
4-Methyl-2-Pentanone	0.4280000	0.3538449	0.3538449	0.1	17.32	20.00	AVRG
2-Hexanone	0.3850000	0.3499988	0.3499988	0.1	9.09	20.00	AVRG
1,2-Dichloroethane	0.5300000	0.4984894	0.4984894	0.1	5.94	20.00	AVRG
1,1,2,2-Tetrachloroethane	47.630555	50.000000	0.9536201	0.3	4.74	20.00	LINR
Trichloroethene	0.3340000	0.3508078	0.3508078	0.2	-5.03	20.00	AVRG
Toluene	1.5840000	1.5598415	1.5598415	0.4	1.52	20.00	AVRG
Dichlorodifluoromethane	0.4920000	0.5106185	0.5106185	0.1	-3.78	20.00	AVRG
Trichlorofluoromethane	0.6820000	0.6767870	0.6767870	0.1	0.76	20.00	AVRG
Tetrachloroethene	0.2390000	0.2524355	0.2524355	0.2	-5.62	20.00	AVRG
1,2-Dibromoethane	0.3760000	0.3625313	0.3625313	0.1	3.58	20.00	AVRG
Chlorobenzene	0.9870000	0.9764077	0.9764077	0.5	1.07	20.00	AVRG
1,3-Dichlorobenzene	1.3580000	1.3350085	1.3350085	0.6	1.69	20.00	AVRG
1,4-Dichlorobenzene	54.305633	50.000000	1.3857652	0.4	-8.61	20.00	LINR
Ethylbenzene	0.4860000	0.4791165	0.4791165	0.1	1.42	20.00	AVRG
1,2-Dichlorobenzene	1.3200000	1.3039268	1.3039268	0.4	1.22	20.00	AVRG
m,p-Xylenes	0.5830000	0.5738841	0.5738841	0.1	1.56	20.00	AVRG
o-Xylene	0.5840000	0.5815736	0.5815736	0.3	0.42	20.00	AVRG
Styrene	1.0510000	1.0817620	1.0817620	0.3	-2.93	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1712057

Instrument ID: VOA6 Calibration Date: 12/15/17 Time: 1236

Lab File ID: X121502 Init. Calib. Date(s): 12/04/17 12/04/17

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
2,2-Dichloropropane	0.8740000	0.8493851	0.8493851	0.1	2.82	20.00	AVRG	
1,1-Dichloropropene	0.4460000	0.4643424	0.4643424	0.1	-4.11	20.00	AVRG	
Dibromomethane	0.2490000	0.2388599	0.2388599	0.1	4.07	20.00	AVRG	
1,3-Dichloropropane	0.6950000	0.6417558	0.6417558	0.1	7.66	20.00	AVRG	
1,1,1,2-Tetrachloroethane	0.3580000	0.3514635	0.3514635	0.1	1.82	20.00	AVRG	
Isopropylbenzene	1.1420000	1.1753803	1.1753803	0.1	-2.92	20.00	AVRG	
Bromobenzene	0.8990000	0.8894817	0.8894817	0.1	1.06	20.00	AVRG	
1,2,3-Trichloropropane	1.3140000	1.1172968	1.1172968	0.1	14.97	20.00	AVRG	
n-Propylbenzene	54.535958	50.000000	3.1081225	0.1	-9.07	20.00	LINR	
2-Chlorotoluene	53.552612	50.000000	2.0864606	0.1	-7.10	20.00	LINR	
1,3,5-Trimethylbenzene	55.553127	50.000000	2.1530415	0.1	-11.11	20.00	LINR	
4-Chlorotoluene	53.736194	50.000000	2.5005142	0.1	-7.47	20.00	LINR	
tert-Butylbenzene	56.583243	50.000000	1.5614445	0.1	-13.17	20.00	LINR	
1,2,4-Trimethylbenzene	55.029105	50.000000	2.2900134	0.1	-10.06	20.00	LINR	
sec-Butylbenzene	2.0170000	2.2079413	2.2079413	0.1	-9.47	20.00	AVRG	
p-Isopropyltoluene	1.7600000	1.9692573	1.9692573	0.1	-11.89	20.00	AVRG	
n-Butylbenzene	1.4260000	1.7358266	1.7358266	0.5	-21.73	20.00	AVRG	<-
1,2-Dibromo-3-Chloropropane	0.1350000	0.1162859	0.1162859	0.05	13.86	20.00	AVRG	
1,2,4-Trichlorobenzene	57.136787	50.000000	0.5469000	0.2	-14.27	20.00	LINR	
Hexachlorobutadiene	78.477141	50.000000	0.2444457	0.1	-56.95	20.00	LINR	<-
Naphthalene	51.392263	50.000000	1.3000643	0.2	-2.78	20.00	2RDR	
1,2,3-Trichlorobenzene	54.786446	50.000000	0.4230117	0.1	-9.57	20.00	LINR	
Dibromofluoromethane	47.951832	50.000000	0.6242452	0.1	4.10	20.00	LINR	
1,2-Dichloroethane-d4	43.668505	50.000000	0.7385254	0.1	12.66	20.00	LINR	
Toluene-d8	51.519111	50.000000	1.5578021	0.1	-3.04	20.00	2RDR	
4-Bromofluorobenzene	51.083177	50.000000	0.5523765	0.1	-2.17	20.00	2RDR	

FORM 7B

VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SDG No.: SDG No.: HS17120573

Instrument ID: VOA6

Lab File ID: X121529 Calibration Date: 12/15/17 Time: 2346

Init. Calib. Date(s): 12/04/17 2/4/2017

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Bromochloromethane	49.802226	50.000000	0.2663812	0.1	0.40	50.00	LINR
Vinyl Chloride	0.7360000	0.5911975	0.5911975	0.1	19.67	50.00	AVRG
Chloromethane	0.8040000	0.7836321	0.7836321	0.1	2.53	50.00	AVRG
Bromomethane	0.4530000	0.3553147	0.3553147	0.1	21.56	50.00	AVRG
Chloroethane	0.4240000	0.3564036	0.3564036	0.1	15.94	50.00	AVRG
Methylene Chloride	47.417427	50.000000	0.5951499	0.1	5.16	50.00	LINR
Acetone	96.966984	100.00000	0.1596231	0.1	3.03	50.00	LINR
Carbon Disulfide	1.5750000	1.3242699	1.3242699	0.1	15.92	50.00	AVRG
1,1-Dichloroethene	0.5120000	0.4106670	0.4106670	0.1	19.79	50.00	AVRG
trans-1,2-Dichloroethene	0.5710000	0.5076971	0.5076971	0.1	11.09	50.00	AVRG
Carbon Tetrachloride	0.3830000	0.3185399	0.3185399	0.1	16.83	50.00	AVRG
Bromodichloromethane	0.5090000	0.4694500	0.4694500	0.2	7.77	50.00	AVRG
1,1-Dichloroethane	1.1110000	0.9628190	0.9628190	0.2	13.34	50.00	AVRG
1,2-Dichloropropane	0.3990000	0.3593176	0.3593176	0.1	9.94	50.00	AVRG
2-Butanone	0.2510000	0.2398019	0.2398019	0.1	4.46	50.00	AVRG
cis-1,3-Dichloropropene	0.6260000	0.5656287	0.5656287	0.2	9.64	50.00	AVRG
Dibromochloromethane	0.4430000	0.3910856	0.3910856	0.1	11.72	50.00	AVRG
1,1,2-Trichloroethane	0.3230000	0.2855926	0.2855926	0.1	11.58	50.00	AVRG
cis-1,2-Dichloroethene	0.6600000	0.5875390	0.5875390	0.1	10.98	50.00	AVRG
Benzene	1.4200000	1.2901176	1.2901176	0.5	9.15	50.00	AVRG
Chloroform	1.0880000	0.9473779	0.9473779	0.2	12.92	50.00	AVRG
trans-1,3-Dichloropropene	0.5460000	0.4836527	0.4836527	0.1	11.42	50.00	AVRG
Bromoform	0.2750000	0.2495779	0.2495779	0.1	9.24	50.00	AVRG
1,1,1-Trichloroethane	0.8080000	0.6893244	0.6893244	0.1	14.69	50.00	AVRG
4-Methyl-2-Pentanone	0.4280000	0.3609845	0.3609845	0.1	15.66	50.00	AVRG
2-Hexanone	0.3850000	0.3251763	0.3251763	0.1	15.54	50.00	AVRG
1,2-Dichloroethane	0.5300000	0.4514488	0.4514488	0.1	14.82	50.00	AVRG
1,1,2,2-Tetrachloroethane	43.830769	50.000000	0.8769713	0.3	12.34	50.00	LINR
Trichloroethene	0.3340000	0.3064891	0.3064891	0.2	8.24	50.00	AVRG
Toluene	1.5840000	1.3575879	1.3575879	0.4	14.29	50.00	AVRG
Dichlorodifluoromethane	0.4920000	0.4119636	0.4119636	0.1	16.27	50.00	AVRG
Trichlorofluoromethane	0.6820000	0.5341021	0.5341021	0.1	21.68	50.00	AVRG
Tetrachloroethene	0.2390000	0.2022405	0.2022405	0.2	15.38	50.00	AVRG
1,2-Dibromoethane	0.3760000	0.3423316	0.3423316	0.1	8.95	50.00	AVRG
Chlorobenzene	0.9870000	0.8614275	0.8614275	0.5	12.72	50.00	AVRG
1,3-Dichlorobenzene	1.3580000	1.1091930	1.1091930	0.6	18.32	50.00	AVRG
1,4-Dichlorobenzene	44.997550	50.000000	1.1458744	0.4	10.00	50.00	LINR
Ethylbenzene	0.4860000	0.4072280	0.4072280	0.1	16.21	50.00	AVRG
1,2-Dichlorobenzene	1.3200000	1.0906588	1.0906588	0.4	17.37	50.00	AVRG
m,p-Xylenes	0.5830000	0.4862204	0.4862204	0.1	16.60	50.00	AVRG
o-Xylene	0.5840000	0.5029770	0.5029770	0.3	13.87	50.00	AVRG
Styrene	1.0510000	0.9438151	0.9438151	0.3	10.20	50.00	AVRG

FORM VII VOA

FORM 7B

VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SDG No.: SDG No.: HS17120573

Instrument ID: VOA6

Lab File ID: X121529 Calibration Date: 12/15/17 Time: 2346

Init. Calib. Date(s): 12/04/17 2/4/2017

Init. Calib. Times: 1044 1517

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
2,2-Dichloropropane	0.8740000	0.6521552	0.6521552	0.1	25.38	50.00	AVRG
1,1-Dichloropropene	0.4460000	0.3770721	0.3770721	0.1	15.45	50.00	AVRG
Dibromomethane	0.2490000	0.2233670	0.2233670	0.1	10.29	50.00	AVRG
1,3-Dichloropropane	0.6950000	0.5914651	0.5914651	0.1	14.90	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3580000	0.3123049	0.3123049	0.1	12.76	50.00	AVRG
Isopropylbenzene	1.1420000	0.9346801	0.9346801	0.1	18.15	50.00	AVRG
Bromobenzene	0.8990000	0.7657717	0.7657717	0.1	14.82	50.00	AVRG
1,2,3-Trichloropropane	1.3140000	1.0589910	1.0589910	0.1	19.41	50.00	AVRG
n-Propylbenzene	41.090664	50.000000	2.3347484	0.1	17.82	50.00	LINR
2-Chlorotoluene	44.332764	50.000000	1.7247290	0.1	11.33	50.00	LINR
1,3,5-Trimethylbenzene	42.460040	50.000000	1.6395812	0.1	15.08	50.00	LINR
4-Chlorotoluene	43.851708	50.000000	2.0349568	0.1	12.30	50.00	LINR
tert-Butylbenzene	40.873188	50.000000	1.1254553	0.1	18.25	50.00	LINR
1,2,4-Trimethylbenzene	43.429365	50.000000	1.8033873	0.1	13.14	50.00	LINR
sec-Butylbenzene	2.0170000	1.4328419	1.4328419	0.1	28.96	50.00	AVRG
p-Isopropyltoluene	1.7600000	1.3027102	1.3027102	0.1	25.98	50.00	AVRG
n-Butylbenzene	1.4260000	1.0435910	1.0435910	0.5	26.82	50.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1350000	0.1088393	0.1088393	0.05	19.38	50.00	AVRG
1,2,4-Trichlorobenzene	39.265572	50.000000	0.3672344	0.2	21.47	50.00	LINR
Hexachlorobutadiene	35.509458	50.000000	0.1092483	0.1	28.98	50.00	LINR
Naphthalene	41.047715	50.000000	1.0204523	0.2	17.90	50.00	2RDR
1,2,3-Trichlorobenzene	38.015885	50.000000	0.2851986	0.1	23.97	50.00	LINR
Dibromofluoromethane	48.076822	50.000000	0.6258559	0.1	3.85	50.00	LINR
1,2-Dichloroethane-d4	44.159192	50.000000	0.7468585	0.1	11.68	50.00	LINR
Toluene-d8	51.511562	50.000000	1.5575649	0.1	-3.02	50.00	2RDR
4-Bromofluorobenzene	51.953090	50.000000	0.5619978	0.1	-3.91	50.00	2RDR

page 2 of 2

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Lab File ID (Standard): X121502 Date Analyzed: 12/15/17

Instrument ID: VOA6 Time Analyzed: 1236

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1 AREA #	IS1 RT #	IS2(DFB) AREA #	IS2(DFB) RT #	IS3(CBZ) AREA #	IS3(CBZ) RT #
	12 HOUR STD	247917	4.33	401499	5.09	374147	7.74
	UPPER LIMIT	495834	4.83	802998	5.59	748294	8.24
	LOWER LIMIT	123959	3.83	200750	4.59	187074	7.24
	CLIENT SAMPLE NO.						
01	VLCSW-171215	254556	4.33	410786	5.09	380345	7.74
02	VBLKW-0171215	242267	4.33	390718	5.09	364797	7.74
03	HS17120573-10	259940	4.33	416323	5.09	389546	7.74
04	HS17120573-05	252406	4.33	401387	5.09	373161	7.74
05	HS17120573-07	254114	4.33	408552	5.09	375399	7.74
06	HS17120573-02	267194	4.33	422479	5.09	383672	7.74
07	HS17120573-05	215483	4.33	347802	5.09	321194	7.74
08	HS17120573-05	196981	4.33	320502	5.09	306853	7.74
09	HS17120573-04	242367	4.33	390692	5.09	362758	7.74
10	HS17120573-03	237149	4.33	383884	5.09	358672	7.74
11	HS17120573-07	244478	4.33	394252	5.09	362840	7.74
12	HS17120573-02	248857	4.33	405696	5.09	372293	7.74
13	HS17120573-06	257646	4.33	414094	5.09	384075	7.74
14	HS17120573-08	241647	4.33	392862	5.09	364511	7.74
15	HS17120573-09	240607	4.33	388817	5.09	362292	7.74
16	HS17120573-01	249550	4.33	399549	5.09	361729	7.74
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS GROUP Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS17120573

Lab File ID (Standard): X121502 Date Analyzed: 12/15/17

Instrument ID: VOA6 Time Analyzed: 1236

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	171130	9.73				
	UPPER LIMIT	342260	10.23				
	LOWER LIMIT	85565	9.23				
	CLIENT SAMPLE NO.						
01	VLCSW-171215	179226	9.73				
02	VBLKW-0171215	158949	9.73				
03	HS17120573-10	169314	9.73				
04	HS17120573-05	155477	9.73				
05	HS17120573-07	154776	9.73				
06	HS17120573-02	153632	9.73				
07	HS17120573-05	146929	9.73				
08	HS17120573-05	143591	9.73				
09	HS17120573-04	164114	9.73				
10	HS17120573-03	154789	9.73				
11	HS17120573-07	154057	9.73				
12	HS17120573-02	160651	9.73				
13	HS17120573-06	165516	9.73				
14	HS17120573-08	155667	9.73				
15	HS17120573-09	161295	9.73				
16	HS17120573-01	147848	9.73				
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

MSVOA06 -Logbook

Batch: 30296
Date: 12-15-2017
Method: 8260
Comments:

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-15-2017 12:12 pm	1.00	50 mL	50 mL	X121501.D	Liquid	Y	na
	auto find/ purged									
2	VSTD050	CCV	12-15-2017 12:36 pm	1.00	50 mL	50 mL	X121502.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
3	VLCSW-171215	LCS	12-15-2017 01:01 pm	1.00	50 mL	50 mL	X121503.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
4	BLANK	SAMP	12-15-2017 01:26 pm	1.00	50 mL	50 mL	X121504.D	Liquid	Y	na
	clean up blank									
5	BLK	SAMP	12-15-2017 01:51 pm	1.00	50 mL	50 mL	X121505.D	Liquid	Y	na
6	VBLKW-171215	MBLK	12-15-2017 02:16 pm	1.00	50 mL	50 mL	X121506.D	Liquid	Y	na
7	HS17120573-10	SAMP	12-15-2017 02:41 pm	1.00	50 mL	50 mL	X121507.D	Liquid	Y	<2
8	HS17120573-05	SAMP	12-15-2017 03:05 pm	1.00	50 mL	50 mL	X121508.D	Liquid	Y	<2
9	HS17120573-07	SAMP	12-15-2017 03:30 pm	1.00	50 mL	50 mL	X121509.D	Liquid	Y	<2
10	HS17120573-02	SAMP	12-15-2017 03:55 pm	1.00	50 mL	50 mL	X121510.D	Liquid	Y	<2
11	HS17120573-05MS	MS	12-15-2017 04:20 pm	1.00	50 mL	50 mL	X121511.D	Liquid	Y	<2
	5 uL cal std/25 mL sample									
12	HS17120573-05MSD	MSD	12-15-2017 04:45 pm	1.00	50 mL	50 mL	X121512.D	Liquid	Y	<2
	5 uL cal std/25 mL sample									
13	HS17120573-04	SAMP	12-15-2017 05:10 pm	25.00	2 mL	50 mL	X121513.D	Liquid	Y	<2
14	HS17120573-03	SAMP	12-15-2017 05:35 pm	5.00	10 mL	50 mL	X121514.D	Liquid	Y	<2
15	HS17120573-07	SAMP	12-15-2017 05:59 pm	5.00	10 mL	50 mL	X121515.D	Liquid	Y	<2
16	HS17120573-02	SAMP	12-15-2017 06:24 pm	5.00	10 mL	50 mL	X121516.D	Liquid	Y	<2
17	HS17120301-02	SAMP	12-15-2017 06:49 pm	1.00	50 mL	50 mL	X121517.D	Liquid	Y	<2
18	HS17120573-06	SAMP	12-15-2017 07:14 pm	1.00	50 mL	50 mL	X121518.D	Liquid	Y	<2
19	HS17120573-08	SAMP	12-15-2017 07:38 pm	1.00	50 mL	50 mL	X121519.D	Liquid	Y	<2
20	HS17120573-09	SAMP	12-15-2017 08:03 pm	1.00	50 mL	50 mL	X121520.D	Liquid	Y	<2
21	HS17120573-01	SAMP	12-15-2017 08:27 pm	1.00	50 mL	50 mL	X121521.D	Liquid	Y	<2
22	MBLK-123109 120817	MBLK	12-15-2017 08:52 pm	1.00	50 mL	50 mL	X121522.D	Liquid	Y	<2
23	HS17120092-03	SAMP	12-15-2017 09:17 pm	1.00	50 mL	50 mL	X121523.D	Liquid	Y	<2
24	HS17120838-01	SAMP	12-15-2017 09:42 pm	10.00	5 mL	50 mL	X121524.D	Liquid	Y	<2
25	HS17120092-04	SAMP	12-15-2017 10:06 pm	1.00	50 mL	50 mL	X121525.D	Liquid	Y	<2
26	HS17120094-01	SAMP	12-15-2017 10:31 pm	1.00	50 mL	50 mL	X121526.D	Liquid	Y	<2
27	HS17120838-02	SAMP	12-15-2017 10:56 pm	10.00	5 mL	50 mL	X121527.D	Liquid	Y	<2
28	HS17120094-02	SAMP	12-15-2017 11:21 pm	1.00	50 mL	50 mL	X121528.D	Liquid	Y	<2
29	VSTD050-END	CCV	12-15-2017 11:46 pm	1.00	50 mL	50 mL	X121529.D	Liquid	Y	na
	10 uL cal std/50 mL DI									

Chemical	Value
SURR SPK ID	30502-03-03
IS ID	30502-03-04
LCS/MS ID	30502-06-01/02
BFB ID	30502-03-03
pH Paper	634-37-03

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121501.D

Date : 15-DEC-2017 12:12

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;;BFB;3;;BFB

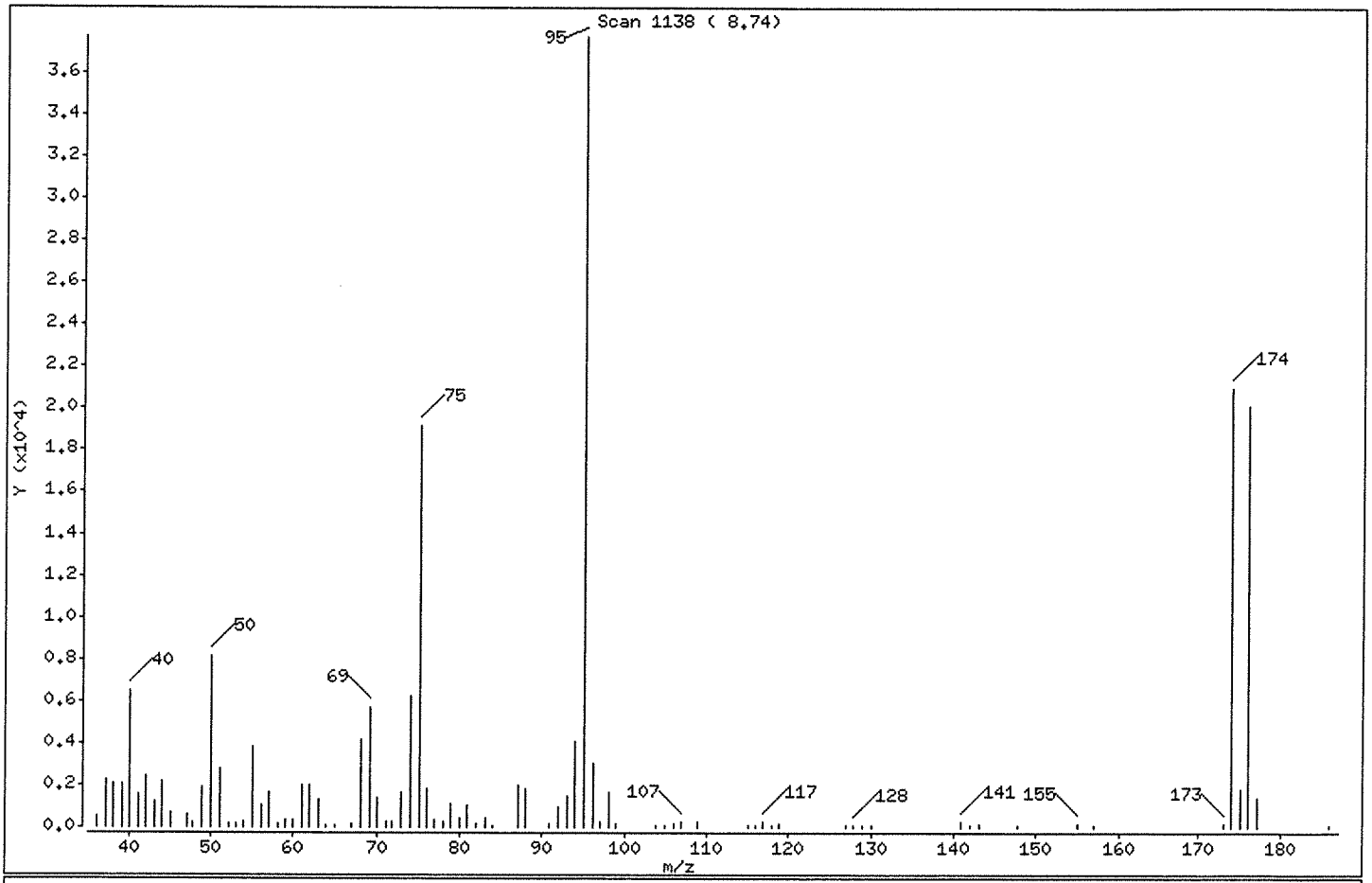
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	21.58
75	30.00 - 60.00% of mass 95	50.91
96	5.00 - 9.00% of mass 95	8.01
173	Less than 2.00% of mass 174	0.41 (0.73)
174	Greater than 50.00% of mass 95	55.66
175	5.00 - 9.00% of mass 174	4.87 (8.75)
176	95.00 - 101.00% of mass 174	53.44 (96.00)
177	5.00 - 9.00% of mass 176	3.78 (7.07)

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121501.D

Date : 15-DEC-2017 12:12

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X121501.D
Spectrum: Scan 1138 (8.74)
Location of Maximum: 95.10
Number of points: 84

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	520	59.10	326	82.00	214	117.90	87
37.10	2220	60.00	369	83.00	422	118.90	163
38.10	2097	61.00	1956	83.90	66	126.90	124
39.10	2060	62.00	2003	87.00	2008	127.90	129
40.00	6472	63.10	1326	88.00	1805	129.00	81
41.10	1523	64.00	127	90.90	174	130.00	78
42.10	2468	64.90	57	92.00	941	141.00	273
43.10	1195	66.90	177	93.00	1461	141.90	96
44.00	2209	68.10	4180	94.00	4104	143.00	158
45.10	704	69.10	5690	95.10	37712	147.80	54
47.10	642	70.10	1401	96.00	3020	155.00	159
47.90	273	71.10	279	97.10	280	157.10	53
49.00	1887	71.90	252	98.10	1689	173.20	154
50.10	8140	73.00	1647	99.00	176	174.00	20992
51.00	2738	74.00	6234	103.90	113	175.00	1837
52.10	200	75.10	19200	105.00	121	176.00	20152
53.00	188	76.10	1852	106.10	141	177.00	1425
54.00	268	76.90	326	107.00	273	186.00	75
55.10	3851	78.00	259	108.90	271		
56.10	1022	79.00	1099	115.00	52		
57.10	1653	80.00	403	115.90	107		
58.10	168	80.90	1052	116.90	223		

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121501.D

Date : 15-DEC-2017 12:12

Client ID: BFB

Instrument: voa6.i

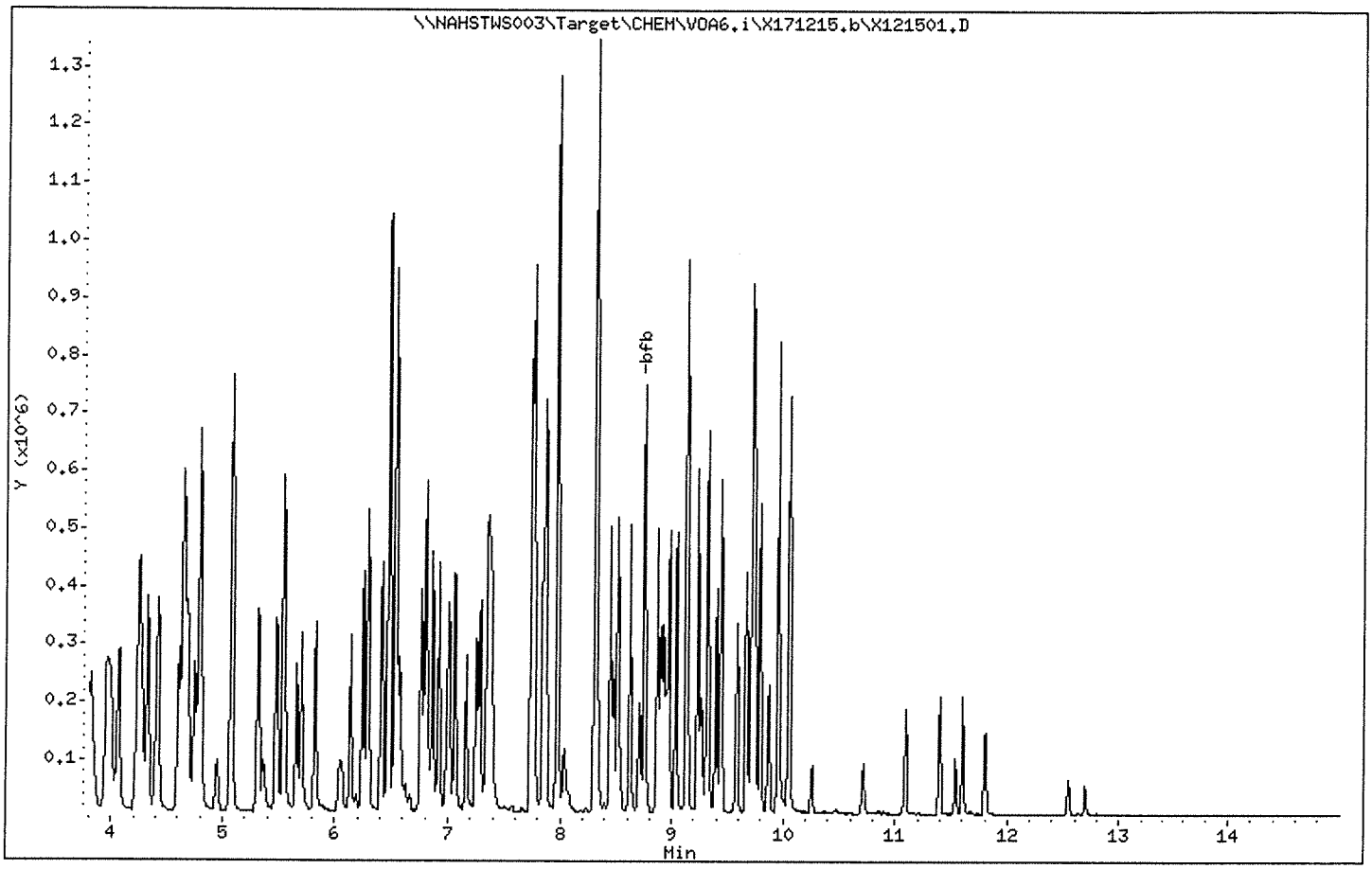
Sample Info: BFB;;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121502.D Version 10
Report Date: 30-Jan-2018 15:22

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121502.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 15-DEC-2017 12:36
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;2;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	247917	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	401499	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	374147	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	171130	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	154761	50.0000	47.95
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	183093	50.0000	43.66
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	582847	50.0000	51.51
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	206670	50.0000	51.08
60 1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.013)	131499	50.0000	49.08
31 1,1,1-Trichloroethane	97	4.232	4.232	(0.978)	204995	50.0000	51.12
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	163193	50.0000	47.63
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	113636	50.0000	46.94
22 1,1-Dichloroethane	63	3.072	3.072	(0.710)	272685	50.0000	49.49
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	125539	50.0000	49.45
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	186433	50.0000	52.07
93 1,2,3-Trichlorobenzene	180	11.797	11.797	(1.213)	72390	50.0000	54.78
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	191203	50.0000	42.49
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	93591	50.0000	57.13
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	391890	50.0000	55.02
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	19900	50.0000	43.02
57 1,2-Dibromoethane	107	7.334	7.334	(0.947)	135640	50.0000	48.23
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	223141	50.0000	49.37

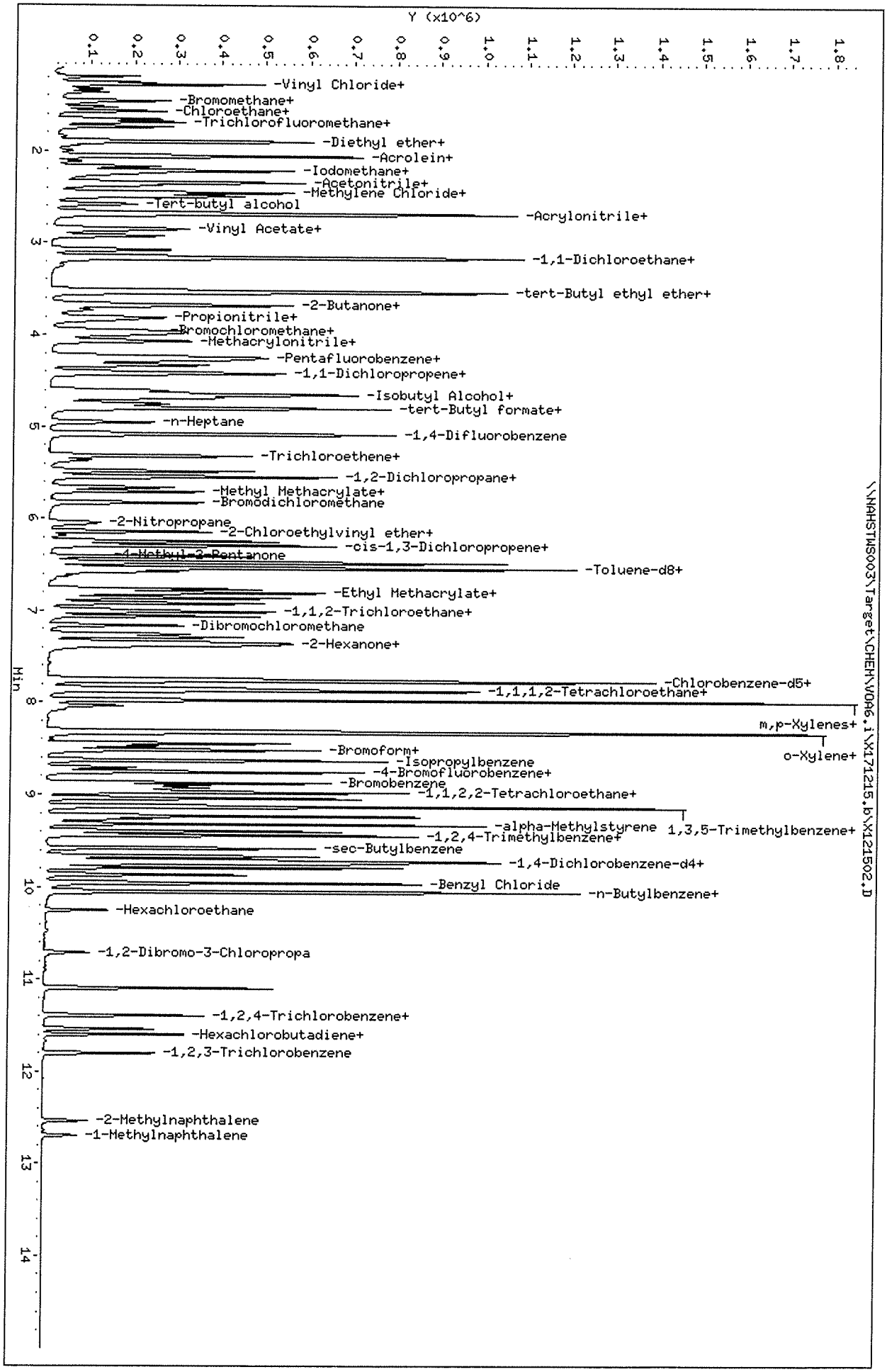
Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121502.D Version 10
Report Date: 30-Jan-2018 15:22

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	200143	50.0000	47.00
42 1,2-Dichloropropane	63	5.543	5.543	(1.090)	159991	50.0000	49.96
75 1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	368450	50.0000	55.55
83 1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	228460	50.0000	49.15
54 1,3-Dichloropropane	76	7.062	7.062	(0.912)	240111	50.0000	46.14
84 1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	237146	50.0000	54.30
26 2,2-Dichloropropane	77	3.666	3.666	(0.848)	210577	50.0000	48.60
24 2-Butanone	43	3.731	3.731	(0.863)	114874	100.000	92.38
76 2-Chlorotoluene	91	9.039	9.039	(0.929)	357056	50.0000	53.55
52 2-Hexanone	43	7.284	7.284	(0.941)	261902	100.000	90.82
77 4-Chlorotoluene	91	9.132	9.132	(0.939)	427913	50.0000	53.73
82 p-Isopropyltoluene	119	9.705	9.705	(0.998)	336999	50.0000	55.94
45 4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	264780	100.000	82.69
10 Acetone	43	2.112	2.112	(0.488)	71945	100.000	87.97
37 Benzene	78	4.648	4.648	(0.914)	592503	50.0000	51.97
74 Bromobenzene	156	8.867	8.867	(0.912)	152217	50.0000	49.44
29 Bromochloromethane	128	3.953	3.953	(0.914)	74825	50.0000	56.56
39 Bromodichloromethane	83	5.823	5.823	(1.145)	205997	50.0000	50.37
66 Bromoform	173	8.480	8.480	(1.095)	98661	50.0000	47.96
6 Bromomethane	94	1.460	1.460	(0.338)	111864	50.0000	49.80
34 Carbon Tetrachloride	117	4.411	4.411	(0.868)	158913	50.0000	51.69
59 Chlorobenzene	112	7.764	7.764	(1.003)	365320	50.0000	49.44
7 Chloroethane	64	1.525	1.525	(0.353)	99491	50.0000	47.34
28 Chloroform	83	4.068	4.068	(0.940)	268361	50.0000	49.71
3 Chloromethane	50	1.195	1.195	(0.276)	193954	50.0000	48.63
27 cis-1,2-Dichloroethene	96	3.681	3.681	(0.851)	165913	50.0000	50.71
46 cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	252461	50.0000	50.24
55 Dibromochloromethane	129	7.255	7.255	(0.937)	158408	50.0000	47.81
44 Dibromomethane	93	5.658	5.658	(1.113)	95902	50.0000	47.95
2 Dichlorodifluoromethane	85	1.081	1.081	(0.250)	126591	50.0000	51.86
19 Carbon Disulfide	76	2.212	2.212	(0.512)	803424	100.000	102.86
61 Ethylbenzene	106	7.871	7.871	(1.017)	179260	50.0000	49.28
91 Hexachlorobutadiene	225	11.539	11.539	(1.186)	41832	50.0000	78.47
67 Isopropylbenzene	105	8.623	8.623	(1.114)	439765	50.0000	51.48
62 m,p-Xylenes	106	7.971	7.971	(1.030)	429434	100.000	98.35
17 Methylene Chloride	84	2.449	2.449	(0.566)	163772	50.0000	52.66
87 n-Butylbenzene	91	10.049	10.049	(1.033)	297052	50.0000	60.84
73 n-Propylbenzene	91	8.974	8.974	(0.923)	531893	50.0000	54.53
92 Naphthalene	128	11.603	11.603	(1.193)	222480	50.0000	51.39
63 o-Xylene	106	8.308	8.308	(1.073)	217594	50.0000	49.76
81 sec-Butylbenzene	105	9.583	9.583	(0.985)	377845	50.0000	54.72
64 Styrene	104	8.322	8.322	(1.075)	404738	50.0000	51.47
78 tert-Butylbenzene	119	9.397	9.397	(0.966)	267210	50.0000	56.58(M)
56 Tetrachloroethene	164	7.004	7.004	(0.905)	94448	50.0000	52.84
50 Toluene	91	6.532	6.532	(0.844)	583610	50.0000	49.24
20 trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	147293	50.0000	52.01
51 trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	211952	50.0000	48.34
38 Trichloroethene	130	5.321	5.321	(1.046)	140849	50.0000	52.50
8 Trichlorofluoromethane	101	1.689	1.689	(0.391)	167787	50.0000	49.59
5 Vinyl Chloride	62	1.260	1.260	(0.291)	173757	50.0000	47.62

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121502.D Version 10
Report Date: 30-Jan-2018 15:22

QC Flag Legend

M - Compound response manually integrated.



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121502.D
Date : 15-DEC-2017 12:36
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121503.D Version 7
Report Date: 30-Jan-2018 15:22

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121503.D
Lab Smp Id: VLCSW-171215 Client Smp ID: VLCSW-171215
Inj Date : 15-DEC-2017 13:01
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-171215;VLCSW-171215;3;;LCS
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 3 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

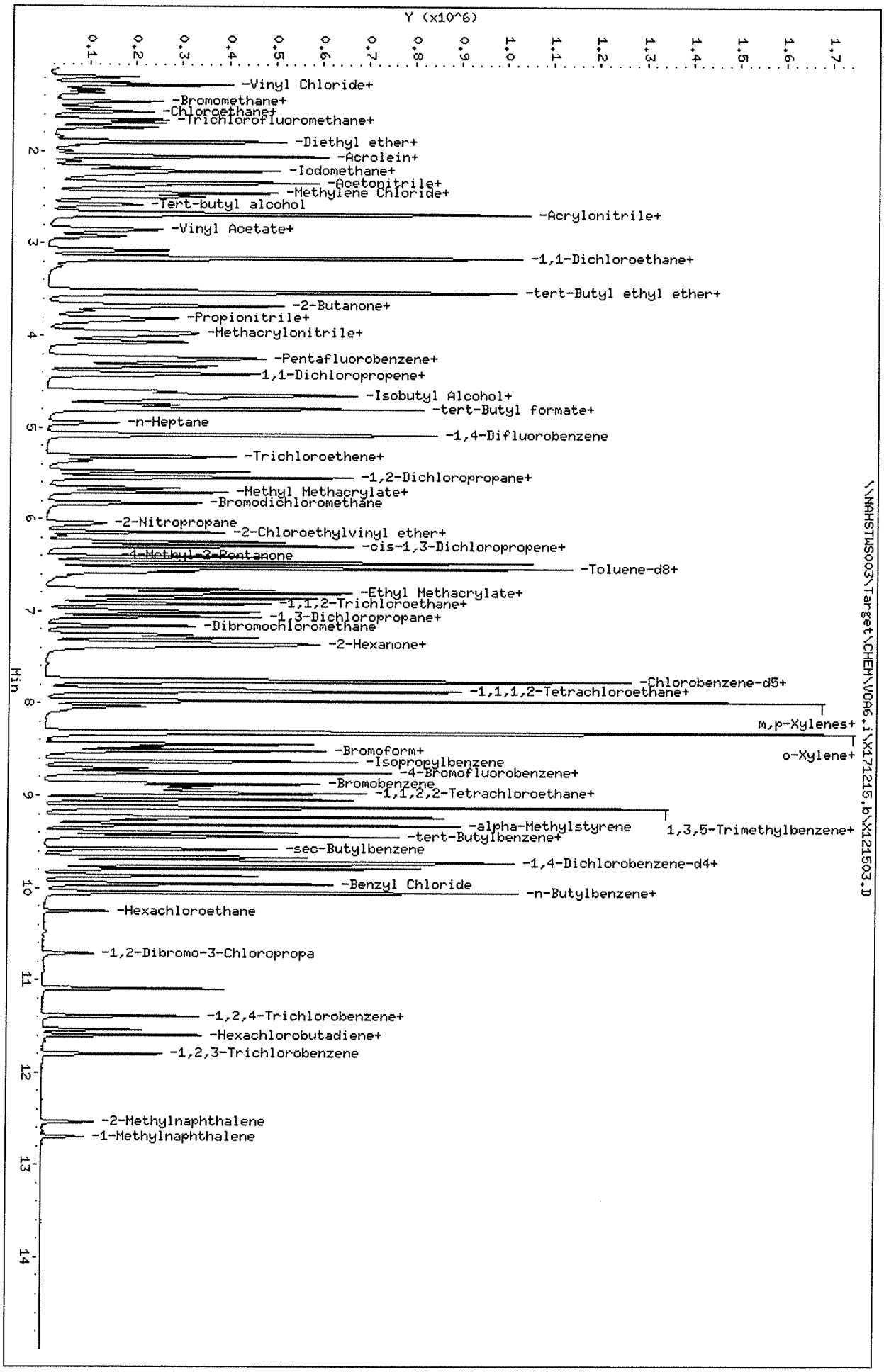
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	254556	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	410786	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	380345	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	179226	50.0000	
$ 30 Dibromofluoromethane	113	4.247	4.254	(0.982)	156812	47.3137	47.31
$ 35 1,2-Dichloroethane-d4	65	4.605	4.612	(1.065)	189288	43.9674	43.96
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	597227	51.9143	51.91
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	211892	51.5108	51.51
60 1,1,1,2-Tetrachloroethane	131	7.842	7.843	(1.013)	126498	46.4527	46.45
31 1,1,1-Trichloroethane	97	4.239	4.232	(0.980)	179145	43.5130	43.51
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	162013	45.1687	45.16
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	111993	45.5126	45.51
22 1,1-Dichloroethane	63	3.079	3.072	(0.712)	256106	45.2690	45.26
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	107874	41.3889	41.38
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	158568	43.2921	43.29
93 1,2,3-Trichlorobenzene	180	11.804	11.797	(1.214)	69326	50.3808	50.38
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	194031	41.1762	41.17
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	85574	50.2301	50.23
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	350661	47.0798	47.07
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	20831	43.0049	43.00
57 1,2-Dibromoethane	107	7.334	7.334	(0.947)	134022	46.8784	46.87
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	213282	45.0629	45.06

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121503.D Version 7
Report Date: 30-Jan-2018 15:22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	191915	44.0525	44.05
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	153422	46.8323	46.83
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	321555	46.4010	46.40
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	213496	43.8636	43.86
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	235193	44.4654	44.46
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	222745	48.7590	48.75
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	185044	41.5945	41.59
24	2-Butanone	43	3.731	3.731	(0.863)	118756	93.0203	93.02
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	329960	47.2970	47.29
52	2-Hexanone	43	7.284	7.284	(0.941)	267896	91.3882	91.38
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	395001	47.4392	47.43
82	p-Isopropyltoluene	119	9.712	9.705	(0.999)	271025	42.9586	42.95
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	274671	84.3816	84.38
10	Acetone	43	2.112	2.112	(0.488)	74271	88.4622	88.46
37	Benzene	78	4.648	4.648	(0.914)	555156	47.5943	47.59
74	Bromobenzene	156	8.867	8.867	(0.912)	145244	45.0471	45.04
29	Bromochloromethane	128	3.953	3.953	(0.914)	70588	51.8844	51.88
39	Bromodichloromethane	83	5.823	5.823	(1.145)	201132	48.0772	48.07
66	Bromoform	173	8.480	8.480	(1.095)	98214	46.9675	46.96
6	Bromomethane	94	1.460	1.460	(0.338)	100295	43.4891	43.48
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	134129	42.6499	42.64
59	Chlorobenzene	112	7.764	7.764	(1.003)	346547	46.1376	46.13
7	Chloroethane	64	1.525	1.525	(0.353)	90729	42.0510	42.05
28	Chloroform	83	4.068	4.068	(0.940)	254803	45.9725	45.97
3	Chloromethane	50	1.195	1.195	(0.276)	177973	43.4664	43.46
27	cis-1,2-Dichloroethene	96	3.681	3.681	(0.851)	156842	46.6908	46.69
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	245752	47.8081	47.80
55	Dibromochloromethane	129	7.255	7.255	(0.937)	152081	45.1548	45.15
44	Dibromomethane	93	5.658	5.658	(1.113)	94794	46.3307	46.33
2	Dichlorodifluoromethane	85	1.081	1.081	(0.250)	96693	38.5809	38.58
19	Carbon Disulfide	76	2.212	2.212	(0.512)	708256	88.3171	88.31
61	Ethylbenzene	106	7.871	7.871	(1.017)	162320	43.8963	43.89
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	34966	62.7926	62.79
67	Isopropylbenzene	105	8.623	8.623	(1.114)	376232	43.3304	43.33
62	m,p-Xylenes	106	7.971	7.971	(1.030)	389510	87.7529	87.75
17	Methylene Chloride	84	2.449	2.449	(0.566)	157798	49.4018	49.40
87	n-Butylbenzene	91	10.049	10.049	(1.033)	230787	45.1340	45.13
73	n-Propylbenzene	91	8.974	8.974	(0.923)	449903	44.1419	44.14
92	Naphthalene	128	11.603	11.603	(1.193)	234499	51.6972	51.69
63	o-Xylene	106	8.308	8.308	(1.073)	201133	45.2521	45.25
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	295594	40.8820	40.88
64	Styrene	104	8.322	8.322	(1.075)	381179	47.6870	47.68
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	223760	45.3061	45.30
56	Tetrachloroethene	164	7.012	7.004	(0.906)	80390	44.2444	44.24
50	Toluene	91	6.532	6.532	(0.844)	542886	45.0634	45.06
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	134866	46.3846	46.38
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	209521	46.7090	46.70
38	Trichloroethene	130	5.321	5.321	(1.046)	128968	46.9851	46.98
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	132430	38.1258	38.12
5	Vinyl Chloride	62	1.260	1.260	(0.291)	148620	39.6717	39.67



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121503.D
Date : 15-DEC-2017 13:01
Client ID: VLCSW-171215
Sample Info: VLCSW-171215;VLCSW-171215;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121503.D

Date : 15-DEC-2017 13:01

Client ID: VLCSW-171215

Instrument: voa6.i

Sample Info: VLCSW-171215;VLCSW-171215;3;;LCS

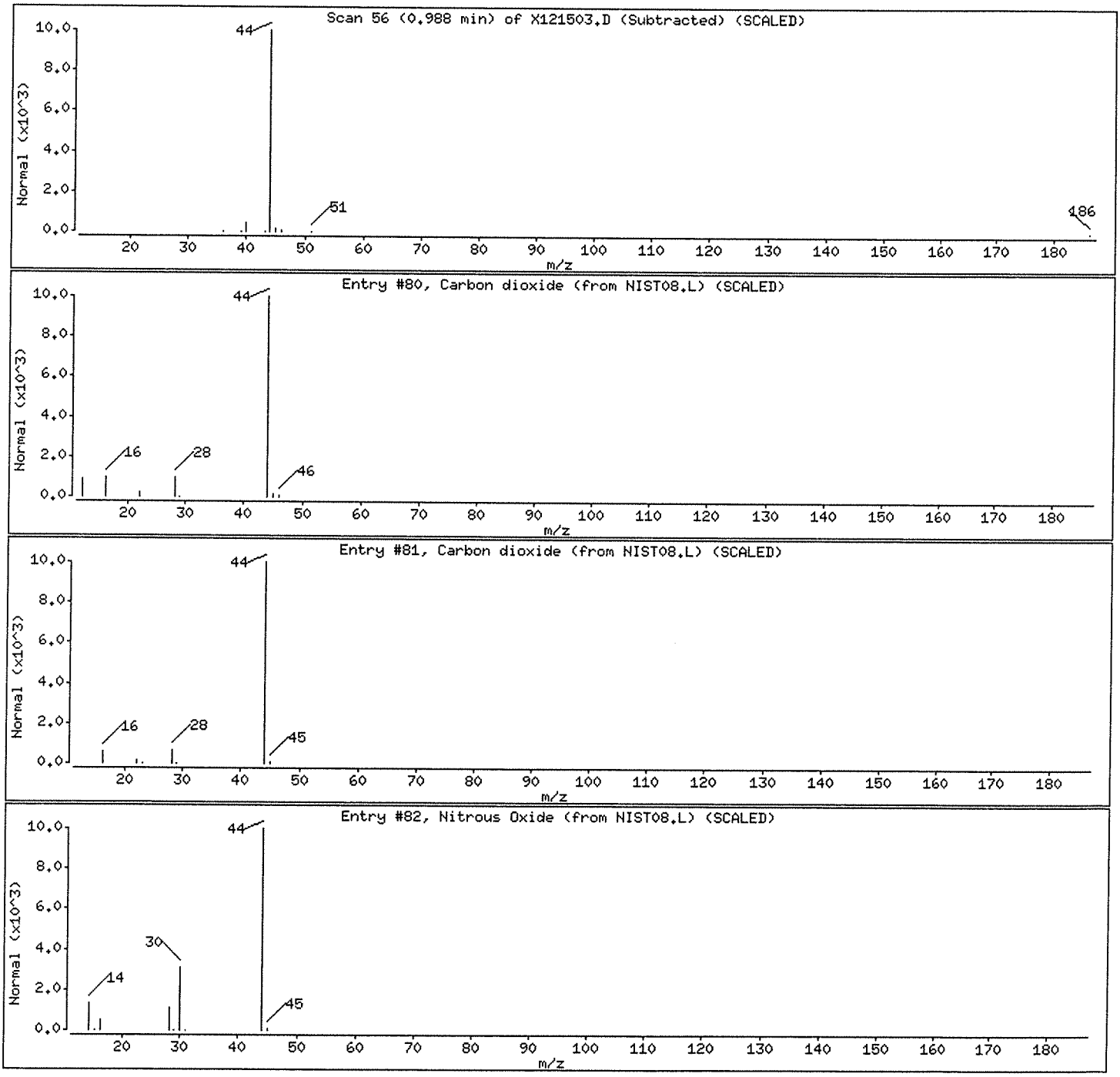
Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Carbon dioxide	124-38-9	NIST08.L	80	5	CO2	44
Carbon dioxide	124-38-9	NIST08.L	81	3	CO2	44
Nitrous Oxide	10024-97-2	NIST08.L	82	3	N2O	44



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121503.D

Date : 15-DEC-2017 13:01

Client ID: VLCSW-171215

Instrument: voa6.i

Sample Info: VLCSW-171215;VLCSW-171215;3;;LCS

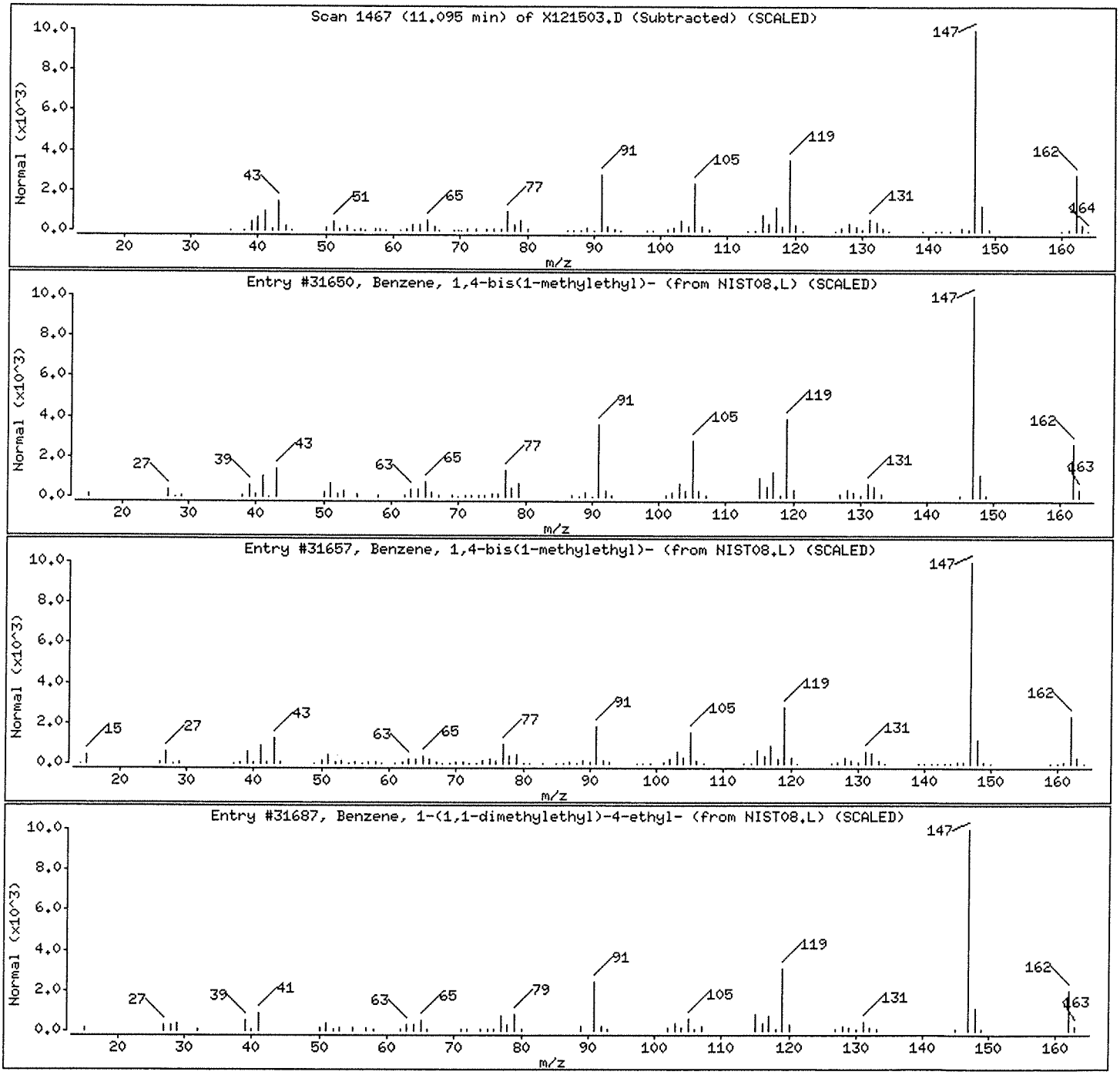
Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Benzene, 1,4-bis(1-methylethyl)-	100-18-5	NIST08.L	31650	97	C12H18	162
Benzene, 1,4-bis(1-methylethyl)-	100-18-5	NIST08.L	31657	94	C12H18	162
Benzene, 1-(1,1-dimethylethyl)-4-ethyl-	7364-19-4	NIST08.L	31687	94	C12H18	162



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121506.D Version 5
Report Date: 30-Jan-2018 15:22

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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121506.D
Lab Smp Id: VBLKW-171215 Client Smp ID: VBLKW-0171215
Inj Date : 15-DEC-2017 14:16
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-171215;VBLKW-0171215;3;;BLANK
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 6 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

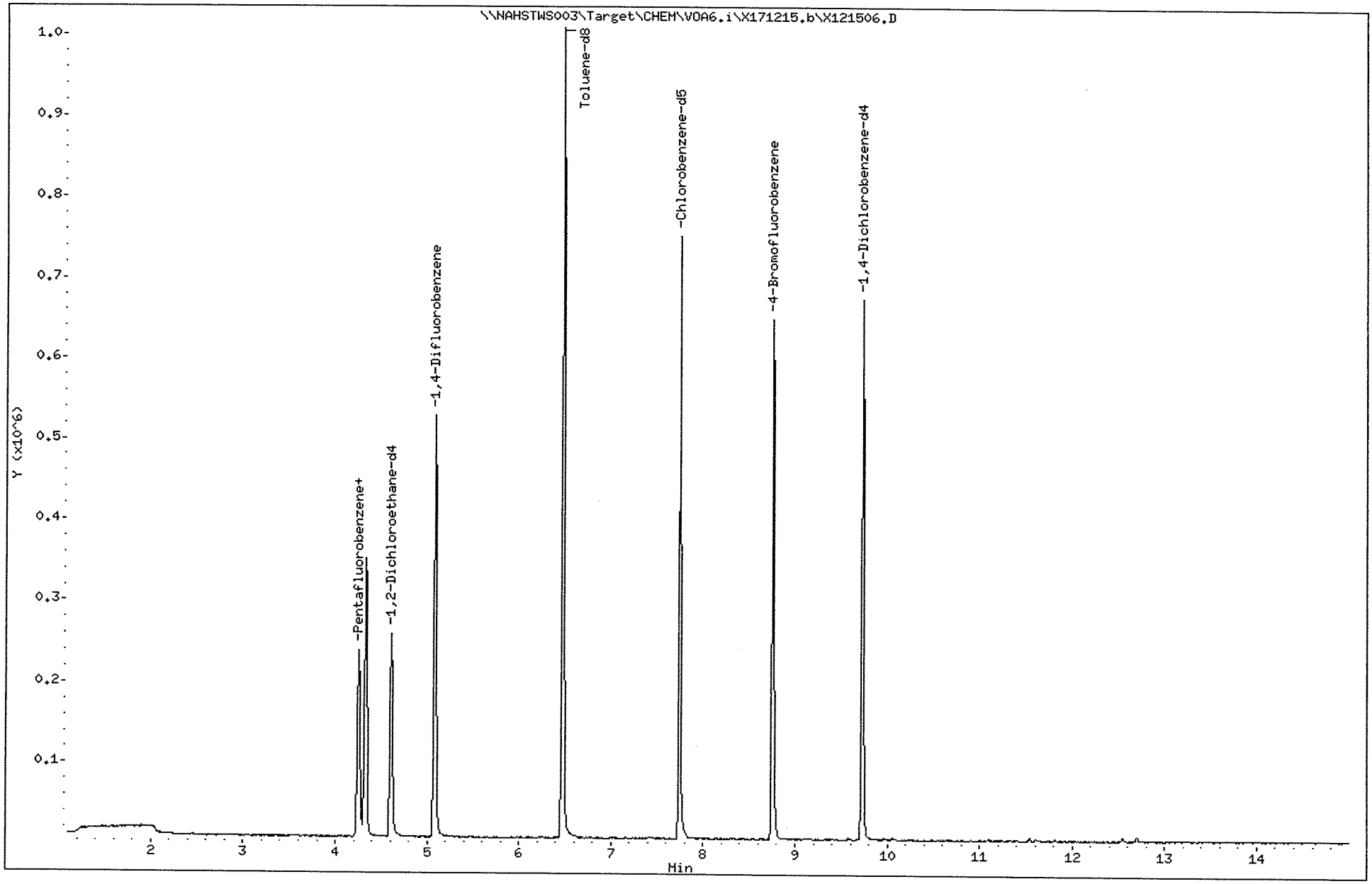
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	242267	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	390718	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	364797	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	158949	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	151531	48.0470	48.04
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	177939	43.4300	43.42
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	566795	51.3894	51.38
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	200571	50.8515	50.85

00871459

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121506.D
Date : 15-DEC-2017 14:16
Client ID: VBLKW-0171215
Sample Info: VBLKW-171215;VBLKW-0171215;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121507.D Version 5
Report Date: 30-Jan-2018 15:22

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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121507.D
Lab Smp Id: HS17120573-10 Client Smp ID: HS17120573-10
Inj Date : 15-DEC-2017 14:41
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-10;HS17120573-10;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

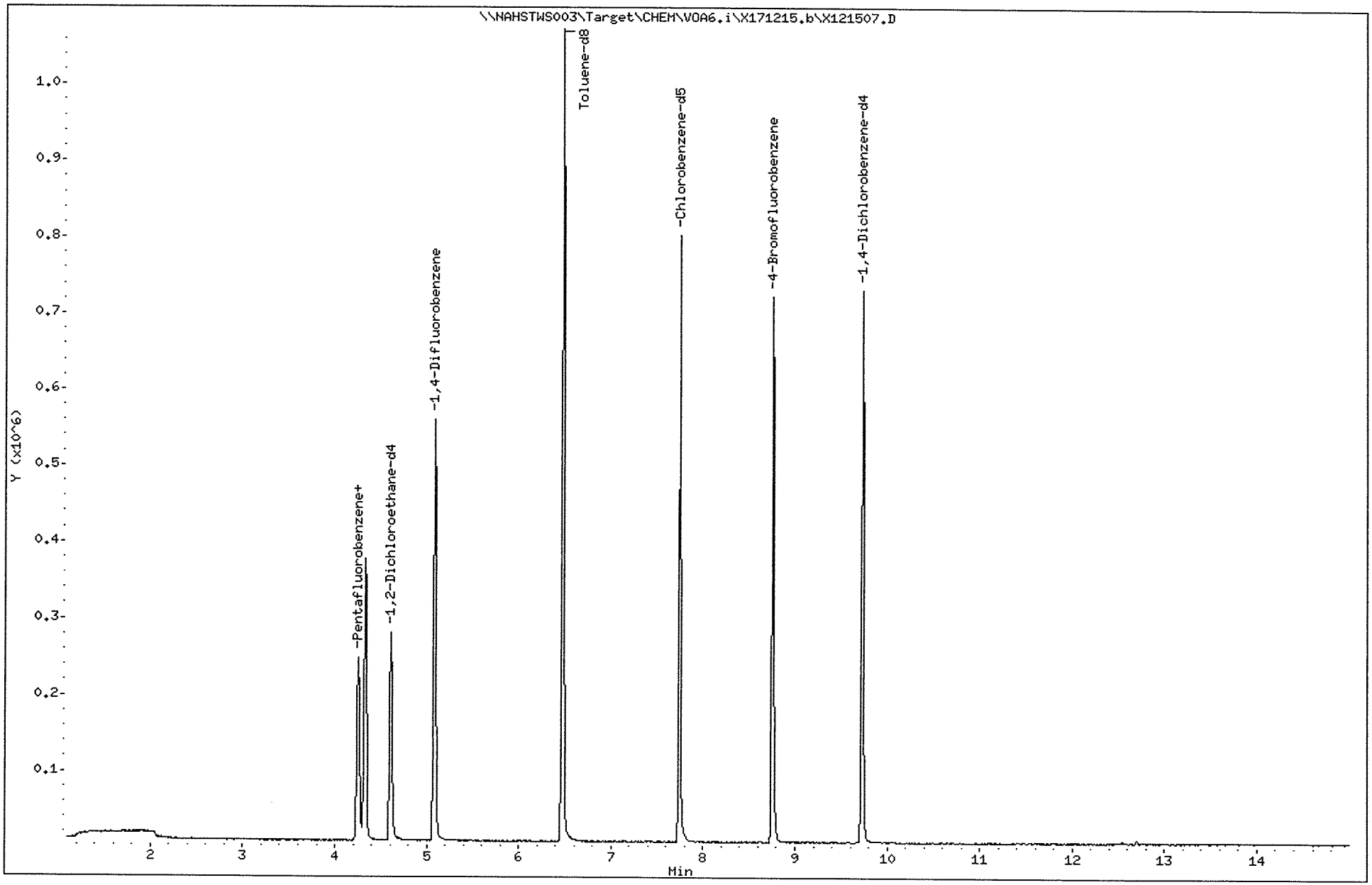
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.325	(1.000)	259940	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	416323	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	389546	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	169314	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	159260	47.0543	47.05
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	190255	43.2795	43.27
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	598644	50.8495	50.84
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	213667	50.7326	50.73

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121507.D
Date : 15-DEC-2017 14:41
Client ID: HS17120573-10
Sample Info: HS17120573-10;HS17120573-10;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121508.D Version 5
Report Date: 30-Jan-2018 15:22

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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121508.D
Lab Smp Id: HS17120573-05 Client Smp ID: HS17120573-05
Inj Date : 15-DEC-2017 15:05
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-05;HS17120573-05;;;
Misc Info : HS16030331;WATER;0;1;
Comment :
Method : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

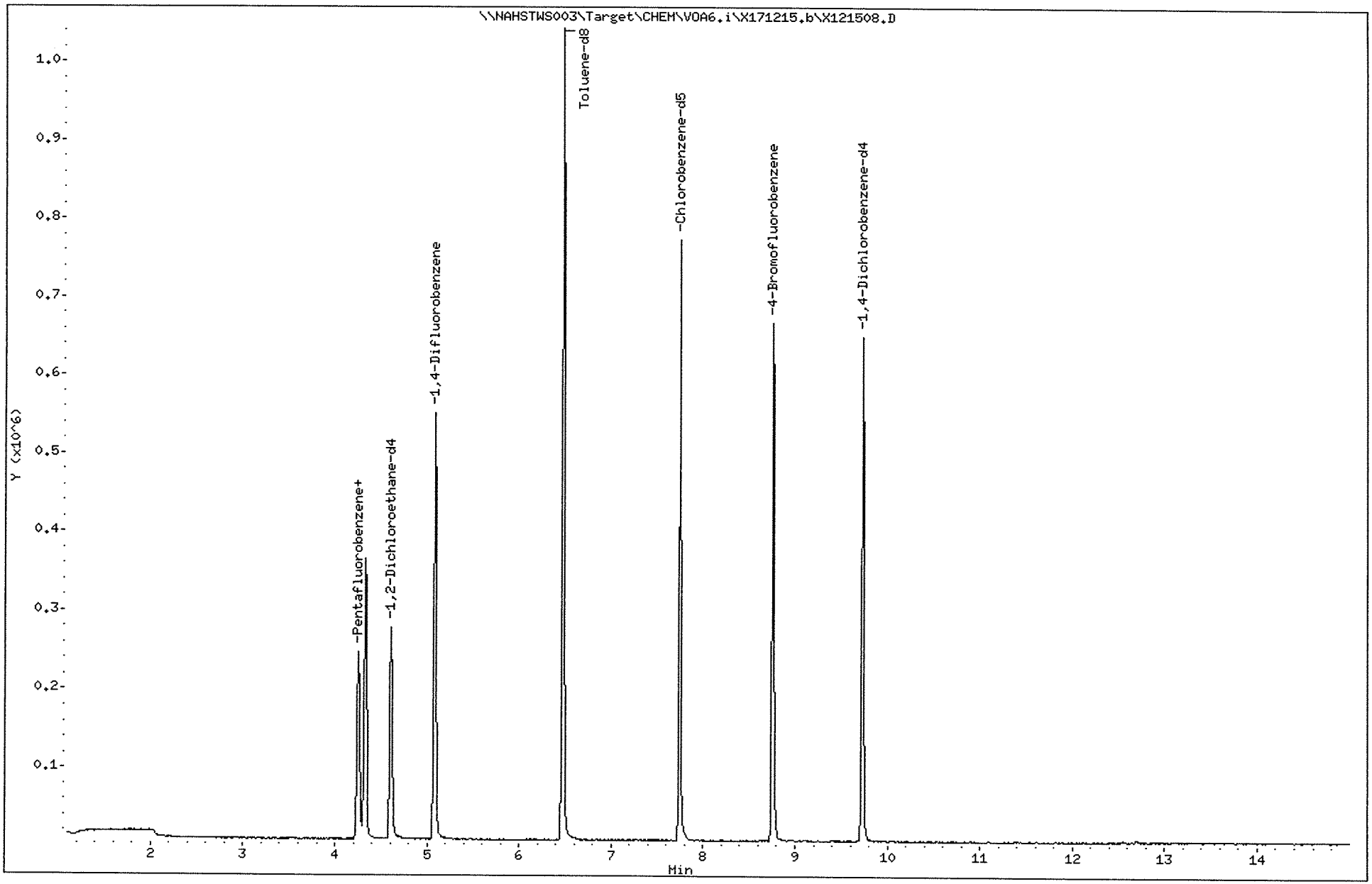
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	252406	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	401387	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	373161	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	155477	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	157819	48.0305	48.03
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	191204	44.7873	44.78
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	584762	51.8133	51.81
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	208015	51.5411	51.54

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121508.D
Date : 15-DEC-2017 15:05
Client ID: HS17120573-05
Sample Info: HS17120573-05;HS17120573-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121509.D Version 5
Report Date: 30-Jan-2018 15:23

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Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121509.D
Lab Smp Id: HS17120573-07 Client Smp ID: HS17120573-07
Inj Date : 15-DEC-2017 15:30
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-07;HS17120573-07;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

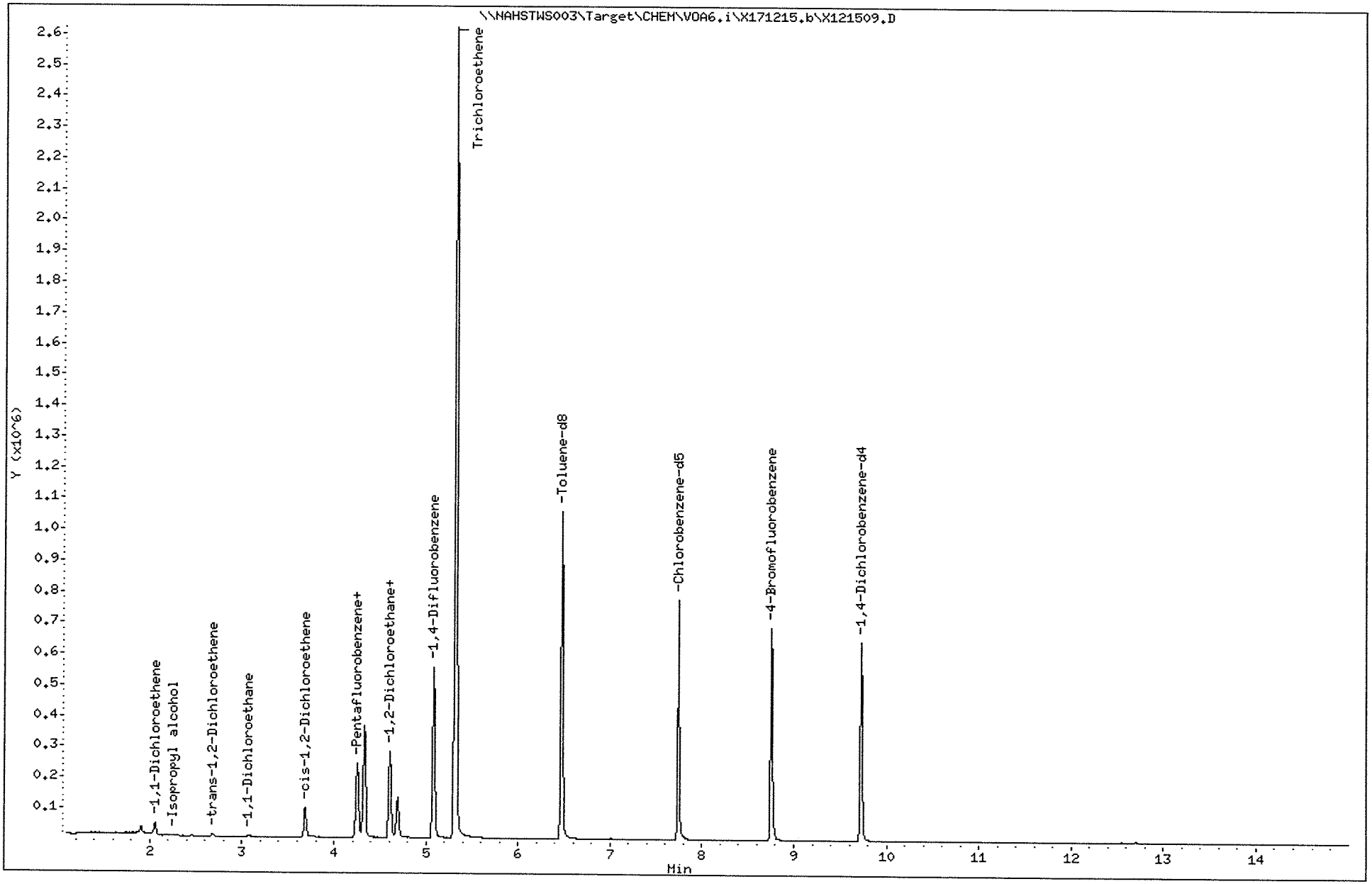
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.325	(1.000)	254114	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	408552	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	375399	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.727	9.726	(1.000)	154776	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	157644	47.6509	47.65
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	189191	44.0210	44.02
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	590045	51.9638	51.96
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	208862	51.4447	51.44
22 1,1-Dichloroethane	63	3.072	3.072	(0.710)	3933	0.69640	0.69(aM)
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	9434	3.62591	3.62(a)
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	101212	23.3594	23.35
27 cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	45217	13.4842	13.48
20 trans-1,2-Dichloroethene	96	2.685	2.678	(0.621)	2926	1.00809	1.00(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	798154	292.370	292.37(A)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121509.D
Date : 15-DEC-2017 15:30
Client ID: HS17120573-07
Sample Info: HS17120573-07;HS17120573-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121509.D

Date : 15-DEC-2017 15:30

Client ID: HS17120573-07

Instrument: voa6.i

Sample Info: HS17120573-07;HS17120573-07;;;

Purge Volume: 5.0

Operator: PC

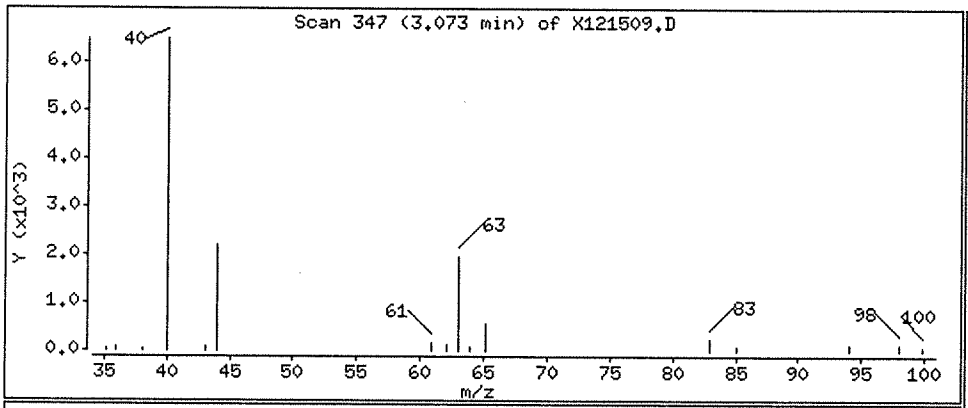
Column phase: DB624

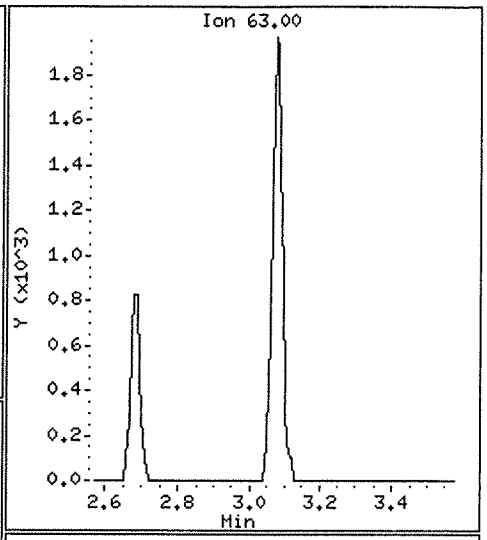
Column diameter: 0.18

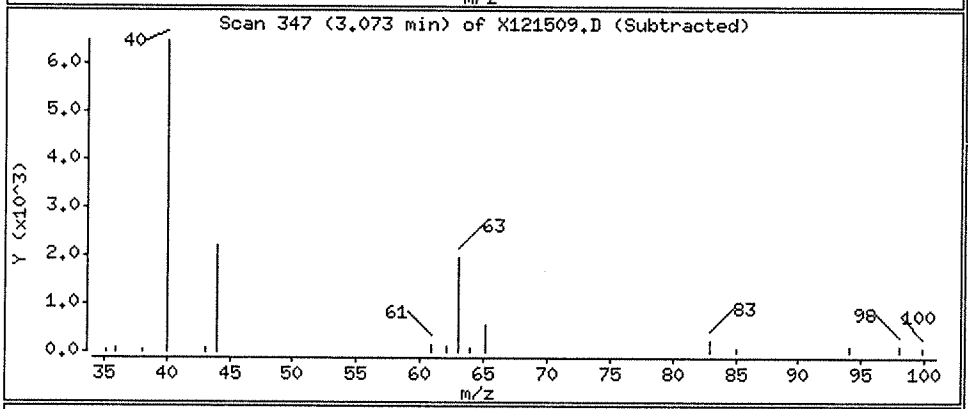
22 1,1-Dichloroethane

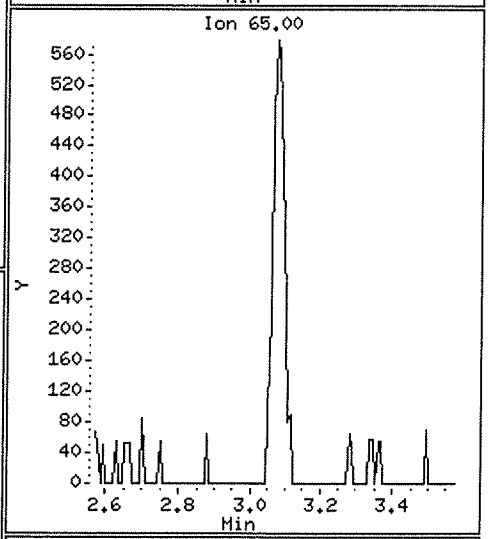
Concentration: 0.69 ug/l

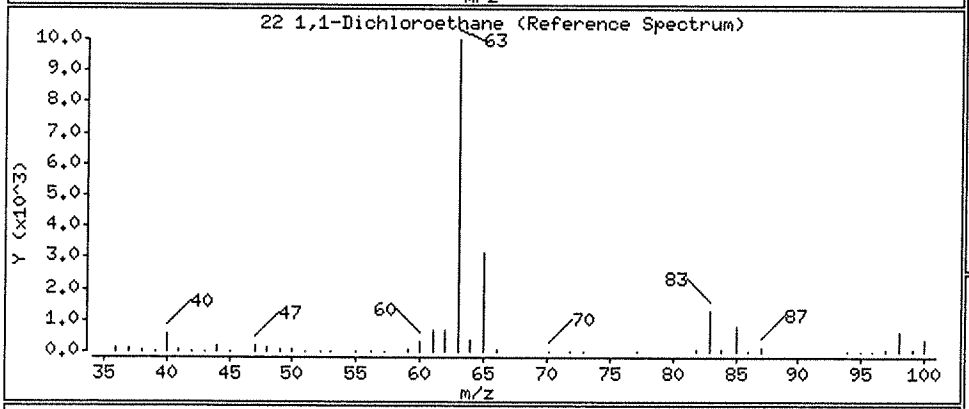
Review Code:

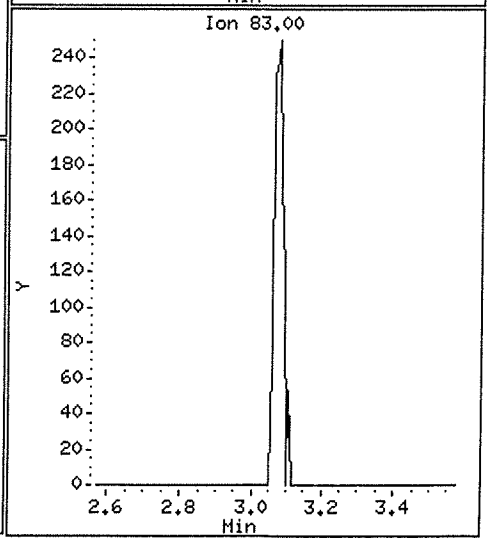


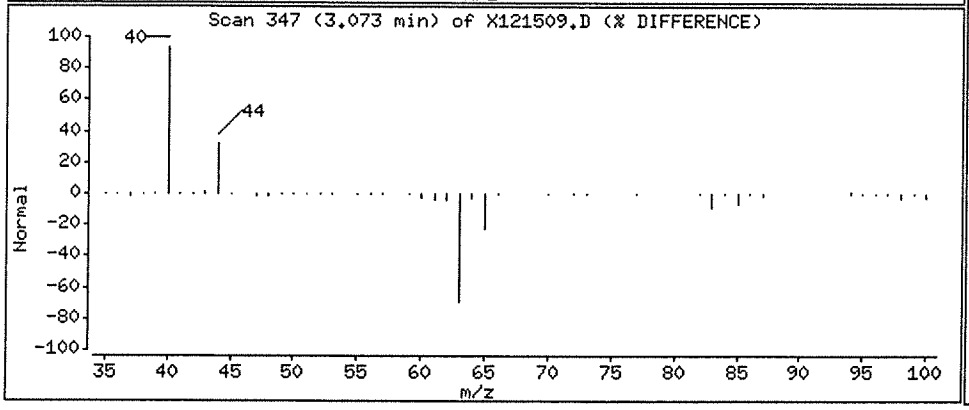












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121509.D

Date : 15-DEC-2017 15:30

Client ID: HS17120573-07

Instrument: voa6.i

Sample Info: HS17120573-07;HS17120573-07;;;

Purge Volume: 5.0

Operator: PC

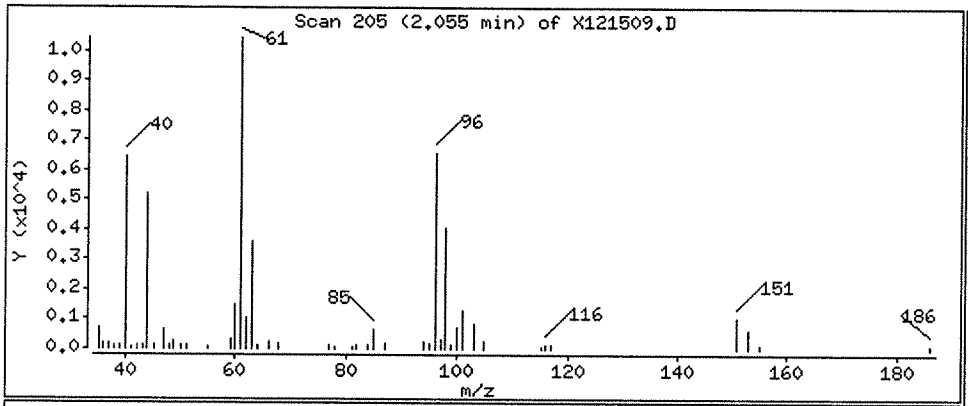
Column phase: DB624

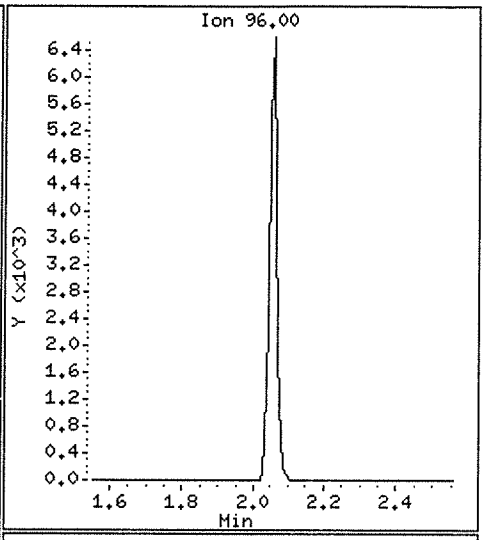
Column diameter: 0.18

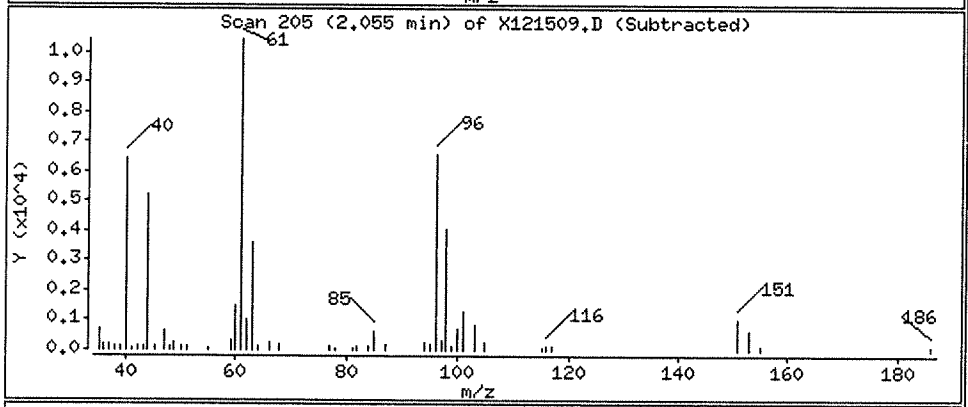
11 1,1-Dichloroethene

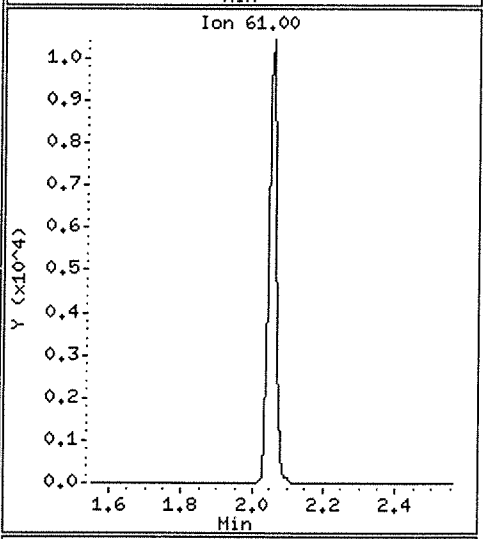
Concentration: 3.62 ug/l

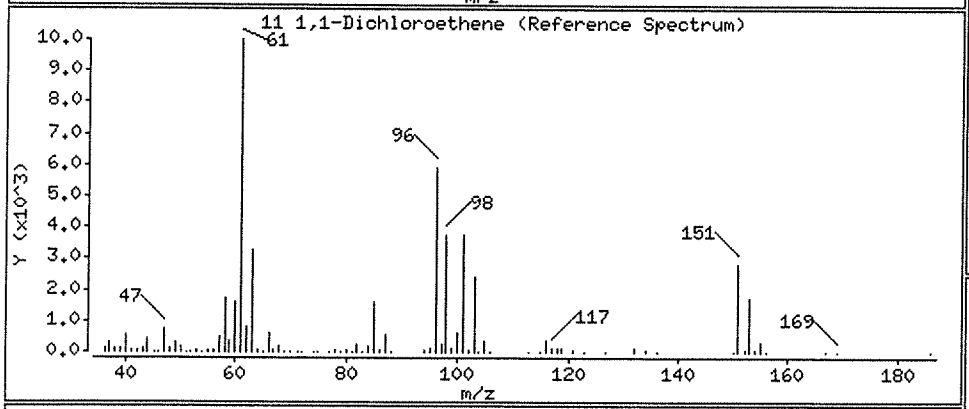
Review Code:

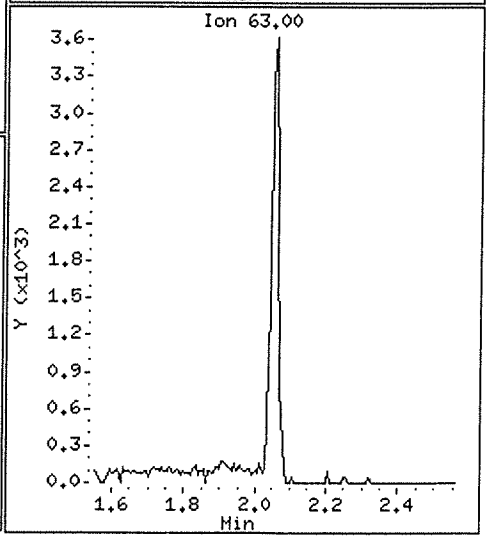


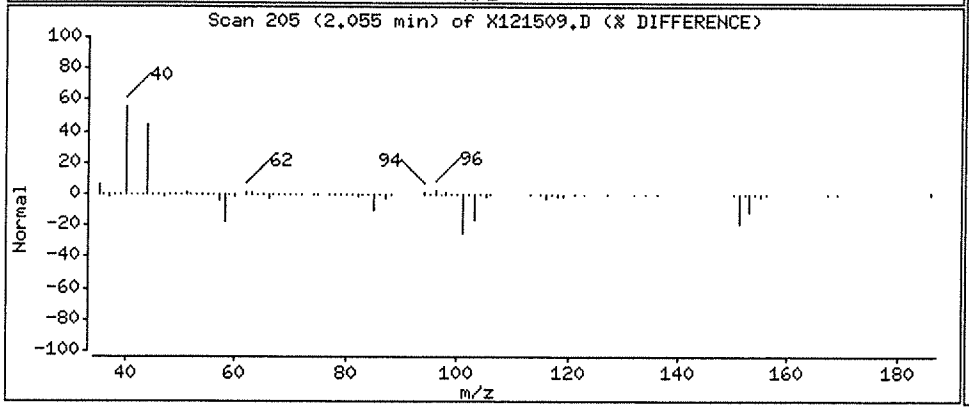












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121509.D

Date : 15-DEC-2017 15:30

Client ID: HS17120573-07

Instrument: voa6.i

Sample Info: HS17120573-07;HS17120573-07;;;

Purge Volume: 5.0

Operator: PC

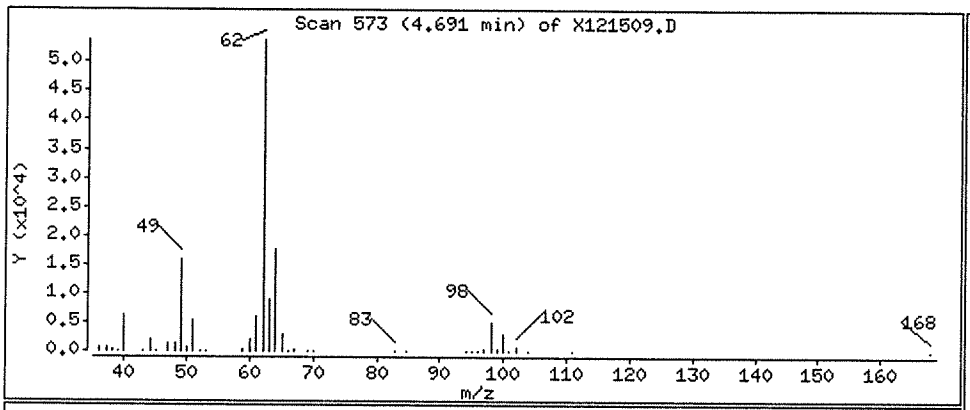
Column phase: DB624

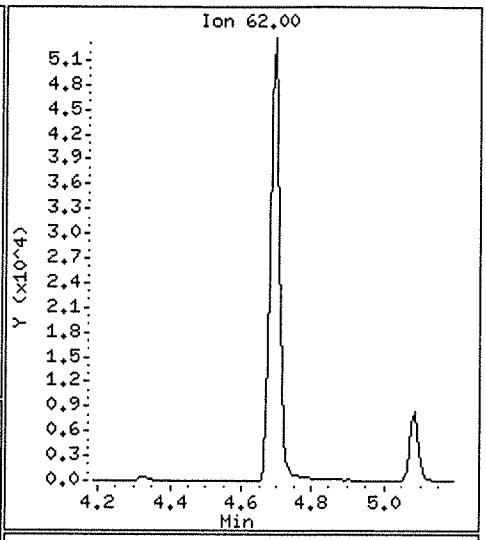
Column diameter: 0.18

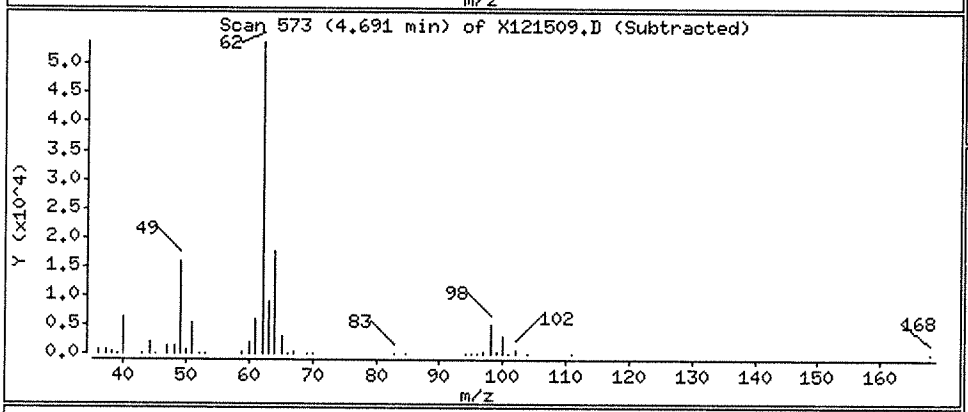
33 1,2-Dichloroethane

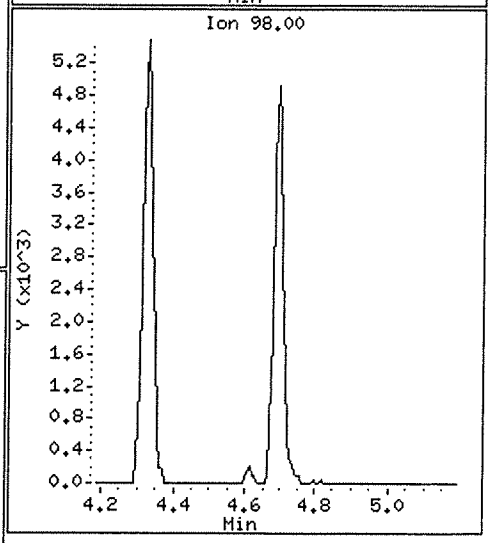
Concentration: 23.35 ug/l

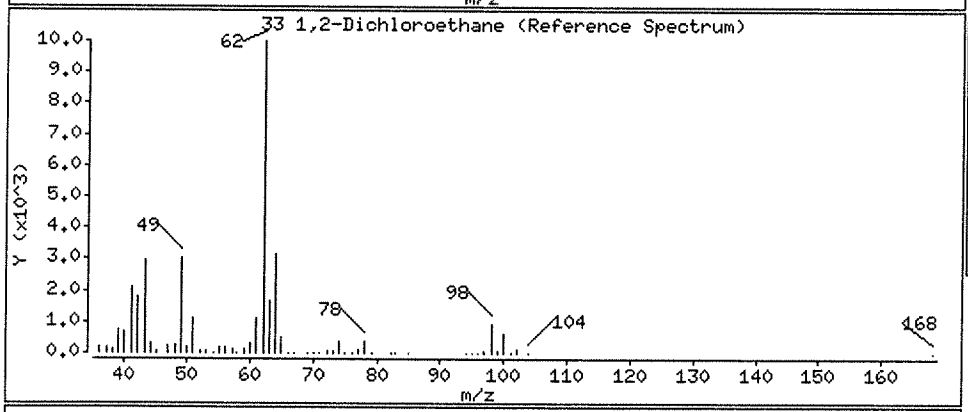
Review Code:

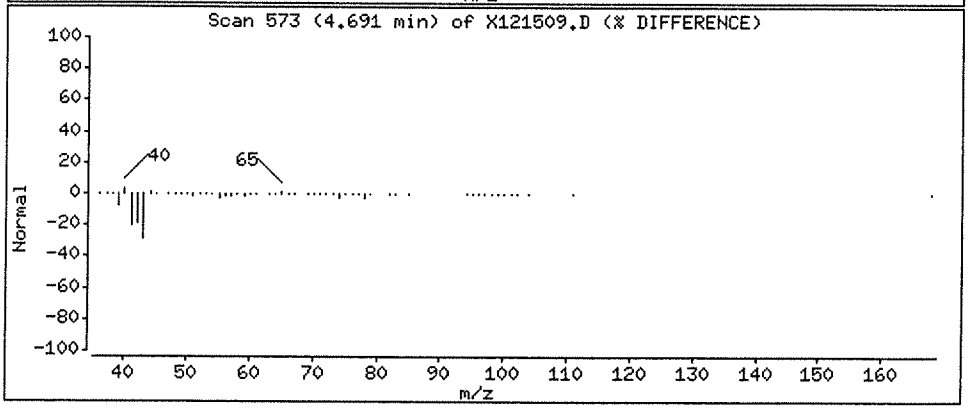












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121509.D

Date : 15-DEC-2017 15:30

Client ID: HS17120573-07

Instrument: voa6.i

Sample Info: HS17120573-07;HS17120573-07;;;

Purge Volume: 5.0

Operator: PC

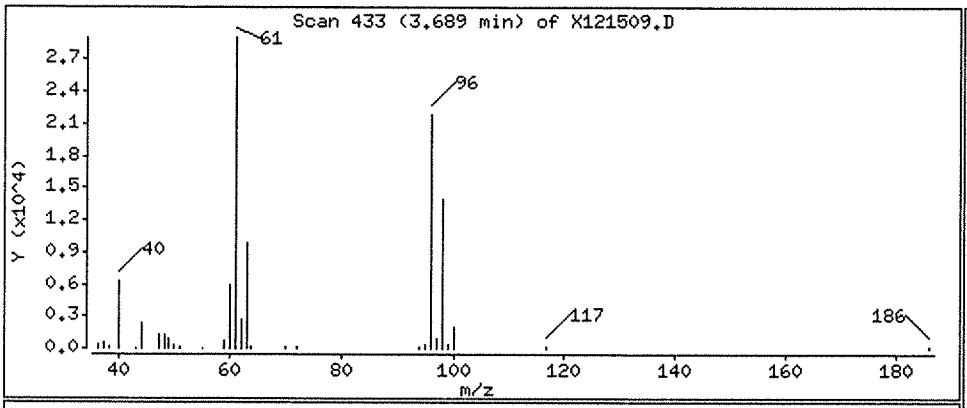
Column phase: DB624

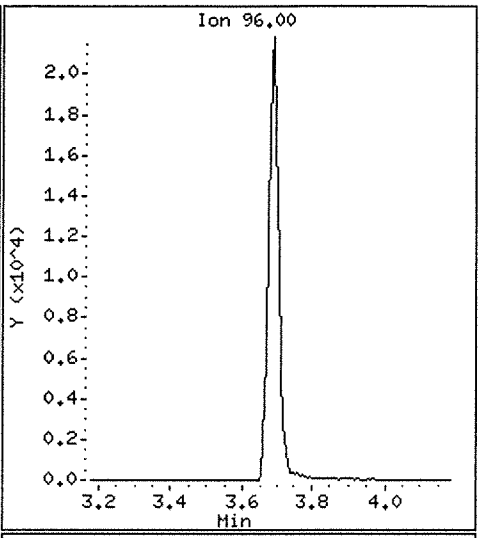
Column diameter: 0.18

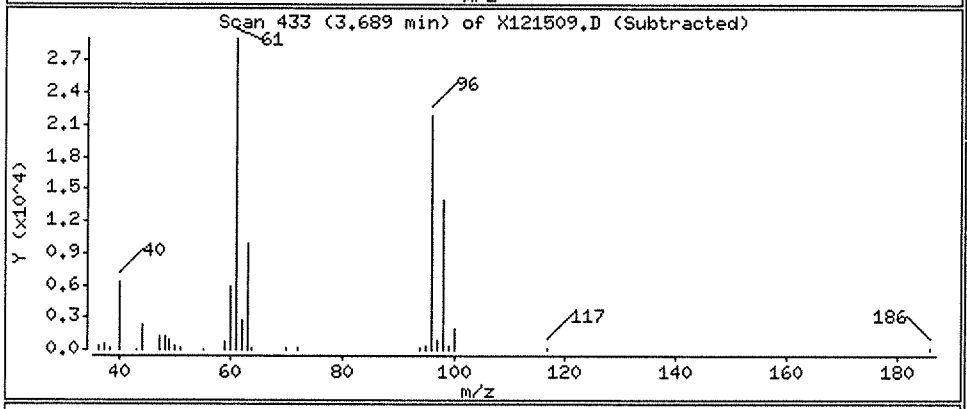
27 cis-1,2-Dichloroethene

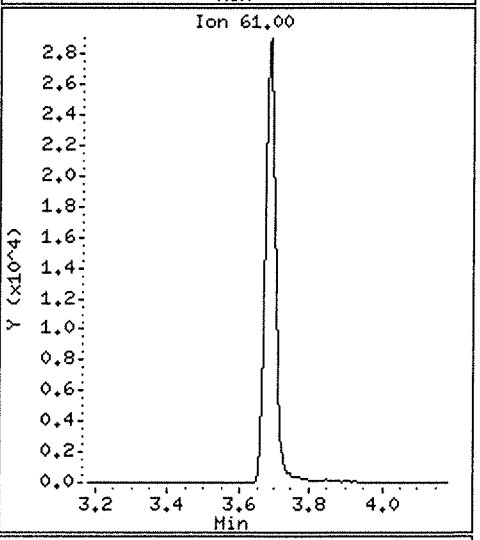
Concentration: 13.48 ug/l

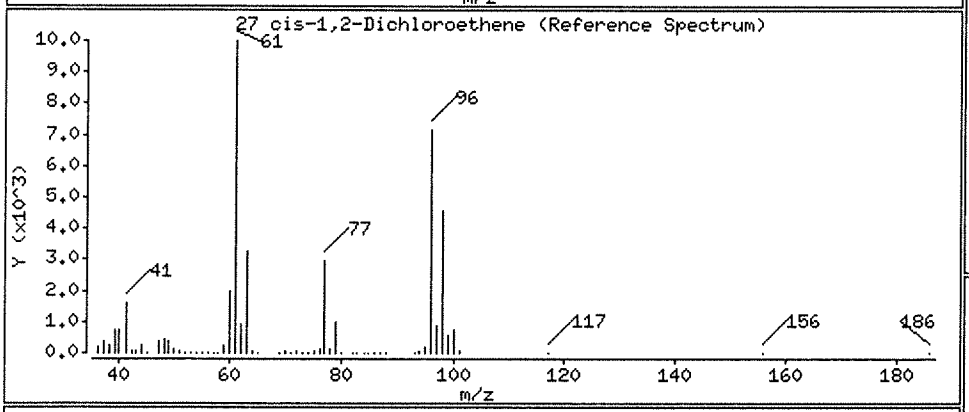
Review Code:

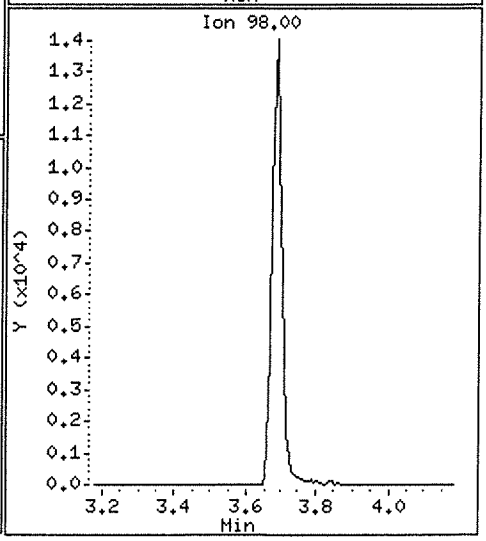


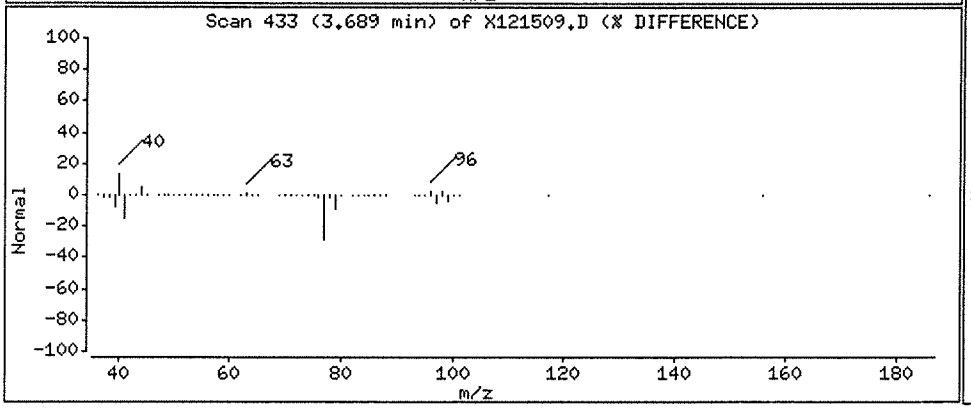












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121509.D

Date : 15-DEC-2017 15:30

Client ID: HS17120573-07

Instrument: voa6.i

Sample Info: HS17120573-07;HS17120573-07;;;

Purge Volume: 5.0

Operator: PC

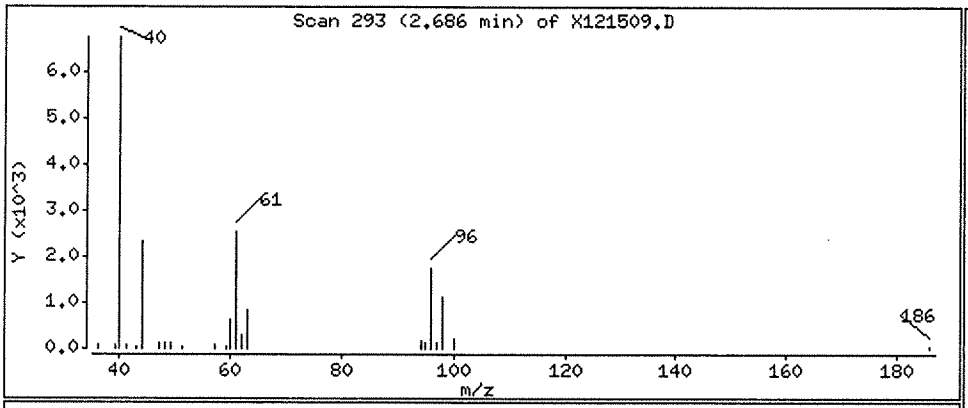
Column phase: DB624

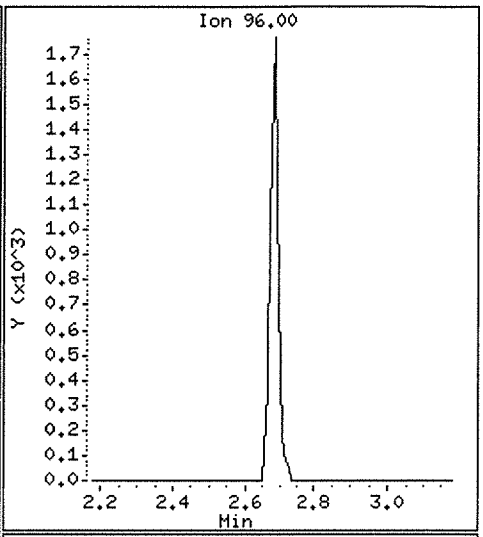
Column diameter: 0.18

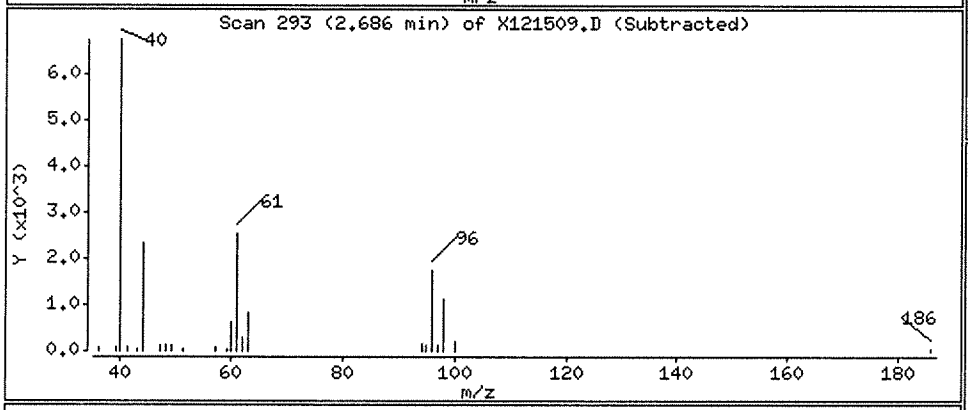
20 trans-1,2-Dichloroethene

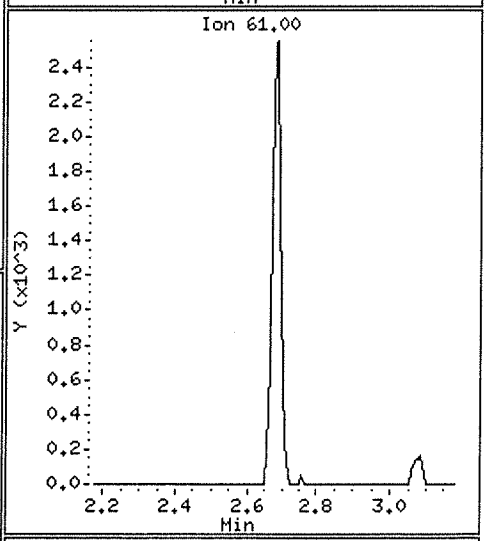
Concentration: 1.00 ug/l

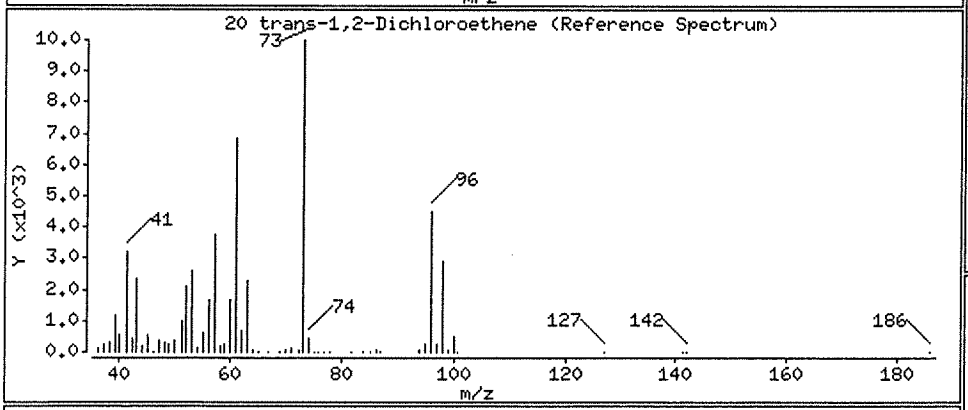
Review Code:

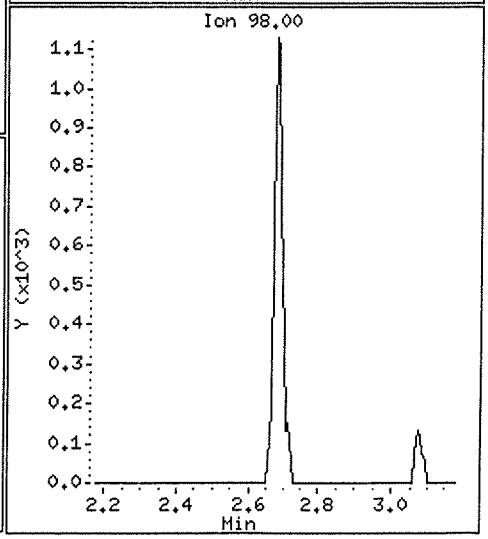


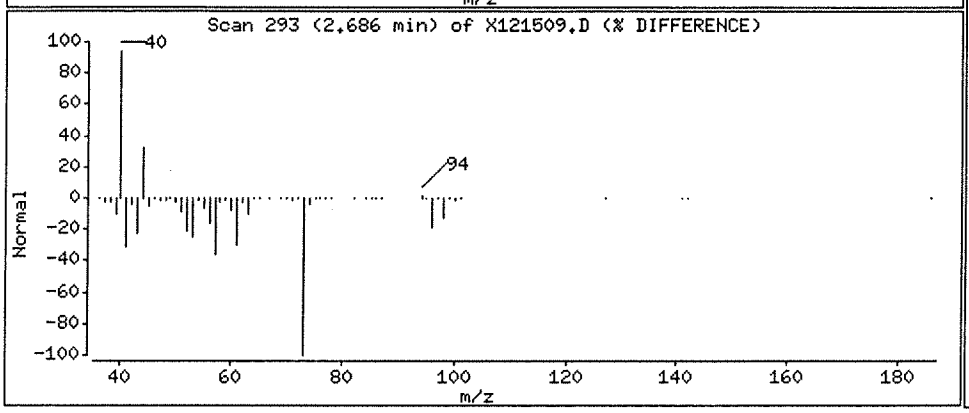












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121509.D

Date : 15-DEC-2017 15:30

Client ID: HS17120573-07

Instrument: voa6.i

Sample Info: HS17120573-07;HS17120573-07;;;

Purge Volume: 5.0

Operator: PC

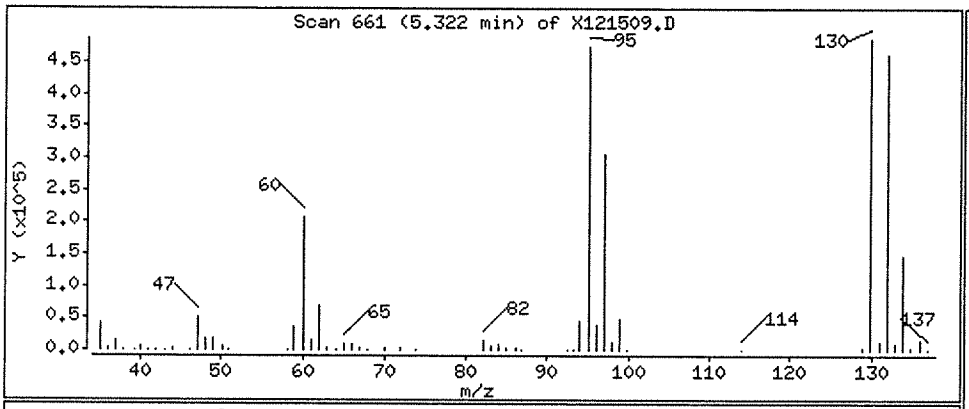
Column phase: DB624

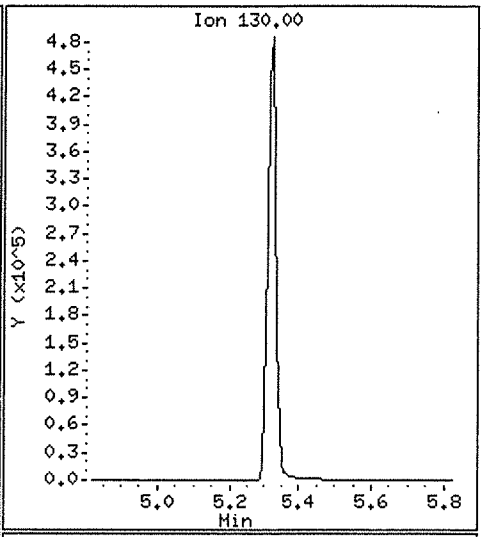
Column diameter: 0.18

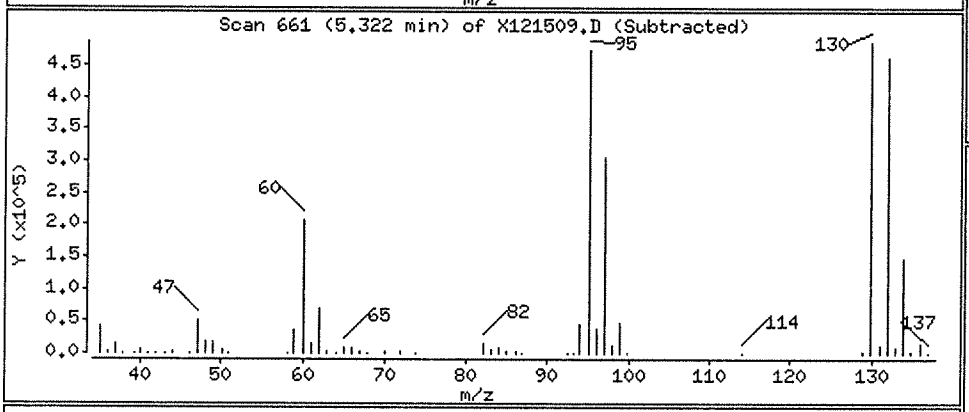
38 Trichloroethene

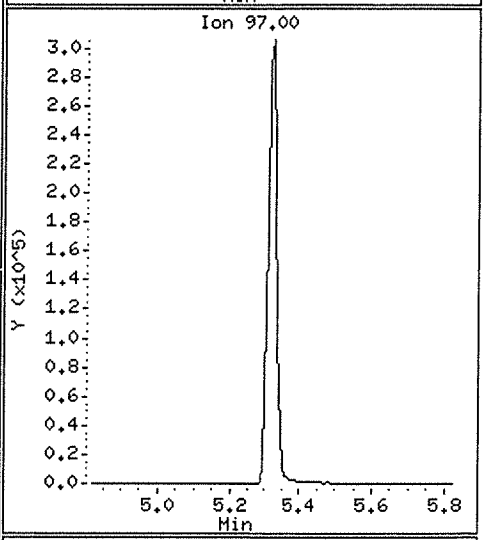
Concentration: 292.37 ug/l

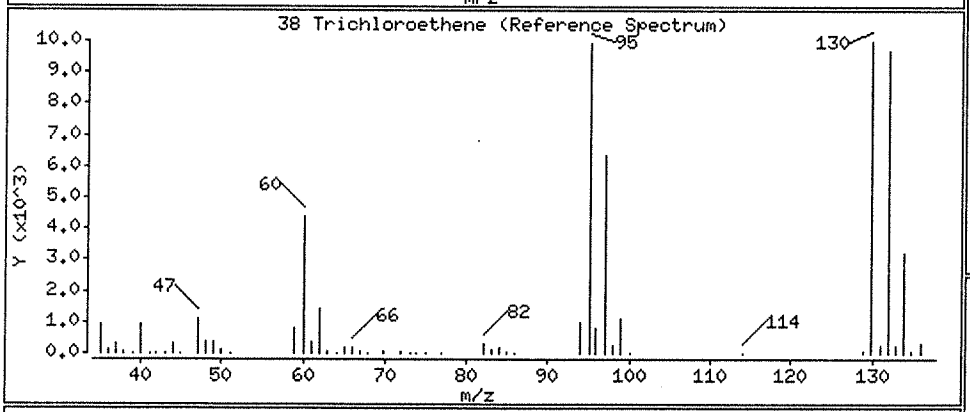
Review Code:

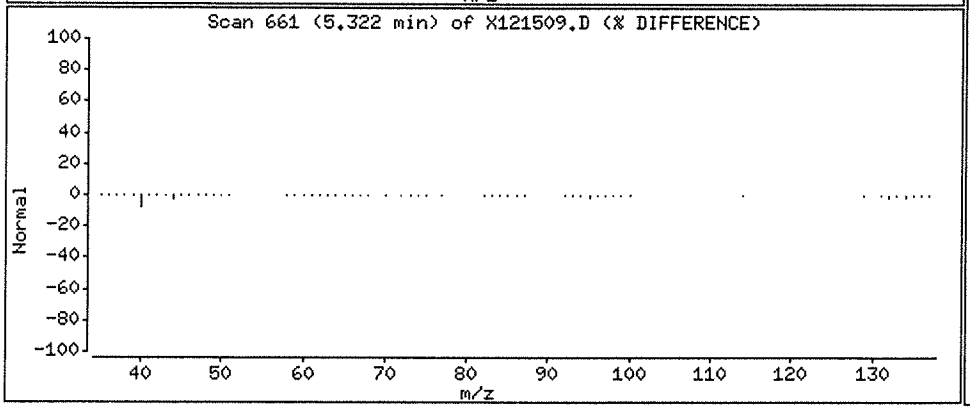


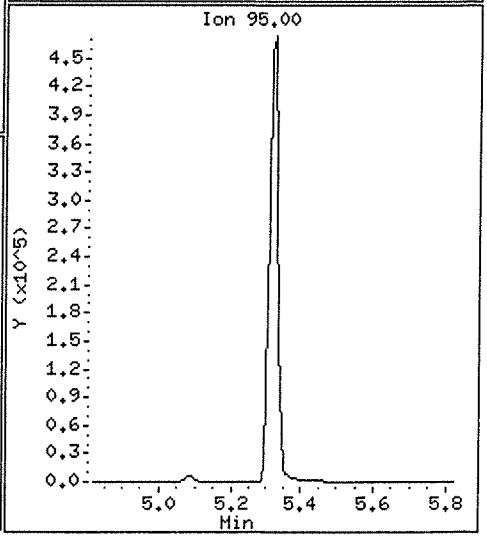












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121510.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121510.D
Lab Smp Id: HS17120573-02 Client Smp ID: HS17120573-02
Inj Date : 15-DEC-2017 15:55
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-02;HS17120573-02;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	267194	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	422479	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	383672	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	153632	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	163279	46.9308	46.93
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	199400	44.1248	44.12
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	602078	51.8834	51.88
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	213299	51.4056	51.40
33 1,2-Dichloroethane	62	4.691	4.691	(0.923)	12499	2.78963	2.78
28 Chloroform	83	4.067	4.068	(0.940)	31805	5.46696	5.46
27 cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	17297	4.90564	4.90(a)
56 Tetrachloroethene	164	7.011	7.004	(0.906)	1355	0.73929	0.73(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	1325495	469.533	469.53(A)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
    exceeded maximum amount.

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121510.D

Date : 15-DEC-2017 15:55

Client ID: HS17120573-02

Instrument: voa6.i

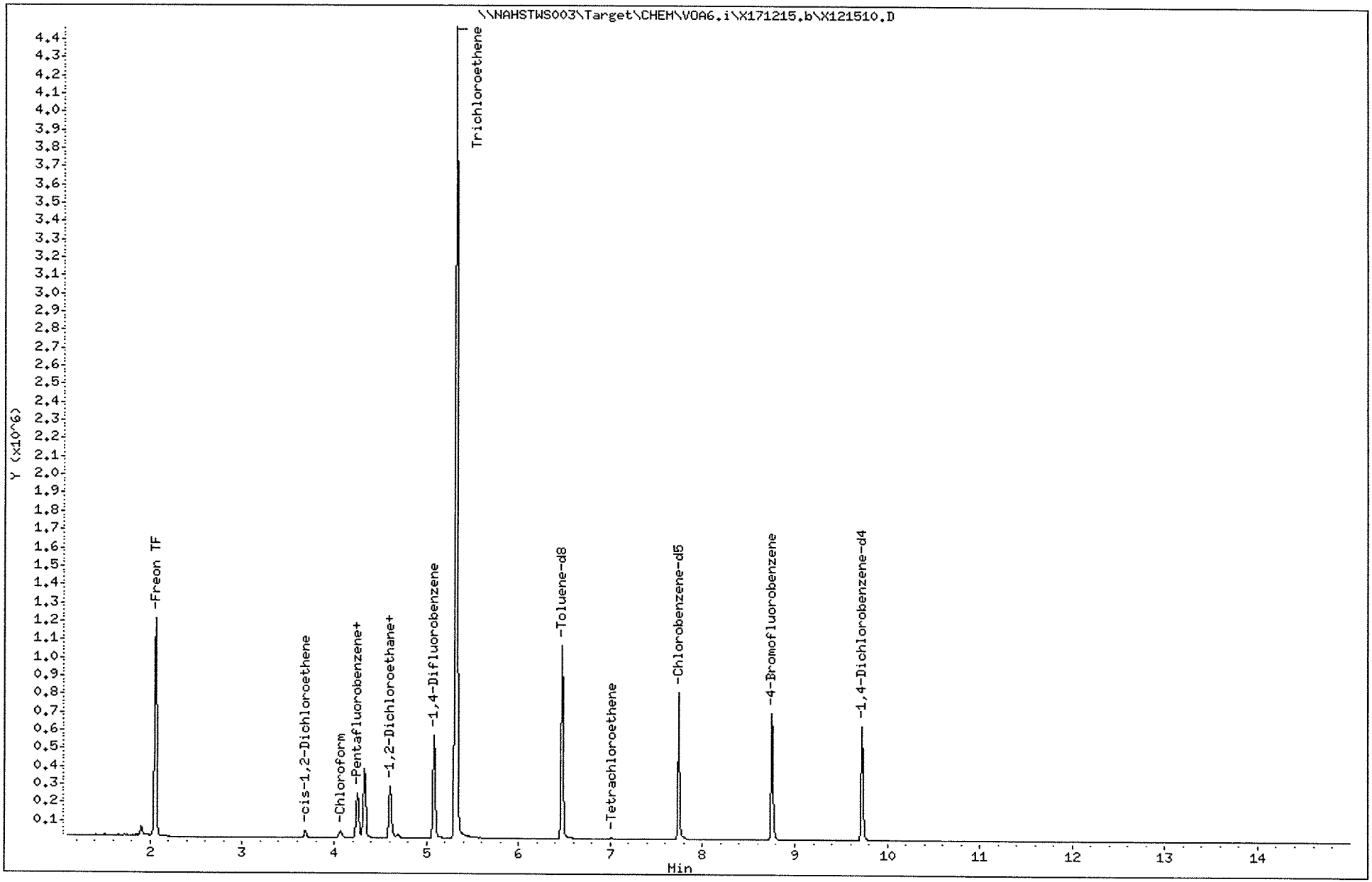
Sample Info: HS17120573-02;HS17120573-02;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121510.D

Date : 15-DEC-2017 15:55

Client ID: HS17120573-02

Instrument: voa6.i

Sample Info: HS17120573-02;HS17120573-02;;;

Purge Volume: 5.0

Operator: PC

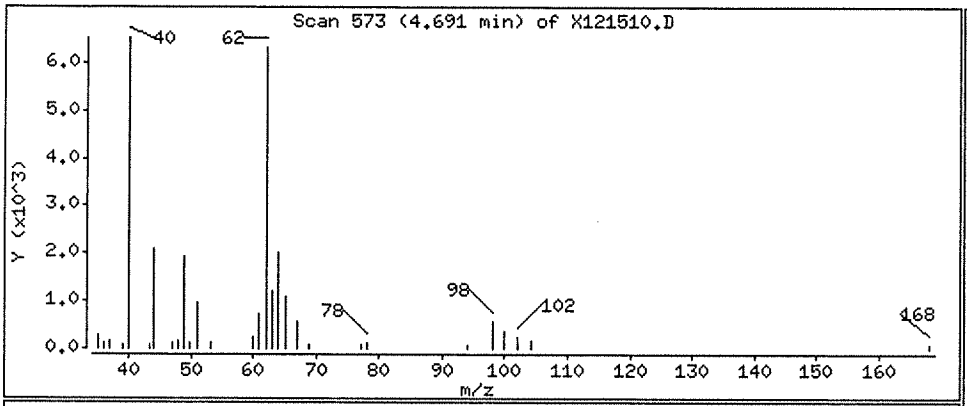
Column phase: DB624

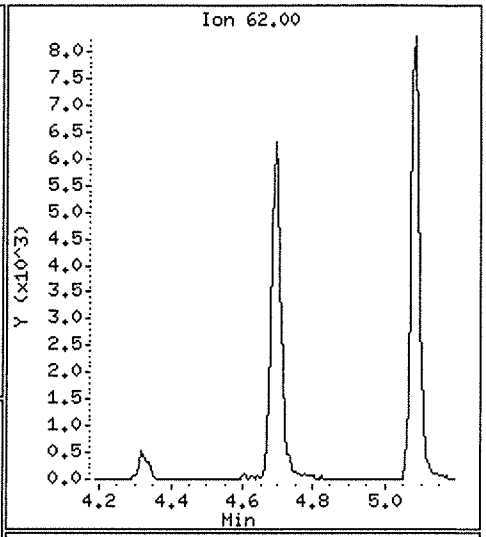
Column diameter: 0.18

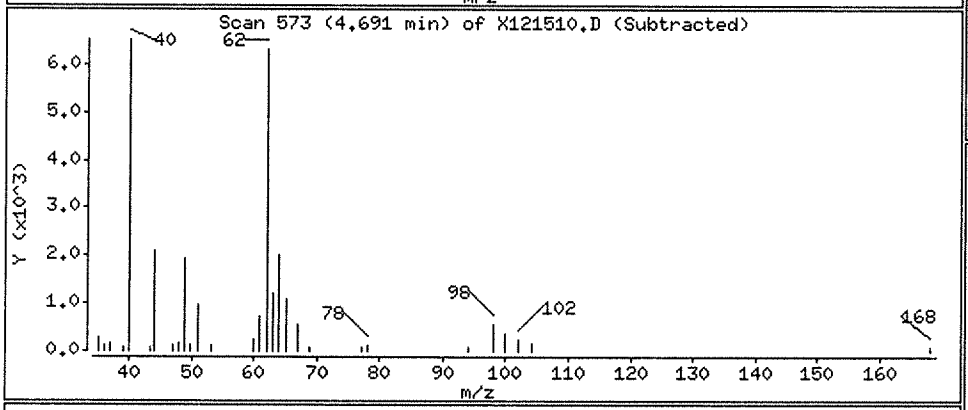
33 1,2-Dichloroethane

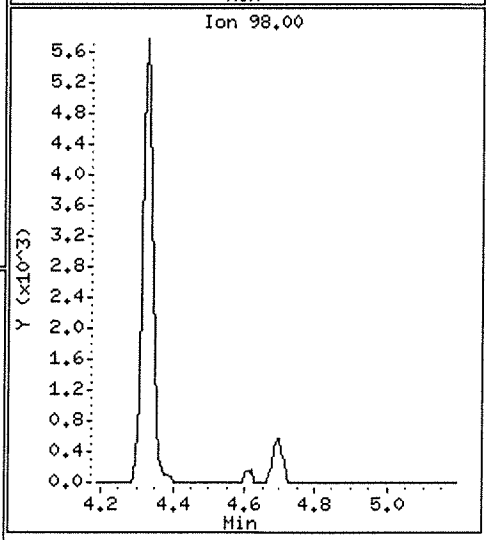
Concentration: 2.78 ug/l

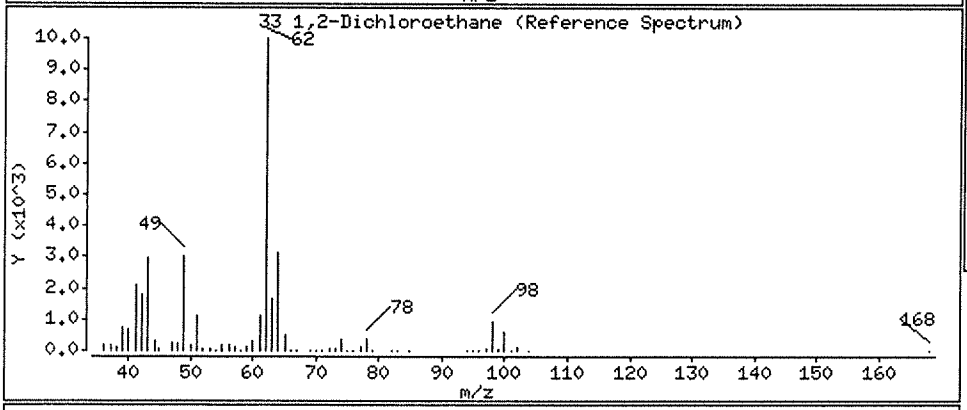
Review Code:

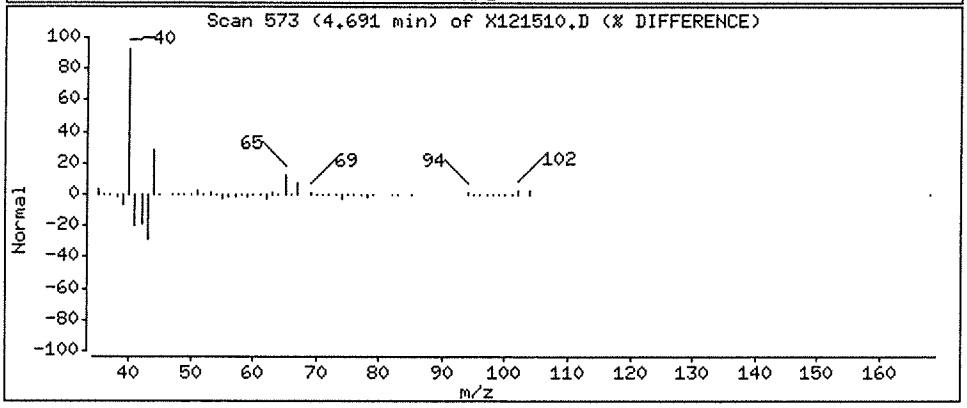












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121510.D

Date : 15-DEC-2017 15:55

Client ID: HS17120573-02

Instrument: voa6.i

Sample Info: HS17120573-02;HS17120573-02;;;

Purge Volume: 5.0

Operator: PC

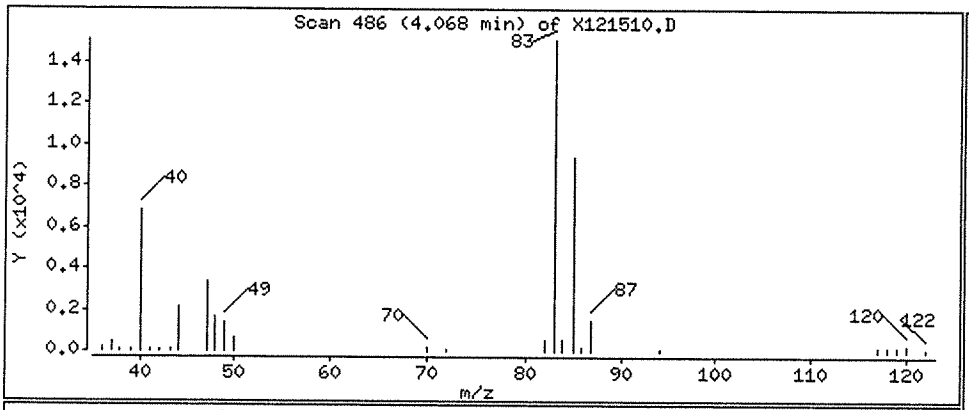
Column phase: DB624

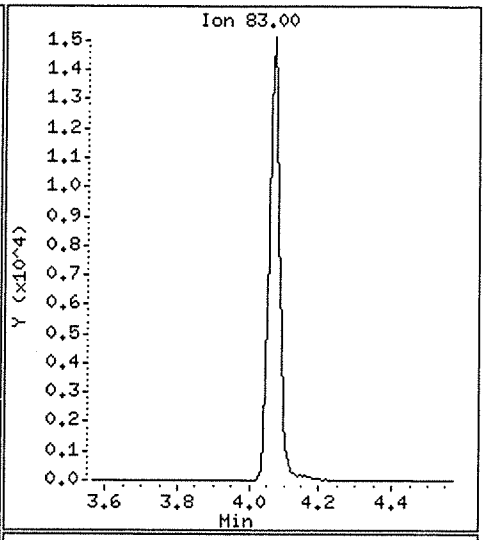
Column diameter: 0.18

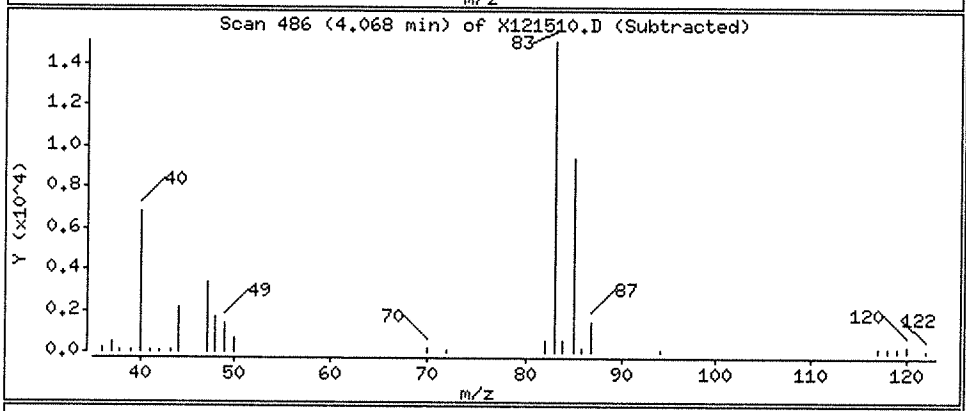
28 Chloroform

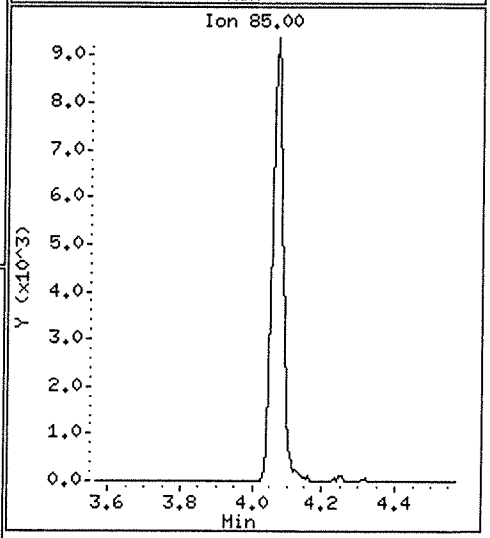
Concentration: 5.46 ug/l

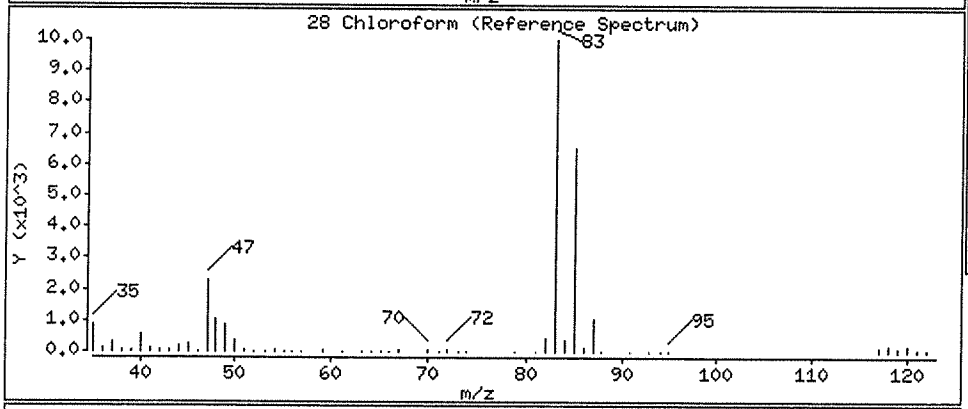
Review Code:

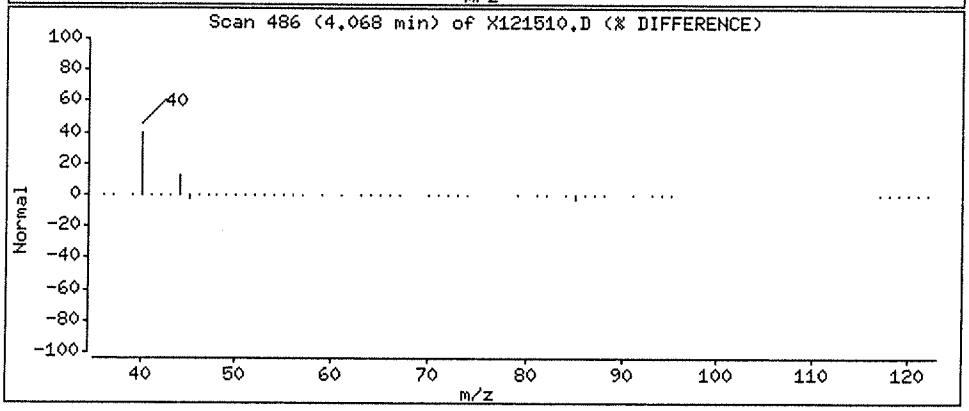












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121510.D

Date : 15-DEC-2017 15:55

Client ID: HS17120573-02

Instrument: voa6.i

Sample Info: HS17120573-02;HS17120573-02;;;

Purge Volume: 5.0

Operator: PC

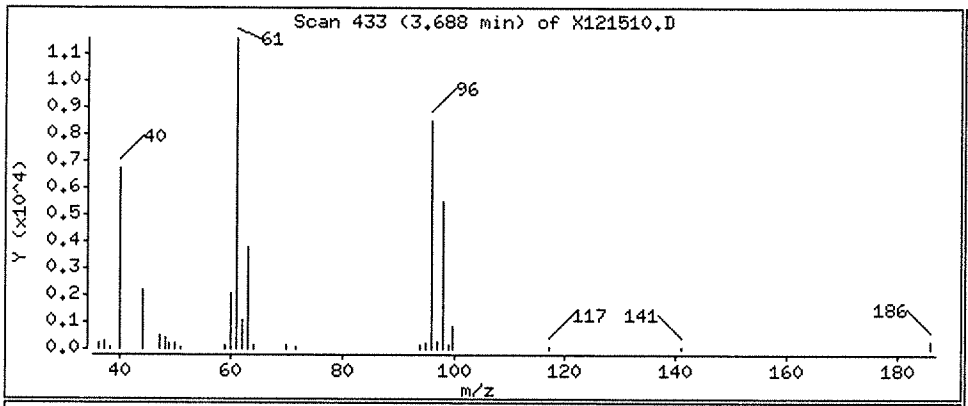
Column phase: DB624

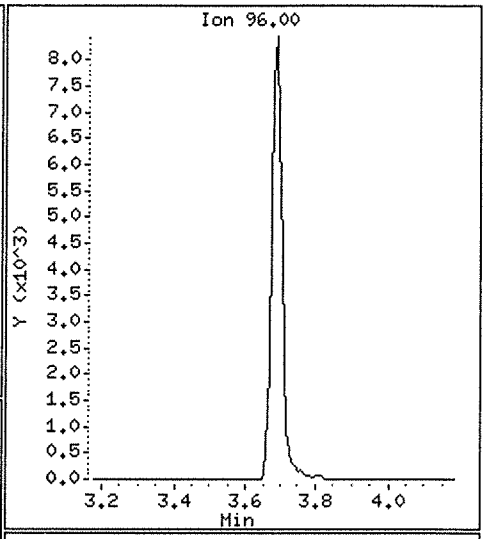
Column diameter: 0.18

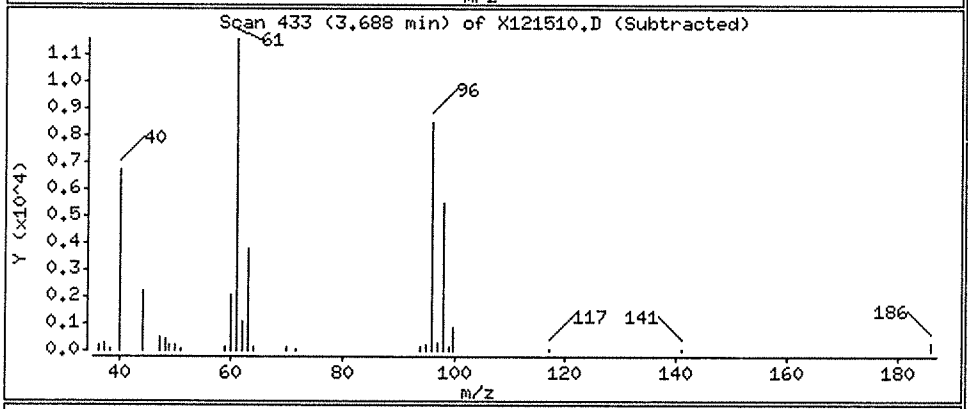
27 cis-1,2-Dichloroethene

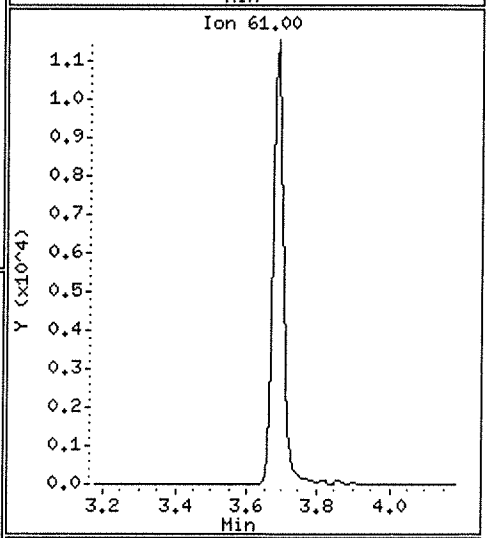
Concentration: 4.90 ug/l

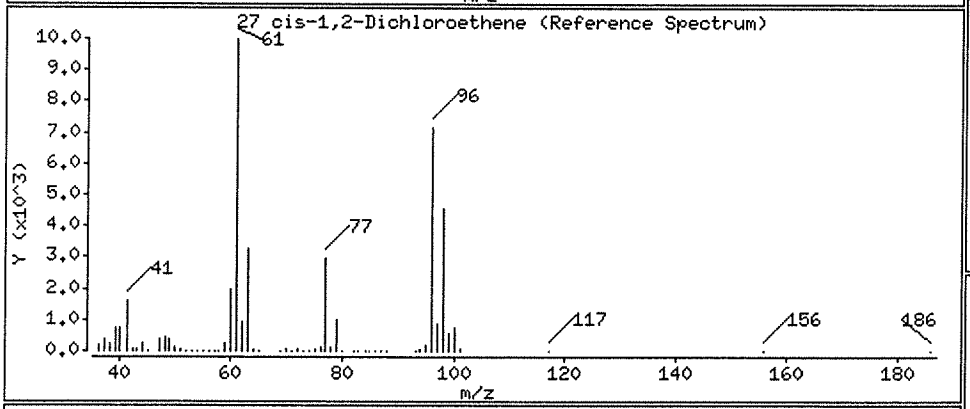
Review Code:

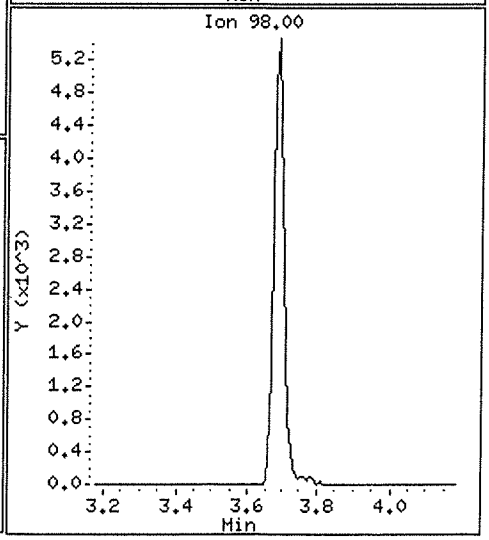


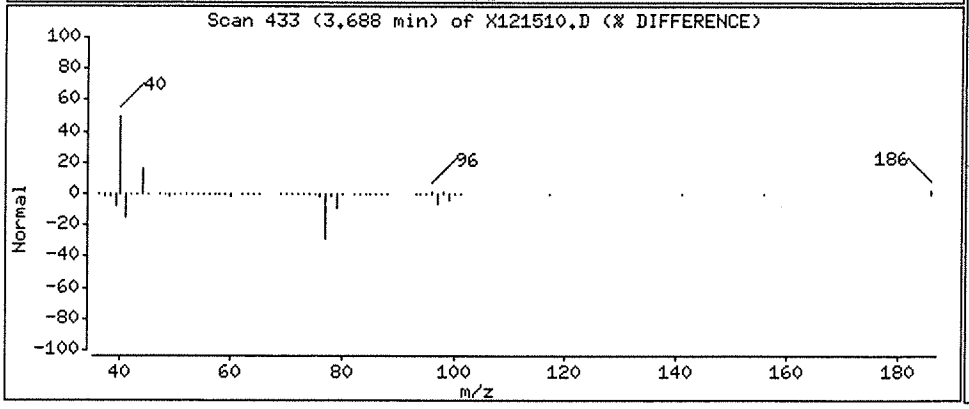












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121510.D

Date : 15-DEC-2017 15:55

Client ID: HS17120573-02

Instrument: voa6.i

Sample Info: HS17120573-02;HS17120573-02;;;

Purge Volume: 5.0

Operator: PC

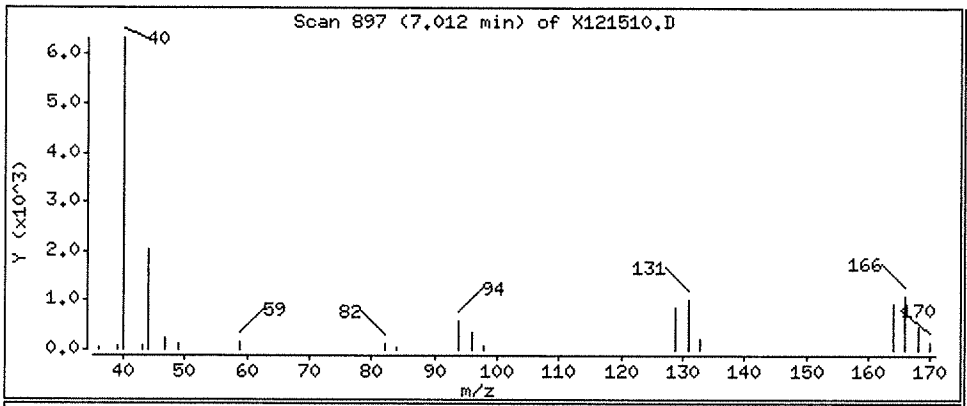
Column phase: DB624

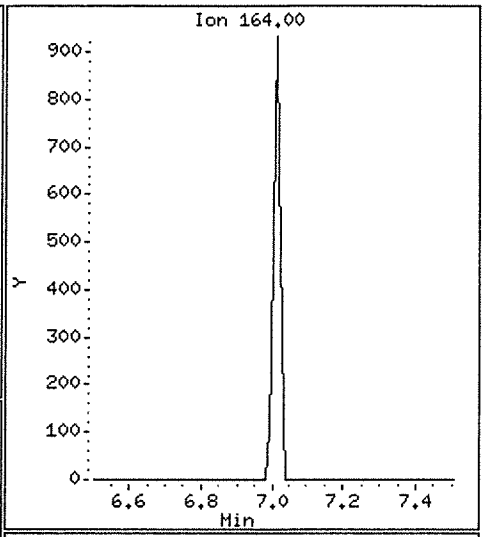
Column diameter: 0.18

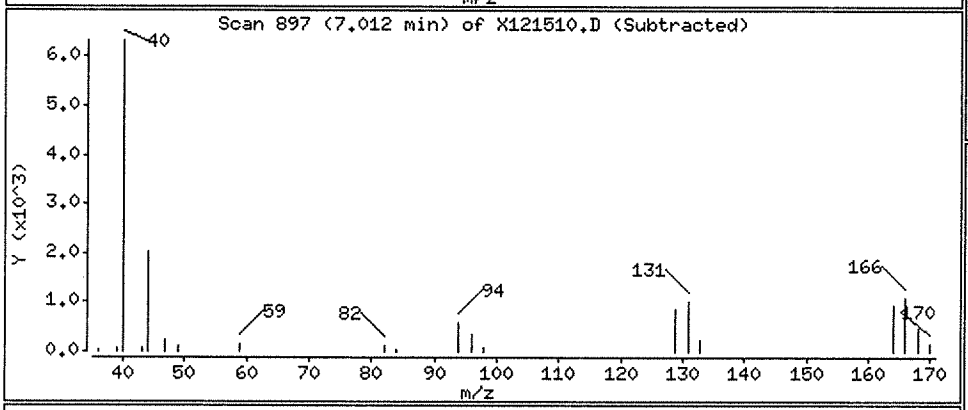
56 Tetrachloroethene

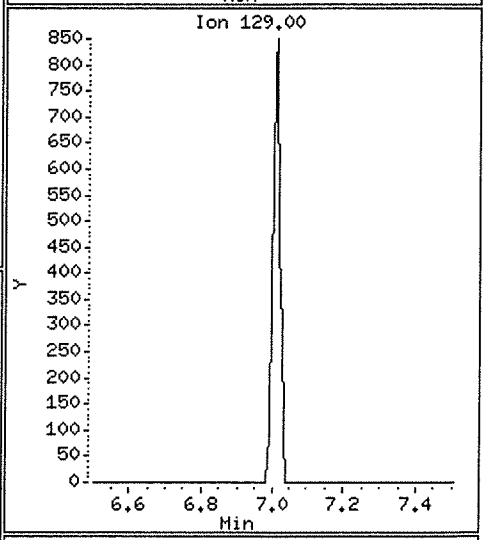
Concentration: 0.73 ug/l

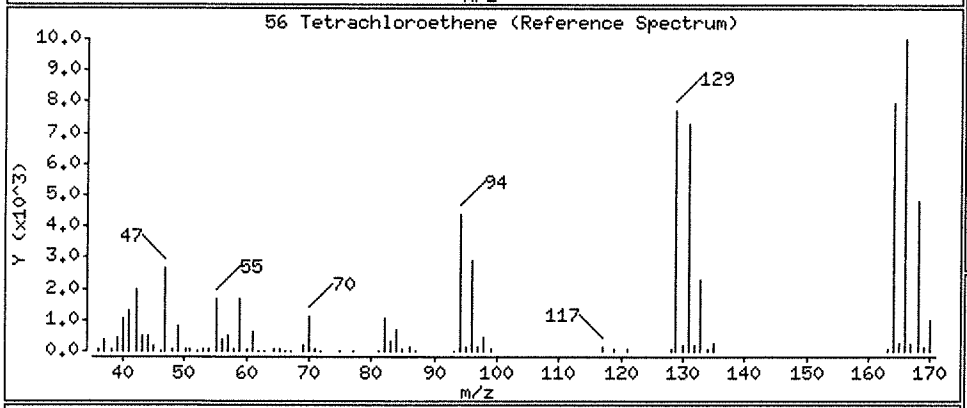
Review Code:

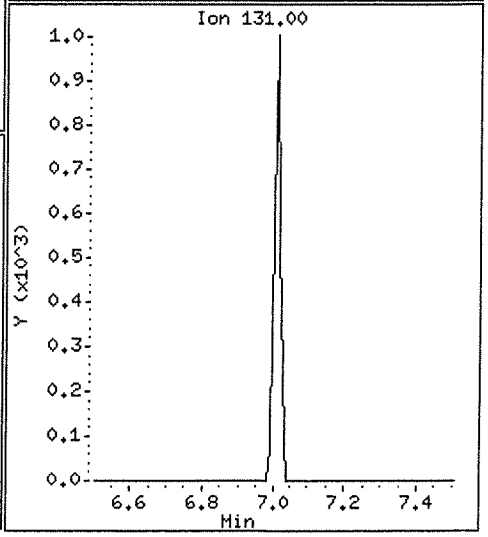


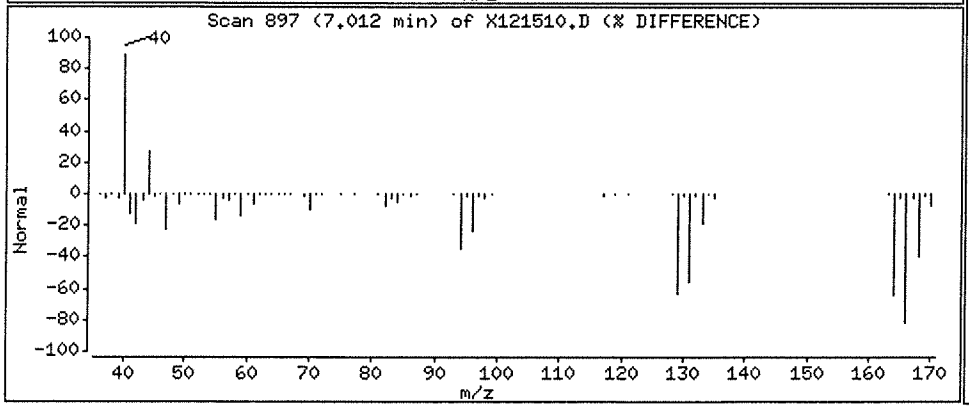












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Date : 15-DEC-2017 15:55

Client ID: HS17120573-02

Instrument: voa6.i

Sample Info: HS17120573-02;HS17120573-02;;;

Purge Volume: 5.0

Operator: PC

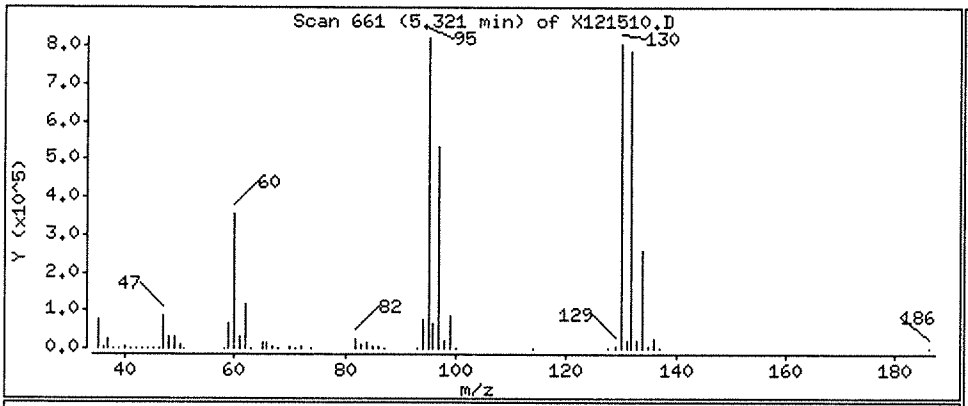
Column phase: DB624

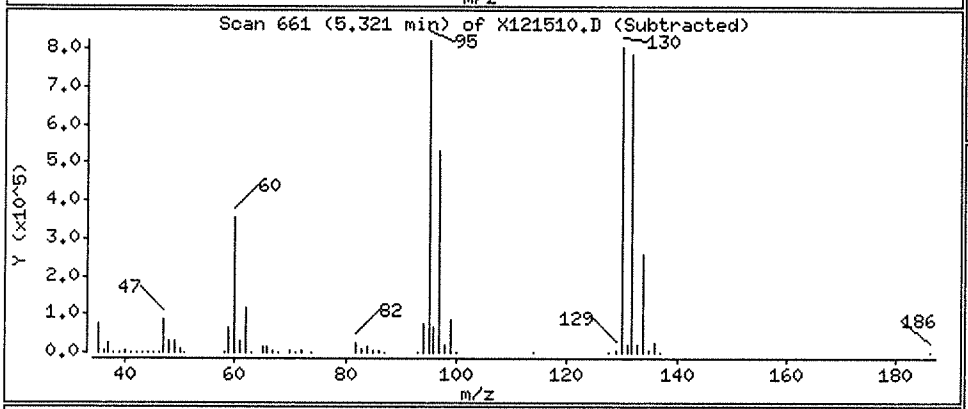
Column diameter: 0.18

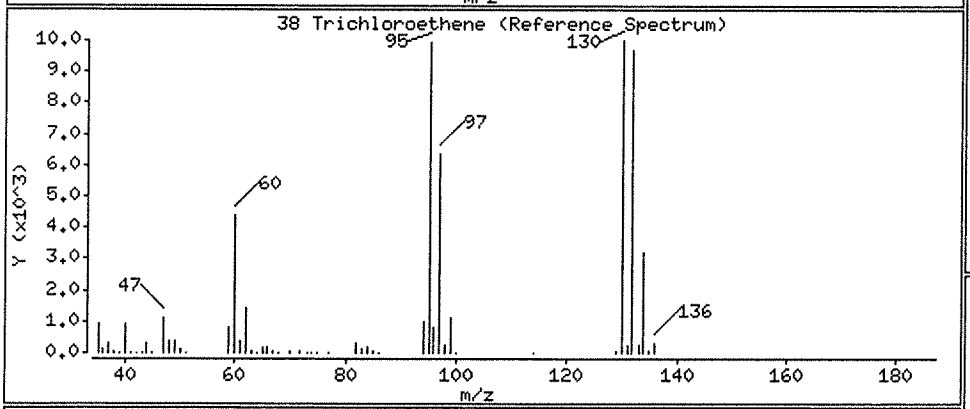
38 Trichloroethene

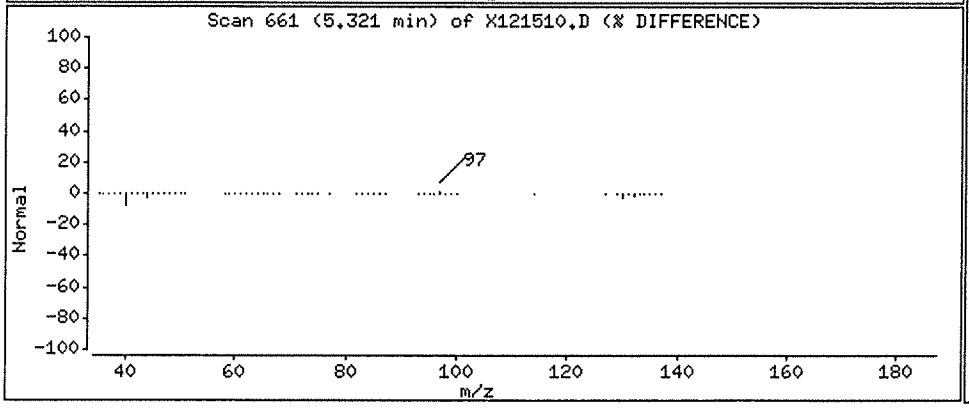
Concentration: 469.53 ug/l

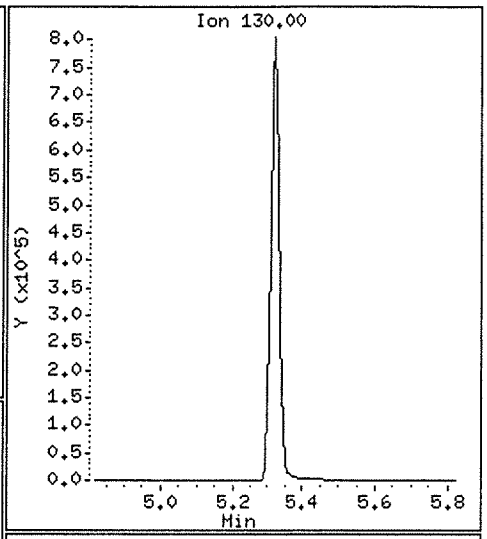
Review Code:

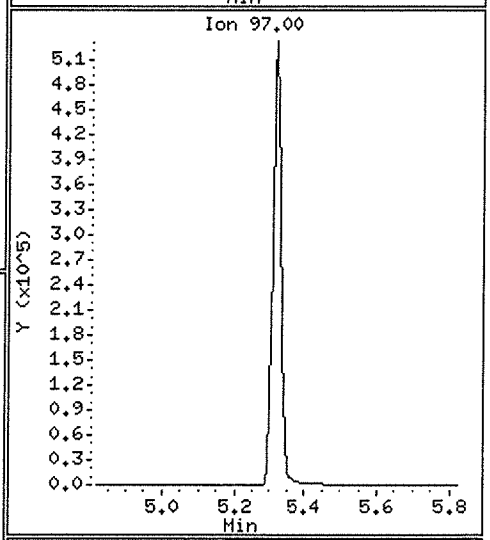


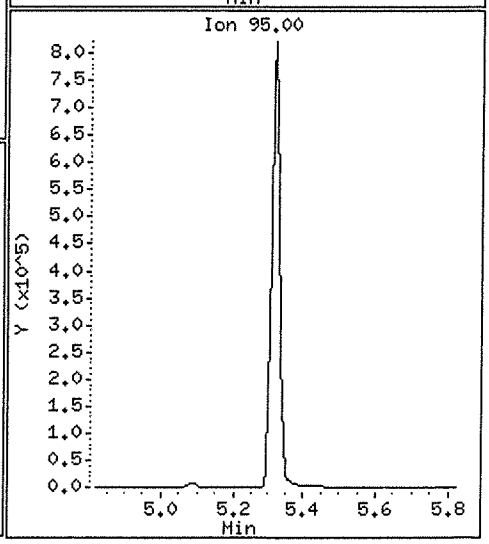












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121511.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121511.D
Lab Smp Id: HS17120573-05MS Client Smp ID: HS17120573-05MS
Inj Date : 15-DEC-2017 16:20
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-05MS;HS17120573-05MS;3;;MS
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 11 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

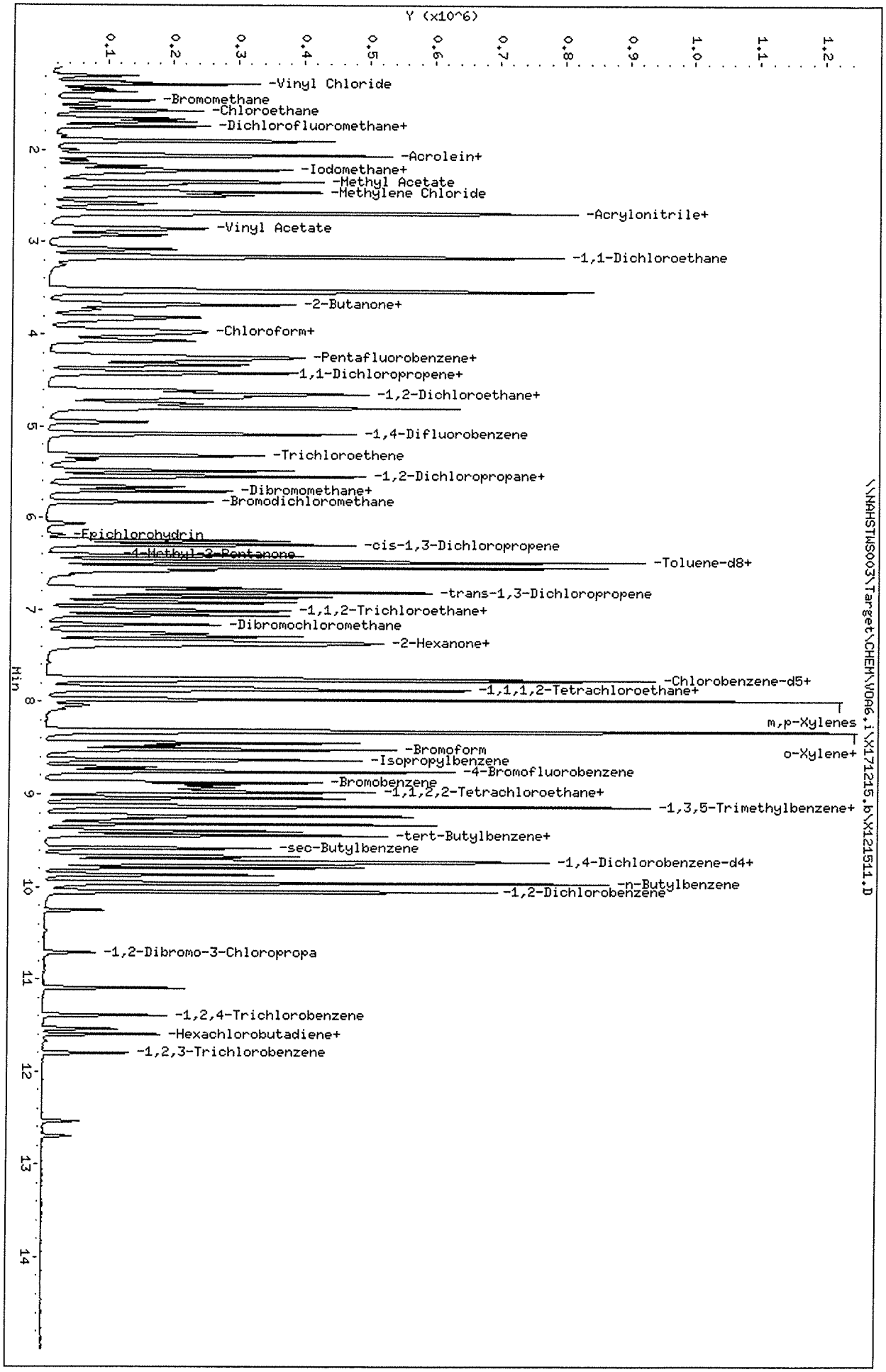
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	215483	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	347802	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	321194	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	146929	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	135933	48.4628	48.46
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	165366	45.3699	45.36
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	504044	51.8843	51.88
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	180051	51.8239	51.82
60 1,1,1,2-Tetrachloroethane	131	7.842	7.843	(1.013)	91831	39.9326	39.93
31 1,1,1-Trichloroethane	97	4.239	4.232	(0.980)	143213	41.0930	41.09
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	129187	43.9436	43.94
53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	86286	41.5233	41.52
22 1,1-Dichloroethane	63	3.079	3.072	(0.712)	186523	38.9479	38.94
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	85454	38.7320	38.73
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	129499	41.7583	41.75
93 1,2,3-Trichlorobenzene	180	11.804	11.797	(1.214)	35491	32.7045	32.70
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	154558	40.0093	40.00
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	47250	34.7248	34.72
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	241207	39.5742	39.57
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	15074	37.9603	37.96
57 1,2-Dibromoethane	107	7.341	7.334	(0.948)	104238	43.1751	43.17
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	146226	37.6863	37.68

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121511.D Version 5
Report Date: 30-Jan-2018 15:23

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	145977	39.5757	39.57
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	113456	40.9043	40.90
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	222431	39.2544	39.25
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	145587	36.4864	36.48
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	180810	40.4790	40.47
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	151540	40.5551	40.55
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	143857	38.1999	38.19
24	2-Butanone	43	3.731	3.731	(0.863)	95654	88.5107	88.51
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	229604	40.2026	40.20
52	2-Hexanone	43	7.284	7.284	(0.941)	230330	93.0432	93.04
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	274472	40.3082	40.30
82	p-Isopropyltoluene	119	9.712	9.705	(0.999)	184156	35.6058	35.60
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	227405	82.7266	82.72
10	Acetone	43	2.119	2.112	(0.490)	58959	82.8437	82.84
37	Benzene	78	4.648	4.648	(0.914)	406374	41.1481	41.14
74	Bromobenzene	156	8.867	8.867	(0.912)	104843	39.6645	39.66
29	Bromochloromethane	128	3.960	3.953	(0.916)	55807	48.3917	48.39
39	Bromodichloromethane	83	5.823	5.823	(1.145)	148081	41.8062	41.80
66	Bromoform	173	8.480	8.480	(1.095)	77191	43.7121	43.71
6	Bromomethane	94	1.460	1.460	(0.338)	69612	35.6579	35.65
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	111574	41.9027	41.90
59	Chlorobenzene	112	7.764	7.764	(1.003)	249612	39.3521	39.35
7	Chloroethane	64	1.532	1.525	(0.354)	64449	35.2871	35.28
28	Chloroform	83	4.068	4.068	(0.940)	184956	39.4215	39.42
3	Chloromethane	50	1.195	1.195	(0.276)	110923	32.0031	32.00
27	cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	113802	40.0211	40.02
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	181742	41.7583	41.75
55	Dibromochloromethane	129	7.255	7.255	(0.937)	115267	40.5270	40.52
44	Dibromomethane	93	5.658	5.658	(1.113)	72411	41.8000	41.79
2	Dichlorodifluoromethane	85	1.088	1.081	(0.252)	56569	26.6640	26.66
19	Carbon Disulfide	76	2.212	2.212	(0.512)	527486	77.7026	77.70
61	Ethylbenzene	106	7.871	7.871	(1.017)	119883	38.3905	38.39
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	19138	42.1852	42.18
67	Isopropylbenzene	105	8.623	8.623	(1.114)	279004	38.0503	38.05
62	m,p-Xylenes	106	7.971	7.971	(1.030)	283251	75.5657	75.56
17	Methylene Chloride	84	2.456	2.449	(0.568)	115531	42.6860	42.68
87	n-Butylbenzene	91	10.049	10.049	(1.033)	151124	36.0512	36.05
73	n-Propylbenzene	91	8.974	8.974	(0.923)	327695	39.2747	39.27
92	Naphthalene	128	11.603	11.603	(1.193)	125618	34.8202	34.82
63	o-Xylene	106	8.308	8.308	(1.073)	144670	38.5429	38.54
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	207501	35.0066	35.00
64	Styrene	104	8.322	8.322	(1.075)	275241	40.7750	40.77
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	159927	39.5403	39.54
56	Tetrachloroethene	164	7.012	7.004	(0.906)	63352	41.2883	41.28
50	Toluene	91	6.532	6.532	(0.844)	398568	39.1767	39.17
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	99572	40.4556	40.45
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	158109	41.6307	41.63
38	Trichloroethene	130	5.321	5.321	(1.046)	99460	42.7967	42.79
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	120107	40.8481	40.84
5	Vinyl Chloride	62	1.260	1.260	(0.291)	105429	33.2456	33.24



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Date : 15-DEC-2017 16:20
Client ID: HS171205?3-05HS
Sample Info: HS171205?3-05HS;HS171205?3-05HS;3;;HS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121512.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121512.D
Lab Smp Id: HS17120573-05MSD Client Smp ID: HS17120573-05MSD
Inj Date : 15-DEC-2017 16:45
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-05MSD;HS17120573-05MSD;3;;MSD
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 12 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

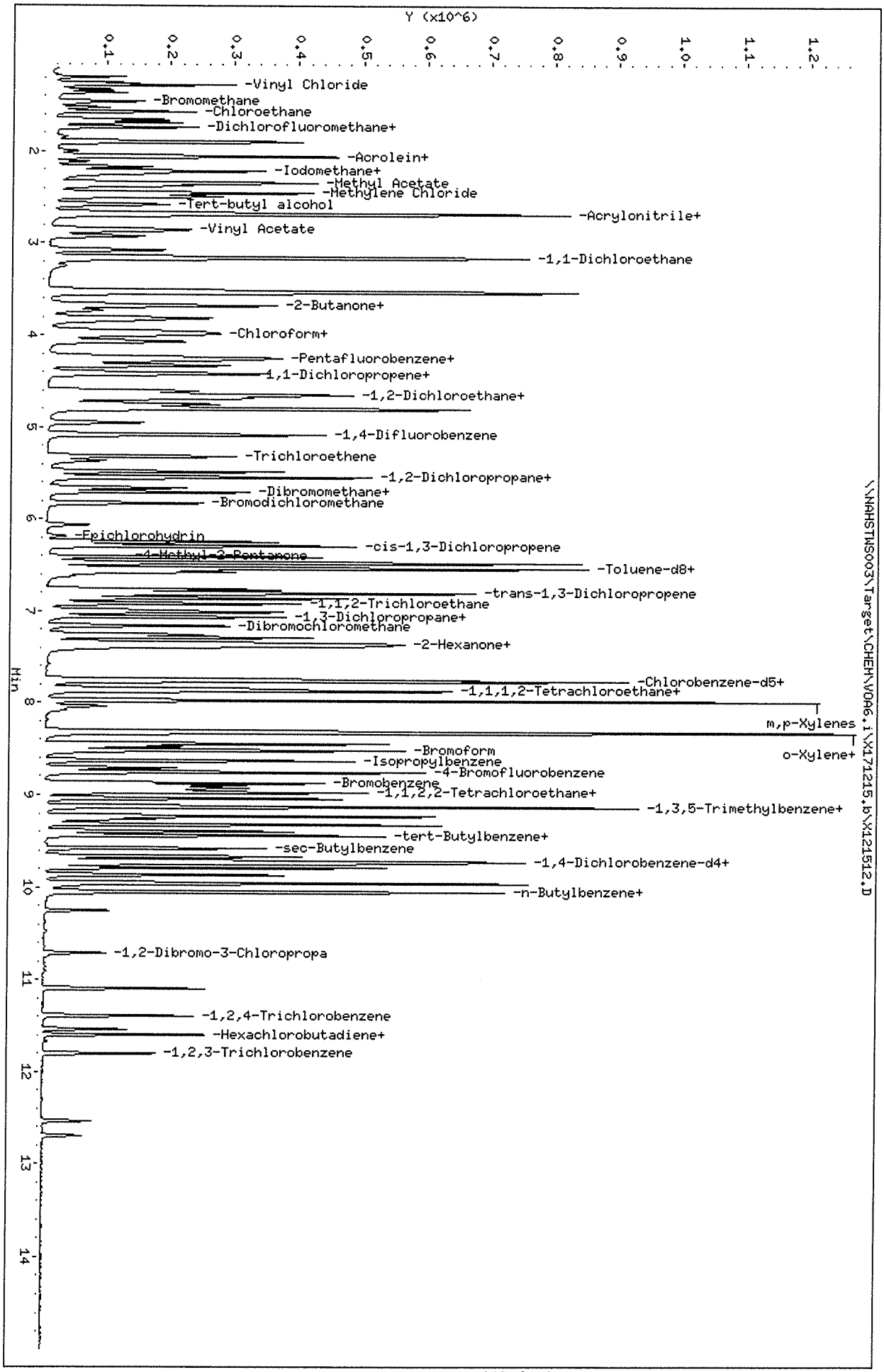
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.325	(1.000)	196981	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	320502	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	306853	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	143591	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	128066	49.9616	49.96
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	160266	48.0899	48.08
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	476345	51.3458	51.34
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	172581	51.9915	51.99
60 1,1,1,2-Tetrachloroethane	131	7.843	7.843	(1.013)	90706	41.2868	41.28
31 1,1,1-Trichloroethane	97	4.232	4.232	(0.978)	130046	40.8198	40.81
68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	137746	47.9118	47.91
53 1,1,2-Trichloroethane	83	6.919	6.918	(0.894)	87551	44.1011	44.10
22 1,1-Dichloroethane	63	3.072	3.072	(0.710)	177528	40.5515	40.55
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	75771	37.5689	37.56
32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	118369	41.4206	41.42
93 1,2,3-Trichlorobenzene	180	11.804	11.797	(1.214)	49089	44.9119	44.91
71 1,2,3-Trichloropropane	75	8.924	8.924	(0.918)	164477	43.5667	43.56
90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	59668	44.0706	44.07
79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	243148	40.8061	40.80
89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	18354	47.2946	47.29
57 1,2-Dibromoethane	107	7.334	7.334	(0.947)	107693	46.6908	46.69
88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	155495	41.0068	41.00

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121512.D Version 5
Report Date: 30-Jan-2018 15:23

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	147346	43.3495	43.34
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	109304	42.7641	42.76
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	221708	40.0234	40.02
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	148970	38.2021	38.20
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	186516	43.7080	43.70
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	159332	43.5910	43.59
26	2,2-Dichloropropane	77	3.667	3.666	(0.848)	133210	38.6952	38.69
24	2-Butanone	43	3.731	3.731	(0.863)	105616	106.908	106.90
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	229359	41.0850	41.08
52	2-Hexanone	43	7.284	7.284	(0.941)	248070	104.893	104.89
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	273514	41.0886	41.08
82	p-Isopropyltoluene	119	9.712	9.705	(0.999)	185843	36.7672	36.76
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	250702	95.4640	95.46
10	Acetone	43	2.112	2.112	(0.488)	64281	99.1597	99.15
37	Benzene	78	4.648	4.648	(0.914)	384555	42.2555	42.25
74	Bromobenzene	156	8.867	8.867	(0.912)	106507	41.2307	41.23
29	Bromochloromethane	128	3.953	3.953	(0.914)	53758	51.0473	51.04
39	Bromodichloromethane	83	5.823	5.823	(1.145)	145782	44.6629	44.66
66	Bromoform	173	8.480	8.480	(1.095)	79874	47.3453	47.34
6	Bromomethane	94	1.460	1.460	(0.338)	65413	36.6542	36.65
34	Carbon Tetrachloride	117	4.412	4.411	(0.868)	101041	41.1792	41.17
59	Chlorobenzene	112	7.764	7.764	(1.003)	244282	40.3117	40.31
7	Chloroethane	64	1.525	1.525	(0.353)	60124	36.0111	36.01
28	Chloroform	83	4.068	4.068	(0.940)	178717	41.6695	41.66
3	Chloromethane	50	1.195	1.195	(0.276)	103016	32.5135	32.51
27	cis-1,2-Dichloroethene	96	3.681	3.681	(0.851)	108717	41.8240	41.82
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	179728	44.8131	44.81
55	Dibromochloromethane	129	7.255	7.255	(0.937)	118721	43.6922	43.69
44	Dibromomethane	93	5.658	5.658	(1.113)	72948	45.6968	45.69
2	Dichlorodifluoromethane	85	1.081	1.081	(0.250)	47713	24.6021	24.60
19	Carbon Disulfide	76	2.212	2.212	(0.512)	481879	77.6518	77.65
61	Ethylbenzene	106	7.871	7.871	(1.017)	117191	39.2824	39.28
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	20708	46.6224	46.62
67	Isopropylbenzene	105	8.623	8.623	(1.114)	273324	39.0178	39.01
62	m,p-Xylenes	106	7.972	7.971	(1.030)	276140	77.1116	77.11
17	Methylene Chloride	84	2.449	2.449	(0.566)	112569	45.5186	45.51
87	n-Butylbenzene	91	10.049	10.049	(1.033)	154238	37.6493	37.64
73	n-Propylbenzene	91	8.974	8.974	(0.923)	322431	39.5387	39.53
92	Naphthalene	128	11.603	11.603	(1.193)	179721	49.6159	49.61
63	o-Xylene	106	8.308	8.308	(1.073)	143041	39.8899	39.88
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	207445	35.8108	35.81
64	Styrene	104	8.323	8.322	(1.075)	271810	42.1486	42.14
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	157550	39.8556	39.85
56	Tetrachloroethene	164	7.012	7.004	(0.906)	59665	40.7027	40.70
50	Toluene	91	6.532	6.532	(0.844)	383797	39.4879	39.48
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	93082	41.3710	41.37
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	161887	46.2562	46.25
38	Trichloroethene	130	5.321	5.321	(1.046)	92207	43.0553	43.05
8	Trichlorofluoromethane	101	1.690	1.689	(0.391)	105845	39.3788	39.37
5	Vinyl Chloride	62	1.260	1.260	(0.291)	95489	32.9394	32.93



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Date : 15-DEC-2017 16:45
Client ID: HS17120573-05MSD
Sample Info: HS17120573-05MSD;HS17120573-05MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121513.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121513.D
Lab Smp Id: HS17120573-04 Client Smp ID: HS17120573-04
Inj Date : 15-DEC-2017 17:10
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-04;HS17120573-04;;;
Misc Info : HS16030331;WATER;0;25;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 13
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	25.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	242367	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	390692	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	362758	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	164114	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	151702	48.0817	48.08
$ 35 1,2-Dichloroethane-d4	65	4.605	4.612	(1.065)	182961	44.6323	44.63
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	569411	51.8967	51.89
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	204500	52.1102	52.11
27 cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	25253	7.89571	197.39
38 Trichloroethene	130	5.321	5.321	(1.046)	205394	78.6768	1966.92

00871486

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121513.D

Date : 15-DEC-2017 17:10

Client ID: HS17120573-04

Sample Info: HS17120573-04;HS17120573-04;;;

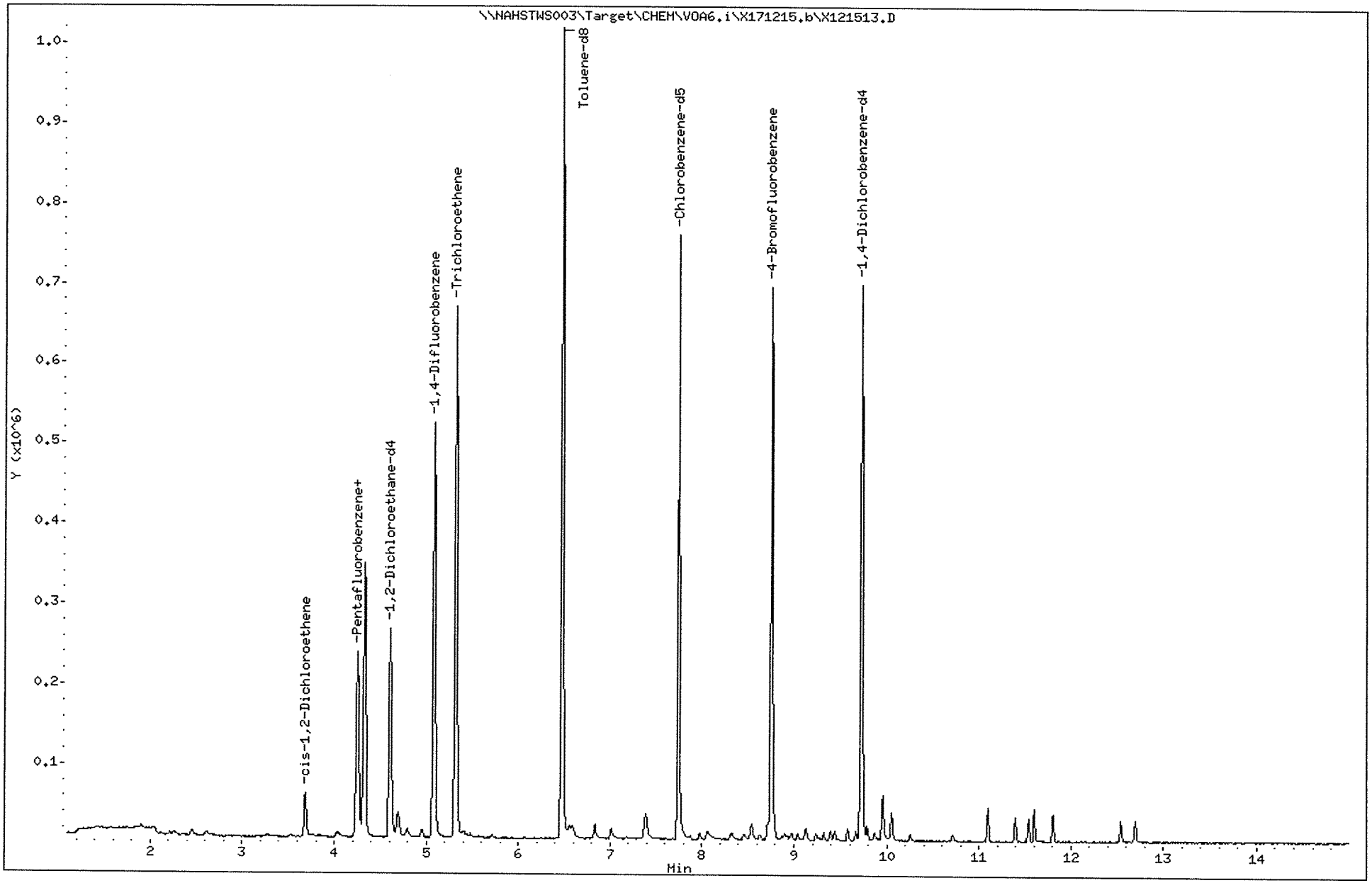
Purge Volume: 5.0

Column phase: DB624

Instrument: voa6.i

Operator: PC

Column diameter: 0.18



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Date : 15-DEC-2017 17:10

Client ID: HS17120573-04

Instrument: voa6.i

Sample Info: HS17120573-04;HS17120573-04;;;

Purge Volume: 5.0

Operator: PC

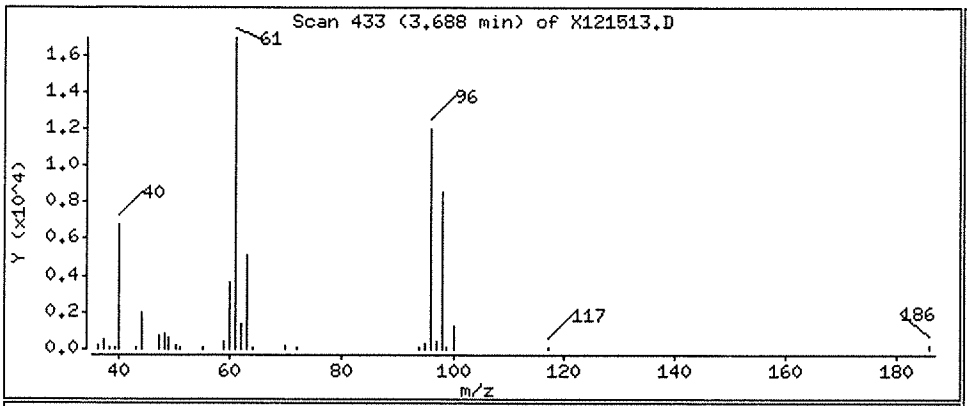
Column phase: DB624

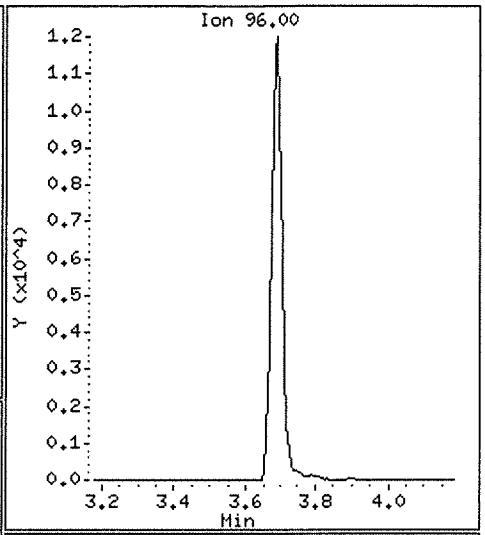
Column diameter: 0.18

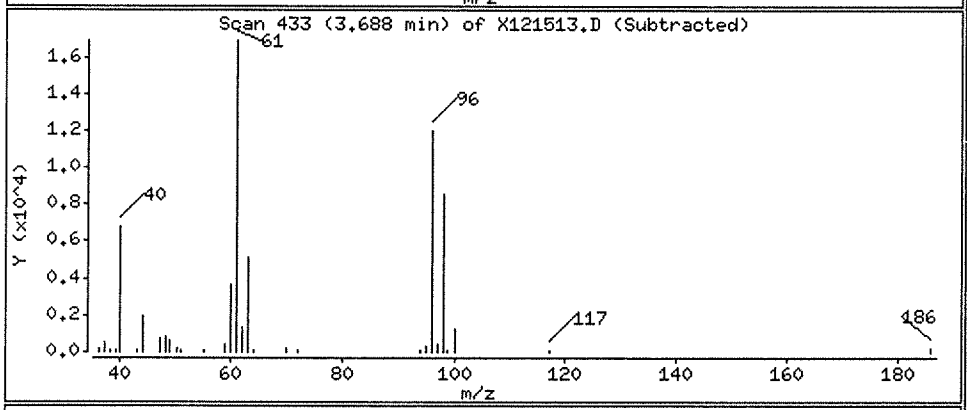
27 cis-1,2-Dichloroethene

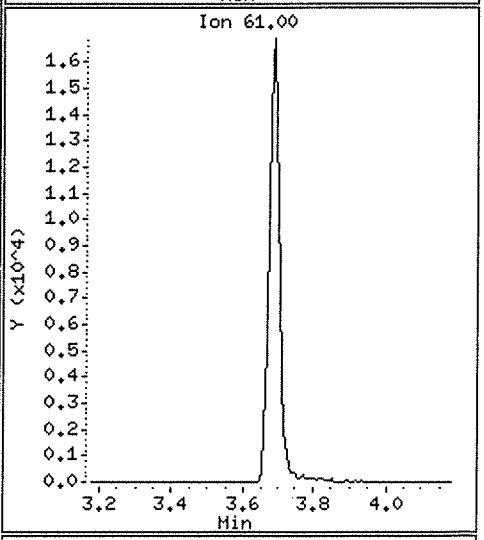
Concentration: 197.39 ug/l

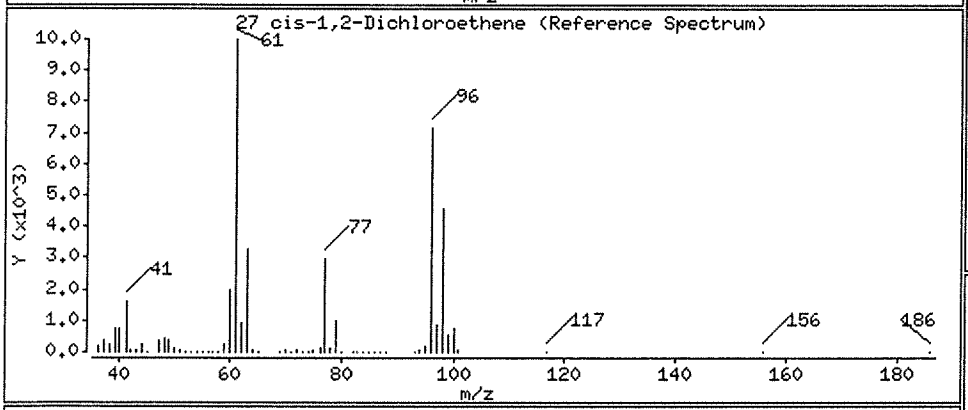
Review Code:

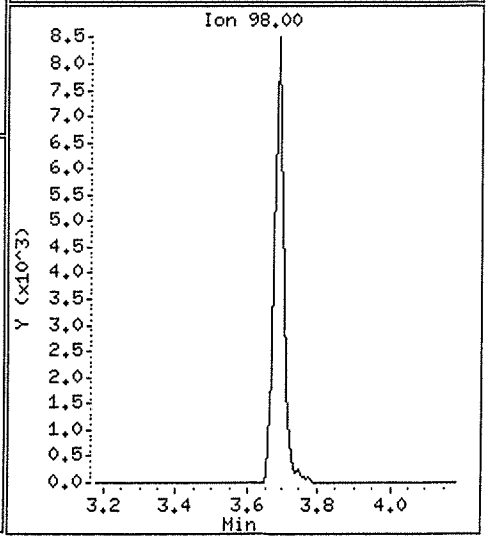


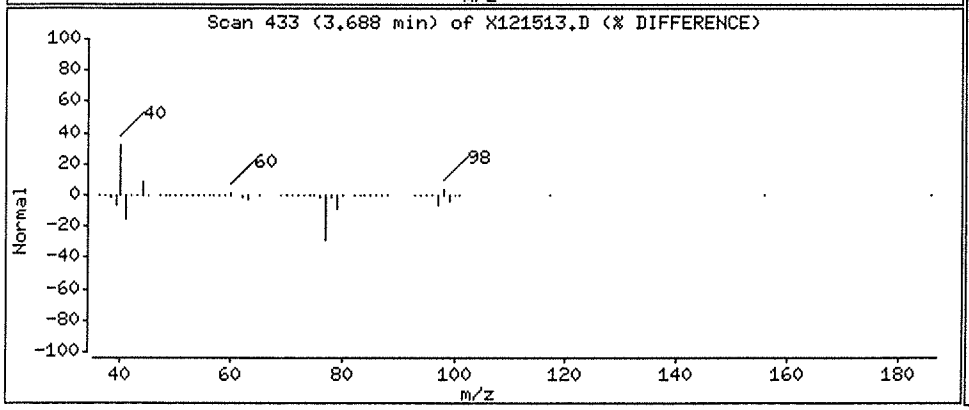












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121513.D

Date : 15-DEC-2017 17:10

Client ID: HS17120573-04

Instrument: voa6.i

Sample Info: HS17120573-04;HS17120573-04;;;

Purge Volume: 5.0

Operator: PC

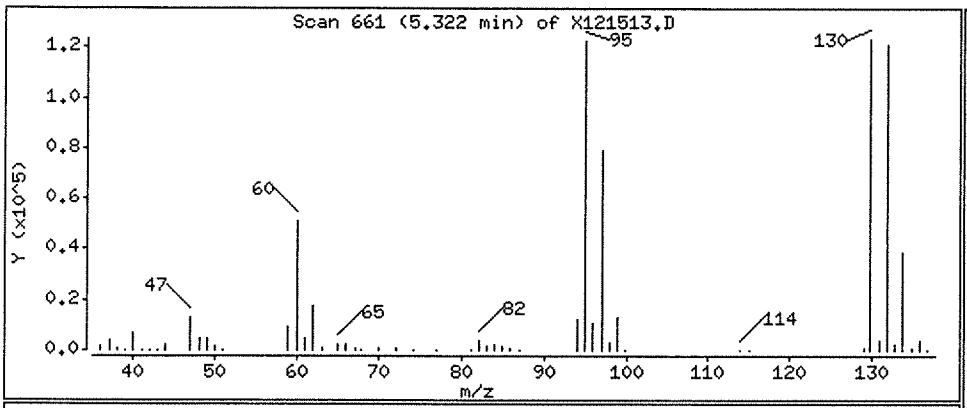
Column phase: DB624

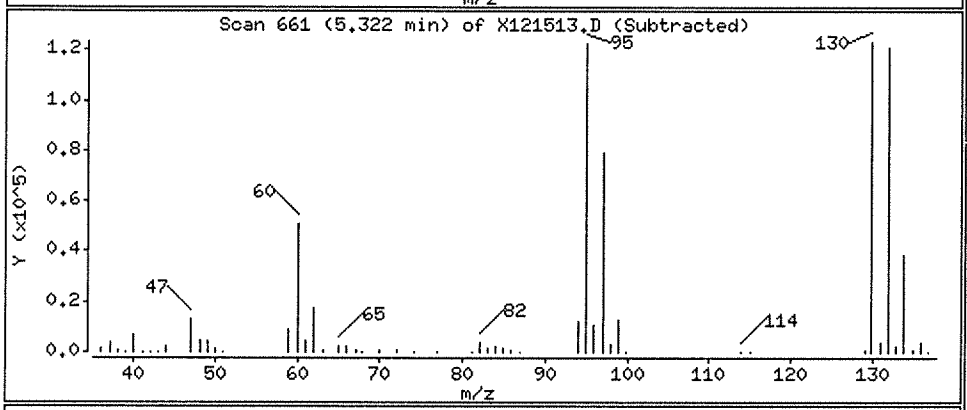
Column diameter: 0.18

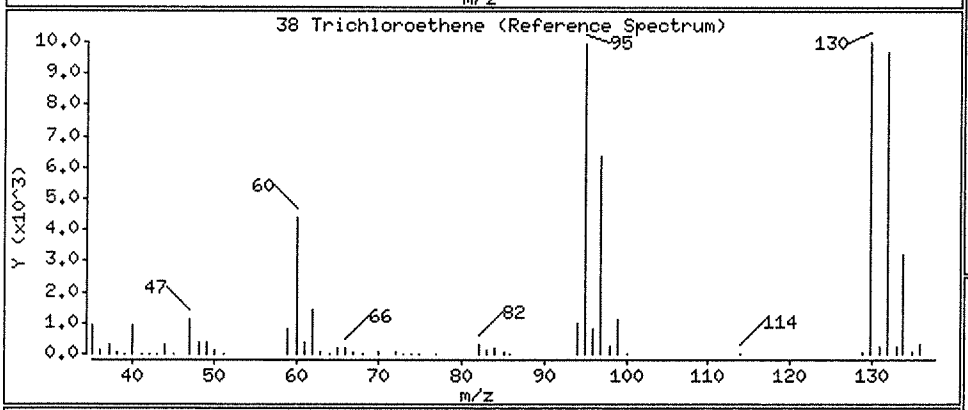
38 Trichloroethene

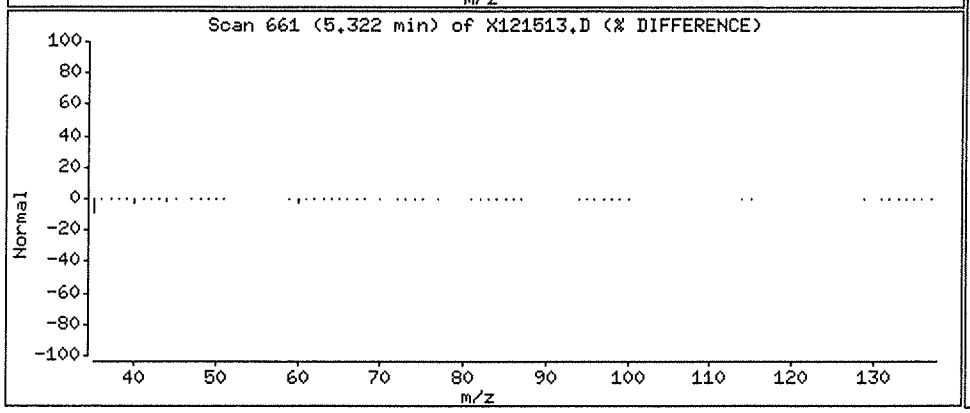
Concentration: 1966.92 ug/l

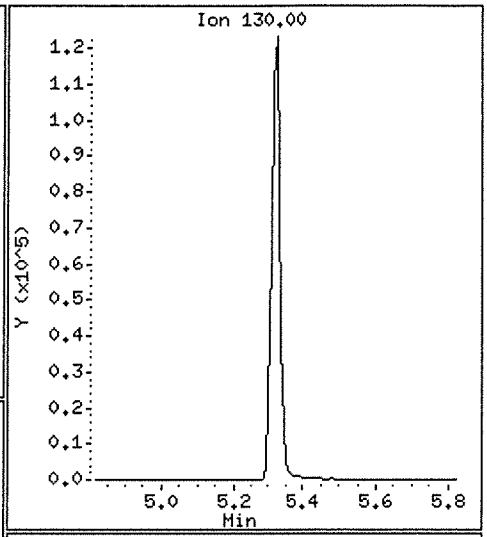
Review Code:

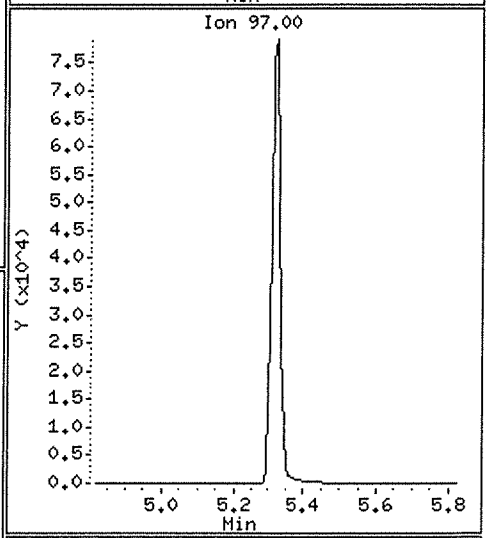


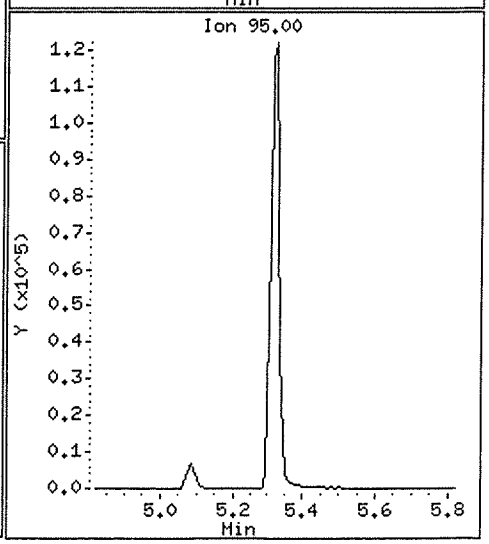












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Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121514.D
Lab Smp Id: HS17120573-03 Client Smp ID: HS17120573-03
Inj Date : 15-DEC-2017 17:35
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-03;HS17120573-03;;;
Misc Info : HS16030331;WATER;0;5;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 14
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

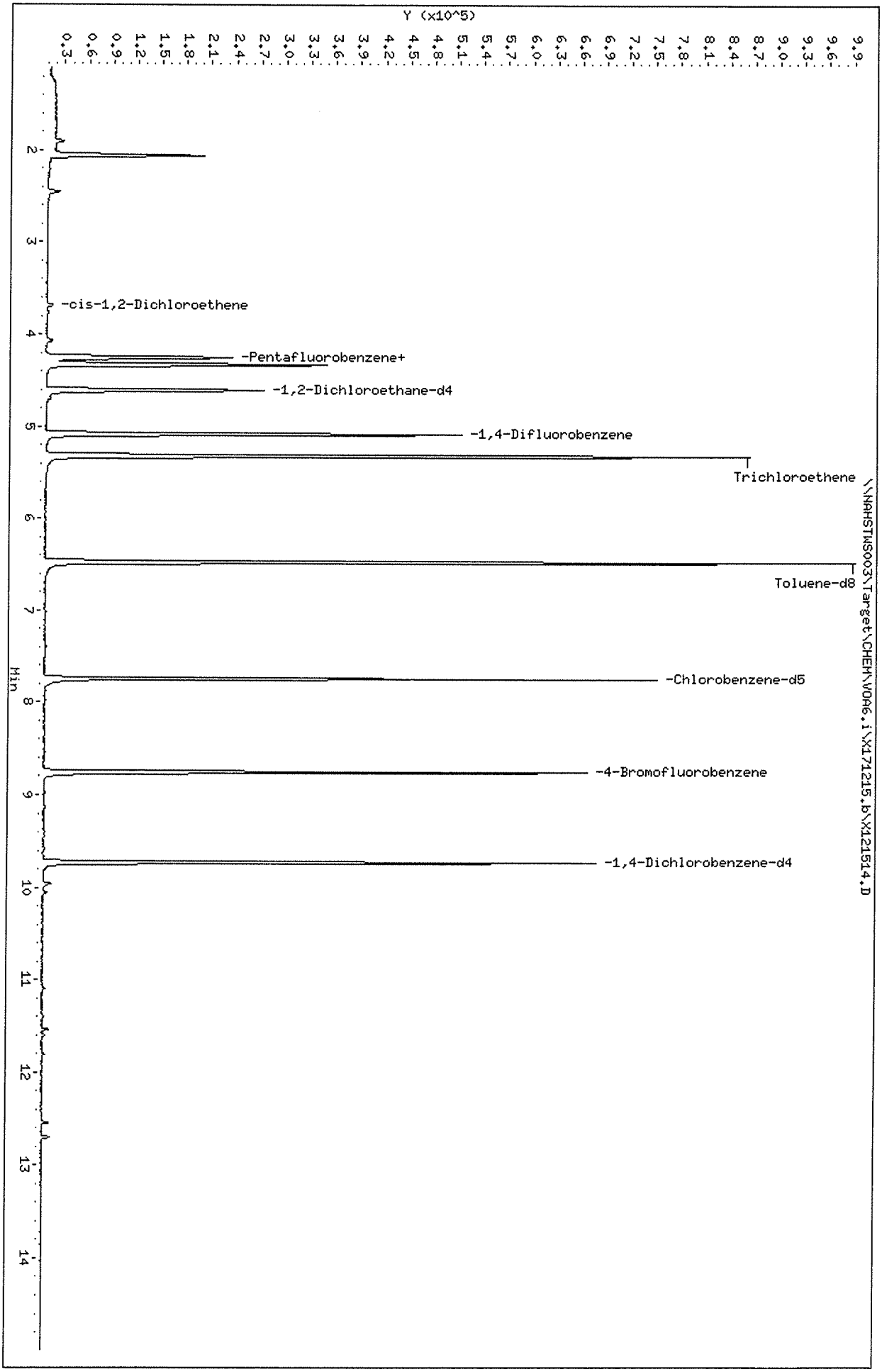
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	237149	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	383884	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	358672	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	154789	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	150422	48.7316	48.73
$ 35 1,2-Dichloroethane-d4	65	4.605	4.612	(1.065)	180569	45.0164	45.01
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	559215	51.5613	51.56
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	199719	51.4859	51.48
27 cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	3692	1.17976	5.89(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	264221	103.006	515.02(A)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
    exceeded maximum amount.

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121514.D
Date : 15-DEC-2017 17:35
Client ID: HS17120573-03
Sample Info: HS17120573-03;HS17120573-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121514.D

Date : 15-DEC-2017 17:35

Client ID: HS17120573-03

Instrument: voa6.i

Sample Info: HS17120573-03;HS17120573-03;;;

Purge Volume: 5.0

Operator: PC

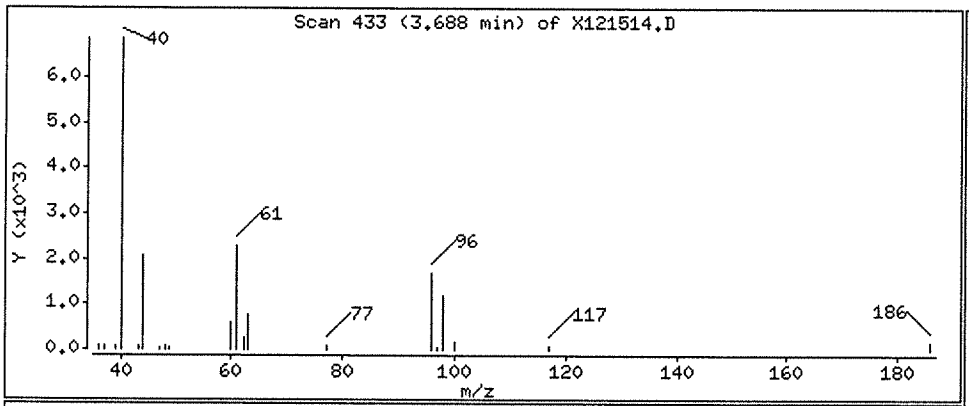
Column phase: DB624

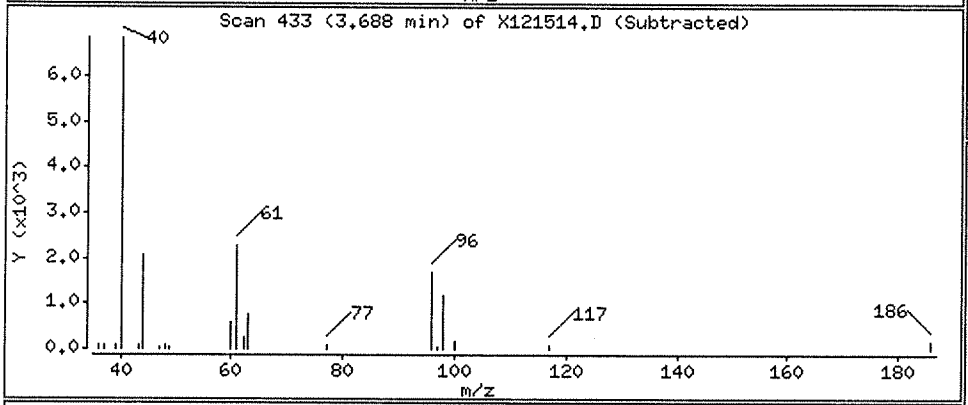
Column diameter: 0.18

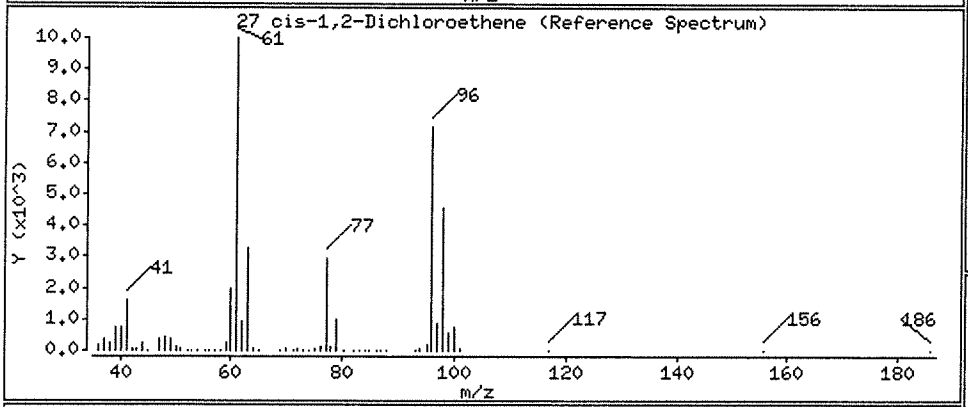
27 cis-1,2-Dichloroethene

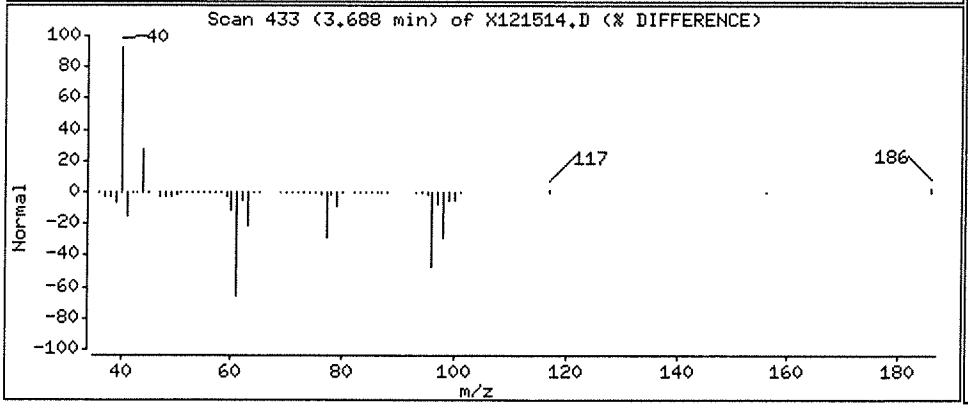
Concentration: 5.89 ug/l

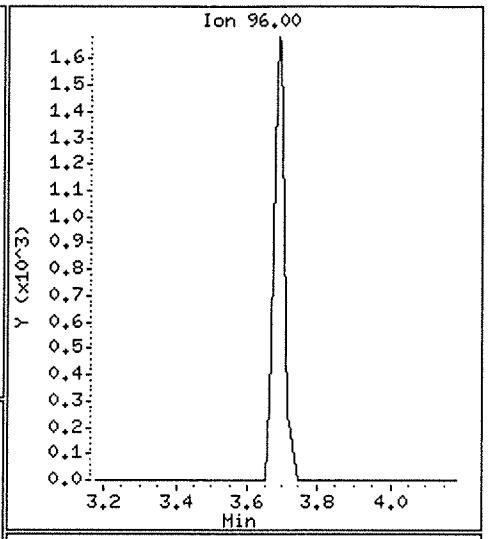
Review Code:

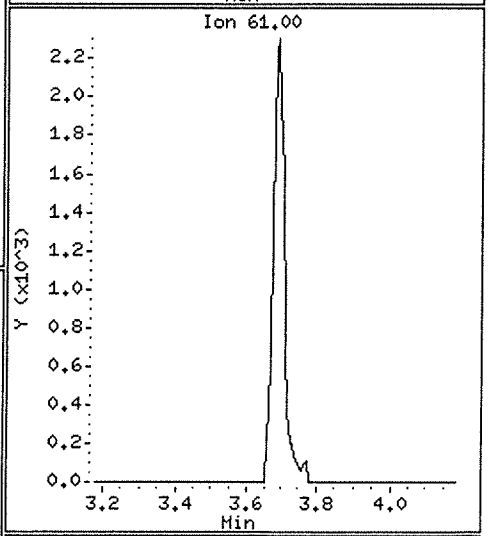


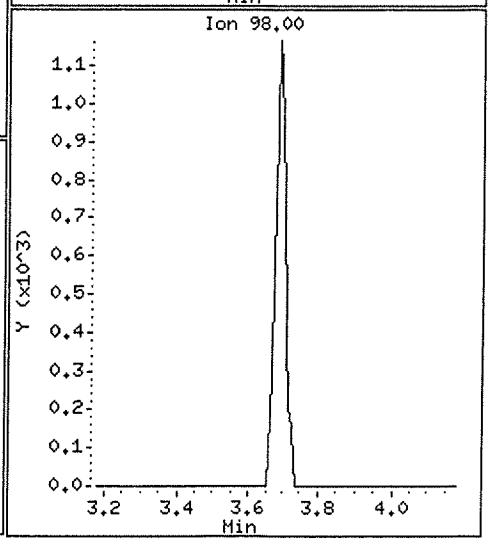












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121514.D

Date : 15-DEC-2017 17:35

Client ID: HS17120573-03

Instrument: voa6.i

Sample Info: HS17120573-03;HS17120573-03;;;

Purge Volume: 5.0

Operator: PC

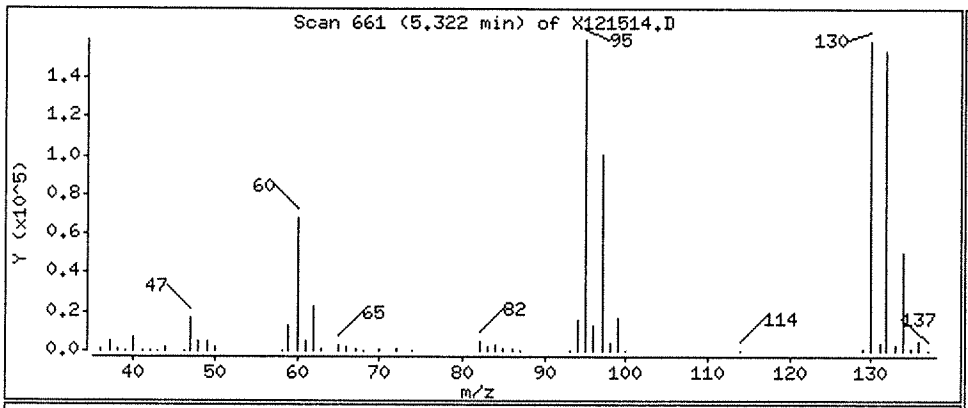
Column phase: DB624

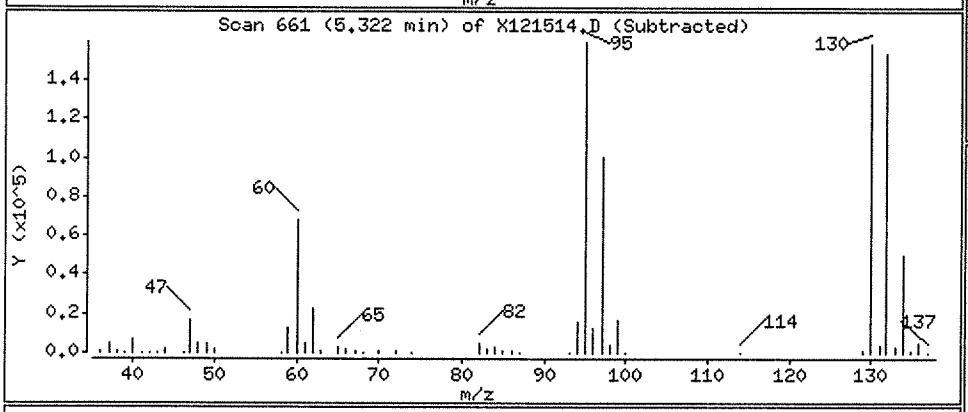
Column diameter: 0.18

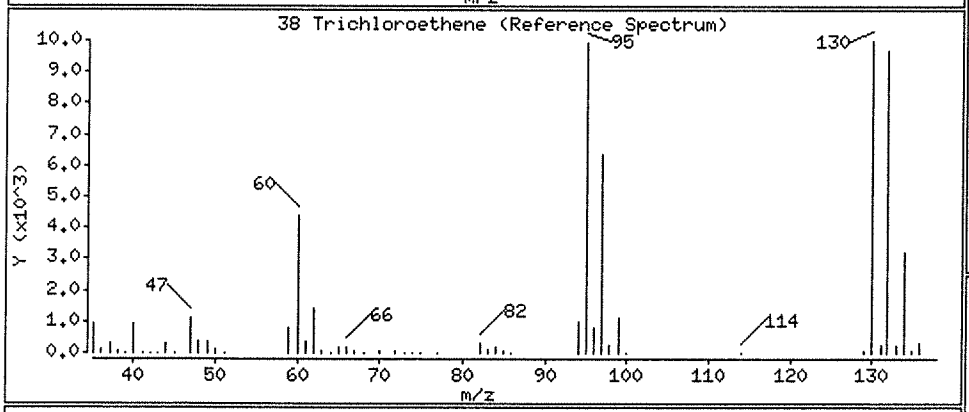
38 Trichloroethene

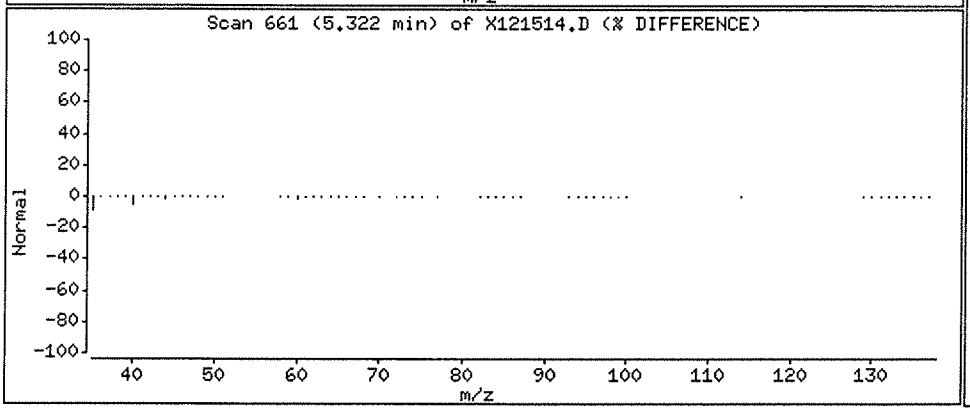
Concentration: 515.02 ug/l

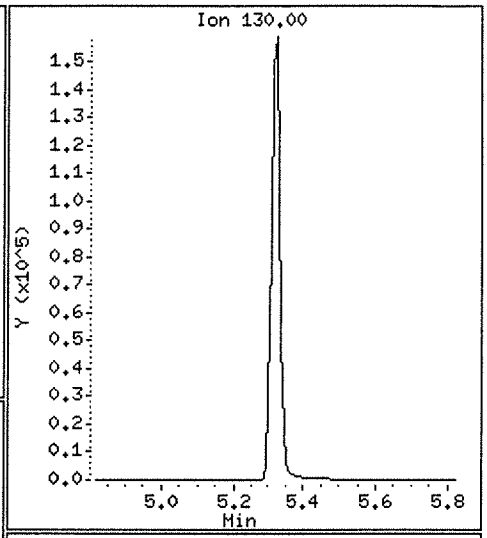
Review Code:

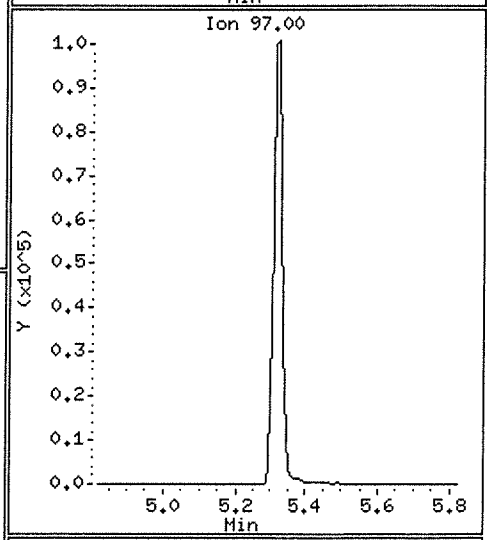


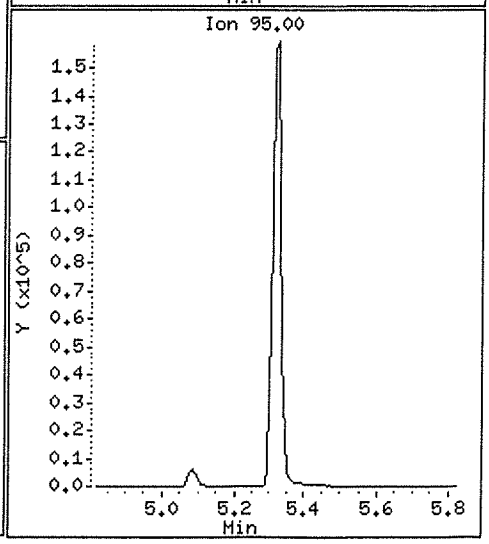












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121515.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121515.D
Lab Smp Id: HS17120573-07 Client Smp ID: HS17120573-07
Inj Date : 15-DEC-2017 17:59
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-07;HS17120573-07;;;
Misc Info : HS16030331;WATER;0;5;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 15
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.326	4.325	(1.000)	244478	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	394252	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	362840	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	154057	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	153006	48.0762	48.07
$ 35 1,2-Dichloroethane-d4	65	4.605	4.612	(1.065)	184928	44.7222	44.72
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	566629	51.6415	51.64
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	201265	51.2928	51.29
11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	1858	0.74226	3.71(a)
27 cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	9217	2.85694	14.28(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	159976	60.7260	303.62

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).

00871494

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121515.D

Date : 15-DEC-2017 17:59

Client ID: HS17120573-07

Instrument: voa6.i

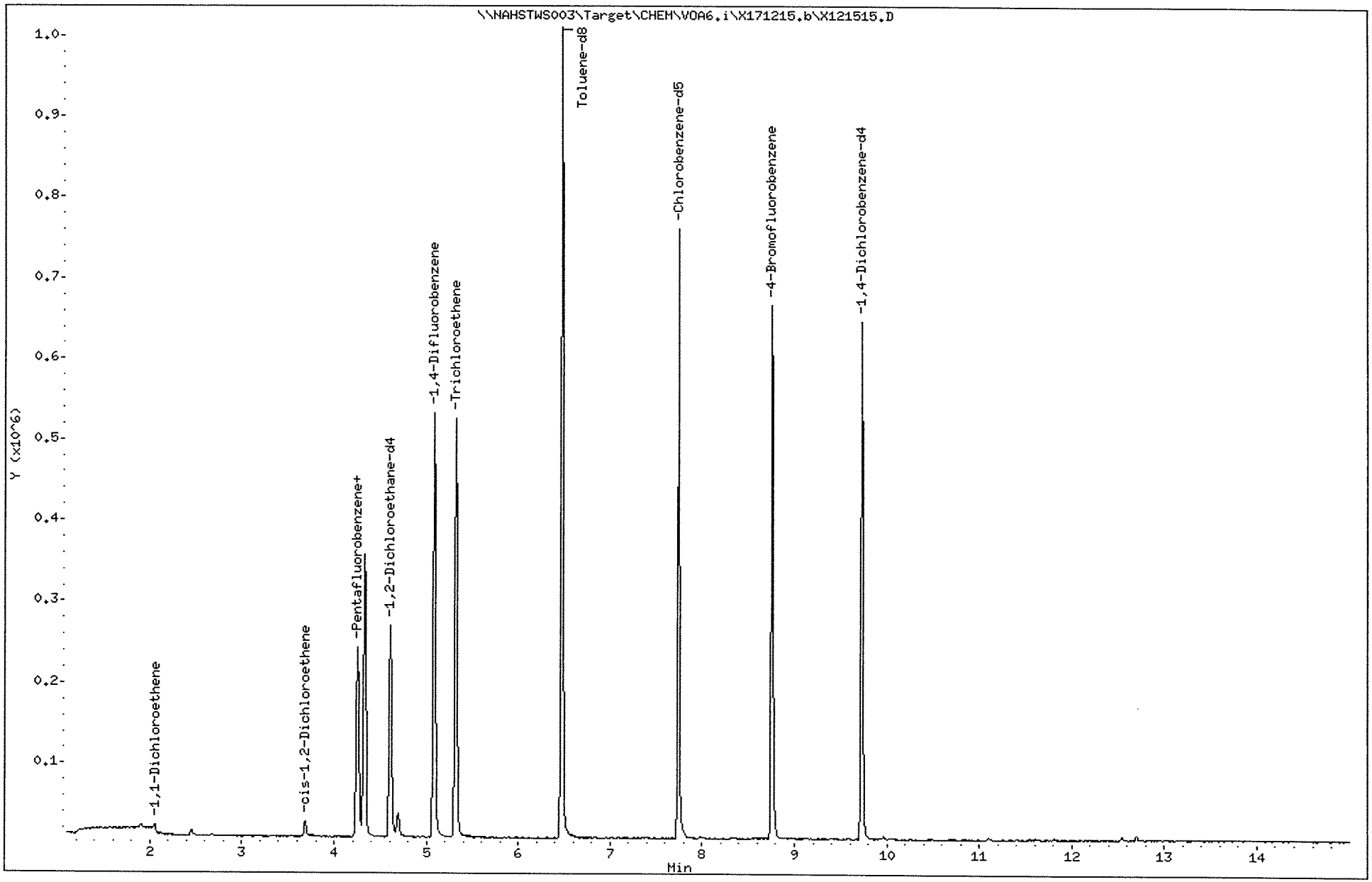
Sample Info: HS17120573-07;HS17120573-07;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121515.D

Date : 15-DEC-2017 17:59

Client ID: HS17120573-07

Instrument: voa6.i

Sample Info: HS17120573-07;HS17120573-07;;;

Purge Volume: 5.0

Operator: PC

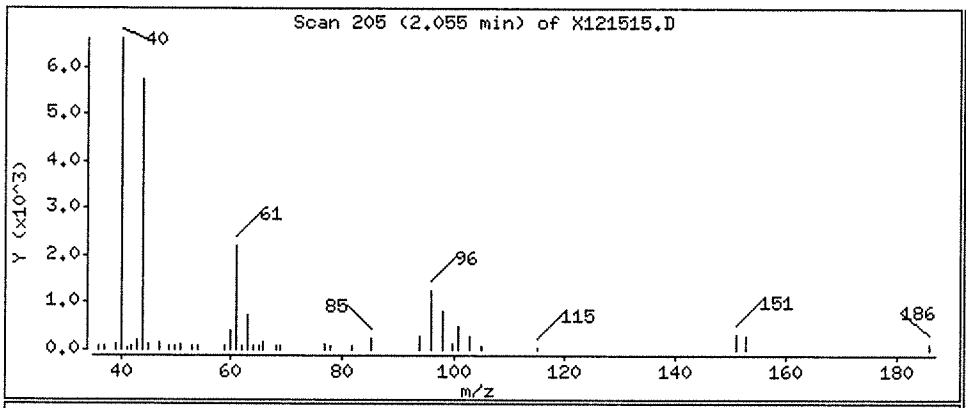
Column phase: DB624

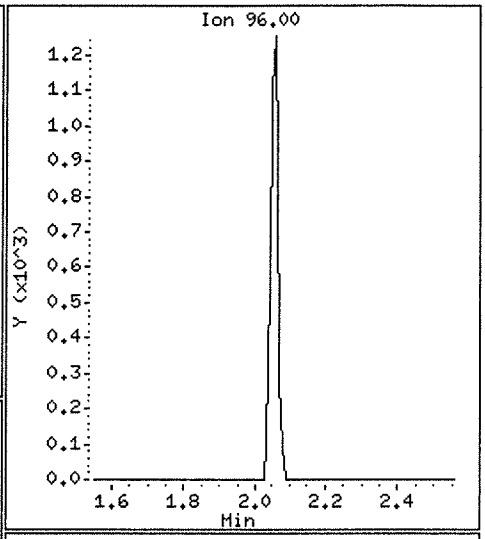
Column diameter: 0.18

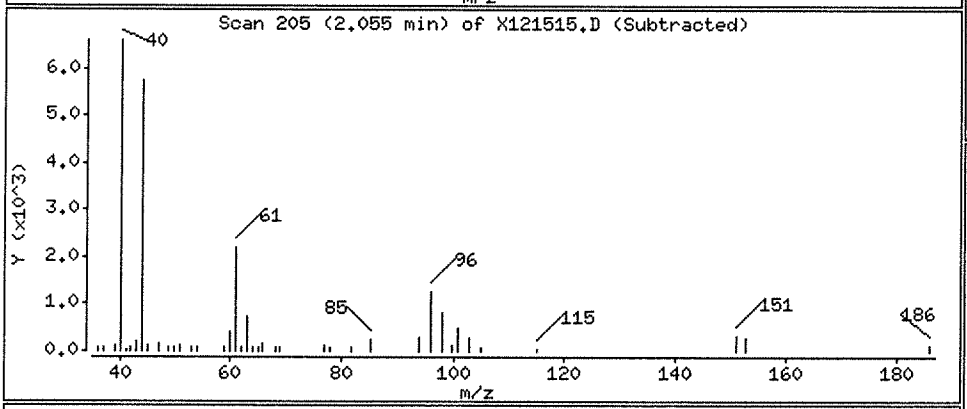
11 1,1-Dichloroethene

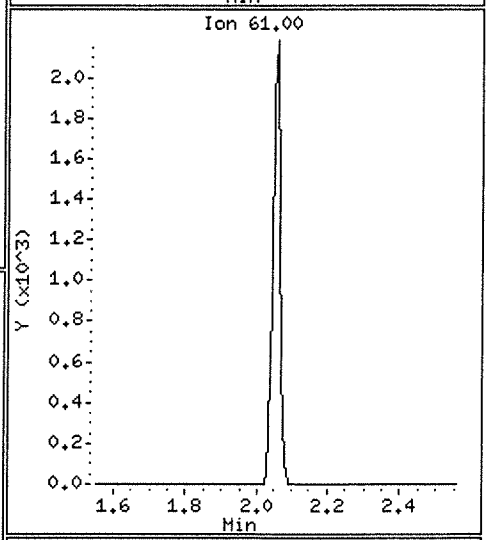
Concentration: 3.71 ug/l

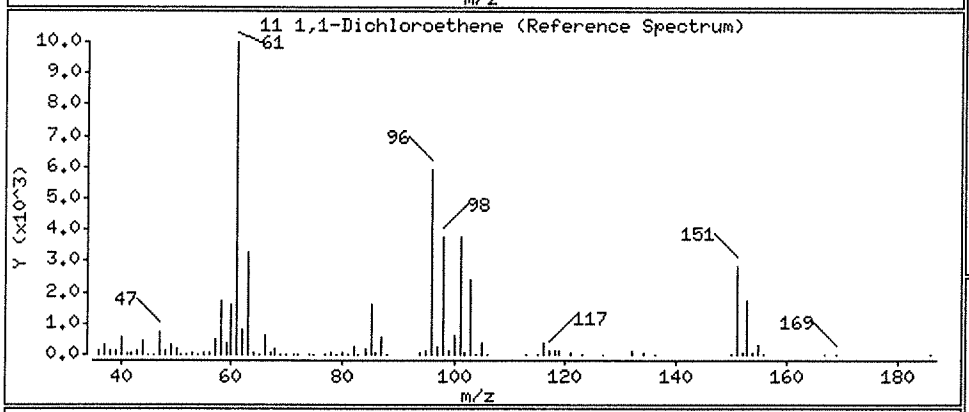
Review Code:

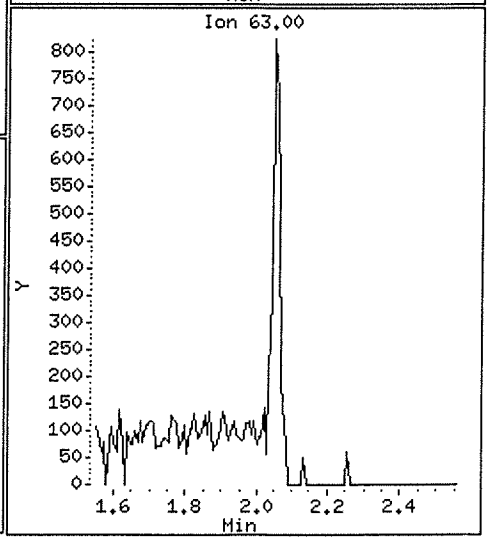


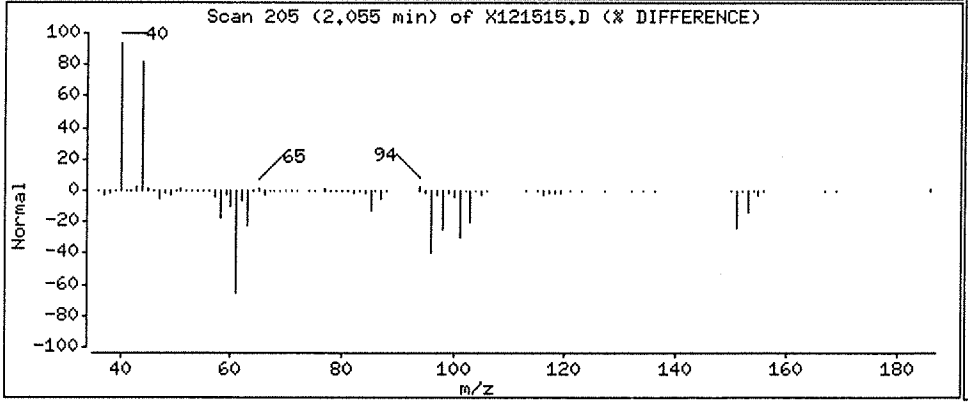












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121515.D

Date : 15-DEC-2017 17:59

Client ID: HS17120573-07

Instrument: voa6.i

Sample Info: HS17120573-07;HS17120573-07;;;

Purge Volume: 5.0

Operator: PC

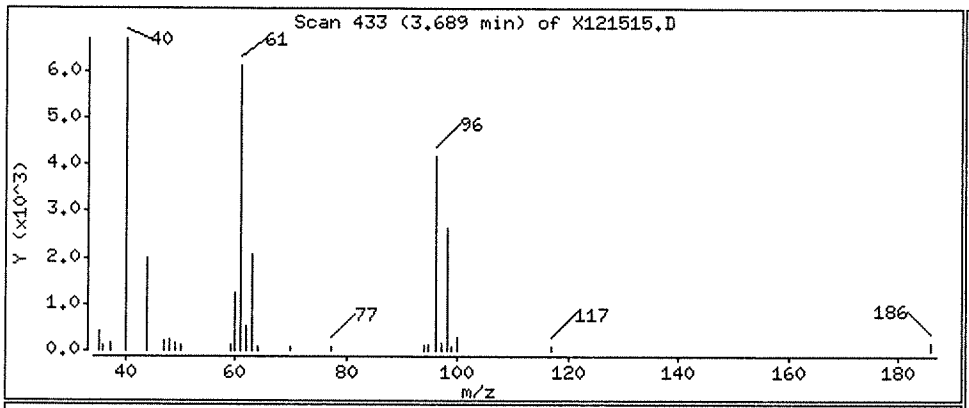
Column phase: DB624

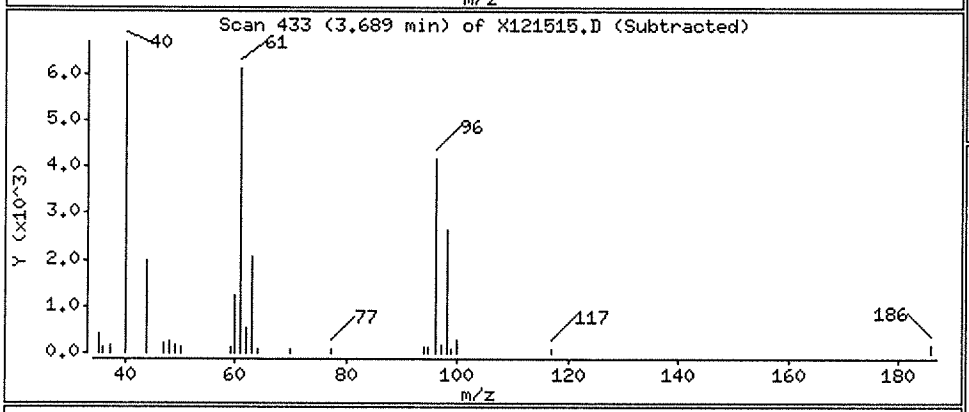
Column diameter: 0.18

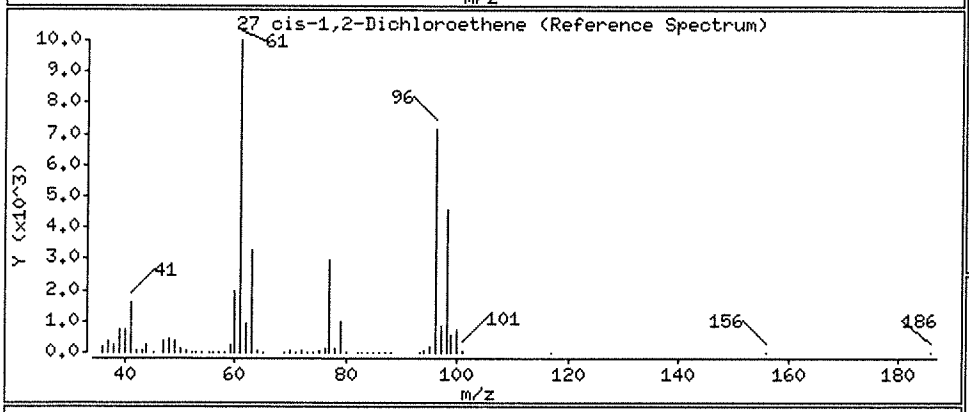
27 cis-1,2-Dichloroethene

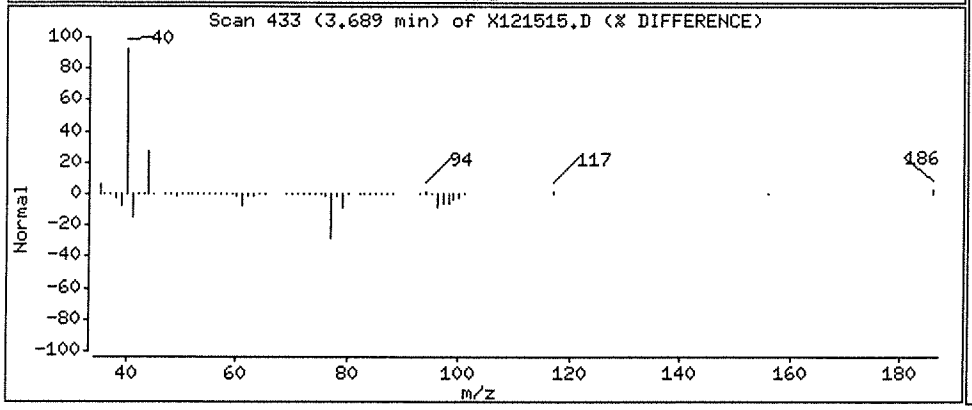
Concentration: 14.28 ug/l

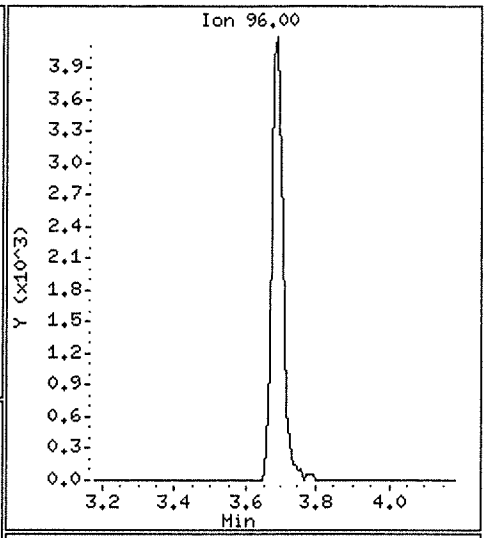
Review Code:

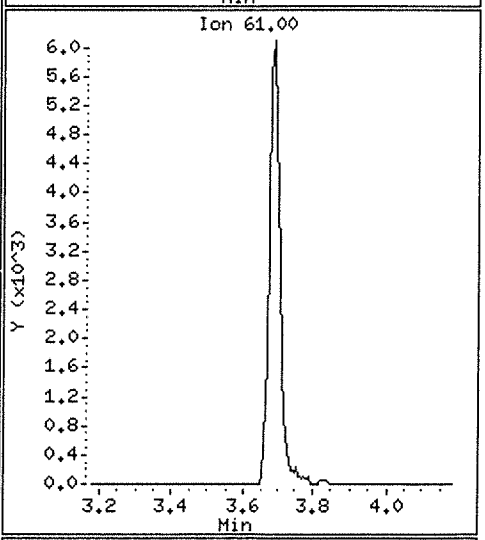


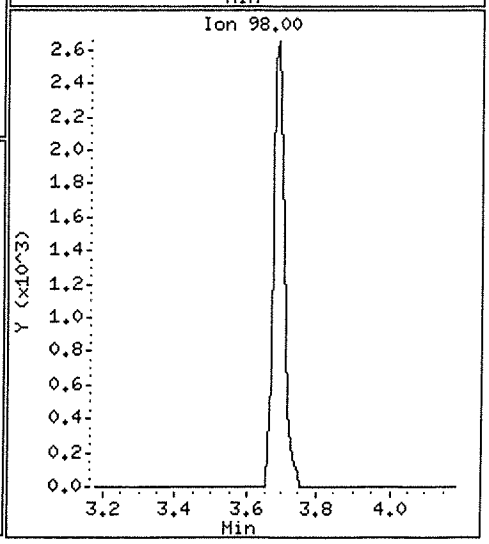












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121515.D

Date : 15-DEC-2017 17:59

Client ID: HS17120573-07

Instrument: voa6.i

Sample Info: HS17120573-07;HS17120573-07;;;

Purge Volume: 5.0

Operator: PC

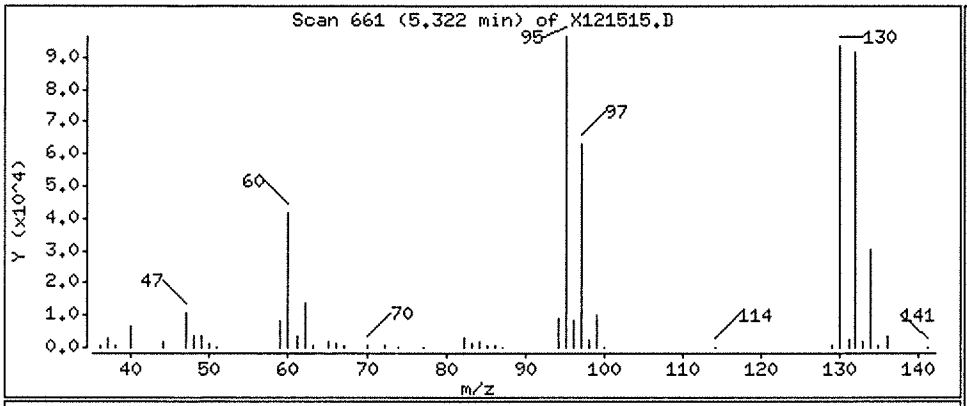
Column phase: DB624

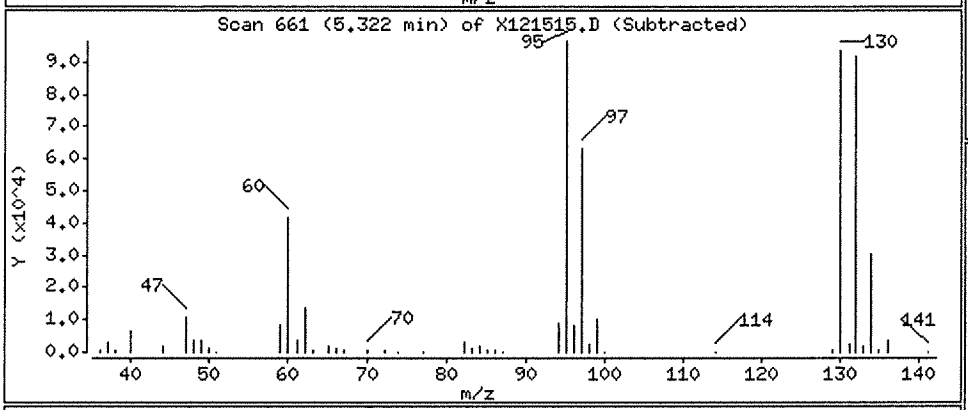
Column diameter: 0.18

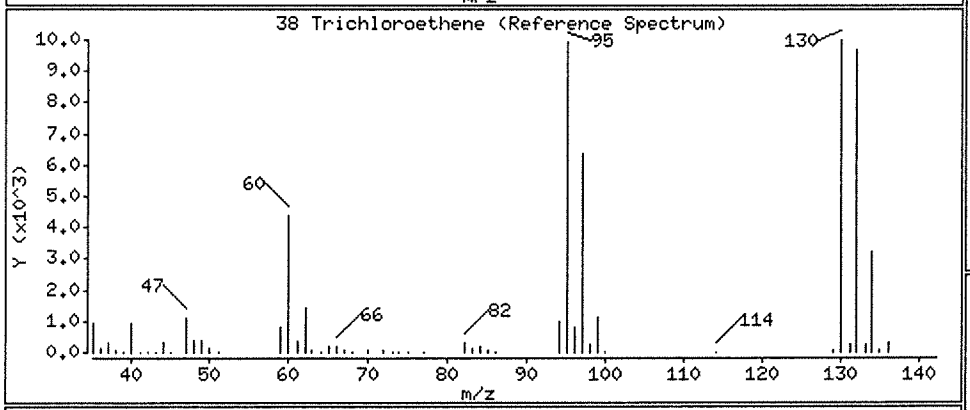
38 Trichloroethene

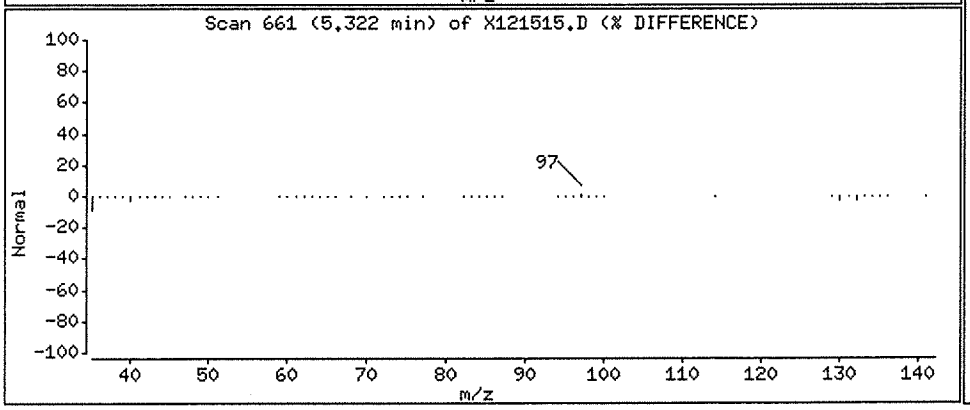
Concentration: 303.62 ug/l

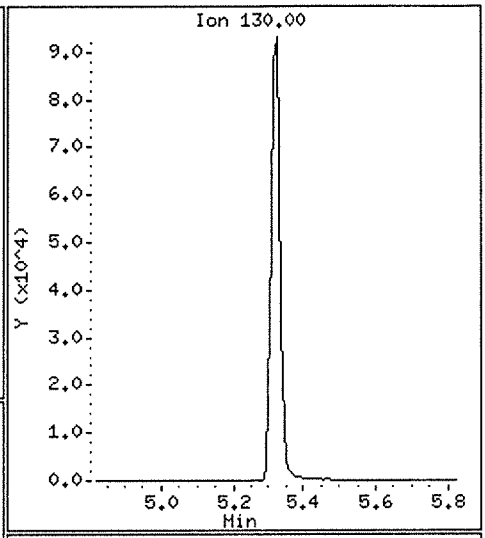
Review Code:

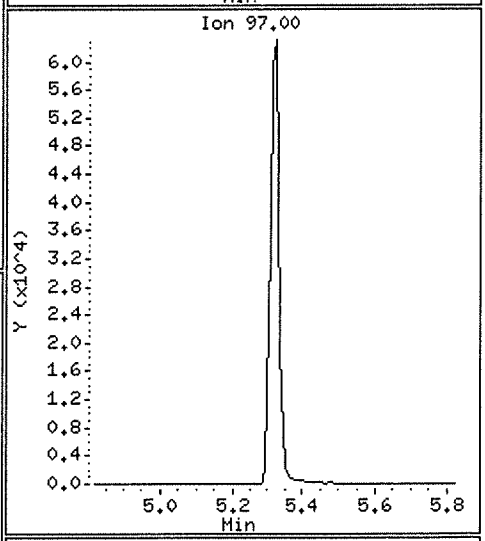


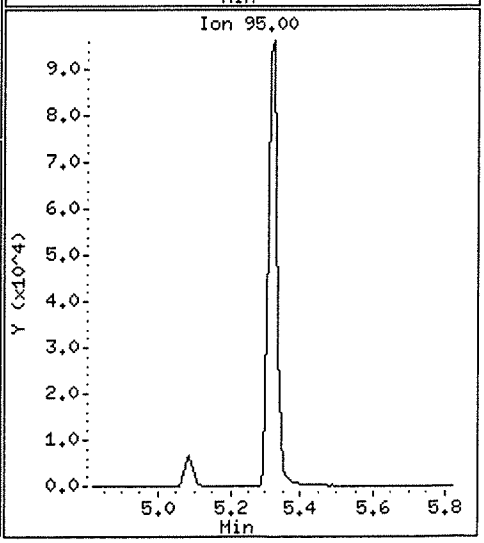












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121516.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121516.D
Lab Smp Id: HS17120573-02 Client Smp ID: HS17120573-02
Inj Date : 15-DEC-2017 18:24
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-02;HS17120573-02;;;
Misc Info : HS16030331;WATER;0;5;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 16
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

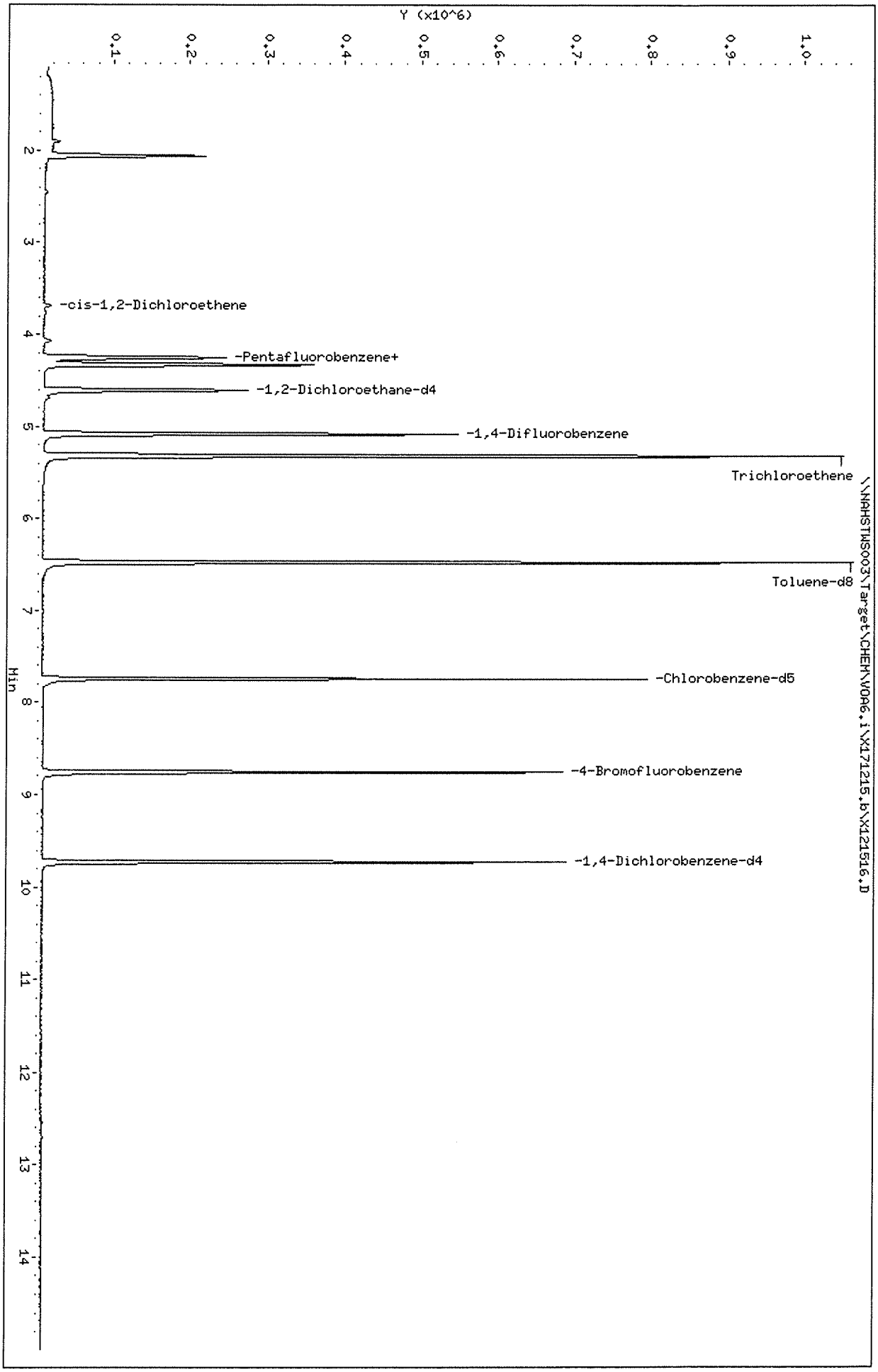
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	248857	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	405696	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	372293	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	160651	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	156502	48.3117	48.31
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	188802	44.8551	44.85
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	587587	52.1708	52.17
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	208132	51.6871	51.68
27 cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	4304	1.31061	6.55(a)
38 Trichloroethene	130	5.321	5.321	(1.046)	322933	119.126	595.62(A)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
    exceeded maximum amount.

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121516.D
Date : 15-DEC-2017 18:24
Client ID: HS171205?3-02
Sample Info: HS171205?3-02;HS171205?3-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121516.D

Date : 15-DEC-2017 18:24

Client ID: HS17120573-02

Instrument: voa6.i

Sample Info: HS17120573-02;HS17120573-02;;;

Purge Volume: 5.0

Operator: PC

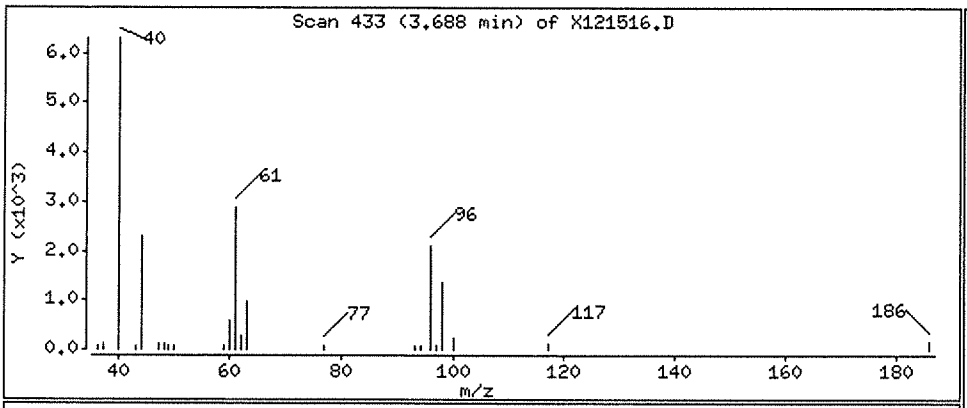
Column phase: DB624

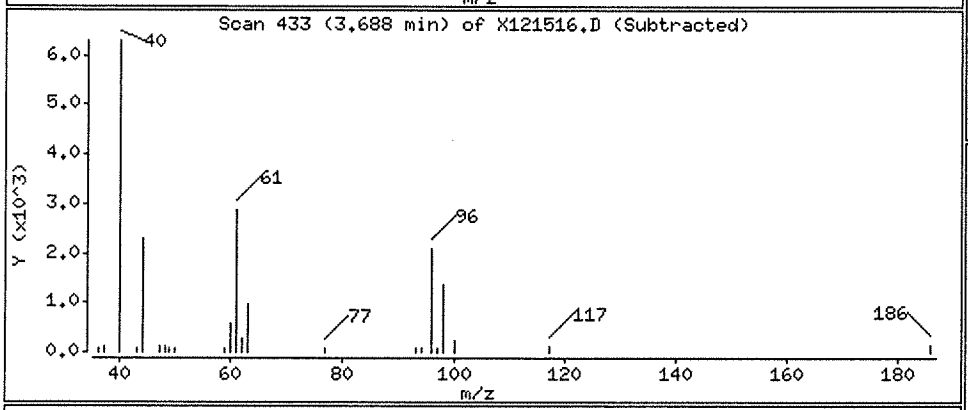
Column diameter: 0.18

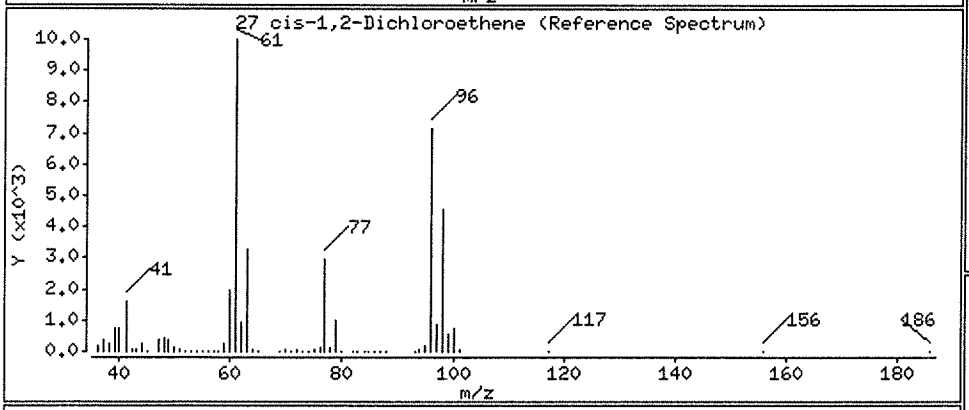
27 cis-1,2-Dichloroethene

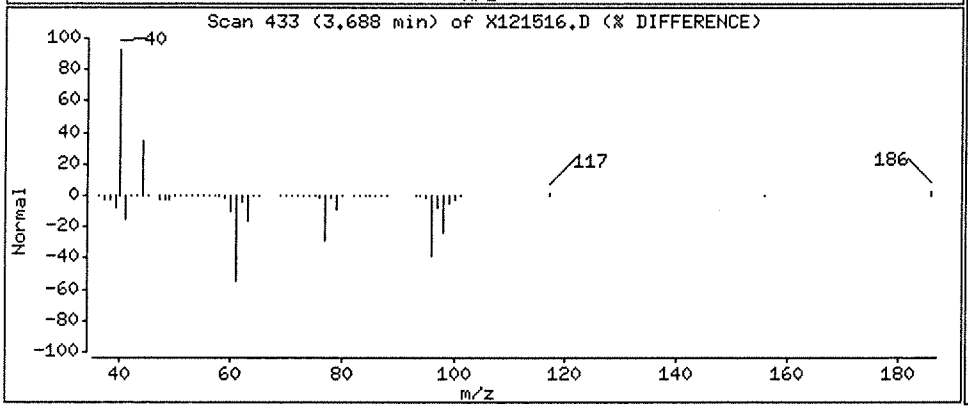
Concentration: 6.55 ug/l

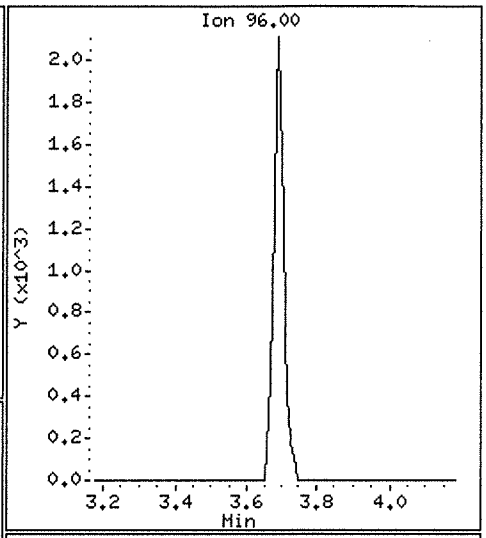
Review Code:

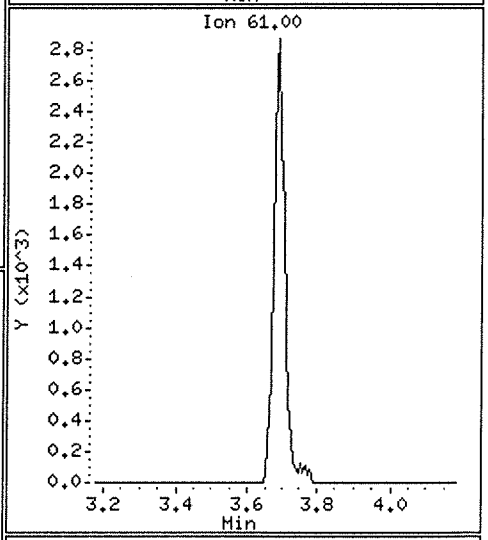


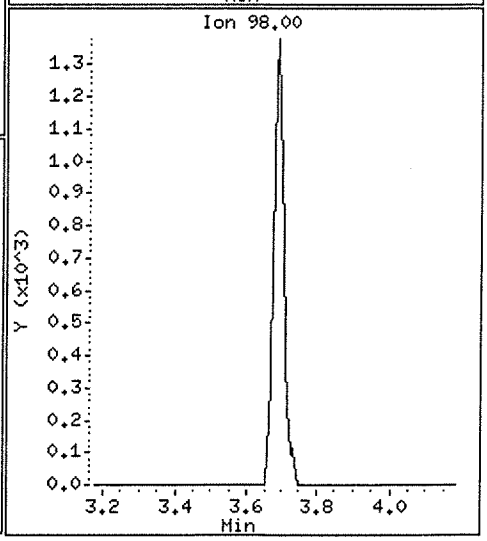












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121516.D

Date : 15-DEC-2017 18:24

Client ID: HS17120573-02

Instrument: voa6.i

Sample Info: HS17120573-02;HS17120573-02;;;

Purge Volume: 5.0

Operator: PC

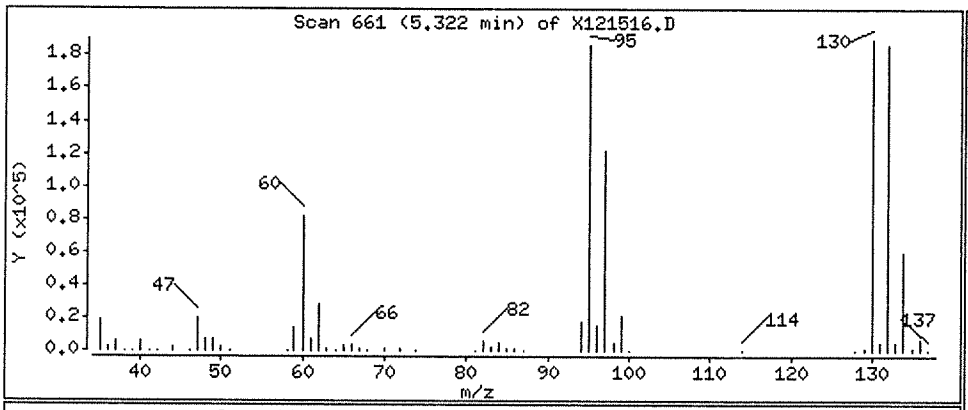
Column phase: DB624

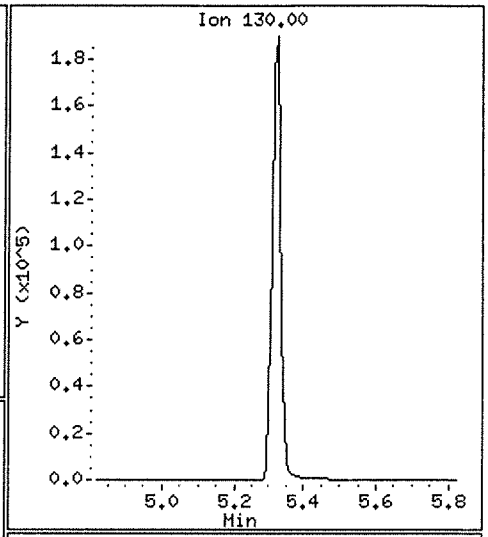
Column diameter: 0.18

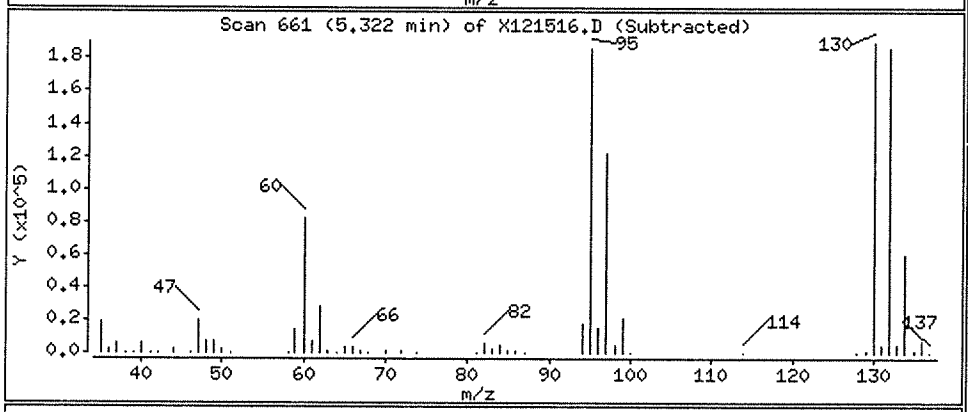
38 Trichloroethene

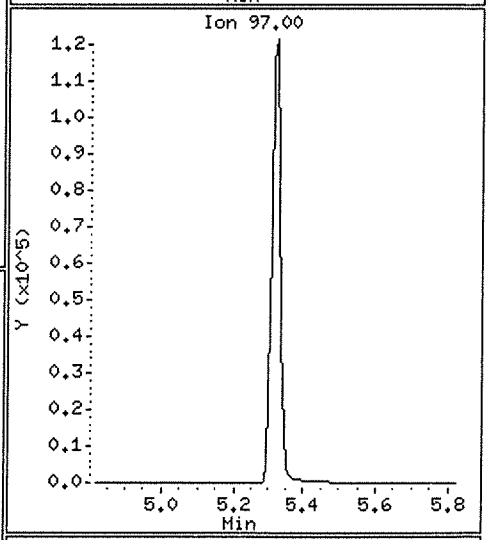
Concentration: 595.62 ug/l

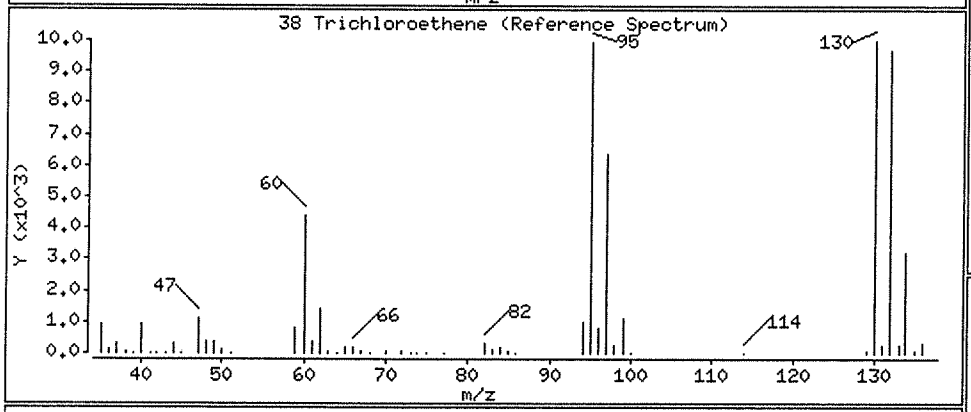
Review Code:

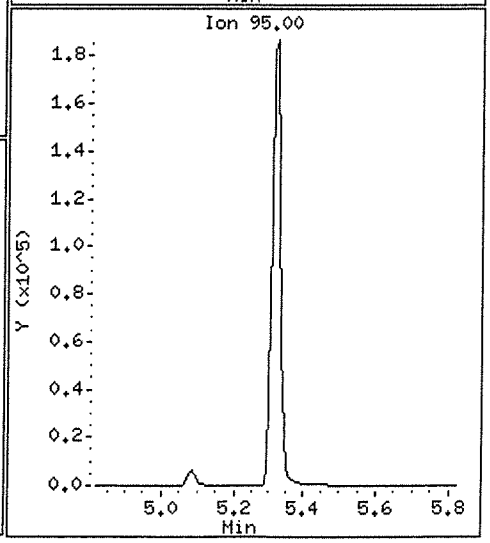


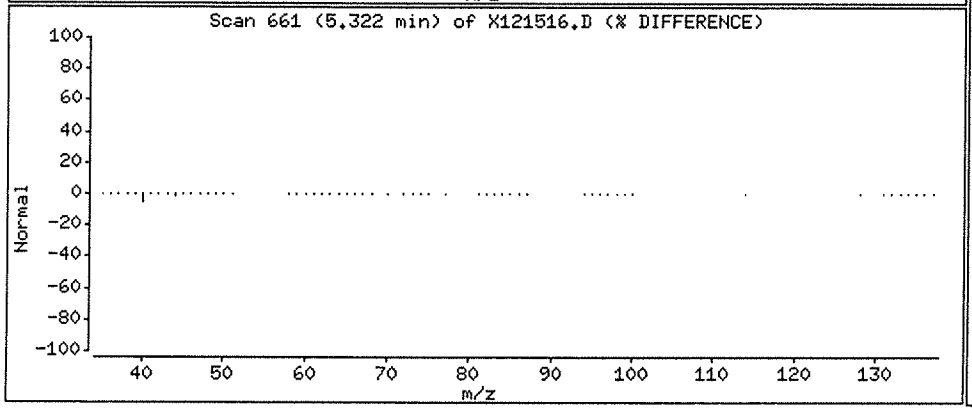












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121518.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121518.D
Lab Smp Id: HS17120573-06 Client Smp ID: HS17120573-06
Inj Date : 15-DEC-2017 19:14
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-06;HS17120573-06;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

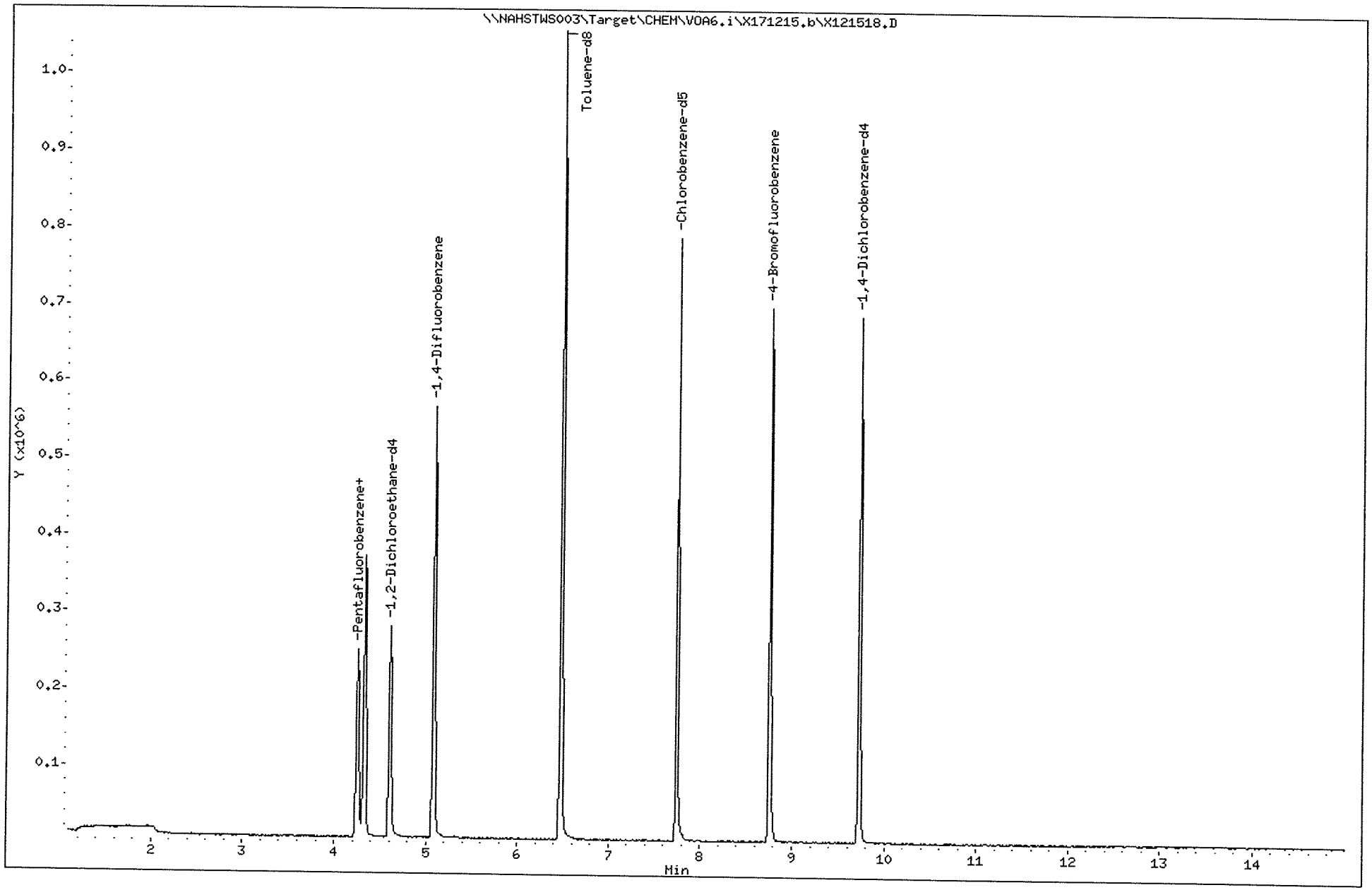
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	257646	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	414094	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	384075	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	165516	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	160113	47.7346	47.73
$ 35 1,2-Dichloroethane-d4	65	4.605	4.612	(1.065)	194093	44.5404	44.54
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	602389	51.8567	51.85
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	213342	51.3630	51.36

00871503

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121518.D
Date : 15-DEC-2017 19:14
Client ID: HS17120573-06
Sample Info: HS17120573-06;HS17120573-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121519.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121519.D
Lab Smp Id: HS17120573-08 Client Smp ID: HS17120573-08
Inj Date : 15-DEC-2017 19:38
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-08;HS17120573-08;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.325	4.325	(1.000)	241647	50.0000	
*	36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	392862	50.0000	
*	47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	364511	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	155667	50.0000	
$	30 Dibromofluoromethane	113	4.254	4.254	(0.983)	151983	48.3166	48.31
$	35 1,2-Dichloroethane-d4	65	4.605	4.612	(1.065)	182157	44.5688	44.56
$	48 Toluene-d8	98	6.474	6.474	(0.836)	565331	51.3004	51.30
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	200486	50.8694	50.86

00871505

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121519.D

Date : 15-DEC-2017 19:38

Client ID: HS17120573-08

Instrument: voa6.i

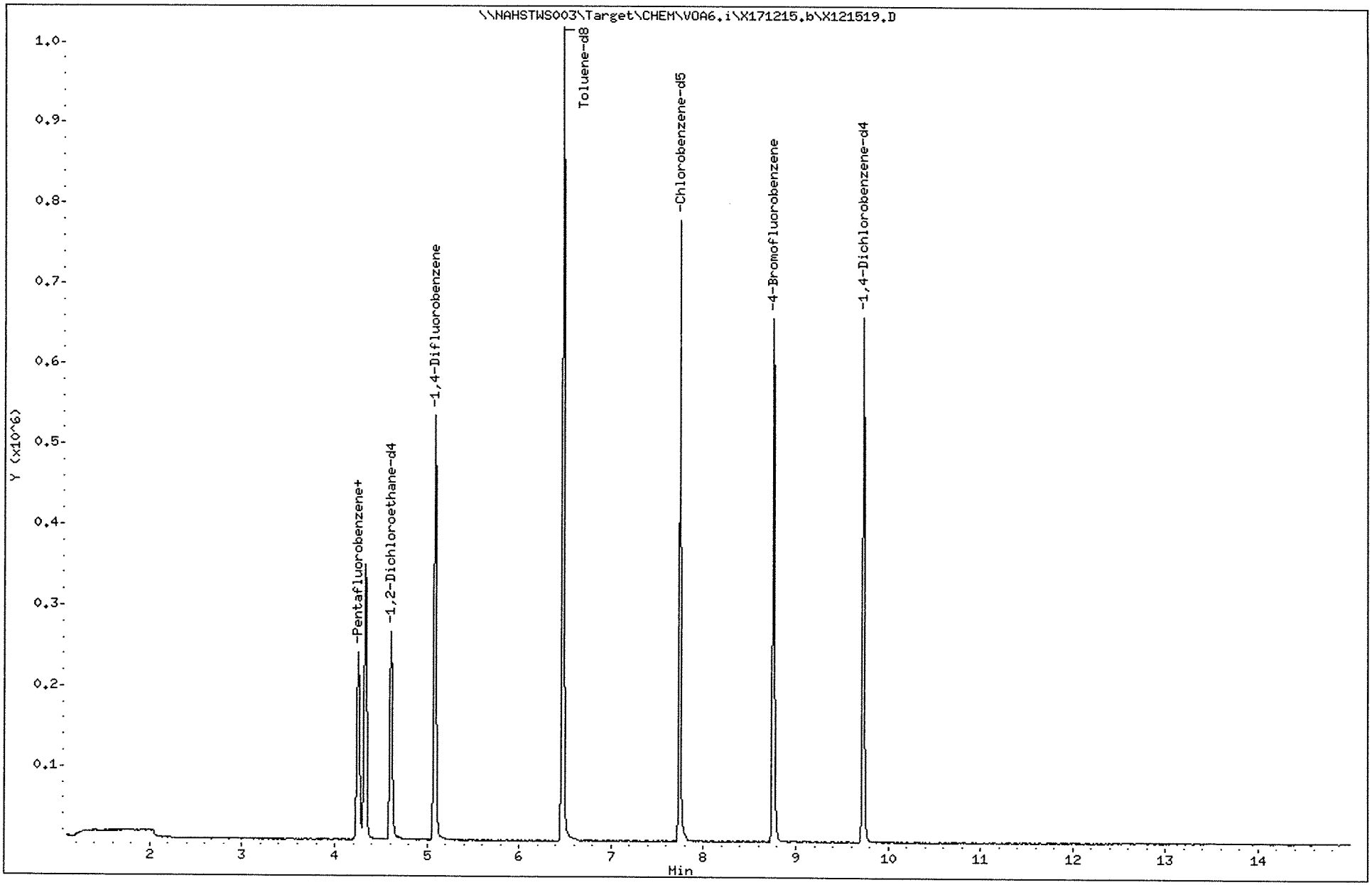
Sample Info: HS17120573-08;HS17120573-08;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121520.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121520.D
Lab Smp Id: HS17120573-09 Client Smp ID: HS17120573-09
Inj Date : 15-DEC-2017 20:03
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-09;HS17120573-09;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

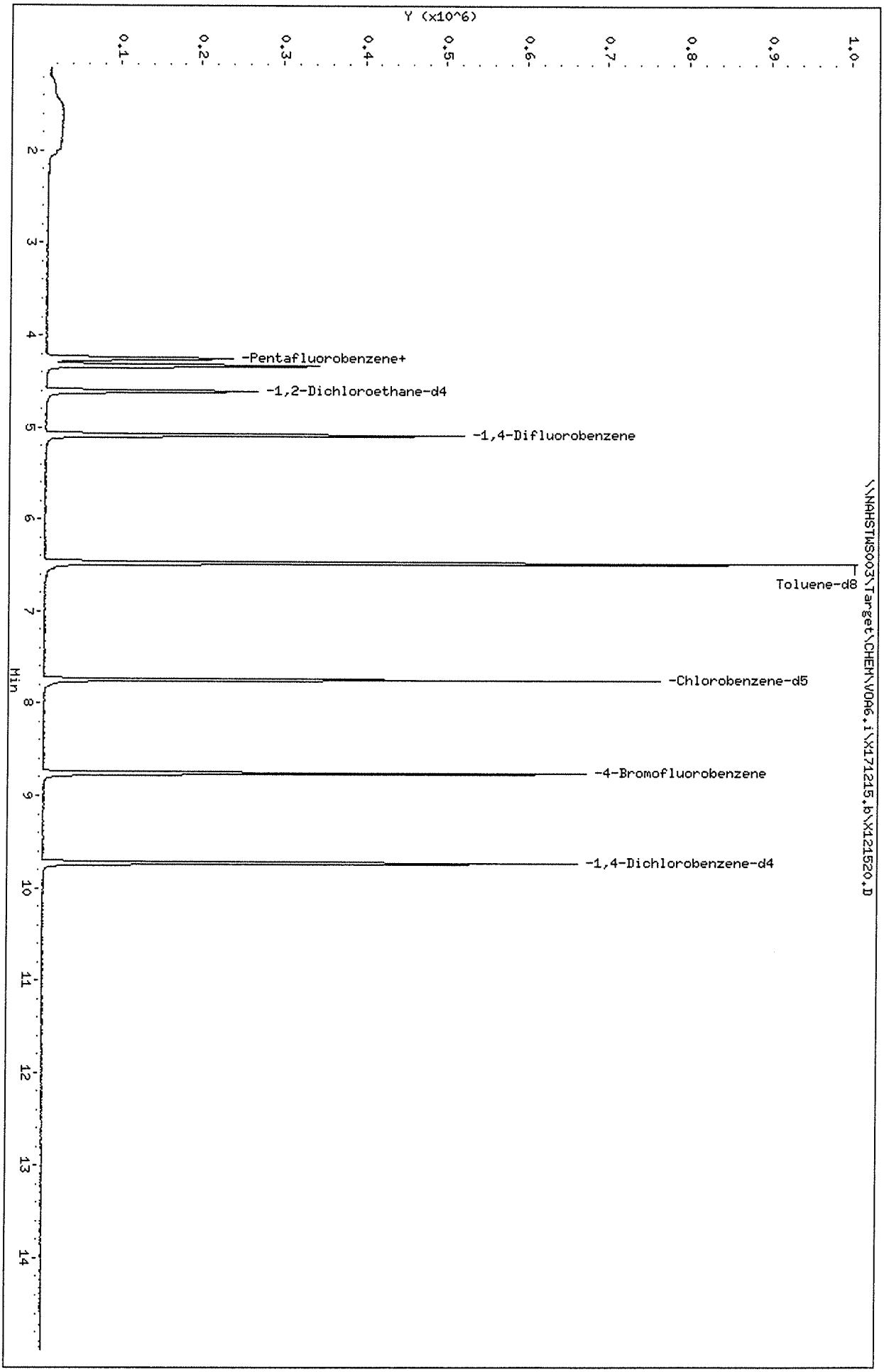
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.325	4.325	(1.000)	240607	50.0000	
*	36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	388817	50.0000	
*	47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	362292	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	161295	50.0000	
$	30 Dibromofluoromethane	113	4.254	4.254	(0.983)	150980	48.2041	48.20
$	35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	179652	44.1476	44.14
$	48 Toluene-d8	98	6.474	6.474	(0.836)	561497	51.2659	51.26
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	199193	50.8513	50.85

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121520.D
Date : 15-DEC-2017 20:03
Client ID: HS171207573-09
Sample Info: HS171207573-09;HS171207573-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121521.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121521.D
Lab Smp Id: HS17120573-01 Client Smp ID: HS17120573-01
Inj Date : 15-DEC-2017 20:27
Operator : PC Inst ID: voa6.i
Smp Info : HS17120573-01;HS17120573-01;;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:22 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

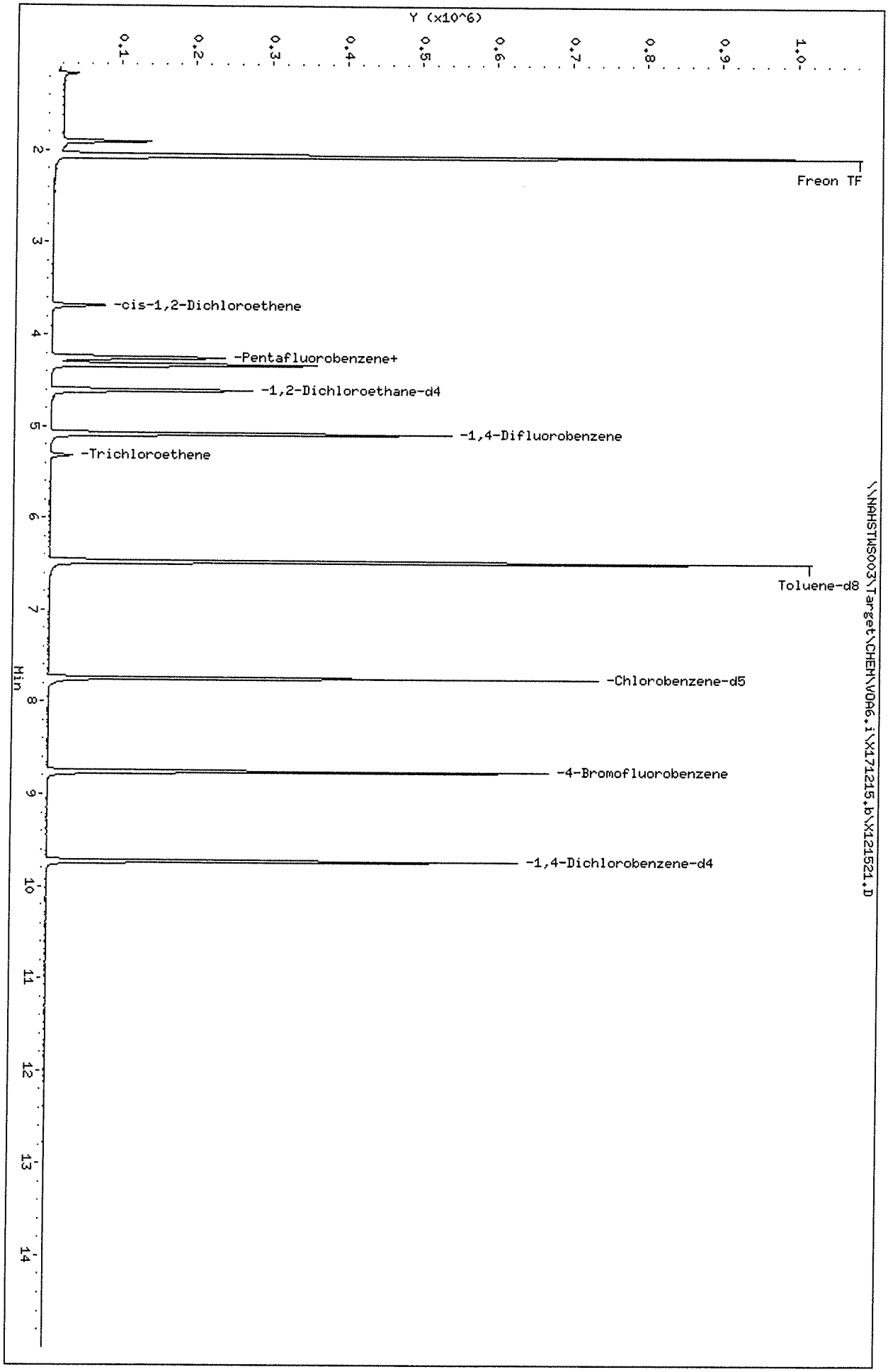
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.325	4.325	(1.000)	249550	50.0000	
* 36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	399549	50.0000	
* 47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	361729	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	147848	50.0000	
$ 30 Dibromofluoromethane	113	4.254	4.254	(0.983)	151911	46.7486	46.74
$ 35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	189905	44.9913	44.99
$ 48 Toluene-d8	98	6.474	6.474	(0.836)	571419	52.2151	52.21
$ 69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	200445	51.2418	51.24
27 cis-1,2-Dichloroethene	96	3.688	3.681	(0.853)	33384	10.1375	10.13
38 Trichloroethene	130	5.321	5.321	(1.046)	8856	3.31712	3.31

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121521.D
Date : 15-DEC-2017 20:27
Client ID: HS17120573-01
Sample Info: HS17120573-01;HS17120573-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121521.D Page 3

Date : 15-DEC-2017 20:27

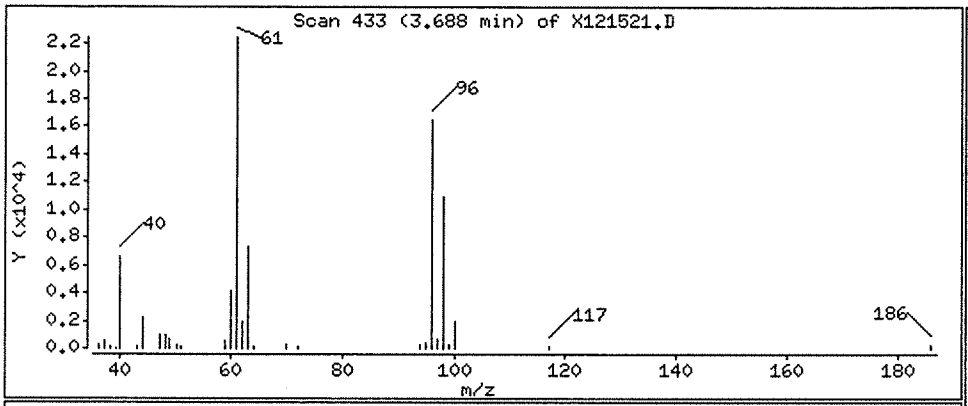
Client ID: HS17120573-01 Instrument: voa6.i

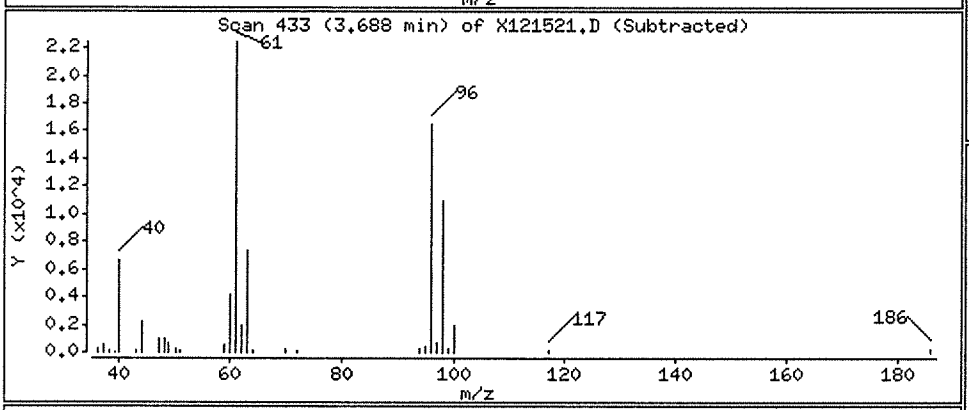
Sample Info: HS17120573-01;HS17120573-01;;;

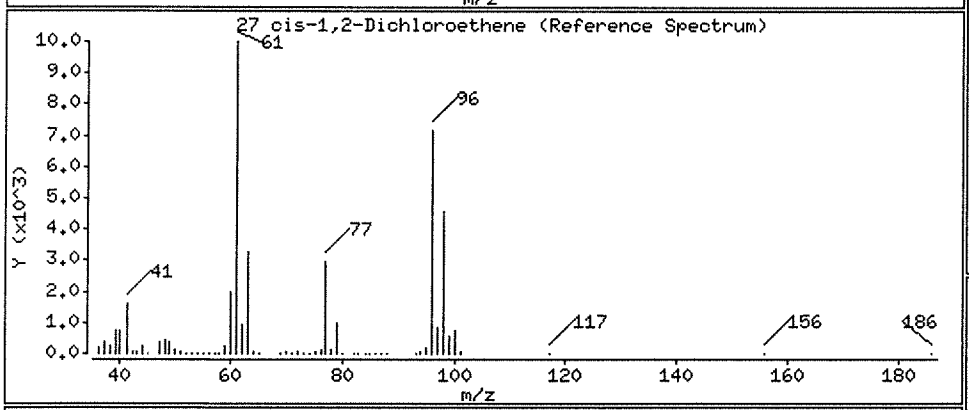
Purge Volume: 5.0 Operator: PC

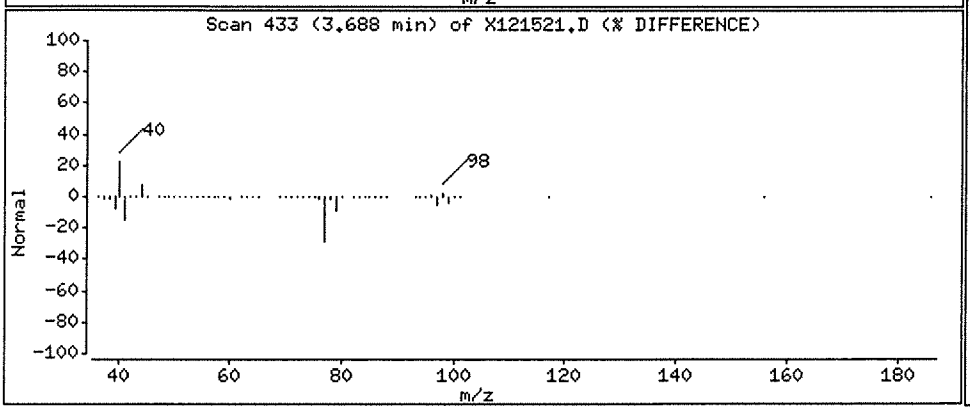
Column phase: DB624 Column diameter: 0.18

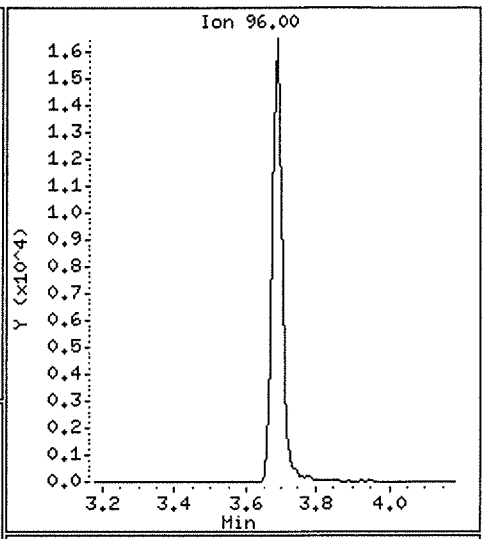
27 cis-1,2-Dichloroethene Concentration: 10.13 ug/l Review Code:

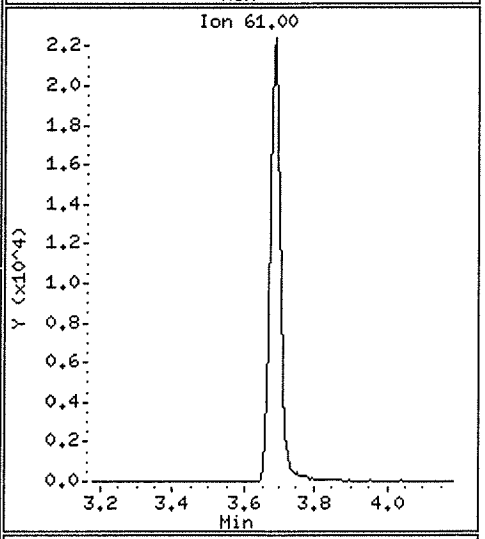


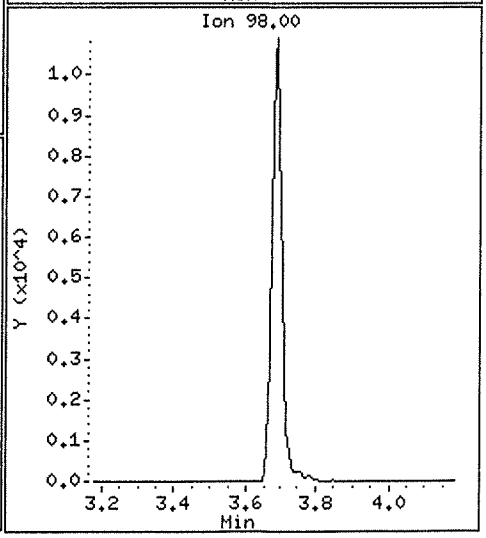












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121521.D

Date : 15-DEC-2017 20:27

Client ID: HS17120573-01

Instrument: voa6.i

Sample Info: HS17120573-01;HS17120573-01;;;

Purge Volume: 5.0

Operator: PC

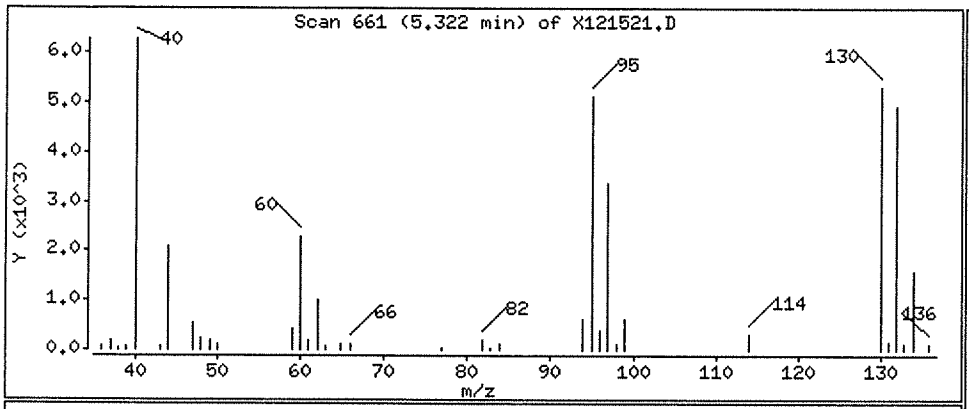
Column phase: DB624

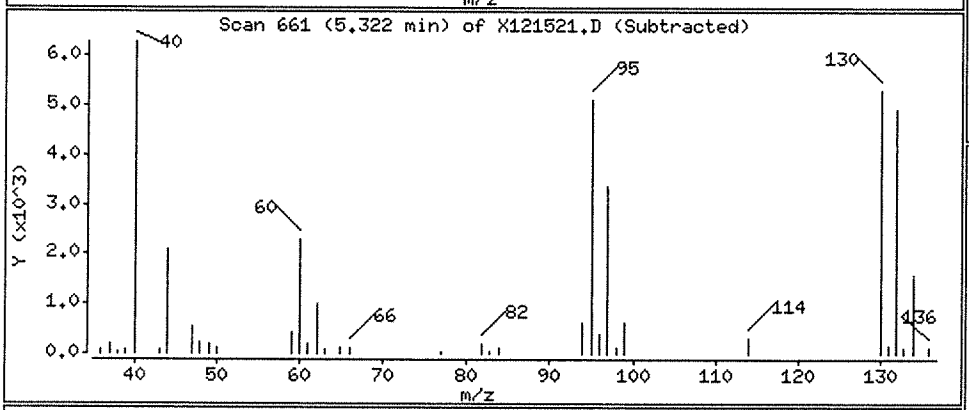
Column diameter: 0.18

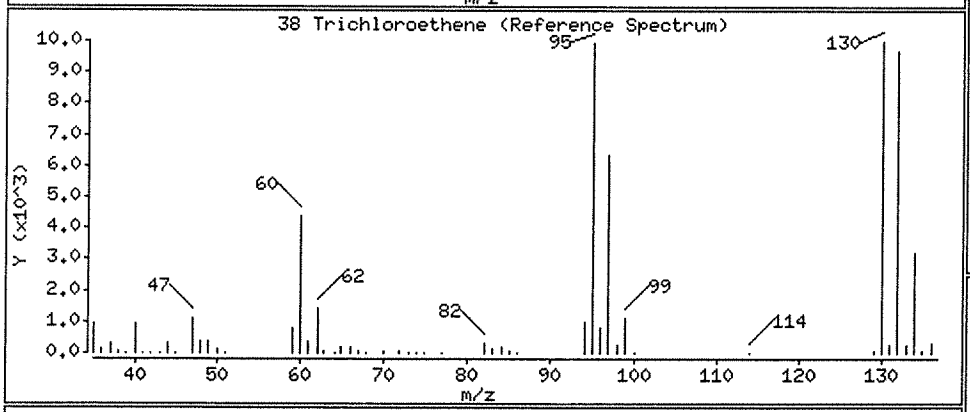
38 Trichloroethene

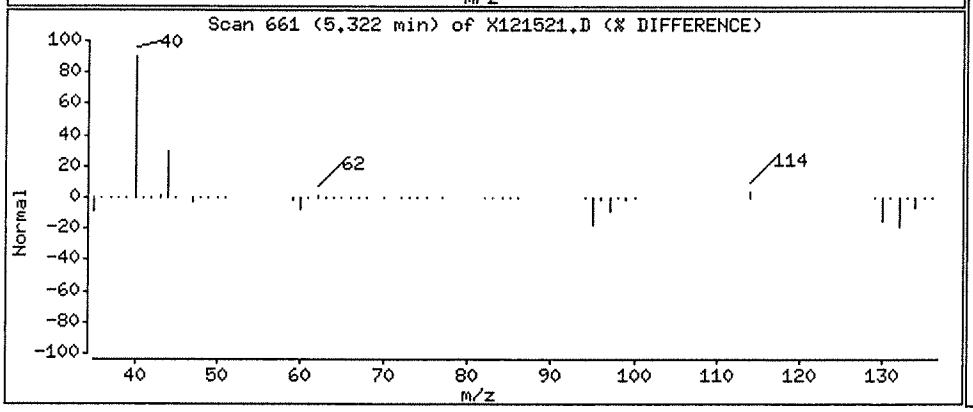
Concentration: 3.31 ug/l

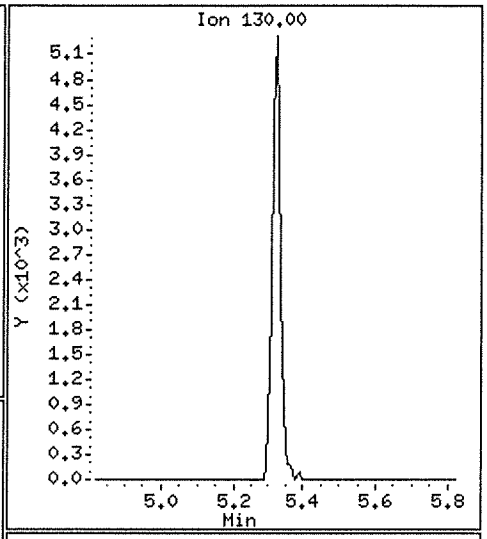
Review Code:

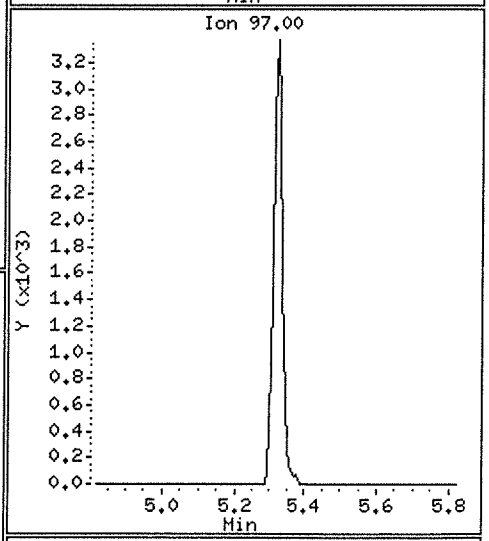


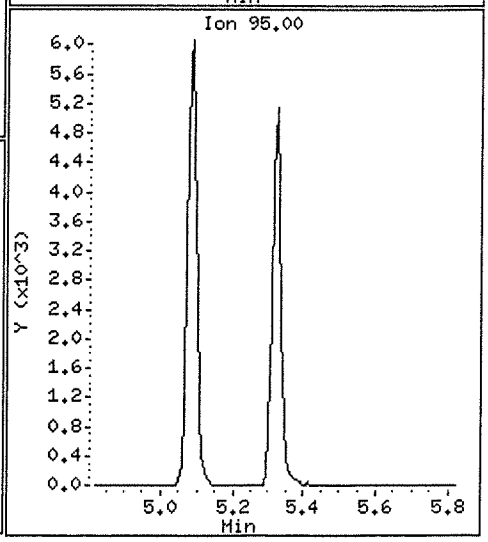












Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121529.D Version 5
Report Date: 30-Jan-2018 15:23

ALS Laboratory Group

Data file : \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121529.D
Lab Smp Id: VSTD050-END Client Smp ID: VSTD050-END
Inj Date : 15-DEC-2017 23:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050-END;VSTD050-END;2;;
Misc Info : HS16030331;WATER;0;1;
Comment   :
Method   : \\nahstws003\Target\chem\voa6.i\X171215.b\8260W.m
Meth Date : 30-Jan-2018 15:23 voa6.i Quant Type: ISTD
Cal Date : 04-DEC-2017 14:03 Cal File: X120408.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 000000_Bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7142

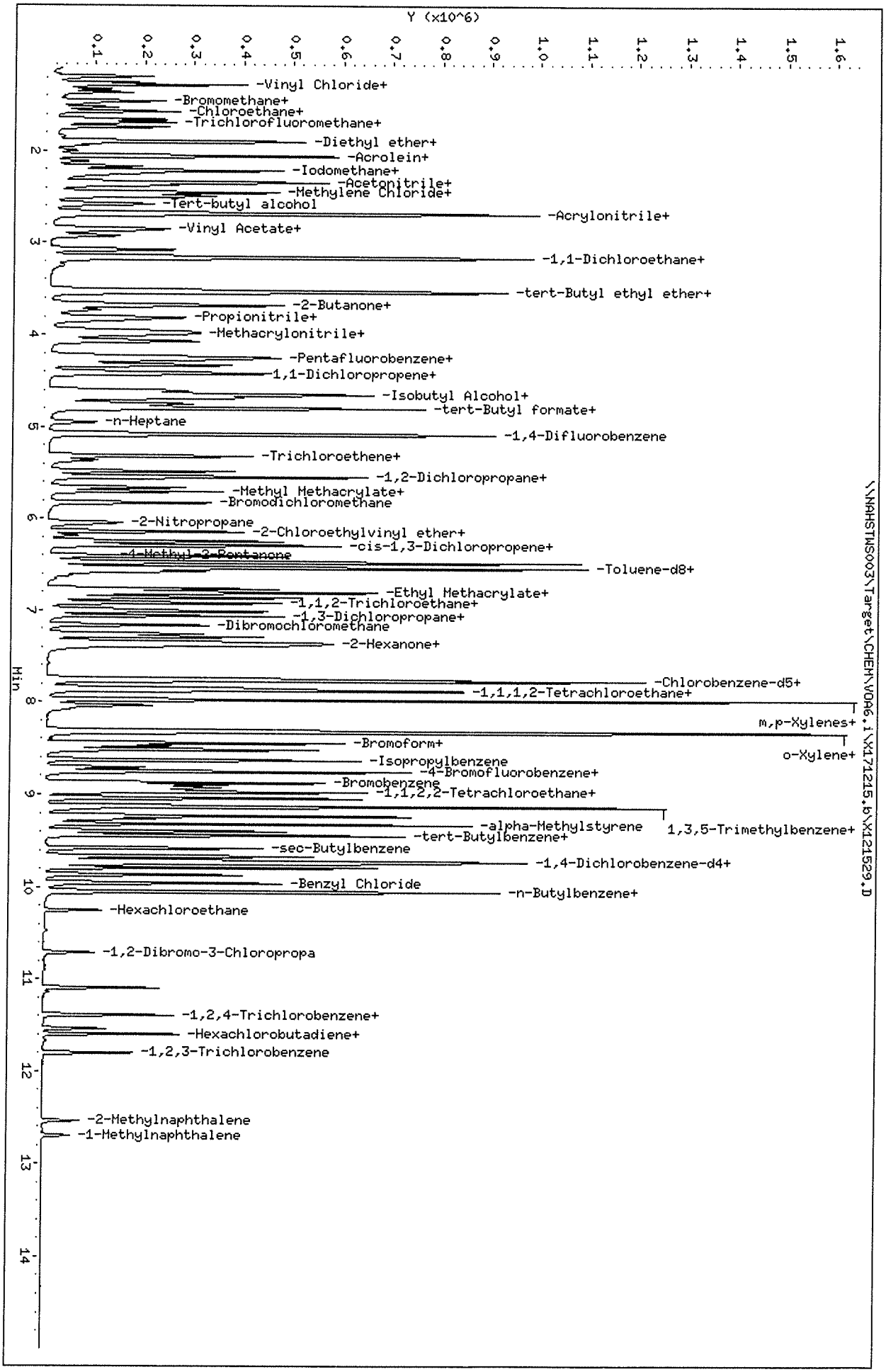
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.325	4.325	(1.000)	255292	50.0000	
*	36 1,4-Difluorobenzene	114	5.085	5.085	(1.000)	413584	50.0000	
*	47 Chlorobenzene-d5	117	7.742	7.742	(1.000)	382594	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.726	9.726	(1.000)	180909	50.0000	
$	30 Dibromofluoromethane	113	4.254	4.254	(0.983)	159776	50.0000	48.07
$	35 1,2-Dichloroethane-d4	65	4.612	4.612	(1.066)	190667	50.0000	44.15
$	48 Toluene-d8	98	6.474	6.474	(0.836)	595915	50.0000	51.51
$	69 4-Bromofluorobenzene	95	8.752	8.752	(1.130)	215017	50.0000	51.95
	60 1,1,1,2-Tetrachloroethane	131	7.842	7.842	(1.013)	119486	50.0000	43.61
	31 1,1,1-Trichloroethane	97	4.239	4.239	(0.980)	175979	50.0000	42.62
	68 1,1,2,2-Tetrachloroethane	83	8.903	8.903	(0.915)	158652	50.0000	43.83
	53 1,1,2-Trichloroethane	83	6.918	6.918	(0.894)	109266	50.0000	44.14
	22 1,1-Dichloroethane	63	3.072	3.072	(0.710)	245800	50.0000	43.32
	11 1,1-Dichloroethene	96	2.055	2.055	(0.475)	104840	50.0000	40.10
	32 1,1-Dichloropropene	75	4.426	4.426	(0.870)	155951	50.0000	42.28
	93 1,2,3-Trichlorobenzene	180	11.804	11.804	(1.214)	51595	50.0000	38.01
	71 1,2,3-Trichloropropane	75	8.931	8.931	(0.918)	191581	50.0000	40.27
	90 1,2,4-Trichlorobenzene	180	11.395	11.395	(1.172)	66436	50.0000	39.26
	79 1,2,4-Trimethylbenzene	105	9.440	9.440	(0.971)	326249	50.0000	43.42
	89 1,2-Dibromo-3-Chloropropane	155	10.715	10.715	(1.102)	19690	50.0000	40.27
	57 1,2-Dibromoethane	107	7.341	7.341	(0.948)	130974	50.0000	45.54
	88 1,2-Dichlorobenzene	146	10.056	10.056	(1.034)	197310	50.0000	41.30

Data File: \\NAHSTWS003\Target\CHEM\VOA6.i\X171215.b\X121529.D Version 5
Report Date: 30-Jan-2018 15:23

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.691	4.691	(0.923)	186712	50.0000	42.56
42	1,2-Dichloropropane	63	5.543	5.543	(1.090)	148608	50.0000	45.05
75	1,3,5-Trimethylbenzene	105	9.125	9.125	(0.938)	296615	50.0000	42.46
83	1,3-Dichlorobenzene	146	9.669	9.669	(0.994)	200663	50.0000	40.84
54	1,3-Dichloropropane	76	7.062	7.062	(0.912)	226291	50.0000	42.53
84	1,4-Dichlorobenzene	146	9.741	9.741	(1.001)	207299	50.0000	44.99
26	2,2-Dichloropropane	77	3.666	3.666	(0.848)	166490	50.0000	37.31
24	2-Butanone	43	3.731	3.731	(0.863)	122439	100.000	95.62
76	2-Chlorotoluene	91	9.039	9.039	(0.929)	312019	50.0000	44.33
52	2-Hexanone	43	7.284	7.284	(0.941)	248821	100.000	84.38
77	4-Chlorotoluene	91	9.132	9.132	(0.939)	368142	50.0000	43.85
82	p-Isopropyltoluene	119	9.712	9.712	(0.999)	235672	50.0000	37.00
45	4-Methyl-2-Pentanone	43	6.410	6.410	(0.828)	276221	100.000	84.35
10	Acetone	43	2.112	2.112	(0.488)	81501	100.000	96.96
37	Benzene	78	4.648	4.648	(0.914)	533572	50.0000	45.43
74	Bromobenzene	156	8.867	8.867	(0.912)	138535	50.0000	42.56
29	Bromochloromethane	128	3.953	3.953	(0.914)	68005	50.0000	49.80
39	Bromodichloromethane	83	5.822	5.822	(1.145)	194157	50.0000	46.09
66	Bromoform	173	8.480	8.480	(1.095)	95487	50.0000	45.39
6	Bromomethane	94	1.460	1.460	(0.338)	90709	50.0000	39.21
34	Carbon Tetrachloride	117	4.411	4.411	(0.868)	131743	50.0000	41.60
59	Chlorobenzene	112	7.764	7.764	(1.003)	329577	50.0000	43.62
7	Chloroethane	64	1.525	1.525	(0.353)	90987	50.0000	42.04
28	Chloroform	83	4.067	4.067	(0.940)	241858	50.0000	43.51
3	Chloromethane	50	1.195	1.195	(0.276)	200055	50.0000	48.71
27	cis-1,2-Dichloroethene	96	3.681	3.681	(0.851)	149994	50.0000	44.52
46	cis-1,3-Dichloropropene	75	6.245	6.245	(1.228)	233935	50.0000	45.20
55	Dibromochloromethane	129	7.255	7.255	(0.937)	149627	50.0000	44.16
44	Dibromomethane	93	5.658	5.658	(1.113)	92381	50.0000	44.84
2	Dichlorodifluoromethane	85	1.080	1.080	(0.250)	105171	50.0000	41.84
19	Carbon Disulfide	76	2.212	2.212	(0.512)	676151	100.000	84.07
61	Ethylbenzene	106	7.871	7.871	(1.017)	155803	50.0000	41.88
91	Hexachlorobutadiene	225	11.539	11.539	(1.186)	19764	50.0000	35.50
67	Isopropylbenzene	105	8.623	8.623	(1.114)	357603	50.0000	40.94
62	m,p-Xylenes	106	7.971	7.971	(1.030)	372050	100.000	83.32
17	Methylene Chloride	84	2.449	2.449	(0.566)	151937	50.0000	47.41
87	n-Butylbenzene	91	10.049	10.049	(1.033)	188795	50.0000	36.57
73	n-Propylbenzene	91	8.974	8.974	(0.923)	422377	50.0000	41.09
92	Naphthalene	128	11.603	11.603	(1.193)	184609	50.0000	41.04
63	o-Xylene	106	8.308	8.308	(1.073)	192436	50.0000	43.04
81	sec-Butylbenzene	105	9.583	9.583	(0.985)	259214	50.0000	35.51
64	Styrene	104	8.322	8.322	(1.075)	361098	50.0000	44.90
78	tert-Butylbenzene	119	9.397	9.397	(0.966)	203605	50.0000	40.87
56	Tetrachloroethene	164	7.011	7.011	(0.906)	77376	50.0000	42.33
50	Toluene	91	6.532	6.532	(0.844)	519405	50.0000	42.86
20	trans-1,2-Dichloroethene	96	2.678	2.678	(0.619)	129611	50.0000	44.44
51	trans-1,3-Dichloropropene	75	6.761	6.761	(1.330)	200031	50.0000	44.29
38	Trichloroethene	130	5.321	5.321	(1.046)	126759	50.0000	45.86
8	Trichlorofluoromethane	101	1.689	1.689	(0.391)	136352	50.0000	39.14
5	Vinyl Chloride	62	1.260	1.260	(0.291)	150928	50.0000	40.17



Data File: \\NAHSTWS003\Target\CHEM\VOA6,i\X171215,b\X121529,D
Date : 15-DEC-2017 23:46
Client ID: VSTD050-END
Sample Info: VSTD050-END;VSTD050-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Mercury Raw Data

Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
ALS WO# HS17120573

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc. Run ID: HG03_307437
Project: LHAAP Site 18/24 Instrument: HG03
WorkOrder: HS17120573 Method: SW7470

ICV	Date: 18-Dec-2017 13:34		Seq: 4356388	ICV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.09	102	90-110	

CCV1	Date: 18-Dec-2017 14:08		Seq: 4356400	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.1	102	90-110	

CCV2	Date: 18-Dec-2017 14:32		Seq: 4356412	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.85	97	90-110	

CCV3	Date: 18-Dec-2017 15:10		Seq: 4356532	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.05	101	90-110	

CCV4	Date: 18-Dec-2017 15:32		Seq: 4356546	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.99	100	90-110	

CCV5	Date: 18-Dec-2017 15:55		Seq: 4356571	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.06	101	90-110	

CCV6	Date: 18-Dec-2017 16:24		Seq: 4356880	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.09	102	90-110	

CCV7	Date: 18-Dec-2017 16:51		Seq: 4357066	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.99	100	90-110	

CCV8	Date: 18-Dec-2017 17:13		Seq: 4357078	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.16	103	90-110	

CCV9	Date: 18-Dec-2017 17:45		Seq: 4357173	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.09	102	90-110	

CCV10	Date: 18-Dec-2017 18:06		Seq: 4357185	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.01	100	90-110	

CCV11	Date: 18-Dec-2017 18:46		Seq: 4357197	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.03	101	90-110	

CCV12	Date: 18-Dec-2017 19:14		Seq: 4357217	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.04	101	90-110	

CCV13	Date: 18-Dec-2017 19:35		Seq: 4357229	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	4.98	100	90-110	

CCV14	Date: 18-Dec-2017 19:53		Seq: 4357250	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Mercury	5	5.03	101	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: HG03_307437
Instrument: HG03
Method: SW7470

CCV15 | Date: 18-Dec-2017 20:07 | Seq: 4357264 | CCV | Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Mercury	5	5.03	101	90-110	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: HG03_307437
Instrument: HG03
Method: SW7470

ICB	Date: 18-Dec-2017 13:36		Seq: 4356389	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB1	Date: 18-Dec-2017 14:10		Seq: 4356401	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB2	Date: 18-Dec-2017 14:34		Seq: 4356413	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB3	Date: 18-Dec-2017 15:12		Seq: 4356533	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB4	Date: 18-Dec-2017 15:34		Seq: 4356547	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB5	Date: 18-Dec-2017 15:56		Seq: 4356572	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB6	Date: 18-Dec-2017 16:26		Seq: 4356881	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
MBLK-123485	Date: 18-Dec-2017 16:32		Seq: 4357058	MBLK	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB7	Date: 18-Dec-2017 16:52		Seq: 4357067	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB8	Date: 18-Dec-2017 17:15		Seq: 4357079	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB9	Date: 18-Dec-2017 17:47		Seq: 4357174	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB10	Date: 18-Dec-2017 18:08		Seq: 4357186	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB11	Date: 18-Dec-2017 18:48		Seq: 4357198	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB12	Date: 18-Dec-2017 19:16		Seq: 4357218	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	
CCB13	Date: 18-Dec-2017 19:36		Seq: 4357230	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	

ALS Group USA, Corp Date: 22-Dec-17

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: HG03_307437
Instrument: HG03
Method: SW7470

CCB14	Date: 18-Dec-2017 19:55		Seq: 4357251	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	

CCB15	Date: 18-Dec-2017 20:09		Seq: 4357265	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Mercury	0.2	0.03	0.2	U	

ALS Group USA, Corp Date: 22-Dec-17

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Date Analyzed: 18-Dec-2017 16:57
Date Extracted: 18-Dec-2017 11:39
Units: ug/L

Matrix Spike: HS17120573-01MS
Client Sample ID: 18CPTMW24_120717

Analysis Method: SW7470

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Mercury	0.2000	4.970	5.000	99.5	4.970	5.000	99.5	75-125	0	20

ALS Group USA, Corp

Date: 22-Dec-17

Form 7 - Laboratory Control Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Date Analyzed: 18-Dec-2017 16:34
Date Extracted: 18-Dec-2017 11:39
Units: ug/L

Lab Sample ID: LCS-123485
Analysis Method: SW7470

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Mercury	5	4.89	98	80-120

ALS Group USA, Corp Date: 22-Dec-17

Form 11 - INTERNAL STANDARD ASSOCIATION

Client: Bhate Environmental Associates, Inc. Instrument:ICPMS05
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Mass	Analyte	Assoc Int Standard 1	Assoc Int Standard 2	Mode
9	Beryllium	Lithium		Ar
11	Boron	Lithium		Ar
23	Sodium	Germanium		Ar
24	Magnesium	Germanium		Ar
27	Aluminum	Germanium		Ar
39	Potassium	Germanium		Ar
44	Calcium	Germanium		Ar
47	Titanium	Germanium		Ar
51	Vanadium	Germanium		ArHe
52	Chromium	Germanium		ArHe
55	Manganese	Germanium		ArHe
56	Iron	Germanium		ArHe
59	Cobalt	Germanium		ArHe
60	Nickel	Germanium		ArHe
63	Copper	Germanium		ArHe
66	Zinc	Germanium		ArHe
75	Arsenic	Germanium		ArHe
78	Selenium	Germanium		ArHe
88	Strontium	Germanium		Ar
95	Molybdenum	Germanium		Ar
105	Palladium	Germanium		Ar
107	Silver	Germanium		Ar
114	Cadmium	Indium		Ar
118	Tin	Germanium		Ar
121	Antimony	Germanium		ArHe
137	Barium	Indium		Ar
205	Thallium	Bismuth		Ar
208	Lead	Bismuth		Ar

ALS Group USA, Corp Date: 22-Dec-17

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573
Start Date: 18-Dec-2017 11:39 End Date: 18-Dec-2017 14:30

Batch ID: 123485
Prep Code: Hg_WPr
Method: SW7470
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS17120573-01	18CPTMW24_120717	Water		10	10	1
HS17120573-01MS				10	10	1
HS17120573-01MSD				10	10	1
HS17120573-02	18CPTMW14_120717	Water		10	10	1
HS17120573-03	18CPTMW14_120717_a	Water		10	10	1
HS17120573-05	18WW24_120717	Water		10	10	1
HS17120573-06	18WW25_120717	Water		10	10	1
HS17120573-09	18WW02_120817	Water		10	10	1
LCS-123485				10	10	1
MBLK-123485				10	10	1

ALS Group USA, Corp

Date: 22-Dec-17

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573
Start Date: 18-Dec-2017 End Date: 18-Dec-2017

Run ID:HG03_307437
Instrument:HG03
Method:SW7470

Sample No.	D/F	Time	FileID	Analytes
ICV	1	18-Dec-2017 13:34	HG03_307437 Raw Data_4356388	HG
ICB	1	18-Dec-2017 13:36		HG
CRA	1	18-Dec-2017 13:38		HG
CCV 1	1	18-Dec-2017 14:08		HG
CCB 1	1	18-Dec-2017 14:10		HG
CCV 2	1	18-Dec-2017 14:32		HG
CCB 2	1	18-Dec-2017 14:34		HG
CCV 3	1	18-Dec-2017 15:10		HG
CCB 3	1	18-Dec-2017 15:12		HG
CCV 4	1	18-Dec-2017 15:32		HG
CCB 4	1	18-Dec-2017 15:34		HG
CCV 5	1	18-Dec-2017 15:55		HG
CCB 5	1	18-Dec-2017 15:56		HG
CCV 6	1	18-Dec-2017 16:24		HG
CCB 6	1	18-Dec-2017 16:26		HG
MBLK-123485	1	18-Dec-2017 16:32		HG
LCS-123485	1	18-Dec-2017 16:34		HG
CCV 7	1	18-Dec-2017 16:51		HG
CCB 7	1	18-Dec-2017 16:52		HG
18CPTMW24_120717	1	18-Dec-2017 16:54		HG
18CPTMW24_120717MS	1	18-Dec-2017 16:56		HG
18CPTMW24_120717MSD	1	18-Dec-2017 16:57		HG
18CPTMW14_120717	1	18-Dec-2017 16:59		HG
18CPTMW14_120717_a	1	18-Dec-2017 17:01		HG
18WW24_120717	1	18-Dec-2017 17:03		HG
18WW25_120717	1	18-Dec-2017 17:04		HG
18WW02_120817	1	18-Dec-2017 17:06		HG
CCV 8	1	18-Dec-2017 17:13		HG
CCB 8	1	18-Dec-2017 17:15		HG
CCV 9	1	18-Dec-2017 17:45		HG
CCB 9	1	18-Dec-2017 17:47		HG
CCV 10	1	18-Dec-2017 18:06		HG
CCB 10	1	18-Dec-2017 18:08		HG
CCV 11	1	18-Dec-2017 18:46		HG
CCB 11	1	18-Dec-2017 18:48		HG
CCV 12	1	18-Dec-2017 19:14		HG
CCB 12	1	18-Dec-2017 19:16		HG
CCV 13	1	18-Dec-2017 19:35		HG
CCB 13	1	18-Dec-2017 19:36		HG
CCV 14	1	18-Dec-2017 19:53		HG
CCB 14	1	18-Dec-2017 19:55		HG
CCV 15	1	18-Dec-2017 20:07		HG
CCB 15	1	18-Dec-2017 20:09		HG

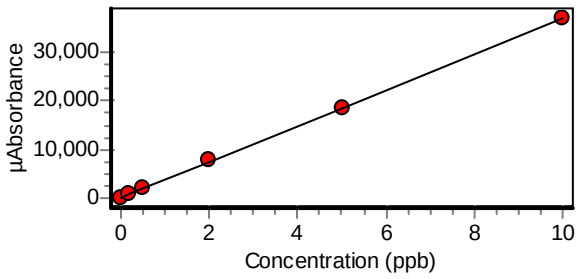
Report Generated By CETAC QuickTrace
Analyst: ALSHS.NoUser
Worksheet file: C:\Program Files (x86)\QuickTrace\Worksheets\121817AW.wsz
Date Started: 12/18/2017 10:08:15 AM
Comment:

Results

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
Calibration Blank					STD	12/18/17 01:09:32 pm	0.000	72	33.11	
Replicates	86.2	49.7	97.1	53.1						
Standard #1 (0.2 ppb)					STD	12/18/17 01:13:23 pm	0.200	821	2.33	
Replicates	825.6	795.5	841.5	819.8						
Standard #2 (0.5 ppb)					STD	12/18/17 01:15:05 pm	0.500	1934	1.86	
Replicates	1901.1	1908.1	1977.1	1950.1						
Standard #3 (2.0 ppb)					STD	12/18/17 01:16:48 pm	2.000	7900	0.75	
Replicates	7812.1	7934.4	7935.0	7919.7						
Standard #4 (5.0 ppb)					STD	12/18/17 01:18:32 pm	5.000	18474	0.31	
Replicates	18402.8	18516.0	18451.7	18526.7						
Standard #5 (10.0 ppb)					STD	12/18/17 01:23:34 pm	10.000	36832	1.26	
Replicates	36228.9	36734.3	37068.6	37297.9						

Calibration

Equation: A = 117.868 + 3691.059C
R2: 0.99980
SEE: 230.6062
Flags:



ICCV					UNK	12/18/17 01:32:55 pm	4.970	18461	0.46	
Replicates	18361.9	18419.2	18515.2	18546.5						
ICV					UNK	12/18/17 01:34:37 pm	5.090	18914	0.17	
Replicates	18885.2	18890.9	18930.3	18951.3						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
ICB					UNK	12/18/17 01:36:18 pm	-0.014	67	31.92	s
	Replicates	54.1	59.2	99.2	56.2					
CRA					UNK	12/18/17 01:38:00 pm	0.188	812	2.10	
	Replicates	793.1	808.7	810.4	834.4					
MBLK-123475					UNK	12/18/17 01:42:49 pm	-0.022	35	61.81	
	Replicates	62.8	33.8	9.2	36.2					
LCS-123475					UNK	12/18/17 01:51:33 pm	4.990	18541	1.00	
	Replicates	18294.4	18526.8	18611.5	18731.5					
HS17120389-01					UNK	12/18/17 01:53:16 pm	-0.024	30	30.43	
	Replicates	23.1	40.0	35.0	21.4					
HS17120389-02					UNK	12/18/17 01:54:59 pm	-0.021	40	81.93	
	Replicates	60.0	-3.9	70.1	34.8					
HS17120427-01					UNK	12/18/17 01:56:42 pm	-0.008	87	21.96	s
	Replicates	71.6	95.6	70.3	109.3					
HS17120454-01					UNK	12/18/17 01:58:26 pm	0.020	190	11.12	s
	Replicates	173.3	183.0	221.0	183.0					
HS17120457-01					UNK	12/18/17 02:00:10 pm	0.216	915	3.22	
	Replicates	910.9	888.4	905.4	957.4					
HS17120467-01					UNK	12/18/17 02:01:54 pm	-0.018	53	43.13	s
	Replicates	23.5	48.9	77.5	61.2					
HS17120507-01					UNK	12/18/17 02:03:35 pm	0.349	1408	2.56	
	Replicates	1372.6	1398.6	1401.6	1458.3					
CCV					UNK	12/18/17 02:08:22 pm	5.100	18954	1.44	
	Replicates	18606.4	18876.9	19110.9	19221.9					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CCB				UNK	12/18/17 02:10:07 pm	-0.024	28	43.88	
Replicates	17.0	21.9	45.5	29.2					
HS17120599-01				UNK	12/18/17 02:13:02 pm	0.000	119	29.97	s
Replicates	105.0	107.7	91.7	171.4					
HS17120599-01MS				UNK	12/18/17 02:14:44 pm	4.790	17804	0.41	
Replicates	17697.1	17821.8	17840.2	17857.5					
HS17120599-01MSD				UNK	12/18/17 02:16:25 pm	4.910	18236	0.16	
Replicates	18217.9	18230.5	18217.8	18278.5					
HS17120762-01				UNK	12/18/17 02:18:07 pm	-0.020	46	32.71	
Replicates	58.4	54.3	24.6	46.6					
MBLK-123476				UNK	12/18/17 02:20:44 pm	-0.022	37	37.05	
Replicates	51.2	28.5	22.5	45.8					
LCS-12376				UNK	12/18/17 02:22:26 pm	5.020	18639	0.69	
Replicates	18453.6	18674.8	18682.8	18746.8					
HS17120449-01				UNK	12/18/17 02:24:09 pm	-0.021	42	86.41	
Replicates	22.7	22.4	26.1	95.7					
HS17120574-01				UNK	12/18/17 02:25:52 pm	0.071	379	6.04	s
Replicates	398.3	352.3	397.6	367.3					
HS17120574-01MS				UNK	12/18/17 02:27:35 pm	5.100	18935	0.85	
Replicates	18722.4	18904.5	19038.8	19076.1					
HS17120574-01MSD				UNK	12/18/17 02:29:18 pm	5.010	18601	0.31	
Replicates	18515.5	18614.6	18629.2	18644.6					
CCV				UNK	12/18/17 02:32:32 pm	4.850	18035	1.20	
Replicates	17726.6	18058.3	18124.3	18229.3					

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CCB					UNK	12/18/17 02:34:17 pm	-0.023	32	55.93	
Replicates	30.4	10.5	54.2	32.5						
HS17120574-02					UNK	12/18/17 02:37:56 pm	0.001	120	10.09	s
Replicates	108.8	110.0	130.6	130.0						
HS17120574-03					UNK	12/18/17 02:39:37 pm	0.061	341	3.23	
Replicates	333.6	345.7	331.4	355.0						
HS17120574-04					UNK	12/18/17 02:41:17 pm	0.001	121	11.32	s
Replicates	100.2	126.1	128.5	127.8						
HS17120574-05					UNK	12/18/17 02:42:59 pm	-0.002	110	12.27	s
Replicates	98.6	98.0	121.4	122.0						
HS17120775-01					UNK	12/18/17 02:44:40 pm	-0.027	17	206.74	
Replicates	3.2	58.6	-24.1	31.2						
HS17120775-02					UNK	12/18/17 02:46:22 pm	-0.033	-3	560.84	
Replicates	3.1	-16.9	-11.2	14.8						
HS17120775-05					UNK	12/18/17 02:48:04 pm	-0.025	25	81.81	
Replicates	-4.2	36.2	26.8	42.8						
HS17120775-06					UNK	12/18/17 02:49:46 pm	-0.025	24	81.60	
Replicates	50.2	22.6	4.9	16.6						
MBLK-123477					UNK	12/18/17 03:00:37 pm	-0.026	22	83.42	
Replicates	24.8	45.5	11.2	4.8						
LCS-123477					UNK	12/18/17 03:07:29 pm	5.060	18809	1.65	
Replicates	18402.0	18743.7	18989.0	19100.7						
CCV					UNK	12/18/17 03:10:53 pm	5.050	18759	1.21	
Replicates	18450.8	18745.6	18863.6	18977.3						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CCB					UNK	12/18/17 03:12:38 pm	-0.018	52	19.82	s
Replicates	49.0	39.3	56.7	63.3						
HS17120592-01					UNK	12/18/17 03:14:21 pm	-0.024	29	77.13	
Replicates	12.2	51.1	7.5	45.8						
HS17120592-02					UNK	12/18/17 03:16:05 pm	-0.025	25	99.59	
Replicates	58.2	27.0	-2.6	18.7						
HS17120592-02MS					UNK	12/18/17 03:17:49 pm	4.750	17657	0.61	
Replicates	17518.2	17639.9	17690.2	17777.9						
HS17120592-02MSD					UNK	12/18/17 03:19:30 pm	4.790	17794	1.22	
Replicates	17514.2	17749.2	17894.8	18018.5						
HS17120592-03					UNK	12/18/17 03:21:11 pm	-0.013	70	33.96	s
Replicates	38.3	83.3	65.3	91.9						
HS17120592-04					UNK	12/18/17 03:22:52 pm	-0.019	47	29.76	
Replicates	27.8	46.2	57.8	57.5						
HS17120592-05					UNK	12/18/17 03:24:33 pm	-0.020	43	30.55	
Replicates	34.2	31.6	43.9	60.3						
HS17120592-06					UNK	12/18/17 03:26:15 pm	-0.028	15	160.37	
Replicates	4.4	49.0	15.7	-8.0						
HS17120592-07					UNK	12/18/17 03:27:57 pm	-0.028	14	81.22	
Replicates	2.6	18.7	7.4	28.4						
HS17120629-01					UNK	12/18/17 03:29:39 pm	-0.015	61	40.98	s
Replicates	49.8	37.4	62.1	95.8						
CCV					UNK	12/18/17 03:32:43 pm	4.990	18532	0.48	
Replicates	18404.4	18544.3	18574.3	18606.6						

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CCB					UNK	12/18/17 03:34:28 pm	-0.018	52	52.16	s
Replicates	38.5	24.1	86.4	57.4						
HS17120629-02					UNK	12/18/17 03:36:10 pm	-0.036	-14	153.19	
Replicates	0.8	-27.0	7.3	-35.4						
HS17120629-03					UNK	12/18/17 03:37:53 pm	-0.021	41	33.96	
Replicates	40.2	60.1	28.8	33.5						
HS17120629-04					UNK	12/18/17 03:39:36 pm	-0.020	44	49.39	
Replicates	73.3	45.2	21.5	36.5						
HS17120629-05					UNK	12/18/17 03:41:20 pm	-0.029	10	221.54	
Replicates	-8.3	-4.9	39.5	13.1						
HS17120629-06					UNK	12/18/17 03:43:04 pm	-0.014	66	26.20	s
Replicates	50.5	77.1	52.1	84.5						
HS17120629-07					UNK	12/18/17 03:44:45 pm	-0.001	112	20.15	s
Replicates	91.1	95.7	125.4	137.7						
HS17120633-01					UNK	12/18/17 03:46:27 pm	-0.014	65	62.32	s
Replicates	49.7	33.2	52.5	124.2						
HS17120769-08					UNK	12/18/17 03:48:08 pm	-0.004	104	18.05	s
Replicates	78.3	106.1	107.7	123.4						
HS17120769-09					UNK	12/18/17 03:49:50 pm	0.092	457	4.96	
Replicates	456.5	435.4	488.0	446.7						
HS17120769-10					UNK	12/18/17 03:51:32 pm	0.350	1408	1.58	
Replicates	1398.0	1414.2	1436.2	1384.6						
CCV					UNK	12/18/17 03:55:00 pm	5.060	18780	1.02	
Replicates	18544.3	18711.9	18889.3	18974.9						

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CCB				UNK	12/18/17 03:56:45 pm	-0.016	58	43.65	s
Replicates	27.4	49.9	86.6	69.3					
GBLKF1-123484				UNK	12/18/17 04:01:44 pm	-0.019	47	80.92	
Replicates	83.3	76.7	5.3	24.7					
MBLK-123484				UNK	12/18/17 04:03:26 pm	-0.018	50	20.09	s
Replicates	49.2	50.8	62.8	38.2					
LCS-123484				UNK	12/18/17 04:05:09 pm	5.000	18576	1.04	
Replicates	18328.9	18525.5	18687.5	18762.8					
HS17120744-01				UNK	12/18/17 04:06:52 pm	-0.033	-3	161.59	
Replicates	-50.5	45.1	-16.2	7.8					
HS17120744-03				UNK	12/18/17 04:08:35 pm	-0.021	40	42.78	
Replicates	48.8	19.1	34.4	58.4					
HS17120744-04				UNK	12/18/17 04:10:18 pm	-0.030	6	353.06	
Replicates	16.1	0.3	-19.4	25.3					
HS17120744-04MS				UNK	12/18/17 04:12:02 pm	2.550	9533	0.29	
Replicates	9527.3	9499.3	9538.9	9565.9					
HS17120744-04MSD				UNK	12/18/17 04:16:56 pm	2.620	9779	0.67	
Replicates	9697.5	9800.3	9765.7	9853.0					
HS17120744-05				UNK	12/18/17 04:21:32 pm	-0.019	47	20.73	
Replicates	40.9	53.9	56.6	36.6					
HS17120851-01				UNK	12/18/17 04:23:14 pm	-0.021	41	14.65	
Replicates	41.1	37.1	35.4	48.7					
CCV				UNK	12/18/17 04:24:59 pm	5.090	18897	0.58	
Replicates	18742.0	18906.9	18947.9	18992.5					

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CCB					UNK	12/18/17 04:26:44 pm	-0.019	48	28.44	
Replicates	64.4	36.8	53.2	36.5						
HS17120900-01					UNK	12/18/17 04:28:25 pm	0.126	584	6.66	s
Replicates	566.9	575.8	552.5	640.5						
MBLK-123485					UNK	12/18/17 04:32:27 pm	-0.024	28	75.92	
Replicates	25.1	56.0	4.6	25.6						
LCS-123485					UNK	12/18/17 04:34:09 pm	4.890	18168	1.83	
Replicates	17741.7	18091.2	18331.9	18508.2						
HS17120199-01					UNK	12/18/17 04:38:29 pm	-0.025	25	87.20	
Replicates	39.1	-7.6	33.1	37.1						
HS17120206-01					UNK	12/18/17 04:40:11 pm	-0.024	29	93.39	
Replicates	62.9	20.0	-1.0	32.6						
HS17120211-01					UNK	12/18/17 04:41:54 pm	-0.018	51	30.20	s
Replicates	43.9	34.1	57.5	69.5						
HS17120213-01					UNK	12/18/17 04:43:37 pm	-0.025	27	103.46	
Replicates	58.0	22.3	38.0	-9.0						
HS17120216-01					UNK	12/18/17 04:45:21 pm	-0.021	41	28.86	
Replicates	54.2	47.6	32.9	29.3						
HS17120217-01					UNK	12/18/17 04:47:05 pm	-0.020	45	54.41	
Replicates	24.7	25.2	53.9	74.9						
CCV					UNK	12/18/17 04:51:07 pm	4.990	18529	1.54	
Replicates	18147.2	18491.9	18663.6	18811.6						
CCB					UNK	12/18/17 04:52:52 pm	-0.018	53	23.60	s
Replicates	56.9	54.3	35.0	64.0						

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120573-01				UNK	12/18/17 04:54:34 pm	-0.006	96	20.57	s
Replicates	91.5	105.5	70.5	116.1					
HS17120573-01MS				UNK	12/18/17 04:56:16 pm	4.970	18461	0.54	
Replicates	18347.5	18442.8	18465.5	18588.5					
HS17120573-01MSD				UNK	12/18/17 04:57:58 pm	4.970	18451	0.78	
Replicates	18270.0	18432.0	18486.4	18617.4					
HS17120573-02				UNK	12/18/17 04:59:40 pm	-0.036	-15	247.38	
Replicates	-44.7	36.5	-16.2	-33.8					
HS17120573-03				UNK	12/18/17 05:01:22 pm	-0.020	45	27.11	
Replicates	32.3	39.4	60.7	47.7					
HS17120573-05				UNK	12/18/17 05:03:04 pm	-0.023	33	19.60	
Replicates	31.6	36.7	25.0	40.0					
HS17120573-06				UNK	12/18/17 05:04:47 pm	-0.026	22	62.17	
Replicates	7.2	23.1	16.8	39.1					
HS17120573-09				UNK	12/18/17 05:06:29 pm	-0.011	76	32.86	s
Replicates	101.5	47.7	93.0	63.7					
HS17120696-01				UNK	12/18/17 05:08:12 pm	-0.015	65	23.17	s
Replicates	83.8	51.0	54.6	68.6					
HS17120696-02				UNK	12/18/17 05:09:55 pm	-0.028	13	179.95	
Replicates	12.0	36.9	-19.1	23.2					
CCV				UNK	12/18/17 05:13:40 pm	5.160	19180	0.53	
Replicates	19068.6	19137.0	19208.4	19304.4					
CCB				UNK	12/18/17 05:15:25 pm	-0.010	81	14.23	s
Replicates	70.5	95.7	73.4	84.7					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120696-03				UNK	12/18/17 05:17:09 pm	-0.014	67	18.75	s
Replicates	56.1	66.8	84.8	60.8					
HS17120898-01				UNK	12/18/17 05:18:52 pm	0.083	426	6.30	s
Replicates	418.0	423.9	462.6	398.6					
HS17120898-02				UNK	12/18/17 05:20:35 pm	0.090	449	3.56	
Replicates	450.1	429.0	468.0	447.7					
MBLK-123498				UNK	12/18/17 05:24:35 pm	-0.026	23	75.78	
Replicates	40.5	0.0	20.4	29.7					
LCS-123498				UNK	12/18/17 05:26:18 pm	4.960	18433	1.75	
Replicates	18053.2	18333.8	18524.5	18821.2					
HS17120299-01				UNK	12/18/17 05:28:00 pm	-0.025	27	100.39	
Replicates	-0.5	38.6	60.6	11.0					
HS17120299-01MS				UNK	12/18/17 05:29:42 pm	4.860	18039	2.13	
Replicates	17566.5	17929.7	18188.4	18469.7					
HS17120299-01MSD				UNK	12/18/17 05:31:25 pm	5.010	18622	0.14	
Replicates	18613.8	18651.5	18633.5	18590.2					
HS17120300-01				UNK	12/18/17 05:38:06 pm	-0.028	16	93.80	
Replicates	6.2	15.5	4.8	37.1					
HS17120301-01				UNK	12/18/17 05:39:48 pm	-0.011	77	30.95	s
Replicates	66.1	96.7	95.4	48.1					
CCV				UNK	12/18/17 05:45:18 pm	5.090	18902	0.30	
Replicates	18867.8	18896.6	18859.9	18983.6					
CCB				UNK	12/18/17 05:47:03 pm	-0.013	71	56.13	s
Replicates	52.7	23.8	102.2	106.8					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120302-01				UNK	12/18/17 05:48:46 pm	-0.022	37	67.05	
Replicates	0.2	49.2	44.2	52.8					
HS17120633-02				UNK	12/18/17 05:50:29 pm	-0.021	41	45.19	
Replicates	64.3	44.8	21.2	32.8					
HS17120633-03				UNK	12/18/17 05:52:12 pm	-0.019	47	62.42	
Replicates	76.2	33.2	67.5	12.8					
HS17120633-04				UNK	12/18/17 05:53:56 pm	-0.028	13	160.00	
Replicates	-14.3	11.3	19.6	34.9					
HS17120695-02				UNK	12/18/17 05:55:39 pm	-0.026	20	48.85	
Replicates	30.3	10.2	13.5	27.2					
HS17120695-04				UNK	12/18/17 05:57:21 pm	-0.031	3	475.58	
Replicates	21.8	43.3	-38.7	-16.4					
HS17120701-01				UNK	12/18/17 05:59:04 pm	0.015	174	15.89	s
Replicates	209.2	142.7	166.4	179.4					
HS17120702-01				UNK	12/18/17 06:00:47 pm	-0.043	-40	43.86	
Replicates	-52.3	-56.6	-24.9	-24.3					
HS17120703-01				UNK	12/18/17 06:02:29 pm	-0.018	51	19.53	s
Replicates	54.8	36.7	59.7	51.7					
HS17120705-01				UNK	12/18/17 06:04:12 pm	0.119	559	4.11	
Replicates	547.1	536.3	561.6	589.3					
CCV				UNK	12/18/17 06:06:54 pm	5.010	18596	1.22	
Replicates	18276.3	18603.6	18712.0	18792.0					
CCB				UNK	12/18/17 06:08:39 pm	-0.027	20	148.20	
Replicates	42.4	-17.8	10.9	43.2					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120744-02				UNK	12/18/17 06:10:22 pm	-0.024	28	25.33	
Replicates	19.6	24.5	31.9	35.2					
HS17120790-01				UNK	12/18/17 06:12:05 pm	-0.027	18	62.16	
Replicates	12.3	19.2	7.9	33.9					
HS17120900-01				UNK	12/18/17 06:13:47 pm	0.096	473	4.53	
Replicates	447.1	497.8	481.2	467.8					
GBLKF1-123500				UNK	12/18/17 06:34:28 pm	-0.032	1	898.03	
Replicates	10.8	-0.8	-8.8	2.5					
MBLK-123500				UNK	12/18/17 06:36:11 pm	-0.034	-9	187.97	
Replicates	-0.7	-24.8	10.2	-19.2					
LCS-123500				UNK	12/18/17 06:37:55 pm	5.000	18572	1.65	
Replicates	18177.2	18490.1	18749.5	18869.5					
HS17120695-01				UNK	12/18/17 06:39:38 pm	-0.037	-17	168.69	
Replicates	26.1	-36.9	-27.9	-30.3					
HS17120695-01MS				UNK	12/18/17 06:41:21 pm	5.000	18571	0.51	
Replicates	18458.1	18530.5	18626.5	18667.8					
HS17120695-01MSD				UNK	12/18/17 06:43:04 pm	4.980	18504	0.53	
Replicates	18378.8	18492.6	18528.9	18616.3					
HS17120695-03				UNK	12/18/17 06:44:47 pm	-0.033	-4	225.54	
Replicates	-14.7	4.5	-3.8	-0.5					
CCV				UNK	12/18/17 06:46:31 pm	5.030	18683	0.40	
Replicates	18592.6	18677.7	18684.4	18777.0					
CCB				UNK	12/18/17 06:48:16 pm	-0.024	28	114.70	
Replicates	25.0	36.9	64.9	-13.5					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120695-05				UNK	12/18/17 06:49:59 pm	-0.038	-22	186.76	
Replicates	-43.6	-14.5	-62.2	32.2					
HS17120984-01				UNK	12/18/17 06:52:23 pm	0.096	472	3.76	
Replicates	490.3	453.8	484.5	460.8					
GBLKT1-123507				UNK	12/18/17 07:00:51 pm	-0.024	31	65.26	
Replicates	18.6	61.3	26.9	18.3					
MBLK-123507				UNK	12/18/17 07:02:34 pm	-0.020	45	19.91	
Replicates	44.6	57.2	38.5	38.2					
LCS-123507				UNK	12/18/17 07:04:17 pm	5.020	18646	1.53	
Replicates	18258.1	18613.7	18803.7	18908.4					
HS17120767-01				UNK	12/18/17 07:06:00 pm	-0.035	-11	165.17	
Replicates	-12.1	12.4	-33.9	-12.3					
HS17120767-02				UNK	12/18/17 07:07:43 pm	-0.025	24	109.85	
Replicates	-14.1	43.1	42.1	26.5					
HS17120767-02MS				UNK	12/18/17 07:09:27 pm	5.320	19748	0.30	
Replicates	19687.3	19718.3	19764.0	19821.3					
HS17120767-02MSD				UNK	12/18/17 07:11:08 pm	5.390	20019	0.49	
Replicates	19897.5	19986.2	20072.9	20119.5					
HS17120767-03				UNK	12/18/17 07:12:49 pm	-0.034	-7	284.63	
Replicates	-24.0	21.5	-13.5	-11.8					
CCV				UNK	12/18/17 07:14:34 pm	5.040	18718	0.54	
Replicates	18582.7	18714.1	18754.1	18820.7					
CCB				UNK	12/18/17 07:16:19 pm	-0.021	42	9.99	
Replicates	43.4	45.3	35.9	43.9					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120767-04				UNK	12/18/17 07:18:00 pm	-0.029	11	208.79	
Replicates	6.2	39.5	15.8	-16.8					
HS17120767-05				UNK	12/18/17 07:19:42 pm	-0.029	9	188.91	
Replicates	-4.1	23.6	25.6	-7.7					
HS17120767-06				UNK	12/18/17 07:21:24 pm	-0.034	-9	342.88	
Replicates	-38.7	-7.0	-25.0	34.0					
HS17120767-07				UNK	12/18/17 07:23:06 pm	-0.026	21	176.76	
Replicates	-16.5	41.7	61.3	-3.3					
HS17120767-08				UNK	12/18/17 07:24:49 pm	-0.027	19	134.43	
Replicates	6.5	36.3	-10.7	42.3					
HS17120767-09				UNK	12/18/17 07:26:32 pm	-0.027	18	86.16	
Replicates	25.8	34.4	0.1	10.8					
HS17120767-10				UNK	12/18/17 07:28:15 pm	-0.016	58	24.68	s
Replicates	41.8	52.8	75.4	63.1					
HS17120767-11				UNK	12/18/17 07:29:59 pm	-0.028	14	65.63	
Replicates	3.8	22.4	9.1	22.4					
HS17120767-12				UNK	12/18/17 07:31:43 pm	-0.023	32	23.82	
Replicates	22.9	34.2	28.9	40.5					
HS17120767-13				UNK	12/18/17 07:33:27 pm	-0.023	34	60.10	
Replicates	14.2	32.2	27.6	62.9					
CCV				UNK	12/18/17 07:35:11 pm	4.980	18481	0.25	
Replicates	18436.1	18465.5	18476.8	18545.5					
CCB				UNK	12/18/17 07:36:56 pm	-0.018	51	28.94	s
Replicates	34.1	50.0	48.4	69.7					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120767-14				UNK	12/18/17 07:38:37 pm	-0.022	38	34.75	
Replicates	23.3	32.5	54.2	42.2					
HS17120767-15				UNK	12/18/17 07:40:18 pm	-0.020	45	57.53	
Replicates	28.2	53.0	21.4	78.7					
HS17120767-16				UNK	12/18/17 07:41:59 pm	-0.031	5	316.26	
Replicates	-14.4	10.3	0.6	23.6					
HS17120767-17				UNK	12/18/17 07:43:41 pm	-0.026	22	73.95	
Replicates	21.6	43.4	4.4	18.1					
HS17120767-18				UNK	12/18/17 07:45:23 pm	-0.031	3	669.96	
Replicates	-15.0	-4.6	-2.2	34.8					
HS17120767-19				UNK	12/18/17 07:47:05 pm	-0.030	8	151.04	
Replicates	22.9	10.9	-3.1	0.3					
HS17120817-01				UNK	12/18/17 07:48:48 pm	-0.028	14	201.88	
Replicates	51.3	19.2	-9.2	-5.8					
CCV				UNK	12/18/17 07:53:16 pm	5.030	18677	0.46	
Replicates	18558.5	18673.5	18729.1	18747.1					
CCB				UNK	12/18/17 07:55:01 pm	-0.021	41	18.37	
Replicates	49.3	42.4	40.4	31.1					
MBLK-123520				UNK	12/18/17 07:56:44 pm	-0.019	49	39.22	
Replicates	60.1	25.1	68.4	42.7					
LCS-123520				UNK	12/18/17 07:58:27 pm	5.170	19192	1.23	
Replicates	18864.5	19176.4	19349.4	19378.8					
HS17120252-01				UNK	12/18/17 08:00:10 pm	-0.021	39	16.91	
Replicates	35.9	32.3	47.3	42.3					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
HS17120252-01MS				UNK	12/18/17 08:01:53 pm	5.010	18609	0.72	
Replicates	18435.7	18592.4	18647.4	18760.0					
HS17120252-01MSD				UNK	12/18/17 08:03:37 pm	4.840	17971	0.69	
Replicates	17804.5	17948.3	18053.7	18076.7					
HS17120686-02				UNK	12/18/17 08:05:18 pm	0.017	180	22.78	s
Replicates	171.4	141.5	170.5	238.5					
CCV				UNK	12/18/17 08:07:40 pm	5.030	18699	0.71	
Replicates	18511.7	18703.6	18759.6	18820.2					
CCB				UNK	12/18/17 08:09:25 pm	-0.018	53	14.86	s
Replicates	43.4	59.8	49.8	59.2					

Metals Raw Data

Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
ALS WO# HS17120573

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

ICV Date: 18-Dec-2017 10:31 Seq: 4355827 ICV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	100.824	101	90-110	
Antimony	100	95.858	96	90-110	
Arsenic	100	98.367	98	90-110	
Barium	100	99.106	99	90-110	
Beryllium	100	102.874	103	90-110	
Cadmium	100	98.835	99	90-110	
Calcium	10000	9946.818	100	90-110	
Chromium	100	99.145	99	90-110	
Cobalt	100	98.162	98	90-110	
Copper	100	97.746	98	90-110	
Iron	10000	9844.598	98	90-110	
Lead	100	102.503	103	90-110	
Magnesium	10000	9976.981	100	90-110	
Manganese	100	98.736	99	90-110	
Nickel	100	96.271	96	90-110	
Potassium	10000	9841.025	98	90-110	
Selenium	100	96.233	96	90-110	
Silver	100	100.232	100	90-110	
Sodium	10000	9840.697	98	90-110	
Thallium	100	100.881	101	90-110	
Vanadium	100	98.776	99	90-110	
Zinc	100	100.55	101	90-110	

CCV1 Date: 18-Dec-2017 10:59 Seq: 4355842 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	107.413	107	90-110	
Antimony	100	101.03	101	90-110	
Arsenic	100	100.187	100	90-110	
Barium	100	96.97	97	90-110	
Beryllium	100	96.545	97	90-110	
Cadmium	100	99.78	100	90-110	
Calcium	10000	10070.06	101	90-110	
Chromium	100	100.74	101	90-110	
Cobalt	100	99.624	100	90-110	
Copper	100	99.66	100	90-110	
Iron	10000	10030.583	100	90-110	
Lead	100	105.943	106	90-110	
Magnesium	10000	10140.011	101	90-110	
Manganese	100	100.53	101	90-110	
Nickel	100	97.44	97	90-110	
Potassium	10000	10023.861	100	90-110	
Selenium	100	101.856	102	90-110	
Silver	100	103.828	104	90-110	
Sodium	10000	9944.301	99	90-110	
Thallium	100	101.009	101	90-110	
Vanadium	100	100.631	101	90-110	
Zinc	100	102.91	103	90-110	

CCV2 Date: 18-Dec-2017 11:23 Seq: 4355864 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	96.424	96	90-110	
Antimony	100	104.919	105	90-110	
Arsenic	100	102.066	102	90-110	
Barium	100	99.143	99	90-110	
Beryllium	100	97.474	98	90-110	
Cadmium	100	102.214	102	90-110	
Calcium	10000	10370.82	104	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCV2	Date: 18-Dec-2017 11:23	Seq: 4355864	CCV	Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Chromium	100	101.614	102	90-110	
Cobalt	100	101.775	102	90-110	
Copper	100	102.657	103	90-110	
Iron	10000	10196.059	102	90-110	
Lead	100	104.458	104	90-110	
Magnesium	10000	10404.416	104	90-110	
Manganese	100	101.844	102	90-110	
Nickel	100	101.087	101	90-110	
Potassium	10000	10351.214	104	90-110	
Selenium	100	97.427	97	90-110	
Silver	100	104.166	104	90-110	
Sodium	10000	10182.495	102	90-110	
Thallium	100	99.339	99	90-110	
Vanadium	100	101.63	102	90-110	
Zinc	100	101.932	102	90-110	

CCV3	Date: 18-Dec-2017 11:47	Seq: 4355876	CCV	Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	99.004	99	90-110	
Antimony	100	98.407	98	90-110	
Arsenic	100	98.789	99	90-110	
Barium	100	102.592	103	90-110	
Beryllium	100	101.666	102	90-110	
Cadmium	100	101.091	101	90-110	
Calcium	10000	10159.451	102	90-110	
Chromium	100	101.481	101	90-110	
Cobalt	100	102.493	102	90-110	
Copper	100	101.233	101	90-110	
Iron	10000	10220.854	102	90-110	
Lead	100	104.9	105	90-110	
Magnesium	10000	10338.093	103	90-110	
Manganese	100	100.755	101	90-110	
Nickel	100	102.072	102	90-110	
Potassium	10000	10063.999	101	90-110	
Selenium	100	98.373	98	90-110	
Silver	100	100.83	101	90-110	
Sodium	10000	10240.667	102	90-110	
Thallium	100	101.287	101	90-110	
Vanadium	100	100.221	100	90-110	
Zinc	100	100.419	100	90-110	

CCV4	Date: 18-Dec-2017 12:11	Seq: 4355888	CCV	Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	99.977	100	90-110	
Antimony	100	99.06	99	90-110	
Arsenic	100	98.384	98	90-110	
Barium	100	101.293	101	90-110	
Beryllium	100	91.801	92	90-110	
Cadmium	100	102.103	102	90-110	
Calcium	10000	9922.532	99	90-110	
Chromium	100	97.806	98	90-110	
Cobalt	100	98.178	98	90-110	
Copper	100	102.596	103	90-110	
Iron	10000	9841.006	98	90-110	
Lead	100	105.71	106	90-110	
Magnesium	10000	10220.98	102	90-110	
Manganese	100	98.294	98	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCV4	Date: 18-Dec-2017 12:11	Seq: 4355888	CCV	Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Nickel	100	99.009	99	90-110	
Potassium	10000	9802.009	98	90-110	
Selenium	100	96.845	97	90-110	
Silver	100	101.672	102	90-110	
Sodium	10000	9828.298	98	90-110	
Thallium	100	99.205	99	90-110	
Vanadium	100	99.131	99	90-110	
Zinc	100	99.308	99	90-110	

CCV5	Date: 18-Dec-2017 12:35	Seq: 4355903	CCV	Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	101.99	102	90-110	
Antimony	100	98.462	99	90-110	
Arsenic	100	98.629	99	90-110	
Barium	100	96.882	97	90-110	
Beryllium	100	94.043	94	90-110	
Cadmium	100	101.191	101	90-110	
Calcium	10000	10152.948	102	90-110	
Chromium	100	100.262	100	90-110	
Cobalt	100	99.687	100	90-110	
Copper	100	102.267	102	90-110	
Iron	10000	9913.987	99	90-110	
Lead	100	100.15	100	90-110	
Magnesium	10000	10341.455	103	90-110	
Manganese	100	96.432	96	90-110	
Nickel	100	100.217	100	90-110	
Potassium	10000	10024.413	100	90-110	
Selenium	100	99.861	100	90-110	
Silver	100	102.835	103	90-110	
Sodium	10000	10331.694	103	90-110	
Thallium	100	100.597	101	90-110	
Vanadium	100	99.621	100	90-110	
Zinc	100	101.117	101	90-110	

CCV6	Date: 18-Dec-2017 12:59	Seq: 4355936	CCV	Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	99.972	100	90-110	
Antimony	100	104.431	104	90-110	
Arsenic	100	103.31	103	90-110	
Barium	100	98.518	99	90-110	
Beryllium	100	93.792	94	90-110	
Cadmium	100	100.772	101	90-110	
Calcium	10000	9809.258	98	90-110	
Chromium	100	103.917	104	90-110	
Cobalt	100	103.971	104	90-110	
Copper	100	104.089	104	90-110	
Iron	10000	10238.021	102	90-110	
Lead	100	102.218	102	90-110	
Magnesium	10000	10438.039	104	90-110	
Manganese	100	100.758	101	90-110	
Nickel	100	102.036	102	90-110	
Potassium	10000	9908.76	99	90-110	
Selenium	100	96.841	97	90-110	
Silver	100	103.542	104	90-110	
Sodium	10000	10387.501	104	90-110	
Thallium	100	105.066	105	90-110	
Vanadium	100	10228.770	103	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCV6 Date: 18-Dec-2017 12:59 Seq: 4355936 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Zinc	100	102.28	102	90-110	

CCV7 Date: 18-Dec-2017 13:23 Seq: 4355948 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	97.531	98	90-110	
Antimony	100	102.408	102	90-110	
Arsenic	100	99.513	100	90-110	
Barium	100	98.284	98	90-110	
Beryllium	100	88.978	89	90-110	S
Cadmium	100	98.813	99	90-110	
Calcium	10000	9891.942	99	90-110	
Chromium	100	95.464	96	90-110	
Cobalt	100	97.602	98	90-110	
Copper	100	97.037	97	90-110	
Iron	10000	9248.831	93	90-110	
Lead	100	104.767	105	90-110	
Magnesium	10000	9426.568	94	90-110	
Manganese	100	92.852	93	90-110	
Nickel	100	96.639	97	90-110	
Potassium	10000	9698.54	97	90-110	
Selenium	100	96.549	97	90-110	
Silver	100	101.574	102	90-110	
Sodium	10000	9499.728	95	90-110	
Thallium	100	96.739	97	90-110	
Vanadium	100	97.875	98	90-110	
Zinc	100	97.907	98	90-110	

CCV8 Date: 18-Dec-2017 13:47 Seq: 4355960 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	98.096	98	90-110	
Antimony	100	100.856	101	90-110	
Arsenic	100	95.527	96	90-110	
Barium	100	101.088	101	90-110	
Beryllium	100	91.441	91	90-110	
Cadmium	100	99.604	100	90-110	
Calcium	10000	10112.4	101	90-110	
Chromium	100	94.197	94	90-110	
Cobalt	100	96.499	97	90-110	
Copper	100	94.413	94	90-110	
Iron	10000	9159.297	92	90-110	
Lead	100	98.897	99	90-110	
Magnesium	10000	9396.05	94	90-110	
Manganese	100	93.216	93	90-110	
Nickel	100	93.069	93	90-110	
Potassium	10000	9950.097	100	90-110	
Selenium	100	94.511	95	90-110	
Silver	100	99.042	99	90-110	
Sodium	10000	9567.377	96	90-110	
Thallium	100	103.489	103	90-110	
Vanadium	100	96.264	96	90-110	
Zinc	100	93.854	94	90-110	

CCV9 Date: 18-Dec-2017 14:13 Seq: 4356218 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	95.183	95	90-110	
Antimony	100	100.277	100	90-110	
Arsenic	100	94.770	95	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCV9	Date: 18-Dec-2017 14:13		Seq: 4356218	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	97.862	98	90-110	
Beryllium	100	86.529	87	90-110	S
Cadmium	100	97.542	98	90-110	
Calcium	10000	10153.738	102	90-110	
Chromium	100	94.633	95	90-110	
Cobalt	100	95.833	96	90-110	
Copper	100	93.317	93	90-110	
Iron	10000	9143.279	91	90-110	
Lead	100	93.728	94	90-110	
Magnesium	10000	9676.36	97	90-110	
Manganese	100	92.524	93	90-110	
Nickel	100	92.91	93	90-110	
Potassium	10000	10076.646	101	90-110	
Selenium	100	97.192	97	90-110	
Silver	100	99.607	100	90-110	
Sodium	10000	9480.11	95	90-110	
Thallium	100	97.59	98	90-110	
Vanadium	100	96.518	97	90-110	
Zinc	100	96.258	96	90-110	

CCV10	Date: 18-Dec-2017 14:37		Seq: 4356230	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Aluminum	100	97.655	98	90-110	
Antimony	100	102.342	102	90-110	
Arsenic	100	95.312	95	90-110	
Barium	100	98.901	99	90-110	
Beryllium	100	86.735	87	90-110	S
Cadmium	100	97.555	98	90-110	
Calcium	10000	9745.35	98	90-110	
Chromium	100	93.923	94	90-110	
Cobalt	100	95.946	96	90-110	
Copper	100	93.503	94	90-110	
Iron	10000	9241.613	92	90-110	
Lead	100	94.696	95	90-110	
Magnesium	10000	9541.694	95	90-110	
Manganese	100	92.19	92	90-110	
Nickel	100	93.093	93	90-110	
Potassium	10000	9771.148	98	90-110	
Selenium	100	96.162	96	90-110	
Silver	100	97.275	97	90-110	
Sodium	10000	9382.734	94	90-110	
Thallium	100	98.282	98	90-110	
Vanadium	100	95.823	96	90-110	
Zinc	100	93.176	93	90-110	

CCV11	Date: 18-Dec-2017 15:01		Seq: 4356615	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Aluminum	100	94.985	95	90-110	
Antimony	100	107.49	107	90-110	
Arsenic	100	98.699	99	90-110	
Barium	100	102.576	103	90-110	
Beryllium	100	92.7	93	90-110	
Cadmium	100	101.061	101	90-110	
Calcium	10000	9597.199	96	90-110	
Chromium	100	93.964	94	90-110	
Cobalt	100	97.568	98	90-110	
Copper	100	93.770	94	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCV11 Date: 18-Dec-2017 15:01 Seq: 4356615 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Iron	10000	9365.495	94	90-110	
Lead	100	93.532	94	90-110	
Magnesium	10000	9657.696	97	90-110	
Manganese	100	95.163	95	90-110	
Nickel	100	94.818	95	90-110	
Potassium	10000	9771.153	98	90-110	
Selenium	100	98.616	99	90-110	
Silver	100	97.619	98	90-110	
Sodium	10000	9858.81	99	90-110	
Thallium	100	99.252	99	90-110	
Vanadium	100	96.322	96	90-110	
Zinc	100	96.325	96	90-110	

CCV12 Date: 18-Dec-2017 15:32 Seq: 4356629 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	97.123	97	90-110	
Antimony	100	99.385	99	90-110	
Arsenic	100	100.998	101	90-110	
Barium	100	99.574	100	90-110	
Beryllium	100	94.223	94	90-110	
Cadmium	100	98.632	99	90-110	
Calcium	10000	9880.274	99	90-110	
Chromium	100	91.032	91	90-110	
Cobalt	100	91.686	92	90-110	
Copper	100	92.178	92	90-110	
Iron	10000	8854.772	89	90-110	S
Lead	100	92.728	93	90-110	
Magnesium	10000	9245.122	93	90-110	
Manganese	100	90.172	90	90-110	
Nickel	100	90.198	90	90-110	
Potassium	10000	10041.803	100	90-110	
Selenium	100	99.845	100	90-110	
Silver	100	98.807	99	90-110	
Sodium	10000	9831.724	98	90-110	
Thallium	100	94.327	94	90-110	
Vanadium	100	95.185	95	90-110	
Zinc	100	93.576	94	90-110	

CCV13 Date: 18-Dec-2017 15:47 Seq: 4356636 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	94.205	94	90-110	
Antimony	100	98.736	99	90-110	
Arsenic	100	97.281	97	90-110	
Barium	100	99.536	100	90-110	
Beryllium	100	93.947	94	90-110	
Cadmium	100	97.506	98	90-110	
Calcium	10000	9185.757	92	90-110	
Chromium	100	94.356	94	90-110	
Cobalt	100	94.85	95	90-110	
Copper	100	92.821	93	90-110	
Iron	10000	9080.206	91	90-110	
Lead	100	101.206	101	90-110	
Magnesium	10000	9500.345	95	90-110	
Manganese	100	90.78	91	90-110	
Nickel	100	91.713	92	90-110	
Potassium	10000	9582.532	96	90-110	
Selenium	100	90.402	90	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCV13	Date: 18-Dec-2017 15:47		Seq: 4356636	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Silver	100	93.471	94	90-110	
Sodium	10000	9740.435	97	90-110	
Thallium	100	94.711	95	90-110	
Vanadium	100	95.128	95	90-110	
Zinc	100	93.902	94	90-110	

CCV14	Date: 18-Dec-2017 16:15		Seq: 4356977	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Aluminum	100	97.857	98	90-110	
Antimony	100	97.432	97	90-110	
Arsenic	100	96.671	97	90-110	
Barium	100	99.3	99	90-110	
Beryllium	100	87.948	88	90-110	S
Cadmium	100	97.627	98	90-110	
Calcium	10000	9954.565	100	90-110	
Chromium	100	94.481	95	90-110	
Cobalt	100	97.522	98	90-110	
Copper	100	93.698	94	90-110	
Iron	10000	9230.16	92	90-110	
Lead	100	100.96	101	90-110	
Magnesium	10000	9492.858	95	90-110	
Manganese	100	92.472	93	90-110	
Nickel	100	93.743	94	90-110	
Potassium	10000	9973.06	100	90-110	
Selenium	100	95.302	95	90-110	
Silver	100	98.77	99	90-110	
Sodium	10000	9494.382	95	90-110	
Thallium	100	96.788	97	90-110	
Vanadium	100	97.282	97	90-110	
Zinc	100	92.61	93	90-110	

CCV15	Date: 18-Dec-2017 16:35		Seq: 4356987	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Aluminum	100	97.804	98	90-110	
Antimony	100	101.901	102	90-110	
Arsenic	100	95.73	96	90-110	
Barium	100	97.774	98	90-110	
Beryllium	100	86.15	86	90-110	S
Cadmium	100	96.92	97	90-110	
Calcium	10000	10123.706	101	90-110	
Chromium	100	92.503	93	90-110	
Cobalt	100	94.527	95	90-110	
Copper	100	94.491	95	90-110	
Iron	10000	9145.771	92	90-110	
Lead	100	94.31	94	90-110	
Magnesium	10000	9764.3	98	90-110	
Manganese	100	91.066	91	90-110	
Nickel	100	92.748	93	90-110	
Potassium	10000	10143.779	101	90-110	
Selenium	100	99.64	100	90-110	
Silver	100	100.724	101	90-110	
Sodium	10000	9785.724	98	90-110	
Thallium	100	98.959	99	90-110	
Vanadium	100	97.297	97	90-110	
Zinc	100	94.362	94	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCV16 Date: 18-Dec-2017 17:05 Seq: 4357002 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	94.038	94	90-110	
Antimony	100	100.703	101	90-110	
Arsenic	100	98.515	99	90-110	
Barium	100	99.066	99	90-110	
Beryllium	100	88.517	89	90-110	S
Cadmium	100	96.71	97	90-110	
Calcium	10000	9635.274	96	90-110	
Chromium	100	95.136	95	90-110	
Cobalt	100	97.073	97	90-110	
Copper	100	95.179	95	90-110	
Iron	10000	9211.899	92	90-110	
Lead	100	102.47	102	90-110	
Magnesium	10000	9573.155	96	90-110	
Manganese	100	92.326	92	90-110	
Nickel	100	94.882	95	90-110	
Potassium	10000	9962.829	100	90-110	
Selenium	100	99.927	100	90-110	
Silver	100	82.362	82	90-110	S
Sodium	10000	9733.393	97	90-110	
Thallium	100	94.568	95	90-110	
Vanadium	100	96.515	97	90-110	
Zinc	100	95.997	96	90-110	

CCV17 Date: 18-Dec-2017 17:25 Seq: 4357360 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	98.027	98	90-110	
Antimony	100	100.664	101	90-110	
Arsenic	100	96.9	97	90-110	
Barium	100	102.464	102	90-110	
Beryllium	100	91.979	92	90-110	
Cadmium	100	99.007	99	90-110	
Calcium	10000	9556.725	96	90-110	
Chromium	100	91.285	91	90-110	
Cobalt	100	92.252	92	90-110	
Copper	100	95.44	95	90-110	
Iron	10000	10101.065	101	90-110	
Lead	100	98.351	98	90-110	
Magnesium	10000	9285.668	93	90-110	
Manganese	100	100.726	101	90-110	
Nickel	100	93.875	94	90-110	
Potassium	10000	9726.725	97	90-110	
Selenium	100	101.299	101	90-110	
Silver	100	100.233	100	90-110	
Sodium	10000	9344.979	93	90-110	
Thallium	100	100.534	101	90-110	
Vanadium	100	95.058	95	90-110	
Zinc	100	93.222	93	90-110	

CCV18 Date: 18-Dec-2017 18:08 Seq: 4357377 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Aluminum	100	100.136	100	90-110	
Antimony	100	101.849	102	90-110	
Arsenic	100	96.845	97	90-110	
Barium	100	97.848	98	90-110	
Beryllium	100	86.607	87	90-110	S
Cadmium	100	99.085	99	90-110	
Calcium	10000	9857.770	99	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCV18	Date: 18-Dec-2017 18:08		Seq: 4357377	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Chromium	100	94.503	95	90-110	
Cobalt	100	96.908	97	90-110	
Copper	100	94.502	95	90-110	
Iron	10000	10227.796	102	90-110	
Lead	100	107.785	108	90-110	
Magnesium	10000	9524.805	95	90-110	
Manganese	100	102.213	102	90-110	
Nickel	100	94.401	94	90-110	
Potassium	10000	10114.801	101	90-110	
Selenium	100	102.129	102	90-110	
Silver	100	99.496	100	90-110	
Sodium	10000	9651.112	97	90-110	
Thallium	100	97.921	98	90-110	
Vanadium	100	97.424	97	90-110	
Zinc	100	93.938	94	90-110	

CCV19	Date: 18-Dec-2017 18:30		Seq: 4357388	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Aluminum	100	88.938	89	90-110	S
Antimony	100	97.706	98	90-110	
Arsenic	100	94.856	95	90-110	
Barium	100	99.523	100	90-110	
Beryllium	100	91.477	92	90-110	
Cadmium	100	98.528	99	90-110	
Calcium	10000	9390.372	94	90-110	
Chromium	100	90.065	90	90-110	
Cobalt	100	92.24	92	90-110	
Copper	100	93.117	93	90-110	
Iron	10000	9325.745	93	90-110	
Lead	100	92.602	93	90-110	
Magnesium	10000	9305.514	93	90-110	
Manganese	100	92.742	93	90-110	
Nickel	100	90.228	90	90-110	
Potassium	10000	9592.089	96	90-110	
Selenium	100	91.035	91	90-110	
Silver	100	93.476	94	90-110	
Sodium	10000	10468.875	105	90-110	
Thallium	100	100.555	101	90-110	
Vanadium	100	94.725	95	90-110	
Zinc	100	93.598	94	90-110	

CCV20	Date: 18-Dec-2017 18:50		Seq: 4357398	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Aluminum	100	94.902	95	90-110	
Antimony	100	97.393	97	90-110	
Arsenic	100	94.667	95	90-110	
Barium	100	101.541	102	90-110	
Beryllium	100	90.47	91	90-110	
Cadmium	100	99.821	100	90-110	
Calcium	10000	9424.215	94	90-110	
Chromium	100	92.171	92	90-110	
Cobalt	100	94.894	95	90-110	
Copper	100	92.081	92	90-110	
Iron	10000	9617.424	96	90-110	
Lead	100	108.735	109	90-110	
Magnesium	10000	9387.399	94	90-110	
Manganese	100	97.804	97	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCV20 Date: 18-Dec-2017 18:50 Seq: 4357398 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Nickel	100	89.843	90	90-110	S
Potassium	10000	9476.155	95	90-110	
Selenium	100	96.442	96	90-110	
Silver	100	95.852	96	90-110	
Sodium	10000	10361.134	104	90-110	
Thallium	100	102.065	102	90-110	
Vanadium	100	98.364	98	90-110	
Zinc	100	91.817	92	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

ICB Date: 18-Dec-2017 10:29 Seq: 4355826 ICB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Aluminum	10	1.8	10	U
Antimony	2	0.4	2	U
Arsenic	2	0.4	2	U
Barium	4	1.9	4	U
Beryllium	2	0.2	2	U
Cadmium	2	0.2	2	U
Calcium	500	34	500	U
Chromium	4	0.4	4	U
Cobalt	5	0.2	5	U
Copper	2	1	2	U
Iron	200	12	200	U
Lead	2	0.6	2	U
Magnesium	200	10	200	U
Manganese	5	0.7	5	U
Nickel	2	0.6	2	U
Potassium	-64.56	18	200	J
Selenium	2	1.1	2	U
Silver	2	0.2	2	U
Sodium	-30.14	14	200	J
Thallium	2	0.2	2	U
Vanadium	5	0.6	5	U
Zinc	4	2	4	U

CCB1 Date: 18-Dec-2017 11:01 Seq: 4355843 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Aluminum	10	1.8	10	U
Antimony	1.086	0.4	2	J
Arsenic	2	0.4	2	U
Barium	4	1.9	4	U
Beryllium	2	0.2	2	U
Cadmium	2	0.2	2	U
Calcium	500	34	500	U
Chromium	4	0.4	4	U
Cobalt	5	0.2	5	U
Copper	2	1	2	U
Iron	200	12	200	U
Lead	2	0.6	2	U
Magnesium	200	10	200	U
Manganese	5	0.7	5	U
Nickel	2	0.6	2	U
Potassium	-34.17	18	200	J
Selenium	2	1.1	2	U
Silver	2	0.2	2	U
Sodium	-27.12	14	200	J
Thallium	2	0.2	2	U
Vanadium	5	0.6	5	U
Zinc	4	2	4	U

CCB2 Date: 18-Dec-2017 11:25 Seq: 4355865 CCB Units: ug/L

Analyte	Result	MDL	Report Limit	Qual
Aluminum	10	1.8	10	U
Antimony	1.594	0.4	2	J
Arsenic	2	0.4	2	U
Barium	4	1.9	4	U
Beryllium	2	0.2	2	U
Cadmium	2	0.2	2	U

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCB2	Date: 18-Dec-2017 11:25		Seq: 4355865	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-35.66	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	-30.69	14	200	J	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB3	Date: 18-Dec-2017 11:49		Seq: 4355877	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	1.094	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-46.15	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB4	Date: 18-Dec-2017 12:13		Seq: 4355889	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	1.054	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCB4	Date: 18-Dec-2017 12:13		Seq: 4355889	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-58.45	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	-29.24	14	200	J	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB5	Date: 18-Dec-2017 12:37		Seq: 4355904	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.949	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-42.42	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB6	Date: 18-Dec-2017 13:01		Seq: 4355937	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	1.28	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-39.49	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCB6	Date: 18-Dec-2017 13:01		Seq: 4355937	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Sodium	24.98	14	200	J	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB7	Date: 18-Dec-2017 13:25		Seq: 4355949	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.989	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-36.72	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB8	Date: 18-Dec-2017 13:49		Seq: 4355961	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.808	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-36.08	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	-35.99	14	200	J	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCB9	Date: 18-Dec-2017 14:15		Seq: 4356219	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.9	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-42.22	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	-65.89	14	200	J	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB10	Date: 18-Dec-2017 14:39		Seq: 4356231	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.85	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-31.28	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	-20.34	14	200	J	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB11	Date: 18-Dec-2017 15:03		Seq: 4356616	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	1.375	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	

ALS Group USA, Corp Date: 22-Dec-17

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCB11	Date: 18-Dec-2017 15:03		Seq: 4356616	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	111.3	14	200	J	
Thallium	1.18	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB12	Date: 18-Dec-2017 15:28		Seq: 4356627	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.7	0.4	2	J	
Arsenic	3.561	0.4	2		
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	18.98	18	200	J	
Selenium	2	1.1	2	U	
Silver	0.432	0.2	2	J	
Sodium	1042	14	200		
Thallium	0.873	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB13	Date: 18-Dec-2017 15:49		Seq: 4356637	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.545	0.4	2	J	
Arsenic	1.183	0.4	2	J	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	-35.45	34	500	J	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCB13	Date: 18-Dec-2017 15:49		Seq: 4356637	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-33.3	18	200	J	
Selenium	2	1.1	2	U	
Silver	0.212	0.2	2	J	
Sodium	261.9	14	500	J	
Thallium	0.627	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

MBLK-123330	Date: 18-Dec-2017 15:55		Seq: 4356967	MBLK	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	2	0.4	2	U	
Arsenic	0.688	0.4	2	J	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	200.4	14	500	J	
Thallium	2	0.2	2	U	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB14	Date: 18-Dec-2017 16:17		Seq: 4356978	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.74	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-26.85	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCB14	Date: 18-Dec-2017 16:17		Seq: 4356978	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Sodium	129.7	14	200	J	
Thallium	0.377	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB15	Date: 18-Dec-2017 16:37		Seq: 4356988	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	1.052	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-22.6	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	88.75	14	200	J	
Thallium	0.372	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB16	Date: 18-Dec-2017 17:01		Seq: 4357000	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.676	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	-36.44	34	500	J	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	200	12	200	U	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-38.15	18	200	J	
Selenium	2	1.1	2	U	
Silver	3.333	0.2	2		
Sodium	429	14	200		
Thallium	1.537	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCB17	Date: 18-Dec-2017 17:27		Seq: 4357361	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.826	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	17.07	12	200	J	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	0.792	0.7	5	J	
Nickel	2	0.6	2	U	
Potassium	-21.92	18	200	J	
Selenium	2	1.1	2	U	
Silver	2.117	0.2	2		
Sodium	165.4	14	200	J	
Thallium	0.407	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB18	Date: 18-Dec-2017 18:06		Seq: 4357376	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	-1.823	1.8	10	J	
Antimony	2	0.4	2	U	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	31.66	12	200	J	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-61.89	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	365.8	14	200		
Thallium	0.305	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB19	Date: 18-Dec-2017 18:32		Seq: 4357389	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.798	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307391
Instrument: ICPMS05
Method: SW6020

CCB19	Date: 18-Dec-2017 18:32		Seq: 4357389	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Calcium	500	34	500	U	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	29.86	12	200	J	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	0.842	0.7	5	J	
Nickel	2	0.6	2	U	
Potassium	200	18	200	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	873.5	14	200		
Thallium	0.3	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

CCB20	Date: 18-Dec-2017 18:52		Seq: 4357399	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Aluminum	10	1.8	10	U	
Antimony	0.579	0.4	2	J	
Arsenic	2	0.4	2	U	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Cadmium	2	0.2	2	U	
Calcium	-34.19	34	500	J	
Chromium	4	0.4	4	U	
Cobalt	5	0.2	5	U	
Copper	2	1	2	U	
Iron	30	12	200	J	
Lead	2	0.6	2	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Nickel	2	0.6	2	U	
Potassium	-60.27	18	200	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	
Sodium	869.8	14	200		
Thallium	0.274	0.2	2	J	
Vanadium	5	0.6	5	U	
Zinc	4	2	4	U	

ALS Group USA, Corp Date: 22-Dec-17

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc. Run ID:ICPMS05_307391
Project: LHAAP Site 18/24 Instrument:ICPMS05
WorkOrder: HS17120573 Method:SW6020

ICSA	Date: 18-Dec-2017 10:49	Seq: 4355836	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Aluminum	100000	85410	85.4	
Antimony		0.195	0	
Arsenic		0.059	0	
Barium		0.097	0	
Beryllium		0.003	0	
Cadmium		1.242	0	
Calcium	100000	100700	101	
Chromium		0.345	0	
Cobalt		0.019	0	
Copper		0.582	0	
Iron	100000	95330	95.3	
Lead		0.156	0	
Magnesium	100000	98180	98.2	
Manganese		0.407	0	
Nickel		-0.289	0	
Potassium	100000	99700	99.7	
Selenium		0.115	0	
Silver		0.025	0	
Sodium	100000	96640	96.6	
Thallium		0.007	0	
Vanadium		-0.221	0	
Zinc		0.524	0	

ICSAB	Date: 18-Dec-2017 10:51	Seq: 4355837	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Aluminum	100500	85420	85.0	
Antimony	100	88.64	88.6	
Arsenic	100	88.08	88.1	
Barium	100	85.6	85.6	
Beryllium	100	83.77	83.8	
Cadmium	100	86.94	86.9	
Calcium	110000	109100	99.1	
Chromium	100	85.05	85.1	
Cobalt	100	86.67	86.7	
Copper	100	83.55	83.5	
Iron	110000	106200	96.5	
Lead	100	84.3	84.3	
Magnesium	110000	107300	97.6	
Manganese	100	82.91	82.9	
Nickel	100	83.95	83.9	
Potassium	110000	107500	97.7	
Selenium	100	89.88	89.9	
Silver	100	83.35	83.3	
Sodium	110000	106500	96.8	
Thallium	100	85	85.0	
Vanadium	100	87.78	87.8	
Zinc	100	87.28	87.3	

ICSA	Date: 18-Dec-2017 18:58	Seq: 4357402	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Aluminum	100000	81910	81.9	
Antimony		0.141	0	
Arsenic		0.126	0	
Barium		0.12	0	
Beryllium		0.018	0	
Cadmium		1.177	0	
cium	100000	95760	95.8	

ALS Group USA, Corp Date: 22-Dec-17

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc. Run ID:ICPMS05_307391
Project: LHAAP Site 18/24 Instrument:ICPMS05
WorkOrder: HS17120573 Method:SW6020

ICSA	Date: 18-Dec-2017 18:58	Seq: 4357402	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Chromium		0.251	0	
Cobalt		0.018	0	
Copper		0.462	0	
Iron	100000	93030	93.0	
Lead		0.085	0	
Magnesium	100000	88970	89.0	
Manganese		0.952	0	
Nickel		0.877	0	
Potassium	100000	94860	94.9	
Selenium		0.576	0	
Silver		0.017	0	
Sodium	100000	89320	89.3	
Thallium		0.033	0	
Vanadium		-0.101	0	
Zinc		0.644	0	

ICSAB	Date: 18-Dec-2017 19:00	Seq: 4357403	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Aluminum	100500	85880	85.5	
Antimony	100	90.95	91.0	
Arsenic	100	85.99	86.0	
Barium	100	89.52	89.5	
Beryllium	100	76.26	76.3	
Cadmium	100	86.2	86.2	
Calcium	110000	107100	97.4	
Chromium	100	77.94	77.9	
Cobalt	100	82.1	82.1	
Copper	100	82.07	82.1	
Iron	110000	107100	97.4	
Lead	100	81.68	81.7	
Magnesium	110000	99060	90.1	
Manganese	100	86.45	86.5	
Nickel	100	81.53	81.5	
Potassium	110000	110200	100	
Selenium	100	86.4	86.4	
Silver	100	82.81	82.8	
Sodium	110000	99710	90.6	
Thallium	100	86.16	86.2	
Vanadium	100	82.56	82.6	
Zinc	100	81.28	81.3	

ALS Group USA, Corp Date: 22-Dec-17

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Date Analyzed: 18-Dec-2017 16:31
Date Extracted: 14-Dec-2017 12:00
Units: ug/L

Matrix Spike: HS17120494-10MS
Client Sample ID:

Analysis Method: SW6020

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Aluminum	117.1	221.3	100.0	104	232.8	100.0	116	80-120	5.09	20
Antimony	2.000	51.13	50.00	102	50.58	50.00	101	80-120	1.08	20
Arsenic	5.223	52.18	50.00	93.9	51.05	50.00	91.7	80-120	2.18	20
Barium	114.3	173.1	50.00	118	160.1	50.00	91.8	80-120	7.78	20
Beryllium	2.000	45.48	50.00	90.9	47.68	50.00	95.3	80-120	4.72	20
Cadmium	2.000	47.31	50.00	94.6	45.68	50.00	91.3	80-120	3.51	20
Calcium	84830	88920	5000	81.7	88440	5000	72.1	80-120	0.540	20
Chromium	4.000	43.48	50.00	86.3	43.35	50.00	86.0	80-120	0.288	20
Cobalt	0.3530	44.63	50.00	88.5	44.54	50.00	88.4	80-120	0.197	20
Copper	2.000	43.65	50.00	85.6	44.19	50.00	86.7	80-120	1.24	20
Iron	518.1	4692	5000	83.5	4754	5000	84.7	80-120	1.31	20
Lead	2.000	43.16	50.00	85.4	44.83	50.00	88.7	80-120	3.78	20
Magnesium	22000	26930	5000	98.7	27470	5000	109	80-120	1.99	20
Manganese	695.0	750.2	50.00	110	764.3	50.00	138	80-120	1.86	20
Nickel	2.000	42.32	50.00	84.5	42.73	50.00	85.3	80-120	0.966	20
Potassium	6280	10410	5000	82.5	10630	5000	87.0	80-120	2.12	20
Selenium	2.000	43.14	50.00	86.2	47.23	50.00	94.4	80-120	9.05	20
Silver	2.000	43.93	50.00	87.8	45.92	50.00	91.8	80-120	4.44	20
Sodium	84340	91440	5000	142	92720	5000	167	80-120	1.39	20
Thallium	2.000	43.22	50.00	86.4	43.67	50.00	87.3	80-120	1.04	20
Vanadium	1.238	46.50	50.00	90.5	46.68	50.00	90.9	80-120	0.397	20
Zinc	3.765	47.49	50.00	87.5	49.20	50.00	90.9	80-120	3.52	20

ALS Group USA, Corp Date: 22-Dec-17

Form 5B - Post Digest Sample Recovery

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Date Analyzed: 18-Dec-2017 16:33
Date Extracted: 14-Dec-2017 12:00
Units: ug/L

Lab Sample ID: HS17120494-10PDS
Client Sample ID:

Analysis Method: SW6020

Analyte	Sample Result	PDS Result	Spike Amount	% Rec	% Rec Limits
Antimony	0	80.86	100	81	75-125
Arsenic	5.223	86.47	100	81	75-125
Beryllium	0	83.63	100	84	75-125
Cadmium	0	78.72	100	79	75-125
Calcium	84830	88530	10000	37	75-125
Cobalt	0.353	75.74	100	75	75-125
Lead	0	77.62	100	78	75-125
Manganese	695	747.6	100	53	75-125
Selenium	0	81.3	100	81	75-125
Silver	0	78.47	100	79	75-125
Sodium	84340	90780	10000	64	75-125
Thallium	0	78.11	100	78	75-125
Vanadium	1.238	79.05	100	78	75-125
Zinc	3.765	80.06	100	76	75-125

ALS Group USA, Corp Date: 22-Dec-17

Form 7 - Laboratory Control Sample

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Date Analyzed: 18-Dec-2017 15:57
Date Extracted: 14-Dec-2017 12:00
Units: ug/L

Lab Sample ID: LCS-123330 Analysis Method: SW6020

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Aluminum	100	81.2	81	80-120
Antimony	50	48.96	98	80-120
Arsenic	50	44.52	89	80-120
Barium	50	44.49	89	80-120
Beryllium	50	42.2	84	80-120
Cadmium	50	45.21	90	80-120
Calcium	5000	4459	89	80-120
Chromium	50	42.29	85	80-120
Cobalt	50	43.9	88	80-120
Copper	50	43.28	87	80-120
Iron	5000	4107	82	80-120
Lead	50	45.45	91	80-120
Magnesium	5000	4270	85	80-120
Manganese	50	42.25	85	80-120
Nickel	50	42.54	85	80-120
Potassium	5000	4505	90	80-120
Selenium	50	46.55	93	80-120
Silver	50	46.26	93	80-120
Sodium	5000	4447	89	80-120
Thallium	50	41.91	84	80-120
Vanadium	50	43.01	86	80-120
Zinc	50	47.18	94	80-120

ALS Group USA, Corp Date: 22-Dec-17

Form 8 - ICP Serial Dilutions

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Date Analyzed: 18-Dec-2017 16:27
Date Extracted: 14-Dec-2017 12:00
Units: ug/L

Lab Sample ID: HS17120494-10SD
Client Sample ID:

Analysis Method: SW6020

Analyte	Sample Result	C	SD Result	C	RPD	Q
Aluminum	117.1		101.4		13	E
Antimony	0	U	0	U	0	
Arsenic	5.223		6.359	J	22	
Barium	114.3		110.9		3	
Beryllium	0	U	0	U	0	
Cadmium	0	U	0	U	0	
Calcium	84830		82900		2	
Chromium	0	U	0	U	0	
Cobalt	0.353	J	0	U	0	
Copper	0	U	0	U	0	
Iron	518.1		530.5	J	2	
Lead	0	U	0	U	0	
Magnesium	22000		23300		6	
Manganese	695		713.6		3	
Nickel	0	U	0	U	0	
Potassium	6280		6195		1	
Selenium	0	U	0	U	0	
Silver	0	U	0	U	0	
Sodium	84340		90040		7	
Thallium	0	U	0	U	0	
Vanadium	1.238	J	0	U	0	
Zinc	3.765	J	0	U	0	

ALS Group USA, Corp Date: 22-Dec-17

Form 11 - INTERNAL STANDARD ASSOCIATION

Client: Bhate Environmental Associates, Inc. Instrument:ICPMS05
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Mass	Analyte	Assoc Int Standard 1	Assoc Int Standard 2	Mode
9	Beryllium	Lithium		Ar
11	Boron	Lithium		Ar
23	Sodium	Germanium		Ar
24	Magnesium	Germanium		Ar
27	Aluminum	Germanium		Ar
39	Potassium	Germanium		Ar
44	Calcium	Germanium		Ar
47	Titanium	Germanium		Ar
51	Vanadium	Germanium		ArHe
52	Chromium	Germanium		ArHe
55	Manganese	Germanium		ArHe
56	Iron	Germanium		ArHe
59	Cobalt	Germanium		ArHe
60	Nickel	Germanium		ArHe
63	Copper	Germanium		ArHe
66	Zinc	Germanium		ArHe
75	Arsenic	Germanium		ArHe
78	Selenium	Germanium		ArHe
88	Strontium	Germanium		Ar
95	Molybdenum	Germanium		Ar
105	Palladium	Germanium		Ar
107	Silver	Germanium		Ar
114	Cadmium	Indium		Ar
118	Tin	Germanium		Ar
121	Antimony	Germanium		ArHe
137	Barium	Indium		Ar
205	Thallium	Bismuth		Ar
208	Lead	Bismuth		Ar

ALS Group USA, Corp Date: 22-Dec-17

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573
Start Date: 14-Dec-2017 12:00 End Date: 14-Dec-2017 16:00

Batch ID: 123330
Prep Code: 3010A
Method: SW3010A
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS17120494-10MS				10	10	1
HS17120494-10MSD				10	10	1
HS17120494-10PDS				10	10	1
HS17120494-10SD				10	10	1
HS17120573-01	18CPTMW24_120717	Water		10	10	1
HS17120573-02	18CPTMW14_120717	Water		10	10	1
HS17120573-03	18CPTMW14_120717_a	Water		10	10	1
HS17120573-05	18WW24_120717	Water		10	10	1
HS17120573-06	18WW25_120717	Water		10	10	1
HS17120573-09	18WW02_120817	Water		10	10	1
LCS-123330				10	10	1
MBLK-123330				10	10	1

ALS Group USA, Corp Date: 22-Dec-17

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573
Start Date: 18-Dec-2017 End Date: 18-Dec-2017

Run ID:ICPMS05_307391
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
ICPMS05_307391_Tune	1	18-Dec-2017 00:00	ICPMS05_307391_Tune_1	
CAL BLK	1	18-Dec-2017 10:09	005CALB.d_4355816	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
2/10/200	1	18-Dec-2017 10:11	006CALS.d_4355817	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
5/25/500	1	18-Dec-2017 10:13	007CALS.d_4355818	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
10/50/1000	1	18-Dec-2017 10:15	008CALS.d_4355819	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
100/500/10K	1	18-Dec-2017 10:17	009CALS.d_4355820	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
200/1000/20K	1	18-Dec-2017 10:19	010CALS.d_4355821	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLICV2	1	18-Dec-2017 10:25	013SMPL.d_4355824	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLICV5	1	18-Dec-2017 10:27	014LICV.d_4355825	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICB	1	18-Dec-2017 10:29	015_ICB.d_4355826	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICV	1	18-Dec-2017 10:31	016_ICV.d_4355827	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICSA	1	18-Dec-2017 10:49	025ICSA.d_4355836	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICSAB	1	18-Dec-2017 10:51	026ICSB.d_4355837	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 1	1	18-Dec-2017 10:59	030_CCV.d_4355842	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 1	1	18-Dec-2017 11:01	031_CCB.d_4355843	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 2	1	18-Dec-2017 11:23	042_CCV.d_4355864	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 2	1	18-Dec-2017 11:25	043_CCB.d_4355865	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 3	1	18-Dec-2017 11:47	054_CCV.d_4355876	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 3	1	18-Dec-2017 11:49	055_CCB.d_4355877	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 4	1	18-Dec-2017 12:11	066_CCV.d_4355888	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 4	1	18-Dec-2017 12:13	067_CCB.d_4355889	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 5	1	18-Dec-2017 12:35	078_CCV.d_4355903	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 5	1	18-Dec-2017 12:37	079_CCB.d_4355904	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 6	1	18-Dec-2017 12:59	090_CCV.d_4355936	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 6	1	18-Dec-2017 13:01	091_CCB.d_4355937	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 7	1	18-Dec-2017 13:23	102_CCV.d_4355948	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 7	1	18-Dec-2017 13:25	103_CCB.d_4355949	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 8	1	18-Dec-2017 13:47	114_CCV.d_4355960	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 8	1	18-Dec-2017 13:49	115_CCB.d_4355961	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 9	1	18-Dec-2017 14:13	126_CCV.d_4356218	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 9	1	18-Dec-2017 14:15	127_CCB.d_4356219	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 10	1	18-Dec-2017 14:37	138_CCV.d_4356230	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 10	1	18-Dec-2017 14:39	139_CCB.d_4356231	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 11	1	18-Dec-2017 15:01	150_CCV.d_4356615	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN

ALS Group USA, Corp Date: 22-Dec-17

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573
Start Date: 18-Dec-2017 End Date: 18-Dec-2017

Run ID:ICPMS05_307391
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
CCB 11	1	18-Dec-2017 15:03	151_CCB.d_4356616	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 12	1	18-Dec-2017 15:28	163_CCB.d_4356627	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 12	1	18-Dec-2017 15:32	165_CCV.d_4356629	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 13	1	18-Dec-2017 15:47	172_CCV.d_4356636	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 13	1	18-Dec-2017 15:49	173_CCB.d_4356637	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
MBLK-123330	1	18-Dec-2017 15:55	174SMPL.d_4356967	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LCS-123330	1	18-Dec-2017 15:57	175SMPL.d_4356968	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 14	1	18-Dec-2017 16:15	184_CCV.d_4356977	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 14	1	18-Dec-2017 16:17	185_CCB.d_4356978	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ZZZZZZSD	5	18-Dec-2017 16:27	190SMPL.d_4356983	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ZZZZZZMS	1	18-Dec-2017 16:29	191SMPL.d_4356984	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ZZZZZZMSD	1	18-Dec-2017 16:31	192SMPL.d_4356985	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ZZZZZZPDS	1	18-Dec-2017 16:33	193SMPL.d_4356986	AG AS BE CA CD CO MN NA PB SB SE TL V ZN
CCV 15	1	18-Dec-2017 16:35	194_CCV.d_4356987	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 15	1	18-Dec-2017 16:37	195_CCB.d_4356988	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
18CPTMW24_120717	1	18-Dec-2017 16:43	198SMPL.d_4356991	AL AS CD CO CR CU FE K MN NI PB SB SE TL V ZN
18CPTMW14_120717	1	18-Dec-2017 16:45	199SMPL.d_4356992	AL AS CD CO CR CU FE K MG MN NI PB SB SE TL V ZN
18CPTMW14_120717_a	1	18-Dec-2017 16:47	200SMPL.d_4356993	AL AS CD CO CR CU FE K MG MN NI PB SB SE TL V ZN
18WW24_120717	1	18-Dec-2017 16:49	201SMPL.d_4356994	AL AS BA CA CD CO CR CU FE K MG NI PB SB SE TL V ZN
18WW25_120717	1	18-Dec-2017 16:51	202SMPL.d_4356995	AL AS BA CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
18WW02_120817	1	18-Dec-2017 16:53	203SMPL.d_4356996	AL AS BA CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 16	1	18-Dec-2017 17:01	207_CCB.d_4357000	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 16	1	18-Dec-2017 17:05	209_CCV.d_4357002	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 17	1	18-Dec-2017 17:25	219_CCV.d_4357360	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 17	1	18-Dec-2017 17:27	220_CCB.d_4357361	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 18	1	18-Dec-2017 18:06	236_CCB.d_4357376	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 18	1	18-Dec-2017 18:08	237_CCV.d_4357377	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 19	1	18-Dec-2017 18:30	248_CCV.d_4357388	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 19	1	18-Dec-2017 18:32	249_CCB.d_4357389	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 20	1	18-Dec-2017 18:50	258_CCV.d_4357398	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 20	1	18-Dec-2017 18:52	259_CCB.d_4357399	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLCCV5	1	18-Dec-2017 18:54	260LICV.d_4357400	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLCCV2	1	18-Dec-2017 18:56	261SMPL.d_4357401	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICSA	1	18-Dec-2017 18:58	262ICSA.d_4357402	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICSAB	1	18-Dec-2017 19:00	263ICSB.d_4357403	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN

Tune Report

Batch Folder C:\Agilent\ICPMH\1\DATA\121817A.b
Report Comment
Instrument Name G3281A JP11080910

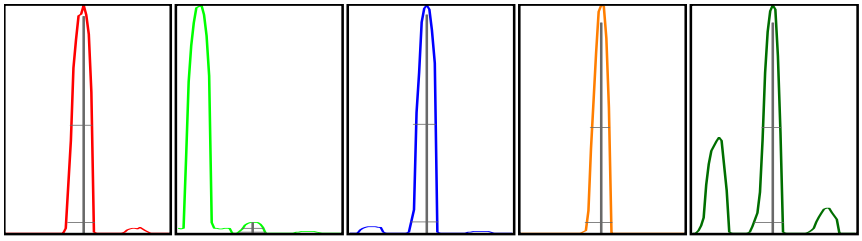
[nogas]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		10626				NaN	-	
24		33030				NaN	-	
59		46539				NaN	-	
115		54104				NaN	-	
208		35336				NaN	-	

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	0.97	5.00				
24	1.64	5.00				
59	0.48	5.00				
115	1.40	5.00				
208	0.86	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	10490	10762	10630	10679	10571
24	32377	33835	32880	32826	33232
59	46264	46746	46385	46520	46778
115	53638	53744	54923	53308	54908
208	34987	35573	35617	35032	35468

Integration Time [sec] 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	2737.13	8.95	8.9 - 9.1		0.40	0.493	0.750	
24	8705.07	23.90	23.9 - 24.1		0.39	0.490	0.750	
59	12960.37	58.95	58.9 - 59.1		0.37	0.474	0.750	
115	16034.84	115.00	114.9 - 115.1		0.34	0.476	0.750	
208	10083.74	208.00	207.9 - 208.1		0.34	0.531	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1600 W	Carrier Gas	0.35 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.50 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	15.6 V
Extract 2	-200.0 V	Cell Entrance	-38 V	Plate Bias	-50 V
Omega Bias	-100 V	Cell Exit	-58 V		

Cell Parameters

OctP Bias	-8.0 V	He Flow	0.0 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

[He]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		110				NaN	-	
24		620				NaN	-	
59		10878				NaN	-	

Tune Report

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	5.78	5.00	[F]			
24	3.92	5.00				
59	3.04	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	118	112	103	111	104
24	619	630	611	653	587
59	10387	10790	10885	11050	11275

Integration Time [sec] 0.1

Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	28.36	8.95	8.9 - 9.1		0.38	0.511	0.750	
24	163.85	23.90	23.9 - 24.1		0.38	0.488	0.750	
59	3141.94	58.95	58.9 - 59.1		0.35	0.450	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.35 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.50 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	2.0 V
Extract 2	-200.0 V	Cell Entrance	-32 V	Plate Bias	-60 V
Omega Bias	-100 V	Cell Exit	-70 V		

Cell Parameters

OctP Bias	-18.0 V	He Flow	5.5 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	005CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:09:42-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	13	1299.04
Na	23	1	nogas	2932285	0.00
Mg	24	1	nogas	6369	0.31
Al	27	1	nogas	39949	0.00
K	39	1	nogas	5589732	0.00
Ti	47	1	nogas	647	2.30
V	51	1	nogas	841996	0.00
Cr	52	1	nogas	36353	0.00
Mn	55	1	nogas	4374	0.10
Co	59	1	nogas	320	2.93
Ni	60	1	nogas	2460	0.23
Cu	63	1	nogas	7642	0.03
Zn	66	1	nogas	243	2.58
As	75	1	nogas	137034	0.00
Sr	88	1	nogas	997	1.58
Ag	107	1	nogas	533	4.67
Cd	111	1	nogas	3	5196.15
Sb	121	1	nogas	2707	0.11
Tl	205	1	nogas	103	30.11
Pb	208	1	nogas	497	2.76
[Pb]	206	1	nogas	127	9.52
[Pb]	207	1	nogas	117	40.46
Na	23	2	He	76393	0.00
Mg	24	2	He	263	4.64
Al	27	2	He	73	28.40
K	39	2	He	15216	0.02
Ca	43	2	He	27	162.38
Ca	44	2	He	473	5.54
V	51	2	He	497	1.07
Cr	52	2	He	1157	0.60
Mn	55	2	He	150	8.89
Fe	56	2	He	4237	0.15
Co	59	2	He	10	1732.05
Ni	60	2	He	237	10.15
Cu	63	2	He	740	1.59
Zn	66	2	He	17	1039.23
As	75	2	He	21	155.77
Se	78	2	He	5	1060.44
B	11	1	nogas	4741	0.12
Si	28	1	nogas	1855400	0.00
Ca	43	1	nogas	1927	0.40
Ca	44	1	nogas	1832563	0.00

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	651873	0.00
Se	77	1	nogas	43479	0.01
Se	82	1	nogas	437	1.99
Mo	95	1	nogas	380	1.83
Sn	118	1	nogas	1060	0.80
Ba	137	1	nogas	100	26.46
Sb	121	2	He	270	9.60
Li	7	1	nogas	39298	0.01
P	31	1	nogas	318084	0.00
La	139	1	nogas	37	214.72

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	nogas	422913	2.80
Ge	72	1	nogas	1623145	0.28
In	115	1	nogas	1725651	1.26
Bi	209	1	nogas	1623810	1.59
Ge	72	2	He	132260	1.45

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	006CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:11:41-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	6911	0.05
Na	23	1	nogas	5781084	0.00
Mg	24	1	nogas	2112695	0.00
Al	27	1	nogas	64892	0.01
K	39	1	nogas	7670632	0.00
Ti	47	1	nogas	2570	0.08
V	51	1	nogas	936674	0.00
Cr	52	1	nogas	68206	0.00
Mn	55	1	nogas	39984	0.00
Co	59	1	nogas	32453	0.01
Ni	60	1	nogas	9469	0.04
Cu	63	1	nogas	25655	0.02
Zn	66	1	nogas	6321	0.08
As	75	1	nogas	150516	0.00
Sr	88	1	nogas	37056	0.00
Ag	107	1	nogas	23125	0.00
Cd	111	1	nogas	4911	0.10
Sb	121	1	nogas	22134	0.02
Tl	205	1	nogas	37133	0.00
Pb	208	1	nogas	53335	0.00
[Pb]	206	1	nogas	13112	0.03
[Pb]	207	1	nogas	11838	0.02
Na	23	2	He	138982	0.00
Mg	24	2	He	29437	0.00
Al	27	2	He	220	0.00
K	39	2	He	30552	0.01
Ca	43	2	He	57	95.14
Ca	44	2	He	1437	0.80
V	51	2	He	3577	0.10
Cr	52	2	He	5708	0.07
Mn	55	2	He	1857	0.19
Fe	56	2	He	351373	0.00
Co	59	2	He	7242	0.05
Ni	60	2	He	2397	0.23
Cu	63	2	He	6835	0.08
Zn	66	2	He	933	0.92
As	75	2	He	539	1.69
Se	78	2	He	21	71.53
B	11	1	nogas	27237	0.01
Si	28	1	nogas	2365312	0.00

Calibration Standard Report

Ca	43	1	nogas	6365	0.04
Ca	44	1	nogas	1899588	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	4131927	0.00
Se	77	1	nogas	48542	0.00
Se	82	1	nogas	803	1.14
Mo	95	1	nogas	8329	0.07
Sn	118	1	nogas	12875	0.03
Ba	137	1	nogas	5591	0.07
Sb	121	2	He	2520	0.23
P	31	1	nogas	313678	0.00
La	139	1	nogas	67	79.02

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	413832	2.88	422913	97.85	70	125	
Ge	72	1	nogas	1662963	5.47	1623145	102.45	70	125	
In	115	1	nogas	1719931	2.38	1725651	99.67	70	125	
Bi	209	1	nogas	1647715	0.49	1623810	101.47	70	125	
Ge	72	2	He	131545	1.21	132260	99.46	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	007CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:13:41-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	17532	0.03
Na	23	1	nogas	10159292	0.00
Mg	24	1	nogas	5236850	0.00
Al	27	1	nogas	109157	0.01
K	39	1	nogas	10838152	0.00
Ti	47	1	nogas	6355	0.06
V	51	1	nogas	1092982	0.00
Cr	52	1	nogas	115749	0.00
Mn	55	1	nogas	96339	0.00
Co	59	1	nogas	84640	0.00
Ni	60	1	nogas	21386	0.02
Cu	63	1	nogas	51864	0.00
Zn	66	1	nogas	15270	0.02
As	75	1	nogas	167226	0.00
Sr	88	1	nogas	95274	0.00
Ag	107	1	nogas	55004	0.00
Cd	111	1	nogas	11527	0.06
Sb	121	1	nogas	49685	0.00
Tl	205	1	nogas	97793	0.00
Pb	208	1	nogas	133378	0.00
[Pb]	206	1	nogas	33512	0.01
[Pb]	207	1	nogas	29728	0.01
Na	23	2	He	232759	0.00
Mg	24	2	He	74681	0.01
Al	27	2	He	310	4.16
K	39	2	He	52547	0.00
Ca	43	2	He	127	23.60
Ca	44	2	He	2570	0.50
V	51	2	He	8191	0.07
Cr	52	2	He	12084	0.02
Mn	55	2	He	4754	0.07
Fe	56	2	He	892700	0.00
Co	59	2	He	18046	0.01
Ni	60	2	He	5564	0.05
Cu	63	2	He	16177	0.02
Zn	66	2	He	2077	0.38
As	75	2	He	1289	0.26
Se	78	2	He	73	20.86
B	11	1	nogas	62179	0.01
Si	28	1	nogas	3216289	0.00

Calibration Standard Report

Ca	43	1	nogas	13192	0.02
Ca	44	1	nogas	1986013	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	9440976	0.00
Se	77	1	nogas	49571	0.00
Se	82	1	nogas	1207	0.47
Mo	95	1	nogas	20993	0.01
Sn	118	1	nogas	31976	0.01
Ba	137	1	nogas	14503	0.01
Sb	121	2	He	5758	0.12
P	31	1	nogas	320491	0.00
La	139	1	nogas	73	107.36

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	409111	3.93	422913	96.74	70	125	
Ge	72	1	nogas	1641365	0.14	1623145	101.12	70	125	
In	115	1	nogas	1803029	1.42	1725651	104.48	70	125	
Bi	209	1	nogas	1601510	3.37	1623810	98.63	70	125	
Ge	72	2	He	131908	1.50	132260	99.73	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	008CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:15:40-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	36839	0.00
Na	23	1	nogas	17568829	0.00
Mg	24	1	nogas	10533299	0.00
Al	27	1	nogas	176414	0.00
K	39	1	nogas	16397983	0.00
Ti	47	1	nogas	12031	0.02
V	51	1	nogas	1329882	0.00
Cr	52	1	nogas	192633	0.00
Mn	55	1	nogas	189131	0.00
Co	59	1	nogas	169450	0.00
Ni	60	1	nogas	40211	0.00
Cu	63	1	nogas	98820	0.00
Zn	66	1	nogas	30055	0.01
As	75	1	nogas	192428	0.00
Sr	88	1	nogas	190673	0.00
Ag	107	1	nogas	113667	0.00
Cd	111	1	nogas	23773	0.01
Sb	121	1	nogas	94234	0.00
Tl	205	1	nogas	198476	0.00
Pb	208	1	nogas	273677	0.00
[Pb]	206	1	nogas	67336	0.00
[Pb]	207	1	nogas	60981	0.00
Na	23	2	He	390222	0.00
Mg	24	2	He	150652	0.00
Al	27	2	He	623	1.42
K	39	2	He	89815	0.00
Ca	43	2	He	297	5.37
Ca	44	2	He	4871	0.10
V	51	2	He	15707	0.00
Cr	52	2	He	23275	0.01
Mn	55	2	He	8629	0.03
Fe	56	2	He	1877154	0.00
Co	59	2	He	36757	0.01
Ni	60	2	He	11274	0.02
Cu	63	2	He	31204	0.01
Zn	66	2	He	4084	0.17
As	75	2	He	2859	0.19
Se	78	2	He	134	11.30
B	11	1	nogas	122482	0.00
Si	28	1	nogas	4662487	0.00

Calibration Standard Report

Ca	43	1	nogas	24306	0.01
Ca	44	1	nogas	2120900	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	18130701	0.00
Se	77	1	nogas	53853	0.01
Se	82	1	nogas	2184	0.16
Mo	95	1	nogas	41933	0.00
Sn	118	1	nogas	61469	0.00
Ba	137	1	nogas	29205	0.01
Sb	121	2	He	10410	0.05
P	31	1	nogas	331086	0.00
La	139	1	nogas	83	22.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	414876	1.53	422913	98.10	70	125	
Ge	72	1	nogas	1656148	0.63	1623145	102.03	70	125	
In	115	1	nogas	1739125	3.97	1725651	100.78	70	125	
Bi	209	1	nogas	1625686	1.56	1623810	100.12	70	125	
Ge	72	2	He	129994	0.52	132260	98.29	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	009CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:17:39-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	335055	0.00
Na	23	1	nogas	139977678	0.00
Mg	24	1	nogas	94580998	0.00
Al	27	1	nogas	1270343	0.00
K	39	1	nogas	109733436	0.00
Ti	47	1	nogas	105843	0.00
V	51	1	nogas	2784866	0.00
Cr	52	1	nogas	1451311	0.00
Mn	55	1	nogas	1758345	0.00
Co	59	1	nogas	1542701	0.00
Ni	60	1	nogas	347176	0.00
Cu	63	1	nogas	835800	0.00
Zn	66	1	nogas	267547	0.00
As	75	1	nogas	455740	0.00
Sr	88	1	nogas	1788375	0.00
Ag	107	1	nogas	1053984	0.00
Cd	111	1	nogas	218221	0.00
Sb	121	1	nogas	890525	0.00
Tl	205	1	nogas	1827547	0.00
Pb	208	1	nogas	2552883	0.00
[Pb]	206	1	nogas	623576	0.00
[Pb]	207	1	nogas	571759	0.00
Na	23	2	He	2954053	0.00
Mg	24	2	He	1380124	0.00
Al	27	2	He	4097	0.06
K	39	2	He	706302	0.00
Ca	43	2	He	2480	0.06
Ca	44	2	He	40695	0.00
V	51	2	He	142397	0.00
Cr	52	2	He	206168	0.00
Mn	55	2	He	81253	0.00
Fe	56	2	He	17315295	0.00
Co	59	2	He	347040	0.00
Ni	60	2	He	100512	0.00
Cu	63	2	He	277045	0.00
Zn	66	2	He	39570	0.01
As	75	2	He	26211	0.01
Se	78	2	He	1015	0.09
B	11	1	nogas	1130294	0.00
Si	28	1	nogas	28245403	0.00

Calibration Standard Report

Ca	43	1	nogas	214502	0.00
Ca	44	1	nogas	5043177	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	164042370	0.00
Se	77	1	nogas	67813	0.00
Se	82	1	nogas	15400	0.01
Mo	95	1	nogas	393470	0.00
Sn	118	1	nogas	576152	0.00
Ba	137	1	nogas	273528	0.00
Sb	121	2	He	100983	0.00
P	31	1	nogas	677319	0.00
La	139	1	nogas	243	2.58

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	368034	3.51	422913	87.02	70	125	
Ge	72	1	nogas	1622907	2.09	1623145	99.99	70	125	
In	115	1	nogas	1686953	4.99	1725651	97.76	70	125	
Bi	209	1	nogas	1594508	2.06	1623810	98.20	70	125	
Ge	72	2	He	128930	0.48	132260	97.48	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	010CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:19:36-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	663212	0.00
Na	23	1	nogas	277630523	0.00
Mg	24	1	nogas	189730217	0.00
Al	27	1	nogas	2557395	0.00
K	39	1	nogas	206752550	0.00
Ti	47	1	nogas	214103	0.00
V	51	1	nogas	4398860	0.00
Cr	52	1	nogas	2844356	0.00
Mn	55	1	nogas	3466594	0.00
Co	59	1	nogas	3077292	0.00
Ni	60	1	nogas	692491	0.00
Cu	63	1	nogas	1671340	0.00
Zn	66	1	nogas	535867	0.00
As	75	1	nogas	771338	0.00
Sr	88	1	nogas	3454594	0.00
Ag	107	1	nogas	2080326	0.00
Cd	111	1	nogas	436035	0.00
Sb	121	1	nogas	1816431	0.00
Tl	205	1	nogas	3553313	0.00
Pb	208	1	nogas	5010431	0.00
[Pb]	206	1	nogas	1212118	0.00
[Pb]	207	1	nogas	1115724	0.00
Na	23	2	He	5847970	0.00
Mg	24	2	He	2679022	0.00
Al	27	2	He	7792	0.02
K	39	2	He	1414850	0.00
Ca	43	2	He	5064	0.11
Ca	44	2	He	84145	0.00
V	51	2	He	289038	0.00
Cr	52	2	He	410537	0.00
Mn	55	2	He	157301	0.00
Fe	56	2	He	33454443	0.00
Co	59	2	He	674314	0.00
Ni	60	2	He	200988	0.00
Cu	63	2	He	561685	0.00
Zn	66	2	He	80769	0.00
As	75	2	He	52616	0.00
Se	78	2	He	2097	0.05
B	11	1	nogas	2311975	0.00
Si	28	1	nogas	53581804	0.00

Calibration Standard Report

Ca	43	1	nogas	420945	0.00
Ca	44	1	nogas	8322798	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	323653882	0.00
Se	77	1	nogas	86599	0.00
Se	82	1	nogas	30556	0.01
Mo	95	1	nogas	779548	0.00
Sn	118	1	nogas	1147599	0.00
Ba	137	1	nogas	563007	0.00
Sb	121	2	He	208169	0.00
P	31	1	nogas	1052115	0.00
La	139	1	nogas	577	3.09

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	336953	3.69	422913	79.67	70	125	
Ge	72	1	nogas	1631995	0.45	1623145	100.55	70	125	
In	115	1	nogas	1701077	2.12	1725651	98.58	70	125	
Bi	209	1	nogas	1562019	1.61	1623810	96.19	70	125	
Ge	72	2	He	130627	1.79	132260	98.77	70	125	

Sample Report

Sample Table

Sample Name	LLICV2
Data File Name	013SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:25:37-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	2.007	2.007	4.30	7038	0.03	2000	
Na	23	1	nogas	186.137	186.137	2.59	5440640	0.00	200000	
Mg	24	1	nogas	212.702	212.702	0.14	2063961	0.01	200000	
Al	27	1	nogas	1.686	1.686	11.52	62296	0.00	2000	
K	39	1	nogas	152.425	152.425	9.01	7281795	0.00	200000	
Ti	47	1	nogas	2.005	2.005	5.53	2834	0.07	2000	
V	51	1	nogas	62.990	62.990	3.64	2024596	0.00	2000	
Cr	52	1	nogas	2.512	2.512	5.69	73082	0.00	2000	
Mn	55	1	nogas	2.143	2.143	4.52	42303	0.01	2000	
Co	59	1	nogas	2.064	2.064	4.59	32650	0.01	2000	
Ni	60	1	nogas	1.383	1.383	9.94	8532	0.02	2000	
Cu	63	1	nogas	1.846	1.846	8.33	23415	0.01	2000	
Zn	66	1	nogas	1.638	1.638	0.25	5944	0.03	2000	
As	75	1	nogas	14.234	14.234	7.24	194405	0.01	2000	
Sr	88	1	nogas	2.092	2.092	5.96	38014	0.01	2000	
Ag	107	1	nogas	2.113	2.113	2.98	22959	0.01	2000	
Cd	111	1	nogas	2.081	2.081	7.01	4644	0.04	2000	
Sb	121	1	nogas	2.648	2.648	3.08	27092	0.01	2000	
Tl	205	1	nogas	2.036	2.036	1.50	39522	0.01	2000	
Pb	208	1	nogas	2.301	2.301	1.29	58356	0.00	2000	
U	238	1	nogas	2.050	2.050	2.01	57223	0.00	2000	
[Pb]	206	1	nogas	2.097	2.097	5.86	13973	0.02	2000	
[Pb]	207	1	nogas	2.098	2.098	2.47	12865	0.02	2000	
Na	23	2	He	179.076	179.076	6.46	128980	0.14	200000	
Mg	24	2	He	211.444	211.444	2.57	29220	0.72	200000	
Al	27	2	He	-0.031	-0.031	-2063.71	160	-0.02	2000	
K	39	2	He	200.613	200.613	0.93	29223	0.69	200000	
Ca	43	2	He	116.763	116.763	49.53	57	206.05	200000	
Ca	44	2	He	211.976	211.976	8.35	1370	15.47	200000	
V	51	2	He	2.425	2.425	9.03	4334	0.06	2000	
Cr	52	2	He	2.000	2.000	5.77	5324	0.04	2000	
Mn	55	2	He	2.033	2.033	12.71	1787	0.11	2000	
Fe	56	2	He	202.607	202.607	2.29	351113	0.06	200000	
Co	59	2	He	2.007	2.007	1.60	6928	0.03	2000	
Ni	60	2	He	1.407	1.407	6.56	2127	0.07	2000	
Cu	63	2	He	1.742	1.742	8.61	6665	0.03	2000	
Zn	66	2	He	2.306	2.306	9.19	973	0.24	2000	
As	75	2	He	1.978	1.978	7.67	549	0.36	2000	
Se	78	2	He	1.542	1.542	37.70	27	5.64	2000	
B	11	1	nogas	42.091	42.091	3.17	103404	0.04	2000	
Si	28	1	nogas	111.128	111.128	15.39	2482117	0.00	2000	
Ca	43	1	nogas	203.337	203.337	8.83	6318	3.22	200000	

Sample Report

Ca	44	1	nogas	-475.169	-475.169	-2.06	1716465	-0.03	200000	
Fe	56	1	nogas	216.008	216.008	3.17	4223211	0.01	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	79.250	79.250	8.89	62357	0.13	2000	
Se	82	1	nogas	2.683	2.683	8.83	857	0.31	2000	
Mo	95	1	nogas	2.027	2.027	5.99	8436	0.02	2000	
Sn	118	1	nogas	2.179	2.179	4.89	13859	0.02	2000	
Ba	137	1	nogas	1.968	1.968	6.58	5738	0.03	2000	
Sb	121	2	He	2.491	2.491	5.71	2887	0.09	2000	
La	139	1	nogas	6.315	6.315	154.86	53	11.84	2000	
Au	197	1	nogas	-29.576	-29.576	-238.90	10	-295.76	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	384357	1.79	422913	90.88	70	125	
Ge	72	1	nogas	1658734	2.02	1623145	102.19	70	125	
In	115	1	nogas	1737232	1.08	1725651	100.67	70	125	
Bi	209	1	nogas	1699497	2.08	1623810	104.66	70	125	
Ge	72	2	He	132388	1.57	132260	100.10	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLICV5
Data File Name	014LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:27:36-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	5.021	6.315	17218	4.08	5	100.4	70	130	
Na	23	1	nogas	498.466	1.068	9453317	2.15	500	99.7	70	130	
Mg	24	1	nogas	532.212	0.751	4963922	2.47	500	106.4	70	130	
Al	27	1	nogas	4.576	1.387	97683	0.71	5	91.5	70	130	
K	39	1	nogas	462.319	3.733	10320041	0.55	500	92.5	70	130	
Ti	47	1	nogas	4.886	3.718	5864	4.43	5	97.7	70	130	
V	51	1	nogas	75.515	2.321	2222377	0.70	5	1510.3	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	5.822	4.243	118650	2.53	5	116.4	70	130	
Mn	55	1	nogas	5.411	4.276	98531	3.06	5	108.2	70	130	
Co	59	1	nogas	5.203	1.458	80612	0.30	5	104.1	70	130	
Ni	60	1	nogas	4.703	4.199	19864	2.83	5	94.1	70	130	
Cu	63	1	nogas	4.959	3.852	49019	3.42	5	99.2	70	130	
Zn	66	1	nogas	4.919	2.999	14636	2.26	5	98.4	70	130	
As	75	1	nogas	21.079	9.073	212885	1.66	5	421.6	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	5.386	3.562	94868	2.42	5	107.7	70	130	
Ag	107	1	nogas	5.313	1.716	56063	0.64	5	106.3	70	130	
Cd	111	1	nogas	5.012	4.143	11391	3.12	5	100.2	70	130	
Sb	121	1	nogas	5.624	1.897	53626	0.83	5	112.5	70	130	
Tl	205	1	nogas	5.275	4.443	98662	1.12	5	105.5	70	130	
Pb	208	1	nogas	5.414	3.580	136656	3.57	5	108.3	70	130	
U	238	1	nogas	5.175	1.998	139419	1.48	5	103.5	70	130	
[Pb]	206	1	nogas	5.384	2.995	34454	1.84	5	107.7	70	130	
[Pb]	207	1	nogas	5.090	4.852	29965	3.52	5	101.8	70	130	
Na	23	2	He	513.246	3.399	222650	2.19	500	102.6	70	130	
Mg	24	2	He	546.494	0.827	73687	0.91	500	109.3	70	130	
Al	27	2	He	3.792	75.859	303	36.46	5	75.8	70	130	
K	39	2	He	503.559	1.709	50375	1.19	500	100.7	70	130	
Ca	43	2	He	308.165	58.461	103	43.64	500	61.6	70	130	LLICV Main CR1 Failed
Ca	44	2	He	510.760	11.570	2580	9.60	500	102.2	70	130	
V	51	2	He	5.689	3.827	8927	3.56	5	113.8	70	130	
Cr	52	2	He	5.158	3.319	11667	3.04	5	103.2	70	130	
Mn	55	2	He	5.148	3.414	4207	3.25	5	103.0	70	130	
Fe	56	2	He	513.729	2.339	866979	2.18	500	102.7	70	130	
Co	59	2	He	5.399	3.642	18269	3.61	5	108.0	70	130	
Ni	60	2	He	4.952	8.177	5624	7.16	5	99.0	70	130	
Cu	63	2	He	5.078	1.017	15820	0.95	5	101.6	70	130	
Zn	66	2	He	5.438	10.117	2210	9.86	5	108.8	70	130	
As	75	2	He	5.338	1.276	1419	1.29	5	106.8	70	130	
Se	78	2	He	5.536	14.162	68	11.76	5	110.7	70	130	
B	11	1	nogas	45.177	14.473	107847	7.96	25	180.7	70	130	LLICV Main CR1 Failed
Si	28	1	nogas	244.722	5.044	3141184	1.35	25	978.9	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	504.410	4.929	12561	3.01	500	100.9	70	130	
Ca	44	1	nogas	-225.591	-49.869	1771373	0.92	500	-45.1	70	130	LLICV Main CR1 Failed
Fe	56	1	nogas	540.535	6.266	9423766	4.78	500	108.1	70	130	
Se	77	1	nogas	101.138	10.000	66284	2.29	5	2022.8	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	5.568	12.360	1280	9.21	5	111.4	70	130	
Mo	95	1	nogas	5.113	2.068	20385	1.65	5	102.3	70	130	
Sn	118	1	nogas	5.010	1.060	31055	1.96	5	100.2	70	130	
Ba	137	1	nogas	4.974	3.522	14616	2.91	5	99.5	70	130	
Sb	121	2	He	5.428	4.620	5854	4.47	5	108.6	70	130	
Li	7	1	nogas	4.928	6.815	72432	5.49	5	98.6	70	130	
P	31	1	nogas	-88.282	-4.615	255757	0.36	25	-353.1	70	130	LLICV Main CR1 Failed
La	139	1	nogas	42.028	48.178	150	34.64	5	840.6	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	-100.445	0.000	0	#DIV/0!	5	-2008.9	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	376958	6.87	422913	89.13	70	125	
Ge	72	1	nogas	1633889	1.15	1623145	100.66	70	125	
In	115	1	nogas	1769665	1.69	1725651	102.55	70	125	
Bi	209	1	nogas	1641513	3.39	1623810	101.09	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	129857	0.14	132260	98.18	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICB
Data File Name	015_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:29:36-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.045	6.9	167	6.9	1	
Na	23	1	nogas	-31.417	-5.2	2331383	0.5	100	
Mg	24	1	nogas	0.487	18.3	10605	8.4	100	
Al	27	1	nogas	-0.186	-108.9	38306	6.0	5	
K	39	1	nogas	-64.555	-27.1	5027361	0.6	100	
Ti	47	1	nogas	-0.126	-29.6	523	10.5	2.5	
V	51	1	nogas	61.754	8.6	1993748	1.9	2.5	ICB Main CR1 Failed
Cr	52	1	nogas	0.311	54.5	41417	2.9	2.5	
Mn	55	1	nogas	0.038	62.0	5114	4.9	2.5	
Co	59	1	nogas	0.006	92.4	427	23.9	2.5	
Ni	60	1	nogas	-0.684	-8.8	1287	14.7	2.5	
Cu	63	1	nogas	-0.396	-9.0	4444	7.0	2.5	
Zn	66	1	nogas	-0.448	-4.7	277	21.8	2.5	
As	75	1	nogas	11.536	17.1	185174	1.3	2.5	ICB Main CR1 Failed
Sr	88	1	nogas	0.003	160.1	1077	11.2	2.5	
Ag	107	1	nogas	-0.002	-386.2	520	21.8	2.5	
Cd	111	1	nogas	0.009	30.1	23	24.7	1	
Sb	121	1	nogas	0.157	6.2	4194	2.8	2.5	
Tl	205	1	nogas	0.020	24.8	473	18.0	1	
Pb	208	1	nogas	0.046	2.6	1653	1.8	2.5	
U	238	1	nogas	0.006	31.7	233	23.6	2.5	
[Pb]	206	1	nogas	0.051	11.3	447	9.0	2.5	
[Pb]	207	1	nogas	0.041	29.8	357	20.3	2.5	
Na	23	2	He	-30.136	-12.1	66206	1.0	100	
Mg	24	2	He	0.144	310.8	277	19.9	100	
Al	27	2	He	-0.297	-543.8	147	43.3	5	
K	39	2	He	-17.344	-27.3	14005	2.4	100	
Ca	43	2	He	-78.769	-58.1	7	173.2	100	
Ca	44	2	He	-14.724	-151.9	403	22.2	100	
V	51	2	He	0.388	15.1	1332	4.7	2.5	
Cr	52	2	He	0.069	144.7	1277	16.9	2.5	
Mn	55	2	He	0.042	198.0	180	36.4	2.5	
Fe	56	2	He	0.974	11.1	5781	1.7	100	
Co	59	2	He	0.014	52.9	57	44.4	2.5	
Ni	60	2	He	-0.473	-11.3	210	23.8	2.5	
Cu	63	2	He	-0.319	-4.8	803	5.0	2.5	
Zn	66	2	He	-0.045	-33.4	13	43.3	2.5	
As	75	2	He	0.057	72.9	36	30.1	2.5	
Se	78	2	He	-0.659	-51.3	4	86.6	2.5	
B	11	1	nogas	17.507	1.8	45054	2.5	10	ICB Main CR1 Failed
Si	28	1	nogas	-30.967	-18.5	1726327	1.4	5	
Ca	43	1	nogas	-11.830	-80.5	1707	9.2	100	
Ca	44	1	nogas	-1017.055	-15.1	1532438	0.6	100	
Fe	56	1	nogas	5.239	37.5	749486	1.5	100	
Se	77	1	nogas	63.975	21.1	58665	2.8	2.5	ICB Main CR1 Failed
Se	82	1	nogas	0.028	1414.9	450	15.6	2.5	

Initial Calibration Blank (ICB) Report

Mo	95	1	nogas	-0.046	-22.5	207	19.6	2.5	
Sn	118	1	nogas	0.016	101.9	1153	9.3	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.005	572.1	113	66.8	2.5	
Sb	121	2	He	0.209	38.0	480	18.2	2.5	
P	31	1	nogas	-132.381	-8.8	226120	0.8	10	
La	139	1	nogas	5.220	268.3	50	72.1	2.5	ICB Main CR1 Failed
Au	197	1	nogas	50.631	154.3	20	50.0	2.5	ICB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	380392	1.20	422913	89.95	70	125	
Ge	72	1	nogas	1653556	3.13	1623145	101.87	70	125	
In	115	1	nogas	1724778	1.21	1725651	99.95	70	125	
Bi	209	1	nogas	1626784	2.01	1623810	100.18	70	125	
Ge	72	2	He	129574	1.59	132260	97.97	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICV
Data File Name	016_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:31:36-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	102.874	2.092	327863	1.45	100	102.9	90	110	
Na	23	1	nogas	10159.299	6.191	140951182	3.62	10000	101.6	90	110	
Mg	24	1	nogas	10138.654	3.721	95287554	3.20	10000	101.4	90	110	
Al	27	1	nogas	100.824	3.162	1296215	4.40	100	100.8	90	110	
K	39	1	nogas	9841.025	4.101	104634890	1.36	10000	98.4	90	110	
Ti	47	1	nogas	99.449	4.421	105786	1.34	100	99.4	90	110	
V	51	1	nogas	135.969	6.005	3293745	1.35	100	136.0	90	110	ICV Main CR1 Failed
Cr	52	1	nogas	104.186	2.673	1492405	1.07	100	104.2	90	110	
Mn	55	1	nogas	101.382	0.701	1754001	2.44	100	101.4	90	110	
Co	59	1	nogas	100.235	3.125	1534144	2.14	100	100.2	90	110	
Ni	60	1	nogas	98.510	2.069	340745	1.42	100	98.5	90	110	
Cu	63	1	nogas	99.707	3.138	831342	1.06	100	99.7	90	110	
Zn	66	1	nogas	102.040	2.374	272251	1.50	100	102.0	90	110	
As	75	1	nogas	106.068	2.680	474678	1.33	100	106.1	90	110	
Sr	88	1	nogas	102.508	3.578	1772731	1.99	100	102.5	90	110	
Ag	107	1	nogas	100.232	4.862	1038776	1.97	100	100.2	90	110	
Cd	111	1	nogas	98.835	2.235	216159	1.53	100	98.8	90	110	
Sb	121	1	nogas	98.140	1.803	883683	1.42	100	98.1	90	110	
Tl	205	1	nogas	100.881	0.719	1840803	1.13	100	100.9	90	110	
Pb	208	1	nogas	102.503	1.880	2578410	1.88	100	102.5	90	110	
U	238	1	nogas	104.046	0.946	2734047	0.46	100	104.0	90	110	
[Pb]	206	1	nogas	100.913	0.962	628093	0.75	100	100.9	90	110	
[Pb]	207	1	nogas	101.515	1.241	581253	1.53	100	101.5	90	110	
Na	23	2	He	9840.697	3.290	2951379	1.93	10000	98.4	90	110	
Mg	24	2	He	9976.981	2.389	1362122	1.59	10000	99.8	90	110	
Al	27	2	He	103.096	9.351	4177	10.32	100	103.1	90	110	
K	39	2	He	9942.051	1.394	709366	1.36	10000	99.4	90	110	
Ca	43	2	He	9728.641	1.326	2497	0.61	10000	97.3	90	110	
Ca	44	2	He	9771.929	2.344	41567	0.84	10000	97.7	90	110	
V	51	2	He	98.776	0.206	144527	1.68	100	98.8	90	110	
Cr	52	2	He	99.145	2.750	206806	2.14	100	99.1	90	110	
Mn	55	2	He	98.736	3.825	79234	2.53	100	98.7	90	110	
Fe	56	2	He	9844.598	2.631	16800586	1.21	10000	98.4	90	110	
Co	59	2	He	98.162	1.831	337299	1.62	100	98.2	90	110	
Ni	60	2	He	96.271	2.767	98293	2.35	100	96.3	90	110	
Cu	63	2	He	97.746	1.379	277991	0.49	100	97.7	90	110	
Zn	66	2	He	100.550	3.111	40960	2.28	100	100.6	90	110	
As	75	2	He	98.367	0.695	26203	1.09	100	98.4	90	110	
Se	78	2	He	101.132	8.358	1071	7.15	100	101.1	90	110	
B	11	1	nogas	533.512	4.882	1146058	2.49	500	106.7	90	110	
Si	28	1	nogas	5116.483	1.517	28266876	1.87	5000	102.3	90	110	
Ca	43	1	nogas	9946.818	5.001	209574	2.00	10000	99.5	90	110	
Ca	44	1	nogas	9059.418	5.827	4738096	0.56	10000	90.6	90	110	
Fe	56	1	nogas	10133.060	1.253	163729537	2.03	10000	101.3	90	110	
Se	77	1	nogas	139.021	3.183	74124	2.00	100	139.0	90	110	ICV Main CR1 Failed
Se	82	1	nogas	96.233	4.762	14826	4.53	100	96.2	90	110	
Mo	95	1	nogas	101.118	2.026	392707	1.24	100	101.1	90	110	
Sn	118	1	nogas	97.673	1.308	563287	2.12	100	97.7	90	110	
Ba	137	1	nogas	99.106	1.917	278417	1.28	100	99.1	90	110	
Sb	121	2	He	95.858	4.307	100541	3.57	100	95.9	90	110	
Li	7	1	nogas	100.959	3.905	744980	4.72	100	101.0	90	110	
P	31	1	nogas	405.927	4.365	611150	1.13	500	81.2	90	110	ICV Main CR1 Failed
La	139	1	nogas	113.647	9.108	330	8.02	100	113.6	90	110	ICV Main CR1 Failed
Au	197	1	nogas	1.024	4236.262	13	43.30	100	1.0	90	110	ICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	349883	3.15	422913	82.73	70	125	
Ge	72	1	nogas	1620846	3.14	1623145	99.86	70	125	
In	115	1	nogas	1702941	0.82	1725651	98.68	70	125	
Bi	209	1	nogas	1601305	0.56	1623810	98.61	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	131947	1.49	132260	99.76	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	025ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:49:34-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.003	109.1	23	49.5	0	ICSA Main CR1 Failed
Na	23	1	nogas	101024.516	2.9	1353274397	2.7	0	
Mg	24	1	nogas	102840.745	2.0	949162955	1.8	0	
Al	27	1	nogas	85414.509	4.2	1040940784	2.3	0	
K	39	1	nogas	99704.707	2.0	988049655	1.2	0	
Ti	47	1	nogas	2097.265	2.9	2171593	1.6	0	
V	51	1	nogas	-5.986	-17.5	716742	1.0	0	ICSA Main CR1 Failed
Cr	52	1	nogas	0.080	176.9	36593	3.6	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.354	5.6	10260	4.9	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.142	5.9	2437	4.0	0	ICSA Main CR1 Failed
Ni	60	1	nogas	0.148	15.7	4027	3.7	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.890	4.1	14666	3.9	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.356	8.1	4954	7.3	0	ICSA Main CR1 Failed
As	75	1	nogas	-5.104	-27.3	127169	1.7	0	ICSA Main CR1 Failed
Sr	88	1	nogas	1.088	0.1	19388	2.0	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.025	47.5	777	14.9	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.242	4.3	2714	3.0	0	ICSA Main CR1 Failed
Sb	121	1	nogas	0.206	13.2	4451	4.4	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.007	29.7	213	15.1	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.156	12.0	4430	10.7	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.167	12.1	1107	9.7	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.171	4.7	1043	4.0	0	ICSA Main CR1 Failed
Na	23	2	He	96638.551	3.4	27296026	1.7	0	
Mg	24	2	He	98183.782	3.0	12922974	2.7	0	
Al	27	2	He	85851.625	4.6	3220774	2.4	0	
K	39	2	He	92153.850	1.2	6449361	1.2	0	
Ca	43	2	He	84745.822	2.0	20775	2.5	0	
Ca	44	2	He	89979.910	3.9	365215	1.7	0	
V	51	2	He	-0.221	-14.1	453	7.1	0	ICSA Main CR1 Failed
Cr	52	2	He	0.345	4.7	1803	0.8	0	ICSA Main CR1 Failed
Mn	55	2	He	0.407	16.0	460	13.2	0	ICSA Main CR1 Failed
Fe	56	2	He	95334.803	2.2	156845684	1.1	0	
Co	59	2	He	0.019	63.5	73	55.1	0	ICSA Main CR1 Failed
Ni	60	2	He	-0.289	-33.6	387	25.5	0	ICSA Main CR1 Failed
Cu	63	2	He	0.582	17.1	3244	6.7	0	ICSA Main CR1 Failed
Zn	66	2	He	0.524	18.5	237	17.1	0	ICSA Main CR1 Failed
As	75	2	He	0.059	63.9	36	28.6	0	ICSA Main CR1 Failed
Se	78	2	He	-0.526	-76.1	5	78.1	0	ICSA Main CR1 Failed
B	11	1	nogas	7.090	6.8	22427	5.8	0	ICSA Main CR1 Failed
Si	28	1	nogas	79.389	23.9	2212905	2.6	0	
Ca	43	1	nogas	100685.669	2.1	2060391	1.7	0	
Ca	44	1	nogas	101119.623	1.3	33586128	0.7	0	
Fe	56	1	nogas	97450.622	1.2	1535456534	1.0	0	
Se	77	1	nogas	-4.684	-154.4	41458	2.2	0	ICSA Main CR1 Failed
Se	82	1	nogas	0.115	127.1	443	3.4	0	ICSA Main CR1 Failed
Mo	95	1	nogas	2076.019	1.9	7886634	3.5	0	
Sn	118	1	nogas	0.045	31.5	1300	4.8	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.097	16.9	370	10.8	0	ICSA Main CR1 Failed
Sb	121	2	He	0.195	21.7	457	10.3	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	101082.025	4.7	71853702	2.8	0	
La	139	1	nogas	137.144	4.6	390	2.6	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	410475	1.26	422913	97.06	70	125	
Ge	72	1	nogas	1586017	1.89	1623145	97.71	70	125	
In	115	1	nogas	1700236	1.63	1725651	98.53	70	125	
Bi	209	1	nogas	1525004	1.20	1623810	93.92	70	125	
Ge	72	2	He	127240	2.49	132260	96.20	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	026ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:51:38-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	83.773	4.739	282645	1.29	100	83.8	80	120	
Na	23	1	nogas	113083.098	2.098	1501248034	2.44	100	113083.1	80	120	ICSB Main CR1 Failed
Mg	24	1	nogas	111100.176	2.900	1016305989	2.57	100	111100.2	80	120	
Al	27	1	nogas	85419.336	2.561	1049058091	0.92	100	85419.3	80	120	ICSB Main CR1 Failed
K	39	1	nogas	107521.790	6.370	1072348091	3.98	100	107521.8	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2162.539	4.818	2254892	1.57	100	2162.5	80	120	ICSB Main CR1 Failed
V	51	1	nogas	81.449	6.538	2277872	0.97	100	81.4	80	120	
Cr	52	1	nogas	84.874	3.678	1205197	0.25	100	84.9	80	120	
Mn	55	1	nogas	86.214	2.984	1470805	0.93	100	86.2	80	120	
Co	59	1	nogas	85.121	2.938	1284722	1.86	100	85.1	80	120	
Ni	60	1	nogas	83.617	5.190	285571	2.37	100	83.6	80	120	
Cu	63	1	nogas	84.978	5.055	699478	1.68	100	85.0	80	120	
Zn	66	1	nogas	86.845	3.136	228653	0.60	100	86.8	80	120	
As	75	1	nogas	83.139	1.595	398057	2.51	100	83.1	80	120	
Sr	88	1	nogas	88.996	5.468	1517097	2.70	100	89.0	80	120	
Ag	107	1	nogas	83.346	1.915	852343	1.39	100	83.3	80	120	
Cd	111	1	nogas	86.943	1.024	187989	2.08	100	86.9	80	120	
Sb	121	1	nogas	87.286	2.777	775184	1.18	100	87.3	80	120	
Tl	205	1	nogas	85.000	2.846	1488995	2.47	100	85.0	80	120	
Pb	208	1	nogas	84.302	0.776	2120675	0.78	100	84.3	80	120	
U	238	1	nogas	92.791	0.673	2341010	0.52	100	92.8	80	120	
[Pb]	206	1	nogas	86.318	0.813	515821	0.36	100	86.3	80	120	
[Pb]	207	1	nogas	85.849	0.367	471939	0.39	100	85.8	80	120	
Na	23	2	He	106528.217	1.679	29966573	1.28	100	106528.2	80	120	
Mg	24	2	He	107336.857	0.877	14071360	1.09	100	107336.9	80	120	
Al	27	2	He	88219.903	0.567	3297750	0.58	100	88219.9	80	120	ICSB Main CR1 Failed
K	39	2	He	104681.559	0.530	7324041	0.53	100	104681.6	80	120	ICSB Main CR1 Failed
Ca	43	2	He	97262.045	2.766	23739	2.20	100	97262.0	80	120	ICSB Main CR1 Failed
Ca	44	2	He	99928.157	1.219	404040	0.74	100	99928.2	80	120	
V	51	2	He	87.780	0.779	123405	0.23	100	87.8	80	120	
Cr	52	2	He	85.051	2.604	170521	2.11	100	85.1	80	120	
Mn	55	2	He	82.911	1.564	63931	1.44	100	82.9	80	120	
Fe	56	2	He	106183.614	1.829	173996271	1.44	100	106183.6	80	120	
Co	59	2	He	86.667	2.037	285964	1.67	100	86.7	80	120	
Ni	60	2	He	83.946	2.223	82399	2.53	100	83.9	80	120	
Cu	63	2	He	83.548	1.240	228422	1.03	100	83.5	80	120	
Zn	66	2	He	87.277	1.772	34149	1.61	100	87.3	80	120	
As	75	2	He	88.078	1.943	22531	1.45	100	88.1	80	120	
Se	78	2	He	88.406	3.854	901	4.36	100	88.4	80	120	
B	11	1	nogas	420.560	8.159	956502	2.68	100	420.6	80	120	
Si	28	1	nogas	4581.074	4.130	25134649	0.62	100	4581.1	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	109064.238	0.405	2249432	3.34	100	109064.2	80	120	
Ca	44	1	nogas	108492.584	2.023	36175037	1.73	100	108492.6	80	120	ICSB Main CR1 Failed
Fe	56	1	nogas	107666.824	3.255	1708544705	0.28	100	107666.8	80	120	
Se	77	1	nogas	86.312	8.917	61598	1.97	100	86.3	80	120	
Se	82	1	nogas	89.878	10.828	13662	7.77	100	89.9	80	120	
Mo	95	1	nogas	2168.601	8.477	8286879	5.49	100	2168.6	80	120	
Sn	118	1	nogas	84.761	1.655	483270	1.83	100	84.8	80	120	
Ba	137	1	nogas	85.602	2.546	237810	4.05	100	85.6	80	120	
Sb	121	2	He	88.642	1.504	89312	1.06	100	88.6	80	120	
La	139	1	nogas	197.777	30.329	540	26.71	100	197.8	80	120	ICSB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	370905	5.70	422913	87.70	70	125	
Ge	72	1	nogas	1598336	3.28	1623145	98.47	70	125	
In	115	1	nogas	1683698	2.95	1725651	97.57	70	125	
Bi	209	1	nogas	1537392	0.63	1623810	94.68	70	125	
Ge	72	2	He	126697	0.56	132260	95.79	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	030_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T10:59:42-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	96.545	3.562	322162	1.90	100	96.5	90	110	
Na	23	1	nogas	10453.215	6.546	143946041	2.98	10000	104.5	90	110	
Mg	24	1	nogas	10558.859	4.019	98550821	2.46	10000	105.6	90	110	
Al	27	1	nogas	107.413	5.412	1380639	5.08	100	107.4	90	110	
K	39	1	nogas	10023.861	3.084	106715952	1.29	10000	100.2	90	110	
Ti	47	1	nogas	103.187	2.385	110043	3.13	100	103.2	90	110	
V	51	1	nogas	90.368	3.337	2477705	2.92	100	90.4	90	110	
Cr	52	1	nogas	103.857	0.571	1491319	1.99	100	103.9	90	110	
Mn	55	1	nogas	102.352	1.243	1774224	2.05	100	102.4	90	110	
Co	59	1	nogas	102.126	2.134	1566750	2.90	100	102.1	90	110	
Ni	60	1	nogas	101.225	1.629	350763	0.94	100	101.2	90	110	
Cu	63	1	nogas	103.280	1.143	863068	2.81	100	103.3	90	110	
Zn	66	1	nogas	103.796	2.445	277464	0.86	100	103.8	90	110	
As	75	1	nogas	90.993	2.385	428805	0.40	100	91.0	90	110	
Sr	88	1	nogas	103.456	2.344	1793468	2.84	100	103.5	90	110	
Ag	107	1	nogas	103.828	0.850	1079100	2.29	100	103.8	90	110	
Cd	111	1	nogas	99.780	5.233	226815	4.28	100	99.8	90	110	
Sb	121	1	nogas	100.767	3.436	908909	1.82	100	100.8	90	110	
Tl	205	1	nogas	101.009	2.626	1866863	0.34	100	101.0	90	110	
Pb	208	1	nogas	105.943	2.387	2664936	2.39	100	105.9	90	110	
U	238	1	nogas	105.648	1.992	2813010	2.82	100	105.6	90	110	
[Pb]	206	1	nogas	101.102	4.070	637272	2.07	100	101.1	90	110	
[Pb]	207	1	nogas	100.820	2.803	584686	0.54	100	100.8	90	110	
Na	23	2	He	9944.301	4.077	2967440	1.85	10000	99.4	90	110	
Mg	24	2	He	10140.011	1.447	1378161	1.32	10000	101.4	90	110	
Al	27	2	He	106.343	7.094	4277	4.94	100	106.3	90	110	
K	39	2	He	9883.169	1.627	705255	1.59	10000	98.8	90	110	
Ca	43	2	He	9864.687	9.514	2517	7.29	10000	98.6	90	110	
Ca	44	2	He	9799.466	0.758	41510	3.00	10000	98.0	90	110	
V	51	2	He	100.631	3.756	146480	1.48	100	100.6	90	110	
Cr	52	2	He	100.740	3.113	209122	1.48	100	100.7	90	110	
Mn	55	2	He	100.530	1.834	80326	1.99	100	100.5	90	110	
Fe	56	2	He	10030.583	1.867	17041587	1.33	10000	100.3	90	110	
Co	59	2	He	99.624	3.711	340674	2.51	100	99.6	90	110	
Ni	60	2	He	97.440	1.293	99027	1.10	100	97.4	90	110	
Cu	63	2	He	99.660	2.827	282075	1.79	100	99.7	90	110	
Zn	66	2	He	102.910	2.584	41735	2.61	100	102.9	90	110	
As	75	2	He	100.187	2.364	26566	2.63	100	100.2	90	110	
Se	78	2	He	98.987	4.417	1045	4.35	100	99.0	90	110	
B	11	1	nogas	492.705	2.682	1109255	1.90	500	98.5	90	110	
Si	28	1	nogas	5105.212	3.710	28267570	3.79	5000	102.1	90	110	
Ca	43	1	nogas	10070.060	2.577	212689	0.93	10000	100.7	90	110	
Ca	44	1	nogas	8043.359	4.008	4421979	0.84	10000	80.4	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10300.179	2.109	166751750	2.29	10000	103.0	90	110	
Se	77	1	nogas	63.069	4.366	57457	0.96	100	63.1	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	101.856	1.579	15704	3.09	100	101.9	90	110	
Mo	95	1	nogas	101.077	3.435	393313	2.42	100	101.1	90	110	
Sn	118	1	nogas	98.225	2.139	588827	2.08	100	98.2	90	110	
Ba	137	1	nogas	96.970	1.341	283207	0.69	100	97.0	90	110	
Sb	121	2	He	101.030	1.633	105478	0.85	100	101.0	90	110	
Li	7	1	nogas	96.225	1.638	745101	2.53	100	96.2	90	110	
P	31	1	nogas	374.538	2.884	589762	2.07	500	74.9	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	139.857	15.647	413	13.76	100	139.9	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	0.911	12705.975	13	114.56	100	0.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	366370	2.42	422913	86.63	70	125	
Ge	72	1	nogas	1623793	1.67	1623145	100.04	70	125	
In	115	1	nogas	1770363	0.94	1725651	102.59	70	125	
Bi	209	1	nogas	1622596	2.33	1623810	99.93	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	131356	2.32	132260	99.32	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	031_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T11:01:41-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.035	15.4	137	11.2	1	
Na	23	1	nogas	-25.320	-11.6	2449926	0.1	100	
Mg	24	1	nogas	5.376	4.5	57534	4.3	100	
Al	27	1	nogas	1.425	5.8	59598	3.5	5	
K	39	1	nogas	-34.166	-58.0	5410895	1.2	100	
Ti	47	1	nogas	-0.131	-57.6	523	15.3	2.5	
V	51	1	nogas	3.306	12.0	930931	2.7	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.226	-39.0	34259	4.5	2.5	
Mn	55	1	nogas	0.215	4.5	8359	4.6	2.5	
Co	59	1	nogas	0.027	53.3	753	28.0	2.5	
Ni	60	1	nogas	-0.625	-14.2	1513	18.5	2.5	
Cu	63	1	nogas	-0.231	-12.9	5911	3.4	2.5	
Zn	66	1	nogas	-0.379	-7.4	470	14.9	2.5	
As	75	1	nogas	-5.357	-4.7	133582	2.4	2.5	
Sr	88	1	nogas	0.024	65.5	1447	16.4	2.5	
Ag	107	1	nogas	0.040	34.5	977	12.8	2.5	
Cd	111	1	nogas	0.037	22.6	90	22.2	1	
Sb	121	1	nogas	1.335	23.9	15140	16.7	2.5	
Tl	205	1	nogas	0.074	27.3	1517	26.9	1	
Pb	208	1	nogas	0.108	14.2	3204	12.0	2.5	
U	238	1	nogas	0.036	36.4	1053	35.3	2.5	
[Pb]	206	1	nogas	0.106	14.3	817	13.7	2.5	
[Pb]	207	1	nogas	0.107	20.8	760	19.1	2.5	
Na	23	2	He	-27.119	-44.4	68444	4.1	100	
Mg	24	2	He	3.555	34.0	750	22.2	100	
Al	27	2	He	1.094	73.2	203	14.2	5	
K	39	2	He	16.342	60.9	16357	4.2	100	
Ca	43	2	He	-79.387	-56.3	7	173.2	100	
Ca	44	2	He	-18.506	-82.7	397	17.2	100	
V	51	2	He	-0.109	-39.8	635	8.8	2.5	
Cr	52	2	He	0.163	24.9	1497	6.1	2.5	
Mn	55	2	He	0.108	27.0	237	9.8	2.5	
Fe	56	2	He	5.434	0.6	13532	1.2	100	
Co	59	2	He	0.037	37.1	137	33.0	2.5	
Ni	60	2	He	-0.481	-8.2	207	20.1	2.5	
Cu	63	2	He	-0.114	-23.6	1403	5.8	2.5	
Zn	66	2	He	0.035	101.8	47	32.7	2.5	
As	75	2	He	0.021	108.7	27	21.7	2.5	
Se	78	2	He	-0.794	-27.9	3	86.6	2.5	
B	11	1	nogas	18.841	6.5	49398	8.6	10	CCB Main CR1 Failed
Si	28	1	nogas	-41.957	-13.8	1690736	0.8	5	
Ca	43	1	nogas	14.809	48.6	2307	5.1	100	
Ca	44	1	nogas	-3089.517	-2.0	864978	0.6	100	
Fe	56	1	nogas	14.340	19.9	910768	2.6	100	
Se	77	1	nogas	-4.522	-127.3	43833	1.0	2.5	
Se	82	1	nogas	0.299	81.1	497	6.5	2.5	
Mo	95	1	nogas	0.122	42.8	877	21.5	2.5	
Sn	118	1	nogas	0.070	37.1	1533	10.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.012	26.0	140	7.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.086	9.9	1410	9.2	2.5	
P	31	1	nogas	-189.432	-3.3	186542	0.3	10	
La	139	1	nogas	15.209	103.8	80	54.5	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-3.344	-1213.8	13	43.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	389812	3.25	422913	92.17	70	125	
Ge	72	1	nogas	1675562	2.61	1623145	103.23	70	125	
In	115	1	nogas	1800153	0.79	1725651	104.32	70	125	
Bi	209	1	nogas	1669651	1.74	1623810	102.82	70	125	
Ge	72	2	He	132263	1.45	132260	100.00	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	042_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T11:23:41-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	97.474	0.722	332338	2.85	100	97.5	90	110	
Na	23	1	nogas	10245.363	2.181	144542403	1.33	10000	102.5	90	110	
Mg	24	1	nogas	10211.744	3.685	97527456	2.58	10000	102.1	90	110	
Al	27	1	nogas	96.424	5.419	1263347	1.63	100	96.4	90	110	
K	39	1	nogas	10351.214	3.222	111855557	0.83	10000	103.5	90	110	
Ti	47	1	nogas	101.689	3.263	110232	2.04	100	101.7	90	110	
V	51	1	nogas	79.513	3.658	2319091	1.95	100	79.5	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	103.516	3.145	1510944	1.72	100	103.5	90	110	
Mn	55	1	nogas	102.929	3.582	1813202	0.87	100	102.9	90	110	
Co	59	1	nogas	102.049	1.294	1591902	2.69	100	102.0	90	110	
Ni	60	1	nogas	97.608	3.290	343928	0.41	100	97.6	90	110	
Cu	63	1	nogas	100.106	3.138	850369	1.04	100	100.1	90	110	
Zn	66	1	nogas	102.836	2.344	279535	1.52	100	102.8	90	110	
As	75	1	nogas	84.957	3.777	416897	1.28	100	85.0	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	100.417	3.389	1769159	0.48	100	100.4	90	110	
Ag	107	1	nogas	104.166	2.024	1100522	1.55	100	104.2	90	110	
Cd	111	1	nogas	102.214	2.799	230884	1.65	100	102.2	90	110	
Sb	121	1	nogas	102.250	5.091	937349	2.36	100	102.3	90	110	
Tl	205	1	nogas	99.339	1.060	1873823	2.62	100	99.3	90	110	
Pb	208	1	nogas	104.458	1.339	2627590	1.34	100	104.5	90	110	
U	238	1	nogas	103.547	1.757	2812077	0.92	100	103.5	90	110	
[Pb]	206	1	nogas	98.375	0.678	632884	1.39	100	98.4	90	110	
[Pb]	207	1	nogas	97.872	1.194	579299	2.70	100	97.9	90	110	
Na	23	2	He	10182.495	1.263	3028774	0.95	10000	101.8	90	110	
Mg	24	2	He	10404.416	1.431	1409864	1.36	10000	104.0	90	110	
Al	27	2	He	95.870	8.842	3860	7.22	100	95.9	90	110	
K	39	2	He	10006.908	0.533	713895	0.52	10000	100.1	90	110	
Ca	43	2	He	9264.316	9.023	2360	8.34	10000	92.6	90	110	
Ca	44	2	He	10117.261	5.006	42683	3.43	10000	101.2	90	110	
V	51	2	He	101.630	2.239	147519	0.71	100	101.6	90	110	
Cr	52	2	He	101.614	0.212	210362	1.58	100	101.6	90	110	
Mn	55	2	He	101.844	2.360	81119	1.38	100	101.8	90	110	
Fe	56	2	He	10196.059	1.476	17270669	0.48	10000	102.0	90	110	
Co	59	2	He	101.775	3.294	346985	1.75	100	101.8	90	110	
Ni	60	2	He	101.087	3.738	102372	2.17	100	101.1	90	110	
Cu	63	2	He	102.657	3.605	289601	2.15	100	102.7	90	110	
Zn	66	2	He	101.932	1.550	41217	2.03	100	101.9	90	110	
As	75	2	He	102.066	2.223	26981	2.13	100	102.1	90	110	
Se	78	2	He	97.037	0.507	1021	1.63	100	97.0	90	110	
B	11	1	nogas	508.285	4.311	1168018	2.02	500	101.7	90	110	
Si	28	1	nogas	5054.180	5.733	28447400	1.96	5000	101.1	90	110	
Ca	43	1	nogas	10371.782	3.631	222660	2.34	10000	103.7	90	110	
Ca	44	1	nogas	7255.394	6.805	4237119	1.43	10000	72.6	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10209.593	4.567	167948358	1.17	10000	102.1	90	110	
Se	77	1	nogas	36.906	29.686	52503	2.24	100	36.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	97.427	3.095	15293	4.41	100	97.4	90	110	
Mo	95	1	nogas	98.048	3.650	387839	0.43	100	98.0	90	110	
Sn	118	1	nogas	98.569	1.096	587231	2.91	100	98.6	90	110	
Ba	137	1	nogas	99.143	2.841	287713	2.98	100	99.1	90	110	
Sb	121	2	He	104.919	2.545	109197	1.89	100	104.9	90	110	
Li	7	1	nogas	97.979	1.930	774391	4.23	100	98.0	90	110	
P	31	1	nogas	303.625	10.097	547026	0.82	500	60.7	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	108.286	1.766	327	3.53	100	108.3	90	110	
Au	197	1	nogas	121.212	63.100	30	33.33	100	121.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	374137	2.48	422913	88.47	70	125	
Ge	72	1	nogas	1651538	3.53	1623145	101.75	70	125	
In	115	1	nogas	1759204	2.16	1725651	101.94	70	125	
Bi	209	1	nogas	1655229	1.95	1623810	101.93	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	130950	1.55	132260	99.01	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	043_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T11:25:38-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.078	35.8	297	34.6	1	
Na	23	1	nogas	-24.539	-28.5	2479823	1.5	100	
Mg	24	1	nogas	4.436	16.7	49075	17.6	100	
Al	27	1	nogas	-0.599	-12.9	33423	2.4	5	
K	39	1	nogas	-35.655	-43.1	5381171	0.4	100	
Ti	47	1	nogas	-0.192	-14.2	457	9.1	2.5	
V	51	1	nogas	-7.879	-20.6	719545	1.5	2.5	
Cr	52	1	nogas	-0.560	-7.2	29344	1.8	2.5	
Mn	55	1	nogas	0.295	9.6	9759	5.9	2.5	
Co	59	1	nogas	0.041	28.4	987	21.5	2.5	
Ni	60	1	nogas	-0.601	-4.7	1597	7.6	2.5	
Cu	63	1	nogas	-0.083	-83.9	7145	5.6	2.5	
Zn	66	1	nogas	-0.384	-12.1	457	30.7	2.5	
As	75	1	nogas	-10.224	-12.7	117580	0.8	2.5	
Sr	88	1	nogas	0.035	31.3	1657	13.9	2.5	
Ag	107	1	nogas	0.054	39.4	1127	22.7	2.5	
Cd	111	1	nogas	0.034	44.7	83	42.1	1	
Sb	121	1	nogas	1.695	12.1	18514	13.0	2.5	
Tl	205	1	nogas	0.104	28.0	2087	26.0	1	
Pb	208	1	nogas	0.140	16.6	4020	14.6	2.5	
U	238	1	nogas	0.051	35.1	1467	32.7	2.5	
[Pb]	206	1	nogas	0.126	20.6	950	17.2	2.5	
[Pb]	207	1	nogas	0.120	14.3	843	12.6	2.5	
Na	23	2	He	-30.687	-11.4	67962	2.1	100	
Mg	24	2	He	3.175	18.9	703	11.8	100	
Al	27	2	He	-0.899	-116.1	127	31.9	5	
K	39	2	He	5.065	170.8	15570	3.9	100	
Ca	43	2	He	-105.201	0.0	0	#DIV/0!	100	
Ca	44	2	He	-41.983	-62.0	300	37.6	100	
V	51	2	He	-0.244	-2.6	443	2.8	2.5	
Cr	52	2	He	0.100	34.7	1377	4.7	2.5	
Mn	55	2	He	0.002	2990.2	153	38.2	2.5	
Fe	56	2	He	2.882	6.2	9239	3.4	100	
Co	59	2	He	0.038	8.8	143	8.1	2.5	
Ni	60	2	He	-0.489	-9.3	200	22.9	2.5	
Cu	63	2	He	-0.118	-49.2	1403	12.1	2.5	
Zn	66	2	He	0.003	4230.5	33	148.0	2.5	
As	75	2	He	0.029	52.7	29	13.3	2.5	
Se	78	2	He	-0.673	-27.6	4	50.0	2.5	
B	11	1	nogas	30.202	10.9	78621	9.0	10	CCB Main CR1 Failed
Si	28	1	nogas	-24.144	-45.1	1780376	0.5	5	
Ca	43	1	nogas	-12.910	-42.6	1703	4.9	100	
Ca	44	1	nogas	-3643.487	-1.5	679067	0.2	100	
Fe	56	1	nogas	10.897	5.8	852120	4.0	100	
Se	77	1	nogas	-24.061	-29.8	39252	1.4	2.5	
Se	82	1	nogas	-0.119	-701.1	430	28.2	2.5	
Mo	95	1	nogas	0.091	22.4	753	9.3	2.5	
Sn	118	1	nogas	0.106	25.8	1777	9.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.038	50.9	220	27.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.594	10.5	1957	8.9	2.5	
P	31	1	nogas	-228.686	-3.5	156712	1.1	10	
La	139	1	nogas	16.093	56.9	83	30.2	2.5	CCB Main CR1 Failed
Au	197	1	nogas	20.821	535.9	17	91.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	401168	1.88	422913	94.86	70	125	
Ge	72	1	nogas	1670947	2.77	1623145	102.95	70	125	
In	115	1	nogas	1825522	1.03	1725651	105.79	70	125	
Bi	209	1	nogas	1679663	0.75	1623810	103.44	70	125	
Ge	72	2	He	133305	0.71	132260	100.79	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	054_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T11:47:43-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	101.666	2.651	344206	1.15	100	101.7	90	110	
Na	23	1	nogas	10485.814	1.229	148596532	2.93	10000	104.9	90	110	
Mg	24	1	nogas	10542.315	2.815	101142892	0.18	10000	105.4	90	110	
Al	27	1	nogas	99.004	1.882	1303911	3.09	100	99.0	90	110	
K	39	1	nogas	10063.999	2.721	109470773	1.29	10000	100.6	90	110	
Ti	47	1	nogas	100.296	3.602	109257	0.67	100	100.3	90	110	
V	51	1	nogas	89.075	2.441	2507648	1.45	100	89.1	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	100.371	6.226	1472797	3.94	100	100.4	90	110	
Mn	55	1	nogas	100.584	10.038	1778790	7.40	100	100.6	90	110	
Co	59	1	nogas	103.300	7.126	1617388	4.24	100	103.3	90	110	
Ni	60	1	nogas	99.590	7.372	352312	4.40	100	99.6	90	110	
Cu	63	1	nogas	102.421	3.842	874125	1.48	100	102.4	90	110	
Zn	66	1	nogas	103.651	1.558	283273	3.39	100	103.7	90	110	
As	75	1	nogas	88.096	2.209	429048	1.99	100	88.1	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	102.624	2.785	1817380	0.91	100	102.6	90	110	
Ag	107	1	nogas	100.830	2.092	1070665	1.76	100	100.8	90	110	
Cd	111	1	nogas	101.091	2.504	224871	2.47	100	101.1	90	110	
Sb	121	1	nogas	101.482	5.134	934942	2.18	100	101.5	90	110	
Tl	205	1	nogas	101.287	1.921	1909915	2.17	100	101.3	90	110	
Pb	208	1	nogas	104.900	0.714	2638699	0.71	100	104.9	90	110	
U	238	1	nogas	102.888	2.200	2793794	1.90	100	102.9	90	110	
[Pb]	206	1	nogas	98.948	1.920	636369	1.04	100	98.9	90	110	
[Pb]	207	1	nogas	99.261	1.391	587278	0.87	100	99.3	90	110	
Na	23	2	He	10240.667	3.446	3077694	1.88	10000	102.4	90	110	
Mg	24	2	He	10338.093	2.685	1415702	1.29	10000	103.4	90	110	
Al	27	2	He	102.478	6.403	4161	4.88	100	102.5	90	110	
K	39	2	He	10038.858	1.727	716125	1.69	10000	100.4	90	110	
Ca	43	2	He	9470.564	4.314	2440	5.68	10000	94.7	90	110	
Ca	44	2	He	9548.728	1.906	40758	1.12	10000	95.5	90	110	
V	51	2	He	100.221	2.339	147054	1.28	100	100.2	90	110	
Cr	52	2	He	101.481	2.518	212298	1.14	100	101.5	90	110	
Mn	55	2	He	100.755	1.097	81129	1.62	100	100.8	90	110	
Fe	56	2	He	10220.854	1.483	17501080	1.99	10000	102.2	90	110	
Co	59	2	He	102.493	2.297	353293	2.45	100	102.5	90	110	
Ni	60	2	He	102.072	2.100	104495	1.10	100	102.1	90	110	
Cu	63	2	He	101.233	0.639	288767	1.02	100	101.2	90	110	
Zn	66	2	He	100.419	1.375	41044	2.14	100	100.4	90	110	
As	75	2	He	98.789	3.181	26393	2.23	100	98.8	90	110	
Se	78	2	He	101.321	8.532	1077	7.30	100	101.3	90	110	
B	11	1	nogas	521.233	3.621	1190274	3.13	500	104.2	90	110	
Si	28	1	nogas	5151.241	4.155	29112810	0.94	5000	103.0	90	110	
Ca	43	1	nogas	10159.451	1.991	219284	1.57	10000	101.6	90	110	
Ca	44	1	nogas	6882.839	6.470	4136159	1.39	10000	68.8	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10096.390	7.271	166856391	4.61	10000	101.0	90	110	
Se	77	1	nogas	51.690	4.631	56157	3.11	100	51.7	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	98.373	2.637	15510	2.59	100	98.4	90	110	
Mo	95	1	nogas	101.266	5.736	402411	2.94	100	101.3	90	110	
Sn	118	1	nogas	100.507	2.566	589495	3.35	100	100.5	90	110	
Ba	137	1	nogas	102.592	6.022	292837	2.38	100	102.6	90	110	
Sb	121	2	He	98.407	1.315	103550	1.48	100	98.4	90	110	
Li	7	1	nogas	132.303	1.815	1026364	2.70	100	132.3	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	279.759	7.416	532261	0.93	500	56.0	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	106.807	31.603	320	30.78	100	106.8	90	110	
Au	197	1	nogas	46.320	154.133	20	50.00	100	46.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	371746	3.37	422913	87.90	70	125	
Ge	72	1	nogas	1659657	3.03	1623145	102.25	70	125	
In	115	1	nogas	1733008	4.43	1725651	100.43	70	125	
Bi	209	1	nogas	1654861	1.56	1623810	101.91	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	132358	1.46	132260	100.07	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	055_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T11:49:41-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.037	50.9	153	46.3	1	
Na	23	1	nogas	-2.191	-452.9	2810682	1.8	100	
Mg	24	1	nogas	2.965	29.8	35108	26.8	100	
Al	27	1	nogas	-0.931	-5.6	29587	0.8	5	
K	39	1	nogas	-46.150	-42.1	5348765	0.8	100	
Ti	47	1	nogas	-0.132	-99.1	527	24.8	2.5	
V	51	1	nogas	-10.192	-13.0	686529	1.0	2.5	
Cr	52	1	nogas	-0.799	-2.3	26279	2.1	2.5	
Mn	55	1	nogas	0.317	9.3	10290	6.9	2.5	
Co	59	1	nogas	0.025	26.8	740	17.9	2.5	
Ni	60	1	nogas	-0.579	-13.8	1693	14.0	2.5	
Cu	63	1	nogas	0.411	3.7	11540	2.8	2.5	
Zn	66	1	nogas	-0.393	-10.7	437	25.7	2.5	
As	75	1	nogas	-12.995	-12.3	110298	1.7	2.5	
Sr	88	1	nogas	0.030	47.3	1593	17.6	2.5	
Ag	107	1	nogas	0.038	35.6	973	18.5	2.5	
Cd	111	1	nogas	0.039	6.1	97	6.0	1	
Sb	121	1	nogas	1.382	8.9	15837	10.5	2.5	
Tl	205	1	nogas	0.070	26.1	1483	25.7	1	
Pb	208	1	nogas	0.069	20.6	2237	16.1	2.5	
U	238	1	nogas	0.037	53.2	1127	52.0	2.5	
[Pb]	206	1	nogas	0.054	6.1	493	7.1	2.5	
[Pb]	207	1	nogas	0.065	24.1	523	21.0	2.5	
Na	23	2	He	-1.634	-303.2	77153	0.2	100	
Mg	24	2	He	2.214	33.4	577	19.5	100	
Al	27	2	He	-1.181	-88.3	117	35.7	5	
K	39	2	He	7.836	93.4	15763	3.2	100	
Ca	43	2	He	-105.201	0.0	0	#DIV/0!	100	
Ca	44	2	He	-45.482	-32.4	287	21.3	100	
V	51	2	He	-0.241	-15.1	450	10.5	2.5	
Cr	52	2	He	0.035	124.0	1250	7.0	2.5	
Mn	55	2	He	-0.019	-169.8	137	18.4	2.5	
Fe	56	2	He	2.507	13.1	8659	5.3	100	
Co	59	2	He	0.026	28.1	100	26.5	2.5	
Ni	60	2	He	-0.471	-10.2	220	20.8	2.5	
Cu	63	2	He	0.000	-14814.4	1750	8.4	2.5	
Zn	66	2	He	-0.015	-328.1	27	78.1	2.5	
As	75	2	He	0.003	883.8	22	34.7	2.5	
Se	78	2	He	-0.925	-11.7	1	86.6	2.5	
B	11	1	nogas	24.637	8.4	67370	7.4	10	CCB Main CR1 Failed
Si	28	1	nogas	-47.897	-25.4	1678090	1.1	5	
Ca	43	1	nogas	-13.804	-68.1	1707	9.2	100	
Ca	44	1	nogas	-4056.655	-1.3	550155	0.5	100	
Fe	56	1	nogas	10.097	14.9	850705	2.5	100	
Se	77	1	nogas	-37.856	-20.6	36641	2.6	2.5	
Se	82	1	nogas	-0.339	-62.1	403	9.4	2.5	
Mo	95	1	nogas	0.025	272.2	503	58.4	2.5	
Sn	118	1	nogas	0.075	38.2	1597	10.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.015	24.5	153	7.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.094	6.7	1440	3.9	2.5	
P	31	1	nogas	-255.041	-2.5	139084	0.4	10	
La	139	1	nogas	16.970	93.7	87	52.0	2.5	CCB Main CR1 Failed
Au	197	1	nogas	184.977	40.9	40	25.0	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	415737	1.31	422913	98.30	70	125	
Ge	72	1	nogas	1695640	3.17	1623145	104.47	70	125	
In	115	1	nogas	1840898	0.98	1725651	106.68	70	125	
Bi	209	1	nogas	1714231	2.64	1623810	105.57	70	125	
Ge	72	2	He	134407	1.76	132260	101.62	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	066_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T12:11:29-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.801	0.257	325880	1.55	100	91.8	90	110	
Na	23	1	nogas	10462.121	2.086	144977887	0.51	10000	104.6	90	110	
Mg	24	1	nogas	10589.125	3.720	99377583	2.60	10000	105.9	90	110	
Al	27	1	nogas	99.977	3.449	1353765	3.33	100	100.0	90	110	
K	39	1	nogas	9802.009	0.380	109848048	0.49	10000	98.0	90	110	
Ti	47	1	nogas	101.179	3.047	113414	2.83	100	101.2	90	110	
V	51	1	nogas	78.416	5.448	2376700	3.20	100	78.4	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	99.205	4.417	1498818	4.06	100	99.2	90	110	
Mn	55	1	nogas	101.557	2.190	1850298	1.95	100	101.6	90	110	
Co	59	1	nogas	99.860	1.540	1610207	1.76	100	99.9	90	110	
Ni	60	1	nogas	97.229	1.798	354331	2.01	100	97.2	90	110	
Cu	63	1	nogas	101.113	3.097	888183	3.21	100	101.1	90	110	
Zn	66	1	nogas	102.380	3.798	287757	3.88	100	102.4	90	110	
As	75	1	nogas	78.640	3.660	410414	2.06	100	78.6	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	101.663	2.325	1852371	2.22	100	101.7	90	110	
Ag	107	1	nogas	101.672	1.537	1110590	1.49	100	101.7	90	110	
Cd	111	1	nogas	102.103	1.773	230966	1.57	100	102.1	90	110	
Sb	121	1	nogas	99.485	0.463	943561	0.64	100	99.5	90	110	
Tl	205	1	nogas	99.205	5.610	1899060	2.23	100	99.2	90	110	
Pb	208	1	nogas	105.710	2.725	2659065	2.72	100	105.7	90	110	
U	238	1	nogas	103.889	4.255	2866189	3.74	100	103.9	90	110	
[Pb]	206	1	nogas	98.640	5.607	644119	2.42	100	98.6	90	110	
[Pb]	207	1	nogas	98.304	4.901	590606	1.68	100	98.3	90	110	
Na	23	2	He	9828.298	4.934	3034852	2.43	10000	98.3	90	110	
Mg	24	2	He	10220.980	1.490	1437275	1.31	10000	102.2	90	110	
Al	27	2	He	104.596	8.747	4354	6.38	100	104.6	90	110	
K	39	2	He	10084.539	1.343	719315	1.31	10000	100.8	90	110	
Ca	43	2	He	8921.040	4.501	2360	4.09	10000	89.2	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9543.172	4.654	41811	3.34	10000	95.4	90	110	
V	51	2	He	99.131	3.007	149325	1.07	100	99.1	90	110	
Cr	52	2	He	97.806	2.614	210104	0.37	100	97.8	90	110	
Mn	55	2	He	98.294	2.270	81259	2.14	100	98.3	90	110	
Fe	56	2	He	9841.006	3.718	17293432	1.77	10000	98.4	90	110	
Co	59	2	He	98.178	3.200	347334	0.59	100	98.2	90	110	
Ni	60	2	He	99.009	4.182	104056	2.26	100	99.0	90	110	
Cu	63	2	He	102.596	2.486	300378	0.39	100	102.6	90	110	
Zn	66	2	He	99.308	2.966	41665	2.30	100	99.3	90	110	
As	75	2	He	98.384	5.049	26973	2.43	100	98.4	90	110	
Se	78	2	He	91.013	1.594	995	1.14	100	91.0	90	110	
B	11	1	nogas	489.689	2.368	1172382	1.23	500	97.9	90	110	
Si	28	1	nogas	4964.596	0.572	28946900	0.78	5000	99.3	90	110	
Ca	43	1	nogas	9922.532	3.057	220374	3.21	10000	99.2	90	110	
Ca	44	1	nogas	6037.671	5.391	3970231	2.84	10000	60.4	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9966.406	2.577	169616858	2.48	10000	99.7	90	110	
Se	77	1	nogas	21.639	31.769	50754	2.91	100	21.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.845	1.143	15714	0.96	100	96.8	90	110	
Mo	95	1	nogas	96.738	1.138	395786	1.37	100	96.7	90	110	
Sn	118	1	nogas	99.635	3.408	593980	0.82	100	99.6	90	110	
Ba	137	1	nogas	101.293	3.057	294235	0.98	100	101.3	90	110	
Sb	121	2	He	99.060	3.304	106979	0.66	100	99.1	90	110	
Li	7	1	nogas	100.415	2.059	825430	3.70	100	100.4	90	110	
P	31	1	nogas	249.233	3.474	524380	1.08	500	49.8	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	199.582	19.362	570	16.08	100	199.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	1.610	10978.822	13	173.21	100	1.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	389567	1.81	422913	92.12	70	125	
Ge	72	1	nogas	1706704	0.25	1623145	105.15	70	125	
In	115	1	nogas	1761673	2.84	1725651	102.09	70	125	
Bi	209	1	nogas	1682846	5.01	1623810	103.64	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	135914	2.67	132260	102.76	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	067_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T12:13:29-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.065	31.5	263	28.5	1	
Na	23	1	nogas	-17.234	-1.8	2636462	0.9	100	
Mg	24	1	nogas	3.623	34.6	41924	29.2	100	
Al	27	1	nogas	-0.723	-12.6	32799	1.5	5	
K	39	1	nogas	-58.446	-21.6	5303079	0.4	100	
Ti	47	1	nogas	-0.078	-117.4	597	15.2	2.5	
V	51	1	nogas	-8.013	-5.0	739565	2.2	2.5	
Cr	52	1	nogas	-0.789	-7.7	26843	2.3	2.5	
Mn	55	1	nogas	0.415	9.9	12238	4.2	2.5	
Co	59	1	nogas	0.035	76.1	903	45.7	2.5	
Ni	60	1	nogas	-0.628	-10.8	1547	15.4	2.5	
Cu	63	1	nogas	0.317	14.8	10883	2.3	2.5	
Zn	66	1	nogas	-0.265	-9.0	803	8.0	2.5	
As	75	1	nogas	-14.288	-2.9	107881	3.2	2.5	
Sr	88	1	nogas	0.028	34.8	1577	9.5	2.5	
Ag	107	1	nogas	0.040	37.0	1007	14.5	2.5	
Cd	111	1	nogas	0.030	70.1	77	65.7	1	
Sb	121	1	nogas	1.448	15.0	16662	10.3	2.5	
Tl	205	1	nogas	0.089	36.1	1897	31.3	1	
Pb	208	1	nogas	0.118	21.6	3470	18.5	2.5	
U	238	1	nogas	0.035	62.6	1087	55.5	2.5	
[Pb]	206	1	nogas	0.097	32.7	807	25.1	2.5	
[Pb]	207	1	nogas	0.107	33.5	803	25.6	2.5	
Na	23	2	He	-29.242	-12.7	71053	1.4	100	
Mg	24	2	He	2.186	57.5	590	31.4	100	
Al	27	2	He	0.203	554.1	177	25.5	5	
K	39	2	He	-2.772	-155.5	15023	2.0	100	
Ca	43	2	He	-42.679	-50.7	17	34.6	100	
Ca	44	2	He	-60.473	-28.5	230	34.0	100	
V	51	2	He	-0.188	-9.9	545	4.6	2.5	
Cr	52	2	He	0.056	83.9	1333	7.7	2.5	
Mn	55	2	He	0.070	32.2	217	9.6	2.5	
Fe	56	2	He	2.782	8.0	9423	4.9	100	
Co	59	2	He	0.022	34.1	90	29.4	2.5	
Ni	60	2	He	-0.471	-7.5	227	16.7	2.5	
Cu	63	2	He	-0.057	-54.7	1637	6.3	2.5	
Zn	66	2	He	0.131	91.9	90	57.7	2.5	
As	75	2	He	-0.007	-282.6	20	28.9	2.5	
Se	78	2	He	-0.928	-11.3	1	86.6	2.5	
B	11	1	nogas	31.000	8.2	85110	6.2	10	CCB Main CR1 Failed
Si	28	1	nogas	-45.619	-30.4	1717086	2.4	5	
Ca	43	1	nogas	-9.607	-131.0	1827	13.3	100	
Ca	44	1	nogas	-4355.417	-0.7	456956	0.7	100	
Fe	56	1	nogas	21.519	33.0	1058337	9.8	100	
Se	77	1	nogas	-40.162	-8.1	36694	0.1	2.5	
Se	82	1	nogas	0.092	598.8	477	16.3	2.5	
Mo	95	1	nogas	0.049	116.9	603	37.4	2.5	
Sn	118	1	nogas	0.067	47.3	1570	9.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.034	18.4	213	9.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.054	16.0	1440	13.0	2.5	
P	31	1	nogas	-275.957	-1.2	125241	0.9	10	
La	139	1	nogas	31.513	46.8	130	33.5	2.5	CCB Main CR1 Failed
Au	197	1	nogas	13.518	571.4	17	69.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	423647	1.64	422913	100.17	70	125	
Ge	72	1	nogas	1722120	2.23	1623145	106.10	70	125	
In	115	1	nogas	1877166	3.43	1725651	108.78	70	125	
Bi	209	1	nogas	1773939	2.38	1623810	109.25	70	125	
Ge	72	2	He	138511	0.81	132260	104.73	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	078_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T12:35:22-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	94.043	3.023	320674	2.60	100	94.0	90	110	
Na	23	1	nogas	11083.528	4.287	138186603	1.47	10000	110.8	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	11111.861	4.703	93920221	1.34	10000	111.1	90	110	CCV Main CR1-2 Failed
Al	27	1	nogas	101.990	4.492	1267121	3.55	100	102.0	90	110	
K	39	1	nogas	10024.413	1.636	103030513	0.85	10000	100.2	90	110	
Ti	47	1	nogas	98.757	2.816	101661	2.22	100	98.8	90	110	
V	51	1	nogas	93.159	1.147	2440092	1.01	100	93.2	90	110	
Cr	52	1	nogas	102.163	6.473	1416093	5.72	100	102.2	90	110	
Mn	55	1	nogas	105.678	5.060	1767550	4.38	100	105.7	90	110	
Co	59	1	nogas	103.302	2.206	1529377	1.44	100	103.3	90	110	
Ni	60	1	nogas	97.438	1.438	326038	0.82	100	97.4	90	110	
Cu	63	1	nogas	100.086	1.338	807330	0.84	100	100.1	90	110	
Zn	66	1	nogas	101.288	0.583	261442	1.35	100	101.3	90	110	
As	75	1	nogas	87.262	0.914	402745	0.63	100	87.3	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	103.101	2.028	1724897	1.24	100	103.1	90	110	
Ag	107	1	nogas	102.835	1.170	1031442	0.44	100	102.8	90	110	
Cd	111	1	nogas	101.191	1.759	219806	0.26	100	101.2	90	110	
Sb	121	1	nogas	100.384	3.484	874143	2.92	100	100.4	90	110	
Tl	205	1	nogas	100.597	3.589	1817660	2.45	100	100.6	90	110	
Pb	208	1	nogas	100.150	2.885	2519224	2.88	100	100.1	90	110	
U	238	1	nogas	102.933	3.054	2678598	1.98	100	102.9	90	110	
[Pb]	206	1	nogas	98.575	5.128	607184	0.62	100	98.6	90	110	
[Pb]	207	1	nogas	98.036	2.223	555988	2.42	100	98.0	90	110	
Na	23	2	He	10331.694	4.373	2898930	1.89	10000	103.3	90	110	
Mg	24	2	He	10341.455	4.353	1322320	1.92	10000	103.4	90	110	
Al	27	2	He	102.811	5.596	3897	2.57	100	102.8	90	110	
K	39	2	He	9128.964	0.988	652597	0.96	10000	91.3	90	110	
Ca	43	2	He	9006.332	4.886	2170	7.54	10000	90.1	90	110	
Ca	44	2	He	9295.088	0.670	37081	2.65	10000	93.0	90	110	
V	51	2	He	99.621	1.559	136550	1.50	100	99.6	90	110	
Cr	52	2	He	100.262	3.407	195883	0.65	100	100.3	90	110	
Mn	55	2	He	96.432	4.510	72487	1.67	100	96.4	90	110	
Fe	56	2	He	9913.987	3.614	15848514	0.95	10000	99.1	90	110	
Co	59	2	He	99.687	2.789	320864	0.44	100	99.7	90	110	
Ni	60	2	He	100.217	5.171	95786	2.62	100	100.2	90	110	
Cu	63	2	He	102.267	2.930	272401	1.86	100	102.3	90	110	
Zn	66	2	He	101.117	0.729	38605	2.24	100	101.1	90	110	
As	75	2	He	98.629	2.530	24611	0.88	100	98.6	90	110	
Se	78	2	He	96.933	8.290	962	5.77	100	96.9	90	110	
B	11	1	nogas	528.924	4.118	1215906	2.21	500	105.8	90	110	
Si	28	1	nogas	5103.800	1.887	27274038	1.02	5000	102.1	90	110	
Ca	43	1	nogas	10152.948	0.875	207019	1.36	10000	101.5	90	110	
Ca	44	1	nogas	6093.558	1.227	3663115	0.86	10000	60.9	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10187.175	3.889	159167658	3.18	10000	101.9	90	110	
Se	77	1	nogas	59.620	14.105	54716	2.49	100	59.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.861	1.073	14866	1.41	100	99.9	90	110	
Mo	95	1	nogas	98.291	1.661	369237	0.86	100	98.3	90	110	
Sn	118	1	nogas	97.604	4.363	558880	3.49	100	97.6	90	110	
Ba	137	1	nogas	96.882	2.066	270322	1.56	100	96.9	90	110	
Sb	121	2	He	98.462	1.613	96768	1.28	100	98.5	90	110	
Li	7	1	nogas	104.755	1.410	825601	2.35	100	104.8	90	110	
P	31	1	nogas	262.209	1.937	490610	0.69	500	52.4	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	126.171	18.621	360	16.90	100	126.2	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	126.547	99.938	30	57.74	100	126.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	374295	2.47	422913	88.50	70	125	
Ge	72	1	nogas	1567248	0.79	1623145	96.56	70	125	
In	115	1	nogas	1691463	1.53	1725651	98.02	70	125	
Bi	209	1	nogas	1587125	4.54	1623810	97.74	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	123650	2.81	132260	93.49	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	079_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T12:37:21-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.039	40.9	160	38.0	1	
Na	23	1	nogas	7.200	97.8	2746471	2.4	100	
Mg	24	1	nogas	3.745	35.9	39617	29.5	100	
Al	27	1	nogas	-1.029	-11.2	26916	4.8	5	
K	39	1	nogas	-42.415	-4.3	5125752	0.8	100	
Ti	47	1	nogas	-0.104	-72.3	533	15.6	2.5	
V	51	1	nogas	-4.844	-24.3	749277	3.8	2.5	
Cr	52	1	nogas	-0.745	-10.6	25741	3.9	2.5	
Mn	55	1	nogas	0.423	1.6	11607	0.8	2.5	
Co	59	1	nogas	0.028	28.0	740	15.0	2.5	
Ni	60	1	nogas	-0.619	-8.1	1480	11.8	2.5	
Cu	63	1	nogas	0.333	17.8	10330	5.7	2.5	
Zn	66	1	nogas	-0.305	-13.1	647	15.8	2.5	
As	75	1	nogas	-8.410	-3.0	119093	1.7	2.5	
Sr	88	1	nogas	0.057	11.6	1963	4.7	2.5	
Ag	107	1	nogas	0.042	29.1	960	12.0	2.5	
Cd	111	1	nogas	0.041	47.1	97	46.6	1	
Sb	121	1	nogas	1.419	11.4	15350	8.4	2.5	
Tl	205	1	nogas	0.093	38.7	1857	37.5	1	
Pb	208	1	nogas	0.076	27.8	2417	22.1	2.5	
U	238	1	nogas	0.041	39.8	1183	38.2	2.5	
[Pb]	206	1	nogas	0.068	29.5	567	23.3	2.5	
[Pb]	207	1	nogas	0.072	30.9	543	25.0	2.5	
Na	23	2	He	10.185	39.4	73582	1.7	100	
Mg	24	2	He	3.230	15.7	653	9.2	100	
Al	27	2	He	-0.534	-265.9	130	40.0	5	
K	39	2	He	-9.604	-40.2	14546	1.9	100	
Ca	43	2	He	-77.195	-62.8	7	173.2	100	
Ca	44	2	He	-49.347	-8.2	247	6.2	100	
V	51	2	He	-0.179	-17.4	494	8.1	2.5	
Cr	52	2	He	0.084	141.0	1233	17.7	2.5	
Mn	55	2	He	0.113	50.9	223	18.6	2.5	
Fe	56	2	He	2.778	8.7	8329	3.9	100	
Co	59	2	He	0.031	39.7	107	35.5	2.5	
Ni	60	2	He	-0.476	-10.8	197	25.1	2.5	
Cu	63	2	He	0.011	1166.1	1627	20.4	2.5	
Zn	66	2	He	-0.008	-356.3	27	43.3	2.5	
As	75	2	He	0.024	138.4	26	32.8	2.5	
Se	78	2	He	-0.778	-60.3	3	173.2	2.5	
B	11	1	nogas	37.446	9.4	98508	7.5	10	CCB Main CR1 Failed
Si	28	1	nogas	-49.444	-29.9	1587962	3.7	5	
Ca	43	1	nogas	-9.110	-63.2	1723	6.4	100	
Ca	44	1	nogas	-4503.652	-0.1	380437	0.8	100	
Fe	56	1	nogas	12.538	16.9	847839	3.0	100	
Se	77	1	nogas	-16.584	-9.5	39533	0.2	2.5	
Se	82	1	nogas	-0.318	-128.3	387	16.4	2.5	
Mo	95	1	nogas	0.053	88.8	580	30.2	2.5	
Sn	118	1	nogas	0.088	30.2	1600	11.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.032	36.9	193	16.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.949	8.9	1173	7.6	2.5	
P	31	1	nogas	-279.479	-0.9	114709	1.2	10	
La	139	1	nogas	21.045	72.1	93	43.3	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-1.675	-2636.8	13	43.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	409903	1.57	422913	96.92	70	125	
Ge	72	1	nogas	1611807	1.01	1623145	99.30	70	125	
In	115	1	nogas	1753342	1.50	1725651	101.60	70	125	
Bi	209	1	nogas	1653584	1.26	1623810	101.83	70	125	
Ge	72	2	He	122569	0.83	132260	92.67	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	090_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T12:59:22-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	93.792	5.274	316048	0.94	100	93.8	90	110	
Na	23	1	nogas	11160.324	4.885	141308641	1.30	10000	111.6	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	11252.408	5.064	96609015	1.60	10000	112.5	90	110	CCV Main CR1-2 Failed
Al	27	1	nogas	99.972	3.712	1245380	3.16	100	100.0	90	110	
K	39	1	nogas	9908.760	1.238	102109402	1.22	10000	99.1	90	110	
Ti	47	1	nogas	98.774	1.686	101904	2.80	100	98.8	90	110	
V	51	1	nogas	105.213	5.168	2656307	4.35	100	105.2	90	110	
Cr	52	1	nogas	103.728	3.565	1440086	2.41	100	103.7	90	110	
Mn	55	1	nogas	101.508	4.735	1701903	5.16	100	101.5	90	110	
Co	59	1	nogas	101.372	4.738	1503781	4.47	100	101.4	90	110	
Ni	60	1	nogas	97.912	4.343	328177	3.24	100	97.9	90	110	
Cu	63	1	nogas	100.272	1.040	810429	1.03	100	100.3	90	110	
Zn	66	1	nogas	100.281	2.247	259346	2.10	100	100.3	90	110	
As	75	1	nogas	94.656	3.163	425695	0.73	100	94.7	90	110	
Sr	88	1	nogas	101.955	2.659	1709135	2.35	100	102.0	90	110	
Ag	107	1	nogas	103.542	1.098	1040645	1.56	100	103.5	90	110	
Cd	111	1	nogas	100.772	3.621	220525	1.78	100	100.8	90	110	
Sb	121	1	nogas	101.583	2.827	886274	2.02	100	101.6	90	110	
Tl	205	1	nogas	105.066	4.134	1833279	1.17	100	105.1	90	110	
Pb	208	1	nogas	102.218	1.321	2571240	1.32	100	102.2	90	110	
U	238	1	nogas	109.873	4.248	2760885	1.32	100	109.9	90	110	
[Pb]	206	1	nogas	103.573	3.482	616537	0.51	100	103.6	90	110	
[Pb]	207	1	nogas	103.247	2.595	565493	1.03	100	103.2	90	110	
Na	23	2	He	10387.501	2.056	2821514	1.45	10000	103.9	90	110	
Mg	24	2	He	10438.039	0.496	1292554	2.34	10000	104.4	90	110	
Al	27	2	He	94.116	2.452	3467	1.30	100	94.1	90	110	
K	39	2	He	9093.895	0.853	650148	0.83	10000	90.9	90	110	
Ca	43	2	He	9427.854	6.994	2193	5.28	10000	94.3	90	110	
Ca	44	2	He	9916.738	3.591	38250	3.60	10000	99.2	90	110	
V	51	2	He	102.814	3.325	136348	2.65	100	102.8	90	110	
Cr	52	2	He	103.917	4.934	196420	2.95	100	103.9	90	110	
Mn	55	2	He	100.758	2.070	73327	0.63	100	100.8	90	110	
Fe	56	2	He	10238.021	0.571	15847641	1.99	10000	102.4	90	110	
Co	59	2	He	103.971	1.623	324035	3.15	100	104.0	90	110	
Ni	60	2	He	102.036	1.791	94444	2.48	100	102.0	90	110	
Cu	63	2	He	104.089	1.721	268329	1.12	100	104.1	90	110	
Zn	66	2	He	102.280	3.774	37773	2.05	100	102.3	90	110	
As	75	2	He	103.310	2.604	24949	1.71	100	103.3	90	110	
Se	78	2	He	96.868	3.385	932	5.24	100	96.9	90	110	
B	11	1	nogas	525.664	5.624	1194603	2.08	500	105.1	90	110	
Si	28	1	nogas	5185.385	3.574	27730850	2.04	5000	103.7	90	110	
Ca	43	1	nogas	9809.258	1.342	200447	0.29	10000	98.1	90	110	
Ca	44	1	nogas	5582.833	5.376	3510624	1.45	10000	55.8	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10258.524	4.518	160591283	3.90	10000	102.6	90	110	
Se	77	1	nogas	97.843	4.996	63009	0.57	100	97.8	90	110	
Se	82	1	nogas	96.841	1.669	14456	0.36	100	96.8	90	110	
Mo	95	1	nogas	96.684	2.252	363899	1.31	100	96.7	90	110	
Sn	118	1	nogas	97.969	2.909	565277	1.30	100	98.0	90	110	
Ba	137	1	nogas	98.518	3.509	276941	2.17	100	98.5	90	110	
Sb	121	2	He	104.431	1.830	99309	0.80	100	104.4	90	110	
Li	7	1	nogas	99.370	4.061	775927	1.62	100	99.4	90	110	
P	31	1	nogas	245.961	6.376	480110	1.01	500	49.2	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	77.644	17.679	237	12.91	100	77.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	166.482	77.080	33	45.83	100	166.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	370434	5.08	422913	87.59	70	125	
Ge	72	1	nogas	1570381	1.40	1623145	96.75	70	125	
In	115	1	nogas	1704540	2.03	1725651	98.78	70	125	
Bi	209	1	nogas	1532515	3.00	1623810	94.38	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	119651	1.94	132260	90.47	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	091_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T13:01:19-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.057	46.9	223	46.6	1	
Na	23	1	nogas	27.014	10.1	2897614	2.1	100	
Mg	24	1	nogas	3.883	24.5	39418	20.3	100	
Al	27	1	nogas	-1.168	-9.8	25187	4.6	5	
K	39	1	nogas	-39.490	-35.5	5152595	0.4	100	
Ti	47	1	nogas	-0.137	-86.5	500	27.1	2.5	
V	51	1	nogas	10.429	33.2	1024279	8.3	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.496	-18.3	29183	3.0	2.5	
Mn	55	1	nogas	0.444	8.5	11957	4.5	2.5	
Co	59	1	nogas	0.036	10.2	863	4.8	2.5	
Ni	60	1	nogas	-0.613	-8.1	1500	12.2	2.5	
Cu	63	1	nogas	1.087	7.7	16518	3.4	2.5	
Zn	66	1	nogas	-0.345	-4.9	543	10.1	2.5	
As	75	1	nogas	-2.743	-72.5	136503	3.5	2.5	
Sr	88	1	nogas	0.033	32.8	1550	10.7	2.5	
Ag	107	1	nogas	0.040	19.7	940	6.4	2.5	
Cd	111	1	nogas	0.035	24.5	80	21.7	1	
Sb	121	1	nogas	1.296	15.9	14259	12.6	2.5	
Tl	205	1	nogas	0.107	29.1	2114	26.8	1	
Pb	208	1	nogas	0.087	15.1	2687	12.3	2.5	
U	238	1	nogas	0.045	29.4	1293	26.6	2.5	
[Pb]	206	1	nogas	0.083	24.1	660	17.9	2.5	
[Pb]	207	1	nogas	0.087	14.8	633	10.3	2.5	
Na	23	2	He	24.978	26.4	77491	1.8	100	
Mg	24	2	He	4.592	40.9	827	29.8	100	
Al	27	2	He	4.405	221.3	310	114.8	5	
K	39	2	He	-6.928	-95.8	14733	3.1	100	
Ca	43	2	He	-62.461	-69.0	10	100.0	100	
Ca	44	2	He	-54.284	-25.2	227	22.2	100	
V	51	2	He	-0.057	-77.0	659	7.9	2.5	
Cr	52	2	He	0.151	53.5	1360	10.3	2.5	
Mn	55	2	He	0.127	52.7	233	22.0	2.5	
Fe	56	2	He	3.912	29.2	10124	18.8	100	
Co	59	2	He	0.035	22.8	120	22.0	2.5	
Ni	60	2	He	-0.461	-13.8	210	29.0	2.5	
Cu	63	2	He	-0.017	-293.7	1553	8.2	2.5	
Zn	66	2	He	0.045	182.3	47	65.5	2.5	
As	75	2	He	0.029	92.9	27	25.0	2.5	
Se	78	2	He	-0.911	-26.5	1	173.2	2.5	
B	11	1	nogas	43.075	2.9	110620	5.4	10	CCB Main CR1 Failed
Si	28	1	nogas	-51.294	-24.1	1578023	2.4	5	
Ca	43	1	nogas	-21.389	-42.7	1467	11.6	100	
Ca	44	1	nogas	-4702.089	-0.4	316919	0.7	100	
Fe	56	1	nogas	14.570	12.5	880136	1.8	100	
Se	77	1	nogas	11.285	33.9	45644	0.7	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.352	205.9	487	22.9	2.5	
Mo	95	1	nogas	0.056	93.9	593	33.3	2.5	
Sn	118	1	nogas	0.086	79.8	1553	28.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.026	71.7	173	33.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.280	6.2	1493	6.4	2.5	
P	31	1	nogas	-289.180	-0.5	107712	1.5	10	
La	139	1	nogas	23.391	22.1	97	11.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-0.754	-22885.9	13	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	402033	2.69	422913	95.06	70	125	
Ge	72	1	nogas	1611716	2.39	1623145	99.30	70	125	
In	115	1	nogas	1706919	3.09	1725651	98.91	70	125	
Bi	209	1	nogas	1656692	2.26	1623810	102.03	70	125	
Ge	72	2	He	122416	1.31	132260	92.56	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	102_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T13:23:12-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	88.978	6.103	318489	2.16	100	89.0	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10747.528	0.199	141284466	2.29	10000	107.5	90	110	
Mg	24	1	nogas	11048.462	0.475	98423031	2.31	10000	110.5	90	110	CCV Main CR1-2 Failed
Al	27	1	nogas	97.531	1.942	1270734	1.07	100	97.5	90	110	
K	39	1	nogas	9698.540	1.209	104569032	1.44	10000	97.0	90	110	
Ti	47	1	nogas	96.889	0.360	104461	0.95	100	96.9	90	110	
V	51	1	nogas	76.672	3.295	2253562	2.29	100	76.7	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	100.315	2.379	1456885	1.89	100	100.3	90	110	
Mn	55	1	nogas	103.741	2.482	1817173	1.85	100	103.7	90	110	
Co	59	1	nogas	96.222	2.643	1491677	2.00	100	96.2	90	110	
Ni	60	1	nogas	93.994	2.691	329450	2.22	100	94.0	90	110	
Cu	63	1	nogas	97.695	1.375	825395	1.56	100	97.7	90	110	
Zn	66	1	nogas	101.689	1.683	274834	2.04	100	101.7	90	110	
As	75	1	nogas	79.926	2.186	398715	2.18	100	79.9	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	102.377	3.593	1793430	3.09	100	102.4	90	110	
Ag	107	1	nogas	101.574	2.755	1066724	2.08	100	101.6	90	110	
Cd	111	1	nogas	98.813	1.356	225165	2.36	100	98.8	90	110	
Sb	121	1	nogas	103.207	0.389	941115	0.91	100	103.2	90	110	
Tl	205	1	nogas	96.739	1.062	1865987	0.36	100	96.7	90	110	
Pb	208	1	nogas	104.767	0.342	2635344	0.34	100	104.8	90	110	
U	238	1	nogas	101.671	0.821	2824314	0.59	100	101.7	90	110	
[Pb]	206	1	nogas	95.668	1.893	629441	1.21	100	95.7	90	110	
[Pb]	207	1	nogas	95.623	0.977	578776	0.27	100	95.6	90	110	
Na	23	2	He	9499.728	2.575	2721559	0.56	10000	95.0	90	110	
Mg	24	2	He	9426.568	2.892	1228036	1.06	10000	94.3	90	110	
Al	27	2	He	88.368	7.401	3434	5.54	100	88.4	90	110	CCV Main CR1-2 Failed
K	39	2	He	8913.298	0.739	637539	0.72	10000	89.1	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	8705.980	4.980	2137	6.90	10000	87.1	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9007.090	2.659	36600	1.78	10000	90.1	90	110	
V	51	2	He	97.875	2.798	136641	1.93	100	97.9	90	110	
Cr	52	2	He	95.464	1.224	190088	0.86	100	95.5	90	110	
Mn	55	2	He	92.852	1.626	71135	1.34	100	92.9	90	110	
Fe	56	2	He	9248.831	0.503	15068780	2.46	10000	92.5	90	110	
Co	59	2	He	97.602	2.315	320007	0.28	100	97.6	90	110	
Ni	60	2	He	96.639	3.709	94132	1.62	100	96.6	90	110	
Cu	63	2	He	97.037	2.561	263356	1.40	100	97.0	90	110	
Zn	66	2	He	97.907	1.552	38067	1.28	100	97.9	90	110	
As	75	2	He	99.513	1.999	25297	1.88	100	99.5	90	110	
Se	78	2	He	90.383	1.857	915	0.88	100	90.4	90	110	
B	11	1	nogas	508.478	6.082	1227632	2.17	500	101.7	90	110	
Si	28	1	nogas	5108.542	0.639	28586820	1.28	5000	102.2	90	110	
Ca	43	1	nogas	9891.942	0.469	211240	0.41	10000	98.9	90	110	
Ca	44	1	nogas	5469.815	3.326	3632941	2.22	10000	54.7	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10072.740	3.288	164816012	2.97	10000	100.7	90	110	
Se	77	1	nogas	32.848	39.433	51326	6.30	100	32.8	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.549	2.294	15063	1.61	100	96.5	90	110	
Mo	95	1	nogas	98.478	0.839	387388	0.63	100	98.5	90	110	
Sn	118	1	nogas	98.910	3.586	593899	1.31	100	98.9	90	110	
Ba	137	1	nogas	98.284	3.174	287544	0.84	100	98.3	90	110	
Sb	121	2	He	102.408	2.491	102488	0.87	100	102.4	90	110	
Li	7	1	nogas	95.404	3.956	792922	0.99	100	95.4	90	110	
P	31	1	nogas	240.119	3.418	497517	0.57	500	48.0	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	85.734	37.568	270	33.95	100	85.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-4.185	-1008.536	13	43.30	100	-4.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	393447	4.04	422913	93.03	70	125	
Ge	72	1	nogas	1641077	0.81	1623145	101.10	70	125	
In	115	1	nogas	1774459	3.15	1725651	102.83	70	125	
Bi	209	1	nogas	1692815	0.71	1623810	104.25	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	125929	2.07	132260	95.21	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	103_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T13:25:10-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.060	11.7	250	12.0	1	
Na	23	1	nogas	-12.841	-55.4	2490255	1.8	100	
Mg	24	1	nogas	4.948	19.7	50816	18.7	100	
Al	27	1	nogas	-1.215	-5.4	25331	2.7	5	
K	39	1	nogas	-36.715	-21.4	5333393	0.2	100	
Ti	47	1	nogas	-0.269	-17.0	370	14.3	2.5	
V	51	1	nogas	-14.317	-7.2	596016	4.4	2.5	
Cr	52	1	nogas	-0.924	-5.6	23936	4.5	2.5	
Mn	55	1	nogas	0.510	1.0	13472	0.9	2.5	
Co	59	1	nogas	0.037	36.6	910	22.1	2.5	
Ni	60	1	nogas	-0.553	-3.0	1753	3.3	2.5	
Cu	63	1	nogas	0.037	214.1	8125	9.5	2.5	
Zn	66	1	nogas	-0.106	-10.9	1207	3.4	2.5	
As	75	1	nogas	-13.335	-4.2	106938	2.7	2.5	
Sr	88	1	nogas	0.259	10.7	5608	9.9	2.5	
Ag	107	1	nogas	0.043	50.5	997	21.8	2.5	
Cd	111	1	nogas	0.041	7.3	97	6.0	1	
Sb	121	1	nogas	1.285	18.8	14556	13.8	2.5	
Tl	205	1	nogas	0.120	37.5	2404	35.1	1	
Pb	208	1	nogas	0.083	15.5	2593	12.6	2.5	
U	238	1	nogas	0.046	27.4	1337	25.2	2.5	
[Pb]	206	1	nogas	0.077	29.1	637	22.3	2.5	
[Pb]	207	1	nogas	0.073	25.5	560	19.3	2.5	
Na	23	2	He	-12.962	-140.3	71317	0.8	100	
Mg	24	2	He	2.731	11.2	630	13.8	100	
Al	27	2	He	-1.118	-113.9	113	35.7	5	
K	39	2	He	11.085	6.4	15990	0.3	100	
Ca	43	2	He	-16.157	-492.4	23	89.2	100	
Ca	44	2	He	-9.376	-294.4	433	32.3	100	
V	51	2	He	-0.271	-12.2	391	4.1	2.5	
Cr	52	2	He	0.024	565.6	1177	15.8	2.5	
Mn	55	2	He	0.053	67.5	190	18.2	2.5	
Fe	56	2	He	2.807	12.4	8886	4.7	100	
Co	59	2	He	0.022	21.5	83	13.9	2.5	
Ni	60	2	He	-0.457	-11.3	230	28.5	2.5	
Cu	63	2	He	-0.222	-19.0	1077	7.0	2.5	
Zn	66	2	He	0.039	157.5	47	49.5	2.5	
As	75	2	He	0.006	223.9	22	17.3	2.5	
Se	78	2	He	-0.733	-27.9	3	69.3	2.5	
B	11	1	nogas	44.366	2.5	121494	4.1	10	CCB Main CR1 Failed
Si	28	1	nogas	-56.740	-17.1	1595816	2.1	5	
Ca	43	1	nogas	3.538	278.5	2043	9.6	100	
Ca	44	1	nogas	-4777.037	-0.1	301603	0.8	100	
Fe	56	1	nogas	21.752	3.8	1024535	1.3	100	
Se	77	1	nogas	-44.890	-6.9	34293	3.3	2.5	
Se	82	1	nogas	0.153	243.7	470	12.8	2.5	
Mo	95	1	nogas	0.092	20.9	753	8.8	2.5	
Sn	118	1	nogas	0.093	48.0	1633	17.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.073	19.9	313	15.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.989	3.9	1287	5.5	2.5	
P	31	1	nogas	-292.648	-0.4	108315	2.1	10	
La	139	1	nogas	19.728	98.8	90	58.8	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-28.291	-255.5	10	100.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	429327	2.15	422913	101.52	70	125	
Ge	72	1	nogas	1658833	1.41	1623145	102.20	70	125	
In	115	1	nogas	1754650	1.84	1725651	101.68	70	125	
Bi	209	1	nogas	1685939	0.75	1623810	103.83	70	125	
Ge	72	2	He	130385	7.77	132260	98.58	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	114_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T13:47:30-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.441	2.739	311685	2.11	100	91.4	90	110	
Na	23	1	nogas	11190.053	1.805	136825295	1.34	10000	111.9	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	11182.901	2.123	92731548	1.99	10000	111.8	90	110	CCV Main CR1-2 Failed
Al	27	1	nogas	98.096	4.050	1194729	4.15	100	98.1	90	110	
K	39	1	nogas	9950.097	1.820	100139813	0.65	10000	99.5	90	110	
Ti	47	1	nogas	97.566	0.646	98335	1.55	100	97.6	90	110	
V	51	1	nogas	83.241	4.346	2218480	1.47	100	83.2	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	100.452	2.118	1363651	0.87	100	100.5	90	110	
Mn	55	1	nogas	104.301	4.756	1707394	3.39	100	104.3	90	110	
Co	59	1	nogas	99.428	1.051	1441193	2.11	100	99.4	90	110	
Ni	60	1	nogas	96.892	0.785	317396	1.15	100	96.9	90	110	
Cu	63	1	nogas	95.641	1.191	755477	0.45	100	95.6	90	110	
Zn	66	1	nogas	99.260	1.723	250781	0.60	100	99.3	90	110	
As	75	1	nogas	82.991	4.418	381658	2.34	100	83.0	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	102.900	2.300	1685476	2.96	100	102.9	90	110	
Ag	107	1	nogas	99.042	1.014	972426	0.71	100	99.0	90	110	
Cd	111	1	nogas	99.604	2.698	207432	1.33	100	99.6	90	110	
Sb	121	1	nogas	104.724	1.949	892538	0.62	100	104.7	90	110	
Tl	205	1	nogas	103.489	1.078	1796564	1.06	100	103.5	90	110	
Pb	208	1	nogas	98.897	1.366	2487715	1.37	100	98.9	90	110	
U	238	1	nogas	101.323	1.008	2533079	0.59	100	101.3	90	110	
[Pb]	206	1	nogas	102.636	1.563	607820	2.21	100	102.6	90	110	
[Pb]	207	1	nogas	101.542	1.141	553189	2.02	100	101.5	90	110	
Na	23	2	He	9567.377	2.751	2642904	2.61	10000	95.7	90	110	
Mg	24	2	He	9396.050	2.602	1180503	2.25	10000	94.0	90	110	
Al	27	2	He	93.055	3.151	3480	2.24	100	93.1	90	110	
K	39	2	He	8240.392	1.356	590557	1.32	10000	82.4	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9166.284	5.571	2167	6.15	10000	91.7	90	110	
Ca	44	2	He	9026.277	1.294	35374	2.27	10000	90.3	90	110	
V	51	2	He	96.264	1.088	129624	1.75	100	96.3	90	110	
Cr	52	2	He	94.197	0.126	180884	1.16	100	94.2	90	110	
Mn	55	2	He	93.216	1.538	68866	2.09	100	93.2	90	110	
Fe	56	2	He	9159.297	0.750	14387117	1.36	10000	91.6	90	110	
Co	59	2	He	96.499	1.738	305128	1.68	100	96.5	90	110	
Ni	60	2	He	93.069	1.025	87469	1.21	100	93.1	90	110	
Cu	63	2	He	94.413	0.797	247164	1.54	100	94.4	90	110	
Zn	66	2	He	93.854	1.045	35188	0.73	100	93.9	90	110	
As	75	2	He	95.527	1.750	23416	1.85	100	95.5	90	110	
Se	78	2	He	86.662	4.229	847	3.82	100	86.7	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	495.061	2.466	1138267	1.71	500	99.0	90	110	
Si	28	1	nogas	4892.661	1.034	25666698	0.73	5000	97.9	90	110	
Ca	43	1	nogas	10112.400	1.205	201822	0.33	10000	101.1	90	110	
Ca	44	1	nogas	5560.588	4.464	3423693	2.60	10000	55.6	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10498.693	2.770	160541687	1.40	10000	105.0	90	110	
Se	77	1	nogas	54.594	14.019	52516	3.10	100	54.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	94.511	6.265	13796	6.32	100	94.5	90	110	
Mo	95	1	nogas	99.117	2.003	364512	2.49	100	99.1	90	110	
Sn	118	1	nogas	102.821	1.593	564620	2.03	100	102.8	90	110	
Ba	137	1	nogas	101.088	2.968	270408	1.85	100	101.1	90	110	
Sb	121	2	He	100.856	1.198	97357	2.14	100	100.9	90	110	
Li	7	1	nogas	100.165	1.045	790573	0.83	100	100.2	90	110	
P	31	1	nogas	217.966	2.373	449925	0.61	500	43.6	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	84.914	17.615	243	14.43	100	84.9	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	112.232	146.179	27	78.06	100	112.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	374096	0.75	422913	88.46	70	125	
Ge	72	1	nogas	1534167	1.40	1623145	94.52	70	125	
In	115	1	nogas	1621799	1.40	1725651	93.98	70	125	
Bi	209	1	nogas	1523504	0.96	1623810	93.82	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	121412	1.04	132260	91.80	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	115_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T13:49:27-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.046	21.3	183	22.0	1	
Na	23	1	nogas	-13.587	-35.7	2270329	0.7	100	
Mg	24	1	nogas	4.915	21.1	46301	21.1	100	
Al	27	1	nogas	-1.286	-2.1	22751	1.2	5	
K	39	1	nogas	-36.077	-40.1	4972571	1.1	100	
Ti	47	1	nogas	-0.323	-23.8	290	28.2	2.5	
V	51	1	nogas	-6.599	-29.3	687475	3.1	2.5	
Cr	52	1	nogas	-0.760	-8.4	24460	1.9	2.5	
Mn	55	1	nogas	0.596	5.1	13965	1.8	2.5	
Co	59	1	nogas	0.026	40.7	687	24.0	2.5	
Ni	60	1	nogas	-0.615	-5.9	1430	7.4	2.5	
Cu	63	1	nogas	-0.381	-4.7	4274	2.6	2.5	
Zn	66	1	nogas	-0.080	-19.2	1190	4.4	2.5	
As	75	1	nogas	-5.707	-37.7	122076	3.6	2.5	
Sr	88	1	nogas	0.158	6.9	3550	3.5	2.5	
Ag	107	1	nogas	0.037	68.0	873	29.7	2.5	
Cd	111	1	nogas	0.036	56.9	80	54.5	1	
Sb	121	1	nogas	1.133	17.5	12295	15.3	2.5	
Tl	205	1	nogas	0.115	36.4	2137	34.7	1	
Pb	208	1	nogas	0.072	27.8	2300	21.8	2.5	
U	238	1	nogas	0.045	32.2	1207	31.1	2.5	
[Pb]	206	1	nogas	0.069	43.4	537	34.4	2.5	
[Pb]	207	1	nogas	0.064	42.0	463	31.4	2.5	
Na	23	2	He	-35.987	-9.2	61443	1.7	100	
Mg	24	2	He	2.804	12.7	603	6.7	100	
Al	27	2	He	-2.389	-43.1	63	59.8	5	
K	39	2	He	-19.827	-33.1	13832	3.3	100	
Ca	43	2	He	-35.161	-249.3	17	124.9	100	
Ca	44	2	He	-38.716	-36.9	290	19.2	100	
V	51	2	He	-0.270	-19.4	375	19.3	2.5	
Cr	52	2	He	0.102	21.2	1277	2.8	2.5	
Mn	55	2	He	0.115	44.6	227	17.8	2.5	
Fe	56	2	He	2.328	4.1	7665	1.7	100	
Co	59	2	He	0.035	33.9	123	30.7	2.5	
Ni	60	2	He	-0.460	-15.7	213	32.9	2.5	
Cu	63	2	He	-0.287	-7.1	850	6.2	2.5	
Zn	66	2	He	0.070	93.8	57	44.4	2.5	
As	75	2	He	-0.003	-702.8	19	27.0	2.5	
Se	78	2	He	-0.506	-22.5	5	21.7	2.5	
B	11	1	nogas	44.507	2.0	114658	4.2	10	CCB Main CR1 Failed
Si	28	1	nogas	-56.296	-7.9	1489018	2.8	5	
Ca	43	1	nogas	-4.036	-189.0	1753	8.8	100	
Ca	44	1	nogas	-4878.774	-0.3	249695	0.6	100	
Fe	56	1	nogas	20.077	3.6	928463	0.9	100	
Se	77	1	nogas	-3.995	-192.7	40529	2.2	2.5	
Se	82	1	nogas	0.266	111.5	453	8.4	2.5	
Mo	95	1	nogas	0.041	122.8	513	37.2	2.5	
Sn	118	1	nogas	0.115	35.2	1663	13.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.025	22.6	163	9.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.808	17.0	1043	13.6	2.5	
P	31	1	nogas	-298.078	-0.7	97114	0.7	10	
La	139	1	nogas	24.453	35.1	97	21.5	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-22.582	-345.4	10	100.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	403930	2.59	422913	95.51	70	125	
Ge	72	1	nogas	1544993	1.81	1623145	95.19	70	125	
In	115	1	nogas	1658318	1.13	1725651	96.10	70	125	
Bi	209	1	nogas	1551827	1.89	1623810	95.57	70	125	
Ge	72	2	He	123365	0.85	132260	93.27	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	126_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T14:13:41-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	86.529	4.723	298838	2.30	100	86.5	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10785.743	2.273	128278915	1.28	10000	107.9	90	110	
Mg	24	1	nogas	10956.774	1.780	88322600	1.73	10000	109.6	90	110	
Al	27	1	nogas	95.183	3.594	1118839	2.53	100	95.2	90	110	
K	39	1	nogas	10076.646	5.773	97672175	2.55	10000	100.8	90	110	
Ti	47	1	nogas	96.533	1.976	93834	2.03	100	96.5	90	110	
V	51	1	nogas	91.243	5.887	2270801	0.83	100	91.2	90	110	
Cr	52	1	nogas	97.290	4.915	1274206	2.22	100	97.3	90	110	
Mn	55	1	nogas	101.224	5.333	1597623	2.34	100	101.2	90	110	
Co	59	1	nogas	97.406	4.357	1360822	1.89	100	97.4	90	110	
Ni	60	1	nogas	94.508	5.196	298410	1.63	100	94.5	90	110	
Cu	63	1	nogas	97.149	2.054	740231	3.52	100	97.1	90	110	
Zn	66	1	nogas	99.590	1.234	242725	2.57	100	99.6	90	110	
As	75	1	nogas	88.473	3.852	383588	1.54	100	88.5	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	103.550	5.227	1635335	4.73	100	103.6	90	110	
Ag	107	1	nogas	99.607	3.589	942969	2.23	100	99.6	90	110	
Cd	111	1	nogas	97.542	4.358	200935	1.41	100	97.5	90	110	
Sb	121	1	nogas	103.484	4.639	850484	3.55	100	103.5	90	110	
Tl	205	1	nogas	97.590	3.973	1688956	0.85	100	97.6	90	110	
Pb	208	1	nogas	93.728	2.177	2357713	2.18	100	93.7	90	110	
U	238	1	nogas	101.435	1.835	2529312	1.49	100	101.4	90	110	
[Pb]	206	1	nogas	97.090	3.659	573220	1.05	100	97.1	90	110	
[Pb]	207	1	nogas	96.076	3.415	521990	3.16	100	96.1	90	110	
Na	23	2	He	9480.110	1.782	2528869	2.50	10000	94.8	90	110	
Mg	24	2	He	9676.360	0.892	1173835	2.60	10000	96.8	90	110	
Al	27	2	He	81.300	6.903	2954	6.53	100	81.3	90	110	CCV Main CR1-2 Failed
K	39	2	He	8090.238	0.453	580074	0.44	10000	80.9	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	8875.872	10.648	2023	8.85	10000	88.8	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	8916.201	0.242	33734	1.60	10000	89.2	90	110	CCV Main CR1-2 Failed
V	51	2	He	96.518	1.764	125436	0.42	100	96.5	90	110	
Cr	52	2	He	94.633	3.785	175363	2.65	100	94.6	90	110	
Mn	55	2	He	92.524	4.623	65955	3.14	100	92.5	90	110	
Fe	56	2	He	9143.279	3.329	13859135	1.60	10000	91.4	90	110	
Co	59	2	He	95.833	2.551	292458	1.10	100	95.8	90	110	
Ni	60	2	He	92.910	1.683	84284	0.88	100	92.9	90	110	
Cu	63	2	He	93.317	2.112	235832	2.29	100	93.3	90	110	
Zn	66	2	He	96.258	1.910	34837	1.90	100	96.3	90	110	
As	75	2	He	94.713	3.243	22405	1.51	100	94.7	90	110	
Se	78	2	He	89.370	7.308	842	5.53	100	89.4	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	480.634	6.285	1119324	3.08	500	96.1	90	110	
Si	28	1	nogas	4953.608	4.135	25035735	2.75	5000	99.1	90	110	
Ca	43	1	nogas	10153.738	4.308	195377	2.91	10000	101.5	90	110	
Ca	44	1	nogas	5586.977	8.237	3309487	4.07	10000	55.9	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10112.724	4.255	149102249	0.51	10000	101.1	90	110	
Se	77	1	nogas	80.060	6.404	55785	1.92	100	80.1	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	97.192	8.114	13652	4.77	100	97.2	90	110	
Mo	95	1	nogas	96.799	3.678	343239	2.70	100	96.8	90	110	
Sn	118	1	nogas	99.844	3.048	542654	3.97	100	99.8	90	110	
Ba	137	1	nogas	97.862	4.003	258993	2.20	100	97.9	90	110	
Sb	121	2	He	100.277	1.713	93422	0.56	100	100.3	90	110	
Li	7	1	nogas	96.948	3.026	776726	2.43	100	96.9	90	110	
P	31	1	nogas	210.246	13.365	428574	0.90	500	42.0	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	84.581	21.631	240	18.16	100	84.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	6.809	2728.161	13	173.21	100	6.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	379367	3.59	422913	89.70	70	125	
Ge	72	1	nogas	1480219	3.78	1623145	91.19	70	125	
In	115	1	nogas	1605361	3.42	1725651	93.03	70	125	
Bi	209	1	nogas	1520056	3.21	1623810	93.61	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	117207	1.75	132260	88.62	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	127_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T14:15:38-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.058	34.1	233	34.6	1	
Na	23	1	nogas	-45.258	-9.8	1872619	1.5	100	
Mg	24	1	nogas	5.472	26.3	50379	23.8	100	
Al	27	1	nogas	-1.135	-3.5	24316	2.1	5	
K	39	1	nogas	-42.219	-56.2	4865781	0.7	100	
Ti	47	1	nogas	-0.323	-12.1	287	12.3	2.5	
V	51	1	nogas	-6.001	-53.4	690625	4.2	2.5	
Cr	52	1	nogas	-0.764	-11.6	24173	0.8	2.5	
Mn	55	1	nogas	0.727	5.0	15967	1.8	2.5	
Co	59	1	nogas	0.039	26.2	863	19.3	2.5	
Ni	60	1	nogas	-0.709	-8.6	1117	19.7	2.5	
Cu	63	1	nogas	-0.373	-9.3	4294	3.5	2.5	
Zn	66	1	nogas	-0.217	-4.5	837	4.5	2.5	
As	75	1	nogas	-6.146	-29.9	119650	2.1	2.5	
Sr	88	1	nogas	0.059	23.8	1893	8.7	2.5	
Ag	107	1	nogas	0.054	44.2	1030	22.6	2.5	
Cd	111	1	nogas	0.050	72.9	110	72.2	1	
Sb	121	1	nogas	1.239	13.3	13062	11.2	2.5	
Tl	205	1	nogas	0.141	39.4	2617	40.1	1	
Pb	208	1	nogas	0.087	23.8	2683	19.4	2.5	
U	238	1	nogas	0.055	31.4	1483	32.0	2.5	
[Pb]	206	1	nogas	0.085	28.4	640	24.6	2.5	
[Pb]	207	1	nogas	0.087	8.8	597	5.4	2.5	
Na	23	2	He	-65.892	-5.6	51607	1.8	100	
Mg	24	2	He	4.958	25.6	850	17.6	100	
Al	27	2	He	-0.445	-331.8	130	40.7	5	
K	39	2	He	-35.738	-40.5	12721	7.9	100	
Ca	43	2	He	-3.894	-619.1	23	24.7	100	
Ca	44	2	He	-39.706	-57.2	277	30.1	100	
V	51	2	He	-0.240	-8.0	402	5.2	2.5	
Cr	52	2	He	0.109	95.5	1250	14.7	2.5	
Mn	55	2	He	0.217	23.7	293	13.8	2.5	
Fe	56	2	He	3.043	7.2	8532	3.9	100	
Co	59	2	He	0.042	71.9	140	68.1	2.5	
Ni	60	2	He	-0.434	-15.2	230	26.4	2.5	
Cu	63	2	He	-0.272	-20.6	863	17.3	2.5	
Zn	66	2	He	0.057	2.6	50	0.0	2.5	
As	75	2	He	0.036	57.0	28	18.3	2.5	
Se	78	2	He	-0.628	-58.1	4	86.6	2.5	
B	11	1	nogas	46.114	12.1	121443	9.4	10	CCB Main CR1 Failed
Si	28	1	nogas	-27.222	-48.2	1615909	0.9	5	
Ca	43	1	nogas	-16.560	-8.0	1490	2.3	100	
Ca	44	1	nogas	-4976.322	-0.7	217660	0.7	100	
Fe	56	1	nogas	19.321	12.7	908012	2.2	100	
Se	77	1	nogas	-3.349	-337.2	40268	2.8	2.5	
Se	82	1	nogas	-0.146	-369.0	393	22.9	2.5	
Mo	95	1	nogas	0.059	74.7	577	30.4	2.5	
Sn	118	1	nogas	0.128	4.5	1713	0.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.048	62.3	223	36.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.900	8.4	1097	6.8	2.5	
P	31	1	nogas	-307.065	-2.2	90006	1.3	10	
La	139	1	nogas	26.084	37.7	100	26.5	2.5	CCB Main CR1 Failed
Au	197	1	nogas	58.872	243.3	20	86.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	414676	4.93	422913	98.05	70	125	
Ge	72	1	nogas	1531306	3.95	1623145	94.34	70	125	
In	115	1	nogas	1637759	2.31	1725651	94.91	70	125	
Bi	209	1	nogas	1563054	3.32	1623810	96.26	70	125	
Ge	72	2	He	119516	1.08	132260	90.36	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	138_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T14:37:47-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	86.735	1.378	288596	1.44	100	86.7	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10646.927	4.117	129607845	0.94	10000	106.5	90	110	
Mg	24	1	nogas	10719.052	4.661	88397375	1.46	10000	107.2	90	110	
Al	27	1	nogas	97.655	2.675	1169432	1.69	100	97.7	90	110	
K	39	1	nogas	9771.148	2.424	96787479	1.42	10000	97.7	90	110	
Ti	47	1	nogas	95.065	2.112	94216	1.56	100	95.1	90	110	
V	51	1	nogas	97.002	2.108	2413024	0.64	100	97.0	90	110	
Cr	52	1	nogas	95.002	3.883	1269892	3.04	100	95.0	90	110	
Mn	55	1	nogas	101.935	3.463	1641194	2.55	100	101.9	90	110	
Co	59	1	nogas	96.713	3.330	1378050	2.45	100	96.7	90	110	
Ni	60	1	nogas	91.774	2.743	295755	2.19	100	91.8	90	110	
Cu	63	1	nogas	92.994	2.786	722434	1.94	100	93.0	90	110	
Zn	66	1	nogas	96.391	1.963	239504	1.05	100	96.4	90	110	
As	75	1	nogas	92.273	5.308	402035	2.63	100	92.3	90	110	
Sr	88	1	nogas	99.142	0.306	1596699	1.18	100	99.1	90	110	
Ag	107	1	nogas	97.275	2.604	939040	1.78	100	97.3	90	110	
Cd	111	1	nogas	97.555	1.815	198292	2.09	100	97.6	90	110	
Sb	121	1	nogas	99.839	2.249	836819	1.37	100	99.8	90	110	
Tl	205	1	nogas	98.282	2.144	1691713	1.34	100	98.3	90	110	
Pb	208	1	nogas	94.696	1.534	2382059	1.53	100	94.7	90	110	
U	238	1	nogas	102.192	3.675	2532928	2.76	100	102.2	90	110	
[Pb]	206	1	nogas	97.644	0.379	573402	1.38	100	97.6	90	110	
[Pb]	207	1	nogas	97.395	0.641	526119	1.22	100	97.4	90	110	
Na	23	2	He	9382.734	3.338	2539007	1.13	10000	93.8	90	110	
Mg	24	2	He	9541.694	2.764	1173864	0.76	10000	95.4	90	110	
Al	27	2	He	89.275	4.363	3277	4.75	100	89.3	90	110	CCV Main CR1-2 Failed
K	39	2	He	8249.593	1.837	591200	1.79	10000	82.5	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	8214.932	7.306	1903	6.76	10000	82.1	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	8979.005	4.945	34442	2.77	10000	89.8	90	110	CCV Main CR1-2 Failed
V	51	2	He	95.823	1.615	126363	1.56	100	95.8	90	110	
Cr	52	2	He	93.923	1.573	176636	1.75	100	93.9	90	110	
Mn	55	2	He	92.190	2.957	66691	2.19	100	92.2	90	110	
Fe	56	2	He	9241.613	3.165	14214208	2.38	10000	92.4	90	110	
Co	59	2	He	95.946	3.411	297027	1.34	100	95.9	90	110	
Ni	60	2	He	93.093	5.766	85627	3.56	100	93.1	90	110	
Cu	63	2	He	93.503	4.143	239632	1.98	100	93.5	90	110	
Zn	66	2	He	93.176	2.890	34209	2.05	100	93.2	90	110	
As	75	2	He	95.312	1.463	22883	2.19	100	95.3	90	110	
Se	78	2	He	92.211	3.483	882	4.46	100	92.2	90	110	
B	11	1	nogas	466.365	5.005	1046600	3.75	500	93.3	90	110	
Si	28	1	nogas	4959.597	2.794	25556975	1.81	5000	99.2	90	110	
Ca	43	1	nogas	9745.350	1.490	191310	0.68	10000	97.5	90	110	
Ca	44	1	nogas	5251.328	2.016	3273711	0.42	10000	52.5	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9901.034	3.918	148905203	3.00	10000	99.0	90	110	
Se	77	1	nogas	97.338	8.516	60420	1.96	100	97.3	90	110	
Se	82	1	nogas	96.162	2.265	13792	1.48	100	96.2	90	110	
Mo	95	1	nogas	96.093	0.856	347497	1.63	100	96.1	90	110	
Sn	118	1	nogas	98.913	0.624	530039	1.16	100	98.9	90	110	
Ba	137	1	nogas	98.901	2.601	258184	2.09	100	98.9	90	110	
Sb	121	2	He	102.342	1.721	96740	1.81	100	102.3	90	110	
Li	7	1	nogas	94.982	0.877	733591	2.29	100	95.0	90	110	
P	31	1	nogas	201.899	3.896	431577	0.72	500	40.4	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	97.027	36.129	267	31.45	100	97.0	90	110	
Au	197	1	nogas	-73.648	-63.021	3	173.21	100	-73.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	365181	1.97	422913	86.35	70	125	
Ge	72	1	nogas	1508486	0.92	1623145	92.94	70	125	
In	115	1	nogas	1582484	0.89	1725651	91.70	70	125	
Bi	209	1	nogas	1510730	1.05	1623810	93.04	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	118923	2.20	132260	89.92	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	139_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T14:39:44-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.068	37.2	270	36.5	1	
Na	23	1	nogas	6.878	80.9	2530591	1.3	100	
Mg	24	1	nogas	7.553	18.1	68439	16.0	100	
Al	27	1	nogas	-1.140	-3.1	24476	2.7	5	
K	39	1	nogas	-31.280	-30.0	5018188	0.9	100	
Ti	47	1	nogas	-0.252	-26.5	360	17.3	2.5	
V	51	1	nogas	0.175	508.3	804519	3.8	2.5	
Cr	52	1	nogas	-0.641	-10.2	26059	5.0	2.5	
Mn	55	1	nogas	0.987	6.7	20395	4.2	2.5	
Co	59	1	nogas	0.051	5.1	1050	4.9	2.5	
Ni	60	1	nogas	-0.677	-11.4	1230	20.4	2.5	
Cu	63	1	nogas	-0.352	-4.8	4504	4.3	2.5	
Zn	66	1	nogas	-0.233	-32.3	800	21.9	2.5	
As	75	1	nogas	-0.450	-259.9	137700	4.3	2.5	
Sr	88	1	nogas	0.093	10.4	2484	4.6	2.5	
Ag	107	1	nogas	0.053	20.5	1027	8.5	2.5	
Cd	111	1	nogas	0.071	18.1	153	19.9	1	
Sb	121	1	nogas	1.199	21.2	12808	15.0	2.5	
Tl	205	1	nogas	0.136	30.7	2507	29.4	1	
Pb	208	1	nogas	0.086	19.8	2653	16.1	2.5	
U	238	1	nogas	0.057	26.0	1513	25.0	2.5	
[Pb]	206	1	nogas	0.086	37.9	643	30.9	2.5	
[Pb]	207	1	nogas	0.094	11.2	633	9.3	2.5	
Na	23	2	He	-20.337	-46.6	64630	1.2	100	
Mg	24	2	He	5.807	7.9	970	2.7	100	
Al	27	2	He	-0.647	-273.0	123	47.5	5	
K	39	2	He	-29.431	-27.1	13161	4.2	100	
Ca	43	2	He	-47.119	-106.8	13	86.6	100	
Ca	44	2	He	-54.047	-35.7	227	33.7	100	
V	51	2	He	-0.146	-11.5	535	7.7	2.5	
Cr	52	2	He	0.096	72.8	1243	7.8	2.5	
Mn	55	2	He	0.505	25.5	510	18.9	2.5	
Fe	56	2	He	3.814	2.1	9876	2.3	100	
Co	59	2	He	0.061	48.8	203	48.5	2.5	
Ni	60	2	He	-0.510	-13.9	163	43.4	2.5	
Cu	63	2	He	-0.217	-12.3	1020	10.3	2.5	
Zn	66	2	He	0.020	213.0	37	41.7	2.5	
As	75	2	He	0.063	98.1	34	40.3	2.5	
Se	78	2	He	-0.573	-52.0	5	65.5	2.5	
B	11	1	nogas	35.120	4.7	93103	5.6	10	CCB Main CR1 Failed
Si	28	1	nogas	-41.180	-20.9	1562426	0.8	5	
Ca	43	1	nogas	-15.133	-39.0	1533	9.4	100	
Ca	44	1	nogas	-5035.577	-0.3	201618	1.0	100	
Fe	56	1	nogas	22.656	10.4	967490	1.8	100	
Se	77	1	nogas	17.891	21.0	45143	1.7	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.243	-249.5	380	21.5	2.5	
Mo	95	1	nogas	0.073	122.0	627	50.2	2.5	
Sn	118	1	nogas	0.106	42.7	1603	18.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.053	14.9	240	11.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.850	15.9	1063	8.7	2.5	
P	31	1	nogas	-308.090	-1.1	90181	1.6	10	
La	139	1	nogas	22.074	63.6	90	38.5	2.5	CCB Main CR1 Failed
Au	197	1	nogas	3.553	3346.9	13	114.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	411289	1.42	422913	97.25	70	125	
Ge	72	1	nogas	1544671	1.96	1623145	95.17	70	125	
In	115	1	nogas	1646472	2.53	1725651	95.41	70	125	
Bi	209	1	nogas	1554312	0.93	1623810	95.72	70	125	
Ge	72	2	He	121425	3.50	132260	91.81	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	150_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T15:01:44-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.700	0.951	279919	2.84	100	92.7	90	110	
Na	23	1	nogas	10941.981	4.454	124259228	1.64	10000	109.4	90	110	
Mg	24	1	nogas	10677.056	2.805	82220933	1.24	10000	106.8	90	110	
Al	27	1	nogas	94.985	9.921	1108752	6.92	100	95.0	90	110	
K	39	1	nogas	9771.153	3.725	94356371	0.75	10000	97.7	90	110	
Ti	47	1	nogas	94.218	0.795	91091	2.84	100	94.2	90	110	
V	51	1	nogas	105.138	4.089	2485939	0.54	100	105.1	90	110	
Cr	52	1	nogas	94.231	2.776	1228528	1.09	100	94.2	90	110	
Mn	55	1	nogas	98.842	3.790	1551958	2.90	100	98.8	90	110	
Co	59	1	nogas	92.820	4.966	1289192	2.57	100	92.8	90	110	
Ni	60	1	nogas	91.479	2.119	287490	1.32	100	91.5	90	110	
Cu	63	1	nogas	92.876	0.583	703806	2.29	100	92.9	90	110	
Zn	66	1	nogas	98.409	2.497	238402	1.36	100	98.4	90	110	
As	75	1	nogas	102.337	3.960	420400	1.97	100	102.3	90	110	
Sr	88	1	nogas	101.661	4.351	1595839	2.58	100	101.7	90	110	
Ag	107	1	nogas	97.619	1.155	919111	1.72	100	97.6	90	110	
Cd	111	1	nogas	101.061	2.018	195119	3.24	100	101.1	90	110	
Sb	121	1	nogas	103.836	2.813	848483	0.59	100	103.8	90	110	
Tl	205	1	nogas	99.252	2.742	1652456	1.10	100	99.3	90	110	
Pb	208	1	nogas	93.532	2.124	2352786	2.12	100	93.5	90	110	
U	238	1	nogas	104.948	3.201	2516338	2.06	100	104.9	90	110	
[Pb]	206	1	nogas	100.217	2.080	569197	0.88	100	100.2	90	110	
[Pb]	207	1	nogas	100.792	3.198	526636	2.87	100	100.8	90	110	
Na	23	2	He	9858.810	1.053	2613007	1.50	10000	98.6	90	110	
Mg	24	2	He	9657.696	1.949	1165148	2.23	10000	96.6	90	110	
Al	27	2	He	99.018	9.586	3547	9.12	100	99.0	90	110	
K	39	2	He	8341.350	0.743	597606	0.72	10000	83.4	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	8375.653	9.691	1903	10.19	10000	83.8	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9028.864	2.667	33968	2.17	10000	90.3	90	110	
V	51	2	He	96.322	1.578	124522	1.11	100	96.3	90	110	
Cr	52	2	He	93.964	1.204	173239	0.93	100	94.0	90	110	
Mn	55	2	He	95.163	1.055	67495	0.53	100	95.2	90	110	
Fe	56	2	He	9365.495	1.704	14123571	1.18	10000	93.7	90	110	
Co	59	2	He	97.568	1.626	296201	0.90	100	97.6	90	110	
Ni	60	2	He	94.818	1.489	85546	0.97	100	94.8	90	110	
Cu	63	2	He	93.466	1.263	234953	1.79	100	93.5	90	110	
Zn	66	2	He	96.325	2.514	34680	3.25	100	96.3	90	110	
As	75	2	He	98.699	2.125	23227	1.37	100	98.7	90	110	
Se	78	2	He	98.637	4.239	924	4.15	100	98.6	90	110	
B	11	1	nogas	462.303	4.165	941749	4.45	500	92.5	90	110	
Si	28	1	nogas	4954.341	3.593	24891813	0.92	5000	99.1	90	110	
Ca	43	1	nogas	9597.199	0.991	183783	2.18	10000	96.0	90	110	
Ca	44	1	nogas	5118.908	2.686	3154771	3.24	10000	51.2	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9755.379	2.812	143076791	1.08	10000	97.6	90	110	
Se	77	1	nogas	136.555	6.614	66786	2.09	100	136.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	98.616	2.640	13782	1.72	100	98.6	90	110	
Mo	95	1	nogas	97.397	2.558	343409	2.02	100	97.4	90	110	
Sn	118	1	nogas	102.369	2.453	520945	2.78	100	102.4	90	110	
Ba	137	1	nogas	102.576	6.116	254012	0.90	100	102.6	90	110	
Sb	121	2	He	107.490	1.022	99608	1.79	100	107.5	90	110	
Li	7	1	nogas	99.566	2.160	696038	0.92	100	99.6	90	110	
P	31	1	nogas	287.696	16.044	476820	3.78	500	57.5	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	105.878	10.679	273	8.45	100	105.9	90	110	
Au	197	1	nogas	94.427	133.924	23	65.47	100	94.4	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	331384	2.96	422913	78.36	70	125	
Ge	72	1	nogas	1471352	2.77	1623145	90.65	70	125	
In	115	1	nogas	1504202	5.22	1725651	87.17	70	125	
Bi	209	1	nogas	1461530	1.82	1623810	90.01	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	116574	0.77	132260	88.14	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	151_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T15:03:41-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.071	43.1	253	37.5	1	
Na	23	1	nogas	151.326	8.4	4296975	1.4	100	CCB Main CR1 Failed
Mg	24	1	nogas	10.499	14.7	93318	11.7	100	
Al	27	1	nogas	-0.609	-63.0	30361	14.5	5	
K	39	1	nogas	2.865	178.9	5274236	0.7	100	
Ti	47	1	nogas	-0.221	-8.4	387	5.4	2.5	
V	51	1	nogas	12.291	42.9	999103	8.9	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.386	-16.6	29046	2.5	2.5	
Mn	55	1	nogas	1.111	2.1	22137	2.2	2.5	
Co	59	1	nogas	0.058	17.3	1130	12.4	2.5	
Ni	60	1	nogas	-0.555	-3.1	1603	4.2	2.5	
Cu	63	1	nogas	-0.335	-11.5	4574	7.2	2.5	
Zn	66	1	nogas	-0.208	-16.9	853	9.8	2.5	
As	75	1	nogas	8.187	26.5	160968	3.8	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.108	5.8	2684	4.1	2.5	
Ag	107	1	nogas	0.063	20.7	1113	10.9	2.5	
Cd	111	1	nogas	0.065	16.3	140	14.3	1	
Sb	121	1	nogas	1.225	13.5	12882	10.5	2.5	
Tl	205	1	nogas	1.180	28.2	21245	28.8	1	CCB Main CR1 Failed
Pb	208	1	nogas	0.067	23.5	2193	18.2	2.5	
U	238	1	nogas	0.062	35.4	1677	34.9	2.5	
[Pb]	206	1	nogas	0.063	52.0	510	40.5	2.5	
[Pb]	207	1	nogas	0.074	11.7	530	8.6	2.5	
Na	23	2	He	111.345	12.7	101230	1.4	100	CCB Main CR1 Failed
Mg	24	2	He	7.711	19.2	1220	10.7	100	
Al	27	2	He	1.090	393.9	190	84.7	5	
K	39	2	He	-10.225	-111.4	14502	5.5	100	
Ca	43	2	He	-49.116	-46.8	13	43.3	100	
Ca	44	2	He	-64.706	-17.3	187	22.3	100	
V	51	2	He	-0.055	-71.4	664	6.3	2.5	
Cr	52	2	He	0.103	68.0	1277	13.8	2.5	
Mn	55	2	He	0.617	23.9	597	13.6	2.5	
Fe	56	2	He	4.860	12.5	11637	4.1	100	
Co	59	2	He	0.049	44.7	167	44.2	2.5	
Ni	60	2	He	-0.383	-24.1	283	28.5	2.5	
Cu	63	2	He	-0.244	-6.5	960	2.8	2.5	
Zn	66	2	He	0.089	38.7	63	18.2	2.5	
As	75	2	He	0.158	35.7	59	26.1	2.5	
Se	78	2	He	-0.224	-326.4	8	90.1	2.5	
B	11	1	nogas	32.260	12.1	78905	8.7	10	CCB Main CR1 Failed
Si	28	1	nogas	8.667	189.9	1783411	3.9	5	CCB Main CR1 Failed
Ca	43	1	nogas	-0.442	-1427.0	1800	7.1	100	
Ca	44	1	nogas	-5040.551	-0.1	197426	0.5	100	
Fe	56	1	nogas	31.363	23.2	1086285	9.8	100	
Se	77	1	nogas	62.436	21.5	53790	5.2	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.069	794.3	420	19.0	2.5	
Mo	95	1	nogas	0.279	4.0	1373	3.4	2.5	
Sn	118	1	nogas	0.185	62.9	2041	34.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.086	50.2	327	34.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.375	2.7	1590	3.1	2.5	
P	31	1	nogas	-299.253	-1.1	94981	1.8	10	
La	139	1	nogas	41.130	34.0	137	23.5	2.5	CCB Main CR1 Failed
Au	197	1	nogas	130.758	176.3	30	100.0	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	378878	3.89	422913	89.59	70	125	
Ge	72	1	nogas	1523691	0.67	1623145	93.87	70	125	
In	115	1	nogas	1639814	2.76	1725651	95.03	70	125	
Bi	209	1	nogas	1571488	1.16	1623810	96.78	70	125	
Ge	72	2	He	122922	4.32	132260	92.94	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	163_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T15:28:37-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.086	17.8	297	18.6	1	
Na	23	1	nogas	1160.526	3.4	16676451	1.1	100	CCB Main CR1 Failed
Mg	24	1	nogas	7.406	18.4	68006	17.5	100	
Al	27	1	nogas	-0.999	-3.0	26823	1.4	5	
K	39	1	nogas	18.978	82.2	5640054	0.0	100	
Ti	47	1	nogas	0.080	26.3	713	2.9	2.5	
V	51	1	nogas	-3.738	-65.6	755193	3.7	2.5	
Cr	52	1	nogas	-0.699	-7.6	25918	0.7	2.5	
Mn	55	1	nogas	0.774	10.2	17308	5.0	2.5	
Co	59	1	nogas	0.070	20.5	1363	18.0	2.5	
Ni	60	1	nogas	1.357	15.3	8055	6.2	2.5	
Cu	63	1	nogas	0.430	20.9	10923	4.0	2.5	
Zn	66	1	nogas	0.350	14.5	2337	6.6	2.5	
As	75	1	nogas	-0.230	-1139.5	141713	2.9	2.5	
Sr	88	1	nogas	0.117	2.6	2947	1.2	2.5	
Ag	107	1	nogas	0.432	7.9	4897	6.0	2.5	
Cd	111	1	nogas	0.049	18.1	110	18.2	1	
Sb	121	1	nogas	0.847	13.0	10096	12.4	2.5	
Tl	205	1	nogas	0.873	11.8	15868	16.2	1	
Pb	208	1	nogas	0.069	18.6	2223	14.5	2.5	
U	238	1	nogas	0.073	15.7	1973	19.6	2.5	
[Pb]	206	1	nogas	0.074	21.2	580	18.2	2.5	
[Pb]	207	1	nogas	0.078	18.8	553	18.2	2.5	
Na	23	2	He	1041.944	1.5	375064	1.2	100	CCB Main CR1 Failed
Mg	24	2	He	4.742	5.7	897	4.5	100	
Al	27	2	He	-1.606	-72.2	97	46.6	5	
K	39	2	He	15.576	13.1	16304	0.9	100	
Ca	43	2	He	-78.386	-59.3	7	173.2	100	
Ca	44	2	He	-44.970	-32.6	280	22.3	100	
V	51	2	He	-0.157	-14.5	556	6.6	2.5	
Cr	52	2	He	0.091	84.2	1323	11.4	2.5	
Mn	55	2	He	0.264	58.5	357	35.1	2.5	
Fe	56	2	He	4.388	6.4	11540	4.4	100	
Co	59	2	He	0.043	26.5	157	24.2	2.5	
Ni	60	2	He	-0.440	-6.1	243	10.3	2.5	
Cu	63	2	He	-0.312	-10.6	827	11.9	2.5	
Zn	66	2	He	0.528	15.1	243	12.6	2.5	
As	75	2	He	3.561	8.6	954	8.3	2.5	CCB Main CR1 Failed
Se	78	2	He	-0.340	-31.8	7	15.7	2.5	
B	11	1	nogas	32.648	6.1	76621	4.4	10	CCB Main CR1 Failed
Si	28	1	nogas	-9.724	-50.0	1761462	1.6	5	
Ca	43	1	nogas	-31.313	-18.3	1240	8.5	100	
Ca	44	1	nogas	-5072.647	-0.4	195081	0.7	100	
Fe	56	1	nogas	27.499	32.3	1066841	10.8	100	
Se	77	1	nogas	1.878	508.8	42811	2.1	2.5	
Se	82	1	nogas	0.206	147.0	457	10.8	2.5	
Mo	95	1	nogas	0.226	23.7	1230	18.7	2.5	
Sn	118	1	nogas	0.089	29.4	1553	7.1	5	
Ba	137	1	nogas	0.072	41.1	303	29.9	2.5	

Continuing Calibration Blank (CCB) Report

Sb	121	2	He	0.700	11.5	987	8.2	2.5	
P	31	1	nogas	-302.706	-0.8	96297	1.1	10	
La	139	1	nogas	48.095	15.5	160	10.8	2.5	CCB Main CR1 Failed
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Au	197	1	nogas	-73.773	-62.6	3	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	363051	1.41	422913	85.85	70	125	
Ge	72	1	nogas	1584313	2.77	1623145	97.61	70	125	
In	115	1	nogas	1699596	2.81	1725651	98.49	70	125	
Bi	209	1	nogas	1580130	4.27	1623810	97.31	70	125	
Ge	72	2	He	129979	0.76	132260	98.27	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	165_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T15:32:37-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	94.223	7.307	290798	4.09	100	94.2	90	110	
Na	23	1	nogas	11259.013	2.554	137058107	0.93	10000	112.6	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	10557.141	1.387	87173200	0.68	10000	105.6	90	110	
Al	27	1	nogas	97.123	5.033	1169179	3.88	100	97.1	90	110	
K	39	1	nogas	10041.803	3.021	99840156	1.89	10000	100.4	90	110	
Ti	47	1	nogas	98.803	2.442	98428	3.08	100	98.8	90	110	
V	51	1	nogas	90.126	4.046	2309694	2.90	100	90.1	90	110	
Cr	52	1	nogas	100.994	2.181	1355019	1.27	100	101.0	90	110	
Mn	55	1	nogas	99.854	2.057	1616718	2.93	100	99.9	90	110	
Co	59	1	nogas	97.548	4.365	1397363	4.11	100	97.5	90	110	
Ni	60	1	nogas	97.533	1.820	315755	1.21	100	97.5	90	110	
Cu	63	1	nogas	98.205	1.784	766542	0.78	100	98.2	90	110	
Zn	66	1	nogas	99.128	1.575	247560	0.55	100	99.1	90	110	
As	75	1	nogas	99.335	1.357	424697	0.19	100	99.3	90	110	
Sr	88	1	nogas	101.662	0.553	1645756	0.46	100	101.7	90	110	
Ag	107	1	nogas	98.807	1.295	958882	0.30	100	98.8	90	110	
Cd	111	1	nogas	98.632	2.054	205969	1.31	100	98.6	90	110	
Sb	121	1	nogas	102.043	4.314	859610	3.37	100	102.0	90	110	
Tl	205	1	nogas	94.327	6.482	1663685	2.79	100	94.3	90	110	
Pb	208	1	nogas	92.728	0.403	2332574	0.40	100	92.7	90	110	
U	238	1	nogas	97.919	3.969	2488913	1.43	100	97.9	90	110	
[Pb]	206	1	nogas	93.720	5.705	563967	2.00	100	93.7	90	110	
[Pb]	207	1	nogas	93.237	4.775	516255	1.20	100	93.2	90	110	
Na	23	2	He	9831.724	2.436	2863516	0.94	10000	98.3	90	110	
Mg	24	2	He	9245.122	0.605	1226141	3.01	10000	92.5	90	110	
Al	27	2	He	92.093	6.538	3640	8.26	100	92.1	90	110	
K	39	2	He	9125.278	1.183	652340	1.16	10000	91.3	90	110	
Ca	43	2	He	8744.547	9.938	2180	8.50	10000	87.4	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9038.048	2.493	37368	1.66	10000	90.4	90	110	
V	51	2	He	95.185	2.755	135219	0.34	100	95.2	90	110	
Cr	52	2	He	91.032	1.566	184530	2.93	100	91.0	90	110	
Mn	55	2	He	90.172	1.243	70325	3.62	100	90.2	90	110	
Fe	56	2	He	8854.772	3.222	14674272	2.33	10000	88.5	90	110	CCV Main CR1-2 Failed
Co	59	2	He	91.686	3.216	305826	0.63	100	91.7	90	110	
Ni	60	2	He	90.198	4.548	89432	2.51	100	90.2	90	110	
Cu	63	2	He	92.178	2.838	254609	0.80	100	92.2	90	110	
Zn	66	2	He	93.576	3.012	37018	2.34	100	93.6	90	110	
As	75	2	He	100.998	1.909	26121	0.79	100	101.0	90	110	
Se	78	2	He	94.261	5.940	971	6.74	100	94.3	90	110	
B	11	1	nogas	479.724	8.093	998340	4.03	500	95.9	90	110	
Si	28	1	nogas	5038.488	2.081	26077849	2.66	5000	100.8	90	110	
Ca	43	1	nogas	9880.274	4.072	194915	3.02	10000	98.8	90	110	
Ca	44	1	nogas	5401.147	8.599	3335165	3.17	10000	54.0	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10038.269	0.505	151784203	0.68	10000	100.4	90	110	
Se	77	1	nogas	102.882	10.183	61899	4.00	100	102.9	90	110	
Se	82	1	nogas	99.845	1.741	14383	2.55	100	99.8	90	110	
Mo	95	1	nogas	97.078	1.331	352865	1.18	100	97.1	90	110	
Sn	118	1	nogas	99.100	1.776	545615	1.59	100	99.1	90	110	
Ba	137	1	nogas	99.574	1.093	267101	0.39	100	99.6	90	110	
Sb	121	2	He	99.385	3.585	101190	1.01	100	99.4	90	110	
Li	7	1	nogas	112.767	4.779	802777	4.60	100	112.8	90	110	CCV Main CR1-2 Failed
P	31	1	nogas	232.784	2.390	454771	1.12	500	46.6	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	88.836	43.276	253	36.47	100	88.8	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	188.382	65.256	37	41.66	100	188.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	339291	4.32	422913	80.23	70	125	
Ge	72	1	nogas	1516395	1.01	1623145	93.42	70	125	
In	115	1	nogas	1626014	1.02	1725651	94.23	70	125	
Bi	209	1	nogas	1550364	3.82	1623810	95.48	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	128145	2.66	132260	96.89	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	172_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T15:47:21-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	93.947	2.910	320750	3.22	100	93.9	90	110	
Na	23	1	nogas	11073.108	2.307	147326524	1.18	10000	110.7	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	10707.377	4.025	96573771	2.64	10000	107.1	90	110	
Al	27	1	nogas	94.205	2.261	1279525	1.80	100	94.2	90	110	
K	39	1	nogas	9582.532	1.843	107649848	1.70	10000	95.8	90	110	
Ti	47	1	nogas	90.750	1.207	101917	0.05	100	90.7	90	110	
V	51	1	nogas	89.201	4.669	2584649	2.10	100	89.2	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	92.947	4.004	1408122	2.63	100	92.9	90	110	
Mn	55	1	nogas	94.651	3.301	1726565	2.05	100	94.7	90	110	
Co	59	1	nogas	92.315	2.176	1490259	1.74	100	92.3	90	110	
Ni	60	1	nogas	91.064	2.846	332447	1.83	100	91.1	90	110	
Cu	63	1	nogas	93.339	1.608	821485	1.55	100	93.3	90	110	
Zn	66	1	nogas	96.317	2.670	271139	2.89	100	96.3	90	110	
As	75	1	nogas	93.130	4.863	458237	2.36	100	93.1	90	110	
Sr	88	1	nogas	96.104	3.541	1753030	2.86	100	96.1	90	110	
Ag	107	1	nogas	93.471	0.904	1022272	0.38	100	93.5	90	110	
Cd	111	1	nogas	97.506	1.186	216412	0.98	100	97.5	90	110	
Sb	121	1	nogas	97.468	1.592	925541	0.59	100	97.5	90	110	
Tl	205	1	nogas	94.711	2.156	1758802	3.07	100	94.7	90	110	
Pb	208	1	nogas	101.206	1.270	2545793	1.27	100	101.2	90	110	
U	238	1	nogas	99.076	2.941	2648472	0.67	100	99.1	90	110	
[Pb]	206	1	nogas	96.449	1.807	610818	1.17	100	96.4	90	110	
[Pb]	207	1	nogas	96.382	1.781	561490	0.69	100	96.4	90	110	
Na	23	2	He	9740.435	1.978	2896612	1.19	10000	97.4	90	110	
Mg	24	2	He	9500.345	2.067	1285541	0.69	10000	95.0	90	110	
Al	27	2	He	88.203	3.022	3564	4.73	100	88.2	90	110	CCV Main CR1-2 Failed
K	39	2	He	9415.150	1.569	672578	1.53	10000	94.2	90	110	
Ca	43	2	He	8874.246	5.296	2260	5.65	10000	88.7	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	8874.481	2.621	37461	2.17	10000	88.7	90	110	CCV Main CR1-2 Failed
V	51	2	He	95.128	2.426	137946	0.44	100	95.1	90	110	
Cr	52	2	He	94.356	1.830	195132	0.95	100	94.4	90	110	
Mn	55	2	He	90.780	1.997	72238	2.17	100	90.8	90	110	
Fe	56	2	He	9080.206	1.531	15362445	1.84	10000	90.8	90	110	
Co	59	2	He	94.850	1.059	323062	1.79	100	94.9	90	110	
Ni	60	2	He	91.713	3.046	92825	1.16	100	91.7	90	110	
Cu	63	2	He	92.821	3.164	261664	0.76	100	92.8	90	110	
Zn	66	2	He	93.902	3.497	37906	0.87	100	93.9	90	110	
As	75	2	He	97.281	2.615	25678	0.13	100	97.3	90	110	
Se	78	2	He	94.301	6.208	991	3.73	100	94.3	90	110	
B	11	1	nogas	518.543	2.579	1194014	2.92	500	103.7	90	110	
Si	28	1	nogas	4825.843	2.377	28222740	0.97	5000	96.5	90	110	
Ca	43	1	nogas	9185.757	2.422	204403	2.45	10000	91.9	90	110	
Ca	44	1	nogas	4577.491	3.884	3479989	0.77	10000	45.8	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9336.631	1.981	159120699	0.78	10000	93.4	90	110	
Se	77	1	nogas	103.990	16.177	69981	4.64	100	104.0	90	110	
Se	82	1	nogas	90.421	6.563	14713	5.09	100	90.4	90	110	
Mo	95	1	nogas	92.115	3.099	377273	1.95	100	92.1	90	110	
Sn	118	1	nogas	99.007	1.181	579336	1.25	100	99.0	90	110	
Ba	137	1	nogas	99.536	3.417	283677	1.41	100	99.5	90	110	
Sb	121	2	He	98.736	2.264	102637	0.49	100	98.7	90	110	
Li	7	1	nogas	104.558	2.028	824982	2.34	100	104.6	90	110	
P	31	1	nogas	181.996	6.201	473677	0.59	500	36.4	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	122.148	23.505	357	19.89	100	122.1	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	99.488	116.794	27	57.28	100	99.5	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	374643	0.50	422913	88.59	70	125	
Ge	72	1	nogas	1708866	1.24	1623145	105.28	70	125	
In	115	1	nogas	1728251	2.03	1725651	100.15	70	125	
Bi	209	1	nogas	1629681	2.31	1623810	100.36	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	130801	2.73	132260	98.90	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	173_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T15:49:18-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.076	39.9	297	38.9	1	
Na	23	1	nogas	309.720	7.4	6777282	1.7	100	CCB Main CR1 Failed
Mg	24	1	nogas	6.788	10.9	68005	12.1	100	
Al	27	1	nogas	-1.065	-5.5	28338	3.4	5	
K	39	1	nogas	-33.299	-17.1	5584920	1.3	100	
Ti	47	1	nogas	-0.261	-13.5	393	8.9	2.5	
V	51	1	nogas	6.551	53.7	1021566	7.8	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.458	-14.4	31814	2.3	2.5	
Mn	55	1	nogas	0.717	1.4	17822	1.0	2.5	
Co	59	1	nogas	0.057	27.7	1273	19.4	2.5	
Ni	60	1	nogas	-0.179	-16.7	3187	2.7	2.5	
Cu	63	1	nogas	-0.222	-9.5	6168	4.3	2.5	
Zn	66	1	nogas	-0.057	-102.9	1393	11.9	2.5	
As	75	1	nogas	4.199	33.5	169150	3.6	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.069	10.1	2324	5.1	2.5	
Ag	107	1	nogas	0.212	10.2	2907	7.6	2.5	
Cd	111	1	nogas	0.076	9.3	177	8.6	1	
Sb	121	1	nogas	0.639	21.4	8979	13.8	2.5	
Tl	205	1	nogas	0.627	25.2	12115	24.8	1	
Pb	208	1	nogas	0.071	28.9	2280	22.6	2.5	
U	238	1	nogas	0.069	21.1	1980	19.5	2.5	
[Pb]	206	1	nogas	0.052	30.0	477	23.9	2.5	
[Pb]	207	1	nogas	0.071	40.7	547	30.5	2.5	
Na	23	2	He	261.942	0.8	157709	0.7	100	CCB Main CR1 Failed
Mg	24	2	He	4.157	30.9	857	20.9	100	
Al	27	2	He	-1.800	-8.0	93	6.2	5	
K	39	2	He	5.448	77.7	15597	1.9	100	
Ca	43	2	He	-79.732	-27.7	7	86.6	100	
Ca	44	2	He	-80.231	-13.2	140	32.7	100	
V	51	2	He	-0.158	-24.6	581	9.8	2.5	
Cr	52	2	He	-0.009	-641.8	1173	9.8	2.5	
Mn	55	2	He	0.204	20.5	323	10.9	2.5	
Fe	56	2	He	4.001	11.0	11410	6.8	100	
Co	59	2	He	0.053	14.2	200	13.2	2.5	
Ni	60	2	He	-0.465	-7.3	230	15.7	2.5	
Cu	63	2	He	-0.272	-4.1	983	3.1	2.5	
Zn	66	2	He	0.135	63.3	90	40.1	2.5	
As	75	2	He	1.183	5.5	347	5.1	2.5	
Se	78	2	He	-0.002	-15537.4	11	36.7	2.5	
B	11	1	nogas	40.407	4.3	106384	4.7	10	CCB Main CR1 Failed
Si	28	1	nogas	-40.817	-12.4	1747712	0.6	5	
Ca	43	1	nogas	-35.446	-7.0	1260	5.6	100	
Ca	44	1	nogas	-5159.570	-0.2	182830	1.4	100	
Fe	56	1	nogas	21.645	30.2	1063312	9.7	100	
Se	77	1	nogas	35.870	29.6	54676	5.4	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.459	135.2	537	17.3	2.5	
Mo	95	1	nogas	0.143	38.6	993	22.2	2.5	
Sn	118	1	nogas	0.098	25.7	1673	8.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.084	21.5	347	15.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.545	19.3	867	13.4	2.5	
P	31	1	nogas	-317.523	-0.1	93497	1.5	10	
La	139	1	nogas	43.028	34.7	153	27.2	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-29.969	-407.3	10	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	411204	0.69	422913	97.23	70	125	
Ge	72	1	nogas	1725491	1.27	1623145	106.31	70	125	
In	115	1	nogas	1768485	1.16	1725651	102.48	70	125	
Bi	209	1	nogas	1684236	3.23	1623810	103.72	70	125	
Ge	72	2	He	136195	0.29	132260	102.97	70	125	

Sample Report

Sample Table

Sample Name	MBLK-123330
Data File Name	174SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T15:55:21-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.008	0.008	47.87	43	0.02	2000	
Na	23	1	nogas	196.841	196.841	5.85	5263367	0.00	200000	
Mg	24	1	nogas	11.337	11.337	1.88	109103	0.01	200000	
Al	27	1	nogas	1.374	1.374	0.87	57676	0.00	2000	
K	39	1	nogas	11.199	11.199	40.74	5760844	0.00	200000	
Ti	47	1	nogas	-0.392	-0.392	-9.72	233	-0.17	2000	
V	51	1	nogas	-11.577	-11.577	-29.29	639738	0.00	2000	
Cr	52	1	nogas	-0.968	-0.968	-4.05	23038	0.00	2000	
Mn	55	1	nogas	0.315	0.315	6.30	9926	0.00	2000	
Co	59	1	nogas	0.000	0.000	1754.73	327	0.00	2000	
Ni	60	1	nogas	-0.523	-0.523	-5.81	1840	-0.03	2000	
Cu	63	1	nogas	-0.434	-0.434	-3.62	4091	-0.01	2000	
Zn	66	1	nogas	0.121	0.121	68.00	1800	0.01	2000	
As	75	1	nogas	-13.511	-13.511	-21.67	105244	-0.01	2000	
Sr	88	1	nogas	-0.002	-0.002	-436.20	977	0.00	2000	
Ag	107	1	nogas	0.172	0.172	8.05	2344	0.01	2000	
Cd	111	1	nogas	0.012	0.012	2.01	30	0.04	2000	
Sb	121	1	nogas	0.029	0.029	181.05	3004	0.00	2000	
Tl	205	1	nogas	0.122	0.122	11.16	2470	0.00	2000	
Pb	208	1	nogas	0.016	0.016	6.56	900	0.00	2000	
U	238	1	nogas	0.001	0.001	32.71	110	0.00	2000	
[Pb]	206	1	nogas	0.015	0.015	61.59	233	0.01	2000	
[Pb]	207	1	nogas	0.010	0.010	21.59	180	0.01	2000	
Na	23	2	He	200.382	200.382	2.81	137693	0.15	200000	
Mg	24	2	He	8.816	8.816	6.52	1497	0.59	200000	
Al	27	2	He	0.668	0.668	129.73	190	0.35	2000	
K	39	2	He	26.042	26.042	14.08	17035	0.15	200000	
Ca	43	2	He	-52.892	-52.892	-114.08	13	-396.69	200000	
Ca	44	2	He	-67.485	-67.485	-23.02	193	-34.91	200000	
V	51	2	He	-0.264	-0.264	-1.94	418	-0.06	2000	
Cr	52	2	He	0.081	0.081	97.21	1350	0.01	2000	
Mn	55	2	He	0.074	0.074	54.03	213	0.03	2000	
Fe	56	2	He	0.344	0.344	61.40	4914	0.01	200000	
Co	59	2	He	0.005	0.005	74.15	27	0.02	2000	
Ni	60	2	He	-0.511	-0.511	-10.15	180	-0.28	2000	
Cu	63	2	He	-0.318	-0.318	-9.46	840	-0.04	2000	
Zn	66	2	He	0.290	0.290	2.48	153	0.19	2000	
As	75	2	He	0.688	0.688	28.25	208	0.33	2000	
Se	78	2	He	-0.233	-0.233	-324.83	9	-2.69	2000	
B	11	1	nogas	31.021	31.021	8.28	80142	0.04	2000	
Si	28	1	nogas	8.936	8.936	76.58	1920839	0.00	2000	
Ca	43	1	nogas	-54.360	-54.360	-12.63	797	-6.82	200000	

Sample Report

Ca	44	1	nogas	-5186.596	-5186.596	-0.16	164963	-3.14	200000	
Fe	56	1	nogas	17.457	17.457	8.31	942644	0.00	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	-44.373	-44.373	-23.96	34029	-0.13	2000	
Se	82	1	nogas	0.279	0.279	129.62	483	0.06	2000	
Mo	95	1	nogas	0.027	0.027	124.41	490	0.01	2000	
Sn	118	1	nogas	-0.064	-0.064	-10.25	697	-0.01	2000	
Ba	137	1	nogas	0.147	0.147	25.93	523	0.03	2000	
Sb	121	2	He	0.120	0.120	24.74	403	0.03	2000	
La	139	1	nogas	8.596	8.596	86.25	60	14.33	2000	
Au	197	1	nogas	-51.146	-51.146	-166.95	7	-767.19	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	398876	2.61	422913	94.32	70	125	
Ge	72	1	nogas	1639804	1.71	1623145	101.03	70	125	
In	115	1	nogas	1750283	1.76	1725651	101.43	70	125	
Bi	209	1	nogas	1689553	4.89	1623810	104.05	70	125	
Ge	72	2	He	134802	2.35	132260	101.92	70	125	

Sample Report

Sample Table

Sample Name	LCS-123330
Data File Name	175SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T15:57:20-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	42.199	42.199	7.71	138599	0.03	2000	
Na	23	1	nogas	4900.303	4900.303	3.12	64624762	0.01	200000	
Mg	24	1	nogas	4767.417	4767.417	1.43	41703898	0.01	200000	
Al	27	1	nogas	81.195	81.195	4.02	1017064	0.01	2000	
K	39	1	nogas	4505.135	4505.135	3.88	49300624	0.01	200000	
Ti	47	1	nogas	133.186	133.186	1.83	136992	0.10	2000	
V	51	1	nogas	37.100	37.100	5.72	1461600	0.00	2000	
Cr	52	1	nogas	42.656	42.656	4.04	611964	0.01	2000	
Mn	55	1	nogas	46.028	46.028	3.75	772602	0.01	2000	
Co	59	1	nogas	45.944	45.944	2.81	680755	0.01	2000	
Ni	60	1	nogas	45.673	45.673	1.29	154785	0.03	2000	
Cu	63	1	nogas	44.541	44.541	2.99	363572	0.01	2000	
Zn	66	1	nogas	47.706	47.706	0.58	123966	0.04	2000	
As	75	1	nogas	37.177	37.177	8.81	252579	0.01	2000	
Sr	88	1	nogas	98.068	98.068	3.63	1641274	0.01	2000	
Ag	107	1	nogas	46.262	46.262	4.69	464350	0.01	2000	
Cd	111	1	nogas	45.208	45.208	2.60	101724	0.04	2000	
Sb	121	1	nogas	50.125	50.125	1.62	438096	0.01	2000	
Tl	205	1	nogas	41.906	41.906	1.22	762014	0.01	2000	
Pb	208	1	nogas	45.452	45.452	2.36	1143589	0.00	2000	
U	238	1	nogas	89.777	89.777	0.69	2351243	0.00	2000	
[Pb]	206	1	nogas	45.606	45.606	2.73	282907	0.02	2000	
[Pb]	207	1	nogas	44.645	44.645	3.17	254754	0.02	2000	
Na	23	2	He	4446.653	4446.653	2.40	1344272	0.33	200000	
Mg	24	2	He	4269.634	4269.634	2.23	569879	0.75	200000	
Al	27	2	He	75.584	75.584	2.55	3034	2.49	2000	
K	39	2	He	4167.380	4167.380	1.83	306181	1.36	200000	
Ca	43	2	He	4610.653	4610.653	14.81	1170	394.05	200000	
Ca	44	2	He	4180.872	4180.872	3.01	17645	23.69	200000	
V	51	2	He	43.011	43.011	2.02	61932	0.07	2000	
Cr	52	2	He	42.292	42.292	3.72	86851	0.05	2000	
Mn	55	2	He	42.253	42.253	5.87	33214	0.13	2000	
Fe	56	2	He	4107.222	4107.222	3.42	6852021	0.06	200000	
Co	59	2	He	43.903	43.903	2.57	147419	0.03	2000	
Ni	60	2	He	42.538	42.538	2.72	42831	0.10	2000	
Cu	63	2	He	43.283	43.283	2.40	121232	0.04	2000	
Zn	66	2	He	47.185	47.185	3.20	18807	0.25	2000	
As	75	2	He	44.521	44.521	1.02	11602	0.38	2000	
Se	78	2	He	44.795	44.795	2.41	470	9.53	2000	
B	11	1	nogas	415.767	415.767	10.04	921177	0.05	2000	
Si	28	1	nogas	4683.445	4683.445	2.46	25189165	0.02	2000	>LDR
Ca	43	1	nogas	4459.057	4459.057	3.88	91995	4.85	200000	
Ca	44	1	nogas	-371.599	-371.599	-48.47	1654597	-0.02	200000	
Fe	56	1	nogas	4553.557	4553.557	5.05	71516154	0.01	200000	

Sample Report

Se	77	1	nogas	20.200	20.200	59.58	46303	0.04	2000	
Se	82	1	nogas	46.546	46.546	4.86	7155	0.65	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	45.375	45.375	2.01	170744	0.03	2000	
Sn	118	1	nogas	91.515	91.515	4.00	542825	0.02	2000	
Ba	137	1	nogas	44.494	44.494	4.95	128593	0.03	2000	
Sb	121	2	He	48.957	48.957	1.88	50316	0.10	2000	
La	139	1	nogas	38.656	38.656	3.92	140	27.61	2000	
Au	197	1	nogas	178.796	178.796	87.32	37	487.62	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	361203	4.30	422913	85.41	70	125	
Ge	72	1	nogas	1568445	2.28	1623145	96.63	70	125	
In	115	1	nogas	1752689	2.88	1725651	101.57	70	125	
Bi	209	1	nogas	1595790	1.90	1623810	98.27	70	125	
Ge	72	2	He	128963	2.06	132260	97.51	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	184_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:15:18-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	87.948	2.544	320267	1.59	100	87.9	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10849.473	4.164	143606678	1.52	10000	108.5	90	110	
Mg	24	1	nogas	10587.593	3.664	94991560	1.24	10000	105.9	90	110	
Al	27	1	nogas	97.857	5.085	1262494	2.39	100	97.9	90	110	
K	39	1	nogas	9973.060	4.855	106316621	1.45	10000	99.7	90	110	
Ti	47	1	nogas	96.510	4.662	103050	2.59	100	96.5	90	110	
V	51	1	nogas	104.871	8.190	2741651	2.83	100	104.9	90	110	
Cr	52	1	nogas	96.228	3.954	1385638	0.46	100	96.2	90	110	
Mn	55	1	nogas	98.598	8.755	1709274	5.82	100	98.6	90	110	
Co	59	1	nogas	94.600	5.835	1452161	3.36	100	94.6	90	110	
Ni	60	1	nogas	91.840	5.827	318840	3.54	100	91.8	90	110	
Cu	63	1	nogas	95.467	5.411	798780	2.66	100	95.5	90	110	
Zn	66	1	nogas	99.398	3.287	266144	2.07	100	99.4	90	110	
As	75	1	nogas	98.184	6.404	451598	1.48	100	98.2	90	110	
Sr	88	1	nogas	100.647	3.856	1746378	0.84	100	100.6	90	110	
Ag	107	1	nogas	98.770	3.002	1027635	1.08	100	98.8	90	110	
Cd	111	1	nogas	97.627	1.215	215617	2.00	100	97.6	90	110	
Sb	121	1	nogas	98.124	4.741	886084	1.19	100	98.1	90	110	
Tl	205	1	nogas	96.788	8.018	1787086	4.17	100	96.8	90	110	
Pb	208	1	nogas	100.960	0.812	2539601	0.81	100	101.0	90	110	
U	238	1	nogas	101.134	3.602	2692249	0.27	100	101.1	90	110	
[Pb]	206	1	nogas	96.254	6.815	606421	2.96	100	96.3	90	110	
[Pb]	207	1	nogas	97.143	4.920	563283	1.33	100	97.1	90	110	
Na	23	2	He	9494.382	2.452	2758100	2.27	10000	94.9	90	110	
Mg	24	2	He	9492.858	2.170	1253961	1.68	10000	94.9	90	110	
Al	27	2	He	90.762	1.943	3574	2.52	100	90.8	90	110	
K	39	2	He	9163.049	0.437	654977	0.43	10000	91.6	90	110	
Ca	43	2	He	9017.506	10.690	2240	9.97	10000	90.2	90	110	
Ca	44	2	He	8891.909	1.658	36640	1.32	10000	88.9	90	110	CCV Main CR1-2 Failed
V	51	2	He	97.282	0.961	137717	1.50	100	97.3	90	110	
Cr	52	2	He	94.481	0.938	190745	1.12	100	94.5	90	110	
Mn	55	2	He	92.472	3.208	71825	3.20	100	92.5	90	110	
Fe	56	2	He	9230.160	0.965	15243621	1.48	10000	92.3	90	110	
Co	59	2	He	97.522	0.660	324228	1.33	100	97.5	90	110	
Ni	60	2	He	93.743	2.213	92635	2.86	100	93.7	90	110	
Cu	63	2	He	93.698	2.234	257907	2.41	100	93.7	90	110	
Zn	66	2	He	92.610	1.237	36507	1.24	100	92.6	90	110	
As	75	2	He	96.671	1.703	24913	1.05	100	96.7	90	110	
Se	78	2	He	97.527	2.912	1001	3.42	100	97.5	90	110	
B	11	1	nogas	470.427	3.052	1155745	2.11	500	94.1	90	110	
Si	28	1	nogas	4825.811	2.699	26855647	1.54	5000	96.5	90	110	
Ca	43	1	nogas	9954.565	4.056	210510	0.63	10000	99.5	90	110	
Ca	44	1	nogas	5215.817	7.393	3516218	1.16	10000	52.2	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9728.918	7.000	157577933	3.45	10000	97.3	90	110	
Se	77	1	nogas	116.347	18.827	69278	4.01	100	116.3	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	95.302	2.939	14736	1.26	100	95.3	90	110	
Mo	95	1	nogas	95.894	3.559	373647	1.30	100	95.9	90	110	
Sn	118	1	nogas	99.705	2.255	580493	2.33	100	99.7	90	110	
Ba	137	1	nogas	99.300	2.367	281656	1.93	100	99.3	90	110	
Sb	121	2	He	97.432	0.051	98886	0.72	100	97.4	90	110	
Li	7	1	nogas	99.346	4.488	838004	4.19	100	99.3	90	110	
P	31	1	nogas	187.291	15.949	454316	1.44	500	37.5	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	98.525	22.484	293	18.78	100	98.5	90	110	
Au	197	1	nogas	155.216	128.988	33	75.50	100	155.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	399685	1.09	422913	94.51	70	125	
Ge	72	1	nogas	1626675	3.46	1623145	100.22	70	125	
In	115	1	nogas	1719459	1.40	1725651	99.64	70	125	
Bi	209	1	nogas	1623685	3.86	1623810	99.99	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	127650	0.67	132260	96.51	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	185_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:17:16-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.045	49.7	187	43.0	1	
Na	23	1	nogas	147.682	4.9	4585055	1.2	100	CCB Main CR1 Failed
Mg	24	1	nogas	6.893	20.4	68272	20.3	100	
Al	27	1	nogas	-1.591	-4.9	20480	6.2	5	
K	39	1	nogas	-26.854	-42.9	5415991	0.9	100	
Ti	47	1	nogas	-0.308	-5.5	327	7.1	2.5	
V	51	1	nogas	11.886	34.9	1077324	8.6	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.385	-27.3	31551	6.2	2.5	
Mn	55	1	nogas	0.698	4.5	16734	2.1	2.5	
Co	59	1	nogas	0.047	30.9	1057	20.1	2.5	
Ni	60	1	nogas	-0.323	-10.3	2550	4.8	2.5	
Cu	63	1	nogas	-0.311	-15.2	5164	9.1	2.5	
Zn	66	1	nogas	-0.229	-15.0	870	9.2	2.5	
As	75	1	nogas	3.347	40.3	159377	4.1	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.050	9.7	1897	3.5	2.5	
Ag	107	1	nogas	0.129	36.3	1907	24.3	2.5	
Cd	111	1	nogas	0.045	68.2	107	67.8	1	
Sb	121	1	nogas	1.050	18.8	12358	13.1	2.5	
Tl	205	1	nogas	0.377	19.6	7225	21.9	1	
Pb	208	1	nogas	0.066	20.5	2150	15.8	2.5	
U	238	1	nogas	0.060	12.2	1703	14.3	2.5	
[Pb]	206	1	nogas	0.062	33.5	530	28.2	2.5	
[Pb]	207	1	nogas	0.064	25.1	497	20.4	2.5	
Na	23	2	He	129.691	5.4	112583	1.1	100	CCB Main CR1 Failed
Mg	24	2	He	3.834	19.4	777	14.4	100	
Al	27	2	He	-2.213	-24.4	73	28.4	5	
K	39	2	He	-11.659	-17.2	14402	1.0	100	
Ca	43	2	He	-64.934	-62.8	10	100.0	100	
Ca	44	2	He	-66.761	-16.0	190	24.1	100	
V	51	2	He	-0.120	-34.3	610	10.8	2.5	
Cr	52	2	He	0.103	36.4	1350	7.3	2.5	
Mn	55	2	He	0.150	25.6	267	13.2	2.5	
Fe	56	2	He	3.271	7.2	9673	2.6	100	
Co	59	2	He	0.030	20.7	113	20.4	2.5	
Ni	60	2	He	-0.448	-5.9	237	12.9	2.5	
Cu	63	2	He	-0.285	-10.9	903	8.9	2.5	
Zn	66	2	He	-0.004	-1032.0	30	57.7	2.5	
As	75	2	He	0.341	24.4	110	18.9	2.5	
Se	78	2	He	-0.599	-66.7	5	89.2	2.5	
B	11	1	nogas	42.381	10.7	115576	6.1	10	CCB Main CR1 Failed
Si	28	1	nogas	-53.509	-16.2	1607428	1.9	5	
Ca	43	1	nogas	-26.725	-12.3	1393	6.5	100	
Ca	44	1	nogas	-5197.026	-0.2	162888	0.5	100	
Fe	56	1	nogas	33.407	5.2	1212143	0.9	100	
Se	77	1	nogas	34.121	7.7	51981	2.4	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.348	249.4	497	25.2	2.5	
Mo	95	1	nogas	0.137	15.9	930	7.8	2.5	
Sn	118	1	nogas	0.083	37.0	1580	12.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.041	69.0	223	38.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.740	12.1	1030	9.9	2.5	
P	31	1	nogas	-319.165	-0.3	88362	1.7	10	
La	139	1	nogas	13.477	35.2	73	15.7	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-26.541	-7.3	10	0.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	428168	4.77	422913	101.24	70	125	
Ge	72	1	nogas	1653140	1.54	1623145	101.85	70	125	
In	115	1	nogas	1762762	1.73	1725651	102.15	70	125	
Bi	209	1	nogas	1652064	2.64	1623810	101.74	70	125	
Ge	72	2	He	130173	1.88	132260	98.42	70	125	

Sample Report

Sample Table

Sample Name	HS17120494-10SD
Data File Name	190SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:27:16-06:00
Sample Type	Sample
Dilution	5
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.008	0.040	40.35	40	0.02	2000	
Na	23	1	nogas	20786.835	103934.177	2.59	241816564	0.01	200000	
Mg	24	1	nogas	5470.710	27353.552	1.86	43523326	0.01	200000	
Al	27	1	nogas	20.270	101.351	10.60	275936	0.01	2000	
K	39	1	nogas	1238.968	6194.838	1.49	17038921	0.01	200000	
Ti	47	1	nogas	0.301	1.504	151.03	910	0.03	2000	
V	51	1	nogas	1.324	6.621	127.10	815760	0.00	2000	
Cr	52	1	nogas	-0.743	-3.714	-8.22	24446	0.00	2000	
Mn	55	1	nogas	150.242	751.212	0.11	2450426	0.01	2000	
Co	59	1	nogas	0.074	0.371	7.08	1373	0.01	2000	
Ni	60	1	nogas	-0.237	-1.186	-11.57	2637	-0.01	2000	
Cu	63	1	nogas	-0.156	-0.781	-26.42	5981	0.00	2000	
Zn	66	1	nogas	0.624	3.118	14.97	2940	0.02	2000	
As	75	1	nogas	-3.195	-15.974	-63.91	128231	0.00	2000	
Sr	88	1	nogas	97.894	489.469	1.44	1598041	0.01	2000	
Ag	107	1	nogas	0.031	0.157	19.17	810	0.00	2000	
Cd	111	1	nogas	0.010	0.048	32.26	23	0.04	2000	
Sb	121	1	nogas	-0.017	-0.085	-164.43	2407	0.00	2000	
Tl	205	1	nogas	0.020	0.101	23.18	440	0.00	2000	
Pb	208	1	nogas	0.085	0.423	7.75	2627	0.00	2000	
U	238	1	nogas	1.045	5.224	2.22	25735	0.00	2000	
[Pb]	206	1	nogas	0.091	0.456	10.98	647	0.01	2000	
[Pb]	207	1	nogas	0.089	0.444	3.62	583	0.02	2000	
Na	23	2	He	18007.423	90037.113	1.48	4904677	0.37	200000	
Mg	24	2	He	4659.970	23299.849	1.86	584667	0.80	200000	
Al	27	2	He	17.526	87.628	29.00	773	2.27	2000	
K	39	2	He	1095.955	5479.777	2.17	91736	1.19	200000	
Ca	43	2	He	15154.919	75774.593	5.38	3560	425.65	200000	
Ca	44	2	He	14986.879	74934.396	3.66	58345	25.69	200000	
V	51	2	He	0.095	0.475	5.56	855	0.01	2000	
Cr	52	2	He	0.126	0.628	21.25	1300	0.01	2000	
Mn	55	2	He	142.717	713.584	2.81	105201	0.14	2000	
Fe	56	2	He	106.103	530.515	1.63	170239	0.06	200000	
Co	59	2	He	0.093	0.465	13.01	303	0.03	2000	
Ni	60	2	He	-0.384	-1.919	-5.25	280	-0.14	2000	
Cu	63	2	He	-0.095	-0.474	-105.00	1333	-0.01	2000	
Zn	66	2	He	0.944	4.722	29.85	383	0.25	2000	
As	75	2	He	1.272	6.359	13.24	330	0.39	2000	
Se	78	2	He	-0.773	-3.865	-15.44	3	-28.99	2000	
B	11	1	nogas	28.287	141.433	4.35	70872	0.04	2000	
Si	28	1	nogas	1466.135	7330.676	0.95	8889883	0.02	2000	
Ca	43	1	nogas	16579.176	82895.882	0.99	328646	5.04	200000	
Ca	44	1	nogas	12154.374	60771.872	1.88	5411432	0.22	200000	
Fe	56	1	nogas	145.564	727.818	0.96	2824506	0.01	200000	

Sample Report

Se	77	1	nogas	0.705	3.524	2238.45	41107	0.00	2000	
Se	82	1	nogas	-0.198	-0.992	-137.08	383	-0.05	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.166	0.831	1.80	967	0.02	2000	
Sn	118	1	nogas	-0.051	-0.255	-17.54	727	-0.01	2000	
Ba	137	1	nogas	22.189	110.944	4.07	60272	0.04	2000	
Sb	121	2	He	0.034	0.169	190.38	280	0.01	2000	
La	139	1	nogas	505.034	2525.171	9.90	1297	38.95	2000	
Au	197	1	nogas	8.303	41.514	1514.43	13	62.27	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	384613	3.69	422913	90.94	70	125	
Ge	72	1	nogas	1529006	0.32	1623145	94.20	70	125	
In	115	1	nogas	1645680	2.81	1725651	95.37	70	125	
Bi	209	1	nogas	1497276	1.86	1623810	92.21	70	125	
Ge	72	2	He	121226	1.19	132260	91.66	70	125	

Sample Report

Sample Table

Sample Name	HS17120494-10MS
Data File Name	191SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:29:17-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	45.482	45.482	8.05	134597	0.03	2000	
Na	23	1	nogas	103980.332	103980.332	6.28	1245468928	0.01	200000	
Mg	24	1	nogas	29500.737	29500.737	2.51	243874980	0.01	200000	
Al	27	1	nogas	221.251	221.251	3.16	2638909	0.01	2000	
K	39	1	nogas	10407.298	10407.298	2.48	104177406	0.01	200000	
Ti	47	1	nogas	134.614	134.614	1.34	135019	0.10	2000	
V	51	1	nogas	39.123	39.123	3.42	1460280	0.00	2000	
Cr	52	1	nogas	40.780	40.780	2.54	572297	0.01	2000	
Mn	55	1	nogas	761.131	761.131	3.94	12396988	0.01	2000	
Co	59	1	nogas	40.928	40.928	3.69	591394	0.01	2000	
Ni	60	1	nogas	41.961	41.961	4.31	138928	0.03	2000	
Cu	63	1	nogas	43.381	43.381	3.62	345625	0.01	2000	
Zn	66	1	nogas	49.738	49.738	1.35	126006	0.04	2000	
As	75	1	nogas	38.518	38.518	7.04	250341	0.02	2000	
Sr	88	1	nogas	559.894	559.894	3.04	9135908	0.01	2000	
Ag	107	1	nogas	43.929	43.929	0.26	430335	0.01	2000	
Cd	111	1	nogas	47.308	47.308	1.59	91930	0.05	2000	
Sb	121	1	nogas	49.829	49.829	0.77	424806	0.01	2000	
Tl	205	1	nogas	43.215	43.215	4.03	716016	0.01	2000	
Pb	208	1	nogas	43.164	43.164	1.03	1086045	0.00	2000	
U	238	1	nogas	100.213	100.213	4.37	2390866	0.00	2000	
[Pb]	206	1	nogas	47.538	47.538	3.26	268751	0.02	2000	
[Pb]	207	1	nogas	46.559	46.559	1.76	242203	0.02	2000	
Na	23	2	He	91437.340	91437.340	2.91	23983024	0.38	200000	
Mg	24	2	He	26932.541	26932.541	1.63	3291271	0.82	200000	
Al	27	2	He	239.884	239.884	5.46	8502	2.82	2000	
K	39	2	He	9172.110	9172.110	1.30	655609	1.40	200000	
Ca	43	2	He	79426.971	79426.971	4.17	18089	439.09	200000	
Ca	44	2	He	81766.139	81766.139	1.79	308277	26.52	200000	
V	51	2	He	46.498	46.498	3.99	61252	0.08	2000	
Cr	52	2	He	43.479	43.479	2.69	81761	0.05	2000	
Mn	55	2	He	750.207	750.207	2.26	538109	0.14	2000	
Fe	56	2	He	4692.027	4692.027	2.97	7169439	0.07	200000	
Co	59	2	He	44.627	44.627	4.58	137216	0.03	2000	
Ni	60	2	He	42.322	42.322	4.34	39015	0.11	2000	
Cu	63	2	He	43.648	43.648	2.65	111982	0.04	2000	
Zn	66	2	He	47.493	47.493	1.48	17339	0.27	2000	
As	75	2	He	52.179	52.179	2.46	12449	0.42	2000	
Se	78	2	He	49.717	49.717	8.01	477	10.42	2000	
B	11	1	nogas	525.831	525.831	5.43	1051023	0.05	2000	
Si	28	1	nogas	11528.177	11528.177	2.90	57914026	0.02	2000	>LDR
Ca	43	1	nogas	88916.133	88916.133	4.54	1754559	5.07	200000	
Ca	44	1	nogas	84962.864	84962.864	4.61	27486203	0.31	200000	
Fe	56	1	nogas	4731.496	4731.496	1.85	72478572	0.01	200000	

Sample Report

Se	77	1	nogas	15.838	15.838	11.10	44277	0.04	2000	
Se	82	1	nogas	43.138	43.138	5.95	6501	0.66	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	45.195	45.195	2.48	165882	0.03	2000	
Sn	118	1	nogas	97.536	97.536	1.35	499708	0.02	2000	
Ba	137	1	nogas	173.112	173.112	1.99	432061	0.04	2000	
Sb	121	2	He	51.133	51.133	4.99	48110	0.11	2000	
La	139	1	nogas	2886.302	2886.302	8.08	6675	43.24	2000	>LDR
Au	197	1	nogas	13.345	13.345	977.84	13	100.09	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	325622	5.20	422913	76.99	70	125	
Ge	72	1	nogas	1529560	1.50	1623145	94.23	70	125	
In	115	1	nogas	1513338	2.86	1725651	87.70	70	125	
Bi	209	1	nogas	1455017	2.85	1623810	89.61	70	125	
Ge	72	2	He	118124	1.99	132260	89.31	70	125	

Sample Report

Sample Table

Sample Name	HS17120494-10MSD
Data File Name	192SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:31:18-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	47.682	47.682	4.44	141231	0.03	2000	
Na	23	1	nogas	104061.699	104061.699	2.62	1233441128	0.01	200000	
Mg	24	1	nogas	31094.196	31094.196	2.90	253837872	0.01	200000	
Al	27	1	nogas	232.812	232.812	0.96	2761615	0.01	2000	
K	39	1	nogas	10629.926	10629.926	1.64	105792317	0.01	200000	
Ti	47	1	nogas	141.646	141.646	0.97	141360	0.10	2000	
V	51	1	nogas	37.920	37.920	5.04	1432658	0.00	2000	
Cr	52	1	nogas	42.638	42.638	3.81	593799	0.01	2000	
Mn	55	1	nogas	777.519	777.519	4.60	12601695	0.01	2000	
Co	59	1	nogas	42.450	42.450	2.34	610555	0.01	2000	
Ni	60	1	nogas	42.860	42.860	1.25	141187	0.03	2000	
Cu	63	1	nogas	44.965	44.965	1.27	356214	0.01	2000	
Zn	66	1	nogas	50.280	50.280	0.33	126742	0.04	2000	
As	75	1	nogas	41.108	41.108	1.89	256701	0.02	2000	
Sr	88	1	nogas	564.620	564.620	0.29	9171240	0.01	2000	
Ag	107	1	nogas	45.923	45.923	2.28	447570	0.01	2000	
Cd	111	1	nogas	45.678	45.678	1.26	94852	0.05	2000	
Sb	121	1	nogas	50.151	50.151	1.85	425435	0.01	2000	
Tl	205	1	nogas	43.667	43.667	3.05	743084	0.01	2000	
Pb	208	1	nogas	44.828	44.828	0.89	1127895	0.00	2000	
U	238	1	nogas	102.477	102.477	1.79	2511662	0.00	2000	
[Pb]	206	1	nogas	47.160	47.160	2.06	273825	0.02	2000	
[Pb]	207	1	nogas	47.235	47.235	2.38	252295	0.02	2000	
Na	23	2	He	92715.292	92715.292	2.45	25042920	0.37	200000	
Mg	24	2	He	27473.136	27473.136	1.62	3457048	0.79	200000	
Al	27	2	He	235.759	235.759	3.43	8609	2.74	2000	
K	39	2	He	9554.608	9554.608	2.18	682315	1.40	200000	
Ca	43	2	He	76825.594	76825.594	2.54	18006	426.68	200000	
Ca	44	2	He	80793.792	80793.792	1.35	313654	25.76	200000	
V	51	2	He	46.683	46.683	1.43	63337	0.07	2000	
Cr	52	2	He	43.354	43.354	2.88	83950	0.05	2000	
Mn	55	2	He	764.264	764.264	1.35	564525	0.14	2000	
Fe	56	2	He	4753.844	4753.844	0.50	7481483	0.06	200000	
Co	59	2	He	44.539	44.539	1.07	141089	0.03	2000	
Ni	60	2	He	42.733	42.733	0.57	40575	0.11	2000	
Cu	63	2	He	44.193	44.193	1.51	116731	0.04	2000	
Zn	66	2	He	49.197	49.197	1.45	18490	0.27	2000	
As	75	2	He	51.053	51.053	2.15	12543	0.41	2000	
Se	78	2	He	40.967	40.967	12.34	406	10.09	2000	
B	11	1	nogas	570.007	570.007	9.55	1137237	0.05	2000	
Si	28	1	nogas	11979.346	11979.346	3.47	59815737	0.02	2000	>LDR
Ca	43	1	nogas	88437.034	88437.034	1.70	1737744	5.09	200000	
Ca	44	1	nogas	87432.678	87432.678	2.65	28102366	0.31	200000	
Fe	56	1	nogas	4930.398	4930.398	4.66	75113379	0.01	200000	

Sample Report

Se	77	1	nogas	18.371	18.371	9.06	44595	0.04	2000	
Se	82	1	nogas	47.229	47.229	4.49	7045	0.67	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	45.925	45.925	0.96	167752	0.03	2000	
Sn	118	1	nogas	94.428	94.428	2.79	516786	0.02	2000	
Ba	137	1	nogas	160.144	160.144	2.17	426980	0.04	2000	
Sb	121	2	He	50.585	50.585	1.96	49033	0.10	2000	
La	139	1	nogas	2812.657	2812.657	4.15	6942	40.52	2000	>LDR
Au	197	1	nogas	90.927	90.927	57.21	23	389.69	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	325285	2.69	422913	76.92	70	125	
Ge	72	1	nogas	1522205	1.68	1623145	93.78	70	125	
In	115	1	nogas	1616477	1.39	1725651	93.67	70	125	
Bi	209	1	nogas	1493898	2.20	1623810	92.00	70	125	
Ge	72	2	He	121619	1.11	132260	91.95	70	125	

Sample Report

Sample Table

Sample Name	HS17120494-10PDS
Data File Name	193SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:33:19-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	83.626	83.626	6.03	248304	0.03	2000	
Na	23	1	nogas	106783.161	106783.161	3.75	1273299895	0.01	200000	
Mg	24	1	nogas	32887.693	32887.693	3.98	270095056	0.01	200000	
Al	27	1	nogas	155.033	155.033	6.67	1892169	0.01	2000	
K	39	1	nogas	13136.391	13136.391	5.82	132402757	0.01	200000	
Ti	47	1	nogas	163.095	163.095	3.24	166424	0.10	2000	
V	51	1	nogas	63.980	63.980	7.83	1917333	0.00	2000	
Cr	52	1	nogas	73.727	73.727	4.61	1024898	0.01	2000	
Mn	55	1	nogas	774.336	774.336	5.24	12835986	0.01	2000	
Co	59	1	nogas	72.481	72.481	8.09	1064802	0.01	2000	
Ni	60	1	nogas	72.148	72.148	8.13	240428	0.03	2000	
Cu	63	1	nogas	76.117	76.117	4.08	611686	0.01	2000	
Zn	66	1	nogas	84.557	84.557	3.05	217115	0.04	2000	
As	75	1	nogas	68.936	68.936	6.46	345496	0.02	2000	
Sr	88	1	nogas	526.361	526.361	7.29	8735078	0.01	2000	
Ag	107	1	nogas	78.469	78.469	4.68	781777	0.01	2000	
Cd	111	1	nogas	78.716	78.716	0.77	169325	0.05	2000	
Sb	121	1	nogas	79.872	79.872	3.95	691525	0.01	2000	
Tl	205	1	nogas	78.108	78.108	3.78	1410647	0.01	2000	
Pb	208	1	nogas	77.620	77.620	3.28	1952606	0.00	2000	
U	238	1	nogas	82.673	82.673	4.97	2149908	0.00	2000	
[Pb]	206	1	nogas	76.394	76.394	2.80	470677	0.02	2000	
[Pb]	207	1	nogas	76.513	76.513	3.47	433681	0.02	2000	
Na	23	2	He	90781.942	90781.942	3.87	25012955	0.36	200000	
Mg	24	2	He	28824.808	28824.808	3.42	3700100	0.78	200000	
Al	27	2	He	147.761	147.761	5.77	5564	2.66	2000	
K	39	2	He	12036.906	12036.906	0.29	855628	1.41	200000	
Ca	43	2	He	77519.553	77519.553	1.99	18543	418.06	200000	
Ca	44	2	He	78816.216	78816.216	4.81	312008	25.26	200000	
V	51	2	He	79.052	79.052	3.29	108884	0.07	2000	
Cr	52	2	He	75.244	75.244	2.43	147863	0.05	2000	
Mn	55	2	He	747.638	747.638	3.46	563409	0.13	2000	
Fe	56	2	He	7705.813	7705.813	4.61	12366274	0.06	200000	
Co	59	2	He	75.743	75.743	5.31	244594	0.03	2000	
Ni	60	2	He	72.613	72.613	7.10	69817	0.10	2000	
Cu	63	2	He	73.562	73.562	3.56	197115	0.04	2000	
Zn	66	2	He	80.057	80.057	5.07	30670	0.26	2000	
As	75	2	He	86.470	86.470	3.15	21658	0.40	2000	
Se	78	2	He	74.603	74.603	8.61	748	9.97	2000	
B	11	1	nogas	1005.010	1005.010	6.23	2009049	0.05	2000	
Si	28	1	nogas	14492.919	14492.919	6.38	73612482	0.02	2000	>LDR
Ca	43	1	nogas	88529.975	88529.975	5.43	1778478	4.98	200000	
Ca	44	1	nogas	81200.184	81200.184	2.50	26837768	0.30	200000	
Fe	56	1	nogas	7990.266	7990.266	5.51	124113944	0.01	200000	

Sample Report

Se	77	1	nogas	24.425	24.425	64.26	46847	0.05	2000	
Se	82	1	nogas	81.300	81.300	9.39	12081	0.67	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	78.926	78.926	6.58	294377	0.03	2000	
Sn	118	1	nogas	82.942	82.942	1.35	470536	0.02	2000	
Ba	137	1	nogas	187.333	187.333	3.58	517305	0.04	2000	
Sb	121	2	He	80.857	80.857	6.10	79746	0.10	2000	
La	139	1	nogas	2468.738	2468.738	1.93	6315	39.10	2000	>LDR
Au	197	1	nogas	-23.904	-23.904	-320.94	10	-239.04	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	326363	4.01	422913	77.17	70	125	
Ge	72	1	nogas	1558741	4.83	1623145	96.03	70	125	
In	115	1	nogas	1674908	2.23	1725651	97.06	70	125	
Bi	209	1	nogas	1584797	1.30	1623810	97.60	70	125	
Ge	72	2	He	124126	3.12	132260	93.85	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	194_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:35:18-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	86.150	2.544	295027	0.35	100	86.1	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	11117.293	2.592	133932120	1.32	10000	111.2	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	10966.940	1.753	89603429	1.90	10000	109.7	90	110	
Al	27	1	nogas	97.804	3.582	1166526	1.45	100	97.8	90	110	
K	39	1	nogas	10143.779	1.048	99921919	1.83	10000	101.4	90	110	
Ti	47	1	nogas	99.435	3.946	98121	2.24	100	99.4	90	110	
V	51	1	nogas	96.468	4.410	2394520	1.09	100	96.5	90	110	
Cr	52	1	nogas	99.044	2.046	1317613	1.11	100	99.0	90	110	
Mn	55	1	nogas	104.441	3.798	1674802	1.78	100	104.4	90	110	
Co	59	1	nogas	100.699	3.002	1429345	1.53	100	100.7	90	110	
Ni	60	1	nogas	95.701	3.927	307025	2.16	100	95.7	90	110	
Cu	63	1	nogas	97.765	1.983	756320	1.37	100	97.8	90	110	
Zn	66	1	nogas	99.811	2.045	247021	1.27	100	99.8	90	110	
As	75	1	nogas	99.207	4.610	420423	1.26	100	99.2	90	110	
Sr	88	1	nogas	104.470	3.326	1675671	1.98	100	104.5	90	110	
Ag	107	1	nogas	100.724	2.710	968673	2.07	100	100.7	90	110	
Cd	111	1	nogas	96.920	2.578	205118	1.63	100	96.9	90	110	
Sb	121	1	nogas	105.974	2.034	884717	0.30	100	106.0	90	110	
Tl	205	1	nogas	98.959	2.804	1744584	1.17	100	99.0	90	110	
Pb	208	1	nogas	94.310	0.702	2372362	0.70	100	94.3	90	110	
U	238	1	nogas	101.058	2.886	2565920	1.98	100	101.1	90	110	
[Pb]	206	1	nogas	94.995	1.545	571344	0.20	100	95.0	90	110	
[Pb]	207	1	nogas	95.120	1.158	526299	0.66	100	95.1	90	110	
Na	23	2	He	9785.724	3.146	2719375	2.47	10000	97.9	90	110	
Mg	24	2	He	9764.300	1.386	1235113	2.10	10000	97.6	90	110	
Al	27	2	He	96.827	3.319	3640	3.60	100	96.8	90	110	
K	39	2	He	8536.739	2.679	611248	2.61	10000	85.4	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	8471.386	7.123	2017	6.47	10000	84.7	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	8769.753	1.742	34610	2.43	10000	87.7	90	110	CCV Main CR1-2 Failed
V	51	2	He	97.297	0.870	131880	1.55	100	97.3	90	110	
Cr	52	2	He	92.503	1.116	178831	1.48	100	92.5	90	110	
Mn	55	2	He	91.066	1.748	67725	1.76	100	91.1	90	110	
Fe	56	2	He	9145.771	2.965	14460368	2.73	10000	91.5	90	110	
Co	59	2	He	94.527	1.499	300869	0.69	100	94.5	90	110	
Ni	60	2	He	92.748	2.211	87743	1.72	100	92.7	90	110	
Cu	63	2	He	94.491	3.126	249009	3.22	100	94.5	90	110	
Zn	66	2	He	94.362	1.497	35615	1.70	100	94.4	90	110	
As	75	2	He	95.730	0.983	23622	0.92	100	95.7	90	110	
Se	78	2	He	92.136	6.322	905	5.48	100	92.1	90	110	
B	11	1	nogas	489.978	5.403	1131522	3.45	500	98.0	90	110	
Si	28	1	nogas	5131.943	3.010	26283255	1.18	5000	102.6	90	110	
Ca	43	1	nogas	10123.706	3.451	197907	2.86	10000	101.2	90	110	
Ca	44	1	nogas	5349.647	11.686	3288752	3.68	10000	53.5	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10184.895	3.691	152558320	1.66	10000	101.8	90	110	
Se	77	1	nogas	117.372	13.975	64277	3.74	100	117.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.640	3.927	14219	2.16	100	99.6	90	110	
Mo	95	1	nogas	98.137	2.629	353479	1.75	100	98.1	90	110	
Sn	118	1	nogas	100.166	1.637	558890	0.53	100	100.2	90	110	
Ba	137	1	nogas	97.774	3.216	265745	1.10	100	97.8	90	110	
Sb	121	2	He	101.901	0.793	99008	0.66	100	101.9	90	110	
Li	7	1	nogas	98.475	1.911	781574	1.94	100	98.5	90	110	
P	31	1	nogas	215.925	9.762	439329	2.67	500	43.2	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	117.572	18.043	330	18.43	100	117.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	57.493	139.596	20	50.00	100	57.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	375971	2.60	422913	88.90	70	125	
Ge	72	1	nogas	1502968	2.00	1623145	92.60	70	125	
In	115	1	nogas	1648176	2.15	1725651	95.51	70	125	
Bi	209	1	nogas	1547590	1.71	1623810	95.31	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	122220	0.80	132260	92.41	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	195_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:37:14-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.069	15.9	270	12.8	1	
Na	23	1	nogas	110.484	4.3	3914795	0.5	100	CCB Main CR1 Failed
Mg	24	1	nogas	8.144	11.3	76032	12.5	100	
Al	27	1	nogas	-1.646	-3.2	19043	3.6	5	
K	39	1	nogas	-22.599	-27.6	5260879	1.0	100	
Ti	47	1	nogas	-0.270	-20.8	353	16.6	2.5	
V	51	1	nogas	2.007	82.2	861943	4.0	2.5	
Cr	52	1	nogas	-0.556	-4.1	28025	1.6	2.5	
Mn	55	1	nogas	0.821	2.8	18209	2.4	2.5	
Co	59	1	nogas	0.045	21.7	993	14.1	2.5	
Ni	60	1	nogas	-0.450	-6.0	2030	3.9	2.5	
Cu	63	1	nogas	-0.345	-7.2	4694	4.6	2.5	
Zn	66	1	nogas	-0.241	-20.2	807	16.5	2.5	
As	75	1	nogas	1.890	97.4	149088	4.3	2.5	
Sr	88	1	nogas	0.080	25.0	2330	14.2	2.5	
Ag	107	1	nogas	0.102	25.5	1563	16.3	2.5	
Cd	111	1	nogas	0.043	16.2	97	15.8	1	
Sb	121	1	nogas	1.216	16.1	13375	12.2	2.5	
Tl	205	1	nogas	0.372	21.7	6922	21.0	1	
Pb	208	1	nogas	0.082	20.8	2560	16.8	2.5	
U	238	1	nogas	0.065	25.5	1783	24.0	2.5	
[Pb]	206	1	nogas	0.089	27.9	683	22.4	2.5	
[Pb]	207	1	nogas	0.069	23.4	513	17.7	2.5	
Na	23	2	He	88.746	10.6	97073	1.2	100	
Mg	24	2	He	6.762	15.9	1127	12.1	100	
Al	27	2	He	-2.501	-1.6	60	0.0	5	
K	39	2	He	-8.027	-48.0	14656	1.8	100	
Ca	43	2	He	-63.375	-65.5	10	100.0	100	
Ca	44	2	He	-68.424	-11.2	177	19.9	100	
V	51	2	He	-0.204	-14.8	471	6.4	2.5	
Cr	52	2	He	0.011	749.3	1117	12.0	2.5	
Mn	55	2	He	0.304	34.8	373	20.8	2.5	
Fe	56	2	He	3.801	3.3	10180	0.8	100	
Co	59	2	He	0.050	30.5	173	28.5	2.5	
Ni	60	2	He	-0.477	-17.1	200	40.0	2.5	
Cu	63	2	He	-0.268	-5.9	917	4.1	2.5	
Zn	66	2	He	0.094	44.7	67	22.9	2.5	
As	75	2	He	0.294	16.7	94	14.3	2.5	
Se	78	2	He	-0.389	-147.1	7	86.6	2.5	
B	11	1	nogas	47.886	9.7	124117	6.8	10	CCB Main CR1 Failed
Si	28	1	nogas	-8.832	-25.1	1775626	0.6	5	
Ca	43	1	nogas	-29.238	-2.7	1290	0.8	100	
Ca	44	1	nogas	-5194.849	-0.1	157637	0.7	100	
Fe	56	1	nogas	22.266	7.4	991800	2.4	100	
Se	77	1	nogas	28.309	21.5	48819	3.4	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.122	478.5	447	19.6	2.5	
Mo	95	1	nogas	0.170	41.1	1020	25.5	2.5	
Sn	118	1	nogas	0.121	20.9	1733	8.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.066	15.6	283	10.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	1.052	21.6	1300	16.2	2.5	
P	31	1	nogas	-316.401	-0.2	87093	0.3	10	
La	139	1	nogas	33.940	13.2	123	9.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-24.399	-312.0	10	100.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	408295	2.61	422913	96.54	70	125	
Ge	72	1	nogas	1592642	0.70	1623145	98.12	70	125	
In	115	1	nogas	1695161	0.46	1725651	98.23	70	125	
Bi	209	1	nogas	1609706	0.46	1623810	99.13	70	125	
Ge	72	2	He	125414	2.55	132260	94.82	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-01
Data File Name	198SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:43:11-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.148	0.148	19.53	510	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	238256.445	238256.445	3.89	2053590246	0.01	200000	>LDR
Al	27	1	nogas	20.387	20.387	1.11	280363	0.01	2000	
K	39	1	nogas	3310.792	3310.792	2.00	37132533	0.01	200000	
Ti	47	1	nogas	1.022	1.022	28.79	1647	0.06	2000	
V	51	1	nogas	10.646	10.646	60.17	984774	0.00	2000	
Cr	52	1	nogas	0.347	0.347	20.85	39249	0.00	2000	
Mn	55	1	nogas	459.332	459.332	0.70	7566148	0.01	2000	
Co	59	1	nogas	4.294	4.294	1.26	63006	0.01	2000	
Ni	60	1	nogas	8.748	8.748	6.55	32002	0.03	2000	
Cu	63	1	nogas	1.230	1.230	12.31	16968	0.01	2000	
Zn	66	1	nogas	15.253	15.253	18.82	40045	0.04	2000	
As	75	1	nogas	19.994	19.994	15.38	198218	0.01	2000	
Sr	88	1	nogas	7832.810	7832.810	1.04	129199635	0.01	2000	>LDR
Ag	107	1	nogas	0.129	0.129	2.65	1780	0.01	2000	
Cd	111	1	nogas	0.757	0.757	12.08	1523	0.05	2000	
Sb	121	1	nogas	0.388	0.388	2.76	5901	0.01	2000	
Tl	205	1	nogas	0.059	0.059	10.37	1027	0.01	2000	
Pb	208	1	nogas	0.169	0.169	5.80	4754	0.00	2000	
U	238	1	nogas	4.007	4.007	1.98	91073	0.00	2000	
[Pb]	206	1	nogas	0.217	0.217	9.42	1273	0.02	2000	
[Pb]	207	1	nogas	0.171	0.171	7.98	947	0.02	2000	
Na	23	2	He	877297.931	877297.931	2.23	239075203	0.37	200000	>LDR
Mg	24	2	He	217662.148	217662.148	1.25	27703450	0.79	200000	>LDR
Al	27	2	He	18.584	18.584	17.02	823	2.26	2000	
K	39	2	He	3018.244	3018.244	3.27	225949	1.34	200000	
Ca	43	2	He	370713.846	370713.846	3.10	87774	422.35	200000	>LDR
Ca	44	2	He	368406.532	368406.532	4.16	1444702	25.50	200000	>LDR
V	51	2	He	0.476	0.476	2.75	1385	0.03	2000	
Cr	52	2	He	0.926	0.926	11.43	2867	0.03	2000	
Mn	55	2	He	447.836	447.836	3.00	334649	0.13	2000	
Fe	56	2	He	8215.528	8215.528	1.83	13074664	0.06	200000	
Co	59	2	He	3.976	3.976	3.46	12748	0.03	2000	
Ni	60	2	He	5.620	5.620	4.05	5958	0.09	2000	
Cu	63	2	He	-0.122	-0.122	-64.70	1283	-0.01	2000	
Zn	66	2	He	12.604	12.604	9.22	4814	0.26	2000	
As	75	2	He	8.112	8.112	5.14	2032	0.40	2000	
Se	78	2	He	-0.167	-0.167	-248.81	9	-1.93	2000	
B	11	1	nogas	70.054	70.054	5.84	162690	0.04	2000	
Si	28	1	nogas	16298.890	16298.890	2.04	82036775	0.02	2000	>LDR
Ca	43	1	nogas	381565.301	381565.301	2.68	7607492	5.02	200000	>LDR
Ca	44	1	nogas	375692.808	375692.808	1.89	116912438	0.32	200000	>LDR
Fe	56	1	nogas	8795.220	8795.220	1.02	135664645	0.01	200000	
Se	77	1	nogas	81.388	81.388	14.71	58558	0.14	2000	
Se	82	1	nogas	9.349	9.349	4.05	1750	0.53	2000	

Sample Report

Mo	95	1	nogas	0.418	0.418	8.39	1910	0.02	2000	
Sn	118	1	nogas	0.040	0.040	26.35	1173	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	10210.162	10210.162	2.39	26301759	0.04	2000	>LDR
Sb	121	2	He	0.457	0.457	6.47	697	0.07	2000	
La	139	1	nogas	2440.340	2440.340	5.60	5821	41.92	2000	>LDR
Au	197	1	nogas	252.959	252.959	61.10	40	632.40	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	369398	2.92	422913	87.35	70	125	
Ge	72	1	nogas	1545925	0.84	1623145	95.24	70	125	
In	115	1	nogas	1562332	1.66	1725651	90.54	70	125	
Bi	209	1	nogas	1384034	1.28	1623810	85.23	70	125	
Ge	72	2	He	123021	1.32	132260	93.01	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-02
Data File Name	199SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:45:11-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.055	0.055	22.23	190	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	83383.472	83383.472	4.13	774798017	0.01	200000	
Al	27	1	nogas	84.543	84.543	4.38	1102607	0.01	2000	
K	39	1	nogas	22312.905	22312.905	2.39	232418222	0.01	200000	
Ti	47	1	nogas	0.830	0.830	8.48	1537	0.05	2000	
V	51	1	nogas	-7.085	-7.085	-20.15	718910	0.00	2000	
Cr	52	1	nogas	20.902	20.902	4.21	331365	0.01	2000	
Mn	55	1	nogas	149.813	149.813	4.69	2611783	0.01	2000	
Co	59	1	nogas	2.891	2.891	6.03	44935	0.01	2000	
Ni	60	1	nogas	5.180	5.180	6.39	21516	0.02	2000	
Cu	63	1	nogas	1.256	1.256	13.83	18149	0.01	2000	
Zn	66	1	nogas	3.946	3.946	4.77	12058	0.03	2000	
As	75	1	nogas	-3.040	-3.040	-56.03	137567	0.00	2000	
Sr	88	1	nogas	14291.806	14291.806	5.25	249193796	0.01	2000	>LDR
Ag	107	1	nogas	0.081	0.081	17.83	1387	0.01	2000	
Cd	111	1	nogas	0.149	0.149	36.47	323	0.05	2000	
Sb	121	1	nogas	0.345	0.345	18.62	5844	0.01	2000	
Tl	205	1	nogas	0.055	0.055	3.88	1050	0.01	2000	
Pb	208	1	nogas	0.153	0.153	0.69	4340	0.00	2000	
U	238	1	nogas	2.478	2.478	2.46	62058	0.00	2000	
[Pb]	206	1	nogas	0.170	0.170	11.52	1123	0.02	2000	
[Pb]	207	1	nogas	0.148	0.148	19.88	913	0.02	2000	
Na	23	2	He	545553.145	545553.145	2.30	155781614	0.35	200000	>LDR
Mg	24	2	He	76688.002	76688.002	2.77	10225076	0.75	200000	
Al	27	2	He	74.506	74.506	14.02	2990	2.49	2000	
K	39	2	He	21413.928	21413.928	0.58	1510328	1.42	200000	
Ca	43	2	He	464585.032	464585.032	2.23	115237	403.16	200000	>LDR
Ca	44	2	He	460199.470	460199.470	2.79	1890855	24.34	200000	>LDR
V	51	2	He	1.283	1.283	3.10	2598	0.05	2000	
Cr	52	2	He	21.726	21.726	1.61	45146	0.05	2000	
Mn	55	2	He	140.592	140.592	1.60	110153	0.13	2000	
Fe	56	2	He	284.745	284.745	3.86	478661	0.06	200000	
Co	59	2	He	2.651	2.651	3.43	8906	0.03	2000	
Ni	60	2	He	1.897	1.897	10.78	2557	0.07	2000	
Cu	63	2	He	0.463	0.463	13.92	2960	0.02	2000	
Zn	66	2	He	4.372	4.372	6.38	1770	0.25	2000	
As	75	2	He	2.153	2.153	4.93	580	0.37	2000	
Se	78	2	He	-0.466	-0.466	-110.00	6	-7.76	2000	
B	11	1	nogas	64.257	64.257	5.35	143370	0.04	2000	
Si	28	1	nogas	17045.127	17045.127	3.16	90650912	0.02	2000	>LDR
Ca	43	1	nogas	449176.009	449176.009	2.21	9471772	4.74	200000	>LDR
Ca	44	1	nogas	448420.010	448420.010	2.63	147239428	0.30	200000	>LDR
Fe	56	1	nogas	347.957	347.957	5.99	6303243	0.01	200000	
Se	77	1	nogas	-6.425	-6.425	-108.84	42366	-0.02	2000	
Se	82	1	nogas	7.068	7.068	21.28	1503	0.47	2000	

Sample Report

Mo	95	1	nogas	1.405	1.405	8.40	5881	0.02	2000	
Sn	118	1	nogas	0.027	0.027	28.41	1180	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	4066.208	4066.208	1.56	11247141	0.04	2000	>LDR
Sb	121	2	He	0.408	0.408	26.92	680	0.06	2000	
La	139	1	nogas	1086.632	1086.632	8.99	2804	38.76	2000	
Au	197	1	nogas	116.816	116.816	109.89	27	438.06	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	354478	2.02	422913	83.82	70	125	
Ge	72	1	nogas	1635845	3.07	1623145	100.78	70	125	
In	115	1	nogas	1677176	0.62	1725651	97.19	70	125	
Bi	209	1	nogas	1525701	5.41	1623810	93.96	70	125	
Ge	72	2	He	128856	0.60	132260	97.43	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-03
Data File Name	200SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:47:11-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.064	0.064	29.48	203	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	77346.434	77346.434	4.48	672081798	0.01	200000	
Al	27	1	nogas	85.930	85.930	5.56	1012286	0.01	2000	
K	39	1	nogas	22009.021	22009.021	2.29	207373084	0.01	200000	
Ti	47	1	nogas	0.749	0.749	41.65	1307	0.06	2000	
V	51	1	nogas	-8.423	-8.423	-18.94	627889	0.00	2000	
Cr	52	1	nogas	20.261	20.261	3.52	291665	0.01	2000	
Mn	55	1	nogas	146.126	146.126	4.61	2303766	0.01	2000	
Co	59	1	nogas	2.921	2.921	5.58	41053	0.01	2000	
Ni	60	1	nogas	4.944	4.944	8.35	18710	0.03	2000	
Cu	63	1	nogas	1.361	1.361	11.54	17205	0.01	2000	
Zn	66	1	nogas	2.942	2.942	5.35	8452	0.03	2000	
As	75	1	nogas	-3.533	-3.533	-72.77	122928	0.00	2000	
Sr	88	1	nogas	14382.783	14382.783	6.44	226668237	0.01	2000	>LDR
Ag	107	1	nogas	0.053	0.053	10.17	987	0.01	2000	
Cd	111	1	nogas	0.132	0.132	2.97	270	0.05	2000	
Sb	121	1	nogas	0.276	0.276	20.29	4721	0.01	2000	
Tl	205	1	nogas	0.057	0.057	11.75	1000	0.01	2000	
Pb	208	1	nogas	0.134	0.134	5.16	3864	0.00	2000	
U	238	1	nogas	2.390	2.390	2.31	55417	0.00	2000	
[Pb]	206	1	nogas	0.158	0.158	7.64	977	0.02	2000	
[Pb]	207	1	nogas	0.159	0.159	20.19	907	0.02	2000	
Na	23	2	He	510004.115	510004.115	1.52	139110648	0.37	200000	>LDR
Mg	24	2	He	71821.846	71821.846	2.07	9146674	0.79	200000	
Al	27	2	He	81.775	81.775	7.14	3120	2.62	2000	
K	39	2	He	18904.820	18904.820	2.25	1335143	1.42	200000	
Ca	43	2	He	440073.917	440073.917	2.60	104263	422.08	200000	>LDR
Ca	44	2	He	434919.632	434919.632	2.42	1706969	25.48	200000	>LDR
V	51	2	He	1.159	1.159	3.87	2313	0.05	2000	
Cr	52	2	He	20.551	20.551	1.77	40856	0.05	2000	
Mn	55	2	He	131.925	131.925	1.10	98761	0.13	2000	
Fe	56	2	He	304.655	304.655	18.90	489527	0.06	200000	
Co	59	2	He	2.499	2.499	7.35	8019	0.03	2000	
Ni	60	2	He	1.726	1.726	0.20	2280	0.08	2000	
Cu	63	2	He	0.440	0.440	41.56	2764	0.02	2000	
Zn	66	2	He	3.440	3.440	6.59	1337	0.26	2000	
As	75	2	He	2.155	2.155	6.89	554	0.39	2000	
Se	78	2	He	-0.844	-0.844	-24.21	2	-42.22	2000	
B	11	1	nogas	55.503	55.503	2.28	117628	0.05	2000	
Si	28	1	nogas	16864.636	16864.636	3.33	81119629	0.02	2000	>LDR
Ca	43	1	nogas	462728.371	462728.371	5.10	8816851	5.25	200000	>LDR
Ca	44	1	nogas	460307.056	460307.056	6.57	136503088	0.34	200000	>LDR
Fe	56	1	nogas	329.080	329.080	2.46	5428353	0.01	200000	
Se	77	1	nogas	-4.637	-4.637	-282.92	38638	-0.01	2000	
Se	82	1	nogas	5.830	5.830	11.33	1193	0.49	2000	

Sample Report

Mo	95	1	nogas	1.463	1.463	7.67	5524	0.03	2000	
Sn	118	1	nogas	0.036	0.036	23.08	1157	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	3881.757	3881.757	3.13	10049573	0.04	2000	>LDR
Sb	121	2	He	0.364	0.364	20.32	607	0.06	2000	
La	139	1	nogas	846.454	846.454	6.82	2050	41.29	2000	
Au	197	1	nogas	72.598	72.598	8.96	20	362.99	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	335158	3.41	422913	79.25	70	125	
Ge	72	1	nogas	1479315	3.78	1623145	91.14	70	125	
In	115	1	nogas	1570646	2.97	1725651	91.02	70	125	
Bi	209	1	nogas	1411812	3.75	1623810	86.94	70	125	
Ge	72	2	He	123096	1.01	132260	93.07	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-05
Data File Name	201SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:49:13-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.394	0.394	13.36	1147	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	35428.074	35428.074	5.52	307941649	0.01	200000	
Al	27	1	nogas	36.802	36.802	4.40	473806	0.01	2000	
K	39	1	nogas	647.542	647.542	5.90	11506546	0.01	200000	
Ti	47	1	nogas	1.605	1.605	3.62	2230	0.07	2000	
V	51	1	nogas	24.767	24.767	22.24	1223939	0.00	2000	
Cr	52	1	nogas	-0.495	-0.495	-22.42	27921	0.00	2000	
Mn	55	1	nogas	3283.956	3283.956	6.14	53853876	0.01	2000	>LDR
Co	59	1	nogas	18.786	18.786	2.62	273731	0.01	2000	
Ni	60	1	nogas	82.558	82.558	3.12	272174	0.03	2000	
Cu	63	1	nogas	1.508	1.508	11.32	19100	0.01	2000	
Zn	66	1	nogas	34.576	34.576	2.49	88693	0.04	2000	
As	75	1	nogas	4.605	4.605	74.07	152207	0.00	2000	
Sr	88	1	nogas	877.743	877.743	2.35	14434364	0.01	2000	
Ag	107	1	nogas	0.043	0.043	31.90	930	0.00	2000	
Cd	111	1	nogas	0.156	0.156	24.84	323	0.05	2000	
Sb	121	1	nogas	0.159	0.159	25.59	3927	0.00	2000	
Tl	205	1	nogas	0.037	0.037	16.14	697	0.01	2000	
Pb	208	1	nogas	0.081	0.081	6.98	2543	0.00	2000	
U	238	1	nogas	0.044	0.044	6.10	1117	0.00	2000	
[Pb]	206	1	nogas	0.109	0.109	19.98	723	0.02	2000	
[Pb]	207	1	nogas	0.073	0.073	16.46	480	0.02	2000	
Na	23	2	He	598016.744	598016.744	4.81	163974601	0.36	200000	>LDR
Mg	24	2	He	32196.897	32196.897	4.02	4123044	0.78	200000	
Al	27	2	He	37.977	37.977	9.97	1537	2.47	2000	
K	39	2	He	594.044	594.044	2.54	56692	1.05	200000	
Ca	43	2	He	37472.320	37472.320	0.51	8956	418.42	200000	
Ca	44	2	He	37255.533	37255.533	1.66	147502	25.26	200000	
V	51	2	He	0.477	0.477	4.47	1395	0.03	2000	
Cr	52	2	He	0.237	0.237	29.01	1543	0.02	2000	
Mn	55	2	He	3206.719	3206.719	2.41	2410790	0.13	2000	>LDR
Fe	56	2	He	470.416	470.416	1.64	757238	0.06	200000	
Co	59	2	He	19.580	19.580	1.45	63152	0.03	2000	
Ni	60	2	He	79.618	79.618	3.17	76383	0.10	2000	
Cu	63	2	He	0.602	0.602	13.80	3210	0.02	2000	
Zn	66	2	He	33.338	33.338	3.89	12761	0.26	2000	
As	75	2	He	0.915	0.915	12.49	248	0.37	2000	
Se	78	2	He	-0.705	-0.705	-61.48	3	-21.14	2000	
B	11	1	nogas	43.672	43.672	9.43	88278	0.05	2000	
Si	28	1	nogas	29256.163	29256.163	4.78	145330645	0.02	2000	>LDR
Ca	43	1	nogas	38162.992	38162.992	2.63	760027	5.02	200000	
Ca	44	1	nogas	34082.703	34082.703	4.67	12152454	0.28	200000	
Fe	56	1	nogas	557.988	557.988	5.97	9152888	0.01	200000	
Se	77	1	nogas	42.199	42.199	31.34	50139	0.08	2000	
Se	82	1	nogas	3.495	3.495	26.58	910	0.38	2000	

Sample Report

Mo	95	1	nogas	0.044	0.044	11.54	523	0.01	2000	
Sn	118	1	nogas	-0.040	-0.040	-21.83	760	-0.01	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	62.068	62.068	6.18	163049	0.04	2000	
Sb	121	2	He	0.181	0.181	36.10	430	0.04	2000	
La	139	1	nogas	8479.417	8479.417	3.52	20553	41.26	2000	>LDR
Au	197	1	nogas	-72.667	-72.667	-66.21	3	-2180.00	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	317687	4.72	422913	75.12	70	125	
Ge	72	1	nogas	1541677	2.94	1623145	94.98	70	125	
In	115	1	nogas	1595012	4.75	1725651	92.43	70	125	
Bi	209	1	nogas	1445602	1.85	1623810	89.03	70	125	
Ge	72	2	He	123840	2.53	132260	93.63	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-06
Data File Name	202SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:51:13-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.026	0.026	38.62	100	0.03	2000	
Na	23	1	nogas	38802.283	38802.283	4.21	479177627	0.01	200000	
Mg	24	1	nogas	9689.034	9689.034	4.16	82187850	0.01	200000	
Al	27	1	nogas	9.225	9.225	6.27	154423	0.01	2000	
K	39	1	nogas	1177.812	1177.812	3.98	17399268	0.01	200000	
Ti	47	1	nogas	1.052	1.052	4.72	1753	0.06	2000	
V	51	1	nogas	12.350	12.350	44.39	1061261	0.00	2000	
Cr	52	1	nogas	-0.696	-0.696	-6.82	26499	0.00	2000	
Mn	55	1	nogas	1750.691	1750.691	1.99	30146739	0.01	2000	
Co	59	1	nogas	1.149	1.149	1.12	17856	0.01	2000	
Ni	60	1	nogas	1.243	1.243	8.89	7838	0.02	2000	
Cu	63	1	nogas	2.420	2.420	2.92	27564	0.01	2000	
Zn	66	1	nogas	4.328	4.328	2.24	12918	0.03	2000	
As	75	1	nogas	0.231	0.231	237.70	146167	0.00	2000	
Sr	88	1	nogas	282.667	282.667	1.12	4876357	0.01	2000	
Ag	107	1	nogas	0.025	0.025	13.98	793	0.00	2000	
Cd	111	1	nogas	0.034	0.034	25.84	77	0.04	2000	
Sb	121	1	nogas	0.122	0.122	8.45	3790	0.00	2000	
Tl	205	1	nogas	0.016	0.016	35.71	387	0.00	2000	
Pb	208	1	nogas	0.214	0.214	4.98	5867	0.00	2000	
U	238	1	nogas	0.012	0.012	4.01	380	0.00	2000	
[Pb]	206	1	nogas	0.217	0.217	10.77	1467	0.01	2000	
[Pb]	207	1	nogas	0.186	0.186	21.62	1170	0.02	2000	
Na	23	2	He	33197.529	33197.529	0.67	9396352	0.35	200000	
Mg	24	2	He	8530.321	8530.321	1.08	1119288	0.76	200000	
Al	27	2	He	6.839	6.839	20.59	410	1.67	2000	
K	39	2	He	1100.492	1100.492	1.36	92052	1.20	200000	
Ca	43	2	He	13090.337	13090.337	5.23	3220	406.49	200000	
Ca	44	2	He	13960.962	13960.962	1.80	56881	24.54	200000	
V	51	2	He	0.117	0.117	32.65	925	0.01	2000	
Cr	52	2	He	0.154	0.154	59.41	1417	0.01	2000	
Mn	55	2	He	1692.411	1692.411	1.25	1303169	0.13	2000	
Fe	56	2	He	12787.158	12787.158	2.28	20968738	0.06	200000	
Co	59	2	He	1.127	1.127	4.62	3730	0.03	2000	
Ni	60	2	He	0.353	0.353	41.06	1010	0.03	2000	
Cu	63	2	He	2.317	2.317	7.81	7942	0.03	2000	
Zn	66	2	He	4.049	4.049	8.78	1613	0.25	2000	
As	75	2	He	1.771	1.771	3.35	473	0.37	2000	
Se	78	2	He	-0.259	-0.259	-129.58	8	-3.24	2000	
B	11	1	nogas	41.412	41.412	5.10	99094	0.04	2000	
Si	28	1	nogas	17971.800	17971.800	1.30	94414595	0.02	2000	>LDR
Ca	43	1	nogas	14038.792	14038.792	5.14	294430	4.77	200000	
Ca	44	1	nogas	9198.247	9198.247	3.78	4772936	0.19	200000	
Fe	56	1	nogas	13945.533	13945.533	1.37	224573122	0.01	200000	

Sample Report

Se	77	1	nogas	13.444	13.444	7.54	46272	0.03	2000	
Se	82	1	nogas	0.707	0.707	78.62	540	0.13	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.196	0.196	22.92	1137	0.02	2000	
Sn	118	1	nogas	-0.011	-0.011	-408.88	970	0.00	2000	
Ba	137	1	nogas	235.812	235.812	8.23	654432	0.04	2000	
Sb	121	2	He	0.154	0.154	33.99	413	0.04	2000	
La	139	1	nogas	894.912	894.912	24.22	2310	38.74	2000	
Au	197	1	nogas	26.509	26.509	157.59	17	159.05	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	374576	3.29	422913	88.57	70	125	
Ge	72	1	nogas	1616594	1.11	1623145	99.60	70	125	
In	115	1	nogas	1687263	5.24	1725651	97.78	70	125	
Bi	209	1	nogas	1593911	3.28	1623810	98.16	70	125	
Ge	72	2	He	126783	1.47	132260	95.86	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-09
Data File Name	203SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T16:53:16-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.064	0.064	10.51	237	0.03	2000	
Na	23	1	nogas	17482.288	17482.288	1.96	222229372	0.01	200000	
Mg	24	1	nogas	1227.786	1227.786	4.29	10651114	0.01	200000	
Al	27	1	nogas	128.767	128.767	3.87	1617788	0.01	2000	
K	39	1	nogas	1639.827	1639.827	1.13	21743843	0.01	200000	
Ti	47	1	nogas	2.996	2.996	3.30	3754	0.08	2000	
V	51	1	nogas	-2.183	-2.183	-104.32	788411	0.00	2000	
Cr	52	1	nogas	2.490	2.490	8.74	69973	0.00	2000	
Mn	55	1	nogas	82.926	82.926	1.70	1412484	0.01	2000	
Co	59	1	nogas	0.132	0.132	12.61	2304	0.01	2000	
Ni	60	1	nogas	2.259	2.259	5.31	11157	0.02	2000	
Cu	63	1	nogas	0.172	0.172	31.05	8902	0.00	2000	
Zn	66	1	nogas	3.858	3.858	3.54	11514	0.03	2000	
As	75	1	nogas	-6.179	-6.179	-24.17	124626	0.00	2000	
Sr	88	1	nogas	67.160	67.160	2.65	1143707	0.01	2000	
Ag	107	1	nogas	0.025	0.025	16.35	777	0.00	2000	
Cd	111	1	nogas	0.052	0.052	35.25	117	0.04	2000	
Sb	121	1	nogas	0.040	0.040	35.53	3017	0.00	2000	
Tl	205	1	nogas	0.014	0.014	18.77	370	0.00	2000	
Pb	208	1	nogas	0.609	0.609	1.72	15813	0.00	2000	
U	238	1	nogas	0.064	0.064	12.98	1773	0.00	2000	
[Pb]	206	1	nogas	0.652	0.652	8.45	4231	0.02	2000	
[Pb]	207	1	nogas	0.544	0.544	5.29	3267	0.02	2000	
Na	23	2	He	15850.315	15850.315	3.23	4499090	0.35	200000	
Mg	24	2	He	1103.921	1103.921	4.07	144230	0.77	200000	
Al	27	2	He	123.197	123.197	11.13	4731	2.60	2000	
K	39	2	He	1548.820	1548.820	1.88	123354	1.26	200000	
Ca	43	2	He	5644.426	5644.426	11.58	1393	405.08	200000	
Ca	44	2	He	5986.873	5986.873	2.89	24516	24.42	200000	
V	51	2	He	1.998	1.998	7.43	3534	0.06	2000	
Cr	52	2	He	3.418	3.418	8.28	7889	0.04	2000	
Mn	55	2	He	76.701	76.701	2.74	58875	0.13	2000	
Fe	56	2	He	1663.083	1663.083	3.14	2715970	0.06	200000	
Co	59	2	He	0.139	0.139	14.46	467	0.03	2000	
Ni	60	2	He	1.798	1.798	5.43	2407	0.07	2000	
Cu	63	2	He	0.099	0.099	66.59	1913	0.01	2000	
Zn	66	2	He	4.616	4.616	5.16	1827	0.25	2000	
As	75	2	He	0.627	0.627	17.93	180	0.35	2000	
Se	78	2	He	-0.656	-0.656	-51.92	4	-16.41	2000	
B	11	1	nogas	40.141	40.141	7.77	98373	0.04	2000	
Si	28	1	nogas	3131.529	3131.529	2.31	17732779	0.02	2000	>LDR
Ca	43	1	nogas	6468.459	6468.459	1.67	134886	4.80	200000	
Ca	44	1	nogas	1659.657	1659.657	8.90	2325298	0.07	200000	
Fe	56	1	nogas	1726.514	1726.514	1.18	27983933	0.01	200000	

Sample Report

Se	77	1	nogas	-13.855	-13.855	-50.75	39707	-0.03	2000	
Se	82	1	nogas	0.052	0.052	677.41	437	0.01	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.391	0.391	9.88	1867	0.02	2000	
Sn	118	1	nogas	-0.060	-0.060	-42.44	693	-0.01	2000	
Ba	137	1	nogas	42.406	42.406	3.27	118139	0.04	2000	
Sb	121	2	He	0.120	0.120	68.60	377	0.03	2000	
La	139	1	nogas	9564.106	9564.106	3.57	24551	38.96	2000	>LDR
Au	197	1	nogas	0.667	0.667	17534.98	13	5.00	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	383743	5.45	422913	90.74	70	125	
Ge	72	1	nogas	1594667	0.22	1623145	98.25	70	125	
In	115	1	nogas	1688584	2.15	1725651	97.85	70	125	
Bi	209	1	nogas	1620951	1.49	1623810	99.82	70	125	
Ge	72	2	He	126135	2.44	132260	95.37	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	207_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T17:01:11-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.072	51.9	283	49.5	1	
Na	23	1	nogas	486.963	5.3	9235897	2.2	100	CCB Main CR1 Failed
Mg	24	1	nogas	7.346	14.6	73692	9.9	100	
Al	27	1	nogas	-1.752	-1.3	18773	0.2	5	
K	39	1	nogas	-38.151	-28.8	5399761	0.3	100	
Ti	47	1	nogas	-0.288	-25.7	353	21.2	2.5	
V	51	1	nogas	8.567	38.2	1035249	7.5	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.526	-8.7	30081	3.3	2.5	
Mn	55	1	nogas	0.738	6.7	17765	3.2	2.5	
Co	59	1	nogas	0.052	22.1	1157	13.9	2.5	
Ni	60	1	nogas	-0.193	-29.6	3060	5.1	2.5	
Cu	63	1	nogas	-0.364	-4.8	4807	3.4	2.5	
Zn	66	1	nogas	-0.082	-18.0	1293	3.8	2.5	
As	75	1	nogas	2.222	52.1	158761	4.0	2.5	
Sr	88	1	nogas	0.176	10.5	4187	7.6	2.5	
Ag	107	1	nogas	3.333	4.4	36452	2.7	2.5	CCB Main CR1 Failed
Cd	111	1	nogas	0.058	25.6	137	23.5	1	
Sb	121	1	nogas	0.956	21.1	11704	14.3	2.5	
Tl	205	1	nogas	1.537	13.3	28826	13.6	1	CCB Main CR1 Failed
Pb	208	1	nogas	0.054	27.1	1850	19.8	2.5	
U	238	1	nogas	0.061	30.5	1710	29.5	2.5	
[Pb]	206	1	nogas	0.054	28.3	470	21.0	2.5	
[Pb]	207	1	nogas	0.047	34.0	393	24.2	2.5	
Na	23	2	He	429.006	3.2	206478	1.4	100	CCB Main CR1 Failed
Mg	24	2	He	5.074	26.5	980	20.4	100	
Al	27	2	He	1.939	305.3	240	97.1	5	
K	39	2	He	-0.860	-1083.3	15156	4.3	100	
Ca	43	2	He	-41.238	-52.8	17	34.6	100	
Ca	44	2	He	-68.372	-7.0	190	10.5	100	
V	51	2	He	-0.137	-22.7	607	7.3	2.5	
Cr	52	2	He	-0.009	-955.2	1163	13.8	2.5	
Mn	55	2	He	0.101	62.1	237	21.7	2.5	
Fe	56	2	He	3.674	6.2	10753	4.9	100	
Co	59	2	He	0.032	20.9	123	18.7	2.5	
Ni	60	2	He	-0.437	-9.4	257	17.6	2.5	
Cu	63	2	He	-0.328	-11.7	813	14.7	2.5	
Zn	66	2	He	0.177	13.8	107	10.8	2.5	
As	75	2	He	0.304	3.2	104	1.8	2.5	
Se	78	2	He	-0.799	-35.9	3	114.6	2.5	
B	11	1	nogas	32.833	4.3	86909	4.0	10	CCB Main CR1 Failed
Si	28	1	nogas	-59.523	-13.9	1605349	1.1	5	
Ca	43	1	nogas	-36.443	-23.1	1210	16.8	100	
Ca	44	1	nogas	-5241.820	-0.2	150986	1.3	100	
Fe	56	1	nogas	22.679	40.0	1054093	12.5	100	
Se	77	1	nogas	27.043	24.1	51349	4.6	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.057	-1062.0	443	19.2	2.5	
Mo	95	1	nogas	0.123	51.6	887	26.8	2.5	
Sn	118	1	nogas	0.082	20.0	1603	7.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.099	20.5	400	16.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.676	20.9	1000	14.8	2.5	
P	31	1	nogas	-318.115	-0.6	90817	2.1	10	
La	139	1	nogas	14.269	118.8	77	58.8	2.5	CCB Main CR1 Failed
Au	197	1	nogas	73.630	211.0	23	89.2	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	409423	1.52	422913	96.81	70	125	
Ge	72	1	nogas	1684334	1.77	1623145	103.77	70	125	
In	115	1	nogas	1800001	1.72	1725651	104.31	70	125	
Bi	209	1	nogas	1639554	0.39	1623810	100.97	70	125	
Ge	72	2	He	135147	1.25	132260	102.18	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	209_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T17:05:10-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	88.517	3.221	326288	1.89	100	88.5	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	11126.087	5.248	148927949	1.64	10000	111.3	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	10765.788	6.862	97661827	2.77	10000	107.7	90	110	
Al	27	1	nogas	94.038	7.783	1274110	4.40	100	94.0	90	110	
K	39	1	nogas	9962.829	2.403	111542398	2.06	10000	99.6	90	110	
Ti	47	1	nogas	94.276	3.559	105684	1.43	100	94.3	90	110	
V	51	1	nogas	93.891	9.424	2667912	2.38	100	93.9	90	110	
Cr	52	1	nogas	96.600	10.601	1457264	6.42	100	96.6	90	110	
Mn	55	1	nogas	99.148	6.424	1804348	2.54	100	99.1	90	110	
Co	59	1	nogas	95.619	6.364	1540030	3.00	100	95.6	90	110	
Ni	60	1	nogas	92.520	7.236	336877	3.60	100	92.5	90	110	
Cu	63	1	nogas	94.910	3.360	833934	2.22	100	94.9	90	110	
Zn	66	1	nogas	98.379	1.249	276603	2.78	100	98.4	90	110	
As	75	1	nogas	97.918	10.009	472763	2.86	100	97.9	90	110	
Sr	88	1	nogas	101.618	5.693	1849703	2.20	100	101.6	90	110	
Ag	107	1	nogas	82.362	7.228	898732	4.59	100	82.4	90	110	CCV Main CR1-2 Failed
Cd	111	1	nogas	96.710	0.144	224226	1.62	100	96.7	90	110	
Sb	121	1	nogas	98.931	3.951	937789	0.89	100	98.9	90	110	
Tl	205	1	nogas	94.568	8.377	1881667	3.00	100	94.6	90	110	
Pb	208	1	nogas	102.470	1.175	2577595	1.17	100	102.5	90	110	
U	238	1	nogas	95.497	6.089	2738817	0.56	100	95.5	90	110	
[Pb]	206	1	nogas	92.062	5.869	625448	0.38	100	92.1	90	110	
[Pb]	207	1	nogas	91.033	5.823	568969	1.32	100	91.0	90	110	
Na	23	2	He	9733.393	1.678	2972958	1.63	10000	97.3	90	110	
Mg	24	2	He	9573.155	0.794	1330588	1.32	10000	95.7	90	110	
Al	27	2	He	95.689	8.573	3954	7.72	100	95.7	90	110	
K	39	2	He	9681.213	2.099	691155	2.05	10000	96.8	90	110	
Ca	43	2	He	9143.551	10.305	2390	10.05	10000	91.4	90	110	
Ca	44	2	He	9161.401	2.356	39703	2.12	10000	91.6	90	110	
V	51	2	He	96.515	0.276	143755	1.03	100	96.5	90	110	
Cr	52	2	He	95.136	1.059	202057	0.43	100	95.1	90	110	
Mn	55	2	He	92.326	2.733	75438	1.96	100	92.3	90	110	
Fe	56	2	He	9211.899	1.245	16005002	0.83	10000	92.1	90	110	
Co	59	2	He	97.073	1.864	339510	1.07	100	97.1	90	110	
Ni	60	2	He	94.882	2.428	98615	1.62	100	94.9	90	110	
Cu	63	2	He	95.179	2.416	275574	1.75	100	95.2	90	110	
Zn	66	2	He	95.997	1.445	39814	1.74	100	96.0	90	110	
As	75	2	He	98.515	0.323	26712	0.49	100	98.5	90	110	
Se	78	2	He	98.188	4.471	1060	5.17	100	98.2	90	110	
B	11	1	nogas	466.466	7.047	1159247	4.54	500	93.3	90	110	
Si	28	1	nogas	4798.902	8.429	28000993	3.97	5000	96.0	90	110	
Ca	43	1	nogas	9635.274	1.781	214046	2.32	10000	96.4	90	110	
Ca	44	1	nogas	4833.147	4.714	3562532	2.56	10000	48.3	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9939.018	8.999	168831466	5.12	10000	99.4	90	110	
Se	77	1	nogas	118.419	19.695	73167	3.59	100	118.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.927	6.322	16181	2.36	100	99.9	90	110	
Mo	95	1	nogas	96.507	4.440	394576	1.37	100	96.5	90	110	
Sn	118	1	nogas	97.864	0.856	598150	0.76	100	97.9	90	110	
Ba	137	1	nogas	99.066	3.520	294916	1.94	100	99.1	90	110	
Sb	121	2	He	100.703	0.477	107523	1.00	100	100.7	90	110	
Li	7	1	nogas	98.704	1.075	843302	2.65	100	98.7	90	110	
P	31	1	nogas	195.438	16.294	482975	1.16	500	39.1	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	115.972	38.997	357	35.06	100	116.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-28.623	-249.327	10	100.00	100	-28.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	404762	3.46	422913	95.71	70	125	
Ge	72	1	nogas	1707480	3.97	1623145	105.20	70	125	
In	115	1	nogas	1805108	1.59	1725651	104.60	70	125	
Bi	209	1	nogas	1751753	5.80	1623810	107.88	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	134302	0.79	132260	101.54	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	219_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T17:25:09-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.979	0.760	289539	1.62	100	92.0	90	110	
Na	23	1	nogas	11654.566	2.423	138465803	2.75	10000	116.5	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	11318.052	3.632	91261252	4.18	10000	113.2	90	110	CCV Main CR1-2 Failed
Al	27	1	nogas	98.027	5.898	1201730	4.66	100	98.0	90	110	
K	39	1	nogas	9726.725	1.968	98731492	3.44	10000	97.3	90	110	
Ti	47	1	nogas	98.500	6.558	99945	6.30	100	98.5	90	110	
V	51	1	nogas	93.331	4.286	2408219	3.13	100	93.3	90	110	
Cr	52	1	nogas	98.740	2.840	1350272	1.45	100	98.7	90	110	
Mn	55	1	nogas	100.726	1.552	1661210	1.85	100	100.7	90	110	
Co	59	1	nogas	96.384	2.129	1406488	0.22	100	96.4	90	110	
Ni	60	1	nogas	93.875	2.433	309751	2.17	100	93.9	90	110	
Cu	63	1	nogas	95.440	1.334	759367	2.83	100	95.4	90	110	
Zn	66	1	nogas	98.518	0.880	250682	1.13	100	98.5	90	110	
As	75	1	nogas	100.224	5.278	435345	3.99	100	100.2	90	110	
Sr	88	1	nogas	101.593	2.177	1675444	1.91	100	101.6	90	110	
Ag	107	1	nogas	100.233	3.821	991176	4.44	100	100.2	90	110	
Cd	111	1	nogas	99.007	3.386	205564	2.41	100	99.0	90	110	
Sb	121	1	nogas	102.790	3.186	882257	2.78	100	102.8	90	110	
Tl	205	1	nogas	100.534	2.176	1750012	0.73	100	100.5	90	110	
Pb	208	1	nogas	98.351	1.809	2473988	1.81	100	98.4	90	110	
U	238	1	nogas	102.599	1.836	2572146	0.96	100	102.6	90	110	
[Pb]	206	1	nogas	98.730	2.271	586224	0.75	100	98.7	90	110	
[Pb]	207	1	nogas	100.506	3.141	548948	2.03	100	100.5	90	110	
Na	23	2	He	9344.979	2.937	2735752	2.28	10000	93.4	90	110	
Mg	24	2	He	9285.668	3.315	1235682	3.01	10000	92.9	90	110	
Al	27	2	He	94.836	3.695	3754	2.72	100	94.8	90	110	
K	39	2	He	8733.426	3.317	624981	3.24	10000	87.3	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9083.991	7.484	2274	6.76	10000	90.8	90	110	
Ca	44	2	He	8836.000	0.930	36687	1.92	10000	88.4	90	110	CCV Main CR1-2 Failed
V	51	2	He	95.058	0.780	135589	1.78	100	95.1	90	110	
Cr	52	2	He	91.285	1.939	185675	0.92	100	91.3	90	110	
Mn	55	2	He	91.223	3.445	71378	3.26	100	91.2	90	110	
Fe	56	2	He	9025.914	2.990	15016503	3.09	10000	90.3	90	110	
Co	59	2	He	92.252	2.356	308999	2.98	100	92.3	90	110	
Ni	60	2	He	88.070	1.475	87711	2.05	100	88.1	90	110	CCV Main CR1-2 Failed
Cu	63	2	He	89.904	1.906	249335	1.00	100	89.9	90	110	CCV Main CR1-2 Failed
Zn	66	2	He	93.222	0.611	37021	1.22	100	93.2	90	110	
As	75	2	He	96.900	1.020	25157	0.56	100	96.9	90	110	
Se	78	2	He	91.658	10.445	948	10.34	100	91.7	90	110	
B	11	1	nogas	499.240	1.456	1060041	2.00	500	99.8	90	110	
Si	28	1	nogas	5009.064	4.632	26407952	2.35	5000	100.2	90	110	
Ca	43	1	nogas	9556.725	3.150	192239	4.47	10000	95.6	90	110	
Ca	44	1	nogas	4827.743	1.559	3223645	2.67	10000	48.3	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10101.065	1.853	155577016	0.32	10000	101.0	90	110	
Se	77	1	nogas	121.914	8.130	67084	4.45	100	121.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	101.299	3.201	14856	2.50	100	101.3	90	110	
Mo	95	1	nogas	95.942	1.348	355289	1.42	100	95.9	90	110	
Sn	118	1	nogas	101.889	2.119	557829	2.54	100	101.9	90	110	
Ba	137	1	nogas	102.464	5.300	273152	3.31	100	102.5	90	110	
Sb	121	2	He	100.664	1.790	102903	0.81	100	100.7	90	110	
Li	7	1	nogas	100.213	1.446	730385	2.16	100	100.2	90	110	
P	31	1	nogas	211.700	8.987	448637	0.94	500	42.3	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	102.904	22.795	287	19.21	100	102.9	90	110	
Au	197	1	nogas	85.374	49.275	23	24.74	100	85.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	345428	0.91	422913	81.68	70	125	
Ge	72	1	nogas	1544990	1.96	1623145	95.18	70	125	
In	115	1	nogas	1617101	2.43	1725651	93.71	70	125	
Bi	209	1	nogas	1528030	2.09	1623810	94.10	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	128598	1.02	132260	97.23	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	220_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T17:27:06-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.059	13.6	230	15.1	1	
Na	23	1	nogas	204.554	1.8	5070670	1.1	100	CCB Main CR1 Failed
Mg	24	1	nogas	7.276	23.0	68203	22.1	100	
Al	27	1	nogas	-1.756	-4.5	17699	3.9	5	
K	39	1	nogas	-21.917	-85.7	5266604	0.8	100	
Ti	47	1	nogas	-0.302	-11.1	320	11.3	2.5	
V	51	1	nogas	2.222	62.8	865782	2.9	2.5	
Cr	52	1	nogas	-0.546	-10.1	28172	0.8	2.5	
Mn	55	1	nogas	0.792	4.7	17722	2.3	2.5	
Co	59	1	nogas	0.051	36.2	1080	22.8	2.5	
Ni	60	1	nogas	-0.441	-0.9	2060	2.6	2.5	
Cu	63	1	nogas	-0.378	-8.5	4427	4.5	2.5	
Zn	66	1	nogas	-0.165	-27.6	1003	10.8	2.5	
As	75	1	nogas	3.582	38.6	154328	4.7	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.068	29.4	2120	12.9	2.5	
Ag	107	1	nogas	2.117	7.5	22078	4.9	2.5	
Cd	111	1	nogas	0.060	35.4	130	33.5	1	
Sb	121	1	nogas	1.042	29.9	11811	20.4	2.5	
Tl	205	1	nogas	0.407	25.9	7495	26.9	1	
Pb	208	1	nogas	0.063	33.5	2093	25.5	2.5	
U	238	1	nogas	0.069	24.0	1870	24.6	2.5	
[Pb]	206	1	nogas	0.071	25.7	567	22.1	2.5	
[Pb]	207	1	nogas	0.058	41.4	443	31.7	2.5	
Na	23	2	He	165.374	2.6	123819	1.3	100	CCB Main CR1 Failed
Mg	24	2	He	4.629	27.3	890	20.0	100	
Al	27	2	He	-2.226	-24.7	73	28.4	5	
K	39	2	He	-12.517	-77.8	14342	4.7	100	
Ca	43	2	He	-52.267	-115.8	13	114.6	100	
Ca	44	2	He	-63.065	-31.7	207	40.6	100	
V	51	2	He	-0.168	-18.2	545	7.5	2.5	
Cr	52	2	He	0.075	34.8	1303	3.6	2.5	
Mn	55	2	He	0.123	19.6	247	8.4	2.5	
Fe	56	2	He	4.020	2.7	11020	1.3	100	
Co	59	2	He	0.056	14.5	200	13.2	2.5	
Ni	60	2	He	-0.489	-14.7	197	37.5	2.5	
Cu	63	2	He	-0.297	-19.4	877	18.5	2.5	
Zn	66	2	He	0.168	80.9	100	55.7	2.5	
As	75	2	He	0.127	16.2	54	9.4	2.5	
Se	78	2	He	-0.473	-41.3	6	33.3	2.5	
B	11	1	nogas	35.451	2.3	91896	3.0	10	CCB Main CR1 Failed
Si	28	1	nogas	-30.046	-50.2	1667349	2.0	5	
Ca	43	1	nogas	-30.551	-32.4	1260	13.3	100	
Ca	44	1	nogas	-5226.130	-0.3	147741	0.5	100	
Fe	56	1	nogas	17.070	18.1	909134	2.5	100	
Se	77	1	nogas	39.323	13.2	51226	3.5	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.272	330.0	467	25.8	2.5	
Mo	95	1	nogas	0.152	37.9	950	20.5	2.5	
Sn	118	1	nogas	0.098	52.9	1553	17.7	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.087	27.8	330	18.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.826	15.5	1127	12.1	2.5	
P	31	1	nogas	-319.680	-0.7	84770	1.0	10	
La	139	1	nogas	22.183	84.5	90	50.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	25.614	452.0	17	91.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	402527	2.77	422913	95.18	70	125	
Ge	72	1	nogas	1593319	2.76	1623145	98.16	70	125	
In	115	1	nogas	1646055	1.59	1725651	95.39	70	125	
Bi	209	1	nogas	1590208	2.72	1623810	97.93	70	125	
Ge	72	2	He	131153	0.66	132260	99.16	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	236_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T18:06:11-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.070	23.4	297	23.9	1	
Na	23	1	nogas	448.718	5.7	8993783	1.3	100	CCB Main CR1 Failed
Mg	24	1	nogas	14.816	10.4	147272	7.2	100	
Al	27	1	nogas	-1.823	-4.1	18820	1.6	5	
K	39	1	nogas	-61.891	-42.2	5433018	1.6	100	
Ti	47	1	nogas	-0.301	-28.8	357	24.5	2.5	
V	51	1	nogas	9.818	14.5	1116418	1.5	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.578	-21.7	30919	3.7	2.5	
Mn	55	1	nogas	0.674	5.9	17545	0.4	2.5	
Co	59	1	nogas	0.047	14.5	1137	6.7	2.5	
Ni	60	1	nogas	-0.047	-286.2	3767	9.8	2.5	
Cu	63	1	nogas	-0.377	-7.5	4951	1.5	2.5	
Zn	66	1	nogas	0.006	760.4	1617	4.2	2.5	
As	75	1	nogas	0.685	191.4	162289	3.3	2.5	
Sr	88	1	nogas	0.378	8.3	8249	3.7	2.5	
Ag	107	1	nogas	0.144	8.2	2224	4.9	2.5	
Cd	111	1	nogas	0.074	24.7	180	20.0	1	
Sb	121	1	nogas	0.126	29.7	4197	6.1	2.5	
Tl	205	1	nogas	0.305	31.0	6291	34.0	1	
Pb	208	1	nogas	0.078	34.9	2457	27.9	2.5	
U	238	1	nogas	0.065	33.5	1963	35.6	2.5	
[Pb]	206	1	nogas	0.066	34.0	590	29.4	2.5	
[Pb]	207	1	nogas	0.065	32.7	540	26.9	2.5	
Na	23	2	He	365.760	4.0	189306	1.6	100	CCB Main CR1 Failed
Mg	24	2	He	9.647	11.6	1633	9.9	100	
Al	27	2	He	-2.140	-39.3	80	43.3	5	
K	39	2	He	-18.825	-23.6	13902	2.2	100	
Ca	43	2	He	-54.241	-41.9	13	43.3	100	
Ca	44	2	He	-26.616	-33.4	373	10.1	100	
V	51	2	He	-0.118	-30.1	643	8.9	2.5	
Cr	52	2	He	0.075	80.8	1357	10.7	2.5	
Mn	55	2	He	0.103	15.0	240	4.2	2.5	
Fe	56	2	He	3.447	9.0	10453	5.8	100	
Co	59	2	He	0.047	11.9	177	11.8	2.5	
Ni	60	2	He	-0.437	-14.8	260	26.9	2.5	
Cu	63	2	He	-0.344	-6.7	773	9.2	2.5	
Zn	66	2	He	0.111	41.5	80	25.0	2.5	
As	75	2	He	0.103	46.0	50	26.7	2.5	
Se	78	2	He	-0.988	-10.7	1	173.2	2.5	
B	11	1	nogas	42.693	1.9	120833	3.6	10	CCB Main CR1 Failed
Si	28	1	nogas	-77.680	-21.2	1590217	1.9	5	
Ca	43	1	nogas	8.916	97.2	2310	4.6	100	
Ca	44	1	nogas	-5267.194	-0.4	150338	1.2	100	
Fe	56	1	nogas	31.656	16.1	1271136	3.4	100	
Se	77	1	nogas	25.869	32.8	53867	1.8	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.376	113.4	540	13.4	2.5	
Mo	95	1	nogas	0.124	57.3	937	28.1	2.5	
Sn	118	1	nogas	0.100	41.6	1777	19.7	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.084	38.0	367	30.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.165	31.4	457	11.2	2.5	
P	31	1	nogas	-329.541	-2.1	86678	2.2	10	
La	139	1	nogas	14.538	92.7	80	45.1	2.5	CCB Main CR1 Failed
Au	197	1	nogas	33.952	518.6	20	132.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	443052	1.80	422913	104.76	70	125	
Ge	72	1	nogas	1778443	4.00	1623145	109.57	70	125	
In	115	1	nogas	1857712	5.16	1725651	107.65	70	125	
Bi	209	1	nogas	1763992	3.47	1623810	108.63	70	125	
Ge	72	2	He	136417	1.18	132260	103.14	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	237_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T18:08:13-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	86.607	1.653	337246	1.12	100	86.6	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10976.572	2.776	153713870	1.10	10000	109.8	90	110	
Mg	24	1	nogas	10914.382	4.731	103562984	0.98	10000	109.1	90	110	
Al	27	1	nogas	100.136	1.335	1348196	0.71	100	100.1	90	110	
K	39	1	nogas	10114.801	3.463	112514178	2.56	10000	101.1	90	110	
Ti	47	1	nogas	99.227	0.706	110623	1.13	100	99.2	90	110	
V	51	1	nogas	103.779	4.452	2843614	3.78	100	103.8	90	110	
Cr	52	1	nogas	99.435	2.210	1493877	2.13	100	99.4	90	110	
Mn	55	1	nogas	102.213	0.433	1851909	1.17	100	102.2	90	110	
Co	59	1	nogas	96.771	3.146	1551447	2.62	100	96.8	90	110	
Ni	60	1	nogas	94.401	2.292	342166	1.64	100	94.4	90	110	
Cu	63	1	nogas	94.502	2.955	825881	2.45	100	94.5	90	110	
Zn	66	1	nogas	98.270	1.513	274716	1.75	100	98.3	90	110	
As	75	1	nogas	101.844	1.460	483523	1.71	100	101.8	90	110	
Sr	88	1	nogas	106.390	0.708	1927635	1.11	100	106.4	90	110	
Ag	107	1	nogas	99.496	0.766	1080787	1.46	100	99.5	90	110	
Cd	111	1	nogas	99.085	5.528	233310	3.21	100	99.1	90	110	
Sb	121	1	nogas	103.038	0.210	971696	0.95	100	103.0	90	110	
Tl	205	1	nogas	97.921	1.922	1924025	1.43	100	97.9	90	110	
Pb	208	1	nogas	107.785	0.603	2711262	0.60	100	107.8	90	110	
U	238	1	nogas	103.553	2.193	2930373	2.20	100	103.6	90	110	
[Pb]	206	1	nogas	94.921	3.191	636156	2.50	100	94.9	90	110	
[Pb]	207	1	nogas	96.284	0.465	593697	0.96	100	96.3	90	110	
Na	23	2	He	9651.112	3.323	2986268	2.56	10000	96.5	90	110	
Mg	24	2	He	9524.805	2.287	1340995	2.42	10000	95.2	90	110	
Al	27	2	He	85.845	8.589	3617	10.73	100	85.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	9505.749	2.157	678904	2.11	10000	95.1	90	110	
Ca	43	2	He	8635.636	6.032	2287	3.72	10000	86.4	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	8768.896	4.145	38497	1.39	10000	87.7	90	110	CCV Main CR1-2 Failed
V	51	2	He	97.424	1.439	146978	1.49	100	97.4	90	110	
Cr	52	2	He	94.503	1.579	203328	1.63	100	94.5	90	110	
Mn	55	2	He	92.161	2.141	76282	1.32	100	92.2	90	110	
Fe	56	2	He	9103.058	3.415	16016433	1.66	10000	91.0	90	110	
Co	59	2	He	96.908	2.927	343270	1.33	100	96.9	90	110	
Ni	60	2	He	93.685	1.463	98655	1.66	100	93.7	90	110	
Cu	63	2	He	94.279	1.972	276517	0.96	100	94.3	90	110	
Zn	66	2	He	93.938	1.385	39470	2.49	100	93.9	90	110	
As	75	2	He	96.845	2.799	26593	0.61	100	96.8	90	110	
Se	78	2	He	91.658	6.570	1002	4.22	100	91.7	90	110	
B	11	1	nogas	467.061	2.493	1227508	3.90	500	93.4	90	110	
Si	28	1	nogas	5045.820	1.881	29221338	1.03	5000	100.9	90	110	
Ca	43	1	nogas	9885.637	1.664	218308	0.91	10000	98.9	90	110	
Ca	44	1	nogas	5254.326	1.635	3684242	0.44	10000	52.5	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	10227.796	0.711	173078904	1.21	10000	102.3	90	110	
Se	77	1	nogas	140.152	5.750	77899	2.80	100	140.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	102.129	3.517	16451	2.80	100	102.1	90	110	
Mo	95	1	nogas	96.890	2.559	394138	1.96	100	96.9	90	110	
Sn	118	1	nogas	99.993	2.530	621021	1.07	100	100.0	90	110	
Ba	137	1	nogas	97.848	4.229	295975	1.28	100	97.8	90	110	
Sb	121	2	He	101.849	2.619	110126	0.68	100	101.8	90	110	
Li	7	1	nogas	97.464	4.331	879447	2.01	100	97.5	90	110	
P	31	1	nogas	197.099	7.542	481895	1.69	500	39.4	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	95.927	7.887	307	9.96	100	95.9	90	110	
Au	197	1	nogas	-6.066	-674.743	13	43.30	100	-6.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	427434	2.59	422913	101.07	70	125	
Ge	72	1	nogas	1697153	0.74	1623145	104.56	70	125	
In	115	1	nogas	1835009	3.04	1725651	106.34	70	125	
Bi	209	1	nogas	1724521	1.40	1623810	106.20	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	136077	2.91	132260	102.89	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	248_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T18:30:25-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.477	3.028	285215	0.51	100	91.5	90	110	
Na	23	1	nogas	12486.196	2.420	146055362	1.92	10000	124.9	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	10925.962	6.214	86817108	5.61	10000	109.3	90	110	
Al	27	1	nogas	88.938	3.260	1112383	4.11	100	88.9	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9592.089	1.268	98998098	0.11	10000	95.9	90	110	
Ti	47	1	nogas	91.299	2.617	94204	2.24	100	91.3	90	110	
V	51	1	nogas	88.325	4.702	2359548	2.38	100	88.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	88.912	2.134	1239335	0.93	100	88.9	90	110	CCV Main CR1-2 Failed
Mn	55	1	nogas	92.742	1.826	1554721	1.27	100	92.7	90	110	
Co	59	1	nogas	87.568	0.883	1298906	0.57	100	87.6	90	110	CCV Main CR1-2 Failed
Ni	60	1	nogas	90.228	1.676	302757	2.36	100	90.2	90	110	
Cu	63	1	nogas	93.117	1.476	753059	2.01	100	93.1	90	110	
Zn	66	1	nogas	97.221	1.738	251424	1.14	100	97.2	90	110	
As	75	1	nogas	87.657	3.961	404645	2.43	100	87.7	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	95.285	2.457	1597064	1.87	100	95.3	90	110	
Ag	107	1	nogas	93.476	4.148	939355	4.24	100	93.5	90	110	
Cd	111	1	nogas	98.528	0.811	199788	1.48	100	98.5	90	110	
Sb	121	1	nogas	99.146	2.630	864925	1.60	100	99.1	90	110	
Tl	205	1	nogas	100.555	6.028	1673022	2.98	100	100.6	90	110	
Pb	208	1	nogas	92.602	0.449	2329398	0.45	100	92.6	90	110	
U	238	1	nogas	101.516	2.304	2435610	4.21	100	101.5	90	110	
[Pb]	206	1	nogas	101.447	5.565	575801	2.57	100	101.4	90	110	
[Pb]	207	1	nogas	100.201	3.659	523408	1.40	100	100.2	90	110	
Na	23	2	He	10468.875	2.109	2988326	2.08	10000	104.7	90	110	
Mg	24	2	He	9305.514	3.224	1210769	2.62	10000	93.1	90	110	
Al	27	2	He	89.774	8.552	3480	6.53	100	89.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	8550.053	0.477	612178	0.47	10000	85.5	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9083.832	10.471	2227	12.32	10000	90.8	90	110	
Ca	44	2	He	8507.723	2.094	34556	2.58	10000	85.1	90	110	CCV Main CR1-2 Failed
V	51	2	He	94.725	1.560	132099	0.80	100	94.7	90	110	
Cr	52	2	He	90.065	1.826	179144	0.77	100	90.1	90	110	
Mn	55	2	He	88.933	3.145	68053	3.47	100	88.9	90	110	CCV Main CR1-2 Failed
Fe	56	2	He	8675.579	2.050	14116549	3.36	10000	86.8	90	110	CCV Main CR1-2 Failed
Co	59	2	He	92.240	1.940	302078	2.16	100	92.2	90	110	
Ni	60	2	He	89.310	2.532	86957	2.57	100	89.3	90	110	CCV Main CR1-2 Failed
Cu	63	2	He	89.394	4.114	242350	2.06	100	89.4	90	110	CCV Main CR1-2 Failed
Zn	66	2	He	93.598	2.735	36337	0.98	100	93.6	90	110	
As	75	2	He	94.856	2.526	24077	1.01	100	94.9	90	110	
Se	78	2	He	91.559	5.483	925	3.24	100	91.6	90	110	
B	11	1	nogas	714.140	4.897	1500035	3.31	500	142.8	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4720.575	2.699	25409016	2.77	5000	94.4	90	110	
Ca	43	1	nogas	9390.372	2.373	191928	1.63	10000	93.9	90	110	
Ca	44	1	nogas	4527.655	4.673	3181822	1.02	10000	45.3	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9325.745	1.027	146043882	0.70	10000	93.3	90	110	
Se	77	1	nogas	80.540	17.096	59290	4.45	100	80.5	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	91.035	3.269	13612	2.57	100	91.0	90	110	
Mo	95	1	nogas	92.378	4.018	347616	3.04	100	92.4	90	110	
Sn	118	1	nogas	103.114	3.705	550965	1.82	100	103.1	90	110	
Ba	137	1	nogas	99.523	2.359	259176	1.64	100	99.5	90	110	
Sb	121	2	He	97.706	1.989	97667	0.35	100	97.7	90	110	
Li	7	1	nogas	99.699	3.191	720005	2.50	100	99.7	90	110	
P	31	1	nogas	172.946	8.881	428850	1.34	500	34.6	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	84.778	18.988	237	16.00	100	84.8	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	42.124	425.857	17	124.90	100	42.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	342395	3.54	422913	80.96	70	125	
Ge	72	1	nogas	1570101	1.17	1623145	96.73	70	125	
In	115	1	nogas	1578809	1.93	1725651	91.49	70	125	
Bi	209	1	nogas	1461900	3.08	1623810	90.03	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	125762	2.31	132260	95.09	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	249_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T18:32:21-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.103	9.2	353	7.1	1	
Na	23	1	nogas	999.159	3.9	13677756	0.9	100	CCB Main CR1 Failed
Mg	24	1	nogas	12.508	12.0	103333	10.9	100	
Al	27	1	nogas	-1.766	-6.2	16444	3.7	5	
K	39	1	nogas	7.422	427.2	5201086	0.8	100	
Ti	47	1	nogas	-0.262	-31.4	340	25.5	2.5	
V	51	1	nogas	7.477	61.3	896615	4.1	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.599	-15.2	25685	0.6	2.5	
Mn	55	1	nogas	0.842	5.2	17392	1.9	2.5	
Co	59	1	nogas	0.062	25.9	1177	22.4	2.5	
Ni	60	1	nogas	0.554	4.6	5067	3.4	2.5	
Cu	63	1	nogas	-0.098	-15.3	6288	6.6	2.5	
Zn	66	1	nogas	0.251	18.7	1960	8.0	2.5	
As	75	1	nogas	4.070	103.7	145606	3.9	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.188	4.3	3907	2.1	2.5	
Ag	107	1	nogas	0.074	3.5	1200	2.9	2.5	
Cd	111	1	nogas	0.065	42.3	133	37.0	1	
Sb	121	1	nogas	0.788	16.2	9019	13.8	2.5	
Tl	205	1	nogas	0.300	31.7	5004	29.4	1	
Pb	208	1	nogas	0.066	32.9	2150	25.3	2.5	
U	238	1	nogas	0.081	32.8	1970	30.1	2.5	
[Pb]	206	1	nogas	0.064	33.0	470	24.5	2.5	
[Pb]	207	1	nogas	0.085	44.0	540	33.8	2.5	
Na	23	2	He	873.534	3.3	297387	1.4	100	CCB Main CR1 Failed
Mg	24	2	He	7.482	16.2	1150	10.7	100	
Al	27	2	He	-2.386	-33.8	60	44.1	5	
K	39	2	He	-15.098	-31.9	14162	2.4	100	
Ca	43	2	He	-90.186	-28.8	3	173.2	100	
Ca	44	2	He	-52.183	-40.1	227	32.5	100	
V	51	2	He	-0.113	-38.0	564	10.2	2.5	
Cr	52	2	He	0.192	37.4	1390	6.1	2.5	
Mn	55	2	He	0.181	61.0	267	34.0	2.5	
Fe	56	2	He	4.537	3.4	10740	3.2	100	
Co	59	2	He	0.051	18.9	167	19.3	2.5	
Ni	60	2	He	-0.357	-17.8	297	17.0	2.5	
Cu	63	2	He	-0.403	-3.8	523	8.8	2.5	
Zn	66	2	He	0.069	119.4	53	54.1	2.5	
As	75	2	He	0.054	130.0	32	57.0	2.5	
Se	78	2	He	-0.487	-100.2	5	86.6	2.5	
B	11	1	nogas	131.383	3.6	298235	5.2	10	CCB Main CR1 Failed
Si	28	1	nogas	-11.723	-140.7	1648446	1.7	5	
Ca	43	1	nogas	-19.267	-50.6	1397	10.4	100	
Ca	44	1	nogas	-5222.876	-0.4	139269	0.3	100	
Fe	56	1	nogas	29.861	24.5	1042157	11.4	100	
Se	77	1	nogas	34.381	37.2	46927	3.2	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.512	130.6	470	16.6	2.5	
Mo	95	1	nogas	0.128	38.3	810	24.8	2.5	
Sn	118	1	nogas	0.142	16.8	1727	6.4	5	
Ba	137	1	nogas	0.088	36.6	317	21.0	2.5	

Continuing Calibration Blank (CCB) Report

Sb	121	2	He	0.798	8.9	990	5.6	2.5	
P	31	1	nogas	-322.089	-2.3	77702	1.8	10	
La	139	1	nogas	26.342	23.2	97	15.8	2.5	CCB Main CR1 Failed
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Au	197	1	nogas	71.440	208.4	20	86.6	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	365439	2.05	422913	86.41	70	125	
Ge	72	1	nogas	1493046	4.87	1623145	91.98	70	125	
In	115	1	nogas	1578902	6.04	1725651	91.50	70	125	
Bi	209	1	nogas	1441183	2.55	1623810	88.75	70	125	
Ge	72	2	He	118430	3.70	132260	89.54	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	258_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T18:50:11-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	90.470	1.313	340525	1.54	100	90.5	90	110	
Na	23	1	nogas	12438.829	1.134	173008083	1.83	10000	124.4	90	110	CCV Main CR1-2 Failed
Mg	24	1	nogas	11161.594	2.454	105438086	0.12	10000	111.6	90	110	CCV Main CR1-2 Failed
Al	27	1	nogas	94.902	7.475	1380367	3.64	100	94.9	90	110	
K	39	1	nogas	9476.155	2.842	114220086	1.09	10000	94.8	90	110	
Ti	47	1	nogas	95.892	2.800	115441	1.43	100	95.9	90	110	
V	51	1	nogas	90.911	7.502	2805845	2.71	100	90.9	90	110	
Cr	52	1	nogas	95.075	7.158	1542413	3.69	100	95.1	90	110	
Mn	55	1	nogas	96.804	2.530	1893854	1.23	100	96.8	90	110	
Co	59	1	nogas	93.175	7.285	1611103	3.49	100	93.2	90	110	
Ni	60	1	nogas	89.843	5.015	351630	1.81	100	89.8	90	110	CCV Main CR1-2 Failed
Cu	63	1	nogas	92.081	4.727	868697	1.21	100	92.1	90	110	
Zn	66	1	nogas	96.142	3.004	290179	0.85	100	96.1	90	110	
As	75	1	nogas	86.171	8.434	466737	2.00	100	86.2	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	102.380	2.718	2002712	1.07	100	102.4	90	110	
Ag	107	1	nogas	95.852	4.267	1123650	0.56	100	95.9	90	110	
Cd	111	1	nogas	99.821	0.868	236940	1.49	100	99.8	90	110	
Sb	121	1	nogas	99.434	3.678	1012227	0.18	100	99.4	90	110	
Tl	205	1	nogas	102.065	2.404	1942796	3.18	100	102.1	90	110	
Pb	208	1	nogas	108.735	2.216	2735139	2.22	100	108.7	90	110	
U	238	1	nogas	104.394	4.828	2859381	1.71	100	104.4	90	110	
[Pb]	206	1	nogas	101.172	3.959	656491	0.93	100	101.2	90	110	
[Pb]	207	1	nogas	100.926	4.384	602390	1.33	100	100.9	90	110	
Na	23	2	He	10361.134	2.178	3403729	0.93	10000	103.6	90	110	
Mg	24	2	He	9387.399	4.120	1405426	3.45	10000	93.9	90	110	
Al	27	2	He	92.501	7.320	4127	8.25	100	92.5	90	110	
K	39	2	He	10072.572	0.352	718479	0.34	10000	100.7	90	110	
Ca	43	2	He	8515.399	5.502	2400	5.05	10000	85.2	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	8822.817	2.561	41213	2.36	10000	88.2	90	110	CCV Main CR1-2 Failed
V	51	2	He	98.364	2.364	157809	1.73	100	98.4	90	110	
Cr	52	2	He	92.171	1.297	210950	1.18	100	92.2	90	110	
Mn	55	2	He	89.809	0.625	79073	0.68	100	89.8	90	110	CCV Main CR1-2 Failed
Fe	56	2	He	8983.534	1.520	16817661	2.14	10000	89.8	90	110	CCV Main CR1-2 Failed
Co	59	2	He	94.894	1.774	357566	0.83	100	94.9	90	110	
Ni	60	2	He	91.722	1.097	102745	1.26	100	91.7	90	110	
Cu	63	2	He	91.003	0.482	283991	1.38	100	91.0	90	110	
Zn	66	2	He	91.817	0.522	41030	1.66	100	91.8	90	110	
As	75	2	He	94.667	0.438	27656	0.78	100	94.7	90	110	
Se	78	2	He	90.081	6.639	1048	5.46	100	90.1	90	110	
B	11	1	nogas	711.153	4.194	1803348	3.77	500	142.2	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4709.313	3.911	29583545	2.14	5000	94.2	90	110	
Ca	43	1	nogas	9424.215	2.753	224828	1.99	10000	94.2	90	110	
Ca	44	1	nogas	4606.598	12.834	3739564	1.97	10000	46.1	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9617.424	6.589	175583987	2.83	10000	96.2	90	110	
Se	77	1	nogas	70.621	29.022	66679	5.42	100	70.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.442	6.560	16788	2.95	100	96.4	90	110	
Mo	95	1	nogas	94.451	6.084	414524	2.36	100	94.5	90	110	
Sn	118	1	nogas	103.039	1.359	644701	1.16	100	103.0	90	110	
Ba	137	1	nogas	101.541	1.237	309553	0.43	100	101.5	90	110	
Sb	121	2	He	97.393	0.751	112051	1.82	100	97.4	90	110	
Li	7	1	nogas	100.060	1.936	872134	2.69	100	100.1	90	110	
P	31	1	nogas	160.983	14.845	490615	0.27	500	32.2	90	110	CCV Main CR1-2 Failed
La	139	1	nogas	91.687	24.549	297	21.67	100	91.7	90	110	
Au	197	1	nogas	45.737	9.961	20	0.00	100	45.7	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	413054	0.96	422913	97.67	70	125	
Ge	72	1	nogas	1833510	3.73	1623145	112.96	70	125	
In	115	1	nogas	1848024	1.32	1725651	107.09	70	125	
Bi	209	1	nogas	1670739	3.09	1623810	102.89	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	144697	1.22	132260	109.40	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	259_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T18:52:08-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.085	37.4	357	38.2	1	
Na	23	1	nogas	1015.403	4.4	17161919	2.0	100	CCB Main CR1 Failed
Mg	24	1	nogas	10.533	7.5	108833	8.8	100	
Al	27	1	nogas	-1.751	-1.0	20271	1.6	5	
K	39	1	nogas	-60.267	-8.4	5578329	0.5	100	
Ti	47	1	nogas	-0.334	-21.8	327	24.9	2.5	
V	51	1	nogas	10.807	13.4	1162044	3.6	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.613	-4.0	31093	2.3	2.5	
Mn	55	1	nogas	0.689	2.4	18229	3.1	2.5	
Co	59	1	nogas	0.061	30.6	1397	21.4	2.5	
Ni	60	1	nogas	0.535	2.9	6101	2.3	2.5	
Cu	63	1	nogas	-0.219	-6.9	6531	3.2	2.5	
Zn	66	1	nogas	0.204	26.1	2247	7.5	2.5	
As	75	1	nogas	0.264	550.6	164502	4.1	2.5	
Sr	88	1	nogas	0.285	2.2	6651	2.2	2.5	
Ag	107	1	nogas	0.054	55.6	1217	26.9	2.5	
Cd	111	1	nogas	0.063	37.5	153	33.5	1	
Sb	121	1	nogas	0.777	27.5	10840	18.5	2.5	
Tl	205	1	nogas	0.274	30.2	5468	28.1	1	
Pb	208	1	nogas	0.082	14.2	2570	11.5	2.5	
U	238	1	nogas	0.068	29.9	2000	27.2	2.5	
[Pb]	206	1	nogas	0.082	26.0	680	19.2	2.5	
[Pb]	207	1	nogas	0.073	20.9	573	14.8	2.5	
Na	23	2	He	869.834	3.4	369996	0.7	100	CCB Main CR1 Failed
Mg	24	2	He	7.149	10.4	1387	7.5	100	
Al	27	2	He	-2.283	-27.7	80	33.1	5	
K	39	2	He	-4.587	-112.8	14896	2.4	100	
Ca	43	2	He	-35.299	-96.7	20	50.0	100	
Ca	44	2	He	-68.429	-18.8	207	26.7	100	
V	51	2	He	-0.132	-18.9	673	7.1	2.5	
Cr	52	2	He	0.004	477.9	1303	4.7	2.5	
Mn	55	2	He	0.092	30.9	250	8.0	2.5	
Fe	56	2	He	3.778	13.9	11941	6.1	100	
Co	59	2	He	0.056	20.9	227	18.4	2.5	
Ni	60	2	He	-0.370	-1.8	357	4.3	2.5	
Cu	63	2	He	-0.429	-3.9	570	8.8	2.5	
Zn	66	2	He	0.089	37.7	77	19.9	2.5	
As	75	2	He	0.058	109.0	41	47.5	2.5	
Se	78	2	He	-0.651	-30.8	5	49.5	2.5	
B	11	1	nogas	213.589	2.1	578683	0.7	10	CCB Main CR1 Failed
Si	28	1	nogas	-86.287	-8.2	1577621	1.3	5	
Ca	43	1	nogas	-34.190	-19.0	1357	11.7	100	
Ca	44	1	nogas	-5295.794	-0.1	143511	0.6	100	
Fe	56	1	nogas	30.000	2.9	1271455	0.5	100	
Se	77	1	nogas	18.430	35.2	53275	4.3	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.533	-83.3	400	19.5	2.5	
Mo	95	1	nogas	0.124	21.8	963	11.0	2.5	
Sn	118	1	nogas	0.114	49.4	1853	15.7	5	
Ba	137	1	nogas	0.065	28.9	307	16.7	2.5	

Continuing Calibration Blank (CCB) Report

Sb	121	2	He	0.579	8.9	980	5.7	2.5	
P	31	1	nogas	-331.797	-0.5	86902	1.8	10	
La	139	1	nogas	27.362	39.7	117	26.2	2.5	CCB Main CR1 Failed
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Au	197	1	nogas	64.412	125.0	23	49.5	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	438765	2.27	422913	103.75	70	125	
Ge	72	1	nogas	1817663	1.34	1623145	111.98	70	125	
In	115	1	nogas	1861060	3.26	1725651	107.85	70	125	
Bi	209	1	nogas	1720493	1.88	1623810	105.95	70	125	
Ge	72	2	He	147794	2.27	132260	111.74	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	260LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T18:54:07-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.398	4.151	18449	2.68	5	88.0	70	130	
Na	23	1	nogas	1501.091	3.608	24368313	2.83	500	300.2	70	130	LLICV Main CR1 Failed
Mg	24	1	nogas	581.806	3.644	5752633	3.13	500	116.4	70	130	
Al	27	1	nogas	3.968	2.348	99822	0.81	5	79.4	70	130	
K	39	1	nogas	475.342	2.172	11587389	0.38	500	95.1	70	130	
Ti	47	1	nogas	5.185	3.715	6851	2.29	5	103.7	70	130	
V	51	1	nogas	21.387	7.591	1371521	3.51	5	427.7	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	4.587	1.979	112247	2.37	5	91.7	70	130	
Mn	55	1	nogas	5.750	1.277	115788	1.07	5	115.0	70	130	
Co	59	1	nogas	5.005	4.113	85962	2.96	5	100.1	70	130	
Ni	60	1	nogas	5.356	2.884	24527	3.54	5	107.1	70	130	
Cu	63	1	nogas	4.721	3.492	52148	3.70	5	94.4	70	130	
Zn	66	1	nogas	5.150	4.415	16911	4.04	5	103.0	70	130	
As	75	1	nogas	9.189	12.828	194856	3.22	5	183.8	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	5.494	1.913	107265	0.77	5	109.9	70	130	
Ag	107	1	nogas	5.373	0.751	62842	0.66	5	107.5	70	130	
Cd	111	1	nogas	5.240	2.791	13078	2.87	5	104.8	70	130	
Sb	121	1	nogas	5.608	2.599	59285	1.71	5	112.2	70	130	
Tl	205	1	nogas	5.037	1.679	101707	0.46	5	100.7	70	130	
Pb	208	1	nogas	5.660	1.840	142846	1.83	5	113.2	70	130	
U	238	1	nogas	5.068	0.729	147313	1.48	5	101.4	70	130	
[Pb]	206	1	nogas	5.089	0.727	35152	0.91	5	101.8	70	130	
[Pb]	207	1	nogas	4.813	3.080	30582	2.23	5	96.3	70	130	
Na	23	2	He	1318.061	2.464	506235	0.91	500	263.6	70	130	LLICV Main CR1 Failed
Mg	24	2	He	494.130	0.919	74310	1.62	500	98.8	70	130	
Al	27	2	He	2.735	71.370	293	28.99	5	54.7	70	130	LLICV Main CR1 Failed
K	39	2	He	518.443	1.796	51414	1.26	500	103.7	70	130	
Ca	43	2	He	397.269	15.576	140	12.37	500	79.5	70	130	
Ca	44	2	He	398.829	11.641	2360	9.37	500	79.8	70	130	
V	51	2	He	4.917	2.735	8723	3.89	5	98.3	70	130	
Cr	52	2	He	4.793	1.104	12178	1.76	5	95.9	70	130	
Mn	55	2	He	4.738	9.372	4327	8.09	5	94.8	70	130	
Fe	56	2	He	445.338	4.477	838213	3.07	500	89.1	70	130	
Co	59	2	He	4.997	4.354	18847	3.17	5	99.9	70	130	
Ni	60	2	He	4.463	4.137	5728	4.59	5	89.3	70	130	
Cu	63	2	He	4.259	1.486	15097	0.43	5	85.2	70	130	
Zn	66	2	He	4.700	8.364	2134	7.28	5	94.0	70	130	
As	75	2	He	5.049	3.336	1498	3.98	5	101.0	70	130	
Se	78	2	He	4.440	28.093	63	24.12	5	88.8	70	130	
B	11	1	nogas	223.403	1.298	634854	2.46	25	893.6	70	130	LLICV Main CR1 Failed
Si	28	1	nogas	172.374	3.995	3064745	0.28	25	689.5	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	458.272	0.691	12851	1.06	500	91.7	70	130	
Ca	44	1	nogas	-4754.092	-0.256	337572	1.78	500	-950.8	70	130	LLICV Main CR1 Failed
Fe	56	1	nogas	551.068	1.997	10638870	0.87	500	110.2	70	130	
Se	77	1	nogas	43.748	18.262	59340	4.45	5	875.0	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.348	18.856	1213	10.63	5	87.0	70	130	
Mo	95	1	nogas	5.006	2.865	22137	2.80	5	100.1	70	130	
Sn	118	1	nogas	5.156	2.823	35043	1.99	5	103.1	70	130	
Ba	137	1	nogas	5.185	2.960	16722	2.19	5	103.7	70	130	
Sb	121	2	He	5.490	5.167	6598	4.68	5	109.8	70	130	
Li	7	1	nogas	5.781	8.031	96398	3.11	5	115.6	70	130	
P	31	1	nogas	-301.838	-0.716	110817	1.09	25	-1207.4	70	130	LLICV Main CR1 Failed
La	139	1	nogas	30.112	45.046	130	30.77	5	602.2	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	108.482	193.418	30	100.00	5	2169.6	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	460208	1.44	422913	108.82	70	125	
Ge	72	1	nogas	1811225	1.13	1623145	111.59	70	125	
In	115	1	nogas	1942487	0.80	1725651	112.57	70	125	
Bi	209	1	nogas	1770501	1.54	1623810	109.03	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	144780	1.44	132260	109.47	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	261SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T18:56:07-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.765	1.765	2.84	7508	0.02	2000	
Na	23	1	nogas	1087.974	1087.974	5.84	17741628	0.01	200000	
Mg	24	1	nogas	238.634	238.634	7.38	2270449	0.01	200000	
Al	27	1	nogas	0.539	0.539	16.22	51133	0.00	2000	
K	39	1	nogas	163.305	163.305	13.36	7925269	0.00	200000	
Ti	47	1	nogas	1.676	1.676	2.15	2654	0.06	2000	
V	51	1	nogas	18.715	18.715	18.94	1292607	0.00	2000	
Cr	52	1	nogas	1.523	1.523	3.70	63178	0.00	2000	
Mn	55	1	nogas	2.635	2.635	1.39	54692	0.00	2000	
Co	59	1	nogas	2.047	2.047	4.90	34707	0.01	2000	
Ni	60	1	nogas	2.247	2.247	7.28	12394	0.02	2000	
Cu	63	1	nogas	1.697	1.697	7.30	23746	0.01	2000	
Zn	66	1	nogas	2.058	2.058	5.23	7602	0.03	2000	
As	75	1	nogas	6.366	6.366	44.36	181575	0.00	2000	
Sr	88	1	nogas	2.260	2.260	6.62	43921	0.01	2000	
Ag	107	1	nogas	2.061	2.061	1.46	24034	0.01	2000	
Cd	111	1	nogas	1.974	1.974	1.37	4837	0.04	2000	
Sb	121	1	nogas	2.281	2.281	4.70	25429	0.01	2000	
Tl	205	1	nogas	2.039	2.039	0.81	39307	0.01	2000	
Pb	208	1	nogas	2.239	2.239	0.49	56800	0.00	2000	
U	238	1	nogas	2.071	2.071	2.28	57401	0.00	2000	
[Pb]	206	1	nogas	2.086	2.086	0.81	13806	0.02	2000	
[Pb]	207	1	nogas	2.090	2.090	1.08	12728	0.02	2000	
Na	23	2	He	899.497	899.497	2.13	381033	0.24	200000	
Mg	24	2	He	191.373	191.373	2.12	29650	0.65	200000	
Al	27	2	He	-0.477	-0.477	-193.98	160	-0.30	2000	
K	39	2	He	197.171	197.171	1.89	28983	0.68	200000	
Ca	43	2	He	245.107	245.107	37.78	100	245.11	200000	
Ca	44	2	He	106.331	106.331	18.25	1033	10.29	200000	
V	51	2	He	1.755	1.755	3.76	3761	0.05	2000	
Cr	52	2	He	1.874	1.874	10.33	5661	0.03	2000	
Mn	55	2	He	1.917	1.917	5.88	1893	0.10	2000	
Fe	56	2	He	173.315	173.315	1.67	337086	0.05	200000	
Co	59	2	He	1.891	1.891	8.76	7305	0.03	2000	
Ni	60	2	He	1.498	1.498	5.14	2487	0.06	2000	
Cu	63	2	He	1.388	1.388	9.81	6338	0.02	2000	
Zn	66	2	He	1.946	1.946	14.01	927	0.21	2000	
As	75	2	He	1.981	1.981	12.14	616	0.32	2000	
Se	78	2	He	0.928	0.928	64.03	23	3.98	2000	
B	11	1	nogas	184.227	184.227	4.17	530853	0.03	2000	
Si	28	1	nogas	8.363	8.363	79.01	2079475	0.00	2000	
Ca	43	1	nogas	172.222	172.222	12.72	6054	2.84	200000	
Ca	44	1	nogas	-5084.238	-5084.238	-0.37	214915	-2.37	200000	
Fe	56	1	nogas	241.000	241.000	1.61	4969566	0.00	200000	

Sample Report

Se	77	1	nogas	40.032	40.032	37.08	57297	0.07	2000	
Se	82	1	nogas	1.971	1.971	33.69	800	0.25	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	1.937	1.937	5.95	8666	0.02	2000	
Sn	118	1	nogas	2.067	2.067	4.00	14493	0.01	2000	
Ba	137	1	nogas	1.942	1.942	4.73	6215	0.03	2000	
Sb	121	2	He	2.294	2.294	2.93	3000	0.08	2000	
La	139	1	nogas	10.187	10.187	116.48	70	14.55	2000	
Au	197	1	nogas	46.054	46.054	550.97	20	230.27	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	466106	1.79	422913	110.21	70	125	
Ge	72	1	nogas	1778339	2.60	1623145	109.56	70	125	
In	115	1	nogas	1906316	1.94	1725651	110.47	70	125	
Bi	209	1	nogas	1687032	1.08	1623810	103.89	70	125	
Ge	72	2	He	148283	1.74	132260	112.11	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	262ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T18:58:05-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.018	34.2	83	30.2	0	ICSA Main CR1 Failed
Na	23	1	nogas	113231.175	1.2	1420259998	0.9	0	
Mg	24	1	nogas	108610.334	2.4	938747021	1.7	0	
Al	27	1	nogas	81909.290	3.4	1073601904	1.8	0	
K	39	1	nogas	94857.106	1.9	1011129089	0.6	0	
Ti	47	1	nogas	1896.911	0.1	2113078	2.4	0	
V	51	1	nogas	16.006	2.4	1188967	1.7	0	
Cr	52	1	nogas	-0.148	-32.4	36009	0.4	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.952	3.1	21880	1.4	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.089	20.4	1770	16.2	0	ICSA Main CR1 Failed
Ni	60	1	nogas	0.877	7.6	6951	2.3	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.462	17.1	12047	5.8	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.691	7.2	6258	4.1	0	ICSA Main CR1 Failed
As	75	1	nogas	16.114	6.2	206048	1.9	0	
Sr	88	1	nogas	1.159	1.7	22141	2.1	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.017	32.2	750	8.1	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.177	2.6	2607	5.0	0	ICSA Main CR1 Failed
Sb	121	1	nogas	0.053	33.3	3340	5.0	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.033	30.2	680	25.5	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.085	15.9	2637	12.9	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.087	19.0	650	15.6	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.089	29.3	607	24.3	0	ICSA Main CR1 Failed
Na	23	2	He	89322.873	1.0	26385367	1.5	0	
Mg	24	2	He	88968.221	1.2	12241041	1.5	0	
Al	27	2	He	78995.413	0.4	3099613	2.1	0	
K	39	2	He	91906.033	1.2	6432058	1.2	0	
Ca	43	2	He	77074.113	1.8	19757	3.7	0	
Ca	44	2	He	83320.060	4.5	353478	2.2	0	
V	51	2	He	-0.101	-28.2	651	5.8	0	ICSA Main CR1 Failed
Cr	52	2	He	0.251	36.8	1690	12.8	0	ICSA Main CR1 Failed
Mn	55	2	He	0.235	35.3	340	18.4	0	ICSA Main CR1 Failed
Fe	56	2	He	84878.255	3.7	145932778	2.0	0	
Co	59	2	He	0.018	26.7	73	20.8	0	ICSA Main CR1 Failed
Ni	60	2	He	-0.394	-17.8	297	23.7	0	ICSA Main CR1 Failed
Cu	63	2	He	-0.241	-12.3	1050	9.4	0	ICSA Main CR1 Failed
Zn	66	2	He	0.644	1.0	297	1.9	0	ICSA Main CR1 Failed
As	75	2	He	0.126	95.0	54	56.9	0	ICSA Main CR1 Failed
Se	78	2	He	-0.230	-46.6	9	13.3	0	ICSA Main CR1 Failed
B	11	1	nogas	161.171	2.7	418408	4.4	0	
Si	28	1	nogas	5.723	196.6	1980067	2.1	0	ICSA Main CR1 Failed
Ca	43	1	nogas	95761.690	2.7	2107149	1.2	0	
Ca	44	1	nogas	91646.615	2.0	32915523	1.8	0	
Fe	56	1	nogas	93034.075	3.6	1575999569	2.3	0	
Se	77	1	nogas	101.828	5.1	69355	0.5	0	
Se	82	1	nogas	0.576	47.4	550	9.6	0	ICSA Main CR1 Failed
Mo	95	1	nogas	1913.910	4.5	7812931	2.3	0	
Sn	118	1	nogas	0.165	156.5	1996	72.3	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.120	6.9	440	6.0	0	ICSA Main CR1 Failed
Sb	121	2	He	0.141	65.6	420	23.4	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	92140.873	2.7	70484624	1.3	0	
La	139	1	nogas	136.266	12.8	393	14.0	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	419008	1.82	422913	99.08	70	125	
Ge	72	1	nogas	1705662	2.27	1623145	105.08	70	125	
In	115	1	nogas	1721230	3.13	1725651	99.74	70	125	
Bi	209	1	nogas	1560016	0.65	1623810	96.07	70	125	
Ge	72	2	He	132995	2.45	132260	100.56	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	263ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-18T19:00:08-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	005CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	76.256	4.671	269028	2.23	100	76.3	80	120	ICSB Main CR1 Failed
Na	23	1	nogas	125983.541	1.282	1479223866	1.21	100	125983.5	80	120	ICSB Main CR1 Failed
Mg	24	1	nogas	124857.354	2.831	1010215123	0.89	100	124857.4	80	120	ICSB Main CR1 Failed
Al	27	1	nogas	85879.987	3.382	1041670171	2.89	100	85880.0	80	120	ICSB Main CR1 Failed
K	39	1	nogas	110216.328	1.505	1086304524	1.96	100	110216.3	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2068.995	3.322	2131760	2.83	100	2069.0	80	120	ICSB Main CR1 Failed
V	51	1	nogas	89.997	3.405	2400877	1.78	100	90.0	80	120	ICSB Main CR1 Failed
Cr	52	1	nogas	79.645	1.313	1119542	1.57	100	79.6	80	120	ICSB Main CR1 Failed
Mn	55	1	nogas	86.454	1.450	1456951	1.75	100	86.5	80	120	
Co	59	1	nogas	80.024	5.272	1192787	4.79	100	80.0	80	120	ICSB Main CR1 Failed
Ni	60	1	nogas	81.533	2.762	275235	2.24	100	81.5	80	120	
Cu	63	1	nogas	82.070	0.950	667851	0.50	100	82.1	80	120	
Zn	66	1	nogas	87.780	1.851	228306	2.26	100	87.8	80	120	
As	75	1	nogas	98.745	4.318	440119	2.44	100	98.7	80	120	
Sr	88	1	nogas	91.825	1.432	1546865	0.95	100	91.8	80	120	
Ag	107	1	nogas	82.807	0.453	836345	0.78	100	82.8	80	120	
Cd	111	1	nogas	86.205	1.477	181346	2.44	100	86.2	80	120	
Sb	121	1	nogas	93.373	1.322	818886	1.22	100	93.4	80	120	
Tl	205	1	nogas	86.161	3.189	1429658	1.84	100	86.2	80	120	
Pb	208	1	nogas	81.676	0.986	2054631	0.99	100	81.7	80	120	
U	238	1	nogas	92.599	2.493	2212840	1.08	100	92.6	80	120	
[Pb]	206	1	nogas	87.618	2.084	495971	0.67	100	87.6	80	120	
[Pb]	207	1	nogas	87.579	2.053	456059	1.14	100	87.6	80	120	
Na	23	2	He	99713.489	0.988	28416957	0.97	100	99713.5	80	120	
Mg	24	2	He	99061.441	1.339	13154018	1.57	100	99061.4	80	120	
Al	27	2	He	80545.791	2.265	3049212	0.51	100	80545.8	80	120	ICSB Main CR1 Failed
K	39	2	He	97147.813	1.550	6798037	1.55	100	97147.8	80	120	ICSB Main CR1 Failed
Ca	43	2	He	88600.031	0.909	21910	1.89	100	88600.0	80	120	
Ca	44	2	He	92472.369	1.554	378733	0.56	100	92472.4	80	120	
V	51	2	He	82.561	1.688	117608	1.33	100	82.6	80	120	
Cr	52	2	He	77.939	2.506	158421	3.66	100	77.9	80	120	ICSB Main CR1 Failed
Mn	55	2	He	76.427	0.904	59704	0.96	100	76.4	80	120	ICSB Main CR1 Failed
Fe	56	2	He	94203.397	2.034	156346278	1.06	100	94203.4	80	120	
Co	59	2	He	82.105	5.395	274272	3.63	100	82.1	80	120	
Ni	60	2	He	76.993	3.543	76578	1.86	100	77.0	80	120	ICSB Main CR1 Failed
Cu	63	2	He	75.979	3.354	210507	1.88	100	76.0	80	120	ICSB Main CR1 Failed
Zn	66	2	He	81.279	4.914	32205	3.85	100	81.3	80	120	
As	75	2	He	85.991	3.463	22279	2.84	100	86.0	80	120	
Se	78	2	He	83.845	5.832	867	6.89	100	83.8	80	120	
B	11	1	nogas	532.679	3.283	1267601	0.81	100	532.7	80	120	ICSB Main CR1 Failed
Si	28	1	nogas	4385.977	2.768	23850862	2.09	100	4386.0	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	107147.875	3.676	2181374	3.19	100	107147.9	80	120	
Ca	44	1	nogas	102661.506	2.887	33898430	2.29	100	102661.5	80	120	
Fe	56	1	nogas	107101.991	1.590	1679096271	2.05	100	107102.0	80	120	ICSB Main CR1 Failed
Se	77	1	nogas	174.575	9.307	79814	3.89	100	174.6	80	120	ICSB Main CR1 Failed
Se	82	1	nogas	86.400	6.147	13005	5.59	100	86.4	80	120	
Mo	95	1	nogas	2119.105	1.319	8007957	1.78	100	2119.1	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	90.072	2.341	499511	1.49	100	90.1	80	120	
Ba	137	1	nogas	89.521	0.205	241891	1.54	100	89.5	80	120	
Sb	121	2	He	90.953	1.916	92817	1.81	100	91.0	80	120	
La	139	1	nogas	203.061	5.721	540	6.68	100	203.1	80	120	ICSB Main CR1 Failed

QC ISTD Table

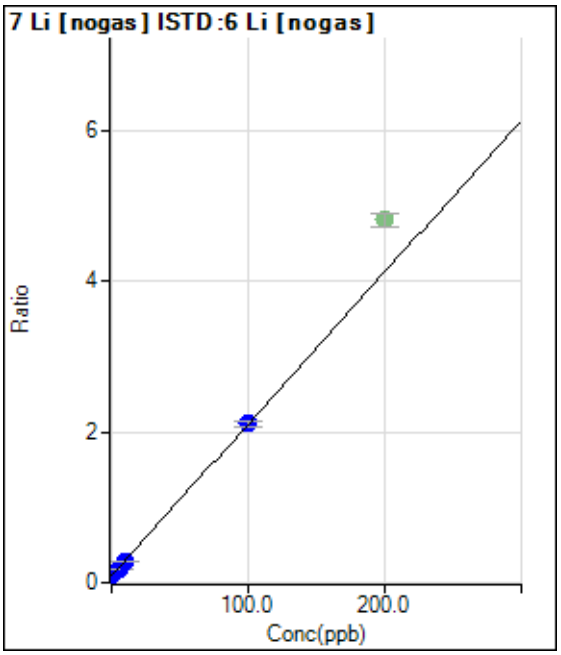
Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	387457	2.65	422913	91.62	70	125	
Ge	72	1	nogas	1577873	0.49	1623145	97.21	70	125	
In	115	1	nogas	1637718	1.40	1725651	94.90	70	125	
Bi	209	1	nogas	1456551	1.43	1623810	89.70	70	125	
Ge	72	2	He	128342	1.75	132260	97.04	70	125	

Calibration for 012_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\121817A.b\
Analysis File: 121817A.batch.bin
DA Date-Time: 2017-12-18 10:24:27
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	005CALB.d	CAL BLK	2017-12-18 10:09:42
2	006CALS.d	2/10/200	2017-12-18 10:11:41
3	007CALS.d	5/25/500	2017-12-18 10:13:41
4	008CALS.d	10/50/1000	2017-12-18 10:15:40
5	009CALS.d	100/500/10K	2017-12-18 10:17:39
6	010CALS.d	200/1000/20K	2017-12-18 10:19:36
7			

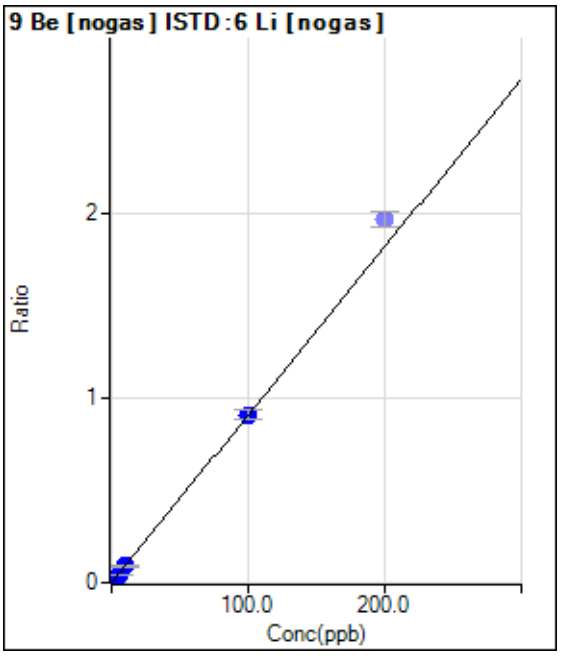
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	39297.54	0.0929	P	4.0
2	☐	2.000	1.705	52697.39	0.1273	P	0.6
3	☐	5.000	4.441	74550.72	0.1825	P	5.8
4	☐	10.000	9.562	118543.66	0.2858	P	2.7
5	☐	100.000	100.078	776525.41	2.1116	P	3.5
6	☑	200.000		1623017.16	4.8211	A	3.8
7	☐	1.000					

y = 0.0202 * x + 0.0929
R = 1.0000
DL = 0.553
BEC = 4.607

Weight: <None>
Min Conc: <None>

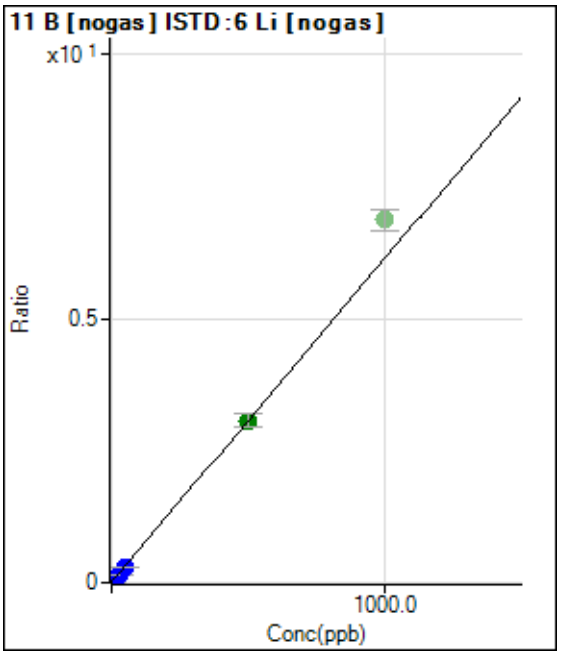


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0000	P	173.
2	☐	2.000	1.831	6911.37	0.0167	P	5.2
3	☐	5.000	4.710	17531.79	0.0429	P	9.0
4	☐	10.000	9.742	36839.40	0.0888	P	1.3
5	☐	100.000	100.044	335055.01	0.9117	P	5.9
6	☑	200.000		663211.76	1.9703	P	4.4
7	☐	1.000					

y = 0.0091 * x + 3.1294E-005
R = 1.0000
DL = 0.01785
BEC = 0.003434

Weight: <None>
Min Conc: <None>

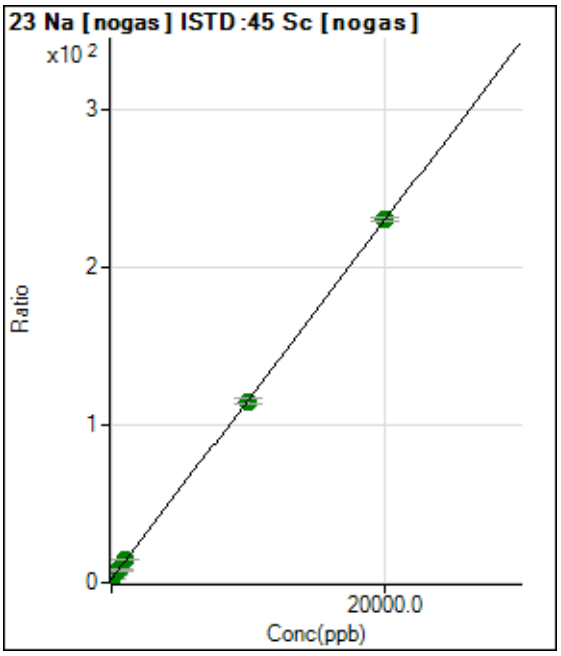
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4740.68	0.0112	P	5.7
2	☐	10.000	8.922	27236.70	0.0659	P	3.5
3	☐	25.000	23.034	62179.04	0.1523	P	7.6
4	☐	50.000	46.382	122481.52	0.2953	P	1.4
5	☐	500.000	500.482	1130293.55	3.0763	A	7.2
6	☑	1000.000		2311974.55	6.8709	A	5.7
7	☐	5.000					

y = 0.0061 * x + 0.0112
R = 1.0000
DL = 0.3118
BEC = 1.831

Weight: <None>
Min Conc: <None>

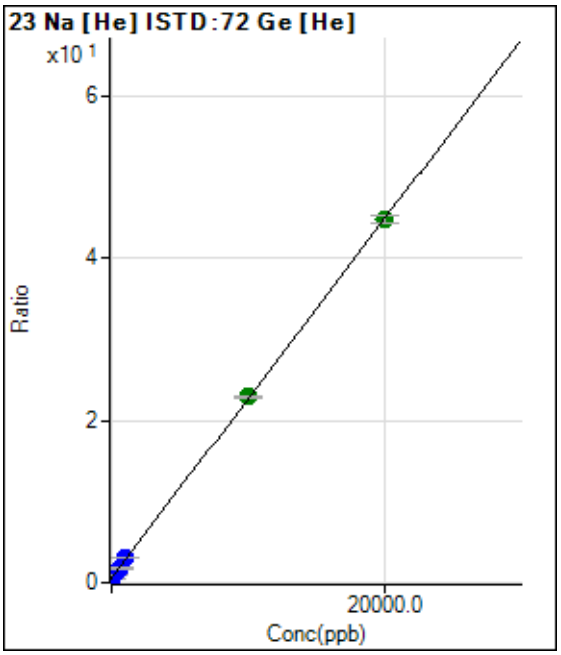


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2932285.48	2.2991	A	3.3
2	☐	200.000	198.068	5781084.24	4.5520	A	2.2
3	☐	500.000	505.804	10159292.15	8.0525	A	3.7
4	☐	1000.000	1052.359	17568829.04	14.2694	A	1.4
5	☐	10000.00	9913.277	139977678.1	115.060	A	3.8
6	☐	20000.00	20040.61	277630522.8	230.256	A	1.2
7	☐	100.000					

y = 0.0114 * x + 2.2991
R = 1.0000
DL = 19.87
BEC = 202.1

Weight: <None>
Min Conc: <None>

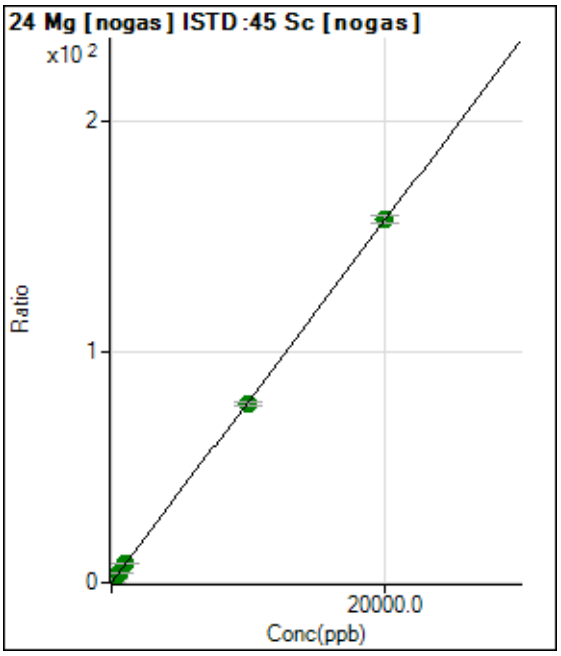
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	76393.27	0.5778	P	3.7
2	☐	200.000	216.192	138982.02	1.0566	P	1.1
3	☐	500.000	536.045	232758.57	1.7651	P	3.0
4	☐	1000.000	1094.453	390221.56	3.0019	P	1.0
5	☐	10000.00	10084.00	2954053.29	22.9134	A	1.9
6	☐	20000.00	19952.21	5847970.33	44.7711	A	2.3
7	☐	100.000					

y = 0.0022 * x + 0.5778
R = 1.0000
DL = 28.83
BEC = 260.8

Weight: <None>
Min Conc: <None>

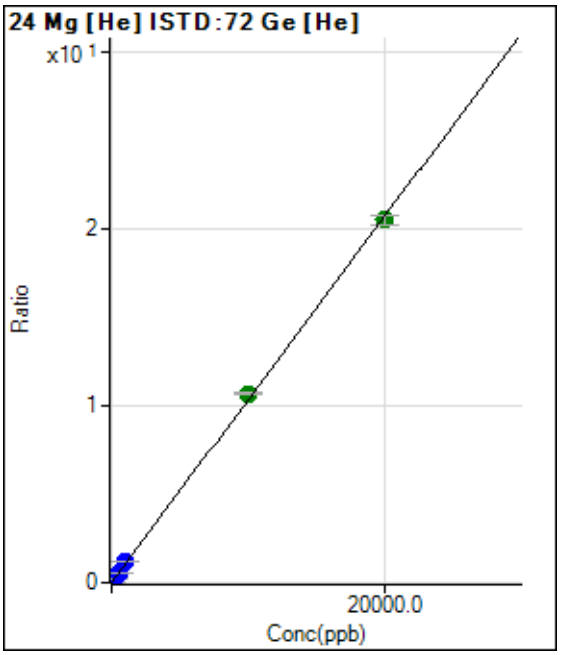


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6368.74	0.0050	P	21.1
2	☐	200.000	211.169	2112695.03	1.6633	A	4.9
3	☐	500.000	528.370	5236850.38	4.1541	A	7.0
4	☐	1000.000	1088.700	10533299.19	8.5543	A	1.1
5	☐	10000.00	9897.496	94580997.95	77.7272	A	2.1
6	☐	20000.00	20045.99	189730216.7	157.420	A	2.1
7	☐	100.000					

y = 0.0079 * x + 0.0050
R = 1.0000
DL = 0.4027
BEC = 0.637

Weight: <None>
Min Conc: <None>

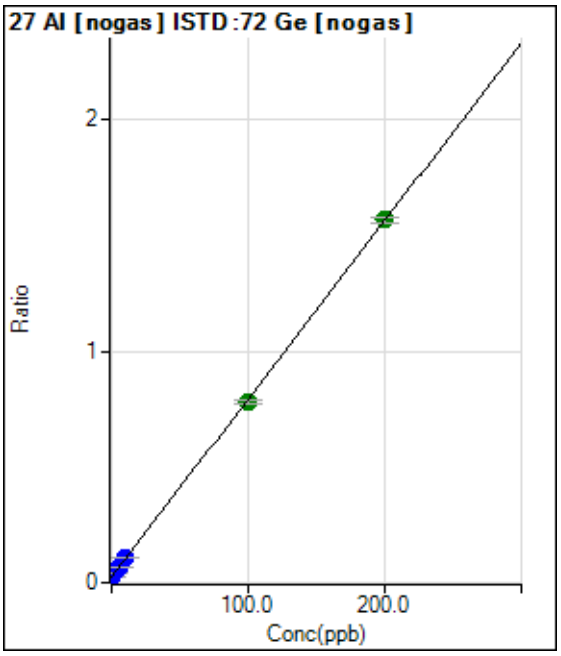
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	263.34	0.0020	P	12.1
2	☐	200.000	214.360	29436.69	0.2238	P	0.9
3	☐	500.000	545.546	74681.12	0.5665	P	5.6
4	☐	1000.000	1118.140	150651.73	1.1589	P	0.9
5	☐	10000.00	10344.05	1380123.57	10.7049	A	1.4
6	☐	20000.00	19820.78	2679021.83	20.5104	A	2.4
7	☐	100.000					

y = 0.0010 * x + 0.0020
R = 0.9998
DL = 0.7003
BEC = 1.924

Weight: <None>
Min Conc: <None>

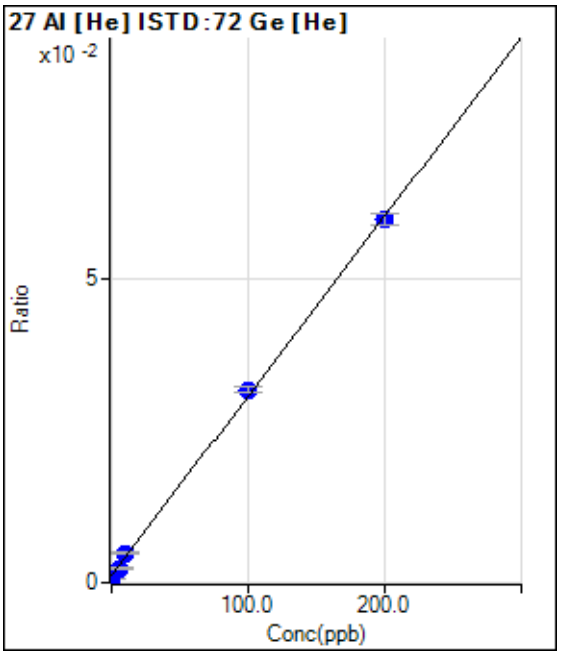


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	39949.07	0.0246	P	2.1
2	☐	2.000	1.886	64892.12	0.0391	P	7.2
3	☐	5.000	5.448	109156.75	0.0665	P	7.6
4	☐	10.000	10.656	176414.00	0.1065	P	3.0
5	☐	100.000	98.646	1270343.11	0.7830	A	2.0
6	☐	200.000	200.634	2557394.54	1.5670	A	1.8
7	☐	1.000					

y = 0.0077 * x + 0.0246
R = 1.0000
DL = 0.1993
BEC = 3.202

Weight: <None>
Min Conc: <None>

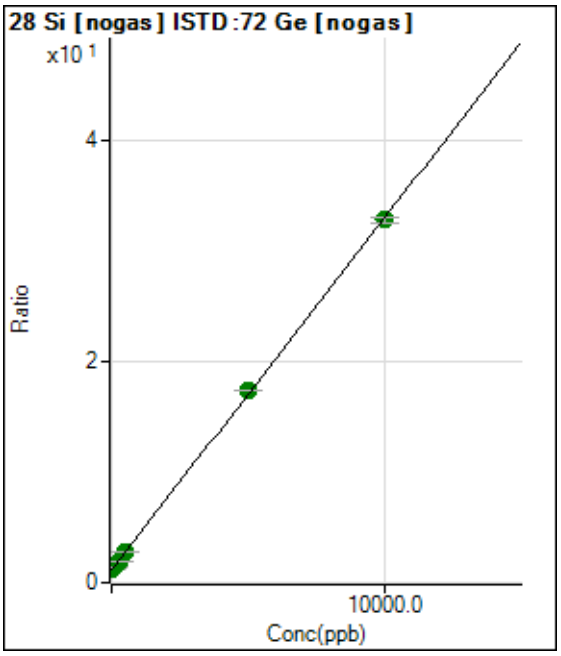
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-2.245	73.33	0.0006	P	20.0
2	☐	2.000	1.546	220.01	0.0017	P	1.2
3	☐	5.000	3.852	310.01	0.0024	P	14.1
4	☐	10.000	12.126	623.35	0.0048	P	8.4
5	☐	100.000	103.590	4097.19	0.0318	P	2.6
6	☐	200.000	198.132	7791.74	0.0597	P	3.2
7	☐	1.000					

y = 2.9503E-004 * x + 0.0012
R = 0.9996
DL = 1.128
BEC = 4.123

Weight: <None>
Min Conc: <None>

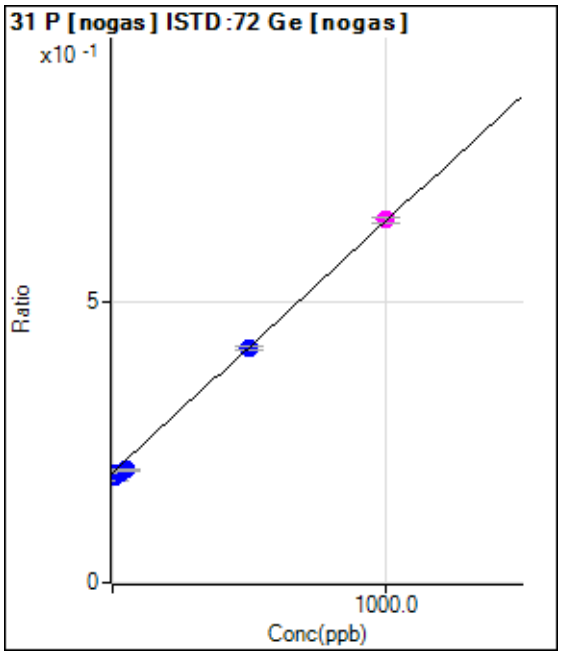


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1855400.02	1.1431	A	1.7
2	☐	100.000	88.276	2365312.41	1.4243	A	3.8
3	☐	250.000	256.266	3216288.80	1.9595	A	1.3
4	☐	500.000	524.902	4662487.43	2.8154	A	1.4
5	☐	5000.000	5104.077	28245402.91	17.4050	A	0.5
6	☐	10000.00	9946.677	53581804.20	32.8338	A	1.8
7	☐	5.000					

y = 0.0032 * x + 1.1431
R = 0.9999
DL = 18.68
BEC = 358.8

Weight: <None>
Min Conc: <None>

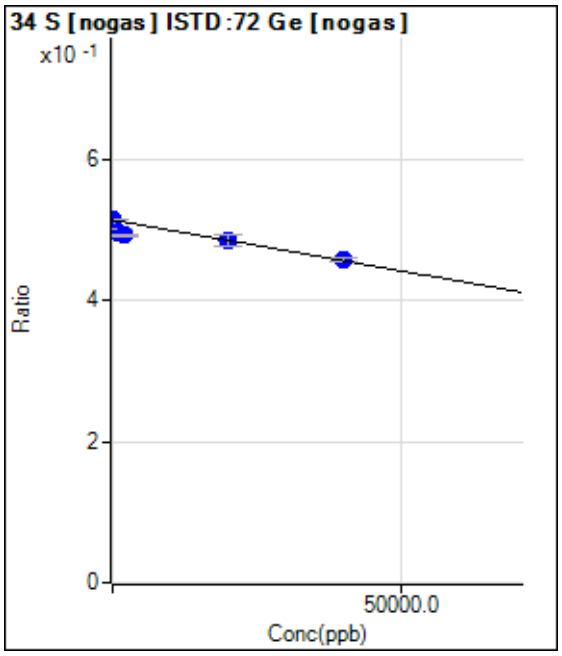
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	318084.24	0.1960	P	0.9
2	☐	10.000	-15.367	313677.62	0.1891	P	7.0
3	☐	25.000	-1.584	320490.96	0.1953	P	0.8
4	☐	50.000	8.857	331086.09	0.1999	P	0.8
5	☐	500.000	496.035	677318.50	0.4175	P	1.8
6	☐	1000.000	1004.958	1052115.09	0.6447	M	1.7
7	☐	5.000					

y = 4.4652E-004 * x + 0.1960
R = 0.9995
DL = 11.58
BEC = 438.9

Weight: <None>
Min Conc: <None>

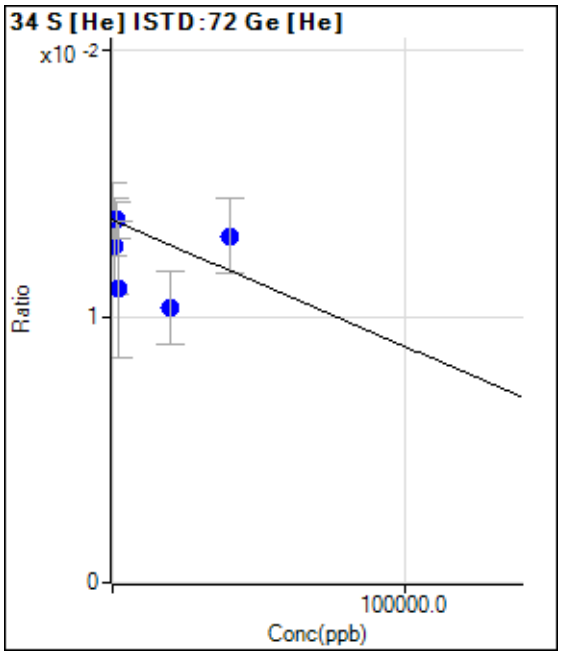


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	834082.83	0.5139	P	0.7
2	☐	400.000	8368.175	832951.12	0.5018	P	4.9
3	☐	1000.000	11833.25	815362.32	0.4968	P	1.9
4	☐	2000.000	14951.24	815265.30	0.4923	P	0.3
5	☐	20000.00	20545.79	785404.44	0.4842	P	3.3
6	☐	40000.00	38729.02	747240.66	0.4579	P	1.1
7	☐	100.000					

y = -1.4457E-006 * x + 0.5139
R = -0.9349
DL = -7337
BEC = -3.554E+05

Weight: <None>
Min Conc: <None>

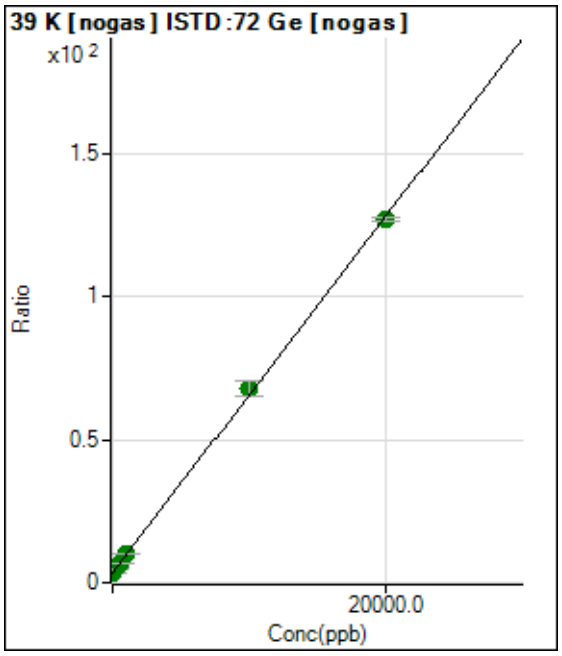
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1800.50	0.0136	P	20.2
2	☐	400.000	20763.94	1667.05	0.0126	P	29.1
3	☐	1000.000	-67.134	1800.49	0.0136	P	9.7
4	☐	2000.000	54396.08	1433.71	0.0110	P	46.8
5	☐	20000.00	68860.46	1333.64	0.0104	P	26.6
6	☐	40000.00	12773.00	1700.45	0.0130	P	21.7
7	☐	100.000					

y = -4.7683E-008 * x + 0.0136
R = -0.1474
DL = -1.732E+05
BEC = -2.859E+05

Weight: <None>
Min Conc: <None>

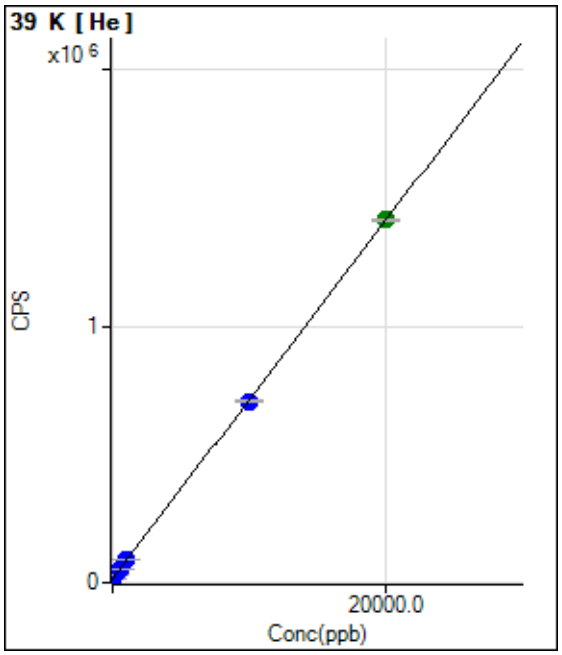


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5589731.77	3.4438	A	0.2
2	☐	200.000	189.483	7670631.94	4.6214	A	5.3
3	☐	500.000	508.356	10838151.54	6.6032	A	1.1
4	☐	1000.000	1039.129	16397982.66	9.9019	A	1.6
5	☐	10000.00	10336.64	109733435.7	67.6853	A	7.4
6	☐	20000.00	19829.61	206752550.4	126.683	A	1.1
7	☐	100.000					

y = 0.0062 * x + 3.4438
R = 0.9998
DL = 3.481
BEC = 554.1

Weight: <None>
Min Conc: <None>

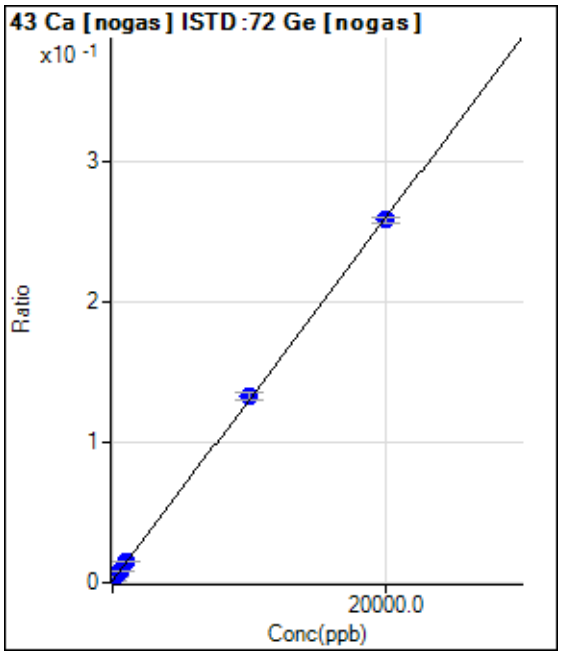
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	15216.38		P	2.3
2	☐	200.000	219.644	30551.81		P	2.6
3	☐	500.000	534.675	52547.15		P	1.7
4	☐	1000.000	1068.450	89815.11		P	1.1
5	☐	10000.00	9898.162	706302.05		P	1.4
6	☐	20000.00	20046.43	1414850.24		A	0.5
7	☐	100.000					

y = 69.8196 * x + 15216.3800
R = 1.0000
DL = 15.21
BEC = 217.9

Weight: <None>
Min Conc: <None>

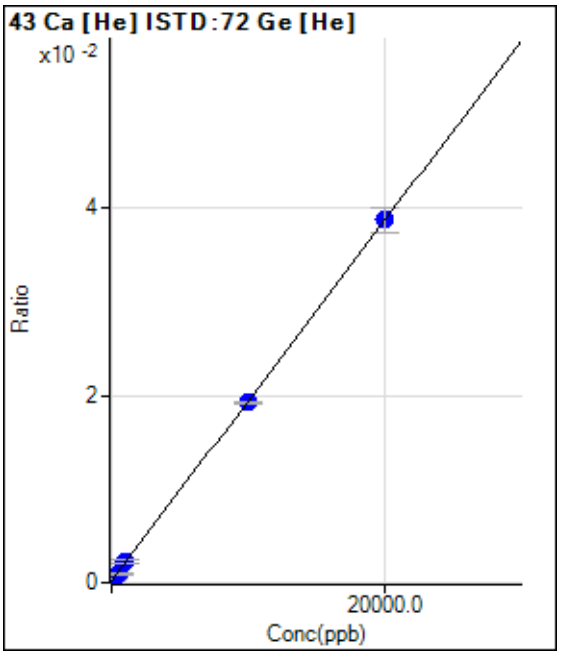


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1926.80	0.0012	P	7.6
2	☐	200.000	205.497	6364.53	0.0038	P	6.9
3	☐	500.000	531.311	13191.55	0.0080	P	3.3
4	☐	1000.000	1046.157	24306.21	0.0147	P	2.1
5	☐	10000.00	10164.37	214502.25	0.1322	P	4.0
6	☐	20000.00	19914.66	420945.40	0.2579	P	1.8
7	☐	100.000					

y = 1.2893E-005 * x + 0.0012
R = 1.0000
DL = 20.87
BEC = 92.07

Weight: <None>
Min Conc: <None>

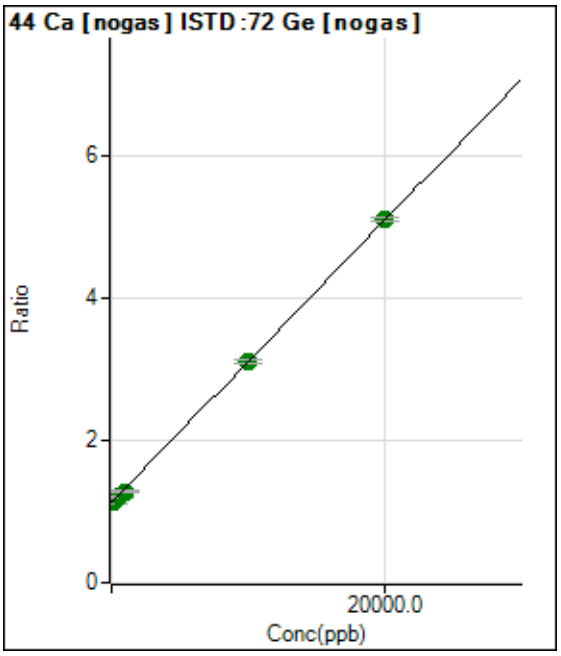
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	26.67	0.0002	P	44.9
2	☐	200.000	118.891	56.67	0.0004	P	53.9
3	☐	500.000	392.687	126.67	0.0010	P	28.7
4	☐	1000.000	1081.149	296.68	0.0023	P	16.3
5	☐	10000.00	9890.863	2480.21	0.0192	P	1.7
6	☐	20000.00	20054.00	5064.12	0.0388	P	7.0
7	☐	100.000					

y = 1.9245E-006 * x + 2.0246E-004
R = 1.0000
DL = 141.6
BEC = 105.2

Weight: <None>
Min Conc: <None>

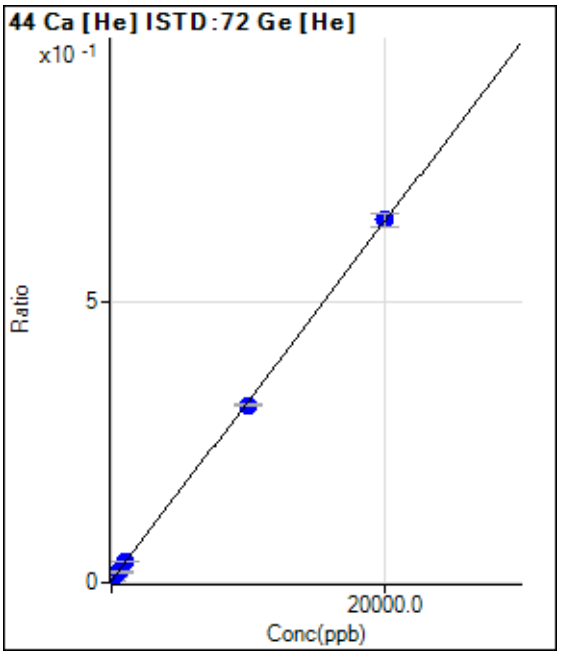


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1832562.94	1.1290	A	1.3
2	☐	200.000	74.441	1899588.10	1.1438	A	4.1
3	☐	500.000	408.194	1986013.15	1.2100	A	1.3
4	☐	1000.000	764.386	2120899.86	1.2806	A	1.6
5	☐	10000.00	9979.076	5043177.42	3.1078	A	1.0
6	☐	20000.00	20025.79	8322797.59	5.0999	A	0.9
7	☐	100.000					

y = 1.9829E-004 * x + 1.1290
R = 1.0000
DL = 229
BEC = 5694

Weight: <None>
Min Conc: <None>

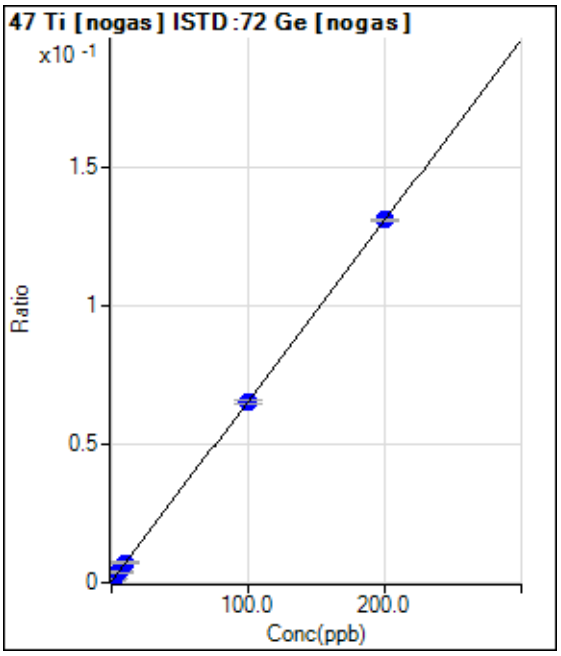
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	473.35	0.0036	P	27.1
2	☐	200.000	230.007	1436.76	0.0109	P	10.9
3	☐	500.000	498.375	2570.22	0.0195	P	12.0
4	☐	1000.000	1063.013	4870.74	0.0375	P	5.1
5	☐	10000.00	9788.619	40695.17	0.3156	P	0.9
6	☐	20000.00	20102.28	84145.31	0.6444	P	4.0
7	☐	100.000					

y = 3.1879E-005 * x + 0.0036
R = 0.9999
DL = 91.37
BEC = 112.5

Weight: <None>
Min Conc: <None>

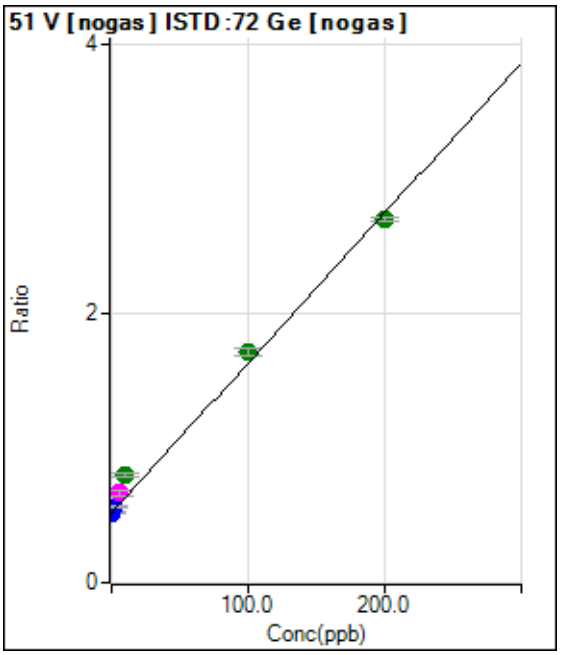


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	646.69	0.0004	P	14.6
2	☐	2.000	1.764	2570.22	0.0015	P	7.7
3	☐	5.000	5.320	6354.56	0.0039	P	3.8
4	☐	10.000	10.517	12030.74	0.0073	P	2.6
5	☐	100.000	99.274	105843.50	0.0652	P	1.9
6	☐	200.000	200.331	214102.91	0.1312	P	0.7
7	☐	1.000					

y = 6.5287E-004 * x + 3.9832E-004
R = 1.0000
DL = 0.2671
BEC = 0.6101

Weight: <None>
Min Conc: <None>

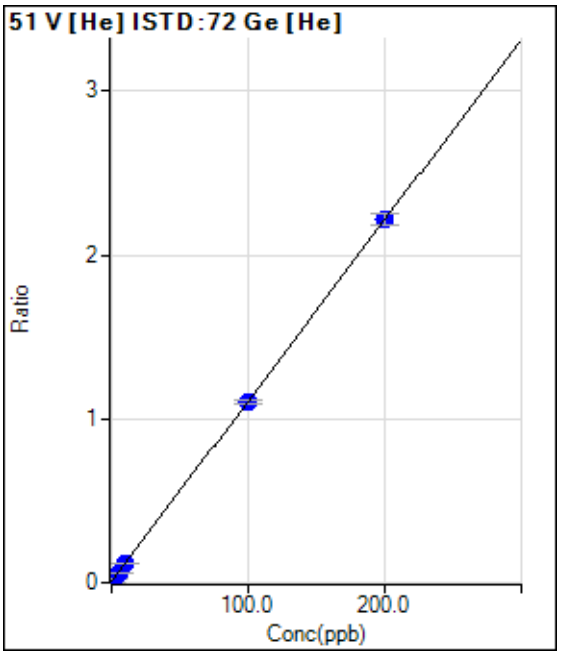
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	841995.85	0.5188	P	1.7
2	☐	2.000	4.076	936674.11	0.5642	P	4.9
3	☐	5.000	13.206	1092981.80	0.6659	M	7.1
4	☐	10.000	25.515	1329881.86	0.8031	A	3.2
5	☐	100.000	107.354	2784866.01	1.7151	A	3.8
6	☐	200.000	195.322	4398860.26	2.6954	A	0.9
7	☐	1.000					

y = 0.0111 * x + 0.5188
R = 0.9970
DL = 2.332
BEC = 46.55

Weight: <None>
Min Conc: <None>

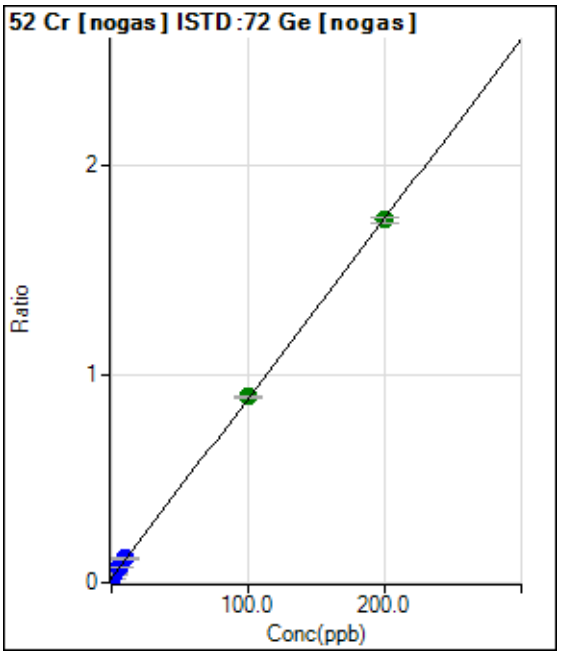


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.204	497.34	0.0038	P	4.0
2	☐	2.000	1.920	3577.03	0.0272	P	2.4
3	☐	5.000	5.090	8191.17	0.0621	P	7.2
4	☐	10.000	10.412	15707.34	0.1208	P	0.3
5	☐	100.000	99.608	142397.47	1.1045	P	1.7
6	☐	200.000	200.174	289037.78	2.2135	P	3.2
7	☐	1.000					

y = 0.0110 * x + 0.0060
R = 1.0000
DL = 0.04088
BEC = 0.5449

Weight: <None>
Min Conc: <None>

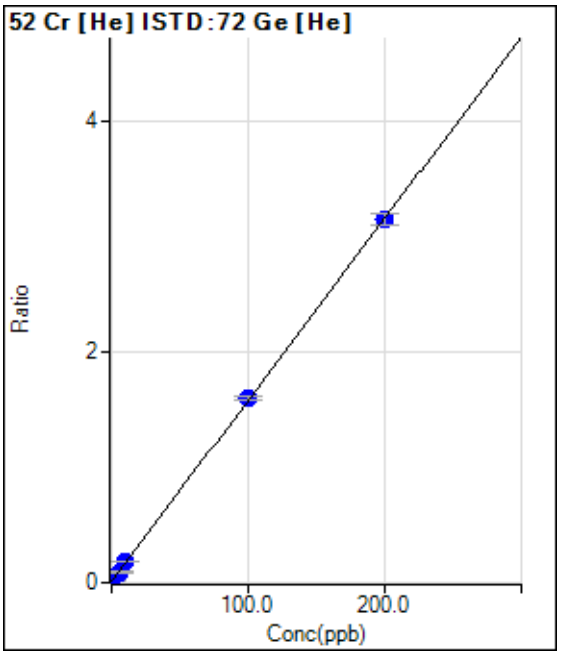
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	36352.54	0.0224	P	1.8
2	☐	2.000	2.167	68206.46	0.0411	P	5.4
3	☐	5.000	5.578	115748.52	0.0705	P	0.8
4	☐	10.000	10.888	192632.51	0.1163	P	3.4
5	☐	100.000	101.042	1451310.81	0.8941	A	1.3
6	☐	200.000	199.418	2844356.10	1.7428	A	1.8
7	☐	1.000					

y = 0.0086 * x + 0.0224
R = 1.0000
DL = 0.1422
BEC = 2.596

Weight: <None>
Min Conc: <None>

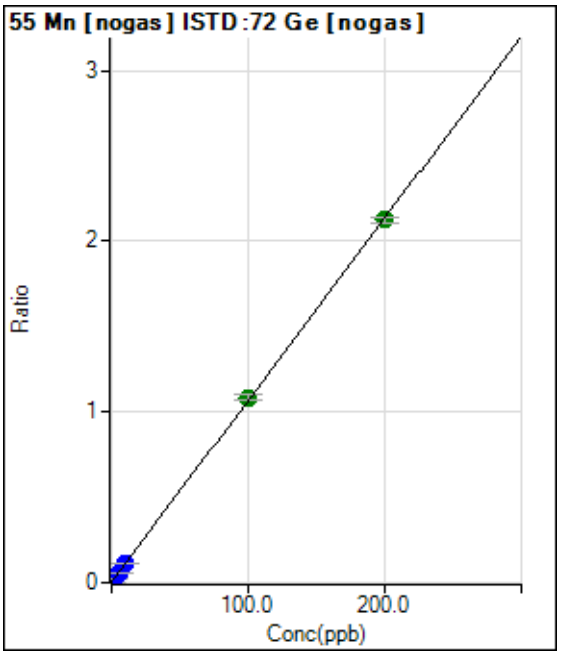


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1156.72	0.0088	P	8.4
2	☐	2.000	2.203	5707.64	0.0434	P	3.6
3	☐	5.000	5.272	12084.16	0.0916	P	3.6
4	☐	10.000	10.830	23275.01	0.1790	P	2.4
5	☐	100.000	101.140	206167.96	1.5990	P	2.0
6	☐	200.000	199.380	410536.58	3.1436	P	3.3
7	☐	1.000					

y = 0.0157 * x + 0.0088
R = 1.0000
DL = 0.1402
BEC = 0.5567

Weight: <None>
Min Conc: <None>

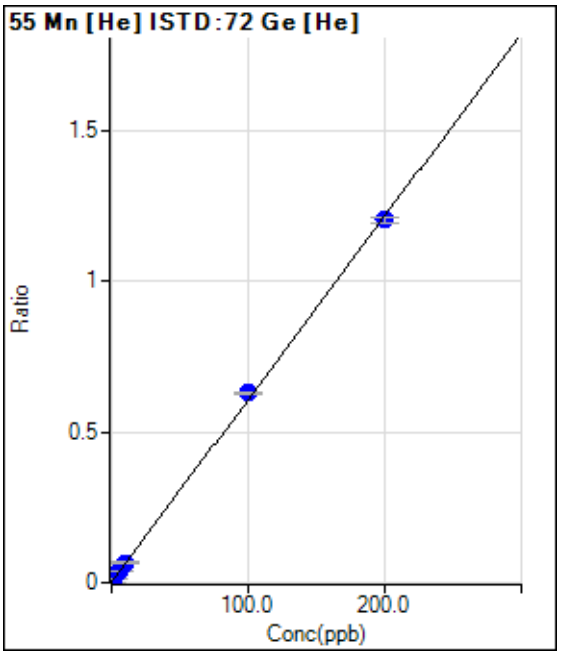
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4373.92	0.0027	P	4.6
2	☐	2.000	2.008	39984.29	0.0241	P	4.0
3	☐	5.000	5.259	96339.37	0.0587	P	2.3
4	☐	10.000	10.471	189130.68	0.1142	P	0.5
5	☐	100.000	101.525	1758344.61	1.0838	A	2.7
6	☐	200.000	199.207	3466594.01	2.1241	A	1.8
7	☐	1.000					

y = 0.0106 * x + 0.0027
R = 1.0000
DL = 0.03519
BEC = 0.2531

Weight: <None>
Min Conc: <None>

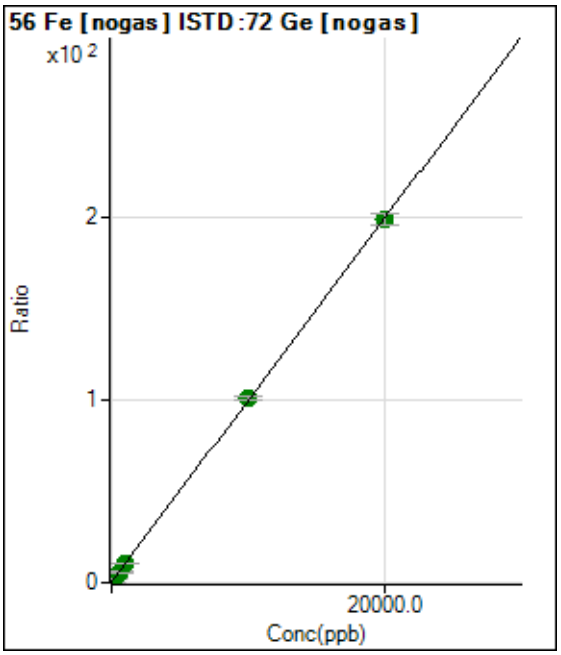


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	150.00	0.0011	P	14.8
2	☐	2.000	2.137	1856.80	0.0141	P	3.3
3	☐	5.000	5.747	4754.03	0.0360	P	1.9
4	☐	10.000	10.743	8628.83	0.0664	P	2.2
5	☐	100.000	103.590	81253.00	0.6302	P	1.3
6	☐	200.000	198.148	157301.19	1.2044	P	1.8
7	☐	1.000					

y = 0.0061 * x + 0.0011
R = 0.9998
DL = 0.08288
BEC = 0.187

Weight: <None>
Min Conc: <None>

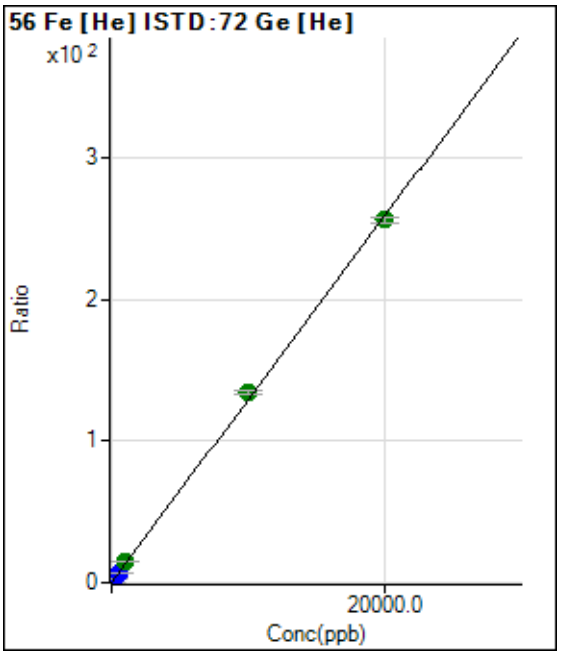
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	651872.83	0.4016	P	2.0
2	☐	200.000	210.167	4131927.05	2.4889	A	5.1
3	☐	500.000	538.708	9440976.25	5.7519	A	2.0
4	☐	1000.000	1061.916	18130700.93	10.9482	A	1.5
5	☐	10000.00	10139.60	164042370.3	101.104	A	1.8
6	☐	20000.00	19926.03	323653882.2	198.299	A	3.1
7	☐	100.000					

y = 0.0099 * x + 0.4016
R = 1.0000
DL = 2.465
BEC = 40.44

Weight: <None>
Min Conc: <None>

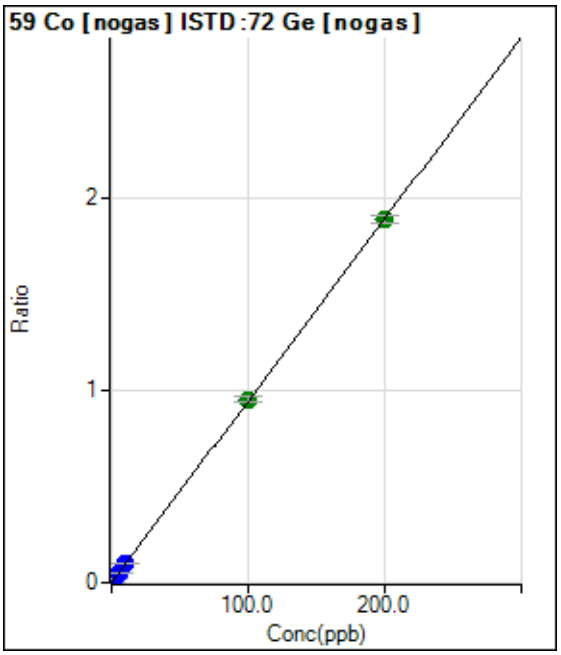


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4237.23	0.0320	P	5.8
2	☐	200.000	204.066	351372.68	2.6714	P	2.8
3	☐	500.000	520.712	892700.06	6.7669	P	1.6
4	☐	1000.000	1113.990	1877154.24	14.4402	A	0.5
5	☐	10000.00	10381.26	17315295.16	134.302	A	1.5
6	☐	20000.00	19803.10	33454442.83	256.163	A	1.9
7	☐	100.000					

y = 0.0129 * x + 0.0320
R = 0.9997
DL = 0.4312
BEC = 2.476

Weight: <None>
Min Conc: <None>

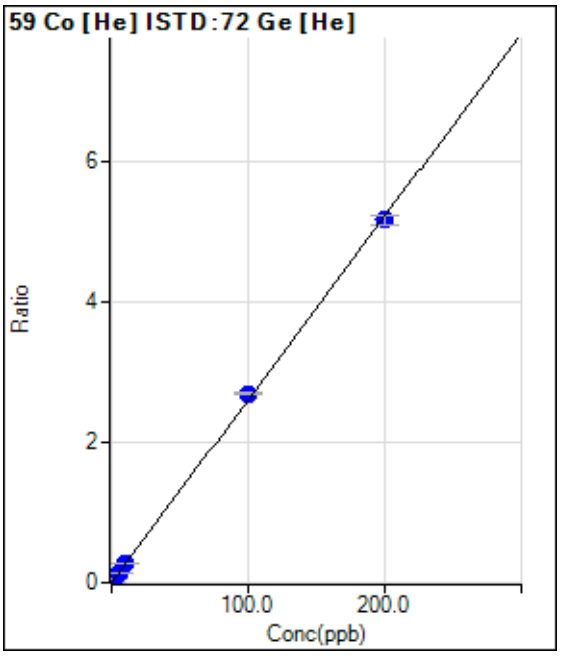
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	320.01	0.0002	P	9.4
2	☐	2.000	2.047	32452.78	0.0195	P	3.2
3	☐	5.000	5.438	84639.61	0.0516	P	2.4
4	☐	10.000	10.812	169449.98	0.1023	P	1.8
5	☐	100.000	100.661	1542701.49	0.9510	A	3.2
6	☐	200.000	199.618	3077291.62	1.8857	A	2.3
7	☐	1.000					

y = 0.0094 * x + 1.9716E-004
R = 1.0000
DL = 0.005899
BEC = 0.02087

Weight: <None>
Min Conc: <None>

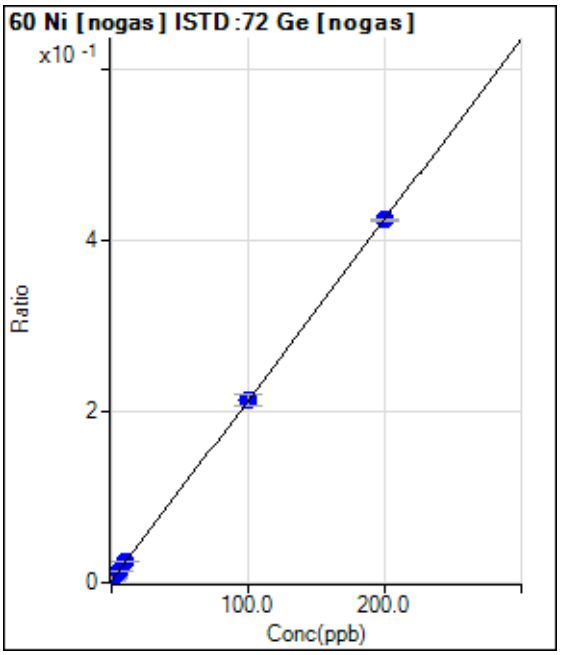


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10.00	0.0001	P	173.
2	☐	2.000	2.111	7241.56	0.0551	P	3.9
3	☐	5.000	5.251	18045.83	0.1368	P	3.1
4	☐	10.000	10.854	36757.38	0.2827	P	1.7
5	☐	100.000	103.349	347040.45	2.6917	P	0.4
6	☐	200.000	198.275	674313.71	5.1639	P	2.9
7	☐	1.000					

y = 0.0260 * x + 7.6838E-005
R = 0.9998
DL = 0.01533
BEC = 0.00295

Weight: <None>
Min Conc: <None>

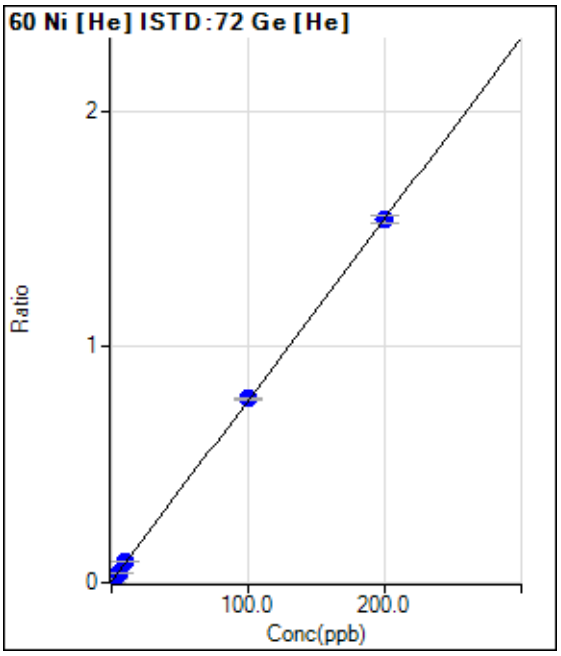
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.336	2460.21	0.0015	P	5.8
2	☐	2.000	1.652	9469.27	0.0057	P	9.9
3	☐	5.000	5.115	21386.12	0.0130	P	3.2
4	☐	10.000	10.441	40211.23	0.0243	P	0.7
5	☐	100.000	100.300	347175.63	0.2141	P	5.7
6	☐	200.000	199.829	692490.85	0.4243	P	0.8
7	☐	1.000					

y = 0.0021 * x + 0.0022
R = 1.0000
DL = 0.1246
BEC = 1.054

Weight: <None>
Min Conc: <None>

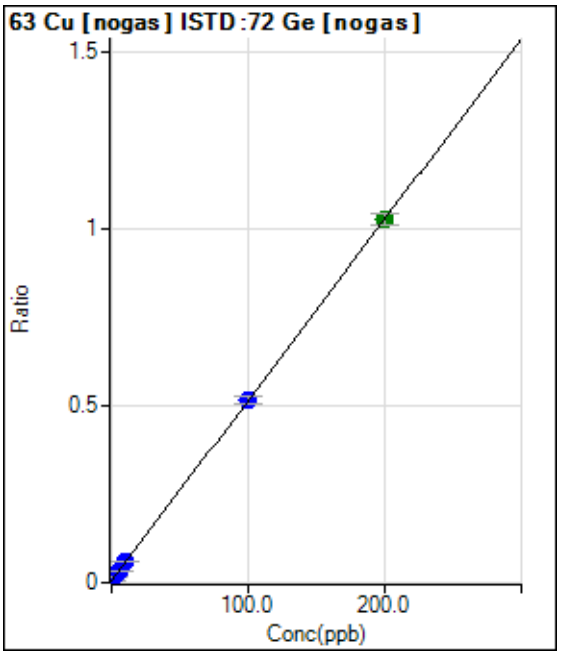


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.451	236.67	0.0018	P	24.0
2	☐	2.000	1.686	2396.86	0.0182	P	4.2
3	☐	5.000	4.805	5564.27	0.0422	P	1.7
4	☐	10.000	10.601	11273.67	0.0867	P	1.8
5	☐	100.000	100.763	100511.99	0.7796	P	1.1
6	☐	200.000	199.597	200987.60	1.5390	P	2.2
7	☐	1.000					

y = 0.0077 * x + 0.0053
R = 1.0000
DL = 0.1676
BEC = 0.6843

Weight: <None>
Min Conc: <None>

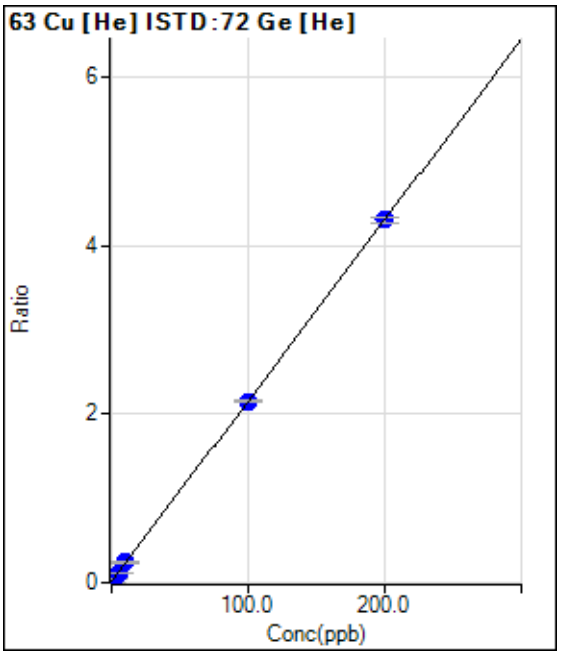
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7641.72	0.0047	P	2.7
2	☐	2.000	2.107	25654.97	0.0155	P	5.8
3	☐	5.000	5.273	51863.95	0.0316	P	2.1
4	☐	10.000	10.777	98820.12	0.0597	P	1.5
5	☐	100.000	100.113	835800.41	0.5153	P	4.1
6	☐	200.000	199.897	1671339.66	1.0242	A	3.1
7	☐	1.000					

y = 0.0051 * x + 0.0047
R = 1.0000
DL = 0.07467
BEC = 0.9232

Weight: <None>
Min Conc: <None>

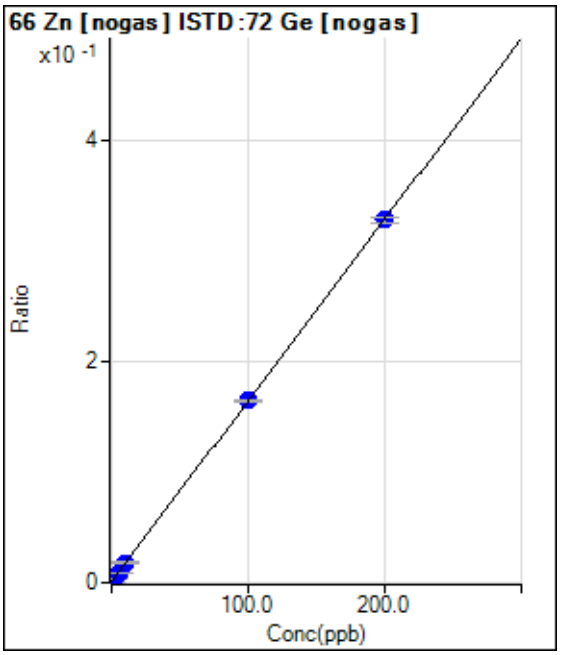


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.348	740.03	0.0056	P	10.4
2	☐	2.000	1.817	6834.71	0.0520	P	6.0
3	☐	5.000	5.118	16177.45	0.1227	P	4.1
4	☐	10.000	10.597	31203.72	0.2401	P	2.9
5	☐	100.000	99.695	277044.76	2.1489	P	1.6
6	☐	200.000	200.122	561685.08	4.3004	P	1.6
7	☐	1.000					

y = 0.0214 * x + 0.0130
R = 1.0000
DL = 0.08178
BEC = 0.6089

Weight: <None>
Min Conc: <None>

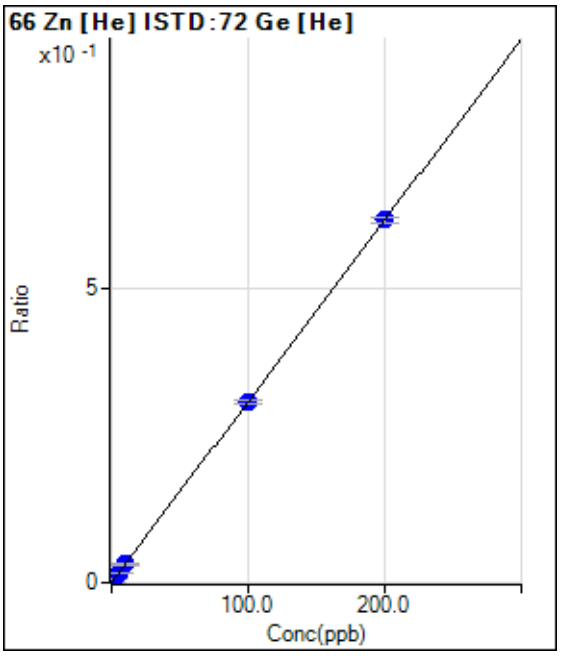
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.459	243.34	0.0001	P	6.5
2	☐	2.000	1.771	6321.21	0.0038	P	1.0
3	☐	5.000	5.130	15269.99	0.0093	P	3.8
4	☐	10.000	10.528	30055.26	0.0181	P	3.9
5	☐	100.000	100.117	267547.43	0.1649	P	1.5
6	☐	200.000	199.914	535867.39	0.3284	P	1.5
7	☐	1.000					

y = 0.0016 * x + 9.0138E-004
R = 1.0000
DL = 0.01788
BEC = 0.5503

Weight: <None>
Min Conc: <None>

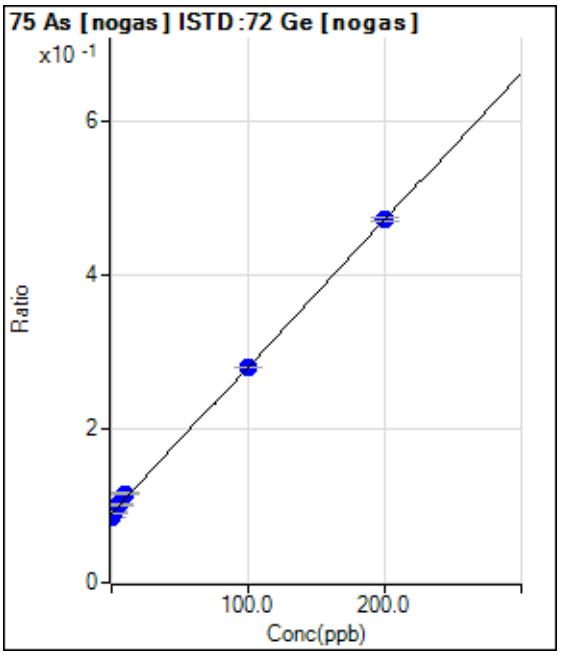


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.038	16.67	0.0001	P	173.
2	☐	2.000	2.221	933.38	0.0071	P	8.2
3	☐	5.000	5.027	2076.83	0.0158	P	8.9
4	☐	10.000	10.104	4083.84	0.0314	P	7.2
5	☐	100.000	99.389	39569.87	0.3069	P	2.1
6	☐	200.000	200.298	80768.52	0.6183	P	1.5
7	☐	1.000					

y = 0.0031 * x + 2.4292E-004
R = 1.0000
DL = 0.2114
BEC = 0.07873

Weight: <None>
Min Conc: <None>

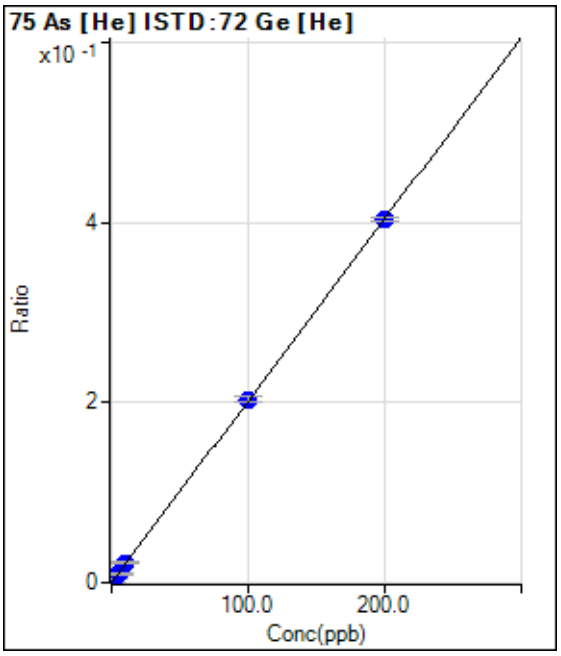
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-2.902	137033.80	0.0844	P	1.0
2	☐	2.000	0.330	150515.67	0.0906	P	3.1
3	☐	5.000	6.220	167226.42	0.1019	P	2.5
4	☐	10.000	13.699	192427.81	0.1162	P	1.5
5	☐	100.000	99.703	455740.06	0.2808	P	0.7
6	☐	200.000	199.950	771338.09	0.4726	P	1.1
7	☐	1.000					

y = 0.0019 * x + 0.0900
R = 0.9996
DL = 1.331
BEC = 47.02

Weight: <None>
Min Conc: <None>

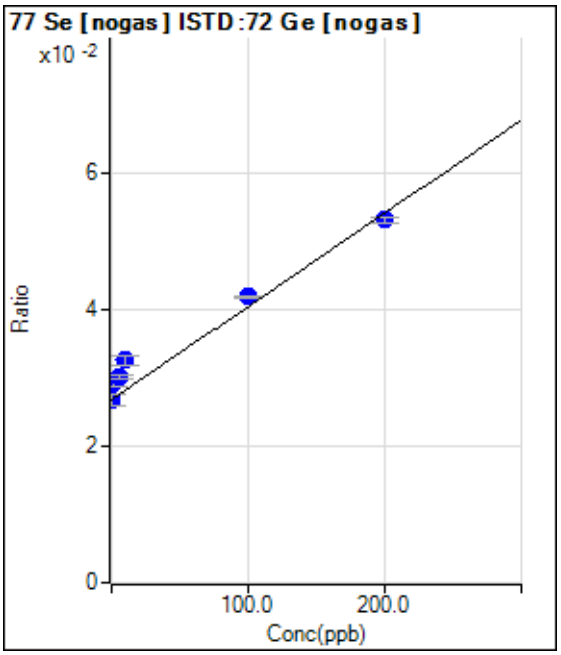


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	21.11	0.0002	P	32.0
2	☐	2.000	1.953	538.90	0.0041	P	10.2
3	☐	5.000	4.766	1288.94	0.0098	P	4.1
4	☐	10.000	10.826	2859.13	0.0220	P	5.8
5	☐	100.000	100.701	26211.15	0.2033	P	2.9
6	☐	200.000	199.614	52615.83	0.4029	P	1.2
7	☐	1.000					

y = 0.0020 * x + 1.5919E-004
R = 1.0000
DL = 0.07575
BEC = 0.07891

Weight: <None>
Min Conc: <None>

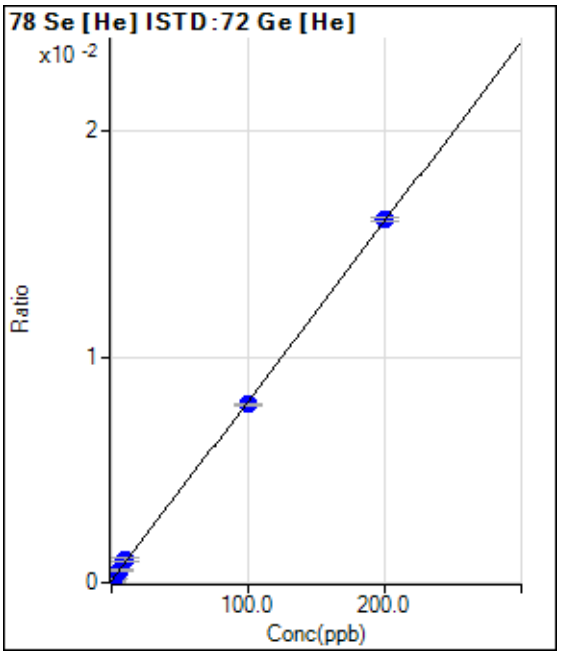
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	43479.02	0.0268	P	6.2
2	☐	2.000	17.887	48541.63	0.0292	P	3.6
3	☐	5.000	25.020	49571.11	0.0302	P	2.0
4	☐	10.000	42.046	53853.09	0.0325	P	3.8
5	☐	100.000	110.024	67812.93	0.0418	P	1.0
6	☐	200.000	192.727	86598.57	0.0531	P	1.7
7	☐	1.000					

y = 1.3634E-004 * x + 0.0268
R = 0.9891
DL = 36.5
BEC = 196.5

Weight: <None>
Min Conc: <None>

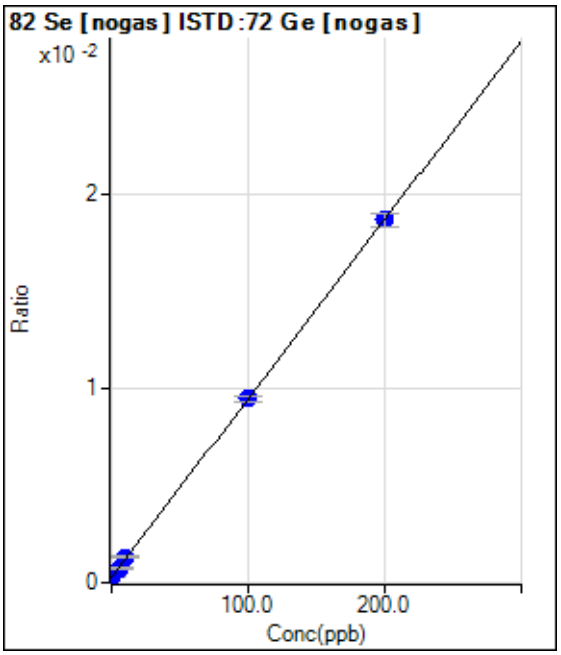


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.608	4.67	0.0000	P	48.7
2	☐	2.000	0.925	20.67	0.0002	P	14.4
3	☐	5.000	5.882	72.67	0.0006	P	15.5
4	☐	10.000	11.912	134.00	0.0010	P	15.1
5	☐	100.000	97.991	1015.36	0.0079	P	1.1
6	☐	200.000	200.898	2097.46	0.0161	P	0.9
7	☐	1.000					

y = 7.9518E-005 * x + 8.3460E-005
R = 0.9998
DL = 0.6456
BEC = 1.05

Weight: <None>
Min Conc: <None>

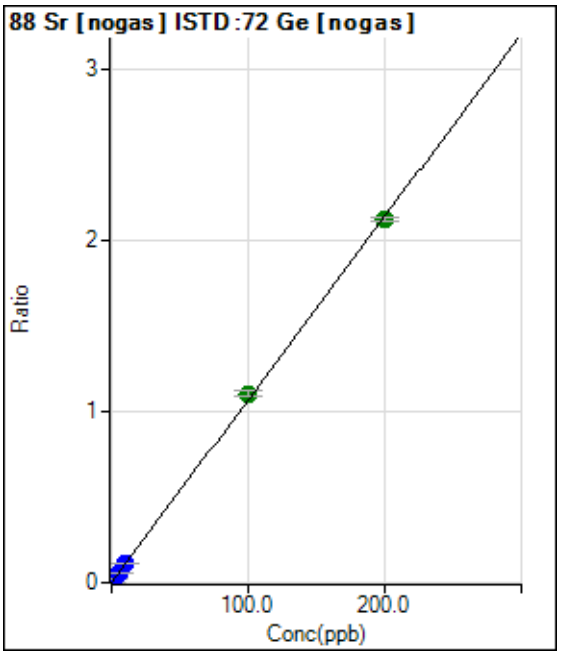
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	436.68	0.0003	P	8.8
2	☐	2.000	2.313	803.37	0.0005	P	4.3
3	☐	5.000	5.051	1206.73	0.0007	P	5.6
4	☐	10.000	11.372	2183.51	0.0013	P	4.1
5	☐	100.000	99.935	15400.18	0.0095	P	2.7
6	☐	200.000	199.960	30556.27	0.0187	P	3.6
7	☐	1.000					

y = 9.2293E-005 * x + 2.6906E-004
R = 1.0000
DL = 0.7717
BEC = 2.915

Weight: <None>
Min Conc: <None>

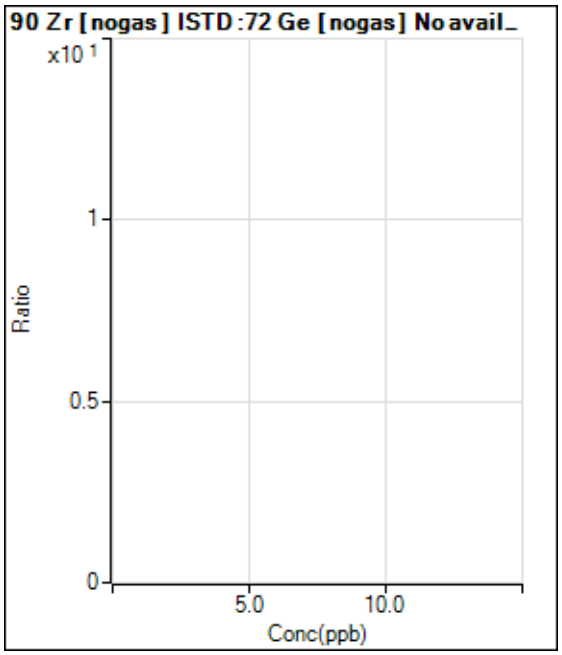


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	996.71	0.0006	P	15.7
2	☐	2.000	2.035	37055.65	0.0223	P	5.8
3	☐	5.000	5.382	95273.98	0.0580	P	2.7
4	☐	10.000	10.732	190672.93	0.1151	P	1.8
5	☐	100.000	103.262	1788374.82	1.1024	A	3.1
6	☐	200.000	198.323	3454594.43	2.1167	A	1.2
7	☐	1.000					

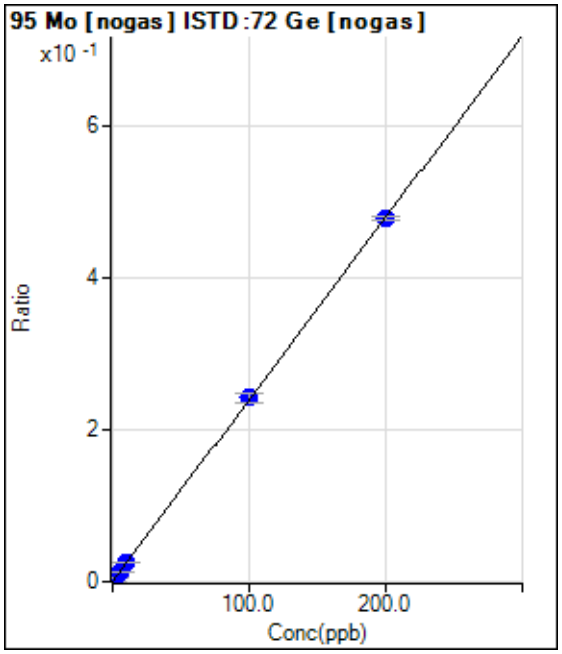
y = 0.0107 * x + 6.1400E-004
R = 0.9998
DL = 0.02705
BEC = 0.05754

Weight: <None>
Min Conc: <None>

Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

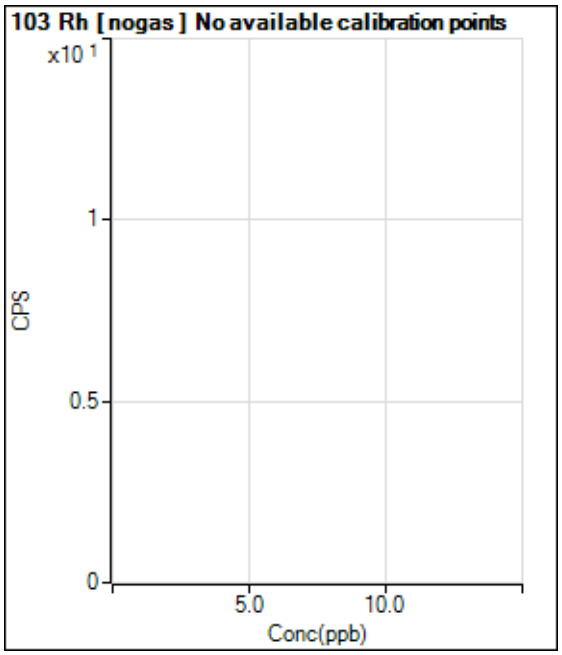


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	380.01	0.0002	P	6.7
2	☐	2.000	2.002	8328.77	0.0050	P	11.4
3	☐	5.000	5.243	20992.77	0.0128	P	2.4
4	☐	10.000	10.475	41933.44	0.0253	P	0.2
5	☐	100.000	101.217	393470.47	0.2426	P	5.2
6	☐	200.000	199.362	779547.77	0.4777	P	1.0
7	☐	1.000					

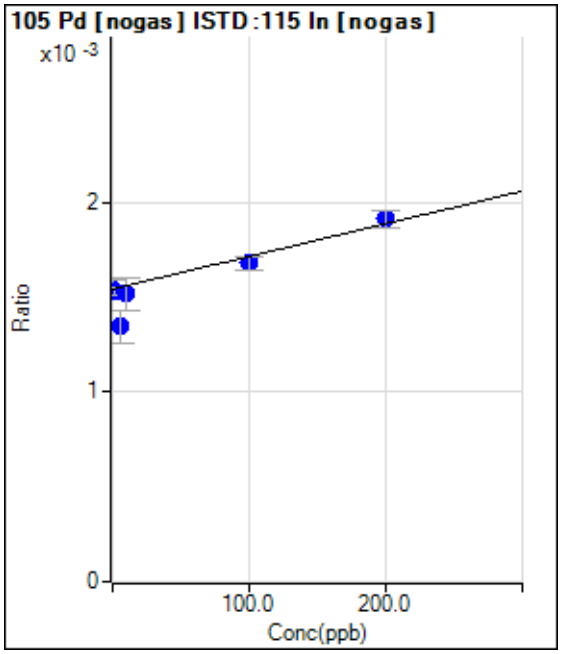
y = 0.0024 * x + 2.3409E-004
R = 1.0000
DL = 0.01957
BEC = 0.09775

Weight: <None>
Min Conc: <None>

Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			110.00		P	55.3
2	☐			123.33		P	32.8
3	☐			123.33		P	44.7
4	☐			170.01		P	20.4
5	☐			340.01		P	5.1
6	☐			453.35		P	6.7
7	☐						

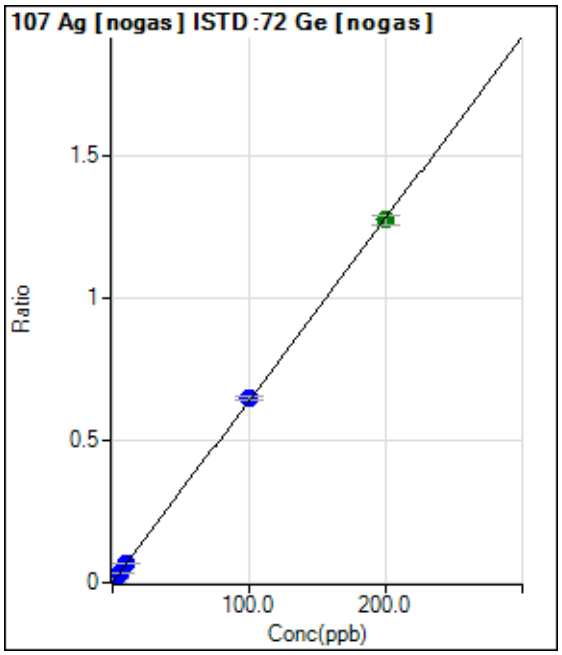


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2666.92	0.0015	P	5.7
2	☐	2.000	-8.178	2633.58	0.0015	P	2.3
3	☐	5.000	-115.807	2423.55	0.0013	P	13.3
4	☐	10.000	-15.841	2633.59	0.0015	P	12.0
5	☐	100.000	79.818	2840.29	0.0017	P	4.0
6	☐	200.000	214.505	3260.37	0.0019	P	5.0
7	☐	1.000					

y = 1.7252E-006 * x + 0.0015
R = 0.9215
DL = 152.8
BEC = 895.7

Weight: <None>
Min Conc: <None>

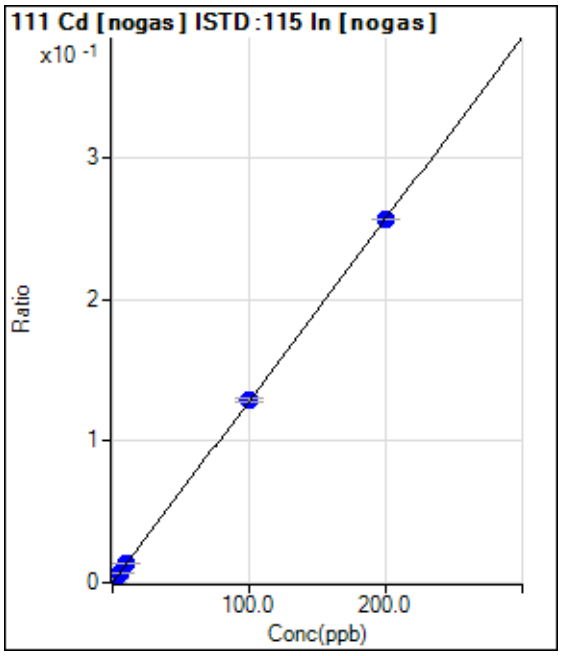
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	533.35	0.0003	P	25.1
2	☐	2.000	2.127	23125.44	0.0139	P	5.1
3	☐	5.000	5.187	55003.80	0.0335	P	2.1
4	☐	10.000	10.679	113666.99	0.0686	P	2.7
5	☐	100.000	101.484	1053984.25	0.6495	P	1.3
6	☐	200.000	199.218	2080325.85	1.2747	A	2.5
7	☐	1.000					

y = 0.0064 * x + 3.2875E-004
R = 1.0000
DL = 0.03874
BEC = 0.05139

Weight: <None>
Min Conc: <None>

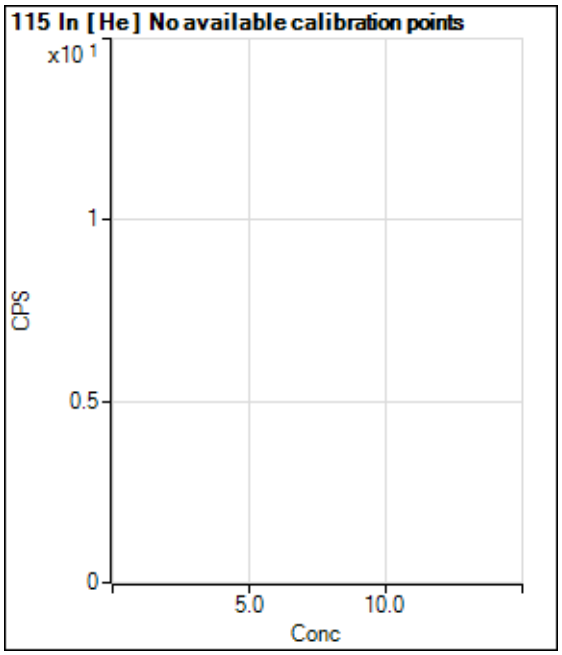


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3.33	0.0000	P	173.
2	☐	2.000	2.224	4910.78	0.0029	P	7.3
3	☐	5.000	4.976	11527.36	0.0064	P	6.5
4	☐	10.000	10.643	23773.11	0.0137	P	1.1
5	☐	100.000	100.795	218220.58	0.1295	P	2.5
6	☐	200.000	199.569	436035.11	0.2563	P	0.1
7	☐	1.000					

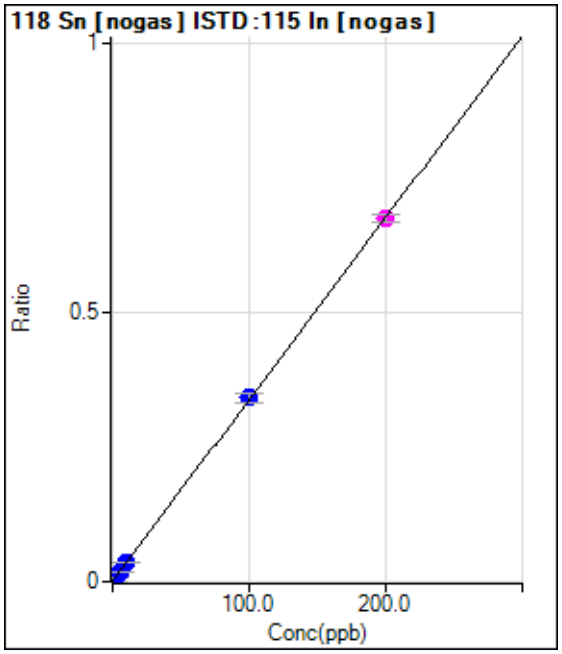
y = 0.0013 * x + 1.9588E-006
R = 1.0000
DL = 0.007925
BEC = 0.001525

Weight: <None>
Min Conc: <None>

Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			164041.66		P	1.7
2	☐			166887.93		P	0.9
3	☐			164775.69		P	0.6
4	☐			166247.53		P	1.2
5	☐			163100.03		P	1.6
6	☐			165477.77		P	2.0
7	☐						

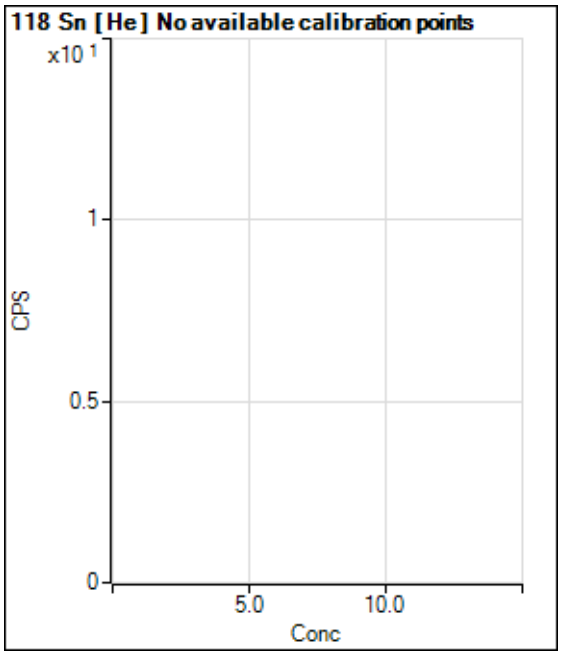


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1060.05	0.0006	P	7.3
2	☐	2.000	2.033	12875.00	0.0075	P	2.2
3	☐	5.000	5.066	31976.22	0.0177	P	2.4
4	☐	10.000	10.283	61468.94	0.0354	P	2.6
5	☐	100.000	101.018	576152.14	0.3421	P	4.7
6	☐	200.000	199.475	1147598.58	0.6748	M	2.3
7	☐	1.000					

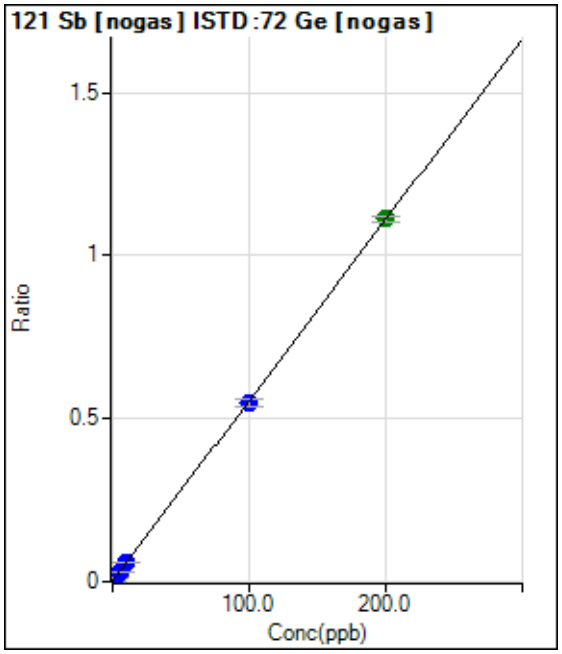
y = 0.0034 * x + 6.1393E-004
R = 1.0000
DL = 0.03971
BEC = 0.1816

Weight: <None>
Min Conc: <None>

Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			126.67		P	35.6
2	☐			1576.76		P	0.4
3	☐			3777.19		P	5.2
4	☐			7761.87		P	5.4
5	☐			72249.68		P	1.2
6	☐			146858.25		P	1.4
7	☐						

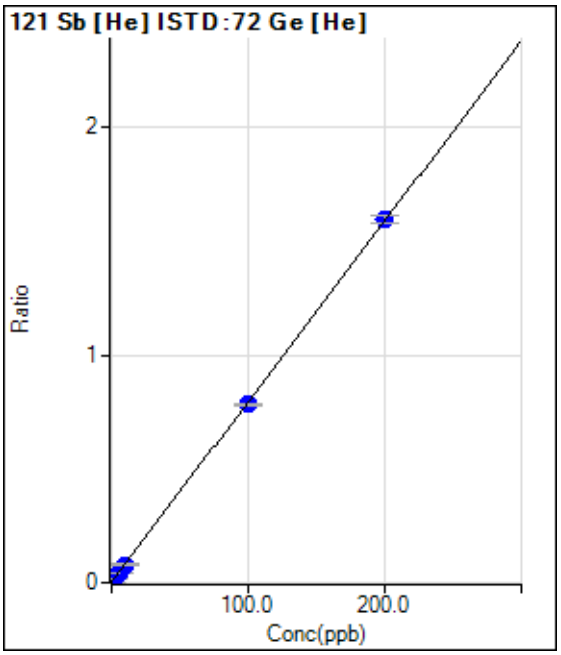


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2706.92	0.0017	P	2.7
2	☐	2.000	2.107	22134.47	0.0133	P	7.7
3	☐	5.000	5.163	49684.76	0.0303	P	1.2
4	☐	10.000	9.969	94234.43	0.0569	P	0.7
5	☐	100.000	98.796	890525.04	0.5490	P	4.3
6	☐	200.000	200.599	1816430.75	1.1131	A	1.6
7	☐	1.000					

y = 0.0055 * x + 0.0017
R = 1.0000
DL = 0.02458
BEC = 0.301

Weight: <None>
Min Conc: <None>

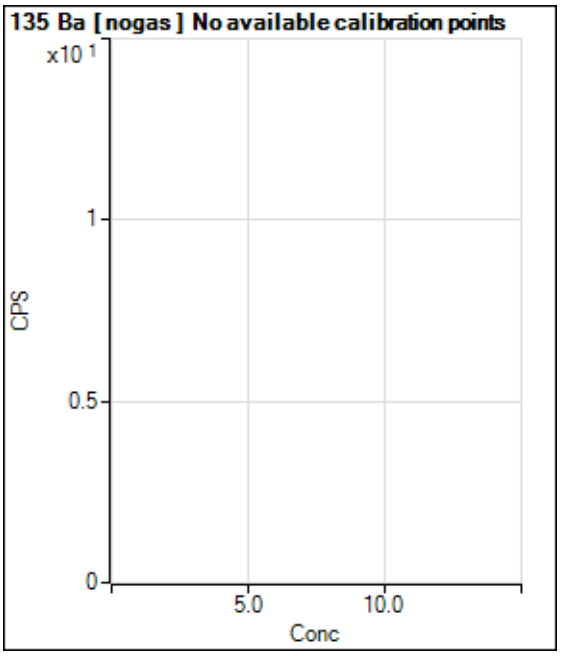
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	270.01	0.0020	P	25.7
2	☐	2.000	2.159	2520.22	0.0192	P	6.6
3	☐	5.000	5.251	5757.74	0.0437	P	8.3
4	☐	10.000	9.842	10409.99	0.0801	P	5.6
5	☐	100.000	98.517	100983.29	0.7833	P	1.5
6	☐	200.000	200.741	208169.25	1.5939	P	2.1
7	☐	1.000					

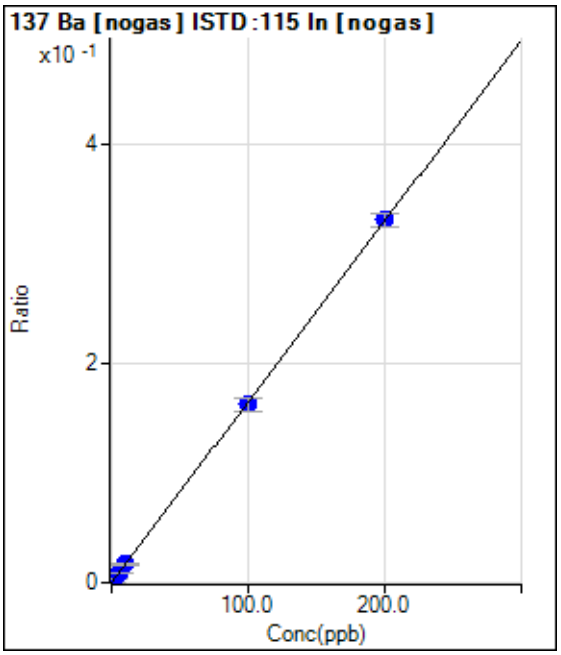
y = 0.0079 * x + 0.0020
R = 1.0000
DL = 0.1987
BEC = 0.2574

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			53.33		P	75.8
2	☐			3360.38		P	5.9
3	☐			8218.78		P	5.7
4	☐			16755.07		P	0.7
5	☐			156817.62		P	1.8
6	☐			309477.60		P	0.6
7	☐						

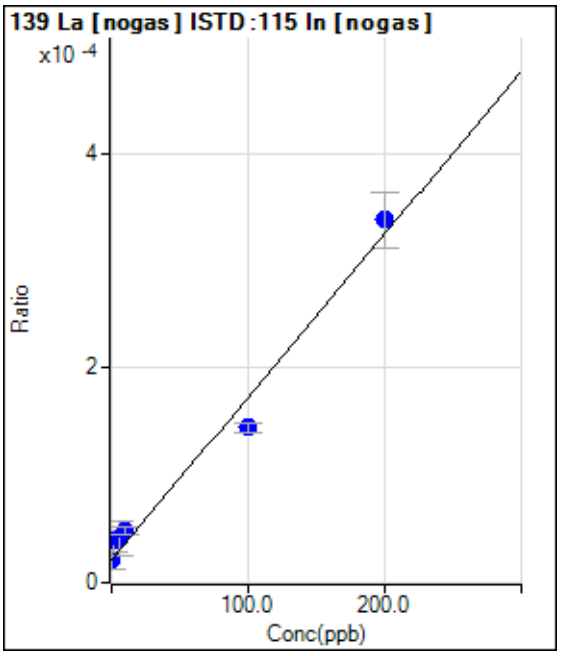
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	100.00	0.0001	P	27.0
2	☐	2.000	1.936	5590.99	0.0033	P	4.0
3	☐	5.000	4.843	14503.10	0.0080	P	2.5
4	☐	10.000	10.158	29205.20	0.0168	P	4.8
5	☐	100.000	98.506	273528.34	0.1625	P	7.0
6	☐	200.000	200.744	563007.05	0.3311	P	3.4
7	☐	1.000					

y = 0.0016 * x + 5.8030E-005
R = 1.0000
DL = 0.0285
BEC = 0.03519

Weight: <None>
Min Conc: <None>

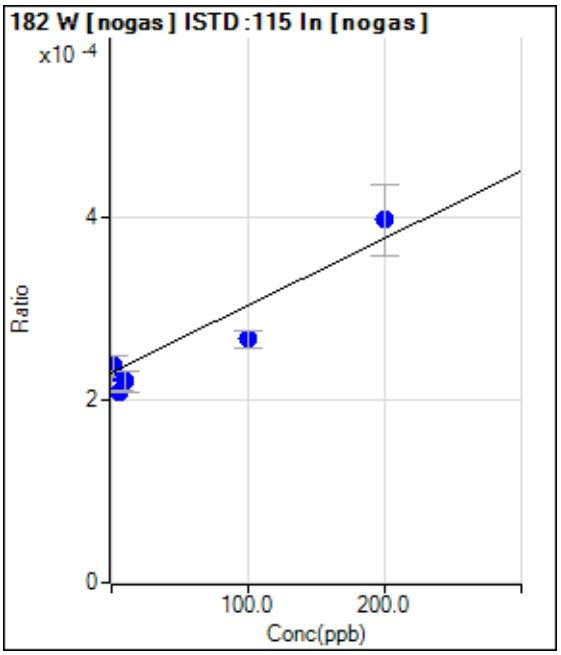


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	36.67	0.0000	P	78.4
2	☐	2.000	11.503	66.67	0.0000	P	52.9
3	☐	5.000	12.811	73.33	0.0000	P	78.7
4	☐	10.000	17.471	83.33	0.0000	P	14.6
5	☐	100.000	81.083	243.34	0.0001	P	5.8
6	☐	200.000	208.795	576.68	0.0003	P	15.7
7	☐	100.000					

y = 1.5186E-006 * x + 2.1217E-005
R = 0.9909
DL = 32.87
BEC = 13.97

Weight: <None>
Min Conc: <None>

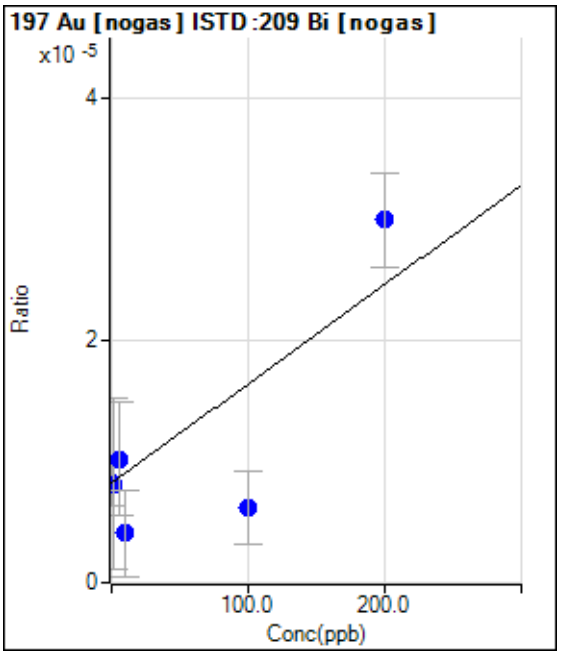
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	396.68	0.0002	P	15.9
2	☐	2.000	9.245	406.68	0.0002	P	10.0
3	☐	5.000	-28.795	376.68	0.0002	P	0.8
4	☐	10.000	-12.947	383.34	0.0002	P	10.4
5	☐	100.000	49.327	450.01	0.0003	P	7.2
6	☐	200.000	227.256	673.36	0.0004	P	19.9
7	☐	1.000					

y = 7.3343E-007 * x + 2.3003E-004
R = 0.9582
DL = 149.6
BEC = 313.6

Weight: <None>
Min Conc: <None>

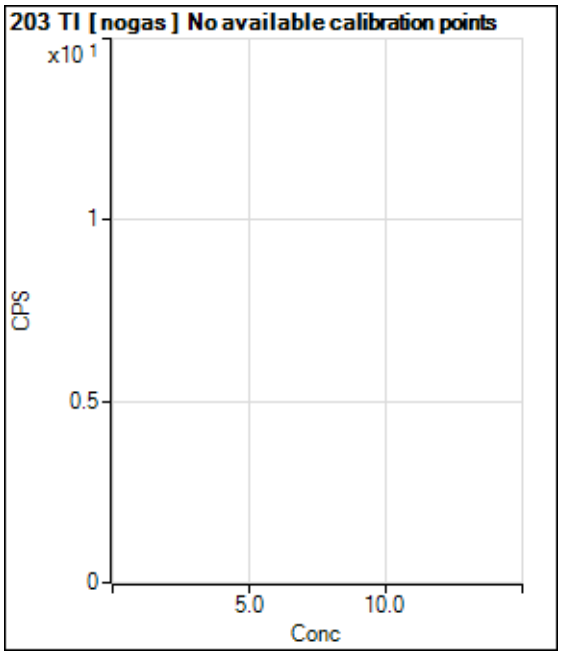


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0000	P	44.2
2	☐	2.000	-1.132	13.33	0.0000	P	173.
3	☐	5.000	24.339	16.67	0.0000	P	92.0
4	☐	10.000	-51.033	6.67	0.0000	P	173.
5	☐	100.000	-24.889	10.00	0.0000	P	99.0
6	☐	200.000	265.044	46.67	0.0000	P	26.3
7	☐	100.000					

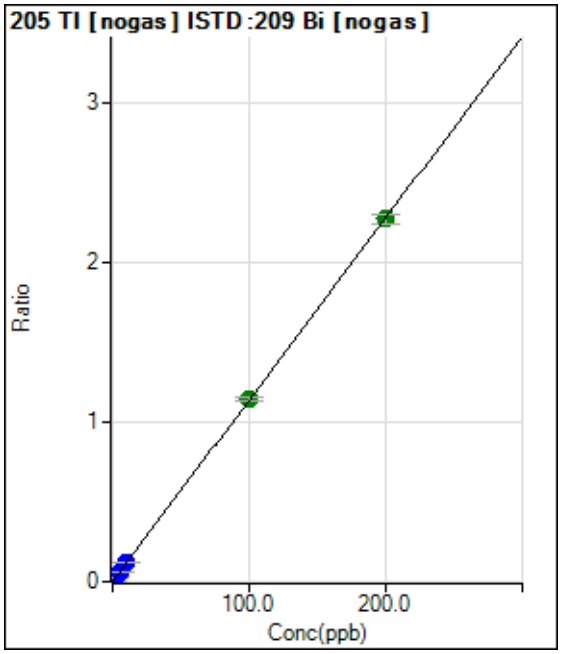
y = 8.1942E-008 * x + 8.2307E-006
R = 0.8255
DL = 133.1
BEC = 100.4

Weight: <None>
Min Conc: <None>

Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			63.33		P	36.5
2	☐			15380.80		P	0.3
3	☐			40253.32		P	1.1
4	☐			82438.12		P	0.7
5	☐			766056.03		P	1.9
6	☐			1528842.06		A	1.9
7	☐						

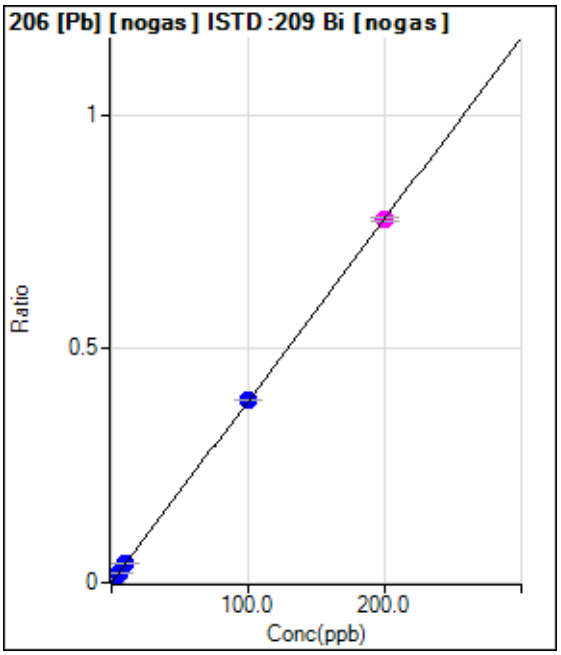


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	103.33	0.0001	P	29.4
2	☐	2.000	1.972	37132.81	0.0225	P	1.0
3	☐	5.000	5.359	97792.88	0.0611	P	5.1
4	☐	10.000	10.711	198476.26	0.1221	P	3.0
5	☐	100.000	100.584	1827547.21	1.1462	A	1.3
6	☐	200.000	199.664	3553312.55	2.2751	A	2.8
7	☐	1.000					

y = 0.0114 * x + 6.3442E-005
R = 1.0000
DL = 0.004907
BEC = 0.005568

Weight: <None>
Min Conc: <None>

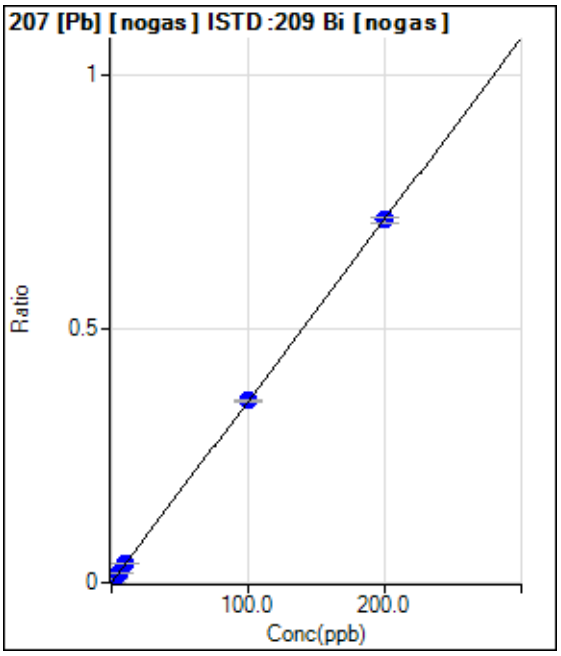
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	126.67	0.0001	P	11.9
2	☐	2.000	2.028	13112.13	0.0080	P	4.0
3	☐	5.000	5.369	33511.53	0.0209	P	4.4
4	☐	10.000	10.639	67336.37	0.0414	P	2.9
5	☐	100.000	100.620	623576.44	0.3911	P	0.6
6	☐	200.000	199.649	1212117.61	0.7760	M	1.0
7	☐	1.000					

y = 0.0039 * x + 7.7999E-005
R = 1.0000
DL = 0.007193
BEC = 0.02007

Weight: <None>
Min Conc: <None>

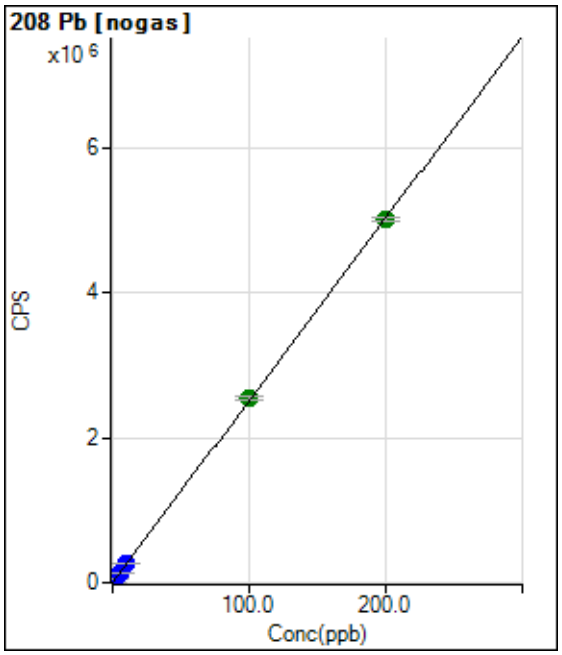


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	116.67	0.0001	P	48.0
2	☐	2.000	1.989	11837.82	0.0072	P	2.3
3	☐	5.000	5.174	29727.70	0.0186	P	1.5
4	☐	10.000	10.475	60981.10	0.0375	P	2.6
5	☐	100.000	100.300	571758.82	0.3586	P	1.5
6	☐	200.000	199.822	1115723.92	0.7144	P	1.8
7	☐	1.000					

y = 0.0036 * x + 7.2004E-005
R = 1.0000
DL = 0.02902
BEC = 0.02014

Weight: <None>
Min Conc: <None>

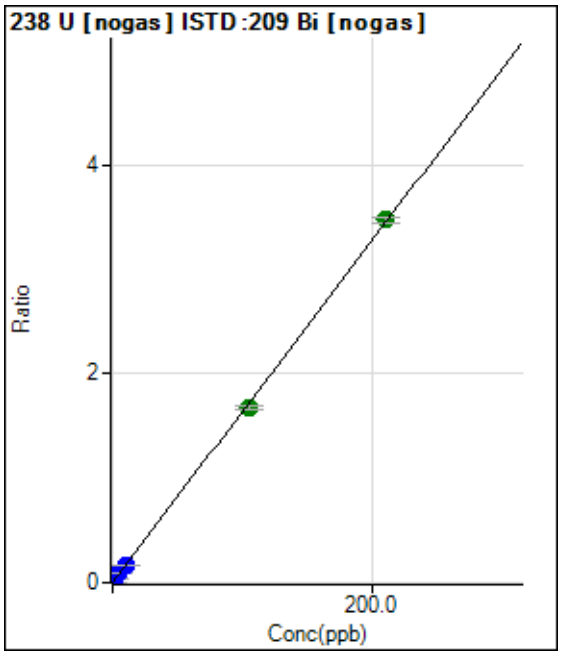
Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	496.68		P	13.7
2	☐	2.000	2.101	53335.26		P	0.8
3	☐	5.000	5.284	133377.56		P	1.2
4	☐	10.000	10.862	273677.09		P	1.2
5	☐	100.000	101.488	2552882.58		A	1.7
6	☐	200.000	199.205	5010431.49		A	1.1
7	☐	1.000					

y = 25149.6626 * x + 496.6767
R = 1.0000
DL = 0.00812
BEC = 0.01975

Weight: <None>
Min Conc: <None>

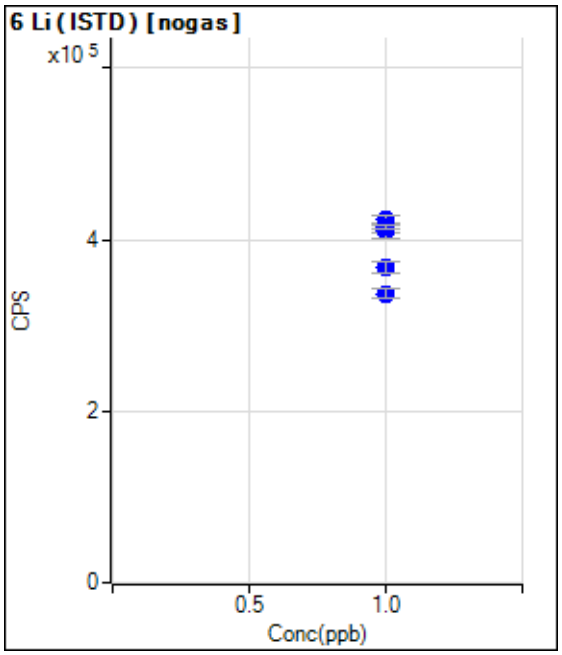


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	73.33	0.0000	P	22.0
2	☐	2.000	2.014	54523.79	0.0331	P	1.6
3	☐	5.000	5.216	137025.53	0.0856	P	4.2
4	☐	10.000	10.478	279560.42	0.1720	P	1.9
5	☐	105.000	101.811	2663723.66	1.6708	A	2.4
6	☐	210.000	211.566	5422698.25	3.4718	A	1.4
7	☐	1.000					

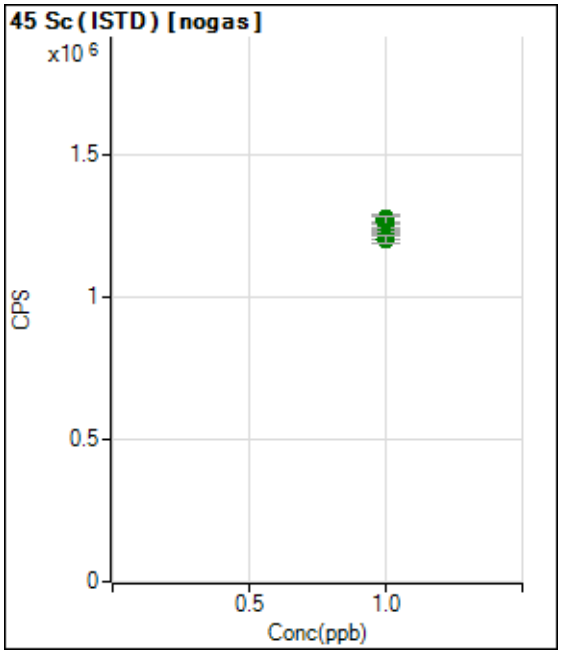
y = 0.0164 * x + 4.5245E-005
R = 0.9998
DL = 0.001819
BEC = 0.002757

Weight: <None>
Min Conc: <None>

Calibration for 012_ICV.d

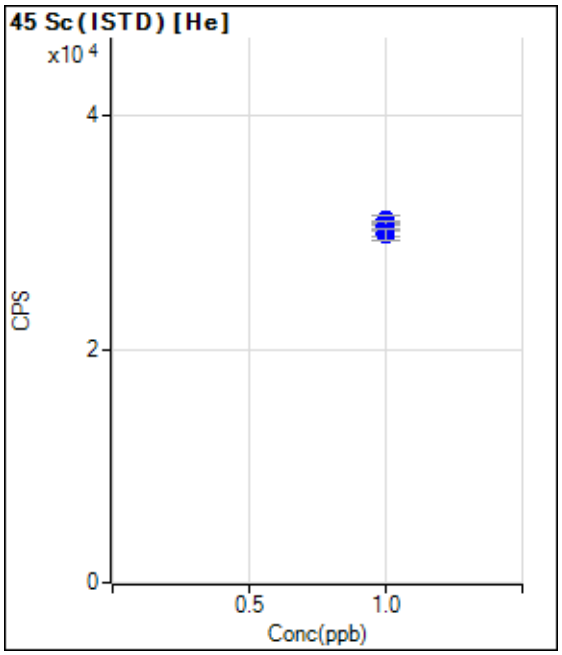


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		422913.49		P	2.8
2	☐	1.000		413832.08		P	2.9
3	☐	1.000		409111.00		P	3.9
4	☐	1.000		414875.65		P	1.5
5	☐	1.000		368033.98		P	3.5
6	☐	1.000		336953.38		P	3.7
7	☐	1.000					

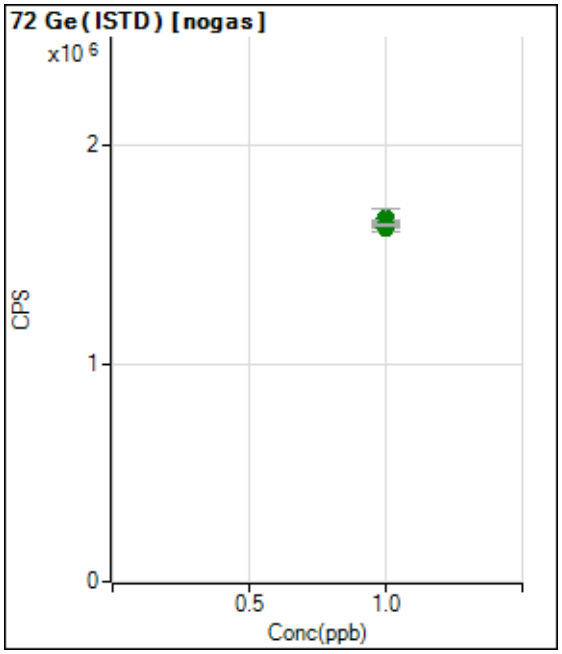


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1275917.01		A	2.2
2	☐	1.000		1270368.00		A	2.1
3	☐	1.000		1262664.67		A	3.5
4	☐	1.000		1231408.55		A	1.6
5	☐	1.000		1217071.05		A	1.8
6	☐	1.000		1205579.35		A	2.0
7	☐	1.000					

Calibration for 012_ICV.d

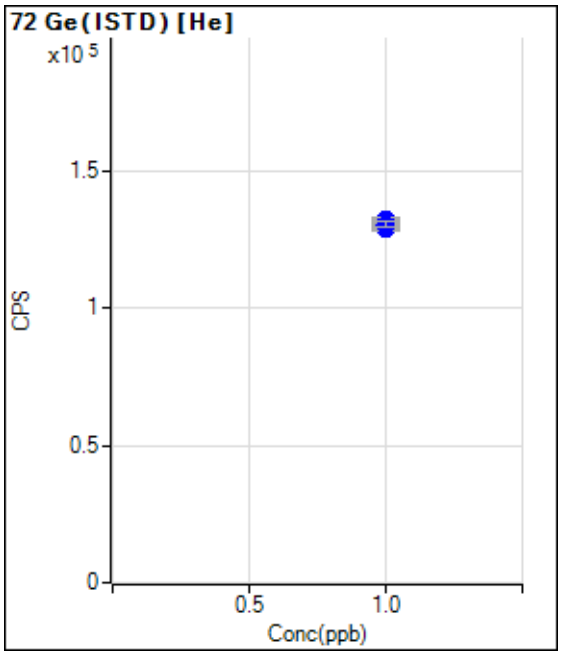


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		30358.59		P	1.9
2	☐	1.000		30445.24		P	1.4
3	☐	1.000		31059.73		P	2.1
4	☐	1.000		30568.86		P	2.3
5	☐	1.000		29934.61		P	2.4
6	☐	1.000		29721.02		P	3.3
7	☐	1.000					

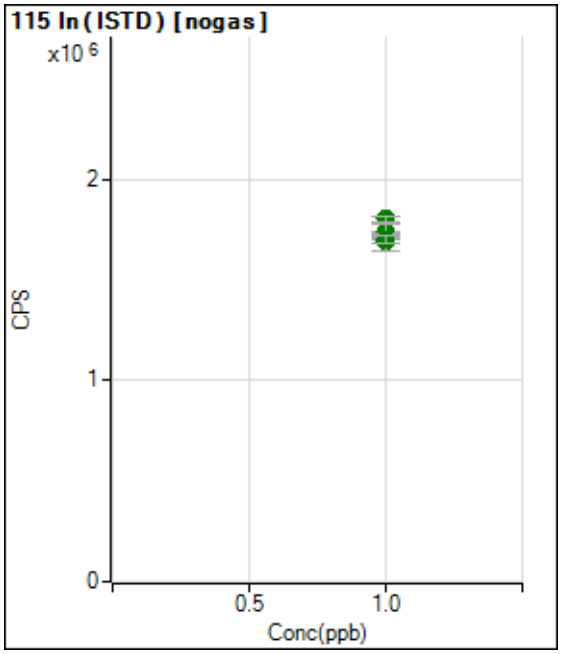


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1623144.67		A	0.3
2	☐	1.000		1662963.41		A	5.5
3	☐	1.000		1641364.82		A	0.1
4	☐	1.000		1656147.89		A	0.6
5	☐	1.000		1622907.22		A	2.1
6	☐	1.000		1631995.08		A	0.4
7	☐	1.000					

Calibration for 012_ICV.d

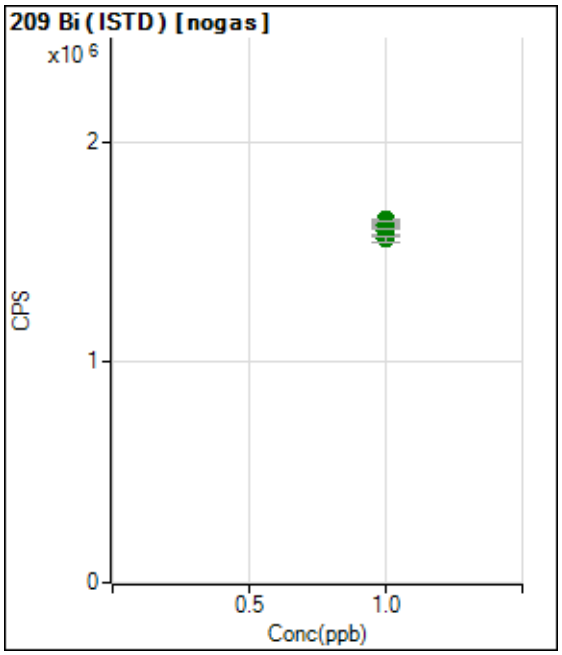


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		132260.15		P	1.5
2	☐	1.000		131545.01		P	1.2
3	☐	1.000		131908.20		P	1.5
4	☐	1.000		129994.48		P	0.5
5	☐	1.000		128929.62		P	0.5
6	☐	1.000		130626.97		P	1.8
7	☐	1.000					



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1725650.81		A	1.3
2	☐	1.000		1719930.82		A	2.4
3	☐	1.000		1803028.77		A	1.4
4	☐	1.000		1739125.40		A	4.0
5	☐	1.000		1686953.37		A	5.0
6	☐	1.000		1701076.98		A	2.1
7	☐	1.000					

Calibration for 012_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1623810.08		A	1.6
2	☐	1.000		1647714.72		A	0.5
3	☐	1.000		1601509.56		A	3.4
4	☐	1.000		1625685.91		A	1.6
5	☐	1.000		1594507.58		A	2.1
6	☐	1.000		1562019.04		A	1.6
7	☐	1.000					

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307499
Instrument: ICPMS05
Method: SW6020

ICV Date: 19-Dec-2017 09:47 Seq: 4357969 ICV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	99.948	100	90-110	
Beryllium	100	98.161	98	90-110	
Calcium	10000	9646.185	97	90-110	
Magnesium	10000	9678.59	97	90-110	
Manganese	100	99.542	100	90-110	
Silver	100	97.033	97	90-110	
Sodium	10000	9689.179	97	90-110	

CCV1 Date: 19-Dec-2017 10:09 Seq: 4358104 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	94.962	95	90-110	
Beryllium	100	98.449	98	90-110	
Calcium	10000	9667	97	90-110	
Magnesium	10000	9639.014	96	90-110	
Manganese	100	97.592	98	90-110	
Silver	100	98.527	99	90-110	
Sodium	10000	9706.219	97	90-110	

CCV2 Date: 19-Dec-2017 10:34 Seq: 4358116 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	98.656	99	90-110	
Beryllium	100	98.233	98	90-110	
Calcium	10000	9486.909	95	90-110	
Magnesium	10000	9879.931	99	90-110	
Manganese	100	98.565	99	90-110	
Silver	100	95.04	95	90-110	
Sodium	10000	10243.345	102	90-110	

CCV3 Date: 19-Dec-2017 10:57 Seq: 4358128 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	104.958	105	90-110	
Beryllium	100	95.655	96	90-110	
Calcium	10000	9586.215	96	90-110	
Magnesium	10000	9813.257	98	90-110	
Manganese	100	97.828	98	90-110	
Silver	100	96.496	97	90-110	
Sodium	10000	10419.158	104	90-110	

CCV4 Date: 19-Dec-2017 11:46 Seq: 4358904 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	98.204	98	90-110	
Beryllium	100	92.326	92	90-110	
Calcium	10000	9823.688	98	90-110	
Magnesium	10000	9798.511	98	90-110	
Manganese	100	97.32	97	90-110	
Silver	100	94.836	95	90-110	
Sodium	10000	10032.412	100	90-110	

CCV5 Date: 19-Dec-2017 12:10 Seq: 4358916 CCV Units: ug/L

Analyte	True	Found	%R	Control Limits	Flag
Barium	100	99.349	99	90-110	
Beryllium	100	91.156	91	90-110	
Calcium	10000	9655.549	97	90-110	
Magnesium	10000	9914.332	99	90-110	
Manganese	100	96.355	96	90-110	
Silver	100	95.544	96	90-110	
Sodium	10000	9930.566	99	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307499
Instrument: ICPMS05
Method: SW6020

CCV6	Date: 19-Dec-2017 12:34		Seq: 4358928	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	100.094	100	90-110	
Beryllium	100	93.088	93	90-110	
Calcium	10000	9661.684	97	90-110	
Magnesium	10000	9732.891	97	90-110	
Manganese	100	95.563	96	90-110	
Silver	100	95.84	96	90-110	
Sodium	10000	9992.221	100	90-110	

CCV7	Date: 19-Dec-2017 12:58		Seq: 4358946	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	97.792	98	90-110	
Beryllium	100	94.54	95	90-110	
Calcium	10000	9486.536	95	90-110	
Magnesium	10000	9677.476	97	90-110	
Manganese	100	96.656	97	90-110	
Silver	100	96.285	96	90-110	
Sodium	10000	9687.223	97	90-110	

CCV8	Date: 19-Dec-2017 13:22		Seq: 4358958	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	98.029	98	90-110	
Beryllium	100	97.863	98	90-110	
Calcium	10000	9557.149	96	90-110	
Magnesium	10000	10004.571	100	90-110	
Manganese	100	97.89	98	90-110	
Silver	100	96.915	97	90-110	
Sodium	10000	10034.624	100	90-110	

CCV9	Date: 19-Dec-2017 13:46		Seq: 4358987	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	97.84	98	90-110	
Beryllium	100	89.221	89	90-110	S
Calcium	10000	9171.788	92	90-110	
Magnesium	10000	9418.898	94	90-110	
Manganese	100	94.852	95	90-110	
Silver	100	95.383	95	90-110	
Sodium	10000	9695.133	97	90-110	

CCV10	Date: 19-Dec-2017 14:10		Seq: 4358999	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	98.388	98	90-110	
Beryllium	100	92.64	93	90-110	
Calcium	10000	9662.723	97	90-110	
Magnesium	10000	9638.572	96	90-110	
Manganese	100	95.963	96	90-110	
Silver	100	96.895	97	90-110	
Sodium	10000	9928.696	99	90-110	

CCV11	Date: 19-Dec-2017 14:34		Seq: 4359018	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	99.398	99	90-110	
Beryllium	100	96.881	97	90-110	
Calcium	10000	9201.282	92	90-110	
Magnesium	10000	9916.164	99	90-110	
Manganese	100	98.298	98	90-110	
Silver	100	94.358	94	90-110	
Sodium	10000	9895.824	99	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307499
Instrument: ICPMS05
Method: SW6020

CCV12	Date: 19-Dec-2017 14:58		Seq: 4359031	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	97.621	98	90-110	
Beryllium	100	97.991	98	90-110	
Calcium	10000	9504.373	95	90-110	
Magnesium	10000	9676.683	97	90-110	
Manganese	100	96.189	96	90-110	
Silver	100	97.015	97	90-110	
Sodium	10000	9914.756	99	90-110	

CCV13	Date: 19-Dec-2017 15:22		Seq: 4359043	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	94.364	94	90-110	
Beryllium	100	93.582	94	90-110	
Calcium	10000	9860.224	99	90-110	
Magnesium	10000	9482.826	95	90-110	
Manganese	100	95.083	95	90-110	
Silver	100	94.869	95	90-110	
Sodium	10000	9828.011	98	90-110	

CCV14	Date: 19-Dec-2017 15:47		Seq: 4359082	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	97.591	98	90-110	
Beryllium	100	94.393	94	90-110	
Calcium	10000	9412.95	94	90-110	
Magnesium	10000	9400.154	94	90-110	
Manganese	100	93.835	94	90-110	
Silver	100	94.001	94	90-110	
Sodium	10000	9744.694	97	90-110	

CCV15	Date: 19-Dec-2017 16:11		Seq: 4359597	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	98.675	99	90-110	
Beryllium	100	90.365	90	90-110	
Calcium	10000	9658.022	97	90-110	
Magnesium	10000	9481.622	95	90-110	
Manganese	100	95.157	95	90-110	
Silver	100	95.154	95	90-110	
Sodium	10000	9718.249	97	90-110	

CCV16	Date: 19-Dec-2017 16:35		Seq: 4359609	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	95.855	96	90-110	
Beryllium	100	91.357	91	90-110	
Calcium	10000	9616.69	96	90-110	
Magnesium	10000	9675.283	97	90-110	
Manganese	100	97.157	97	90-110	
Silver	100	96.79	97	90-110	
Sodium	10000	9885.677	99	90-110	

CCV17	Date: 19-Dec-2017 16:59		Seq: 4359641	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	97.646	98	90-110	
Beryllium	100	87.569	88	90-110	S
Calcium	10000	9613.451	96	90-110	
Magnesium	10000	9398.358	94	90-110	
Manganese	100	96.254	96	90-110	
Silver	100	96.491	97	90-110	
Sodium	10000	9882.624	99	90-110	

ALS Group USA, Corp Date: 22-Dec-17

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307499
Instrument: ICPMS05
Method: SW6020

CCV18	Date: 19-Dec-2017 17:23		Seq: 4359653	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	98.573	99	90-110	
Beryllium	100	89.142	89	90-110	S
Calcium	10000	9533.81	95	90-110	
Magnesium	10000	9669.375	97	90-110	
Manganese	100	97.032	97	90-110	
Silver	100	95.123	95	90-110	
Sodium	10000	9846.457	99	90-110	

CCV19	Date: 19-Dec-2017 17:47		Seq: 4359683	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	98.421	98	90-110	
Beryllium	100	90.707	91	90-110	
Calcium	10000	9580.459	96	90-110	
Magnesium	10000	9478.251	95	90-110	
Manganese	100	96.129	96	90-110	
Silver	100	94.58	95	90-110	
Sodium	10000	10250.75	103	90-110	

CCV20	Date: 19-Dec-2017 17:59		Seq: 4359690	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	97.414	97	90-110	
Beryllium	100	95.848	96	90-110	
Calcium	10000	9763.175	98	90-110	
Magnesium	10000	9689.453	97	90-110	
Manganese	100	94.556	95	90-110	
Silver	100	96.673	97	90-110	
Sodium	10000	10274.532	103	90-110	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307499
Instrument: ICPMS05
Method: SW6020

ICB	Date: 19-Dec-2017 09:53		Seq: 4357972	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-52.55	14	200	J	

CCB1	Date: 19-Dec-2017 10:11		Seq: 4358105	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-33.15	14	200	J	

CCB2	Date: 19-Dec-2017 10:35		Seq: 4358117	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	

CCB3	Date: 19-Dec-2017 10:59		Seq: 4358129	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	12.84	10	200	J	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	230.5	14	200		

CCB4	Date: 19-Dec-2017 11:48		Seq: 4358905	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	

CCB5	Date: 19-Dec-2017 12:12		Seq: 4358917	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307499
Instrument: ICPMS05
Method: SW6020

CCB5	Date: 19-Dec-2017 12:12		Seq: 4358917	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Sodium	200	14	200	U	

CCB6	Date: 19-Dec-2017 12:36		Seq: 4358929	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	

CCB7	Date: 19-Dec-2017 13:00		Seq: 4358947	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-51.18	14	200	J	

CCB8	Date: 19-Dec-2017 13:24		Seq: 4358959	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-61.42	14	200	J	

CCB9	Date: 19-Dec-2017 13:48		Seq: 4358988	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-34.9	14	200	J	

CCB10	Date: 19-Dec-2017 14:12		Seq: 4359000	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-38.17	14	200	J	

CCB11	Date: 19-Dec-2017 14:36		Seq: 4359019	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307499
Instrument: ICPMS05
Method: SW6020

CCB11	Date: 19-Dec-2017 14:36		Seq: 4359019	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-28.47	14	200	J	

CCB12	Date: 19-Dec-2017 15:00		Seq: 4359032	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-19.94	14	200	J	

CCB13	Date: 19-Dec-2017 15:24		Seq: 4359044	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-30.26	14	200	J	

CCB14	Date: 19-Dec-2017 15:48		Seq: 4359083	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-33.31	14	200	J	

CCB15	Date: 19-Dec-2017 16:13		Seq: 4359598	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-17.25	14	200	J	

CCB16	Date: 19-Dec-2017 16:37		Seq: 4359610	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	-21.51	14	200	J	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Run ID: ICPMS05_307499
Instrument: ICPMS05
Method: SW6020

CCB17	Date: 19-Dec-2017 17:01		Seq: 4359642	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	92.44	14	200	J	

CCB18	Date: 19-Dec-2017 17:25		Seq: 4359654	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	200	14	200	U	

CCB19	Date: 19-Dec-2017 17:49		Seq: 4359684	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	254.6	14	200		

CCB20	Date: 19-Dec-2017 18:01		Seq: 4359691	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Beryllium	2	0.2	2	U	
Calcium	500	34	500	U	
Magnesium	200	10	200	U	
Manganese	5	0.7	5	U	
Silver	2	0.2	2	U	
Sodium	159	14	200	J	

ALS Group USA, Corp Date: 22-Dec-17

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc. Run ID:ICPMS05_307499
Project: LHAAP Site 18/24 Instrument:ICPMS05
WorkOrder: HS17120573 Method:SW6020

ICSA	Date: 19-Dec-2017 09:55	Seq: 4357973	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium		0.126	0	
Beryllium		0.016	0	
Calcium	100000	97590	97.6	
Magnesium	100000	94480	94.5	
Manganese		0.288	0	
Silver		0.016	0	
Sodium	100000	98450	98.5	

ICSAB	Date: 19-Dec-2017 09:57	Seq: 4357974	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium	100	90.23	90.2	
Beryllium	100	84.73	84.7	
Calcium	110000	113400	103	
Magnesium	110000	107600	97.8	
Manganese	100	85.73	85.7	
Silver	100	83.04	83.0	
Sodium	110000	109900	99.9	

ICSA	Date: 19-Dec-2017 18:07	Seq: 4359694	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium		0.16	0	
Beryllium		0.009	0	
Calcium	100000	96480	96.5	
Magnesium	100000	96340	96.3	
Manganese		0.457	0	
Silver		-0.001	0	
Sodium	100000	98490	98.5	

ICSAB	Date: 19-Dec-2017 18:09	Seq: 4359695	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium	100	87.3	87.3	
Beryllium	100	76.78	76.8	
Calcium	110000	105600	96.0	
Magnesium	110000	104700	95.2	
Manganese	100	82.65	82.7	
Silver	100	80.86	80.9	
Sodium	110000	108800	98.9	

ALS Group USA, Corp Date: 22-Dec-17

Form 11 - INTERNAL STANDARD ASSOCIATION

Client: Bhate Environmental Associates, Inc. Instrument:ICPMS05
Project: LHAAP Site 18/24
WorkOrder: HS17120573

Mass	Analyte	Assoc Int Standard 1	Assoc Int Standard 2	Mode
9	Beryllium	Lithium		Ar
11	Boron	Lithium		Ar
23	Sodium	Germanium		Ar
24	Magnesium	Germanium		Ar
27	Aluminum	Germanium		Ar
39	Potassium	Germanium		Ar
44	Calcium	Germanium		Ar
47	Titanium	Germanium		Ar
51	Vanadium	Germanium		ArHe
52	Chromium	Germanium		ArHe
55	Manganese	Germanium		ArHe
56	Iron	Germanium		ArHe
59	Cobalt	Germanium		ArHe
60	Nickel	Germanium		ArHe
63	Copper	Germanium		ArHe
66	Zinc	Germanium		ArHe
75	Arsenic	Germanium		ArHe
78	Selenium	Germanium		ArHe
88	Strontium	Germanium		Ar
95	Molybdenum	Germanium		Ar
105	Palladium	Germanium		Ar
107	Silver	Germanium		Ar
114	Cadmium	Indium		Ar
118	Tin	Germanium		Ar
121	Antimony	Germanium		ArHe
137	Barium	Indium		Ar
205	Thallium	Bismuth		Ar
208	Lead	Bismuth		Ar

ALS Group USA, Corp Date: 22-Dec-17

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573
Start Date: 14-Dec-2017 12:00 End Date: 14-Dec-2017 16:00

Batch ID: 123330
Prep Code: 3010A
Method: SW3010A
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS17120494-10MS				10	10	1
HS17120494-10MSD				10	10	1
HS17120494-10PDS				10	10	1
HS17120494-10SD				10	10	1
HS17120573-01	18CPTMW24_120717	Water		10	10	1
HS17120573-02	18CPTMW14_120717	Water		10	10	1
HS17120573-03	18CPTMW14_120717_a	Water		10	10	1
HS17120573-05	18WW24_120717	Water		10	10	1
HS17120573-06	18WW25_120717	Water		10	10	1
HS17120573-09	18WW02_120817	Water		10	10	1
LCS-123330				10	10	1
MBLK-123330				10	10	1

ALS Group USA, Corp Date: 22-Dec-17

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573
Start Date: 19-Dec-2017 End Date: 19-Dec-2017

Run ID:ICPMS05_307499
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
ICPMS05_307499_Tune	1	19-Dec-2017 00:00	ICPMS05_307499_Tune_1	
CAL BLK	1	19-Dec-2017 09:33	004CALB.d_4357962	AG BA BE CA MG MN NA
2/10/200	1	19-Dec-2017 09:35	005CALS.d_4357963	AG BA BE CA MG MN NA
5/25/500	1	19-Dec-2017 09:37	006CALS.d_4357964	AG BA BE CA MG MN NA
10/50/1000	1	19-Dec-2017 09:39	007CALS.d_4357965	AG BA BE CA MG MN NA
100/500/10K	1	19-Dec-2017 09:41	008CALS.d_4357966	AG BA BE CA MG MN NA
200/1000/20K	1	19-Dec-2017 09:43	009CALS.d_4357967	AG BA BE CA MG MN NA
ICV	1	19-Dec-2017 09:47	011_ICV.d_4357969	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLICV2	1	19-Dec-2017 09:49	012SMPL.d_4357970	AG BA BE CA MG MN NA
LLICV5	1	19-Dec-2017 09:51	013LICV.d_4357971	AG BA BE CA MG MN NA
ICB	1	19-Dec-2017 09:53	014_ICB.d_4357972	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
ICSA	1	19-Dec-2017 09:55	015ICSA.d_4357973	AG BA BE CA MG MN NA
ICSAB	1	19-Dec-2017 09:57	016ICSB.d_4357974	AG BA BE CA MG MN NA
CCV 1	1	19-Dec-2017 10:09	022_CCV.d_4358104	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 1	1	19-Dec-2017 10:11	023_CCB.d_4358105	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 2	1	19-Dec-2017 10:34	034_CCV.d_4358116	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 2	1	19-Dec-2017 10:35	035_CCB.d_4358117	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
18CPTMW24_120717	10	19-Dec-2017 10:41	038SMPL.d_4358120	BA CA MG NA
18CPTMW14_120717	10	19-Dec-2017 10:43	039SMPL.d_4358121	BA CA NA
18CPTMW14_120717_a	10	19-Dec-2017 10:45	040SMPL.d_4358122	BA CA NA
18WW24_120717	10	19-Dec-2017 10:47	041SMPL.d_4358123	MN NA
18CPTMW24_120717	1	19-Dec-2017 10:51	043SMPL.d_4358125	AG BE
18CPTMW14_120717	1	19-Dec-2017 10:53	044SMPL.d_4358126	AG BE
18CPTMW14_120717_a	1	19-Dec-2017 10:55	045SMPL.d_4358127	AG BE
CCV 3	1	19-Dec-2017 10:57	046_CCV.d_4358128	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 3	1	19-Dec-2017 10:59	047_CCB.d_4358129	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
18WW24_120717	1	19-Dec-2017 11:01	048SMPL.d_4358130	AG BE
18WW25_120717	1	19-Dec-2017 11:03	049SMPL.d_4358131	AG BE
18WW02_120817	1	19-Dec-2017 11:05	050SMPL.d_4358132	AG BE
CCV 4	1	19-Dec-2017 11:46	058_CCV.d_4358904	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 4	1	19-Dec-2017 11:48	059_CCB.d_4358905	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 5	1	19-Dec-2017 12:10	070_CCV.d_4358916	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 5	1	19-Dec-2017 12:12	071_CCB.d_4358917	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 6	1	19-Dec-2017 12:34	082_CCV.d_4358928	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 6	1	19-Dec-2017 12:36	083_CCB.d_4358929	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 7	1	19-Dec-2017 12:58	094_CCV.d_4358946	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 7	1	19-Dec-2017 13:00	095_CCB.d_4358947	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 8	1	19-Dec-2017 13:22	106_CCV.d_4358958	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 8	1	19-Dec-2017 13:24	107_CCB.d_4358959	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 9	1	19-Dec-2017 13:46	118_CCV.d_4358987	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 9	1	19-Dec-2017 13:48	119_CCB.d_4358988	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN

ALS Group USA, Corp Date: 22-Dec-17

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: LHAAP Site 18/24
WorkOrder: HS17120573
Start Date: 19-Dec-2017 End Date: 19-Dec-2017

Run ID:ICPMS05_307499
Instrument:ICPMS05
Method:

Sample No.	D/F	Time	FileID	Analytes
CCV 10	1	19-Dec-2017 14:10	130_CCV.d_4358999	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 10	1	19-Dec-2017 14:12	131_CCB.d_4359000	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 11	1	19-Dec-2017 14:34	142_CCV.d_4359018	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 11	1	19-Dec-2017 14:36	143_CCB.d_4359019	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 12	1	19-Dec-2017 14:58	154_CCV.d_4359031	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 12	1	19-Dec-2017 15:00	155_CCB.d_4359032	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 13	1	19-Dec-2017 15:22	166_CCV.d_4359043	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 13	1	19-Dec-2017 15:24	167_CCB.d_4359044	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 14	1	19-Dec-2017 15:47	178_CCV.d_4359082	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 14	1	19-Dec-2017 15:48	179_CCB.d_4359083	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 15	1	19-Dec-2017 16:11	190_CCV.d_4359597	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 15	1	19-Dec-2017 16:13	191_CCB.d_4359598	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 16	1	19-Dec-2017 16:35	202_CCV.d_4359609	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 16	1	19-Dec-2017 16:37	203_CCB.d_4359610	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 17	1	19-Dec-2017 16:59	214_CCV.d_4359641	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 17	1	19-Dec-2017 17:01	215_CCB.d_4359642	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 18	1	19-Dec-2017 17:23	226_CCV.d_4359653	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 18	1	19-Dec-2017 17:25	227_CCB.d_4359654	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 19	1	19-Dec-2017 17:47	238_CCV.d_4359683	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 19	1	19-Dec-2017 17:49	239_CCB.d_4359684	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCV 20	1	19-Dec-2017 17:59	244_CCV.d_4359690	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
CCB 20	1	19-Dec-2017 18:01	245_CCB.d_4359691	AG AL AS BA BE CA CD CO CR CU FE K MG MN NA NI PB SB SE TL V ZN
LLCCV5	1	19-Dec-2017 18:03	246LICV.d_4359692	AG BA BE CA MG MN NA
LLCCV2	1	19-Dec-2017 18:05	247SMPL.d_4359693	AG BA BE CA MG MN NA
ICSA	1	19-Dec-2017 18:07	248ICSA.d_4359694	AG BA BE CA MG MN NA
ICSAB	1	19-Dec-2017 18:09	249ICSB.d_4359695	AG BA BE CA MG MN NA

Tune Report

Batch Folder C:\Agilent\ICPMH\1\DATA\121917A.b
Report Comment
Instrument Name G3281A JP11080910

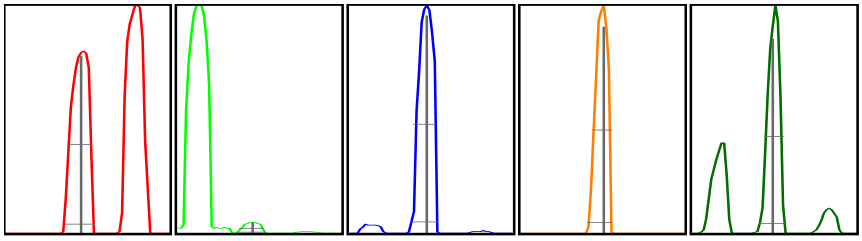
[nogas]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		9423				NaN	-	
24		28514				NaN	-	
59		39587				NaN	-	
115		44709				NaN	-	
208		25518				NaN	-	

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	1.52	5.00				
24	0.97	5.00				
59	0.84	5.00				
115	1.40	5.00				
208	1.14	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	9454	9330	9226	9552	9552
24	29006	28449	28403	28341	28372
59	40091	39639	39263	39631	39313
115	45124	43987	44170	44802	45463
208	25276	25504	25567	25978	25267

Integration Time [sec] 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	2317.65	8.90	8.9 - 9.1		0.41	0.533	0.750	
24	7394.32	23.90	23.9 - 24.1		0.39	0.493	0.750	
59	11004.47	58.95	58.9 - 59.1		0.37	0.472	0.750	
115	13778.20	115.05	114.9 - 115.1		0.32	0.440	0.750	
208	7899.08	208.00	207.9 - 208.1		0.30	0.486	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1600 W	Carrier Gas	0.35 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.50 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	15.6 V
Extract 2	-200.0 V	Cell Entrance	-38 V	Plate Bias	-50 V
Omega Bias	-100 V	Cell Exit	-58 V		

Cell Parameters

OctP Bias	-8.0 V	He Flow	0.0 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

[He]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		83				NaN	-	
24		572				NaN	-	
59		9931				NaN	-	

Tune Report

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	15.97	5.00	[F]			
24	3.74	5.00				
59	1.69	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	75	79	84	72	105
24	554	554	583	565	604
59	9677	9859	9984	10033	10104

Integration Time [sec] 0.1

Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	22.12	8.90	8.9 - 9.1		0.37	0.521	0.750	
24	150.37	23.90	23.9 - 24.1		0.39	0.490	0.750	
59	2968.40	58.95	58.9 - 59.1		0.33	0.441	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.35 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.50 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	2.0 V
Extract 2	-200.0 V	Cell Entrance	-32 V	Plate Bias	-60 V
Omega Bias	-100 V	Cell Exit	-70 V		

Cell Parameters

OctP Bias	-18.0 V	He Flow	5.5 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	004CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:33:55-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	43	110.86
Na	23	1	nogas	2267962	0.00
Mg	24	1	nogas	5135	0.23
Al	27	1	nogas	25271	0.00
K	39	1	nogas	5362888	0.00
Ti	47	1	nogas	230	9.45
V	51	1	nogas	900105	0.00
Cr	52	1	nogas	31220	0.01
Mn	55	1	nogas	9202	0.06
Co	59	1	nogas	287	3.72
Ni	60	1	nogas	2060	0.08
Cu	63	1	nogas	5904	0.13
Zn	66	1	nogas	697	1.72
As	75	1	nogas	144048	0.00
Sr	88	1	nogas	920	1.70
Ag	107	1	nogas	570	2.15
Cd	111	1	nogas	10	1732.05
Sb	121	1	nogas	3524	0.14
Tl	205	1	nogas	197	11.66
Pb	208	1	nogas	517	3.38
[Pb]	206	1	nogas	97	64.51
[Pb]	207	1	nogas	123	13.69
Na	23	2	He	63924	0.00
Mg	24	2	He	213	15.43
Al	27	2	He	123	50.21
K	39	2	He	14239	0.01
Ca	43	2	He	10	1000.00
Ca	44	2	He	173	5.08
V	51	2	He	614	0.37
Cr	52	2	He	1177	0.59
Mn	55	2	He	157	10.25
Fe	56	2	He	3927	0.24
Co	59	2	He	13	1299.04
Ni	60	2	He	227	16.21
Cu	63	2	He	1250	0.51
Zn	66	2	He	57	64.83
As	75	2	He	16	79.68
Se	78	2	He	5	530.22
B	11	1	nogas	113647	0.00
Si	28	1	nogas	1750484	0.00
Ca	43	1	nogas	870	1.95
Ca	44	1	nogas	269196	0.00

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	1003912	0.00
Se	77	1	nogas	47452	0.01
Se	82	1	nogas	467	5.54
Mo	95	1	nogas	317	7.55
Sn	118	1	nogas	1060	1.78
Ba	137	1	nogas	80	54.13
Sb	121	2	He	380	3.02
Li	7	1	nogas	41606	0.00
P	31	1	nogas	74898	0.00
La	139	1	nogas	107	30.87

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	nogas	363379	2.34
Ge	72	1	nogas	1518701	1.58
In	115	1	nogas	1623624	2.53
Bi	209	1	nogas	1463804	1.65
Ge	72	2	He	127073	1.34

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	005CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:35:54-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	5928	0.07
Na	23	1	nogas	5005149	0.00
Mg	24	1	nogas	1882621	0.00
Al	27	1	nogas	48584	0.00
K	39	1	nogas	7330193	0.00
Ti	47	1	nogas	2013	0.19
V	51	1	nogas	1001483	0.00
Cr	52	1	nogas	58442	0.00
Mn	55	1	nogas	42118	0.00
Co	59	1	nogas	30145	0.01
Ni	60	1	nogas	8409	0.04
Cu	63	1	nogas	22588	0.01
Zn	66	1	nogas	6235	0.00
As	75	1	nogas	160165	0.00
Sr	88	1	nogas	34126	0.01
Ag	107	1	nogas	21003	0.00
Cd	111	1	nogas	4431	0.21
Sb	121	1	nogas	21984	0.01
Tl	205	1	nogas	34634	0.01
Pb	208	1	nogas	49407	0.00
[Pb]	206	1	nogas	12045	0.01
[Pb]	207	1	nogas	10797	0.04
Na	23	2	He	114079	0.00
Mg	24	2	He	26793	0.01
Al	27	2	He	197	10.76
K	39	2	He	26796	0.01
Ca	43	2	He	77	25.99
Ca	44	2	He	1097	0.49
V	51	2	He	3461	0.06
Cr	52	2	He	5127	0.11
Mn	55	2	He	1740	0.77
Fe	56	2	He	302218	0.00
Co	59	2	He	6791	0.01
Ni	60	2	He	2254	0.38
Cu	63	2	He	6745	0.05
Zn	66	2	He	900	1.42
As	75	2	He	530	2.80
Se	78	2	He	18	106.92
B	11	1	nogas	128865	0.00
Si	28	1	nogas	2290361	0.00

Calibration Standard Report

Ca	43	1	nogas	4767	0.11
Ca	44	1	nogas	330552	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	4233324	0.00
Se	77	1	nogas	51567	0.01
Se	82	1	nogas	680	1.42
Mo	95	1	nogas	7375	0.02
Sn	118	1	nogas	11988	0.03
Ba	137	1	nogas	5808	0.09
Sb	121	2	He	2614	0.17
P	31	1	nogas	80846	0.00
La	139	1	nogas	80	31.25

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	362157	2.27	363379	99.66	70	125	
Ge	72	1	nogas	1526723	2.32	1518701	100.53	70	125	
In	115	1	nogas	1617585	3.21	1623624	99.63	70	125	
Bi	209	1	nogas	1506072	2.24	1463804	102.89	70	125	
Ge	72	2	He	128881	2.50	127073	101.42	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	006CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:37:54-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	15753	0.01
Na	23	1	nogas	8534325	0.00
Mg	24	1	nogas	4590498	0.00
Al	27	1	nogas	86047	0.00
K	39	1	nogas	10357451	0.00
Ti	47	1	nogas	5294	0.04
V	51	1	nogas	1121005	0.00
Cr	52	1	nogas	97802	0.00
Mn	55	1	nogas	92634	0.00
Co	59	1	nogas	75684	0.00
Ni	60	1	nogas	19094	0.02
Cu	63	1	nogas	45283	0.00
Zn	66	1	nogas	13765	0.03
As	75	1	nogas	174117	0.00
Sr	88	1	nogas	86267	0.00
Ag	107	1	nogas	51770	0.00
Cd	111	1	nogas	10947	0.04
Sb	121	1	nogas	48438	0.00
Tl	205	1	nogas	86834	0.00
Pb	208	1	nogas	123283	0.00
[Pb]	206	1	nogas	30459	0.01
[Pb]	207	1	nogas	27744	0.01
Na	23	2	He	193120	0.00
Mg	24	2	He	66036	0.00
Al	27	2	He	263	0.83
K	39	2	He	48433	0.00
Ca	43	2	He	90	12.35
Ca	44	2	He	2087	0.06
V	51	2	He	7758	0.03
Cr	52	2	He	10657	0.06
Mn	55	2	He	4031	0.22
Fe	56	2	He	767960	0.00
Co	59	2	He	16167	0.01
Ni	60	2	He	4844	0.05
Cu	63	2	He	14449	0.02
Zn	66	2	He	2070	0.82
As	75	2	He	1246	0.30
Se	78	2	He	52	33.89
B	11	1	nogas	149943	0.00
Si	28	1	nogas	3023577	0.00

Calibration Standard Report

Ca	43	1	nogas	11267	0.01
Ca	44	1	nogas	428481	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	8984717	0.00
Se	77	1	nogas	55077	0.01
Se	82	1	nogas	1207	1.10
Mo	95	1	nogas	19034	0.01
Sn	118	1	nogas	29590	0.01
Ba	137	1	nogas	14043	0.01
Sb	121	2	He	5758	0.06
P	31	1	nogas	94325	0.00
La	139	1	nogas	490	2.20

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	372372	0.59	363379	102.47	70	125	
Ge	72	1	nogas	1522300	1.68	1518701	100.24	70	125	
In	115	1	nogas	1616305	1.83	1623624	99.55	70	125	
Bi	209	1	nogas	1487197	2.74	1463804	101.60	70	125	
Ge	72	2	He	128905	3.86	127073	101.44	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	007CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:39:54-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	31660	0.01
Na	23	1	nogas	15058620	0.00
Mg	24	1	nogas	9304223	0.00
Al	27	1	nogas	148821	0.00
K	39	1	nogas	15330728	0.00
Ti	47	1	nogas	10940	0.00
V	51	1	nogas	1257246	0.00
Cr	52	1	nogas	171054	0.00
Mn	55	1	nogas	178315	0.00
Co	59	1	nogas	149772	0.00
Ni	60	1	nogas	35001	0.00
Cu	63	1	nogas	86834	0.00
Zn	66	1	nogas	26616	0.01
As	75	1	nogas	196552	0.00
Sr	88	1	nogas	175900	0.00
Ag	107	1	nogas	102730	0.00
Cd	111	1	nogas	21617	0.01
Sb	121	1	nogas	94751	0.00
Tl	205	1	nogas	172875	0.00
Pb	208	1	nogas	247194	0.00
[Pb]	206	1	nogas	60667	0.00
[Pb]	207	1	nogas	56057	0.00
Na	23	2	He	328030	0.00
Mg	24	2	He	132575	0.00
Al	27	2	He	563	2.75
K	39	2	He	82043	0.00
Ca	43	2	He	207	9.46
Ca	44	2	He	4171	0.12
V	51	2	He	15087	0.01
Cr	52	2	He	21603	0.02
Mn	55	2	He	7955	0.01
Fe	56	2	He	1601888	0.00
Co	59	2	He	32639	0.00
Ni	60	2	He	9633	0.05
Cu	63	2	He	27518	0.02
Zn	66	2	He	3911	0.25
As	75	2	He	2666	0.08
Se	78	2	He	104	13.96
B	11	1	nogas	193958	0.00
Si	28	1	nogas	4364071	0.00

Calibration Standard Report

Ca	43	1	nogas	21533	0.01
Ca	44	1	nogas	586159	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	17039420	0.00
Se	77	1	nogas	57304	0.01
Se	82	1	nogas	1763	0.58
Mo	95	1	nogas	38181	0.00
Sn	118	1	nogas	58114	0.00
Ba	137	1	nogas	27873	0.00
Sb	121	2	He	11701	0.01
P	31	1	nogas	114199	0.00
La	139	1	nogas	77	19.65

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	368256	1.01	363379	101.34	70	125	
Ge	72	1	nogas	1540977	2.63	1518701	101.47	70	125	
In	115	1	nogas	1628178	1.44	1623624	100.28	70	125	
Bi	209	1	nogas	1509856	0.46	1463804	103.15	70	125	
Ge	72	2	He	128720	1.22	127073	101.30	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	008CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:41:53-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	284999	0.00
Na	23	1	nogas	120805544	0.00
Mg	24	1	nogas	82975623	0.00
Al	27	1	nogas	1056732	0.00
K	39	1	nogas	95479490	0.00
Ti	47	1	nogas	94103	0.00
V	51	1	nogas	2334562	0.00
Cr	52	1	nogas	1285390	0.00
Mn	55	1	nogas	1548711	0.00
Co	59	1	nogas	1382419	0.00
Ni	60	1	nogas	301217	0.00
Cu	63	1	nogas	738351	0.00
Zn	66	1	nogas	240788	0.00
As	75	1	nogas	419140	0.00
Sr	88	1	nogas	1540709	0.00
Ag	107	1	nogas	918877	0.00
Cd	111	1	nogas	196699	0.00
Sb	121	1	nogas	868330	0.00
Tl	205	1	nogas	1680260	0.00
Pb	208	1	nogas	2303274	0.00
[Pb]	206	1	nogas	577386	0.00
[Pb]	207	1	nogas	500950	0.00
Na	23	2	He	2465246	0.00
Mg	24	2	He	1143382	0.00
Al	27	2	He	3487	0.30
K	39	2	He	619879	0.00
Ca	43	2	He	2237	0.43
Ca	44	2	He	35311	0.01
V	51	2	He	133269	0.00
Cr	52	2	He	177794	0.00
Mn	55	2	He	70138	0.00
Fe	56	2	He	13962111	0.00
Co	59	2	He	307025	0.00
Ni	60	2	He	87837	0.00
Cu	63	2	He	242884	0.00
Zn	66	2	He	35715	0.01
As	75	2	He	23396	0.01
Se	78	2	He	939	0.15
B	11	1	nogas	993016	0.00
Si	28	1	nogas	24897316	0.00

Calibration Standard Report

Ca	43	1	nogas	188188	0.00
Ca	44	1	nogas	3248571	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	139387466	0.00
Se	77	1	nogas	63063	0.00
Se	82	1	nogas	13469	0.01
Mo	95	1	nogas	336486	0.00
Sn	118	1	nogas	524765	0.00
Ba	137	1	nogas	259504	0.00
Sb	121	2	He	103318	0.00
P	31	1	nogas	409439	0.00
La	139	1	nogas	427	3.66

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	320517	3.68	363379	88.20	70	125	
Ge	72	1	nogas	1539182	2.37	1518701	101.35	70	125	
In	115	1	nogas	1604593	2.52	1623624	98.83	70	125	
Bi	209	1	nogas	1463794	1.33	1463804	100.00	70	125	
Ge	72	2	He	127059	1.10	127073	99.99	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	009CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:43:49-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	573182	0.00
Na	23	1	nogas	249375656	0.00
Mg	24	1	nogas	173976858	0.00
Al	27	1	nogas	2200133	0.00
K	39	1	nogas	186692004	0.00
Ti	47	1	nogas	190409	0.00
V	51	1	nogas	3733151	0.00
Cr	52	1	nogas	2485933	0.00
Mn	55	1	nogas	3090022	0.00
Co	59	1	nogas	2699806	0.00
Ni	60	1	nogas	595505	0.00
Cu	63	1	nogas	1445675	0.00
Zn	66	1	nogas	466131	0.00
As	75	1	nogas	699906	0.00
Sr	88	1	nogas	3202364	0.00
Ag	107	1	nogas	1919157	0.00
Cd	111	1	nogas	395261	0.00
Sb	121	1	nogas	1725788	0.00
Tl	205	1	nogas	3271600	0.00
Pb	208	1	nogas	4613509	0.00
[Pb]	206	1	nogas	1118898	0.00
[Pb]	207	1	nogas	1029924	0.00
Na	23	2	He	5008783	0.00
Mg	24	2	He	2416252	0.00
Al	27	2	He	7445	0.04
K	39	2	He	1273224	0.00
Ca	43	2	He	4334	0.02
Ca	44	2	He	75433	0.00
V	51	2	He	265598	0.00
Cr	52	2	He	359563	0.00
Mn	55	2	He	140596	0.00
Fe	56	2	He	28613847	0.00
Co	59	2	He	600511	0.00
Ni	60	2	He	170636	0.00
Cu	63	2	He	472791	0.00
Zn	66	2	He	71316	0.00
As	75	2	He	47843	0.00
Se	78	2	He	1919	0.13
B	11	1	nogas	1971411	0.00
Si	28	1	nogas	46192819	0.00

Calibration Standard Report

Ca	43	1	nogas	380659	0.00
Ca	44	1	nogas	6355924	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	288927656	0.00
Se	77	1	nogas	83206	0.00
Se	82	1	nogas	27007	0.01
Mo	95	1	nogas	694744	0.00
Sn	118	1	nogas	1068999	0.00
Ba	137	1	nogas	524486	0.00
Sb	121	2	He	207312	0.00
P	31	1	nogas	757733	0.00
La	139	1	nogas	523	1.12

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	304984	1.92	363379	83.93	70	125	
Ge	72	1	nogas	1496121	1.74	1518701	98.51	70	125	
In	115	1	nogas	1560405	2.06	1623624	96.11	70	125	
Bi	209	1	nogas	1404061	0.86	1463804	95.92	70	125	
Ge	72	2	He	123490	1.81	127073	97.18	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICV
Data File Name	011_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:47:48-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	98.161	1.101	287629	3.60	100	98.2	90	110	
Na	23	1	nogas	9733.398	0.587	124384799	1.78	10000	97.3	90	110	
Mg	24	1	nogas	9728.400	1.874	85818050	1.55	10000	97.3	90	110	
Al	27	1	nogas	94.523	1.531	1058456	1.27	100	94.5	90	110	
K	39	1	nogas	9762.217	2.983	95132569	0.83	10000	97.6	90	110	
Ti	47	1	nogas	96.677	2.094	93301	0.76	100	96.7	90	110	
V	51	1	nogas	86.566	8.663	2159064	3.57	100	86.6	90	110	ICV Main CR1 Failed
Cr	52	1	nogas	96.619	4.209	1240228	2.25	100	96.6	90	110	
Mn	55	1	nogas	100.034	4.459	1572522	3.55	100	100.0	90	110	
Co	59	1	nogas	96.263	5.034	1324981	3.50	100	96.3	90	110	
Ni	60	1	nogas	100.357	5.208	304905	3.21	100	100.4	90	110	
Cu	63	1	nogas	101.947	1.985	753431	0.69	100	101.9	90	110	
Zn	66	1	nogas	101.404	1.816	242061	2.02	100	101.4	90	110	
As	75	1	nogas	90.004	6.017	403354	1.84	100	90.0	90	110	
Sr	88	1	nogas	96.204	5.990	1551116	3.74	100	96.2	90	110	
Ag	107	1	nogas	97.033	1.035	937368	2.51	100	97.0	90	110	
Cd	111	1	nogas	97.543	4.065	194757	0.20	100	97.5	90	110	
Sb	121	1	nogas	99.367	2.516	872856	0.90	100	99.4	90	110	
Tl	205	1	nogas	99.441	2.937	1705626	2.21	100	99.4	90	110	
Pb	208	1	nogas	100.337	0.852	2314433	0.85	100	100.3	90	110	
U	238	1	nogas	97.908	1.110	2347449	0.39	100	97.9	90	110	
[Pb]	206	1	nogas	99.300	1.789	583152	1.13	100	99.3	90	110	
[Pb]	207	1	nogas	94.380	1.659	504380	1.07	100	94.4	90	110	
Na	23	2	He	9689.179	1.689	2494225	1.29	10000	96.9	90	110	
Mg	24	2	He	9678.590	1.849	1180734	2.79	10000	96.8	90	110	
Al	27	2	He	95.025	4.638	3604	4.94	100	95.0	90	110	
K	39	2	He	9771.109	2.737	624795	2.67	10000	97.7	90	110	
Ca	43	2	He	10674.032	2.257	2377	0.88	10000	106.7	90	110	
Ca	44	2	He	9542.199	3.747	36322	1.69	10000	95.4	90	110	
V	51	2	He	96.490	1.674	131022	0.58	100	96.5	90	110	
Cr	52	2	He	97.094	3.597	178179	2.13	100	97.1	90	110	
Mn	55	2	He	99.542	3.934	71409	2.54	100	99.5	90	110	
Fe	56	2	He	9694.422	2.538	14086152	0.52	10000	96.9	90	110	
Co	59	2	He	99.210	2.402	305230	0.44	100	99.2	90	110	
Ni	60	2	He	101.410	2.048	88952	1.59	100	101.4	90	110	
Cu	63	2	He	99.866	2.000	242836	0.27	100	99.9	90	110	
Zn	66	2	He	98.738	3.050	35939	1.02	100	98.7	90	110	
As	75	2	He	99.131	4.908	24088	3.25	100	99.1	90	110	
Se	78	2	He	93.300	8.492	908	7.41	100	93.3	90	110	
B	11	1	nogas	531.175	0.597	1075814	3.48	500	106.2	90	110	
Si	28	1	nogas	5019.305	2.112	24592665	1.44	5000	100.4	90	110	
Ca	43	1	nogas	9646.185	2.338	186349	2.81	10000	96.5	90	110	
Ca	44	1	nogas	9683.176	1.987	3250351	2.95	10000	96.8	90	110	
Fe	56	1	nogas	9738.844	6.860	142175712	5.38	10000	97.4	90	110	
Se	77	1	nogas	68.433	26.318	60069	3.79	100	68.4	90	110	ICV Main CR1 Failed
Se	82	1	nogas	99.898	1.179	13872	1.43	100	99.9	90	110	
Mo	95	1	nogas	97.390	5.496	341151	3.21	100	97.4	90	110	
Sn	118	1	nogas	95.665	1.191	516175	4.40	100	95.7	90	110	
Ba	137	1	nogas	99.948	5.334	264482	1.24	100	99.9	90	110	
Sb	121	2	He	98.498	5.296	104196	3.66	100	98.5	90	110	
Li	7	1	nogas	96.352	2.197	690838	4.09	100	96.4	90	110	
P	31	1	nogas	477.978	5.661	405331	2.67	500	95.6	90	110	
La	139	1	nogas	112.392	15.993	370	7.15	100	112.4	90	110	ICV Main CR1 Failed
Au	197	1	nogas	-1.712	-11082.899	23	65.47	100	-1.7	90	110	ICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	329296	4.02	363379	90.62	70	125	
Ge	72	1	nogas	1526764	2.22	1518701	100.53	70	125	
In	115	1	nogas	1587702	4.15	1623624	97.79	70	125	
Bi	209	1	nogas	1476573	0.73	1463804	100.87	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	126683	2.07	127073	99.69	70	125	

Sample Report

Sample Table

Sample Name	LLICV2
Data File Name	012SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:49:45-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	2.065	2.065	2.90	6705	0.03	2000	
Na	23	1	nogas	176.826	176.826	3.44	4427751	0.00	200000	
Mg	24	1	nogas	212.685	212.685	0.98	1847629	0.01	200000	
Al	27	1	nogas	1.901	1.901	8.47	46317	0.00	2000	
K	39	1	nogas	175.119	175.119	6.29	7023479	0.00	200000	
Ti	47	1	nogas	1.953	1.953	11.00	2117	0.09	2000	
V	51	1	nogas	-7.469	-7.469	-50.71	799443	0.00	2000	
Cr	52	1	nogas	1.802	1.802	6.87	54113	0.00	2000	
Mn	55	1	nogas	2.191	2.191	2.28	43642	0.01	2000	
Co	59	1	nogas	2.120	2.120	3.66	29564	0.01	2000	
Ni	60	1	nogas	1.864	1.864	15.47	8229	0.02	2000	
Cu	63	1	nogas	2.058	2.058	4.72	21089	0.01	2000	
Zn	66	1	nogas	1.877	1.877	2.81	6181	0.03	2000	
As	75	1	nogas	-0.866	-0.866	-256.13	152912	0.00	2000	
Sr	88	1	nogas	2.150	2.150	6.00	35686	0.01	2000	
Ag	107	1	nogas	2.150	2.150	4.42	21400	0.01	2000	
Cd	111	1	nogas	2.072	2.072	3.71	4114	0.05	2000	
Sb	121	1	nogas	2.235	2.235	2.06	23169	0.01	2000	
Tl	205	1	nogas	2.245	2.245	2.16	39742	0.01	2000	
Pb	208	1	nogas	2.268	2.268	3.40	52821	0.00	2000	
U	238	1	nogas	2.043	2.043	2.44	50420	0.00	2000	
[Pb]	206	1	nogas	2.221	2.221	3.28	13493	0.02	2000	
[Pb]	207	1	nogas	2.046	2.046	1.70	11354	0.02	2000	
Na	23	2	He	166.968	166.968	3.46	107140	0.16	200000	
Mg	24	2	He	202.483	202.483	3.82	25264	0.80	200000	
Al	27	2	He	1.691	1.691	93.42	150	1.13	2000	
K	39	2	He	194.709	194.709	2.22	26405	0.74	200000	
Ca	43	2	He	236.848	236.848	60.21	63	373.97	200000	
Ca	44	2	He	198.015	198.015	11.51	937	21.14	200000	
V	51	2	He	2.006	2.006	3.48	3258	0.06	2000	
Cr	52	2	He	2.172	2.172	8.45	5206	0.04	2000	
Mn	55	2	He	2.013	2.013	6.41	1620	0.12	2000	
Fe	56	2	He	203.508	203.508	1.03	303957	0.07	200000	
Co	59	2	He	2.149	2.149	3.05	6725	0.03	2000	
Ni	60	2	He	1.764	1.764	10.69	2007	0.09	2000	
Cu	63	2	He	1.861	1.861	6.47	6475	0.03	2000	
Zn	66	2	He	2.035	2.035	27.92	807	0.25	2000	
As	75	2	He	1.980	1.980	17.99	503	0.39	2000	
Se	78	2	He	3.744	3.744	9.50	35	10.80	2000	
B	11	1	nogas	22.309	22.309	22.31	158342	0.01	2000	

Sample Report

Si	28	1	nogas	130.099	130.099	7.02	2359084	0.01	2000	
Ca	43	1	nogas	212.422	212.422	14.36	4972	4.27	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ca	44	1	nogas	127.269	127.269	10.16	310743	0.04	200000	
Fe	56	1	nogas	207.377	207.377	3.71	4028758	0.01	200000	
Se	77	1	nogas	7.628	7.628	143.38	49267	0.02	2000	
Se	82	1	nogas	1.975	1.975	43.78	737	0.27	2000	
Mo	95	1	nogas	2.209	2.209	5.11	8075	0.03	2000	
Sn	118	1	nogas	2.154	2.154	0.44	12521	0.02	2000	
Ba	137	1	nogas	2.247	2.247	6.12	5974	0.04	2000	
Sb	121	2	He	2.000	2.000	13.40	2524	0.08	2000	
La	139	1	nogas	-14.138	-14.138	-85.44	70	-20.20	2000	
Au	197	1	nogas	-89.784	-89.784	-276.83	17	-538.71	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	362713	2.35	363379	99.82	70	125	
Ge	72	1	nogas	1531514	1.86	1518701	100.84	70	125	
In	115	1	nogas	1573882	2.23	1623624	96.94	70	125	
Bi	209	1	nogas	1516145	0.38	1463804	103.58	70	125	
Ge	72	2	He	128515	1.32	127073	101.14	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLICV5
Data File Name	013LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:51:44-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.797	2.609	15273	3.11	5	95.9	70	130	
Na	23	1	nogas	465.615	4.713	8160869	0.76	500	93.1	70	130	
Mg	24	1	nogas	526.311	5.126	4663166	2.05	500	105.3	70	130	
Al	27	1	nogas	5.517	4.254	84954	0.46	5	110.3	70	130	
K	39	1	nogas	500.918	8.040	9908054	0.33	500	100.2	70	130	
Ti	47	1	nogas	5.474	7.918	5448	4.24	5	109.5	70	130	
V	51	1	nogas	-1.885	-269.915	869093	5.07	5	-37.7	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	5.049	7.348	93714	1.89	5	101.0	70	130	
Mn	55	1	nogas	5.282	4.422	91005	1.29	5	105.6	70	130	
Co	59	1	nogas	5.298	6.402	72523	3.02	5	106.0	70	130	
Ni	60	1	nogas	5.329	3.378	18490	1.94	5	106.6	70	130	
Cu	63	1	nogas	5.360	4.245	44839	1.36	5	107.2	70	130	
Zn	66	1	nogas	5.207	5.043	13926	2.33	5	104.1	70	130	
As	75	1	nogas	4.104	110.200	164529	4.21	5	82.1	70	130	
Sr	88	1	nogas	5.384	5.111	86931	1.76	5	107.7	70	130	
Ag	107	1	nogas	5.158	3.445	49918	1.58	5	103.2	70	130	
Cd	111	1	nogas	5.052	4.785	10350	3.02	5	101.0	70	130	
Sb	121	1	nogas	5.142	4.994	48090	1.87	5	102.8	70	130	
Tl	205	1	nogas	5.072	3.014	88018	1.90	5	101.4	70	130	
Pb	208	1	nogas	5.419	2.128	125484	2.12	5	108.4	70	130	
U	238	1	nogas	5.070	1.056	122863	1.27	5	101.4	70	130	
[Pb]	206	1	nogas	5.239	4.175	31147	2.65	5	104.8	70	130	
[Pb]	207	1	nogas	5.157	5.834	27928	3.55	5	103.1	70	130	
Na	23	2	He	500.617	6.547	187848	1.37	500	100.1	70	130	
Mg	24	2	He	538.800	2.177	65444	1.21	500	107.8	70	130	
Al	27	2	He	6.358	31.140	317	20.05	5	127.2	70	130	
K	39	2	He	505.833	0.573	45846	0.40	500	101.2	70	130	
Ca	43	2	He	515.134	17.779	123	16.88	500	103.0	70	130	
Ca	44	2	He	518.406	6.573	2120	3.09	500	103.7	70	130	
V	51	2	He	5.081	3.455	7316	0.54	5	101.6	70	130	
Cr	52	2	He	5.269	5.484	10703	4.69	5	105.4	70	130	
Mn	55	2	He	5.434	5.715	4024	8.45	5	108.7	70	130	
Fe	56	2	He	523.742	3.735	759076	0.93	500	104.7	70	130	
Co	59	2	He	5.116	4.486	15637	2.71	5	102.3	70	130	
Ni	60	2	He	4.966	5.274	4741	5.49	5	99.3	70	130	
Cu	63	2	He	4.913	7.827	13639	4.81	5	98.3	70	130	
Zn	66	2	He	5.306	18.044	1963	14.73	5	106.1	70	130	
As	75	2	He	5.590	7.155	1363	6.35	5	111.8	70	130	
Se	78	2	He	5.403	5.717	50	4.00	5	108.1	70	130	
B	11	1	nogas	24.448	16.950	160075	3.18	25	97.8	70	130	
Si	28	1	nogas	276.574	8.570	2991158	0.22	25	1106.3	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	539.886	3.516	11157	1.19	500	108.0	70	130	
Ca	44	1	nogas	464.097	13.541	409622	1.49	500	92.8	70	130	
Fe	56	1	nogas	526.692	3.996	8571655	1.23	500	105.3	70	130	
Se	77	1	nogas	21.156	126.390	51029	6.25	5	423.1	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	5.542	19.469	1203	12.50	5	110.8	70	130	
Mo	95	1	nogas	5.344	2.422	18870	2.49	5	106.9	70	130	
Sn	118	1	nogas	5.185	1.549	29659	1.42	5	103.7	70	130	
Ba	137	1	nogas	5.099	3.710	13912	1.55	5	102.0	70	130	
Sb	121	2	He	4.983	6.791	5588	3.45	5	99.7	70	130	
Li	7	1	nogas	4.559	2.101	74375	2.55	5	91.2	70	130	
P	31	1	nogas	24.086	28.467	91092	1.92	25	96.3	70	130	
La	139	1	nogas	144.099	18.600	457	12.06	5	2882.0	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	-208.786	-33.315	7	86.60	5	-4175.7	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	356897	2.69	363379	98.22	70	125	
Ge	72	1	nogas	1514165	3.50	1518701	99.70	70	125	
In	115	1	nogas	1626849	2.56	1623624	100.20	70	125	
Bi	209	1	nogas	1491046	2.31	1463804	101.86	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	125797	2.98	127073	99.00	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICB
Data File Name	014_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:53:43-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.039	66.7	167	45.8	1	
Na	23	1	nogas	-46.558	-5.9	1723765	2.2	100	
Mg	24	1	nogas	0.262	36.5	7570	10.7	100	
Al	27	1	nogas	0.063	155.9	26089	3.2	5	
K	39	1	nogas	-27.411	-19.3	5138932	0.6	100	
Ti	47	1	nogas	0.023	60.1	253	6.0	2.5	
V	51	1	nogas	-10.289	-25.1	755941	4.7	2.5	
Cr	52	1	nogas	-0.252	-35.5	28229	2.7	2.5	
Mn	55	1	nogas	-0.017	-176.9	8992	4.5	2.5	
Co	59	1	nogas	-0.001	-341.3	273	18.8	2.5	
Ni	60	1	nogas	-0.426	-2.0	1307	1.2	2.5	
Cu	63	1	nogas	-0.206	-18.7	4427	7.6	2.5	
Zn	66	1	nogas	-0.466	-10.9	607	20.5	2.5	
As	75	1	nogas	-5.048	-43.8	140823	3.3	2.5	
Sr	88	1	nogas	0.012	22.0	1117	3.6	2.5	
Ag	107	1	nogas	-0.005	-74.9	527	7.7	2.5	
Cd	111	1	nogas	0.010	98.3	30	66.7	1	
Sb	121	1	nogas	-0.154	-9.7	2190	4.8	2.5	
Tl	205	1	nogas	0.058	31.3	1223	27.6	1	
Pb	208	1	nogas	0.042	13.9	1493	9.1	2.5	
U	238	1	nogas	0.001	337.3	153	41.4	2.5	
[Pb]	206	1	nogas	0.059	8.5	457	7.0	2.5	
[Pb]	207	1	nogas	0.037	42.9	333	27.2	2.5	
Na	23	2	He	-52.549	-5.3	50888	2.5	100	
Mg	24	2	He	0.195	430.4	237	41.5	100	
Al	27	2	He	2.634	27.1	183	13.7	5	
K	39	2	He	-9.874	-50.3	13622	2.3	100	
Ca	43	2	He	-44.693	0.0	0	#DIV/0!	100	
Ca	44	2	He	14.566	125.9	230	31.4	100	
V	51	2	He	-0.035	-77.8	454	8.7	2.5	
Cr	52	2	He	0.104	63.1	1373	10.3	2.5	
Mn	55	2	He	-0.079	-82.2	100	45.8	2.5	
Fe	56	2	He	0.393	82.7	4517	10.4	100	
Co	59	2	He	0.008	125.0	37	78.7	2.5	
Ni	60	2	He	-0.287	-25.2	190	34.5	2.5	
Cu	63	2	He	-0.367	-6.6	1013	4.5	2.5	
Zn	66	2	He	-0.032	-259.9	43	70.5	2.5	
As	75	2	He	0.104	72.4	41	44.7	2.5	
Se	78	2	He	0.580	19.5	3	34.6	2.5	
B	11	1	nogas	-5.655	-60.4	101689	3.0	10	
Si	28	1	nogas	-9.077	-138.1	1718034	2.1	5	
Ca	43	1	nogas	7.726	114.3	1023	15.7	100	
Ca	44	1	nogas	-107.599	-11.7	237475	0.4	100	
Fe	56	1	nogas	-11.232	-15.6	846041	2.4	100	
Se	77	1	nogas	-4.420	-326.7	46911	4.8	2.5	
Se	82	1	nogas	-0.397	-132.5	417	18.0	2.5	

Initial Calibration Blank (ICB) Report

Mo	95	1	nogas	-0.015	-147.0	267	28.1	2.5	
Sn	118	1	nogas	0.008	399.0	1107	16.0	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.038	73.7	183	41.7	2.5	
Sb	121	2	He	-0.029	-365.6	350	29.7	2.5	
P	31	1	nogas	-7.418	-25.9	70173	2.0	10	
La	139	1	nogas	12.231	82.9	137	18.4	2.5	ICB Main CR1 Failed
Au	197	1	nogas	-49.604	-487.1	20	100.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	361951	3.80	363379	99.61	70	125	
Ge	72	1	nogas	1526455	1.24	1518701	100.51	70	125	
In	115	1	nogas	1632095	0.77	1623624	100.52	70	125	
Bi	209	1	nogas	1515351	1.49	1463804	103.52	70	125	
Ge	72	2	He	127533	1.92	127073	100.36	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	015ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:55:42-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.016	66.3	93	37.6	0	ICSA Main CR1 Failed
Na	23	1	nogas	102664.788	1.7	1223735527	2.1	0	
Mg	24	1	nogas	100665.003	3.3	842124585	1.7	0	
Al	27	1	nogas	89304.085	0.9	944820013	0.9	0	
K	39	1	nogas	100603.772	0.7	900657553	0.3	0	
Ti	47	1	nogas	2106.879	5.1	1963982	5.3	0	
V	51	1	nogas	-11.482	-22.6	714960	4.3	0	ICSA Main CR1 Failed
Cr	52	1	nogas	0.204	5.8	32866	1.3	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.471	7.3	16081	2.3	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.130	9.2	2007	7.9	0	ICSA Main CR1 Failed
Ni	60	1	nogas	0.366	1.0	3574	0.7	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.877	7.4	11967	3.0	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.069	15.4	4107	8.3	0	ICSA Main CR1 Failed
As	75	1	nogas	-0.776	-331.7	147754	3.8	0	ICSA Main CR1 Failed
Sr	88	1	nogas	1.043	2.5	17168	1.8	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.016	47.2	707	9.6	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.119	7.0	2184	8.2	0	ICSA Main CR1 Failed
Sb	121	1	nogas	-0.072	-34.0	2817	6.4	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.024	33.3	570	23.6	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.184	5.3	4764	4.8	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.187	3.4	1130	4.6	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.202	13.0	1133	9.5	0	ICSA Main CR1 Failed
Na	23	2	He	98451.974	1.3	24118512	2.4	0	
Mg	24	2	He	94480.201	2.2	11224696	3.5	0	
Al	27	2	He	81762.474	1.0	2948683	1.6	0	
K	39	2	He	96134.609	1.5	6021289	1.5	0	
Ca	43	2	He	88466.706	2.2	19117	1.6	0	
Ca	44	2	He	93039.541	3.6	343491	2.4	0	
V	51	2	He	0.034	55.7	529	4.4	0	ICSA Main CR1 Failed
Cr	52	2	He	0.302	25.0	1680	9.3	0	ICSA Main CR1 Failed
Mn	55	2	He	0.288	13.7	353	9.1	0	ICSA Main CR1 Failed
Fe	56	2	He	94985.960	0.5	134417868	1.4	0	
Co	59	2	He	0.017	61.9	63	50.8	0	ICSA Main CR1 Failed
Ni	60	2	He	-0.045	-166.0	390	17.8	0	ICSA Main CR1 Failed
Cu	63	2	He	0.070	128.5	2007	9.5	0	ICSA Main CR1 Failed
Zn	66	2	He	0.554	21.8	250	17.4	0	ICSA Main CR1 Failed
As	75	2	He	0.148	9.7	50	6.7	0	ICSA Main CR1 Failed
Se	78	2	He	1.017	52.7	7	68.6	0	ICSA Main CR1 Failed
B	11	1	nogas	-2.079	-142.1	107178	3.7	0	ICSA Main CR1 Failed
Si	28	1	nogas	83.779	8.2	2072384	1.0	0	
Ca	43	1	nogas	97588.511	0.7	1817041	0.6	0	
Ca	44	1	nogas	96134.476	2.7	28891728	2.5	0	
Fe	56	1	nogas	99036.409	3.1	1391239298	2.3	0	
Se	77	1	nogas	15.607	69.1	48923	3.2	0	
Se	82	1	nogas	0.247	194.6	487	13.4	0	ICSA Main CR1 Failed
Mo	95	1	nogas	2068.333	3.1	7010901	2.6	0	
Sn	118	1	nogas	0.070	35.2	1370	7.7	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.126	13.1	400	12.5	0	ICSA Main CR1 Failed
Sb	121	2	He	-0.005	-821.8	363	11.5	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	93351.309	1.5	62508969	2.3	0	
La	139	1	nogas	93.356	36.3	317	25.3	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	355936	1.82	363379	97.95	70	125	
Ge	72	1	nogas	1477700	0.90	1518701	97.30	70	125	
In	115	1	nogas	1542173	2.12	1623624	94.98	70	125	
Bi	209	1	nogas	1392570	3.20	1463804	95.13	70	125	
Ge	72	2	He	123368	1.28	127073	97.08	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	016ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T09:57:46-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	84.728	3.567	241149	1.33	100	84.7	80	120	
Na	23	1	nogas	110755.753	3.535	1337523797	1.81	100	110755.8	80	120	
Mg	24	1	nogas	106265.282	0.583	901408053	1.70	100	106265.3	80	120	ICSB Main CR1 Failed
Al	27	1	nogas	92195.750	1.616	959543772	0.77	100	92195.7	80	120	ICSB Main CR1 Failed
K	39	1	nogas	110603.706	2.266	973698822	2.63	100	110603.7	80	120	
Ti	47	1	nogas	2227.983	2.433	2042804	1.49	100	2228.0	80	120	ICSB Main CR1 Failed
V	51	1	nogas	87.606	2.414	2071480	2.02	100	87.6	80	120	
Cr	52	1	nogas	83.650	0.615	1026970	0.87	100	83.6	80	120	
Mn	55	1	nogas	87.556	2.714	1312024	2.07	100	87.6	80	120	
Co	59	1	nogas	83.912	1.488	1100513	2.15	100	83.9	80	120	
Ni	60	1	nogas	86.230	2.211	249980	2.36	100	86.2	80	120	
Cu	63	1	nogas	86.364	2.032	608735	1.67	100	86.4	80	120	
Zn	66	1	nogas	89.367	1.093	203339	0.88	100	89.4	80	120	
As	75	1	nogas	91.074	1.167	387070	1.00	100	91.1	80	120	
Sr	88	1	nogas	92.297	1.869	1418100	1.06	100	92.3	80	120	
Ag	107	1	nogas	83.038	1.047	763841	0.40	100	83.0	80	120	
Cd	111	1	nogas	88.308	1.533	167156	0.67	100	88.3	80	120	
Sb	121	1	nogas	87.639	0.546	733680	1.24	100	87.6	80	120	
Tl	205	1	nogas	84.531	3.789	1353736	2.34	100	84.5	80	120	
Pb	208	1	nogas	84.321	2.375	1945092	2.37	100	84.3	80	120	
U	238	1	nogas	93.167	1.440	2085991	1.23	100	93.2	80	120	
[Pb]	206	1	nogas	86.605	3.824	474853	2.56	100	86.6	80	120	
[Pb]	207	1	nogas	87.773	4.215	437900	2.63	100	87.8	80	120	
Na	23	2	He	109908.993	2.144	26236704	1.19	100	109909.0	80	120	
Mg	24	2	He	107556.258	1.513	12455044	1.70	100	107556.3	80	120	ICSB Main CR1 Failed
Al	27	2	He	85290.441	2.655	2999444	3.88	100	85290.4	80	120	ICSB Main CR1 Failed
K	39	2	He	102569.328	1.243	6423368	1.24	100	102569.3	80	120	ICSB Main CR1 Failed
Ca	43	2	He	97633.850	2.809	20565	1.34	100	97633.9	80	120	
Ca	44	2	He	101936.339	2.487	366965	2.30	100	101936.3	80	120	
V	51	2	He	86.163	3.776	111102	0.92	100	86.2	80	120	
Cr	52	2	He	84.368	1.547	147216	2.67	100	84.4	80	120	
Mn	55	2	He	85.728	2.650	58440	3.36	100	85.7	80	120	
Fe	56	2	He	107243.609	3.561	147898954	1.50	100	107243.6	80	120	ICSB Main CR1 Failed
Co	59	2	He	86.542	2.340	252817	0.57	100	86.5	80	120	
Ni	60	2	He	86.385	2.446	71998	0.42	100	86.4	80	120	
Cu	63	2	He	86.257	2.461	199408	1.99	100	86.3	80	120	
Zn	66	2	He	86.843	2.709	30022	1.02	100	86.8	80	120	
As	75	2	He	85.074	4.197	19630	1.52	100	85.1	80	120	
Se	78	2	He	82.290	2.177	761	2.66	100	82.3	80	120	
B	11	1	nogas	443.321	4.341	888628	1.62	100	443.3	80	120	
Si	28	1	nogas	4854.316	2.746	22703658	1.65	100	4854.3	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	113433.177	2.375	2077462	1.43	100	113433.2	80	120	ICSB Main CR1 Failed
Ca	44	1	nogas	108955.831	3.839	32174731	2.99	100	108955.8	80	120	ICSB Main CR1 Failed
Fe	56	1	nogas	108991.183	2.189	1506224300	1.33	100	108991.2	80	120	
Se	77	1	nogas	122.704	11.431	66592	4.42	100	122.7	80	120	
Se	82	1	nogas	86.449	2.944	11494	3.58	100	86.4	80	120	
Mo	95	1	nogas	2203.683	1.888	7350374	2.72	100	2203.7	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	89.033	2.031	454969	1.59	100	89.0	80	120	
Ba	137	1	nogas	90.231	1.718	226452	1.43	100	90.2	80	120	
Sb	121	2	He	84.874	2.514	85326	0.92	100	84.9	80	120	
La	139	1	nogas	178.619	31.145	500	24.33	100	178.6	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	319969	2.20	363379	88.05	70	125	
Ge	72	1	nogas	1453759	0.95	1518701	95.72	70	125	
In	115	1	nogas	1503626	0.92	1623624	92.61	70	125	
Bi	209	1	nogas	1378956	1.68	1463804	94.20	70	125	
Ge	72	2	He	120300	2.80	127073	94.67	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	022_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:09:49-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	98.449	1.106	283980	2.01	100	98.4	90	110	
Na	23	1	nogas	9873.669	4.171	125940536	2.76	10000	98.7	90	110	
Mg	24	1	nogas	9713.851	4.371	85553885	2.66	10000	97.1	90	110	
Al	27	1	nogas	96.910	2.233	1098155	2.60	100	96.9	90	110	
K	39	1	nogas	9616.742	2.451	94977156	1.51	10000	96.2	90	110	
Ti	47	1	nogas	97.615	2.264	95378	1.12	100	97.6	90	110	
V	51	1	nogas	90.854	9.379	2249414	5.00	100	90.9	90	110	
Cr	52	1	nogas	98.076	5.087	1274486	4.55	100	98.1	90	110	
Mn	55	1	nogas	99.047	2.390	1576790	1.90	100	99.0	90	110	
Co	59	1	nogas	98.614	1.685	1374725	0.45	100	98.6	90	110	
Ni	60	1	nogas	100.335	2.528	308763	1.57	100	100.3	90	110	
Cu	63	1	nogas	101.592	2.058	760184	0.88	100	101.6	90	110	
Zn	66	1	nogas	101.051	1.746	244205	0.90	100	101.1	90	110	
As	75	1	nogas	87.123	6.320	400423	3.44	100	87.1	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	97.228	2.957	1588008	1.82	100	97.2	90	110	
Ag	107	1	nogas	98.527	2.519	963385	1.83	100	98.5	90	110	
Cd	111	1	nogas	97.946	1.397	204693	1.24	100	97.9	90	110	
Sb	121	1	nogas	98.341	1.582	874757	1.03	100	98.3	90	110	
Tl	205	1	nogas	101.787	2.253	1742616	1.98	100	101.8	90	110	
Pb	208	1	nogas	102.550	1.237	2365472	1.24	100	102.5	90	110	
U	238	1	nogas	99.974	0.792	2392613	1.87	100	100.0	90	110	
[Pb]	206	1	nogas	101.367	0.297	594191	1.26	100	101.4	90	110	
[Pb]	207	1	nogas	97.031	1.808	517503	0.29	100	97.0	90	110	
Na	23	2	He	9706.219	1.160	2522610	1.94	10000	97.1	90	110	
Mg	24	2	He	9639.014	2.880	1186901	2.68	10000	96.4	90	110	
Al	27	2	He	90.298	3.314	3460	2.47	100	90.3	90	110	
K	39	2	He	9792.396	0.805	626125	0.79	10000	97.9	90	110	
Ca	43	2	He	8425.700	5.861	1897	6.25	10000	84.3	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9192.951	1.937	35347	2.13	10000	91.9	90	110	
V	51	2	He	96.751	1.438	132645	1.86	100	96.8	90	110	
Cr	52	2	He	98.688	2.244	182863	2.27	100	98.7	90	110	
Mn	55	2	He	97.592	2.898	70696	2.42	100	97.6	90	110	
Fe	56	2	He	9539.683	0.545	13996456	0.64	10000	95.4	90	110	
Co	59	2	He	100.616	2.128	312537	1.38	100	100.6	90	110	
Ni	60	2	He	102.248	1.902	90537	1.31	100	102.2	90	110	
Cu	63	2	He	100.087	1.951	245701	1.23	100	100.1	90	110	
Zn	66	2	He	97.874	3.699	35973	3.43	100	97.9	90	110	
As	75	2	He	96.810	1.150	23760	1.41	100	96.8	90	110	
Se	78	2	He	99.667	0.442	980	1.14	100	99.7	90	110	
B	11	1	nogas	520.895	2.917	1040359	2.22	500	104.2	90	110	
Si	28	1	nogas	5021.388	3.822	24911315	3.72	5000	100.4	90	110	
Ca	43	1	nogas	9667.000	0.584	189072	1.41	10000	96.7	90	110	
Ca	44	1	nogas	9302.986	0.887	3171838	0.80	10000	93.0	90	110	
Fe	56	1	nogas	9696.845	2.065	143414157	1.92	10000	97.0	90	110	
Se	77	1	nogas	56.396	19.082	58635	2.43	100	56.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.019	3.789	13515	2.80	100	96.0	90	110	
Mo	95	1	nogas	96.393	0.765	342126	1.90	100	96.4	90	110	
Sn	118	1	nogas	95.265	1.410	537387	0.99	100	95.3	90	110	
Ba	137	1	nogas	94.962	1.545	263132	2.01	100	95.0	90	110	
Sb	121	2	He	95.218	2.334	101743	1.87	100	95.2	90	110	
Li	7	1	nogas	98.712	2.404	696008	4.07	100	98.7	90	110	
P	31	1	nogas	467.119	3.200	402938	1.91	500	93.4	90	110	
La	139	1	nogas	109.045	24.986	380	18.42	100	109.0	90	110	
Au	197	1	nogas	203.053	3.692	40	0.00	100	203.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	324129	1.84	363379	89.20	70	125	
Ge	72	1	nogas	1545615	1.27	1518701	101.77	70	125	
In	115	1	nogas	1660000	0.70	1623624	102.24	70	125	
Bi	209	1	nogas	1473781	1.54	1463804	100.68	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	127876	0.90	127073	100.63	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	023_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:11:46-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.067	55.7	260	46.6	1	
Na	23	1	nogas	-31.976	-6.5	1966286	0.6	100	
Mg	24	1	nogas	6.771	21.6	67400	18.2	100	
Al	27	1	nogas	3.632	172.0	66922	102.1	5	
K	39	1	nogas	-58.313	-34.9	5108204	0.1	100	
Ti	47	1	nogas	0.166	35.0	410	10.6	2.5	
V	51	1	nogas	-5.905	-6.4	863274	4.4	2.5	
Cr	52	1	nogas	-0.385	-27.3	27978	4.9	2.5	
Mn	55	1	nogas	0.264	26.9	14069	4.8	2.5	
Co	59	1	nogas	0.059	16.5	1153	8.4	2.5	
Ni	60	1	nogas	-0.358	-33.9	1580	21.0	2.5	
Cu	63	1	nogas	-0.115	-26.6	5361	1.3	2.5	
Zn	66	1	nogas	-0.322	-10.9	997	6.1	2.5	
As	75	1	nogas	-9.400	-2.1	135674	3.3	2.5	
Sr	88	1	nogas	0.081	21.8	2344	9.4	2.5	
Ag	107	1	nogas	0.072	35.0	1333	17.0	2.5	
Cd	111	1	nogas	0.085	28.1	183	27.5	1	
Sb	121	1	nogas	0.018	195.9	3884	4.5	2.5	
Tl	205	1	nogas	0.267	36.7	5048	33.8	1	
Pb	208	1	nogas	0.128	19.8	3474	16.8	2.5	
U	238	1	nogas	0.071	28.6	1947	25.1	2.5	
[Pb]	206	1	nogas	0.120	32.2	847	26.8	2.5	
[Pb]	207	1	nogas	0.112	30.9	767	24.2	2.5	
Na	23	2	He	-33.148	-13.9	55752	1.5	100	
Mg	24	2	He	6.376	21.7	997	17.7	100	
Al	27	2	He	1.637	35.4	147	17.2	5	
K	39	2	He	1.389	559.8	14326	3.4	100	
Ca	43	2	He	59.588	172.5	23	99.0	100	
Ca	44	2	He	-1.880	-634.8	167	27.7	100	
V	51	2	He	0.095	33.2	630	4.5	2.5	
Cr	52	2	He	0.202	36.1	1550	6.2	2.5	
Mn	55	2	He	0.125	41.1	247	12.4	2.5	
Fe	56	2	He	5.117	6.0	11417	1.4	100	
Co	59	2	He	0.046	40.4	157	38.5	2.5	
Ni	60	2	He	-0.211	-17.2	257	11.9	2.5	
Cu	63	2	He	-0.313	-9.7	1143	4.1	2.5	
Zn	66	2	He	0.005	1929.0	57	53.9	2.5	
As	75	2	He	0.095	55.3	39	34.6	2.5	
Se	78	2	He	0.583	21.1	3	34.6	2.5	
B	11	1	nogas	4.528	100.1	122322	6.0	10	

Continuing Calibration Blank (CCB) Report

Si	28	1	nogas	-6.975	-326.1	1817223	2.4	5	
Ca	43	1	nogas	25.800	16.7	1447	9.6	100	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ca	44	1	nogas	-280.079	-8.7	194047	0.6	100	
Fe	56	1	nogas	-6.513	-57.8	961814	2.3	100	
Se	77	1	nogas	-25.432	-14.0	45434	5.1	2.5	
Se	82	1	nogas	-0.387	-25.1	440	6.8	2.5	
Mo	95	1	nogas	0.139	48.0	840	25.2	2.5	
Sn	118	1	nogas	0.106	12.8	1640	5.3	5	
Ba	137	1	nogas	0.063	60.1	250	41.8	2.5	
Sb	121	2	He	-0.020	-87.5	360	5.6	2.5	
P	31	1	nogas	-12.766	-30.0	69949	1.5	10	
La	139	1	nogas	-10.582	-182.0	80	57.3	2.5	
Au	197	1	nogas	-173.437	-66.1	10	100.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	362103	1.47	363379	99.65	70	125	
Ge	72	1	nogas	1607540	3.71	1518701	105.85	70	125	
In	115	1	nogas	1620360	1.02	1623624	99.80	70	125	
Bi	209	1	nogas	1565601	1.40	1463804	106.95	70	125	
Ge	72	2	He	127486	2.52	127073	100.33	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	034_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:34:02-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	98.233	2.120	300946	1.61	100	98.2	90	110	
Na	23	1	nogas	9921.754	3.196	129366099	1.46	10000	99.2	90	110	
Mg	24	1	nogas	9896.549	4.900	89096771	3.14	10000	99.0	90	110	
Al	27	1	nogas	98.730	2.873	1135603	3.90	100	98.7	90	110	
K	39	1	nogas	9652.900	2.791	96766858	1.57	10000	96.5	90	110	
Ti	47	1	nogas	96.809	1.024	96048	0.41	100	96.8	90	110	
V	51	1	nogas	103.696	1.406	2475567	0.75	100	103.7	90	110	
Cr	52	1	nogas	100.726	1.949	1328453	2.96	100	100.7	90	110	
Mn	55	1	nogas	101.152	1.424	1635000	2.22	100	101.2	90	110	
Co	59	1	nogas	99.661	1.287	1410627	0.41	100	99.7	90	110	
Ni	60	1	nogas	99.486	0.675	310924	1.78	100	99.5	90	110	
Cu	63	1	nogas	99.773	2.054	758102	0.91	100	99.8	90	110	
Zn	66	1	nogas	100.082	2.985	245556	1.86	100	100.1	90	110	
As	75	1	nogas	93.369	4.225	424280	1.95	100	93.4	90	110	
Sr	88	1	nogas	97.492	1.939	1616832	1.20	100	97.5	90	110	
Ag	107	1	nogas	95.040	1.000	943676	1.65	100	95.0	90	110	
Cd	111	1	nogas	96.009	2.095	201528	1.19	100	96.0	90	110	
Sb	121	1	nogas	99.487	2.018	898440	1.59	100	99.5	90	110	
Tl	205	1	nogas	95.517	0.671	1756888	1.05	100	95.5	90	110	
Pb	208	1	nogas	107.248	0.359	2473815	0.36	100	107.2	90	110	
U	238	1	nogas	97.292	1.101	2501155	0.89	100	97.3	90	110	
[Pb]	206	1	nogas	97.756	2.264	615562	2.12	100	97.8	90	110	
[Pb]	207	1	nogas	94.734	1.560	542847	1.44	100	94.7	90	110	
Na	23	2	He	10243.345	3.030	2592275	2.95	10000	102.4	90	110	
Mg	24	2	He	9879.931	0.952	1186300	0.43	10000	98.8	90	110	
Al	27	2	He	94.375	2.018	3524	2.64	100	94.4	90	110	
K	39	2	He	9641.245	1.250	616680	1.22	10000	96.4	90	110	
Ca	43	2	He	9227.973	9.003	2023	8.16	10000	92.3	90	110	
Ca	44	2	He	9539.335	0.965	35758	0.77	10000	95.4	90	110	
V	51	2	He	99.179	2.601	132561	2.05	100	99.2	90	110	
Cr	52	2	He	100.648	1.124	181831	1.30	100	100.6	90	110	
Mn	55	2	He	98.565	2.378	69621	1.58	100	98.6	90	110	
Fe	56	2	He	9734.952	2.817	13925708	2.09	10000	97.3	90	110	
Co	59	2	He	101.270	1.632	306752	1.11	100	101.3	90	110	
Ni	60	2	He	102.769	3.633	88721	2.79	100	102.8	90	110	
Cu	63	2	He	104.140	2.757	249201	1.93	100	104.1	90	110	
Zn	66	2	He	98.685	2.126	35375	2.95	100	98.7	90	110	
As	75	2	He	97.932	1.699	23436	1.65	100	97.9	90	110	
Se	78	2	He	99.189	6.530	951	5.74	100	99.2	90	110	
B	11	1	nogas	511.295	2.256	1086734	1.42	500	102.3	90	110	
Si	28	1	nogas	5117.367	1.549	25743814	2.54	5000	102.3	90	110	
Ca	43	1	nogas	9486.909	4.582	188341	3.49	10000	94.9	90	110	
Ca	44	1	nogas	9150.564	3.417	3171623	2.16	10000	91.5	90	110	
Fe	56	1	nogas	9774.867	1.279	146787937	2.14	10000	97.7	90	110	
Se	77	1	nogas	87.388	16.898	65290	3.52	100	87.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	100.181	0.345	14299	1.19	100	100.2	90	110	
Mo	95	1	nogas	97.516	2.521	351319	1.56	100	97.5	90	110	
Sn	118	1	nogas	95.589	1.504	541739	2.68	100	95.6	90	110	
Ba	137	1	nogas	98.656	3.002	274509	1.35	100	98.7	90	110	
Sb	121	2	He	98.286	3.168	102405	3.28	100	98.3	90	110	
Li	7	1	nogas	98.079	1.372	734532	0.67	100	98.1	90	110	
P	31	1	nogas	469.317	0.642	410723	1.30	500	93.9	90	110	
La	139	1	nogas	119.629	30.575	407	20.62	100	119.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	54.775	418.168	30	66.67	100	54.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	344270	0.63	363379	94.74	70	125	
Ge	72	1	nogas	1569237	1.12	1518701	103.33	70	125	
In	115	1	nogas	1667950	3.09	1623624	102.73	70	125	
Bi	209	1	nogas	1583173	0.54	1463804	108.15	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	124693	0.84	127073	98.13	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	035_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:35:58-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.080	43.6	330	36.9	1	
Na	23	1	nogas	3.045	62.1	2396588	0.7	100	
Mg	24	1	nogas	7.289	18.6	71488	17.1	100	
Al	27	1	nogas	-0.488	-17.3	20702	4.6	5	
K	39	1	nogas	-34.079	-17.5	5237377	0.1	100	
Ti	47	1	nogas	0.069	47.7	307	9.4	2.5	
V	51	1	nogas	-4.035	-81.7	873747	6.8	2.5	
Cr	52	1	nogas	-0.265	-35.6	28963	5.4	2.5	
Mn	55	1	nogas	0.327	7.0	14816	1.5	2.5	
Co	59	1	nogas	0.067	31.5	1250	23.1	2.5	
Ni	60	1	nogas	-0.351	-9.1	1580	5.5	2.5	
Cu	63	1	nogas	-0.008	-251.6	6061	1.7	2.5	
Zn	66	1	nogas	-0.371	-20.9	857	21.7	2.5	
As	75	1	nogas	-3.638	-50.3	149361	4.7	2.5	
Sr	88	1	nogas	0.107	10.6	2734	5.9	2.5	
Ag	107	1	nogas	0.055	31.1	1137	14.3	2.5	
Cd	111	1	nogas	0.065	16.0	147	14.2	1	
Sb	121	1	nogas	0.062	55.0	4214	6.2	2.5	
Tl	205	1	nogas	0.302	35.1	5908	35.9	1	
Pb	208	1	nogas	0.120	11.1	3277	9.3	2.5	
U	238	1	nogas	0.063	29.7	1790	29.5	2.5	
[Pb]	206	1	nogas	0.109	3.7	810	5.4	2.5	
[Pb]	207	1	nogas	0.112	3.5	793	5.1	2.5	
Na	23	2	He	-6.721	-41.7	63717	0.3	100	
Mg	24	2	He	5.795	13.7	943	9.3	100	
Al	27	2	He	0.607	191.1	110	39.6	5	
K	39	2	He	-9.235	-67.3	13662	2.8	100	
Ca	43	2	He	27.970	238.7	17	91.7	100	
Ca	44	2	He	7.636	173.4	207	23.9	100	
V	51	2	He	0.048	101.8	579	12.7	2.5	
Cr	52	2	He	0.039	208.7	1280	13.1	2.5	
Mn	55	2	He	0.067	148.5	210	36.0	2.5	
Fe	56	2	He	4.979	3.6	11454	2.6	100	
Co	59	2	He	0.040	59.2	140	53.9	2.5	
Ni	60	2	He	-0.202	-24.3	270	14.8	2.5	
Cu	63	2	He	-0.257	-19.5	1310	10.8	2.5	
Zn	66	2	He	0.017	633.7	63	65.7	2.5	
As	75	2	He	0.110	10.9	43	7.7	2.5	
Se	78	2	He	1.175	20.8	9	24.7	2.5	
B	11	1	nogas	2.012	133.3	129586	3.2	10	
Si	28	1	nogas	6.705	205.7	1846189	2.5	5	CCB Main CR1 Failed
Ca	43	1	nogas	14.618	31.2	1193	7.8	100	
Ca	44	1	nogas	-386.679	-1.2	156420	1.5	100	
Fe	56	1	nogas	11.843	20.4	1217737	1.8	100	
Se	77	1	nogas	8.435	162.2	50818	6.1	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.510	-153.7	413	26.1	2.5	
Mo	95	1	nogas	0.119	64.6	757	35.7	2.5	
Sn	118	1	nogas	0.100	16.3	1647	5.2	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.081	14.5	307	10.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.041	129.4	433	11.8	2.5	
P	31	1	nogas	-8.103	-16.9	71896	1.8	10	
La	139	1	nogas	1.794	512.2	113	20.4	2.5	
Au	197	1	nogas	-103.766	-162.2	17	91.7	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	400045	1.39	363379	110.09	70	125	
Ge	72	1	nogas	1574506	1.20	1518701	103.67	70	125	
In	115	1	nogas	1664444	0.66	1623624	102.51	70	125	
Bi	209	1	nogas	1615212	2.14	1463804	110.34	70	125	
Ge	72	2	He	130107	1.43	127073	102.39	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-01
Data File Name	038SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:41:55-06:00
Sample Type	Sample
Dilution	10
Comment	B123330 TW BaCaMgNa
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.023	0.229	30.68	123	0.02	2000	
Na	23	1	nogas	94732.267	947322.670	3.91	1230895161	0.01	200000	
Mg	24	1	nogas	24008.544	240085.440	4.28	219004230	0.01	200000	
Al	27	1	nogas	2.324	23.238	5.69	52180	0.00	2000	
K	39	1	nogas	315.233	3152.326	2.61	8516798	0.00	200000	
Ti	47	1	nogas	0.188	1.884	34.61	423	0.04	2000	
V	51	1	nogas	-1.245	-12.454	-303.03	911530	0.00	2000	
Cr	52	1	nogas	-0.158	-1.577	-36.74	30222	0.00	2000	
Mn	55	1	nogas	49.549	495.494	2.61	805057	0.01	2000	
Co	59	1	nogas	0.487	4.875	5.40	7192	0.01	2000	
Ni	60	1	nogas	0.548	5.480	36.22	4361	0.01	2000	
Cu	63	1	nogas	0.012	0.124	288.71	6191	0.00	2000	
Zn	66	1	nogas	0.680	6.803	26.83	3410	0.02	2000	
As	75	1	nogas	-0.340	-3.401	-804.20	158067	0.00	2000	
Sr	88	1	nogas	814.536	8145.357	2.17	13492857	0.01	2000	
Ag	107	1	nogas	-0.018	-0.178	-40.50	413	0.00	2000	
Cd	111	1	nogas	0.069	0.692	41.56	153	0.05	2000	
Sb	121	1	nogas	-0.123	-1.230	-15.62	2534	0.00	2000	
Tl	205	1	nogas	0.010	0.102	32.88	387	0.00	2000	
Pb	208	1	nogas	0.031	0.314	4.15	1240	0.00	2000	
U	238	1	nogas	0.364	3.638	5.34	9169	0.00	2000	
[Pb]	206	1	nogas	0.034	0.344	1.39	310	0.01	2000	
[Pb]	207	1	nogas	0.023	0.225	19.50	253	0.01	2000	
Na	23	2	He	95138.671	951386.709	3.21	24354365	0.39	200000	
Mg	24	2	He	23491.332	234913.316	3.39	2915909	0.81	200000	
Al	27	2	He	2.045	20.451	65.20	163	1.25	2000	
K	39	2	He	337.701	3377.012	5.81	35340	0.96	200000	
Ca	43	2	He	39634.232	396342.324	2.90	8956	442.56	200000	
Ca	44	2	He	39218.268	392182.682	1.35	151438	25.90	200000	
V	51	2	He	0.121	1.208	12.15	673	0.02	2000	
Cr	52	2	He	0.050	0.500	74.95	1287	0.00	2000	
Mn	55	2	He	49.385	493.849	2.83	36146	0.14	2000	
Fe	56	2	He	945.369	9453.692	2.76	1401880	0.07	200000	
Co	59	2	He	0.410	4.099	8.80	1297	0.03	2000	
Ni	60	2	He	0.352	3.521	33.33	760	0.05	2000	
Cu	63	2	He	-0.233	-2.335	-18.51	1353	-0.02	2000	
Zn	66	2	He	1.137	11.369	7.49	477	0.24	2000	
As	75	2	He	0.903	9.025	14.02	239	0.38	2000	
Se	78	2	He	0.443	4.429	45.38	2	22.14	2000	
B	11	1	nogas	-7.840	-78.404	-8.20	102828	-0.01	2000	
Si	28	1	nogas	1693.193	16931.927	3.90	9719030	0.02	2000	
Ca	43	1	nogas	38299.303	382993.025	1.58	757526	5.06	200000	
Ca	44	1	nogas	37478.508	374785.082	1.02	12125987	0.31	200000	
Fe	56	1	nogas	949.294	9492.940	2.28	15179525	0.01	200000	

Sample Report

Se	77	1	nogas	9.217	92.171	138.72	50751	0.02	2000	
Se	82	1	nogas	0.782	7.818	47.15	590	0.13	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.001	0.011	1161.83	330	0.00	2000	
Sn	118	1	nogas	0.006	0.058	300.59	1113	0.00	2000	
Ba	137	1	nogas	980.124	9801.237	2.90	2709272	0.04	2000	
Sb	121	2	He	-0.092	-0.923	-81.80	287	-0.03	2000	
La	139	1	nogas	218.173	2181.732	4.62	650	33.56	2000	
Au	197	1	nogas	-130.587	-1305.872	-53.69	13	-979.40	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	381927	1.19	363379	105.10	70	125	
Ge	72	1	nogas	1568351	1.46	1518701	103.27	70	125	
In	115	1	nogas	1657218	2.39	1623624	102.07	70	125	
Bi	209	1	nogas	1528941	0.94	1463804	104.45	70	125	
Ge	72	2	He	128908	0.15	127073	101.44	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-02
Data File Name	039SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:43:56-06:00
Sample Type	Sample
Dilution	10
Comment	B123330 TW BaCaNa
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.008	0.078	122.32	73	0.01	2000	
Na	23	1	nogas	59103.570	591035.705	5.24	786286018	0.01	200000	
Mg	24	1	nogas	8189.410	81894.102	2.46	76464658	0.01	200000	
Al	27	1	nogas	9.594	95.940	2.86	134298	0.01	2000	
K	39	1	nogas	2399.095	23990.950	3.84	28299029	0.01	200000	
Ti	47	1	nogas	0.112	1.122	81.39	350	0.03	2000	
V	51	1	nogas	4.480	44.802	100.91	1002129	0.00	2000	
Cr	52	1	nogas	2.189	21.892	5.22	60633	0.00	2000	
Mn	55	1	nogas	15.782	157.817	5.58	263743	0.01	2000	
Co	59	1	nogas	0.313	3.131	9.52	4734	0.01	2000	
Ni	60	1	nogas	0.069	0.686	88.24	2884	0.00	2000	
Cu	63	1	nogas	0.110	1.099	35.69	6951	0.00	2000	
Zn	66	1	nogas	-0.033	-0.329	-324.98	1690	0.00	2000	
As	75	1	nogas	-0.492	-4.923	-283.34	158367	0.00	2000	
Sr	88	1	nogas	1486.943	14869.432	3.14	24717619	0.01	2000	
Ag	107	1	nogas	-0.018	-0.183	-23.04	410	0.00	2000	
Cd	111	1	nogas	0.032	0.318	24.77	80	0.04	2000	
Sb	121	1	nogas	-0.173	-1.731	-12.31	2087	-0.01	2000	
Tl	205	1	nogas	0.007	0.071	73.40	333	0.00	2000	
Pb	208	1	nogas	0.014	0.137	32.26	833	0.00	2000	
U	238	1	nogas	0.244	2.445	2.51	6238	0.00	2000	
[Pb]	206	1	nogas	0.015	0.146	53.22	190	0.01	2000	
[Pb]	207	1	nogas	0.015	0.151	31.56	213	0.01	2000	
Na	23	2	He	58736.326	587363.264	2.29	15387309	0.38	200000	
Mg	24	2	He	8119.699	81196.989	2.97	1029812	0.79	200000	
Al	27	2	He	8.481	84.809	39.20	413	2.05	2000	
K	39	2	He	2349.393	23493.935	1.04	161043	1.46	200000	
Ca	43	2	He	52538.250	525382.497	1.97	12127	433.22	200000	
Ca	44	2	He	49056.118	490561.183	1.35	193568	25.34	200000	
V	51	2	He	0.233	2.329	6.45	845	0.03	2000	
Cr	52	2	He	2.294	22.936	9.62	5574	0.04	2000	
Mn	55	2	He	15.124	151.236	3.32	11427	0.13	2000	
Fe	56	2	He	31.941	319.412	2.10	52348	0.06	200000	
Co	59	2	He	0.285	2.853	1.65	927	0.03	2000	
Ni	60	2	He	0.067	0.666	135.97	517	0.01	2000	
Cu	63	2	He	-0.199	-1.988	-70.74	1467	-0.01	2000	
Zn	66	2	He	0.414	4.140	28.98	213	0.19	2000	
As	75	2	He	0.192	1.925	60.98	64	0.30	2000	
Se	78	2	He	0.967	9.665	25.01	7	13.18	2000	
B	11	1	nogas	-9.051	-90.511	-28.71	101535	-0.01	2000	
Si	28	1	nogas	1804.928	18049.279	3.16	10279282	0.02	2000	>LDR
Ca	43	1	nogas	47811.618	478116.176	2.25	948680	5.04	200000	
Ca	44	1	nogas	46019.976	460199.765	1.41	14880280	0.31	200000	
Fe	56	1	nogas	46.935	469.355	19.36	1740183	0.00	200000	

Sample Report

Se	77	1	nogas	12.353	123.530	25.61	51547	0.02	2000	
Se	82	1	nogas	0.925	9.252	95.06	610	0.15	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.095	0.952	23.32	673	0.01	2000	
Sn	118	1	nogas	-0.041	-0.413	-51.20	890	0.00	2000	
Ba	137	1	nogas	378.777	3787.767	3.37	1097615	0.03	2000	
Sb	121	2	He	-0.095	-0.948	-39.24	290	-0.03	2000	
La	139	1	nogas	93.730	937.301	32.89	357	26.28	2000	
Au	197	1	nogas	176.580	1765.799	232.09	40	441.45	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	387136	2.85	363379	106.54	70	125	
Ge	72	1	nogas	1574588	3.23	1518701	103.68	70	125	
In	115	1	nogas	1737054	2.30	1623624	106.99	70	125	
Bi	209	1	nogas	1536370	2.43	1463804	104.96	70	125	
Ge	72	2	He	131742	1.68	127073	103.67	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-03
Data File Name	040SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:45:57-06:00
Sample Type	Sample
Dilution	10
Comment	B123330 TW BaCaNa
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.008	0.080	60.76	73	0.01	2000	
Na	23	1	nogas	58057.125	580571.254	1.73	755088700	0.01	200000	
Mg	24	1	nogas	7985.234	79852.340	2.63	72807316	0.01	200000	
Al	27	1	nogas	9.079	90.786	4.58	129224	0.01	2000	
K	39	1	nogas	2215.514	22155.142	3.32	26713066	0.01	200000	
Ti	47	1	nogas	0.155	1.548	46.30	393	0.04	2000	
V	51	1	nogas	2.664	26.645	47.57	979173	0.00	2000	
Cr	52	1	nogas	1.993	19.926	6.54	58409	0.00	2000	
Mn	55	1	nogas	22.543	225.432	5.16	374794	0.01	2000	
Co	59	1	nogas	0.315	3.153	13.53	4791	0.01	2000	
Ni	60	1	nogas	0.110	1.100	25.08	3030	0.00	2000	
Cu	63	1	nogas	-0.020	-0.196	-146.91	6008	0.00	2000	
Zn	66	1	nogas	0.066	0.665	71.25	1937	0.00	2000	
As	75	1	nogas	-2.421	-24.211	-52.32	153690	0.00	2000	
Sr	88	1	nogas	1402.465	14024.655	1.88	23453201	0.01	2000	
Ag	107	1	nogas	-0.015	-0.153	-64.37	440	0.00	2000	
Cd	111	1	nogas	0.021	0.209	49.54	53	0.04	2000	
Sb	121	1	nogas	-0.165	-1.646	-8.00	2177	-0.01	2000	
Tl	205	1	nogas	0.005	0.048	42.73	297	0.00	2000	
Pb	208	1	nogas	0.010	0.100	12.55	747	0.00	2000	
U	238	1	nogas	0.233	2.325	6.60	6018	0.00	2000	
[Pb]	206	1	nogas	0.022	0.216	24.25	237	0.01	2000	
[Pb]	207	1	nogas	0.003	0.028	42.79	147	0.00	2000	
Na	23	2	He	57473.266	574732.657	1.16	15062099	0.38	200000	
Mg	24	2	He	7948.125	79481.253	1.09	1008437	0.79	200000	
Al	27	2	He	8.614	86.143	14.66	420	2.05	2000	
K	39	2	He	2253.537	22535.370	0.88	155053	1.45	200000	
Ca	43	2	He	48944.837	489448.367	3.19	11300	433.13	200000	
Ca	44	2	He	46007.397	460073.967	1.42	181538	25.34	200000	
V	51	2	He	0.190	1.898	8.49	785	0.02	2000	
Cr	52	2	He	2.139	21.393	4.51	5278	0.04	2000	
Mn	55	2	He	21.101	211.007	2.53	15877	0.13	2000	
Fe	56	2	He	30.617	306.174	1.32	50342	0.06	200000	
Co	59	2	He	0.257	2.572	11.30	837	0.03	2000	
Ni	60	2	He	-0.015	-0.150	-697.84	443	0.00	2000	
Cu	63	2	He	-0.176	-1.763	-15.38	1527	-0.01	2000	
Zn	66	2	He	0.695	6.951	23.51	320	0.22	2000	
As	75	2	He	0.235	2.353	13.28	76	0.31	2000	
Se	78	2	He	0.766	7.665	39.18	5	14.37	2000	
B	11	1	nogas	-11.373	-113.733	-33.60	96869	-0.01	2000	
Si	28	1	nogas	1718.928	17189.280	4.05	9931728	0.02	2000	
Ca	43	1	nogas	44717.682	447176.825	1.65	892554	5.01	200000	
Ca	44	1	nogas	43670.292	436702.916	3.01	14211096	0.31	200000	
Fe	56	1	nogas	39.085	390.848	19.45	1632869	0.00	200000	
Se	77	1	nogas	7.601	76.010	107.07	50969	0.01	2000	
Se	82	1	nogas	-0.099	-0.988	-701.68	473	-0.02	2000	

Sample Report

Mo	95	1	nogas	0.105	1.052	34.29	710	0.01	2000	
Sn	118	1	nogas	-0.001	-0.007	-3734.80	1080	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	380.509	3805.094	2.70	1054072	0.04	2000	
Sb	121	2	He	-0.131	-1.313	-39.07	250	-0.05	2000	
La	139	1	nogas	69.179	691.793	28.48	280	24.71	2000	
Au	197	1	nogas	-173.027	-1730.273	-67.20	10	-1730.27	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	389128	4.89	363379	107.09	70	125	
Ge	72	1	nogas	1583617	2.99	1518701	104.27	70	125	
In	115	1	nogas	1660617	2.27	1623624	102.28	70	125	
Bi	209	1	nogas	1557108	0.79	1463804	106.37	70	125	
Ge	72	2	He	131748	0.32	127073	103.68	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-05
Data File Name	041SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:47:58-06:00
Sample Type	Sample
Dilution	10
Comment	B123330 TW MnNa
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.038	0.379	71.39	173	0.02	2000	
Na	23	1	nogas	67510.388	675103.879	2.97	889087820	0.01	200000	
Mg	24	1	nogas	3400.828	34008.279	2.85	31419991	0.01	200000	
Al	27	1	nogas	3.785	37.850	2.51	70567	0.01	2000	
K	39	1	nogas	9.760	97.598	35.06	5793281	0.00	200000	
Ti	47	1	nogas	0.248	2.481	3.49	497	0.05	2000	
V	51	1	nogas	16.387	163.874	27.20	1208201	0.00	2000	
Cr	52	1	nogas	-0.291	-2.907	-23.74	29340	0.00	2000	
Mn	55	1	nogas	344.280	3442.795	0.95	5697932	0.01	2000	
Co	59	1	nogas	2.027	20.271	3.98	29798	0.01	2000	
Ni	60	1	nogas	8.547	85.474	4.30	29962	0.03	2000	
Cu	63	1	nogas	-0.069	-0.689	-10.94	5741	0.00	2000	
Zn	66	1	nogas	3.152	31.516	5.42	9706	0.03	2000	
As	75	1	nogas	-1.828	-18.280	-90.08	158322	0.00	2000	
Sr	88	1	nogas	88.299	882.993	3.73	1505740	0.01	2000	
Ag	107	1	nogas	-0.022	-0.218	-32.92	383	-0.01	2000	
Cd	111	1	nogas	0.014	0.145	86.86	40	0.04	2000	
Sb	121	1	nogas	-0.165	-1.653	-5.74	2214	-0.01	2000	
Tl	205	1	nogas	0.002	0.021	51.06	250	0.00	2000	
Pb	208	1	nogas	0.003	0.027	96.04	580	0.00	2000	
U	238	1	nogas	0.003	0.032	32.87	220	0.00	2000	
[Pb]	206	1	nogas	0.007	0.074	37.48	150	0.00	2000	
[Pb]	207	1	nogas	-0.005	-0.051	-106.70	103	0.00	2000	
Na	23	2	He	66112.792	661127.921	0.60	17074924	0.39	200000	
Mg	24	2	He	3440.210	34402.100	1.33	430499	0.80	200000	
Al	27	2	He	4.021	40.206	77.67	240	1.68	2000	
K	39	2	He	52.378	523.777	16.91	17512	0.30	200000	
Ca	43	2	He	4364.249	43642.493	18.15	1003	434.95	200000	
Ca	44	2	He	4020.427	40204.265	1.25	15804	25.44	200000	
V	51	2	He	0.157	1.569	10.78	728	0.02	2000	
Cr	52	2	He	-0.012	-0.122	-509.90	1180	0.00	2000	
Mn	55	2	He	343.672	3436.721	0.75	252540	0.14	2000	
Fe	56	2	He	54.624	546.238	4.15	85405	0.06	200000	
Co	59	2	He	2.072	20.716	2.15	6551	0.03	2000	
Ni	60	2	He	8.657	86.565	5.32	8199	0.11	2000	
Cu	63	2	He	-0.283	-2.833	-24.72	1240	-0.02	2000	
Zn	66	2	He	2.951	29.513	12.17	1157	0.26	2000	
As	75	2	He	0.092	0.923	7.91	39	0.24	2000	
Se	78	2	He	0.375	3.753	61.66	1	28.15	2000	
B	11	1	nogas	-13.132	-131.316	-14.72	91742	-0.01	2000	
Si	28	1	nogas	3059.778	30597.778	1.54	16572110	0.02	2000	>LDR
Ca	43	1	nogas	3918.342	39183.417	2.71	80538	4.87	200000	
Ca	44	1	nogas	3547.313	35473.128	1.40	1439647	0.25	200000	
Fe	56	1	nogas	65.056	650.561	0.72	2063922	0.00	200000	

Sample Report

Se	77	1	nogas	7.702	77.024	128.77	51927	0.01	2000	
Se	82	1	nogas	0.921	9.208	22.62	627	0.15	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	-0.047	-0.467	-28.41	163	-0.03	2000	
Sn	118	1	nogas	-0.032	-0.316	-74.60	897	0.00	2000	
Ba	137	1	nogas	6.125	61.251	9.28	16922	0.04	2000	
Sb	121	2	He	-0.131	-1.312	-18.65	247	-0.05	2000	
La	139	1	nogas	875.094	8750.942	5.58	2274	38.49	2000	
Au	197	1	nogas	-96.484	-964.843	-69.23	17	-578.91	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	382774	2.77	363379	105.34	70	125	
Ge	72	1	nogas	1613446	0.91	1518701	106.24	70	125	
In	115	1	nogas	1650158	2.43	1623624	101.63	70	125	
Bi	209	1	nogas	1569122	0.06	1463804	107.19	70	125	
Ge	72	2	He	129911	0.59	127073	102.23	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-01
Data File Name	043SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:51:56-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW BeAg
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.145	0.145	33.70	467	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	229303.151	229303.151	1.96	2039598846	0.01	200000	>LDR
Al	27	1	nogas	23.512	23.512	3.03	276867	0.01	2000	
K	39	1	nogas	3472.822	3472.822	1.52	36594454	0.01	200000	
Ti	47	1	nogas	1.636	1.636	18.83	1770	0.09	2000	
V	51	1	nogas	28.511	28.511	18.74	1292588	0.00	2000	
Cr	52	1	nogas	1.267	1.267	12.49	46328	0.00	2000	
Mn	55	1	nogas	481.580	481.580	1.86	7389548	0.01	2000	
Co	59	1	nogas	4.647	4.647	2.10	63002	0.01	2000	
Ni	60	1	nogas	9.528	9.528	4.49	30696	0.03	2000	
Cu	63	1	nogas	1.449	1.449	15.99	16241	0.01	2000	
Zn	66	1	nogas	9.124	9.124	1.54	22881	0.04	2000	
As	75	1	nogas	32.813	32.813	13.19	240665	0.01	2000	
Sr	88	1	nogas	8087.907	8087.907	1.22	127872215	0.01	2000	>LDR
Ag	107	1	nogas	-0.009	-0.009	-78.04	480	0.00	2000	
Cd	111	1	nogas	0.678	0.678	13.15	1317	0.05	2000	
Sb	121	1	nogas	0.033	0.033	55.84	3754	0.00	2000	
Tl	205	1	nogas	0.010	0.010	5.93	357	0.00	2000	
Pb	208	1	nogas	0.200	0.200	3.10	5127	0.00	2000	
U	238	1	nogas	3.901	3.901	3.78	88720	0.00	2000	
[Pb]	206	1	nogas	0.239	0.239	5.52	1420	0.02	2000	
[Pb]	207	1	nogas	0.172	0.172	6.63	990	0.02	2000	
Na	23	2	He	922795.329	922795.329	3.56	227272443	0.41	200000	>LDR
Mg	24	2	He	223813.601	223813.601	3.96	26788749	0.84	200000	>LDR
Al	27	2	He	22.812	22.812	8.50	913	2.50	2000	
K	39	2	He	3475.546	3475.546	2.92	231411	1.50	200000	
Ca	43	2	He	411788.978	411788.978	4.67	89632	459.42	200000	>LDR
Ca	44	2	He	396538.067	396538.067	2.72	1475569	26.87	200000	>LDR
V	51	2	He	0.841	0.841	1.67	1606	0.05	2000	
Cr	52	2	He	1.052	1.052	2.88	3037	0.03	2000	
Mn	55	2	He	478.654	478.654	4.42	336493	0.14	2000	
Fe	56	2	He	9118.996	9118.996	5.00	13004488	0.07	200000	
Co	59	2	He	4.285	4.285	3.80	12955	0.03	2000	
Ni	60	2	He	6.016	6.016	3.12	5588	0.11	2000	
Cu	63	2	He	0.022	0.022	529.68	1907	0.00	2000	
Zn	66	2	He	10.428	10.428	3.26	3777	0.28	2000	
As	75	2	He	8.331	8.331	6.27	2003	0.42	2000	
Se	78	2	He	0.592	0.592	21.74	3	17.75	2000	
B	11	1	nogas	1.059	1.059	259.14	106123	0.00	2000	
Si	28	1	nogas	17641.890	17641.890	0.33	80415779	0.02	2000	>LDR
Ca	43	1	nogas	383123.622	383123.622	1.00	7223144	5.30	200000	>LDR
Ca	44	1	nogas	372803.665	372803.665	2.18	112723115	0.33	200000	>LDR
Fe	56	1	nogas	9192.942	9192.942	1.83	131714303	0.01	200000	
Se	77	1	nogas	152.069	152.069	16.78	73746	0.21	2000	
Se	82	1	nogas	8.083	8.083	5.10	1523	0.53	2000	

Sample Report

Mo	95	1	nogas	0.442	0.442	7.96	1830	0.02	2000	
Sn	118	1	nogas	0.009	0.009	279.16	1047	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	9817.721	9817.721	1.84	25107465	0.04	2000	>LDR
Sb	121	2	He	0.125	0.125	78.81	500	0.03	2000	
La	139	1	nogas	2522.834	2522.834	3.78	5894	42.80	2000	>LDR
Au	197	1	nogas	-76.559	-76.559	-181.65	17	-459.35	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	333059	2.06	363379	91.66	70	125	
Ge	72	1	nogas	1496701	0.32	1518701	98.55	70	125	
In	115	1	nogas	1532802	1.11	1623624	94.41	70	125	
Bi	209	1	nogas	1400018	3.63	1463804	95.64	70	125	
Ge	72	2	He	124418	3.21	127073	97.91	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-02
Data File Name	044SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:53:54-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW BeAg
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.072	0.072	43.03	243	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	79662.804	79662.804	3.66	708486349	0.01	200000	
Al	27	1	nogas	90.757	90.757	3.81	1040435	0.01	2000	
K	39	1	nogas	22283.322	22283.322	1.53	215130855	0.01	200000	
Ti	47	1	nogas	1.264	1.264	17.13	1483	0.09	2000	
V	51	1	nogas	2.286	2.286	21.20	959991	0.00	2000	
Cr	52	1	nogas	22.188	22.188	1.40	316267	0.01	2000	
Mn	55	1	nogas	150.714	150.714	1.62	2420236	0.01	2000	
Co	59	1	nogas	3.108	3.108	2.40	44064	0.01	2000	
Ni	60	1	nogas	5.858	5.858	9.45	20715	0.03	2000	
Cu	63	1	nogas	2.231	2.231	2.87	22818	0.01	2000	
Zn	66	1	nogas	4.114	4.114	2.88	11727	0.04	2000	
As	75	1	nogas	6.654	6.654	5.80	177215	0.00	2000	
Sr	88	1	nogas	14121.569	14121.569	1.79	232957457	0.01	2000	>LDR
Ag	107	1	nogas	-0.010	-0.010	-77.29	493	0.00	2000	
Cd	111	1	nogas	0.153	0.153	28.53	317	0.05	2000	
Sb	121	1	nogas	0.043	0.043	27.50	4011	0.00	2000	
Tl	205	1	nogas	0.032	0.032	9.11	717	0.00	2000	
Pb	208	1	nogas	0.149	0.149	6.97	3954	0.00	2000	
U	238	1	nogas	2.504	2.504	1.18	58100	0.00	2000	
[Pb]	206	1	nogas	0.163	0.163	21.65	1017	0.02	2000	
[Pb]	207	1	nogas	0.143	0.143	1.50	857	0.02	2000	
Na	23	2	He	581409.110	581409.110	1.20	146823894	0.40	200000	>LDR
Mg	24	2	He	80018.246	80018.246	1.18	9819728	0.81	200000	
Al	27	2	He	88.182	88.182	10.43	3374	2.61	2000	
K	39	2	He	22694.016	22694.016	2.06	1432293	1.58	200000	
Ca	43	2	He	514055.831	514055.831	0.67	114736	448.03	200000	>LDR
Ca	44	2	He	482421.163	482421.163	2.53	1840091	26.22	200000	>LDR
V	51	2	He	1.647	1.647	1.49	2743	0.06	2000	
Cr	52	2	He	22.885	22.885	2.89	43181	0.05	2000	
Mn	55	2	He	152.385	152.385	0.16	109957	0.14	2000	
Fe	56	2	He	313.354	313.354	1.12	462095	0.07	200000	
Co	59	2	He	2.701	2.701	4.74	8375	0.03	2000	
Ni	60	2	He	2.735	2.735	5.34	2844	0.10	2000	
Cu	63	2	He	1.124	1.124	5.88	4634	0.02	2000	
Zn	66	2	He	4.692	4.692	13.24	1770	0.27	2000	
As	75	2	He	2.103	2.103	4.39	530	0.40	2000	
Se	78	2	He	0.853	0.853	72.36	6	14.22	2000	
B	11	1	nogas	10.391	10.391	21.09	118931	0.01	2000	
Si	28	1	nogas	18130.853	18130.853	4.29	86148342	0.02	2000	>LDR
Ca	43	1	nogas	451910.147	451910.147	4.49	8887472	5.08	200000	>LDR
Ca	44	1	nogas	434092.531	434092.531	3.23	136890271	0.32	200000	>LDR
Fe	56	1	nogas	329.644	329.644	2.02	5923140	0.01	200000	
Se	77	1	nogas	43.039	43.039	18.13	56789	0.08	2000	
Se	82	1	nogas	4.890	4.890	17.49	1150	0.43	2000	

Sample Report

Mo	95	1	nogas	1.486	1.486	5.52	5651	0.03	2000	
Sn	118	1	nogas	0.023	0.023	44.11	1160	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	3918.274	3918.274	1.12	10418876	0.04	2000	>LDR
Sb	121	2	He	0.121	0.121	55.43	510	0.02	2000	
La	139	1	nogas	1074.557	1074.557	14.09	2667	40.29	2000	
Au	197	1	nogas	-36.686	-36.686	-910.85	20	-183.43	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	321014	2.88	363379	88.34	70	125	
Ge	72	1	nogas	1561848	1.83	1518701	102.84	70	125	
In	115	1	nogas	1593685	1.38	1623624	98.16	70	125	
Bi	209	1	nogas	1425934	1.51	1463804	97.41	70	125	
Ge	72	2	He	127466	1.61	127073	100.31	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-03
Data File Name	045SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:55:54-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW BeAg
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.047	0.047	45.92	177	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	76573.498	76573.498	3.54	680910849	0.01	200000	
Al	27	1	nogas	89.335	89.335	1.23	987692	0.01	2000	
K	39	1	nogas	22360.315	22360.315	3.39	207996300	0.01	200000	
Ti	47	1	nogas	1.125	1.125	17.24	1297	0.09	2000	
V	51	1	nogas	-0.236	-0.236	-473.76	889154	0.00	2000	
Cr	52	1	nogas	21.938	21.938	1.33	301647	0.01	2000	
Mn	55	1	nogas	149.828	149.828	2.14	2318230	0.01	2000	
Co	59	1	nogas	3.072	3.072	0.71	41979	0.01	2000	
Ni	60	1	nogas	5.448	5.448	4.08	18746	0.03	2000	
Cu	63	1	nogas	1.735	1.735	8.56	18406	0.01	2000	
Zn	66	1	nogas	2.989	2.989	8.14	8672	0.03	2000	
As	75	1	nogas	4.421	4.421	16.78	164690	0.00	2000	
Sr	88	1	nogas	13931.992	13931.992	2.59	221469250	0.01	2000	>LDR
Ag	107	1	nogas	-0.015	-0.015	-61.36	423	0.00	2000	
Cd	111	1	nogas	0.147	0.147	13.71	293	0.05	2000	
Sb	121	1	nogas	0.066	0.066	81.85	4057	0.00	2000	
Tl	205	1	nogas	0.023	0.023	6.97	557	0.00	2000	
Pb	208	1	nogas	0.130	0.130	7.37	3510	0.00	2000	
U	238	1	nogas	2.470	2.470	4.79	55869	0.00	2000	
[Pb]	206	1	nogas	0.146	0.146	25.27	903	0.02	2000	
[Pb]	207	1	nogas	0.124	0.124	7.15	740	0.02	2000	
Na	23	2	He	561584.438	561584.438	1.40	139378801	0.40	200000	>LDR
Mg	24	2	He	77599.267	77599.267	2.38	9358352	0.83	200000	
Al	27	2	He	93.474	93.474	2.22	3507	2.67	2000	
K	39	2	He	21916.186	21916.186	0.72	1383690	1.58	200000	
Ca	43	2	He	502928.153	502928.153	4.17	110257	456.14	200000	>LDR
Ca	44	2	He	477769.443	477769.443	3.28	1790202	26.69	200000	>LDR
V	51	2	He	1.535	1.535	1.13	2546	0.06	2000	
Cr	52	2	He	22.253	22.253	2.78	41283	0.05	2000	
Mn	55	2	He	146.387	146.387	2.70	103785	0.14	2000	
Fe	56	2	He	305.269	305.269	3.29	442355	0.07	200000	
Co	59	2	He	2.639	2.639	4.55	8039	0.03	2000	
Ni	60	2	He	2.447	2.447	11.19	2544	0.10	2000	
Cu	63	2	He	0.649	0.649	11.87	3420	0.02	2000	
Zn	66	2	He	3.694	3.694	16.09	1387	0.27	2000	
As	75	2	He	2.133	2.133	2.60	528	0.40	2000	
Se	78	2	He	0.937	0.937	67.27	7	14.05	2000	
B	11	1	nogas	4.667	4.667	43.20	111299	0.00	2000	
Si	28	1	nogas	17582.959	17582.959	1.82	80594249	0.02	2000	>LDR
Ca	43	1	nogas	451644.064	451644.064	0.99	8562342	5.27	200000	>LDR
Ca	44	1	nogas	439887.106	439887.106	1.52	133702648	0.33	200000	>LDR
Fe	56	1	nogas	321.299	321.299	0.89	5589662	0.01	200000	
Se	77	1	nogas	33.459	33.459	34.78	53031	0.06	2000	
Se	82	1	nogas	6.506	6.506	16.00	1323	0.49	2000	

Sample Report

Mo	95	1	nogas	1.554	1.554	5.13	5678	0.03	2000	
Sn	118	1	nogas	0.017	0.017	42.37	1087	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	3941.497	3941.497	2.91	10074383	0.04	2000	>LDR
Sb	121	2	He	0.089	0.089	93.06	467	0.02	2000	
La	139	1	nogas	898.244	898.244	11.63	2160	41.58	2000	
Au	197	1	nogas	-158.689	-158.689	-2.12	10	-1586.89	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	328636	2.25	363379	90.44	70	125	
Ge	72	1	nogas	1505032	0.96	1518701	99.10	70	125	
In	115	1	nogas	1532896	3.94	1623624	94.41	70	125	
Bi	209	1	nogas	1391044	2.56	1463804	95.03	70	125	
Ge	72	2	He	125294	2.81	127073	98.60	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	046_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:57:56-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	95.655	3.208	283290	4.34	100	95.7	90	110	
Na	23	1	nogas	10661.896	3.058	134746845	1.42	10000	106.6	90	110	
Mg	24	1	nogas	9991.146	3.662	87307477	1.98	10000	99.9	90	110	
Al	27	1	nogas	94.177	2.993	1079664	1.76	100	94.2	90	110	
K	39	1	nogas	9503.070	3.753	94952994	1.39	10000	95.0	90	110	
Ti	47	1	nogas	96.398	3.688	95285	4.49	100	96.4	90	110	
V	51	1	nogas	132.973	3.329	2900375	2.58	100	133.0	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	97.477	2.292	1281266	1.97	100	97.5	90	110	
Mn	55	1	nogas	96.848	1.809	1559529	2.16	100	96.8	90	110	
Co	59	1	nogas	96.382	3.898	1358362	1.97	100	96.4	90	110	
Ni	60	1	nogas	96.634	1.963	300858	1.92	100	96.6	90	110	
Cu	63	1	nogas	98.497	2.440	745545	1.99	100	98.5	90	110	
Zn	66	1	nogas	98.302	2.240	240287	1.75	100	98.3	90	110	
As	75	1	nogas	112.778	2.518	477550	1.83	100	112.8	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	102.048	4.368	1684952	2.17	100	102.0	90	110	
Ag	107	1	nogas	96.496	2.067	954278	2.21	100	96.5	90	110	
Cd	111	1	nogas	100.902	1.975	200234	0.50	100	100.9	90	110	
Sb	121	1	nogas	94.936	0.524	854268	2.10	100	94.9	90	110	
Tl	205	1	nogas	97.324	2.132	1737374	1.51	100	97.3	90	110	
Pb	208	1	nogas	104.605	1.109	2412859	1.11	100	104.6	90	110	
U	238	1	nogas	97.878	3.394	2442590	3.78	100	97.9	90	110	
[Pb]	206	1	nogas	97.423	1.539	595430	0.87	100	97.4	90	110	
[Pb]	207	1	nogas	93.613	1.434	520657	0.77	100	93.6	90	110	
Na	23	2	He	10419.158	4.558	2625799	3.55	10000	104.2	90	110	
Mg	24	2	He	9813.257	3.444	1173723	0.80	10000	98.1	90	110	
Al	27	2	He	97.221	6.691	3614	6.10	100	97.2	90	110	
K	39	2	He	9526.104	0.410	609485	0.40	10000	95.3	90	110	
Ca	43	2	He	10361.427	7.136	2267	9.49	10000	103.6	90	110	
Ca	44	2	He	9570.707	2.661	35762	4.13	10000	95.7	90	110	
V	51	2	He	97.438	2.461	129771	0.90	100	97.4	90	110	
Cr	52	2	He	99.411	1.895	178960	0.98	100	99.4	90	110	
Mn	55	2	He	97.828	3.220	68842	0.57	100	97.8	90	110	
Fe	56	2	He	9659.759	1.288	13771228	1.40	10000	96.6	90	110	
Co	59	2	He	100.700	1.170	304006	2.36	100	100.7	90	110	
Ni	60	2	He	99.803	3.918	85851	1.89	100	99.8	90	110	
Cu	63	2	He	99.766	2.300	237961	0.53	100	99.8	90	110	
Zn	66	2	He	100.340	2.432	35829	0.85	100	100.3	90	110	
As	75	2	He	100.200	2.173	23895	2.24	100	100.2	90	110	
Se	78	2	He	96.685	3.945	923	2.34	100	96.7	90	110	
B	11	1	nogas	484.152	4.263	999961	3.60	500	96.8	90	110	
Si	28	1	nogas	5011.683	2.477	25141162	0.26	5000	100.2	90	110	
Ca	43	1	nogas	9586.215	3.734	189563	2.84	10000	95.9	90	110	
Ca	44	1	nogas	9130.807	2.619	3153835	3.26	10000	91.3	90	110	
Fe	56	1	nogas	9358.391	2.785	139971995	0.66	10000	93.6	90	110	
Se	77	1	nogas	199.344	7.687	85792	4.45	100	199.3	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	93.704	0.602	13355	2.66	100	93.7	90	110	
Mo	95	1	nogas	93.029	3.100	333805	1.70	100	93.0	90	110	
Sn	118	1	nogas	96.011	2.350	514260	0.82	100	96.0	90	110	
Ba	137	1	nogas	104.958	1.071	276165	0.89	100	105.0	90	110	
Sb	121	2	He	99.031	2.634	102788	0.32	100	99.0	90	110	
Li	7	1	nogas	94.352	2.357	684509	3.60	100	94.4	90	110	
P	31	1	nogas	453.227	2.909	397620	0.44	500	90.6	90	110	
La	139	1	nogas	179.522	22.962	527	17.95	100	179.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	63.538	485.867	30	88.19	100	63.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	332707	1.41	363379	91.56	70	125	
Ge	72	1	nogas	1563196	2.22	1518701	102.93	70	125	
In	115	1	nogas	1576538	1.52	1623624	97.10	70	125	
Bi	209	1	nogas	1536688	0.68	1463804	104.98	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	124280	2.70	127073	97.80	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	047_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T10:59:53-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.077	21.2	297	19.2	1	
Na	23	1	nogas	244.097	0.6	5188534	1.2	100	CCB Main CR1 Failed
Mg	24	1	nogas	13.461	5.6	120105	5.1	100	
Al	27	1	nogas	-0.532	-11.6	19574	1.4	5	
K	39	1	nogas	-25.063	-73.4	5155484	0.5	100	
Ti	47	1	nogas	0.027	60.1	257	6.0	2.5	
V	51	1	nogas	30.561	10.1	1347627	4.5	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.110	48.9	32753	2.7	2.5	
Mn	55	1	nogas	0.447	10.8	16227	3.7	2.5	
Co	59	1	nogas	0.071	39.5	1263	30.7	2.5	
Ni	60	1	nogas	-0.119	-32.2	2230	6.5	2.5	
Cu	63	1	nogas	-0.081	-9.4	5344	3.5	2.5	
Zn	66	1	nogas	-0.393	-11.5	777	11.6	2.5	
As	75	1	nogas	12.613	30.1	189455	4.3	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.753	4.9	13062	6.3	2.5	
Ag	107	1	nogas	0.062	27.0	1167	13.7	2.5	
Cd	111	1	nogas	0.068	46.6	150	41.6	1	
Sb	121	1	nogas	0.078	66.9	4214	9.5	2.5	
Tl	205	1	nogas	0.302	33.7	5524	34.3	1	
Pb	208	1	nogas	0.098	19.9	2773	16.2	2.5	
U	238	1	nogas	0.075	30.2	1987	30.1	2.5	
[Pb]	206	1	nogas	0.115	19.6	790	18.4	2.5	
[Pb]	207	1	nogas	0.080	40.3	567	32.2	2.5	
Na	23	2	He	230.454	4.4	117945	0.4	100	CCB Main CR1 Failed
Mg	24	2	He	12.842	15.0	1723	11.3	100	
Al	27	2	He	-0.160	-167.8	77	15.1	5	
K	39	2	He	0.267	5442.8	14256	6.4	100	
Ca	43	2	He	-29.006	-93.7	3	173.2	100	
Ca	44	2	He	36.969	32.8	303	13.7	100	
V	51	2	He	0.285	22.0	857	10.7	2.5	
Cr	52	2	He	0.061	84.9	1247	7.6	2.5	
Mn	55	2	He	0.193	56.3	287	28.2	2.5	
Fe	56	2	He	5.665	4.6	11787	0.9	100	
Co	59	2	He	0.062	46.7	197	42.3	2.5	
Ni	60	2	He	-0.137	-33.5	310	11.2	2.5	
Cu	63	2	He	-0.329	-3.7	1067	4.2	2.5	
Zn	66	2	He	0.018	249.7	60	28.9	2.5	
As	75	2	He	0.096	18.7	38	13.5	2.5	
Se	78	2	He	0.875	48.9	6	66.7	2.5	
B	11	1	nogas	-8.704	-6.2	97462	2.0	10	
Si	28	1	nogas	-21.617	-38.6	1660135	1.6	5	
Ca	43	1	nogas	28.867	5.6	1430	3.0	100	
Ca	44	1	nogas	-451.053	-1.8	131740	1.0	100	
Fe	56	1	nogas	17.212	21.6	1257386	2.8	100	
Se	77	1	nogas	88.299	21.8	63642	5.4	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.721	136.0	563	20.6	2.5	
Mo	95	1	nogas	0.104	51.9	680	27.6	2.5	
Sn	118	1	nogas	0.088	69.9	1560	20.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.371	16.3	1103	17.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.011	883.6	380	27.5	2.5	
P	31	1	nogas	-4.564	-79.8	72071	1.0	10	
La	139	1	nogas	17.309	87.0	150	23.1	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-130.707	-105.0	13	86.6	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	368556	2.08	363379	101.42	70	125	
Ge	72	1	nogas	1525803	2.83	1518701	100.47	70	125	
In	115	1	nogas	1647832	2.10	1623624	101.49	70	125	
Bi	209	1	nogas	1510220	2.19	1463804	103.17	70	125	
Ge	72	2	He	122964	2.31	127073	96.77	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-05
Data File Name	048SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T11:01:52-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW BeAg
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.402	0.402	21.35	1173	0.03	2000	
Na	23	1	nogas	OR	OR	#VALUE!	OR	#VALUE!	200000	
Mg	24	1	nogas	33149.017	33149.017	1.93	296191740	0.01	200000	
Al	27	1	nogas	41.044	41.044	0.94	461505	0.01	2000	
K	39	1	nogas	652.729	652.729	6.03	11088781	0.01	200000	
Ti	47	1	nogas	2.442	2.442	39.09	2501	0.10	2000	
V	51	1	nogas	46.529	46.529	7.60	1538494	0.00	2000	
Cr	52	1	nogas	0.304	0.304	25.62	34262	0.00	2000	
Mn	55	1	nogas	3429.809	3429.809	0.94	52206446	0.01	2000	>LDR
Co	59	1	nogas	20.481	20.481	3.53	274709	0.01	2000	
Ni	60	1	nogas	91.796	91.796	4.48	271752	0.03	2000	
Cu	63	1	nogas	1.564	1.564	5.10	16941	0.01	2000	
Zn	66	1	nogas	35.405	35.405	2.56	83348	0.04	2000	
As	75	1	nogas	17.274	17.274	0.81	197221	0.01	2000	
Sr	88	1	nogas	885.811	885.811	2.74	13903734	0.01	2000	
Ag	107	1	nogas	0.003	0.003	681.50	587	0.00	2000	
Cd	111	1	nogas	0.188	0.188	19.10	390	0.05	2000	
Sb	121	1	nogas	0.041	0.041	61.04	3800	0.00	2000	
Tl	205	1	nogas	0.047	0.047	9.78	990	0.00	2000	
Pb	208	1	nogas	0.094	0.094	9.34	2690	0.00	2000	
U	238	1	nogas	0.054	0.054	9.38	1393	0.00	2000	
[Pb]	206	1	nogas	0.105	0.105	14.77	700	0.01	2000	
[Pb]	207	1	nogas	0.086	0.086	27.71	573	0.01	2000	
Na	23	2	He	663077.728	663077.728	4.27	161130051	0.41	200000	>LDR
Mg	24	2	He	33918.034	33918.034	4.20	4005698	0.85	200000	
Al	27	2	He	39.466	39.466	4.97	1497	2.64	2000	
K	39	2	He	628.638	628.638	2.16	53520	1.17	200000	
Ca	43	2	He	42808.314	42808.314	2.84	9206	465.02	200000	
Ca	44	2	He	40239.485	40239.485	2.85	147827	27.22	200000	
V	51	2	He	0.841	0.841	4.25	1583	0.05	2000	
Cr	52	2	He	0.299	0.299	23.64	1663	0.02	2000	
Mn	55	2	He	3415.036	3415.036	2.13	2368037	0.14	2000	>LDR
Fe	56	2	He	526.140	526.140	2.54	744034	0.07	200000	
Co	59	2	He	20.265	20.265	3.08	60393	0.03	2000	
Ni	60	2	He	86.251	86.251	2.47	73323	0.12	2000	
Cu	63	2	He	0.656	0.656	17.92	3364	0.02	2000	
Zn	66	2	He	33.547	33.547	1.77	11864	0.28	2000	
As	75	2	He	0.738	0.738	21.75	189	0.39	2000	
Se	78	2	He	0.881	0.881	87.47	6	14.69	2000	
B	11	1	nogas	-0.092	-0.092	-3482.63	98688	0.00	2000	
Si	28	1	nogas	32488.558	32488.558	1.49	145601671	0.02	2000	>LDR
Ca	43	1	nogas	40488.150	40488.150	2.05	758598	5.34	200000	
Ca	44	1	nogas	38755.185	38755.185	1.97	11870495	0.33	200000	
Fe	56	1	nogas	566.209	566.209	2.10	8976679	0.01	200000	
Se	77	1	nogas	104.846	104.846	1.95	64936	0.16	2000	
Se	82	1	nogas	3.475	3.475	25.11	910	0.38	2000	

Sample Report

Mo	95	1	nogas	0.021	0.021	46.31	380	0.01	2000	
Sn	118	1	nogas	-0.048	-0.048	-17.21	780	-0.01	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	58.126	58.126	1.38	155251	0.04	2000	
Sb	121	2	He	0.052	0.052	82.13	420	0.01	2000	
La	139	1	nogas	8418.655	8418.655	3.40	20282	41.51	2000	>LDR
Au	197	1	nogas	-165.023	-165.023	-74.18	10	-1650.23	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	316282	2.86	363379	87.04	70	125	
Ge	72	1	nogas	1486396	2.24	1518701	97.87	70	125	
In	115	1	nogas	1600083	1.66	1623624	98.55	70	125	
Bi	209	1	nogas	1452591	2.01	1463804	99.23	70	125	
Ge	72	2	He	122667	1.02	127073	96.53	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-06
Data File Name	049SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T11:03:52-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW BeAg
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.017	0.017	43.92	103	0.02	2000	
Na	23	1	nogas	35193.323	35193.323	3.61	475816927	0.01	200000	
Mg	24	1	nogas	8870.624	8870.624	2.82	83928450	0.01	200000	
Al	27	1	nogas	11.456	11.456	4.62	154033	0.01	2000	
K	39	1	nogas	1285.335	1285.335	3.37	17604633	0.01	200000	
Ti	47	1	nogas	1.949	1.949	2.95	2157	0.09	2000	
V	51	1	nogas	30.580	30.580	15.37	1379205	0.00	2000	
Cr	52	1	nogas	-0.084	-0.084	-103.32	31036	0.00	2000	
Mn	55	1	nogas	1846.863	1846.863	2.13	29539958	0.01	2000	>LDR
Co	59	1	nogas	1.272	1.272	1.55	18209	0.01	2000	
Ni	60	1	nogas	1.199	1.199	2.89	6348	0.02	2000	
Cu	63	1	nogas	2.948	2.948	2.56	28192	0.01	2000	
Zn	66	1	nogas	4.191	4.191	9.76	11904	0.04	2000	
As	75	1	nogas	6.280	6.280	28.97	176112	0.00	2000	
Sr	88	1	nogas	302.285	302.285	3.74	4985779	0.01	2000	
Ag	107	1	nogas	-0.017	-0.017	-23.49	417	0.00	2000	
Cd	111	1	nogas	0.025	0.025	31.18	63	0.04	2000	
Sb	121	1	nogas	-0.005	-0.005	-833.87	3584	0.00	2000	
Tl	205	1	nogas	0.010	0.010	36.47	397	0.00	2000	
Pb	208	1	nogas	0.217	0.217	1.80	5530	0.00	2000	
U	238	1	nogas	0.015	0.015	28.04	523	0.00	2000	
[Pb]	206	1	nogas	0.220	0.220	7.84	1487	0.01	2000	
[Pb]	207	1	nogas	0.173	0.173	9.05	1120	0.02	2000	
Na	23	2	He	36821.521	36821.521	0.98	9454303	0.39	200000	
Mg	24	2	He	9268.121	9268.121	2.39	1149015	0.81	200000	
Al	27	2	He	12.881	12.881	22.03	570	2.26	2000	
K	39	2	He	1284.811	1284.811	1.93	94521	1.36	200000	
Ca	43	2	He	14842.554	14842.554	10.75	3354	442.57	200000	
Ca	44	2	He	15620.834	15620.834	2.38	60361	25.88	200000	
V	51	2	He	0.429	0.429	7.87	1095	0.04	2000	
Cr	52	2	He	0.258	0.258	9.19	1670	0.02	2000	
Mn	55	2	He	1836.583	1836.583	0.94	1336937	0.14	2000	>LDR
Fe	56	2	He	14510.853	14510.853	0.95	21438596	0.07	200000	
Co	59	2	He	1.213	1.213	9.67	3804	0.03	2000	
Ni	60	2	He	0.540	0.540	21.19	927	0.06	2000	
Cu	63	2	He	2.611	2.611	10.12	8325	0.03	2000	
Zn	66	2	He	4.669	4.669	7.68	1780	0.26	2000	
As	75	2	He	1.688	1.688	15.41	432	0.39	2000	
Se	78	2	He	0.647	0.647	55.01	4	16.19	2000	
B	11	1	nogas	-1.425	-1.425	-97.77	115779	0.00	2000	
Si	28	1	nogas	19976.996	19976.996	1.66	94770909	0.02	2000	>LDR
Ca	43	1	nogas	15367.233	15367.233	2.21	303115	5.07	200000	
Ca	44	1	nogas	14996.453	14996.453	2.11	4996473	0.30	200000	
Fe	56	1	nogas	14824.150	14824.150	2.99	220937647	0.01	200000	
Se	77	1	nogas	43.125	43.125	17.97	56795	0.08	2000	
Se	82	1	nogas	-0.046	-0.046	-1256.46	473	-0.01	2000	

Sample Report

Mo	95	1	nogas	0.204	0.204	21.86	1057	0.02	2000	
Sn	118	1	nogas	0.009	0.009	558.88	1167	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	229.586	229.586	3.00	655013	0.04	2000	
Sb	121	2	He	0.001	0.001	5243.68	387	0.00	2000	
La	139	1	nogas	863.299	863.299	10.11	2324	37.15	2000	
Au	197	1	nogas	-135.938	-135.938	-97.58	13	-1019.54	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	379796	2.02	363379	104.52	70	125	
Ge	72	1	nogas	1562004	2.36	1518701	102.85	70	125	
In	115	1	nogas	1710252	2.01	1623624	105.34	70	125	
Bi	209	1	nogas	1578116	1.07	1463804	107.81	70	125	
Ge	72	2	He	128771	1.56	127073	101.34	70	125	

Sample Report

Sample Table

Sample Name	HS17120573-09
Data File Name	050SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T11:05:56-06:00
Sample Type	Sample
Dilution	1
Comment	B123330 TW BeAg
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	0.047	0.047	64.71	207	0.02	2000	
Na	23	1	nogas	16396.838	16396.838	3.33	226251272	0.01	200000	
Mg	24	1	nogas	1127.294	1127.294	2.35	10828058	0.01	200000	
Al	27	1	nogas	137.649	137.649	1.30	1657822	0.01	2000	
K	39	1	nogas	1758.316	1758.316	3.81	23361162	0.01	200000	
Ti	47	1	nogas	3.943	3.943	8.61	4367	0.09	2000	
V	51	1	nogas	5.017	5.017	119.88	1059949	0.00	2000	
Cr	52	1	nogas	3.048	3.048	4.89	75364	0.00	2000	
Mn	55	1	nogas	84.186	84.186	3.17	1435980	0.01	2000	
Co	59	1	nogas	0.138	0.138	13.42	2370	0.01	2000	
Ni	60	1	nogas	2.494	2.494	10.30	10947	0.02	2000	
Cu	63	1	nogas	0.329	0.329	18.57	9046	0.00	2000	
Zn	66	1	nogas	3.715	3.715	3.88	11400	0.03	2000	
As	75	1	nogas	-4.107	-4.107	-74.94	155485	0.00	2000	
Sr	88	1	nogas	66.246	66.246	2.50	1158502	0.01	2000	
Ag	107	1	nogas	-0.016	-0.016	-30.81	453	0.00	2000	
Cd	111	1	nogas	0.027	0.027	60.96	70	0.04	2000	
Sb	121	1	nogas	-0.110	-0.110	-9.97	2794	0.00	2000	
Tl	205	1	nogas	0.005	0.005	74.81	323	0.00	2000	
Pb	208	1	nogas	0.702	0.702	3.82	16704	0.00	2000	
U	238	1	nogas	0.071	0.071	8.14	2074	0.00	2000	
[Pb]	206	1	nogas	0.664	0.664	3.71	4504	0.01	2000	
[Pb]	207	1	nogas	0.562	0.562	4.78	3527	0.02	2000	
Na	23	2	He	16427.390	16427.390	5.67	4534651	0.36	200000	
Mg	24	2	He	1116.241	1116.241	2.60	147748	0.76	200000	
Al	27	2	He	129.001	129.001	6.70	5267	2.45	2000	
K	39	2	He	1821.966	1821.966	2.44	128086	1.42	200000	
Ca	43	2	He	6787.926	6787.926	12.67	1643	413.03	200000	
Ca	44	2	He	6308.544	6308.544	0.91	26102	24.17	200000	
V	51	2	He	2.185	2.185	2.15	3744	0.06	2000	
Cr	52	2	He	3.448	3.448	4.72	8085	0.04	2000	
Mn	55	2	He	79.176	79.176	2.79	61587	0.13	2000	
Fe	56	2	He	1737.509	1737.509	2.79	2739118	0.06	200000	
Co	59	2	He	0.175	0.175	3.94	597	0.03	2000	
Ni	60	2	He	2.356	2.356	20.64	2697	0.09	2000	
Cu	63	2	He	0.165	0.165	57.09	2480	0.01	2000	
Zn	66	2	He	3.961	3.961	0.74	1620	0.24	2000	
As	75	2	He	0.482	0.482	26.98	143	0.34	2000	
Se	78	2	He	1.064	1.064	28.28	9	12.28	2000	
B	11	1	nogas	1.448	1.448	208.09	123999	0.00	2000	
Si	28	1	nogas	3333.258	3333.258	0.48	18341206	0.02	2000	>LDR
Ca	43	1	nogas	6718.159	6718.159	1.65	140923	4.77	200000	
Ca	44	1	nogas	6215.967	6215.967	2.53	2365572	0.26	200000	
Fe	56	1	nogas	1777.072	1777.072	2.62	29021928	0.01	200000	

Sample Report

Se	77	1	nogas	-2.946	-2.946	-541.84	51142	-0.01	2000	
Se	82	1	nogas	0.192	0.192	596.87	537	0.04	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	0.445	0.445	16.44	2033	0.02	2000	
Sn	118	1	nogas	-0.062	-0.062	-22.93	777	-0.01	2000	
Ba	137	1	nogas	41.753	41.753	1.48	122327	0.03	2000	
Sb	121	2	He	-0.101	-0.101	-47.71	297	-0.03	2000	
La	139	1	nogas	9847.819	9847.819	4.70	26000	37.88	2000	>LDR
Au	197	1	nogas	-71.567	-71.567	-300.39	20	-357.84	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	386687	2.79	363379	106.41	70	125	
Ge	72	1	nogas	1654364	1.02	1518701	108.93	70	125	
In	115	1	nogas	1754685	0.70	1623624	108.07	70	125	
Bi	209	1	nogas	1664774	1.91	1463804	113.73	70	125	
Ge	72	2	He	137291	2.69	127073	108.04	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	058_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T11:46:17-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.326	2.998	302557	1.54	100	92.3	90	110	
Na	23	1	nogas	9932.477	1.938	129129903	2.17	10000	99.3	90	110	
Mg	24	1	nogas	9806.230	1.085	88046221	1.19	10000	98.1	90	110	
Al	27	1	nogas	116.417	14.164	1334449	13.52	100	116.4	90	110	CCV Main CR1-2 Failed
K	39	1	nogas	9938.207	1.141	99548148	1.60	10000	99.4	90	110	
Ti	47	1	nogas	96.968	1.288	96270	1.07	100	97.0	90	110	
V	51	1	nogas	130.700	3.525	2879812	2.33	100	130.7	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	97.759	3.448	1291016	3.73	100	97.8	90	110	
Mn	55	1	nogas	99.010	2.020	1601426	1.78	100	99.0	90	110	
Co	59	1	nogas	100.180	1.384	1419036	1.75	100	100.2	90	110	
Ni	60	1	nogas	99.851	1.613	312251	2.06	100	99.9	90	110	
Cu	63	1	nogas	103.554	1.181	787244	1.71	100	103.6	90	110	
Zn	66	1	nogas	102.669	1.287	252080	1.75	100	102.7	90	110	
As	75	1	nogas	100.262	2.240	444209	1.77	100	100.3	90	110	
Sr	88	1	nogas	101.082	0.882	1677544	0.67	100	101.1	90	110	
Ag	107	1	nogas	94.836	1.149	942190	0.68	100	94.8	90	110	
Cd	111	1	nogas	96.257	0.917	201988	1.87	100	96.3	90	110	
Sb	121	1	nogas	100.370	1.805	906986	1.36	100	100.4	90	110	
Tl	205	1	nogas	100.251	6.641	1769830	2.23	100	100.3	90	110	
Pb	208	1	nogas	102.966	0.782	2375084	0.78	100	103.0	90	110	
U	238	1	nogas	99.663	3.501	2461586	1.01	100	99.7	90	110	
[Pb]	206	1	nogas	99.591	5.459	602153	1.07	100	99.6	90	110	
[Pb]	207	1	nogas	95.355	5.469	524674	1.44	100	95.4	90	110	
Na	23	2	He	10032.412	2.520	2567490	2.31	10000	100.3	90	110	
Mg	24	2	He	9798.511	1.097	1189187	0.40	10000	98.0	90	110	
Al	27	2	He	99.377	6.483	3744	5.11	100	99.4	90	110	
K	39	2	He	9456.161	0.975	605115	0.95	10000	94.6	90	110	
Ca	43	2	He	9462.439	7.659	2097	6.51	10000	94.6	90	110	
Ca	44	2	He	9432.141	4.196	35728	2.73	10000	94.3	90	110	
V	51	2	He	98.598	0.279	133232	1.77	100	98.6	90	110	
Cr	52	2	He	98.471	0.614	179843	1.17	100	98.5	90	110	
Mn	55	2	He	97.320	1.276	69491	1.22	100	97.3	90	110	
Fe	56	2	He	9538.741	2.267	13792445	1.52	10000	95.4	90	110	
Co	59	2	He	100.534	2.021	307799	1.46	100	100.5	90	110	
Ni	60	2	He	101.940	2.251	88963	1.19	100	101.9	90	110	
Cu	63	2	He	102.517	0.796	248048	2.00	100	102.5	90	110	
Zn	66	2	He	99.568	1.972	36066	0.80	100	99.6	90	110	
As	75	2	He	97.925	2.733	23684	1.99	100	97.9	90	110	
Se	78	2	He	92.414	9.077	895	7.66	100	92.4	90	110	
B	11	1	nogas	457.923	2.800	1053156	0.42	500	91.6	90	110	
Si	28	1	nogas	5173.284	1.609	26017413	0.89	5000	103.5	90	110	
Ca	43	1	nogas	9823.688	2.482	195189	2.78	10000	98.2	90	110	
Ca	44	1	nogas	9113.975	1.002	3162836	1.58	10000	91.1	90	110	
Fe	56	1	nogas	9612.123	1.388	144440862	1.28	10000	96.1	90	110	
Se	77	1	nogas	133.998	9.398	74017	3.41	100	134.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	100.443	3.220	14343	2.50	100	100.4	90	110	
Mo	95	1	nogas	98.586	0.793	355462	1.26	100	98.6	90	110	
Sn	118	1	nogas	96.381	0.653	545912	1.77	100	96.4	90	110	
Ba	137	1	nogas	98.204	2.524	273149	1.50	100	98.2	90	110	
Sb	121	2	He	98.252	1.601	103463	0.81	100	98.3	90	110	
Li	7	1	nogas	95.596	1.366	767059	1.60	100	95.6	90	110	
P	31	1	nogas	473.424	0.527	413905	1.04	500	94.7	90	110	
La	139	1	nogas	278.326	11.150	803	8.29	100	278.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	146.911	41.605	37	15.75	100	146.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	368402	2.77	363379	101.38	70	125	
Ge	72	1	nogas	1570232	0.69	1518701	103.39	70	125	
In	115	1	nogas	1666774	1.68	1623624	102.66	70	125	
Bi	209	1	nogas	1522651	4.60	1463804	104.02	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	126043	1.50	127073	99.19	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	059_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T11:48:14-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.087	38.9	363	34.2	1	
Na	23	1	nogas	67.018	107.8	3226393	30.3	100	
Mg	24	1	nogas	9.301	32.4	89866	31.7	100	
Al	27	1	nogas	1.024	72.9	37744	21.2	5	
K	39	1	nogas	-55.032	-10.4	5047913	1.1	100	
Ti	47	1	nogas	0.189	7.6	427	3.6	2.5	
V	51	1	nogas	35.437	11.6	1466652	5.5	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.031	-334.8	32031	3.4	2.5	
Mn	55	1	nogas	0.462	12.9	17021	4.9	2.5	
Co	59	1	nogas	0.083	22.9	1470	17.3	2.5	
Ni	60	1	nogas	-0.255	-14.7	1883	7.2	2.5	
Cu	63	1	nogas	-0.140	-2.5	5077	1.6	2.5	
Zn	66	1	nogas	-0.367	-3.8	870	5.3	2.5	
As	75	1	nogas	6.556	11.7	178710	2.5	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.125	25.7	3044	16.7	2.5	
Ag	107	1	nogas	0.059	25.9	1183	12.3	2.5	
Cd	111	1	nogas	0.071	51.6	160	48.8	1	
Sb	121	1	nogas	0.173	31.4	5221	8.3	2.5	
Tl	205	1	nogas	0.315	35.8	5958	36.4	1	
Pb	208	1	nogas	0.114	22.4	3140	18.7	2.5	
U	238	1	nogas	0.089	31.7	2400	31.6	2.5	
[Pb]	206	1	nogas	0.110	14.9	787	14.7	2.5	
[Pb]	207	1	nogas	0.094	25.5	667	22.0	2.5	
Na	23	2	He	12.312	61.3	68122	0.6	100	
Mg	24	2	He	5.876	8.5	947	4.3	100	
Al	27	2	He	1.353	107.3	137	37.6	5	
K	39	2	He	-18.791	-42.8	13065	3.8	100	
Ca	43	2	He	-0.491	-8825.4	10	100.0	100	
Ca	44	2	He	-0.955	-1547.5	173	35.3	100	
V	51	2	He	0.356	10.6	999	7.2	2.5	
Cr	52	2	He	0.097	17.5	1377	1.1	2.5	
Mn	55	2	He	0.162	88.2	277	36.9	2.5	
Fe	56	2	He	6.231	16.6	13240	13.0	100	
Co	59	2	He	0.081	11.8	267	7.8	2.5	
Ni	60	2	He	-0.278	-18.6	200	21.8	2.5	
Cu	63	2	He	-0.319	-18.1	1143	10.9	2.5	
Zn	66	2	He	0.107	81.9	97	36.3	2.5	
As	75	2	He	0.132	100.9	48	64.4	2.5	
Se	78	2	He	0.504	45.1	3	86.6	2.5	
B	11	1	nogas	-11.200	-20.9	101658	6.2	10	
Si	28	1	nogas	-20.575	-68.4	1721161	2.6	5	
Ca	43	1	nogas	10.640	18.9	1117	4.6	100	
Ca	44	1	nogas	-512.581	-0.5	116671	0.6	100	
Fe	56	1	nogas	4.116	299.3	1103193	15.7	100	
Se	77	1	nogas	48.483	17.6	58380	3.5	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.040	-1273.8	480	16.3	2.5	
Mo	95	1	nogas	0.136	62.1	817	36.2	2.5	
Sn	118	1	nogas	0.186	104.7	2155	50.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.096	22.8	353	16.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.139	3.8	537	4.3	2.5	
P	31	1	nogas	-14.123	-24.1	67725	3.6	10	
La	139	1	nogas	38.217	13.1	207	7.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-93.693	-260.7	17	124.9	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	405562	0.96	363379	111.61	70	125	
Ge	72	1	nogas	1577341	1.31	1518701	103.86	70	125	
In	115	1	nogas	1684209	1.66	1623624	103.73	70	125	
Bi	209	1	nogas	1564318	1.83	1463804	106.87	70	125	
Ge	72	2	He	129227	3.26	127073	101.70	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	070_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T12:10:32-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.156	3.420	302251	1.13	100	91.2	90	110	
Na	23	1	nogas	9979.594	2.538	131848407	1.22	10000	99.8	90	110	
Mg	24	1	nogas	9816.700	3.964	89557906	1.84	10000	98.2	90	110	
Al	27	1	nogas	96.298	2.374	1138686	1.18	100	96.3	90	110	
K	39	1	nogas	9738.501	3.963	100290504	3.02	10000	97.4	90	110	
Ti	47	1	nogas	95.768	0.656	97674	1.73	100	95.8	90	110	
V	51	1	nogas	157.186	0.943	3363666	0.72	100	157.2	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	99.315	1.149	1346519	0.91	100	99.3	90	110	
Mn	55	1	nogas	100.962	1.663	1677068	0.65	100	101.0	90	110	
Co	59	1	nogas	101.191	0.851	1472231	1.12	100	101.2	90	110	
Ni	60	1	nogas	100.146	3.866	321573	2.74	100	100.1	90	110	
Cu	63	1	nogas	99.770	2.070	779192	1.19	100	99.8	90	110	
Zn	66	1	nogas	100.104	0.766	252485	0.39	100	100.1	90	110	
As	75	1	nogas	112.716	4.126	492574	2.33	100	112.7	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	96.038	0.655	1637181	0.55	100	96.0	90	110	
Ag	107	1	nogas	95.544	2.275	974899	1.25	100	95.5	90	110	
Cd	111	1	nogas	98.819	0.406	209355	0.40	100	98.8	90	110	
Sb	121	1	nogas	96.554	0.833	896367	0.48	100	96.6	90	110	
Tl	205	1	nogas	97.742	1.890	1760971	0.27	100	97.7	90	110	
Pb	208	1	nogas	106.321	0.440	2452445	0.44	100	106.3	90	110	
U	238	1	nogas	101.394	1.105	2553674	1.46	100	101.4	90	110	
[Pb]	206	1	nogas	97.037	1.561	598585	1.13	100	97.0	90	110	
[Pb]	207	1	nogas	94.305	2.157	529317	0.15	100	94.3	90	110	
Na	23	2	He	9930.566	1.823	2564255	3.86	10000	99.3	90	110	
Mg	24	2	He	9914.332	1.558	1213782	3.83	10000	99.1	90	110	
Al	27	2	He	97.118	5.597	3690	3.20	100	97.1	90	110	
K	39	2	He	9734.827	2.653	622528	2.59	10000	97.3	90	110	
Ca	43	2	He	9177.844	13.554	2050	12.54	10000	91.8	90	110	
Ca	44	2	He	9460.672	1.667	36149	2.43	10000	94.6	90	110	
V	51	2	He	98.980	3.802	134790	1.55	100	99.0	90	110	
Cr	52	2	He	98.779	2.169	181867	0.28	100	98.8	90	110	
Mn	55	2	He	96.355	0.970	69398	3.26	100	96.4	90	110	
Fe	56	2	He	9676.874	0.707	14110854	1.71	10000	96.8	90	110	
Co	59	2	He	102.559	0.210	316678	2.20	100	102.6	90	110	
Ni	60	2	He	104.167	2.894	91638	0.55	100	104.2	90	110	
Cu	63	2	He	103.045	3.342	251277	1.10	100	103.0	90	110	
Zn	66	2	He	99.988	3.458	36517	2.67	100	100.0	90	110	
As	75	2	He	99.944	1.093	24376	1.24	100	99.9	90	110	
Se	78	2	He	101.469	6.978	991	4.62	100	101.5	90	110	
B	11	1	nogas	446.298	4.652	1041393	2.06	500	89.3	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	5007.686	2.213	25926668	1.12	5000	100.2	90	110	
Ca	43	1	nogas	9655.549	2.287	197044	1.52	10000	96.6	90	110	
Ca	44	1	nogas	8949.397	0.673	3195098	0.98	10000	89.5	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9747.969	2.739	150422374	1.66	10000	97.5	90	110	
Se	77	1	nogas	184.944	8.659	85751	3.41	100	184.9	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	101.792	5.739	14920	4.46	100	101.8	90	110	
Mo	95	1	nogas	95.091	2.751	352139	2.18	100	95.1	90	110	
Sn	118	1	nogas	95.241	0.703	544646	0.71	100	95.2	90	110	
Ba	137	1	nogas	99.349	0.904	279049	0.92	100	99.3	90	110	
Sb	121	2	He	99.064	0.866	105193	1.46	100	99.1	90	110	
Li	7	1	nogas	93.537	1.855	760879	4.77	100	93.5	90	110	
P	31	1	nogas	462.457	3.712	417057	2.00	500	92.5	90	110	
La	139	1	nogas	195.655	33.330	603	27.25	100	195.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	97.261	243.627	33	62.45	100	97.3	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	372916	4.18	363379	102.62	70	125	
Ge	72	1	nogas	1612912	1.14	1518701	106.20	70	125	
In	115	1	nogas	1682770	0.04	1623624	103.64	70	125	
Bi	209	1	nogas	1551178	2.16	1463804	105.97	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	127103	2.31	127073	100.02	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	071_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T12:12:33-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.078	47.8	323	41.2	1	
Na	23	1	nogas	-7.413	-63.7	2305190	0.6	100	
Mg	24	1	nogas	9.626	18.6	94729	19.6	100	
Al	27	1	nogas	-0.257	-36.1	23385	1.9	5	
K	39	1	nogas	-52.171	-51.0	5082112	0.5	100	
Ti	47	1	nogas	0.036	78.1	277	14.6	2.5	
V	51	1	nogas	47.103	18.7	1641824	4.5	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.182	72.8	34843	1.8	2.5	
Mn	55	1	nogas	0.410	15.5	16197	1.3	2.5	
Co	59	1	nogas	0.082	36.3	1477	31.8	2.5	
Ni	60	1	nogas	-0.323	-14.7	1680	13.7	2.5	
Cu	63	1	nogas	-0.254	-28.1	4207	8.1	2.5	
Zn	66	1	nogas	-0.381	-15.8	837	19.1	2.5	
As	75	1	nogas	12.167	45.7	194827	4.7	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.121	18.4	2997	16.0	2.5	
Ag	107	1	nogas	0.075	38.4	1350	25.1	2.5	
Cd	111	1	nogas	0.077	86.6	180	82.2	1	
Sb	121	1	nogas	0.070	39.0	4297	5.0	2.5	
Tl	205	1	nogas	0.309	34.9	5938	36.2	1	
Pb	208	1	nogas	0.120	19.4	3290	16.3	2.5	
U	238	1	nogas	0.089	26.6	2444	28.0	2.5	
[Pb]	206	1	nogas	0.123	12.2	883	12.7	2.5	
[Pb]	207	1	nogas	0.106	12.3	743	12.1	2.5	
Na	23	2	He	-9.765	-74.3	62813	1.1	100	
Mg	24	2	He	6.487	18.9	1030	16.0	100	
Al	27	2	He	0.963	59.1	123	16.9	5	
K	39	2	He	-19.591	-48.8	13015	4.6	100	
Ca	43	2	He	-15.742	-318.6	7	173.2	100	
Ca	44	2	He	-2.526	-589.5	167	33.0	100	
V	51	2	He	0.421	10.8	1094	5.0	2.5	
Cr	52	2	He	0.009	223.0	1220	2.2	2.5	
Mn	55	2	He	0.154	30.2	273	12.8	2.5	
Fe	56	2	He	5.868	5.2	12755	2.1	100	
Co	59	2	He	0.075	29.6	250	26.2	2.5	
Ni	60	2	He	-0.210	-38.9	263	28.8	2.5	
Cu	63	2	He	-0.417	-11.8	910	12.4	2.5	
Zn	66	2	He	-0.026	-228.9	47	44.6	2.5	
As	75	2	He	0.173	32.3	59	22.9	2.5	
Se	78	2	He	0.973	10.6	7	15.7	2.5	
B	11	1	nogas	-13.123	-15.8	95450	5.1	10	
Si	28	1	nogas	-38.985	-63.1	1636231	2.0	5	
Ca	43	1	nogas	13.841	27.5	1183	8.0	100	
Ca	44	1	nogas	-546.204	-3.0	106132	0.4	100	
Fe	56	1	nogas	19.346	23.6	1335987	6.2	100	
Se	77	1	nogas	79.368	40.0	64190	6.8	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.063	-664.3	477	10.3	2.5	
Mo	95	1	nogas	0.112	42.8	737	25.1	2.5	
Sn	118	1	nogas	0.124	14.8	1863	8.6	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.124	45.7	447	37.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.049	222.7	443	28.4	2.5	
P	31	1	nogas	-14.200	-43.2	67732	1.7	10	
La	139	1	nogas	9.460	320.2	137	53.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-139.250	-121.4	13	114.6	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	397893	0.98	363379	109.50	70	125	
Ge	72	1	nogas	1582067	5.04	1518701	104.17	70	125	
In	115	1	nogas	1737554	3.05	1623624	107.02	70	125	
Bi	209	1	nogas	1583941	2.71	1463804	108.21	70	125	
Ge	72	2	He	129895	1.85	127073	102.22	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	082_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T12:34:49-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	93.088	3.062	300172	1.32	100	93.1	90	110	
Na	23	1	nogas	10247.555	2.193	134575007	1.50	10000	102.5	90	110	
Mg	24	1	nogas	9771.804	1.216	88685077	1.32	10000	97.7	90	110	
Al	27	1	nogas	97.860	2.112	1157756	1.68	100	97.9	90	110	
K	39	1	nogas	9634.034	3.632	99340240	1.43	10000	96.3	90	110	
Ti	47	1	nogas	95.976	4.739	97889	1.36	100	96.0	90	110	
V	51	1	nogas	140.422	5.799	3107813	0.69	100	140.4	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	100.022	5.964	1355907	3.16	100	100.0	90	110	
Mn	55	1	nogas	98.198	6.566	1631131	3.32	100	98.2	90	110	
Co	59	1	nogas	100.014	0.996	1456645	2.91	100	100.0	90	110	
Ni	60	1	nogas	98.806	3.977	317477	0.32	100	98.8	90	110	
Cu	63	1	nogas	99.992	3.338	781351	0.78	100	100.0	90	110	
Zn	66	1	nogas	100.139	1.984	252816	2.80	100	100.1	90	110	
As	75	1	nogas	109.817	7.018	484207	1.05	100	109.8	90	110	
Sr	88	1	nogas	98.383	6.026	1676797	2.53	100	98.4	90	110	
Ag	107	1	nogas	95.840	4.360	978230	0.82	100	95.8	90	110	
Cd	111	1	nogas	99.982	1.385	208177	1.84	100	100.0	90	110	
Sb	121	1	nogas	98.990	3.392	919312	0.67	100	99.0	90	110	
Tl	205	1	nogas	98.391	1.898	1764376	2.32	100	98.4	90	110	
Pb	208	1	nogas	107.242	0.581	2473693	0.58	100	107.2	90	110	
U	238	1	nogas	101.874	5.510	2551422	2.93	100	101.9	90	110	
[Pb]	206	1	nogas	99.265	1.767	609439	2.43	100	99.3	90	110	
[Pb]	207	1	nogas	95.909	1.773	535760	1.23	100	95.9	90	110	
Na	23	2	He	9992.221	6.051	2599963	3.29	10000	99.9	90	110	
Mg	24	2	He	9732.891	5.655	1200849	2.71	10000	97.3	90	110	
Al	27	2	He	94.102	7.527	3614	7.87	100	94.1	90	110	
K	39	2	He	9773.000	3.044	624913	2.97	10000	97.7	90	110	
Ca	43	2	He	9525.877	6.445	2147	3.77	10000	95.3	90	110	
Ca	44	2	He	9173.099	3.308	35364	2.84	10000	91.7	90	110	
V	51	2	He	98.845	2.226	135860	1.40	100	98.8	90	110	
Cr	52	2	He	98.364	1.258	182776	1.67	100	98.4	90	110	
Mn	55	2	He	95.563	2.636	69418	1.82	100	95.6	90	110	
Fe	56	2	He	9499.974	2.448	13975029	1.58	10000	95.0	90	110	
Co	59	2	He	99.111	3.888	308595	0.95	100	99.1	90	110	
Ni	60	2	He	101.147	5.066	89760	2.21	100	101.1	90	110	
Cu	63	2	He	102.985	2.877	253425	1.35	100	103.0	90	110	
Zn	66	2	He	98.285	0.350	36233	2.53	100	98.3	90	110	
As	75	2	He	98.918	3.366	24339	2.31	100	98.9	90	110	
Se	78	2	He	95.797	1.591	945	3.19	100	95.8	90	110	
B	11	1	nogas	467.337	3.956	1055182	1.72	500	93.5	90	110	
Si	28	1	nogas	5056.520	5.764	26164100	2.17	5000	101.1	90	110	
Ca	43	1	nogas	9661.684	3.816	197266	1.39	10000	96.6	90	110	
Ca	44	1	nogas	8945.376	3.993	3194998	0.88	10000	89.5	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9666.452	5.219	149203983	2.03	10000	96.7	90	110	
Se	77	1	nogas	169.476	12.976	82801	1.48	100	169.5	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.926	5.103	14236	1.29	100	96.9	90	110	
Mo	95	1	nogas	95.938	4.682	355350	1.28	100	95.9	90	110	
Sn	118	1	nogas	98.553	1.440	553802	0.45	100	98.6	90	110	
Ba	137	1	nogas	100.094	1.478	276275	0.38	100	100.1	90	110	
Sb	121	2	He	98.644	3.501	105674	2.93	100	98.6	90	110	
Li	7	1	nogas	93.777	3.530	741003	1.64	100	93.8	90	110	
P	31	1	nogas	468.291	5.126	421486	0.53	500	93.7	90	110	
La	139	1	nogas	176.721	15.384	547	13.73	100	176.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	105.387	181.505	33	45.83	100	105.4	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	362465	1.84	363379	99.75	70	125	
Ge	72	1	nogas	1614920	3.78	1518701	106.34	70	125	
In	115	1	nogas	1653911	1.66	1623624	101.87	70	125	
Bi	209	1	nogas	1543778	2.66	1463804	105.46	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	128261	2.87	127073	100.94	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	083_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T12:36:45-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.060	88.6	260	72.1	1	
Na	23	1	nogas	27.910	17.5	2746513	1.5	100	
Mg	24	1	nogas	8.144	36.2	79932	32.7	100	
Al	27	1	nogas	-0.175	-39.7	24431	1.9	5	
K	39	1	nogas	-52.044	-43.0	5106725	0.5	100	
Ti	47	1	nogas	0.129	54.6	370	21.1	2.5	
V	51	1	nogas	27.108	3.3	1350692	3.7	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.041	-283.0	32101	3.8	2.5	
Mn	55	1	nogas	0.590	15.3	19190	3.4	2.5	
Co	59	1	nogas	0.069	41.4	1270	26.6	2.5	
Ni	60	1	nogas	-0.272	-19.8	1837	4.4	2.5	
Cu	63	1	nogas	-0.252	-8.5	4251	0.9	2.5	
Zn	66	1	nogas	-0.170	-10.6	1360	3.4	2.5	
As	75	1	nogas	6.793	24.5	180718	6.1	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.120	42.1	2960	23.4	2.5	
Ag	107	1	nogas	0.046	51.4	1050	18.4	2.5	
Cd	111	1	nogas	0.074	54.7	173	52.4	1	
Sb	121	1	nogas	-0.005	-1813.7	3617	17.3	2.5	
Tl	205	1	nogas	0.302	40.5	5761	37.7	1	
Pb	208	1	nogas	0.098	37.7	2767	30.6	2.5	
U	238	1	nogas	0.071	45.3	1960	40.8	2.5	
[Pb]	206	1	nogas	0.094	39.2	697	32.7	2.5	
[Pb]	207	1	nogas	0.086	37.0	627	27.4	2.5	
Na	23	2	He	9.469	60.3	69058	2.3	100	
Mg	24	2	He	4.119	18.0	747	12.7	100	
Al	27	2	He	-0.220	-204.4	80	21.7	5	
K	39	2	He	-19.805	-27.5	13001	2.6	100	
Ca	43	2	He	-15.947	-312.2	7	173.2	100	
Ca	44	2	He	-1.773	-439.8	173	17.6	100	
V	51	2	He	0.218	18.1	827	6.7	2.5	
Cr	52	2	He	-0.054	-96.8	1123	9.0	2.5	
Mn	55	2	He	0.321	44.1	403	26.0	2.5	
Fe	56	2	He	3.790	9.5	9846	5.8	100	
Co	59	2	He	0.037	29.6	133	26.3	2.5	
Ni	60	2	He	-0.225	-44.3	253	35.8	2.5	
Cu	63	2	He	-0.487	-8.5	750	14.1	2.5	
Zn	66	2	He	0.217	36.4	140	21.4	2.5	
As	75	2	He	0.098	8.1	41	4.7	2.5	
Se	78	2	He	0.307	36.8	1	173.2	2.5	
B	11	1	nogas	-17.473	-16.7	86115	7.0	10	
Si	28	1	nogas	-54.357	-39.8	1571268	2.7	5	
Ca	43	1	nogas	9.577	58.6	1103	11.5	100	
Ca	44	1	nogas	-558.360	-3.3	102686	1.2	100	
Fe	56	1	nogas	17.607	57.6	1311381	6.8	100	
Se	77	1	nogas	51.838	20.6	59488	7.9	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.510	-202.2	413	30.2	2.5	
Mo	95	1	nogas	0.088	63.4	647	27.1	2.5	
Sn	118	1	nogas	0.084	59.0	1627	18.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.078	44.0	310	29.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.043	248.8	443	26.7	2.5	
P	31	1	nogas	-12.499	-52.4	69244	2.2	10	
La	139	1	nogas	51.524	32.9	247	16.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-62.871	-304.8	20	86.6	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	399376	0.60	363379	109.91	70	125	
Ge	72	1	nogas	1588739	4.58	1518701	104.61	70	125	
In	115	1	nogas	1732582	2.29	1623624	106.71	70	125	
Bi	209	1	nogas	1586066	1.96	1463804	108.35	70	125	
Ge	72	2	He	132334	0.22	127073	104.14	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	094_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T12:58:45-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	94.540	1.932	299860	2.46	100	94.5	90	110	
Na	23	1	nogas	9666.900	2.619	129552811	0.86	10000	96.7	90	110	
Mg	24	1	nogas	9711.542	3.616	89840073	2.54	10000	97.1	90	110	
Al	27	1	nogas	97.483	7.202	1146985	4.01	100	97.5	90	110	
K	39	1	nogas	9767.990	5.152	100157958	2.02	10000	97.7	90	110	
Ti	47	1	nogas	97.653	2.729	99199	1.30	100	97.7	90	110	
V	51	1	nogas	146.083	3.811	3181222	0.84	100	146.1	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	101.095	5.580	1363953	2.41	100	101.1	90	110	
Mn	55	1	nogas	101.377	6.651	1676402	4.19	100	101.4	90	110	
Co	59	1	nogas	100.374	6.056	1453493	2.65	100	100.4	90	110	
Ni	60	1	nogas	99.249	5.491	317352	2.11	100	99.2	90	110	
Cu	63	1	nogas	99.865	2.997	776921	0.78	100	99.9	90	110	
Zn	66	1	nogas	101.344	1.062	254705	2.61	100	101.3	90	110	
As	75	1	nogas	114.938	3.944	497195	1.61	100	114.9	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	98.358	7.793	1668184	4.41	100	98.4	90	110	
Ag	107	1	nogas	96.285	4.360	978700	3.19	100	96.3	90	110	
Cd	111	1	nogas	97.303	1.541	211063	1.79	100	97.3	90	110	
Sb	121	1	nogas	98.695	4.977	912302	2.75	100	98.7	90	110	
Tl	205	1	nogas	97.375	1.736	1773765	2.52	100	97.4	90	110	
Pb	208	1	nogas	107.069	2.076	2469705	2.08	100	107.1	90	110	
U	238	1	nogas	99.269	0.711	2527119	0.29	100	99.3	90	110	
[Pb]	206	1	nogas	97.872	1.518	610286	1.26	100	97.9	90	110	
[Pb]	207	1	nogas	95.484	3.309	541726	2.41	100	95.5	90	110	
Na	23	2	He	9687.223	2.513	2555538	1.93	10000	96.9	90	110	
Mg	24	2	He	9677.476	0.329	1209729	0.26	10000	96.8	90	110	
Al	27	2	He	89.189	11.318	3470	10.73	100	89.2	90	110	CCV Main CR1-2 Failed
K	39	2	He	9682.267	1.475	619243	1.44	10000	96.8	90	110	
Ca	43	2	He	9821.797	13.316	2244	13.71	10000	98.2	90	110	
Ca	44	2	He	9316.029	2.303	36363	2.80	10000	93.2	90	110	
V	51	2	He	96.814	1.107	134732	0.60	100	96.8	90	110	
Cr	52	2	He	97.640	1.026	183673	1.10	100	97.6	90	110	
Mn	55	2	He	96.656	1.168	71088	1.44	100	96.7	90	110	
Fe	56	2	He	9357.033	0.397	13936409	0.19	10000	93.6	90	110	
Co	59	2	He	98.861	0.596	311768	0.80	100	98.9	90	110	
Ni	60	2	He	99.707	1.044	89643	1.32	100	99.7	90	110	
Cu	63	2	He	100.107	1.736	249496	1.86	100	100.1	90	110	
Zn	66	2	He	100.285	2.036	37416	1.52	100	100.3	90	110	
As	75	2	He	99.332	0.754	24748	1.25	100	99.3	90	110	
Se	78	2	He	95.385	1.488	952	1.79	100	95.4	90	110	
B	11	1	nogas	463.520	3.407	1030390	3.34	500	92.7	90	110	
Si	28	1	nogas	5255.593	4.181	27008941	1.22	5000	105.1	90	110	
Ca	43	1	nogas	9486.536	5.328	192759	1.90	10000	94.9	90	110	
Ca	44	1	nogas	9247.600	5.399	3277517	1.69	10000	92.5	90	110	
Fe	56	1	nogas	9854.553	5.102	151406370	1.80	10000	98.5	90	110	
Se	77	1	nogas	196.043	8.986	87526	2.37	100	196.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	101.593	9.469	14816	5.83	100	101.6	90	110	
Mo	95	1	nogas	97.118	4.705	358233	3.41	100	97.1	90	110	
Sn	118	1	nogas	93.785	4.155	548883	2.07	100	93.8	90	110	
Ba	137	1	nogas	97.792	4.049	281091	1.52	100	97.8	90	110	
Sb	121	2	He	97.403	2.213	105649	2.01	100	97.4	90	110	
Li	7	1	nogas	95.723	2.038	743108	1.96	100	95.7	90	110	
P	31	1	nogas	466.734	4.697	418546	1.72	500	93.3	90	110	
La	139	1	nogas	170.264	13.787	553	13.68	100	170.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-21.324	-1723.004	23	137.77	100	-21.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	356376	0.70	363379	98.07	70	125	
Ge	72	1	nogas	1607600	3.56	1518701	105.85	70	125	
In	115	1	nogas	1723262	2.60	1623624	106.14	70	125	
Bi	209	1	nogas	1567783	0.97	1463804	107.10	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	129810	0.51	127073	102.15	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	095_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T13:00:41-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.060	20.2	247	14.2	1	
Na	23	1	nogas	-35.900	-9.2	1921210	0.9	100	
Mg	24	1	nogas	8.327	26.4	82271	26.1	100	
Al	27	1	nogas	-0.291	-25.5	23645	4.6	5	
K	39	1	nogas	-62.240	-6.9	5126503	0.6	100	
Ti	47	1	nogas	0.264	16.8	517	9.1	2.5	
V	51	1	nogas	22.255	17.6	1305776	3.7	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.290	16.0	37251	0.8	2.5	
Mn	55	1	nogas	0.607	8.3	19944	4.4	2.5	
Co	59	1	nogas	0.063	41.4	1233	31.8	2.5	
Ni	60	1	nogas	-0.410	-5.7	1440	6.2	2.5	
Cu	63	1	nogas	-0.301	-12.9	3970	8.5	2.5	
Zn	66	1	nogas	-0.240	-16.9	1213	7.5	2.5	
As	75	1	nogas	5.182	65.1	179872	4.7	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.113	20.9	2917	14.5	2.5	
Ag	107	1	nogas	0.047	20.8	1097	10.1	2.5	
Cd	111	1	nogas	0.058	29.5	133	26.3	1	
Sb	121	1	nogas	-0.088	-52.7	2947	15.4	2.5	
Tl	205	1	nogas	0.324	34.7	6321	34.3	1	
Pb	208	1	nogas	0.101	41.9	2857	34.4	2.5	
U	238	1	nogas	0.072	45.1	2054	42.8	2.5	
[Pb]	206	1	nogas	0.095	42.8	720	37.6	2.5	
[Pb]	207	1	nogas	0.085	25.5	637	21.1	2.5	
Na	23	2	He	-51.182	-13.4	53392	1.7	100	
Mg	24	2	He	4.927	16.7	853	12.2	100	
Al	27	2	He	0.109	231.1	93	12.4	5	
K	39	2	He	-24.556	-35.9	12704	4.3	100	
Ca	43	2	He	13.941	728.5	13	173.2	100	
Ca	44	2	He	-12.699	-124.0	130	46.8	100	
V	51	2	He	0.173	7.4	769	4.2	2.5	
Cr	52	2	He	0.005	3157.8	1237	21.2	2.5	
Mn	55	2	He	0.374	51.6	447	33.7	2.5	
Fe	56	2	He	3.912	16.1	10066	7.6	100	
Co	59	2	He	0.029	35.1	107	28.6	2.5	
Ni	60	2	He	-0.267	-15.6	217	19.2	2.5	
Cu	63	2	He	-0.490	-3.2	747	7.4	2.5	
Zn	66	2	He	0.172	21.4	123	12.4	2.5	
As	75	2	He	0.132	59.3	50	40.5	2.5	
Se	78	2	He	0.566	19.0	3	34.6	2.5	
B	11	1	nogas	-24.181	-10.1	67631	5.6	10	
Si	28	1	nogas	-15.658	-7.9	1796329	0.8	5	
Ca	43	1	nogas	14.405	50.3	1227	12.5	100	
Ca	44	1	nogas	-466.486	-0.3	135211	1.2	100	
Fe	56	1	nogas	16.268	33.8	1324791	7.0	100	
Se	77	1	nogas	48.166	44.0	60009	5.8	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.007	13640.4	500	25.5	2.5	
Mo	95	1	nogas	0.109	48.8	747	27.5	2.5	
Sn	118	1	nogas	0.099	29.0	1673	9.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.086	33.2	327	25.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.115	-20.2	270	7.4	2.5	
P	31	1	nogas	-14.613	-15.3	69364	2.2	10	
La	139	1	nogas	24.676	67.3	173	24.0	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-62.804	-363.1	20	100.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	379607	2.80	363379	104.47	70	125	
Ge	72	1	nogas	1623912	0.99	1518701	106.93	70	125	
In	115	1	nogas	1693877	1.64	1623624	104.33	70	125	
Bi	209	1	nogas	1619776	1.64	1463804	110.66	70	125	
Ge	72	2	He	132964	2.13	127073	104.64	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	106_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T13:22:32-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	97.863	1.174	312293	1.60	100	97.9	90	110	
Na	23	1	nogas	9680.993	1.464	132008453	2.47	10000	96.8	90	110	
Mg	24	1	nogas	9818.155	1.884	92396044	0.50	10000	98.2	90	110	
Al	27	1	nogas	95.071	2.522	1141863	2.25	100	95.1	90	110	
K	39	1	nogas	9806.635	1.240	102528417	2.22	10000	98.1	90	110	
Ti	47	1	nogas	98.203	3.251	101667	2.76	100	98.2	90	110	
V	51	1	nogas	133.989	1.705	3054745	1.89	100	134.0	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	103.753	2.809	1426783	2.83	100	103.8	90	110	
Mn	55	1	nogas	98.839	2.119	1667507	2.85	100	98.8	90	110	
Co	59	1	nogas	96.992	2.740	1433016	3.57	100	97.0	90	110	
Ni	60	1	nogas	98.538	2.714	321460	3.79	100	98.5	90	110	
Cu	63	1	nogas	101.100	1.620	801808	2.77	100	101.1	90	110	
Zn	66	1	nogas	103.450	1.249	264876	1.62	100	103.4	90	110	
As	75	1	nogas	114.797	1.831	506366	1.88	100	114.8	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	95.238	3.516	1648084	2.40	100	95.2	90	110	
Ag	107	1	nogas	96.915	0.867	1004142	0.35	100	96.9	90	110	
Cd	111	1	nogas	96.872	4.132	213970	1.74	100	96.9	90	110	
Sb	121	1	nogas	100.384	1.364	946197	2.41	100	100.4	90	110	
Tl	205	1	nogas	99.168	1.352	1837416	1.05	100	99.2	90	110	
Pb	208	1	nogas	111.040	1.597	2561274	1.60	100	111.0	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	100.898	0.403	2613585	2.48	100	100.9	90	110	
[Pb]	206	1	nogas	98.519	1.671	624911	0.58	100	98.5	90	110	
[Pb]	207	1	nogas	95.663	0.808	552251	1.45	100	95.7	90	110	
Na	23	2	He	10034.624	3.734	2660660	3.31	10000	100.3	90	110	
Mg	24	2	He	10004.571	3.131	1258007	2.77	10000	100.0	90	110	
Al	27	2	He	91.694	6.163	3587	5.63	100	91.7	90	110	
K	39	2	He	9837.204	1.270	628925	1.24	10000	98.4	90	110	
Ca	43	2	He	8555.517	11.323	1967	11.55	10000	85.6	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	9307.306	3.300	36546	3.67	10000	93.1	90	110	
V	51	2	He	99.082	1.558	138701	1.27	100	99.1	90	110	
Cr	52	2	He	97.572	1.132	184640	0.82	100	97.6	90	110	
Mn	55	2	He	97.890	0.891	72422	0.90	100	97.9	90	110	
Fe	56	2	He	9768.632	3.596	14637777	3.97	10000	97.7	90	110	
Co	59	2	He	103.026	1.338	326855	1.66	100	103.0	90	110	
Ni	60	2	He	103.166	0.307	93291	0.68	100	103.2	90	110	
Cu	63	2	He	102.415	0.166	256728	0.40	100	102.4	90	110	
Zn	66	2	He	99.944	1.526	37513	1.18	100	99.9	90	110	
As	75	2	He	102.426	1.683	25671	2.04	100	102.4	90	110	
Se	78	2	He	99.319	2.724	997	3.12	100	99.3	90	110	
B	11	1	nogas	487.278	6.643	1083903	5.64	500	97.5	90	110	
Si	28	1	nogas	5273.946	3.247	27621252	1.94	5000	105.5	90	110	
Ca	43	1	nogas	9557.149	2.517	198087	3.34	10000	95.6	90	110	
Ca	44	1	nogas	9349.947	1.019	3376528	1.89	10000	93.5	90	110	
Fe	56	1	nogas	9735.917	1.429	152556103	0.54	10000	97.4	90	110	
Se	77	1	nogas	197.324	5.809	89489	3.53	100	197.3	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	102.721	1.774	15287	1.21	100	102.7	90	110	
Mo	95	1	nogas	96.618	0.605	363338	1.73	100	96.6	90	110	
Sn	118	1	nogas	95.009	3.718	566492	1.22	100	95.0	90	110	
Ba	137	1	nogas	98.029	6.994	286800	2.37	100	98.0	90	110	
Sb	121	2	He	99.601	1.845	108677	2.08	100	99.6	90	110	
Li	7	1	nogas	96.547	1.237	753843	2.25	100	96.5	90	110	
P	31	1	nogas	478.194	2.017	435152	0.68	500	95.6	90	110	
La	139	1	nogas	137.432	4.407	477	6.41	100	137.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-63.509	-349.919	20	100.00	100	-63.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	358574	1.07	363379	98.68	70	125	
Ge	72	1	nogas	1637644	1.17	1518701	107.83	70	125	
In	115	1	nogas	1756481	4.56	1623624	108.18	70	125	
Bi	209	1	nogas	1595123	2.26	1463804	108.97	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	130587	0.38	127073	102.77	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	107_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T13:24:29-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.060	49.2	270	39.0	1	
Na	23	1	nogas	-48.392	-4.3	1799368	0.5	100	
Mg	24	1	nogas	8.477	35.4	85220	32.0	100	
Al	27	1	nogas	-0.214	-53.4	24785	1.9	5	
K	39	1	nogas	-45.216	-59.8	5346037	0.9	100	
Ti	47	1	nogas	0.433	12.5	697	7.1	2.5	
V	51	1	nogas	20.362	10.7	1290812	2.9	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.409	31.7	39242	1.3	2.5	
Mn	55	1	nogas	0.603	13.3	20061	2.5	2.5	
Co	59	1	nogas	0.063	33.0	1247	24.0	2.5	
Ni	60	1	nogas	-0.405	-6.2	1470	1.8	2.5	
Cu	63	1	nogas	-0.298	-18.9	4031	9.9	2.5	
Zn	66	1	nogas	-0.271	-19.6	1147	7.9	2.5	
As	75	1	nogas	7.178	43.1	187761	4.2	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.113	33.3	2940	18.3	2.5	
Ag	107	1	nogas	0.042	8.1	1050	1.0	2.5	
Cd	111	1	nogas	0.080	24.9	187	22.3	1	
Sb	121	1	nogas	-0.128	-26.2	2600	9.5	2.5	
Tl	205	1	nogas	0.298	32.0	6085	33.1	1	
Pb	208	1	nogas	0.121	35.1	3297	29.6	2.5	
U	238	1	nogas	0.073	28.2	2157	28.5	2.5	
[Pb]	206	1	nogas	0.106	27.9	823	26.4	2.5	
[Pb]	207	1	nogas	0.100	45.2	753	38.7	2.5	
Na	23	2	He	-61.424	-11.2	50203	2.5	100	
Mg	24	2	He	3.888	53.1	717	38.5	100	
Al	27	2	He	0.656	100.5	113	22.2	5	
K	39	2	He	-24.023	-3.4	12738	0.4	100	
Ca	43	2	He	-2.188	-3365.0	10	173.2	100	
Ca	44	2	He	-4.242	-638.1	163	66.0	100	
V	51	2	He	0.144	31.2	720	9.9	2.5	
Cr	52	2	He	0.098	64.7	1407	9.7	2.5	
Mn	55	2	He	0.328	15.8	407	11.1	2.5	
Fe	56	2	He	4.571	15.8	10963	8.4	100	
Co	59	2	He	0.034	23.8	123	20.4	2.5	
Ni	60	2	He	-0.151	-72.3	320	30.8	2.5	
Cu	63	2	He	-0.408	-12.3	943	11.6	2.5	
Zn	66	2	He	0.061	119.4	80	33.1	2.5	
As	75	2	He	0.099	20.8	41	12.4	2.5	
Se	78	2	He	0.441	78.4	2	173.2	2.5	
B	11	1	nogas	-32.574	-3.7	54719	4.2	10	
Si	28	1	nogas	-7.493	-270.9	1854136	1.8	5	
Ca	43	1	nogas	17.879	28.1	1310	5.3	100	
Ca	44	1	nogas	-432.387	-6.1	147804	2.3	100	
Fe	56	1	nogas	19.588	44.9	1388361	6.8	100	
Se	77	1	nogas	52.845	26.8	61618	5.5	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.881	-39.8	377	10.1	2.5	
Mo	95	1	nogas	0.110	55.4	753	27.9	2.5	
Sn	118	1	nogas	0.134	38.1	1927	14.6	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.128	24.4	457	18.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.135	-27.8	247	18.3	2.5	
P	31	1	nogas	-10.437	-29.7	73202	1.6	10	
La	139	1	nogas	44.316	15.9	230	7.5	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-184.106	-98.8	10	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	415672	1.28	363379	114.39	70	125	
Ge	72	1	nogas	1642454	4.31	1518701	108.15	70	125	
In	115	1	nogas	1745779	1.35	1623624	107.52	70	125	
Bi	209	1	nogas	1685141	2.16	1463804	115.12	70	125	
Ge	72	2	He	131658	1.80	127073	103.61	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	118_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T13:46:34-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	89.221	3.184	282183	2.65	100	89.2	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	9694.603	4.763	125568978	1.15	10000	96.9	90	110	
Mg	24	1	nogas	9700.982	3.564	86772225	1.56	10000	97.0	90	110	
Al	27	1	nogas	94.836	4.043	1118138	1.76	100	94.8	90	110	
K	39	1	nogas	9440.326	4.486	97067419	1.35	10000	94.4	90	110	
Ti	47	1	nogas	97.851	1.502	99497	2.18	100	97.9	90	110	
V	51	1	nogas	111.372	7.023	2652551	1.66	100	111.4	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	101.382	3.904	1369581	3.14	100	101.4	90	110	
Mn	55	1	nogas	99.093	6.910	1639729	4.06	100	99.1	90	110	
Co	59	1	nogas	96.036	3.924	1392632	2.35	100	96.0	90	110	
Ni	60	1	nogas	95.017	3.084	304322	0.84	100	95.0	90	110	
Cu	63	1	nogas	95.444	2.937	743318	0.20	100	95.4	90	110	
Zn	66	1	nogas	97.500	3.166	245175	1.58	100	97.5	90	110	
As	75	1	nogas	101.558	7.050	458404	1.87	100	101.6	90	110	
Sr	88	1	nogas	94.037	4.838	1597385	2.39	100	94.0	90	110	
Ag	107	1	nogas	95.383	4.667	969946	2.36	100	95.4	90	110	
Cd	111	1	nogas	96.830	2.040	204798	1.55	100	96.8	90	110	
Sb	121	1	nogas	96.580	4.630	893414	1.82	100	96.6	90	110	
Tl	205	1	nogas	95.494	5.653	1738356	4.95	100	95.5	90	110	
Pb	208	1	nogas	104.797	0.487	2417290	0.49	100	104.8	90	110	
U	238	1	nogas	97.058	0.907	2470181	1.31	100	97.1	90	110	
[Pb]	206	1	nogas	95.422	3.766	594742	3.05	100	95.4	90	110	
[Pb]	207	1	nogas	92.657	0.674	525631	1.09	100	92.7	90	110	
Na	23	2	He	9695.133	1.870	2506541	2.08	10000	97.0	90	110	
Mg	24	2	He	9418.898	4.646	1153557	3.92	10000	94.2	90	110	
Al	27	2	He	87.394	10.259	3337	11.00	100	87.4	90	110	CCV Main CR1-2 Failed
K	39	2	He	9402.872	0.705	601785	0.69	10000	94.0	90	110	
Ca	43	2	He	9080.493	6.918	2033	7.97	10000	90.8	90	110	
Ca	44	2	He	8996.979	5.579	34399	3.94	10000	90.0	90	110	CCV Main CR1-2 Failed
V	51	2	He	96.424	1.923	131492	0.97	100	96.4	90	110	
Cr	52	2	He	98.571	3.211	181658	2.03	100	98.6	90	110	
Mn	55	2	He	94.852	5.238	68355	4.91	100	94.9	90	110	
Fe	56	2	He	9224.233	3.022	13462654	2.84	10000	92.2	90	110	
Co	59	2	He	96.658	2.456	298655	1.00	100	96.7	90	110	
Ni	60	2	He	98.087	3.103	86404	1.72	100	98.1	90	110	
Cu	63	2	He	99.671	2.488	243414	2.00	100	99.7	90	110	
Zn	66	2	He	99.282	2.092	36310	3.40	100	99.3	90	110	
As	75	2	He	98.297	2.217	23995	0.69	100	98.3	90	110	
Se	78	2	He	96.032	6.140	939	4.47	100	96.0	90	110	
B	11	1	nogas	409.827	3.776	921107	0.84	500	82.0	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	5766.240	4.767	29474617	2.60	5000	115.3	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9171.788	5.004	186558	2.31	10000	91.7	90	110	
Ca	44	1	nogas	10008.195	5.206	3527008	2.88	10000	100.1	90	110	
Fe	56	1	nogas	9587.681	4.961	147449591	2.06	10000	95.9	90	110	
Se	77	1	nogas	131.405	10.401	75278	1.53	100	131.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	105.192	6.180	15357	5.14	100	105.2	90	110	
Mo	95	1	nogas	90.845	5.743	335224	3.40	100	90.8	90	110	
Sn	118	1	nogas	93.580	0.984	534359	2.02	100	93.6	90	110	
Ba	137	1	nogas	97.840	1.778	274348	0.91	100	97.8	90	110	
Sb	121	2	He	97.889	1.890	104048	1.96	100	97.9	90	110	
Li	7	1	nogas	90.159	2.342	700632	3.79	100	90.2	90	110	
P	31	1	nogas	472.045	2.277	422834	1.13	500	94.4	90	110	
La	139	1	nogas	138.977	13.703	460	11.30	100	139.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	96.509	182.429	33	45.83	100	96.5	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	355503	2.65	363379	97.83	70	125	
Ge	72	1	nogas	1608507	2.93	1518701	105.91	70	125	
In	115	1	nogas	1680125	1.13	1623624	103.48	70	125	
Bi	209	1	nogas	1567270	0.71	1463804	107.07	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	127217	1.64	127073	100.11	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	119_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T13:48:31-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.058	22.8	243	16.6	1	
Na	23	1	nogas	-21.162	-43.1	2087637	2.2	100	
Mg	24	1	nogas	7.742	36.0	75252	29.9	100	
Al	27	1	nogas	1.817	89.6	46266	37.1	5	
K	39	1	nogas	-35.695	-20.9	5202756	1.2	100	
Ti	47	1	nogas	1.722	14.9	1940	12.8	2.5	
V	51	1	nogas	10.876	43.0	1093388	8.6	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	1.195	2.1	47635	1.8	2.5	
Mn	55	1	nogas	0.583	3.9	18877	0.5	2.5	
Co	59	1	nogas	0.068	48.8	1257	34.8	2.5	
Ni	60	1	nogas	-0.405	-9.1	1407	6.0	2.5	
Cu	63	1	nogas	-0.270	-2.0	4071	2.8	2.5	
Zn	66	1	nogas	-0.177	-50.2	1323	13.9	2.5	
As	75	1	nogas	2.615	48.5	166581	4.2	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.091	29.6	2450	15.6	2.5	
Ag	107	1	nogas	0.038	28.7	963	8.7	2.5	
Cd	111	1	nogas	0.077	57.0	170	52.3	1	
Sb	121	1	nogas	-0.066	-45.1	3047	8.1	2.5	
Tl	205	1	nogas	0.305	36.8	5751	32.9	1	
Pb	208	1	nogas	0.107	28.5	2977	23.6	2.5	
U	238	1	nogas	0.072	39.5	1964	34.1	2.5	
[Pb]	206	1	nogas	0.104	39.9	747	31.8	2.5	
[Pb]	207	1	nogas	0.091	20.0	650	13.1	2.5	
Na	23	2	He	-34.898	-1.5	56715	3.0	100	
Mg	24	2	He	5.194	41.2	870	29.1	100	
Al	27	2	He	3.302	120.3	217	74.2	5	
K	39	2	He	-21.780	-26.4	12878	2.8	100	
Ca	43	2	He	-15.036	-170.8	7	86.6	100	
Ca	44	2	He	25.473	95.0	277	32.4	100	
V	51	2	He	0.125	17.3	688	7.2	2.5	
Cr	52	2	He	0.097	113.0	1393	14.9	2.5	
Mn	55	2	He	0.386	5.6	447	5.6	2.5	
Fe	56	2	He	5.859	19.5	12859	16.5	100	
Co	59	2	He	0.031	66.4	110	56.8	2.5	
Ni	60	2	He	-0.219	-18.6	257	16.2	2.5	
Cu	63	2	He	-0.413	-7.0	927	9.8	2.5	
Zn	66	2	He	0.107	121.4	97	48.9	2.5	
As	75	2	He	0.025	121.3	22	34.7	2.5	
Se	78	2	He	0.373	30.5	1	86.6	2.5	
B	11	1	nogas	-29.907	-8.6	55897	7.2	10	
Si	28	1	nogas	241.012	14.6	2933103	3.4	5	CCB Main CR1 Failed
Ca	43	1	nogas	16.045	93.5	1213	22.5	100	
Ca	44	1	nogas	6.061	705.5	279835	2.4	100	
Fe	56	1	nogas	13.723	41.7	1240403	4.6	100	
Se	77	1	nogas	30.558	33.7	54759	5.8	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.836	-53.4	367	15.7	2.5	
Mo	95	1	nogas	0.081	44.9	617	18.8	2.5	
Sn	118	1	nogas	0.096	48.9	1620	12.7	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.130	46.1	440	34.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.088	-83.3	293	24.7	2.5	
P	31	1	nogas	-9.304	-14.0	70793	3.1	10	
La	139	1	nogas	68.834	21.4	280	9.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-251.915	-25.6	3	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	382118	2.75	363379	105.16	70	125	
Ge	72	1	nogas	1568868	2.34	1518701	103.30	70	125	
In	115	1	nogas	1667262	3.94	1623624	102.69	70	125	
Bi	209	1	nogas	1571716	3.10	1463804	107.37	70	125	
Ge	72	2	He	130689	3.06	127073	102.85	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	130_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T14:10:46-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.640	4.015	316894	1.40	100	92.6	90	110	
Na	23	1	nogas	9554.749	4.220	137180841	1.52	10000	95.5	90	110	
Mg	24	1	nogas	9516.086	3.600	94320948	2.70	10000	95.2	90	110	
Al	27	1	nogas	95.693	8.657	1200957	7.59	100	95.7	90	110	
K	39	1	nogas	9733.933	2.915	106416757	1.46	10000	97.3	90	110	
Ti	47	1	nogas	100.368	3.249	108632	2.52	100	100.4	90	110	
V	51	1	nogas	111.489	5.561	2827153	2.29	100	111.5	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	105.338	3.317	1513666	1.95	100	105.3	90	110	
Mn	55	1	nogas	100.561	1.689	1773280	0.32	100	100.6	90	110	
Co	59	1	nogas	97.551	3.623	1506389	2.76	100	97.6	90	110	
Ni	60	1	nogas	98.718	2.623	336577	1.37	100	98.7	90	110	
Cu	63	1	nogas	100.095	2.976	829748	1.61	100	100.1	90	110	
Zn	66	1	nogas	103.540	2.833	277119	1.59	100	103.5	90	110	
As	75	1	nogas	102.410	3.607	490934	1.00	100	102.4	90	110	
Sr	88	1	nogas	100.057	1.616	1810534	0.32	100	100.1	90	110	
Ag	107	1	nogas	96.895	0.284	1049782	1.65	100	96.9	90	110	
Cd	111	1	nogas	98.061	1.973	224250	2.91	100	98.1	90	110	
Sb	121	1	nogas	102.194	5.256	1006528	3.96	100	102.2	90	110	
Tl	205	1	nogas	98.496	2.626	1896359	0.57	100	98.5	90	110	
Pb	208	1	nogas	114.034	0.779	2630312	0.78	100	114.0	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	99.493	3.177	2677545	2.23	100	99.5	90	110	
[Pb]	206	1	nogas	98.305	3.826	647852	1.48	100	98.3	90	110	
[Pb]	207	1	nogas	95.136	1.509	570757	1.02	100	95.1	90	110	
Na	23	2	He	9928.696	2.528	2800299	1.17	10000	99.3	90	110	
Mg	24	2	He	9638.572	4.268	1289173	4.57	10000	96.4	90	110	
Al	27	2	He	91.351	6.229	3800	5.37	100	91.4	90	110	
K	39	2	He	10458.039	1.565	667718	1.53	10000	104.6	90	110	
Ca	43	2	He	9383.983	11.206	2290	9.66	10000	93.8	90	110	
Ca	44	2	He	9164.361	0.539	38273	1.65	10000	91.6	90	110	
V	51	2	He	97.902	2.081	145746	0.66	100	97.9	90	110	
Cr	52	2	He	99.222	1.664	199669	1.59	100	99.2	90	110	
Mn	55	2	He	95.963	2.200	75505	1.69	100	96.0	90	110	
Fe	56	2	He	9494.794	0.964	15131371	2.01	10000	94.9	90	110	
Co	59	2	He	100.107	2.666	337681	0.61	100	100.1	90	110	
Ni	60	2	He	102.598	4.111	98636	2.34	100	102.6	90	110	
Cu	63	2	He	103.176	2.221	275012	1.13	100	103.2	90	110	
Zn	66	2	He	101.191	1.846	40392	1.29	100	101.2	90	110	
As	75	2	He	104.191	1.565	27770	1.29	100	104.2	90	110	
Se	78	2	He	105.842	3.942	1130	2.01	100	105.8	90	110	
B	11	1	nogas	445.282	3.383	1072469	0.63	500	89.1	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	5812.669	3.172	31630338	2.46	5000	116.3	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9662.723	1.685	209359	1.95	10000	96.6	90	110	
Ca	44	1	nogas	10350.729	0.906	3875748	1.93	10000	103.5	90	110	
Fe	56	1	nogas	9770.949	4.276	160037687	3.04	10000	97.7	90	110	
Se	77	1	nogas	123.109	17.089	78462	4.11	100	123.1	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	109.641	2.788	17028	3.58	100	109.6	90	110	
Mo	95	1	nogas	98.542	3.477	387320	2.25	100	98.5	90	110	
Sn	118	1	nogas	95.793	4.443	591004	3.02	100	95.8	90	110	
Ba	137	1	nogas	98.388	5.444	297972	0.98	100	98.4	90	110	
Sb	121	2	He	98.753	0.890	114609	2.05	100	98.8	90	110	
Li	7	1	nogas	93.390	3.498	783142	1.11	100	93.4	90	110	
P	31	1	nogas	495.295	4.656	468140	2.69	500	99.1	90	110	
La	139	1	nogas	177.315	14.543	600	8.82	100	177.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-33.147	-204.937	23	24.74	100	-33.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	384660	2.94	363379	105.86	70	125	
Ge	72	1	nogas	1712265	1.36	1518701	112.75	70	125	
In	115	1	nogas	1817423	4.58	1623624	111.94	70	125	
Bi	209	1	nogas	1657906	2.50	1463804	113.26	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	138901	2.11	127073	109.31	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	131_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T14:12:40-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.073	50.4	330	39.7	1	
Na	23	1	nogas	-19.483	-12.4	2321188	2.0	100	
Mg	24	1	nogas	7.356	31.6	79697	30.9	100	
Al	27	1	nogas	-0.337	-20.6	24683	4.7	5	
K	39	1	nogas	-53.467	-33.9	5565333	0.2	100	
Ti	47	1	nogas	1.695	11.7	2113	7.9	2.5	
V	51	1	nogas	9.580	53.0	1185282	4.8	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	1.157	14.8	52097	1.9	2.5	
Mn	55	1	nogas	0.571	11.8	20642	2.2	2.5	
Co	59	1	nogas	0.072	42.5	1453	34.0	2.5	
Ni	60	1	nogas	-0.348	-8.0	1750	2.5	2.5	
Cu	63	1	nogas	-0.267	-22.3	4514	7.4	2.5	
Zn	66	1	nogas	-0.247	-35.3	1283	21.3	2.5	
As	75	1	nogas	1.473	198.7	180420	2.6	2.5	
Sr	88	1	nogas	0.086	20.0	2620	11.5	2.5	
Ag	107	1	nogas	0.047	54.8	1167	23.8	2.5	
Cd	111	1	nogas	0.068	42.3	170	40.8	1	
Sb	121	1	nogas	-0.138	-26.0	2654	13.2	2.5	
Tl	205	1	nogas	0.335	36.5	6888	37.2	1	
Pb	208	1	nogas	0.118	27.6	3240	23.2	2.5	
U	238	1	nogas	0.077	37.5	2280	36.9	2.5	
[Pb]	206	1	nogas	0.105	33.5	823	30.5	2.5	
[Pb]	207	1	nogas	0.093	30.0	717	25.8	2.5	
Na	23	2	He	-38.172	-15.3	61586	0.9	100	
Mg	24	2	He	3.205	24.2	687	16.0	100	
Al	27	2	He	0.798	79.9	130	20.4	5	
K	39	2	He	-1.174	-781.7	14166	4.0	100	
Ca	43	2	He	21.047	283.7	17	91.7	100	
Ca	44	2	He	17.070	36.3	270	9.8	100	
V	51	2	He	0.109	18.2	734	5.6	2.5	
Cr	52	2	He	0.034	222.8	1407	12.8	2.5	
Mn	55	2	He	0.382	43.5	490	28.6	2.5	
Fe	56	2	He	4.143	6.8	11300	3.1	100	
Co	59	2	He	0.032	20.6	127	18.2	2.5	
Ni	60	2	He	-0.185	-28.2	317	17.4	2.5	
Cu	63	2	He	-0.454	-8.2	907	9.5	2.5	
Zn	66	2	He	0.243	37.0	163	23.2	2.5	
As	75	2	He	0.068	75.1	37	39.6	2.5	
Se	78	2	He	0.663	41.8	5	65.5	2.5	
B	11	1	nogas	-34.683	-5.9	52029	6.5	10	
Si	28	1	nogas	193.716	15.5	2999660	3.8	5	CCB Main CR1 Failed
Ca	43	1	nogas	9.607	41.8	1207	9.6	100	
Ca	44	1	nogas	-55.652	-77.0	287867	3.2	100	
Fe	56	1	nogas	10.223	53.4	1315216	7.2	100	
Se	77	1	nogas	21.038	76.3	58511	3.3	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.723	-23.7	423	7.6	2.5	
Mo	95	1	nogas	0.112	58.9	810	33.8	2.5	
Sn	118	1	nogas	0.107	26.8	1870	10.7	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.133	14.6	500	12.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.140	-22.7	263	15.3	2.5	
P	31	1	nogas	-11.055	-39.0	76843	1.7	10	
La	139	1	nogas	34.600	38.4	217	18.7	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-111.501	-110.4	17	69.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	434528	2.93	363379	119.58	70	125	
Ge	72	1	nogas	1735215	3.55	1518701	114.26	70	125	
In	115	1	nogas	1844224	1.93	1623624	113.59	70	125	
Bi	209	1	nogas	1702307	1.91	1463804	116.29	70	125	
Ge	72	2	He	144112	1.83	127073	113.41	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	142_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T14:34:50-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	96.881	2.604	325207	1.49	100	96.9	90	110	
Na	23	1	nogas	9935.171	2.811	143262370	3.45	10000	99.4	90	110	
Mg	24	1	nogas	9781.482	1.327	97412542	2.49	10000	97.8	90	110	
Al	27	1	nogas	95.367	0.356	1249220	2.02	100	95.4	90	110	
K	39	1	nogas	9154.851	2.123	104779019	1.48	10000	91.5	90	110	
Ti	47	1	nogas	95.483	1.708	107818	1.61	100	95.5	90	110	
V	51	1	nogas	114.850	1.642	3006903	2.29	100	114.8	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	98.399	0.526	1477778	2.32	100	98.4	90	110	
Mn	55	1	nogas	99.084	1.555	1822619	0.93	100	99.1	90	110	
Co	59	1	nogas	95.814	1.887	1543307	0.11	100	95.8	90	110	
Ni	60	1	nogas	95.023	0.866	338106	1.69	100	95.0	90	110	
Cu	63	1	nogas	97.546	1.210	843963	3.01	100	97.5	90	110	
Zn	66	1	nogas	100.016	1.582	279364	2.68	100	100.0	90	110	
As	75	1	nogas	104.310	3.314	518193	0.49	100	104.3	90	110	
Sr	88	1	nogas	96.006	2.780	1812601	3.86	100	96.0	90	110	
Ag	107	1	nogas	94.358	1.499	1066164	1.25	100	94.4	90	110	
Cd	111	1	nogas	100.913	1.649	231321	1.42	100	100.9	90	110	
Sb	121	1	nogas	97.312	0.672	1000298	1.17	100	97.3	90	110	
Tl	205	1	nogas	97.796	3.338	1923877	0.66	100	97.8	90	110	
Pb	208	1	nogas	117.279	2.099	2705148	2.10	100	117.3	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	99.260	2.387	2729765	0.32	100	99.3	90	110	
[Pb]	206	1	nogas	98.851	1.617	665982	1.33	100	98.9	90	110	
[Pb]	207	1	nogas	96.160	2.261	589502	1.43	100	96.2	90	110	
Na	23	2	He	9895.824	5.354	2767104	2.79	10000	99.0	90	110	
Mg	24	2	He	9916.164	2.913	1315186	2.20	10000	99.2	90	110	
Al	27	2	He	84.311	4.205	3487	4.18	100	84.3	90	110	CCV Main CR1-2 Failed
K	39	2	He	10591.339	2.309	676047	2.26	10000	105.9	90	110	
Ca	43	2	He	9660.160	10.359	2337	7.54	10000	96.6	90	110	
Ca	44	2	He	9402.305	3.719	38921	0.68	10000	94.0	90	110	
V	51	2	He	98.784	2.886	145838	1.16	100	98.8	90	110	
Cr	52	2	He	99.546	0.980	198722	2.63	100	99.5	90	110	
Mn	55	2	He	98.298	4.371	76670	1.60	100	98.3	90	110	
Fe	56	2	He	9604.263	4.100	15171889	1.47	10000	96.0	90	110	
Co	59	2	He	99.716	5.467	333449	2.80	100	99.7	90	110	
Ni	60	2	He	101.375	2.582	96688	1.03	100	101.4	90	110	
Cu	63	2	He	102.816	4.064	271728	1.47	100	102.8	90	110	
Zn	66	2	He	101.130	0.898	40051	3.02	100	101.1	90	110	
As	75	2	He	102.877	2.796	27190	0.84	100	102.9	90	110	
Se	78	2	He	100.943	3.266	1070	5.79	100	100.9	90	110	
B	11	1	nogas	460.381	6.261	1083678	4.51	500	92.1	90	110	
Si	28	1	nogas	5053.986	2.375	28951888	0.54	5000	101.1	90	110	
Ca	43	1	nogas	9201.282	3.198	207947	2.32	10000	92.0	90	110	
Ca	44	1	nogas	8916.016	3.502	3524698	1.42	10000	89.2	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9507.191	1.922	162474820	0.14	10000	95.1	90	110	
Se	77	1	nogas	149.626	6.076	87469	1.00	100	149.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.815	4.348	15744	4.03	100	96.8	90	110	
Mo	95	1	nogas	92.939	1.800	381239	3.56	100	92.9	90	110	
Sn	118	1	nogas	95.683	2.783	591923	1.19	100	95.7	90	110	
Ba	137	1	nogas	99.398	1.254	302081	1.11	100	99.4	90	110	
Sb	121	2	He	99.797	3.736	114811	1.33	100	99.8	90	110	
Li	7	1	nogas	92.793	1.804	763943	2.39	100	92.8	90	110	
P	31	1	nogas	461.880	2.755	461319	0.45	500	92.4	90	110	
La	139	1	nogas	152.034	20.772	533	15.27	100	152.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-110.618	-56.222	17	34.64	100	-110.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	377283	1.80	363379	103.83	70	125	
Ge	72	1	nogas	1786001	1.81	1518701	117.60	70	125	
In	115	1	nogas	1821018	1.96	1623624	112.16	70	125	
Bi	209	1	nogas	1694297	2.70	1463804	115.75	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	137788	3.00	127073	108.43	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	143_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T14:36:48-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.069	12.3	300	12.0	1	
Na	23	1	nogas	-2.050	-694.7	2489499	1.9	100	
Mg	24	1	nogas	10.225	29.0	104040	21.8	100	
Al	27	1	nogas	3.392	92.0	71566	55.2	5	
K	39	1	nogas	-53.085	-37.6	5623058	0.8	100	
Ti	47	1	nogas	0.469	31.9	780	18.1	2.5	
V	51	1	nogas	11.187	5.2	1224996	3.3	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.247	23.3	39566	1.4	2.5	
Mn	55	1	nogas	0.629	7.9	21897	2.3	2.5	
Co	59	1	nogas	0.073	53.4	1473	38.7	2.5	
Ni	60	1	nogas	-0.360	-27.5	1720	16.8	2.5	
Cu	63	1	nogas	-0.269	-18.9	4551	9.1	2.5	
Zn	66	1	nogas	-0.238	-23.2	1313	8.4	2.5	
As	75	1	nogas	2.782	21.2	186507	3.4	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.124	24.8	3350	13.8	2.5	
Ag	107	1	nogas	0.049	25.7	1203	8.7	2.5	
Cd	111	1	nogas	0.048	45.1	120	38.2	1	
Sb	121	1	nogas	-0.162	-12.5	2437	5.6	2.5	
Tl	205	1	nogas	0.296	37.5	6265	34.9	1	
Pb	208	1	nogas	0.116	36.6	3184	30.7	2.5	
U	238	1	nogas	0.077	28.0	2354	25.2	2.5	
[Pb]	206	1	nogas	0.105	38.3	850	31.9	2.5	
[Pb]	207	1	nogas	0.082	33.1	670	24.6	2.5	
Na	23	2	He	-28.469	-14.5	63910	0.9	100	
Mg	24	2	He	5.287	33.6	967	24.3	100	
Al	27	2	He	0.263	143.0	107	14.3	5	
K	39	2	He	8.115	93.8	14746	3.2	100	
Ca	43	2	He	-31.499	-72.6	3	173.2	100	
Ca	44	2	He	15.146	43.9	260	11.5	100	
V	51	2	He	0.116	15.2	740	3.7	2.5	
Cr	52	2	He	0.047	172.6	1423	12.6	2.5	
Mn	55	2	He	0.289	24.0	410	12.9	2.5	
Fe	56	2	He	4.855	16.3	12384	9.5	100	
Co	59	2	He	0.046	18.9	173	16.7	2.5	
Ni	60	2	He	-0.199	-29.7	300	18.6	2.5	
Cu	63	2	He	-0.464	-6.9	873	9.5	2.5	
Zn	66	2	He	0.182	69.3	137	37.5	2.5	
As	75	2	He	0.098	43.6	44	26.3	2.5	
Se	78	2	He	0.849	50.3	7	69.3	2.5	
B	11	1	nogas	-35.649	-4.5	46885	8.3	10	
Si	28	1	nogas	-40.646	-36.5	1805878	1.3	5	
Ca	43	1	nogas	13.153	38.2	1293	5.8	100	
Ca	44	1	nogas	-503.218	-3.7	132763	1.9	100	
Fe	56	1	nogas	17.484	51.2	1446157	7.2	100	
Se	77	1	nogas	30.621	5.9	61129	3.3	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.162	166.2	563	7.4	2.5	
Mo	95	1	nogas	0.058	48.2	597	17.0	2.5	
Sn	118	1	nogas	0.090	21.8	1750	4.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.136	16.3	507	13.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.200	-14.4	190	19.0	2.5	
P	31	1	nogas	-7.822	-44.5	80163	0.5	10	
La	139	1	nogas	52.714	34.2	263	15.8	2.5	CCB Main CR1 Failed
Au	197	1	nogas	21.962	956.8	30	66.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	409141	1.80	363379	112.59	70	125	
Ge	72	1	nogas	1751840	2.97	1518701	115.35	70	125	
In	115	1	nogas	1830089	2.78	1623624	112.72	70	125	
Bi	209	1	nogas	1756689	1.11	1463804	120.01	70	125	
Ge	72	2	He	143088	0.97	127073	112.60	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	154_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T14:58:49-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	97.991	1.580	312418	2.41	100	98.0	90	110	
Na	23	1	nogas	9728.406	3.083	135610003	1.39	10000	97.3	90	110	
Mg	24	1	nogas	9774.823	2.751	94073477	1.34	10000	97.7	90	110	
Al	27	1	nogas	105.531	12.401	1297153	12.26	100	105.5	90	110	
K	39	1	nogas	9676.818	0.225	103848623	1.83	10000	96.8	90	110	
Ti	47	1	nogas	99.455	4.346	105572	2.41	100	99.5	90	110	
V	51	1	nogas	142.015	5.927	3259716	2.23	100	142.0	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	99.144	4.201	1399603	2.99	100	99.1	90	110	
Mn	55	1	nogas	99.638	4.019	1723351	2.53	100	99.6	90	110	
Co	59	1	nogas	99.292	3.077	1504026	1.15	100	99.3	90	110	
Ni	60	1	nogas	99.559	2.887	332955	1.22	100	99.6	90	110	
Cu	63	1	nogas	99.707	2.500	810886	0.80	100	99.7	90	110	
Zn	66	1	nogas	100.631	0.299	264360	2.11	100	100.6	90	110	
As	75	1	nogas	121.301	4.272	538983	1.04	100	121.3	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	100.653	5.175	1785924	3.25	100	100.7	90	110	
Ag	107	1	nogas	97.015	2.353	1030854	0.51	100	97.0	90	110	
Cd	111	1	nogas	99.842	3.276	222695	1.44	100	99.8	90	110	
Sb	121	1	nogas	100.088	3.609	967210	1.67	100	100.1	90	110	
Tl	205	1	nogas	97.435	1.603	1866653	1.15	100	97.4	90	110	
Pb	208	1	nogas	113.098	0.175	2608733	0.18	100	113.1	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	100.471	3.664	2690108	3.08	100	100.5	90	110	
[Pb]	206	1	nogas	97.897	1.353	642105	0.93	100	97.9	90	110	
[Pb]	207	1	nogas	94.466	1.786	563854	1.72	100	94.5	90	110	
Na	23	2	He	9914.756	3.747	2715524	2.27	10000	99.1	90	110	
Mg	24	2	He	9676.683	1.058	1256847	0.99	10000	96.8	90	110	
Al	27	2	He	90.781	3.012	3670	4.01	100	90.8	90	110	
K	39	2	He	10287.719	0.985	657076	0.96	10000	102.9	90	110	
Ca	43	2	He	9243.064	5.197	2194	5.28	10000	92.4	90	110	
Ca	44	2	He	9291.984	2.025	37685	2.57	10000	92.9	90	110	
V	51	2	He	97.203	1.480	140553	1.29	100	97.2	90	110	
Cr	52	2	He	98.360	0.354	192254	1.51	100	98.4	90	110	
Mn	55	2	He	96.189	1.215	73514	2.29	100	96.2	90	110	
Fe	56	2	He	9536.697	1.223	14759332	1.79	10000	95.4	90	110	
Co	59	2	He	98.877	2.595	323932	1.22	100	98.9	90	110	
Ni	60	2	He	100.955	3.937	94278	2.88	100	101.0	90	110	
Cu	63	2	He	101.331	2.130	262379	2.14	100	101.3	90	110	
Zn	66	2	He	100.527	0.129	38975	1.56	100	100.5	90	110	
As	75	2	He	100.598	2.030	26038	0.73	100	100.6	90	110	
Se	78	2	He	93.037	6.206	965	7.65	100	93.0	90	110	
B	11	1	nogas	479.256	1.202	1067094	2.07	500	95.9	90	110	
Si	28	1	nogas	5269.024	1.182	28311643	1.21	5000	105.4	90	110	
Ca	43	1	nogas	9504.373	0.858	202032	1.18	10000	95.0	90	110	
Ca	44	1	nogas	9159.089	0.573	3398944	2.32	10000	91.6	90	110	
Fe	56	1	nogas	9760.186	3.255	156834533	1.75	10000	97.6	90	110	
Se	77	1	nogas	223.584	3.997	96983	0.62	100	223.6	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	103.611	1.219	15814	2.33	100	103.6	90	110	
Mo	95	1	nogas	96.888	3.660	373556	1.79	100	96.9	90	110	
Sn	118	1	nogas	98.021	3.654	590074	1.55	100	98.0	90	110	
Ba	137	1	nogas	97.621	2.059	288729	0.90	100	97.6	90	110	
Sb	121	2	He	99.427	1.361	112046	1.11	100	99.4	90	110	
Li	7	1	nogas	95.977	0.521	748915	2.18	100	96.0	90	110	
P	31	1	nogas	483.923	2.509	450718	1.99	500	96.8	90	110	
La	139	1	nogas	199.622	14.552	647	13.34	100	199.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-33.543	-749.874	23	98.97	100	-33.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	358283	2.56	363379	98.60	70	125	
Ge	72	1	nogas	1679856	1.92	1518701	110.61	70	125	
In	115	1	nogas	1772425	2.13	1623624	109.16	70	125	
Bi	209	1	nogas	1649095	0.61	1463804	112.66	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	134886	1.43	127073	106.15	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	155_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T15:00:45-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.081	6.8	327	4.7	1	
Na	23	1	nogas	1.538	202.8	2450164	0.9	100	
Mg	24	1	nogas	8.750	28.8	87366	26.9	100	
Al	27	1	nogas	0.037	1538.8	28915	27.6	5	
K	39	1	nogas	-53.637	-36.7	5456244	0.9	100	
Ti	47	1	nogas	0.264	20.0	540	8.1	2.5	
V	51	1	nogas	16.331	12.1	1272827	3.6	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.145	25.5	37034	4.5	2.5	
Mn	55	1	nogas	0.573	6.6	20298	2.3	2.5	
Co	59	1	nogas	0.063	49.0	1287	35.4	2.5	
Ni	60	1	nogas	-0.359	-2.0	1680	1.8	2.5	
Cu	63	1	nogas	-0.276	-9.1	4361	5.3	2.5	
Zn	66	1	nogas	-0.289	-11.1	1143	4.5	2.5	
As	75	1	nogas	6.635	35.7	193052	5.4	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.099	27.0	2797	14.9	2.5	
Ag	107	1	nogas	0.048	46.0	1150	19.6	2.5	
Cd	111	1	nogas	0.080	46.0	187	43.3	1	
Sb	121	1	nogas	-0.185	-20.5	2137	14.4	2.5	
Tl	205	1	nogas	0.303	45.1	6185	41.0	1	
Pb	208	1	nogas	0.122	35.3	3340	29.8	2.5	
U	238	1	nogas	0.079	43.2	2327	38.1	2.5	
[Pb]	206	1	nogas	0.088	40.0	707	31.2	2.5	
[Pb]	207	1	nogas	0.113	35.4	837	26.9	2.5	
Na	23	2	He	-19.939	-20.9	64439	0.7	100	
Mg	24	2	He	5.250	18.1	937	14.6	100	
Al	27	2	He	0.670	114.8	120	25.0	5	
K	39	2	He	-10.196	-25.4	13602	1.2	100	
Ca	43	2	He	50.295	259.5	23	137.8	100	
Ca	44	2	He	16.867	75.7	260	21.4	100	
V	51	2	He	0.153	16.5	773	4.3	2.5	
Cr	52	2	He	0.045	30.6	1377	1.1	2.5	
Mn	55	2	He	0.372	15.8	463	10.2	2.5	
Fe	56	2	He	4.690	9.7	11774	5.5	100	
Co	59	2	He	0.047	31.2	173	28.5	2.5	
Ni	60	2	He	-0.253	-17.2	240	18.2	2.5	
Cu	63	2	He	-0.410	-14.8	990	15.6	2.5	
Zn	66	2	He	0.282	26.9	173	18.5	2.5	
As	75	2	He	0.078	72.2	38	39.8	2.5	
Se	78	2	He	0.614	30.3	4	50.0	2.5	
B	11	1	nogas	-32.517	-3.6	51587	5.4	10	
Si	28	1	nogas	-50.878	-37.2	1701748	2.6	5	
Ca	43	1	nogas	6.481	72.0	1113	6.1	100	
Ca	44	1	nogas	-533.929	-3.5	118442	3.5	100	
Fe	56	1	nogas	17.833	43.6	1411715	7.6	100	
Se	77	1	nogas	48.280	21.5	62915	3.5	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.447	-33.2	457	7.0	2.5	
Mo	95	1	nogas	0.130	32.3	860	16.3	2.5	
Sn	118	1	nogas	0.096	18.5	1720	6.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.119	11.9	437	9.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.198	-7.5	187	8.2	2.5	
P	31	1	nogas	-11.593	-30.1	74965	1.6	10	
La	139	1	nogas	48.699	61.1	243	31.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-109.116	-208.7	17	124.9	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	390775	1.22	363379	107.54	70	125	
Ge	72	1	nogas	1701668	3.14	1518701	112.05	70	125	
In	115	1	nogas	1759923	0.34	1623624	108.39	70	125	
Bi	209	1	nogas	1706577	2.39	1463804	116.59	70	125	
Ge	72	2	He	139015	1.04	127073	109.40	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	166_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T15:22:43-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	93.582	5.364	276640	4.34	100	93.6	90	110	
Na	23	1	nogas	9527.695	1.727	117627540	2.06	10000	95.3	90	110	
Mg	24	1	nogas	9368.154	2.039	79812523	1.98	10000	93.7	90	110	
Al	27	1	nogas	92.795	1.990	998101	2.30	100	92.8	90	110	
K	39	1	nogas	9757.282	3.154	91301258	2.49	10000	97.6	90	110	
Ti	47	1	nogas	96.176	1.577	89126	2.01	100	96.2	90	110	
V	51	1	nogas	118.298	1.653	2515176	0.60	100	118.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	98.352	2.157	1212046	2.57	100	98.4	90	110	
Mn	55	1	nogas	96.612	2.378	1458608	1.92	100	96.6	90	110	
Co	59	1	nogas	97.119	0.213	1283915	0.29	100	97.1	90	110	
Ni	60	1	nogas	98.062	2.026	286222	1.57	100	98.1	90	110	
Cu	63	1	nogas	100.007	1.335	709721	0.84	100	100.0	90	110	
Zn	66	1	nogas	99.986	0.321	229156	0.28	100	100.0	90	110	
As	75	1	nogas	106.522	3.119	431169	1.79	100	106.5	90	110	
Sr	88	1	nogas	97.579	3.133	1511354	2.64	100	97.6	90	110	
Ag	107	1	nogas	94.869	2.265	879646	1.82	100	94.9	90	110	
Cd	111	1	nogas	95.348	1.681	189757	2.70	100	95.3	90	110	
Sb	121	1	nogas	99.318	0.449	837719	0.66	100	99.3	90	110	
Tl	205	1	nogas	94.977	3.459	1608111	0.83	100	95.0	90	110	
Pb	208	1	nogas	96.051	1.714	2215605	1.71	100	96.1	90	110	
U	238	1	nogas	97.210	2.654	2300856	0.42	100	97.2	90	110	
[Pb]	206	1	nogas	94.663	2.321	548851	0.79	100	94.7	90	110	
[Pb]	207	1	nogas	91.410	3.333	482240	1.70	100	91.4	90	110	
Na	23	2	He	9828.011	1.401	2314236	0.55	10000	98.3	90	110	
Mg	24	2	He	9482.826	1.439	1058413	0.87	10000	94.8	90	110	
Al	27	2	He	89.130	7.727	3100	9.23	100	89.1	90	110	CCV Main CR1-2 Failed
K	39	2	He	8476.346	0.420	543890	0.41	10000	84.8	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	8854.148	9.090	1807	9.75	10000	88.5	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	8884.590	1.581	30969	1.47	10000	88.8	90	110	CCV Main CR1-2 Failed
V	51	2	He	96.828	1.845	120314	0.94	100	96.8	90	110	
Cr	52	2	He	97.408	1.204	163612	0.87	100	97.4	90	110	
Mn	55	2	He	95.083	2.017	62443	2.02	100	95.1	90	110	
Fe	56	2	He	9458.697	3.313	12576971	2.36	10000	94.6	90	110	
Co	59	2	He	98.817	2.151	278216	0.60	100	98.8	90	110	
Ni	60	2	He	99.581	2.035	79931	0.43	100	99.6	90	110	
Cu	63	2	He	100.243	3.211	223015	1.53	100	100.2	90	110	
Zn	66	2	He	98.537	2.578	32826	1.99	100	98.5	90	110	
As	75	2	He	98.590	0.478	21933	1.37	100	98.6	90	110	
Se	78	2	He	93.771	4.295	836	5.75	100	93.8	90	110	
B	11	1	nogas	416.724	4.711	873937	3.06	500	83.3	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4969.770	2.830	23394125	2.39	5000	99.4	90	110	
Ca	43	1	nogas	9860.224	1.801	182831	1.34	10000	98.6	90	110	
Ca	44	1	nogas	9491.834	1.491	3063288	0.89	10000	94.9	90	110	
Fe	56	1	nogas	9633.374	3.503	135094028	3.03	10000	96.3	90	110	
Se	77	1	nogas	158.184	5.727	73277	2.26	100	158.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	97.075	2.121	12955	2.51	100	97.1	90	110	
Mo	95	1	nogas	95.761	0.180	322254	0.33	100	95.8	90	110	
Sn	118	1	nogas	96.016	3.886	515452	0.45	100	96.0	90	110	
Ba	137	1	nogas	94.364	6.424	248644	2.13	100	94.4	90	110	
Sb	121	2	He	96.985	0.416	93946	1.99	100	97.0	90	110	
Li	7	1	nogas	95.039	2.787	688081	1.61	100	95.0	90	110	
P	31	1	nogas	460.842	2.217	377934	1.36	500	92.2	90	110	
La	139	1	nogas	150.487	9.876	460	8.70	100	150.5	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	127.930	208.164	33	62.45	100	127.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	332286	1.08	363379	91.44	70	125	
Ge	72	1	nogas	1465524	0.49	1518701	96.50	70	125	
In	115	1	nogas	1581511	4.33	1623624	97.41	70	125	
Bi	209	1	nogas	1458359	3.04	1463804	99.63	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	115919	1.68	127073	91.22	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	167_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T15:24:41-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.066	48.5	250	38.2	1	
Na	23	1	nogas	-21.288	-8.5	1919095	0.5	100	
Mg	24	1	nogas	8.936	37.9	79800	36.4	100	
Al	27	1	nogas	-0.369	-18.6	20461	0.2	5	
K	39	1	nogas	-30.295	-42.7	4897628	1.3	100	
Ti	47	1	nogas	0.467	22.6	653	16.9	2.5	
V	51	1	nogas	5.124	82.7	937775	4.7	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.067	40.0	30886	2.2	2.5	
Mn	55	1	nogas	0.657	8.7	18696	2.3	2.5	
Co	59	1	nogas	0.083	24.7	1370	21.9	2.5	
Ni	60	1	nogas	-0.403	-7.0	1317	7.5	2.5	
Cu	63	1	nogas	-0.304	-8.1	3550	4.8	2.5	
Zn	66	1	nogas	-0.275	-19.9	1013	9.9	2.5	
As	75	1	nogas	2.880	139.6	155830	5.1	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.097	30.5	2380	18.9	2.5	
Ag	107	1	nogas	0.048	50.1	993	19.7	2.5	
Cd	111	1	nogas	0.090	61.0	187	57.8	1	
Sb	121	1	nogas	-0.179	-26.5	1893	22.8	2.5	
Tl	205	1	nogas	0.313	35.0	5751	35.3	1	
Pb	208	1	nogas	0.110	36.8	3047	30.6	2.5	
U	238	1	nogas	0.082	29.6	2150	29.1	2.5	
[Pb]	206	1	nogas	0.102	39.4	717	35.4	2.5	
[Pb]	207	1	nogas	0.085	43.0	597	35.4	2.5	
Na	23	2	He	-30.261	-16.4	52108	0.4	100	
Mg	24	2	He	6.325	4.9	913	3.5	100	
Al	27	2	He	-0.069	-916.8	77	30.1	5	
K	39	2	He	-31.762	-12.3	12254	2.0	100	
Ca	43	2	He	3.882	32.6	10	0.0	100	
Ca	44	2	He	7.660	158.0	187	20.3	100	
V	51	2	He	0.092	40.4	578	9.6	2.5	
Cr	52	2	He	0.088	46.9	1240	7.7	2.5	
Mn	55	2	He	0.314	7.0	353	1.6	2.5	
Fe	56	2	He	5.256	7.6	10727	4.9	100	
Co	59	2	He	0.038	36.1	120	33.3	2.5	
Ni	60	2	He	-0.262	-27.6	197	31.1	2.5	
Cu	63	2	He	-0.427	-10.4	800	10.2	2.5	
Zn	66	2	He	0.450	45.8	203	34.9	2.5	
As	75	2	He	0.074	26.8	31	12.4	2.5	
Se	78	2	He	0.611	21.9	3	34.6	2.5	
B	11	1	nogas	-29.466	-7.1	53065	5.9	10	
Si	28	1	nogas	-1.578	-608.3	1678908	1.9	5	
Ca	43	1	nogas	19.306	23.4	1193	3.8	100	
Ca	44	1	nogas	-480.895	-3.0	117482	2.3	100	
Fe	56	1	nogas	13.632	79.2	1155175	12.1	100	
Se	77	1	nogas	34.200	44.7	51630	4.2	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.011	-6413.8	447	16.8	2.5	
Mo	95	1	nogas	0.075	98.9	560	46.7	2.5	
Sn	118	1	nogas	0.106	29.9	1580	10.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.115	35.7	377	28.1	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.161	-46.8	193	35.2	2.5	
P	31	1	nogas	-12.976	-25.4	63530	1.1	10	
La	139	1	nogas	45.897	73.3	210	37.8	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-50.233	-6.9	20	0.0	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	356553	1.96	363379	98.12	70	125	
Ge	72	1	nogas	1462917	3.24	1518701	96.33	70	125	
In	115	1	nogas	1564249	0.38	1623624	96.34	70	125	
Bi	209	1	nogas	1518316	1.45	1463804	103.72	70	125	
Ge	72	2	He	117629	2.60	127073	92.57	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	178_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T15:47:00-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	94.393	3.962	291932	0.55	100	94.4	90	110	
Na	23	1	nogas	9589.028	3.169	126614149	1.80	10000	95.9	90	110	
Mg	24	1	nogas	9556.212	4.500	87050200	0.78	10000	95.6	90	110	
Al	27	1	nogas	93.607	1.979	1085600	0.64	100	93.6	90	110	
K	39	1	nogas	9437.138	5.975	95381519	3.64	10000	94.4	90	110	
Ti	47	1	nogas	98.977	1.323	98942	2.86	100	99.0	90	110	
V	51	1	nogas	107.024	4.125	2543289	0.91	100	107.0	90	110	
Cr	52	1	nogas	98.475	4.542	1308246	2.39	100	98.5	90	110	
Mn	55	1	nogas	97.851	1.587	1593513	1.83	100	97.9	90	110	
Co	59	1	nogas	95.845	6.432	1365698	4.41	100	95.8	90	110	
Ni	60	1	nogas	97.730	5.254	307534	3.17	100	97.7	90	110	
Cu	63	1	nogas	97.448	3.310	745897	1.24	100	97.4	90	110	
Zn	66	1	nogas	99.174	2.422	245149	1.32	100	99.2	90	110	
As	75	1	nogas	99.527	5.822	444909	1.70	100	99.5	90	110	
Sr	88	1	nogas	96.359	4.248	1609300	2.33	100	96.4	90	110	
Ag	107	1	nogas	94.001	3.921	939820	1.89	100	94.0	90	110	
Cd	111	1	nogas	96.511	1.718	201539	1.15	100	96.5	90	110	
Sb	121	1	nogas	97.287	3.524	884883	1.53	100	97.3	90	110	
Tl	205	1	nogas	94.676	4.099	1696162	4.05	100	94.7	90	110	
Pb	208	1	nogas	102.609	1.022	2366847	1.02	100	102.6	90	110	
U	238	1	nogas	97.665	3.940	2445486	3.70	100	97.7	90	110	
[Pb]	206	1	nogas	95.779	2.056	587464	1.92	100	95.8	90	110	
[Pb]	207	1	nogas	93.006	0.726	519122	0.69	100	93.0	90	110	
Na	23	2	He	9744.694	1.052	2542746	2.29	10000	97.4	90	110	
Mg	24	2	He	9400.154	1.383	1162292	1.94	10000	94.0	90	110	
Al	27	2	He	87.275	9.528	3364	10.20	100	87.3	90	110	CCV Main CR1-2 Failed
K	39	2	He	9336.750	1.838	597653	1.79	10000	93.4	90	110	
Ca	43	2	He	8137.589	9.887	1837	7.51	10000	81.4	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	8953.144	2.812	34559	0.41	10000	89.5	90	110	CCV Main CR1-2 Failed
V	51	2	He	94.895	3.099	130599	1.55	100	94.9	90	110	
Cr	52	2	He	96.778	0.636	180095	2.10	100	96.8	90	110	
Mn	55	2	He	93.835	0.998	68277	2.86	100	93.8	90	110	
Fe	56	2	He	9213.163	1.303	13572811	1.75	10000	92.1	90	110	
Co	59	2	He	97.826	3.059	305060	1.67	100	97.8	90	110	
Ni	60	2	He	99.258	6.805	88189	4.62	100	99.3	90	110	
Cu	63	2	He	100.112	2.927	246707	0.49	100	100.1	90	110	
Zn	66	2	He	95.305	3.835	35171	3.47	100	95.3	90	110	
As	75	2	He	100.280	3.914	24699	1.51	100	100.3	90	110	
Se	78	2	He	103.293	2.953	1020	3.73	100	103.3	90	110	
B	11	1	nogas	440.100	5.003	959533	2.71	500	88.0	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	5614.968	1.423	28273050	0.84	5000	112.3	90	110	CCV Main CR1-2 Failed
Ca	43	1	nogas	9412.950	2.910	188294	2.37	10000	94.1	90	110	
Ca	44	1	nogas	10485.251	4.598	3621253	4.71	10000	104.9	90	110	
Fe	56	1	nogas	9526.785	4.929	144054387	2.89	10000	95.3	90	110	
Se	77	1	nogas	121.225	14.637	72099	3.69	100	121.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	105.807	5.011	15187	5.05	100	105.8	90	110	
Mo	95	1	nogas	94.656	3.637	343485	2.06	100	94.7	90	110	
Sn	118	1	nogas	94.261	2.548	531293	1.49	100	94.3	90	110	
Ba	137	1	nogas	97.591	1.301	270207	1.39	100	97.6	90	110	
Sb	121	2	He	97.423	3.136	104485	0.74	100	97.4	90	110	
Li	7	1	nogas	92.598	1.560	702762	2.72	100	92.6	90	110	
P	31	1	nogas	458.726	4.520	406010	1.62	500	91.7	90	110	
La	139	1	nogas	169.841	26.319	530	19.97	100	169.8	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-14.243	-2082.304	23	107.85	100	-14.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	347877	3.99	363379	95.73	70	125	
Ge	72	1	nogas	1580965	2.04	1518701	104.10	70	125	
In	115	1	nogas	1659136	2.58	1623624	102.19	70	125	
Bi	209	1	nogas	1542078	0.27	1463804	105.35	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	128415	2.46	127073	101.06	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	179_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T15:48:58-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.084	28.6	340	21.2	1	
Na	23	1	nogas	-14.080	-26.9	2201034	1.5	100	
Mg	24	1	nogas	8.241	32.9	80935	29.8	100	
Al	27	1	nogas	0.080	481.6	27936	16.6	5	
K	39	1	nogas	-50.030	-4.6	5239446	0.4	100	
Ti	47	1	nogas	1.373	6.1	1650	5.8	2.5	
V	51	1	nogas	2.009	107.6	992541	2.6	2.5	
Cr	52	1	nogas	0.943	5.5	45900	2.1	2.5	
Mn	55	1	nogas	0.636	1.9	20392	0.3	2.5	
Co	59	1	nogas	0.075	26.0	1407	21.2	2.5	
Ni	60	1	nogas	-0.370	-6.3	1567	5.4	2.5	
Cu	63	1	nogas	-0.321	-8.5	3804	4.9	2.5	
Zn	66	1	nogas	-0.312	-8.1	1033	5.8	2.5	
As	75	1	nogas	1.731	166.8	169527	4.2	2.5	
Sr	88	1	nogas	0.092	7.8	2557	5.5	2.5	
Ag	107	1	nogas	0.039	33.5	1013	13.7	2.5	
Cd	111	1	nogas	0.066	8.7	153	10.0	1	
Sb	121	1	nogas	-0.167	-13.0	2207	10.0	2.5	
Tl	205	1	nogas	0.296	40.4	5735	39.2	1	
Pb	208	1	nogas	0.102	38.3	2867	31.4	2.5	
U	238	1	nogas	0.071	18.0	1990	17.3	2.5	
[Pb]	206	1	nogas	0.107	29.4	787	25.9	2.5	
[Pb]	207	1	nogas	0.079	57.9	597	45.3	2.5	
Na	23	2	He	-33.313	-20.4	56718	1.7	100	
Mg	24	2	He	4.159	13.9	737	8.3	100	
Al	27	2	He	0.427	370.6	103	58.3	5	
K	39	2	He	-24.717	-15.2	12694	1.9	100	
Ca	43	2	He	-15.118	-169.4	7	86.6	100	
Ca	44	2	He	-0.853	-840.3	173	14.5	100	
V	51	2	He	0.047	31.0	575	2.2	2.5	
Cr	52	2	He	0.106	62.5	1400	8.9	2.5	
Mn	55	2	He	0.342	36.6	410	21.3	2.5	
Fe	56	2	He	4.734	3.3	11064	3.3	100	
Co	59	2	He	0.043	39.1	150	34.6	2.5	
Ni	60	2	He	-0.213	-50.9	260	38.5	2.5	
Cu	63	2	He	-0.488	-9.0	733	16.4	2.5	
Zn	66	2	He	0.288	46.1	163	28.9	2.5	
As	75	2	He	0.133	16.3	49	10.4	2.5	
Se	78	2	He	0.710	44.0	5	65.5	2.5	
B	11	1	nogas	-35.217	-6.0	46153	6.5	10	
Si	28	1	nogas	177.002	7.4	2725631	3.1	5	CCB Main CR1 Failed
Ca	43	1	nogas	14.028	33.3	1217	7.1	100	
Ca	44	1	nogas	-112.131	-17.3	250903	3.3	100	
Fe	56	1	nogas	11.396	40.3	1248067	6.3	100	
Se	77	1	nogas	28.295	35.4	56134	2.7	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.483	-141.0	430	22.9	2.5	
Mo	95	1	nogas	0.083	67.1	647	32.8	2.5	
Sn	118	1	nogas	0.091	34.1	1640	9.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.119	35.7	423	29.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.211	-22.9	160	32.5	2.5	
P	31	1	nogas	-12.181	-23.4	71074	3.5	10	
La	139	1	nogas	58.944	71.0	263	42.0	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-176.102	-111.1	10	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	395597	4.35	363379	108.87	70	125	
Ge	72	1	nogas	1621865	0.77	1518701	106.79	70	125	
In	115	1	nogas	1709638	2.05	1623624	105.30	70	125	
Bi	209	1	nogas	1602622	1.85	1463804	109.48	70	125	
Ge	72	2	He	129796	1.55	127073	102.14	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	190_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T16:11:15-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	90.365	4.051	293061	1.67	100	90.4	90	110	
Na	23	1	nogas	10208.445	2.961	128413278	1.14	10000	102.1	90	110	
Mg	24	1	nogas	9735.532	2.045	84637771	1.78	10000	97.4	90	110	
Al	27	1	nogas	92.495	1.192	1059763	2.00	100	92.5	90	110	
K	39	1	nogas	9846.135	3.426	98055219	0.47	10000	98.5	90	110	
Ti	47	1	nogas	93.494	1.620	92281	1.45	100	93.5	90	110	
V	51	1	nogas	102.721	6.451	2446881	1.04	100	102.7	90	110	
Cr	52	1	nogas	96.600	4.436	1267726	1.43	100	96.6	90	110	
Mn	55	1	nogas	100.311	3.303	1612217	0.40	100	100.3	90	110	
Co	59	1	nogas	98.243	5.095	1382478	2.90	100	98.2	90	110	
Ni	60	1	nogas	98.061	5.027	304661	2.03	100	98.1	90	110	
Cu	63	1	nogas	98.021	4.173	740666	1.13	100	98.0	90	110	
Zn	66	1	nogas	100.182	1.111	244574	2.11	100	100.2	90	110	
As	75	1	nogas	95.102	3.940	426928	1.35	100	95.1	90	110	
Sr	88	1	nogas	98.182	2.671	1619487	0.89	100	98.2	90	110	
Ag	107	1	nogas	95.154	1.561	939806	1.78	100	95.2	90	110	
Cd	111	1	nogas	97.739	2.750	202623	3.81	100	97.7	90	110	
Sb	121	1	nogas	100.366	5.692	901072	3.60	100	100.4	90	110	
Tl	205	1	nogas	96.919	4.761	1749813	2.77	100	96.9	90	110	
Pb	208	1	nogas	103.875	1.012	2396032	1.01	100	103.9	90	110	
U	238	1	nogas	97.118	1.891	2451889	1.41	100	97.1	90	110	
[Pb]	206	1	nogas	95.762	3.129	592072	1.53	100	95.8	90	110	
[Pb]	207	1	nogas	92.893	2.687	522716	1.91	100	92.9	90	110	
Na	23	2	He	9718.249	1.661	2470056	1.69	10000	97.2	90	110	
Mg	24	2	He	9481.622	1.040	1141914	0.47	10000	94.8	90	110	
Al	27	2	He	88.187	9.178	3307	8.58	100	88.2	90	110	CCV Main CR1-2 Failed
K	39	2	He	9153.322	1.892	586192	1.85	10000	91.5	90	110	
Ca	43	2	He	8847.728	8.498	1947	7.96	10000	88.5	90	110	CCV Main CR1-2 Failed
Ca	44	2	He	8979.141	1.611	33768	0.52	10000	89.8	90	110	CCV Main CR1-2 Failed
V	51	2	He	96.769	2.182	129740	1.31	100	96.8	90	110	
Cr	52	2	He	97.053	2.238	175892	1.65	100	97.1	90	110	
Mn	55	2	He	95.157	1.775	67424	0.93	100	95.2	90	110	
Fe	56	2	He	9605.309	3.164	13785869	3.89	10000	96.1	90	110	
Co	59	2	He	98.176	2.398	298257	1.44	100	98.2	90	110	
Ni	60	2	He	96.616	2.565	83691	1.67	100	96.6	90	110	
Cu	63	2	He	98.035	1.439	235431	0.95	100	98.0	90	110	
Zn	66	2	He	97.813	2.845	35158	1.76	100	97.8	90	110	
As	75	2	He	99.182	2.843	23803	1.89	100	99.2	90	110	
Se	78	2	He	94.396	5.678	907	4.71	100	94.4	90	110	
B	11	1	nogas	440.950	5.053	1007670	1.52	500	88.2	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4924.661	2.153	24713270	3.16	5000	98.5	90	110	
Ca	43	1	nogas	9658.022	2.366	190737	0.91	10000	96.6	90	110	
Ca	44	1	nogas	8969.307	4.327	3098244	3.68	10000	89.7	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9675.364	5.417	144412945	2.43	10000	96.8	90	110	
Se	77	1	nogas	98.606	13.889	67037	4.06	100	98.6	90	110	
Se	82	1	nogas	98.348	2.651	13969	0.50	100	98.3	90	110	
Mo	95	1	nogas	95.961	3.907	343799	1.41	100	96.0	90	110	
Sn	118	1	nogas	96.150	5.620	537426	2.34	100	96.1	90	110	
Ba	137	1	nogas	98.675	6.560	270859	3.53	100	98.7	90	110	
Sb	121	2	He	95.284	1.595	99593	2.21	100	95.3	90	110	
Li	7	1	nogas	92.325	1.371	734946	3.41	100	92.3	90	110	
P	31	1	nogas	467.854	4.520	407345	1.23	500	93.6	90	110	
La	139	1	nogas	122.648	4.715	410	0.00	100	122.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-96.732	-180.187	17	91.65	100	-96.7	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	364788	4.23	363379	100.39	70	125	
Ge	72	1	nogas	1561405	3.07	1518701	102.81	70	125	
In	115	1	nogas	1646933	3.55	1623624	101.44	70	125	
Bi	209	1	nogas	1555140	2.54	1463804	106.24	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	125071	1.09	127073	98.43	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	191_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T16:13:12-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.073	37.5	293	31.7	1	
Na	23	1	nogas	2.822	77.1	2318640	2.0	100	
Mg	24	1	nogas	7.739	28.5	73295	27.2	100	
Al	27	1	nogas	-0.525	-8.6	20211	1.6	5	
K	39	1	nogas	-44.587	-22.8	5120151	0.1	100	
Ti	47	1	nogas	0.091	59.4	327	14.5	2.5	
V	51	1	nogas	-1.136	-145.5	914008	4.6	2.5	
Cr	52	1	nogas	-0.222	-23.2	29420	2.3	2.5	
Mn	55	1	nogas	0.479	8.2	17208	2.5	2.5	
Co	59	1	nogas	0.065	50.5	1213	36.2	2.5	
Ni	60	1	nogas	-0.396	-5.7	1433	4.3	2.5	
Cu	63	1	nogas	-0.305	-8.7	3800	3.5	2.5	
Zn	66	1	nogas	-0.330	-6.1	953	3.4	2.5	
As	75	1	nogas	-1.963	-74.6	153642	4.6	2.5	
Sr	88	1	nogas	0.101	26.3	2624	14.9	2.5	
Ag	107	1	nogas	0.044	57.4	1027	22.9	2.5	
Cd	111	1	nogas	0.077	43.4	170	41.2	1	
Sb	121	1	nogas	-0.199	-33.7	1843	30.6	2.5	
Tl	205	1	nogas	0.321	40.6	6038	38.8	1	
Pb	208	1	nogas	0.106	29.0	2953	23.9	2.5	
U	238	1	nogas	0.071	41.6	1934	38.2	2.5	
[Pb]	206	1	nogas	0.113	26.9	807	23.1	2.5	
[Pb]	207	1	nogas	0.092	29.2	653	22.9	2.5	
Na	23	2	He	-17.248	-27.4	57918	1.0	100	
Mg	24	2	He	4.418	17.5	733	13.7	100	
Al	27	2	He	-0.071	-427.7	80	12.5	5	
K	39	2	He	-23.489	-29.1	12771	3.3	100	
Ca	43	2	He	-29.095	-92.9	3	173.2	100	
Ca	44	2	He	-2.213	-454.1	160	22.5	100	
V	51	2	He	0.082	40.4	593	6.2	2.5	
Cr	52	2	He	0.074	215.7	1273	21.4	2.5	
Mn	55	2	He	0.259	59.6	333	33.2	2.5	
Fe	56	2	He	4.072	5.9	9593	4.7	100	
Co	59	2	He	0.044	48.0	143	42.6	2.5	
Ni	60	2	He	-0.249	-16.0	217	16.2	2.5	
Cu	63	2	He	-0.439	-12.4	813	17.0	2.5	
Zn	66	2	He	0.130	77.6	100	36.1	2.5	
As	75	2	He	0.142	28.9	49	20.8	2.5	
Se	78	2	He	0.934	109.5	7	148.0	2.5	
B	11	1	nogas	-25.880	-9.9	64272	8.0	10	
Si	28	1	nogas	-42.174	-37.1	1611085	2.7	5	
Ca	43	1	nogas	7.808	131.2	1057	20.8	100	
Ca	44	1	nogas	-601.822	-0.7	87845	0.7	100	
Fe	56	1	nogas	2.931	369.4	1079119	12.9	100	
Se	77	1	nogas	10.244	88.8	50992	5.2	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.217	-217.8	453	16.0	2.5	
Mo	95	1	nogas	0.105	31.5	703	16.0	2.5	
Sn	118	1	nogas	0.126	38.0	1777	15.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.076	18.5	290	13.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.224	-29.3	140	49.5	2.5	
P	31	1	nogas	-14.129	-14.1	67364	0.2	10	
La	139	1	nogas	7.700	272.8	127	40.5	2.5	CCB Main CR1 Failed
Au	197	1	nogas	20.093	881.4	27	57.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	380595	0.67	363379	104.74	70	125	
Ge	72	1	nogas	1569359	1.92	1518701	103.34	70	125	
In	115	1	nogas	1648398	0.64	1623624	101.53	70	125	
Bi	209	1	nogas	1562487	0.49	1463804	106.74	70	125	
Ge	72	2	He	123531	1.19	127073	97.21	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	202_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T16:35:19-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.357	3.601	289936	0.90	100	91.4	90	110	
Na	23	1	nogas	10020.969	2.223	126159344	1.31	10000	100.2	90	110	
Mg	24	1	nogas	9771.209	2.870	84960094	0.87	10000	97.7	90	110	
Al	27	1	nogas	97.284	2.814	1079149	2.85	100	97.3	90	110	
K	39	1	nogas	9658.999	1.284	93389754	1.97	10000	96.6	90	110	
Ti	47	1	nogas	99.895	4.855	95526	3.23	100	99.9	90	110	
V	51	1	nogas	110.972	1.888	2491934	1.87	100	111.0	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	104.477	4.199	1327067	3.19	100	104.5	90	110	
Mn	55	1	nogas	102.721	1.793	1600653	0.82	100	102.7	90	110	
Co	59	1	nogas	96.683	2.273	1320245	4.15	100	96.7	90	110	
Ni	60	1	nogas	97.555	1.181	294029	1.09	100	97.6	90	110	
Cu	63	1	nogas	99.416	1.281	728571	1.82	100	99.4	90	110	
Zn	66	1	nogas	102.277	1.152	241982	0.76	100	102.3	90	110	
As	75	1	nogas	96.365	1.355	417468	2.60	100	96.4	90	110	
Sr	88	1	nogas	99.675	1.085	1594488	2.79	100	99.7	90	110	
Ag	107	1	nogas	96.790	0.917	926687	1.00	100	96.8	90	110	
Cd	111	1	nogas	95.503	2.230	200184	0.47	100	95.5	90	110	
Sb	121	1	nogas	99.529	2.166	866652	0.26	100	99.5	90	110	
Tl	205	1	nogas	101.070	3.693	1733354	3.46	100	101.1	90	110	
Pb	208	1	nogas	102.619	1.690	2367082	1.69	100	102.6	90	110	
U	238	1	nogas	102.028	1.460	2446152	2.55	100	102.0	90	110	
[Pb]	206	1	nogas	99.232	4.419	582327	1.43	100	99.2	90	110	
[Pb]	207	1	nogas	95.297	2.713	509095	1.07	100	95.3	90	110	
Na	23	2	He	9885.677	3.051	2458615	2.70	10000	98.9	90	110	
Mg	24	2	He	9675.283	5.052	1140706	4.83	10000	96.8	90	110	
Al	27	2	He	87.131	6.233	3200	5.99	100	87.1	90	110	CCV Main CR1-2 Failed
K	39	2	He	9002.452	1.432	576765	1.40	10000	90.0	90	110	
Ca	43	2	He	9799.100	8.421	2110	8.22	10000	98.0	90	110	
Ca	44	2	He	9052.556	3.972	33330	3.99	10000	90.5	90	110	
V	51	2	He	94.952	0.671	124649	0.40	100	95.0	90	110	
Cr	52	2	He	98.027	1.982	173932	2.22	100	98.0	90	110	
Mn	55	2	He	97.157	2.292	67397	2.36	100	97.2	90	110	
Fe	56	2	He	9500.476	2.478	13346079	2.21	10000	95.0	90	110	
Co	59	2	He	98.466	1.577	292881	1.30	100	98.5	90	110	
Ni	60	2	He	97.080	3.015	82331	2.75	100	97.1	90	110	
Cu	63	2	He	98.349	1.111	231221	0.86	100	98.3	90	110	
Zn	66	2	He	98.837	2.001	34784	1.77	100	98.8	90	110	
As	75	2	He	98.001	1.515	23029	1.26	100	98.0	90	110	
Se	78	2	He	89.111	7.616	839	7.53	100	89.1	90	110	CCV Main CR1-2 Failed
B	11	1	nogas	461.632	2.910	1027715	2.77	500	92.3	90	110	
Si	28	1	nogas	5154.236	3.120	24981501	1.07	5000	103.1	90	110	
Ca	43	1	nogas	9616.690	3.673	184084	1.88	10000	96.2	90	110	
Ca	44	1	nogas	8929.695	3.871	2990592	1.61	10000	89.3	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9943.023	0.564	143959541	1.37	10000	99.4	90	110	
Se	77	1	nogas	101.277	11.781	65494	5.11	100	101.3	90	110	
Se	82	1	nogas	98.690	1.823	13589	0.55	100	98.7	90	110	
Mo	95	1	nogas	97.454	1.469	338591	0.81	100	97.5	90	110	
Sn	118	1	nogas	91.601	0.855	518449	2.00	100	91.6	90	110	
Ba	137	1	nogas	95.855	2.634	266360	0.21	100	95.9	90	110	
Sb	121	2	He	97.435	1.161	99683	0.88	100	97.4	90	110	
Li	7	1	nogas	92.589	2.490	720769	0.97	100	92.6	90	110	
P	31	1	nogas	474.770	1.052	399789	1.23	500	95.0	90	110	
La	139	1	nogas	144.904	13.055	470	8.51	100	144.9	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	35.029	361.284	27	43.30	100	35.0	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	356842	2.76	363379	98.20	70	125	
Ge	72	1	nogas	1513345	1.90	1518701	99.65	70	125	
In	115	1	nogas	1665579	2.71	1623624	102.58	70	125	
Bi	209	1	nogas	1476955	3.83	1463804	100.90	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	122439	0.28	127073	96.35	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	203_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T16:37:17-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.056	24.6	250	21.2	1	
Na	23	1	nogas	-7.056	-43.9	2274138	0.6	100	
Mg	24	1	nogas	7.738	25.9	75840	23.8	100	
Al	27	1	nogas	-0.397	-9.4	22163	1.0	5	
K	39	1	nogas	-37.232	-10.8	5312052	0.8	100	
Ti	47	1	nogas	0.026	261.9	270	26.7	2.5	
V	51	1	nogas	-1.333	-255.4	931776	4.9	2.5	
Cr	52	1	nogas	-0.274	-17.1	29420	1.2	2.5	
Mn	55	1	nogas	0.546	9.5	18716	4.2	2.5	
Co	59	1	nogas	0.070	27.7	1320	22.1	2.5	
Ni	60	1	nogas	-0.385	-19.6	1500	14.6	2.5	
Cu	63	1	nogas	-0.292	-5.2	3994	4.0	2.5	
Zn	66	1	nogas	-0.372	-14.4	873	16.3	2.5	
As	75	1	nogas	-5.093	-56.2	148037	4.9	2.5	
Sr	88	1	nogas	0.063	32.3	2047	18.1	2.5	
Ag	107	1	nogas	0.055	9.6	1160	4.8	2.5	
Cd	111	1	nogas	0.054	42.6	123	38.3	1	
Sb	121	1	nogas	-0.169	-21.0	2174	16.2	2.5	
Tl	205	1	nogas	0.306	29.4	5938	29.2	1	
Pb	208	1	nogas	0.108	31.8	3017	26.4	2.5	
U	238	1	nogas	0.072	31.8	2024	30.7	2.5	
[Pb]	206	1	nogas	0.102	24.7	757	22.3	2.5	
[Pb]	207	1	nogas	0.089	37.8	657	31.1	2.5	
Na	23	2	He	-21.511	-10.5	57289	0.2	100	
Mg	24	2	He	5.113	30.7	820	22.2	100	
Al	27	2	He	-0.364	-152.3	70	28.6	5	
K	39	2	He	-16.923	-42.4	13181	3.4	100	
Ca	43	2	He	-29.540	-88.8	3	173.2	100	
Ca	44	2	He	1.104	1648.4	173	38.4	100	
V	51	2	He	0.039	57.9	541	5.9	2.5	
Cr	52	2	He	-0.044	-167.3	1073	11.8	2.5	
Mn	55	2	He	0.214	31.5	303	14.9	2.5	
Fe	56	2	He	4.566	7.1	10366	5.3	100	
Co	59	2	He	0.073	11.7	233	10.8	2.5	
Ni	60	2	He	-0.161	-30.4	293	13.8	2.5	
Cu	63	2	He	-0.454	-12.2	783	16.0	2.5	
Zn	66	2	He	0.073	39.1	80	12.5	2.5	
As	75	2	He	0.057	86.0	29	40.5	2.5	
Se	78	2	He	0.312	38.8	1	173.2	2.5	
B	11	1	nogas	-16.095	-17.9	90312	7.7	10	
Si	28	1	nogas	-36.383	-25.9	1677159	2.0	5	
Ca	43	1	nogas	13.083	23.2	1187	6.4	100	
Ca	44	1	nogas	-625.587	-1.3	82200	1.9	100	
Fe	56	1	nogas	10.971	24.0	1229387	4.3	100	
Se	77	1	nogas	-9.704	-140.1	48351	4.5	2.5	
Se	82	1	nogas	-0.494	-133.7	423	20.6	2.5	
Mo	95	1	nogas	0.094	76.1	683	39.8	2.5	
Sn	118	1	nogas	0.130	45.6	1823	18.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.086	23.8	323	17.9	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.182	-26.7	183	26.9	2.5	
P	31	1	nogas	-14.109	-7.5	68969	1.1	10	
La	139	1	nogas	17.760	118.0	153	32.8	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-98.874	-241.5	17	124.9	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	404296	1.49	363379	111.26	70	125	
Ge	72	1	nogas	1606072	1.30	1518701	105.75	70	125	
In	115	1	nogas	1670965	2.12	1623624	102.92	70	125	
Bi	209	1	nogas	1607511	1.41	1463804	109.82	70	125	
Ge	72	2	He	124418	0.85	127073	97.91	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	214_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T16:59:24-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	87.569	3.090	277162	2.29	100	87.6	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	9977.158	4.744	121042299	4.64	10000	99.8	90	110	
Mg	24	1	nogas	9711.768	1.575	81379243	1.48	10000	97.1	90	110	
Al	27	1	nogas	94.160	5.417	1019082	2.11	100	94.2	90	110	
K	39	1	nogas	9697.411	5.847	91387567	2.79	10000	97.0	90	110	
Ti	47	1	nogas	94.529	4.517	88207	2.49	100	94.5	90	110	
V	51	1	nogas	110.603	11.048	2423380	4.21	100	110.6	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	98.007	4.729	1215997	1.38	100	98.0	90	110	
Mn	55	1	nogas	101.787	4.701	1546948	2.49	100	101.8	90	110	
Co	59	1	nogas	98.551	5.401	1311448	2.23	100	98.6	90	110	
Ni	60	1	nogas	98.535	5.262	289517	1.98	100	98.5	90	110	
Cu	63	1	nogas	99.502	5.650	710958	3.28	100	99.5	90	110	
Zn	66	1	nogas	101.397	3.594	233995	0.44	100	101.4	90	110	
As	75	1	nogas	98.598	7.064	412954	1.35	100	98.6	90	110	
Sr	88	1	nogas	98.910	4.792	1542463	1.94	100	98.9	90	110	
Ag	107	1	nogas	96.491	3.346	901093	1.41	100	96.5	90	110	
Cd	111	1	nogas	97.687	1.251	192387	0.66	100	97.7	90	110	
Sb	121	1	nogas	100.733	4.465	855392	1.24	100	100.7	90	110	
Tl	205	1	nogas	94.973	5.329	1617750	2.13	100	95.0	90	110	
Pb	208	1	nogas	97.502	3.953	2249073	3.95	100	97.5	90	110	
U	238	1	nogas	97.920	1.996	2333131	1.99	100	97.9	90	110	
[Pb]	206	1	nogas	94.235	3.322	549845	1.89	100	94.2	90	110	
[Pb]	207	1	nogas	91.816	2.874	487727	3.71	100	91.8	90	110	
Na	23	2	He	9882.624	2.612	2396231	0.45	10000	98.8	90	110	
Mg	24	2	He	9398.358	3.626	1080170	1.88	10000	94.0	90	110	
Al	27	2	He	87.200	9.630	3120	7.77	100	87.2	90	110	CCV Main CR1-2 Failed
K	39	2	He	8741.000	0.267	560428	0.26	10000	87.4	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9401.341	6.040	1973	4.37	10000	94.0	90	110	
Ca	44	2	He	8823.745	2.001	31681	1.72	10000	88.2	90	110	CCV Main CR1-2 Failed
V	51	2	He	95.438	2.664	122136	0.53	100	95.4	90	110	
Cr	52	2	He	95.834	1.176	165819	1.01	100	95.8	90	110	
Mn	55	2	He	96.254	2.740	65092	0.68	100	96.3	90	110	
Fe	56	2	He	9422.809	1.535	12906820	0.77	10000	94.2	90	110	
Co	59	2	He	97.024	2.571	281419	2.86	100	97.0	90	110	
Ni	60	2	He	97.387	2.295	80524	0.98	100	97.4	90	110	
Cu	63	2	He	98.402	2.296	225554	1.19	100	98.4	90	110	
Zn	66	2	He	96.204	2.635	33013	2.36	100	96.2	90	110	
As	75	2	He	95.904	1.593	21974	1.15	100	95.9	90	110	
Se	78	2	He	92.648	4.574	850	2.85	100	92.6	90	110	
B	11	1	nogas	428.388	7.938	957870	4.18	500	85.7	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	5105.222	4.726	24150235	1.17	5000	102.1	90	110	
Ca	43	1	nogas	9613.451	2.342	179581	0.94	10000	96.1	90	110	
Ca	44	1	nogas	8894.689	1.690	2908610	2.01	10000	88.9	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9861.262	4.233	139241532	1.97	10000	98.6	90	110	
Se	77	1	nogas	112.972	26.975	65822	4.84	100	113.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	103.488	2.969	13882	2.85	100	103.5	90	110	
Mo	95	1	nogas	96.099	3.950	325630	0.89	100	96.1	90	110	
Sn	118	1	nogas	95.452	1.267	507420	0.32	100	95.5	90	110	
Ba	137	1	nogas	97.646	2.136	254964	1.98	100	97.6	90	110	
Sb	121	2	He	97.281	1.649	97055	2.26	100	97.3	90	110	
Li	7	1	nogas	90.787	3.491	705427	2.38	100	90.8	90	110	
P	31	1	nogas	468.648	4.458	385818	0.95	500	93.7	90	110	
La	139	1	nogas	142.647	0.339	437	1.32	100	142.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-6.538	-4649.864	23	107.85	100	-6.5	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	355848	3.62	363379	97.93	70	125	
Ge	72	1	nogas	1476907	3.23	1518701	97.25	70	125	
In	115	1	nogas	1564466	1.39	1623624	96.36	70	125	
Bi	209	1	nogas	1467824	3.22	1463804	100.27	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	119404	2.10	127073	93.97	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	215_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T17:01:22-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.094	25.5	363	23.7	1	
Na	23	1	nogas	104.936	2.4	3615513	1.6	100	CCB Main CR1 Failed
Mg	24	1	nogas	9.326	24.3	87592	22.4	100	
Al	27	1	nogas	-0.361	-7.0	21382	2.3	5	
K	39	1	nogas	-16.685	-25.7	5219554	0.8	100	
Ti	47	1	nogas	0.034	208.9	263	26.9	2.5	
V	51	1	nogas	7.995	83.5	1016960	8.6	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.279	-54.6	27798	6.0	2.5	
Mn	55	1	nogas	0.546	4.2	17739	3.1	2.5	
Co	59	1	nogas	0.079	18.5	1367	14.7	2.5	
Ni	60	1	nogas	-0.331	-18.6	1587	11.4	2.5	
Cu	63	1	nogas	-0.257	-20.1	4041	10.1	2.5	
Zn	66	1	nogas	-0.335	-10.9	913	10.4	2.5	
As	75	1	nogas	1.411	185.7	158111	3.6	2.5	
Sr	88	1	nogas	0.133	21.3	3070	16.0	2.5	
Ag	107	1	nogas	0.063	5.8	1177	4.0	2.5	
Cd	111	1	nogas	0.070	43.0	150	40.6	1	
Sb	121	1	nogas	0.040	87.8	3877	8.9	2.5	
Tl	205	1	nogas	0.332	42.8	6135	41.0	1	
Pb	208	1	nogas	0.107	49.1	2994	40.7	2.5	
U	238	1	nogas	0.075	36.0	2010	33.3	2.5	
[Pb]	206	1	nogas	0.114	43.0	800	37.6	2.5	
[Pb]	207	1	nogas	0.097	65.2	667	52.2	2.5	
Na	23	2	He	92.443	5.5	84758	0.6	100	
Mg	24	2	He	6.021	19.9	923	15.5	100	
Al	27	2	He	0.476	251.4	100	43.6	5	
K	39	2	He	-8.381	-97.6	13715	3.7	100	
Ca	43	2	He	-13.901	-191.9	7	86.6	100	
Ca	44	2	He	-4.969	-96.0	150	11.5	100	
V	51	2	He	0.113	5.5	635	1.7	2.5	
Cr	52	2	He	-0.012	-188.6	1123	4.4	2.5	
Mn	55	2	He	0.183	53.4	280	25.0	2.5	
Fe	56	2	He	4.834	9.3	10667	5.4	100	
Co	59	2	He	0.055	37.6	177	34.6	2.5	
Ni	60	2	He	-0.257	-16.1	210	16.5	2.5	
Cu	63	2	He	-0.429	-6.6	837	7.7	2.5	
Zn	66	2	He	0.055	206.9	73	55.1	2.5	
As	75	2	He	0.138	53.5	48	35.8	2.5	
Se	78	2	He	0.802	54.7	5	78.1	2.5	
B	11	1	nogas	-6.375	-0.8	105634	2.6	10	
Si	28	1	nogas	-13.912	-25.0	1690570	1.2	5	
Ca	43	1	nogas	12.811	107.0	1120	24.6	100	
Ca	44	1	nogas	-617.908	-0.4	80231	1.5	100	
Fe	56	1	nogas	7.015	133.2	1107896	13.3	100	
Se	77	1	nogas	22.451	67.2	51587	4.3	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.068	624.8	477	11.6	2.5	
Mo	95	1	nogas	0.127	44.9	760	27.2	2.5	
Sn	118	1	nogas	0.127	39.6	1733	16.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.111	49.4	377	39.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.072	131.4	443	21.3	2.5	
P	31	1	nogas	-11.588	-8.4	67059	1.1	10	
La	139	1	nogas	17.405	158.1	147	45.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-132.638	-102.2	13	86.6	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	380785	2.65	363379	104.79	70	125	
Ge	72	1	nogas	1521150	1.03	1518701	100.16	70	125	
In	115	1	nogas	1601643	0.54	1623624	98.65	70	125	
Bi	209	1	nogas	1539030	1.09	1463804	105.14	70	125	
Ge	72	2	He	123534	0.88	127073	97.22	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	226_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T17:23:26-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	89.142	3.120	291112	2.69	100	89.1	90	110	CCV Main CR1-2 Failed
Na	23	1	nogas	10079.738	2.513	125747432	3.52	10000	100.8	90	110	
Mg	24	1	nogas	9866.768	0.607	85021981	1.59	10000	98.7	90	110	
Al	27	1	nogas	95.590	3.134	1081164	3.43	100	95.6	90	110	
K	39	1	nogas	9950.513	2.767	97873065	2.35	10000	99.5	90	110	
Ti	47	1	nogas	94.856	0.718	92498	1.05	100	94.9	90	110	
V	51	1	nogas	113.931	0.451	2582779	0.20	100	113.9	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	97.494	3.080	1264372	2.65	100	97.5	90	110	
Mn	55	1	nogas	99.652	0.962	1582993	1.19	100	99.7	90	110	
Co	59	1	nogas	98.958	1.458	1376564	1.17	100	99.0	90	110	
Ni	60	1	nogas	95.660	1.947	293882	1.76	100	95.7	90	110	
Cu	63	1	nogas	96.965	2.771	724294	2.61	100	97.0	90	110	
Zn	66	1	nogas	98.771	2.053	238224	2.01	100	98.8	90	110	
As	75	1	nogas	97.167	1.310	427611	0.86	100	97.2	90	110	
Sr	88	1	nogas	97.321	1.225	1586346	1.55	100	97.3	90	110	
Ag	107	1	nogas	95.123	1.720	928191	1.99	100	95.1	90	110	
Cd	111	1	nogas	99.096	1.454	199615	1.16	100	99.1	90	110	
Sb	121	1	nogas	97.673	2.927	866922	2.67	100	97.7	90	110	
Tl	205	1	nogas	95.602	5.688	1660179	3.42	100	95.6	90	110	
Pb	208	1	nogas	100.686	2.376	2322503	2.38	100	100.7	90	110	
U	238	1	nogas	100.756	0.977	2447539	2.03	100	100.8	90	110	
[Pb]	206	1	nogas	95.778	2.116	569751	0.57	100	95.8	90	110	
[Pb]	207	1	nogas	92.971	1.578	503329	1.14	100	93.0	90	110	
Na	23	2	He	9846.457	2.128	2418384	0.64	10000	98.5	90	110	
Mg	24	2	He	9669.375	3.874	1125597	2.72	10000	96.7	90	110	
Al	27	2	He	85.838	8.330	3117	9.21	100	85.8	90	110	CCV Main CR1-2 Failed
K	39	2	He	9057.392	2.037	580198	1.99	10000	90.6	90	110	
Ca	43	2	He	9517.556	12.395	2023	11.88	10000	95.2	90	110	
Ca	44	2	He	8877.710	2.043	32278	0.95	10000	88.8	90	110	CCV Main CR1-2 Failed
V	51	2	He	97.708	0.968	126656	1.08	100	97.7	90	110	
Cr	52	2	He	97.699	1.914	171172	0.98	100	97.7	90	110	
Mn	55	2	He	97.032	1.613	66466	0.66	100	97.0	90	110	
Fe	56	2	He	9658.330	4.728	13396189	3.94	10000	96.6	90	110	
Co	59	2	He	100.530	2.583	295263	1.73	100	100.5	90	110	
Ni	60	2	He	101.416	3.200	84903	1.90	100	101.4	90	110	
Cu	63	2	He	100.100	1.257	232367	0.61	100	100.1	90	110	
Zn	66	2	He	96.300	1.824	33468	0.88	100	96.3	90	110	
As	75	2	He	99.449	1.770	23078	1.66	100	99.4	90	110	
Se	78	2	He	90.279	9.177	840	10.72	100	90.3	90	110	
B	11	1	nogas	438.733	3.913	1010463	3.74	500	87.7	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	5031.663	1.336	24903252	1.60	5000	100.6	90	110	
Ca	43	1	nogas	9533.810	1.970	186054	1.83	10000	95.3	90	110	
Ca	44	1	nogas	8710.702	2.712	2980854	2.67	10000	87.1	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9616.469	1.952	141916357	1.60	10000	96.2	90	110	
Se	77	1	nogas	113.445	17.568	68934	5.22	100	113.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	99.828	4.131	14006	4.36	100	99.8	90	110	
Mo	95	1	nogas	94.294	2.367	333906	2.30	100	94.3	90	110	
Sn	118	1	nogas	93.504	2.924	508375	2.10	100	93.5	90	110	
Ba	137	1	nogas	98.573	2.839	263237	2.38	100	98.6	90	110	
Sb	121	2	He	97.159	3.009	98152	2.33	100	97.2	90	110	
Li	7	1	nogas	91.964	0.645	736891	1.77	100	92.0	90	110	
P	31	1	nogas	466.984	1.430	401986	0.82	500	93.4	90	110	
La	139	1	nogas	120.745	31.265	393	21.62	100	120.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	197.377	250.339	40	100.00	100	197.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	367022	1.89	363379	101.00	70	125	
Ge	72	1	nogas	1542127	0.36	1518701	101.54	70	125	
In	115	1	nogas	1600143	1.43	1623624	98.55	70	125	
Bi	209	1	nogas	1496083	2.48	1463804	102.21	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	120922	1.56	127073	95.16	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	227_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T17:25:24-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.084	47.7	343	41.6	1	
Na	23	1	nogas	10.167	6.4	2461885	1.6	100	
Mg	24	1	nogas	7.842	33.5	75473	29.7	100	
Al	27	1	nogas	-0.474	-7.3	20822	2.3	5	
K	39	1	nogas	-27.834	-11.9	5288542	0.8	100	
Ti	47	1	nogas	0.046	244.6	283	38.7	2.5	
V	51	1	nogas	11.724	50.0	1107473	8.4	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.210	-27.8	29627	3.5	2.5	
Mn	55	1	nogas	0.530	2.8	18066	2.0	2.5	
Co	59	1	nogas	0.073	34.6	1327	26.6	2.5	
Ni	60	1	nogas	-0.438	-17.0	1307	16.8	2.5	
Cu	63	1	nogas	-0.336	-1.4	3574	0.6	2.5	
Zn	66	1	nogas	-0.351	-11.0	907	10.7	2.5	
As	75	1	nogas	0.421	474.9	160642	3.9	2.5	
Sr	88	1	nogas	0.087	26.1	2400	14.9	2.5	
Ag	107	1	nogas	0.048	7.7	1063	2.4	2.5	
Cd	111	1	nogas	0.062	64.0	137	59.6	1	
Sb	121	1	nogas	-0.196	-10.5	1883	9.0	2.5	
Tl	205	1	nogas	0.333	39.4	6181	37.5	1	
Pb	208	1	nogas	0.111	45.6	3070	38.0	2.5	
U	238	1	nogas	0.077	29.8	2084	27.3	2.5	
[Pb]	206	1	nogas	0.113	43.4	797	37.5	2.5	
[Pb]	207	1	nogas	0.097	52.6	673	41.6	2.5	
Na	23	2	He	11.987	11.2	63760	1.4	100	
Mg	24	2	He	5.093	16.7	797	12.8	100	
Al	27	2	He	0.437	121.7	97	21.5	5	
K	39	2	He	-19.965	-38.2	12991	3.7	100	
Ca	43	2	He	34.359	290.1	17	124.9	100	
Ca	44	2	He	-9.620	-54.1	130	13.3	100	
V	51	2	He	0.112	23.5	620	4.0	2.5	
Cr	52	2	He	0.032	201.1	1177	9.4	2.5	
Mn	55	2	He	0.240	6.1	313	3.7	2.5	
Fe	56	2	He	5.006	4.9	10697	5.0	100	
Co	59	2	He	0.061	29.8	190	26.3	2.5	
Ni	60	2	He	-0.192	-31.2	260	20.0	2.5	
Cu	63	2	He	-0.431	-9.2	817	13.2	2.5	
Zn	66	2	He	0.098	44.6	87	17.6	2.5	
As	75	2	He	0.070	48.0	31	27.0	2.5	
Se	78	2	He	0.813	14.7	5	21.7	2.5	
B	11	1	nogas	-13.958	-15.5	93597	3.2	10	
Si	28	1	nogas	-40.506	-25.8	1622269	2.3	5	
Ca	43	1	nogas	4.812	90.1	997	7.6	100	
Ca	44	1	nogas	-634.083	-1.0	77774	1.5	100	
Fe	56	1	nogas	12.106	47.5	1219694	6.5	100	
Se	77	1	nogas	15.691	71.5	52075	4.3	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.607	-100.5	400	22.2	2.5	
Mo	95	1	nogas	0.090	52.6	650	25.2	2.5	
Sn	118	1	nogas	0.107	37.2	1653	14.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.112	36.8	387	29.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.233	-7.4	127	12.1	2.5	
P	31	1	nogas	-14.035	-4.0	67564	1.4	10	
La	139	1	nogas	6.770	205.8	123	28.5	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-52.674	-594.5	20	132.3	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	398211	2.90	363379	109.59	70	125	
Ge	72	1	nogas	1572029	1.13	1518701	103.51	70	125	
In	115	1	nogas	1630937	1.41	1623624	100.45	70	125	
Bi	209	1	nogas	1548071	1.32	1463804	105.76	70	125	
Ge	72	2	He	121034	1.95	127073	95.25	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	238_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T17:47:40-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	90.707	7.103	273489	5.85	100	90.7	90	110	
Na	23	1	nogas	10633.518	3.113	128262903	1.66	10000	106.3	90	110	
Mg	24	1	nogas	9838.039	2.981	82051969	1.15	10000	98.4	90	110	
Al	27	1	nogas	96.854	2.650	1052507	3.50	100	96.9	90	110	
K	39	1	nogas	9886.177	3.159	93457508	0.54	10000	98.9	90	110	
Ti	47	1	nogas	95.281	2.742	89274	1.96	100	95.3	90	110	
V	51	1	nogas	123.117	5.381	2610248	0.91	100	123.1	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	97.251	6.719	1210949	3.48	100	97.3	90	110	
Mn	55	1	nogas	99.186	3.354	1513599	0.80	100	99.2	90	110	
Co	59	1	nogas	100.517	6.757	1342590	4.56	100	100.5	90	110	
Ni	60	1	nogas	101.354	4.138	298927	1.03	100	101.4	90	110	
Cu	63	1	nogas	99.958	5.427	716853	2.69	100	100.0	90	110	
Zn	66	1	nogas	101.559	5.221	235184	2.41	100	101.6	90	110	
As	75	1	nogas	103.434	6.002	427694	3.52	100	103.4	90	110	
Sr	88	1	nogas	97.498	5.101	1526177	2.40	100	97.5	90	110	
Ag	107	1	nogas	94.580	3.499	886533	0.98	100	94.6	90	110	
Cd	111	1	nogas	98.496	1.297	190765	1.28	100	98.5	90	110	
Sb	121	1	nogas	100.695	3.434	858485	0.38	100	100.7	90	110	
Tl	205	1	nogas	94.782	2.696	1602273	1.54	100	94.8	90	110	
Pb	208	1	nogas	96.112	1.442	2217019	1.44	100	96.1	90	110	
U	238	1	nogas	97.209	3.000	2296651	0.99	100	97.2	90	110	
[Pb]	206	1	nogas	95.005	3.705	549734	1.55	100	95.0	90	110	
[Pb]	207	1	nogas	92.335	3.118	486283	1.91	100	92.3	90	110	
Na	23	2	He	10250.750	2.988	2493770	2.47	10000	102.5	90	110	
Mg	24	2	He	9478.251	1.784	1094122	1.32	10000	94.8	90	110	
Al	27	2	He	87.855	15.095	3160	15.13	100	87.9	90	110	CCV Main CR1-2 Failed
K	39	2	He	8786.830	0.348	563291	0.34	10000	87.9	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9008.467	6.606	1900	6.47	10000	90.1	90	110	
Ca	44	2	He	9082.165	3.301	32736	2.87	10000	90.8	90	110	
V	51	2	He	95.329	0.351	122526	0.53	100	95.3	90	110	
Cr	52	2	He	97.241	1.985	168942	2.43	100	97.2	90	110	
Mn	55	2	He	96.129	3.205	65286	2.89	100	96.1	90	110	
Fe	56	2	He	9397.945	2.671	12925416	2.20	10000	94.0	90	110	
Co	59	2	He	97.220	6.225	283080	5.75	100	97.2	90	110	
Ni	60	2	He	97.186	4.022	80691	3.55	100	97.2	90	110	
Cu	63	2	He	100.028	1.306	230222	1.29	100	100.0	90	110	
Zn	66	2	He	98.294	1.789	33872	2.25	100	98.3	90	110	
As	75	2	He	97.448	1.781	22419	1.34	100	97.4	90	110	
Se	78	2	He	96.219	6.675	887	6.21	100	96.2	90	110	
B	11	1	nogas	479.405	5.194	1009632	3.40	500	95.9	90	110	
Si	28	1	nogas	5173.727	2.362	24556637	1.70	5000	103.5	90	110	
Ca	43	1	nogas	9580.459	3.597	179596	0.77	10000	95.8	90	110	
Ca	44	1	nogas	8900.988	4.853	2920282	3.01	10000	89.0	90	110	CCV Main CR1-2 Failed
Fe	56	1	nogas	9887.447	5.131	140106807	2.45	10000	98.9	90	110	
Se	77	1	nogas	139.209	21.123	70728	6.02	100	139.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	100.427	3.105	13532	0.09	100	100.4	90	110	
Mo	95	1	nogas	96.024	6.058	326464	2.96	100	96.0	90	110	
Sn	118	1	nogas	96.603	0.832	505004	0.13	100	96.6	90	110	
Ba	137	1	nogas	98.421	1.260	252710	0.55	100	98.4	90	110	
Sb	121	2	He	98.189	0.393	98353	0.61	100	98.2	90	110	
Li	7	1	nogas	92.850	5.154	686540	3.65	100	92.9	90	110	
P	31	1	nogas	483.148	3.446	397100	2.03	500	96.6	90	110	
La	139	1	nogas	151.618	5.554	450	3.85	100	151.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-39.882	-14.563	20	0.00	100	-39.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	338988	1.24	363379	93.29	70	125	
Ge	72	1	nogas	1482409	3.02	1518701	97.61	70	125	
In	115	1	nogas	1538395	0.77	1623624	94.75	70	125	
Bi	209	1	nogas	1455571	2.33	1463804	99.44	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	119878	0.46	127073	94.34	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	239_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T17:49:39-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.068	44.5	270	35.7	1	
Na	23	1	nogas	274.736	1.1	5539089	0.9	100	CCB Main CR1 Failed
Mg	24	1	nogas	11.766	17.7	105190	16.6	100	
Al	27	1	nogas	-0.399	-47.3	20670	8.8	5	
K	39	1	nogas	23.820	62.5	5512114	1.2	100	
Ti	47	1	nogas	0.052	31.0	277	5.5	2.5	
V	51	1	nogas	14.093	37.6	1090812	8.0	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.119	-15.4	29384	0.8	2.5	
Mn	55	1	nogas	0.631	10.4	18773	4.3	2.5	
Co	59	1	nogas	0.085	40.6	1423	31.3	2.5	
Ni	60	1	nogas	-0.144	-68.1	2117	12.4	2.5	
Cu	63	1	nogas	-0.244	-5.4	4077	2.8	2.5	
Zn	66	1	nogas	-0.315	-18.5	947	13.3	2.5	
As	75	1	nogas	4.140	42.5	163403	3.9	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.174	2.9	3660	1.0	2.5	
Ag	107	1	nogas	0.052	33.1	1053	15.3	2.5	
Cd	111	1	nogas	0.102	48.9	213	44.6	1	
Sb	121	1	nogas	-0.047	-114.7	3077	14.1	2.5	
Tl	205	1	nogas	0.371	37.3	6435	36.2	1	
Pb	208	1	nogas	0.103	46.8	2887	38.4	2.5	
U	238	1	nogas	0.084	47.6	2114	44.8	2.5	
[Pb]	206	1	nogas	0.113	62.4	747	54.2	2.5	
[Pb]	207	1	nogas	0.094	54.8	617	43.9	2.5	
Na	23	2	He	254.632	3.9	121698	0.6	100	CCB Main CR1 Failed
Mg	24	2	He	8.576	7.2	1200	5.5	100	
Al	27	2	He	-0.681	-29.5	57	10.2	5	
K	39	2	He	22.584	24.6	15650	2.2	100	
Ca	43	2	He	18.512	151.4	13	43.3	100	
Ca	44	2	He	5.200	472.8	183	47.7	100	
V	51	2	He	0.106	26.9	612	8.1	2.5	
Cr	52	2	He	-0.062	-80.5	1013	11.0	2.5	
Mn	55	2	He	0.211	42.4	293	21.9	2.5	
Fe	56	2	He	5.382	2.4	11197	2.7	100	
Co	59	2	He	0.073	19.4	227	20.9	2.5	
Ni	60	2	He	-0.152	-27.2	293	14.2	2.5	
Cu	63	2	He	-0.385	-5.9	920	5.0	2.5	
Zn	66	2	He	0.165	30.4	110	18.2	2.5	
As	75	2	He	0.047	81.9	26	32.8	2.5	
Se	78	2	He	0.529	24.1	3	43.3	2.5	
B	11	1	nogas	9.140	47.1	135682	4.6	10	
Si	28	1	nogas	-4.375	-226.8	1709522	2.1	5	
Ca	43	1	nogas	20.269	29.5	1243	8.9	100	
Ca	44	1	nogas	-608.169	-0.8	82049	0.7	100	
Fe	56	1	nogas	21.100	13.8	1292013	2.0	100	
Se	77	1	nogas	36.495	25.2	53388	3.8	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.368	-191.2	413	23.2	2.5	
Mo	95	1	nogas	0.121	40.6	727	22.6	2.5	
Sn	118	1	nogas	0.137	29.8	1777	9.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.131	27.9	427	20.2	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.008	-615.4	353	12.8	2.5	
P	31	1	nogas	-9.952	-13.1	67233	0.2	10	
La	139	1	nogas	20.614	55.9	153	16.4	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-121.565	-158.7	13	114.6	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	373376	2.15	363379	102.75	70	125	
Ge	72	1	nogas	1500021	1.21	1518701	98.77	70	125	
In	115	1	nogas	1596206	2.79	1623624	98.31	70	125	
Bi	209	1	nogas	1447855	0.80	1463804	98.91	70	125	
Ge	72	2	He	120847	2.56	127073	95.10	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	244_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T17:59:45-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	95.848	1.870	289489	0.34	100	95.8	90	110	
Na	23	1	nogas	10221.560	3.204	129327507	2.00	10000	102.2	90	110	
Mg	24	1	nogas	9646.942	4.124	84357279	4.09	10000	96.5	90	110	
Al	27	1	nogas	94.315	2.427	1051488	0.63	100	94.3	90	110	
K	39	1	nogas	9844.268	2.582	95481933	0.95	10000	98.4	90	110	
Ti	47	1	nogas	99.306	0.922	95433	1.00	100	99.3	90	110	
V	51	1	nogas	162.310	3.348	3243310	0.67	100	162.3	90	110	CCV Main CR1-2 Failed
Cr	52	1	nogas	100.063	2.899	1278025	1.13	100	100.1	90	110	
Mn	55	1	nogas	101.482	1.082	1588882	2.18	100	101.5	90	110	
Co	59	1	nogas	99.062	0.395	1358325	1.40	100	99.1	90	110	
Ni	60	1	nogas	98.463	1.864	298041	0.18	100	98.5	90	110	
Cu	63	1	nogas	100.498	3.428	739491	1.70	100	100.5	90	110	
Zn	66	1	nogas	102.900	2.738	244493	1.00	100	102.9	90	110	
As	75	1	nogas	126.179	4.640	501162	1.82	100	126.2	90	110	CCV Main CR1-2 Failed
Sr	88	1	nogas	99.133	2.942	1592222	1.25	100	99.1	90	110	
Ag	107	1	nogas	96.673	1.948	929651	1.31	100	96.7	90	110	
Cd	111	1	nogas	98.147	1.852	198699	1.55	100	98.1	90	110	
Sb	121	1	nogas	100.069	2.850	875180	1.08	100	100.1	90	110	
Tl	205	1	nogas	99.703	5.586	1678850	3.33	100	99.7	90	110	
Pb	208	1	nogas	99.541	0.663	2296084	0.66	100	99.5	90	110	
U	238	1	nogas	101.587	2.694	2391970	1.03	100	101.6	90	110	
[Pb]	206	1	nogas	99.383	4.082	573031	1.47	100	99.4	90	110	
[Pb]	207	1	nogas	95.682	3.621	502077	1.01	100	95.7	90	110	
Na	23	2	He	10274.532	3.959	2559956	1.90	10000	102.7	90	110	
Mg	24	2	He	9689.453	3.075	1145699	1.43	10000	96.9	90	110	
Al	27	2	He	89.265	1.257	3287	1.37	100	89.3	90	110	CCV Main CR1-2 Failed
K	39	2	He	9100.102	1.499	582866	1.46	10000	91.0	90	110	
Ca	43	2	He	9324.594	7.471	2013	6.01	10000	93.2	90	110	
Ca	44	2	He	8938.428	2.083	33010	0.90	10000	89.4	90	110	CCV Main CR1-2 Failed
V	51	2	He	98.064	2.813	129085	0.50	100	98.1	90	110	
Cr	52	2	He	96.534	1.442	171823	1.42	100	96.5	90	110	
Mn	55	2	He	94.556	2.997	65782	1.03	100	94.6	90	110	
Fe	56	2	He	9451.166	3.920	13313389	2.01	10000	94.5	90	110	
Co	59	2	He	99.277	4.536	296145	3.65	100	99.3	90	110	
Ni	60	2	He	100.218	4.064	85212	2.10	100	100.2	90	110	
Cu	63	2	He	99.685	3.075	234998	0.83	100	99.7	90	110	
Zn	66	2	He	98.393	4.364	34723	2.97	100	98.4	90	110	
As	75	2	He	99.804	1.233	23525	1.17	100	99.8	90	110	
Se	78	2	He	95.947	5.885	905	3.58	100	95.9	90	110	
B	11	1	nogas	482.141	2.691	1016299	1.04	500	96.4	90	110	
Si	28	1	nogas	5267.968	3.498	25607802	1.50	5000	105.4	90	110	
Ca	43	1	nogas	9763.175	1.785	187774	1.78	10000	97.6	90	110	
Ca	44	1	nogas	9275.045	1.997	3110476	0.58	10000	92.8	90	110	
Fe	56	1	nogas	9725.367	1.421	141446149	0.37	10000	97.3	90	110	
Se	77	1	nogas	249.361	4.424	92407	1.77	100	249.4	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	105.340	0.859	14540	1.10	100	105.3	90	110	
Mo	95	1	nogas	96.716	1.640	337527	0.49	100	96.7	90	110	
Sn	118	1	nogas	96.793	2.231	528868	0.81	100	96.8	90	110	
Ba	137	1	nogas	97.414	1.730	261459	1.14	100	97.4	90	110	
Sb	121	2	He	97.365	0.760	99952	3.10	100	97.4	90	110	
Li	7	1	nogas	96.098	2.052	710375	1.98	100	96.1	90	110	
P	31	1	nogas	485.162	3.466	408643	1.49	500	97.0	90	110	
La	139	1	nogas	145.883	21.655	457	16.58	100	145.9	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	3.358	4354.544	23	49.49	100	3.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	339446	1.66	363379	93.41	70	125	
Ge	72	1	nogas	1520110	1.74	1518701	100.09	70	125	
In	115	1	nogas	1608392	2.35	1623624	99.06	70	125	
Bi	209	1	nogas	1450704	2.86	1463804	99.11	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	122841	2.41	127073	96.67	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	245_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T18:01:44-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.079	28.7	300	23.1	1	
Na	23	1	nogas	151.734	7.8	4219041	0.3	100	CCB Main CR1 Failed
Mg	24	1	nogas	8.708	30.0	82205	26.5	100	
Al	27	1	nogas	-0.437	-7.8	20652	1.3	5	
K	39	1	nogas	-4.179	-134.6	5360298	0.4	100	
Ti	47	1	nogas	0.188	43.0	413	19.4	2.5	
V	51	1	nogas	26.717	16.3	1294210	4.8	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	0.205	41.1	34001	2.7	2.5	
Mn	55	1	nogas	0.573	1.9	18233	1.4	2.5	
Co	59	1	nogas	0.071	41.8	1260	32.0	2.5	
Ni	60	1	nogas	-0.214	-18.5	1947	5.7	2.5	
Cu	63	1	nogas	-0.285	-4.9	3850	3.0	2.5	
Zn	66	1	nogas	-0.240	-9.9	1143	4.5	2.5	
As	75	1	nogas	10.922	28.5	185242	4.5	2.5	CCB Main CR1 Failed
Sr	88	1	nogas	0.101	12.7	2560	7.6	2.5	
Ag	107	1	nogas	0.044	69.5	997	29.5	2.5	
Cd	111	1	nogas	0.095	31.9	197	30.7	1	
Sb	121	1	nogas	-0.184	-17.3	1933	14.4	2.5	
Tl	205	1	nogas	0.334	39.8	6058	37.6	1	
Pb	208	1	nogas	0.110	46.3	3047	38.5	2.5	
U	238	1	nogas	0.077	28.6	2027	26.1	2.5	
[Pb]	206	1	nogas	0.111	45.1	763	38.2	2.5	
[Pb]	207	1	nogas	0.114	42.9	750	34.6	2.5	
Na	23	2	He	159.005	3.0	99173	0.9	100	CCB Main CR1 Failed
Mg	24	2	He	6.624	11.3	977	9.3	100	
Al	27	2	He	0.064	926.7	83	25.0	5	
K	39	2	He	11.853	65.5	14980	3.2	100	
Ca	43	2	He	18.341	394.1	13	114.6	100	
Ca	44	2	He	-3.251	-348.9	153	26.4	100	
V	51	2	He	0.164	17.7	689	6.0	2.5	
Cr	52	2	He	0.048	274.0	1207	18.7	2.5	
Mn	55	2	He	0.326	57.4	373	35.0	2.5	
Fe	56	2	He	5.837	16.9	11864	11.2	100	
Co	59	2	He	0.059	25.9	187	24.7	2.5	
Ni	60	2	He	-0.213	-61.5	243	45.5	2.5	
Cu	63	2	He	-0.458	-6.7	753	9.6	2.5	
Zn	66	2	He	0.020	637.1	60	76.4	2.5	
As	75	2	He	0.065	94.8	30	48.4	2.5	
Se	78	2	He	1.311	28.0	10	34.6	2.5	
B	11	1	nogas	-4.843	-38.5	104821	1.0	10	
Si	28	1	nogas	-12.734	-30.0	1704318	1.5	5	
Ca	43	1	nogas	7.975	106.9	1030	15.4	100	
Ca	44	1	nogas	-563.416	-1.6	97402	2.3	100	
Fe	56	1	nogas	22.862	22.1	1342518	5.4	100	
Se	77	1	nogas	69.080	21.0	60300	4.4	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.620	-42.1	387	9.1	2.5	
Mo	95	1	nogas	0.095	73.9	650	37.4	2.5	
Sn	118	1	nogas	0.108	18.5	1587	7.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.109	38.6	360	31.3	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	-0.184	-3.6	177	3.3	2.5	
P	31	1	nogas	-7.355	-10.5	70317	0.5	10	
La	139	1	nogas	26.327	36.0	163	12.7	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-170.839	-119.9	10	173.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	366959	4.27	363379	100.99	70	125	
Ge	72	1	nogas	1528620	0.58	1518701	100.65	70	125	
In	115	1	nogas	1559448	2.07	1623624	96.05	70	125	
Bi	209	1	nogas	1513273	1.19	1463804	103.38	70	125	
Ge	72	2	He	121243	0.53	127073	95.41	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	246LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T18:03:44-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.609	11.076	15450	7.36	5	92.2	70	130	
Na	23	1	nogas	701.345	1.887	10754853	2.90	500	140.3	70	130	LLICV Main CR1 Failed
Mg	24	1	nogas	556.288	3.238	4765571	4.63	500	111.3	70	130	
Al	27	1	nogas	5.736	2.615	88331	3.41	5	114.7	70	130	
K	39	1	nogas	548.779	7.018	10459950	1.46	500	109.8	70	130	
Ti	47	1	nogas	5.501	4.449	5544	5.78	5	110.0	70	130	
V	51	1	nogas	43.955	13.901	1545079	3.55	5	879.1	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	5.601	6.886	101682	2.26	5	112.0	70	130	
Mn	55	1	nogas	5.838	4.676	100709	2.15	5	116.8	70	130	
Co	59	1	nogas	5.283	5.664	73147	3.05	5	105.7	70	130	
Ni	60	1	nogas	4.872	7.672	17308	5.23	5	97.4	70	130	
Cu	63	1	nogas	5.123	4.188	43596	1.15	5	102.5	70	130	
Zn	66	1	nogas	5.208	4.633	14082	1.44	5	104.2	70	130	
As	75	1	nogas	24.496	25.053	222824	5.29	5	489.9	70	130	LLICV Main CR1 Failed
Sr	88	1	nogas	5.353	3.476	87438	2.28	5	107.1	70	130	
Ag	107	1	nogas	5.293	6.448	51743	3.71	5	105.9	70	130	
Cd	111	1	nogas	5.179	6.219	10723	7.56	5	103.6	70	130	
Sb	121	1	nogas	5.063	3.015	47946	0.42	5	101.3	70	130	
Tl	205	1	nogas	4.916	2.024	88668	1.23	5	98.3	70	130	
Pb	208	1	nogas	5.392	1.900	124860	1.89	5	107.8	70	130	
U	238	1	nogas	5.060	0.270	127425	1.22	5	101.2	70	130	
[Pb]	206	1	nogas	4.797	3.008	29651	2.11	5	95.9	70	130	
[Pb]	207	1	nogas	5.009	4.701	28205	3.77	5	100.2	70	130	
Na	23	2	He	646.820	3.988	223760	0.65	500	129.4	70	130	
Mg	24	2	He	525.589	6.547	63644	4.33	500	105.1	70	130	
Al	27	2	He	6.625	28.838	327	20.84	5	132.5	70	130	LLICV Main CR1 Failed
K	39	2	He	504.226	4.456	45746	3.07	500	100.8	70	130	
Ca	43	2	He	290.798	52.839	73	43.83	500	58.2	70	130	LLICV Main CR1 Failed
Ca	44	2	He	510.943	9.514	2087	6.78	500	102.2	70	130	
V	51	2	He	5.362	2.992	7676	0.60	5	107.2	70	130	
Cr	52	2	He	5.354	1.049	10833	2.55	5	107.1	70	130	
Mn	55	2	He	4.926	3.169	3647	0.84	5	98.5	70	130	
Fe	56	2	He	487.097	1.818	704786	1.45	500	97.4	70	130	
Co	59	2	He	5.316	5.400	16204	3.21	5	106.3	70	130	
Ni	60	2	He	4.862	9.946	4634	7.44	5	97.2	70	130	
Cu	63	2	He	5.130	2.489	14136	2.13	5	102.6	70	130	
Zn	66	2	He	5.693	17.983	2110	19.67	5	113.9	70	130	
As	75	2	He	4.823	8.432	1174	6.13	5	96.5	70	130	
Se	78	2	He	5.842	20.632	54	19.60	5	116.8	70	130	
B	11	1	nogas	10.834	21.850	140423	1.03	25	43.3	70	130	LLICV Main CR1 Failed
Si	28	1	nogas	249.031	5.966	2899404	0.84	25	996.1	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	515.333	1.870	10810	1.51	500	103.1	70	130	
Ca	44	1	nogas	-65.318	-24.875	251110	0.70	500	-13.1	70	130	LLICV Main CR1 Failed
Fe	56	1	nogas	573.633	2.384	9350726	0.73	500	114.7	70	130	
Se	77	1	nogas	127.266	23.848	70838	5.44	5	2545.3	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	5.681	16.656	1233	8.75	5	113.6	70	130	
Mo	95	1	nogas	5.267	2.519	18807	1.51	5	105.3	70	130	
Sn	118	1	nogas	5.209	3.637	30066	1.08	5	104.2	70	130	
Ba	137	1	nogas	5.361	2.684	14767	1.22	5	107.2	70	130	
Sb	121	2	He	4.883	5.030	5478	6.01	5	97.7	70	130	
Li	7	1	nogas	3.714	8.668	71888	0.67	5	74.3	70	130	
P	31	1	nogas	24.064	14.242	92134	0.17	25	96.3	70	130	
La	139	1	nogas	134.958	10.742	440	10.42	5	2699.2	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	-132.699	-52.041	13	43.30	5	-2654.0	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	376630	3.53	363379	103.65	70	125	
Ge	72	1	nogas	1530603	2.58	1518701	100.78	70	125	
In	115	1	nogas	1642378	2.48	1623624	101.16	70	125	
Bi	209	1	nogas	1549290	0.95	1463804	105.84	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	125473	2.22	127073	98.74	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	247SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T18:05:44-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	004CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.801	1.801	8.21	6288	0.03	2000	
Na	23	1	nogas	304.310	304.310	1.14	6220356	0.00	200000	
Mg	24	1	nogas	210.712	210.712	2.98	1897848	0.01	200000	
Al	27	1	nogas	1.924	1.924	14.24	47554	0.00	2000	
K	39	1	nogas	197.336	197.336	17.11	7381665	0.00	200000	
Ti	47	1	nogas	2.087	2.087	5.09	2297	0.09	2000	
V	51	1	nogas	40.497	40.497	5.61	1530417	0.00	2000	
Cr	52	1	nogas	2.298	2.298	3.86	61660	0.00	2000	
Mn	55	1	nogas	2.370	2.370	6.66	47435	0.00	2000	
Co	59	1	nogas	2.072	2.072	3.56	29528	0.01	2000	
Ni	60	1	nogas	1.659	1.659	7.01	7775	0.02	2000	
Cu	63	1	nogas	1.691	1.691	6.59	18800	0.01	2000	
Zn	66	1	nogas	1.647	1.647	3.76	5761	0.03	2000	
As	75	1	nogas	18.318	18.318	6.80	210699	0.01	2000	
Sr	88	1	nogas	2.096	2.096	3.04	35590	0.01	2000	
Ag	107	1	nogas	1.998	1.998	5.84	20342	0.01	2000	
Cd	111	1	nogas	2.036	2.036	4.99	4164	0.05	2000	
Sb	121	1	nogas	1.710	1.710	7.41	18947	0.01	2000	
Tl	205	1	nogas	2.016	2.016	0.74	34761	0.01	2000	
Pb	208	1	nogas	2.153	2.153	2.79	50161	0.00	2000	
U	238	1	nogas	2.098	2.098	4.38	50384	0.00	2000	
[Pb]	206	1	nogas	2.085	2.085	4.90	12328	0.02	2000	
[Pb]	207	1	nogas	2.072	2.072	4.73	11197	0.02	2000	
Na	23	2	He	303.990	303.990	2.55	139601	0.22	200000	
Mg	24	2	He	209.833	209.833	4.13	25721	0.82	200000	
Al	27	2	He	3.785	3.785	46.71	223	1.69	2000	
K	39	2	He	194.871	194.871	5.76	26416	0.74	200000	
Ca	43	2	He	181.756	181.756	26.75	50	363.51	200000	
Ca	44	2	He	197.511	197.511	19.75	917	21.55	200000	
V	51	2	He	2.235	2.235	3.63	3510	0.06	2000	
Cr	52	2	He	2.039	2.039	9.77	4874	0.04	2000	
Mn	55	2	He	1.745	1.745	8.82	1400	0.12	2000	
Fe	56	2	He	193.494	193.494	2.90	284205	0.07	200000	
Co	59	2	He	2.124	2.124	3.55	6531	0.03	2000	
Ni	60	2	He	1.871	1.871	12.21	2070	0.09	2000	
Cu	63	2	He	1.751	1.751	7.65	6098	0.03	2000	
Zn	66	2	He	2.482	2.482	16.24	953	0.26	2000	
As	75	2	He	1.815	1.815	7.59	456	0.40	2000	
Se	78	2	He	2.908	2.908	31.51	26	11.18	2000	
B	11	1	nogas	-6.659	-6.659	-54.48	107449	-0.01	2000	
Si	28	1	nogas	48.645	48.645	32.73	2029728	0.00	2000	
Ca	43	1	nogas	203.430	203.430	5.89	4907	4.15	200000	

Sample Report

Ca	44	1	nogas	-403.931	-403.931	-4.22	149936	-0.27	200000	
Fe	56	1	nogas	224.382	224.382	5.28	4367855	0.01	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	107.568	107.568	5.10	68897	0.16	2000	
Se	82	1	nogas	2.449	2.449	25.99	820	0.30	2000	
Mo	95	1	nogas	1.994	1.994	5.18	7482	0.03	2000	
Sn	118	1	nogas	1.950	1.950	8.99	11764	0.02	2000	
Ba	137	1	nogas	2.161	2.161	3.34	5921	0.04	2000	
Sb	121	2	He	1.737	1.737	7.74	2204	0.08	2000	
La	139	1	nogas	-1.173	-1.173	-835.17	103	-1.14	2000	
Au	197	1	nogas	-82.605	-82.605	-92.77	17	-495.63	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	390414	4.61	363379	107.44	70	125	
Ge	72	1	nogas	1565302	3.58	1518701	103.07	70	125	
In	115	1	nogas	1620514	1.55	1623624	99.81	70	125	
Bi	209	1	nogas	1476343	3.53	1463804	100.86	70	125	
Ge	72	2	He	126346	2.31	127073	99.43	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	248ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T18:07:45-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.009	127.2	73	55.1	0	ICSA Main CR1 Failed
Na	23	1	nogas	103302.528	4.2	1218442861	2.1	0	
Mg	24	1	nogas	102660.626	2.3	850405036	1.7	0	
Al	27	1	nogas	85426.143	3.9	940279426	2.2	0	
K	39	1	nogas	96860.828	3.1	902452054	1.4	0	
Ti	47	1	nogas	1972.933	5.4	1913230	4.3	0	
V	51	1	nogas	5.692	53.3	995568	6.0	0	
Cr	52	1	nogas	0.245	70.0	34699	4.6	0	ICSA Main CR1 Failed
Mn	55	1	nogas	0.746	4.7	21082	3.2	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.100	1.9	1683	1.2	0	ICSA Main CR1 Failed
Ni	60	1	nogas	0.315	45.4	3564	11.9	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.472	13.1	9466	4.9	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.001	10.0	4111	4.1	0	ICSA Main CR1 Failed
As	75	1	nogas	12.080	18.6	189548	2.1	0	
Sr	88	1	nogas	1.045	0.6	17909	1.7	0	ICSA Main CR1 Failed
Ag	107	1	nogas	-0.001	-569.0	570	9.8	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.347	10.6	2610	8.3	0	ICSA Main CR1 Failed
Sb	121	1	nogas	-0.288	-2.2	1030	3.9	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.025	27.0	597	16.3	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.085	7.7	2470	6.1	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.092	19.6	617	18.7	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.079	15.3	527	9.7	0	ICSA Main CR1 Failed
Na	23	2	He	98487.806	2.2	23080066	1.7	0	
Mg	24	2	He	96339.792	3.5	10947313	3.0	0	
Al	27	2	He	81019.025	3.4	2795083	2.7	0	
K	39	2	He	91984.434	1.1	5761962	1.0	0	
Ca	43	2	He	88841.943	0.5	18369	0.2	0	
Ca	44	2	He	93008.566	0.7	328630	1.2	0	
V	51	2	He	0.065	50.2	545	8.0	0	ICSA Main CR1 Failed
Cr	52	2	He	0.341	16.2	1673	6.1	0	ICSA Main CR1 Failed
Mn	55	2	He	0.457	11.9	450	7.7	0	ICSA Main CR1 Failed
Fe	56	2	He	97297.005	2.1	131721538	1.4	0	
Co	59	2	He	0.014	110.1	53	84.5	0	ICSA Main CR1 Failed
Ni	60	2	He	-0.011	-1330.0	400	29.5	0	ICSA Main CR1 Failed
Cu	63	2	He	-0.264	-24.5	1170	12.6	0	ICSA Main CR1 Failed
Zn	66	2	He	0.595	37.5	253	30.7	0	ICSA Main CR1 Failed
As	75	2	He	0.132	50.9	44	34.6	0	ICSA Main CR1 Failed
Se	78	2	He	0.462	82.6	2	173.2	0	ICSA Main CR1 Failed
B	11	1	nogas	-11.898	-22.1	88697	2.3	0	ICSA Main CR1 Failed
Si	28	1	nogas	34.721	21.0	1932278	2.6	0	
Ca	43	1	nogas	96476.388	3.9	1869937	4.7	0	
Ca	44	1	nogas	94139.584	4.8	29452647	5.0	0	
Fe	56	1	nogas	95654.471	3.3	1399085931	4.4	0	
Se	77	1	nogas	83.519	4.8	63293	1.2	0	
Se	82	1	nogas	-0.043	-2043.2	467	24.7	0	ICSA Main CR1 Failed
Mo	95	1	nogas	2000.231	1.3	7056810	1.0	0	
Sn	118	1	nogas	0.058	92.8	1303	21.1	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.160	23.2	483	17.4	0	ICSA Main CR1 Failed
Sb	121	2	He	-0.261	-20.2	97	53.1	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	92019.289	2.2	64110357	0.5	0	
La	139	1	nogas	105.596	5.5	343	1.7	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	360128	4.27	363379	99.11	70	125	
Ge	72	1	nogas	1537987	1.71	1518701	101.27	70	125	
In	115	1	nogas	1536339	2.23	1623624	94.62	70	125	
Bi	209	1	nogas	1425985	2.58	1463804	97.42	70	125	
Ge	72	2	He	118032	0.70	127073	92.89	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	249ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2017-12-19T18:09:49-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	004CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	76.779	3.734	240184	4.02	100	76.8	80	120	ICSB Main CR1 Failed
Na	23	1	nogas	113397.934	2.126	1334829197	1.96	100	113397.9	80	120	
Mg	24	1	nogas	112451.196	3.095	929263354	1.67	100	112451.2	80	120	
Al	27	1	nogas	85970.730	0.529	919236226	0.34	100	85970.7	80	120	ICSB Main CR1 Failed
K	39	1	nogas	109320.981	0.527	988676922	0.58	100	109321.0	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2146.038	3.160	2021443	2.66	100	2146.0	80	120	ICSB Main CR1 Failed
V	51	1	nogas	91.000	6.684	2176098	4.15	100	91.0	80	120	
Cr	52	1	nogas	81.250	1.996	1025615	2.01	100	81.3	80	120	
Mn	55	1	nogas	83.687	1.729	1288869	2.12	100	83.7	80	120	
Co	59	1	nogas	80.256	3.654	1081107	3.20	100	80.3	80	120	
Ni	60	1	nogas	81.687	4.231	243373	3.77	100	81.7	80	120	
Cu	63	1	nogas	83.196	2.190	602607	1.65	100	83.2	80	120	
Zn	66	1	nogas	87.740	1.914	205110	1.49	100	87.7	80	120	
As	75	1	nogas	95.068	4.887	408403	2.79	100	95.1	80	120	
Sr	88	1	nogas	87.970	1.988	1388573	1.46	100	88.0	80	120	
Ag	107	1	nogas	80.860	0.275	764152	0.64	100	80.9	80	120	
Cd	111	1	nogas	85.613	1.387	166530	0.77	100	85.6	80	120	
Sb	121	1	nogas	86.337	3.406	742459	2.90	100	86.3	80	120	
Tl	205	1	nogas	81.298	4.176	1303130	2.14	100	81.3	80	120	
Pb	208	1	nogas	81.662	0.622	1883759	0.62	100	81.7	80	120	
U	238	1	nogas	92.049	2.290	2062844	1.36	100	92.0	80	120	
[Pb]	206	1	nogas	83.830	3.924	460043	1.76	100	83.8	80	120	
[Pb]	207	1	nogas	83.607	3.524	417558	1.45	100	83.6	80	120	
Na	23	2	He	108808.090	2.267	25245728	2.87	100	108808.1	80	120	
Mg	24	2	He	104691.710	3.687	11782209	4.24	100	104691.7	80	120	
Al	27	2	He	82338.853	1.780	2813215	2.22	100	82338.9	80	120	ICSB Main CR1 Failed
K	39	2	He	97614.184	0.904	6113742	0.90	100	97614.2	80	120	ICSB Main CR1 Failed
Ca	43	2	He	96976.681	0.555	19854	1.15	100	96976.7	80	120	
Ca	44	2	He	100590.752	2.141	351882	1.74	100	100590.8	80	120	ICSB Main CR1 Failed
V	51	2	He	87.999	0.415	110301	0.22	100	88.0	80	120	
Cr	52	2	He	84.926	1.017	143970	0.84	100	84.9	80	120	
Mn	55	2	He	82.652	2.204	54752	2.63	100	82.7	80	120	
Fe	56	2	He	105152.962	1.858	140975615	2.32	100	105153.0	80	120	ICSB Main CR1 Failed
Co	59	2	He	85.609	1.751	243062	1.69	100	85.6	80	120	
Ni	60	2	He	84.645	1.366	68572	0.81	100	84.6	80	120	
Cu	63	2	He	83.978	1.300	188705	0.69	100	84.0	80	120	
Zn	66	2	He	84.325	2.634	28332	2.12	100	84.3	80	120	
As	75	2	He	89.171	1.866	20002	1.69	100	89.2	80	120	
Se	78	2	He	81.576	0.933	733	0.69	100	81.6	80	120	
B	11	1	nogas	393.034	1.571	878494	2.70	100	393.0	80	120	
Si	28	1	nogas	4425.535	1.111	21417921	1.00	100	4425.5	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	105625.032	0.321	1987582	0.67	100	105625.0	80	120	
Ca	44	1	nogas	101801.638	1.980	30904555	1.62	100	101801.6	80	120	ICSB Main CR1 Failed
Fe	56	1	nogas	104663.950	2.321	1486094200	2.34	100	104664.0	80	120	
Se	77	1	nogas	158.825	11.684	74777	4.08	100	158.8	80	120	ICSB Main CR1 Failed
Se	82	1	nogas	86.664	0.162	11834	0.39	100	86.7	80	120	
Mo	95	1	nogas	2151.741	1.145	7372000	0.97	100	2151.7	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	86.195	3.266	452552	1.41	100	86.2	80	120	
Ba	137	1	nogas	87.295	3.753	225053	1.64	100	87.3	80	120	
Sb	121	2	He	86.713	2.013	84718	1.91	100	86.7	80	120	
La	139	1	nogas	170.390	20.207	497	18.16	100	170.4	80	120	ICSB Main CR1 Failed

QC ISTD Table

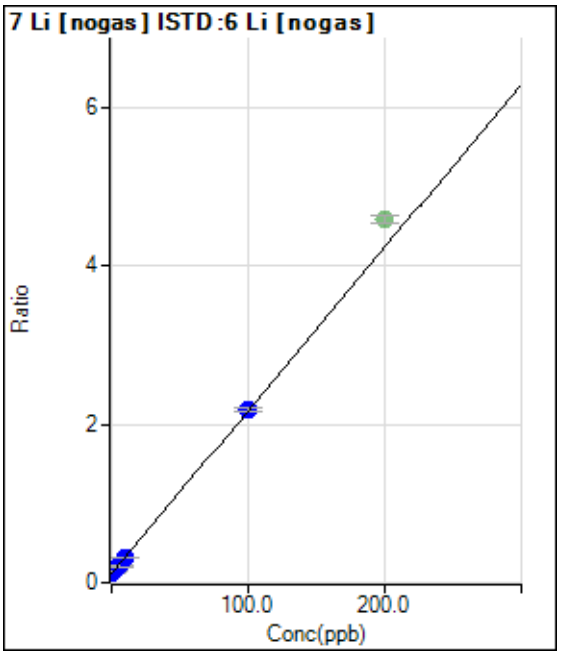
Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	351516	2.13	363379	96.74	70	125	
Ge	72	1	nogas	1493408	0.52	1518701	98.33	70	125	
In	115	1	nogas	1545309	2.11	1623624	95.18	70	125	
Bi	209	1	nogas	1380435	2.12	1463804	94.30	70	125	
Ge	72	2	He	116871	0.62	127073	91.97	70	125	

Calibration for 011_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\121917A.b\
Analysis File: 121917A.batch.bin
DA Date-Time: 2017-12-19 09:48:38
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	004CALB.d	CAL BLK	2017-12-19 09:33:55
2	005CALS.d	2/10/200	2017-12-19 09:35:54
3	006CALS.d	5/25/500	2017-12-19 09:37:54
4	007CALS.d	10/50/1000	2017-12-19 09:39:54
5	008CALS.d	100/500/10K	2017-12-19 09:41:53
6	009CALS.d	200/1000/20K	2017-12-19 09:43:49
7			

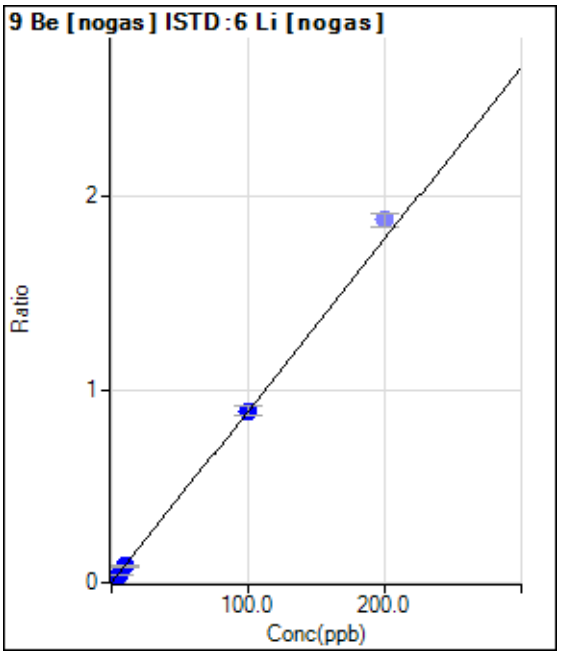
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	41606.42	0.1146	P	3.4
2	☐	2.000	1.906	55698.24	0.1538	P	1.0
3	☐	5.000	4.499	77157.51	0.2072	P	3.6
4	☐	10.000	9.350	113065.89	0.3070	P	1.8
5	☐	100.000	100.092	696772.15	2.1751	P	2.3
6	☑	200.000		1396813.63	4.5811	A	2.3
7	☐	1.000					

y = 0.0206 * x + 0.1146
R = 1.0000
DL = 0.562
BEC = 5.564

Weight: <None>
Min Conc: <None>

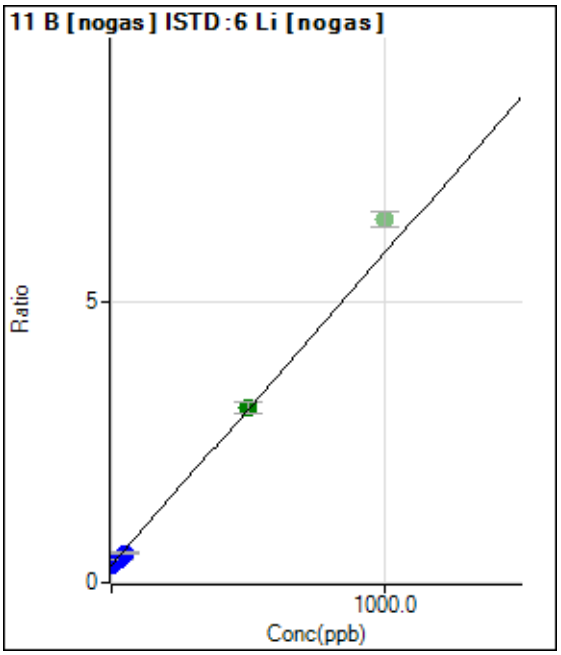


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	43.33	0.0001	P	46.5
2	☐	2.000	1.828	5927.71	0.0164	P	6.1
3	☐	5.000	4.741	15753.43	0.0423	P	1.6
4	☐	10.000	9.650	31659.96	0.0860	P	3.6
5	☐	100.000	100.051	284999.14	0.8904	P	5.6
6	☑	200.000		573182.30	1.8802	P	3.4
7	☐	1.000					

y = 0.0089 * x + 1.1843E-004
R = 1.0000
DL = 0.01856
BEC = 0.01331

Weight: <None>
Min Conc: <None>

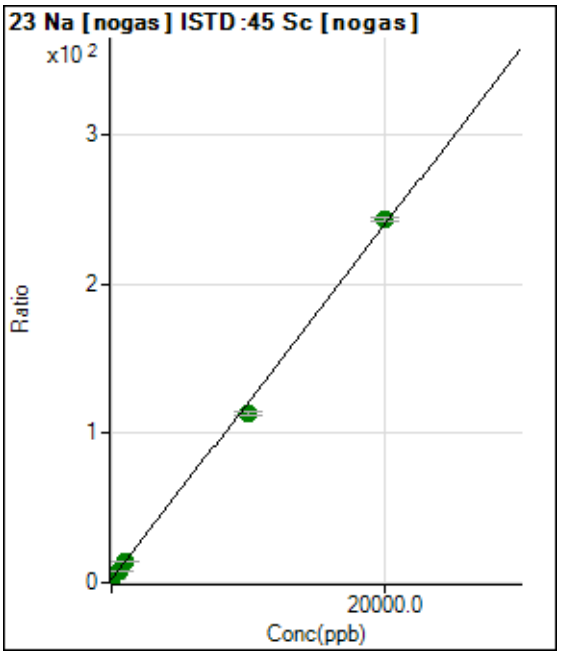
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	113646.51	0.3129	P	3.2
2	☐	10.000	7.750	128865.27	0.3560	P	3.0
3	☐	25.000	16.148	149943.48	0.4027	P	2.1
4	☐	50.000	38.456	193957.59	0.5268	P	2.6
5	☐	500.000	501.642	993016.03	3.1032	A	6.7
6	☑	1000.000		1971410.86	6.4673	A	4.1
7	☐	5.000					

y = 0.0056 * x + 0.3129
R = 0.9997
DL = 5.409
BEC = 56.25

Weight: <None>
Min Conc: <None>

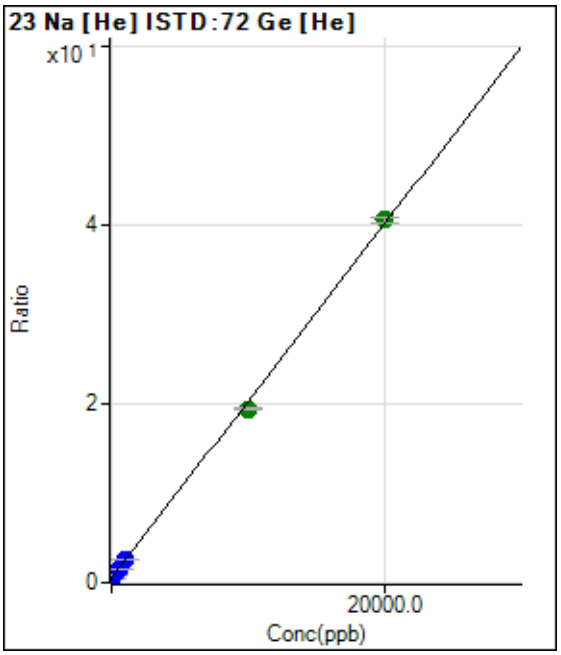


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2267962.48	2.1684	A	1.7
2	☐	200.000	215.984	5005149.33	4.7323	A	7.5
3	☐	500.000	483.015	8534325.45	7.9021	A	1.5
4	☐	1000.000	1009.089	15058619.61	14.1470	A	2.3
5	☐	10000.00	9409.270	120805544.3	113.863	A	2.2
6	☐	20000.00	20295.17	249375655.5	243.086	A	1.1
7	☐	100.000					

y = 0.0119 * x + 2.1684
R = 0.9994
DL = 9.23
BEC = 182.7

Weight: <None>
Min Conc: <None>

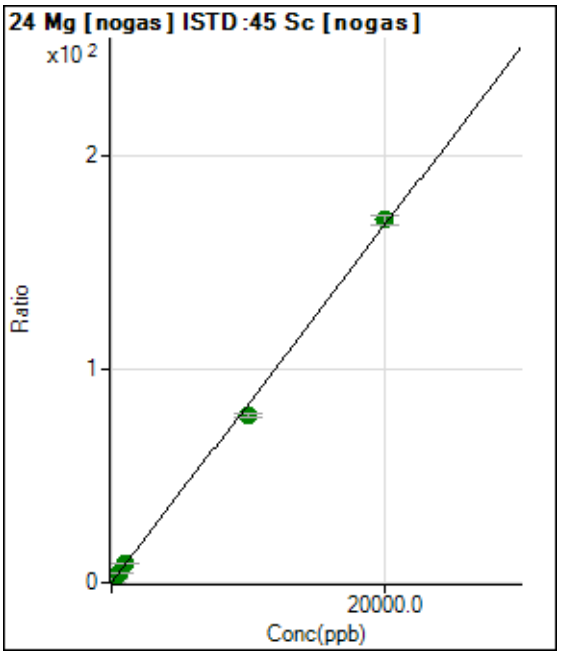
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63923.87	0.5031	P	1.1
2	☐	200.000	193.069	114079.24	0.8855	P	2.2
3	☐	500.000	503.210	193120.42	1.4997	P	3.9
4	☐	1000.000	1032.861	328030.28	2.5486	P	1.2
5	☐	10000.00	9542.711	2465245.64	19.4022	A	0.8
6	☐	20000.00	20226.99	5008782.84	40.5621	A	1.4
7	☐	100.000					

y = 0.0020 * x + 0.5031
R = 0.9996
DL = 8.416
BEC = 254

Weight: <None>
Min Conc: <None>

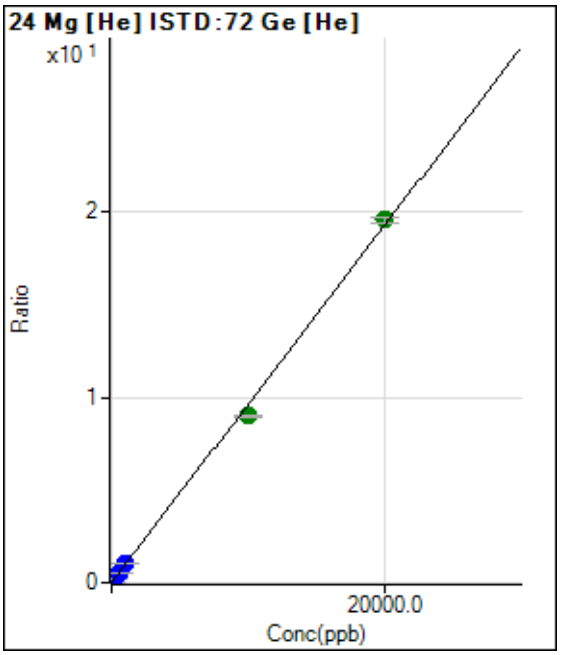


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5135.12	0.0049	P	11.4
2	☐	200.000	212.775	1882620.87	1.7813	A	1.9
3	☐	500.000	508.541	4590498.41	4.2505	A	0.9
4	☐	1000.000	1046.363	9304223.38	8.7406	A	2.4
5	☐	10000.00	9367.290	82975622.69	78.2092	A	2.4
6	☐	20000.00	20313.69	173976858.0	169.597	A	2.4
7	☐	100.000					

y = 0.0083 * x + 0.0049
R = 0.9993
DL = 0.2009
BEC = 0.5879

Weight: <None>
Min Conc: <None>

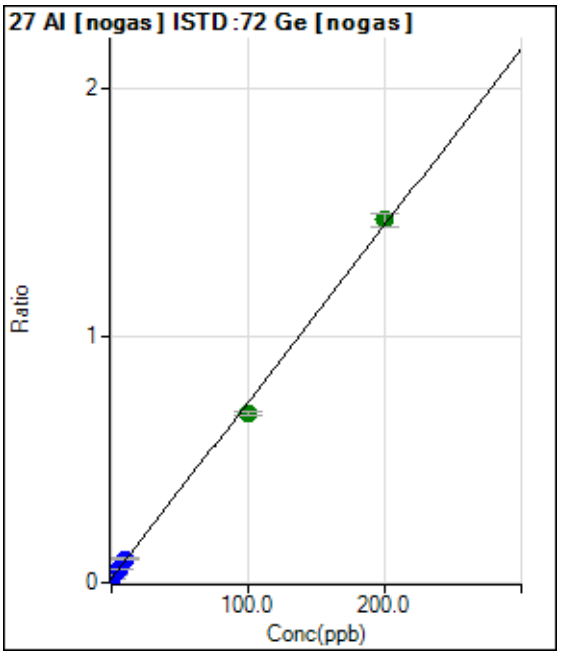
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	213.34	0.0017	P	32.7
2	☐	200.000	214.122	26792.67	0.2078	P	1.5
3	☐	500.000	531.080	66036.23	0.5130	P	5.5
4	☐	1000.000	1068.190	132575.03	1.0301	P	2.5
5	☐	10000.00	9343.922	1143382.33	8.9981	A	1.7
6	☐	20000.00	20323.71	2416252.41	19.5697	A	1.4
7	☐	100.000					

y = 9.6282E-004 * x + 0.0017
R = 0.9992
DL = 1.707
BEC = 1.742

Weight: <None>
Min Conc: <None>

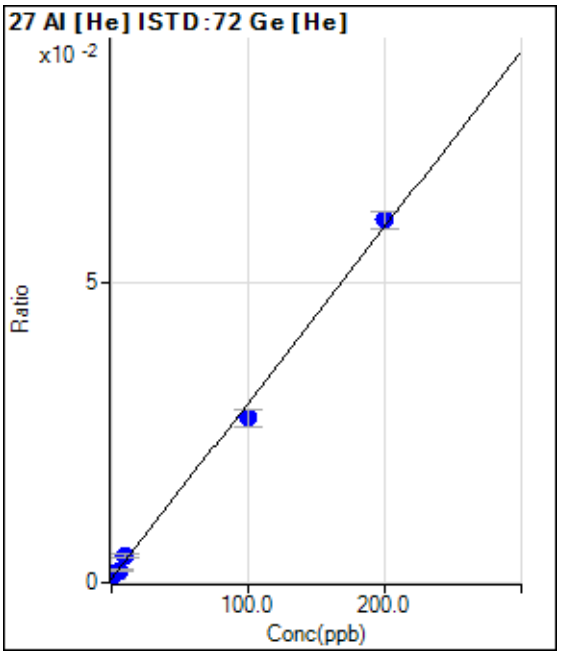


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	25270.88	0.0166	P	1.5
2	☐	2.000	2.121	48583.63	0.0318	P	0.8
3	☐	5.000	5.572	86047.41	0.0565	P	2.1
4	☐	10.000	11.171	148820.94	0.0966	P	4.2
5	☐	100.000	93.588	1056732.49	0.6867	A	1.6
6	☐	200.000	203.132	2200133.15	1.4710	A	3.7
7	☐	1.000					

y = 0.0072 * x + 0.0166
R = 0.9992
DL = 0.105
BEC = 2.324

Weight: <None>
Min Conc: <None>

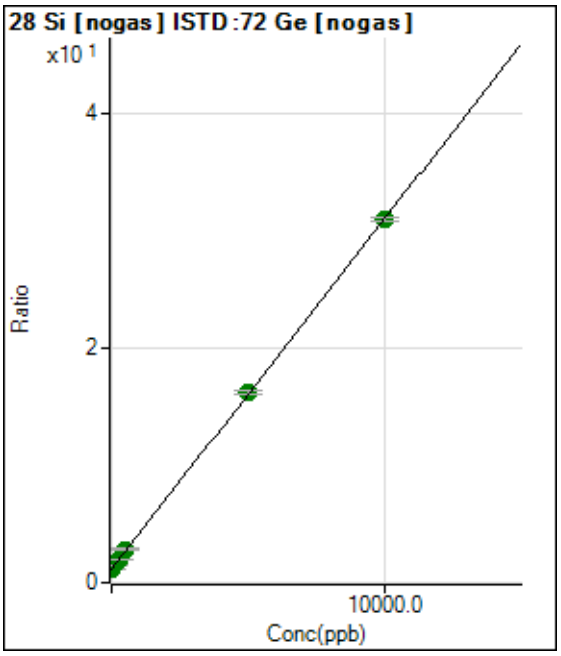
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	1.015	123.34	0.0010	P	61.1
2	☐	2.000	2.942	196.67	0.0015	P	22.5
3	☐	5.000	4.709	263.34	0.0020	P	5.5
4	☐	10.000	12.677	563.35	0.0044	P	15.2
5	☐	100.000	91.584	3487.05	0.0274	P	10.2
6	☐	200.000	204.072	7444.93	0.0603	P	4.9
7	☐	1.000					

y = 2.9232E-004 * x + 6.6905E-004
R = 0.9986
DL = 6.056
BEC = 2.289

Weight: <None>
Min Conc: <None>

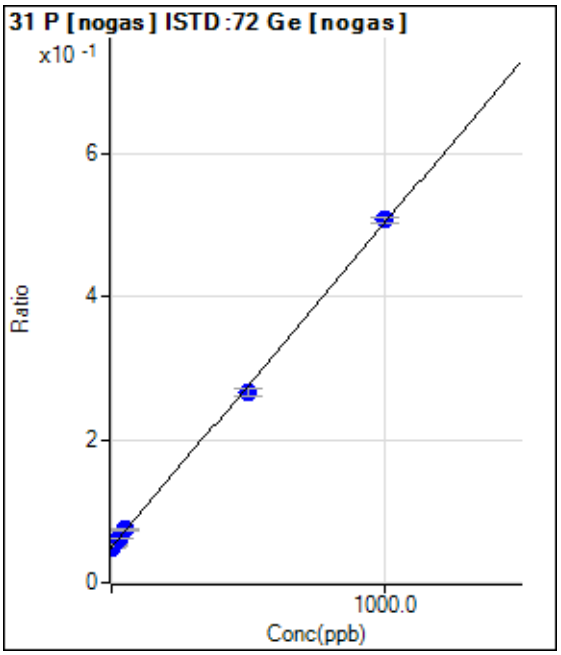


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1750483.83	1.1529	A	1.9
2	☐	100.000	116.677	2290361.43	1.5006	A	2.0
3	☐	250.000	279.689	3023577.46	1.9864	A	1.0
4	☐	500.000	563.695	4364070.77	2.8328	A	3.0
5	☐	5000.000	5042.966	24897316.30	16.1819	A	2.6
6	☐	10000.00	9974.423	46192819.31	30.8785	A	1.0
7	☐	5.000					

y = 0.0030 * x + 1.1529
R = 1.0000
DL = 22.62
BEC = 386.8

Weight: <None>
Min Conc: <None>

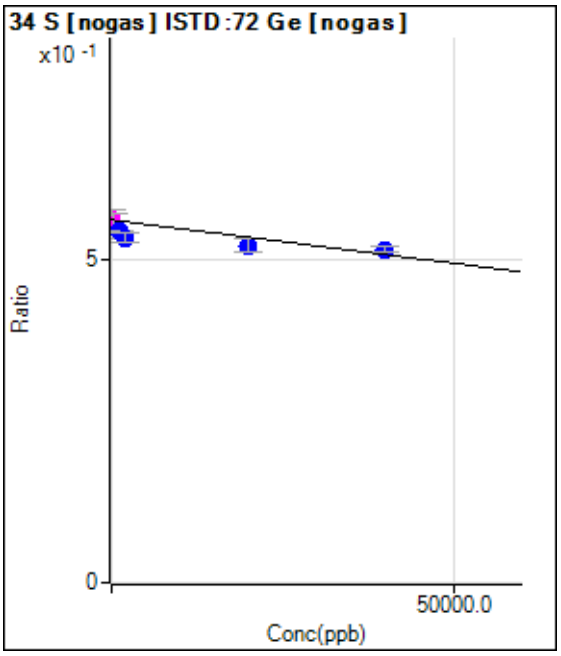
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	74897.95	0.0493	P	2.6
2	☐	10.000	8.057	80845.98	0.0530	P	3.1
3	☐	25.000	27.928	94324.52	0.0620	P	1.3
4	☐	50.000	54.796	114199.39	0.0741	P	1.7
5	☐	500.000	479.129	409438.82	0.2662	P	4.1
6	☐	1000.000	1010.142	757732.93	0.5065	P	1.3
7	☐	5.000					

y = 4.5258E-004 * x + 0.0493
R = 0.9997
DL = 8.409
BEC = 109

Weight: <None>
Min Conc: <None>

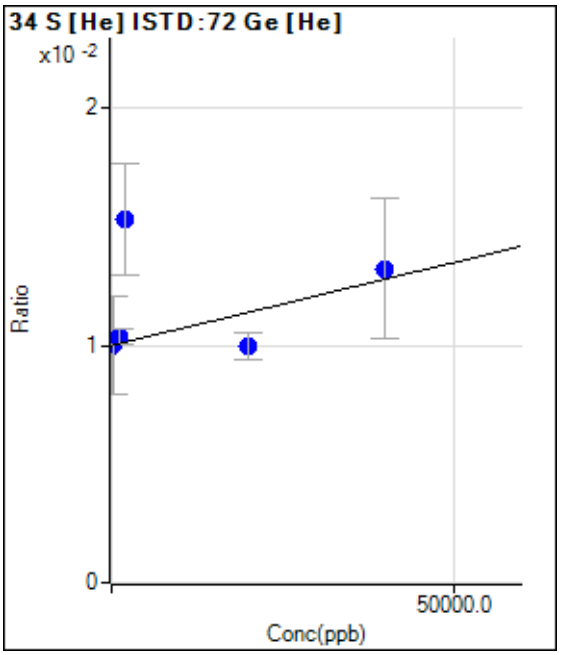


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	851752.23	0.5611	M	5.2
2	☐	400.000	6570.010	842634.33	0.5523	M	6.9
3	☐	1000.000	13683.08	826261.88	0.5428	P	0.6
4	☐	2000.000	20705.84	821577.46	0.5334	P	2.8
5	☐	20000.00	29748.52	801940.56	0.5213	P	4.0
6	☐	40000.00	33811.66	771671.35	0.5159	P	1.9
7	☐	100.000					

y = -1.3373E-006 * x + 0.5611
R = -0.8374
DL = -6.53E+04
BEC = -4.196E+05

Weight: <None>
Min Conc: <None>

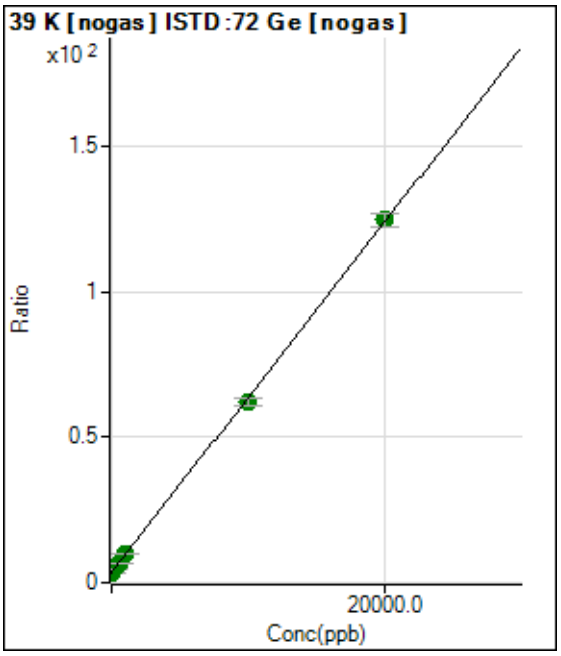
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1266.98	0.0100	P	41.5
2	☐	400.000	264.000	1300.28	0.0100	P	40.7
3	☐	1000.000	5049.629	1333.64	0.0104	P	6.6
4	☐	2000.000	75828.66	1967.24	0.0153	P	30.9
5	☐	20000.00	-506.324	1266.97	0.0100	P	12.2
6	☐	40000.00	46461.84	1633.70	0.0132	P	44.3
7	☐	100.000					

y = 6.9763E-008 * x + 0.0100
R = 0.2503
DL = 1.787E+05
BEC = 1.435E+05

Weight: <None>
Min Conc: <None>

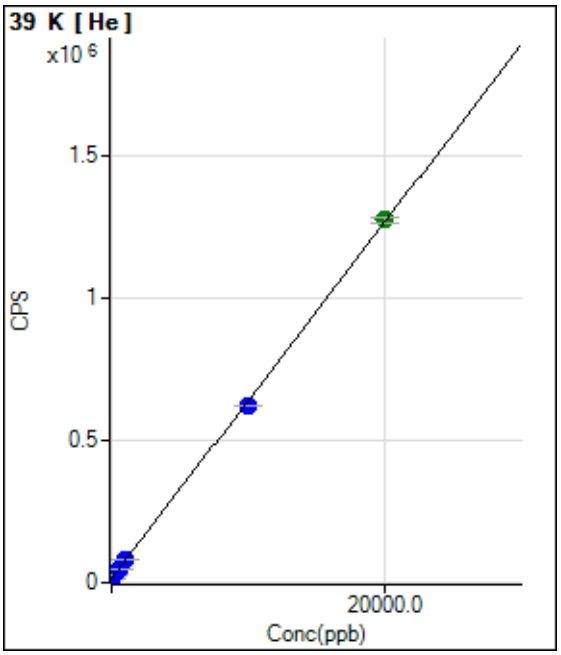


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5362887.75	3.5319	A	1.9
2	☐	200.000	211.144	7330193.39	4.8038	A	3.4
3	☐	500.000	543.164	10357451.27	6.8037	A	0.2
4	☐	1000.000	1065.629	15330727.95	9.9508	A	2.0
5	☐	10000.00	9720.069	95479489.63	62.0812	A	5.0
6	☐	20000.00	20135.49	186692004.1	124.819	A	3.5
7	☐	100.000					

y = 0.0060 * x + 3.5319
R = 0.9998
DL = 34.22
BEC = 586.4

Weight: <None>
Min Conc: <None>

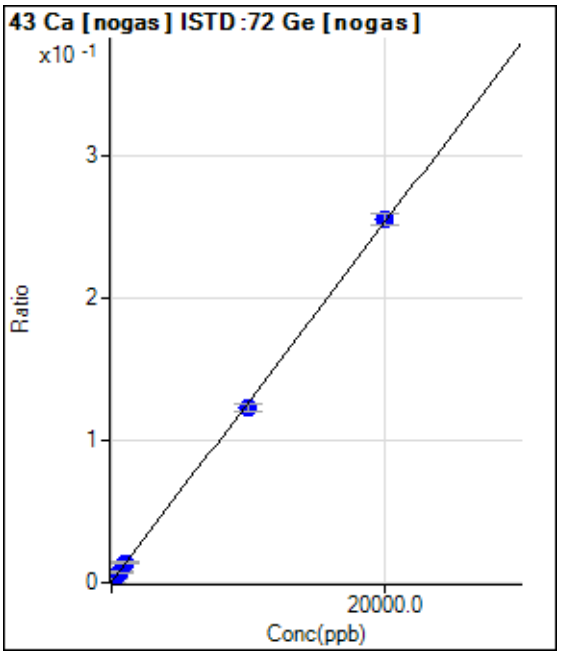
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	14238.90		P	1.7
2	☐	200.000	200.961	26796.11		P	3.3
3	☐	500.000	547.228	48432.90		P	1.0
4	☐	1000.000	1085.112	82043.00		P	2.1
5	☐	10000.00	9692.442	619879.16		P	0.4
6	☐	20000.00	20148.33	1273224.17		A	1.7
7	☐	100.000					

y = 62.4858 * x + 14238.9000
R = 0.9998
DL = 11.79
BEC = 227.9

Weight: <None>
Min Conc: <None>

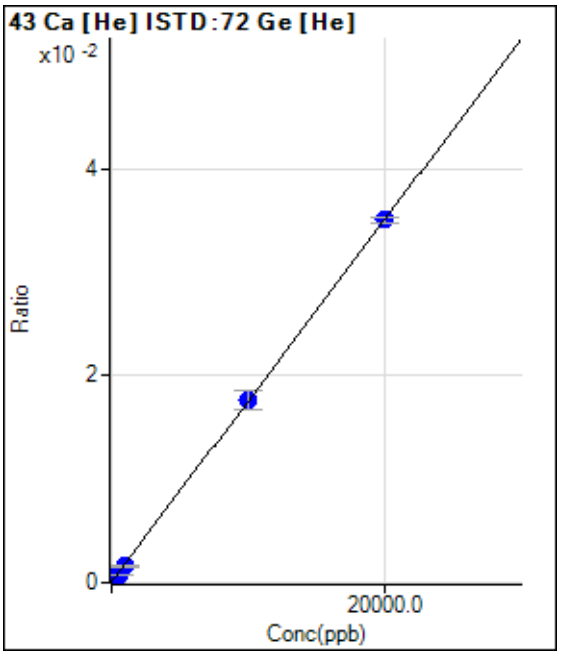


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	870.04	0.0006	P	18.1
2	☐	200.000	202.617	4767.37	0.0031	P	7.1
3	☐	500.000	542.306	11267.00	0.0074	P	3.3
4	☐	1000.000	1064.639	21532.93	0.0140	P	3.7
5	☐	10000.00	9669.267	188187.88	0.1224	P	4.7
6	☐	20000.00	20161.05	380659.07	0.2545	P	3.2
7	☐	100.000					

y = 1.2595E-005 * x + 5.7381E-004
R = 0.9998
DL = 24.7
BEC = 45.56

Weight: <None>
Min Conc: <None>

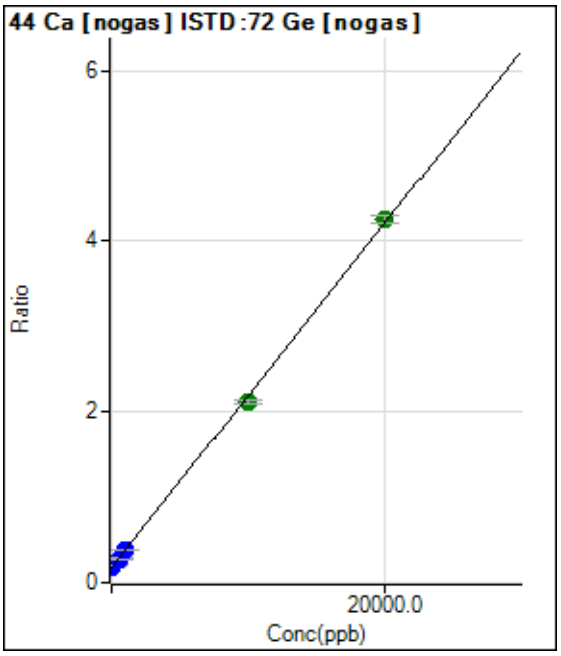
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10.00	0.0001	P	99.1
2	☐	200.000	294.052	76.67	0.0006	P	17.6
3	☐	500.000	353.400	90.00	0.0007	P	7.7
4	☐	1000.000	870.955	206.67	0.0016	P	18.4
5	☐	10000.00	10014.25	2236.84	0.0176	P	10.2
6	☐	20000.00	20002.04	4333.92	0.0351	P	1.5
7	☐	100.000					

y = 1.7509E-006 * x + 7.8255E-005
R = 0.9999
DL = 132.9
BEC = 44.69

Weight: <None>
Min Conc: <None>

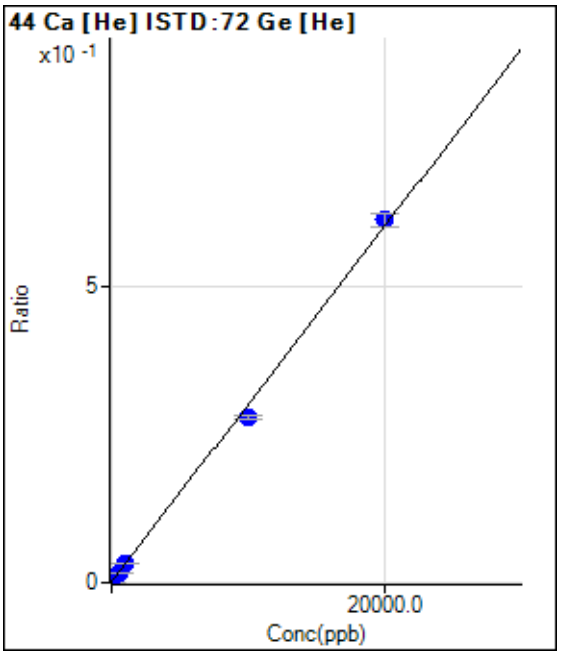


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	269196.06	0.1773	P	2.5
2	☐	200.000	195.163	330552.48	0.2166	P	3.2
3	☐	500.000	517.112	428481.26	0.2815	P	1.0
4	☐	1000.000	1008.696	586159.48	0.3806	P	3.1
5	☐	10000.00	9594.114	3248570.68	2.1109	A	1.7
6	☐	20000.00	20202.12	6355923.66	4.2489	A	2.1
7	☐	100.000					

y = 2.0155E-004 * x + 0.1773
R = 0.9997
DL = 65.04
BEC = 879.6

Weight: <None>
Min Conc: <None>

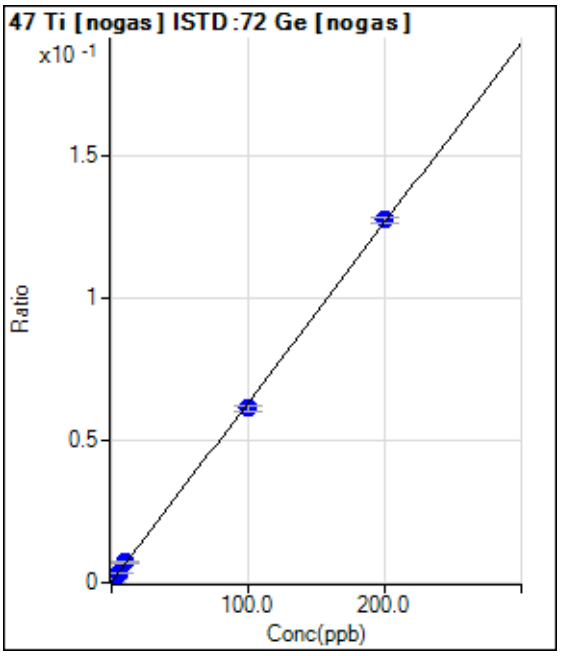
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	173.33	0.0014	P	7.4
2	☐	200.000	239.180	1096.71	0.0085	P	7.5
3	☐	500.000	495.920	2086.82	0.0162	P	3.1
4	☐	1000.000	1037.843	4170.54	0.0324	P	6.2
5	☐	10000.00	9241.716	35310.76	0.2779	P	2.1
6	☐	20000.00	20376.96	75432.93	0.6110	P	3.6
7	☐	100.000					

y = 2.9920E-005 * x + 0.0014
R = 0.9990
DL = 10.18
BEC = 45.56

Weight: <None>
Min Conc: <None>

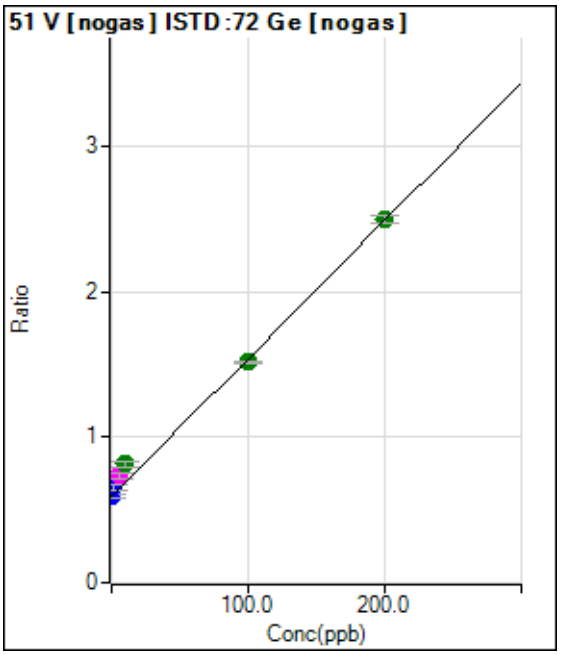


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	230.01	0.0002	P	21.6
2	☐	2.000	1.852	2013.47	0.0013	P	4.5
3	☐	5.000	5.274	5294.17	0.0035	P	2.3
4	☐	10.000	11.022	10940.14	0.0071	P	2.9
5	☐	100.000	96.732	94102.69	0.0612	P	2.7
6	☐	200.000	201.577	190408.58	0.1273	P	1.7
7	☐	1.000					

y = 6.3073E-004 * x + 1.5138E-004
R = 0.9998
DL = 0.1554
BEC = 0.24

Weight: <None>
Min Conc: <None>

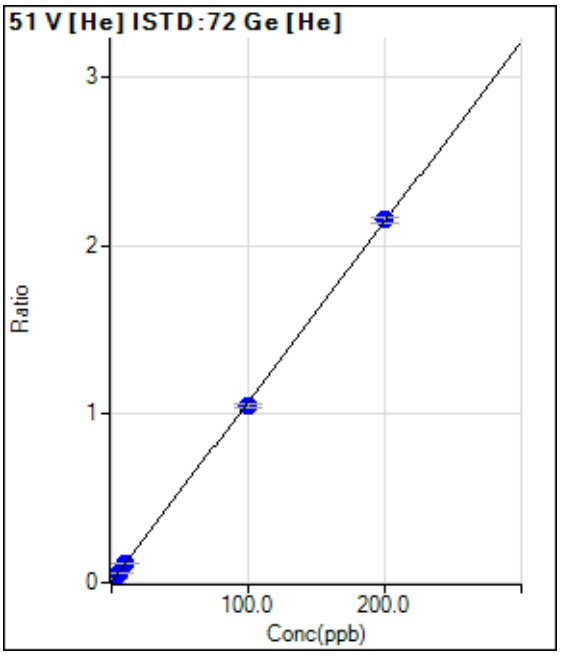
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	900104.54	0.5930	P	5.6
2	☐	2.000	6.697	1001483.22	0.6566	P	6.2
3	☐	5.000	15.050	1121005.04	0.7359	M	6.2
4	☐	10.000	23.542	1257245.96	0.8165	A	4.9
5	☐	100.000	97.283	2334562.10	1.5167	A	1.3
6	☐	200.000	200.383	3733151.25	2.4957	A	2.2
7	☐	1.000					

y = 0.0095 * x + 0.5930
R = 0.9976
DL = 10.44
BEC = 62.45

Weight: <None>
Min Conc: <None>

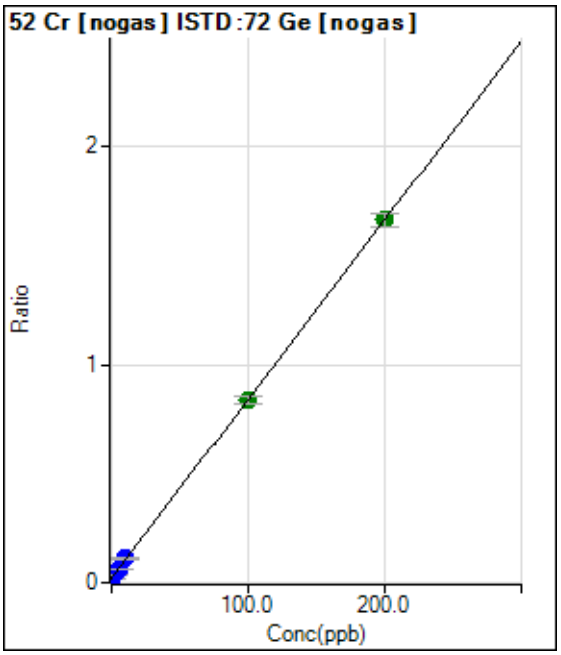


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.085	614.01	0.0048	P	1.1
2	☐	2.000	2.148	3461.00	0.0269	P	4.5
3	☐	5.000	5.276	7758.31	0.0603	P	5.9
4	☐	10.000	10.606	15087.48	0.1172	P	0.5
5	☐	100.000	97.847	133268.75	1.0490	P	1.6
6	☐	200.000	201.038	265597.76	2.1511	P	1.6
7	☐	1.000					

y = 0.0107 * x + 0.0039
R = 0.9999
DL = 0.01473
BEC = 0.3678

Weight: <None>
Min Conc: <None>

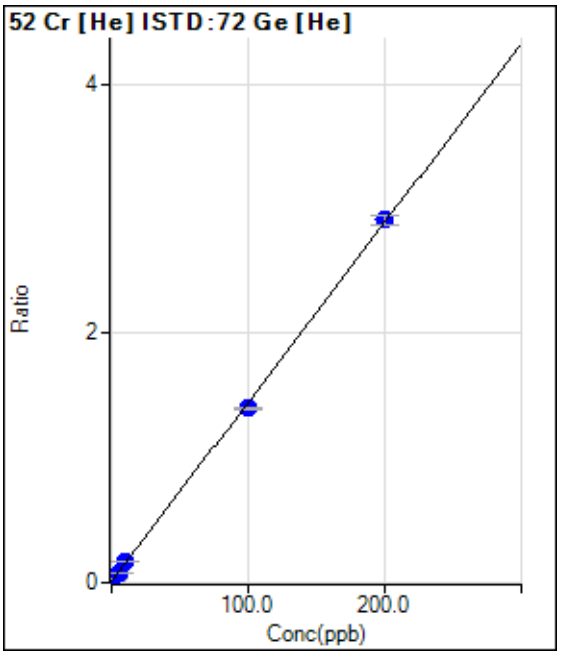
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	31219.87	0.0206	P	4.1
2	☐	2.000	2.162	58442.30	0.0383	P	2.5
3	☐	5.000	5.329	97801.73	0.0643	P	1.9
4	☐	10.000	11.038	171053.97	0.1111	P	4.6
5	☐	100.000	99.413	1285390.11	0.8357	A	4.4
6	☐	200.000	200.232	2485932.52	1.6623	A	4.0
7	☐	1.000					

y = 0.0082 * x + 0.0206
R = 1.0000
DL = 0.3101
BEC = 2.508

Weight: <None>
Min Conc: <None>

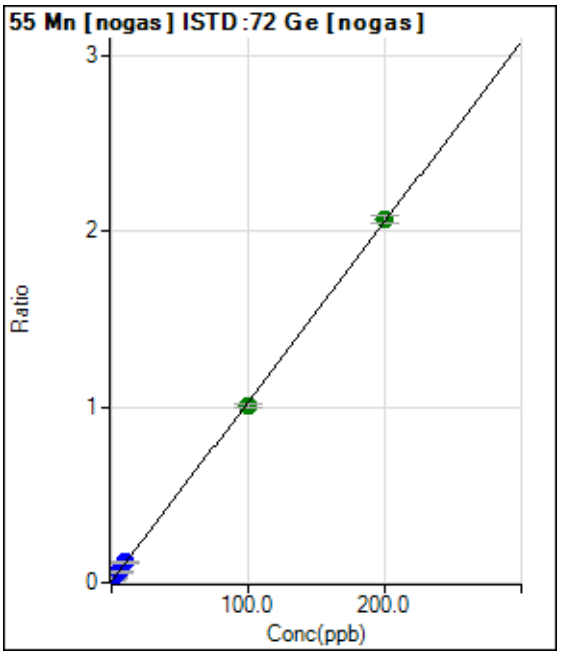


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1176.73	0.0093	P	7.1
2	☐	2.000	2.122	5127.45	0.0398	P	7.0
3	☐	5.000	5.096	10656.59	0.0826	P	2.2
4	☐	10.000	11.014	21602.90	0.1678	P	3.2
5	☐	100.000	96.556	177793.51	1.3993	P	0.5
6	☐	200.000	201.668	359563.05	2.9126	P	2.7
7	☐	1.000					

y = 0.0144 * x + 0.0093
R = 0.9998
DL = 0.1376
BEC = 0.6433

Weight: <None>
Min Conc: <None>

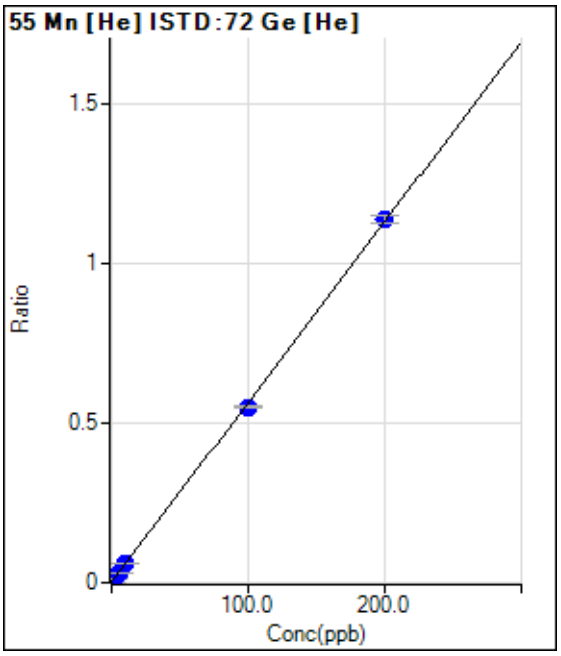
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	9202.40	0.0061	P	7.2
2	☐	2.000	2.104	42118.39	0.0276	P	4.2
3	☐	5.000	5.352	92633.78	0.0609	P	2.2
4	☐	10.000	10.713	178315.06	0.1158	P	2.9
5	☐	100.000	97.699	1548711.12	1.0065	A	2.4
6	☐	200.000	201.105	3090022.45	2.0653	A	2.0
7	☐	1.000					

y = 0.0102 * x + 0.0061
R = 0.9999
DL = 0.1271
BEC = 0.5922

Weight: <None>
Min Conc: <None>

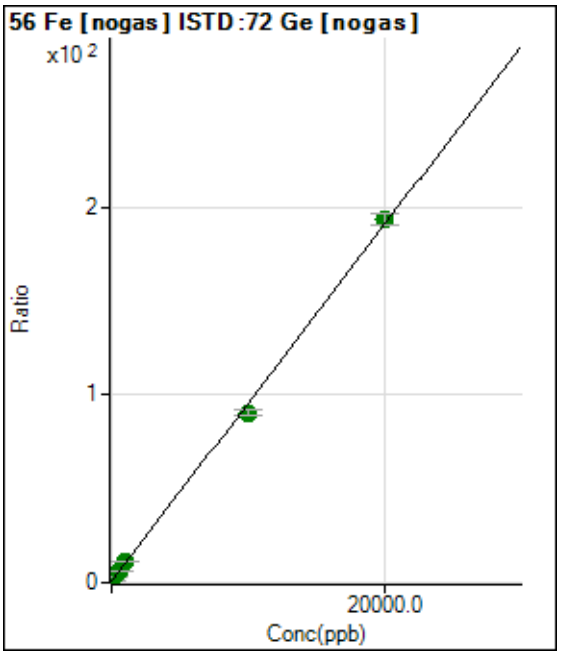


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	156.67	0.0012	P	15.6
2	☐	2.000	2.169	1740.11	0.0135	P	12.4
3	☐	5.000	5.307	4030.51	0.0312	P	5.0
4	☐	10.000	10.716	7955.20	0.0618	P	1.6
5	☐	100.000	97.432	70137.98	0.5520	P	0.3
6	☐	200.000	201.239	140596.40	1.1388	P	2.1
7	☐	1.000					

y = 0.0057 * x + 0.0012
R = 0.9999
DL = 0.1023
BEC = 0.218

Weight: <None>
Min Conc: <None>

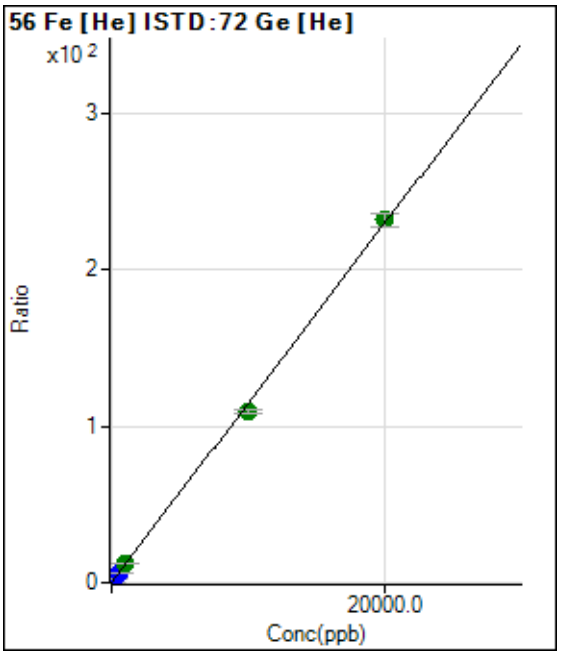
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1003911.61	0.6611	P	1.2
2	☐	200.000	222.369	4233323.53	2.7739	A	2.8
3	☐	500.000	551.696	8984716.87	5.9029	A	3.0
4	☐	1000.000	1094.558	17039419.65	11.0608	A	3.0
5	☐	10000.00	9465.818	139387465.6	90.5991	A	3.0
6	☐	20000.00	20260.84	288927656.4	193.166	A	3.1
7	☐	100.000					

y = 0.0095 * x + 0.6611
R = 0.9995
DL = 2.494
BEC = 69.58

Weight: <None>
Min Conc: <None>

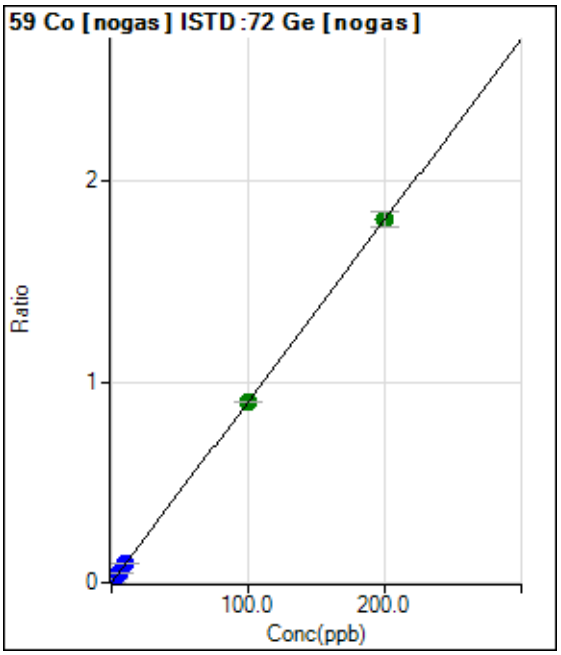


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3927.16	0.0309	P	10.1
2	☐	200.000	201.806	302218.07	2.3457	P	3.4
3	☐	500.000	517.294	767959.70	5.9646	P	4.6
4	☐	1000.000	1082.414	1601888.10	12.4468	A	2.1
5	☐	10000.00	9578.339	13962110.62	109.899	A	2.1
6	☐	20000.00	20206.25	28613847.07	231.807	A	3.5
7	☐	100.000					

y = 0.0115 * x + 0.0309
R = 0.9997
DL = 0.8145
BEC = 2.696

Weight: <None>
Min Conc: <None>

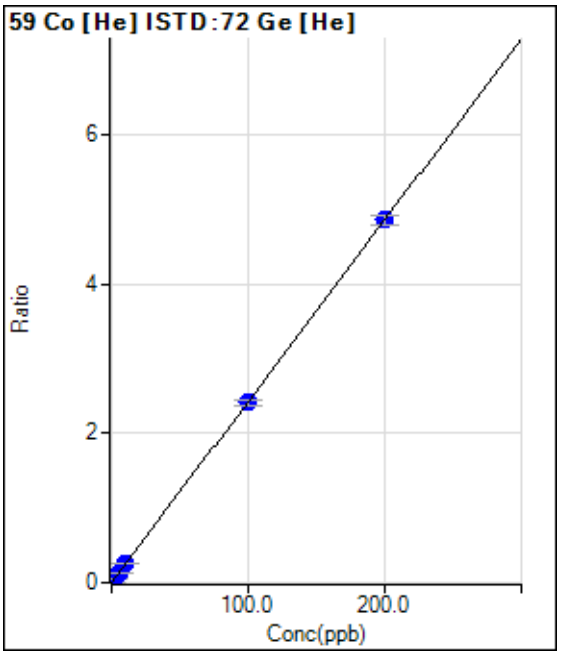
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	286.68	0.0002	P	9.0
2	☐	2.000	2.170	30145.24	0.0198	P	6.1
3	☐	5.000	5.492	75683.51	0.0497	P	2.6
4	☐	10.000	10.758	149772.06	0.0972	P	1.0
5	☐	100.000	99.560	1382418.57	0.8981	A	0.6
6	☐	200.000	200.168	2699806.42	1.8055	A	4.4
7	☐	1.000					

y = 0.0090 * x + 1.8859E-004
R = 1.0000
DL = 0.005676
BEC = 0.02091

Weight: <None>
Min Conc: <None>

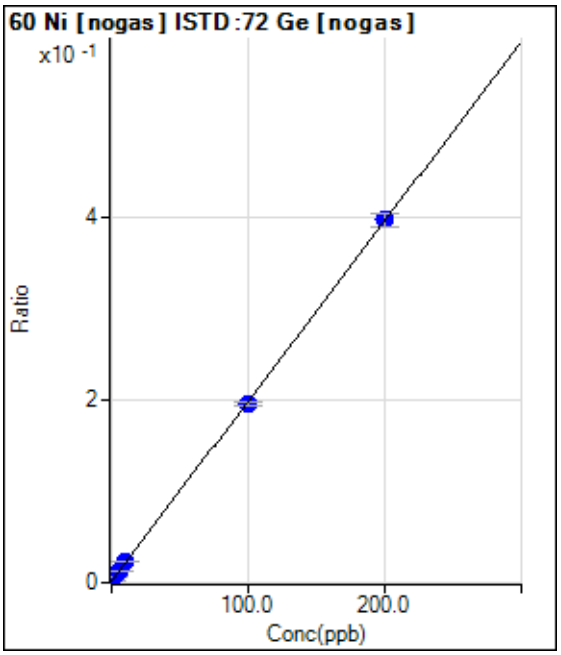


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0001	P	173.
2	☐	2.000	2.166	6791.37	0.0527	P	2.7
3	☐	5.000	5.166	16167.32	0.1256	P	5.8
4	☐	10.000	10.435	32639.34	0.2536	P	1.1
5	☐	100.000	99.484	307025.12	2.4168	P	2.8
6	☐	200.000	200.231	600510.72	4.8643	P	2.5
7	☐	1.000					

y = 0.0243 * x + 1.0342E-004
R = 1.0000
DL = 0.02212
BEC = 0.004257

Weight: <None>
Min Conc: <None>

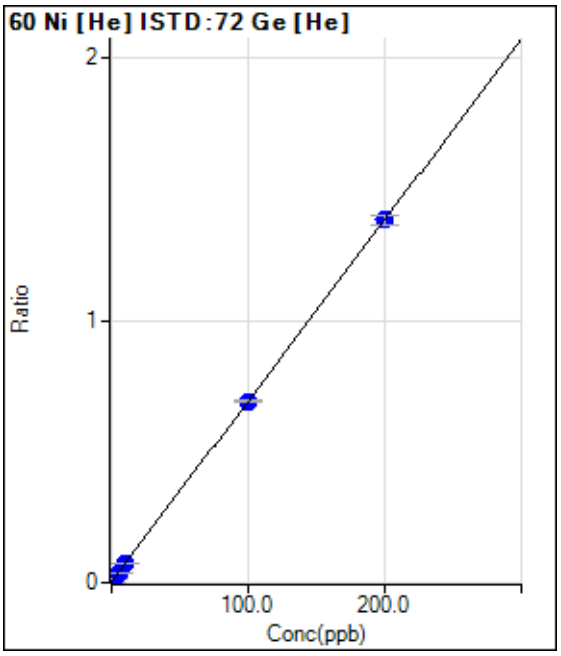
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.172	2060.15	0.0014	P	1.7
2	☐	2.000	1.931	8408.74	0.0055	P	3.9
3	☐	5.000	5.492	19093.69	0.0125	P	3.6
4	☐	10.000	10.650	35000.67	0.0227	P	2.8
5	☐	100.000	98.287	301216.88	0.1958	P	2.1
6	☐	200.000	200.812	595504.67	0.3982	P	3.5
7	☐	1.000					

y = 0.0020 * x + 0.0017
R = 0.9999
DL = 0.03407
BEC = 0.8592

Weight: <None>
Min Conc: <None>

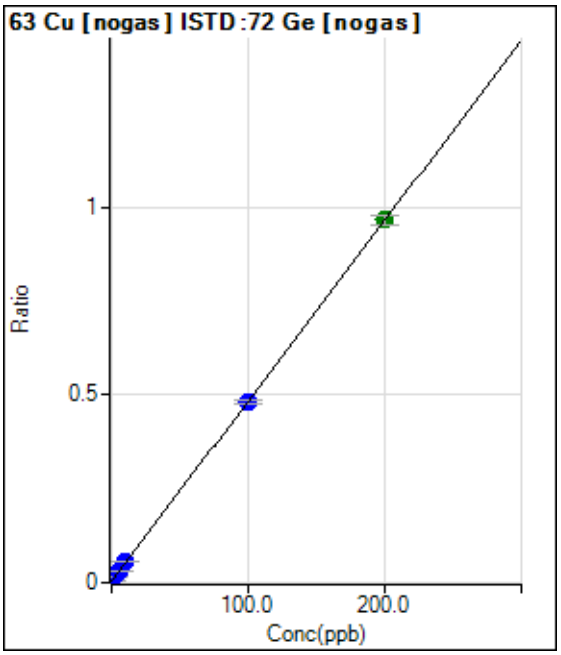


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.244	226.67	0.0018	P	37.7
2	☐	2.000	2.035	2253.51	0.0175	P	8.7
3	☐	5.000	4.955	4844.05	0.0376	P	4.7
4	☐	10.000	10.360	9632.67	0.0749	P	5.5
5	☐	100.000	99.821	87836.70	0.6913	P	1.5
6	☐	200.000	200.072	170636.14	1.3822	P	2.4
7	☐	1.000					

y = 0.0069 * x + 0.0035
R = 1.0000
DL = 0.2937
BEC = 0.5033

Weight: <None>
Min Conc: <None>

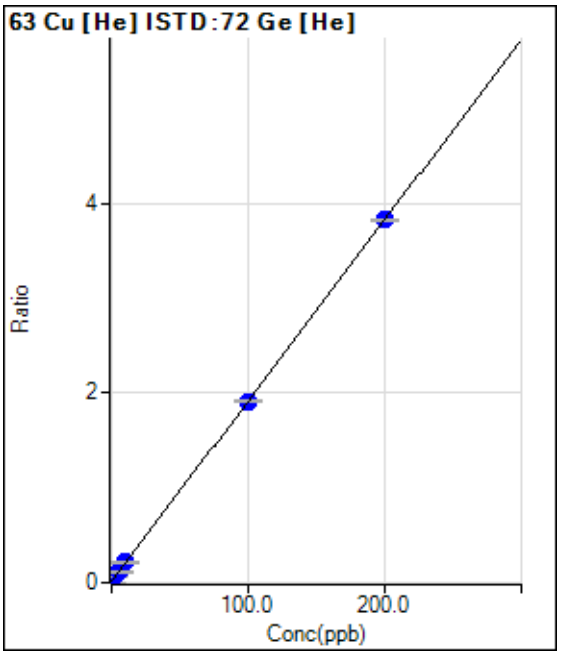
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5904.38	0.0039	P	8.5
2	☐	2.000	2.272	22587.70	0.0148	P	4.4
3	☐	5.000	5.384	45283.45	0.0298	P	2.3
4	☐	10.000	10.933	86833.79	0.0564	P	6.5
5	☐	100.000	99.085	738351.16	0.4799	P	2.2
6	☐	200.000	200.398	1445674.98	0.9666	A	2.6
7	☐	1.000					

y = 0.0048 * x + 0.0039
R = 1.0000
DL = 0.2053
BEC = 0.8097

Weight: <None>
Min Conc: <None>

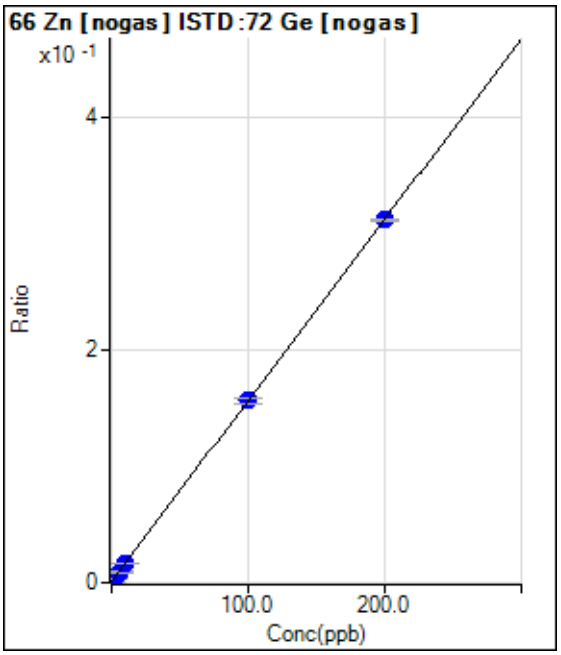


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.268	1250.06	0.0098	P	6.0
2	☐	2.000	1.963	6744.69	0.0523	P	3.8
3	☐	5.000	5.110	14449.28	0.1123	P	7.0
4	☐	10.000	10.442	27517.74	0.2139	P	5.5
5	☐	100.000	99.554	242883.69	1.9115	P	1.4
6	☐	200.000	200.198	472791.15	3.8287	P	0.3
7	☐	1.000					

y = 0.0191 * x + 0.0149
R = 1.0000
DL = 0.09307
BEC = 0.7846

Weight: <None>
Min Conc: <None>

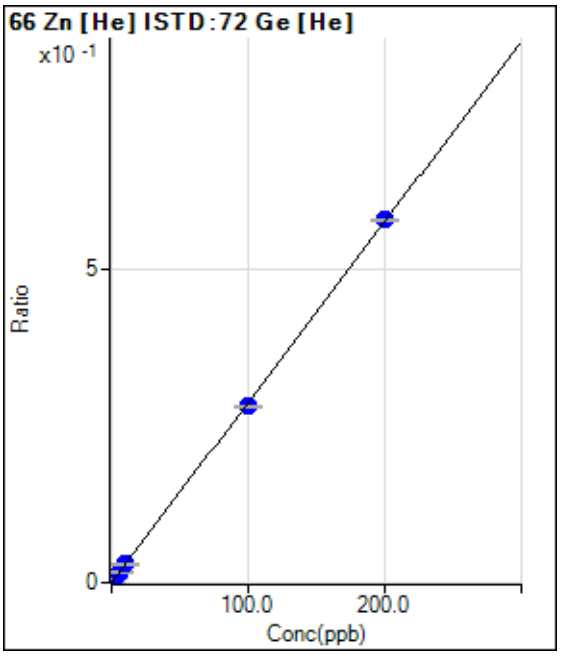
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-0.426	696.70	0.0005	P	12.1
2	☐	2.000	1.909	6234.50	0.0041	P	2.4
3	☐	5.000	5.102	13765.38	0.0090	P	4.2
4	☐	10.000	10.402	26616.48	0.0173	P	0.1
5	☐	100.000	100.069	240787.56	0.1565	P	3.5
6	☐	200.000	199.944	466131.31	0.3116	P	0.6
7	☐	1.000					

y = 0.0016 * x + 0.0011
R = 1.0000
DL = 0.1076
BEC = 0.722

Weight: <None>
Min Conc: <None>

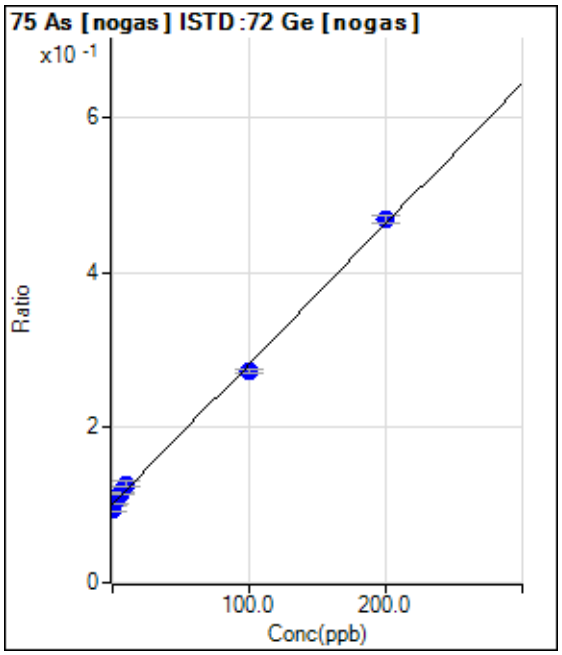


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.004	56.67	0.0004	P	37.2
2	☐	2.000	2.282	900.04	0.0070	P	12.4
3	☐	5.000	5.431	2070.15	0.0160	P	14.6
4	☐	10.000	10.427	3910.50	0.0304	P	8.6
5	☐	100.000	97.782	35715.44	0.2811	P	1.5
6	☐	200.000	201.074	71315.88	0.5775	P	0.5
7	☐	1.000					

y = 0.0029 * x + 4.3476E-004
R = 0.9999
DL = 0.1734
BEC = 0.1515

Weight: <None>
Min Conc: <None>

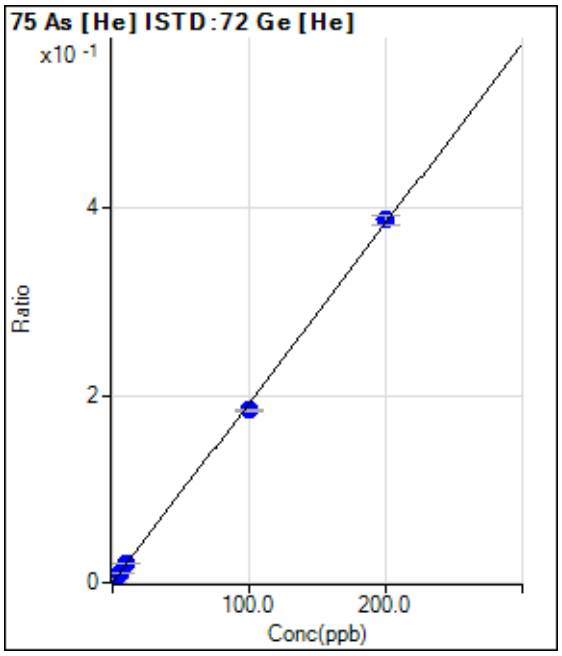
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-3.595	144048.32	0.0949	P	7.0
2	☐	2.000	1.993	160164.57	0.1050	P	7.6
3	☐	5.000	7.147	174117.34	0.1144	P	2.6
4	☐	10.000	14.512	196552.46	0.1277	P	7.2
5	☐	100.000	94.443	419139.89	0.2724	P	1.5
6	☐	200.000	202.499	699906.27	0.4679	P	2.2
7	☐	1.000					

y = 0.0018 * x + 0.1014
R = 0.9989
DL = 10.94
BEC = 56.03

Weight: <None>
Min Conc: <None>

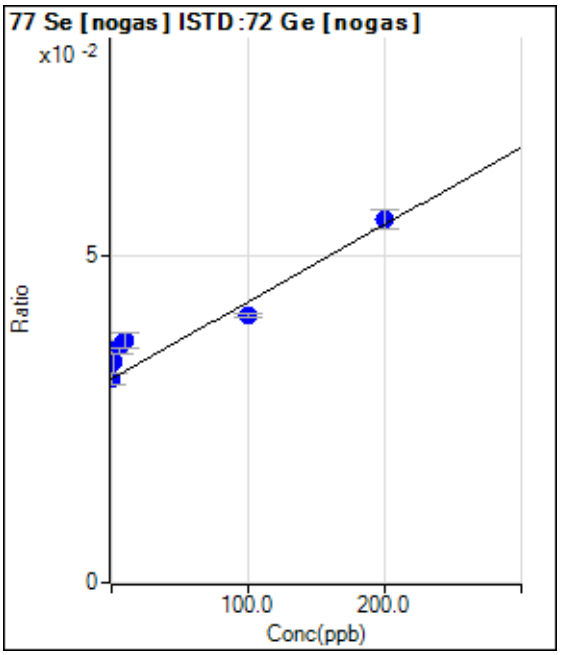


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	15.56	0.0001	P	11.5
2	☐	2.000	2.086	530.01	0.0041	P	17.2
3	☐	5.000	4.981	1245.60	0.0097	P	6.1
4	☐	10.000	10.737	2665.76	0.0207	P	3.4
5	☐	100.000	95.936	23396.16	0.1841	P	0.6
6	☐	200.000	201.995	47842.59	0.3876	P	2.8
7	☐	1.000					

y = 0.0019 * x + 1.2233E-004
R = 0.9997
DL = 0.02199
BEC = 0.06378

Weight: <None>
Min Conc: <None>

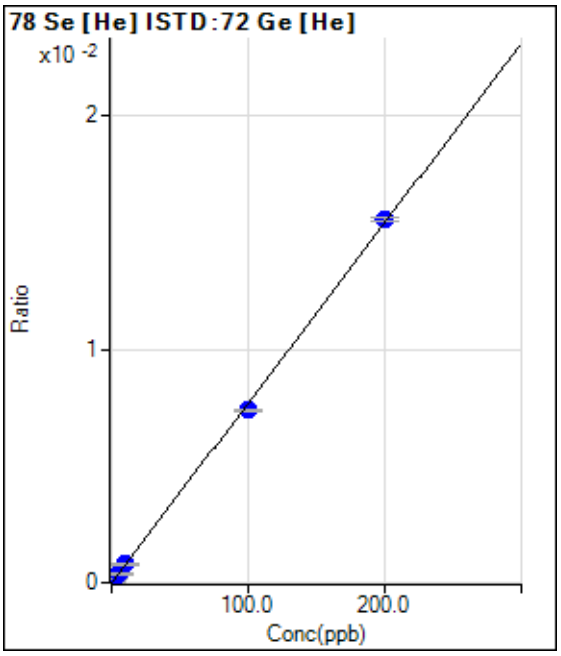
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	47452.22	0.0313	P	6.4
2	☐	2.000	21.575	51567.09	0.0338	P	9.6
3	☐	5.000	41.389	55077.18	0.0362	P	5.5
4	☐	10.000	50.341	57303.94	0.0372	P	6.5
5	☐	100.000	82.000	63062.57	0.0410	P	2.0
6	☐	200.000	205.878	83206.30	0.0556	P	5.5
7	☐	1.000					

y = 1.1844E-004 * x + 0.0313
R = 0.9638
DL = 50.75
BEC = 264

Weight: <None>
Min Conc: <None>

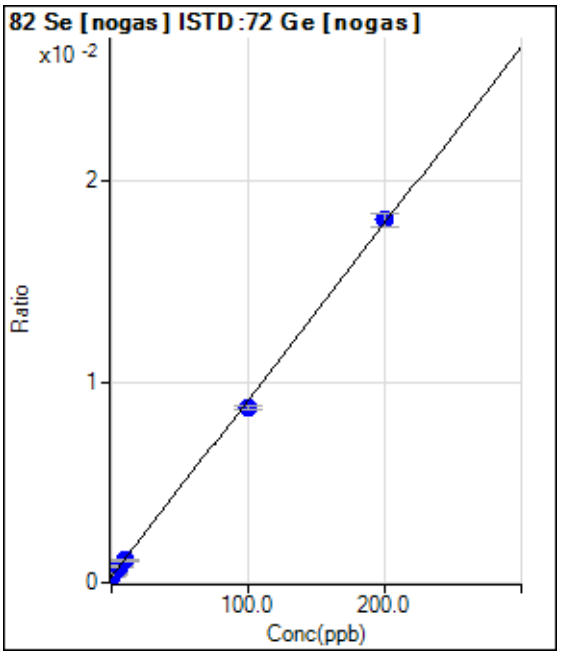


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.718	4.67	0.0000	P	25.0
2	☐	2.000	2.053	18.00	0.0001	P	18.7
3	☐	5.000	5.488	52.00	0.0004	P	19.6
4	☐	10.000	10.712	104.00	0.0008	P	13.3
5	☐	100.000	96.153	939.36	0.0074	P	0.5
6	☐	200.000	201.875	1919.44	0.0155	P	1.0
7	☐	1.000					

y = 7.7082E-005 * x - 1.8631E-005
R = 0.9997
DL = 0.3578
BEC = -0.2417

Weight: <None>
Min Conc: <None>

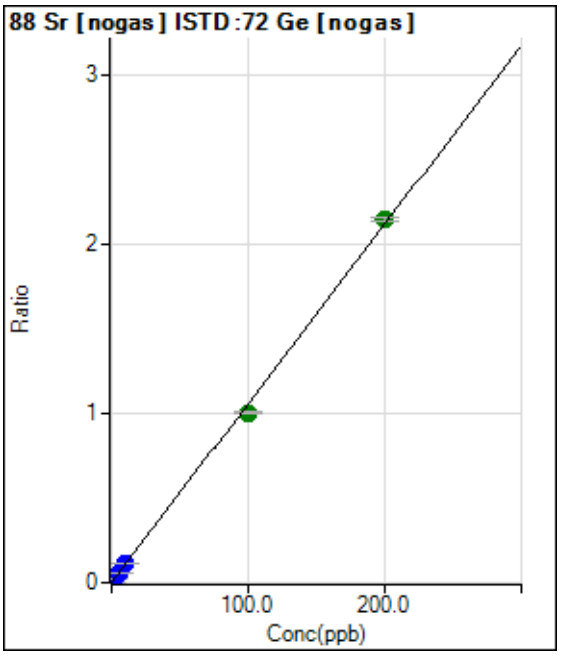
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	466.68	0.0003	P	26.3
2	☐	2.000	1.564	680.02	0.0004	P	7.4
3	☐	5.000	5.536	1206.73	0.0008	P	15.1
4	☐	10.000	9.510	1763.45	0.0011	P	8.5
5	☐	100.000	96.097	13468.58	0.0088	P	2.1
6	☐	200.000	201.967	27007.10	0.0181	P	4.0
7	☐	1.000					

y = 8.7888E-005 * x + 3.0748E-004
R = 0.9997
DL = 2.765
BEC = 3.499

Weight: <None>
Min Conc: <None>

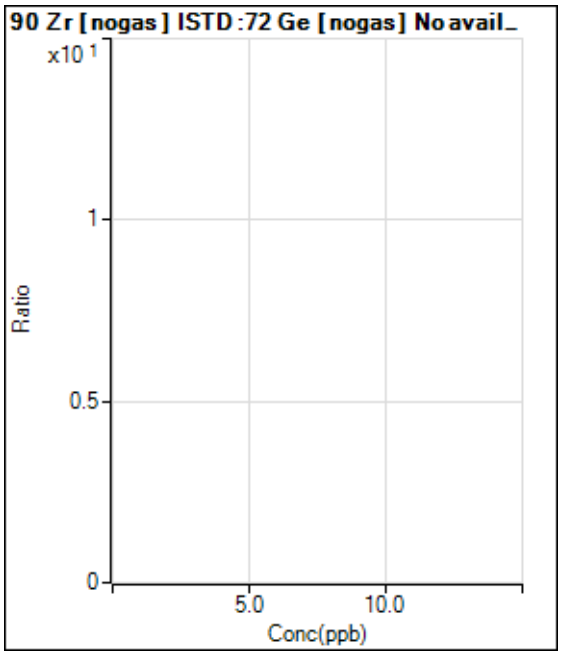


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	920.04	0.0006	P	17.1
2	☐	2.000	2.060	34126.15	0.0224	P	4.2
3	☐	5.000	5.308	86267.22	0.0567	P	1.9
4	☐	10.000	10.754	175899.98	0.1142	P	3.0
5	☐	100.000	94.709	1540708.83	1.0011	A	0.9
6	☐	200.000	202.599	3202363.70	2.1407	A	1.2
7	☐	1.000					

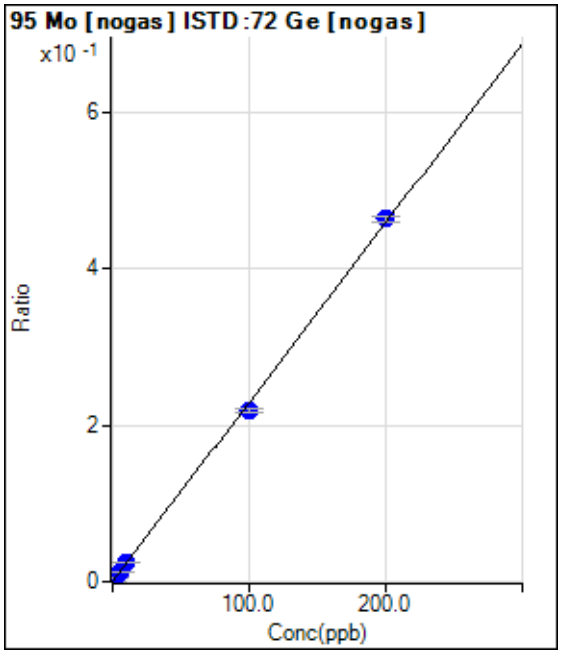
y = 0.0106 * x + 6.0678E-004
R = 0.9995
DL = 0.02942
BEC = 0.05744

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000					
2	☐	2.000					
3	☐	5.000					
4	☐	10.000					
5	☐	100.000					
6	☐	200.000					
7	☐	1.000					

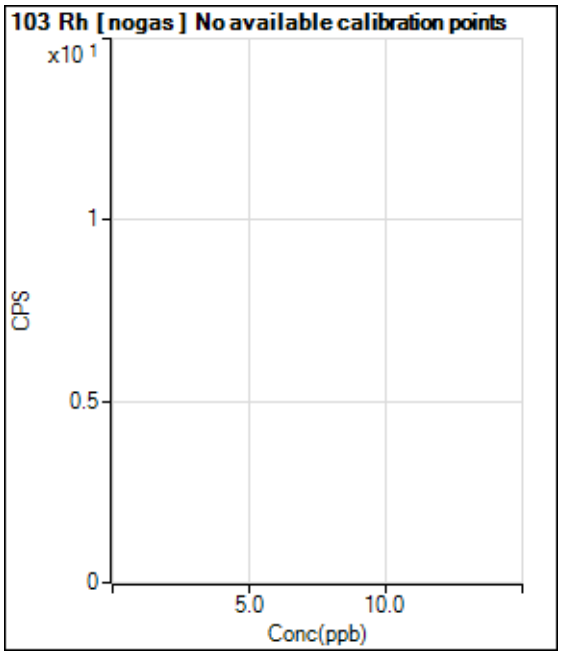


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	316.67	0.0002	P	23.2
2	☐	2.000	2.016	7374.96	0.0048	P	2.5
3	☐	5.000	5.360	19033.90	0.0125	P	0.8
4	☐	10.000	10.714	38181.41	0.0248	P	3.0
5	☐	100.000	95.224	336485.66	0.2187	P	1.9
6	☐	200.000	202.343	694743.58	0.4644	P	1.5
7	☐	1.000					

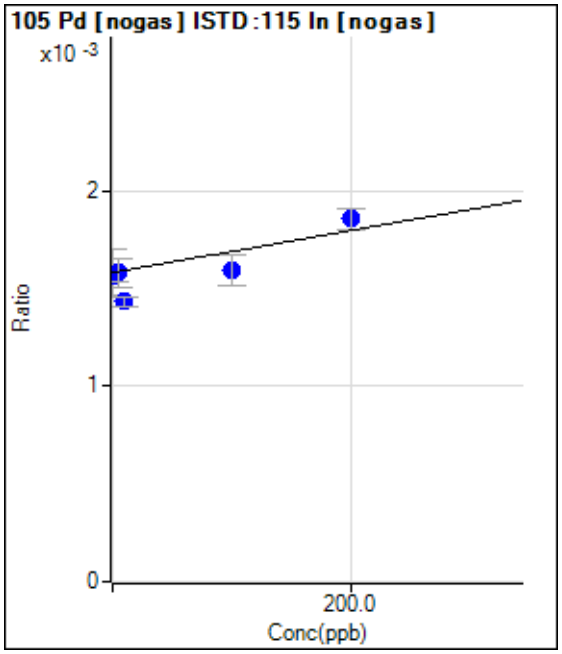
y = 0.0023 * x + 2.0823E-004
R = 0.9996
DL = 0.06323
BEC = 0.09077

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			40.00		P	43.3
2	☐			66.67		P	31.2
3	☐			96.67		P	33.3
4	☐			36.67		P	103.
5	☐			213.34		P	2.7
6	☐			263.34		P	13.3
7	☐						

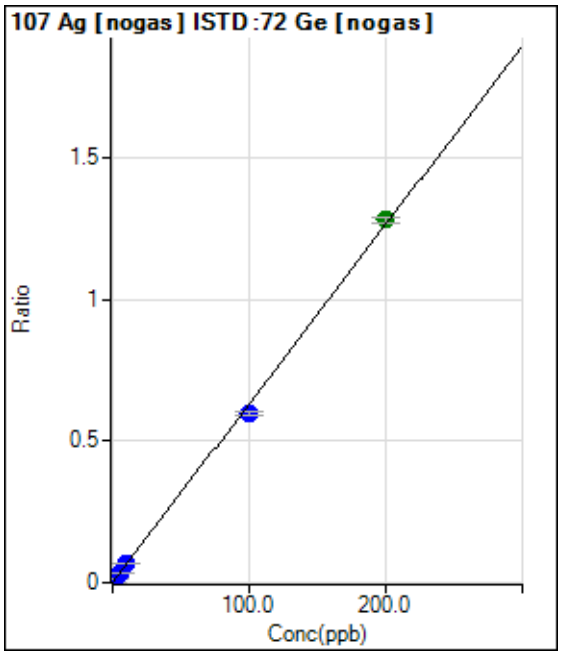


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2566.90	0.0016	P	15.0
2	☐	2.000	-17.200	2530.22	0.0016	P	4.3
3	☐	5.000	-1.935	2556.91	0.0016	P	9.4
4	☐	10.000	-138.628	2333.52	0.0014	P	3.9
5	☐	100.000	7.879	2550.23	0.0016	P	10.2
6	☐	200.000	253.857	2893.62	0.0019	P	6.0
7	☐	1.000					

y = 1.0773E-006 * x + 0.0016
R = 0.8520
DL = 662.9
BEC = 1469

Weight: <None>
Min Conc: <None>

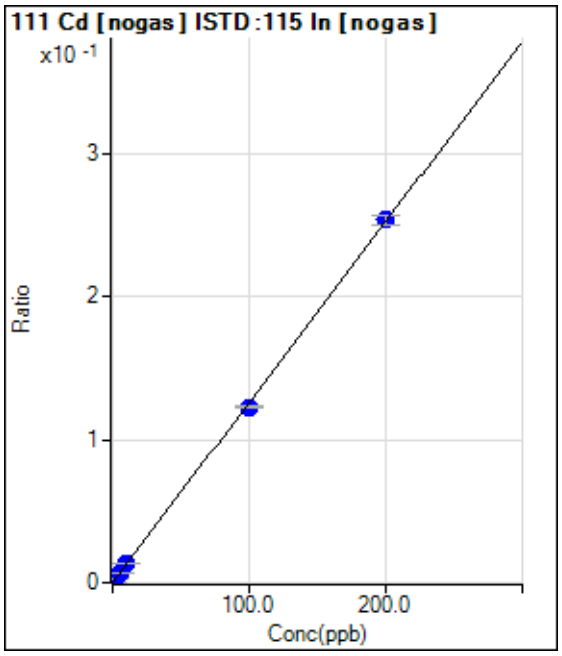
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	570.02	0.0004	P	12.9
2	☐	2.000	2.117	21002.85	0.0138	P	2.2
3	☐	5.000	5.320	51770.41	0.0340	P	2.3
4	☐	10.000	10.485	102729.55	0.0667	P	1.9
5	☐	100.000	94.384	918876.68	0.5972	P	2.3
6	☐	200.000	202.775	1919156.74	1.2826	A	1.4
7	☐	1.000					

y = 0.0063 * x + 3.7552E-004
R = 0.9994
DL = 0.02296
BEC = 0.05939

Weight: <None>
Min Conc: <None>

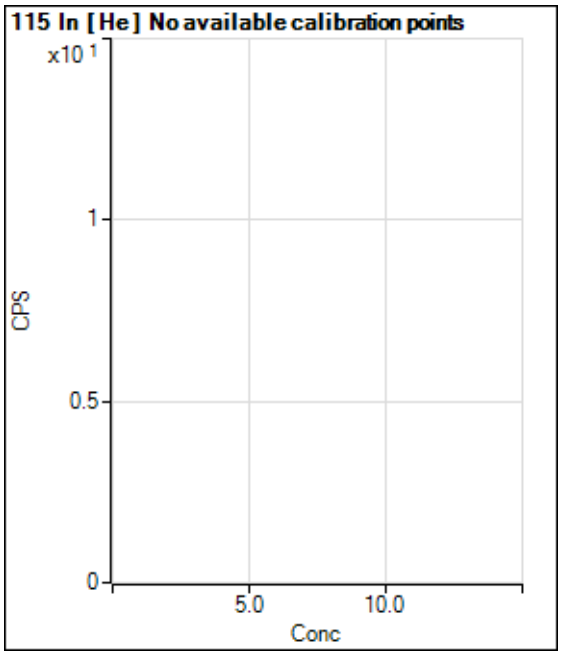


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10.00	0.0000	P	173.
2	☐	2.000	2.173	4430.65	0.0027	P	9.9
3	☐	5.000	5.379	10946.93	0.0068	P	5.9
4	☐	10.000	10.541	21616.92	0.0133	P	0.8
5	☐	100.000	97.387	196698.71	0.1226	P	1.4
6	☐	200.000	201.268	395261.00	0.2534	P	2.3
7	☐	1.000					

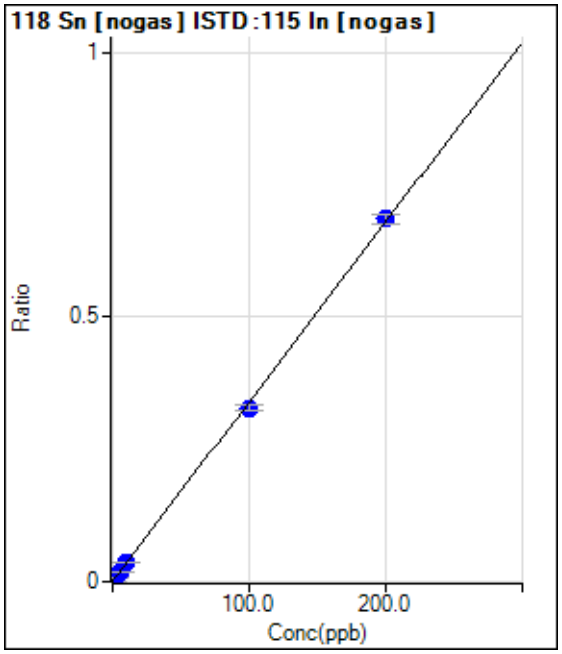
y = 0.0013 * x + 5.9879E-006
R = 0.9999
DL = 0.02471
BEC = 0.004756

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			156231.91		P	0.7
2	☐			157063.40		P	1.5
3	☐			159433.55		P	2.1
4	☐			159267.20		P	2.6
5	☐			155455.31		P	1.9
6	☐			148999.29		P	0.6
7	☐						

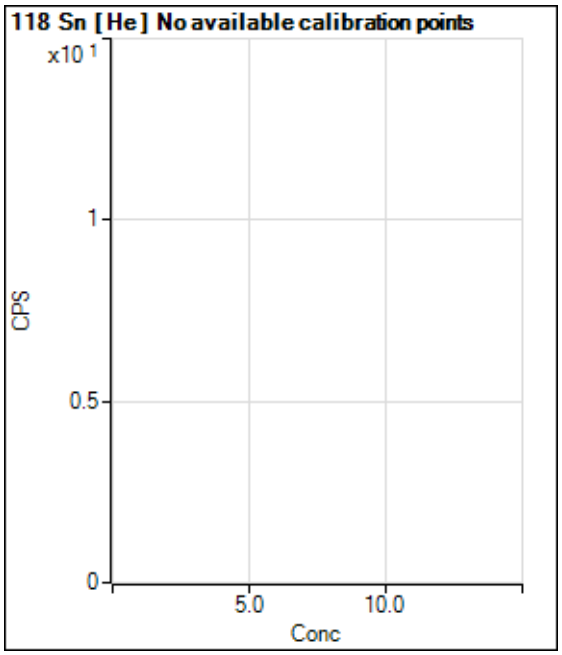


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1060.06	0.0007	P	17.0
2	☐	2.000	1.994	11987.58	0.0074	P	3.8
3	☐	5.000	5.209	29589.68	0.0183	P	5.7
4	☐	10.000	10.334	58113.54	0.0357	P	2.6
5	☐	100.000	96.291	524764.60	0.3272	P	3.3
6	☐	200.000	201.833	1068998.71	0.6852	P	2.8
7	☐	1.000					

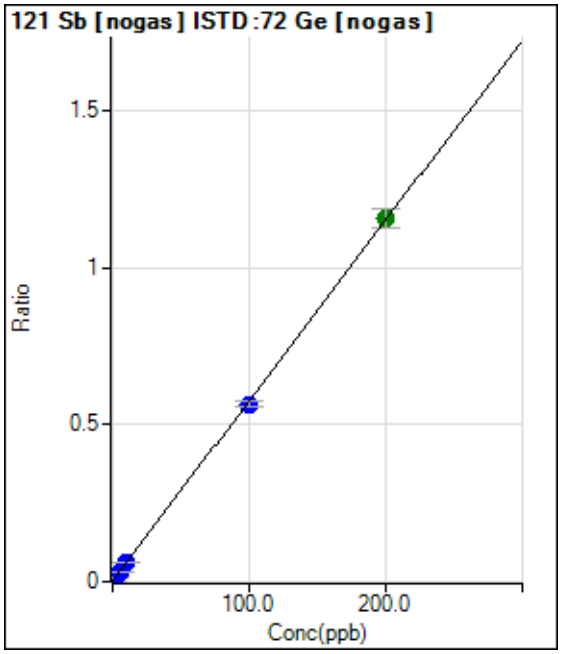
y = 0.0034 * x + 6.5165E-004
R = 0.9997
DL = 0.09788
BEC = 0.1921

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			156.67		P	16.1
2	☐			1496.76		P	10.1
3	☐			3717.12		P	11.5
4	☐			7545.11		P	5.7
5	☐			67842.35		P	0.7
6	☐			140313.69		P	1.1
7	☐						

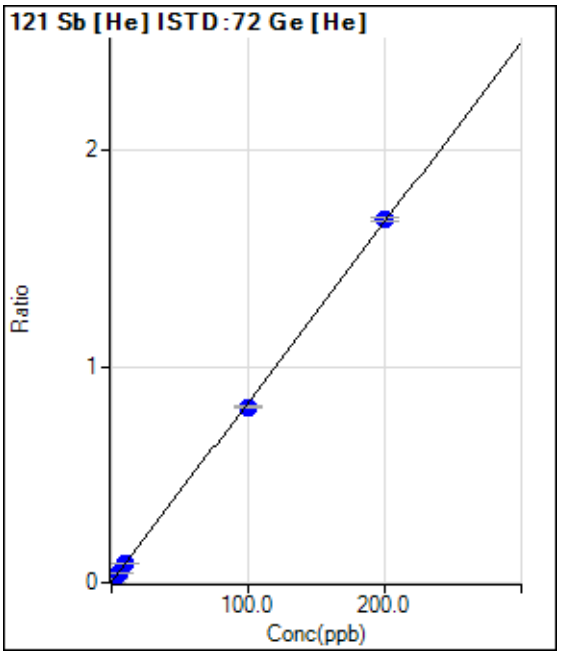


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3523.75	0.0023	P	4.0
2	☐	2.000	2.109	21984.15	0.0144	P	4.2
3	☐	5.000	5.147	48437.76	0.0318	P	1.2
4	☐	10.000	10.325	94751.03	0.0615	P	1.6
5	☐	100.000	98.049	868329.65	0.5643	P	3.0
6	☐	200.000	200.955	1725787.53	1.1542	A	5.3
7	☐	1.000					

y = 0.0057 * x + 0.0023
R = 0.9999
DL = 0.04828
BEC = 0.4047

Weight: <None>
Min Conc: <None>

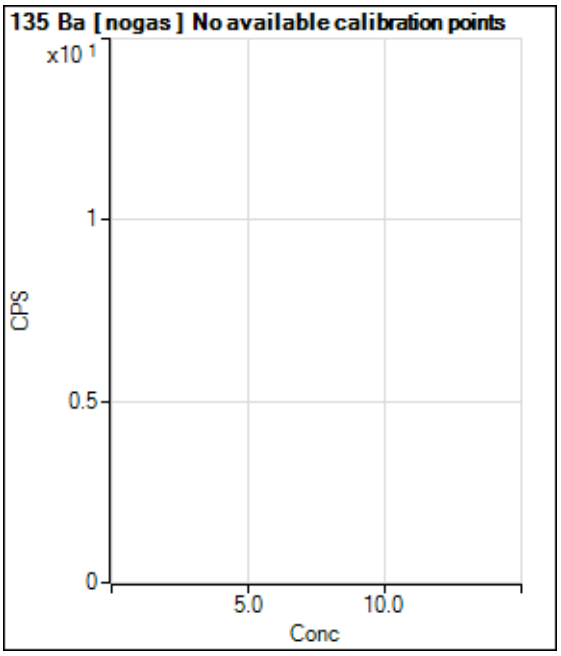
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	380.01	0.0030	P	11.9
2	☐	2.000	2.078	2613.59	0.0203	P	5.4
3	☐	5.000	5.014	5757.70	0.0447	P	6.6
4	☐	10.000	10.560	11700.78	0.0909	P	0.8
5	☐	100.000	97.307	103318.22	0.8131	P	1.7
6	☐	200.000	201.317	207311.64	1.6790	P	1.2
7	☐	1.000					

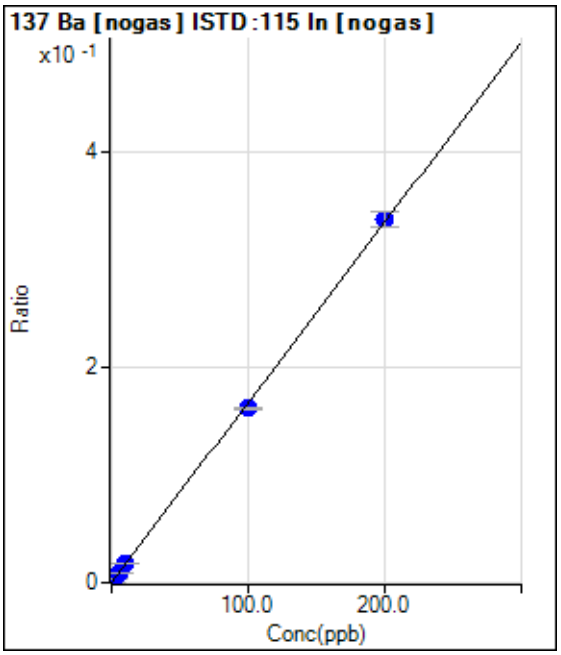
y = 0.0083 * x + 0.0030
R = 0.9999
DL = 0.1283
BEC = 0.3594

Weight: <None>
Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			66.67		P	45.8
2	☐			3420.37		P	2.8
3	☐			7925.30		P	4.7
4	☐			15543.96		P	1.3
5	☐			148476.67		P	1.3
6	☐			293112.50		P	2.0
7	☐						

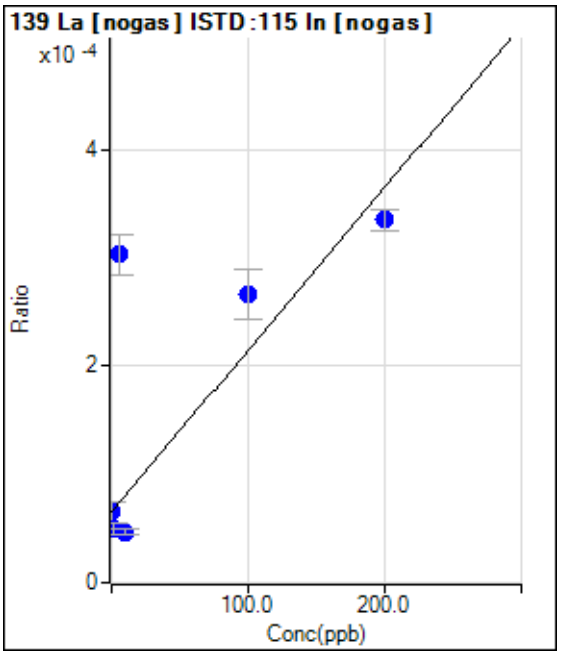
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	80.00	0.0000	P	42.9
2	☐	2.000	2.121	5807.74	0.0036	P	2.0
3	☐	5.000	5.178	14042.56	0.0087	P	1.3
4	☐	10.000	10.232	27872.89	0.0171	P	1.9
5	☐	100.000	96.916	259504.29	0.1618	P	1.6
6	☐	200.000	201.525	524486.07	0.3363	P	4.4
7	☐	1.000					

y = 0.0017 * x + 4.9185E-005
R = 0.9998
DL = 0.03796
BEC = 0.02948

Weight: <None>
Min Conc: <None>

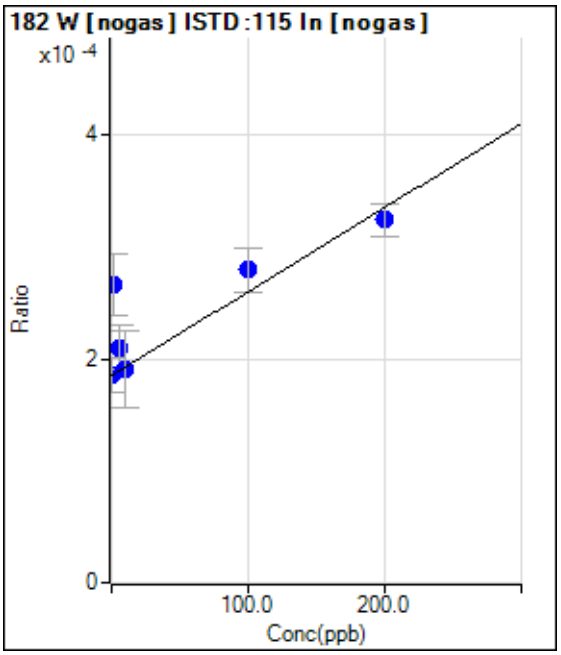


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	106.67	0.0001	P	30.7
2	☐	2.000	-10.747	80.00	0.0000	P	23.0
3	☐	5.000	158.971	490.01	0.0003	P	12.5
4	☐	10.000	-12.238	76.67	0.0000	P	14.2
5	☐	100.000	134.362	426.68	0.0003	P	17.8
6	☐	200.000	180.209	523.35	0.0003	P	5.5
7	☐	100.000					

y = 1.4983E-006 * x + 6.5391E-005
R = 0.7011
DL = 40.24
BEC = 43.64

Weight: <None>
Min Conc: <None>

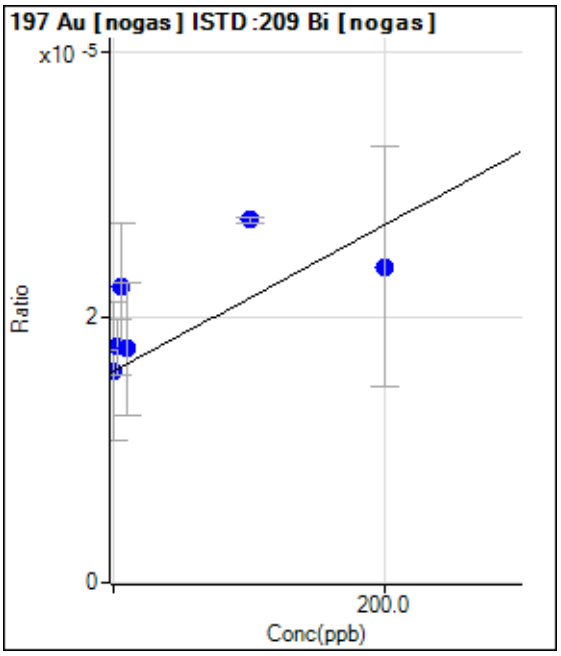
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	300.01	0.0002	P	16.8
2	☐	2.000	107.993	430.01	0.0003	P	20.2
3	☐	5.000	33.568	340.01	0.0002	P	18.4
4	☐	10.000	7.031	310.01	0.0002	P	36.0
5	☐	100.000	126.173	450.01	0.0003	P	14.3
6	☐	200.000	185.288	506.69	0.0003	P	8.8
7	☐	1.000					

y = 7.5150E-007 * x + 1.8530E-004
R = 0.8475
DL = 124.2
BEC = 246.6

Weight: <None>
Min Conc: <None>

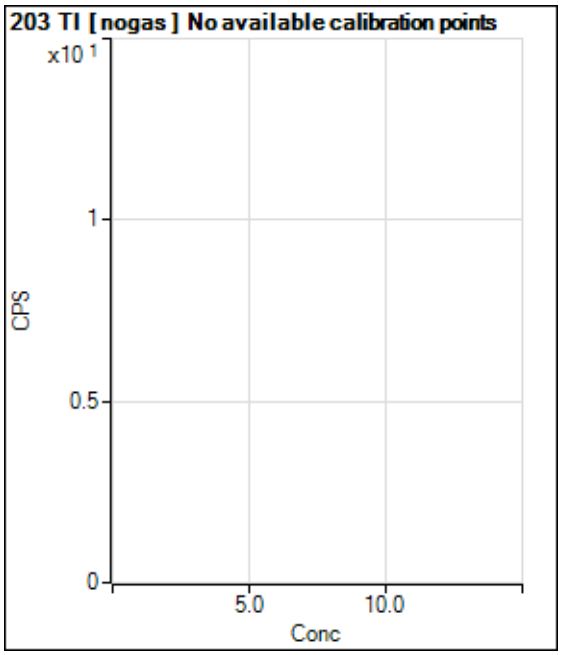


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23.33	0.0000	P	66.0
2	☐	2.000	33.036	26.67	0.0000	P	23.5
3	☐	5.000	114.177	33.33	0.0000	P	43.0
4	☐	10.000	30.682	26.67	0.0000	P	57.0
5	☐	100.000	206.392	40.00	0.0000	P	1.3
6	☐	200.000	142.730	33.33	0.0000	P	76.2
7	☐	100.000					

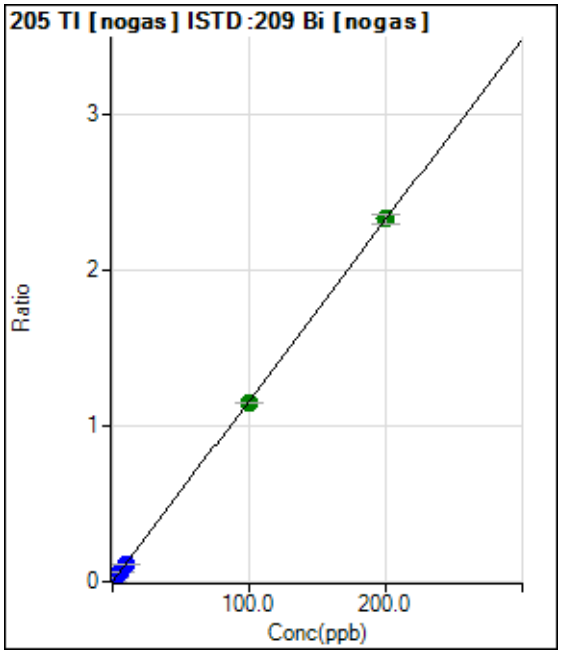
y = 5.5159E-008 * x + 1.5945E-005
R = 0.6846
DL = 572.6
BEC = 289.1

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			103.33		P	14.8
2	☐			14433.27		P	4.5
3	☐			35659.43		P	2.5
4	☐			71925.20		P	1.8
5	☐			699644.13		P	1.6
6	☐			1384853.57		A	1.5
7	☐						

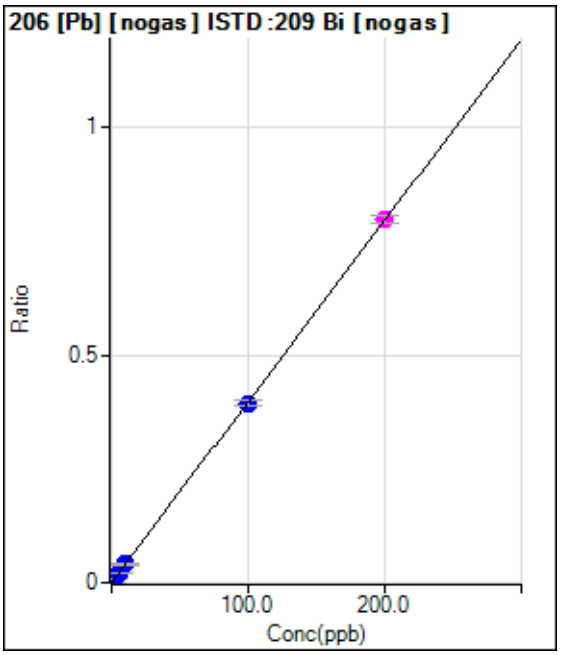


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	196.67	0.0001	P	23.4
2	☐	2.000	1.969	34633.88	0.0230	P	4.3
3	☐	5.000	5.017	86834.03	0.0584	P	3.4
4	☐	10.000	9.844	172875.45	0.1145	P	1.3
5	☐	100.000	98.807	1680260.13	1.1479	A	0.8
6	☐	200.000	200.604	3271600.37	2.3305	A	2.7
7	☐	1.000					

y = 0.0116 * x + 1.3442E-004
R = 1.0000
DL = 0.008112
BEC = 0.01157

Weight: <None>
Min Conc: <None>

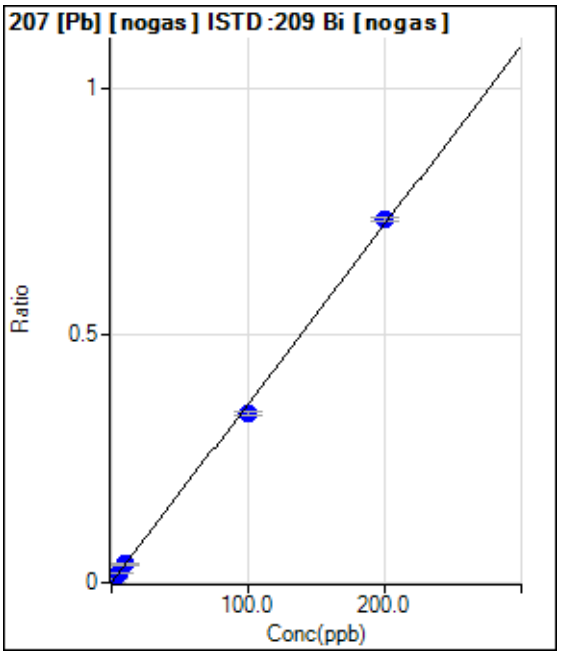
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	96.67	0.0001	P	62.8
2	☐	2.000	1.995	12044.69	0.0080	P	2.3
3	☐	5.000	5.138	30458.85	0.0205	P	5.2
4	☐	10.000	10.086	60666.56	0.0402	P	2.4
5	☐	100.000	99.200	577385.54	0.3946	P	3.6
6	☐	200.000	200.392	1118898.45	0.7970	M	2.0
7	☐	1.000					

y = 0.0040 * x + 6.6016E-005
R = 1.0000
DL = 0.03129
BEC = 0.0166

Weight: <None>
Min Conc: <None>

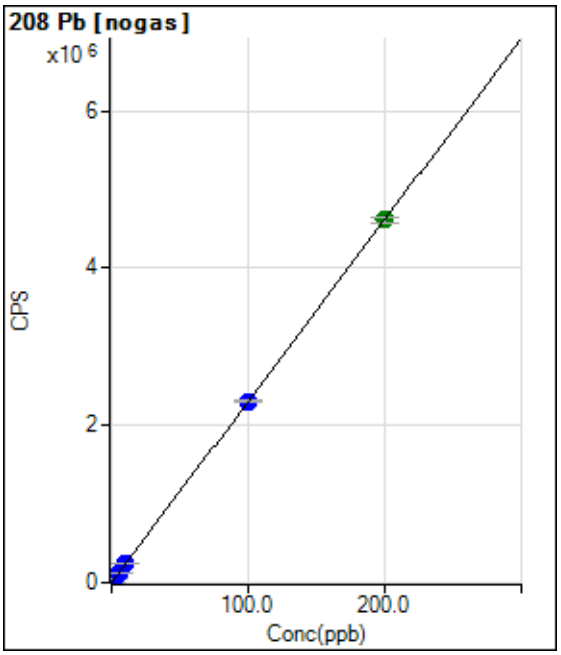


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	123.33	0.0001	P	15.7
2	☐	2.000	1.957	10797.10	0.0072	P	2.3
3	☐	5.000	5.136	27744.00	0.0187	P	4.6
4	☐	10.000	10.236	56057.07	0.0371	P	2.1
5	☐	100.000	94.572	500950.23	0.3423	P	2.7
6	☐	200.000	202.699	1029924.12	0.7336	P	1.2
7	☐	1.000					

y = 0.0036 * x + 8.4145E-005
R = 0.9995
DL = 0.01092
BEC = 0.02325

Weight: <None>
Min Conc: <None>

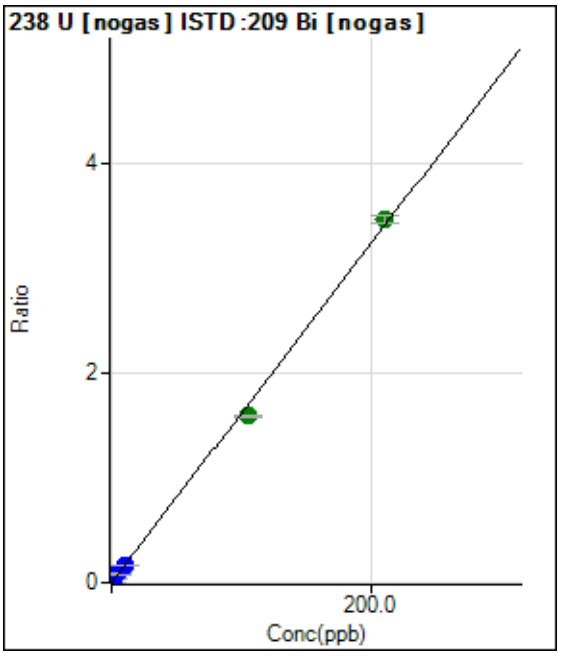
Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	516.67		P	17.5
2	☐	2.000	2.120	49407.18		P	1.0
3	☐	5.000	5.323	123283.00		P	1.2
4	☐	10.000	10.696	247193.57		P	0.9
5	☐	100.000	99.853	2303273.90		P	1.2
6	☐	200.000	200.030	4613508.78		A	1.8
7	☐	1.000					

y = 23061.5517 * x + 516.6733
R = 1.0000
DL = 0.01173
BEC = 0.0224

Weight: <None>
Min Conc: <None>

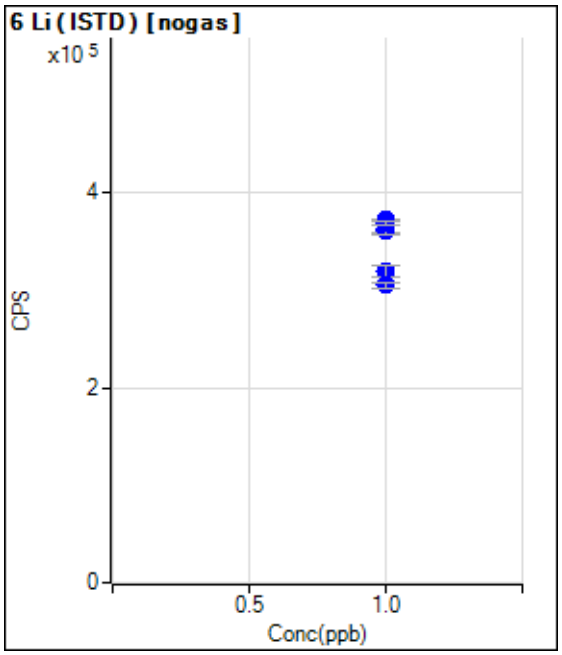


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	130.00	0.0001	P	19.6
2	☐	2.000	2.043	50079.45	0.0333	P	1.3
3	☐	5.000	5.094	123060.98	0.0828	P	3.3
4	☐	10.000	10.501	257562.61	0.1706	P	2.9
5	☐	105.000	97.920	2327950.43	1.5901	A	2.0
6	☐	210.000	213.514	4867606.91	3.4670	A	2.0
7	☐	1.000					

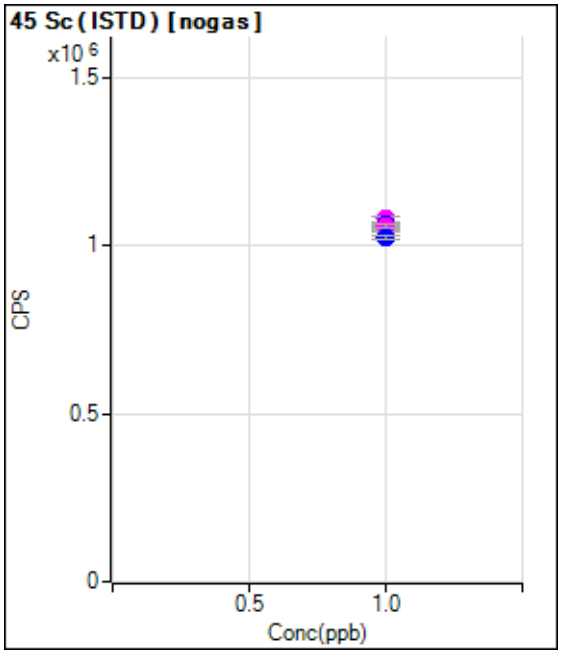
y = 0.0162 * x + 8.8724E-005
R = 0.9992
DL = 0.003211
BEC = 0.005464

Weight: <None>
Min Conc: <None>

Calibration for 011_ICV.d

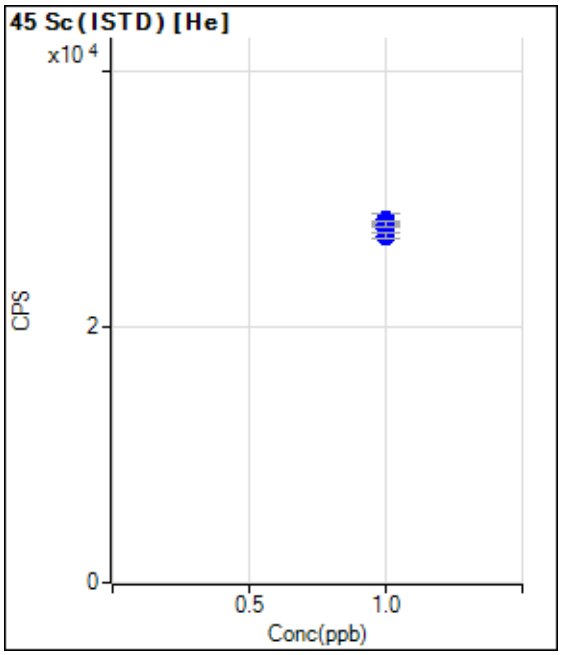


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		363378.75		P	2.3
2	☐	1.000		362157.35		P	2.3
3	☐	1.000		372371.80		P	0.6
4	☐	1.000		368256.09		P	1.0
5	☐	1.000		320516.76		P	3.7
6	☐	1.000		304984.31		P	1.9
7	☐	1.000					

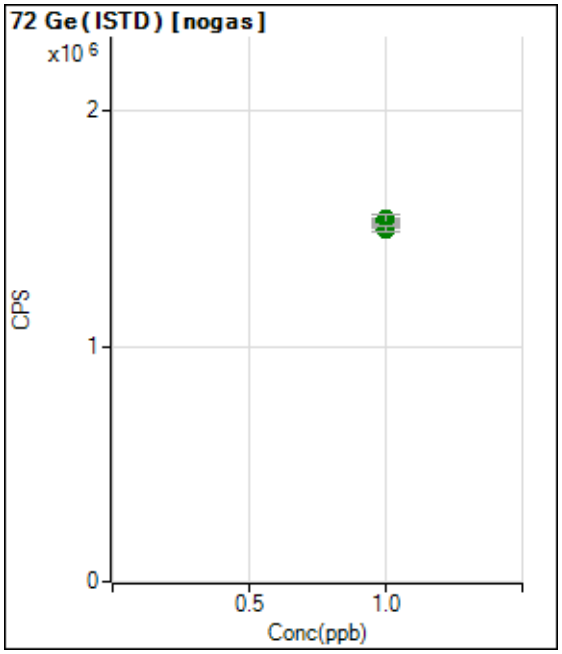


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1046059.15		P	1.3
2	☐	1.000		1057136.55		P	2.0
3	☐	1.000		1080025.84		M	1.4
4	☐	1.000		1064517.67		P	1.2
5	☐	1.000		1060966.42		M	0.9
6	☐	1.000		1025884.96		P	0.9
7	☐	1.000					

Calibration for 011_ICV.d

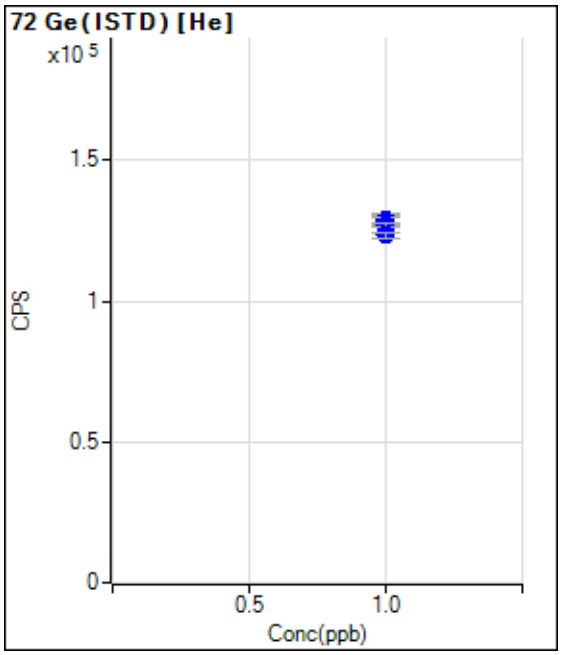


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		28365.49		P	4.0
2	☐	1.000		27657.66		P	1.8
3	☐	1.000		27387.18		P	3.8
4	☐	1.000		28225.20		P	0.6
5	☐	1.000		28021.61		P	1.5
6	☐	1.000		27083.62		P	1.8
7	☐	1.000					

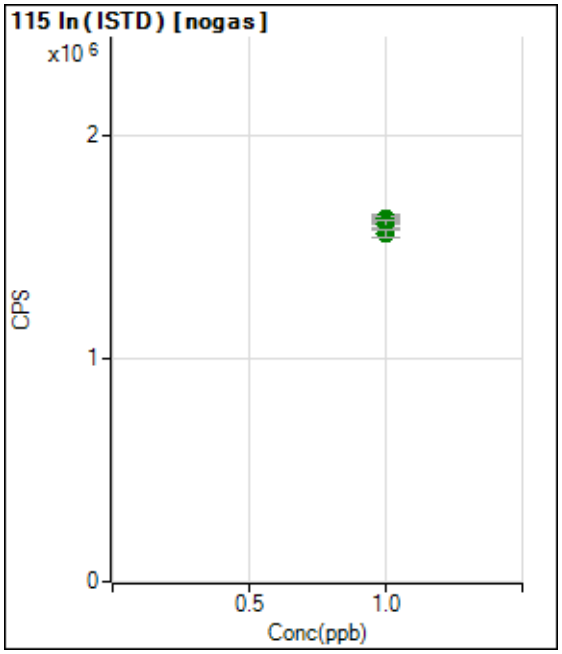


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1518701.33		A	1.6
2	☐	1.000		1526722.58		A	2.3
3	☐	1.000		1522299.56		A	1.7
4	☐	1.000		1540976.64		A	2.6
5	☐	1.000		1539181.96		A	2.4
6	☐	1.000		1496121.28		A	1.7
7	☐	1.000					

Calibration for 011_ICV.d

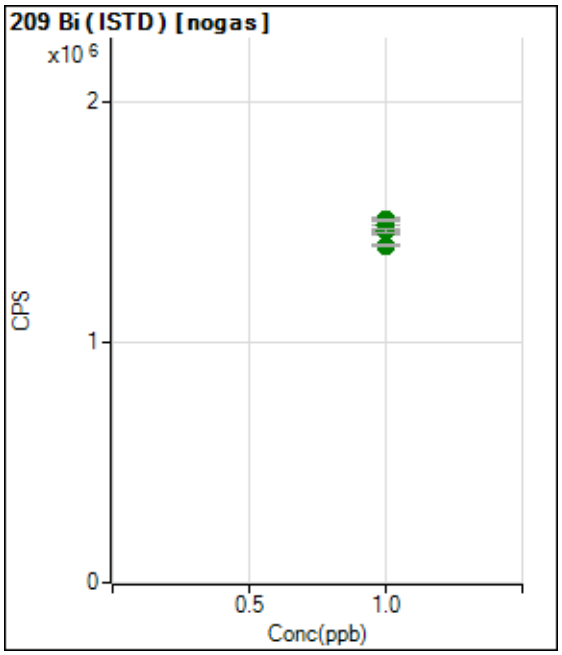


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		127072.55		P	1.3
2	☐	1.000		128881.05		P	2.5
3	☐	1.000		128904.94		P	3.9
4	☐	1.000		128720.08		P	1.2
5	☐	1.000		127059.29		P	1.1
6	☐	1.000		123489.60		P	1.8
7	☐	1.000					



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1623623.83		A	2.5
2	☐	1.000		1617585.06		A	3.2
3	☐	1.000		1616304.99		A	1.8
4	☐	1.000		1628177.74		A	1.4
5	☐	1.000		1604593.38		A	2.5
6	☐	1.000		1560404.78		A	2.1
7	☐	1.000					

Calibration for 011_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1463803.57		A	1.7
2	☐	1.000		1506072.11		A	2.2
3	☐	1.000		1487197.22		A	2.7
4	☐	1.000		1509855.97		A	0.5
5	☐	1.000		1463794.09		A	1.3
6	☐	1.000		1404060.66		A	0.9
7	☐	1.000					

Sub Contract Data

Bhate Environmental Associates, Inc.
Project: LHAAP 18/24
ALS WO# HS17120573

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1734660

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2014 (205479)

General Set Information: There were nine field samples in this Work Order. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Sample 1734660002/03/04 were re-analyzed and reported at a 1:100, 1:100 and 1:10 dilutions, respectively. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 580022) was less than 1/2 the CRDL. The recovery for the LCS (580023) was within acceptable parameters.

MS/MSD Analysis: The matrix spike and matrix spike duplicate (MS/MSD) was performed on sample 1734660007 (Client ID: MW16_120817). The MS/MSD percent recoveries and relative percent difference (RPD) were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): None were required for this set.

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 28NOVP01/02) along with datafiles 20DECD02/03/18.

Thomas Bosch December 22, 2017
Date

ANALYTICAL REPORT

Report Date: December 22, 2017

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

Phone: (281) 530-5656

E-mail: Sonia.West@alsglobal.com

Workorder: **34-1734660**
Project ID: HS17120573 120717
Purchase Order: HS17120573
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
18CPTMW24_120717	1734660001	12/07/17	12/12/17	
18CPTMW14_120717	1734660002	12/07/17	12/12/17	
18CPTMW14_120717_a	1734660003	12/07/17	12/12/17	
18CPTMW23_120717	1734660004	12/07/17	12/12/17	
18WW24_120717	1734660005	12/07/17	12/12/17	
18WW25_120717	1734660006	12/07/17	12/12/17	
MW16_120817	1734660007	12/08/17	12/12/17	
18WW06_120817	1734660008	12/08/17	12/12/17	
18WW02_120817	1734660009	12/08/17	12/12/17	

ANALYTICAL REPORT

Workorder: 34-1734660
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **18CPTMW24_120717** | Sampling Site: NA | Collected: 12/07/2017
Lab ID: 1734660001 | Media: 125 mL Nalgene | Received: 12/12/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2014 (HBN: 205479) | **Percent Solid:** NA
Analyzed: 12/20/2017 12:40 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**65**	1.0	2.0	4.0	1	

Sample ID: **18CPTMW14_120717** | Sampling Site: NA | Collected: 12/07/2017
Lab ID: 1734660002 | Media: 125 mL Nalgene | Received: 12/12/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2014 (HBN: 205479) | **Percent Solid:** NA
Analyzed: 12/20/2017 17:26 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**2700**	100	200	400	100	

Sample ID: **18CPTMW14_120717_a** | Sampling Site: NA | Collected: 12/07/2017
Lab ID: 1734660003 | Media: 125 mL Nalgene | Received: 12/12/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2014 (HBN: 205479) | **Percent Solid:** NA
Analyzed: 12/20/2017 17:48 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**2600**	100	200	400	100	

Sample ID: **18CPTMW23_120717** | Sampling Site: NA | Collected: 12/07/2017
Lab ID: 1734660004 | Media: 125 mL Nalgene | Received: 12/12/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2014 (HBN: 205479) | **Percent Solid:** NA
Analyzed: 12/20/2017 18:08 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**140**	10	20	40	10	

ANALYTICAL REPORT

Workorder: 34-1734660
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **18WW24_120717** | Sampling Site: NA | Collected: 12/07/2017
Lab ID: 1734660005 | Media: 125 mL Nalgene | Received: 12/12/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2014 (HBN: 205479) | **Percent Solid:** NA
Analyzed: 12/20/2017 14:35 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW25_120717** | Sampling Site: NA | Collected: 12/07/2017
Lab ID: 1734660006 | Media: 125 mL Nalgene | Received: 12/12/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2014 (HBN: 205479) | **Percent Solid:** NA
Analyzed: 12/20/2017 14:54 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **MW16_120817** | Sampling Site: NA | Collected: 12/08/2017
Lab ID: 1734660007 | Media: 125 mL Nalgene | Received: 12/12/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2014 (HBN: 205479) | **Percent Solid:** NA
Analyzed: 12/20/2017 15:13 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **18WW06_120817** | Sampling Site: NA | Collected: 12/08/2017
Lab ID: 1734660008 | Media: 125 mL Nalgene | Received: 12/12/2017
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2014 (HBN: 205479) | **Percent Solid:** NA
Analyzed: 12/20/2017 15:32 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

ANALYTICAL REPORT

Workorder: 34-1734660
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **18WW02_120817**	Sampling Site: NA	Collected: 12/08/2017
Lab ID: 1734660009	Media: 125 mL Nalgene	Received: 12/12/2017
Matrix: Water	Sampling Parameter: NA	

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable	**Analysis:** EPA 6850, DoD QSM Water	**Instrument ID:** LCMS04
	Batch: ELMS/2014 (HBN: 205479)	**Percent Solid:** NA
	Analyzed: 12/20/2017 15:51	**Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Comments

Quality Control: EPA 6850, DoD QSM - (HBN: 205479)

Sample 1734660002/03/04 were re-analyzed and reported at a 1:100, 1:100 and 1:10 dilutions, respectively. The reporting limits have been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 12/21/2017 16:01	/S/ Stephen Brose 12/22/2017 16:35

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1734660
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

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

ANALYTICAL REPORT

Workorder: 34-1734660
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< This testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample
Batch Report

Analysis Information

Workorder: 1734660

Limits: Client SOW/Contract Specified
Basis: DoD QSM
Preparation: NA
Batch: NA
Prepared By: NA
Analysis: EPA 6850
Batch: ELMS/2014 (HBN: 205479)
Analyzed By: Thomas Bosch

Blank

LMB: 580022
Analyzed: 12/20/2017 12:01
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 580023
Analyzed: 12/20/2017 12:20
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	5.24	5.00	105	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample: 1734660007
Analyzed: 12/20/2017 15:13
Dilution: 1
Units: ug/L

MS: 580305
Analyzed: 12/20/2017 18:27
Dilution: 1
Units: ug/L

MSD: 580306
Analyzed: 12/20/2017 18:46
Dilution: 1
Units: ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	5.15	5	103	78.8	123.8	5.29	106	2.73	0.0	20.0

Continuing Calibration Verification

CCV: 580019
Analyzed: 12/20/2017 11:03
Units: ug/L
Criteria: ± 15%

CCV: 580026
Analyzed: 12/20/2017 16:11
Units: ug/L
Criteria: ± 15%

CCV: 580307
Analyzed: 12/20/2017 19:05
Units: ug/L
Criteria: ± 15%

Analyte	Result	Target	% Rec.	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	26.9	25.0	108	26.3	25.0	105	26.9	25.0	107

Interference Check Sample

ICSA: 580021
Analyzed: 12/20/2017 11:41
Units: ug/L
Criteria: ± 30%

Analyte	Result	Target	% Rec.
Perchlorate	0.890	1.00	89.0

Limit of Detection Verification

LODV: 580020
Analyzed: 12/20/2017 11:22
Units: ug/L
Criteria: ± 50%

LODV: 580027
Analyzed: 12/20/2017 16:30
Units: ug/L
Criteria: ± 50%

LODV: 580308
Analyzed: 12/20/2017 19:25
Units: ug/L
Criteria: ± 50%

Analyte	Result	Target	% Rec.	Result	Target	% Rec.	Result	Target	% Rec.
Perchlorate	1.17	1.00	117	1.05	1.00	105	1.15	1.00	115

Quality Control Sample Batch Report

Analysis Information

Workorder: 1734660

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2014 (HBN: 205479)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Comments

Sample 1734660002/03/04 were re-analyzed and reported at a 1:100, 1:100 and 1:10 dilutions, respectively. The reporting limits have been adjusted accordingly.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
12/21/2017 16:01	12/22/2017 16:35

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◓ - Sample and Matrix Duplicate less than 5 times the reporting limit
⬣ - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

W 1734660

18698/#2

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

Subcontract Chain of Custody

COC ID: 8194

1734660

SUBCONTRACT TO:

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

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS17120573
TSR:	Houston House Acct

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS17120573-01**	**18CPTMW24_120717**	**Water**	**07 Dec 2017 09:00**
	SUB_Perch-6850			19 Dec 2017
2.	**HS17120573-02**	**18CPTMW14_120717**	**Water**	**07 Dec 2017 10:00**
	SUB_Perch-6850			19 Dec 2017
3.	**HS17120573-03**	**18CPTMW14_120717_a**	**Water**	**07 Dec 2017 10:00**
	SUB_Perch-6850			19 Dec 2017
4.	**HS17120573-04**	**18CPTMW23_120717**	**Water**	**07 Dec 2017 11:05**
	SUB_Perch-6850			19 Dec 2017
5.	**HS17120573-05**	**18WW24_120717**	**Water**	**07 Dec 2017 13:45**
	SUB_Perch-6850			19 Dec 2017
6.	**HS17120573-06**	**18WW25_120717**	**Water**	**07 Dec 2017 14:35**
	SUB_Perch-6850			19 Dec 2017
7.	**HS17120573-07**	**MW16_120817**	**Water**	**08 Dec 2017 08:35**
	SUB_Perch-6850			19 Dec 2017
8.	**HS17120573-08**	**18WW06_120817**	**Water**	**08 Dec 2017 09:50**
	SUB_Perch-6850			19 Dec 2017
9.	**HS17120573-09**	**18WW02_120817**	**Water**	**08 Dec 2017 10:45**

Subcontract Chain of Custody

COC ID: 8194

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE
SUB_Perch-6850			19 Dec 2017

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: Dec 11, 2017 1520

Received By: _____ Date/Time: 12/12/2017 10:00

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

00871940

ALS Environmental
CHAIN-OF-CUSTODY

Project / Job / Task: HS17120573	Split:	Workorder ID: 1734660	Level: ENV_LVL4
Client: ALS Environmental (Houston)		Account: 8101	Type: 125Poly
Comments:			Preservatives: COOL

Requested Analysis

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 6850, DoD QSM
1	12/07/2017 09:00	18CPTMW24_120717	1734660001		Water	A	1	A
2	12/07/2017 10:00	18CPTMW14_120717	1734660002		Water	A	1	A
3	12/07/2017 10:00	18CPTMW14_120717_a	1734660003		Water	A	1	A
4	12/07/2017 11:05	18CPTMW23_120717	1734660004		Water	A	1	A
5	12/07/2017 13:45	18WW24_120717	1734660005		Water	A	1	A
6	12/07/2017 14:35	18WW25_120717	1734660006		Water	A	1	A
7	12/08/2017 08:35	MW16_120817	1734660007		Water	A	1	A
8	12/08/2017 09:50	18WW06_120817	1734660008		Water	A	1	A
9	12/08/2017 10:45	18WW02_120817	1734660009		Water	A	1	A
10								

668 of 770

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	12/12/2017 10:00	ALS Sample Receiving	Sample Login
Julie Warath	12/12/17 1450	16B	Storage
R.33 1	12.18.17/14:45	T.Bosch	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

Tue, 12/12/17 2:46 PM

ALSCOCV

ALS - Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston — Project/Task/Site: 1734660

Date/Time of Receipt: 12/12/2017 1000 — Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperaiure Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
		Are all temperatures within project specific guidelines?	Yes/No/NA
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	VOA Headspace Present?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA		

pH Check Performed:	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH–418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	TOC Preserved	Yes/No/NA

Cooler Received	ALS Cooler No.	Temp.	Cooler Received	ALS Cooler No.	Temp.	Cooler Received	ALSL Cooler No.	Temp.
1	C17- 8090	3 °C	4	C17-	°C	7	C17-	°C
2	C17-	°C	5	C17-	°C	8	C17-	°C
3	C17-	°C	6	C17-	°C	9	C17-	°C

Taken By: [signature] (Signature) Marianne Schmith (Printed Name) 12/12/2017 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

E-mailed to Client? Yes ☐ No ☐

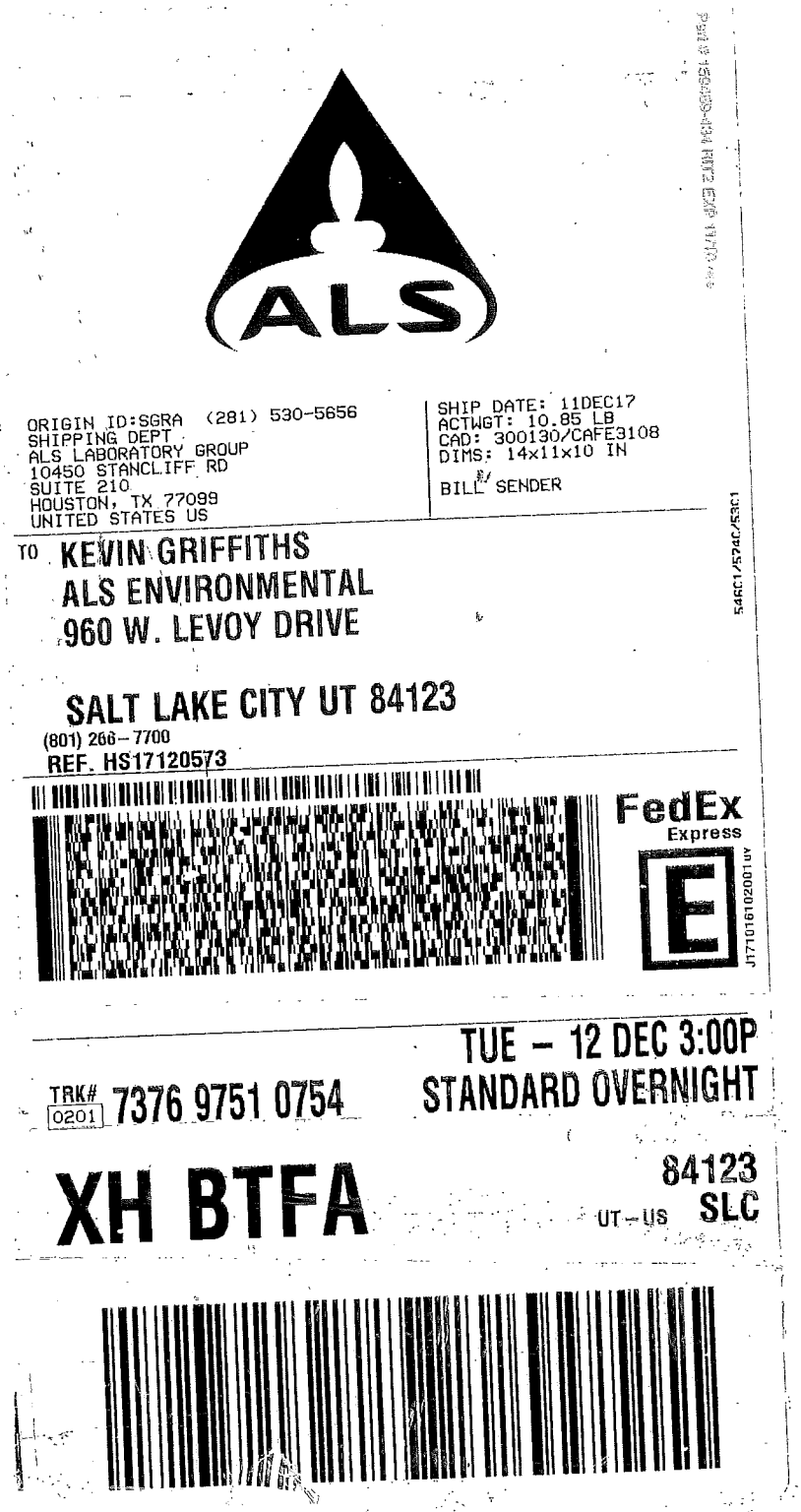
Response Required Within 24 Hours

Project Management

Project Manager Comments:

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

CRIR.dot — Revised 1/1/15



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

SHIP DATE: 11DEC17
ACTWGT: 10.85 LB
CAD: 300130/CAFE3108
DIMS: 14x11x10 IN

BILL SENDER

TO KEVIN GRIFFITHS
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF. HS17120573

FedEx Express

TUE - 12 DEC 3:00P
STANDARD OVERNIGHT

TRK# 0201 7376 9751 0754

XH BTFA

84123
UT-US SLC

atch Worklist

Batch: ELMS/ 2014 **Created:** 12/20/2017 08:42 **Instrument:** HBN: 205479

Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1734660 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	580019	CCV for HBN 205479 [ELMS/2014]				CCV	3		E685041C3Q	5311		12/28/2017	
2	580020	LODV for HBN 205479 [ELMS/2014				LODV	3		E6850..D3Q	5311		12/28/2017	
3	580021	ICS for HBN 205479 [ELMS/2014]				ICS	3		E6850..D3Q	5311		12/28/2017	
4	580022	LMB for HBN 205479 [ELMS/2014]				LMB	3		E6850Q413Q	5311		12/28/2017	
5	580023	LCS for HBN 205479 [ELMS/2014]				LCS	3		E6850Q413Q	5311		12/28/2017	
6	1734660001	18CPTMW24_120717				SAMPLE	3	1734660001-A	E6850Q41.3	5480	1/4/2018	12/28/2017	
7	1734660002	18CPTMW14_120717				SAMPLE	3	1734660002-A	E6850Q41.3	5480	1/4/2018	12/28/2017	
8	1734660003	18CPTMW14_120717_a				SAMPLE	3	1734660003-A	E6850Q41.3	5480	1/4/2018	12/28/2017	
9	1734660004	18CPTMW23_120717				SAMPLE	3	1734660004-A	E6850Q41.3	5480	1/4/2018	12/28/2017	
10	1734660005	18WW24_120717				SAMPLE	3	1734660005-A	E6850Q41.3	5480	1/4/2018	12/28/2017	
11	1734660006	18WW25_120717				SAMPLE	3	1734660006-A	E6850Q41.3	5480	1/4/2018	12/28/2017	
12	1734660007	MW16_120817				SAMPLE	3	1734660007-A	E6850Q41.3	5480	1/5/2018	12/28/2017	
13	580305	MW16_120817(1734660007MS)				MS	3		E6850Q413Q	5311		12/28/2017	
14	580306	MW16_120817(1734660007MSD)				MSD	3		E6850Q413Q	5311		12/28/2017	
15	1734660008	18WW06_120817				SAMPLE	3	1734660008-A	E6850Q41.3	5480	1/5/2018	12/28/2017	
16	1734660009	18WW02_120817				SAMPLE	3	1734660009-A	E6850Q41.3	5480	1/5/2018	12/28/2017	
17	580026	CCV for HBN 205479 [ELMS/2014]				CCV	3		E685041C3Q	5311		12/28/2017	
18	580027	LODV for HBN 205479 [ELMS/2014				LODV	3		E6850..D3Q	5311		12/28/2017	
19	580307	CCV for HBN 205479 [ELMS/2014]				CCV	3		E685041C3Q	5311		12/28/2017	
20	580308	LODV for HBN 205479 [ELMS/2014				LODV	3		E6850..D3Q	5311		12/28/2017	

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1734660 (001-09)
ELMS Batch/HBN ID: 2014 (205479)
Prep Date: 12/20/2017 Analysis Date: 12/20/2017 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence:\\HPCHEM\1\SEQUENCE\CLO4\2017\DEC\20DEC17P.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by TNB. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot DI735)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot DI735)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

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

CALIBRATION CURVE: Used curve from 11/28/2017, sequence 28NOV17P.s Offline Quantitation Method: CLO4-DPR.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 3 Injection Volume: 25µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
4.0	0.65
5.0	0.25
14.5	0.25
15.0	0.65
17.5	0.65

QC DATA: 5.0µL of QC Solution Horizon ID 36749 was used for LCS 580023; Target = 5.0µg/L. ASTM type II water was used for LMB 580022.

MS/MSD: MS/MSD was performed on sample 1734660007 (Client ID: MW16_120817). 5.0µl of Working Standard Solution Horizon ID 36735 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

COMMENTS:

1) Results reported in µg/L. Sample 1734660002/03/04 were re-analyzed and reported at a 1:100, 1:100 and 1:10 dilutions, respectively. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2017\DEC\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for some of the Initial Calibration analyses (datafiles: 28NOVP01,02) along with datafiles 20DECD02/03/18.
5) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2017\CLO4-205479-DOD-ALS-HSTN-LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#

STANDARD REPORT

Working Standard - CLO4 WRK

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

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

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

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

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36734	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	05/10/2018

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		Description - 6850 Stock AccStd 1,000ug/mL
Standard: 36733	Created By: T. Bosch	Amount: 100 mL
MFG: AccuStandard	Create Date: 5/10/2017	Expires: 10/4/2018
MFG Lot: 216095148	Lab Lot: CLO4 STOCK	Usable: Yes
Part ID: IC-PER-10X-1		

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

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:	Lab Lot: LAB 109	Usable: Yes
Part ID:		

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

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

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

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

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

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36733	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	10/04/2018

STANDARD REPORT

Working Standard - CLO4 QC WRK

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

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

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

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

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36749	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	05/11/2018

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

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

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

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

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

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/6/2005	Expires: 11/7/2025
MFG Lot:	Lab Lot: LAB 109	Usable: Yes
Part ID:		

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK		Description - 6850 QC Stock STD 1,000ug/mL
Standard: 36748	Created By: T. Bosch	Amount: 100 mL
MFG: Ultra Scientific	Create Date: 5/11/2017	Expires: 3/31/2020
MFG Lot: CP-0860	Lab Lot: CLO4 QC STOCK	Usable: Yes
Part ID: ICC-013		

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

STANDARD REPORT

Working Standard - CLO4ISTDWRK

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

Standard: **38780**
MFG: ALS/SLC
MFG Lot: TNB: 10/09/17
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 10/09/2017 01:10PM
Verified By: Thomas Bosch
Verify Date:

Amount: 10 mL
Expires: 10/09/2018
Usable: Yes
Lab Lot: CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
23118	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.1 mL	02/27/2024

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 23118	Created By: Thomas Bosch	Amount: 1 mL
MFG: Cambridge Isotope	Create Date: 04/04/2014 03:04PM	Expires: 02/27/2024
MFG Lot: SDDG-013	Verified By: Thomas Bosch	Usable: Yes
Part ID: OLM-7310-S	Verify Date: 02/05/2009 12:02AM	Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

TRIPLE ISO CERTIFICATION ISO/IEC 17025 ISO GUIDE 34 ISO/IEC 17043

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

AccuStandard® Inc.

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

CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

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

Signal Word: Warning

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

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

The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO Guide 34, ISO/IEC 17025 and certified to ISO 9001

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

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

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\20DEC17D\20DEC17D.B

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

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

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
#*	580019	CCV@25	Vial 71	1	Control	1	9.81038e5	12.611	26.88404
#*	580020	LODV@1.	Vial 72	1	Control	2	4.09448e4	12.755	1.16641
#*	580021	ICS@1.	Vial 73	1	Control	3	2.31264e4	12.507	8.90280e-1
#*	580022	LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
#*	580023	LCS@5.	Vial 75	1	Control	5	1.72493e5	12.572	5.24223
#*	1734660001		Vial 76	1	Sample	6	1.66533e6	12.140	64.58886
#*	1734660002		Vial 79	1	Sample	9	6.70634e7	11.312	724.34697
#*	1734660003		Vial 80	1	Sample	10	6.48294e7	11.335	712.26199
#*	1734660004		Vial 81	1	Sample	11	5.13861e6	12.413	122.81206
#*	1734660005		Vial 82	1	Sample	12	0.00000	0.000	0.00000
#*	1734660006		Vial 83	1	Sample	13	0.00000	0.000	0.00000
#*	1734660007		Vial 84	1	Sample	14	0.00000	0.000	0.00000
#*	1734660008		Vial 85	1	Sample	15	0.00000	0.000	0.00000
#*	1734660009		Vial 86	1	Sample	16	0.00000	0.000	0.00000
#*	580026	CCV@25	Vial 71	1	Control	17	9.69257e5	12.634	26.27825
#*	580027	LODV@1.	Vial 72	1	Control	18	3.82910e4	12.796	1.04684
#*	1734660002	100	Vial 87	1	Sample	19	1.14345e6	12.714	2679.31645
#*	1734660003	100	Vial 88	1	Sample	20	1.08643e6	12.716	2555.35129
#*	1734660004	10X	Vial 89	1	Sample	21	5.41710e5	12.719	137.27124
#*	580305	346607S	Vial 90	1	Sample	22	1.80016e5	12.583	5.14579
#*	580306	346607D	Vial 91	1	Sample	23	1.94128e5	12.761	5.28839
#*	580307	CCV@25	Vial 71	1	Control	24	1.04745e6	12.625	26.86606
*	580308	LODV@1.	Vial 72	1	Control	25	4.44678e4	12.794	1.15460

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	580019	CCV@25	Vial 71	1	Control	1	3.02756e5	12.632	26.37748
#*	580020	LODV@1.	Vial 72	1	Control	2	1.41907e4	12.778	1.02721
#*	580021	ICS@1.	Vial 73	1	Control	3	8679.77637	12.522	8.06073e-1
#*	580022	LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
#*	580023	LCS@5.	Vial 75	1	Control	5	5.87321e4	12.577	5.34950
#*	1734660001		Vial 76	1	Sample	6	6.53015e5	12.153	79.54940
#*	1734660002		Vial 79	1	Sample	9	2.46951e7	11.328	876.44537
#*	1734660003		Vial 80	1	Sample	10	2.38635e7	11.351	861.54192
#*	1734660004		Vial 81	1	Sample	11	1.60294e6	12.429	128.71305
#*	1734660005		Vial 82	1	Sample	12	0.00000	0.000	0.00000
#*	1734660006		Vial 83	1	Sample	13	0.00000	0.000	0.00000
#*	1734660007		Vial 84	1	Sample	14	0.00000	0.000	0.00000
#*	1734660008		Vial 85	1	Sample	15	0.00000	0.000	0.00000
#*	1734660009		Vial 86	1	Sample	16	0.00000	0.000	0.00000
#*	580026	CCV@25	Vial 71	1	Control	17	3.14496e5	12.653	26.97594
#*	580027	LODV@1.	Vial 72	1	Control	18	1.41207e4	12.807	9.68357e-1
#*	1734660002	100	Vial 87	1	Sample	19	3.56096e5	12.729	2650.51220
#*	1734660003	100	Vial 88	1	Sample	20	3.45307e5	12.730	2571.79398
#*	1734660004	10X	Vial 89	1	Sample	21	1.78169e5	12.735	140.11954
#*	580305	346607S	Vial 90	1	Sample	22	6.32581e4	12.605	5.41725
#*	580306	346607D	Vial 91	1	Sample	23	6.57171e4	12.779	5.36726
#*	580307	CCV@25	Vial 71	1	Control	24	3.32233e5	12.641	27.02975
*	580308	LODV@1.	Vial 72	1	Control	25	1.54941e4	12.818	1.02094

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
#*	580019	CCV@25	Vial 71	1	Control	1	1.48236e5	12.627	5.00000
#*	580020	LODV@1.	Vial 72	1	Control	2	1.65366e5	12.787	5.00000
#*	580021	ICS@1.	Vial 73	1	Control	3	1.23366e5	12.519	5.00000
#*	580022	LMB	Vial 74	1	Control	4	1.75785e5	12.812	5.00000
#*	580023	LCS@5.	Vial 75	1	Control	5	1.49255e5	12.583	5.00000
#*	1734660001		Vial 76	1	Sample	6	8.90066e4	12.158	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
#*	1734660002	Vial 79	1	Sample	9	8.82510e4	11.336	5.00000
#*	1734660003	Vial 80	1	Sample	10	8.79244e4	11.361	5.00000
#*	1734660004	Vial 81	1	Sample	11	1.17290e5	12.437	5.00000
#*	1734660005	Vial 82	1	Sample	12	1.12711e5	12.159	5.00000
#*	1734660006	Vial 83	1	Sample	13	1.26162e5	12.554	5.00000
#*	1734660007	Vial 84	1	Sample	14	1.24891e5	12.403	5.00000
#*	1734660008	Vial 85	1	Sample	15	1.34130e5	12.523	5.00000
#*	1734660009	Vial 86	1	Sample	16	1.49066e5	12.650	5.00000
#*	580026 CCV@25	Vial 71	1	Control	17	1.50261e5	12.665	5.00000
#*	580027 LODV@1.	Vial 72	1	Control	18	1.72841e5	12.816	5.00000
#*	1734660002 100	Vial 87	1	Sample	19	1.73438e5	12.734	500.00000
#*	1734660003 100	Vial 88	1	Sample	20	1.73797e5	12.740	500.00000
#*	1734660004 10X	Vial 89	1	Sample	21	1.70952e5	12.748	50.00000
#*	580305 346607S	Vial 90	1	Sample	22	1.58777e5	12.600	5.00000
#*	580306 346607D	Vial 91	1	Sample	23	1.66462e5	12.787	5.00000
#*	580307 CCV@25	Vial 71	1	Control	24	1.58390e5	12.650	5.00000
*	580308 LODV@1.	Vial 72	1	Control	25	1.81482e5	12.819	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\DEC\20DEC17D.S

Sequence Table:

Method and Injection Info Part:

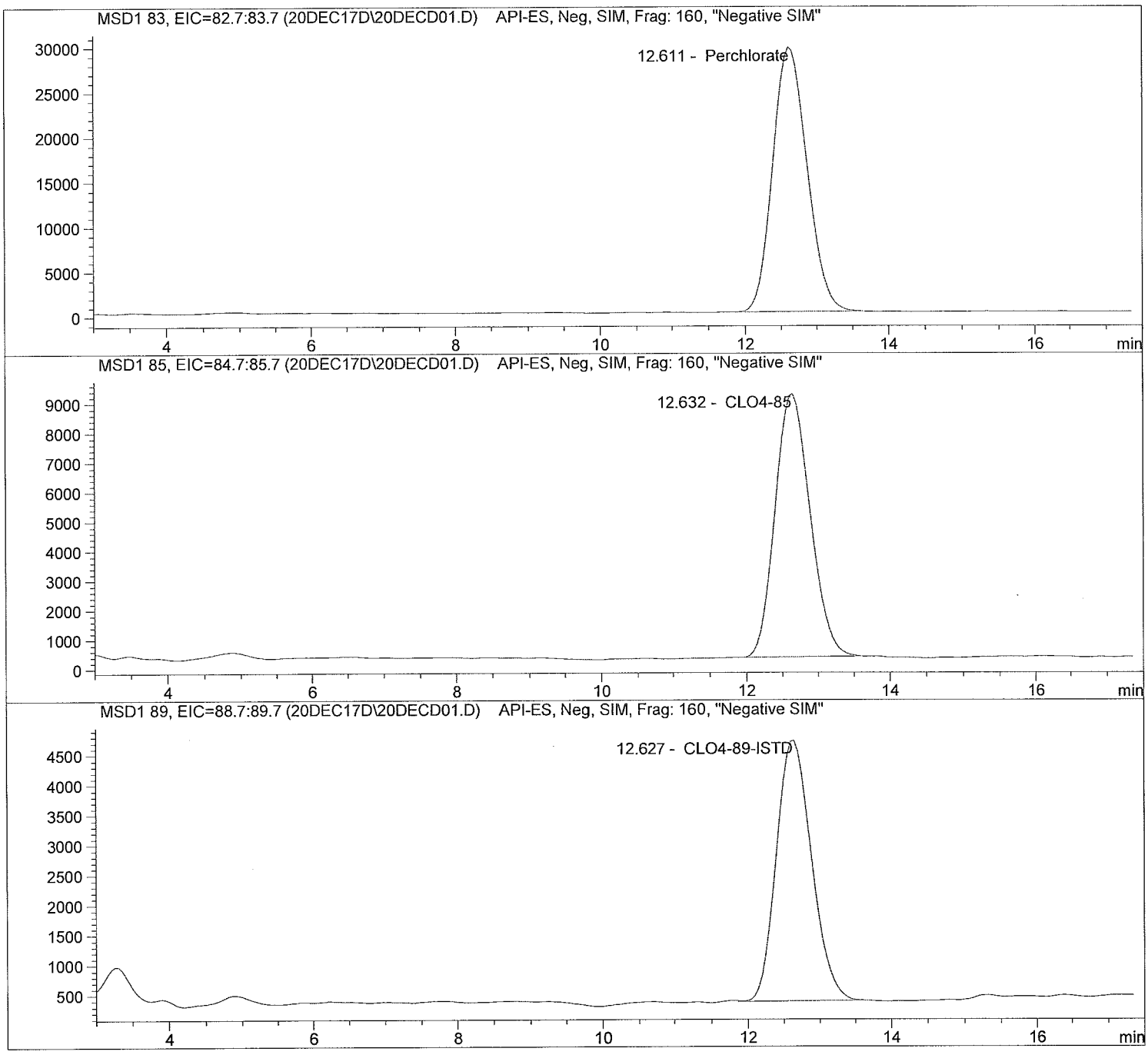
Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	580019	CCV@25	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	580020	LODV@1.	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	580021	ICS@1.	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	580022	LMB	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	580023	LCS@5.	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	1734660001		CLO4-DOD	1	Sample		
7	Vial 77	580024	346601S	CLO4-DOD	1	Sample		
8	Vial 78	580025	346601D	CLO4-DOD	1	Sample		
9	Vial 79	1734660002		CLO4-DOD	1	Sample		
10	Vial 80	1734660003		CLO4-DOD	1	Sample		
11	Vial 81	1734660004		CLO4-DOD	1	Sample		
12	Vial 82	1734660005		CLO4-DOD	1	Sample		
13	Vial 83	1734660006		CLO4-DOD	1	Sample		
14	Vial 84	1734660007		CLO4-DOD	1	Sample		
15	Vial 85	1734660008		CLO4-DOD	1	Sample		
16	Vial 86	1734660009		CLO4-DOD	1	Sample		
17	Vial 71	580026	CCV@25	CLO4-DOD	1	Ctrl Samp		
18	Vial 72	580027	LODV@1.	CLO4-DOD	1	Ctrl Samp		
19	Vial 87	1734660002	100	CLO4-DOD	1	Sample		
20	Vial 88	1734660003	100	CLO4-DOD	1	Sample		
21	Vial 89	1734660004	10X	CLO4-DOD	1	Sample		
22	Vial 90	580305	346607S	CLO4-DOD	1	Sample		
23	Vial 91	580306	346607D	CLO4-DOD	1	Sample		
24	Vial 71	580307	CCV@25	CLO4-DOD	1	Ctrl Samp		
25	Vial 72	580308	LODV@1.	CLO4-DOD	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD01.D Sample Name: 580019 CCV@25

Injection Date:	12/20/2017 11:03:38	Seq Line:	1
Sample Name:	580019 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD01.D Sample Name: 580019 CCV@25

Injection Date:	12/20/2017 11:03:38	Seq Line:	1
Sample Name:	580019 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.611	PBA	981038.5	26.8840	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.632	BBA	302755.7	26.3775	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.627	BBA	148236.3	5.0000	CLO4-89-ISTD

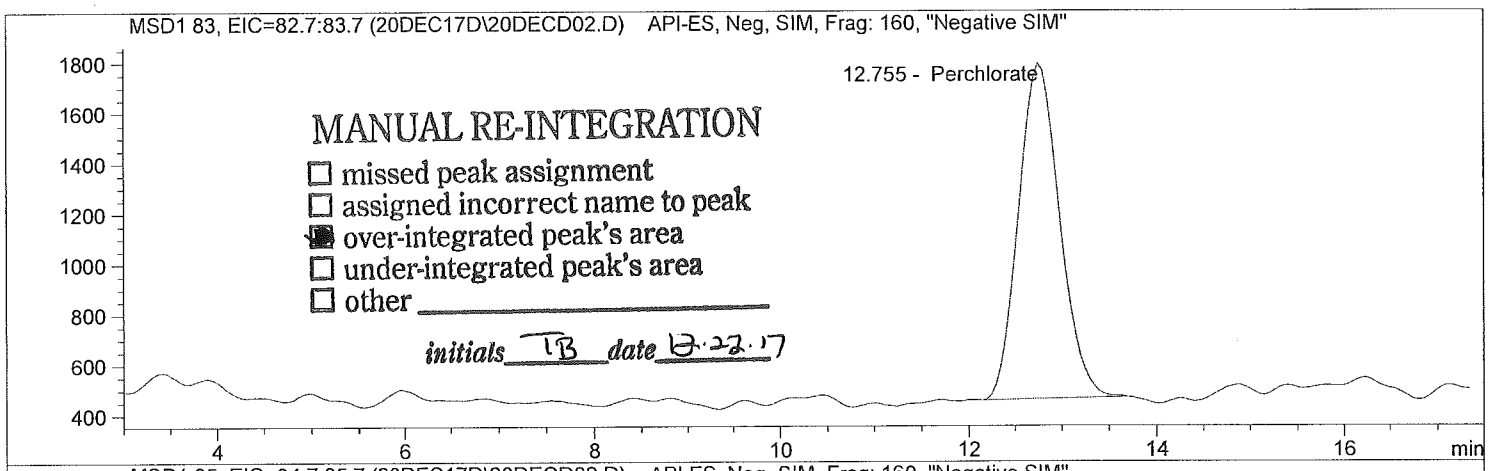
*** End of Report ***

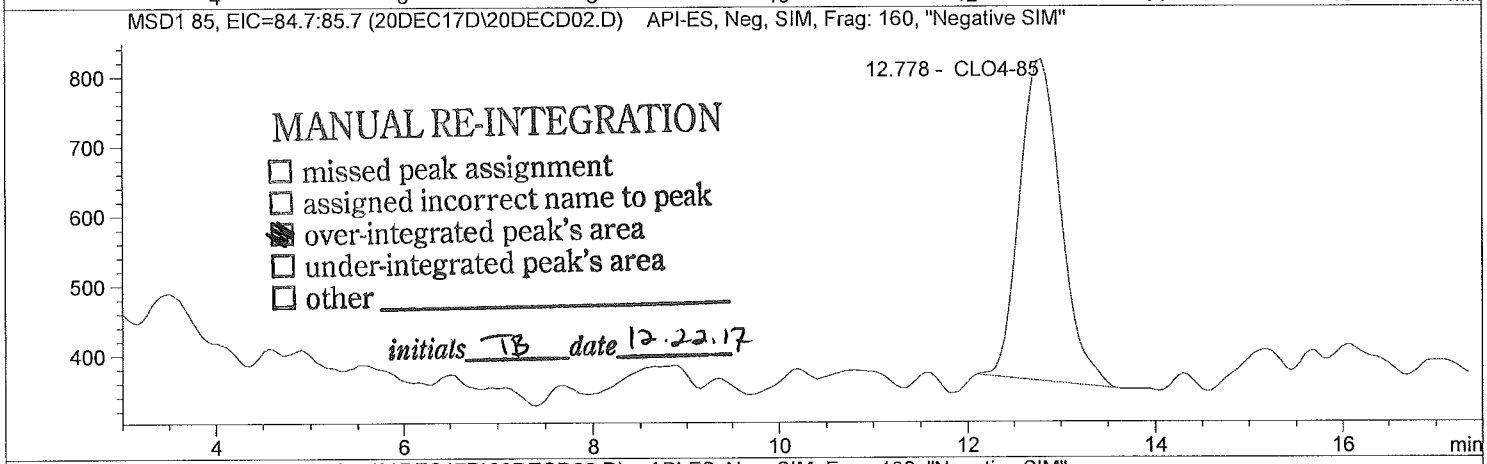
Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD02.D Sample Name: 580020 LODV@1.

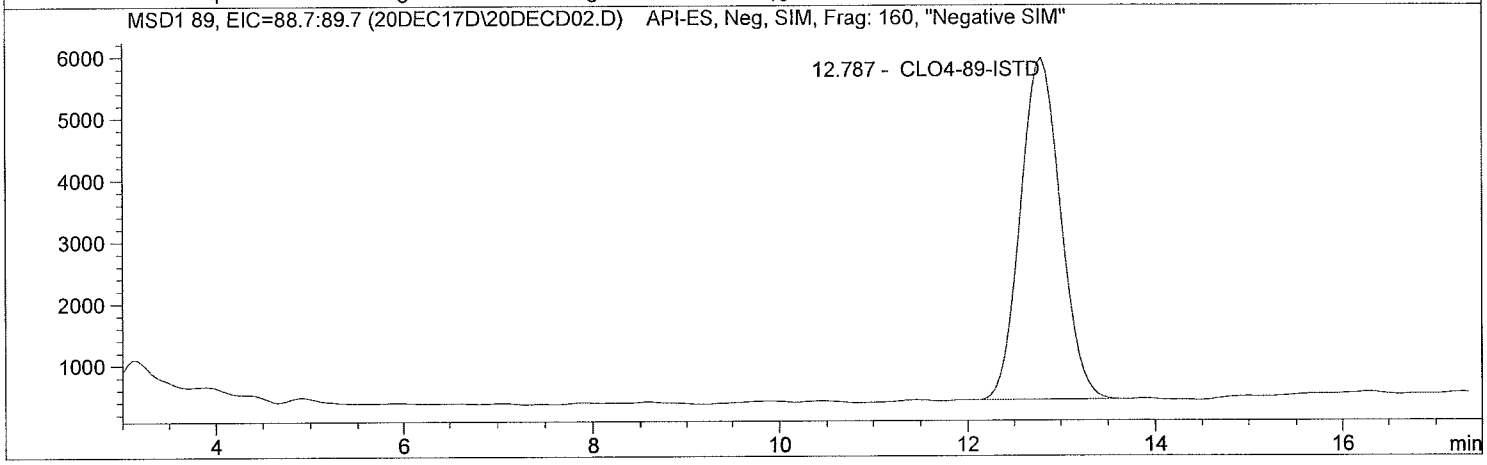
Injection Date:	12/20/2017 11:22:47	Seq Line:	2
Sample Name:	580020 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD02.D Sample Name: 580020 LODV@1.

Injection Date:	12/20/2017 11:22:47	Seq Line:	2
Sample Name:	580020 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.755	MM	40944.8	1.1664	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.778	MM	14190.7	1.0272	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.787	BBA	165366.5	5.0000	CLO4-89-ISTD

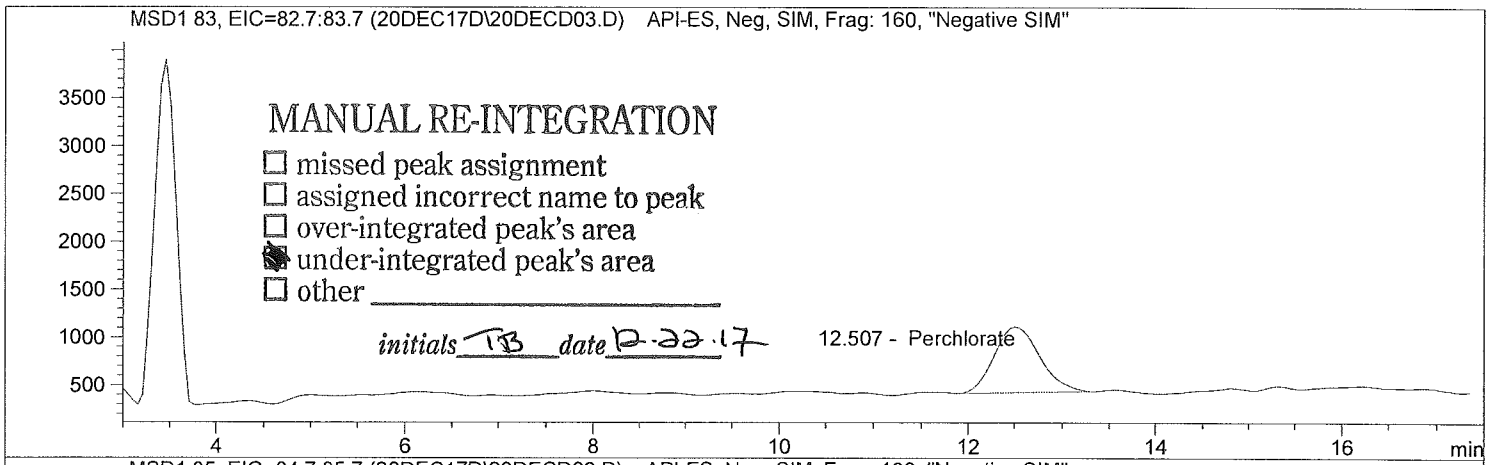
*** End of Report ***

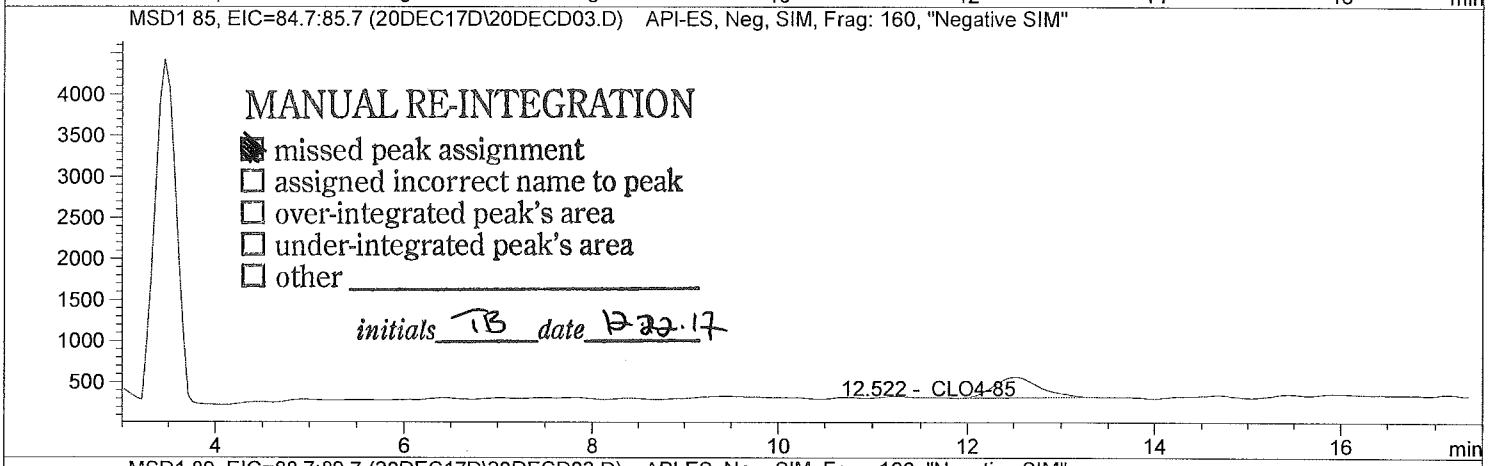
Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD03.D Sample Name: 580021 ICS@1.

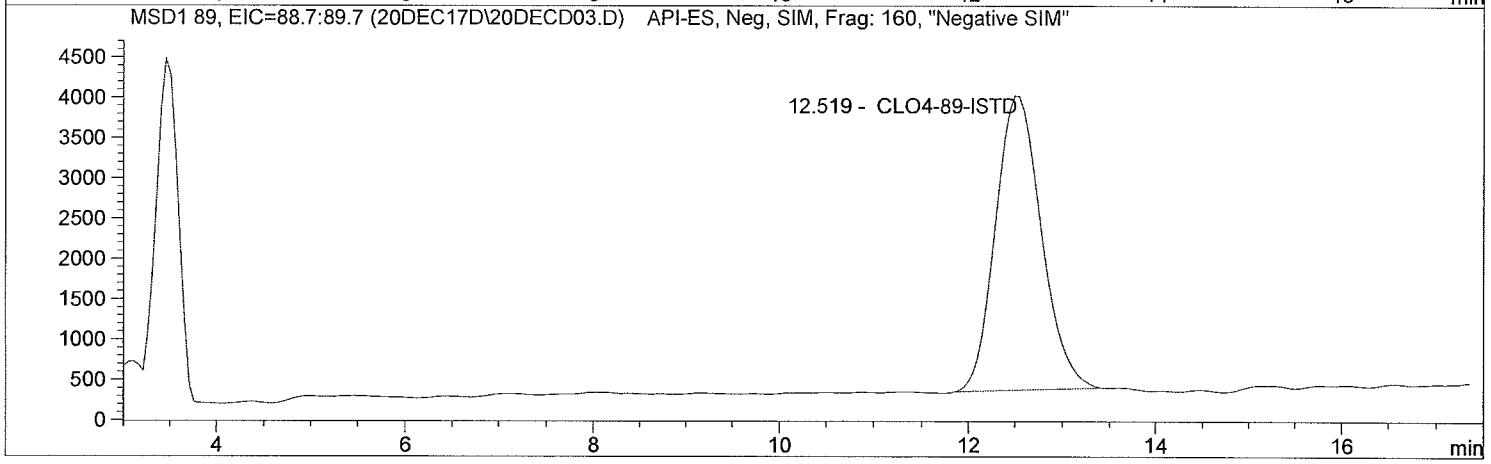
Injection Date:	12/20/2017 11:41:53	Seq Line:	3
Sample Name:	580021 ICS@1.	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD03.D Sample Name: 580021 ICS@1.

Injection Date:	12/20/2017 11:41:53	Seq Line:	3
Sample Name:	580021 ICS@1.	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.507	MM	23126.4	0.8903	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.522	MM	8679.8	0.8061	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.519	PBA	123365.6	5.0000	CLO4-89-ISTD

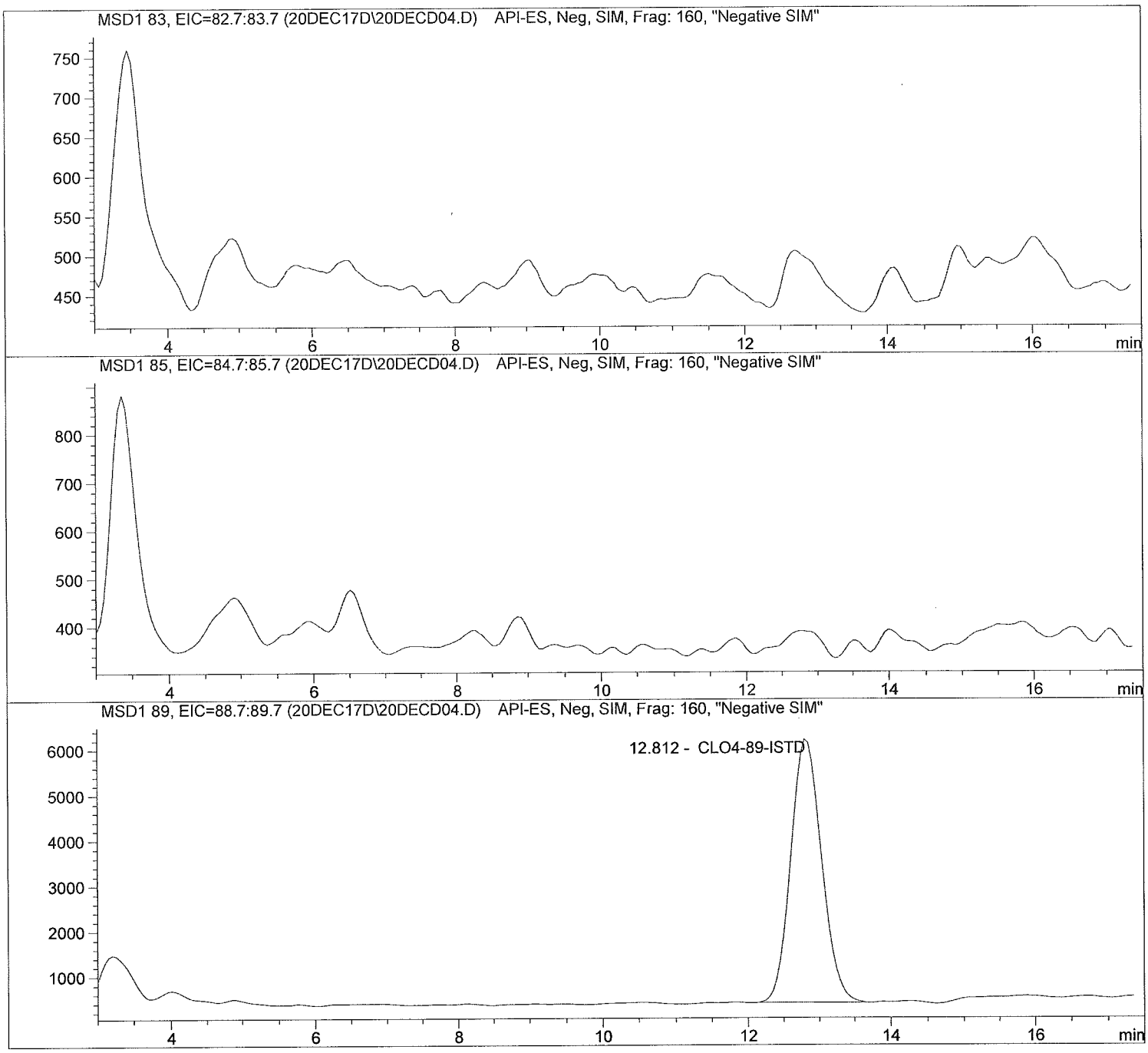
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD04.D Sample Name: 580022 LMB

Injection Date:	12/20/2017 12:01:06	Seq Line:	4
Sample Name:	580022 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD04.D Sample Name: 580022 LMB

Injection Date:	12/20/2017 12:01:06	Seq Line:	4
Sample Name:	580022 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.812	BBA	175785.2	5.0000	CLO4-89-ISTD

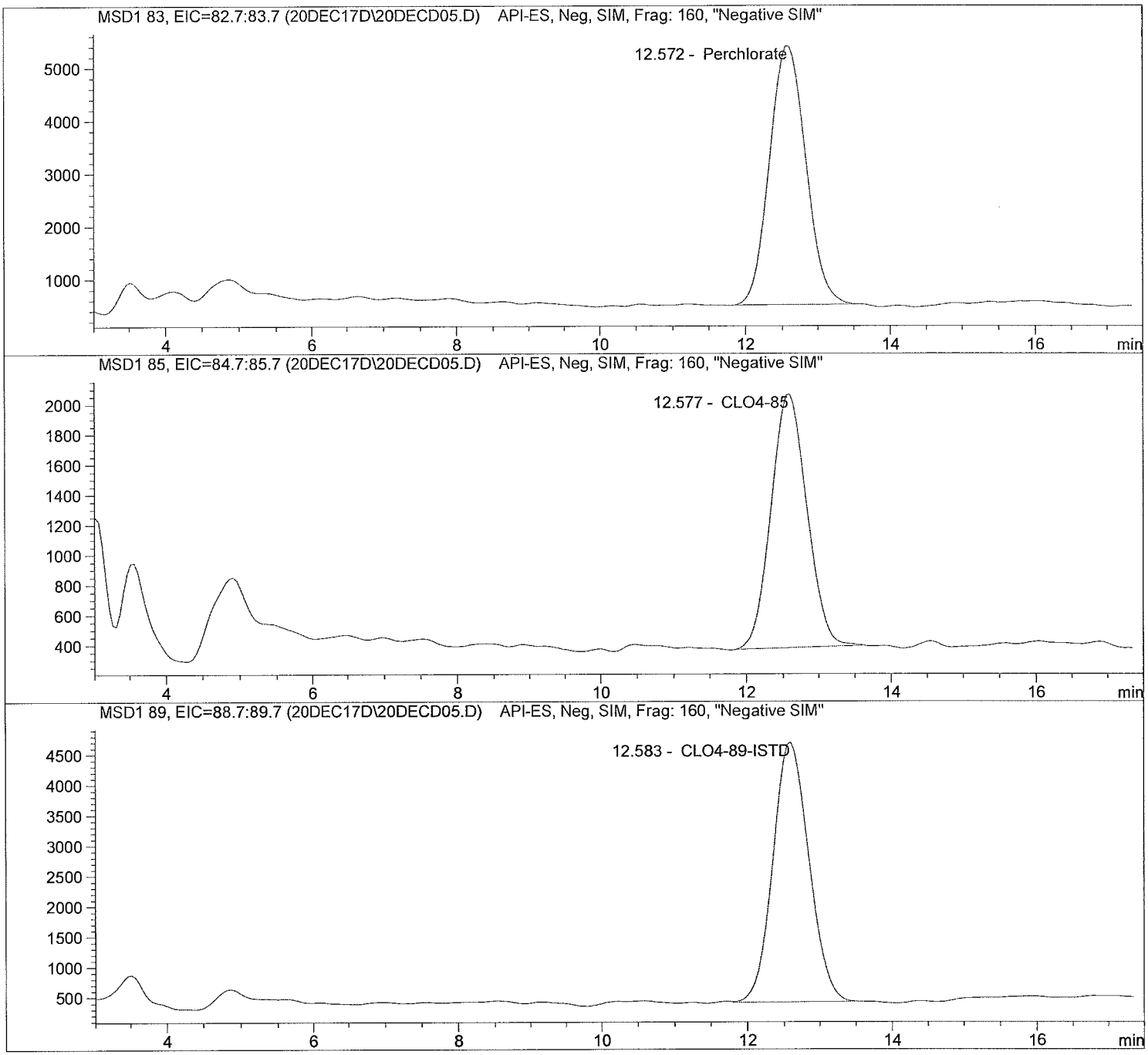
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD05.D Sample Name: 580023 LCS@5.

Injection Date:	12/20/2017 12:20:15	Seq Line:	5
Sample Name:	580023 LCS@5.	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD05.D Sample Name: 580023 LCS@5.

Injection Date:	12/20/2017 12:20:15	Seq Line:	5
Sample Name:	580023 LCS@5.	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.572	PBA	172493.1	5.2422	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.577	PBA	58732.1	5.3495	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.583	BBA	149255.3	5.0000	CLO4-89-ISTD

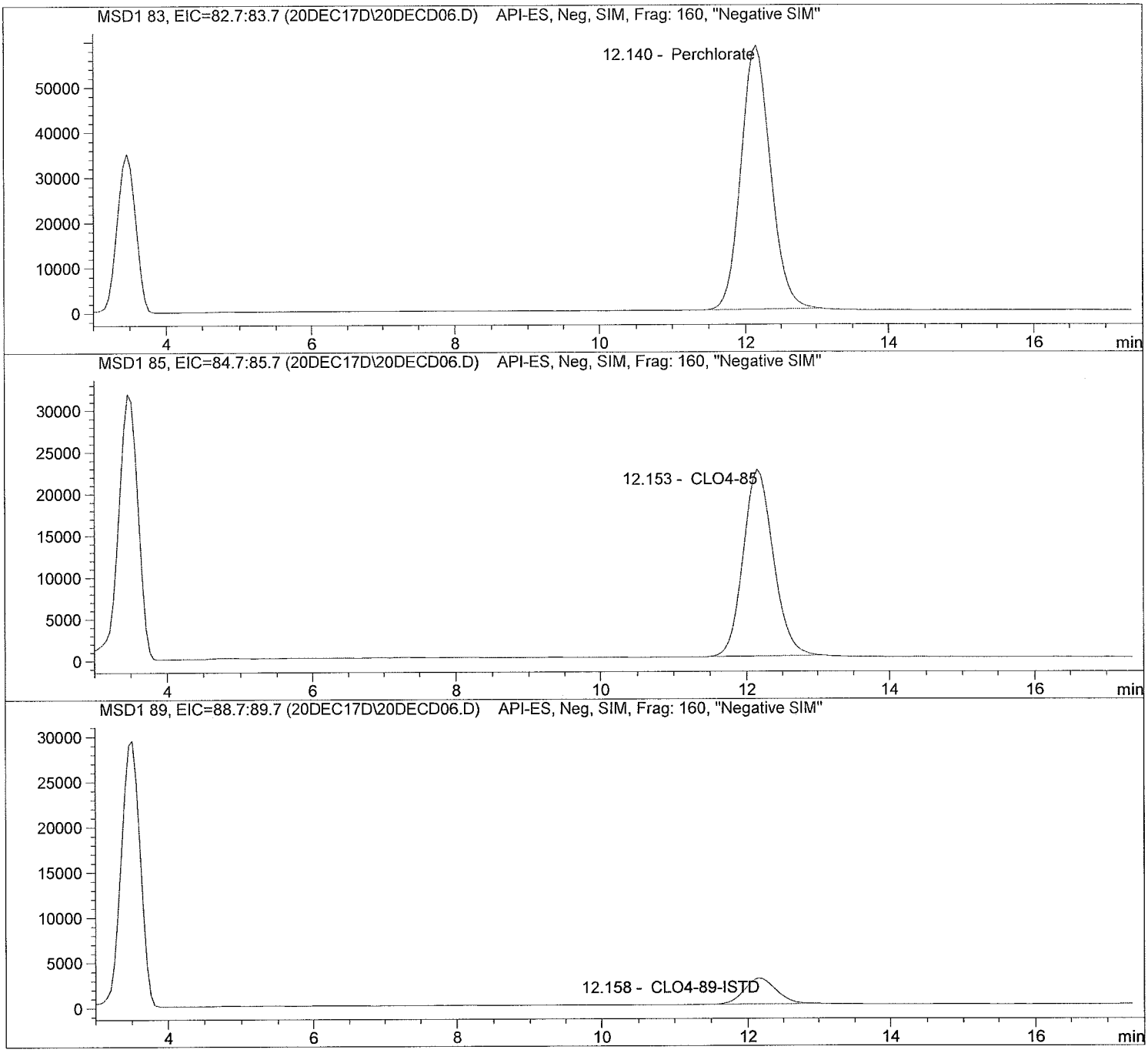
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD06.D Sample Name: 1734660001

Injection Date:	12/20/2017 12:40:18	Seq Line:	6
Sample Name:	1734660001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD06.D Sample Name: l734660001

Injection Date:	12/20/2017 12:40:18	Seq Line:	6
Sample Name:	1734660001	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.140	PBA	1665330.2	64.5889	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.153	PBA	653014.9	79.5494	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.158	BBA	89006.6	5.0000	CLO4-89-ISTD

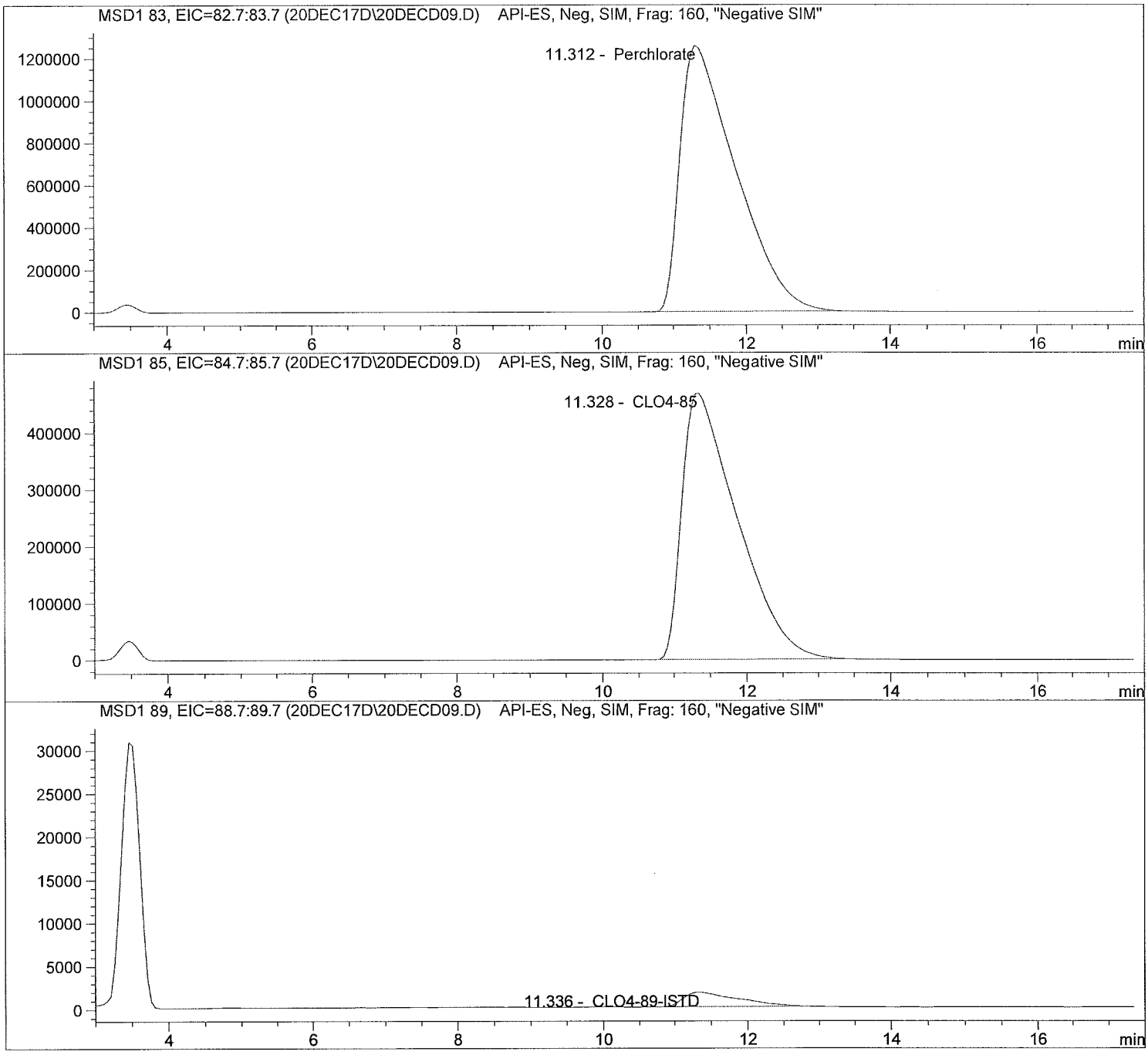
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD09.D Sample Name: 1734660002

Injection Date:	12/20/2017 13:37:51	Seq Line:	9
Sample Name:	1734660002	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD09.D Sample Name: 1734660002

Injection Date:	12/20/2017 13:37:51	Seq Line:	9
Sample Name:	1734660002	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
11.312	PBA	67063436.0	724.3470	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
11.328	PBA	24695122.0	876.4454	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
11.336	PBA	88251.0	5.0000	CLO4-89-ISTD

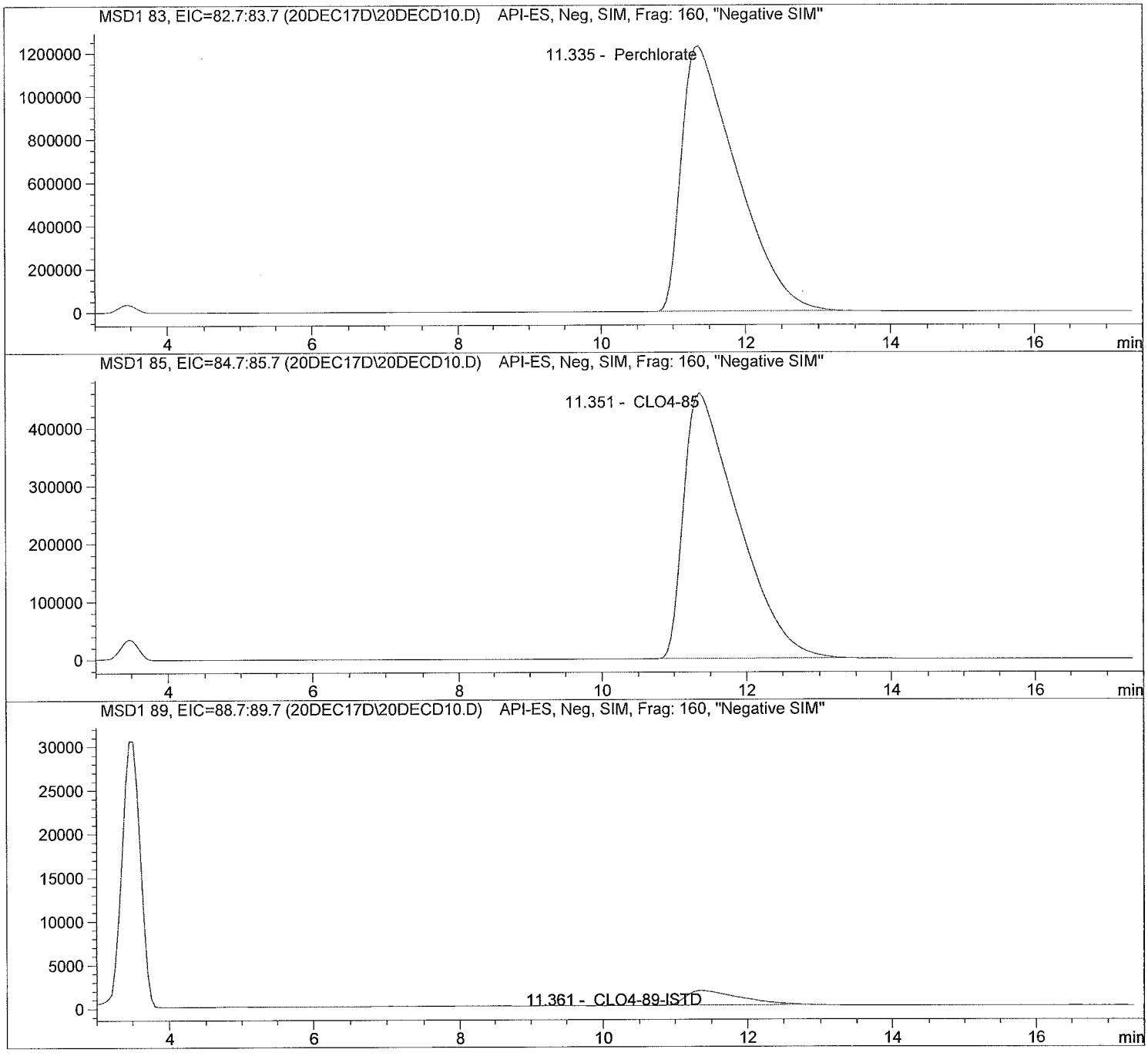
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD10.D Sample Name: 1734660003

Injection Date:	12/20/2017 13:57:03	Seq Line:	10
Sample Name:	1734660003	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD10.D Sample Name: 1734660003

Injection Date:	12/20/2017 13:57:03	Seq Line:	10
Sample Name:	1734660003	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
11.335	PBA	64829420.0	712.2620	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
11.351	PBA	23863492.0	861.5419	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
11.361	PBA	87924.4	5.0000	CLO4-89-ISTD

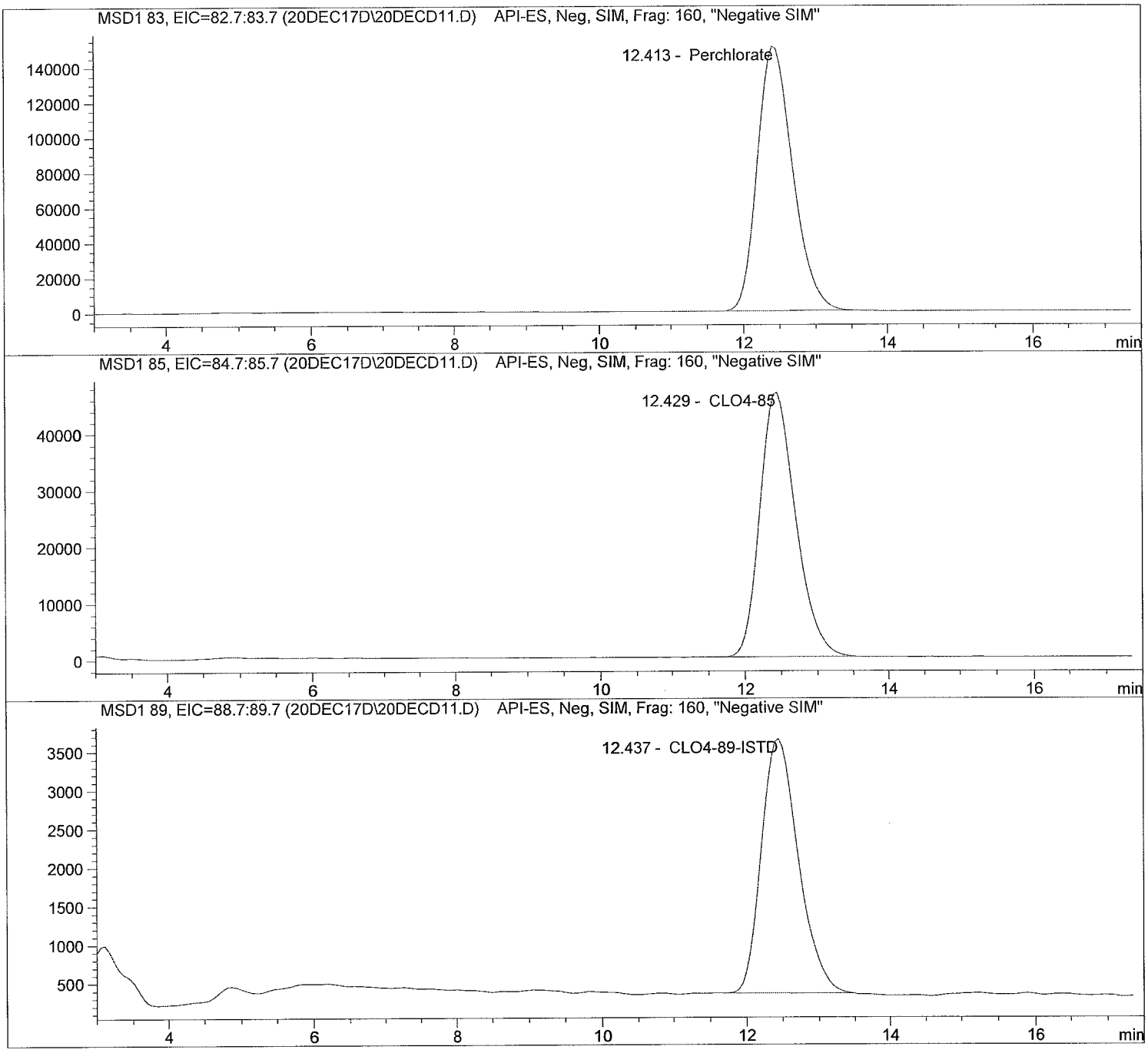
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD11.D Sample Name: 1734660004

Injection Date:	12/20/2017 14:16:14	Seq Line:	11
Sample Name:	1734660004	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD11.D Sample Name: 1734660004

Injection Date:	12/20/2017 14:16:14	Seq Line:	11
Sample Name:	1734660004	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.413	PBA	5138614.0	122.8121	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.429	PBA	1602940.3	128.7131	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.437	BBA	117290.5	5.0000	CLO4-89-ISTD

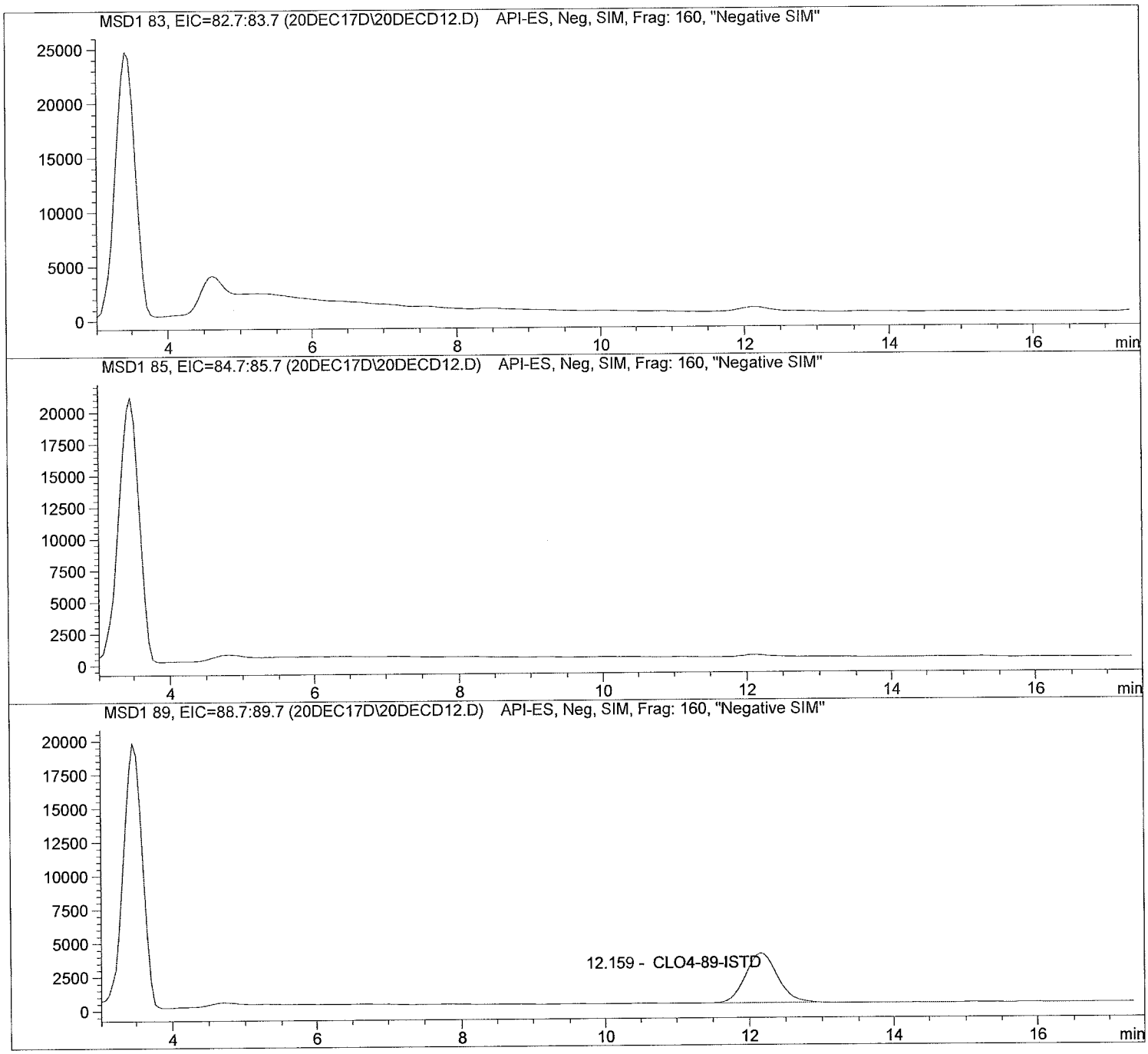
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD12.D Sample Name: 1734660005

Injection Date:	12/20/2017 14:35:24	Seq Line:	12
Sample Name:	1734660005	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD12.D Sample Name: 1734660005

Injection Date:	12/20/2017 14:35:24	Seq Line:	12
Sample Name:	1734660005	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.159	BBA	112711.5	5.0000	CLO4-89-ISTD

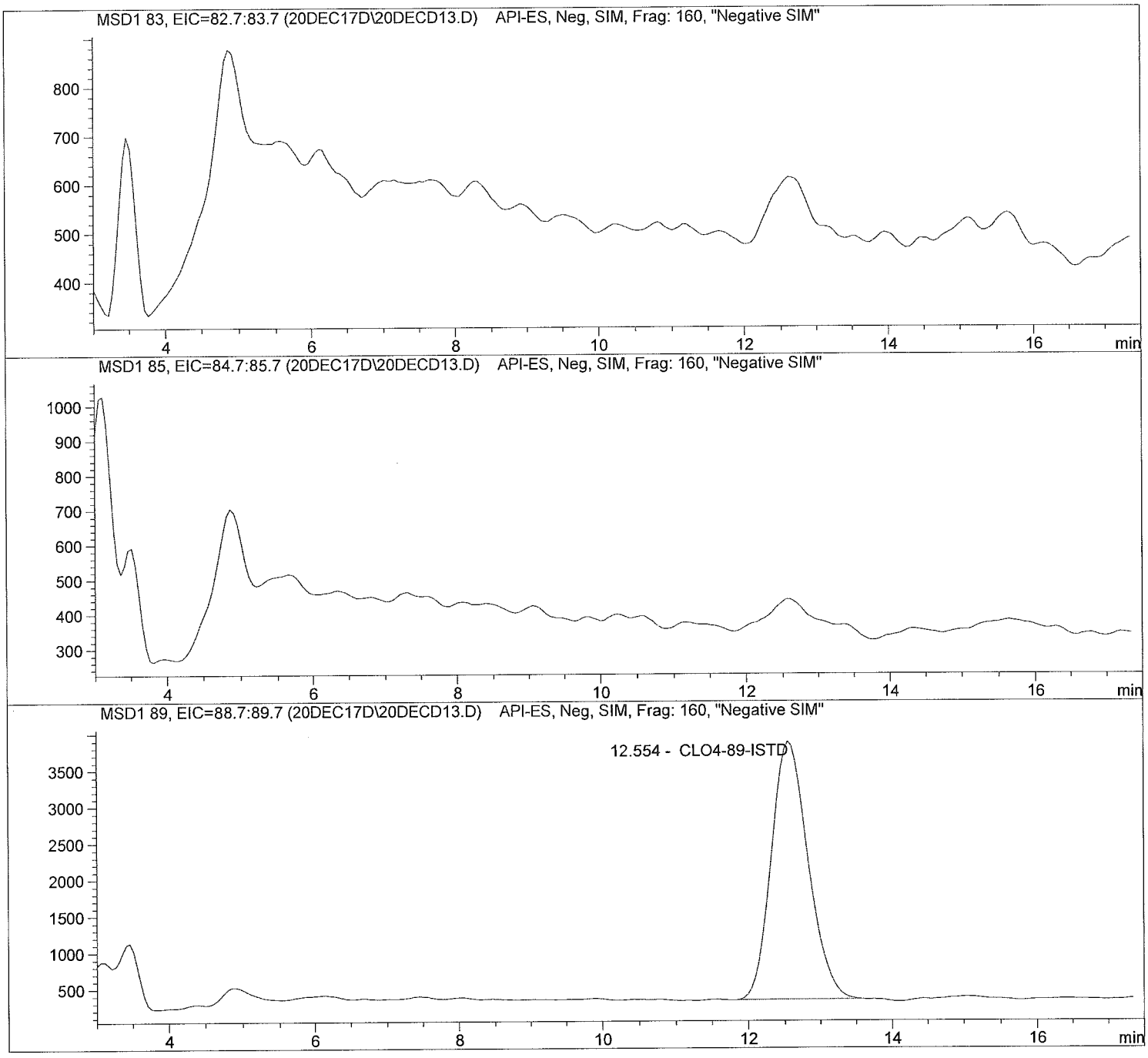
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD13.D Sample Name: 1734660006

Injection Date:	12/20/2017 14:54:32	Seq Line:	13
Sample Name:	1734660006	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD13.D Sample Name: 1734660006

Injection Date:	12/20/2017 14:54:32	Seq Line:	13
Sample Name:	1734660006	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.554	PBA	126162.1	5.0000	CLO4-89-ISTD

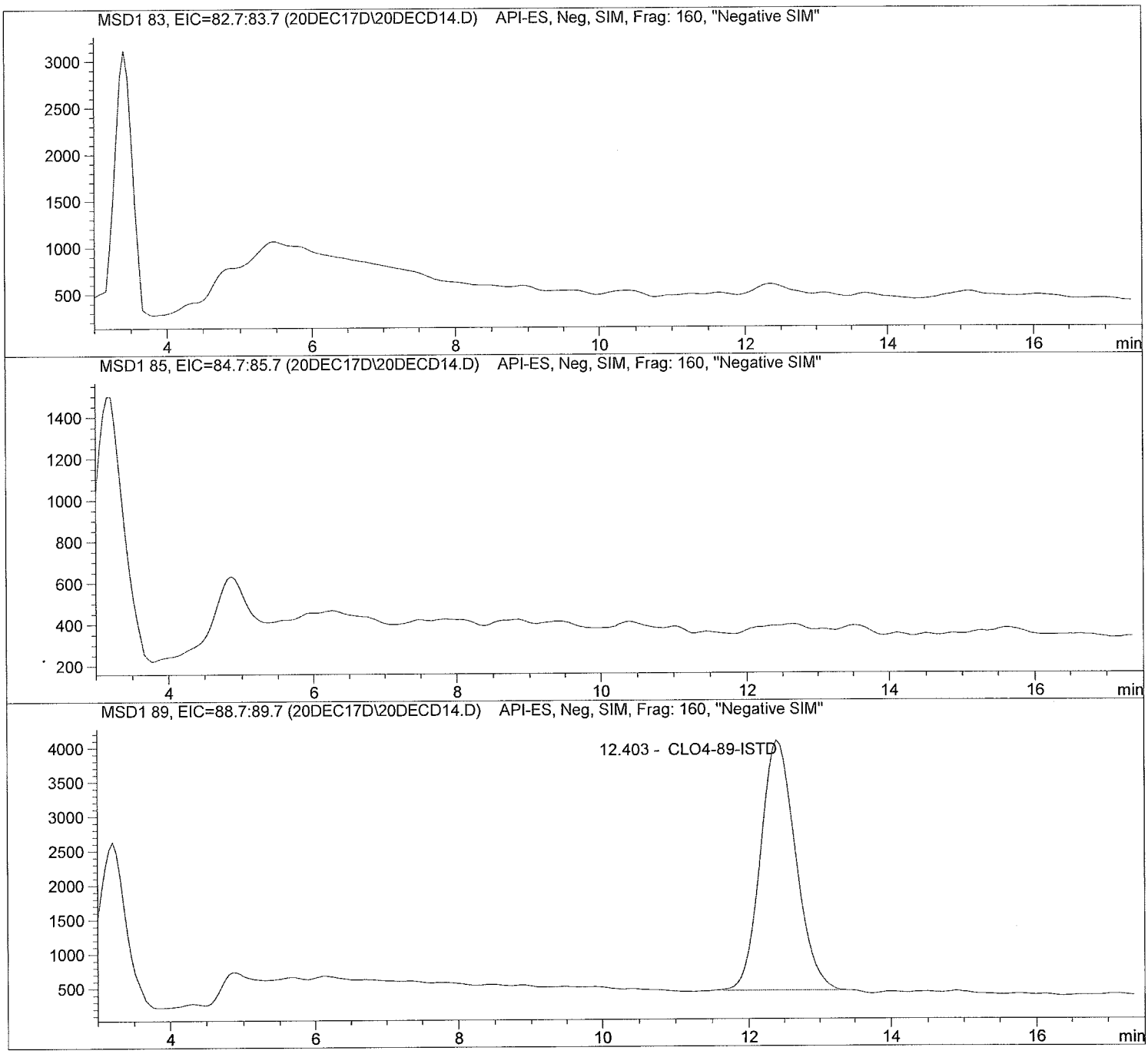
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD14.D Sample Name: 1734660007

Injection Date:	12/20/2017 15:13:42	Seq Line:	14
Sample Name:	1734660007	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD14.D Sample Name: 1734660007

Injection Date:	12/20/2017 15:13:42	Seq Line:	14
Sample Name:	1734660007	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.403	BBA	124891.4	5.0000	CLO4-89-ISTD

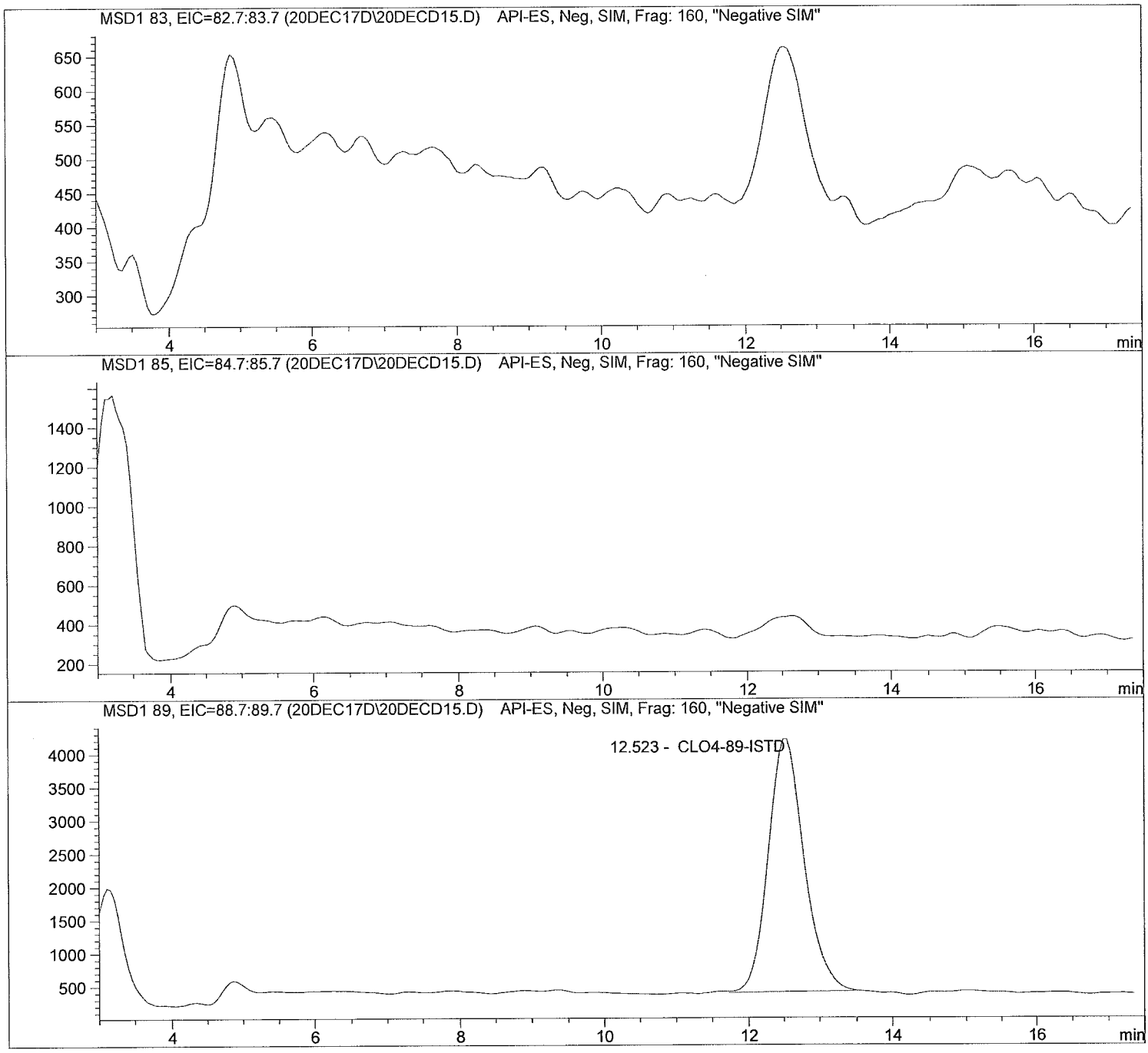
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD15.D Sample Name: 1734660008

Injection Date:	12/20/2017 15:32:50	Seq Line:	15
Sample Name:	1734660008	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD15.D Sample Name: 1734660008

Injection Date:	12/20/2017 15:32:50	Seq Line:	15
Sample Name:	1734660008	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.523	BBA	134130.0	5.0000	CLO4-89-ISTD

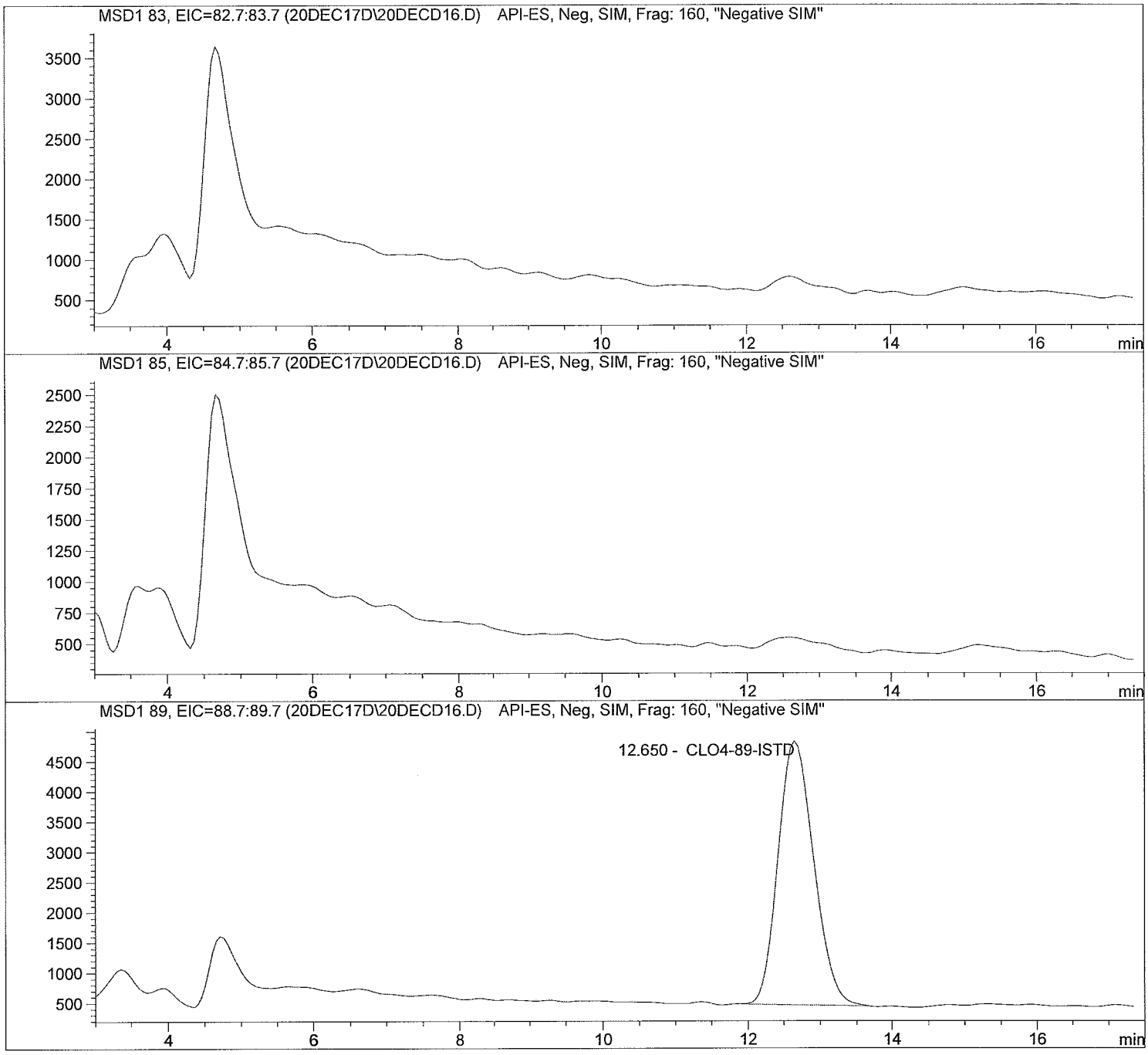
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD16.D Sample Name: 1734660009

Injection Date:	12/20/2017 15:51:59	Seq Line:	16
Sample Name:	1734660009	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD16.D Sample Name: 1734660009

Injection Date:	12/20/2017 15:51:59	Seq Line:	16
Sample Name:	1734660009	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.650	BBA	149065.8	5.0000	CLO4-89-ISTD

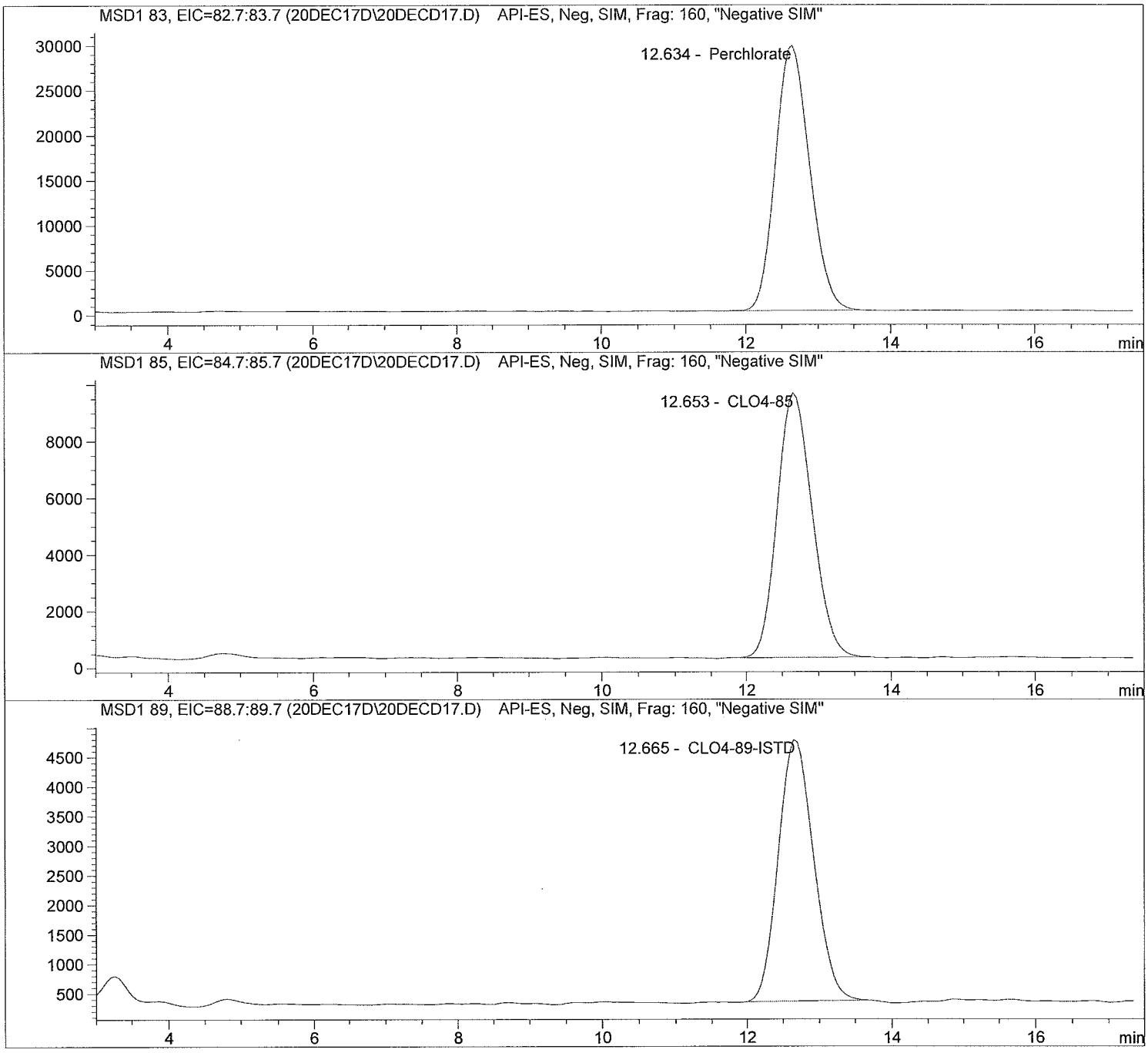
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD17.D Sample Name: 580026 CCV@25

Injection Date:	12/20/2017 16:11:08	Seq Line:	17
Sample Name:	580026 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD17.D Sample Name: 580026 CCV@25

Injection Date:	12/20/2017 16:11:08	Seq Line:	17
Sample Name:	580026 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.634	BBA	969256.8	26.2783	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.653	BBA	314495.9	26.9759	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.665	BBA	150260.5	5.0000	CLO4-89-ISTD

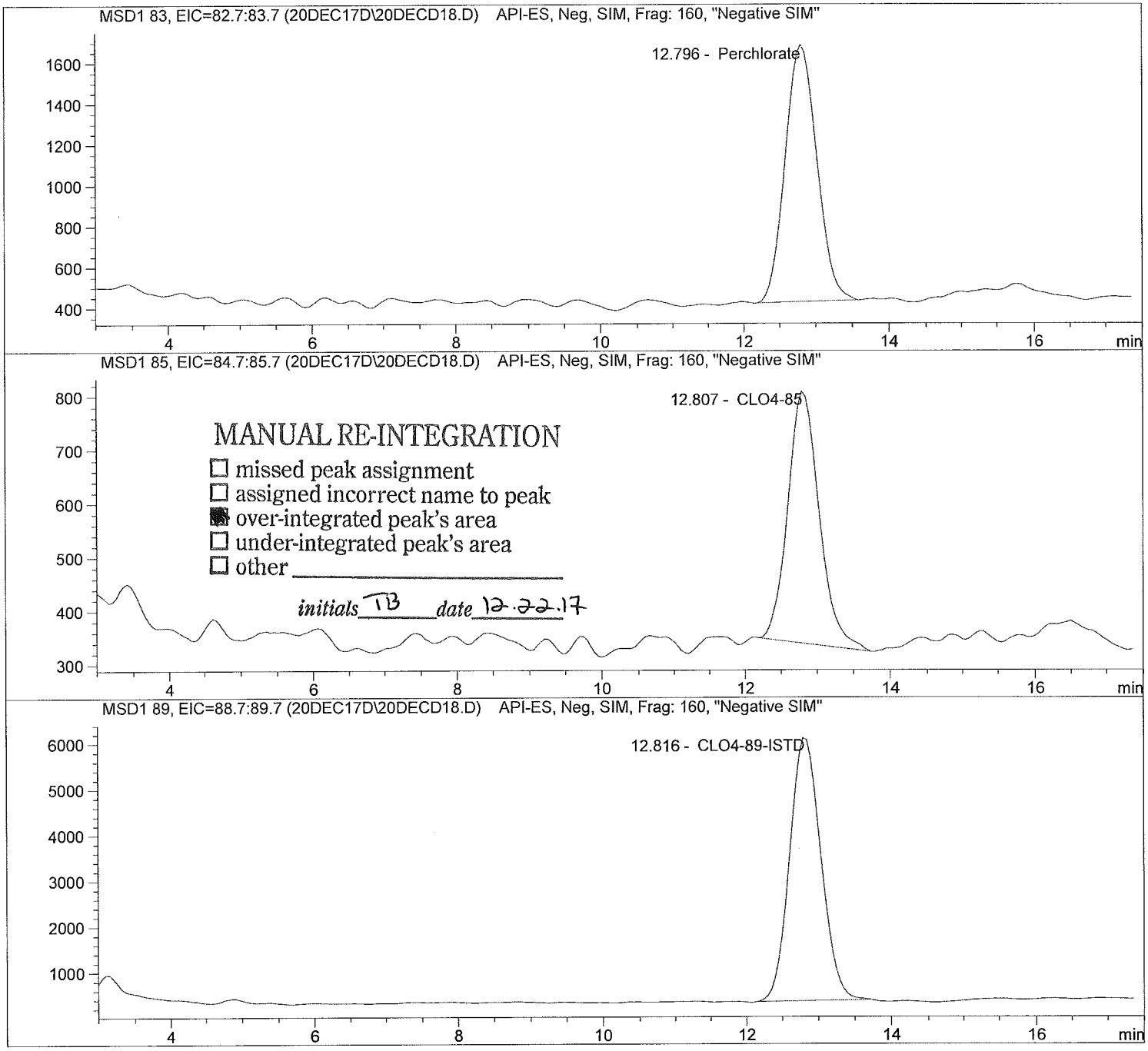
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD18.D Sample Name: 580027 LODV@1.

Injection Date:	12/20/2017 16:30:17	Seq Line:	18
Sample Name:	580027 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD18.D Sample Name: 580027 LODV@1.

Injection Date:	12/20/2017 16:30:17	Seq Line:	18
Sample Name:	580027 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.796	PBA	38291.0	1.0468	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.807	MM	14120.7	0.9684	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.816	PBA	172840.8	5.0000	CLO4-89-ISTD

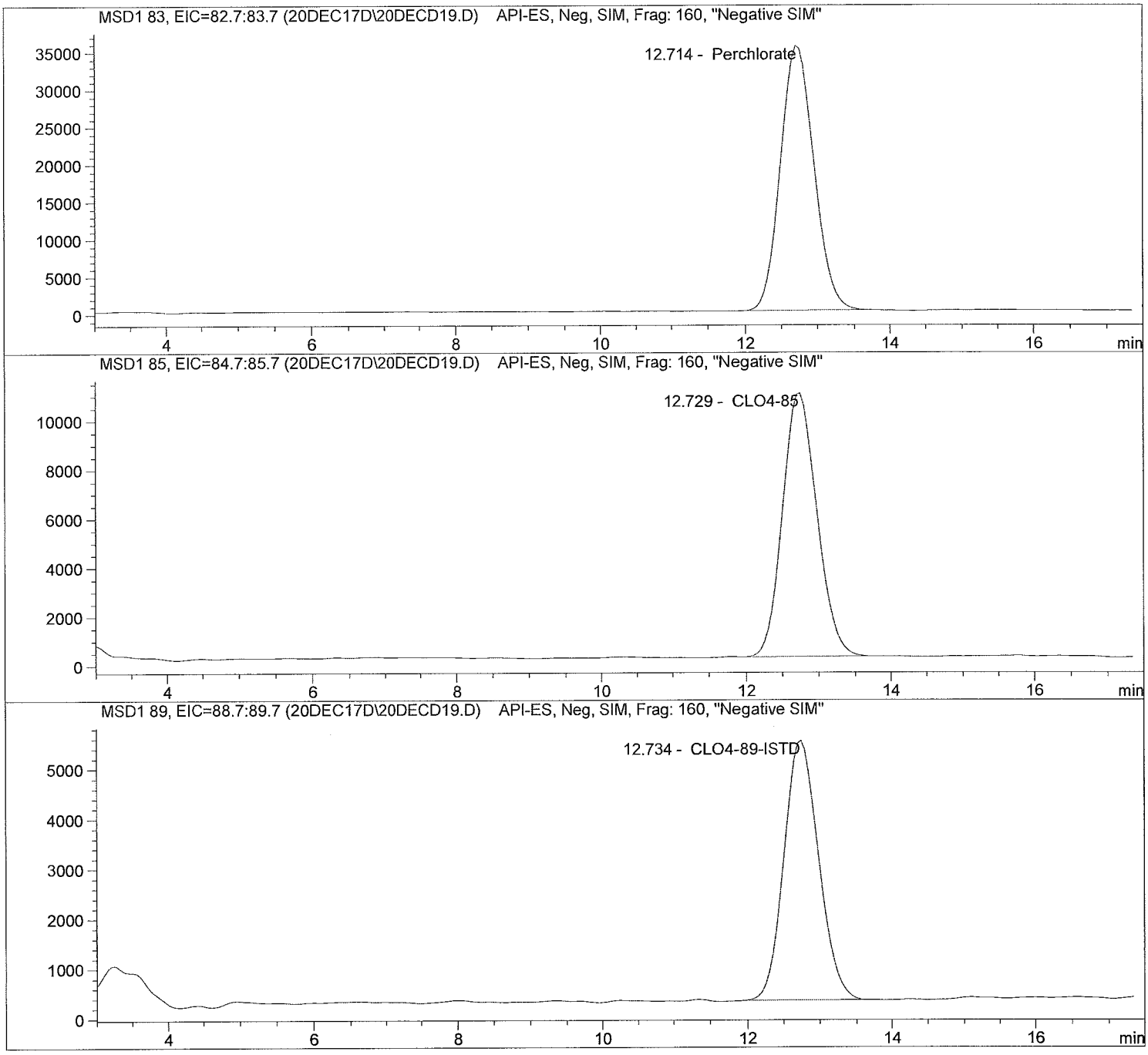
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD19.D Sample Name: 1734660002 100

Injection Date:	12/20/2017 17:26:26	Seq Line:	19
Sample Name:	1734660002 100	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD19.D Sample Name: 1734660002 100

Injection Date:	12/20/2017 17:26:26	Seq Line:	19
Sample Name:	1734660002 100	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.714	BBA	1143453.4	2679.3164	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.729	BBA	356095.8	2650.5122	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.734	PBA	173437.5	500.0000	CLO4-89-ISTD

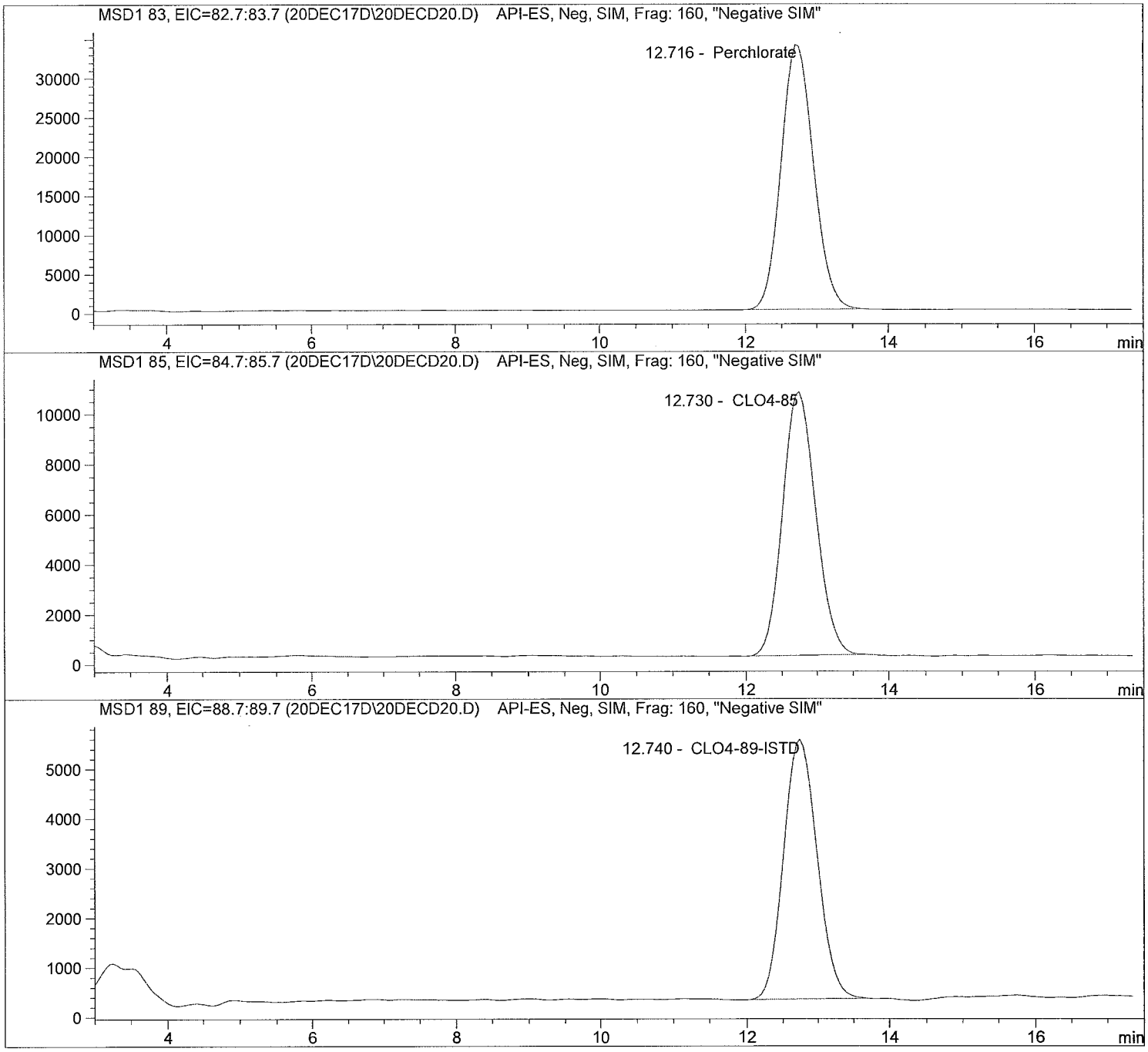
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD20.D Sample Name: 1734660003 100

Injection Date:	12/20/2017 17:48:47	Seq Line:	20
Sample Name:	1734660003 100	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD20.D Sample Name: 1734660003 100

Injection Date:	12/20/2017 17:48:47	Seq Line:	20
Sample Name:	1734660003 100	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.716	PBA	1086432.5	2555.3513	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.730	PBA	345307.3	2571.7940	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.740	PBA	173797.3	500.0000	CLO4-89-ISTD

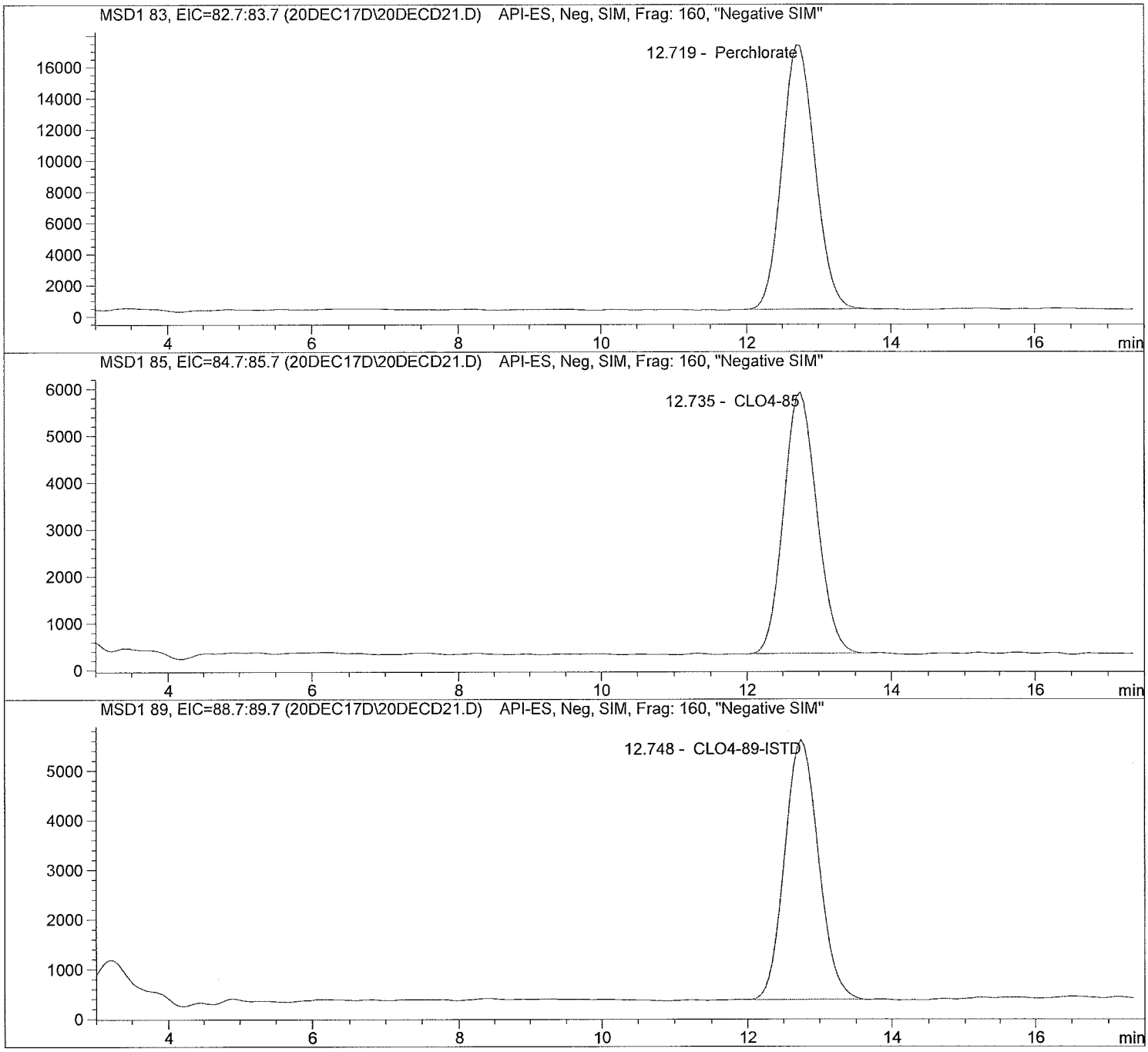
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD21.D Sample Name: 1734660004 10X

Injection Date:	12/20/2017 18:08:28	Seq Line:	21
Sample Name:	1734660004 10X	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD21.D Sample Name: 1734660004 10X

Injection Date:	12/20/2017 18:08:28	Seq Line:	21
Sample Name:	1734660004 10X	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method:	CLO4-DOD.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed:	12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.719	BBA	541710.3	137.2712	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.735	PBA	178168.8	140.1195	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.748	BBA	170951.9	50.0000	CLO4-89-ISTD

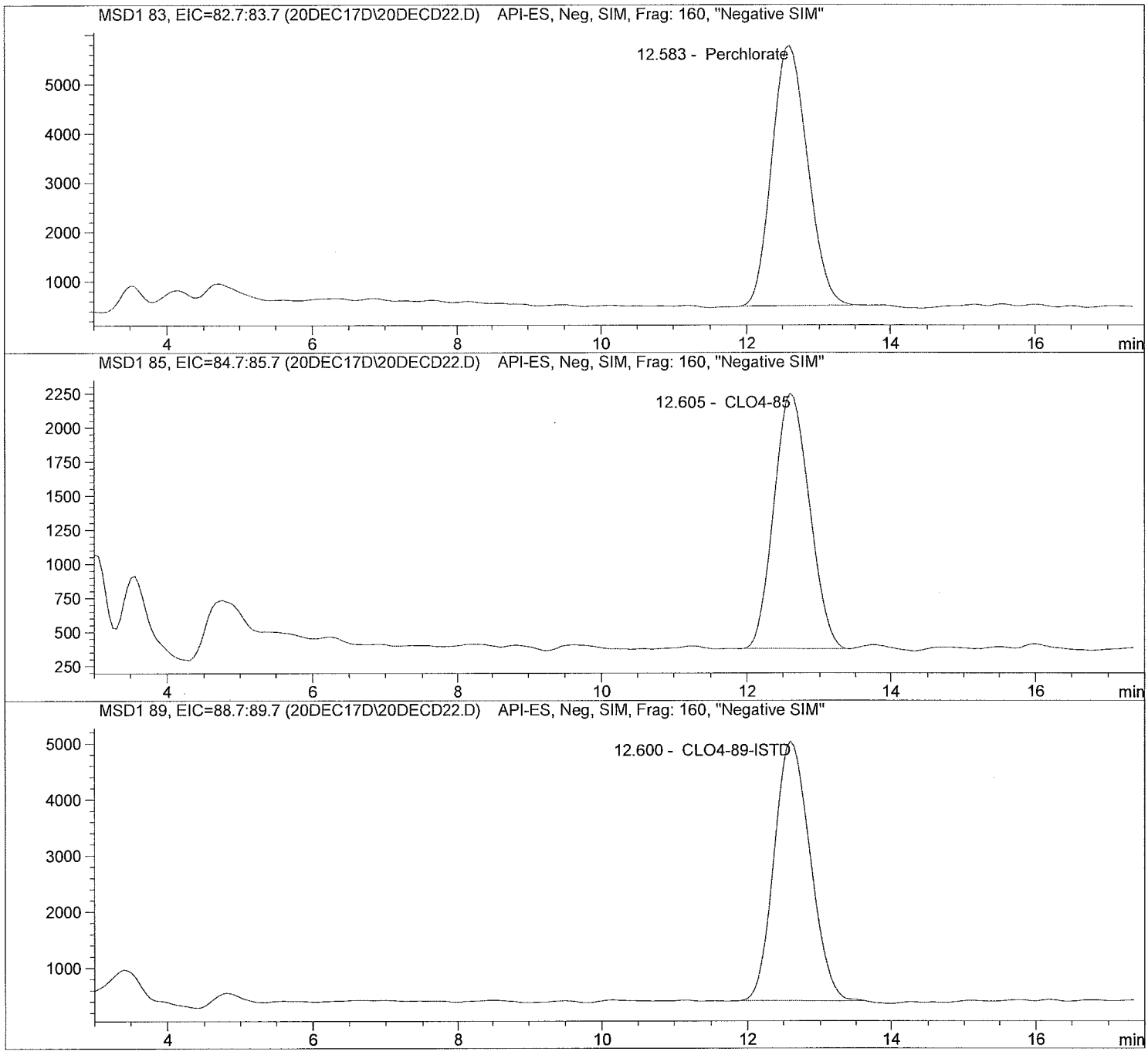
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD22.D Sample Name: 580305 346607S

Injection Date:	12/20/2017 18:27:39	Seq Line:	22
Sample Name:	580305 346607S	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD22.D Sample Name: 580305 346607S

Injection Date:	12/20/2017 18:27:39	Seq Line:	22
Sample Name:	580305 346607S	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.583	PBA	180016.2	5.1458	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.605	PBA	63258.1	5.4172	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.600	BBA	158777.4	5.0000	CLO4-89-ISTD

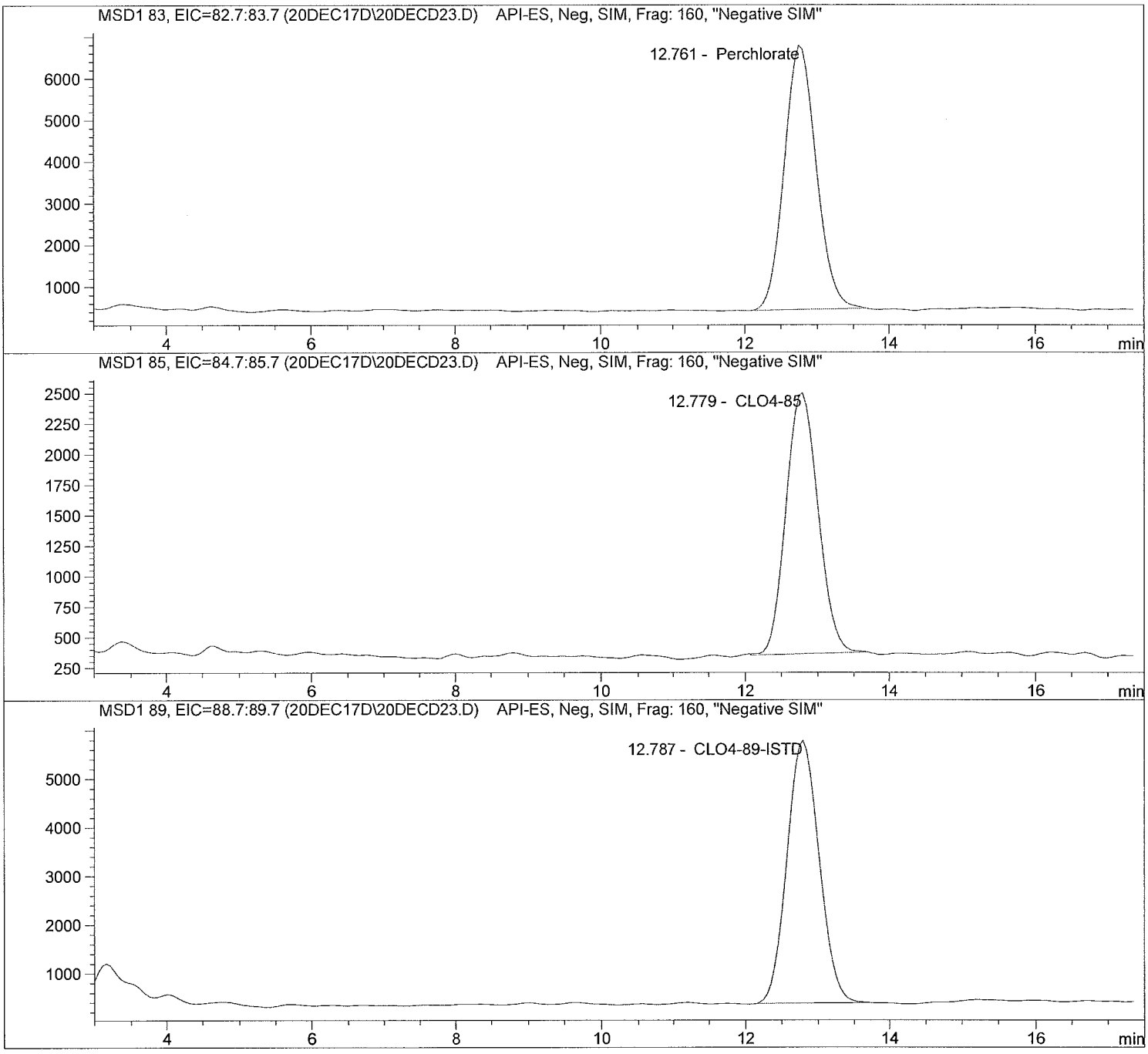
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD23.D Sample Name: 580306 346607D

Injection Date:	12/20/2017 18:46:49	Seq Line:	23
Sample Name:	580306 346607D	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD23.D Sample Name: 580306 346607D

Injection Date:	12/20/2017 18:46:49	Seq Line:	23
Sample Name:	580306 346607D	Location:	Vial 91
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.761	PBA	194127.8	5.2884	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.779	BBA	65717.1	5.3673	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.787	PBA	166462.4	5.0000	CLO4-89-ISTD

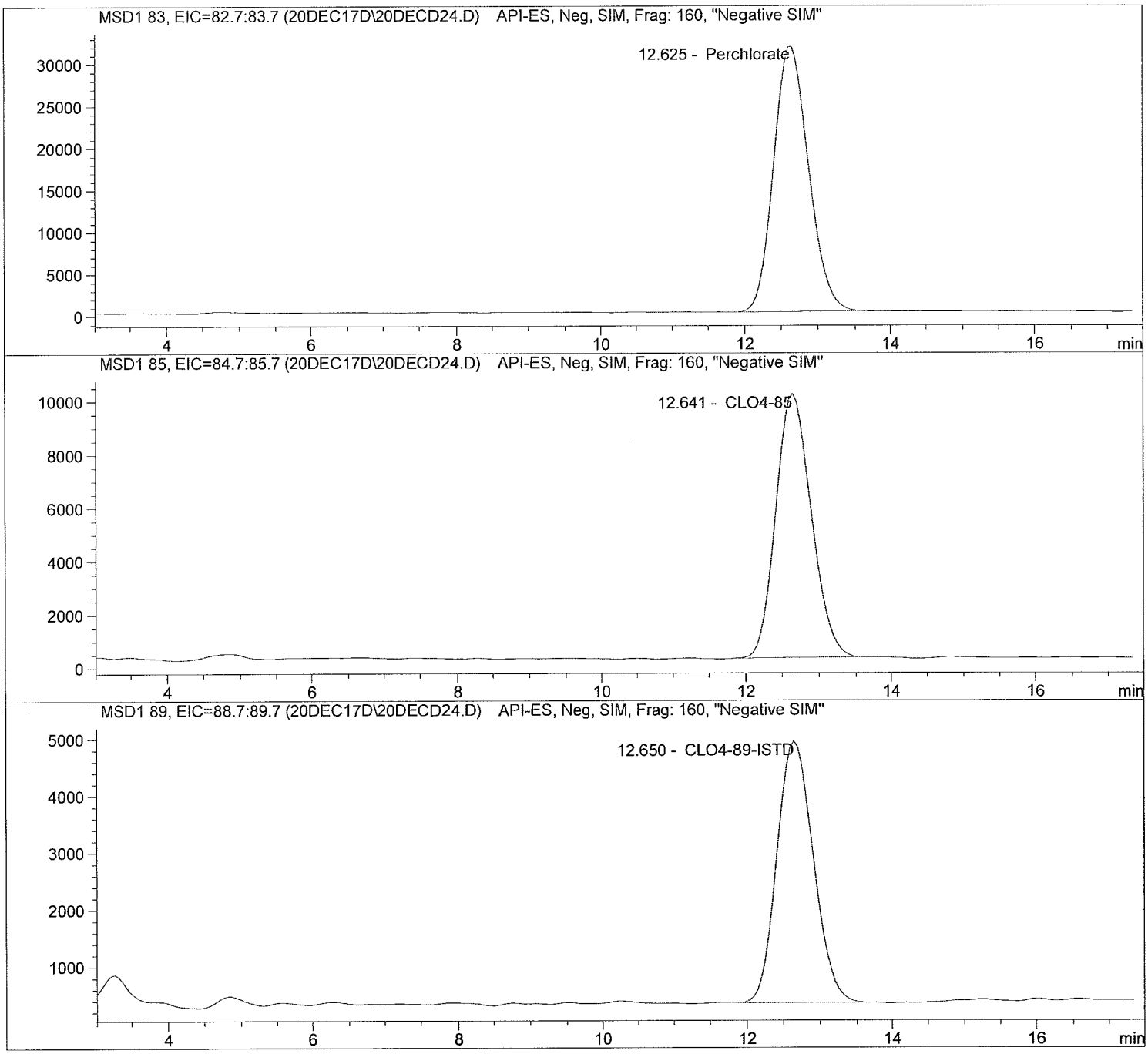
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD24.D Sample Name: 580307 CCV@25

Injection Date:	12/20/2017 19:05:57	Seq Line:	24
Sample Name:	580307 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD24.D Sample Name: 580307 CCV@25

Injection Date:	12/20/2017 19:05:57	Seq Line:	24
Sample Name:	580307 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.625	PBA	1047445.3	26.8661	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.641	PBA	332232.8	27.0298	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.650	BBA	158389.7	5.0000	CLO4-89-ISTD

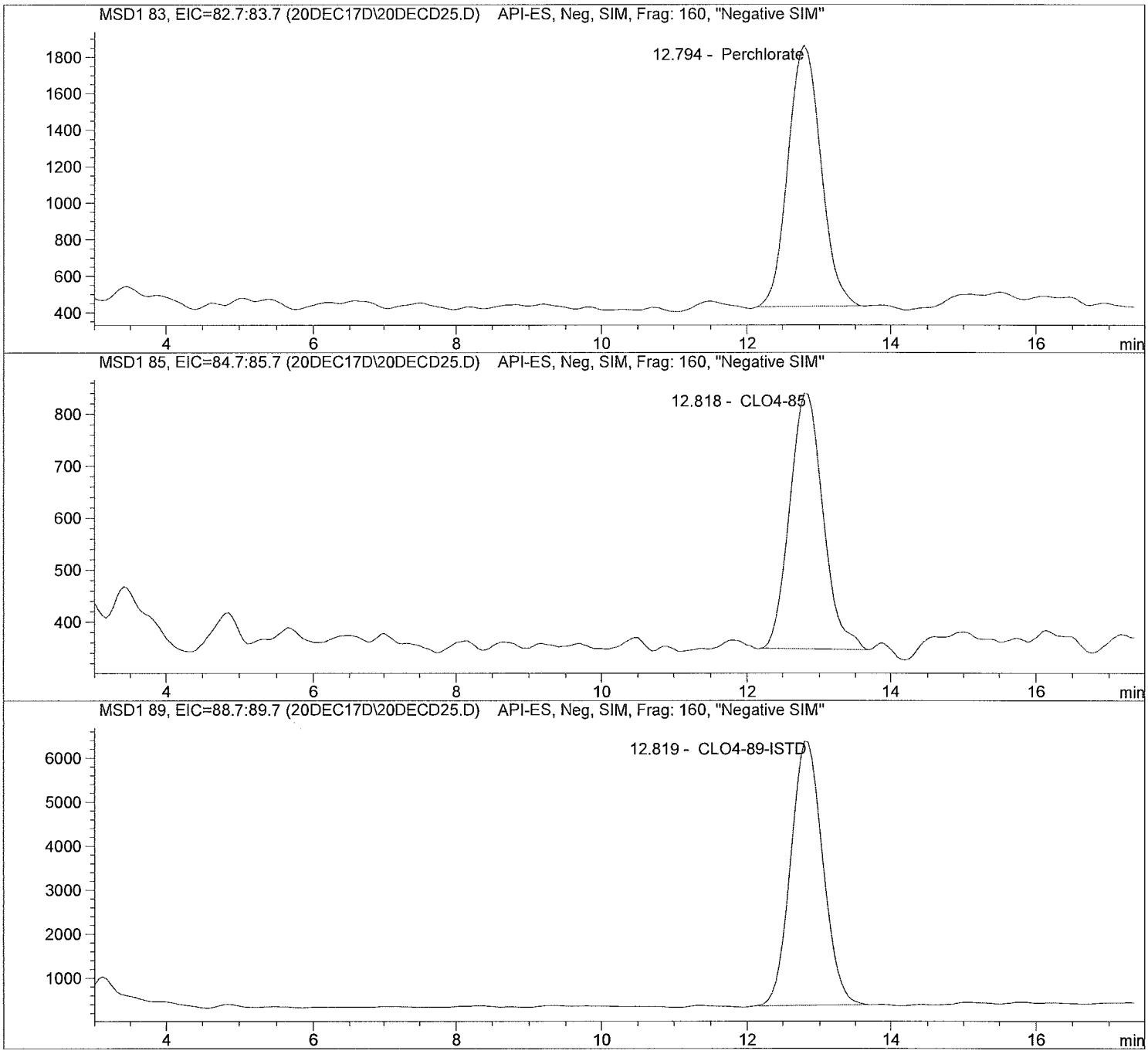
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD25.D Sample Name: 580308 LODV@1.

Injection Date:	12/20/2017 19:25:05	Seq Line:	25
Sample Name:	580308 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD25.D Sample Name: 580308 LODV@1.

Injection Date:	12/20/2017 19:25:05	Seq Line:	25
Sample Name:	580308 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.794	PBA	44467.8	1.1546	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.818	PBA	15494.1	1.0209	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.819	PBA	181482.5	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

ethod C:\HPCHEM\1\METHODS\CLO4-DPR.M

Calibration Table

Perchlorate

Calib. Data Modified : 11/29/2017 8:02:06 AM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
12.090	1	1	1.00000	4.10942e4	2.43343e-5		1	Perchlorate
		2	2.00000	7.74077e4	2.58372e-5			
		3	5.00000	1.92985e5	2.59088e-5			
		4	10.00000	3.91583e5	2.55374e-5			
		5	25.00000	1.09763e6	2.27764e-5			
		6	50.00000	2.29834e6	2.17549e-5			
		7	75.00000	3.73021e6	2.01061e-5			
12.106	2	1	1.00000	1.56787e4	6.37808e-5		1	CLO4-85
		2	2.00000	2.80487e4	7.13046e-5			
		3	5.00000	6.51323e4	7.67668e-5			
		4	10.00000	1.31325e5	7.61471e-5			
		5	25.00000	3.46913e5	7.20642e-5			
		6	50.00000	6.96156e5	7.18230e-5			
		7	75.00000	1.13077e6	6.63264e-5			
12.107	3	1	5.00000	1.88880e5	2.64718e-5	+I1		CLO4-89-ISTD
		2	5.00000	1.81109e5	2.76076e-5			
		3	5.00000	1.75128e5	2.85505e-5			
		4	5.00000	1.80962e5	2.76301e-5			
		5	5.00000	1.75597e5	2.84743e-5			
		6	5.00000	1.69148e5	2.95599e-5			
		7	5.00000	1.64867e5	3.03275e-5			

ethod C:\HPCHEM\1\METHODS\CLO4-DPR.M

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 8.390 min To 13.052 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

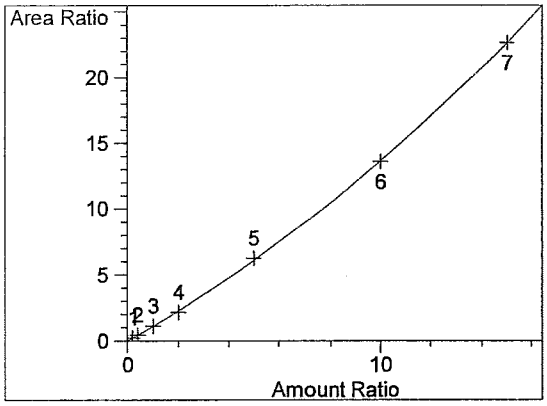
Compound: CLO4-85
- Time Window : From 8.366 min To 13.046 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 8.457 min To 13.107 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

Peak Sum Table

No Entries in table

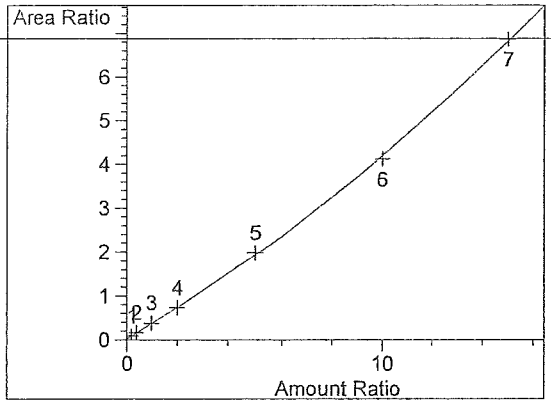
Calibration Curves



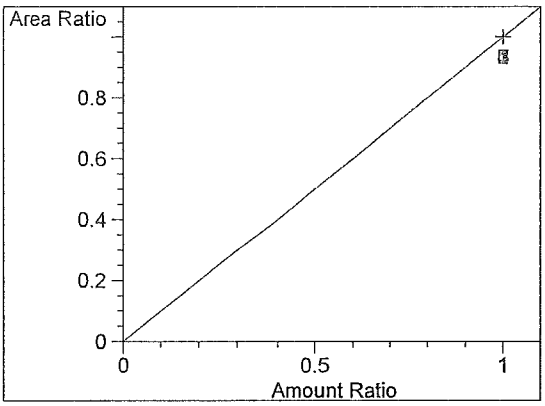
Perchlorate at exp. RT: 12.090
MSD1 83, EIC=82.7:83.7
Correlation: 0.99991
Residual Std. Dev.: 0.08487
Formula: $y = ax^2 + bx + c$
- a: 2.87739e-2
- b: 1.07712
- c: -5.23718e-3
- x: Amount Ratio
- y: Area Ratio

Calibration Level Weights:
- Level 1 : 1
- Level 2 : 0.5
- Level 3 : 0.2
- Level 4 : 0.1
- Level 5 : 0.04
- Level 6 : 0.02
- Level 7 : 0.013333

ethod C:\HPCHEM\1\METHODS\CLO4-DPR.M



CLO4-85 at exp. RT: 12.106
MSD1 85, EIC=84.7:85.7
Correlation: 0.99988
Residual Std. Dev.: 0.04548
Formula: $y = ax^2 + bx + c$
a: 7.12800e-3
b: 3.46840e-1
c: 1.42573e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 12.107
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

==========

Batch Report: C:\HPCHEM\1\DATA\28NOV17P\28NOV17P.B

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

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

#*	Sample Location	Inj	SampleType	Run	Perchlorate Area	Perchlorate RT	Perchlorate Amount
*	ICAL1@ 1.0ug/L Vial 71	1	Control	1	4.10942e4	12.029	1.02861
*	ICAL2@ 2.0ug/L Vial 72	1	Control	2	7.74077e4	12.054	1.98725
*	ICAL3@ 5.0ug/L Vial 73	1	Control	3	1.92985e5	12.090	5.00575
*	ICAL4@ 10.ug/L Vial 74	1	Control	4	3.91583e5	12.084	9.57892
*	ICAL5@ 25.ug/L Vial 75	1	Control	5	1.09763e6	12.065	25.55231
*	ICAL6@ 50.ug/L Vial 76	1	Control	6	2.29834e6	12.065	49.83164
*	ICAL7@ 75.ug/L Vial 77	1	Control	7	3.73021e6	12.090	74.99992
*	ICAL Verf@10ug/L Vial 78	1	Control	8	3.83615e5	12.163	9.59533

#*	Sample Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	ICAL1@ 1.0ug/L Vial 71	1	Control	1	1.56787e4	12.053	9.87106e-1
*	ICAL2@ 2.0ug/L Vial 72	1	Control	2	2.80487e4	12.066	2.01046
*	ICAL3@ 5.0ug/L Vial 73	1	Control	3	6.51323e4	12.106	5.05104
*	ICAL4@ 10.ug/L Vial 74	1	Control	4	1.31325e5	12.101	9.85678
*	ICAL5@ 25.ug/L Vial 75	1	Control	5	3.46913e5	12.084	25.58435
*	ICAL6@ 50.ug/L Vial 76	1	Control	6	6.96156e5	12.080	49.18282
*	ICAL7@ 75.ug/L Vial 77	1	Control	7	1.13077e6	12.106	75.33907
*	ICAL Verf@10ug/L Vial 78	1	Control	8	1.31460e5	12.177	10.08554

#*	Sample Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-ISTD RT	CLO4-89-ISTD Amount
*	ICAL1@ 1.0ug/L Vial 71	1	Control	1	1.88880e5	12.050	5.00000
*	ICAL2@ 2.0ug/L Vial 72	1	Control	2	1.81109e5	12.078	5.00000
*	ICAL3@ 5.0ug/L Vial 73	1	Control	3	1.75128e5	12.110	5.00000
*	ICAL4@ 10.ug/L Vial 74	1	Control	4	1.80962e5	12.109	5.00000
*	ICAL5@ 25.ug/L Vial 75	1	Control	5	1.75597e5	12.084	5.00000
*	ICAL6@ 50.ug/L Vial 76	1	Control	6	1.69148e5	12.086	5.00000
*	ICAL7@ 75.ug/L Vial 77	1	Control	7	1.64867e5	12.107	5.00000
*	ICAL Verf@10ug/L Vial 78	1	Control	8	1.76961e5	12.181	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2017\NOV\28NOV17P.S

Sequence Table:

Method and Injection Info Part:

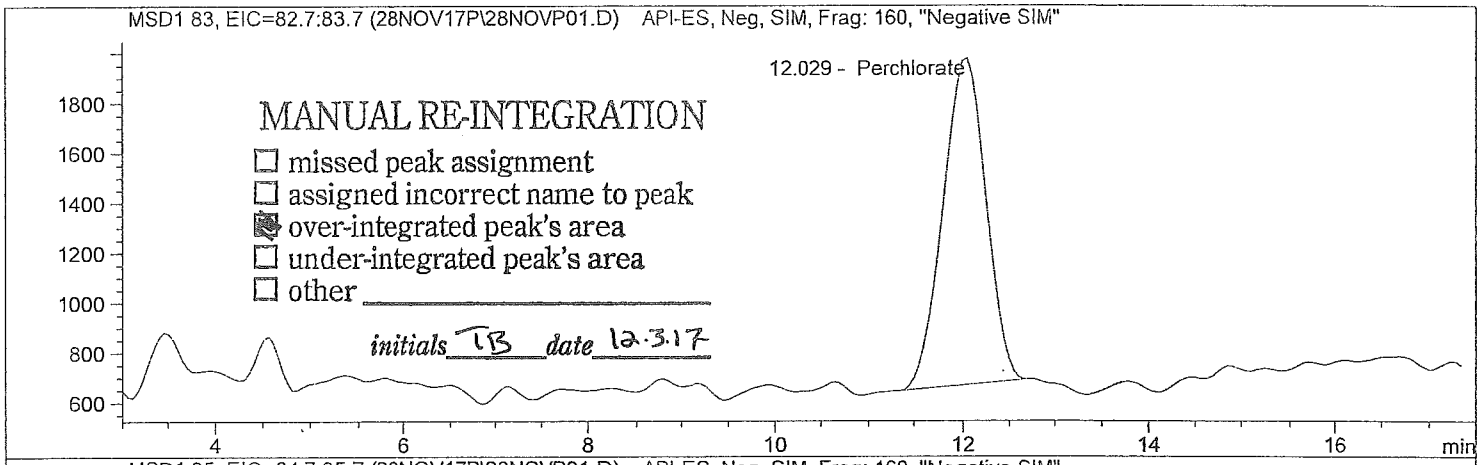
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	ICAL1@ 1.0ug/L	CLO4-DOD	1	Ctrl Samp		
2	Vial 72	ICAL2@ 2.0ug/L	CLO4-DOD	1	Ctrl Samp		
3	Vial 73	ICAL3@ 5.0ug/L	CLO4-DOD	1	Ctrl Samp		
4	Vial 74	ICAL4@ 10.ug/L	CLO4-DOD	1	Ctrl Samp		
5	Vial 75	ICAL5@ 25.ug/L	CLO4-DOD	1	Ctrl Samp		
6	Vial 76	ICAL6@ 50.ug/L	CLO4-DOD	1	Ctrl Samp		
7	Vial 77	ICAL7@ 75.ug/L	CLO4-DOD	1	Ctrl Samp		
8	Vial 78	ICAL Verf@10ug/L	CLO4-DOD	1	Ctrl Samp		

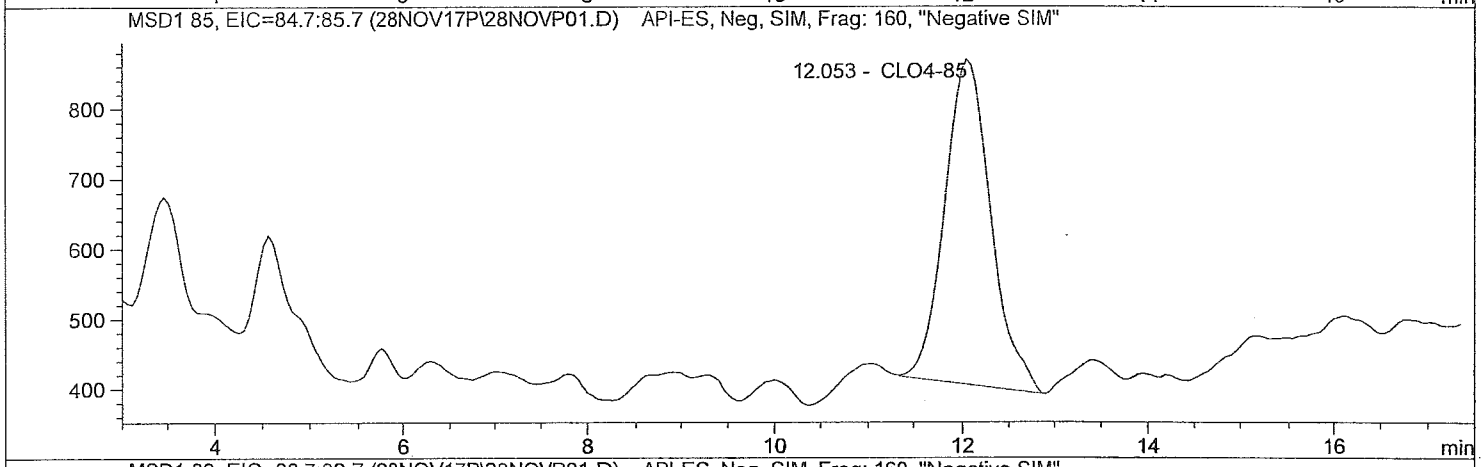
Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP01.D Sample Name: ICAL1@ 1.0ug/L

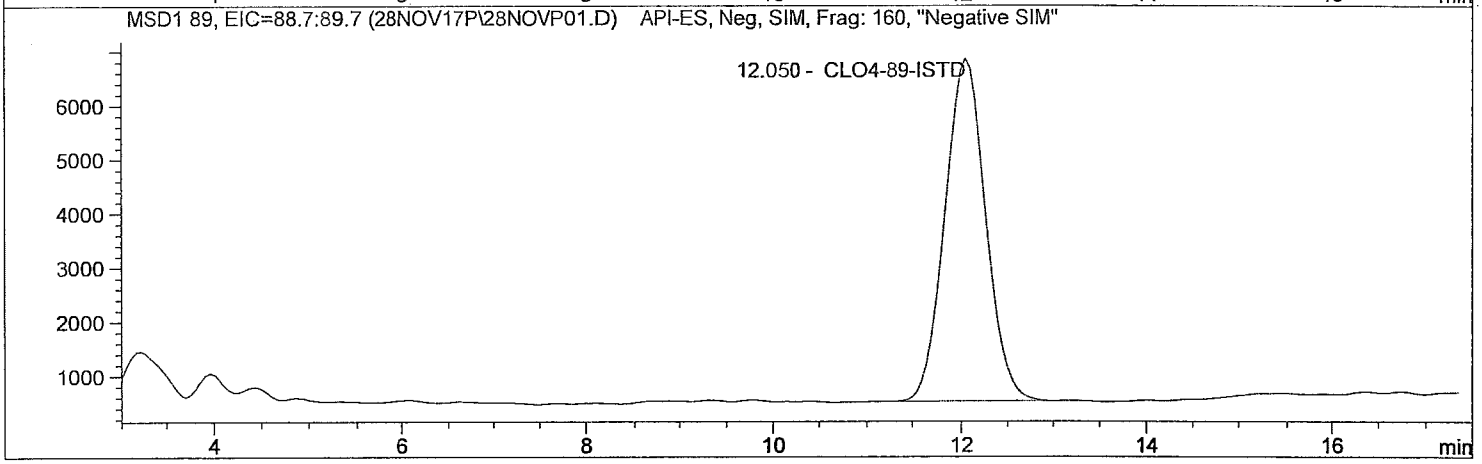
Injection Date:	11/28/2017 09:08:10	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	11/28/2017 09:08:10	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 29. Nov. 2017,08:02:06 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.029	MM	41094.2	1.0286	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.053	BBA	15678.7	0.9871	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.050	BBA	188880.3	5.0000	CLO4-89-ISTD

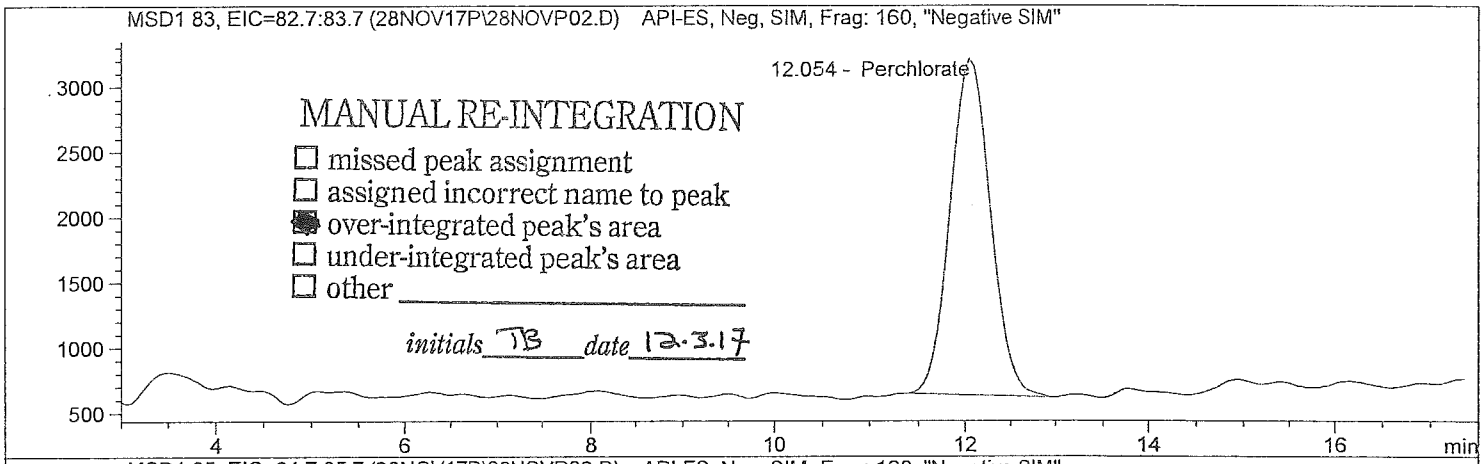
*** End of Report ***

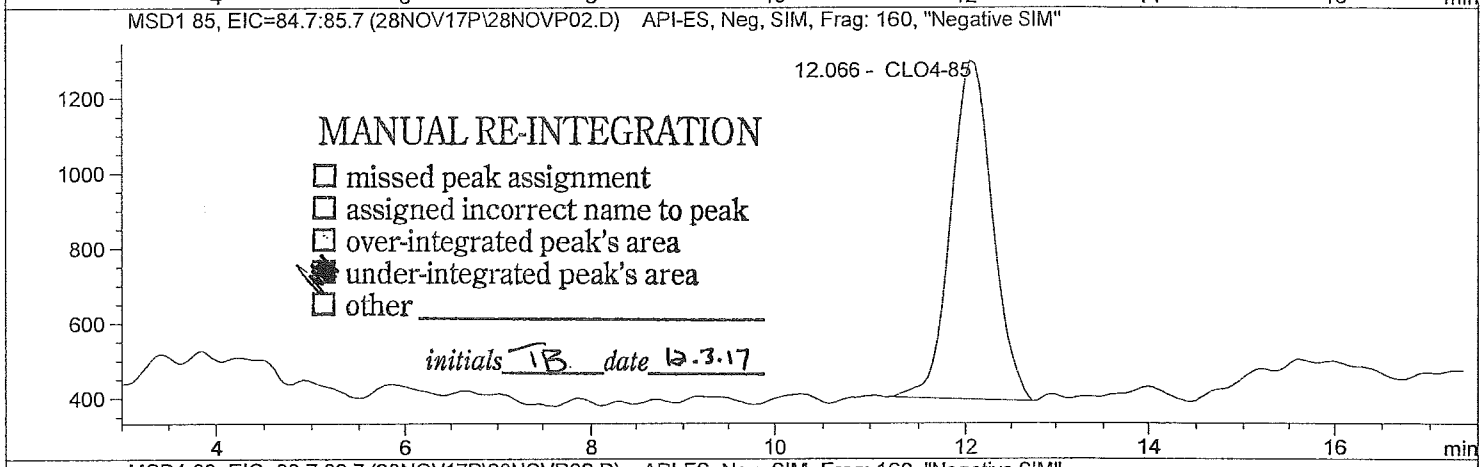
Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP02.D Sample Name: ICAL2@ 2.0ug/L

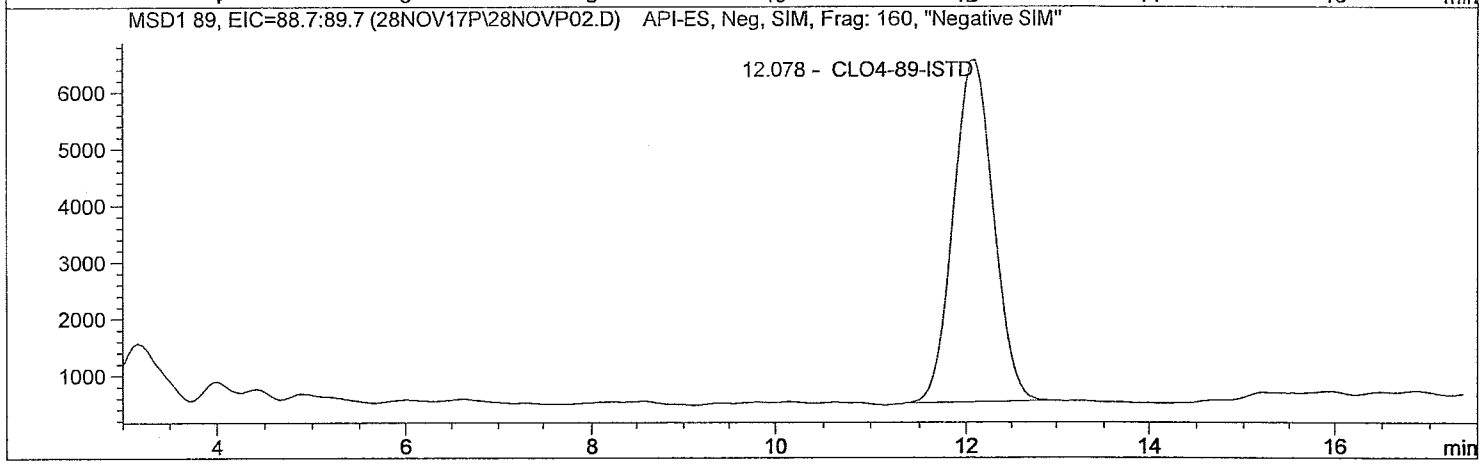
Injection Date:	11/28/2017 09:33:49	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	11/28/2017 09:33:49	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 29. Nov. 2017,08:02:06 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.054	MM	77407.7	1.9872	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.066	MM	28048.7	2.0105	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.078	PBA	181109.4	5.0000	CLO4-89-ISTD

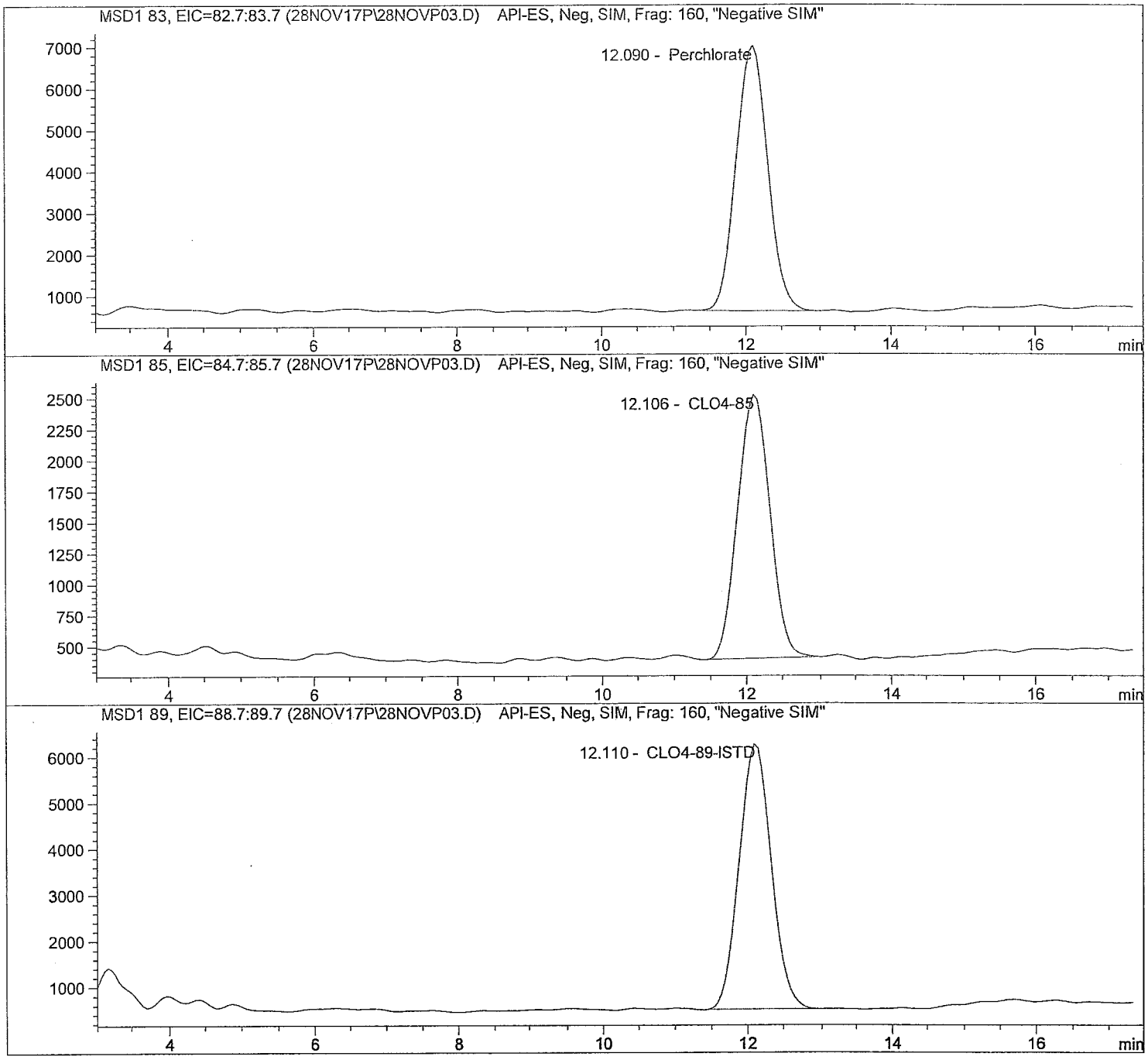
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP03.D Sample Name: ICAL3@ 5.0ug/L

Injection Date:	11/28/2017 09:53:00	Seq Line:	3
Sample Name:	ICAL3@ 5.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP03.D Sample Name: ICAL3@ 5.0ug/L

Injection Date:	11/28/2017 09:53:00	Seq Line:	3
Sample Name:	ICAL3@ 5.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Wed, 29. Nov. 2017,08:02:06 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.090	BBA	192984.6	5.0058	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.106	PBA	65132.3	5.0510	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.110	PBA	175128.5	5.0000	CLO4-89-ISTD

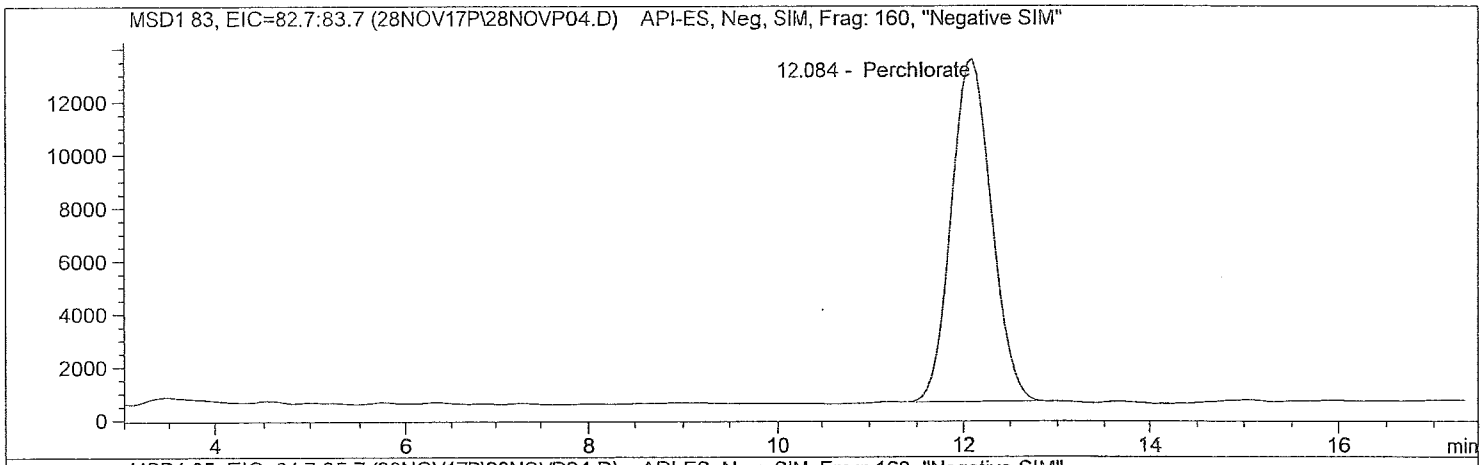
*** End of Report ***

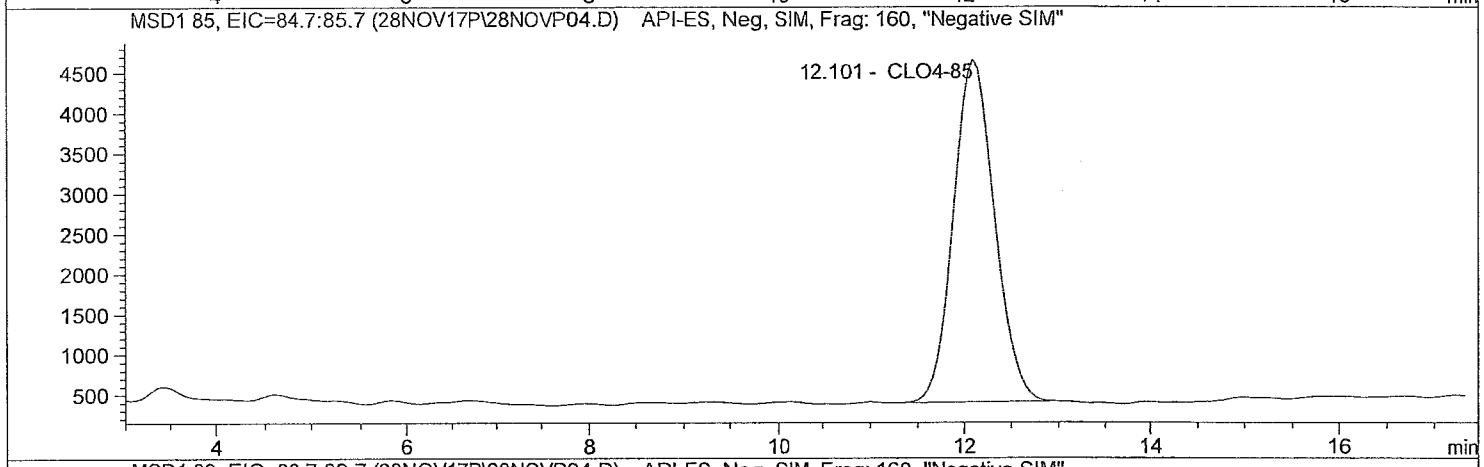
Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP04.D Sample Name: ICAL4@ 10.ug/L

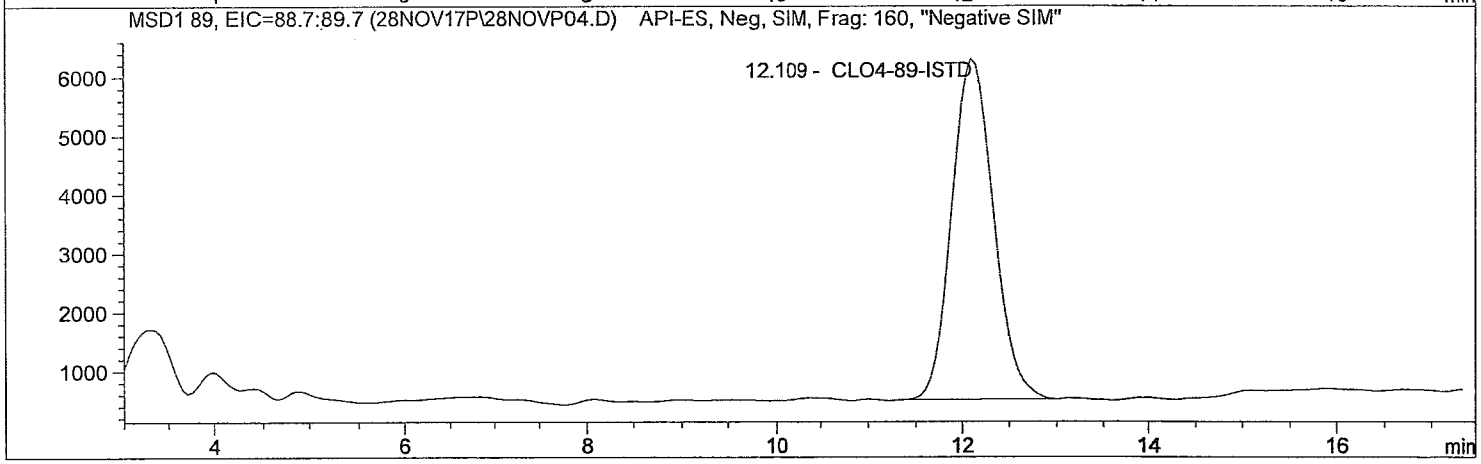
Injection Date:	11/28/2017 10:12:13	Seq Line:	4
Sample Name:	ICAL4@ 10.ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP04.D Sample Name: ICAL4@ 10.ug/L

Injection Date:	11/28/2017 10:12:13	Seq Line:	4
Sample Name:	ICAL4@ 10.ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Wed, 29. Nov. 2017,08:02:06 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.084	BBA	391582.9	9.5789	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.101	PBA	131324.7	9.8568	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.109	PBA	180962.1	5.0000	CLO4-89-ISTD

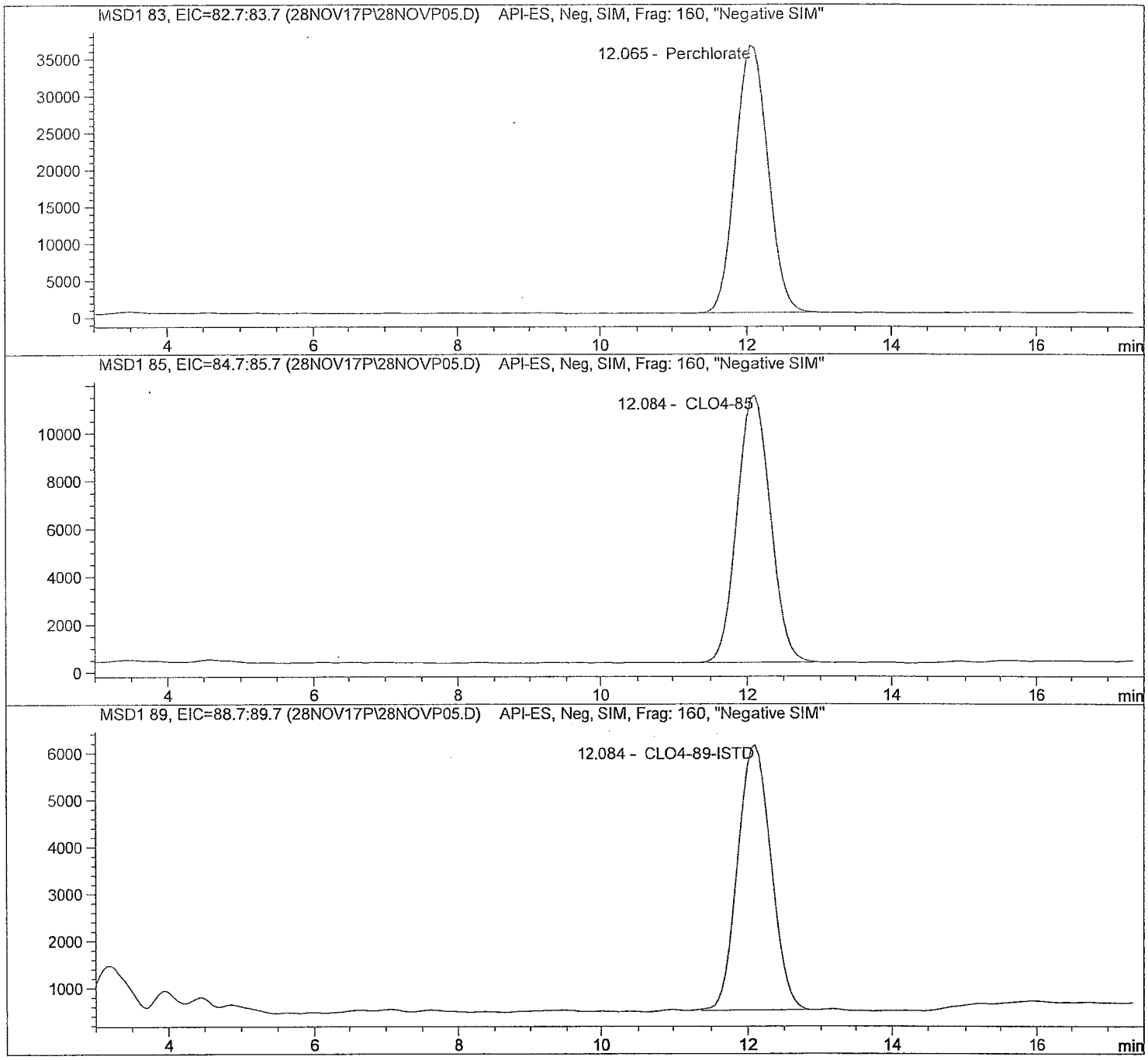
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP05.D Sample Name: ICAL5@ 25.ug/L

Injection Date:	11/28/2017 10:31:23	Seq Line:	5
Sample Name:	ICAL5@ 25.ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP05.D Sample Name: ICAL5@ 25.ug/L

Injection Date:	11/28/2017 10:31:23	Seq Line:	5
Sample Name:	ICAL5@ 25.ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 29. Nov. 2017,08:02:06 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.065	PBA	1097625.1	25.5523	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.084	PBA	346912.7	25.5843	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.084	BBA	175597.1	5.0000	CLO4-89-ISTD

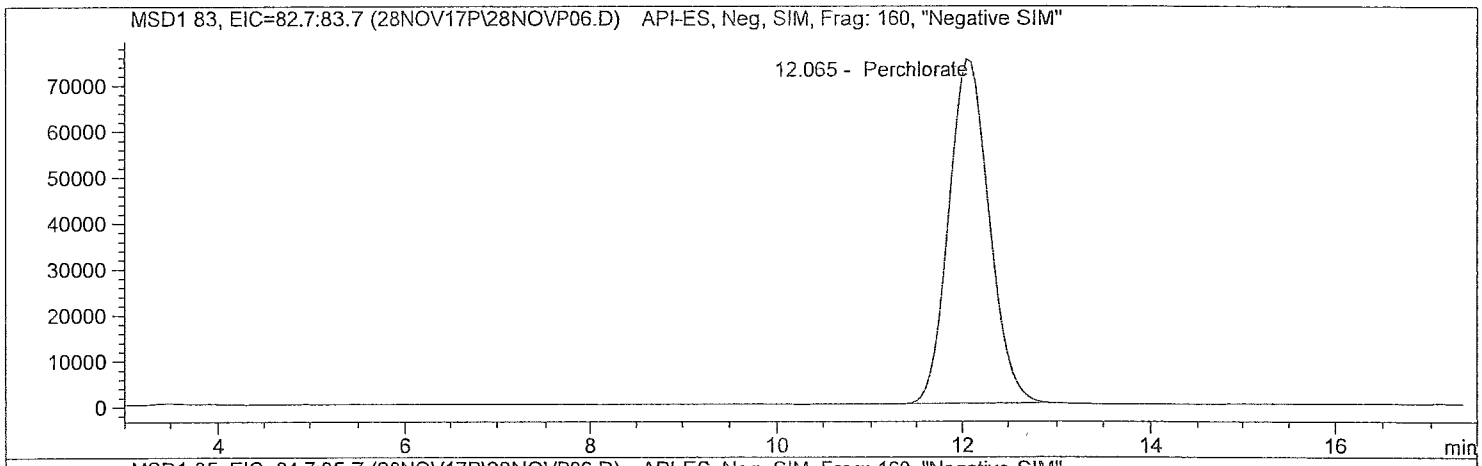
*** End of Report ***

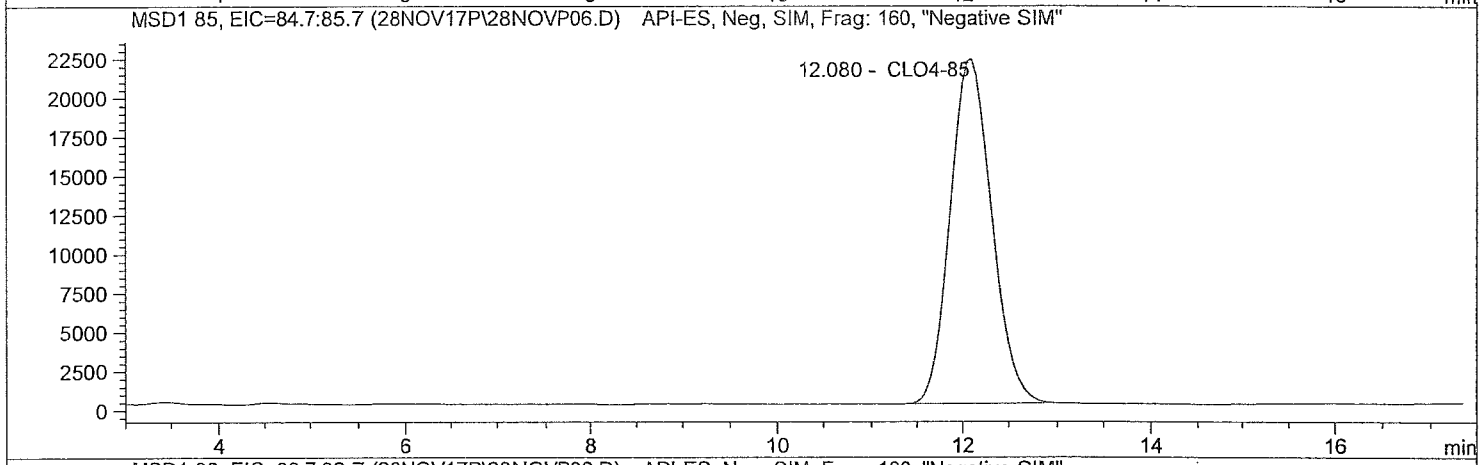
Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP06.D Sample Name: ICAL6@ 50.ug/L

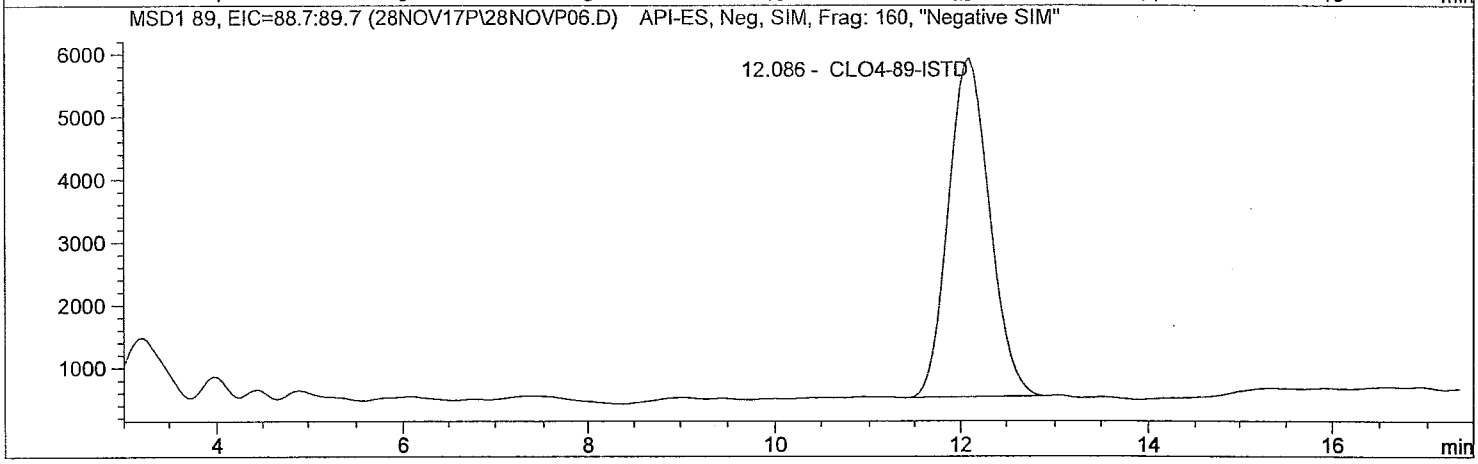
Injection Date:	11/28/2017 10:50:33	Seq Line:	6
Sample Name:	ICAL6@ 50.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP06.D Sample Name: ICAL6@ 50.ug/L

Injection Date:	11/28/2017 10:50:33	Seq Line:	6
Sample Name:	ICAL6@ 50.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Wed, 29. Nov. 2017,08:02:06 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.065	BBA	2298336.2	49.8316	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.080	PBA	696155.7	49.1828	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.086	PBA	169148.1	5.0000	CLO4-89-ISTD

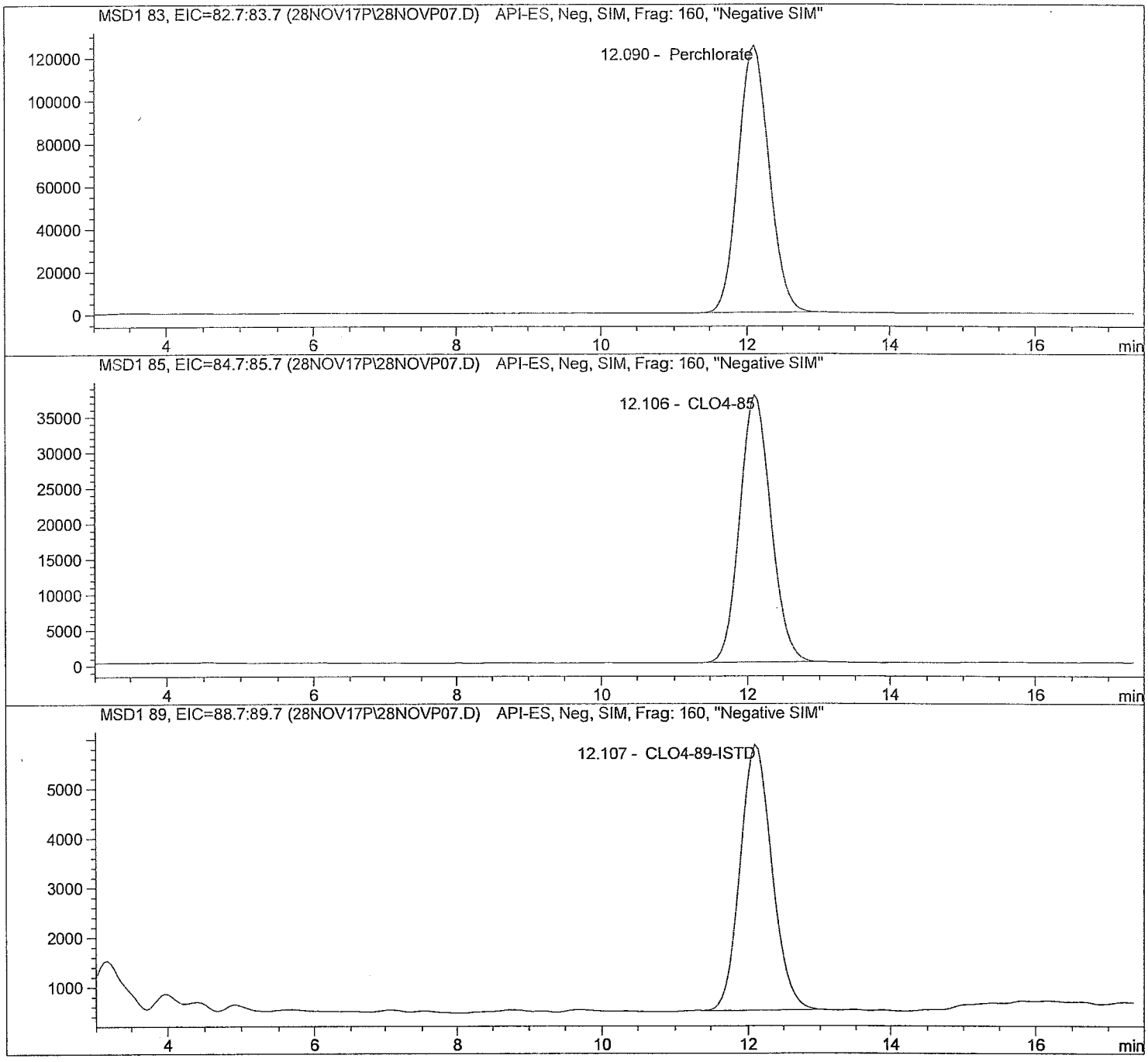
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP07.D Sample Name: ICAL7@ 75.ug/L

Injection Date:	11/28/2017 11:09:43	Seq Line:	7
Sample Name:	ICAL7@ 75.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP07.D Sample Name: ICAL7@ 75.ug/L

Injection Date:	11/28/2017 11:09:43	Seq Line:	7
Sample Name:	ICAL7@ 75.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 29. Nov. 2017,08:02:06 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.090	PBA	3730211.3	74.9999	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.106	PBA	1130772.0	75.3391	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.107	BBA	164866.7	5.0000	CLO4-89-ISTD

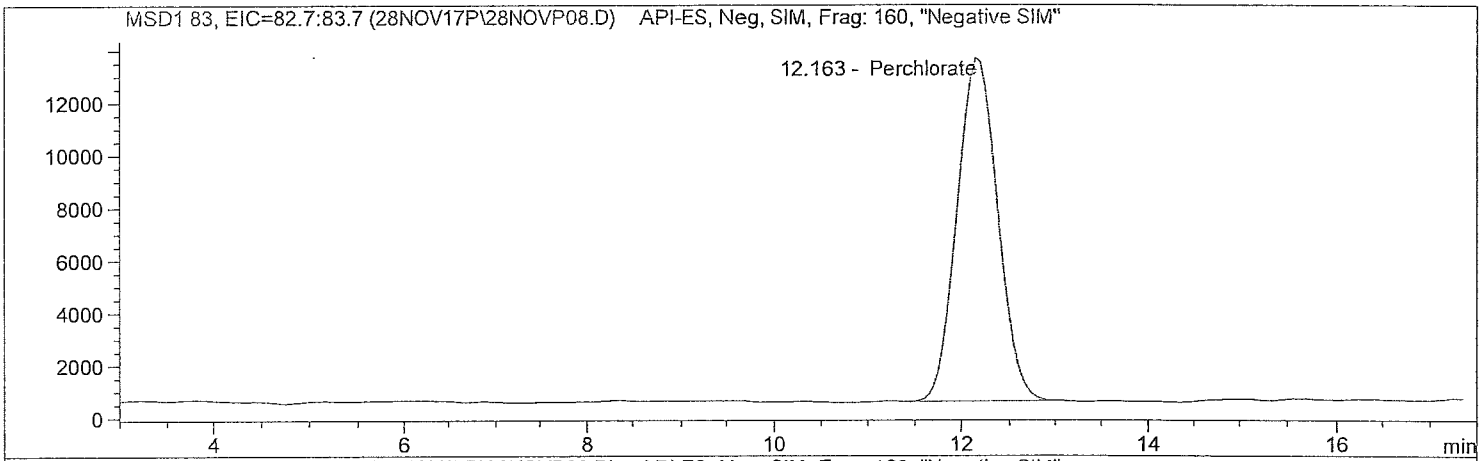
*** End of Report ***

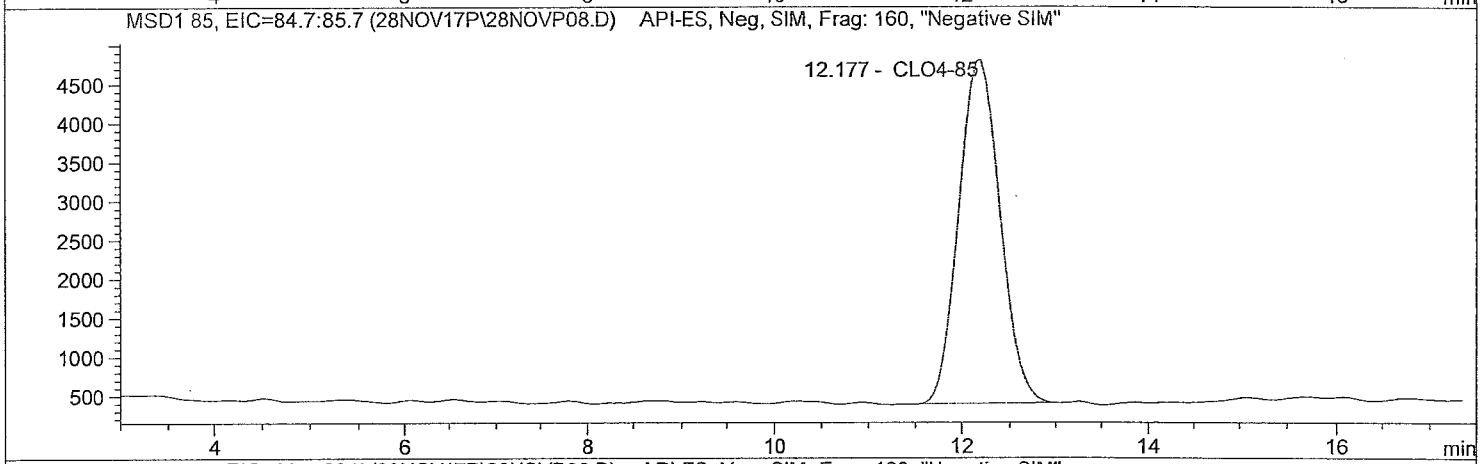
Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP08.D Sample Name: ICAL Verf@10ug/L

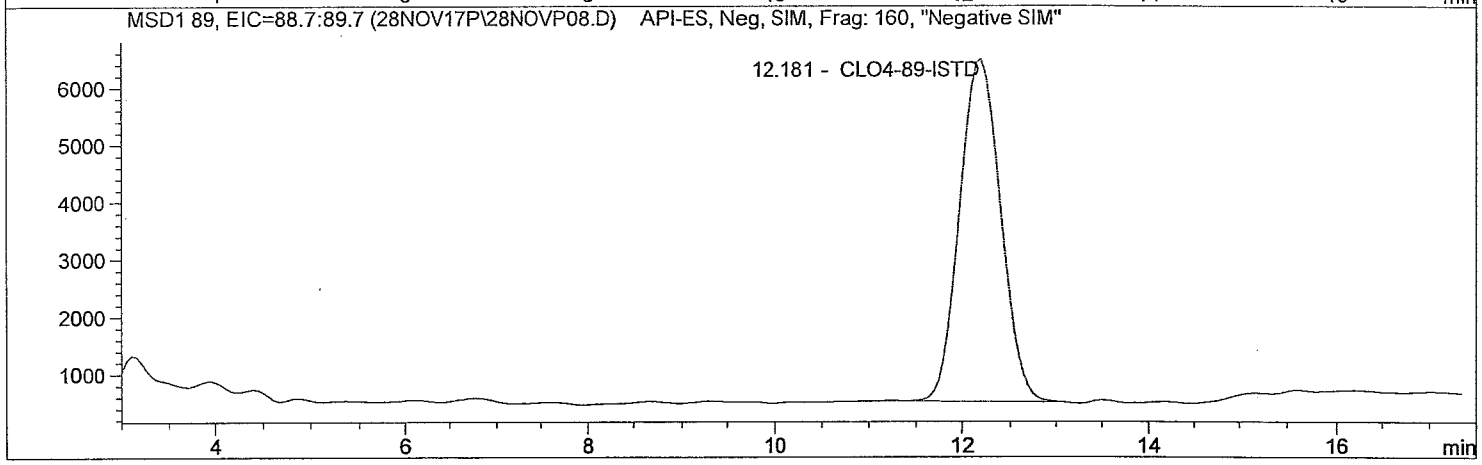
Injection Date:	11/28/2017 11:28:53	Seq Line:	8
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP08.D Sample Name: ICAL Verf@10ug/L

Injection Date:	11/28/2017 11:28:53	Seq Line:	8
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 29. Nov. 2017,08:02:06 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.163	PBA	383615.2	9.5953	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.177	PBA	131459.5	10.0855	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.181	BBA	176961.2	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

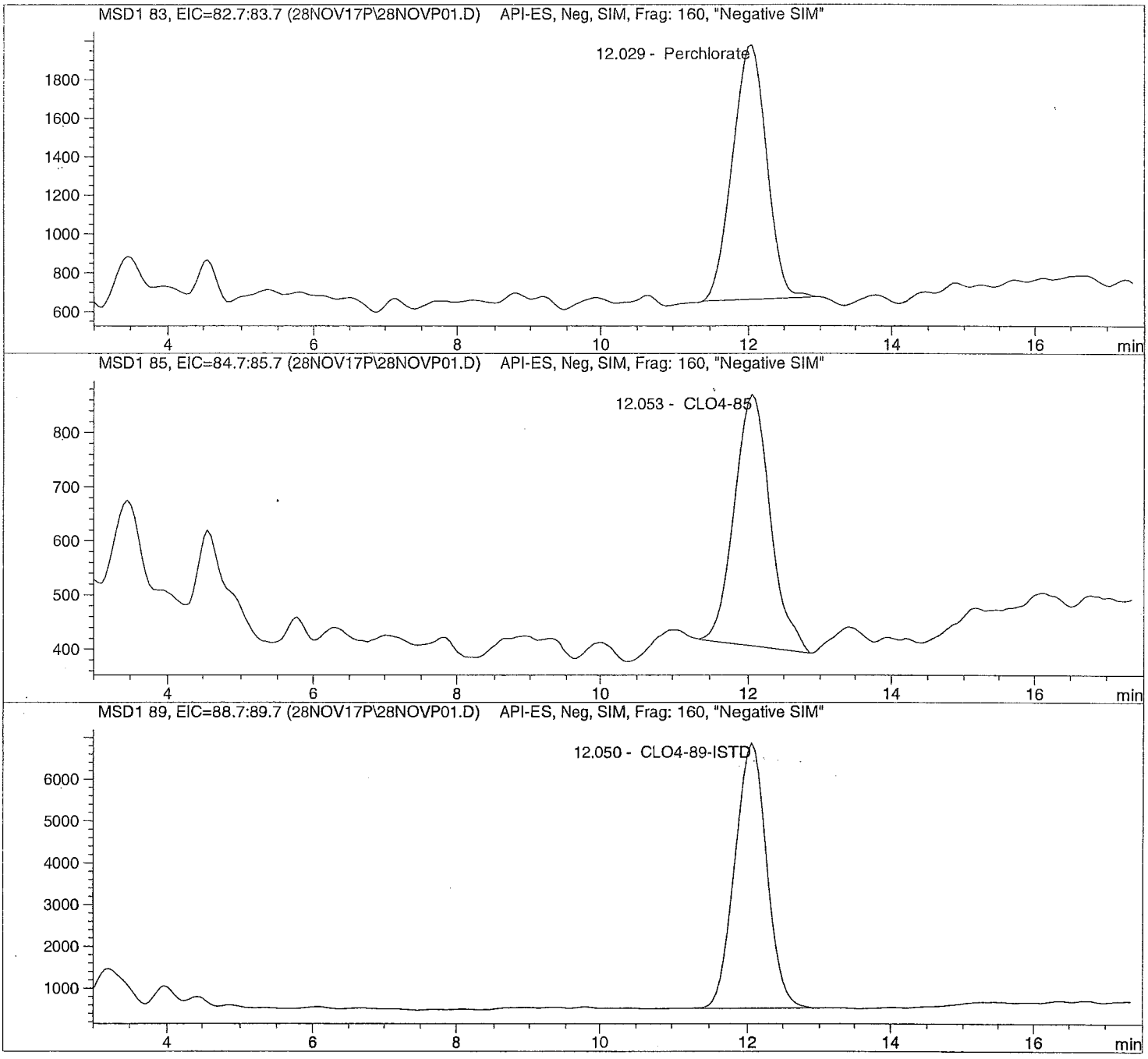
Unmodified

Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	11/28/2017 09:08:10	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP01.D Sample Name: ICAL1@ 1.0ug/L

Injection Date:	11/28/2017 09:08:10	Seq Line:	1
Sample Name:	ICAL1@ 1.0ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 29. Nov. 2017,08:02:06 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.029	BBA	42017.4	1.0510	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.053	BBA	15678.7	0.9871	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.050	BBA	188880.3	5.0000	CLO4-89-ISTD

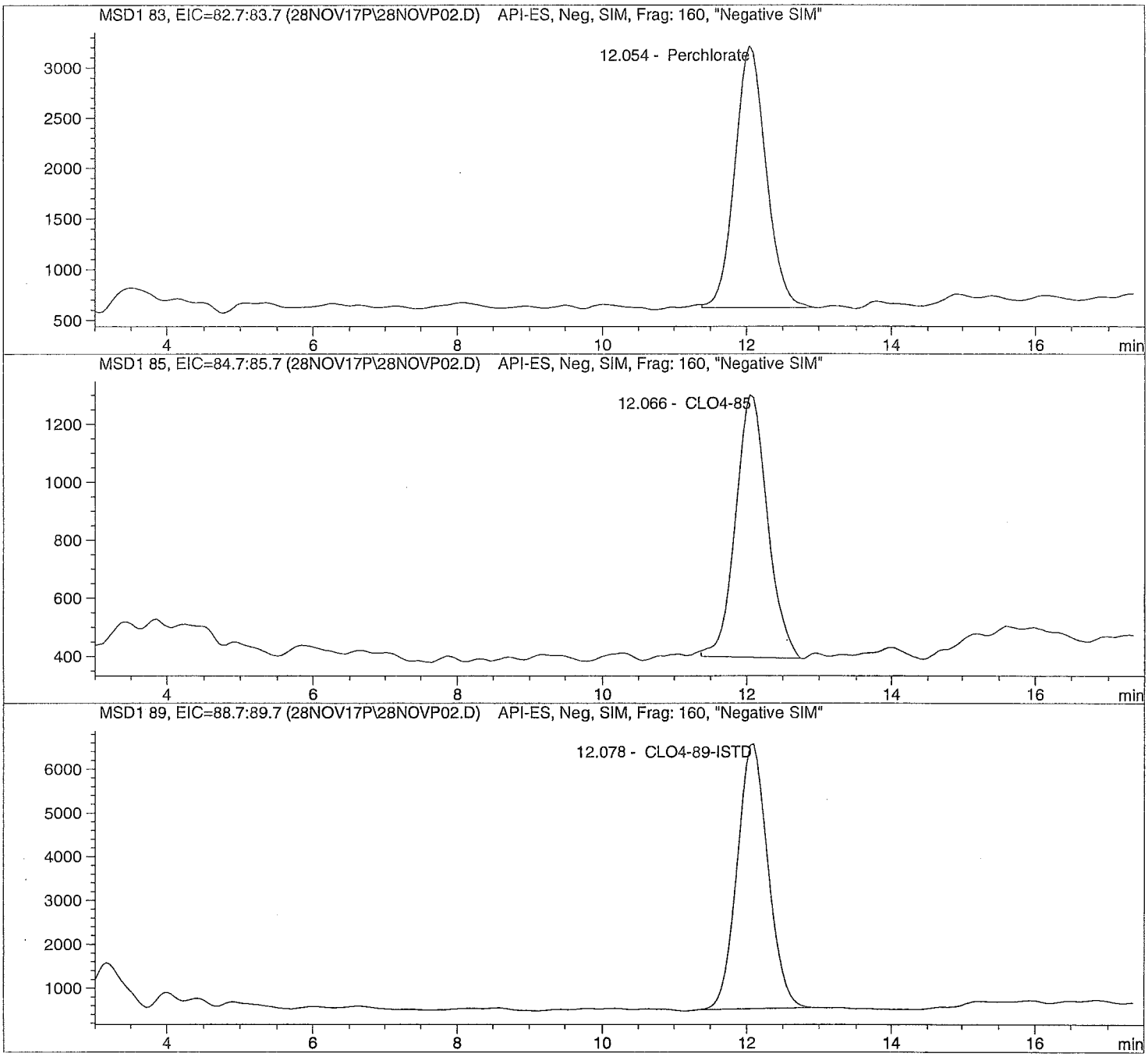
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	11/28/2017 09:33:49	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28NOV17P\28NOVP02.D Sample Name: ICAL2@ 2.0ug/L

Injection Date:	11/28/2017 09:33:49	Seq Line:	2
Sample Name:	ICAL2@ 2.0ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/3/2017 11:06:36

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 29. Nov. 2017,08:02:06 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.054	BBA	78519.1	2.0151	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.066	BBA	28009.6	2.0074	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.078	PBA	181109.4	5.0000	CLO4-89-ISTD

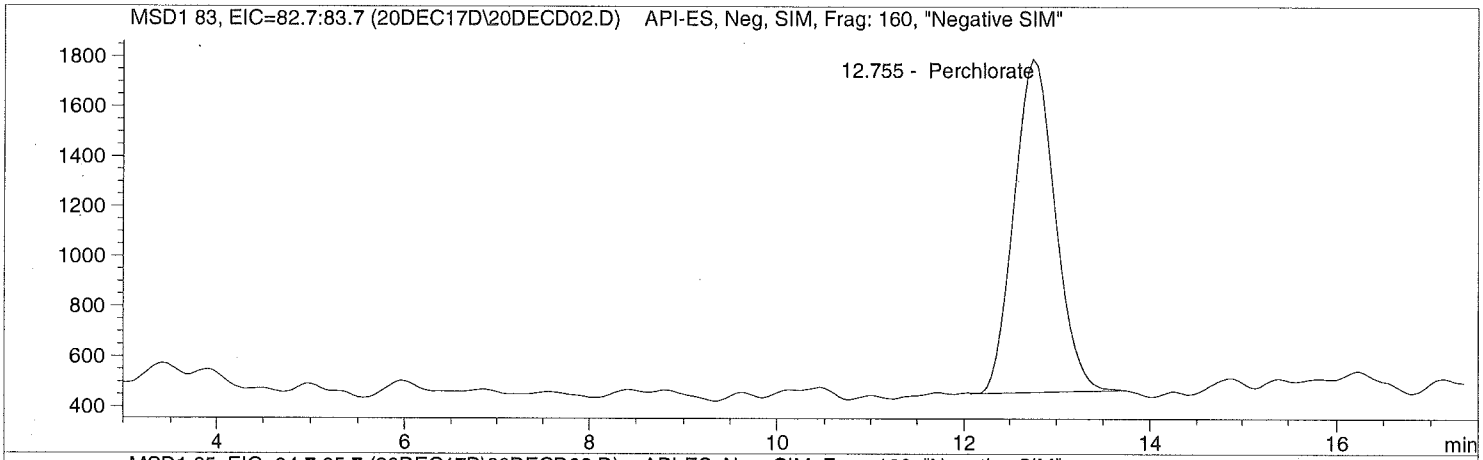
*** End of Report ***

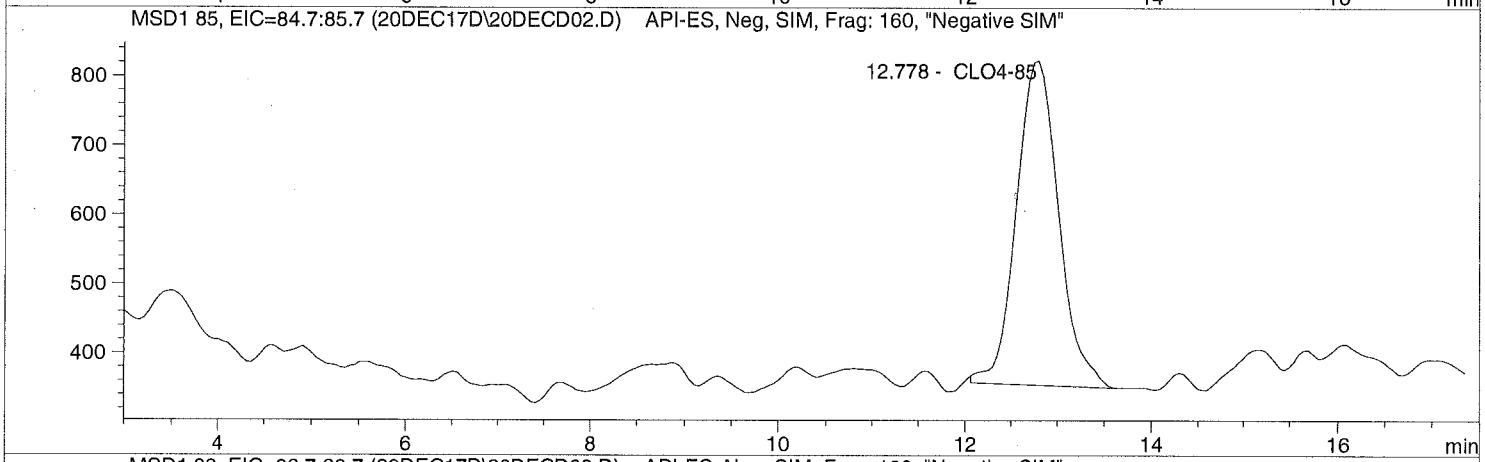
Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD02.D Sample Name: 580020 LODV@1.

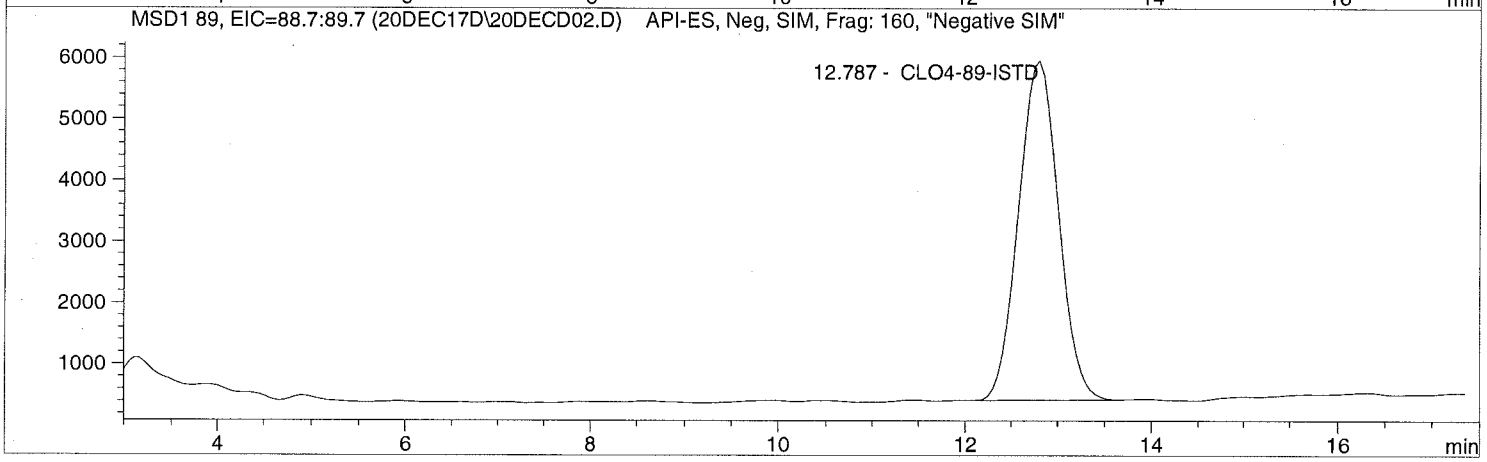
Injection Date:	12/20/2017 11:22:47	Seq Line:	2
Sample Name:	580020 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD02.D Sample Name: 580020 LODV@1.

Injection Date:	12/20/2017 11:22:47	Seq Line:	2
Sample Name:	580020 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.755	BBA	41073.0	1.1700	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.778	BBA	14852.1	1.0844	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.787	BBA	165366.5	5.0000	CLO4-89-ISTD

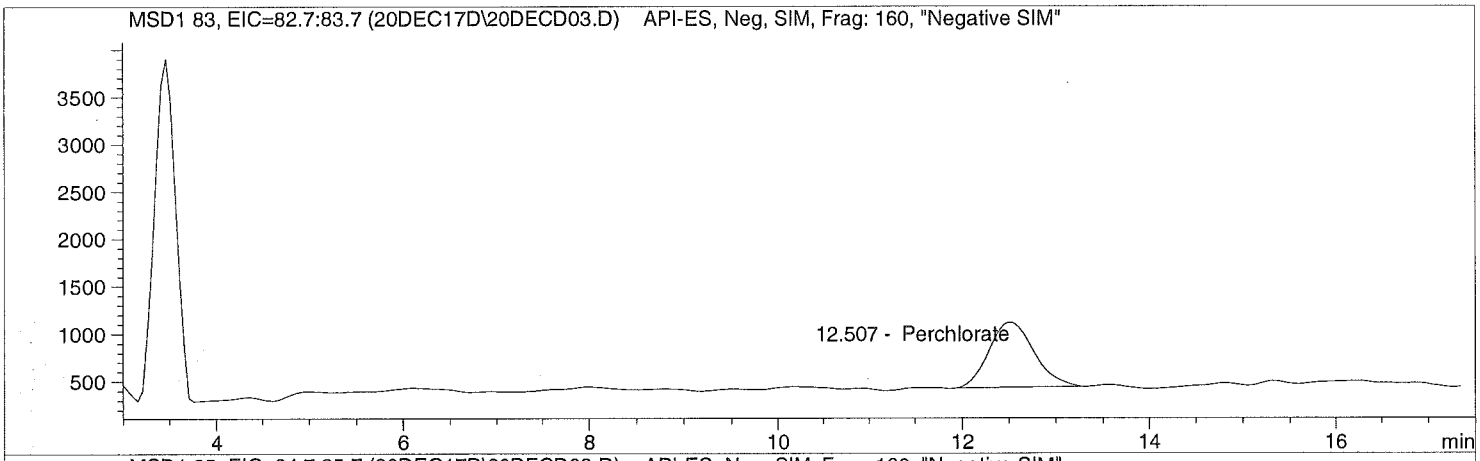
*** End of Report ***

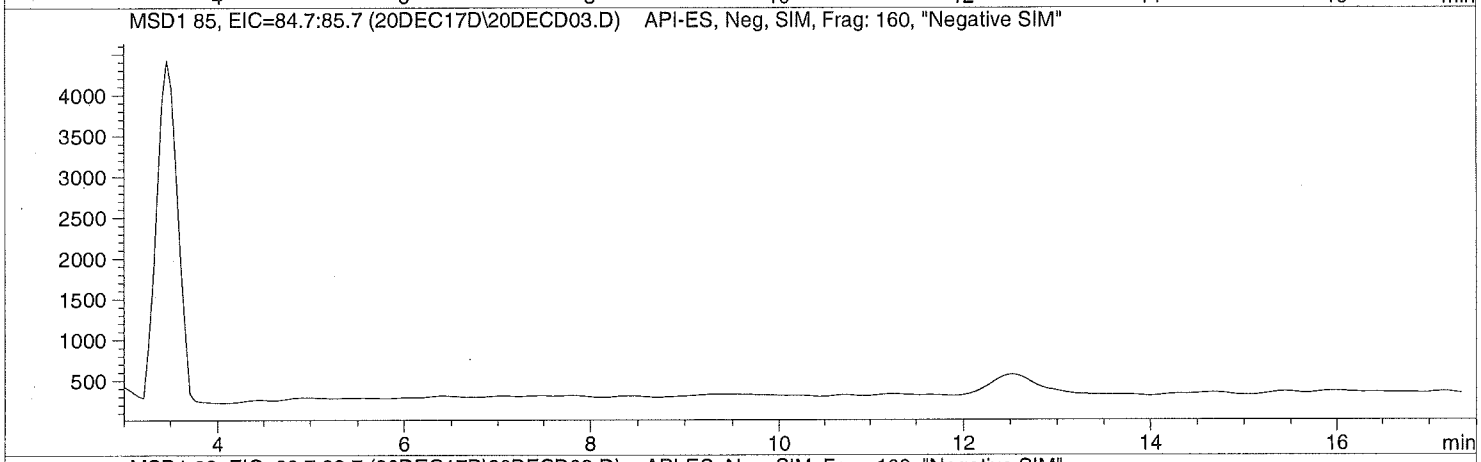
Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD03.D Sample Name: 580021 ICS@1.

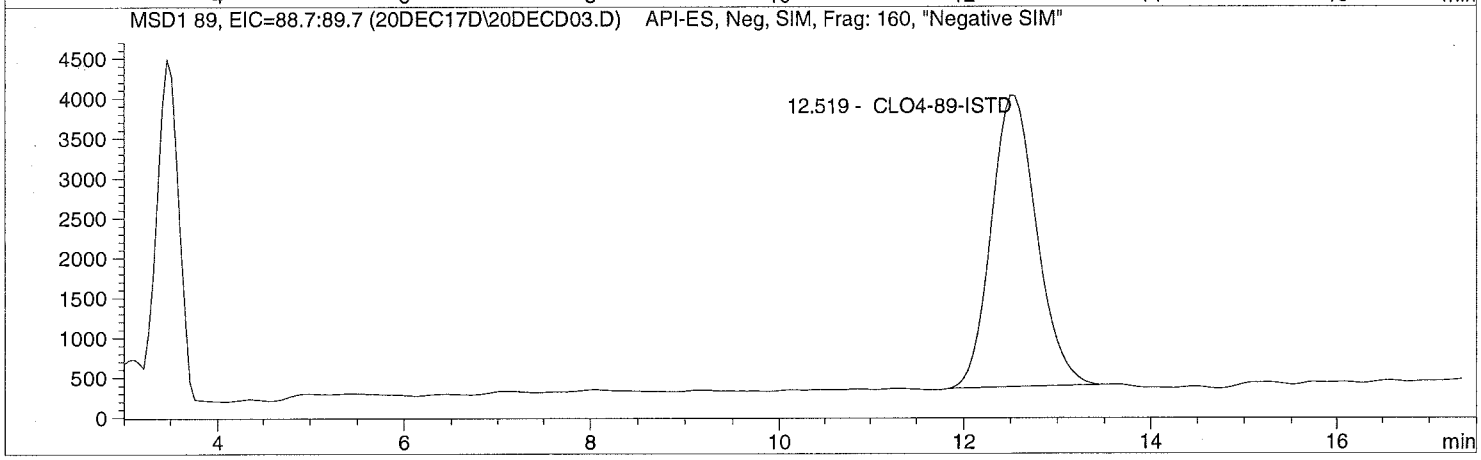
Injection Date:	12/20/2017 11:41:53	Seq Line:	3
Sample Name:	580021 ICS@1.	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD03.D Sample Name: 580021 ICS@1.

Injection Date:	12/20/2017 11:41:53	Seq Line:	3
Sample Name:	580021 ICS@1.	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.507	PBA	22883.3	0.8812	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.519	PBA	123365.6	5.0000	CLO4-89-ISTD

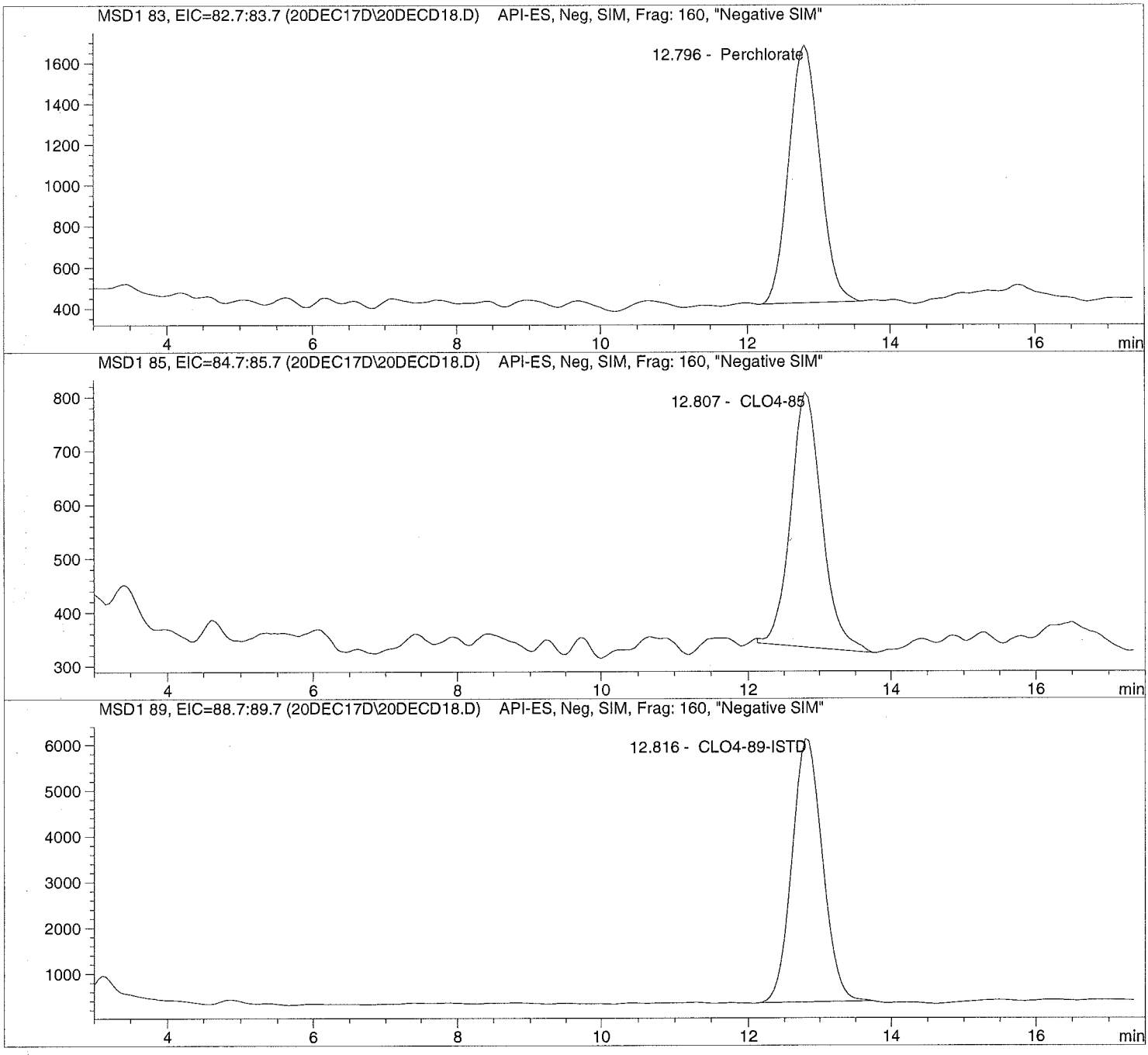
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD18.D Sample Name: 580027 LODV@1.

Injection Date:	12/20/2017 16:30:17	Seq Line:	18
Sample Name:	580027 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20DEC17D\20DECD18.D Sample Name: 580027 LODV@1.

Injection Date:	12/20/2017 16:30:17	Seq Line:	18
Sample Name:	580027 LODV@1.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	25 µl

Acq. Method: CLO4-DOD.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DPR.M
Last Changed: 12/20/2017 08:11:26

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Wed, 20. Dec. 2017,08:01:52 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.796	PBA	38291.0	1.0468	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.807	BBA	14529.2	1.0022	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
12.816	PBA	172840.8	5.0000	CLO4-89-ISTD

*** End of Report ***