LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 12

2022

Bate Stamp Numbers
01092681 – 01094683

Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976–2022

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

VOLUME 12

2022

A.	Title:	(Cont'd) Report – Appendix D to Final First Annual Remediation Action Operation Report, LHAAP-16 Landfill, Longhorn Army Ammunition Plant, Karnack, Texas, April 2022
	Author(s):	Department of the Army
	Recipient:	U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
	Date:	April 19, 2022
	Bate Stamp:	01092681 – 01092788

B.	Title:	(Cont'd) Report – Appendix D Level IV DOD (March 2020) to Final First Annual Remediation Action Operation Report, LHAAP-16 Landfill, Longhorn Army Ammunition Plant, Karnack, Texas, April 2022
	Author(s):	Department of the Army
	Recipient:	U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
	Date:	April 19, 2022
	Bate Stamp:	01092789 – 01094683

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100145
Project:	HS21020193	**Date Collected:**	2/ 2/21 1345
Sample Matrix:	Misc. Solid	**Date Received:**	2/ 4/21
Sample Name:	16EW06-210202	**Units:**	µg/Kg
Lab Code:	E2100145-009	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.989	0.750	0.300	1	2/10/21	2/10/21 23:03	374037	712768	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100145
Project:	HS21020193	**Date Collected:**	2/ 2/21 1345
Sample Matrix:	Misc. Solid	**Date Received:**	2/ 4/21
Sample Name:	16EW06-210202-FD	**Units:**	µg/Kg
Lab Code:	E2100145-010	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.988	0.750	0.300	1	2/10/21	2/10/21 23:11	374037	712768	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100145
Project:	HS21020193	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100068-01	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/10/21	2/10/21 16:36	374035	712832	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100145
Project:	HS21020193	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	EQ2100069-01	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.998	0.750	0.300	1	2/10/21	2/10/21 22:16	374037	712768	

Accuracy & Precision

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100145
Project:	HS21020193	**Date Analyzed:**	2/11/21
Sample Matrix:	Water		

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

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	As Received
		Extraction Lot:	374035

	Lab Control Sample EQ2100068-02			Duplicate Lab Control Sample EQ2100068-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0871	0.100	87	0.110	0.100	110	84 - 119	23 *	15

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100145
Project:	HS21020193	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100068-02	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0871**	J	0.100	0.0500	0.0250	1	2/10/21	2/11/21 16:00	374035	712924	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100145
Project:	HS21020193	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100068-03	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.110**		0.100	0.0500	0.0250	1	2/10/21	2/11/21 16:08	374035	712924	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100145
Project:	HS21020193	**Date Analyzed:**	2/10/21
Sample Matrix:	Misc. Solid		

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

Analytical Method:	6850	**Units:**	µg/Kg
Prep Method:	Method	**Basis:**	As Received
		Extraction Lot:	374037

	Lab Control Sample EQ2100069-02			Duplicate Lab Control Sample EQ2100069-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	89.8	96.1	93	92.9	95.1	98	84 - 121	3	15

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100145
Project:	HS21020193	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/Kg
Lab Code:	EQ2100069-02	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**89.8**		0.961	0.750	0.300	1	2/10/21	2/10/21 22:24	374037	712768	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100145
Project:	HS21020193	**Date Collected:**	NA
Sample Matrix:	Misc. Solid	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/Kg
Lab Code:	EQ2100069-03	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**92.9**		0.951	0.750	0.300	1	2/10/21	2/10/21 22:31	374037	712768	

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February 16, 2021

Analytical Report for Service Request No: K2101158

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

RE: ALS Houston DOD TOC

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory February 05, 2021
For your reference, these analyses have been assigned our service request number **K2101158.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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

Service Request: K2101158
Date Received: 02/05/2021

CASE NARRATIVE

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

Sample Receipt:

Five ground water samples were received for analysis at ALS Environmental on 02/05/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 02/16/2021

Chain of Custody

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K2101158

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 15609**

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21020193
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21020193-01**	**16PM14-210202**	**Groundwater**	**02 Feb 2021 07:45**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			15 Feb 2021
2.	**HS21020193-02**	**16PM06-210202**	**Groundwater**	**02 Feb 2021 08:30**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			15 Feb 2021
3.	**HS21020193-03**	**16RW10-210202**	**Groundwater**	**02 Feb 2021 09:15**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			15 Feb 2021
4.	**HS21020193-04**	**16RW09-210202**	**Groundwater**	**02 Feb 2021 10:00**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			15 Feb 2021
5.	**HS21020193-06**	**16EW08-210202**	**Groundwater**	**02 Feb 2021 11:30**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			15 Feb 2021

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

QC Level: DOD IV (DoD Data Package)

K2101158

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15609**

Relinquished By: J Johnson Date/Time: 2/4/21 18:00

Received By: Date/Time: 2/5/21 1015

Cooler ID(s): Temperature(s):

PM KK

Cooler Receipt and Preservation Form

Client DR Horton Service Request K21 01158

Received: 21521 Opened: 21521 By: RR Unloaded: 21521 By: RR

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

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

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
0.5	—	IR01				947308400718	

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

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, Resolutions: _____

General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2101158
Project:	ALS Houston DOD TOC	**Date Collected:**	02/2/21
Sample Matrix:	Ground Water	**Date Received:**	02/5/21
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
16PM14-210202	K2101158-001	**9.84**	0.50	0.20	0.07	1	02/10/21 17:05	
16PM06-210202	K2101158-002	**8.53**	0.50	0.20	0.07	1	02/10/21 17:05	
16RW10-210202	K2101158-003	**3.24**	0.50	0.20	0.07	1	02/10/21 17:05	
16RW09-210202	K2101158-004	**2.28**	0.50	0.20	0.07	1	02/10/21 17:05	
16EW08-210202	K2101158-005	**445**	5.0	2.0	0.7	10	02/10/21 17:05	
Method Blank	K2101158-MB	ND U	0.50	0.20	0.07	1	02/10/21 17:05	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2101158
Project:	ALS Houston DOD TOC	**Date Analyzed:**	02/10/21
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	712738

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2101158-LCS	25.2	25.0	101	83-117

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February 22, 2021

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS21020268**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP 16 January 2021**

Dear Susan Huang,

ALS Environmental received 11 sample(s) on Feb 04, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
Work Order: HS21020268

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21020268-01	16RW11-210203	Groundwater		03-Feb-2021 07:35	04-Feb-2021 09:45	☐
HS21020268-02	16WW40-210203	Groundwater		03-Feb-2021 08:20	04-Feb-2021 09:45	☐
HS21020268-03	16WW40-210203-FD	Groundwater		03-Feb-2021 08:20	04-Feb-2021 09:45	☐
HS21020268-04	16WW12-210203	Groundwater		03-Feb-2021 09:05	04-Feb-2021 09:45	☐
HS21020268-05	16WW39-210203	Groundwater		03-Feb-2021 09:45	04-Feb-2021 09:45	☐
HS21020268-06	16WW21-210203	Groundwater		03-Feb-2021 10:40	04-Feb-2021 09:45	☐
HS21020268-07	16WW21-210203-FD	Groundwater		03-Feb-2021 10:40	04-Feb-2021 09:45	☐
HS21020268-08	16WW34-210203	Groundwater		03-Feb-2021 11:35	04-Feb-2021 09:45	☐
HS21020268-09	16WW34-210203-FD	Groundwater		03-Feb-2021 11:35	04-Feb-2021 09:45	☐
HS21020268-10	16WW33-210203	Groundwater		03-Feb-2021 12:20	04-Feb-2021 09:45	☐
HS21020268-11	Trip Blank-210203	Water	CG 121520 -120	03-Feb-2021 00:00	04-Feb-2021 09:45	☐

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
Work Order: HS21020268

Work Order Comments

• The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached.

The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R378003

Sample ID: 16WW40-210203 (HS21020268-02)

• Surrogate ,1,2-Dichloroethane-d4 failure due to matrix.. Confirmed by re-analysis @ dilution.

Batch ID: R377691

Sample ID: HS21020249-04MS

• MS and MSD are for an unrelated sample

Batch ID: R377708

Sample ID: 16WW39-210203(HS21020268-05MS)

• MS and or MSD failed QC limit due to suspect matrix effect

WetChemistry by Method SW9056

Batch ID: R378283

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**

Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268

Sample ID: 16RW11-210203 Lab ID:HS21020268-01

Collection Date: 03-Feb-2021 07:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Feb-2021 20:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:14
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:14
cis-1,2-Dichloroethene	**0.92**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Feb-2021 20:14
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Feb-2021 20:14
Trichloroethene	**2.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Feb-2021 20:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:14
Surr: 1,2-Dichloroethane-d4	*117*			**0**	*81-118*	*%REC*	*1*	*07-Feb-2021 20:14*
Surr: 4-Bromofluorobenzene	*106*			**0**	*85-114*	*%REC*	*1*	*07-Feb-2021 20:14*
Surr: Dibromofluoromethane	*97.1*			**0**	*80-119*	*%REC*	*1*	*07-Feb-2021 20:14*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*07-Feb-2021 20:14*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Feb-2021 17:28

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268
Sample ID: 16WW40-210203 Lab ID:HS21020268-02
Collection Date: 03-Feb-2021 08:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	11-Feb-2021 16:36
1,1-Dichloroethene	**5.3**		**1.0**	**2.5**	**5.0**	**ug/L**	5	11-Feb-2021 16:36
1,2-Dichloroethane	**7.0**		**1.0**	**2.5**	**5.0**	**ug/L**	5	11-Feb-2021 16:36
cis-1,2-Dichloroethene	**150**		**1.0**	**2.5**	**5.0**	**ug/L**	5	11-Feb-2021 16:36
Methylene chloride	10	U	2.0	10	10	ug/L	5	11-Feb-2021 16:36
Trichloroethene	**1,500**		**5.0**	**12**	**25**	**ug/L**	25	11-Feb-2021 16:58
Vinyl chloride	**4.4**	J	**1.0**	**2.5**	**5.0**	**ug/L**	5	11-Feb-2021 16:36
Surr: 1,2-Dichloroethane-d4	*119*	*S*		**0**	*81-118*	*%REC*	*5*	*11-Feb-2021 16:36*
Surr: 1,2-Dichloroethane-d4	*116*			**0**	*81-118*	*%REC*	*25*	*11-Feb-2021 16:58*
Surr: 4-Bromofluorobenzene	*97.6*			**0**	*85-114*	*%REC*	*5*	*11-Feb-2021 16:36*
Surr: 4-Bromofluorobenzene	*97.5*			**0**	*85-114*	*%REC*	*25*	*11-Feb-2021 16:58*
Surr: Dibromofluoromethane	*97.1*			**0**	*80-119*	*%REC*	*5*	*11-Feb-2021 16:36*
Surr: Dibromofluoromethane	*96.5*			**0**	*80-119*	*%REC*	*25*	*11-Feb-2021 16:58*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*25*	*11-Feb-2021 16:58*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*5*	*11-Feb-2021 16:36*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Bromide	**9.31**		**1.50**	**5.00**	**5.00**	**mg/L**	50	20-Feb-2021 09:05
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Feb-2021 17:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Feb-2021 09:31

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268
Sample ID: 16WW40-210203-FD Lab ID:HS21020268-03
Collection Date: 03-Feb-2021 08:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	5.0	U	1.5	5.0	5.0	ug/L	5	11-Feb-2021 17:19
1,1-Dichloroethene	**4.3**	J	**1.0**	**2.5**	**5.0**	**ug/L**	5	11-Feb-2021 17:19
1,2-Dichloroethane	**6.8**		**1.0**	**2.5**	**5.0**	**ug/L**	5	11-Feb-2021 17:19
cis-1,2-Dichloroethene	**160**		**1.0**	**2.5**	**5.0**	**ug/L**	5	11-Feb-2021 17:19
Methylene chloride	10	U	2.0	10	10	ug/L	5	11-Feb-2021 17:19
Trichloroethene	**1,400**		**5.0**	**12**	**25**	**ug/L**	25	11-Feb-2021 17:40
Vinyl chloride	**4.5**	J	**1.0**	**2.5**	**5.0**	**ug/L**	5	11-Feb-2021 17:19
Surr: 1,2-Dichloroethane-d4	*117*			**0**	*81-118*	*%REC*	*5*	*11-Feb-2021 17:19*
Surr: 1,2-Dichloroethane-d4	*116*			**0**	*81-118*	*%REC*	*25*	*11-Feb-2021 17:40*
Surr: 4-Bromofluorobenzene	*99.3*			**0**	*85-114*	*%REC*	*25*	*11-Feb-2021 17:40*
Surr: 4-Bromofluorobenzene	*95.2*			**0**	*85-114*	*%REC*	*5*	*11-Feb-2021 17:19*
Surr: Dibromofluoromethane	*98.0*			**0**	*80-119*	*%REC*	*25*	*11-Feb-2021 17:40*
Surr: Dibromofluoromethane	*95.8*			**0**	*80-119*	*%REC*	*5*	*11-Feb-2021 17:19*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*11-Feb-2021 17:19*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*25*	*11-Feb-2021 17:40*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Bromide	**8.78**		**1.50**	**5.00**	**5.00**	**mg/L**	50	20-Feb-2021 09:23
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Feb-2021 17:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Feb-2021 09:31

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268
Sample ID: 16WW12-210203 Lab ID:HS21020268-04
Collection Date: 03-Feb-2021 09:05 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	08-Feb-2021 16:19
1,1-Dichloroethene	**3.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	08-Feb-2021 16:19
1,2-Dichloroethane	**4.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	08-Feb-2021 16:19
cis-1,2-Dichloroethene	**84**		**0.20**	**0.50**	**1.0**	**ug/L**	1	08-Feb-2021 16:19
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	08-Feb-2021 16:19
Trichloroethene	**1,100**		**5.0**	**12**	**25**	**ug/L**	25	11-Feb-2021 14:51
Vinyl chloride	**4.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	08-Feb-2021 16:19
Surr: 1,2-Dichloroethane-d4	*111*			**0**	*81-118*	*%REC*	*1*	*08-Feb-2021 16:19*
Surr: 1,2-Dichloroethane-d4	*115*			**0**	*81-118*	*%REC*	*25*	*11-Feb-2021 14:51*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*1*	*08-Feb-2021 16:19*
Surr: 4-Bromofluorobenzene	*93.3*			**0**	*85-114*	*%REC*	*25*	*11-Feb-2021 14:51*
Surr: Dibromofluoromethane	*94.4*			**0**	*80-119*	*%REC*	*1*	*08-Feb-2021 16:19*
Surr: Dibromofluoromethane	*99.7*			**0**	*80-119*	*%REC*	*25*	*11-Feb-2021 14:51*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*08-Feb-2021 16:19*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*25*	*11-Feb-2021 14:51*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Bromide	**5.70**		**0.600**	**2.00**	**2.00**	**mg/L**	20	20-Feb-2021 09:41
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Feb-2021 17:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Feb-2021 09:31

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268
Sample ID: 16WW39-210203 Lab ID:HS21020268-05
Collection Date: 03-Feb-2021 09:45 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	08-Feb-2021 15:16
1,1-Dichloroethene	**0.84**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	08-Feb-2021 15:16
1,2-Dichloroethane	**0.72**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	08-Feb-2021 15:16
cis-1,2-Dichloroethene	**37**		**0.20**	**0.50**	**1.0**	**ug/L**	1	08-Feb-2021 15:16
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	08-Feb-2021 15:16
Trichloroethene	**300**		**1.0**	**2.5**	**5.0**	**ug/L**	5	08-Feb-2021 17:22
Vinyl chloride	**2.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	08-Feb-2021 15:16
Surr: 1,2-Dichloroethane-d4	*114*			**0**	*81-118*	*%REC*	*1*	*08-Feb-2021 15:16*
Surr: 1,2-Dichloroethane-d4	*110*			**0**	*81-118*	*%REC*	*5*	*08-Feb-2021 17:22*
Surr: 4-Bromofluorobenzene	*99.1*			**0**	*85-114*	*%REC*	*1*	*08-Feb-2021 15:16*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*5*	*08-Feb-2021 17:22*
Surr: Dibromofluoromethane	*94.4*			**0**	*80-119*	*%REC*	*5*	*08-Feb-2021 17:22*
Surr: Dibromofluoromethane	*98.1*			**0**	*80-119*	*%REC*	*1*	*08-Feb-2021 15:16*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*08-Feb-2021 15:16*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*5*	*08-Feb-2021 17:22*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Bromide	**8.44**		**0.600**	**2.00**	**2.00**	**mg/L**	20	20-Feb-2021 09:59
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Feb-2021 17:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Feb-2021 09:31

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268
Sample ID: 16WW21-210203 Lab ID:HS21020268-06
Collection Date: 03-Feb-2021 10:40 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Feb-2021 20:35
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:35
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:35
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:35
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Feb-2021 20:35
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:35
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:35
Surr: 1,2-Dichloroethane-d4	*116*			**0**	*81-118*	*%REC*	*1*	*07-Feb-2021 20:35*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*07-Feb-2021 20:35*
Surr: Dibromofluoromethane	*95.8*			**0**	*80-119*	*%REC*	*1*	*07-Feb-2021 20:35*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*07-Feb-2021 20:35*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Bromide	**0.578**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	20-Feb-2021 10:54
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Feb-2021 17:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Feb-2021 09:31

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268
Sample ID: 16WW21-210203-FD Lab ID:HS21020268-07
Collection Date: 03-Feb-2021 10:40 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Feb-2021 20:56
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:56
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:56
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:56
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Feb-2021 20:56
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:56
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 20:56
Surr: 1,2-Dichloroethane-d4	*115*			**0**	*81-118*	*%REC*	*1*	*07-Feb-2021 20:56*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*07-Feb-2021 20:56*
Surr: Dibromofluoromethane	*95.1*			**0**	*80-119*	*%REC*	*1*	*07-Feb-2021 20:56*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Feb-2021 20:56*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Bromide	**0.620**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	20-Feb-2021 11:12
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Feb-2021 17:28
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	17-Feb-2021 09:31

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268
Sample ID: 16WW34-210203 Lab ID:HS21020268-08
Collection Date: 03-Feb-2021 11:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	08-Feb-2021 19:28
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 19:28
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 19:28
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 19:28
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	08-Feb-2021 19:28
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 19:28
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 19:28
Surr: 1,2-Dichloroethane-d4	*113*			**0**	*81-118*	*%REC*	*1*	*08-Feb-2021 19:28*
Surr: 4-Bromofluorobenzene	*96.8*			**0**	*85-114*	*%REC*	*1*	*08-Feb-2021 19:28*
Surr: Dibromofluoromethane	*98.0*			**0**	*80-119*	*%REC*	*1*	*08-Feb-2021 19:28*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*08-Feb-2021 19:28*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Feb-2021 17:28

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268
Sample ID: 16WW34-210203-FD Lab ID:HS21020268-09
Collection Date: 03-Feb-2021 11:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	08-Feb-2021 19:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 19:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 19:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 19:49
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	08-Feb-2021 19:49
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 19:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 19:49
Surr: 1,2-Dichloroethane-d4	*114*			**0**	*81-118*	*%REC*	*1*	*08-Feb-2021 19:49*
Surr: 4-Bromofluorobenzene	*95.3*			**0**	*85-114*	*%REC*	*1*	*08-Feb-2021 19:49*
Surr: Dibromofluoromethane	*97.7*			**0**	*80-119*	*%REC*	*1*	*08-Feb-2021 19:49*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*08-Feb-2021 19:49*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Feb-2021 17:28

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**

Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268

Sample ID: 16WW33-210203 Lab ID:HS21020268-10

Collection Date: 03-Feb-2021 12:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	08-Feb-2021 20:11
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 20:11
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 20:11
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 20:11
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	08-Feb-2021 20:11
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 20:11
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 20:11
Surr: 1,2-Dichloroethane-d4	*111*			**0**	*81-118*	*%REC*	*1*	*08-Feb-2021 20:11*
Surr: 4-Bromofluorobenzene	*93.2*			**0**	*85-114*	*%REC*	*1*	*08-Feb-2021 20:11*
Surr: Dibromofluoromethane	*96.5*			**0**	*80-119*	*%REC*	*1*	*08-Feb-2021 20:11*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*08-Feb-2021 20:11*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	22-Feb-2021 17:28

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 WorkOrder:HS21020268
Sample ID: Trip Blank-210203 Lab ID:HS21020268-11
Collection Date: 03-Feb-2021 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	08-Feb-2021 18:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 18:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 18:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 18:25
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	08-Feb-2021 18:25
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 18:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	08-Feb-2021 18:25
Surr: 1,2-Dichloroethane-d4	*108*			**0**	*81-118*	*%REC*	*1*	*08-Feb-2021 18:25*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*1*	*08-Feb-2021 18:25*
Surr: Dibromofluoromethane	*97.0*			**0**	*80-119*	*%REC*	*1*	*08-Feb-2021 18:25*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*08-Feb-2021 18:25*

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

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
WorkOrder: HS21020268

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R377691 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21020268-01	16RW11-210203	03 Feb 2021 07:35			07 Feb 2021 20:14	1
HS21020268-06	16WW21-210203	03 Feb 2021 10:40			07 Feb 2021 20:35	1
HS21020268-07	16WW21-210203-FD	03 Feb 2021 10:40			07 Feb 2021 20:56	1
Batch ID: R377708 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21020268-11	Trip Blank-210203	03 Feb 2021 00:00			08 Feb 2021 18:25	1
Batch ID: R377708 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21020268-04	16WW12-210203	03 Feb 2021 09:05			08 Feb 2021 16:19	1
HS21020268-05	16WW39-210203	03 Feb 2021 09:45			08 Feb 2021 17:22	5
HS21020268-05	16WW39-210203	03 Feb 2021 09:45			08 Feb 2021 15:16	1
HS21020268-08	16WW34-210203	03 Feb 2021 11:35			08 Feb 2021 19:28	1
HS21020268-09	16WW34-210203-FD	03 Feb 2021 11:35			08 Feb 2021 19:49	1
HS21020268-10	16WW33-210203	03 Feb 2021 12:20			08 Feb 2021 20:11	1
Batch ID: R378003 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21020268-02	16WW40-210203	03 Feb 2021 08:20			11 Feb 2021 16:58	25
HS21020268-02	16WW40-210203	03 Feb 2021 08:20			11 Feb 2021 16:36	5
HS21020268-03	16WW40-210203-FD	03 Feb 2021 08:20			11 Feb 2021 17:40	25
HS21020268-03	16WW40-210203-FD	03 Feb 2021 08:20			11 Feb 2021 17:19	5
HS21020268-04	16WW12-210203	03 Feb 2021 09:05			11 Feb 2021 14:51	25
Batch ID: R378155 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS21020268-02	16WW40-210203	03 Feb 2021 08:20			17 Feb 2021 09:31	1
HS21020268-03	16WW40-210203-FD	03 Feb 2021 08:20			17 Feb 2021 09:31	1
HS21020268-04	16WW12-210203	03 Feb 2021 09:05			17 Feb 2021 09:31	1
HS21020268-05	16WW39-210203	03 Feb 2021 09:45			17 Feb 2021 09:31	1
HS21020268-06	16WW21-210203	03 Feb 2021 10:40			17 Feb 2021 09:31	1
HS21020268-07	16WW21-210203-FD	03 Feb 2021 10:40			17 Feb 2021 09:31	1
Batch ID: R378283 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS21020268-02	16WW40-210203	03 Feb 2021 08:20			20 Feb 2021 09:05	50
HS21020268-03	16WW40-210203-FD	03 Feb 2021 08:20			20 Feb 2021 09:23	50
HS21020268-04	16WW12-210203	03 Feb 2021 09:05			20 Feb 2021 09:41	20
HS21020268-05	16WW39-210203	03 Feb 2021 09:45			20 Feb 2021 09:59	20
HS21020268-06	16WW21-210203	03 Feb 2021 10:40			20 Feb 2021 10:54	1
HS21020268-07	16WW21-210203-FD	03 Feb 2021 10:40			20 Feb 2021 11:12	1

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021 **DATES REPORT**
WorkOrder: HS21020268

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R378408 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS21020268-01	16RW11-210203	03 Feb 2021 07:35			22 Feb 2021 17:28	1
HS21020268-02	16WW40-210203	03 Feb 2021 08:20			22 Feb 2021 17:28	1
HS21020268-03	16WW40-210203-FD	03 Feb 2021 08:20			22 Feb 2021 17:28	1
HS21020268-04	16WW12-210203	03 Feb 2021 09:05			22 Feb 2021 17:28	1
HS21020268-05	16WW39-210203	03 Feb 2021 09:45			22 Feb 2021 17:28	1
HS21020268-06	16WW21-210203	03 Feb 2021 10:40			22 Feb 2021 17:28	1
HS21020268-07	16WW21-210203-FD	03 Feb 2021 10:40			22 Feb 2021 17:28	1
HS21020268-08	16WW34-210203	03 Feb 2021 11:35			22 Feb 2021 17:28	1
HS21020268-09	16WW34-210203-FD	03 Feb 2021 11:35			22 Feb 2021 17:28	1
HS21020268-10	16WW33-210203	03 Feb 2021 12:20			22 Feb 2021 17:28	1

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
WorkOrder: HS21020268

QC BATCH REPORT

Batch ID: R377691 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210207** Units: **ug/L** Analysis Date: **07-Feb-2021 13:13**
Client ID: Run ID: **VOA6_377691** SeqNo: **5947823** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	2.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*58.27*	*1.0*	*50*	*0*	*117*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.2*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*47.82*	*1.0*	*50*	*0*	*95.6*	*80 - 119*				
Surr: Toluene-d8	*51.31*	*1.0*	*50*	*0*	*103*	*89 - 112*				

LCS Sample ID: **VLCSW-210207** Units: **ug/L** Analysis Date: **07-Feb-2021 12:10**
Client ID: Run ID: **VOA6_377691** SeqNo: **5947822** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.62	1.0	20	0	98.1	80 - 119				
1,1-Dichloroethene	18.36	1.0	20	0	91.8	71 - 131				
1,2-Dichloroethane	23.69	1.0	20	0	118	73 - 128				
cis-1,2-Dichloroethene	18.78	1.0	20	0	93.9	78 - 123				
Methylene chloride	17.36	2.0	20	0	86.8	74 - 124				
Trichloroethene	18.71	1.0	20	0	93.5	79 - 123				
Vinyl chloride	18.63	1.0	20	0	93.1	58 - 137				
Surr: 1,2-Dichloroethane-d4	*57.29*	*1.0*	*50*	*0*	*115*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.67*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*46.9*	*1.0*	*50*	*0*	*93.8*	*80 - 119*				
Surr: Toluene-d8	*45.02*	*1.0*	*50*	*0*	*90.0*	*89 - 112*				

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
WorkOrder: HS21020268

QC BATCH REPORT

Batch ID: R377691 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21020249-04MS** Units: **ug/L** Analysis Date: **07-Feb-2021 14:58**
Client ID: Run ID: **VOA6_377691** SeqNo: **5947988** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	20.28	1.0	20	0	101	80 - 119				
1,1-Dichloroethene	14.55	1.0	20	0	72.7	71 - 131				
1,2-Dichloroethane	19.19	1.0	20	0	96.0	73 - 128				
cis-1,2-Dichloroethene	14.83	1.0	20	0	74.2	78 - 123				S
Methylene chloride	13.6	2.0	20	0	68.0	74 - 124				S
Trichloroethene	26.98	1.0	20	5.071	110	79 - 123				
Vinyl chloride	10.05	1.0	20	0	50.2	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*54.54*	*1.0*	*50*	*0*	*109*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*56.8*	*1.0*	*50*	*0*	*114*	*85 - 114*				
Surr: Dibromofluoromethane	*49.4*	*1.0*	*50*	*0*	*98.8*	*80 - 119*				
Surr: Toluene-d8	*50.03*	*1.0*	*50*	*0*	*100*	*89 - 112*				

MSD Sample ID: **HS21020249-04MSD** Units: **ug/L** Analysis Date: **07-Feb-2021 15:19**
Client ID: Run ID: **VOA6_377691** SeqNo: **5947989** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.53	1.0	20	0	97.7	80 - 119	20.28	3.75	20	
1,1-Dichloroethene	10.99	1.0	20	0	54.9	71 - 131	14.55	27.9	20	SR
1,2-Dichloroethane	24.35	1.0	20	0	122	73 - 128	19.19	23.7	20	R
cis-1,2-Dichloroethene	16.47	1.0	20	0	82.4	78 - 123	14.83	10.5	20	
Methylene chloride	11.04	2.0	20	0	55.2	74 - 124	13.6	20.8	20	SR
Trichloroethene	28.2	1.0	20	5.071	116	79 - 123	26.98	4.45	20	
Vinyl chloride	8.067	1.0	20	0	40.3	58 - 137	10.05	21.9	20	SR
Surr: 1,2-Dichloroethane-d4	*51.91*	*1.0*	*50*	*0*	*104*	*81 - 118*	*54.54*	*4.94*	*20*	
Surr: 4-Bromofluorobenzene	*57.54*	*1.0*	*50*	*0*	*115*	*85 - 114*	*56.8*	*1.31*	*20*	S
Surr: Dibromofluoromethane	*47.11*	*1.0*	*50*	*0*	*94.2*	*80 - 119*	*49.4*	*4.75*	*20*	
Surr: Toluene-d8	*48.14*	*1.0*	*50*	*0*	*96.3*	*89 - 112*	*50.03*	*3.86*	*20*	

The following samples were analyzed in this batch: HS21020268-01 HS21020268-06 HS21020268-07

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
WorkOrder: HS21020268

QC BATCH REPORT

Batch ID: R377708 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210208** Units: **ug/L** Analysis Date: **08-Feb-2021 13:51**
Client ID: Run ID: **VOA6_377708** SeqNo: **5949509** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	2.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*57.71*	*1.0*	*50*	*0*	*115*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.31*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*48.11*	*1.0*	*50*	*0*	*96.2*	*80 - 119*				
Surr: Toluene-d8	*52.48*	*1.0*	*50*	*0*	*105*	*89 - 112*				

LCS Sample ID: **VLCSW-210208** Units: **ug/L** Analysis Date: **08-Feb-2021 13:09**
Client ID: Run ID: **VOA6_377708** SeqNo: **5949508** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	21.01	1.0	20	0	105	80 - 119				
1,1-Dichloroethene	20.42	1.0	20	0	102	71 - 131				
1,2-Dichloroethane	24.55	1.0	20	0	123	73 - 128				
cis-1,2-Dichloroethene	19.44	1.0	20	0	97.2	78 - 123				
Methylene chloride	17.63	2.0	20	0	88.1	74 - 124				
Trichloroethene	19.9	1.0	20	0	99.5	79 - 123				
Vinyl chloride	21.38	1.0	20	0	107	58 - 137				
Surr: 1,2-Dichloroethane-d4	*58.89*	*1.0*	*50*	*0*	*118*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.64*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*51.17*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*47.56*	*1.0*	*50*	*0*	*95.1*	*89 - 112*				

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
WorkOrder: HS21020268

QC BATCH REPORT

Batch ID: R377708 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21020268-05MS** Units: **ug/L** Analysis Date: **08-Feb-2021 16:40**
Client ID: **16WW39-210203** Run ID: **VOA6_377708** SeqNo: **5949517** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.71	1.0	20	0	93.5	80 - 119				
1,1-Dichloroethene	19	1.0	20	0.8417	90.8	71 - 131				
1,2-Dichloroethane	21.85	1.0	20	0.7247	106	73 - 128				
cis-1,2-Dichloroethene	55.15	1.0	20	36.73	92.1	78 - 123				
Methylene chloride	14.4	2.0	20	0	72.0	74 - 124				S
Trichloroethene	412.6	1.0	20	375.3	187	79 - 123				SEO
Vinyl chloride	14.71	1.0	20	2.001	63.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*56.69*	*1.0*	*50*	*0*	*113*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.13*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*47.81*	*1.0*	*50*	*0*	*95.6*	*80 - 119*				
Surr: Toluene-d8	*50.18*	*1.0*	*50*	*0*	*100*	*89 - 112*				

MSD Sample ID: **HS21020268-05MSD** Units: **ug/L** Analysis Date: **08-Feb-2021 17:01**
Client ID: **16WW39-210203** Run ID: **VOA6_377708** SeqNo: **5949518** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.66	1.0	20	0	98.3	80 - 119	18.71	4.99	20	
1,1-Dichloroethene	18	1.0	20	0.8417	85.8	71 - 131	19	5.42	20	
1,2-Dichloroethane	21.99	1.0	20	0.7247	106	73 - 128	21.85	0.62	20	
cis-1,2-Dichloroethene	54.58	1.0	20	36.73	89.3	78 - 123	55.15	1.03	20	
Methylene chloride	13.89	2.0	20	0	69.5	74 - 124	14.4	3.56	20	S
Trichloroethene	394.4	1.0	20	375.3	95.8	79 - 123	412.6	4.49	20	EO
Vinyl chloride	13.85	1.0	20	2.001	59.3	58 - 137	14.71	6.02	20	
Surr: 1,2-Dichloroethane-d4	*58.53*	*1.0*	*50*	*0*	*117*	*81 - 118*	*56.69*	*3.2*	*20*	
Surr: 4-Bromofluorobenzene	*52.76*	*1.0*	*50*	*0*	*106*	*85 - 114*	*51.13*	*3.14*	*20*	
Surr: Dibromofluoromethane	*48.55*	*1.0*	*50*	*0*	*97.1*	*80 - 119*	*47.81*	*1.52*	*20*	
Surr: Toluene-d8	*51.38*	*1.0*	*50*	*0*	*103*	*89 - 112*	*50.18*	*2.36*	*20*	

The following samples were analyzed in this batch: HS21020268-04 HS21020268-05 HS21020268-08 HS21020268-09 HS21020268-10 HS21020268-11

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
WorkOrder: HS21020268

QC BATCH REPORT

Batch ID: R378003 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210211** Units: **ug/L** Analysis Date: **11-Feb-2021 13:06**
Client ID: Run ID: **VOA6_378003** SeqNo: **5955152** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	2.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*53.42*	*1.0*	*50*	*0*	*107*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.65*	*1.0*	*50*	*0*	*99.3*	*85 - 114*				
Surr: Dibromofluoromethane	*47.55*	*1.0*	*50*	*0*	*95.1*	*80 - 119*				
Surr: Toluene-d8	*52.54*	*1.0*	*50*	*0*	*105*	*89 - 112*				

LCS Sample ID: **VLCSW-210211** Units: **ug/L** Analysis Date: **11-Feb-2021 12:24**
Client ID: Run ID: **VOA6_378003** SeqNo: **5955151** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	20.26	1.0	20	0	101	80 - 119				
1,1-Dichloroethene	18.4	1.0	20	0	92.0	71 - 131				
1,2-Dichloroethane	22.77	1.0	20	0	114	73 - 128				
cis-1,2-Dichloroethene	17.09	1.0	20	0	85.5	78 - 123				
Methylene chloride	14.85	2.0	20	0	74.3	74 - 124				
Trichloroethene	19.54	1.0	20	0	97.7	79 - 123				
Vinyl chloride	18.44	1.0	20	0	92.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*56.72*	*1.0*	*50*	*0*	*113*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.59*	*1.0*	*50*	*0*	*99.2*	*85 - 114*				
Surr: Dibromofluoromethane	*47.83*	*1.0*	*50*	*0*	*95.7*	*80 - 119*				
Surr: Toluene-d8	*45.43*	*1.0*	*50*	*0*	*90.9*	*89 - 112*				

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
WorkOrder: HS21020268

QC BATCH REPORT

Batch ID: R378003 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21020441-02MS** Units: **ug/L** Analysis Date: **11-Feb-2021 18:22**
Client ID: Run ID: **VOA6_378003** SeqNo: **5955167** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.24	1.0	20	0	96.2	80 - 119				
1,1-Dichloroethene	17.55	1.0	20	0	87.8	71 - 131				
1,2-Dichloroethane	20.4	1.0	20	0	102	73 - 128				
cis-1,2-Dichloroethene	20.09	1.0	20	0	100	78 - 123				
Methylene chloride	16.4	2.0	20	0	82.0	74 - 124				
Trichloroethene	19.96	1.0	20	0	99.8	79 - 123				
Vinyl chloride	12.45	1.0	20	0	62.3	58 - 137				
Surr: 1,2-Dichloroethane-d4	*54.35*	*1.0*	*50*	*0*	*109*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.68*	*1.0*	*50*	*0*	*107*	*85 - 114*				
Surr: Dibromofluoromethane	*46.81*	*1.0*	*50*	*0*	*93.6*	*80 - 119*				
Surr: Toluene-d8	*50.34*	*1.0*	*50*	*0*	*101*	*89 - 112*				

MSD Sample ID: **HS21020441-02MSD** Units: **ug/L** Analysis Date: **11-Feb-2021 18:43**
Client ID: Run ID: **VOA6_378003** SeqNo: **5955168** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	20	1.0	20	0	100	80 - 119	19.24	3.89	20	
1,1-Dichloroethene	17.72	1.0	20	0	88.6	71 - 131	17.55	0.941	20	
1,2-Dichloroethane	20.96	1.0	20	0	105	73 - 128	20.4	2.72	20	
cis-1,2-Dichloroethene	17.26	1.0	20	0	86.3	78 - 123	20.09	15.2	20	
Methylene chloride	16.82	2.0	20	0	84.1	74 - 124	16.4	2.51	20	
Trichloroethene	18.32	1.0	20	0	91.6	79 - 123	19.96	8.56	20	
Vinyl chloride	11.99	1.0	20	0	59.9	58 - 137	12.45	3.81	20	
Surr: 1,2-Dichloroethane-d4	*54.68*	*1.0*	*50*	*0*	*109*	*81 - 118*	*54.35*	*0.607*	*20*	
Surr: 4-Bromofluorobenzene	*49.48*	*1.0*	*50*	*0*	*99.0*	*85 - 114*	*53.68*	*8.15*	*20*	
Surr: Dibromofluoromethane	*48.05*	*1.0*	*50*	*0*	*96.1*	*80 - 119*	*46.81*	*2.62*	*20*	
Surr: Toluene-d8	*50.95*	*1.0*	*50*	*0*	*102*	*89 - 112*	*50.34*	*1.21*	*20*	

The following samples were analyzed in this batch: HS21020268-02 HS21020268-03 HS21020268-04

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
WorkOrder: HS21020268

QC BATCH REPORT

Batch ID: R378283 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-** Units: **mg/L** Analysis Date: **19-Feb-2021 16:08**
Client ID: Run ID: **ICS-Integrion_378283** SeqNo: **5961010** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U

LCS Sample ID: **LCS-** Units: **mg/L** Analysis Date: **19-Feb-2021 16:26**
Client ID: Run ID: **ICS-Integrion_378283** SeqNo: **5961011** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.94	0.100	4	0	98.5	80 - 120				

MS Sample ID: **HS21020464-01MS** Units: **mg/L** Analysis Date: **19-Feb-2021 20:40**
Client ID: Run ID: **ICS-Integrion_378283** SeqNo: **5961019** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	41.01	2.00	40	3.222	94.5	80 - 120				

MS Sample ID: **HS21020268-05MS** Units: **mg/L** Analysis Date: **20-Feb-2021 10:17**
Client ID: **16WW39-210203** Run ID: **ICS-Integrion_378283** SeqNo: **5961036** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	46.46	2.00	40	8.444	95.0	80 - 120				

MSD Sample ID: **HS21020464-01MSD** Units: **mg/L** Analysis Date: **19-Feb-2021 20:59**
Client ID: Run ID: **ICS-Integrion_378283** SeqNo: **5961020** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	40.32	2.00	40	3.222	92.8	80 - 120	41.01	1.69	20	

MSD Sample ID: **HS21020268-05MSD** Units: **mg/L** Analysis Date: **20-Feb-2021 10:36**
Client ID: **16WW39-210203** Run ID: **ICS-Integrion_378283** SeqNo: **5961037** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	46.56	2.00	40	8.444	95.3	80 - 120	46.46	0.224	20	

The following samples were analyzed in this batch: HS21020268-02 HS21020268-03 HS21020268-04 HS21020268-05 HS21020268-06 HS21020268-07

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
WorkOrder: **HS21020268**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	20-030-0	26-Mar-2021
California	2919, 2020-2021	30-Apr-2021
Dept of Defense	PJLA L20-507	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Illinois	2000322020-4	09-May-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2020-2021	30-Apr-2021
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2021	31-Dec-2021
North Dakota	R-193 2020-2021	30-Apr-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 22-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 16 January 2021
Work Order: HS21020268

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21020268-01	16RW11-210203	Login	2/4/2021 10:13:55 PM	JRM	Sub
HS21020268-01	16RW11-210203	Login	2/4/2021 10:13:55 PM	JRM	WET259
HS21020268-01	16RW11-210203	Login	2/4/2021 10:13:55 PM	JRM	VOA116
HS21020268-01	16RW11-210203	Login	2/4/2021 10:13:55 PM	JRM	Sub

ALS Houston, US Date: 22-Feb-21

Sample Receipt Checklist

Work Order ID: HS21020268 **Date/Time Received:** **04-Feb-2021 09:45**

Client Name: CBI-Houston **Received by:** **Nilesh D. Ranchod**

Completed By: */S/ Jared R. Makan* (eSignature) 04-Feb-2021 23:13 (Date/Time) **Reviewed by:** */S/ Corey Grandits* (eSignature) 05-Feb-2021 14:08 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	0.8°C UC/C	IR31
Cooler(s)/Kit(s):	46596	
Date/Time sample(s) sent to storage:	02/03/2021 21:15	

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: Sample ID differs:
COC has two samples with the ID 16WW40-210203
One set of bottles labeled 16WW40-210203-FD
Sample logged in as 16WW40-210203-FD per bottles.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stanecliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Page 1 of 1

Project: APTIM LONGHORN ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS	Project No. 501032
Job: **LHAAP 16 January 2021**	
Prepared By: Scott Beesinger	P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (bromide, sulfate, nitrate) by SW9056 and Alkalinity by SM2320	Bromide by SW9056	Perchlorate by SW6850	Metals (arsenic, chromium, manganese, nickel, thallium) by SW6020				Remarks (Preservatives, etc.)	Lab I.D.#
16RW11-210203	WG	2/3/21/0735		4	X					X						
16WW40-210203	WG	2/3/21/0820		7	X	X			X	X						
16WW40-210203	WG	2/3/21/0820		7	X	X			X	X						
16WW12-210203	WG	2/3/21/0905		7	X	X			X	X						
16WW39-210203	WG	2/3/21/0945		7	X	X			X	X						
16WW39-210203-MS	WG	2/3/21/0945		7	X	X			X	X						
16WW39-210203-MSD	WG	2/3/21/0945		7	X	X			X	X						
16WW21-210203	WG	2/3/21/1040		7	X	X			X	X						

Additional Remarks: Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	2/3/21	1430	Na	2/4/21	0745						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

HS21020268

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant LHAAP 16 Januar

(Word) S:\U-ces\Forms\Chain of

45661 Temp 0/C 0.8

CHAIN OF CUSTODY

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

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

Project No. 501032

Job: **LHAAP 16 January 2021**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D. / Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (bromide, sulfate, nitrate) by SW9056 and Alkalinity by SM2320	Bromide by SW9056	Perchlorate by SW6850	Metals (arsenic, chromium, manganese, nickel, thallium) by SW6020				Remarks (Preservatives, etc.)	Lab I.D.#
					Analyses											
16WW24-210203-FD	WG	2/3/21/1040		7	X	X			X	X						
16WW34-210203	WG	2/3/21/1135		4	X					X						
16WW34-210203-FD	WG	2/3/21/1135		4	X					X						
16WW33-210203	WG	2/3/21/1220		4	X					X						
TRIP BLANK-210203	W	2/3/21		2	X											

Additional Remarks: Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	2/3/21	1430	N/A	2/4/21	09:45						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

HS21020268

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant LHAAP 16 Januar

Cooler # 45661 Temp 0-8 BR# 31 CLP 0

(Word) S:\E-cos\Forms\CH

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

45661

CUSTODY SEAL

Date: 2/3/21 Time: 1450
Name: Scott Beesinger
Company: BHHT

Seal Broken By:
Date:

45661 FEB 3 & 2021

Must Deliver Next Business Day
Time and Tempature Sensitive!

45661

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 18SEP20
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 15-80 73884-RJ

RMA:

FedEx Express

FedEx
TRK# 0221 1891 8880 4521

THU - 04 FEB 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US IAH

0475072 02/03 5601/1X8693/FE4A

February 22, 2021 Service Request No:E2100149

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

Laboratory Results for: HS21020268

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory February 05, 2021
For your reference, these analyses have been assigned our service request number **E2100149.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

Certificate of Analysis

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

ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2100149
Project:	HS21020268	**Date Received:**	02/05/21
Sample Matrix:	W		

CASE NARRATIVE

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

Sample Receipt

Ten samples were received for analysis at ALS Environmental in Houston on 02/05/21.

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

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100068: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The LCS and DLCS RDP exceeded the upper control limit, the individual recoveries are within QC limits. MS/MSD recoveries above QC limits (3.64 ug/L in parent sample).

Samples E2100149-001/002/003/005; lowest practical dilution performed due to matrix interference.

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

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

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

Client: ALS Environmental - US **Service Request:**E2100149
Project: HS21020268

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2100149-001	16RW11-210203	2/3/2021	0735
E2100149-002	16WW40-210203	2/3/2021	0820
E2100149-003	16WW40-210203-FD	2/3/2021	0820
E2100149-004	16WW12-210203	2/3/2021	0905
E2100149-005	16WW39-210203	2/3/2021	0945
E2100149-006	16WW21-210203	2/3/2021	1040
E2100149-007	16WW21-210203-FD	2/3/2021	1040
E2100149-008	16WW34-210203	2/3/2021	1135
E2100149-009	16WW34-210203-FD	2/3/2021	1135
E2100149-010	16WW33-210203	2/3/2021	1220

Service Request Summary

Folder #: **E2100149**
Client Name: ALS Environmental - US
Project Name: HS21020268
Project Number:

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

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 02/05/21
Internal Due Date: 2/18/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21020268
EDD: No EDD Specified

12 125 mL-Plastic Bottle Plastic
Location: EHRMS-WIC 4B
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2100149-001	16RW11-210203	Water	02/03/21 0735	**IV**
E2100149-002	16WW40-210203	Water	02/03/21 0820	**IV**
E2100149-003	16WW40-210203-FD	Water	02/03/21 0820	**IV**
E2100149-004	16WW12-210203	Water	02/03/21 0905	**IV**
E2100149-005	16WW39-210203	Water	02/03/21 0945	**IV**
E2100149-006	16WW21-210203	Water	02/03/21 1040	**IV**
E2100149-007	16WW21-210203-FD	Water	02/03/21 1040	**IV**
E2100149-008	16WW34-210203	Water	02/03/21 1135	**IV**
E2100149-009	16WW34-210203-FD	Water	02/03/21 1135	**IV**
E2100149-010	16WW33-210203	Water	02/03/21 1220	**IV**

Service Request Summary

Folder #: **E2100149**
Client Name: ALS Environmental - US
Project Name: HS21020268
Project Number:

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

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 02/05/21
Internal Due Date: 2/18/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21020268
EDD: No EDD Specified

12 125 mL-Plastic Bottle Plastic
Location: EHRMS-WIC 4B
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	9	Level II due 2/18,IV due 2/25
Semivoa GCMS	ClO4 DOD/6850	1	MS/MSD

Data Qualifiers

Lab Standard

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

Data Qualifiers

Lab Standard

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

ALS Laboratory Group

Acronyms

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

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ALS Environmental

State Certifications, Accreditations, and Licenses

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

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
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Houston, TX 77099
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F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 15620**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21020268
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21020268-01**	**16RW11-210203**	**Groundwater**	**03 Feb 2021 07:35**
	Provide Level II and Level IV reports on a seperate pdf.			18 Feb 2021
2.	**HS21020268-02**	**16WW40-210203**	**Groundwater**	**03 Feb 2021 08:20**
	Provide Level II and Level IV reports on a seperate pdf.			18 Feb 2021
3.	**HS21020268-03**	**16WW40-210203-FD**	**Groundwater**	**03 Feb 2021 08:20**
	Provide Level II and Level IV reports on a seperate pdf.			18 Feb 2021
4.	**HS21020268-04**	**16WW12-210203**	**Groundwater**	**03 Feb 2021 09:05**
	Provide Level II and Level IV reports on a seperate pdf.			18 Feb 2021
5.	**HS21020268-05**	**16WW39-210203**	**Groundwater**	**03 Feb 2021 09:45**
	Provide Level II and Level IV reports on a seperate pdf.			18 Feb 2021
6.	**HS21020268-06**	**16WW21-210203**	**Groundwater**	**03 Feb 2021 10:40**
	Provide Level II and Level IV reports on a seperate pdf.			18 Feb 2021
7.	**HS21020268-07**	**16WW21-210203-FD**	**Groundwater**	**03 Feb 2021 10:40**
	Provide Level II and Level IV reports on a seperate pdf.			18 Feb 2021
8.	**HS21020268-08**	**16WW34-210203**	**Groundwater**	**03 Feb 2021 11:35**
	Provide Level II and Level IV reports on a seperate pdf.			18 Feb 2021
9.	**HS21020268-09**	**16WW34-210203-FD**	**Groundwater**	**03 Feb 2021 11:35**

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 15620**

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
	Provide Level II and Level IV reports on a seperate pdf.			18 Feb 2021
10.	**HS21020268-10**	**16WW33-210203**	**Groundwater**	**03 Feb 2021 12:20**
	Provide Level II and Level IV reports on a seperate pdf.			18 Feb 2021

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. MacGregor Date/Time: 2/5/21

Received By: [signature] Date/Time: 2/5/21 1311

Cooler ID(s): Temperature(s):

ALS Environmental

Cooler Receipt Form

Project Chemist CG

Client/Project ALS-H

Thermometer ID IR1

Date/Time Received: 2/5/21 Initials: CG

Date/Time Logged in: 2/5/21 Initials CG

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

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

3. Were custody seals on coolers? ○ Yes ✓ No

If yes, how many and where?

Were they intact? ○ Yes ○ No ✓ N/A

Were they signed and dated? ○ Yes ○ No ✓ N/A

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

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

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		2/5/21	1311	CG	2.2	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No

9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No

10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

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

SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

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

Preparation Information Benchsheet

Prep Run#: 374035 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 2/10/21 09:54

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2100104-001	PT Lot 8218-53	.03	6850/ClO4 DOD			Water	10mL	
2	E2100145-001	16PM14-210202	.01	6850/ClO4 DOD			Water	10.000mL	
3	E2100145-002	16PM06-210202	.01	6850/ClO4 DOD			Water	10.000mL	
4	E2100145-003	16RW10-210202	.01	6850/ClO4 DOD			Water	10.000mL	
5	E2100145-004	16RW09-210202	.01	6850/ClO4 DOD			Water	10.000mL	
6	E2100145-005	16EW04-210202	.01	6850/ClO4 DOD			Water	10.000mL	
7	E2100145-006	16EW08-210202	.01	6850/ClO4 DOD			Water	10.000mL	
8	E2100145-007	16EW03-210202	.01	6850/ClO4 DOD			Water	10.000mL	
9	E2100149-001	16RW11-210203	.01	6850/ClO4 DOD			Water	10mL	
10	E2100149-002	16WW40-210203	.01	6850/ClO4 DOD			Water	10mL	
11	E2100149-003	16WW40-210203-FD	.01	6850/ClO4 DOD			Water	10mL	
12	E2100149-004	16WW12-210203	.01	6850/ClO4 DOD			Water	10mL	
13	E2100149-005	16WW39-210203	.01	6850/ClO4 DOD			Water	10mL	
14	E2100149-006	16WW21-210203	.01	6850/ClO4 DOD			Water	10mL	
15	E2100149-007	16WW21-210203-FD	.01	6850/ClO4 DOD			Water	10mL	
16	E2100149-008	16WW34-210203	.01	6850/ClO4 DOD			Water	10mL	
17	E2100149-009	16WW34-210203-FD	.01	6850/ClO4 DOD			Water	10mL	
18	E2100149-010	16WW33-210203	.01	6850/ClO4 DOD			Water	10mL	
19	EQ2100068-01	MB		6850/ClO4 DOD			Liquid	10mL	
20	EQ2100068-02	LCS		6850/ClO4 DOD			Liquid	10mL	
21	EQ2100068-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
22	EQ2100068-04	16WW39-210203 MS	.01	6850/ClO4 DOD			Liquid	10mL	
23	EQ2100068-05	16WW39-210203 DMS	.01	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Perchlorate Intermediate Stock1 Inventory ID 214035 Logbook Ref: Perchlorate Expires On: 05/23/2021

EQ2100068-02	1.00µL	EQ2100068-03	1.00µL	EQ2100068-04	1.00µL	EQ2100068-05	1.00µL

Name: Perchlorate Internal Standard 1ug/mL Inventory ID 214820 Logbook Ref: Perchlorate Internal Standard Expires On: 07/03/2021

E2100104-001	100.00µL	E2100145-001	100.00µL	E2100145-002	100.00µL	E2100145-003	100.00µL	E2100145-004	100.00µL	E2100145-005	100.00µL
E2100145-006	100.00µL	E2100145-007	100.00µL	E2100149-001	100.00µL	E2100149-002	100.00µL	E2100149-003	100.00µL	E2100149-004	100.00µL
E2100149-005	100.00µL	E2100149-006	100.00µL	E2100149-007	100.00µL	E2100149-008	100.00µL	E2100149-009	100.00µL	E2100149-010	100.00µL
EQ2100068-01	100.00µL	EQ2100068-02	100.00µL	EQ2100068-03	100.00µL	EQ2100068-04	100.00µL	EQ2100068-05	100.00µL		

Preparation Information Benchsheet

Prep Run#: 374035 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 2/10/21 09:54

Preparation Steps

Step: Preparation
Started: 2/10/21 09:54
Finished: 2/10/21 10:30
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 2/10/21

Chain of Custody

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

Analytical Results

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 0735
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16RW11-210203	**Units:**	µg/L
Lab Code:	E2100149-001	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.500	0.250	0.125	5	2/10/21	2/11/21 17:03	374035	712924	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 0820
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW40-210203	**Units:**	µg/L
Lab Code:	E2100149-002	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**1.31**	J	2.00	1.00	0.500	20	2/10/21	2/12/21 10:18	374035	712935	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 0820
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW40-210203-FD	**Units:**	µg/L
Lab Code:	E2100149-003	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.850**	J	2.00	1.00	0.500	20	2/10/21	2/12/21 10:25	374035	712935	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 0905
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW12-210203	**Units:**	µg/L
Lab Code:	E2100149-004	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**24.1**		2.00	1.00	0.500	20	2/10/21	2/12/21 10:33	374035	712935	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 0945
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW39-210203	**Units:**	µg/L
Lab Code:	E2100149-005	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**3.64**		1.00	0.500	0.250	10	2/10/21	2/12/21 11:24	374035	712935	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 1040
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW21-210203	**Units:**	µg/L
Lab Code:	E2100149-006	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/10/21	2/10/21 19:06	374035	712832	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 1040
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW21-210203-FD	**Units:**	µg/L
Lab Code:	E2100149-007	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/10/21	2/10/21 19:14	374035	712832	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 1135
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW34-210203	**Units:**	µg/L
Lab Code:	E2100149-008	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/10/21	2/10/21 19:30	374035	712832	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 1135
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW34-210203-FD	**Units:**	µg/L
Lab Code:	E2100149-009	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/10/21	2/10/21 19:38	374035	712832	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 1220
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW33-210203	**Units:**	µg/L
Lab Code:	E2100149-010	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/10/21	2/10/21 19:46	374035	712832	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100068-01	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/10/21	2/10/21 16:36	374035	712832	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21020268
Sample Matrix: Water

Service Request: E2100149
Date Analyzed: 2/11/21

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

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 374035

	Lab Control Sample EQ2100068-02			Duplicate Lab Control Sample EQ2100068-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0871	0.100	87	0.110	0.100	110	84 - 119	23 *	15

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100068-02	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0871**	J	0.100	0.0500	0.0250	1	2/10/21	2/11/21 16:00	374035	712924	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100068-03	**Basis:**	As Received

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.110**		0.100	0.0500	0.0250	1	2/10/21	2/11/21 16:08	374035	712924	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/3/21
Sample Matrix:	Water	**Date Received:**	2/5/21
		Date Analyzed:	2/12/21

Matrix Spike Summary

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

Sample Name:	16WW39-210203	**Units:**	µg/L
Lab Code:	E2100149-005	**Basis:**	As Received

Analytical Method: 6850
Prep Method: Method

		16WW39-210203MS				16WW39-210203DMS					
		Matrix Spike				**Duplicate Matrix Spike**					
		EQ2100068-04				EQ2100068-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	3.64	3.76	0.100	121	#	3.78	0.100	146	#	84 - 119	<1	15

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

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 0945
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW39-210203	**Units:**	µg/L
Lab Code:	EQ2100068-04	**Basis:**	As Received
Run Type:	Matrix Spike		

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**3.76**		1.00	0.500	0.250	10	2/10/21	2/12/21 11:40	374035	712935	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100149
Project:	HS21020268	**Date Collected:**	2/ 3/21 0945
Sample Matrix:	Water	**Date Received:**	2/ 5/21
Sample Name:	16WW39-210203	**Units:**	µg/L
Lab Code:	EQ2100068-05	**Basis:**	As Received
Run Type:	Duplicate Matrix Spike		

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**3.78**		1.00	0.500	0.250	10	2/10/21	2/12/21 11:48	374035	712935	

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February 16, 2021 **Analytical Report for Service Request No:** K2101244

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

RE: ALS Houston DOD TOC / HS21020268

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory February 09, 2021
For your reference, these analyses have been assigned our service request number **K2101244.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

for Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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ALS Environmental

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

Service Request: K2101244
Date Received: 02/09/2021

CASE NARRATIVE

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

Sample Receipt:

Six ground water samples were received for analysis at ALS Environmental on 02/09/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Noe D. Davis Date 02/16/2021

Chain of Custody

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K2101244

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15619**

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21020268
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21020268-02**	**16WW40-210203**	**Groundwater**	**03 Feb 2021 08:20**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			18 Feb 2021
2.	**HS21020268-03**	**16WW40-210203-FD**	**Groundwater**	**03 Feb 2021 08:20**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			18 Feb 2021
3.	**HS21020268-04**	**16WW12-210203**	**Groundwater**	**03 Feb 2021 09:05**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			18 Feb 2021
4.	**HS21020268-05**	**16WW39-210203**	**Groundwater**	**03 Feb 2021 09:45**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			18 Feb 2021
5.	**HS21020268-06**	**16WW21-210203**	**Groundwater**	**03 Feb 2021 10:40**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			18 Feb 2021
6.	**HS21020268-07**	**16WW21-210203-FD**	**Groundwater**	**03 Feb 2021 10:40**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			18 Feb 2021

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

QC Level: DOD IV (DoD Data Package)

HS 21020268-05 = ms/msD.

K2101244

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15619**

Relinquished By: _____ Date/Time: 2/8/2021 1800

Received By: D Morris ALS Kelso Date/Time: 2/9/21 1030

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

PM KL

Cooler Receipt and Preservation Form

Client MLS-Houston Service Request K21 01244

Received: 2/9/21 Opened: 2/9/21 By: KL Unloaded: 2/9/21 By: K

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

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

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
1.3		IR01	15619	—	—	9473084U1304	

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

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, Resolutions: _____

General Chemistry

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

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2101244
Project:	ALS Houston DOD TOC/HS21020268	**Date Collected:**	02/3/21
Sample Matrix:	Ground Water	**Date Received:**	02/9/21
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
16WW40-210203	K2101244-001	**7.61**	0.50	0.20	0.07	1	02/10/21 17:05	
16WW40-210203-FD	K2101244-002	**7.57**	0.50	0.20	0.07	1	02/10/21 17:05	
16WW12-210203	K2101244-003	**3.73**	0.50	0.20	0.07	1	02/10/21 17:05	
16WW39-210203	K2101244-004	**1.62**	0.50	0.20	0.07	1	02/10/21 17:05	
16WW21-210203	K2101244-005	ND U	0.50	0.20	0.07	1	02/10/21 17:05	
16WW21-210203-FD	K2101244-006	ND U	0.50	0.20	0.07	1	02/10/21 17:05	
Method Blank	K2101244-MB	ND U	0.50	0.20	0.07	1	02/10/21 17:05	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2101244
Project	ALS Houston DOD TOC/HS21020268	**Date Collected:**	02/03/21
Sample Matrix:	Ground Water	**Date Received:**	02/09/21
		Date Analyzed:	02/10/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	16WW39-210203	**Units:**	mg/L
Lab Code:	K2101244-004	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2101244-004DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	1.62	1.84	1.73	13 #	10

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2101244
Project:	ALS Houston DOD TOC/HS21020268	**Date Collected:**	02/03/21
Sample Matrix:	Ground Water	**Date Received:**	02/09/21
		Date Analyzed:	02/10/21
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	16WW39-210203	**Units:**	mg/L
Lab Code:	K2101244-004	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K2101244-004MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	1.62	23.7	25.0	88	83-117

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

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2101244
Project:	ALS Houston DOD TOC/HS21020268	**Date Analyzed:**	02/10/21
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	712738

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2101244-LCS	25.2	25.0	101	83-117

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: Susan Huang
APTIM
4005 Port Chicago Hwy
Concord, CA 94520

Phone: 925-288-2099

Fax:

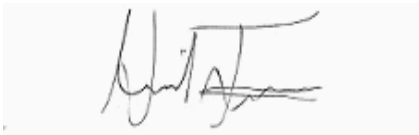
Identifier: 029RC **Date Rec:** 03/10/2020 **Report Date:** 03/23/2020

Client Project #: 501032 **Client Project Name:** LHAAP-16

Purchase Order #: 204818

Analysis Requested: CENSUS, Miscellaneous

Reviewed By:



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Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **APTIM**
Project: LHAAP-16

MI Project Number: **029RC**
Date Received: 03/10/2020

Sample Information

Client Sample ID:		**16IW20-200309**	**16EW01-200309**	**16EW02-200309**	**16WW26-200309**	**16WW35-200311**
Sample Date:		03/09/2020	03/09/2020	03/09/2020	03/09/2020	03/11/2020
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT	HT	HT	HT	HT
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	**4.00E-01 (J)**	**4.90E+00**	**3.60E+00**	**1.67E+01**	**5.16E+02**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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CENSUS

Client: **APTIM**
Project: LHAAP-16

MI Project Number: **029RC**
Date Received: 03/10/2020

Sample Information

Client Sample ID:		**16WW36-20031 1**	**16WW16-20031 1**	**16WW56-20031 6**	**16WW22-20031 6**	**16WW41-20031 6**
Sample Date:		03/11/2020	03/11/2020	03/16/2020	03/16/2020	03/16/2020
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT	HT	HT	HT	HT
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	**1.50E+03**	**5.10E+00**	**8.80E+00**	**4.60E+00**	<5.00E-01

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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CENSUS

Client: **APTIM**
Project: LHAAP-16

MI Project Number: **029RC**
Date Received: 03/10/2020

Sample Information

Client Sample ID:	**16WW25-20031 6**
Sample Date:	03/16/2020
Units:	cells/mL
Analyst/Reviewer:	HT

Dechlorinating Bacteria

Dehalococcoides	*DHC*	**6.20E+00**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Quality Assurance/Quality Control Data

Samples Received **3/10/2020**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	03/10/2020	03/23/2020	0 °C	105%	non-detect	non-detect

Samples Received **3/12/2020**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	03/12/2020	03/23/2020	0 °C	101%	non-detect	non-detect

Samples Received **3/17/2020**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	03/17/2020	03/23/2020	2 °C	100%	non-detect	non-detect

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Client: Susan Huang
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4005 Port Chicago Hwy
Concord, CA 94520

Phone: 925-288-2099

Fax:

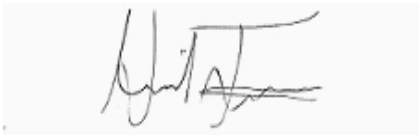
Identifier: 110RC **Date Rec:** 03/26/2020 **Report Date:** 04/07/2020

Client Project #: 501032 **Client Project Name:** LHAAP-16

Purchase Order #: 204818

Analysis Requested: CENSUS, Miscellaneous

Reviewed By:



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CENSUS

Client: **APTIM**
Project: LHAAP-16

MI Project Number: **110RC**
Date Received: 03/26/2020

Sample Information

Client Sample ID:		**16WW55-200325**	**16IW10-200325**	**16IW09-200325**	**16IW03-200325**	**16WW29-200330**
Sample Date:		03/25/2020	03/25/2020	03/25/2020	03/25/2020	03/30/2020
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT	HT	HT	HT	HT
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	**3.00E-01 (J)**	**9.12E+03**	**2.78E+01**	**8.66E+02**	**1.01E+01**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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CENSUS

Client: **APTIM**
Project: LHAAP-16

MI Project Number: **110RC**
Date Received: 03/26/2020

Sample Information

Client Sample ID:		**16WW48-200330**	**16EW05-200330**
Sample Date:		03/30/2020	03/30/2020
Units:		cells/mL	cells/mL
Analyst/Reviewer:		HT	HT
Dechlorinating Bacteria			
Dehalococcoides	*DHC*	**1.00E+00**	**5.06E+03**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Quality Assurance/Quality Control Data

Samples Received **3/26/2020**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	03/26/2020	04/07/2020	1 °C	104%	non-detect	non-detect

Samples Received **3/31/2020**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	03/31/2020	04/07/2020	0 °C	103%	non-detect	non-detect

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

March 19, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030383**

Laboratory Results for: **Longhorn Army Ammunition Plant -16**

Dear Susan,

ALS Environmental received 7 sample(s) on Mar 10, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Work Order: HS20030383

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030383-01	16IW20-200309	Groundwater		09-Mar-2020 08:15	10-Mar-2020 09:00	☐
HS20030383-02	16EW01-200309	Groundwater		09-Mar-2020 09:15	10-Mar-2020 09:00	☐
HS20030383-03	16EW02-200309	Groundwater		09-Mar-2020 10:15	10-Mar-2020 09:00	☐
HS20030383-04	16EW04-200309	Groundwater		09-Mar-2020 11:15	10-Mar-2020 09:00	☐
HS20030383-05	16RW04-200309	Groundwater		09-Mar-2020 12:55	10-Mar-2020 09:00	☐
HS20030383-06	16WW26-200309	Groundwater		09-Mar-2020 13:50	10-Mar-2020 09:00	☐
HS20030383-07	Trip Blank	Water	CG-011520-282	09-Mar-2020 00:00	10-Mar-2020 09:00	☐

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant -16
Work Order: HS20030383

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

GC Semivolatiles by Method RSK-175

Batch ID: R358305

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

GCMS Volatiles by Method SW8260

Batch ID: R358045,R358195

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

WetChemistry by Method SM2320B

Batch ID: R357913

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16IW20-200309
Collection Date: 09-Mar-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Mar-2020 15:33
1,1-Dichloroethene	**5.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Mar-2020 15:33
1,2-Dichloroethane	**6.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Mar-2020 15:33
cis-1,2-Dichloroethene	**57**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Mar-2020 15:33
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	15-Mar-2020 15:33
Trichloroethene	**850**		**1.0**	**2.5**	**5.0**	**UG/L**	5	15-Mar-2020 14:45
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	15-Mar-2020 15:33
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*5*	*15-Mar-2020 14:45*
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*1*	*15-Mar-2020 15:33*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*1*	*15-Mar-2020 15:33*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*5*	*15-Mar-2020 14:45*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*5*	*15-Mar-2020 14:45*
Surr: Dibromofluoromethane	*92.3*			**0**	*80-119*	*%REC*	*1*	*15-Mar-2020 15:33*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*5*	*15-Mar-2020 14:45*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*15-Mar-2020 15:33*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.000951**	J	**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 10:19
Ethene	**0.00495**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 10:19
Methane	**0.0466**		**0.000214**	**0.00100**	**0.00100**	**mg/L**	2	16-Mar-2020 10:38
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**599**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	10-Mar-2020 22:23
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16EW01-200309
Collection Date: 09-Mar-2020 09:15

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	15-Mar-2020 18:45
1,1-Dichloroethene	**27**		**2.0**	**5.0**	**10**	**UG/L**	10	15-Mar-2020 18:45
1,2-Dichloroethane	**24**		**2.0**	**5.0**	**10**	**UG/L**	10	15-Mar-2020 18:45
cis-1,2-Dichloroethene	**6,500**		**20**	**50**	**100**	**UG/L**	100	15-Mar-2020 19:09
Methylene chloride	10	U	4.0	10	20	UG/L	10	15-Mar-2020 18:45
Trichloroethene	**3,700**		**20**	**50**	**100**	**UG/L**	100	15-Mar-2020 19:09
Vinyl chloride	**530**		**2.0**	**5.0**	**10**	**UG/L**	10	15-Mar-2020 18:45
Surr: 1,2-Dichloroethane-d4	*91.8*			**0**	*81-118*	*%REC*	*10*	*15-Mar-2020 18:45*
Surr: 1,2-Dichloroethane-d4	*91.4*			**0**	*81-118*	*%REC*	*100*	*15-Mar-2020 19:09*
Surr: 4-Bromofluorobenzene	*99.1*			**0**	*85-114*	*%REC*	*10*	*15-Mar-2020 18:45*
Surr: 4-Bromofluorobenzene	*97.9*			**0**	*85-114*	*%REC*	*100*	*15-Mar-2020 19:09*
Surr: Dibromofluoromethane	*91.6*			**0**	*80-119*	*%REC*	*10*	*15-Mar-2020 18:45*
Surr: Dibromofluoromethane	*90.9*			**0**	*80-119*	*%REC*	*100*	*15-Mar-2020 19:09*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*10*	*15-Mar-2020 18:45*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*100*	*15-Mar-2020 19:09*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00301**	J	**0.000576**	**0.00200**	**0.00400**	**mg/L**	4	16-Mar-2020 11:02
Ethene	**0.0928**		**0.000936**	**0.00200**	**0.00400**	**mg/L**	4	16-Mar-2020 11:02
Methane	**0.0826**		**0.000428**	**0.00200**	**0.00200**	**mg/L**	4	16-Mar-2020 11:02
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**396**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	10-Mar-2020 22:30
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16EW02-200309
Collection Date: 09-Mar-2020 10:15

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	12	U	7.5	12	25	UG/L	25	15-Mar-2020 19:33
1,1-Dichloroethene	**37**		**5.0**	**12**	**25**	**UG/L**	25	15-Mar-2020 19:33
1,2-Dichloroethane	**22**	J	**5.0**	**12**	**25**	**UG/L**	25	15-Mar-2020 19:33
cis-1,2-Dichloroethene	**11,000**		**50**	**120**	**250**	**UG/L**	250	15-Mar-2020 19:57
Methylene chloride	25	U	10	25	50	UG/L	25	15-Mar-2020 19:33
Trichloroethene	**17,000**		**50**	**120**	**250**	**UG/L**	250	15-Mar-2020 19:57
Vinyl chloride	12	U	5.0	12	25	UG/L	25	15-Mar-2020 19:33
Surr: 1,2-Dichloroethane-d4	*90.7*			**0**	*81-118*	*%REC*	*250*	*15-Mar-2020 19:57*
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*25*	*15-Mar-2020 19:33*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*25*	*15-Mar-2020 19:33*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*250*	*15-Mar-2020 19:57*
Surr: Dibromofluoromethane	*89.8*			**0**	*80-119*	*%REC*	*250*	*15-Mar-2020 19:57*
Surr: Dibromofluoromethane	*91.4*			**0**	*80-119*	*%REC*	*25*	*15-Mar-2020 19:33*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*25*	*15-Mar-2020 19:33*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*250*	*15-Mar-2020 19:57*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.000463**	J	**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 11:22
Ethene	**0.00158**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 11:22
Methane	**0.00434**		**0.000107**	**0.000500**	**0.000500**	**mg/L**	1	16-Mar-2020 11:22
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**418**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	10-Mar-2020 22:36
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16EW04-200309
Collection Date: 09-Mar-2020 11:15

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	15-Mar-2020 17:09
1,1-Dichloroethene	**3.0**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	15-Mar-2020 17:09
1,2-Dichloroethane	**2.5**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	15-Mar-2020 17:09
cis-1,2-Dichloroethene	**960**		**1.0**	**2.5**	**5.0**	**UG/L**	5	15-Mar-2020 17:09
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	15-Mar-2020 17:09
Trichloroethene	**3,400**		**5.0**	**12**	**25**	**UG/L**	25	15-Mar-2020 17:33
Vinyl chloride	2.5	U	1.0	2.5	5.0	UG/L	5	15-Mar-2020 17:09
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*5*	*15-Mar-2020 17:09*
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*25*	*15-Mar-2020 17:33*
Surr: 4-Bromofluorobenzene	*99.6*			**0**	*85-114*	*%REC*	*5*	*15-Mar-2020 17:09*
Surr: 4-Bromofluorobenzene	*99.7*			**0**	*85-114*	*%REC*	*25*	*15-Mar-2020 17:33*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*5*	*15-Mar-2020 17:09*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*25*	*15-Mar-2020 17:33*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*5*	*15-Mar-2020 17:09*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*25*	*15-Mar-2020 17:33*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16RW04-200309
Collection Date: 09-Mar-2020 12:55

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	15-Mar-2020 17:57
1,1-Dichloroethene	2.5	U	1.0	2.5	5.0	UG/L	5	15-Mar-2020 17:57
1,2-Dichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	15-Mar-2020 17:57
cis-1,2-Dichloroethene	**120**		**1.0**	**2.5**	**5.0**	**UG/L**	5	15-Mar-2020 17:57
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	15-Mar-2020 17:57
Trichloroethene	**3,000**		**10**	**25**	**50**	**UG/L**	50	15-Mar-2020 18:21
Vinyl chloride	2.5	U	1.0	2.5	5.0	UG/L	5	15-Mar-2020 17:57
Surr: 1,2-Dichloroethane-d4	*91.4*			**0**	*81-118*	*%REC*	*50*	*15-Mar-2020 18:21*
Surr: 1,2-Dichloroethane-d4	*91.2*			**0**	*81-118*	*%REC*	*5*	*15-Mar-2020 17:57*
Surr: 4-Bromofluorobenzene	*98.8*			**0**	*85-114*	*%REC*	*5*	*15-Mar-2020 17:57*
Surr: 4-Bromofluorobenzene	*94.5*			**0**	*85-114*	*%REC*	*50*	*15-Mar-2020 18:21*
Surr: Dibromofluoromethane	*91.9*			**0**	*80-119*	*%REC*	*5*	*15-Mar-2020 17:57*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*50*	*15-Mar-2020 18:21*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*15-Mar-2020 17:57*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*50*	*15-Mar-2020 18:21*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16WW26-200309
Collection Date: 09-Mar-2020 13:50

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Mar-2020 20:23
1,1-Dichloroethene	**1.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Mar-2020 20:23
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 20:23
cis-1,2-Dichloroethene	**56**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Mar-2020 20:23
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-Mar-2020 20:23
Trichloroethene	**900**		**2.0**	**5.0**	**10**	**UG/L**	10	15-Mar-2020 16:45
Vinyl chloride	**1.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Mar-2020 20:23
Surr: 1,2-Dichloroethane-d4	*91.0*			**0**	*81-118*	*%REC*	*1*	*11-Mar-2020 20:23*
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*10*	*15-Mar-2020 16:45*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*11-Mar-2020 20:23*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*10*	*15-Mar-2020 16:45*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*1*	*11-Mar-2020 20:23*
Surr: Dibromofluoromethane	*90.6*			**0**	*80-119*	*%REC*	*10*	*15-Mar-2020 16:45*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*11-Mar-2020 20:23*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*10*	*15-Mar-2020 16:45*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00186**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 11:51
Ethene	**0.000295**	J	**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 11:51
Methane	**0.00510**		**0.000107**	**0.000500**	**0.000500**	**mg/L**	1	16-Mar-2020 11:51
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**14.9**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	10-Mar-2020 22:42
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: Trip Blank
Collection Date: 09-Mar-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Mar-2020 19:11
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 19:11
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 19:11
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 19:11
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-Mar-2020 19:11
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 19:11
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 19:11
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*1*	*11-Mar-2020 19:11*
Surr: 4-Bromofluorobenzene	*98.4*			**0**	*85-114*	*%REC*	*1*	*11-Mar-2020 19:11*
Surr: Dibromofluoromethane	*91.3*			**0**	*80-119*	*%REC*	*1*	*11-Mar-2020 19:11*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*11-Mar-2020 19:11*

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R357913 (0)	**Test Name :** ALKALINITY BY SM2320B				**Matrix:** Groundwater	
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			10 Mar 2020 22:23	1
HS20030383-02	16EW01-200309	09 Mar 2020 09:15			10 Mar 2020 22:30	1
HS20030383-03	16EW02-200309	09 Mar 2020 10:15			10 Mar 2020 22:36	1
HS20030383-06	16WW26-200309	09 Mar 2020 13:50			10 Mar 2020 22:42	1
Batch ID: R358045 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20030383-07	Trip Blank	09 Mar 2020 00:00			11 Mar 2020 19:11	1
Batch ID: R358045 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20030383-06	16WW26-200309	09 Mar 2020 13:50			11 Mar 2020 20:23	1
Batch ID: R358195 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			15 Mar 2020 15:33	1
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			15 Mar 2020 14:45	5
HS20030383-02	16EW01-200309	09 Mar 2020 09:15			15 Mar 2020 19:09	100
HS20030383-02	16EW01-200309	09 Mar 2020 09:15			15 Mar 2020 18:45	10
HS20030383-03	16EW02-200309	09 Mar 2020 10:15			15 Mar 2020 19:57	250
HS20030383-03	16EW02-200309	09 Mar 2020 10:15			15 Mar 2020 19:33	25
HS20030383-04	16EW04-200309	09 Mar 2020 11:15			15 Mar 2020 17:33	25
HS20030383-04	16EW04-200309	09 Mar 2020 11:15			15 Mar 2020 17:09	5
HS20030383-05	16RW04-200309	09 Mar 2020 12:55			15 Mar 2020 18:21	50
HS20030383-05	16RW04-200309	09 Mar 2020 12:55			15 Mar 2020 17:57	5
HS20030383-06	16WW26-200309	09 Mar 2020 13:50			15 Mar 2020 16:45	10
Batch ID: R358305 (0)	**Test Name :** DISSOLVED GASES BY RSK-175				**Matrix:** Groundwater	
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			16 Mar 2020 10:38	2
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			16 Mar 2020 10:19	1
HS20030383-02	16EW01-200309	09 Mar 2020 09:15			16 Mar 2020 11:02	4
HS20030383-03	16EW02-200309	09 Mar 2020 10:15			16 Mar 2020 11:22	1
HS20030383-06	16WW26-200309	09 Mar 2020 13:50			16 Mar 2020 11:51	1
Batch ID: R358500 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			19 Mar 2020 14:29	1
HS20030383-02	16EW01-200309	09 Mar 2020 09:15			19 Mar 2020 14:29	1
HS20030383-03	16EW02-200309	09 Mar 2020 10:15			19 Mar 2020 14:29	1
HS20030383-04	16EW04-200309	09 Mar 2020 11:15			19 Mar 2020 14:29	1
HS20030383-05	16RW04-200309	09 Mar 2020 12:55			19 Mar 2020 14:29	1
HS20030383-06	16WW26-200309	09 Mar 2020 13:50			19 Mar 2020 14:29	1

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R358305 (0) **Instrument: FID-4** **Method: DISSOLVED GASES BY RSK-175**

MBLK Sample ID: **MBLK-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 10:02**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515592** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.000500	0.00100								U
Ethene	0.000500	0.00100								U
Methane	0.000500	0.000500								U

LCS Sample ID: **LCS-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 09:35**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515590** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0160	0.00100	0.01804	0	88.8	75 - 125				
Ethene	0.0171	0.00100	0.0168	0	102	75 - 125				
Methane	0.00950	0.000500	0.009647	0	98.5	75 - 125				

LCSD Sample ID: **LCSD-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 09:43**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515591** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0156	0.00100	0.01804	0	86.6	75 - 125	0.01602	2.55	30	
Ethene	0.0165	0.00100	0.0168	0	98.0	75 - 125	0.01707	3.59	30	
Methane	0.00882	0.000500	0.009647	0	91.5	75 - 125	0.009501	7.4	30	

DUP Sample ID: **HS20030383-02DUP** Units: **mg/L** Analysis Date: **16-Mar-2020 11:13**
Client ID: **16EW01-200309** Run ID: **FID-4_358305** SeqNo: **5515597** PrepDate: DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.00316	0.00400					0.003008	0	30	J
Ethene	0.0956	0.00400					0.09278	2.96	30	
Methane	0.0837	0.00200					0.08260	1.32	30	

The following samples were analyzed in this batch: HS20030383-01 HS20030383-02 HS20030383-03 HS20030383-06

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R358045 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-200311** Units: **UG/L** Analysis Date: **11-Mar-2020 17:34**
Client ID: Run ID: **VOA6_358045** SeqNo: **5509698** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44.48*	*1.0*	*50*	*0*	*89.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.46*	*1.0*	*50*	*0*	*98.9*	*85 - 114*				
Surr: Dibromofluoromethane	*45.06*	*1.0*	*50*	*0*	*90.1*	*80 - 119*				
Surr: Toluene-d8	*53.28*	*1.0*	*50*	*0*	*107*	*89 - 112*				

LCS Sample ID: **VLCSW-200311** Units: **UG/L** Analysis Date: **11-Mar-2020 16:46**
Client ID: Run ID: **VOA6_358045** SeqNo: **5509697** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.74	1.0	20	0	98.7	80 - 119				
1,1-Dichloroethene	18.73	1.0	20	0	93.7	71 - 131				
1,2-Dichloroethane	20.3	1.0	20	0	101	73 - 128				
cis-1,2-Dichloroethene	20.57	1.0	20	0	103	78 - 123				
Methylene chloride	19.58	2.0	20	0	97.9	74 - 124				
Trichloroethene	20.26	1.0	20	0	101	79 - 123				
Vinyl chloride	18.49	1.0	20	0	92.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.53*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.78*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*48.82*	*1.0*	*50*	*0*	*97.6*	*80 - 119*				
Surr: Toluene-d8	*49.79*	*1.0*	*50*	*0*	*99.6*	*89 - 112*				

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R358045 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20030447-01MS** Units: **UG/L** Analysis Date: **11-Mar-2020 20:47**
Client ID: Run ID: **VOA6_358045** SeqNo: **5509706** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.37	1.0	20	0	96.8	80 - 119				
1,1-Dichloroethene	18.17	1.0	20	0	90.9	71 - 131				
1,2-Dichloroethane	18.63	1.0	20	0	93.2	73 - 128				
cis-1,2-Dichloroethene	18.87	1.0	20	0	94.3	78 - 123				
Methylene chloride	16.9	2.0	20	0	84.5	74 - 124				
Trichloroethene	20.39	1.0	20	0	102	79 - 123				
Vinyl chloride	18.53	1.0	20	0	92.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.38*	*1.0*	*50*	*0*	*92.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.6*	*1.0*	*50*	*0*	*99.2*	*85 - 114*				
Surr: Dibromofluoromethane	*45.9*	*1.0*	*50*	*0*	*91.8*	*80 - 119*				
Surr: Toluene-d8	*52.88*	*1.0*	*50*	*0*	*106*	*89 - 112*				

MSD Sample ID: **HS20030447-01MSD** Units: **UG/L** Analysis Date: **11-Mar-2020 21:11**
Client ID: Run ID: **VOA6_358045** SeqNo: **5509707** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.51	1.0	20	0	92.6	80 - 119	19.37	4.51	20	
1,1-Dichloroethene	17.5	1.0	20	0	87.5	71 - 131	18.17	3.77	20	
1,2-Dichloroethane	19.06	1.0	20	0	95.3	73 - 128	18.63	2.25	20	
cis-1,2-Dichloroethene	17.48	1.0	20	0	87.4	78 - 123	18.87	7.62	20	
Methylene chloride	16.72	2.0	20	0	83.6	74 - 124	16.9	1.03	20	
Trichloroethene	18.59	1.0	20	0	92.9	79 - 123	20.39	9.23	20	
Vinyl chloride	17.18	1.0	20	0	85.9	58 - 137	18.53	7.56	20	
Surr: 1,2-Dichloroethane-d4	*45.87*	*1.0*	*50*	*0*	*91.7*	*81 - 118*	*46.38*	*1.1*	*20*	
Surr: 4-Bromofluorobenzene	*50.91*	*1.0*	*50*	*0*	*102*	*85 - 114*	*49.6*	*2.6*	*20*	
Surr: Dibromofluoromethane	*45.67*	*1.0*	*50*	*0*	*91.3*	*80 - 119*	*45.9*	*0.507*	*20*	
Surr: Toluene-d8	*52.57*	*1.0*	*50*	*0*	*105*	*89 - 112*	*52.88*	*0.601*	*20*	

The following samples were analyzed in this batch: HS20030383-06 HS20030383-07

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R358195 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-200315** Units: **UG/L** Analysis Date: **15-Mar-2020 13:08**
Client ID: Run ID: **VOA6_358195** SeqNo: **5513233** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44.01*	*1.0*	*50*	*0*	*88.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.46*	*1.0*	*50*	*0*	*98.9*	*85 - 114*				
Surr: Dibromofluoromethane	*46.9*	*1.0*	*50*	*0*	*93.8*	*80 - 119*				
Surr: Toluene-d8	*53.64*	*1.0*	*50*	*0*	*107*	*89 - 112*				

LCS Sample ID: **VLCSW-200315** Units: **UG/L** Analysis Date: **15-Mar-2020 12:20**
Client ID: Run ID: **VOA6_358195** SeqNo: **5513232** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.99	1.0	20	0	99.9	80 - 119				
1,1-Dichloroethene	19.01	1.0	20	0	95.1	71 - 131				
1,2-Dichloroethane	21.14	1.0	20	0	106	73 - 128				
cis-1,2-Dichloroethene	21.12	1.0	20	0	106	78 - 123				
Methylene chloride	19.87	2.0	20	0	99.3	74 - 124				
Trichloroethene	19.85	1.0	20	0	99.3	79 - 123				
Vinyl chloride	17.69	1.0	20	0	88.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.3*	*1.0*	*50*	*0*	*98.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.81*	*1.0*	*50*	*0*	*99.6*	*85 - 114*				
Surr: Dibromofluoromethane	*49.48*	*1.0*	*50*	*0*	*99.0*	*80 - 119*				
Surr: Toluene-d8	*49.68*	*1.0*	*50*	*0*	*99.4*	*89 - 112*				

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R358195 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20030405-01MS** Units: **UG/L** Analysis Date: **15-Mar-2020 15:57**
Client ID: Run ID: **VOA6_358195** SeqNo: **5513237** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	101.1	5.0	100	0	101	80 - 119				
1,1-Dichloroethene	93.25	5.0	100	0	93.2	71 - 131				
1,2-Dichloroethane	110.6	5.0	100	14.06	96.5	73 - 128				
cis-1,2-Dichloroethene	104.5	5.0	100	8.385	96.1	78 - 123				
Methylene chloride	91.06	10	100	0	91.1	74 - 124				
Trichloroethene	109.4	5.0	100	4.933	105	79 - 123				
Vinyl chloride	88.05	5.0	100	0	88.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*231.9*	*5.0*	*250*	*0*	*92.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*248.3*	*5.0*	*250*	*0*	*99.3*	*85 - 114*				
Surr: Dibromofluoromethane	*229.1*	*5.0*	*250*	*0*	*91.7*	*80 - 119*				
Surr: Toluene-d8	*257.2*	*5.0*	*250*	*0*	*103*	*89 - 112*				

MSD Sample ID: **HS20030405-01MSD** Units: **UG/L** Analysis Date: **15-Mar-2020 16:21**
Client ID: Run ID: **VOA6_358195** SeqNo: **5513238** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	100.2	5.0	100	0	100	80 - 119	101.1	0.873	20	
1,1-Dichloroethene	93.61	5.0	100	0	93.6	71 - 131	93.25	0.382	20	
1,2-Dichloroethane	113.8	5.0	100	14.06	99.7	73 - 128	110.6	2.89	20	
cis-1,2-Dichloroethene	100.8	5.0	100	8.385	92.4	78 - 123	104.5	3.56	20	
Methylene chloride	86.19	10	100	0	86.2	74 - 124	91.06	5.49	20	
Trichloroethene	101.7	5.0	100	4.933	96.7	79 - 123	109.4	7.38	20	
Vinyl chloride	84.06	5.0	100	0	84.1	58 - 137	88.05	4.63	20	
Surr: 1,2-Dichloroethane-d4	*231.3*	*5.0*	*250*	*0*	*92.5*	*81 - 118*	*231.9*	*0.245*	*20*	
Surr: 4-Bromofluorobenzene	*244.2*	*5.0*	*250*	*0*	*97.7*	*85 - 114*	*248.3*	*1.66*	*20*	
Surr: Dibromofluoromethane	*226.3*	*5.0*	*250*	*0*	*90.5*	*80 - 119*	*229.1*	*1.24*	*20*	
Surr: Toluene-d8	*261.6*	*5.0*	*250*	*0*	*105*	*89 - 112*	*257.2*	*1.7*	*20*	

The following samples were analyzed in this batch: HS20030383-01 HS20030383-02 HS20030383-03 HS20030383-04 HS20030383-05 HS20030383-06

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R357913 (0) **Instrument: ManTech01** **Method: ALKALINITY BY SM2320B**

MBLK Sample ID: **WBLKW2-200310** Units: **mg/L** Analysis Date: **10-Mar-2020 19:57**
Client ID: Run ID: **ManTech01_357913** SeqNo: **5507250** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	5.00	5.00								U

LCS Sample ID: **LCS2-200310** Units: **mg/L** Analysis Date: **10-Mar-2020 20:06**
Client ID: Run ID: **ManTech01_357913** SeqNo: **5507251** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	989.7	5.00	1000	0	99.0	85 - 115				

LCSD Sample ID: **LCSD2-200310** Units: **mg/L** Analysis Date: **10-Mar-2020 20:15**
Client ID: Run ID: **ManTech01_357913** SeqNo: **5507252** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	982.8	5.00	1000	0	98.3	85 - 115	989.7	0.695	20	

DUP Sample ID: **HS20030283-04DUP** Units: **mg/L** Analysis Date: **10-Mar-2020 20:45**
Client ID: Run ID: **ManTech01_357913** SeqNo: **5507256** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	518.2	5.00					518.4	0.0463	20	

The following samples were analyzed in this batch: HS20030383-01 HS20030383-02 HS20030383-03 HS20030383-06

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: **HS20030383**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 19-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030383
Date/Time Received: **10-Mar-2020 09:00**
Received by: **JRM**

Checklist completed by: *Paresh M. Giga* eSignature 10-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 10-Mar-2020 Date

Matrices: **GW/Water**
Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.7c U/C	IR25
Cooler(s)/Kit(s):	45498	
Date/Time sample(s) sent to storage:	3/10/2020 13:00	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑

pH adjusted by:

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

COC ID: LHAAP16 March 2020 -ALS

TURNAROUND TIME: Normal

RUSH:

Page 1 of

PROJECT/CLIENT INFO			
Facility Name	Longhorn AAP		
Project Number	501032		
	LHAAP-16		
Address	1203-B East Grand Avenue		
	PMB 202		
City	Marshall	State	TX
Postal Code	75670	Country	USA
Phone Number	713.243.7264		
Project Manager	Praveen Srivastav		

LABORATORY			
Lab Name	ALS Laboratories		
Lab Contact	RJ Modashia		
Email	RJ.Modashia@alsglobal.com		
Address	10450 Stanecliff Rd., Suite 210		
City	Houston	State	TX
Postal Code	77099	Country	USA
Phone Number	281.575.2279 or 281.530.5656		

OTHER INFO			
Email Invoice To	FedInvoices@aptim.com		
Email Report To	Susan.Huang@aptim.com		
Mail Reports To	Susan Huang		
Address	4005 Port Chicago Highway, Suite 200		
City	Concord	State	CA
Postal Code	94520	Country	USA
Shipping Company			

SAMPLE DETAILS

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont	Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	2-40ml Amber/H2SO4	1-250 ml PE/HNO3	1-250ml PE/ice	1-250ml PE /ice	1-250ml PE/ice	1-125ml PE/ice		
									ANALYSIS	VOCs by SW8260B	MEE by RSK175	TOC by SM5310C	Metals (arsenic, chromium, manganese, nickel, and thallium) by SW6020	Anions (sulfate/nitrate/bromide) by SW9056	Anions (bromide only) by SW9056	Alkalinity by SM2320	Perchlorate by SW6850		
16IW20-200309	LHAAP 16				W6	3/9/20	0815	9		X	X			X		X	X		
16EW01-200309	LHAAP 16				W6	3/9/20	0915	9		X	X			X		X	X		
16EW02-200309	LHAAP 16				W6	3/9/20	1015	9		X	X			X		X	X		
16EW04-200309	LHAAP 16				W6	3/9/20	1115	4		X							X		
16RW04-200309	LHAAP 16				W6	3/9/20	1255	4		X							X		
16WW26-200309	LHAAP 16				W6	3/9/20	1350	9		X	X			X		X	X		
Trip Blank	LHAAP 16				W6	3/9/20		2		X									

HS20030383

Aptim Environmental & Infrastucture, Inc.

Longhorn Army Ammunition Plant -16

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Scott Bellinger / Battle	3/9/20 1500	J. Jimenez	3/10/20 09:00

Cooler -4548
Temp 1.7
1225 CF00

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

45498

CUSTODY SEAL

Date: 3/9/20 Time: 1500
Name: Scott Beesinger
Company: TAMU

Seal Broken By: SRY
Date: 03/10/20

45498 MAR 19 2020

Must Deliver Next Business Day
Time and Tempature Sensitive!

45498

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 02MAR20
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 16 - RJ
RMA:

FedEx Express

FedEx
TRK# 9271 1251 0294 9854

TUE - 10 MAR 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

TID 3711191 09MAR20 SGGA 56BC2/64E8/05A2

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 2007291

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2357 (258957)

General Set Information: There were six 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: NA

Method QC data: The method blank (LMB 699551) was less than 1/2 the CRDL. The recovery for the LCS (699548) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on sample 2007291001 (Client ID: 16IW20-200309). 3.0µL of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. The spike target was 3.µg/L. The MS/MSD (699552/53) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected. The relative percent difference (RPD) was within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 699549) is reported from the analysis of the Laboratory Control Sample (LCS – 699548) at a level of 3.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 18MARD06/10.

Thomas Bosch March 18, 2020
Analyst Date

ANALYTICAL REPORT

Report Date: March 18, 2020

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-2007291**
Project ID: HS20030383
Purchase Order: HS20030383
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
16IW20-200309	2007291001	03/09/20	03/11/20	
16EW01-200309	2007291002	03/09/20	03/11/20	
16EW02-200309	2007291003	03/09/20	03/11/20	
16EW04-200309	2007291004	03/09/20	03/11/20	
16RW04-200309	2007291005	03/09/20	03/11/20	
16WW26-200309	2007291006	03/09/20	03/11/20	

ANALYTICAL REPORT

Workorder: 34-2007291
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16IW20-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291001 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 09:42 | **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: **16EW01-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291002 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 10:26 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**28**	1.0	2.0	4.0	1	

Sample ID: **16EW02-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291003 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 10:40 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**25**	1.0	2.0	4.0	1	

Sample ID: **16EW04-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291004 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 10:54 | **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

ANALYTICAL REPORT

Workorder: 34-2007291
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16RW04-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291005 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 11:08 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **16WW26-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291006 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 11:22 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 03/18/2020 12:46	/S/ Stephen Brose 03/18/2020 19:14

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: 34-2007291
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.
The following was provided by the client: Sample ID, Collection Date, Sampling Location, Media Type, Sampling Parameter.
Collection Date, Media Type, and Sampling Parameter can potentially affect the validity of the results.
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	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

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.
< Means 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: 2007291

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2357 (HBN: 258957)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 699551
Analyzed: 03/18/2020 09:28
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 699548
Analyzed: 03/18/2020 09:00
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	3.46	3.00	115	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	2007291001	**MS:**	699552	**MSD:**	699553
Analyzed:	03/18/2020 09:42	**Analyzed:**	03/18/2020 09:57	**Analyzed:**	03/18/2020 10:12
Dilution:	1	**Dilution:**	1	**Dilution:**	1
Units:	ug/L	**Units:**	ug/L	**Units:**	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.21	3	# 140	78.8	123.8	3.96	# 132	6.21	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
03/18/2020 12:50	03/18/2020 19:14

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

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

18698/#2

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13490**

2007291

SUBCONTRACT TO:

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

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20030383
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20030383-01**	**16IW20-200309**	**Groundwater**	**09 Mar 2020 08:15**
	SUB_Perch-6850			24 Mar 2020
2.	**HS20030383-02**	**16EW01-200309**	**Groundwater**	**09 Mar 2020 09:15**
	SUB_Perch-6850			24 Mar 2020
3.	**HS20030383-03**	**16EW02-200309**	**Groundwater**	**09 Mar 2020 10:15**
	SUB_Perch-6850			24 Mar 2020
4.	**HS20030383-04**	**16EW04-200309**	**Groundwater**	**09 Mar 2020 11:15**
	SUB_Perch-6850			24 Mar 2020
5.	**HS20030383-05**	**16RW04-200309**	**Groundwater**	**09 Mar 2020 12:55**
	SUB_Perch-6850			24 Mar 2020
6.	**HS20030383-06**	**16WW26-200309**	**Groundwater**	**09 Mar 2020 13:50**
	SUB_Perch-6850			24 Mar 2020

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

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13490**

Relinquished By: T. Maynard Date/Time: 3/10/20 18:00

Received By: [signature] Date/Time: 3.11.2020 0931

Cooler ID(s): Temperature(s):

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS20030383	***Split:***	**Workorder ID:** 2007291	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives** COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Count	Requested Analysis EPA 6850, DoD QSM
1	03/09/2020 08:15	16IW20-200309	2007291001		Water	A	1	A
2	03/09/2020 09:15	16EW01-200309	2007291002		Water	A	1	A
3	03/09/2020 10:15	16EW02-200309	2007291003		Water	A	1	A
4	03/09/2020 11:15	16EW04-200309	2007291004		Water	A	1	A
5	03/09/2020 12:55	16RW04-200309	2007291005		Water	A	1	A
6	03/09/2020 13:50	16WW26-200309	2007291006		Water	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	03/11/2020 09:31	ALS Sample Receiving	Sample Login
R.33.1	03.12.20/13:45	T.Bush	storage and analysis

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

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

200729

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS HOUSTON

Project/Task/Site: HS20030383

Date/Time of Receipt: 3.11.2020 0931

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:	Cooler/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	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.
1	GOOD	1 °C	4		°C	7		°C
2		°C	5		°C	8		°C
3		°C	6		°C	9		°C

Taken By: _____ (Signature) BAYLEEN COATES (Printed Name) 3.11.2020 (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:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

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

Must Deliver Next Business Day
Time and Temperature Sensitive!

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

SHIP DATE: 10MAR20
ACTWGT: 19.20 LB
CAD: 300130/CAFE3211
DIMS: 18x16x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS20030383 RJ

FedEx Express

TRK# 0201 1251 0295 2600

WED - 11 MAR 3:00P
STANDARD OVERNIGHT

AX BTFA

84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2357 Created: 3/12/2020 15:59 Instrument: HBN: 258957

Rule: EPA 6850, DoD QSM Water Analyst: T. Bosch Status: WP

Workorder: 2007291 [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	699547	CCV for HBN 258957 [ELMS/2357]				CCV	3		E685041C3Q	5311		3/24/2020	
2	699548	LCS for HBN 258957 [ELMS/2357]				LCS	3		E6850Q413Q	5311		3/24/2020	
3	699549	RLVS for HBN 258957 [ELMS/2357				RLVS	3		E685041C3Q	5311		3/24/2020	
4	699550	ICS for HBN 258957 [ELMS/2357]				ICS	3		E6850..D3Q	5311		3/24/2020	
5	699551	LMB for HBN 258957 [ELMS/2357]				LMB	3		E6850Q413Q	5311		3/24/2020	
6	2007291001	16IW20-200309				SAMPLE	3	2007291001-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
7	699552	16IW20-200309(2007291001MS)				MS	3		E6850Q413Q	5311		3/24/2020	
8	699553	16IW20-200309(2007291001MSD)				MSD	3		E6850Q413Q	5311		3/24/2020	
9	2007291002	16EW01-200309				SAMPLE	3	2007291002-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
10	2007291003	16EW02-200309				SAMPLE	3	2007291003-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
11	2007291004	16EW04-200309				SAMPLE	3	2007291004-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
12	2007291005	16RW04-200309				SAMPLE	3	2007291005-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
13	2007291006	16WW26-200309				SAMPLE	3	2007291006-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
14	699554	CCV for HBN 258957 [ELMS/2357]				CCV	3		E685041C3Q	5311		3/24/2020	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Analyst Write-up

ALS Work Order #'s & Sample #( )'s: 2007291 (001-06) ELMS Batch/HBN ID: 2357 (258957)
Prep Date: 03/12/2020 Analysis Date: 03/18/2020 Analyst: Tom Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\18MAR0D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Tom Bosch. 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 DU461-US)/0.1% glacial acetic acid (JT-Baker Lot 122550).
Eluent B1: 95% ACN (B&J Lot DU461-US)/5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 122550).

STANDARDS: Internal Standard Spiking Solution Horizon# 47863. Dilutions of Working Standards (Horizon: 49947/48) used for ICAL, CCV's, RLVS and ICS.

CALIBRATION CURVE: Used curve from 09/20/2019, sequence 20SEP19D.s Offline Quantitation Method: CLO4-DP3.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: 10 Injection Volume: 40µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1 Run time: 12.0min.

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 3.0µL of QC Solution Horizon ID 47516 was used for LCS 699548; Target = 3.0µg/L. ASTM type II water was used for LMB 699551.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) was performed on sample 2007291001 (Client ID: 16IW20-200309). 3.0µl of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. Spike target = 3.0µg/L.

COMMENTS:

1) Results reported in µg/L.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The MS/MSD (699552/53) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2020\MAR\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2020\DOD\258957-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 699549) is reported from the analysis of the Laboratory Control Sample (LCS – 699548) at a level of 3.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 18MARD06/10.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria **Batch(es)/SDG:** ELMS: 2357 HBN: 258957 **Sample Set IDs if Applicable:** 2007291	**Analyst Initials**	**Reviewer Initials**
Sample positions on autosampler verified against instrument sequence	TB	NA
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#_____	TB	SB
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L
Standard: 49946	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/23/2019 03:09PM	**Expires:** 09/19/2020
MFG Lot: TNB: 09/20/2019	**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
47863	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	12/05/2028

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 47863	**Created By:** Thomas Bosch	**Amount:** 1 mL
MFG: Cambridge Isotope	**Create Date:** 05/23/2019 10:05AM	**Expires:** 12/05/2028
MFG Lot: SDIH-016	**Verified By:** Thomas Bosch	**Usable:** Yes
Part ID: OLM-7310-S	**Verify Date:**	**Lab Lot:** CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK		Description - 6850 WKG Std 100.ug/L
Standard: 49948	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 09/20/2019 03:09PM	**Expires:** 07/25/2020
MFG Lot: TNB: 09/20/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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
49947	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	07/25/2020

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		**Description - 6850 Stock AccStd 1,000ug/mL**
Standard: 43659	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: AccuStandard	**Create Date:** 09/17/2018 09:09AM	**Expires:** 07/25/2020
MFG Lot: 218065075		**Usable:** Yes
Part ID: IC-PER-10X-1		**Lab Lot:** CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT		Description - 6850 Intermdt AccStd 10.ug/mL
Standard: 49947	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 09/23/2019 03:09PM	**Expires:** 07/25/2020
MFG Lot: TNB: 09/20/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

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

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK		**Description - 6850 QC Stock STD 1,000ug/mL**
Standard: 36748	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: Ultra Scientific	**Create Date:** 05/11/2017 01:05PM	**Expires:** 03/31/2020
MFG Lot: CP-0860		**Usable:** Yes
Part ID: ICC-013		**Lab Lot:** CLO4 QC STOCK

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

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT		Description - 6850 QC Intrmdt Std-QC 10ug/mL
Standard: 47515	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 05/06/2019 03:05PM	**Expires:** 03/31/2020
MFG Lot: TNB: 05/06/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

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

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: None

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

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

The gravimetric uncertainty for this product is ±0.24%.

The final solution was checked against an independent standard to verify its concentration.

We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.

All solutions are filtered through a 0.2 µm filter prior to being bottled.

All glassware used in preparation is Class A and calibrated regularly.

All weights are traceable through NIST, Test No. 822-275872-11

All bottles are triple rinsed with deionized water prior to use.

Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.

We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

AccuStandard

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

S 36748

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 ACCREDITATION 17034 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ACCREDITATION ISO/IEC 17025 TESTING LABORATORY

ISO 9001 Registered Quality System – TUV USA

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

TRIPLE ISO CERTIFICATION ISO 9001 ISO GUIDE 34 ISO 17025 ULTRA

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001 Registered Quality System – TUV USA

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

S 47863

Product Name: PERCHLORIC ACID, SODIUM SALT
(Isotopic Label & Enrichment Specification) (18O4, 90%+) 100 UG/ML IN WATER

Lot Number: SDIH-016

Catalog Number: OLM-7310-S

Product Information

Chemical Purity Specification: ≥ 98%

MW*: 130.44
* For isotopically labeled compounds, MW listed is for the fully enriched product.

$NaCl^{18}O_4$

Labeled CAS Number: NA

Unlabeled CAS Number: 7601-89-0

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. CIL Certificates of Analysis are occasionally updated with new data following recertification. We recommend checking the website for the latest version.

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.

Approved by: Sashi Sivendran-Basak

Sashi Sivendran-Basak, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	12/05/2018
Expiration Date	12/05/2028
Concentration Based on Gravimetry	100.0 ± 1.0 µg/mL (k=2)
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	105.4 ± 1.1 µg/mL (k=2)

CIL subscribes to the following standards for different products: ISO Guide 34, ISO/IEC 17025, ISO 13485 and cGMP as appropriate.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\18MAR20D\18MAR20S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	699547 CCV@25	Vial 71	1	Control	1	1.56050e6	7.258	25.02704
*	699548 LCS@3.	Vial 72	1	Control	2	1.89787e5	7.176	3.45954
*	699550 ICS@3.0	Vial 73	1	Control	3	1.09981e5	7.194	2.61672
*	699551 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	2007291001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	699552 72911MS	Vial 76	1	Sample	6	2.08268e5	7.105	4.21484
*	699553 72911SD	Vial 77	1	Sample	7	1.96135e5	7.110	3.96084
*	2007291002	Vial 78	1	Sample	8	1.82025e6	6.826	28.13629
*	2007291003	Vial 79	1	Sample	9	1.37143e6	7.029	25.28098
*	2007291004	Vial 80	1	Sample	10	4.45440e4	7.342	7.35610e-1 < RL
*	2007291005	Vial 81	1	Sample	11	0.00000	0.000	0.00000
*	2007291006	Vial 82	1	Sample	12	0.00000	0.000	0.00000
*	699554 CCV@25	Vial 71	1	Control	13	1.28803e6	7.607	25.77682

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	699547 CCV@25	Vial 71	1	Control	1	2.13029e5	7.282	5.00000
*	699548 LCS@3.	Vial 72	1	Control	2	2.02150e5	7.197	5.00000
*	699550 ICS@3.0	Vial 73	1	Control	3	1.54310e5	7.229	5.00000
*	699551 LMB	Vial 74	1	Control	4	2.20032e5	7.446	5.00000
*	2007291001	Vial 75	1	Sample	5	1.59347e5	6.687	5.00000
*	699552 72911MS	Vial 76	1	Sample	6	1.82215e5	7.111	5.00000
*	699553 72911SD	Vial 77	1	Sample	7	1.82592e5	7.131	5.00000
*	2007291002	Vial 78	1	Sample	8	2.18223e5	6.846	5.00000
*	2007291003	Vial 79	1	Sample	9	1.85144e5	7.050	5.00000
*	2007291004	Vial 80	1	Sample	10	2.07739e5	7.280	5.00000
*	2007291005	Vial 81	1	Sample	11	2.08068e5	7.191	5.00000
*	2007291006	Vial 82	1	Sample	12	1.96542e5	7.406	5.00000
*	699554 CCV@25	Vial 71	1	Control	13	1.70192e5	7.631	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	699547 CCV@25	Vial 71	1	Control	1	5.05466e5	7.275	26.44476
*	699548 LCS@3.	Vial 72	1	Control	2	6.90275e4	7.196	4.03658
*	699550 ICS@3.0	Vial 73	1	Control	3	4.45142e4	7.219	3.39413
*	699551 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	2007291001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	699552 72911MS	Vial 76	1	Sample	6	6.92381e4	7.105	4.50126
*	699553 72911SD	Vial 77	1	Sample	7	6.68581e4	7.131	4.33475
*	2007291002	Vial 78	1	Sample	8	5.13519e5	6.840	26.24610
*	2007291003	Vial 79	1	Sample	9	3.79307e5	7.041	23.11804
*	2007291004	Vial 80	1	Sample	10	4574.20410	7.254	1.08499e-1
*	2007291005	Vial 81	1	Sample	11	0.00000	0.000	0.00000
*	2007291006	Vial 82	1	Sample	12	0.00000	0.000	0.00000
*	699554 CCV@25	Vial 71	1	Control	13	4.16783e5	7.625	27.21496

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\18MAR20D.S

Sequence Table:

Method and Injection Info Part:

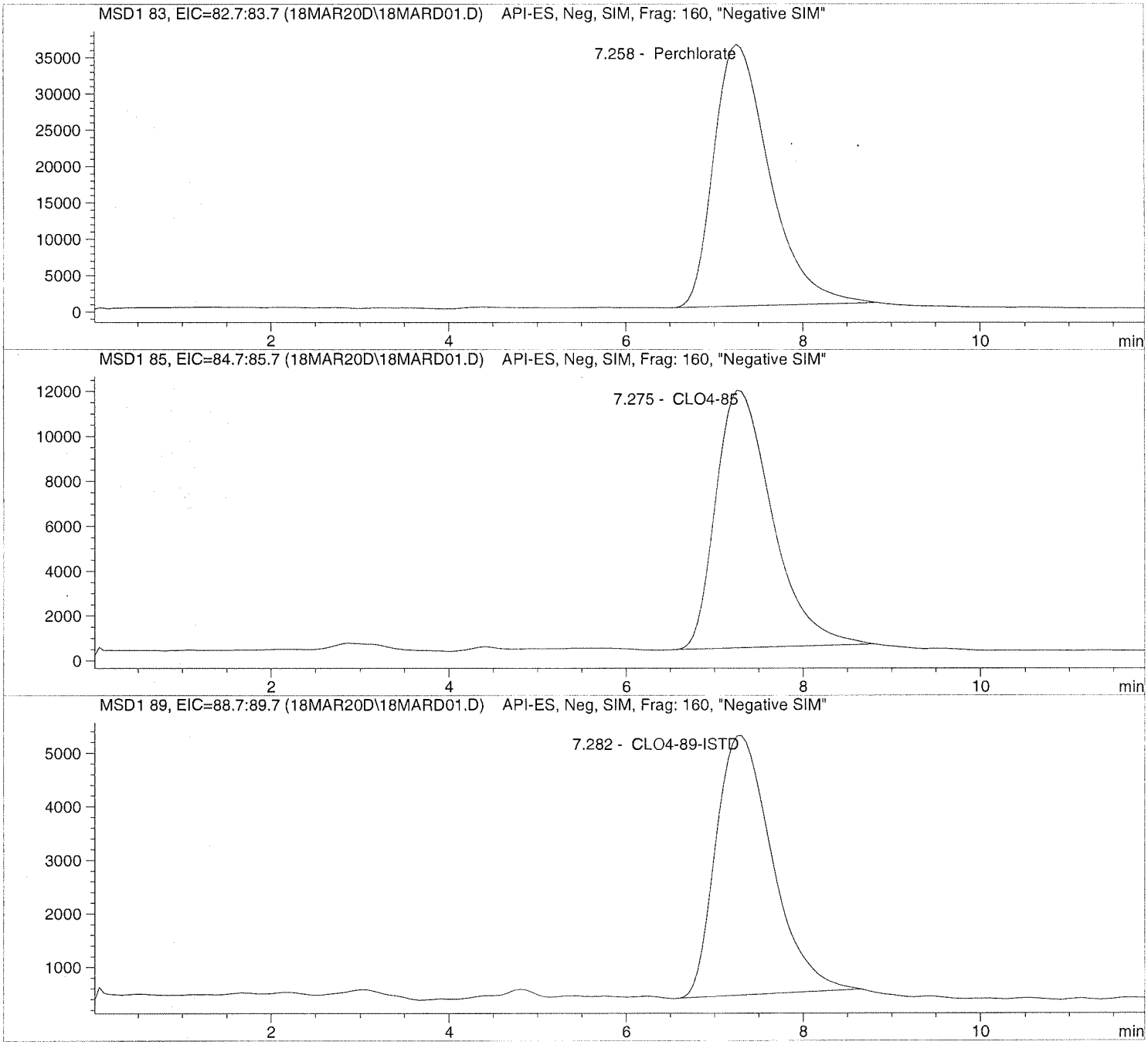
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	699547 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	699548 LCS@3.	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	699550 ICS@3.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	699551 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	2007291001	CLO4-AQN	1	Sample		
6	Vial 76	699552 72911MS	CLO4-AQN	1	Sample		
7	Vial 77	699553 72911SD	CLO4-AQN	1	Sample		
8	Vial 78	2007291002	CLO4-AQN	1	Sample		
9	Vial 79	2007291003	CLO4-AQN	1	Sample		
10	Vial 80	2007291004	CLO4-AQN	1	Sample		
11	Vial 81	2007291005	CLO4-AQN	1	Sample		
12	Vial 82	2007291006	CLO4-AQN	1	Sample		
13	Vial 71	699554 CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD01.D Sample Name: 699547 CCV@25

Injection Date:	3/18/2020 08:44:58	Seq Line:	1
Sample Name:	699547 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD01.D Sample Name: 699547 CCV@25

Injection Date:	3/18/2020 08:44:58	Seq Line:	1
Sample Name:	699547 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.258	PBA	1560499.0	25.0270	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.275	PBA	505466.3	26.4448	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.282	PBA	213029.2	5.0000	CLO4-89-ISTD

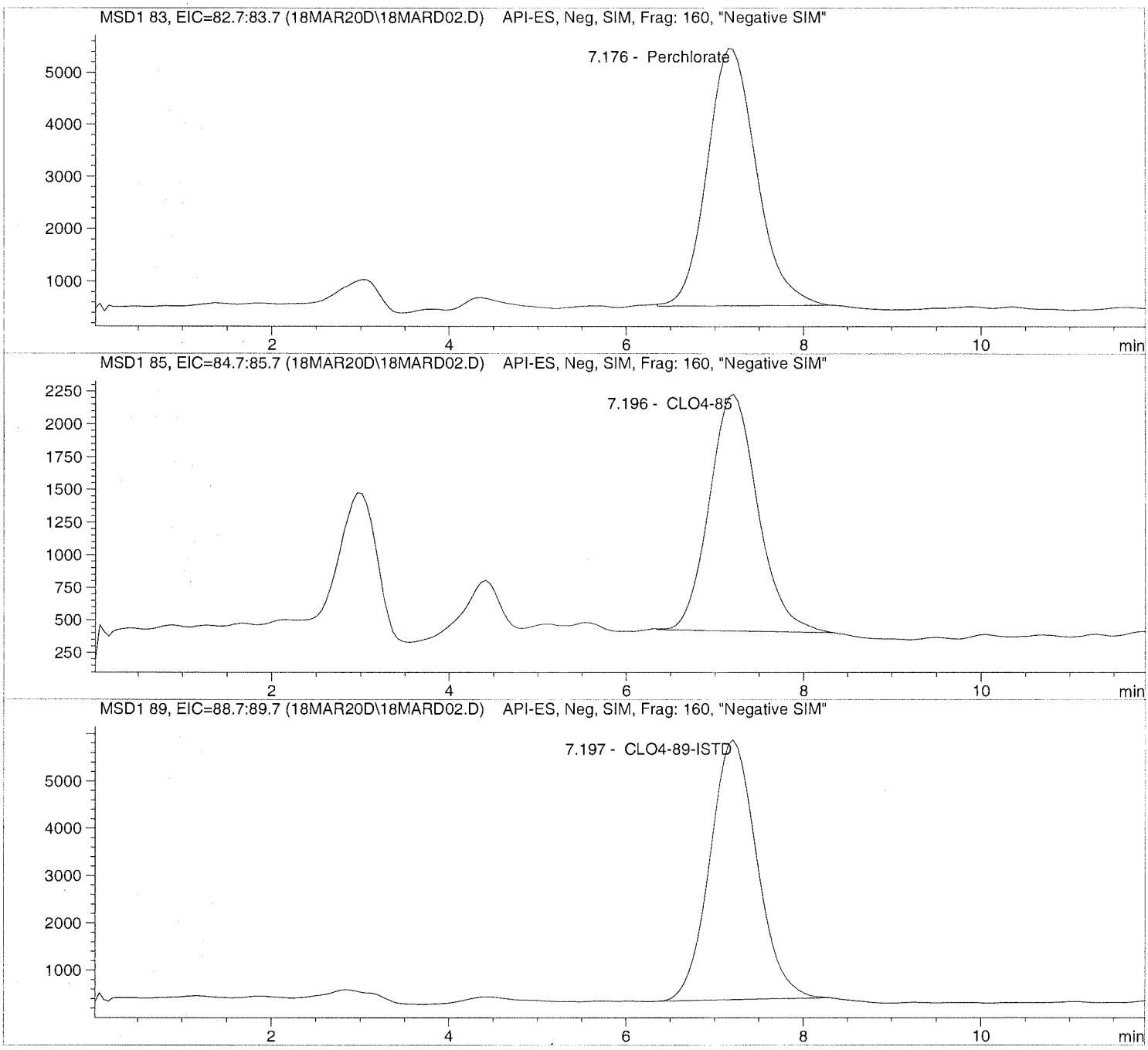
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD02.D Sample Name: 699548 LCS@3.

Injection Date:	3/18/2020 09:00:32	Seq Line:	2
Sample Name:	699548 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD02.D Sample Name: 699548 LCS@3.

Injection Date:	3/18/2020 09:00:32	Seq Line:	2
Sample Name:	699548 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.176	BBA	189787.4	3.4595	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.196	BBA	69027.5	4.0366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.197	PBA	202150.0	5.0000	CLO4-89-ISTD

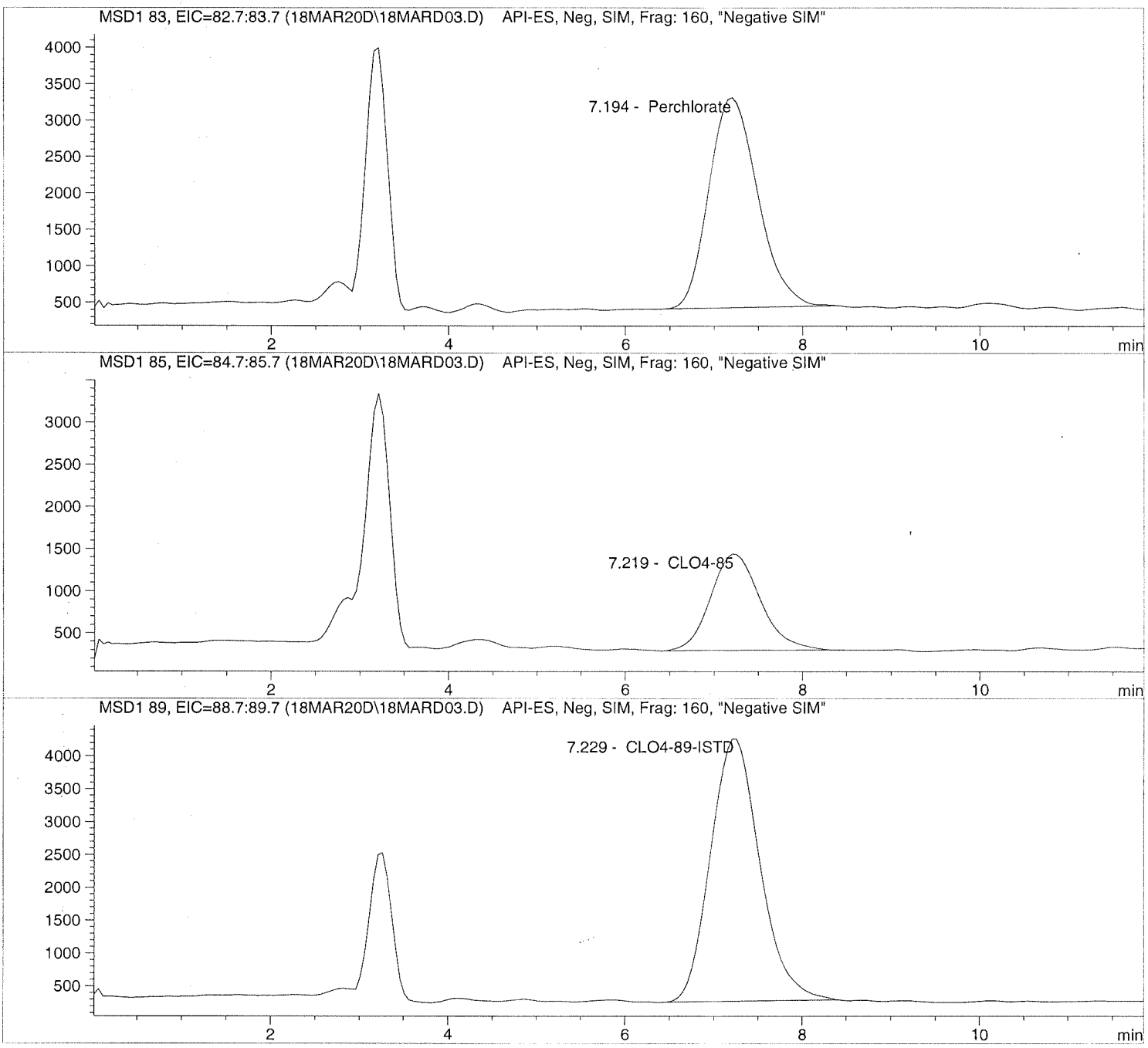
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD03.D Sample Name: 699550 ICS@3.0

Injection Date:	3/18/2020 09:14:28	Seq Line:	3
Sample Name:	699550 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD03.D Sample Name: 699550 ICS@3.0

Injection Date:	3/18/2020 09:14:28	Seq Line:	3
Sample Name:	699550 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.194	BBA	109981.4	2.6167	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.219	PBA	44514.2	3.3941	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.229	PBA	154309.9	5.0000	CLO4-89-ISTD

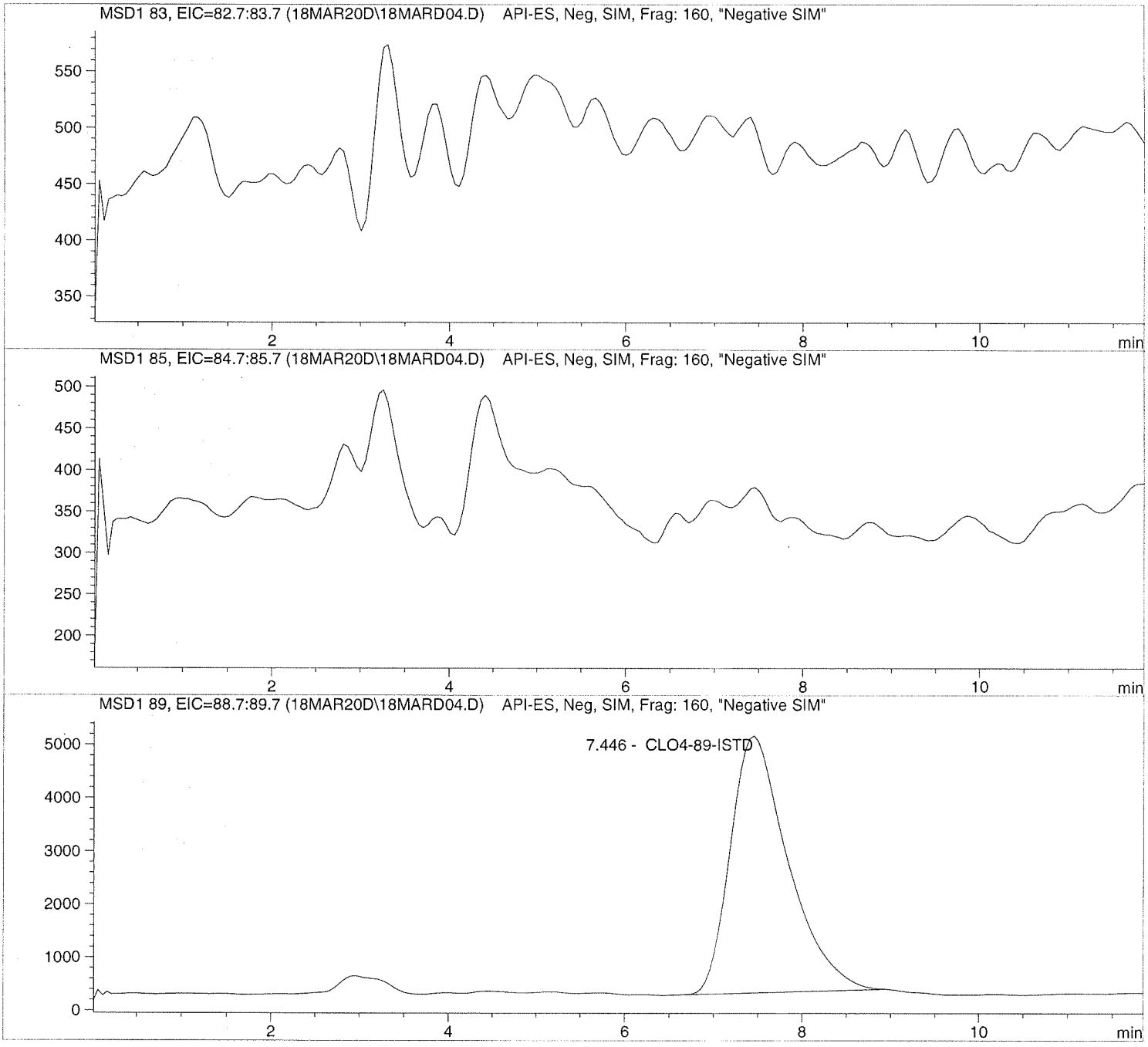
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD04.D Sample Name: 699551 LMB

Injection Date:	3/18/2020 09:28:29	Seq Line:	4
Sample Name:	699551 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD04.D Sample Name: 699551 LMB

Injection Date:	3/18/2020 09:28:29	Seq Line:	4
Sample Name:	699551 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.446	PBA	220031.8	5.0000	CLO4-89-ISTD

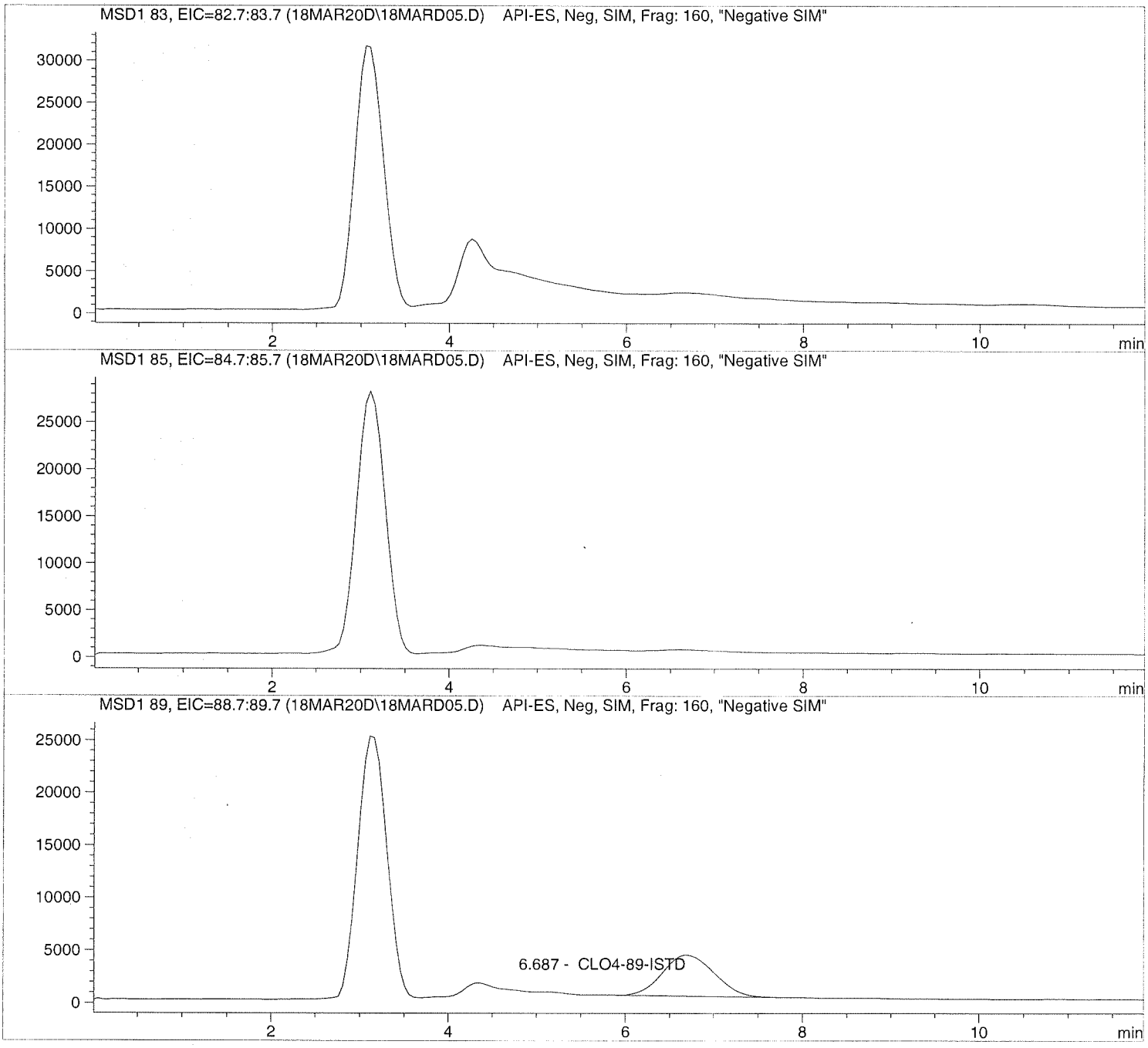
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD05.D Sample Name: 2007291001

Injection Date:	3/18/2020 09:42:29	Seq Line:	5
Sample Name:	2007291001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD05.D Sample Name: 2007291001

Injection Date:	3/18/2020 09:42:29	Seq Line:	5
Sample Name:	2007291001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.687	PBA	159347.1	5.0000	CLO4-89-ISTD

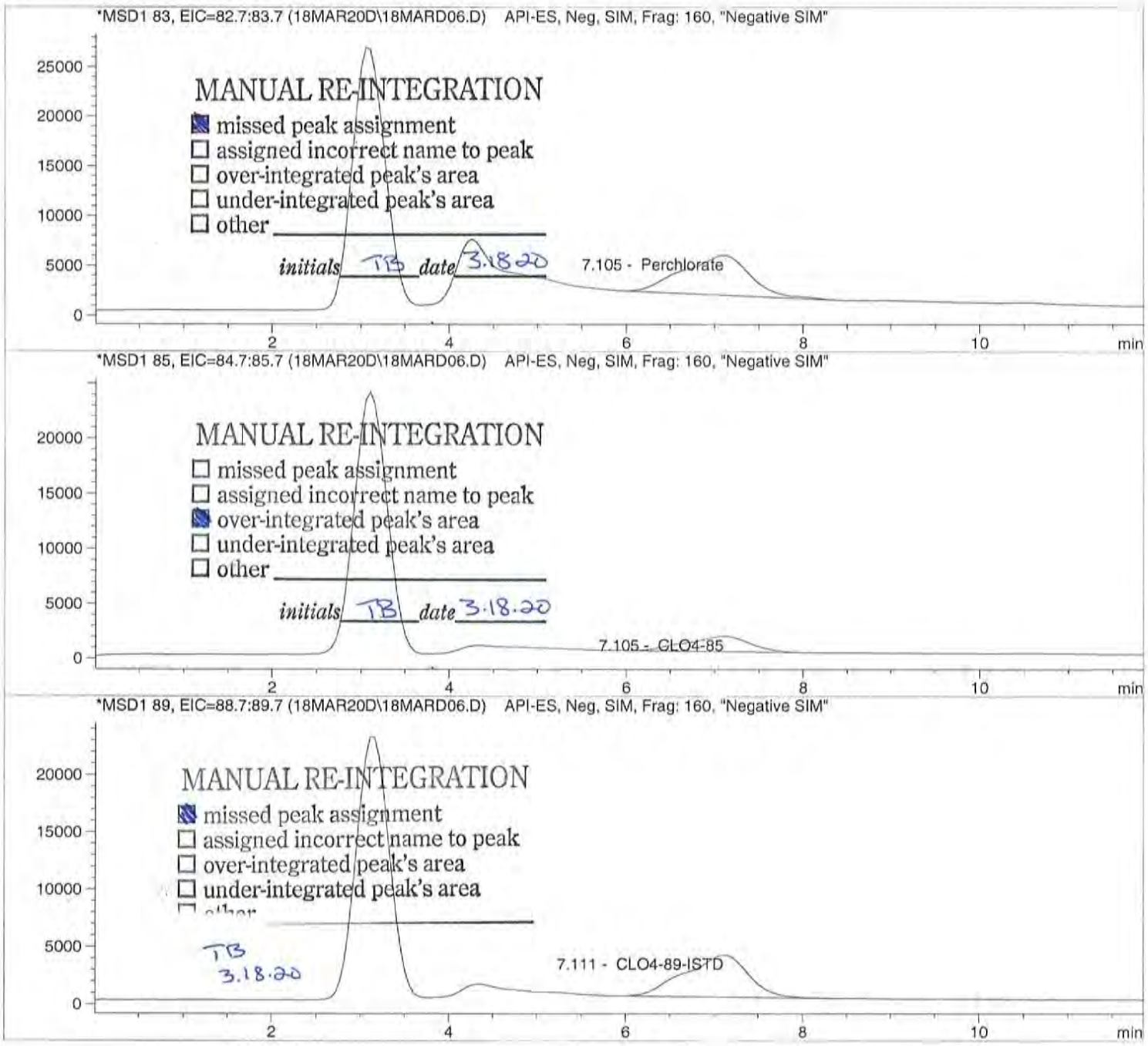
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD06.D Sample Name: 699552 72911MS

Injection Date:	3/18/2020 09:57:45	Seq Line:	6
Sample Name:	699552 72911MS	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD06.D Sample Name: 699552 72911MS

Injection Date:	3/18/2020 09:57:45	Seq Line:	6
Sample Name:	699552 72911MS	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.105	MM	208268.1	4.2148	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.105	MM	69238.1	4.5013	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.111	PBA	182215.3	5.0000	CLO4-89-ISTD

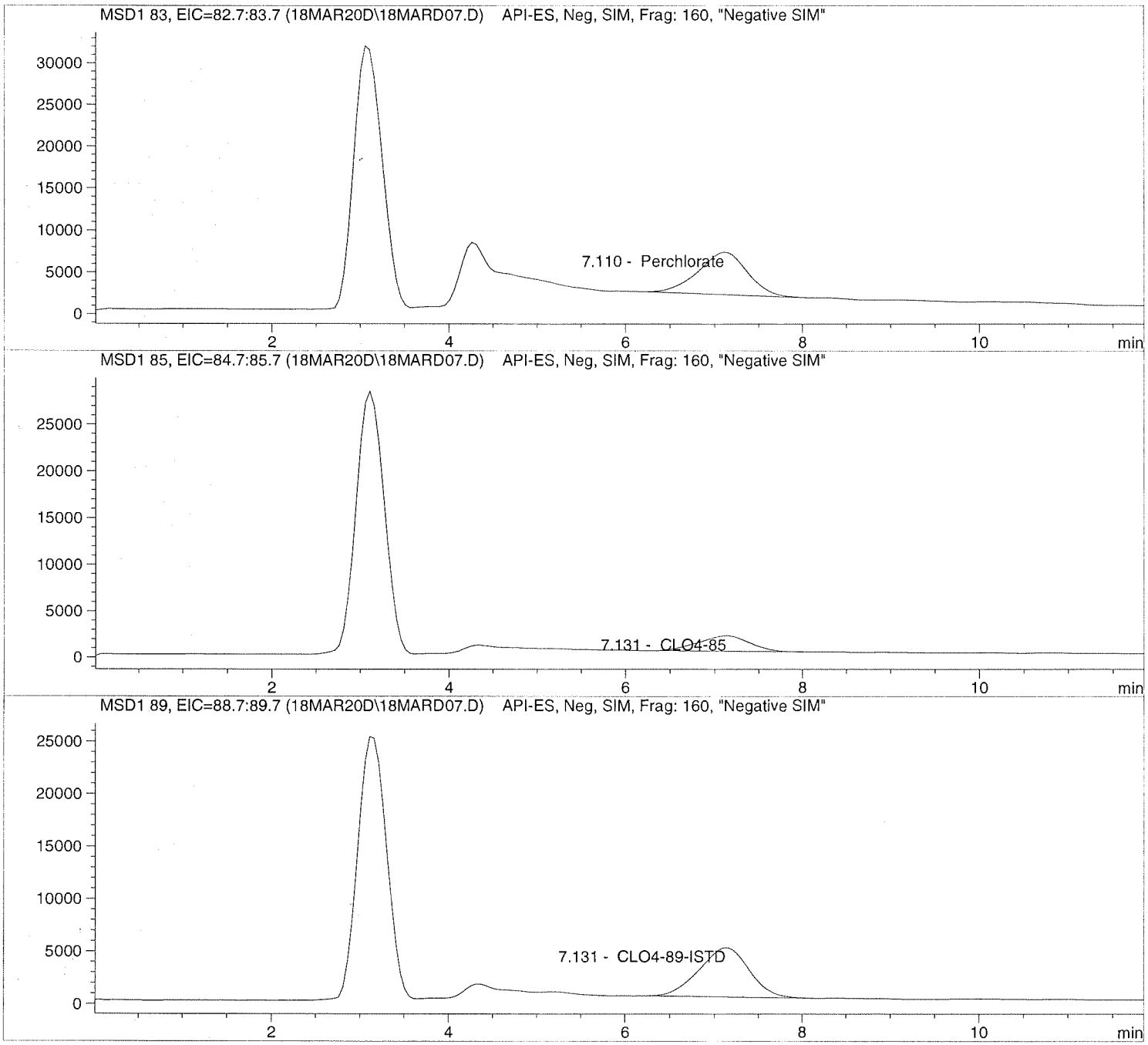
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD07.D Sample Name: 699553 72911SD

Injection Date:	3/18/2020 10:12:20	Seq Line:	7
Sample Name:	699553 72911SD	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD07.D Sample Name: 699553 72911SD

Injection Date:	3/18/2020 10:12:20	Seq Line:	7
Sample Name:	699553 72911SD	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.110	BBA	196135.0	3.9608	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.131	PBA	66858.1	4.3347	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.131	PBA	182591.7	5.0000	CLO4-89-ISTD

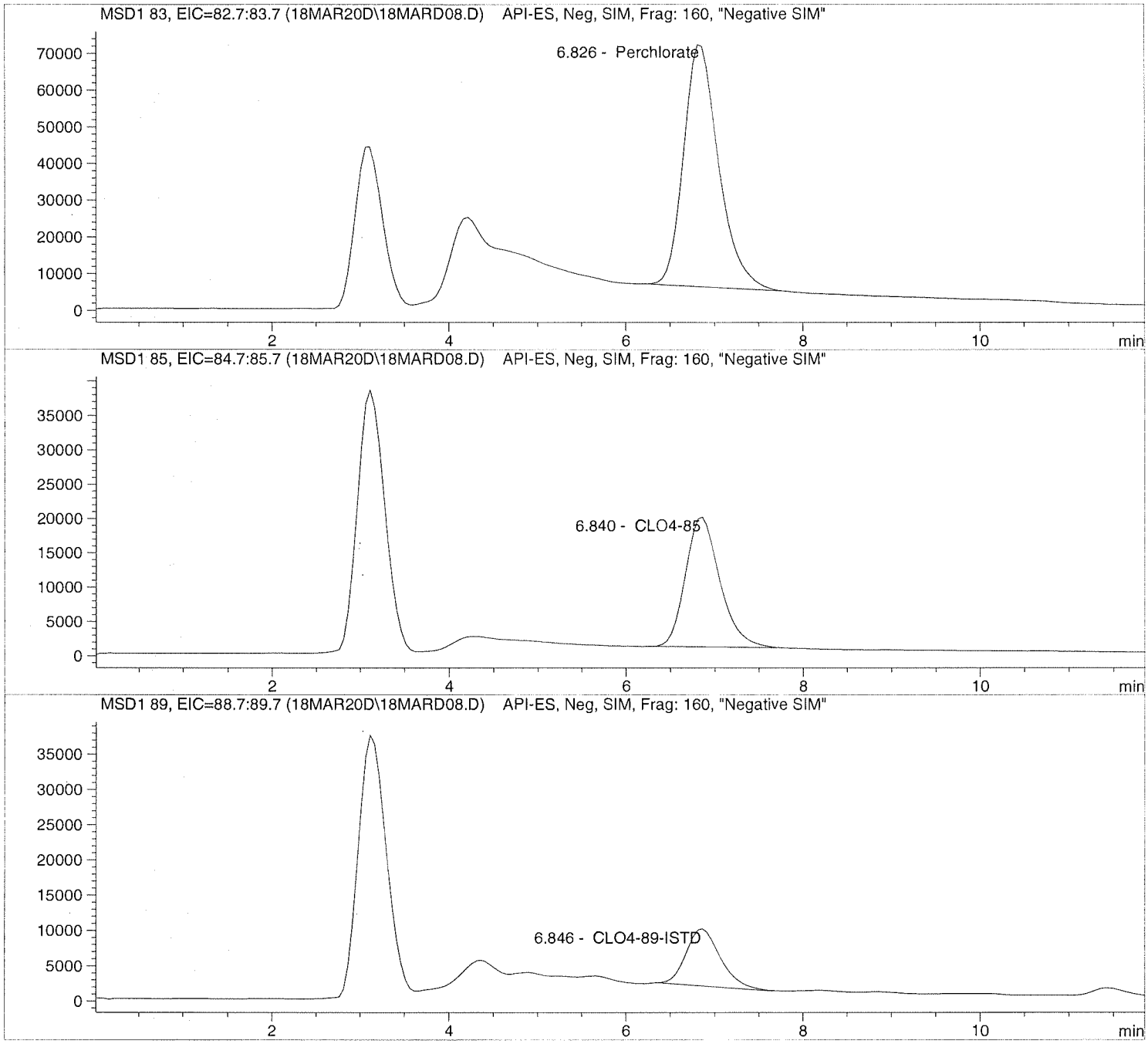
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD08.D Sample Name: 2007291002

Injection Date:	3/18/2020 10:26:24	Seq Line:	8
Sample Name:	2007291002	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD08.D Sample Name: 2007291002

Injection Date:	3/18/2020 10:26:24	Seq Line:	8
Sample Name:	2007291002	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.826	BBA	1820254.0	28.1363	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.840	PBA	513519.2	26.2461	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.846	PBA	218223.0	5.0000	CLO4-89-ISTD

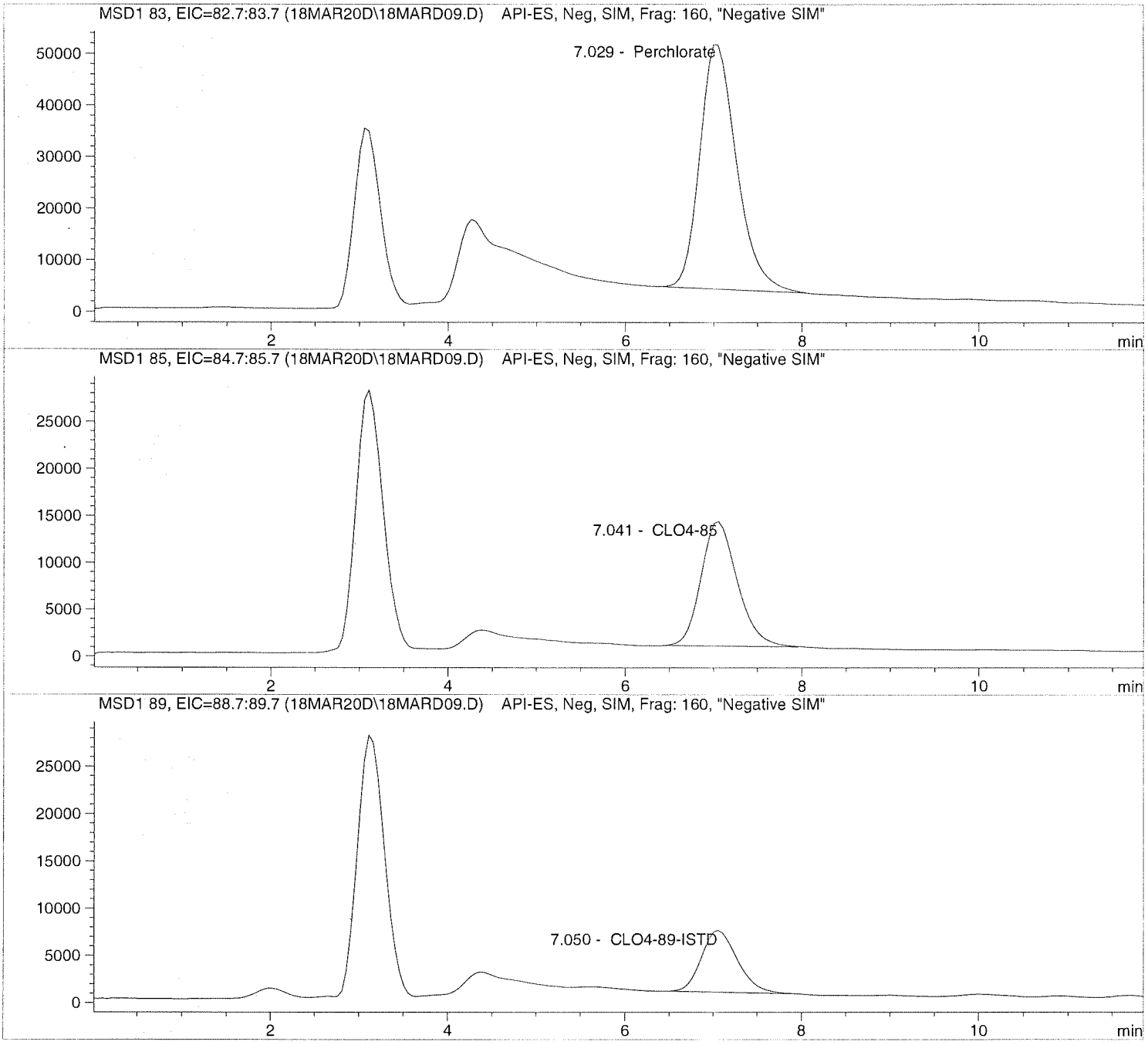
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD09.D Sample Name: 2007291003

Injection Date:	3/18/2020 10:40:23	Seq Line:	9
Sample Name:	2007291003	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD09.D Sample Name: 2007291003

Injection Date:	3/18/2020 10:40:23	Seq Line:	9
Sample Name:	2007291003	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.029	BBA	1371427.6	25.2810	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.041	PBA	379307.0	23.1180	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.050	PBA	185144.0	5.0000	CLO4-89-ISTD

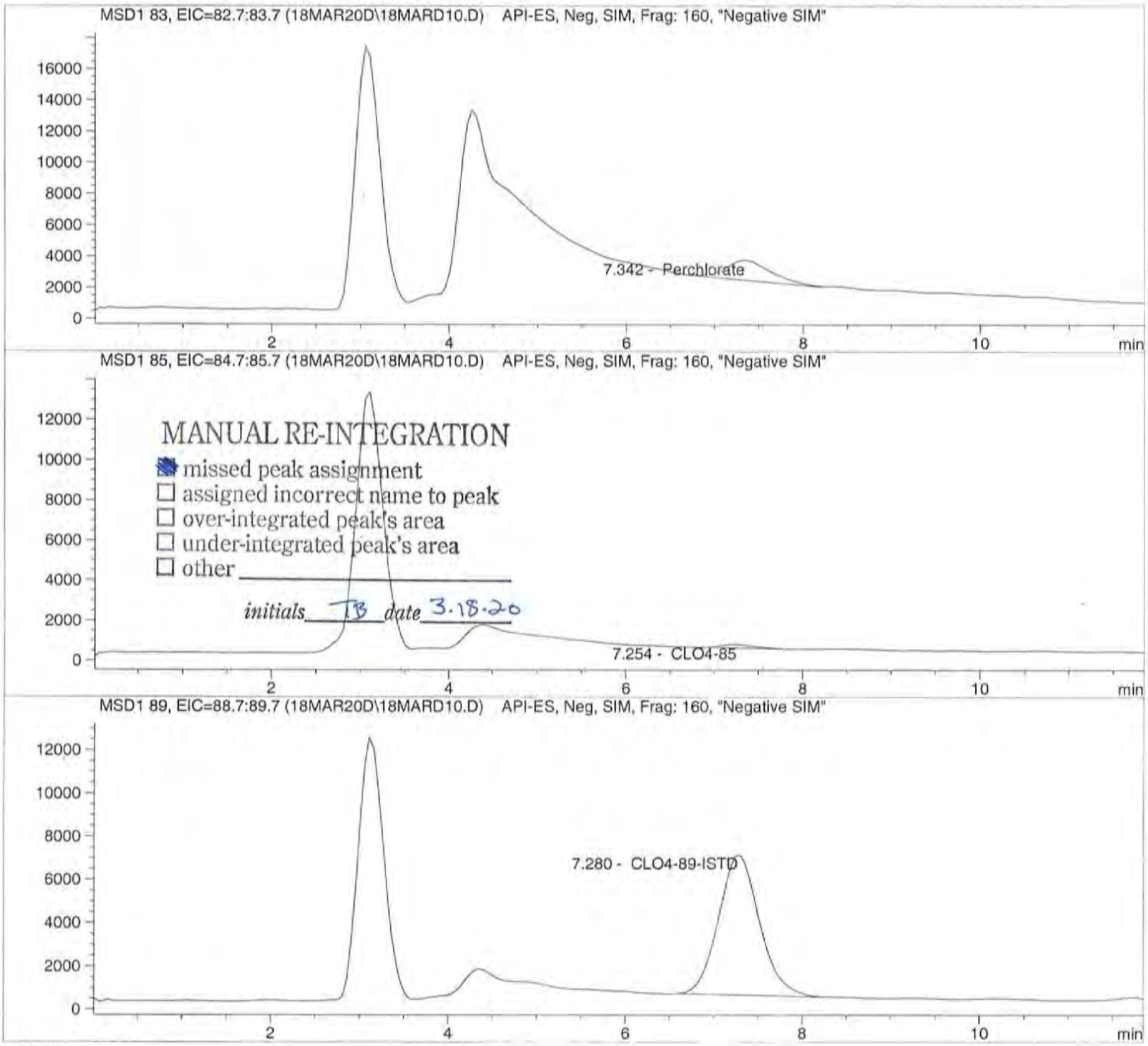
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD10.D Sample Name: 2007291004

Injection Date:	3/18/2020 10:54:25	Seq Line:	10
Sample Name:	2007291004	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD10.D Sample Name: 2007291004

Injection Date:	3/18/2020 10:54:25	Seq Line:	10
Sample Name:	2007291004	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name	
7.342	BBA	44544.0	0.7356	Perchlorate	< RL

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.254	MM	4574.2	0.1085	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.280	PBA	207738.7	5.0000	CLO4-89-ISTD

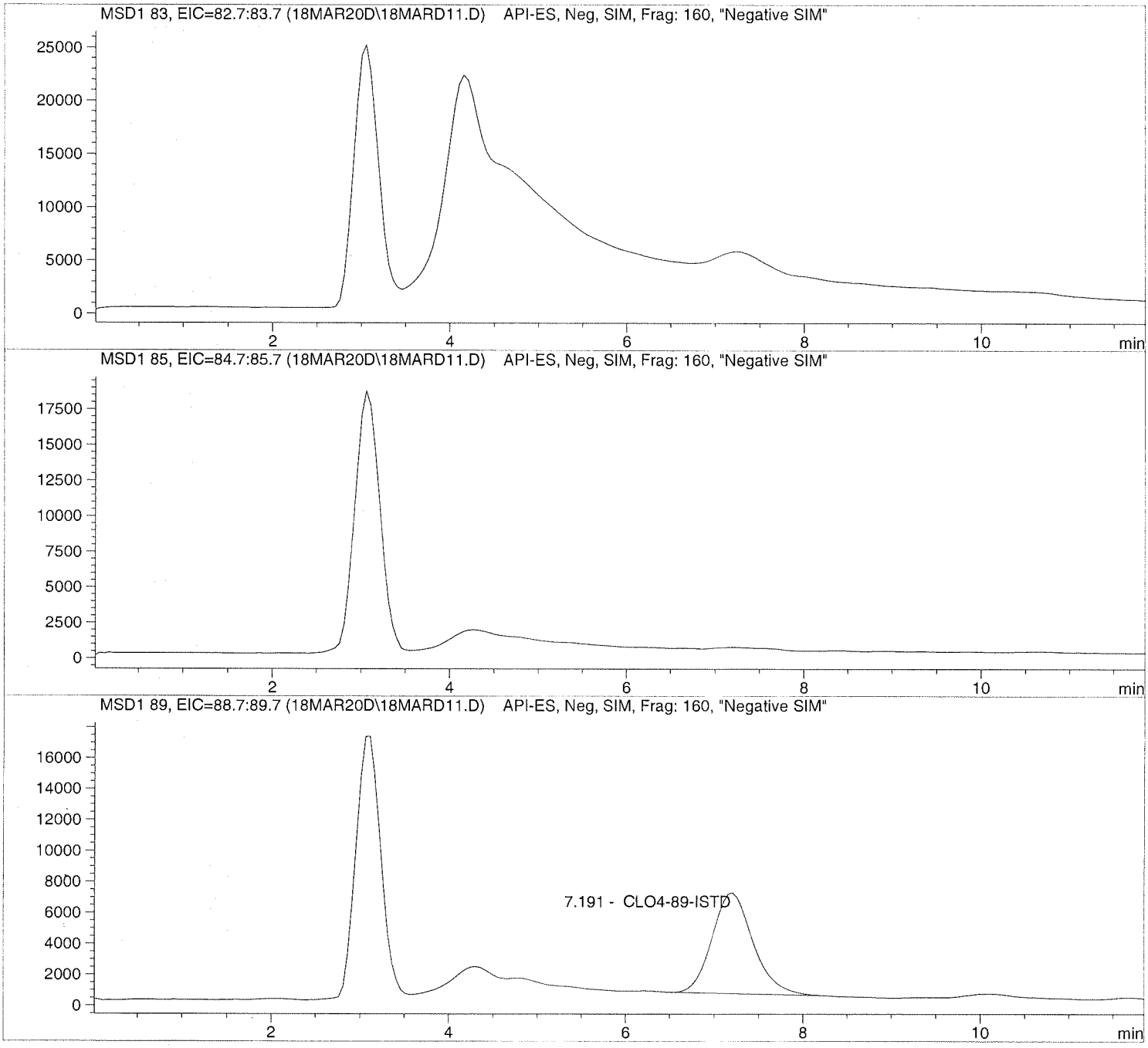
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD11.D Sample Name: 2007291005

Injection Date:	3/18/2020 11:08:24	Seq Line:	11
Sample Name:	2007291005	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD11.D Sample Name: 2007291005

Injection Date:	3/18/2020 11:08:24	Seq Line:	11
Sample Name:	2007291005	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.191	PBA	208068.5	5.0000	CLO4-89-ISTD

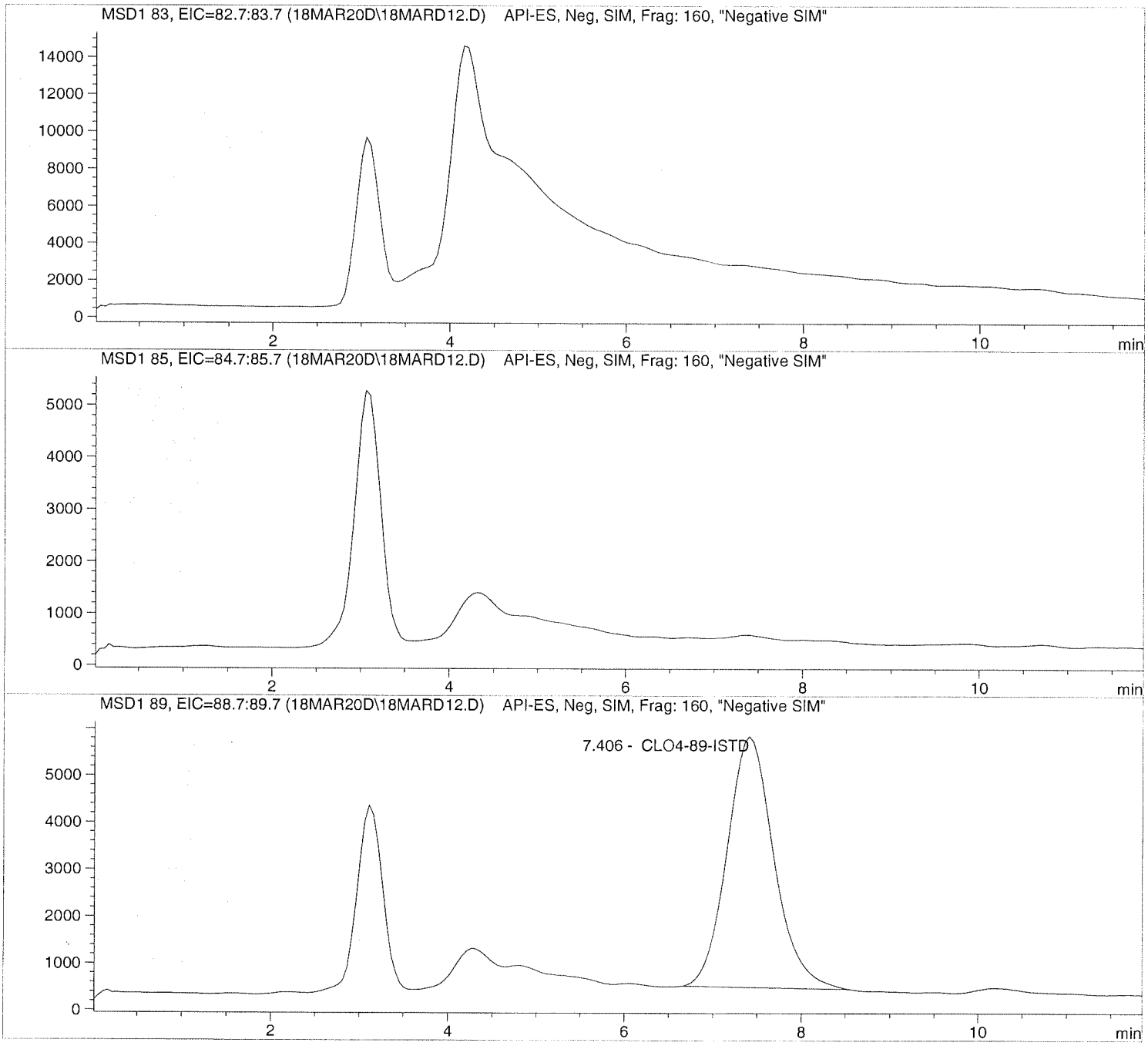
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD12.D Sample Name: 2007291006

Injection Date:	3/18/2020 11:22:18	Seq Line:	12
Sample Name:	2007291006	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD12.D Sample Name: 2007291006

Injection Date:	3/18/2020 11:22:18	Seq Line:	12
Sample Name:	2007291006	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.406	PBA	196541.9	5.0000	CLO4-89-ISTD

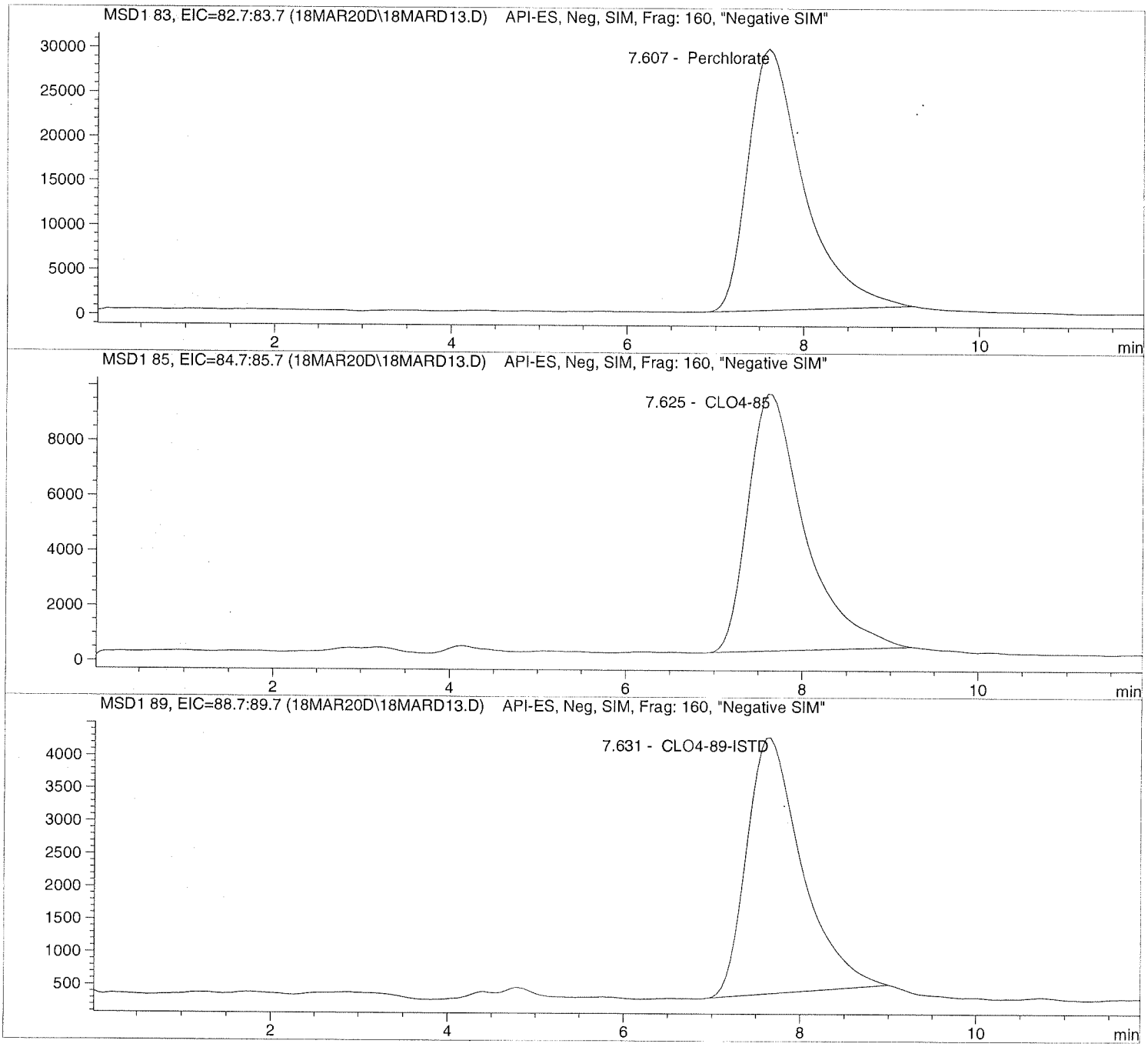
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD13.D Sample Name: 699554 CCV@25

Injection Date:	3/18/2020 11:38:56	Seq Line:	13
Sample Name:	699554 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD13.D Sample Name: 699554 CCV@25

Injection Date:	3/18/2020 11:38:56	Seq Line:	13
Sample Name:	699554 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.607	PBA	1288027.9	25.7768	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.625	PBA	416782.7	27.2150	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.631	PBA	170192.1	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

Calibration Table

Perchlorate

Calib. Data Modified : 9/23/2019 12:20:59 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Lvl	Sig	Amount	Area	Amt/Area	Ref	Grp	Name
7.750	1	3	1.00000	5.39218e4	1.85454e-5	1		Perchlorate
		4	2.00000	1.32825e5	1.50574e-5			
		5	5.00000	2.76271e5	1.80982e-5			
		6	10.00000	5.61298e5	1.78159e-5			
		7	25.00000	1.51820e6	1.64669e-5			
		8	50.00000	3.31156e6	1.50986e-5			
		9	75.00000	5.23914e6	1.43153e-5			
7.767	3	3	5.00000	2.14568e5	2.33026e-5	+I1		CLO4-89-ISTD
		4	5.00000	2.04758e5	2.44190e-5			
		5	5.00000	2.13407e5	2.34294e-5			
		6	5.00000	2.09246e5	2.38953e-5			
		7	5.00000	2.07403e5	2.41077e-5			
		8	5.00000	2.02929e5	2.46391e-5			
		9	5.00000	1.97933e5	2.52611e-5			
7.778	2	3	1.00000	1.70436e4	5.86732e-5	1		CLO4-85
		4	2.00000	4.20754e4	4.75337e-5			
		5	5.00000	9.24707e4	5.40712e-5			
		6	10.00000	1.68622e5	5.93041e-5			
		7	25.00000	4.63724e5	5.39114e-5			
		8	50.00000	9.95933e5	5.02042e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		9	75.00000	1.58066e6	4.74484e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 3.581 min To 11.899 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 3.581 min To 11.896 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Compound: CLO4-85
- Time Window : From 3.601 min To 11.913 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Peak Sum Table

No Entries in table

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

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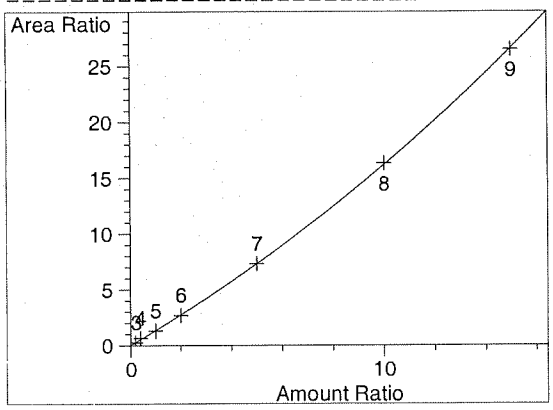
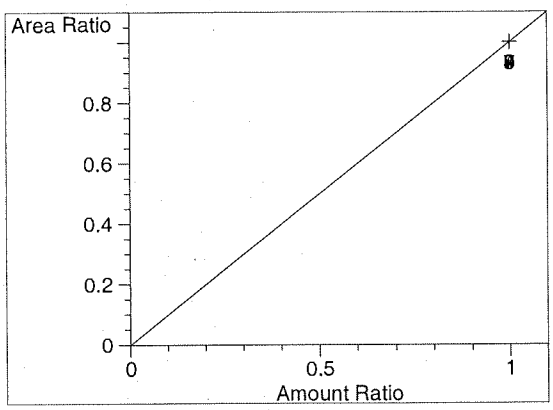
Calibration Curves

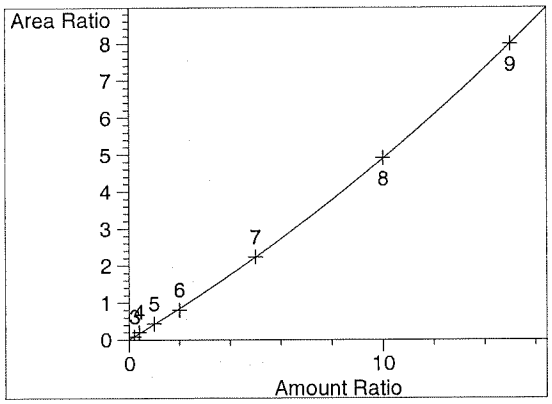
==========



Perchlorate at exp. RT: 7.750
MSD1 83, EIC=82.7:83.7
Correlation: 0.99975
Residual Std. Dev.: 0.10284
Formula: $y = ax^2 + bx + c$
a: 3.10463e-2
b: 1.30369
c: 2.19496e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333



CLO4-89-ISTD at exp. RT: 7.767
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 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1
Level 8 : 1
Level 9 : 1



CLO4-85 at exp. RT: 7.778
MSD1 85, EIC=84.7:85.7
Correlation: 0.99969
Residual Std. Dev.: 0.02601
Formula: $y = ax^2 + bx + c$
a: 8.85207e-3
b: 3.99283e-1
c: 1.33505e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333

==========

Batch Report: C:\HPCHEM\1\DATA\20SEP19I\20SEP19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	5.39218e4	7.750	8.75982e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.32825e5	7.797	2.37682
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.76271e5	7.770	4.77237
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	5.61298e5	7.785	9.75097
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	1.51820e6	7.741	25.01082
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	3.31156e6	7.775	50.40300
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.23914e6	7.736	74.79107
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	5.74879e5	7.756	10.11855

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.14568e5	7.767	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.04758e5	7.816	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.13407e5	7.793	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.09246e5	7.798	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.07403e5	7.763	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.02929e5	7.800	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.97933e5	7.765	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	2.06243e5	7.776	5.00000

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	1.70436e4	7.778	8.24488e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.20754e4	7.805	2.38090
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	9.24707e4	7.787	5.14166
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	1.68622e5	7.781	9.52209
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	4.63724e5	7.760	25.04916
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	9.95933e5	7.793	50.14223
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.58066e6	7.758	74.93659
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	1.71000e5	7.760	9.79043

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\SEP\20SEP19I.S

Sequence Table:

Method and Injection Info Part:

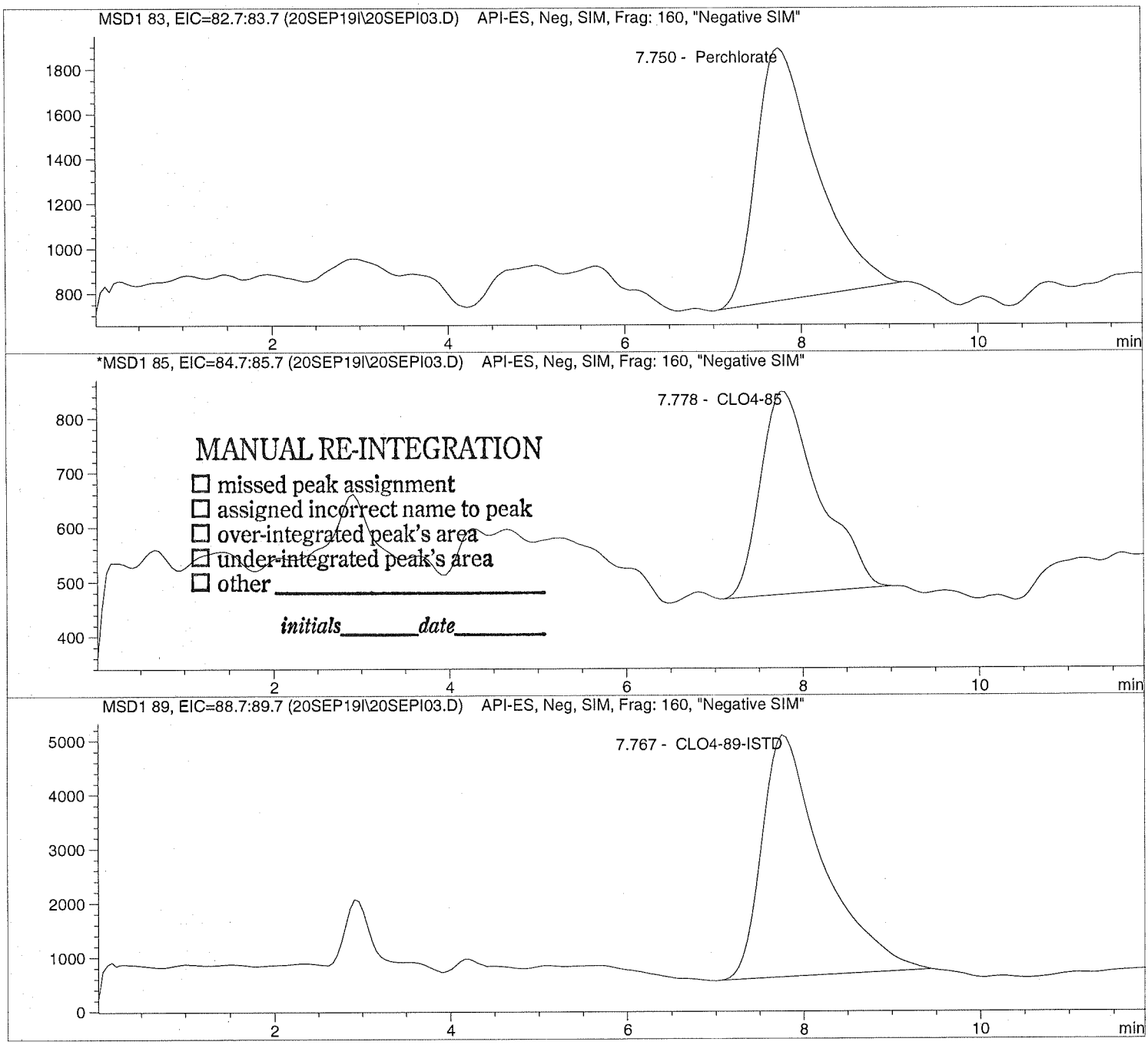
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
11	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.778	MM	17043.6	0.8245	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

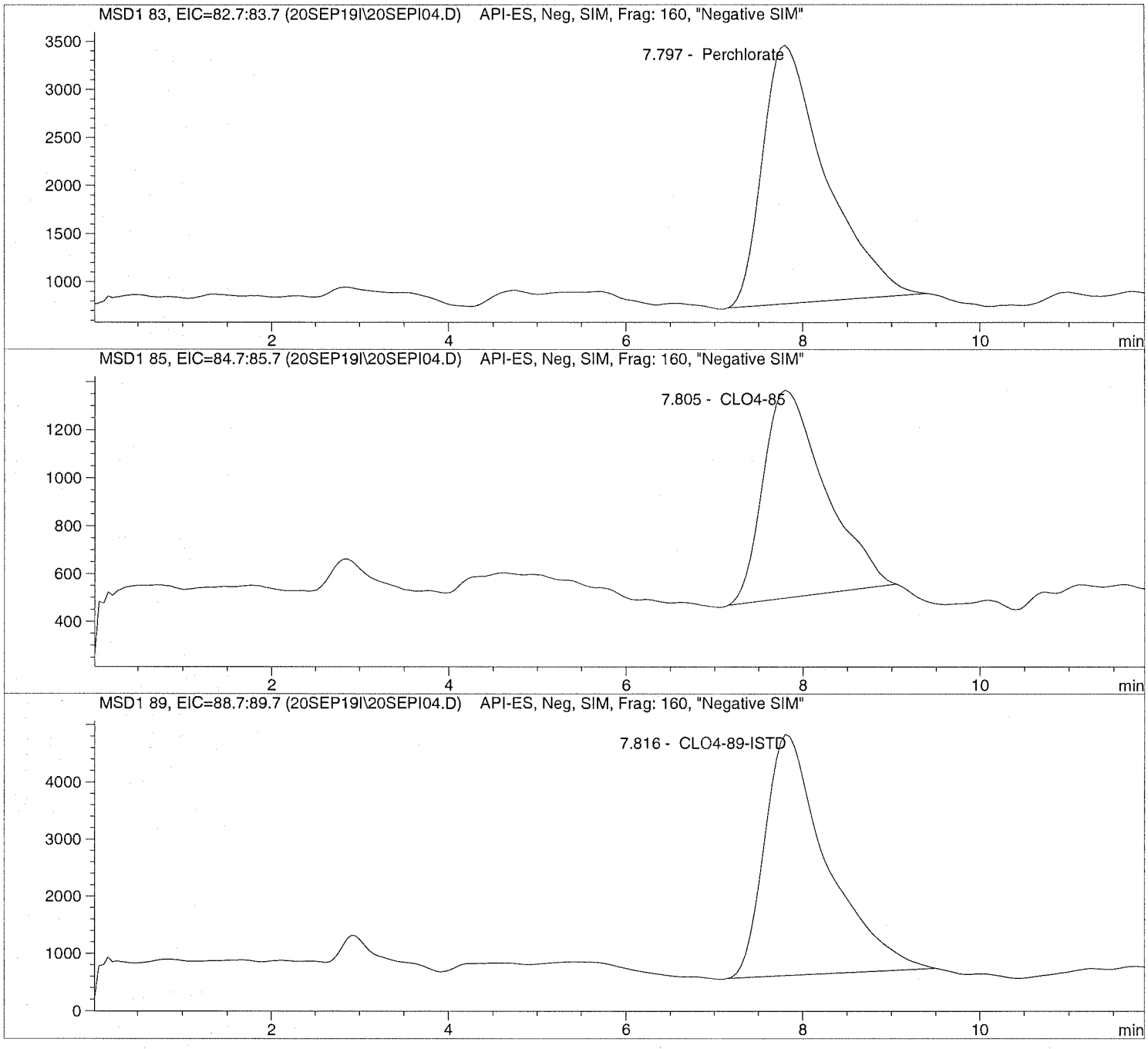
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.797	PBA	132825.2	2.3768	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.805	PBA	42075.4	2.3809	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.816	PBA	204758.3	5.0000	CLO4-89-ISTD

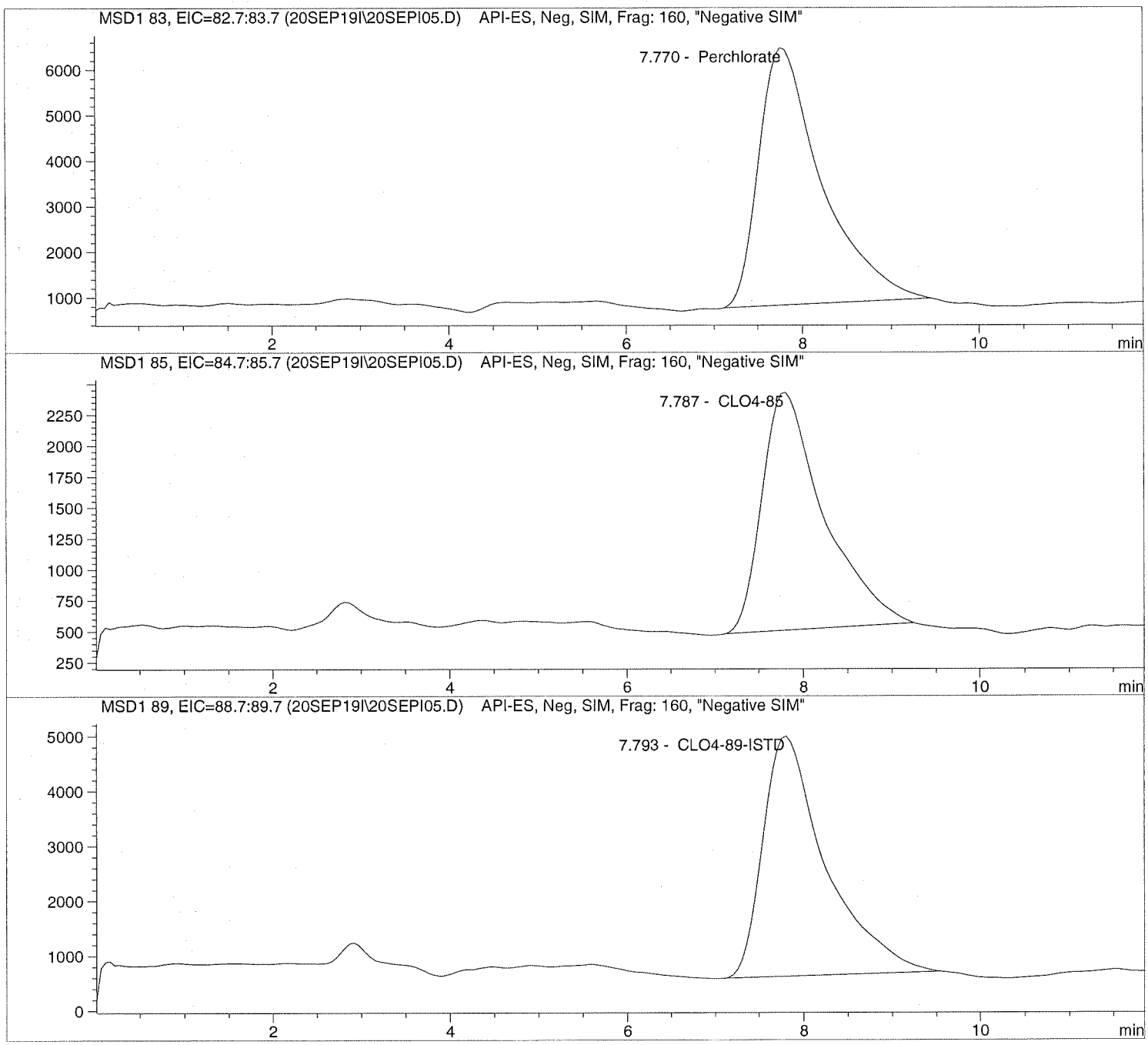
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.770	PBA	276270.7	4.7724	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.787	PBA	92470.7	5.1417	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	213407.0	5.0000	CLO4-89-ISTD

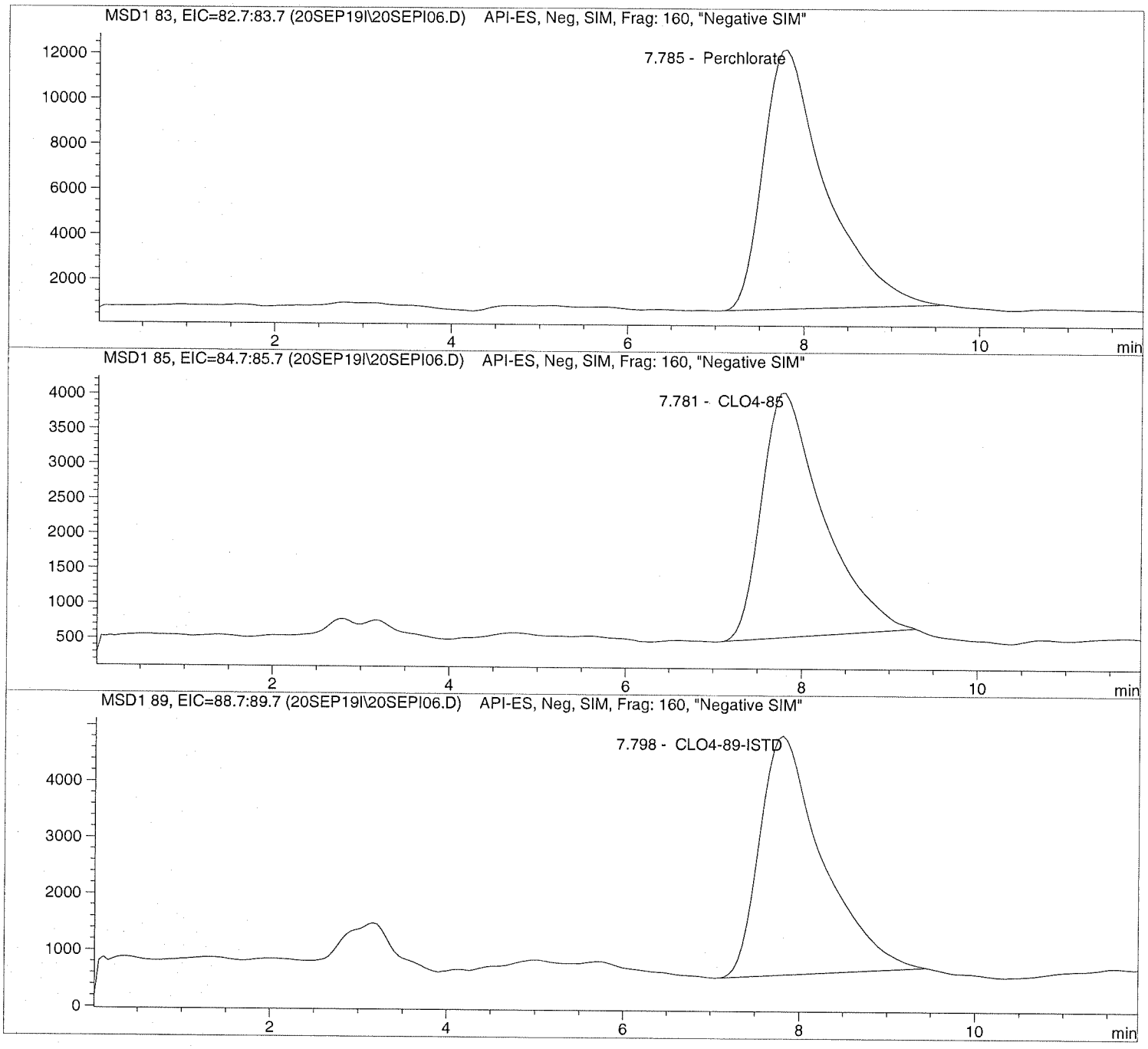
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.785	PBA	561297.7	9.7510	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.781	PBA	168622.4	9.5221	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.798	PBA	209246.3	5.0000	CLO4-89-ISTD

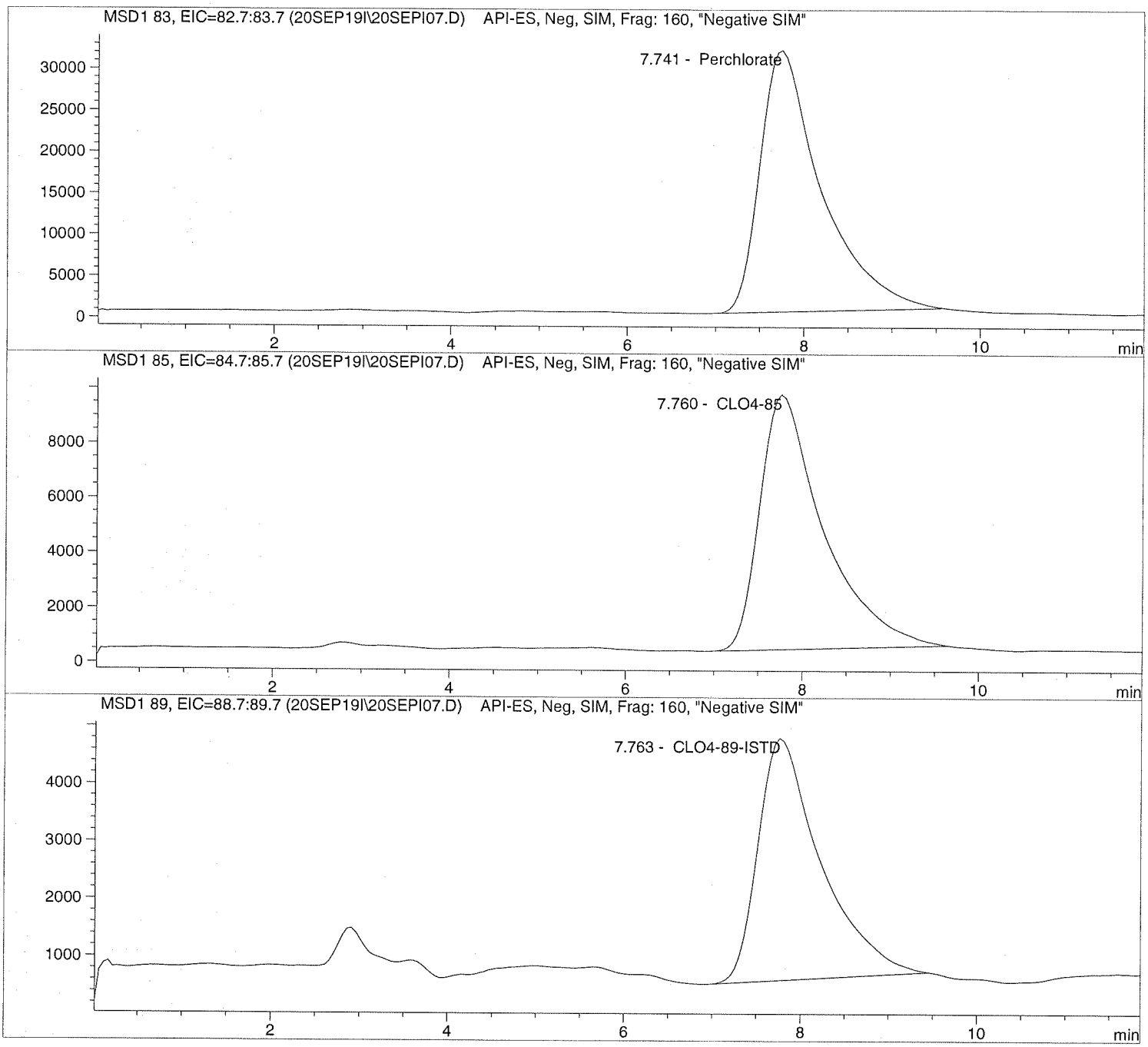
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.741	PBA	1518197.9	25.0108	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	463724.0	25.0492	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.763	PBA	207402.8	5.0000	CLO4-89-ISTD

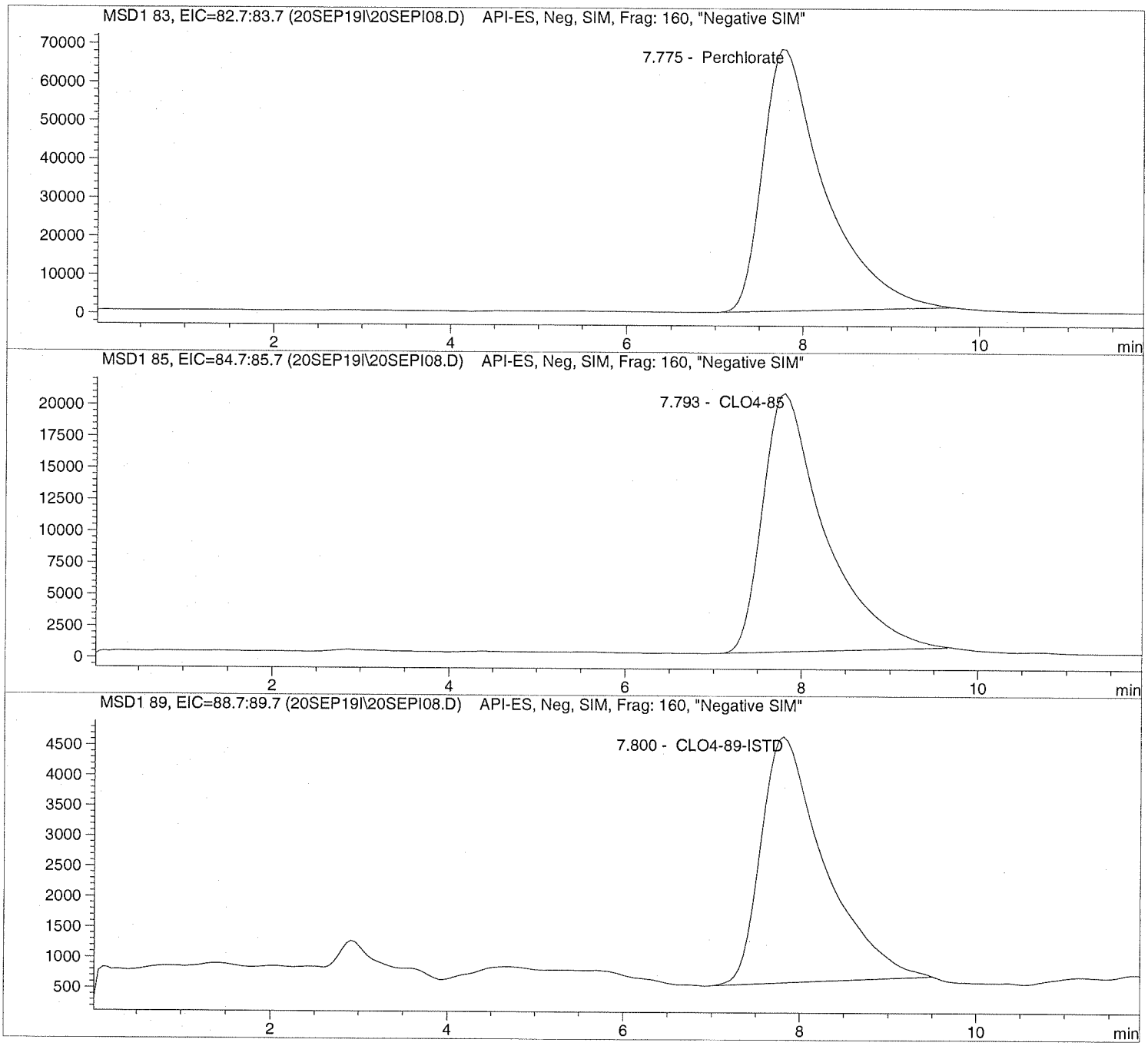
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.775	PBA	3311559.2	50.4030	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	995933.0	50.1422	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.800	PBA	202929.2	5.0000	CLO4-89-ISTD

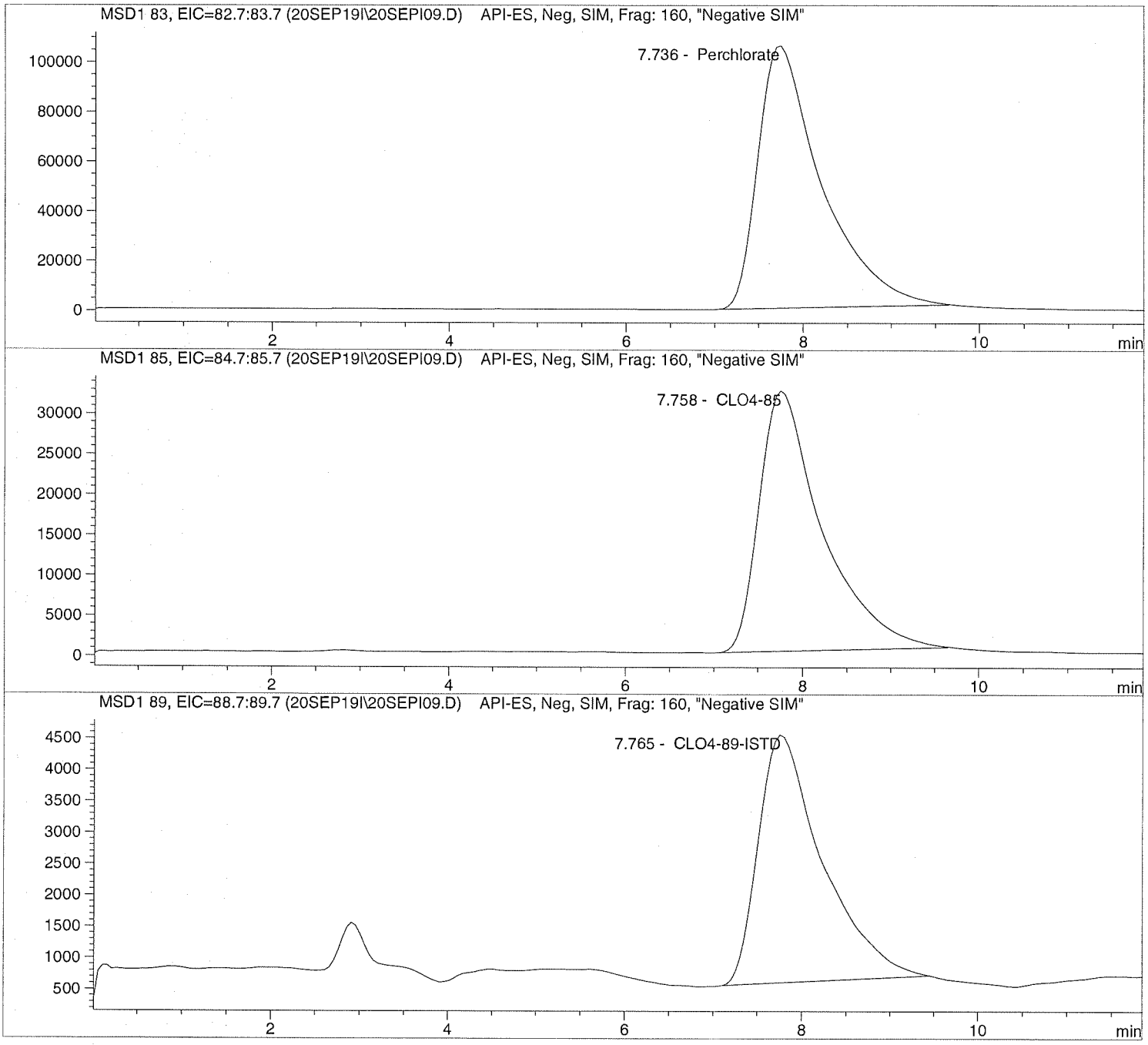
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.736	PBA	5239145.0	74.7911	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.758	PBA	1580664.2	74.9366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.765	PBA	197932.5	5.0000	CLO4-89-ISTD

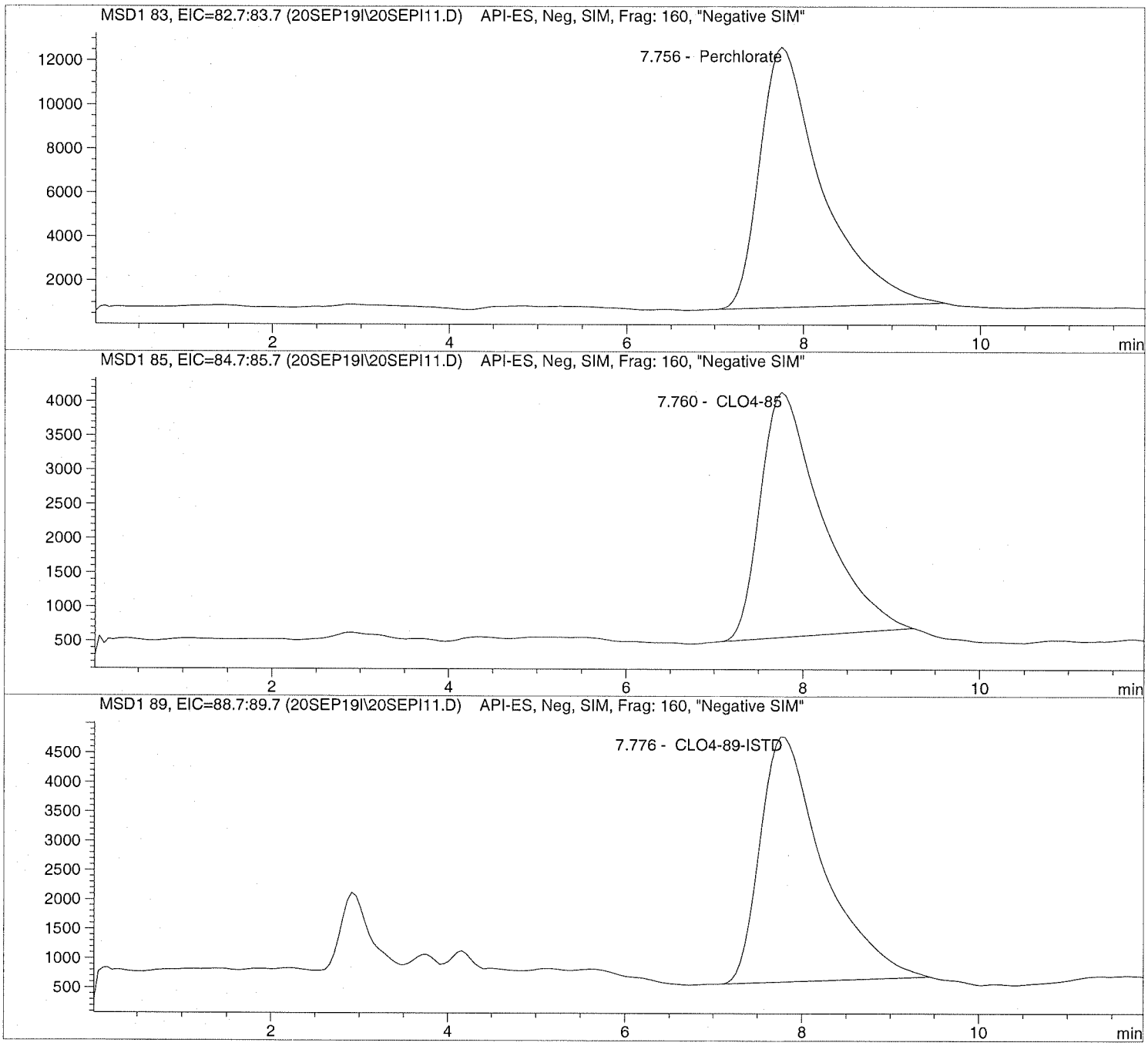
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.756	PBA	574879.4	10.1185	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	171000.4	9.7904	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.776	PBA	206243.3	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

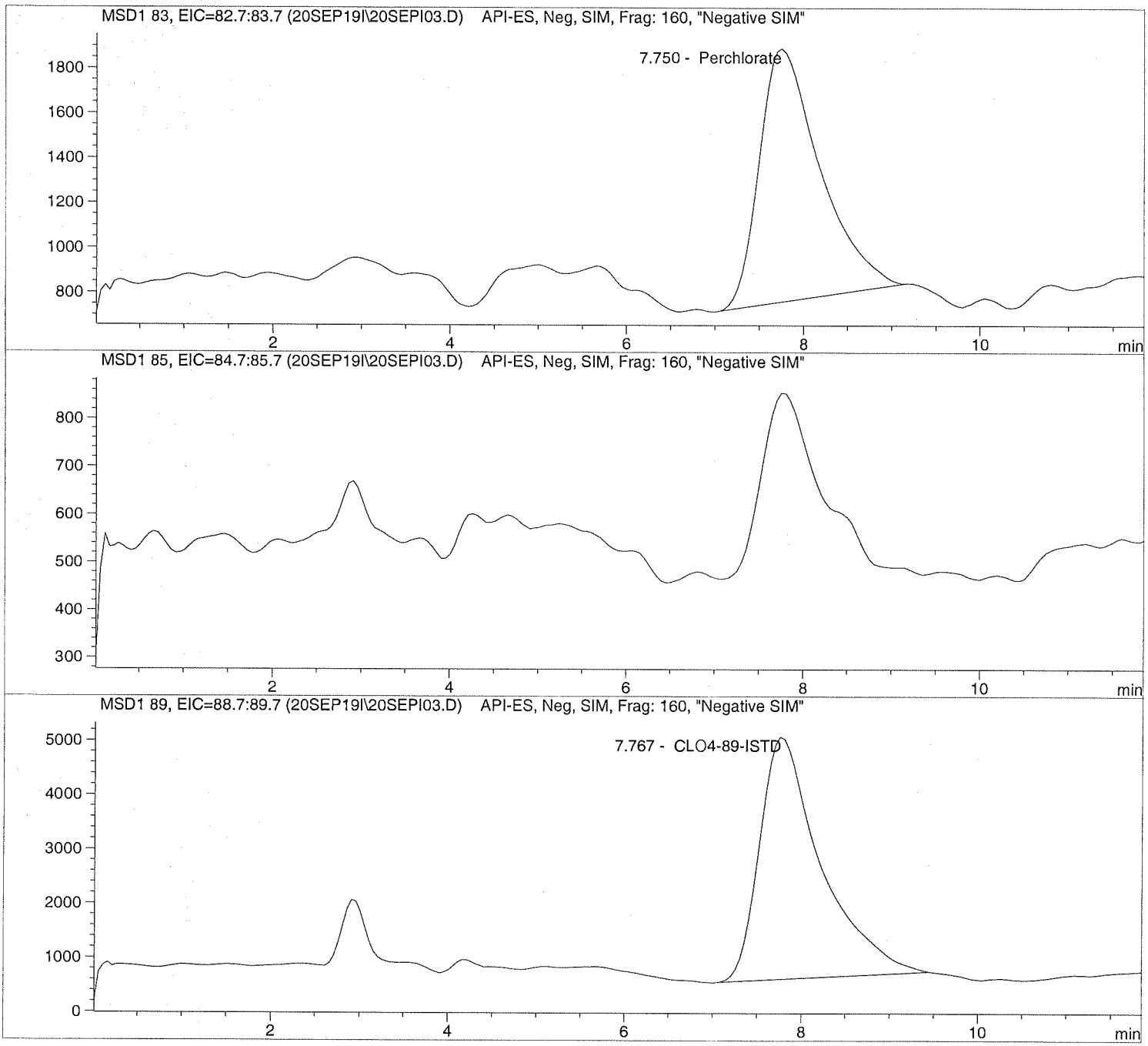
Unmodified

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:27:11

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	9/23/2019 12:27:11

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

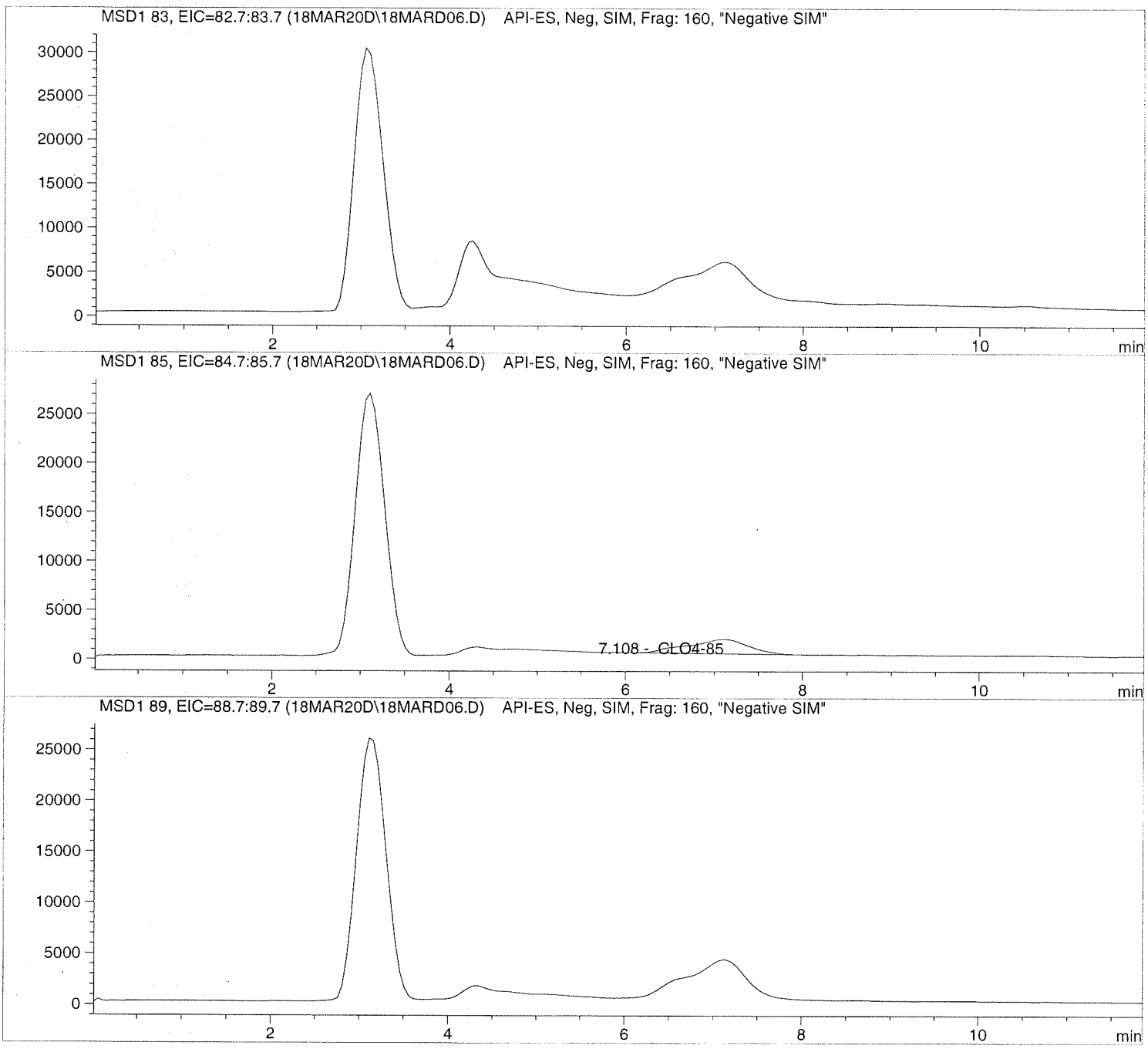
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD06.D Sample Name: 699552 72911MS

Injection Date:	3/18/2020 09:57:45	Seq Line:	6
Sample Name:	699552 72911MS	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD06.D Sample Name: 699552 72911MS

Injection Date:	3/18/2020 09:57:45	Seq Line:	6
Sample Name:	699552 72911MS	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.108	PBA	70012.2	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

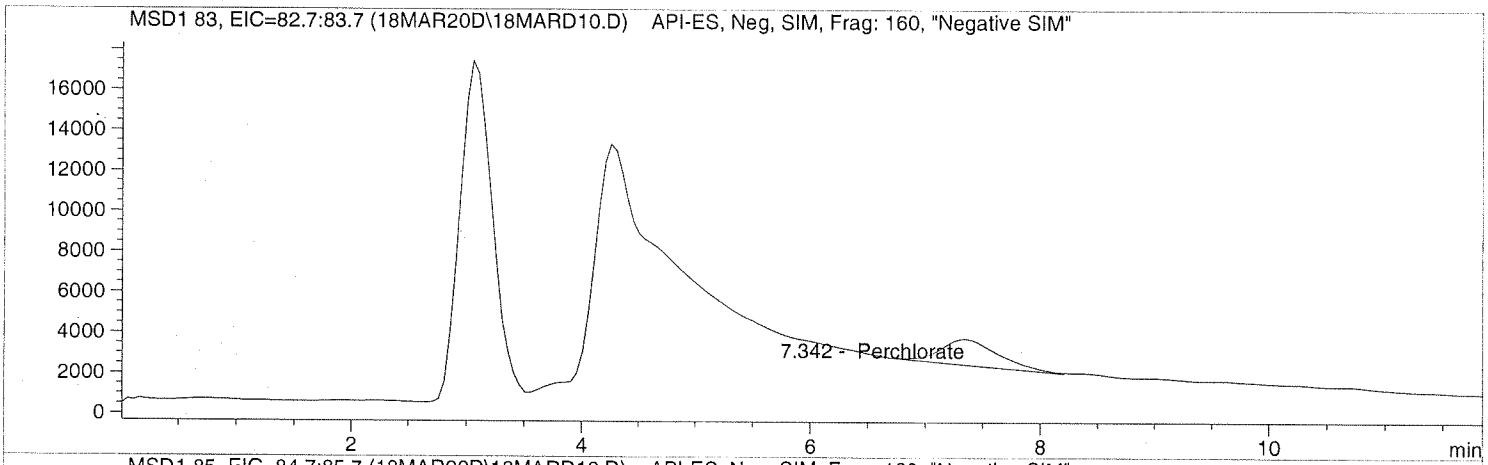
*** End of Report ***

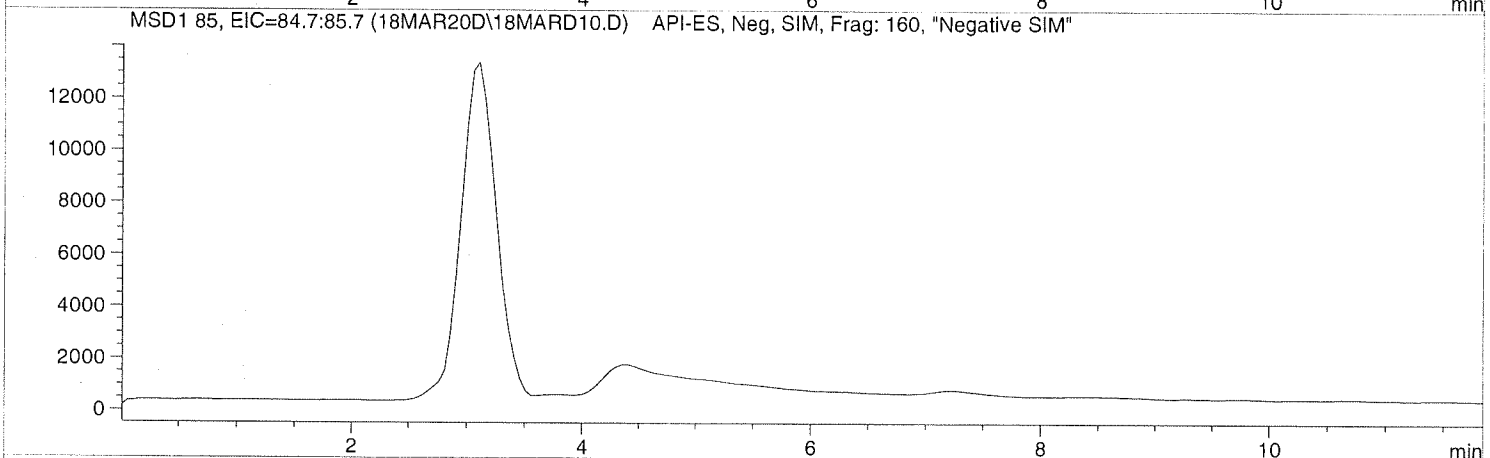
Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD10.D Sample Name: 2007291004

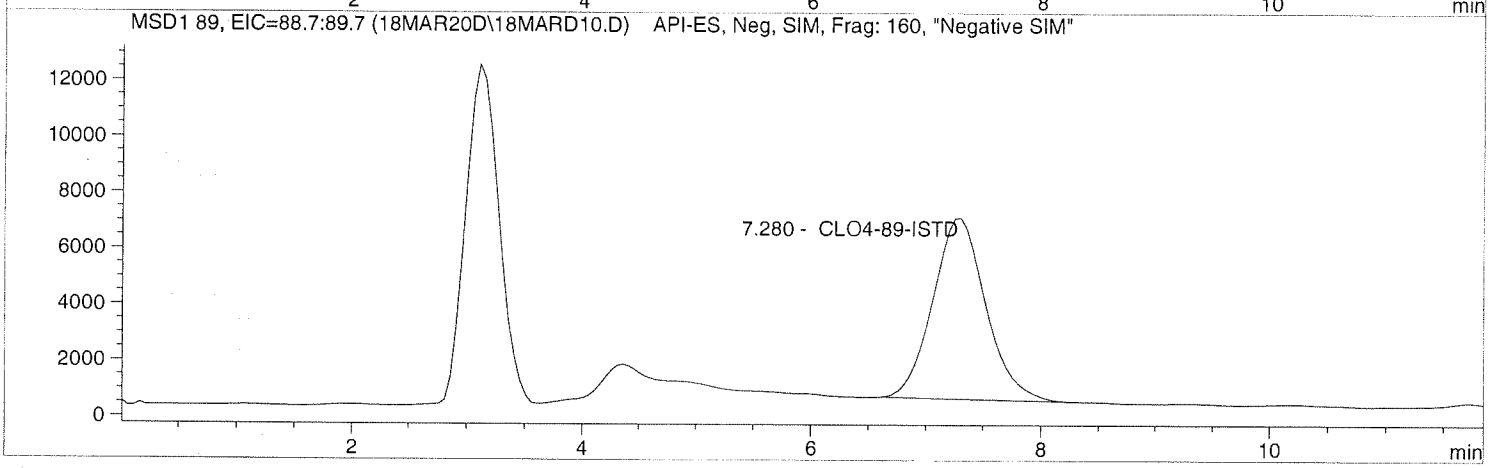
Injection Date:	3/18/2020 10:54:25	Seq Line:	10
Sample Name:	2007291004	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD10.D Sample Name: 2007291004

Injection Date:	3/18/2020 10:54:25	Seq Line:	10
Sample Name:	2007291004	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.342	BBA	44544.0	0.7356	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.280	PBA	207738.7	5.0000	CLO4-89-ISTD

*** End of Report ***

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WorkOrder: HS20030383

Longhorn Army Ammunition Plant -16

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

02-Apr-2020

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HS20030383 Wet Chem Raw Data (ALK_W 2320B)

HS20030383 Longhorn Army Ammunition Plant
16 Final

ALS WO# HS20030383

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March 19, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030383**

Laboratory Results for: **Longhorn Army Ammunition Plant -16**

Dear Susan,

ALS Environmental received 7 sample(s) on Mar 10, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Work Order: HS20030383

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030383-01	16IW20-200309	Groundwater		09-Mar-2020 08:15	10-Mar-2020 09:00	☐
HS20030383-02	16EW01-200309	Groundwater		09-Mar-2020 09:15	10-Mar-2020 09:00	☐
HS20030383-03	16EW02-200309	Groundwater		09-Mar-2020 10:15	10-Mar-2020 09:00	☐
HS20030383-04	16EW04-200309	Groundwater		09-Mar-2020 11:15	10-Mar-2020 09:00	☐
HS20030383-05	16RW04-200309	Groundwater		09-Mar-2020 12:55	10-Mar-2020 09:00	☐
HS20030383-06	16WW26-200309	Groundwater		09-Mar-2020 13:50	10-Mar-2020 09:00	☐
HS20030383-07	Trip Blank	Water	CG-011520-282	09-Mar-2020 00:00	10-Mar-2020 09:00	☐

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Work Order: HS20030383

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

GC Semivolatiles by Method RSK-175

Batch ID: R358305

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

GCMS Volatiles by Method SW8260

Batch ID: R358045,R358195

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

WetChemistry by Method SM2320B

Batch ID: R357913

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16IW20-200309
Collection Date: 09-Mar-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	15-Mar-2020 15:33
1,1-Dichloroethene	**5.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Mar-2020 15:33
1,2-Dichloroethane	**6.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Mar-2020 15:33
cis-1,2-Dichloroethene	**57**		**0.20**	**0.50**	**1.0**	**UG/L**	1	15-Mar-2020 15:33
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	15-Mar-2020 15:33
Trichloroethene	**850**		**1.0**	**2.5**	**5.0**	**UG/L**	5	15-Mar-2020 14:45
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	15-Mar-2020 15:33
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*5*	*15-Mar-2020 14:45*
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*1*	*15-Mar-2020 15:33*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*1*	*15-Mar-2020 15:33*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*5*	*15-Mar-2020 14:45*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*5*	*15-Mar-2020 14:45*
Surr: Dibromofluoromethane	*92.3*			**0**	*80-119*	*%REC*	*1*	*15-Mar-2020 15:33*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*5*	*15-Mar-2020 14:45*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*15-Mar-2020 15:33*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.000951**	J	**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 10:19
Ethene	**0.00495**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 10:19
Methane	**0.0466**		**0.000214**	**0.00100**	**0.00100**	**mg/L**	2	16-Mar-2020 10:38
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**599**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	10-Mar-2020 22:23
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16EW01-200309
Collection Date: 09-Mar-2020 09:15

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	15-Mar-2020 18:45
1,1-Dichloroethene	**27**		**2.0**	**5.0**	**10**	**UG/L**	10	15-Mar-2020 18:45
1,2-Dichloroethane	**24**		**2.0**	**5.0**	**10**	**UG/L**	10	15-Mar-2020 18:45
cis-1,2-Dichloroethene	**6,500**		**20**	**50**	**100**	**UG/L**	100	15-Mar-2020 19:09
Methylene chloride	10	U	4.0	10	20	UG/L	10	15-Mar-2020 18:45
Trichloroethene	**3,700**		**20**	**50**	**100**	**UG/L**	100	15-Mar-2020 19:09
Vinyl chloride	**530**		**2.0**	**5.0**	**10**	**UG/L**	10	15-Mar-2020 18:45
Surr: 1,2-Dichloroethane-d4	*91.8*			**0**	*81-118*	*%REC*	*10*	*15-Mar-2020 18:45*
Surr: 1,2-Dichloroethane-d4	*91.4*			**0**	*81-118*	*%REC*	*100*	*15-Mar-2020 19:09*
Surr: 4-Bromofluorobenzene	*99.1*			**0**	*85-114*	*%REC*	*10*	*15-Mar-2020 18:45*
Surr: 4-Bromofluorobenzene	*97.9*			**0**	*85-114*	*%REC*	*100*	*15-Mar-2020 19:09*
Surr: Dibromofluoromethane	*91.6*			**0**	*80-119*	*%REC*	*10*	*15-Mar-2020 18:45*
Surr: Dibromofluoromethane	*90.9*			**0**	*80-119*	*%REC*	*100*	*15-Mar-2020 19:09*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*10*	*15-Mar-2020 18:45*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*100*	*15-Mar-2020 19:09*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00301**	J	**0.000576**	**0.00200**	**0.00400**	**mg/L**	4	16-Mar-2020 11:02
Ethene	**0.0928**		**0.000936**	**0.00200**	**0.00400**	**mg/L**	4	16-Mar-2020 11:02
Methane	**0.0826**		**0.000428**	**0.00200**	**0.00200**	**mg/L**	4	16-Mar-2020 11:02
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**396**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	10-Mar-2020 22:30
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16EW02-200309
Collection Date: 09-Mar-2020 10:15

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	12	U	7.5	12	25	UG/L	25	15-Mar-2020 19:33
1,1-Dichloroethene	**37**		**5.0**	**12**	**25**	**UG/L**	25	15-Mar-2020 19:33
1,2-Dichloroethane	**22**	J	**5.0**	**12**	**25**	**UG/L**	25	15-Mar-2020 19:33
cis-1,2-Dichloroethene	**11,000**		**50**	**120**	**250**	**UG/L**	250	15-Mar-2020 19:57
Methylene chloride	25	U	10	25	50	UG/L	25	15-Mar-2020 19:33
Trichloroethene	**17,000**		**50**	**120**	**250**	**UG/L**	250	15-Mar-2020 19:57
Vinyl chloride	12	U	5.0	12	25	UG/L	25	15-Mar-2020 19:33
Surr: 1,2-Dichloroethane-d4	*90.7*			**0**	*81-118*	*%REC*	*250*	*15-Mar-2020 19:57*
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*25*	*15-Mar-2020 19:33*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*25*	*15-Mar-2020 19:33*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*250*	*15-Mar-2020 19:57*
Surr: Dibromofluoromethane	*89.8*			**0**	*80-119*	*%REC*	*250*	*15-Mar-2020 19:57*
Surr: Dibromofluoromethane	*91.4*			**0**	*80-119*	*%REC*	*25*	*15-Mar-2020 19:33*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*25*	*15-Mar-2020 19:33*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*250*	*15-Mar-2020 19:57*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.000463**	J	**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 11:22
Ethene	**0.00158**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 11:22
Methane	**0.00434**		**0.000107**	**0.000500**	**0.000500**	**mg/L**	1	16-Mar-2020 11:22
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**418**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	10-Mar-2020 22:36
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16EW04-200309
Collection Date: 09-Mar-2020 11:15

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	15-Mar-2020 17:09
1,1-Dichloroethene	**3.0**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	15-Mar-2020 17:09
1,2-Dichloroethane	**2.5**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	15-Mar-2020 17:09
cis-1,2-Dichloroethene	**960**		**1.0**	**2.5**	**5.0**	**UG/L**	5	15-Mar-2020 17:09
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	15-Mar-2020 17:09
Trichloroethene	**3,400**		**5.0**	**12**	**25**	**UG/L**	25	15-Mar-2020 17:33
Vinyl chloride	2.5	U	1.0	2.5	5.0	UG/L	5	15-Mar-2020 17:09
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*5*	*15-Mar-2020 17:09*
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*25*	*15-Mar-2020 17:33*
Surr: 4-Bromofluorobenzene	*99.6*			**0**	*85-114*	*%REC*	*5*	*15-Mar-2020 17:09*
Surr: 4-Bromofluorobenzene	*99.7*			**0**	*85-114*	*%REC*	*25*	*15-Mar-2020 17:33*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*5*	*15-Mar-2020 17:09*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*25*	*15-Mar-2020 17:33*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*5*	*15-Mar-2020 17:09*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*25*	*15-Mar-2020 17:33*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16RW04-200309
Collection Date: 09-Mar-2020 12:55

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	15-Mar-2020 17:57
1,1-Dichloroethene	2.5	U	1.0	2.5	5.0	UG/L	5	15-Mar-2020 17:57
1,2-Dichloroethane	2.5	U	1.0	2.5	5.0	UG/L	5	15-Mar-2020 17:57
cis-1,2-Dichloroethene	**120**		**1.0**	**2.5**	**5.0**	**UG/L**	5	15-Mar-2020 17:57
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	15-Mar-2020 17:57
Trichloroethene	**3,000**		**10**	**25**	**50**	**UG/L**	50	15-Mar-2020 18:21
Vinyl chloride	2.5	U	1.0	2.5	5.0	UG/L	5	15-Mar-2020 17:57
Surr: 1,2-Dichloroethane-d4	*91.4*			**0**	*81-118*	*%REC*	*50*	*15-Mar-2020 18:21*
Surr: 1,2-Dichloroethane-d4	*91.2*			**0**	*81-118*	*%REC*	*5*	*15-Mar-2020 17:57*
Surr: 4-Bromofluorobenzene	*98.8*			**0**	*85-114*	*%REC*	*5*	*15-Mar-2020 17:57*
Surr: 4-Bromofluorobenzene	*94.5*			**0**	*85-114*	*%REC*	*50*	*15-Mar-2020 18:21*
Surr: Dibromofluoromethane	*91.9*			**0**	*80-119*	*%REC*	*5*	*15-Mar-2020 17:57*
Surr: Dibromofluoromethane	*90.8*			**0**	*80-119*	*%REC*	*50*	*15-Mar-2020 18:21*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*15-Mar-2020 17:57*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*50*	*15-Mar-2020 18:21*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: 16WW26-200309
Collection Date: 09-Mar-2020 13:50

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Mar-2020 20:23
1,1-Dichloroethene	**1.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Mar-2020 20:23
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 20:23
cis-1,2-Dichloroethene	**56**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Mar-2020 20:23
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-Mar-2020 20:23
Trichloroethene	**900**		**2.0**	**5.0**	**10**	**UG/L**	10	15-Mar-2020 16:45
Vinyl chloride	**1.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	11-Mar-2020 20:23
Surr: 1,2-Dichloroethane-d4	*91.0*			**0**	*81-118*	*%REC*	*1*	*11-Mar-2020 20:23*
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*10*	*15-Mar-2020 16:45*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*11-Mar-2020 20:23*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*10*	*15-Mar-2020 16:45*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*1*	*11-Mar-2020 20:23*
Surr: Dibromofluoromethane	*90.6*			**0**	*80-119*	*%REC*	*10*	*15-Mar-2020 16:45*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*11-Mar-2020 20:23*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*10*	*15-Mar-2020 16:45*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00186**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 11:51
Ethene	**0.000295**	J	**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 11:51
Methane	**0.00510**		**0.000107**	**0.000500**	**0.000500**	**mg/L**	1	16-Mar-2020 11:51
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**14.9**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	10-Mar-2020 22:42
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Mar-2020 14:29

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
Sample ID: Trip Blank
Collection Date: 09-Mar-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20030383
Lab ID:HS20030383-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	11-Mar-2020 19:11
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 19:11
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 19:11
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 19:11
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	11-Mar-2020 19:11
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 19:11
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	11-Mar-2020 19:11
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*1*	*11-Mar-2020 19:11*
Surr: 4-Bromofluorobenzene	*98.4*			**0**	*85-114*	*%REC*	*1*	*11-Mar-2020 19:11*
Surr: Dibromofluoromethane	*91.3*			**0**	*80-119*	*%REC*	*1*	*11-Mar-2020 19:11*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*11-Mar-2020 19:11*

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R357913 (0)	**Test Name :** ALKALINITY BY SM2320B				**Matrix:** Groundwater	
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			10 Mar 2020 22:23	1
HS20030383-02	16EW01-200309	09 Mar 2020 09:15			10 Mar 2020 22:30	1
HS20030383-03	16EW02-200309	09 Mar 2020 10:15			10 Mar 2020 22:36	1
HS20030383-06	16WW26-200309	09 Mar 2020 13:50			10 Mar 2020 22:42	1
Batch ID: R358045 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20030383-07	Trip Blank	09 Mar 2020 00:00			11 Mar 2020 19:11	1
Batch ID: R358045 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20030383-06	16WW26-200309	09 Mar 2020 13:50			11 Mar 2020 20:23	1
Batch ID: R358195 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			15 Mar 2020 15:33	1
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			15 Mar 2020 14:45	5
HS20030383-02	16EW01-200309	09 Mar 2020 09:15			15 Mar 2020 19:09	100
HS20030383-02	16EW01-200309	09 Mar 2020 09:15			15 Mar 2020 18:45	10
HS20030383-03	16EW02-200309	09 Mar 2020 10:15			15 Mar 2020 19:57	250
HS20030383-03	16EW02-200309	09 Mar 2020 10:15			15 Mar 2020 19:33	25
HS20030383-04	16EW04-200309	09 Mar 2020 11:15			15 Mar 2020 17:33	25
HS20030383-04	16EW04-200309	09 Mar 2020 11:15			15 Mar 2020 17:09	5
HS20030383-05	16RW04-200309	09 Mar 2020 12:55			15 Mar 2020 18:21	50
HS20030383-05	16RW04-200309	09 Mar 2020 12:55			15 Mar 2020 17:57	5
HS20030383-06	16WW26-200309	09 Mar 2020 13:50			15 Mar 2020 16:45	10
Batch ID: R358305 (0)	**Test Name :** DISSOLVED GASES BY RSK-175				**Matrix:** Groundwater	
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			16 Mar 2020 10:38	2
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			16 Mar 2020 10:19	1
HS20030383-02	16EW01-200309	09 Mar 2020 09:15			16 Mar 2020 11:02	4
HS20030383-03	16EW02-200309	09 Mar 2020 10:15			16 Mar 2020 11:22	1
HS20030383-06	16WW26-200309	09 Mar 2020 13:50			16 Mar 2020 11:51	1
Batch ID: R358500 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20030383-01	16IW20-200309	09 Mar 2020 08:15			19 Mar 2020 14:29	1
HS20030383-02	16EW01-200309	09 Mar 2020 09:15			19 Mar 2020 14:29	1
HS20030383-03	16EW02-200309	09 Mar 2020 10:15			19 Mar 2020 14:29	1
HS20030383-04	16EW04-200309	09 Mar 2020 11:15			19 Mar 2020 14:29	1
HS20030383-05	16RW04-200309	09 Mar 2020 12:55			19 Mar 2020 14:29	1
HS20030383-06	16WW26-200309	09 Mar 2020 13:50			19 Mar 2020 14:29	1

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R358305 (0) **Instrument:** FID-4 **Method:** DISSOLVED GASES BY RSK-175

MBLK Sample ID: **MBLK-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 10:02**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515592** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.000500	0.00100								U
Ethene	0.000500	0.00100								U
Methane	0.000500	0.000500								U

LCS Sample ID: **LCS-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 09:35**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515590** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0160	0.00100	0.01804	0	88.8	75 - 125				
Ethene	0.0171	0.00100	0.0168	0	102	75 - 125				
Methane	0.00950	0.000500	0.009647	0	98.5	75 - 125				

LCSD Sample ID: **LCSD-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 09:43**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515591** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0156	0.00100	0.01804	0	86.6	75 - 125	0.01602	2.55	30	
Ethene	0.0165	0.00100	0.0168	0	98.0	75 - 125	0.01707	3.59	30	
Methane	0.00882	0.000500	0.009647	0	91.5	75 - 125	0.009501	7.4	30	

DUP Sample ID: **HS20030383-02DUP** Units: **mg/L** Analysis Date: **16-Mar-2020 11:13**
Client ID: **16EW01-200309** Run ID: **FID-4_358305** SeqNo: **5515597** PrepDate: DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.00316	0.00400					0.003008	0	30	J
Ethene	0.0956	0.00400					0.09278	2.96	30	
Methane	0.0837	0.00200					0.08260	1.32	30	

The following samples were analyzed in this batch: HS20030383-01 HS20030383-02 HS20030383-03 HS20030383-06

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R358045 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200311** Units: **UG/L** Analysis Date: **11-Mar-2020 17:34**
Client ID: Run ID: **VOA6_358045** SeqNo: **5509698** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44.48*	*1.0*	*50*	*0*	*89.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.46*	*1.0*	*50*	*0*	*98.9*	*85 - 114*				
Surr: Dibromofluoromethane	*45.06*	*1.0*	*50*	*0*	*90.1*	*80 - 119*				
Surr: Toluene-d8	*53.28*	*1.0*	*50*	*0*	*107*	*89 - 112*				

LCS Sample ID: **VLCSW-200311** Units: **UG/L** Analysis Date: **11-Mar-2020 16:46**
Client ID: Run ID: **VOA6_358045** SeqNo: **5509697** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.74	1.0	20	0	98.7	80 - 119				
1,1-Dichloroethene	18.73	1.0	20	0	93.7	71 - 131				
1,2-Dichloroethane	20.3	1.0	20	0	101	73 - 128				
cis-1,2-Dichloroethene	20.57	1.0	20	0	103	78 - 123				
Methylene chloride	19.58	2.0	20	0	97.9	74 - 124				
Trichloroethene	20.26	1.0	20	0	101	79 - 123				
Vinyl chloride	18.49	1.0	20	0	92.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.53*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.78*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*48.82*	*1.0*	*50*	*0*	*97.6*	*80 - 119*				
Surr: Toluene-d8	*49.79*	*1.0*	*50*	*0*	*99.6*	*89 - 112*				

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R358045 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20030447-01MS** Units: **UG/L** Analysis Date: **11-Mar-2020 20:47**
Client ID: Run ID: **VOA6_358045** SeqNo: **5509706** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.37	1.0	20	0	96.8	80 - 119				
1,1-Dichloroethene	18.17	1.0	20	0	90.9	71 - 131				
1,2-Dichloroethane	18.63	1.0	20	0	93.2	73 - 128				
cis-1,2-Dichloroethene	18.87	1.0	20	0	94.3	78 - 123				
Methylene chloride	16.9	2.0	20	0	84.5	74 - 124				
Trichloroethene	20.39	1.0	20	0	102	79 - 123				
Vinyl chloride	18.53	1.0	20	0	92.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.38*	*1.0*	*50*	*0*	*92.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.6*	*1.0*	*50*	*0*	*99.2*	*85 - 114*				
Surr: Dibromofluoromethane	*45.9*	*1.0*	*50*	*0*	*91.8*	*80 - 119*				
Surr: Toluene-d8	*52.88*	*1.0*	*50*	*0*	*106*	*89 - 112*				

MSD Sample ID: **HS20030447-01MSD** Units: **UG/L** Analysis Date: **11-Mar-2020 21:11**
Client ID: Run ID: **VOA6_358045** SeqNo: **5509707** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.51	1.0	20	0	92.6	80 - 119	19.37	4.51	20	
1,1-Dichloroethene	17.5	1.0	20	0	87.5	71 - 131	18.17	3.77	20	
1,2-Dichloroethane	19.06	1.0	20	0	95.3	73 - 128	18.63	2.25	20	
cis-1,2-Dichloroethene	17.48	1.0	20	0	87.4	78 - 123	18.87	7.62	20	
Methylene chloride	16.72	2.0	20	0	83.6	74 - 124	16.9	1.03	20	
Trichloroethene	18.59	1.0	20	0	92.9	79 - 123	20.39	9.23	20	
Vinyl chloride	17.18	1.0	20	0	85.9	58 - 137	18.53	7.56	20	
Surr: 1,2-Dichloroethane-d4	*45.87*	*1.0*	*50*	*0*	*91.7*	*81 - 118*	*46.38*	*1.1*	*20*	
Surr: 4-Bromofluorobenzene	*50.91*	*1.0*	*50*	*0*	*102*	*85 - 114*	*49.6*	*2.6*	*20*	
Surr: Dibromofluoromethane	*45.67*	*1.0*	*50*	*0*	*91.3*	*80 - 119*	*45.9*	*0.507*	*20*	
Surr: Toluene-d8	*52.57*	*1.0*	*50*	*0*	*105*	*89 - 112*	*52.88*	*0.601*	*20*	

The following samples were analyzed in this batch: HS20030383-06 HS20030383-07

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R358195 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200315** Units: **UG/L** Analysis Date: **15-Mar-2020 13:08**
Client ID: Run ID: **VOA6_358195** SeqNo: **5513233** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44.01*	*1.0*	*50*	*0*	*88.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.46*	*1.0*	*50*	*0*	*98.9*	*85 - 114*				
Surr: Dibromofluoromethane	*46.9*	*1.0*	*50*	*0*	*93.8*	*80 - 119*				
Surr: Toluene-d8	*53.64*	*1.0*	*50*	*0*	*107*	*89 - 112*				

LCS Sample ID: **VLCSW-200315** Units: **UG/L** Analysis Date: **15-Mar-2020 12:20**
Client ID: Run ID: **VOA6_358195** SeqNo: **5513232** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.99	1.0	20	0	99.9	80 - 119				
1,1-Dichloroethene	19.01	1.0	20	0	95.1	71 - 131				
1,2-Dichloroethane	21.14	1.0	20	0	106	73 - 128				
cis-1,2-Dichloroethene	21.12	1.0	20	0	106	78 - 123				
Methylene chloride	19.87	2.0	20	0	99.3	74 - 124				
Trichloroethene	19.85	1.0	20	0	99.3	79 - 123				
Vinyl chloride	17.69	1.0	20	0	88.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.3*	*1.0*	*50*	*0*	*98.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.81*	*1.0*	*50*	*0*	*99.6*	*85 - 114*				
Surr: Dibromofluoromethane	*49.48*	*1.0*	*50*	*0*	*99.0*	*80 - 119*				
Surr: Toluene-d8	*49.68*	*1.0*	*50*	*0*	*99.4*	*89 - 112*				

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R358195 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20030405-01MS** Units: **UG/L** Analysis Date: **15-Mar-2020 15:57**
Client ID: Run ID: **VOA6_358195** SeqNo: **5513237** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	101.1	5.0	100	0	101	80 - 119				
1,1-Dichloroethene	93.25	5.0	100	0	93.2	71 - 131				
1,2-Dichloroethane	110.6	5.0	100	14.06	96.5	73 - 128				
cis-1,2-Dichloroethene	104.5	5.0	100	8.385	96.1	78 - 123				
Methylene chloride	91.06	10	100	0	91.1	74 - 124				
Trichloroethene	109.4	5.0	100	4.933	105	79 - 123				
Vinyl chloride	88.05	5.0	100	0	88.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*231.9*	*5.0*	*250*	*0*	*92.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*248.3*	*5.0*	*250*	*0*	*99.3*	*85 - 114*				
Surr: Dibromofluoromethane	*229.1*	*5.0*	*250*	*0*	*91.7*	*80 - 119*				
Surr: Toluene-d8	*257.2*	*5.0*	*250*	*0*	*103*	*89 - 112*				

MSD Sample ID: **HS20030405-01MSD** Units: **UG/L** Analysis Date: **15-Mar-2020 16:21**
Client ID: Run ID: **VOA6_358195** SeqNo: **5513238** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	100.2	5.0	100	0	100	80 - 119	101.1	0.873	20	
1,1-Dichloroethene	93.61	5.0	100	0	93.6	71 - 131	93.25	0.382	20	
1,2-Dichloroethane	113.8	5.0	100	14.06	99.7	73 - 128	110.6	2.89	20	
cis-1,2-Dichloroethene	100.8	5.0	100	8.385	92.4	78 - 123	104.5	3.56	20	
Methylene chloride	86.19	10	100	0	86.2	74 - 124	91.06	5.49	20	
Trichloroethene	101.7	5.0	100	4.933	96.7	79 - 123	109.4	7.38	20	
Vinyl chloride	84.06	5.0	100	0	84.1	58 - 137	88.05	4.63	20	
Surr: 1,2-Dichloroethane-d4	*231.3*	*5.0*	*250*	*0*	*92.5*	*81 - 118*	*231.9*	*0.245*	*20*	
Surr: 4-Bromofluorobenzene	*244.2*	*5.0*	*250*	*0*	*97.7*	*85 - 114*	*248.3*	*1.66*	*20*	
Surr: Dibromofluoromethane	*226.3*	*5.0*	*250*	*0*	*90.5*	*80 - 119*	*229.1*	*1.24*	*20*	
Surr: Toluene-d8	*261.6*	*5.0*	*250*	*0*	*105*	*89 - 112*	*257.2*	*1.7*	*20*	

The following samples were analyzed in this batch: HS20030383-01 HS20030383-02 HS20030383-03 HS20030383-04 HS20030383-05 HS20030383-06

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: HS20030383

QC BATCH REPORT

Batch ID: R357913 (0) **Instrument: ManTech01** **Method: ALKALINITY BY SM2320B**

MBLK Sample ID: **WBLKW2-200310** Units: **mg/L** Analysis Date: **10-Mar-2020 19:57**
Client ID: Run ID: **ManTech01_357913** SeqNo: **5507250** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	5.00	5.00								U

LCS Sample ID: **LCS2-200310** Units: **mg/L** Analysis Date: **10-Mar-2020 20:06**
Client ID: Run ID: **ManTech01_357913** SeqNo: **5507251** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	989.7	5.00	1000	0	99.0	85 - 115				

LCSD Sample ID: **LCSD2-200310** Units: **mg/L** Analysis Date: **10-Mar-2020 20:15**
Client ID: Run ID: **ManTech01_357913** SeqNo: **5507252** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	982.8	5.00	1000	0	98.3	85 - 115	989.7	0.695	20	

DUP Sample ID: **HS20030283-04DUP** Units: **mg/L** Analysis Date: **10-Mar-2020 20:45**
Client ID: Run ID: **ManTech01_357913** SeqNo: **5507256** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	518.2	5.00					518.4	0.0463	20	

The following samples were analyzed in this batch: HS20030383-01 HS20030383-02 HS20030383-03 HS20030383-06

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -16
WorkOrder: **HS20030383**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 19-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030383
Date/Time Received: **10-Mar-2020 09:00**
Received by: **JRM**

Checklist completed by: *Paresh M. Giga* eSignature 10-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 10-Mar-2020 Date

Matrices: **GW/Water**
Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.7c U/C	IR25
Cooler(s)/Kit(s):	45498	
Date/Time sample(s) sent to storage:	3/10/2020 13:00	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

COC ID: LHAAP16 March 2020 -ALS

TURNAROUND TIME: Normal

Page 1 of

RUSH:

PROJECT/CLIENT INFO			
Facility Name	Longhorn AAP		
Project Number	501032		
	LHAAP-16		
Address	1203-B East Grand Avenue		
	PMB 202		
City	Marshall	State	TX
Postal Code	75670	Country	USA
Phone Number	713.243.7264		
Project Manager	Praveen Srivastav		

LABORATORY			
Lab Name	ALS Laboratories		
Lab Contact	RJ Modashia		
Email	RJ.Modashia@alsglobal.com		
Address	10450 Stanciiff Rd., Suite 210		
City	Houston	State	TX
Postal Code	77099	Country	USA
Phone Number	281.575.2279 or 281.530.5656		

OTHER INFO			
Email Invoice To	FedInvoices@aptim.com		
Email Report To	Susan.Huang@aptim.com		
Mail Reports To	Susan Huang		
Address	4005 Port Chicago Highway, Suite 200		
City	Concord	State	CA
Postal Code	94520	Country	USA
Shipping Company			

SAMPLE DETAILS

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont	Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	2-40ml Amber/H2SO4	1-250 ml PE/HNO3	1-250ml PE/Ice	1-250ml PE /Ice	1-250ml PE/Ice	1-125ml PE/Ice
								ANALYSIS		VOCs by SW8260B	MEE by RSK175	TOC by SM5310C	Metals (arsenic, chromium, manganese, nickel, and thallium) by SW6020	Anions (sulfate/nitrate/bromide) by SW9056	Anions (bromide only) by SW9056	Alkalinity by SM2320	Perchlorate by SW6850
16IW20-200309	LHAAP 16				W6	3/9/20	0815	9		X	X			X		X	X
16EW01-200309	LHAAP 16				W6	3/9/20	0915	9		X	X			X		X	X
16EW02-200309	LHAAP 16				W6	3/9/20	1015	9		X	X			X		X	X
16EW04-200309	LHAAP 16				W6	3/9/20	1115	4		X							X
16RW04-200309	LHAAP 16				W6	3/9/20	1255	4		X							X
16WW26-200309	LHAAP 16				W6	3/9/20	1350	9		X	X			X		X	X
TRip Blank	LHAAP 16				W6	3/9/20		2		X							

HS20030383

Aptim Environmental & Infrastucture, Inc.

Longhorn Army Ammunition Plant -16

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Scott Bellinger / BHATE	3/9/20 1500	J. Immerd	3/10/20 09:00

Cooler -45498
Temp 1.7
1225 CF0.0

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

45498

CUSTODY SEAL

Date: 3/9/20 Time: 1500
Name: Scott Bressinger
Company: TSHASA

Seal Broken By: SRB
Date: 03/10/20

45498 MAR 19 2020

Must Deliver Next Business Day
Time and Tempature Sensitive!

45498

ORIGIN ID:SGRA (903) 930-8193
SCOTT BRESSINGER
APTIM
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 02MAR20
ACTWGT: 1.00 LB MAN
CAD: 3001130/CAFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 16 - RJ
RMA:

FedEx Express

FedEx
TRK# 8221 1251 0294 9854

RETURNS MON - SAT
TUE - 10 MAR 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 2007291

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2357 (258957)

General Set Information: There were six 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: NA

Method QC data: The method blank (LMB 699551) was less than 1/2 the CRDL. The recovery for the LCS (699548) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on sample 2007291001 (Client ID: 16IW20-200309). 3.0µL of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. The spike target was 3.µg/L. The MS/MSD (699552/53) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected. The relative percent difference (RPD) was within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 699549) is reported from the analysis of the Laboratory Control Sample (LCS – 699548) at a level of 3.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 18MARD06/10.

Thomas Bosch March 18, 2020
Analyst Date

ANALYTICAL REPORT

Report Date: March 18, 2020

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-2007291**
Project ID: HS20030383
Purchase Order: HS20030383
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
16IW20-200309	2007291001	03/09/20	03/11/20	
16EW01-200309	2007291002	03/09/20	03/11/20	
16EW02-200309	2007291003	03/09/20	03/11/20	
16EW04-200309	2007291004	03/09/20	03/11/20	
16RW04-200309	2007291005	03/09/20	03/11/20	
16WW26-200309	2007291006	03/09/20	03/11/20	

ANALYTICAL REPORT

Workorder: 34-2007291
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16IW20-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291001 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 09:42 | **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: **16EW01-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291002 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 10:26 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**28**	1.0	2.0	4.0	1	

Sample ID: **16EW02-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291003 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 10:40 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**25**	1.0	2.0	4.0	1	

Sample ID: **16EW04-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291004 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 10:54 | **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

ANALYTICAL REPORT

Workorder: 34-2007291
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16RW04-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291005 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 11:08 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **16WW26-200309** | Sampling Site: NA | Collected: 03/09/2020
Lab ID: 2007291006 | Media: 125 mL Nalgene | Received: 03/11/2020
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/2357 (HBN: 258957) | **%Solids:** NA
Analyzed: 03/18/2020 11:22 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 03/18/2020 12:46	/S/ Stephen Brose 03/18/2020 19:14

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: 34-2007291
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.
The following was provided by the client: Sample ID, Collection Date, Sampling Location, Media Type, Sampling Parameter.
Collection Date, Media Type, and Sampling Parameter can potentially affect the validity of the results.
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	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

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.
< Means 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: 2007291

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2357 (HBN: 258957)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 699551
Analyzed: 03/18/2020 09:28
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 699548
Analyzed: 03/18/2020 09:00
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	3.46	3.00	115	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	2007291001	**MS:**	699552
Analyzed:	03/18/2020 09:42	**Analyzed:**	03/18/2020 09:57
Dilution:	1	**Dilution:**	1
Units:	ug/L	**Units:**	ug/L

	MSD:	699553
	Analyzed:	03/18/2020 10:12
	Dilution:	1
	Units:	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.21	3	# 140	78.8	123.8	3.96	# 132	6.21	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
03/18/2020 12:50	03/18/2020 19:14

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

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

18698/#2

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13490**

2007291

SUBCONTRACT TO:

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

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20030383
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20030383-01**	**16IW20-200309**	**Groundwater**	**09 Mar 2020 08:15**
	SUB_Perch-6850			24 Mar 2020
2.	**HS20030383-02**	**16EW01-200309**	**Groundwater**	**09 Mar 2020 09:15**
	SUB_Perch-6850			24 Mar 2020
3.	**HS20030383-03**	**16EW02-200309**	**Groundwater**	**09 Mar 2020 10:15**
	SUB_Perch-6850			24 Mar 2020
4.	**HS20030383-04**	**16EW04-200309**	**Groundwater**	**09 Mar 2020 11:15**
	SUB_Perch-6850			24 Mar 2020
5.	**HS20030383-05**	**16RW04-200309**	**Groundwater**	**09 Mar 2020 12:55**
	SUB_Perch-6850			24 Mar 2020
6.	**HS20030383-06**	**16WW26-200309**	**Groundwater**	**09 Mar 2020 13:50**
	SUB_Perch-6850			24 Mar 2020

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

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13490**

Relinquished By: T. Maynard Date/Time: 3/10/20 18:00

Received By: [signature] Date/Time: 3.11.2020 0931

Cooler ID(s): Temperature(s):

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS20030383	***Split:***	**Workorder ID:** 2007291	**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	03/09/2020 08:15	16IW20-200309	2007291001		Water	A	1	A
2	03/09/2020 09:15	16EW01-200309	2007291002		Water	A	1	A
3	03/09/2020 10:15	16EW02-200309	2007291003		Water	A	1	A
4	03/09/2020 11:15	16EW04-200309	2007291004		Water	A	1	A
5	03/09/2020 12:55	16RW04-200309	2007291005		Water	A	1	A
6	03/09/2020 13:50	16WW26-200309	2007291006		Water	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	03/11/2020 09:31	ALS Sample Receiving	Sample Login
R.33.1	03.12.20/13:45	T. Busch	storage and analysis

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

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

200729

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS HOUSTON

Project/Task/Site: HS20030383

Date/Time of Receipt: 3.11.2020 0931

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:	Cooler/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	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.
1	GOOD	1 °C	4		°C	7		°C
2		°C	5		°C	8		°C
3		°C	6		°C	9		°C

Taken By: [signature] Signature — BAYLEEN COATES Printed Name — 3.11.2020 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:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

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

CRIR.doc

Revised 01/01/2018

Must Deliver Next Business Day
Time and Temperature Sensitive!

Part # 150469-434 RT2 EXP 12/20 ee

5S1C2/64E6/104C

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

SHIP DATE: 10MAR20
ACTWGT: 19.20 LB
CAD: 300130/CAFE3211
DIMS: 18x16x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS20030383 RJ

FedEx Express

J18T11806050111sv

WED - 11 MAR 3:00P
STANDARD OVERNIGHT

TRK# 0201 1251 0295 2600

AX BTFA

84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2357 Created: 3/12/2020 15:59 Instrument: HBN: 258957

Rule: EPA 6850, DoD QSM Water Analyst: T. Bosch Status: WP

Workorder: 2007291 [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	699547	CCV for HBN 258957 [ELMS/2357]				CCV	3		E685041C3Q	5311		3/24/2020	
2	699548	LCS for HBN 258957 [ELMS/2357]				LCS	3		E6850Q413Q	5311		3/24/2020	
3	699549	RLVS for HBN 258957 [ELMS/2357				RLVS	3		E685041C3Q	5311		3/24/2020	
4	699550	ICS for HBN 258957 [ELMS/2357]				ICS	3		E6850..D3Q	5311		3/24/2020	
5	699551	LMB for HBN 258957 [ELMS/2357]				LMB	3		E6850Q413Q	5311		3/24/2020	
6	2007291001	16IW20-200309				SAMPLE	3	2007291001-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
7	699552	16IW20-200309(2007291001MS)				MS	3		E6850Q413Q	5311		3/24/2020	
8	699553	16IW20-200309(2007291001MSD)				MSD	3		E6850Q413Q	5311		3/24/2020	
9	2007291002	16EW01-200309				SAMPLE	3	2007291002-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
10	2007291003	16EW02-200309				SAMPLE	3	2007291003-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
11	2007291004	16EW04-200309				SAMPLE	3	2007291004-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
12	2007291005	16RW04-200309				SAMPLE	3	2007291005-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
13	2007291006	16WW26-200309				SAMPLE	3	2007291006-A	E6850Q41.3	5480	4/6/2020	3/24/2020	
14	699554	CCV for HBN 258957 [ELMS/2357]				CCV	3		E685041C3Q	5311		3/24/2020	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Analyst Write-up

ALS Work Order #'s & Sample #( )'s: 2007291 (001-06) ELMS Batch/HBN ID: 2357 (258957)
Prep Date: 03/12/2020 Analysis Date: 03/18/2020 Analyst: Tom Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\18MAR0D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Tom Bosch. 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 DU461-US)/0.1% glacial acetic acid (JT-Baker Lot 122550).
Eluent B1: 95% ACN (B&J Lot DU461-US)/5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 122550).

STANDARDS: Internal Standard Spiking Solution Horizon# 47863. Dilutions of Working Standards (Horizon: 49947/48) used for ICAL, CCV's, RLVS and ICS.

CALIBRATION CURVE: Used curve from 09/20/2019, sequence 20SEP19D.s Offline Quantitation Method: CLO4-DP3.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: 10 Injection Volume: 40µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1 Run time: 12.0min.

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 3.0µL of QC Solution Horizon ID 47516 was used for LCS 699548; Target = 3.0µg/L. ASTM type II water was used for LMB 699551.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) was performed on sample 2007291001 (Client ID: 16IW20-200309). 3.0µl of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. Spike target = 3.0µg/L.

COMMENTS:

1) Results reported in µg/L.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The MS/MSD (699552/53) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2020\MAR\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2020\DOD\258957-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 699549) is reported from the analysis of the Laboratory Control Sample (LCS – 699548) at a level of 3.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 18MARD06/10.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria **Batch(es)/SDG:** ELMS: 2357 HBN: 258957 **Sample Set IDs if Applicable:** 2007291	**Analyst Initials**	**Reviewer Initials**
Sample positions on autosampler verified against instrument sequence	TB	NA
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#_____	TB	SB
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L
Standard: 49946	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/23/2019 03:09PM	**Expires:** 09/19/2020
MFG Lot: TNB: 09/20/2019	**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
47863	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	12/05/2028

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 47863	**Created By:** Thomas Bosch	**Amount:** 1 mL
MFG: Cambridge Isotope	**Create Date:** 05/23/2019 10:05AM	**Expires:** 12/05/2028
MFG Lot: SDIH-016	**Verified By:** Thomas Bosch	**Usable:** Yes
Part ID: OLM-7310-S	**Verify Date:**	**Lab Lot:** CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK		Description - 6850 WKG Std 100.ug/L
Standard: 49948	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 09/20/2019 03:09PM	**Expires:** 07/25/2020
MFG Lot: TNB: 09/20/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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
49947	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	07/25/2020

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		Description - 6850 Stock AccStd 1,000ug/mL
Standard: 43659	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: AccuStandard	**Create Date:** 09/17/2018 09:09AM	**Expires:** 07/25/2020
MFG Lot: 218065075		**Usable:** Yes
Part ID: IC-PER-10X-1		**Lab Lot:** CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

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

Standard: 49947
MFG: ALS/SLC
MFG Lot: TNB: 09/20/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/23/2019 03:09PM

Amount: 10 mL
Expires: 07/25/2020
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

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

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK		Description - 6850 QC Stock STD 1,000ug/mL
Standard: 36748	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: Ultra Scientific	**Create Date:** 05/11/2017 01:05PM	**Expires:** 03/31/2020
MFG Lot: CP-0860		**Usable:** Yes
Part ID: ICC-013		**Lab Lot:** CLO4 QC STOCK

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

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

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

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

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

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: None

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

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

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

Page 1 of 1

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

AccuStandard

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

S 36748

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 ACCREDITATION 17034 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ACCREDITATION 17025 TESTING LABORATORY

ISO 9001 Registered Quality System – TUV USA

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

ISO 9001 Registered Quality System – TUV USA

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

S 47863

Product Name: PERCHLORIC ACID, SODIUM SALT
(Isotopic Label & Enrichment Specification) (18O4, 90%+) 100 UG/ML IN WATER

Lot Number: SDIH-016

Catalog Number: OLM-7310-S

Product Information

Chemical Purity Specification: ≥ 98%

MW*: 130.44
* For isotopically labeled compounds, MW listed is for the fully enriched product.

$NaCl^{18}O_4$

Labeled CAS Number: NA

Unlabeled CAS Number: 7601-89-0

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. CIL Certificates of Analysis are occasionally updated with new data following recertification. We recommend checking the website for the latest version.

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.

Approved by: Sashi Sivendran-Basak

Sashi Sivendran-Basak, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	12/05/2018
Expiration Date	12/05/2028
Concentration Based on Gravimetry	100.0 ± 1.0 µg/mL (k=2)
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	105.4 ± 1.1 µg/mL (k=2)

CIL subscribes to the following standards for different products: ISO Guide 34, ISO/IEC 17025, ISO 13485 and cGMP as appropriate.

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	699547 CCV@25	Vial 71	1	Control	1	1.56050e6	7.258	25.02704
*	699548 LCS@3.	Vial 72	1	Control	2	1.89787e5	7.176	3.45954
*	699550 ICS@3.0	Vial 73	1	Control	3	1.09981e5	7.194	2.61672
*	699551 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	2007291001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	699552 72911MS	Vial 76	1	Sample	6	2.08268e5	7.105	4.21484
*	699553 72911SD	Vial 77	1	Sample	7	1.96135e5	7.110	3.96084
*	2007291002	Vial 78	1	Sample	8	1.82025e6	6.826	28.13629
*	2007291003	Vial 79	1	Sample	9	1.37143e6	7.029	25.28098
*	2007291004	Vial 80	1	Sample	10	4.45440e4	7.342	7.35610e-1 < RL
*	2007291005	Vial 81	1	Sample	11	0.00000	0.000	0.00000
*	2007291006	Vial 82	1	Sample	12	0.00000	0.000	0.00000
*	699554 CCV@25	Vial 71	1	Control	13	1.28803e6	7.607	25.77682

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	699547 CCV@25	Vial 71	1	Control	1	2.13029e5	7.282	5.00000
*	699548 LCS@3.	Vial 72	1	Control	2	2.02150e5	7.197	5.00000
*	699550 ICS@3.0	Vial 73	1	Control	3	1.54310e5	7.229	5.00000
*	699551 LMB	Vial 74	1	Control	4	2.20032e5	7.446	5.00000
*	2007291001	Vial 75	1	Sample	5	1.59347e5	6.687	5.00000
*	699552 72911MS	Vial 76	1	Sample	6	1.82215e5	7.111	5.00000
*	699553 72911SD	Vial 77	1	Sample	7	1.82592e5	7.131	5.00000
*	2007291002	Vial 78	1	Sample	8	2.18223e5	6.846	5.00000
*	2007291003	Vial 79	1	Sample	9	1.85144e5	7.050	5.00000
*	2007291004	Vial 80	1	Sample	10	2.07739e5	7.280	5.00000
*	2007291005	Vial 81	1	Sample	11	2.08068e5	7.191	5.00000
*	2007291006	Vial 82	1	Sample	12	1.96542e5	7.406	5.00000
*	699554 CCV@25	Vial 71	1	Control	13	1.70192e5	7.631	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	699547 CCV@25	Vial 71	1	Control	1	5.05466e5	7.275	26.44476
*	699548 LCS@3.	Vial 72	1	Control	2	6.90275e4	7.196	4.03658
*	699550 ICS@3.0	Vial 73	1	Control	3	4.45142e4	7.219	3.39413
*	699551 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	2007291001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	699552 72911MS	Vial 76	1	Sample	6	6.92381e4	7.105	4.50126
*	699553 72911SD	Vial 77	1	Sample	7	6.68581e4	7.131	4.33475
*	2007291002	Vial 78	1	Sample	8	5.13519e5	6.840	26.24610
*	2007291003	Vial 79	1	Sample	9	3.79307e5	7.041	23.11804
*	2007291004	Vial 80	1	Sample	10	4574.20410	7.254	1.08499e-1
*	2007291005	Vial 81	1	Sample	11	0.00000	0.000	0.00000
*	2007291006	Vial 82	1	Sample	12	0.00000	0.000	0.00000
*	699554 CCV@25	Vial 71	1	Control	13	4.16783e5	7.625	27.21496

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\18MAR20D.S

Sequence Table:

Method and Injection Info Part:

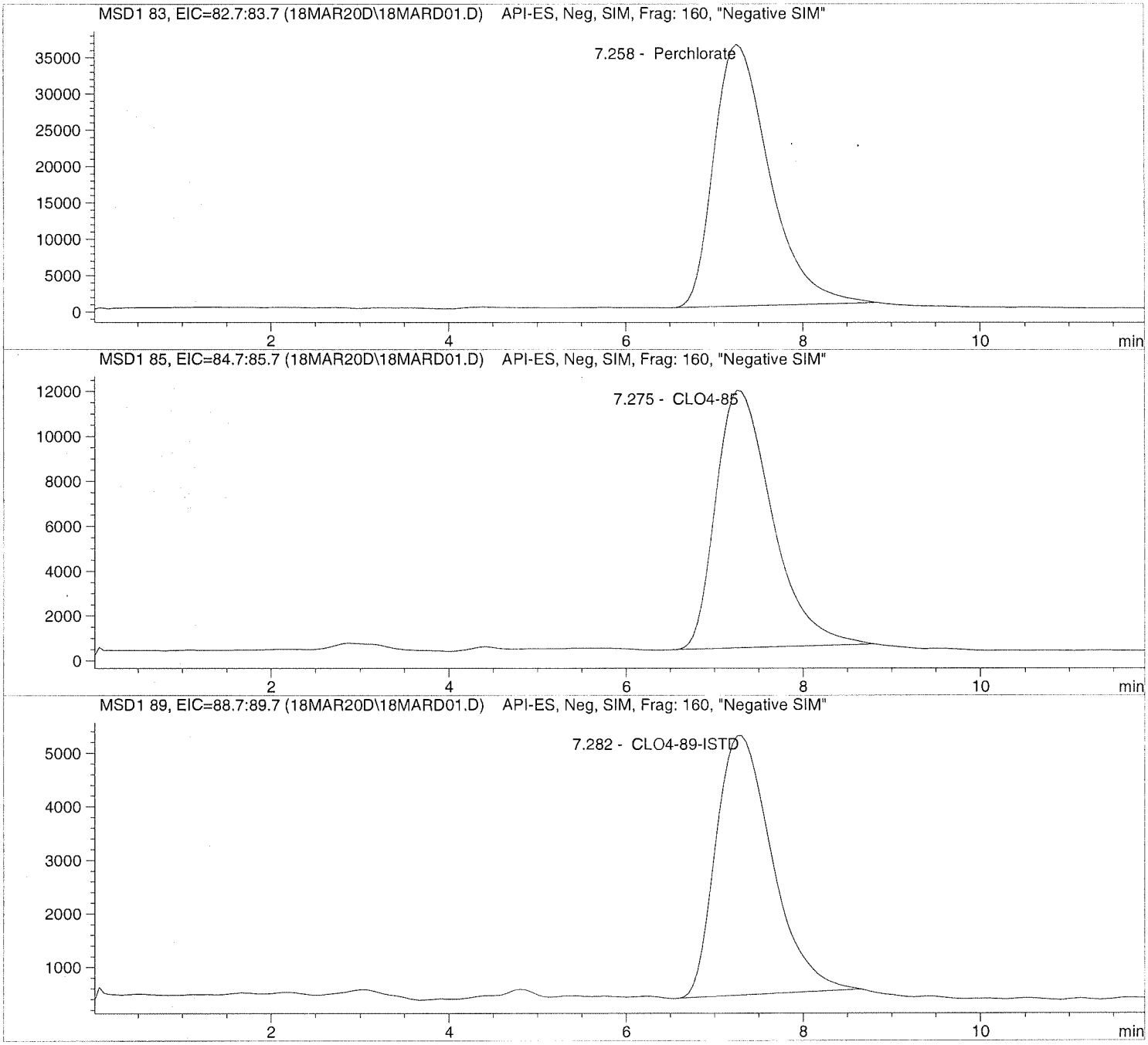
Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	699547	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	699548	LCS@3.	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	699550	ICS@3.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	699551	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	2007291001		CLO4-AQN	1	Sample		
6	Vial 76	699552	72911MS	CLO4-AQN	1	Sample		
7	Vial 77	699553	72911SD	CLO4-AQN	1	Sample		
8	Vial 78	2007291002		CLO4-AQN	1	Sample		
9	Vial 79	2007291003		CLO4-AQN	1	Sample		
10	Vial 80	2007291004		CLO4-AQN	1	Sample		
11	Vial 81	2007291005		CLO4-AQN	1	Sample		
12	Vial 82	2007291006		CLO4-AQN	1	Sample		
13	Vial 71	699554	CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD01.D Sample Name: 699547 CCV@25

Injection Date:	3/18/2020 08:44:58	Seq Line:	1
Sample Name:	699547 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD01.D Sample Name: 699547 CCV@25

Injection Date:	3/18/2020 08:44:58	Seq Line:	1
Sample Name:	699547 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.258	PBA	1560499.0	25.0270	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.275	PBA	505466.3	26.4448	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.282	PBA	213029.2	5.0000	CLO4-89-ISTD

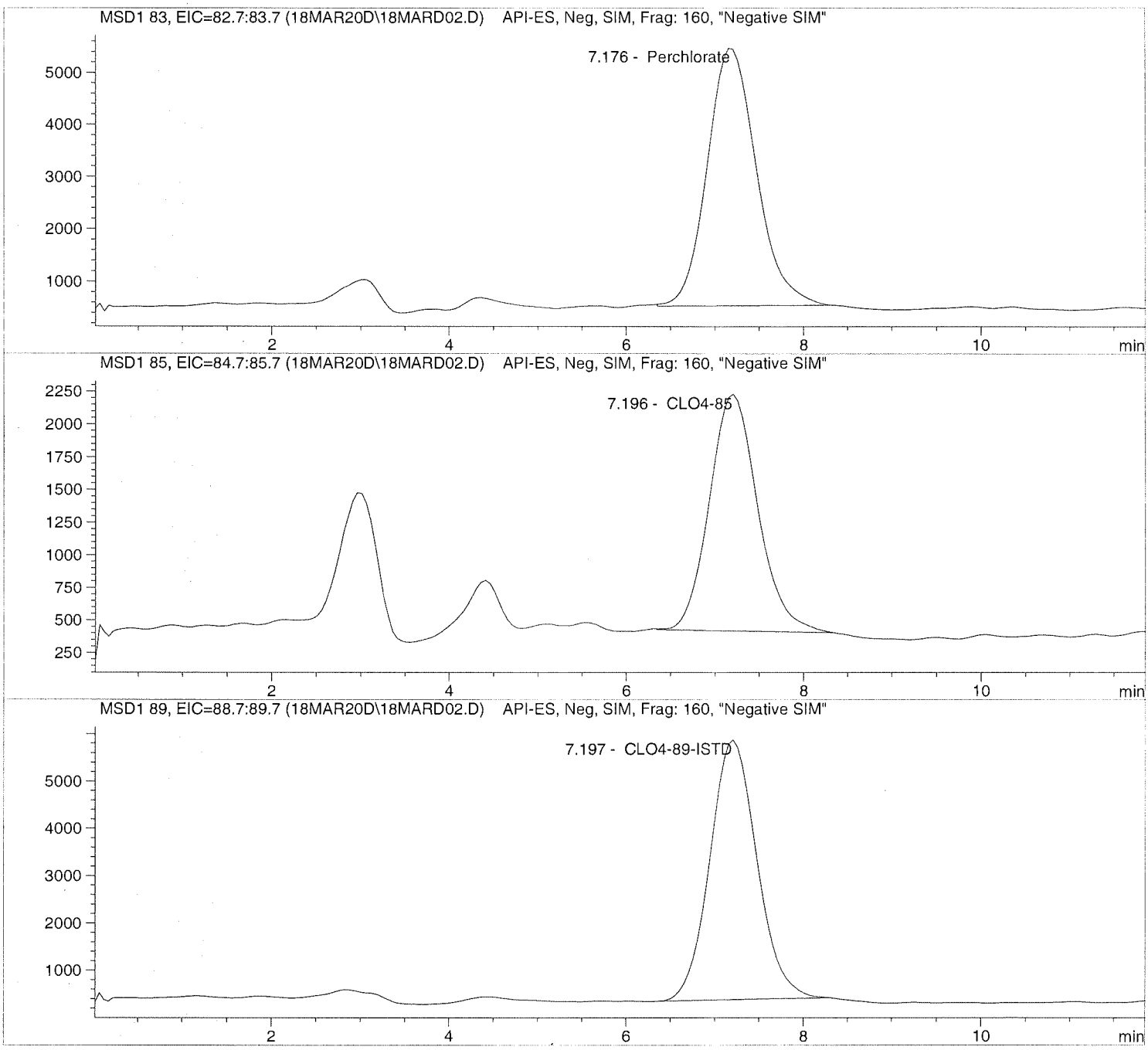
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD02.D Sample Name: 699548 LCS@3.

Injection Date:	3/18/2020 09:00:32	Seq Line:	2
Sample Name:	699548 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD02.D Sample Name: 699548 LCS@3.

Injection Date:	3/18/2020 09:00:32	Seq Line:	2
Sample Name:	699548 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.176	BBA	189787.4	3.4595	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.196	BBA	69027.5	4.0366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.197	PBA	202150.0	5.0000	CLO4-89-ISTD

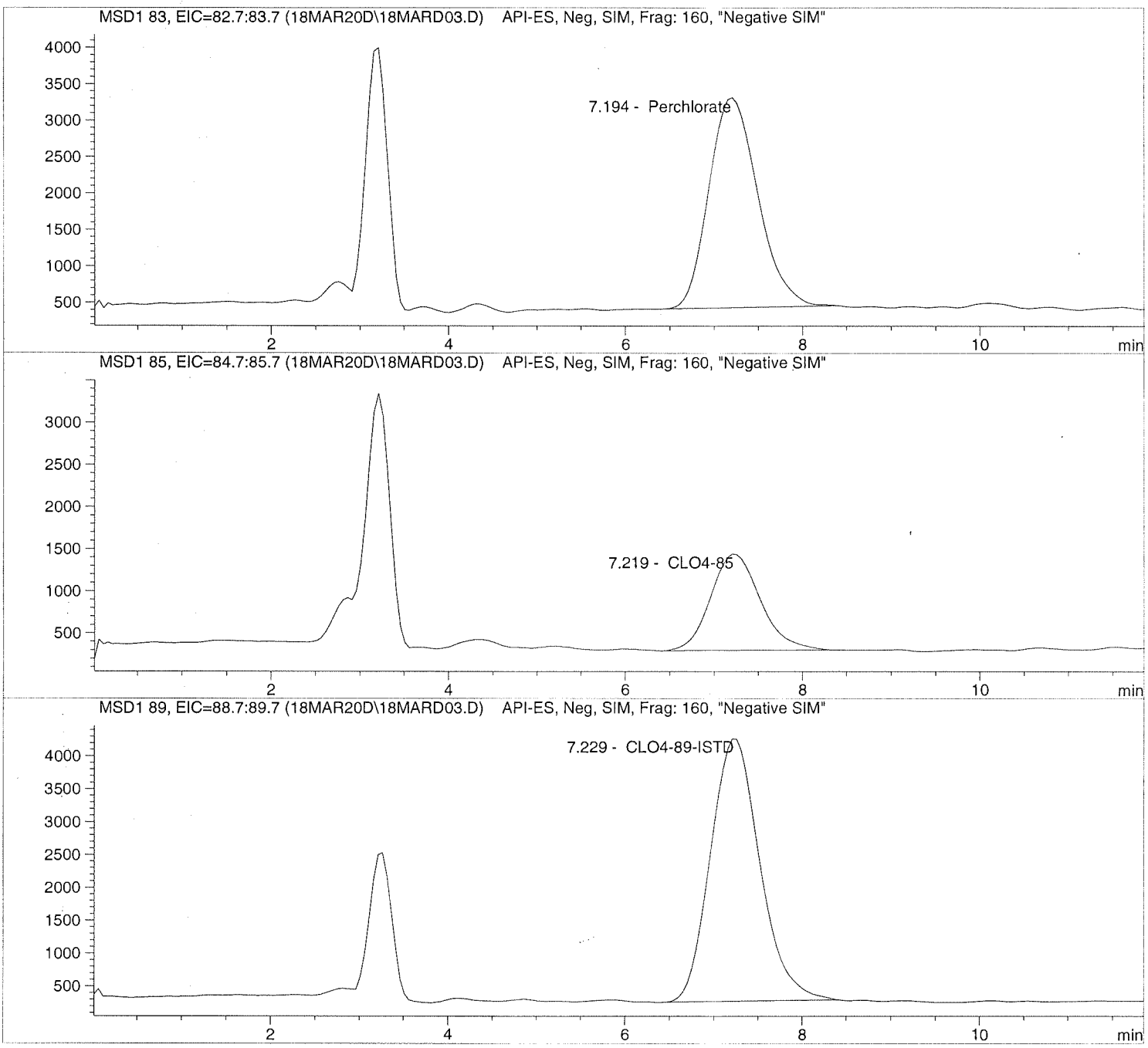
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD03.D Sample Name: 699550 ICS@3.0

Injection Date:	3/18/2020 09:14:28	Seq Line:	3
Sample Name:	699550 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD03.D Sample Name: 699550 ICS@3.0

Injection Date:	3/18/2020 09:14:28	Seq Line:	3
Sample Name:	699550 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.194	BBA	109981.4	2.6167	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.219	PBA	44514.2	3.3941	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.229	PBA	154309.9	5.0000	CLO4-89-ISTD

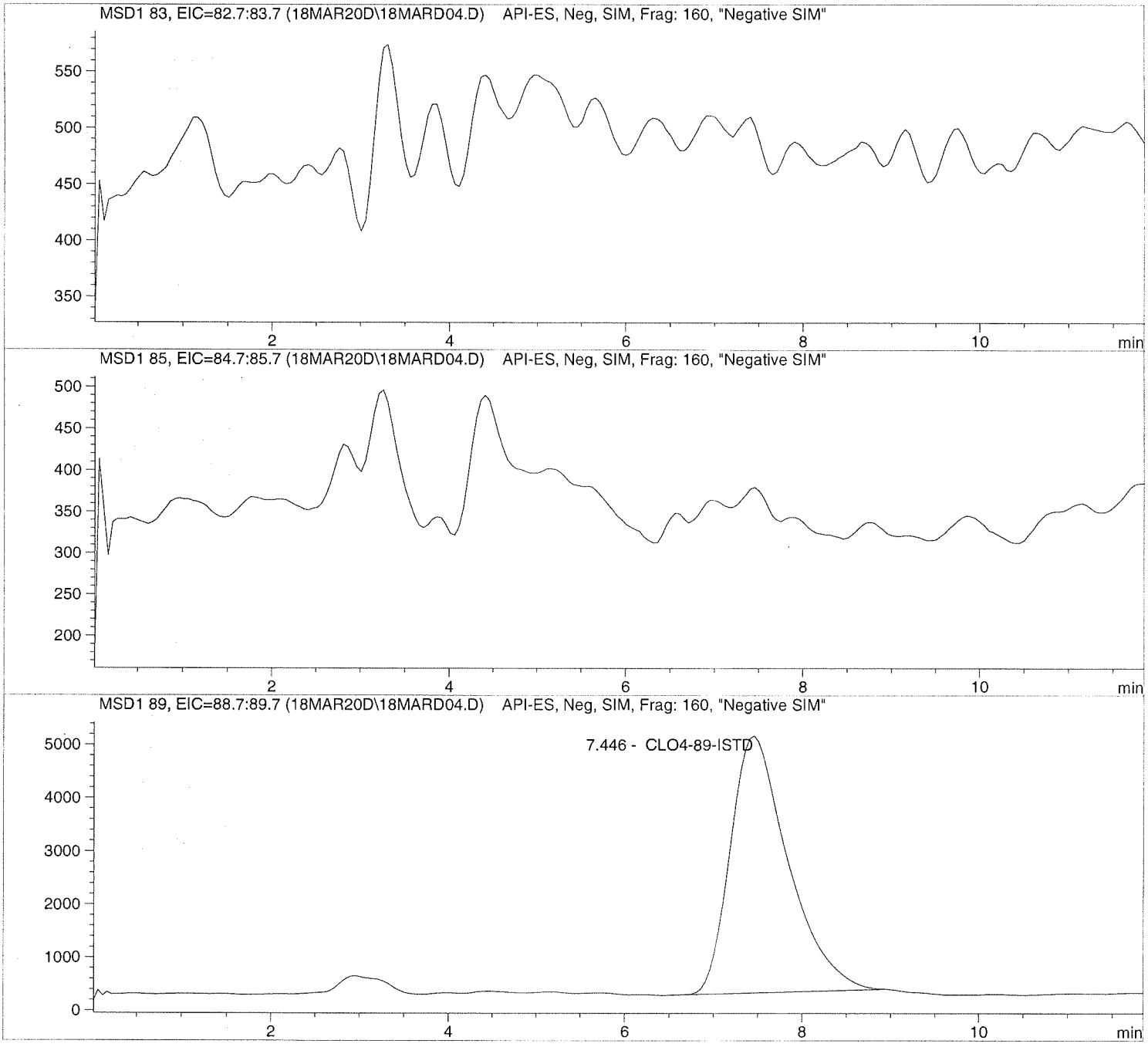
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD04.D Sample Name: 699551 LMB

Injection Date:	3/18/2020 09:28:29	Seq Line:	4
Sample Name:	699551 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD04.D Sample Name: 699551 LMB

Injection Date:	3/18/2020 09:28:29	Seq Line:	4
Sample Name:	699551 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.446	PBA	220031.8	5.0000	CLO4-89-ISTD

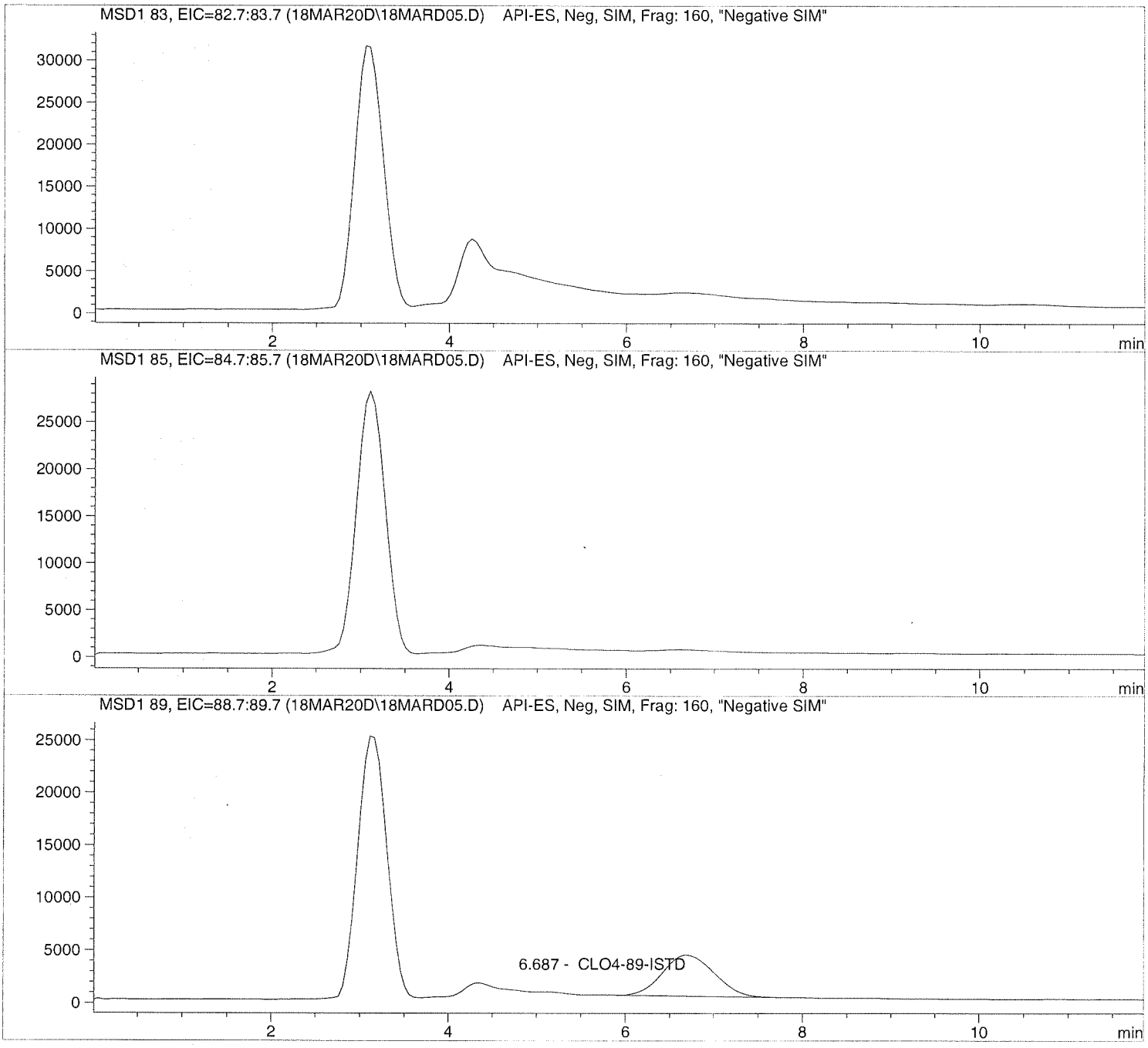
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD05.D Sample Name: 2007291001

Injection Date:	3/18/2020 09:42:29	Seq Line:	5
Sample Name:	2007291001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD05.D Sample Name: 2007291001

Injection Date:	3/18/2020 09:42:29	Seq Line:	5
Sample Name:	2007291001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

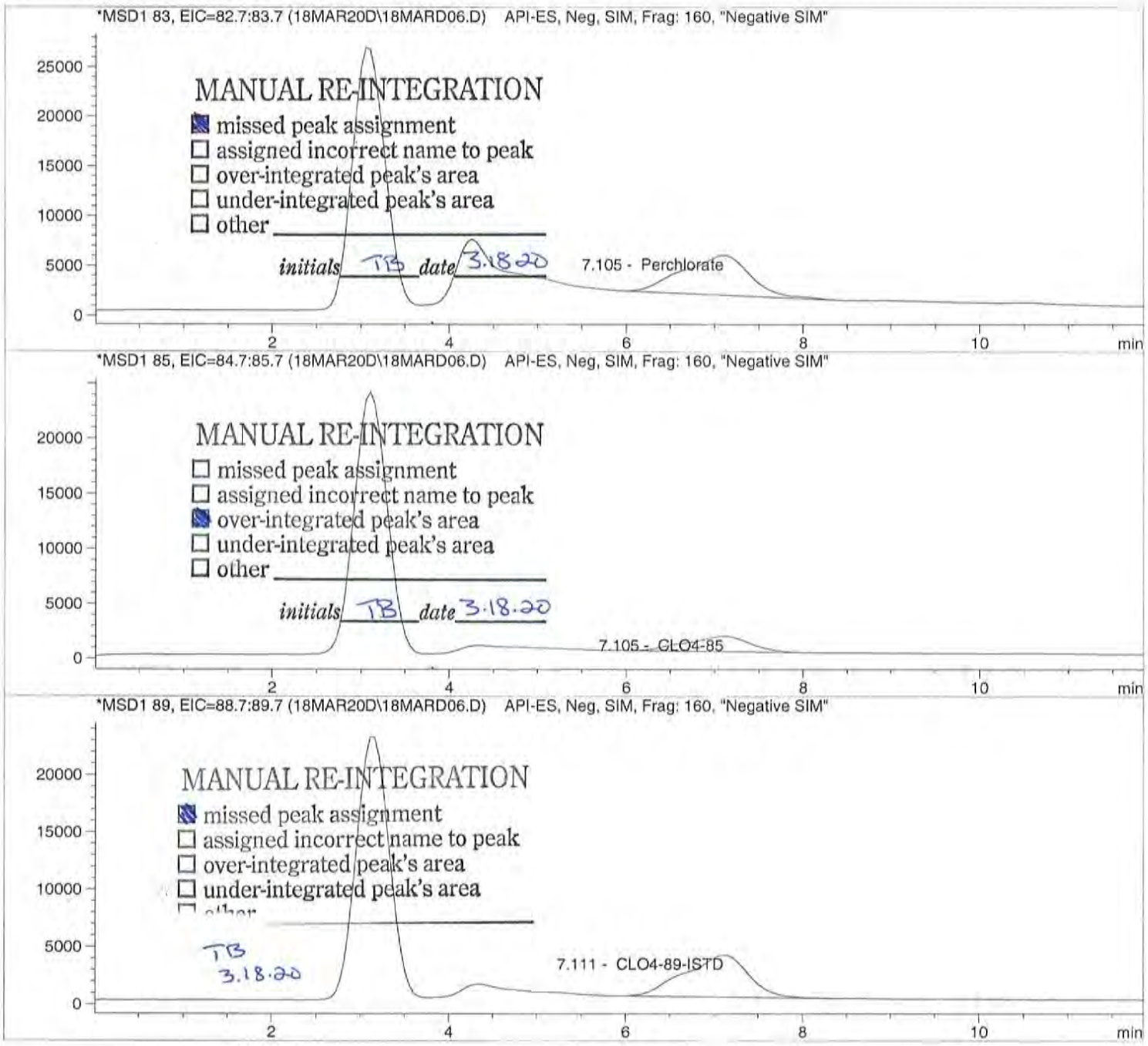
RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.687	PBA	159347.1	5.0000	CLO4-89-ISTD

*** End of Report ***

```
Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD06.D       Sample Name: 699552   72911MS
================================================================================
Injection Date:    3/18/2020  09:57:45          Seq Line:              6
Sample Name:       699552   72911MS             Location:       Vial 76
Acq Operator:      TNB                          Inj. No.:              1
                                                Inj. Vol.:        40 µl

Acq. Method:       CLO4-AQN.M
Analysis Method:   C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:      2/17/2020  15:42:52

Perchlorate analysis
================================================================================
```



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD06.D Sample Name: 699552 72911MS

Injection Date:	3/18/2020 09:57:45	Seq Line:	6
Sample Name:	699552 72911MS	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.105	MM	208268.1	4.2148	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.105	MM	69238.1	4.5013	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.111	PBA	182215.3	5.0000	CLO4-89-ISTD

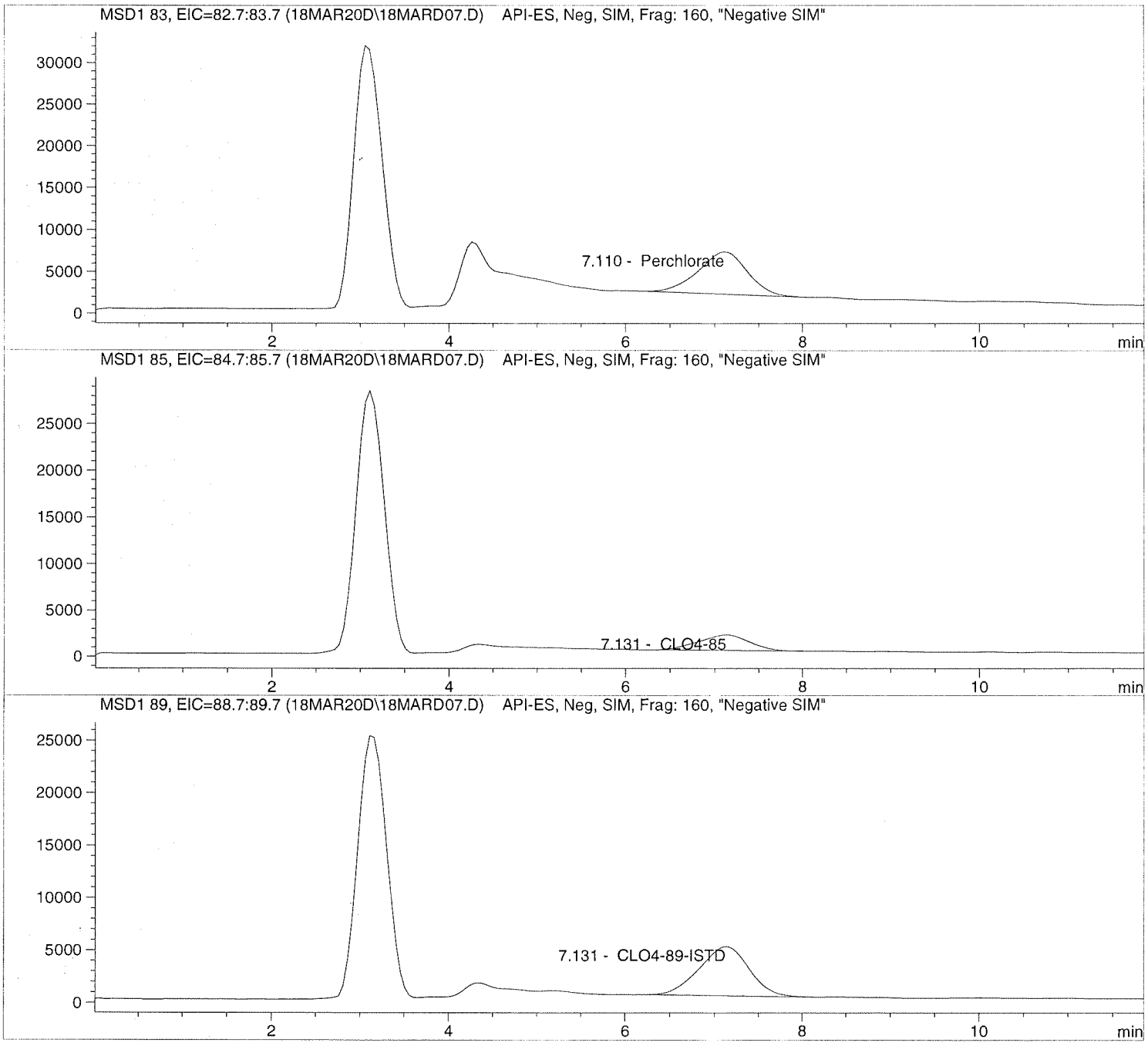
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD07.D Sample Name: 699553 72911SD

Injection Date:	3/18/2020 10:12:20	Seq Line:	7
Sample Name:	699553 72911SD	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD07.D Sample Name: 699553 72911SD

Injection Date:	3/18/2020 10:12:20	Seq Line:	7
Sample Name:	699553 72911SD	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.110	BBA	196135.0	3.9608	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.131	PBA	66858.1	4.3347	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.131	PBA	182591.7	5.0000	CLO4-89-ISTD

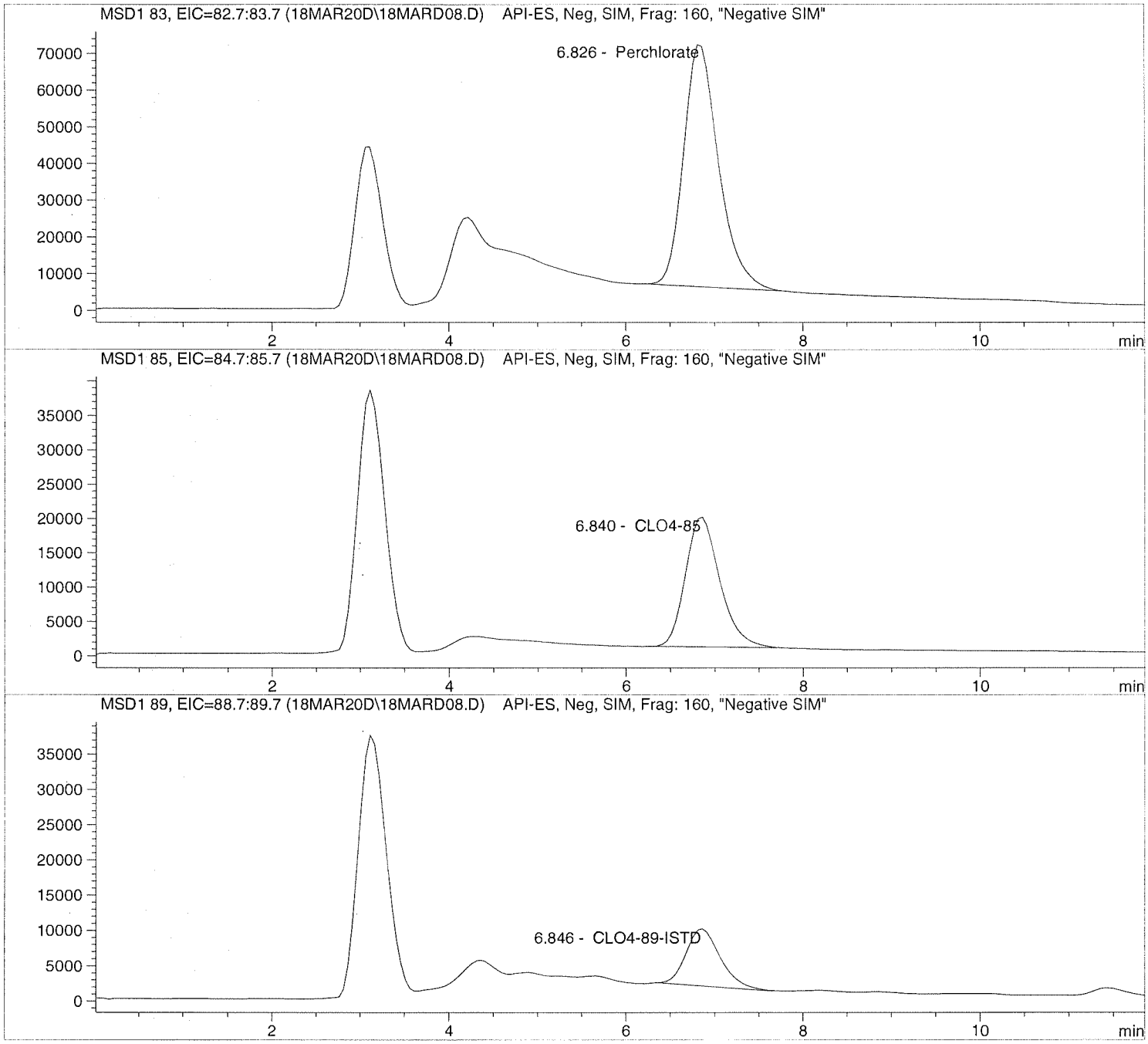
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD08.D Sample Name: 2007291002

Injection Date:	3/18/2020 10:26:24	Seq Line:	8
Sample Name:	2007291002	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD08.D Sample Name: 2007291002

Injection Date:	3/18/2020 10:26:24	Seq Line:	8
Sample Name:	2007291002	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.826	BBA	1820254.0	28.1363	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.840	PBA	513519.2	26.2461	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.846	PBA	218223.0	5.0000	CLO4-89-ISTD

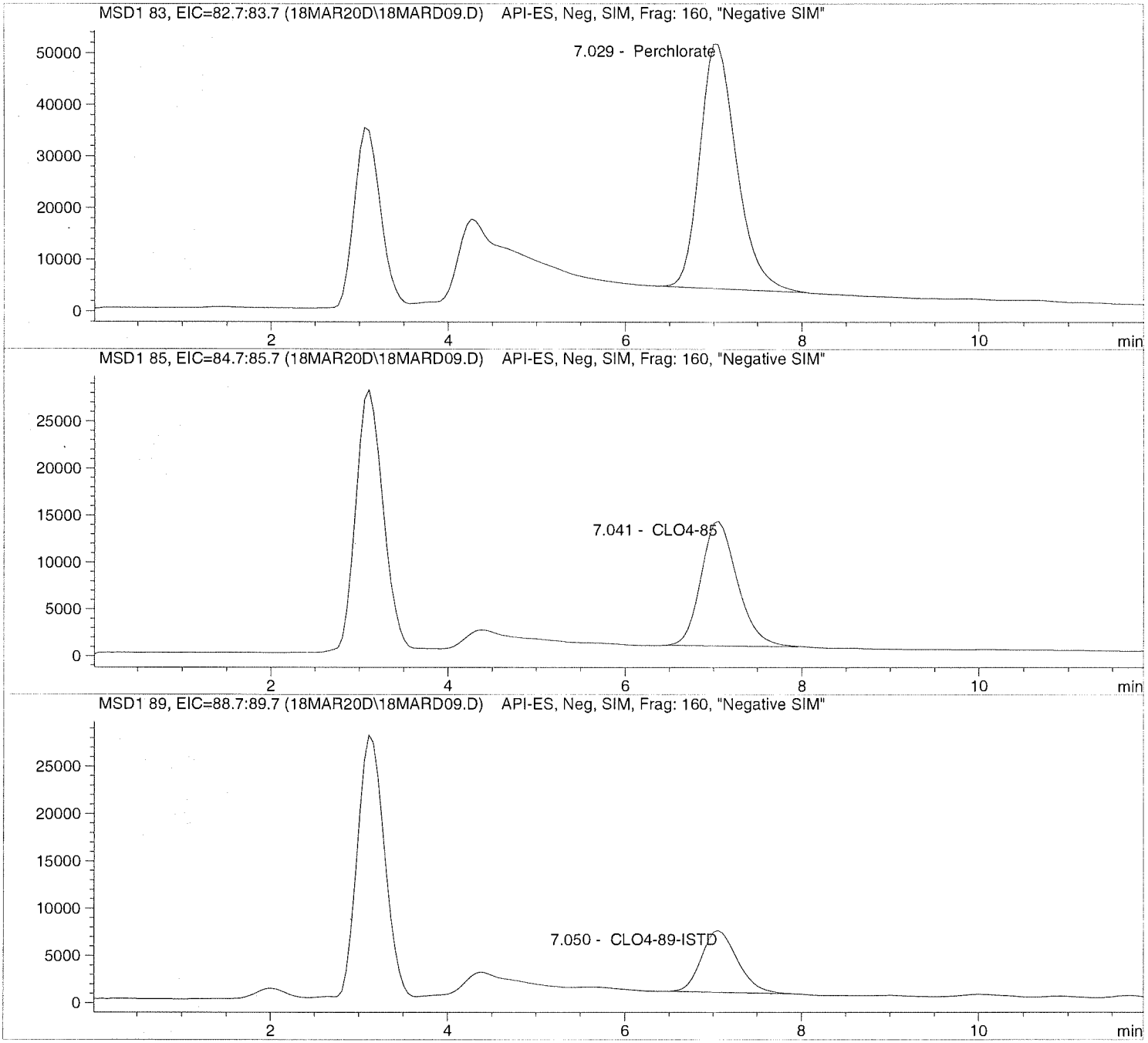
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD09.D Sample Name: 2007291003

Injection Date:	3/18/2020 10:40:23	Seq Line:	9
Sample Name:	2007291003	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD09.D Sample Name: 2007291003

Injection Date:	3/18/2020 10:40:23	Seq Line:	9
Sample Name:	2007291003	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.029	BBA	1371427.6	25.2810	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.041	PBA	379307.0	23.1180	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.050	PBA	185144.0	5.0000	CLO4-89-ISTD

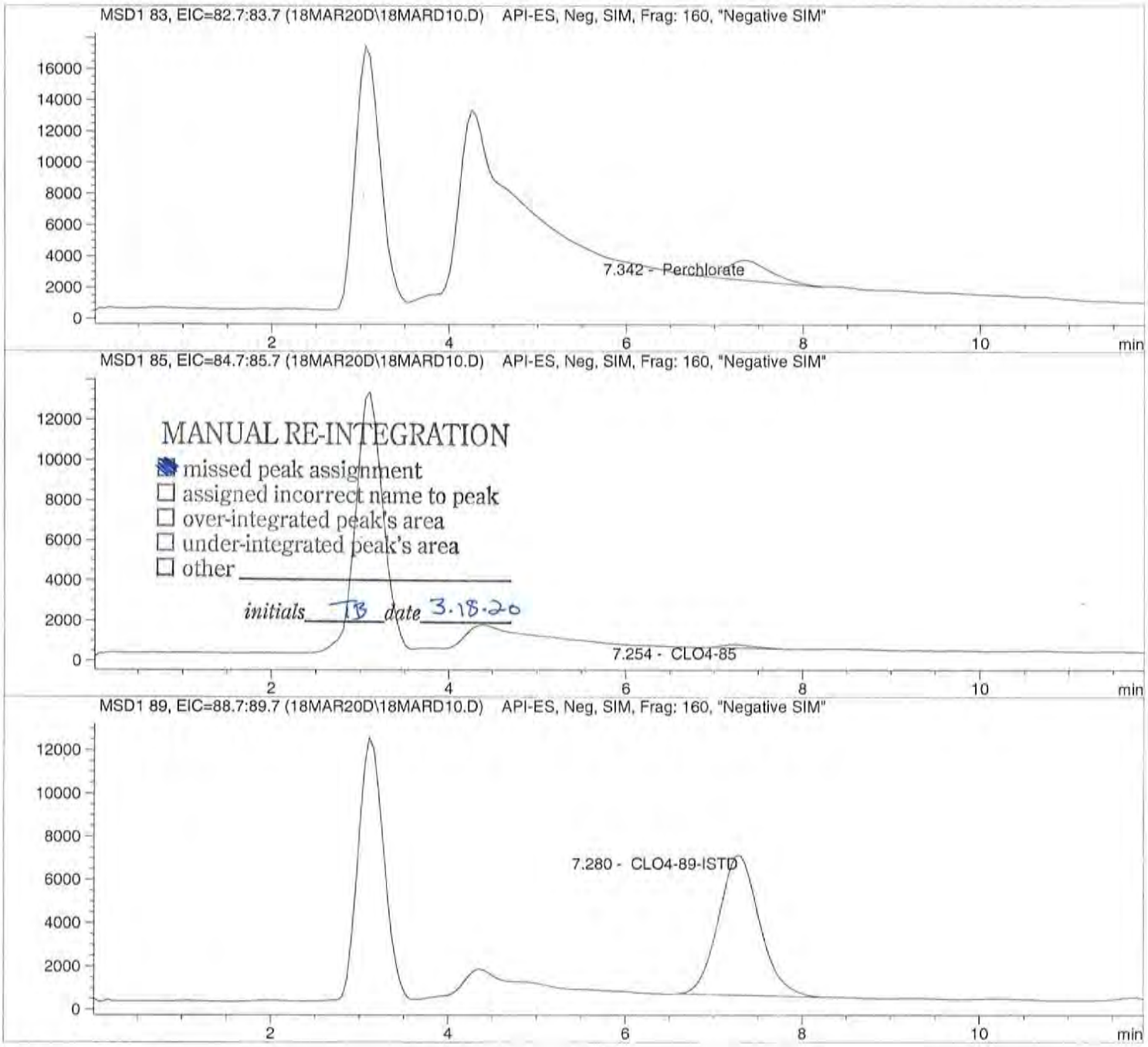
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD10.D Sample Name: 2007291004

Injection Date:	3/18/2020 10:54:25	Seq Line:	10
Sample Name:	2007291004	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD10.D Sample Name: 2007291004

Injection Date:	3/18/2020 10:54:25	Seq Line:	10
Sample Name:	2007291004	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name	
7.342	BBA	44544.0	0.7356	Perchlorate	< RL

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.254	MM	4574.2	0.1085	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.280	PBA	207738.7	5.0000	CLO4-89-ISTD

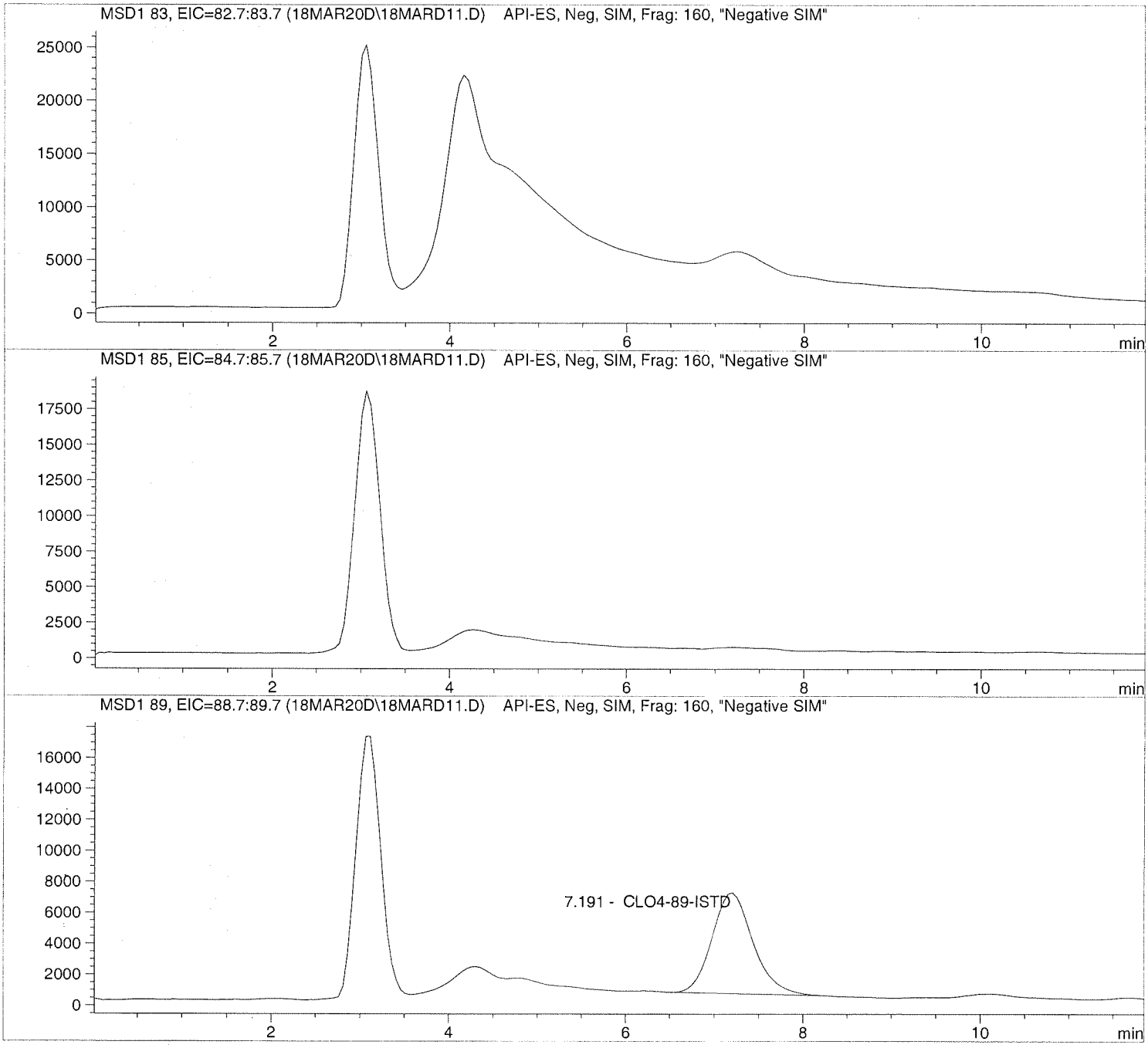
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD11.D Sample Name: 2007291005

Injection Date:	3/18/2020 11:08:24	Seq Line:	11
Sample Name:	2007291005	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD11.D Sample Name: 2007291005

Injection Date:	3/18/2020 11:08:24	Seq Line:	11
Sample Name:	2007291005	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.191	PBA	208068.5	5.0000	CLO4-89-ISTD

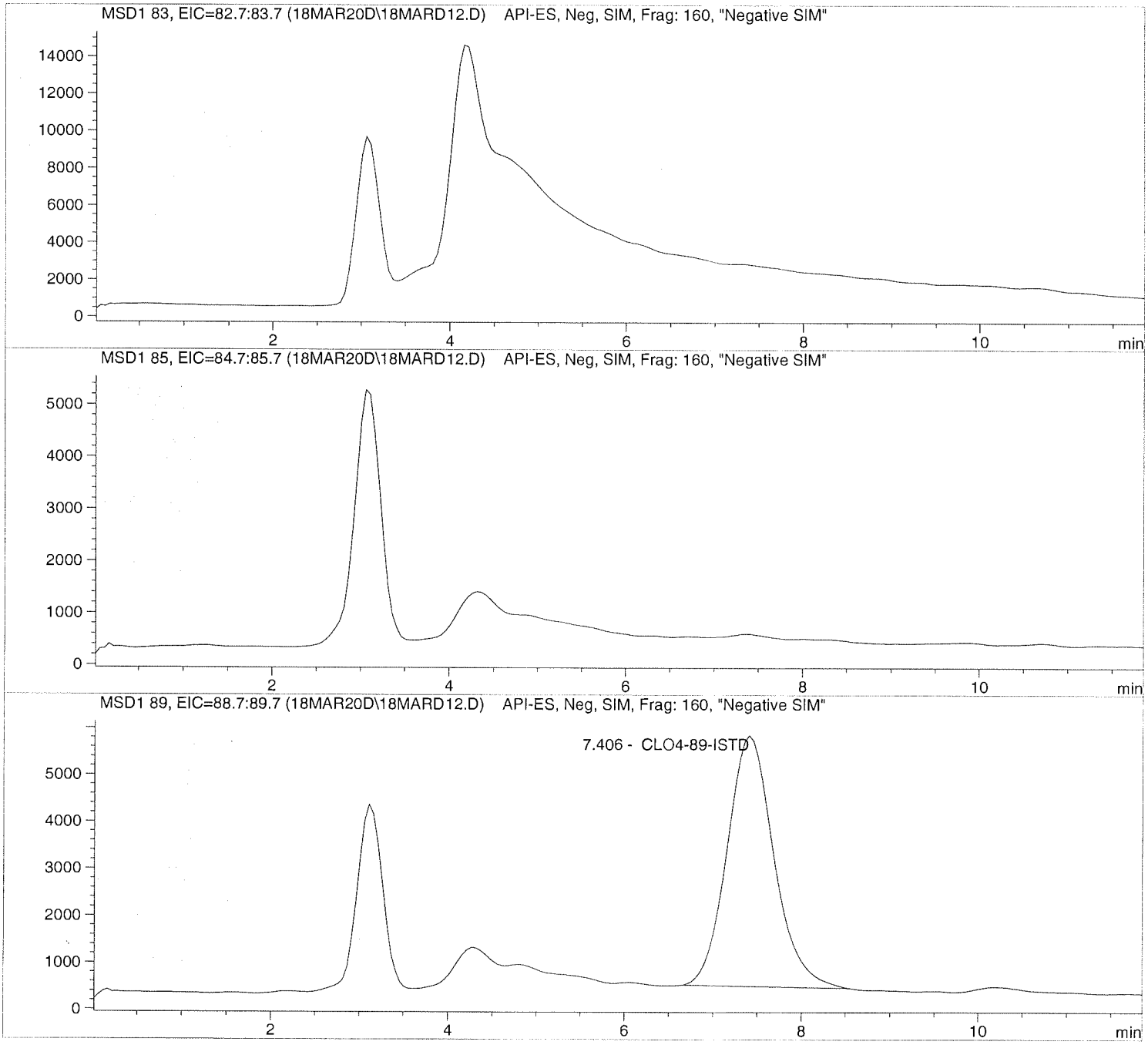
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD12.D Sample Name: 2007291006

Injection Date:	3/18/2020 11:22:18	Seq Line:	12
Sample Name:	2007291006	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD12.D Sample Name: 2007291006

Injection Date:	3/18/2020 11:22:18	Seq Line:	12
Sample Name:	2007291006	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 23. Sep. 2019,00:20:59 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.406	PBA	196541.9	5.0000	CLO4-89-ISTD

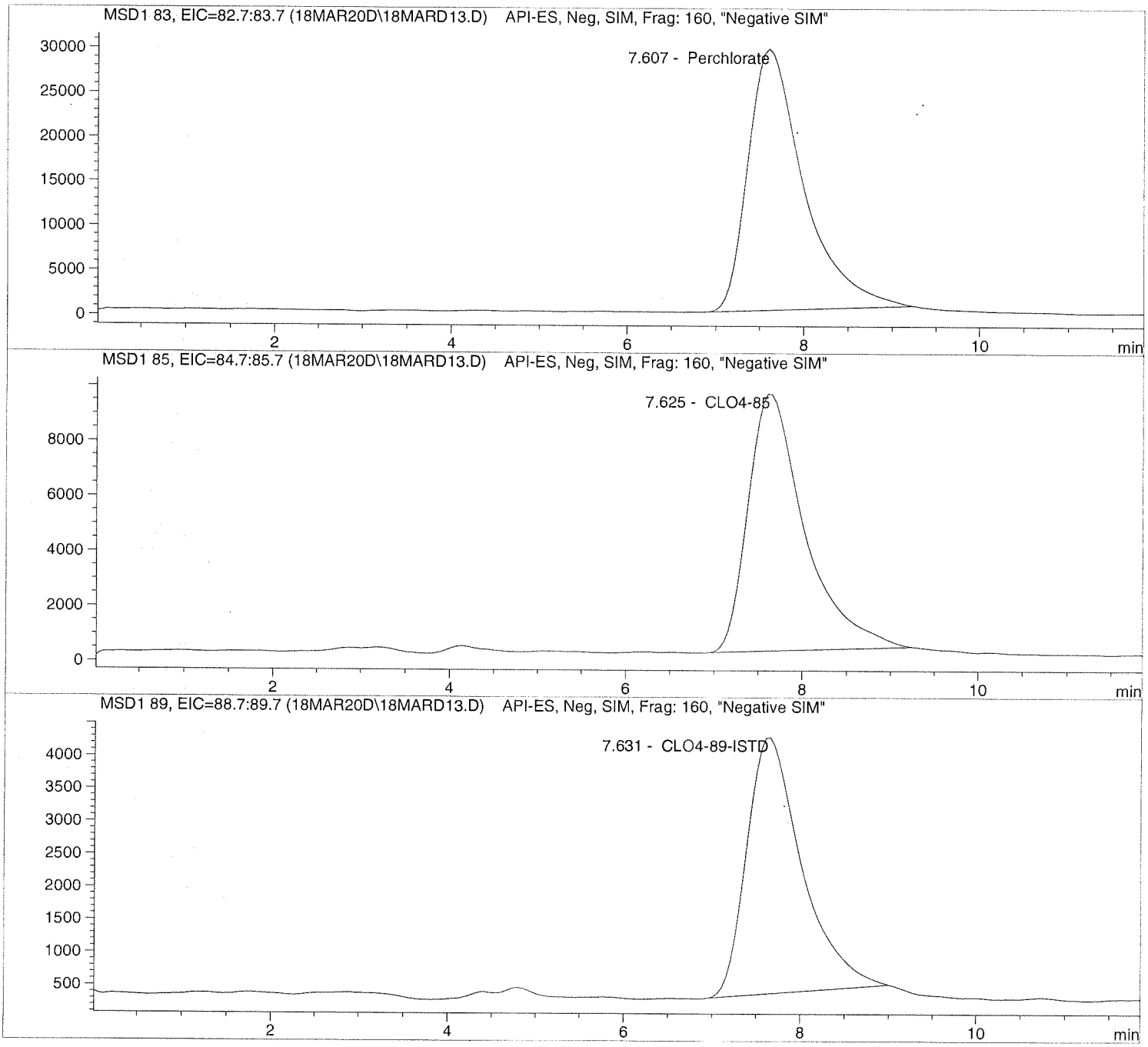
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD13.D Sample Name: 699554 CCV@25

Injection Date:	3/18/2020 11:38:56	Seq Line:	13
Sample Name:	699554 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD13.D Sample Name: 699554 CCV@25

Injection Date:	3/18/2020 11:38:56	Seq Line:	13
Sample Name:	699554 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.607	PBA	1288027.9	25.7768	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.625	PBA	416782.7	27.2150	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.631	PBA	170192.1	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

Calibration Table

Perchlorate

Calib. Data Modified : 9/23/2019 12:20:59 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
7.750	1	3	1.00000	5.39218e4	1.85454e-5		1	Perchlorate
		4	2.00000	1.32825e5	1.50574e-5			
		5	5.00000	2.76271e5	1.80982e-5			
		6	10.00000	5.61298e5	1.78159e-5			
		7	25.00000	1.51820e6	1.64669e-5			
		8	50.00000	3.31156e6	1.50986e-5			
		9	75.00000	5.23914e6	1.43153e-5			
7.767	3	3	5.00000	2.14568e5	2.33026e-5	+I1		CLO4-89-ISTD
		4	5.00000	2.04758e5	2.44190e-5			
		5	5.00000	2.13407e5	2.34294e-5			
		6	5.00000	2.09246e5	2.38953e-5			
		7	5.00000	2.07403e5	2.41077e-5			
		8	5.00000	2.02929e5	2.46391e-5			
		9	5.00000	1.97933e5	2.52611e-5			
7.778	2	3	1.00000	1.70436e4	5.86732e-5		1	CLO4-85
		4	2.00000	4.20754e4	4.75337e-5			
		5	5.00000	9.24707e4	5.40712e-5			
		6	10.00000	1.68622e5	5.93041e-5			
		7	25.00000	4.63724e5	5.39114e-5			
		8	50.00000	9.95933e5	5.02042e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		9	75.00000	1.58066e6	4.74484e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 3.581 min To 11.899 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 3.581 min To 11.896 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Compound: CLO4-85
- Time Window : From 3.601 min To 11.913 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Peak Sum Table

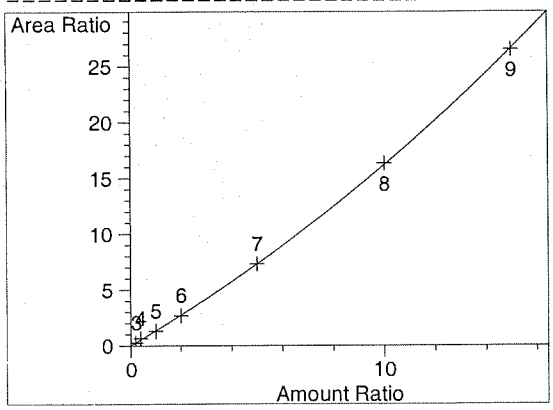
No Entries in table

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

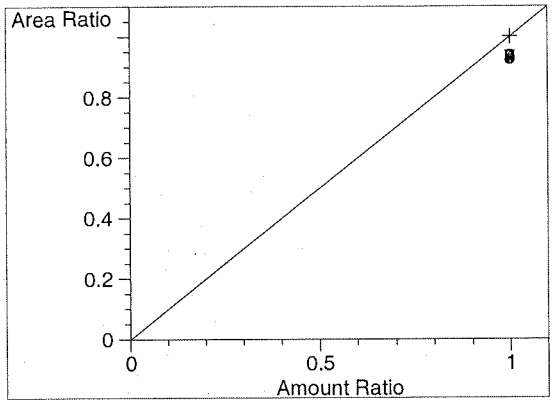
==========

Calibration Curves

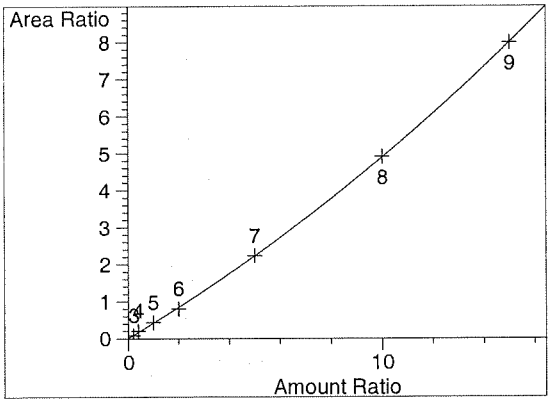
==========



Perchlorate at exp. RT: 7.750
MSD1 83, EIC=82.7:83.7
Correlation: 0.99975
Residual Std. Dev.: 0.10284
Formula: $y = ax^2 + bx + c$
a: 3.10463e-2
b: 1.30369
c: 2.19496e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333



CLO4-89-ISTD at exp. RT: 7.767
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 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1
Level 8 : 1
Level 9 : 1



CLO4-85 at exp. RT: 7.778
MSD1 85, EIC=84.7:85.7
Correlation: 0.99969
Residual Std. Dev.: 0.02601
Formula: $y = ax^2 + bx + c$
a: 8.85207e-3
b: 3.99283e-1
c: 1.33505e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333

==========

Batch Report: C:\HPCHEM\1\DATA\20SEP19I\20SEP19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	5.39218e4	7.750	8.75982e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.32825e5	7.797	2.37682
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.76271e5	7.770	4.77237
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	5.61298e5	7.785	9.75097
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	1.51820e6	7.741	25.01082
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	3.31156e6	7.775	50.40300
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.23914e6	7.736	74.79107
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	5.74879e5	7.756	10.11855

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.14568e5	7.767	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.04758e5	7.816	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.13407e5	7.793	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.09246e5	7.798	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.07403e5	7.763	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.02929e5	7.800	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.97933e5	7.765	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	2.06243e5	7.776	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	1.70436e4	7.778	8.24488e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.20754e4	7.805	2.38090
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	9.24707e4	7.787	5.14166
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	1.68622e5	7.781	9.52209
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	4.63724e5	7.760	25.04916
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	9.95933e5	7.793	50.14223
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.58066e6	7.758	74.93659
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	1.71000e5	7.760	9.79043

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\SEP\20SEP19I.S

Sequence Table:

Method and Injection Info Part:

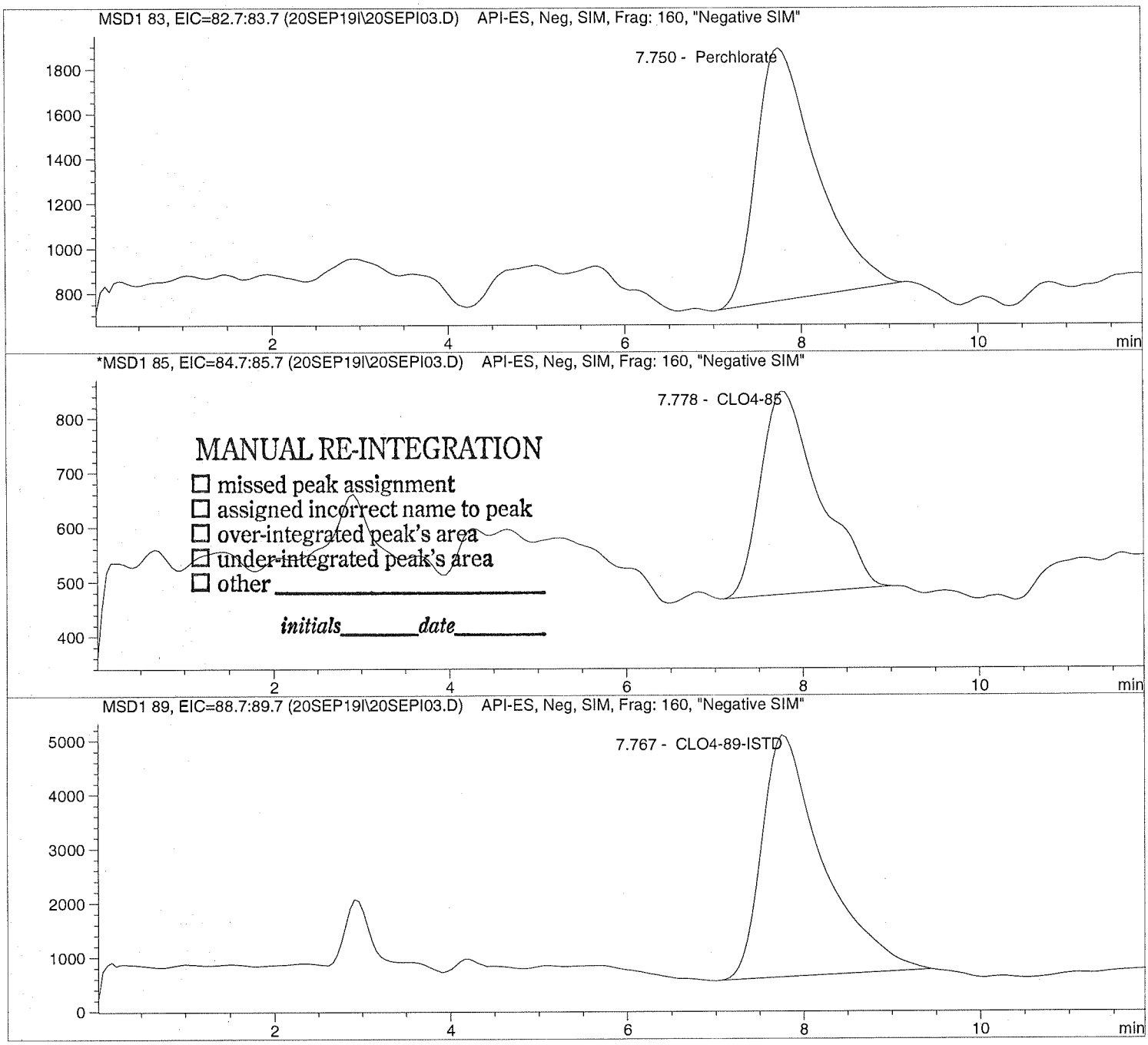
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
11	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.778	MM	17043.6	0.8245	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

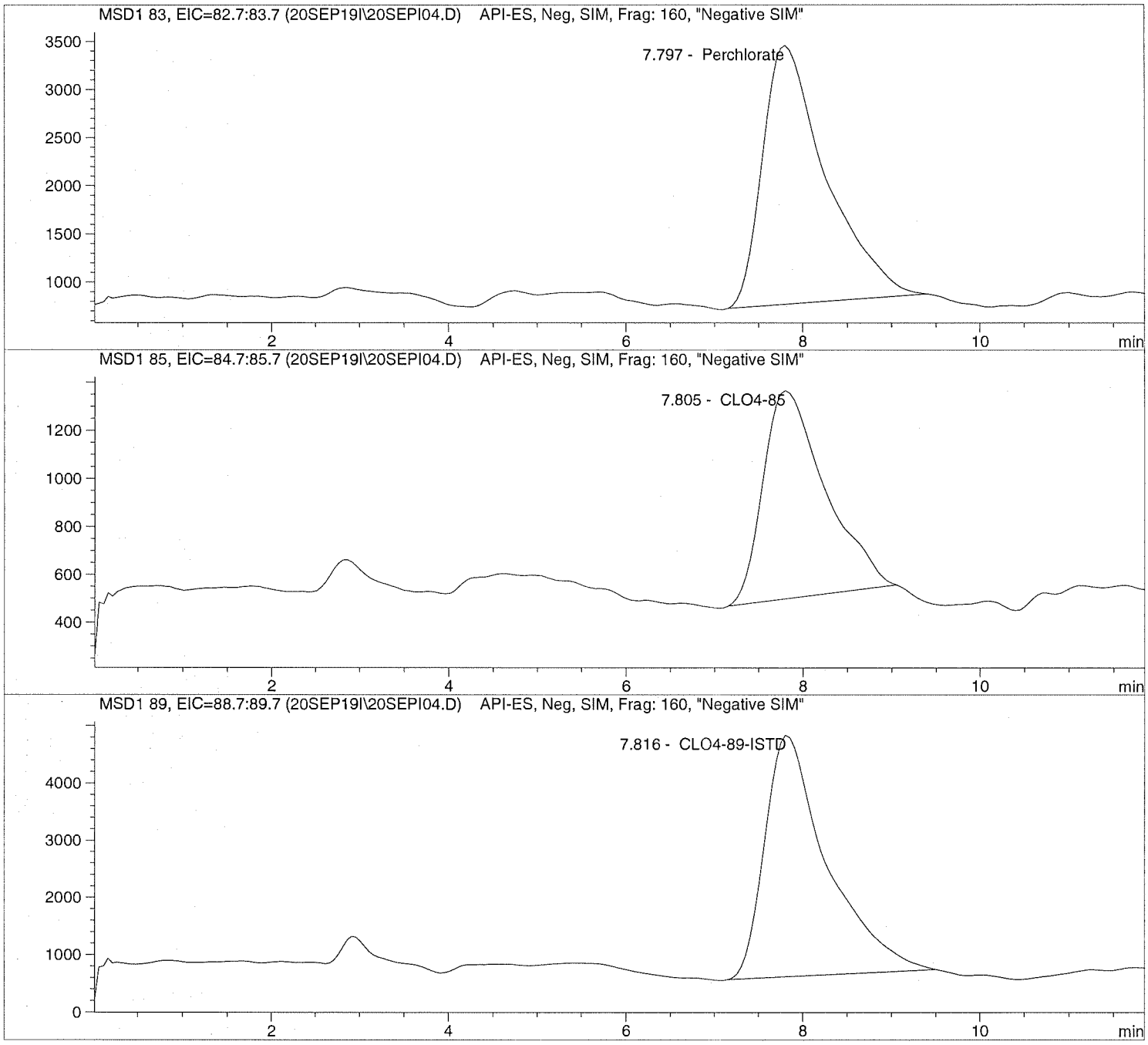
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.797	PBA	132825.2	2.3768	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.805	PBA	42075.4	2.3809	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.816	PBA	204758.3	5.0000	CLO4-89-ISTD

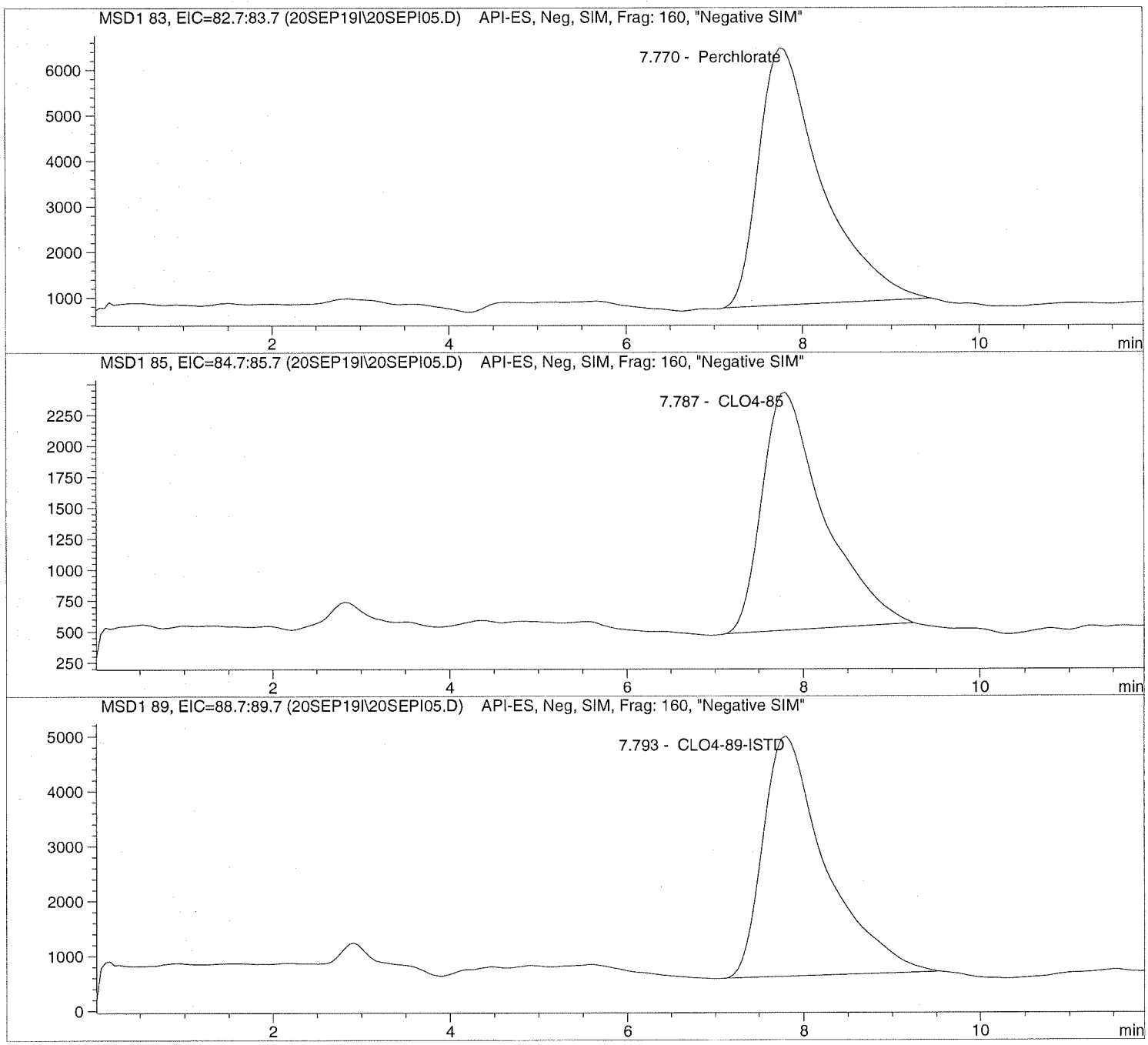
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.770	PBA	276270.7	4.7724	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.787	PBA	92470.7	5.1417	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	213407.0	5.0000	CLO4-89-ISTD

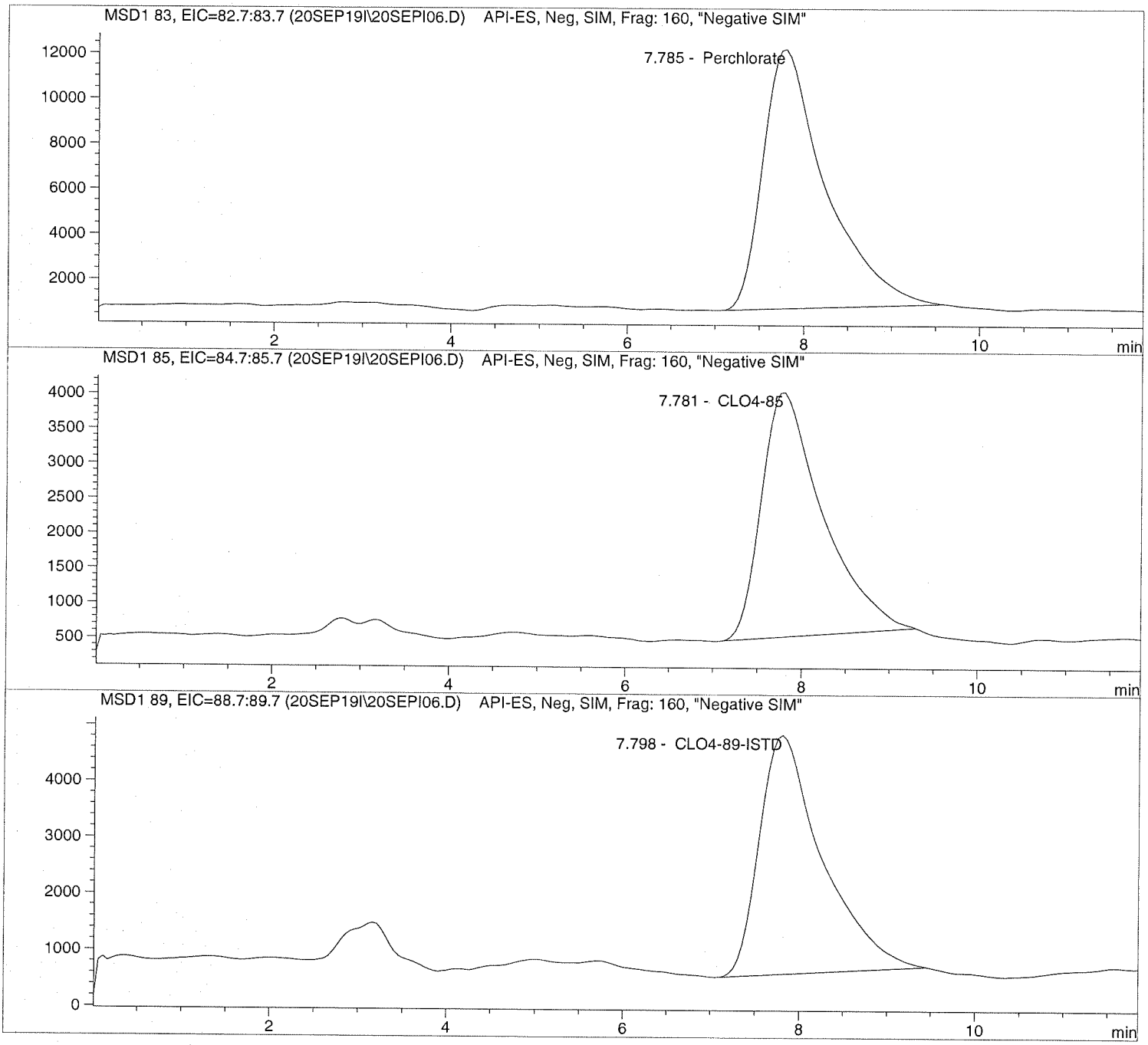
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.785	PBA	561297.7	9.7510	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.781	PBA	168622.4	9.5221	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.798	PBA	209246.3	5.0000	CLO4-89-ISTD

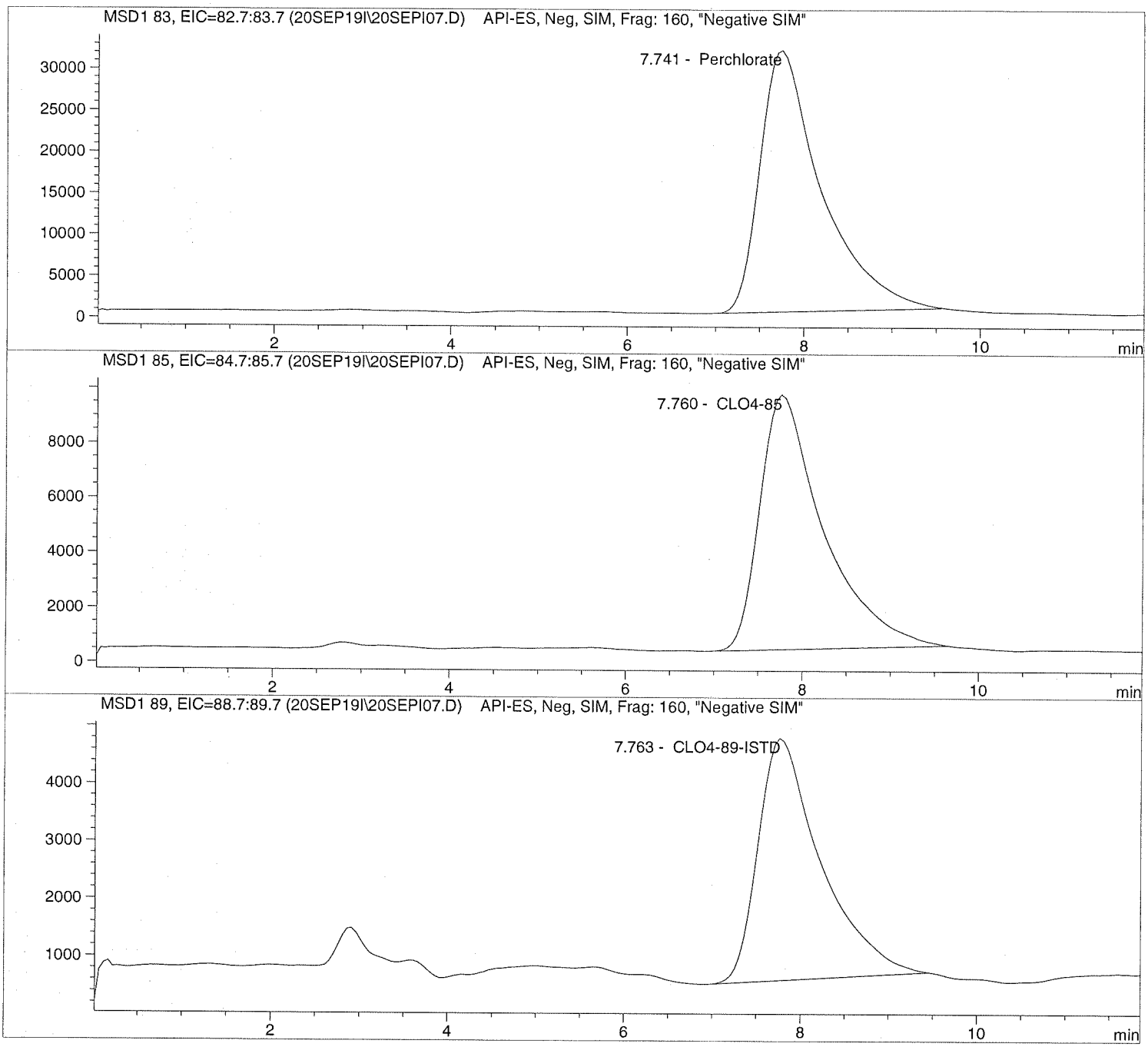
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.741	PBA	1518197.9	25.0108	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	463724.0	25.0492	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.763	PBA	207402.8	5.0000	CLO4-89-ISTD

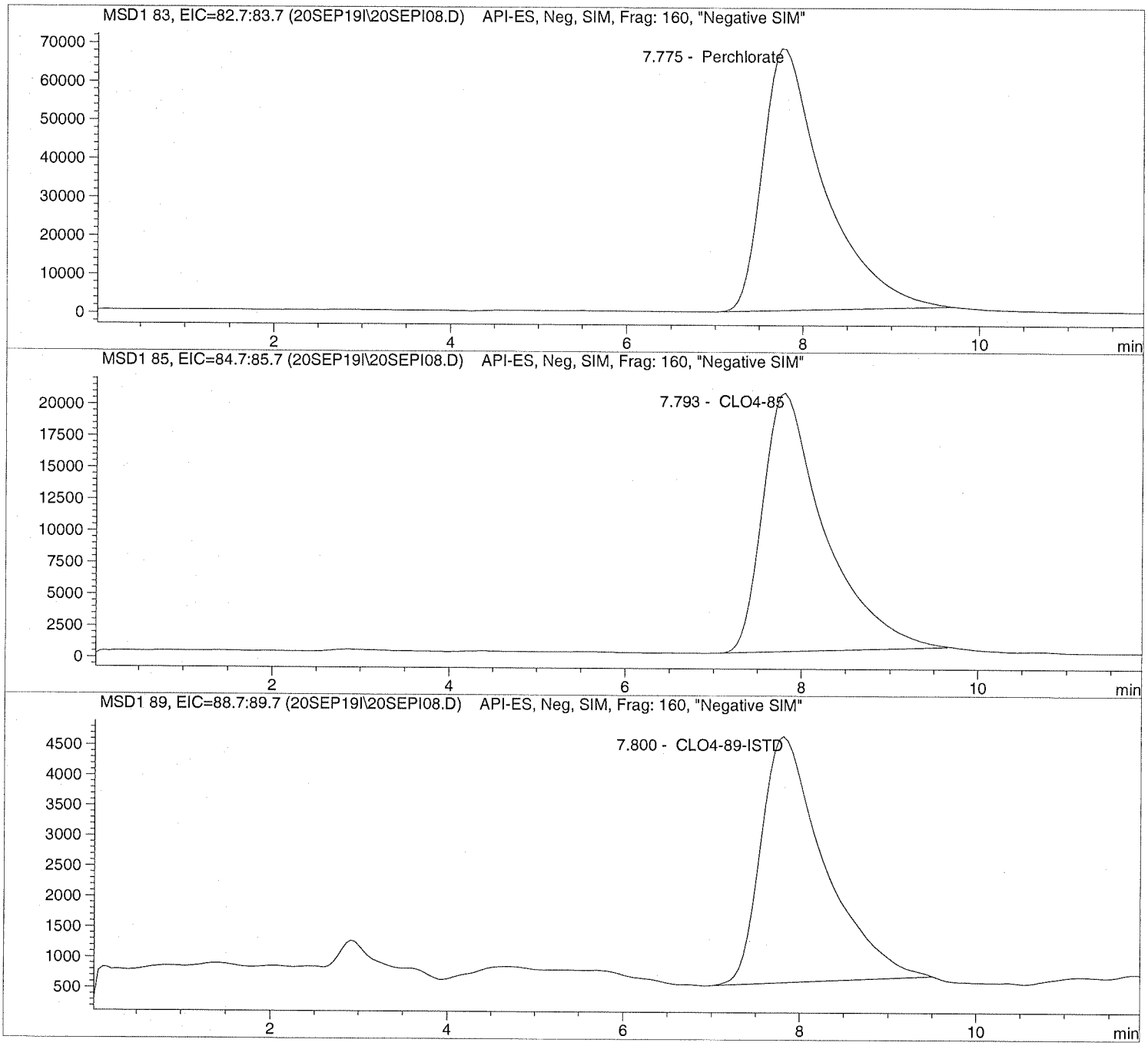
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.775	PBA	3311559.2	50.4030	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	995933.0	50.1422	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.800	PBA	202929.2	5.0000	CLO4-89-ISTD

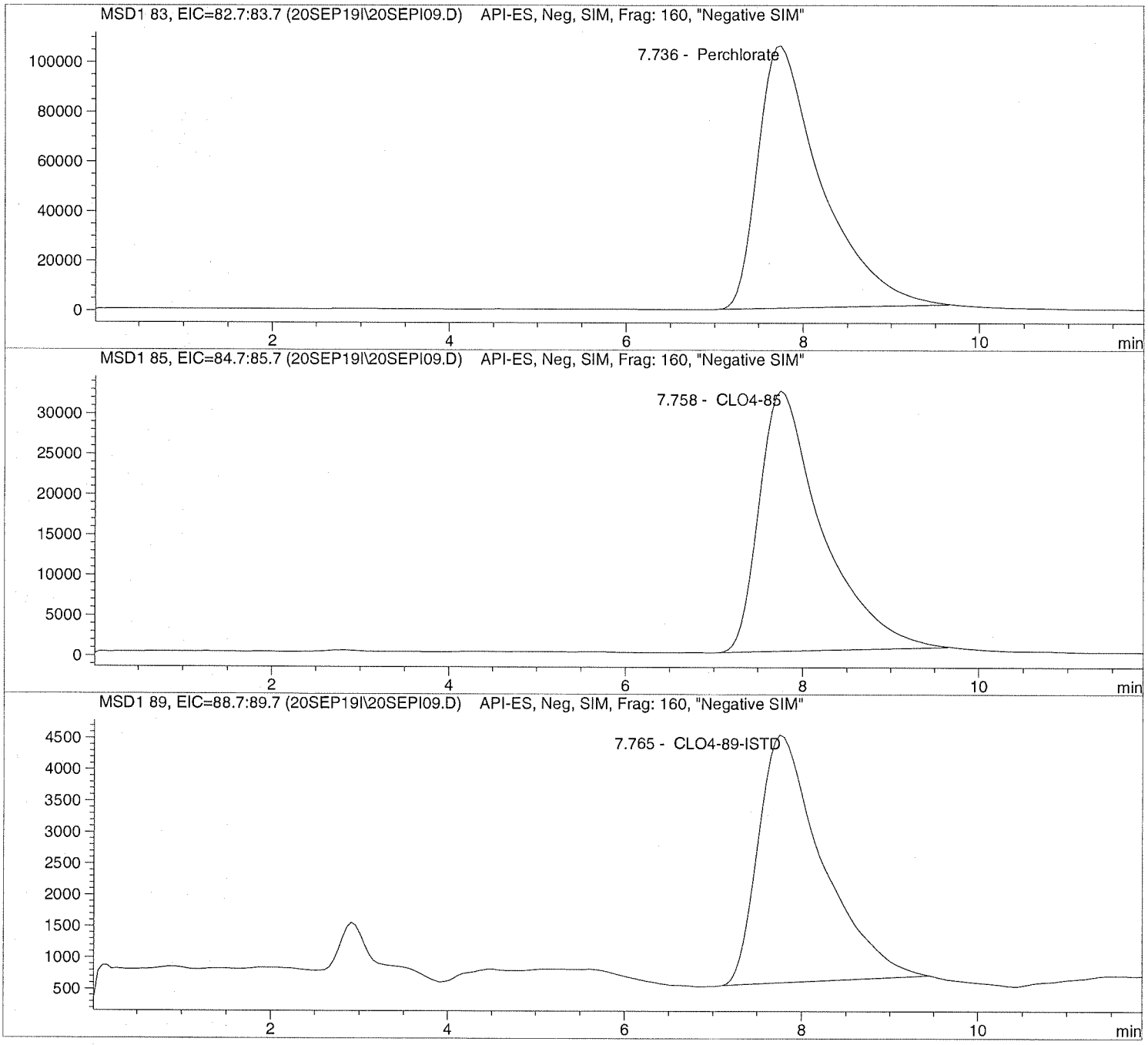
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.736	PBA	5239145.0	74.7911	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.758	PBA	1580664.2	74.9366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.765	PBA	197932.5	5.0000	CLO4-89-ISTD

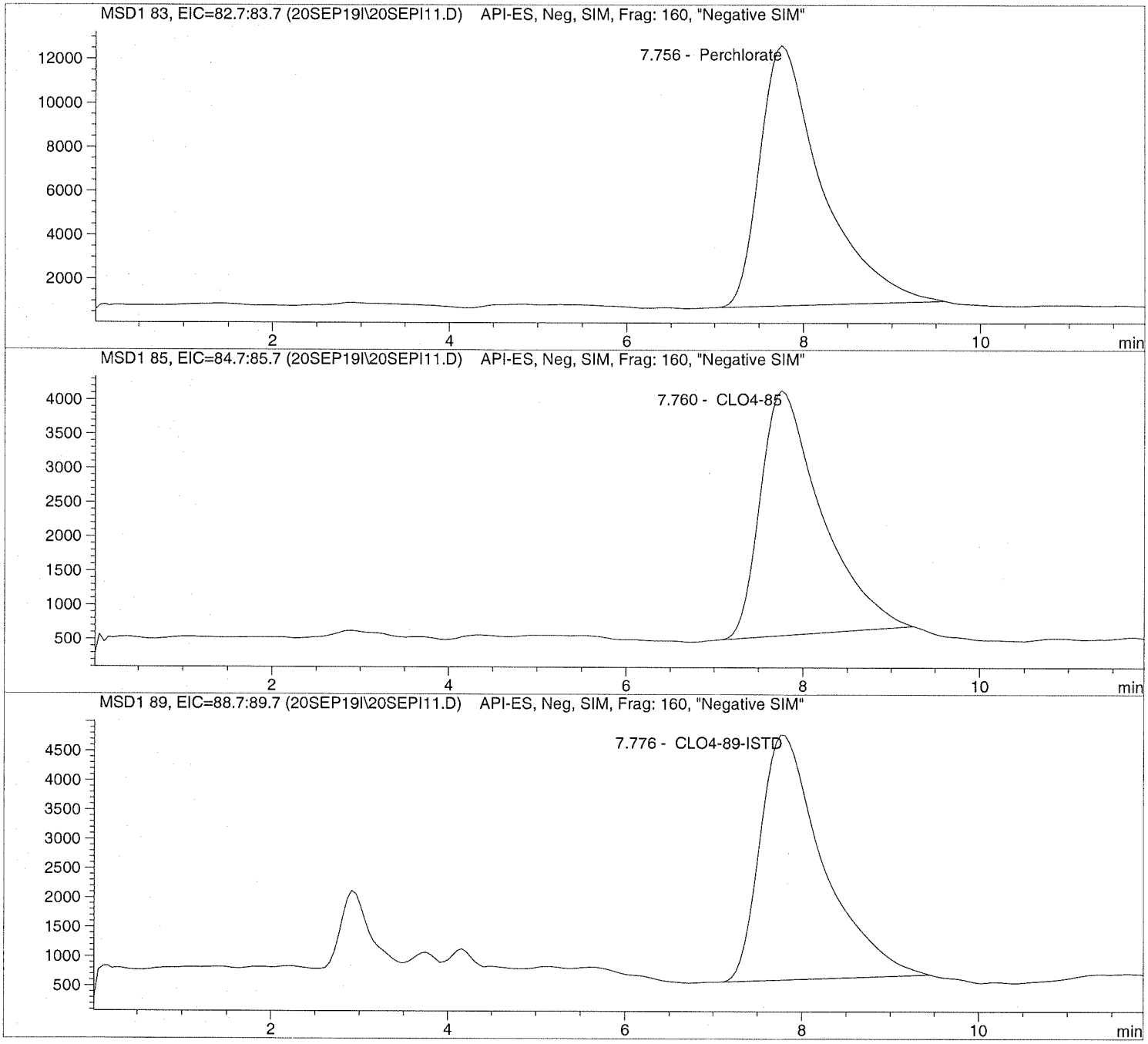
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.756	PBA	574879.4	10.1185	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	171000.4	9.7904	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.776	PBA	206243.3	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

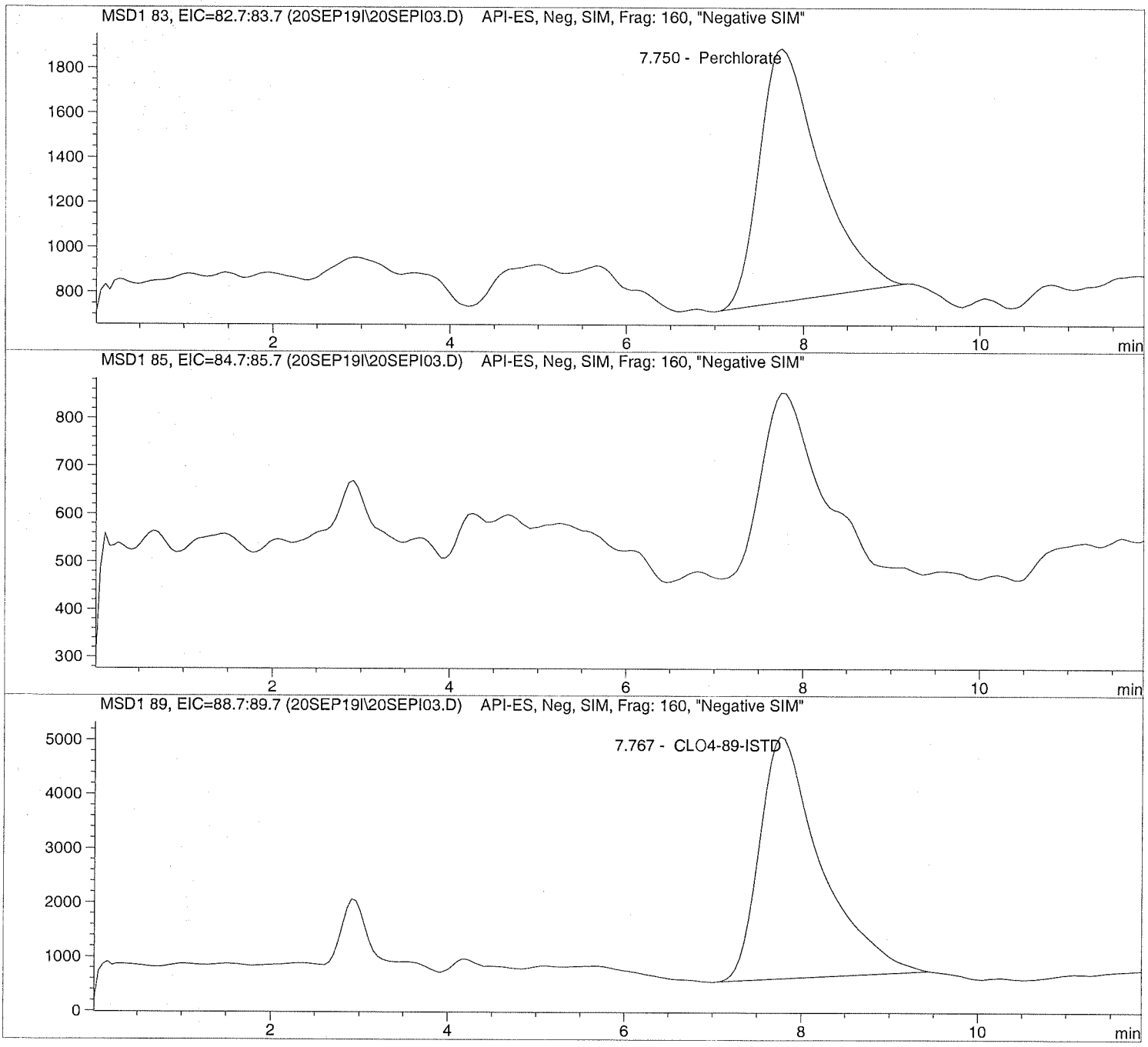
Unmodified

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:27:11

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	9/23/2019 12:27:11

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

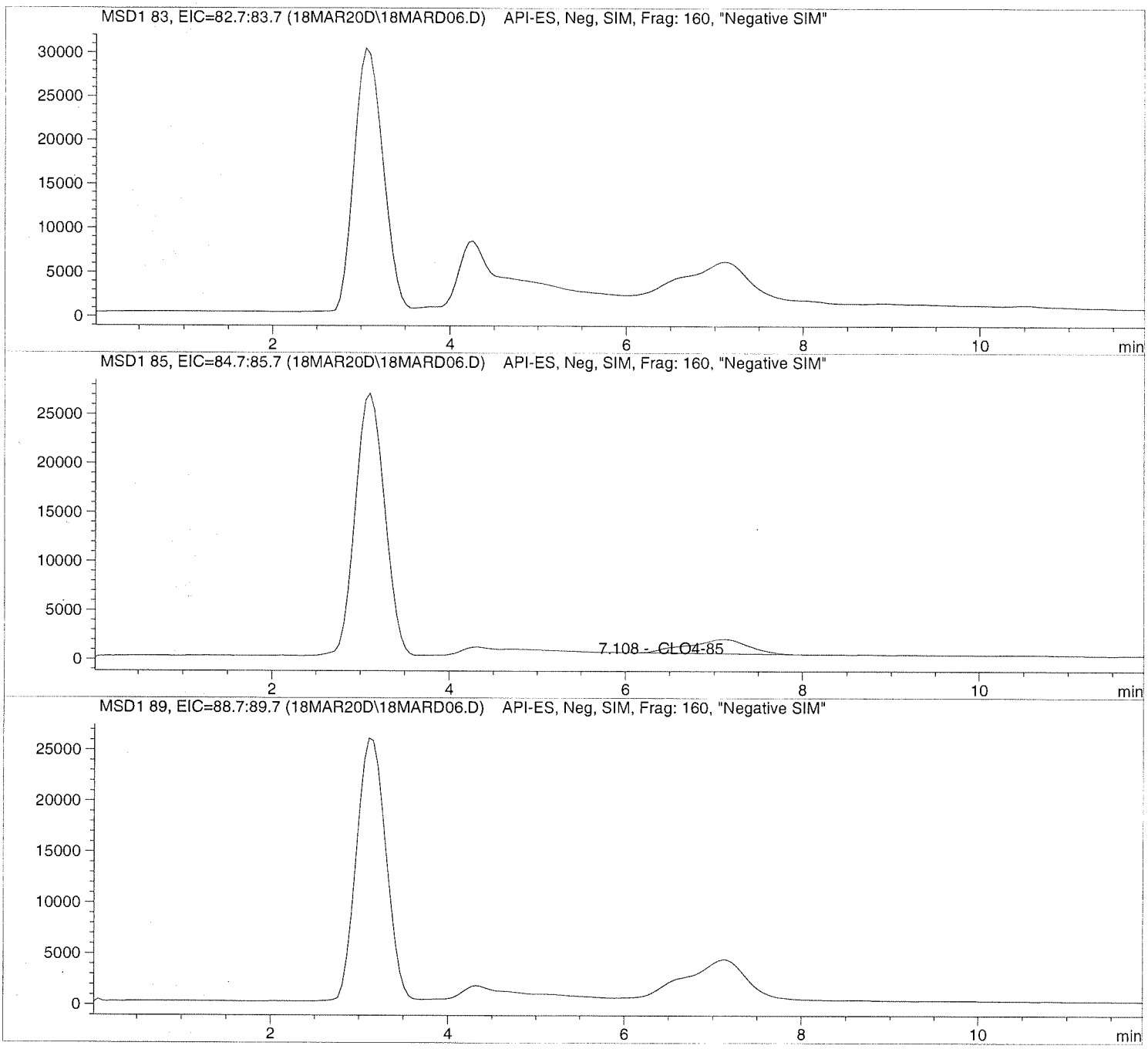
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD06.D Sample Name: 699552 72911MS

Injection Date:	3/18/2020 09:57:45	Seq Line:	6
Sample Name:	699552 72911MS	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD06.D Sample Name: 699552 72911MS

Injection Date:	3/18/2020 09:57:45	Seq Line:	6
Sample Name:	699552 72911MS	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.108	PBA	70012.2	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

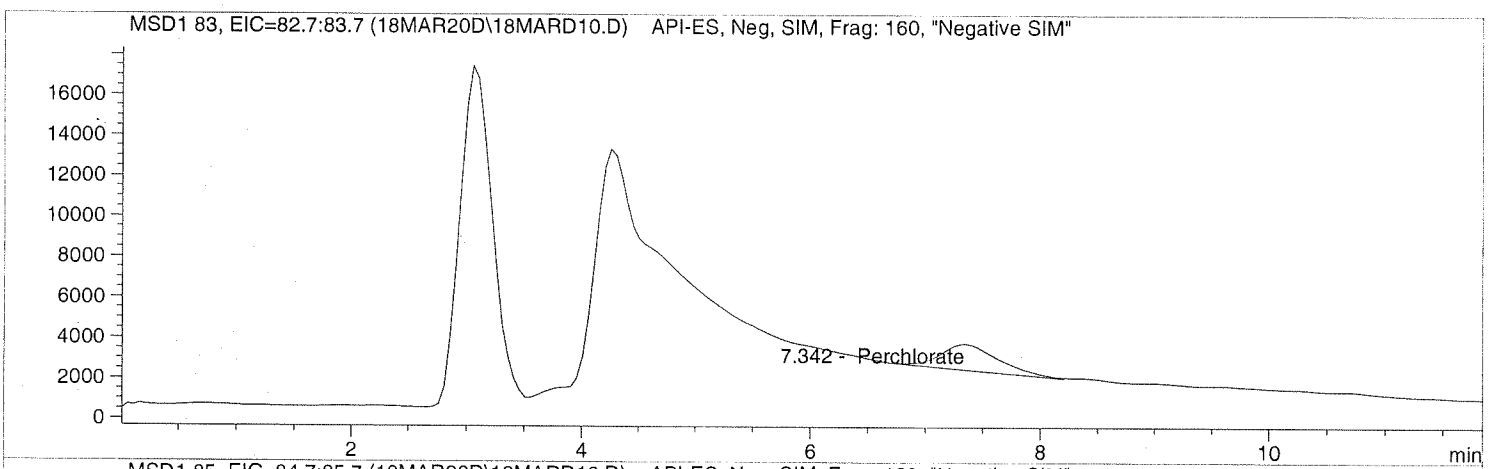
*** End of Report ***

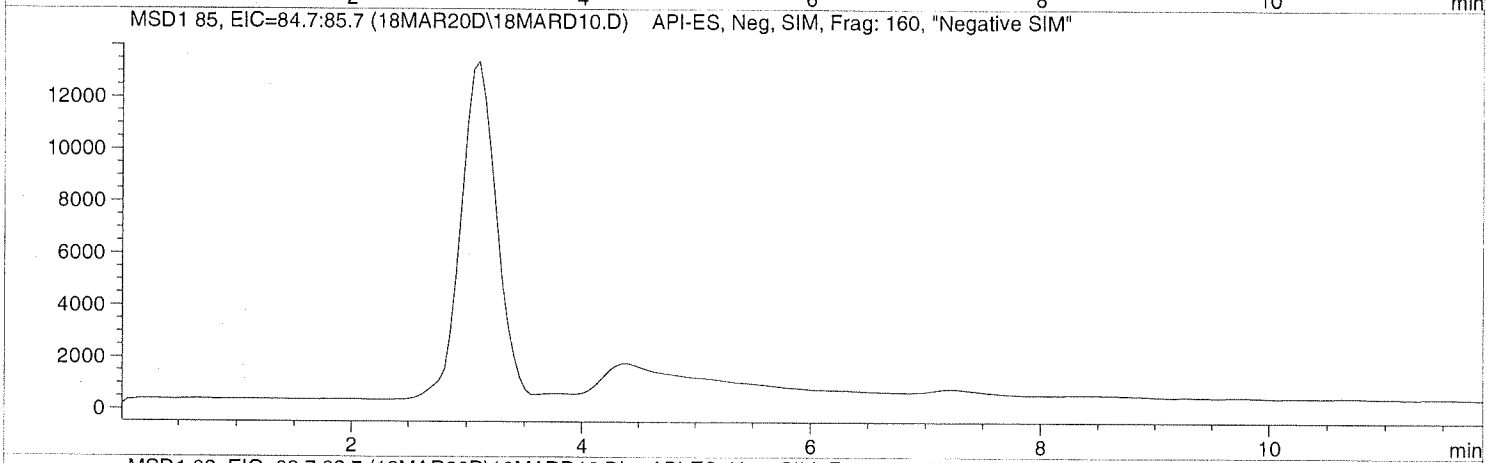
Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD10.D Sample Name: 2007291004

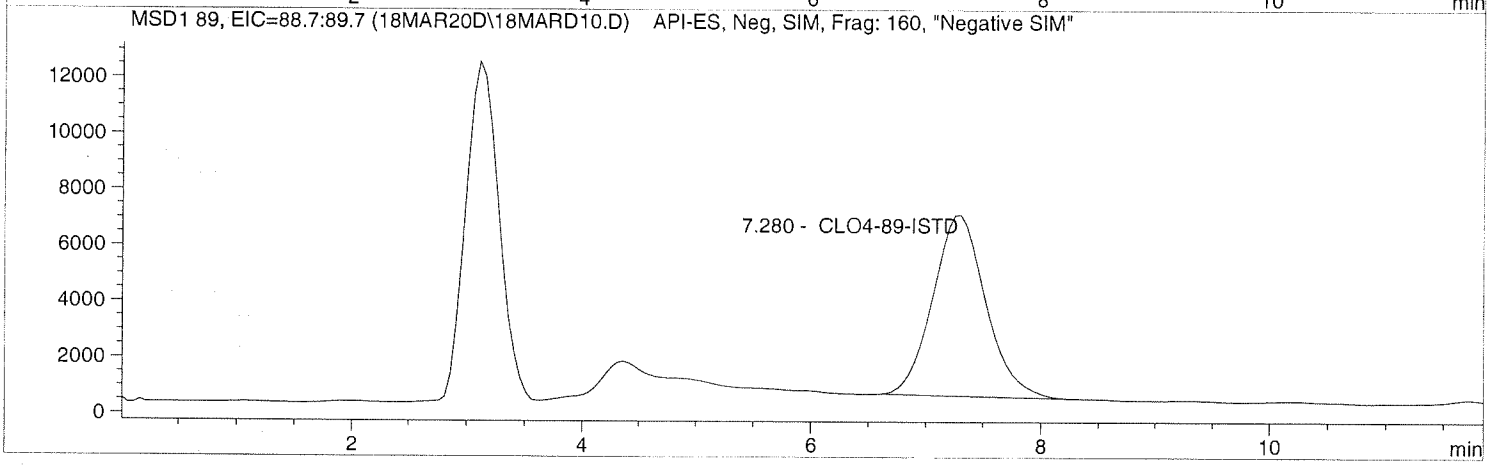
Injection Date:	3/18/2020 10:54:25	Seq Line:	10
Sample Name:	2007291004	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\18MAR20D\18MARD10.D Sample Name: 2007291004

Injection Date:	3/18/2020 10:54:25	Seq Line:	10
Sample Name:	2007291004	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.342	BBA	44544.0	0.7356	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.280	PBA	207738.7	5.0000	CLO4-89-ISTD

*** End of Report ***

HS20030383 8260_W_DOD Raw Data

ALS WO# HS20030383

MSVOA06 -Logbook

Batch: 39897 **Analyst:** Presenta Cabascango

Date: 03-11-2020 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	03-11-2020 10:23 am	1.00	50 mL	50 mL	X031101.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	03-11-2020 10:47 am	1.00	50 mL	50 mL	X031102.D	Liquid	Y	NA
	0.10 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	03-11-2020 11:11 am	1.00	50 mL	50 mL	X031103.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	03-11-2020 11:59 am	1.00	50 mL	50 mL	X031104.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	03-11-2020 12:23 pm	1.00	50 mL	50 mL	X031105.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	03-11-2020 12:47 pm	1.00	50 mL	50 mL	X031106.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	03-11-2020 01:11 pm	1.00	50 mL	50 mL	X031107.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	03-11-2020 01:35 pm	1.00	50 mL	50 mL	X031108.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	03-11-2020 01:59 pm	1.00	50 mL	50 mL	X031109.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	03-11-2020 02:23 pm	1.00	50 mL	50 mL	X031110.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	03-11-2020 02:46 pm	1.00	50 mL	50 mL	X031111.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	03-11-2020 03:11 pm	1.00	50 mL	50 mL	X031112.D	Liquid	Y	NA
13	BLANK	SAMP	03-11-2020 03:34 pm	1.00	50 mL	50 mL	X031113.D	Liquid	Y	NA
14	CCV	ICV	03-11-2020 03:58 pm	1.00	50 mL	50 mL	X031114.D	Liquid	Y	NA
	10 uL ical std/50 mL DI									
15	BLANK	SAMP	03-11-2020 04:22 pm	1.00	50 mL	50 mL	X031115.D	Liquid	Y	NA
16	VLCSW-200311	LCS	03-11-2020 04:46 pm	1.00	50 mL	50 mL	X031116.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
17	BLANK	SAMP	03-11-2020 05:10 pm	1.00	50 mL	50 mL	X031117.D	Liquid	Y	NA
18	VBLKW-200311	MBLK	03-11-2020 05:34 pm	1.00	50 mL	50 mL	X031118.D	Liquid	Y	NA
19	HS20030447-01	SAMP	03-11-2020 05:59 pm	1.00	50 mL	50 mL	X031119.D	Liquid	Y	NA
	neat sample									
20	HS20030172-02	SAMP	03-11-2020 06:23 pm	1.00	50 mL	50 mL	X031120.D	Liquid	Y	<2
21	HS20030425-03	SAMP	03-11-2020 06:47 pm	1.00	50 mL	50 mL	X031121.D	Liquid	Y	<2
22	HS20030383-07	SAMP	03-11-2020 07:11 pm	1.00	50 mL	50 mL	X031122.D	Liquid	Y	<2
23	HS20030172-01	SAMP	03-11-2020 07:35 pm	1.00	50 mL	50 mL	X031123.D	Liquid	Y	<2
24	HS20030425-01	SAMP	03-11-2020 07:59 pm	1.00	50 mL	50 mL	X031124.D	Liquid	Y	<2
25	HS20030383-06	SAMP	03-11-2020 08:23 pm	1.00	50 mL	50 mL	X031125.D	Liquid	Y	<2
26	HS20030447-01MS	MS	03-11-2020 08:47 pm	1.00	50 mL	50 mL	X031126.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
27	HS20030447-01MSD	MSD	03-11-2020 09:11 pm	1.00	50 mL	50 mL	X031127.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
28	CCV-END	CCV	03-11-2020 09:35 pm	1.00	50 mL	50 mL	X031128.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									

Chemical	Value
SURR SPK ID	31106-16-03
IS ID	31106-16-04
ICV STD ID	31105-08-01
LCS/MS ID	31105-08-01
CAL STD ID	31106-20-01/02
BFB Ion 95 Response	31006-16-03
BFB ID	634-64-11

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

	CLIENT SAMPLE NO.	SMC1 (DCE) #	SMC2 #	SMC3 #	OTHER (TOL) #	TOT OUT
01	VLCSW-200311	101	98	102	100	0
02	VBLKW-200311	89	90	99	106	0
03	HS20030383-07	90	91	98	106	0
04	HS20030383-06	91	92	100	104	0
05						
06						
07						
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28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3	= 4-Bromofluorobenzene	(0-130)
OTHER(TOL)	= Toluene-d8	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,2-Dichloroethene	50.00	51.87	104	80-120
Trichloroethene	50.00	48.80	98	80-120
Methylene Chloride	50.00	50.29	100	80-120
Vinyl Chloride	50.00	46.83	94	80-120
1,1,2-Trichloroethane	50.00	50.10	100	80-120
1,1-Dichloroethene	50.00	48.08	96	80-120
1,2-Dichloroethane	50.00	49.96	100	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-200311

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Lab File ID: X031118 Lab Sample ID: VBLKW-200311

Date Analyzed: 03/11/20 Time Analyzed: 1734

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-200311	VLCSW-200311	X031116	1646
02	HS20030383-0	HS20030383-07	X031122	1911
03	HS20030383-0	HS20030383-06	X031125	2023
04	HS20030447-0	HS20030447-01M	X031126	2047
05	HS20030447-0	HS20030447-01M	X031127	2111
06				
07				
08				
09				
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12				
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30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Lab File ID: X031101 BFB Injection Date: 03/11/20

Instrument ID: VOA6 BFB Injection Time: 1023

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	26.9
75	30.0 - 60.0% of mass 95	53.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	62.8
175	5.0 - 9.0% of mass 174	4.7 (7.5)1
176	95.0 - 101.0% of mass 174	59.8 (95.2)1
177	5.0 - 9.0% of mass 176	3.9 (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	VSTD000.25	VSTD000.25	X031102	03/11/20	1047
02	VSTD000.5	VSTD000.5	X031103	03/11/20	1111
03	VSTD001	VSTD001	X031104	03/11/20	1159
04	VSTD002	VSTD002	X031105	03/11/20	1223
05	VSTD005	VSTD005	X031106	03/11/20	1247
06	VSTD020	VSTD020	X031107	03/11/20	1311
07	VSTD050	VSTD050	X031108	03/11/20	1335
08	VSTD100	VSTD100	X031109	03/11/20	1359
09	VSTD150	VSTD150	X031110	03/11/20	1423
10	VSTD200	VSTD200	X031111	03/11/20	1446
11	ICV	ICV	X031114	03/11/20	1558
12	VLCSW-200311	VLCSW-200311	X031116	03/11/20	1646
13	VBLKW-200311	VBLKW-200311	X031118	03/11/20	1734
14	HS20030383-0	HS20030383-07	X031122	03/11/20	1911
15	HS20030383-0	HS20030383-06	X031125	03/11/20	2023
16	HS20030447-0	HS20030447-01M	X031126	03/11/20	2047
17	HS20030447-0	HS20030447-01M	X031127	03/11/20	2111
18	CCV-END	CCV-END	X031128	03/11/20	2135
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Instrument ID: VOA6 Calibration Date(s): 03/11/20 03/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1047 1446

LAB FILE ID: RF0.25: X031102 RF0.5: X031103 RF1: X031104
RF2: X031105 RF5: X031106 RF20: X031107

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Trichloroethene		0.346	0.327	0.378	0.383	0.363
Methylene Chloride		1994	2880	5914	13968	48885
Vinyl Chloride		0.706	0.589	0.646	0.663	0.661
1,1,2-Trichloroethane		0.266	0.250	0.288	0.262	0.267
1,1-Dichloroethene		0.435	0.318	0.414	0.426	0.434
1,2-Dichloroethane		0.605	0.598	0.654	0.691	0.643
1,2-Dichloroethane-d4		2059	4014	8384	19257	73320
Dibromofluoromethane		1165	2684	5213	12719	52874
4-Bromofluorobenzene		2562	4072	7276	17845	64378
Toluene-d8		4305	9166	17254	43054	170361

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2003038

Instrument ID: VOA6 Calibration Date(s): 03/11/20 03/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1047 1446

LAB FILE ID: RF50: X031108 RF100: X031109 RF150: X031110
RF200: X031111

COMPOUND	RF50	RF100	RF150	RF200
Trichloroethene	0.363	0.360	0.362	0.362
Methylene Chloride	113275	209474	297537	390938
Vinyl Chloride	0.672	0.698	0.683	0.699
1,1,2-Trichloroethane	0.263	0.247	0.250	0.256
1,1-Dichloroethene	0.422	0.434	0.422	0.425
1,2-Dichloroethane	0.643	0.619	0.616	0.632
1,2-Dichloroethane-d4	171188	329022	477319	621566
Dibromofluoromethane	119242	232419	336011	434974
4-Bromofluorobenzene	154831	295598	437290	565311
Toluene-d8	396464	763095	1109045	1440663

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2003038

Instrument ID: VOA6 Calibration Date(s): 03/11/20 03/11/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1047 1446

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	%RSD OR R^2	MAX %RSD OR R^2
Trichloroethene	AVRG		0.36051142	4.540	15.000
Methylene Chloride	LINR	-1.13e-002	2.09384273	0.9994922	0.9900000
Vinyl Chloride	AVRG		0.66863701	5.370	15.000
1,1,2-Trichloroethane	AVRG		0.26104335	4.831	15.000
1,1-Dichloroethene	AVRG		0.41449663	8.879	15.000
1,2-Dichloroethane	AVRG		0.63347965	4.494	15.000
1,2-Dichloroethane-d4	LINR	5.653e-003	1.31066361	0.9996887	0.9900000
Dibromofluoromethane	LINR	5.675e-003	1.86739358	0.9997423	0.9900000
4-Bromofluorobenzene	LINR	2.763e-003	2.04192340	0.9999001	0.9900000
Toluene-d8	LINR	1.074e-003	0.80127437	0.9999560	0.9900000

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Instrument ID: VOA6 Calibration Date: 03/11/20 Time: 2135

Lab File ID: X031128 Init. Calib. Date(s): 03/11/20 03/11/20

Init. Calib. Times: 1047 1446

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
Trichloroethene	0.3600000	0.3626269	0.3626269	0.2	-0.73	50.00	AVRG
Methylene Chloride	50.230196	50.000000	0.4852016	0.1	-0.46	50.00	LINR
Vinyl Chloride	0.6680000	0.6592165	0.6592165	0.1	1.31	50.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2638943	0.2638943	0.1	-1.11	50.00	AVRG
1,1-Dichloroethene	0.4140000	0.4224694	0.4224694	0.1	-2.04	50.00	AVRG
1,2-Dichloroethane	0.6330000	0.6408299	0.6408299	0.1	-1.24	50.00	AVRG
1,2-Dichloroethane-d4	50.945608	50.000000	0.7730889	0.1	-1.89	50.00	LINR
Dibromofluoromethane	49.654175	50.000000	0.5287630	0.1	0.69	50.00	LINR
4-Bromofluorobenzene	51.159637	50.000000	0.4997394	0.1	-2.32	50.00	LINR
Toluene-d8	49.998265	50.000000	1.2466286	0.1	0.00	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Lab File ID (Standard): X031108 Date Analyzed: 03/11/20

Instrument ID: VOA6 Time Analyzed: 1335

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DFB) AREA #	RT #
	12 HOUR STD	152551	9.66	318907	7.67	342577	4.97
	UPPER LIMIT	305102	10.16	637814	8.17	685154	5.47
	LOWER LIMIT	76276	9.16	159454	7.17	171289	4.47
	CLIENT SAMPLE NO.						
01	VLCSW-200311	155739	9.66	321009	7.67	345152	4.97
02	VBLKW-200311	176439	9.67	369407	7.67	420393	4.97
03	HS20030383-07	177143	9.66	379593	7.67	427355	4.97
04	HS20030383-06	179428	9.66	363096	7.67	430947	4.97
05	HS20030447-01	168427	9.66	347433	7.67	400391	4.97
06	HS20030447-01	173690	9.66	351830	7.67	394736	4.97
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Lab File ID (Standard): X031108 Date Analyzed: 03/11/20

Instrument ID: VOA6 Time Analyzed: 1335

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	232300	4.18				
	UPPER LIMIT	464600	4.68				
	LOWER LIMIT	116150	3.68				
	CLIENT SAMPLE NO.						
01	VLCSW-200311	238496	4.18				
02	VBLKW-200311	301036	4.18				
03	HS20030383-07	308452	4.18				
04	HS20030383-06	303358	4.18				
05	HS20030447-01	282966	4.18				
06	HS20030447-01	285554	4.18				
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031101.D

Date : 11-MAR-2020 10:23

Client ID: BFB

Instrument: voa6.i

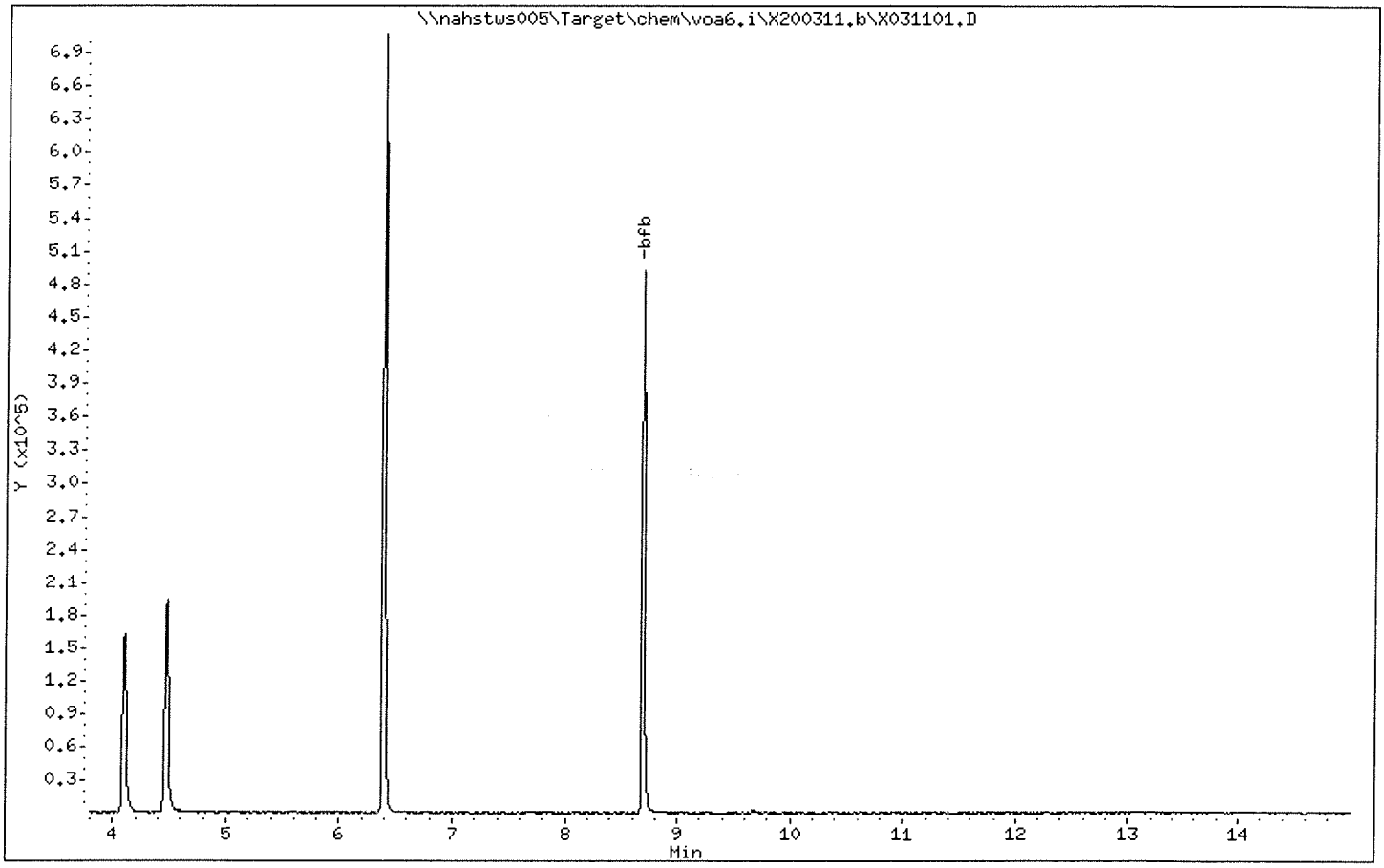
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031101.D Page 2

Date : 11-MAR-2020 10:23

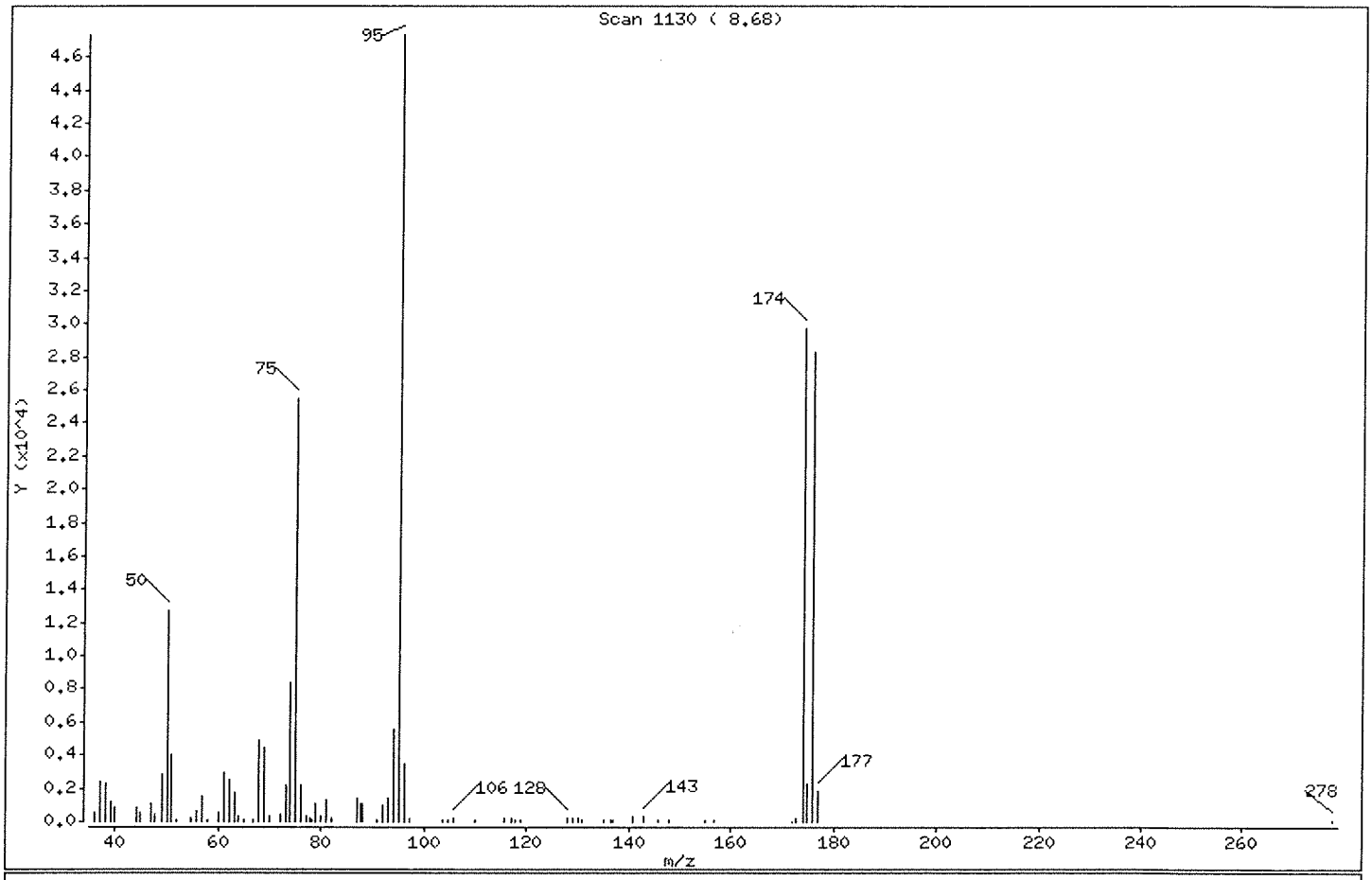
Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	26.86
75	30.00 - 60.00% of mass 95	53.85
96	5.00 - 9.00% of mass 95	7.45
173	Less than 2.00% of mass 174	0.44 (0.69)
174	Greater than 50.00% of mass 95	62.81
175	5.00 - 9.00% of mass 174	4.74 (7.54)
176	95.00 - 101.00% of mass 174	59.77 (95.16)
177	5.00 - 9.00% of mass 176	3.90 (6.52)

Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031101.D

Date : 11-MAR-2020 10:23

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

Data File: X031101.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 78

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.90	590	63.10	1726	87.80	1060	130.00	167
37.00	2422	63.90	315	88.10	1090	131.00	163
38.10	2288	65.10	61	91.00	152	135.10	101
39.10	1149	66.90	88	91.90	939	136.40	66
39.90	823	68.00	4852	93.00	1421	137.00	88
44.00	856	69.00	4506	94.00	5509	140.90	362
44.90	521	69.80	298	95.00	47344	142.90	366
47.00	1140	72.10	442	96.00	3529	145.80	74
47.80	441	73.00	2204	97.10	237	147.90	82
49.00	2820	74.00	8389	103.70	131	155.00	107
50.00	12715	75.00	25496	104.70	119	156.80	140
51.00	4046	76.00	2222	105.90	254	172.10	50
51.90	97	77.00	310	109.90	88	172.70	206
54.80	244	77.70	221	115.80	215	174.00	29736
55.90	615	78.20	124	117.00	196	174.90	2242
57.00	1555	78.90	1125	117.80	118	176.00	28296
57.90	106	80.00	364	118.70	156	177.00	1846
60.00	594	80.90	1274	119.00	144	277.90	141
61.10	2902	81.90	219	127.90	223		
62.00	2479	87.00	1413	129.00	194		

Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031102.D Page 1
Report Date: 02-Apr-2020 10:04

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031102.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 11-MAR-2020 10:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:04 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 14:46 Cal File: X031111.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	270335	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	407058	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	368212	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	174438	50.0000	
$	30 Dibromofluoromethane	113	4.111	4.111	(0.983)	1031	0.25000	0.63
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	1385	0.25000	0.61(T)
$	48 Toluene-d8	98	6.389	6.389	(0.833)	3111	0.25000	0.39(T)
$	69 4-Bromofluorobenzene	95	8.702	8.702	(1.134)	2903	0.25000	0.94
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	465	0.25000	0.24(M)
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	459	0.25000	0.20(M)
	33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1070	0.25000	0.20
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	585	0.25000	0.21(aM)
	17 Methylene Chloride	84	2.306	2.306	(0.551)	1290	0.25000	
	38 Trichloroethene	130	5.207	5.207	(1.048)	751	0.25000	0.25(aM)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	1056	0.25000	0.29(M)

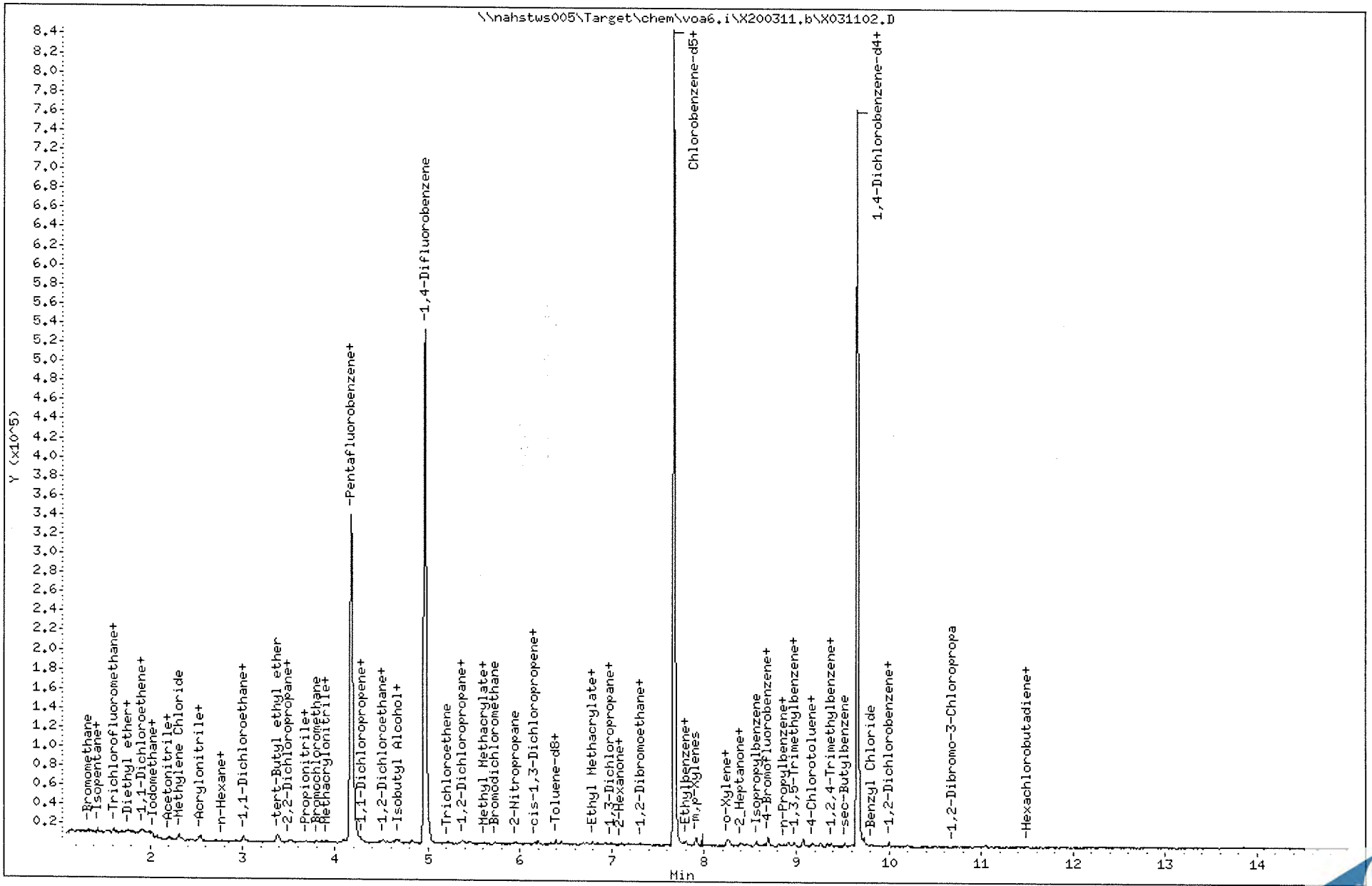
QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

01093039

Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031102.D
Date : 11-MAR-2020 10:47
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031103.D Page 1
Report Date: 02-Apr-2020 10:04

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031103.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 11-MAR-2020 11:11
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:04 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 10:47 Cal File: X031102.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

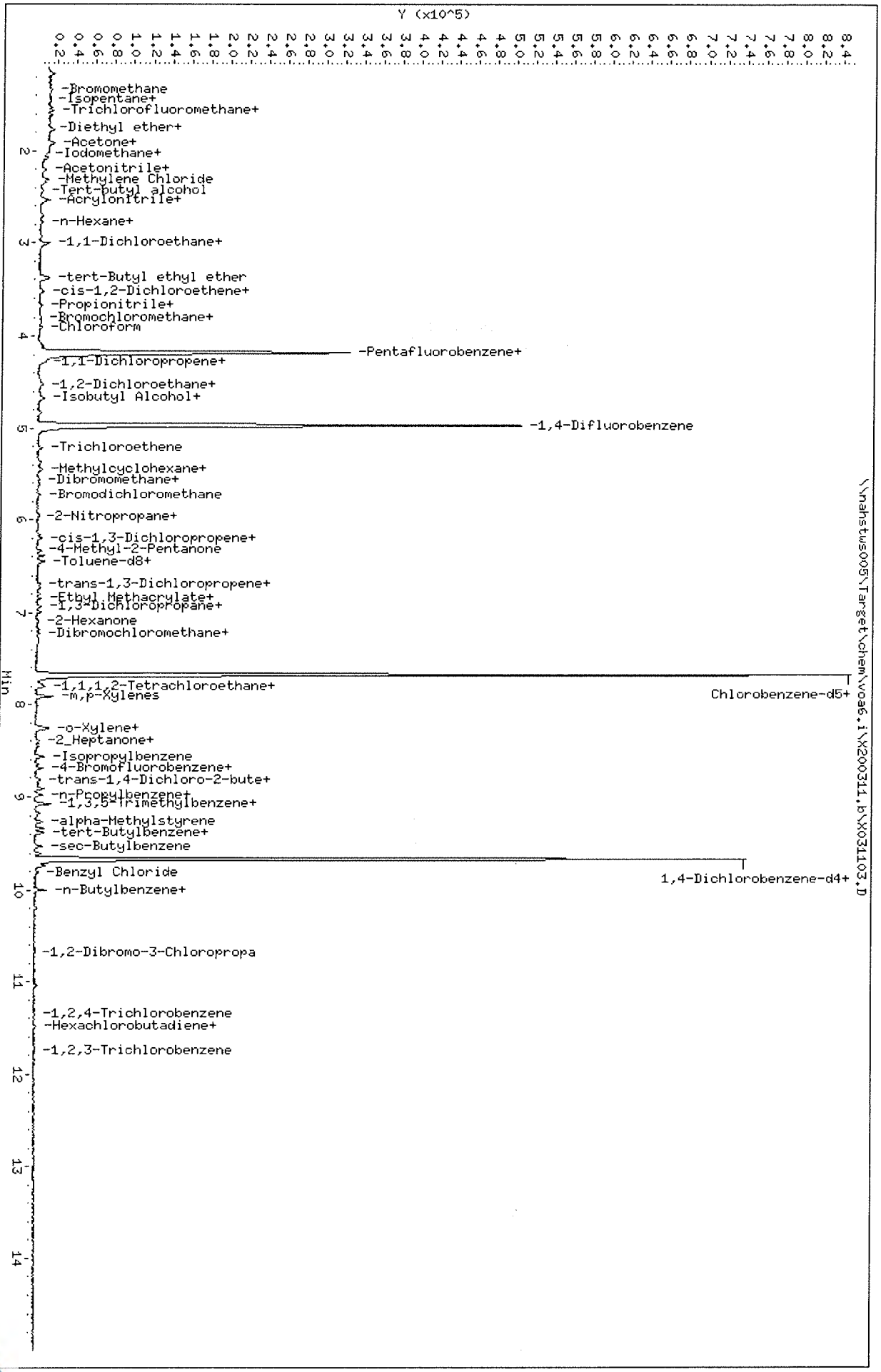
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	257202	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	392843	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	358602	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	169878	50.0000	
$	30 Dibromofluoromethane	113	4.089	4.089	(0.978)	1165	0.50000	0.70
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	2059	0.50000	0.80(T)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	4305	0.50000	0.53(T)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	2562	0.50000	0.86
	53 1,1,2-Trichloroethane	83	6.854	6.854	(0.894)	954	0.50000	0.50
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	1119	0.50000	0.52
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	2377	0.50000	0.47
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1129	0.50000	0.43(a)
	17 Methylene Chloride	84	2.313	2.313	(0.553)	1994	0.50000	0.24
	38 Trichloroethene	130	5.214	5.214	(1.049)	1360	0.50000	0.48(aM)
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	1817	0.50000	0.52(M)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

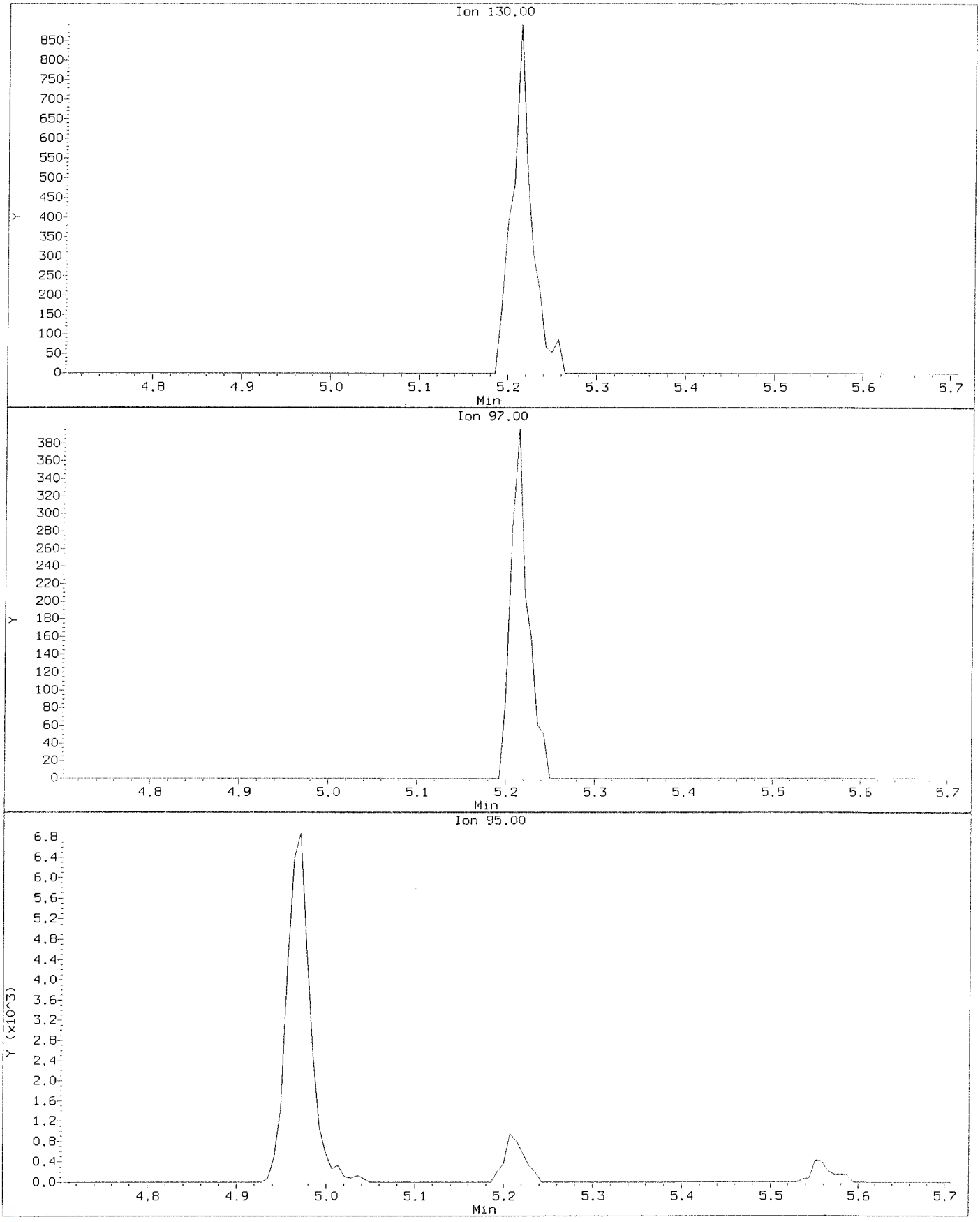


Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031103.D
Date : 11-MAR-2020 11:11
Client ID: VSTD000,5
Sample Info: VSTD000,5;VSTD000,5;1;2;
Purge Volume: 5.0
Column phase: DB624

\\nahstws005\Target\chem\voa6.i\X200311.b\X031103.D
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

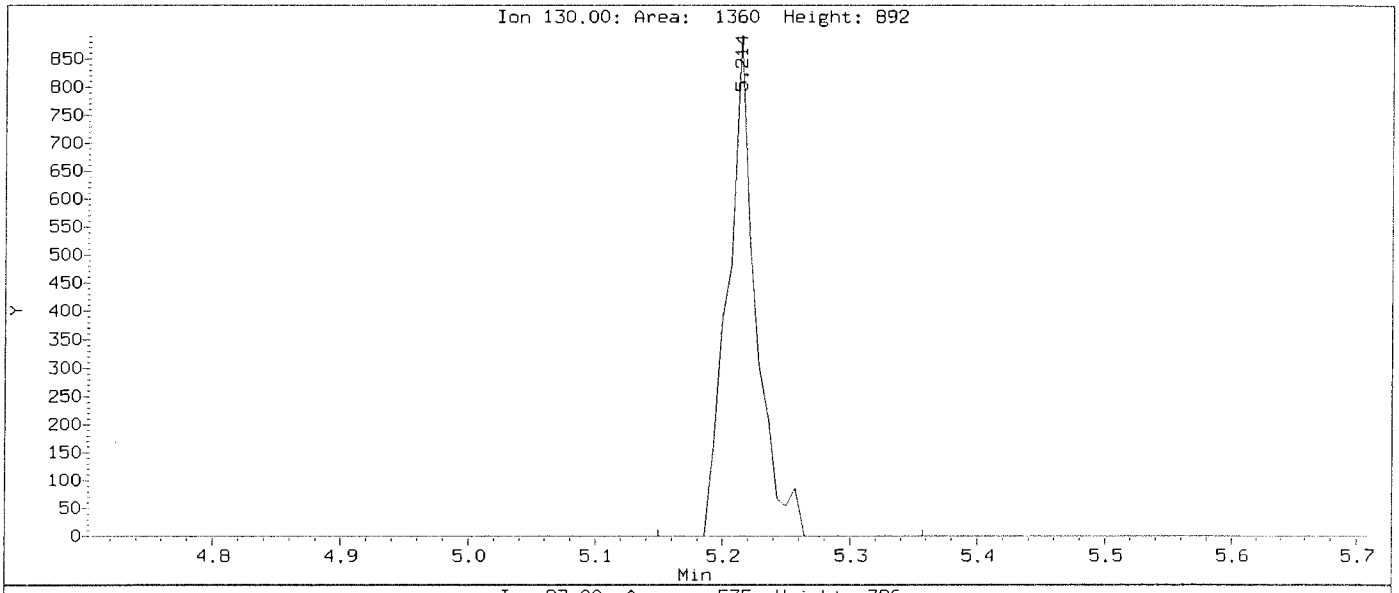
Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\CBI-HOU7\X031103.D
Injection Date: 11-MAR-2020 11:11
Instrument: voa6.i
Client Sample ID: VSTD000.5

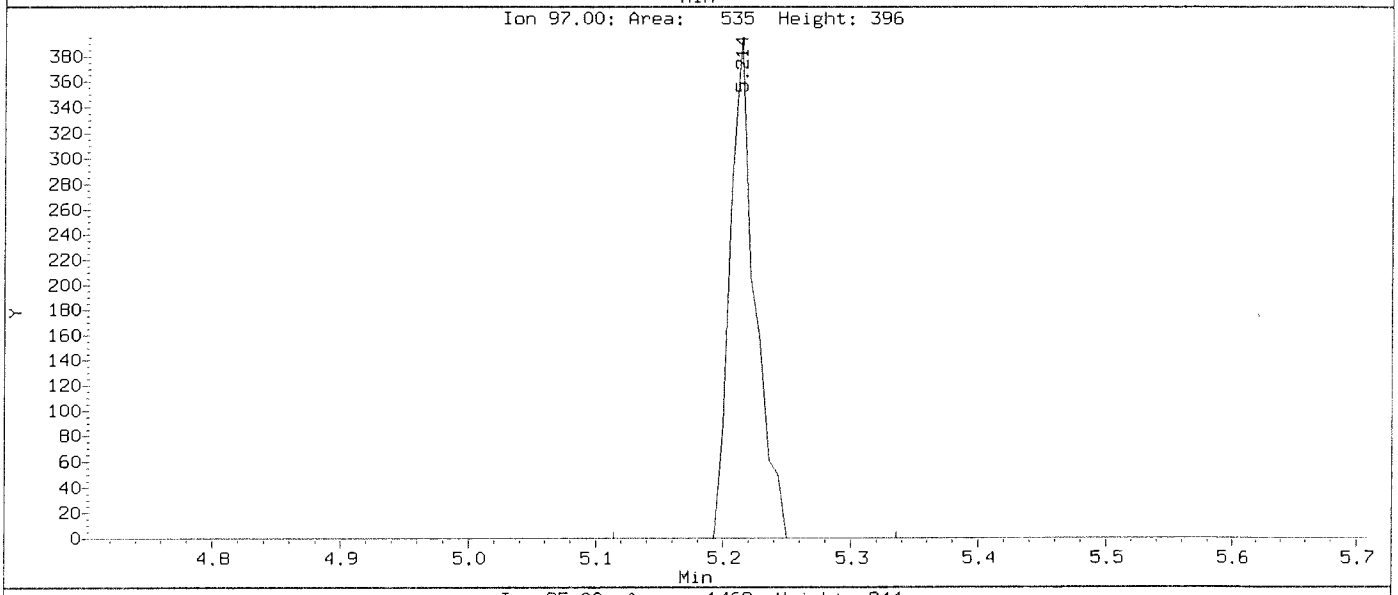
Compound: Trichloroethene
CAS Number: 79-01-6

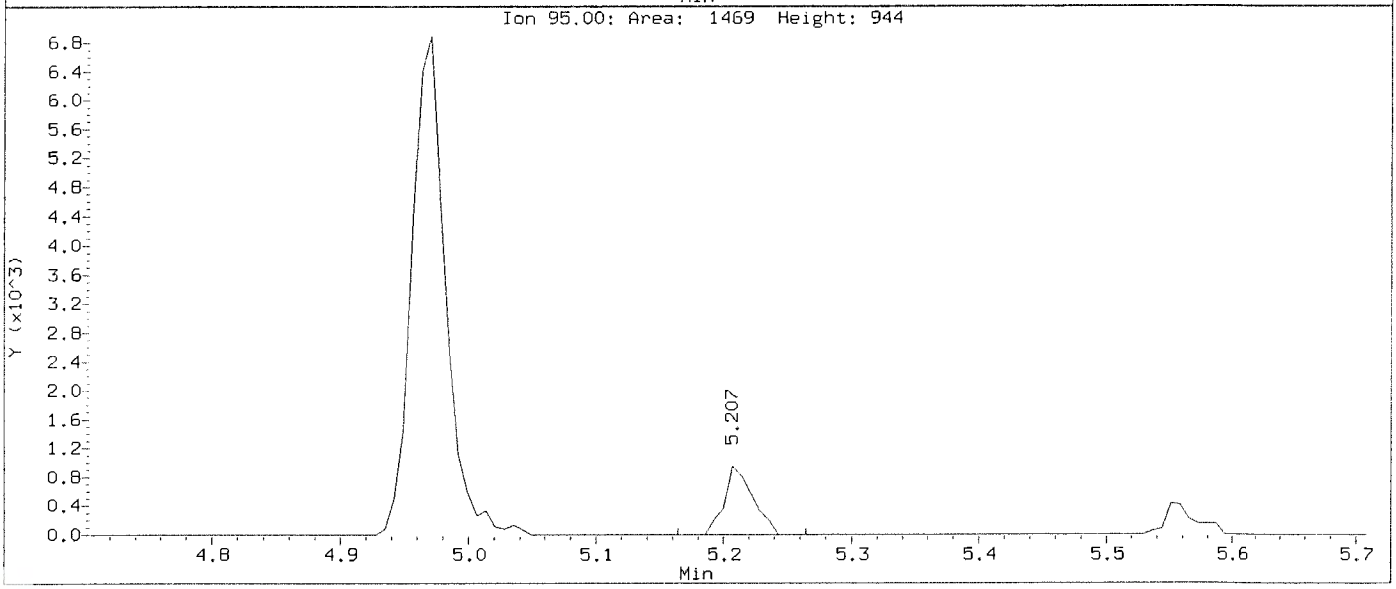


Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031103.D
Injection Date: 11-MAR-2020 11:11
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Trichloroethene
CAS Number: 79-01-6

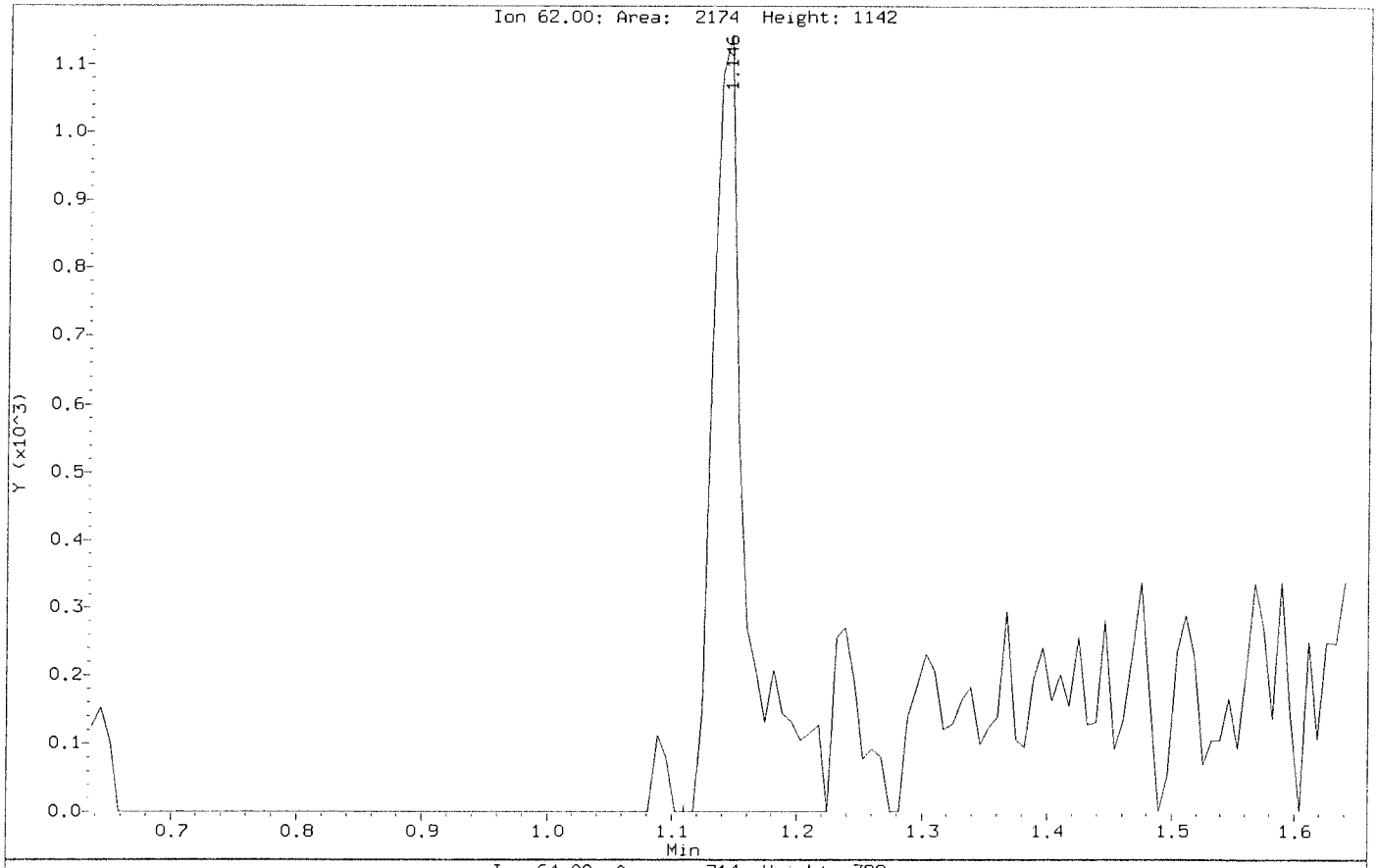


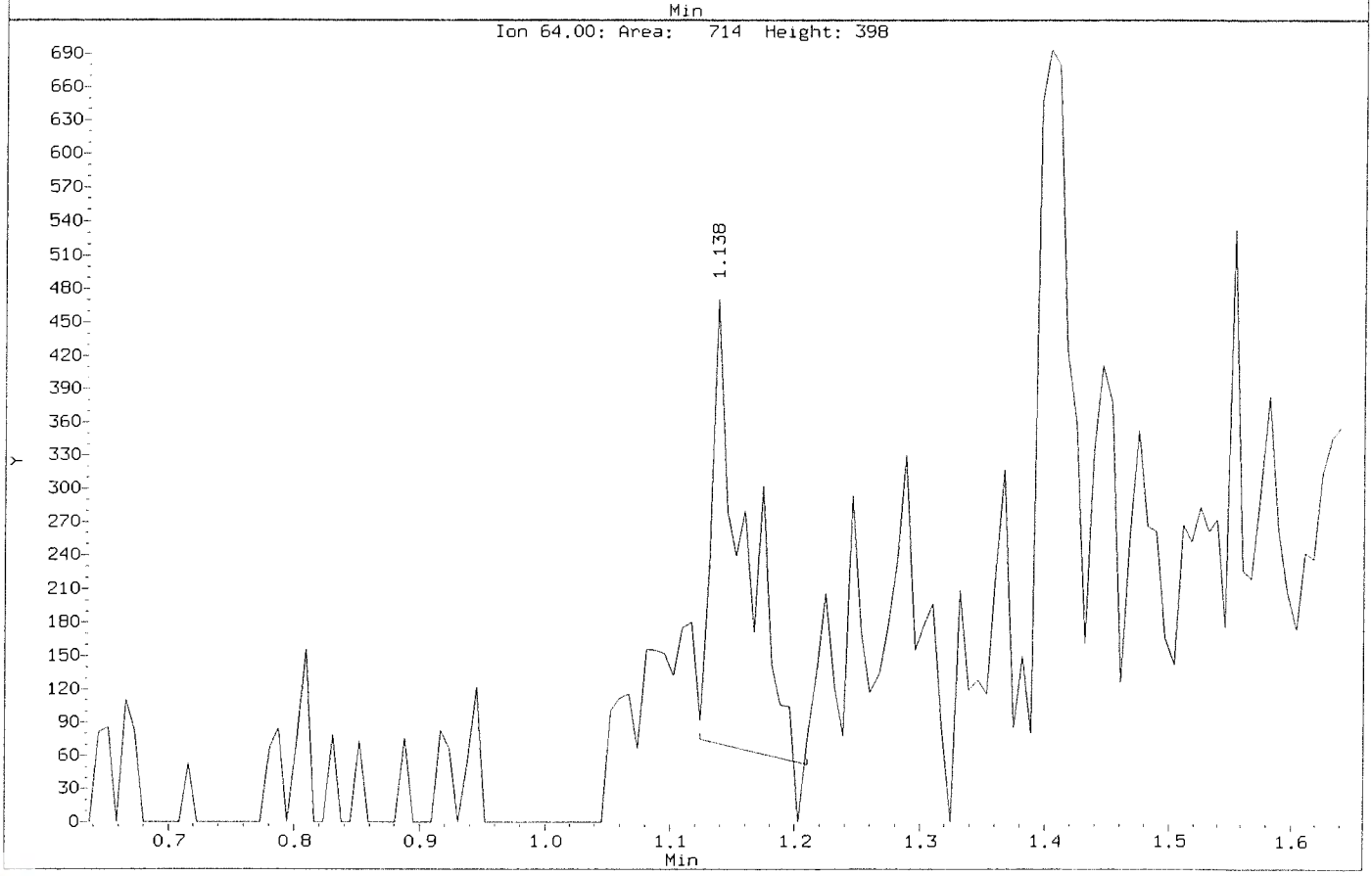




Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\CBI-HOU7\X031103.D
Injection Date: 11-MAR-2020 11:11
Instrument: voa6.i
Client Sample ID: VSTD000.5

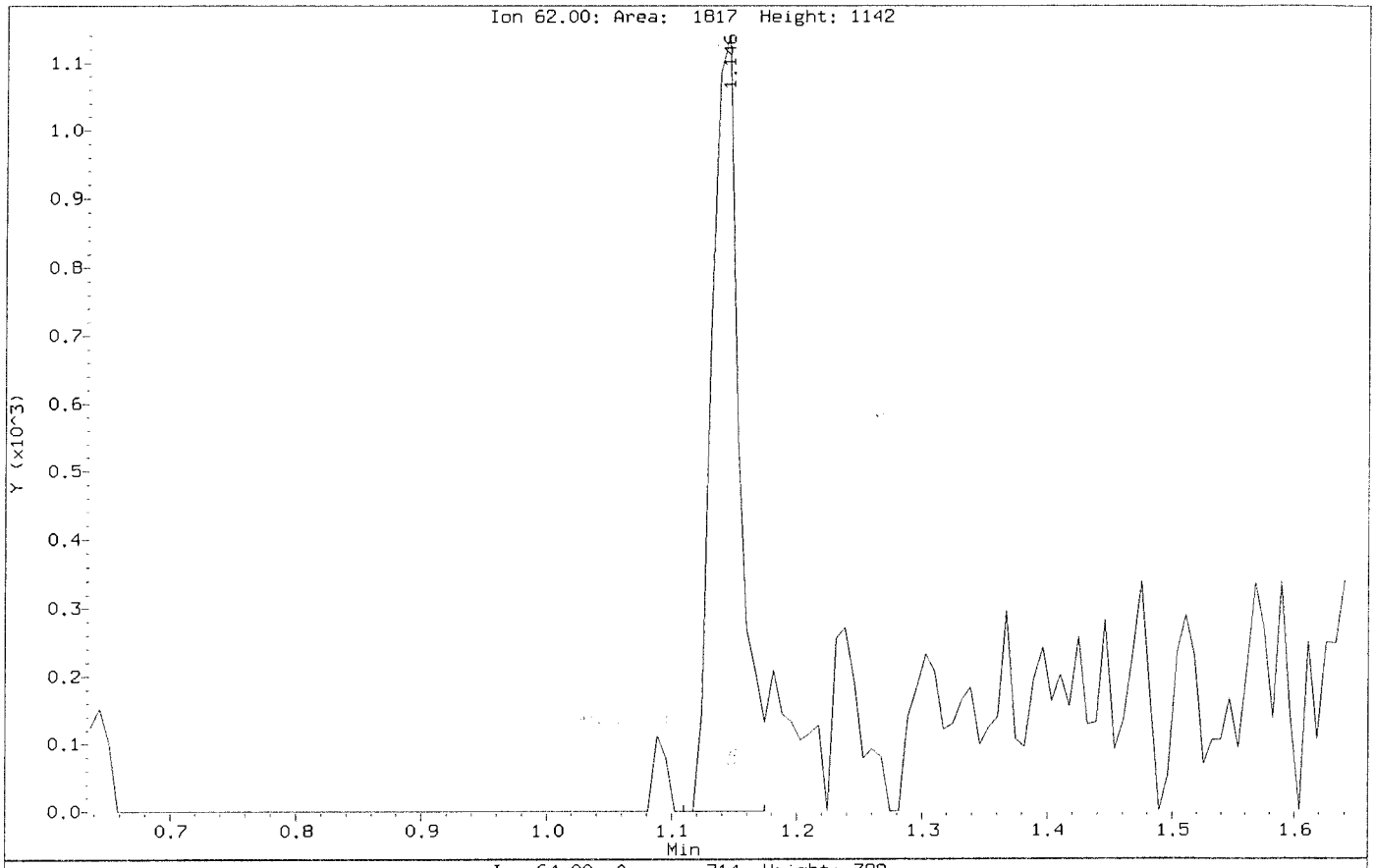
Compound: Vinyl Chloride
CAS Number: 75-01-4

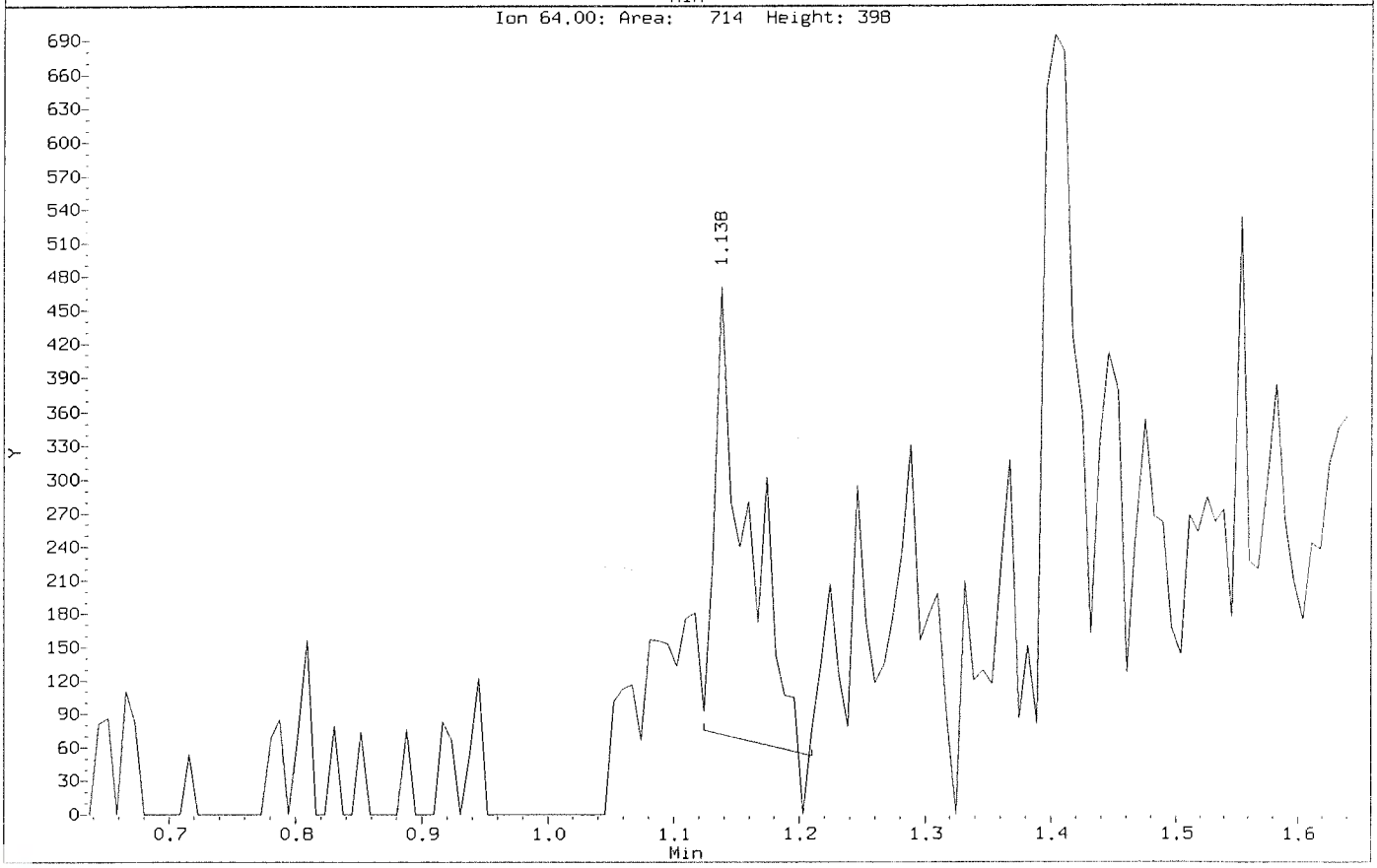




Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031103.D
Injection Date: 11-MAR-2020 11:11
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4





ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031104.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 11-MAR-2020 11:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:04 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 11:11 Cal File: X031103.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

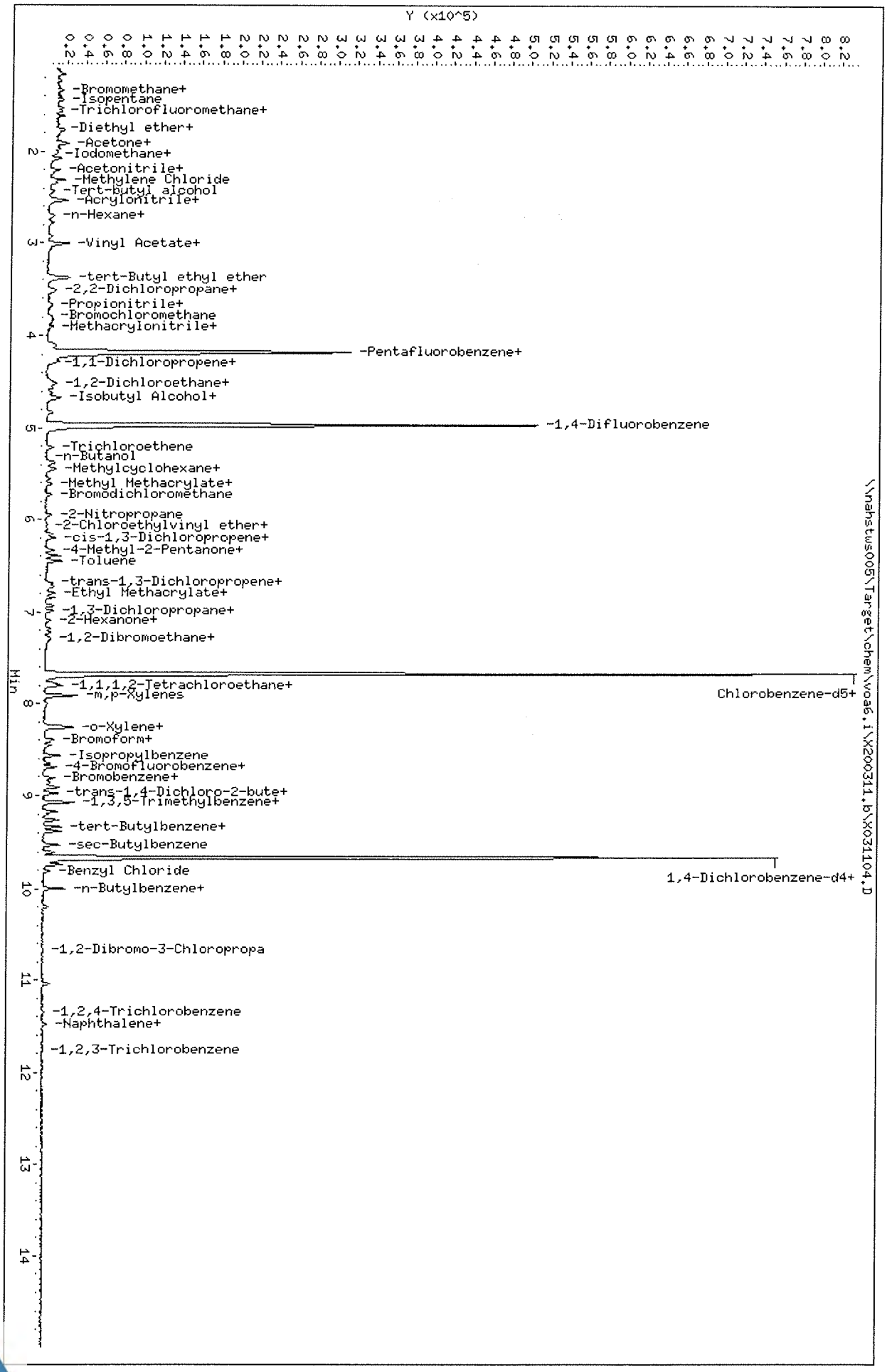
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	248735	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	385426	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	353901	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	174074	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	2684	1.00000	1.29
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4014	1.00000	1.34
$	48 Toluene-d8	98	6.388	6.388	(0.833)	9166	1.00000	1.09
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	4072	1.00000	1.31
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	1773	1.00000	0.95
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	1583	1.00000	0.76
	33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	4609	1.00000	0.94
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	2247	1.00000	0.88(a)
	17 Methylene Chloride	84	2.313	2.313	(0.553)	2880	1.00000	0.64
	38 Trichloroethene	130	5.214	5.214	(1.049)	2523	1.00000	0.90(a)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	2931	1.00000	0.88

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031104.D
Date : 11-MAR-2020 11:59
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031105.D Page 1
Report Date: 02-Apr-2020 10:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031105.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 11-MAR-2020 12:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 11:59 Cal File: X031104.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

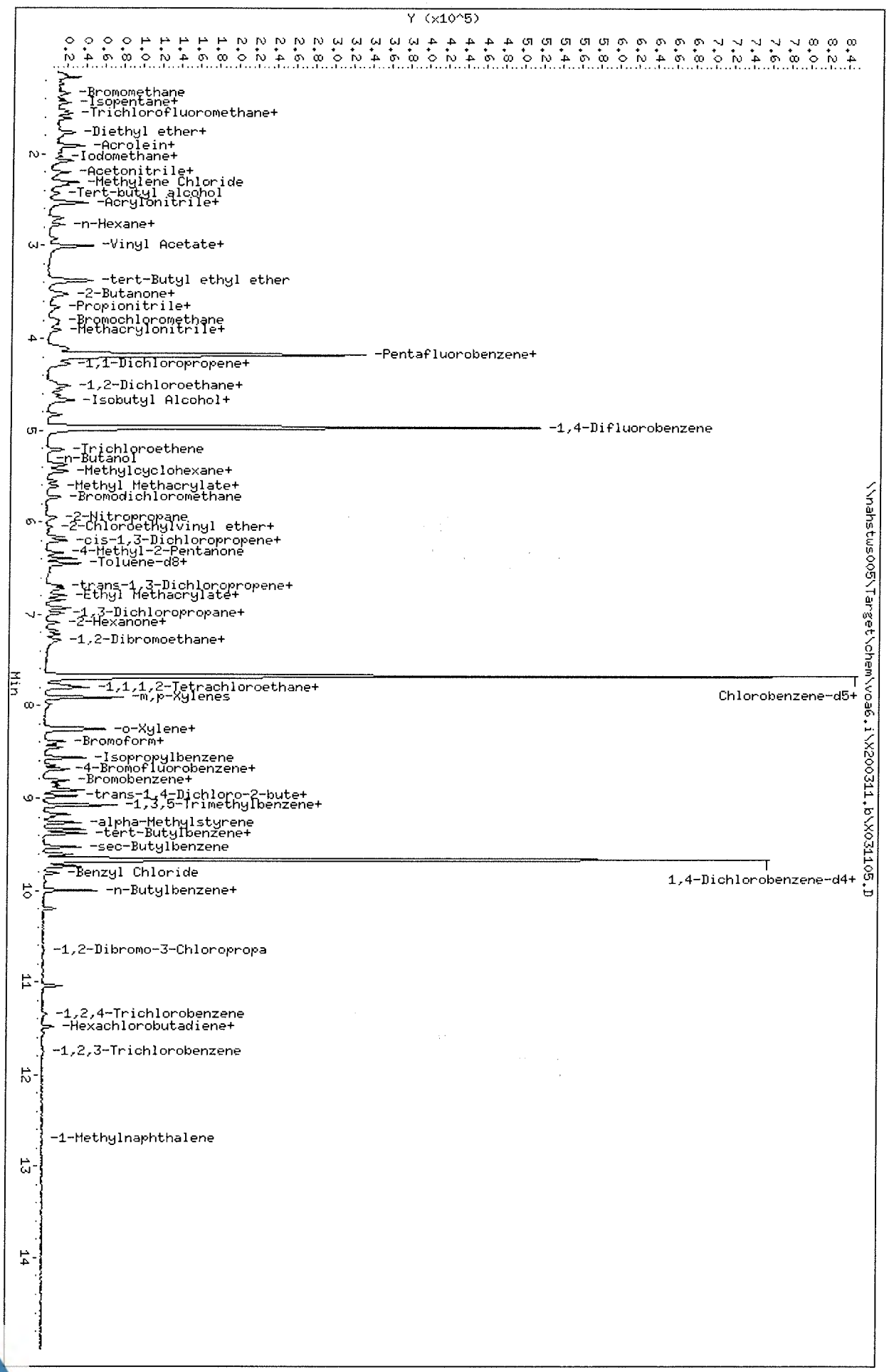
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	262320	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	396520	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	359203	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	174856	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	5213	2.00000	2.13
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	8384	2.00000	2.37
$	48 Toluene-d8	98	6.388	6.388	(0.833)	17254	2.00000	1.97
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	7276	2.00000	2.20
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	4143	2.00000	2.20
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	4340	2.00000	1.99
	33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	10367	2.00000	2.06
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	5044	2.00000	1.88(a)
	17 Methylene Chloride	84	2.298	2.298	(0.550)	5914	2.00000	1.79
	38 Trichloroethene	130	5.207	5.207	(1.048)	5989	2.00000	2.09(a)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	6784	2.00000	1.93(M)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

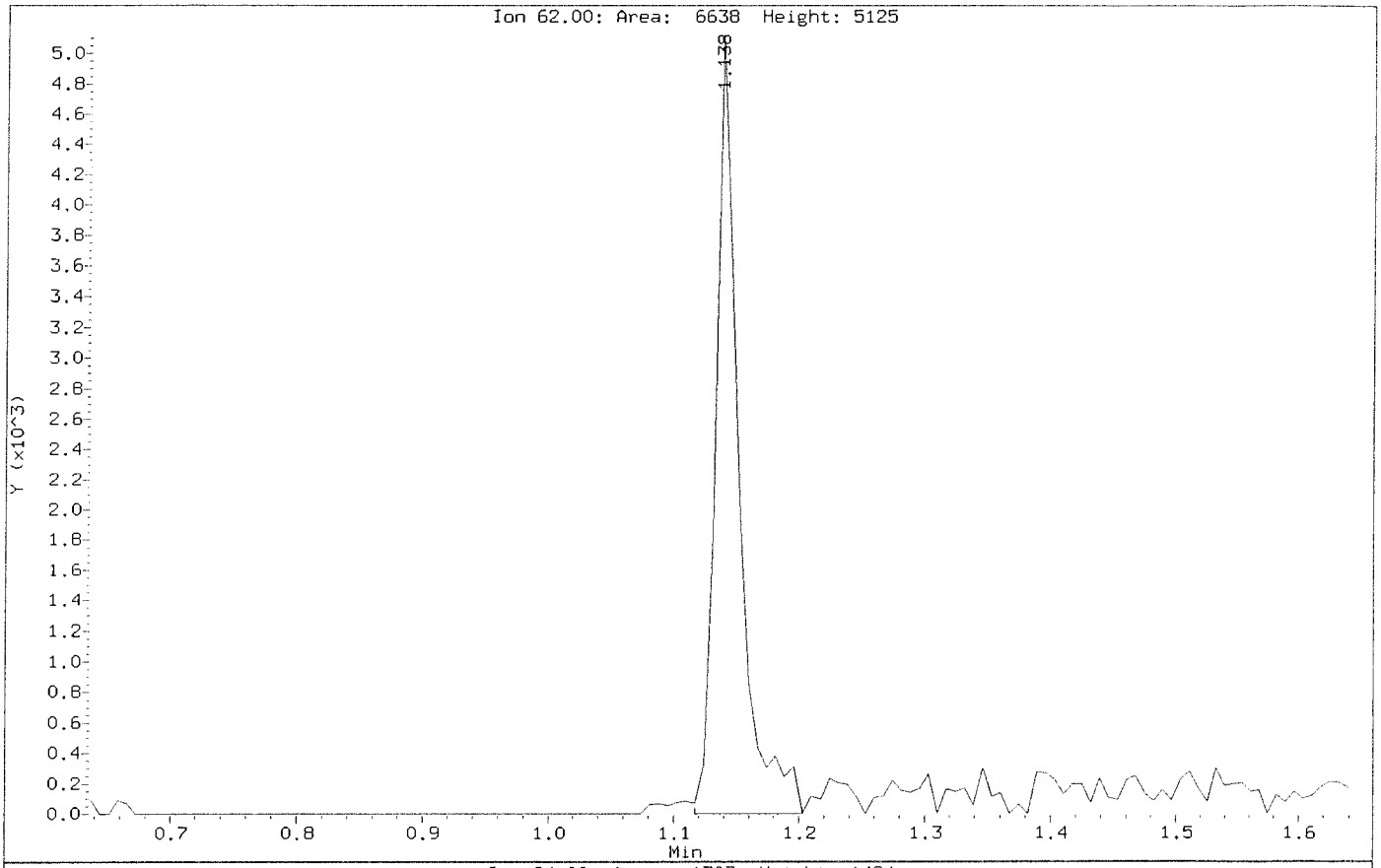


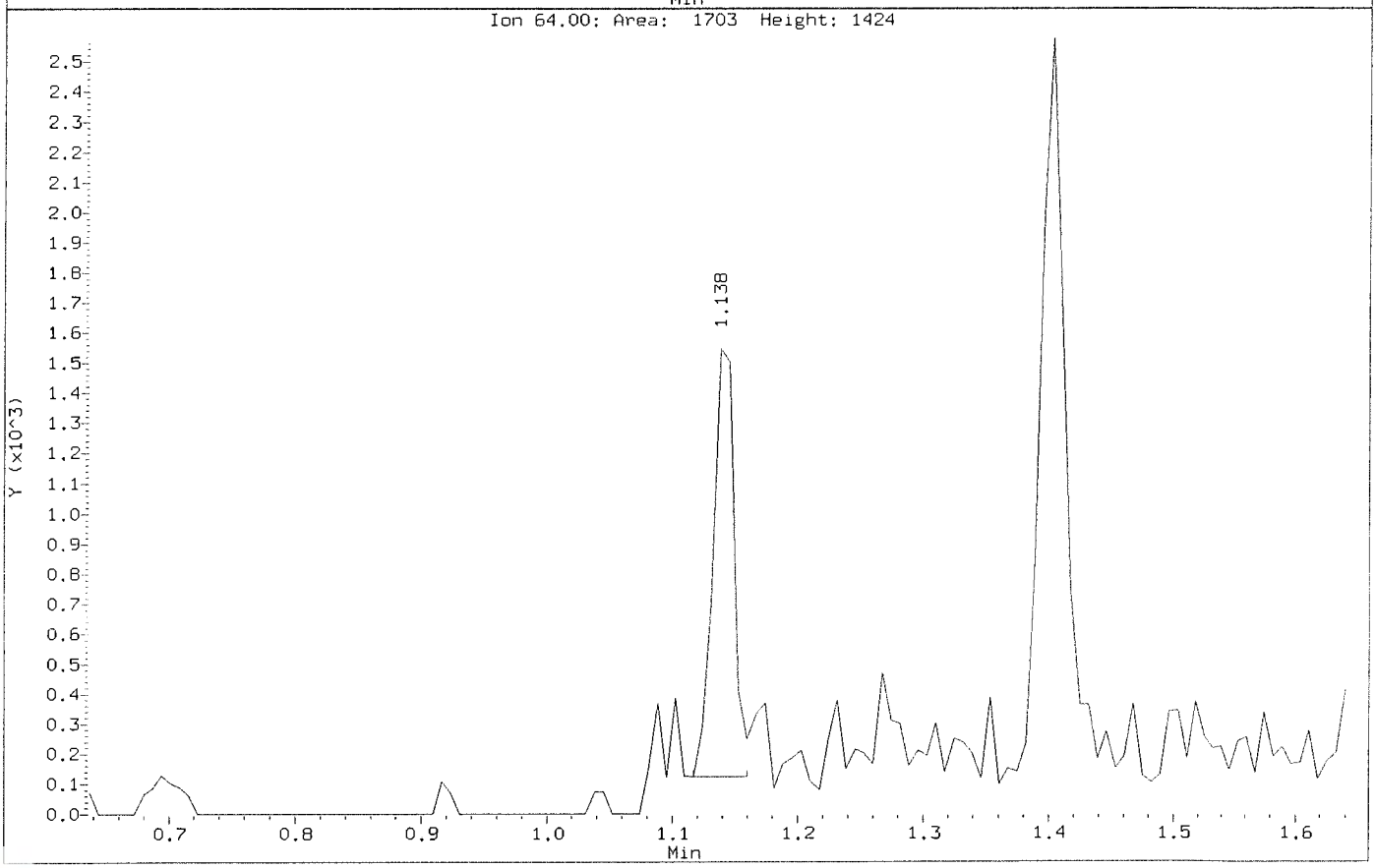
Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031105.D
Date : 11-MAR-2020 12:23
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\CBI-HOU7\X031105.D
Injection Date: 11-MAR-2020 12:23
Instrument: voa6.i
Client Sample ID: VSTD002

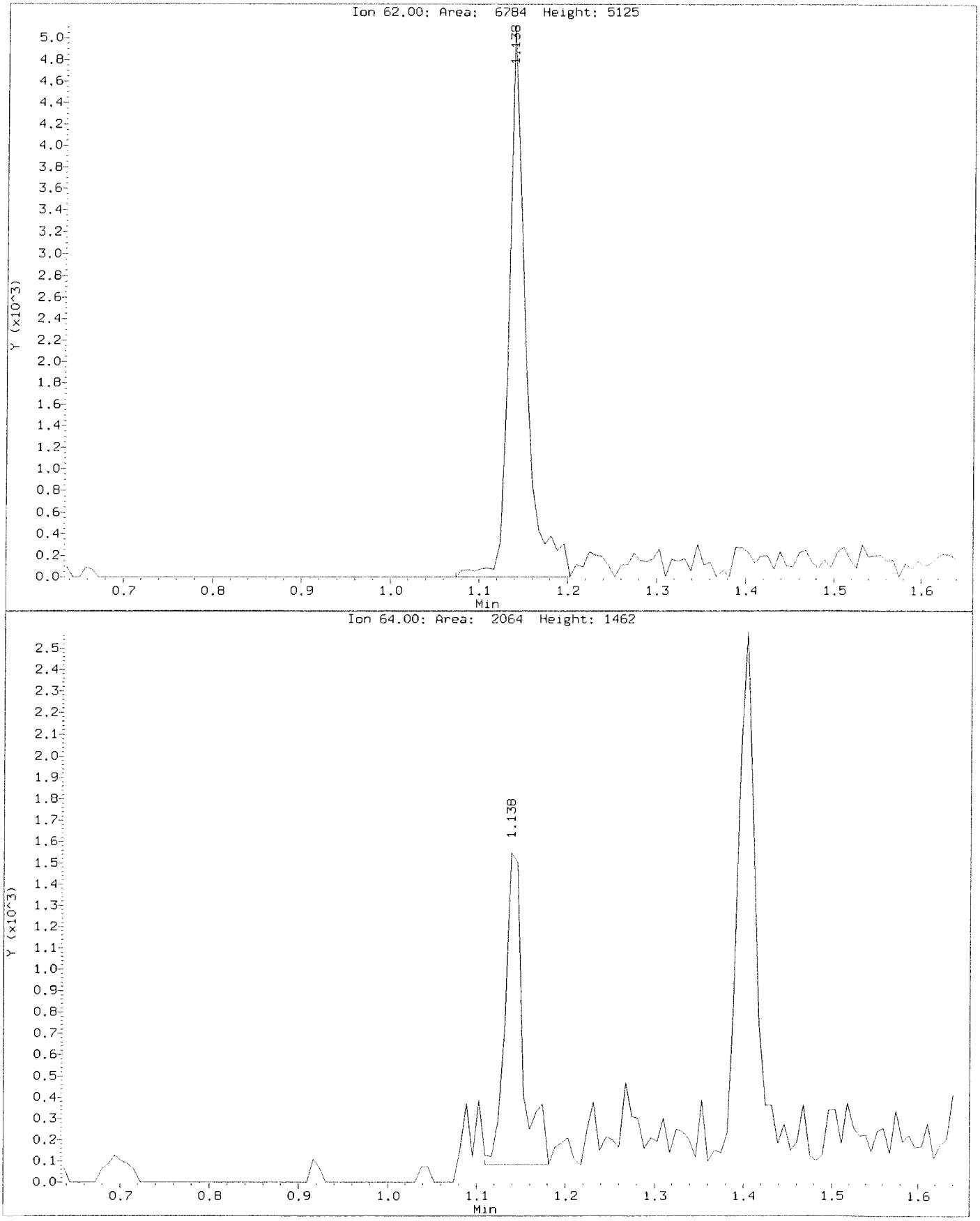
Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031105.D
Injection Date: 11-MAR-2020 12:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Vinyl Chloride
CAS Number: 75-01-4



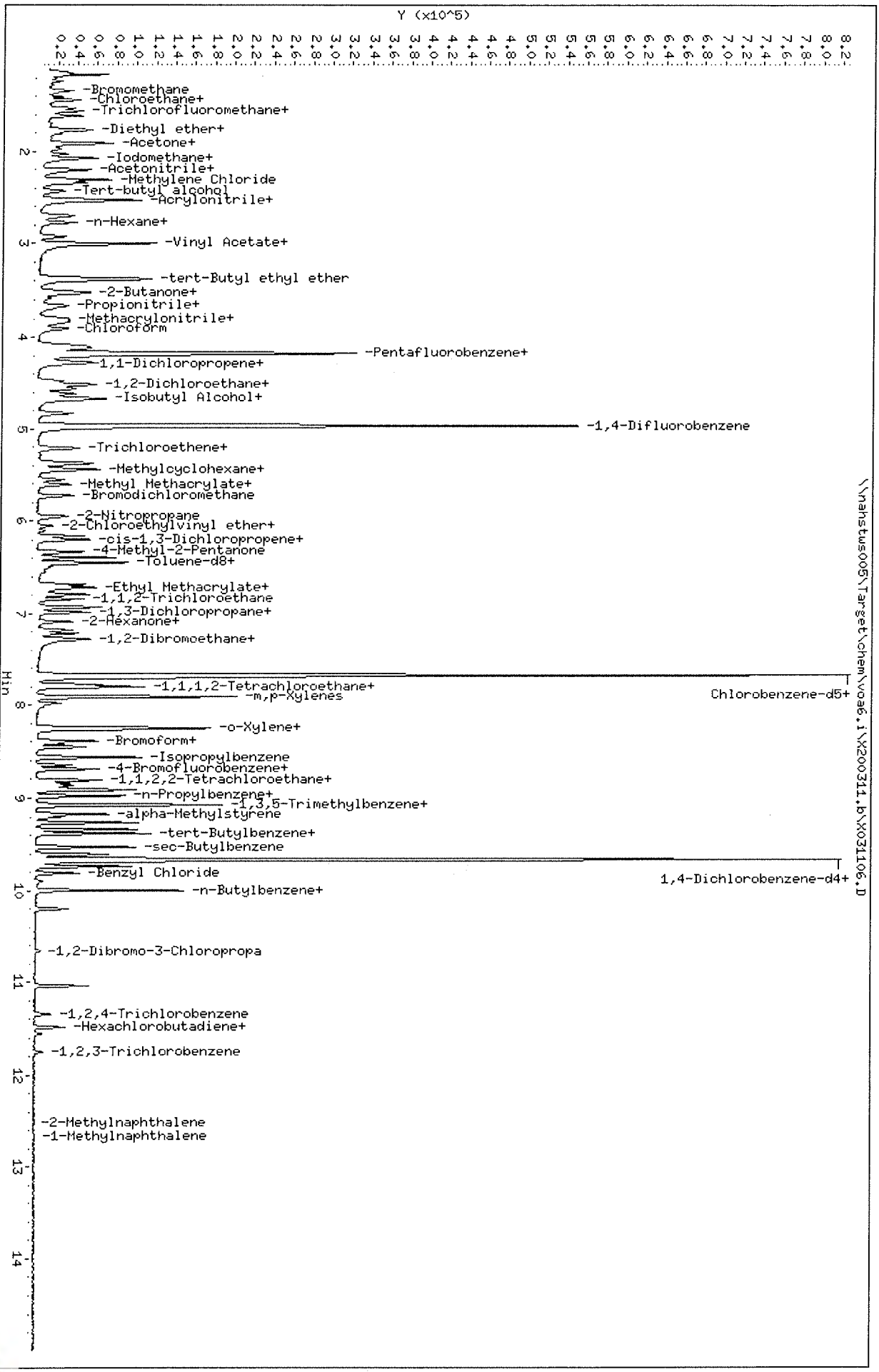
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031106.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 11-MAR-2020 12:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 12:23 Cal File: X031105.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	249896	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	382178	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	349472	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	173170	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	12719	5.00000	5.03
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	19257	5.00000	5.33
$	48 Toluene-d8	98	6.388	6.388	(0.833)	43054	5.00000	4.98
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	17845	5.00000	5.35
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	9144	5.00000	5.01
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	10643	5.00000	5.13
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	26415	5.00000	5.45
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	13755	5.00000	5.39
	17 Methylene Chloride	84	2.305	2.305	(0.551)	13968	5.00000	5.28
	38 Trichloroethene	130	5.214	5.214	(1.049)	14654	5.00000	5.31
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	16567	5.00000	4.95



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031106.D
Date : 11-MAR-2020 12:47
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

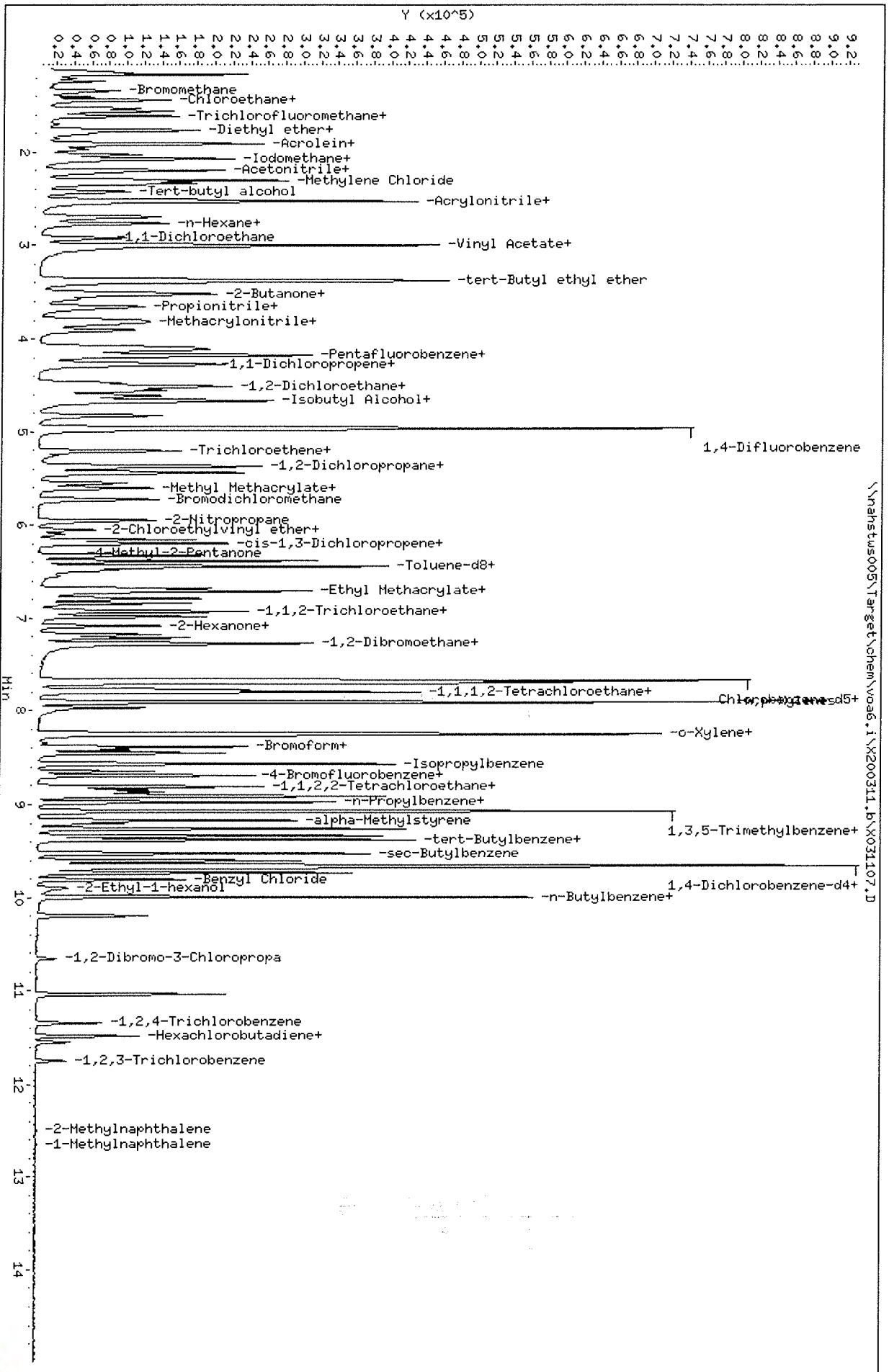
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031107.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 11-MAR-2020 13:11
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 12:47 Cal File: X031106.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	235795	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	355357	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	332935	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	163790	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	52874	20.0000	21.22
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	73320	20.0000	20.66
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	170361	20.0000	20.55
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	64378	20.0000	19.87
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	35608	20.0000	20.48
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	40950	20.0000	20.94
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	91397	20.0000	20.30
27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	52017	20.0000	21.63
17 Methylene Chloride	84	2.305	2.305	(0.551)	48885	20.0000	21.13
38 Trichloroethene	130	5.214	5.214	(1.049)	51601	20.0000	20.13
5 Vinyl Chloride	62	1.138	1.138	(0.272)	62325	20.0000	19.76



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031107.D
Date : 11-MAR-2020 13:11
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

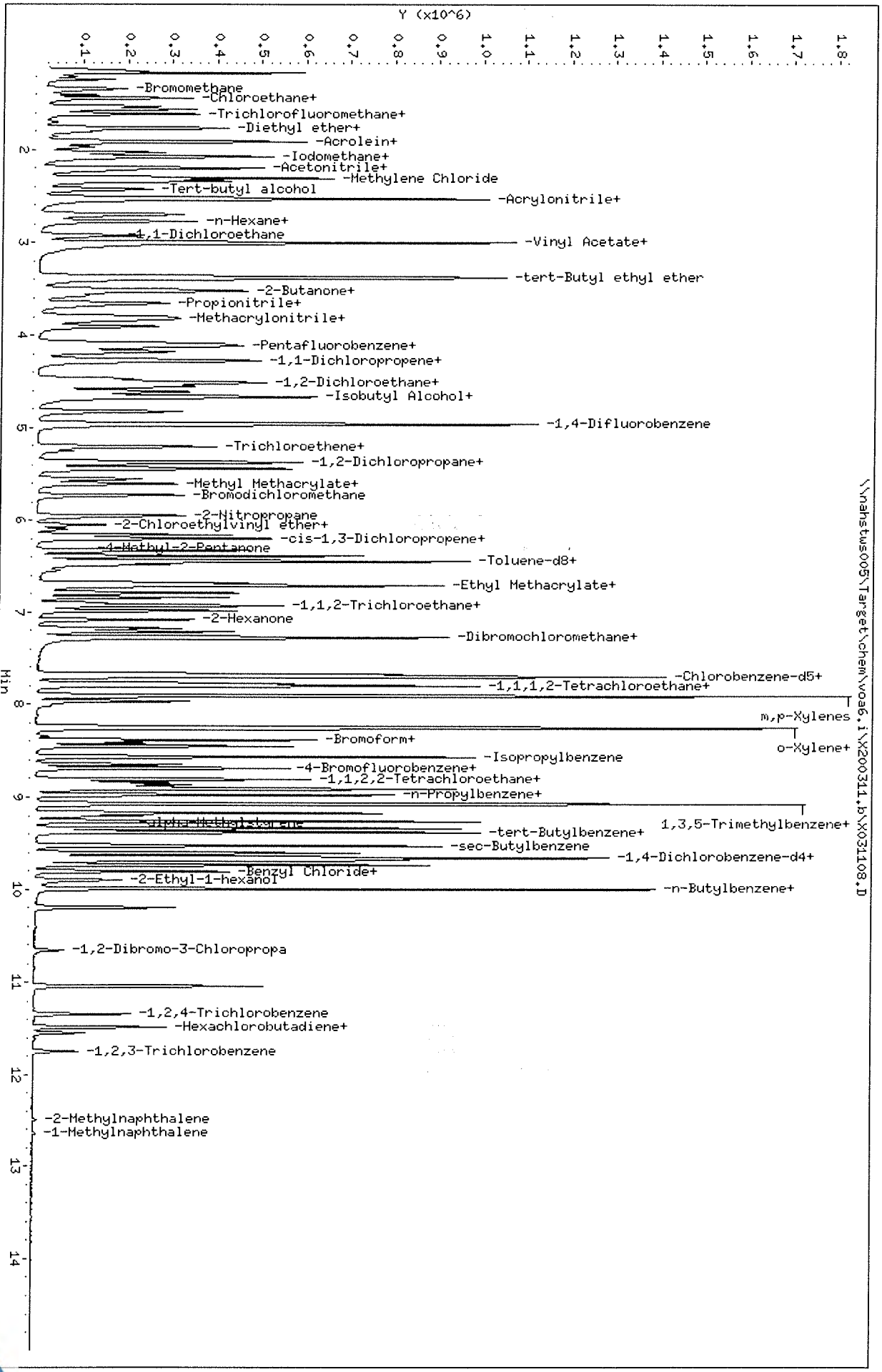
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031108.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 11-MAR-2020 13:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 13:11 Cal File: X031107.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1	Pentafluorobenzene	168	4.182	4.182	(1.000)	232300	50.0000	
* 36	1,4-Difluorobenzene	114	4.970	4.970	(1.000)	342577	50.0000	
* 47	Chlorobenzene-d5	117	7.671	7.671	(1.000)	318907	50.0000	
* 70	1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	152551	50.0000	
$ 30	Dibromofluoromethane	113	4.103	4.103	(0.981)	119242	50.0000	48.21
$ 35	1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	171188	50.0000	48.57
$ 48	Toluene-d8	98	6.388	6.388	(0.833)	396464	50.0000	49.86
$ 69	4-Bromofluorobenzene	95	8.688	8.688	(1.133)	154831	50.0000	49.70
53	1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	83826	50.0000	50.34
11	1,1-Dichloroethene	96	1.912	1.912	(0.457)	98133	50.0000	50.95
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	220213	50.0000	50.73
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	122624	50.0000	51.76
17	Methylene Chloride	84	2.305	2.305	(0.551)	113275	50.0000	50.48
38	Trichloroethene	130	5.207	5.207	(1.048)	124258	50.0000	50.30
5	Vinyl Chloride	62	1.138	1.138	(0.272)	156047	50.0000	50.23



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031108.D
Date : 11-MAR-2020 13:35
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

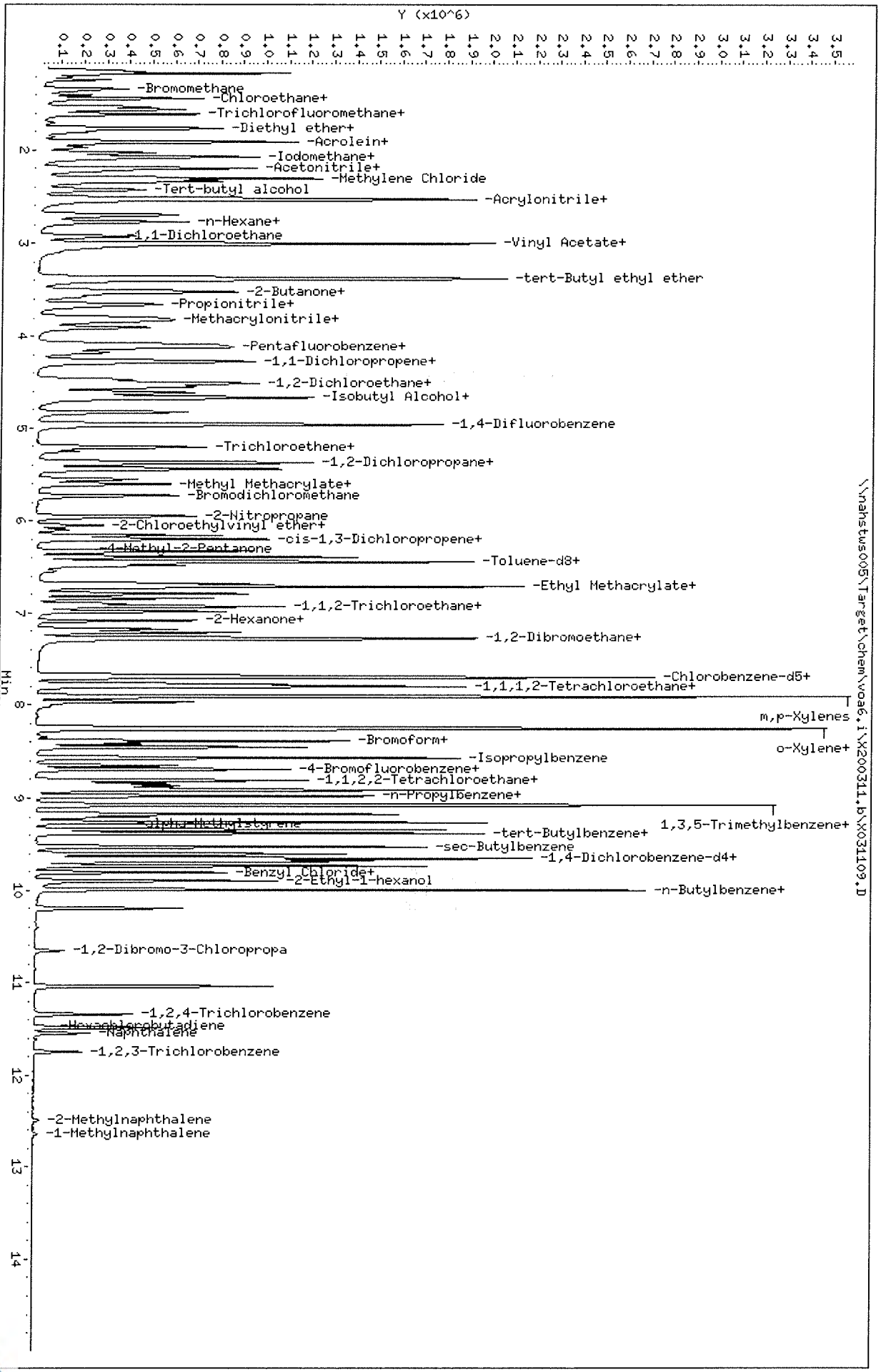
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031109.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 11-MAR-2020 13:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1	Pentafluorobenzene	168	4.182	4.182	(1.000)	217080	50.0000	
* 36	1,4-Difluorobenzene	114	4.970	4.970	(1.000)	330022	50.0000	
* 47	Chlorobenzene-d5	117	7.671	7.671	(1.000)	307641	50.0000	
* 70	1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	148877	50.0000	
$ 30	Dibromofluoromethane	113	4.104	4.104	(0.981)	232419	100.000	100.25
$ 35	1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	329022	100.000	99.60
$ 48	Toluene-d8	98	6.389	6.389	(0.833)	763095	100.000	99.43
$ 69	4-Bromofluorobenzene	95	8.695	8.695	(1.134)	295598	100.000	98.23
53	1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	152192	100.000	94.75
11	1,1-Dichloroethene	96	1.912	1.912	(0.457)	188643	100.000	104.82
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	408734	100.000	97.75
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	231706	100.000	104.67
17	Methylene Chloride	84	2.306	2.306	(0.551)	209474	100.000	100.45
38	Trichloroethene	130	5.207	5.207	(1.048)	237539	100.000	99.82
5	Vinyl Chloride	62	1.138	1.138	(0.272)	303004	100.000	104.37



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031109.D
Date : 11-MAR-2020 13:59
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

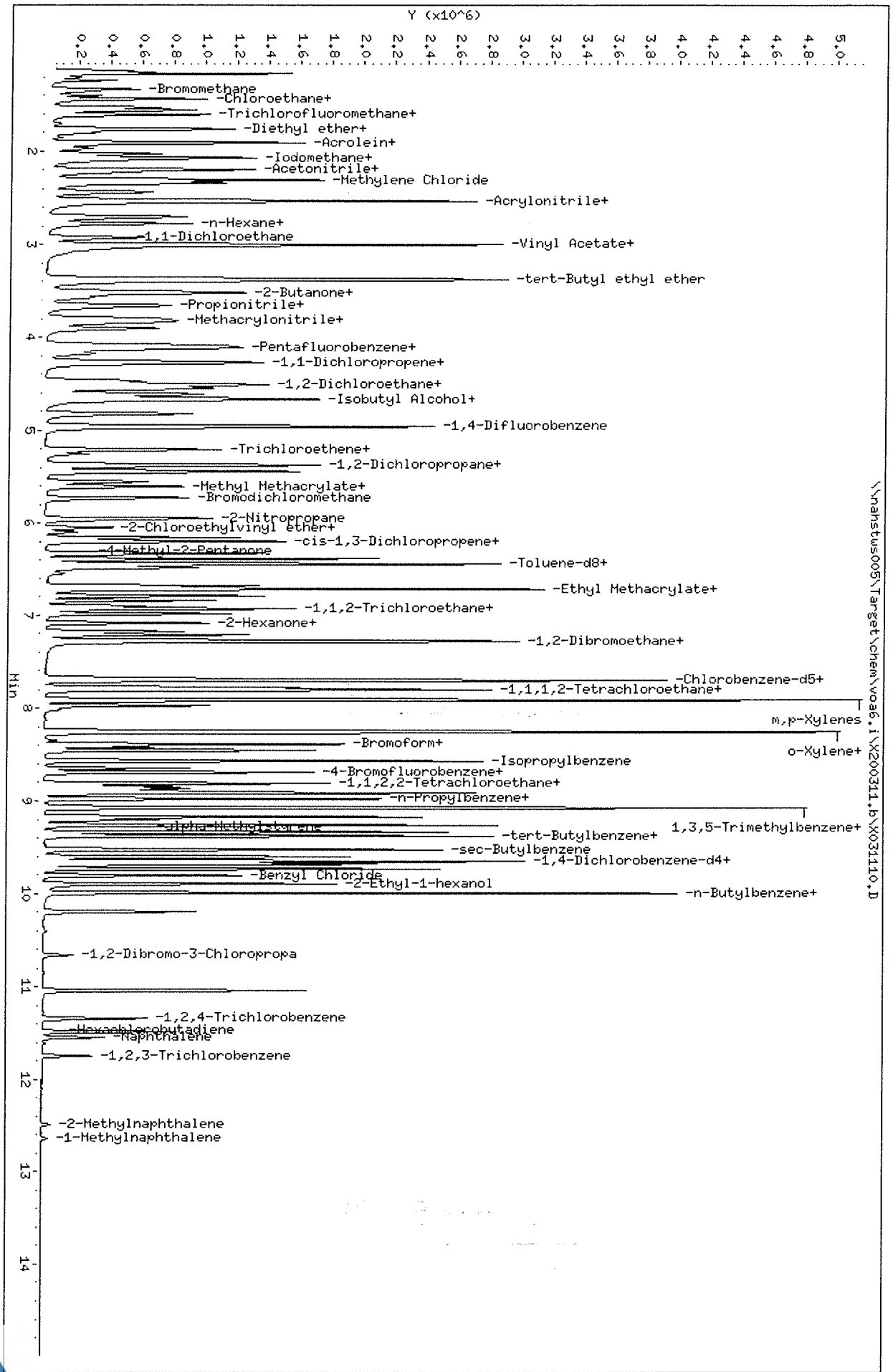
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031110.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 11-MAR-2020 14:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 13:59 Cal File: X031109.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	212356	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	319704	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	297858	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	144373	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	336011	150.000	148.02
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	477319	150.000	147.58
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1109045	150.000	149.22
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	437290	150.000	150.02
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	223050	150.000	143.43
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	268611	150.000	152.58
	33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	591024	150.000	145.91
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	333171	150.000	153.85
	17 Methylene Chloride	84	2.305	2.305	(0.551)	297537	150.000	146.12
	38 Trichloroethene	130	5.206	5.206	(1.048)	347396	150.000	150.70
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	435387	150.000	153.31



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031110.D
Date : 11-MAR-2020 14:23
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031111.D Page 1
Report Date: 02-Apr-2020 10:05

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031111.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 11-MAR-2020 14:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 14:23 Cal File: X031110.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

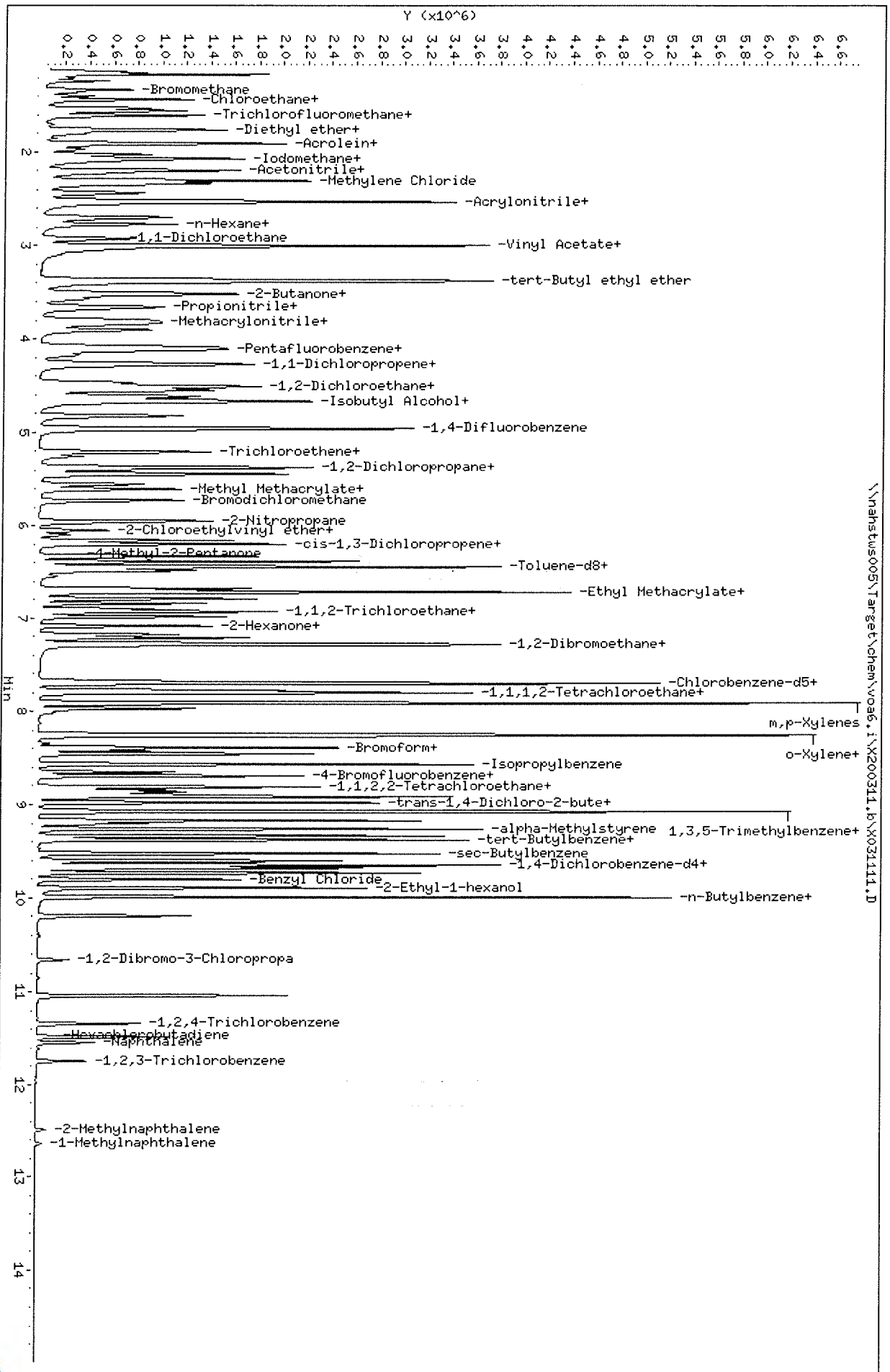
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	201718	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	309618	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	287470	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	142570	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	434974	200.000	201.62(A)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	621566	200.000	202.21(A)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1440663	200.000	200.83(A)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	565311	200.000	200.91(A)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	293981	200.000	195.87
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	342865	200.000	205.03(A)
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	783032	200.000	199.61
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	428411	200.000	208.27(A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	390938	200.000	202.33(A)
38 Trichloroethene	130	5.207	5.207	(1.048)	448636	200.000	200.96(A)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	563788	200.000	209.00(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031111.D
Date : 11-MAR-2020 14:46
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

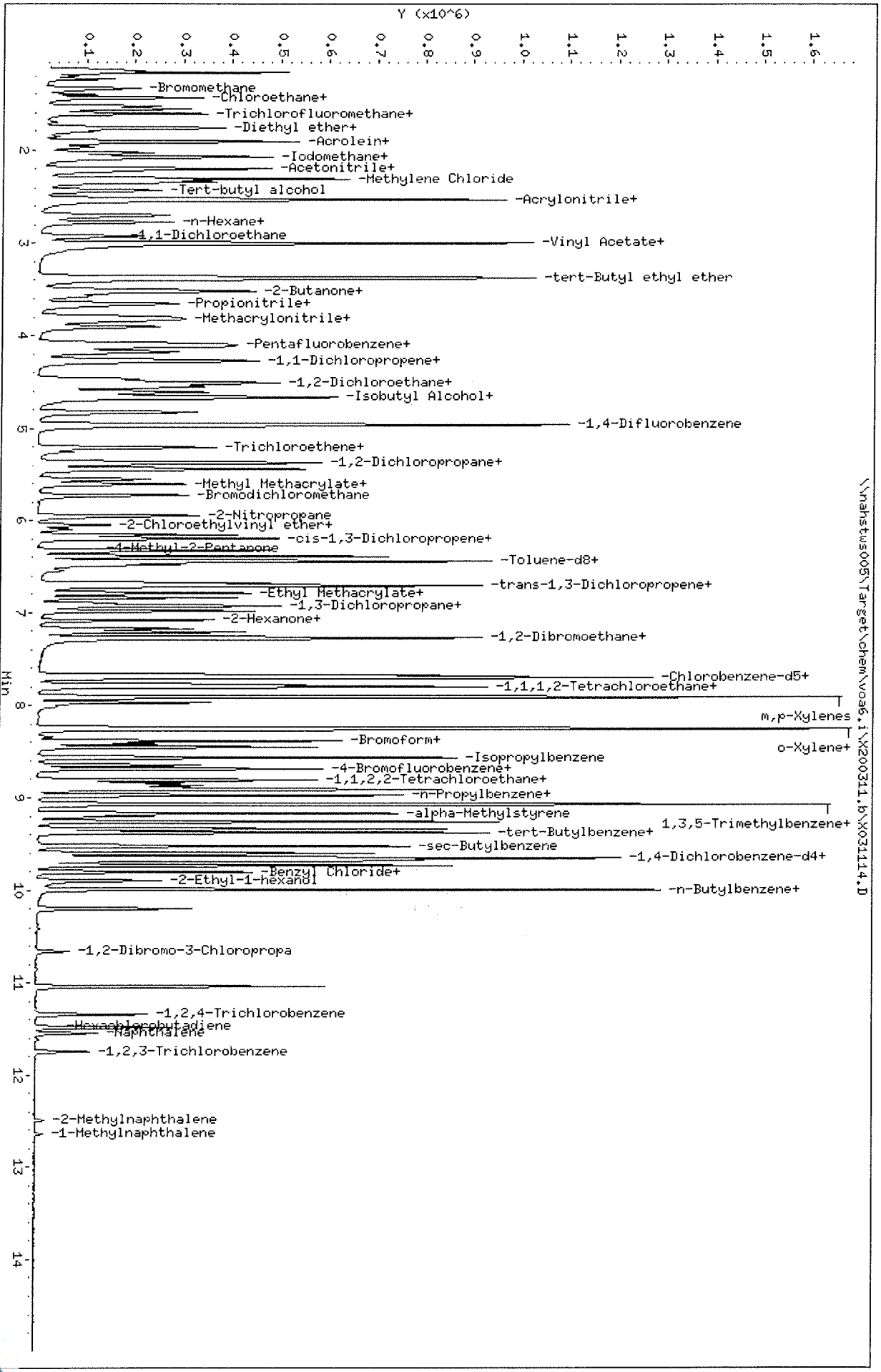
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031114.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 11-MAR-2020 15:58
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 14:46 Cal File: X031111.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	220518	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	332855	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	308471	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	155970	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	120711	51.3941	51.39
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	172819	51.6407	51.64
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	390263	50.7404	50.74
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	153750	51.0256	51.02
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	80695	50.1060	50.10
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	87912	48.0898	48.08
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	210722	49.9680	49.96
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	116643	51.8717	51.87
17 Methylene Chloride	84	2.306	2.305	(0.551)	107139	50.2982	50.29
38 Trichloroethene	130	5.207	5.207	(1.048)	117121	48.8012	48.80
5 Vinyl Chloride	62	1.138	1.138	(0.272)	138101	46.8309	46.83



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031114.D
Date : 11-MAR-2020 15:58
Client ID: ICV
Sample Info: CCV;CCV;2;;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

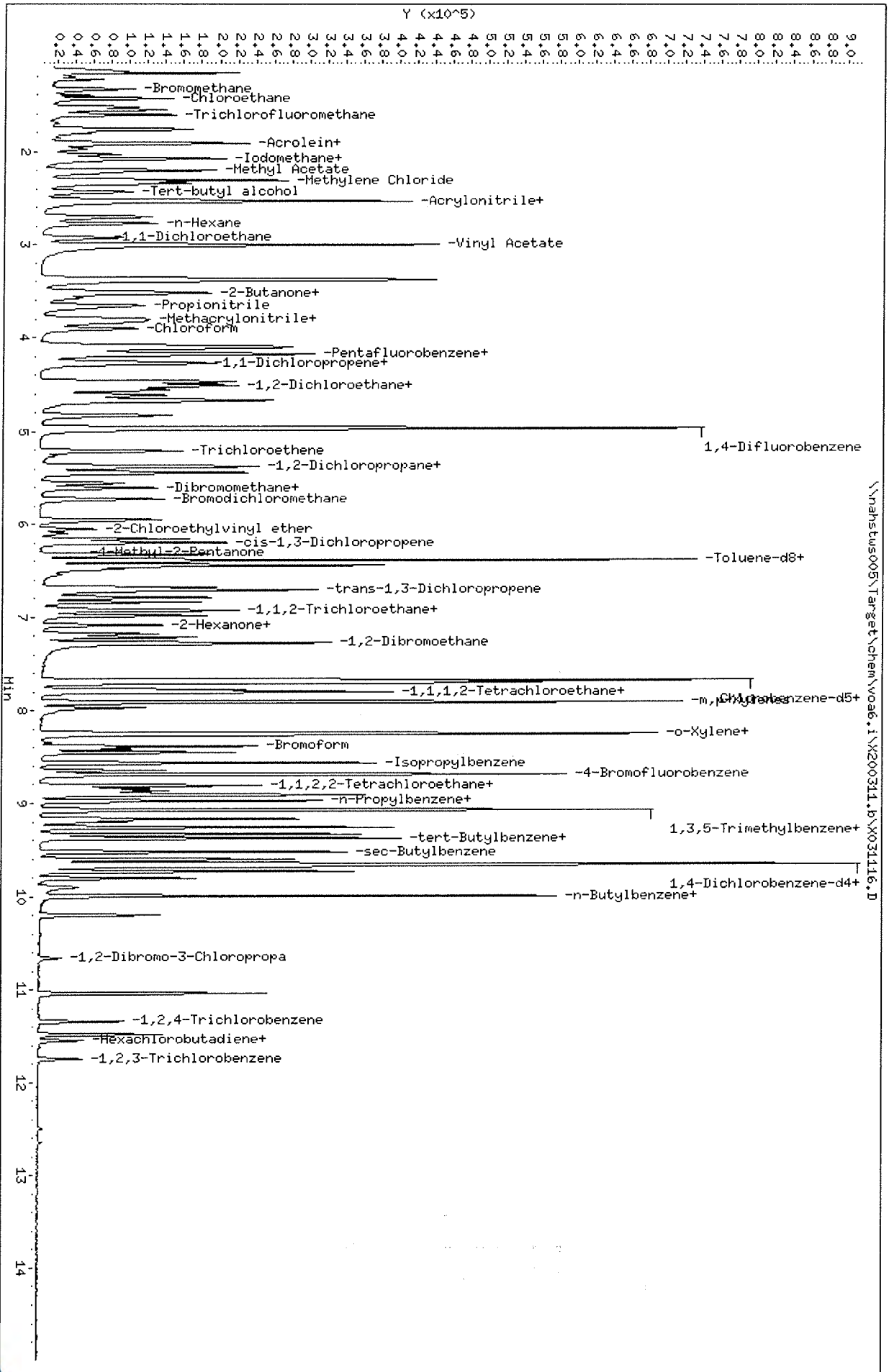
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031116.D
Lab Smp Id: VLCSW-200311 Client Smp ID: VLCSW-200311
Inj Date : 11-MAR-2020 16:46
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200311;VLCSW-200311;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 14:46 Cal File: X031111.D
Als bottle: 17 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	238496	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	345152	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	321009	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	155739	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	123978	48.8203	48.82
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	182878	50.5333	50.53
$	48 Toluene-d8	98	6.388	6.388	(0.833)	398525	49.7918	49.79
$	69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	159224	50.7790	50.77
	53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	33089	19.7435	19.74
	11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	37032	18.7303	18.73
	33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	88768	20.2994	20.29
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	50019	20.5670	20.56
	17 Methylene Chloride	84	2.305	2.305	(0.551)	45896	19.5803	19.58
	38 Trichloroethene	130	5.206	5.207	(1.048)	50425	20.2622	20.26
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	58957	18.4856	18.48



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031116.D
Date : 11-MAR-2020 16:46
Client ID: VLCSW-200311
Sample Info: VLCSW-200311;VLCSW-200311;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031118.D
Lab Smp Id: VBLKW-200311 Client Smp ID: VBLKW-200311
Inj Date : 11-MAR-2020 17:34
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-200311;VBLKW-200311;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 14:46 Cal File: X031111.D
Als bottle: 19 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

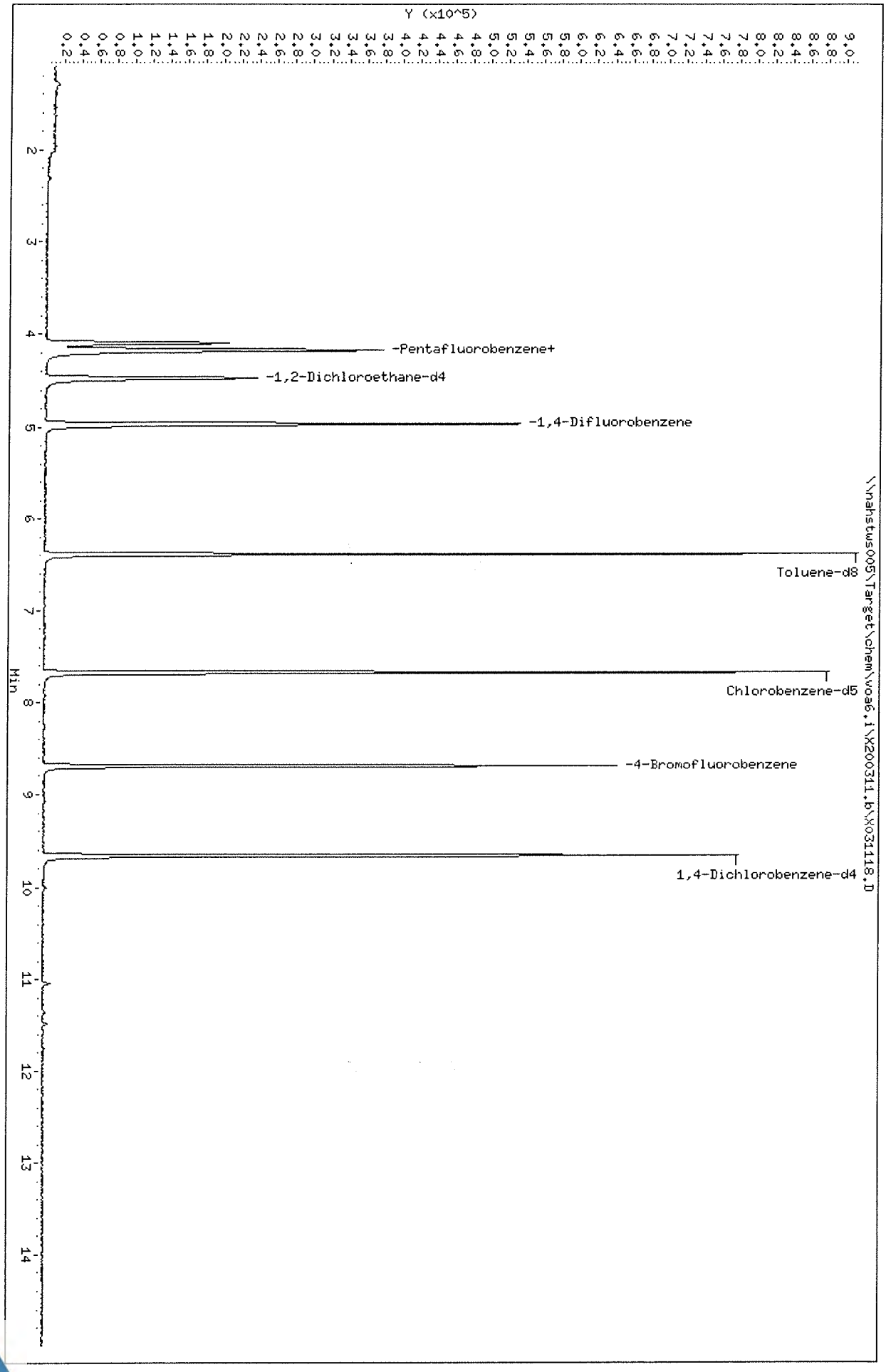
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	301036	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	420393	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	369407	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	176439	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	144375	45.0633	45.06
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	203026	44.4798	44.47
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	490774	53.2802	53.28
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	178441	49.4554	49.45

Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031118.D
Date : 11-MAR-2020 17:34
Client ID: VBLKW-200311
Sample Info: VBLKW-200311;VBLKW-200311;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031122.D
Lab Smp Id: HS20030383-07 Client Smp ID: HS20030383-07
Inj Date : 11-MAR-2020 19:11
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-07;HS20030383-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:00 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 14:46 Cal File: X031111.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

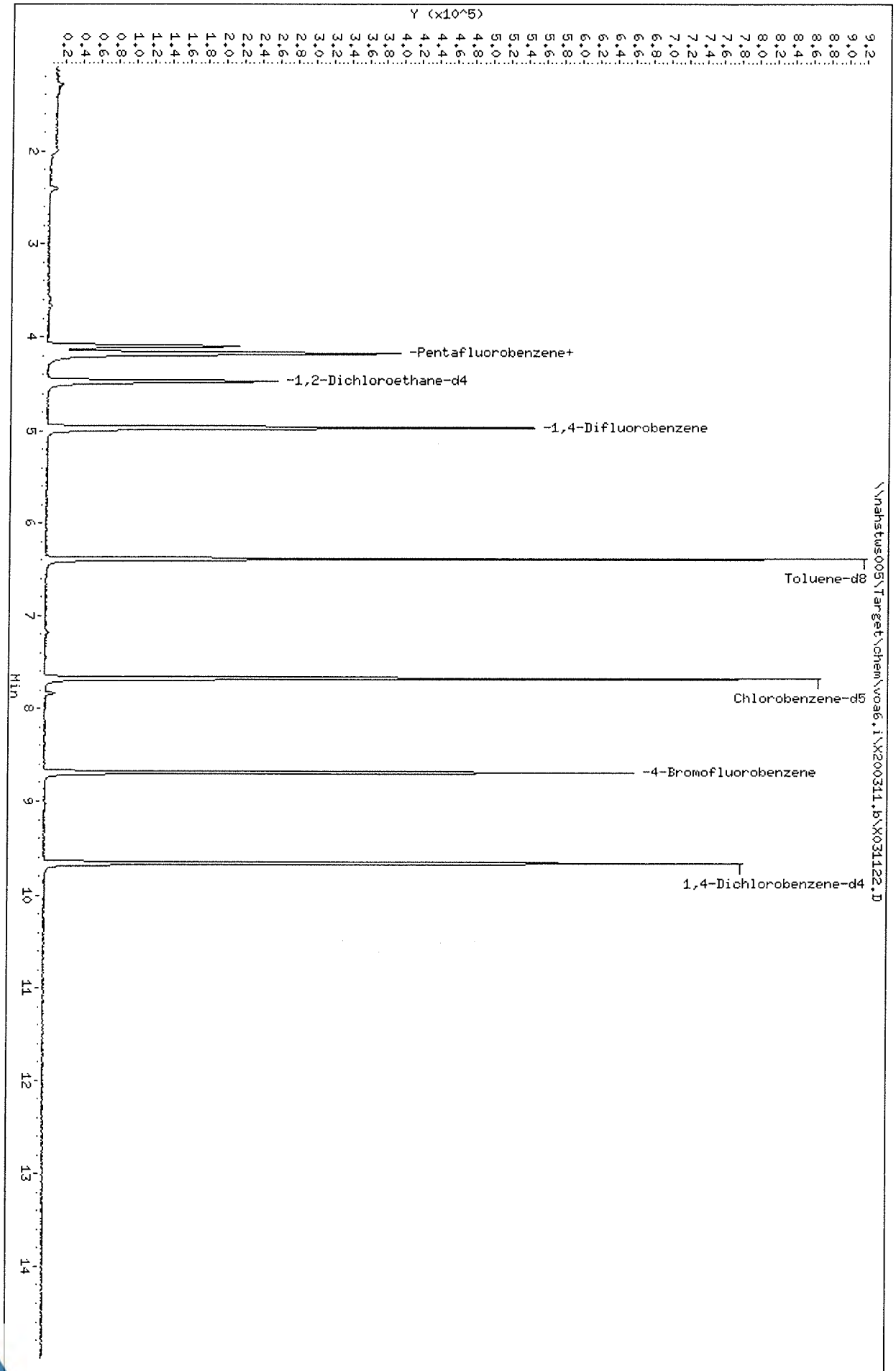
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	308452	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	427355	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	379593	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	177143	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	149895	45.6576	45.65
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	209993	44.8974	44.89
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	504353	53.2851	53.28
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	182405	49.1982	49.19

Data File: \\nahstws005\Target\chem\voa6,i\X200311,b\X031122.D
Date : 11-MAR-2020 19:11
Client ID: HS20030383-07
Sample Info: HS20030383-07;HS20030383-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031125.D Page 1
Report Date: 02-Apr-2020 10:01

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031125.D
Lab Smp Id: HS20030383-06 Client Smp ID: HS20030383-06
Inj Date : 11-MAR-2020 20:23
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-06;HS20030383-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:00 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 14:46 Cal File: X031111.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	303358	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	430947	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	363096	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	179428	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	149222	46.2123	46.21
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	209268	45.4899	45.48
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	470756	51.9965	51.99
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	177479	50.0421	50.04
11 1,1-Dichloroethene	96	1.919	1.912	(0.459)	3468	1.37903	1.37
27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	172280	55.6923	55.69
38 Trichloroethene	130	5.207	5.207	(1.048)	2859800	920.371	920.37(A)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	5072	1.25027	1.25

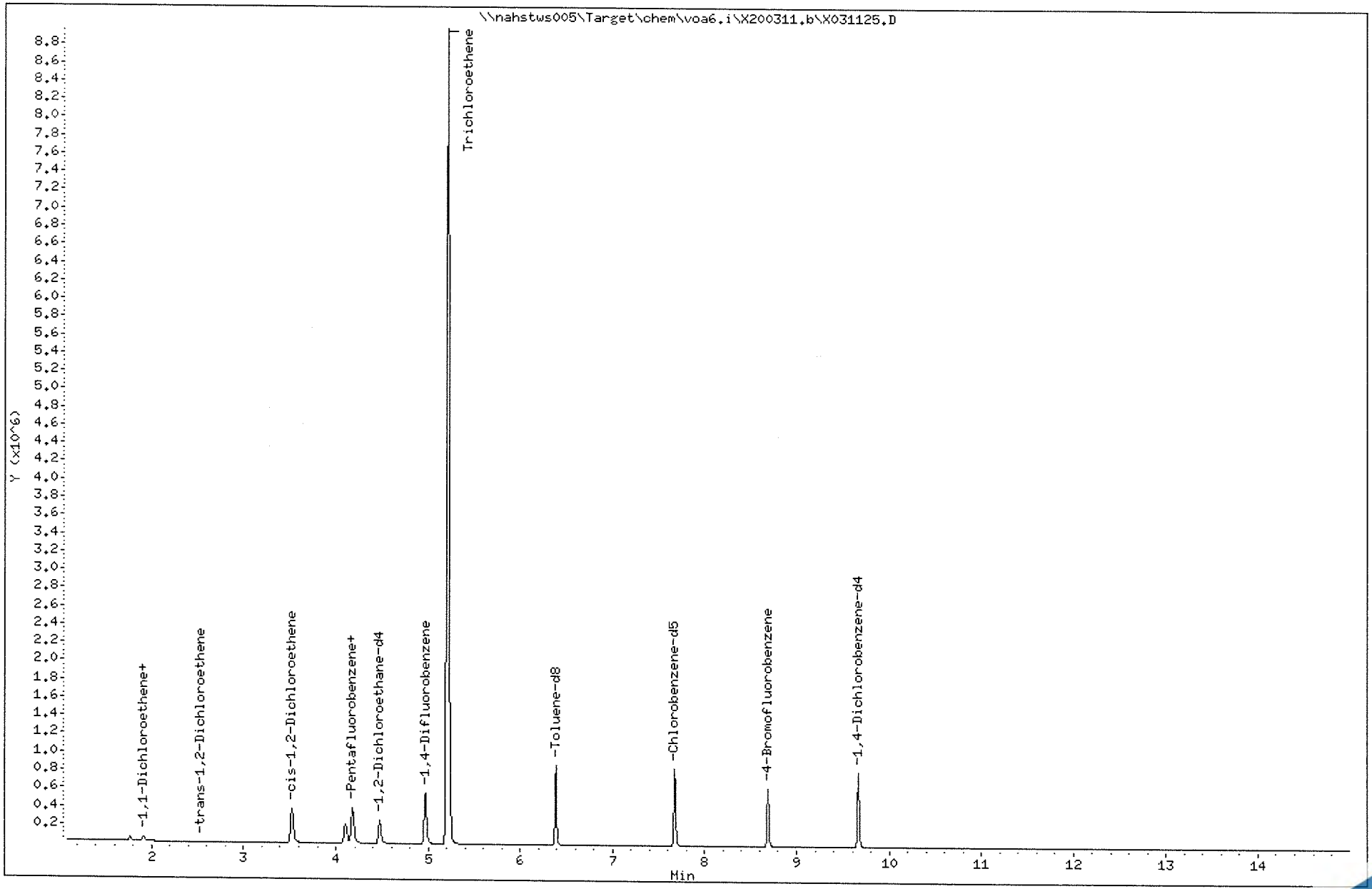
QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031125.D
Date : 11-MAR-2020 20:23
Client ID: HS20030383-06
Sample Info: HS20030383-06;HS20030383-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031125.D Page 3

Date : 11-MAR-2020 20:23

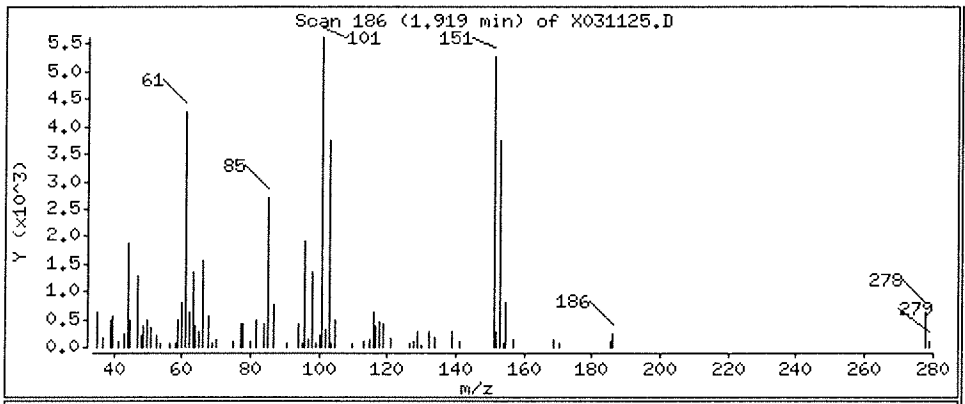
Client ID: HS20030383-06 Instrument: voa6.i

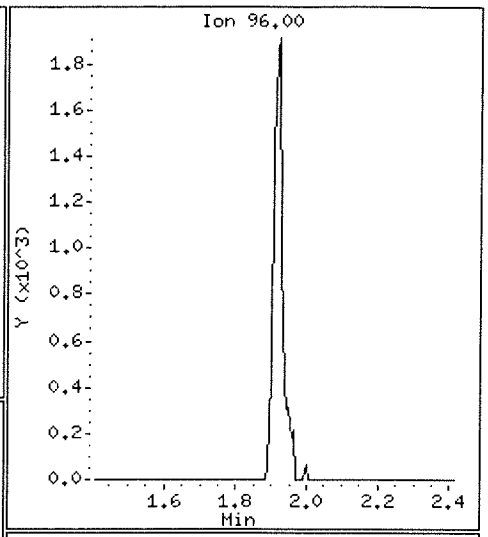
Sample Info: HS20030383-06;HS20030383-06;;;

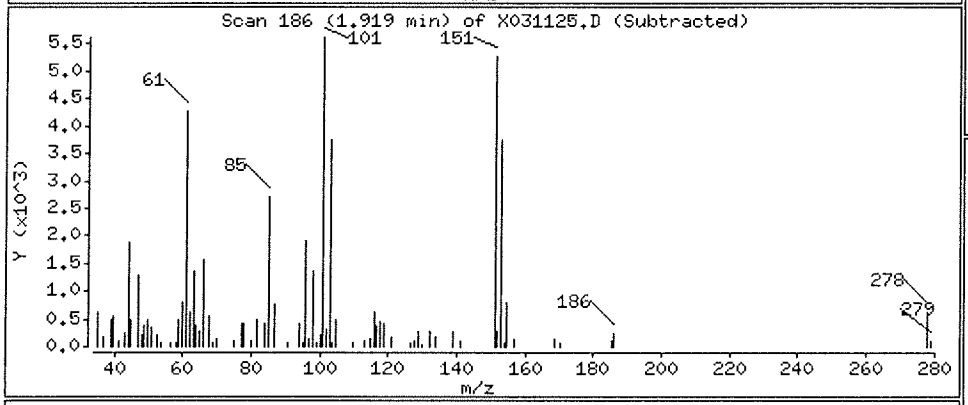
Purge Volume: 5.0 Operator: PC

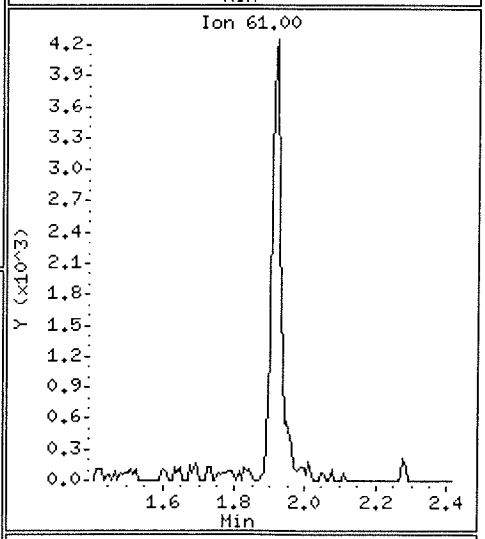
Column phase: DB624 Column diameter: 0.18

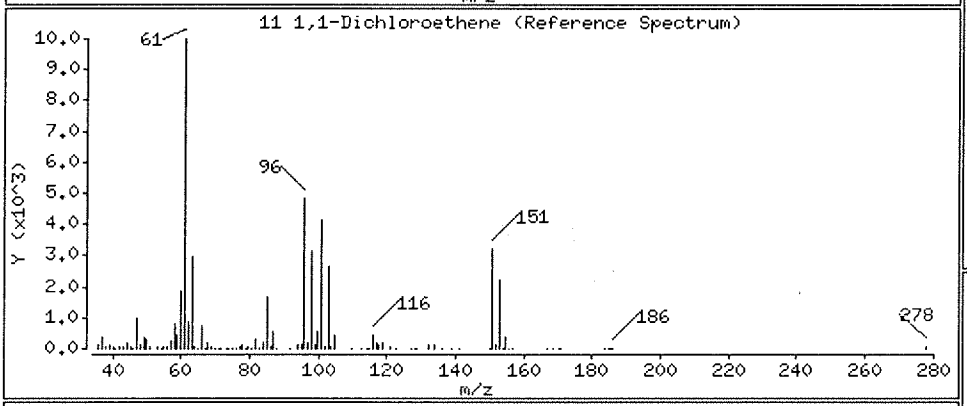
11 1,1-Dichloroethene Concentration: 1.37 ug/l

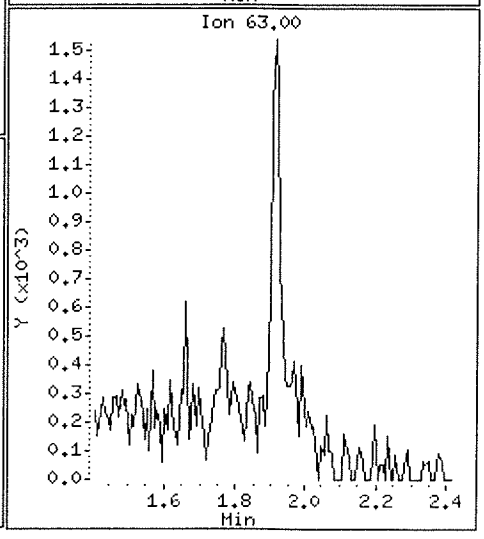


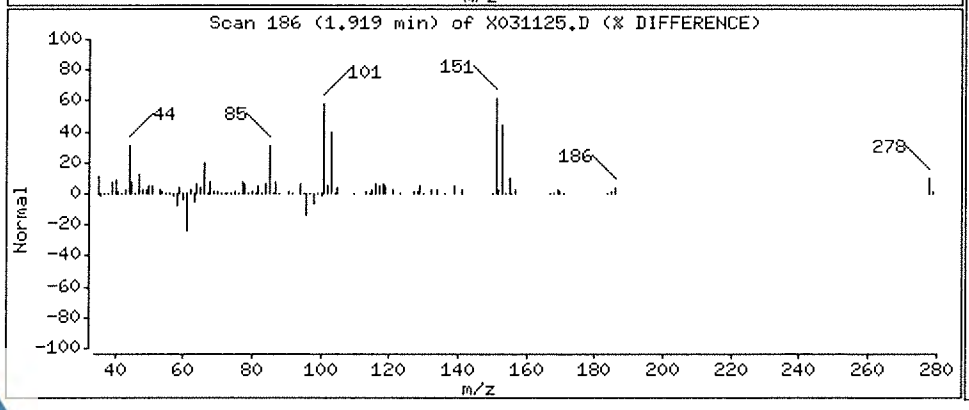












Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031125.D

Date : 11-MAR-2020 20:23

Client ID: HS20030383-06

Instrument: voa6.i

Sample Info: HS20030383-06;HS20030383-06;;;

Purge Volume: 5.0

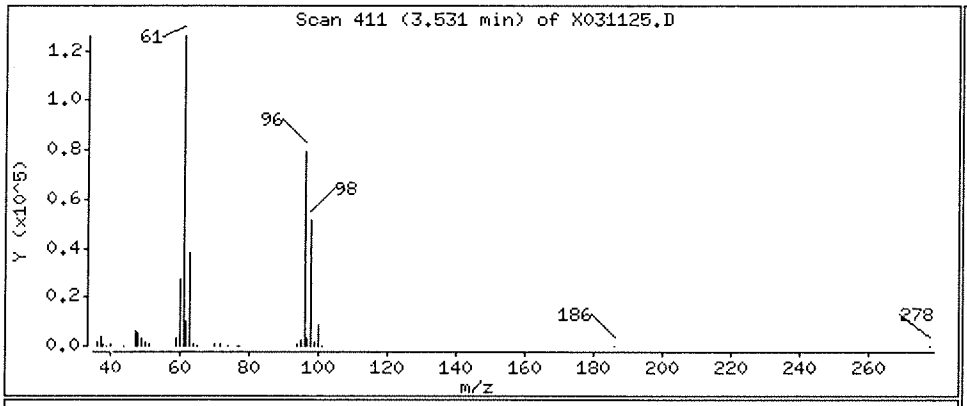
Operator: PC

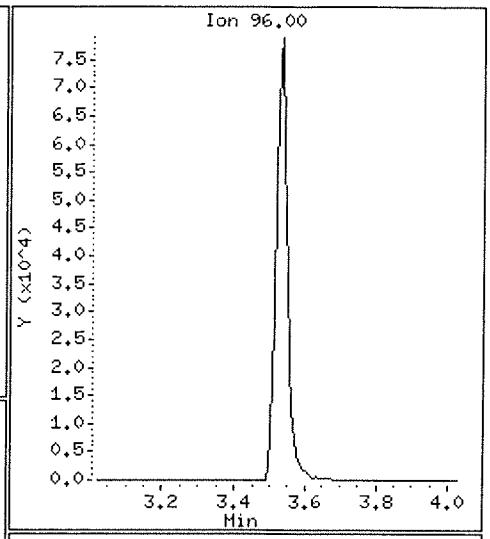
Column phase: DB624

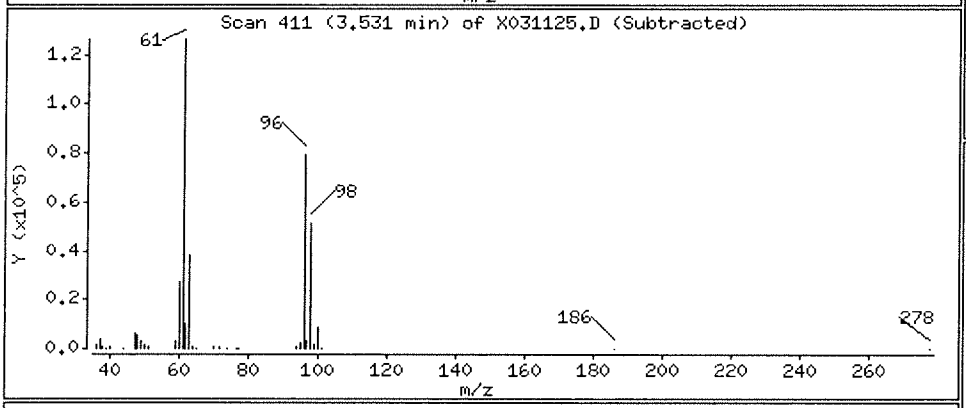
Column diameter: 0.18

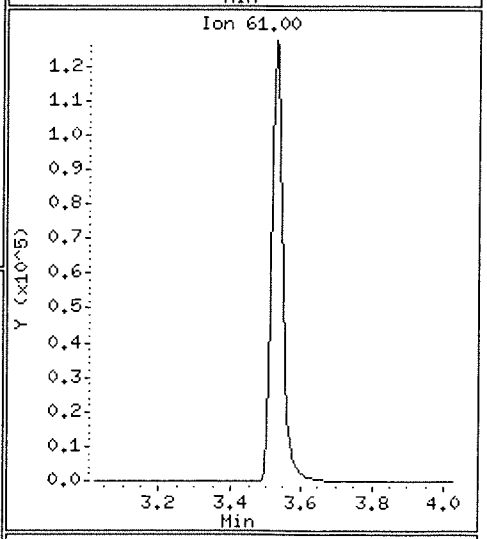
27 cis-1,2-Dichloroethene

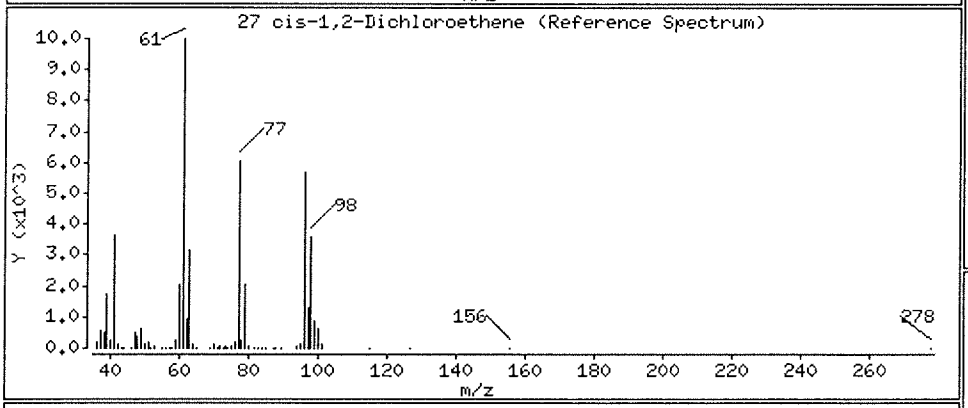
Concentration: 55.69 ug/l

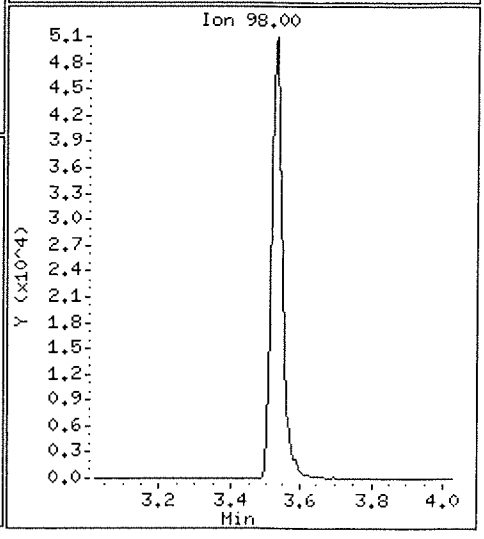


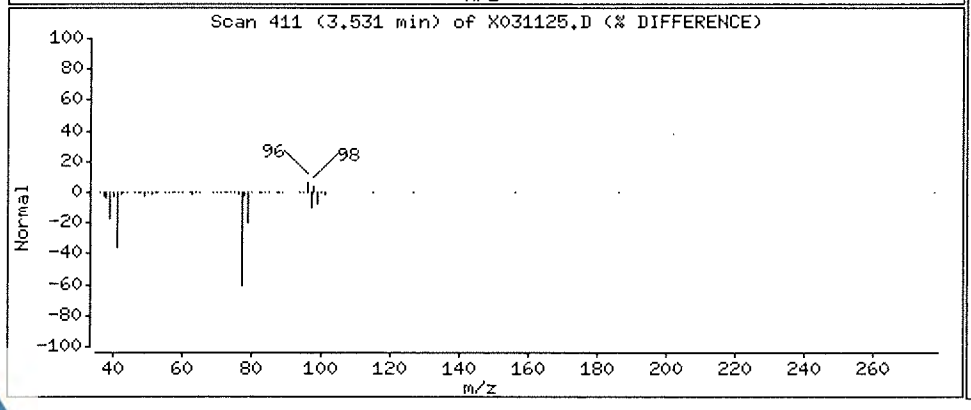












Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031125.D Page 5

Date : 11-MAR-2020 20:23

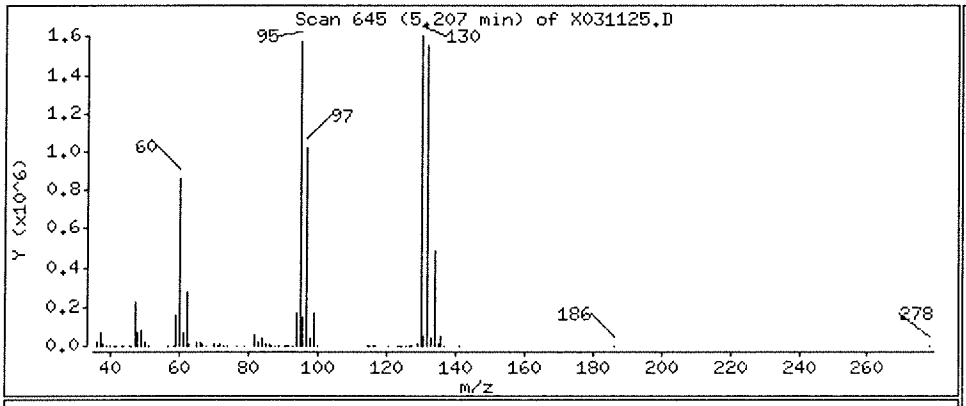
Client ID: HS20030383-06 Instrument: voa6.i

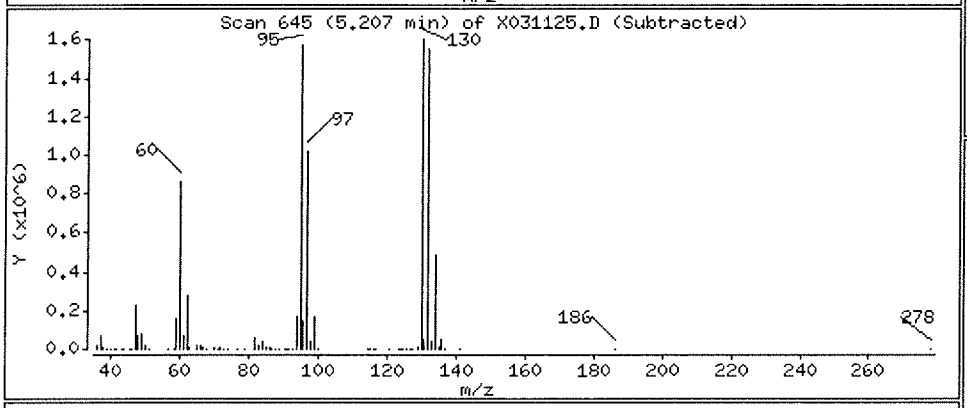
Sample Info: HS20030383-06;HS20030383-06;;;

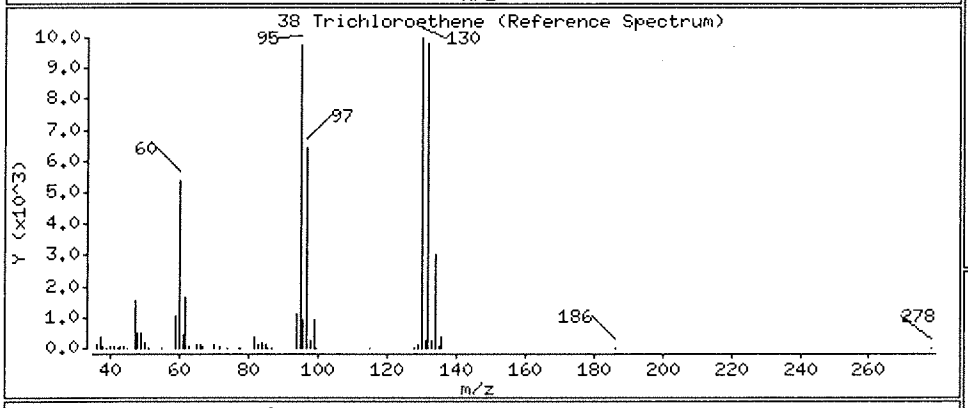
Purge Volume: 5.0 Operator: PC

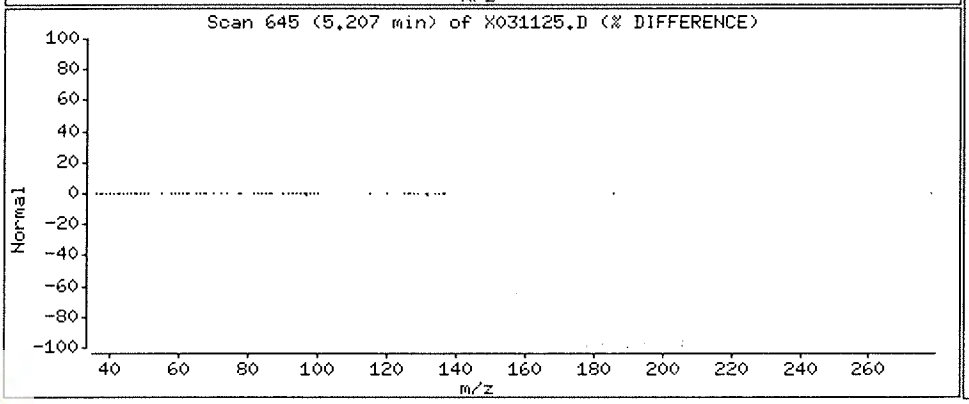
Column phase: DB624 Column diameter: 0.18

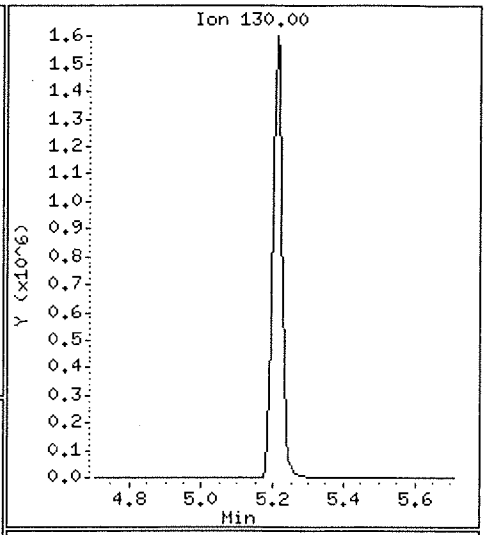
38 Trichloroethene Concentration: 920.37 ug/l

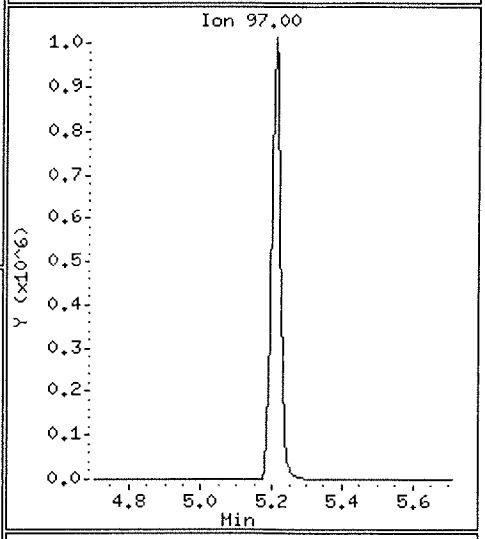


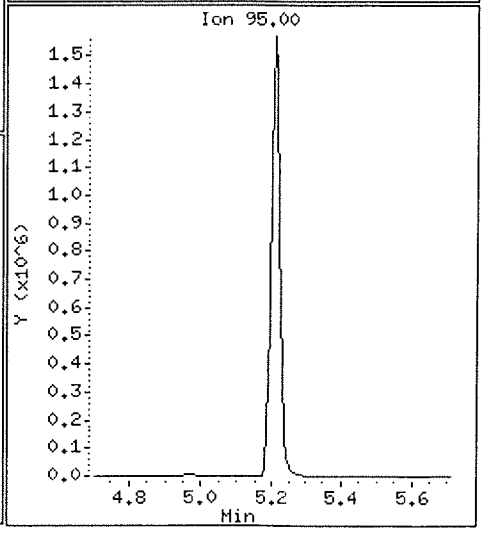












Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031125.D

Date : 11-MAR-2020 20:23

Client ID: HS20030383-06

Instrument: voa6.i

Sample Info: HS20030383-06;HS20030383-06;;;

Purge Volume: 5.0

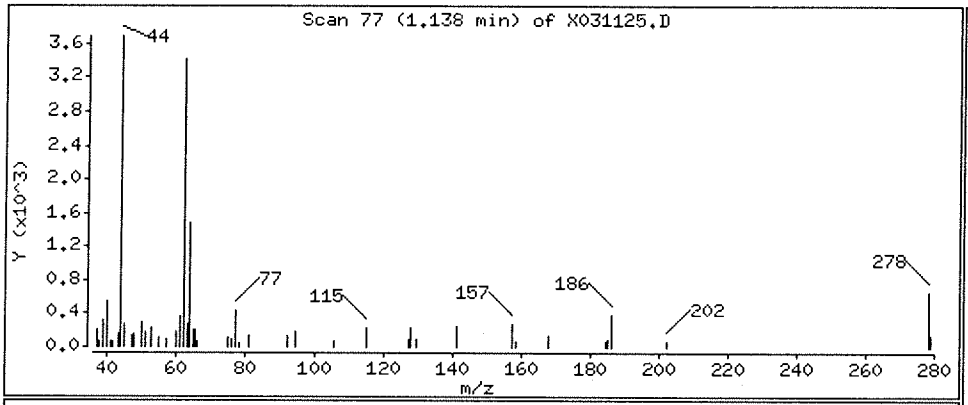
Operator: PC

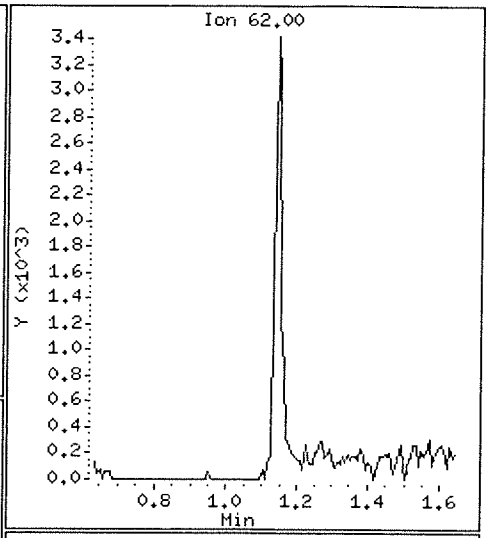
Column phase: DB624

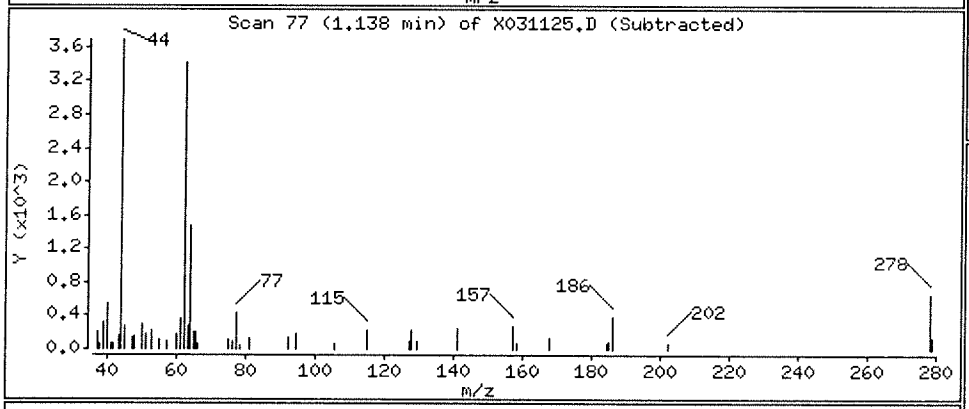
Column diameter: 0.18

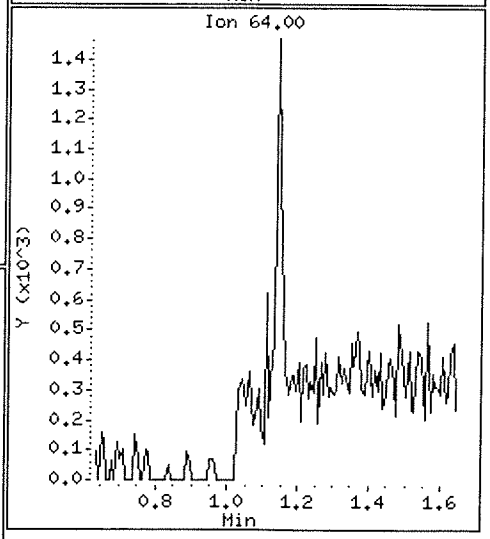
5 Vinyl Chloride

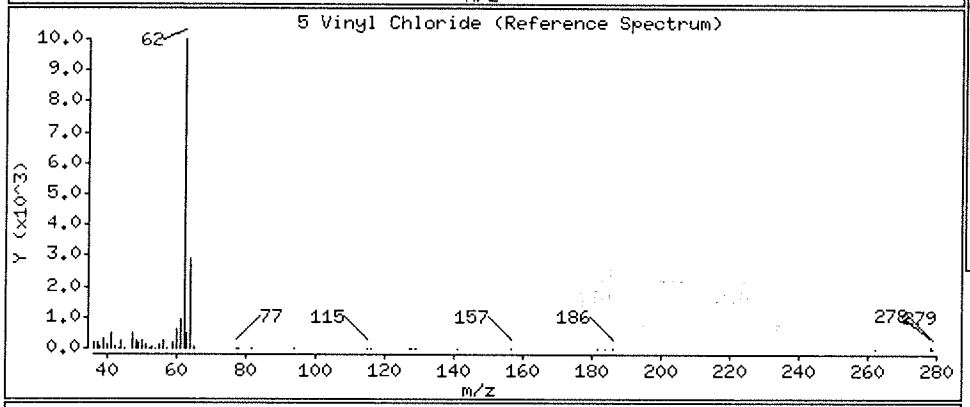
Concentration: 1.25 ug/l

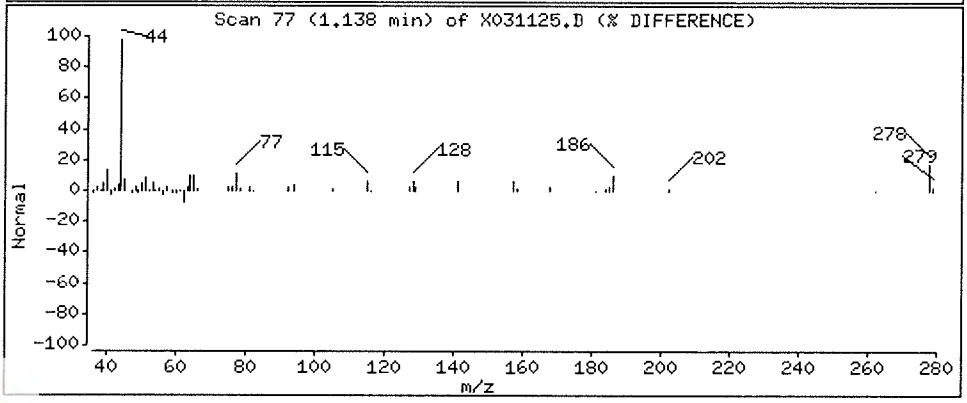












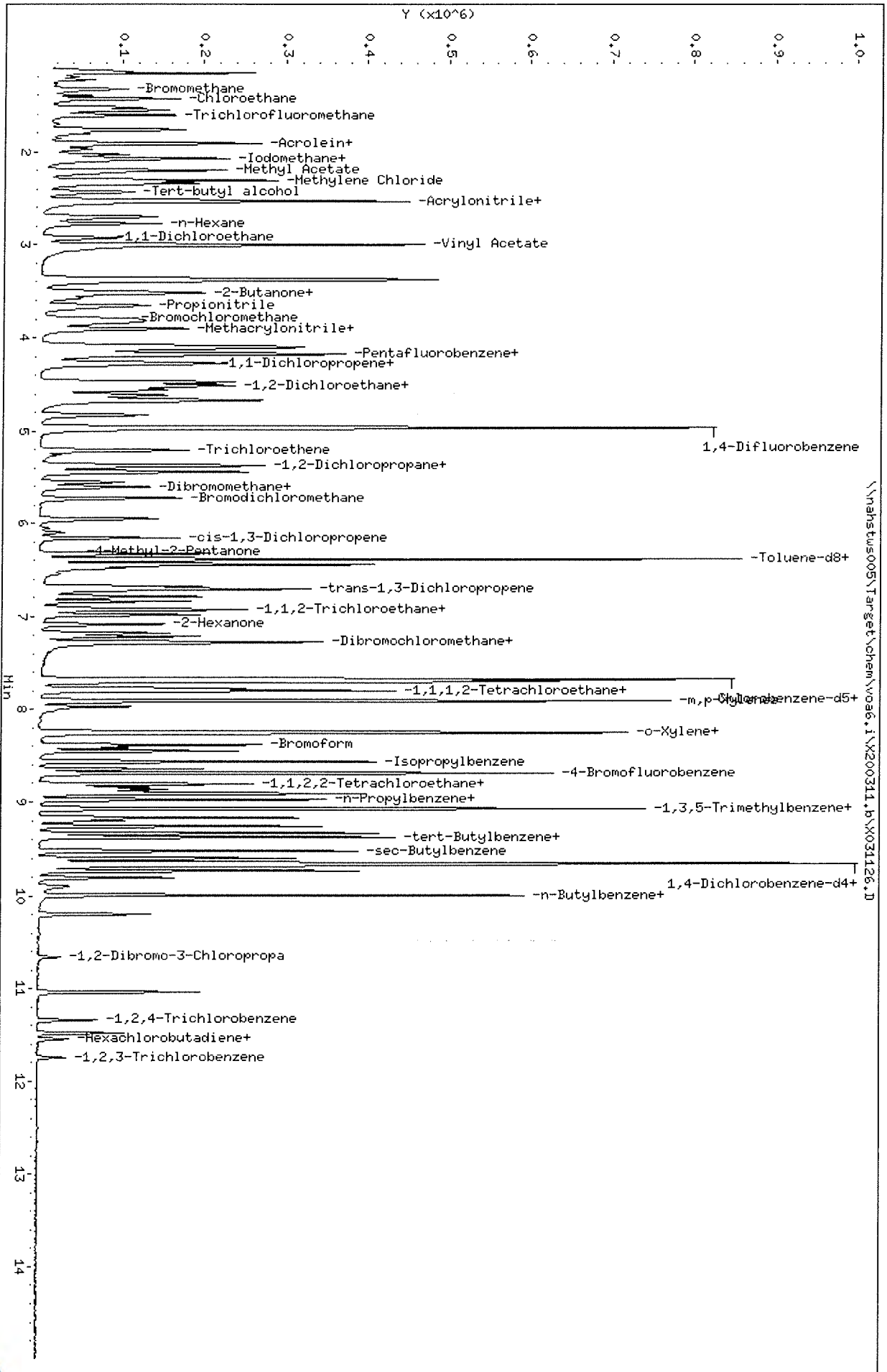
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031126.D
Lab Smp Id: HS20030447-01MS Client Smp ID: HS20030447-01MS
Inj Date : 11-MAR-2020 20:47
Operator : PC Inst ID: voa6.i
Smp Info : HS20030447-01MS;HS20030447-01MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 14:46 Cal File: X031111.D
Als bottle: 27 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	282966	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	400391	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	347433	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	168427	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	138243	45.8995	45.89
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	199046	46.3805	46.38
$	48 Toluene-d8	98	6.388	6.388	(0.833)	458143	52.8838	52.88
$	69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	168317	49.5996	49.59
	53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	35133	19.3687	19.36
	11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	42631	18.1736	18.17
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	94515	18.6318	18.63
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	54449	18.8700	18.86
	17 Methylene Chloride	84	2.305	2.305	(0.551)	47196	16.8950	16.89
	38 Trichloroethene	130	5.206	5.207	(1.048)	58851	20.3855	20.38
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	70113	18.5287	18.52



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031126.D
Date : 11-MAR-2020 20:47
Client ID: HS20030447-01MS
Sample Info: HS20030447-01MS;HS20030447-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

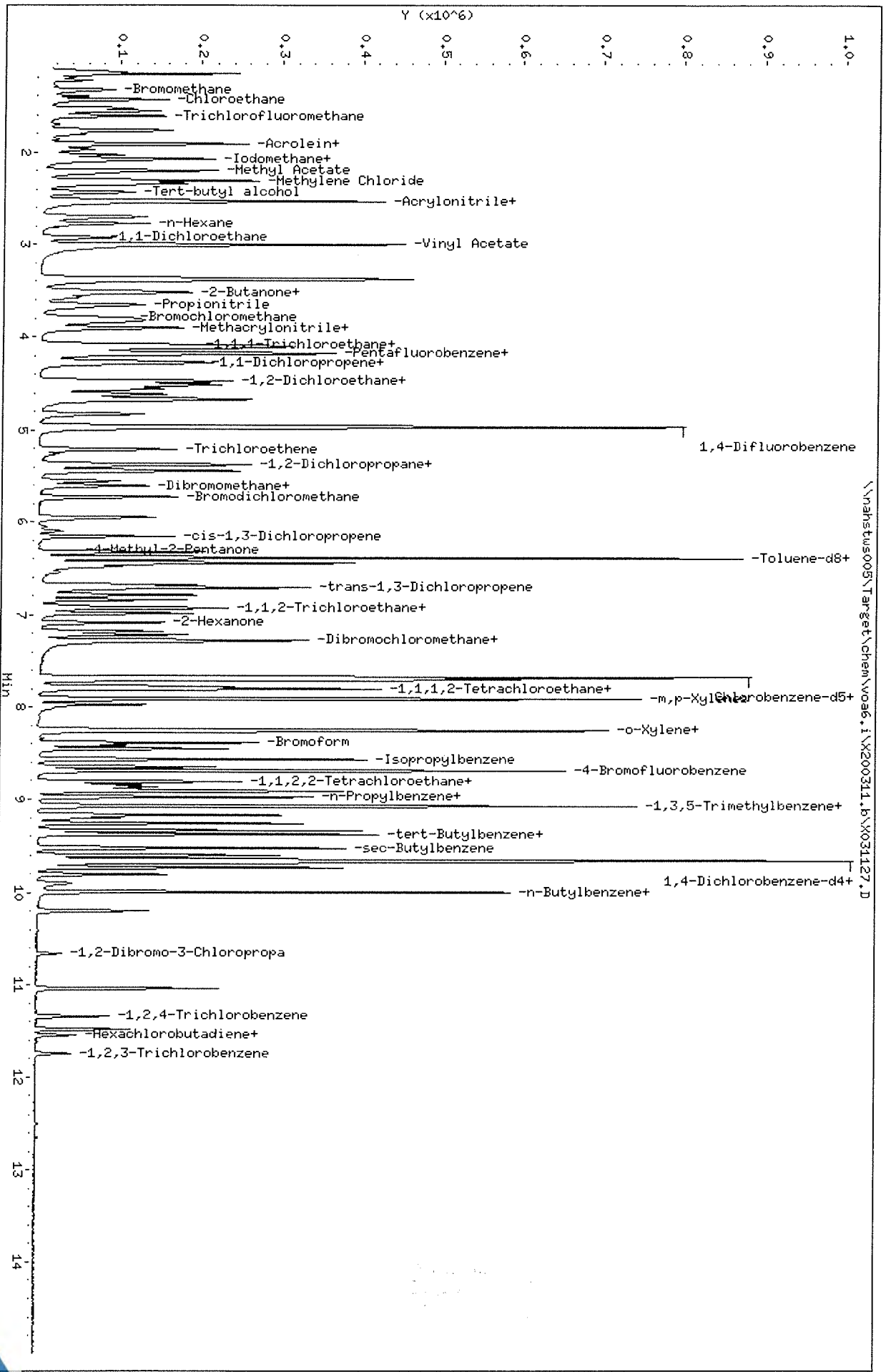
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031127.D
Lab Smp Id: HS20030447-01MSD Client Smp ID: HS20030447-01MSD
Inj Date : 11-MAR-2020 21:11
Operator : PC Inst ID: voa6.i
Smp Info : HS20030447-01MSD;HS20030447-01MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 14:46 Cal File: X031111.D
Als bottle: 27 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	285554	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	394736	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	351830	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	173690	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.103	(0.979)	138798	45.6675	45.66
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	198646	45.8709	45.87
$	48 Toluene-d8	98	6.388	6.388	(0.833)	461159	52.5670	52.56
$	69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	174946	50.9051	50.90
	53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	34008	18.5142	18.51
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	41428	17.5007	17.50
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	95304	19.0564	19.05
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	50912	17.4843	17.48
	17 Methylene Chloride	84	2.306	2.305	(0.551)	47157	16.7225	16.72
	38 Trichloroethene	130	5.207	5.207	(1.048)	52903	18.5877	18.58
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	65599	17.1786	17.17



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031127.D
Date : 11-MAR-2020 21:11
Client ID: HS20030447-01MSD
Sample Info: HS20030447-01MSD;HS20030447-01MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031128.D Page 1
Report Date: 02-Apr-2020 10:05

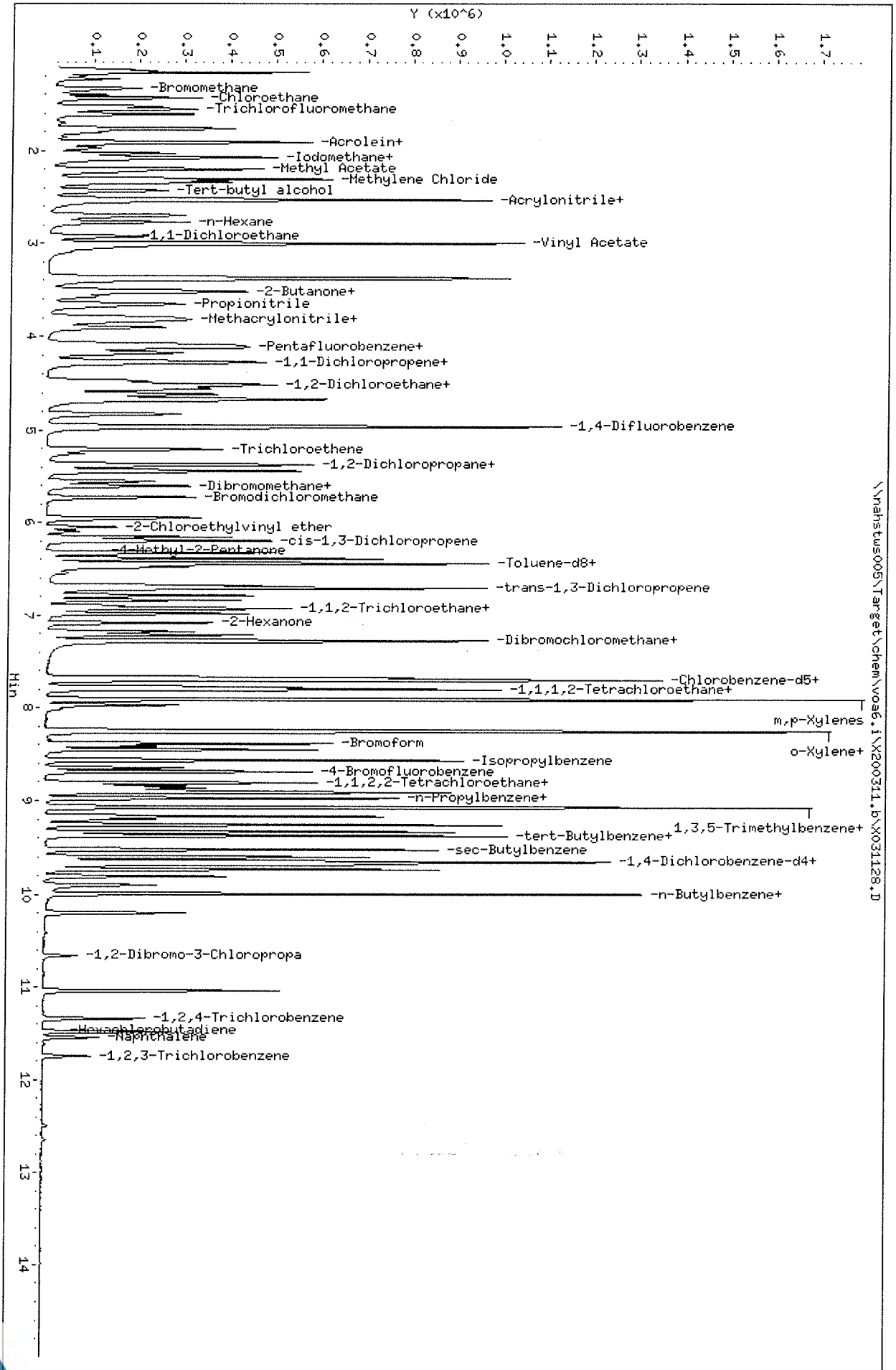
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200311.b\X031128.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 11-MAR-2020 21:35
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200311.b\8260W.m
Meth Date : 02-Apr-2020 10:05 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 14:46 Cal File: X031111.D
Als bottle: 28 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	225498	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	334123	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	310848	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	157427	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	119235	50.0000	49.65
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	174330	50.0000	50.94
$	48 Toluene-d8	98	6.388	6.388	(0.833)	387512	50.0000	49.99
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	155343	50.0000	51.15
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	82031	50.0000	50.54
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	95266	50.0000	50.96
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	214116	50.0000	50.58
	27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	119991	50.0000	52.18
	17 Methylene Chloride	84	2.306	2.306	(0.551)	109412	50.0000	50.23
	38 Trichloroethene	130	5.207	5.207	(1.048)	121162	50.0000	50.29
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	148652	50.0000	49.29



Data File: \\nahstws005\Target\chem\voa6.i\X200311.b\X031128.D
Date : 11-MAR-2020 21:35
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

MSVOA06 -Logbook

Batch: 39936 **Analyst:** Presenta Cabascango

Date: 03-15-2020 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	03-15-2020 10:44 am	1.00	50 mL	50 mL	X031501a.D	Liquid	Y	NA
	Auto find/ purged									
2	BFB	TUNE	03-15-2020 11:08 am	1.00	50 mL	50 mL	X031502.D	Liquid	Y	NA
	auto find/ purged									
3	CCV	CCV	03-15-2020 11:32 am	1.00	50 mL	50 mL	X031503.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
4	CCB	SAMP	03-15-2020 11:56 am	1.00	50 mL	50 mL	X031504.D	Liquid	Y	NA
5	VLCSW-200315	LCS	03-15-2020 12:20 pm	1.00	50 mL	50 mL	X031505.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
6	BLANK	SAMP	03-15-2020 12:44 pm	1.00	50 mL	50 mL	X031506.D	Liquid	Y	NA
7	VBLKW-200315	MBLK	03-15-2020 01:08 pm	1.00	50 mL	50 mL	X031507.D	Liquid	Y	NA
8	HS20030485-10	SAMP	03-15-2020 01:32 pm	1.00	50 mL	50 mL	X031508.D	Liquid	Y	<2
9	HS20030485-20	SAMP	03-15-2020 01:56 pm	1.00	50 mL	50 mL	X031509.D	Liquid	Y	<2
10	HS20030405-11	SAMP	03-15-2020 02:21 pm	1.00	50 mL	50 mL	X031510.D	Liquid	Y	<2
11	HS20030383-01	SAMP	03-15-2020 02:45 pm	5.00	10 mL	50 mL	X031511.D	Liquid	Y	<2
12	HS20030405-01	SAMP	03-15-2020 03:09 pm	5.00	10 mL	50 mL	X031512.D	Liquid	Y	<2
13	HS20030383-01	SAMP	03-15-2020 03:33 pm	1.00	50 mL	50 mL	X031513.D	Liquid	Y	<2
14	HS20030405-01MS	MS	03-15-2020 03:57 pm	5.00	10 mL	50 mL	X031514.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
15	HS20030405-01MSD	MSD	03-15-2020 04:21 pm	5.00	10 mL	50 mL	X031515.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
16	HS20030383-06	SAMP	03-15-2020 04:45 pm	10.00	5 mL	50 mL	X031516.D	Liquid	Y	<2
17	HS20030383-04	SAMP	03-15-2020 05:09 pm	5.00	10 mL	50 mL	X031517.D	Liquid	Y	<2
18	HS20030383-04	SAMP	03-15-2020 05:33 pm	25.00	2 mL	50 mL	X031518.D	Liquid	Y	<2
19	HS20030383-05	SAMP	03-15-2020 05:57 pm	5.00	10 mL	50 mL	X031519.D	Liquid	Y	<2
20	HS20030383-05	SAMP	03-15-2020 06:21 pm	50.00	1 mL	50 mL	X031520.D	Liquid	Y	<2
21	HS20030383-02	SAMP	03-15-2020 06:45 pm	10.00	5 mL	50 mL	X031521.D	Liquid	Y	<2
22	HS20030383-02	SAMP	03-15-2020 07:09 pm	100.0(	500 µL	50 mL	X031522.D	Liquid	Y	<2
23	HS20030383-03	SAMP	03-15-2020 07:33 pm	25.00	2 mL	50 mL	X031523.D	Liquid	Y	<2
24	HS20030383-03	SAMP	03-15-2020 07:57 pm	250.0(	200 µL	50 mL	X031524.D	Liquid	Y	<2
25	CCV-END	CCV	03-15-2020 08:21 pm	1.00	50 mL	50 mL	X031525.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
26	HS20030405-03	SAMP	03-15-2020 08:45 pm	5.00	10 mL	50 mL	X031526.D	Liquid	Y	<2
27	HS20030405-07	SAMP	03-15-2020 09:09 pm	100.0(	500 µL	50 mL	X031527.D	Liquid	Y	<2
28	HS20030405-08	SAMP	03-15-2020 09:33 pm	20.00	2.5 mL	50 mL	X031528.D	Liquid	Y	<2
29	HS20030405-10	SAMP	03-15-2020 09:57 pm	25.00	2 mL	50 mL	X031529.D	Liquid	Y	<2
30	HS20030405-12	SAMP	03-15-2020 10:21 pm	10.00	5 mL	50 mL	X031530.D	Liquid	Y	<2

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	31106-16-03
IS ID	31106-16-04
LCS/MS ID	31105-08-01
CAL STD ID	31106-20-01/02
BFB ID	31106-16-03
pH Paper	634-64-11

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

	CLIENT SAMPLE NO.	SMC1 (DCE)#	SMC2 #	SMC3 #	OTHER (TOL)#	TOT OUT
01	VLCSW-200315	99	99	100	99	0
02	VBLKW-200315	88	94	99	107	0
03	HS20030383-01	91	92	100	108	0
04	HS20030383-01	90	92	98	103	0
05	HS20030383-06	90	90	101	106	0
06	HS20030383-04	90	91	100	106	0
07	HS20030383-04	90	91	100	106	0
08	HS20030383-05	91	92	99	104	0
09	HS20030383-05	91	91	94	107	0
10	HS20030383-02	92	92	99	107	0
11	HS20030383-02	91	91	98	105	0
12	HS20030383-03	91	91	104	107	0
13	HS20030383-03	91	90	97	104	0
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3	= 4-Bromofluorobenzene	(0-130)
OTHER(TOL)	= Toluene-d8	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-200315

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Lab File ID: X031507 Lab Sample ID: VBLKW-200315

Date Analyzed: 03/15/20 Time Analyzed: 1308

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-200315	VLCSW-200315	X031505	1220
02	HS20030383-0	HS20030383-01	X031511	1445
03	HS20030383-0	HS20030383-01	X031513	1533
04	HS20030405-0	HS20030405-01M	X031514	1557
05	HS20030405-0	HS20030405-01M	X031515	1621
06	HS20030383-0	HS20030383-06	X031516	1645
07	HS20030383-0	HS20030383-04	X031517	1709
08	HS20030383-0	HS20030383-04	X031518	1733
09	HS20030383-0	HS20030383-05	X031519	1757
10	HS20030383-0	HS20030383-05	X031520	1821
11	HS20030383-0	HS20030383-02	X031521	1845
12	HS20030383-0	HS20030383-02	X031522	1909
13	HS20030383-0	HS20030383-03	X031523	1933
14	HS20030383-0	HS20030383-03	X031524	1957
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Lab File ID: X031502 BFB Injection Date: 03/15/20

Instrument ID: VOA6 BFB Injection Time: 1108

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	25.3
75	30.0 - 60.0% of mass 95	54.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.9 (1.2)1
174	Greater than 50.0% of mass 95	78.4
175	5.0 - 9.0% of mass 174	6.6 (8.4)1
176	95.0 - 101.0% of mass 174	75.5 (96.2)1
177	5.0 - 9.0% of mass 176	5.3 (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	CCV	CCV	X031503	03/15/20	1132
02	VLCSW-200315	VLCSW-200315	X031505	03/15/20	1220
03	VBLKW-200315	VBLKW-200315	X031507	03/15/20	1308
04	HS20030383-0	HS20030383-01	X031511	03/15/20	1445
05	HS20030383-0	HS20030383-01	X031513	03/15/20	1533
06	HS20030405-0	HS20030405-01M	X031514	03/15/20	1557
07	HS20030405-0	HS20030405-01M	X031515	03/15/20	1621
08	HS20030383-0	HS20030383-06	X031516	03/15/20	1645
09	HS20030383-0	HS20030383-04	X031517	03/15/20	1709
10	HS20030383-0	HS20030383-04	X031518	03/15/20	1733
11	HS20030383-0	HS20030383-05	X031519	03/15/20	1757
12	HS20030383-0	HS20030383-05	X031520	03/15/20	1821
13	HS20030383-0	HS20030383-02	X031521	03/15/20	1845
14	HS20030383-0	HS20030383-02	X031522	03/15/20	1909
15	HS20030383-0	HS20030383-03	X031523	03/15/20	1933
16	HS20030383-0	HS20030383-03	X031524	03/15/20	1957
17	CCV-END	CCV-END	X031525	03/15/20	2021
18					
19					
20					
21					
22					

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Instrument ID: VOA6 Calibration Date: 03/15/20 Time: 1132

Lab File ID: X031503 Init. Calib. Date(s): 03/11/20 03/11/20

Init. Calib. Times: 1047 1446

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
Trichloroethene	0.3600000	0.3624697	0.3624697	0.2	-0.69	20.00	AVRG
Methylene Chloride	50.226711	50.000000	0.4851684	0.1	-0.45	20.00	LINR
Vinyl Chloride	0.6680000	0.6389641	0.6389641	0.1	4.35	20.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2618649	0.2618649	0.1	-0.33	20.00	AVRG
1,1-Dichloroethene	0.4140000	0.4126937	0.4126937	0.1	0.32	20.00	AVRG
1,2-Dichloroethane	0.6330000	0.6637278	0.6637278	0.1	-4.85	20.00	AVRG
1,2-Dichloroethane-d4	53.223588	50.000000	0.8078496	0.1	-6.45	20.00	LINR
Dibromofluoromethane	51.916249	50.000000	0.5529901	0.1	-3.83	20.00	LINR
4-Bromofluorobenzene	52.959617	50.000000	0.5173697	0.1	-5.92	20.00	LINR
Toluene-d8	51.328364	50.000000	1.2798282	0.1	-2.66	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Instrument ID: VOA6 Calibration Date: 03/15/20 Time: 2021

Lab File ID: X031525 Init. Calib. Date(s): 03/11/20 03/11/20

Init. Calib. Times: 1047 1446

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
Trichloroethene	0.3600000	0.3574205	0.3574205	0.2	0.72	50.00	AVRG
Methylene Chloride	49.078555	50.000000	0.4742014	0.1	1.84	50.00	LINR
Vinyl Chloride	0.6680000	0.8349003	0.8349003	0.1	-24.98	50.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2418408	0.2418408	0.1	7.34	50.00	AVRG
1,1-Dichloroethene	0.4140000	0.5126095	0.5126095	0.1	-23.82	50.00	AVRG
1,2-Dichloroethane	0.6330000	0.6307213	0.6307213	0.1	0.36	50.00	AVRG
1,2-Dichloroethane-d4	49.755976	50.000000	0.7549358	0.1	0.49	50.00	LINR
Dibromofluoromethane	49.568902	50.000000	0.5278497	0.1	0.86	50.00	LINR
4-Bromofluorobenzene	49.268241	50.000000	0.4812138	0.1	1.46	50.00	LINR
Toluene-d8	49.206597	50.000000	1.2268684	0.1	1.59	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Lab File ID (Standard): X031503 Date Analyzed: 03/15/20

Instrument ID: VOA6 Time Analyzed: 1132

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DFB) AREA #	RT #
	12 HOUR STD	136960	9.66	271220	7.67	293310	4.97
	UPPER LIMIT	273920	10.16	542440	8.17	586620	5.47
	LOWER LIMIT	68480	9.16	135610	7.17	146655	4.47
	CLIENT SAMPLE NO.						
01	VLCSW-200315	146585	9.67	290706	7.67	310403	4.97
02	VBLKW-200315	147579	9.67	319084	7.67	371084	4.97
03	HS20030383-01	145711	9.66	316163	7.67	371811	4.97
04	HS20030383-01	154893	9.67	321463	7.67	378488	4.97
05	HS20030405-01	161249	9.66	322394	7.67	360749	4.97
06	HS20030405-01	155118	9.66	313234	7.67	353019	4.97
07	HS20030383-06	146861	9.67	318612	7.67	364090	4.97
08	HS20030383-04	155849	9.67	323439	7.67	382377	4.97
09	HS20030383-04	153997	9.67	327881	7.67	379147	4.97
10	HS20030383-05	169578	9.66	351812	7.67	404650	4.97
11	HS20030383-05	150694	9.67	331272	7.67	380331	4.97
12	HS20030383-02	147260	9.67	311343	7.67	366682	4.97
13	HS20030383-02	161089	9.66	334871	7.67	383365	4.97
14	HS20030383-03	146194	9.67	311231	7.67	373692	4.97
15	HS20030383-03	159215	9.67	335770	7.67	381871	4.97
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Lab File ID (Standard): X031503 Date Analyzed: 03/15/20

Instrument ID: VOA6 Time Analyzed: 1132

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	193640	4.18				
	UPPER LIMIT	387280	4.68				
	LOWER LIMIT	96820	3.68				
	CLIENT SAMPLE NO.						
01	VLCSW-200315	209824	4.18				
02	VBLKW-200315	265603	4.18				
03	HS20030383-01	263166	4.18				
04	HS20030383-01	265609	4.18				
05	HS20030405-01	255694	4.18				
06	HS20030405-01	253102	4.18				
07	HS20030383-06	259124	4.18				
08	HS20030383-04	269551	4.18				
09	HS20030383-04	270639	4.18				
10	HS20030383-05	286070	4.18				
11	HS20030383-05	270673	4.18				
12	HS20030383-02	256126	4.18				
13	HS20030383-02	270109	4.18				
14	HS20030383-03	263136	4.18				
15	HS20030383-03	266680	4.18				
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031502.D Page 1

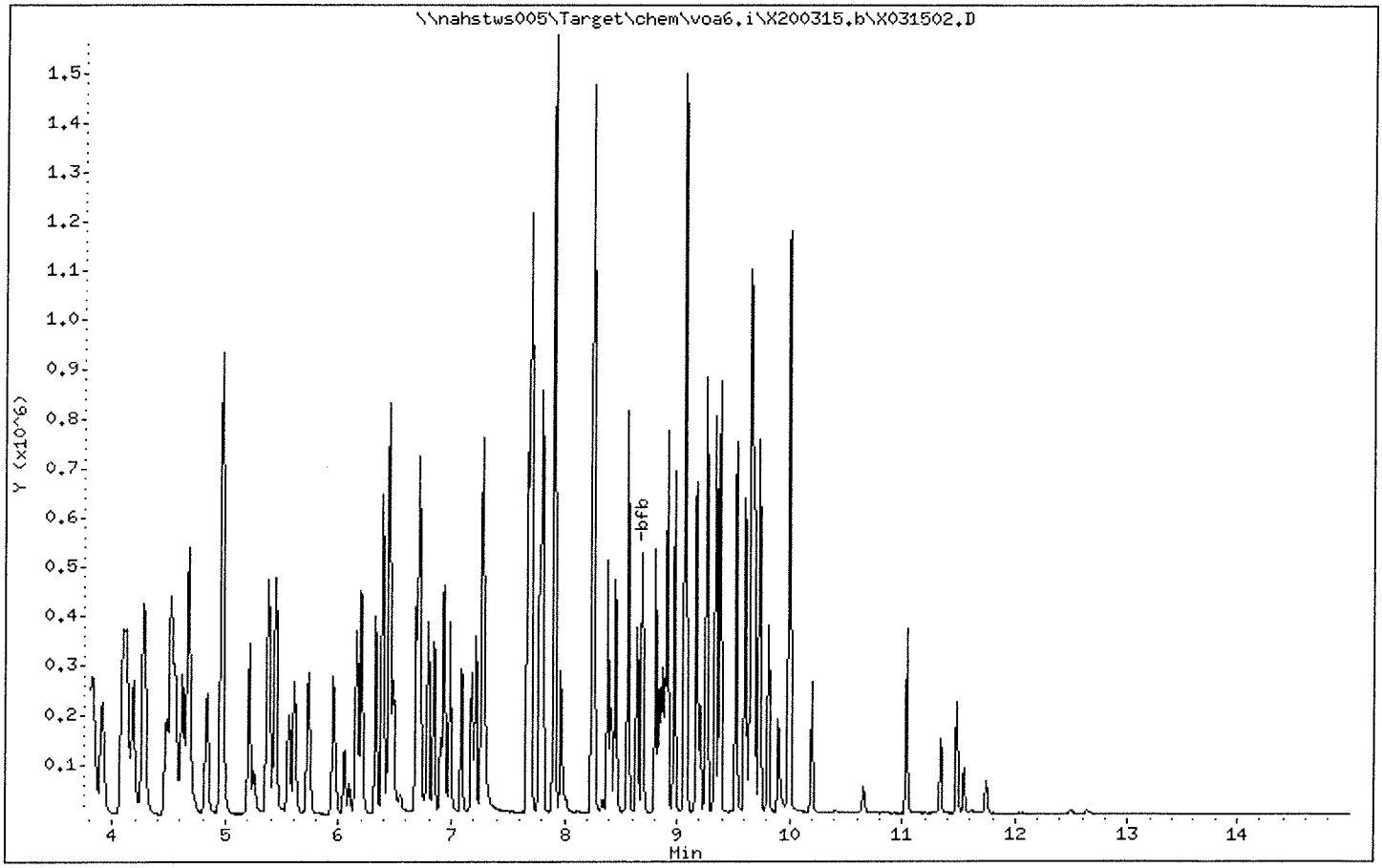
Date : 15-MAR-2020 11:08

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031502.D

Date : 15-MAR-2020 11:08

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

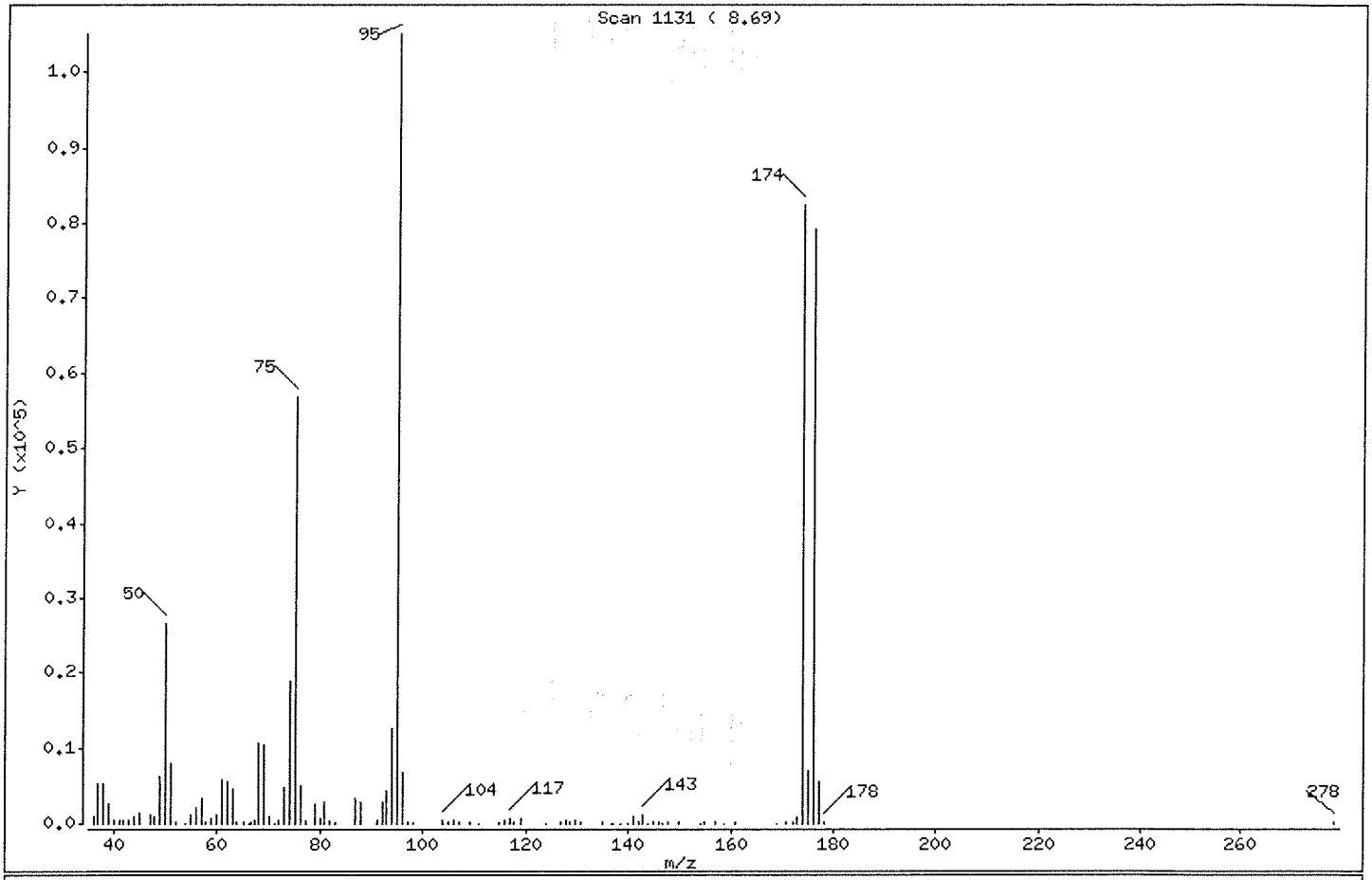
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	25.31
75	30.00 - 60.00% of mass 95	54.09
96	5.00 - 9.00% of mass 95	6.42
173	Less than 2.00% of mass 174	0.93 (1.18)
174	Greater than 50.00% of mass 95	78.43
175	5.00 - 9.00% of mass 174	6.61 (8.43)
176	95.00 - 101.00% of mass 174	75.47 (96.23)
177	5.00 - 9.00% of mass 176	5.34 (7.08)

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031502.D

Date : 15-MAR-2020 11:08

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: X031502.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 102

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	1045	63.90	310	95.00	105136	141.00	862
37.00	5328	65.10	139	96.00	6746	142.00	196
38.10	5312	66.10	65	97.20	218	142.90	1190
39.00	2612	66.70	154	98.10	263	144.00	56
39.90	530	67.20	435	103.90	552	144.90	162
41.10	513	68.00	10693	104.90	232	145.90	250
41.90	462	69.10	10330	105.90	439	146.70	115
43.00	601	70.00	910	106.90	214	147.80	310
43.80	1036	71.10	78	109.00	266	149.90	207
45.00	1445	71.90	398	110.80	66	154.00	59
47.10	1256	73.00	4779	114.90	191	154.80	216
47.90	863	74.00	18856	115.80	494	156.90	191
49.00	6183	75.00	56864	116.90	781	158.80	96
50.00	26608	76.10	5116	117.80	301	160.90	173
51.00	7975	77.10	552	118.90	641	169.00	94
52.10	289	79.00	2586	124.00	105	170.90	171
54.00	92	80.00	796	126.80	258	172.20	246
55.10	1092	80.90	2974	127.90	579	172.90	976
56.00	2136	82.00	425	128.80	251	174.00	82456
57.00	3445	82.90	160	129.80	503	175.00	6948
57.90	168	87.00	3374	130.90	225	176.00	79344
58.90	676	87.90	2864	134.90	152	177.00	5615
60.00	1253	91.00	375	136.70	70	178.10	141
61.00	5921	92.00	2928	137.20	54	278.20	127
62.00	5604	92.90	4423	138.60	60		
63.00	4638	94.00	12489	139.90	111		

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031503.D Page 1
Report Date: 02-Apr-2020 11:49

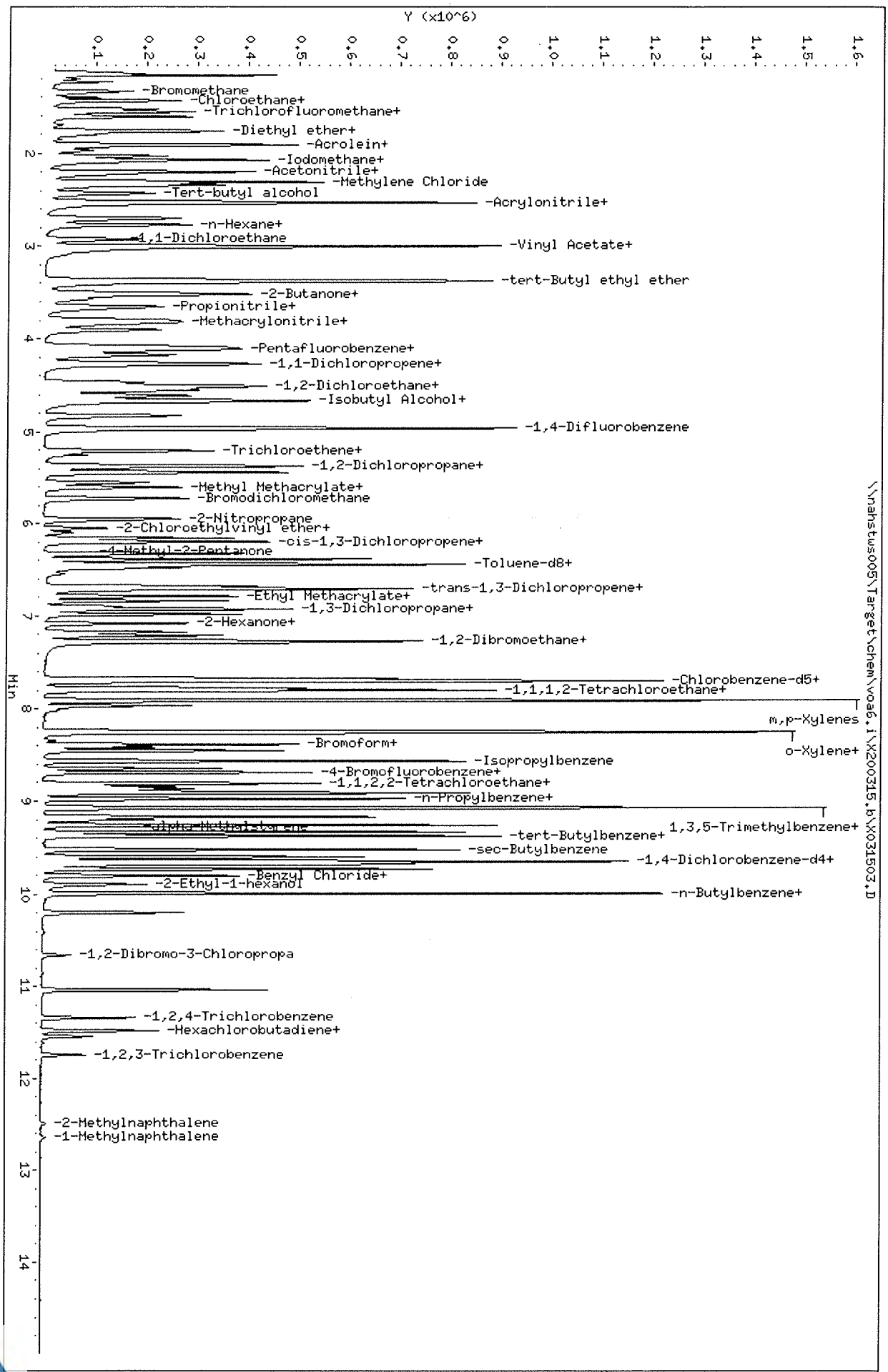
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031503.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 15-MAR-2020 11:32
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:49 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	193640	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	293310	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	271220	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	136960	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	107081	50.0000	51.91
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	156432	50.0000	53.22
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	347115	50.0000	51.32
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	140321	50.0000	52.95
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	71023	50.0000	50.15
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	79914	50.0000	49.78
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	194678	50.0000	52.38
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	106888	50.0000	54.13
17 Methylene Chloride	84	2.305	2.305	(0.551)	93948	50.0000	50.22
38 Trichloroethene	130	5.206	5.206	(1.048)	106316	50.0000	50.27
5 Vinyl Chloride	62	1.138	1.138	(0.272)	123729	50.0000	47.78



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031503.D
Date : 15-MAR-2020 11:32
Client ID: CCV
Sample Info: CCV;CCV;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

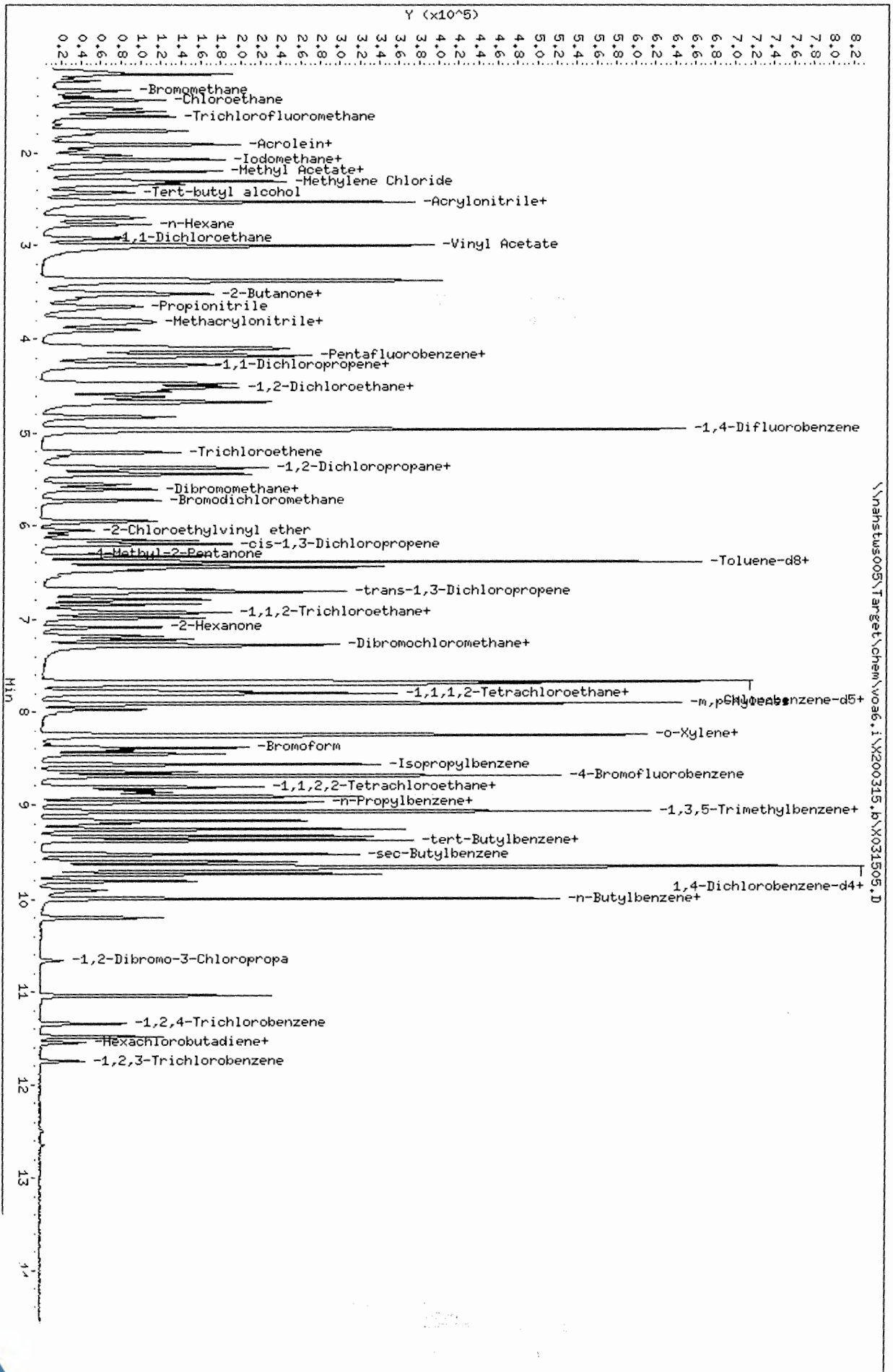
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031505.D
Lab Smp Id: VLCSW-200315 Client Smp ID: VLCSW-200315
Inj Date : 15-MAR-2020 12:20
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200315;VLCSW-200315;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:49 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	209824	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	310403	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	290706	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	146585	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	110560	49.4819	49.48
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.068)	156950	49.3020	49.30
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	360125	49.6844	49.68
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	141423	49.8060	49.80
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	30335	19.9870	19.98
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	33071	19.0126	19.01
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	83140	21.1408	21.14
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	45194	21.1223	21.12
17 Methylene Chloride	84	2.306	2.305	(0.551)	40950	19.8655	19.86
38 Trichloroethene	130	5.207	5.206	(1.048)	44429	19.8514	19.85
5 Vinyl Chloride	62	1.138	1.138	(0.272)	49643	17.6922	17.69



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Date : 15-MAR-2020 12:20
Client ID: VLCSW-200315
Sample Info: VLCSW-200315;VLCSW-200315;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031507.D Page 1
Report Date: 02-Apr-2020 11:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031507.D
Lab Smp Id: VBLKW-200315 Client Smp ID: VBLKW-200315
Inj Date : 15-MAR-2020 13:08
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-200315;VBLKW-200315;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:49 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

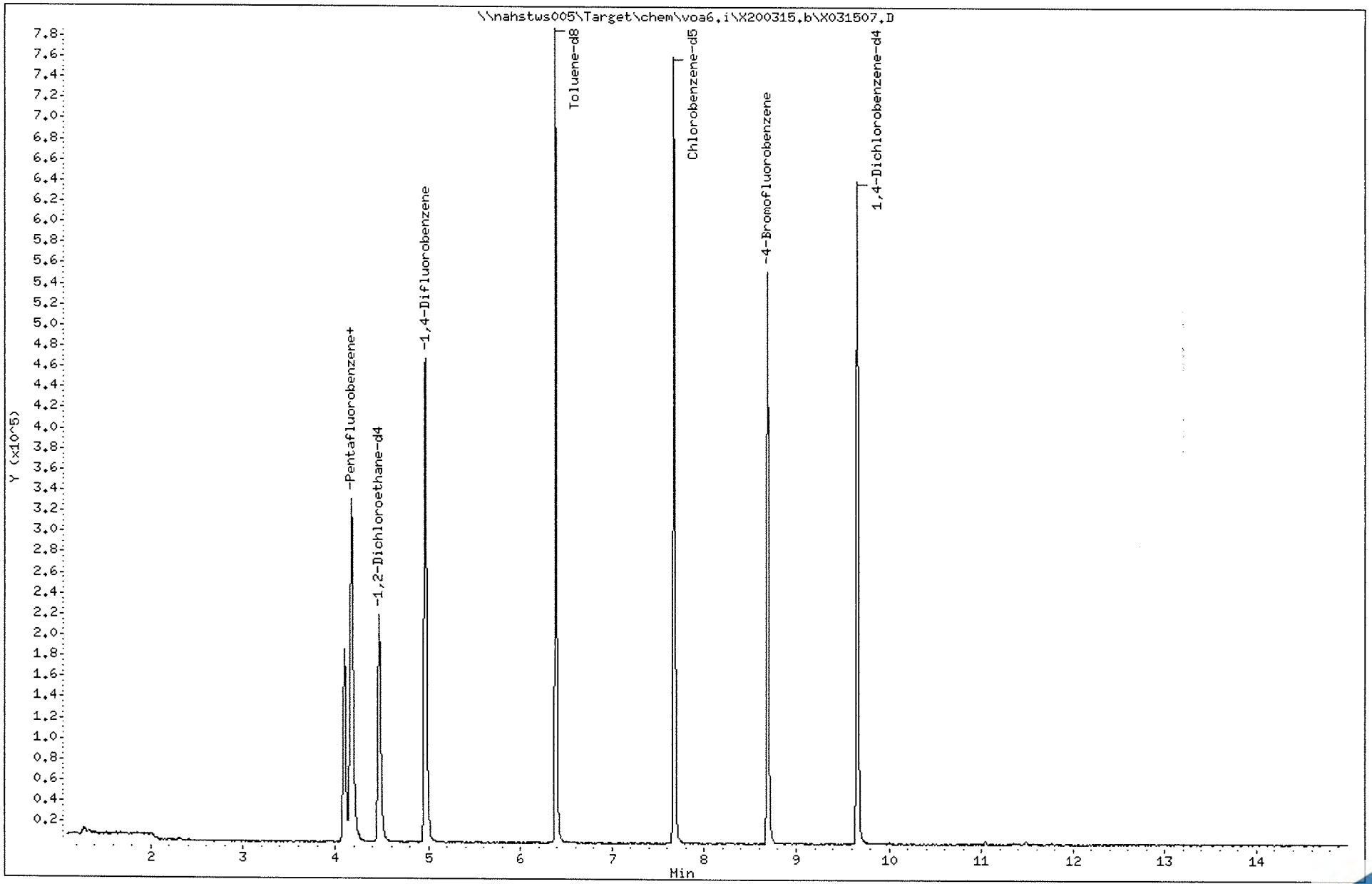
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	265603	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	371084	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	319084	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	147579	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	132607	46.9002	46.90
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	177244	44.0147	44.01
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	426756	53.6365	53.63
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	154157	49.4632	49.46

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031507.D
Date : 15-MAR-2020 13:08
Client ID: VBLKW-200315
Sample Info: VBLKW-200315;VBLKW-200315;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



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Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031511.D
Lab Smp Id: HS20030383-01 Client Smp ID: HS20030383-01
Inj Date : 15-MAR-2020 14:45
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-01;HS20030383-01;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 11
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

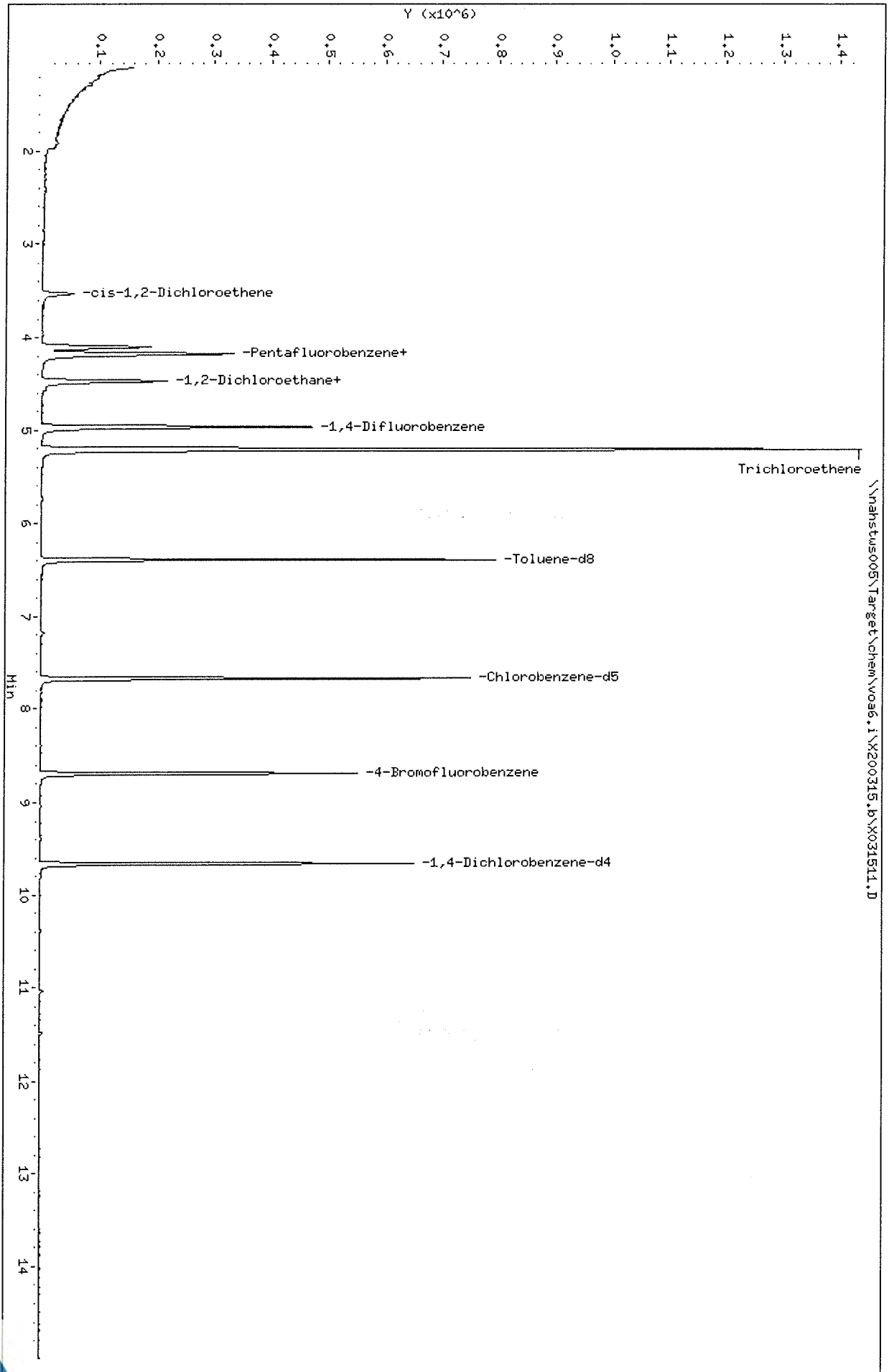
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	263166	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	371811	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	316163	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	145711	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	129403	46.1951	46.19
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	181355	45.4434	45.44
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	426400	54.0865	54.08
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	154901	50.1592	50.15
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	5613	1.19154	5.95
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	24432	9.10427	45.52
38 Trichloroethene	130	5.207	5.206	(1.048)	453261	169.074	845.37

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031511.D
Date : 15-MAR-2020 14:45
Client ID: HS20030383-01
Sample Info: HS20030383-01,HS20030383-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031511.D

Date : 15-MAR-2020 14:45

Client ID: HS20030383-01

Instrument: voa6.i

Sample Info: HS20030383-01;HS20030383-01;;;

Purge Volume: 5.0

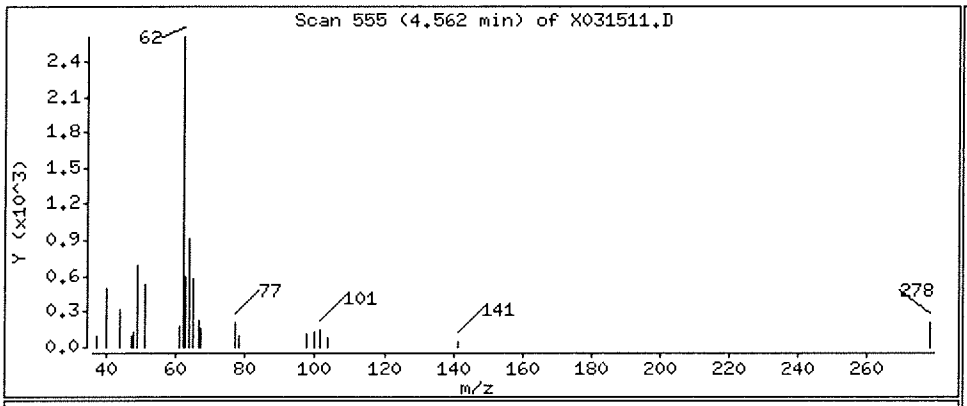
Operator: PC

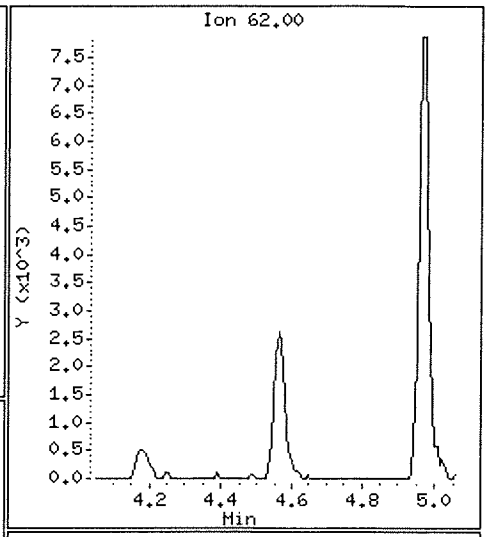
Column phase: DB624

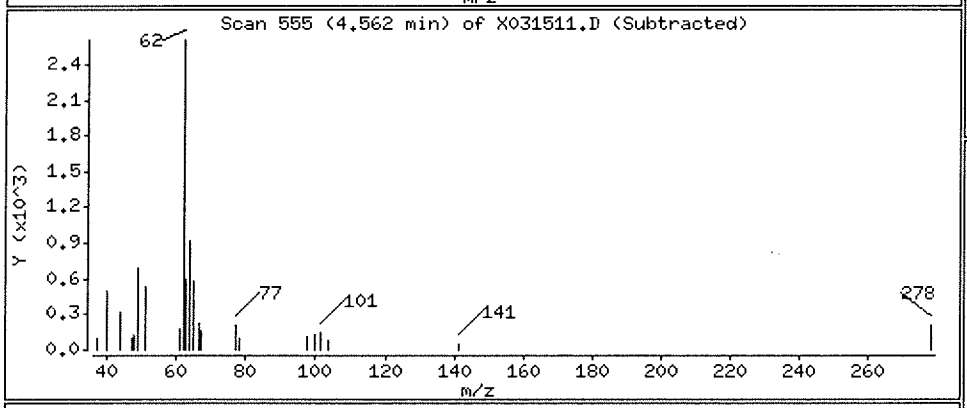
Column diameter: 0.18

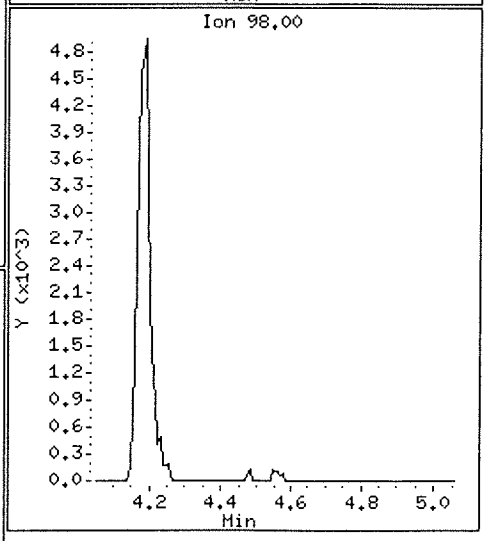
33 1,2-Dichloroethane

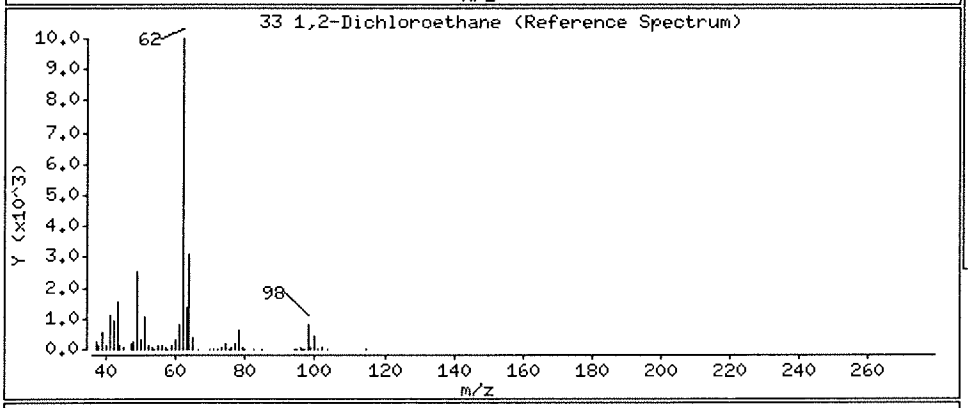
Concentration: 5.95 ug/l

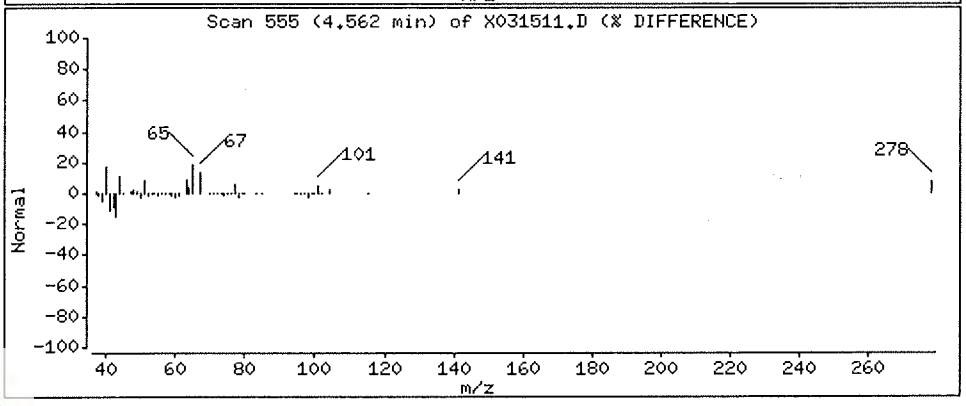












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031511.D Page 4

Date : 15-MAR-2020 14:45

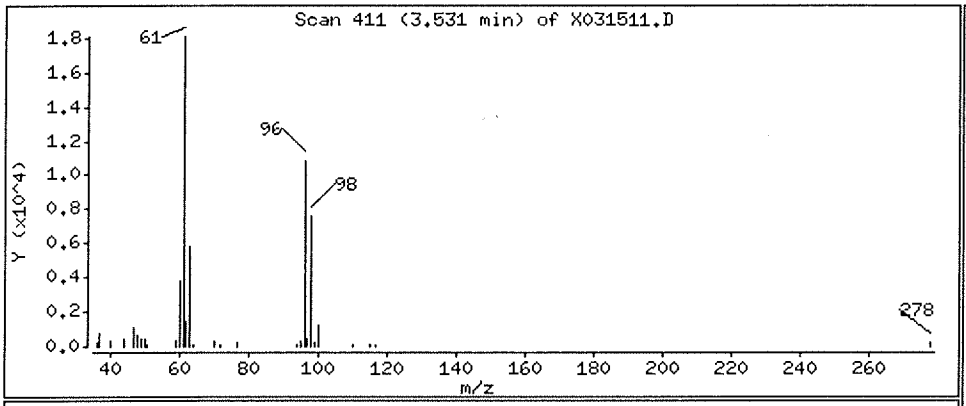
Client ID: HS20030383-01 Instrument: voa6.i

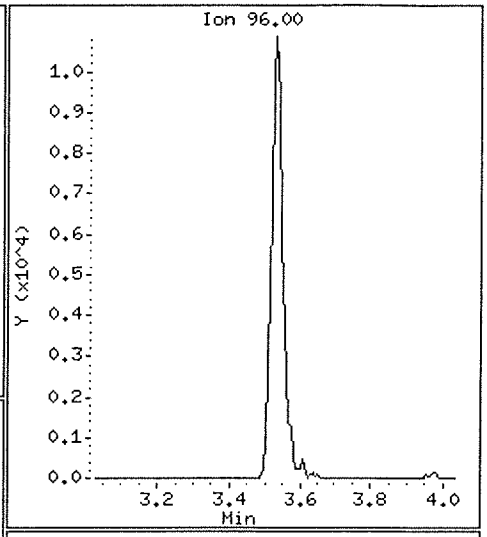
Sample Info: HS20030383-01;HS20030383-01;;;

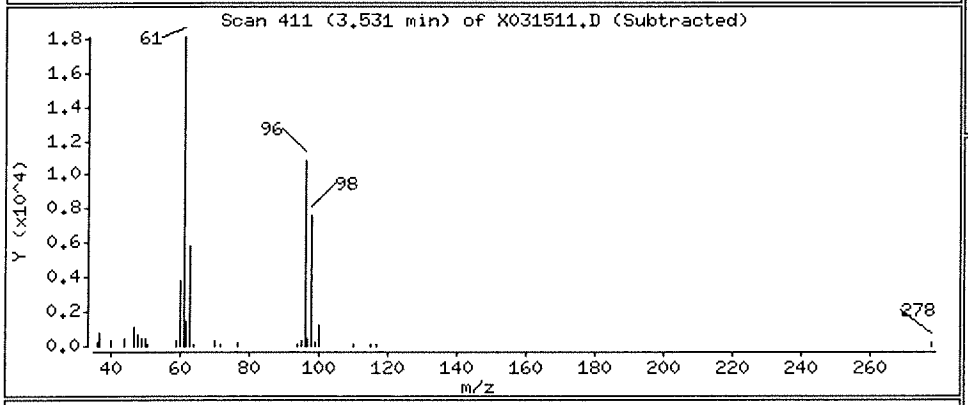
Purge Volume: 5.0 Operator: PC

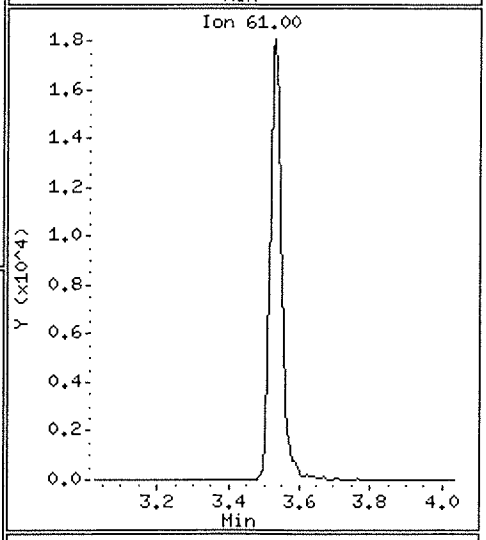
Column phase: DB624 Column diameter: 0.18

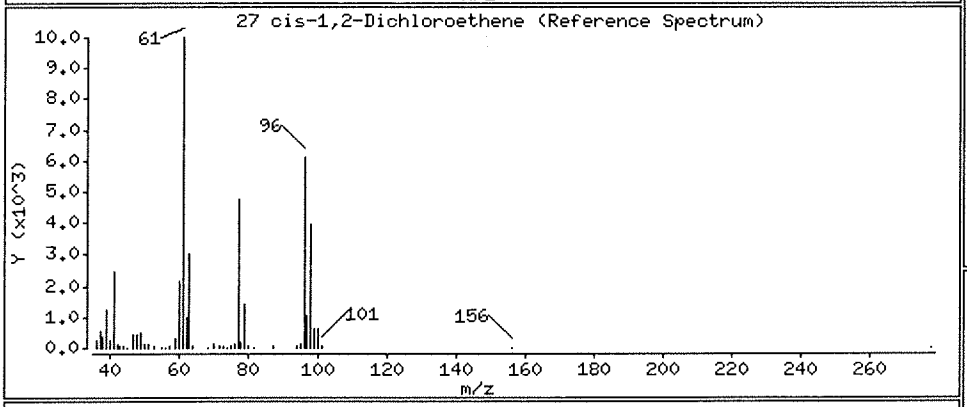
27 cis-1,2-Dichloroethene Concentration: 45.52 ug/l

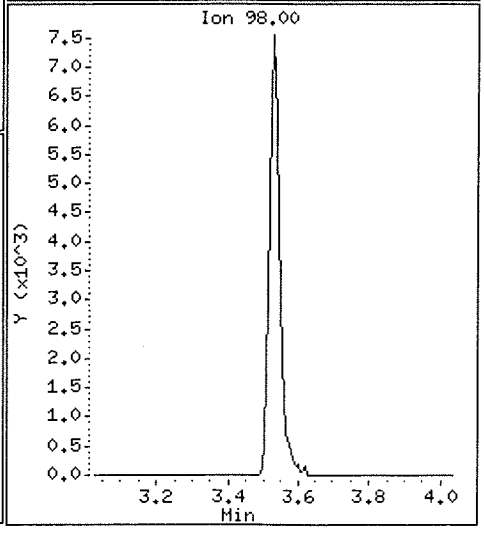


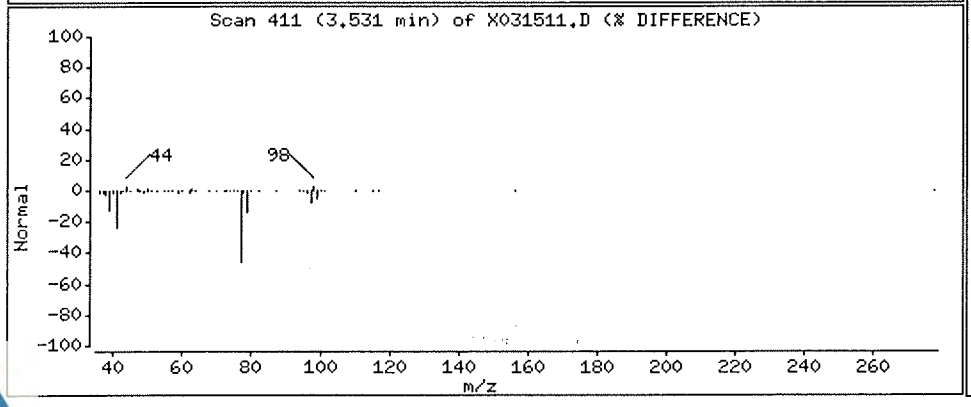












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031511.D

Date : 15-MAR-2020 14:45

Client ID: HS20030383-01

Instrument: voa6.i

Sample Info: HS20030383-01;HS20030383-01;;;

Purge Volume: 5.0

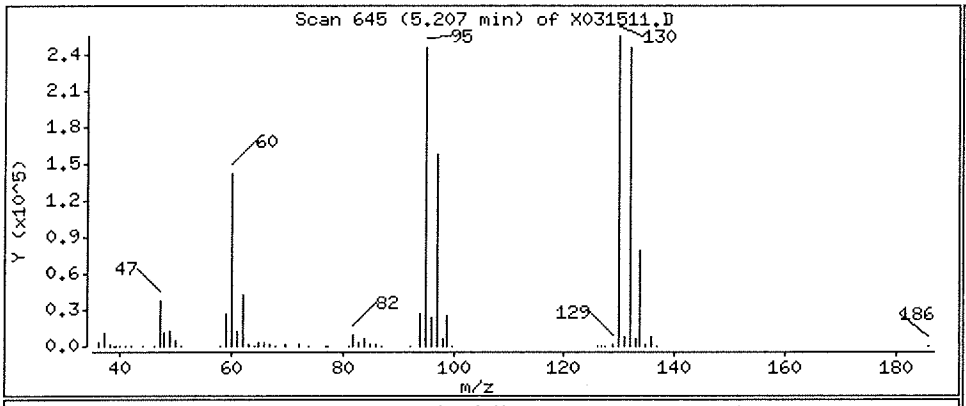
Operator: PC

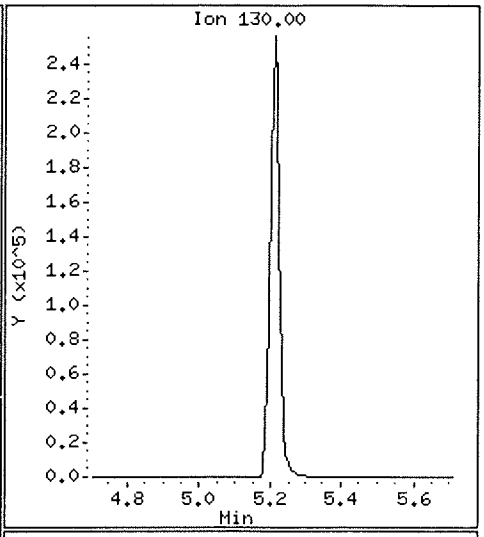
Column phase: DB624

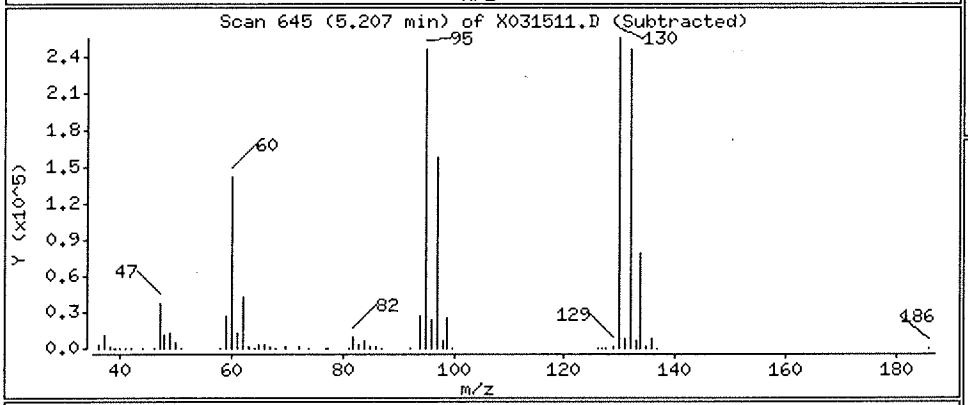
Column diameter: 0.18

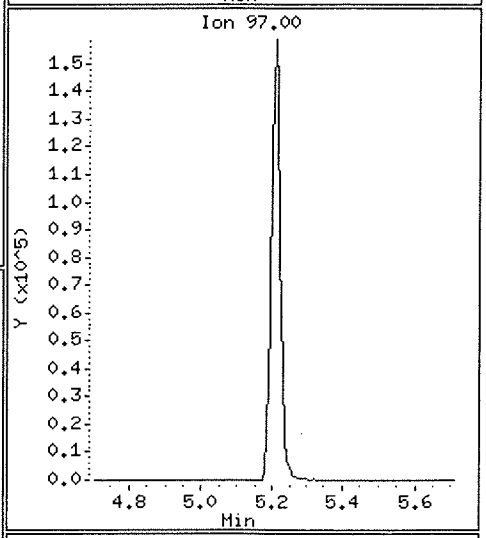
38 Trichloroethene

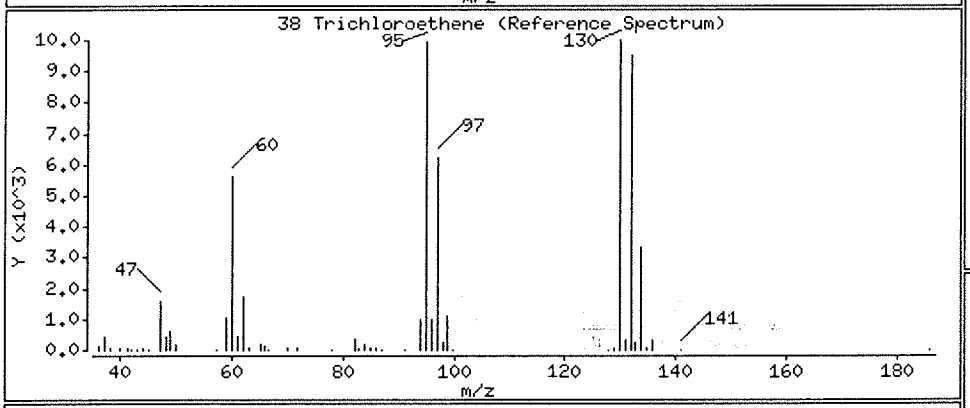
Concentration: 845.37 ug/l

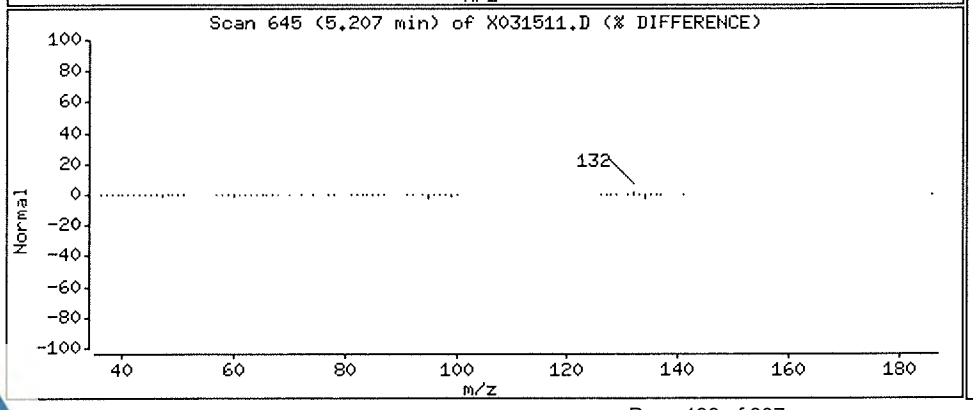


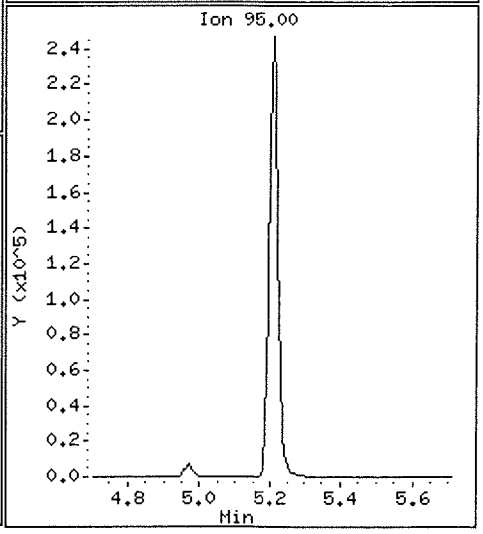












ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031513.D
Lab Smp Id: HS20030383-01 Client Smp ID: HS20030383-01
Inj Date : 15-MAR-2020 15:33
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-01;HS20030383-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

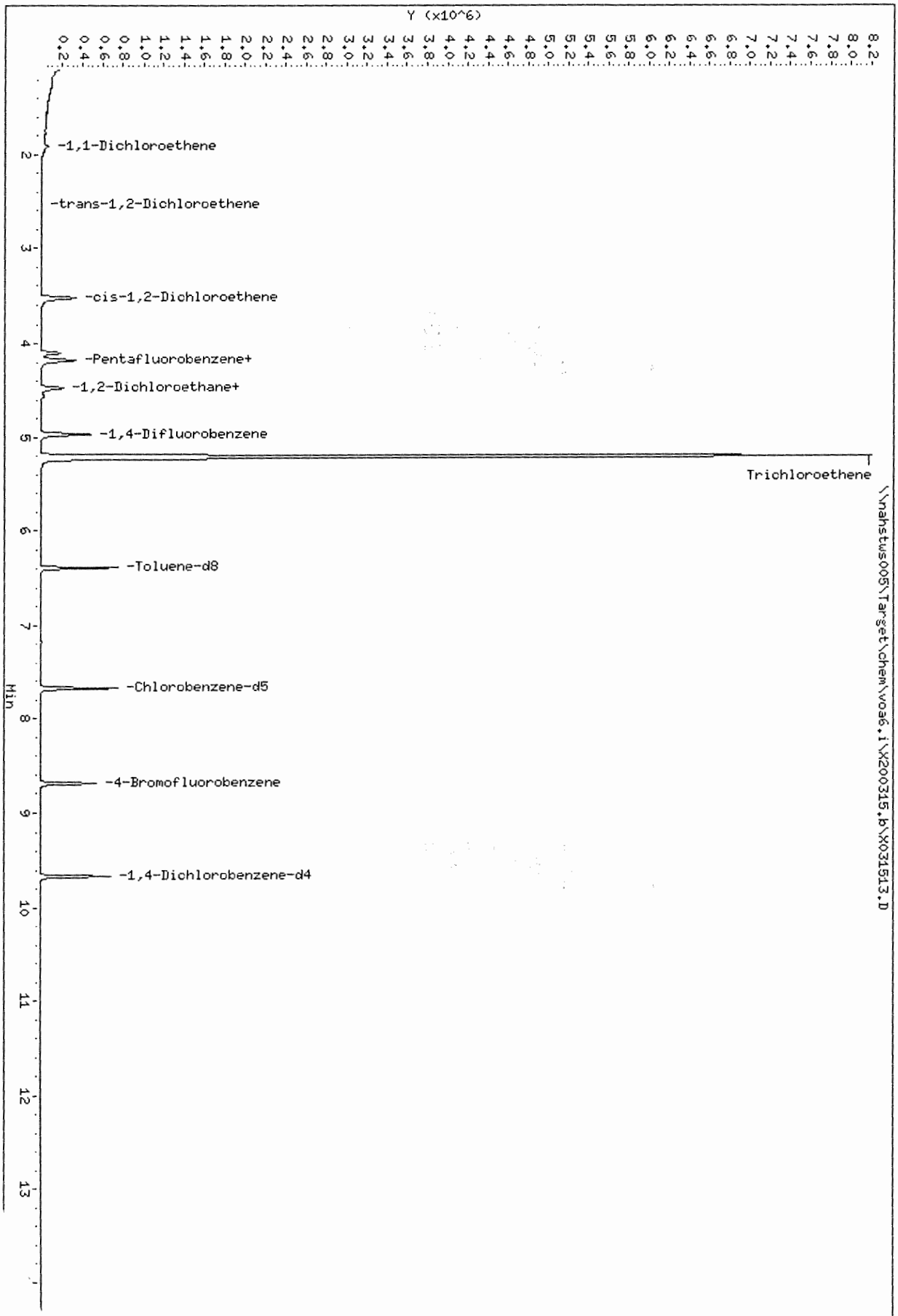
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	265609	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	378488	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	321463	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	154893	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	130533	46.1701	46.17
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	180881	44.9110	44.91
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	413484	51.5859	51.58
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	154600	49.2389	49.23
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	11790	5.35451	5.35
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	29735	6.20088	6.20
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	155497	57.4110	57.41
38 Trichloroethene	130	5.214	5.206	(1.049)	2685980	984.241	984.24(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031513.D
Date : 15-MAR-2020 15:33
Client ID: HS20030383-01
Sample Info: HS20030383-01;HS20030383-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031513.D

Date : 15-MAR-2020 15:33

Client ID: HS20030383-01

Instrument: voa6.i

Sample Info: HS20030383-01;HS20030383-01;;;

Purge Volume: 5.0

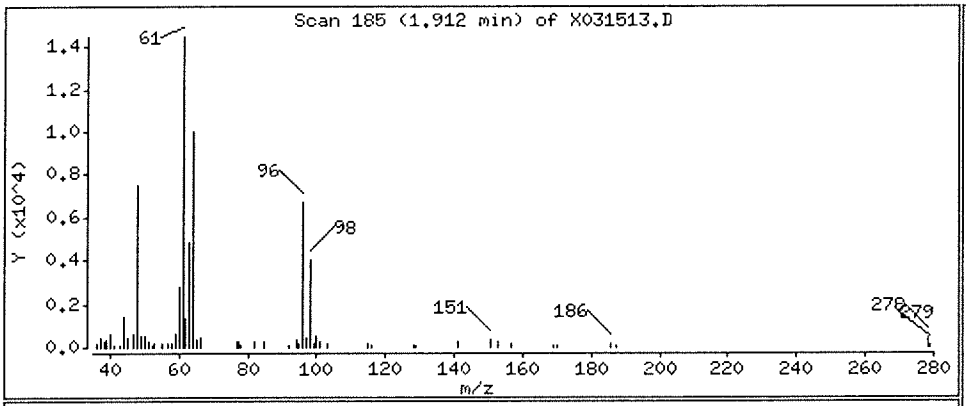
Operator: PC

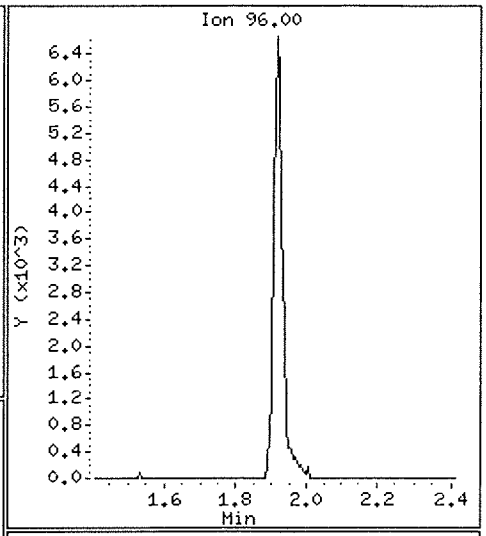
Column phase: DB624

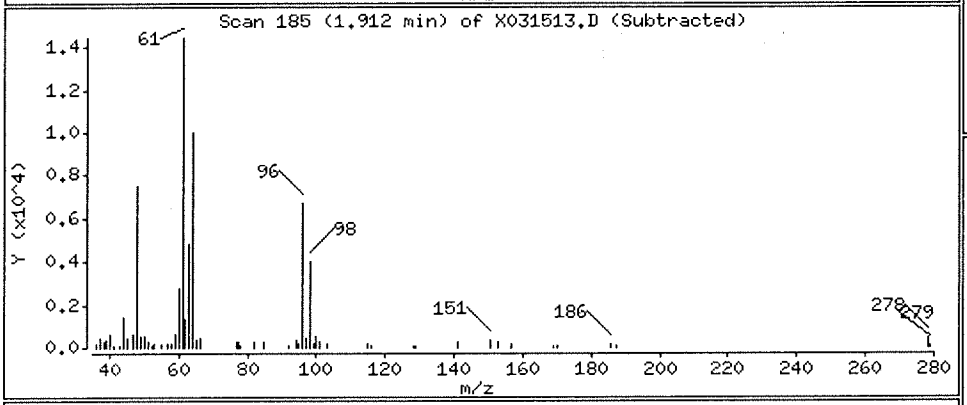
Column diameter: 0.18

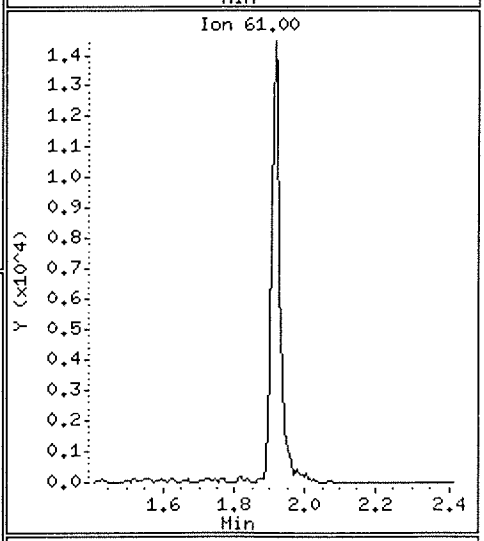
11 1,1-Dichloroethene

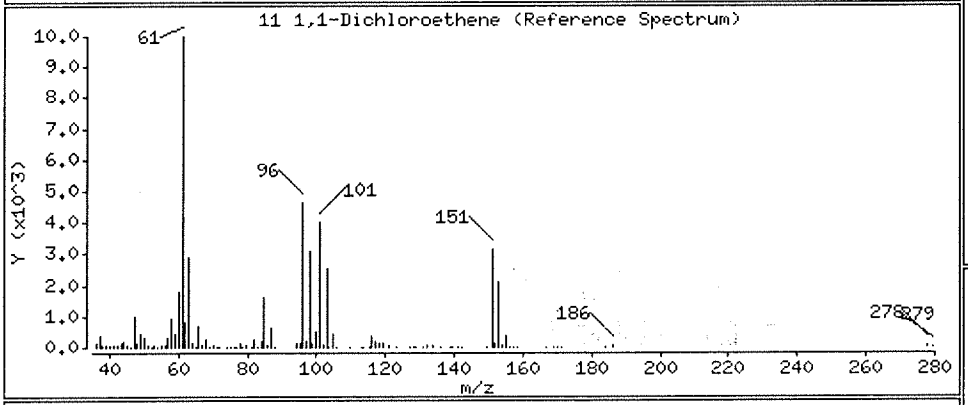
Concentration: 5.35 ug/l

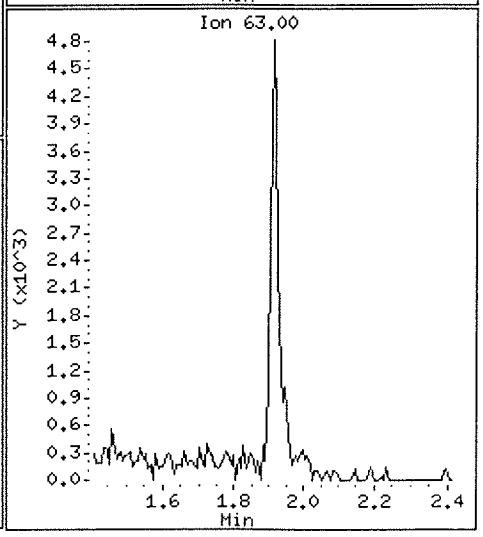


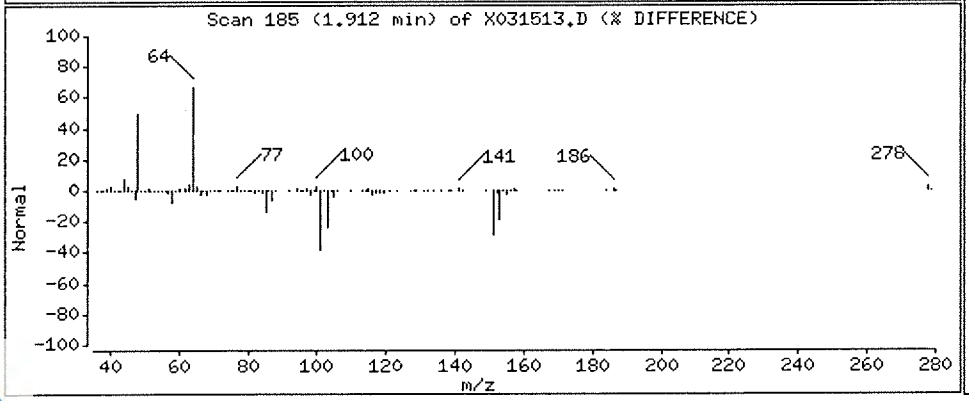












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031513.D

Date : 15-MAR-2020 15:33

Client ID: HS20030383-01

Instrument: voa6.i

Sample Info: HS20030383-01;HS20030383-01;;;

Purge Volume: 5.0

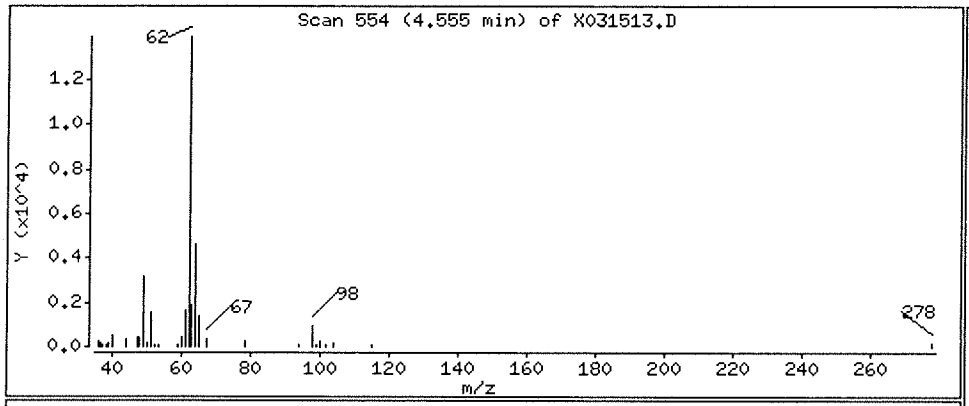
Operator: PC

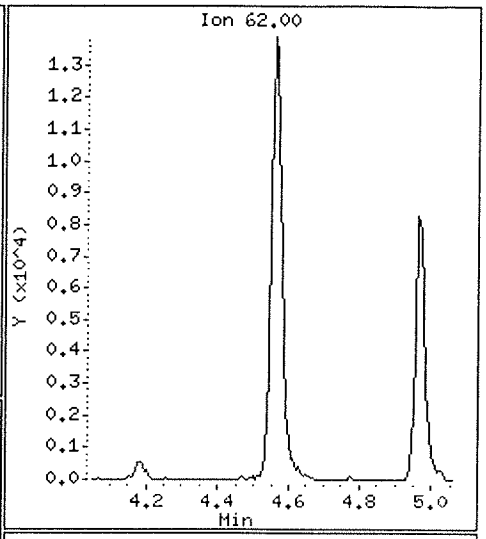
Column phase: DB624

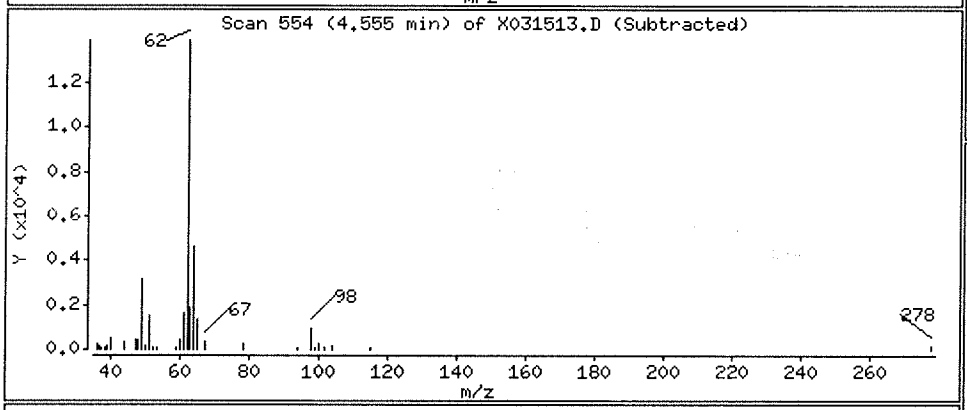
Column diameter: 0.18

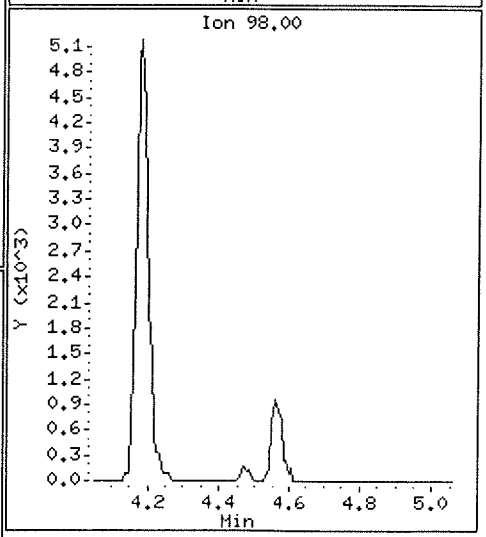
33 1,2-Dichloroethane

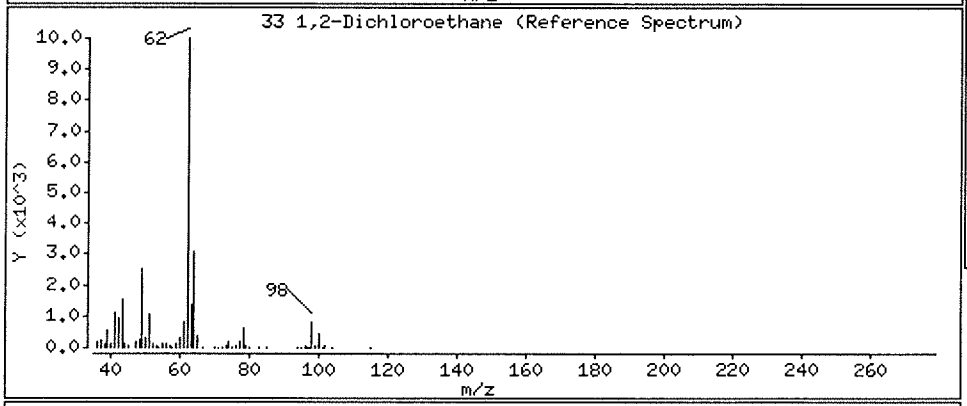
Concentration: 6.20 ug/l

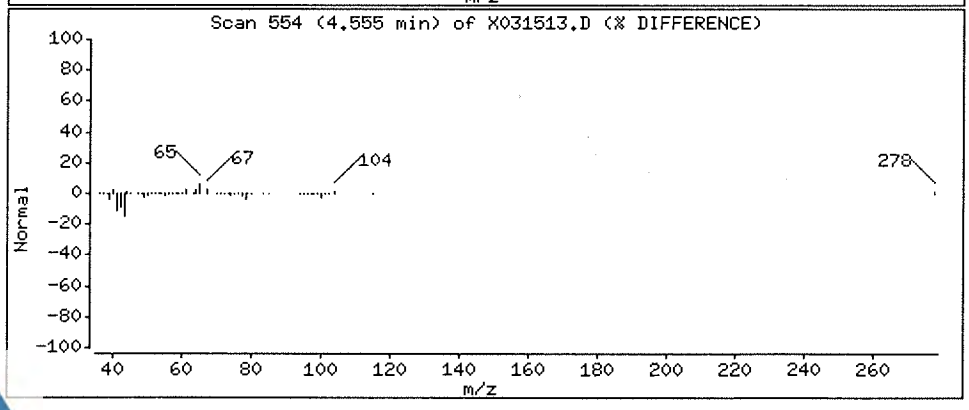












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031513.D

Date : 15-MAR-2020 15:33

Client ID: HS20030383-01

Instrument: voa6.i

Sample Info: HS20030383-01;HS20030383-01;;;

Purge Volume: 5.0

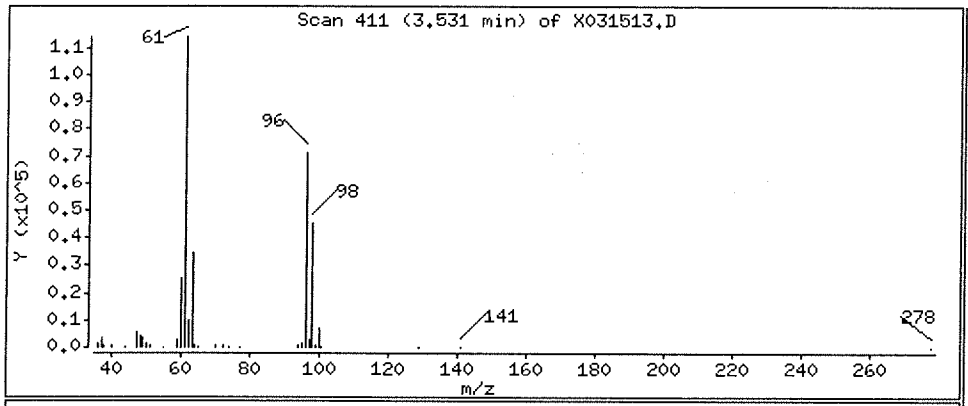
Operator: PC

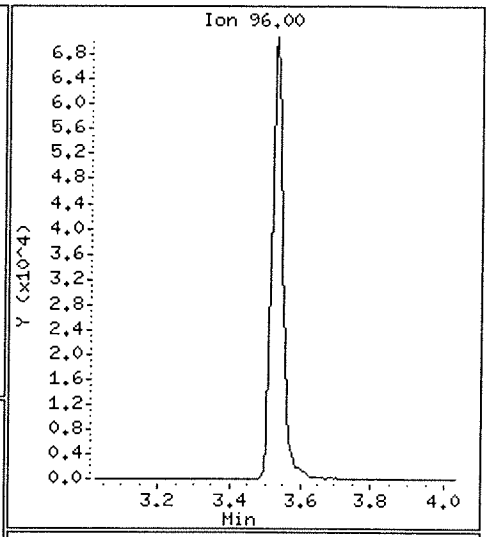
Column phase: DB624

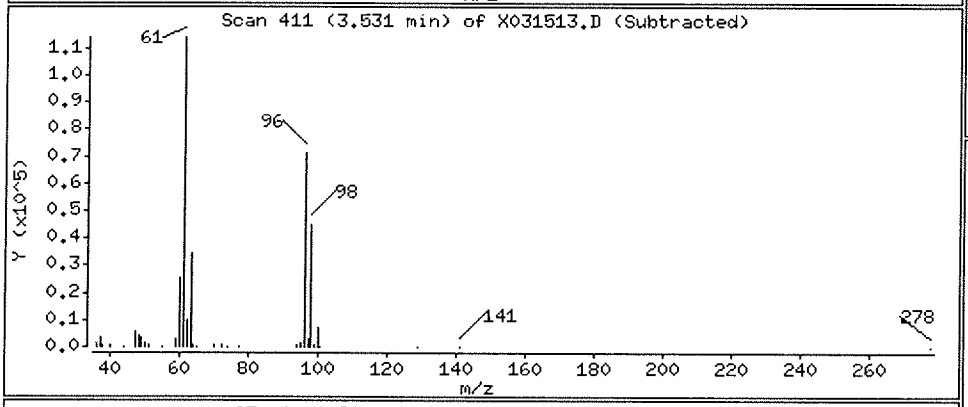
Column diameter: 0.18

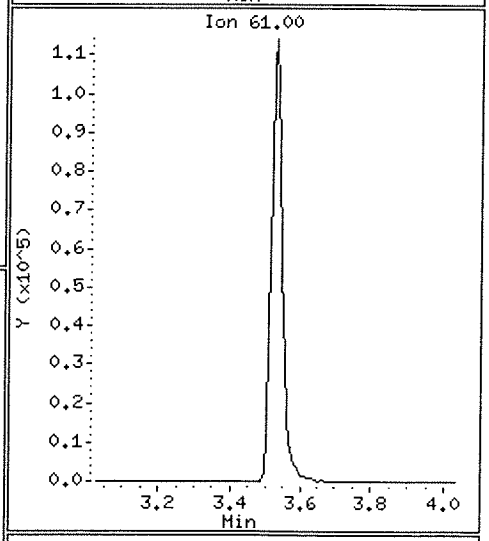
27 cis-1,2-Dichloroethene

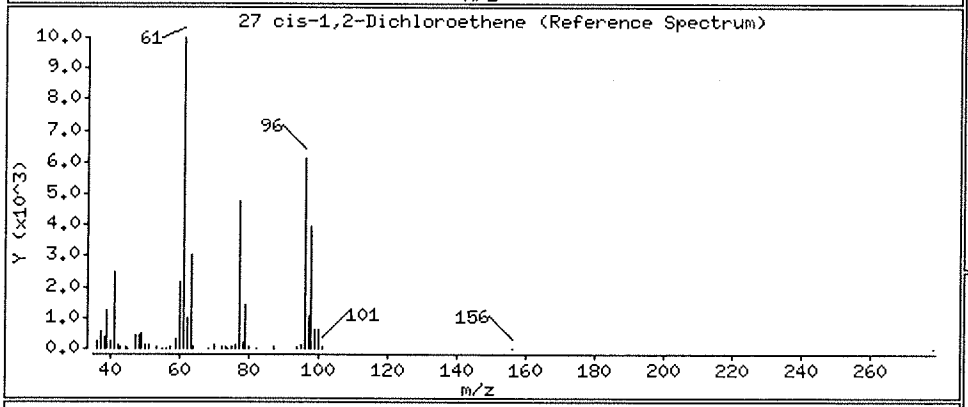
Concentration: 57.41 ug/l

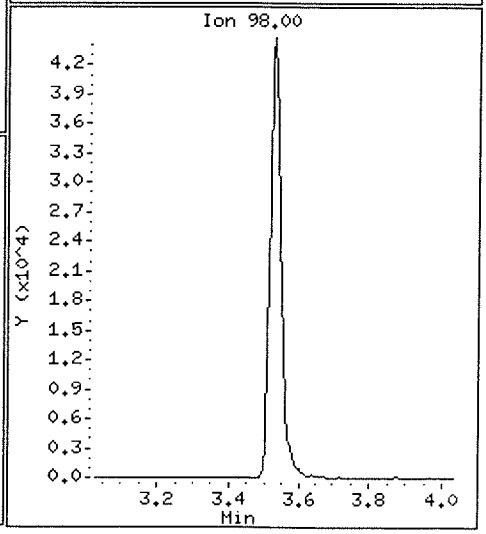


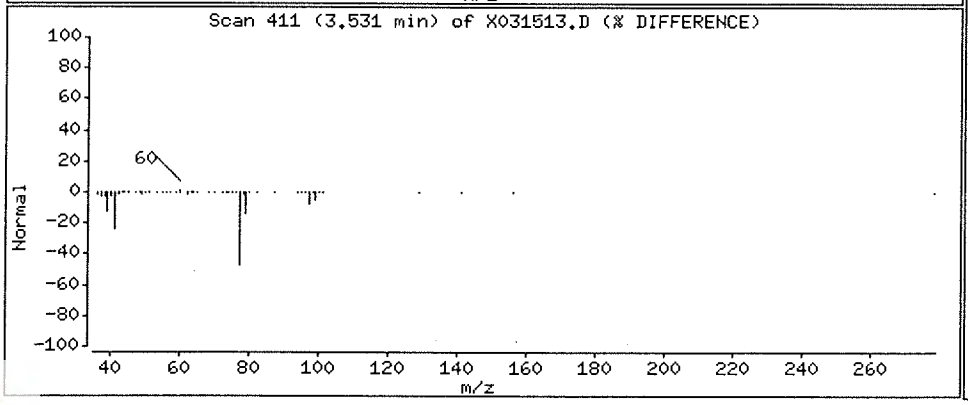












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031513.D Page 6

Date : 15-MAR-2020 15:33

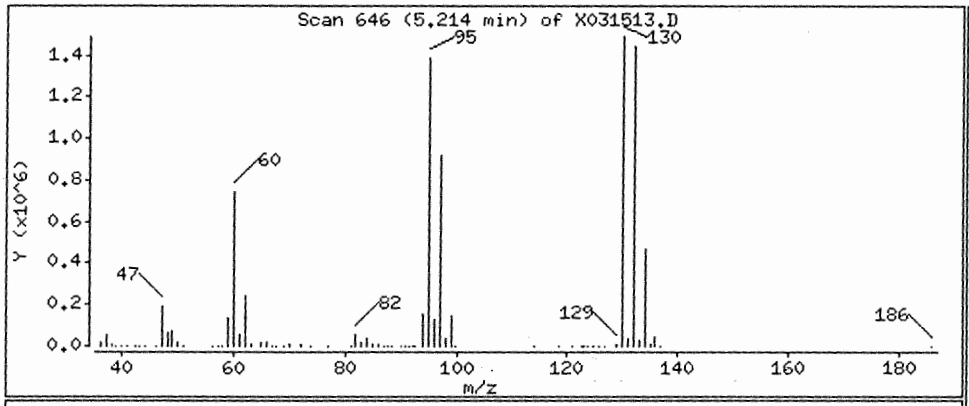
Client ID: HS20030383-01 Instrument: voa6.i

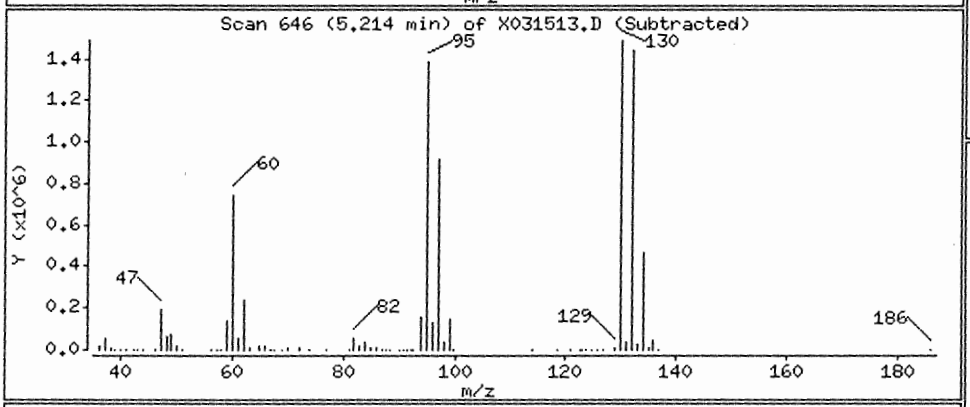
Sample Info: HS20030383-01;HS20030383-01;;;

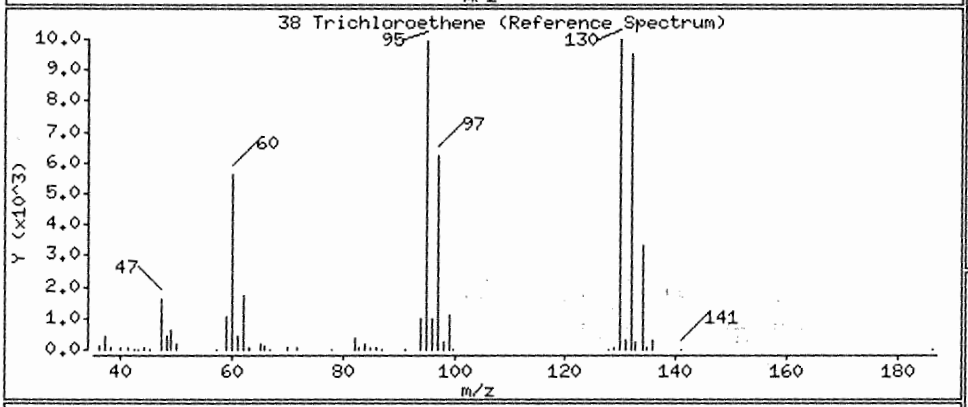
Purge Volume: 5.0 Operator: PC

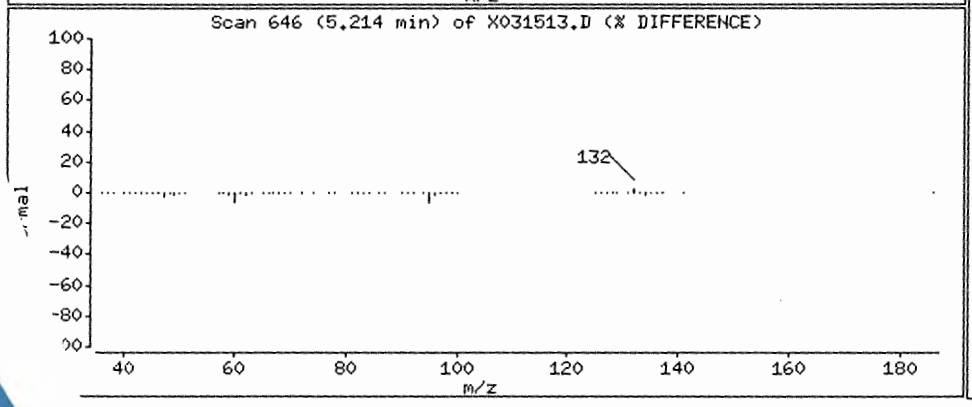
Column phase: DB624 Column diameter: 0.18

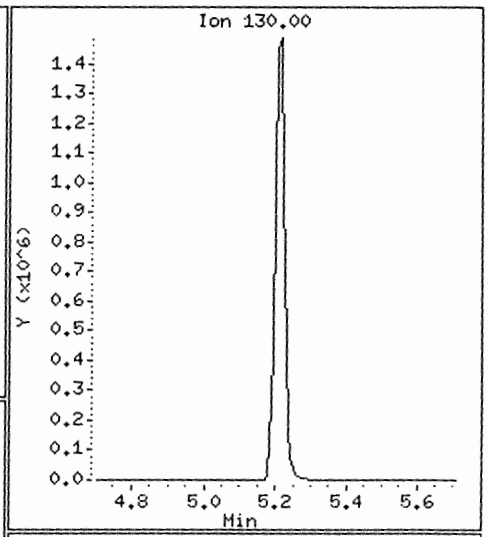
38 Trichloroethene Concentration: 984.24 ug/l

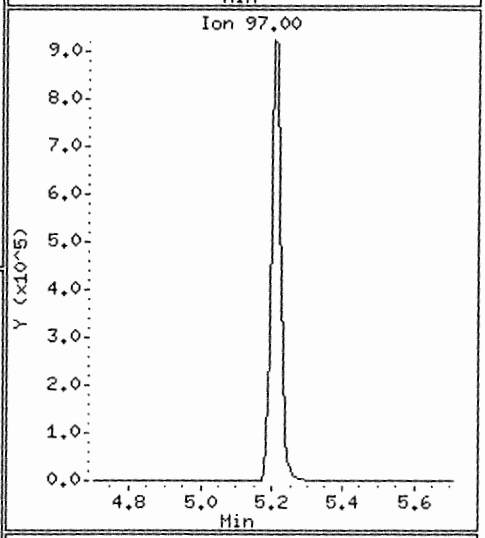


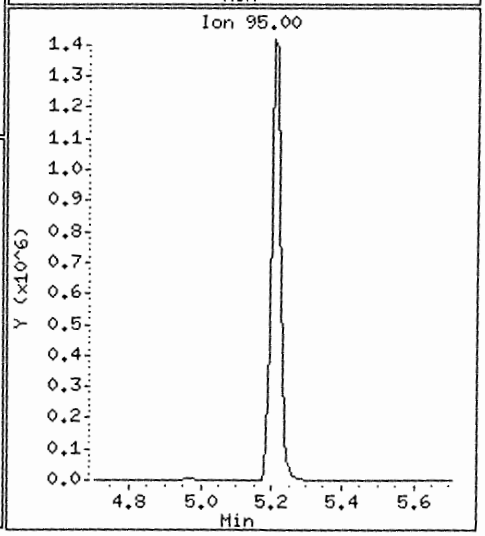












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031514.D Page 1
Report Date: 02-Apr-2020 11:49

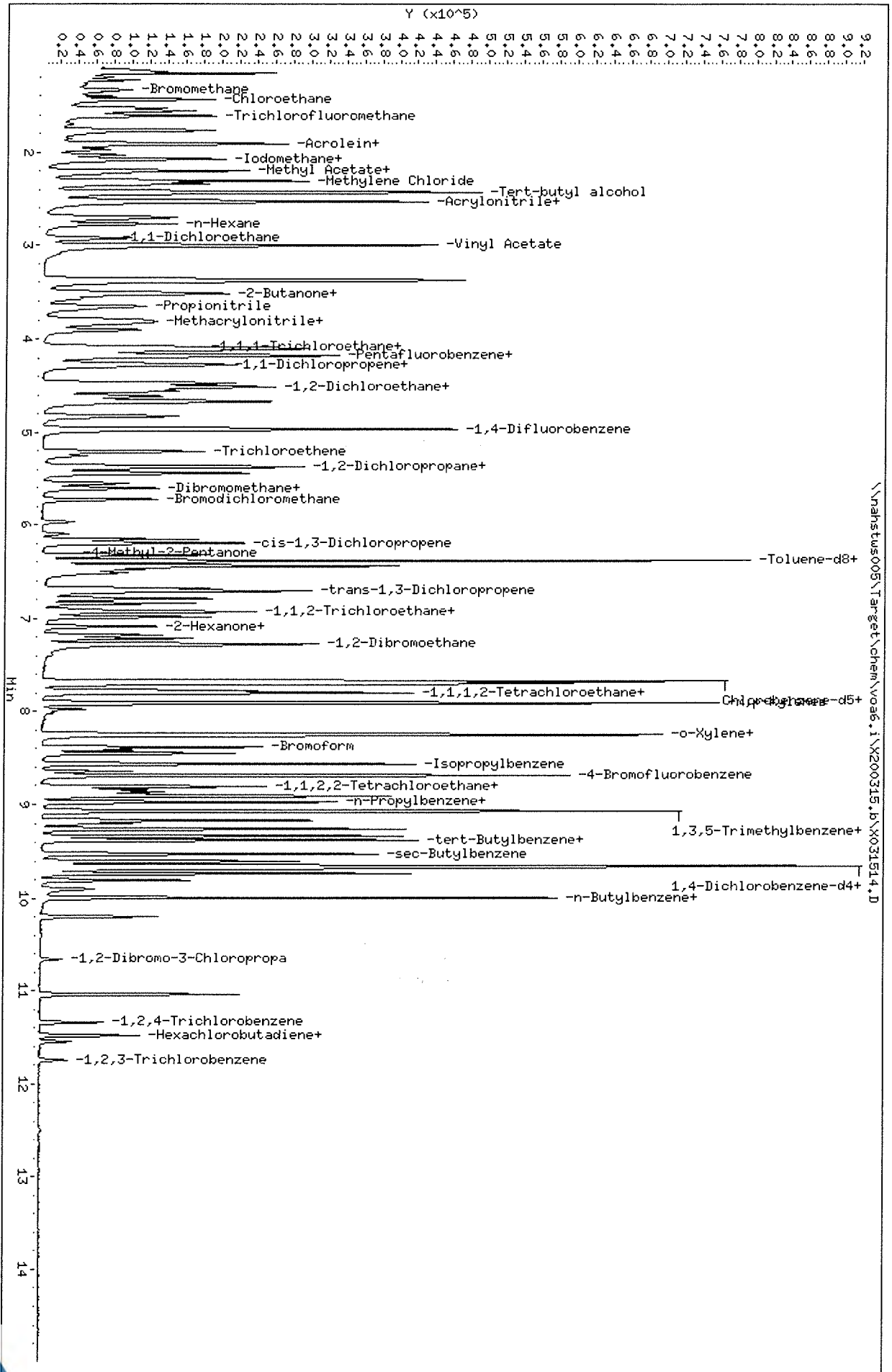
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031514.D
Lab Smp Id: HS20030405-01MS Client Smp ID: HS20030405-01MS
Inj Date : 15-MAR-2020 15:57
Operator : PC Inst ID: voa6.i
Smp Info : HS20030405-01MS;HS20030405-01MS;3;;MS
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:49 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 14 QC Sample: MS
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	255694	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	360749	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	322394	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	161249	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	124720	45.8267	45.82
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	179823	46.3704	46.37
$	48 Toluene-d8	98	6.388	6.388	(0.833)	413433	51.4308	51.43
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	156398	49.6665	49.66
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	34026	20.2154	101.07
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	39532	18.6499	93.24
	33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	101065	22.1123	110.56
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	54485	20.8964	104.48
	17 Methylene Chloride	84	2.305	2.305	(0.551)	45865	18.2125	91.06
	38 Trichloroethene	130	5.206	5.206	(1.048)	56936	21.8893	109.44
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	60213	17.6096	88.04



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031514.D
Date : 15-MAR-2020 15:57
Client ID: HS20030405-01MS
Sample Info: HS20030405-01MS;HS20030405-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

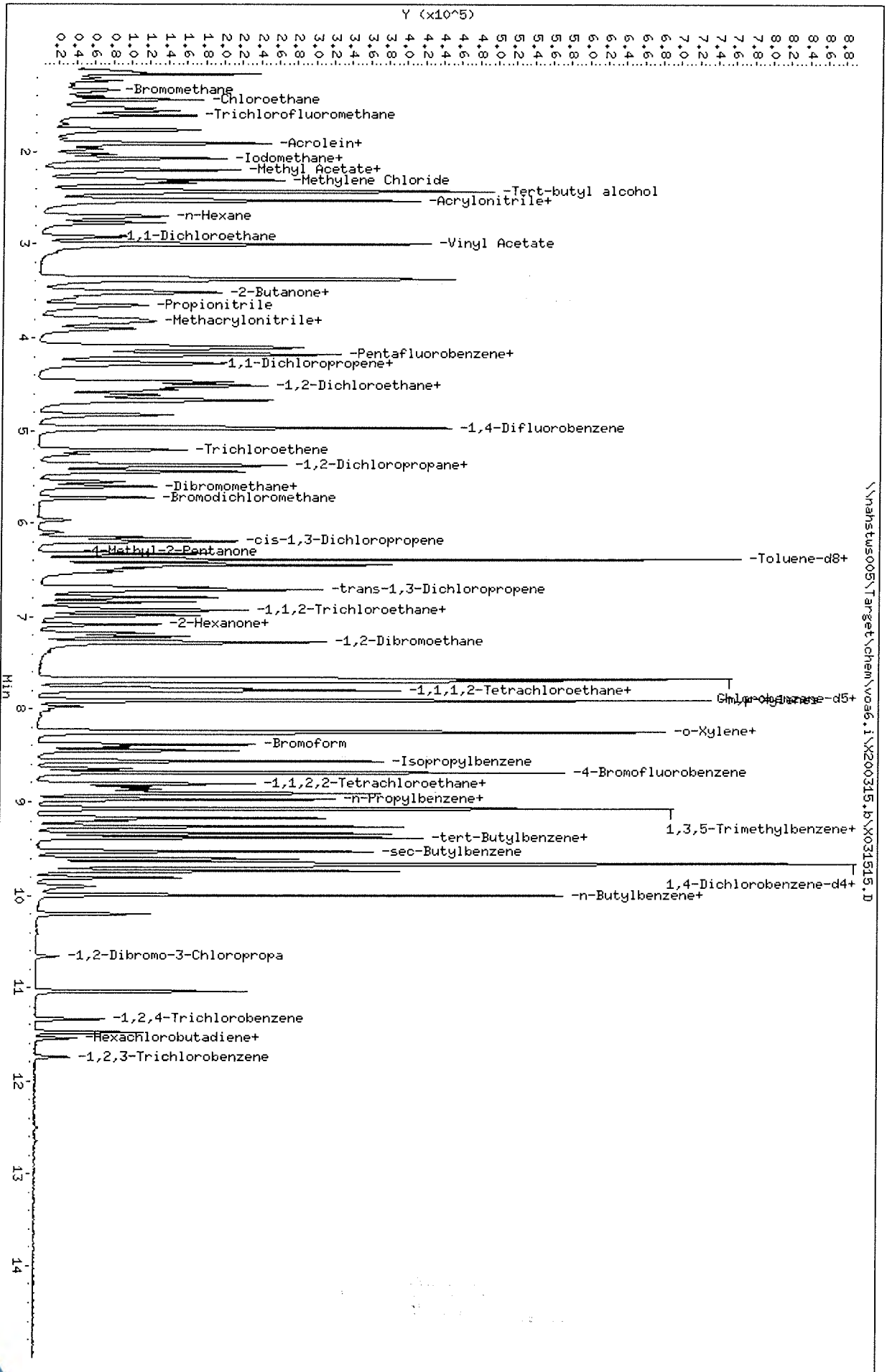
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031515.D
Lab Smp Id: HS20030405-01MSD Client Smp ID: HS20030405-01MSD
Inj Date : 15-MAR-2020 16:21
Operator : PC Inst ID: voa6.i
Smp Info : HS20030405-01MSD;HS20030405-01MSD;3;;MSD
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:49 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 14 QC Sample: MSD
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	253102	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	353019	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	313234	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	155118	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	121920	45.2602	45.26
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	177562	46.2570	46.25
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	408579	52.3124	52.31
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	149442	48.8476	48.84
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	32772	20.0397	100.19
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	39281	18.7213	93.60
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	101800	22.7608	113.80
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	52048	20.1662	100.83
17 Methylene Chloride	84	2.305	2.305	(0.551)	43046	17.2388	86.19
38 Trichloroethene	130	5.214	5.206	(1.049)	51753	20.3324	101.66
5 Vinyl Chloride	62	1.138	1.138	(0.272)	56905	16.8126	84.06



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031515.D
Date : 15-MAR-2020 16:21
Client ID: HS20030405-01HSD
Sample Info: HS20030405-01HSD;HS20030405-01HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031516.D Page 1
Report Date: 02-Apr-2020 11:47

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031516.D
Lab Smp Id: HS20030383-06 Client Smp ID: HS20030383-06
Inj Date : 15-MAR-2020 16:45
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-06;HS20030383-06;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 15
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

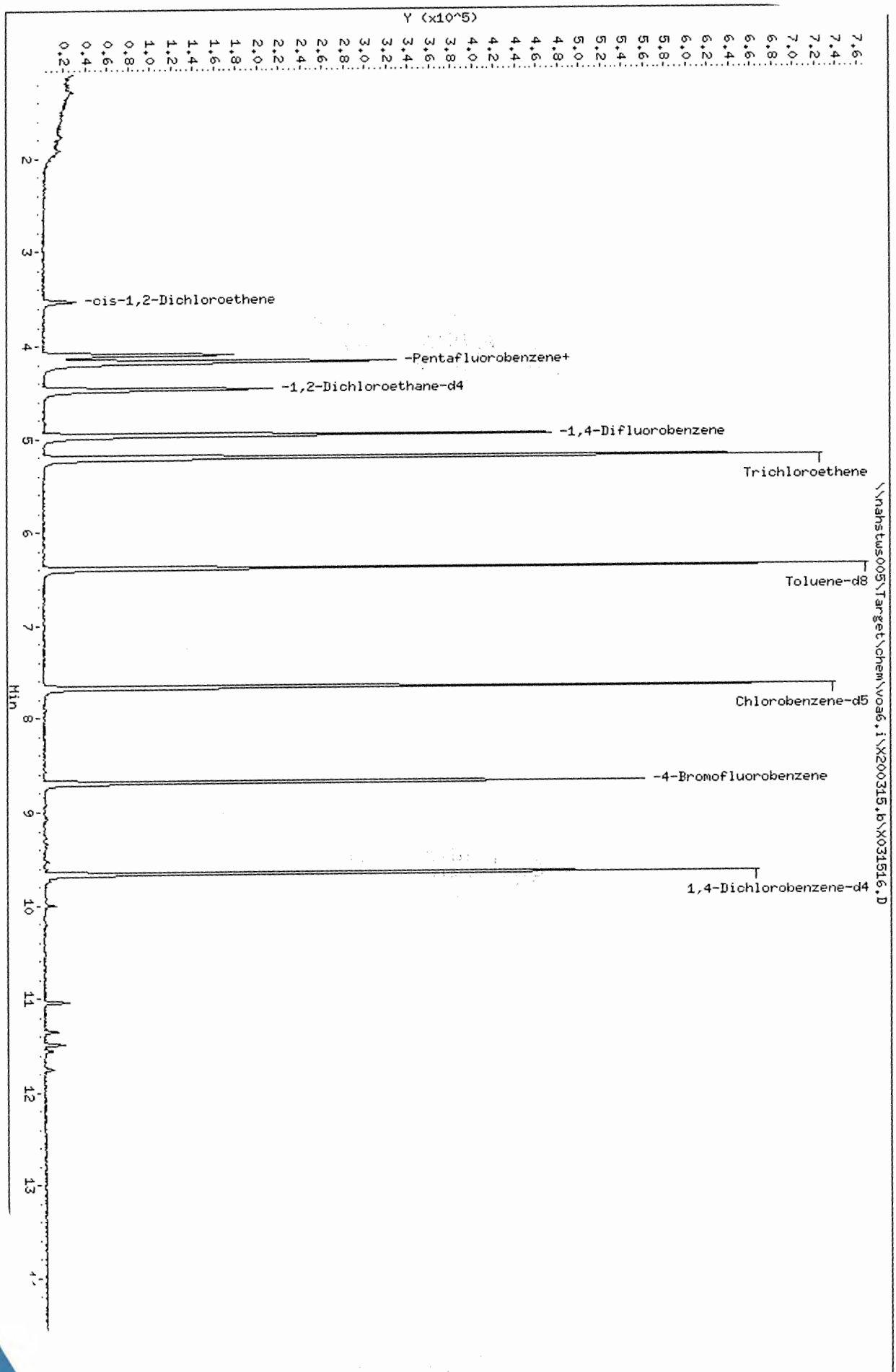
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	259124	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	364090	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	318612	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	146861	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	124916	45.2945	45.29
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	177941	45.2844	45.28
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	422101	53.1306	53.13
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	156749	50.3669	50.36
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	12934	4.89487	48.94(a)
38 Trichloroethene	130	5.207	5.206	(1.048)	235304	89.6337	896.33

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031516.D
Date : 15-MAR-2020 16:45
Client ID: HS20030383-06
Sample Info: HS20030383-06;HS20030383-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031516.D

Date : 15-MAR-2020 16:45

Client ID: HS20030383-06

Instrument: voa6.i

Sample Info: HS20030383-06;HS20030383-06;;;

Purge Volume: 5.0

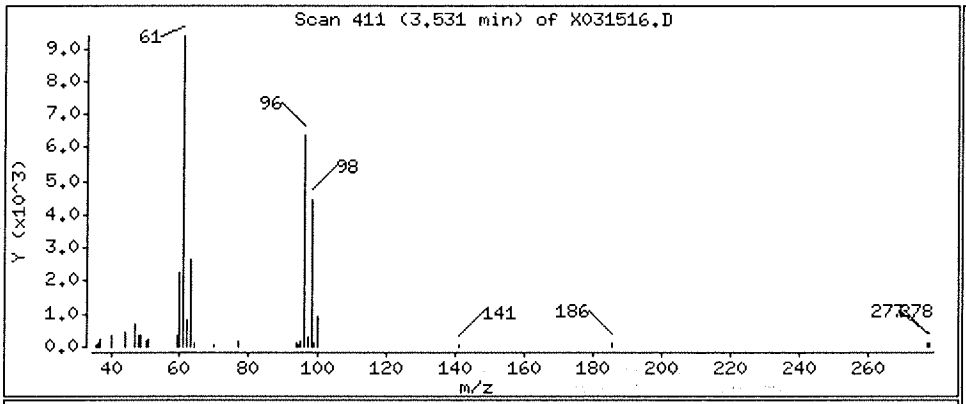
Operator: PC

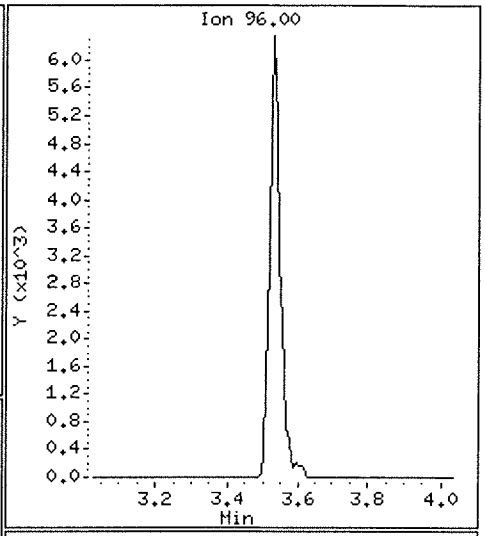
Column phase: DB624

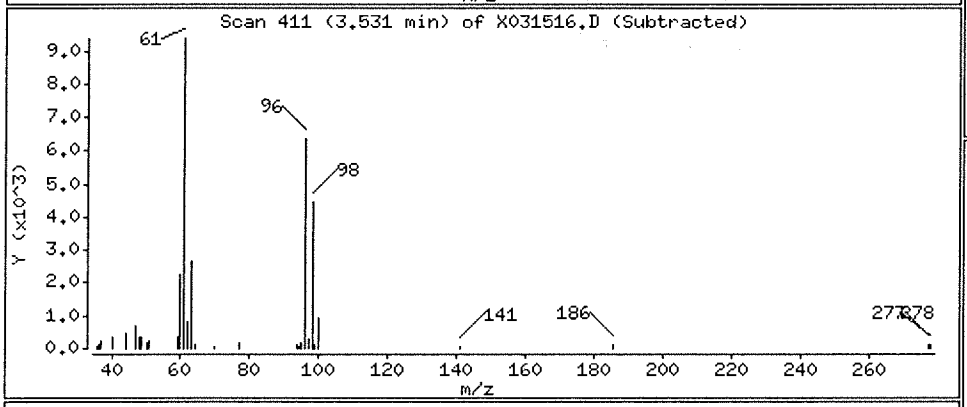
Column diameter: 0.18

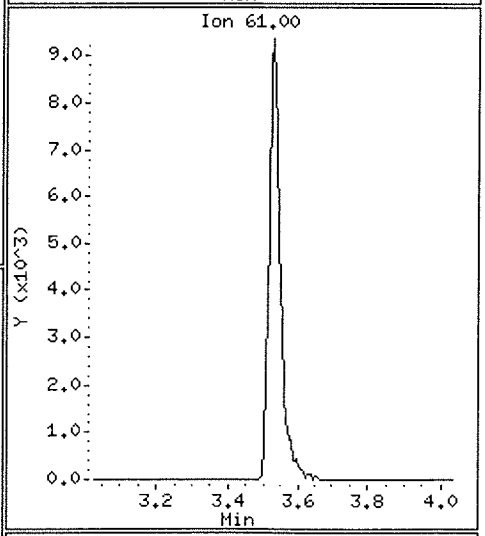
27 cis-1,2-Dichloroethene

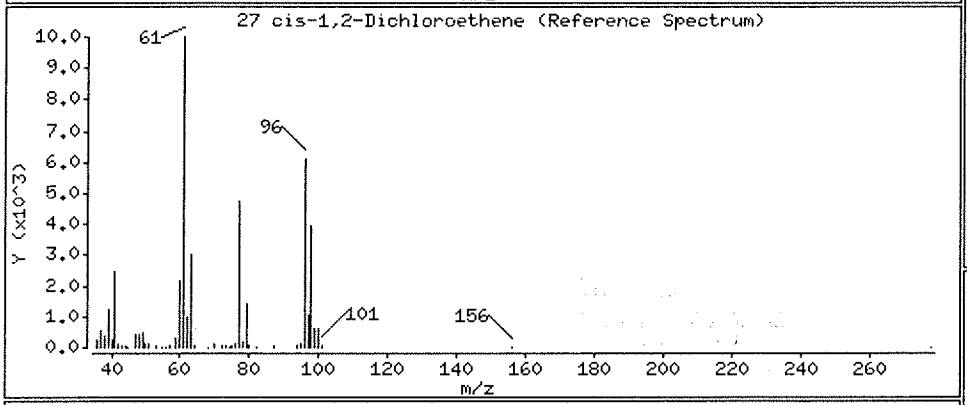
Concentration: 48.94 ug/l

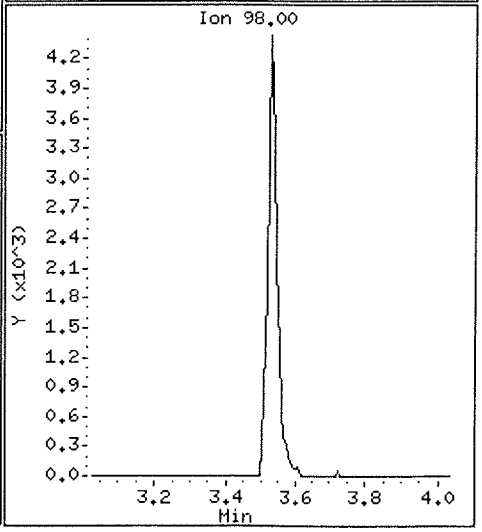


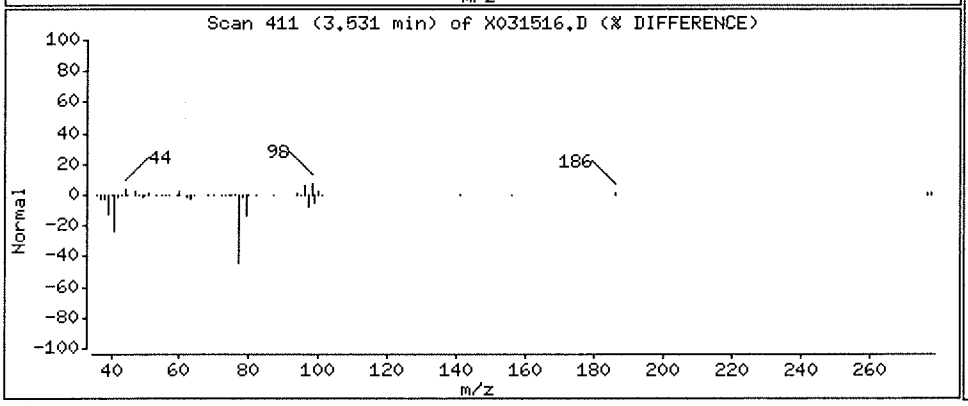












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Date : 15-MAR-2020 16:45

Client ID: HS20030383-06

Instrument: voa6.i

Sample Info: HS20030383-06;HS20030383-06;;;

Purge Volume: 5.0

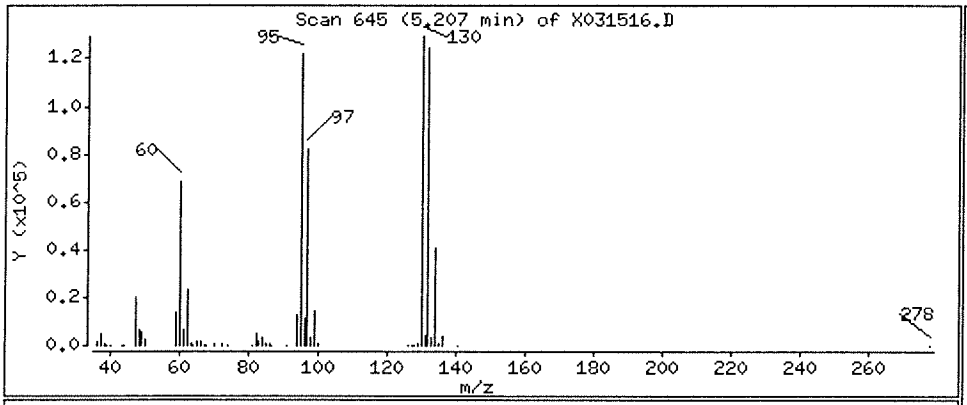
Operator: PC

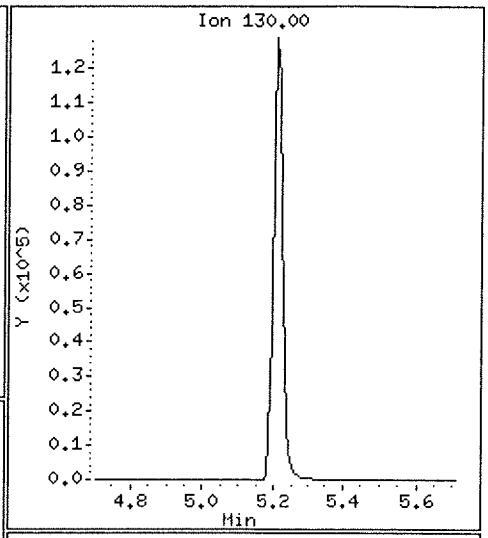
Column phase: DB624

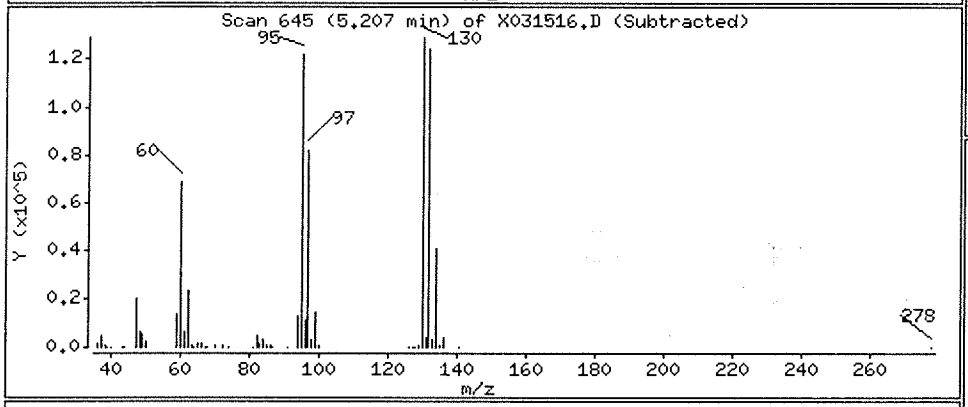
Column diameter: 0.18

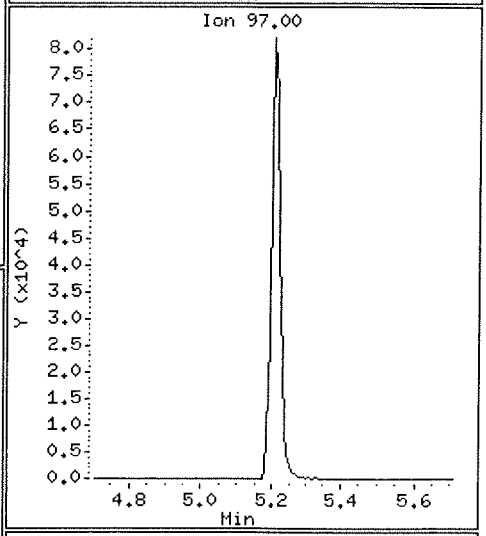
38 Trichloroethene

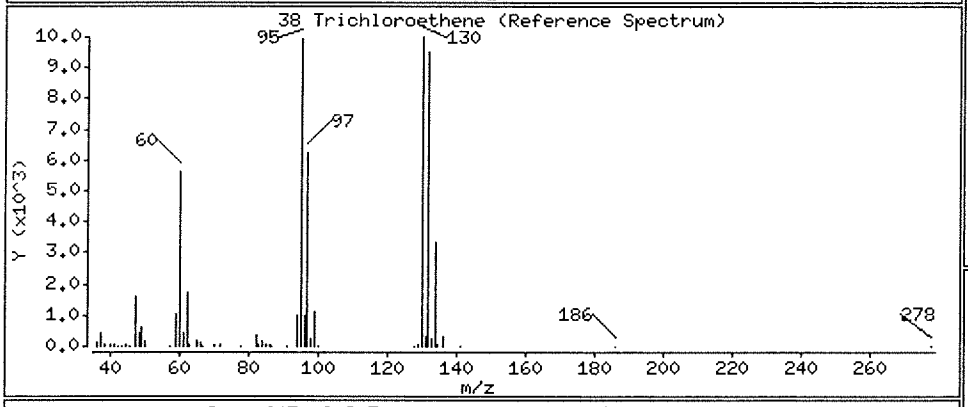
Concentration: 896.33 ug/l

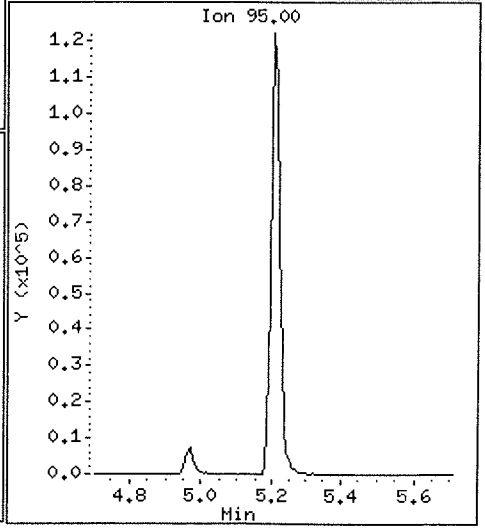


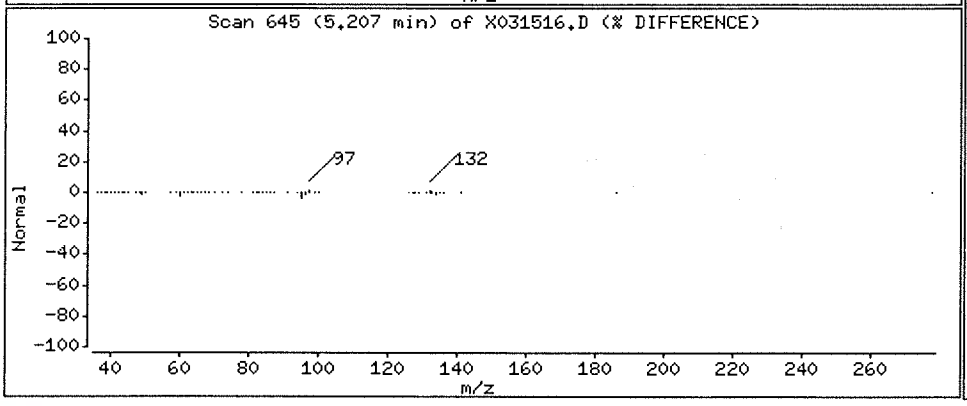












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031517.D Page 1
Report Date: 02-Apr-2020 11:47

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031517.D
Lab Smp Id: HS20030383-04 Client Smp ID: HS20030383-04
Inj Date : 15-MAR-2020 17:09
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-04;HS20030383-04;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 16
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

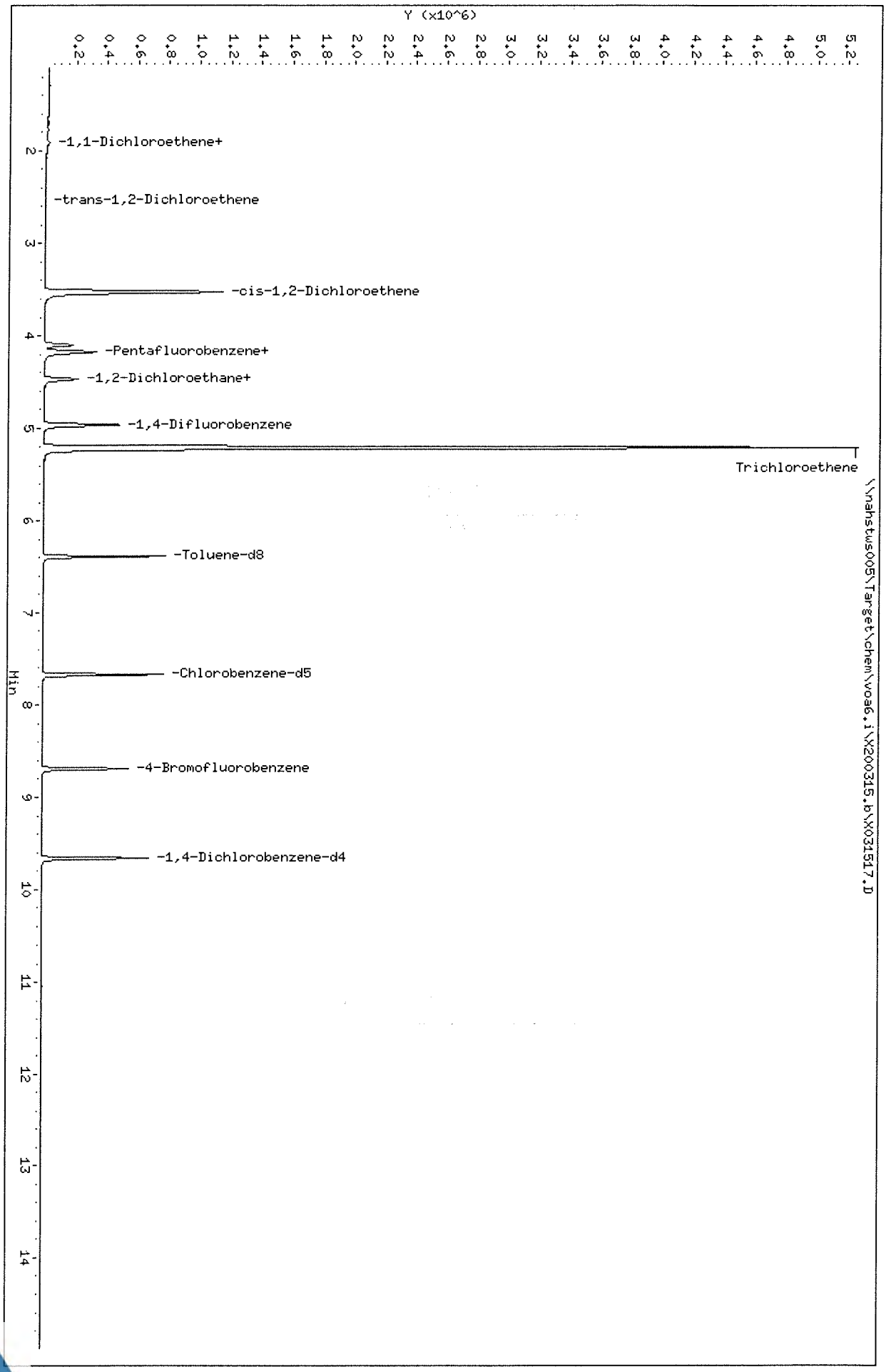
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	269551	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	382377	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	323439	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	155849	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	130318	45.4246	45.42
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	183566	44.9112	44.91
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	425429	52.7507	52.75
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	157281	49.7852	49.78
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1346	0.60236	3.01
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	2439	0.50345	2.51
27 cis-1,2-Dichloroethene	96	3.523	3.530	(0.842)	527551	191.929	959.64
38 Trichloroethene	130	5.206	5.206	(1.048)	1657036	601.023	3005.11(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031517.D
Date : 15-MAR-2020 17:09
Client ID: HS20030383-04
Sample Info: HS20030383-04;HS20030383-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031517.D

Date : 15-MAR-2020 17:09

Client ID: HS20030383-04

Instrument: voa6.i

Sample Info: HS20030383-04;HS20030383-04;;;

Purge Volume: 5.0

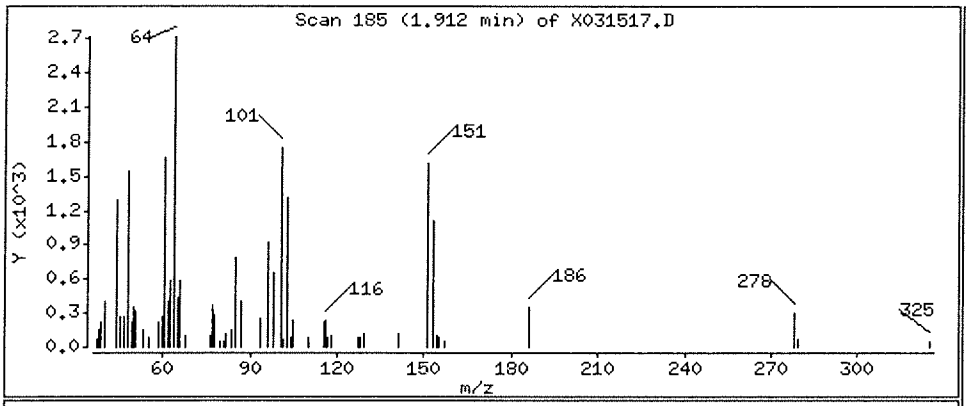
Operator: PC

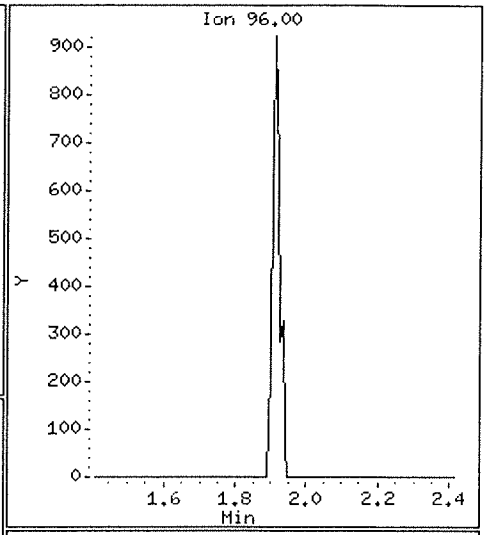
Column phase: DB624

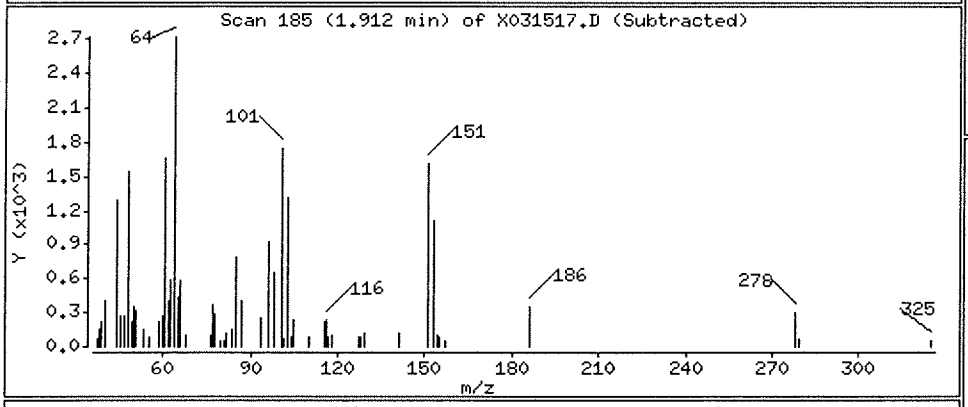
Column diameter: 0.18

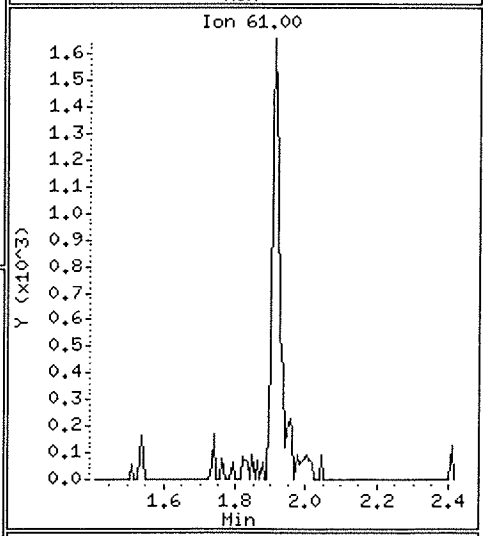
11 1,1-Dichloroethene

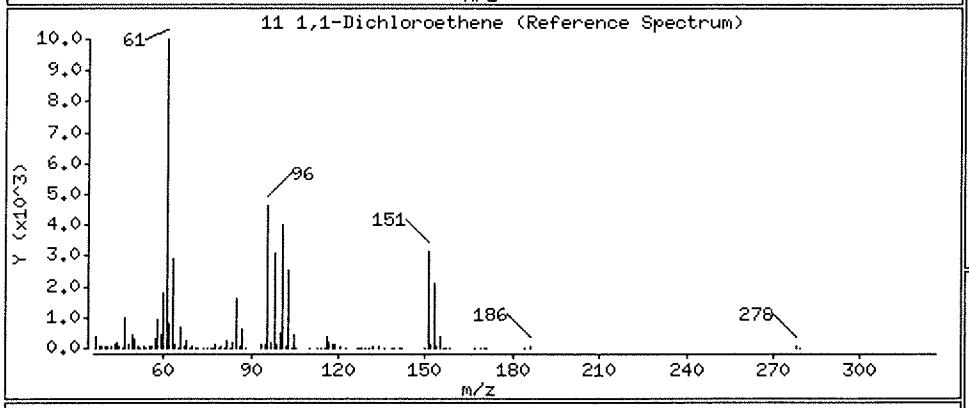
Concentration: 3.01 ug/l

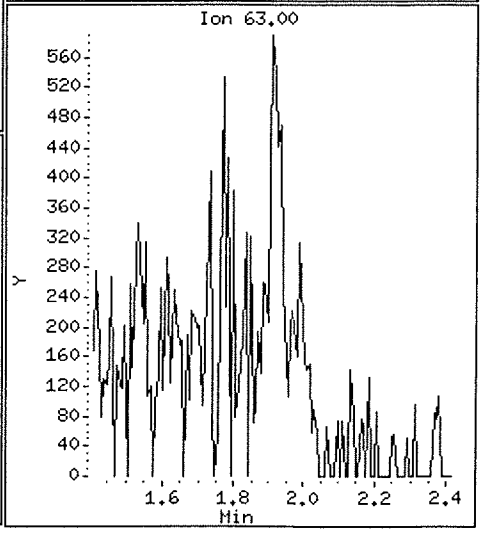


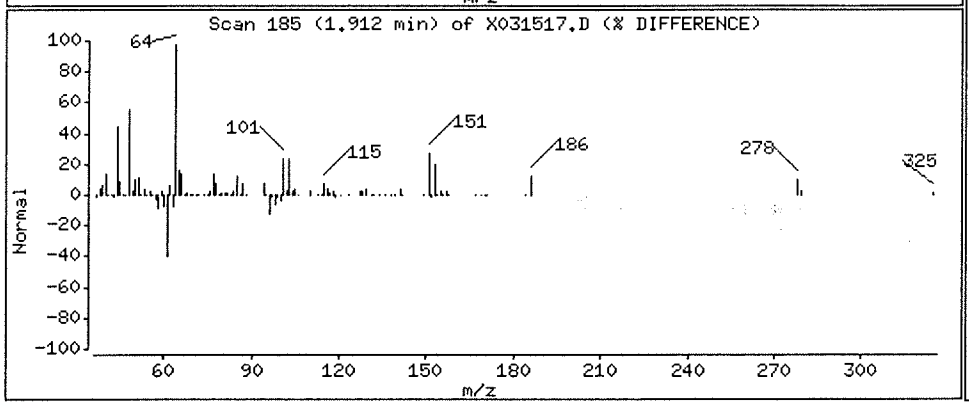












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Date : 15-MAR-2020 17:09

Client ID: HS20030383-04

Instrument: voa6.i

Sample Info: HS20030383-04;HS20030383-04;;;

Purge Volume: 5.0

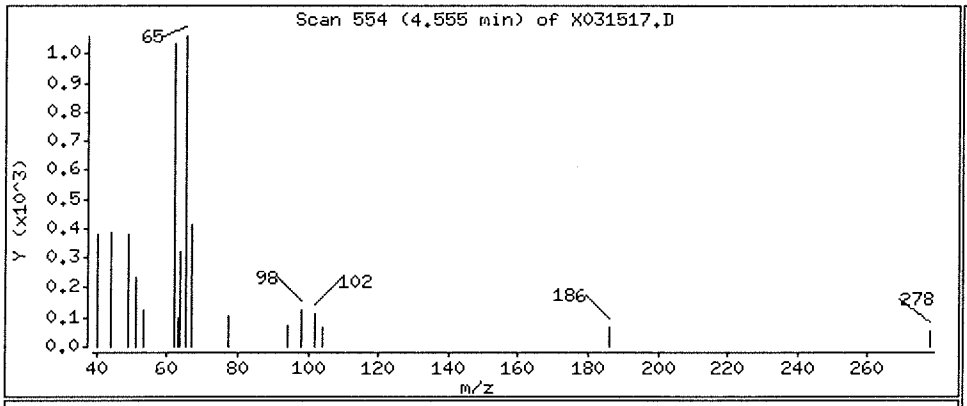
Operator: PC

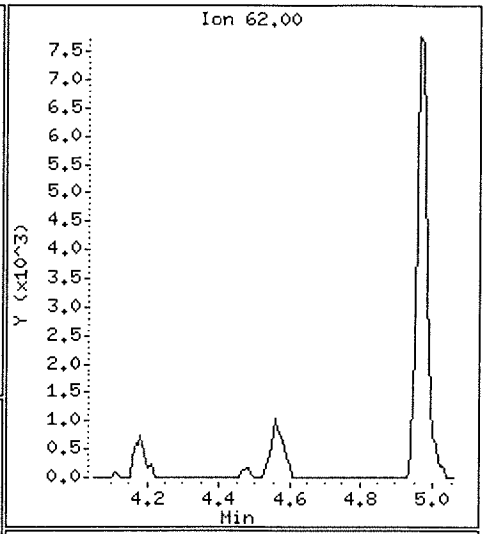
Column phase: DB624

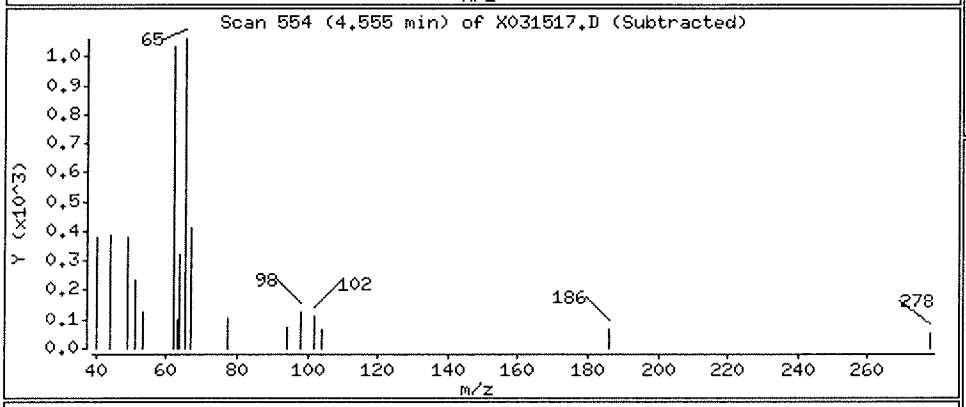
Column diameter: 0.18

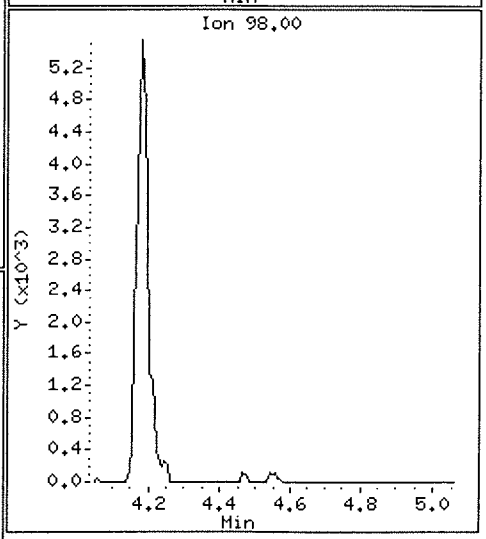
33 1,2-Dichloroethane

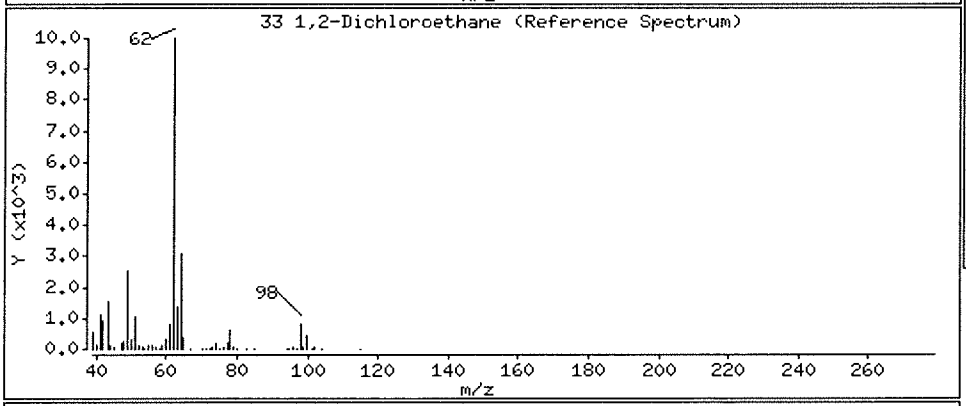
Concentration: 2.51 ug/l

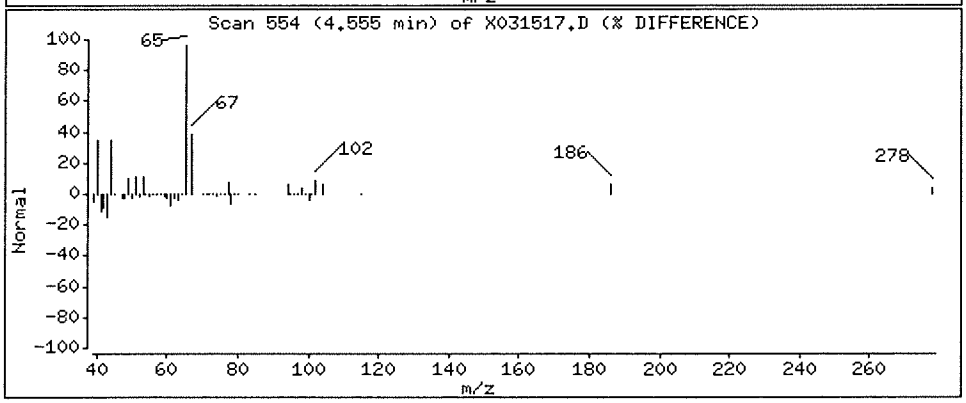












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Date : 15-MAR-2020 17:09

Client ID: HS20030383-04

Instrument: voa6.i

Sample Info: HS20030383-04;HS20030383-04;;;

Purge Volume: 5.0

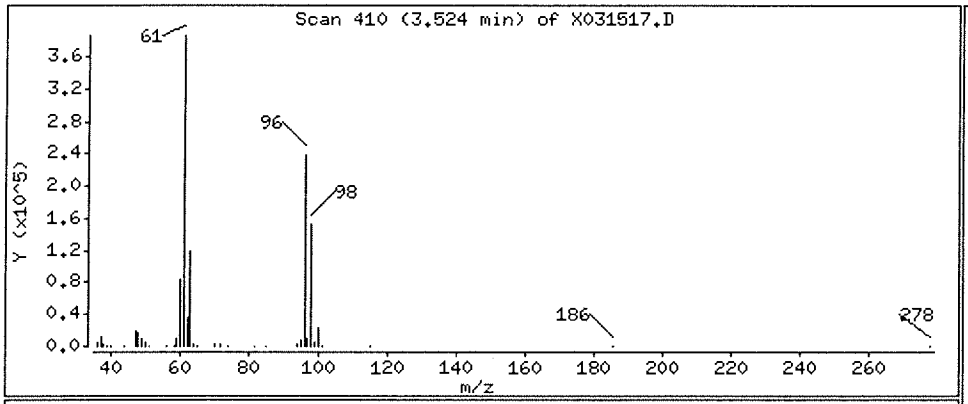
Operator: PC

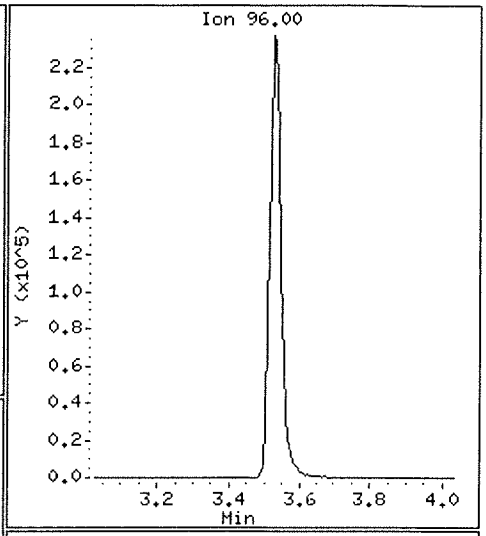
Column phase: DB624

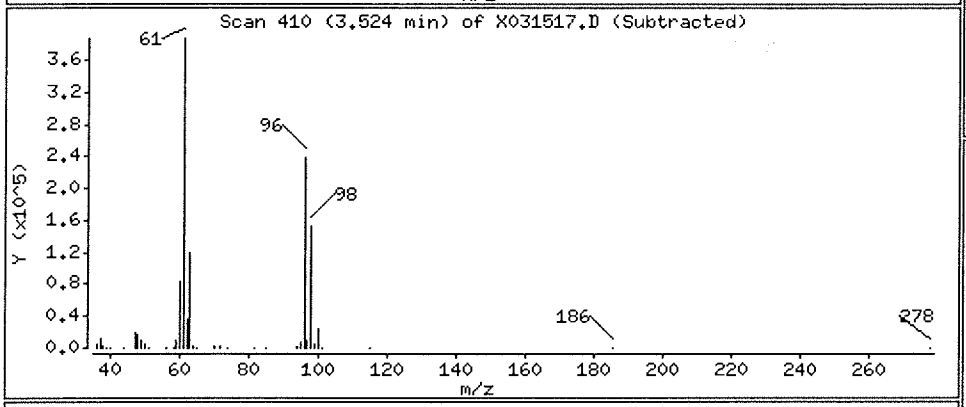
Column diameter: 0.18

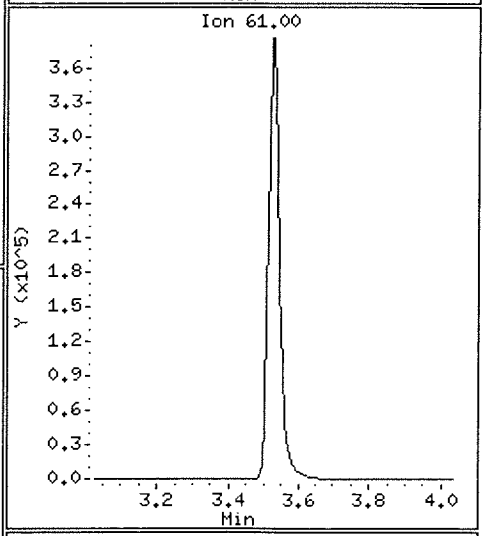
27 cis-1,2-Dichloroethene

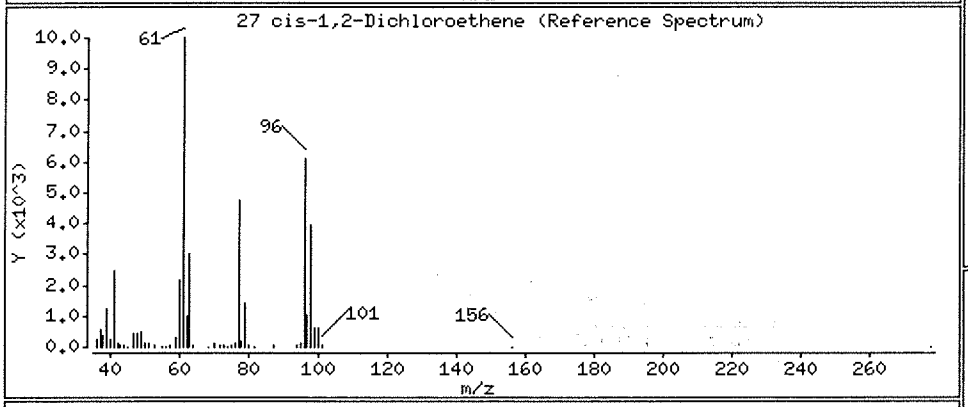
Concentration: 959.64 ug/l

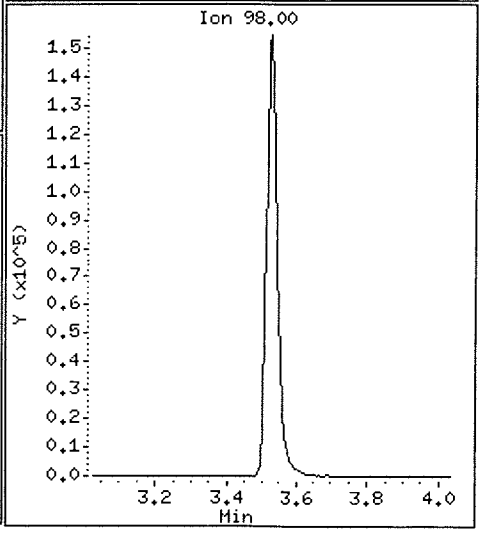


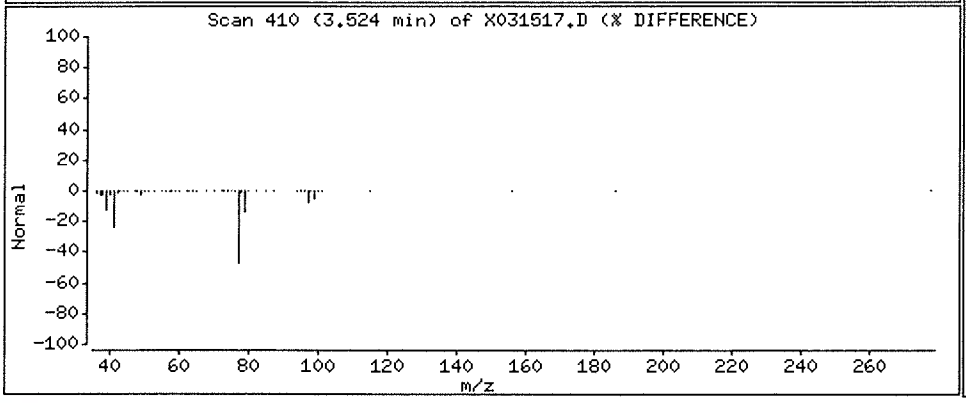












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031517.D Page 6

Date : 15-MAR-2020 17:09

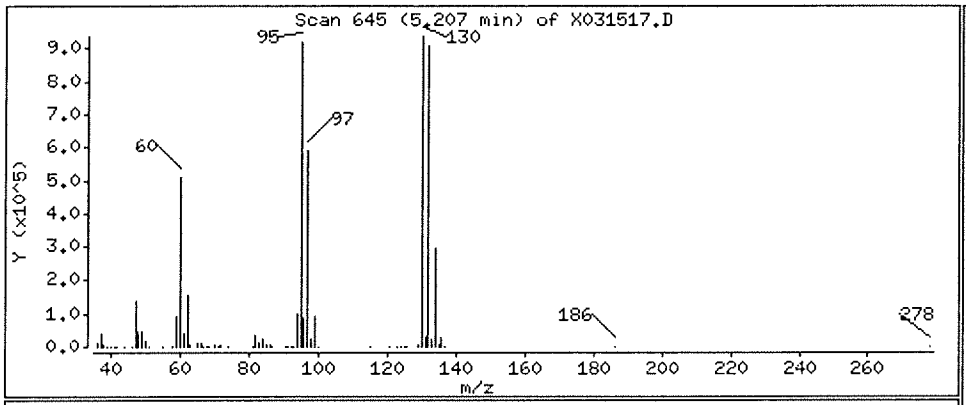
Client ID: HS20030383-04 Instrument: voa6.i

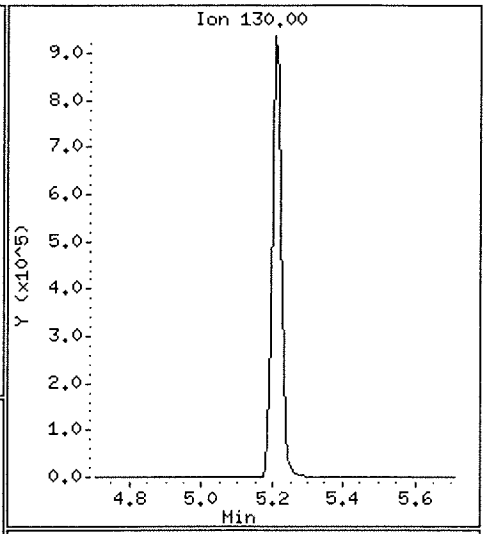
Sample Info: HS20030383-04;HS20030383-04;;;

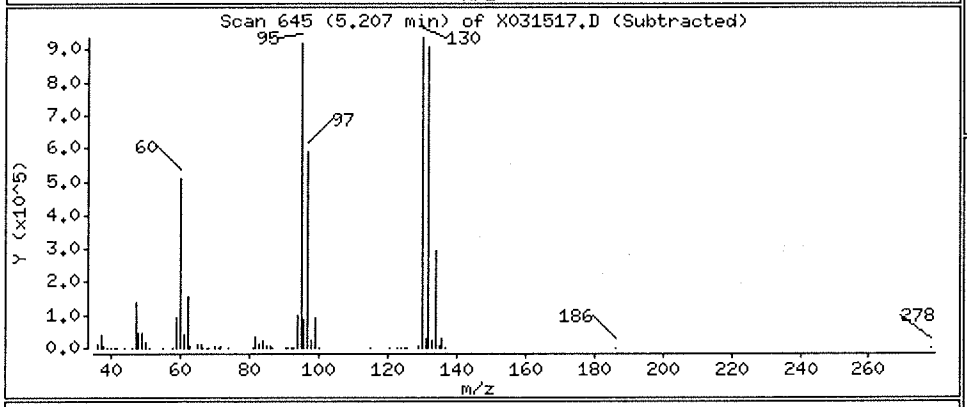
Purge Volume: 5.0 Operator: PC

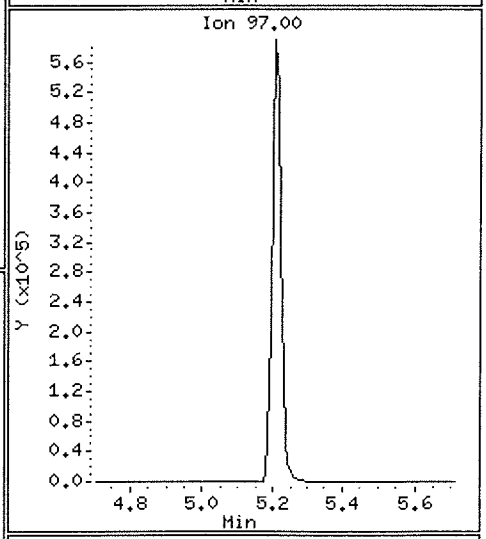
Column phase: DB624 Column diameter: 0.18

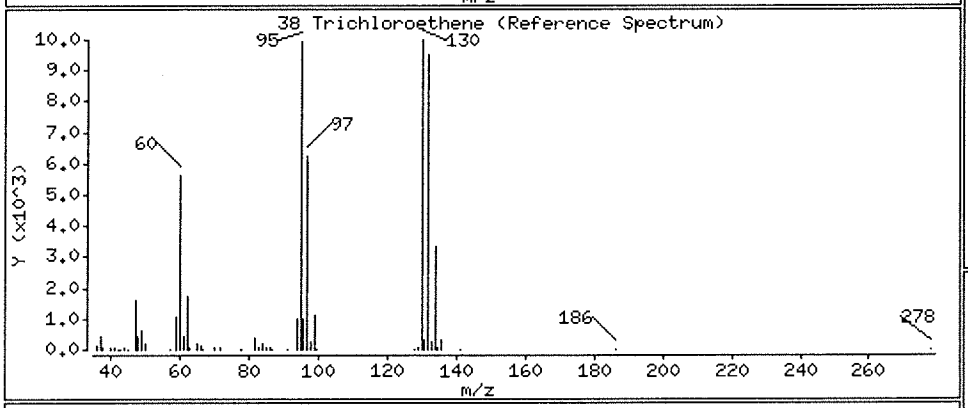
38 Trichloroethene Concentration: 3005.11 ug/l

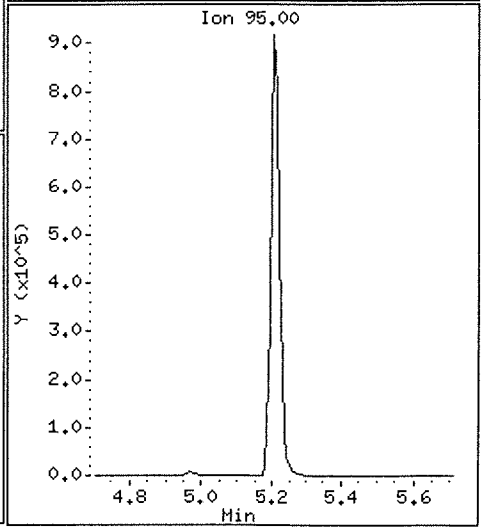


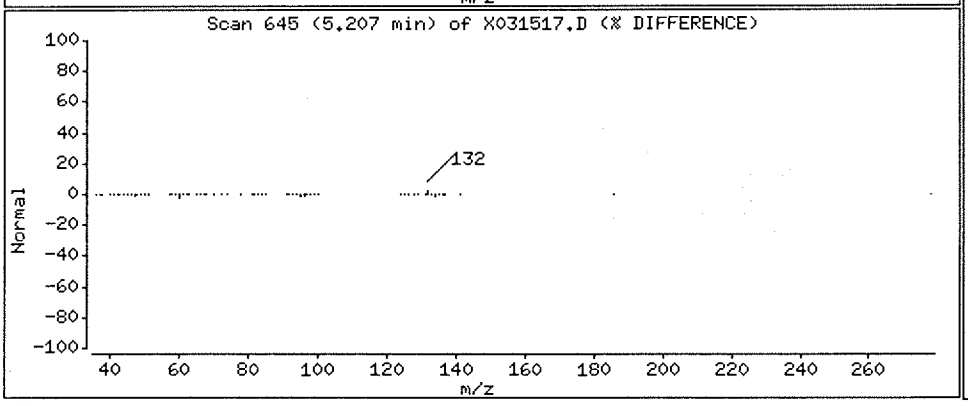












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031518.D Page 1
Report Date: 02-Apr-2020 11:47

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031518.D
Lab Smp Id: HS20030383-04 Client Smp ID: HS20030383-04
Inj Date : 15-MAR-2020 17:33
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-04;HS20030383-04;;;
Misc Info : HS18090001;WATER;0;25;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 17
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

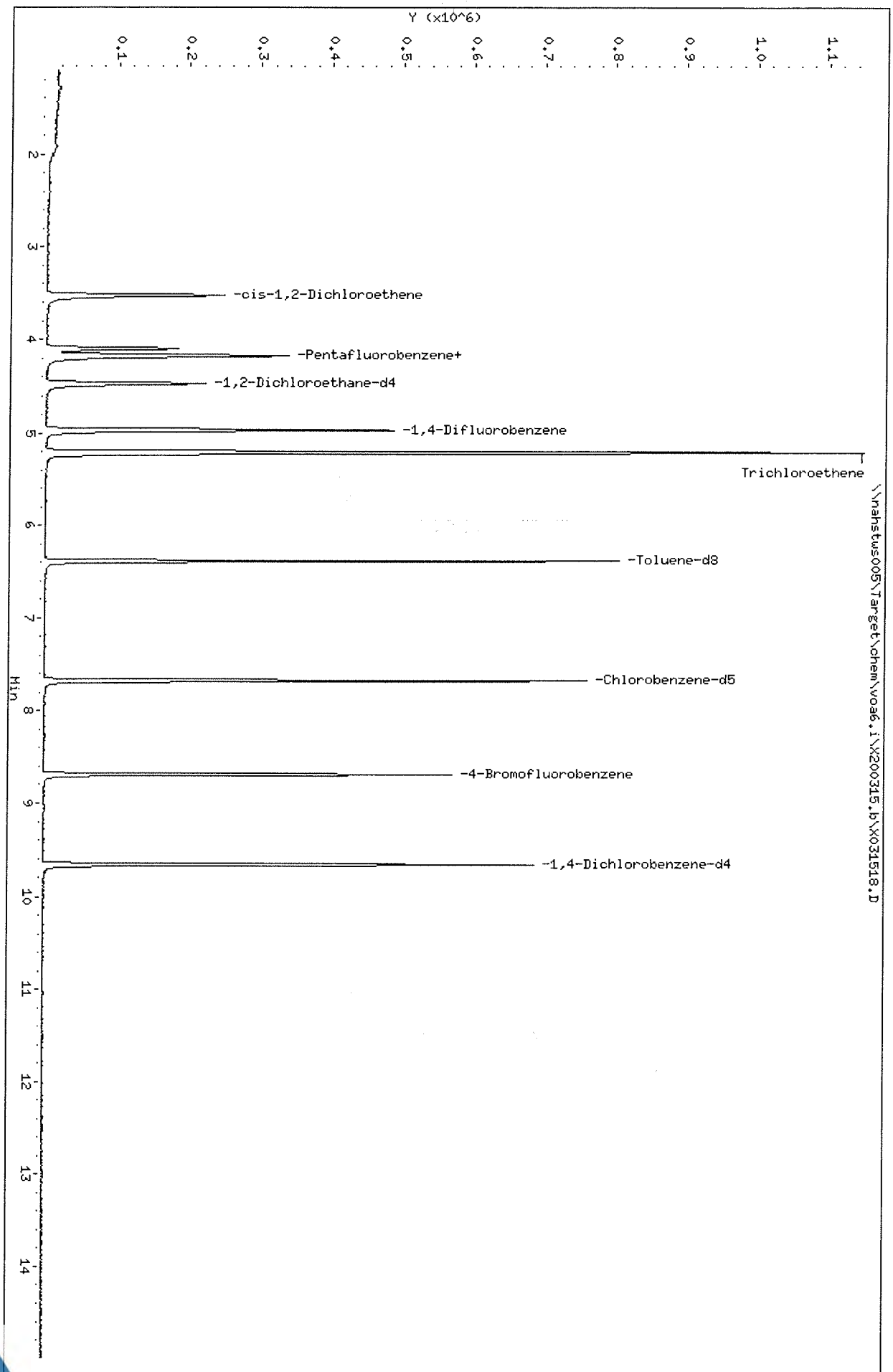
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	270639	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	379147	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	327881	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	153997	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	130708	45.3776	45.37
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	184360	44.9240	44.92
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	435735	53.2961	53.29
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	159585	49.8300	49.83
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	111822	40.5185	1012.96
38 Trichloroethene	130	5.206	5.206	(1.048)	368698	134.870	3371.74

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031518.D
Date : 15-MAR-2020 17:33
Client ID: HS20030383-04
Sample Info: HS20030383-04;HS20030383-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



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Date : 15-MAR-2020 17:33

Client ID: HS20030383-04

Instrument: voa6.i

Sample Info: HS20030383-04;HS20030383-04;;;

Purge Volume: 5.0

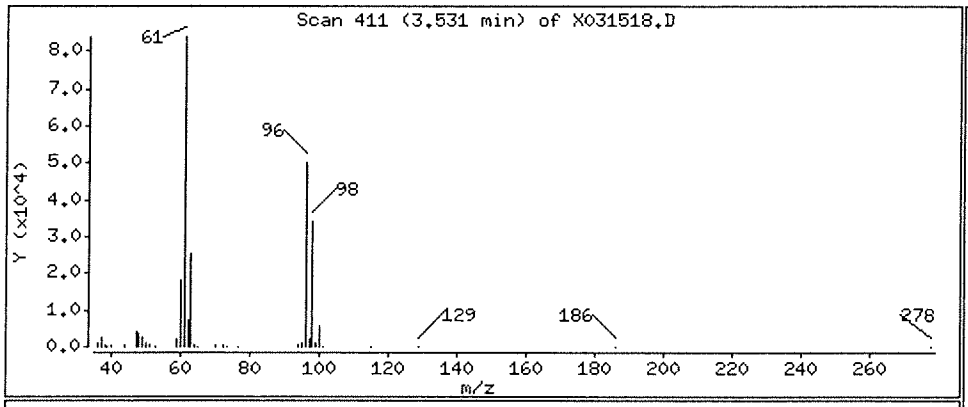
Operator: PC

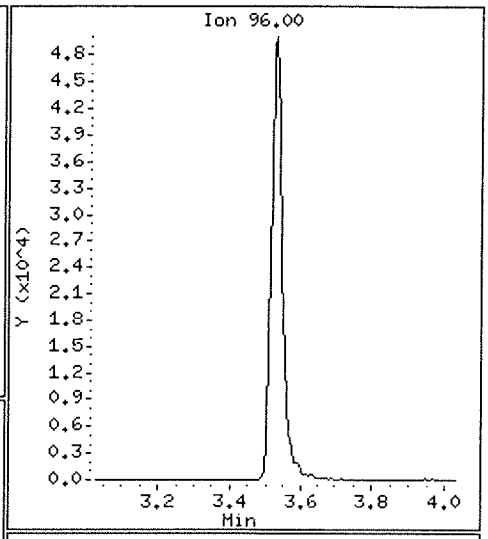
Column phase: DB624

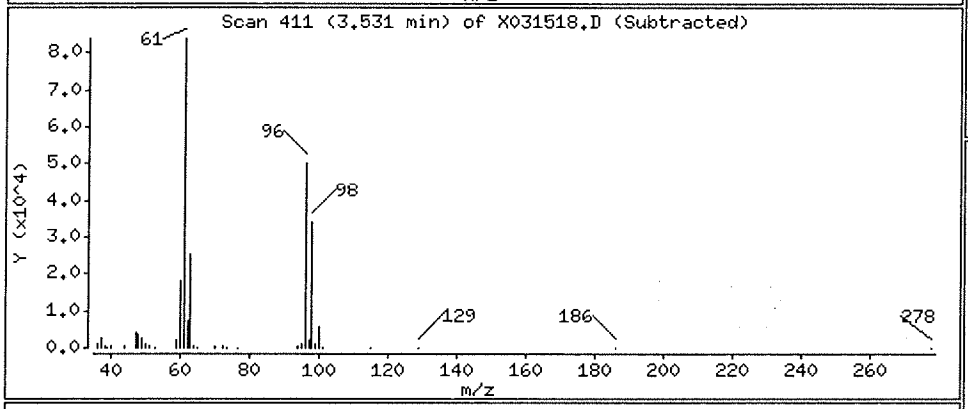
Column diameter: 0.18

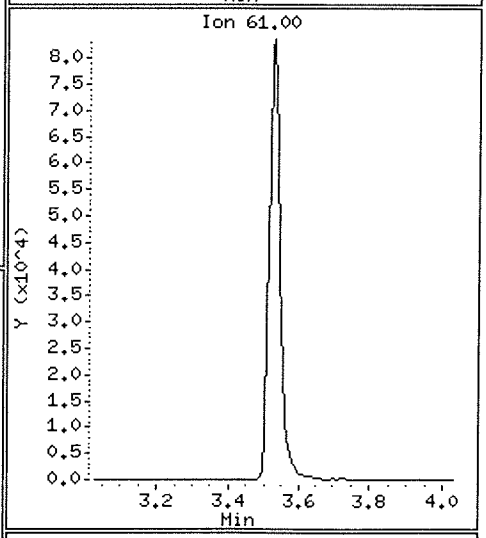
27 cis-1,2-Dichloroethene

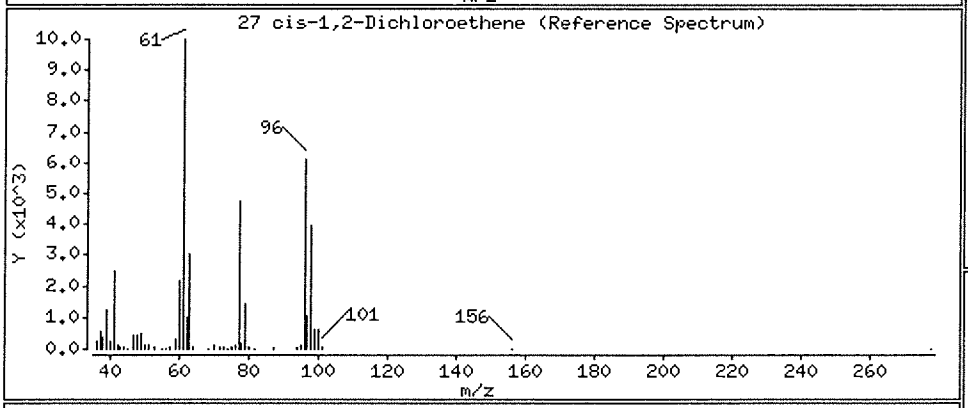
Concentration: 1012.96 ug/l

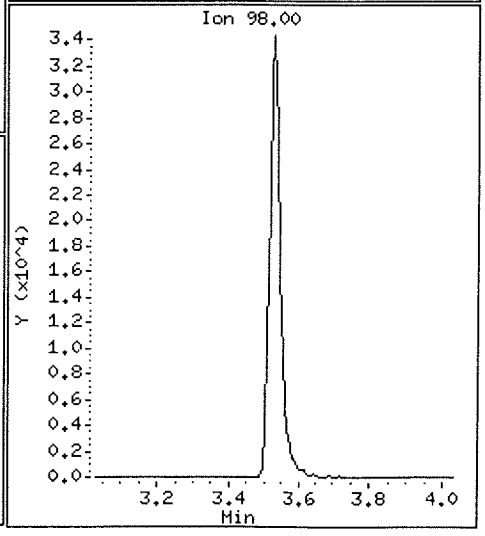


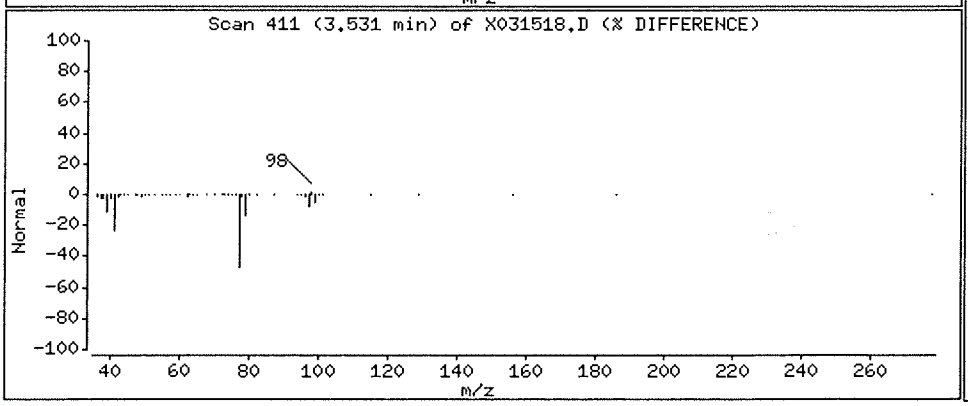












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031518.D

Date : 15-MAR-2020 17:33

Client ID: HS20030383-04

Instrument: voa6.i

Sample Info: HS20030383-04;HS20030383-04;;;

Purge Volume: 5.0

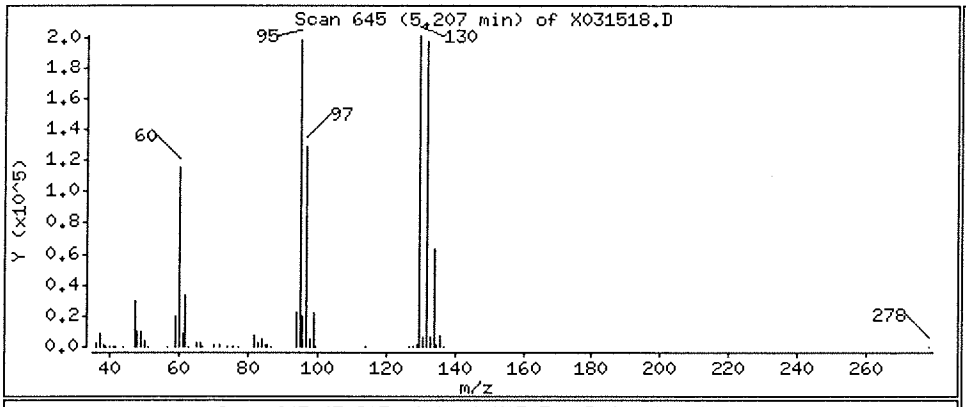
Operator: PC

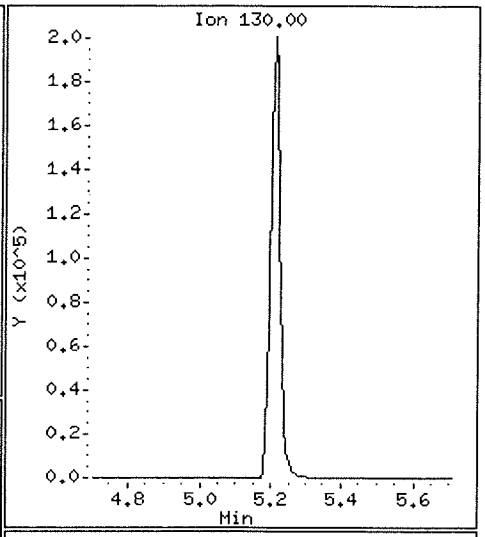
Column phase: DB624

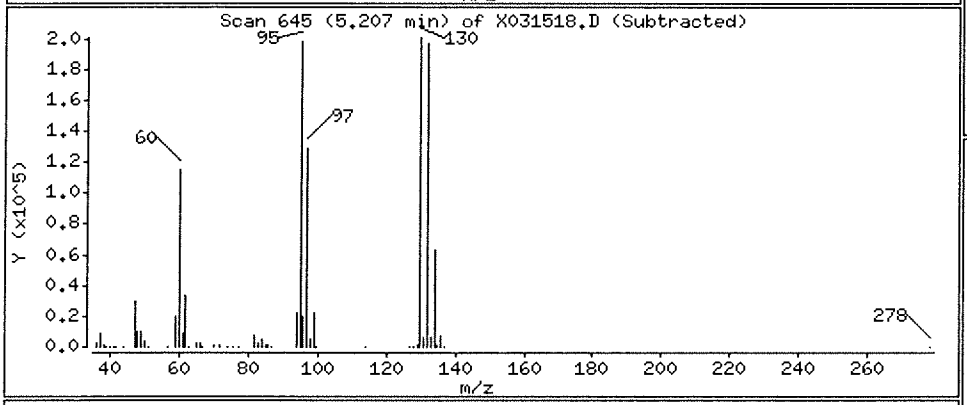
Column diameter: 0.18

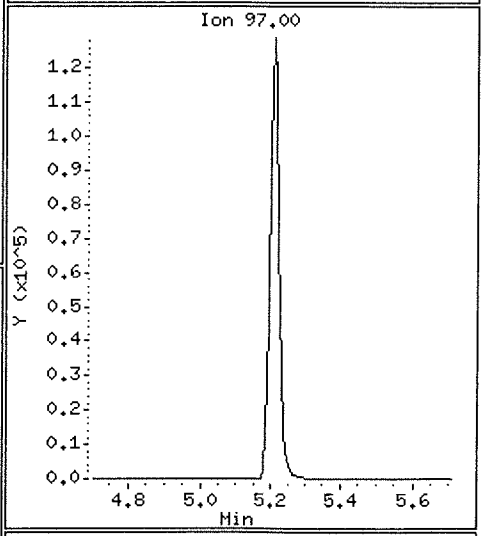
38 Trichloroethene

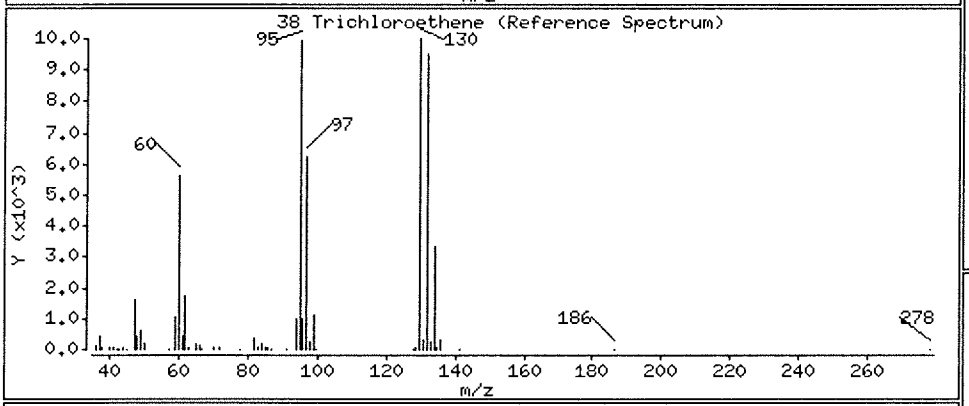
Concentration: 3371.74 ug/l

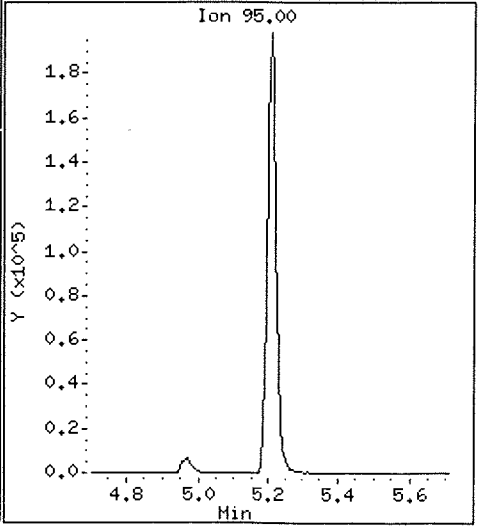


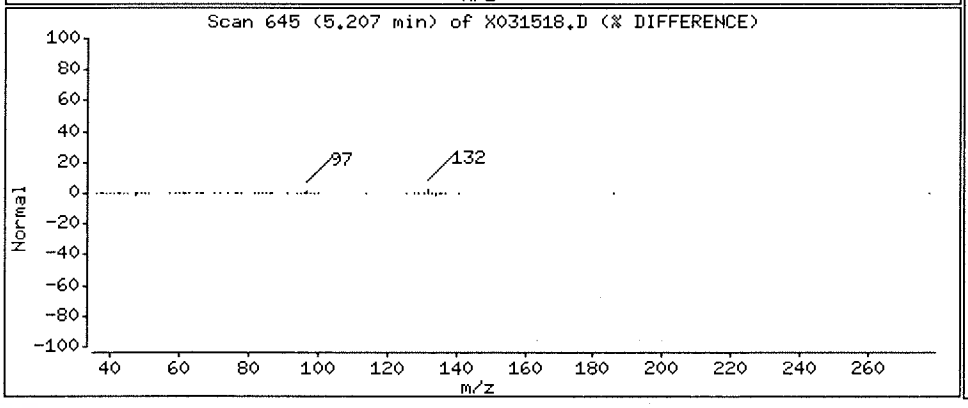












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031519.D Page 1
Report Date: 02-Apr-2020 11:47

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031519.D
Lab Smp Id: HS20030383-05 Client Smp ID: HS20030383-05
Inj Date : 15-MAR-2020 17:57
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-05;HS20030383-05;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 18
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

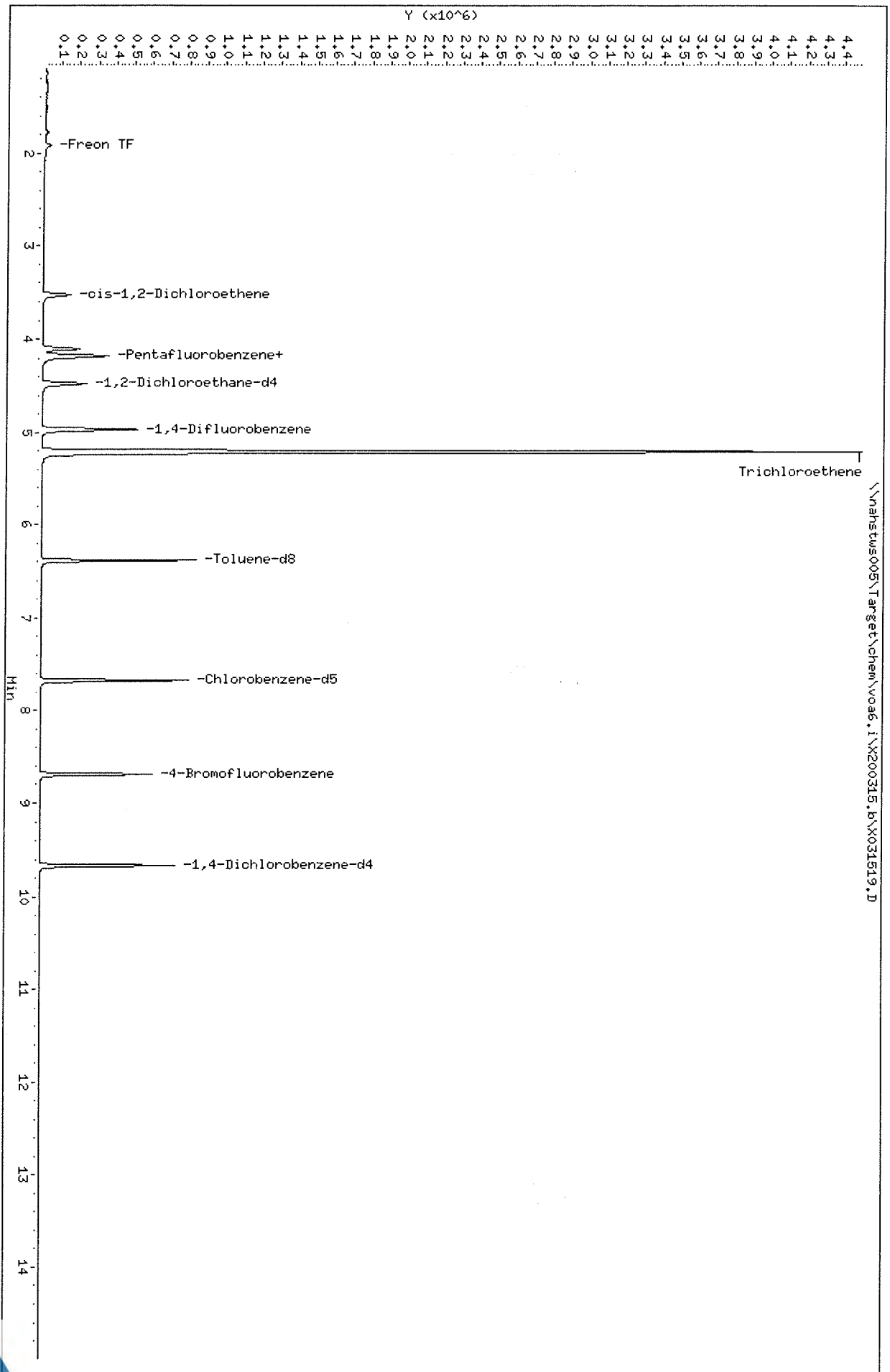
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	286070	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	404650	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	351812	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	169578	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	139838	45.9251	45.92
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	197767	45.5873	45.58
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	455028	51.8715	51.87
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	169820	49.4201	49.42
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	69242	23.7363	118.68
38 Trichloroethene	130	5.206	5.206	(1.048)	1438381	492.998	2464.99(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.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Date : 15-MAR-2020 17:57
Client ID: HS20030383-05
Sample Info: HS20030383-05;HS20030383-05;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
-Freon TF
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Trichloroethene
-Toluene-d8
-Chlorobenzene-d5
-4-Bromofluorobenzene
-1,4-Dichlorobenzene-d4
Min
\\nahstws005\Target\chem\voa6.i\X200315.b\X031519.D

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031519.D

Date : 15-MAR-2020 17:57

Client ID: HS20030383-05

Instrument: voa6.i

Sample Info: HS20030383-05;HS20030383-05;;;

Purge Volume: 5.0

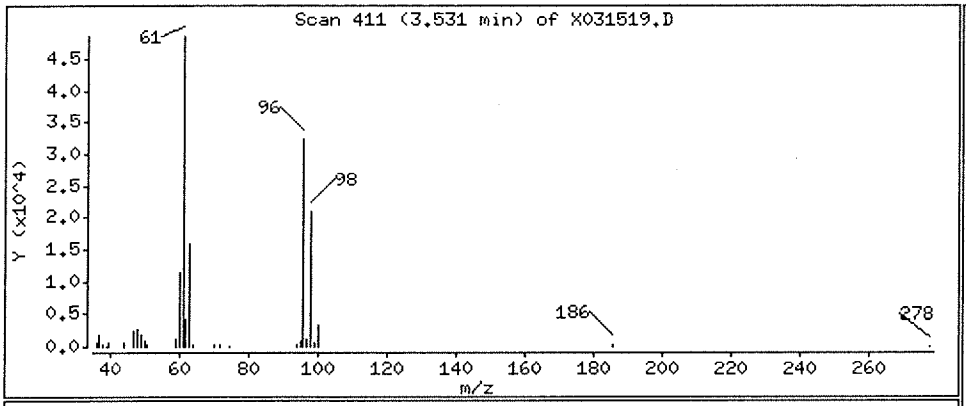
Operator: PC

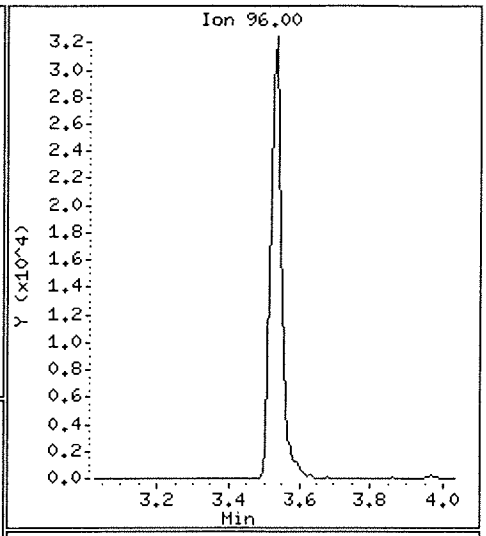
Column phase: DB624

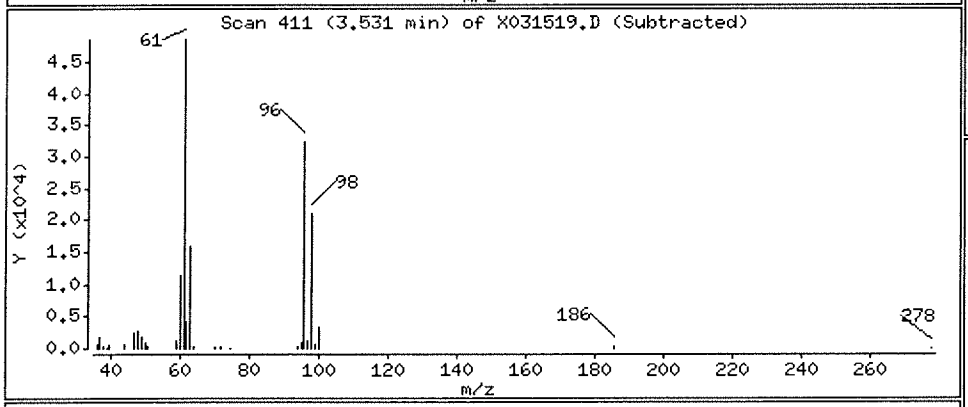
Column diameter: 0.18

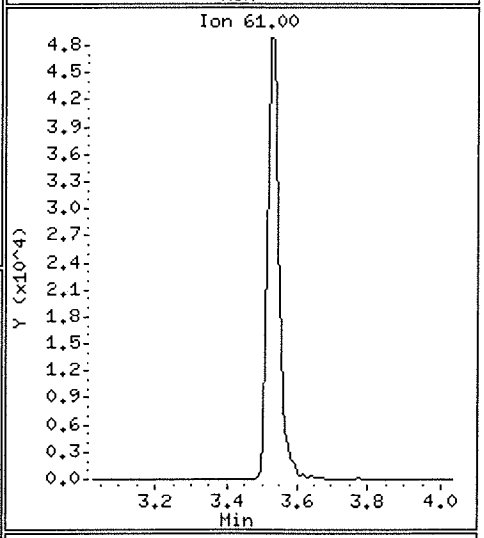
27 cis-1,2-Dichloroethene

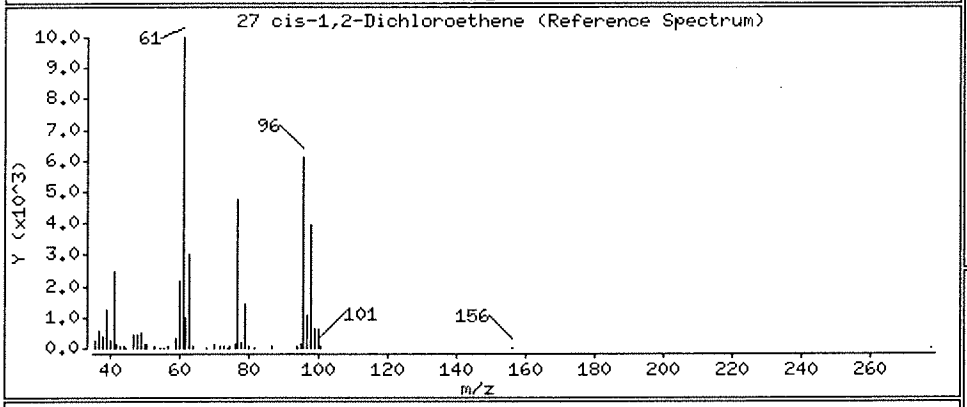
Concentration: 118.68 ug/l

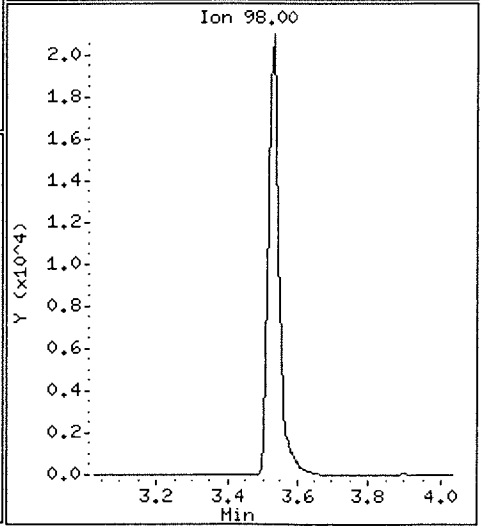


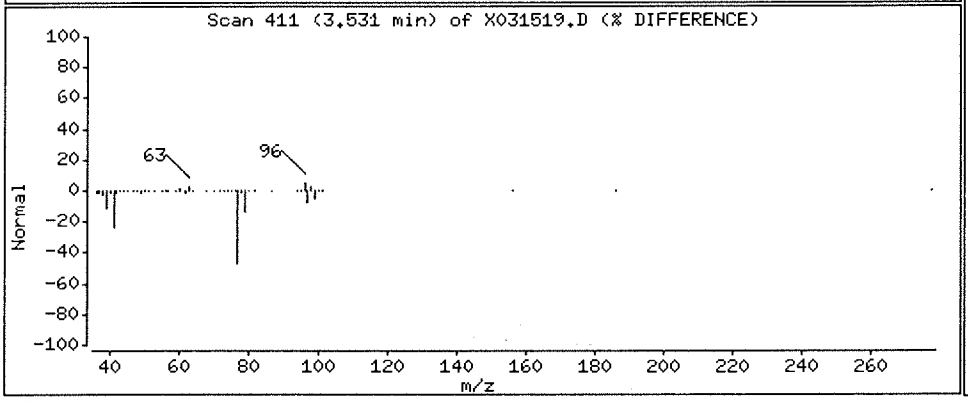












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031519.D

Date : 15-MAR-2020 17:57

Client ID: HS20030383-05

Instrument: voa6.i

Sample Info: HS20030383-05;HS20030383-05;;;

Purge Volume: 5.0

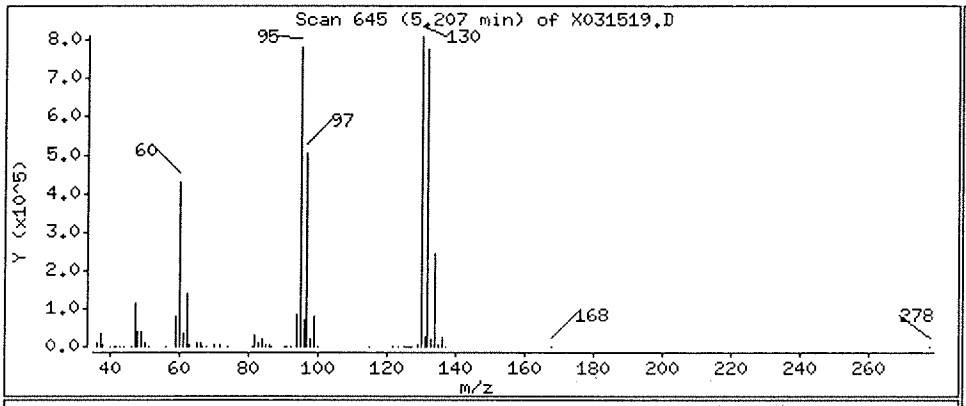
Operator: PC

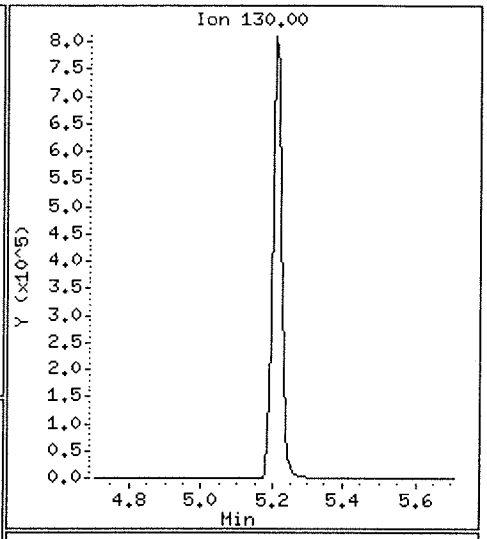
Column phase: DB624

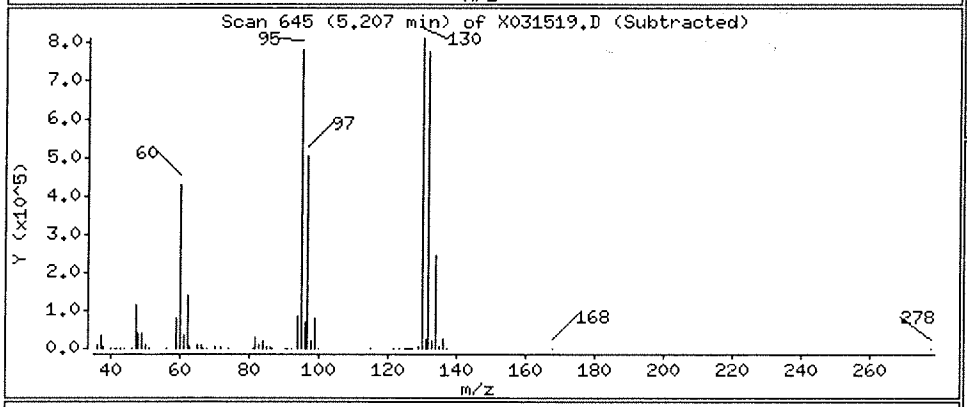
Column diameter: 0.18

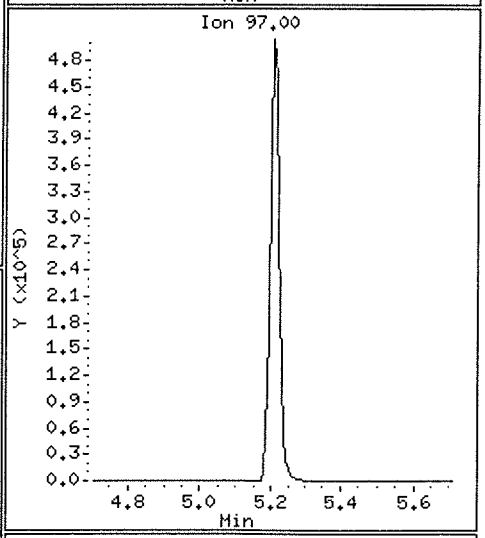
38 Trichloroethene

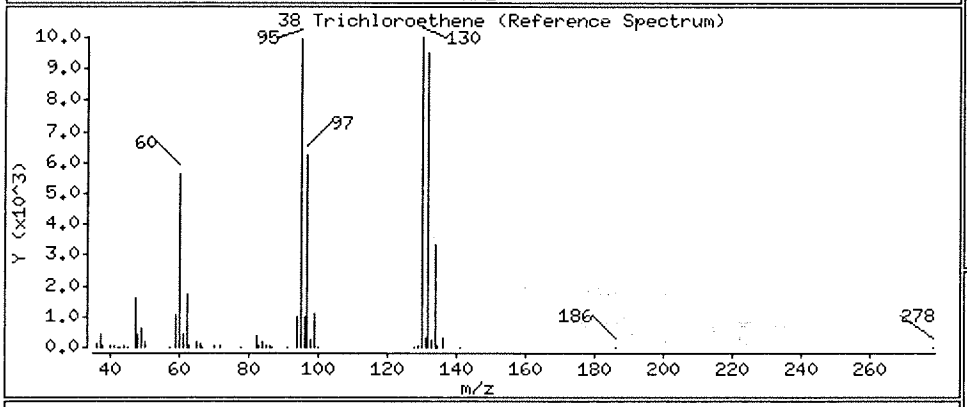
Concentration: 2464.99 ug/l

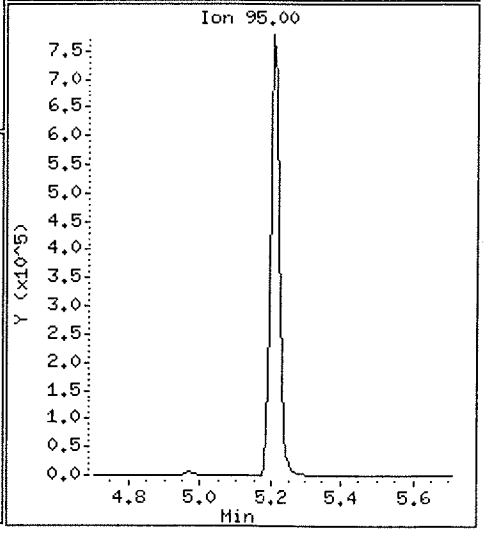


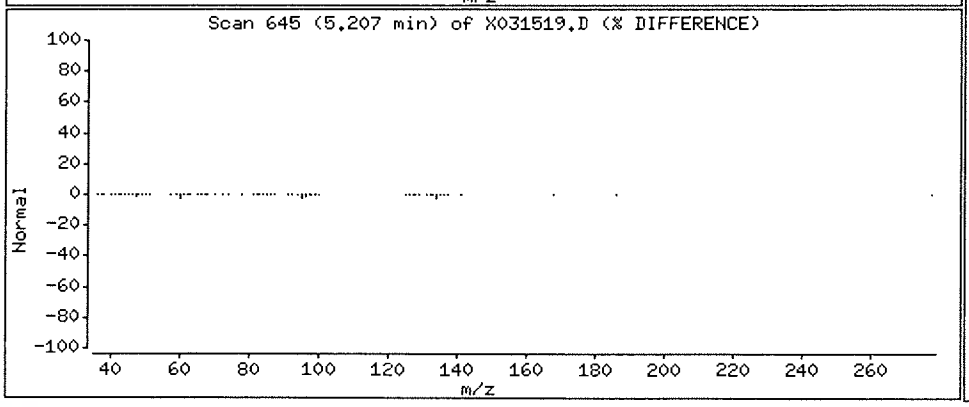












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Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031520.D
Lab Smp Id: HS20030383-05 Client Smp ID: HS20030383-05
Inj Date : 15-MAR-2020 18:21
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-05;HS20030383-05;;;
Misc Info : HS18090001;WATER;0;50;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 19
Dil Factor: 50.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	50.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

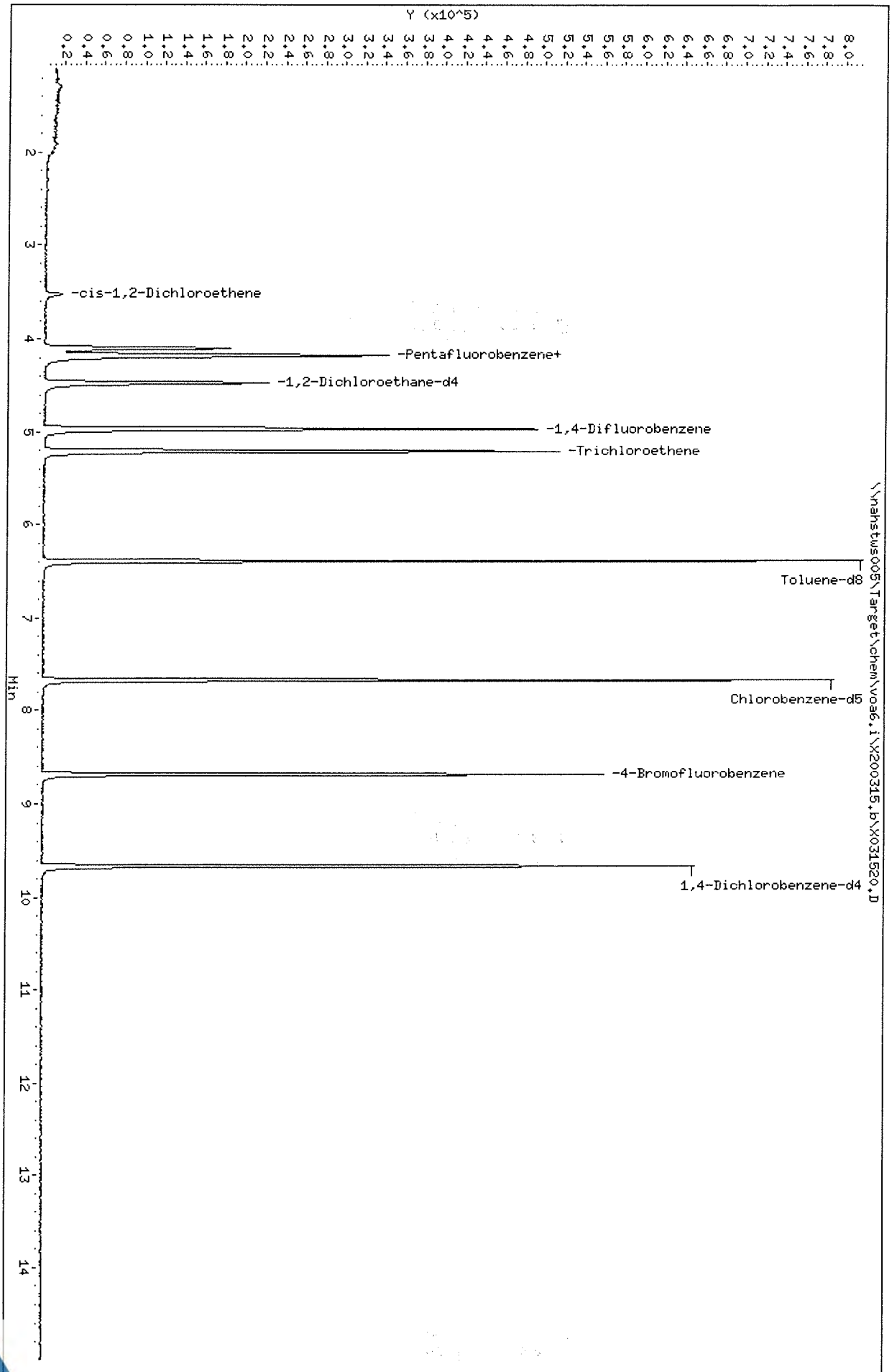
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	270673	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	380331	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	331272	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	150694	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	130843	45.4185	45.41
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	187619	45.7074	45.70
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	441661	53.4677	53.46
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	152933	47.2712	47.27
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	7531	2.72850	136.42(a)
38 Trichloroethene	130	5.206	5.206	(1.048)	166332	60.6548	3032.73

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031520.D
Date : 15-MAR-2020 18:21
Client ID: HS20030383-05
Sample Info: HS20030383-05;HS20030383-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031520.D

Date : 15-MAR-2020 18:21

Client ID: HS20030383-05

Instrument: voa6.i

Sample Info: HS20030383-05;HS20030383-05;;;

Purge Volume: 5.0

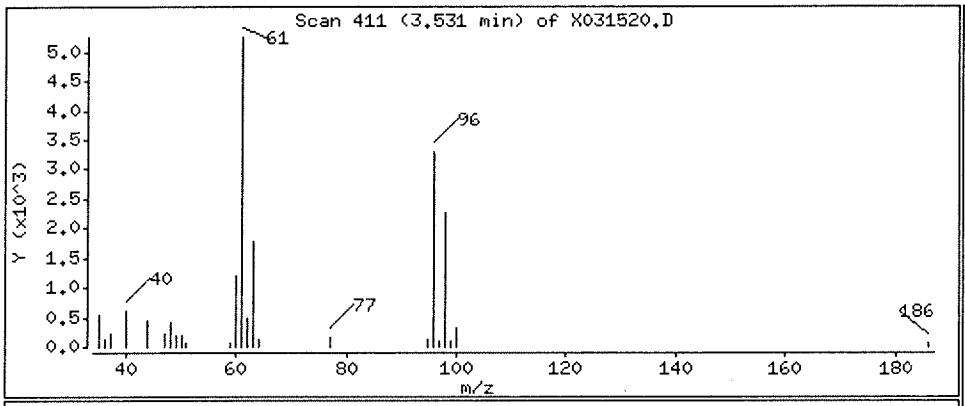
Operator: PC

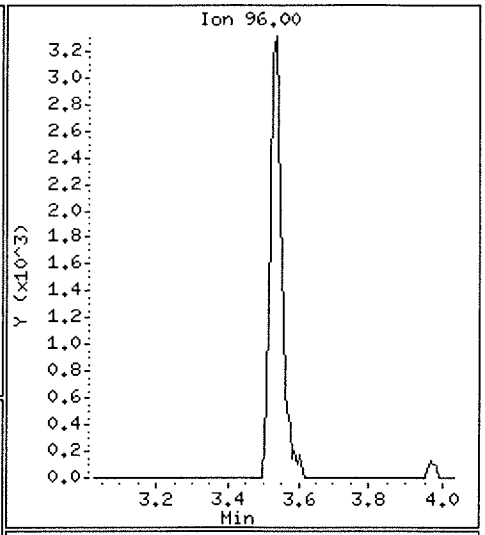
Column phase: DB624

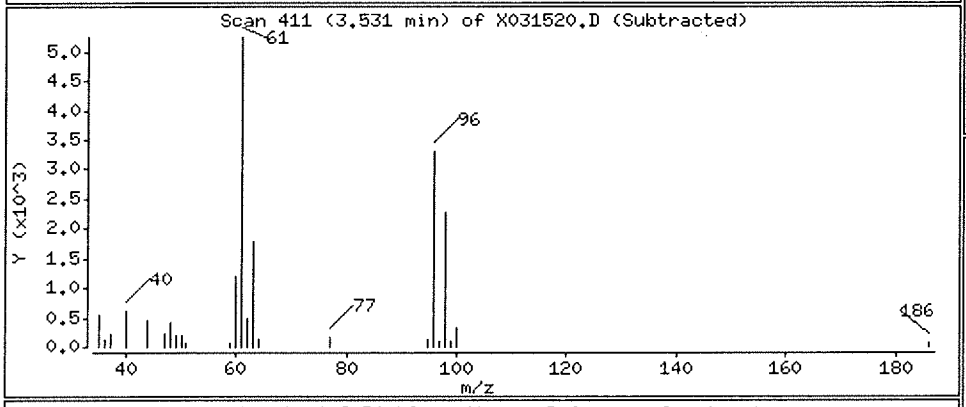
Column diameter: 0.18

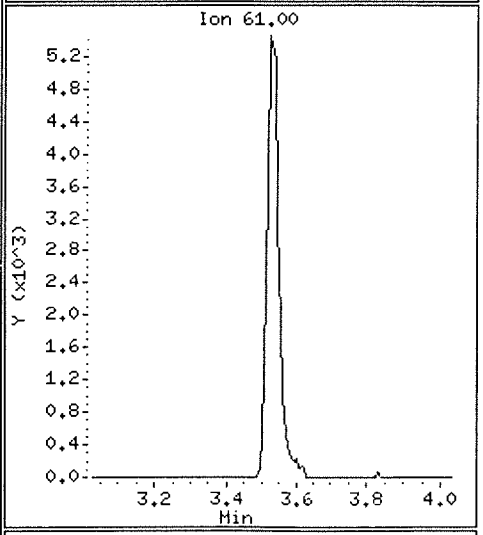
27 cis-1,2-Dichloroethene

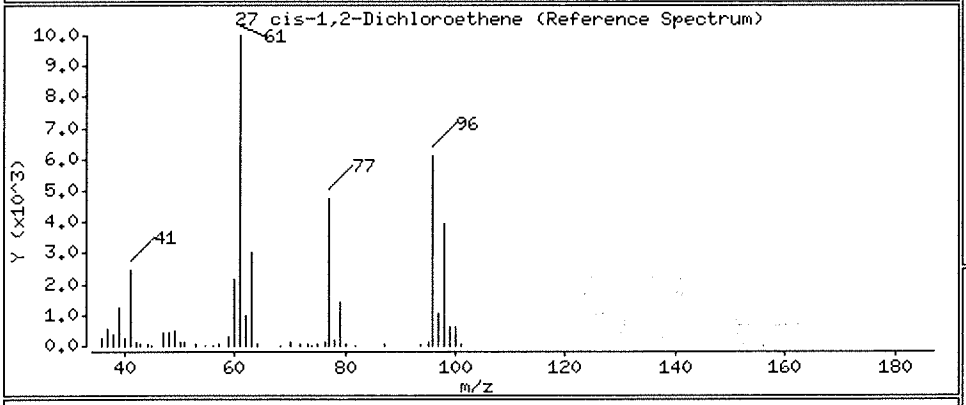
Concentration: 136.42 ug/l

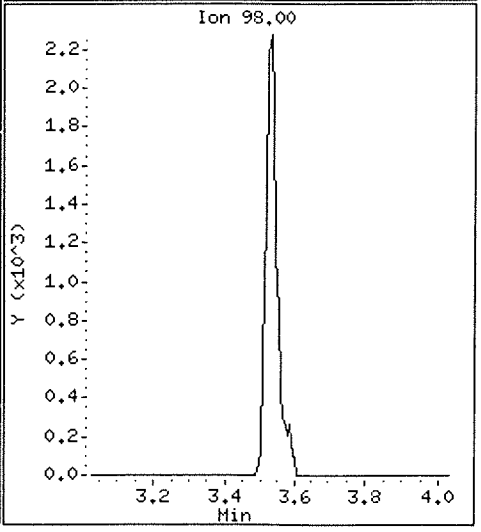


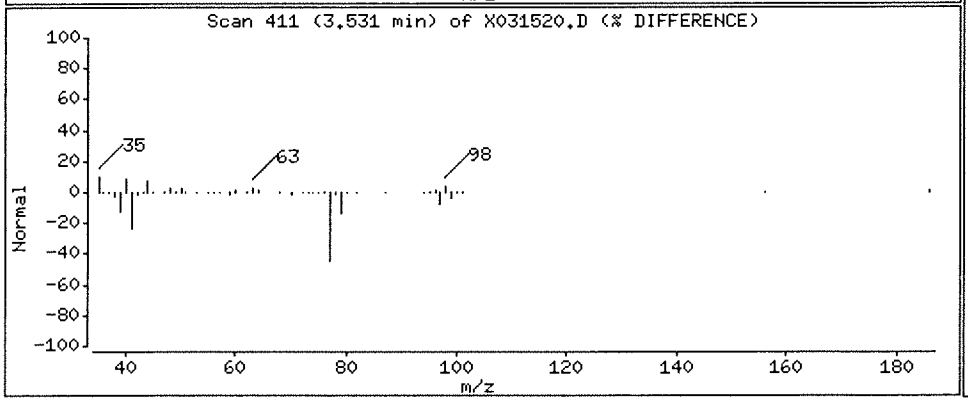












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031520.D

Date : 15-MAR-2020 18:21

Client ID: HS20030383-05

Instrument: voa6.i

Sample Info: HS20030383-05;HS20030383-05;;;

Purge Volume: 5.0

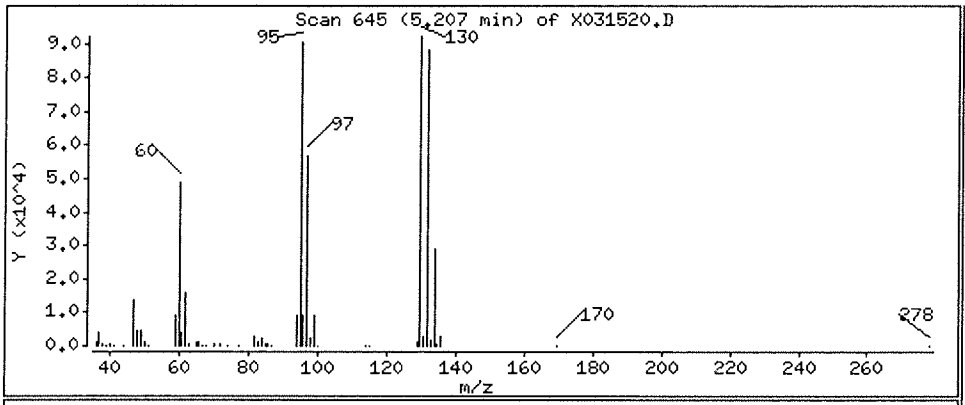
Operator: PC

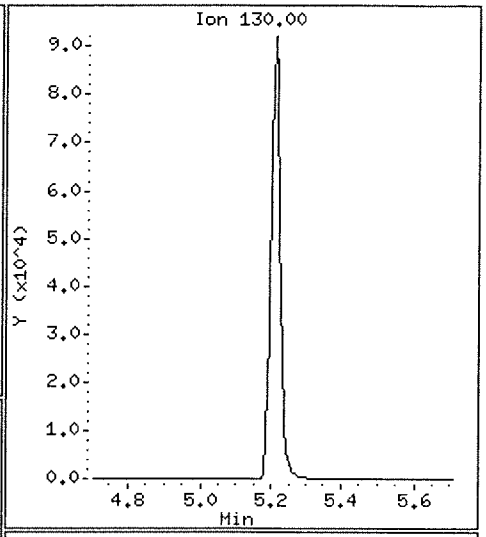
Column phase: DB624

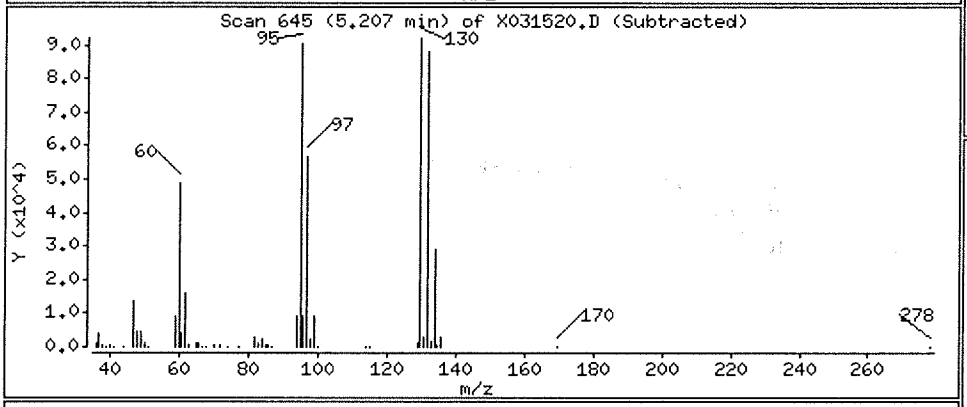
Column diameter: 0.18

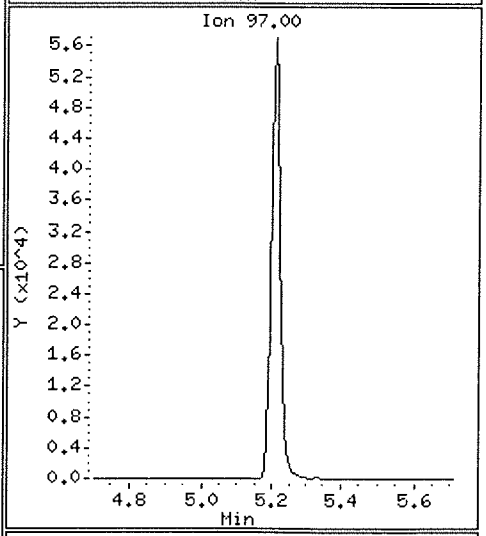
38 Trichloroethene

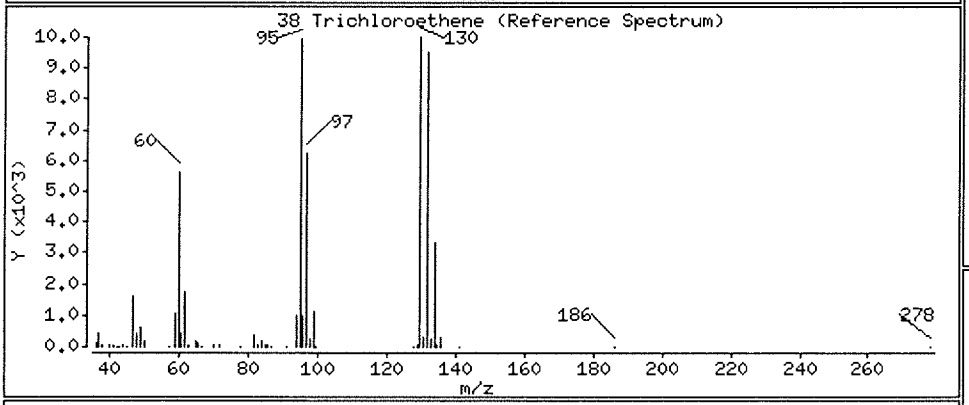
Concentration: 3032.73 ug/l

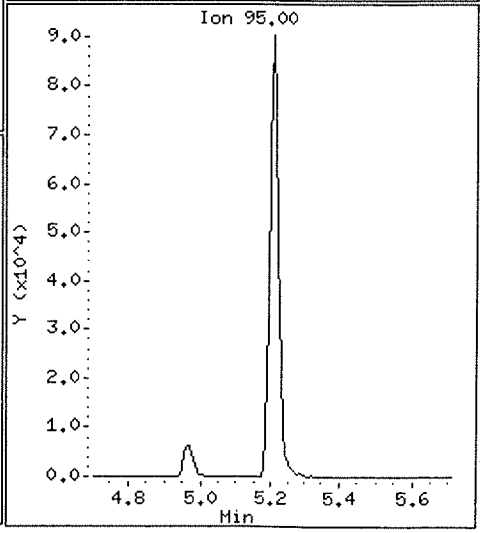


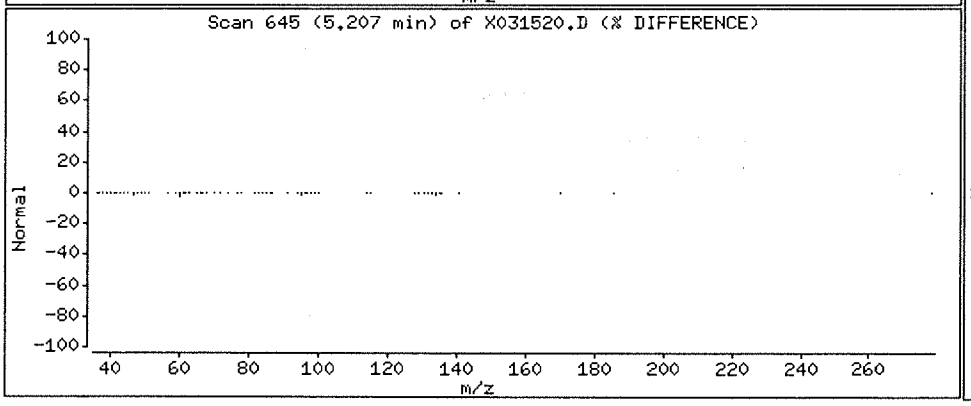












ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031521.D
Lab Smp Id: HS20030383-02 Client Smp ID: HS20030383-02
Inj Date : 15-MAR-2020 18:45
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-02;HS20030383-02;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 20
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

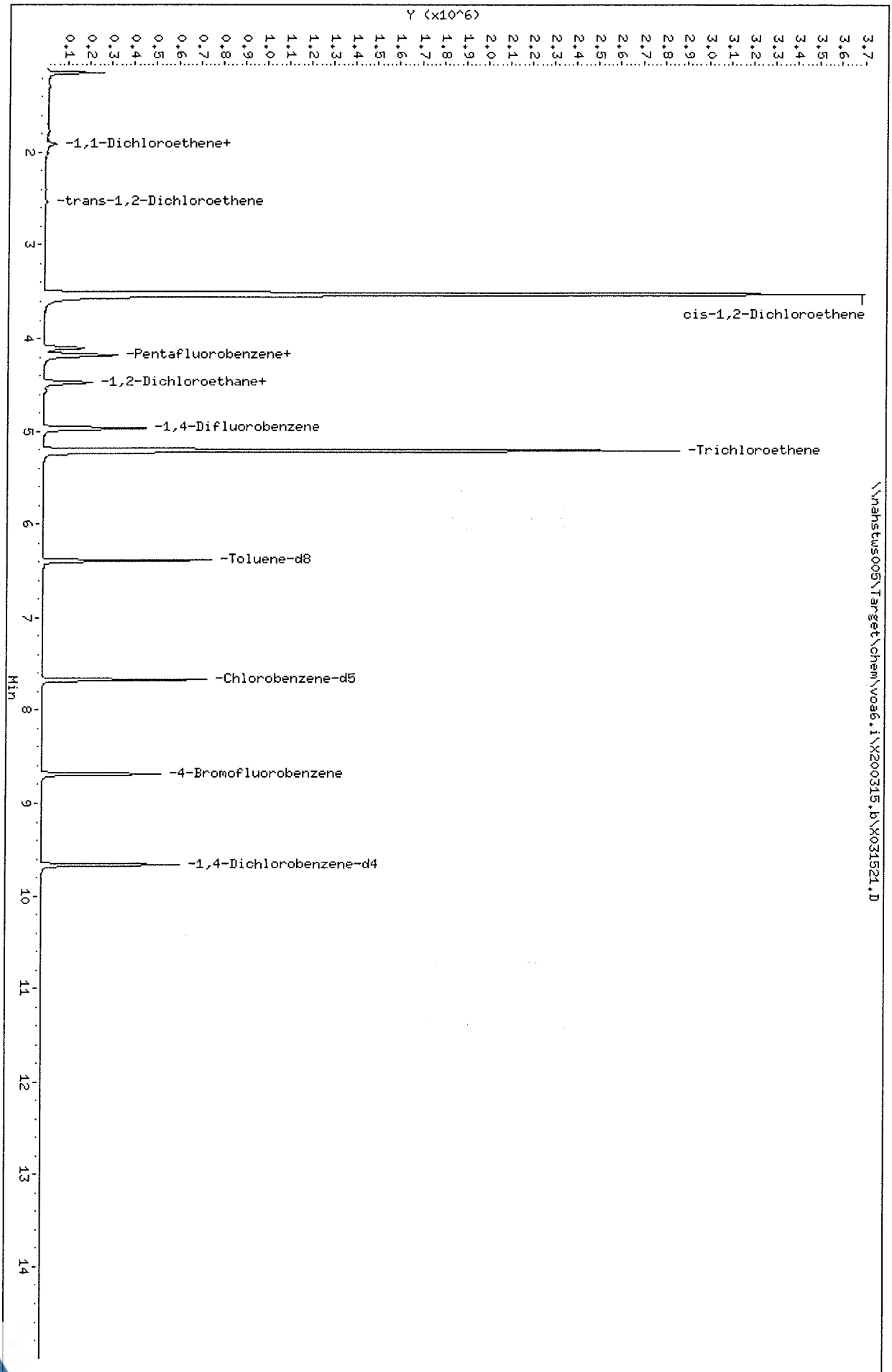
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	256126	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	366682	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	311343	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	147260	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	124882	45.8090	45.80
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	178309	45.9053	45.90
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	415577	53.5303	53.53
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	150682	49.5501	49.55
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	5826	2.74388	27.43
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	11194	2.40953	24.09
27 cis-1,2-Dichloroethene	96	3.523	3.530	(0.842)	1688561	646.516	6465.15(A)
38 Trichloroethene	130	5.206	5.206	(1.048)	923404	349.263	3492.63(A)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	180090	52.5794	525.79

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031521.D
Date : 15-MAR-2020 18:45
Client ID: HS20030383-02
Sample Info: HS20030383-02;HS20030383-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031521.D

Date : 15-MAR-2020 18:45

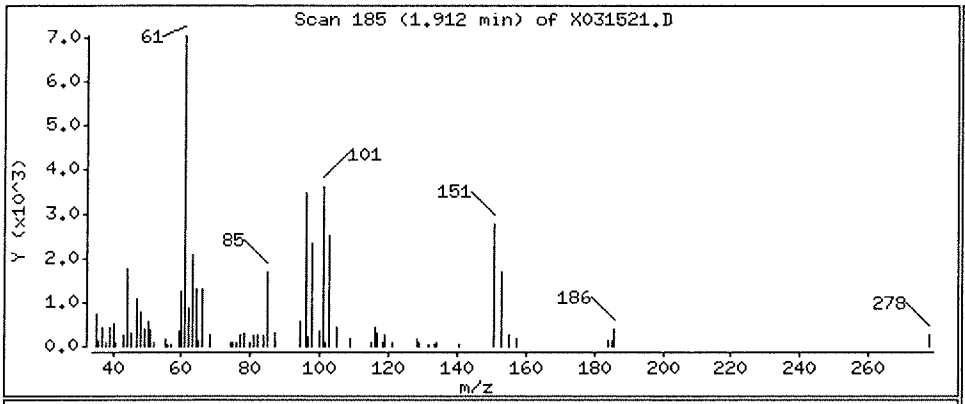
Client ID: HS20030383-02 Instrument: voa6.i

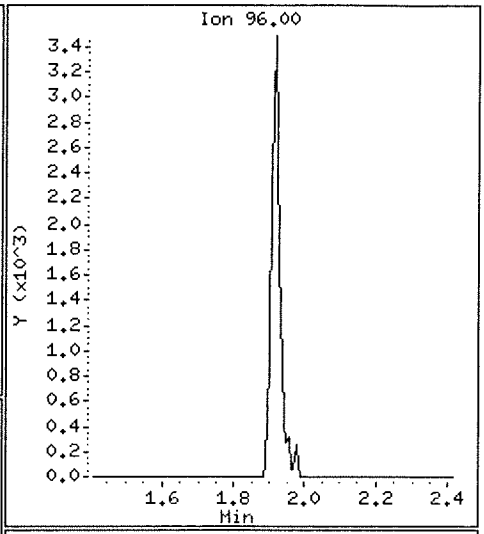
Sample Info: HS20030383-02;HS20030383-02;;;

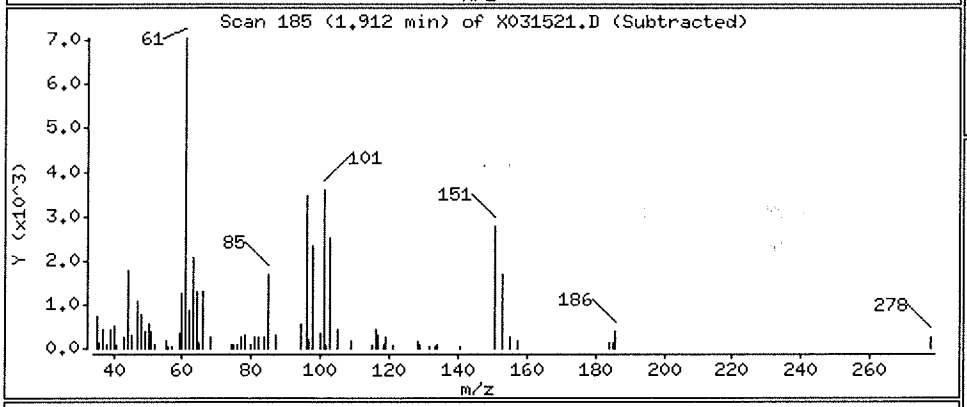
Purge Volume: 5.0 Operator: PC

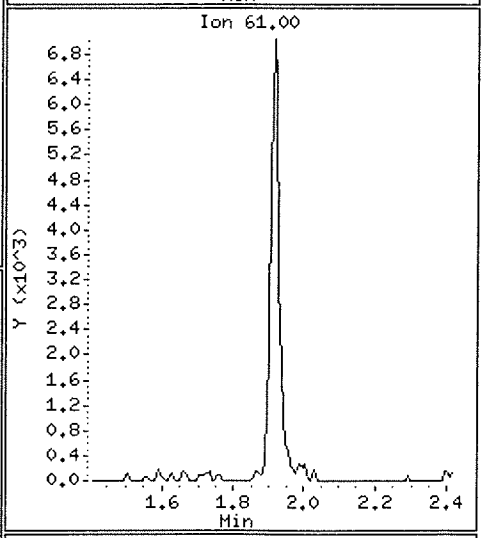
Column phase: DB624 Column diameter: 0.18

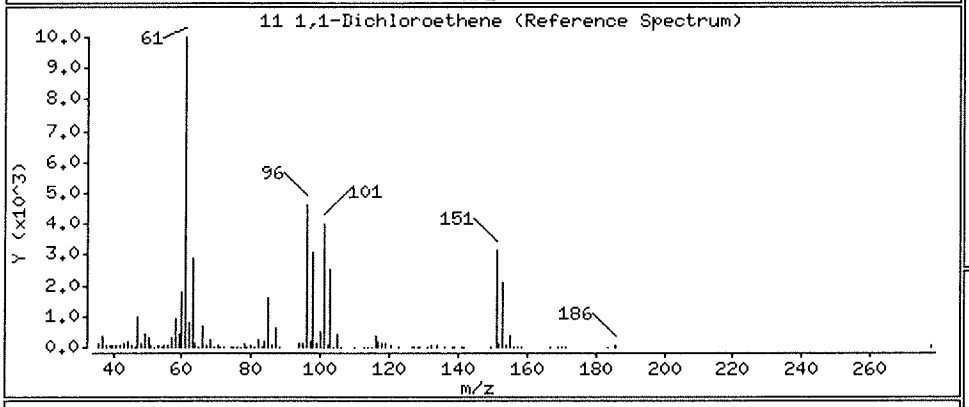
11 1,1-Dichloroethene Concentration: 27.43 ug/l

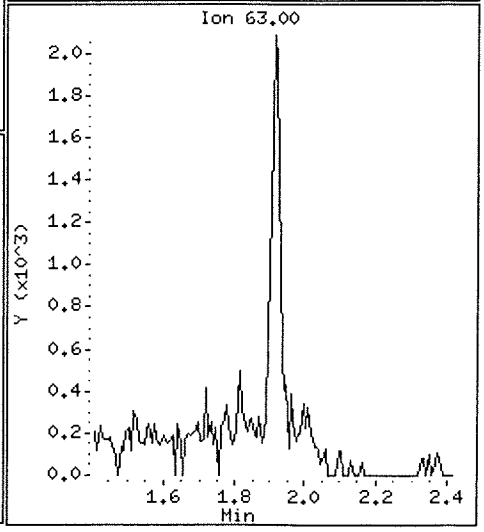


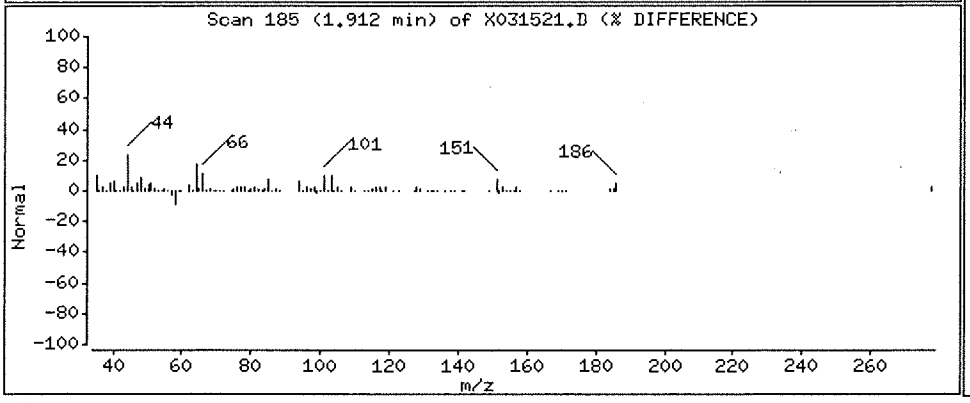












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031521.D

Date : 15-MAR-2020 18:45

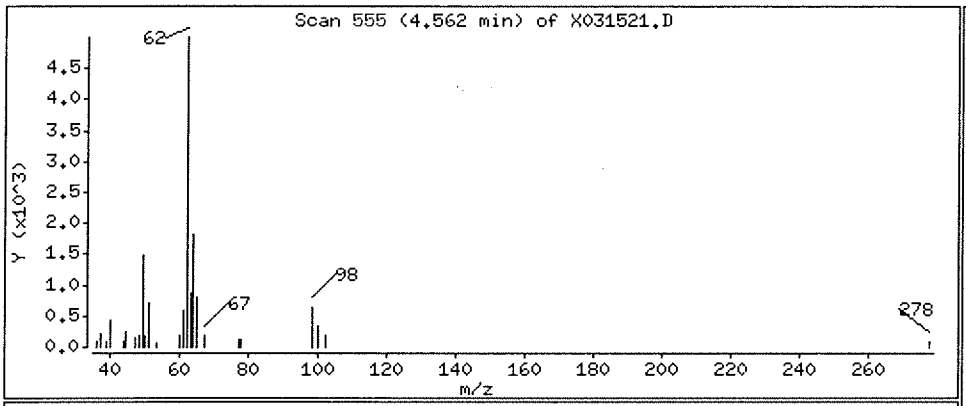
Client ID: HS20030383-02 Instrument: voa6.i

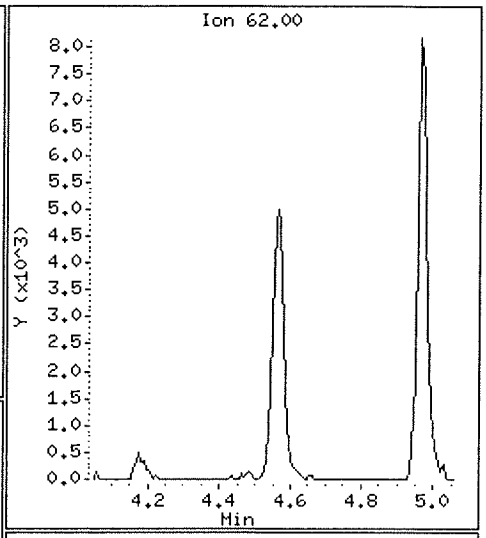
Sample Info: HS20030383-02;HS20030383-02;;;

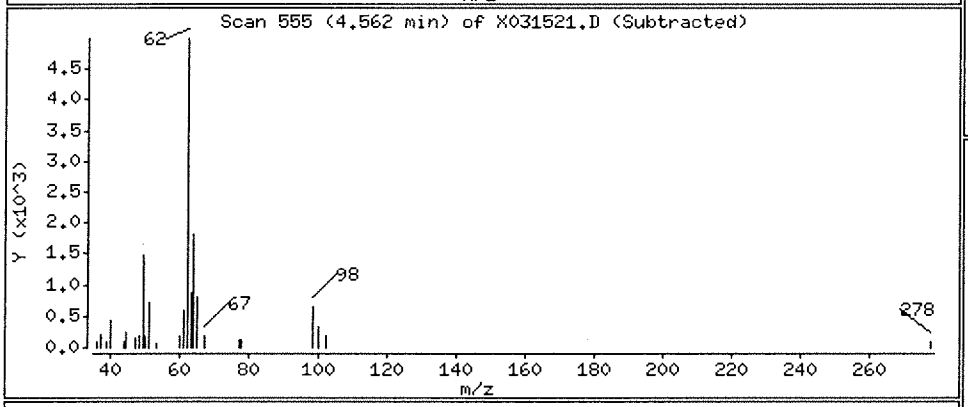
Purge Volume: 5.0 Operator: PC

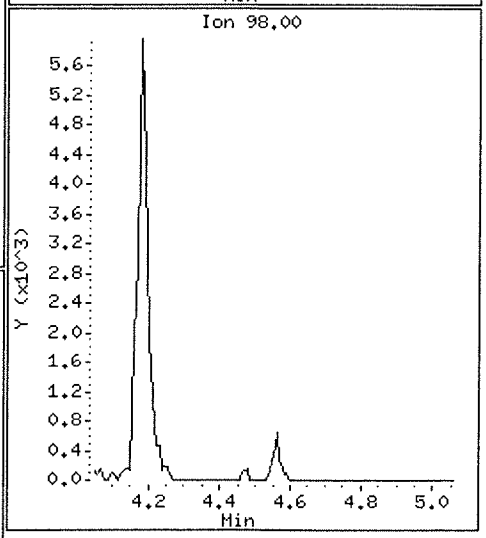
Column phase: DB624 Column diameter: 0.18

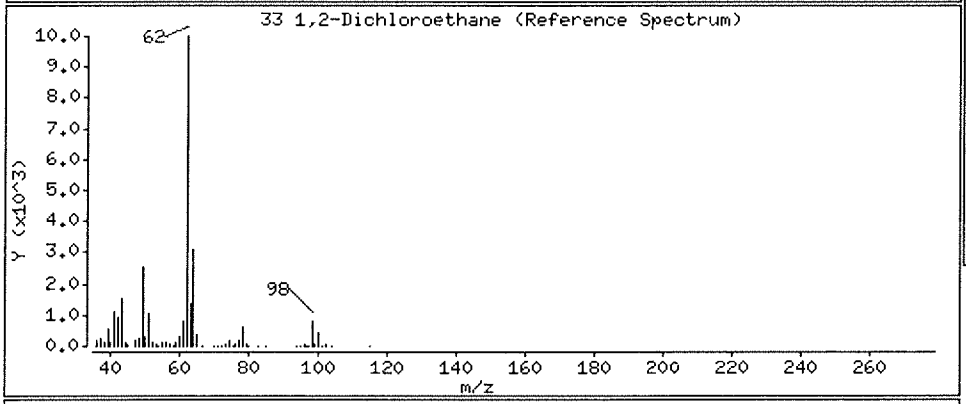
33 1,2-Dichloroethane Concentration: 24.09 ug/l

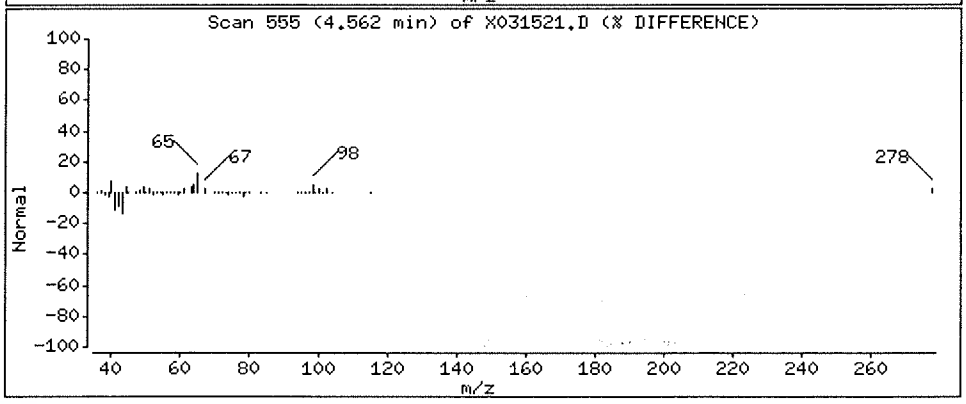












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031521.D Page 5

Date : 15-MAR-2020 18:45

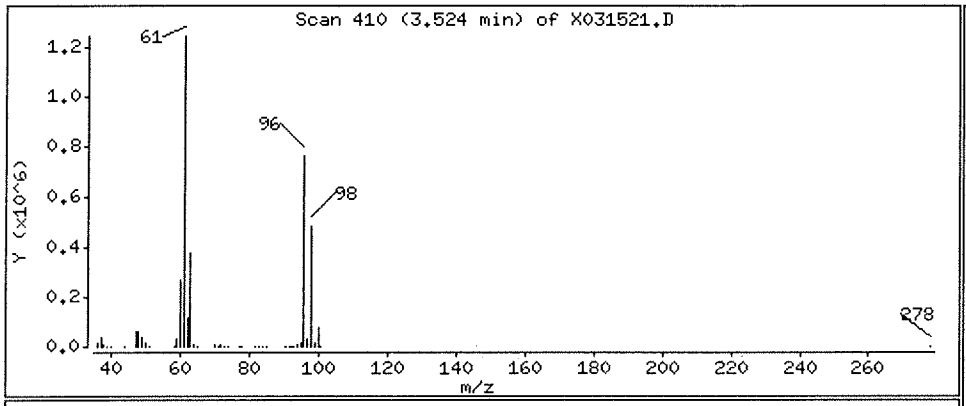
Client ID: HS20030383-02 Instrument: voa6.i

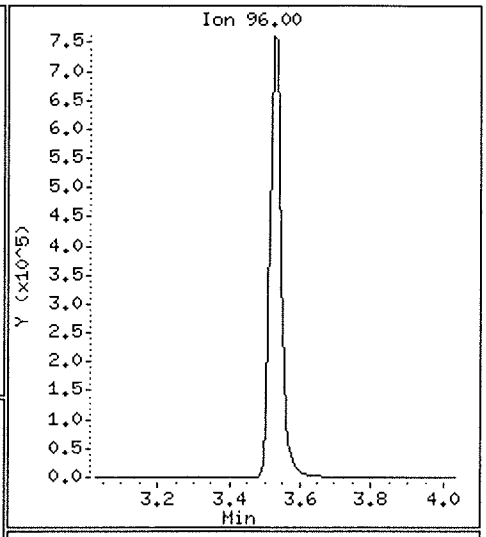
Sample Info: HS20030383-02;HS20030383-02;;;

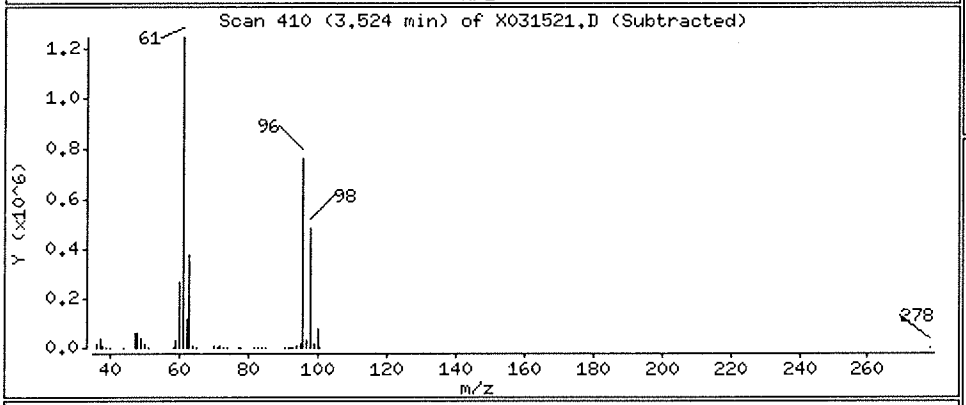
Purge Volume: 5.0 Operator: PC

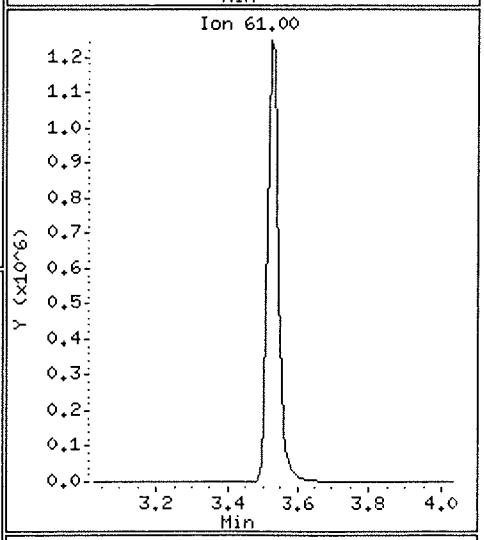
Column phase: DB624 Column diameter: 0.18

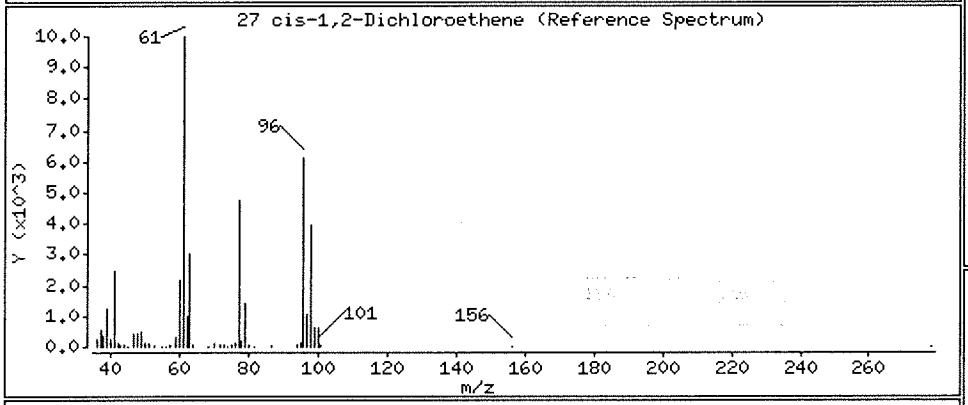
27 cis-1,2-Dichloroethene Concentration: 6465.15 ug/l

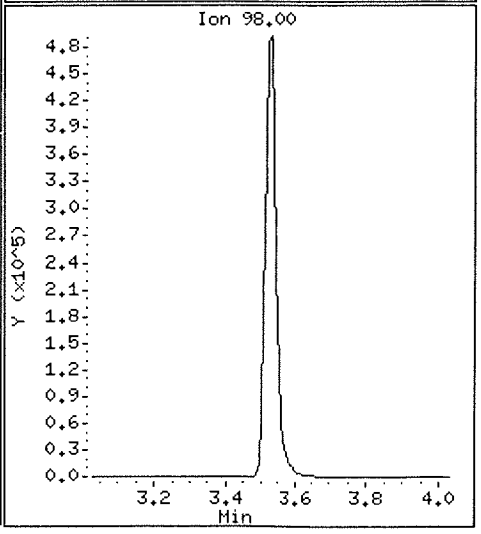


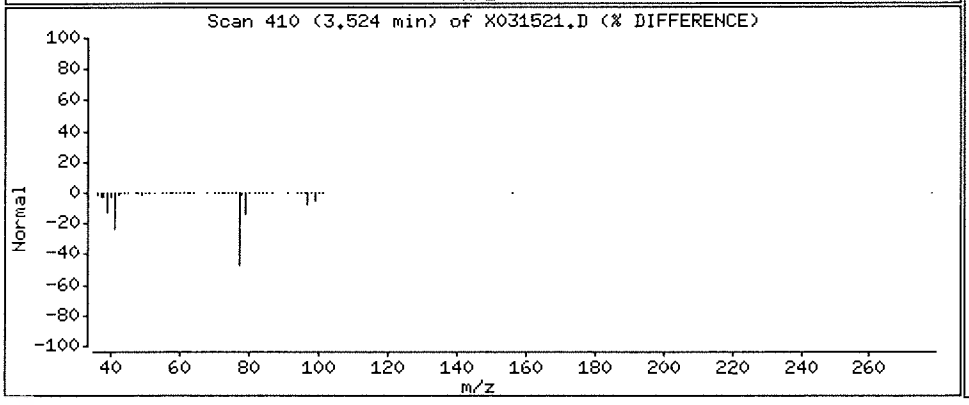












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031521.D

Date : 15-MAR-2020 18:45

Client ID: HS20030383-02

Instrument: voa6.i

Sample Info: HS20030383-02;HS20030383-02;;;

Purge Volume: 5.0

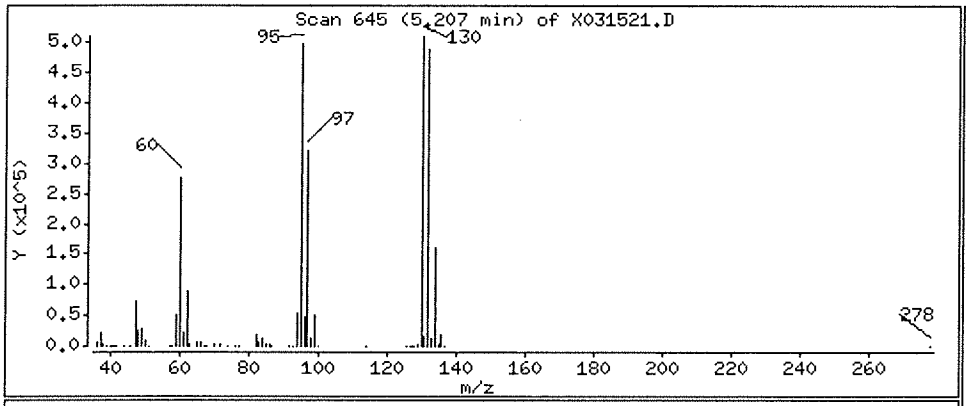
Operator: PC

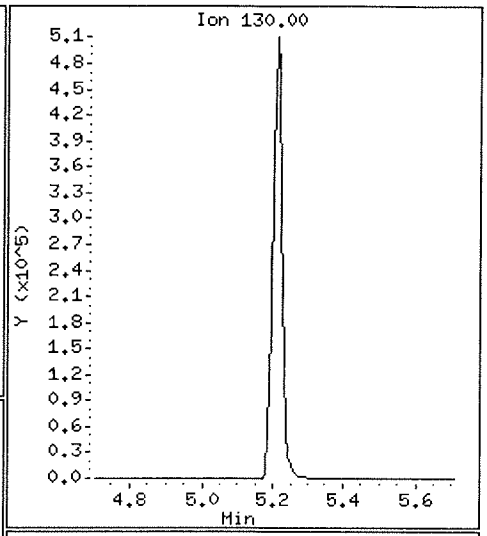
Column phase: DB624

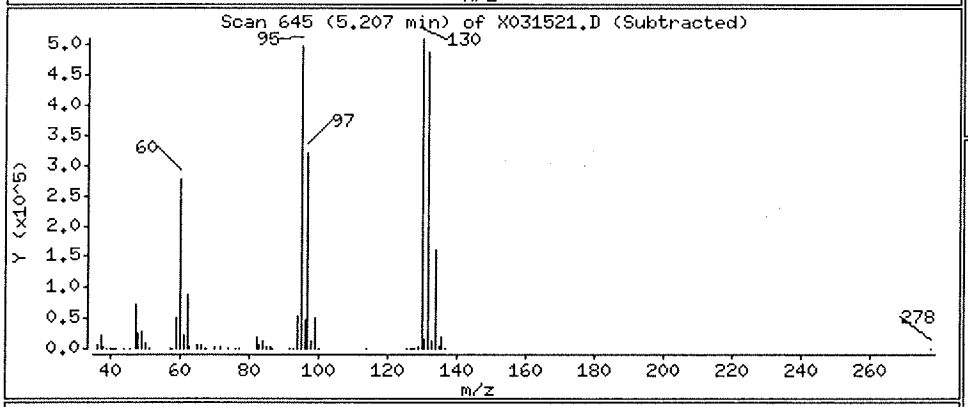
Column diameter: 0.18

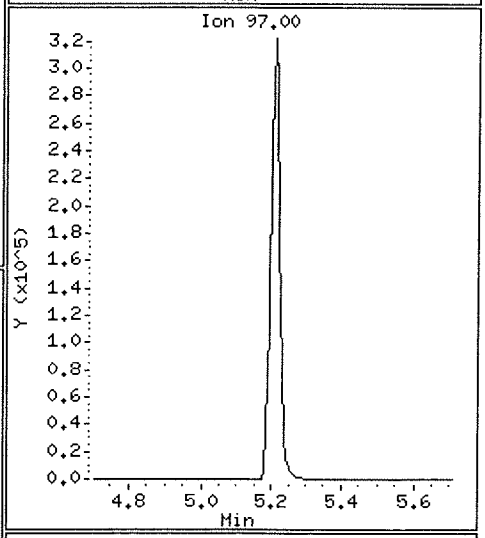
38 Trichloroethene

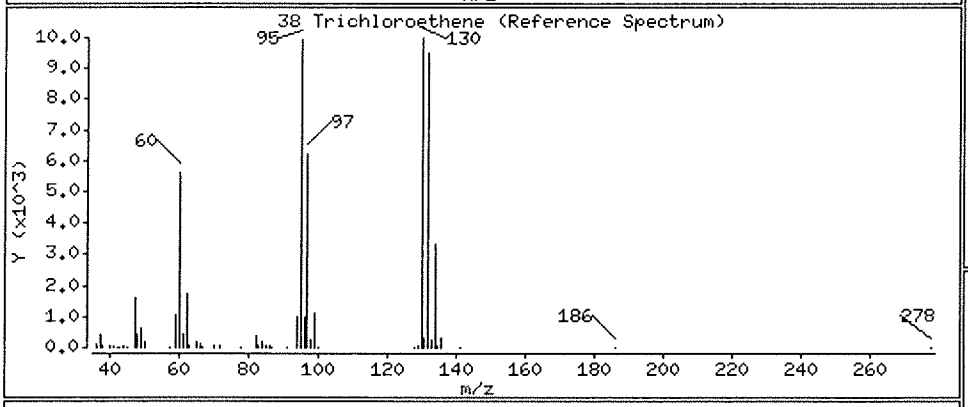
Concentration: 3492.63 ug/l

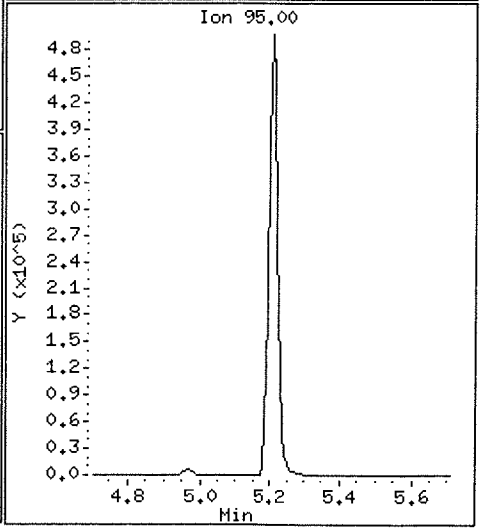


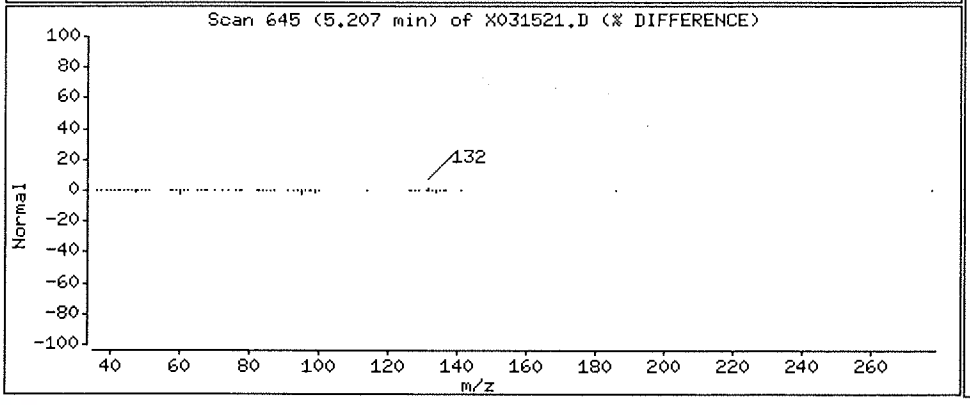












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031521.D

Date : 15-MAR-2020 18:45

Client ID: HS20030383-02

Instrument: voa6.i

Sample Info: HS20030383-02;HS20030383-02;;;

Purge Volume: 5.0

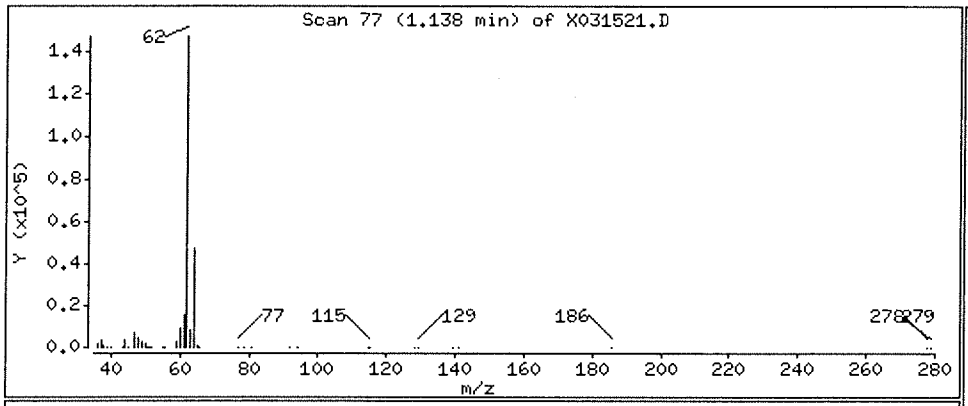
Operator: PC

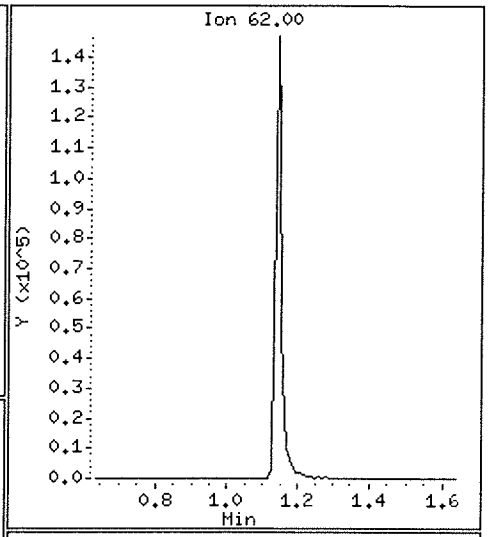
Column phase: DB624

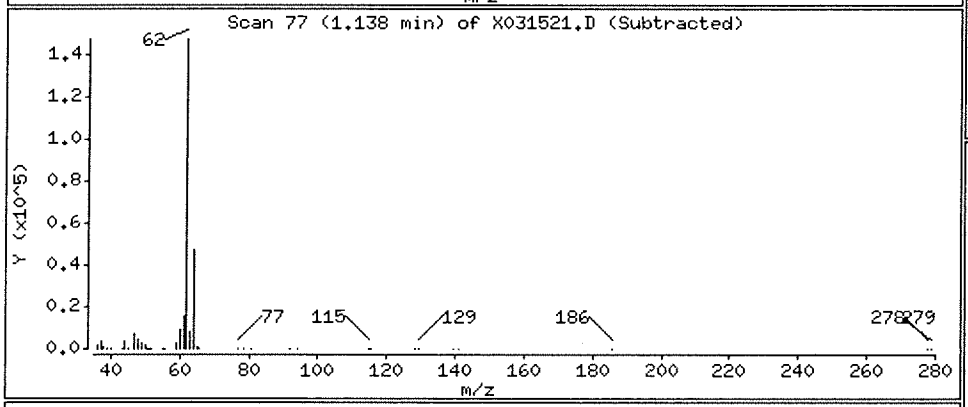
Column diameter: 0.18

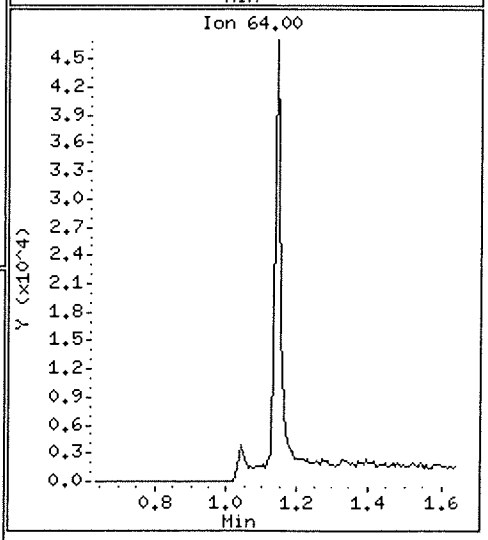
5 Vinyl Chloride

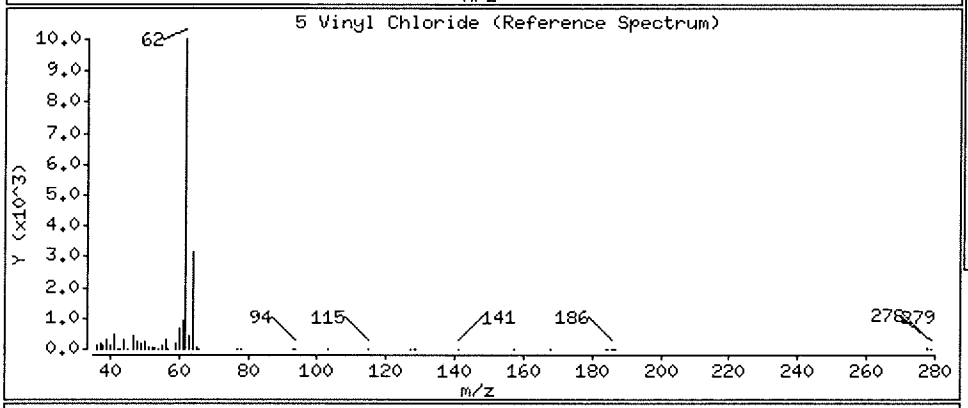
Concentration: 525.79 ug/l

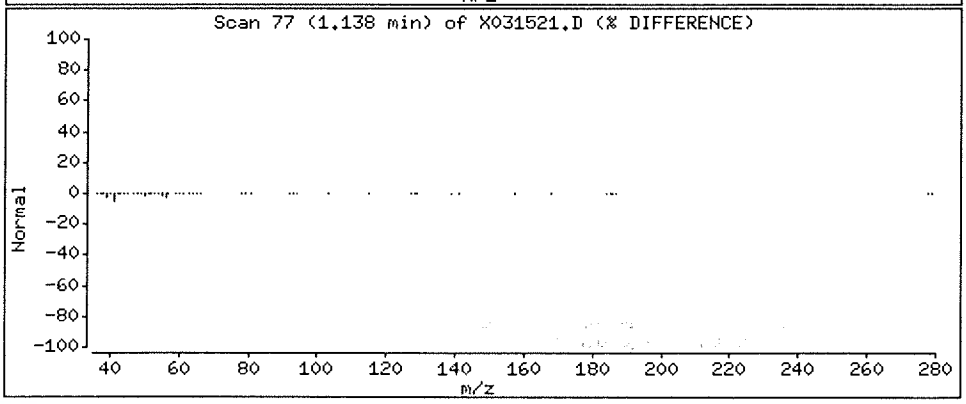












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031522.D Page 1
Report Date: 02-Apr-2020 11:47

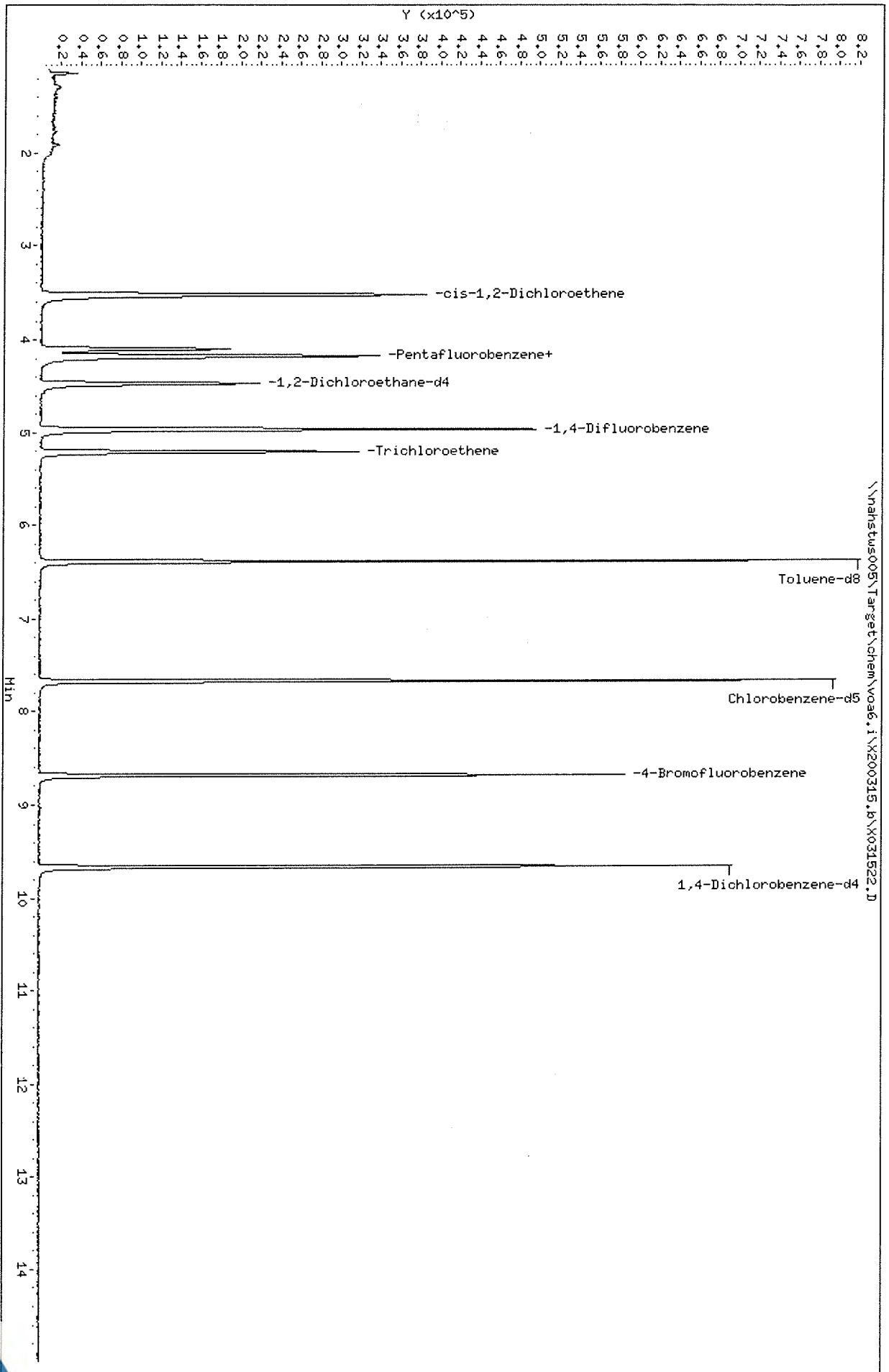
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031522.D
Lab Smp Id: HS20030383-02 Client Smp ID: HS20030383-02
Inj Date : 15-MAR-2020 19:09
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-02;HS20030383-02;;;
Misc Info : HS18090001;WATER;0;100;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 21
Dil Factor: 100.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	100.000	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	4.182	4.182	(1.000)	270109	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	383365	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	334871	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	161089	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	130698	45.4627	45.46
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	187201	45.7009	45.70
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	439378	52.6205	52.62
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	160138	48.9614	48.96
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	178114	64.6659	6466.58
38 Trichloroethene	130	5.207	5.206	(1.048)	101578	36.7484	3674.83
5 Vinyl Chloride	62	1.138	1.138	(0.272)	18455	5.10922	510.92



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Date : 15-MAR-2020 19:09
Client ID: HS20030383-02
Sample Info: HS20030383-02;HS20030383-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031522.D Page 3

Date : 15-MAR-2020 19:09

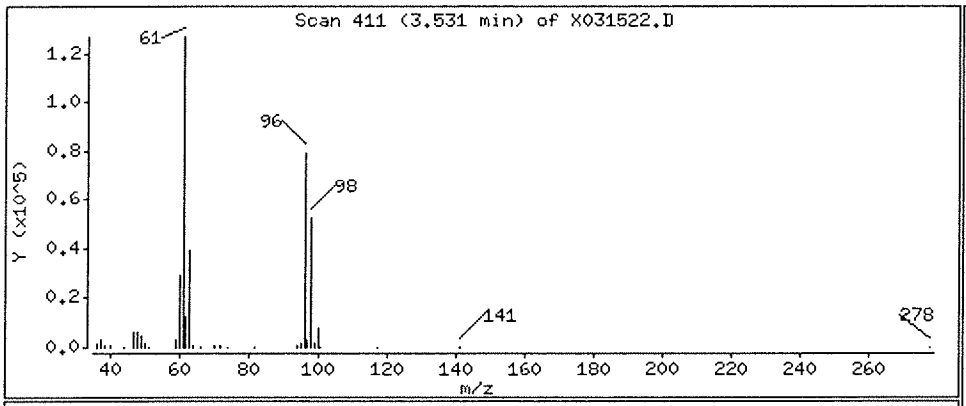
Client ID: HS20030383-02 Instrument: voa6.i

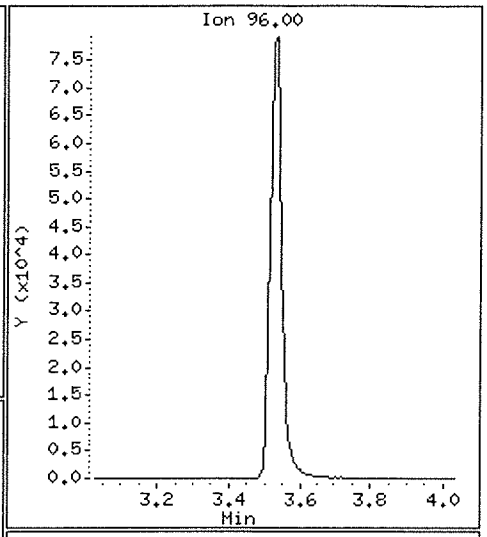
Sample Info: HS20030383-02;HS20030383-02;;;

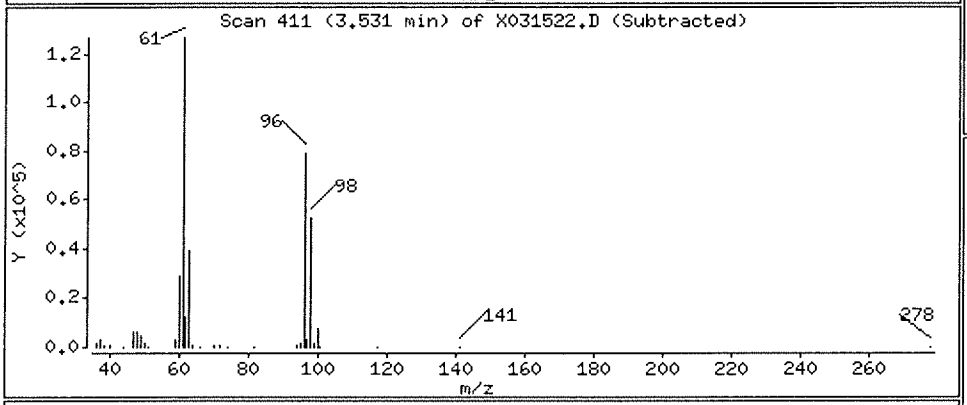
Purge Volume: 5.0 Operator: PC

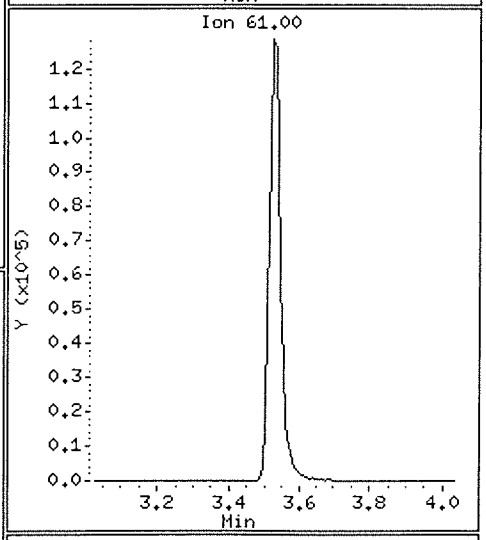
Column phase: DB624 Column diameter: 0.18

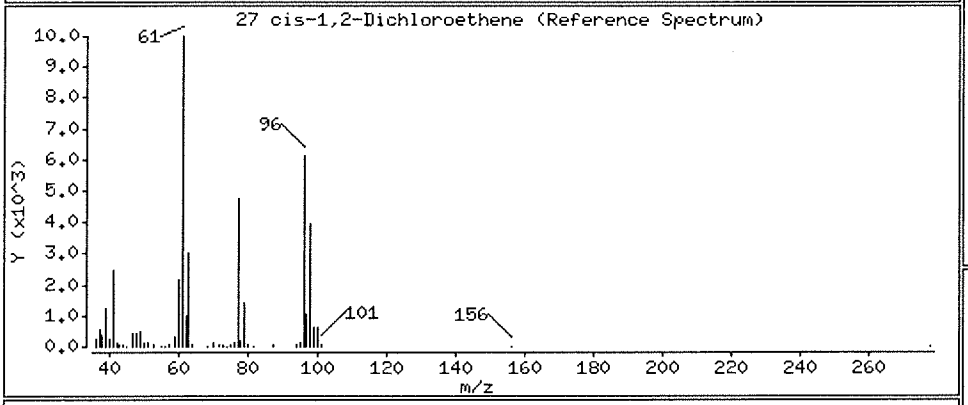
27 cis-1,2-Dichloroethene Concentration: 6466.58 ug/l

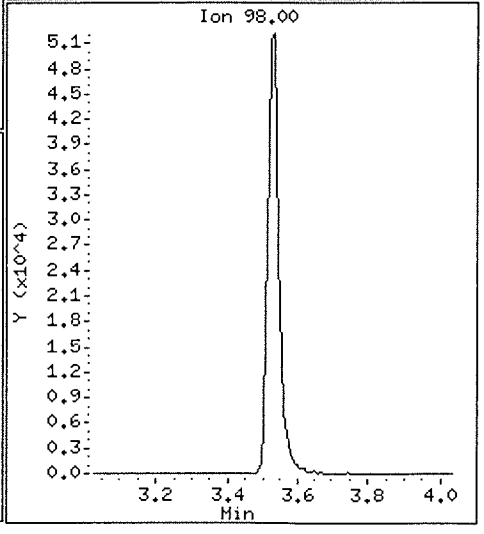


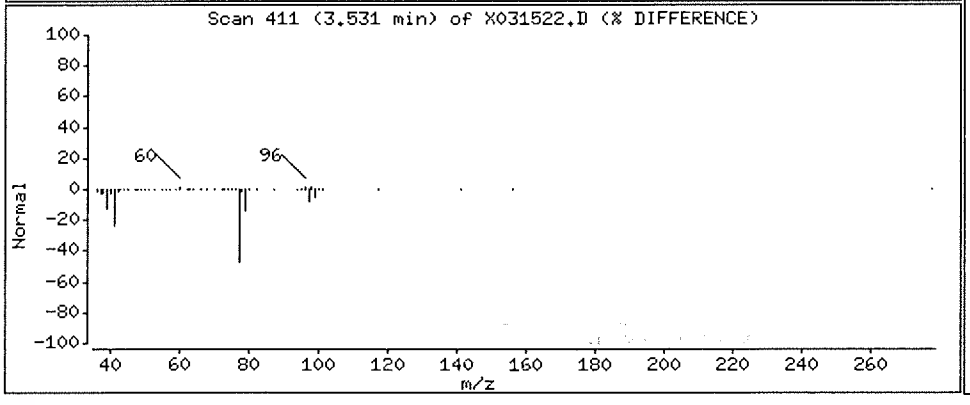












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Date : 15-MAR-2020 19:09

Client ID: HS20030383-02

Instrument: voa6.i

Sample Info: HS20030383-02;HS20030383-02;;;

Purge Volume: 5.0

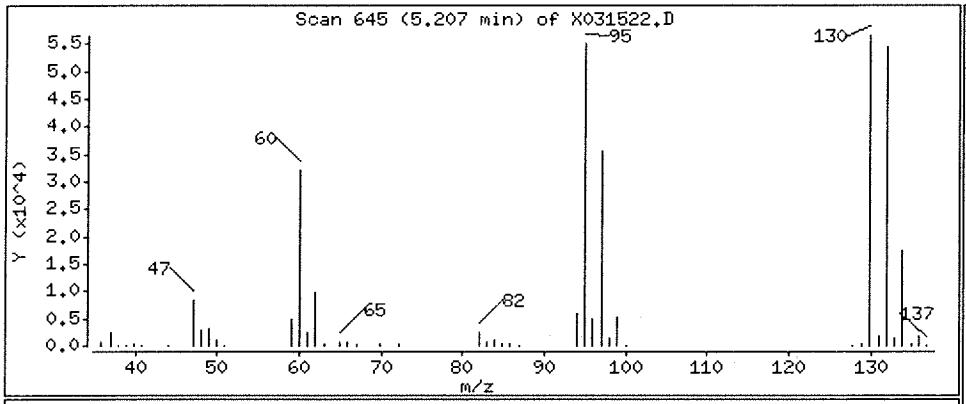
Operator: PC

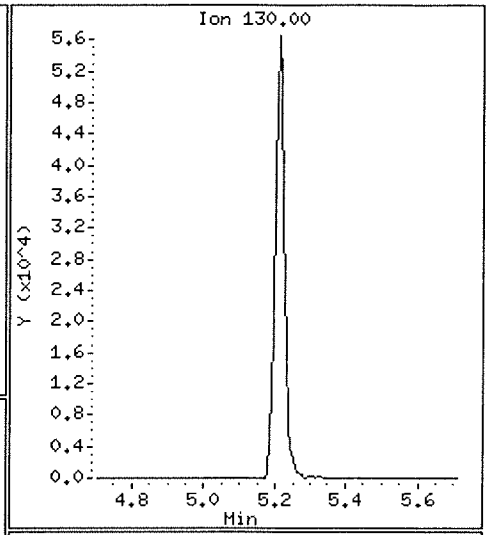
Column phase: DB624

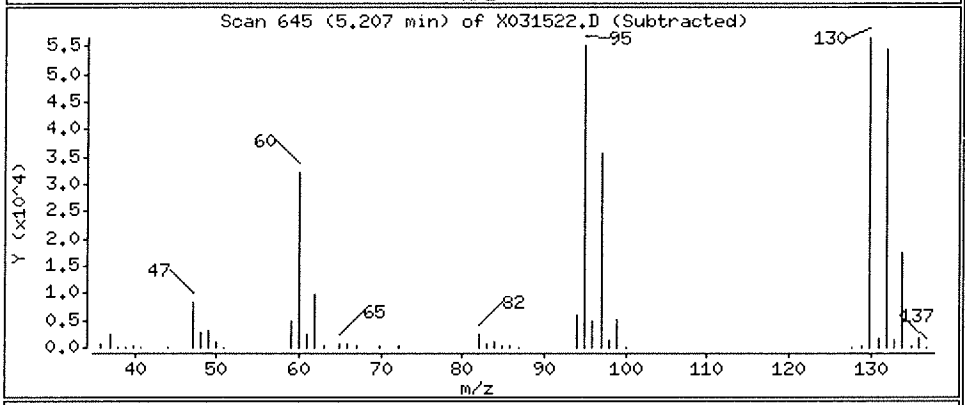
Column diameter: 0.18

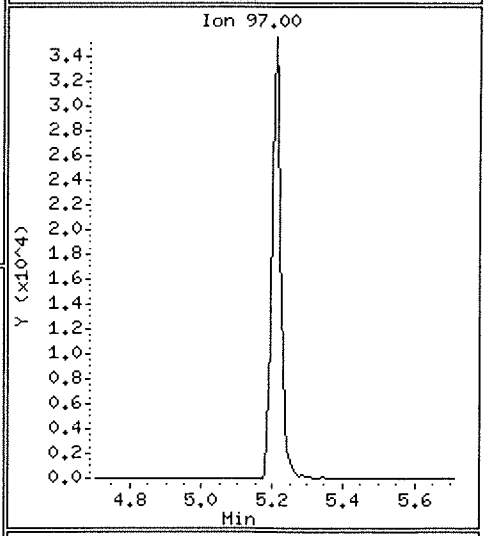
38 Trichloroethene

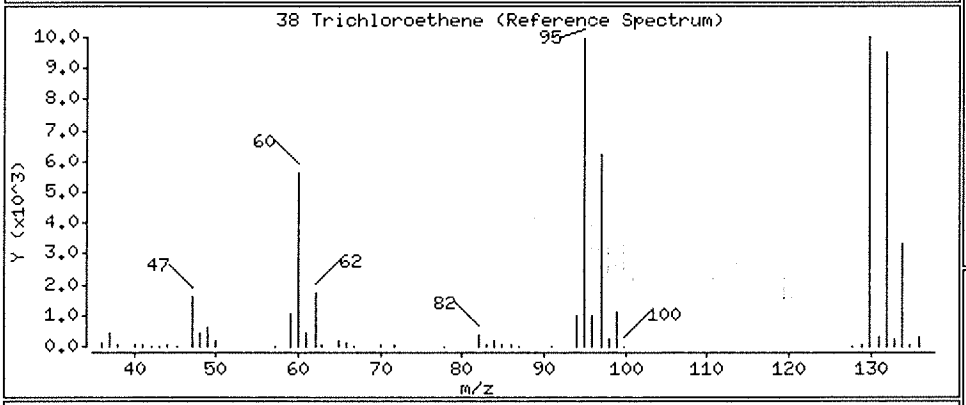
Concentration: 3674.83 ug/l

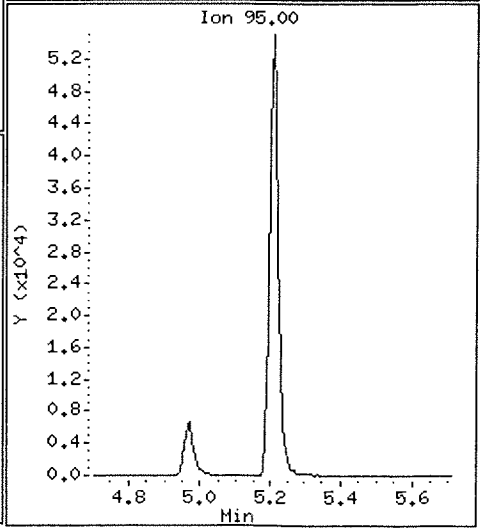


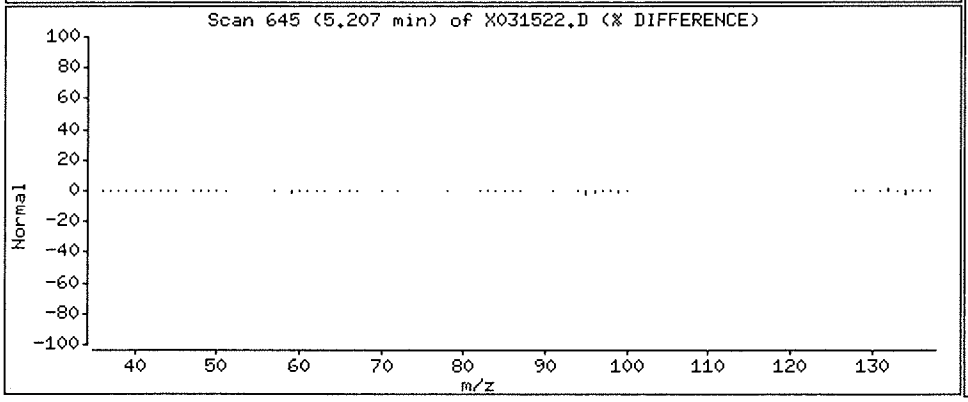












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Date : 15-MAR-2020 19:09

Client ID: HS20030383-02

Instrument: voa6.i

Sample Info: HS20030383-02;HS20030383-02;;;

Purge Volume: 5.0

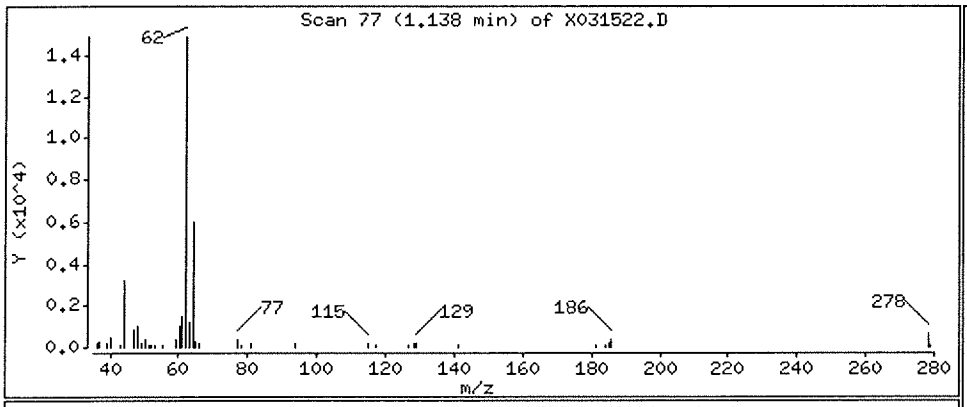
Operator: PC

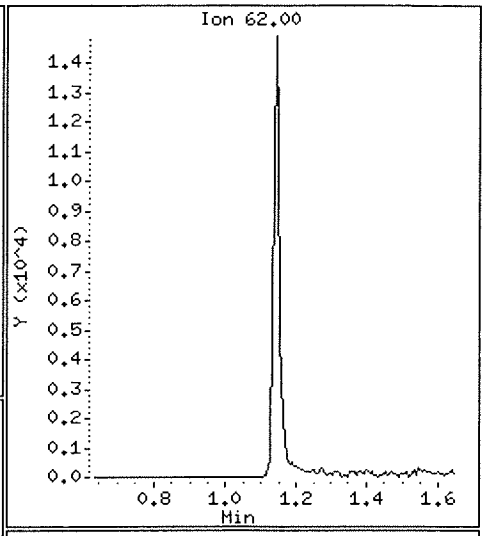
Column phase: DB624

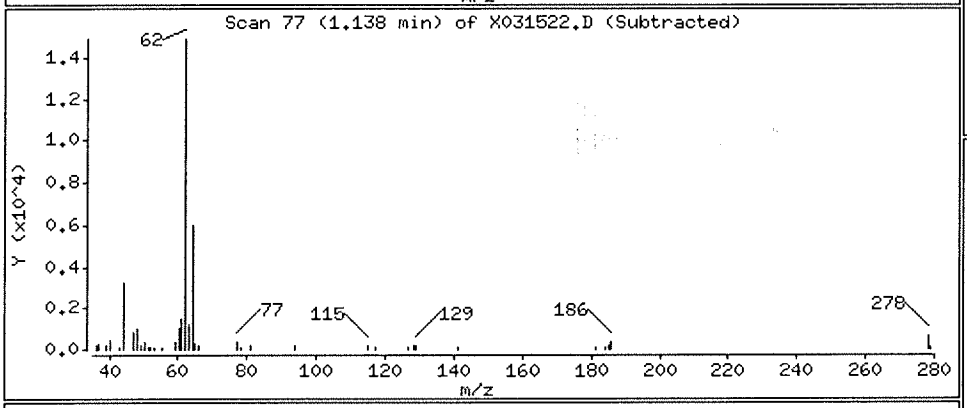
Column diameter: 0.18

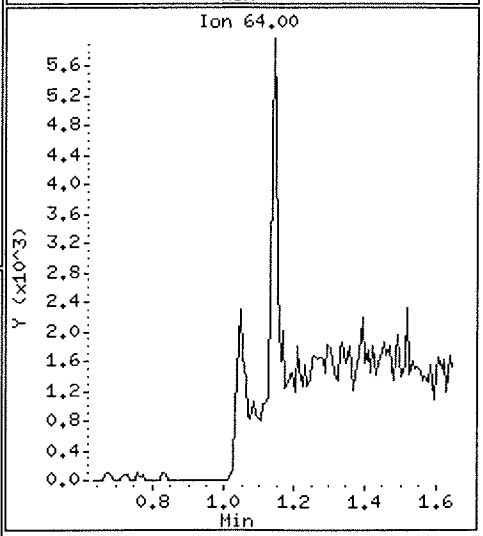
5 Vinyl Chloride

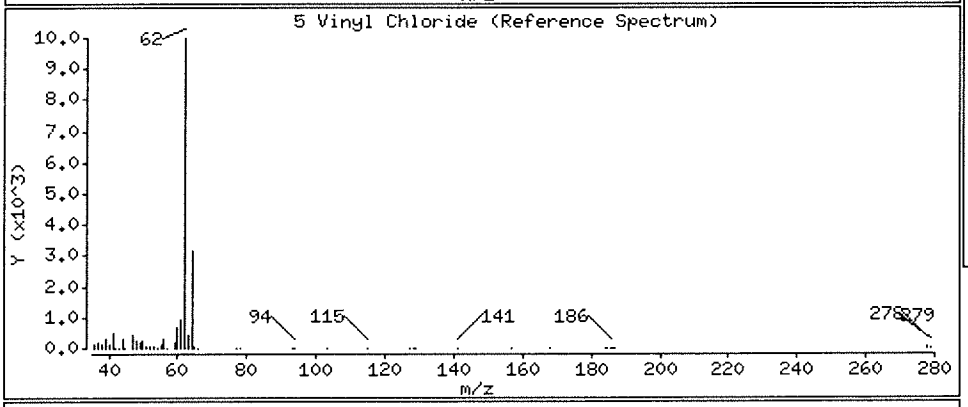
Concentration: 510.92 ug/l

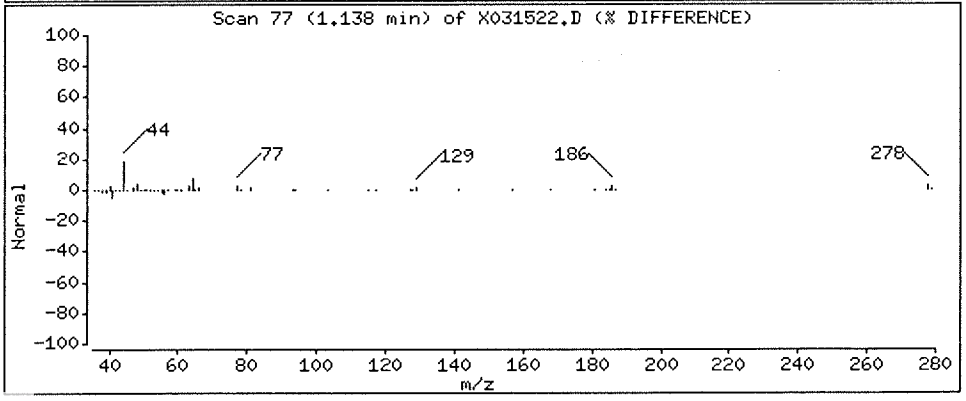












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Report Date: 02-Apr-2020 11:47

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031523.D
Lab Smp Id: HS20030383-03 Client Smp ID: HS20030383-03
Inj Date : 15-MAR-2020 19:33
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-03;HS20030383-03;;;
Misc Info : HS18090001;WATER;0;25;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 22
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

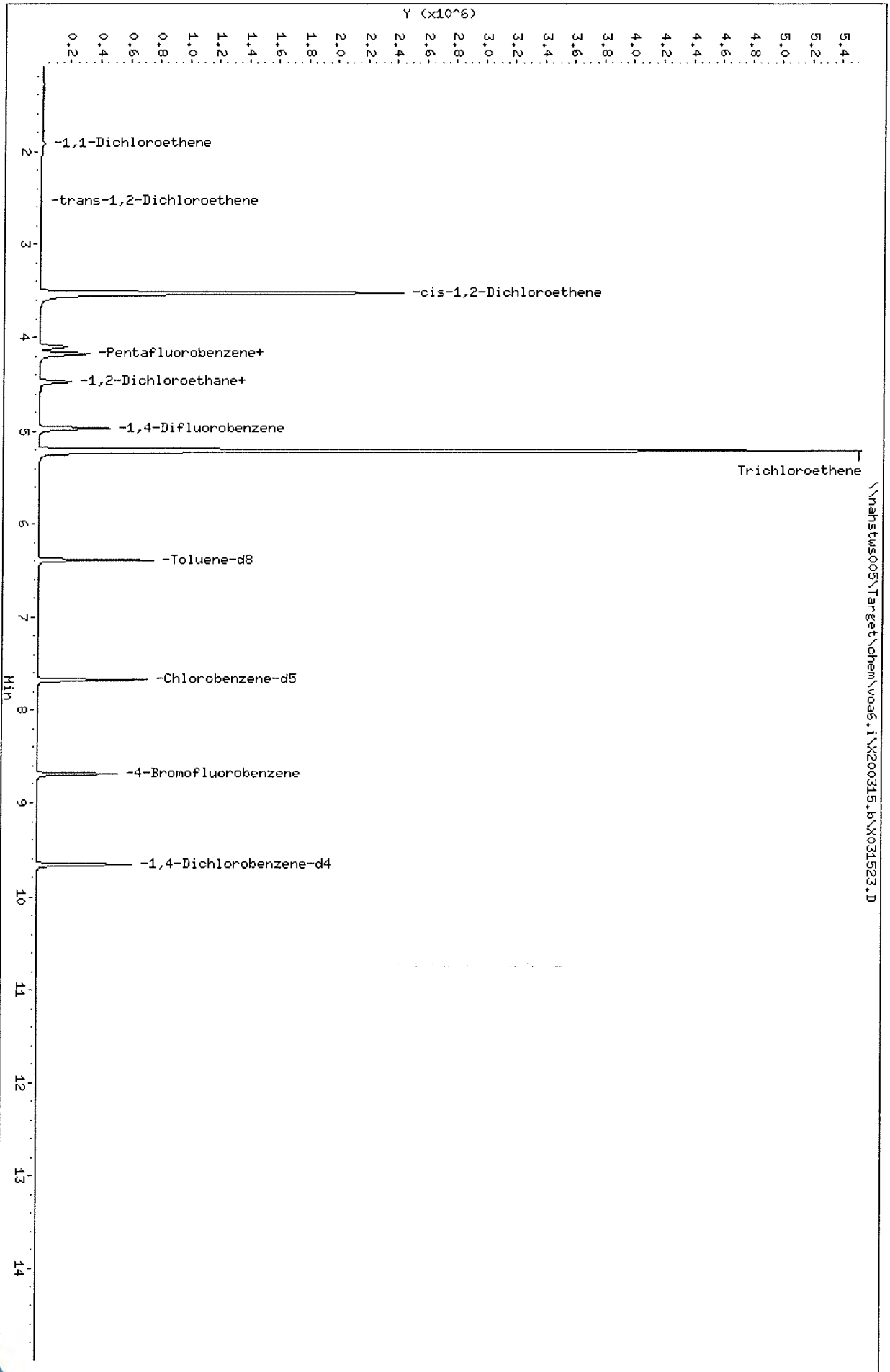
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	263136	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	373692	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	311231	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	146194	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	128041	45.7171	45.71
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	181384	45.4557	45.45
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	416700	53.6941	53.69
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	157754	51.8878	51.88
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	3237	1.48392	37.09
33 1,2-Dichloroethane	62	4.569	4.555	(0.919)	4109	0.86788	21.69
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1124532	419.090	10477.25(A)
38 Trichloroethene	130	5.207	5.206	(1.048)	1744578	647.482	16187.04(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



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Date : 15-MAR-2020 19:33
Client ID: HS20030383-03
Sample Info: HS20030383-03;HS20030383-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031523.D

Date : 15-MAR-2020 19:33

Client ID: HS20030383-03

Instrument: voa6.i

Sample Info: HS20030383-03;HS20030383-03;;;

Purge Volume: 5.0

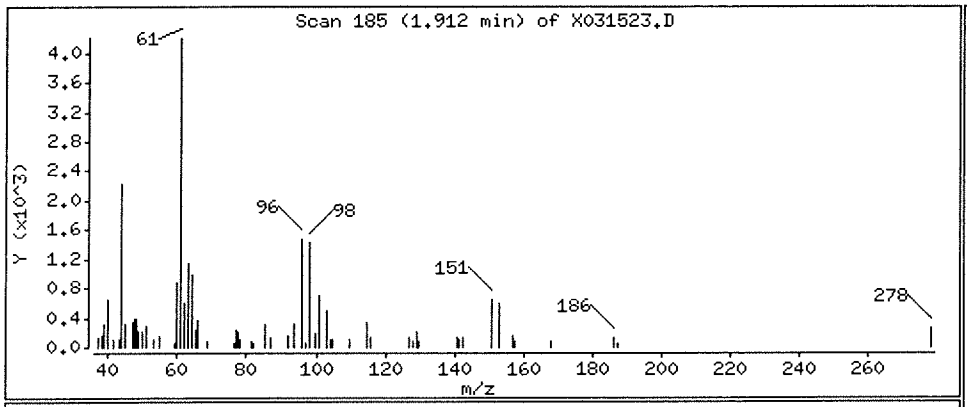
Operator: PC

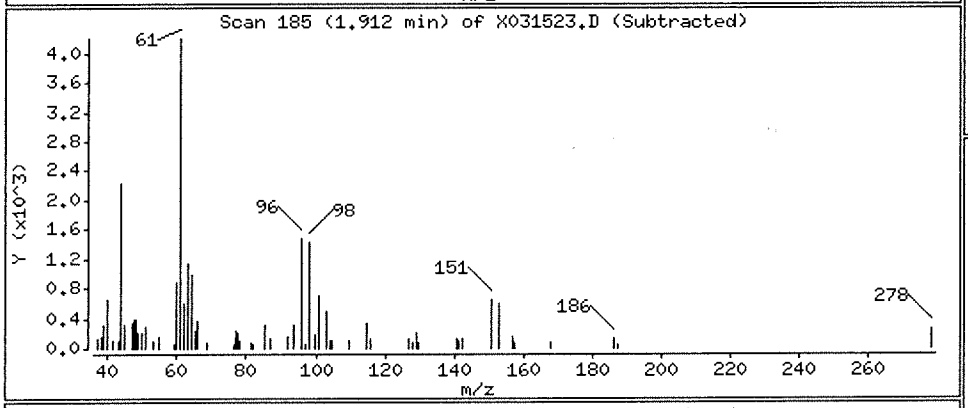
Column phase: DB624

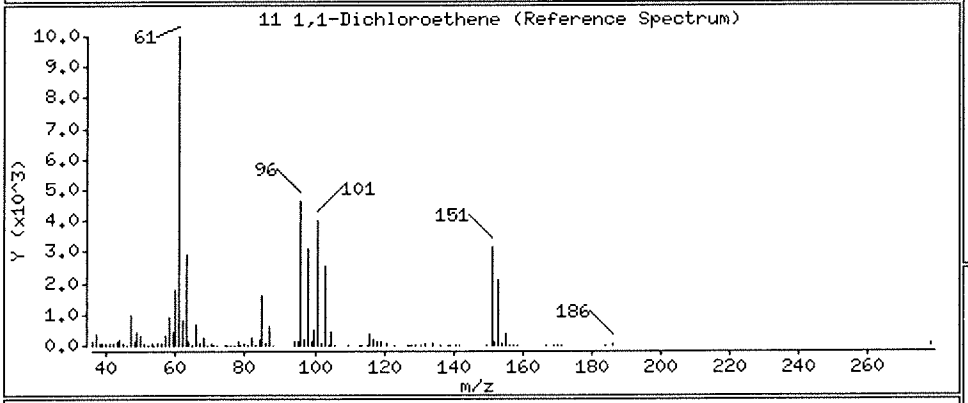
Column diameter: 0.18

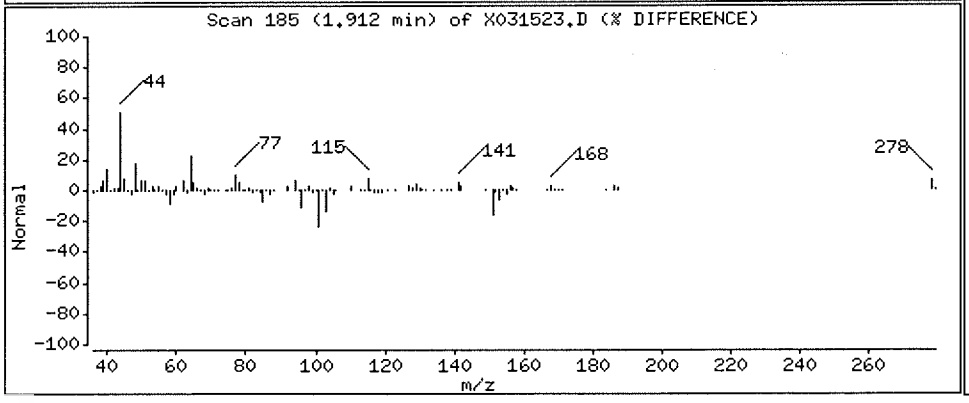
11 1,1-Dichloroethene

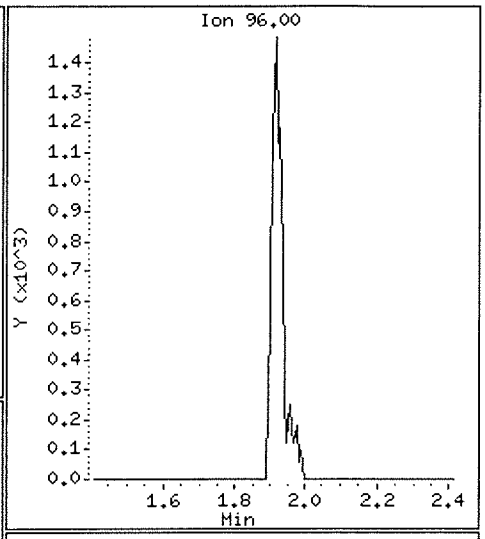
Concentration: 37.09 ug/l

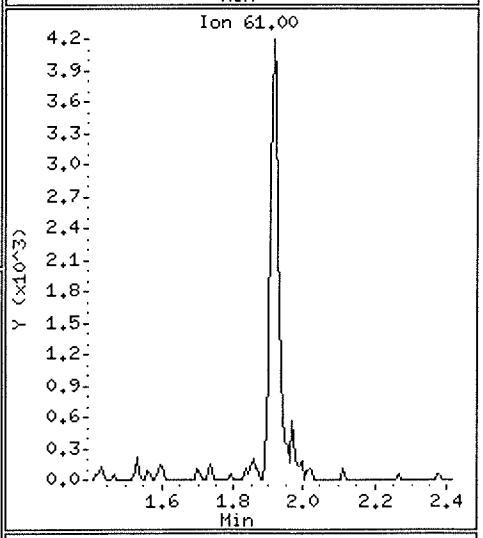


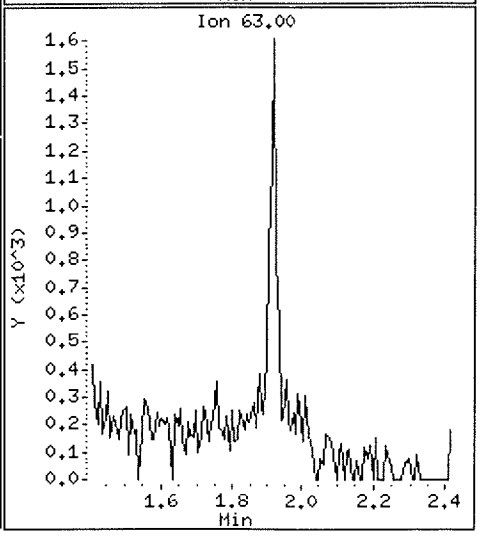












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Date : 15-MAR-2020 19:33

Client ID: HS20030383-03

Instrument: voa6.i

Sample Info: HS20030383-03;HS20030383-03;;;

Purge Volume: 5.0

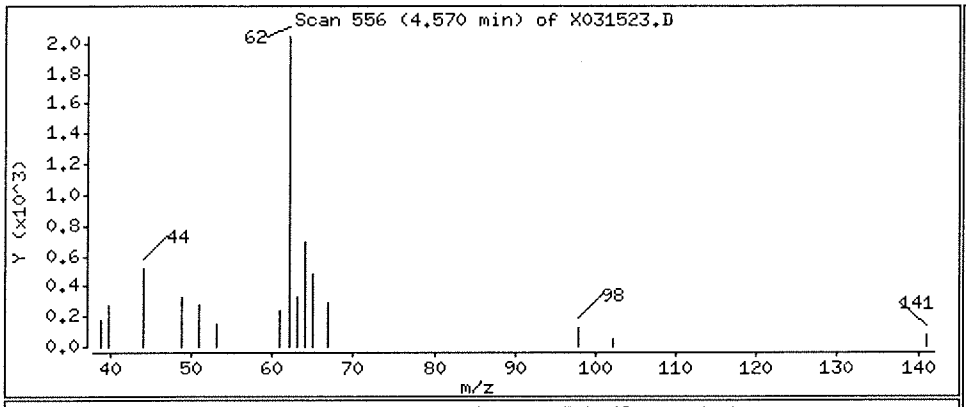
Operator: PC

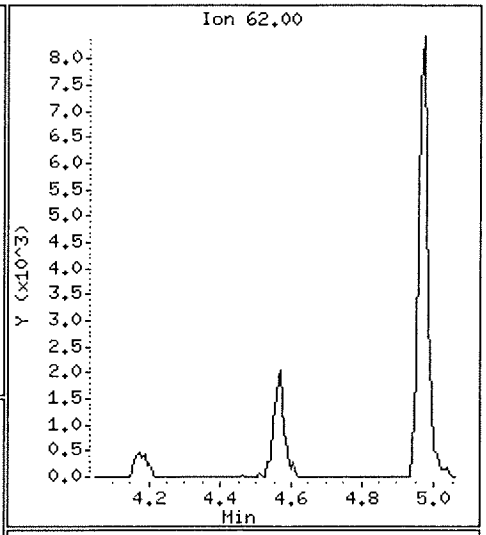
Column phase: DB624

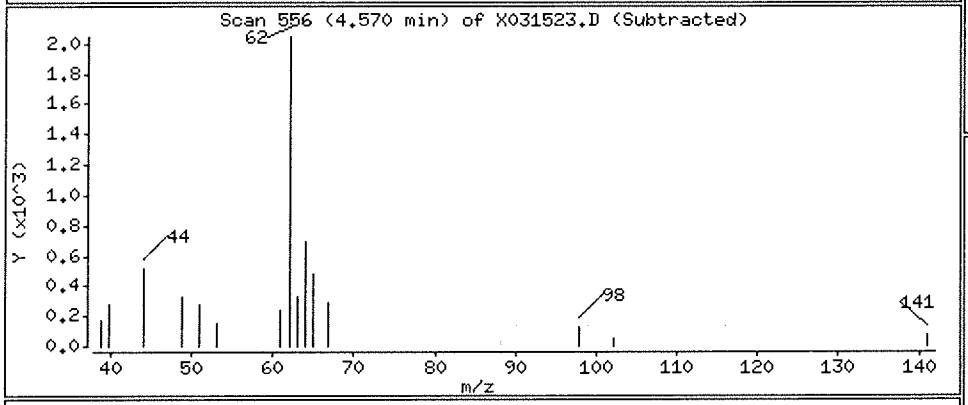
Column diameter: 0.18

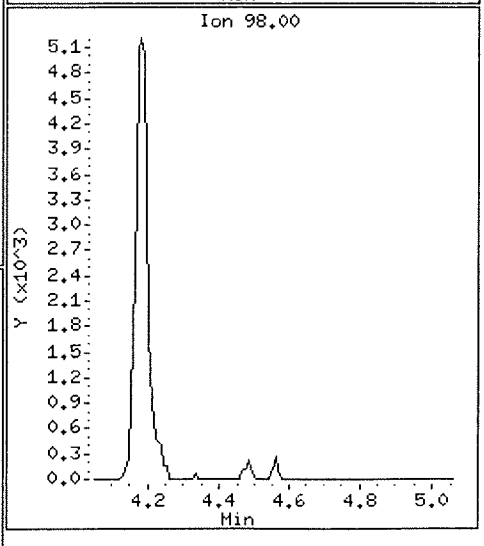
33 1,2-Dichloroethane

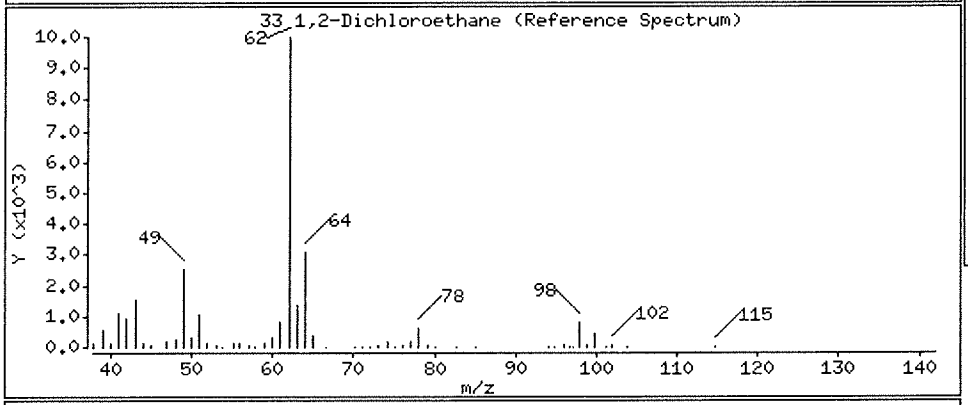
Concentration: 21.69 ug/l

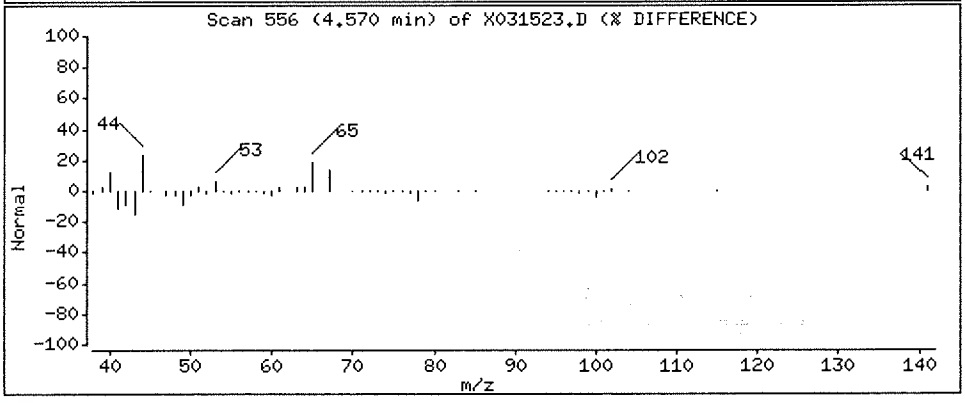












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031523.D

Date : 15-MAR-2020 19:33

Client ID: HS20030383-03

Instrument: voa6.i

Sample Info: HS20030383-03;HS20030383-03;;;

Purge Volume: 5.0

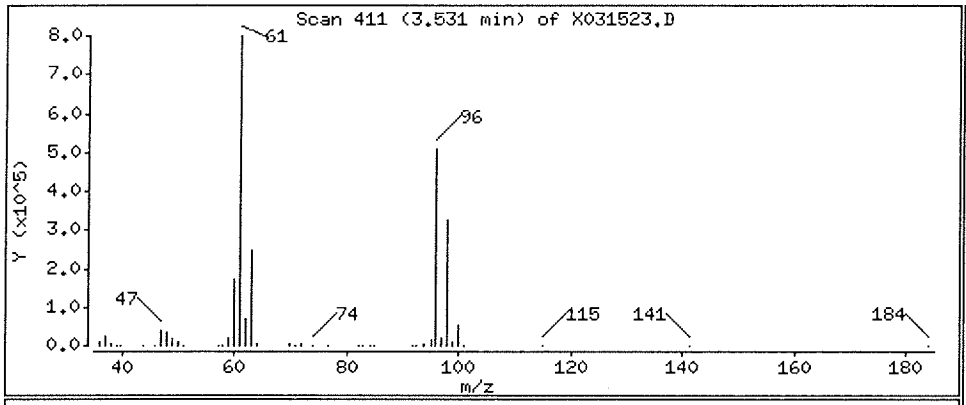
Operator: PC

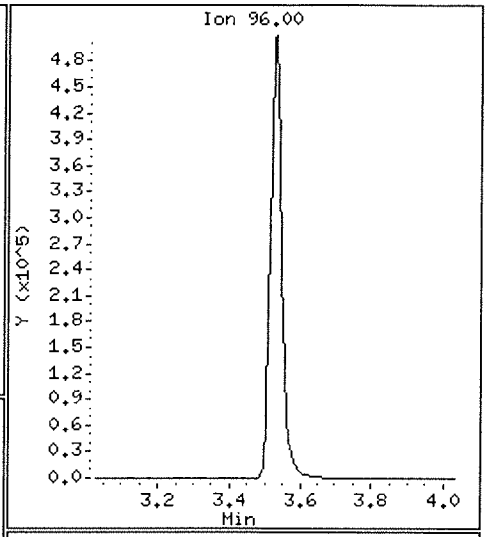
Column phase: DB624

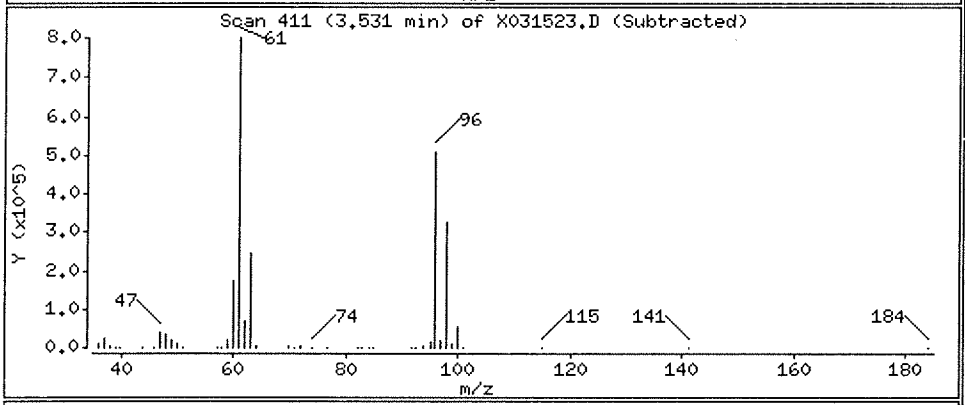
Column diameter: 0.18

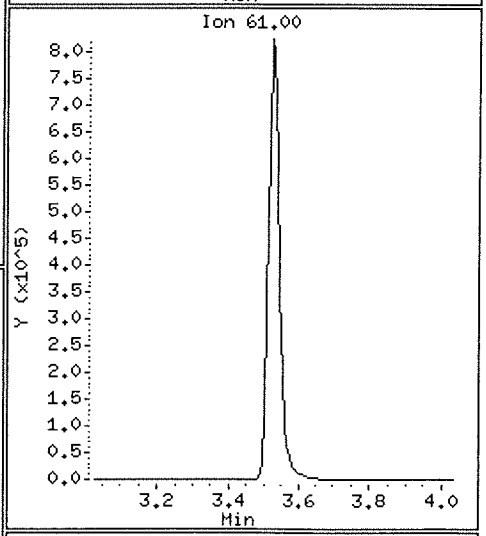
27 cis-1,2-Dichloroethene

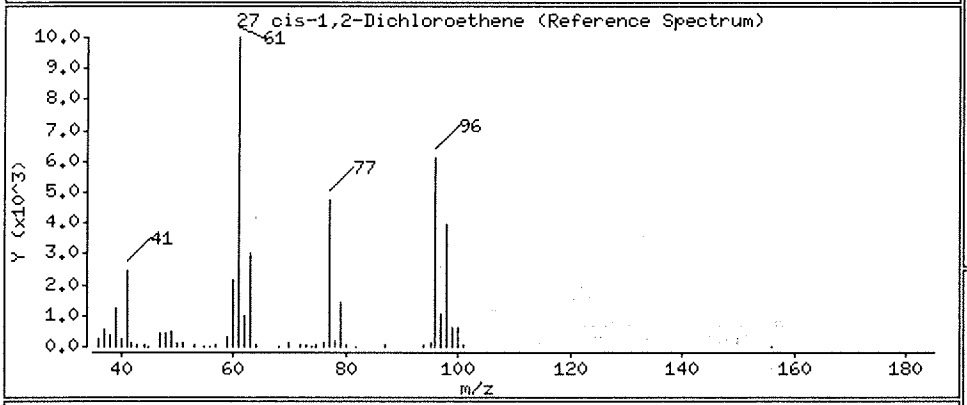
Concentration: 10477.25 ug/l

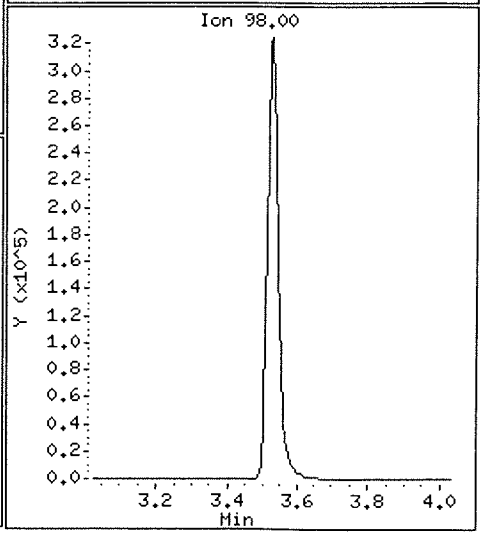


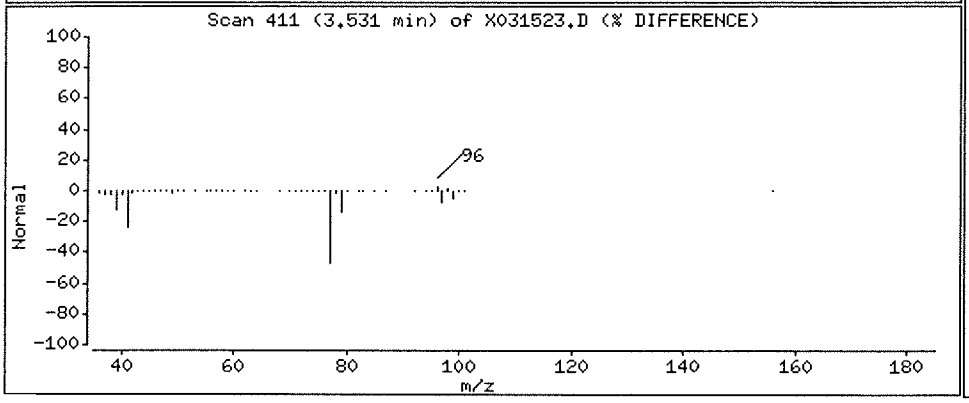












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031523.D Page 6

Date : 15-MAR-2020 19:33

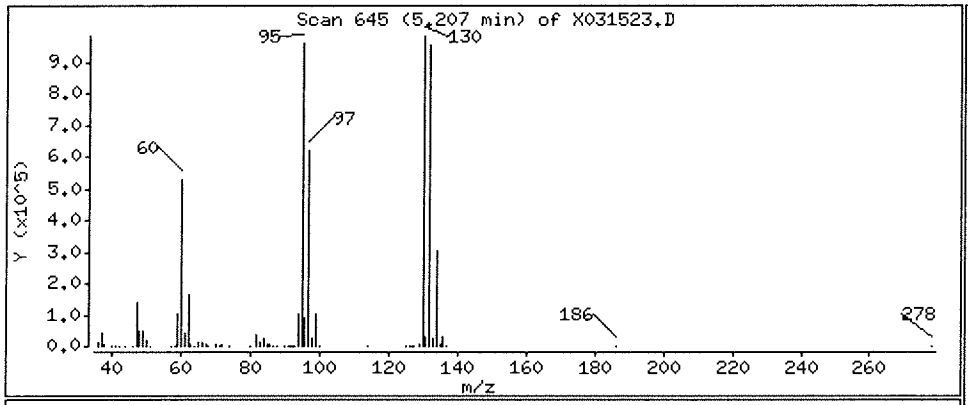
Client ID: HS20030383-03 Instrument: voa6.i

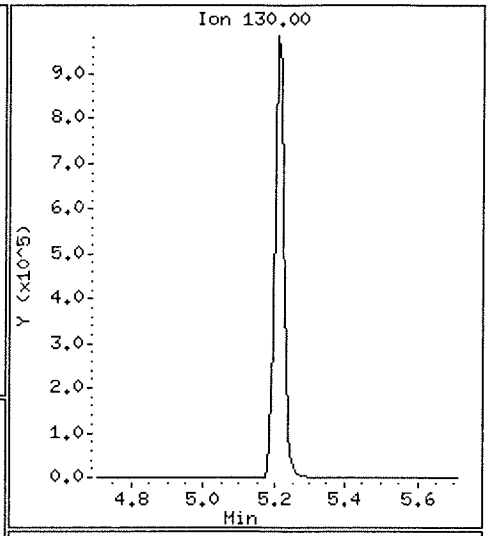
Sample Info: HS20030383-03;HS20030383-03;;;

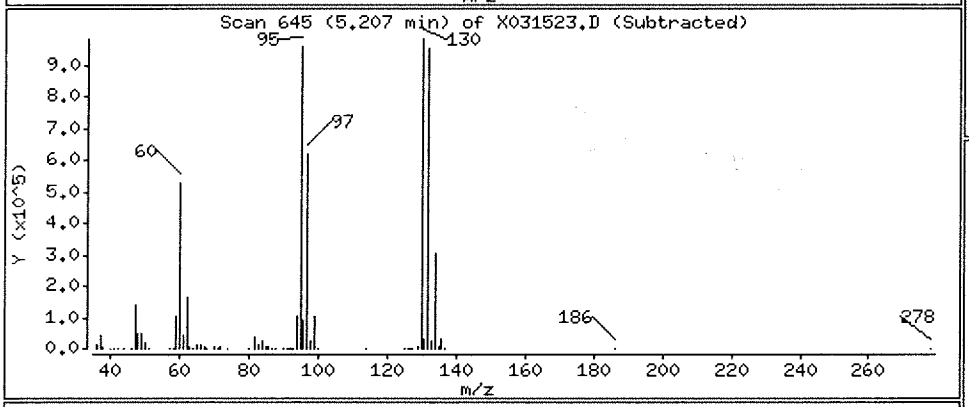
Purge Volume: 5.0 Operator: PC

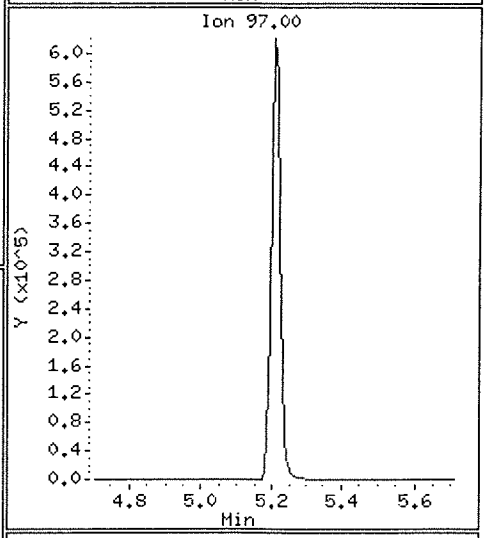
Column phase: DB624 Column diameter: 0.18

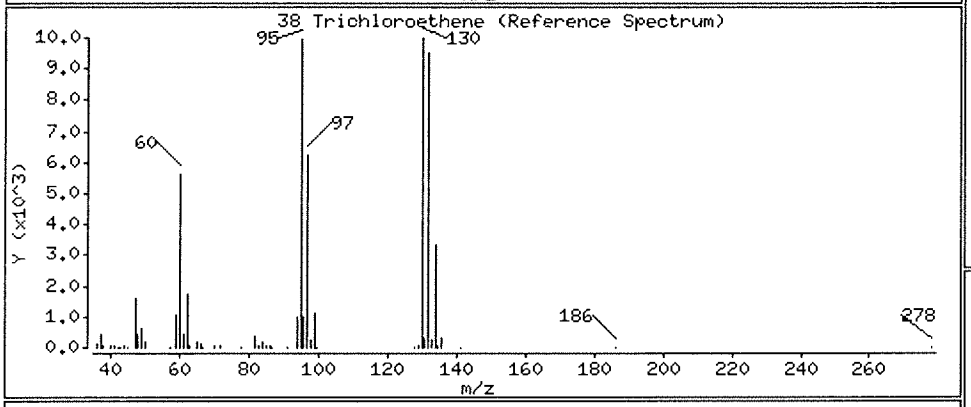
38 Trichloroethene Concentration: 16187.04 ug/l

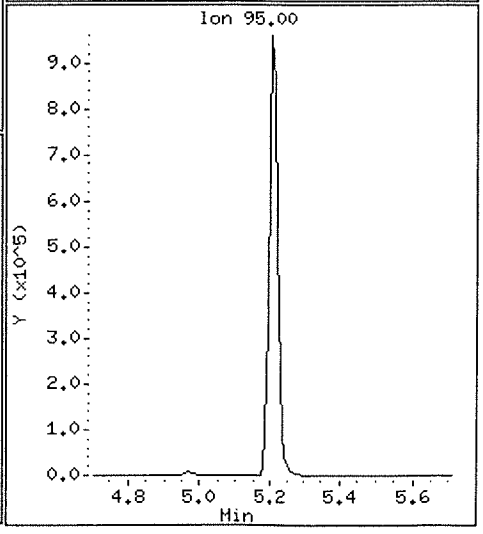


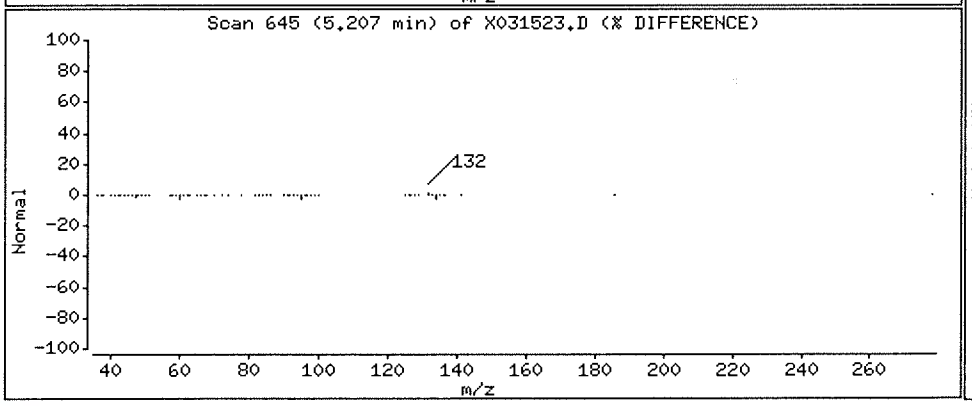












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031524.D Page 1
Report Date: 02-Apr-2020 11:47

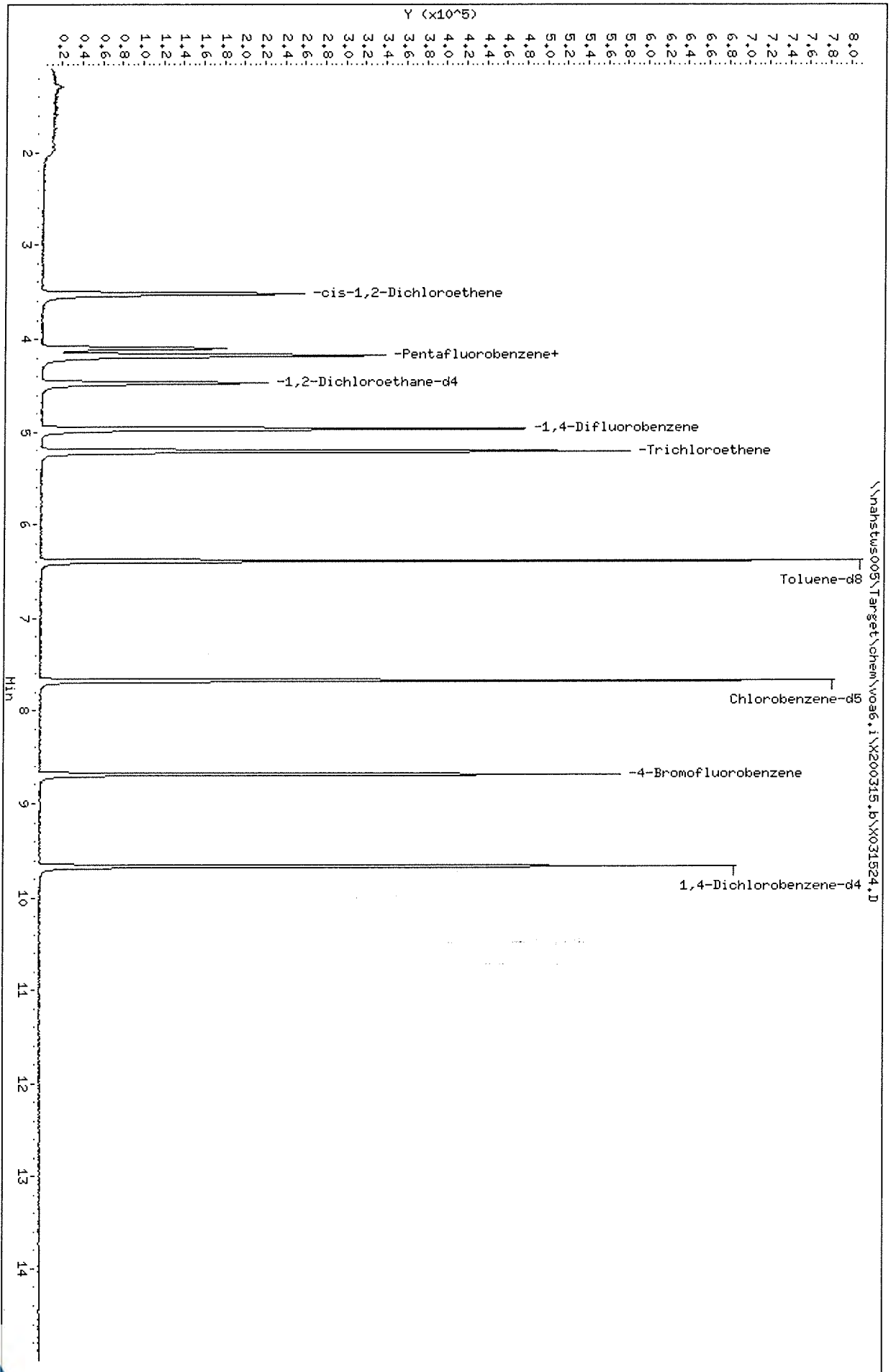
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031524.D
Lab Smp Id: HS20030383-03 Client Smp ID: HS20030383-03
Inj Date : 15-MAR-2020 19:57
Operator : PC Inst ID: voa6.i
Smp Info : HS20030383-03;HS20030383-03;;;
Misc Info : HS18090001;WATER;0;250;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:46 DevakG Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 23
Dil Factor: 250.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	250.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	266680	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	381871	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	335770	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	159215	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	127390	44.8854	44.88
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	183441	45.3609	45.36
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	437403	52.2441	52.24
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	159055	48.5013	48.50
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	116777	42.9421	10735.51
38 Trichloroethene	130	5.206	5.206	(1.048)	187500	68.0982	17024.54



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031524.D
Date : 15-MAR-2020 19:57
Client ID: HS20030383-03
Sample Info: HS20030383-03;HS20030383-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031524.D

Date : 15-MAR-2020 19:57

Client ID: HS20030383-03

Instrument: voa6.i

Sample Info: HS20030383-03;HS20030383-03;;;

Purge Volume: 5.0

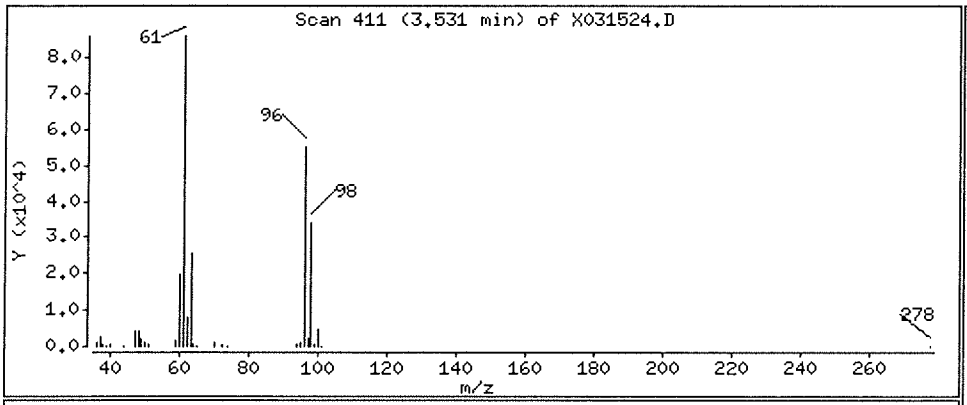
Operator: PC

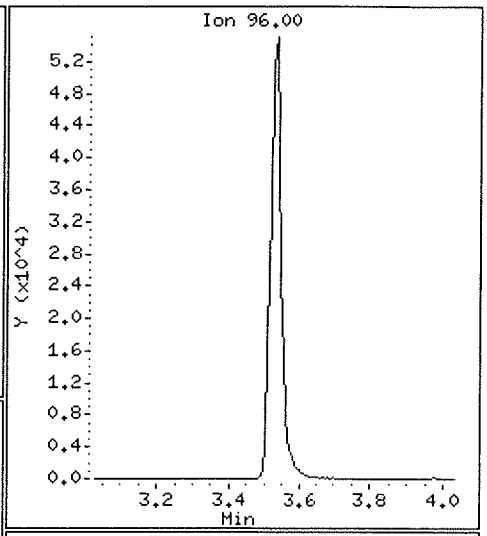
Column phase: DB624

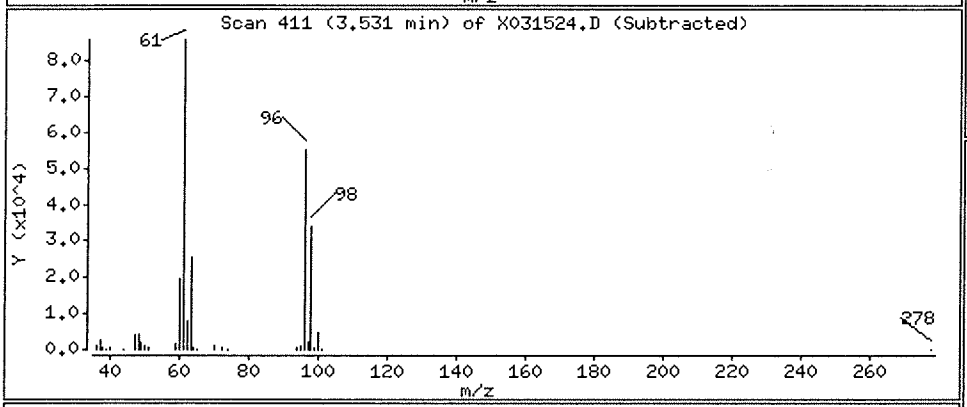
Column diameter: 0.18

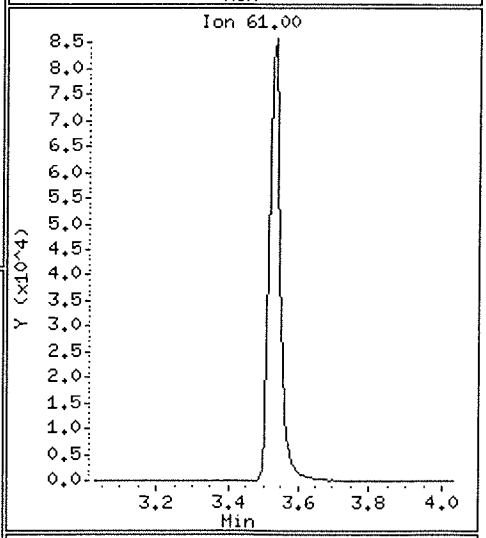
27 cis-1,2-Dichloroethene

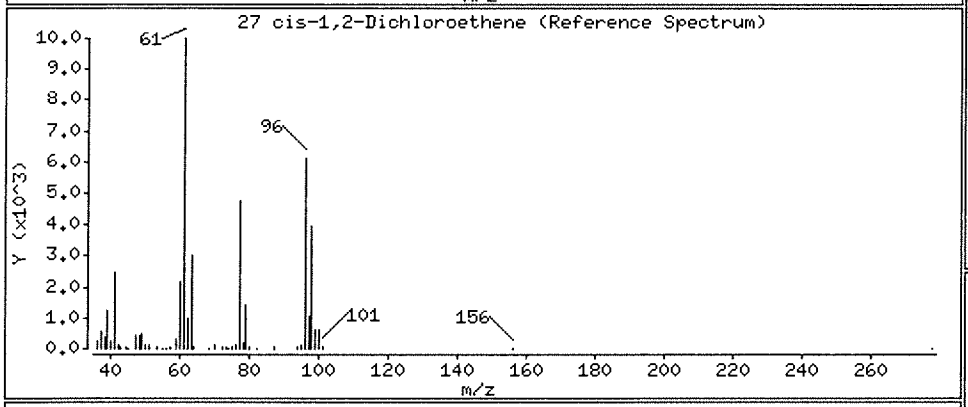
Concentration: 10735.51 ug/l

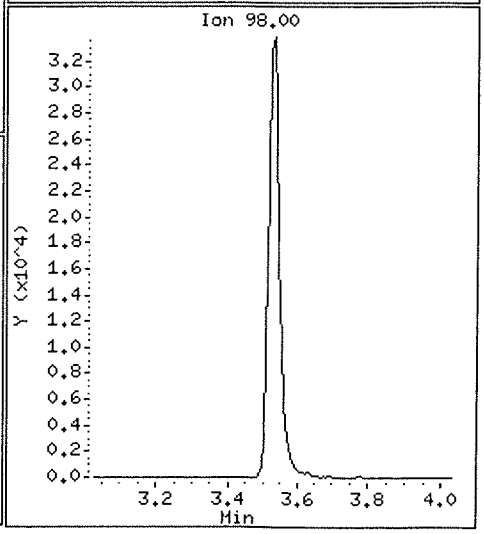


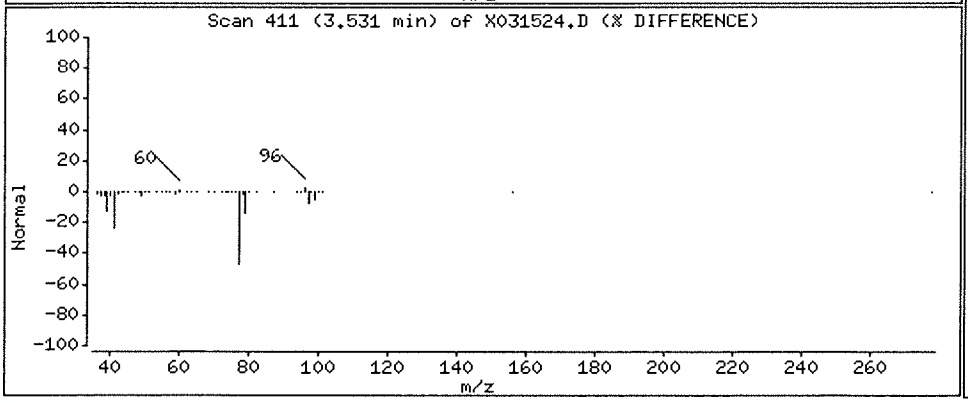












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031524.D

Date : 15-MAR-2020 19:57

Client ID: HS20030383-03

Instrument: voa6.i

Sample Info: HS20030383-03;HS20030383-03;;;

Purge Volume: 5.0

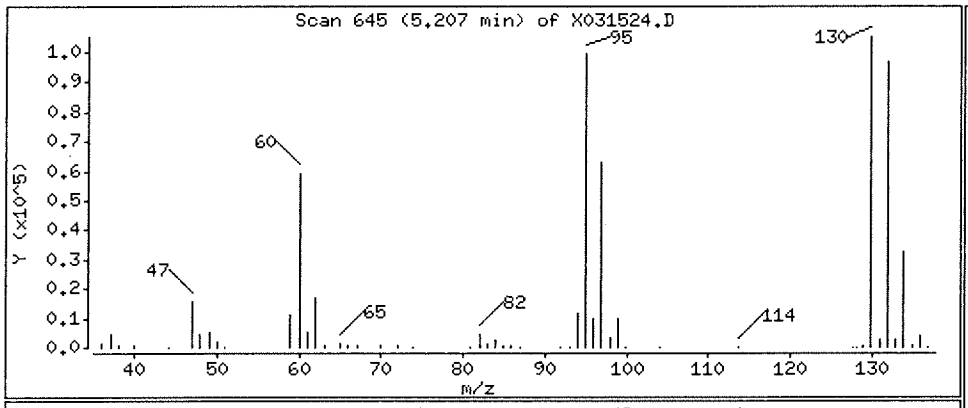
Operator: PC

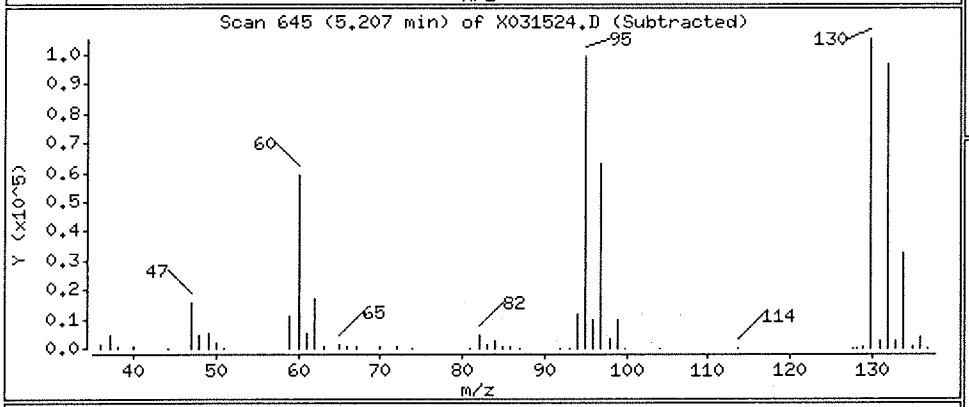
Column phase: DB624

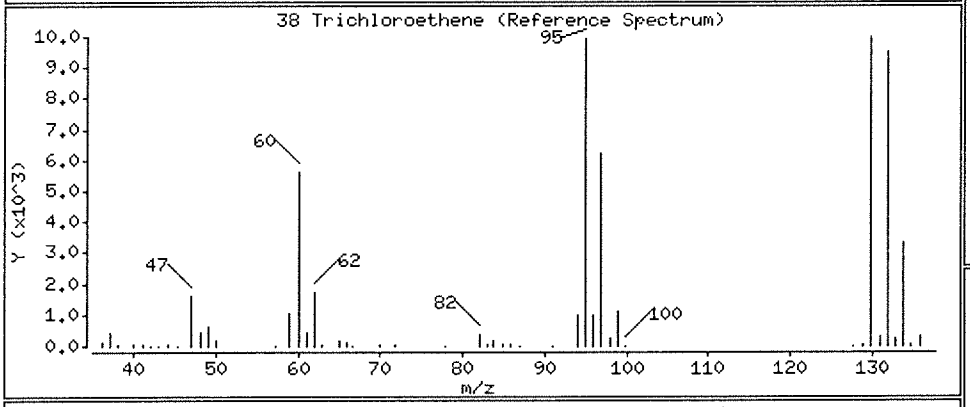
Column diameter: 0.18

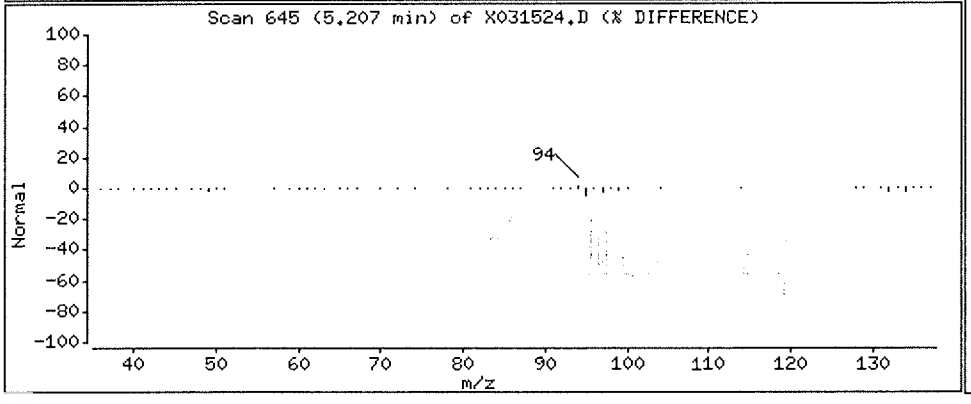
38 Trichloroethene

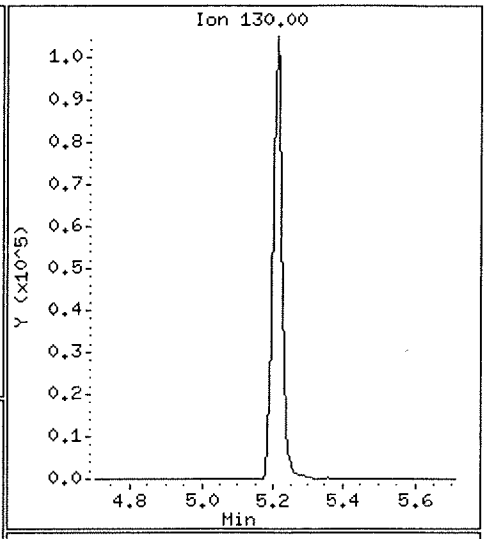
Concentration: 17024.54 ug/l

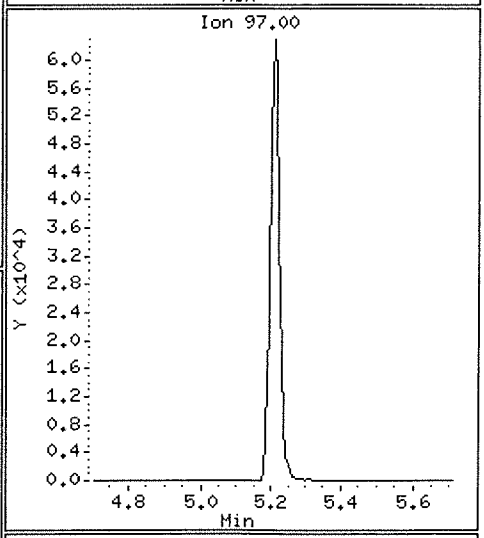


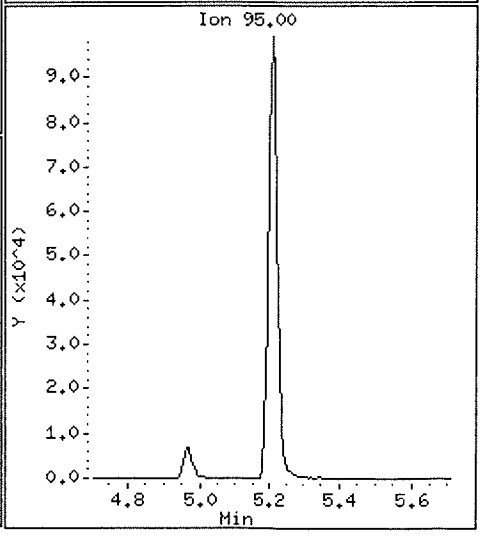












Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031525.D Page 1
Report Date: 02-Apr-2020 11:49

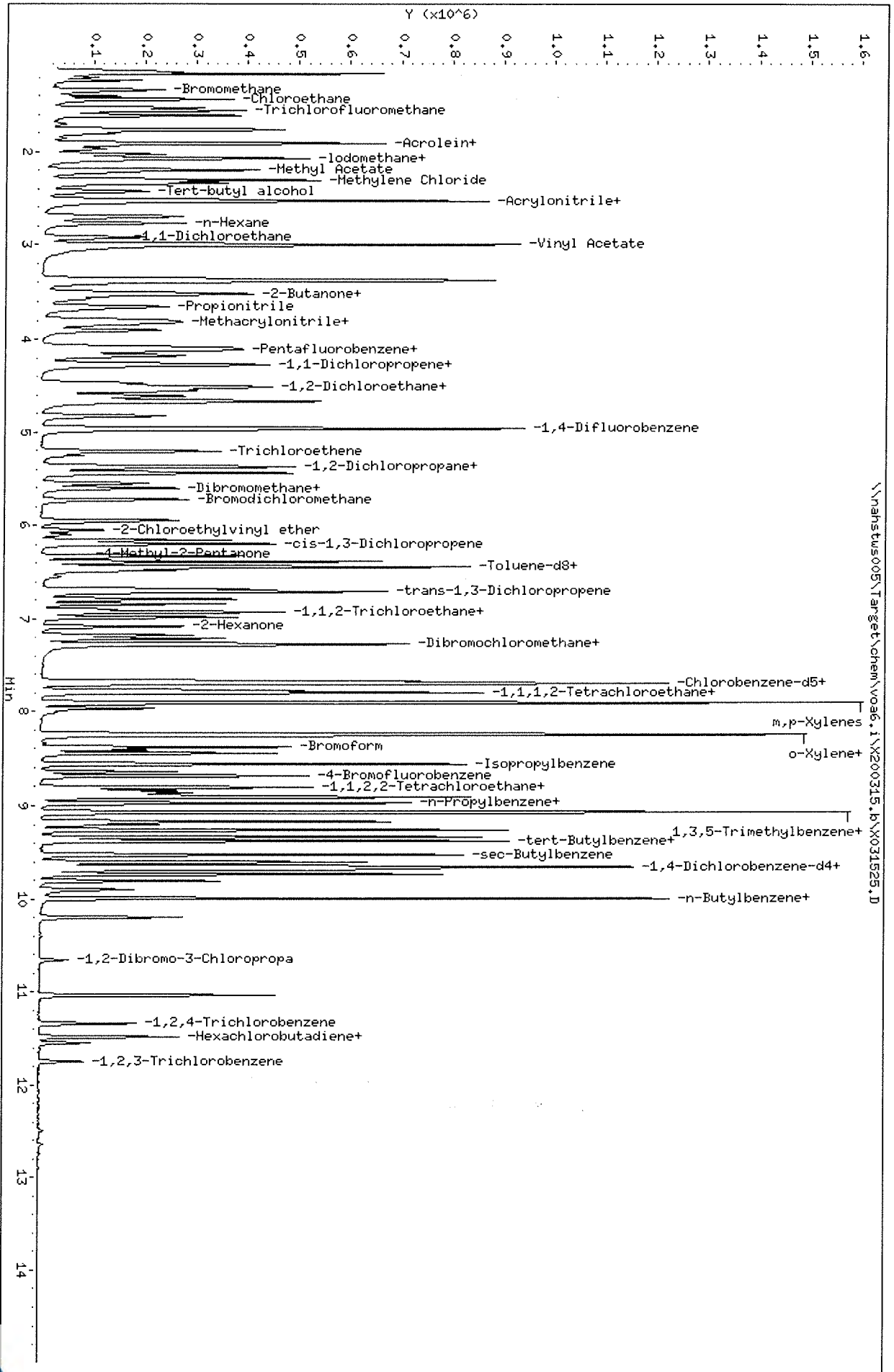
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200315.b\X031525.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 15-MAR-2020 20:21
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200315.b\8260W.m
Meth Date : 02-Apr-2020 11:49 voa6.i Quant Type: ISTD
Cal Date : 11-MAR-2020 13:35 Cal File: X031108.D
Als bottle: 24 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOU7.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	209643	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	309238	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	290133	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	151565	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.096	(0.979)	110660	50.0000	49.56
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	158267	50.0000	49.75
$	48 Toluene-d8	98	6.388	6.388	(0.833)	355955	50.0000	49.20
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	139616	50.0000	49.26
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	70166	50.0000	46.32
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	107465	50.0000	61.83
	33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	195043	50.0000	49.78
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	109419	50.0000	51.18
	17 Methylene Chloride	84	2.305	2.305	(0.551)	99413	50.0000	49.07
	38 Trichloroethene	130	5.206	5.206	(1.048)	110528	50.0000	49.57
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	175031	50.0000	62.43



Data File: \\nahstws005\Target\chem\voa6.i\X200315.b\X031525.D
Date : 15-MAR-2020 20:21
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

HS20030383 RSK175 Raw Data

ALS WO# HS20030383

FID04 -Logbook

Batch: 26730 **Analyst:** Nosa Izekor

Date: 01-24-2017 **Reviewer:**

Method: RSK 175 ICAL **Laboratory:** Houston

Comments: Target Sequence 170124

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	ICAL1	CALIB_1	01-24-2017 09:06 am	1.00	0.00 mL	0.00 mL	001.D	Liquid	Y	NA
2	ICAL2	CALIB_2	01-24-2017 09:30 am	1.00	0.00 mL	0.00 mL	002.D	Liquid	Y	NA
3	ICAL3	CALIB_3	01-24-2017 09:59 am	1.00	0.00 mL	0.00 mL	003.D	Liquid	Y	NA
4	ICAL4	CALIB_4	01-24-2017 10:15 am	1.00	0.00 mL	0.00 mL	004.D	Liquid	Y	NA
5	ICAL5	CALIB_5	01-24-2017 10:39 am	1.00	0.00 mL	0.00 mL	005.D	Liquid	Y	NA
6	ICAL6	CALIB_6	01-24-2017 10:57 am	1.00	0.00 mL	0.00 mL	006.D	Liquid	Y	NA
7	ICAL7	CALIB_7	01-24-2017 11:13 am	1.00	0.00 mL	0.00 mL	007.D	Liquid	Y	NA
8	ICV	METHSPIKI	01-24-2017 12:05 pm	1.00	0.00 mL	0.00 mL	008.D	Liquid	Y	NA
9	LCS-170124	LCS	01-24-2017 12:24 pm	1.00	0.00 mL	0.00 mL	009.D	Liquid	Y	NA
10	LCSD-170124	LCSD	01-24-2017 12:40 pm	1.00	0.00 mL	0.00 mL	010.D	Liquid	Y	NA
11	MBLK-170124	MBLK	01-24-2017 12:57 pm	1.00	0.00 mL	0.00 mL	011.D	Liquid	Y	NA
12	HS17010778-01	SAMP	01-24-2017 01:14 pm	1.00	0.00 mL	0.00 mL	012.D	Liquid	Y	NA
13	HS17010779-01	SAMP	01-24-2017 01:31 pm	1.00	0.00 mL	0.00 mL	013.D	Liquid	Y	NA
14	HS17010779-01DUP	SAMP	01-24-2017 01:47 pm	1.00	0.00 mL	0.00 mL	014.D	Liquid	Y	NA
15	CCV	CCV	01-24-2017 02:01 pm	1.00	0.00 mL	0.00 mL	015.D	Liquid	Y	NA

Chemical	Value
ICAL STD ID	30010700217
ICV STD ID	30010700610

FORM 3
WATER GASES METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Matrix Spike - ENG SC Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Ethene	16.800	19.106	114	75-125
Methane	9.647	9.591	99	75-125
Ethane	18.043	20.117	111	75-125
Propane	26.463	27.184	103	75-125
N-Butane	34.955	36.314	104	75-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

_____

FORM III GASES

FORM 6
GASES INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Instrument ID: FID-4 Calibration Date(s): 01/24/17 01/24/17

Column: RTX-PLOT ID: 0.53 (mm) Calibration Time(s): 0906 1113

LAB FILE ID: RF10: 001 RF25: 002 RF50: 003
RF100: 004 RF250: 005 RF500: 006

COMPOUND	RF10	RF25	RF50	RF100	RF250	RF500
Ethene	590.504	567.359	564.985	527.151	665.282	428.186
Methane	968.912	978.238	1019.699	880.798	960.713	935.006
Ethane	641.274	670.177	658.908	624.082	808.513	821.648
Propane	500	1279	2602	4785	18436	38286
N-Butane	474	1032	2082	3780	18270	42405

FORM VI GASES

FORM 6
GASES INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2003038

Instrument ID: FID-4 Calibration Date(s): 01/24/17 01/24/17

Column: RTX-PLOT ID: 0.53 (mm) Calibration Time(s): 0906 1113

RF1000: 007

COMPOUND	RF1000	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MA
Ethene	756.854	AVRG		585.760435		17.722	
Methane	1081.580	AVRG		974.992337		6.498	
Ethane	811.824	AVRG		719.489678		12.458	
Propane	96632	2ORDR	0.97326263	1.526e-003	-4.56e-009	0.9990955	0
N-Butane	114164	2ORDR	2.40105031	1.857e-003	-5.73e-009	0.9980163	0

FORM VI GASES

Data File: 001.D
Report Date: 02-Nov-2019 13:16

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\001.D
Lab Smp Id: ICAL1 Client Smp ID: ICAL1
Inj Date : 24-JAN-2017 09:06
Operator : JA Inst ID: FID-4.i
Smp Info : ICAL1;ICAL1;;;
Misc Info :
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\RSKNI2.m
Meth Date : 02-Nov-2019 12:28 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 09:06 Cal File: 001.D
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNI2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	1.043	1.030	0.013	374	0.38600	0.383(a)
2 Ethene	1.553	1.556	-0.003	398	0.67400	0.679(aM)
3 Ethane	1.713	1.723	-0.010	463	0.72200	0.643(aM)
4 Propane	4.073	4.113	-0.040	500	1.05900	1.735
5 N-Butane	7.640	7.690	-0.050	474	1.39800	3.280(M)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\001.D

Date : 24-JAN-2017 09:06

Client ID: ICAL1

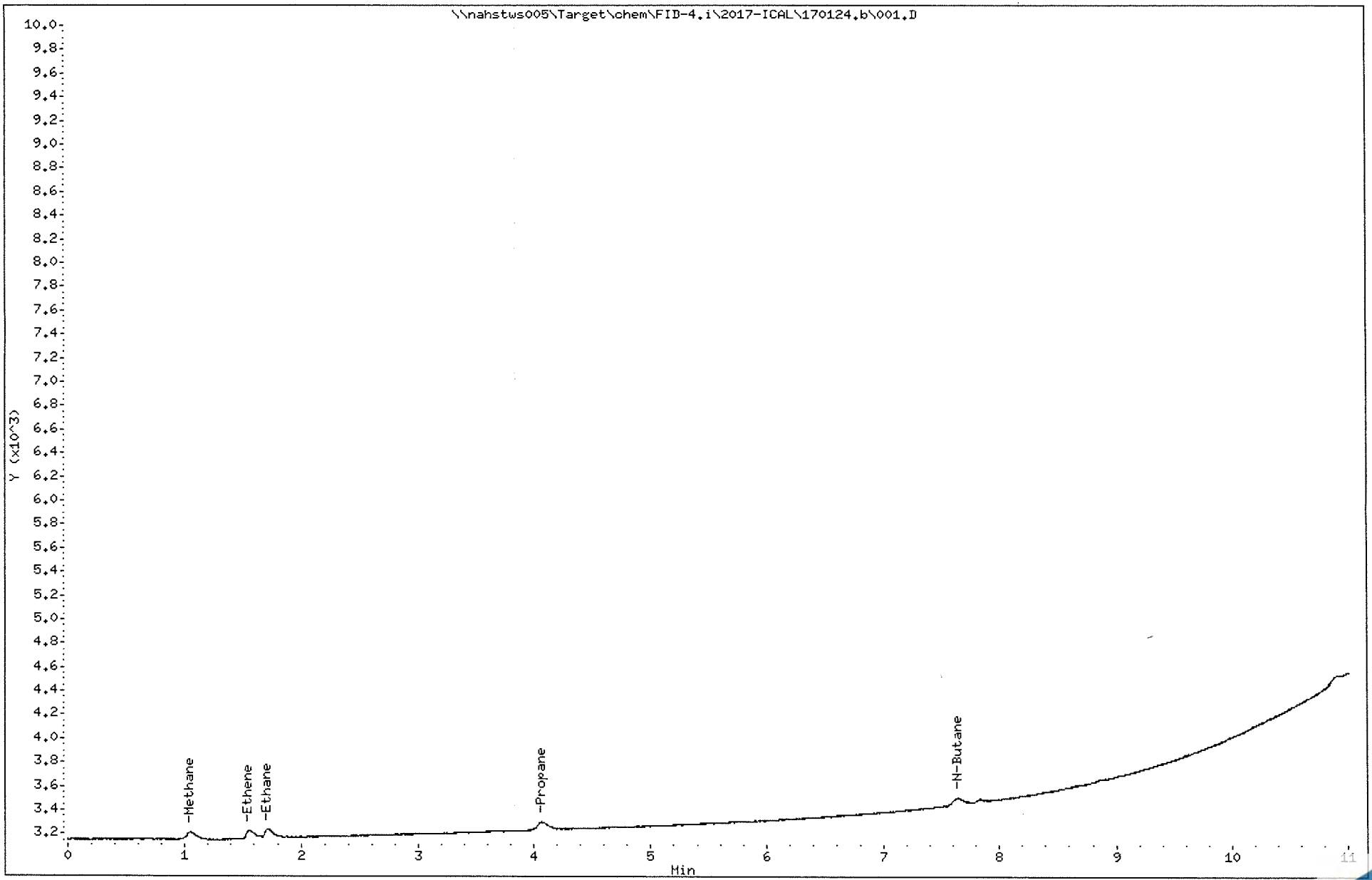
Instrument: FID-4.i

Sample Info: ICAL1;ICAL1;;;

Operator: JA

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: 002.D
Report Date: 02-Nov-2019 13:16

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\002.D
Lab Smp Id: ICAL2 Client Smp ID: ICAL2
Inj Date : 24-JAN-2017 09:30
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL2;ICAL2;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\RSKNI2.m
Meth Date : 02-Nov-2019 12:28 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 09:30 Cal File: 002.D
Als bottle: 2 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNI2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.023	1.030	-0.007	944	0.96500	0.968
2 Ethene	1.560	1.556	0.004	956	1.68500	1.632
3 Ethane	1.723	1.723	0.000	1209	1.80400	1.680
4 Propane	4.123	4.113	0.010	1279	2.64600	2.917
5 N-Butane	7.706	7.690	0.016	1032	3.49600	4.311(M)

QC Flag Legend

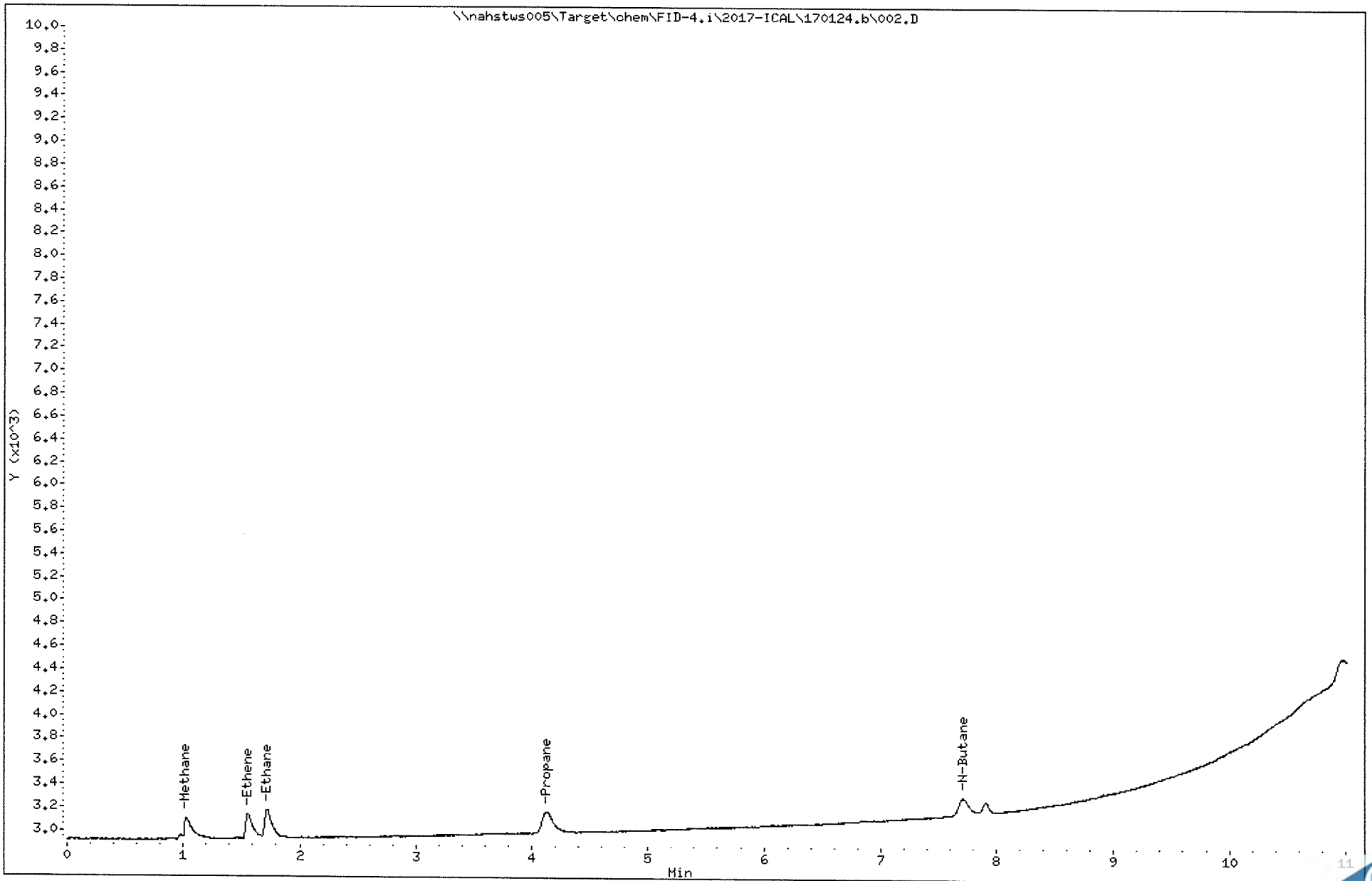
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\002.D
Date : 24-JAN-2017 09:30
Client ID: ICAL2
Sample Info: ICAL2;ICAL2;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA
Column diameter: 0.53



Data File: 003.D
Report Date: 02-Nov-2019 13:16

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\003.D
Lab Smp Id: ICAL3 Client Smp ID: ICAL3
Inj Date : 24-JAN-2017 09:59
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL3;ICAL3;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\RSKNI2.m
Meth Date : 02-Nov-2019 12:28 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 09:59 Cal File: 003.D
Als bottle: 3 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNI2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.043	1.030	0.013	1967	1.92900	2.017
2 Ethene	1.570	1.556	0.014	1904	3.37000	3.250
3 Ethane	1.736	1.723	0.013	2378	3.60900	3.305
4 Propane	4.123	4.113	0.010	2602	5.29300	4.912
5 N-Butane	7.703	7.690	0.013	2082	6.99100	6.242(M)

QC Flag Legend

M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\003.D

Date : 24-JAN-2017 09:59

Client ID: ICAL3

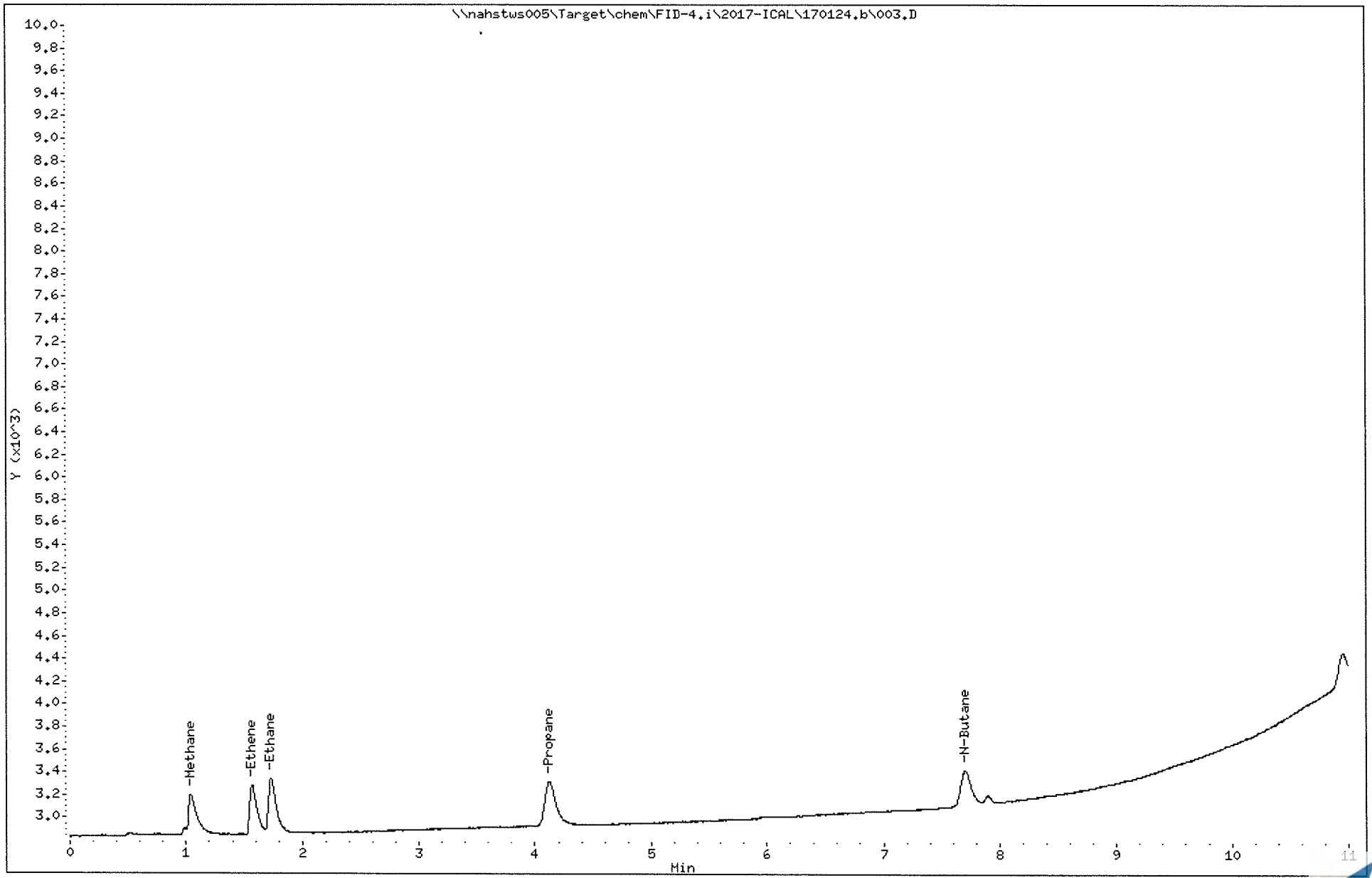
Instrument: FID-4.i

Sample Info: ICAL3;ICAL3;;;

Operator: MA

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: 004.D
Report Date: 02-Nov-2019 13:16

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\004.D
Lab Smp Id: ICAL4 Client Smp ID: ICAL4
Inj Date : 24-JAN-2017 10:15
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL4;ICAL4;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\RSKNI2.m
Meth Date : 02-Nov-2019 12:28 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 4 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNI2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.033	1.030	0.003	3399	3.85900	3.486
2 Ethene	1.560	1.556	0.004	3553	6.74000	6.065(M)
3 Ethane	1.726	1.723	0.003	4504	7.21700	6.259(M)
4 Propane	4.120	4.113	0.007	4785	10.5850	8.169
5 N-Butane	7.703	7.690	0.013	3780	13.9820	9.339(M)

QC Flag Legend

M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\004.D

Date : 24-JAN-2017 10:15

Client ID: ICAL4

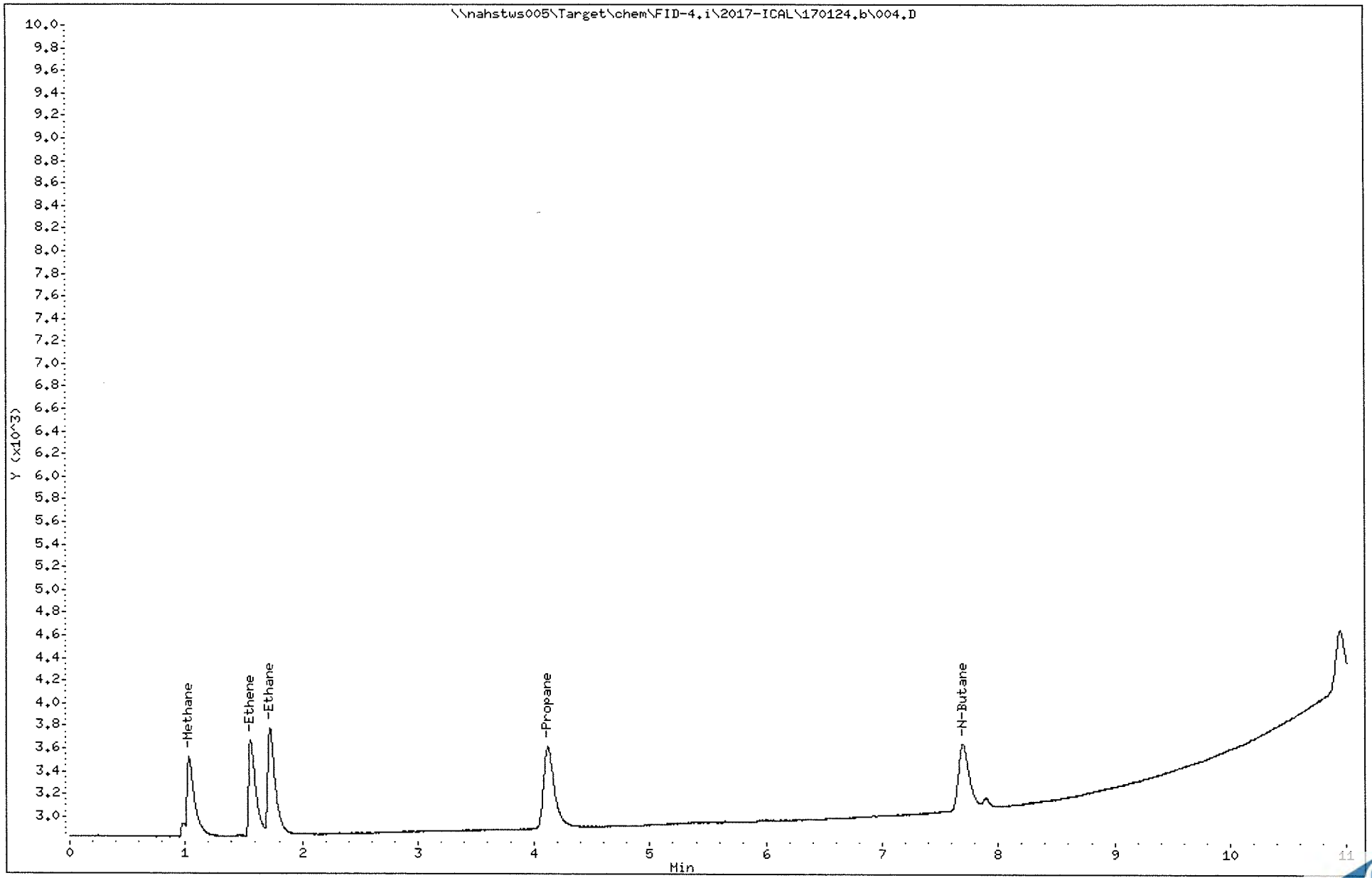
Instrument: FID-4.i

Sample Info: ICAL4;ICAL4;;;

Operator: MA

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: 005.D
Report Date: 02-Nov-2019 13:16

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\005.D
Lab Smp Id: ICAL5 Client Smp ID: ICAL5
Inj Date : 24-JAN-2017 10:39
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL5;ICAL5;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\RSKNI2.m
Meth Date : 02-Nov-2019 12:28 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:39 Cal File: 005.D
Als bottle: 5 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNI2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	1.043	1.030	0.013	9268	9.64700	9.505
2 Ethene	1.570	1.556	0.014	11210	16.8500	19.137
3 Ethane	1.733	1.723	0.010	14588	18.0430	20.275
4 Propane	4.120	4.113	0.007	18436	26.4630	27.554(M)
5 N-Butane	7.700	7.690	0.010	18270	34.9550	34.419(M)

QC Flag Legend

M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\005.D

Date : 24-JAN-2017 10:39

Client ID: ICAL5

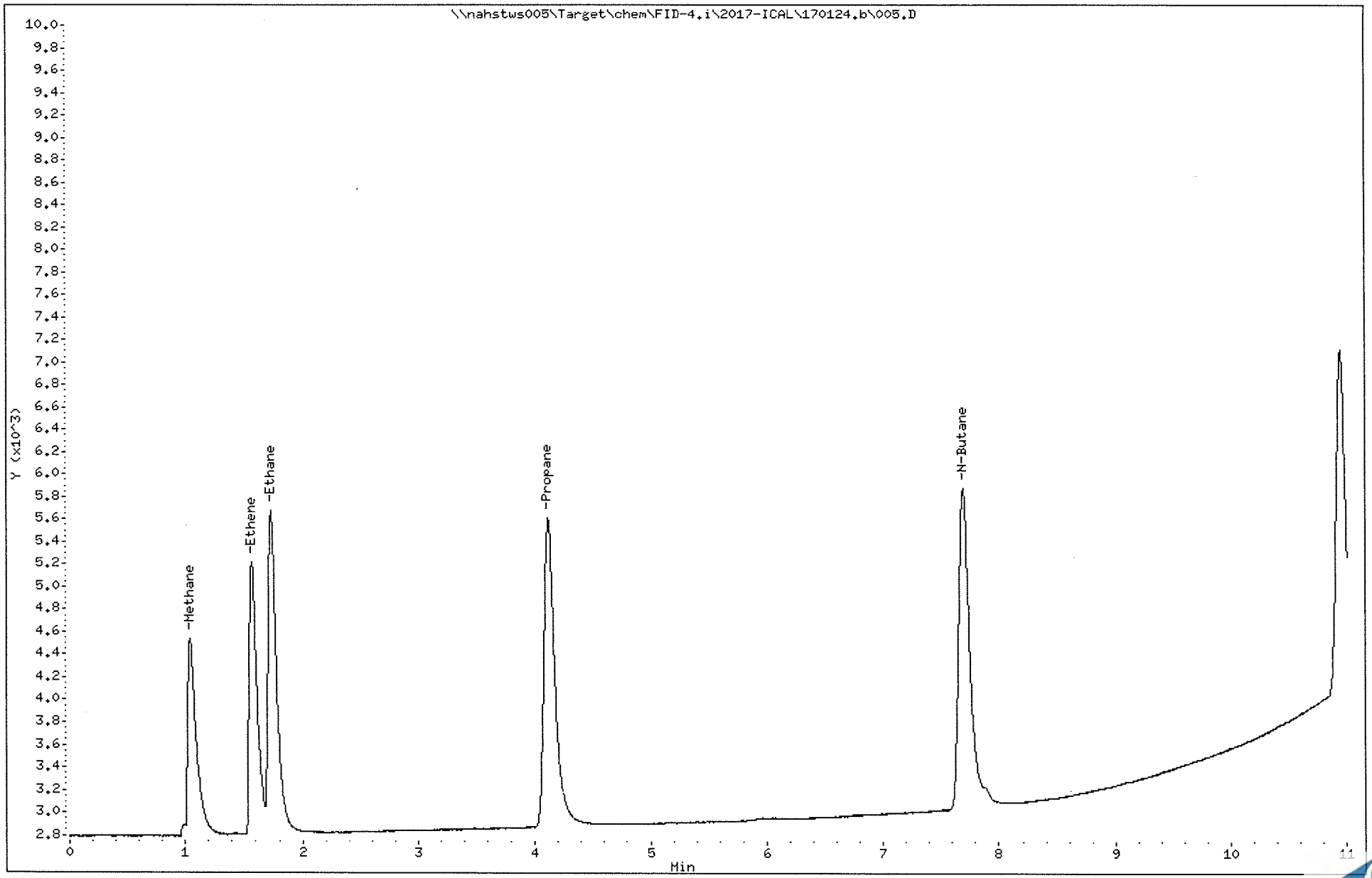
Instrument: FID-4.i

Sample Info: ICAL5;ICAL5;;;

Operator: MA

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: 006.D
Report Date: 02-Nov-2019 13:16

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\006.D
Lab Smp Id: ICAL6 Client Smp ID: ICAL6
Inj Date : 24-JAN-2017 10:57
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL6;ICAL6;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\RSKNI2.m
Meth Date : 02-Nov-2019 12:28 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:57 Cal File: 006.D
Als bottle: 6 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNI2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	1.023	1.030	-0.007	18040	19.2940	18.502(M)
2 Ethene	1.550	1.556	-0.006	23045	53.8200	39.342(M)
3 Ethane	1.716	1.723	-0.007	29650	36.0860	41.209(M)
4 Propane	4.110	4.113	-0.003	38286	52.9260	52.709
5 N-Butane	7.696	7.690	0.006	42405	69.9110	70.848(M)

QC Flag Legend

M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\006.D

Date : 24-JAN-2017 10:57

CIient ID: ICAL6

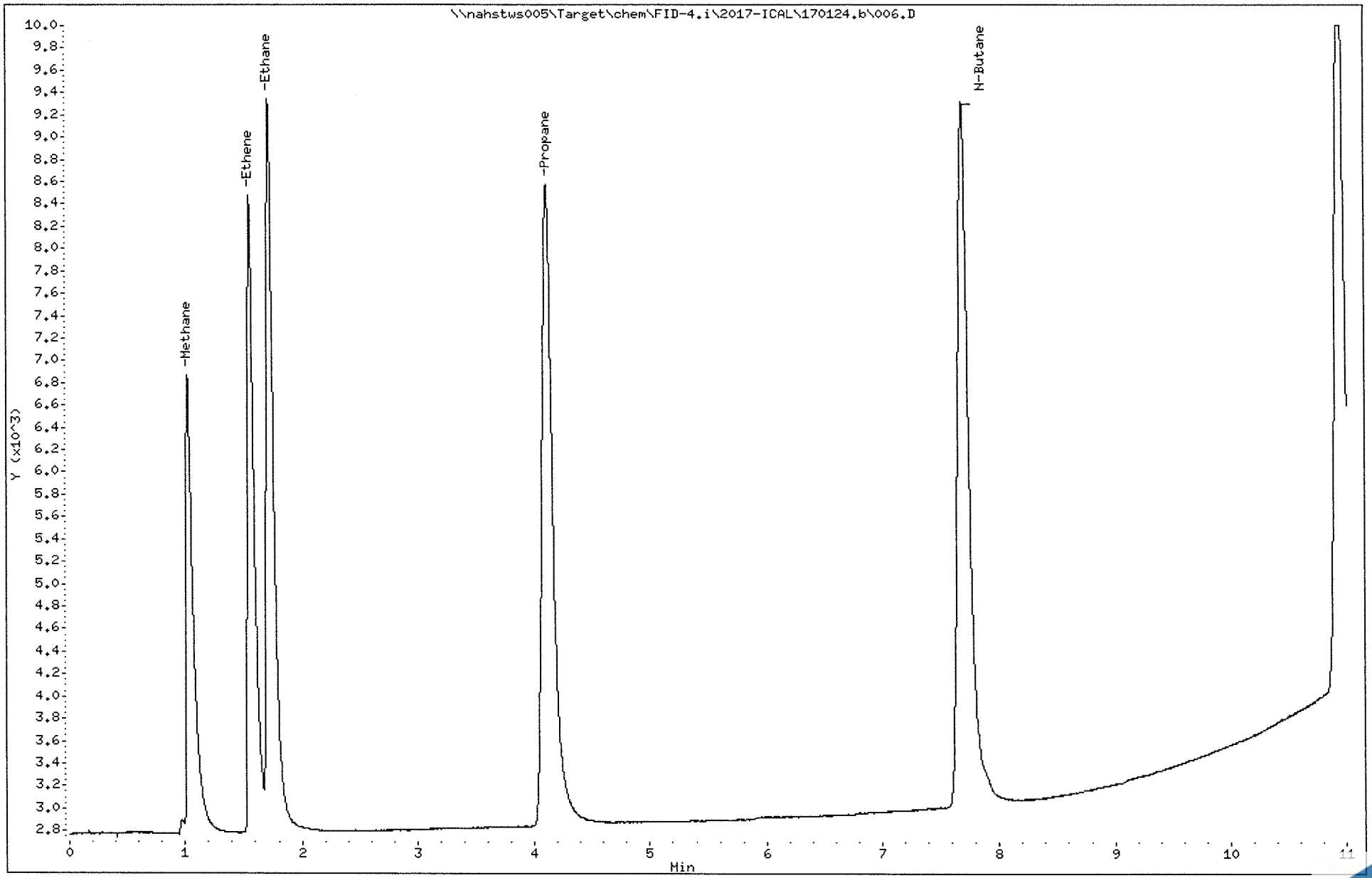
Instrument: FID-4.i

Sample Info: ICAL6;ICAL6;;;

Operator: MA

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: 007.D
Report Date: 02-Nov-2019 13:16

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\007.D
Lab Smp Id: ICAL7 Client Smp ID: ICAL7
Inj Date : 24-JAN-2017 11:13
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL7;ICAL7;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\RSKNI2.m
Meth Date : 02-Nov-2019 12:28 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 11:13 Cal File: 007.D
Als bottle: 7 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNI2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
1 Methane	1.030	1.030	0.000	41736	38.5880	42.806(A)
2 Ethene	1.556	1.556	0.000	51012	67.4000	87.086(AM)
3 Ethane	1.723	1.723	0.000	58591	72.1720	81.434(AM)
4 Propane	4.113	4.113	0.000	96632	105.852	105.852(AM)
5 N-Butane	7.690	7.690	0.000	114164	139.821	139.710

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\007.D

Date : 24-JAN-2017 11:13

Client ID: ICAL7

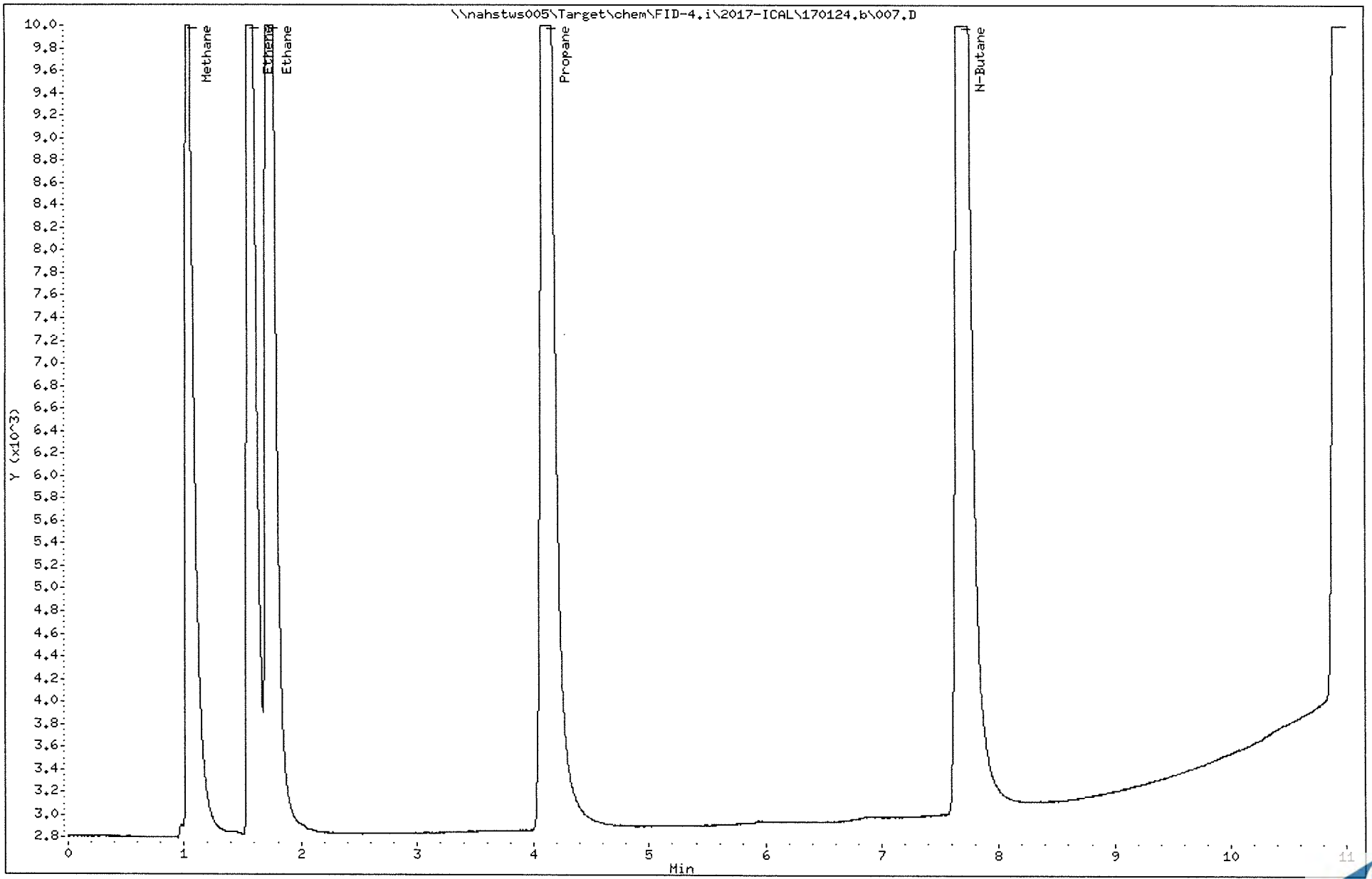
Sample Info: ICAL7;ICAL7;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA

Column diameter: 0.53



Data File: 008.D
Report Date: 02-Nov-2019 13:16

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\008.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 24-JAN-2017 12:05
Operator : MA Inst ID: FID-4.i
Smp Info : ICV;ICV;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\RSKNI2.m
Meth Date : 02-Nov-2019 12:28 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 8 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNI2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	1.046	1.030	0.016	9352	9.59187	9.591
2 Ethene	1.573	1.556	0.017	11192	19.1068	19.106
3 Ethane	1.736	1.723	0.013	14474	20.1170	20.117
4 Propane	4.116	4.113	0.003	18164	27.1844	27.184
5 N-Butane	7.696	7.690	0.006	19425	36.3149	36.314

Data File: \\nahstws005\Target\chem\FID-4.i\2017-ICAL\170124.b\008.D

Date : 24-JAN-2017 12:05

Client ID: ICV

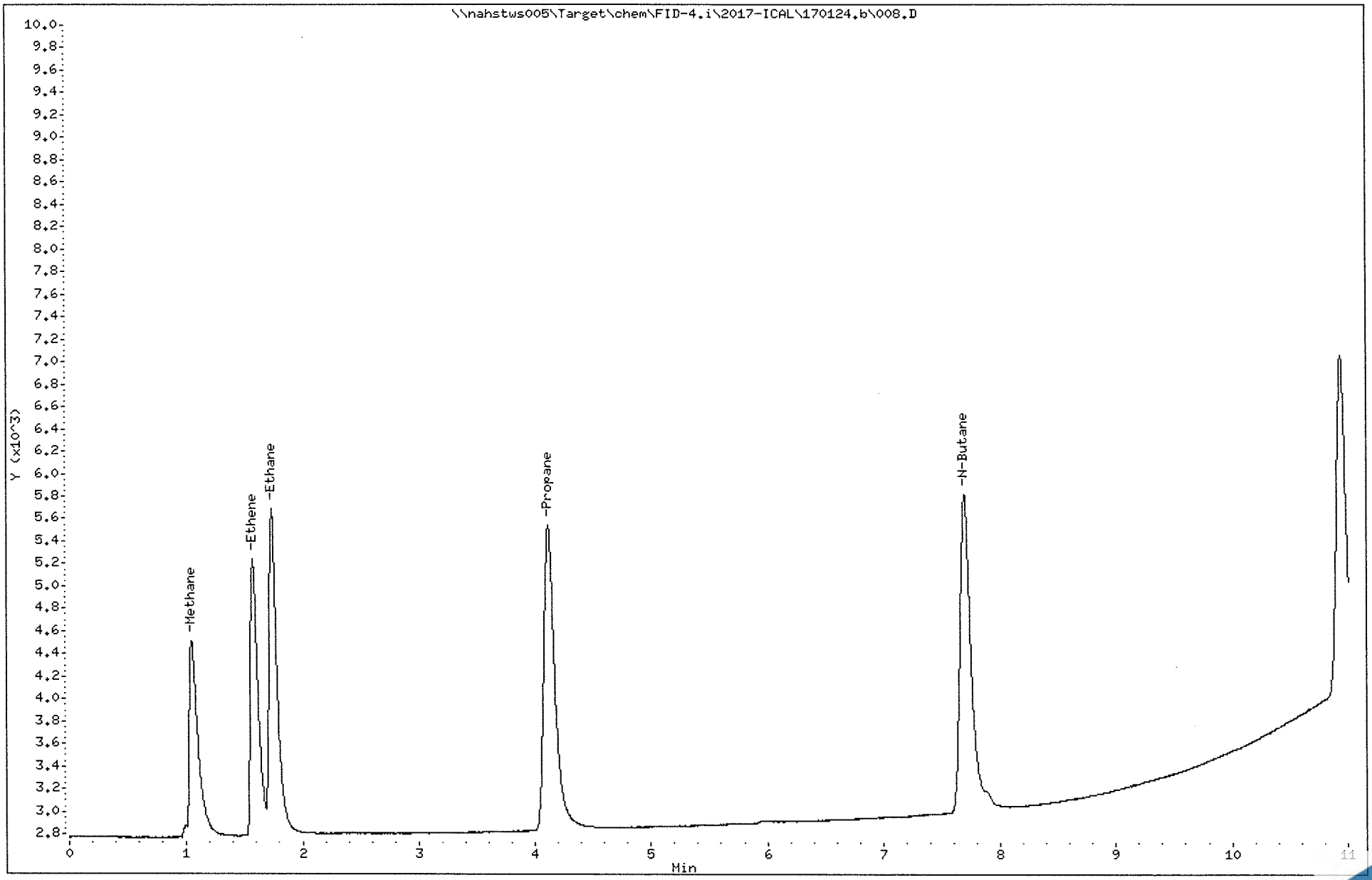
Instrument: FID-4.i

Sample Info: ICV;ICV;;;

Operator: MA

Column phase: Rtx-PLOT

Column diameter: 0.53



FID04 -Logbook

Batch: 39931 **Analyst:** Purvi Lad

Date: 03-16-2020 **Reviewer:**

Method: rsk 175 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	RSK-CCV	CCV	03-16-2020 09:25 am	1.00	0.00 mL	0.00 mL	001.D	Liquid	Y	NA
2	LCS-200316	LCS	03-16-2020 09:35 am	1.00	0.00 mL	30	002.D	Liquid	Y	NA
3	LCSD-200316	LCSD	03-16-2020 09:43 am	1.00	0.00 mL	30	003.D	Liquid	Y	NA
4	MBLK-200316	MBLK	03-16-2020 10:02 am	1.00	0.00 mL	30	004.D	Liquid	Y	NA
5	HS20030383-01	SAMP	03-16-2020 10:19 am	1.00	0.00 mL	29.55	005.D	Liquid	Y	<2
6	HS20030383-01	SAMP	03-16-2020 10:38 am	2.00	0.00 mL	29.55	006.D	Liquid	Y	<2
7	HS20030383-02	SAMP	03-16-2020 10:51 am	1.00	0.00 mL	27.87	007.D	Liquid	Y	<2
8	HS20030383-02	SAMP	03-16-2020 11:02 am	4.00	0.00 mL	27.87	008.D	Liquid	Y	<2
9	HS20030383-02DUP	SAMP	03-16-2020 11:13 am	4.00	0.00 mL	27.87	009.D	Liquid	Y	<2
10	HS20030383-03	SAMP	03-16-2020 11:22 am	1.00	0.00 mL	29.55	010.D	Liquid	Y	<2
11	RSK-CCV	CCV	03-16-2020 11:32 am	1.00	0.00 mL	0.00 mL	011.D	Liquid	Y	NA
12	HS20030383-06	SAMP	03-16-2020 11:51 am	1.00	0.00 mL	29.87	012.D	Liquid	Y	<2
13	HS20030498-04	SAMP	03-16-2020 12:00 pm	1.00	0.00 mL	29.37	013.D	Liquid	Y	<2
14	HS20030498-04	SAMP	03-16-2020 12:24 pm	10.00	0.00 mL	29.37	014.D	Liquid	Y	<2
15	HS20030498-05	SAMP	03-16-2020 12:39 pm	1.00	0.00 mL	29.34	015.D	Liquid	Y	<2
16	HS20030498-05	SAMP	03-16-2020 12:53 pm	50.00	0.00 mL	29.34	016.D	Liquid	Y	<2
17	HS20030498-06	SAMP	03-16-2020 01:03 pm	1.00	0.00 mL	29.83	017.D	Liquid	Y	<2
18	HS20030498-06	SAMP	03-16-2020 01:14 pm	100.0(	0.00 mL	29.83	018.D	Liquid	Y	<2
19	HS20030498-07	SAMP	03-16-2020 01:22 pm	1.00	0.00 mL	30.01	019.D	Liquid	Y	<2
20	HS20030498-07	SAMP	03-16-2020 01:36 pm	100.0(	0.00 mL	30.01	020.D	Liquid	Y	<2
21	RSK-CCV	CCV	03-16-2020 02:09 pm	1.00	0.00 mL	0.00 mL	021.D	Liquid	Y	NA

Chemical	Value
pH Paper	300107043-22
CCV/LC/LSD/MS/MSD	300107035-01

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Instrument ID: FID-4 Calibration Date: 03/16/20 Time: 0925

Lab File ID: 001 Init. Calib. Date(s): 01/24/17 01/24/17

Init. Calib. Times: 0906 1113

GC Column: RTX-PLOT ID: 0.53 (mm)

COMPOUND	RRF OR AMOUNT	RRF250.00 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Ethane	719.48900	690.68337	0.01	4.00	20.00	AVRG
Methane	974.99200	1014.7196	0.01	-4.07	20.00	AVRG
Ethene	585.76000	624.27300	0.01	-6.57	20.00	AVRG

FORM VII GASES

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Instrument ID: FID-4 Calibration Date: 03/16/20 Time: 1132

Lab File ID: 011 Init. Calib. Date(s): 01/24/17 01/24/17

Init. Calib. Times: 0906 1113

GC Column: RTX-PLOT ID: 0.53 (mm)

COMPOUND	RRF OR AMOUNT	RRF250.00 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Ethane	719.48900	607.93660	0.01	15.50	20.00	AVRG
Methane	974.99200	1022.7014	0.01	-4.89	20.00	AVRG
Ethene	585.76000	566.88427	0.01	3.22	20.00	AVRG

FORM VII GASES

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030383

Instrument ID: FID-4 Calibration Date: 03/16/20 Time: 1409

Lab File ID: 021 Init. Calib. Date(s): 01/24/17 01/24/17

Init. Calib. Times: 0906 1113

GC Column: RTX-PLOT ID: 0.53 (mm)

COMPOUND	RRF OR AMOUNT	RRF250.00 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Ethane	719.48900	611.42825	0.01	15.02	20.00	AVRG
Methane	974.99200	877.78584	0.01	9.97	20.00	AVRG
Ethene	585.76000	530.50445	0.01	9.43	20.00	AVRG

FORM VII GASES

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\001.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 16-MAR-2020 09:25
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.463	0.470	-0.007	9789	9.64700	10.040
2 Ethene	0.700	0.710	-0.010	10519	16.8500	17.957
3 Ethane	0.780	0.786	-0.006	12462	18.0430	17.320(M)

QC Flag Legend

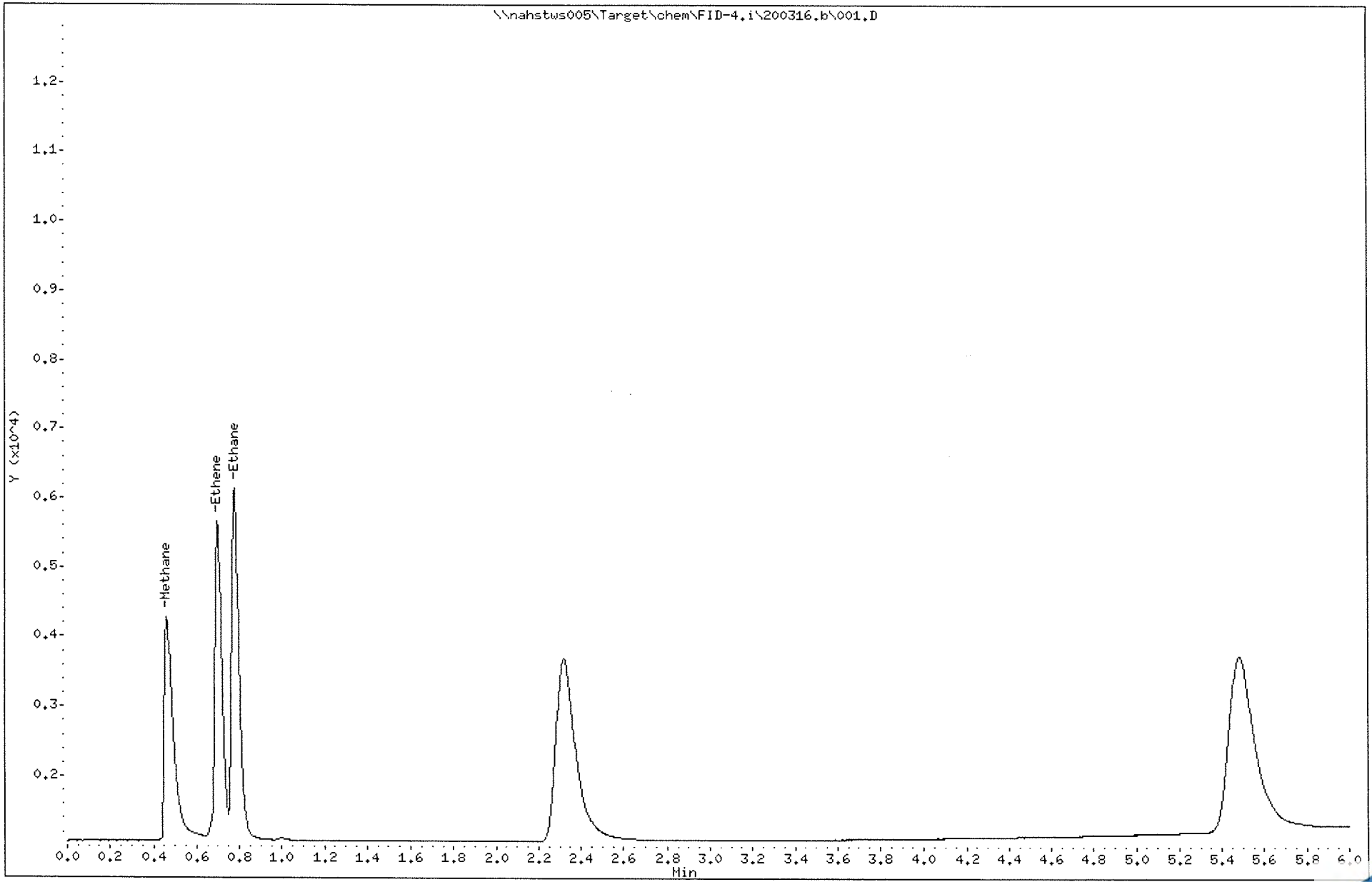
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\001.D
Date : 16-MAR-2020 09:25
Client ID: RSK-CCV
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\002.D Page 1
Report Date: 30-Mar-2020 08:39

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\002.D
Lab Smp Id: LCS-200316 Client Smp ID: LCS-200316
Inj Date : 16-MAR-2020 09:35
Operator : PL Inst ID: FID-4.i
Smp Info : LCS-200316;LCS-200316;3;;LCS
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 2 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

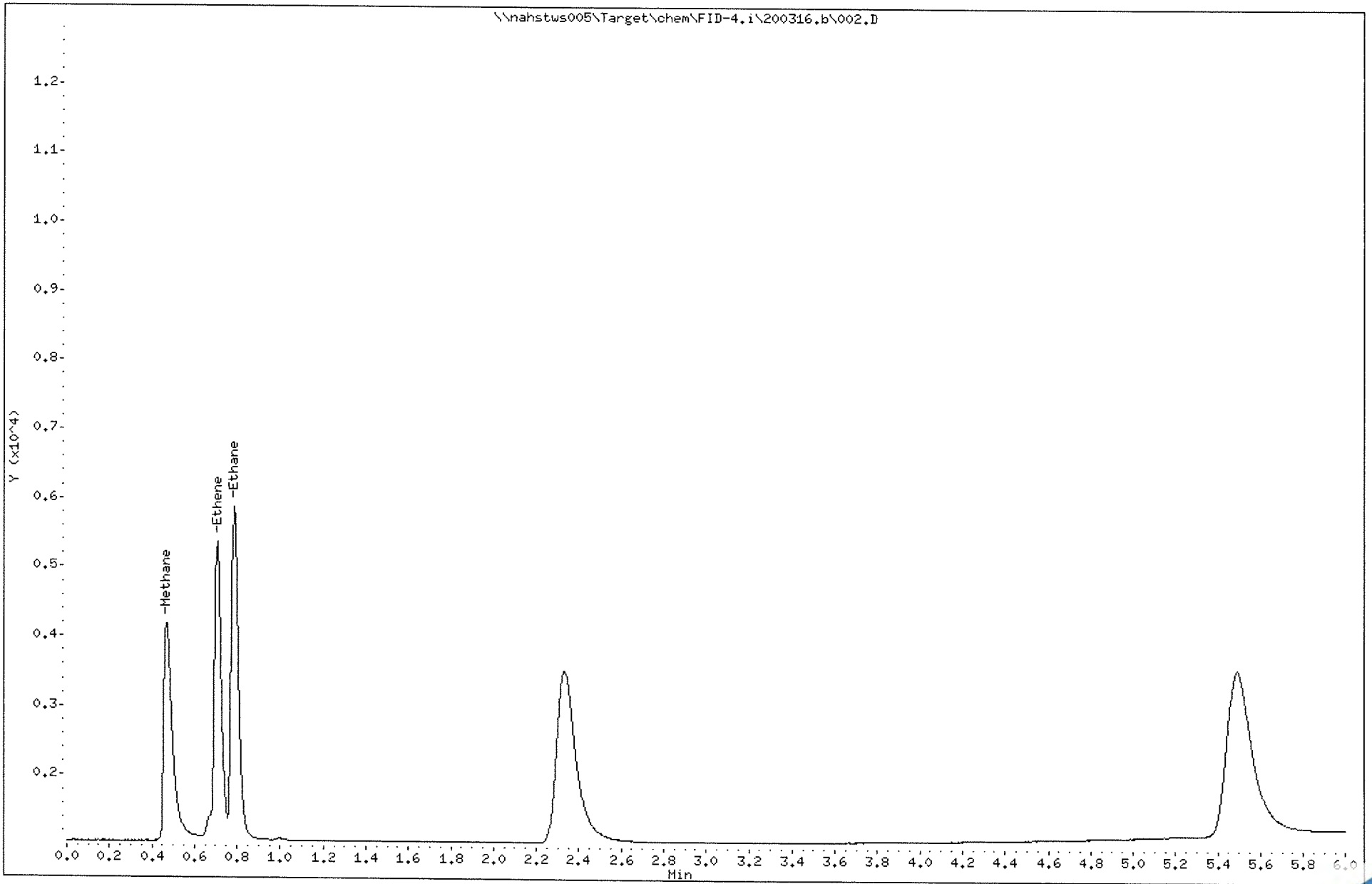
Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.466	0.470	-0.004	9263	9.50059	9.500
2 Ethene	0.706	0.710	-0.004	9999	17.0701	17.070
3 Ethane	0.786	0.786	0.000	11529	16.0239	16.023

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\002.D
Date : 16-MAR-2020 09:35
Client ID: LCS-200316
Sample Info: LCS-200316;LCS-200316;3;;LCS

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\003.D Page 1
Report Date: 30-Mar-2020 08:39

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\003.D
Lab Smp Id: LCSD-200316 Client Smp ID: LCSD-200316
Inj Date : 16-MAR-2020 09:43
Operator : PL Inst ID: FID-4.i
Smp Info : LCSD-200316;LCSD-200316;3;;LCSD
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 3 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

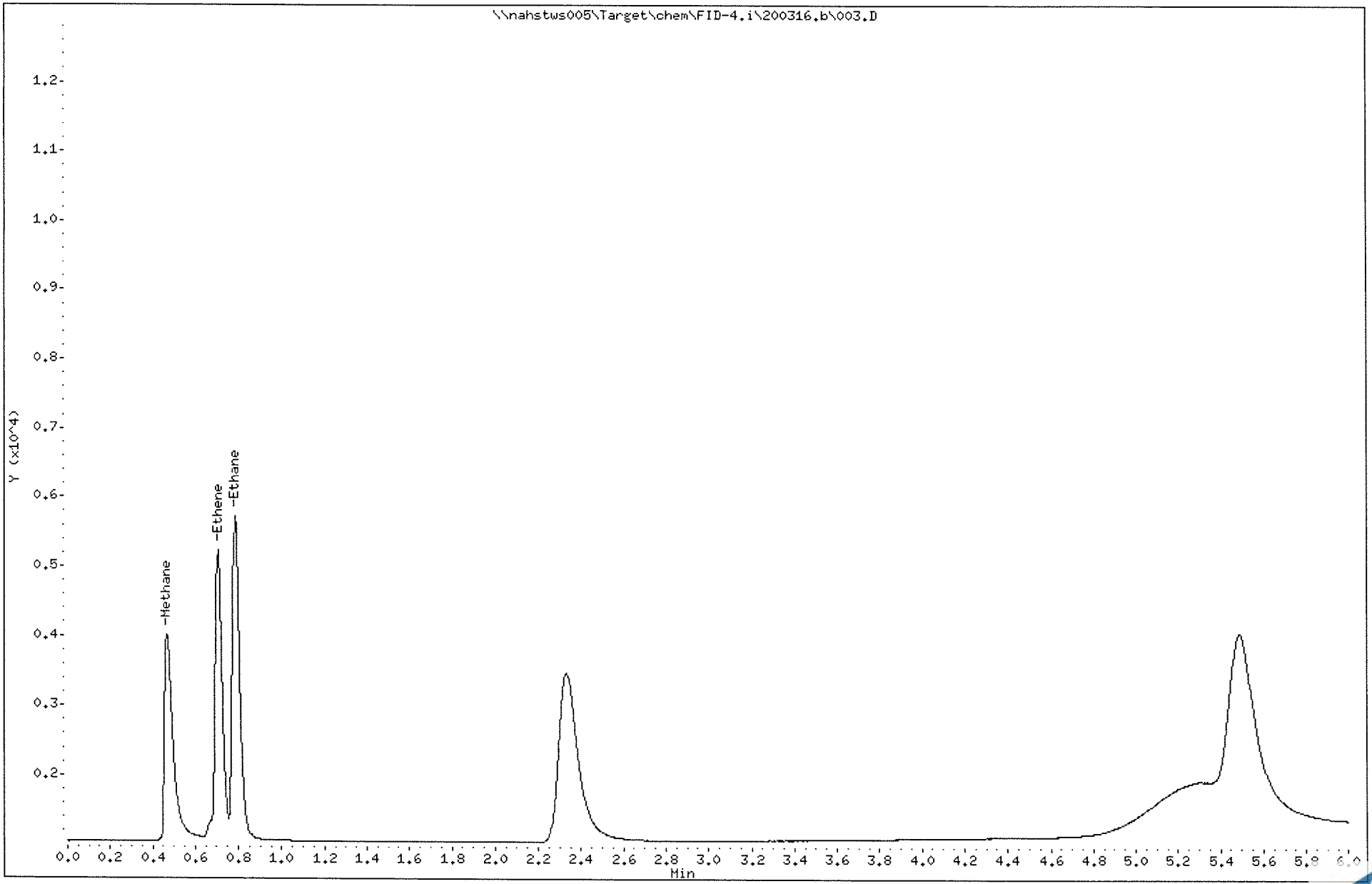
Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.466	0.470	-0.004	8602	8.82263	8.822
2 Ethene	0.706	0.710	-0.004	9646	16.4675	16.467
3 Ethane	0.786	0.786	0.000	11239	15.6208	15.620

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\003.D
Date : 16-MAR-2020 09:43
Client ID: LCSD-200316
Sample Info: LCSD-200316;LCSD-200316;3;;LCSD

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\004.D Page 1
Report Date: 30-Mar-2020 08:39

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\004.D
Lab Smp Id: MBLK-200316 Client Smp ID: MBLK-200316
Inj Date : 16-MAR-2020 10:02
Operator : PL Inst ID: FID-4.i
Smp Info : MBLK-200316;MBLK-200316;3;;BLANK
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 4 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

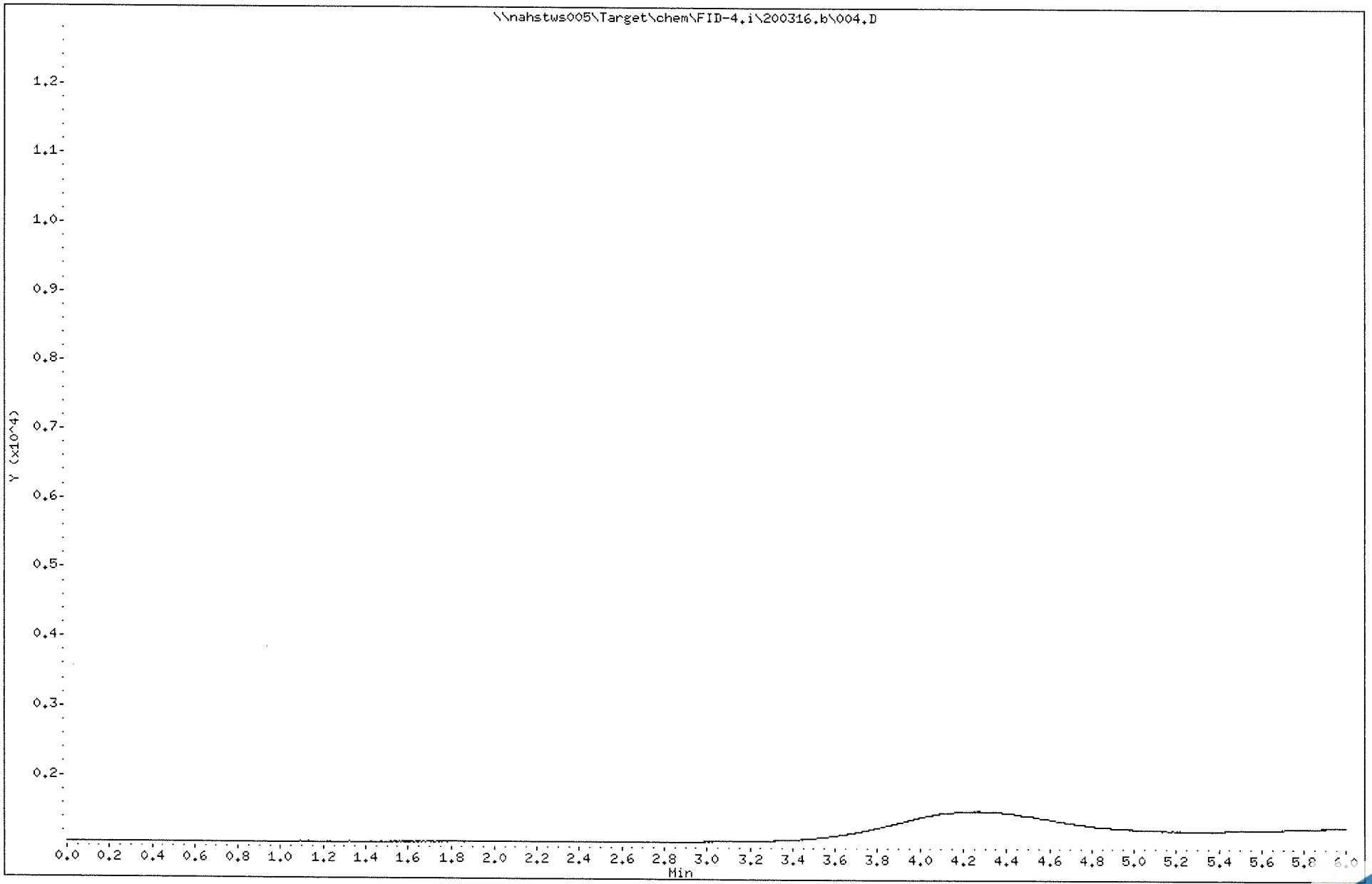
Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\004.D
Date : 16-MAR-2020 10:02
Client ID: MBLK-200316
Sample Info: MBLK-200316;MBLK-200316;3;;BLANK

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\005.D Page 1
Report Date: 30-Mar-2020 08:39

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\005.D
Lab Smp Id: HS20030383-01 Client Smp ID: HS20030383-01
Inj Date : 16-MAR-2020 10:19
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030383-01;HS20030383-01
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 5
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.470	0.470	0.000	43399	44.5121	44.512(A)
2 Ethene	0.703	0.710	-0.007	2899	4.94912	4.949(M)
3 Ethane	0.786	0.786	0.000	684	0.95067	0.950(aM)

QC Flag Legend

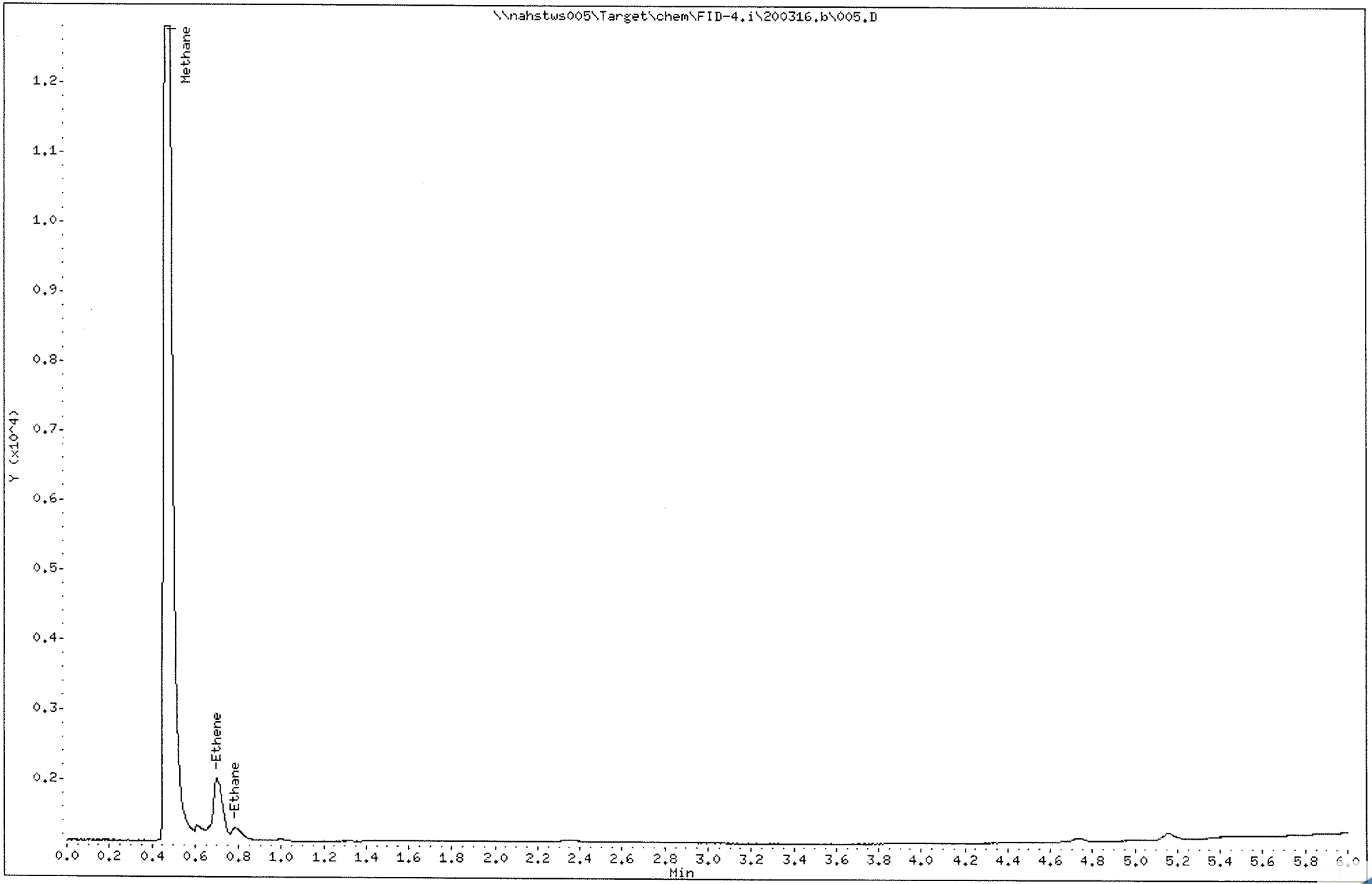
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\005.D
Date : 16-MAR-2020 10:19
Client ID: HS20030383-01
Sample Info: HS20030383-01;HS20030383-01

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\006.D
Lab Smp Id: HS20030383-01 Client Smp ID: HS20030383-01
Inj Date : 16-MAR-2020 10:38
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030383-01;HS20030383-01
Misc Info : ;1;0;2
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 6
Dil Factor: 2.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.463	0.470	-0.007	22737	23.3202	46.640(M)
2 Ethene	0.700	0.710	-0.010	2348	4.00846	8.016(M)
3 Ethane	0.780	0.786	-0.006	541	0.75192	1.503(aM)

QC Flag Legend

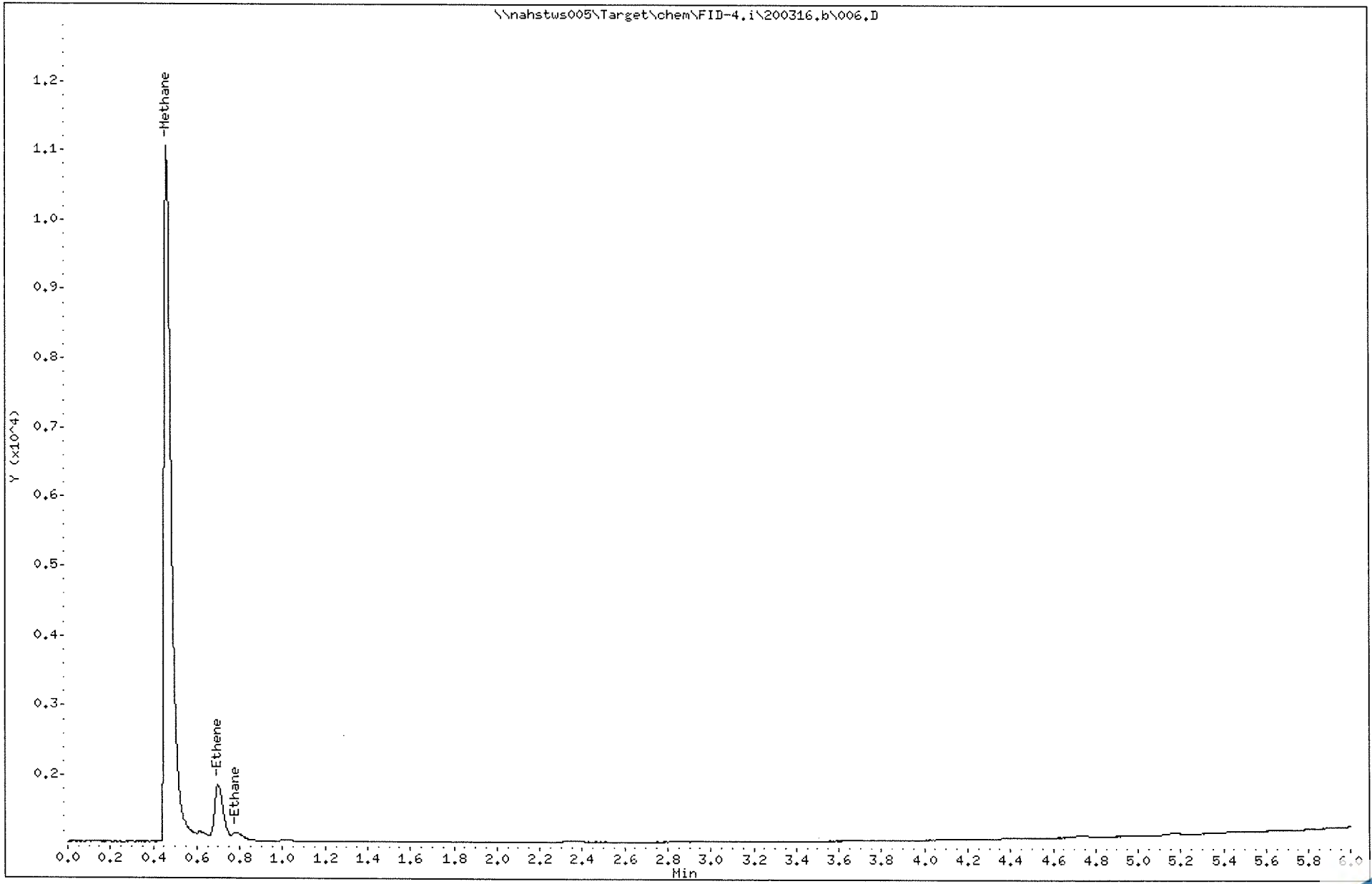
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\006.D
Date : 16-MAR-2020 10:38
Client ID: HS20030383-01
Sample Info: HS20030383-01;HS20030383-01

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\008.D Page 1
Report Date: 30-Mar-2020 08:39

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\008.D
Lab Smp Id: HS20030383-02 Client Smp ID: HS20030383-02
Inj Date : 16-MAR-2020 11:02
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030383-02;HS20030383-02
Misc Info : ;1;0;4X
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 5
Dil Factor: 4.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.466	0.470	-0.004	20133	20.6494	82.597
2 Ethene	0.703	0.710	-0.007	13587	23.1955	92.781(M)
3 Ethane	0.786	0.786	0.000	541	0.75192	3.007(aM)

QC Flag Legend

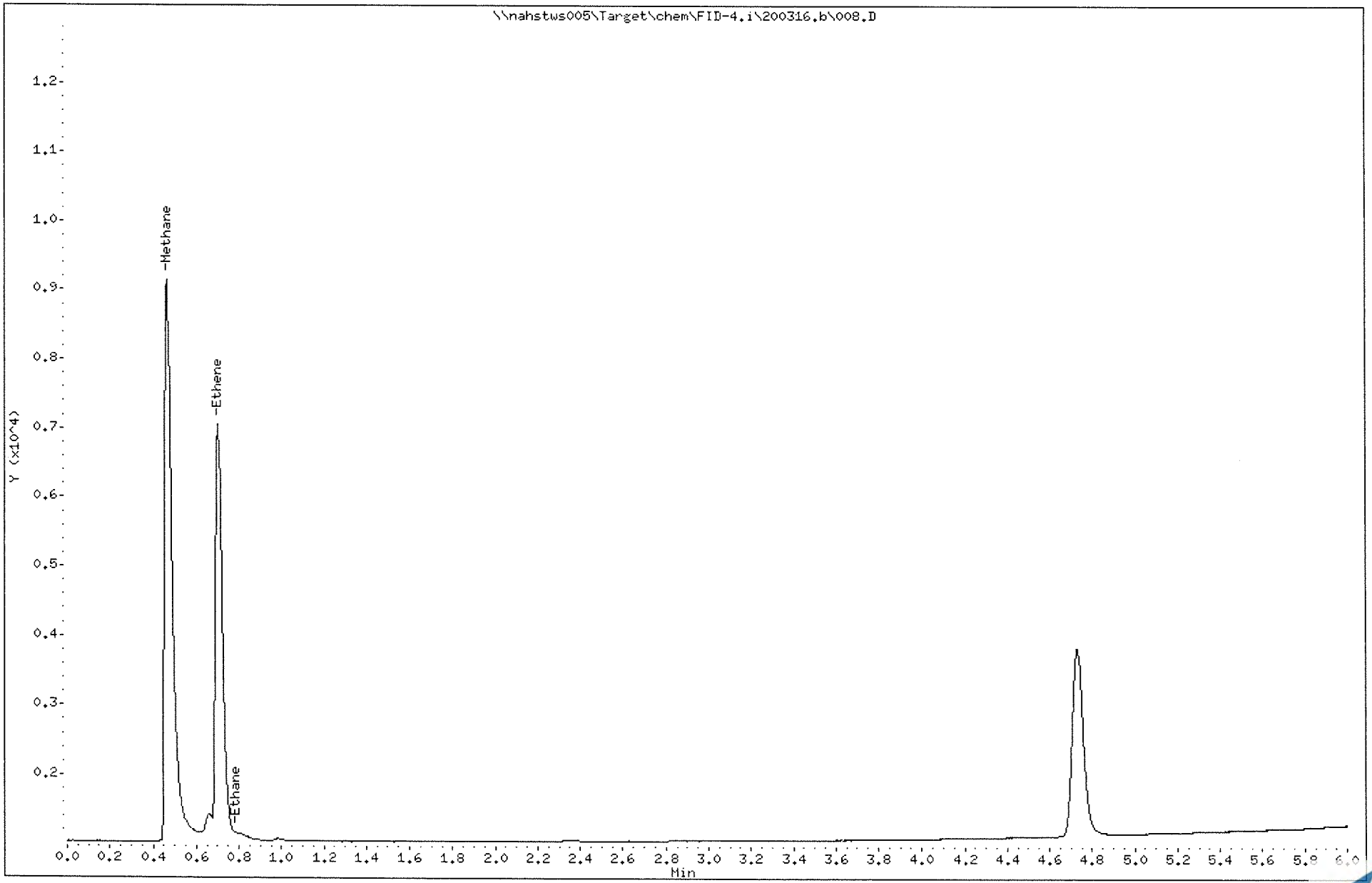
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\008.D
Date : 16-MAR-2020 11:02
Client ID: HS20030383-02
Sample Info: HS20030383-02;HS20030383-02

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\010.D
Lab Smp Id: HS20030383-03 Client Smp ID: HS20030383-03
Inj Date : 16-MAR-2020 11:22
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030383-03;HS20030383-03
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.486	0.470	0.016	4231	4.33952	4.339
2 Ethene	0.680	0.710	-0.030	926	1.58085	1.580(M)
3 Ethane	0.813	0.786	0.027	333	0.46283	0.462(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\010.D

Date : 16-MAR-2020 11:22

Client ID: HS20030383-03

Instrument: FID-4.i

Sample Info: HS20030383-03;HS20030383-03

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\011.D Page 1
Report Date: 30-Mar-2020 08:38

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\011.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 16-MAR-2020 11:32
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 10 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

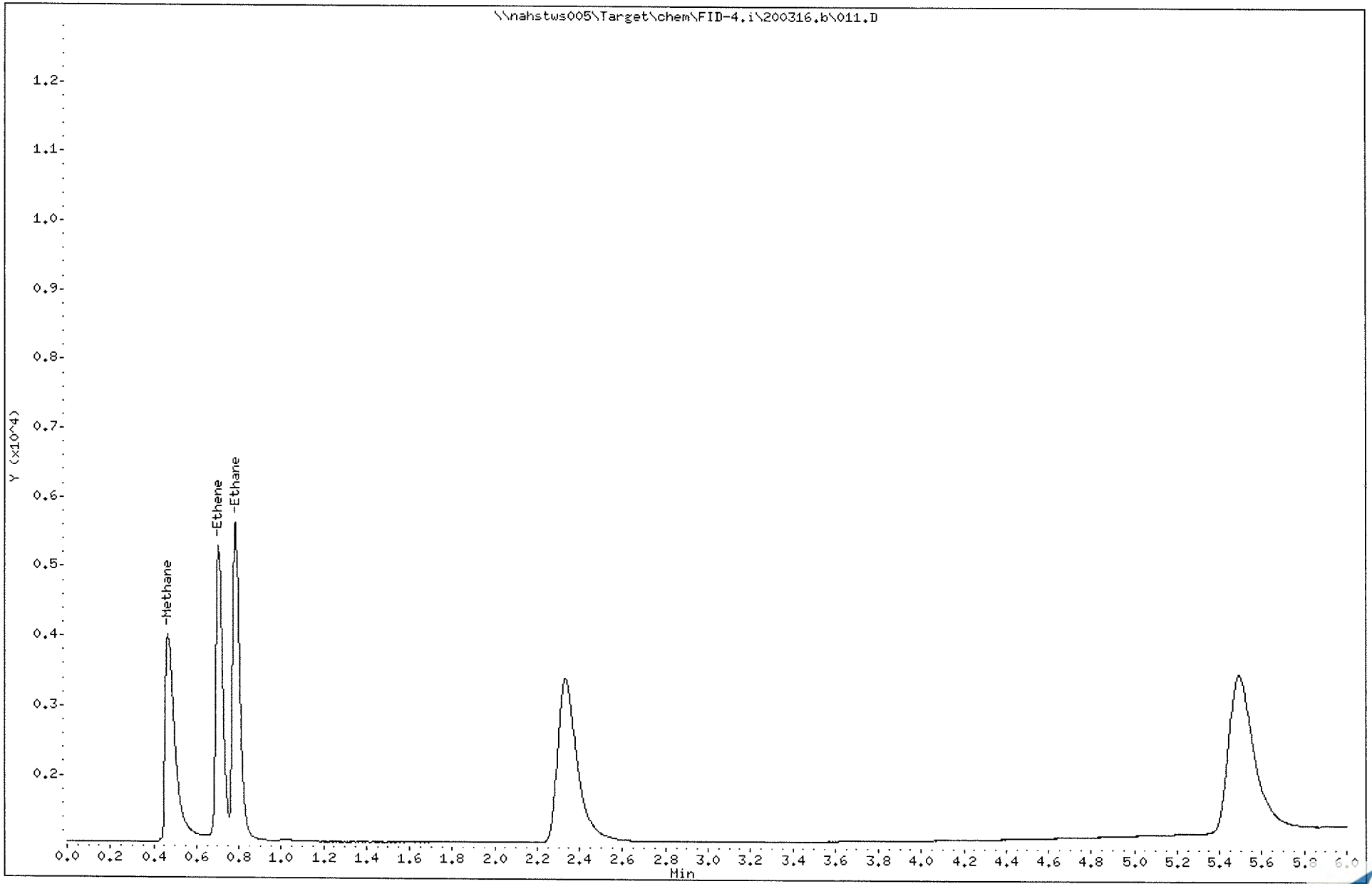
					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.466	0.470	-0.004	9866	9.64700	10.119
2 Ethene	0.706	0.710	-0.004	9552	16.8500	16.307
3 Ethane	0.786	0.786	0.000	10969	18.0430	15.245

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\011.D
Date : 16-MAR-2020 11:32
Client ID: RSK-CCV
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\012.D
Lab Smp Id: HS20030383-06 Client Smp ID: HS20030383-06
Inj Date : 16-MAR-2020 11:51
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030383-06;HS20030383-06
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.466	0.470	-0.004	4974	5.10158	5.101(M)
2 Ethene	0.686	0.710	-0.024	173	0.29534	0.295(M)
3 Ethane	0.776	0.786	-0.010	1338	1.85965	1.859

QC Flag Legend

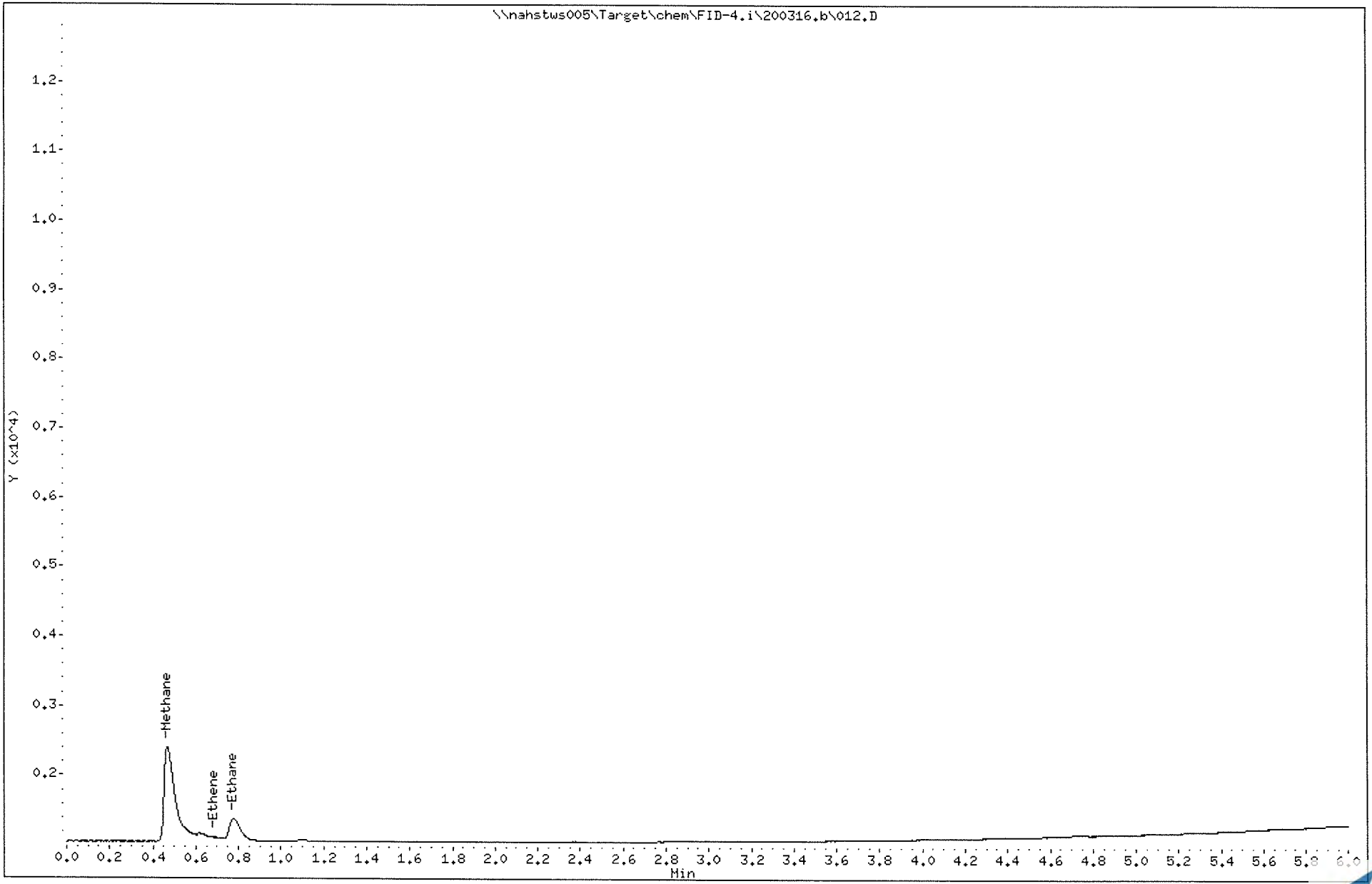
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\012.D
Date : 16-MAR-2020 11:51
Client ID: HS20030383-06
Sample Info: HS20030383-06;HS20030383-06

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\nahstws005\Target\chem\FID-4.i\200316.b\021.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 16-MAR-2020 14:09
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 21 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.470	0.470	0.000	8468	9.64700	8.685
2 Ethene	0.710	0.710	0.000	8939	16.8500	15.260
3 Ethane	0.786	0.786	0.000	11032	18.0430	15.333(M)

QC Flag Legend

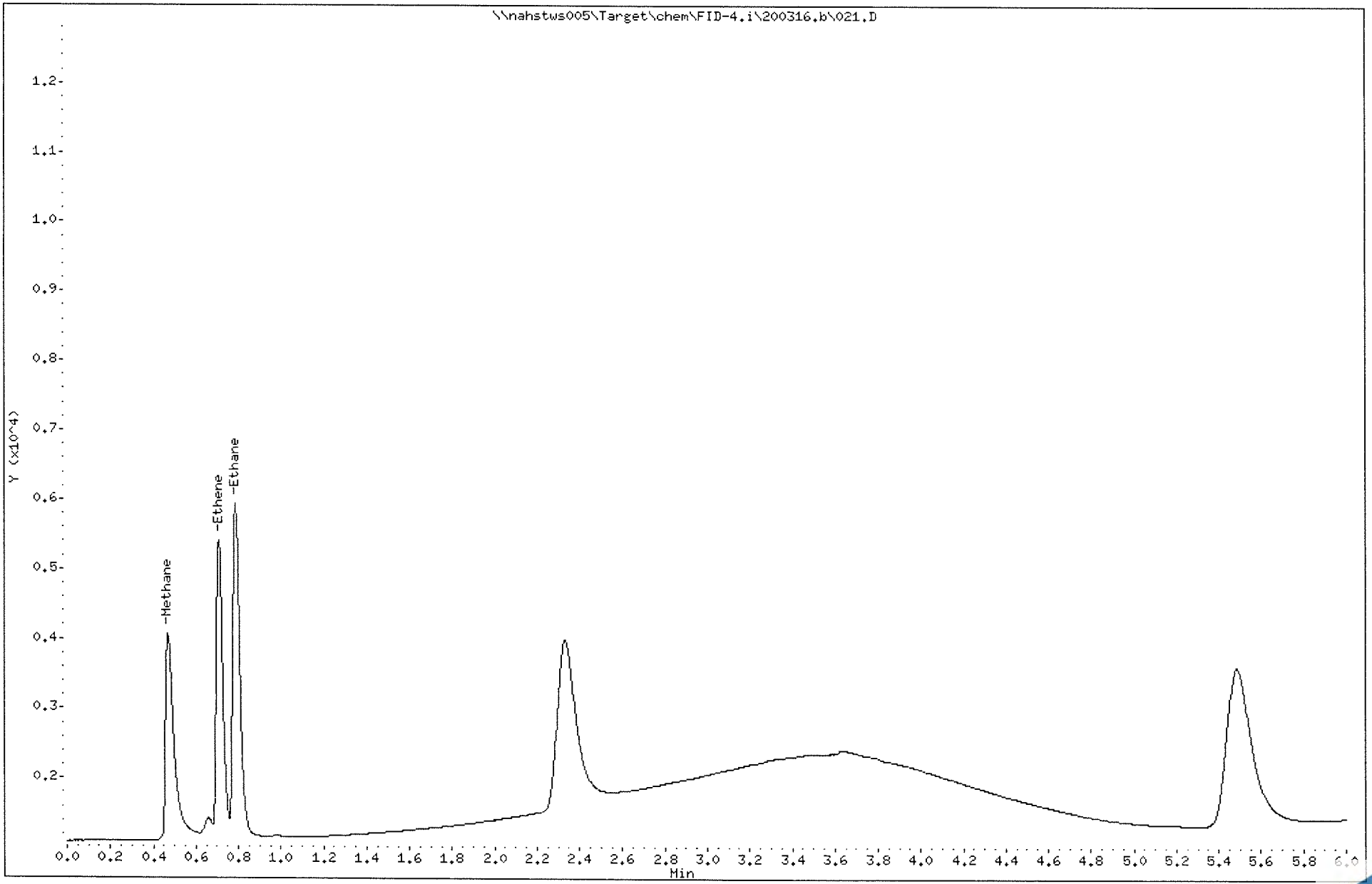
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\FID-4.i\200316.b\021.D
Date : 16-MAR-2020 14:09
Client ID: RSK-CCV
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



HS20030383 Wet Chem Raw Data (ALK_W 2320B)

ALS WO# HS20030383

Report Date: 03/10/2020 : 3:53

PC-TitratION PLUS
Calibration Report

Calibration Record # 2227

Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	03/10/2020
Channel	1	Time	3:53 PM
Probe Type	pH	Temperature	293.92 K 20.77 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-57.800	CorrCoeff	0.9999
Intercept	4.230	Equation:	Y = (-57.800) X + (4.230)

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-57.800	-65.00	-53.00
Intercept	4.230	-100.00	100.00
Correlation Coefficient	0.9999	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	179.32
	7.00	0.85
	10.00	-167.48

#357910

#357913

MD QA

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Report Date: 3/10/2020 : 10:59 PM

PC-TitratION PLUS
Water Analysis Report

Run Number 3779 **Order Number** 20200310-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
ICV-PH	3/10/2020	4:14 PM	20.77	-1.00	6.03	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
TAP WATER	3/10/2020	4:21 PM	20.99	-1.00	7.87	.00	381.97	381.97	.00	.00	.00	3.64	3.64
WBLKW1-200310	3/10/2020	4:26 PM	20.99	-1.00	5.81	.00	.64	.64	.00	.00	.00	.02	.02
LCS1-200310	3/10/2020	4:35 PM	21.02	-1.00	11.01	505.58	978.41	.00	945.67	32.74	4.82	9.32	9.32
LCSD1-200310	3/10/2020	4:43 PM	21.74	-1.00	10.99	500.10	976.39	.00	952.59	23.80	4.76	9.30	9.30
HS20030269-01	3/10/2020	4:51 PM	22.25	-1.00	7.66	.00	482.12	482.12	.00	.00	.00	4.59	4.59
HS20030269-01DUP	3/10/2020	4:58 PM	22.58	-1.00	7.67	.00	478.58	478.58	.00	.00	.00	4.56	4.56
HS20030269-02	3/10/2020	5:04 PM	22.77	-1.00	7.85	.00	435.41	435.41	.00	.00	.00	4.15	4.15
HS20030269-03	3/10/2020	5:11 PM	22.92	-1.00	7.75	.00	562.11	562.11	.00	.00	.00	5.35	5.35
HS20030269-04	3/10/2020	5:19 PM	23.07	-1.00	8.00	.00	598.67	598.67	.00	.00	.00	5.70	5.70
HS20030269-05	3/10/2020	5:26 PM	22.20	-1.00	7.86	.00	469.43	469.43	.00	.00	.00	4.47	4.47
CCV-PH	3/10/2020	5:29 PM	21.64	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/10/2020	5:37 PM	21.50	-1.00	10.99	507.29	986.94	.00	959.29	27.65	4.83	9.40	9.40
DI RINSE	3/10/2020	5:42 PM	21.38	-1.00	5.91	.00	.44	.44	.00	.00	.00	.02	.02
HS20030378-01	3/10/2020	5:47 PM	21.32	-1.00	5.67	.00	.20	.20	.00	.00	.00	.02	.02
HS20030269-06	3/10/2020	5:54 PM	21.27	-1.00	7.94	.00	629.38	629.38	.00	.00	.00	5.99	5.99
HS20030269-07	3/10/2020	5:59 PM	21.14	-1.00	5.80	.00	.30	.30	.00	.00	.00	.02	.02
HS20030229-02	3/10/2020	6:05 PM	21.15	-1.00	8.57	18.32	155.14	118.49	36.65	.00	.17	1.48	1.48
HS20030249-01	3/10/2020	6:15 PM	21.19	-1.00	10.35	512.00	1,112.88	88.89	1,024.00	.00	4.88	10.60	10.60
HS20030287-01DF10	3/10/2020	6:22 PM	21.12	-1.00	9.78	50.64	230.50	129.22	101.28	.00	.48	2.20	2.20
HS20030287-02DF10	3/10/2020	6:30 PM	21.08	-1.00	9.96	38.27	146.37	69.83	76.54	.00	.36	1.39	1.39
HS20030287-03DF10	3/10/2020	6:41 PM	20.94	-1.00	10.79	846.26	1,675.62	.00	1,658.72	16.90	8.06	15.96	15.96
HS20030287-04DF10	3/10/2020	6:48 PM	20.84	-1.00	8.40	3.17	259.34	253.01	6.33	.00	.03	2.47	2.47
CCV-PH	3/10/2020	6:50 PM	20.70	-1.00	7.06	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/10/2020	6:59 PM	20.72	-1.00	10.95	501.17	984.21	.00	966.06	18.14	4.77	9.37	9.37
DI RINSE	3/10/2020	7:03 PM	20.69	-1.00	5.93	.00	.38	.38	.00	.00	.00	.02	.02
HS20030287-05DF5	3/10/2020	7:11 PM	20.76	-1.00	8.41	1.25	100.75	98.25	2.50	.00	.01	.96	.96

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Run Number 3779 **Order Number** 20200310-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS20030287-06DF5	3/10/2020	7:18 PM	20.67	-1.00	9.97	51.28	190.79	88.22	102.57	.00	.49	1.82	1.82
HS20030287-07DF10	3/10/2020	7:32 PM	21.02	-1.00	11.41	1,296.33	2,365.37	.00	2,138.08	227.29	12.35	22.53	22.53
HS20030301-01	3/10/2020	7:39 PM	21.89	-1.00	6.63	.00	497.28	497.28	.00	.00	.00	4.74	4.74
HS20030301-02	3/10/2020	7:45 PM	22.17	-1.00	6.41	.00	494.51	494.51	.00	.00	.00	4.71	4.71
HS20030301-02DF5	3/10/2020	7:52 PM	22.35	-1.00	6.63	.00	88.66	88.66	.00	.00	.00	.84	.84
WBLKW2-200310	3/10/2020	7:57 PM	21.80	-1.00	5.71	.00	.39	.39	.00	.00	.00	.02	.02
LCS2-200310	3/10/2020	8:06 PM	21.37	-1.00	10.92	499.99	989.69	.00	979.40	10.29	4.76	9.43	9.43
LCSD2-200310	3/10/2020	8:15 PM	21.18	-1.00	10.92	496.61	982.84	.00	972.46	10.38	4.73	9.36	9.36
CCV-PH	3/10/2020	8:17 PM	20.88	-1.00	7.06	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/10/2020	8:26 PM	20.84	-1.00	10.92	496.14	986.57	.00	980.86	5.71	4.73	9.40	9.40
DI RINSE	3/10/2020	8:31 PM	21.16	-1.00	5.94	.00	.66	.66	.00	.00	.00	.02	.02
HS20030283-04	3/10/2020	8:38 PM	21.47	-1.00	7.88	.00	518.40	518.40	.00	.00	.00	4.94	4.94
HS20030283-04DUP	3/10/2020	8:45 PM	21.80	-1.00	7.88	.00	518.16	518.16	.00	.00	.00	4.93	4.93
HS20030283-01	3/10/2020	8:52 PM	22.10	-1.00	8.03	.00	348.47	348.47	.00	.00	.00	3.32	3.32
HS20030283-02	3/10/2020	8:59 PM	22.29	-1.00	7.96	.00	446.32	446.32	.00	.00	.00	4.25	4.25
HS20030283-03	3/10/2020	9:06 PM	22.48	-1.00	7.78	.00	455.70	455.70	.00	.00	.00	4.34	4.34
HS20030283-05	3/10/2020	9:10 PM	22.57	-1.00	5.83	.00	.29	.29	.00	.00	.00	.02	.02
HS20030301-03	3/10/2020	9:17 PM	22.69	-1.00	6.90	.00	335.14	335.14	.00	.00	.00	3.19	3.19
HS20030277-01	3/10/2020	9:24 PM	22.11	-1.00	7.85	.00	626.59	626.59	.00	.00	.00	5.97	5.97
HS20030277-02	3/10/2020	9:31 PM	21.53	-1.00	7.97	.00	700.44	700.44	.00	.00	.00	6.67	6.67
CCV-PH	3/10/2020	9:34 PM	20.88	-1.00	7.07	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/10/2020	9:42 PM	20.83	-1.00	10.90	494.05	987.15	.00	986.20	.95	4.71	9.40	9.40
DI RINSE	3/10/2020	9:47 PM	21.35	-1.00	5.92	.00	.43	.43	.00	.00	.00	.02	.02
HS20030277-03	3/10/2020	9:55 PM	21.63	-1.00	7.94	.00	584.82	584.82	.00	.00	.00	5.57	5.57
HS20030277-04	3/10/2020	10:02 PM	21.98	-1.00	7.93	.00	517.46	517.46	.00	.00	.00	4.93	4.93
HS20030277-05	3/10/2020	10:09 PM	22.20	-1.00	8.09	.00	596.98	596.98	.00	.00	.00	5.69	5.69
HS20030263-01	3/10/2020	10:16 PM	22.42	-1.00	8.78	52.05	455.16	351.06	104.10	.00	.50	4.33	4.33
HS20030383-01	3/10/2020	10:23 PM	22.63	-1.00	7.15	.00	599.36	599.36	.00	.00	.00	5.71	5.71
HS20030383-02	3/10/2020	10:30 PM	22.80	-1.00	6.83	.00	396.10	396.10	.00	.00	.00	3.77	3.77
HS20030383-03	3/10/2020	10:36 PM	22.84	-1.00	7.32	.00	418.37	418.37	.00	.00	.00	3.98	3.98

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Run Number 3779 **Order Number** 20200310-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS20030383-06	3/10/2020	10:42 PM	22.90	-1.00	5.68	.00	14.86	14.86	.00	.00	.00	.17	.17
CCV-PH	3/10/2020	10:44 PM	22.83	-1.00	7.07	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/10/2020	10:52 PM	22.72	-1.00	10.85	484.72	985.26	15.83	969.43	.00	4.62	9.38	9.38
DI RINSE	3/10/2020	10:57 PM	23.04	-1.00	5.96	.00	.64	.64	.00	.00	.00	.02	.02

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March 19, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030390**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP-16**

Dear Susan,

ALS Environmental received 7 sample(s) on Mar 10, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Work Order: HS20030390

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030390-01	16IW20-200309	Water		09-Mar-2020 08:15	10-Mar-2020 09:00	☐
HS20030390-02	16EW01-200309	Water		09-Mar-2020 09:15	10-Mar-2020 09:00	☐
HS20030390-03	16EW02-200309	Water		09-Mar-2020 10:15	10-Mar-2020 09:00	☐
HS20030390-04	16EW04-200309	Water		09-Mar-2020 11:15	10-Mar-2020 09:00	☐
HS20030390-05	16RW03-200309	Water		09-Mar-2020 12:05	10-Mar-2020 09:00	☐
HS20030390-06	16RW04-200309	Water		09-Mar-2020 12:55	10-Mar-2020 09:00	☐
HS20030390-07	16WW26-200309	Water		09-Mar-2020 13:50	10-Mar-2020 09:00	☐

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant LHAAP-16
Work Order: HS20030390

WetChemistry by Method SW9056

Batch ID: R358310

Sample ID: 16RW04-200309 (HS20030390-06MS)

- The recovery of the Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) associated with this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS/MSD may be due to sample matrix interference. (Nitrogen, Nitrate (As N))

Sample ID: 16RW04-200309 (HS20030390-06MSD)

- The recovery of the Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) associated with this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS/MSD may be due to sample matrix interference. (Nitrogen, Nitrate (As N))

Batch ID: R358368

Sample ID: HS20030394-07MS

- MS and MSD are for an unrelated sample (Bromide)

Batch ID: R358331

Sample ID: HS20030309-01MS

- MS and MSD are for an unrelated sample (Bromide)

Batch ID: R358411,R358415

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

WetChemistry by Method SM5310B

Batch ID: R357907,R358074

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16IW20-200309
Collection Date: 09-Mar-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**10.7**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 17:25
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**13.4**		**0.150**	**0.500**	**0.500**	**mg/L**	5	11-Mar-2020 08:17
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	10-Mar-2020 18:24
Sulfate	**795**		**2.00**	**5.00**	**5.00**	**mg/L**	10	18-Mar-2020 14:39

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16EW01-200309
Collection Date: 09-Mar-2020 09:15

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**13.4**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 17:38
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**3.39**		**0.300**	**1.00**	**1.00**	**mg/L**	10	17-Mar-2020 16:14
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	10-Mar-2020 18:42
Sulfate	**206**		**2.00**	**5.00**	**5.00**	**mg/L**	10	18-Mar-2020 14:53

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16EW02-200309
Collection Date: 09-Mar-2020 10:15

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**6.48**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 17:11
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**2.06**		**0.600**	**2.00**	**2.00**	**mg/L**	20	17-Mar-2020 16:32
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	10-Mar-2020 19:01
Sulfate	**1,260**		**4.00**	**10.0**	**10.0**	**mg/L**	20	17-Mar-2020 16:32

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16EW04-200309
Collection Date: 09-Mar-2020 11:15

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**3.40**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 19:03
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**0.637**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	10-Mar-2020 19:19

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16RW03-200309
Collection Date: 09-Mar-2020 12:05

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**1.04**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 19:17
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**0.792**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	10-Mar-2020 19:37

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16RW04-200309
Collection Date: 09-Mar-2020 12:55

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**3.17**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 19:32
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**0.430**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	10-Mar-2020 20:31

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16WW26-200309
Collection Date: 09-Mar-2020 13:50

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**2.27**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 19:45
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**0.258**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	10-Mar-2020 20:49
Nitrogen, Nitrate (As N)	**1.23**		**0.300**	**1.00**	**1.00**	**mg/L**	10	11-Mar-2020 11:49
Sulfate	**390**		**2.00**	**5.00**	**5.00**	**mg/L**	10	11-Mar-2020 11:49

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R357907 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Water	
HS20030390-01	16IW20-200309	09 Mar 2020 08:15			12 Mar 2020 17:25	1
HS20030390-02	16EW01-200309	09 Mar 2020 09:15			12 Mar 2020 17:38	1
HS20030390-03	16EW02-200309	09 Mar 2020 10:15			12 Mar 2020 17:11	1
Batch ID: R358074 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Water	
HS20030390-04	16EW04-200309	09 Mar 2020 11:15			12 Mar 2020 19:03	1
HS20030390-05	16RW03-200309	09 Mar 2020 12:05			12 Mar 2020 19:17	1
HS20030390-06	16RW04-200309	09 Mar 2020 12:55			12 Mar 2020 19:32	1
HS20030390-07	16WW26-200309	09 Mar 2020 13:50			12 Mar 2020 19:45	1
Batch ID: R358310 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20030390-01	16IW20-200309	09 Mar 2020 08:15			10 Mar 2020 18:24	1
HS20030390-02	16EW01-200309	09 Mar 2020 09:15			10 Mar 2020 18:42	1
HS20030390-03	16EW02-200309	09 Mar 2020 10:15			10 Mar 2020 19:01	1
HS20030390-04	16EW04-200309	09 Mar 2020 11:15			10 Mar 2020 19:19	1
HS20030390-05	16RW03-200309	09 Mar 2020 12:05			10 Mar 2020 19:37	1
HS20030390-06	16RW04-200309	09 Mar 2020 12:55			10 Mar 2020 20:31	1
HS20030390-07	16WW26-200309	09 Mar 2020 13:50			10 Mar 2020 20:49	1
Batch ID: R358331 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20030390-02	16EW01-200309	09 Mar 2020 09:15			17 Mar 2020 16:14	10
HS20030390-03	16EW02-200309	09 Mar 2020 10:15			17 Mar 2020 16:32	20
Batch ID: R358368 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20030390-01	16IW20-200309	09 Mar 2020 08:15			11 Mar 2020 08:17	5
Batch ID: R358411 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20030390-07	16WW26-200309	09 Mar 2020 13:50			11 Mar 2020 11:49	10
Batch ID: R358415 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20030390-01	16IW20-200309	09 Mar 2020 08:15			18 Mar 2020 14:39	10
HS20030390-02	16EW01-200309	09 Mar 2020 09:15			18 Mar 2020 14:53	10

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R357907 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 12:40**
Client ID: Run ID: **TOC_02_357907** SeqNo: **5509916** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 12:53**
Client ID: Run ID: **TOC_02_357907** SeqNo: **5509917** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.938	1.00	10	0	89.4	85 - 115				

LCSD Sample ID: **WLCSDW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 13:06**
Client ID: Run ID: **TOC_02_357907** SeqNo: **5509918** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.99	1.00	10	0	89.9	85 - 115	8.938	0.58	20	

MS Sample ID: **HS20030372-01MS** Units: **mg/L** Analysis Date: **12-Mar-2020 16:16**
Client ID: Run ID: **TOC_02_357907** SeqNo: **5510042** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.1	1.00	10	0	101	80 - 120				

The following samples were analyzed in this batch: HS20030390-01 HS20030390-02 HS20030390-03

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358074 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:21**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510414** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:37**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510415** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.417	1.00	10	0	94.2	85 - 115				

LCSD Sample ID: **WLCSDW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:50**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510416** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.929	1.00	10	0	89.3	85 - 115	9.417	5.32	20	

MS Sample ID: **HS20030462-01MS** Units: **mg/L** Analysis Date: **12-Mar-2020 21:52**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510429** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	23.44	1.00	10	12.34	111	80 - 120				

The following samples were analyzed in this batch: HS20030390-04 HS20030390-05 HS20030390-06 HS20030390-07

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358310 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-031020** Units: **mg/L** Analysis Date: **10-Mar-2020 10:51**
Client ID: Run ID: **ICS-Integrion_358310** SeqNo: **5515637** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U
Nitrogen, Nitrate (As N)	0.100	0.100								U

LCS Sample ID: **WLCSW1-031020** Units: **mg/L** Analysis Date: **10-Mar-2020 11:09**
Client ID: Run ID: **ICS-Integrion_358310** SeqNo: **5515638** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.793	0.100	4	0	94.8	80 - 120				
Nitrogen, Nitrate (As N)	4.006	0.100	4	0	100	80 - 120				

LCSD Sample ID: **WLCSDW1-031020** Units: **mg/L** Analysis Date: **10-Mar-2020 11:27**
Client ID: Run ID: **ICS-Integrion_358310** SeqNo: **5515639** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.812	0.100	4	0	95.3	80 - 120	3.793	0.487	20	
Nitrogen, Nitrate (As N)	4.02	0.100	4	0	101	80 - 120	4.006	0.339	20	

MS Sample ID: **HS20030390-06MS** Units: **mg/L** Analysis Date: **10-Mar-2020 21:07**
Client ID: **16RW04-200309** Run ID: **ICS-Integrion_358310** SeqNo: **5515656** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	2.053	0.100	2	0.4298	81.1	80 - 120				
Nitrogen, Nitrate (As N)	2.458	0.100	2	0	123	80 - 120				S

MS Sample ID: **HS20030278-02MS** Units: **mg/L** Analysis Date: **10-Mar-2020 15:05**
Client ID: Run ID: **ICS-Integrion_358310** SeqNo: **5515643** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	17.38	1.00	20	0	86.9	80 - 120				
Nitrogen, Nitrate (As N)	26.75	1.00	20	7.433	96.6	80 - 120				

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358310 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20030390-06MSD** Units: **mg/L** Analysis Date: **10-Mar-2020 21:26**
Client ID: **16RW04-200309** Run ID: **ICS-Integrion_358310** SeqNo: **5515657** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	2.097	0.100	2	0.4298	83.4	80 - 120	2.053	2.14	20	
Nitrogen, Nitrate (As N)	2.473	0.100	2	0	124	80 - 120	2.458	0.617	20	S

MSD Sample ID: **HS20030278-02MSD** Units: **mg/L** Analysis Date: **10-Mar-2020 15:23**
Client ID: Run ID: **ICS-Integrion_358310** SeqNo: **5515644** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	17.27	1.00	20	0	86.3	80 - 120	17.38	0.664	20	
Nitrogen, Nitrate (As N)	26.7	1.00	20	7.433	96.3	80 - 120	26.75	0.187	20	

The following samples were analyzed in this batch: HS20030390-01 HS20030390-02 HS20030390-03 HS20030390-04 HS20030390-05 HS20030390-06 HS20030390-07

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358331 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **17-Mar-2020 12:37**
Client ID: Run ID: **ICS-Integrion_358331** SeqNo: **5516071** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **17-Mar-2020 12:55**
Client ID: Run ID: **ICS-Integrion_358331** SeqNo: **5516072** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.746	0.100	4	0	93.7	80 - 120				
Sulfate	19.38	0.500	20	0	96.9	80 - 120				

LCSD Sample ID: **LCSD** Units: **mg/L** Analysis Date: **17-Mar-2020 13:13**
Client ID: Run ID: **ICS-Integrion_358331** SeqNo: **5516073** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.749	0.100	4	0	93.7	80 - 120	3.746	0.0774	20	
Sulfate	19.44	0.500	20	0	97.2	80 - 120	19.38	0.326	20	

MS Sample ID: **HS20030309-01MS** Units: **mg/L** Analysis Date: **17-Mar-2020 14:07**
Client ID: Run ID: **ICS-Integrion_358331** SeqNo: **5516075** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.500	0.500	10	0	0	80 - 120				S U
Sulfate	7753	2.50	50	6238	3030	80 - 120				SEO

MSD Sample ID: **HS20030309-01MSD** Units: **mg/L** Analysis Date: **17-Mar-2020 14:25**
Client ID: Run ID: **ICS-Integrion_358331** SeqNo: **5516076** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.500	0.500	10	0	0	80 - 120	0	0	20	S U
Sulfate	7754	2.50	50	6238	3030	80 - 120	7753	0.00886	20	SEO

The following samples were analyzed in this batch: HS20030390-02 HS20030390-03

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358368 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 07:23**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517471** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U

LCS Sample ID: **WLCSW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 07:41**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517326** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.771	0.100	4	0	94.3	80 - 120				

LCSD Sample ID: **WLCSDW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 07:59**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517327** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.785	0.100	4	0	94.6	80 - 120	3.771	0.392	20	

MS Sample ID: **HS20030398-01MS** Units: **mg/L** Analysis Date: **11-Mar-2020 05:53**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517321** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	8.558	0.500	10	0.28	82.8	80 - 120				

MS Sample ID: **HS20030394-07MS** Units: **mg/L** Analysis Date: **11-Mar-2020 00:27**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517316** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1124	0.100	2	1137	-645	80 - 120				SEO

MSD Sample ID: **HS20030398-01MSD** Units: **mg/L** Analysis Date: **11-Mar-2020 06:11**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517322** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	8.61	0.500	10	0.28	83.3	80 - 120	8.558	0.606	20	

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358368 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20030394-07MSD** Units: **mg/L** Analysis Date: **11-Mar-2020 00:45**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517317** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1134	0.100	2	1137	-146	80 - 120	1124	0.885	20	SEO

The following samples were analyzed in this batch: HS20030390-01

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358411 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 09:12**
Client ID: Run ID: **ICS-Integrion_358411** SeqNo: **5518320** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 09:30**
Client ID: Run ID: **ICS-Integrion_358411** SeqNo: **5518321** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.065	0.100	4	0	102	80 - 120				
Sulfate	19.57	0.500	20	0	97.8	80 - 120				

LCSD Sample ID: **WLCSDW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 09:48**
Client ID: Run ID: **ICS-Integrion_358411** SeqNo: **5518322** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.059	0.100	4	0	101	80 - 120	4.065	0.155	20	
Sulfate	19.65	0.500	20	0	98.3	80 - 120	19.57	0.429	20	

MS Sample ID: **HS20030390-07MS** Units: **mg/L** Analysis Date: **11-Mar-2020 12:07**
Client ID: **16WW26-200309** Run ID: **ICS-Integrion_358411** SeqNo: **5518327** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	21.05	1.00	20	1.23	99.1	80 - 120				
Sulfate	472.4	5.00	100	389.8	82.6	80 - 120				

MSD Sample ID: **HS20030390-07MSD** Units: **mg/L** Analysis Date: **11-Mar-2020 12:25**
Client ID: **16WW26-200309** Run ID: **ICS-Integrion_358411** SeqNo: **5518328** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	20.73	1.00	20	1.23	97.5	80 - 120	21.05	1.51	20	
Sulfate	476.2	5.00	100	389.8	86.3	80 - 120	472.4	0.791	20	

The following samples were analyzed in this batch: HS20030390-07

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358415 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **18-Mar-2020 13:46**
Client ID: Run ID: **ICS2100_358415** SeqNo: **5518359** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **18-Mar-2020 14:01**
Client ID: Run ID: **ICS2100_358415** SeqNo: **5518360** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.79	0.500	20	0	98.9	80 - 120				

LCSD Sample ID: **LCSD** Units: **mg/L** Analysis Date: **18-Mar-2020 14:16**
Client ID: Run ID: **ICS2100_358415** SeqNo: **5518361** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.85	0.500	20	0	99.2	80 - 120	19.79	0.285	20	

MS Sample ID: **HS20030248-10MS** Units: **mg/L** Analysis Date: **18-Mar-2020 13:17**
Client ID: Run ID: **ICS2100_358415** SeqNo: **5518357** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	97.5	5.00	100	2.887	94.6	80 - 120				

MSD Sample ID: **HS20030248-10MSD** Units: **mg/L** Analysis Date: **18-Mar-2020 13:32**
Client ID: Run ID: **ICS2100_358415** SeqNo: **5518358** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	98.94	5.00	100	2.887	96.1	80 - 120	97.5	1.47	20	

The following samples were analyzed in this batch: HS20030390-01 HS20030390-02

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: **HS20030390**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 19-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030390
Date/Time Received: **10-Mar-2020 09:00**
Received by: **JRM**

Checklist completed by: *Jared R. Makan* eSignature 10-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 10-Mar-2020 Date

Matrices: **Water**
Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.7°C/1.7°C UC/C	IR25
Cooler(s)/Kit(s):	45498	
Date/Time sample(s) sent to storage:	03/10/2020 13:26	

Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

COC ID: LHAAP16-Effectiveness_ ALSHT-2020-___ TURNAROUND TIME: 5 Business Days RUSH: 5 Business Days Page ___ of ___

PROJECT/CLIENT INFO				LABORATORY					
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories			Fedinvoices @aptim.com	
Project Number	501032			Lab Contact	RJ Modashia				
	LHAAP-16			Email	RJ.Modashia@alsglobal.com			Susan.Huang@aptim.com	
Address	1203-B East Grand Avenue			Address	10450 Stancliff Rd., Suite 210			Susan Huang	
	PMB 202							4005 Port Chicago Hwy	
City	Marshall	State	TX	City	Houston	State	TX	Concord	State CA
Postal Code	75670	Country	USA	Postal Code	77099	Country	USA	94520	Country USA
Phone Number	713.243.7264			Phone Number	281.575.2279 or 281.530.5656				
Project Manager	Praveen Srivastav								

SAMPLE DETAILS / ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	ANALYSIS	Containers and Preservative: 1-250 ml HDPE, Ice — Bromide by SW9056	Containers and Preservative: 2X40ml Vox Vials / H2SO4 — TOC by SM5310
16IW20-200309	LHAAP 16				WG	3/9/20	0845	3		X	X
16EW01-200309	LHAAP 16				WG	3/9/20	0945	3		X	X
16EW02-200309	LHAAP 16				WG	3/9/20	1015	3		X	X
16EW04-200309	LHAAP 16				WG	3/9/20	1105	3		X	X
16RW03-200309	LHAAP 16				WG	3/9/20	1205	3		X	X
16RW04-200309	LHAAP 16				WG	3/9/20	1255	3		X	X
16WW26-200309	LHAAP 16				WG	3/9/20	1350	3		X	X

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Jesse Bassign / BHATE	3/9/20 1500	J. Mauntry	3/10/20 09.00

HS20030390

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant LHAAP-16

Cooler - 45498
Temp 1.7
1025
CF 0.0

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

45498

CUSTODY SEAL

Date: 3/9/20 Time: 1500
Name: Scott Bessinger
Company: BHMTS

Seal Broken By:
Date: 03/10/20

45498

Must Deliver Next Business Day
Time and Temperature Sensitive!

45498

ORIGIN ID:SGRA (903) 930-6193
SCOTT BESSINGER
APTIM
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 02MAR20
ACTWGT: 1.00 LB MAN
CAD: 3001130/CAFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 16 - RJ

RMA:

FedEx Express

TRK# 8221 1251 0294 9854

TUE - 10 MAR 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FID 371191 05MAR20 CGCA 568C2/64F8/05A2

10450 Stancliff Rd. Suite 210
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WorkOrder: HS20030390

Longhorn Army Ammunition Plant LHAAP-16

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

30-Mar-2020

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

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HS20030390 Longhorn Army Ammunition Plant LHAAP16 Final

ALS WO# HS20030390

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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March 19, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030390**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP-16**

Dear Susan,

ALS Environmental received 7 sample(s) on Mar 10, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Work Order: HS20030390

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030390-01	16IW20-200309	Water		09-Mar-2020 08:15	10-Mar-2020 09:00	☐
HS20030390-02	16EW01-200309	Water		09-Mar-2020 09:15	10-Mar-2020 09:00	☐
HS20030390-03	16EW02-200309	Water		09-Mar-2020 10:15	10-Mar-2020 09:00	☐
HS20030390-04	16EW04-200309	Water		09-Mar-2020 11:15	10-Mar-2020 09:00	☐
HS20030390-05	16RW03-200309	Water		09-Mar-2020 12:05	10-Mar-2020 09:00	☐
HS20030390-06	16RW04-200309	Water		09-Mar-2020 12:55	10-Mar-2020 09:00	☐
HS20030390-07	16WW26-200309	Water		09-Mar-2020 13:50	10-Mar-2020 09:00	☐

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant LHAAP-16
Work Order: HS20030390

WetChemistry by Method SW9056

Batch ID: R358310

Sample ID: 16RW04-200309 (HS20030390-06MS)

- The recovery of the Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) associated with this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS/MSD may be due to sample matrix interference. (Nitrogen, Nitrate (As N))

Sample ID: 16RW04-200309 (HS20030390-06MSD)

- The recovery of the Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) associated with this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS/MSD may be due to sample matrix interference. (Nitrogen, Nitrate (As N))

Batch ID: R358368

Sample ID: HS20030394-07MS

- MS and MSD are for an unrelated sample (Bromide)

Batch ID: R358331

Sample ID: HS20030309-01MS

- MS and MSD are for an unrelated sample (Bromide)

Batch ID: R358411,R358415

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

WetChemistry by Method SM5310B

Batch ID: R357907,R358074

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16IW20-200309
Collection Date: 09-Mar-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**10.7**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 17:25
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**13.4**		**0.150**	**0.500**	**0.500**	**mg/L**	5	11-Mar-2020 08:17
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	10-Mar-2020 18:24
Sulfate	**795**		**2.00**	**5.00**	**5.00**	**mg/L**	10	18-Mar-2020 14:39

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16EW01-200309
Collection Date: 09-Mar-2020 09:15

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-02
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**13.4**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 17:38
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**3.39**		**0.300**	**1.00**	**1.00**	**mg/L**	10	17-Mar-2020 16:14
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	10-Mar-2020 18:42
Sulfate	**206**		**2.00**	**5.00**	**5.00**	**mg/L**	10	18-Mar-2020 14:53

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16EW02-200309
Collection Date: 09-Mar-2020 10:15

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-03
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**6.48**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 17:11
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**2.06**		**0.600**	**2.00**	**2.00**	**mg/L**	20	17-Mar-2020 16:32
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	10-Mar-2020 19:01
Sulfate	**1,260**		**4.00**	**10.0**	**10.0**	**mg/L**	20	17-Mar-2020 16:32

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16EW04-200309
Collection Date: 09-Mar-2020 11:15

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**3.40**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 19:03
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**0.637**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	10-Mar-2020 19:19

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16RW03-200309
Collection Date: 09-Mar-2020 12:05

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**1.04**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 19:17
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**0.792**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	10-Mar-2020 19:37

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

ALS Houston, US

Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.

ANALYTICAL REPORT

Project: Longhorn Army Ammunition Plant LHAAP-16

WorkOrder:HS20030390

Sample ID: 16RW04-200309

Lab ID:HS20030390-06

Collection Date: 09-Mar-2020 12:55

Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**3.17**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 19:32
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**0.430**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	10-Mar-2020 20:31

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16WW26-200309
Collection Date: 09-Mar-2020 13:50

ANALYTICAL REPORT
WorkOrder:HS20030390
Lab ID:HS20030390-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**2.27**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 19:45
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**0.258**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	10-Mar-2020 20:49
Nitrogen, Nitrate (As N)	**1.23**		**0.300**	**1.00**	**1.00**	**mg/L**	10	11-Mar-2020 11:49
Sulfate	**390**		**2.00**	**5.00**	**5.00**	**mg/L**	10	11-Mar-2020 11:49

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

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R357907 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Water	
HS20030390-01	16IW20-200309	09 Mar 2020 08:15			12 Mar 2020 17:25	1
HS20030390-02	16EW01-200309	09 Mar 2020 09:15			12 Mar 2020 17:38	1
HS20030390-03	16EW02-200309	09 Mar 2020 10:15			12 Mar 2020 17:11	1
Batch ID: R358074 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Water	
HS20030390-04	16EW04-200309	09 Mar 2020 11:15			12 Mar 2020 19:03	1
HS20030390-05	16RW03-200309	09 Mar 2020 12:05			12 Mar 2020 19:17	1
HS20030390-06	16RW04-200309	09 Mar 2020 12:55			12 Mar 2020 19:32	1
HS20030390-07	16WW26-200309	09 Mar 2020 13:50			12 Mar 2020 19:45	1
Batch ID: R358310 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20030390-01	16IW20-200309	09 Mar 2020 08:15			10 Mar 2020 18:24	1
HS20030390-02	16EW01-200309	09 Mar 2020 09:15			10 Mar 2020 18:42	1
HS20030390-03	16EW02-200309	09 Mar 2020 10:15			10 Mar 2020 19:01	1
HS20030390-04	16EW04-200309	09 Mar 2020 11:15			10 Mar 2020 19:19	1
HS20030390-05	16RW03-200309	09 Mar 2020 12:05			10 Mar 2020 19:37	1
HS20030390-06	16RW04-200309	09 Mar 2020 12:55			10 Mar 2020 20:31	1
HS20030390-07	16WW26-200309	09 Mar 2020 13:50			10 Mar 2020 20:49	1
Batch ID: R358331 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20030390-02	16EW01-200309	09 Mar 2020 09:15			17 Mar 2020 16:14	10
HS20030390-03	16EW02-200309	09 Mar 2020 10:15			17 Mar 2020 16:32	20
Batch ID: R358368 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20030390-01	16IW20-200309	09 Mar 2020 08:15			11 Mar 2020 08:17	5
Batch ID: R358411 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20030390-07	16WW26-200309	09 Mar 2020 13:50			11 Mar 2020 11:49	10
Batch ID: R358415 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20030390-01	16IW20-200309	09 Mar 2020 08:15			18 Mar 2020 14:39	10
HS20030390-02	16EW01-200309	09 Mar 2020 09:15			18 Mar 2020 14:53	10

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R357907 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 12:40**
Client ID: Run ID: **TOC_02_357907** SeqNo: **5509916** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 12:53**
Client ID: Run ID: **TOC_02_357907** SeqNo: **5509917** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.938	1.00	10	0	89.4	85 - 115				

LCSD Sample ID: **WLCSDW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 13:06**
Client ID: Run ID: **TOC_02_357907** SeqNo: **5509918** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.99	1.00	10	0	89.9	85 - 115	8.938	0.58	20	

MS Sample ID: **HS20030372-01MS** Units: **mg/L** Analysis Date: **12-Mar-2020 16:16**
Client ID: Run ID: **TOC_02_357907** SeqNo: **5510042** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.1	1.00	10	0	101	80 - 120				

The following samples were analyzed in this batch: HS20030390-01 HS20030390-02 HS20030390-03

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358074 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:21**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510414** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:37**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510415** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.417	1.00	10	0	94.2	85 - 115				

LCSD Sample ID: **WLCSDW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:50**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510416** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.929	1.00	10	0	89.3	85 - 115	9.417	5.32	20	

MS Sample ID: **HS20030462-01MS** Units: **mg/L** Analysis Date: **12-Mar-2020 21:52**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510429** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	23.44	1.00	10	12.34	111	80 - 120				

The following samples were analyzed in this batch: HS20030390-04 HS20030390-05 HS20030390-06 HS20030390-07

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358310 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-031020** Units: **mg/L** Analysis Date: **10-Mar-2020 10:51**
Client ID: Run ID: **ICS-Integrion_358310** SeqNo: **5515637** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U
Nitrogen, Nitrate (As N)	0.100	0.100								U

LCS Sample ID: **WLCSW1-031020** Units: **mg/L** Analysis Date: **10-Mar-2020 11:09**
Client ID: Run ID: **ICS-Integrion_358310** SeqNo: **5515638** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.793	0.100	4	0	94.8	80 - 120				
Nitrogen, Nitrate (As N)	4.006	0.100	4	0	100	80 - 120				

LCSD Sample ID: **WLCSDW1-031020** Units: **mg/L** Analysis Date: **10-Mar-2020 11:27**
Client ID: Run ID: **ICS-Integrion_358310** SeqNo: **5515639** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.812	0.100	4	0	95.3	80 - 120	3.793	0.487	20	
Nitrogen, Nitrate (As N)	4.02	0.100	4	0	101	80 - 120	4.006	0.339	20	

MS Sample ID: **HS20030390-06MS** Units: **mg/L** Analysis Date: **10-Mar-2020 21:07**
Client ID: **16RW04-200309** Run ID: **ICS-Integrion_358310** SeqNo: **5515656** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	2.053	0.100	2	0.4298	81.1	80 - 120				
Nitrogen, Nitrate (As N)	2.458	0.100	2	0	123	80 - 120				S

MS Sample ID: **HS20030278-02MS** Units: **mg/L** Analysis Date: **10-Mar-2020 15:05**
Client ID: Run ID: **ICS-Integrion_358310** SeqNo: **5515643** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	17.38	1.00	20	0	86.9	80 - 120				
Nitrogen, Nitrate (As N)	26.75	1.00	20	7.433	96.6	80 - 120				

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358310 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20030390-06MSD** Units: **mg/L** Analysis Date: **10-Mar-2020 21:26**
Client ID: **16RW04-200309** Run ID: **ICS-Integrion_358310** SeqNo: **5515657** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	2.097	0.100	2	0.4298	83.4	80 - 120	2.053	2.14	20	
Nitrogen, Nitrate (As N)	2.473	0.100	2	0	124	80 - 120	2.458	0.617	20	S

MSD Sample ID: **HS20030278-02MSD** Units: **mg/L** Analysis Date: **10-Mar-2020 15:23**
Client ID: Run ID: **ICS-Integrion_358310** SeqNo: **5515644** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	17.27	1.00	20	0	86.3	80 - 120	17.38	0.664	20	
Nitrogen, Nitrate (As N)	26.7	1.00	20	7.433	96.3	80 - 120	26.75	0.187	20	

The following samples were analyzed in this batch: HS20030390-01 HS20030390-02 HS20030390-03 HS20030390-04 HS20030390-05 HS20030390-06 HS20030390-07

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358331 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **17-Mar-2020 12:37**
Client ID: Run ID: **ICS-Integrion_358331** SeqNo: **5516071** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **17-Mar-2020 12:55**
Client ID: Run ID: **ICS-Integrion_358331** SeqNo: **5516072** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.746	0.100	4	0	93.7	80 - 120				
Sulfate	19.38	0.500	20	0	96.9	80 - 120				

LCSD Sample ID: **LCSD** Units: **mg/L** Analysis Date: **17-Mar-2020 13:13**
Client ID: Run ID: **ICS-Integrion_358331** SeqNo: **5516073** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.749	0.100	4	0	93.7	80 - 120	3.746	0.0774	20	
Sulfate	19.44	0.500	20	0	97.2	80 - 120	19.38	0.326	20	

MS Sample ID: **HS20030309-01MS** Units: **mg/L** Analysis Date: **17-Mar-2020 14:07**
Client ID: Run ID: **ICS-Integrion_358331** SeqNo: **5516075** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.500	0.500	10	0	0	80 - 120				S U
Sulfate	7753	2.50	50	6238	3030	80 - 120				SEO

MSD Sample ID: **HS20030309-01MSD** Units: **mg/L** Analysis Date: **17-Mar-2020 14:25**
Client ID: Run ID: **ICS-Integrion_358331** SeqNo: **5516076** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.500	0.500	10	0	0	80 - 120	0	0	20	S U
Sulfate	7754	2.50	50	6238	3030	80 - 120	7753	0.00886	20	SEO

The following samples were analyzed in this batch: HS20030390-02 HS20030390-03

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358368 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 07:23**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517471** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U

LCS Sample ID: **WLCSW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 07:41**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517326** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.771	0.100	4	0	94.3	80 - 120				

LCSD Sample ID: **WLCSDW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 07:59**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517327** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.785	0.100	4	0	94.6	80 - 120	3.771	0.392	20	

MS Sample ID: **HS20030398-01MS** Units: **mg/L** Analysis Date: **11-Mar-2020 05:53**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517321** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	8.558	0.500	10	0.28	82.8	80 - 120				

MS Sample ID: **HS20030394-07MS** Units: **mg/L** Analysis Date: **11-Mar-2020 00:27**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517316** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1124	0.100	2	1137	-645	80 - 120				SEO

MSD Sample ID: **HS20030398-01MSD** Units: **mg/L** Analysis Date: **11-Mar-2020 06:11**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517322** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	8.61	0.500	10	0.28	83.3	80 - 120	8.558	0.606	20	

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358368 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MSD Sample ID: **HS20030394-07MSD** Units: **mg/L** Analysis Date: **11-Mar-2020 00:45**
Client ID: Run ID: **ICS-Integrion_358368** SeqNo: **5517317** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1134	0.100	2	1137	-146	80 - 120	1124	0.885	20	SEO

The following samples were analyzed in this batch: HS20030390-01

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358411 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 09:12**
Client ID: Run ID: **ICS-Integrion_358411** SeqNo: **5518320** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 09:30**
Client ID: Run ID: **ICS-Integrion_358411** SeqNo: **5518321** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.065	0.100	4	0	102	80 - 120				
Sulfate	19.57	0.500	20	0	97.8	80 - 120				

LCSD Sample ID: **WLCSDW1-031020** Units: **mg/L** Analysis Date: **11-Mar-2020 09:48**
Client ID: Run ID: **ICS-Integrion_358411** SeqNo: **5518322** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.059	0.100	4	0	101	80 - 120	4.065	0.155	20	
Sulfate	19.65	0.500	20	0	98.3	80 - 120	19.57	0.429	20	

MS Sample ID: **HS20030390-07MS** Units: **mg/L** Analysis Date: **11-Mar-2020 12:07**
Client ID: **16WW26-200309** Run ID: **ICS-Integrion_358411** SeqNo: **5518327** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	21.05	1.00	20	1.23	99.1	80 - 120				
Sulfate	472.4	5.00	100	389.8	82.6	80 - 120				

MSD Sample ID: **HS20030390-07MSD** Units: **mg/L** Analysis Date: **11-Mar-2020 12:25**
Client ID: **16WW26-200309** Run ID: **ICS-Integrion_358411** SeqNo: **5518328** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	20.73	1.00	20	1.23	97.5	80 - 120	21.05	1.51	20	
Sulfate	476.2	5.00	100	389.8	86.3	80 - 120	472.4	0.791	20	

The following samples were analyzed in this batch: HS20030390-07

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030390

QC BATCH REPORT

Batch ID: R358415 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **18-Mar-2020 13:46**
Client ID: Run ID: **ICS2100_358415** SeqNo: **5518359** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **18-Mar-2020 14:01**
Client ID: Run ID: **ICS2100_358415** SeqNo: **5518360** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.79	0.500	20	0	98.9	80 - 120				

LCSD Sample ID: **LCSD** Units: **mg/L** Analysis Date: **18-Mar-2020 14:16**
Client ID: Run ID: **ICS2100_358415** SeqNo: **5518361** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.85	0.500	20	0	99.2	80 - 120	19.79	0.285	20	

MS Sample ID: **HS20030248-10MS** Units: **mg/L** Analysis Date: **18-Mar-2020 13:17**
Client ID: Run ID: **ICS2100_358415** SeqNo: **5518357** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	97.5	5.00	100	2.887	94.6	80 - 120				

MSD Sample ID: **HS20030248-10MSD** Units: **mg/L** Analysis Date: **18-Mar-2020 13:32**
Client ID: Run ID: **ICS2100_358415** SeqNo: **5518358** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	98.94	5.00	100	2.887	96.1	80 - 120	97.5	1.47	20	

The following samples were analyzed in this batch: HS20030390-01 HS20030390-02

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: **HS20030390**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 19-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030390
Date/Time Received: **10-Mar-2020 09:00**
Received by: **JRM**

Checklist completed by: *Jared R. Makan* eSignature 10-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 10-Mar-2020 Date

Matrices: **Water**
Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.7°C/1.7°C UC/C	IR25
Cooler(s)/Kit(s):	45498	
Date/Time sample(s) sent to storage:	03/10/2020 13:26	

Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

COC ID: LHAAP16-Effectiveness_ALSHT-2020-

TURNAROUND TIME: 5 Business Days

RUSH: 5 Business Days

Page 1 of 1

PROJECT/CLIENT INFO				LABORATORY					
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories			Fedinvoices @aptim.com	
Project Number	501032			Lab Contact	RJ Modashia				
	LHAAP-16			Email	RJ.Modashia@alsglobal.com			Susan.Huang@aptim.com	
Address	1203-B East Grand Avenue			Address	10450 Stancliff Rd., Suite 210			Susan Huang	
	PMB 202							4005 Port Chicago Hwy	
City	Marshall	State	TX	City	Houston	State	TX	Concord	State CA
Postal Code	75670	Country	USA	Postal Code	77099	Country	USA	94520	Country USA
Phone Number	713.243.7264			Phone Number	281.575.2279 or 281.530.5656				
Project Manager	Praveen Srivastav								

SAMPLE DETAILS								ANALYSIS REQUESTED											
								Containers and Preservative		1-250 ml HDPE, Ice	2X40ml Voa Vials /H2SO4								
Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	ANALYSIS	Bromide by SW9056	TOC by SM5310								
16IW20-200309	LHAAP 16				WG	3/9/20	0815	3		X	X								
16EW01-200309	LHAAP 16				WG	3/9/20	0945	3		X	X								
16EW02-200309	LHAAP 16				WG	3/9/20	1015	3		X	X								
16EW04-200309	LHAAP 16				WG	3/9/20	1115	3		X	X								
16RW03-200309	LHAAP 16				WG	3/9/20	1205	3		X	X								
16RW04-200309	LHAAP 16				WG	3/9/20	1255	3		X	X								
16WW26-200309	LHAAP 16				WG	3/9/20	1350	3		X	X								

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Jeetu Bhatt / BHATT	3/9/20 1500	J. Mukherjee	3/10/20 09.00

HS20030390

Aptim Environmental & Infrastucture. Inc.

Longhorn Army Ammunition Plant LHAAP-16

Cooler - 45498
Temp 1.7
1125
CF0.0

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

45498

CUSTODY SEAL

Date: 3/9/20 Time: 1500
Name: Scott Bessinger
Company: BHMTG

Seal Broken By:
Date: 03/10/20

45498

Must Deliver Next Business Day
Time and Temperature Sensitive!

45498

ORIGIN ID:SGRA (903) 930-6193
SCOTT BESSINGER
APTIM
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 02MAR20
ACTWGT: 1.00 LB MAN
CAD: 3001130/CAFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 16 - RJ

RMA:

FedEx Express

TRK# 8221 1251 0294 9854

TUE - 10 MAR 10:30A
PRIORITY OVERNIGHT

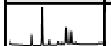
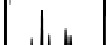
AB SGRA

77099
TX-US
IAH

HS20030390 Wet Chem Raw Data (IC)

ALS WO# HS20030390

Sequence: 030820
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	STD1	2970209205	Calibration	GA1	1.0000	1	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 7:39:11 PM -06:00
	STD2	NEW PRGM	Calibration	GA2	1.0000	2	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 7:57:16 PM -06:00
	STD3		Calibration	GA3	1.0000	3	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:15:24 PM -06:00
	STD4		Calibration	GA4	1.0000	4	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:33:31 PM -06:00
	STD5	NO2/PO4	Calibration	GA5	1.0000	5	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:51:36 PM -06:00
	STD6	MAX 10PPM	Calibration	GA6	1.0000	6	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 9:09:41 PM -06:00
	ICV	2970209123	Unknown	GA7	1.0000		Anions Prog	Anions Proce	5.0	Finished	2/5/2020 9:27:48 PM -06:00
	ICB		Unknown	GA8	1.0000		Anions Prog	Anions Proce	5.0	Finished	2/5/2020 9:45:53 PM -06:00
	CCV	CONT'D 3.10.20	Unknown	BA5	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 9:20:51 AM -05:00
	CCB		Unknown	BA6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 9:38:57 AM -05:00
	WBLKW1-031020		Unknown	GC1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 10:51:32 AM -05:00
	WLCSW1-031020		Unknown	GC2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 11:09:40 AM -05:00
	WLCSDW1-031020		Unknown	GC3	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 11:27:45 AM -05:00
	CCV1		Unknown	BA7	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 1:52:53 PM -05:00
	CCB		Unknown	BA8	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 2:10:59 PM -05:00
	HS20030278-02DF10		Unknown	RD7	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 2:47:13 PM -05:00
	HS20030278-02MSDF10		Unknown	RD8	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 3:05:18 PM -05:00
	HS20030278-02MSDDF10		Unknown	RE1	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 3:23:23 PM -05:00
	CCV	CONT'D 3.10.20	Unknown	BA5	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 4:17:54 PM -05:00
	CCB		Unknown	BA6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 4:36:01 PM -05:00
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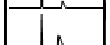
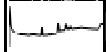
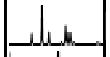
	HS20030390-02		Unknown	GB6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 6:42:53 PM -05:00
	HS20030390-03		Unknown	GB7	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 7:01:03 PM -05:00
	HS20030390-04		Unknown	GB8	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 7:19:09 PM -05:00
	HS20030390-05		Unknown	GC1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 7:37:17 PM -05:00

Sequence: 030820
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	CCV1		Unknown	BA7	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 7:55:28 PM -05:00
	CCB		Unknown	BA8	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 8:13:33 PM -05:00
	HS20030390-06		Unknown	GC2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 8:31:41 PM -05:00
	HS20030390-07		Unknown	GC3	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 8:49:48 PM -05:00
	HS20030390-06MS		Unknown	GC4	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 9:07:53 PM -05:00
	HS20030390-06MSD	END BATCH	Unknown	GC5	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 9:26:00 PM -05:00
	CCV	CONT'D 3.10.20	Unknown	BA5	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 11:32:45 PM -05:00
	CCB		Unknown	BA6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/10/2020 11:50:51 PM -05:00
	CCV	CONT'D 3.10.20	Unknown	BA5	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 6:47:21 AM -05:00
	CCB		Unknown	BA6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 7:05:26 AM -05:00
	WBLKW1-031020		Unknown	GE6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 7:23:33 AM -05:00
	WLCSW1-031020		Unknown	GE7	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 7:41:40 AM -05:00
	WLCSDW1-031020		Unknown	GE8	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 7:59:45 AM -05:00
	HS20030390-01DF5		Unknown	GE5	5.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 8:17:50 AM -05:00
	CCV1		Unknown	BA7	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 8:35:58 AM -05:00
	CCB		Unknown	BA8	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 8:54:05 AM -05:00
	WBLKW1-031020	NEW BATCH 03.1	Unknown	GE6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 9:12:12 AM -05:00
	WLCSW1-031020		Unknown	GE7	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 9:30:18 AM -05:00
	WLCSDW1-031020		Unknown	GE8	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 9:48:24 AM -05:00
	HS20030390-07DF10		Unknown	RA4	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 11:49:20 AM -05:00
	HS20030390-07MSDF10		Unknown	RA5	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 12:07:26 PM -05:00
	HS20030390-07MSDDF10		Unknown	RA6	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 12:25:34 PM -05:00
	CCV		Unknown	BA5	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 1:01:50 PM -05:00
	CCB		Unknown	BA6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/11/2020 1:19:56 PM -05:00
	CCV1		Unknown	RC1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/17/2020 12:00:39 PM -05:00
	CCB		Unknown	RE2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/17/2020 12:18:50 PM -05:00

Sequence: 030820
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	MBLK	batch #3	Unknown	GD7	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/17/2020 12:37:01 PM -05:00
	LCS		Unknown	GD8	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/17/2020 12:55:09 PM -05:00
	LCSD		Unknown	GD8	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/17/2020 1:13:15 PM -05:00
	CCV		Unknown	RB1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/17/2020 3:38:16 PM -05:00
	CCB		Unknown	RC5	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/17/2020 3:56:24 PM -05:00
	HS20030390-02DF10		Unknown	RB6	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/17/2020 4:14:29 PM -05:00
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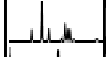
	CCV1		Unknown	RC1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/17/2020 5:45:00 PM -05:00
	CCB		Unknown	RE2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/17/2020 6:03:05 PM -05:00

Sequence: 030820
Injection #6: STD6

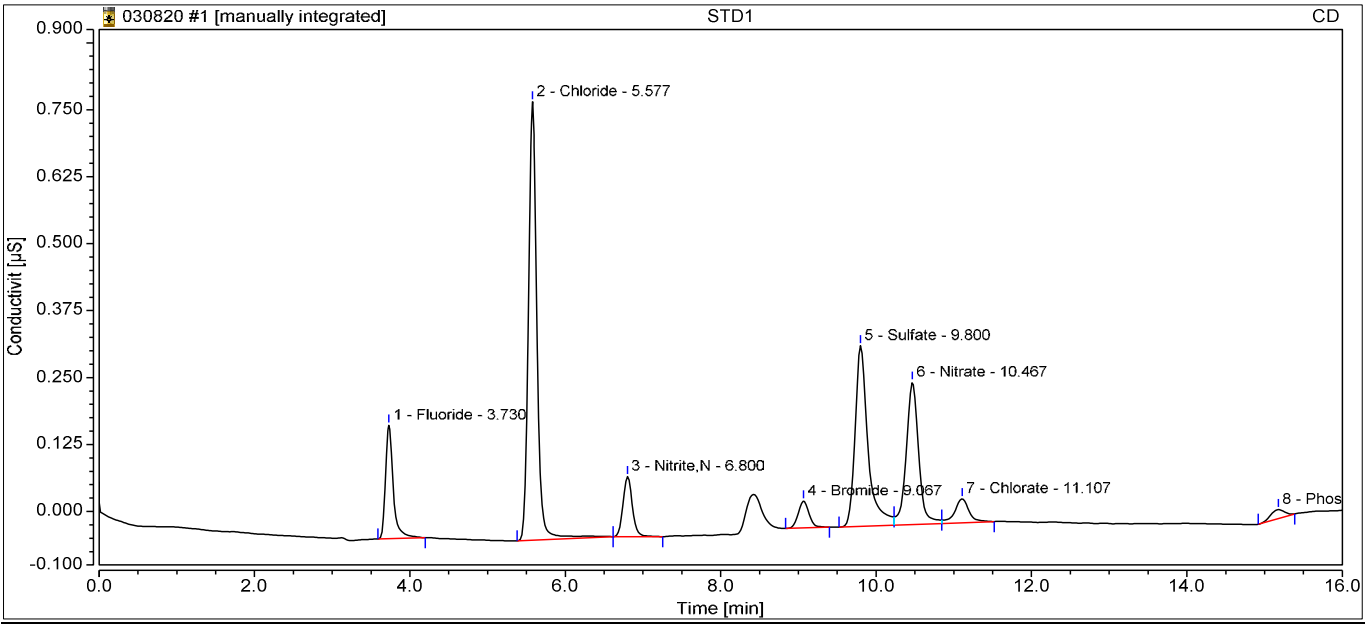
Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*Fluoride*	*Lin, WithOffset, 1/*	*Area*	*6*	*13.4314*	*0.99915*	*-0.0083*	*0.3414*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	2.2020	0.99998	-0.0141	0.2320	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	5	19.9747	0.99771	-0.0251	0.4962	0.0000
4	Bromide	Lin, WithOffset, 1/	Area	6	12.1436	0.99933	-0.0033	0.0991	0.0000
5	Sulfate	Lin, WithOffset, 1/	Area	6	4.2312	0.99991	-0.0170	0.1679	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	2.3081	0.99997	-0.0076	0.5843	0.0000
7	Chlorate	Lin, WithOffset, 1/	Area	6	9.7729	0.99945	0.0017	0.0949	0.0000
8	Phosphate	Lin, WithOffset, 1/	Area	5	18.6678	0.99857	-0.0214	0.2119	0.0000
Maximum					**19.9747**	0.99998			
Minimum					2.2020	**0.99771**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:39**	*Sample Weight:*	**1.0000**

Run Time:



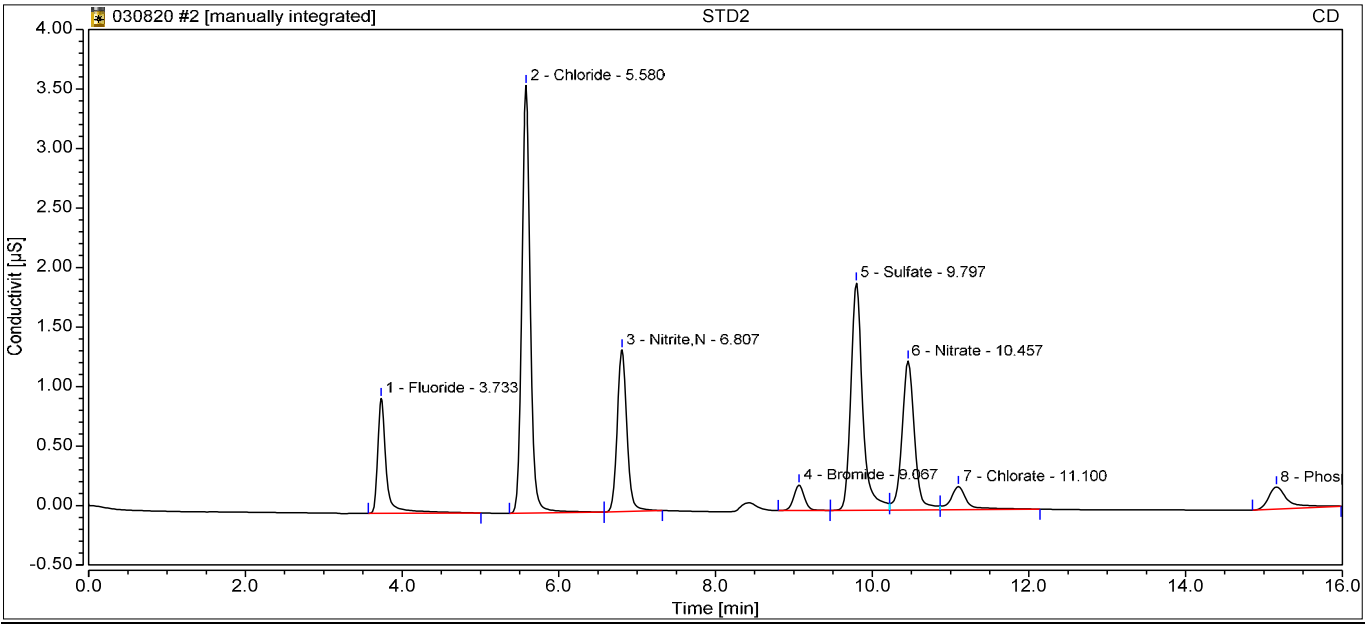
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.024	0.0955	0.0955	1.0000
2	5.58	Chloride	BMB	0.103	0.5065	0.5065	1.0000
3	6.80	Nitrite,N	BMB	0.016	0.0821	0.0821	1.0000
4	9.07	Bromide	BMB	0.008	0.1156	0.1156	1.0000
5	9.80	Sulfate	BM	0.065	0.4885	0.4885	1.0000
6	10.47	Nitrate	M	0.049	0.0974	0.0974	1.0000
7	11.11	Chlorate	MB	0.010	0.0834	0.0834	1.0000
8	15.18	Phosphate	BMB*	0.003	0.1173	0.1173	1.0000
Total:			**0.000**	**0.279**		**1.59**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:57**	*Sample Weight:*	**1.0000**

Run Time:

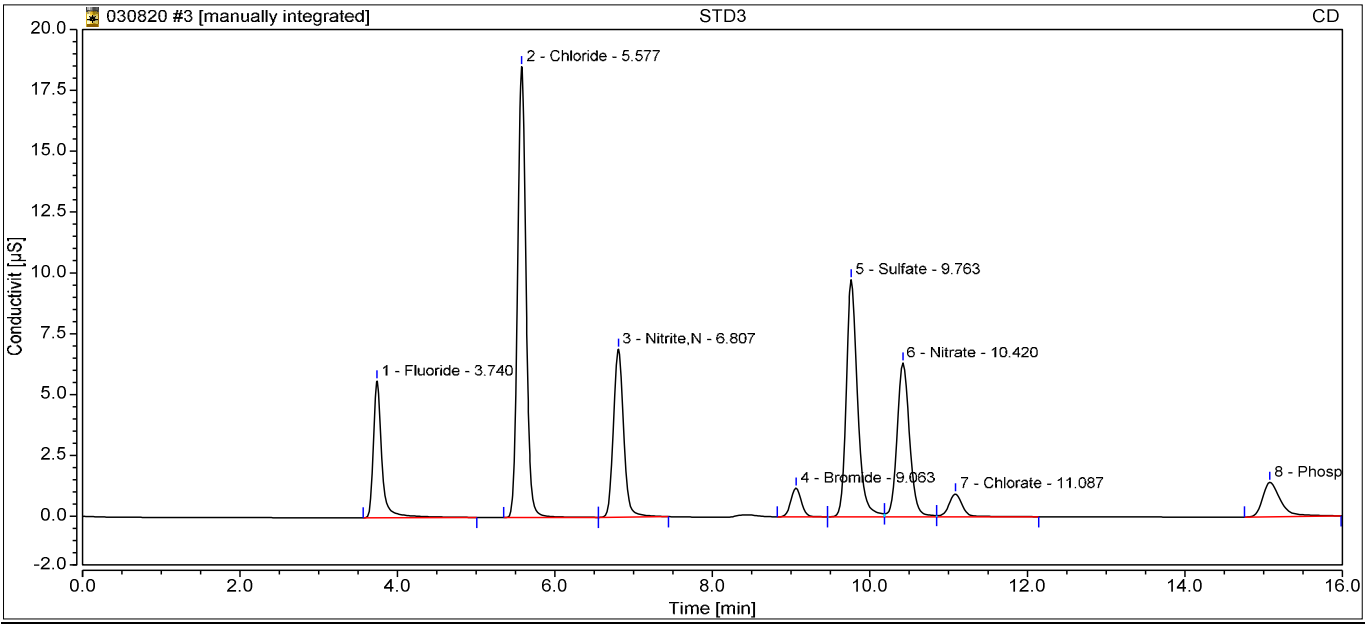


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.123	0.3833	0.3833	1.0000
2	5.58	Chloride	BMb*	0.449	1.9963	1.9963	1.0000
3	6.81	Nitrite,N	bMB*	0.194	0.4423	0.4423	1.0000
4	9.07	Bromide	BMB	0.034	0.3722	0.3722	1.0000
5	9.80	Sulfate	BM	0.335	2.0973	2.0973	1.0000
6	10.46	Nitrate	M	0.232	0.4103	0.4103	1.0000
7	11.10	Chlorate	MB	0.047	0.4759	0.4759	1.0000
8	15.16	Phosphate	BMB	0.053	0.3518	0.3518	1.0000
Total:			**0.000**	**1.467**		**6.53**	

3 STD3			
Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:15**	*Sample Weight:*	**1.0000**

Run Time:



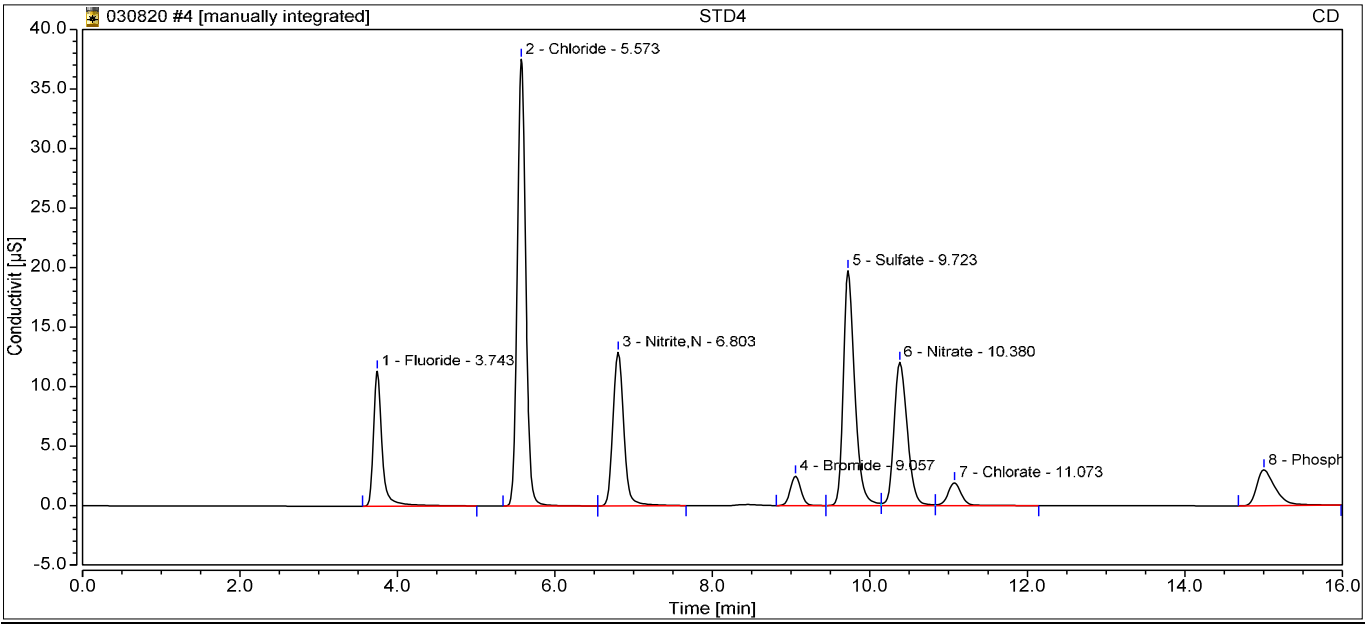
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.701	2.0769	2.0769	1.0000
2	5.58	Chloride	BMb*	2.284	9.9073	9.9073	1.0000
3	6.81	Nitrite,N	bMB*	1.029	2.1245	2.1245	1.0000
4	9.06	Bromide	BM	0.182	1.8657	1.8657	1.0000
5	9.76	Sulfate	M	1.624	9.7730	9.7730	1.0000
6	10.42	Nitrate	M	1.160	1.9980	1.9980	1.0000
7	11.09	Chlorate	MB	0.189	1.9689	1.9689	1.0000
8	15.08	Phosphate	BMB	0.374	1.8664	1.8664	1.0000
Total:			**0.000**	**7.542**		**31.58**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:33**	*Sample Weight:*	**1.0000**

Run Time:



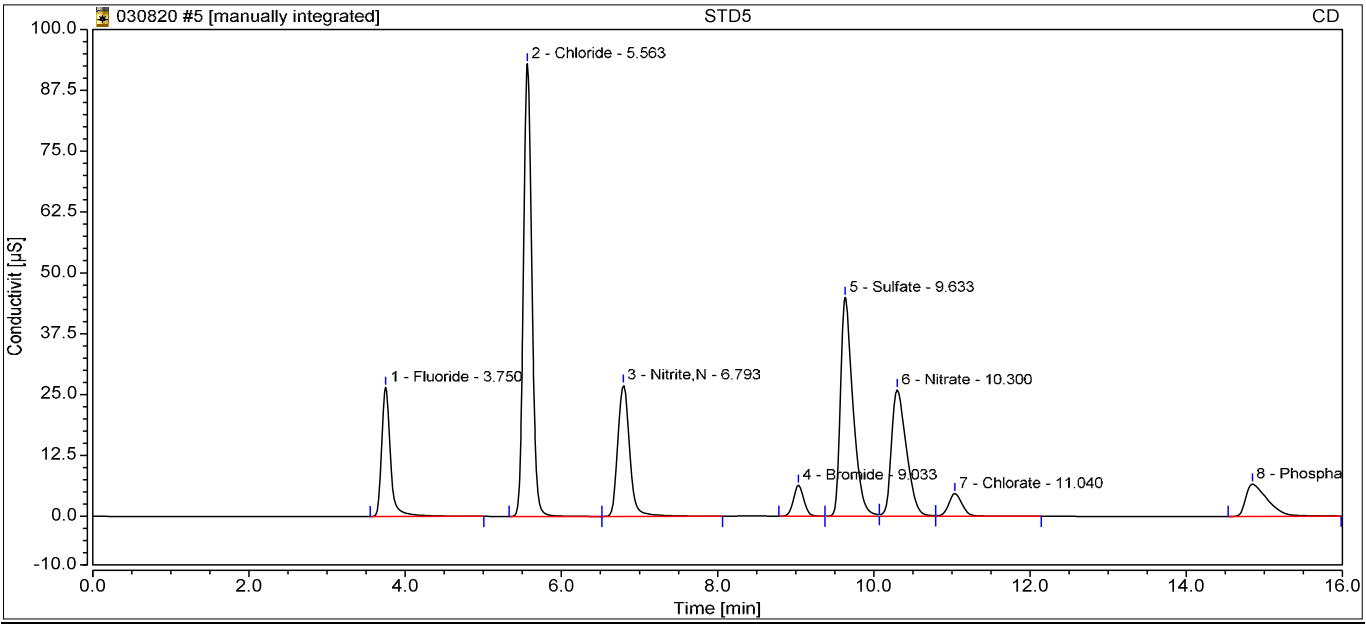
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.428	4.2080	4.2080	1.0000
2	5.57	Chloride	BMb*	4.627	20.0069	20.0069	1.0000
3	6.80	Nitrite,N	bMB*	2.046	4.1745	4.1745	1.0000
4	9.06	Bromide	BM	0.382	3.8871	3.8871	1.0000
5	9.72	Sulfate	M	3.337	19.9713	19.9713	1.0000
6	10.38	Nitrate	M	2.343	4.0228	4.0228	1.0000
7	11.07	Chlorate	MB	0.380	3.9830	3.9830	1.0000
8	15.00	Phosphate	BMB	0.824	3.9874	3.9874	1.0000
Total:			**0.000**	**15.366**		**64.24**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:51**	*Sample Weight:*	**1.0000**

Run Time:



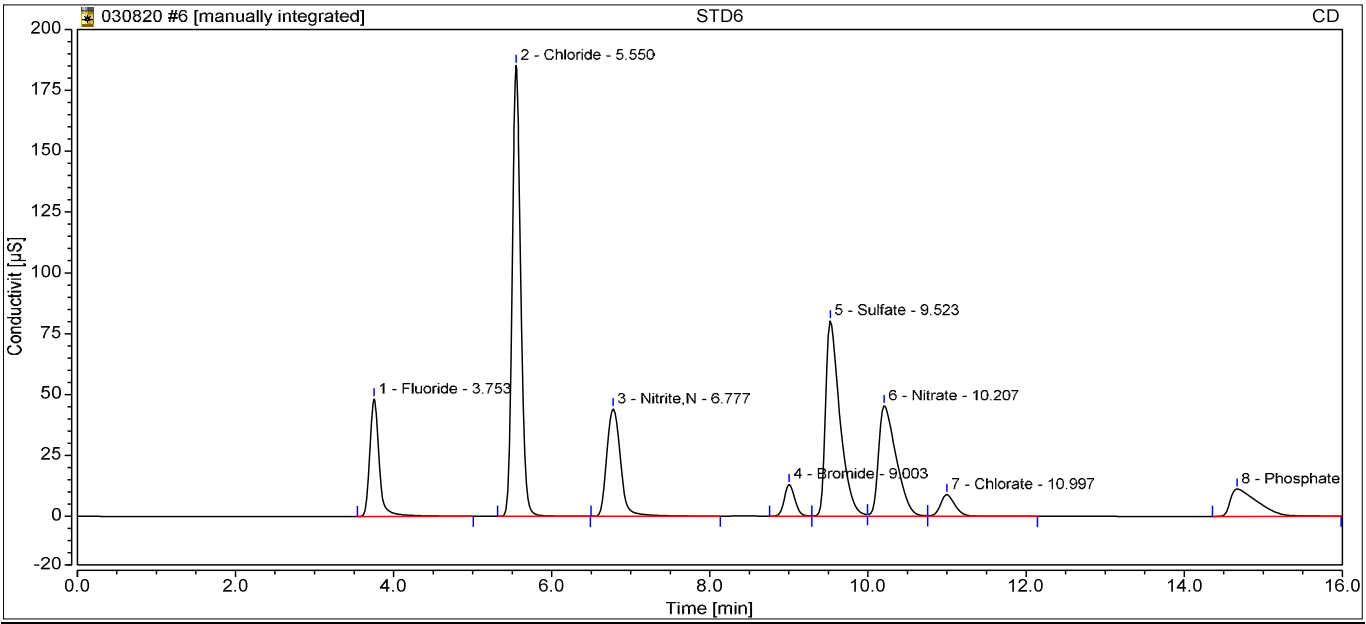
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.472	10.1940	10.1940	1.0000
2	5.56	Chloride	BMB	11.516	49.7057	49.7057	1.0000
3	6.79	Nitrite,N	BMB*	4.776	9.6766	9.6766	1.0000
4	9.03	Bromide	BM	0.981	9.9279	9.9279	1.0000
5	9.63	Sulfate	M	8.325	49.6811	49.6811	1.0000
6	10.30	Nitrate	M	5.799	9.9382	9.9382	1.0000
7	11.04	Chlorate	MB	0.944	9.9252	9.9252	1.0000
8	14.85	Phosphate	BMB	2.135	10.1771	10.1771	1.0000
Total:			**0.000**	**37.949**		**159.23**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**GA6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:09**	*Sample Weight:*	**1.0000**

Run Time:



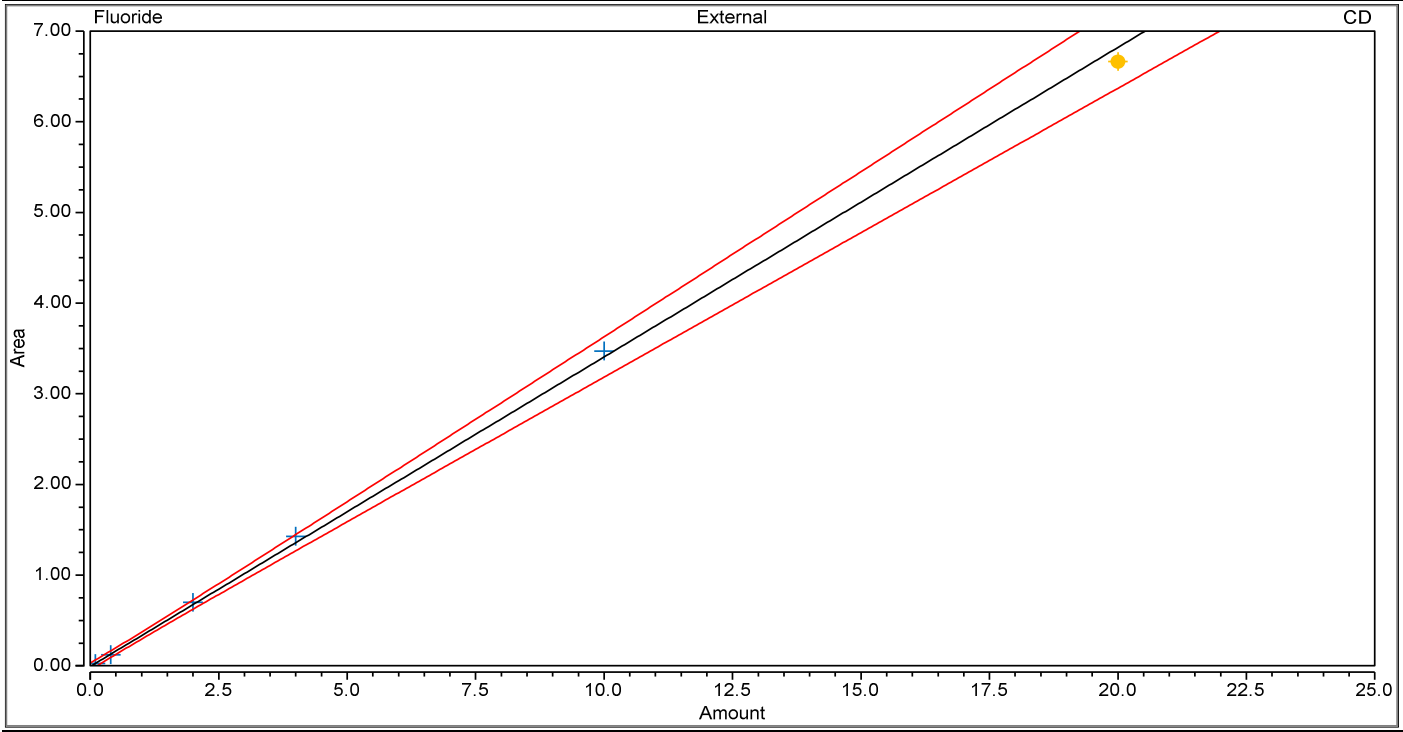
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	6.664	19.5424	19.5424	1.0000
2	5.55	Chloride	BMB	23.270	100.3774	100.3774	1.0000
3	6.78	Nitrite,N	BMB*	8.893	17.9725	17.9725	1.0000
4	9.00	Bromide	BM	2.012	20.3316	20.3316	1.0000
5	9.52	Sulfate	M	16.857	100.4888	100.4888	1.0000
6	10.21	Nitrate	M	11.698	20.0333	20.0333	1.0000
7	11.00	Chlorate	MB	1.906	20.0635	20.0635	1.0000
8	14.67	Phosphate	BMB	4.450	21.0985	21.0985	1.0000
Total:			**0.000**	**75.750**		**319.91**	

Calibration

Calibration Details	Fluoride		
Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	-0.0083
Evaluation Type	Area	*Slope (C1)*	0.3414
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9991

Calibration Plot **Fluoride**

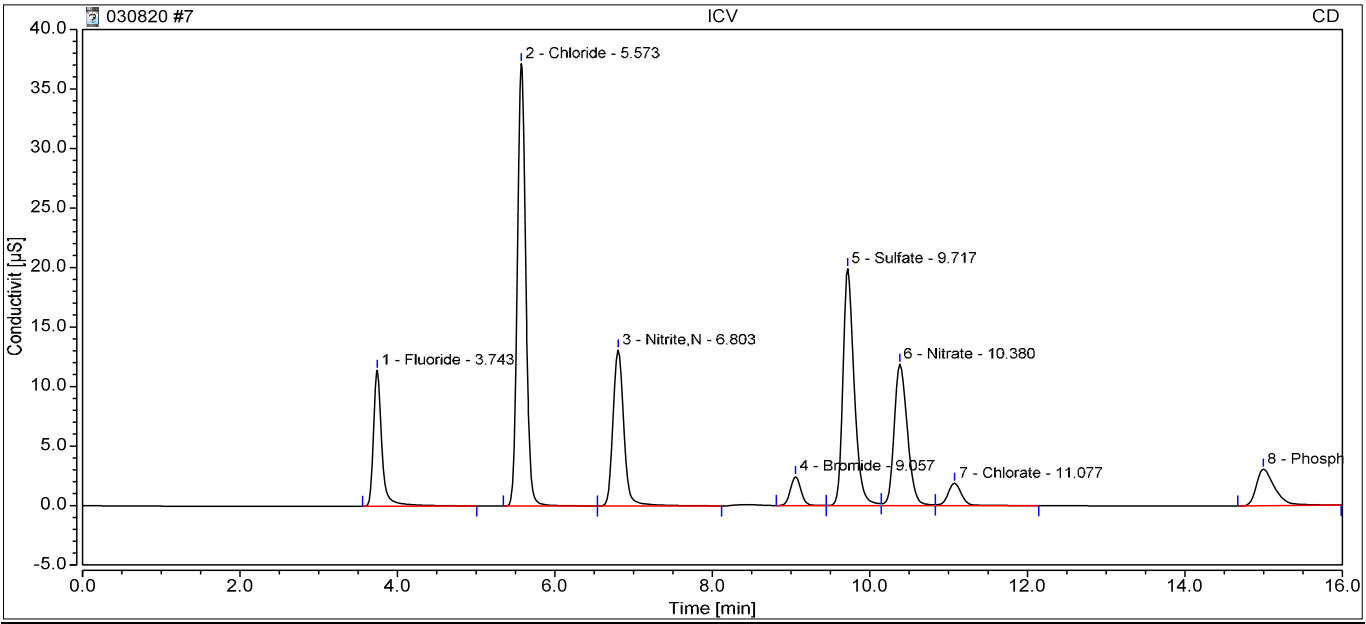


Calibration Results **Fluoride**

No.	Injection Name	Calibration Level	X Value CD Fluoride	Y Value CD Fluoride	Y Value CD Fluoride	Area µS*min CD Fluoride	Height µS CD Fluoride
1	STD1	1	0.1000	0.0243	0.0243	0.024	0.212
2	STD2	2	0.4000	0.1226	0.1226	0.123	0.964
3	STD3	3	2.0000	0.7008	0.7008	0.701	5.614
4	STD4	4	4.0000	1.4284	1.4284	1.428	11.345
5	STD5	5	10.0000	3.4723	3.4723	3.472	26.547
6	STD6	6	20.0000	6.6641	6.6641	6.664	48.233

7 ICV			
Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:27**	*Sample Weight:*	**1.0000**

Run Time:



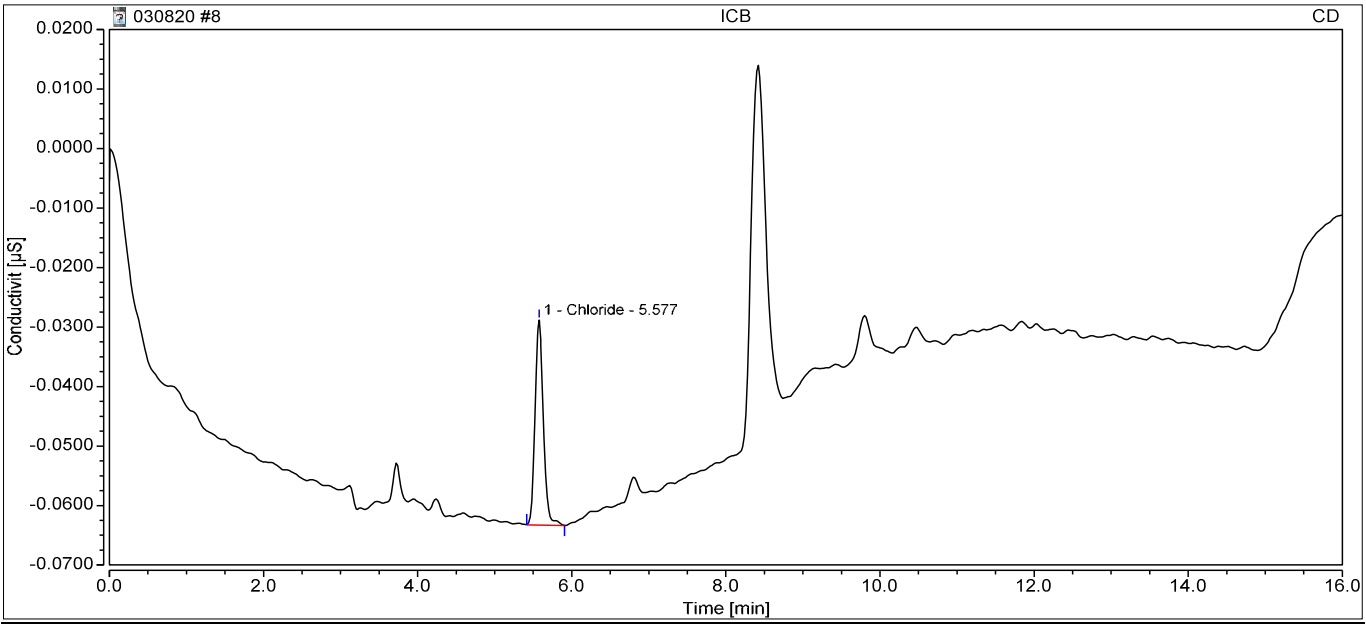
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.412	4.1607	4.1607	1.0000
2	5.57	Chloride	BMB	4.570	19.7627	19.7627	1.0000
3	6.80	Nitrite,N	BMB	2.081	4.2442	4.2442	1.0000
4	9.06	Bromide	BM	0.374	3.8104	3.8104	1.0000
5	9.72	Sulfate	M	3.327	19.9126	19.9126	1.0000
6	10.38	Nitrate	M	2.299	3.9478	3.9478	1.0000
7	11.08	Chlorate	MB	0.379	3.9799	3.9799	1.0000
8	15.00	Phosphate	BMB	0.835	4.0417	4.0417	1.0000
Total:			**0.000**	**15.278**		**63.86**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**GA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:45**	*Sample Weight:*	**1.0000**

Run Time:



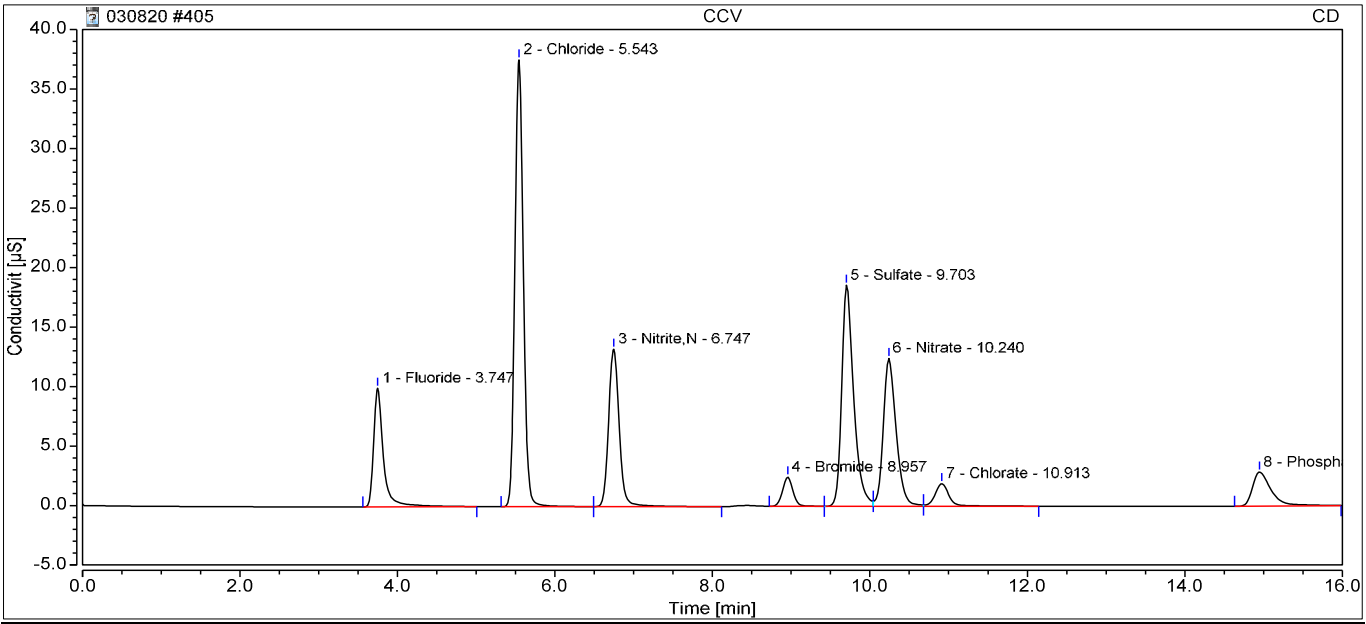
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.58	Chloride	BMB	0.004	0.0794	0.0794	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.004**		**0.08**	

405 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 09:20**	*Sample Weight:*	**1.0000**

Run Time:



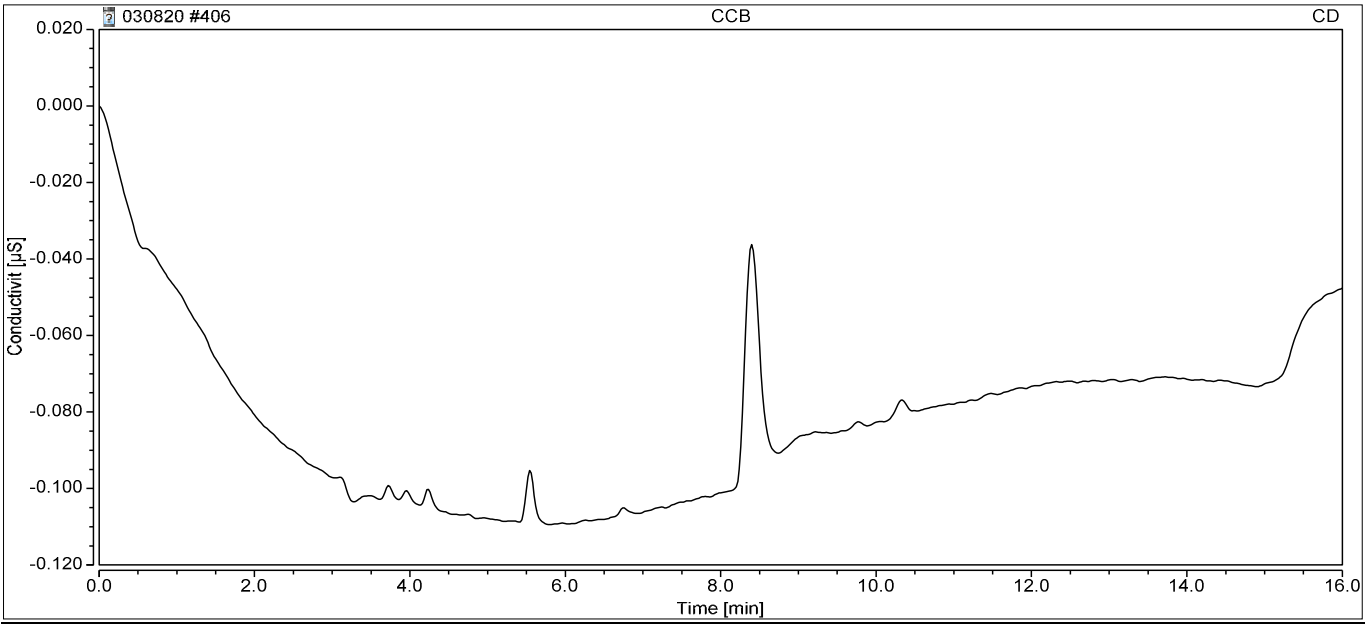
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.432	4.2179	4.2179	1.0000
2	5.54	Chloride	BMB	4.627	20.0094	20.0094	1.0000
3	6.75	Nitrite,N	BMB	2.078	4.2377	4.2377	1.0000
4	8.96	Bromide	BM	0.376	3.8281	3.8281	1.0000
5	9.70	Sulfate	M	3.283	19.6520	19.6520	1.0000
6	10.24	Nitrate	M	2.360	4.0517	4.0517	1.0000
7	10.91	Chlorate	MB	0.393	4.1261	4.1261	1.0000
8	14.95	Phosphate	BMB	0.788	3.8173	3.8173	1.0000
Total:			**0.000**	**15.337**		**63.94**	

406 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 09:38**	*Sample Weight:*	**1.0000**

Run Time:



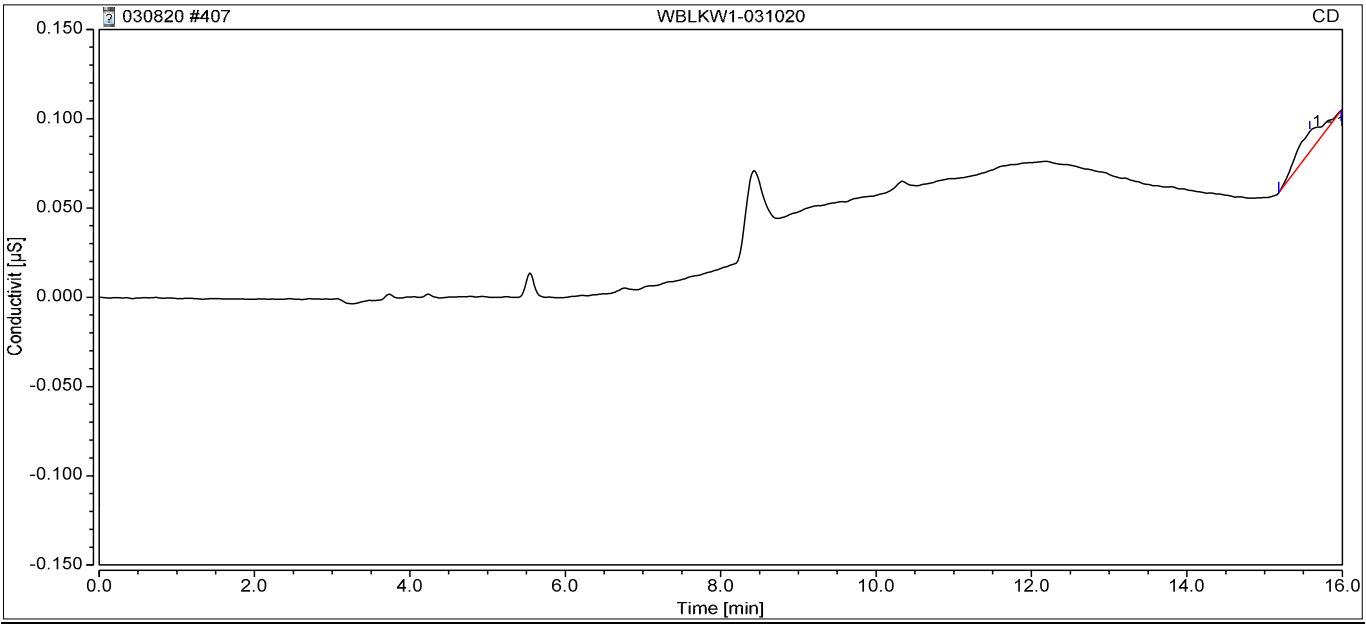
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

407 WBLKW1-031020

Sample Name:	**WBLKW1-031020**	*Injection Volume:*	**5.00**
Vial Number:	**GC1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 10:51**	*Sample Weight:*	**1.0000**

Run Time:



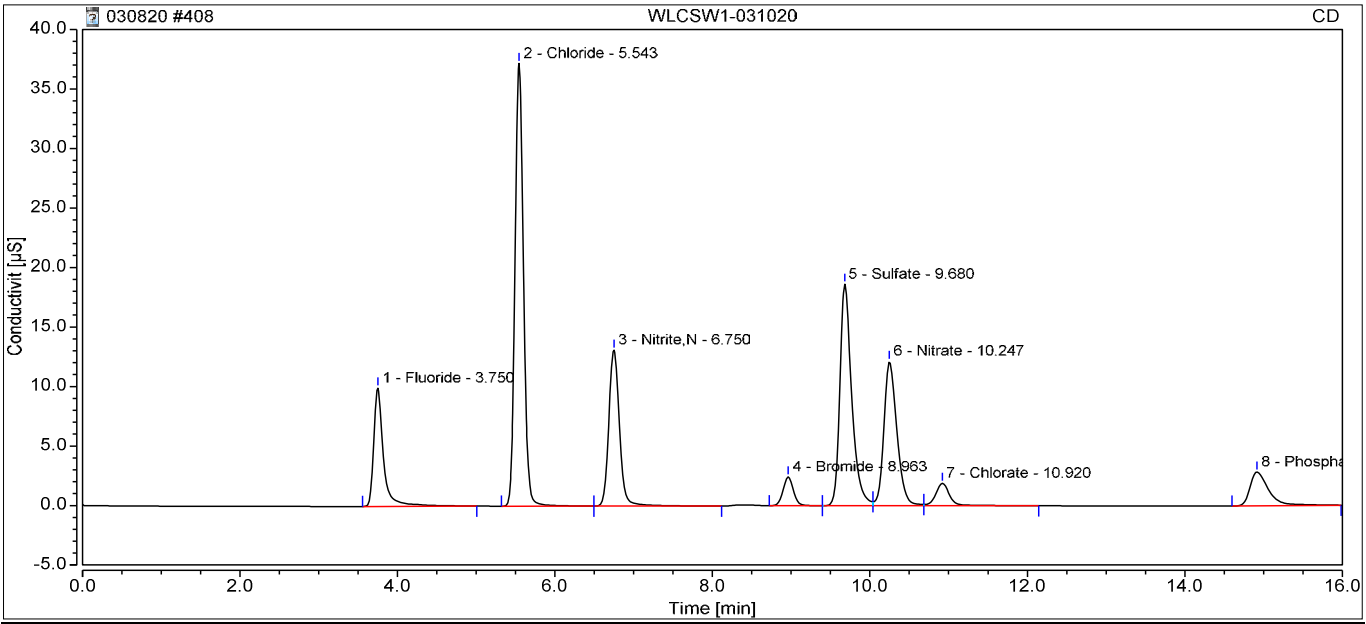
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

408 WLCSW1-031020

Sample Name:	**WLCSW1-031020**	*Injection Volume:*	**5.00**
Vial Number:	**GC2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 11:09**	*Sample Weight:*	**1.0000**

Run Time:



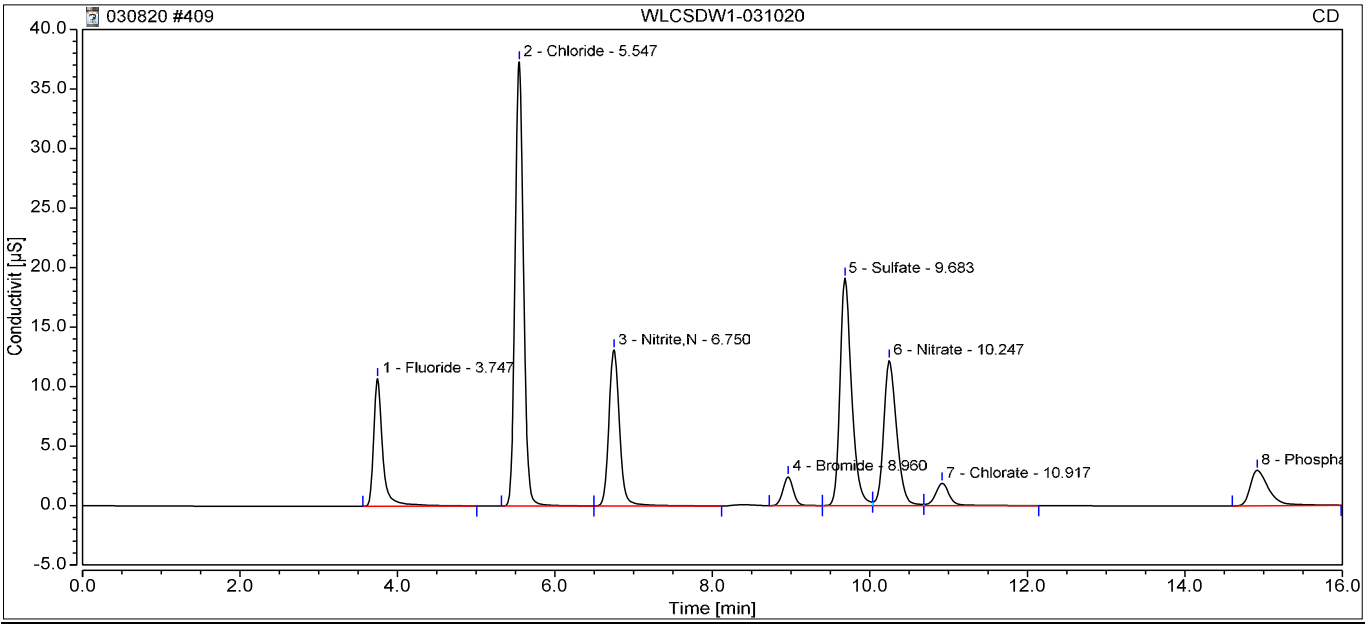
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.419	4.1809	4.1809	1.0000
2	5.54	Chloride	BMB	4.591	19.8513	19.8513	1.0000
3	6.75	Nitrite,N	BMB	2.062	4.2059	4.2059	1.0000
4	8.96	Bromide	BM	0.373	3.7933	3.7933	1.0000
5	9.68	Sulfate	M	3.253	19.4720	19.4720	1.0000
6	10.25	Nitrate	M	2.333	4.0065	4.0065	1.0000
7	10.92	Chlorate	MB	0.389	4.0799	4.0799	1.0000
8	14.92	Phosphate	BMB	0.775	3.7563	3.7563	1.0000
Total:			**0.000**	**15.194**		**63.35**	

409 WLCSDW1-031020

Sample Name:	**WLCSDW1-031020**	*Injection Volume:*	**5.00**
Vial Number:	**GC3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 11:27**	*Sample Weight:*	**1.0000**

Run Time:



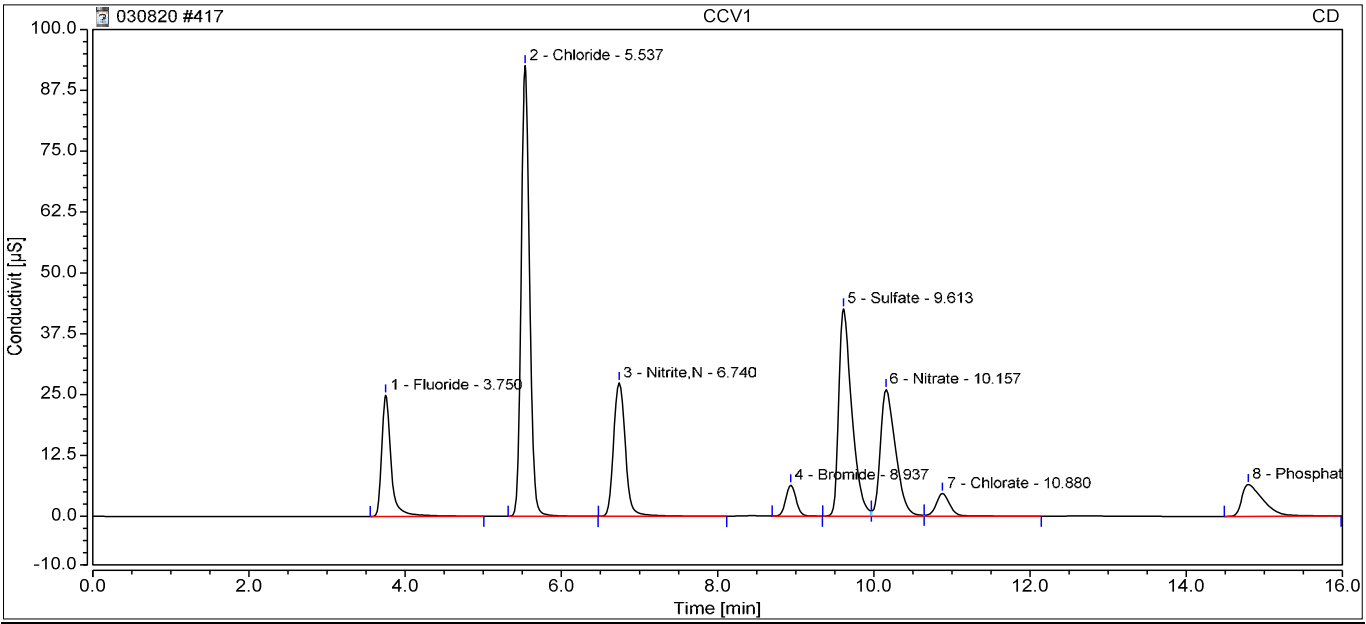
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.429	4.2102	4.2102	1.0000
2	5.55	Chloride	BMB	4.602	19.8983	19.8983	1.0000
3	6.75	Nitrite,N	BMB	2.063	4.2092	4.2092	1.0000
4	8.96	Bromide	BM	0.375	3.8118	3.8118	1.0000
5	9.68	Sulfate	M	3.278	19.6217	19.6217	1.0000
6	10.25	Nitrate	M	2.341	4.0201	4.0201	1.0000
7	10.92	Chlorate	MB	0.391	4.0970	4.0970	1.0000
8	14.92	Phosphate	BMB	0.809	3.9197	3.9197	1.0000
Total:			**0.000**	**15.288**		**63.79**	

417 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 13:52**	*Sample Weight:*	**1.0000**

Run Time:



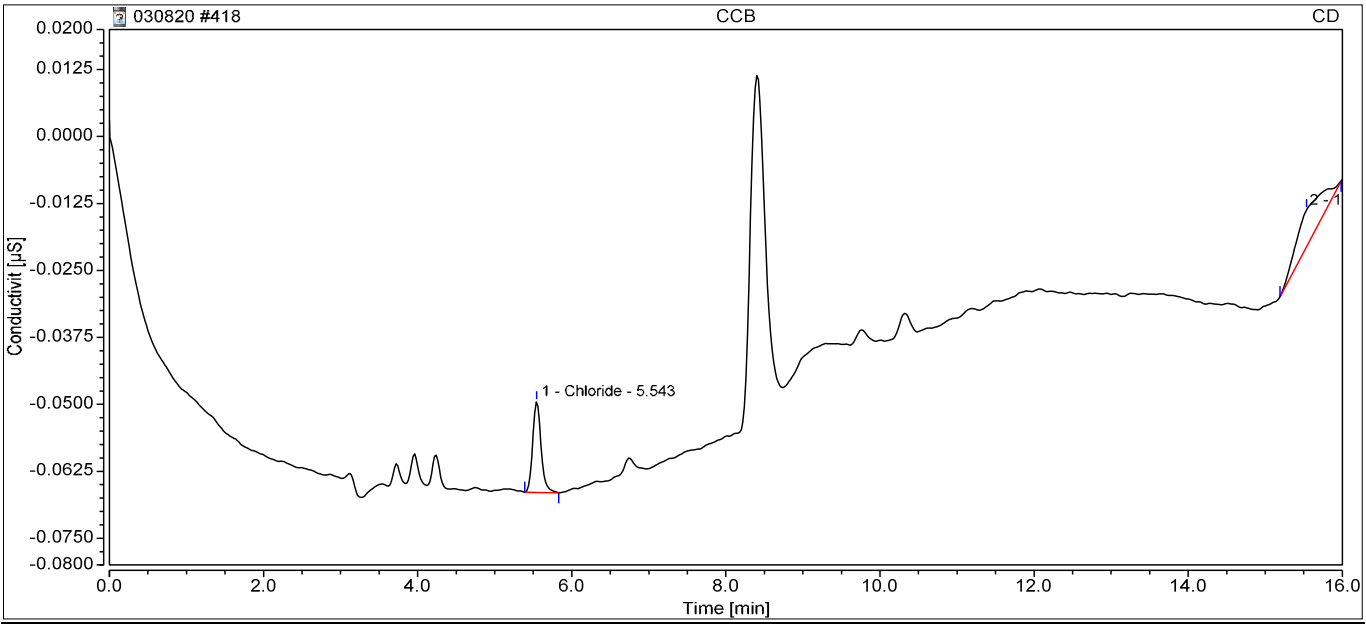
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.473	10.1956	10.1956	1.0000
2	5.54	Chloride	BMB	11.493	49.6078	49.6078	1.0000
3	6.74	Nitrite,N	BMB	4.816	9.7564	9.7564	1.0000
4	8.94	Bromide	BMB	0.968	9.8018	9.8018	1.0000
5	9.61	Sulfate	BM	8.225	49.0817	49.0817	1.0000
6	10.16	Nitrate	M	5.847	10.0201	10.0201	1.0000
7	10.88	Chlorate	MB	0.960	10.0980	10.0980	1.0000
8	14.80	Phosphate	BMB	2.085	9.9419	9.9419	1.0000
Total:			**0.000**	**37.868**		**158.50**	

418 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 14:10**	*Sample Weight:*	**1.0000**

Run Time:



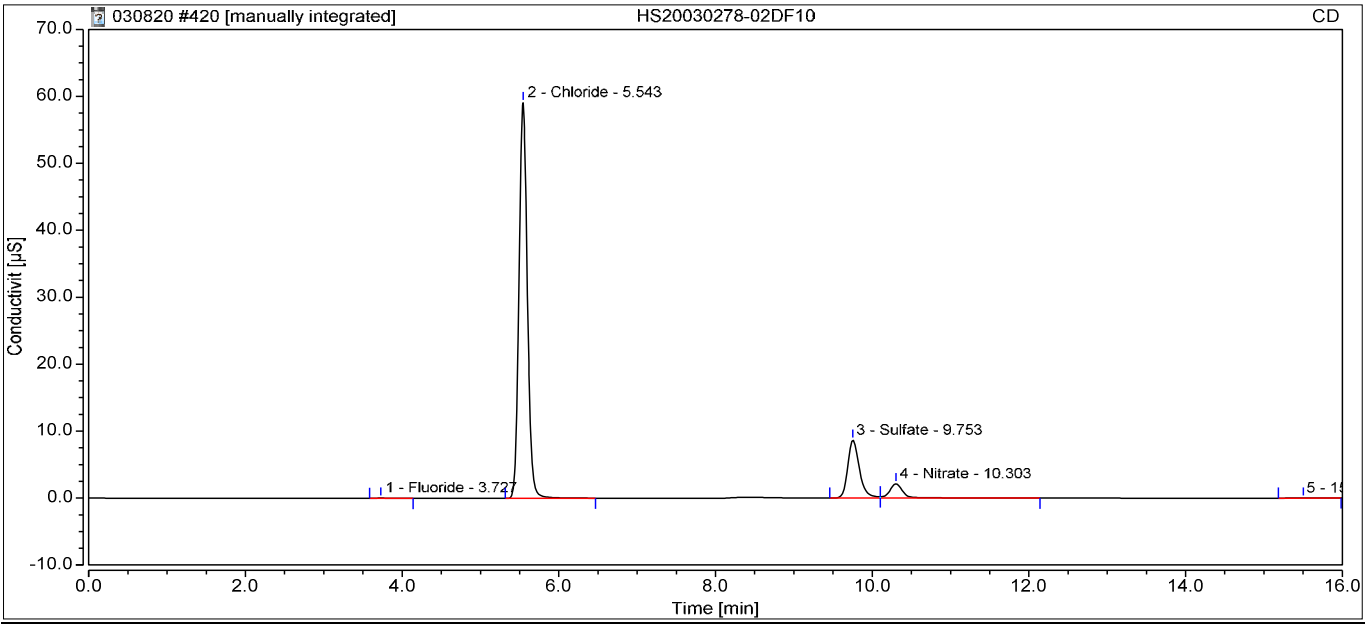
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.54	Chloride	BMB	0.002	0.0702	0.0702	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.002**		**0.07**	

420 HS20030278-02DF10

Sample Name:	**HS20030278-02DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RD7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/10/2020 14:47**	*Sample Weight:*	**1.0000**

Run Time:



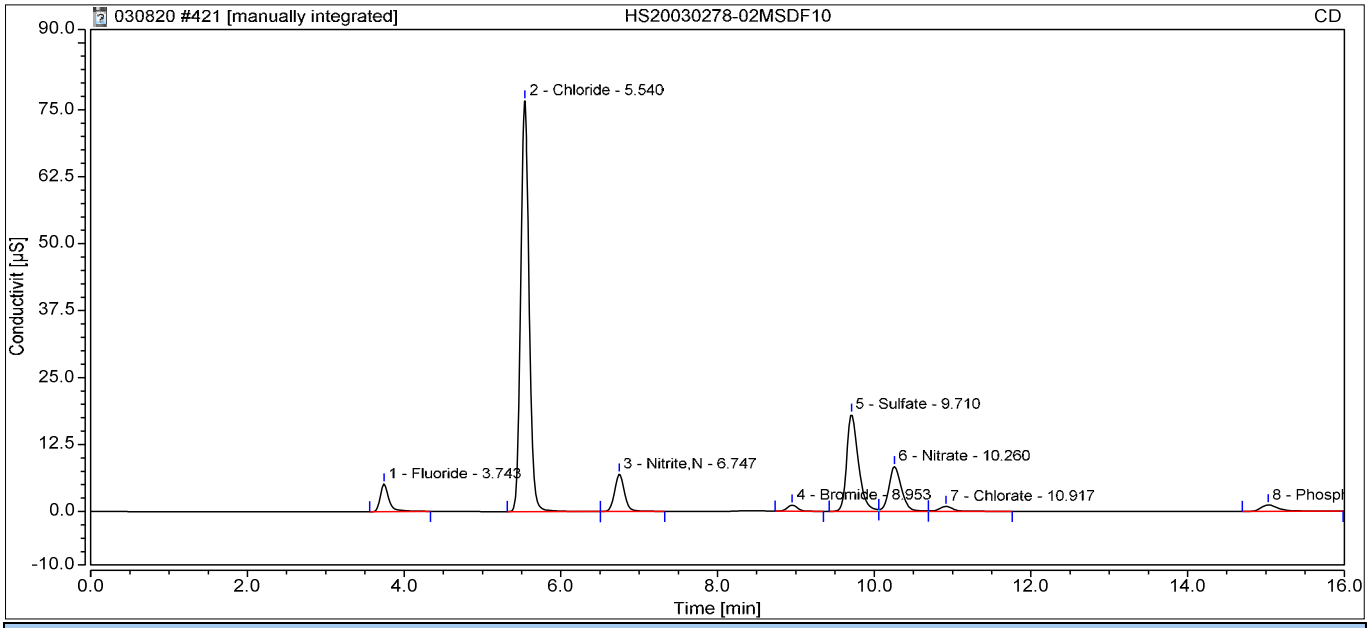
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.006	0.0428	0.4281	10.0000
2	5.54	Chloride	BMB*	7.308	31.5646	315.6463	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	10.0000
3	9.75	Sulfate	BM	1.488	8.9641	89.6414	10.0000
4	10.30	Nitrate	MB	0.427	0.7433	7.4330	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**9.229**		**413.15**	

421 HS20030278-02MSDF10

Sample Name:	**HS20030278-02MSDF10**	*Injection Volume:*	**5.00**
Vial Number:	**RD8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/10/2020 15:05**	*Sample Weight:*	**1.0000**

Run Time:



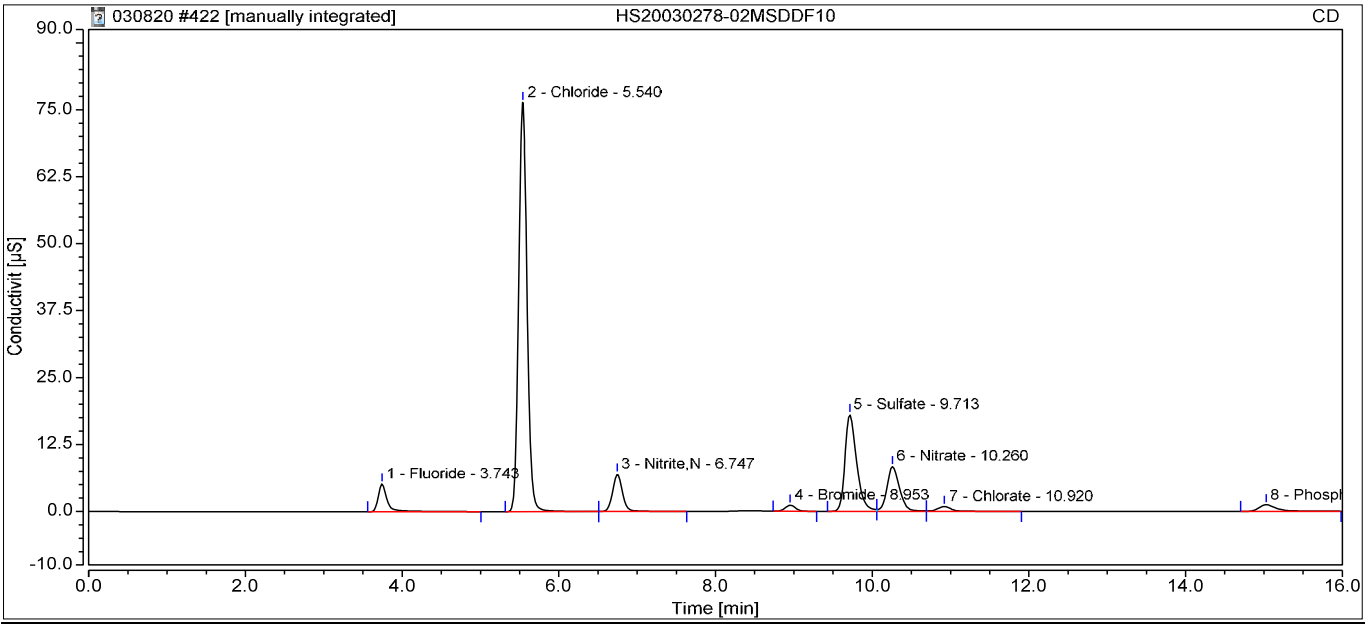
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB*	0.660	1.9574	19.5739	10.0000
2	5.54	Chloride	BMb*	9.522	41.1105	411.1051	10.0000
3	6.75	Nitrite,N	bMB*	1.022	2.1107	21.1067	10.0000
4	8.95	Bromide	BMB	0.169	1.7384	17.3844	10.0000
5	9.71	Sulfate	BM *	3.128	18.7300	187.2995	10.0000
6	10.26	Nitrate	M *	1.555	2.6748	26.7478	10.0000
7	10.92	Chlorate	MB*	0.188	1.9604	19.6042	10.0000
8	15.03	Phosphate	BMB	0.338	1.6972	16.9719	10.0000
Total:			**0.000**	**16.583**		**719.79**	

422 HS20030278-02MSDDF10

Sample Name:	**HS20030278-02MSDDF10**	*Injection Volume:*	**5.00**
Vial Number:	**RE1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/10/2020 15:23**	*Sample Weight:*	**1.0000**

Run Time:



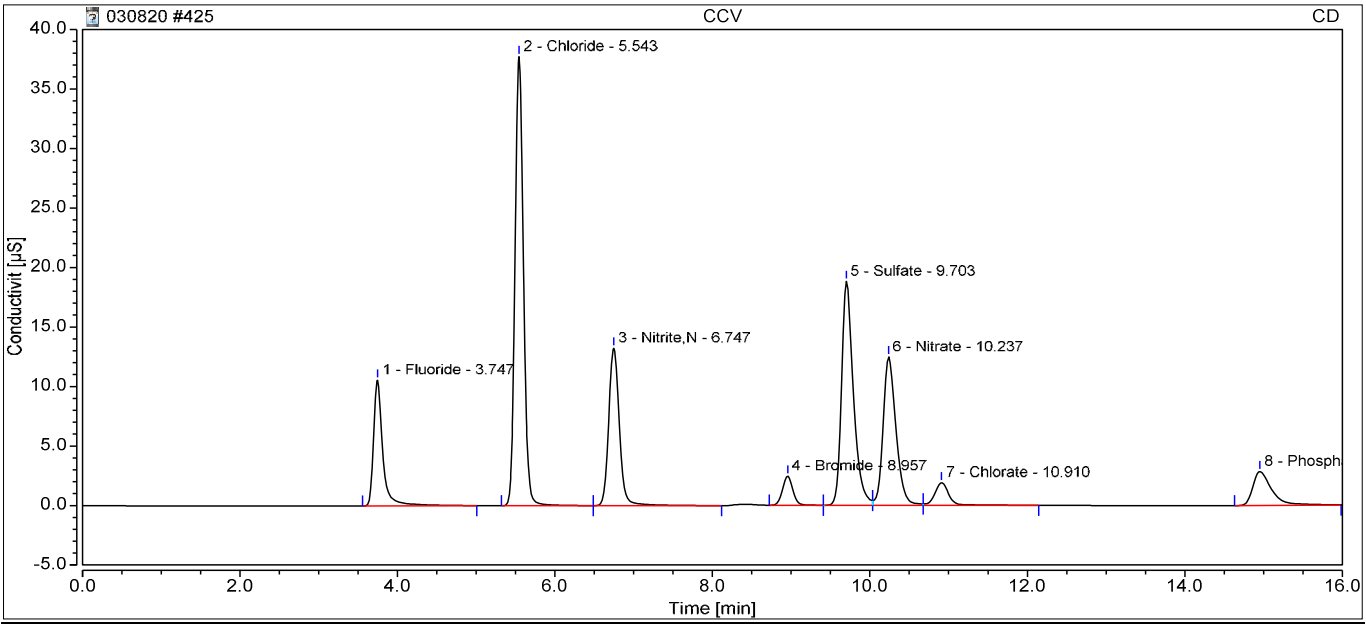
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.697	2.0668	20.6681	10.0000
2	5.54	Chloride	BMb*	9.483	40.9406	409.4060	10.0000
3	6.75	Nitrite,N	bMB*	1.032	2.1312	21.3125	10.0000
4	8.95	Bromide	BMB	0.168	1.7269	17.2689	10.0000
5	9.71	Sulfate	BM *	3.113	18.6414	186.4142	10.0000
6	10.26	Nitrate	M *	1.552	2.6698	26.6984	10.0000
7	10.92	Chlorate	MB*	0.192	2.0079	20.0789	10.0000
8	15.03	Phosphate	BMB	0.346	1.7355	17.3553	10.0000
Total:			**0.000**	**16.585**		**719.20**	

425 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 16:17**	*Sample Weight:*	**1.0000**

Run Time:



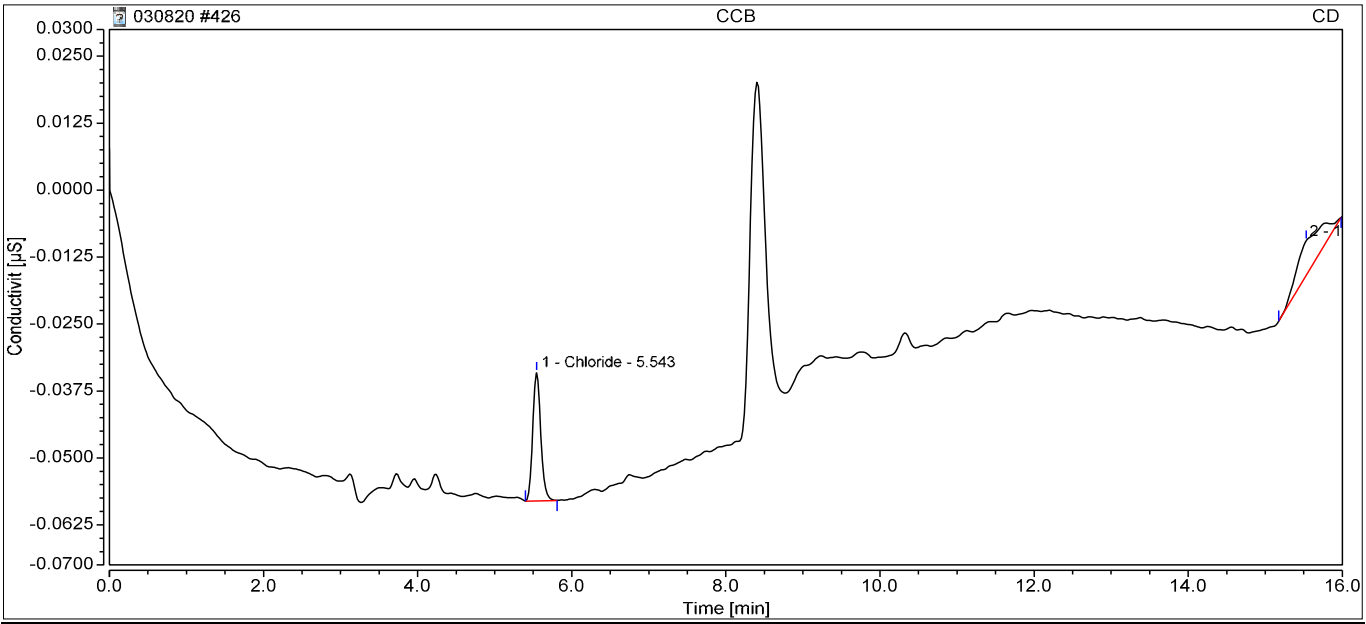
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.432	4.2171	4.2171	1.0000
2	5.54	Chloride	BMB	4.644	20.0825	20.0825	1.0000
3	6.75	Nitrite,N	BMB	2.080	4.2422	4.2422	1.0000
4	8.96	Bromide	BM	0.375	3.8179	3.8179	1.0000
5	9.70	Sulfate	M	3.292	19.7078	19.7078	1.0000
6	10.24	Nitrate	M	2.373	4.0746	4.0746	1.0000
7	10.91	Chlorate	MB	0.395	4.1430	4.1430	1.0000
8	14.95	Phosphate	BMB	0.789	3.8243	3.8243	1.0000
Total:			**0.000**	**15.380**		**64.11**	

426 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 16:36**	*Sample Weight:*	**1.0000**

Run Time:



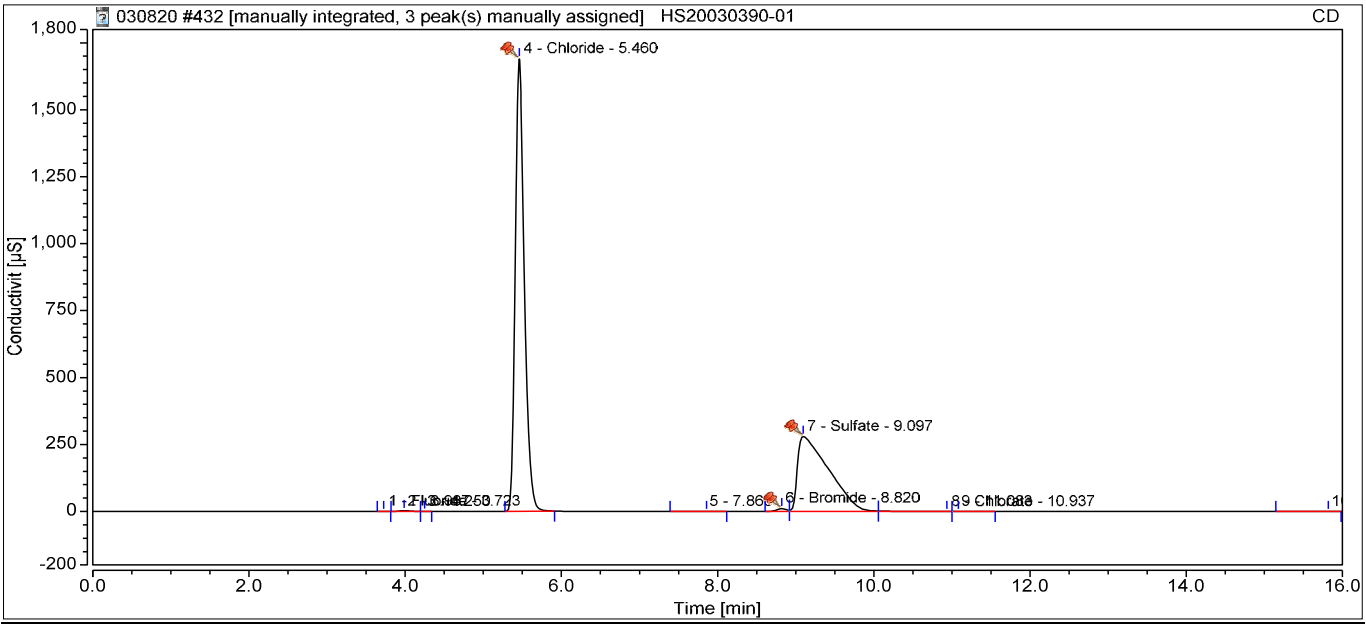
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.54	Chloride	BMB	0.003	0.0735	0.0735	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.003**		**0.07**	

432 HS20030390-01

Sample Name:	**HS20030390-01**	*Injection Volume:*	**5.00**
Vial Number:	**GB5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 18:24**	*Sample Weight:*	**1.0000**

Run Time:



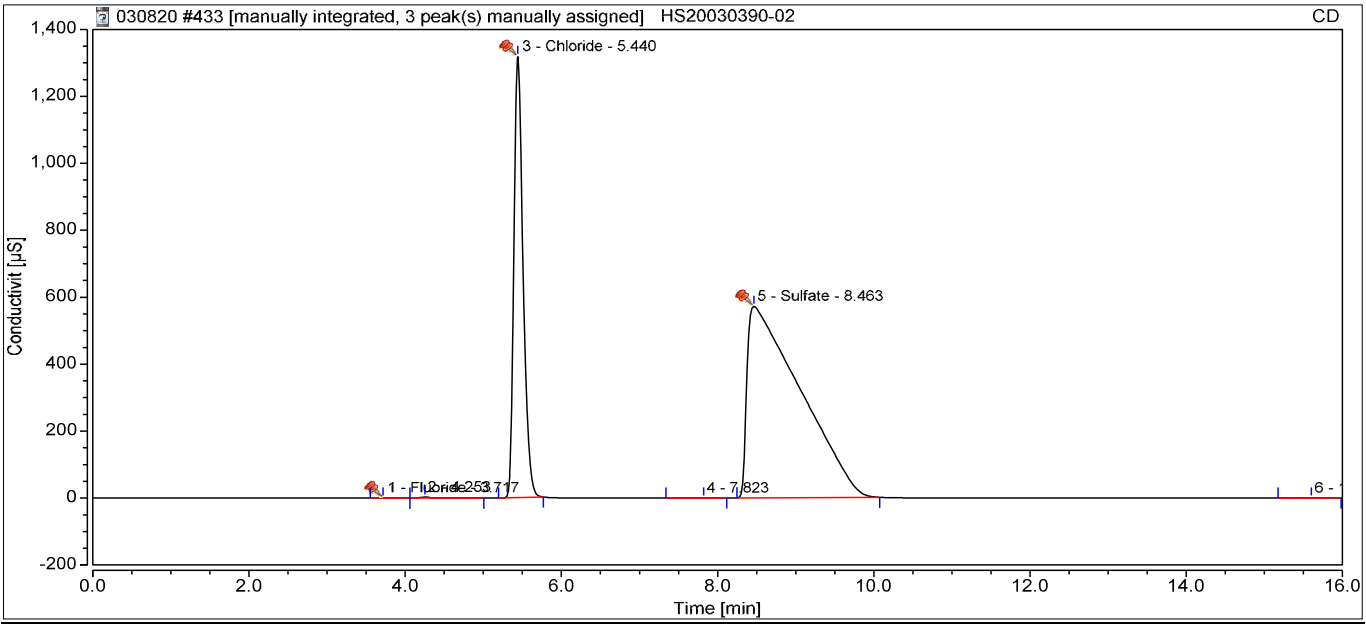
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.021	0.0867	0.0867	1.0000
4	5.46	Chloride	BMB*^	227.263	979.7838	979.7838	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
6	8.82	Bromide	BM ^	1.441	14.5670	14.5670	1.0000
7	9.10	Sulfate	M *^	128.542	765.6046	765.6046	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
8	10.94	Chlorate	M *	0.277	2.8974	2.8974	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**357.544**		**1762.94**	

433 HS20030390-02

Sample Name:	**HS20030390-02**	*Injection Volume:*	**5.00**
Vial Number:	**GB6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 18:42**	*Sample Weight:*	**1.0000**

Run Time:



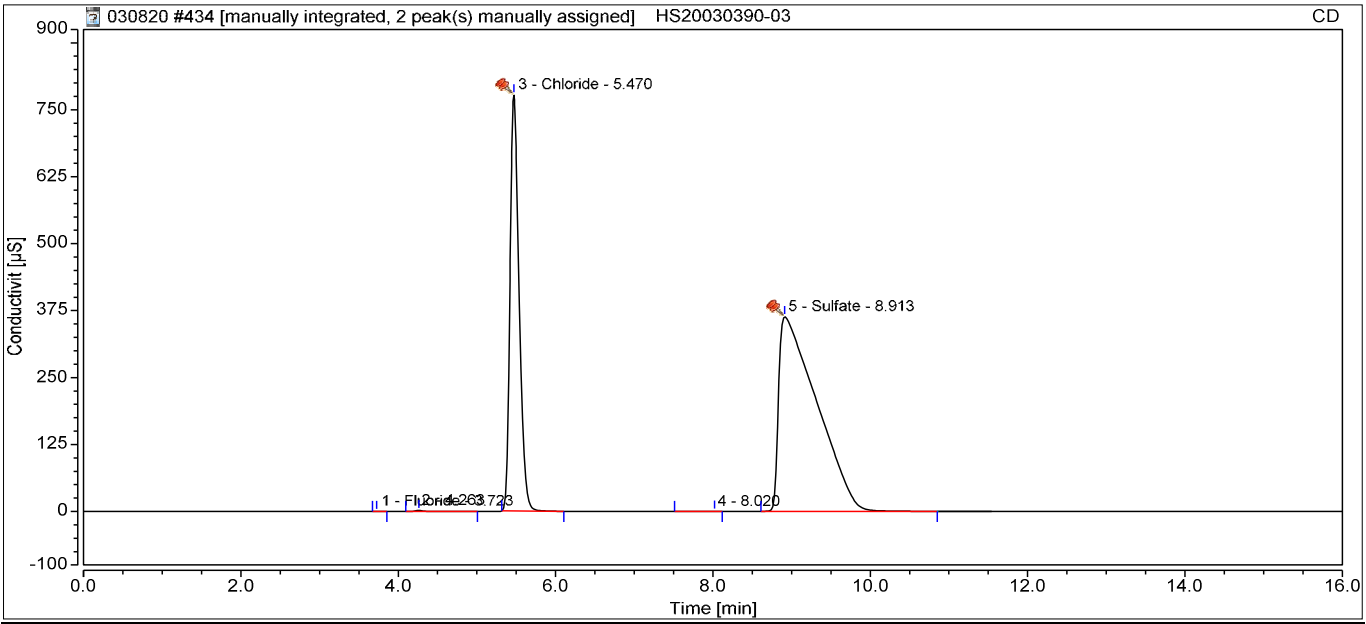
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB^	0.039	0.1384	0.1384	1.0000
3	5.44	Chloride	BMB*^	179.229	772.7118	772.7118	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.46	Sulfate	BMB*^	449.877	2679.2347	2679.2347	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**629.145**		**3452.08**	

434 HS20030390-03

Sample Name:	**HS20030390-03**	*Injection Volume:*	**5.00**
Vial Number:	**GB7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 19:01**	*Sample Weight:*	**1.0000**

Run Time:



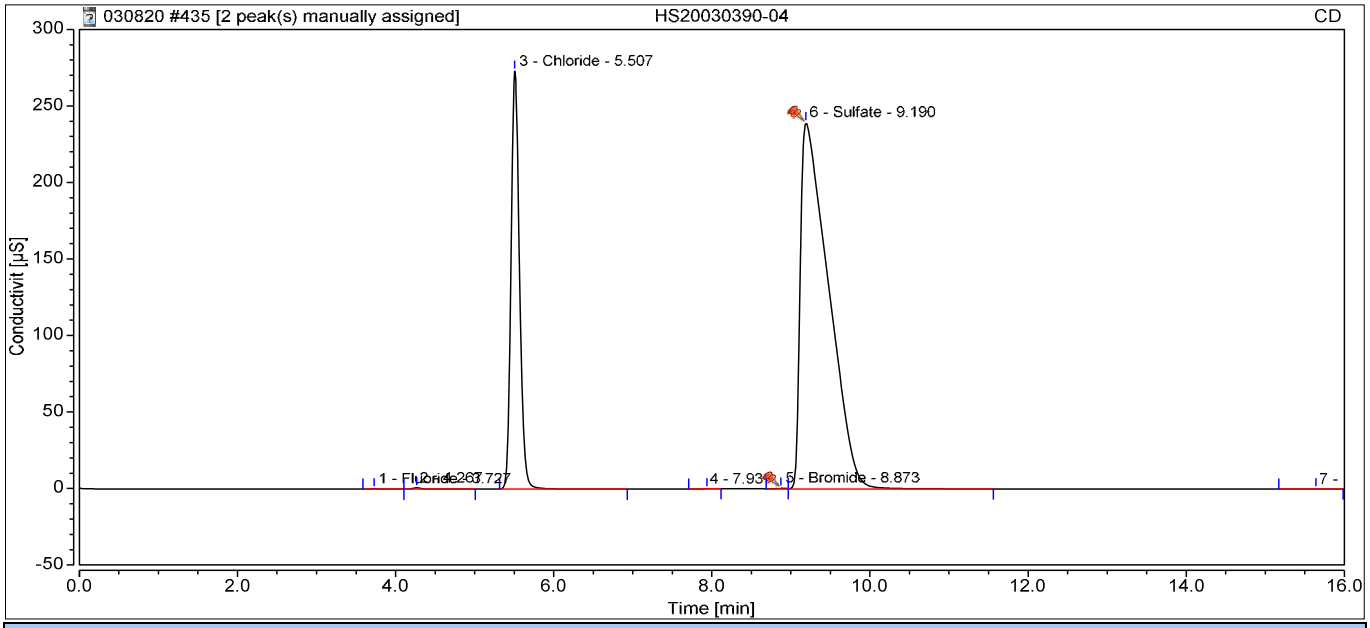
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.008	0.0486	0.0486	1.0000
3	5.47	Chloride	BMB^	103.613	446.7353	446.7353	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.91	Sulfate	BM *^	202.850	1208.1285	1208.1285	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**306.472**		**1654.91**	

435 HS20030390-04

Sample Name:	**HS20030390-04**	*Injection Volume:*	**5.00**
Vial Number:	**GB8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 19:19**	*Sample Weight:*	**1.0000**

Run Time:



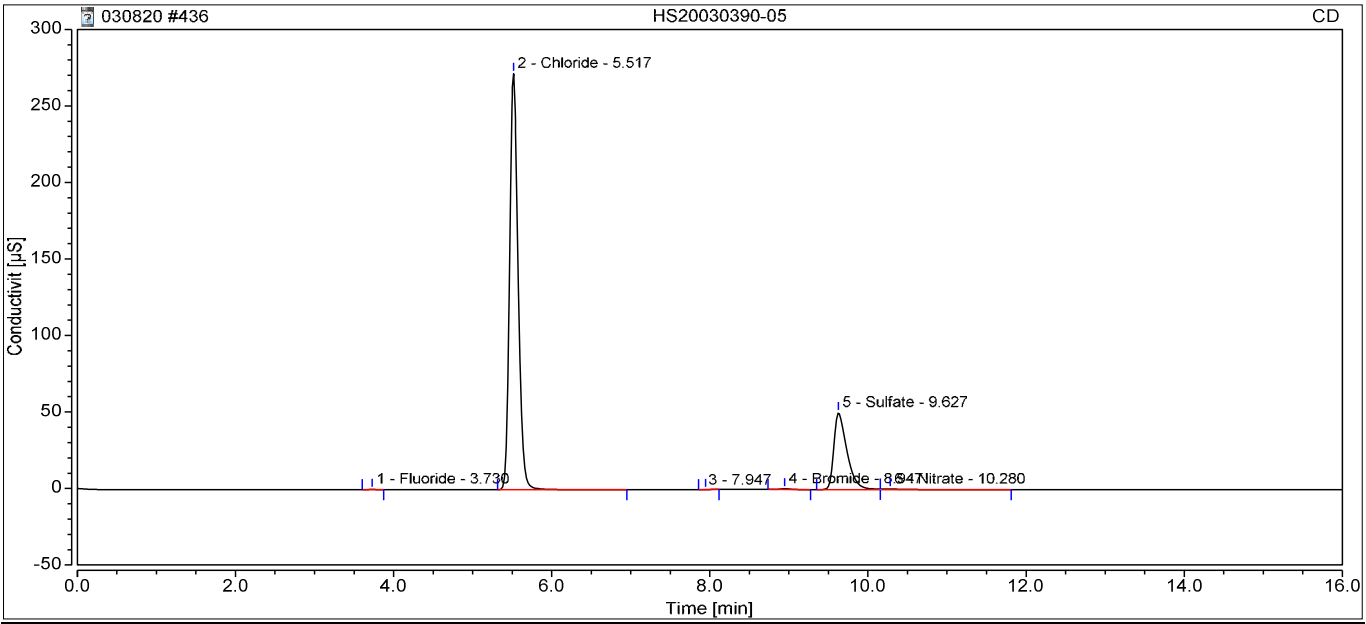
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.032	0.1192	0.1192	1.0000
3	5.51	Chloride	BMB	34.217	147.5713	147.5713	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.87	Bromide	BM ^	0.060	0.6367	0.6367	1.0000
6	9.19	Sulfate	MB^	98.198	584.8989	584.8989	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**132.508**		**733.23**	

436 HS20030390-05

Sample Name:	**HS20030390-05**	*Injection Volume:*	**5.00**
Vial Number:	**GC1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 19:37**	*Sample Weight:*	**1.0000**

Run Time:



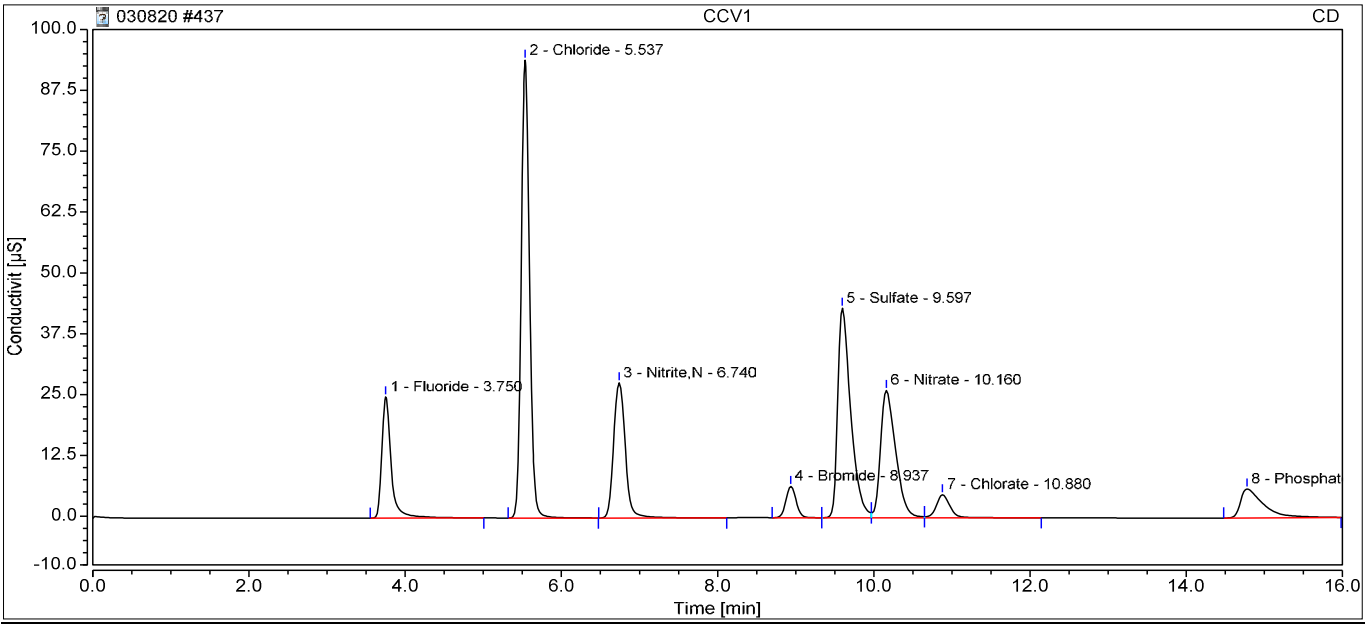
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.023	0.0914	0.0914	1.0000
2	5.52	Chloride	BMB	34.214	147.5582	147.5582	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.95	Bromide	BMB	0.075	0.7920	0.7920	1.0000
5	9.63	Sulfate	BM	9.675	57.7180	57.7180	1.0000
6	10.28	Nitrate	MB	0.131	0.2370	0.2370	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**44.118**		**206.40**	

437 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 19:55**	*Sample Weight:*	**1.0000**

Run Time:



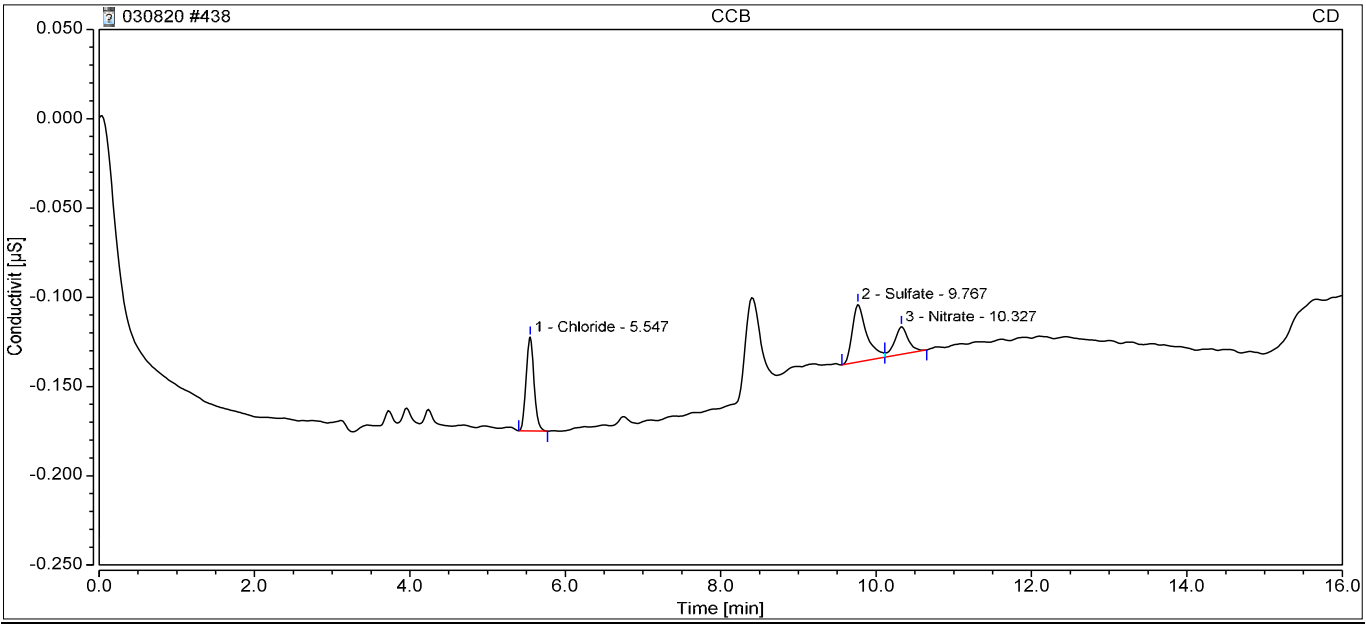
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.471	10.1903	10.1903	1.0000
2	5.54	Chloride	BMB	11.547	49.8381	49.8381	1.0000
3	6.74	Nitrite,N	BMB	4.829	9.7836	9.7836	1.0000
4	8.94	Bromide	BM	0.973	9.8469	9.8469	1.0000
5	9.60	Sulfate	M	8.293	49.4894	49.4894	1.0000
6	10.16	Nitrate	M	5.861	10.0436	10.0436	1.0000
7	10.88	Chlorate	MB	0.968	10.1819	10.1819	1.0000
8	14.78	Phosphate	BMB	2.032	9.6880	9.6880	1.0000
Total:			**0.000**	**37.974**		**159.06**	

438 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 20:13**	*Sample Weight:*	**1.0000**

Run Time:



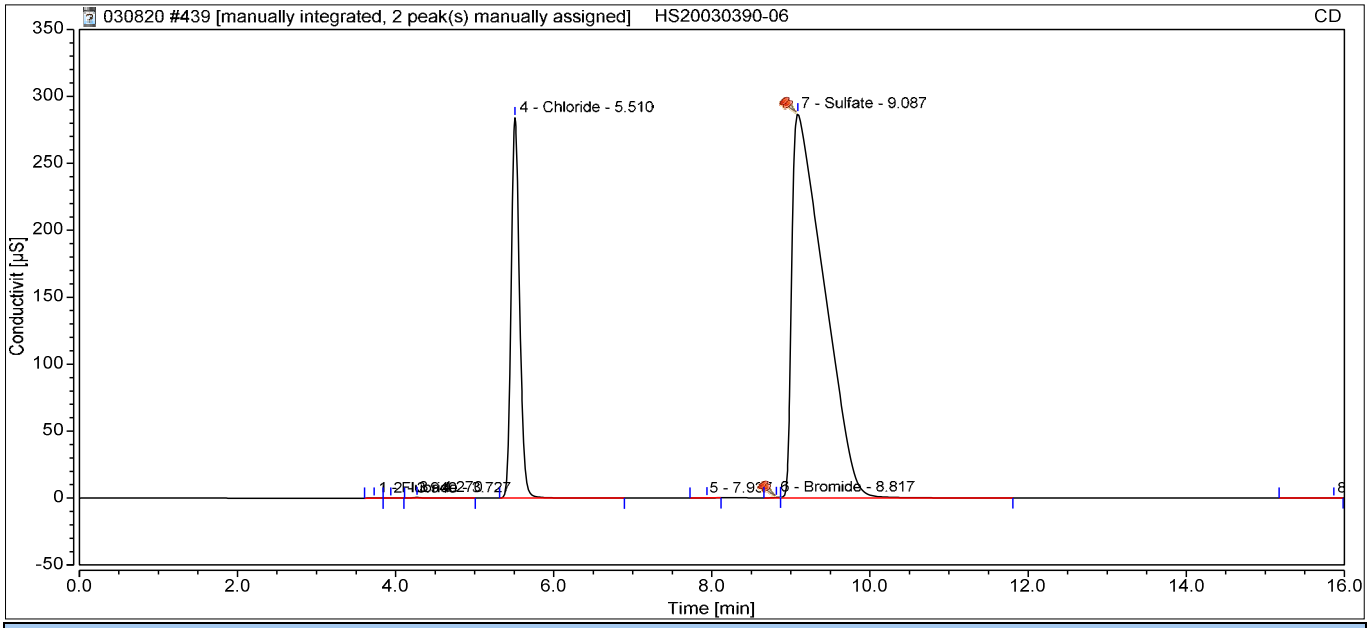
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.55	Chloride	BMB	0.006	0.0877	0.0877	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	9.77	Sulfate	BM	0.007	0.1424	0.1424	1.0000
3	10.33	Nitrate	MB	0.003	0.0184	0.0184	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.016**		**0.25**	

439 HS20030390-06

Sample Name:	**HS20030390-06**	*Injection Volume:*	**5.00**
Vial Number:	**GC2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 20:31**	*Sample Weight:*	**1.0000**

Run Time:



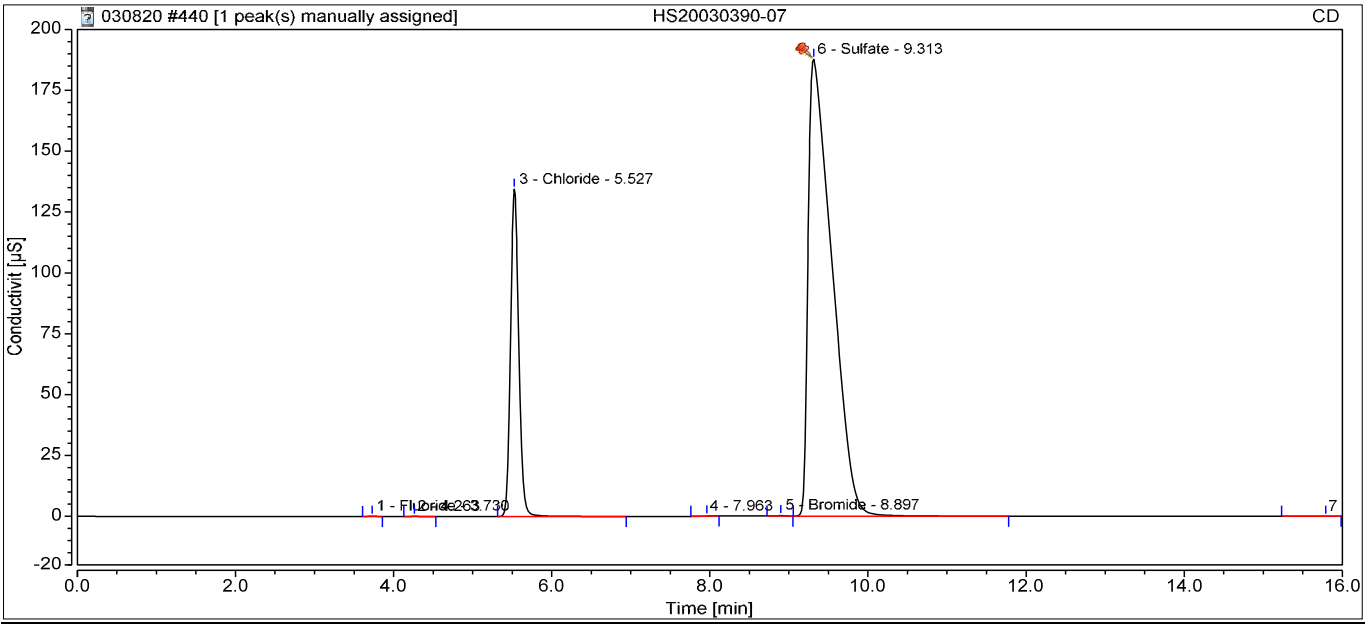
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.007	0.0446	0.0446	1.0000
4	5.51	Chloride	BMB	35.538	153.2640	153.2640	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
6	8.82	Bromide	BM *^	0.039	0.4298	0.4298	1.0000
7	9.09	Sulfate	MB*^	134.081	798.5887	798.5887	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**169.665**		**952.33**	

440 HS20030390-07

Sample Name:	**HS20030390-07**	*Injection Volume:*	**5.00**
Vial Number:	**GC3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 20:49**	*Sample Weight:*	**1.0000**

Run Time:



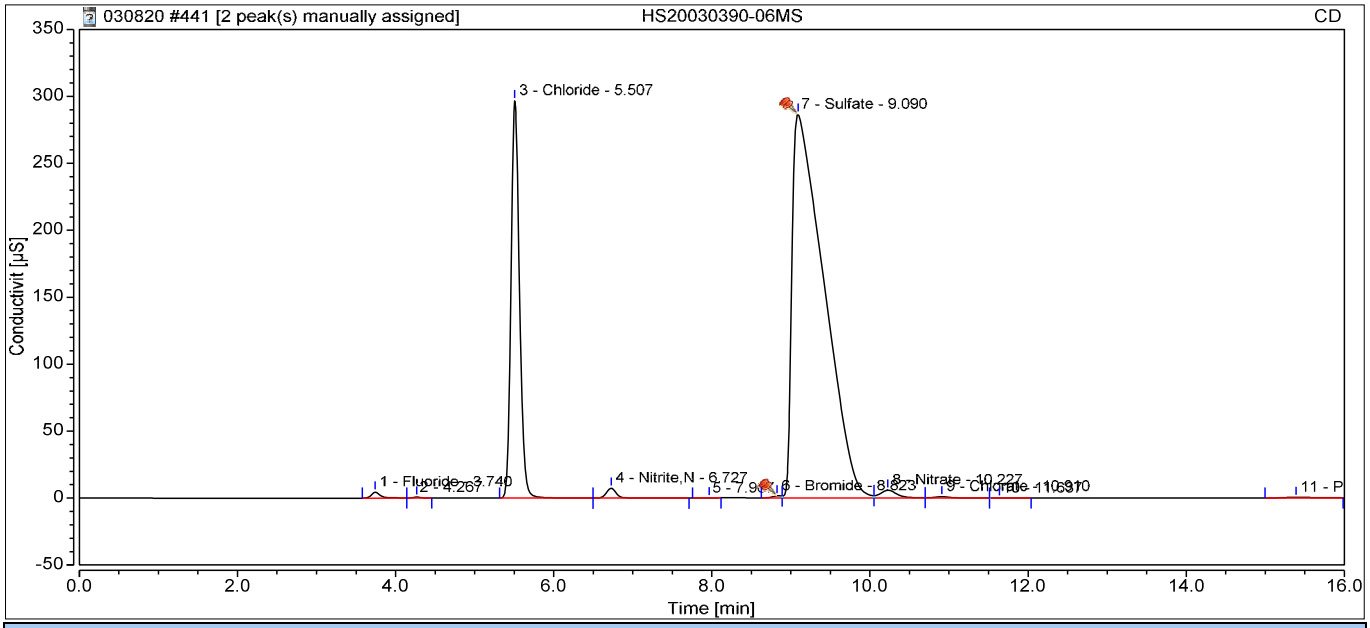
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.012	0.0603	0.0603	1.0000
3	5.53	Chloride	BMB	16.421	70.8517	70.8517	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.90	Bromide	BMB	0.022	0.2577	0.2577	1.0000
6	9.31	Sulfate	BMB^	65.357	389.3216	389.3216	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**81.813**		**460.49**	

441 HS20030390-06MS

Sample Name:	**HS20030390-06MS**	*Injection Volume:*	**5.00**
Vial Number:	**GC4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 21:07**	*Sample Weight:*	**1.0000**

Run Time:



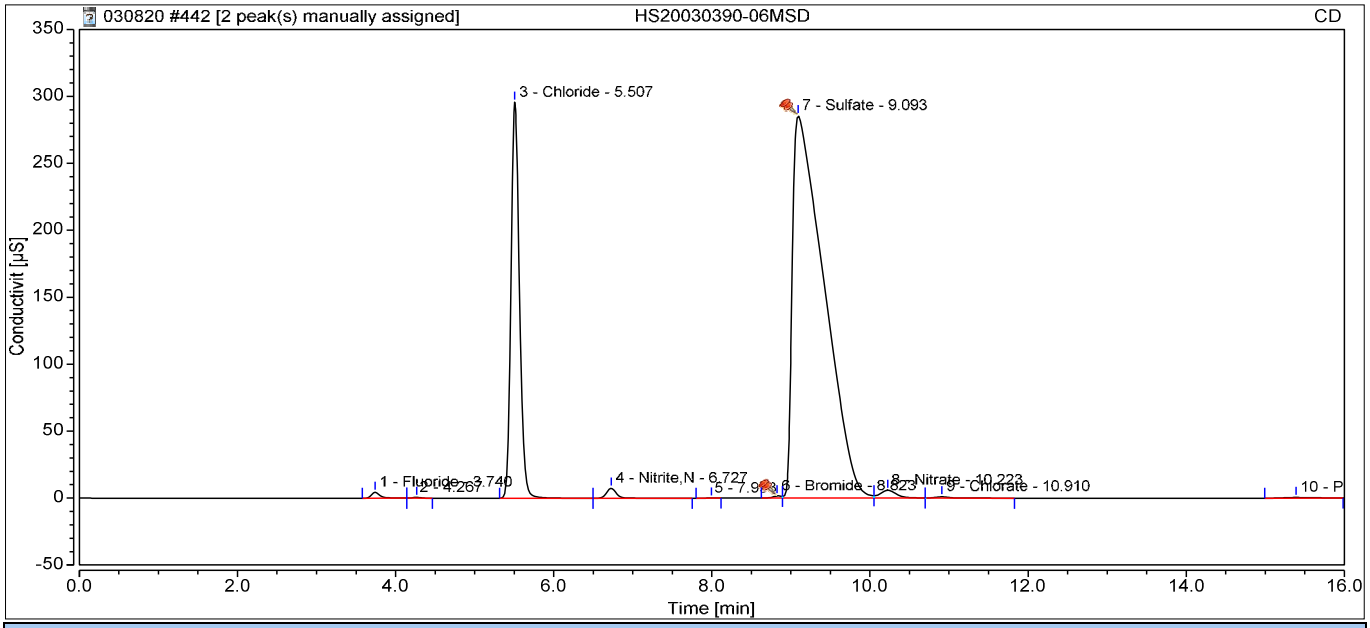
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.579	1.7213	1.7213	1.0000
3	5.51	Chloride	BMB	37.174	160.3180	160.3180	1.0000
4	6.73	Nitrite,N	BMB	1.060	2.1861	2.1861	1.0000
6	8.82	Bromide	BM ^	0.200	2.0526	2.0526	1.0000
7	9.09	Sulfate	M ^	132.954	791.8756	791.8756	1.0000
8	10.23	Nitrate	M	1.428	2.4576	2.4576	1.0000
9	10.91	Chlorate	M	0.224	2.3443	2.3443	1.0000
11	15.39	Phosphate	BMB	0.216	1.1214	1.1214	1.0000
Total:			**0.000**	**173.836**		**964.08**	

442 HS20030390-06MSD

Sample Name:	**HS20030390-06MSD**	*Injection Volume:*	**5.00**
Vial Number:	**GC5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 21:26**	*Sample Weight:*	**1.0000**

Run Time:



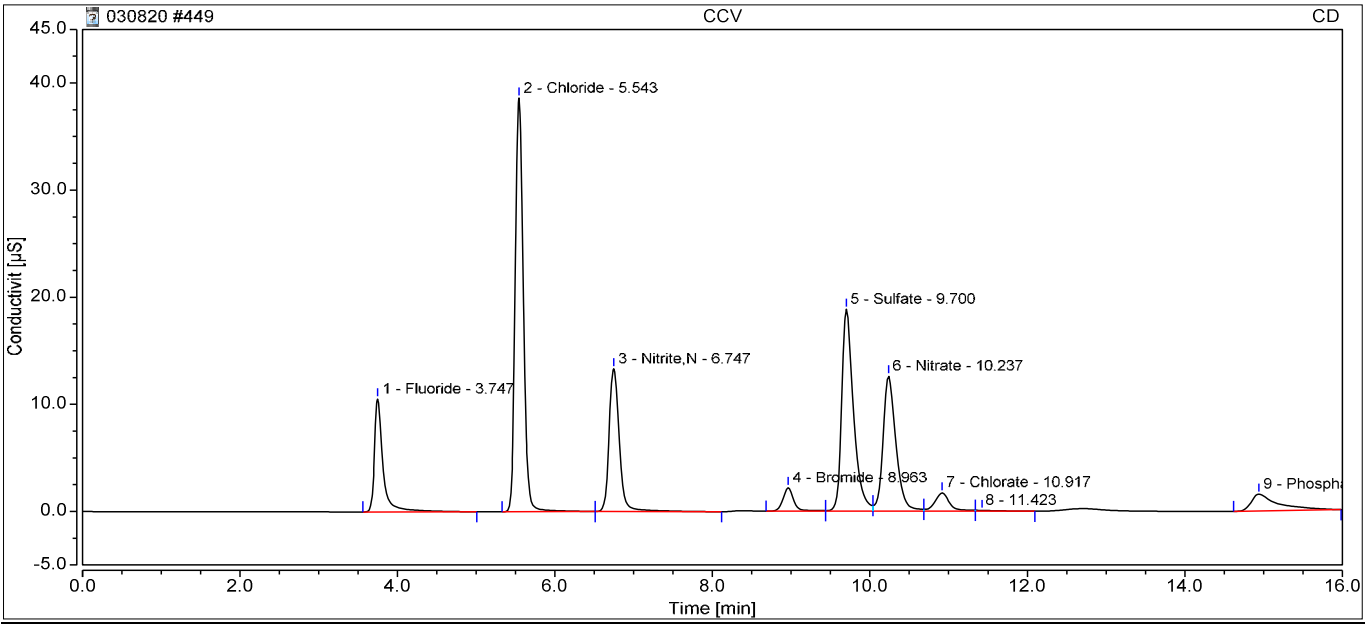
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.582	1.7278	1.7278	1.0000
3	5.51	Chloride	BMB	37.044	159.7566	159.7566	1.0000
4	6.73	Nitrite,N	BMB	1.071	2.2088	2.2088	1.0000
6	8.82	Bromide	BM ^	0.205	2.0970	2.0970	1.0000
7	9.09	Sulfate	M ^	131.873	785.4413	785.4413	1.0000
8	10.22	Nitrate	M	1.437	2.4728	2.4728	1.0000
9	10.91	Chlorate	MB	0.226	2.3593	2.3593	1.0000
10	15.39	Phosphate	BMB	0.227	1.1706	1.1706	1.0000
Total:			**0.000**	**172.664**		**957.23**	

449 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 23:32**	*Sample Weight:*	**1.0000**

Run Time:



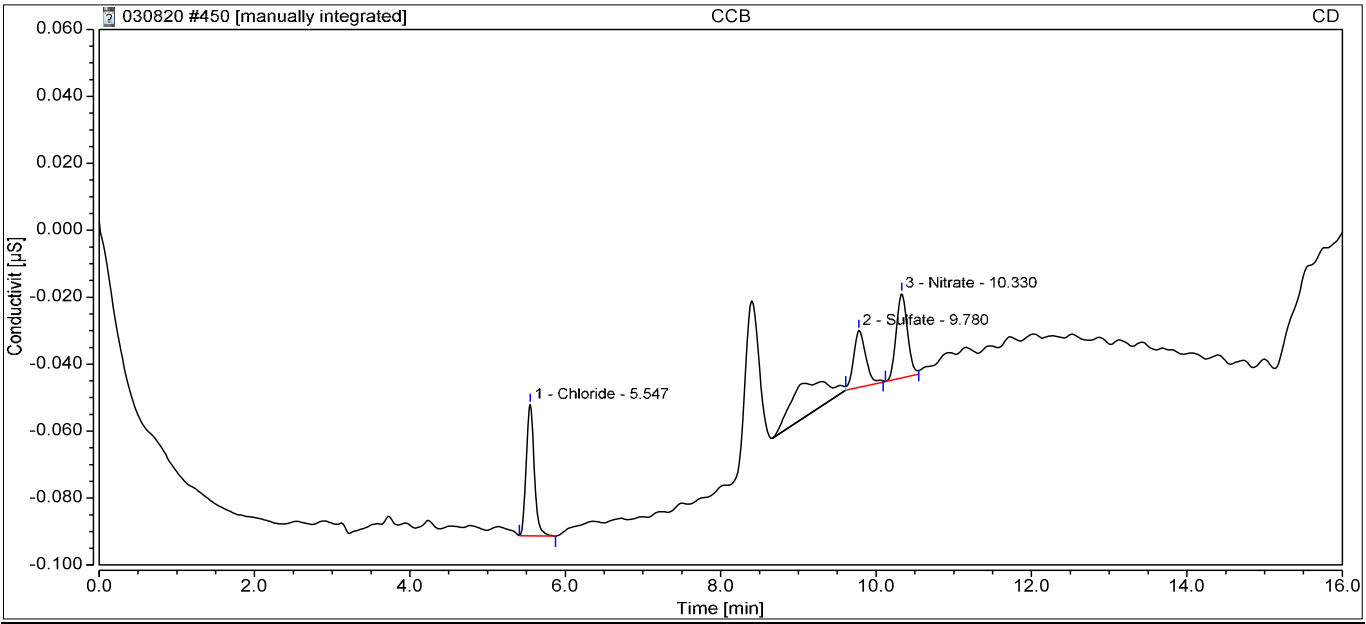
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.340	3.9483	3.9483	1.0000
2	5.54	Chloride	BMB	4.613	19.9459	19.9459	1.0000
3	6.75	Nitrite,N	BMB	2.027	4.1367	4.1367	1.0000
4	8.96	Bromide	BM	0.355	3.6104	3.6104	1.0000
5	9.70	Sulfate	M	3.306	19.7922	19.7922	1.0000
6	10.24	Nitrate	M	2.413	4.1420	4.1420	1.0000
7	10.92	Chlorate	M	0.376	3.9469	3.9469	1.0000
9	14.94	Phosphate	BMB	0.636	3.1012	3.1012	1.0000
Total:			**0.000**	**15.066**		**62.62**	

450 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/10/2020 23:50**	*Sample Weight:*	**1.0000**

Run Time:



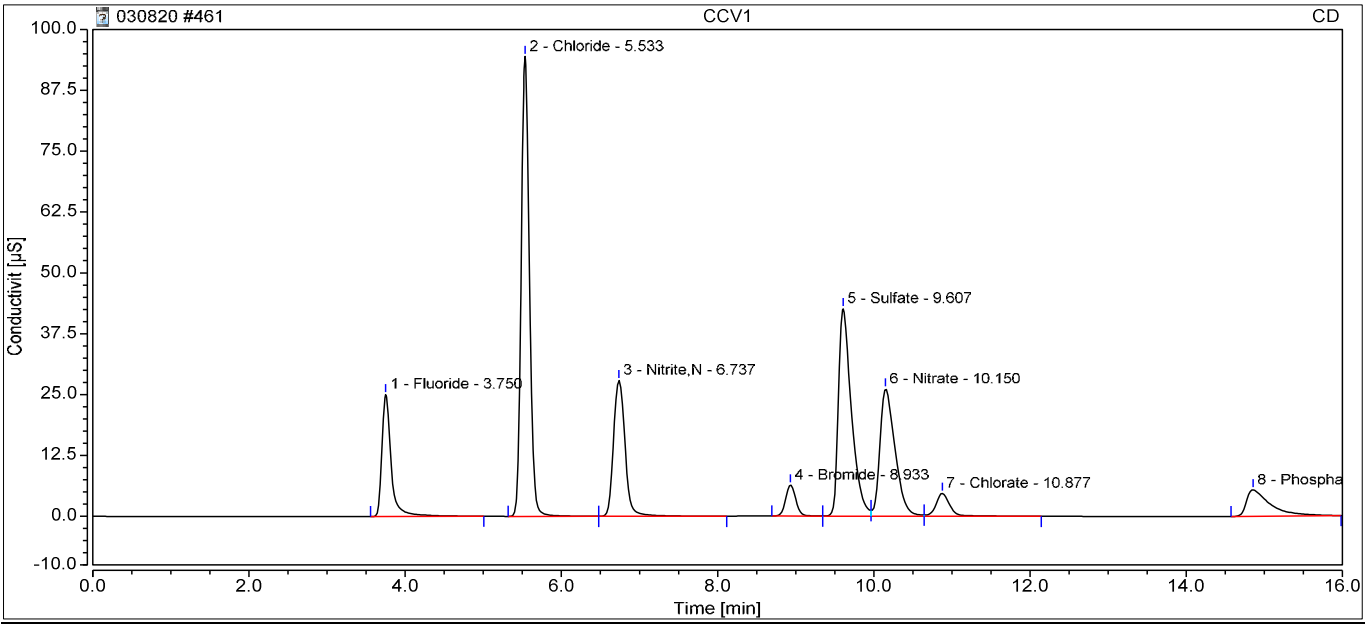
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.55	Chloride	BMB*	0.005	0.0812	0.0812	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	9.78	Sulfate	M *	0.003	0.1197	0.1197	1.0000
3	10.33	Nitrate	M *	0.004	0.0202	0.0202	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.012**		**0.22**	

461 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 03:10**	*Sample Weight:*	**1.0000**

Run Time:



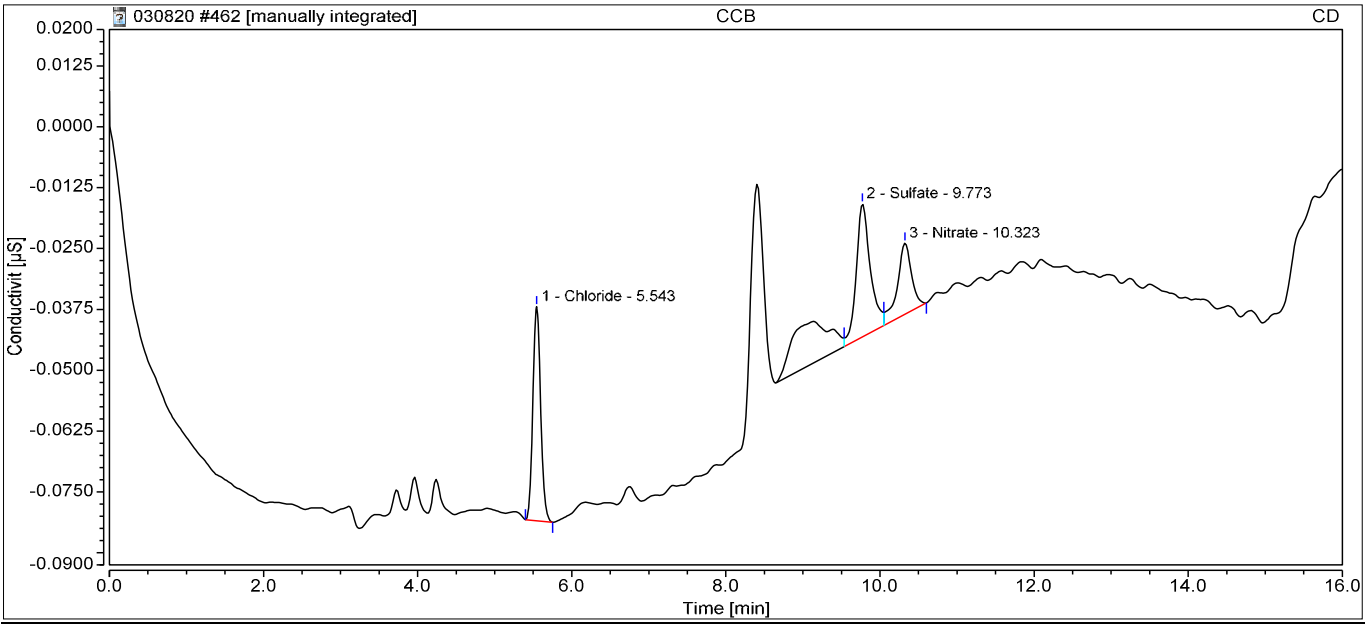
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.447	10.1199	10.1199	1.0000
2	5.53	Chloride	BMB	11.496	49.6199	49.6199	1.0000
3	6.74	Nitrite,N	BMB	4.807	9.7378	9.7378	1.0000
4	8.93	Bromide	BM	0.961	9.7241	9.7241	1.0000
5	9.61	Sulfate	M	8.225	49.0813	49.0813	1.0000
6	10.15	Nitrate	M	5.858	10.0387	10.0387	1.0000
7	10.88	Chlorate	MB	0.966	10.1530	10.1530	1.0000
8	14.86	Phosphate	BMB	1.927	9.1940	9.1940	1.0000
Total:			**0.000**	**37.685**		**157.67**	

462 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 03:28**	*Sample Weight:*	**1.0000**

Run Time:



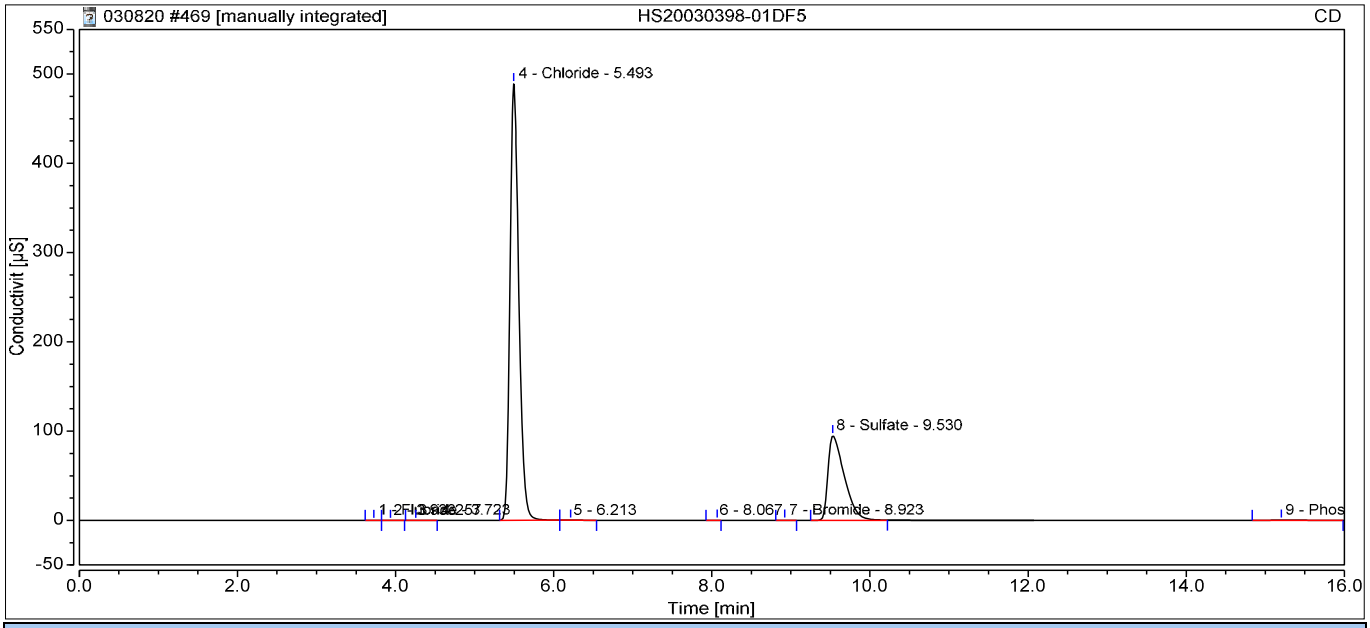
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.54	Chloride	BMB	0.005	0.0832	0.0832	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	9.77	Sulfate	M	0.006	0.1358	0.1358	1.0000
3	10.32	Nitrate	MB	0.003	0.0184	0.0184	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.014**		**0.24**	

469 HS20030398-01DF5

Sample Name:	**HS20030398-01DF5**	*Injection Volume:*	**5.00**
Vial Number:	**GD8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**03/11/2020 05:34**	*Sample Weight:*	**1.0000**

Run Time:



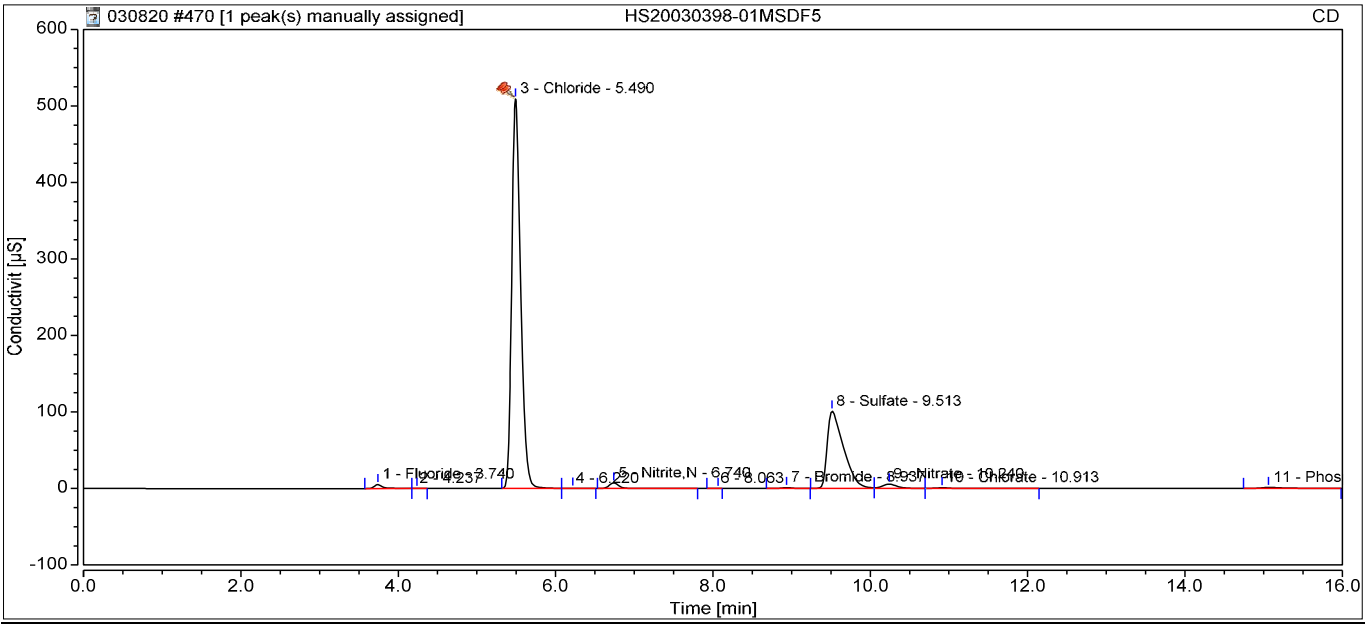
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.006	0.0418	0.2090	5.0000
4	5.49	Chloride	BMB	63.789	275.0536	1375.2682	5.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	5.0000
7	8.92	Bromide	BMB	0.002	0.0560	0.2802	5.0000
8	9.53	Sulfate	BM	22.634	134.8923	674.4613	5.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
9	15.20	Phosphate	BMB	0.134	0.7332	3.6662	5.0000
Total:			**0.000**	**86.565**		**2053.89**	

470 HS20030398-01MSDF5

Sample Name:	**HS20030398-01MSDF5**	*Injection Volume:*	**5.00**
Vial Number:	**GE1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**03/11/2020 05:53**	*Sample Weight:*	**1.0000**

Run Time:



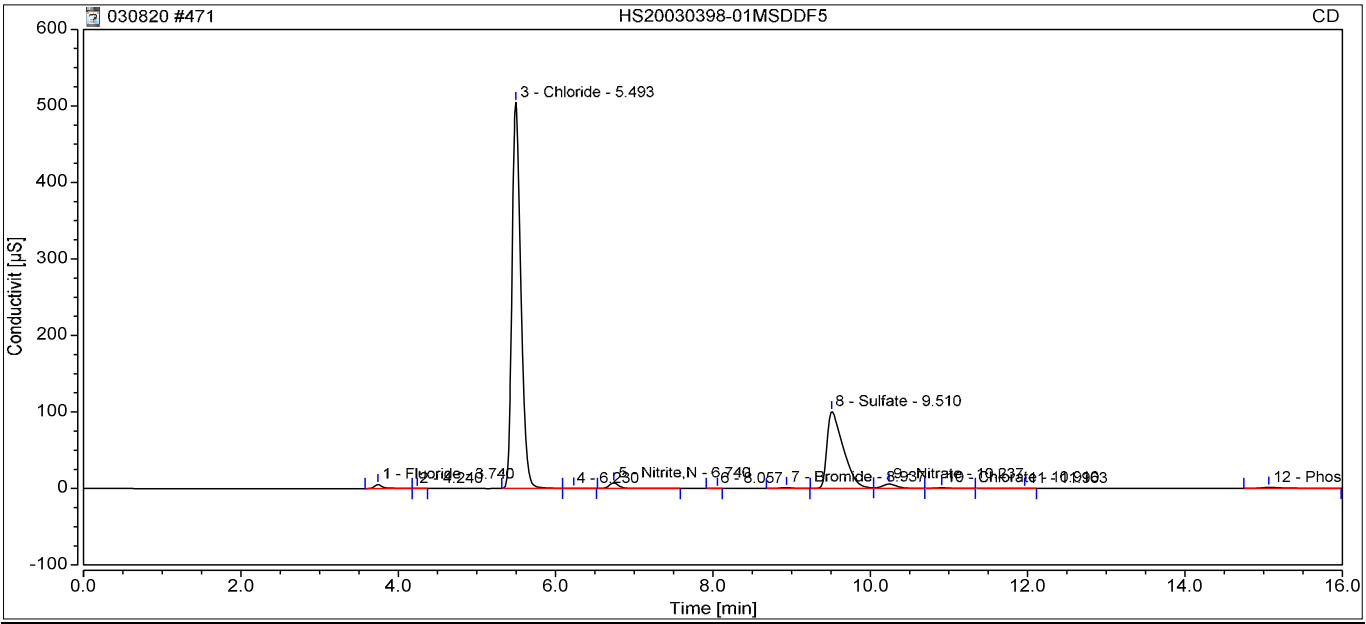
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.642	1.9059	9.5295	5.0000
3	5.49	Chloride	BMB^	66.516	286.8110	1434.0552	5.0000
5	6.74	Nitrite,N	BMB	1.029	2.1247	10.6233	5.0000
7	8.94	Bromide	BMB	0.166	1.7117	8.5585	5.0000
8	9.51	Sulfate	BM	24.326	144.9712	724.8558	5.0000
9	10.24	Nitrate	M	1.289	2.2191	11.0955	5.0000
10	10.91	Chlorate	MB	0.218	2.2800	11.4000	5.0000
11	15.06	Phosphate	BMB	0.518	2.5465	12.7327	5.0000
Total:			**0.000**	**94.706**		**2222.85**	

471 HS20030398-01MSDDF5

Sample Name:	**HS20030398-01MSDDF5**	*Injection Volume:*	**5.00**
Vial Number:	**GE2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**03/11/2020 06:11**	*Sample Weight:*	**1.0000**

Run Time:



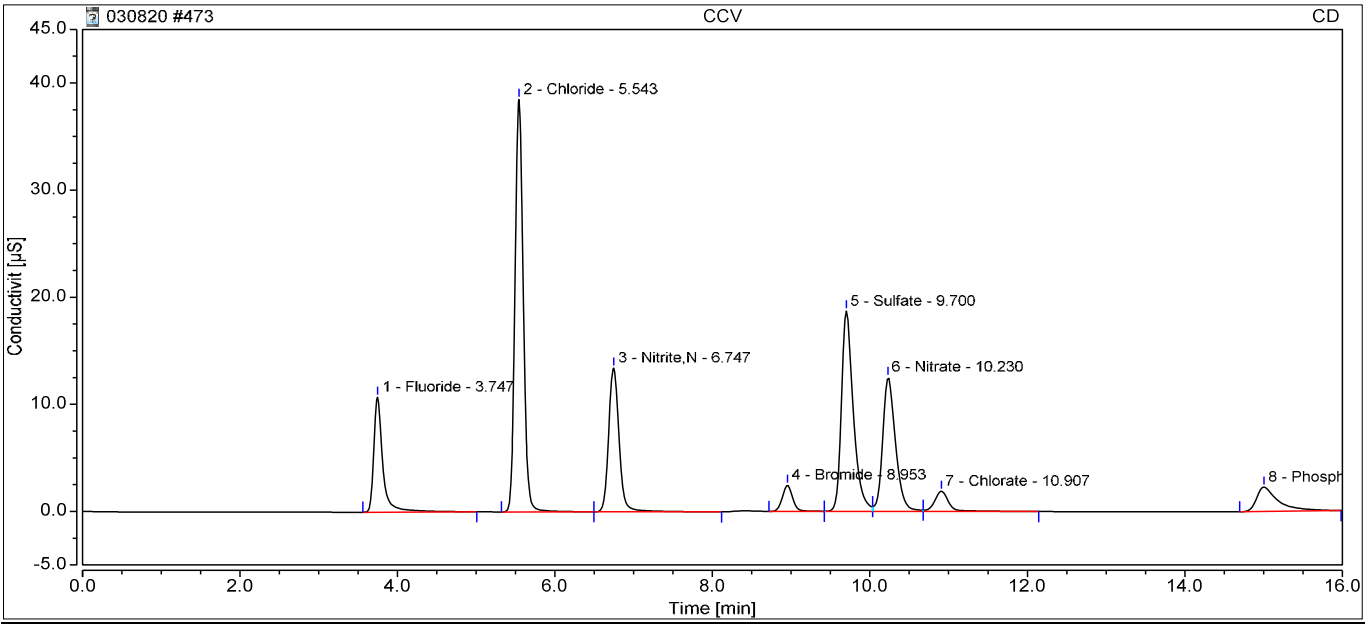
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.650	1.9274	9.6372	5.0000
3	5.49	Chloride	BMB	65.907	284.1825	1420.9125	5.0000
5	6.74	Nitrite,N	BMB	1.029	2.1246	10.6229	5.0000
7	8.94	Bromide	BMB	0.167	1.7221	8.6103	5.0000
8	9.51	Sulfate	BM	24.133	143.8206	719.1029	5.0000
9	10.24	Nitrate	M	1.290	2.2215	11.1077	5.0000
10	10.91	Chlorate	M	0.205	2.1461	10.7305	5.0000
12	15.07	Phosphate	BMB	0.531	2.6086	13.0428	5.0000
Total:			**0.000**	**93.913**		**2203.77**	

473 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 06:47**	*Sample Weight:*	**1.0000**

Run Time:



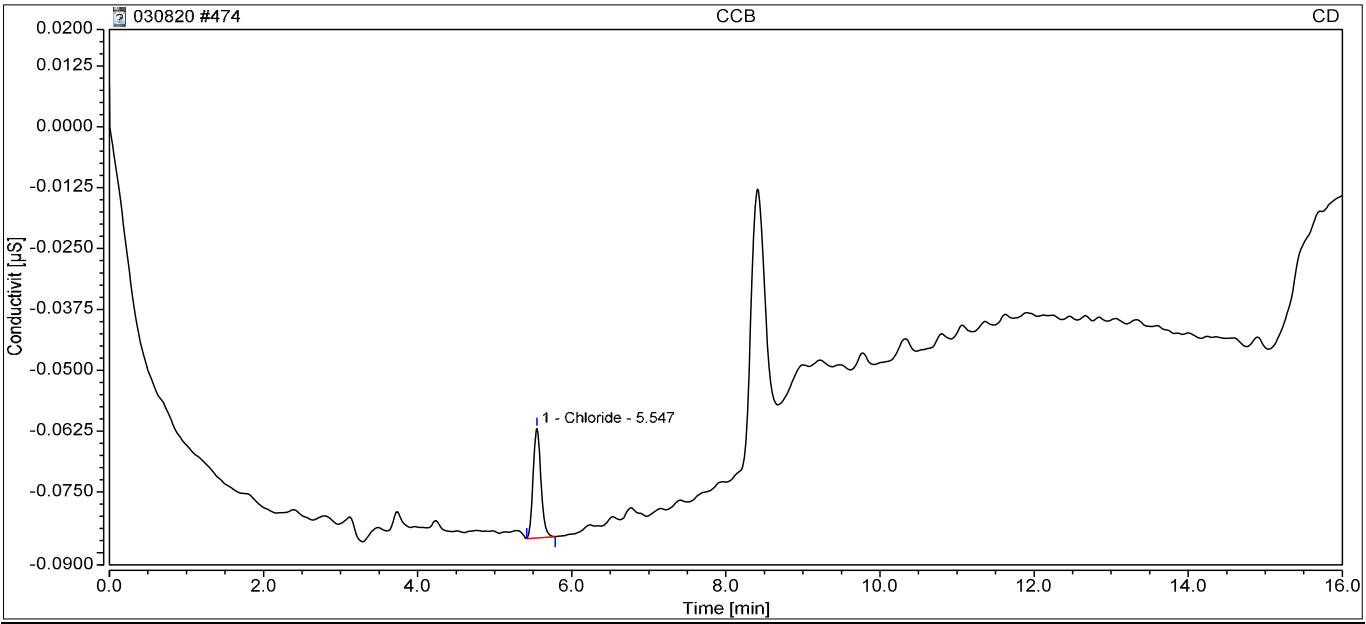
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.422	4.1881	4.1881	1.0000
2	5.54	Chloride	BMB	4.638	20.0573	20.0573	1.0000
3	6.75	Nitrite,N	BMB	2.074	4.2299	4.2299	1.0000
4	8.95	Bromide	BM	0.373	3.7953	3.7953	1.0000
5	9.70	Sulfate	M	3.292	19.7043	19.7043	1.0000
6	10.23	Nitrate	M	2.381	4.0872	4.0872	1.0000
7	10.91	Chlorate	MB	0.399	4.1823	4.1823	1.0000
8	15.00	Phosphate	BMB	0.733	3.5615	3.5615	1.0000
Total:			**0.000**	**15.311**		**63.81**	

474 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 07:05**	*Sample Weight:*	**1.0000**

Run Time:



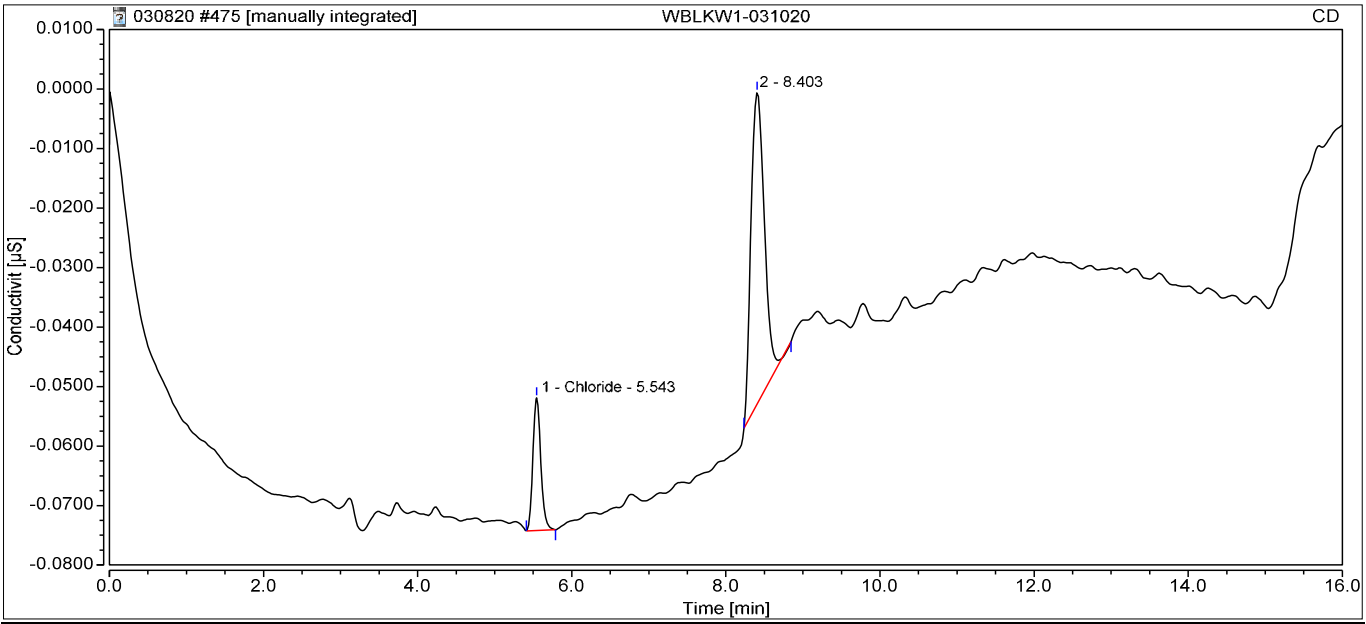
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.55	Chloride	BMB	0.003	0.0724	0.0724	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.003**		**0.07**	

475 WBLKW1-031020

Sample Name:	**WBLKW1-031020**	*Injection Volume:*	**5.00**
Vial Number:	**GE6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 07:23**	*Sample Weight:*	**1.0000**

Run Time:



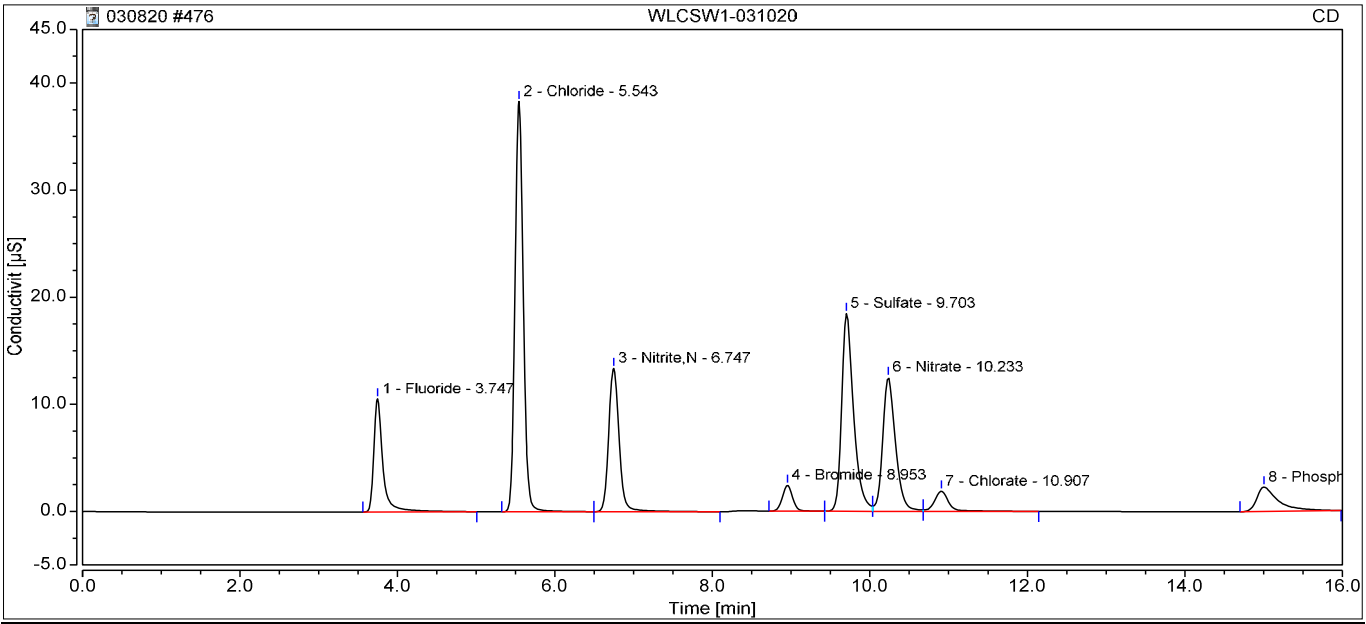
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.54	Chloride	BMB	0.003	0.0724	0.0724	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.003**		**0.07**	

476 WLCSW1-031020

Sample Name:	**WLCSW1-031020**	*Injection Volume:*	**5.00**
Vial Number:	**GE7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 07:41**	*Sample Weight:*	**1.0000**

Run Time:



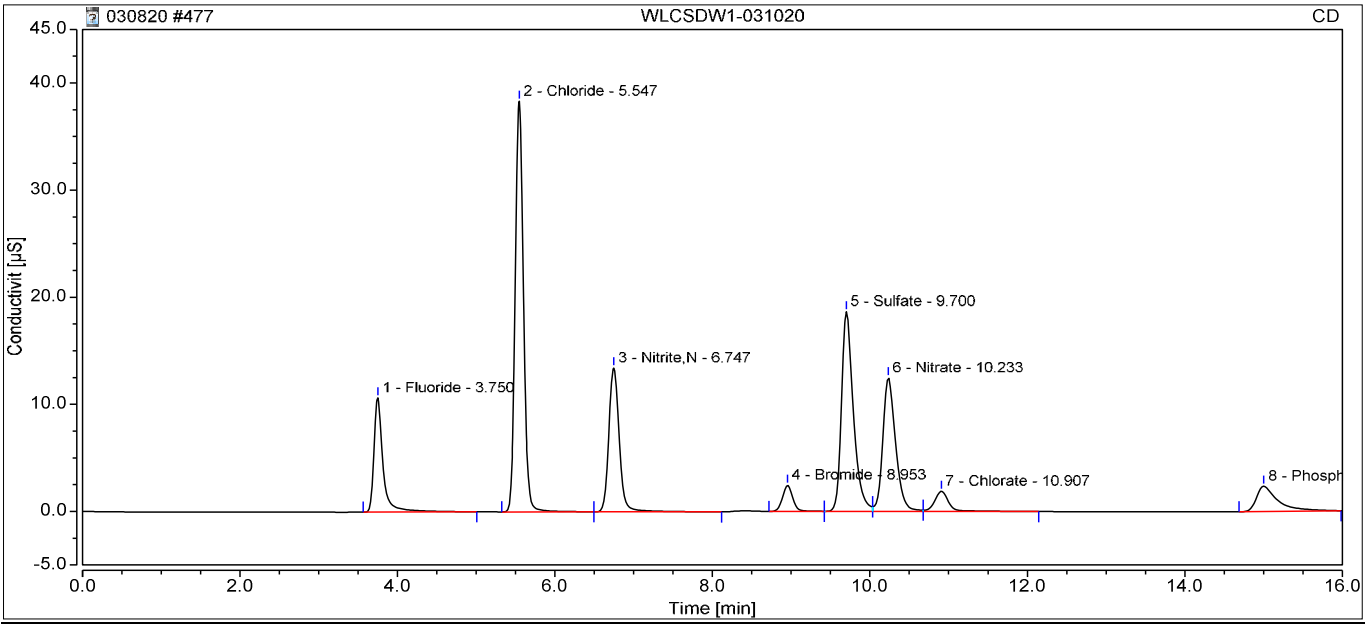
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.413	4.1635	4.1635	1.0000
2	5.54	Chloride	BMB	4.620	19.9787	19.9787	1.0000
3	6.75	Nitrite,N	BMB	2.067	4.2170	4.2170	1.0000
4	8.95	Bromide	BM	0.370	3.7706	3.7706	1.0000
5	9.70	Sulfate	M	3.261	19.5228	19.5228	1.0000
6	10.23	Nitrate	M	2.367	4.0640	4.0640	1.0000
7	10.91	Chlorate	MB	0.397	4.1660	4.1660	1.0000
8	15.00	Phosphate	BMB	0.724	3.5183	3.5183	1.0000
Total:			**0.000**	**15.221**		**63.40**	

477 WLCSDW1-031020

Sample Name:	**WLCSDW1-031020**	*Injection Volume:*	**5.00**
Vial Number:	**GE8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 07:59**	*Sample Weight:*	**1.0000**

Run Time:



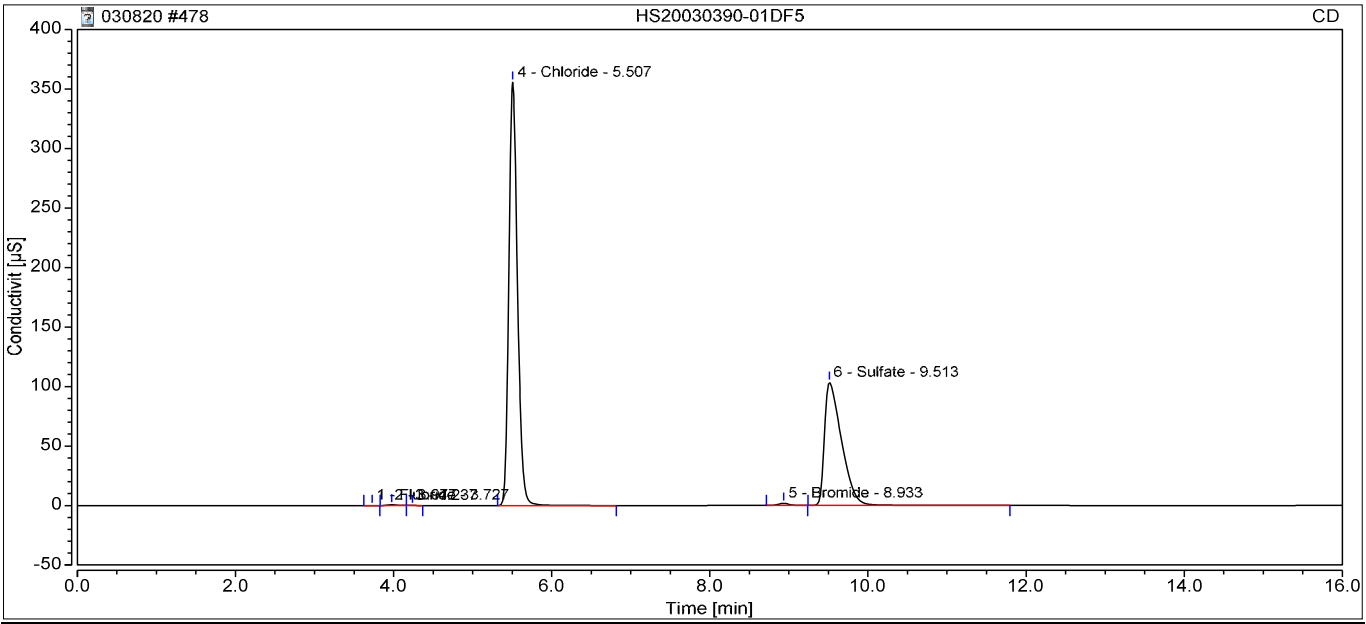
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.416	4.1717	4.1717	1.0000
2	5.55	Chloride	BMB	4.618	19.9708	19.9708	1.0000
3	6.75	Nitrite,N	BMB	2.070	4.2228	4.2228	1.0000
4	8.95	Bromide	BM	0.372	3.7854	3.7854	1.0000
5	9.70	Sulfate	M	3.280	19.6371	19.6371	1.0000
6	10.23	Nitrate	M	2.364	4.0585	4.0585	1.0000
7	10.91	Chlorate	MB	0.398	4.1708	4.1708	1.0000
8	15.00	Phosphate	BMB	0.746	3.6217	3.6217	1.0000
Total:			**0.000**	**15.265**		**63.64**	

478 HS20030390-01DF5

Sample Name:	**HS20030390-01DF5**	*Injection Volume:*	**5.00**
Vial Number:	**GE5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**03/11/2020 08:17**	*Sample Weight:*	**1.0000**

Run Time:



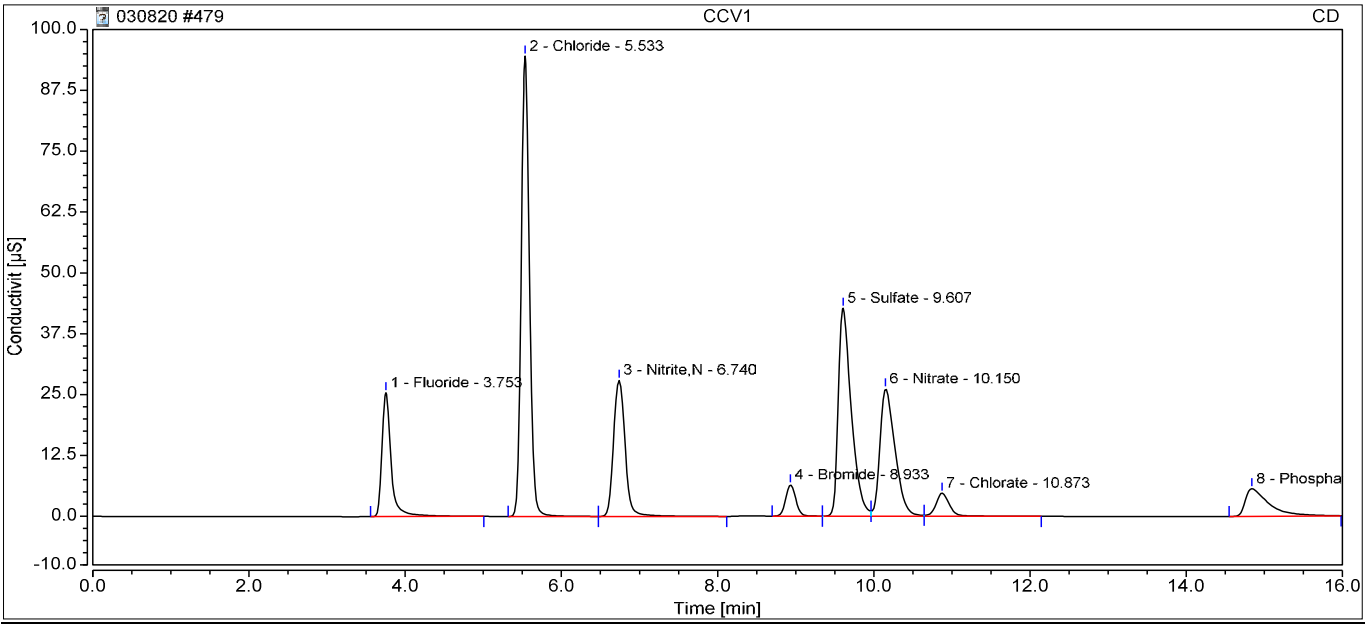
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.005	0.0387	0.1934	5.0000
4	5.51	Chloride	BMB	45.287	195.2909	976.4543	5.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	5.0000
5	8.93	Bromide	BMB	0.263	2.6851	13.4254	5.0000
6	9.51	Sulfate	BMB	25.751	153.4543	767.2715	5.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**71.305**		**1757.34**	

479 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 08:35**	*Sample Weight:*	**1.0000**

Run Time:



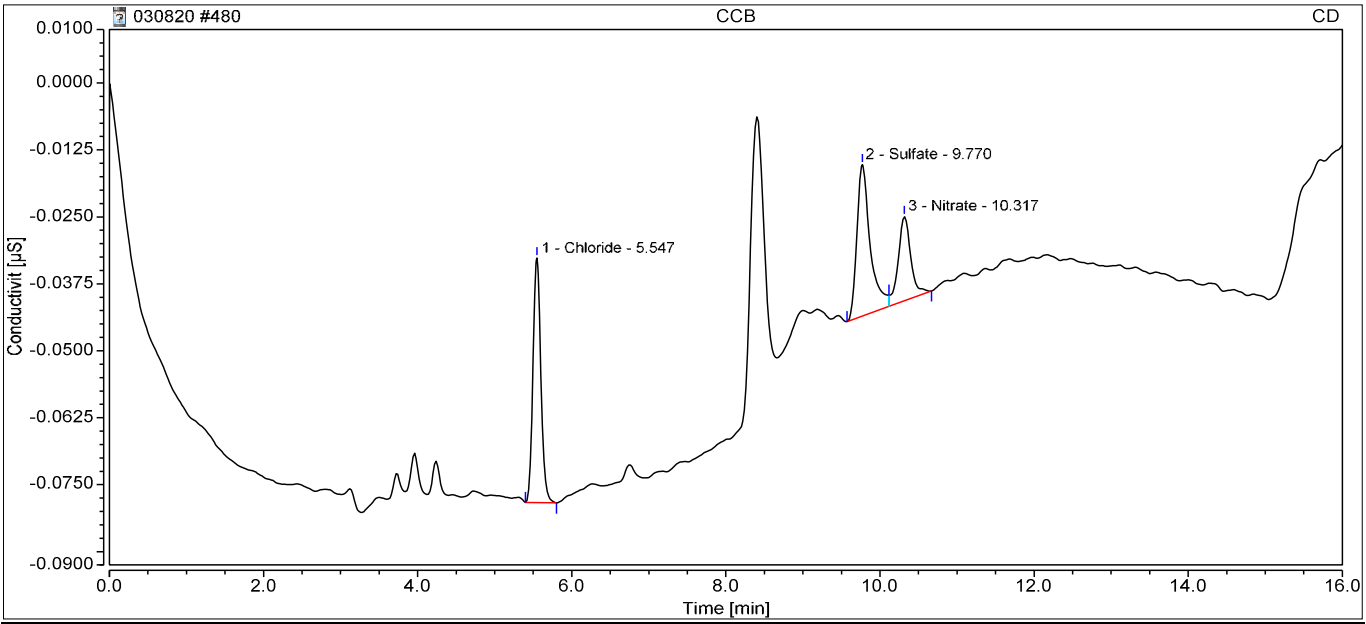
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.469	10.1857	10.1857	1.0000
2	5.53	Chloride	BMB	11.501	49.6425	49.6425	1.0000
3	6.74	Nitrite,N	BMB	4.822	9.7688	9.7688	1.0000
4	8.93	Bromide	BM	0.966	9.7836	9.7836	1.0000
5	9.61	Sulfate	M	8.241	49.1774	49.1774	1.0000
6	10.15	Nitrate	M	5.850	10.0256	10.0256	1.0000
7	10.87	Chlorate	MB	0.962	10.1194	10.1194	1.0000
8	14.84	Phosphate	BMB	1.996	9.5188	9.5188	1.0000
Total:			**0.000**	**37.809**		**158.22**	

480 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 08:54**	*Sample Weight:*	**1.0000**

Run Time:



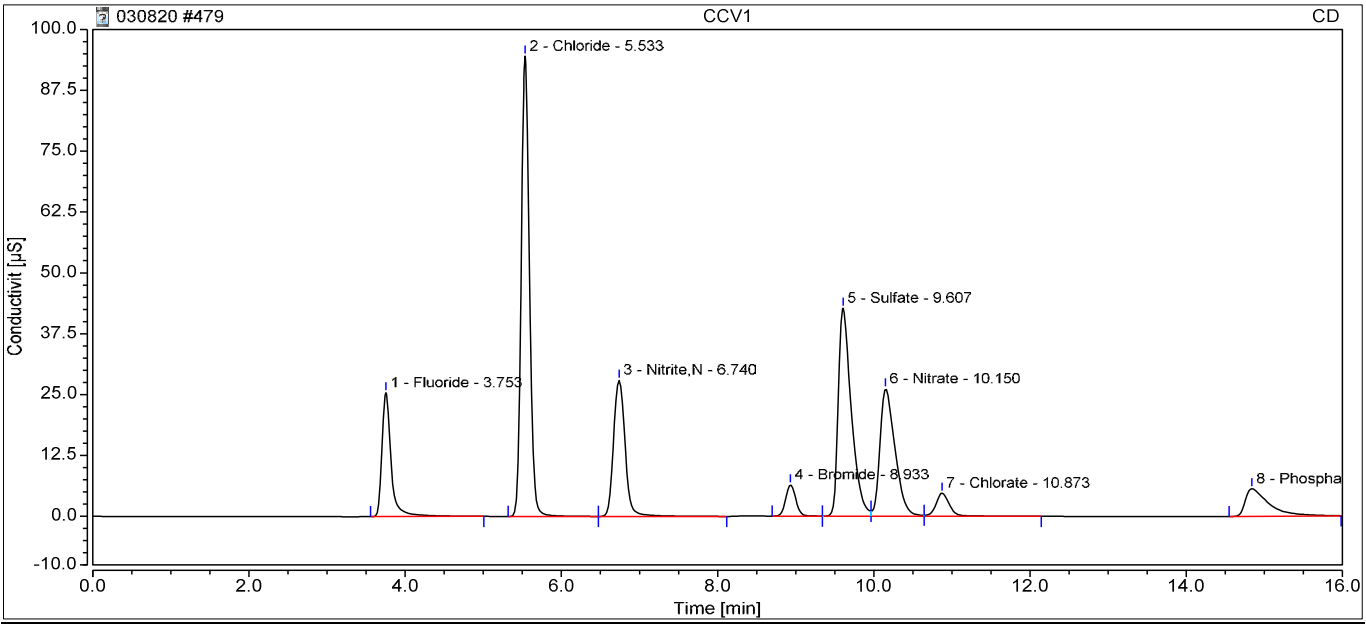
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.55	Chloride	BMB	0.005	0.0843	0.0843	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	9.77	Sulfate	BM	0.006	0.1350	0.1350	1.0000
3	10.32	Nitrate	MB	0.003	0.0181	0.0181	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.014**		**0.24**	

479 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 08:35**	*Sample Weight:*	**1.0000**

Run Time:



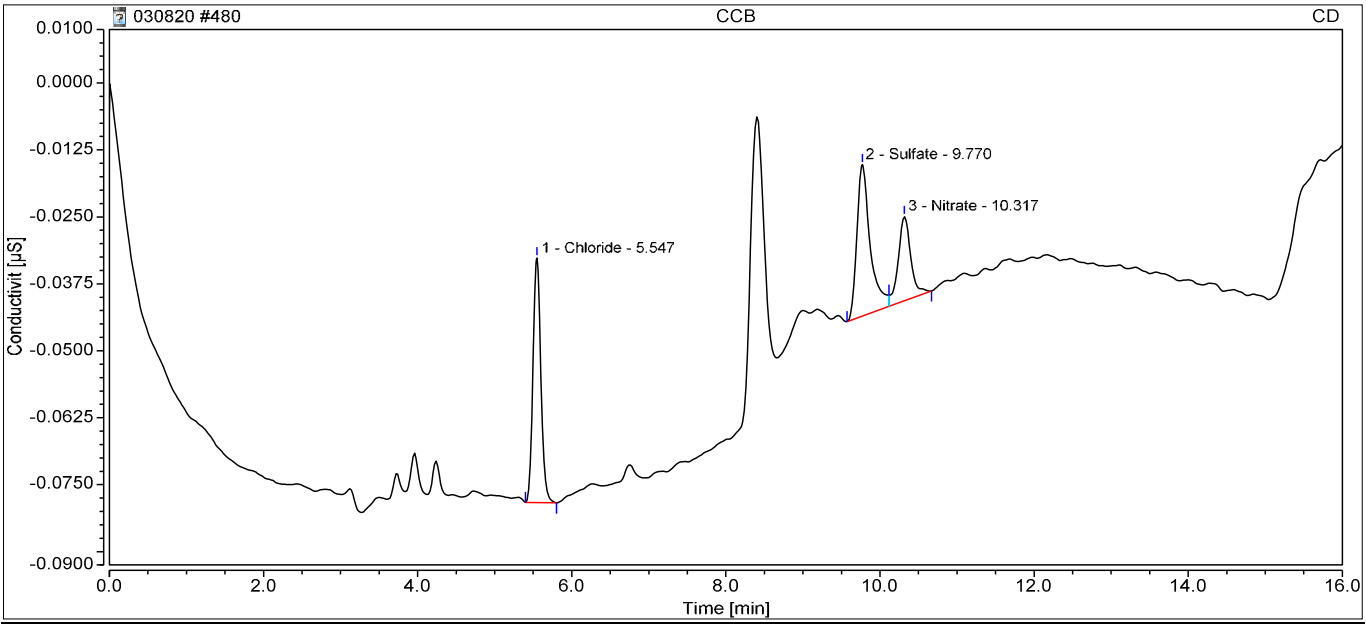
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.469	10.1857	10.1857	1.0000
2	5.53	Chloride	BMB	11.501	49.6425	49.6425	1.0000
3	6.74	Nitrite,N	BMB	4.822	9.7688	9.7688	1.0000
4	8.93	Bromide	BM	0.966	9.7836	9.7836	1.0000
5	9.61	Sulfate	M	8.241	49.1774	49.1774	1.0000
6	10.15	Nitrate	M	5.850	10.0256	10.0256	1.0000
7	10.87	Chlorate	MB	0.962	10.1194	10.1194	1.0000
8	14.84	Phosphate	BMB	1.996	9.5188	9.5188	1.0000
Total:			**0.000**	**37.809**		**158.22**	

480 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 08:54**	*Sample Weight:*	**1.0000**

Run Time:



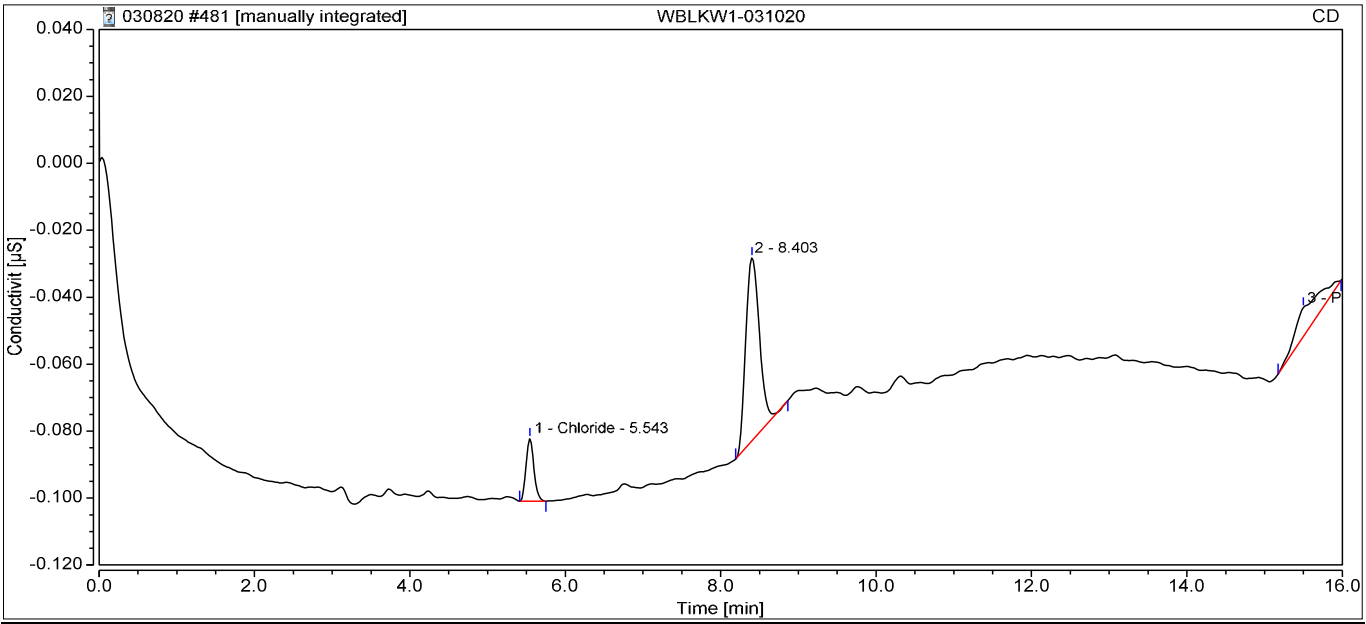
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.55	Chloride	BMB	0.005	0.0843	0.0843	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	9.77	Sulfate	BM	0.006	0.1350	0.1350	1.0000
3	10.32	Nitrate	MB	0.003	0.0181	0.0181	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.014**		**0.24**	

481 WBLKW1-031020

Sample Name:	**WBLKW1-031020**	*Injection Volume:*	**5.00**
Vial Number:	**GE6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 09:12**	*Sample Weight:*	**1.0000**

Run Time:



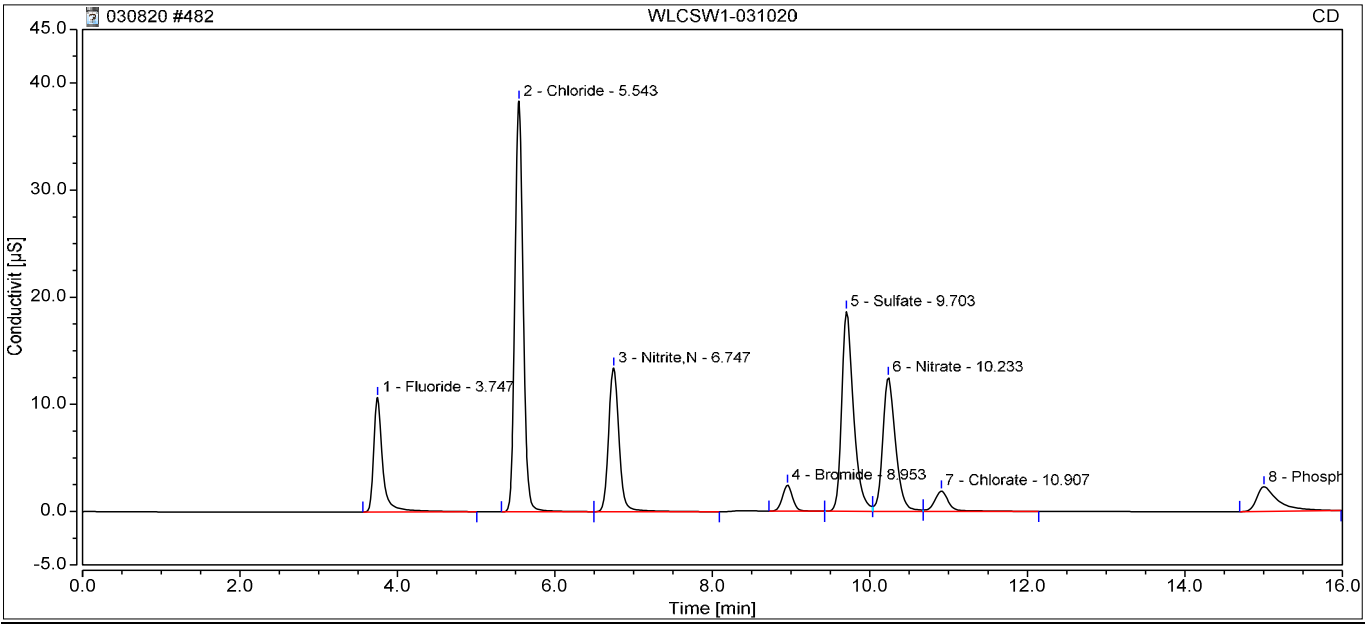
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.54	Chloride	BMB	0.002	0.0704	0.0704	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
3	15.50	Phosphate	BMB	0.003	0.1173	0.1173	1.0000
Total:			**0.000**	**0.006**		**0.19**	

482 WLCSW1-031020

Sample Name:	**WLCSW1-031020**	*Injection Volume:*	**5.00**
Vial Number:	**GE7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 09:30**	*Sample Weight:*	**1.0000**

Run Time:



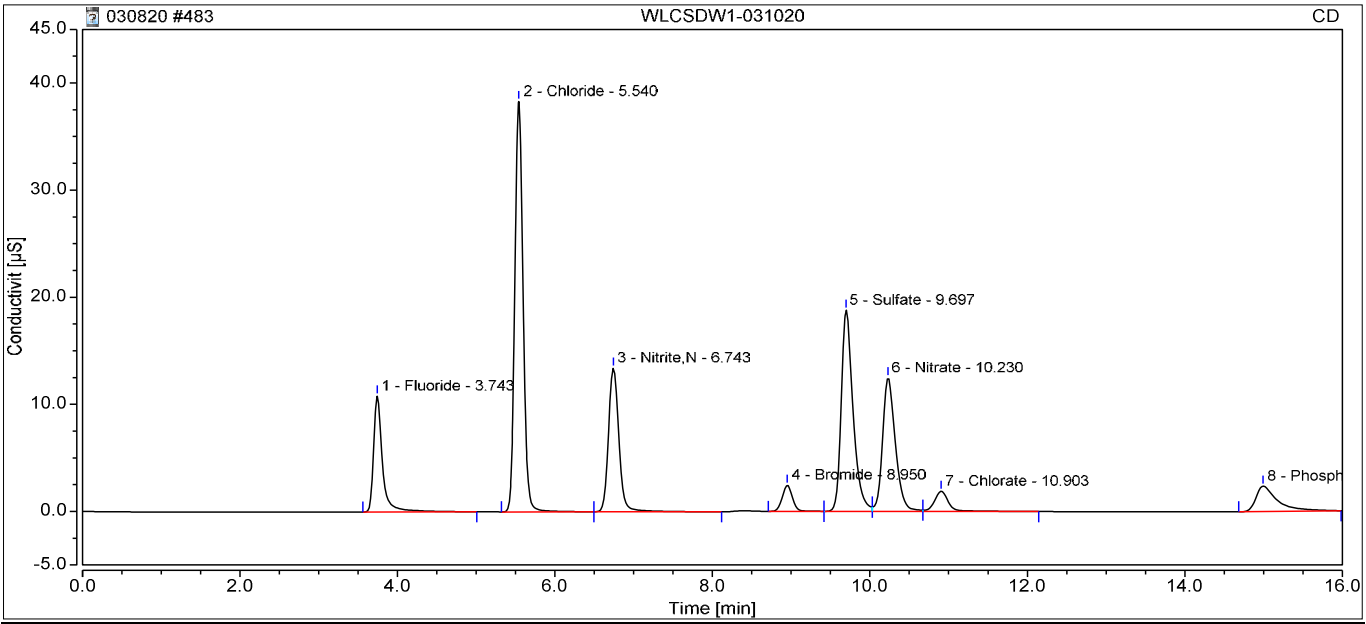
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.416	4.1706	4.1706	1.0000
2	5.54	Chloride	BMB	4.621	19.9800	19.9800	1.0000
3	6.75	Nitrite,N	BMB	2.071	4.2240	4.2240	1.0000
4	8.95	Bromide	BM	0.371	3.7746	3.7746	1.0000
5	9.70	Sulfate	M	3.269	19.5682	19.5682	1.0000
6	10.23	Nitrate	M	2.368	4.0652	4.0652	1.0000
7	10.91	Chlorate	MB	0.395	4.1438	4.1438	1.0000
8	15.00	Phosphate	BMB	0.732	3.5547	3.5547	1.0000
Total:			**0.000**	**15.241**		**63.48**	

483 WLCSDW1-031020

Sample Name:	**WLCSDW1-031020**	*Injection Volume:*	**5.00**
Vial Number:	**GE8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 09:48**	*Sample Weight:*	**1.0000**

Run Time:



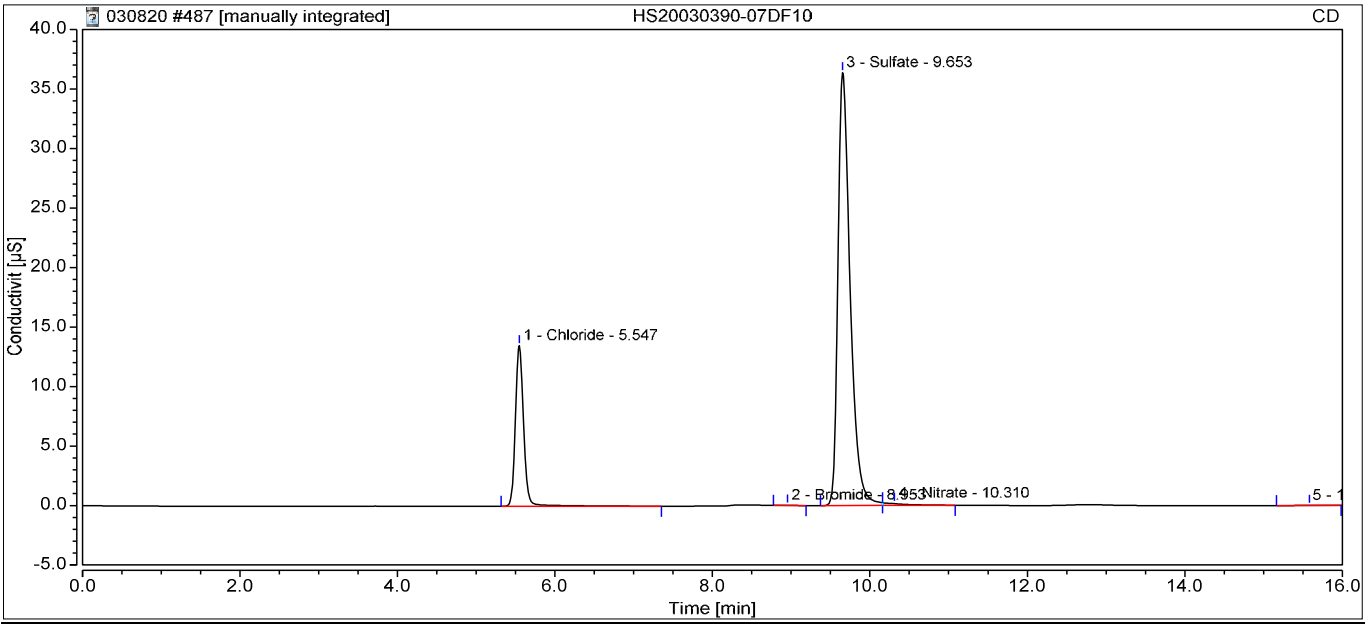
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.420	4.1820	4.1820	1.0000
2	5.54	Chloride	BMB	4.620	19.9785	19.9785	1.0000
3	6.74	Nitrite,N	BMB	2.073	4.2277	4.2277	1.0000
4	8.95	Bromide	BM	0.373	3.7938	3.7938	1.0000
5	9.70	Sulfate	M	3.283	19.6524	19.6524	1.0000
6	10.23	Nitrate	M	2.364	4.0589	4.0589	1.0000
7	10.90	Chlorate	MB	0.396	4.1564	4.1564	1.0000
8	14.99	Phosphate	BMB	0.751	3.6435	3.6435	1.0000
Total:			**0.000**	**15.279**		**63.69**	

487 HS20030390-07DF10

Sample Name:	**HS20030390-07DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/11/2020 11:49**	*Sample Weight:*	**1.0000**

Run Time:



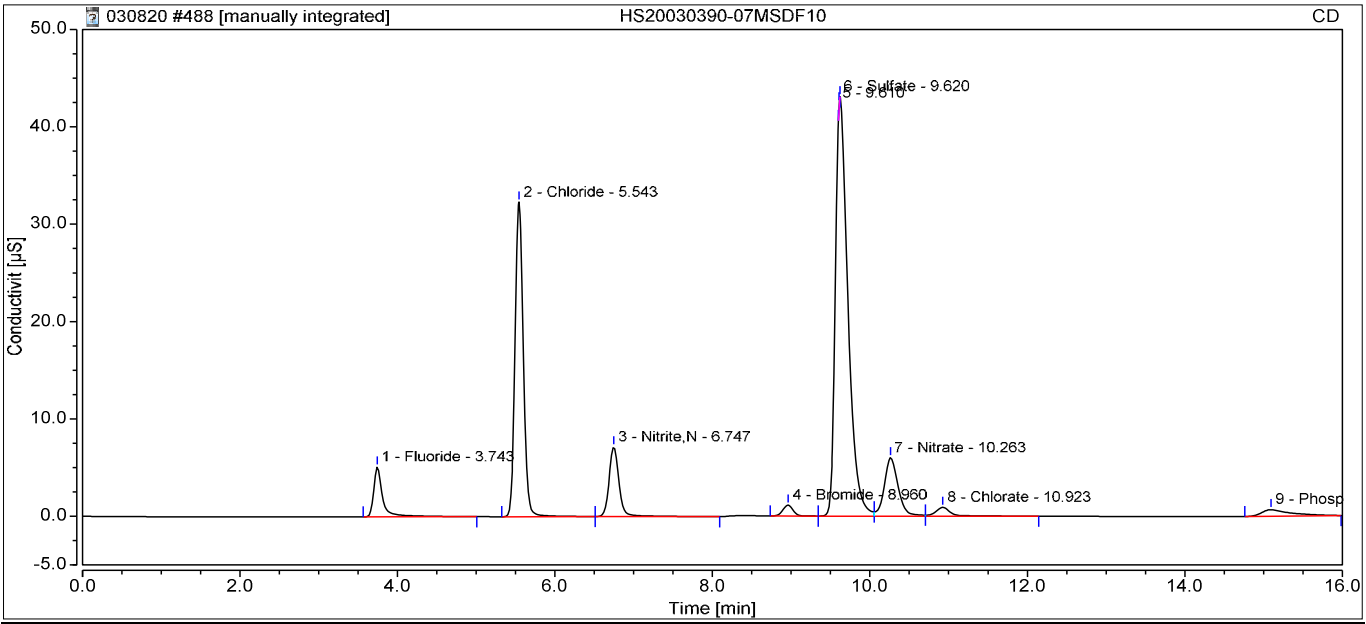
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	10.0000
1	5.55	Chloride	BMB	1.624	7.0606	70.6056	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
2	8.95	Bromide	BMB	0.003	0.0614	0.6138	10.0000
3	9.65	Sulfate	BM *	6.529	38.9842	389.8418	10.0000
4	10.31	Nitrate	MB*	0.064	0.1230	1.2298	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**8.220**		**462.29**	

488 HS20030390-07MSDF10

Sample Name:	**HS20030390-07MSDF10**	*Injection Volume:*	**5.00**
Vial Number:	**RA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/11/2020 12:07**	*Sample Weight:*	**1.0000**

Run Time:



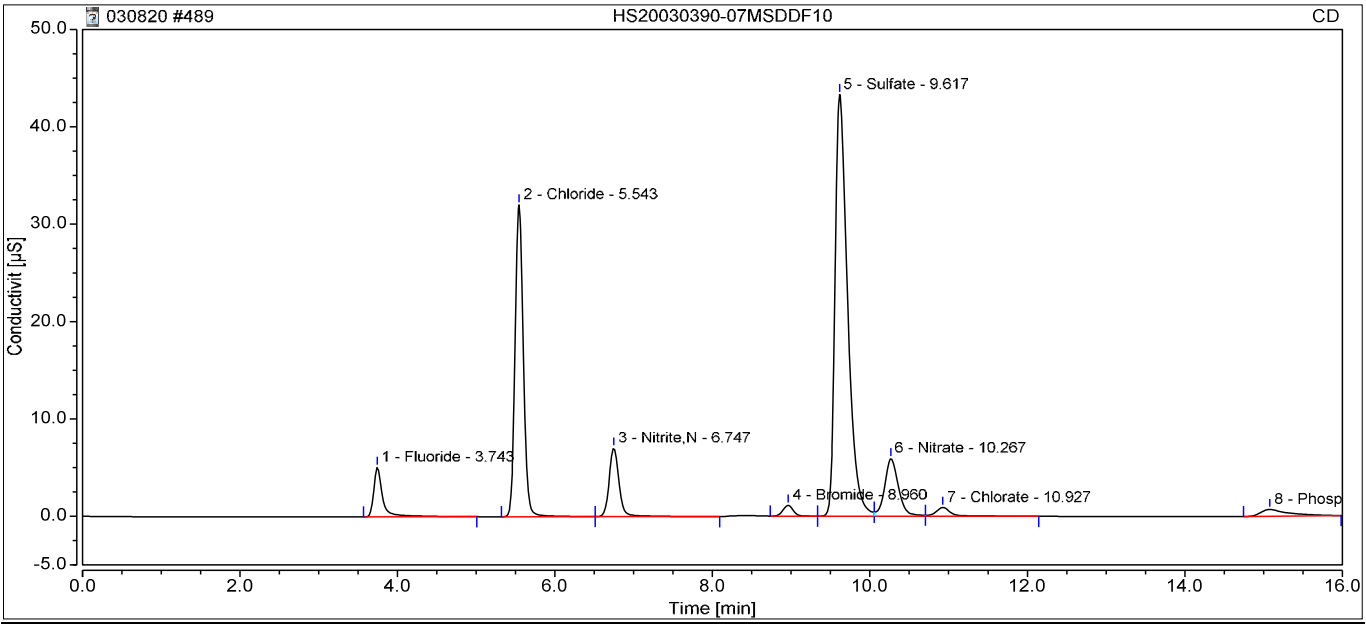
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.682	2.0206	20.2063	10.0000
2	5.54	Chloride	BMB	3.889	16.8259	168.2590	10.0000
3	6.75	Nitrite,N	BMB	1.051	2.1683	21.6829	10.0000
4	8.96	Bromide	BM	0.171	1.7595	17.5950	10.0000
6	9.62	Sulfate	M *	7.916	47.2424	472.4240	10.0000
7	10.26	Nitrate	M	1.222	2.1050	21.0504	10.0000
8	10.92	Chlorate	MB	0.208	2.1708	21.7077	10.0000
9	15.09	Phosphate	BMB	0.290	1.4700	14.7001	10.0000
Total:			**0.000**	**15.428**		**757.63**	

489 HS20030390-07MSDDF10

Sample Name:	**HS20030390-07MSDDF10**	*Injection Volume:*	**5.00**
Vial Number:	**RA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/11/2020 12:25**	*Sample Weight:*	**1.0000**

Run Time:



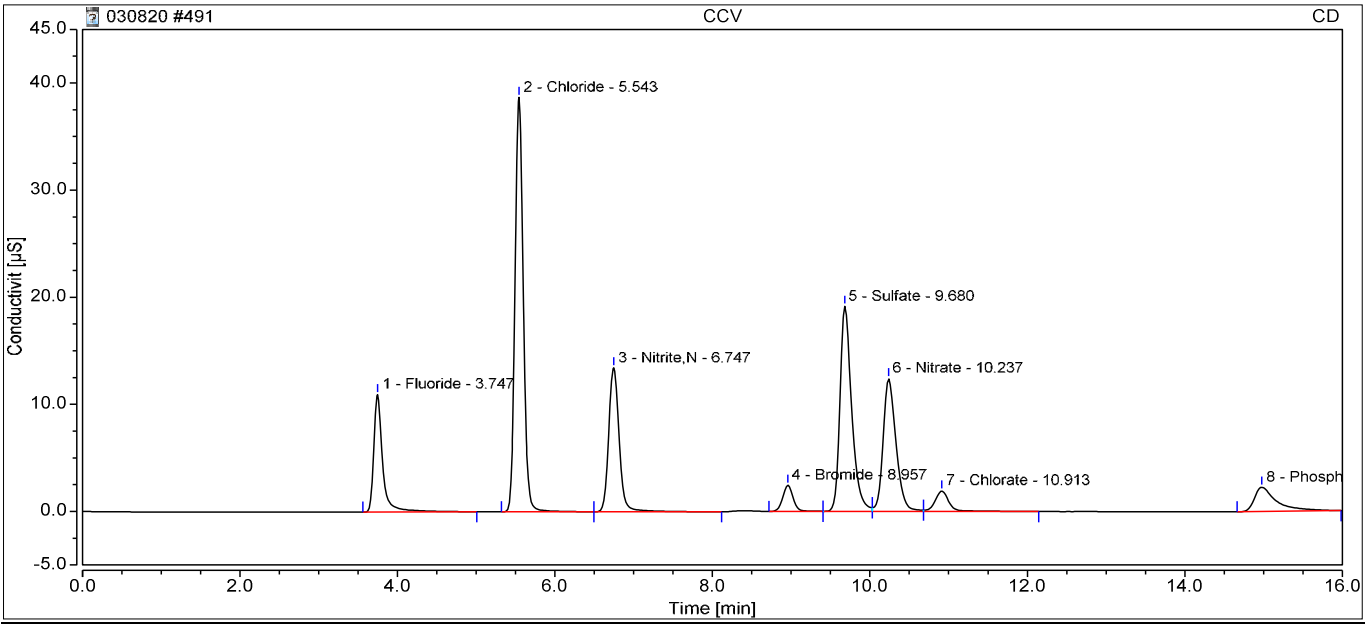
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.675	2.0006	20.0058	10.0000
2	5.54	Chloride	BMB	3.857	16.6902	166.9022	10.0000
3	6.75	Nitrite,N	BMB	1.036	2.1383	21.3831	10.0000
4	8.96	Bromide	BMB	0.169	1.7343	17.3428	10.0000
5	9.62	Sulfate	BM	7.979	47.6176	476.1761	10.0000
6	10.27	Nitrate	M	1.204	2.0734	20.7341	10.0000
7	10.93	Chlorate	MB	0.207	2.1604	21.6039	10.0000
8	15.08	Phosphate	BMB	0.296	1.4980	14.9800	10.0000
Total:			**0.000**	**15.422**		**759.13**	

491 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 13:01**	*Sample Weight:*	**1.0000**

Run Time:



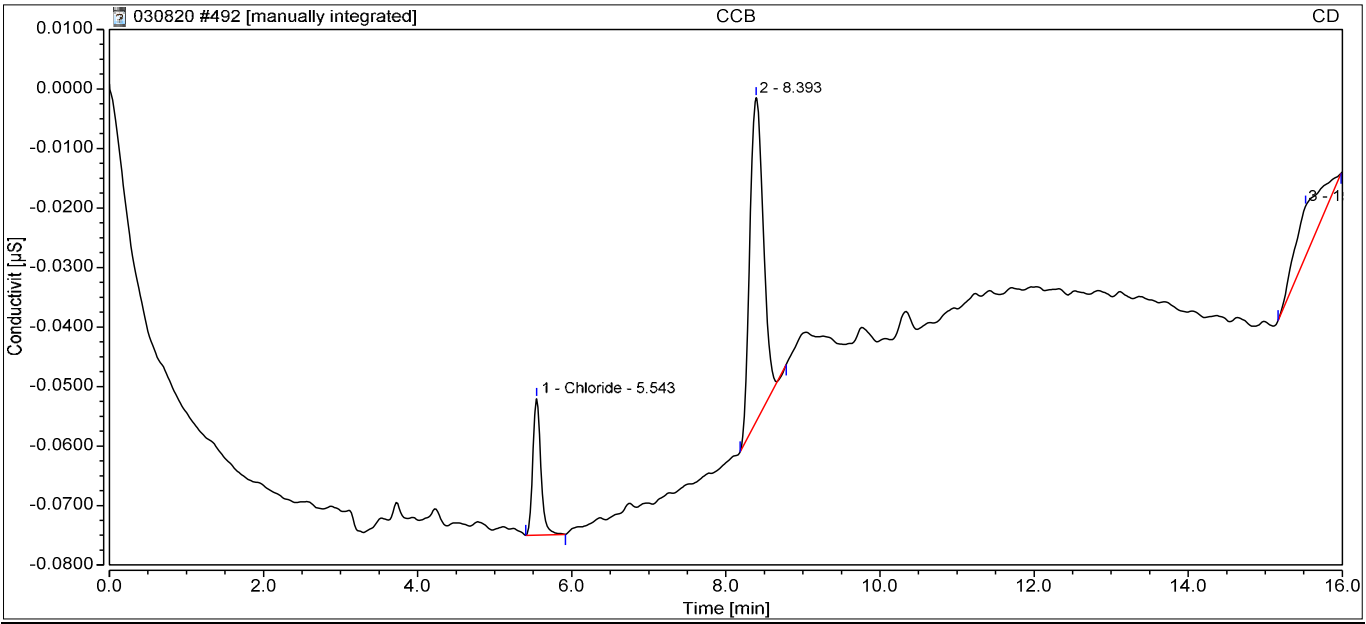
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.428	4.2058	4.2058	1.0000
2	5.54	Chloride	BMB	4.659	20.1449	20.1449	1.0000
3	6.75	Nitrite,N	BMB	2.081	4.2447	4.2447	1.0000
4	8.96	Bromide	BM	0.375	3.8136	3.8136	1.0000
5	9.68	Sulfate	M	3.312	19.8273	19.8273	1.0000
6	10.24	Nitrate	M	2.366	4.0623	4.0623	1.0000
7	10.91	Chlorate	MB	0.398	4.1761	4.1761	1.0000
8	14.98	Phosphate	BMB	0.743	3.6084	3.6084	1.0000
Total:			**0.000**	**15.362**		**64.08**	

492 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/11/2020 13:19**	*Sample Weight:*	**1.0000**

Run Time:



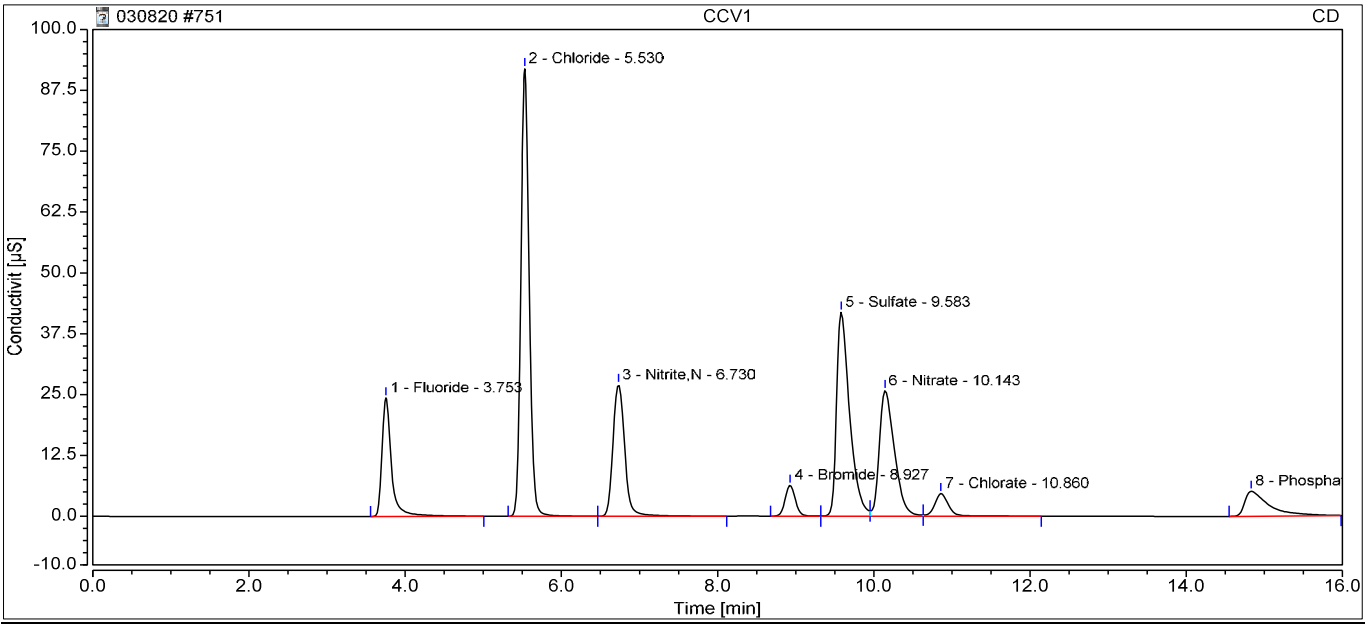
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.54	Chloride	BMB	0.003	0.0730	0.0730	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.003**		**0.07**	

751 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**RC1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/17/2020 12:00**	*Sample Weight:*	**1.0000**

Run Time:



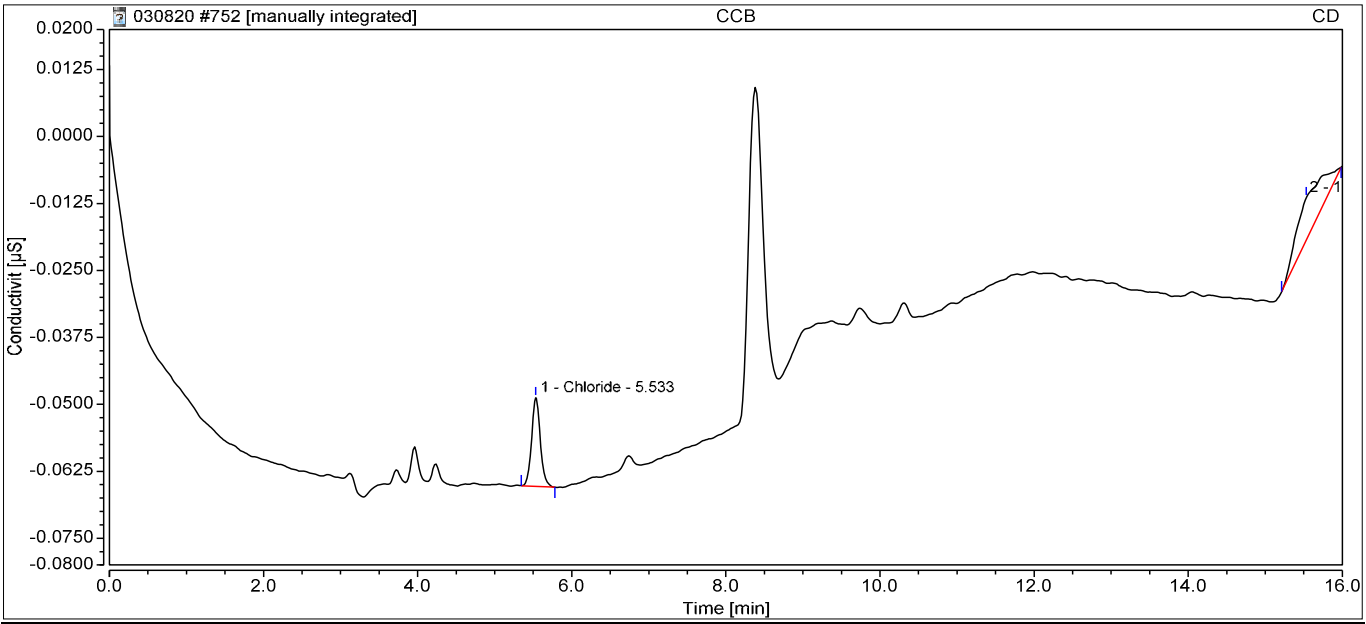
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.422	10.0458	10.0458	1.0000
2	5.53	Chloride	BMB	11.292	48.7424	48.7424	1.0000
3	6.73	Nitrite,N	BMB	4.734	9.5919	9.5919	1.0000
4	8.93	Bromide	BM	0.963	9.7500	9.7500	1.0000
5	9.58	Sulfate	M	8.115	48.4274	48.4274	1.0000
6	10.14	Nitrate	M	5.778	9.9009	9.9009	1.0000
7	10.86	Chlorate	MB	0.967	10.1675	10.1675	1.0000
8	14.83	Phosphate	BMB	1.860	8.8765	8.8765	1.0000
Total:			**0.000**	**37.131**		**155.50**	

752 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RE2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/17/2020 12:18**	*Sample Weight:*	**1.0000**

Run Time:



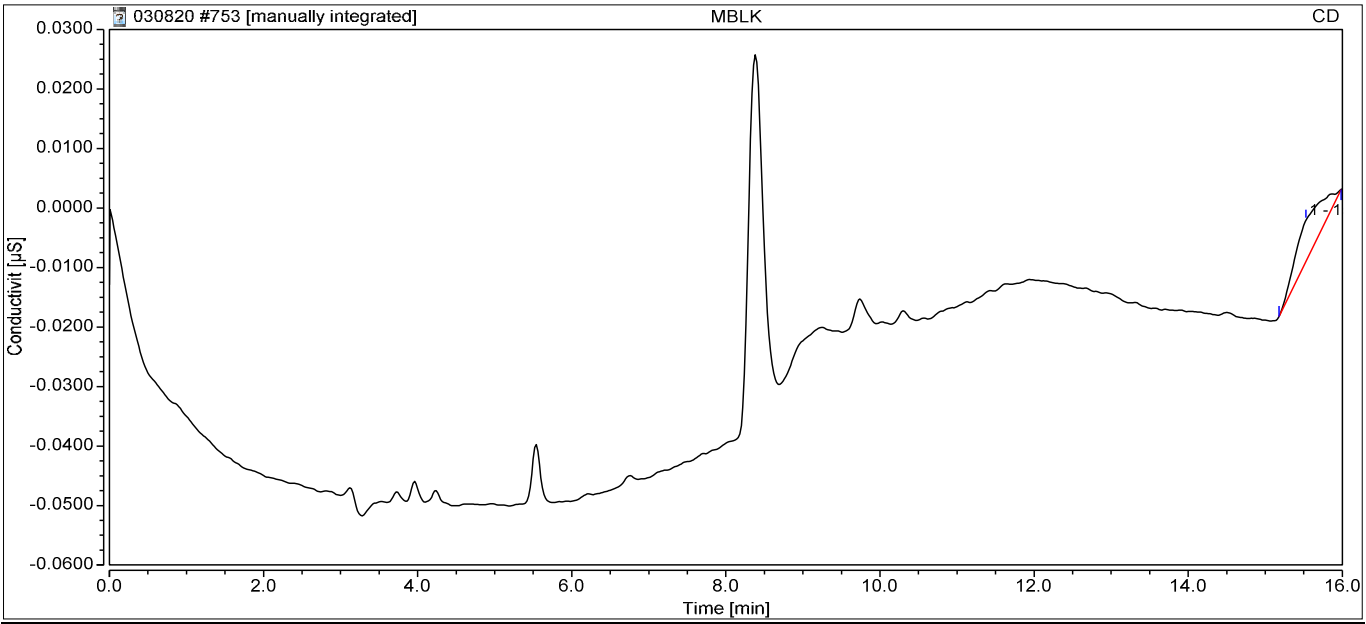
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.53	Chloride	BMB	0.002	0.0703	0.0703	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.002**		**0.07**	

753 MBLK

Sample Name:	**MBLK**	*Injection Volume:*	**5.00**
Vial Number:	**GD7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/17/2020 12:37**	*Sample Weight:*	**1.0000**

Run Time:



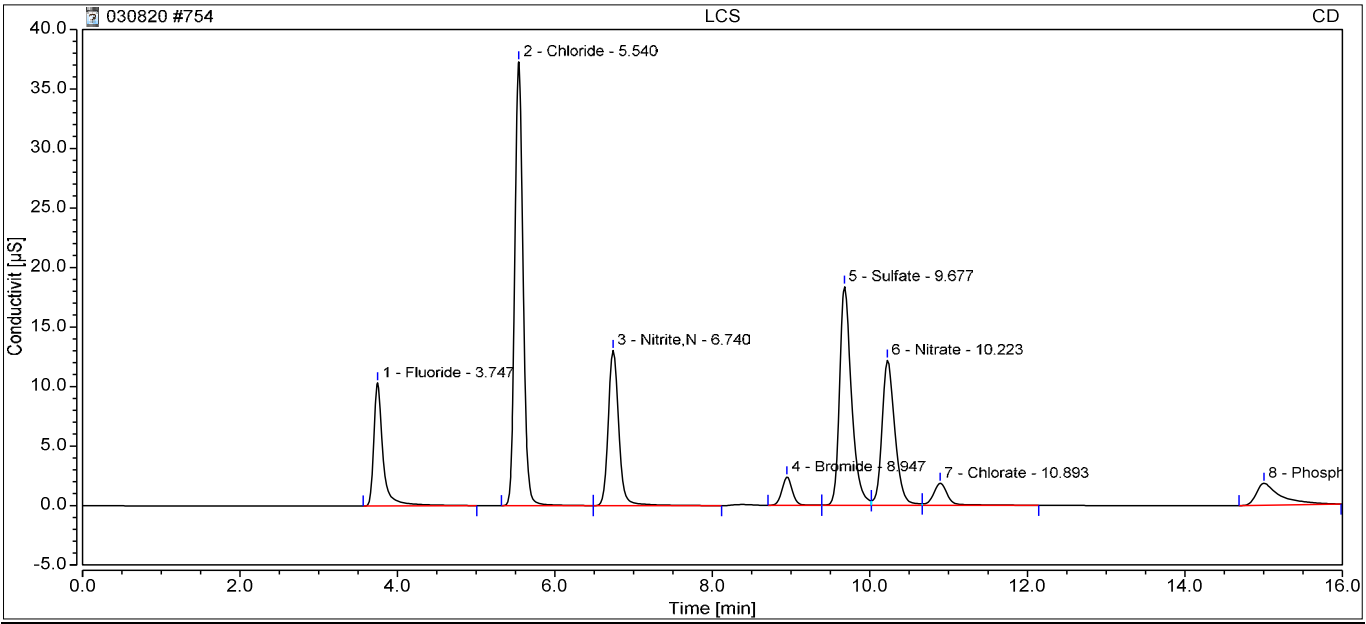
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

754 LCS

Sample Name:	**LCS**	*Injection Volume:*	**5.00**
Vial Number:	**GD8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/17/2020 12:55**	*Sample Weight:*	**1.0000**

Run Time:



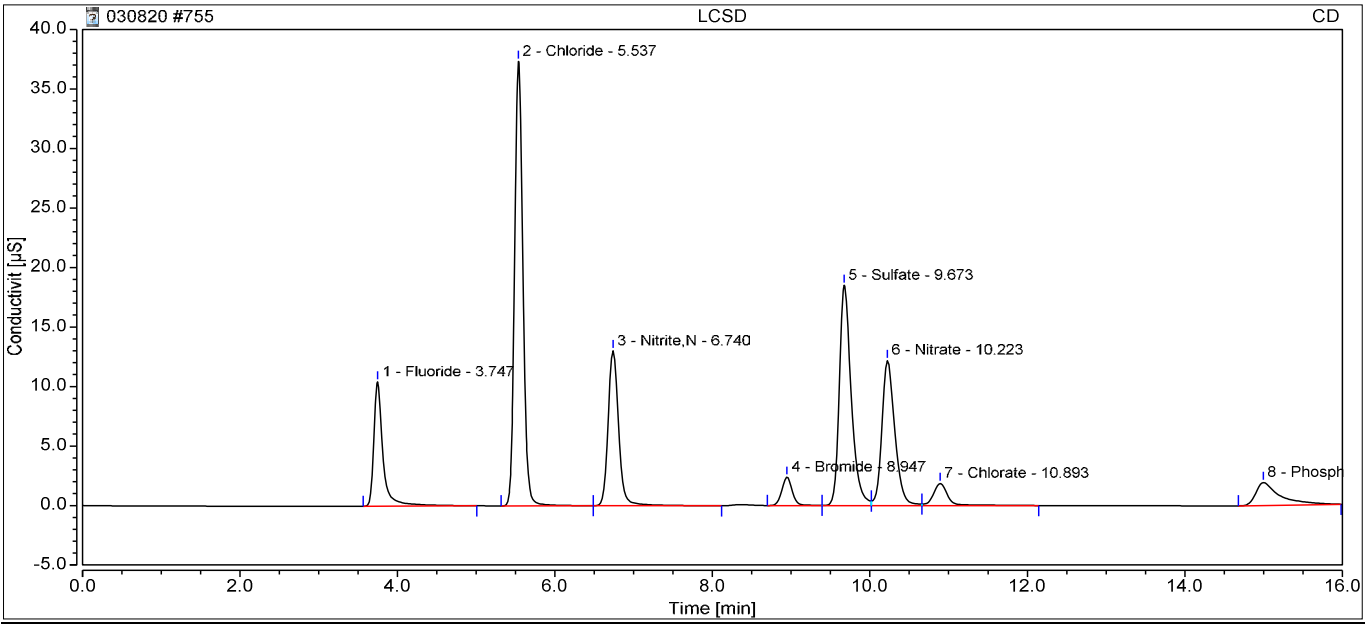
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.398	4.1183	4.1183	1.0000
2	5.54	Chloride	BMB	4.526	19.5715	19.5715	1.0000
3	6.74	Nitrite,N	BMB	2.032	4.1450	4.1450	1.0000
4	8.95	Bromide	BM	0.368	3.7465	3.7465	1.0000
5	9.68	Sulfate	M	3.237	19.3814	19.3814	1.0000
6	10.22	Nitrate	M	2.329	3.9990	3.9990	1.0000
7	10.89	Chlorate	MB	0.394	4.1288	4.1288	1.0000
8	15.00	Phosphate	BMB	0.664	3.2352	3.2352	1.0000
Total:			**0.000**	**14.948**		**62.33**	

755 LCSD

Sample Name:	**LCSD**	*Injection Volume:*	**5.00**
Vial Number:	**GD8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/17/2020 13:13**	*Sample Weight:*	**1.0000**

Run Time:



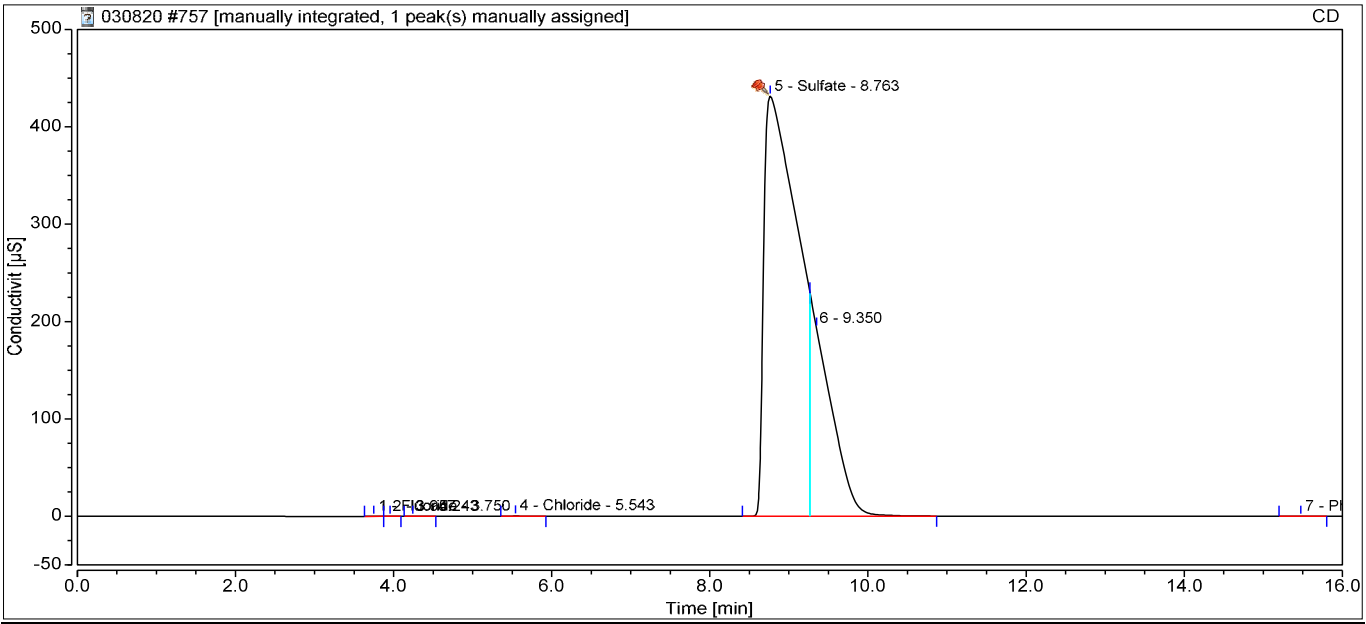
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.398	4.1180	4.1180	1.0000
2	5.54	Chloride	BMB	4.533	19.6012	19.6012	1.0000
3	6.74	Nitrite,N	BMB	2.031	4.1439	4.1439	1.0000
4	8.95	Bromide	BM	0.368	3.7494	3.7494	1.0000
5	9.67	Sulfate	M	3.248	19.4447	19.4447	1.0000
6	10.22	Nitrate	M	2.332	4.0035	4.0035	1.0000
7	10.89	Chlorate	MB	0.393	4.1228	4.1228	1.0000
8	15.00	Phosphate	BMB	0.686	3.3369	3.3369	1.0000
Total:			**0.000**	**14.988**		**62.52**	

757 HS20030309-01DF5

Sample Name:	**HS20030309-01DF5**	*Injection Volume:*	**5.00**
Vial Number:	**RA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**03/17/2020 13:49**	*Sample Weight:*	**1.0000**

Run Time:



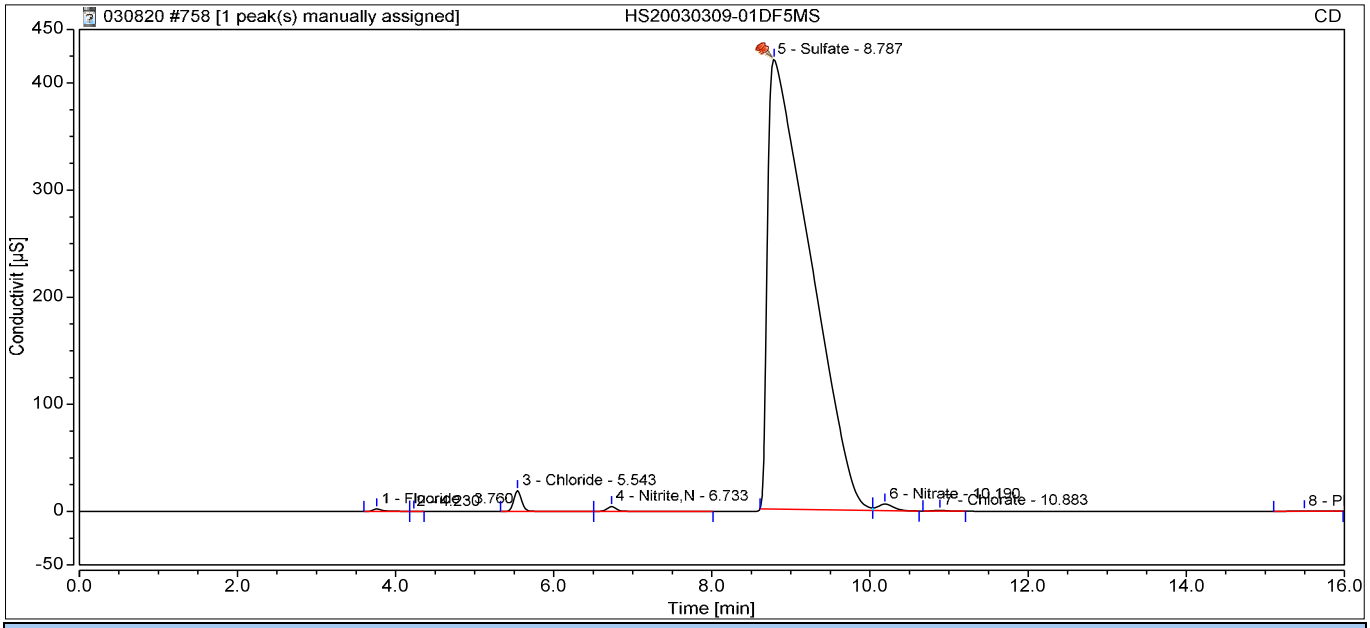
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	0.008	0.0477	0.2386	5.0000
4	5.54	Chloride	BMB	0.058	0.3108	1.5542	5.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	5.0000
5	8.76	Sulfate	BM *^	209.494	1247.6935	6238.4675	5.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
7	15.47	Phosphate	BMB	0.004	0.1187	0.5936	5.0000
Total:			**0.000**	**209.564**		**6240.85**	

758 HS20030309-01DF5MS

Sample Name:	**HS20030309-01DF5MS**	*Injection Volume:*	**5.00**
Vial Number:	**RA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**03/17/2020 14:07**	*Sample Weight:*	**1.0000**

Run Time:



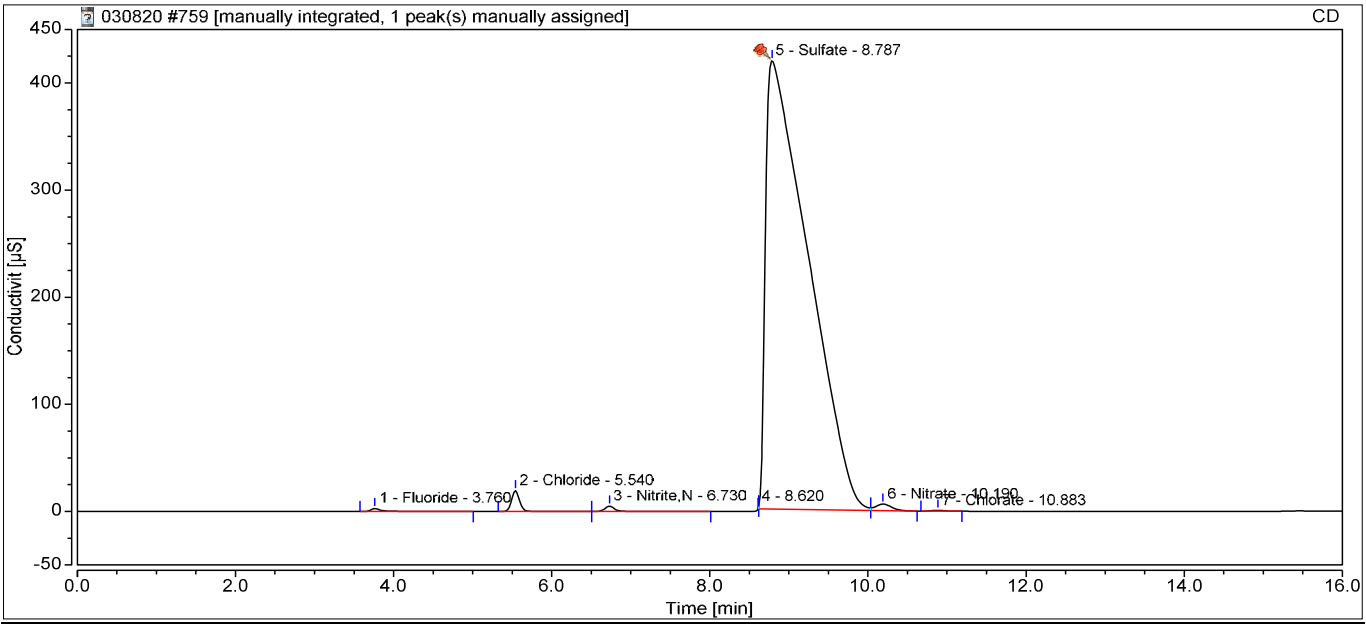
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.76	Fluoride	BMB	0.359	1.0749	5.3746	5.0000
3	5.54	Chloride	BMB	2.330	10.1051	50.5253	5.0000
4	6.73	Nitrite,N	BMB	0.672	1.4057	7.0287	5.0000
5	8.79	Sulfate	BM ^	260.368	1550.6587	7753.2934	5.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	5.0000
6	10.19	Nitrate	MB	1.388	2.3893	11.9463	5.0000
7	10.88	Chlorate	BMB	0.139	1.4483	7.2415	5.0000
8	15.49	Phosphate	BMB	0.155	0.8346	4.1731	5.0000
Total:			**0.000**	**265.412**		**7839.58**	

759 HS20030309-01DF5MSD

Sample Name:	**HS20030309-01DF5MSD**	*Injection Volume:*	**5.00**
Vial Number:	**RA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**03/17/2020 14:25**	*Sample Weight:*	**1.0000**

Run Time:



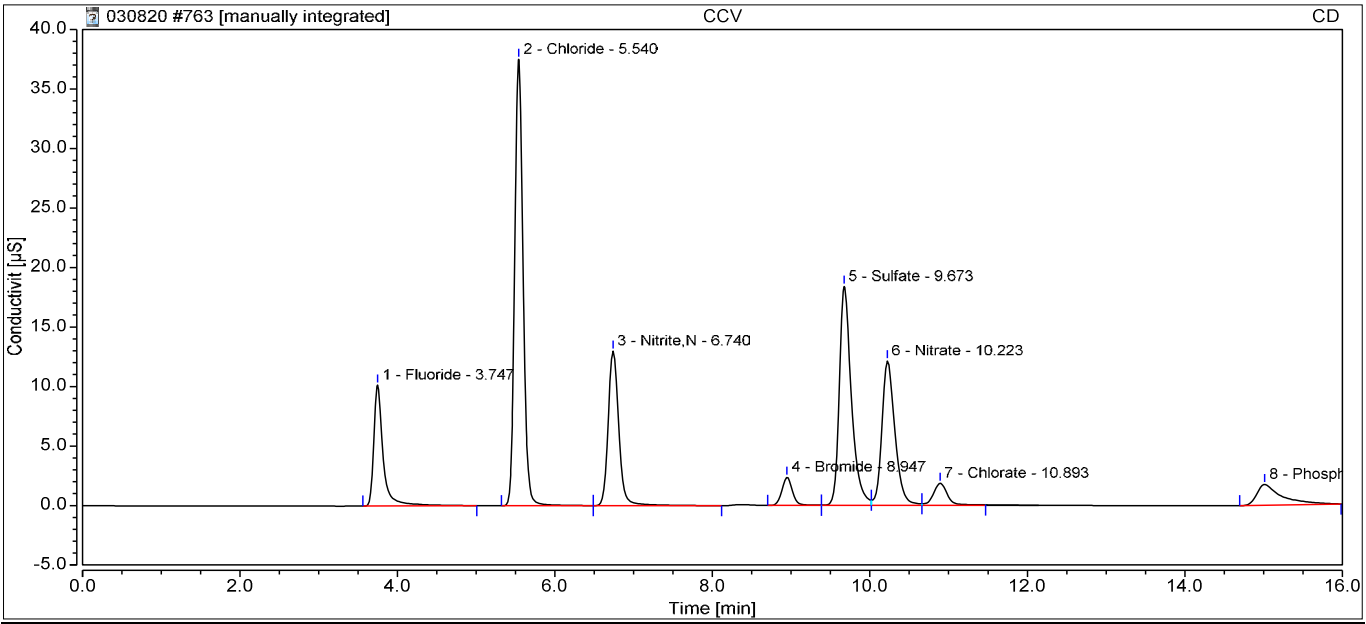
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.76	Fluoride	BMB	0.499	1.4849	7.4244	5.0000
2	5.54	Chloride	BMB	2.333	10.1183	50.5915	5.0000
3	6.73	Nitrite,N	BMB	0.747	1.5567	7.7835	5.0000
5	8.79	Sulfate	M *^	260.391	1550.7961	7753.9806	5.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	5.0000
6	10.19	Nitrate	MB	1.399	2.4070	12.0349	5.0000
7	10.88	Chlorate	BMB	0.139	1.4445	7.2224	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**265.507**		**7839.04**	

763 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**RB1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/17/2020 15:38**	*Sample Weight:*	**1.0000**

Run Time:



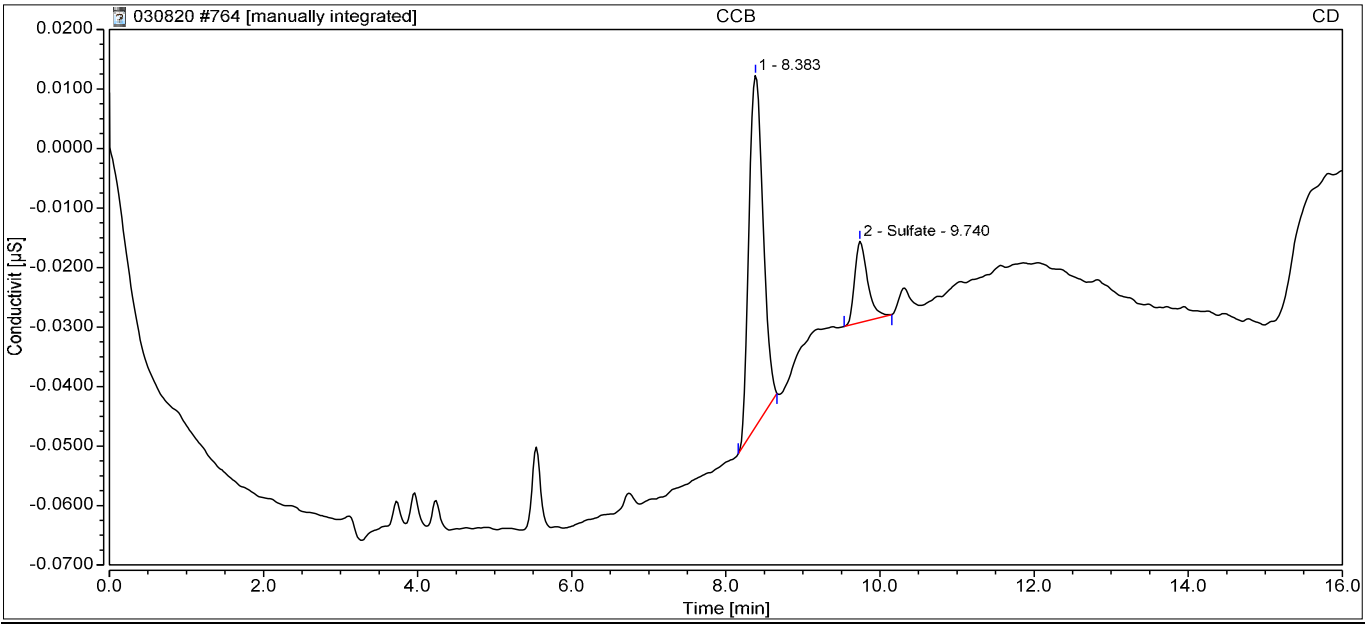
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.393	4.1027	4.1027	1.0000
2	5.54	Chloride	BMB	4.593	19.8620	19.8620	1.0000
3	6.74	Nitrite,N	BMB	2.038	4.1573	4.1573	1.0000
4	8.95	Bromide	BM	0.370	3.7662	3.7662	1.0000
5	9.67	Sulfate	M	3.277	19.6161	19.6161	1.0000
6	10.22	Nitrate	M	2.345	4.0264	4.0264	1.0000
7	10.89	Chlorate	M	0.390	4.0874	4.0874	1.0000
8	15.01	Phosphate	BMB	0.644	3.1389	3.1389	1.0000
Total:			**0.000**	**15.049**		**62.76**	

764 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RC5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/17/2020 15:56**	*Sample Weight:*	**1.0000**

Run Time:



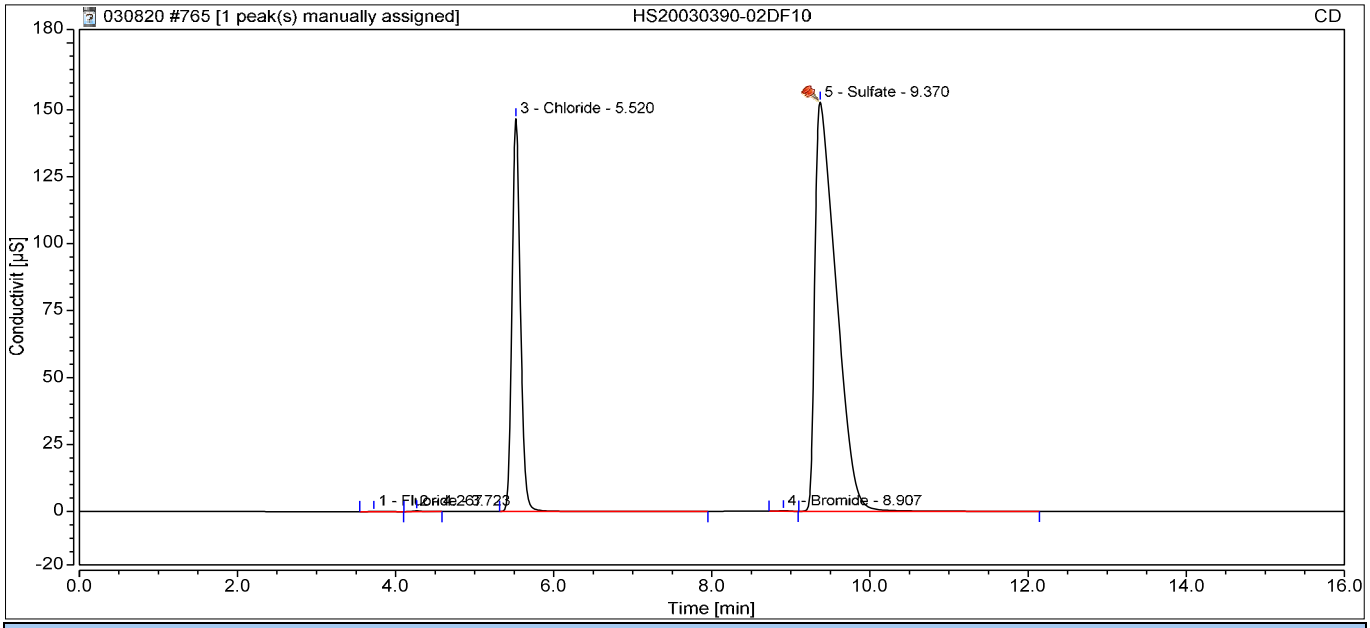
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	9.74	Sulfate	BMB	0.003	0.1171	0.1171	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.003**		**0.12**	

765 HS20030390-02DF10

Sample Name:	**HS20030390-02DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RB6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/17/2020 16:14**	*Sample Weight:*	**1.0000**

Run Time:



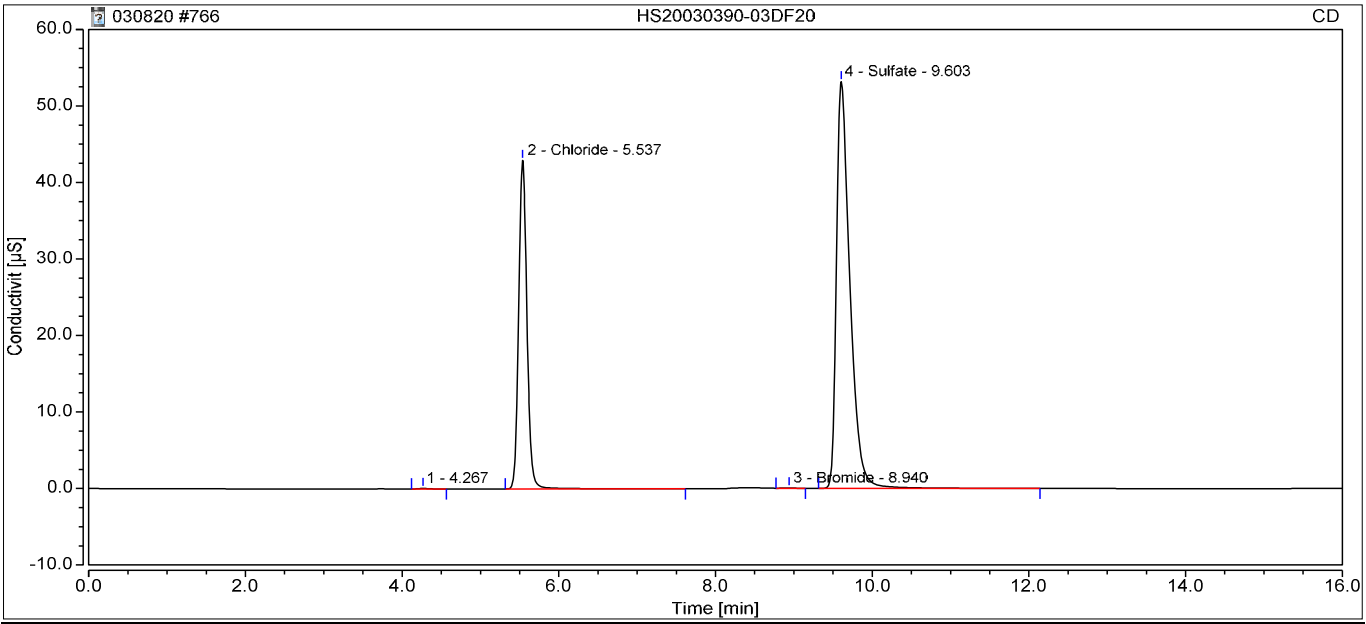
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.004	0.0355	0.3551	10.0000
3	5.52	Chloride	BMB	18.262	78.7895	787.8946	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
4	8.91	Bromide	BMB	0.030	0.3387	3.3872	10.0000
5	9.37	Sulfate	BMB^	47.542	283.2236	2832.2357	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**65.838**		**3623.87**	

766 HS20030390-03DF20

Sample Name:	**HS20030390-03DF20**	*Injection Volume:*	**5.00**
Vial Number:	**RB7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**20.0000**
Recording Time:	**03/17/2020 16:32**	*Sample Weight:*	**1.0000**

Run Time:

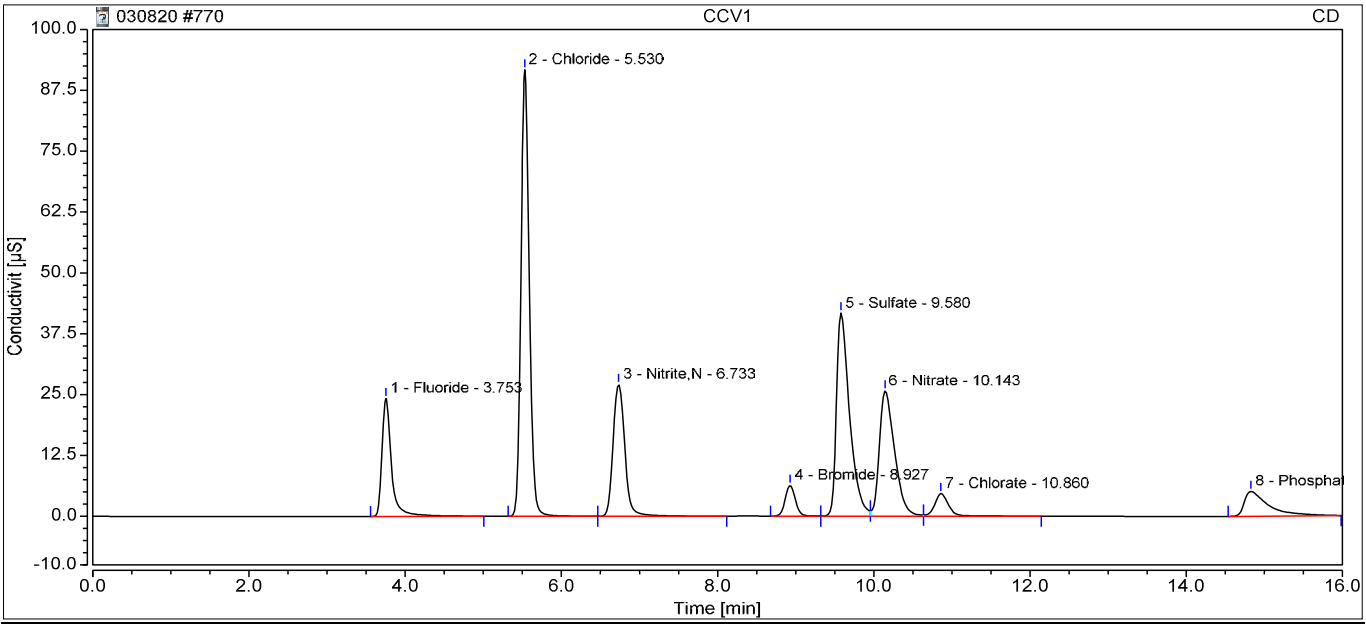


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	20.0000
2	5.54	Chloride	BMB	5.265	22.7587	455.1743	20.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	20.0000
3	8.94	Bromide	BMB	0.007	0.1028	2.0568	20.0000
4	9.60	Sulfate	BMB	10.591	63.1763	1263.5263	20.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	20.0000
Total:			**0.000**	**15.863**		**1720.76**	

770 CCV1			
Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**RC1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/17/2020 17:45**	*Sample Weight:*	**1.0000**

Run Time:



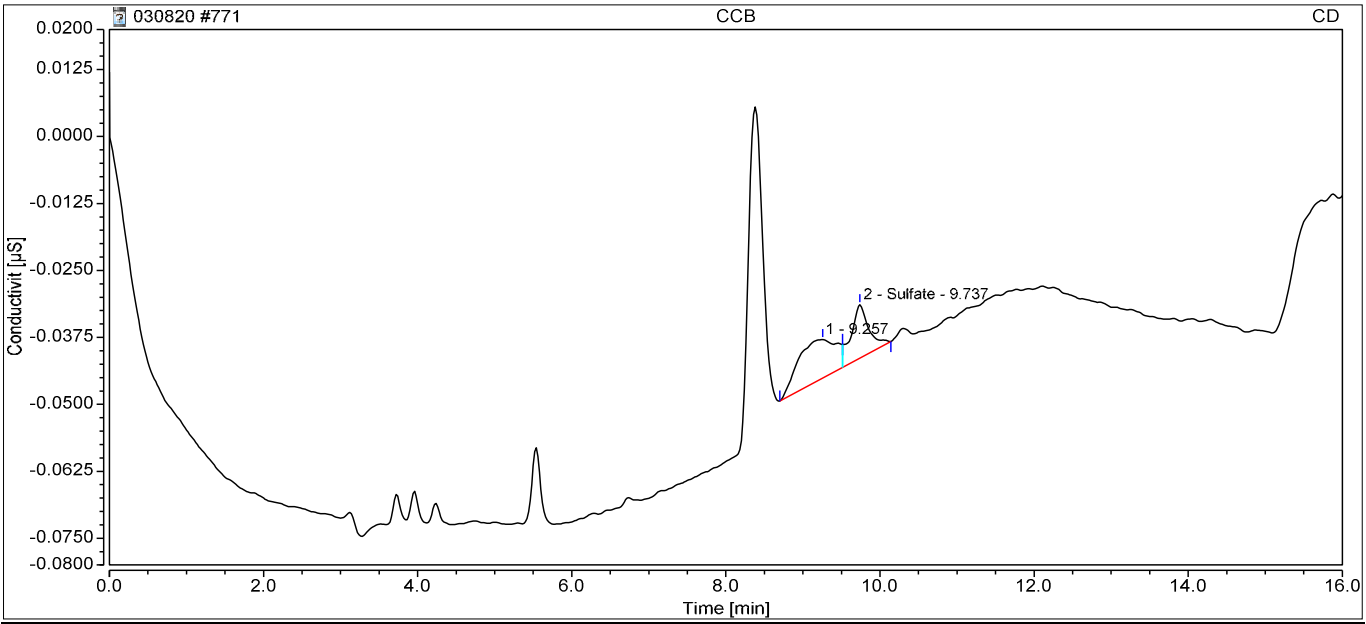
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.424	10.0512	10.0512	1.0000
2	5.53	Chloride	BMB	11.293	48.7450	48.7450	1.0000
3	6.73	Nitrite,N	BMB	4.741	9.6056	9.6056	1.0000
4	8.93	Bromide	BM	0.961	9.7308	9.7308	1.0000
5	9.58	Sulfate	M	8.125	48.4895	48.4895	1.0000
6	10.14	Nitrate	M	5.794	9.9297	9.9297	1.0000
7	10.86	Chlorate	MB	0.969	10.1946	10.1946	1.0000
8	14.83	Phosphate	BMB	1.846	8.8102	8.8102	1.0000
Total:			**0.000**	**37.154**		**155.56**	

771 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RE2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/17/2020 18:03**	*Sample Weight:*	**1.0000**

Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	9.74	Sulfate	MB	0.003	0.1173	0.1173	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.003**		**0.12**	

HS20030390 Wet Chem Raw Data (IC2)

ALS WO# HS20030390

Sequence: 031220
Operator: ALSHS.NoUser
Printed: 3/30/2020 9:17:04 AM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100
#Samples: 720
Created: 3/12/2020 10:45:32 AM by alshs.nouser
Last Update: 3/17/2020 10:13:00 AM by alshs.nouser

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
1	STD1		Standard	1	1.0000	012720	Finished
2	STD2		Standard	2	1.0000	012720	Finished
3	STD3		Standard	3	1.0000	012720	Finished
4	STD4		Standard	4	1.0000	012720	Finished
5	STD5	WITH DOD	Standard	5	1.0000	012720	Finished
6	STD6	BR CLO3 PO4 OFF	Standard	6	1.0000	012720	Finished
7	ICV		Unknown	7	1.0000	012720	Finished
8	ICB		Unknown	8	1.0000	012720	Finished
9	CCV		Unknown	91	1.0000	012720	Finished
10	CCB		Unknown	92	1.0000	012720	Finished
11	WBLKW1-022520		Unknown	11	1.0000	012720	Finished
12	WLCSW1-022520		Unknown	12	1.0000	012720	Finished
13	WLCSDW1-022520		Unknown	13	1.0000	012720	Finished
14	LOQ-022520A		Unknown	14	1.0000	012720	Finished
15	HS20020709-01DF10	CL SO4	Unknown	15	10.0000	012720	Finished
16	HS20020709-02DF10		Unknown	16	10.0000	012720	Finished
17	HS20020709-03DF10		Unknown	17	10.0000	012720	Finished
18	HS20020734-01DF50	CL SO4	Unknown	18	50.0000	012720	Finished
19	HS20020734-01DF500		Unknown	19	500.0000	012720	Finished
20	CCV1		Unknown	93	1.0000	012720	Finished
21	CCB		Unknown	94	1.0000	012720	Finished
22	HS20020734-02DF50	300_W	Unknown	20	50.0000	012720	Finished
23	HS20020734-02DF500		Unknown	21	500.0000	012720	Finished
24	HS20020734-03DF50		Unknown	22	50.0000	012720	Finished
25	HS20020734-03DF500		Unknown	23	500.0000	012720	Finished
26	HS20020734-04DF50		Unknown	24	50.0000	012720	Finished
27	HS20020734-04DF500		Unknown	25	500.0000	012720	Finished
28	HS20020734-05DF50		Unknown	26	50.0000	012720	Finished
29	HS20020734-05DF500		Unknown	27	500.0000	012720	Finished
30	HS20020930-01DF50		Unknown	28	50.0000	012720	Finished
31	HS20020930-01DF500		Unknown	29	500.0000	012720	Finished
32	CCV		Unknown	91	1.0000	012720	Finished
33	CCB		Unknown	92	1.0000	012720	Finished
34	HS20020841-01DF10	300_W	Unknown	30	10.0000	012720	Finished
35	HS20020843-01DF10		Unknown	31	10.0000	012720	Finished
36	HS20020843-01MSDF10		Unknown	32	10.0000	012720	Finished
37	HS20020843-01MSDDF10		Unknown	33	10.0000	012720	Finished
38	HS20020869-02	9056_W	Unknown	34	1.0000	012720	Finished
39	HS20020869-03	CL SO4	Unknown	35	1.0000	012720	Finished
40	HS20020869-03MS		Unknown	36	1.0000	012720	Finished
41	HS20020869-03MSD		Unknown	37	1.0000	012720	Finished
42	HS20020869-04		Unknown	38	1.0000	012720	Finished
43	CCV1		Unknown	93	1.0000	012720	Finished
44	CCB		Unknown	94	1.0000	012720	Finished

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Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100
#Samples: 720
Created: 3/12/2020 10:45:32 AM by alshs.nouser
Last Update: 3/17/2020 10:13:00 AM by alshs.nouser

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
1	STD1	1/27/2020 10:48:04 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
2	STD2	1/27/2020 11:02:45 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
3	STD3	1/27/2020 11:17:27 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
4	STD4	1/27/2020 11:32:08 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
5	STD5	1/27/2020 11:46:49 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
6	STD6	1/27/2020 12:01:30 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
7	ICV	1/27/2020 12:16:10 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
8	ICB	1/27/2020 12:30:51 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
9	CCV	2/25/2020 10:40:47 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
10	CCB	2/25/2020 10:55:28 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
11	WBLKW1-022520	2/25/2020 12:29:23 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
12	WLCSW1-022520	2/25/2020 12:44:04 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
13	WLCSDW1-022520	2/25/2020 12:58:44 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
14	LOQ-022520A	2/25/2020 1:13:26 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
15	HS20020709-01DF10	2/25/2020 1:28:06 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
16	HS20020709-02DF10	2/25/2020 1:42:47 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
17	HS20020709-03DF10	2/25/2020 1:57:28 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
18	HS20020734-01DF50	2/25/2020 3:04:00 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
19	HS20020734-01DF500	2/25/2020 3:18:40 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
20	CCV1	2/25/2020 3:33:21 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
21	CCB	2/25/2020 3:48:02 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
22	HS20020734-02DF50	2/25/2020 4:02:42 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
23	HS20020734-02DF500	2/25/2020 4:17:23 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
24	HS20020734-03DF50	2/25/2020 4:32:04 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
25	HS20020734-03DF500	2/25/2020 4:46:45 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
26	HS20020734-04DF50	2/25/2020 5:01:26 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
27	HS20020734-04DF500	2/25/2020 5:16:07 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
28	HS20020734-05DF50	2/25/2020 5:30:48 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
29	HS20020734-05DF500	2/25/2020 5:45:29 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
30	HS20020930-01DF50	2/25/2020 6:00:09 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
31	HS20020930-01DF500	2/25/2020 6:14:51 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
32	CCV	2/25/2020 6:29:32 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
33	CCB	2/25/2020 6:44:12 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
34	HS20020841-01DF10	2/25/2020 6:58:53 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
35	HS20020843-01DF10	2/25/2020 7:13:34 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
36	HS20020843-01MSDF10	2/25/2020 7:28:15 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
37	HS20020843-01MSDDF10	2/25/2020 7:42:56 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
38	HS20020869-02	2/25/2020 7:57:36 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
39	HS20020869-03	2/25/2020 8:12:17 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
40	HS20020869-03MS	2/25/2020 8:26:58 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
41	HS20020869-03MSD	2/25/2020 8:41:39 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
42	HS20020869-04	2/25/2020 8:56:20 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
43	CCV1	2/25/2020 9:11:01 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
44	CCB	2/25/2020 9:25:42 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00

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Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100
#Samples: 720

Created: 3/12/2020 10:45:32 AM by alshs.nouser
Last Update: 3/17/2020 10:13:00 AM by alshs.nouser

No.	Name	*Final_Volume	GUID
1	STD1	1.00	a64c7a4c-4124-11ea-b6dd-ef8dd1af257a
2	STD2	1.00	b3ab71ec-4126-11ea-b6dd-ef8dd1af257a
3	STD3	1.00	c0c080e4-4128-11ea-b6dd-ef8dd1af257a
4	STD4	1.00	ce5b131c-412a-11ea-b6dd-ef8dd1af257a
5	STD5	1.00	dbabbcac-412c-11ea-b6dd-ef8dd1af257a
6	STD6	1.00	e89d087c-412e-11ea-b6dd-ef8dd1af257a
7	ICV	1.00	f5b6dc24-4130-11ea-b6dd-ef8dd1af257a
8	ICB	1.00	02a100ec-4133-11ea-b6dd-ef8dd1af257a
9	CCV	1.00	6ff7177e-57ed-11ea-b6de-e77a853661cb
10	CCB	1.00	7d3a1cb4-57ef-11ea-b6de-e77a853661cb
11	WBLKW1-022520	1.00	1ee6ad98-57fc-11ea-b6de-e77a853661cb
12	WLCSW1-022520	1.00	a9034662-57fe-11ea-b6de-e77a853661cb
13	WLCSDW1-022520	1.00	b5f53c2c-5800-11ea-b6de-e77a853661cb
14	LOQ-022520A	1.00	c2fca6fc-5802-11ea-b6de-e77a853661cb
15	HS20020709-01DF10	1.00	d0388530-5804-11ea-b6de-e77a853661cb
16	HS20020709-02DF10	1.00	dd2cdd50-5806-11ea-b6de-e77a853661cb
17	HS20020709-03DF10	1.00	ea213570-5808-11ea-b6de-e77a853661cb
18	HS20020734-01DF50	1.00	b92d2d58-5811-11ea-b6de-e77a853661cb
19	HS20020734-01DF500	1.00	42602136-5814-11ea-b6de-e77a853661cb
20	CCV1	1.00	4f56dbac-5816-11ea-b6de-e77a853661cb
21	CCB	1.00	5c48d176-5818-11ea-b6de-e77a853661cb
22	HS20020734-02DF50	1.00	692c793c-581a-11ea-b6de-e77a853661cb
23	HS20020734-02DF500	1.00	7627f85e-581c-11ea-b6de-e77a853661cb
24	HS20020734-03DF50	1.00	8319ee28-581e-11ea-b6de-e77a853661cb
25	HS20020734-03DF500	1.00	904292b5-5820-11ea-b6de-e77a853661cb
26	HS20020734-04DF50	1.00	9d38ca22-5822-11ea-b6de-e77a853661cb
27	HS20020734-04DF500	1.00	aa323934-5824-11ea-b6de-e77a853661cb
28	HS20020734-05DF50	1.00	b7327d02-5826-11ea-b6de-e77a853661cb
29	HS20020734-05DF500	1.00	c4816de6-5828-11ea-b6de-e77a853661cb
30	HS20020930-01DF50	1.00	d17f4f5e-582a-11ea-b6de-e77a853661cb
31	HS20020930-01DF500	1.00	de6c807c-582c-11ea-b6de-e77a853661cb
32	CCV	1.00	ebb90f0a-582e-11ea-b6de-e77a853661cb
33	CCB	1.00	f8b952d8-5830-11ea-b6de-e77a853661cb
34	HS20020841-01DF10	1.00	05a8e64c-5833-11ea-b6de-e77a853661cb
35	HS20020843-01DF10	1.00	12e726d6-5835-11ea-b6de-e77a853661cb
36	HS20020843-01MSDF10	1.00	1fe043a2-5837-11ea-b6de-e77a853661cb
37	HS20020843-01MSDDF10	1.00	2ccb126a-5839-11ea-b6de-e77a853661cb
38	HS20020869-02	1.00	39c8f3e2-583b-11ea-b6de-e77a853661cb
39	HS20020869-03	1.00	46c937b0-583d-11ea-b6de-e77a853661cb
40	HS20020869-03MS	1.00	53acdf76-583f-11ea-b6de-e77a853661cb
41	HS20020869-03MSD	1.00	60af859a-5841-11ea-b6de-e77a853661cb
42	HS20020869-04	1.00	6e059d80-5843-11ea-b6de-e77a853661cb
43	CCV1	1.00	7afeba4c-5845-11ea-b6de-e77a853661cb
44	CCB	1.00	87f7d718-5847-11ea-b6de-e77a853661cb

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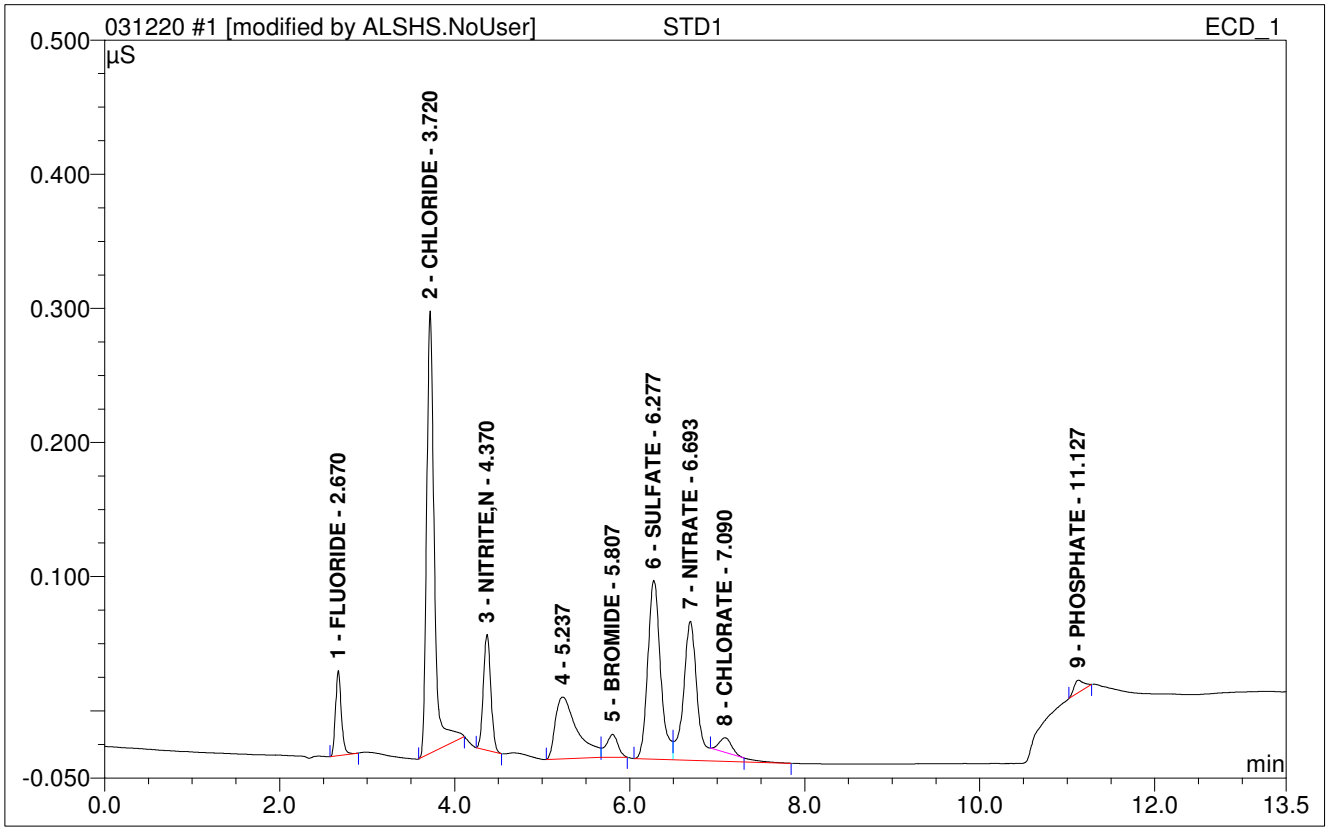
1 STD1

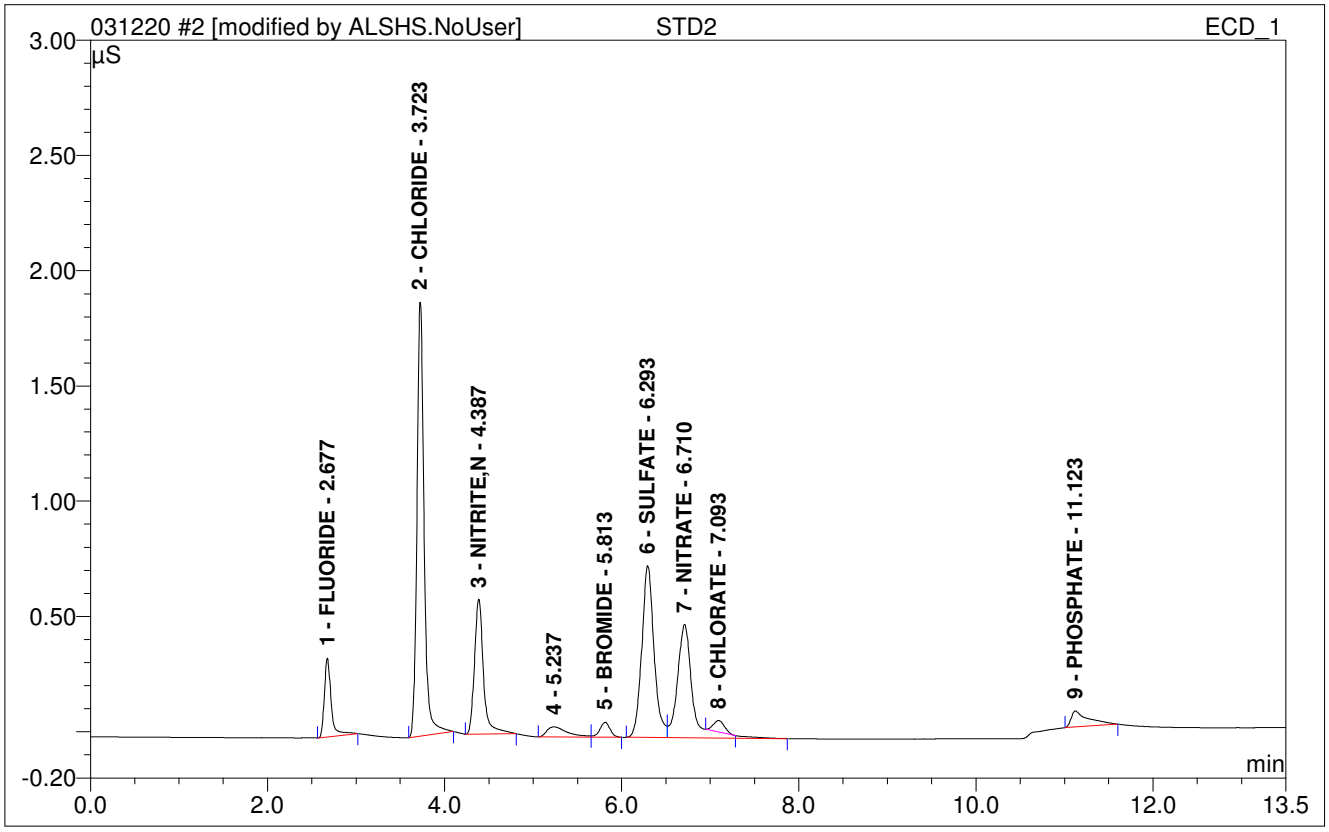
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**1/27/2020 10:48**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.67	FLUORIDE	0.063	0.005	4.46	0.127	1.
2	3.72	CHLORIDE	0.330	0.033	30.57	0.521	1.
3	4.37	NITRITE,N	0.086	0.009	7.77	0.092	1.
5	5.81	BROMIDE	0.017	0.003	2.41	0.148	1.
6	6.28	SULFATE	0.133	0.022	20.53	0.520	1.
7	6.69	NITRATE	0.104	0.021	19.44	0.101	1.
8	7.09	CHLORATE	0.011	0.002	1.65	0.143	1.
9	11.13	PHOSPHATE	0.009	0.001	1.09	0.141	1.
Total:			0.753	0.096	87.92	1.792	

2 STD2

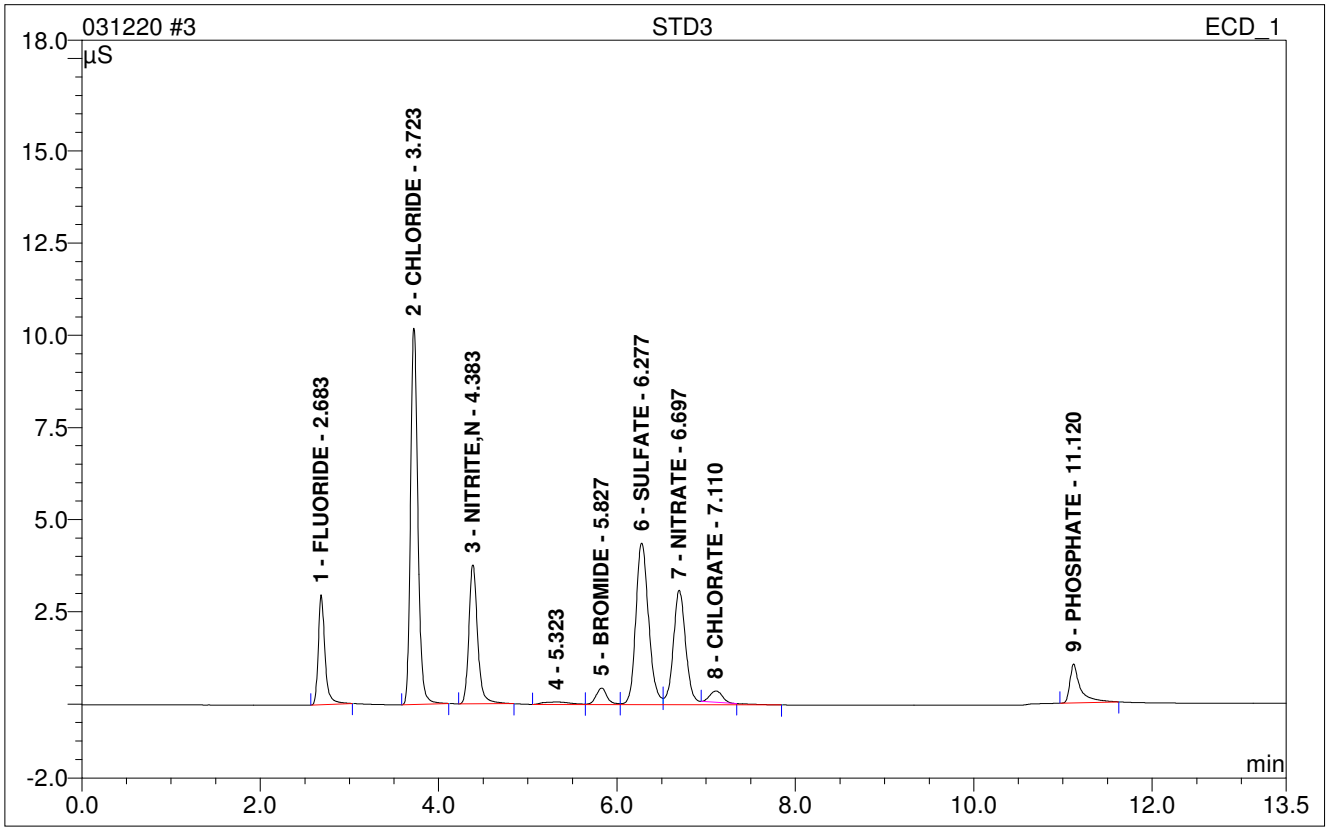
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**1/27/2020 11:02**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.68	FLUORIDE	0.341	0.030	5.65	0.305	1.
2	3.72	CHLORIDE	1.882	0.174	32.61	1.938	1.
3	4.39	NITRITE,N	0.584	0.069	12.86	0.384	1.
5	5.81	BROMIDE	0.065	0.009	1.64	0.296	1.
6	6.29	SULFATE	0.745	0.120	22.37	1.883	1.
7	6.71	NITRATE	0.491	0.098	18.31	0.390	1.
8	7.09	CHLORATE	0.050	0.007	1.37	0.314	1.
9	11.12	PHOSPHATE	0.069	0.016	2.95	0.305	1.
Total:			4.226	0.523	97.77	5.815	

3 STD3

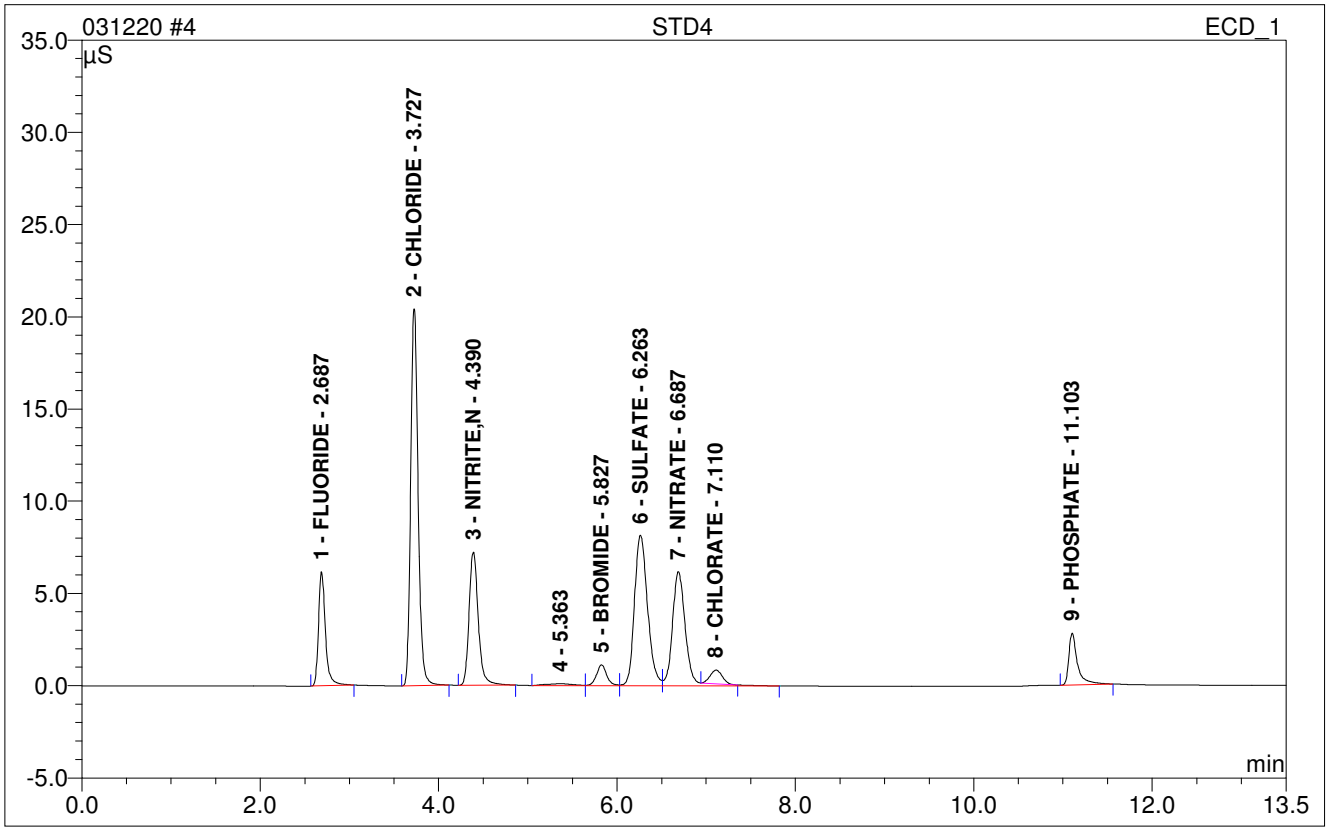
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**1/27/2020 11:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.68	FLUORIDE	2.981	0.259	8.09	1.910	1.
2	3.72	CHLORIDE	10.202	0.969	30.29	9.923	1.
3	4.38	NITRITE,N	3.763	0.428	13.39	2.130	1.
5	5.83	BROMIDE	0.446	0.064	2.00	1.630	1.
6	6.28	SULFATE	4.376	0.728	22.76	10.414	1.
7	6.70	NITRATE	3.101	0.533	16.66	2.026	1.
8	7.11	CHLORATE	0.309	0.050	1.56	1.632	1.
9	11.12	PHOSPHATE	1.055	0.144	4.51	1.753	1.
Total:			26.233	3.174	99.27	31.417	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**1/27/2020 11:32**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

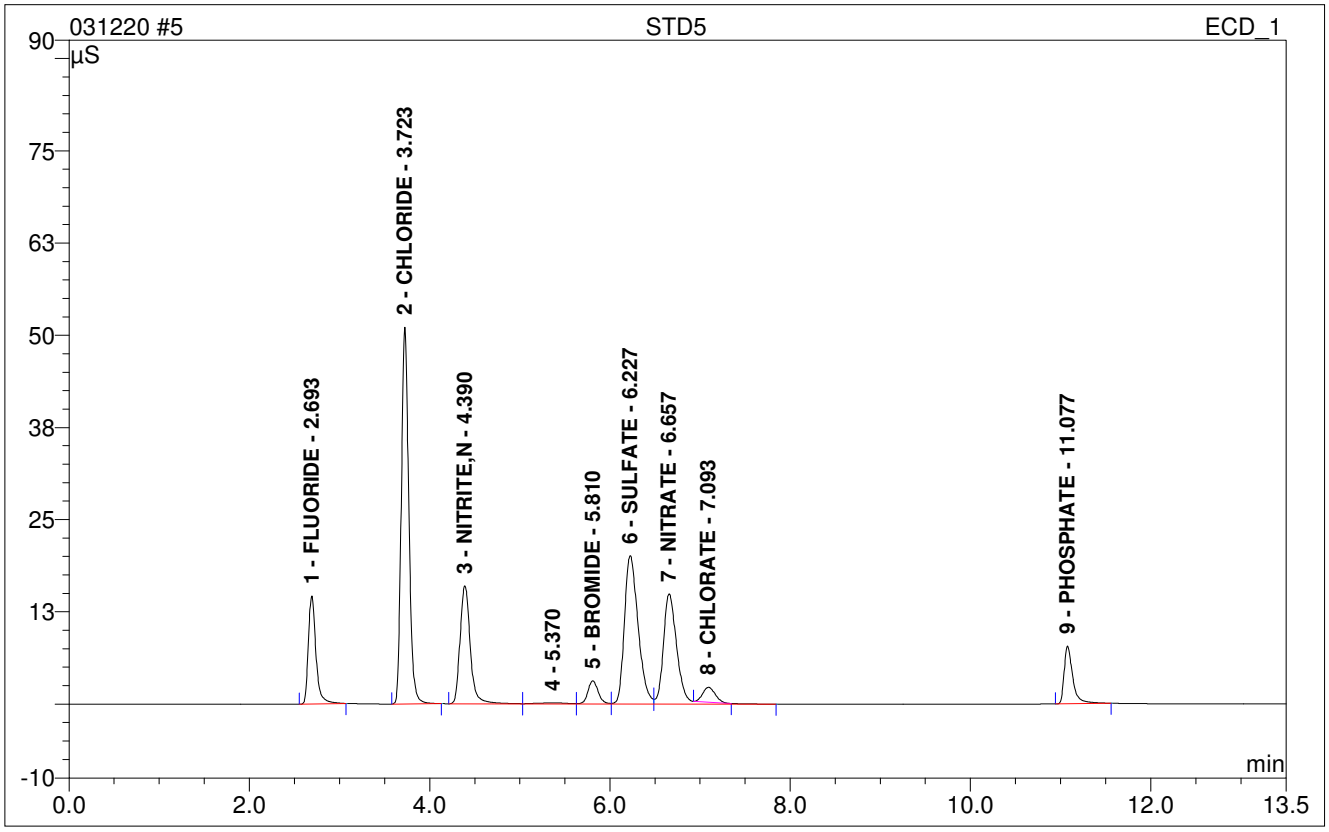


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.69	FLUORIDE	6.192	0.557	8.64	4.004	1.
2	3.73	CHLORIDE	20.433	1.963	30.43	19.918	1.
3	4.39	NITRITE,N	7.217	0.865	13.42	4.253	1.
5	5.83	BROMIDE	1.129	0.150	2.32	3.695	1.
6	6.26	SULFATE	8.150	1.384	21.46	19.619	1.
7	6.69	NITRATE	6.186	1.062	16.46	4.018	1.
8	7.11	CHLORATE	0.746	0.117	1.82	3.715	1.
9	11.10	PHOSPHATE	2.812	0.318	4.93	3.712	1.
Total:			52.866	6.416	99.47	62.935	

5 STD5

WITH DOD

Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**5**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**1/27/2020 11:46**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

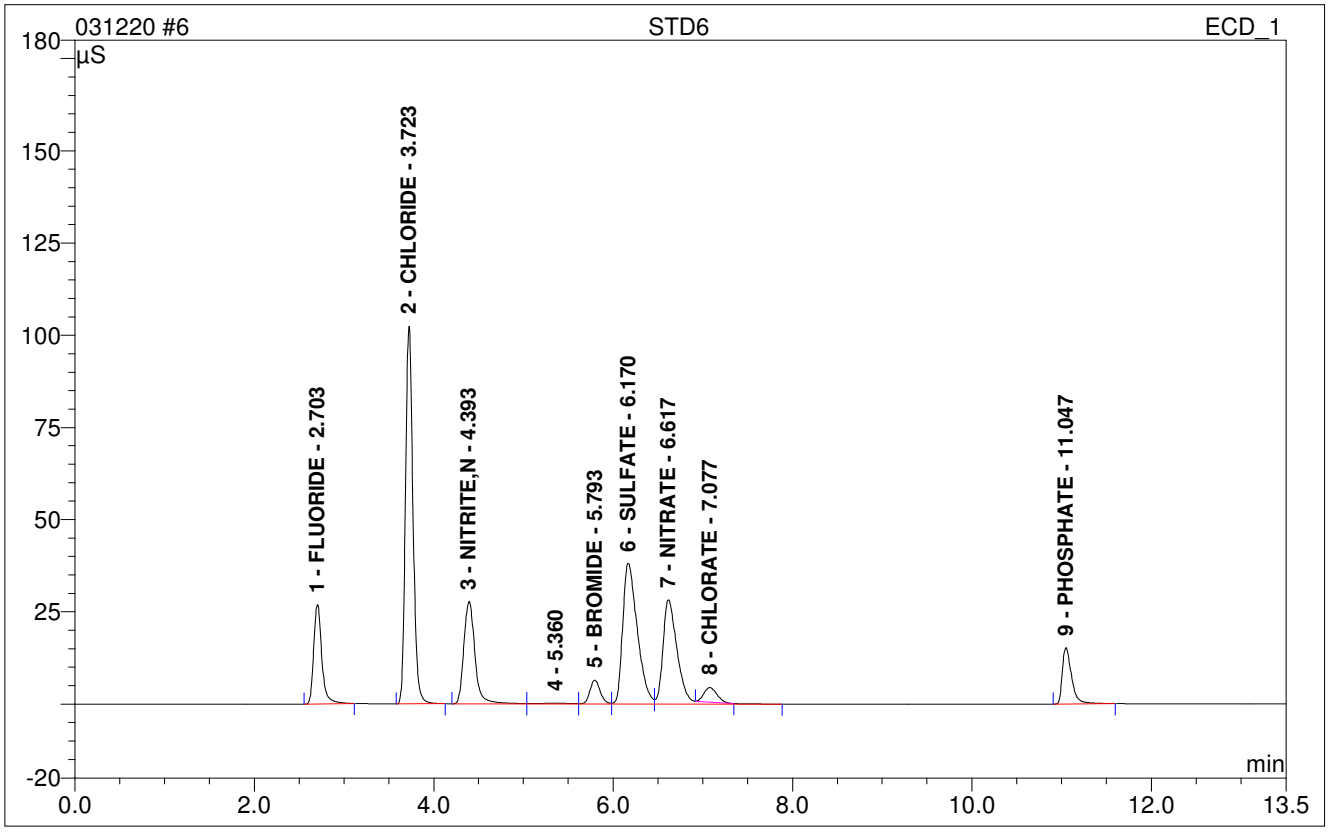


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.69	FLUORIDE	14.649	1.434	8.80	10.165	1.
2	3.72	CHLORIDE	51.083	4.945	30.33	49.903	1.
3	4.39	NITRITE,N	15.976	2.103	12.90	10.263	1.
5	5.81	BROMIDE	3.140	0.413	2.53	10.030	1.
6	6.23	SULFATE	20.088	3.523	21.61	49.621	1.
7	6.66	NITRATE	14.921	2.641	16.20	9.962	1.
8	7.09	CHLORATE	2.020	0.324	1.99	10.099	1.
9	11.08	PHOSPHATE	7.826	0.868	5.33	9.922	1.
Total:			129.703	16.250	99.67	159.965	

6 STD6

BR CLO3 PO4 OFF

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**6**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**1/27/2020 12:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

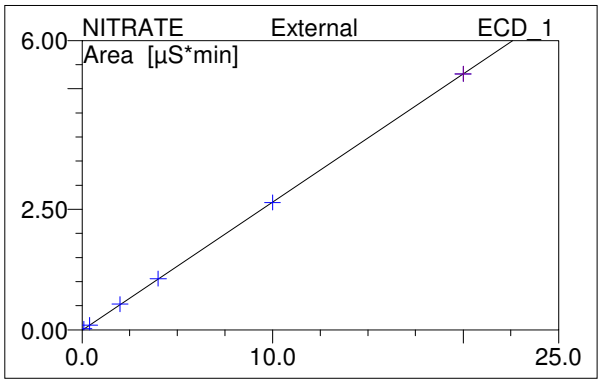


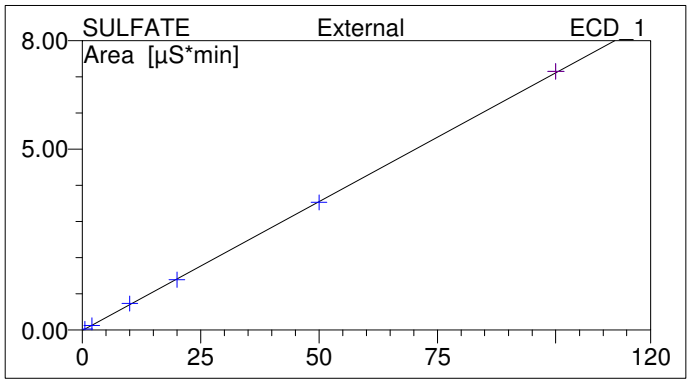
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.70	FLUORIDE	26.907	2.833	8.68	19.990	1.
2	3.72	CHLORIDE	102.368	9.956	30.51	100.296	1.
3	4.39	NITRITE,N	27.719	3.980	12.19	19.378	1.
5	5.79	BROMIDE	6.449	0.855	2.62	20.700	1.
6	6.17	SULFATE	38.111	7.147	21.90	100.443	1.
7	6.62	NITRATE	28.220	5.308	16.26	20.004	1.
8	7.08	CHLORATE	3.952	0.663	2.03	20.597	1.
9	11.05	PHOSPHATE	15.241	1.821	5.58	20.668	1.
Total:			248.969	32.564	99.77	322.077	

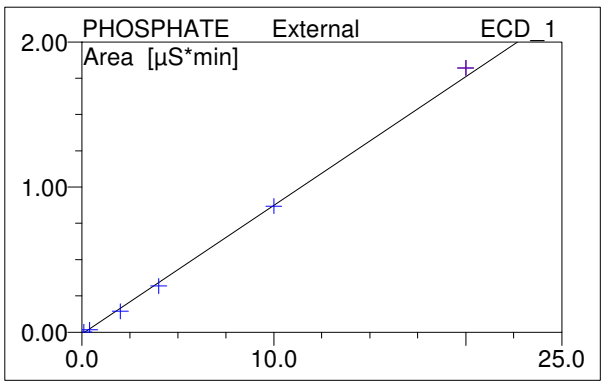
6 STD6

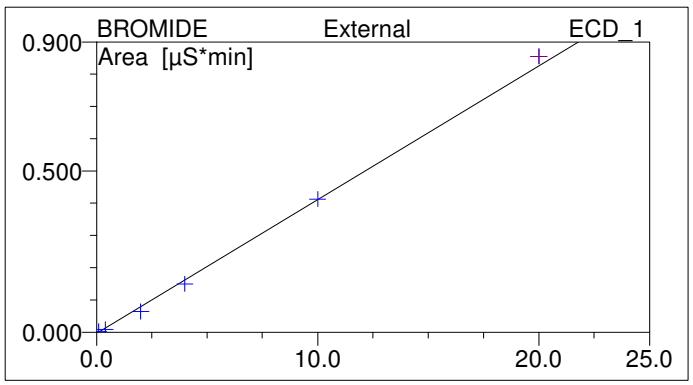
BR CLO3 PO4 OFF

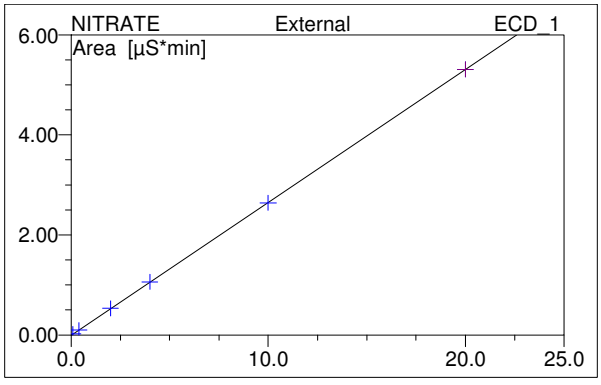
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**6**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**1/27/2020 12:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

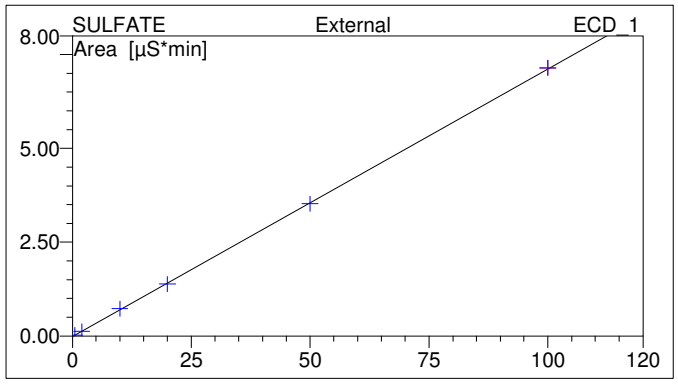


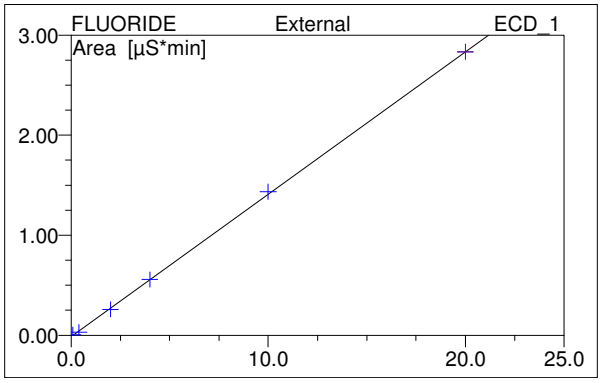


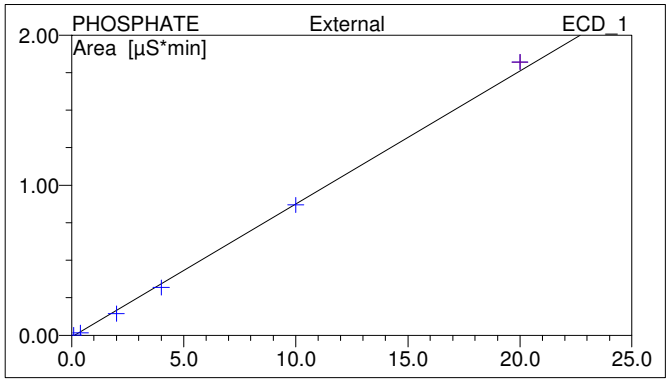










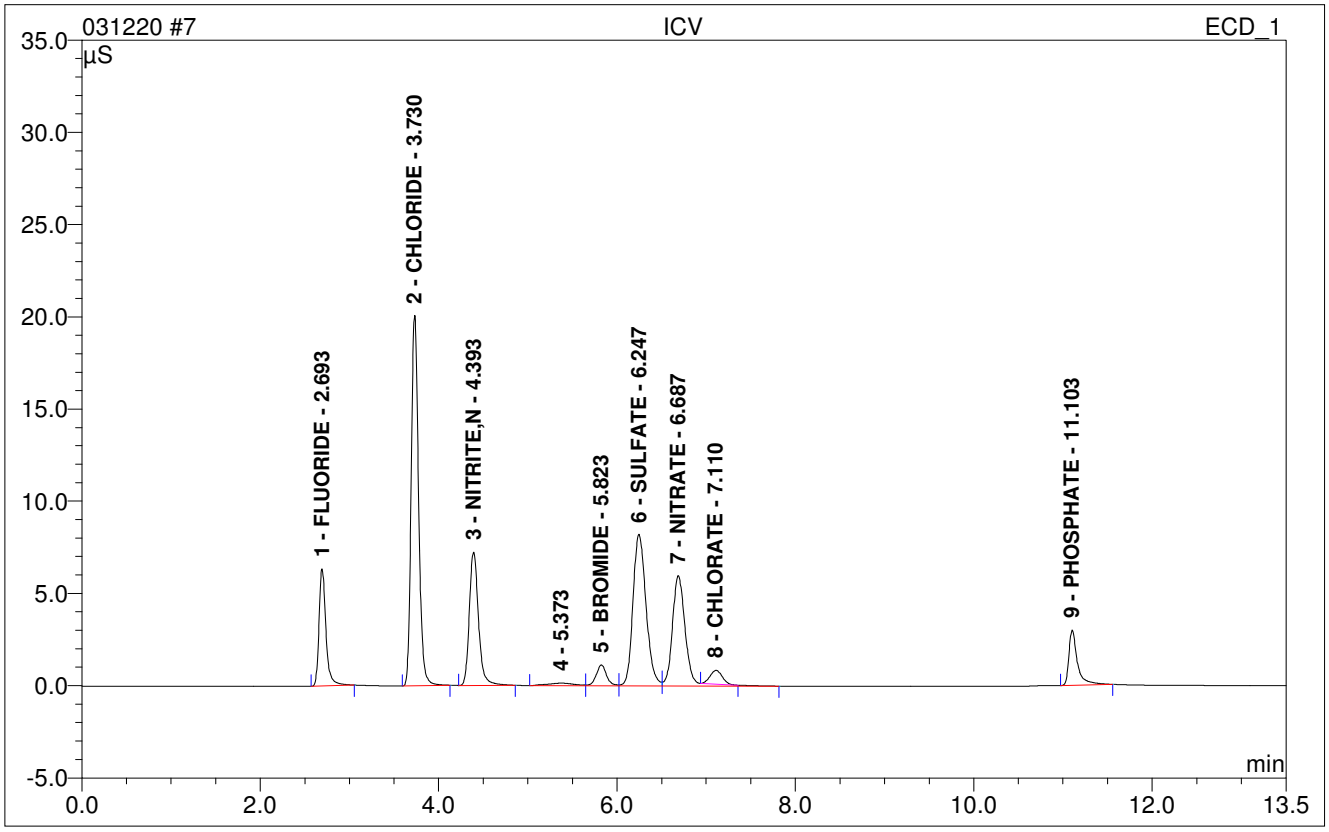


No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.70	FLUORIDE	XLOff	6	99.892	-0.0131	0.1424	0.000
2	3.72	CHLORIDE	XLOff	6	99.997	-0.0183	0.0995	0.000
3	4.39	NITRITE,N	XLOff	6	99.846	-0.0103	0.2059	0.000
5	5.79	BROMIDE	XLOff	6	99.510	-0.0035	0.0415	0.000
6	6.17	SULFATE	XLOff	6	99.978	-0.0146	0.0713	0.000
7	6.62	NITRATE	XLOff	6	99.998	-0.0056	0.2656	0.000
8	7.08	CHLORATE	XLOff	6	99.576	-0.0028	0.0323	0.000
9	11.05	PHOSPHATE	XLOff	6	99.666	-0.0113	0.0886	0.000
Average:					99.8079	-0.0099	0.1184	0.0000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.70	FLUORIDE	XLOff	6	99.946	7.022	0.009	18.007
2	3.72	CHLORIDE	XLOff	6	99.999	10.055	0.005	2.510
3	4.39	NITRITE,N	XLOff	6	99.923	4.857	0.016	19.192
5	5.79	BROMIDE	XLOff	6	99.755	24.107	0.006	37.631
6	6.17	SULFATE	XLOff	6	99.989	14.026	0.010	7.062
7	6.62	NITRATE	XLOff	6	99.999	3.765	0.003	2.275
8	7.08	CHLORATE	XLOff	6	99.788	30.922	0.004	35.215
9	11.05	PHOSPHATE	XLOff	6	99.833	11.281	0.010	35.126
Average:					99.9038	13.2543	0.0078	19.6271

7 ICV

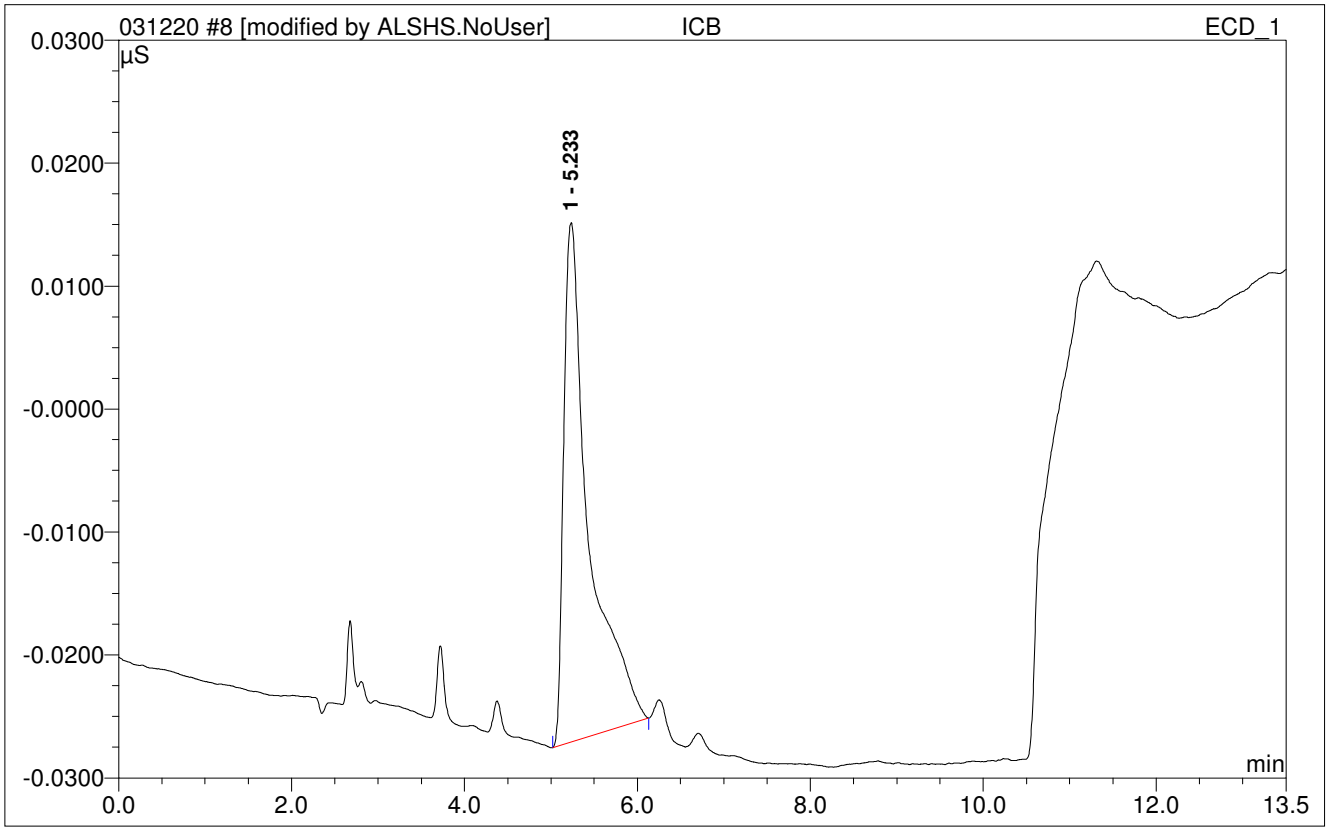
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**7**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**1/27/2020 12:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.69	FLUORIDE	6.337	0.569	8.85	4.085	1.
2	3.73	CHLORIDE	20.082	1.923	29.95	19.523	1.
3	4.39	NITRITE,N	7.221	0.863	13.44	4.243	1.
5	5.82	BROMIDE	1.134	0.152	2.37	3.756	1.
6	6.25	SULFATE	8.210	1.393	21.69	19.744	1.
7	6.69	NITRATE	5.980	1.020	15.89	3.862	1.
8	7.11	CHLORATE	0.751	0.119	1.85	3.757	1.
9	11.10	PHOSPHATE	2.996	0.333	5.18	3.881	1.
Total:			52.710	6.372	99.23	62.851	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**8**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**1/27/2020 12:30**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR8 Build 2623 (156243)

Sequence: 031820
Operator: ALSHS.NoUser

Printed: 3/30/2020 8:57:03 AM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100
#Samples: 130

Created: 3/18/2020 9:45:50 AM by alshs.nouser
Last Update: 3/19/2020 8:05:18 PM by ALSHS.NoUser

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
1	STD1		Standard	1	1.0000	012720	Finished
2	STD2		Standard	2	1.0000	012720	Finished
3	STD3		Standard	3	1.0000	012720	Finished
4	STD4		Standard	4	1.0000	012720	Finished
5	STD5	WITH DOD	Standard	5	1.0000	012720	Finished
6	STD6	BR CLO3 PO4 OFF	Standard	6	1.0000	012720	Finished
7	DIH2O		Unknown	10	1.0000	012720	Finished
8	CCV		Unknown	83	1.0000	012720	Finished
9	CCB		Unknown	84	1.0000	012720	Finished
10	HS20030745-01	start	Unknown	10	1.0000	012720	Finished
11	HS20030248-07DF10		Unknown	51	10.0000	012720	Finished
12	HS20030248-10DF10		Unknown	52	10.0000	012720	Finished
13	HS20030248-10DF10MS		Unknown	11	10.0000	012720	Finished
14	HS20030248-10DF10MSD		Unknown	12	10.0000	012720	Finished
15	MBLK		Unknown	13	1.0000	012720	Finished
16	LCS		Unknown	14	1.0000	012720	Finished
17	LCSD		Unknown	15	1.0000	012720	Finished
18	HS20030390-01DF10		Unknown	18	10.0000	012720	Finished
19	HS20030390-02DF10		Unknown	19	10.0000	012720	Finished
20	CCV1		Unknown	16	1.0000	012720	Finished
21	CCB		Unknown	17	1.0000	012720	Finished
22	HS20030402-02DF50	SO4	Unknown	20	50.0000	012720	Finished
23	CCV		Unknown	83	1.0000	012720	Finished
24	CCB		Unknown	84	1.0000	012720	Finished
25	MBLK	start	Unknown	13	1.0000	012720	Finished
26	LCS		Unknown	14	1.0000	012720	Finished
27	LCSD		Unknown	15	1.0000	012720	Finished
28	HS20030293-01DF500		Unknown	21	500.0000	012720	Finished
29	HS20030293-02DF500		Unknown	22	500.0000	012720	Finished
30	HS20030293-03DF20		Unknown	23	20.0000	012720	Finished
31	HS20030293-03MSDF20		Unknown	24	20.0000	012720	Finished
32	HS20030293-03MSDDF20		Unknown	25	20.0000	012720	Finished
33	HS20030293-04DF50		Unknown	26	50.0000	012720	Finished
34	HS20030293-04MSDF50	end	Unknown	27	50.0000	012720	Finished
35	CCV1		Unknown	16	1.0000	012720	Finished
36	CCB		Unknown	17	1.0000	012720	Finished
37	MBLK	start	Unknown	48	1.0000	012720	Finished
38	LCS		Unknown	49	1.0000	012720	Finished
39	LCSD		Unknown	50	1.0000	012720	Finished
40	HS20030770-02		Unknown	51	1.0000	012720	Finished
41	HS20030770-02DF10		Unknown	52	10.0000	012720	Finished
42	HS20030770-03		Unknown	53	1.0000	012720	Finished
43	HS20030770-03DF10		Unknown	54	10.0000	012720	Finished
44	HS20030770-04		Unknown	55	1.0000	012720	Finished

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Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100
#Samples: 130

Created: 3/18/2020 9:45:50 AM by alshs.nouser
Last Update: 3/19/2020 8:05:18 PM by ALSHS.NoUser

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
1	STD1	1/27/2020 10:48:04 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
2	STD2	1/27/2020 11:02:45 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
3	STD3	1/27/2020 11:17:27 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
4	STD4	1/27/2020 11:32:08 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
5	STD5	1/27/2020 11:46:49 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
6	STD6	1/27/2020 12:01:30 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
7	DIH2O	3/18/2020 10:44:10 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
8	CCV	3/18/2020 10:58:51 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
9	CCB	3/18/2020 11:13:32 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
10	HS20030745-01	3/18/2020 11:32:12 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
11	HS20030248-07DF10	3/18/2020 11:50:22 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
12	HS20030248-10DF10	3/18/2020 12:05:02 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
13	HS20030248-10DF10MS	3/18/2020 1:17:20 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
14	HS20030248-10DF10MSD	3/18/2020 1:32:00 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
15	MBLK	3/18/2020 1:46:41 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
16	LCS	3/18/2020 2:01:22 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
17	LCSD	3/18/2020 2:16:02 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
18	HS20030390-01DF10	3/18/2020 2:39:12 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
19	HS20030390-02DF10	3/18/2020 2:53:53 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
20	CCV1	3/18/2020 3:08:34 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
21	CCB	3/18/2020 3:30:56 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
22	HS20030402-02DF50	3/18/2020 3:45:37 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
23	CCV	3/18/2020 4:03:47 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
24	CCB	3/18/2020 4:18:28 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
25	MBLK	3/18/2020 5:02:44 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
26	LCS	3/18/2020 5:17:24 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
27	LCSD	3/18/2020 5:32:05 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
28	HS20030293-01DF500	3/18/2020 5:46:46 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
29	HS20030293-02DF500	3/18/2020 6:01:27 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
30	HS20030293-03DF20	3/18/2020 6:16:08 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
31	HS20030293-03MSDF20	3/18/2020 6:30:49 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
32	HS20030293-03MSDDF20	3/18/2020 6:45:30 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
33	HS20030293-04DF50	3/18/2020 7:00:11 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
34	HS20030293-04MSDF50	3/18/2020 7:14:52 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
35	CCV1	3/18/2020 7:29:33 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
36	CCB	3/18/2020 7:44:14 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
37	MBLK	3/18/2020 7:58:55 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
38	LCS	3/18/2020 8:13:35 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
39	LCSD	3/18/2020 8:28:16 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
40	HS20030770-02	3/18/2020 8:42:57 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
41	HS20030770-02DF10	3/18/2020 8:57:38 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
42	HS20030770-03	3/18/2020 9:12:19 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
43	HS20030770-03DF10	3/18/2020 9:26:59 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
44	HS20030770-04	3/18/2020 9:41:40 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00

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Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100 Created: 3/18/2020 9:45:50 AM by alshs.nouser
#Samples: 130 Last Update: 3/19/2020 8:05:18 PM by ALSHS.NoUser

No.	Name	*Final_Volume	GUID
1	STD1	1.00	a64c7a4c-4124-11ea-b6dd-ef8dd1af257a
2	STD2	1.00	b3ab71ec-4126-11ea-b6dd-ef8dd1af257a
3	STD3	1.00	c0c080e4-4128-11ea-b6dd-ef8dd1af257a
4	STD4	1.00	ce5b131c-412a-11ea-b6dd-ef8dd1af257a
5	STD5	1.00	dbabbcac-412c-11ea-b6dd-ef8dd1af257a
6	STD6	1.00	e89d087c-412e-11ea-b6dd-ef8dd1af257a
7	DIH2O	1.00	afed7e10-692e-11ea-b6de-e77a853661cb
8	CCV	1.00	399a0910-6931-11ea-b6de-e77a853661cb
9	CCB	1.00	468e6130-6933-11ea-b6de-e77a853661cb
10	HS20030745-01	1.00	6547a248-6935-11ea-b6de-e77a853661cb
11	HS20030248-07DF10	1.00	ef4c63b6-6937-11ea-b6de-e77a853661cb
12	HS20030248-10DF10	1.00	78cba254-693a-11ea-b6de-e77a853661cb
13	HS20030248-10DF10MS	1.00	14ea0794-6944-11ea-b6de-e77a853661cb
14	HS20030248-10DF10MSD	1.00	9ef12b58-6946-11ea-b6de-e77a853661cb
15	MBLK	1.00	abcdac1c-6948-11ea-b6de-e77a853661cb
16	LCS	1.00	b8c6c8e8-694a-11ea-b6de-e77a853661cb
17	LCSD	1.00	c5b8beb2-694c-11ea-b6de-e77a853661cb
18	HS20030390-01DF10	1.00	852d9bbc-694f-11ea-b6de-e77a853661cb
19	HS20030390-02DF10	1.00	0efde9c6-6952-11ea-b6de-e77a853661cb
20	CCV1	1.00	1bf968e8-6954-11ea-b6de-e77a853661cb
21	CCB	1.00	946db4c2-6956-11ea-b6de-e77a853661cb
22	HS20030402-02DF50	1.00	492a7122-6959-11ea-b6de-e77a853661cb
23	CCV	1.00	56238dee-695b-11ea-b6de-e77a853661cb
24	CCB	1.00	dff63e4e-695d-11ea-b6de-e77a853661cb
25	MBLK	1.00	92223162-6963-11ea-b6de-e77a853661cb
26	LCS	1.00	1bf27f6c-6966-11ea-b6de-e77a853661cb
27	LCSD	1.00	28f9ea3c-6968-11ea-b6de-e77a853661cb
28	HS20030293-01DF500	1.00	362863d6-696a-11ea-b6de-e77a853661cb
29	HS20030293-02DF500	1.00	4311ddac-696c-11ea-b6de-e77a853661cb
30	HS20030293-03DF20	1.00	50123548-696e-11ea-b6de-e77a853661cb
31	HS20030293-03MSDF20	1.00	5d19a018-6970-11ea-b6de-e77a853661cb
32	HS20030293-03MSDDF20	1.00	6a151f3a-6972-11ea-b6de-e77a853661cb
33	HS20030293-04DF50	1.00	7761adc8-6974-11ea-b6de-e77a853661cb
34	HS20030293-04MSDF50	1.00	84b09eac-6976-11ea-b6de-e77a853661cb
35	CCV1	1.00	91a9bb78-6978-11ea-b6de-e77a853661cb
36	CCB	1.00	9ea9ff46-697a-11ea-b6de-e77a853661cb
37	MBLK	1.00	abaa4314-697c-11ea-b6de-e77a853661cb
38	LCS	1.00	b8ace938-697e-11ea-b6de-e77a853661cb
39	LCSD	1.00	c59edf02-6980-11ea-b6de-e77a853661cb
40	HS20030770-02	1.00	d28286c8-6982-11ea-b6de-e77a853661cb
41	HS20030770-02DF10	1.00	dfc7ee54-6984-11ea-b6de-e77a853661cb
42	HS20030770-03	1.00	ecc10b20-6986-11ea-b6de-e77a853661cb
43	HS20030770-03DF10	1.00	f9ba27ec-6988-11ea-b6de-e77a853661cb
44	HS20030770-04	1.00	06b0e262-698b-11ea-b6de-e77a853661cb

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Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100
#Samples: 130
Created: 3/18/2020 9:45:50 AM by alshs.nouser
Last Update: 3/19/2020 8:05:18 PM by ALSHS.NoUser

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
45	HS20030770-04DF10		Unknown	56	10.0000	012720	Finished
46	HS20030770-05		Unknown	57	1.0000	012720	Finished
47	CCV		Unknown	83	1.0000	012720	Finished
48	CCB		Unknown	84	1.0000	012720	Finished
49	HS20030770-05DF10		Unknown	58	10.0000	012720	Finished
50	HS20030770-06		Unknown	59	1.0000	012720	Finished
51	HS20030770-06DF10		Unknown	60	10.0000	012720	Finished
52	HS20030771-02		Unknown	61	1.0000	012720	Finished
53	HS20030771-02DF10		Unknown	62	10.0000	012720	Finished
54	HS20030771-03		Unknown	63	1.0000	012720	Finished
55	HS20030771-03DF10		Unknown	64	10.0000	012720	Finished
56	HS20030771-04		Unknown	65	1.0000	012720	Finished
57	HS20030771-04DF10		Unknown	66	10.0000	012720	Finished
58	HS20030771-05		Unknown	67	1.0000	012720	Finished
59	CCV1		Unknown	16	1.0000	012720	Finished
60	CCB		Unknown	17	1.0000	012720	Finished
61	HS20030771-05DF10		Unknown	68	10.0000	012720	Finished
62	HS20030774-01		Unknown	69	1.0000	012720	Finished
63	HS20030774-01DF10		Unknown	70	10.0000	012720	Finished
64	HS20030796-01		Unknown	80	1.0000	012720	Finished
65	HS20030796-01DF5		Unknown	81	5.0000	012720	Finished
66	HS20030796-01DF50		Unknown	82	50.0000	012720	Finished
67	HS20030795-02		Unknown	71	1.0000	012720	Finished
68	HS20030795-03		Unknown	72	1.0000	012720	Finished
69	HS20030795-04		Unknown	73	1.0000	012720	Finished
70	HS20030795-05		Unknown	74	1.0000	012720	Finished
71	CCV		Unknown	83	1.0000	012720	Finished
72	CCB		Unknown	84	1.0000	012720	Finished
73	HS20030795-06MS		Unknown	76	1.0000	012720	Finished
74	HS20030795-06MSD		Unknown	77	1.0000	012720	Finished
75	HS20030771-04MS		Unknown	78	10.0000	012720	Finished
76	HS20030771-04MSD		Unknown	79	10.0000	012720	Finished
77	HS20030293-05DF500		Unknown	29	500.0000	012720	Finished
78	HS20030293-06DF500		Unknown	30	500.0000	012720	Finished
79	HS20030293-07DF500		Unknown	31	500.0000	012720	Finished
80	HS20030293-08DF100		Unknown	32	100.0000	012720	Finished
81	HS20030293-08DF500		Unknown	33	500.0000	012720	Finished
82	HS20030293-09DF500		Unknown	34	500.0000	012720	Finished
83	CCV1		Unknown	16	1.0000	012720	Finished
84	CCB		Unknown	17	1.0000	012720	Finished
85	HS20030293-11DF500		Unknown	36	500.0000	012720	Finished
86	HS20030293-12DF50		Unknown	37	50.0000	012720	Finished
87	HS20030293-12DF500		Unknown	38	500.0000	012720	Finished
88	HS20030293-13DF50		Unknown	39	50.0000	012720	Finished

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Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100
#Samples: 130
Created: 3/18/2020 9:45:50 AM by alshs.nouser
Last Update: 3/19/2020 8:05:18 PM by ALSHS.NoUser

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
45	HS20030770-04DF10	3/18/2020 9:56:22 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
46	HS20030770-05	3/18/2020 10:11:02 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
47	CCV	3/18/2020 10:25:43 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
48	CCB	3/18/2020 10:40:24 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
49	HS20030770-05DF10	3/18/2020 10:55:05 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
50	HS20030770-06	3/18/2020 11:09:47 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
51	HS20030770-06DF10	3/18/2020 11:24:27 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
52	HS20030771-02	3/18/2020 11:39:08 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
53	HS20030771-02DF10	3/18/2020 11:53:49 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
54	HS20030771-03	3/19/2020 12:08:30 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
55	HS20030771-03DF10	3/19/2020 12:23:10 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
56	HS20030771-04	3/19/2020 12:37:51 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
57	HS20030771-04DF10	3/19/2020 12:52:33 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
58	HS20030771-05	3/19/2020 1:07:13 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
59	CCV1	3/19/2020 1:21:55 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
60	CCB	3/19/2020 1:36:35 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
61	HS20030771-05DF10	3/19/2020 1:51:16 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
62	HS20030774-01	3/19/2020 2:05:57 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
63	HS20030774-01DF10	3/19/2020 2:20:38 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
64	HS20030796-01	3/19/2020 2:35:19 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
65	HS20030796-01DF5	3/19/2020 2:50:01 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
66	HS20030796-01DF50	3/19/2020 3:04:42 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
67	HS20030795-02	3/19/2020 3:19:23 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
68	HS20030795-03	3/19/2020 3:34:03 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
69	HS20030795-04	3/19/2020 3:48:44 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
70	HS20030795-05	3/19/2020 4:03:25 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
71	CCV	3/19/2020 4:18:06 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
72	CCB	3/19/2020 4:32:47 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
73	HS20030795-06MS	3/19/2020 4:47:28 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
74	HS20030795-06MSD	3/19/2020 5:02:09 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
75	HS20030771-04MS	3/19/2020 5:16:50 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
76	HS20030771-04MSD	3/19/2020 5:31:31 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
77	HS20030293-05DF500	3/19/2020 5:46:11 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
78	HS20030293-06DF500	3/19/2020 6:00:52 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
79	HS20030293-07DF500	3/19/2020 6:15:33 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
80	HS20030293-08DF100	3/19/2020 6:30:13 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
81	HS20030293-08DF500	3/19/2020 6:44:54 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
82	HS20030293-09DF500	3/19/2020 6:59:35 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
83	CCV1	3/19/2020 7:14:16 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
84	CCB	3/19/2020 7:28:57 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
85	HS20030293-11DF500	3/19/2020 7:43:39 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
86	HS20030293-12DF50	3/19/2020 7:58:20 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
87	HS20030293-12DF500	3/19/2020 8:13:00 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
88	HS20030293-13DF50	3/19/2020 8:27:41 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00

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Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100 Created: 3/18/2020 9:45:50 AM by alshs.nouser
#Samples: 130 Last Update: 3/19/2020 8:05:18 PM by ALSHS.NoUser

No.	Name	*Final_Volume	GUID
45	HS20030770-04DF10	1.00	13ac6184-698d-11ea-b6de-e77a853661cb
46	HS20030770-05	1.00	20fdb4be-698f-11ea-b6de-e77a853661cb
47	CCV	1.00	2e005ae2-6991-11ea-b6de-e77a853661cb
48	CCB	1.00	3af977ae-6993-11ea-b6de-e77a853661cb
49	HS20030770-05DF10	1.00	47f2947a-6995-11ea-b6de-e77a853661cb
50	HS20030770-06	1.00	5541855e-6997-11ea-b6de-e77a853661cb
51	HS20030770-06DF10	1.00	6292d898-6999-11ea-b6de-e77a853661cb
52	HS20030771-02	1.00	6f931c66-699b-11ea-b6de-e77a853661cb
53	HS20030771-02DF10	1.00	7c8c3932-699d-11ea-b6de-e77a853661cb
54	HS20030771-03	1.00	8987b854-699f-11ea-b6de-e77a853661cb
55	HS20030771-03DF10	1.00	96833776-69a1-11ea-b6de-e77a853661cb
56	HS20030771-04	1.00	a38f66f2-69a3-11ea-b6de-e77a853661cb
57	HS20030771-04DF10	1.00	b0730eb8-69a5-11ea-b6de-e77a853661cb
58	HS20030771-05	1.00	bdcb88f4-69a7-11ea-b6de-e77a853661cb
59	CCV1	1.00	cac2436a-69a9-11ea-b6de-e77a853661cb
60	CCB	1.00	d80c6fa2-69ab-11ea-b6de-e77a853661cb
61	HS20030771-05DF10	1.00	e4fc0316-69ad-11ea-b6de-e77a853661cb
62	HS20030774-01	1.00	f1f2bd8c-69af-11ea-b6de-e77a853661cb
63	HS20030774-01DF10	1.00	fef09f04-69b1-11ea-b6de-e77a853661cb
64	HS20030796-01	1.00	0c3d2d92-69b4-11ea-b6de-e77a853661cb
65	HS20030796-01DF5	1.00	19b8fc58-69b6-11ea-b6de-e77a853661cb
66	HS20030796-01DF50	1.00	270cb2ea-69b8-11ea-b6de-e77a853661cb
67	HS20030795-02	1.00	340d35d4-69ba-11ea-b6de-e77a853661cb
68	HS20030795-03	1.00	40f33ff0-69bc-11ea-b6de-e77a853661cb
69	HS20030795-04	1.00	4de79810-69be-11ea-b6de-e77a853661cb
70	HS20030795-05	1.00	5aea3e34-69c0-11ea-b6de-e77a853661cb
71	CCV	1.00	68392f18-69c2-11ea-b6de-e77a853661cb
72	CCB	1.00	754099e8-69c4-11ea-b6de-e77a853661cb
73	HS20030795-06MS	1.00	822dcb06-69c6-11ea-b6de-e77a853661cb
74	HS20030795-06MSD	1.00	8f26e7d2-69c8-11ea-b6de-e77a853661cb
75	HS20030771-04MS	1.00	9c783b0c-69ca-11ea-b6de-e77a853661cb
76	HS20030771-04MSD	1.00	a97157d8-69cc-11ea-b6de-e77a853661cb
77	HS20030293-05DF500	1.00	b668124e-69ce-11ea-b6de-e77a853661cb
78	HS20030293-06DF500	1.00	c368561c-69d0-11ea-b6de-e77a853661cb
79	HS20030293-07DF500	1.00	d0499b8c-69d2-11ea-b6de-e77a853661cb
80	HS20030293-08DF100	1.00	dd451aae-69d4-11ea-b6de-e77a853661cb
81	HS20030293-08DF500	1.00	ea3bd524-69d6-11ea-b6de-e77a853661cb
82	HS20030293-09DF500	1.00	f7290642-69d8-11ea-b6de-e77a853661cb
83	CCV1	1.00	041afc0c-69db-11ea-b6de-e77a853661cb
84	CCB	1.00	115e0142-69dd-11ea-b6de-e77a853661cb
85	HS20030293-11DF500	1.00	1eaa8fd0-69df-11ea-b6de-e77a853661cb
86	HS20030293-12DF50	1.00	2c13ba66-69e1-11ea-b6de-e77a853661cb
87	HS20030293-12DF500	1.00	38fc26d8-69e3-11ea-b6de-e77a853661cb
88	HS20030293-13DF50	1.00	45f07ef8-69e5-11ea-b6de-e77a853661cb

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Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100
#Samples: 130
Created: 3/18/2020 9:45:50 AM by alshs.nouser
Last Update: 3/19/2020 8:05:18 PM by ALSHS.NoUser

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
89	HS20030293-14DF10		Unknown	40	10.0000	012720	Finished
90	HS20030293-14DF20		Unknown	41	20.0000	012720	Finished
91	HS20030293-15DF20		Unknown	42	20.0000	012720	Finished
92	HS20030293-15DF50		Unknown	43	50.0000	012720	Finished
93	HS20030293-16		Unknown	44	1.0000	012720	Finished
94	HS20030293-17DF50		Unknown	45	50.0000	012720	Finished
95	CCV		Unknown	83	1.0000	012720	Finished
96	CCB		Unknown	84	1.0000	012720	Finished
97	HS20030544-01DF500		Unknown	47	500.0000	012720	Finished
98	HS20030458-03	end	Unknown	85	1.0000	012720	Finished
99	MBLK-151817		Unknown	86	1.0000	012720	Finished
100	LCS-151817		Unknown	87	1.0000	012720	Finished
101	LCSD-151817		Unknown	88	1.0000	012720	Finished
102	HS20030505-01		Unknown	89	1.0000	012720	Finished
103	HS20030505-02		Unknown	90	1.0000	012720	Finished
104	HS20030505-03		Unknown	91	1.0000	012720	Finished
105	HS20030505-04		Unknown	92	1.0000	012720	Finished
106	HS20030505-05		Unknown	93	1.0000	012720	Finished
107	CCV1		Unknown	16	1.0000	012720	Finished
108	CCB		Unknown	17	1.0000	012720	Finished
109	HS20030505-06		Unknown	94	1.0000	012720	Finished
110	HS20030563-11		Unknown	95	1.0000	012720	Finished
111	HS20030563-11MS		Unknown	96	1.0000	012720	Finished
112	HS20030563-11MSD		Unknown	97	1.0000	012720	Finished
113	CCV		Unknown	83	1.0000	012720	Finished
114	CCB		Unknown	84	1.0000	012720	Finished
115	HS20030563-01	DUE 03/20	Unknown	11	1.0000	012720	Finished
116	HS20030563-02	DUE 03/20	Unknown	12	1.0000	012720	Finished
117	HS20030563-03	DUE 03/20	Unknown	13	1.0000	012720	Finished
118	HS20030563-04	DUE 03/20	Unknown	14	1.0000	012720	Finished
119	HS20030563-05	DUE 03/20	Unknown	15	1.0000	012720	Finished
120	HS20030563-06	DUE 03/20	Unknown	16	1.0000	012720	Finished
121	HS20030563-07	DUE 03/20	Unknown	17	1.0000	012720	Finished
122	HS20030563-08	DUE 03/20	Unknown	18	1.0000	012720	Finished
123	HS20030563-09	DUE 03/20	Unknown	19	1.0000	012720	Finished
124	HS20030563-10	DUE 03/20	Unknown	20	1.0000	012720	Finished
125	CCV1		Unknown	97	1.0000	012720	Finished
126	CCB		Unknown	98	1.0000	012720	Finished
127	HS20030795-06		Unknown	75	1.0000	012720	Finished
128	HS20030293-10DF500		Unknown	11	500.0000	012720	Finished
129	CCV		Unknown	99	1.0000	012720	Finished
130	CCB		Unknown	100	1.0000	012720	Finished

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Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100
#Samples: 130

Created: 3/18/2020 9:45:50 AM by alshs.nouser
Last Update: 3/19/2020 8:05:18 PM by ALSHS.NoUser

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
89	HS20030293-14DF10	3/19/2020 8:42:22 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
90	HS20030293-14DF20	3/19/2020 8:57:03 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
91	HS20030293-15DF20	3/19/2020 9:11:44 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
92	HS20030293-15DF50	3/19/2020 9:26:25 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
93	HS20030293-16	3/19/2020 9:41:06 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
94	HS20030293-17DF50	3/19/2020 9:55:47 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
95	CCV	3/19/2020 10:38:11 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
96	CCB	3/19/2020 10:52:52 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
97	HS20030544-01DF500	3/19/2020 11:07:33 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
98	HS20030458-03	3/19/2020 11:22:15 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
99	MBLK-151817	3/19/2020 11:36:55 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
100	LCS-151817	3/19/2020 11:51:36 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
101	LCSD-151817	3/19/2020 12:06:17 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
102	HS20030505-01	3/19/2020 12:20:58 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
103	HS20030505-02	3/19/2020 12:35:38 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
104	HS20030505-03	3/19/2020 12:50:19 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
105	HS20030505-04	3/19/2020 1:05:00 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
106	HS20030505-05	3/19/2020 1:19:41 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
107	CCV1	3/19/2020 1:34:22 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
108	CCB	3/19/2020 1:49:03 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
109	HS20030505-06	3/19/2020 2:03:44 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
110	HS20030563-11	3/19/2020 2:18:24 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
111	HS20030563-11MS	3/19/2020 2:33:05 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
112	HS20030563-11MSD	3/19/2020 2:47:46 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
113	CCV	3/19/2020 3:02:27 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
114	CCB	3/19/2020 3:17:08 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
115	HS20030563-01	3/19/2020 4:14:28 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
116	HS20030563-02	3/19/2020 4:29:04 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
117	HS20030563-03	3/19/2020 4:43:45 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
118	HS20030563-04	3/19/2020 4:58:26 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
119	HS20030563-05	3/19/2020 5:13:07 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
120	HS20030563-06	3/19/2020 5:27:47 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
121	HS20030563-07	3/19/2020 5:42:29 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
122	HS20030563-08	3/19/2020 6:09:59 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
123	HS20030563-09	3/19/2020 6:24:40 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
124	HS20030563-10	3/19/2020 6:39:21 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
125	CCV1	3/19/2020 6:54:02 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
126	CCB	3/19/2020 7:08:43 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
127	HS20030795-06	3/19/2020 7:23:24 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
128	HS20030293-10DF500	3/19/2020 7:38:05 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
129	CCV	3/19/2020 8:09:47 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
130	CCB	3/19/2020 8:24:28 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00

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Title:
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Location: ICS2100\Sequences and Data\2020
Timebase: ICS2100
#Samples: 130

Created: 3/18/2020 9:45:50 AM by alshs.nouser
Last Update: 3/19/2020 8:05:18 PM by ALSHS.NoUser

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91	HS20030293-15DF20	1.00	6d556c7e-69eb-11ea-b6de-e77a853661cb
92	HS20030293-15DF50	1.00	7a429d9c-69ed-11ea-b6de-e77a853661cb
93	HS20030293-16	1.00	878cc9d4-69ef-11ea-b6de-e77a853661cb
94	HS20030293-17DF50	1.00	948121f4-69f1-11ea-b6de-e77a853661cb
95	CCV	1.00	91b0006c-69f6-11ea-b6de-e77a853661cb
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97	HS20030544-01DF500	1.00	9b22c352-69fb-11ea-b6de-e77a853661cb
98	HS20030458-03	1.00	a87b3d8e-69fd-11ea-b6de-e77a853661cb
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100	LCS-151817	1.00	c2ab73e2-6a01-11ea-b6de-e77a853661cb
101	LCSD-151817	1.00	cfa22e58-6a03-11ea-b6de-e77a853661cb
102	HS20030505-01	1.00	dc942422-6a05-11ea-b6de-e77a853661cb
103	HS20030505-02	1.00	e992059a-6a07-11ea-b6de-e77a853661cb
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106	HS20030505-05	1.00	107fbe54-6a0e-11ea-b6de-e77a853661cb
107	CCV1	1.00	1dc9ea8c-6a10-11ea-b6de-e77a853661cb
108	CCB	1.00	2adadeb4-6a12-11ea-b6de-e77a853661cb
109	HS20030505-06	1.00	37ca7228-6a14-11ea-b6de-e77a853661cb
110	HS20030563-11	1.00	44c5f14a-6a16-11ea-b6de-e77a853661cb
111	HS20030563-11MS	1.00	51bf0e16-6a18-11ea-b6de-e77a853661cb
112	HS20030563-11MSD	1.00	5ecb3d92-6a1a-11ea-b6de-e77a853661cb
113	CCV	1.00	6bc91f0a-6a1c-11ea-b6de-e77a853661cb
114	CCB	1.00	78b65028-6a1e-11ea-b6de-e77a853661cb
115	HS20030563-01	1.00	03a382bc-6a26-11ea-b6df-9757c8937f32
116	HS20030563-02	1.00	859ce880-6a28-11ea-b6df-9757c8937f32
117	HS20030563-03	1.00	9270f437-6a2a-11ea-b6df-9757c8937f32
118	HS20030563-04	1.00	9f4ea6e3-6a2c-11ea-b6df-9757c8937f32
119	HS20030563-05	1.00	ac9e0af4-6a2e-11ea-b6df-9757c8937f32
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121	HS20030563-07	1.00	c69b0c3c-6a32-11ea-b6df-9757c8937f32
122	HS20030563-08	1.00	b0728caf-6a35-11ea-b6df-9757c8937f32
123	HS20030563-09	1.00	aba5e78a-6a38-11ea-b6df-9757c8937f32
124	HS20030563-10	1.00	b8e8e811-6a3a-11ea-b6df-9757c8937f32
125	CCV1	1.00	c5ea8da8-6a3c-11ea-b6df-9757c8937f32
126	CCB	1.00	d2d7234a-6a3e-11ea-b6df-9757c8937f32
127	HS20030795-06	1.00	e0375ca3-6a40-11ea-b6df-9757c8937f32
128	HS20030293-10DF500	1.00	ed28d62b-6a42-11ea-b6df-9757c8937f32
129	CCV	1.00	ddf6dd7c-6a46-11ea-b6df-9757c8937f32
130	CCB	1.00	680bde99-6a49-11ea-b6df-9757c8937f32

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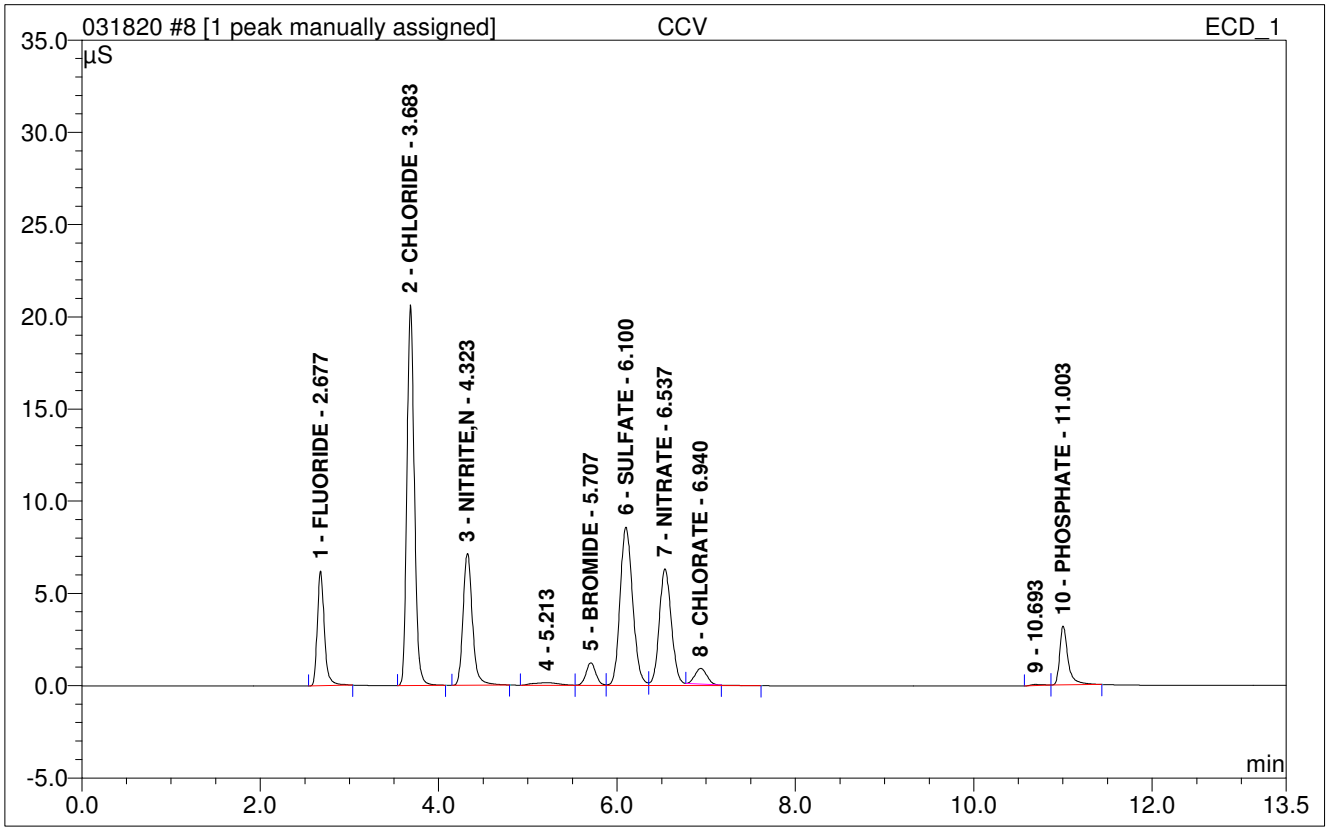
8 CCV

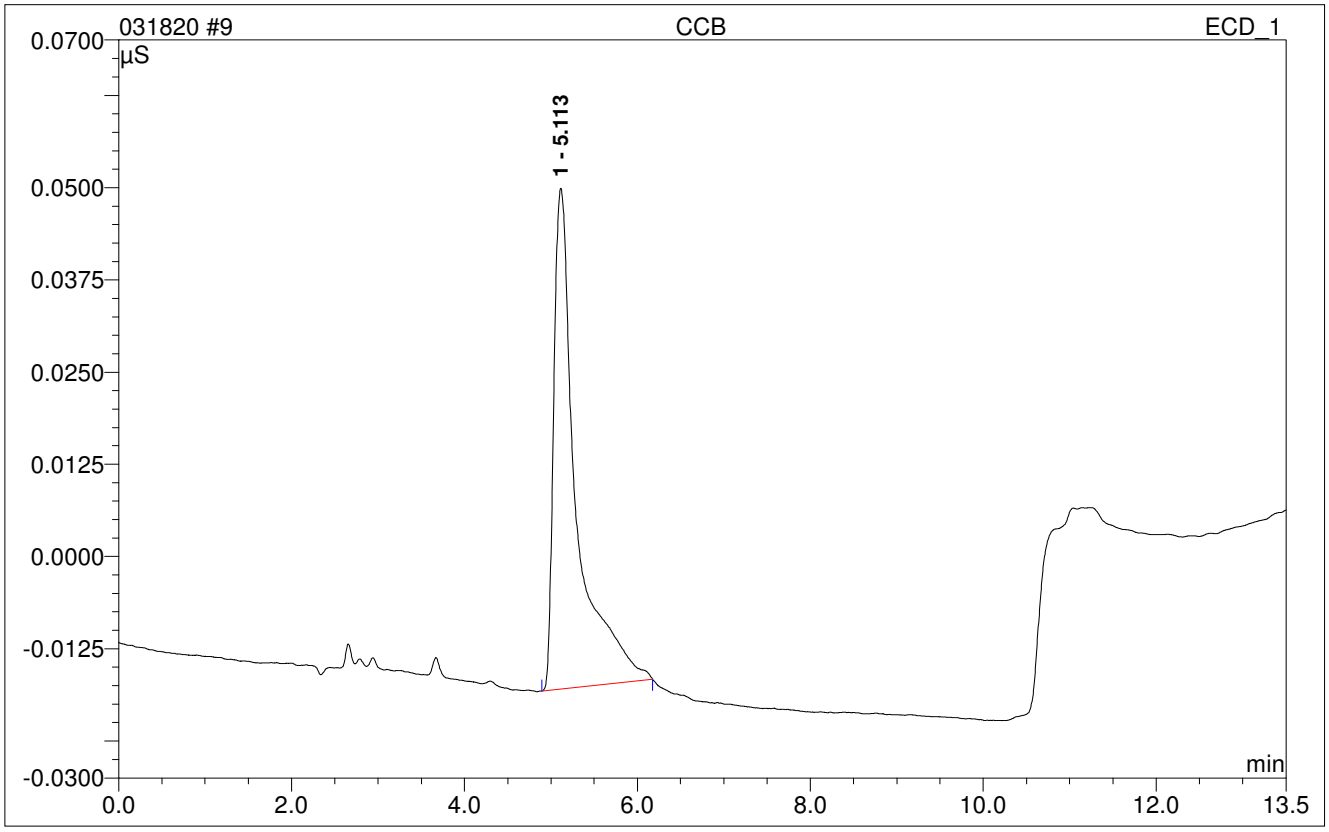
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**83**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**3/18/2020 10:58**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.68	FLUORIDE	6.219	0.568	8.70	4.084	1.
2	3.68	CHLORIDE	20.647	1.978	30.27	20.073	1.
3	4.32	NITRITE,N	7.145	0.866	13.25	4.255	1.
5	5.71	BROMIDE	1.225	0.156	2.39	3.845	1.
6	6.10	SULFATE	8.580	1.404	21.49	19.897	1.
7	6.54	NITRATE	6.331	1.032	15.80	3.905	1.
8	6.94	CHLORATE	0.853	0.132	2.01	4.155	1.
10	11.00	PHOSPHATE	3.177	0.342	5.24	3.652	1.
Total:			54.177	6.479	99.16	63.867	

9 CCB

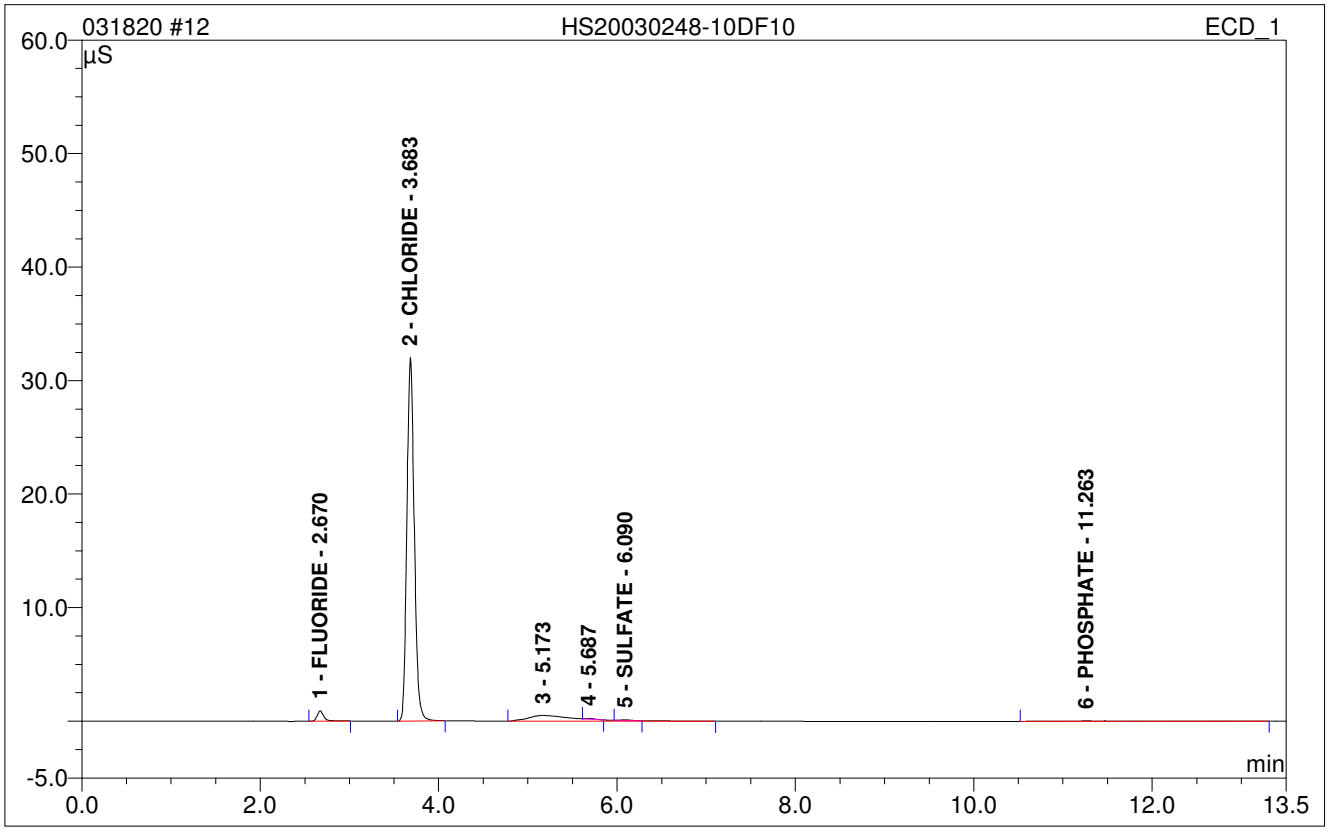
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**84**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**3/18/2020 11:13**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

12 HS20030248-10DF10

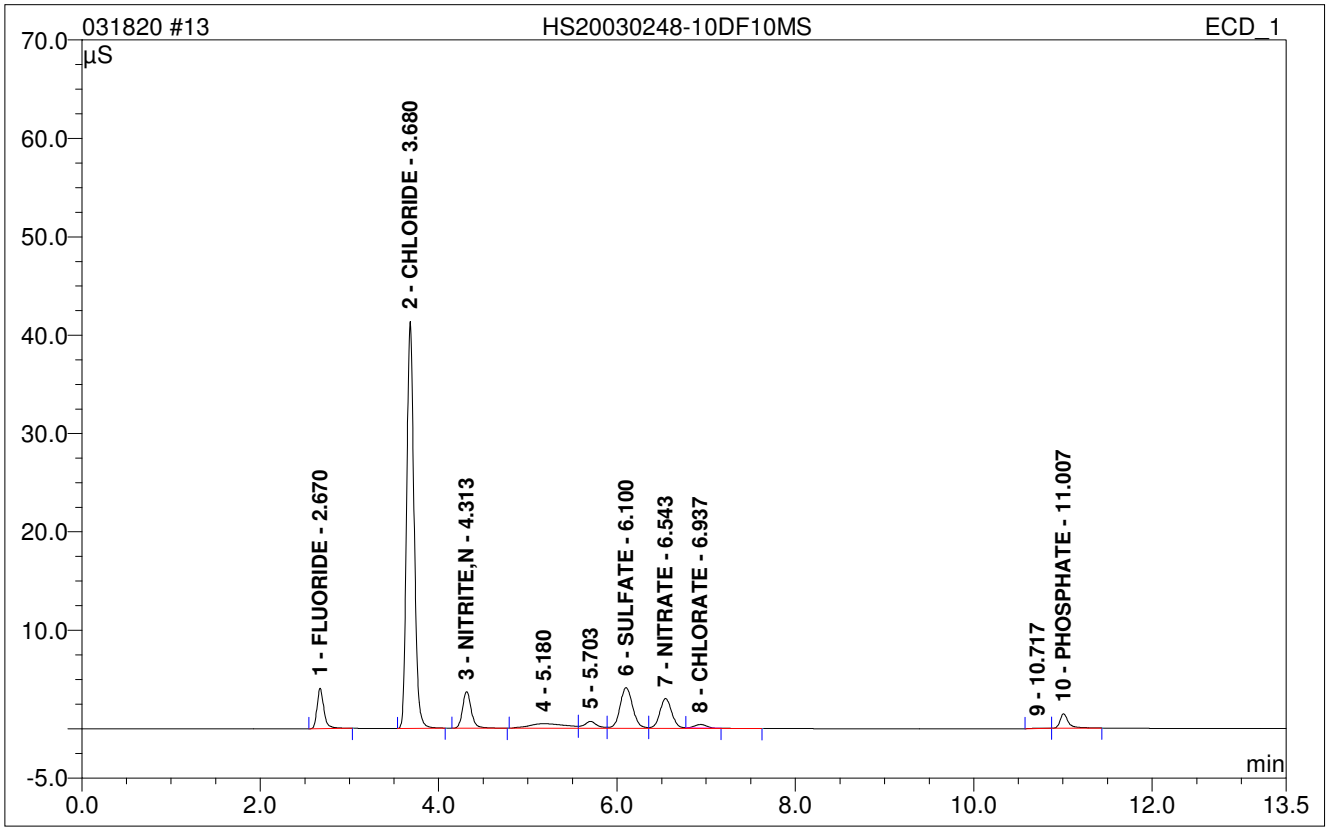
Sample Name:	**HS20030248-10DF10**	*Injection Volume:*	**10.0**
Vial Number:	**52**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**10.**
Recording Time:	**3/18/2020 12:05**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.67	FLUORIDE	0.914	0.080	2.28	6.559	10.
2	3.68	CHLORIDE	32.013	3.065	86.98	310.010	10.
5	6.09	SULFATE	0.047	0.007	0.19	2.887	10.
6	11.26	PHOSPHATE	0.025	0.032	0.91	-1.424	10.
Total:			32.999	3.184	90.36	318.032	

13 HS20030248-10DF10MS

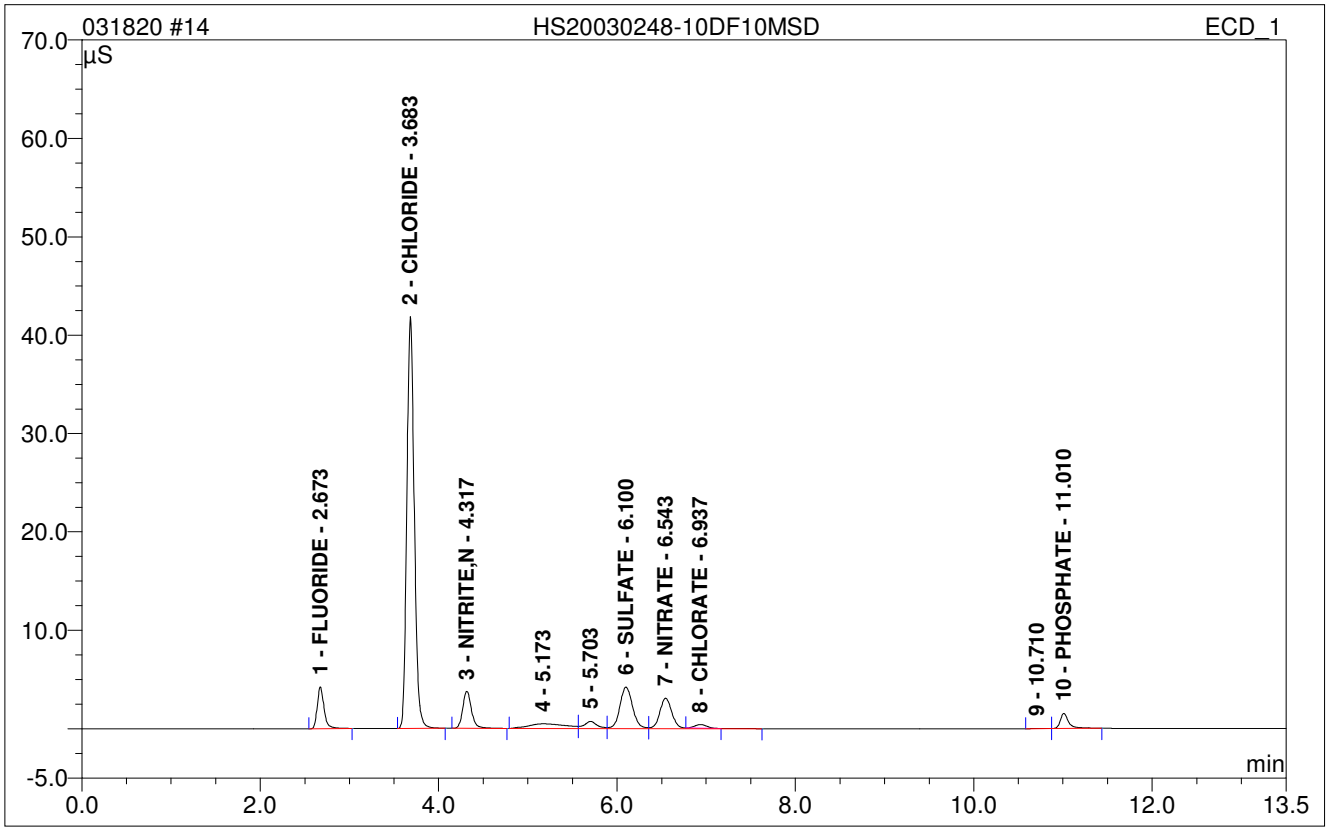
Sample Name:	**HS20030248-10DF10MS**	*Injection Volume:*	**10.0**
Vial Number:	**11**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**10.**
Recording Time:	**3/18/2020 13:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.67	FLUORIDE	4.097	0.363	5.60	26.396	10.
2	3.68	CHLORIDE	41.377	3.958	61.09	399.854	10.
3	4.31	NITRITE,N	3.702	0.422	6.51	20.989	10.
6	6.10	SULFATE	4.145	0.681	10.51	97.497	10.
7	6.54	NITRATE	3.040	0.497	7.67	18.900	10.
8	6.94	CHLORATE	0.353	0.054	0.84	17.672	10.
10	11.01	PHOSPHATE	1.453	0.158	2.44	13.954	10.
Total:			58.167	6.133	94.66	595.262	

14 HS20030248-10DF10MSD

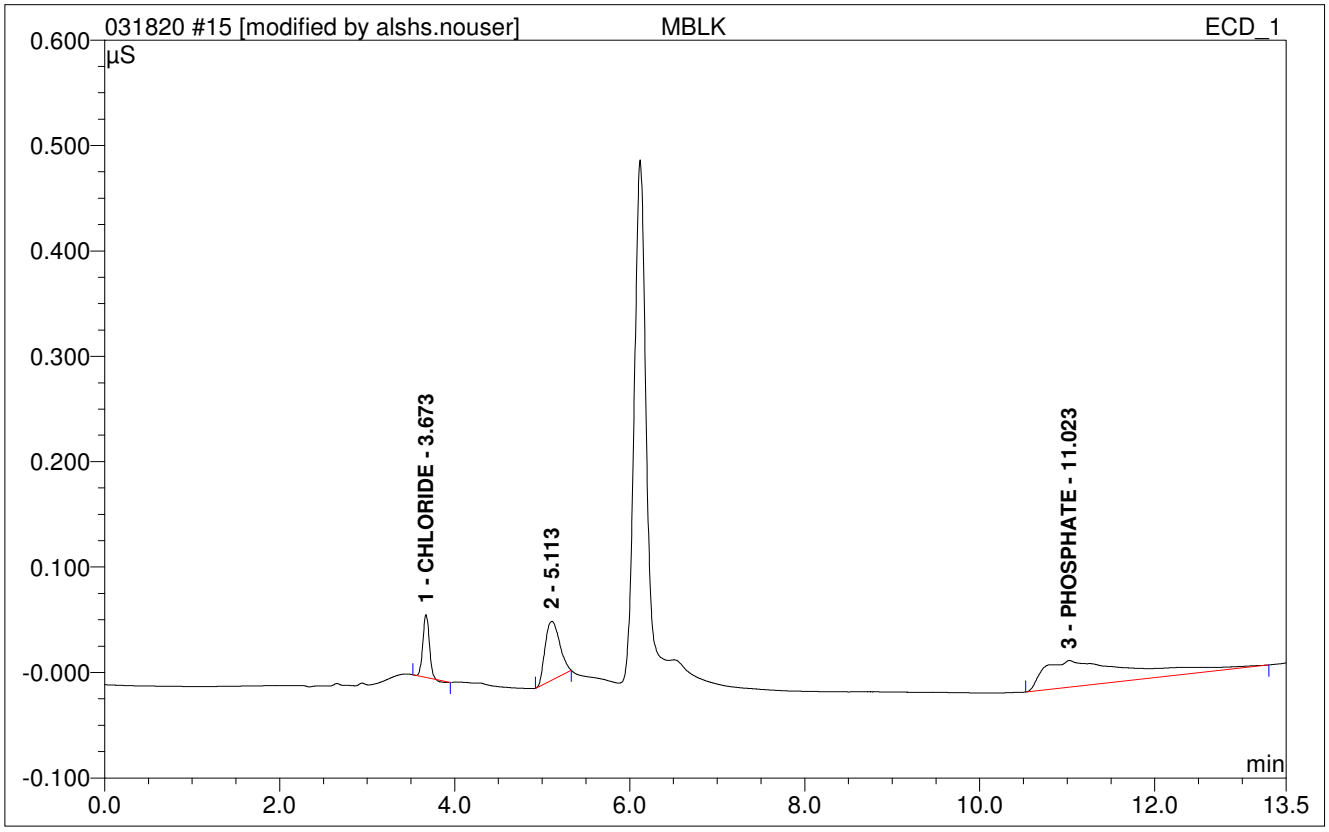
Sample Name:	**HS20030248-10DF10MSD**	*Injection Volume:*	**10.0**
Vial Number:	**12**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**10.**
Recording Time:	**3/18/2020 13:32**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.67	FLUORIDE	4.255	0.377	5.72	27.384	10.
2	3.68	CHLORIDE	41.872	4.020	61.00	406.013	10.
3	4.32	NITRITE,N	3.754	0.429	6.52	21.356	10.
6	6.10	SULFATE	4.216	0.691	10.49	98.940	10.
7	6.54	NITRATE	3.086	0.504	7.65	19.167	10.
8	6.94	CHLORATE	0.362	0.056	0.85	18.111	10.
10	11.01	PHOSPHATE	1.520	0.164	2.48	14.663	10.
Total:			59.065	6.241	94.71	605.635	

15 MBLK

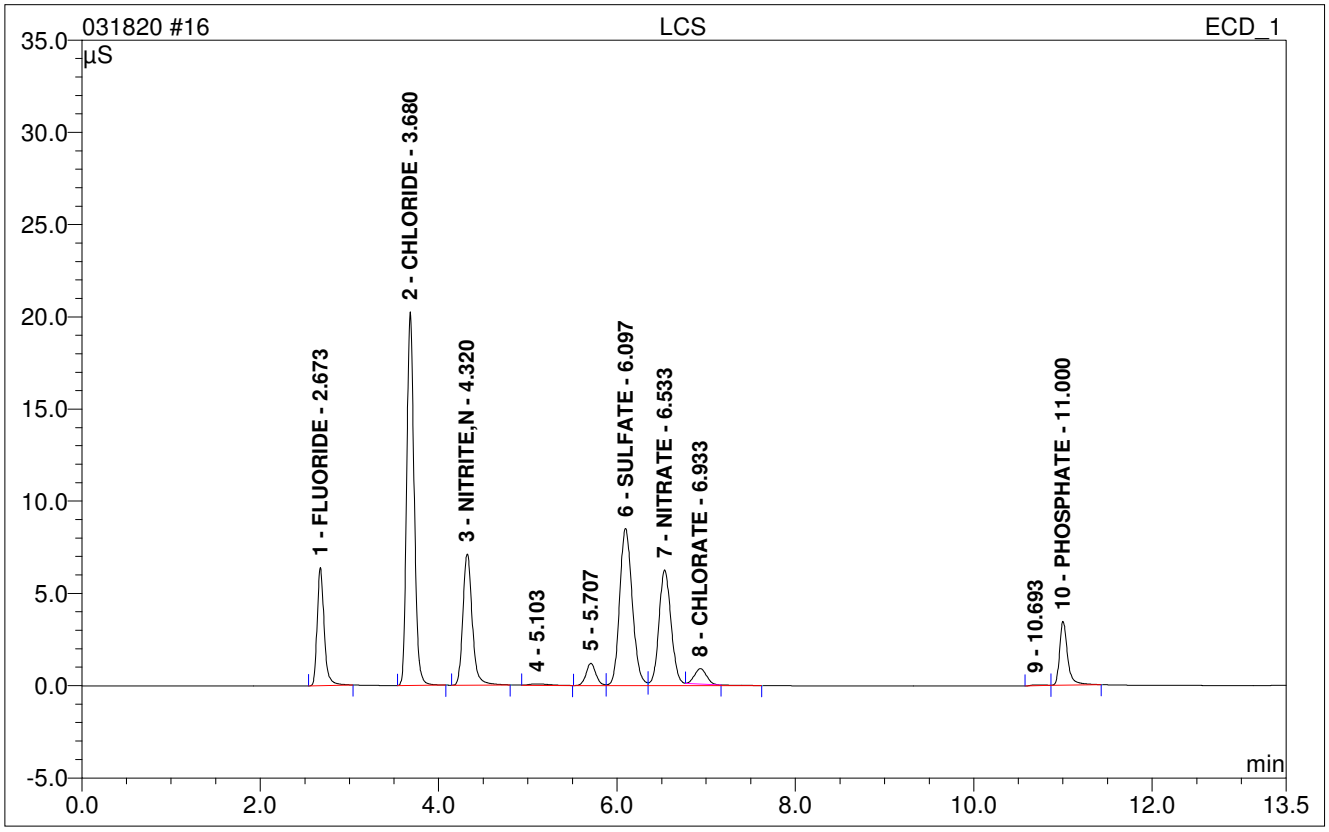
Sample Name:	**MBLK**	*Injection Volume:*	**10.0**
Vial Number:	**13**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**3/18/2020 13:46**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	3.67	CHLORIDE	0.060	0.005	11.13	0.234	1.
3	11.02	PHOSPHATE	0.025	0.029	64.86	-0.181	1.
Total:			0.085	0.034	75.99	0.053	

16 LCS

Sample Name:	**LCS**	*Injection Volume:*	**10.0**
Vial Number:	**14**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**3/18/2020 14:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.67	FLUORIDE	6.399	0.580	8.96	4.162	1.
2	3.68	CHLORIDE	20.256	1.943	30.03	19.721	1.
3	4.32	NITRITE,N	7.105	0.862	13.32	4.236	1.
6	6.10	SULFATE	8.513	1.397	21.58	19.789	1.
7	6.53	NITRATE	6.267	1.029	15.91	3.895	1.
8	6.93	CHLORATE	0.831	0.128	1.98	4.047	1.
10	11.00	PHOSPHATE	3.447	0.355	5.49	3.808	1.
Total:			52.819	6.294	97.27	59.658	

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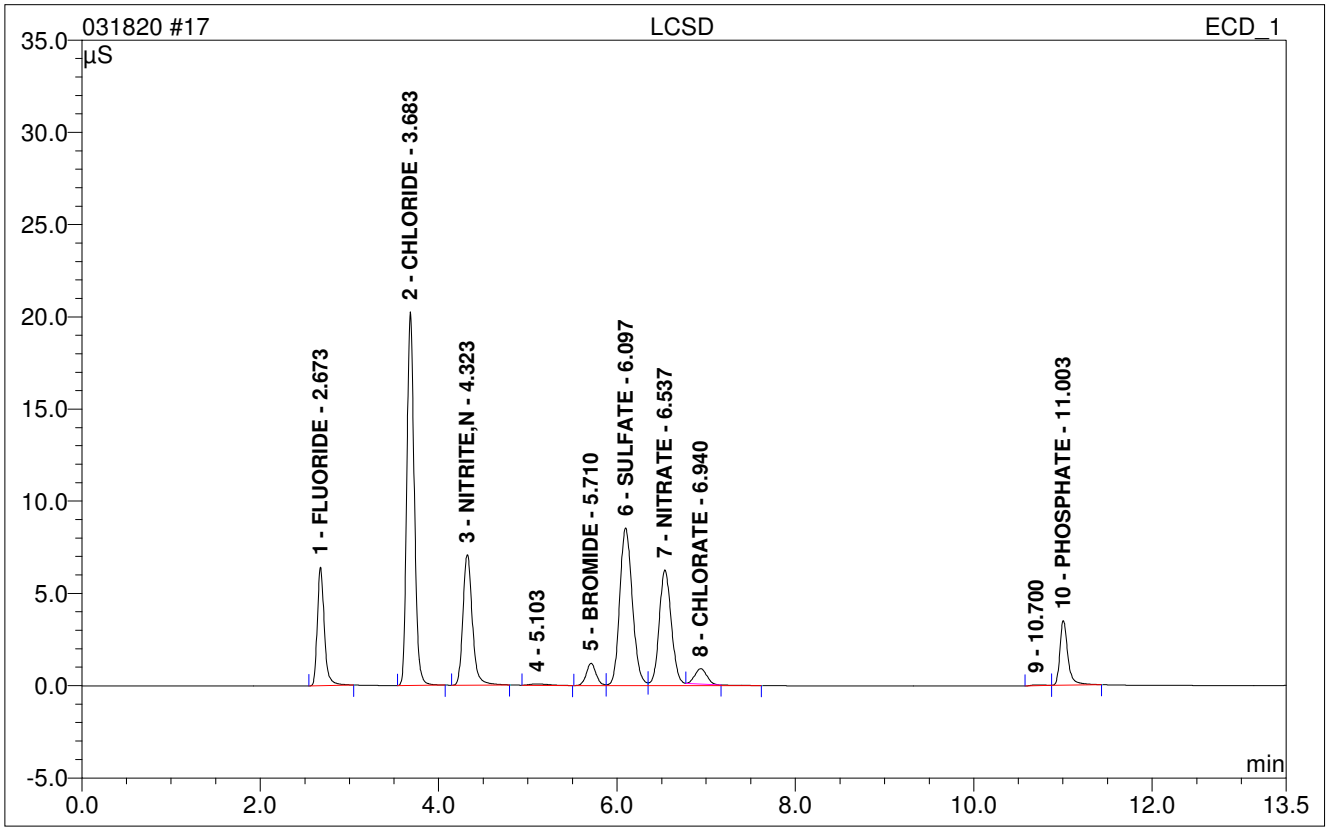
17 LCSD

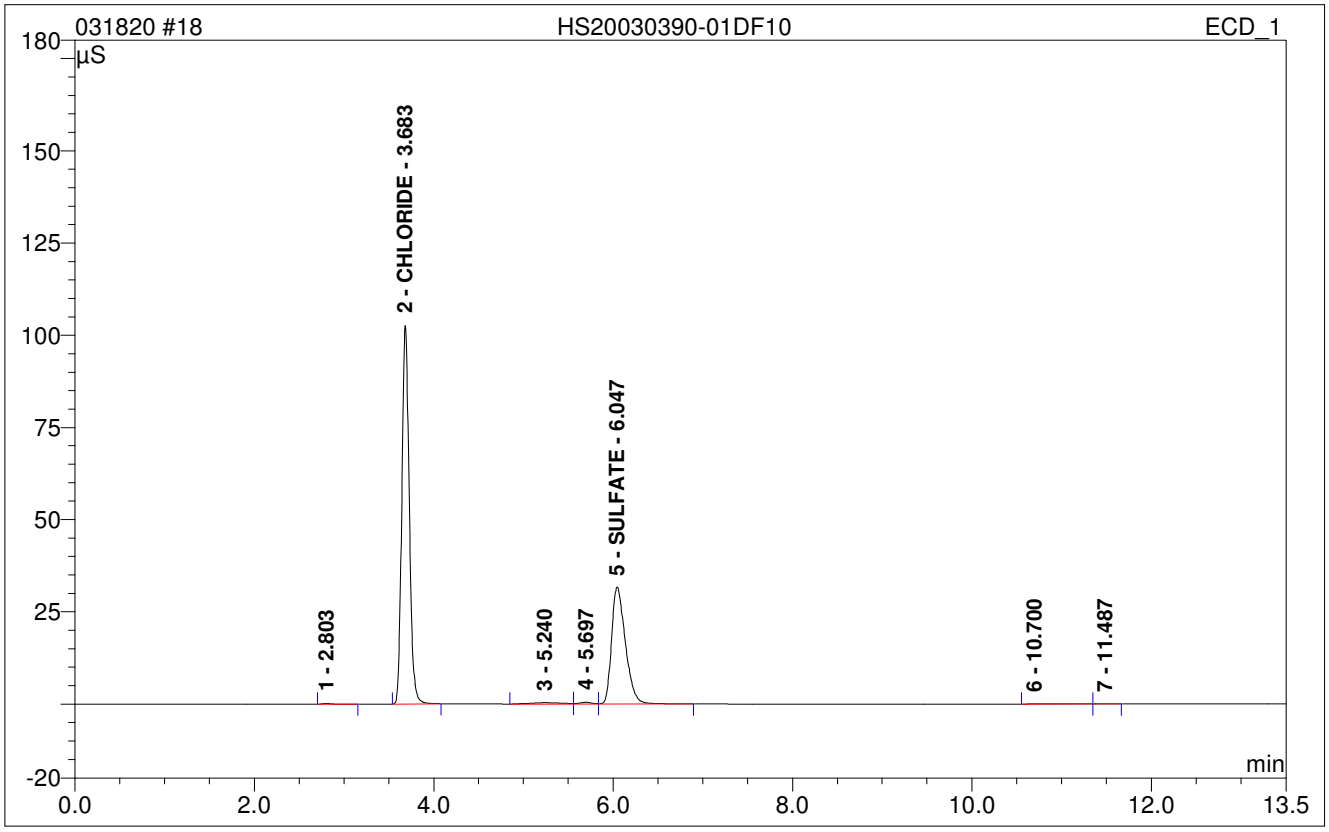
Sample Name:	**LCSD**	*Injection Volume:*	**10.0**
Vial Number:	**15**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**3/18/2020 14:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.67	FLUORIDE	6.426	0.582	8.98	4.180	1.
2	3.68	CHLORIDE	20.266	1.942	29.98	19.715	1.
3	4.32	NITRITE,N	7.070	0.862	13.30	4.236	1.
5	5.71	BROMIDE	1.206	0.153	2.36	3.757	1.
6	6.10	SULFATE	8.538	1.401	21.62	19.845	1.
7	6.54	NITRATE	6.266	1.030	15.90	3.897	1.
8	6.94	CHLORATE	0.830	0.128	1.97	4.044	1.
10	11.00	PHOSPHATE	3.490	0.359	5.53	3.852	1.
Total:			54.091	6.456	99.64	63.527	

18 HS20030390-01DF10

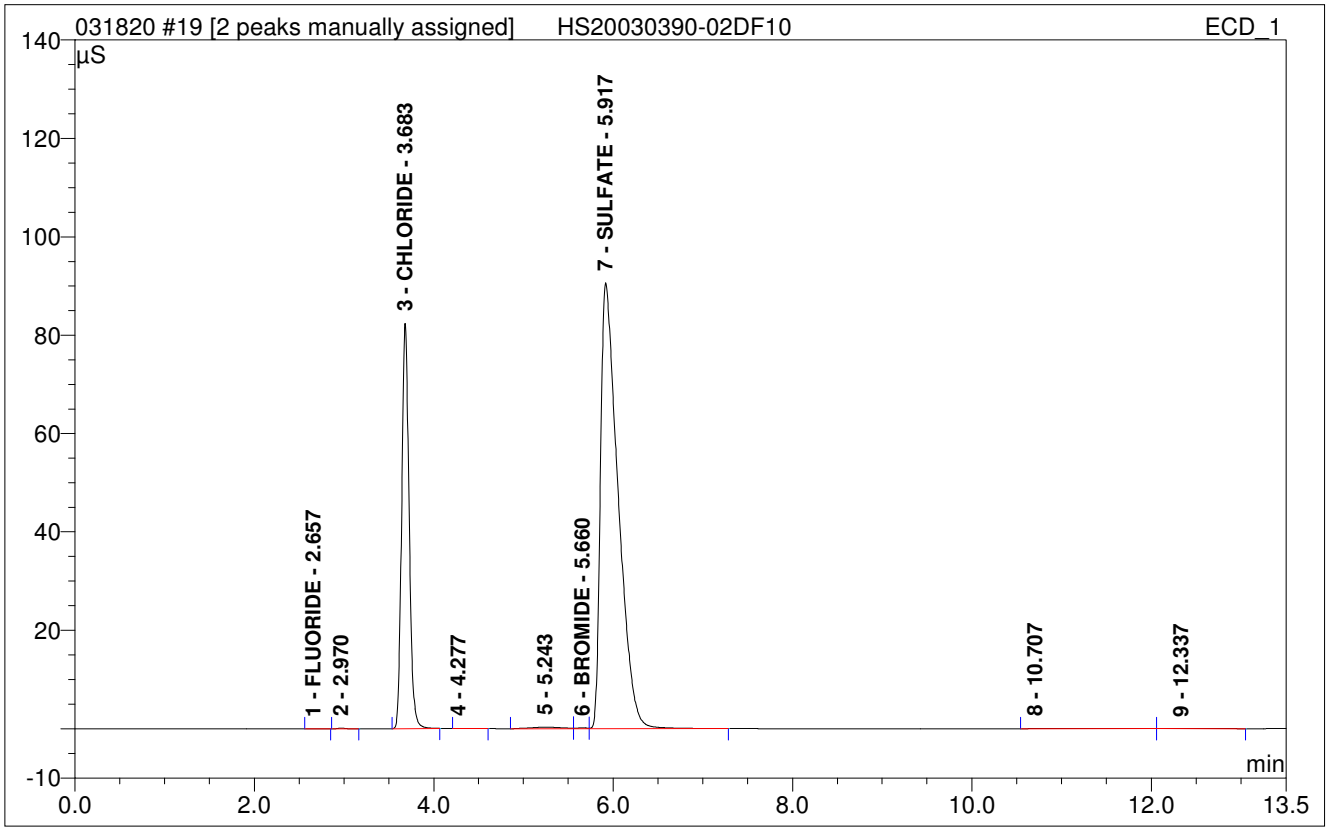
Sample Name:	**HS20030390-01DF10**	*Injection Volume:*	**10.0**
Vial Number:	**18**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**10.**
Recording Time:	**3/18/2020 14:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	3.68	CHLORIDE	102.621	9.905	62.60	997.766	10.
5	6.05	SULFATE	31.643	5.649	35.71	794.502	10.
Total:			134.264	15.554	98.31	1792.268	

19 HS20030390-02DF10

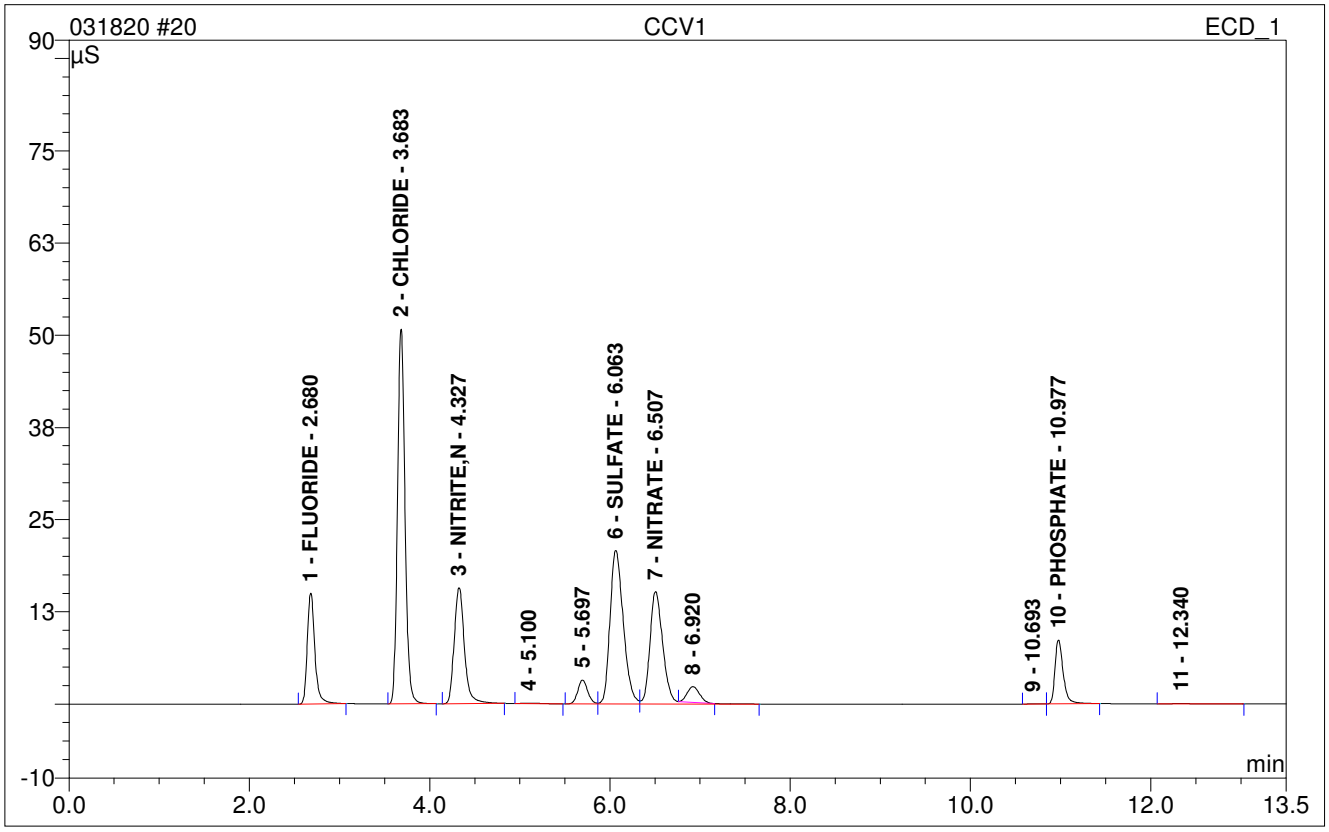
Sample Name:	**HS20030390-02DF10**	*Injection Volume:*	**10.0**
Vial Number:	**19**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**10.**
Recording Time:	**3/18/2020 14:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.66	FLUORIDE	0.011	0.001	0.00	0.994	10.
3	3.68	CHLORIDE	82.416	7.941	27.61	800.268	10.
6	5.66	BROMIDE	0.164	0.023	0.08	6.278	10.
7	5.92	SULFATE	90.681	20.610	71.66	2893.266	10.
Total:			173.272	28.574	99.35	3700.806	

20 CCV1

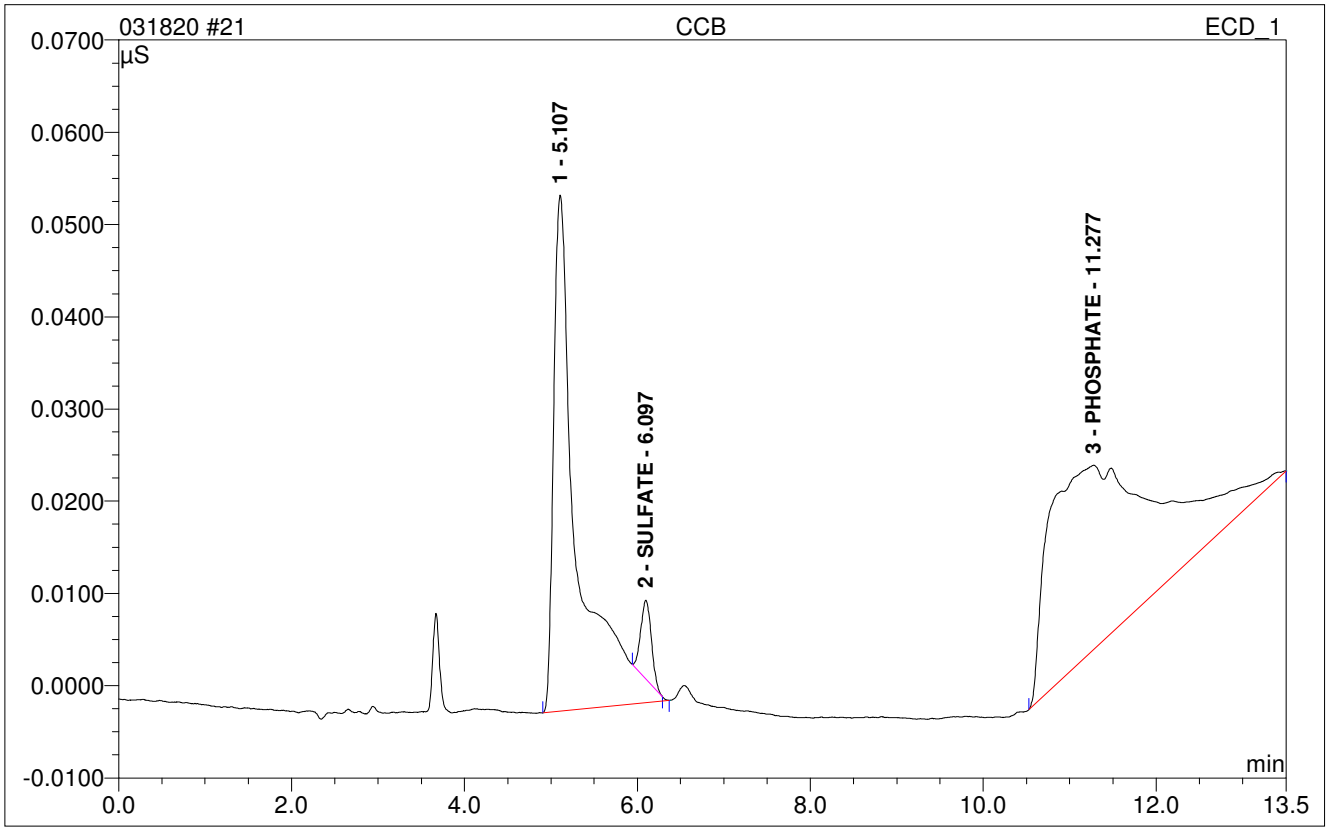
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**16**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**3/18/2020 15:08**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.68	FLUORIDE	15.017	1.467	9.03	10.397	1.
2	3.68	CHLORIDE	50.801	4.896	30.13	49.416	1.
3	4.33	NITRITE,N	15.696	2.057	12.66	10.039	1.
6	6.06	SULFATE	20.772	3.539	21.77	49.841	1.
7	6.51	NITRATE	15.224	2.591	15.94	9.776	1.
10	10.98	PHOSPHATE	8.641	0.912	5.61	10.621	1.
Total:			126.150	15.462	95.14	140.091	

21 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**17**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**012720**	*Dilution Factor:*	**1.**
Recording Time:	**3/18/2020 15:30**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	6.10	SULFATE	0.009	0.001	2.51	0.213	1.
3	11.28	PHOSPHATE	0.020	0.029	60.76	-0.176	1.
Total:			0.028	0.031	63.27	0.037	

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Version 6.80 SR8 Build 2623 (156243)

HS20030390 Wet Chem Raw Data (TOC)

ALS WO# HS20030390

C:\TOC3201\Data\2020_03_12_001.t32

	Type	Analysis	Sample Name	Sample ID	Origin	Result
1	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.77mg/L
2	Unknown	NPOC	CCB	5310B	12-27-2019.cal	NPOC:0.1575mg/
3	Unknown	NPOC	WBLKW1-031220	Untitled	12-27-2019.cal	NPOC:0.09336mg
4	Unknown	NPOC	WLCSW1-031220	Untitled	12-27-2019.cal	NPOC:8.938mg/L
5	Unknown	NPOC	WLCSDW1-031220	Untitled	12-27-2019.cal	NPOC:8.990mg/L
6	Unknown	NPOC	HS20030215-01	1/2	12-27-2019.cal	NPOC:3.206mg/L
7	Unknown	NPOC	HS20030251-01	1/2	12-27-2019.cal	NPOC:11.82mg/L
8	Unknown	NPOC	HS20030287-03DF50	Untitled	12-27-2019.cal	NPOC:37.17mg/L
9	Unknown	NPOC	HS20030287-04DF20	Untitled	12-27-2019.cal	NPOC:29.65mg/L
10	Unknown	NPOC	HS20030287-07DF100	Untitled	12-27-2019.cal	NPOC:24.59mg/L
11	Unknown	NPOC	HS20030337-01	1/2	12-27-2019.cal	NPOC:13.39mg/L
12	Unknown	NPOC	HS20030372-01	Untitled	12-27-2019.cal	NPOC:0.1691mg/
13	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.99mg/L
14	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.2670mg/
15	Unknown	NPOC	ABORT	Untitled	12-27-2019.cal	NPOC:0.000mg/L
16	Unknown	NPOC	ABORT	Untitled	12-27-2019.cal	NPOC:0.000mg/L
17	Unknown	NPOC	HS20030372-01MS	Untitled	12-27-2019.cal	NPOC:10.10mg/L
18	Unknown	NPOC	CCV	Untitled	12-27-2019.cal	NPOC:24.85mg/L
19	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.2601mg/
20	Unknown	NPOC	HS20030390-03	Untitled	12-27-2019.cal	NPOC:6.480mg/L
21	Unknown	NPOC	HS20030390-01	1/2	12-27-2019.cal	NPOC:10.70mg/L
22	Unknown	NPOC	HS20030390-02	1/2	12-27-2019.cal	NPOC:13.43mg/L
23	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:25.15mg/L
24	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.4424mg/
25	Unknown	NPOC	WBLKW2-031220	5310B	12-27-2019.cal	NPOC:0.3196mg/
26	Unknown	NPOC	WLCSW2-031220	Untitled	12-27-2019.cal	NPOC:9.417mg/L
27	Unknown	NPOC	WLCSDW2-031220	Untitled	12-27-2019.cal	NPOC:8.929mg/L
28	Unknown	NPOC	HS20030390-04	1/2	12-27-2019.cal	NPOC:3.402mg/L
29	Unknown	NPOC	HS20030390-05	1/2	12-27-2019.cal	NPOC:1.038mg/L
30	Unknown	NPOC	HS20030390-06	1/2	12-27-2019.cal	NPOC:3.168mg/L
31	Unknown	NPOC	HS20030390-07	1/2	12-27-2019.cal	NPOC:2.268mg/L
32	Unknown	NPOC	HS20030437-01	1/2	12-27-2019.cal	NPOC:20.03mg/L
33	Unknown	NPOC	HS20030455-01	1/2	12-27-2019.cal	NPOC:4.603mg/L
34	Unknown	NPOC	HS20030455-02	1/2	12-27-2019.cal	NPOC:3.555mg/L
35	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.85mg/L
36	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.1420mg/
37	Unknown	NPOC	HS20030462-01	1/1	12-27-2019.cal	NPOC:12.34mg/L
38	Unknown	NPOC	HS20030472-01	1/2	12-27-2019.cal	NPOC:10.52mg/L
39	Unknown	NPOC	HS20030472-02	1/2	12-27-2019.cal	NPOC:7.675mg/L
40	Unknown	NPOC	HS20030462-01MS	Untitled	12-27-2019.cal	NPOC:23.44mg/L
41	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.52mg/L
42	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.1796mg/
43	Unknown	NPOC	WBLKW3-031220	5310B	12-27-2019.cal	NPOC:0.1042mg/
44	Unknown	NPOC	WLCSW3-031220	Untitled	12-27-2019.cal	NPOC:9.155mg/L
45	Unknown	NPOC	WLCSDW3-031220	Untitled	12-27-2019.cal	NPOC:9.907mg/L
46	Unknown	NPOC	HS20030472-03	1/2	12-27-2019.cal	NPOC:8.005mg/L
47	Unknown	NPOC	HS20030472-04	1/2	12-27-2019.cal	NPOC:3.328mg/L
48	Unknown	NPOC	HS20030472-05	1/2	12-27-2019.cal	NPOC:1.734mg/L
49	Unknown	NPOC	HS20030472-06	1/2	12-27-2019.cal	NPOC:1.681mg/L
50	Unknown	NPOC	HS20030472-07	1/2	12-27-2019.cal	NPOC:2.559mg/L
51	Unknown	NPOC	HS20030472-08	1/2	12-27-2019.cal	NPOC:9.789mg/L

	Status	Date / Time	Vial
1	Completed	3/12/2020 12:18:07 PM	1
2	Completed	3/12/2020 12:31:20 PM	2
3	Completed	3/12/2020 12:44:33 PM	3
4	Completed	3/12/2020 12:57:47 PM	4
5	Completed	3/12/2020 1:11:00 PM	5
6	Completed	3/12/2020 1:24:13 PM	6
7	Completed	3/12/2020 1:37:26 PM	7
8	Completed	3/12/2020 1:50:50 PM	8
9	Completed	3/12/2020 2:04:30 PM	9
10	Completed	3/12/2020 2:17:45 PM	10
11	Completed	3/12/2020 2:33:30 PM	11
12	Completed	3/12/2020 2:48:43 PM	12
13	Completed	3/12/2020 3:02:27 PM	13
14	Completed	3/12/2020 3:15:40 PM	14
15	Aborted		15
16	Aborted		15
17	Completed	3/12/2020 4:20:15 PM	18
18	Completed	3/12/2020 4:33:50 PM	19
19	Completed	3/12/2020 4:49:08 PM	20
20	Completed	3/12/2020 5:15:45 PM	17
21	Completed	3/12/2020 5:29:14 PM	15
22	Completed	3/12/2020 5:44:32 PM	16
23	Completed	3/12/2020 5:57:41 PM	19
24	Completed	3/12/2020 6:12:59 PM	20
25	Completed	3/12/2020 6:28:12 PM	21
26	Completed	3/12/2020 6:41:33 PM	22
27	Completed	3/12/2020 6:54:56 PM	23
28	Completed	3/12/2020 7:08:09 PM	24
29	Completed	3/12/2020 7:23:27 PM	25
30	Completed	3/12/2020 7:36:35 PM	26
31	Completed	3/12/2020 7:51:54 PM	27
32	Completed	3/12/2020 8:05:03 PM	28
33	Completed	3/12/2020 8:18:17 PM	29
34	Completed	3/12/2020 8:33:36 PM	30
35	Completed	3/12/2020 8:46:58 PM	31
36	Completed	3/12/2020 9:02:17 PM	32
37	Completed	3/12/2020 9:15:26 PM	33
38	Completed	3/12/2020 9:28:40 PM	34
39	Completed	3/12/2020 9:43:59 PM	35
40	Completed	3/12/2020 9:57:08 PM	36
41	Completed	3/12/2020 10:10:54 PM	37
42	Completed	3/12/2020 10:26:13 PM	38
43	Completed	3/12/2020 10:41:27 PM	39
44	Completed	3/12/2020 10:54:36 PM	40
45	Completed	3/12/2020 11:07:50 PM	41
46	Completed	3/12/2020 11:21:04 PM	42
47	Completed	3/12/2020 11:36:23 PM	43
48	Completed	3/12/2020 11:51:37 PM	44
49	Completed	3/13/2020 12:06:51 AM	45
50	Completed	3/13/2020 12:22:05 AM	46
51	Completed	3/13/2020 12:35:15 AM	47

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	Type	Analysis	Sample Name	Sample ID	Origin	Result
52	Unknown	NPOC	HS20030389-01	1/2	12-27-2019.cal	NPOC:6.618mg/L
53	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.55mg/L
54	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.2470mg/
55	Unknown	NPOC	HS20030389-02	1/2	12-27-2019.cal	NPOC:593.7mg/L
56	Unknown	NPOC	HS20030389-03	1/2	12-27-2019.cal	NPOC:533.9mg/L
57	Unknown	NPOC	HS20030483-07	1/2	12-27-2019.cal	NPOC:2.872mg/L
58	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.93mg/L
59	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.3972mg/
60	Unknown	NPOC	WBLKW4-031220	Untitled	12-27-2019.cal	NPOC:0.2688mg/
61	Unknown	NPOC	WLCSW4-031220	Untitled	12-27-2019.cal	NPOC:8.886mg/L
62	Unknown	NPOC	WLCSDW4-031220	Untitled	12-27-2019.cal	NPOC:8.927mg/L
63	Unknown	NPOC	HS20030483-01	1/2	12-27-2019.cal	NPOC:1.536mg/L
64	Unknown	NPOC	HS20030483-02	1/2	12-27-2019.cal	NPOC:1.526mg/L
65	Unknown	NPOC	HS20030483-03	1/2	12-27-2019.cal	NPOC:1.594mg/L
66	Unknown	NPOC	HS20030483-04	1/2	12-27-2019.cal	NPOC:0.7503mg/
67	Unknown	NPOC	HS20030483-05	1/2	12-27-2019.cal	NPOC:0.6943mg/
68	Unknown	NPOC	HS20030483-06	1/2	12-27-2019.cal	NPOC:0.7347mg/
69	Unknown	NPOC	HS20030483-06MS	1/2	12-27-2019.cal	NPOC:11.17mg/L
70	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.65mg/L
71	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.1914mg/

	Status	Date / Time	Vial
52	Completed	3/13/2020 12:50:35 AM	48
53	Completed	3/13/2020 1:04:01 AM	49
54	Completed	3/13/2020 1:19:21 AM	50
55	Completed	3/13/2020 1:34:56 AM	51
56	Completed	3/13/2020 1:50:05 AM	52
57	Completed	3/13/2020 2:05:25 AM	53
58	Completed	3/13/2020 2:19:02 AM	54
59	Completed	3/13/2020 2:34:22 AM	55
60	Completed	3/13/2020 2:49:37 AM	56
61	Completed	3/13/2020 3:02:47 AM	57
62	Completed	3/13/2020 3:16:02 AM	58
63	Completed	3/13/2020 3:29:17 AM	59
64	Completed	3/13/2020 3:44:37 AM	60
65	Completed	3/13/2020 3:59:53 AM	61
66	Completed	3/13/2020 4:15:09 AM	62
67	Completed	3/13/2020 4:30:25 AM	63
68	Completed	3/13/2020 4:45:41 AM	64
69	Completed	3/13/2020 4:58:52 AM	65
70	Completed	3/13/2020 5:17:46 AM	66
71	Completed	3/13/2020 5:30:57 AM	67

Instr.Information

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

Sample

Sample Name:	CCV
Sample ID:	313101006
Origin:	12-27-2019.cal
Status	Completed
Chk. Result	

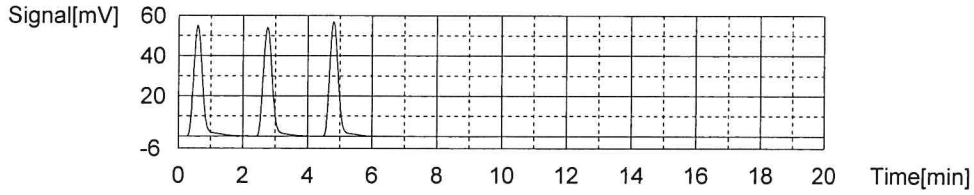
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.99mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	105.8	24.99mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 2:57:56 PM
2	105.5	24.92mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 3:00:11 PM
3	106.1	25.06mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 3:02:27 PM

Mean Area 105.8
Mean Conc. 24.99mg/L



Sample

Sample Name:	CCB
Sample ID:	Untitled
Origin:	12-27-2019.cal
Status	Completed
Chk. Result	

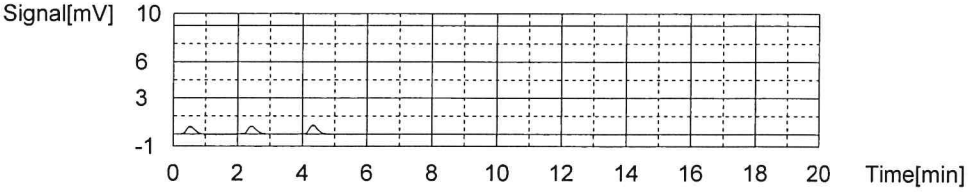
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2670mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.102	0.2603mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 3:11:30 PM
2	1.084	0.2560mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 3:13:35 PM
3	1.206	0.2848mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 3:15:40 PM

Mean Area 1.131
Mean Conc. 0.2670mg/L



Sample

Sample Name: HS20030372-01MS
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

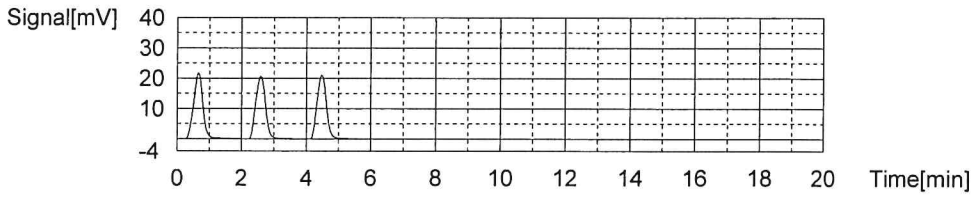
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.10mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	42.69	10.08mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 4:16:03 PM
2	42.74	10.09mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 4:18:08 PM
3	42.89	10.13mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 4:20:15 PM

Mean Area 42.77
Mean Conc. 10.10mg/L



Sample

Sample Name: CCV
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

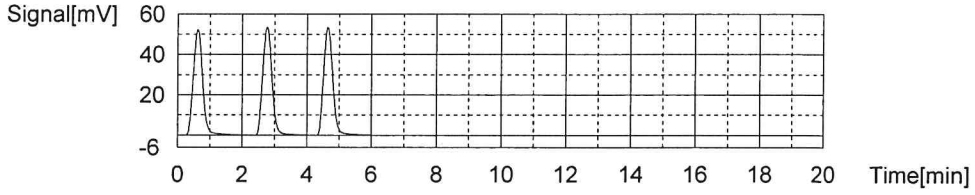
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.85mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	105.0	24.80mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 4:29:33 PM
2	105.2	24.85mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 4:31:38 PM
3	105.4	24.89mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 4:33:50 PM

Mean Area 105.2
Mean Conc. 24.85mg/L



Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

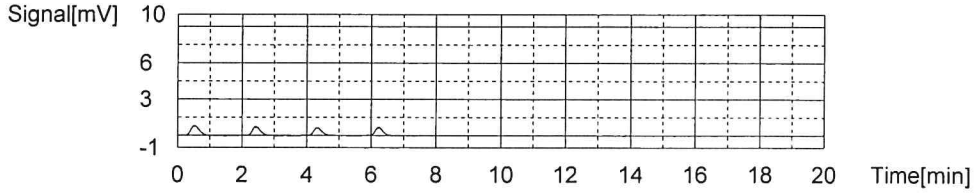
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2601mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.373	0.3243mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 4:42:53 PM
2	1.197	0.2827mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 4:44:58 PM
3	1.041	0.2459mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 4:47:03 PM
4	1.066	0.2518mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 4:49:08 PM

Mean Area 1.101
Mean Conc. 0.2601mg/L



Sample

Sample Name: HS20030390-03
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

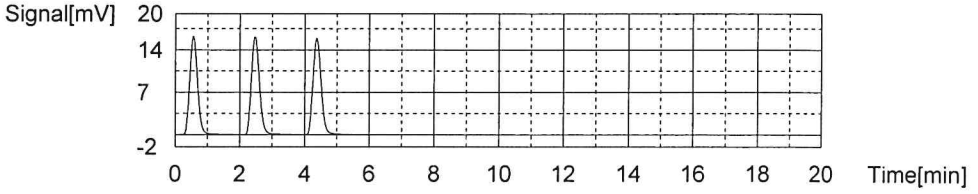
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:6.480mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	26.88	6.348mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:11:35 PM
2	27.70	6.542mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:13:40 PM
3	27.73	6.549mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:15:45 PM

Mean Area 27.44
Mean Conc. 6.480mg/L



Sample

Sample Name: HS20030390-01
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

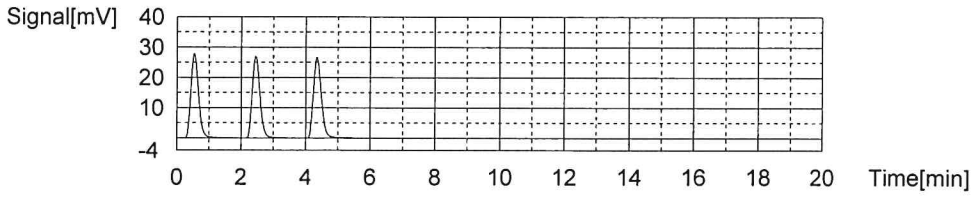
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.70mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	45.71	10.80mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:25:04 PM
2	44.86	10.59mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:27:09 PM
3	45.34	10.71mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:29:14 PM

Mean Area 45.30
Mean Conc. 10.70mg/L



Sample

Sample Name: HS20030390-02
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

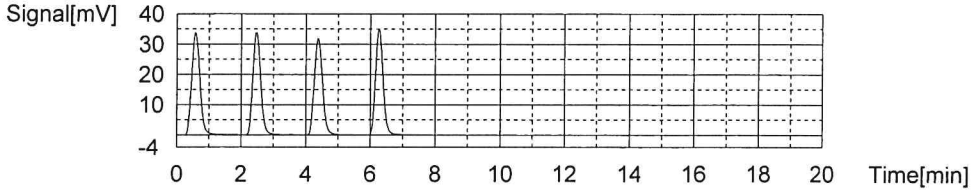
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:13.43mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	60.12	14.20mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:38:17 PM
2	56.94	13.45mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:40:22 PM
3	56.56	13.36mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:42:27 PM
4	57.05	13.47mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:44:32 PM

Mean Area 56.85
Mean Conc. 13.43mg/L



Sample

Sample Name: CCV
Sample ID: 313101006
Origin: 12-27-2019.cal
Status Completed
Chk. Result

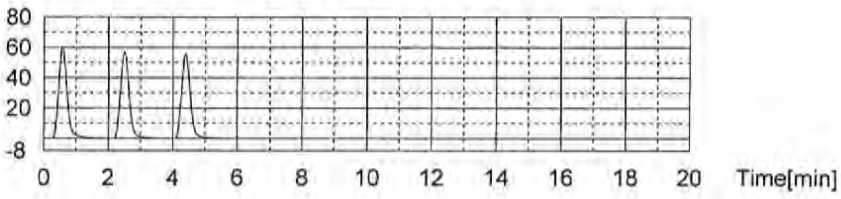
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:25.15mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	108.9	25.72mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:53:31 PM
2	105.5	24.92mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:55:36 PM
3	105.1	24.82mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:57:41 PM

Mean Area 106.5
Mean Conc. 25.15mg/L



Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

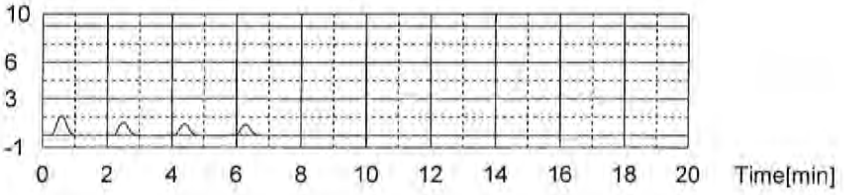
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.4424mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.154	0.7449mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:06:44 PM
2	2.111	0.4986mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:08:49 PM
3	1.805	0.4263mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:10:54 PM
4	1.704	0.4024mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:12:59 PM

Mean Area 1.873
Mean Conc. 0.4424mg/L



Sample

Sample Name: WBLKW2-031220
Sample ID: 5310B
Origin: 12-27-2019.cal
Status Completed
Chk. Result

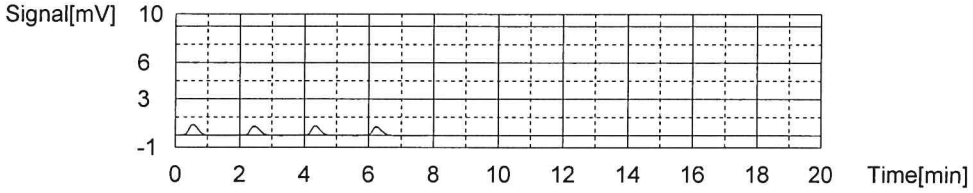
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.3196mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.641	0.3876mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:21:57 PM
2	1.451	0.3427mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:24:02 PM
3	1.352	0.3193mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:26:07 PM
4	1.257	0.2969mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:28:12 PM

Mean Area 1.353
Mean Conc. 0.3196mg/L



Sample

Sample Name: WLCSW2-031220
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

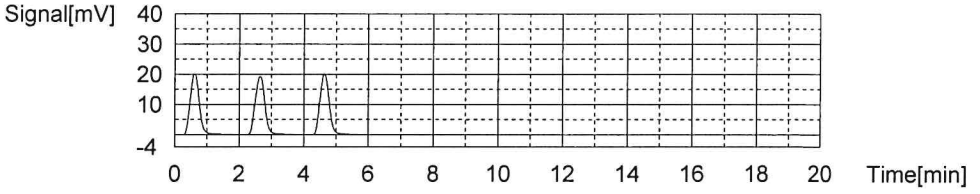
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.417mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	39.75	9.388mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:37:16 PM
2	39.98	9.442mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:39:28 PM
3	39.89	9.421mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:41:33 PM

Mean Area 39.87
Mean Conc. 9.417mg/L



Sample

Sample Name: WLCSDW2-031220
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

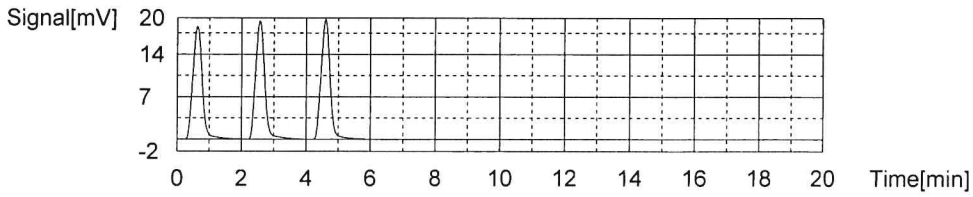
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:8.929mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	37.54	8.866mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:50:39 PM
2	37.95	8.963mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:52:51 PM
3	37.93	8.958mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:54:56 PM

Mean Area 37.81
Mean Conc. 8.929mg/L



Sample

Sample Name: HS20030390-04
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

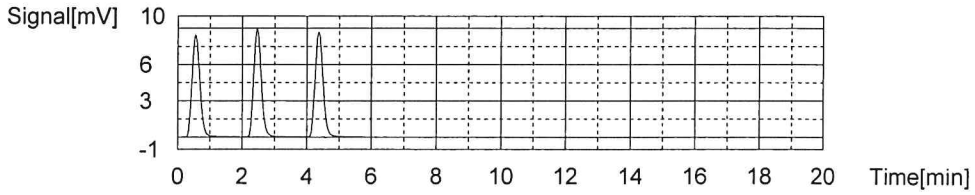
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:3.402mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	14.18	3.349mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:03:59 PM
2	14.41	3.403mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:06:04 PM
3	14.62	3.453mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:08:09 PM

Mean Area 14.40
Mean Conc. 3.402mg/L



Sample

Sample Name: HS20030390-05
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

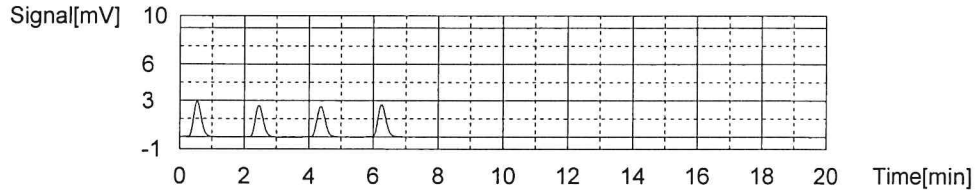
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.038mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.792	1.132mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:17:12 PM
2	4.326	1.022mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:19:17 PM
3	4.394	1.038mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:21:22 PM
4	4.465	1.055mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:23:27 PM

Mean Area 4.395
Mean Conc. 1.038mg/L



Sample

Sample Name: HS20030390-06
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

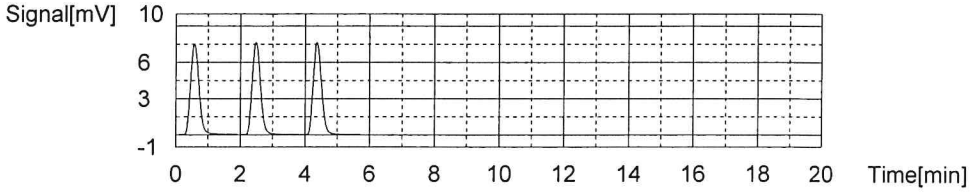
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:3.168mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	13.42	3.169mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:32:25 PM
2	13.44	3.174mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:34:30 PM
3	13.38	3.160mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:36:35 PM

Mean Area 13.41
Mean Conc. 3.168mg/L



Sample

Sample Name: HS20030390-07
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

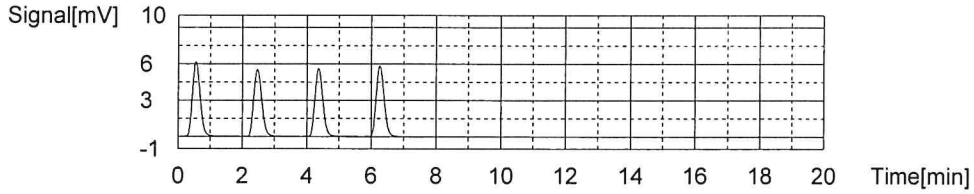
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:2.268mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	10.19	2.407mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:45:39 PM
2	9.527	2.250mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:47:44 PM
3	9.493	2.242mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:49:49 PM
4	9.784	2.311mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 7:51:54 PM

Mean Area 9.601
Mean Conc. 2.268mg/L



Sample

Sample Name: CCV
Sample ID: 313101006
Origin: 12-27-2019.cal
Status Completed
Chk. Result

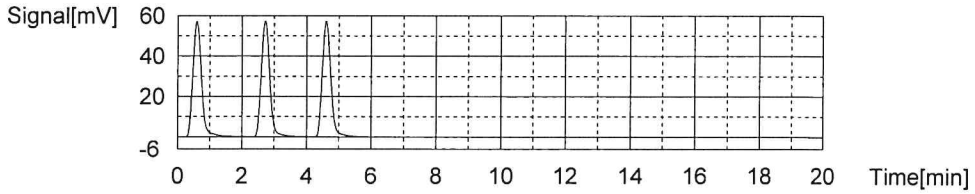
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.85mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	106.5	25.15mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 8:42:48 PM
2	104.2	24.61mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 8:44:53 PM
3	104.9	24.77mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 8:46:58 PM

Mean Area 105.2
Mean Conc. 24.85mg/L



Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

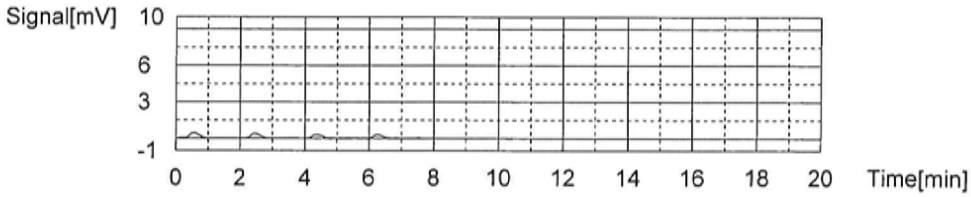
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1420mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.8131	0.1920mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 8:56:02 PM
2	0.6595	0.1558mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 8:58:07 PM
3	0.6099	0.1440mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:00:12 PM
4	0.5344	0.1262mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:02:17 PM

Mean Area 0.6013
Mean Conc. 0.1420mg/L



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March 19, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030472**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP-16**

Dear Susan,

ALS Environmental received 8 sample(s) on Mar 11, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Work Order: HS20030472

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030472-01	16PM14-200310	Groundwater		10-Mar-2020 08:25	11-Mar-2020 08:53	☐
HS20030472-02	16IW04-200310	Groundwater		10-Mar-2020 09:20	11-Mar-2020 08:53	☐
HS20030472-03	16PM06-200310	Groundwater		10-Mar-2020 10:10	11-Mar-2020 08:53	☐
HS20030472-04	16PM09-200310	Groundwater		10-Mar-2020 11:00	11-Mar-2020 08:53	☐
HS20030472-05	16WW42-200310	Groundwater		10-Mar-2020 12:00	11-Mar-2020 08:53	☐
HS20030472-06	16WW42-200310-FD	Groundwater		10-Mar-2020 12:00	11-Mar-2020 08:53	☐
HS20030472-07	16RW12-200310	Groundwater		10-Mar-2020 12:55	11-Mar-2020 08:53	☐
HS20030472-08	16WW40-200310	Groundwater		10-Mar-2020 13:45	11-Mar-2020 08:53	☐

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Work Order: HS20030472

CASE NARRATIVE

WetChemistry by Method SW9056

Batch ID: R358445

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

WetChemistry by Method SM5310B

Batch ID: R358074,R358104

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16PM14-200310
Collection Date: 10-Mar-2020 08:25

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**10.5**		**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 21:24
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**2.65**		**0.300**	**1.00**	**1.00**	**mg/L**	10	18-Mar-2020 20:23

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16IW04-200310
Collection Date: 10-Mar-2020 09:20

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**7.68**		**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 21:37
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**4.82**		**0.300**	**1.00**	**1.00**	**mg/L**	10	18-Mar-2020 20:59

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16PM06-200310
Collection Date: 10-Mar-2020 10:10

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**8.00**		**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 23:16
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**2.26**		**0.300**	**1.00**	**1.00**	**mg/L**	10	18-Mar-2020 21:35

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16PM09-200310
Collection Date: 10-Mar-2020 11:00

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**3.33**		**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 23:30
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**0.266**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	18-Mar-2020 22:11

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16WW42-200310
Collection Date: 10-Mar-2020 12:00

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**1.73**		**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 23:45
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**1.36**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	18-Mar-2020 23:24

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16WW42-200310-FD
Collection Date: 10-Mar-2020 12:00

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**1.68**		**0.500**	**1.00**	**1.00**	**mg/L**	1	13-Mar-2020 00:00
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**1.35**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	18-Mar-2020 23:42

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16RW12-200310
Collection Date: 10-Mar-2020 12:55

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**2.56**		**0.500**	**1.00**	**1.00**	**mg/L**	1	13-Mar-2020 00:15
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**4.30**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 00:00

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16WW40-200310
Collection Date: 10-Mar-2020 13:45

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**9.79**		**0.500**	**1.00**	**1.00**	**mg/L**	1	13-Mar-2020 00:31
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**4.20**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 00:36

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030472

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R358074 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Groundwater	
HS20030472-01	16PM14-200310	10 Mar 2020 08:25			12 Mar 2020 21:24	1
HS20030472-02	16IW04-200310	10 Mar 2020 09:20			12 Mar 2020 21:37	1
Batch ID: R358104 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Groundwater	
HS20030472-03	16PM06-200310	10 Mar 2020 10:10			12 Mar 2020 23:16	1
HS20030472-04	16PM09-200310	10 Mar 2020 11:00			12 Mar 2020 23:30	1
HS20030472-05	16WW42-200310	10 Mar 2020 12:00			12 Mar 2020 23:45	1
HS20030472-06	16WW42-200310-FD	10 Mar 2020 12:00			13 Mar 2020 00:00	1
HS20030472-07	16RW12-200310	10 Mar 2020 12:55			13 Mar 2020 00:15	1
HS20030472-08	16WW40-200310	10 Mar 2020 13:45			13 Mar 2020 00:31	1
Batch ID: R358445 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20030472-01	16PM14-200310	10 Mar 2020 08:25			18 Mar 2020 20:23	10
HS20030472-02	16IW04-200310	10 Mar 2020 09:20			18 Mar 2020 20:59	10
HS20030472-03	16PM06-200310	10 Mar 2020 10:10			18 Mar 2020 21:35	10
HS20030472-04	16PM09-200310	10 Mar 2020 11:00			18 Mar 2020 22:11	1
HS20030472-05	16WW42-200310	10 Mar 2020 12:00			18 Mar 2020 23:24	1
HS20030472-06	16WW42-200310-FD	10 Mar 2020 12:00			18 Mar 2020 23:42	1
HS20030472-07	16RW12-200310	10 Mar 2020 12:55			19 Mar 2020 00:00	10
HS20030472-08	16WW40-200310	10 Mar 2020 13:45			19 Mar 2020 00:36	10

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030472

QC BATCH REPORT

Batch ID: R358074 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:21**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510414** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:37**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510415** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.417	1.00	10	0	94.2	85 - 115				

LCSD Sample ID: **WLCSDW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:50**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510416** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.929	1.00	10	0	89.3	85 - 115	9.417	5.32	20	

MS Sample ID: **HS20030462-01MS** Units: **mg/L** Analysis Date: **12-Mar-2020 21:52**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510429** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	23.44	1.00	10	12.34	111	80 - 120				

The following samples were analyzed in this batch: HS20030472-01 HS20030472-02

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030472

QC BATCH REPORT

Batch ID: R358104 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW3-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 22:35**
Client ID: Run ID: **TOC_02_358104** SeqNo: **5511336** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW3-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 22:50**
Client ID: Run ID: **TOC_02_358104** SeqNo: **5511337** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.155	1.00	10	0	91.6	85 - 115				

LCSD Sample ID: **WLCSDW3-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 23:03**
Client ID: Run ID: **TOC_02_358104** SeqNo: **5511338** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.907	1.00	10	0	99.1	85 - 115	9.155	7.89	20	

MS Sample ID: **HS20030472-03MS** Units: **mg/L** Analysis Date: **13-Mar-2020 17:16**
Client ID: **16PM06-200310** Run ID: **TOC_02_358104** SeqNo: **5516775** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	18.22	1.00	10	8.005	102	80 - 120				

The following samples were analyzed in this batch: HS20030472-03 HS20030472-04 HS20030472-05 HS20030472-06 HS20030472-07 HS20030472-08

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030472

QC BATCH REPORT

Batch ID: R358445 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WMBLKW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 19:28**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519255** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U

LCS Sample ID: **WLCSW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 19:46**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519256** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.677	0.100	4	0	91.9	80 - 120				

LCSD Sample ID: **WLCSDW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 20:04**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519257** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.652	0.100	4	0	91.3	80 - 120	3.677	0.674	20	

MS Sample ID: **HS20030502-03MS** Units: **mg/L** Analysis Date: **19-Mar-2020 04:13**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519284** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	88.13	5.00	100	5.705	82.4	80 - 120				

MS Sample ID: **HS20030502-03MS** Units: **mg/L** Analysis Date: **19-Mar-2020 03:19**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519281** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	21.51	1.00	20	4.865	83.2	80 - 120				

MSD Sample ID: **HS20030502-03MSD** Units: **mg/L** Analysis Date: **19-Mar-2020 03:37**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519282** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	21.64	1.00	20	4.865	83.9	80 - 120	21.51	0.57	20	

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030472

QC BATCH REPORT

Batch ID: R358445 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20030502-03MSD** Units: **mg/L** Analysis Date: **19-Mar-2020 04:31**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519285** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	88.07	5.00	100	5.705	82.4	80 - 120	88.13	0.0681	20	

The following samples were analyzed in this batch:

HS20030472-01	HS20030472-02	HS20030472-03	HS20030472-04
HS20030472-05	HS20030472-06	HS20030472-07	HS20030472-08

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: **HS20030472**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Work Order: HS20030472

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20030472-01	16PM14-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-01	16PM14-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-02	16IW04-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-02	16IW04-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-03	16PM06-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-03	16PM06-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-04	16PM09-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-04	16PM09-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-05	16WW42-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-05	16WW42-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed

ALS Houston, US Date: 19-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030472
Date/Time Received: **11-Mar-2020 08:53**
Received by: **AC**

Checklist completed by: *Asad Chaudhry* eSignature 11-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 12-Mar-2020 Date

Matrices: **GW**
Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:N/A
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.3c U/C	IR 25	
Cooler(s)/Kit(s):	45112		
Date/Time sample(s) sent to storage:	03/11/2020 18:20		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

COC ID: LHAAP16-Effectiveness_ALSHT-2020-

TURNAROUND TIME: 5 Business Days

RUSH: 5 Business Days

Page 1 of 1

PROJECT/CLIENT INFO

Facility Name	Longhorn AAP
Project Number	501032
	LHAAP-16
Address	1203-B East Grand Avenue
	PMB 202
City	Marshall
State	TX
Postal Code	75670
Country	USA
Phone Number	713.243.7264
Project Manager	Praveen Srivastav

LABORATORY

Lab Name	ALS Laboratories
Lab Contact	RJ Modashia
Email	RJ.Modashia@alsgl
Address	10450 Stancliff Rd.,
City	Houston
Postal Code	77099
Phone Number	281.575.2279 or 28

HS20030472

Aptim Environmental & Infrastucture, Inc.

Longhorn Army Ammunition Plant LHAAP-16

A

SAMPLE DETAILS

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Containers and Preservative: 1-250 ml HDPE, Ice — Bromide by SW9056	2X40ml Voa Vials / H2SO4 — TOC by SM5310
16PW14-200310	LHAAP 16				WG	3/10/20	0825	3	X	X
16IW04-200310	LHAAP16				WG	3/10/20	0920	3	X	X
16PM06-200310	LHAAP 16				WG	3/10/20	1010	3	X	X
16PM09-200310	LHAAP 16				WG	3/10/20	1100	3	X	X
16MW42-200310	LHAAP16				WG	3/10/20	1200	3	X	X
16MW42-200310-FD	LHAAP16				WG	3/10/20	1200	3	X	X
16RW12-200310	LHAAP 16				WG	3/10/20	1255	3	X	X
16MW40-200310	LHAAP 16				WG	3/10/20	1345	3	X	X

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Sean Buring / BHATE	3/10/20 1432	AC / ALS	3/11/2020 0855

C/C 23 IR#25 CFO: 4512

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

45112

CUSTODY SEAL

Date: 3/10/20 Time: 1430
Name: Scott Beesinger
Company: SGRA

Seal Broken By: ZM
Date: 03/11/20

45112

Must Deliver Next Business Day
Time and Tempature Sensitive!

45112

ORIGIN ID:SGRA (903) 930 8193
SCOTT BEESINGER
APTIM
1209-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 25FEB20
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656

REF: LH&AF 16 - BO 7u505-39

RMA:

FedEx Express

FedEx
TRK# 0221 1251 0294 7932

WED - 11 MAR 10:30A
PRIORITY OVERNIGHT

77099
TX-US
IAH

AB SGRA

FD 510/737 LENARDO GGDA 560C2/6480/0502

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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WorkOrder: HS20030472

Longhorn Army Ammunition Plant LHAAP-16

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

23-Mar-2020

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
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www.alsglobal.com

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  - 16PM06-200310
  - 16PM09-200310
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- HS20030472 Wet Chem Raw Data

HS20030472 Longhorn Army Ammunition Plant LHAAP16 Final

ALS WO# HS20030472

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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March 19, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030472**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP-16**

Dear Susan,

ALS Environmental received 8 sample(s) on Mar 11, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Work Order: HS20030472

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030472-01	16PM14-200310	Groundwater		10-Mar-2020 08:25	11-Mar-2020 08:53	☐
HS20030472-02	16IW04-200310	Groundwater		10-Mar-2020 09:20	11-Mar-2020 08:53	☐
HS20030472-03	16PM06-200310	Groundwater		10-Mar-2020 10:10	11-Mar-2020 08:53	☐
HS20030472-04	16PM09-200310	Groundwater		10-Mar-2020 11:00	11-Mar-2020 08:53	☐
HS20030472-05	16WW42-200310	Groundwater		10-Mar-2020 12:00	11-Mar-2020 08:53	☐
HS20030472-06	16WW42-200310-FD	Groundwater		10-Mar-2020 12:00	11-Mar-2020 08:53	☐
HS20030472-07	16RW12-200310	Groundwater		10-Mar-2020 12:55	11-Mar-2020 08:53	☐
HS20030472-08	16WW40-200310	Groundwater		10-Mar-2020 13:45	11-Mar-2020 08:53	☐

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Work Order: HS20030472

CASE NARRATIVE

WetChemistry by Method SW9056

Batch ID: R358445

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

WetChemistry by Method SM5310B

Batch ID: R358074,R358104

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16PM14-200310
Collection Date: 10-Mar-2020 08:25

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**10.5**		**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 21:24
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**2.65**		**0.300**	**1.00**	**1.00**	**mg/L**	10	18-Mar-2020 20:23

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16IW04-200310
Collection Date: 10-Mar-2020 09:20

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**7.68**		**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 21:37
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**4.82**		**0.300**	**1.00**	**1.00**	**mg/L**	10	18-Mar-2020 20:59

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16PM06-200310
Collection Date: 10-Mar-2020 10:10

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**8.00**		**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 23:16
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**2.26**		**0.300**	**1.00**	**1.00**	**mg/L**	10	18-Mar-2020 21:35

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16PM09-200310
Collection Date: 10-Mar-2020 11:00

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**3.33**		**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 23:30
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**0.266**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	18-Mar-2020 22:11

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16WW42-200310
Collection Date: 10-Mar-2020 12:00

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**1.73**		**0.500**	**1.00**	**1.00**	**mg/L**	1	12-Mar-2020 23:45
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**1.36**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	18-Mar-2020 23:24

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16WW42-200310-FD
Collection Date: 10-Mar-2020 12:00

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**1.68**		**0.500**	**1.00**	**1.00**	**mg/L**	1	13-Mar-2020 00:00
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**1.35**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	18-Mar-2020 23:42

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16RW12-200310
Collection Date: 10-Mar-2020 12:55

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**2.56**		**0.500**	**1.00**	**1.00**	**mg/L**	1	13-Mar-2020 00:15
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**4.30**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 00:00

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Sample ID: 16WW40-200310
Collection Date: 10-Mar-2020 13:45

ANALYTICAL REPORT
WorkOrder:HS20030472
Lab ID:HS20030472-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**9.79**		**0.500**	**1.00**	**1.00**	**mg/L**	1	13-Mar-2020 00:31
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**4.20**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 00:36

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

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030472

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R358074 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Groundwater	
HS20030472-01	16PM14-200310	10 Mar 2020 08:25			12 Mar 2020 21:24	1
HS20030472-02	16IW04-200310	10 Mar 2020 09:20			12 Mar 2020 21:37	1
Batch ID: R358104 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Groundwater	
HS20030472-03	16PM06-200310	10 Mar 2020 10:10			12 Mar 2020 23:16	1
HS20030472-04	16PM09-200310	10 Mar 2020 11:00			12 Mar 2020 23:30	1
HS20030472-05	16WW42-200310	10 Mar 2020 12:00			12 Mar 2020 23:45	1
HS20030472-06	16WW42-200310-FD	10 Mar 2020 12:00			13 Mar 2020 00:00	1
HS20030472-07	16RW12-200310	10 Mar 2020 12:55			13 Mar 2020 00:15	1
HS20030472-08	16WW40-200310	10 Mar 2020 13:45			13 Mar 2020 00:31	1
Batch ID: R358445 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20030472-01	16PM14-200310	10 Mar 2020 08:25			18 Mar 2020 20:23	10
HS20030472-02	16IW04-200310	10 Mar 2020 09:20			18 Mar 2020 20:59	10
HS20030472-03	16PM06-200310	10 Mar 2020 10:10			18 Mar 2020 21:35	10
HS20030472-04	16PM09-200310	10 Mar 2020 11:00			18 Mar 2020 22:11	1
HS20030472-05	16WW42-200310	10 Mar 2020 12:00			18 Mar 2020 23:24	1
HS20030472-06	16WW42-200310-FD	10 Mar 2020 12:00			18 Mar 2020 23:42	1
HS20030472-07	16RW12-200310	10 Mar 2020 12:55			19 Mar 2020 00:00	10
HS20030472-08	16WW40-200310	10 Mar 2020 13:45			19 Mar 2020 00:36	10

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030472

QC BATCH REPORT

Batch ID: R358074 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:21**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510414** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:37**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510415** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.417	1.00	10	0	94.2	85 - 115				

LCSD Sample ID: **WLCSDW2-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 18:50**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510416** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.929	1.00	10	0	89.3	85 - 115	9.417	5.32	20	

MS Sample ID: **HS20030462-01MS** Units: **mg/L** Analysis Date: **12-Mar-2020 21:52**
Client ID: Run ID: **TOC_02_358074** SeqNo: **5510429** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	23.44	1.00	10	12.34	111	80 - 120				

The following samples were analyzed in this batch: HS20030472-01 HS20030472-02

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030472

QC BATCH REPORT

Batch ID: R358104 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW3-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 22:35**
Client ID: Run ID: **TOC_02_358104** SeqNo: **5511336** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW3-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 22:50**
Client ID: Run ID: **TOC_02_358104** SeqNo: **5511337** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.155	1.00	10	0	91.6	85 - 115				

LCSD Sample ID: **WLCSDW3-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 23:03**
Client ID: Run ID: **TOC_02_358104** SeqNo: **5511338** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.907	1.00	10	0	99.1	85 - 115	9.155	7.89	20	

MS Sample ID: **HS20030472-03MS** Units: **mg/L** Analysis Date: **13-Mar-2020 17:16**
Client ID: **16PM06-200310** Run ID: **TOC_02_358104** SeqNo: **5516775** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	18.22	1.00	10	8.005	102	80 - 120				

The following samples were analyzed in this batch: HS20030472-03 HS20030472-04 HS20030472-05 HS20030472-06 HS20030472-07 HS20030472-08

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030472

QC BATCH REPORT

Batch ID: R358445 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WMBLKW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 19:28**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519255** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U

LCS Sample ID: **WLCSW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 19:46**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519256** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.677	0.100	4	0	91.9	80 - 120				

LCSD Sample ID: **WLCSDW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 20:04**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519257** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.652	0.100	4	0	91.3	80 - 120	3.677	0.674	20	

MS Sample ID: **HS20030502-03MS** Units: **mg/L** Analysis Date: **19-Mar-2020 04:13**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519284** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	88.13	5.00	100	5.705	82.4	80 - 120				

MS Sample ID: **HS20030502-03MS** Units: **mg/L** Analysis Date: **19-Mar-2020 03:19**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519281** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	21.51	1.00	20	4.865	83.2	80 - 120				

MSD Sample ID: **HS20030502-03MSD** Units: **mg/L** Analysis Date: **19-Mar-2020 03:37**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519282** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	21.64	1.00	20	4.865	83.9	80 - 120	21.51	0.57	20	

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: HS20030472

QC BATCH REPORT

Batch ID: R358445 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20030502-03MSD** Units: **mg/L** Analysis Date: **19-Mar-2020 04:31**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519285** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	88.07	5.00	100	5.705	82.4	80 - 120	88.13	0.0681	20	

The following samples were analyzed in this batch:

HS20030472-01	HS20030472-02	HS20030472-03	HS20030472-04
HS20030472-05	HS20030472-06	HS20030472-07	HS20030472-08

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
WorkOrder: **HS20030472**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-16
Work Order: HS20030472

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20030472-01	16PM14-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-01	16PM14-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-02	16IW04-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-02	16IW04-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-03	16PM06-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-03	16PM06-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-04	16PM09-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-04	16PM09-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-05	16WW42-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed
HS20030472-05	16WW42-200310	Login	3/11/2020 6:11:05 PM	AC	Disposed

ALS Houston, US Date: 19-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030472
Date/Time Received: **11-Mar-2020 08:53**
Received by: **AC**

Checklist completed by: *Asad Chaudhry* eSignature 11-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 12-Mar-2020 Date

Matrices: **GW**
Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:N/A
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.3c U/C	IR 25	
Cooler(s)/Kit(s):	45112		
Date/Time sample(s) sent to storage:	03/11/2020 18:20		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

COC ID: LHAAP16-Effectiveness_ALSHT-2020-

TURNAROUND TIME: 5 Business Days

RUSH: 5 Business Days

Page 1 of

PROJECT/CLIENT INFO

Facility Name	Longhorn AAP
Project Number	501032
	LHAAP-16
Address	1203-B East Grand Avenue
	PMB 202
City	Marshall
State	TX
Postal Code	75670
Country	USA
Phone Number	713.243.7264
Project Manager	Praveen Srivastav

LABORATORY

Lab Name	ALS Laboratories
Lab Contact	RJ Modashia
Email	RJ.Modashia@alsgl
Address	10450 Stancliff Rd.,
City	Houston
Postal Code	77099
Phone Number	281.575.2279 or 28

HS20030472

Aptim Environmental & Infrastucture, Inc.

Longhorn Army Ammunition Plant LHAAP-16

A

SAMPLE DETAILS

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Containers and Preservative	1-250 ml HDPE, Ice	2X40ml Voa Vials / H2SO4
									ANALYSIS	Bromide by SW9056	TOC by SM5310
16PW14-200310	LHAAP 16				WG	3/10/20	0825	3		X	X
16IW04-200310	LHAAP16				WG	3/10/20	0920	3		X	X
16PM06-200310	LHAAP 16				WG	3/10/20	1010	3		X	X
16PM09-200310	LHAAP 16				WG	3/10/20	1100	3		X	X
16WW42-200310	LHAAP16				WG	3/10/20	1200	3		X	X
16WW42-200310-FD	LHAAP16				WG	3/10/20	1200	3		X	X
16RW12-200310	LHAAP 16				WG	3/10/20	1255	3		X	X
16WW40-200310	LHAAP 16				WG	3/10/20	1345	3		X	X

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Sean Bussey / BHATE	3/10/20 1432	AC / ALS	3/11/2020 08:53

c/c 2.3 IRADS CFO.C 4512

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

45112

CUSTODY SEAL

Date: 3/10/20 Time: 1430
Name: Scott Beesinger
Company: SGRA

Seal Broken By: ZM
Date: 03/11/20

45112

Must Deliver Next Business Day
Time and Tempature Sensitive!

45112

ORIGIN ID:SGRA (903) 930 8193
SCOTT BEESINGER
APTIM
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 25FEB20
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656

REF: LHAAF 16 - BO 7u505-39

RMA:

FedEx Express

FedEx
TRK# 0221 1251 0294 7932

WED - 11 MAR 10:30A
PRIORITY OVERNIGHT

77099
TX-US
IAH

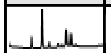
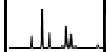
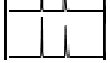
AB SGRA

FD 510/737 LENARDO GGGA 560C7/6480/0502

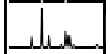
HS20030472 Wet Chem Raw Data

ALS WO# HS20030472

Sequence: 030820
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	STD1	2970209205	Calibration	GA1	1.0000	1	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 7:39:11 PM -06:00
	STD2	NEW PRGM	Calibration	GA2	1.0000	2	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 7:57:16 PM -06:00
	STD3		Calibration	GA3	1.0000	3	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:15:24 PM -06:00
	STD4		Calibration	GA4	1.0000	4	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:33:31 PM -06:00
	STD5	NO2/PO4	Calibration	GA5	1.0000	5	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:51:36 PM -06:00
	STD6	MAX 10PPM	Calibration	GA6	1.0000	6	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 9:09:41 PM -06:00
	ICV	2970209123	Unknown	GA7	1.0000		Anions Prog	Anions Proce	5.0	Finished	2/5/2020 9:27:48 PM -06:00
	ICB		Unknown	GA8	1.0000		Anions Prog	Anions Proce	5.0	Finished	2/5/2020 9:45:53 PM -06:00
	CCV1	3/16/2020	Unknown	BA2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 6:52:20 PM -05:00
	CCB		Unknown	RE1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 7:10:32 PM -05:00
	WMBLKW1-031820	NEW BATCH	Unknown	BB2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 7:28:42 PM -05:00
	WLCSW1-031820	03.18.20 6.10PM	Unknown	BB3	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 7:46:47 PM -05:00
	WLCSDW1-031820	DOD BR	Unknown	BB4	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 8:04:53 PM -05:00
	HS20030472-01DF10		Unknown	GA1	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 8:23:04 PM -05:00
	HS20030472-02DF10		Unknown	GA3	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 8:59:16 PM -05:00
	HS20030472-03DF10		Unknown	GA5	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 9:35:29 PM -05:00
	HS20030472-04		Unknown	GA7	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 10:11:41 PM -05:00
	CCV		Unknown	RA1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 10:29:49 PM -05:00
	CCB		Unknown	BA1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 10:47:57 PM -05:00
	HS20030472-05		Unknown	GB1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 11:24:08 PM -05:00
	HS20030472-06		Unknown	GB2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/18/2020 11:42:13 PM -05:00
	HS20030472-07DF10	11.33	Unknown	GB3	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 12:00:21 AM -05:00
	HS20030472-08DF10		Unknown	GB5	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 12:36:31 AM -05:00
	HS20030502-01DF10		Unknown	GB7	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 1:12:45 AM -05:00
	HS20030502-01DF50		Unknown	GB8	50.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 1:30:51 AM -05:00

Sequence: 030820
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	HS20030502-02DF10		Unknown	GC1	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 1:48:57 AM -05:00
	CCV1		Unknown	BA2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 2:07:04 AM -05:00
	CCB		Unknown	RE1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 2:25:13 AM -05:00
	HS20030502-03DF10		Unknown	GC3	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 3:01:24 AM -05:00
	HS20030502-03MSDF10		Unknown	GC4	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 3:19:29 AM -05:00
	HS20030502-03MSDDF10		Unknown	GC5	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 3:37:36 AM -05:00
	HS20030502-03DF50		Unknown	GC6	50.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 3:55:42 AM -05:00
	HS20030502-03MSDF50		Unknown	GC7	50.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 4:13:48 AM -05:00
	HS20030502-03MSDDF50		Unknown	GC8	50.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 4:31:53 AM -05:00
	CCV	4.33	Unknown	RA1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 5:26:13 AM -05:00
	CCB	END	Unknown	BA1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/19/2020 5:44:20 AM -05:00

Sequence: 030820
Injection #6: STD6

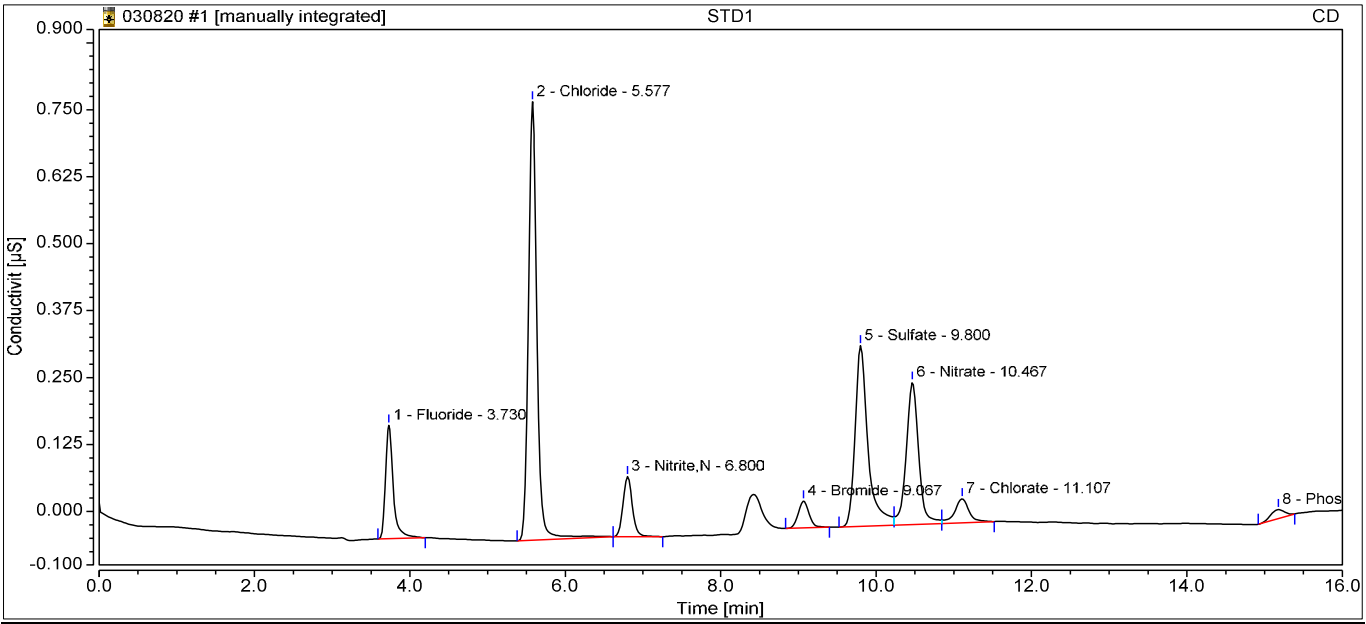
Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*Fluoride*	*Lin, WithOffset, 1/*	*Area*	*6*	*13.4314*	*0.99915*	*-0.0083*	*0.3414*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	2.2020	0.99998	-0.0141	0.2320	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	5	19.9747	0.99771	-0.0251	0.4962	0.0000
4	Bromide	Lin, WithOffset, 1/	Area	6	12.1436	0.99933	-0.0033	0.0991	0.0000
5	Sulfate	Lin, WithOffset, 1/	Area	6	4.2312	0.99991	-0.0170	0.1679	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	2.3081	0.99997	-0.0076	0.5843	0.0000
7	Chlorate	Lin, WithOffset, 1/	Area	6	9.7729	0.99945	0.0017	0.0949	0.0000
8	Phosphate	Lin, WithOffset, 1/	Area	5	18.6678	0.99857	-0.0214	0.2119	0.0000
Maximum					**19.9747**	0.99998			
Minimum					2.2020	**0.99771**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:39**	*Sample Weight:*	**1.0000**

Run Time:



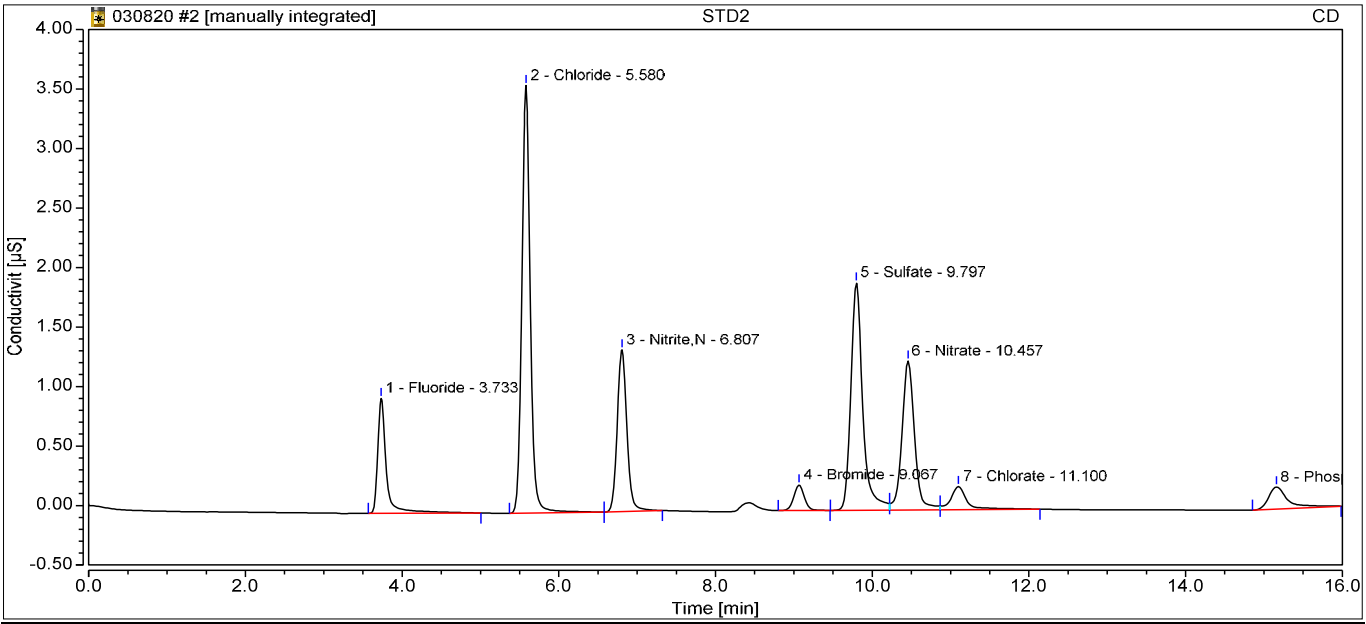
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.024	0.0955	0.0955	1.0000
2	5.58	Chloride	BMB	0.103	0.5065	0.5065	1.0000
3	6.80	Nitrite,N	BMB	0.016	0.0821	0.0821	1.0000
4	9.07	Bromide	BMB	0.008	0.1156	0.1156	1.0000
5	9.80	Sulfate	BM	0.065	0.4885	0.4885	1.0000
6	10.47	Nitrate	M	0.049	0.0974	0.0974	1.0000
7	11.11	Chlorate	MB	0.010	0.0834	0.0834	1.0000
8	15.18	Phosphate	BMB*	0.003	0.1173	0.1173	1.0000
Total:			**0.000**	**0.279**		**1.59**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:57**	*Sample Weight:*	**1.0000**

Run Time:

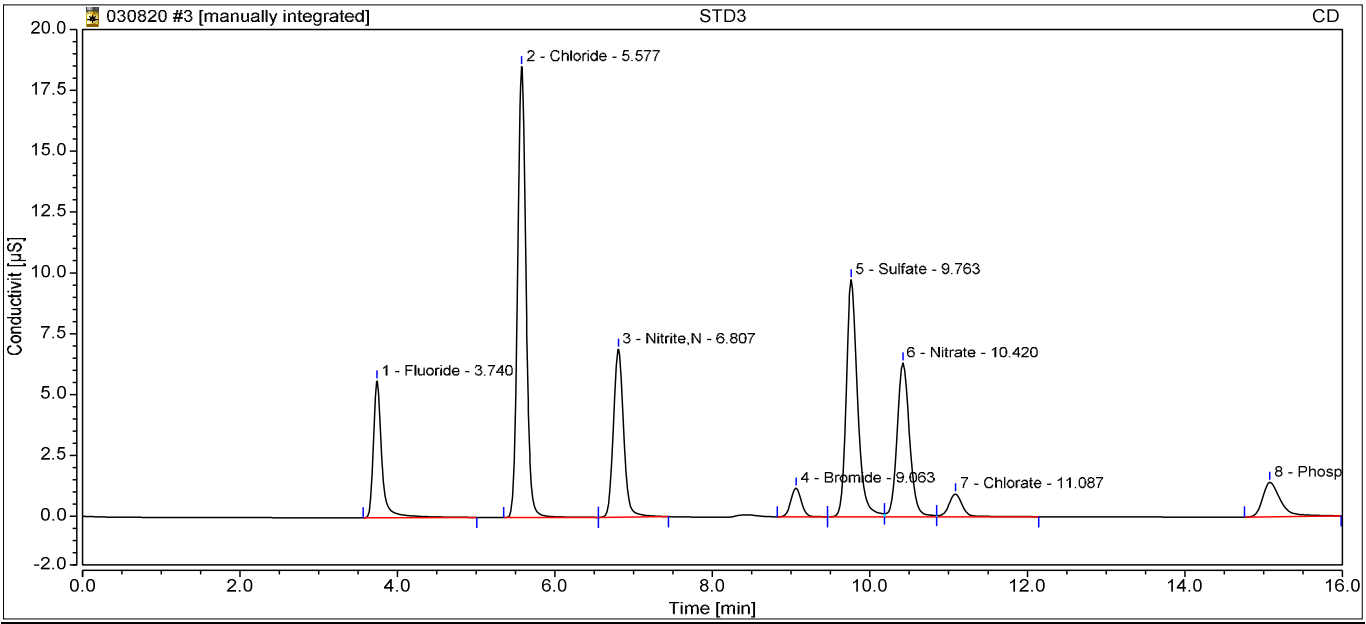


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.123	0.3833	0.3833	1.0000
2	5.58	Chloride	BMb*	0.449	1.9963	1.9963	1.0000
3	6.81	Nitrite,N	bMB*	0.194	0.4423	0.4423	1.0000
4	9.07	Bromide	BMB	0.034	0.3722	0.3722	1.0000
5	9.80	Sulfate	BM	0.335	2.0973	2.0973	1.0000
6	10.46	Nitrate	M	0.232	0.4103	0.4103	1.0000
7	11.10	Chlorate	MB	0.047	0.4759	0.4759	1.0000
8	15.16	Phosphate	BMB	0.053	0.3518	0.3518	1.0000
Total:			**0.000**	**1.467**		**6.53**	

3 STD3			
Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:15**	*Sample Weight:*	**1.0000**

Run Time:



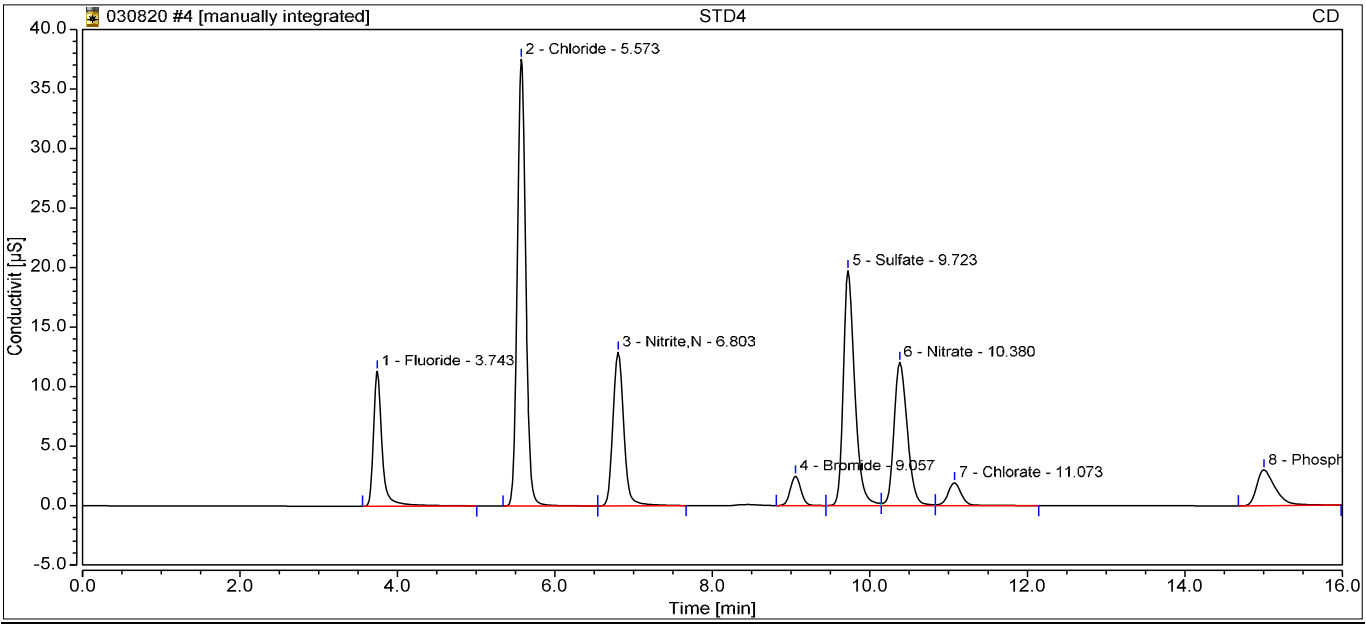
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.701	2.0769	2.0769	1.0000
2	5.58	Chloride	BMb*	2.284	9.9073	9.9073	1.0000
3	6.81	Nitrite,N	bMB*	1.029	2.1245	2.1245	1.0000
4	9.06	Bromide	BM	0.182	1.8657	1.8657	1.0000
5	9.76	Sulfate	M	1.624	9.7730	9.7730	1.0000
6	10.42	Nitrate	M	1.160	1.9980	1.9980	1.0000
7	11.09	Chlorate	MB	0.189	1.9689	1.9689	1.0000
8	15.08	Phosphate	BMB	0.374	1.8664	1.8664	1.0000
Total:			**0.000**	**7.542**		**31.58**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:33**	*Sample Weight:*	**1.0000**

Run Time:

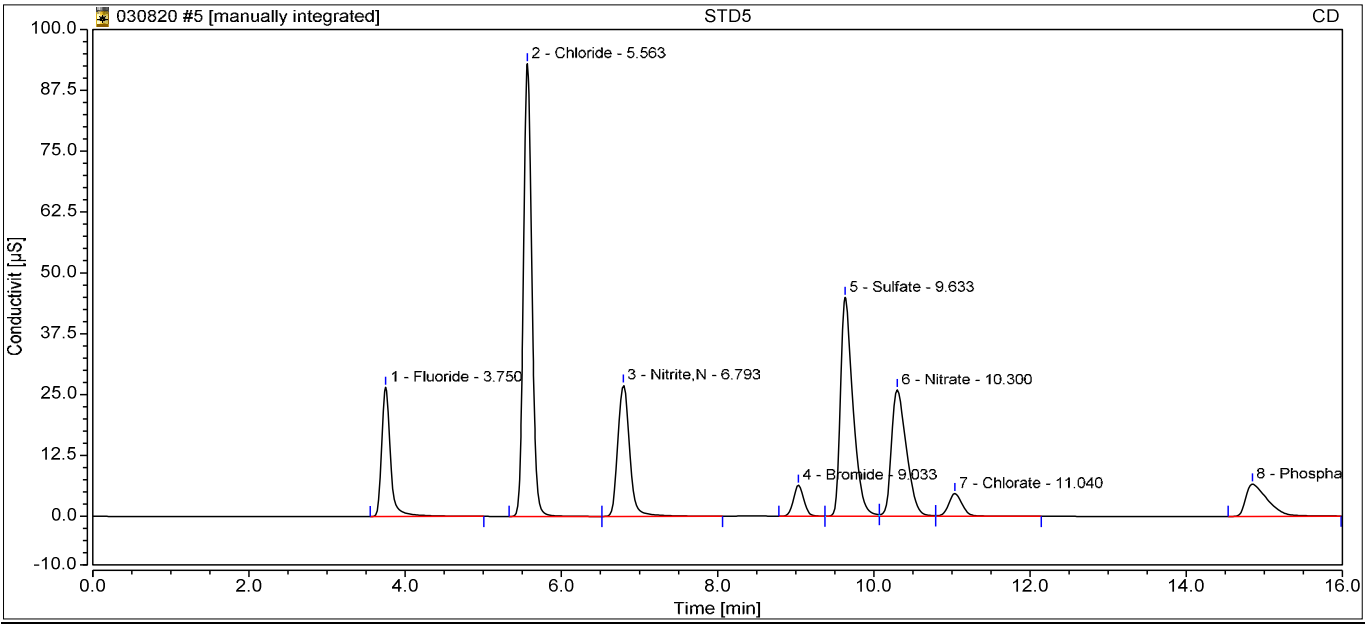


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.428	4.2080	4.2080	1.0000
2	5.57	Chloride	BMb*	4.627	20.0069	20.0069	1.0000
3	6.80	Nitrite,N	bMB*	2.046	4.1745	4.1745	1.0000
4	9.06	Bromide	BM	0.382	3.8871	3.8871	1.0000
5	9.72	Sulfate	M	3.337	19.9713	19.9713	1.0000
6	10.38	Nitrate	M	2.343	4.0228	4.0228	1.0000
7	11.07	Chlorate	MB	0.380	3.9830	3.9830	1.0000
8	15.00	Phosphate	BMB	0.824	3.9874	3.9874	1.0000
Total:			**0.000**	**15.366**		**64.24**	

5 STD5			
Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:51**	*Sample Weight:*	**1.0000**

Run Time:



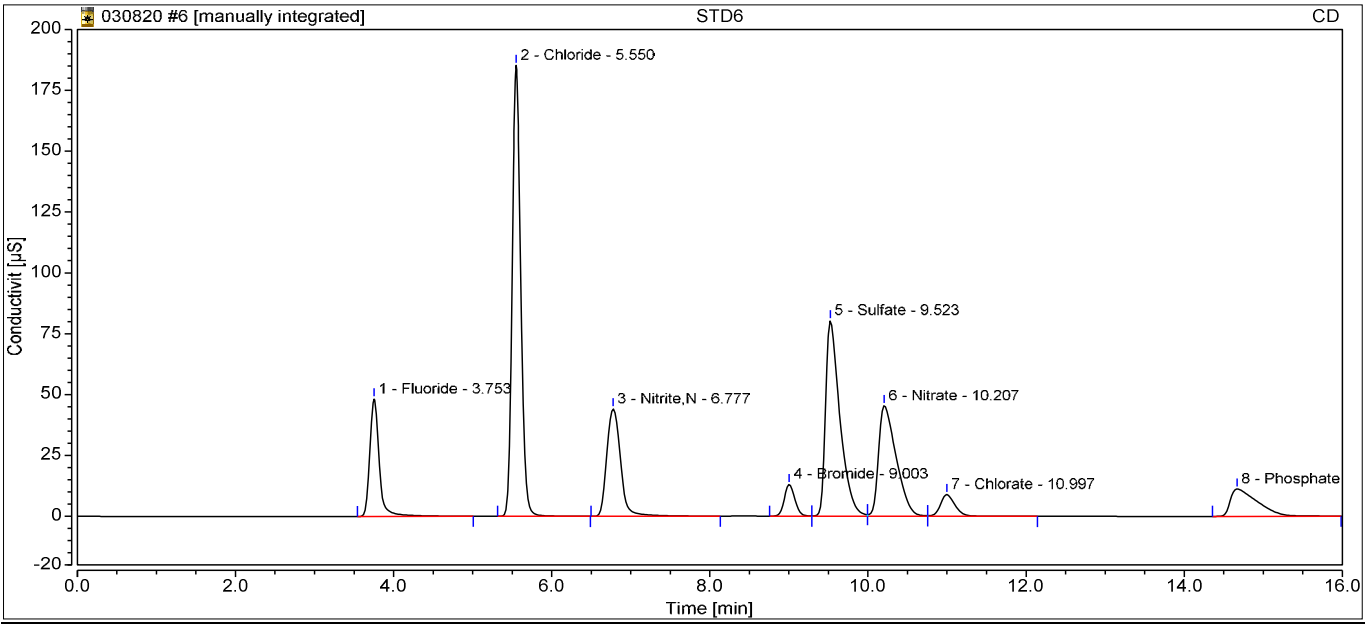
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.472	10.1940	10.1940	1.0000
2	5.56	Chloride	BMB	11.516	49.7057	49.7057	1.0000
3	6.79	Nitrite,N	BMB*	4.776	9.6766	9.6766	1.0000
4	9.03	Bromide	BM	0.981	9.9279	9.9279	1.0000
5	9.63	Sulfate	M	8.325	49.6811	49.6811	1.0000
6	10.30	Nitrate	M	5.799	9.9382	9.9382	1.0000
7	11.04	Chlorate	MB	0.944	9.9252	9.9252	1.0000
8	14.85	Phosphate	BMB	2.135	10.1771	10.1771	1.0000
Total:			**0.000**	**37.949**		**159.23**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**GA6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:09**	*Sample Weight:*	**1.0000**

Run Time:

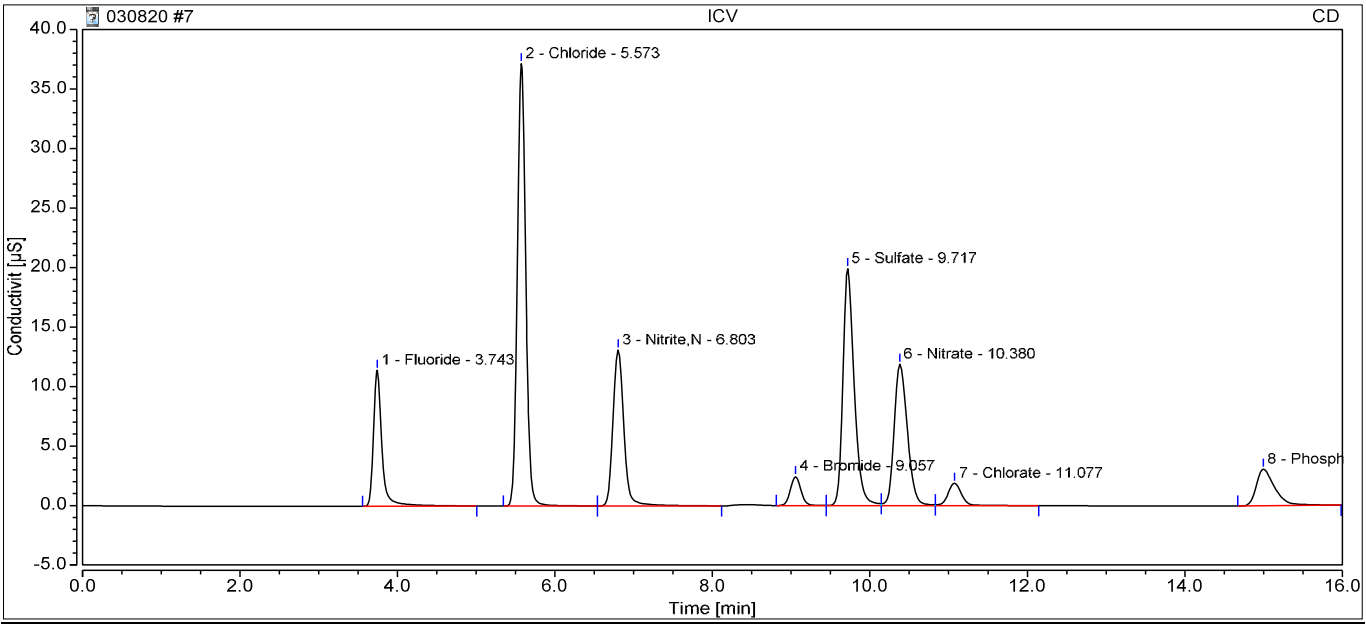


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	6.664	19.5424	19.5424	1.0000
2	5.55	Chloride	BMB	23.270	100.3774	100.3774	1.0000
3	6.78	Nitrite,N	BMB*	8.893	17.9725	17.9725	1.0000
4	9.00	Bromide	BM	2.012	20.3316	20.3316	1.0000
5	9.52	Sulfate	M	16.857	100.4888	100.4888	1.0000
6	10.21	Nitrate	M	11.698	20.0333	20.0333	1.0000
7	11.00	Chlorate	MB	1.906	20.0635	20.0635	1.0000
8	14.67	Phosphate	BMB	4.450	21.0985	21.0985	1.0000
Total:			**0.000**	**75.750**		**319.91**	

7 ICV			
Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:27**	*Sample Weight:*	**1.0000**

Run Time:



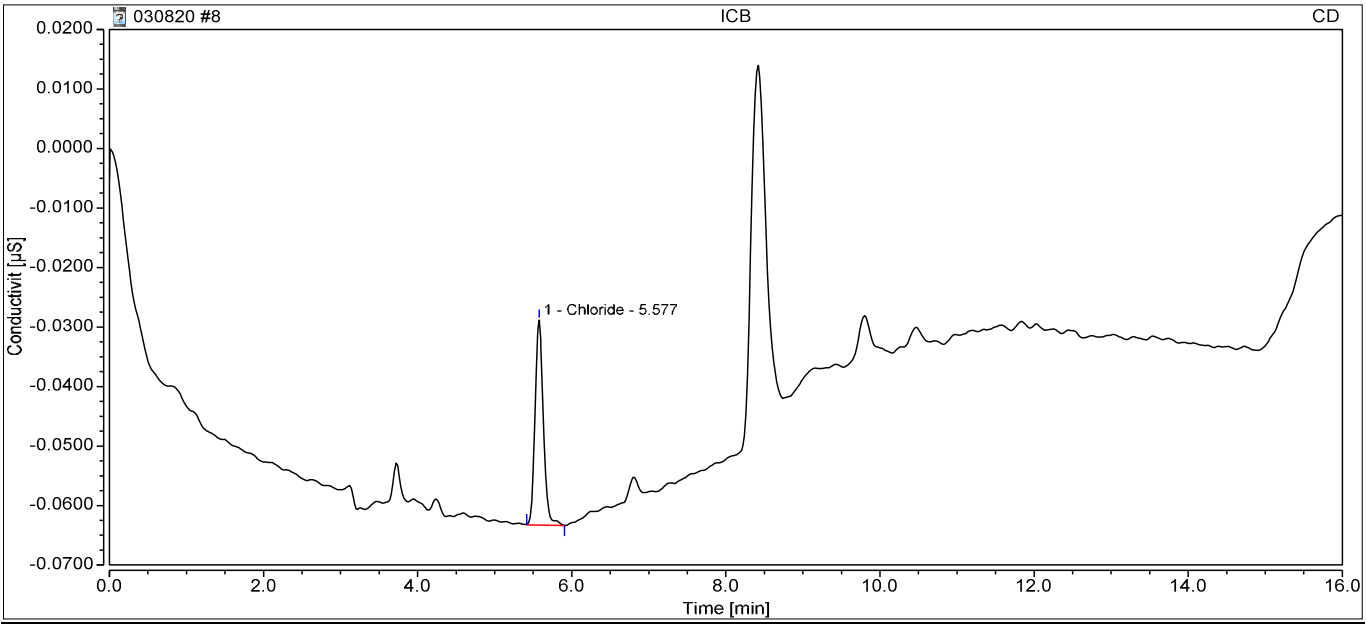
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.412	4.1607	4.1607	1.0000
2	5.57	Chloride	BMB	4.570	19.7627	19.7627	1.0000
3	6.80	Nitrite,N	BMB	2.081	4.2442	4.2442	1.0000
4	9.06	Bromide	BM	0.374	3.8104	3.8104	1.0000
5	9.72	Sulfate	M	3.327	19.9126	19.9126	1.0000
6	10.38	Nitrate	M	2.299	3.9478	3.9478	1.0000
7	11.08	Chlorate	MB	0.379	3.9799	3.9799	1.0000
8	15.00	Phosphate	BMB	0.835	4.0417	4.0417	1.0000
Total:			**0.000**	**15.278**		**63.86**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**GA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:45**	*Sample Weight:*	**1.0000**

Run Time:



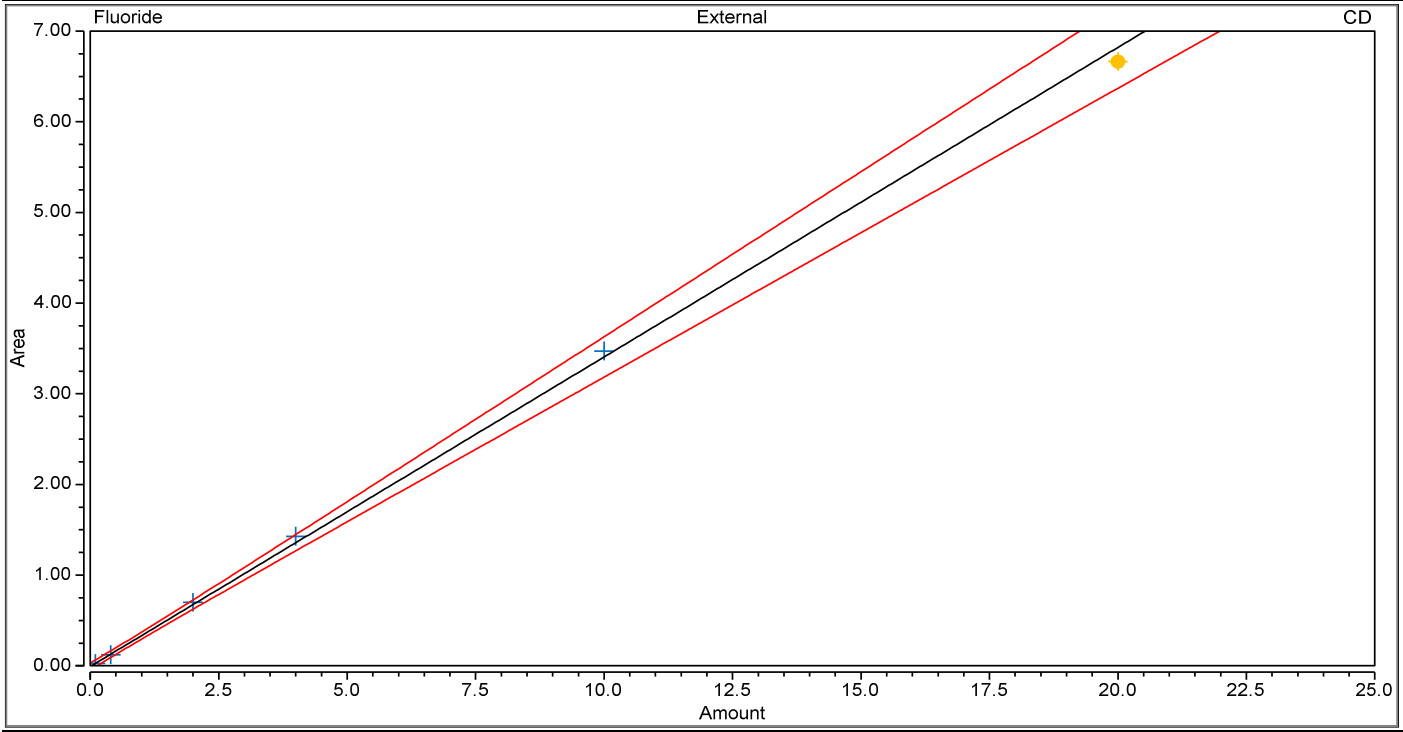
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.58	Chloride	BMB	0.004	0.0794	0.0794	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.004**		**0.08**	

Calibration

Calibration Details	Fluoride		
Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	-0.0083
Evaluation Type	Area	*Slope (C1)*	0.3414
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9991

Calibration Plot **Fluoride**



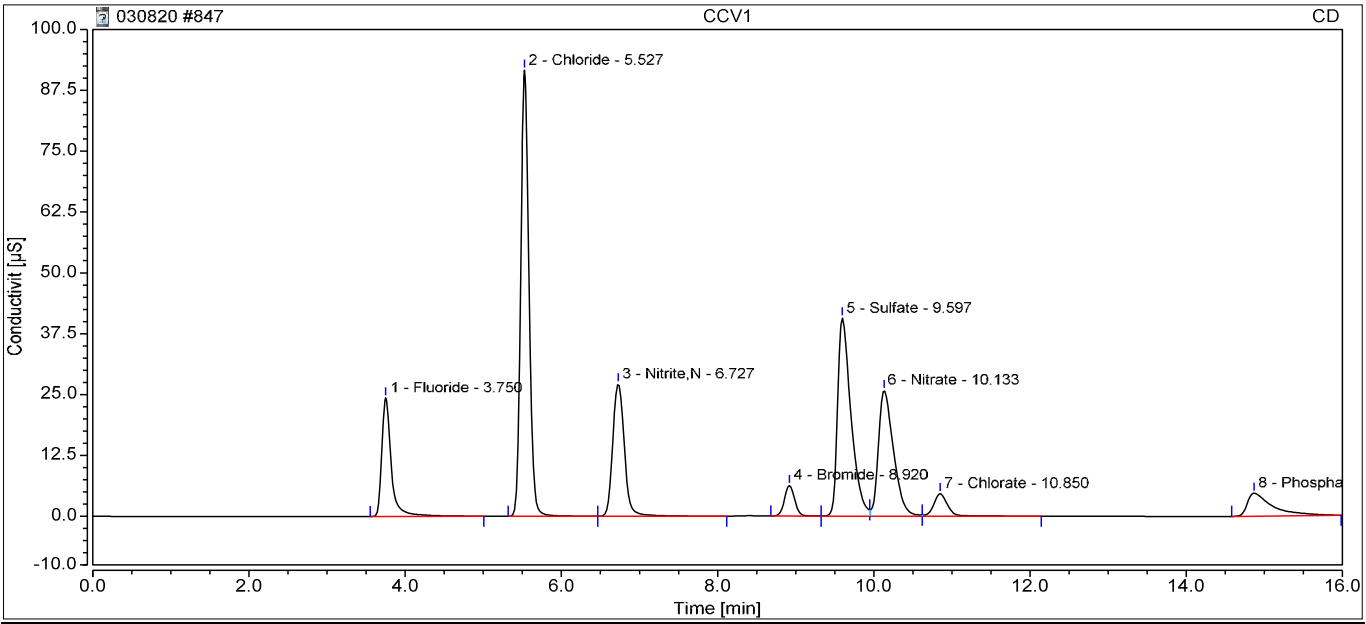
Calibration Results **Fluoride**

No.	Injection Name	Calibration Level	X Value CD Fluoride	Y Value CD Fluoride	Y Value CD Fluoride	Area µS*min CD Fluoride	Height µS CD Fluoride
1	STD1	1	0.1000	0.0243	0.0243	0.024	0.212
2	STD2	2	0.4000	0.1226	0.1226	0.123	0.964
3	STD3	3	2.0000	0.7008	0.7008	0.701	5.614
4	STD4	4	4.0000	1.4284	1.4284	1.428	11.345
5	STD5	5	10.0000	3.4723	3.4723	3.472	26.547
6	STD6	6	20.0000	6.6641	6.6641	6.664	48.233

847 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/18/2020 18:52**	*Sample Weight:*	**1.0000**

Run Time:



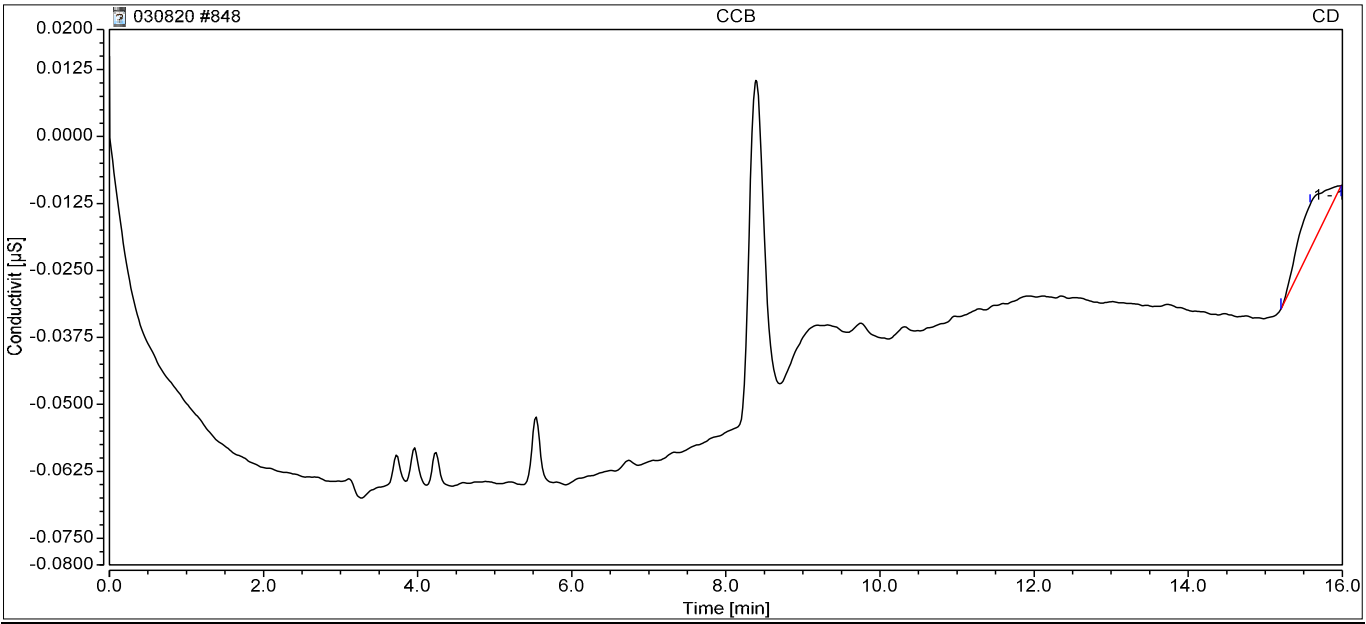
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.416	10.0284	10.0284	1.0000
2	5.53	Chloride	BMB	11.244	48.5351	48.5351	1.0000
3	6.73	Nitrite,N	BMB	4.722	9.5676	9.5676	1.0000
4	8.92	Bromide	BM	0.948	9.5923	9.5923	1.0000
5	9.60	Sulfate	M	8.058	48.0883	48.0883	1.0000
6	10.13	Nitrate	M	5.760	9.8714	9.8714	1.0000
7	10.85	Chlorate	MB	0.951	9.9955	9.9955	1.0000
8	14.87	Phosphate	BMB	1.771	8.4577	8.4577	1.0000
Total:			**0.000**	**36.870**		**154.14**	

848 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RE1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/18/2020 19:10**	*Sample Weight:*	**1.0000**

Run Time:

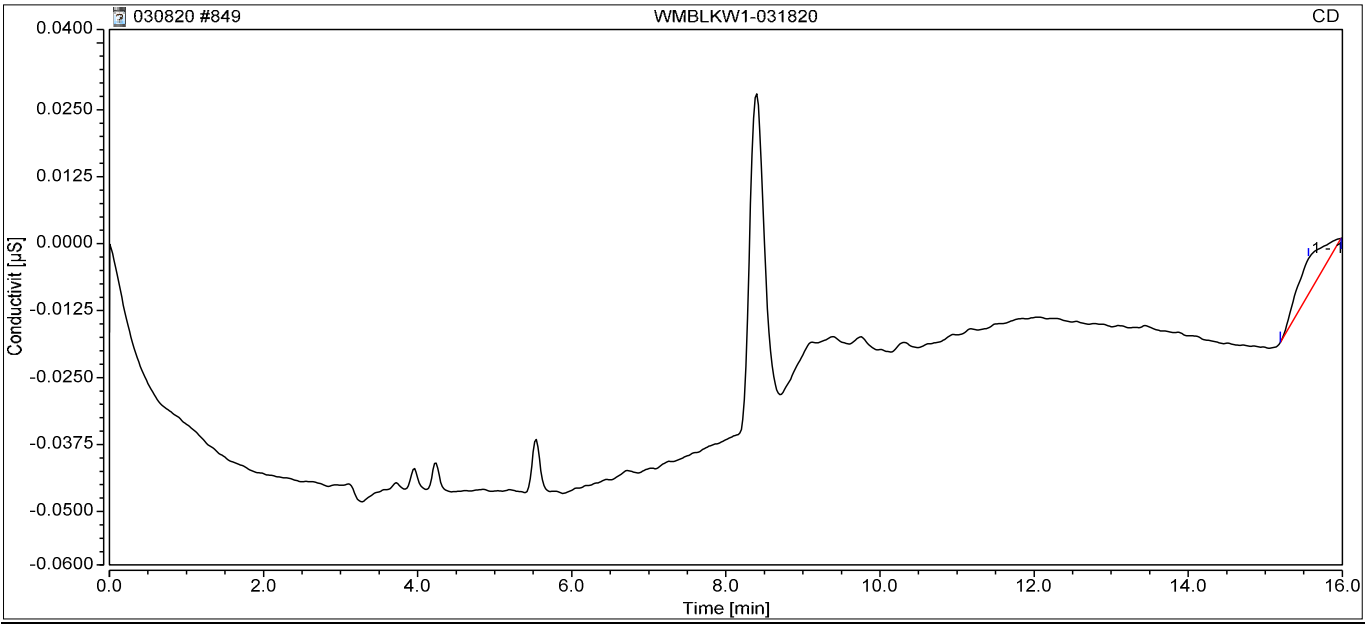


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

849 WMBLKW1-031820			
Sample Name:	**WMBLKW1-031820**	*Injection Volume:*	**5.00**
Vial Number:	**BB2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/18/2020 19:28**	*Sample Weight:*	**1.0000**

Run Time:



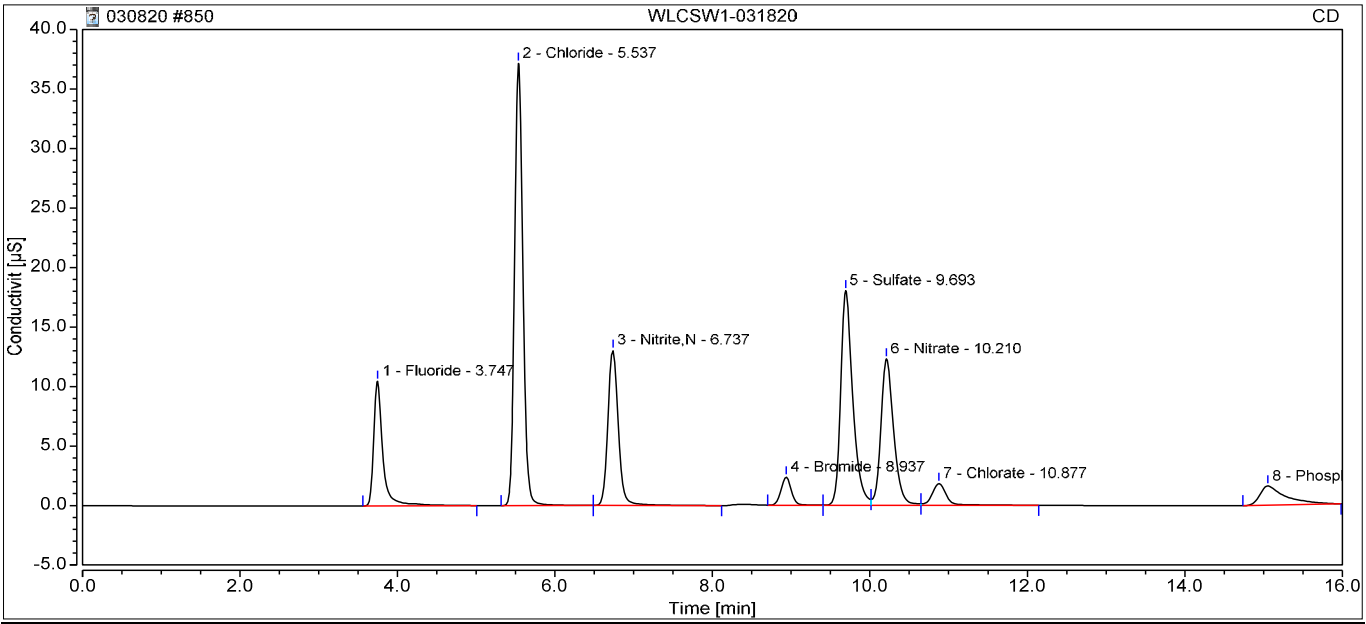
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

850 WLCSW1-031820

Sample Name:	**WLCSW1-031820**	*Injection Volume:*	**5.00**
Vial Number:	**BB3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/18/2020 19:46**	*Sample Weight:*	**1.0000**

Run Time:



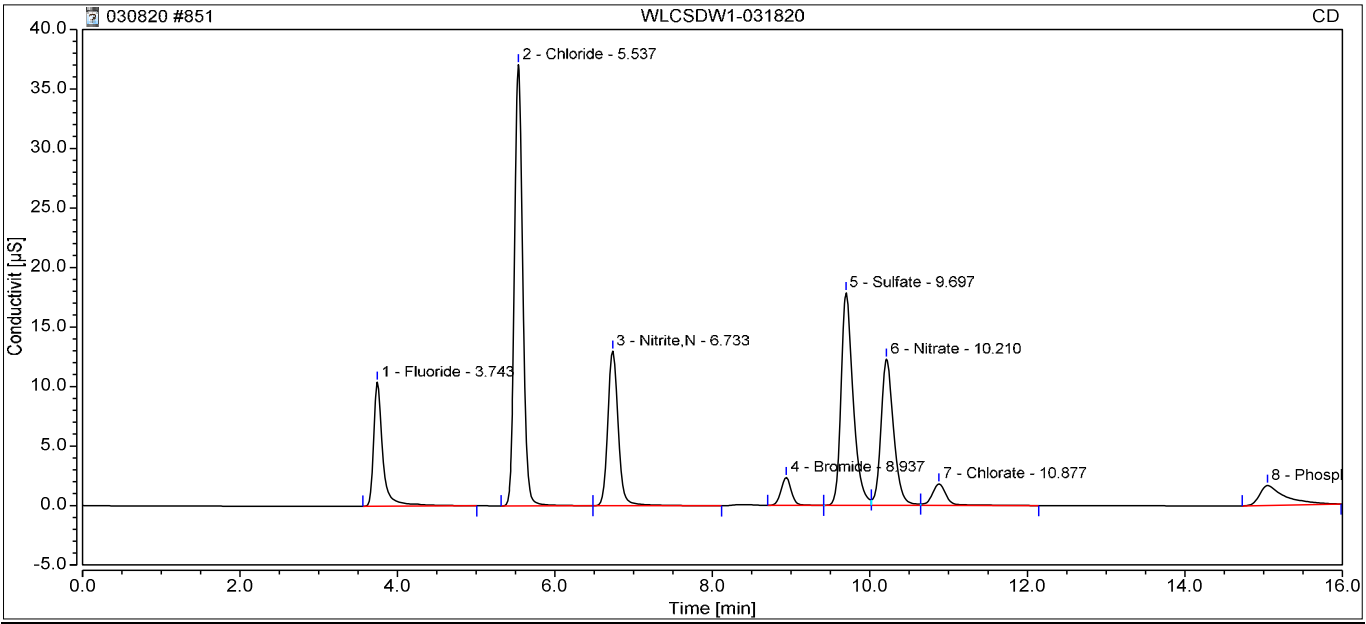
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.405	4.1405	4.1405	1.0000
2	5.54	Chloride	BMB	4.520	19.5452	19.5452	1.0000
3	6.74	Nitrite,N	BMB	2.024	4.1296	4.1296	1.0000
4	8.94	Bromide	BM	0.361	3.6766	3.6766	1.0000
5	9.69	Sulfate	M	3.213	19.2332	19.2332	1.0000
6	10.21	Nitrate	M	2.320	3.9839	3.9839	1.0000
7	10.88	Chlorate	MB	0.387	4.0538	4.0538	1.0000
8	15.05	Phosphate	BMB	0.620	3.0284	3.0284	1.0000
Total:			**0.000**	**14.850**		**61.79**	

851 WLCSDW1-031820

Sample Name:	**WLCSDW1-031820**	*Injection Volume:*	**5.00**
Vial Number:	**BB4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/18/2020 20:04**	*Sample Weight:*	**1.0000**

Run Time:



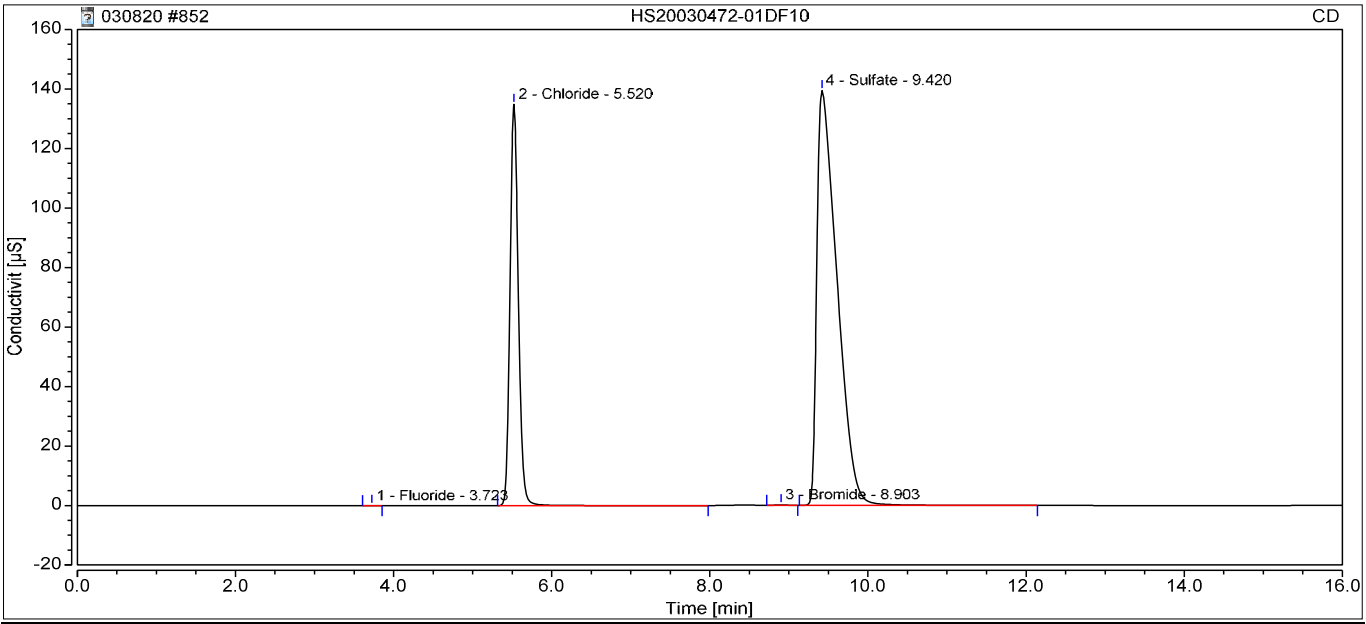
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.393	4.1044	4.1044	1.0000
2	5.54	Chloride	BMB	4.503	19.4713	19.4713	1.0000
3	6.73	Nitrite,N	BMB	2.012	4.1050	4.1050	1.0000
4	8.94	Bromide	BM	0.359	3.6519	3.6519	1.0000
5	9.70	Sulfate	M	3.194	19.1205	19.1205	1.0000
6	10.21	Nitrate	M	2.308	3.9633	3.9633	1.0000
7	10.88	Chlorate	MB	0.384	4.0280	4.0280	1.0000
8	15.05	Phosphate	BMB	0.633	3.0866	3.0866	1.0000
Total:			**0.000**	**14.785**		**61.53**	

852 HS20030472-01DF10

Sample Name:	**HS20030472-01DF10**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/18/2020 20:23**	*Sample Weight:*	**1.0000**

Run Time:



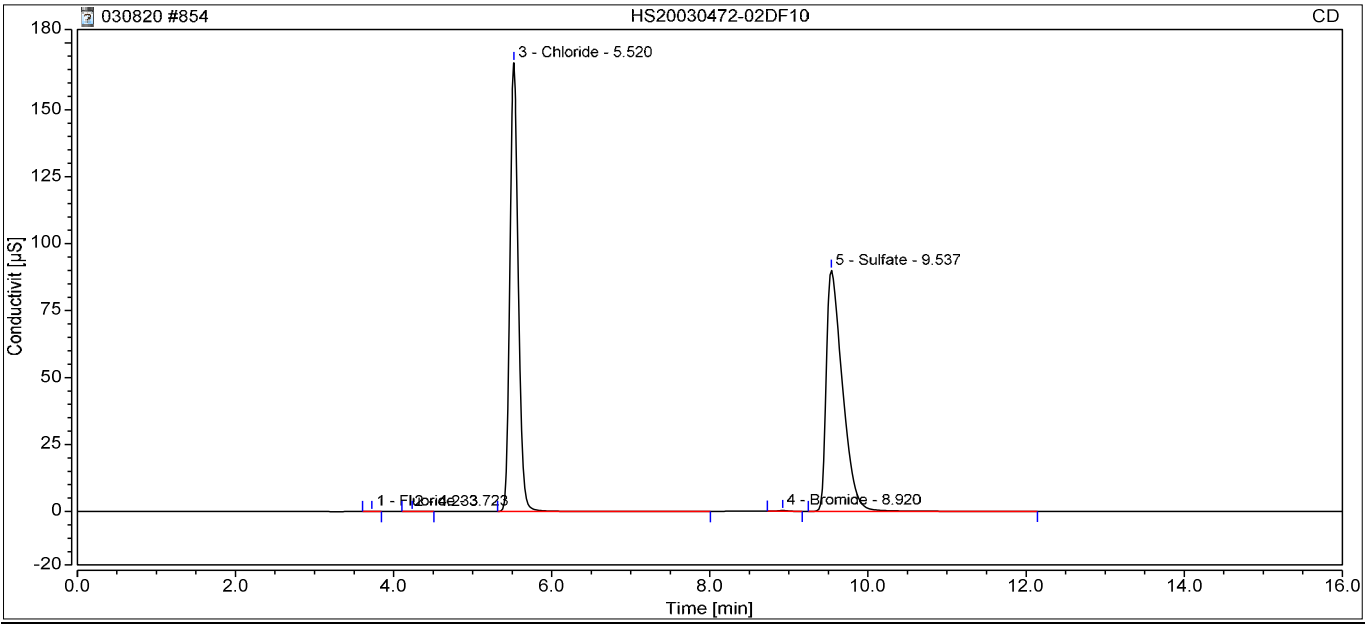
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.003	0.0321	0.3209	10.0000
2	5.52	Chloride	BMB	16.691	72.0147	720.1466	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
3	8.90	Bromide	BMB	0.023	0.2649	2.6486	10.0000
4	9.42	Sulfate	BMB	41.046	244.5438	2445.4378	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**57.763**		**3168.55**	

854 HS20030472-02DF10

Sample Name:	**HS20030472-02DF10**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/18/2020 20:59**	*Sample Weight:*	**1.0000**

Run Time:



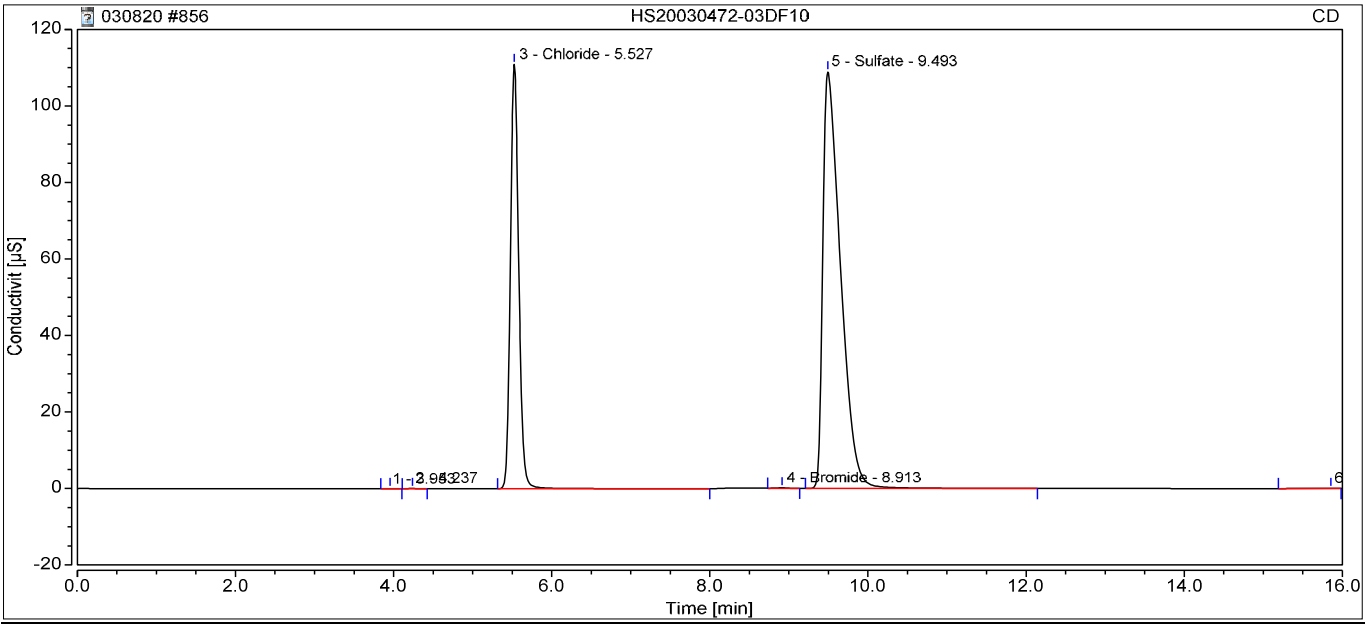
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.003	0.0336	0.3362	10.0000
3	5.52	Chloride	BMB	20.870	90.0294	900.2944	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
4	8.92	Bromide	BMB	0.044	0.4825	4.8246	10.0000
5	9.54	Sulfate	BMB	21.396	127.5198	1275.1983	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**42.313**		**2180.65**	

856 HS20030472-03DF10

Sample Name:	**HS20030472-03DF10**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/18/2020 21:35**	*Sample Weight:*	**1.0000**

Run Time:



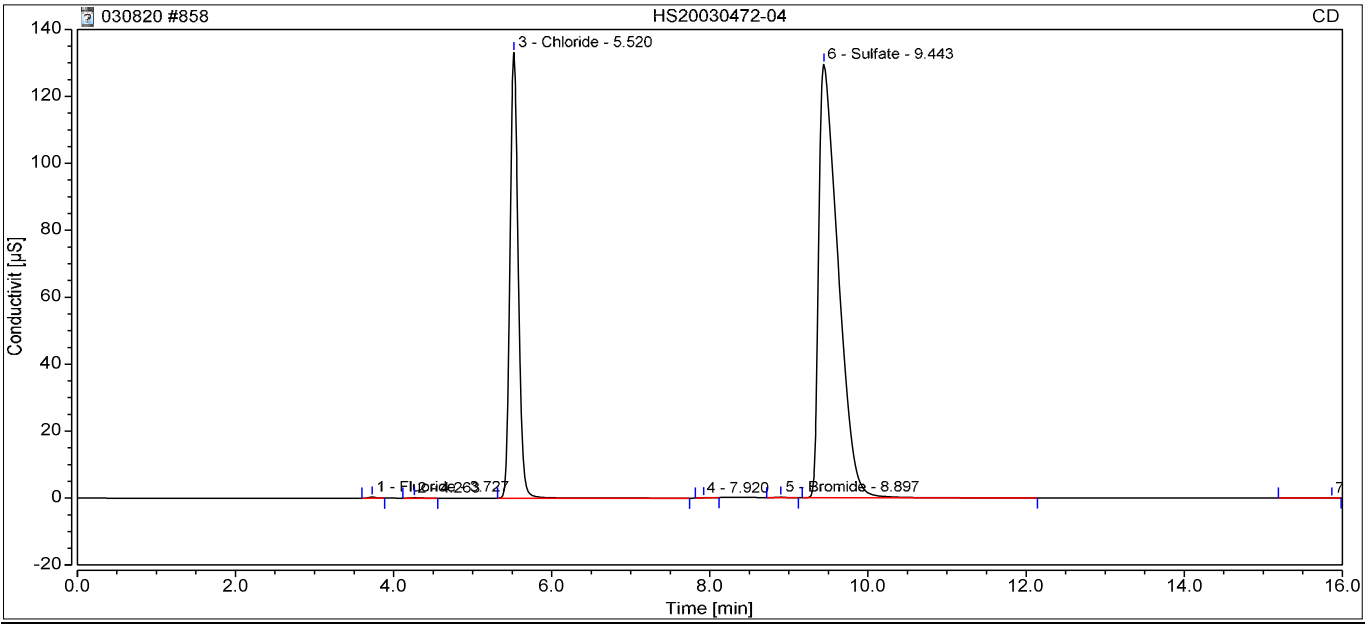
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	10.0000
3	5.53	Chloride	BMB	13.645	58.8825	588.8251	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
4	8.91	Bromide	BMB	0.019	0.2258	2.2579	10.0000
5	9.49	Sulfate	BMB	28.186	167.9546	1679.5457	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**41.849**		**2270.63**	

858 HS20030472-04

Sample Name:	**HS20030472-04**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/18/2020 22:11**	*Sample Weight:*	**1.0000**

Run Time:



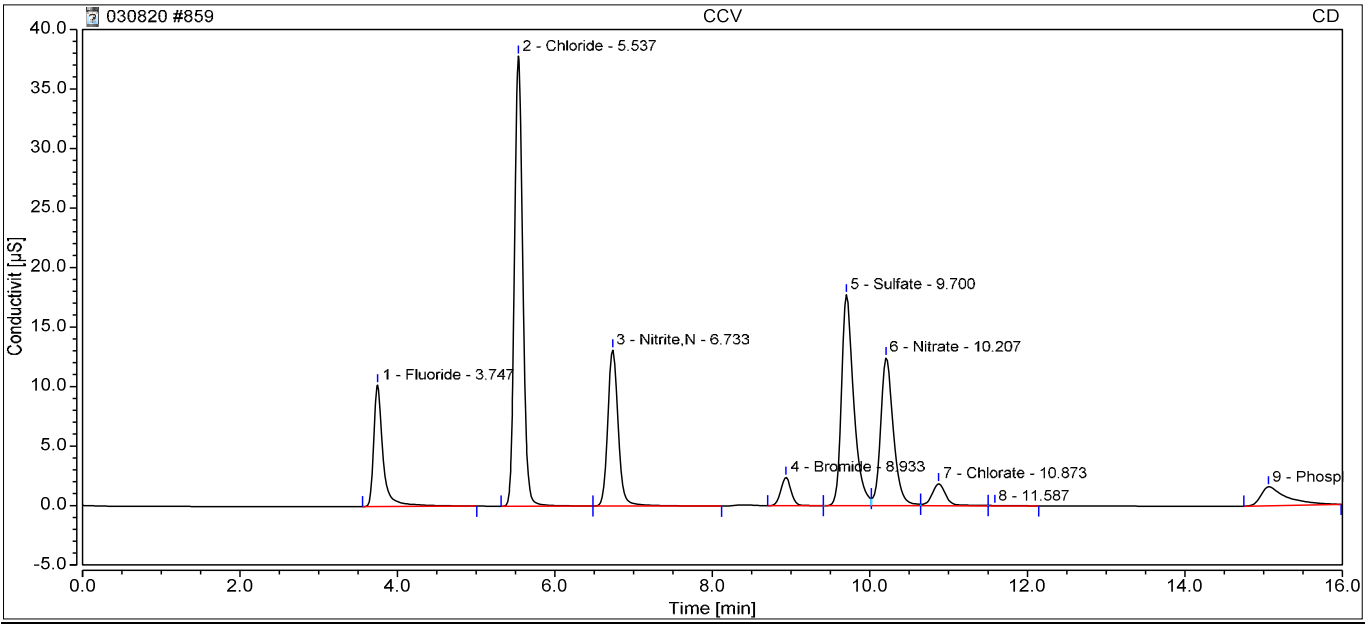
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.031	0.1155	0.1155	1.0000
3	5.52	Chloride	BMB	16.342	70.5118	70.5118	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.90	Bromide	BMB	0.023	0.2664	0.2664	1.0000
6	9.44	Sulfate	BMB	36.725	218.8070	218.8070	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**53.121**		**289.70**	

859 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**RA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/18/2020 22:29**	*Sample Weight:*	**1.0000**

Run Time:



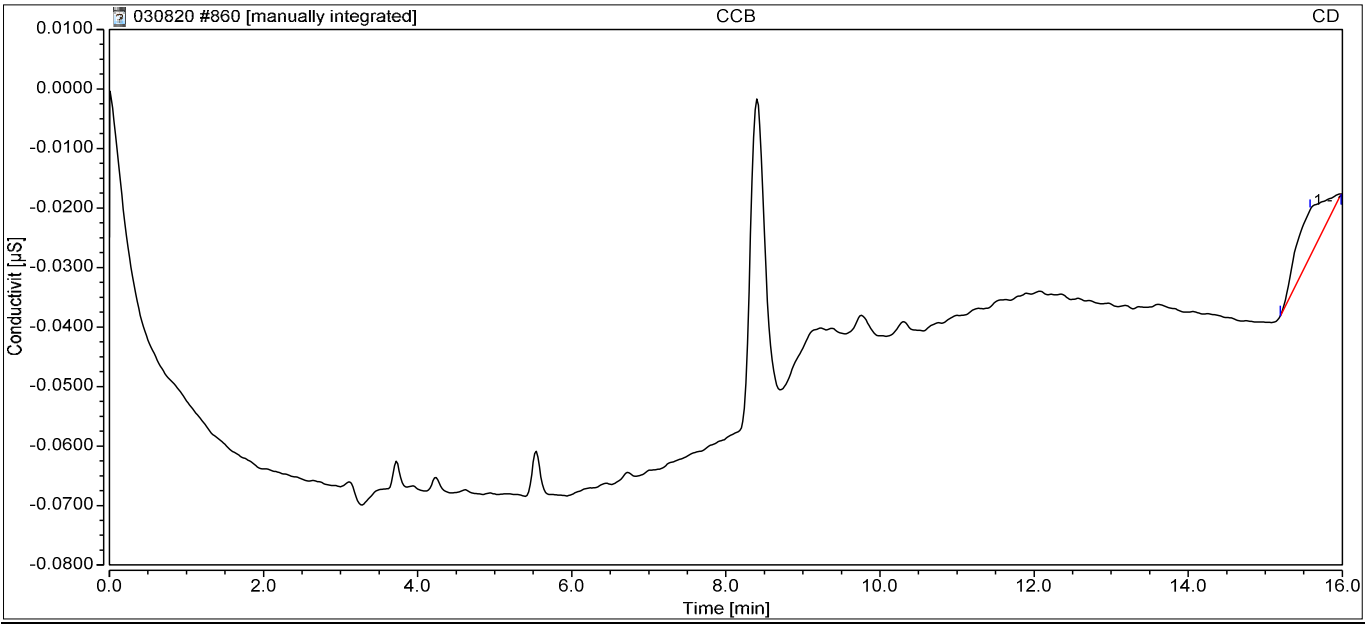
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.398	4.1176	4.1176	1.0000
2	5.54	Chloride	BMB	4.596	19.8750	19.8750	1.0000
3	6.73	Nitrite,N	BMB	2.034	4.1497	4.1497	1.0000
4	8.93	Bromide	BM	0.363	3.7002	3.7002	1.0000
5	9.70	Sulfate	M	3.212	19.2315	19.2315	1.0000
6	10.21	Nitrate	M	2.346	4.0282	4.0282	1.0000
7	10.87	Chlorate	M	0.384	4.0255	4.0255	1.0000
9	15.06	Phosphate	BMB	0.609	2.9753	2.9753	1.0000
Total:			**0.000**	**14.943**		**62.10**	

860 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/18/2020 22:47**	*Sample Weight:*	**1.0000**

Run Time:



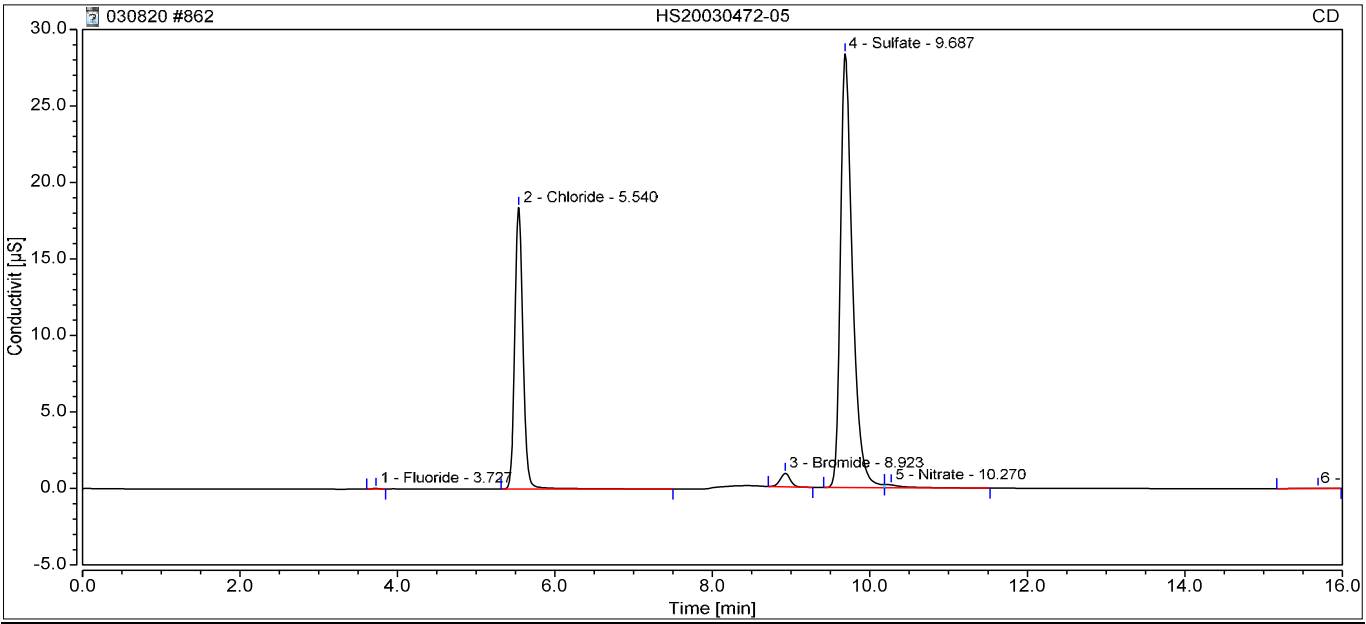
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

862 HS20030472-05

Sample Name:	**HS20030472-05**	*Injection Volume:*	**5.00**
Vial Number:	**GB1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/18/2020 23:24**	*Sample Weight:*	**1.0000**

Run Time:



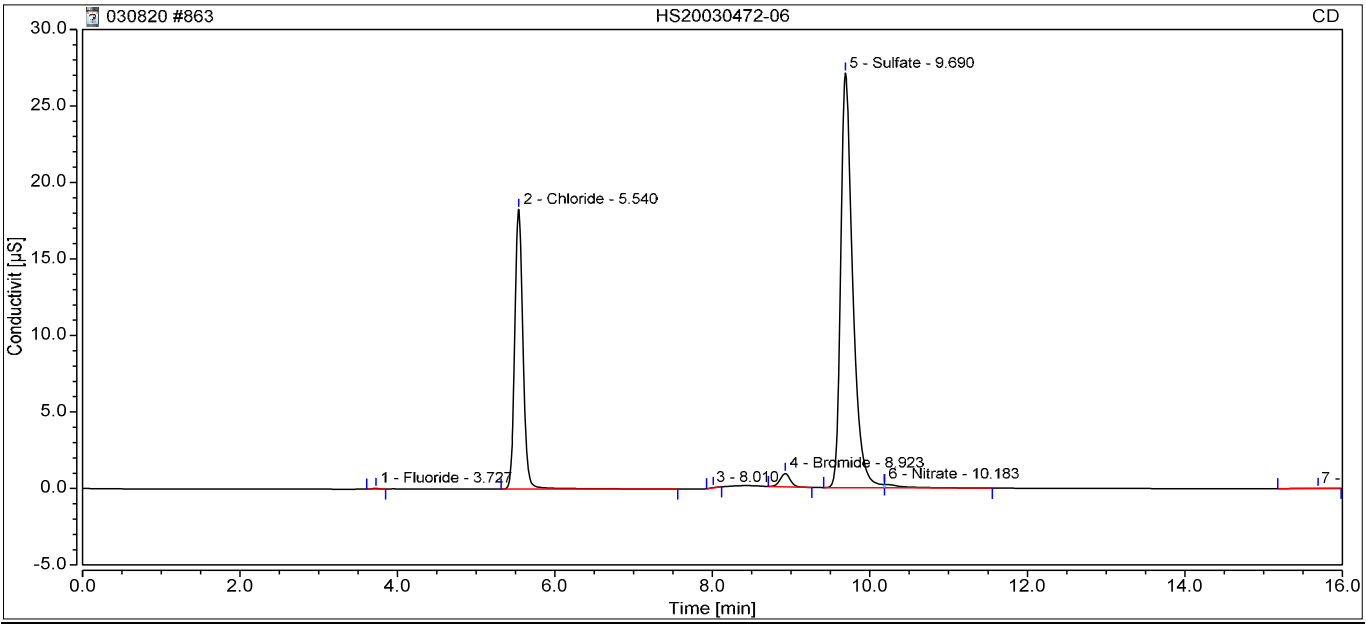
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.005	0.0379	0.0379	1.0000
2	5.54	Chloride	BMB	2.226	9.6586	9.6586	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
3	8.92	Bromide	BMB	0.131	1.3595	1.3595	1.0000
4	9.69	Sulfate	BM	5.044	30.1376	30.1376	1.0000
5	10.27	Nitrate	MB	0.060	0.1149	0.1149	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**7.466**		**41.31**	

863 HS20030472-06

Sample Name:	**HS20030472-06**	*Injection Volume:*	**5.00**
Vial Number:	**GB2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/18/2020 23:42**	*Sample Weight:*	**1.0000**

Run Time:



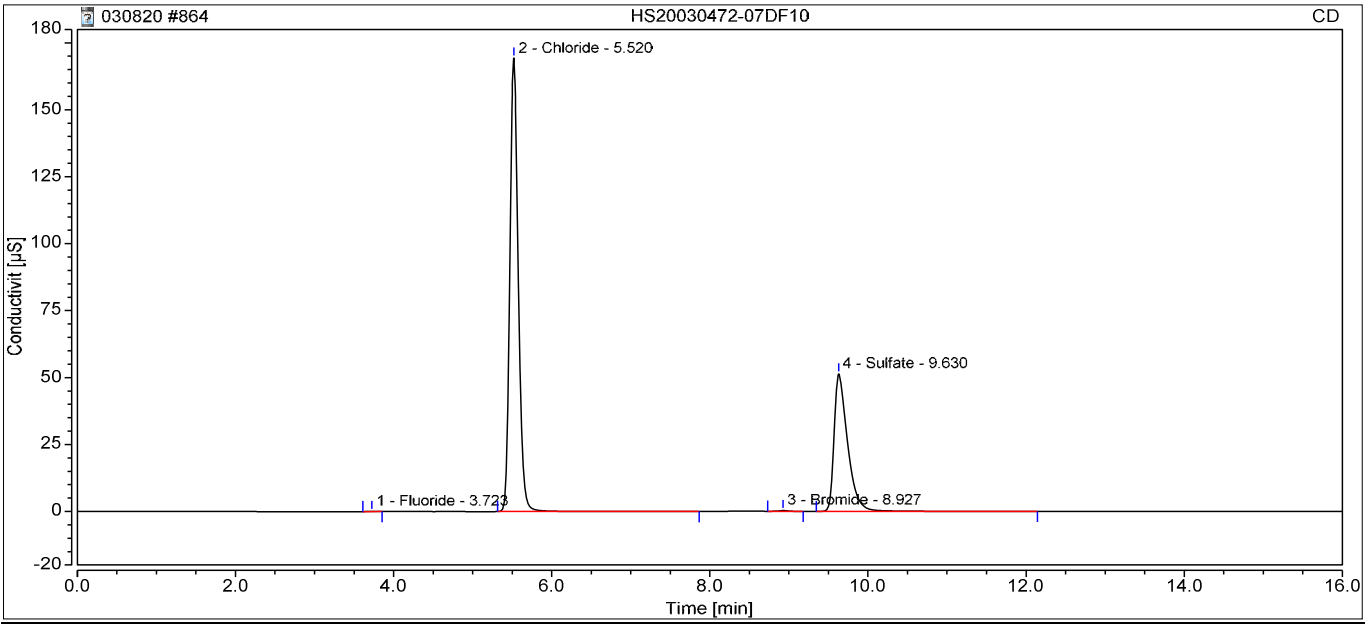
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.005	0.0380	0.0380	1.0000
2	5.54	Chloride	BMB	2.212	9.5977	9.5977	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.92	Bromide	BMB	0.130	1.3463	1.3463	1.0000
5	9.69	Sulfate	BM	4.815	28.7772	28.7772	1.0000
6	10.18	Nitrate	MB	0.059	0.1147	0.1147	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**7.222**		**39.87**	

864 HS20030472-07DF10

Sample Name:	**HS20030472-07DF10**	*Injection Volume:*	**5.00**
Vial Number:	**GB3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/19/2020 00:00**	*Sample Weight:*	**1.0000**

Run Time:



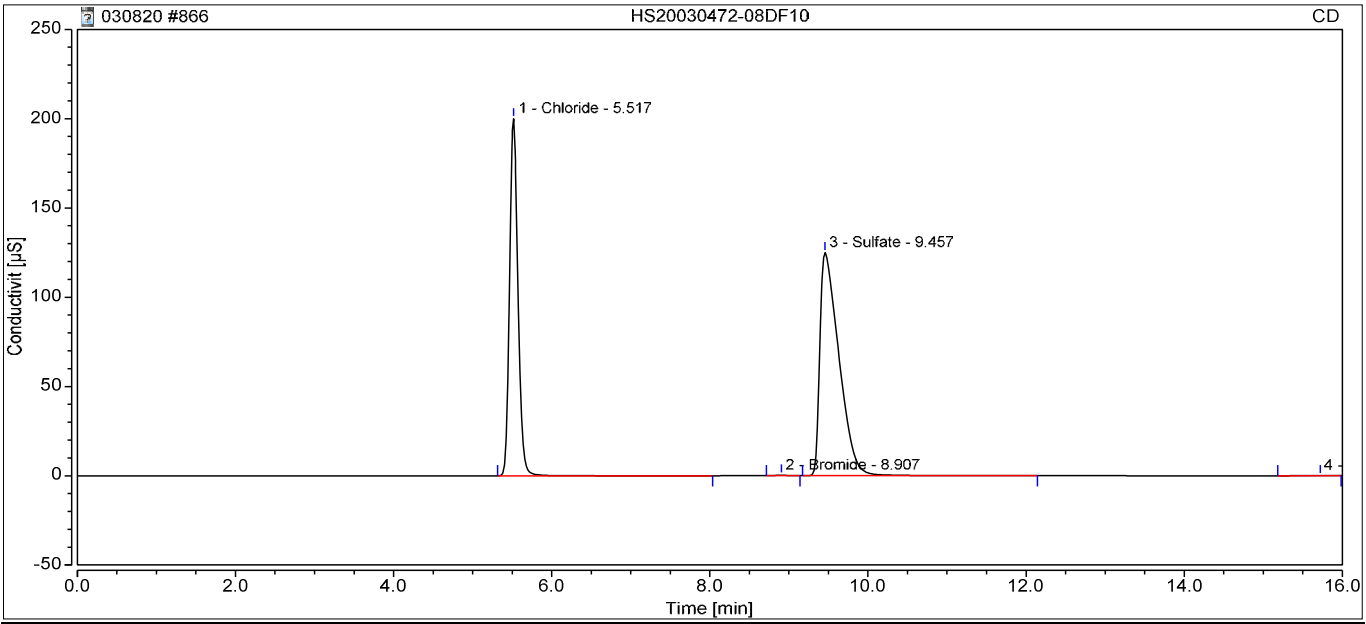
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.002	0.0316	0.3156	10.0000
2	5.52	Chloride	BMB	21.146	91.2201	912.2010	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
3	8.93	Bromide	BMB	0.039	0.4301	4.3010	10.0000
4	9.63	Sulfate	BMB	10.251	61.1488	611.4876	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**31.439**		**1528.31**	

866 HS20030472-08DF10

Sample Name:	**HS20030472-08DF10**	*Injection Volume:*	**5.00**
Vial Number:	**GB5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/19/2020 00:36**	*Sample Weight:*	**1.0000**

Run Time:



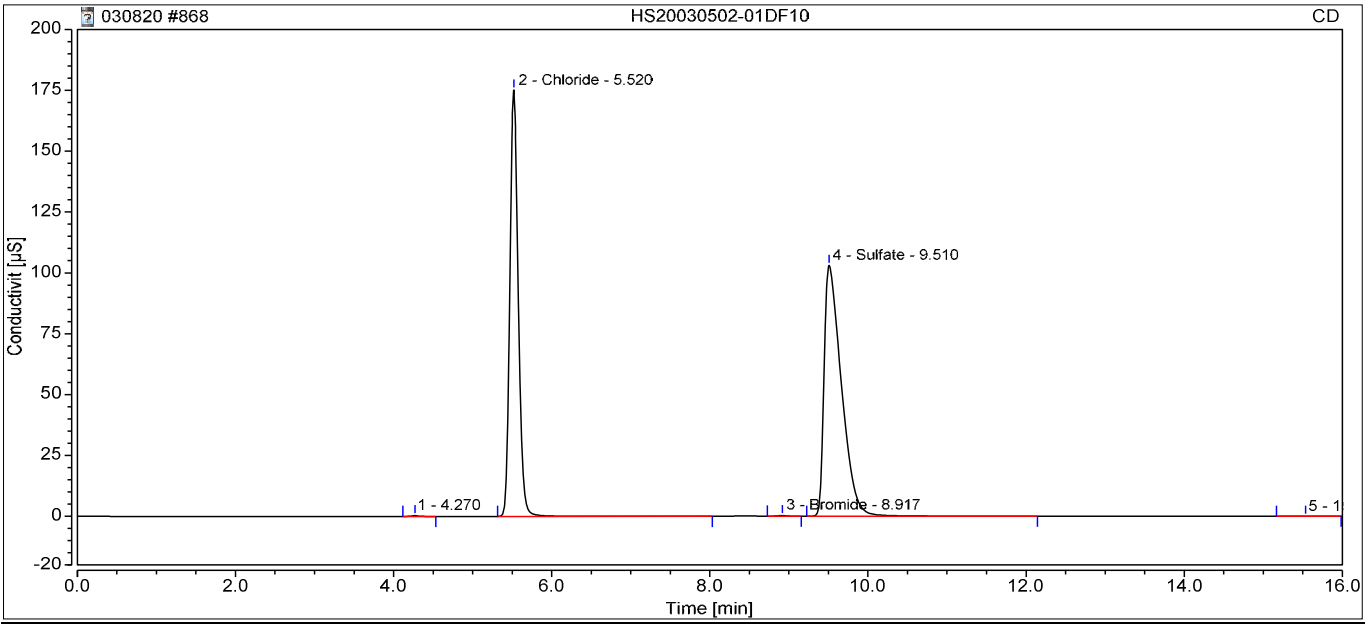
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	10.0000
1	5.52	Chloride	BMB	24.918	107.4836	1074.8357	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
2	8.91	Bromide	BMB	0.038	0.4201	4.2013	10.0000
3	9.46	Sulfate	BMB	34.712	206.8207	2068.2070	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**59.669**		**3147.24**	

868 HS20030502-01DF10

Sample Name:	**HS20030502-01DF10**	*Injection Volume:*	**5.00**
Vial Number:	**GB7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/19/2020 01:12**	*Sample Weight:*	**1.0000**

Run Time:



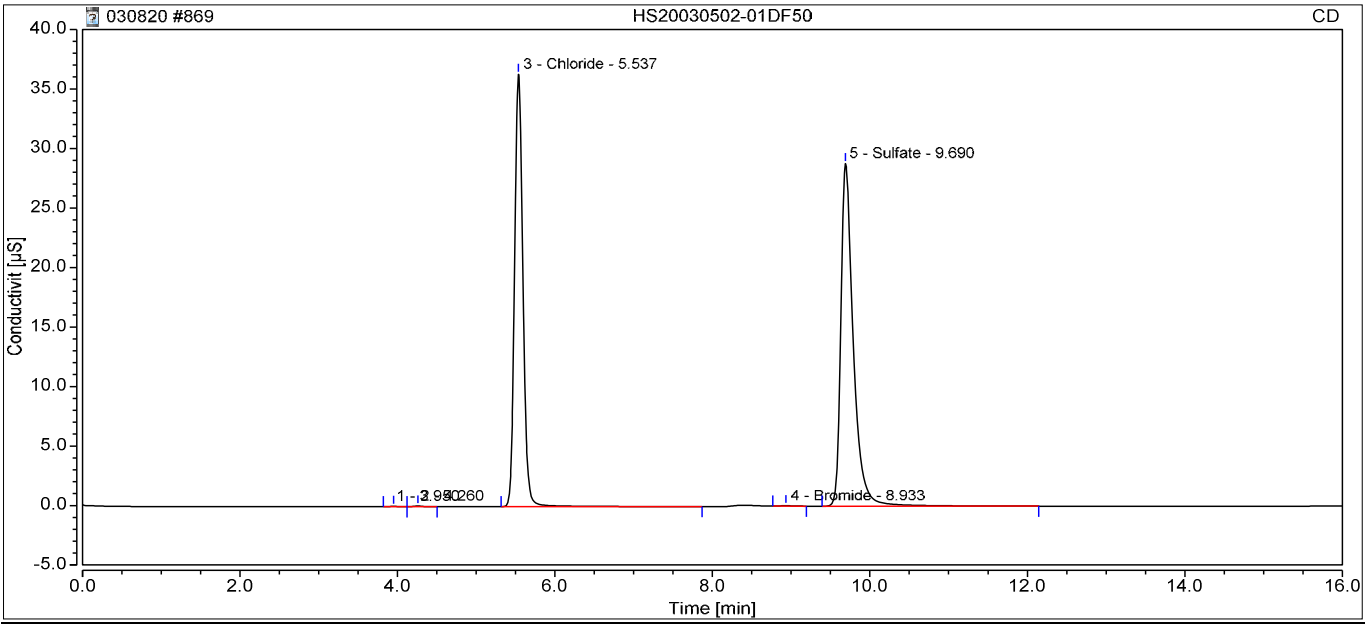
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	10.0000
2	5.52	Chloride	BMB	21.807	94.0686	940.6859	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
3	8.92	Bromide	BMB	0.033	0.3707	3.7065	10.0000
4	9.51	Sulfate	BMB	26.132	155.7229	1557.2288	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**47.972**		**2501.62**	

869 HS20030502-01DF50

Sample Name:	**HS20030502-01DF50**	*Injection Volume:*	**5.00**
Vial Number:	**GB8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**50.0000**
Recording Time:	**03/19/2020 01:30**	*Sample Weight:*	**1.0000**

Run Time:



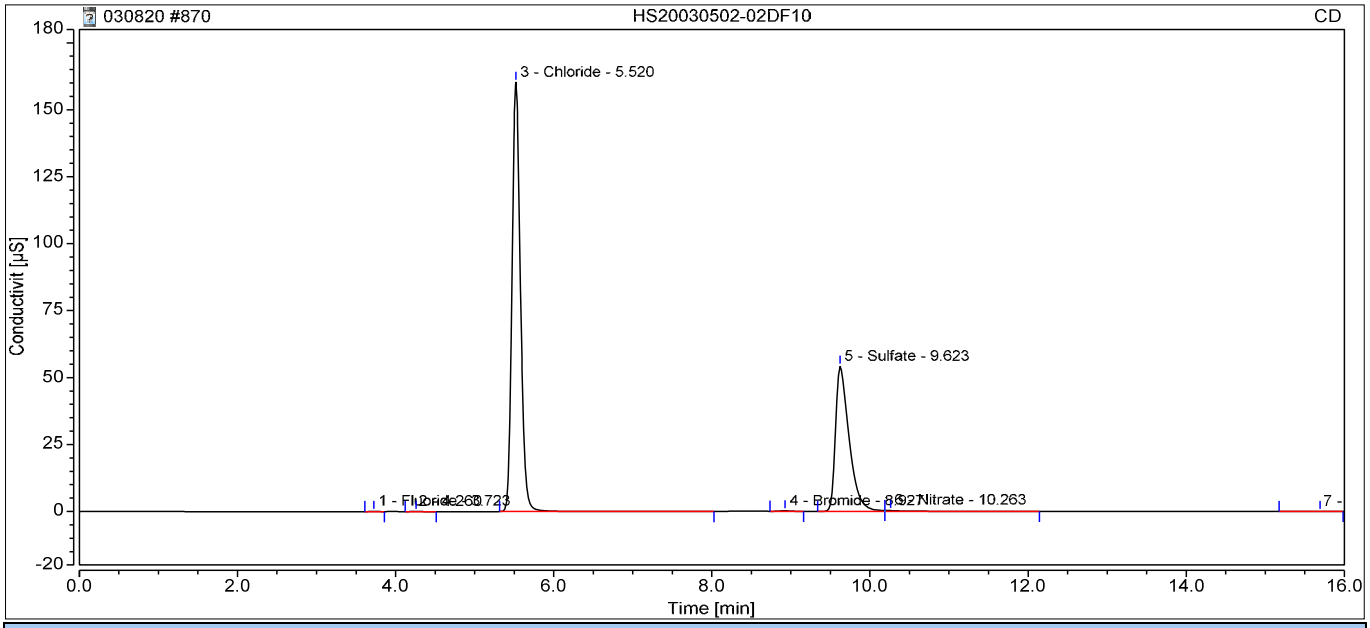
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	50.0000
3	5.54	Chloride	BMB	4.448	19.2364	961.8224	50.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	50.0000
4	8.93	Bromide	BMB	0.006	0.0965	4.8235	50.0000
5	9.69	Sulfate	BMB	5.316	31.7589	1587.9425	50.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	50.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	50.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	50.0000
Total:			**0.000**	**9.770**		**2554.59**	

870 HS20030502-02DF10

Sample Name:	**HS20030502-02DF10**	*Injection Volume:*	**5.00**
Vial Number:	**GC1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/19/2020 01:48**	*Sample Weight:*	**1.0000**

Run Time:



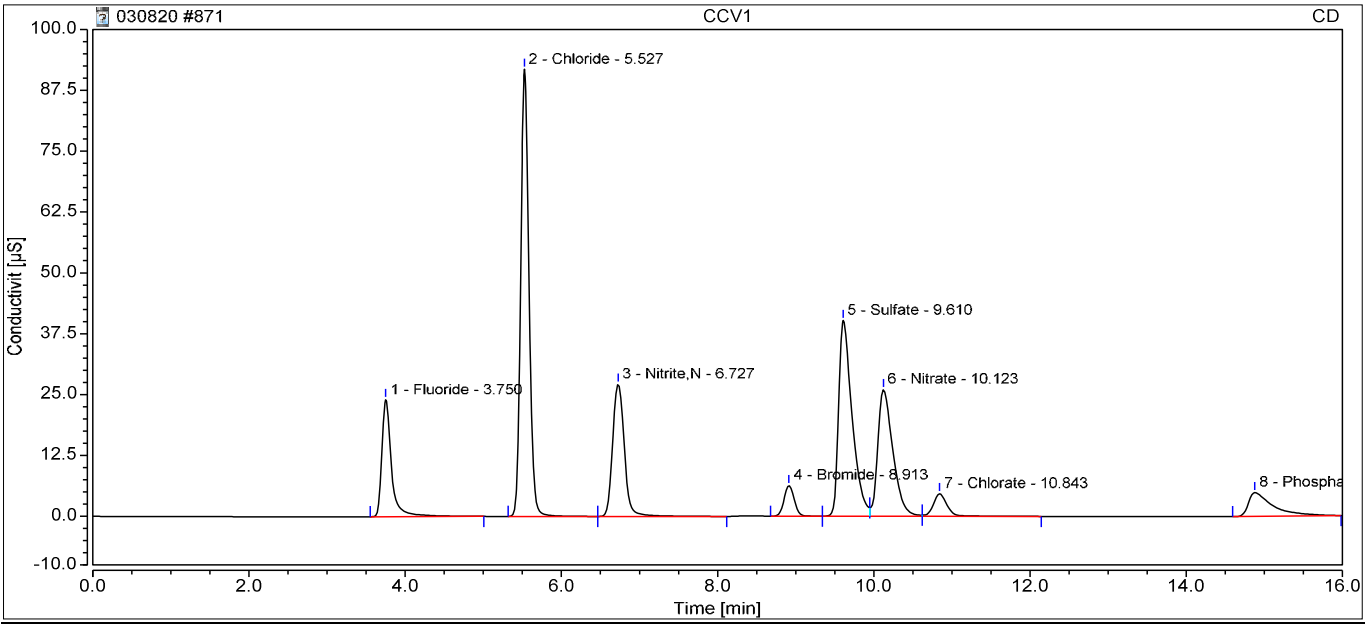
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.003	0.0340	0.3400	10.0000
3	5.52	Chloride	BMB	20.006	86.3053	863.0534	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
4	8.93	Bromide	BMB	0.030	0.3326	3.3262	10.0000
5	9.62	Sulfate	BM	10.884	64.9211	649.2114	10.0000
6	10.26	Nitrate	MB	0.115	0.2095	2.0951	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**31.038**		**1518.03**	

871 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2020 02:07**	*Sample Weight:*	**1.0000**

Run Time:



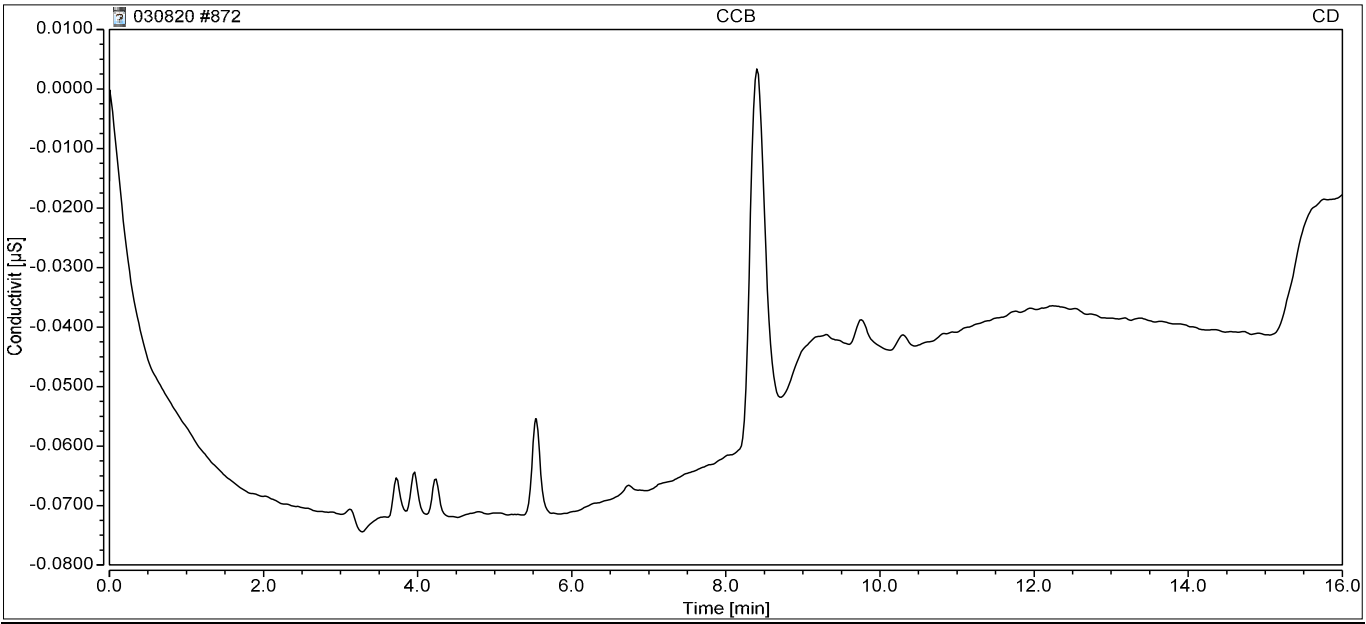
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.421	10.0439	10.0439	1.0000
2	5.53	Chloride	BMB	11.285	48.7122	48.7122	1.0000
3	6.73	Nitrite,N	BMB	4.741	9.6048	9.6048	1.0000
4	8.91	Bromide	BM	0.948	9.5999	9.5999	1.0000
5	9.61	Sulfate	M	8.017	47.8437	47.8437	1.0000
6	10.12	Nitrate	M	5.814	9.9639	9.9639	1.0000
7	10.84	Chlorate	MB	0.954	10.0366	10.0366	1.0000
8	14.88	Phosphate	BMB	1.789	8.5423	8.5423	1.0000
Total:			**0.000**	**36.970**		**154.35**	

872 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**RE1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2020 02:25**	*Sample Weight:*	**1.0000**

Run Time:



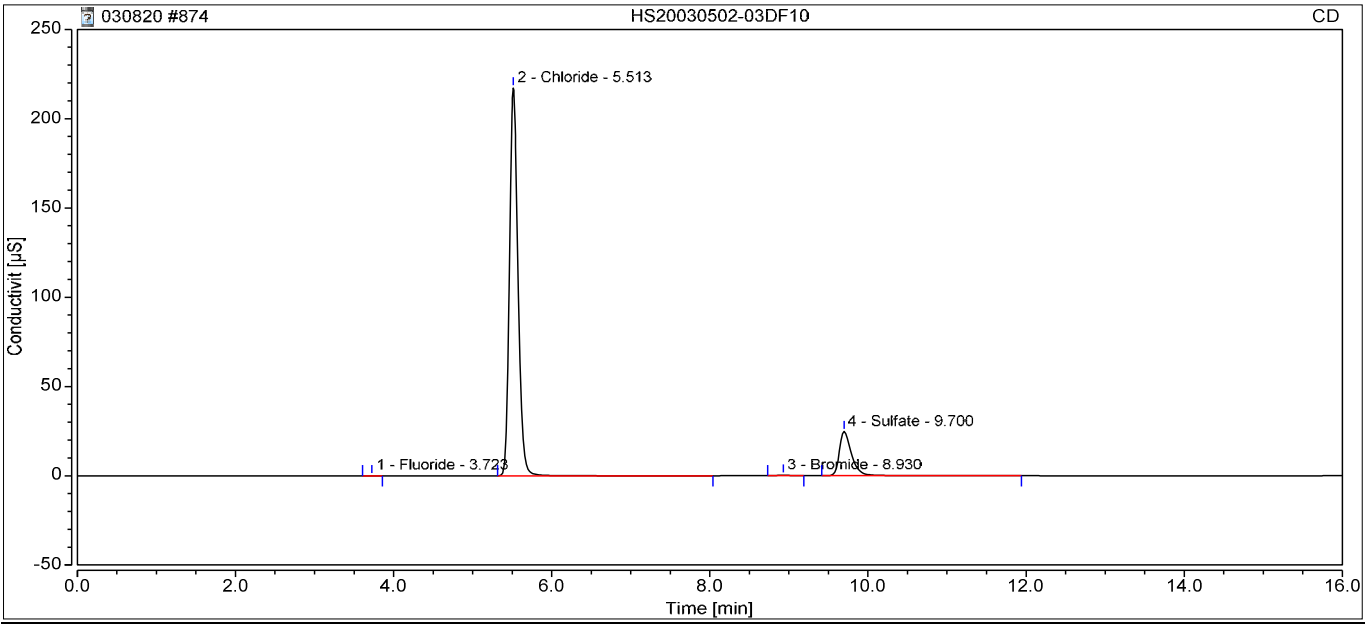
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

874 HS20030502-03DF10

Sample Name:	**HS20030502-03DF10**	*Injection Volume:*	**5.00**
Vial Number:	**GC3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/19/2020 03:01**	*Sample Weight:*	**1.0000**

Run Time:



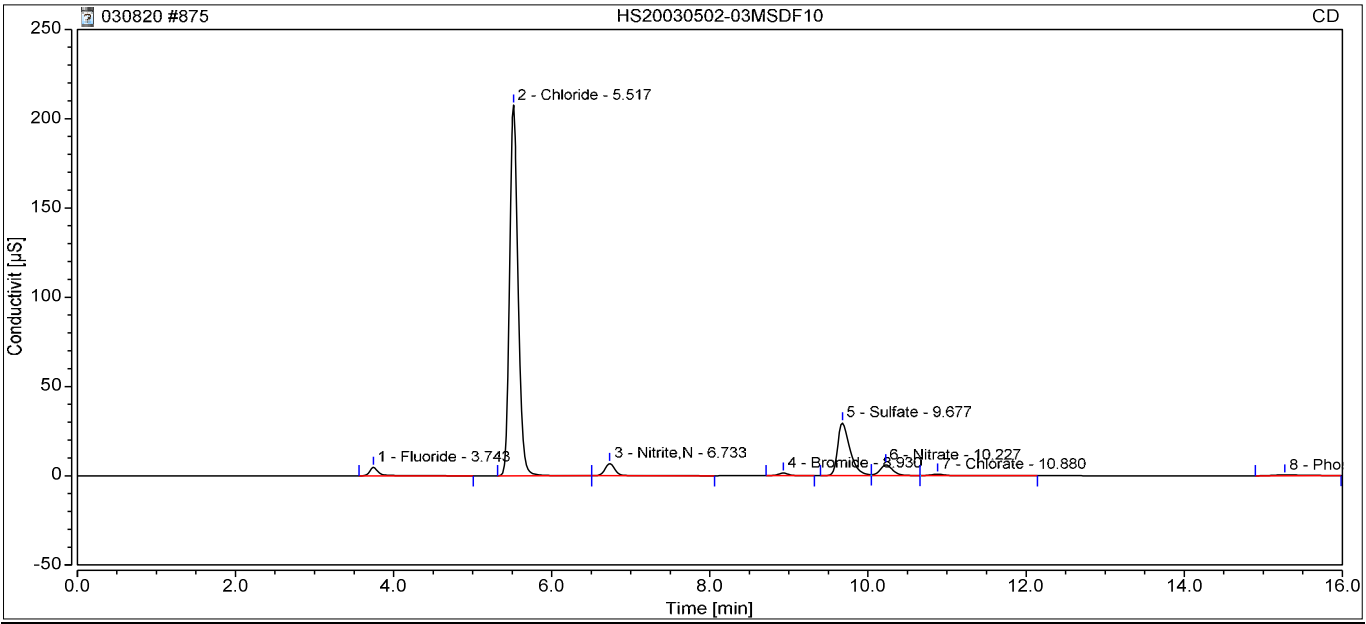
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.003	0.0341	0.3414	10.0000
2	5.51	Chloride	BMB	27.416	118.2501	1182.5012	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
3	8.93	Bromide	BMB	0.045	0.4865	4.8654	10.0000
4	9.70	Sulfate	BMB	4.431	26.4918	264.9181	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**31.896**		**1452.63**	

875 HS20030502-03MSDF10

Sample Name:	**HS20030502-03MSDF10**	*Injection Volume:*	**5.00**
Vial Number:	**GC4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/19/2020 03:19**	*Sample Weight:*	**1.0000**

Run Time:



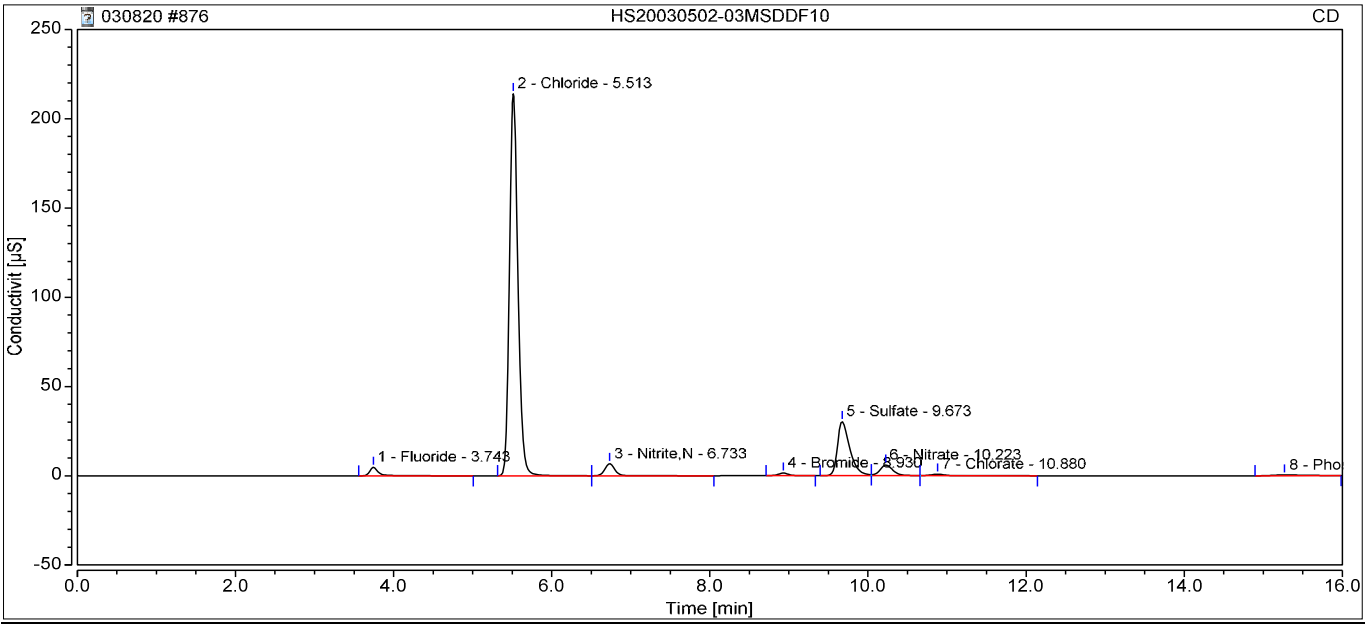
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.657	1.9486	19.4862	10.0000
2	5.52	Chloride	BMB	26.099	112.5744	1125.7438	10.0000
3	6.73	Nitrite,N	BMB	1.005	2.0765	20.7652	10.0000
4	8.93	Bromide	BMB	0.210	2.1513	21.5128	10.0000
5	9.68	Sulfate	BM	5.360	32.0195	320.1945	10.0000
6	10.23	Nitrate	M	1.162	2.0020	20.0205	10.0000
7	10.88	Chlorate	MB	0.193	2.0183	20.1828	10.0000
8	15.27	Phosphate	BMB	0.198	1.0343	10.3434	10.0000
Total:			**0.000**	**34.884**		**1558.25**	

876 HS20030502-03MSDDF10

Sample Name:	**HS20030502-03MSDDF10**	*Injection Volume:*	**5.00**
Vial Number:	**GC5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/19/2020 03:37**	*Sample Weight:*	**1.0000**

Run Time:



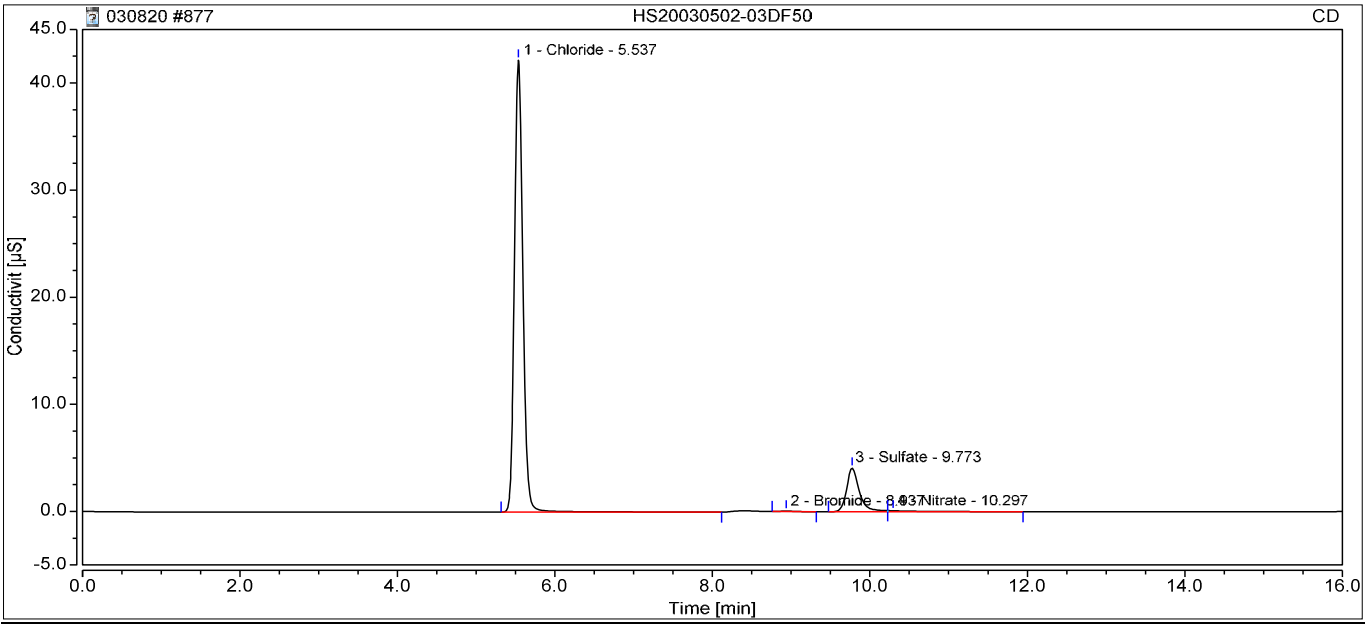
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.659	1.9552	19.5521	10.0000
2	5.51	Chloride	BMB	26.932	116.1633	1161.6334	10.0000
3	6.73	Nitrite,N	BMB	1.002	2.0705	20.7054	10.0000
4	8.93	Bromide	BMB	0.211	2.1636	21.6359	10.0000
5	9.67	Sulfate	BM	5.524	32.9973	329.9727	10.0000
6	10.22	Nitrate	M	1.167	2.0101	20.1007	10.0000
7	10.88	Chlorate	MB	0.194	2.0212	20.2119	10.0000
8	15.27	Phosphate	BMB	0.210	1.0930	10.9298	10.0000
Total:			**0.000**	**35.899**		**1604.74**	

877 HS20030502-03DF50

Sample Name:	**HS20030502-03DF50**	*Injection Volume:*	**5.00**
Vial Number:	**GC6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**50.0000**
Recording Time:	**03/19/2020 03:55**	*Sample Weight:*	**1.0000**

Run Time:



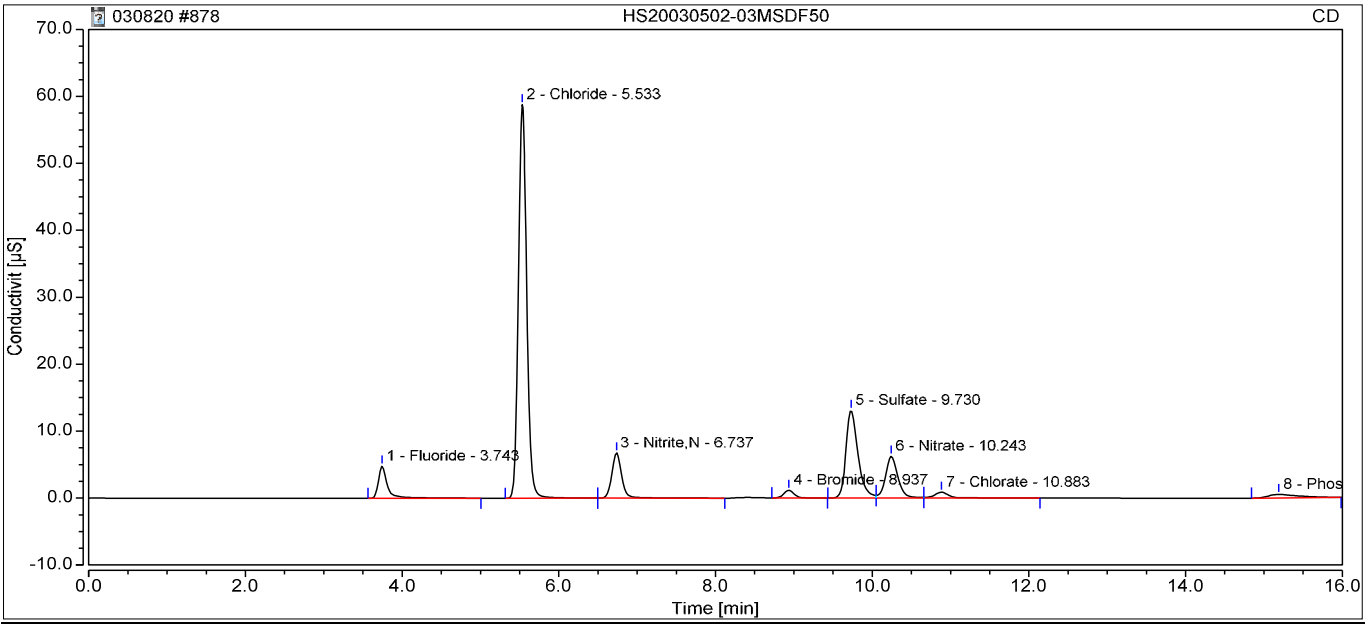
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	50.0000
1	5.54	Chloride	BMB	5.178	22.3852	1119.2577	50.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	50.0000
2	8.94	Bromide	BMB	0.008	0.1141	5.7030	50.0000
3	9.77	Sulfate	BM	0.762	4.6367	231.8326	50.0000
4	10.30	Nitrate	MB	0.039	0.0799	3.9972	50.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	50.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	50.0000
Total:			**0.000**	**5.987**		**1360.79**	

878 HS20030502-03MSDF50

Sample Name:	**HS20030502-03MSDF50**	*Injection Volume:*	**5.00**
Vial Number:	**GC7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**50.0000**
Recording Time:	**03/19/2020 04:13**	*Sample Weight:*	**1.0000**

Run Time:



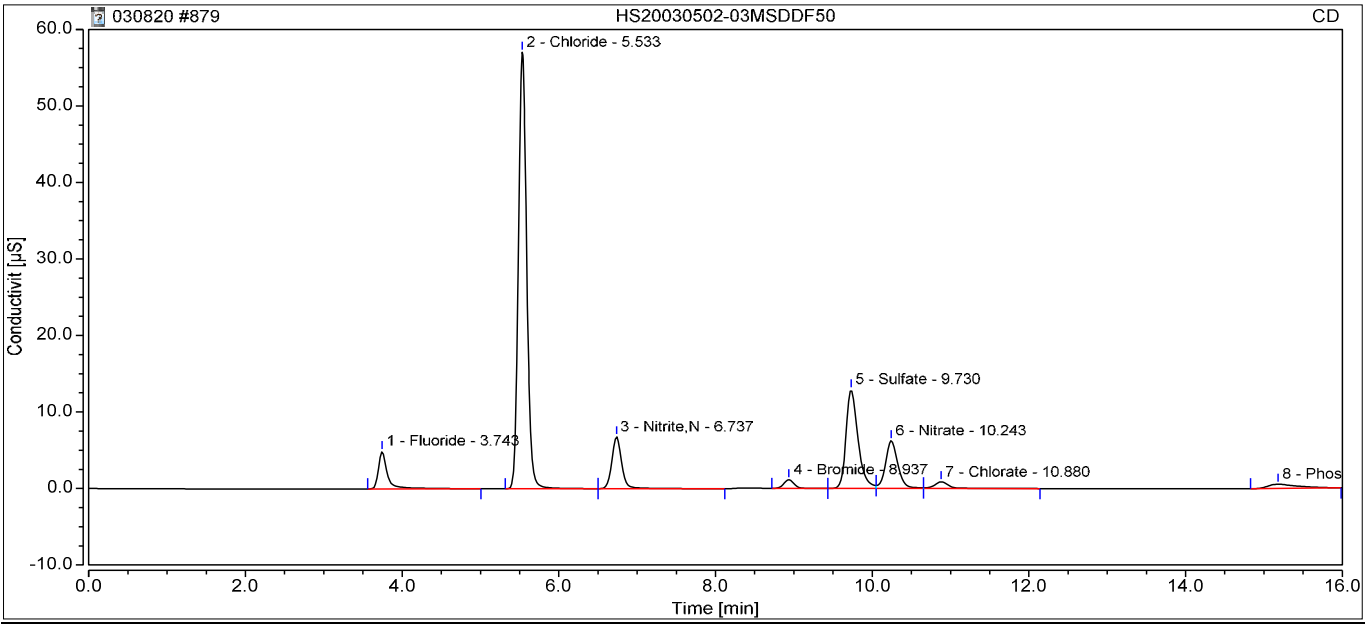
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.657	1.9474	97.3702	50.0000
2	5.53	Chloride	BMB	7.202	31.1079	1555.3960	50.0000
3	6.74	Nitrite,N	BMB	0.997	2.0607	103.0336	50.0000
4	8.94	Bromide	BMB	0.171	1.7626	88.1319	50.0000
5	9.73	Sulfate	BM	2.317	13.8986	694.9291	50.0000
6	10.24	Nitrate	M	1.139	1.9624	98.1223	50.0000
7	10.88	Chlorate	MB	0.192	2.0026	100.1309	50.0000
8	15.19	Phosphate	BMB	0.240	1.2356	61.7798	50.0000
Total:			**0.000**	**12.915**		**2798.89**	

879 HS20030502-03MSDDF50

Sample Name:	**HS20030502-03MSDDF50**	*Injection Volume:*	**5.00**
Vial Number:	**GC8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**50.0000**
Recording Time:	**03/19/2020 04:31**	*Sample Weight:*	**1.0000**

Run Time:



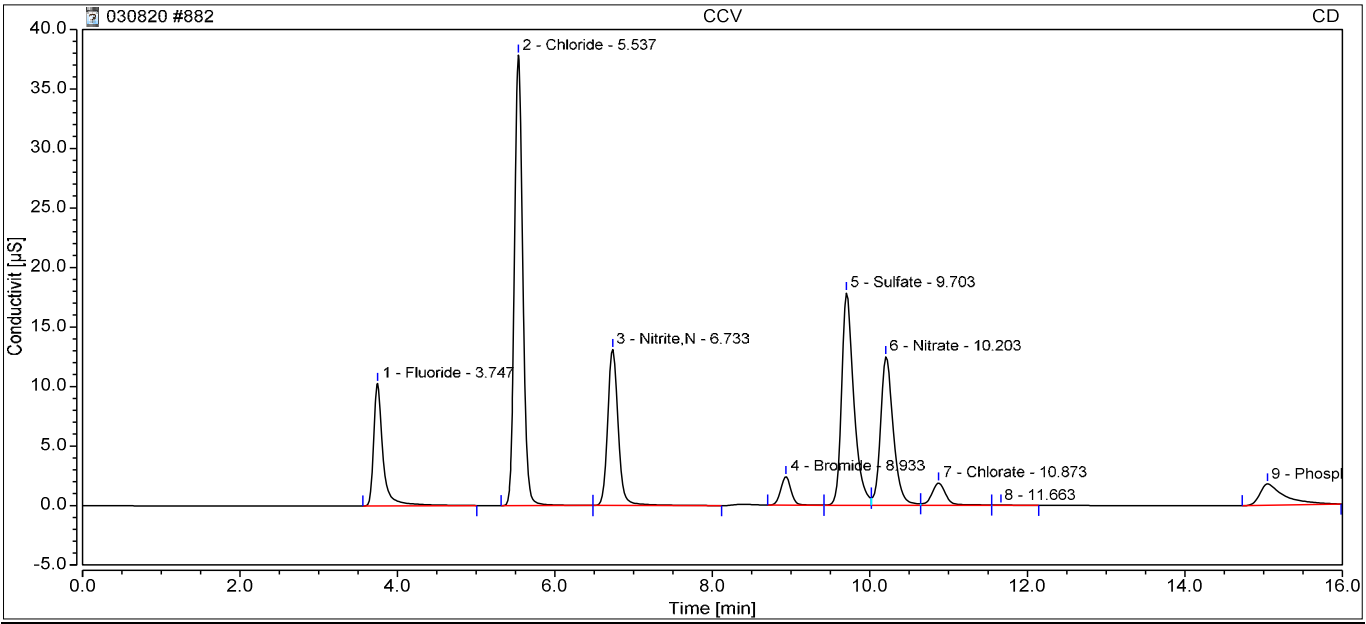
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.659	1.9553	97.7664	50.0000
2	5.53	Chloride	BMB	6.977	30.1372	1506.8622	50.0000
3	6.74	Nitrite,N	BMB	0.999	2.0646	103.2325	50.0000
4	8.94	Bromide	BMB	0.171	1.7614	88.0719	50.0000
5	9.73	Sulfate	BM	2.277	13.6629	683.1444	50.0000
6	10.24	Nitrate	M	1.139	1.9617	98.0851	50.0000
7	10.88	Chlorate	MB	0.193	2.0108	100.5395	50.0000
8	15.18	Phosphate	BMB	0.251	1.2846	64.2304	50.0000
Total:			**0.000**	**12.666**		**2741.93**	

882 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**RA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2020 05:26**	*Sample Weight:*	**1.0000**

Run Time:



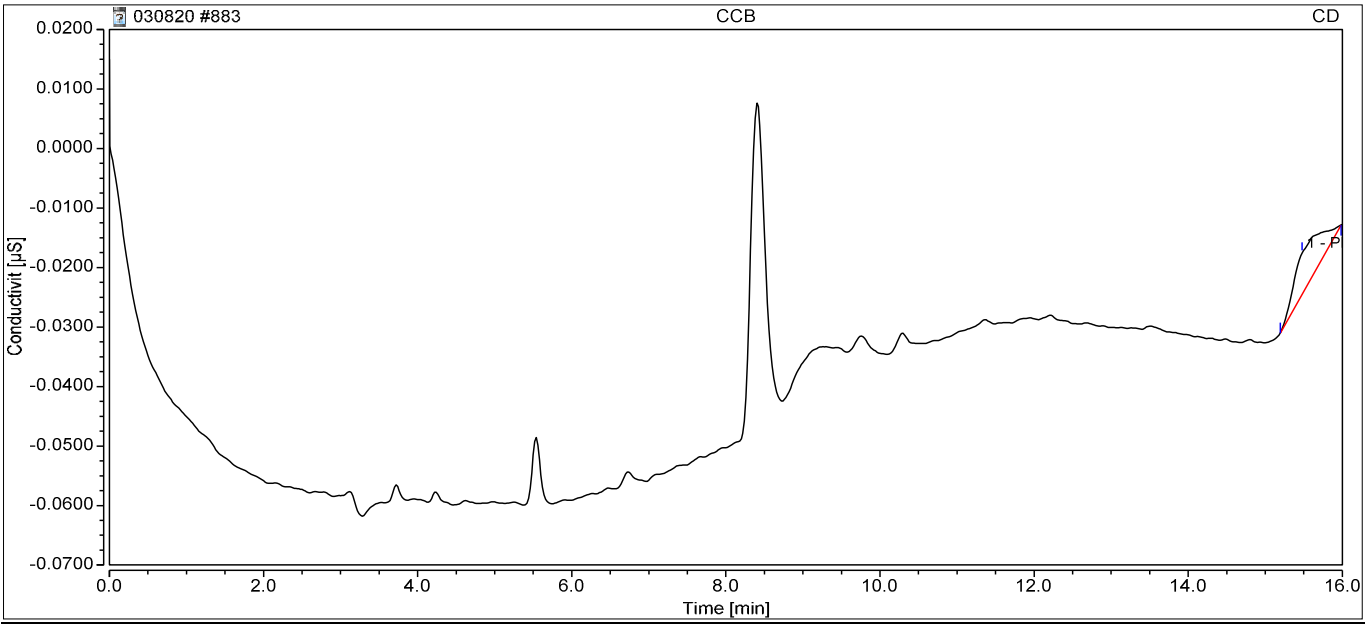
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.405	4.1385	4.1385	1.0000
2	5.54	Chloride	BMB	4.600	19.8919	19.8919	1.0000
3	6.73	Nitrite,N	BMB	2.037	4.1563	4.1563	1.0000
4	8.93	Bromide	BM	0.365	3.7142	3.7142	1.0000
5	9.70	Sulfate	M	3.222	19.2878	19.2878	1.0000
6	10.20	Nitrate	M	2.353	4.0396	4.0396	1.0000
7	10.87	Chlorate	M	0.387	4.0550	4.0550	1.0000
9	15.05	Phosphate	BMB	0.651	3.1709	3.1709	1.0000
Total:			**0.000**	**15.019**		**62.45**	

883 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2020 05:44**	*Sample Weight:*	**1.0000**

Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
1	15.48	Phosphate	BMB	0.003	0.1153	0.1153	1.0000
Total:			**0.000**	**0.003**		**0.12**	

	Type	Analysis	Sample Name	Sample ID	Origin	Result
1	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.77mg/L
2	Unknown	NPOC	CCB	5310B	12-27-2019.cal	NPOC:0.1575mg/
3	Unknown	NPOC	WBLKW1-031220	Untitled	12-27-2019.cal	NPOC:0.09336mg
4	Unknown	NPOC	WLCSW1-031220	Untitled	12-27-2019.cal	NPOC:8.938mg/L
5	Unknown	NPOC	WLCSDW1-031220	Untitled	12-27-2019.cal	NPOC:8.990mg/L
6	Unknown	NPOC	HS20030215-01	1/2	12-27-2019.cal	NPOC:3.206mg/L
7	Unknown	NPOC	HS20030251-01	1/2	12-27-2019.cal	NPOC:11.82mg/L
8	Unknown	NPOC	HS20030287-03DF50	Untitled	12-27-2019.cal	NPOC:37.17mg/L
9	Unknown	NPOC	HS20030287-04DF20	Untitled	12-27-2019.cal	NPOC:29.65mg/L
10	Unknown	NPOC	HS20030287-07DF100	Untitled	12-27-2019.cal	NPOC:24.59mg/L
11	Unknown	NPOC	HS20030337-01	1/2	12-27-2019.cal	NPOC:13.39mg/L
12	Unknown	NPOC	HS20030372-01	Untitled	12-27-2019.cal	NPOC:0.1691mg/
13	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.99mg/L
14	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.2670mg/
15	Unknown	NPOC	ABORT	Untitled	12-27-2019.cal	NPOC:0.000mg/L
16	Unknown	NPOC	ABORT	Untitled	12-27-2019.cal	NPOC:0.000mg/L
17	Unknown	NPOC	HS20030372-01MS	Untitled	12-27-2019.cal	NPOC:10.10mg/L
18	Unknown	NPOC	CCV	Untitled	12-27-2019.cal	NPOC:24.85mg/L
19	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.2601mg/
20	Unknown	NPOC	HS20030390-03	Untitled	12-27-2019.cal	NPOC:6.480mg/L
21	Unknown	NPOC	HS20030390-01	1/2	12-27-2019.cal	NPOC:10.70mg/L
22	Unknown	NPOC	HS20030390-02	1/2	12-27-2019.cal	NPOC:13.43mg/L
23	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:25.15mg/L
24	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.4424mg/
25	Unknown	NPOC	WBLKW2-031220	5310B	12-27-2019.cal	NPOC:0.3196mg/
26	Unknown	NPOC	WLCSW2-031220	Untitled	12-27-2019.cal	NPOC:9.417mg/L
27	Unknown	NPOC	WLCSDW2-031220	Untitled	12-27-2019.cal	NPOC:8.929mg/L
28	Unknown	NPOC	HS20030390-04	1/2	12-27-2019.cal	NPOC:3.402mg/L
29	Unknown	NPOC	HS20030390-05	1/2	12-27-2019.cal	NPOC:1.038mg/L
30	Unknown	NPOC	HS20030390-06	1/2	12-27-2019.cal	NPOC:3.168mg/L
31	Unknown	NPOC	HS20030390-07	1/2	12-27-2019.cal	NPOC:2.268mg/L
32	Unknown	NPOC	HS20030437-01	1/2	12-27-2019.cal	NPOC:20.03mg/L
33	Unknown	NPOC	HS20030455-01	1/2	12-27-2019.cal	NPOC:4.603mg/L
34	Unknown	NPOC	HS20030455-02	1/2	12-27-2019.cal	NPOC:3.555mg/L
35	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.85mg/L
36	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.1420mg/
37	Unknown	NPOC	HS20030462-01	1/1	12-27-2019.cal	NPOC:12.34mg/L
38	Unknown	NPOC	HS20030472-01	1/2	12-27-2019.cal	NPOC:10.52mg/L
39	Unknown	NPOC	HS20030472-02	1/2	12-27-2019.cal	NPOC:7.675mg/L
40	Unknown	NPOC	HS20030462-01MS	Untitled	12-27-2019.cal	NPOC:23.44mg/L
41	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.52mg/L
42	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.1796mg/
43	Unknown	NPOC	WBLKW3-031220	5310B	12-27-2019.cal	NPOC:0.1042mg/
44	Unknown	NPOC	WLCSW3-031220	Untitled	12-27-2019.cal	NPOC:9.155mg/L
45	Unknown	NPOC	WLCSDW3-031220	Untitled	12-27-2019.cal	NPOC:9.907mg/L
46	Unknown	NPOC	HS20030472-03	1/2	12-27-2019.cal	NPOC:8.005mg/L
47	Unknown	NPOC	HS20030472-04	1/2	12-27-2019.cal	NPOC:3.328mg/L
48	Unknown	NPOC	HS20030472-05	1/2	12-27-2019.cal	NPOC:1.734mg/L
49	Unknown	NPOC	HS20030472-06	1/2	12-27-2019.cal	NPOC:1.681mg/L
50	Unknown	NPOC	HS20030472-07	1/2	12-27-2019.cal	NPOC:2.559mg/L
51	Unknown	NPOC	HS20030472-08	1/2	12-27-2019.cal	NPOC:9.789mg/L

	Status	Date / Time	Vial
1	Completed	3/12/2020 12:18:07 PM	1
2	Completed	3/12/2020 12:31:20 PM	2
3	Completed	3/12/2020 12:44:33 PM	3
4	Completed	3/12/2020 12:57:47 PM	4
5	Completed	3/12/2020 1:11:00 PM	5
6	Completed	3/12/2020 1:24:13 PM	6
7	Completed	3/12/2020 1:37:26 PM	7
8	Completed	3/12/2020 1:50:50 PM	8
9	Completed	3/12/2020 2:04:30 PM	9
10	Completed	3/12/2020 2:17:45 PM	10
11	Completed	3/12/2020 2:33:30 PM	11
12	Completed	3/12/2020 2:48:43 PM	12
13	Completed	3/12/2020 3:02:27 PM	13
14	Completed	3/12/2020 3:15:40 PM	14
15	Aborted		15
16	Aborted		15
17	Completed	3/12/2020 4:20:15 PM	18
18	Completed	3/12/2020 4:33:50 PM	19
19	Completed	3/12/2020 4:49:08 PM	20
20	Completed	3/12/2020 5:15:45 PM	17
21	Completed	3/12/2020 5:29:14 PM	15
22	Completed	3/12/2020 5:44:32 PM	16
23	Completed	3/12/2020 5:57:41 PM	19
24	Completed	3/12/2020 6:12:59 PM	20
25	Completed	3/12/2020 6:28:12 PM	21
26	Completed	3/12/2020 6:41:33 PM	22
27	Completed	3/12/2020 6:54:56 PM	23
28	Completed	3/12/2020 7:08:09 PM	24
29	Completed	3/12/2020 7:23:27 PM	25
30	Completed	3/12/2020 7:36:35 PM	26
31	Completed	3/12/2020 7:51:54 PM	27
32	Completed	3/12/2020 8:05:03 PM	28
33	Completed	3/12/2020 8:18:17 PM	29
34	Completed	3/12/2020 8:33:36 PM	30
35	Completed	3/12/2020 8:46:58 PM	31
36	Completed	3/12/2020 9:02:17 PM	32
37	Completed	3/12/2020 9:15:26 PM	33
38	Completed	3/12/2020 9:28:40 PM	34
39	Completed	3/12/2020 9:43:59 PM	35
40	Completed	3/12/2020 9:57:08 PM	36
41	Completed	3/12/2020 10:10:54 PM	37
42	Completed	3/12/2020 10:26:13 PM	38
43	Completed	3/12/2020 10:41:27 PM	39
44	Completed	3/12/2020 10:54:36 PM	40
45	Completed	3/12/2020 11:07:50 PM	41
46	Completed	3/12/2020 11:21:04 PM	42
47	Completed	3/12/2020 11:36:23 PM	43
48	Completed	3/12/2020 11:51:37 PM	44
49	Completed	3/13/2020 12:06:51 AM	45
50	Completed	3/13/2020 12:22:05 AM	46
51	Completed	3/13/2020 12:35:15 AM	47

C:\TOC3201\Data\2020_03_12_001.t32

	Type	Analysis	Sample Name	Sample ID	Origin	Result
52	Unknown	NPOC	HS20030389-01	1/2	12-27-2019.cal	NPOC:6.618mg/L
53	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.55mg/L
54	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.2470mg/
55	Unknown	NPOC	HS20030389-02	1/2	12-27-2019.cal	NPOC:593.7mg/L
56	Unknown	NPOC	HS20030389-03	1/2	12-27-2019.cal	NPOC:533.9mg/L
57	Unknown	NPOC	HS20030483-07	1/2	12-27-2019.cal	NPOC:2.872mg/L
58	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.93mg/L
59	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.3972mg/
60	Unknown	NPOC	WBLKW4-031220	Untitled	12-27-2019.cal	NPOC:0.2688mg/
61	Unknown	NPOC	WLCSW4-031220	Untitled	12-27-2019.cal	NPOC:8.886mg/L
62	Unknown	NPOC	WLCSDW4-031220	Untitled	12-27-2019.cal	NPOC:8.927mg/L
63	Unknown	NPOC	HS20030483-01	1/2	12-27-2019.cal	NPOC:1.536mg/L
64	Unknown	NPOC	HS20030483-02	1/2	12-27-2019.cal	NPOC:1.526mg/L
65	Unknown	NPOC	HS20030483-03	1/2	12-27-2019.cal	NPOC:1.594mg/L
66	Unknown	NPOC	HS20030483-04	1/2	12-27-2019.cal	NPOC:0.7503mg/
67	Unknown	NPOC	HS20030483-05	1/2	12-27-2019.cal	NPOC:0.6943mg/
68	Unknown	NPOC	HS20030483-06	1/2	12-27-2019.cal	NPOC:0.7347mg/
69	Unknown	NPOC	HS20030483-06MS	1/2	12-27-2019.cal	NPOC:11.17mg/L
70	Unknown	NPOC	CCV	313101006	12-27-2019.cal	NPOC:24.65mg/L
71	Unknown	NPOC	CCB	Untitled	12-27-2019.cal	NPOC:0.1914mg/

	Status	Date / Time	Vial
52	Completed	3/13/2020 12:50:35 AM	48
53	Completed	3/13/2020 1:04:01 AM	49
54	Completed	3/13/2020 1:19:21 AM	50
55	Completed	3/13/2020 1:34:56 AM	51
56	Completed	3/13/2020 1:50:05 AM	52
57	Completed	3/13/2020 2:05:25 AM	53
58	Completed	3/13/2020 2:19:02 AM	54
59	Completed	3/13/2020 2:34:22 AM	55
60	Completed	3/13/2020 2:49:37 AM	56
61	Completed	3/13/2020 3:02:47 AM	57
62	Completed	3/13/2020 3:16:02 AM	58
63	Completed	3/13/2020 3:29:17 AM	59
64	Completed	3/13/2020 3:44:37 AM	60
65	Completed	3/13/2020 3:59:53 AM	61
66	Completed	3/13/2020 4:15:09 AM	62
67	Completed	3/13/2020 4:30:25 AM	63
68	Completed	3/13/2020 4:45:41 AM	64
69	Completed	3/13/2020 4:58:52 AM	65
70	Completed	3/13/2020 5:17:46 AM	66
71	Completed	3/13/2020 5:30:57 AM	67

Instr.Information

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

Sample

Sample Name:	CCV
Sample ID:	313101006
Origin:	12-27-2019.cal
Status	Completed
Chk. Result	

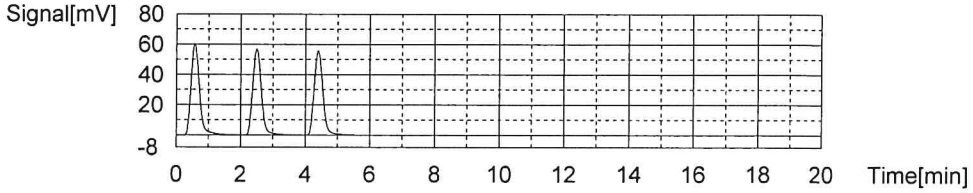
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:25.15mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	108.9	25.72mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:53:31 PM
2	105.5	24.92mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:55:36 PM
3	105.1	24.82mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 5:57:41 PM

Mean Area 106.5
Mean Conc. 25.15mg/L



Sample

Sample Name:	CCB
Sample ID:	Untitled
Origin:	12-27-2019.cal
Status	Completed
Chk. Result	

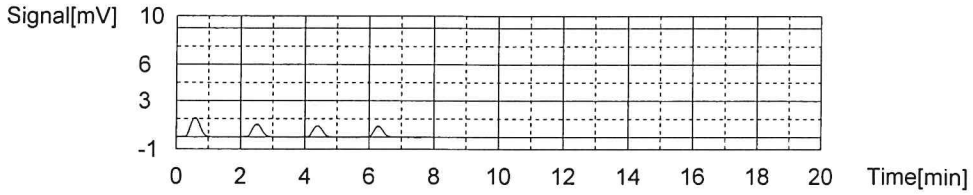
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.4424mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.154	0.7449mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:06:44 PM
2	2.111	0.4986mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:08:49 PM
3	1.805	0.4263mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:10:54 PM
4	1.704	0.4024mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:12:59 PM

Mean Area 1.873
Mean Conc. 0.4424mg/L



Sample

Sample Name: WBLKW2-031220
Sample ID: 5310B
Origin: 12-27-2019.cal
Status Completed
Chk. Result

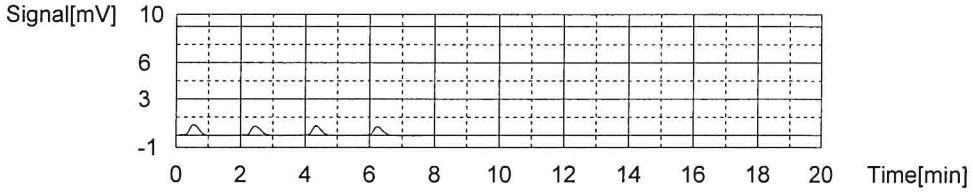
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.3196mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.641	0.3876mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:21:57 PM
2	1.451	0.3427mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:24:02 PM
3	1.352	0.3193mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:26:07 PM
4	1.257	0.2969mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:28:12 PM

Mean Area 1.353
Mean Conc. 0.3196mg/L



Sample

Sample Name: WLCSW2-031220
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

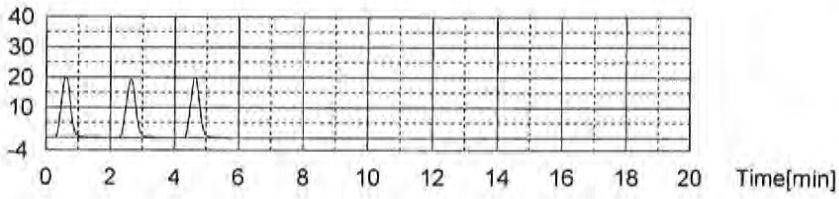
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.417mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	39.75	9.388mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:37:16 PM
2	39.98	9.442mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:39:28 PM
3	39.89	9.421mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:41:33 PM

Mean Area 39.87
Mean Conc. 9.417mg/L



Sample

Sample Name: WLCSDW2-031220
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

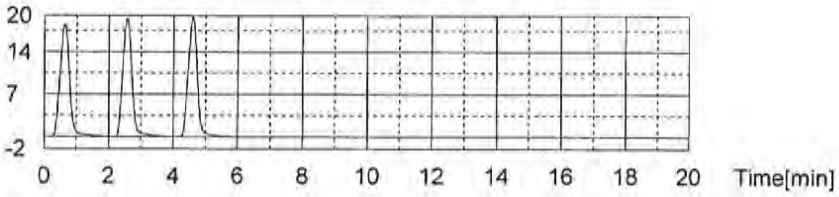
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:8.929mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	37.54	8.866mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:50:39 PM
2	37.95	8.963mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:52:51 PM
3	37.93	8.958mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 6:54:56 PM

Mean Area 37.81
Mean Conc. 8.929mg/L



Sample

Sample Name: CCV
Sample ID: 313101006
Origin: 12-27-2019.cal
Status Completed
Chk. Result

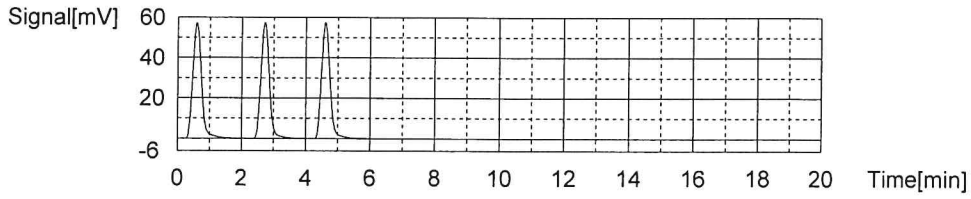
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.85mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	106.5	25.15mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 8:42:48 PM
2	104.2	24.61mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 8:44:53 PM
3	104.9	24.77mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 8:46:58 PM

Mean Area 105.2
Mean Conc. 24.85mg/L



Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

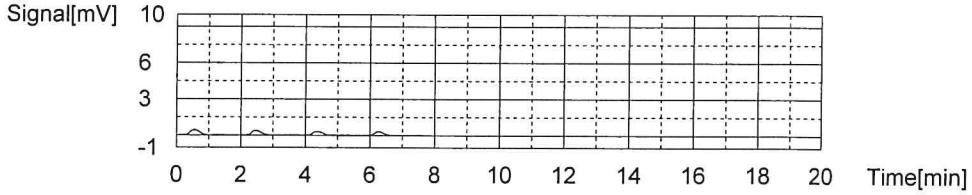
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1420mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.8131	0.1920mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 8:56:02 PM
2	0.6595	0.1558mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 8:58:07 PM
3	0.6099	0.1440mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:00:12 PM
4	0.5344	0.1262mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:02:17 PM

Mean Area 0.6013
Mean Conc. 0.1420mg/L



Sample

Sample Name: HS20030462-01
Sample ID: 1/1
Origin: 12-27-2019.cal
Status Completed
Chk. Result

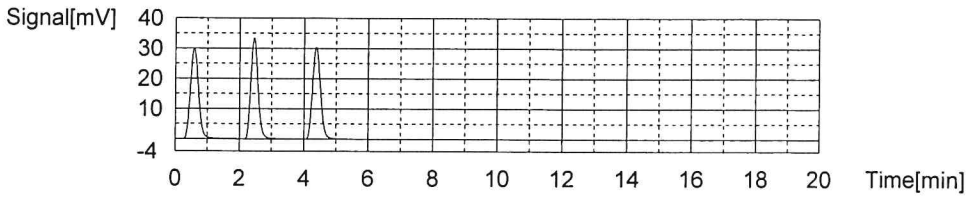
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:12.34mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	52.62	12.43mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:11:16 PM
2	51.98	12.28mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:13:21 PM
3	52.18	12.32mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:15:26 PM

Mean Area 52.26
Mean Conc. 12.34mg/L



Sample

Sample Name: HS20030472-01
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

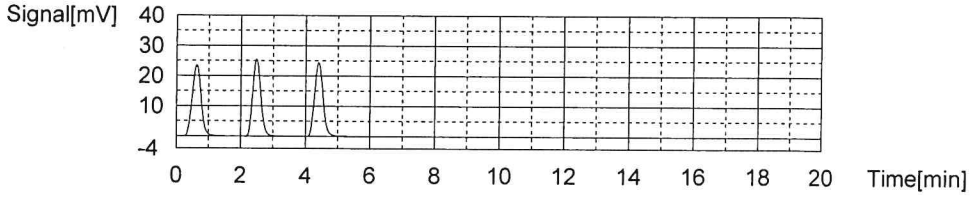
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.52mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	44.57	10.53mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:24:30 PM
2	44.39	10.48mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:26:35 PM
3	44.64	10.54mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:28:40 PM

Mean Area 44.53
Mean Conc. 10.52mg/L



Sample

Sample Name: HS20030472-02
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

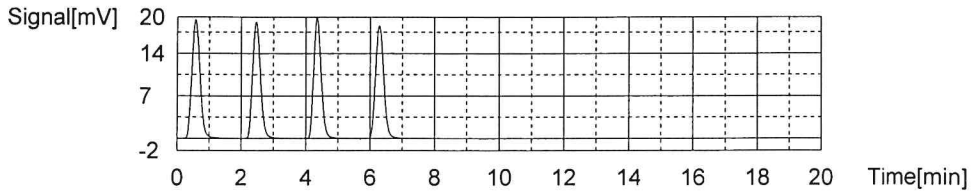
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:7.675mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	34.24	8.087mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:37:44 PM
2	32.44	7.661mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:39:49 PM
3	32.08	7.576mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:41:54 PM
4	32.97	7.787mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:43:59 PM

Mean Area 32.50
Mean Conc. 7.675mg/L



Sample

Sample Name: HS20030462-01MS
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

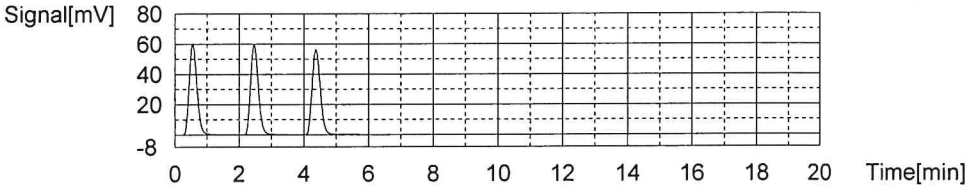
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:23.44mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	100.4	23.71mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:52:58 PM
2	98.37	23.23mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:55:03 PM
3	99.04	23.39mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 9:57:08 PM

Mean Area 99.27
Mean Conc. 23.44mg/L



Sample

Sample Name: CCV
Sample ID: 313101006
Origin: 12-27-2019.cal
Status Completed
Chk. Result

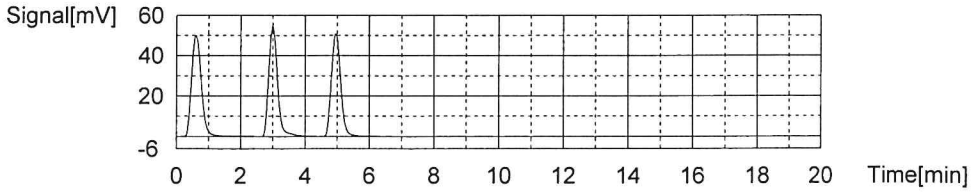
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.52mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	104.7	24.73mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:06:42 PM
2	104.0	24.56mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:08:49 PM
3	102.8	24.28mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:10:54 PM

Mean Area 103.8
Mean Conc. 24.52mg/L



Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

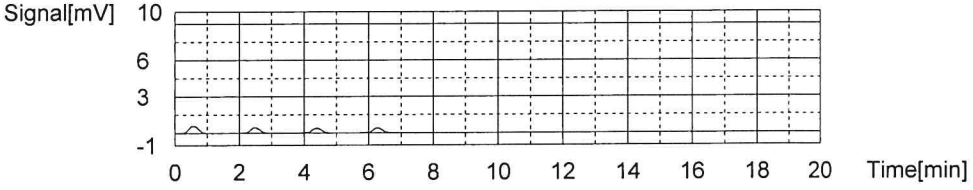
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1796mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.156	0.2730mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:19:58 PM
2	0.8716	0.2058mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:22:03 PM
3	0.7125	0.1683mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:24:08 PM
4	0.6968	0.1646mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:26:13 PM

Mean Area 0.7603
Mean Conc. 0.1796mg/L



Sample

Sample Name: WBLKW3-031220
Sample ID: 5310B
Origin: 12-27-2019.cal
Status Completed
Chk. Result

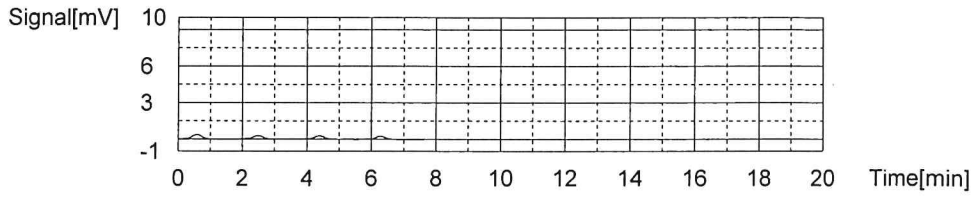
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1042mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.6857	0.1619mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:35:12 PM
2	0.4889	0.1155mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:37:17 PM
3	0.4428	0.1046mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:39:22 PM
4	0.3921	0.09260mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:41:27 PM

Mean Area 0.4413
Mean Conc. 0.1042mg/L



Sample

Sample Name: WLCSW3-031220
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

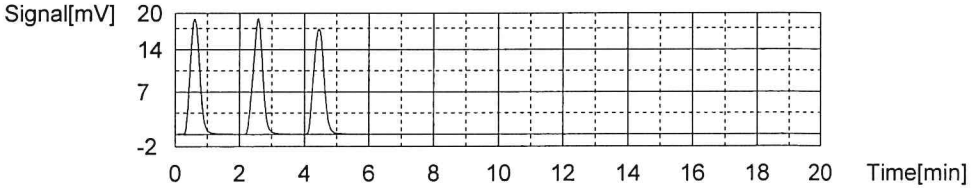
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.155mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	38.81	9.166mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:50:26 PM
2	38.83	9.171mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:52:31 PM
3	38.65	9.128mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 10:54:36 PM

Mean Area 38.76
Mean Conc. 9.155mg/L



Sample

Sample Name: WLCSDW3-031220
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

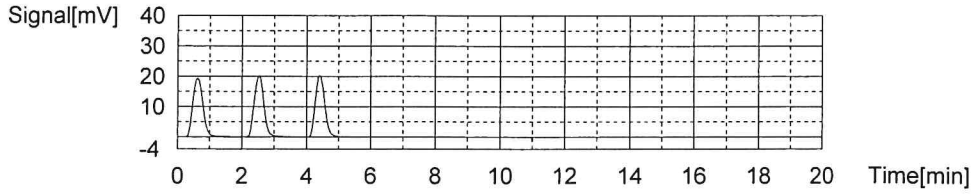
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.907mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	42.09	9.941mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:03:40 PM
2	41.82	9.877mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:05:45 PM
3	41.94	9.905mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:07:50 PM

Mean Area 41.95
Mean Conc. 9.907mg/L



Sample

Sample Name: HS20030472-03
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

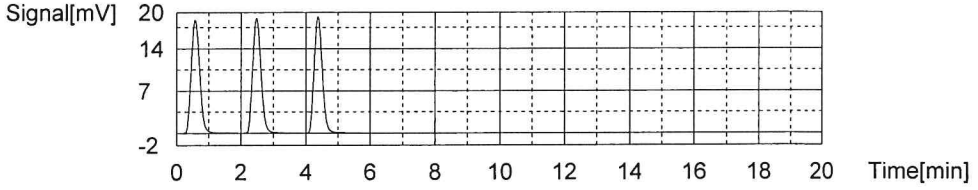
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:8.005mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	34.23	8.084mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:16:54 PM
2	33.71	7.961mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:18:59 PM
3	33.74	7.968mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:21:04 PM

Mean Area 33.89
Mean Conc. 8.005mg/L



Sample

Sample Name: HS20030472-04
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

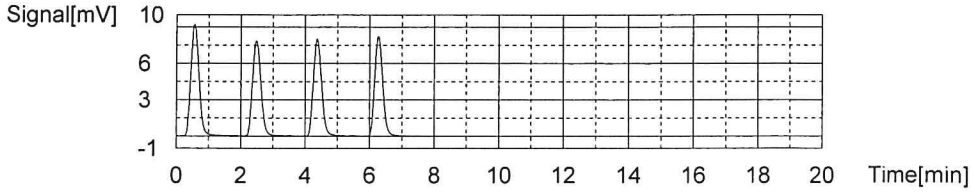
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:3.328mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	15.90	3.755mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:30:08 PM
2	14.17	3.347mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:32:13 PM
3	13.99	3.304mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:34:18 PM
4	14.11	3.332mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:36:23 PM

Mean Area 14.09
Mean Conc. 3.328mg/L



Sample

Sample Name: HS20030472-05
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

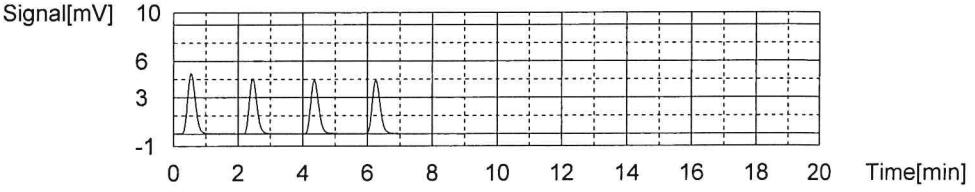
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.734mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	8.139	1.922mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:45:22 PM
2	7.338	1.733mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:47:27 PM
3	7.365	1.739mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:49:32 PM
4	7.329	1.731mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/12/2020 11:51:37 PM

Mean Area 7.344
Mean Conc. 1.734mg/L



Sample

Sample Name: HS20030472-06
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

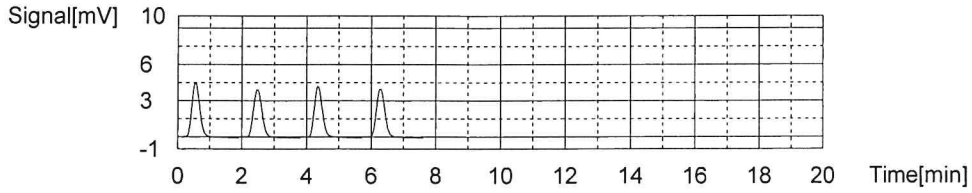
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.681mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.527	1.778mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:00:36 AM
2	7.122	1.682mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:02:41 AM
3	7.086	1.674mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:04:46 AM
4	7.144	1.687mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:06:51 AM

Mean Area 7.117
Mean Conc. 1.681mg/L



Sample

Sample Name: HS20030472-07
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

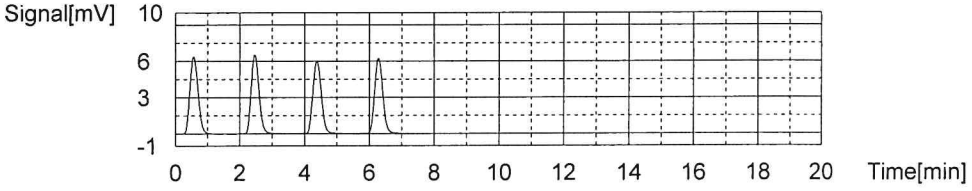
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:2.559mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	11.22	2.650mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:15:50 AM
2	10.83	2.558mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:17:55 AM
3	10.79	2.548mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:20:00 AM
4	10.88	2.570mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:22:05 AM

Mean Area 10.83
Mean Conc. 2.559mg/L



Sample

Sample Name: HS20030472-08
Sample ID: 1/2
Origin: 12-27-2019.cal
Status Completed
Chk. Result

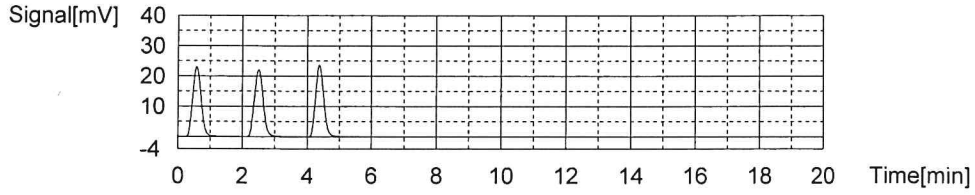
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.789mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	41.46	9.792mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:31:05 AM
2	41.35	9.766mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:33:10 AM
3	41.53	9.808mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:35:15 AM

Mean Area 41.45
Mean Conc. 9.789mg/L



Sample

Sample Name: CCV
Sample ID: 313101006
Origin: 12-27-2019.cal
Status Completed
Chk. Result

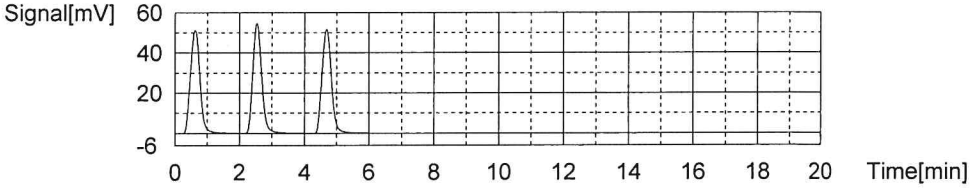
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.55mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	104.2	24.61mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 12:59:37 AM
2	103.4	24.42mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 1:01:56 AM
3	104.2	24.61mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 1:04:01 AM

Mean Area 103.9
Mean Conc. 24.55mg/L



Sample

Sample Name: CCB
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

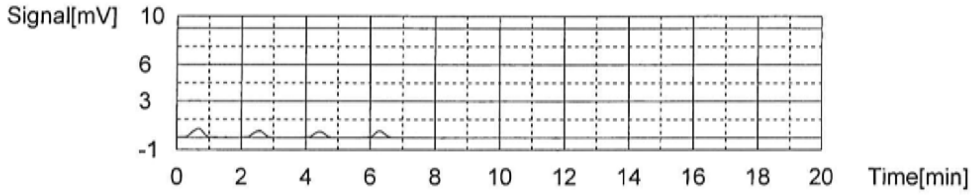
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.2470mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.566	0.3698mg/L	50uL	1	E	12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 1:13:06 AM
2	1.127	0.2662mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 1:15:11 AM
3	1.006	0.2376mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 1:17:16 AM
4	1.004	0.2371mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	3/13/2020 1:19:21 AM

Mean Area	1.046
Mean Conc.	0.2470mg/L



10450 Stancliff Rd. Suite 210
Houston, TX 77099
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March 30, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030474**

Laboratory Results for: **LHAAP-16**

Dear Susan,

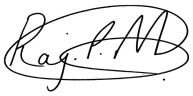
ALS Environmental received 7 sample(s) on Mar 11, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,



Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Work Order: HS20030474

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030474-01	16PM14-200310	Groundwater		10-Mar-2020 08:25	11-Mar-2020 08:53	☐
HS20030474-02	16PM06-200310	Groundwater		10-Mar-2020 10:10	11-Mar-2020 08:53	☐
HS20030474-03	16PM09-200310	Groundwater		10-Mar-2020 11:00	11-Mar-2020 08:53	☐
HS20030474-04	16WW42-200310	Groundwater		10-Mar-2020 12:00	11-Mar-2020 08:53	☐
HS20030474-05	16WW42-200310-FD	Groundwater		10-Mar-2020 12:00	11-Mar-2020 08:53	☐
HS20030474-06	16WW40-200310	Groundwater		10-Mar-2020 13:45	11-Mar-2020 08:53	☐
HS20030474-07	Trip Blank	Water		10-Mar-2020 00:00	11-Mar-2020 08:53	☐

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Work Order: HS20030474

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R358594

Sample ID: HS20030498-03MS

- MS and MSD are for an unrelated sample

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: 16PM14-200310
Collection Date: 10-Mar-2020 08:25

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	20-Mar-2020 07:58
1,1-Dichloroethene	**20**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 07:58
1,2-Dichloroethane	**25**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 07:58
cis-1,2-Dichloroethene	**3,500**		**20**	**50**	**100**	**UG/L**	100	20-Mar-2020 08:23
Methylene chloride	10	U	4.0	10	20	UG/L	10	20-Mar-2020 07:58
Trichloroethene	**4,900**		**20**	**50**	**100**	**UG/L**	100	20-Mar-2020 08:23
Vinyl chloride	**110**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 07:58
Surr: 1,2-Dichloroethane-d4	*90.3*			**0**	*81-118*	*%REC*	*10*	*20-Mar-2020 07:58*
Surr: 1,2-Dichloroethane-d4	*90.4*			**0**	*81-118*	*%REC*	*100*	*20-Mar-2020 08:23*
Surr: 4-Bromofluorobenzene	*97.4*			**0**	*85-114*	*%REC*	*10*	*20-Mar-2020 07:58*
Surr: 4-Bromofluorobenzene	*96.2*			**0**	*85-114*	*%REC*	*100*	*20-Mar-2020 08:23*
Surr: Dibromofluoromethane	*94.4*			**0**	*80-119*	*%REC*	*10*	*20-Mar-2020 07:58*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*100*	*20-Mar-2020 08:23*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*10*	*20-Mar-2020 07:58*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*100*	*20-Mar-2020 08:23*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: 16PM06-200310
Collection Date: 10-Mar-2020 10:10

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	12	U	7.5	12	25	UG/L	25	20-Mar-2020 08:47
1,1-Dichloroethene	**120**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 08:47
1,2-Dichloroethane	**45**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 08:47
cis-1,2-Dichloroethene	**42,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 09:11
Methylene chloride	25	U	10	25	50	UG/L	25	20-Mar-2020 08:47
Trichloroethene	**44,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 09:11
Vinyl chloride	**1,700**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 08:47
Surr: 1,2-Dichloroethane-d4	*93.2*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 08:47*
Surr: 1,2-Dichloroethane-d4	*90.2*			**0**	*81-118*	*%REC*	*250*	*20-Mar-2020 09:11*
Surr: 4-Bromofluorobenzene	*97.5*			**0**	*85-114*	*%REC*	*250*	*20-Mar-2020 09:11*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 08:47*
Surr: Dibromofluoromethane	*94.8*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 08:47*
Surr: Dibromofluoromethane	*93.8*			**0**	*80-119*	*%REC*	*250*	*20-Mar-2020 09:11*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 08:47*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*250*	*20-Mar-2020 09:11*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-16 WorkOrder:HS20030474
Sample ID: 16PM09-200310 Lab ID:HS20030474-03
Collection Date: 10-Mar-2020 11:00 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	**1.0**		**0.30**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 04:46
1,1-Dichloroethene	**14**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 04:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 04:46
cis-1,2-Dichloroethene	**250**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 05:10
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 04:46
Trichloroethene	**680**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 05:10
Vinyl chloride	**7.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 04:46
Surr: 1,2-Dichloroethane-d4	*93.0*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 04:46*
Surr: 1,2-Dichloroethane-d4	*89.2*			**0**	*81-118*	*%REC*	*10*	*20-Mar-2020 05:10*
Surr: 4-Bromofluorobenzene	*96.7*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 04:46*
Surr: 4-Bromofluorobenzene	*99.2*			**0**	*85-114*	*%REC*	*10*	*20-Mar-2020 05:10*
Surr: Dibromofluoromethane	*96.0*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 04:46*
Surr: Dibromofluoromethane	*94.4*			**0**	*80-119*	*%REC*	*10*	*20-Mar-2020 05:10*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 04:46*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*10*	*20-Mar-2020 05:10*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: 16WW42-200310
Collection Date: 10-Mar-2020 12:00

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 02:22
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:22
cis-1,2-Dichloroethene	**8.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 02:22
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 02:22
Trichloroethene	**3.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 02:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:22
Surr: 1,2-Dichloroethane-d4	*89.9*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 02:22*
Surr: 4-Bromofluorobenzene	*96.0*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 02:22*
Surr: Dibromofluoromethane	*93.6*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 02:22*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 02:22*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: 16WW42-200310-FD
Collection Date: 10-Mar-2020 12:00

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 02:46
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:46
cis-1,2-Dichloroethene	**8.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 02:46
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 02:46
Trichloroethene	**3.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 02:46
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:46
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 02:46*
Surr: 4-Bromofluorobenzene	*97.7*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 02:46*
Surr: Dibromofluoromethane	*93.8*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 02:46*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 02:46*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-16 WorkOrder:HS20030474
Sample ID: 16WW40-200310 Lab ID:HS20030474-06
Collection Date: 10-Mar-2020 13:45 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 05:34
1,1-Dichloroethene	**5.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 05:34
1,2-Dichloroethane	**5.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 05:34
cis-1,2-Dichloroethene	**160**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 05:34
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 05:34
Trichloroethene	**1,500**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 05:58
Vinyl chloride	**4.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 05:34
Surr: 1,2-Dichloroethane-d4	*91.9*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 05:34*
Surr: 1,2-Dichloroethane-d4	*90.0*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 05:58*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 05:34*
Surr: 4-Bromofluorobenzene	*96.9*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 05:58*
Surr: Dibromofluoromethane	*93.9*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 05:34*
Surr: Dibromofluoromethane	*93.5*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 05:58*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 05:34*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 05:58*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: Trip Blank
Collection Date: 10-Mar-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 00:45
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 00:45
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 00:45
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 00:45
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 00:45
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 00:45
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 00:45
Surr: 1,2-Dichloroethane-d4	*90.8*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 00:45*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 00:45*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 00:45*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 00:45*

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
WorkOrder: HS20030474

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R358594 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20030474-07	Trip Blank	10 Mar 2020 00:00			20 Mar 2020 00:45	1
Batch ID: R358594 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20030474-01	16PM14-200310	10 Mar 2020 08:25			20 Mar 2020 08:23	100
HS20030474-01	16PM14-200310	10 Mar 2020 08:25			20 Mar 2020 07:58	10
HS20030474-02	16PM06-200310	10 Mar 2020 10:10			20 Mar 2020 09:11	250
HS20030474-02	16PM06-200310	10 Mar 2020 10:10			20 Mar 2020 08:47	25
HS20030474-03	16PM09-200310	10 Mar 2020 11:00			20 Mar 2020 05:10	10
HS20030474-03	16PM09-200310	10 Mar 2020 11:00			20 Mar 2020 04:46	1
HS20030474-04	16WW42-200310	10 Mar 2020 12:00			20 Mar 2020 02:22	1
HS20030474-05	16WW42-200310-FD	10 Mar 2020 12:00			20 Mar 2020 02:46	1
HS20030474-06	16WW40-200310	10 Mar 2020 13:45			20 Mar 2020 05:58	25
HS20030474-06	16WW40-200310	10 Mar 2020 13:45			20 Mar 2020 05:34	1
Batch ID: R359152 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20030474-01	16PM14-200310	10 Mar 2020 08:25			30 Mar 2020 15:38	1
HS20030474-02	16PM06-200310	10 Mar 2020 10:10			30 Mar 2020 15:38	1
HS20030474-03	16PM09-200310	10 Mar 2020 11:00			30 Mar 2020 15:38	1
HS20030474-04	16WW42-200310	10 Mar 2020 12:00			30 Mar 2020 15:38	1
HS20030474-05	16WW42-200310-FD	10 Mar 2020 12:00			30 Mar 2020 15:38	1
HS20030474-06	16WW40-200310	10 Mar 2020 13:45			30 Mar 2020 15:38	1

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
WorkOrder: HS20030474

QC BATCH REPORT

Batch ID: R358594 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW1-200319** Units: **UG/L** Analysis Date: **20-Mar-2020 00:21**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522917** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.02*	*1.0*	*50*	*0*	*90.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.89*	*1.0*	*50*	*0*	*97.8*	*85 - 114*				
Surr: Dibromofluoromethane	*46.85*	*1.0*	*50*	*0*	*93.7*	*80 - 119*				
Surr: Toluene-d8	*52.49*	*1.0*	*50*	*0*	*105*	*89 - 112*				

LCS Sample ID: **VLCSW-200319** Units: **UG/L** Analysis Date: **19-Mar-2020 23:33**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522916** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.58	1.0	20	0	97.9	80 - 119				
1,1-Dichloroethene	19.5	1.0	20	0	97.5	71 - 131				
1,2-Dichloroethane	20.24	1.0	20	0	101	73 - 128				
cis-1,2-Dichloroethene	20.38	1.0	20	0	102	78 - 123				
Methylene chloride	21.1	2.0	20	0	105	74 - 124				
Trichloroethene	20.46	1.0	20	0	102	79 - 123				
Vinyl chloride	19.07	1.0	20	0	95.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.83*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.74*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*53.21*	*1.0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*51.86*	*1.0*	*50*	*0*	*104*	*89 - 112*				

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
WorkOrder: HS20030474

QC BATCH REPORT

Batch ID: R358594 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20030498-03MS** Units: **UG/L** Analysis Date: **20-Mar-2020 03:34**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522925** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.87	1.0	20	0	94.3	80 - 119				
1,1-Dichloroethene	25.94	1.0	20	7.492	92.2	71 - 131				
1,2-Dichloroethane	19.02	1.0	20	0	95.1	73 - 128				
cis-1,2-Dichloroethene	52.53	1.0	20	34.18	91.8	78 - 123				
Methylene chloride	17.98	2.0	20	0	89.9	74 - 124				
Trichloroethene	1258	1.0	20	1235	113	79 - 123				EO
Vinyl chloride	59.62	1.0	20	40.77	94.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.29*	*1.0*	*50*	*0*	*92.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.58*	*1.0*	*50*	*0*	*99.2*	*85 - 114*				
Surr: Dibromofluoromethane	*46.85*	*1.0*	*50*	*0*	*93.7*	*80 - 119*				
Surr: Toluene-d8	*51.17*	*1.0*	*50*	*0*	*102*	*89 - 112*				

MSD Sample ID: **HS20030498-03MSD** Units: **UG/L** Analysis Date: **20-Mar-2020 03:58**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522926** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.99	1.0	20	0	95.0	80 - 119	18.87	0.645	20	
1,1-Dichloroethene	24.54	1.0	20	7.492	85.2	71 - 131	25.94	5.53	20	
1,2-Dichloroethane	19.61	1.0	20	0	98.0	73 - 128	19.02	3.08	20	
cis-1,2-Dichloroethene	51.07	1.0	20	34.18	84.5	78 - 123	52.53	2.82	20	
Methylene chloride	17.1	2.0	20	0	85.5	74 - 124	17.98	5.03	20	
Trichloroethene	1224	1.0	20	1235	-57.6	79 - 123	1258	2.75	20	SEO
Vinyl chloride	56.26	1.0	20	40.77	77.4	58 - 137	59.62	5.8	20	
Surr: 1,2-Dichloroethane-d4	*46.41*	*1.0*	*50*	*0*	*92.8*	*81 - 118*	*46.29*	*0.257*	*20*	
Surr: 4-Bromofluorobenzene	*49.12*	*1.0*	*50*	*0*	*98.2*	*85 - 114*	*49.58*	*0.926*	*20*	
Surr: Dibromofluoromethane	*46.99*	*1.0*	*50*	*0*	*94.0*	*80 - 119*	*46.85*	*0.3*	*20*	
Surr: Toluene-d8	*51.54*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.17*	*0.733*	*20*	

The following samples were analyzed in this batch: HS20030474-01 HS20030474-02 HS20030474-03 HS20030474-04 HS20030474-05 HS20030474-06 HS20030474-07

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
WorkOrder: **HS20030474**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Work Order: HS20030474

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20030474-01	16PM14-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-01	16PM14-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-02	16PM06-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-02	16PM06-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-03	16PM09-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-03	16PM09-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-03	16PM09-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-04	16WW42-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-04	16WW42-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-04	16WW42-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-04	16WW42-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-04	16WW42-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-05	16WW42-200310-FD	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-06	16WW40-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-06	16WW40-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-06	16WW40-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-06	16WW40-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-06	16WW40-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-07	Trip Blank	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-07	Trip Blank	Login	3/11/2020 6:19:15 PM	AC	Disposed

ALS Houston, US Date: 30-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030474
Date/Time Received: **11-Mar-2020 08:53**
Received by: **AC**

Checklist completed by: *Asad Chaudhry* eSignature 11-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 12-Mar-2020 Date

Matrices: **GW, Water**
Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:N/A
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	2.3c U/C	IR 25
Cooler(s)/Kit(s):	45112	
Date/Time sample(s) sent to storage:	03/11/2020 18:35	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

Page 1 of ____

COC ID: LHAAP16 March 2020 -ALS

TURNAROUND TIME: Normal

RUSH:

HS20030474

Aptim Environmental & Infrastucture, Inc.

LHAAP-16

PROJECT/CLIENT INFO			
Facility Name	Longhorn AAP		
Project Number	501032		
	LHAAP-16		
Address	1203-B East Grand Avenue		
	PMB 202		
City	Marshall	State	TX
Postal Code	75670	Country	USA
Phone Number	713.243.7264		
Project Manager	Praveen Srivastav		

LABORATORY			
Lab Name	ALS Laboratories		
Lab Contact	RJ Modashia		
Email	RJ.Modashia@alsglobal.com		
Address	10450 Stancliff Rd., Suite 21		
City	Houston	State	
Postal Code	77099	Country	
Phone Number	281.575.2279 or 281.530.565		

00			
c	CA		
ntry	USA		

SAMPLE DETAILS

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.
16PMW14-200310	LHAAP16				WG	3/10/20	0825	4
16PMW6-200310	LHAAP16				WG	3/10/20	1010	4
16PMW9-200310	LHAAP16				WG	3/10/20	1100	4
16WW42-200310	LHAAP16				WG	3/10/20	1200	4
16WW42-200310-FD	LHAAP16				WG	3/10/20	1200	4
16WW40-200310	LHAAP16				WG	3/10/20	1345	4
TRIP BLANK	LHAAP16				W	3/10/20		2

ANALYSIS REQUESTED

Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	2-40ml Amber/H2SO4	1-250 ml PE/HNO3	1-250ml PE/Ice	1-250ml PE /Ice	1-250ml PE/Ice	1-125ml PE/Ice		
ANALYSIS	VOCs by SW8260B	MEE by RSK175	TOC by SM5310C	Metals (arsenic, chromium, manganese, nickel, and thallium) by SW6020	Anions (sulfate/nitrate/bromide) by SW9056	Anions (bromide only) by SW9056	Alkalinity by SM2320	Perchlorate by SW6850		
	X							X		
	X							X		
	X							X		
	X							X		
	X							X		
	X							X		
	X									

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Sam Bassiouni / BHATE	3/10/20 1430	AC / ALS	3/11/2020 0855

U/C 2.3 IR#35 CF0.0 45112

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5556
Fax. +1 281 530 5887

45112

CUSTODY SEAL

Date: 3/10/20 Time: 1430
Name: Scott Bees
Company: BA-07@

Seal Broken By:
Date: 03/11/20

45112

Must Deliver Next Business Day
Time and Tempature Sensitive!

45112

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 25FEB20
ACTWGT: 1.00 LB MAN
CAD: 3001307/CAFE3211
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5555
REF: LH4AF 16 - BO 7u505-7J
RMA:

FedEx Express

FedEx
TRK# 0221 1251 0294 7932

WED - 11 MAR 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FID 5107732 10MA020 GGCA 568C2/64T0/05A2

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 2007564; 2007568

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2359 (259282)

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: NA

Method QC data: The method blank (LMB 700240) was less than 1/2 the CRDL. The recovery for the LCS (700237) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on samples 2007568004/05 (Client ID: 16RW09-200311). 3.0µL of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. The spike target was 3.µg/L. The MS/MSD (2007568004/05) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected. The relative percent difference (RPD) was within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 700238) is reported from the analysis of the Laboratory Control Sample (LCS – 700237) at a level of 3.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 19MARD02/17. Field samples 2007564006 and 2007568003/07 had positive results for perchlorate. However, because the 83/85 ion ratio failed, these results were not reported.

Thomas Bosch March 20, 2020
Analyst Date

ANALYTICAL REPORT

Report Date: March 20, 2020

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-2007564**
Project ID: HS20030474
Purchase Order: HS20030474
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
16PM14-200310	2007564001	03/10/20	03/13/20	
16PM06-200310	2007564002	03/10/20	03/13/20	
16PM09-200310	2007564003	03/10/20	03/13/20	
16WW42-200310	2007564004	03/10/20	03/13/20	
16WW42-200310-FD	2007564005	03/10/20	03/13/20	
16WW40-200310	2007564006	03/10/20	03/13/20	

ANALYTICAL REPORT

Workorder: 34-2007564
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16PM14-200310** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564001 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 09:35 | **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: **16PM06-200310** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564002 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 09:49 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **16PM09-200310** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564003 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 10:03 | **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: **16WW42-200310** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564004 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 10:17 | **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: 34-2007564
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16WW42-200310-FD** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564005 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 10:31 | **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: **16WW40-200310** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564006 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 10:45 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 03/20/2020 07:54	/S/ Stephen Brose 03/20/2020 23:20

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: 34-2007564
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.
The following was provided by the client: Sample ID, Collection Date, Sampling Location, Media Type, Sampling Parameter.
Collection Date, Media Type, and Sampling Parameter can potentially affect the validity of the results.
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	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

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.
< Means 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: 2007564

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2359 (HBN: 259282)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 700240
Analyzed: 03/19/2020 09:21
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 700237
Analyzed: 03/19/2020 08:53
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	3.42	3.00	114	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample: 2007568003	**MS:** 2007568004	**MSD:** 2007568005
Analyzed: 03/19/2020 11:27	**Analyzed:** 03/19/2020 11:55	**Analyzed:** 03/19/2020 12:09
Dilution: 1	**Dilution:** 1	**Dilution:** 1
Units: ug/L	**Units:** ug/L	**Units:** ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.18	3	# 139	78.8	123.8	4.35	# 145	3.89	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
03/20/2020 09:30	03/20/2020 23:19

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

2007564

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

18698/#2

SAMPLING STATE: **Texas**

COC ID: **13508**

2007564

SUBCONTRACT TO:

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

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20030474
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20030474-01**	**16PM14-200310**	**Groundwater**	**10 Mar 2020 08:25**
	SUB_Perch-6850			25 Mar 2020
2.	**HS20030474-02**	**16PM06-200310**	**Groundwater**	**10 Mar 2020 10:10**
	SUB_Perch-6850			25 Mar 2020
3.	**HS20030474-03**	**16PM09-200310**	**Groundwater**	**10 Mar 2020 11:00**
	SUB_Perch-6850			25 Mar 2020
4.	**HS20030474-04**	**16WW42-200310**	**Groundwater**	**10 Mar 2020 12:00**
	SUB_Perch-6850			25 Mar 2020
5.	**HS20030474-05**	**16WW42-200310-FD**	**Groundwater**	**10 Mar 2020 12:00**
	SUB_Perch-6850			25 Mar 2020
6.	**HS20030474-06**	**16WW40-200310**	**Groundwater**	**10 Mar 2020 13:45**
	SUB_Perch-6850			25 Mar 2020

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

QC Level: DOD IV (DoD Data Package)

RIGHT SOLUTIONS | RIGHT PARTNER

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **13508**

Relinquished By: J. [illegible] Date/Time: 3/12/20 18:00

Received By: [signature] Date/Time: 03/13/2020 0951

Cooler ID(s): Temperature(s):

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS20030474	***Split:***	**Workorder ID:** 2007564	**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
								COOL
1	03/10/2020 08:25	16PM14-200310	2007564001		Water	A	1	A
2	03/10/2020 10:10	16PM06-200310	2007564002		Water	A	1	A
3	03/10/2020 11:00	16PM09-200310	2007564003		Water	A	1	A
4	03/10/2020 12:00	16WW42-200310	2007564004		Water	A	1	A
5	03/10/2020 12:00	16WW42-200310-FD	2007564005	FLDDUP	Water	A	1	A
6	03/10/2020 13:45	16WW40-200310	2007564006		Water	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	03/13/2020 09:51	ALS Sample Receiving	Sample Login
Julie Warath	3/13/20 1130	ISC	Storage
R.33.1	03-18-20/09:10	T. Bosch	CLO4 analysis

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

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

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: HS20030474

Date/Time of Receipt: 03/13/2020 0951

Number of Coolers Received: 1

2007164

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	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.
1	Good	3 °C	4		°C	7		°C
2		°C	5		°C	8		°C
3		°C	6		°C	9		°C

Taken By: _____ (Signature) Rebecca Wise (Printed Name) 03/13/2020 (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:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

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

Must Deliver Next Business Day
Time and Temperature Sensitive

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

SHIP DATE: 12MAR20
ACTWGT: 20.00 LB
CAD: 3001370/CAFE3211
DIMS: 18x16x19 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS20190498/474 RJ

FedEx Express

TRK# 0201 1251 0295 3938

FRI - 13 MAR 3:00
STANDARD OVERNIGHT

AX BTFA

84123
UT-US SL

ALS
10450 Stancliff Rd. Suite 210
Houston TX 77099
Tel. +1 281 530 5656
Fax +1 281 530 5887

Batch Worklist

Batch: ELMS/ 2359
Rule: EPA 6850, DoD QSM Water

Created: 3/19/2020 07:44
Analyst: T. Bosch

Instrument:
Status: WP

HBN: 259282

Workorder: 2007564 [ENV_LVL4]
Workorder: 2007568 [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	700236	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	
2	700237	LCS for HBN 259282 [ELMS/2359]				LCS	3		E6850Q413Q	5311		3/26/2020	
3	700238	RLVS for HBN 259282 [ELMS/2359				RLVS	3		E685041C3Q	5311		3/26/2020	
4	700239	ICS for HBN 259282 [ELMS/2359]				ICS	3		E6850..D3Q	5311		3/26/2020	
5	700240	LMB for HBN 259282 [ELMS/2359]				LMB	3		E6850Q413Q	5311		3/26/2020	
6	2007564001	16PM14-200310				SAMPLE	3	2007564001-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
7	2007564002	16PM06-200310				SAMPLE	3	2007564002-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
8	2007564003	16PM09-200310				SAMPLE	3	2007564003-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
9	2007564004	16WW42-200310				SAMPLE	3	2007564004-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
10	2007564005	16WW42-200310-FD				FLDDUP	3	2007564005-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
11	2007564006	16WW40-200310				SAMPLE	3	2007564006-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
12	2007568001	16WW12-200311				SAMPLE	3	2007568001-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
13	2007568002	16RW10-200311				SAMPLE	3	2007568002-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
14	2007568003	16RW09-200311				SAMPLE	3	2007568003-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
15	700241	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	
16	2007568004	16RW09-200311MS				MS	3	2007568004-A	E6850Q413Q	5480		3/26/2020	
17	2007568005	16RW09-200311MSD				MSD	3	2007568005-A	E6850Q413Q	5480		3/26/2020	
18	2007568006	16WW35-200311				SAMPLE	3	2007568006-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
19	2007568007	16WW36-200311				SAMPLE	3	2007568007-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
20	2007568008	16WW16-200311				SAMPLE	3	2007568008-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
21	2007568009	16WW16-200311-FD				FLDDUP	3	2007568009-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
22	700242	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Analyst Write-up

ALS Work Order #'s & Sample #( )'s: 2007564 (001-06); 2007568 (001-09)
ELMS Batch/HBN ID: 2359 (259282)
Prep Date: 03/18/2020 Analysis Date: 03/19/2020 Analyst: Tom Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\19MAR0D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Tom Bosch. 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 DU461-US)/0.1% glacial acetic acid (JT-Baker Lot 122550).
Eluent B1: 95% ACN (B&J Lot DU461-US)/5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 122550).

STANDARDS: Internal Standard Spiking Solution Horizon# 47863. Dilutions of Working Standards (Horizon: 49947/48) used for ICAL, CCV's, RLVS and ICS.

CALIBRATION CURVE: Used curve from 09/20/2019, sequence 20SEP19D.s Offline Quantitation Method: CLO4-DP3.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: 10 Injection Volume: 40µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1 Run time: 12.0min.

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 3.0µL of QC Solution Horizon ID 47516 was used for LCS 700237; Target = 3.0µg/L. ASTM type II water was used for LMB 700236.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) was performed on samples 2007568004/05 (Client ID: 16RW09-200311). 3.0µl of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. Spike target = 3.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field samples 2007564006 and 2007568003/07 had positive results for perchlorate. However, because the 83/85 ion ratio failed, these results were not reported.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The MS/MSD (2007568004/05) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2020\MAR\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2020\DOD\259282-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 700238) is reported from the analysis of the Laboratory Control Sample (LCS – 700239) at a level of 3.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 19MARD02/17.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria **Batch(es)/SDG:** ELMS: 2359 HBN: 259282 **Sample Set IDs if Applicable:** 2007564 / 2007568	**Analyst Initials**	**Reviewer Initials**
Sample positions on autosampler verified against instrument sequence	TB	NA
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#_____	TB	SB
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L
Standard: 49946	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/23/2019 03:09PM	**Expires:** 09/19/2020
MFG Lot: TNB: 09/20/2019	**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
47863	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	12/05/2028

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		**Description - Perchlorate ISTD Stock**
Standard: **47863**	**Created By:** Thomas Bosch	**Amount:** 1 mL
MFG: Cambridge Isotope	**Create Date:** 05/23/2019 10:05AM	**Expires:** 12/05/2028
MFG Lot: SDIH-016	**Verified By:** Thomas Bosch	**Usable:** Yes
Part ID: OLM-7310-S	**Verify Date:**	**Lab Lot:** CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

STANDARD REPORT

Working Standard - CLO4 WRK

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

Standard: 49948
MFG: ALS/SLC
MFG Lot: TNB: 09/20/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/20/2019 03:09PM

Amount: 10 mL
Expires: 07/25/2020
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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
49947	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	07/25/2020

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		**Description - 6850 Stock AccStd 1,000ug/mL**
Standard: 43659	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: AccuStandard	**Create Date:** 09/17/2018 09:09AM	**Expires:** 07/25/2020
MFG Lot: 218065075		**Usable:** Yes
Part ID: IC-PER-10X-1		**Lab Lot:** CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025
MFG Lot: Not Provided		**Usable:** Yes
Part ID: Not Provided		**Lab Lot:** LAB 109

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

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

Standard: 49947 **Created By:** Thomas Bosch **Amount:** 10 mL
MFG: ALS/SLC **Create Date:** 09/23/2019 03:09PM **Expires:** 07/25/2020
MFG Lot: TNB: 09/20/2019 **Usable:** Yes
Pipette ID: Not Provided **Lab Lot:** CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK		Description - 6850 QC WKG STD 100ug/L
Standard: 47516	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 05/06/2019 03:05PM	**Expires:** 03/31/2020
MFG Lot: TNB: 05/06/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK		**Description - 6850 QC Stock STD 1,000ug/mL**
Standard: 36748	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: Ultra Scientific	**Create Date:** 05/11/2017 01:05PM	**Expires:** 03/31/2020
MFG Lot: CP-0860		**Usable:** Yes
Part ID: ICC-013		**Lab Lot:** CLO4 QC STOCK

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

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

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

Standard: 47515 **Created By:** Thomas Bosch **Amount:** 10 mL
MFG: ALS/SLC **Create Date:** 05/06/2019 03:05PM **Expires:** 03/31/2020
MFG Lot: TNB: 05/06/2019 **Usable:** Yes
Pipette ID: Not Provided **Lab Lot:** CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

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New Haven, CT 06513
USA

AccuStandard®

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CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: None

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO 17034 Scope of Accreditation: Yes

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

The gravimetric uncertainty for this product is ±0.24%.

The final solution was checked against an independent standard to verify its concentration.

We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.

All solutions are filtered through a 0.2 µm filter prior to being bottled.

All glassware used in preparation is Class A and calibrated regularly.

All weights are traceable through NIST, Test No. 822-275872-11

All bottles are triple rinsed with deionized water prior to use.

Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.

We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary

Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

TRIPLE ISO CERTIFICATION ISO 9001 ISO GUIDE 34 ISO 17025 ULTRA

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

S 36748

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ACCREDITATION TESTING LABORATORY

ISO 9001 Registered Quality System – TUV USA

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ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

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

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

S 47863

Product Name: PERCHLORIC ACID, SODIUM SALT
(Isotopic Label & Enrichment Specification) (18O4, 90%+) 100 UG/ML IN WATER

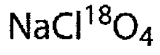
Lot Number: SDIH-016

Catalog Number: OLM-7310-S

Product Information

Chemical Purity Specification: ≥98%

MW*: 130.44
** For isotopically labeled compounds, MW listed is for the fully enriched product.*



Labeled CAS Number: NA

Unlabeled CAS Number: 7601-89-0

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. CIL Certificates of Analysis are occasionally updated with new data following recertification. We recommend checking the website for the latest version.

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.

Approved by: Sashi Sivendran-Basak

Sashi Sivendran-Basak, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	12/05/2018
Expiration Date	12/05/2028
Concentration Based on Gravimetry	100.0 ± 1.0 µg/mL (k=2)
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	105.4 ± 1.1 µg/mL (k=2)

CIL subscribes to the following standards for different products: ISO Guide 34, ISO/IEC 17025, ISO 13485 and cGMP as appropriate.

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\19MAR20D\19MAR20S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	700236 CCV@25	Vial 71	1	Control	1	1.22936e6	7.603	24.07531
*	700237 LCS@3.	Vial 72	1	Control	2	1.65066e5	7.526	3.42325
*	700239 ICS@3.0	Vial 73	1	Control	3	1.10320e5	7.478	2.89335
*	700240 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	2007564001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	2007564002	Vial 76	1	Sample	6	0.00000	0.000	0.00000
*	2007564003	Vial 77	1	Sample	7	0.00000	0.000	0.00000
*	2007564004	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	2007564005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	2007564006	Vial 80	1	Sample	10	2.48609e5	6.728	~~4.28651~~ N.R.
*	2007568001	Vial 81	1	Sample	11	3.51022e6	6.847	52.77083
*	2007568002 10X	Vial 82	1	Sample	12	7.72897e5	7.466	145.91615
*	2007568003	Vial 83	1	Sample	13	6.28393e4	7.236	~~1.23157~~ N.R.
*	700241 CCV@25	Vial 71	1	Control	14	1.28100e6	7.611	25.24165
*	2007568004 MS	Vial 84	1	Sample	15	2.01081e5	7.221	4.18214
*	2007568005 MSD	Vial 85	1	Sample	16	1.97977e5	7.172	4.34825
*	2007568006	Vial 86	1	Sample	17	2.13799e7	5.995	205.68986
*	2007568007	Vial 87	1	Sample	18	1.65269e5	6.913	~~2.98152~~ N.R.
*	2007568008 10X	Vial 88	1	Sample	19	3.07542e6	7.482	514.51319
*	2007568009 10X	Vial 89	1	Sample	20	3.36085e6	7.470	560.28270
*	2007568006 10X	Vial 90	1	Sample	21	3.45541e6	7.167	559.99202
*	700242 CCV@25	Vial 71	1	Control	22	1.36567e6	7.601	25.93886

N.R. - NOT REPORTED / FAILS 83/65 ION RATIO T.B. 3.20.2020

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	700236 CCV@25	Vial 71	1	Control	1	1.75146e5	7.627	5.00000
*	700237 LCS@3.	Vial 72	1	Control	2	1.77667e5	7.559	5.00000
*	700239 ICS@3.0	Vial 73	1	Control	3	1.40222e5	7.501	5.00000
*	700240 LMB	Vial 74	1	Control	4	1.80209e5	7.666	5.00000
*	2007564001	Vial 75	1	Sample	5	1.53505e5	6.948	5.00000
*	2007564002	Vial 76	1	Sample	6	1.89522e5	7.145	5.00000
*	2007564003	Vial 77	1	Sample	7	2.32125e5	7.391	5.00000
*	2007564004	Vial 78	1	Sample	8	2.15184e5	7.551	5.00000
*	2007564005	Vial 79	1	Sample	9	2.11765e5	7.611	5.00000
*	2007564006	Vial 80	1	Sample	10	2.13872e5	6.707	5.00000
*	2007568001	Vial 81	1	Sample	11	2.03614e5	6.864	5.00000
*	2007568002 10X	Vial 82	1	Sample	12	1.88929e5	7.485	50.00000
*	2007568003	Vial 83	1	Sample	13	1.82170e5	7.202	5.00000
*	700241 CCV@25	Vial 71	1	Control	14	1.73233e5	7.640	5.00000
*	2007568004 MS	Vial 84	1	Sample	15	1.77303e5	7.235	5.00000
*	2007568005 MSD	Vial 85	1	Sample	16	1.67893e5	7.182	5.00000
*	2007568006	Vial 86	1	Sample	17	2.01329e5	5.906	5.00000
*	2007568007	Vial 87	1	Sample	18	2.03939e5	6.877	5.00000
*	2007568008 10X	Vial 88	1	Sample	19	1.83884e5	7.512	50.00000
*	2007568009 10X	Vial 89	1	Sample	20	1.81383e5	7.484	50.00000
*	2007568006 10X	Vial 90	1	Sample	21	1.86604e5	7.188	50.00000
*	700242 CCV@25	Vial 71	1	Control	22	1.79204e5	7.628	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	700236 CCV@25	Vial 71	1	Control	1	4.00484e5	7.621	25.56785
*	700237 LCS@3.	Vial 72	1	Control	2	5.75019e4	7.551	3.82098
*	700239 ICS@3.0	Vial 73	1	Control	3	4.52092e4	7.490	3.80598
*	700240 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000

Batch Report: C:\HPCHEM\1\DATA\19MAR20D\19MAR20S.B

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	2007564001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	2007564002	Vial 76	1	Sample	6	0.00000	0.000	0.00000
*	2007564003	Vial 77	1	Sample	7	0.00000	0.000	0.00000
*	2007564004	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	2007564005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	2007564006	Vial 80	1	Sample	10	1.53091e4	6.683	7.26839e-1
*	2007568001	Vial 81	1	Sample	11	1.02484e6	6.861	51.22624
*	2007568002 10X	Vial 82	1	Sample	12	2.50348e5	7.473	153.77705
*	2007568003	Vial 83	1	Sample	13	1.07794e4	7.171	5.72351e-1
*	700241 CCV@25	Vial 71	1	Control	14	4.15085e5	7.618	26.68143
*	2007568004 MS	Vial 84	1	Sample	15	5.62875e4	7.231	3.74605
*	2007568005 MSD	Vial 85	1	Sample	16	5.67575e4	7.167	3.99535
*	2007568006	Vial 86	1	Sample	17	7.10809e6	6.007	222.47923
*	2007568007	Vial 87	1	Sample	18	1.33916e4	6.874	6.53211e-1
*	2007568008 10X	Vial 88	1	Sample	19	9.48985e5	7.499	523.20559
*	2007568009 10X	Vial 89	1	Sample	20	1.05446e6	7.480	578.11984
*	2007568006 10X	Vial 90	1	Sample	21	1.04884e6	7.184	562.08888
*	700242 CCV@25	Vial 71	1	Control	22	4.26051e5	7.618	26.49247

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\19MAR20D.S

Sequence Table:

Method and Injection Info Part:

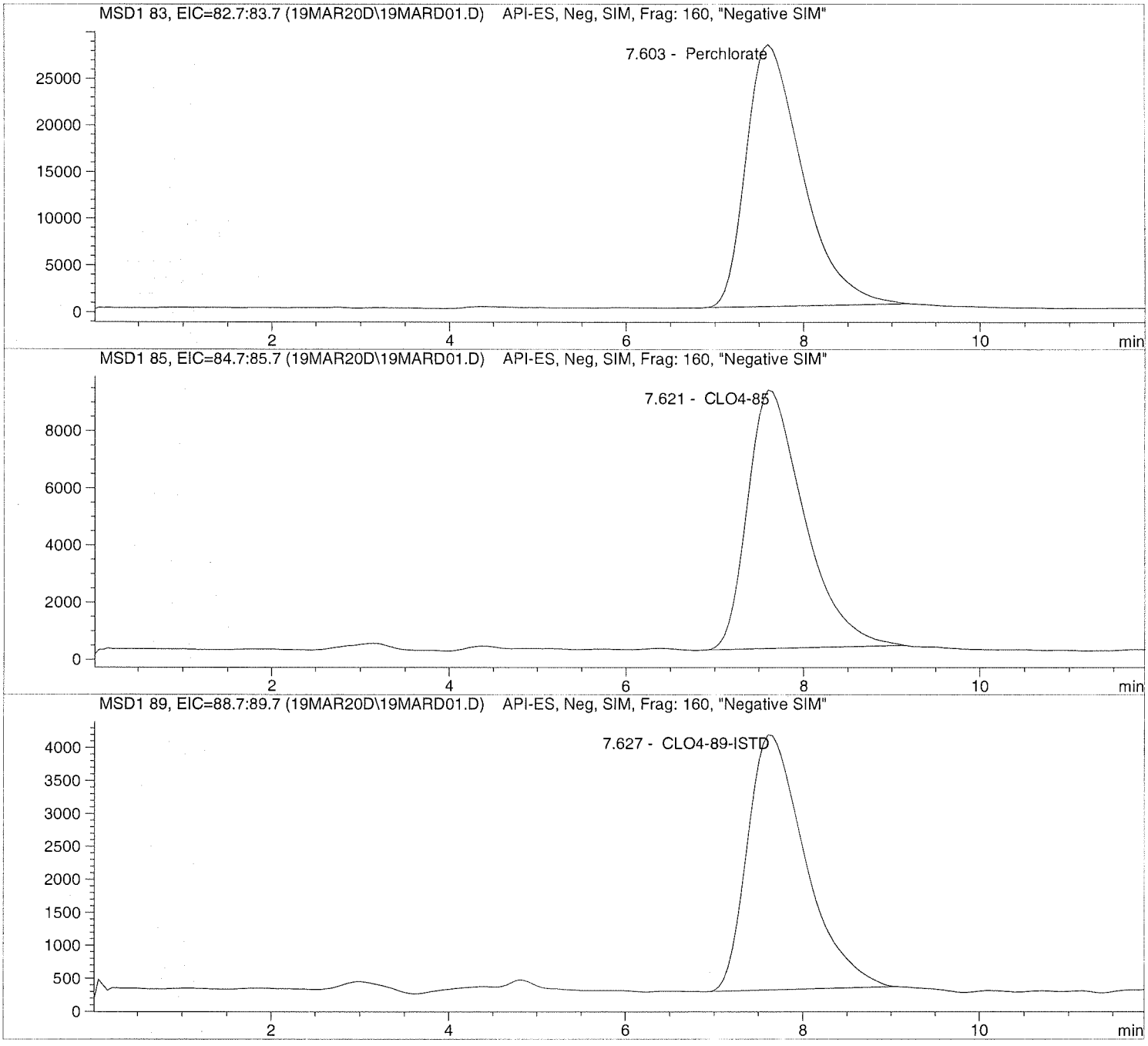
Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	700236	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	700237	LCS@3.	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	700239	ICS@3.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	700240	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	2007564001		CLO4-AQN	1	Sample		
6	Vial 76	2007564002		CLO4-AQN	1	Sample		
7	Vial 77	2007564003		CLO4-AQN	1	Sample		
8	Vial 78	2007564004		CLO4-AQN	1	Sample		
9	Vial 79	2007564005		CLO4-AQN	1	Sample		
10	Vial 80	2007564006		CLO4-AQN	1	Sample		
11	Vial 81	2007568001		CLO4-AQN	1	Sample		
12	Vial 82	2007568002	10X	CLO4-AQN	1	Sample		
13	Vial 83	2007568003		CLO4-AQN	1	Sample		
14	Vial 71	700241	CCV@25	CLO4-AQN	1	Ctrl Samp		
15	Vial 84	2007568004	MS	CLO4-AQN	1	Sample		
16	Vial 85	2007568005	MSD	CLO4-AQN	1	Sample		
17	Vial 86	2007568006		CLO4-AQN	1	Sample		
18	Vial 87	2007568007		CLO4-AQN	1	Sample		
19	Vial 88	2007568008	10X	CLO4-AQN	1	Sample		
20	Vial 89	2007568009	10X	CLO4-AQN	1	Sample		
21	Vial 90	2007568006	10X	CLO4-AQN	1	Sample		
22	Vial 71	700242	CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD01.D Sample Name: 700236 CCV@25

Injection Date:	3/19/2020 08:37:03	Seq Line:	1
Sample Name:	700236 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD01.D Sample Name: 700236 CCV@25

Injection Date:	3/19/2020 08:37:03	Seq Line:	1
Sample Name:	700236 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.603	PBA	1229363.2	24.0753	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.621	PBA	400484.1	25.5678	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.627	PBA	175145.5	5.0000	CLO4-89-ISTD

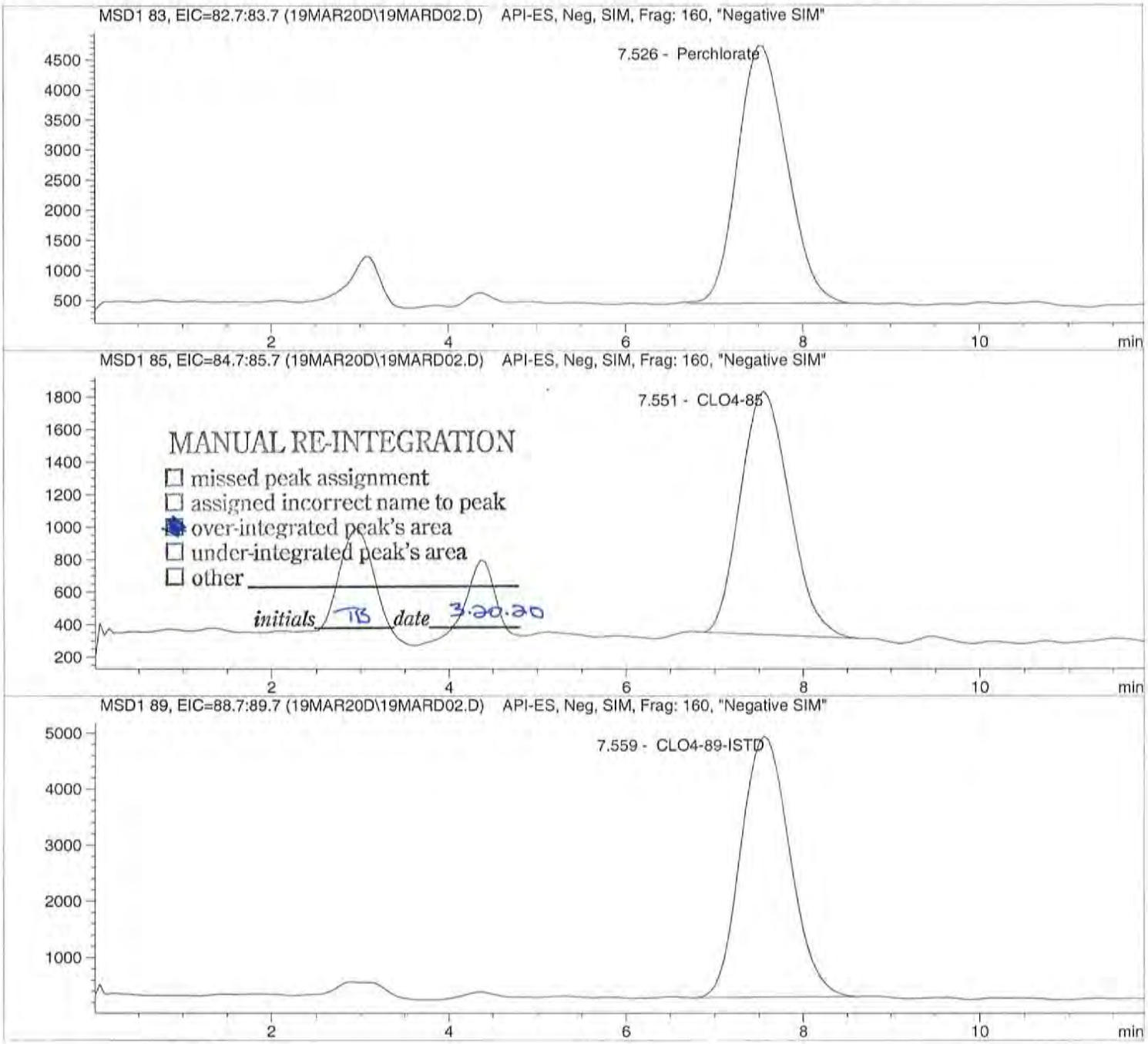
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.526	BBA	165065.5	3.4233	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	MM	57501.9	3.8210	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.559	PBA	177666.7	5.0000	CLO4-89-ISTD

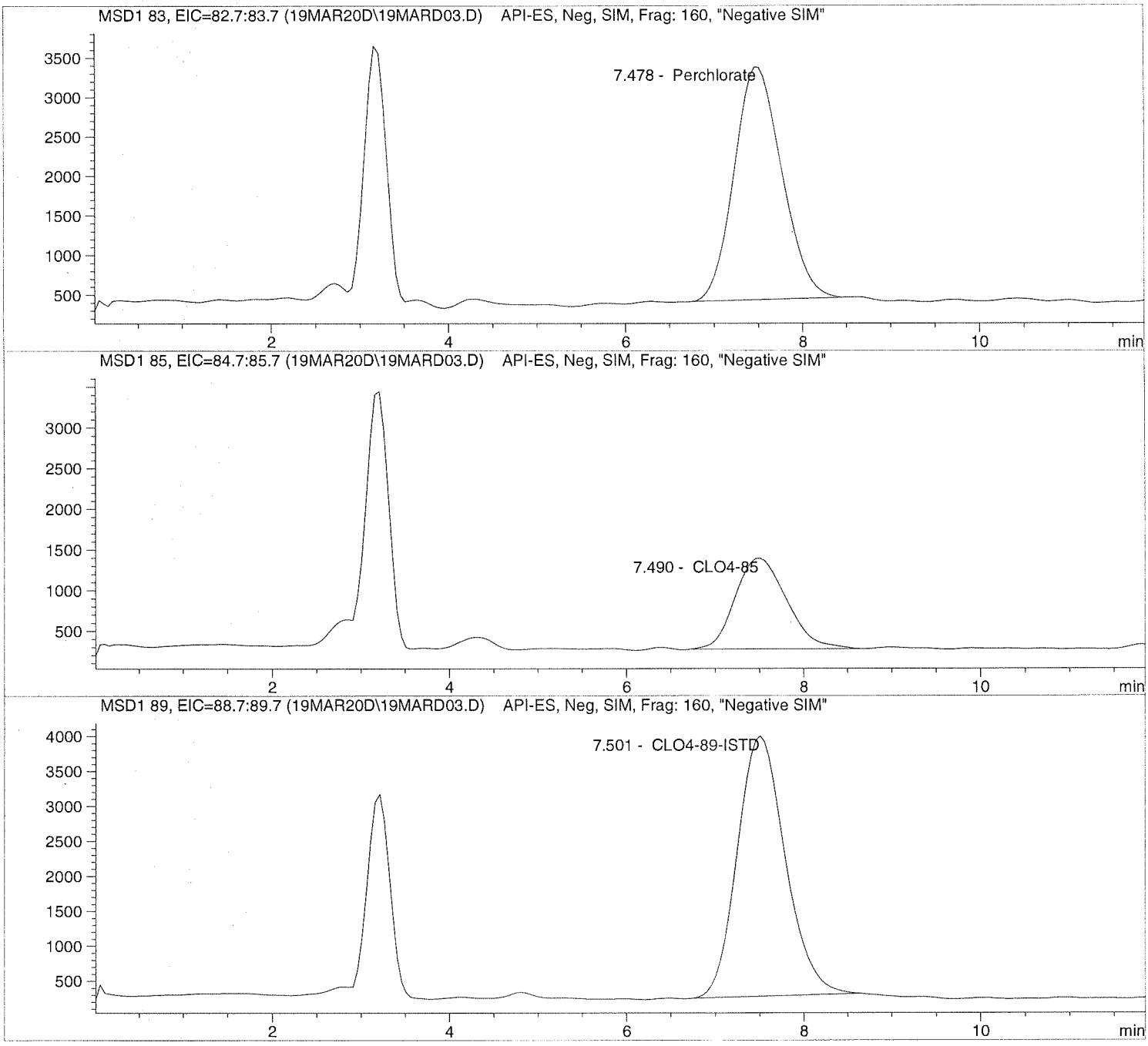
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD03.D Sample Name: 700239 ICS@3.0

Injection Date:	3/19/2020 09:07:23	Seq Line:	3
Sample Name:	700239 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD03.D Sample Name: 700239 ICS@3.0

Injection Date:	3/19/2020 09:07:23	Seq Line:	3
Sample Name:	700239 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.478	PBA	110319.7	2.8933	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.490	PBA	45209.2	3.8060	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.501	PBA	140222.0	5.0000	CLO4-89-ISTD

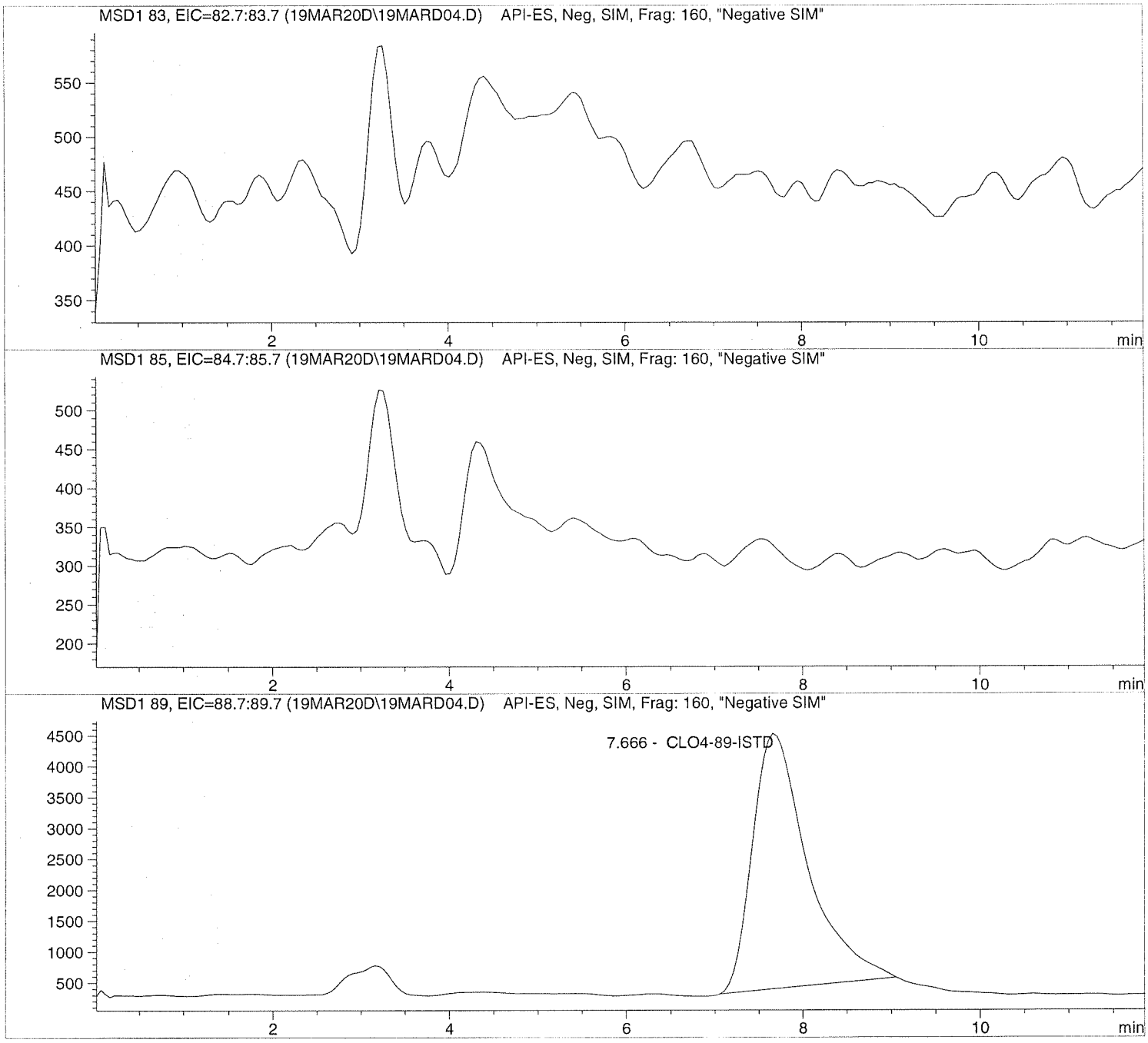
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD04.D Sample Name: 700240 LMB

Injection Date:	3/19/2020 09:21:25	Seq Line:	4
Sample Name:	700240 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD04.D Sample Name: 700240 LMB

Injection Date:	3/19/2020 09:21:25	Seq Line:	4
Sample Name:	700240 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.666	PBA	180209.3	5.0000	CLO4-89-ISTD

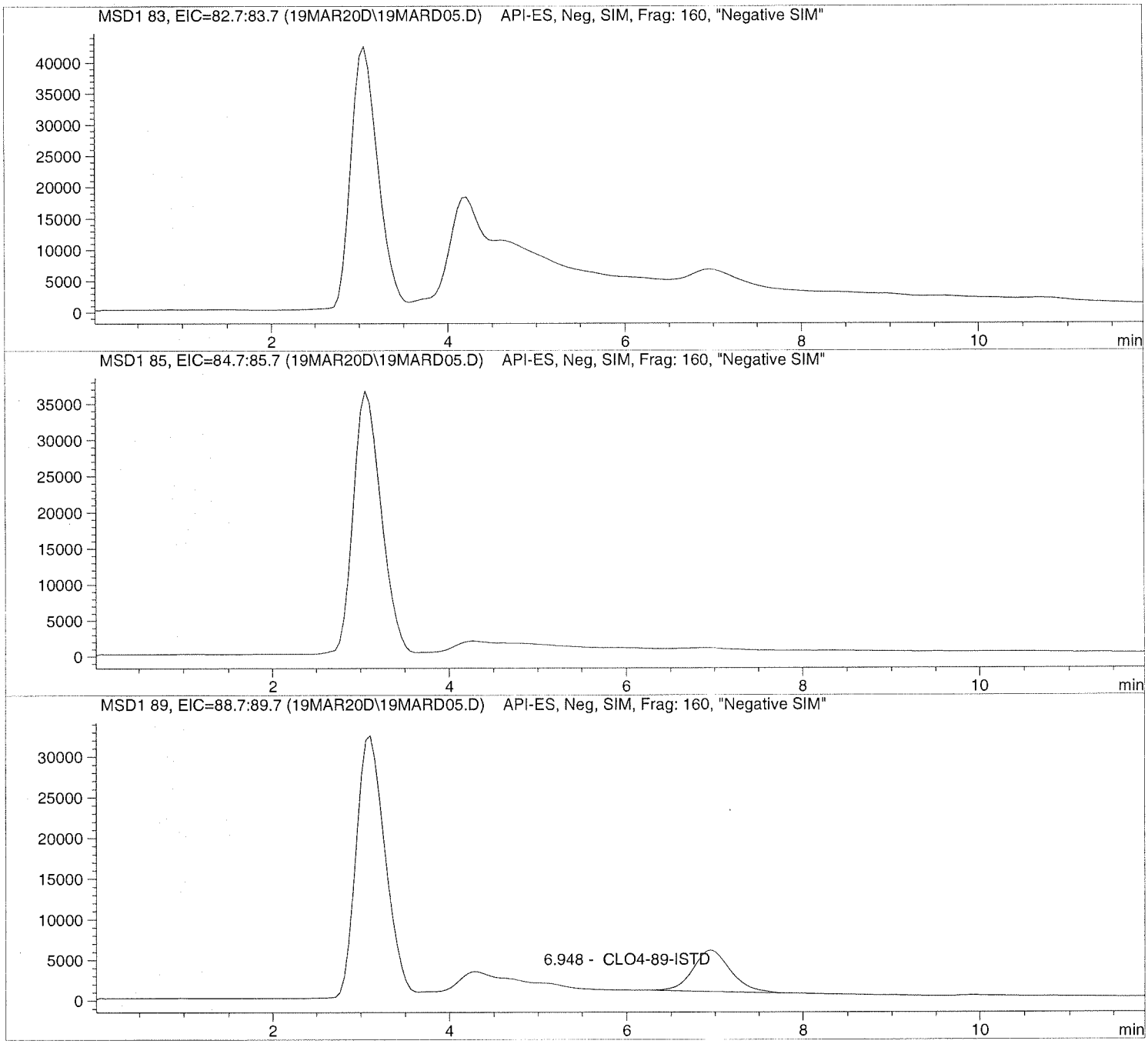
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD05.D Sample Name: 2007564001

Injection Date:	3/19/2020 09:35:23	Seq Line:	5
Sample Name:	2007564001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD05.D Sample Name: 2007564001

Injection Date:	3/19/2020 09:35:23	Seq Line:	5
Sample Name:	2007564001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.948	BBA	153505.3	5.0000	CLO4-89-ISTD

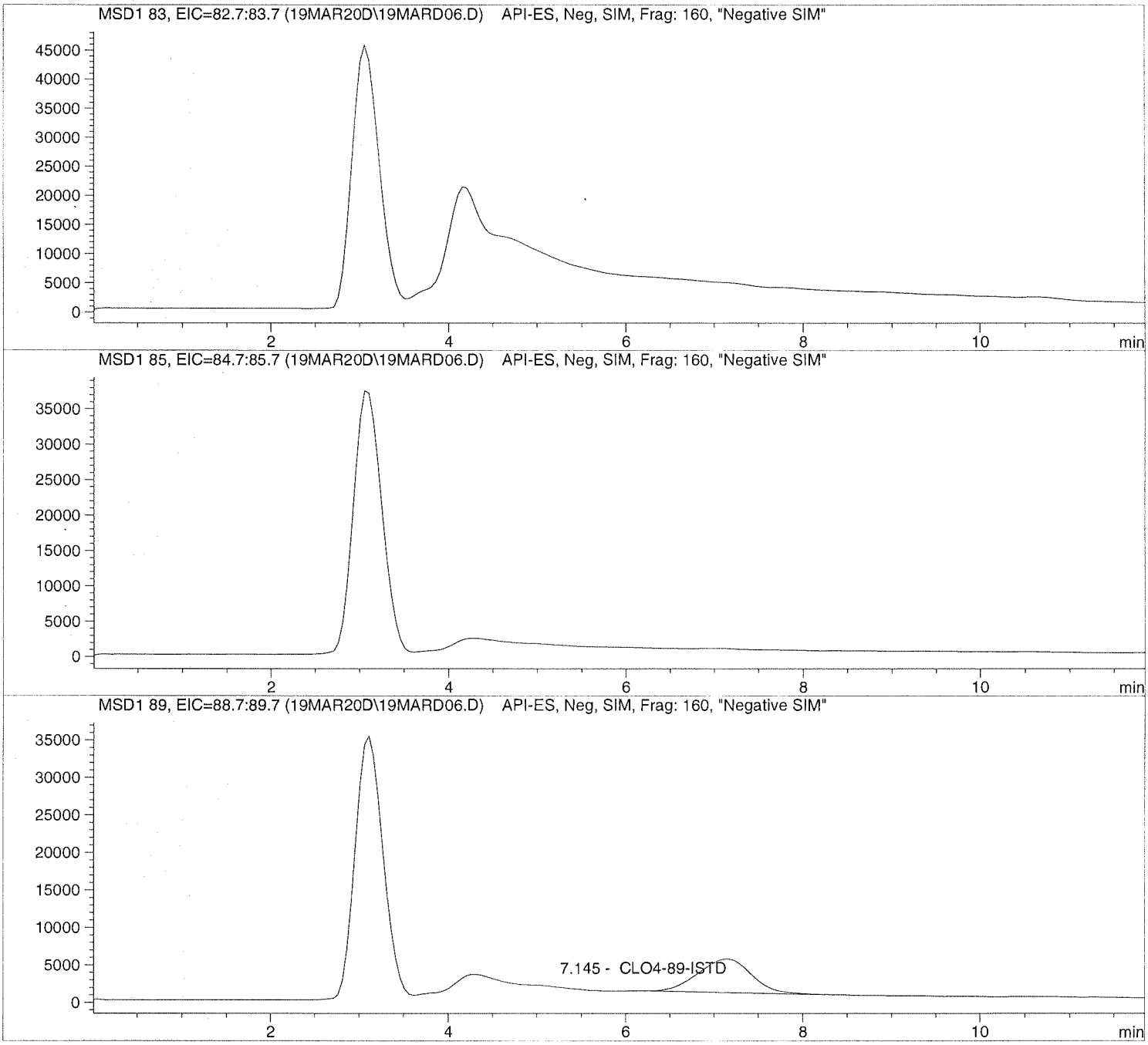
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD06.D Sample Name: 2007564002

Injection Date:	3/19/2020 09:49:24	Seq Line:	6
Sample Name:	2007564002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD06.D Sample Name: 2007564002

Injection Date:	3/19/2020 09:49:24	Seq Line:	6
Sample Name:	2007564002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.145	PBA	189522.4	5.0000	CLO4-89-ISTD

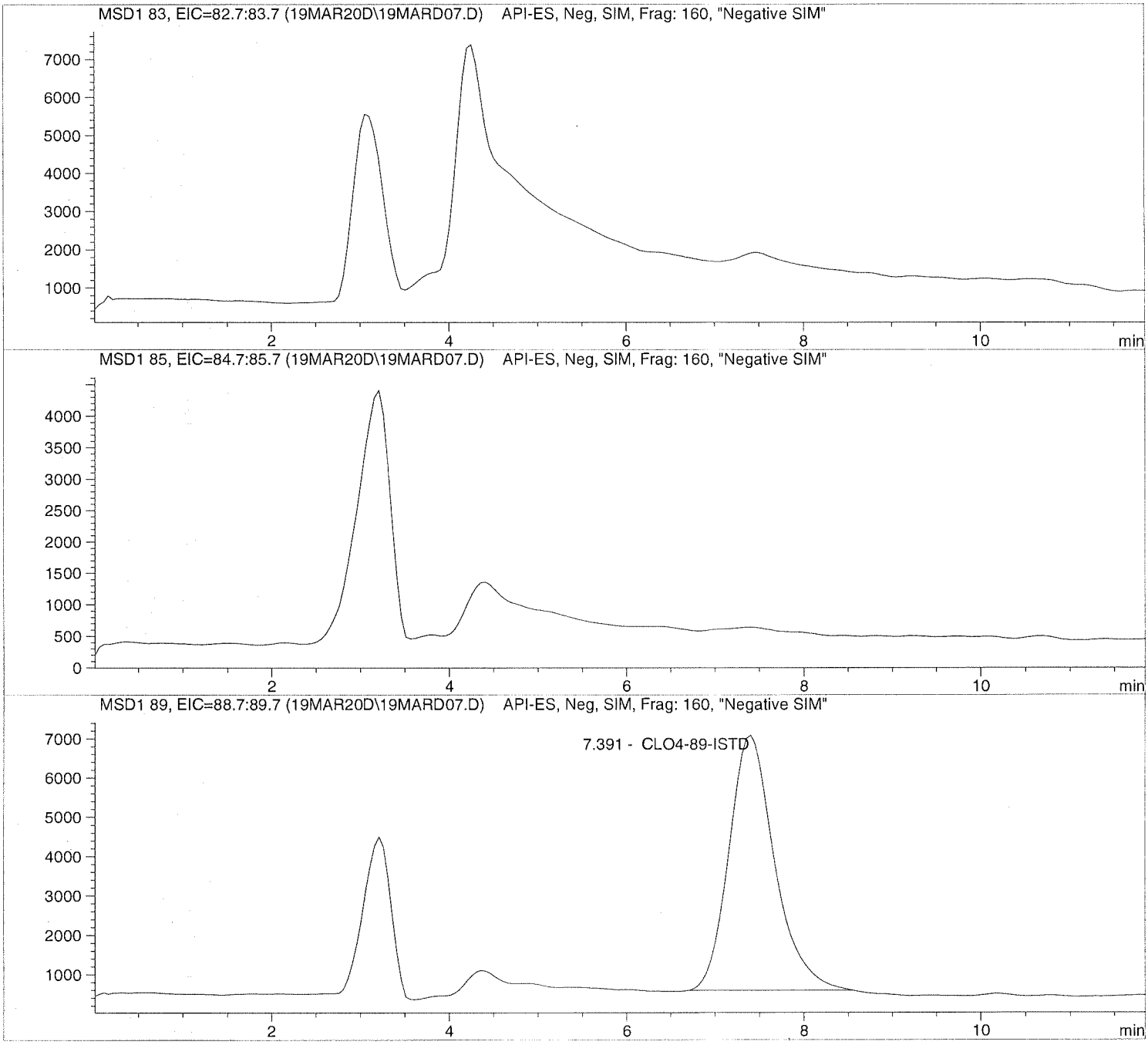
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD07.D Sample Name: 2007564003

Injection Date:	3/19/2020 10:03:23	Seq Line:	7
Sample Name:	2007564003	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD07.D Sample Name: 2007564003

Injection Date:	3/19/2020 10:03:23	Seq Line:	7
Sample Name:	2007564003	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.391	PBA	232125.0	5.0000	CLO4-89-ISTD

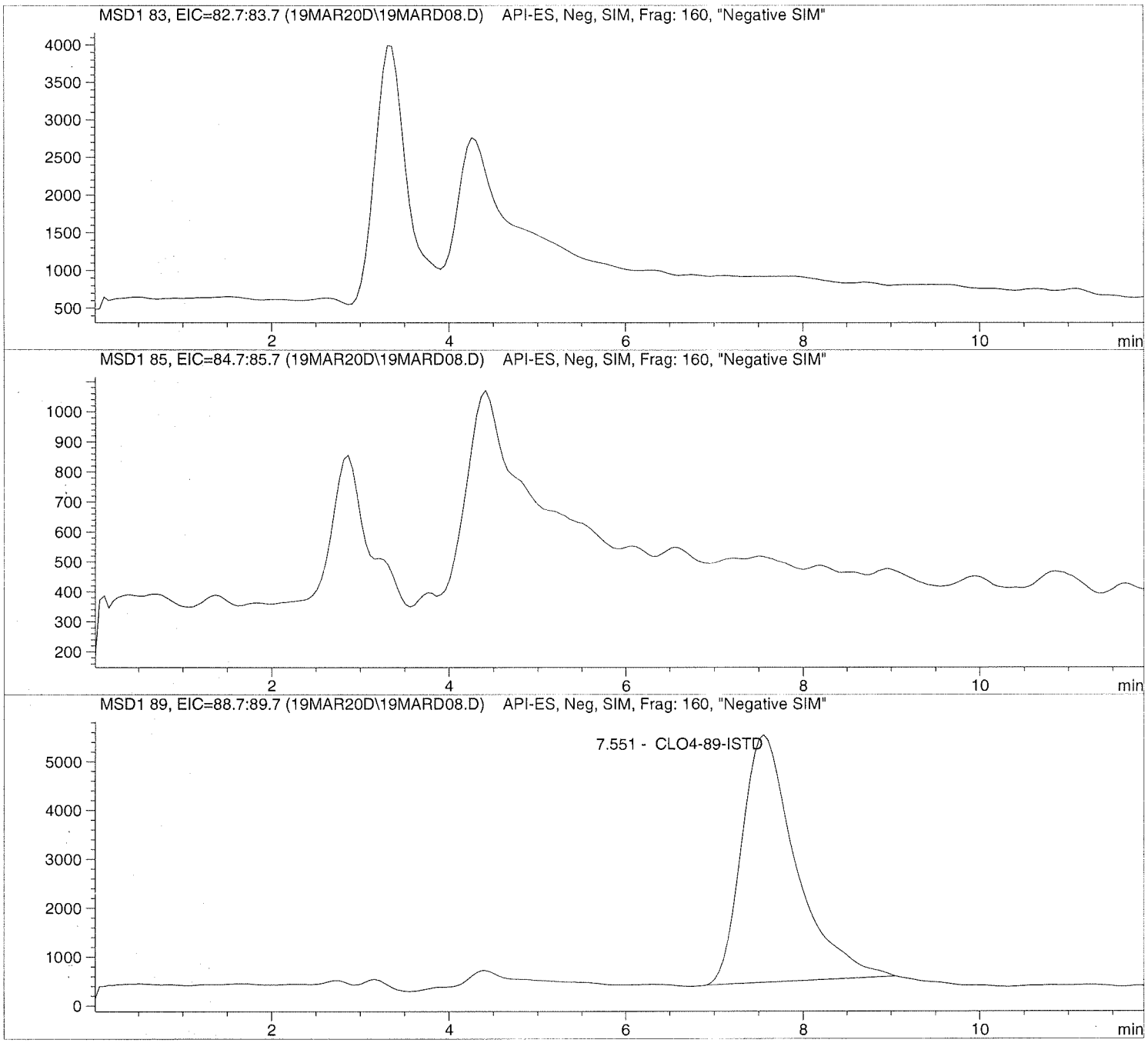
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD08.D Sample Name: 2007564004

Injection Date:	3/19/2020 10:17:21	Seq Line:	8
Sample Name:	2007564004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD08.D Sample Name: 2007564004

Injection Date:	3/19/2020 10:17:21	Seq Line:	8
Sample Name:	2007564004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	PBA	215183.6	5.0000	CLO4-89-ISTD

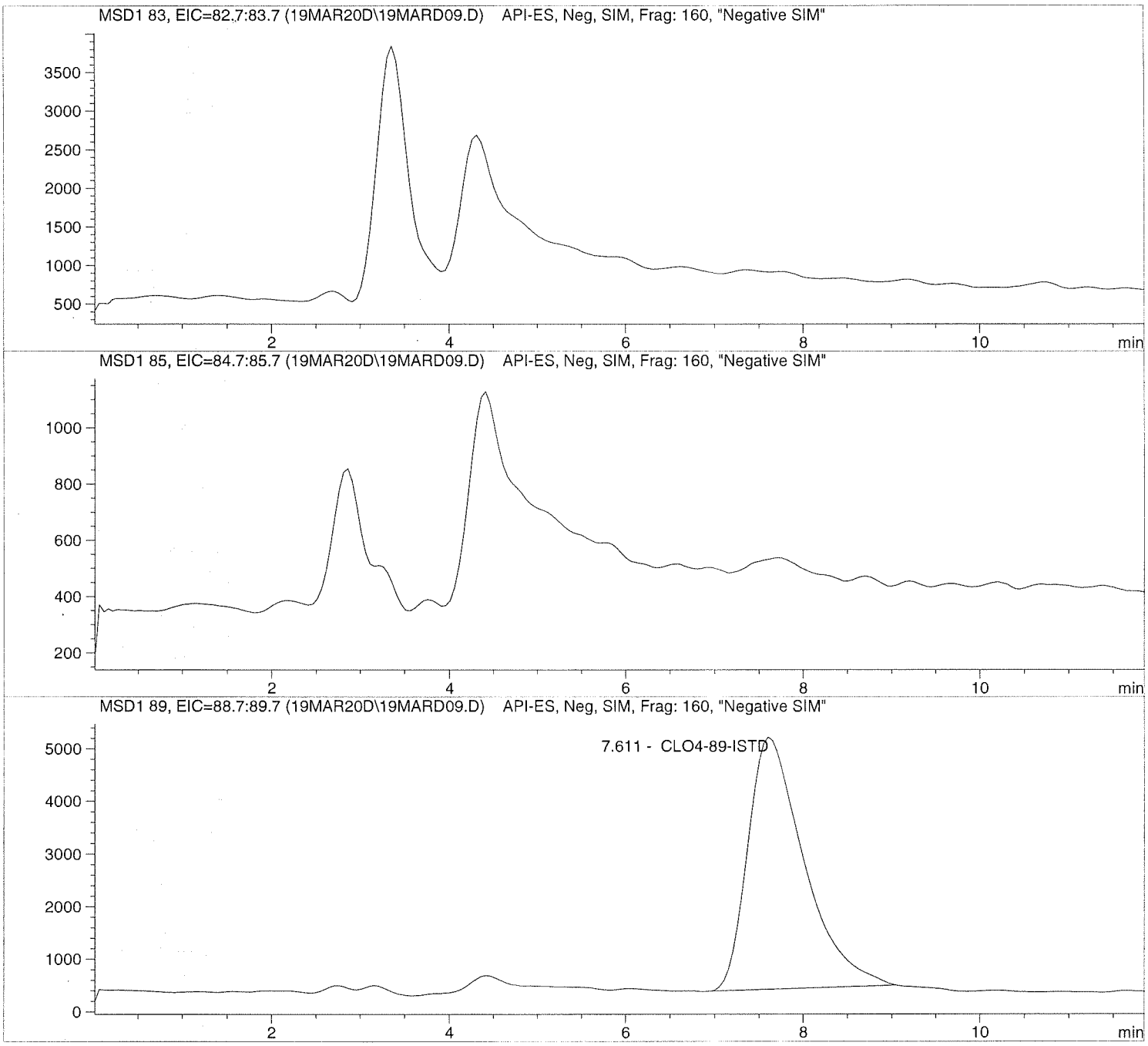
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD09.D Sample Name: 2007564005

Injection Date:	3/19/2020 10:31:21	Seq Line:	9
Sample Name:	2007564005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD09.D Sample Name: 2007564005

Injection Date:	3/19/2020 10:31:21	Seq Line:	9
Sample Name:	2007564005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.611	PBA	211765.4	5.0000	CLO4-89-ISTD

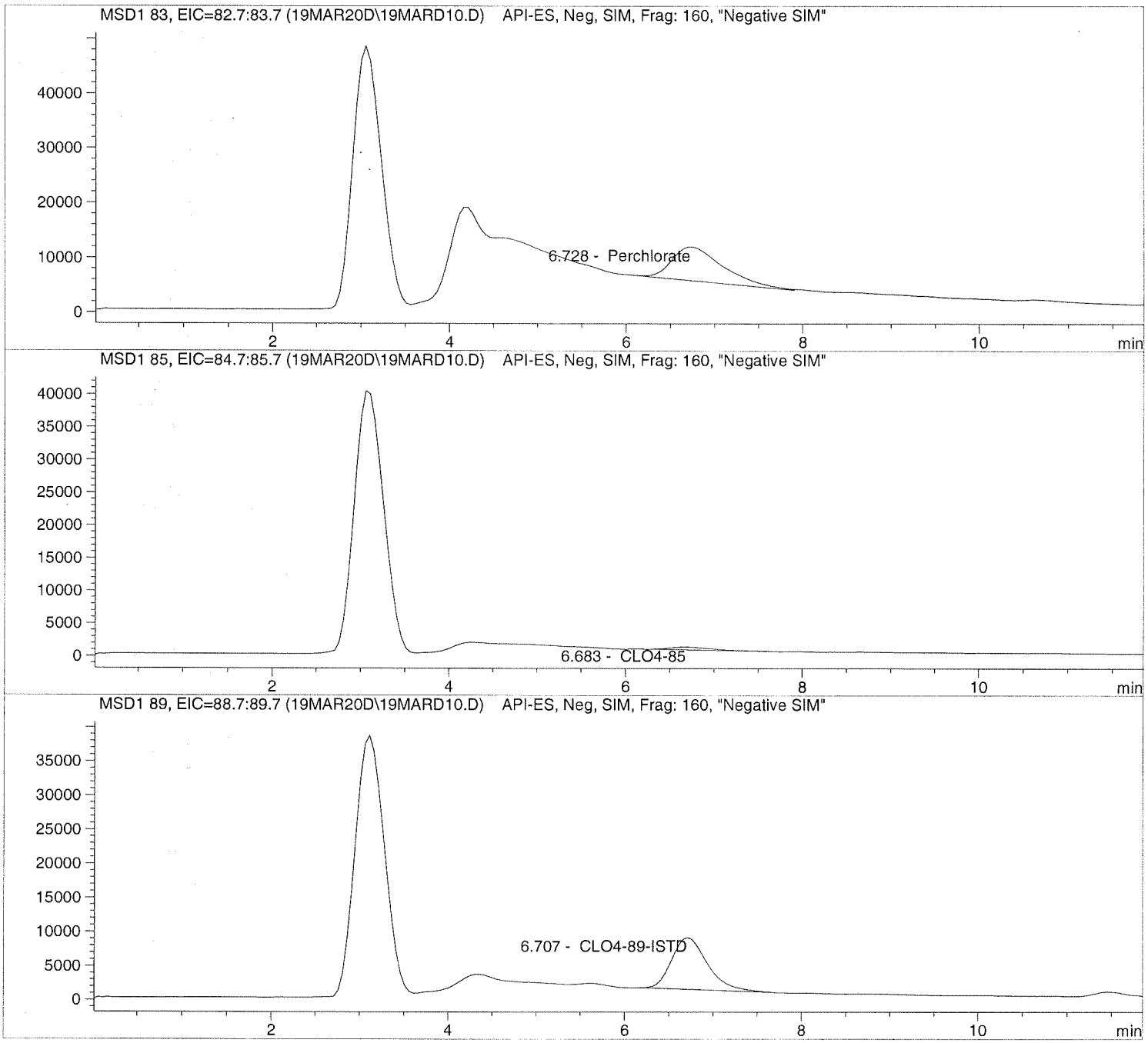
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD10.D Sample Name: 2007564006

Injection Date:	3/19/2020 10:45:23	Seq Line:	10
Sample Name:	2007564006	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD10.D Sample Name: 2007564006

Injection Date:	3/19/2020 10:45:23	Seq Line:	10
Sample Name:	2007564006	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.728	BBA	248609.5	4.2865	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO TB 3.20.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.683	PBA	15309.1	0.7268	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.707	PBA	213872.0	5.0000	CLO4-89-ISTD

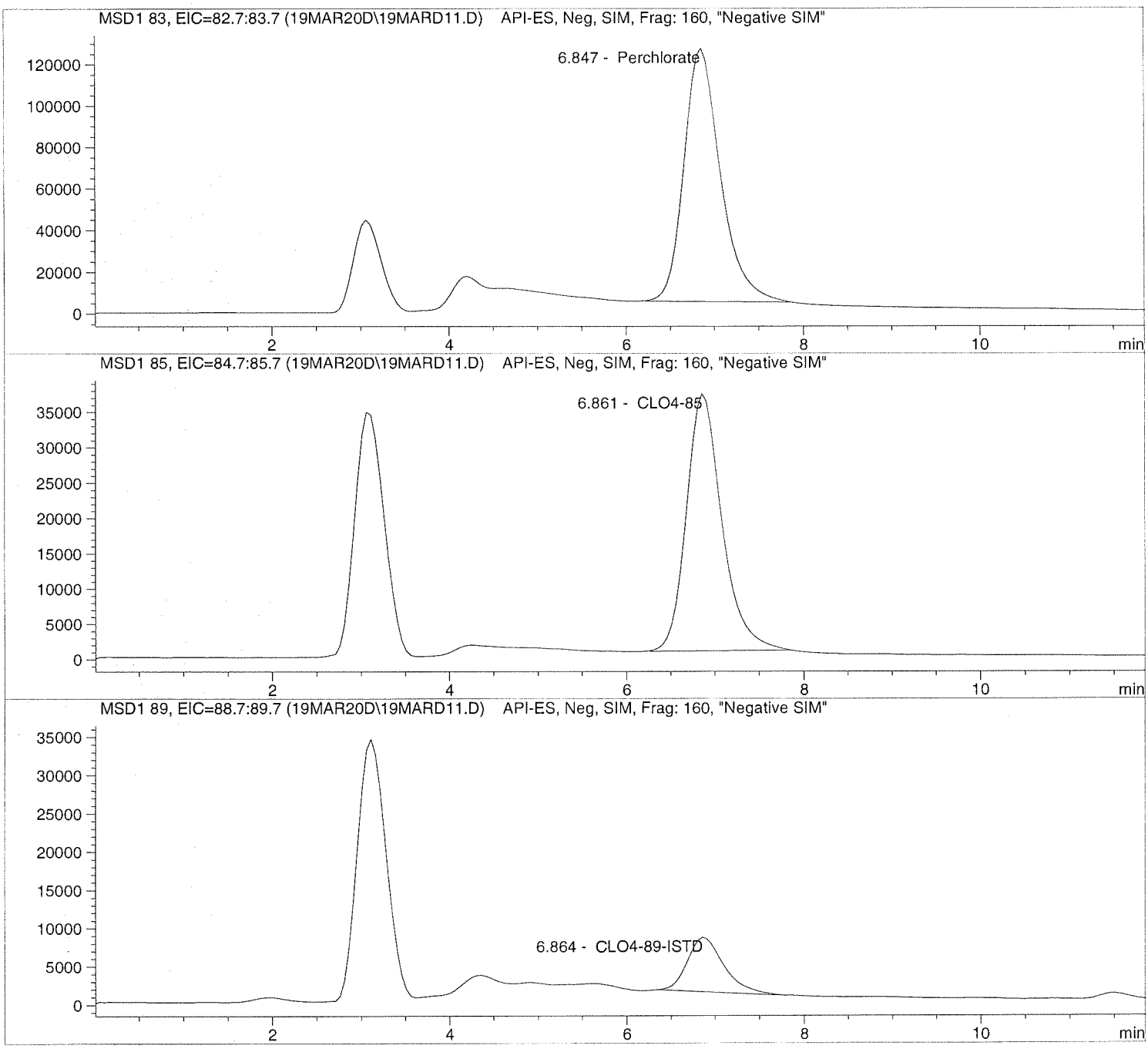
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD11.D Sample Name: 2007568001

Injection Date:	3/19/2020 10:59:22	Seq Line:	11
Sample Name:	2007568001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD11.D Sample Name: 2007568001

Injection Date:	3/19/2020 10:59:22	Seq Line:	11
Sample Name:	2007568001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.847	BBA	3510216.3	52.7708	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.861	PBA	1024842.2	51.2262	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.864	PBA	203614.1	5.0000	CLO4-89-ISTD

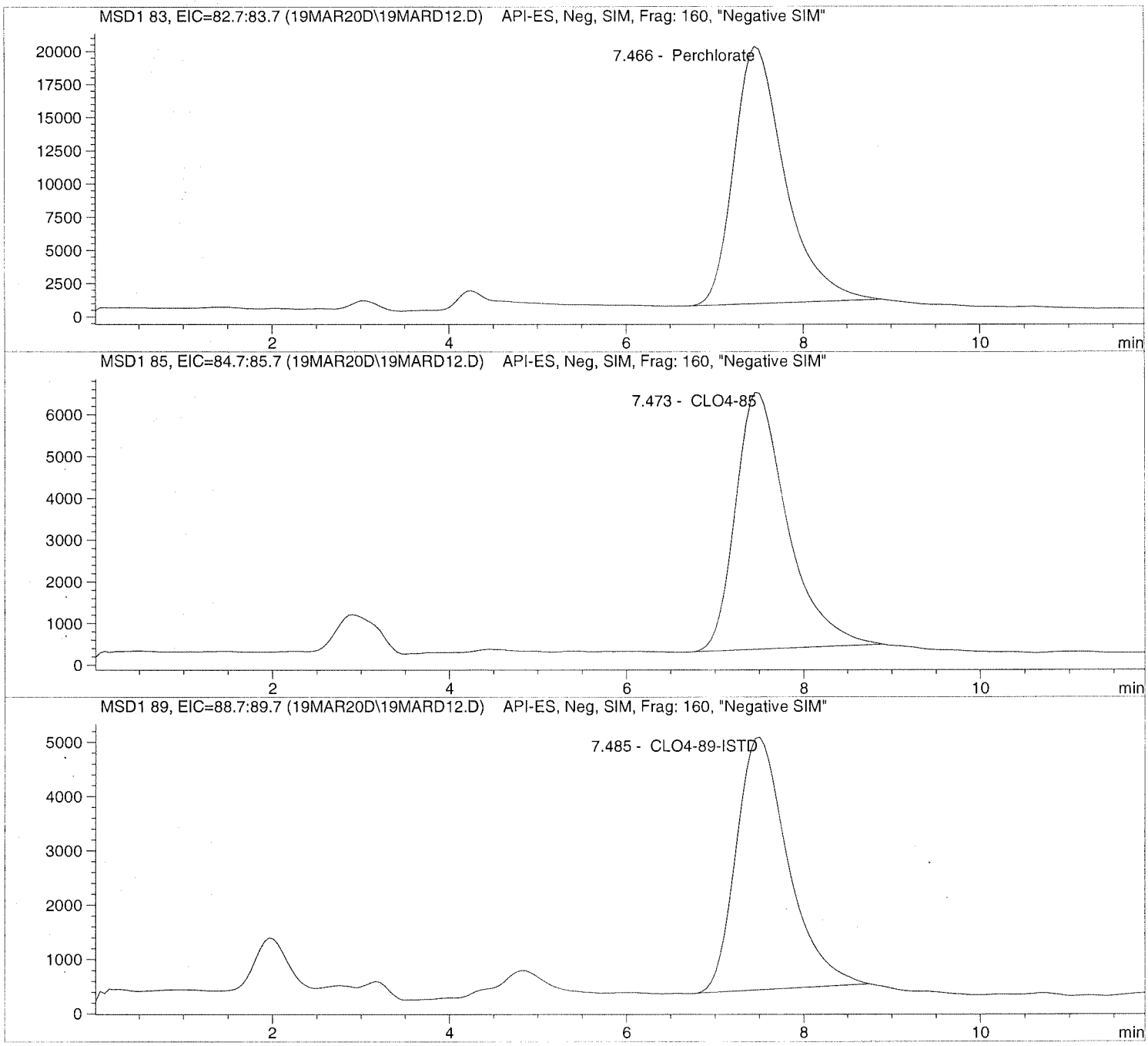
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD12.D Sample Name: 2007568002 10X

Injection Date:	3/19/2020 11:13:19	Seq Line:	12
Sample Name:	2007568002 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD12.D Sample Name: 2007568002 10X

Injection Date:	3/19/2020 11:13:19	Seq Line:	12
Sample Name:	2007568002 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLQ4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.466	PBA	772896.7	145.9161	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.473	PBA	250347.9	153.7771	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.485	PBA	188928.7	50.0000	CLO4-89-ISTD

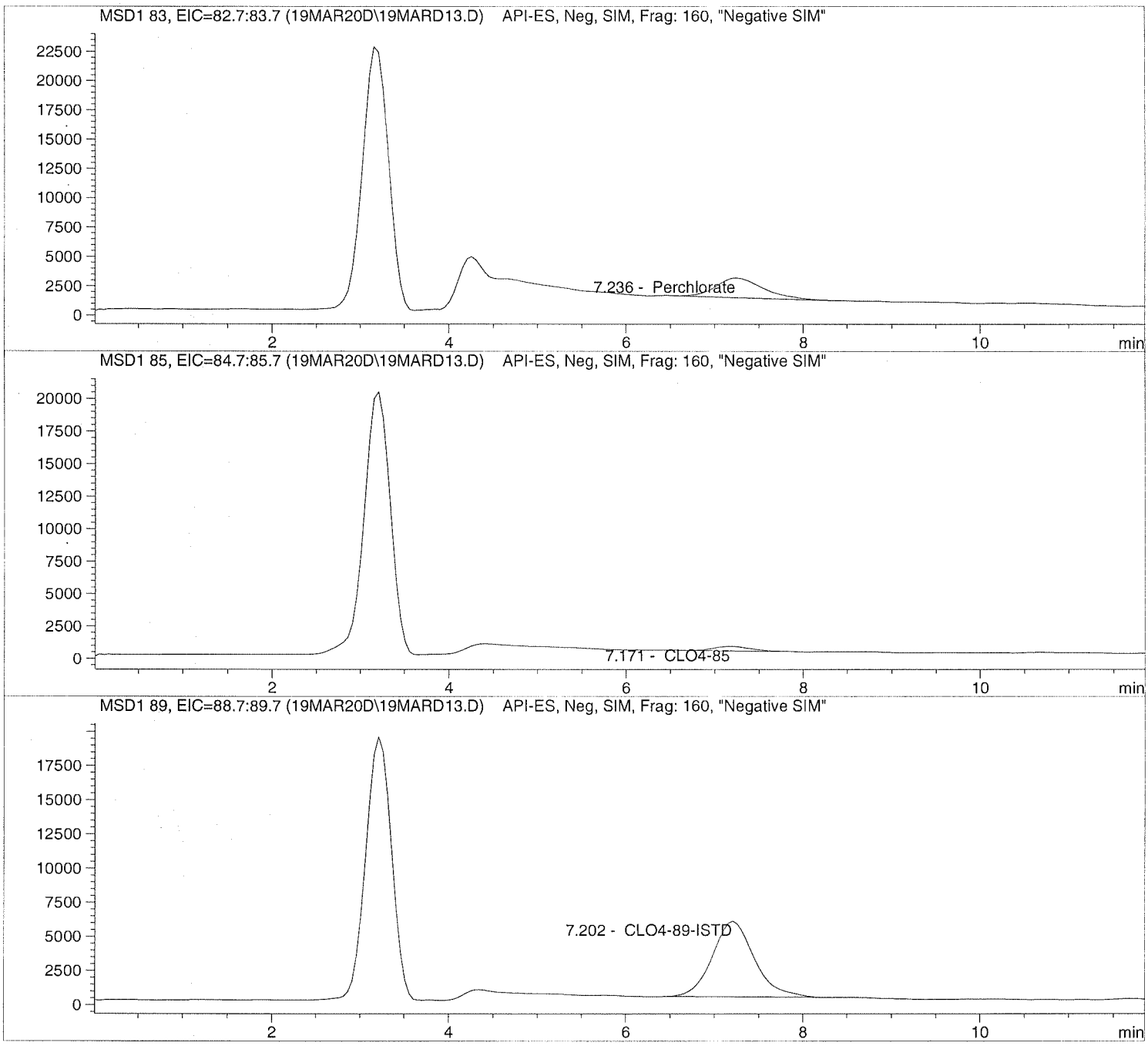
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD13.D Sample Name: 2007568003

Injection Date:	3/19/2020 11:27:19	Seq Line:	13
Sample Name:	2007568003	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD13.D Sample Name: 2007568003

Injection Date:	3/19/2020 11:27:19	Seq Line:	13
Sample Name:	2007568003	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.236	BBA	62839.3	1.2316	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO
TB 3.20.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.171	BBA	10779.4	0.5724	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.202	PBA	182169.8	5.0000	CLO4-89-ISTD

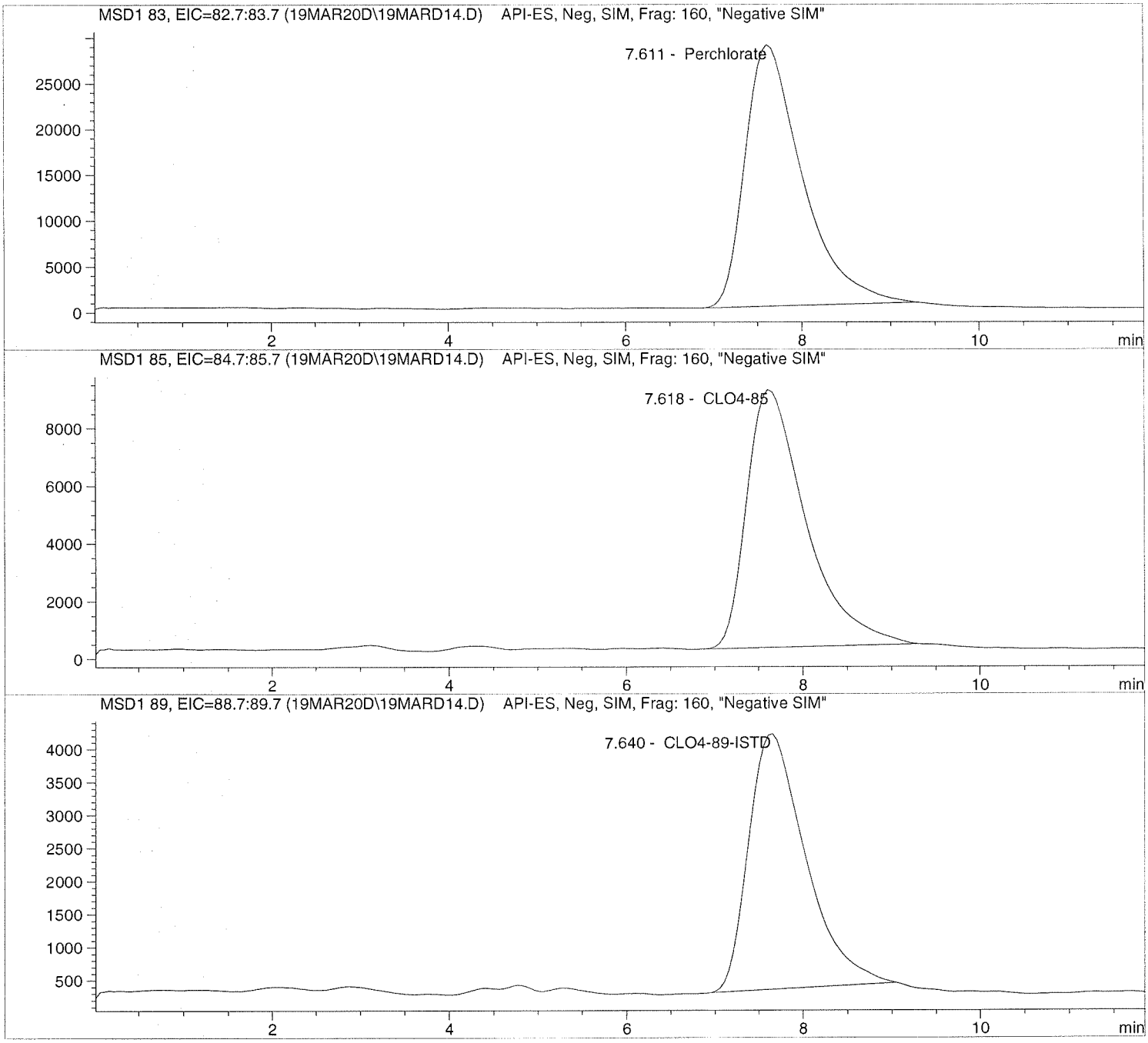
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD14.D Sample Name: 700241 CCV@25

Injection Date:	3/19/2020 11:41:15	Seq Line:	14
Sample Name:	700241 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD14.D Sample Name: 700241 CCV@25

Injection Date:	3/19/2020 11:41:15	Seq Line:	14
Sample Name:	700241 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.611	PBA	1280995.1	25.2416	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.618	PBA	415085.1	26.6814	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.640	PBA	173233.0	5.0000	CLO4-89-ISTD

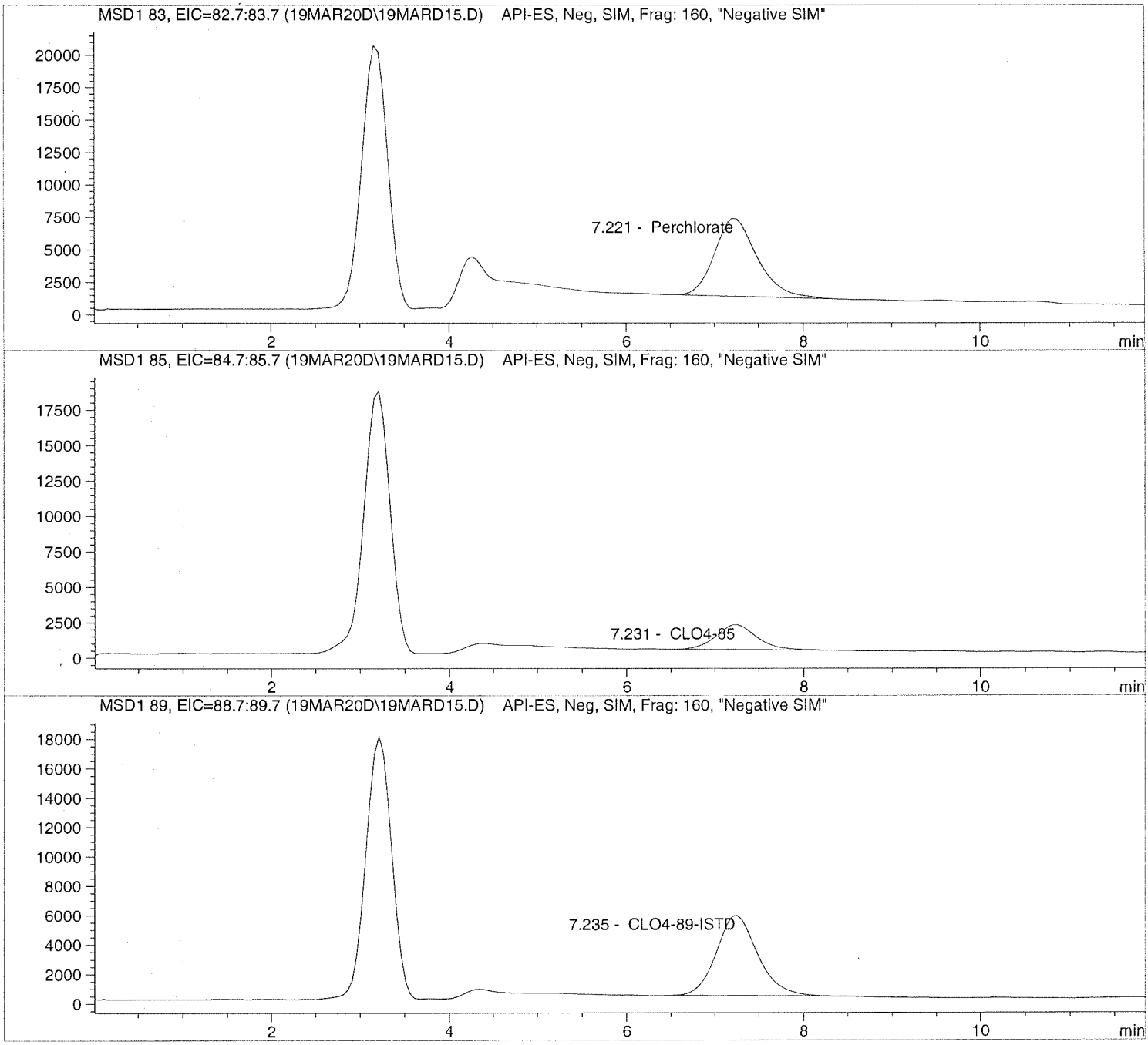
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD15.D Sample Name: 2007568004 MS

Injection Date:	3/19/2020 11:55:13	Seq Line:	15
Sample Name:	2007568004 MS	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD15.D Sample Name: 2007568004 MS

Injection Date:	3/19/2020 11:55:13	Seq Line:	15
Sample Name:	2007568004 MS	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.221	PBA	201081.1	4.1821	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.231	PBA	56287.5	3.7460	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.235	PBA	177302.8	5.0000	CLO4-89-ISTD

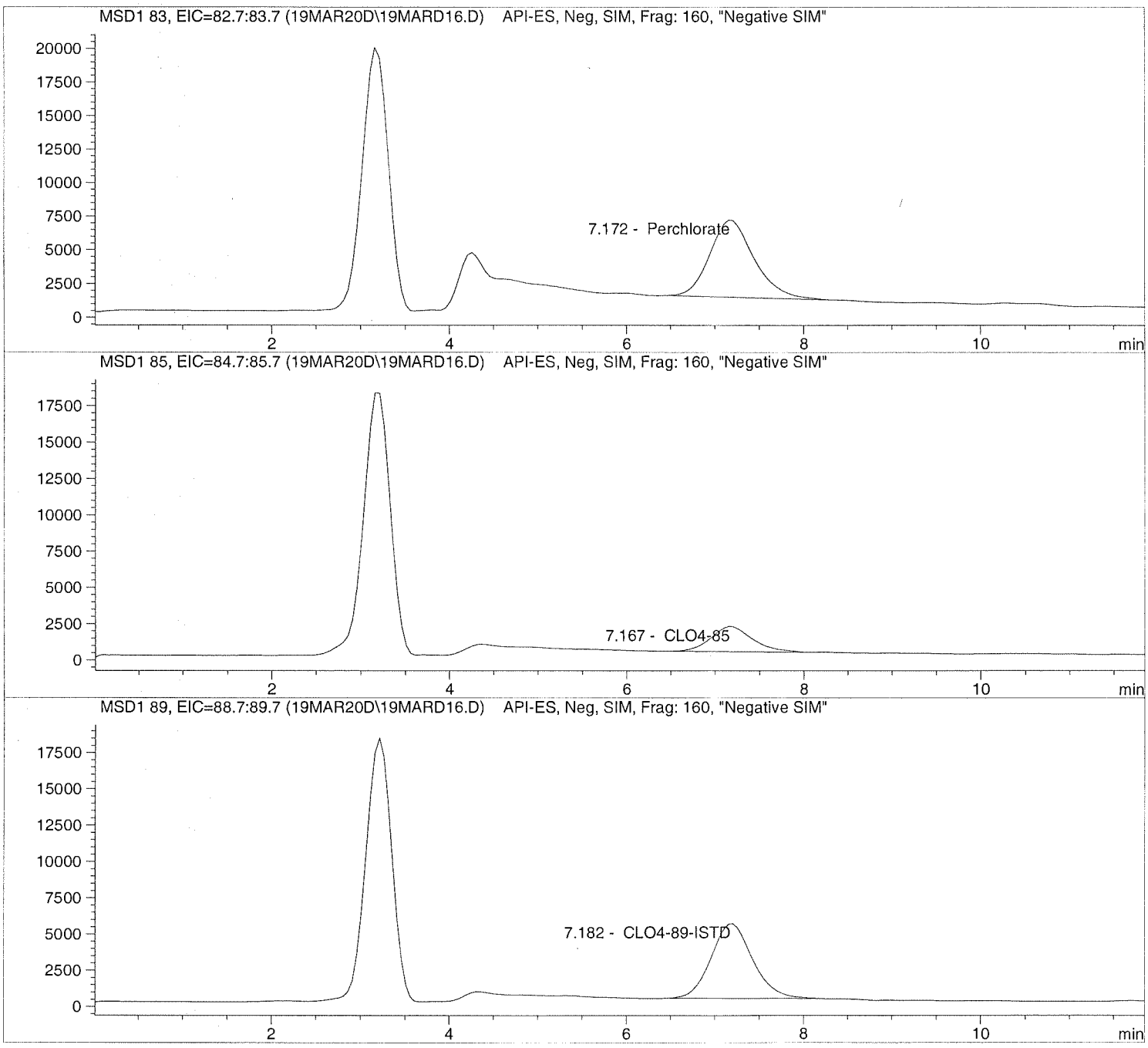
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD16.D Sample Name: 2007568005 MSD

Injection Date:	3/19/2020 12:09:11	Seq Line:	16
Sample Name:	2007568005 MSD	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD16.D Sample Name: 2007568005 MSD

Injection Date:	3/19/2020 12:09:11	Seq Line:	16
Sample Name:	2007568005 MSD	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.172	PBA	197976.7	4.3482	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.167	PBA	56757.5	3.9953	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.182	BBA	167893.3	5.0000	CLO4-89-ISTD

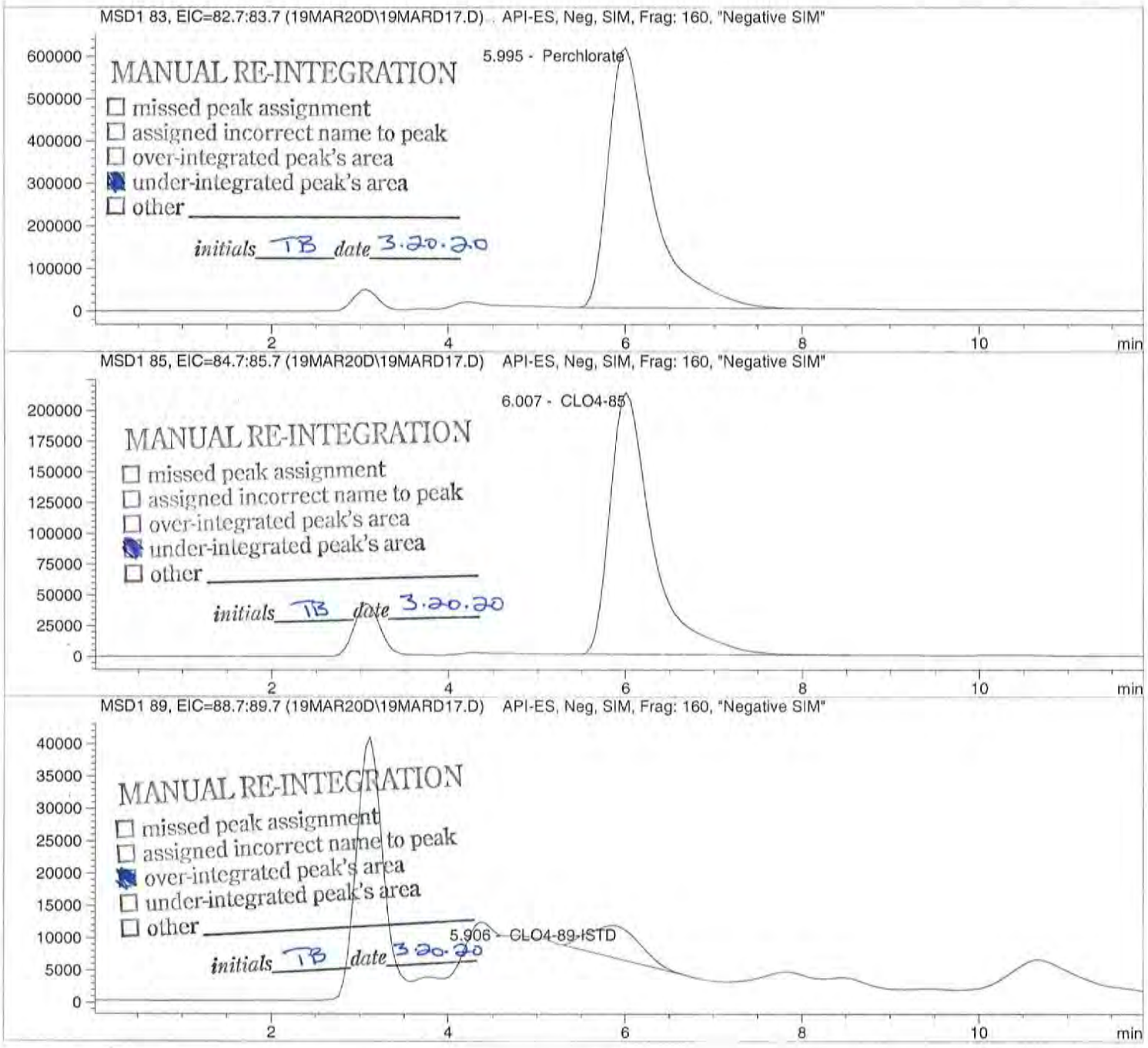
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.995	MM	21379896.0	205.6899	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.007	MM	7108094.0	222.4792	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.906	MM	201329.3	5.0000	CLO4-89-ISTD

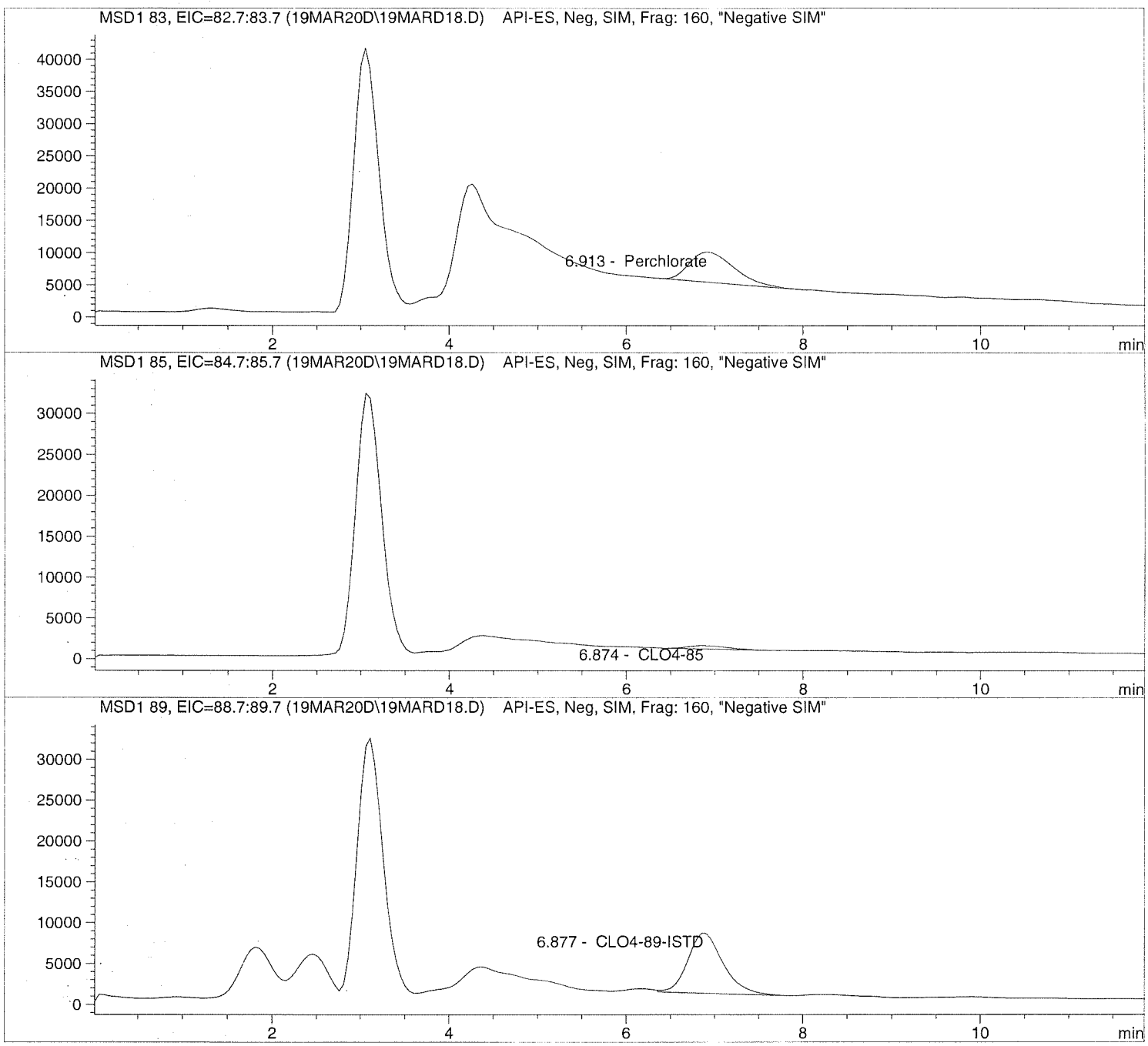
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD18.D Sample Name: 2007568007

Injection Date:	3/19/2020 12:37:08	Seq Line:	18
Sample Name:	2007568007	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD18.D Sample Name: 2007568007

Injection Date:	3/19/2020 12:37:08	Seq Line:	18
Sample Name:	2007568007	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.913	BBA	165268.8	2.9815	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO T.B. 3.20.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.874	PBA	13391.6	0.6532	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.877	BBA	203938.6	5.0000	CLO4-89-ISTD

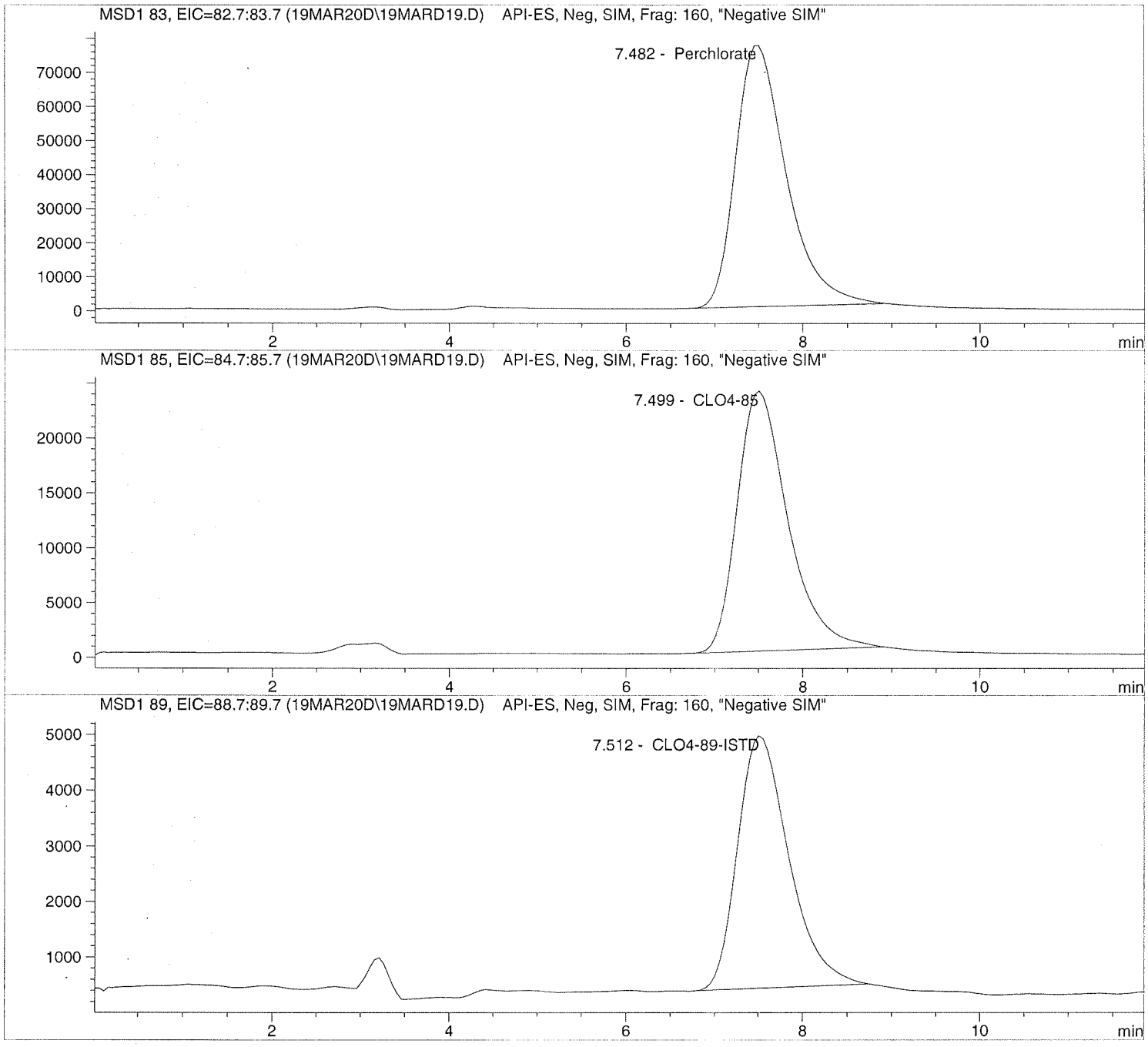
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD19.D Sample Name: 2007568008 10X

Injection Date:	3/19/2020 12:51:11	Seq Line:	19
Sample Name:	2007568008 10X	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD19.D Sample Name: 2007568008 10X

Injection Date:	3/19/2020 12:51:11	Seq Line:	19
Sample Name:	2007568008 10X	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.482	PBA	3075416.5	514.5132	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.499	PBA	948985.0	523.2056	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.512	PBA	183884.4	50.0000	CLO4-89-ISTD

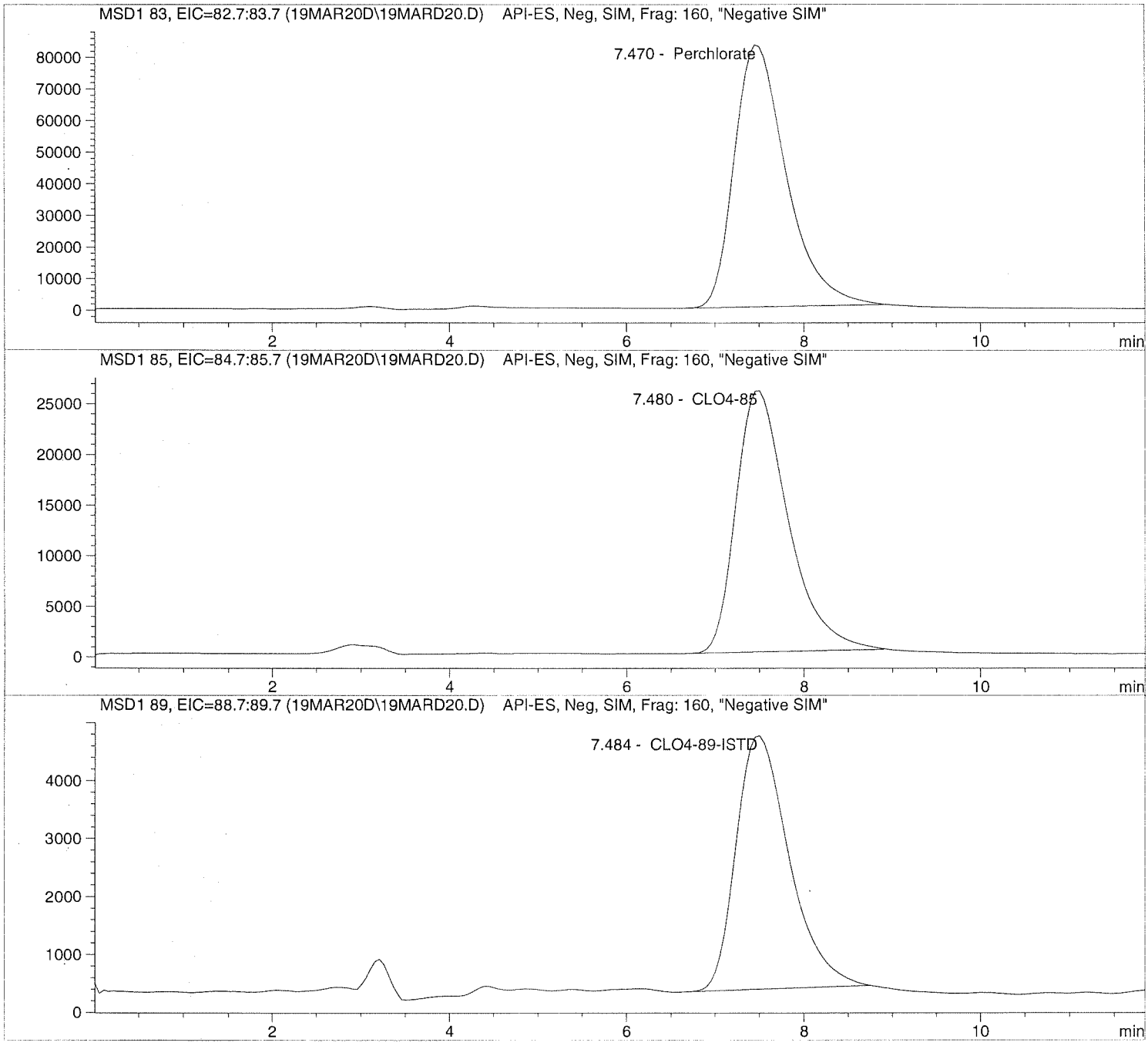
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD20.D Sample Name: 2007568009 10X

Injection Date:	3/19/2020 13:05:20	Seq Line:	20
Sample Name:	2007568009 10X	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD20.D Sample Name: 2007568009 10X

Injection Date:	3/19/2020 13:05:20	Seq Line:	20
Sample Name:	2007568009 10X	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.470	PBA	3360846.3	560.2827	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.480	PBA	1054458.5	578.1198	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.484	PBA	181382.9	50.0000	CLO4-89-ISTD

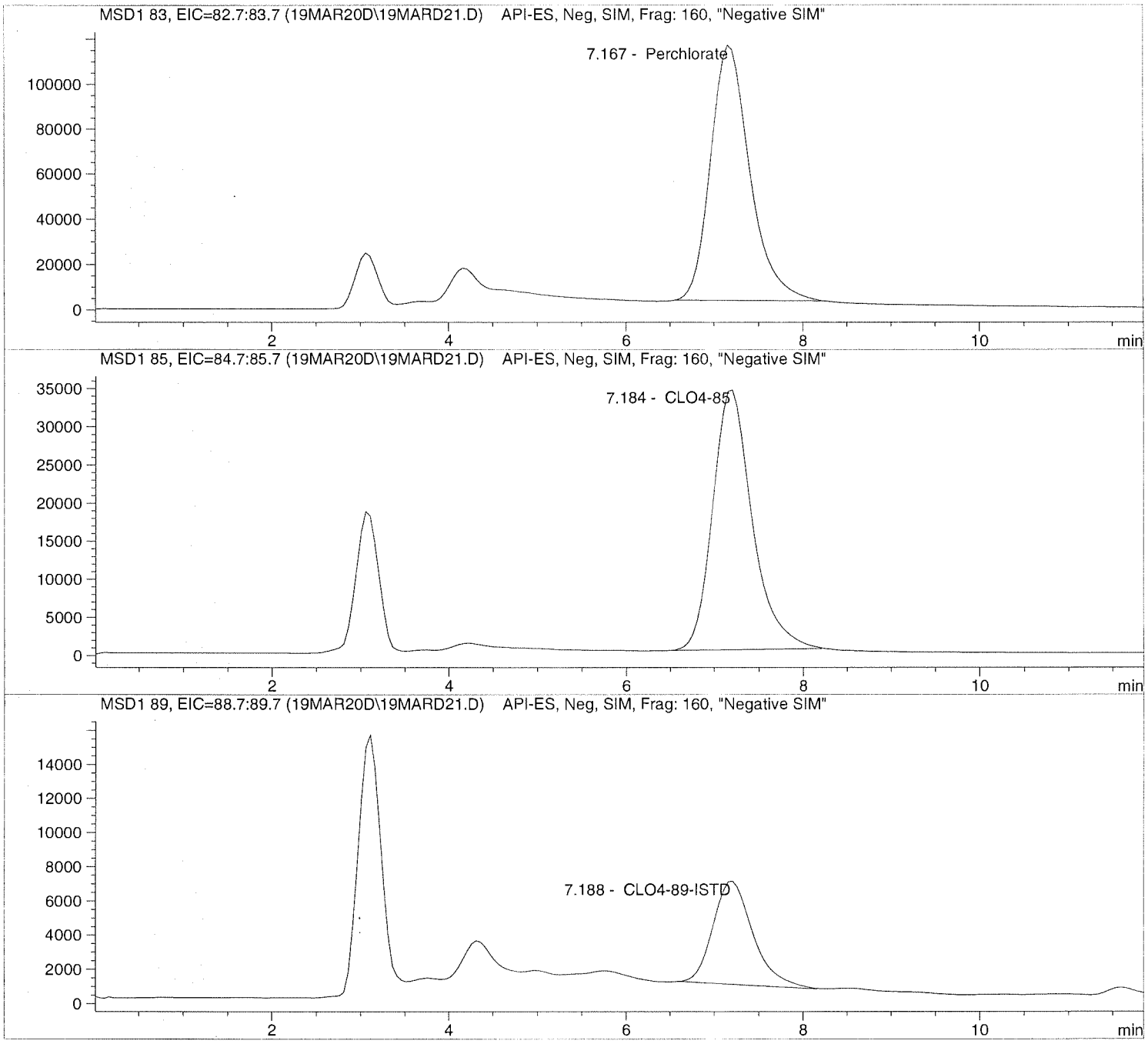
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD21.D Sample Name: 2007568006 10X

Injection Date:	3/19/2020 13:26:53	Seq Line:	21
Sample Name:	2007568006 10X	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD21.D Sample Name: 2007568006 10X

Injection Date:	3/19/2020 13:26:53	Seq Line:	21
Sample Name:	2007568006 10X	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.167	BBA	3455411.3	559.9920	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.184	PBA	1048842.8	562.0889	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.188	PBA	186603.6	50.0000	CLO4-89-ISTD

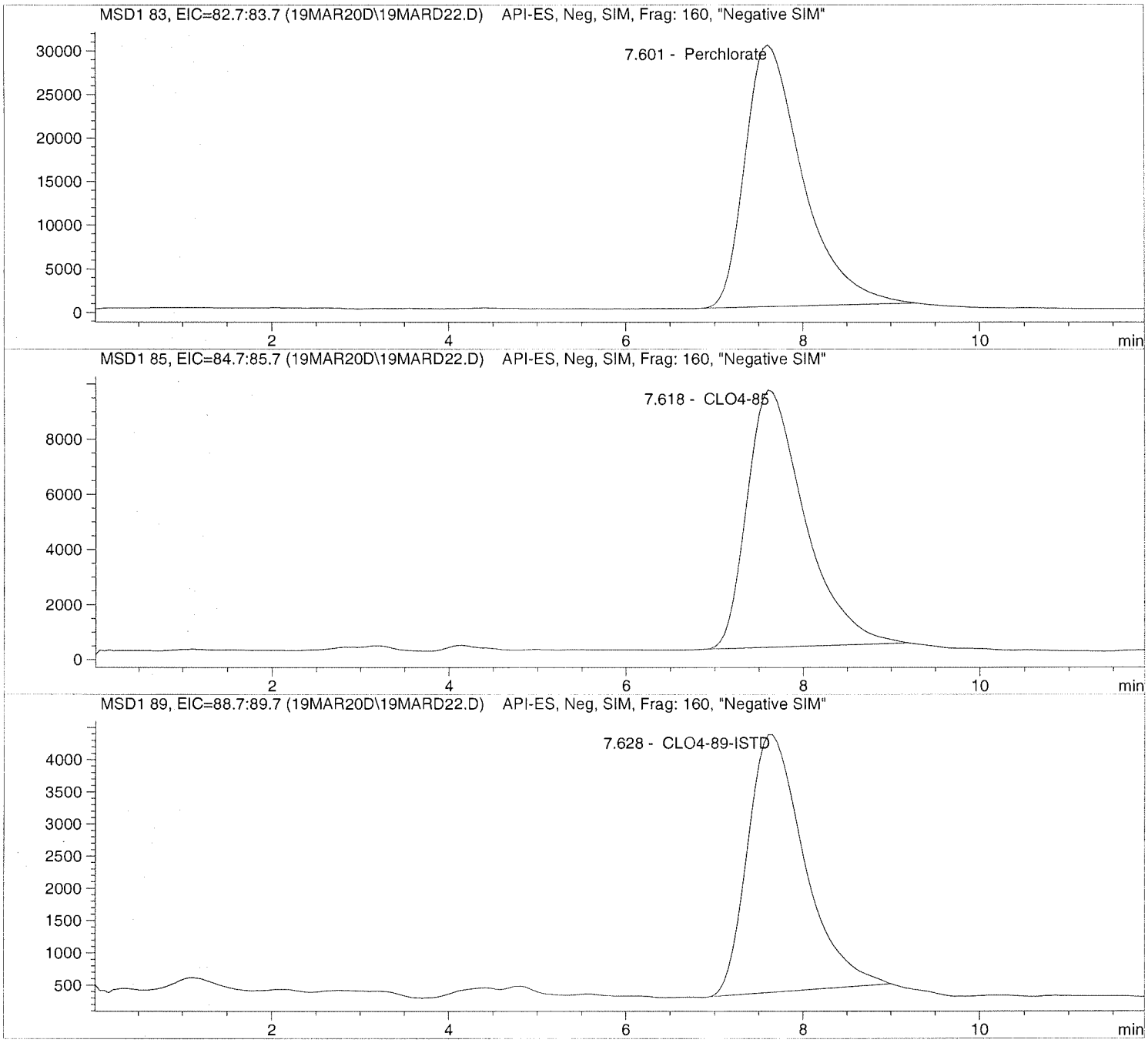
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD22.D Sample Name: 700242 CCV@25

Injection Date:	3/19/2020 13:44:51	Seq Line:	22
Sample Name:	700242 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD22.D Sample Name: 700242 CCV@25

Injection Date:	3/19/2020 13:44:51	Seq Line:	22
Sample Name:	700242 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.601	PBA	1365668.7	25.9389	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.618	PBA	426051.0	26.4925	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.628	PBA	179204.3	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

Calibration Table

Perchlorate

Calib. Data Modified : 9/23/2019 12:20:59 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
7.750	1	3	1.00000	5.39218e4	1.85454e-5		1	Perchlorate
		4	2.00000	1.32825e5	1.50574e-5			
		5	5.00000	2.76271e5	1.80982e-5			
		6	10.00000	5.61298e5	1.78159e-5			
		7	25.00000	1.51820e6	1.64669e-5			
		8	50.00000	3.31156e6	1.50986e-5			
		9	75.00000	5.23914e6	1.43153e-5			
7.767	3	3	5.00000	2.14568e5	2.33026e-5	+I1		CLO4-89-ISTD
		4	5.00000	2.04758e5	2.44190e-5			
		5	5.00000	2.13407e5	2.34294e-5			
		6	5.00000	2.09246e5	2.38953e-5			
		7	5.00000	2.07403e5	2.41077e-5			
		8	5.00000	2.02929e5	2.46391e-5			
		9	5.00000	1.97933e5	2.52611e-5			
7.778	2	3	1.00000	1.70436e4	5.86732e-5		1	CLO4-85
		4	2.00000	4.20754e4	4.75337e-5			
		5	5.00000	9.24707e4	5.40712e-5			
		6	10.00000	1.68622e5	5.93041e-5			
		7	25.00000	4.63724e5	5.39114e-5			
		8	50.00000	9.95933e5	5.02042e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		9	75.00000	1.58066e6	4.74484e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 3.581 min To 11.899 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 3.581 min To 11.896 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

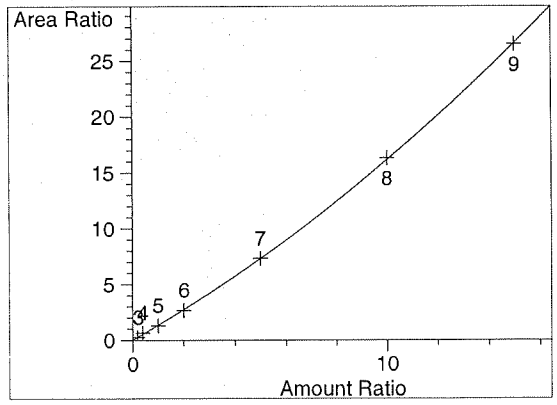
Compound: CLO4-85
- Time Window : From 3.601 min To 11.913 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Peak Sum Table

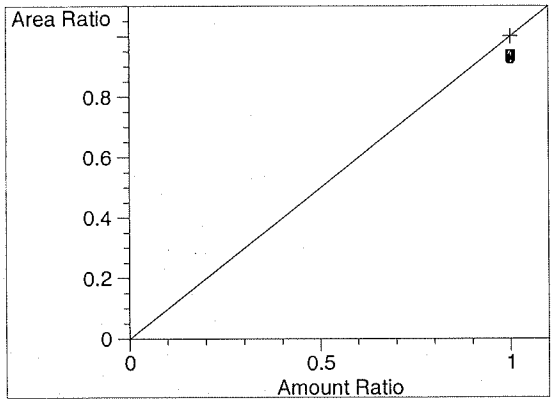
No Entries in table

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

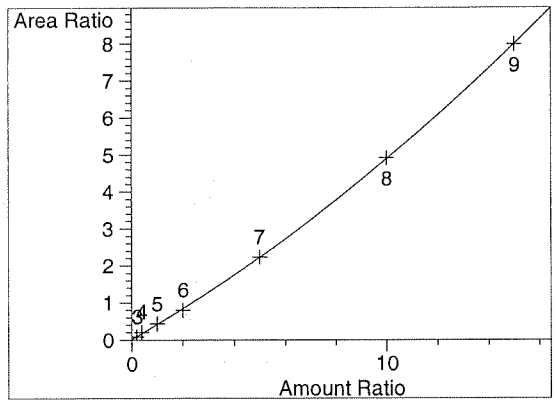
Calibration Curves



Perchlorate at exp. RT: 7.750
MSD1 83, EIC=82.7:83.7
Correlation: 0.99975
Residual Std. Dev.: 0.10284
Formula: $y = ax^2 + bx + c$
a: 3.10463e-2
b: 1.30369
c: 2.19496e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333



CLO4-89-ISTD at exp. RT: 7.767
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 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1
Level 8 : 1
Level 9 : 1



CLO4-85 at exp. RT: 7.778
MSD1 85, EIC=84.7:85.7
Correlation: 0.99969
Residual Std. Dev.: 0.02601
Formula: $y = ax^2 + bx + c$
a: 8.85207e-3
b: 3.99283e-1
c: 1.33505e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333

Batch Report: C:\HPCHEM\1\DATA\20SEP19I\20SEP19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	5.39218e4	7.750	8.75982e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.32825e5	7.797	2.37682
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.76271e5	7.770	4.77237
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	5.61298e5	7.785	9.75097
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	1.51820e6	7.741	25.01082
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	3.31156e6	7.775	50.40300
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.23914e6	7.736	74.79107
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	5.74879e5	7.756	10.11855

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.14568e5	7.767	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.04758e5	7.816	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.13407e5	7.793	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.09246e5	7.798	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.07403e5	7.763	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.02929e5	7.800	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.97933e5	7.765	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	2.06243e5	7.776	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	1.70436e4	7.778	8.24488e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.20754e4	7.805	2.38090
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	9.24707e4	7.787	5.14166
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	1.68622e5	7.781	9.52209
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	4.63724e5	7.760	25.04916
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	9.95933e5	7.793	50.14223
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.58066e6	7.758	74.93659
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	1.71000e5	7.760	9.79043

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

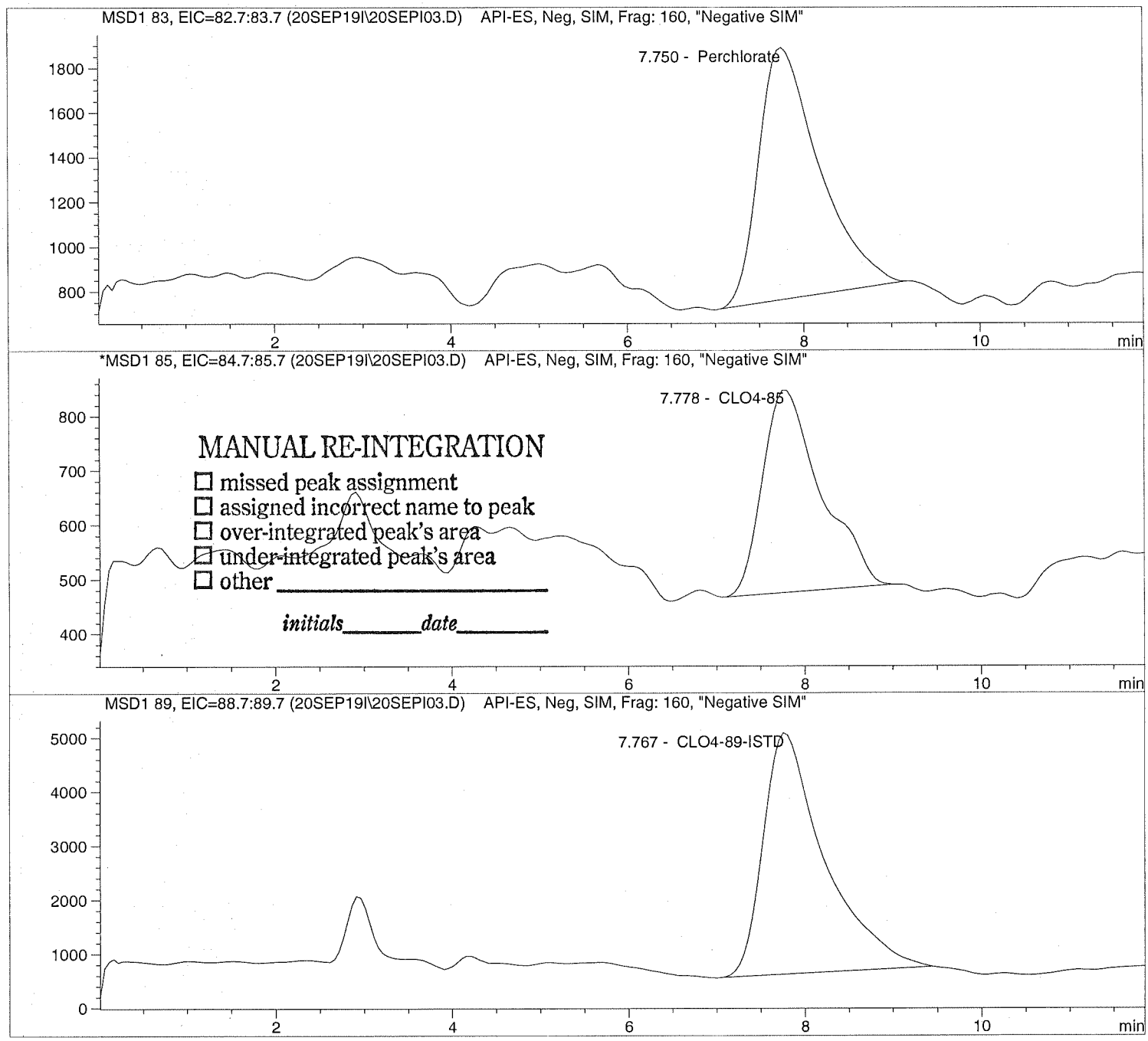
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
11	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.778	MM	17043.6	0.8245	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

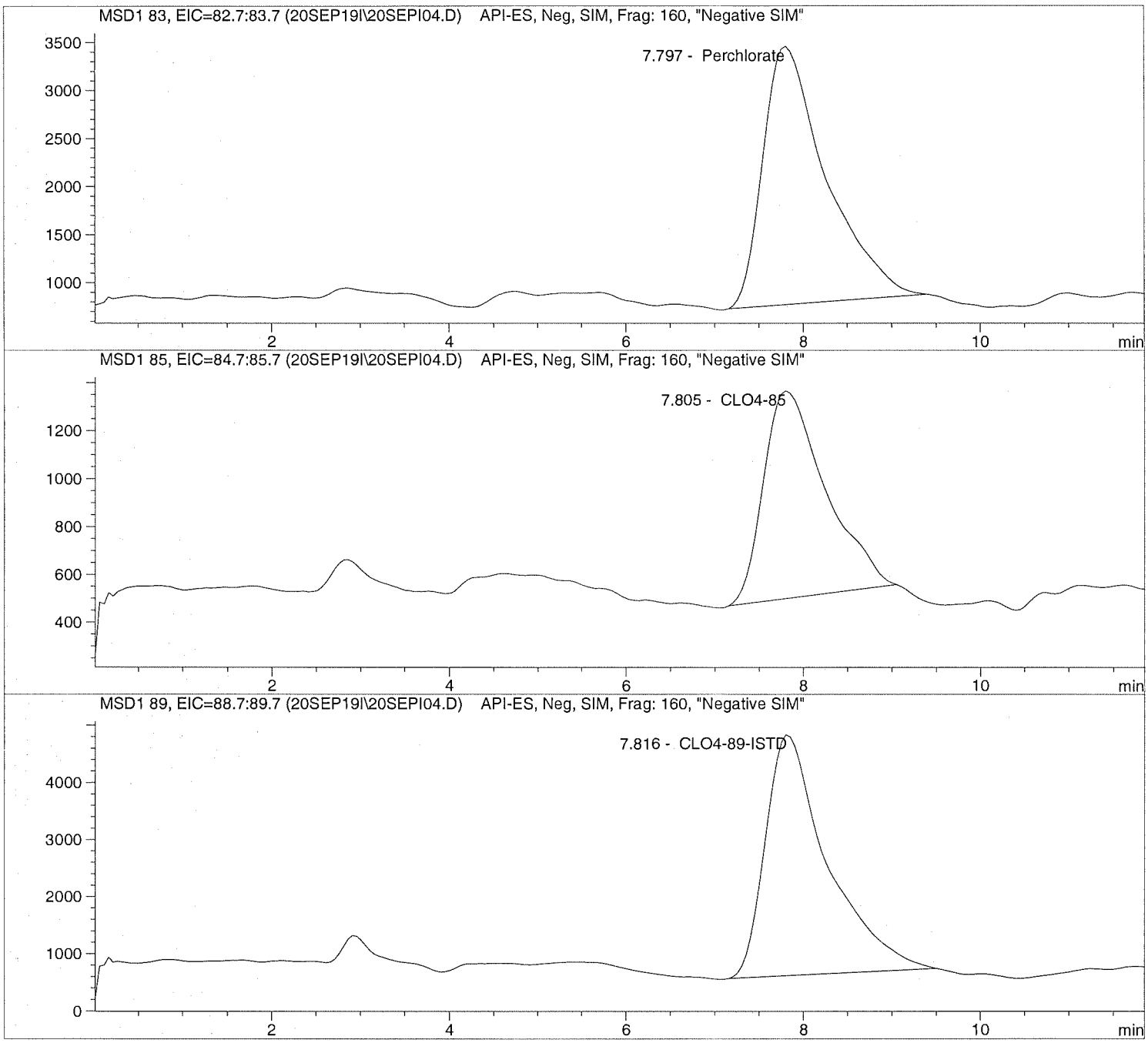
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.797	PBA	132825.2	2.3768	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.805	PBA	42075.4	2.3809	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.816	PBA	204758.3	5.0000	CLO4-89-ISTD

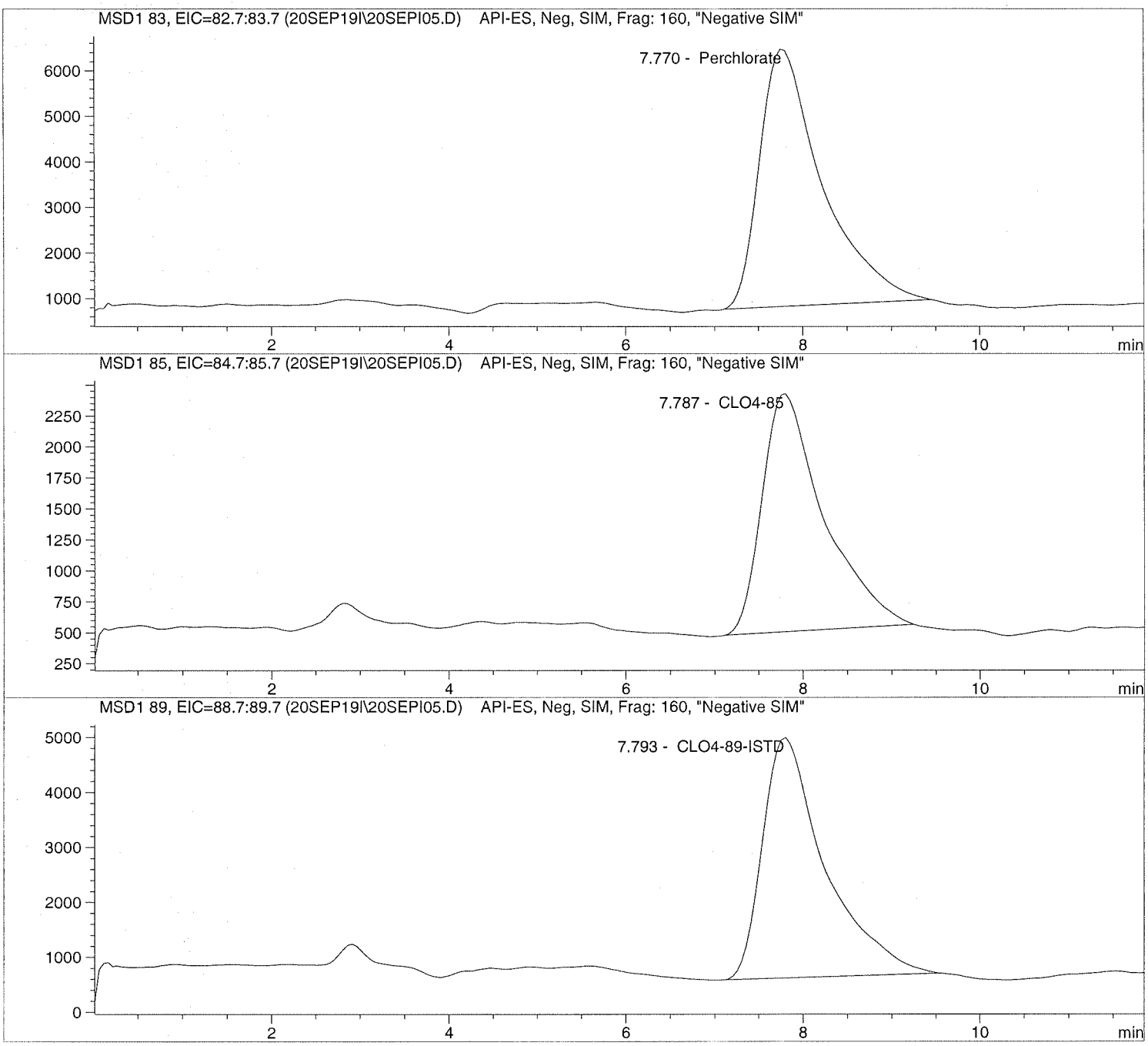
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.770	PBA	276270.7	4.7724	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.787	PBA	92470.7	5.1417	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	213407.0	5.0000	CLO4-89-ISTD

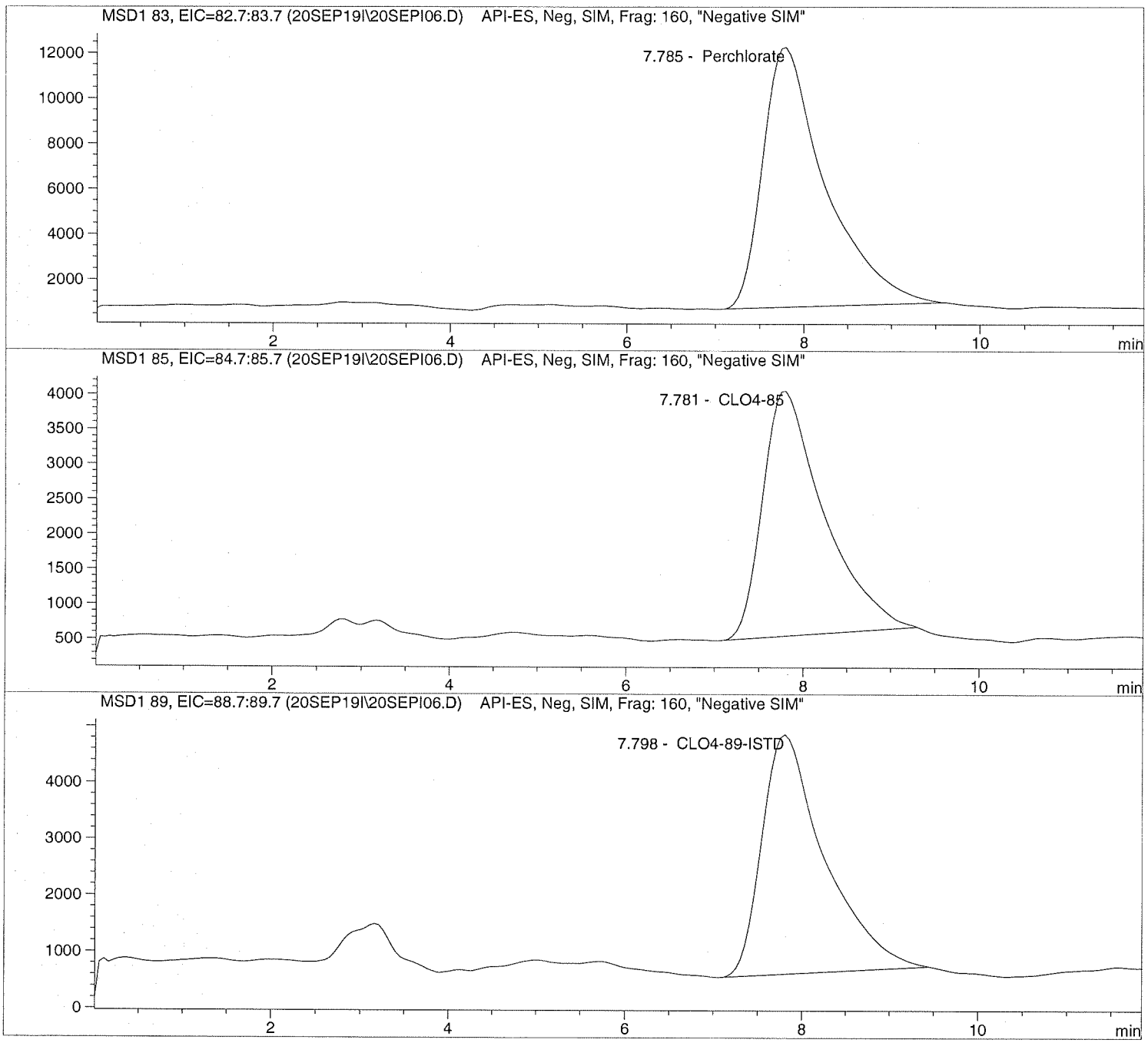
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.785	PBA	561297.7	9.7510	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.781	PBA	168622.4	9.5221	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.798	PBA	209246.3	5.0000	CLO4-89-ISTD

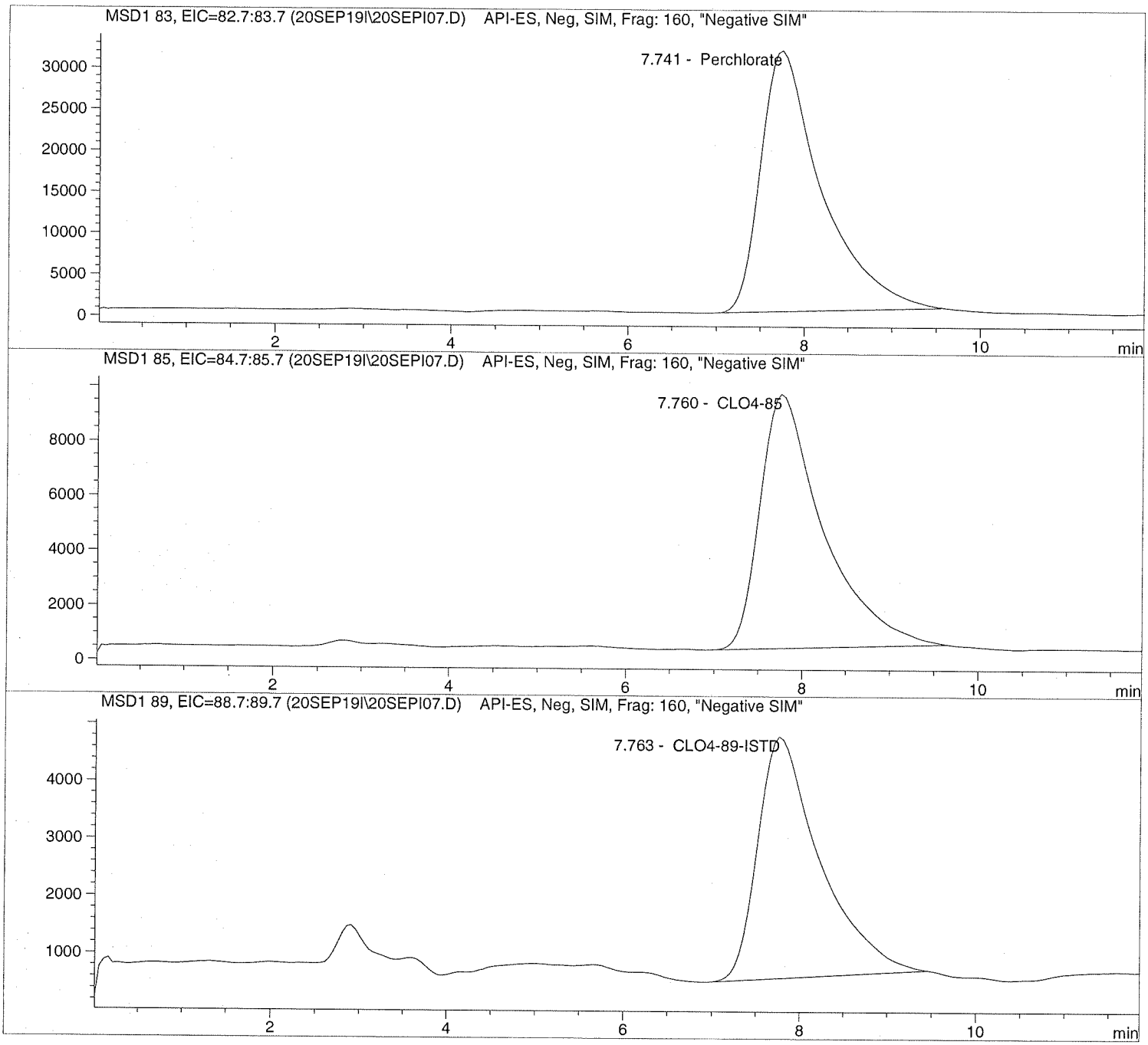
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.741	PBA	1518197.9	25.0108	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	463724.0	25.0492	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.763	PBA	207402.8	5.0000	CLO4-89-ISTD

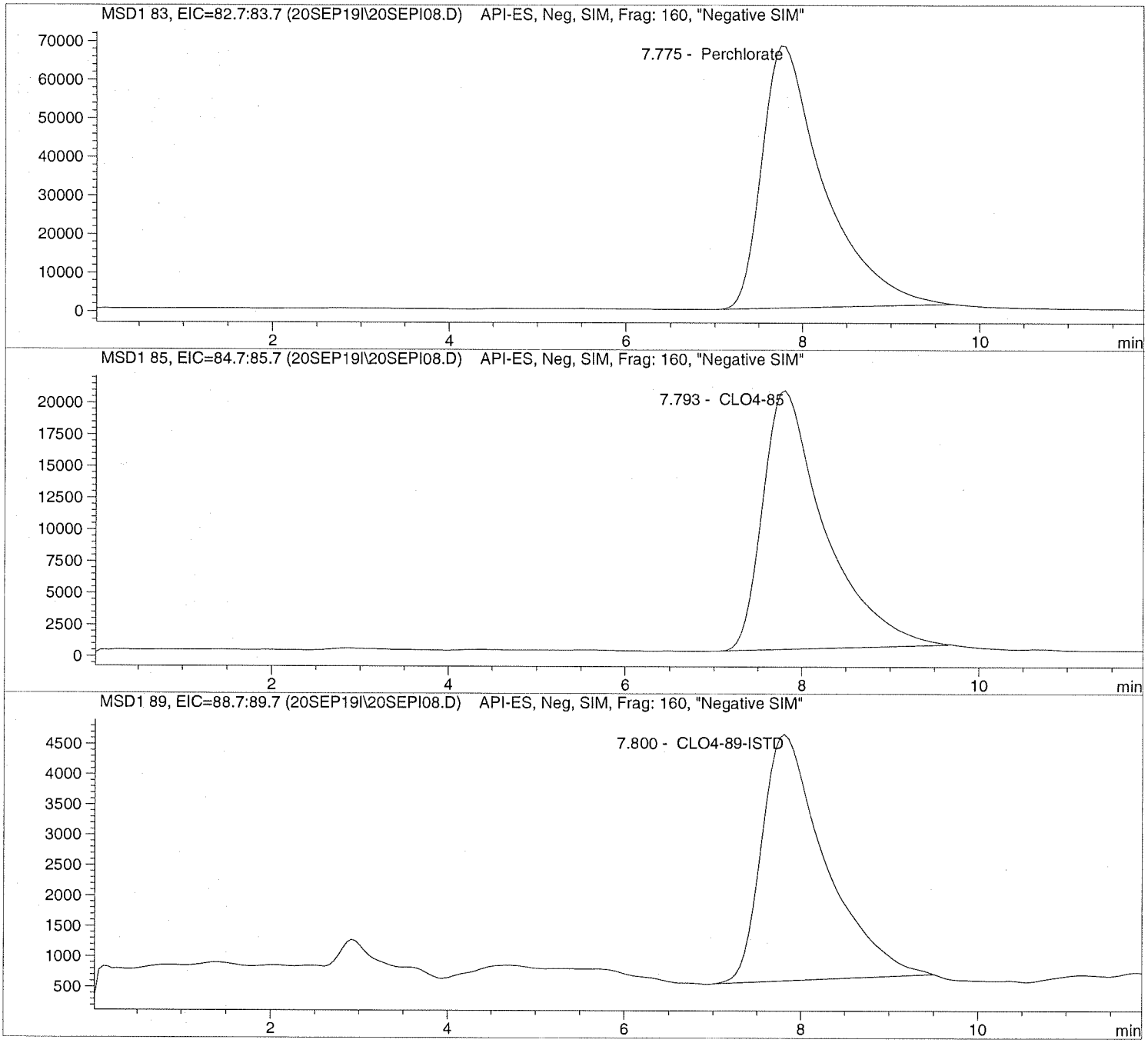
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.775	PBA	3311559.2	50.4030	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	995933.0	50.1422	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.800	PBA	202929.2	5.0000	CLO4-89-ISTD

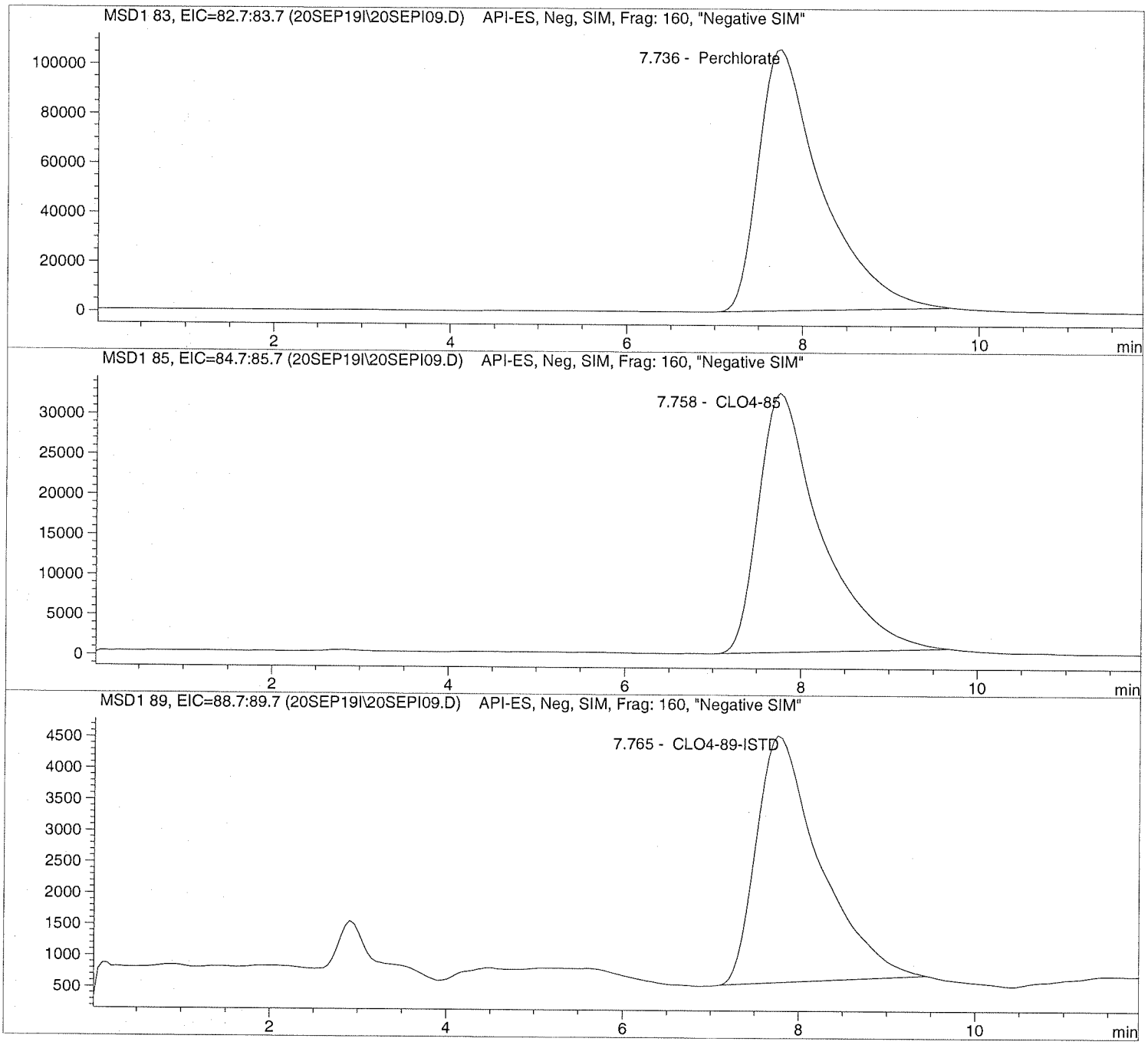
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.736	PBA	5239145.0	74.7911	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.758	PBA	1580664.2	74.9366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.765	PBA	197932.5	5.0000	CLO4-89-ISTD

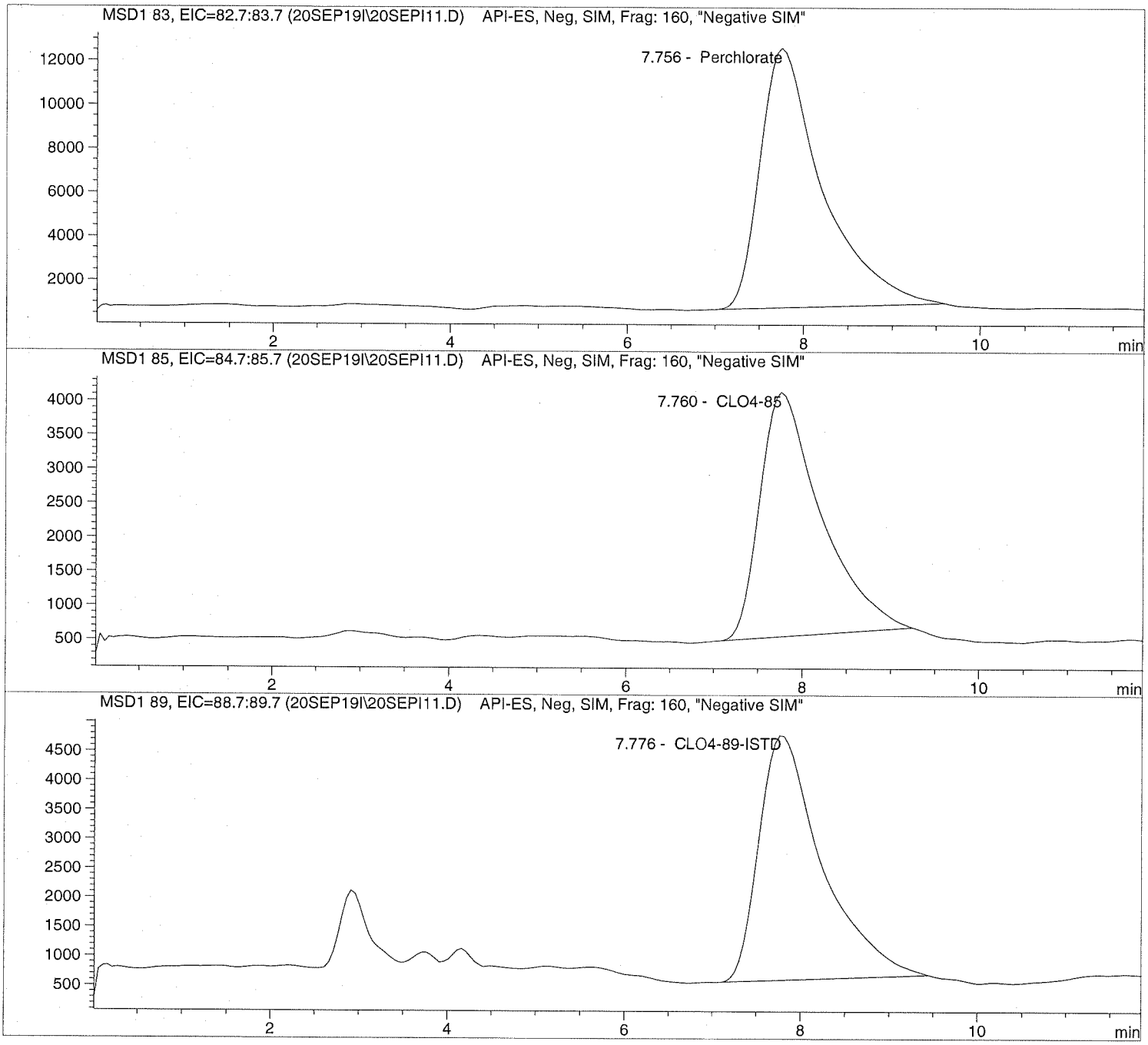
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.756	PBA	574879.4	10.1185	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	171000.4	9.7904	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.776	PBA	206243.3	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

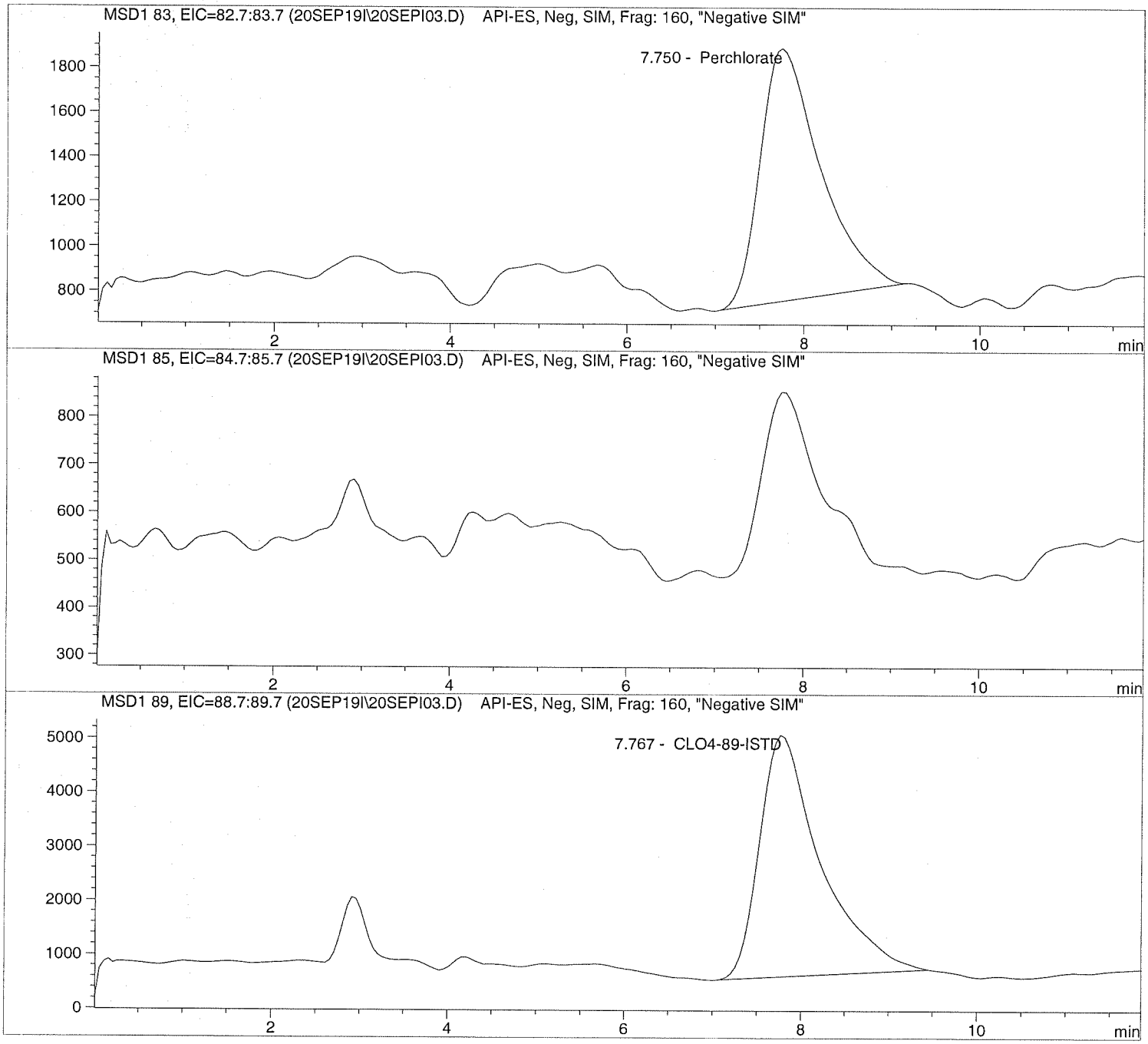
Unmodified

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:27:11

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:27:11

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

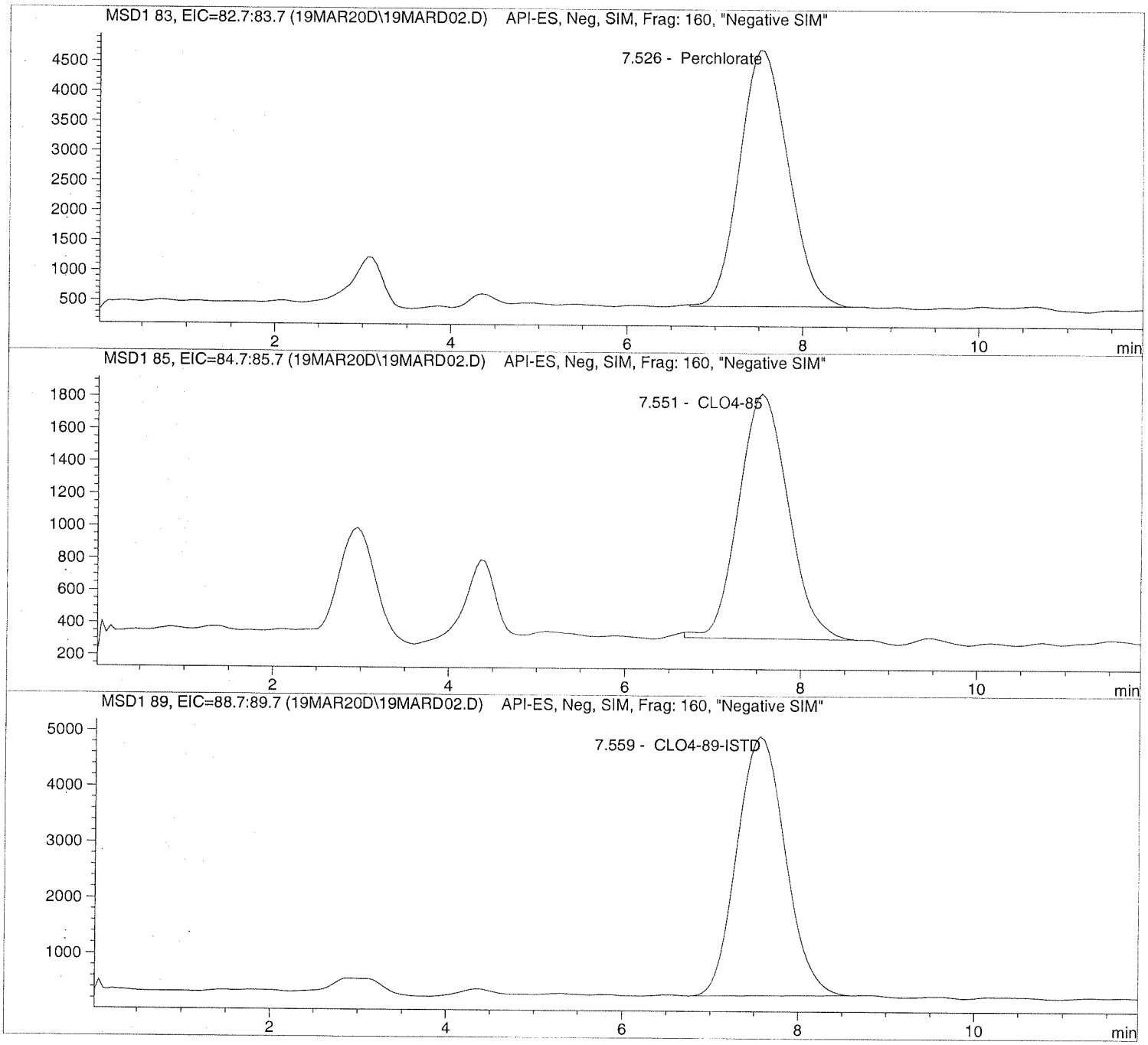
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.526	BBA	165065.5	3.4233	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	BBA	59556.2	3.9609	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.559	PBA	177666.7	5.0000	CLO4-89-ISTD

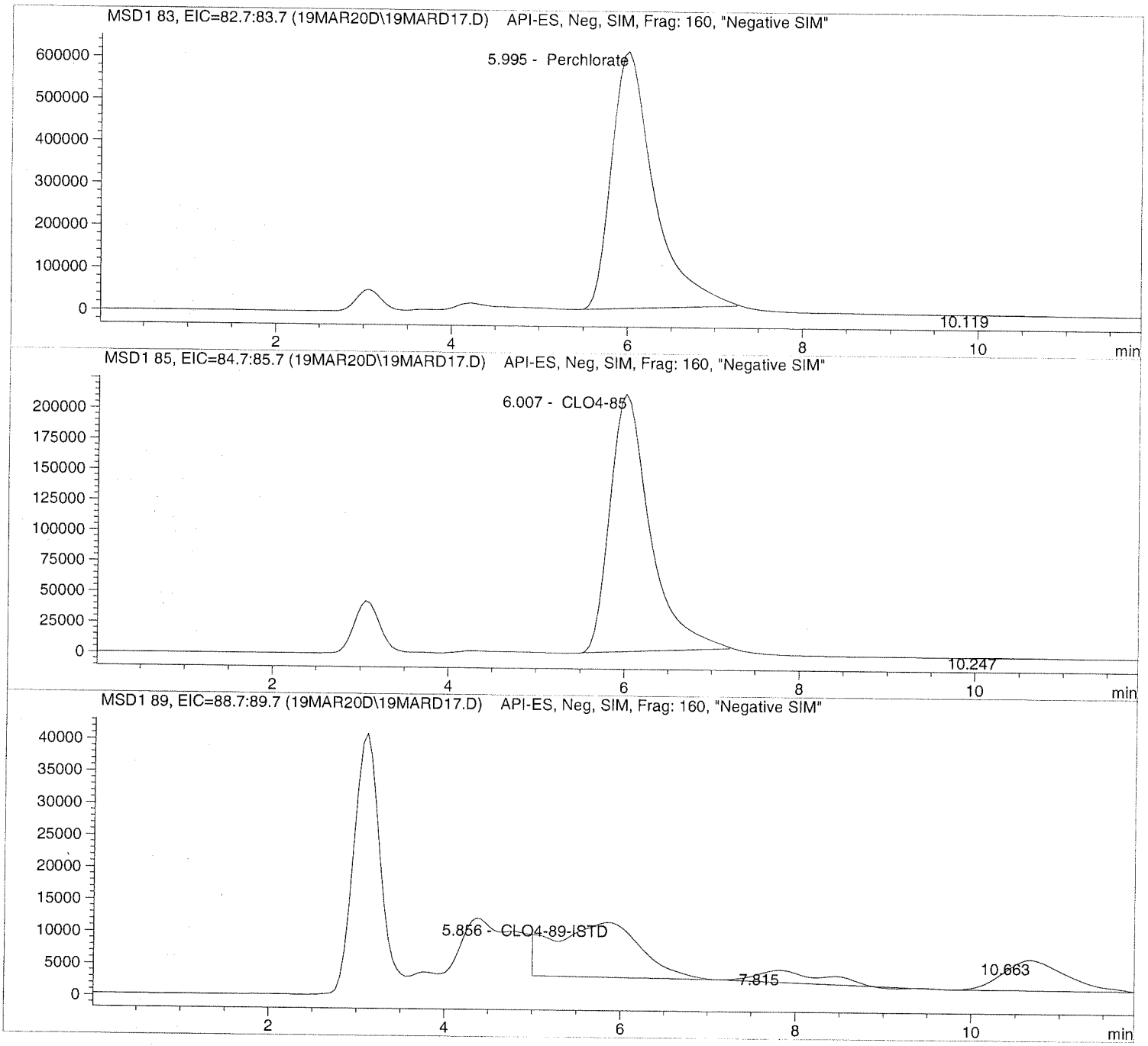
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.995	PBA	20431220.0	93.1345	Perchlorate
10.119	PBA	49235.6	0.0000	

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.007	PBA	6724059.0	100.0293	CLO4-85
10.247	PBA	21296.1	0.0000	

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.856	BBA	582460.0	5.0000	CLO4-89-ISTD
7.815	VB	96769.7	0.0000	
10.663	VBA	237082.8	0.0000	

*** End of Report ***

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WorkOrder: HS20030474

LHAAP-16

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

24-Apr-2020

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ALS Group USA, Corp
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HS20030474 LHAAP16 Final

ALS WO# HS20030474

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March 30, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030474**

Laboratory Results for: **LHAAP-16**

Dear Susan,

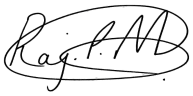
ALS Environmental received 7 sample(s) on Mar 11, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,



Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Work Order: HS20030474

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030474-01	16PM14-200310	Groundwater		10-Mar-2020 08:25	11-Mar-2020 08:53	☐
HS20030474-02	16PM06-200310	Groundwater		10-Mar-2020 10:10	11-Mar-2020 08:53	☐
HS20030474-03	16PM09-200310	Groundwater		10-Mar-2020 11:00	11-Mar-2020 08:53	☐
HS20030474-04	16WW42-200310	Groundwater		10-Mar-2020 12:00	11-Mar-2020 08:53	☐
HS20030474-05	16WW42-200310-FD	Groundwater		10-Mar-2020 12:00	11-Mar-2020 08:53	☐
HS20030474-06	16WW40-200310	Groundwater		10-Mar-2020 13:45	11-Mar-2020 08:53	☐
HS20030474-07	Trip Blank	Water		10-Mar-2020 00:00	11-Mar-2020 08:53	☐

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Work Order: HS20030474

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R358594

Sample ID: HS20030498-03MS

- MS and MSD are for an unrelated sample

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: 16PM14-200310
Collection Date: 10-Mar-2020 08:25

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	20-Mar-2020 07:58
1,1-Dichloroethene	**20**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 07:58
1,2-Dichloroethane	**25**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 07:58
cis-1,2-Dichloroethene	**3,500**		**20**	**50**	**100**	**UG/L**	100	20-Mar-2020 08:23
Methylene chloride	10	U	4.0	10	20	UG/L	10	20-Mar-2020 07:58
Trichloroethene	**4,900**		**20**	**50**	**100**	**UG/L**	100	20-Mar-2020 08:23
Vinyl chloride	**110**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 07:58
Surr: 1,2-Dichloroethane-d4	*90.3*			**0**	*81-118*	*%REC*	*10*	*20-Mar-2020 07:58*
Surr: 1,2-Dichloroethane-d4	*90.4*			**0**	*81-118*	*%REC*	*100*	*20-Mar-2020 08:23*
Surr: 4-Bromofluorobenzene	*97.4*			**0**	*85-114*	*%REC*	*10*	*20-Mar-2020 07:58*
Surr: 4-Bromofluorobenzene	*96.2*			**0**	*85-114*	*%REC*	*100*	*20-Mar-2020 08:23*
Surr: Dibromofluoromethane	*94.4*			**0**	*80-119*	*%REC*	*10*	*20-Mar-2020 07:58*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*100*	*20-Mar-2020 08:23*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*10*	*20-Mar-2020 07:58*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*100*	*20-Mar-2020 08:23*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: 16PM06-200310
Collection Date: 10-Mar-2020 10:10

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	12	U	7.5	12	25	UG/L	25	20-Mar-2020 08:47
1,1-Dichloroethene	**120**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 08:47
1,2-Dichloroethane	**45**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 08:47
cis-1,2-Dichloroethene	**42,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 09:11
Methylene chloride	25	U	10	25	50	UG/L	25	20-Mar-2020 08:47
Trichloroethene	**44,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 09:11
Vinyl chloride	**1,700**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 08:47
Surr: 1,2-Dichloroethane-d4	*93.2*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 08:47*
Surr: 1,2-Dichloroethane-d4	*90.2*			**0**	*81-118*	*%REC*	*250*	*20-Mar-2020 09:11*
Surr: 4-Bromofluorobenzene	*97.5*			**0**	*85-114*	*%REC*	*250*	*20-Mar-2020 09:11*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 08:47*
Surr: Dibromofluoromethane	*94.8*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 08:47*
Surr: Dibromofluoromethane	*93.8*			**0**	*80-119*	*%REC*	*250*	*20-Mar-2020 09:11*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 08:47*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*250*	*20-Mar-2020 09:11*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: 16PM09-200310
Collection Date: 10-Mar-2020 11:00

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	**1.0**		**0.30**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 04:46
1,1-Dichloroethene	**14**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 04:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 04:46
cis-1,2-Dichloroethene	**250**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 05:10
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 04:46
Trichloroethene	**680**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 05:10
Vinyl chloride	**7.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 04:46
Surr: 1,2-Dichloroethane-d4	*93.0*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 04:46*
Surr: 1,2-Dichloroethane-d4	*89.2*			**0**	*81-118*	*%REC*	*10*	*20-Mar-2020 05:10*
Surr: 4-Bromofluorobenzene	*96.7*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 04:46*
Surr: 4-Bromofluorobenzene	*99.2*			**0**	*85-114*	*%REC*	*10*	*20-Mar-2020 05:10*
Surr: Dibromofluoromethane	*96.0*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 04:46*
Surr: Dibromofluoromethane	*94.4*			**0**	*80-119*	*%REC*	*10*	*20-Mar-2020 05:10*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 04:46*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*10*	*20-Mar-2020 05:10*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: 16WW42-200310
Collection Date: 10-Mar-2020 12:00

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 02:22
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:22
cis-1,2-Dichloroethene	**8.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 02:22
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 02:22
Trichloroethene	**3.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 02:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:22
Surr: 1,2-Dichloroethane-d4	*89.9*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 02:22*
Surr: 4-Bromofluorobenzene	*96.0*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 02:22*
Surr: Dibromofluoromethane	*93.6*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 02:22*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 02:22*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: 16WW42-200310-FD
Collection Date: 10-Mar-2020 12:00

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 02:46
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:46
cis-1,2-Dichloroethene	**8.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 02:46
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 02:46
Trichloroethene	**3.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 02:46
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 02:46
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 02:46*
Surr: 4-Bromofluorobenzene	*97.7*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 02:46*
Surr: Dibromofluoromethane	*93.8*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 02:46*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 02:46*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: 16WW40-200310
Collection Date: 10-Mar-2020 13:45

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 05:34
1,1-Dichloroethene	**5.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 05:34
1,2-Dichloroethane	**5.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 05:34
cis-1,2-Dichloroethene	**160**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 05:34
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 05:34
Trichloroethene	**1,500**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 05:58
Vinyl chloride	**4.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 05:34
Surr: 1,2-Dichloroethane-d4	*91.9*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 05:34*
Surr: 1,2-Dichloroethane-d4	*90.0*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 05:58*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 05:34*
Surr: 4-Bromofluorobenzene	*96.9*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 05:58*
Surr: Dibromofluoromethane	*93.9*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 05:34*
Surr: Dibromofluoromethane	*93.5*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 05:58*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 05:34*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 05:58*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Mar-2020 15:38

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Sample ID: Trip Blank
Collection Date: 10-Mar-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20030474
Lab ID:HS20030474-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 00:45
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 00:45
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 00:45
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 00:45
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 00:45
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 00:45
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 00:45
Surr: 1,2-Dichloroethane-d4	*90.8*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 00:45*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 00:45*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 00:45*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 00:45*

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

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
WorkOrder: HS20030474

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R358594 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20030474-07	Trip Blank	10 Mar 2020 00:00			20 Mar 2020 00:45	1
Batch ID: R358594 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20030474-01	16PM14-200310	10 Mar 2020 08:25			20 Mar 2020 08:23	100
HS20030474-01	16PM14-200310	10 Mar 2020 08:25			20 Mar 2020 07:58	10
HS20030474-02	16PM06-200310	10 Mar 2020 10:10			20 Mar 2020 09:11	250
HS20030474-02	16PM06-200310	10 Mar 2020 10:10			20 Mar 2020 08:47	25
HS20030474-03	16PM09-200310	10 Mar 2020 11:00			20 Mar 2020 05:10	10
HS20030474-03	16PM09-200310	10 Mar 2020 11:00			20 Mar 2020 04:46	1
HS20030474-04	16WW42-200310	10 Mar 2020 12:00			20 Mar 2020 02:22	1
HS20030474-05	16WW42-200310-FD	10 Mar 2020 12:00			20 Mar 2020 02:46	1
HS20030474-06	16WW40-200310	10 Mar 2020 13:45			20 Mar 2020 05:58	25
HS20030474-06	16WW40-200310	10 Mar 2020 13:45			20 Mar 2020 05:34	1
Batch ID: R359152 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20030474-01	16PM14-200310	10 Mar 2020 08:25			30 Mar 2020 15:38	1
HS20030474-02	16PM06-200310	10 Mar 2020 10:10			30 Mar 2020 15:38	1
HS20030474-03	16PM09-200310	10 Mar 2020 11:00			30 Mar 2020 15:38	1
HS20030474-04	16WW42-200310	10 Mar 2020 12:00			30 Mar 2020 15:38	1
HS20030474-05	16WW42-200310-FD	10 Mar 2020 12:00			30 Mar 2020 15:38	1
HS20030474-06	16WW40-200310	10 Mar 2020 13:45			30 Mar 2020 15:38	1

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
WorkOrder: HS20030474

QC BATCH REPORT

Batch ID: R358594 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW1-200319** Units: **UG/L** Analysis Date: **20-Mar-2020 00:21**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522917** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.02*	*1.0*	*50*	*0*	*90.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.89*	*1.0*	*50*	*0*	*97.8*	*85 - 114*				
Surr: Dibromofluoromethane	*46.85*	*1.0*	*50*	*0*	*93.7*	*80 - 119*				
Surr: Toluene-d8	*52.49*	*1.0*	*50*	*0*	*105*	*89 - 112*				

LCS Sample ID: **VLCSW-200319** Units: **UG/L** Analysis Date: **19-Mar-2020 23:33**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522916** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.58	1.0	20	0	97.9	80 - 119				
1,1-Dichloroethene	19.5	1.0	20	0	97.5	71 - 131				
1,2-Dichloroethane	20.24	1.0	20	0	101	73 - 128				
cis-1,2-Dichloroethene	20.38	1.0	20	0	102	78 - 123				
Methylene chloride	21.1	2.0	20	0	105	74 - 124				
Trichloroethene	20.46	1.0	20	0	102	79 - 123				
Vinyl chloride	19.07	1.0	20	0	95.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.83*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.74*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*53.21*	*1.0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*51.86*	*1.0*	*50*	*0*	*104*	*89 - 112*				

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
WorkOrder: HS20030474

QC BATCH REPORT

Batch ID: R358594 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20030498-03MS** Units: **UG/L** Analysis Date: **20-Mar-2020 03:34**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522925** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.87	1.0	20	0	94.3	80 - 119				
1,1-Dichloroethene	25.94	1.0	20	7.492	92.2	71 - 131				
1,2-Dichloroethane	19.02	1.0	20	0	95.1	73 - 128				
cis-1,2-Dichloroethene	52.53	1.0	20	34.18	91.8	78 - 123				
Methylene chloride	17.98	2.0	20	0	89.9	74 - 124				
Trichloroethene	1258	1.0	20	1235	113	79 - 123				EO
Vinyl chloride	59.62	1.0	20	40.77	94.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.29*	*1.0*	*50*	*0*	*92.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.58*	*1.0*	*50*	*0*	*99.2*	*85 - 114*				
Surr: Dibromofluoromethane	*46.85*	*1.0*	*50*	*0*	*93.7*	*80 - 119*				
Surr: Toluene-d8	*51.17*	*1.0*	*50*	*0*	*102*	*89 - 112*				

MSD Sample ID: **HS20030498-03MSD** Units: **UG/L** Analysis Date: **20-Mar-2020 03:58**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522926** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.99	1.0	20	0	95.0	80 - 119	18.87	0.645	20	
1,1-Dichloroethene	24.54	1.0	20	7.492	85.2	71 - 131	25.94	5.53	20	
1,2-Dichloroethane	19.61	1.0	20	0	98.0	73 - 128	19.02	3.08	20	
cis-1,2-Dichloroethene	51.07	1.0	20	34.18	84.5	78 - 123	52.53	2.82	20	
Methylene chloride	17.1	2.0	20	0	85.5	74 - 124	17.98	5.03	20	
Trichloroethene	1224	1.0	20	1235	-57.6	79 - 123	1258	2.75	20	SEO
Vinyl chloride	56.26	1.0	20	40.77	77.4	58 - 137	59.62	5.8	20	
Surr: 1,2-Dichloroethane-d4	*46.41*	*1.0*	*50*	*0*	*92.8*	*81 - 118*	*46.29*	*0.257*	*20*	
Surr: 4-Bromofluorobenzene	*49.12*	*1.0*	*50*	*0*	*98.2*	*85 - 114*	*49.58*	*0.926*	*20*	
Surr: Dibromofluoromethane	*46.99*	*1.0*	*50*	*0*	*94.0*	*80 - 119*	*46.85*	*0.3*	*20*	
Surr: Toluene-d8	*51.54*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.17*	*0.733*	*20*	

The following samples were analyzed in this batch:

HS20030474-01	HS20030474-02	HS20030474-03	HS20030474-04
HS20030474-05	HS20030474-06	HS20030474-07	

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
WorkOrder: **HS20030474**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 30-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-16
Work Order: HS20030474

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20030474-01	16PM14-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-01	16PM14-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-02	16PM06-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-02	16PM06-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-03	16PM09-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-03	16PM09-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-03	16PM09-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-04	16WW42-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-04	16WW42-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-04	16WW42-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-04	16WW42-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-04	16WW42-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-05	16WW42-200310-FD	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-06	16WW40-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-06	16WW40-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-06	16WW40-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-06	16WW40-200310	Login	3/11/2020 6:19:15 PM	AC	Disposed
HS20030474-06	16WW40-200310	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-07	Trip Blank	Login	3/11/2020 6:19:15 PM	AC	Sub
HS20030474-07	Trip Blank	Login	3/11/2020 6:19:15 PM	AC	Disposed

ALS Houston, US Date: 30-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030474
Date/Time Received: **11-Mar-2020 08:53**
Received by: **AC**

Checklist completed by: *Asad Chaudhry* eSignature 11-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 12-Mar-2020 Date

Matrices: **GW, Water**
Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:N/A
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.3c U/C	IR 25	
Cooler(s)/Kit(s):	45112		
Date/Time sample(s) sent to storage:	03/11/2020 18:35		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

Page 1 of ____

COC ID: LHAAP16 March 2020 -ALS

TURNAROUND TIME: Normal

RUSH:

HS20030474

Aptim Environmental & Infrastucture, Inc.

LHAAP-16

PROJECT/CLIENT INFO				LABORATORY			
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories		
Project Number	501032			Lab Contact	RJ Modashia		
	LHAAP-16			Email	RJ.Modashia@alsglobal.com		
Address	1203-B East Grand Avenue			Address	10450 Stancliff Rd., Suite 21		
	PMB 202						
City	Marshall	State	TX	City	Houston	State	
Postal Code	75670	Country	USA	Postal Code	77099	Country	
Phone Number	713.243.7264			Phone Number	281.575.2279 or 281.530.565		
Project Manager	Praveen Srivastav						

SAMPLE DETAILS

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	2-40ml Amber/H2SO4	1-250 ml PE/HNO3	1-250ml PE/Ice	1-250ml PE /Ice	1-250ml PE/Ice	1-125ml PE/Ice
								ANALYSIS		VOCs by SW8260B	MEE by RSK175	TOC by SM5310C	Metals (arsenic, chromium, manganese, nickel, and thallium) by SW6020	Anions (sulfate/nitrate/bromide) by SW9056	Anions (bromide only) by SW9056	Alkalinity by SM2320	Perchlorate by SW6850
16PMW14-200310	LHAAP16				WG	3/10/20	0825	4		X							X
16PMW6-200310	LHAAP16				WG	3/10/20	1010	4		X							X
16PMW9-200310	LHAAP16				WG	3/10/20	1100	4		X							X
16WW42-200310	LHAAP16				WG	3/10/20	1200	4		X							X
16WW42-200310-FD	LHAAP16				WG	3/10/20	1200	4		X							X
16WW40-200310	LHAAP16				WG	3/10/20	1345	4		X							X
TRIP BLANK	LHAAP16				W	3/10/20		2		X							

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Sarah Bessinger/BHATE	3/10/20 1430	AC /ALS	3/11/2020 0855

U/C 2.3 IR#35 CF0.0 45112

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5556
Fax. +1 281 530 5887

45112

CUSTODY SEAL

Date: 3/10/20 Time: 1430
Name: Scott Beesinger
Company: BA-07@

Seal Broken By:
Date: 03/11/20

45112

Must Deliver Next Business Day
Time and Tempature Sensitive!

45112

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 25FEB20
ACTWGT: 1.00 LB MAN
CAD: 3001307/CAFE3211
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5555
REF: LH4AF 16 - BO 7u505-TV
RMA:

FedEx Express

FedEx
TRK# 0221 1251 0294 7932

WED - 11 MAR 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FID 5107732 L0HAA20 GGCA 568C2/64T0/05A2

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 2007564; 2007568

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2359 (259282)

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: NA

Method QC data: The method blank (LMB 700240) was less than 1/2 the CRDL. The recovery for the LCS (700237) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on samples 2007568004/05 (Client ID: 16RW09-200311). 3.0µL of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. The spike target was 3.µg/L. The MS/MSD (2007568004/05) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected. The relative percent difference (RPD) was within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 700238) is reported from the analysis of the Laboratory Control Sample (LCS – 700237) at a level of 3.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 19MARD02/17. Field samples 2007564006 and 2007568003/07 had positive results for perchlorate. However, because the 83/85 ion ratio failed, these results were not reported.

Thomas Bosch March 20, 2020
Analyst Date

ANALYTICAL REPORT

Report Date: March 20, 2020

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-2007564**
Project ID: HS20030474
Purchase Order: HS20030474
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
16PM14-200310	2007564001	03/10/20	03/13/20	
16PM06-200310	2007564002	03/10/20	03/13/20	
16PM09-200310	2007564003	03/10/20	03/13/20	
16WW42-200310	2007564004	03/10/20	03/13/20	
16WW42-200310-FD	2007564005	03/10/20	03/13/20	
16WW40-200310	2007564006	03/10/20	03/13/20	

ANALYTICAL REPORT

Workorder: 34-2007564
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16PM14-200310** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564001 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 09:35 | **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: **16PM06-200310** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564002 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 09:49 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **16PM09-200310** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564003 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 10:03 | **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: **16WW42-200310** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564004 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 10:17 | **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: 34-2007564
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16WW42-200310-FD** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564005 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 10:31 | **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: **16WW40-200310** | Sampling Site: NA | Collected: 03/10/2020
Lab ID: 2007564006 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 10:45 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 03/20/2020 07:54	/S/ Stephen Brose 03/20/2020 23:20

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: 34-2007564
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.
The following was provided by the client: Sample ID, Collection Date, Sampling Location, Media Type, Sampling Parameter.
Collection Date, Media Type, and Sampling Parameter can potentially affect the validity of the results.
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	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

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.
< Means 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: 2007564

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2359 (HBN: 259282)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 700240
Analyzed: 03/19/2020 09:21
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 700237
Analyzed: 03/19/2020 08:53
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	3.42	3.00	114	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	2007568003	**MS:**	2007568004	**MSD:**	2007568005
Analyzed:	03/19/2020 11:27	**Analyzed:**	03/19/2020 11:55	**Analyzed:**	03/19/2020 12:09
Dilution:	1	**Dilution:**	1	**Dilution:**	1
Units:	ug/L	**Units:**	ug/L	**Units:**	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.18	3	# 139	78.8	123.8	4.35	# 145	3.89	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
03/20/2020 09:30	03/20/2020 23:19

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

2007564

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

18698/#2

SAMPLING STATE: **Texas**

COC ID: **13508**

2007564

SUBCONTRACT TO:

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

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20030474
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20030474-01**	**16PM14-200310**	**Groundwater**	**10 Mar 2020 08:25**
	SUB_Perch-6850			25 Mar 2020
2.	**HS20030474-02**	**16PM06-200310**	**Groundwater**	**10 Mar 2020 10:10**
	SUB_Perch-6850			25 Mar 2020
3.	**HS20030474-03**	**16PM09-200310**	**Groundwater**	**10 Mar 2020 11:00**
	SUB_Perch-6850			25 Mar 2020
4.	**HS20030474-04**	**16WW42-200310**	**Groundwater**	**10 Mar 2020 12:00**
	SUB_Perch-6850			25 Mar 2020
5.	**HS20030474-05**	**16WW42-200310-FD**	**Groundwater**	**10 Mar 2020 12:00**
	SUB_Perch-6850			25 Mar 2020
6.	**HS20030474-06**	**16WW40-200310**	**Groundwater**	**10 Mar 2020 13:45**
	SUB_Perch-6850			25 Mar 2020

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

QC Level: DOD IV (DoD Data Package)

RIGHT SOLUTIONS | RIGHT PARTNER

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **13508**

Relinquished By: J. [illegible] Date/Time: 3/12/20 18:00

Received By: [signature] Date/Time: 03/13/2020 0951

Cooler ID(s): Temperature(s):

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS20030474	***Split:***	**Workorder ID:** 2007564	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives** COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Count	Requested Analysis: EPA 6850, DoD QSM
1	03/10/2020 08:25	16PM14-200310	2007564001		Water	A	1	A
2	03/10/2020 10:10	16PM06-200310	2007564002		Water	A	1	A
3	03/10/2020 11:00	16PM09-200310	2007564003		Water	A	1	A
4	03/10/2020 12:00	16WW42-200310	2007564004		Water	A	1	A
5	03/10/2020 12:00	16WW42-200310-FD	2007564005	FLDDUP	Water	A	1	A
6	03/10/2020 13:45	16WW40-200310	2007564006		Water	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	03/13/2020 09:51	ALS Sample Receiving	Sample Login
[signature] 3/13/20 1130		ISC	storage
R.33.1 03-18-20/09:10		T. Bosch	CLOV analysis

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: HS20030474

Date/Time of Receipt: 03/13/2020 0951

Number of Coolers Received: 1 2007164

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	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.
1	Good	3 °C	4		°C	7		°C
2		°C	5		°C	8		°C
3		°C	6		°C	9		°C

Taken By: _____ (Signature) Rebecca Wise (Printed Name) 03/13/2020 (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:

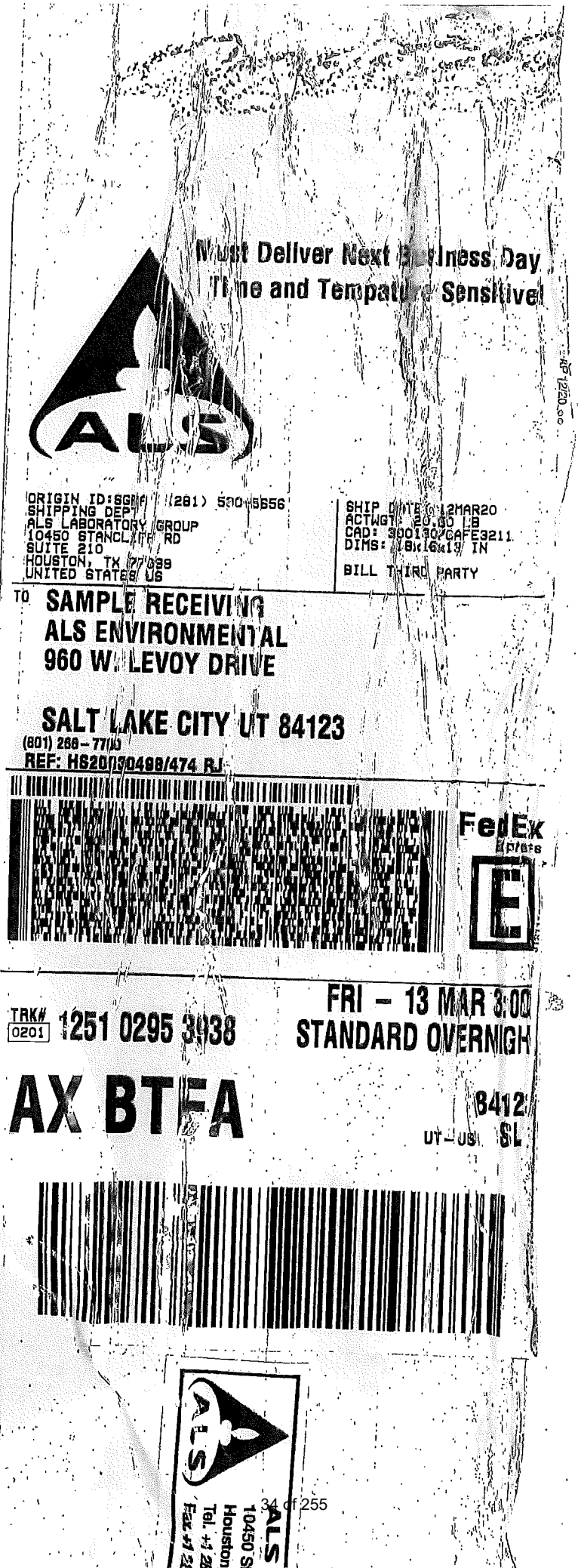
Client Notified? Yes ☐ No ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

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



Must Deliver Next Business Day
Time and Temperature Sensitive

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

SHIP DATE: 12MAR20
ACTWGT: 20.00 LB
CAD: 3001370/CAFE3211
DIMS: 18x16x19 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS20190498/474 RJ

FedEx Express

TRK# 0201 1251 0295 3938

FRI - 13 MAR 3:00
STANDARD OVERNIGHT

AX BTFA

84123
UT-US SL

ALS
10450 Stancliff Rd. Suite 210
Houston TX 77099
Tel. +1 281 530 5656
Fax +1 281 530 5887

Batch Worklist

Batch: ELMS/ 2359
Rule: EPA 6850, DoD QSM Water

Created: 3/19/2020 07:44
Analyst: T. Bosch

Instrument:
Status: WP

HBN: 259282

Workorder: 2007564 [ENV_LVL4]
Workorder: 2007568 [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	700236	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	
2	700237	LCS for HBN 259282 [ELMS/2359]				LCS	3		E6850Q413Q	5311		3/26/2020	
3	700238	RLVS for HBN 259282 [ELMS/2359				RLVS	3		E685041C3Q	5311		3/26/2020	
4	700239	ICS for HBN 259282 [ELMS/2359]				ICS	3		E6850..D3Q	5311		3/26/2020	
5	700240	LMB for HBN 259282 [ELMS/2359]				LMB	3		E6850Q413Q	5311		3/26/2020	
6	2007564001	16PM14-200310				SAMPLE	3	2007564001-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
7	2007564002	16PM06-200310				SAMPLE	3	2007564002-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
8	2007564003	16PM09-200310				SAMPLE	3	2007564003-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
9	2007564004	16WW42-200310				SAMPLE	3	2007564004-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
10	2007564005	16WW42-200310-FD				FLDDUP	3	2007564005-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
11	2007564006	16WW40-200310				SAMPLE	3	2007564006-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
12	2007568001	16WW12-200311				SAMPLE	3	2007568001-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
13	2007568002	16RW10-200311				SAMPLE	3	2007568002-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
14	2007568003	16RW09-200311				SAMPLE	3	2007568003-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
15	700241	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	
16	2007568004	16RW09-200311MS				MS	3	2007568004-A	E6850Q413Q	5480		3/26/2020	
17	2007568005	16RW09-200311MSD				MSD	3	2007568005-A	E6850Q413Q	5480		3/26/2020	
18	2007568006	16WW35-200311				SAMPLE	3	2007568006-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
19	2007568007	16WW36-200311				SAMPLE	3	2007568007-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
20	2007568008	16WW16-200311				SAMPLE	3	2007568008-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
21	2007568009	16WW16-200311-FD				FLDDUP	3	2007568009-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
22	700242	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Analyst Write-up

ALS Work Order #'s & Sample #( )'s: 2007564 (001-06); 2007568 (001-09)
ELMS Batch/HBN ID: 2359 (259282)
Prep Date: 03/18/2020 Analysis Date: 03/19/2020 Analyst: Tom Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\19MAR0D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Tom Bosch. 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 DU461-US)/0.1% glacial acetic acid (JT-Baker Lot 122550).
Eluent B1: 95% ACN (B&J Lot DU461-US)/5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 122550).

STANDARDS: Internal Standard Spiking Solution Horizon# 47863. Dilutions of Working Standards (Horizon: 49947/48) used for ICAL, CCV's, RLVS and ICS.

CALIBRATION CURVE: Used curve from 09/20/2019, sequence 20SEP19D.s Offline Quantitation Method: CLO4-DP3.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: 10 Injection Volume: 40µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1 Run time: 12.0min.

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 3.0µL of QC Solution Horizon ID 47516 was used for LCS 700237; Target = 3.0µg/L. ASTM type II water was used for LMB 700236.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) was performed on samples 2007568004/05 (Client ID: 16RW09-200311). 3.0µl of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. Spike target = 3.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field samples 2007564006 and 2007568003/07 had positive results for perchlorate. However, because the 83/85 ion ratio failed, these results were not reported.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The MS/MSD (2007568004/05) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2020\MAR\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2020\DOD\259282-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 700238) is reported from the analysis of the Laboratory Control Sample (LCS – 700239) at a level of 3.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 19MARD02/17.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria **Batch(es)/SDG:** ELMS: 2359 HBN: 259282 **Sample Set IDs if Applicable:** 2007564 / 2007568	**Analyst Initials**	**Reviewer Initials**
Sample positions on autosampler verified against instrument sequence	TB	NA
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#_____	TB	SB
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L	
Standard: 49946	**Created By:** Thomas Bosch	**Amount:** 25 mL	
MFG: ALS/SLC	**Create Date:** 09/23/2019 03:09PM	**Expires:** 09/19/2020	
MFG Lot: TNB: 09/20/2019	**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
47863	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	12/05/2028

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 47863	**Created By:** Thomas Bosch	**Amount:** 1 mL
MFG: Cambridge Isotope	**Create Date:** 05/23/2019 10:05AM	**Expires:** 12/05/2028
MFG Lot: SDIH-016	**Verified By:** Thomas Bosch	**Usable:** Yes
Part ID: OLM-7310-S	**Verify Date:**	**Lab Lot:** CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

STANDARD REPORT

Working Standard - CLO4 WRK

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

Standard: 49948
MFG: ALS/SLC
MFG Lot: TNB: 09/20/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/20/2019 03:09PM

Amount: 10 mL
Expires: 07/25/2020
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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
49947	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	07/25/2020

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

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

Standard: 43659
MFG: AccuStandard
MFG Lot: 218065075
Part ID: IC-PER-10X-1

Created By: Thomas Bosch
Create Date: 09/17/2018 09:09AM

Amount: 100 mL
Expires: 07/25/2020
Usable: Yes
Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

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

Standard: 49947 **Created By:** Thomas Bosch **Amount:** 10 mL
MFG: ALS/SLC **Create Date:** 09/23/2019 03:09PM **Expires:** 07/25/2020
MFG Lot: TNB: 09/20/2019 **Usable:** Yes
Pipette ID: Not Provided **Lab Lot:** CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK		Description - 6850 QC WKG STD 100ug/L
Standard: 47516	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 05/06/2019 03:05PM	**Expires:** 03/31/2020
MFG Lot: TNB: 05/06/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

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

Standard:	36748	**Created By:**	Thomas Bosch	**Amount:**	100 mL
MFG:	Ultra Scientific	**Create Date:**	05/11/2017 01:05PM	**Expires:**	03/31/2020
MFG Lot:	CP-0860			**Usable:**	Yes
Part ID:	ICC-013			**Lab Lot:**	CLO4 QC STOCK

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

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

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

Standard: 47515 **Created By:** Thomas Bosch **Amount:** 10 mL
MFG: ALS/SLC **Create Date:** 05/06/2019 03:05PM **Expires:** 03/31/2020
MFG Lot: TNB: 05/06/2019 **Usable:** Yes
Pipette ID: Not Provided **Lab Lot:** CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

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New Haven, CT 06513
USA

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

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: None

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO 17034 Scope of Accreditation: Yes

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

The gravimetric uncertainty for this product is ±0.24%.

The final solution was checked against an independent standard to verify its concentration.

We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.

All solutions are filtered through a 0.2 µm filter prior to being bottled.

All glassware used in preparation is Class A and calibrated regularly.

All weights are traceable through NIST, Test No. 822-275872-11

All bottles are triple rinsed with deionized water prior to use.

Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.

We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary

Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

AccuStandard®

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

TRIPLE ISO CERTIFICATION ISO 9001 ISO GUIDE 34 ISO 17025 ULTRA

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

S 36748

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ACCREDITATION TESTING LABORATORY

ISO 9001 Registered Quality System – TUV USA

250 SMITH STREET • NORTH KINGSTOWN, RHODE ISLAND 02852 • WWW.ULTRASCI.COM

ALS

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

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

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

S 47863

Product Name: PERCHLORIC ACID, SODIUM SALT
(Isotopic Label & Enrichment Specification) (18O4, 90%+) 100 UG/ML IN WATER

Lot Number: SDIH-016

Catalog Number: OLM-7310-S

Product Information

Chemical Purity Specification: ≥ 98%

MW*: 130.44
** For isotopically labeled compounds, MW listed is for the fully enriched product.*

Labeled CAS Number: NA

$NaCl^{18}O_4$

Unlabeled CAS Number: 7601-89-0

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. CIL Certificates of Analysis are occasionally updated with new data following recertification. We recommend checking the website for the latest version.

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.

Approved by: Sashi Sivendran-Basak

Sashi Sivendran-Basak, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	12/05/2018
Expiration Date	12/05/2028
Concentration Based on Gravimetry	100.0 ± 1.0 µg/mL (k=2)
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	105.4 ± 1.1 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\19MAR20D\19MAR20S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	700236 CCV@25	Vial 71	1	Control	1	1.22936e6	7.603	24.07531
*	700237 LCS@3.	Vial 72	1	Control	2	1.65066e5	7.526	3.42325
*	700239 ICS@3.0	Vial 73	1	Control	3	1.10320e5	7.478	2.89335
*	700240 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	2007564001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	2007564002	Vial 76	1	Sample	6	0.00000	0.000	0.00000
*	2007564003	Vial 77	1	Sample	7	0.00000	0.000	0.00000
*	2007564004	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	2007564005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	2007564006	Vial 80	1	Sample	10	2.48609e5	6.728	~~4.28651~~ N.R.
*	2007568001	Vial 81	1	Sample	11	3.51022e6	6.847	52.77083
*	2007568002 10X	Vial 82	1	Sample	12	7.72897e5	7.466	145.91615
*	2007568003	Vial 83	1	Sample	13	6.28393e4	7.236	~~1.23157~~ N.R.
*	700241 CCV@25	Vial 71	1	Control	14	1.28100e6	7.611	25.24165
*	2007568004 MS	Vial 84	1	Sample	15	2.01081e5	7.221	4.18214
*	2007568005 MSD	Vial 85	1	Sample	16	1.97977e5	7.172	4.34825
*	2007568006	Vial 86	1	Sample	17	2.13799e7	5.995	205.68986
*	2007568007	Vial 87	1	Sample	18	1.65269e5	6.913	~~2.98152~~ N.R.
*	2007568008 10X	Vial 88	1	Sample	19	3.07542e6	7.482	514.51319
*	2007568009 10X	Vial 89	1	Sample	20	3.36085e6	7.470	560.28270
*	2007568006 10X	Vial 90	1	Sample	21	3.45541e6	7.167	559.99202
*	700242 CCV@25	Vial 71	1	Control	22	1.36567e6	7.601	25.93886

N.R. - NOT REPORTED / FAILS 83/85 ION RATIO T.B. 3.20.2020

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	700236 CCV@25	Vial 71	1	Control	1	1.75146e5	7.627	5.00000
*	700237 LCS@3.	Vial 72	1	Control	2	1.77667e5	7.559	5.00000
*	700239 ICS@3.0	Vial 73	1	Control	3	1.40222e5	7.501	5.00000
*	700240 LMB	Vial 74	1	Control	4	1.80209e5	7.666	5.00000
*	2007564001	Vial 75	1	Sample	5	1.53505e5	6.948	5.00000
*	2007564002	Vial 76	1	Sample	6	1.89522e5	7.145	5.00000
*	2007564003	Vial 77	1	Sample	7	2.32125e5	7.391	5.00000
*	2007564004	Vial 78	1	Sample	8	2.15184e5	7.551	5.00000
*	2007564005	Vial 79	1	Sample	9	2.11765e5	7.611	5.00000
*	2007564006	Vial 80	1	Sample	10	2.13872e5	6.707	5.00000
*	2007568001	Vial 81	1	Sample	11	2.03614e5	6.864	5.00000
*	2007568002 10X	Vial 82	1	Sample	12	1.88929e5	7.485	50.00000
*	2007568003	Vial 83	1	Sample	13	1.82170e5	7.202	5.00000
*	700241 CCV@25	Vial 71	1	Control	14	1.73233e5	7.640	5.00000
*	2007568004 MS	Vial 84	1	Sample	15	1.77303e5	7.235	5.00000
*	2007568005 MSD	Vial 85	1	Sample	16	1.67893e5	7.182	5.00000
*	2007568006	Vial 86	1	Sample	17	2.01329e5	5.906	5.00000
*	2007568007	Vial 87	1	Sample	18	2.03939e5	6.877	5.00000
*	2007568008 10X	Vial 88	1	Sample	19	1.83884e5	7.512	50.00000
*	2007568009 10X	Vial 89	1	Sample	20	1.81383e5	7.484	50.00000
*	2007568006 10X	Vial 90	1	Sample	21	1.86604e5	7.188	50.00000
*	700242 CCV@25	Vial 71	1	Control	22	1.79204e5	7.628	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	700236 CCV@25	Vial 71	1	Control	1	4.00484e5	7.621	25.56785
*	700237 LCS@3.	Vial 72	1	Control	2	5.75019e4	7.551	3.82098
*	700239 ICS@3.0	Vial 73	1	Control	3	4.52092e4	7.490	3.80598
*	700240 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000

Batch Report: C:\HPCHEM\1\DATA\19MAR20D\19MAR20S.B

#	*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
	*	2007564001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
	*	2007564002	Vial 76	1	Sample	6	0.00000	0.000	0.00000
	*	2007564003	Vial 77	1	Sample	7	0.00000	0.000	0.00000
	*	2007564004	Vial 78	1	Sample	8	0.00000	0.000	0.00000
	*	2007564005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
	*	2007564006	Vial 80	1	Sample	10	1.53091e4	6.683	7.26839e-1
	*	2007568001	Vial 81	1	Sample	11	1.02484e6	6.861	51.22624
	*	2007568002 10X	Vial 82	1	Sample	12	2.50348e5	7.473	153.77705
	*	2007568003	Vial 83	1	Sample	13	1.07794e4	7.171	5.72351e-1
	*	700241 CCV@25	Vial 71	1	Control	14	4.15085e5	7.618	26.68143
	*	2007568004 MS	Vial 84	1	Sample	15	5.62875e4	7.231	3.74605
	*	2007568005 MSD	Vial 85	1	Sample	16	5.67575e4	7.167	3.99535
	*	2007568006	Vial 86	1	Sample	17	7.10809e6	6.007	222.47923
	*	2007568007	Vial 87	1	Sample	18	1.33916e4	6.874	6.53211e-1
	*	2007568008 10X	Vial 88	1	Sample	19	9.48985e5	7.499	523.20559
	*	2007568009 10X	Vial 89	1	Sample	20	1.05446e6	7.480	578.11984
	*	2007568006 10X	Vial 90	1	Sample	21	1.04884e6	7.184	562.08888
	*	700242 CCV@25	Vial 71	1	Control	22	4.26051e5	7.618	26.49247

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

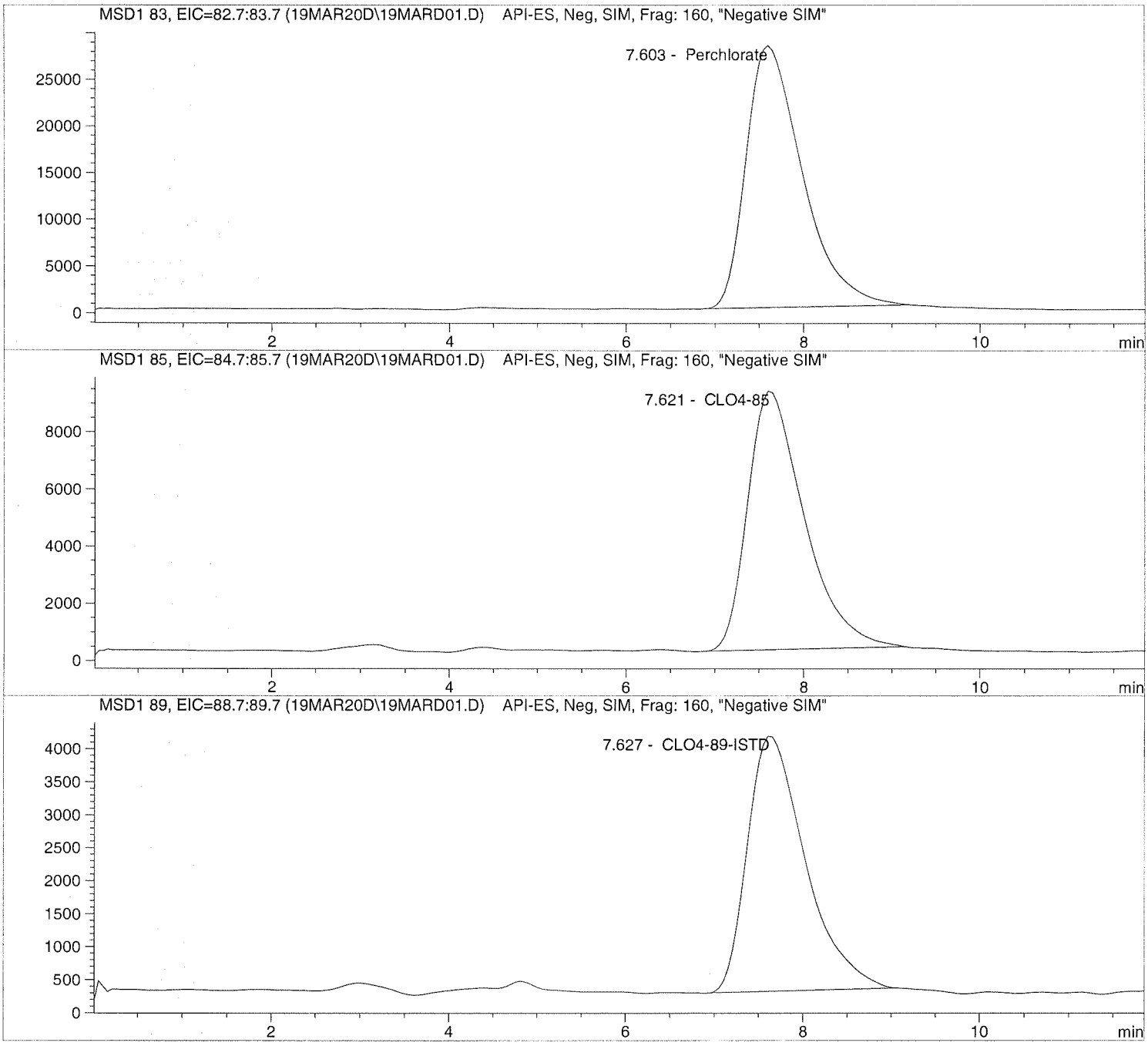
Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	700236	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	700237	LCS@3.	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	700239	ICS@3.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	700240	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	2007564001		CLO4-AQN	1	Sample		
6	Vial 76	2007564002		CLO4-AQN	1	Sample		
7	Vial 77	2007564003		CLO4-AQN	1	Sample		
8	Vial 78	2007564004		CLO4-AQN	1	Sample		
9	Vial 79	2007564005		CLO4-AQN	1	Sample		
10	Vial 80	2007564006		CLO4-AQN	1	Sample		
11	Vial 81	2007568001		CLO4-AQN	1	Sample		
12	Vial 82	2007568002	10X	CLO4-AQN	1	Sample		
13	Vial 83	2007568003		CLO4-AQN	1	Sample		
14	Vial 71	700241	CCV@25	CLO4-AQN	1	Ctrl Samp		
15	Vial 84	2007568004	MS	CLO4-AQN	1	Sample		
16	Vial 85	2007568005	MSD	CLO4-AQN	1	Sample		
17	Vial 86	2007568006		CLO4-AQN	1	Sample		
18	Vial 87	2007568007		CLO4-AQN	1	Sample		
19	Vial 88	2007568008	10X	CLO4-AQN	1	Sample		
20	Vial 89	2007568009	10X	CLO4-AQN	1	Sample		
21	Vial 90	2007568006	10X	CLO4-AQN	1	Sample		
22	Vial 71	700242	CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD01.D Sample Name: 700236 CCV@25

Injection Date:	3/19/2020 08:37:03	Seq Line:	1
Sample Name:	700236 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD01.D Sample Name: 700236 CCV@25

Injection Date:	3/19/2020 08:37:03	Seq Line:	1
Sample Name:	700236 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.603	PBA	1229363.2	24.0753	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.621	PBA	400484.1	25.5678	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.627	PBA	175145.5	5.0000	CLO4-89-ISTD

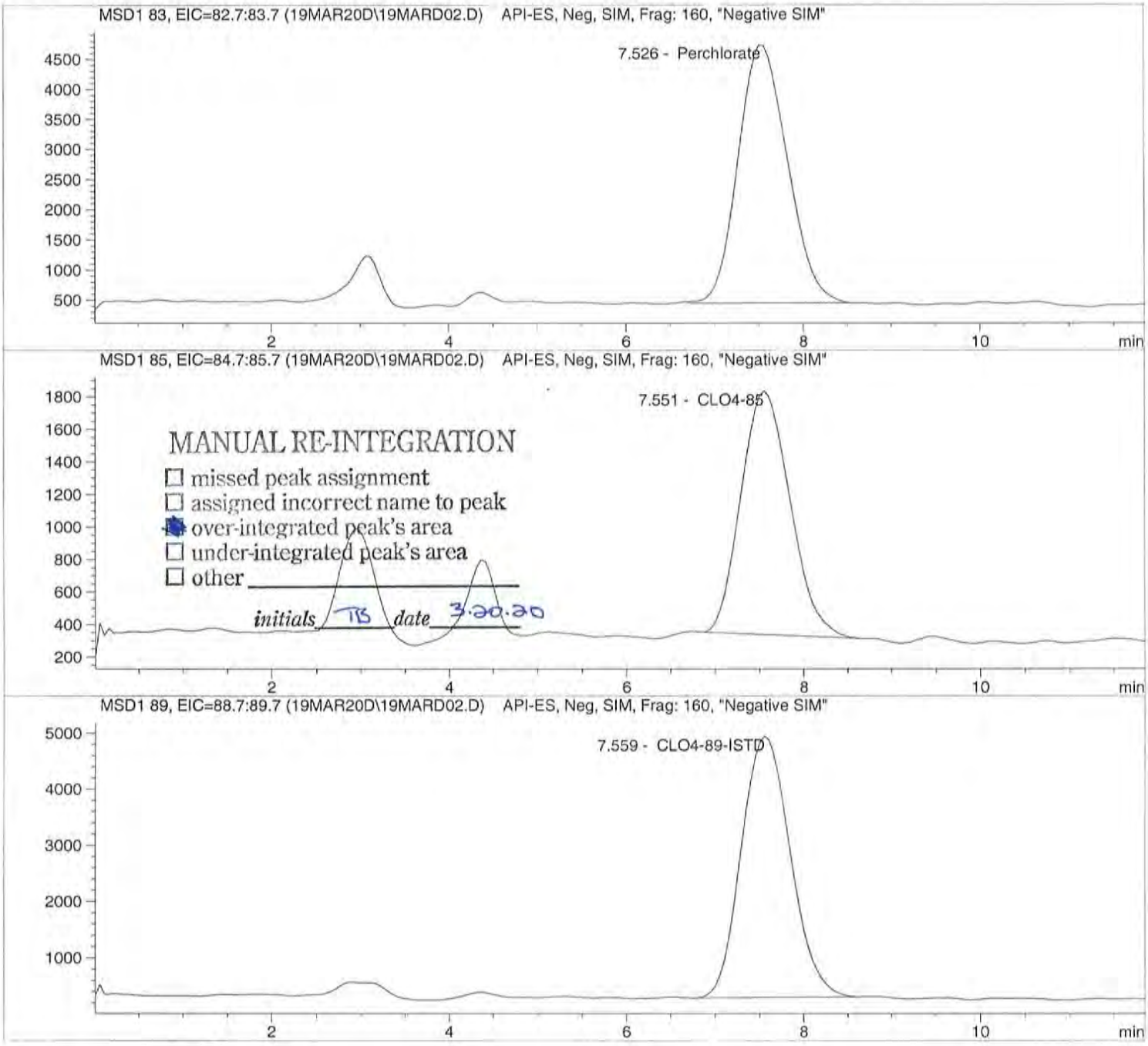
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.526	BBA	165065.5	3.4233	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	MM	57501.9	3.8210	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.559	PBA	177666.7	5.0000	CLO4-89-ISTD

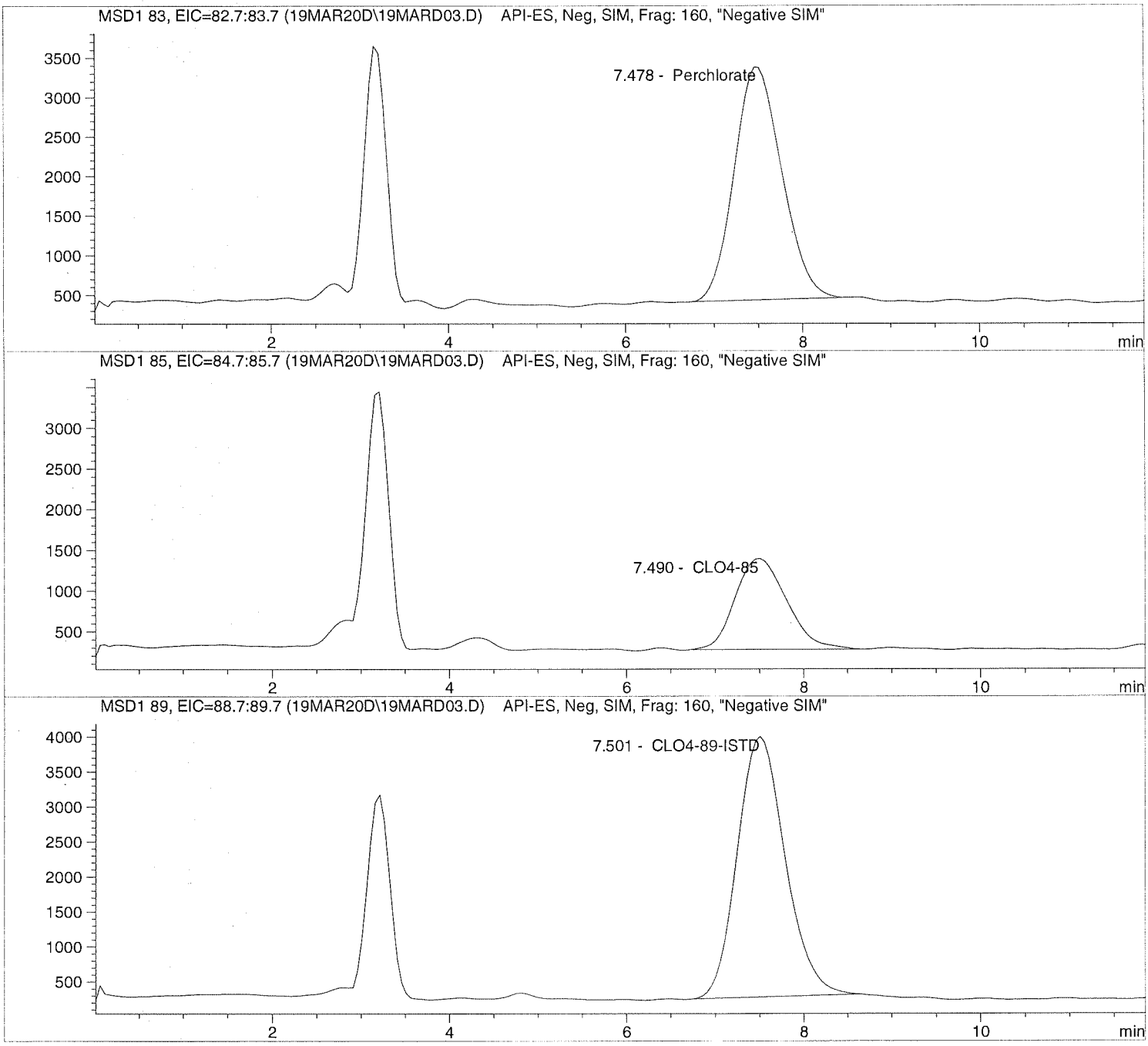
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD03.D Sample Name: 700239 ICS@3.0

Injection Date:	3/19/2020 09:07:23	Seq Line:	3
Sample Name:	700239 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD03.D Sample Name: 700239 ICS@3.0

Injection Date:	3/19/2020 09:07:23	Seq Line:	3
Sample Name:	700239 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.478	PBA	110319.7	2.8933	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.490	PBA	45209.2	3.8060	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.501	PBA	140222.0	5.0000	CLO4-89-ISTD

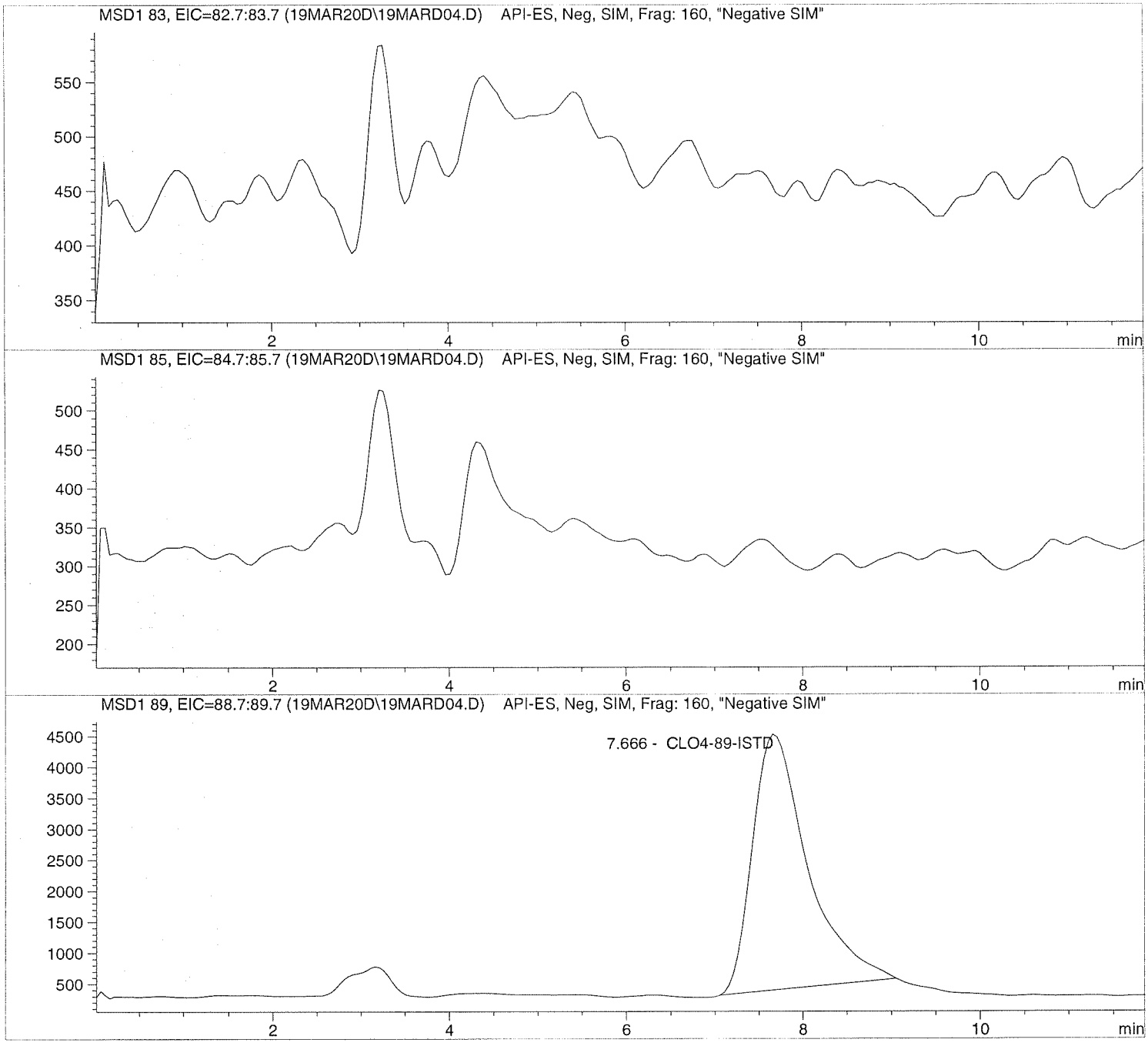
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD04.D Sample Name: 700240 LMB

Injection Date:	3/19/2020 09:21:25	Seq Line:	4
Sample Name:	700240 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD04.D Sample Name: 700240 LMB

Injection Date:	3/19/2020 09:21:25	Seq Line:	4
Sample Name:	700240 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.666	PBA	180209.3	5.0000	CLO4-89-ISTD

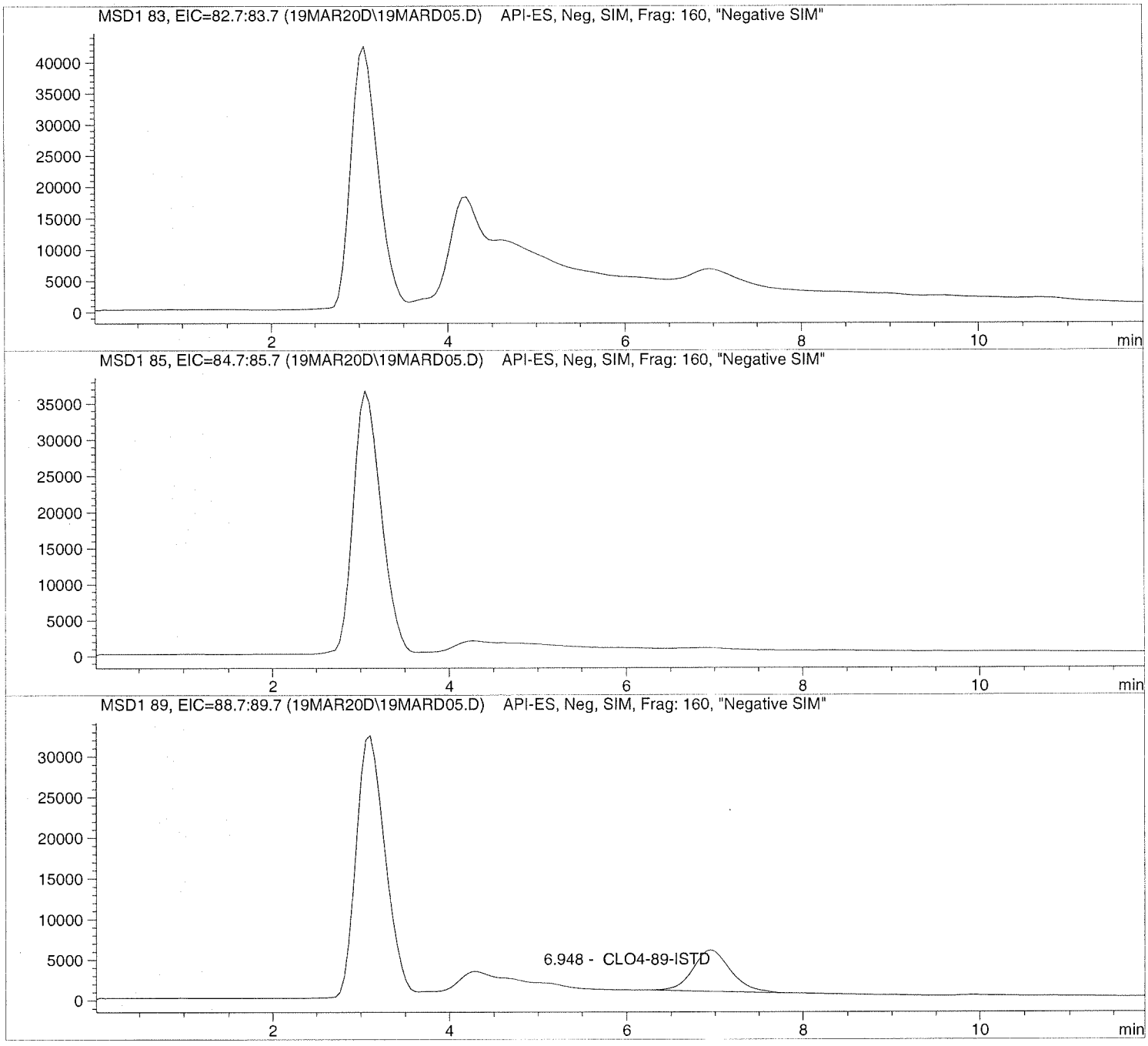
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD05.D Sample Name: 2007564001

Injection Date:	3/19/2020 09:35:23	Seq Line:	5
Sample Name:	2007564001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD05.D Sample Name: 2007564001

Injection Date:	3/19/2020 09:35:23	Seq Line:	5
Sample Name:	2007564001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.948	BBA	153505.3	5.0000	CLO4-89-ISTD

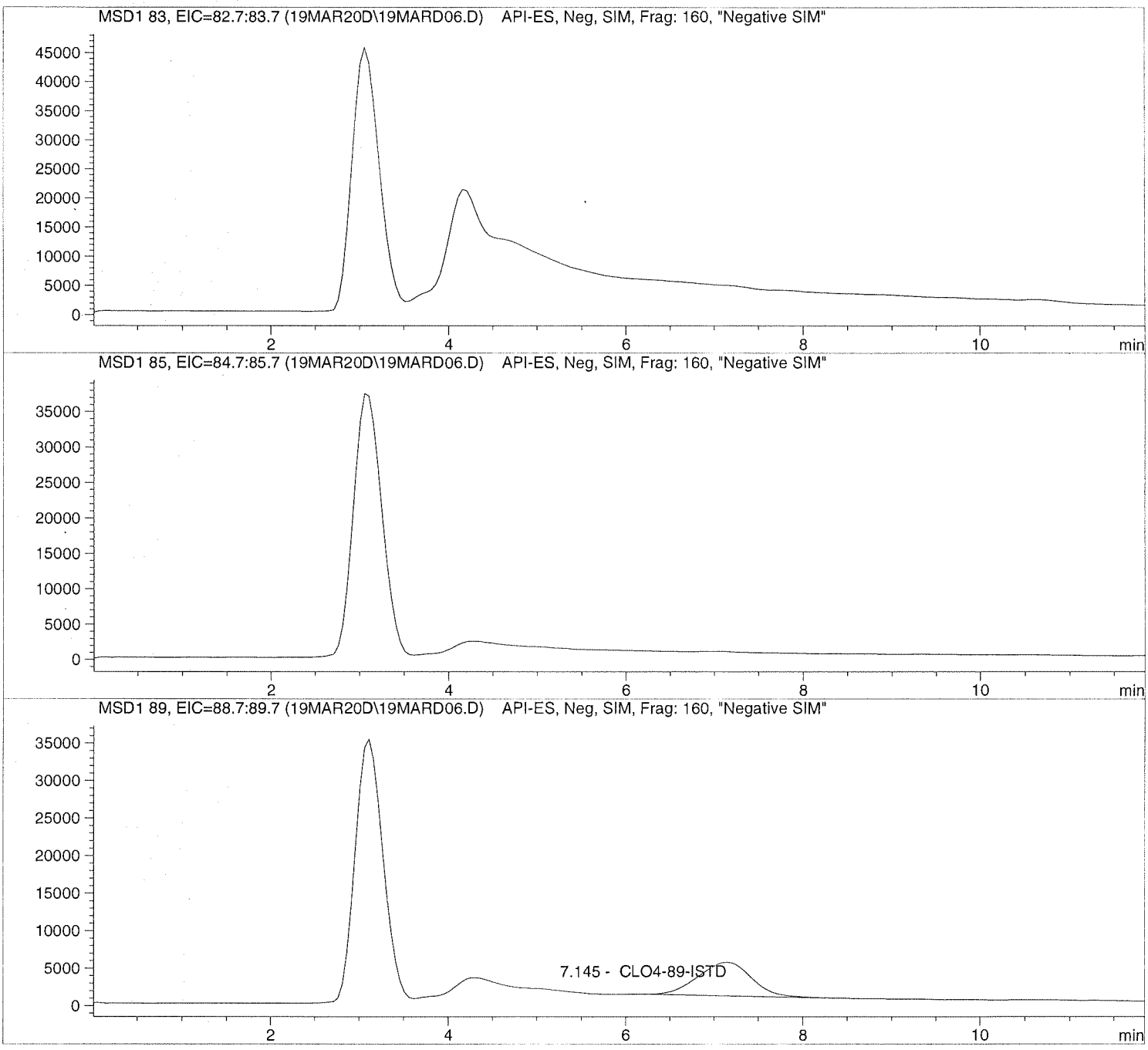
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD06.D Sample Name: 2007564002

Injection Date:	3/19/2020 09:49:24	Seq Line:	6
Sample Name:	2007564002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD06.D Sample Name: 2007564002

Injection Date:	3/19/2020 09:49:24	Seq Line:	6
Sample Name:	2007564002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.145	PBA	189522.4	5.0000	CLO4-89-ISTD

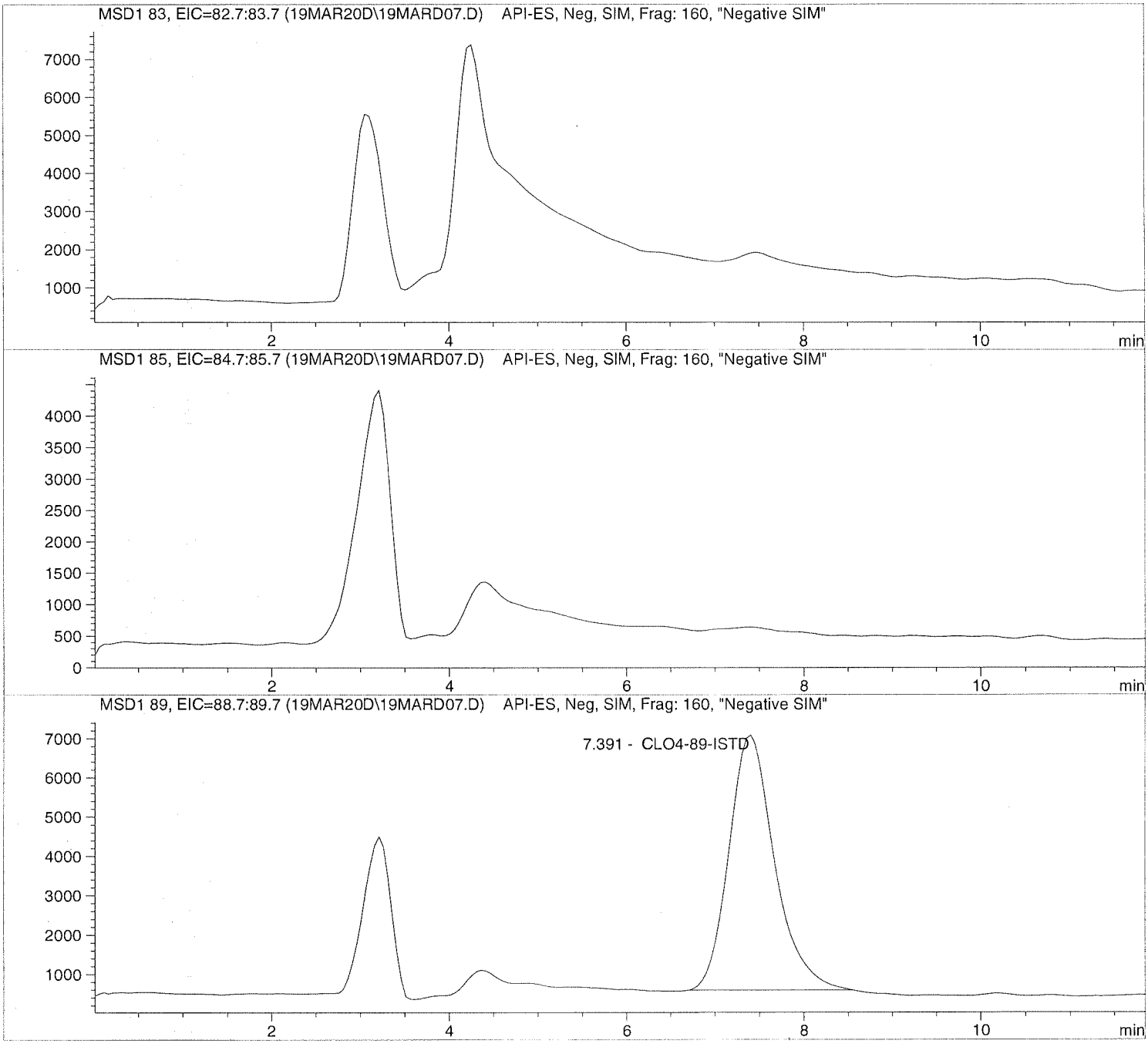
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD07.D Sample Name: 2007564003

Injection Date:	3/19/2020 10:03:23	Seq Line:	7
Sample Name:	2007564003	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD07.D Sample Name: 2007564003

Injection Date:	3/19/2020 10:03:23	Seq Line:	7
Sample Name:	2007564003	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.391	PBA	232125.0	5.0000	CLO4-89-ISTD

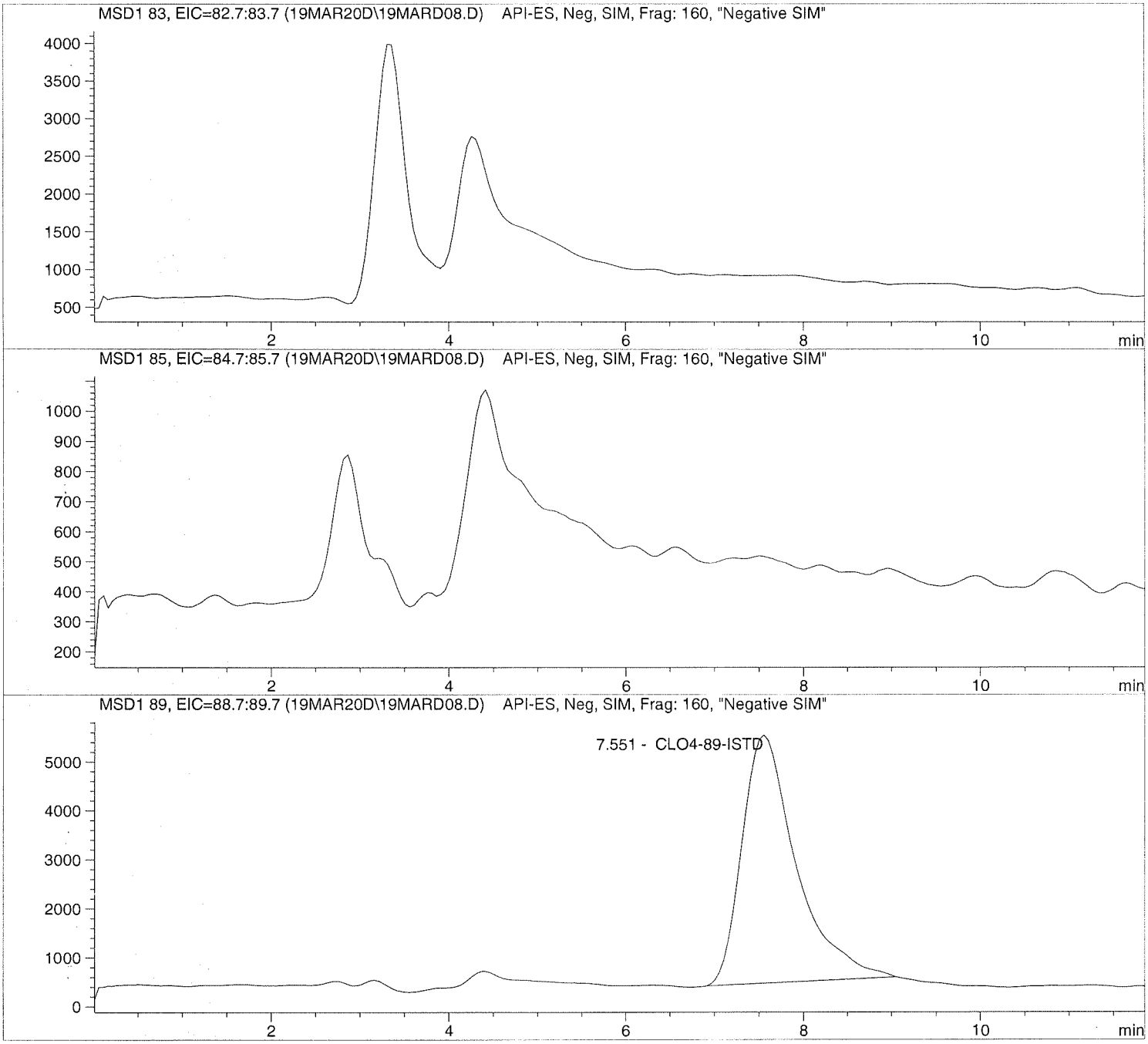
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD08.D Sample Name: 2007564004

Injection Date:	3/19/2020 10:17:21	Seq Line:	8
Sample Name:	2007564004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD08.D Sample Name: 2007564004

Injection Date:	3/19/2020 10:17:21	Seq Line:	8
Sample Name:	2007564004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	PBA	215183.6	5.0000	CLO4-89-ISTD

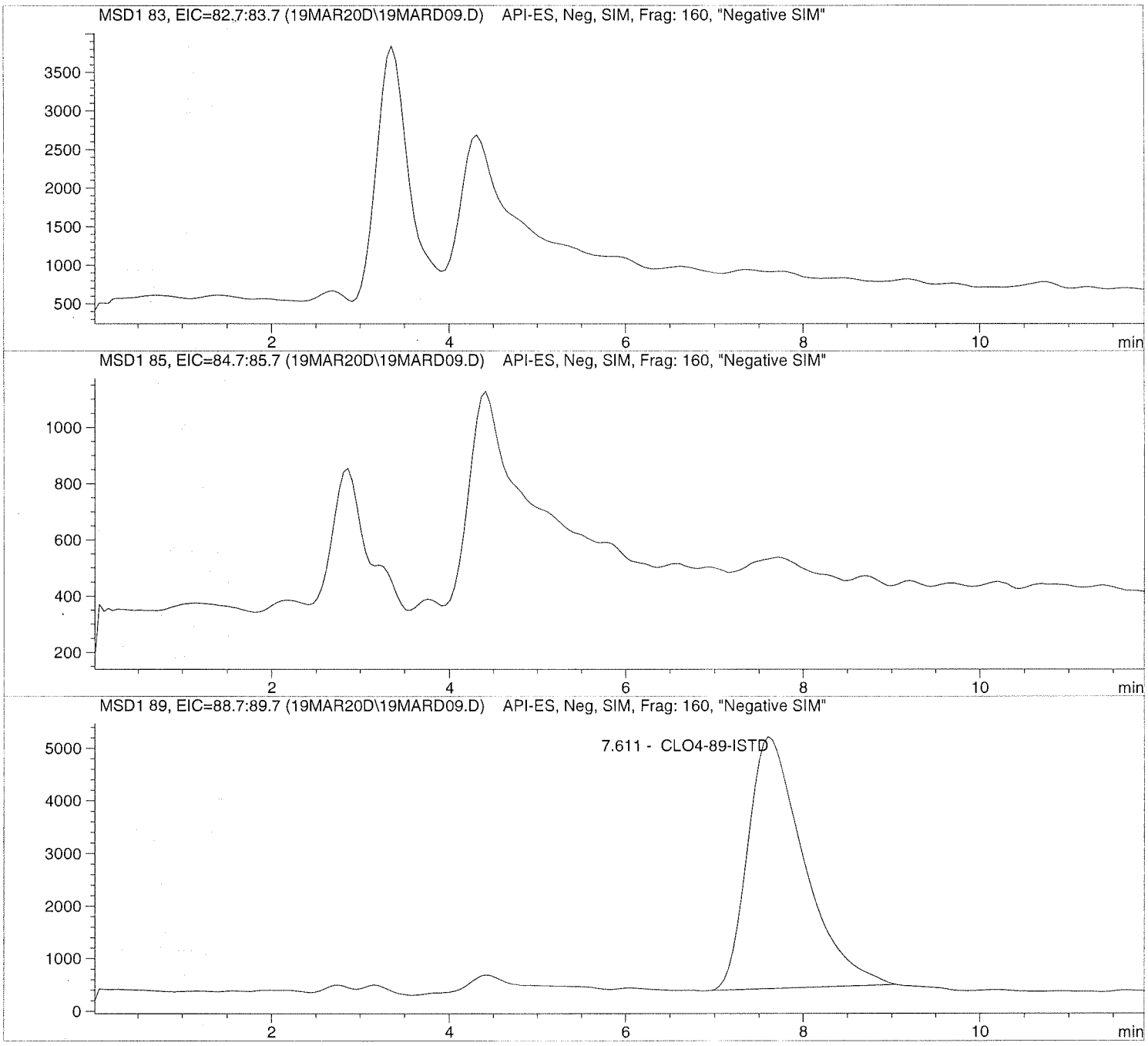
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD09.D Sample Name: 2007564005

Injection Date:	3/19/2020 10:31:21	Seq Line:	9
Sample Name:	2007564005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD09.D Sample Name: 2007564005

Injection Date:	3/19/2020 10:31:21	Seq Line:	9
Sample Name:	2007564005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.611	PBA	211765.4	5.0000	CLO4-89-ISTD

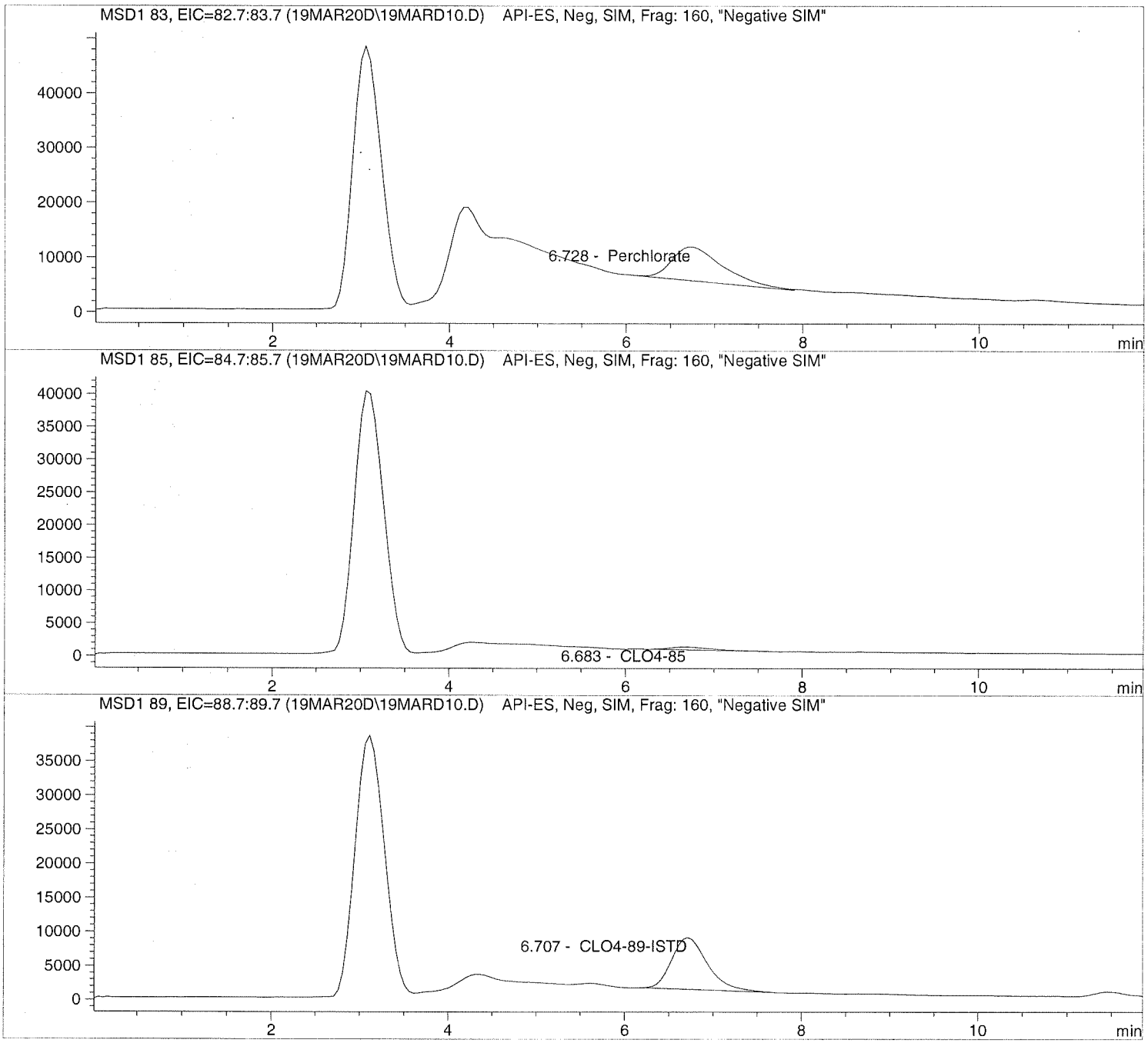
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD10.D Sample Name: 2007564006

Injection Date:	3/19/2020 10:45:23	Seq Line:	10
Sample Name:	2007564006	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD10.D Sample Name: 2007564006

Injection Date:	3/19/2020 10:45:23	Seq Line:	10
Sample Name:	2007564006	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.728	BBA	248609.5	4.2865	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO TB 3.22.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.683	PBA	15309.1	0.7268	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.707	PBA	213872.0	5.0000	CLO4-89-ISTD

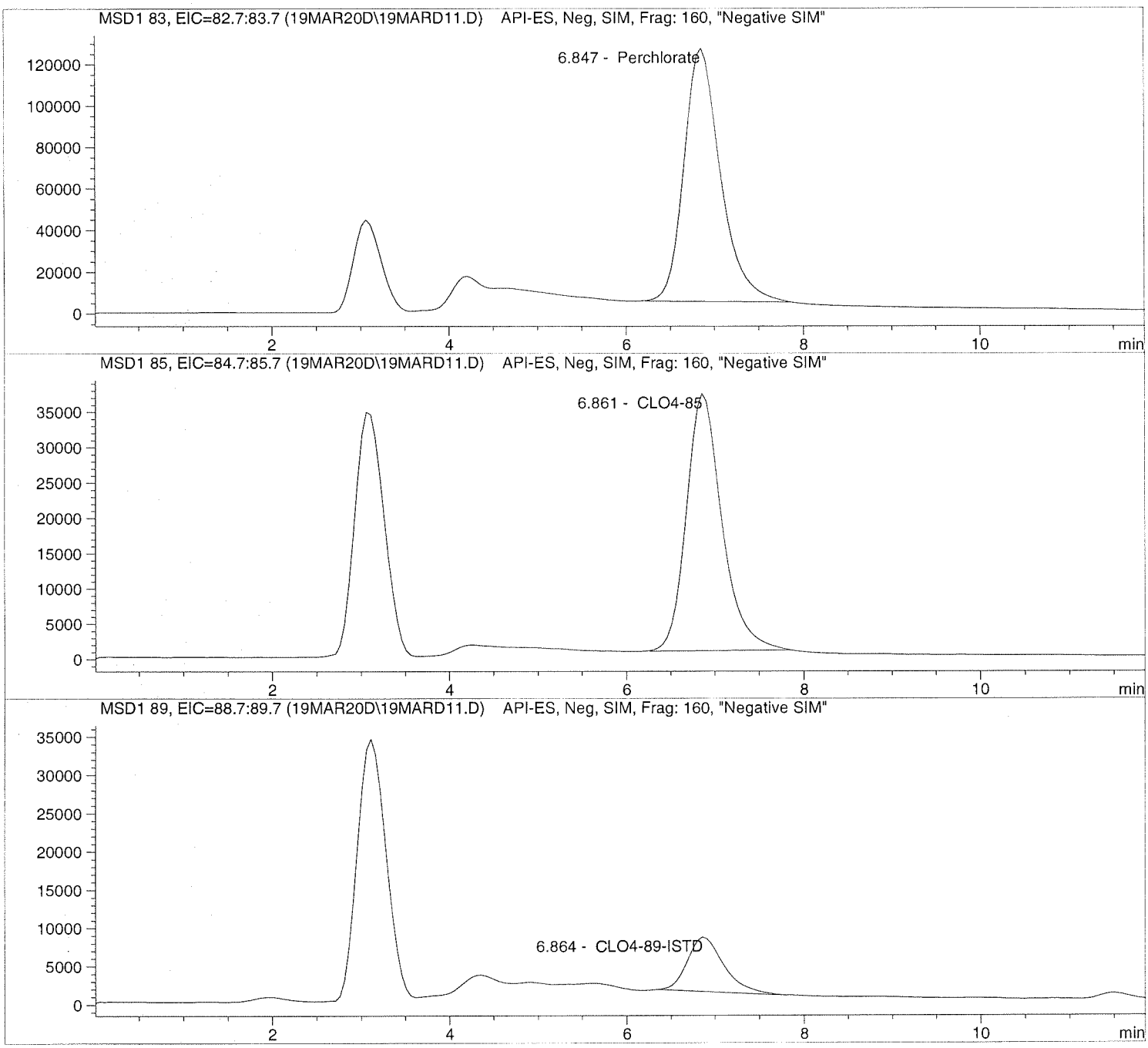
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD11.D Sample Name: 2007568001

Injection Date:	3/19/2020 10:59:22	Seq Line:	11
Sample Name:	2007568001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD11.D Sample Name: 2007568001

Injection Date:	3/19/2020 10:59:22	Seq Line:	11
Sample Name:	2007568001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.847	BBA	3510216.3	52.7708	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.861	PBA	1024842.2	51.2262	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.864	PBA	203614.1	5.0000	CLO4-89-ISTD

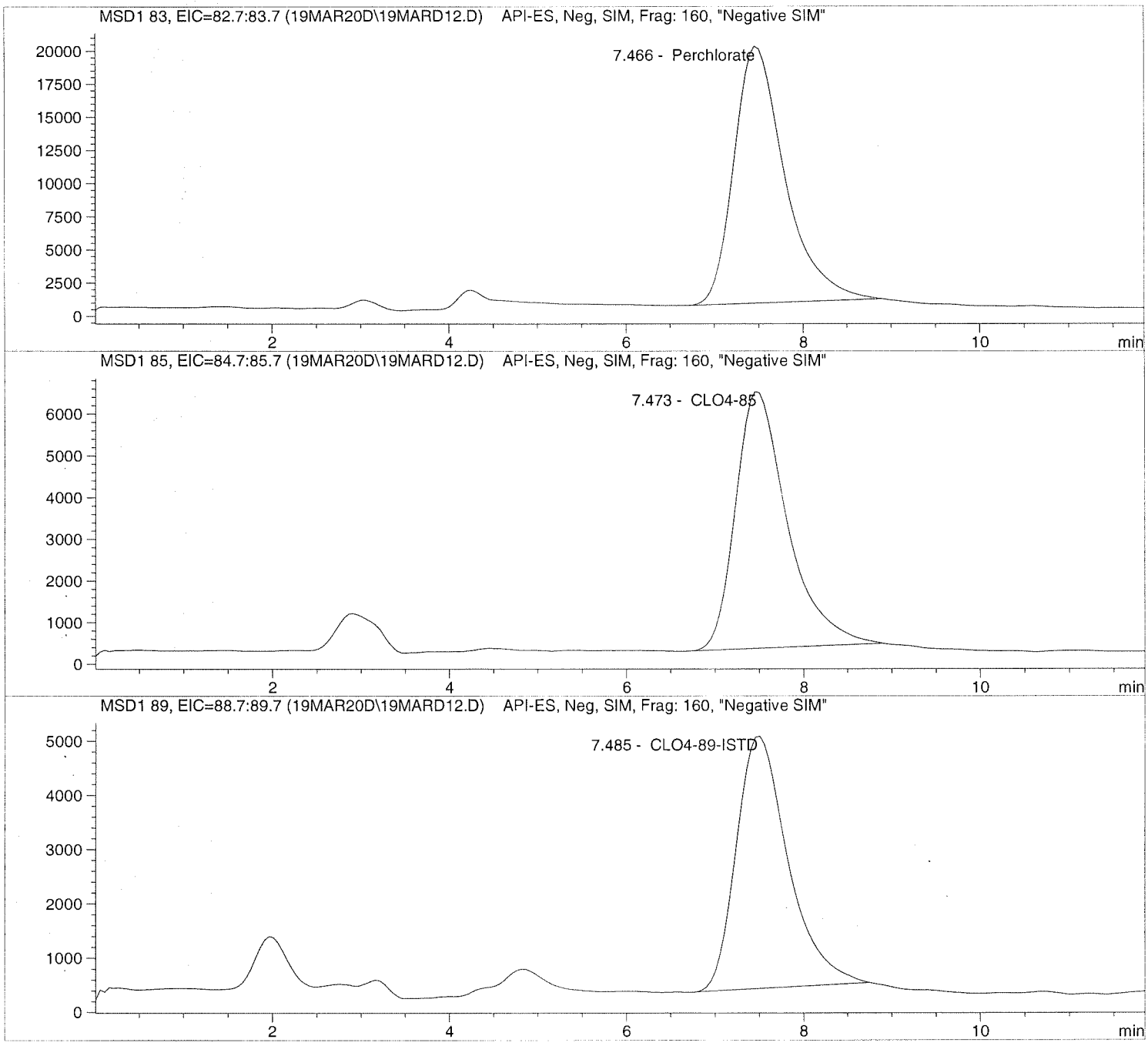
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD12.D Sample Name: 2007568002 10X

Injection Date:	3/19/2020 11:13:19	Seq Line:	12
Sample Name:	2007568002 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD12.D Sample Name: 2007568002 10X

Injection Date:	3/19/2020 11:13:19	Seq Line:	12
Sample Name:	2007568002 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.466	PBA	772896.7	145.9161	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.473	PBA	250347.9	153.7771	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.485	PBA	188928.7	50.0000	CLO4-89-ISTD

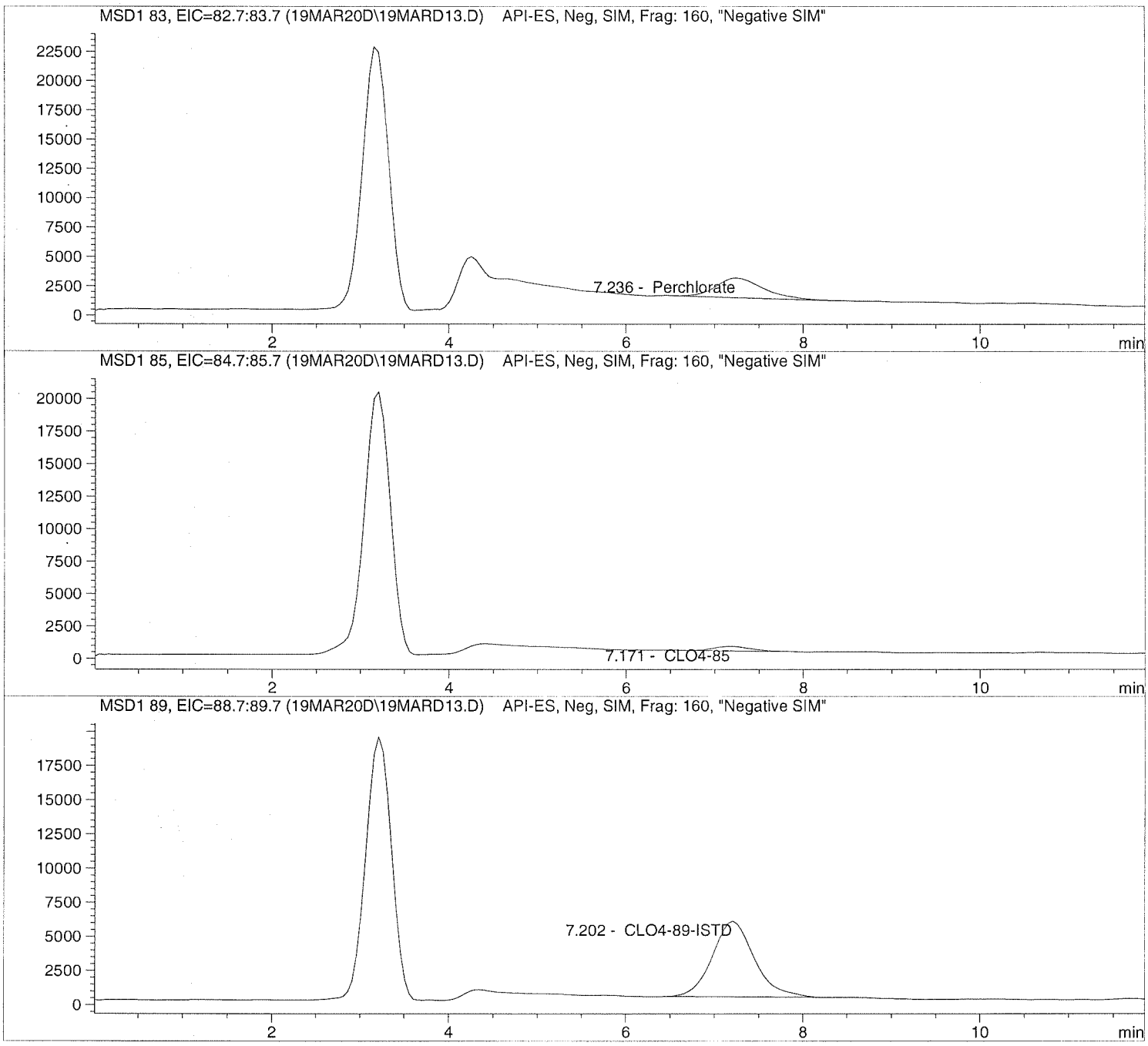
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD13.D Sample Name: 2007568003

Injection Date:	3/19/2020 11:27:19	Seq Line:	13
Sample Name:	2007568003	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD13.D Sample Name: 2007568003

Injection Date:	3/19/2020 11:27:19	Seq Line:	13
Sample Name:	2007568003	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.236	BBA	62839.3	1.2316	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO
TB 3.20.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.171	BBA	10779.4	0.5724	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.202	PBA	182169.8	5.0000	CLO4-89-ISTD

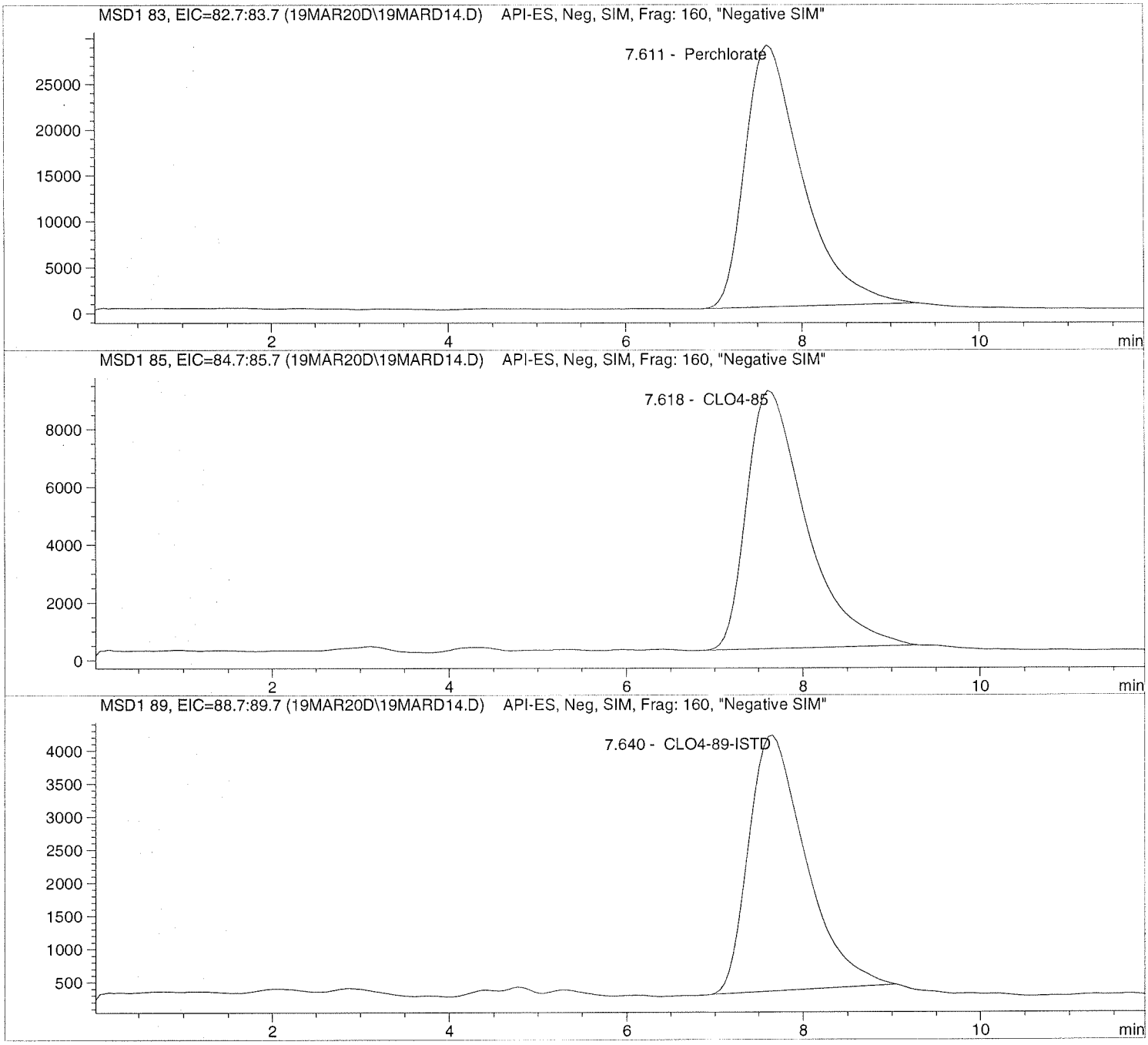
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD14.D Sample Name: 700241 CCV@25

Injection Date:	3/19/2020 11:41:15	Seq Line:	14
Sample Name:	700241 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD14.D Sample Name: 700241 CCV@25

Injection Date:	3/19/2020 11:41:15	Seq Line:	14
Sample Name:	700241 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.611	PBA	1280995.1	25.2416	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.618	PBA	415085.1	26.6814	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.640	PBA	173233.0	5.0000	CLO4-89-ISTD

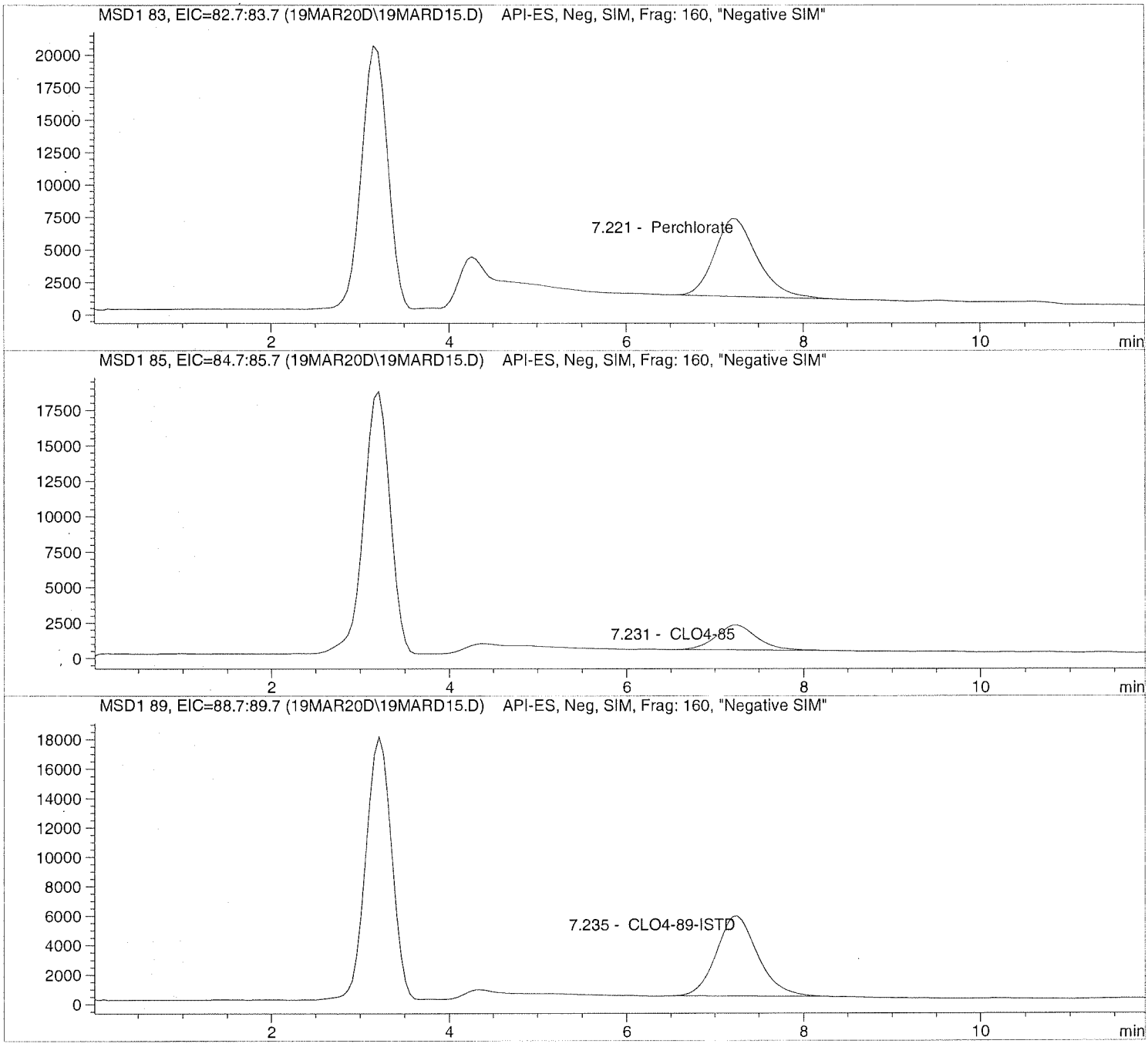
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD15.D Sample Name: 2007568004 MS

Injection Date:	3/19/2020 11:55:13	Seq Line:	15
Sample Name:	2007568004 MS	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD15.D Sample Name: 2007568004 MS

Injection Date:	3/19/2020 11:55:13	Seq Line:	15
Sample Name:	2007568004 MS	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.221	PBA	201081.1	4.1821	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.231	PBA	56287.5	3.7460	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.235	PBA	177302.8	5.0000	CLO4-89-ISTD

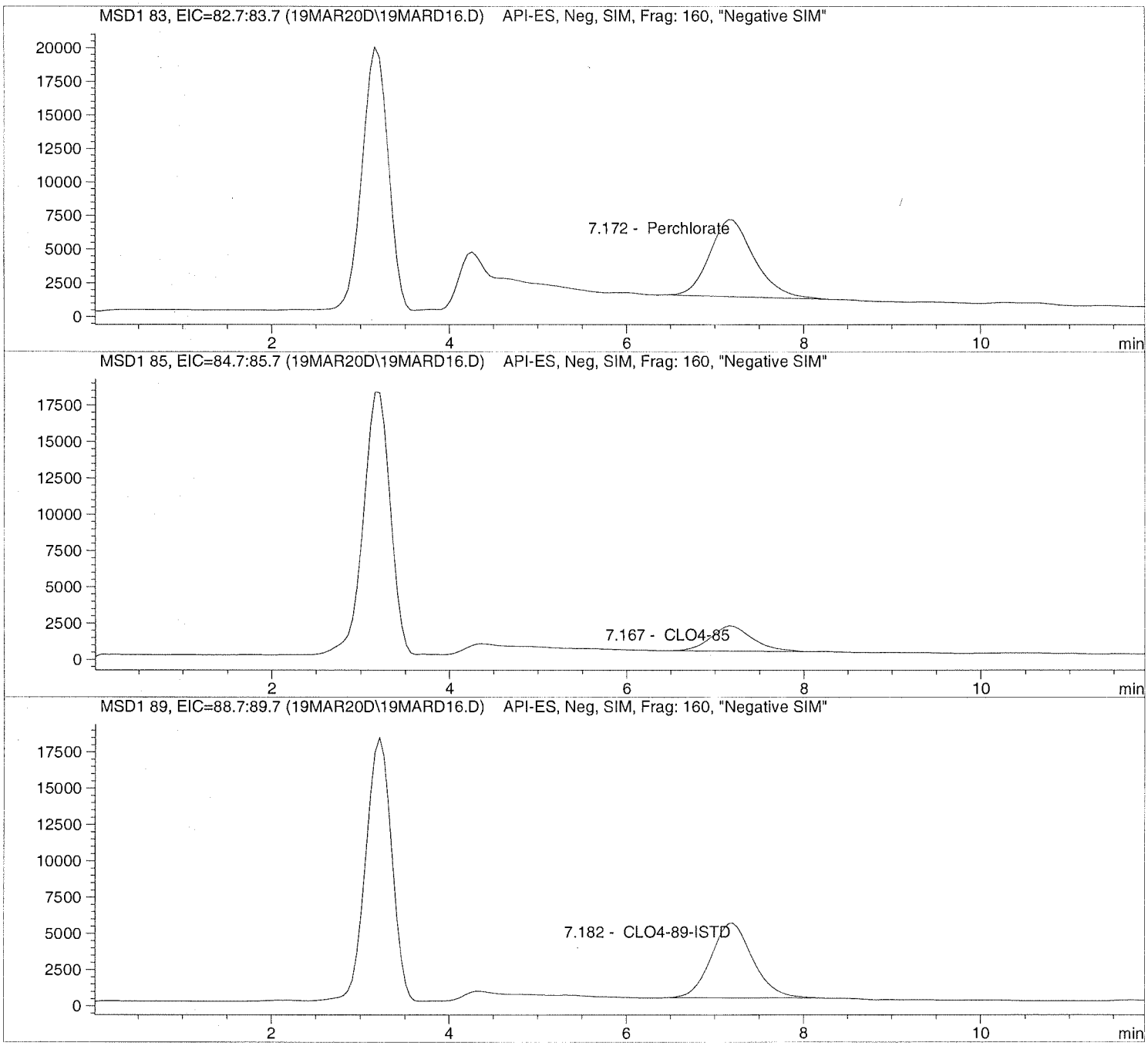
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD16.D Sample Name: 2007568005 MSD

Injection Date:	3/19/2020 12:09:11	Seq Line:	16
Sample Name:	2007568005 MSD	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD16.D Sample Name: 2007568005 MSD

Injection Date:	3/19/2020 12:09:11	Seq Line:	16
Sample Name:	2007568005 MSD	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.172	PBA	197976.7	4.3482	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.167	PBA	56757.5	3.9953	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.182	BBA	167893.3	5.0000	CLO4-89-ISTD

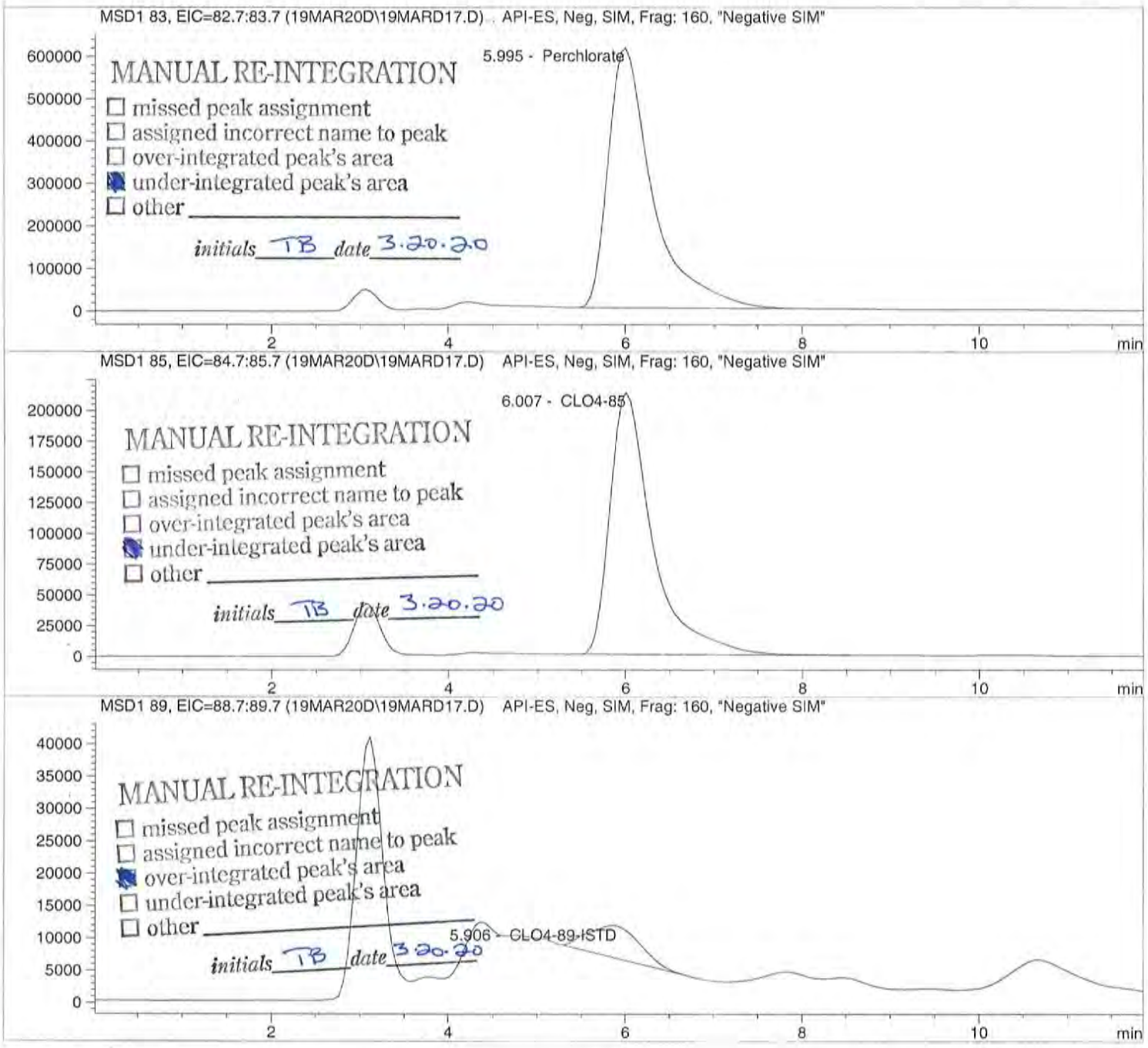
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.995	MM	21379896.0	205.6899	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.007	MM	7108094.0	222.4792	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.906	MM	201329.3	5.0000	CLO4-89-ISTD

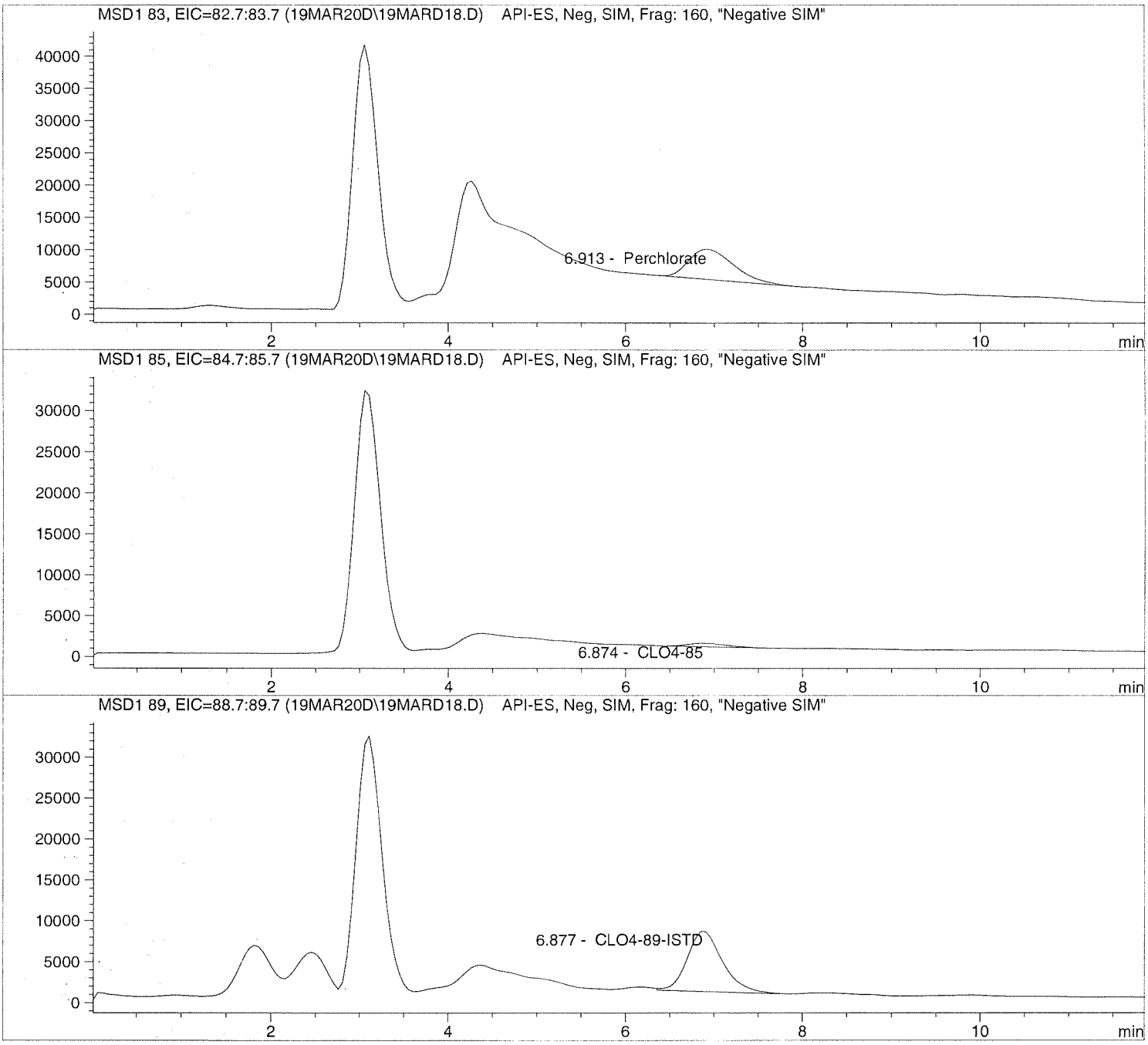
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD18.D Sample Name: 2007568007

Injection Date:	3/19/2020 12:37:08	Seq Line:	18
Sample Name:	2007568007	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD18.D Sample Name: 2007568007

Injection Date:	3/19/2020 12:37:08	Seq Line:	18
Sample Name:	2007568007	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.913	BBA	165268.8	2.9815	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO T.B. 3.20.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.874	PBA	13391.6	0.6532	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.877	BBA	203938.6	5.0000	CLO4-89-ISTD

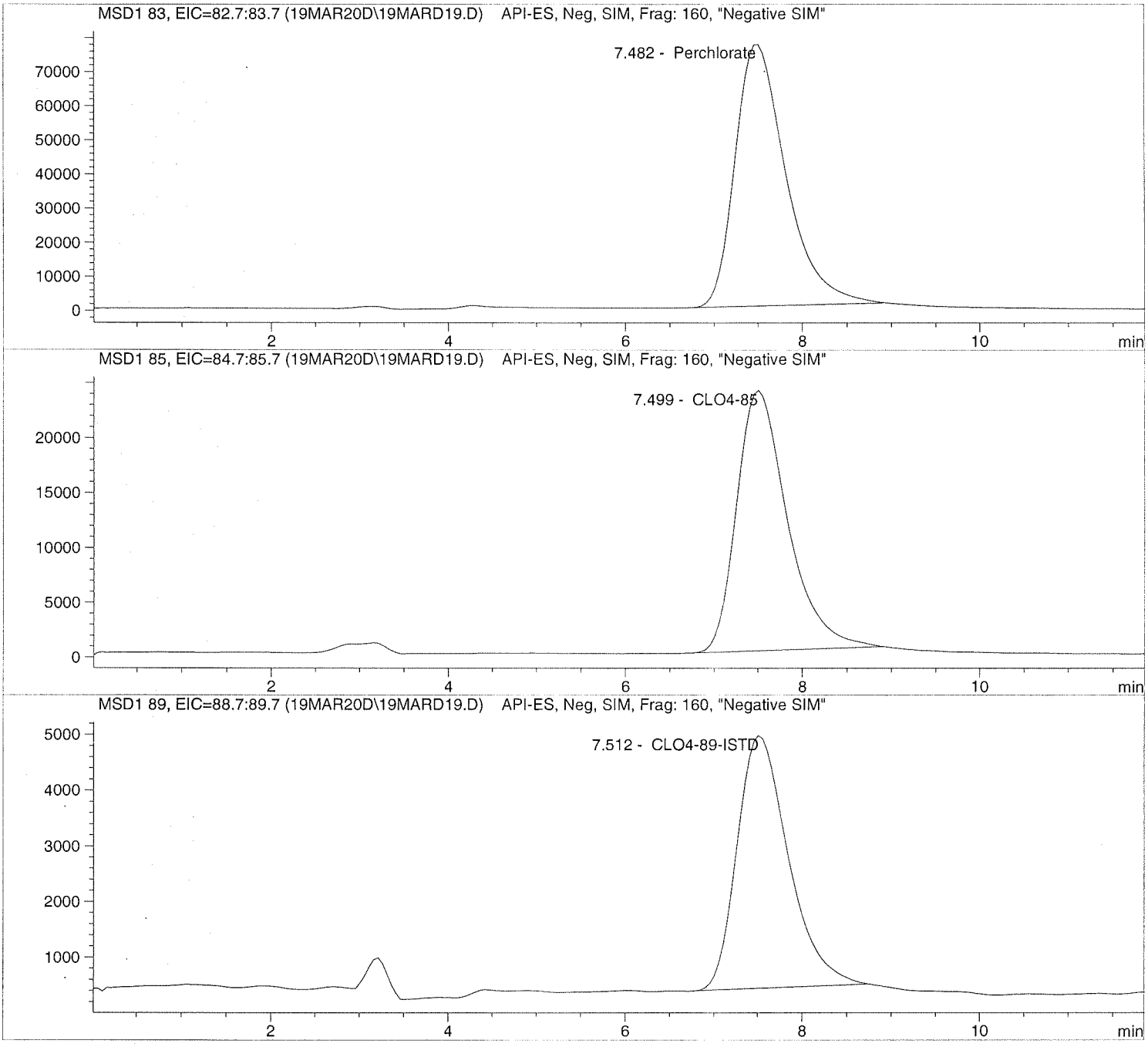
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD19.D Sample Name: 2007568008 10X

Injection Date:	3/19/2020 12:51:11	Seq Line:	19
Sample Name:	2007568008 10X	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD19.D Sample Name: 2007568008 10X

Injection Date:	3/19/2020 12:51:11	Seq Line:	19
Sample Name:	2007568008 10X	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.482	PBA	3075416.5	514.5132	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.499	PBA	948985.0	523.2056	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.512	PBA	183884.4	50.0000	CLO4-89-ISTD

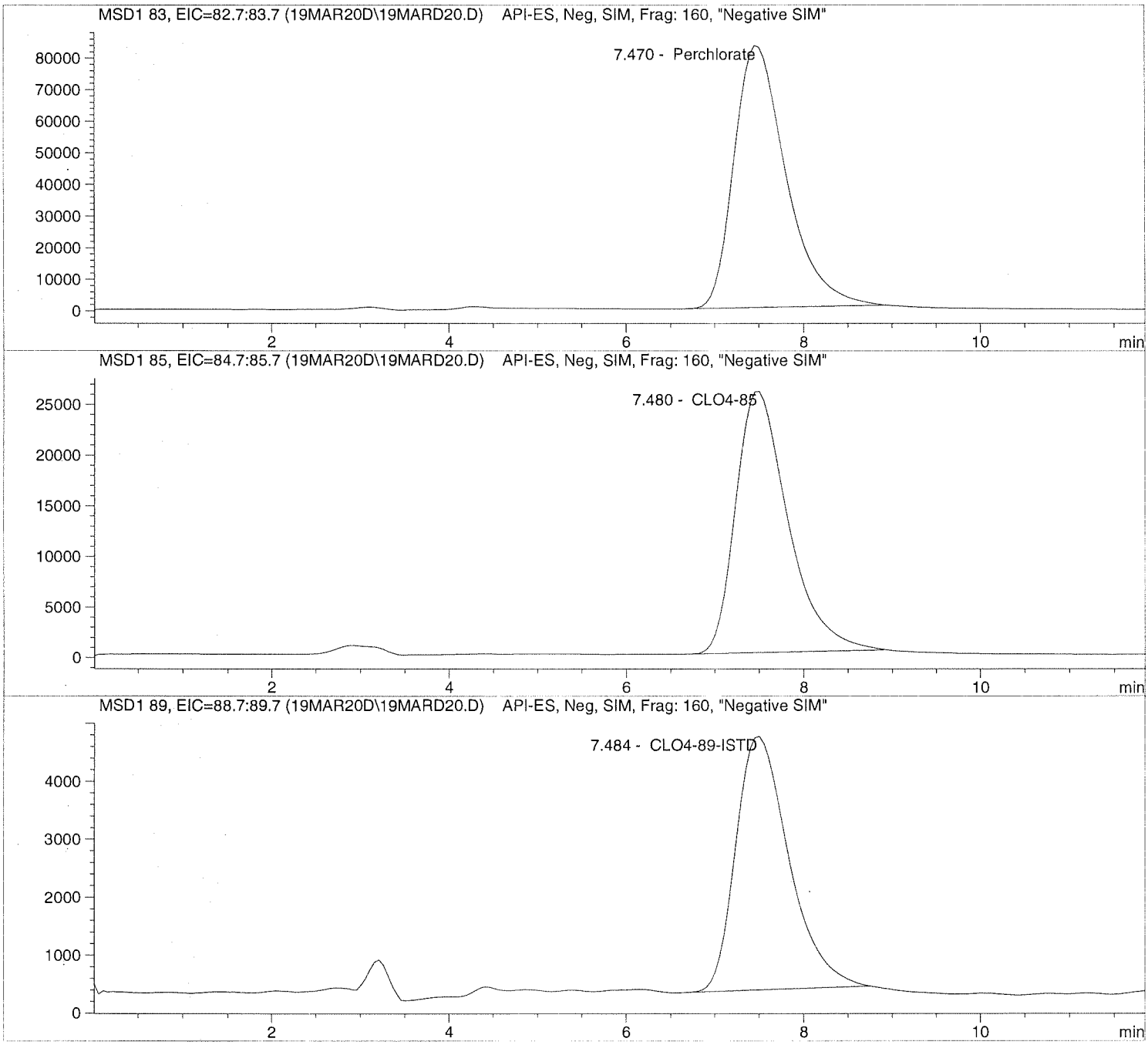
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD20.D Sample Name: 2007568009 10X

Injection Date:	3/19/2020 13:05:20	Seq Line:	20
Sample Name:	2007568009 10X	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD20.D Sample Name: 2007568009 10X

Injection Date:	3/19/2020 13:05:20	Seq Line:	20
Sample Name:	2007568009 10X	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.470	PBA	3360846.3	560.2827	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.480	PBA	1054458.5	578.1198	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.484	PBA	181382.9	50.0000	CLO4-89-ISTD

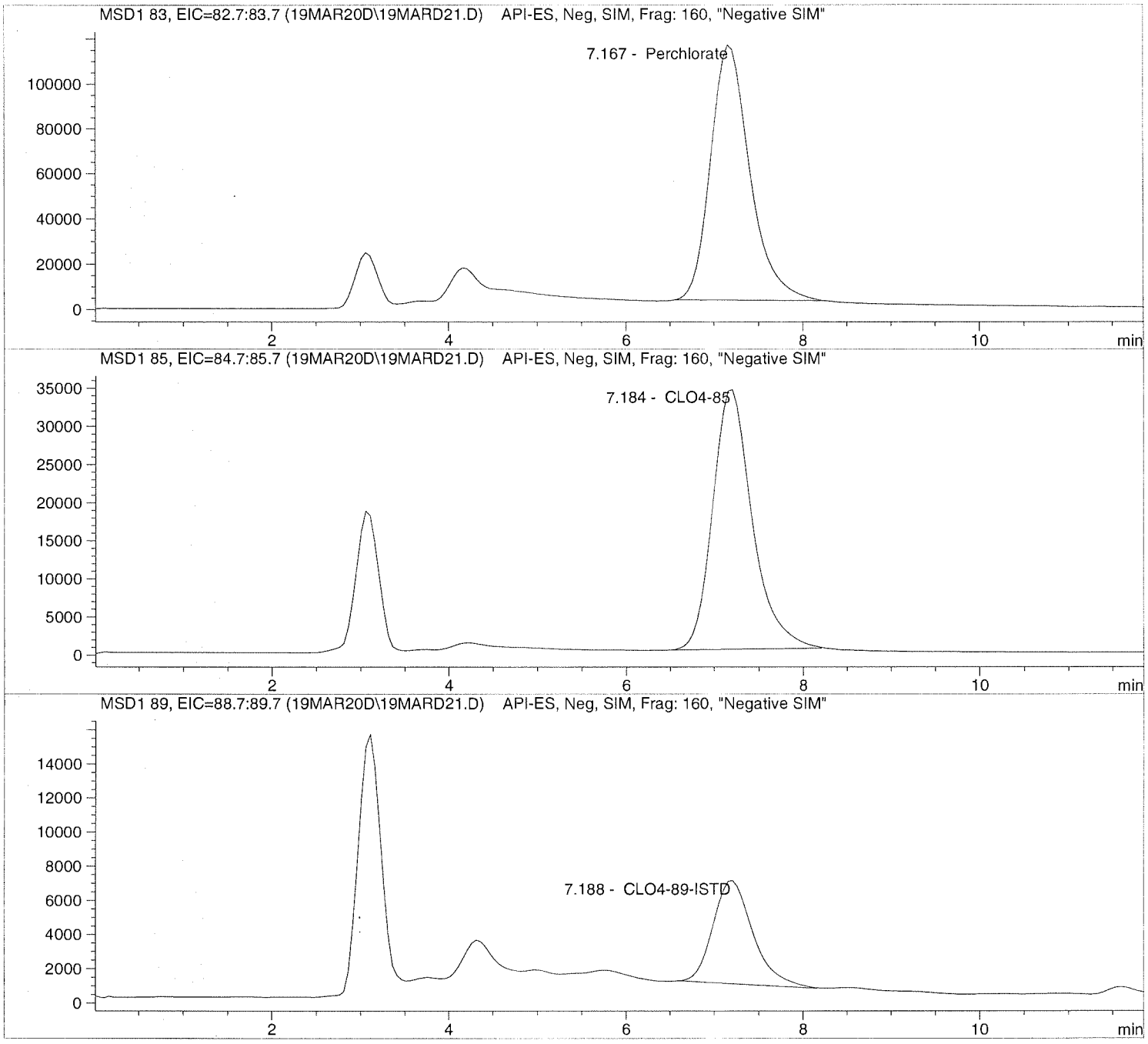
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD21.D Sample Name: 2007568006 10X

Injection Date:	3/19/2020 13:26:53	Seq Line:	21
Sample Name:	2007568006 10X	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD21.D Sample Name: 2007568006 10X

Injection Date:	3/19/2020 13:26:53	Seq Line:	21
Sample Name:	2007568006 10X	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.167	BBA	3455411.3	559.9920	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.184	PBA	1048842.8	562.0889	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.188	PBA	186603.6	50.0000	CLO4-89-ISTD

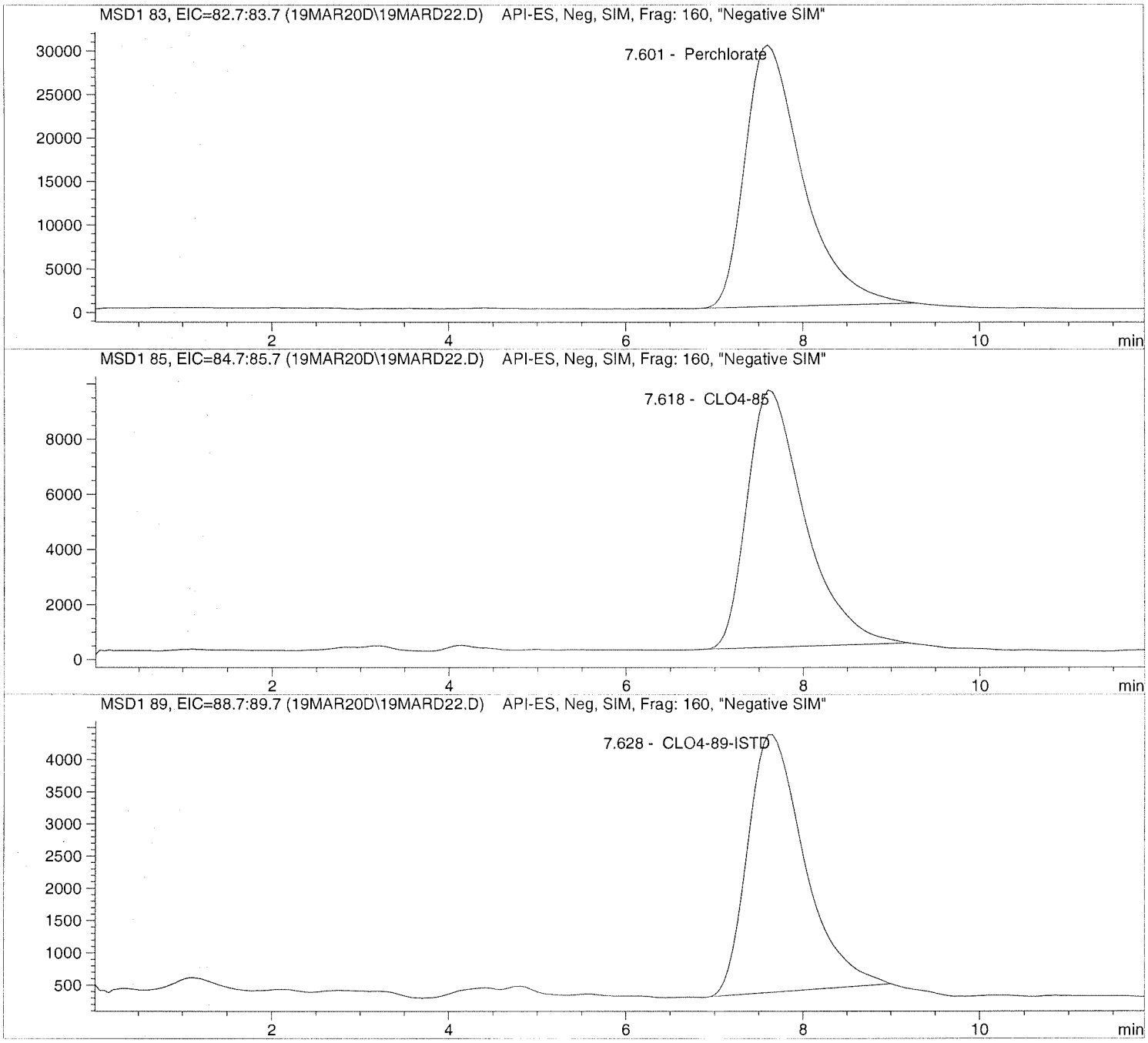
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD22.D Sample Name: 700242 CCV@25

Injection Date:	3/19/2020 13:44:51	Seq Line:	22
Sample Name:	700242 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD22.D Sample Name: 700242 CCV@25

Injection Date:	3/19/2020 13:44:51	Seq Line:	22
Sample Name:	700242 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.601	PBA	1365668.7	25.9389	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.618	PBA	426051.0	26.4925	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.628	PBA	179204.3	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

Calibration Table

Perchlorate

Calib. Data Modified : 9/23/2019 12:20:59 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
7.750	1	3	1.00000	5.39218e4	1.85454e-5	1		Perchlorate
		4	2.00000	1.32825e5	1.50574e-5			
		5	5.00000	2.76271e5	1.80982e-5			
		6	10.00000	5.61298e5	1.78159e-5			
		7	25.00000	1.51820e6	1.64669e-5			
		8	50.00000	3.31156e6	1.50986e-5			
		9	75.00000	5.23914e6	1.43153e-5			
7.767	3	3	5.00000	2.14568e5	2.33026e-5	+I1		CLO4-89-ISTD
		4	5.00000	2.04758e5	2.44190e-5			
		5	5.00000	2.13407e5	2.34294e-5			
		6	5.00000	2.09246e5	2.38953e-5			
		7	5.00000	2.07403e5	2.41077e-5			
		8	5.00000	2.02929e5	2.46391e-5			
		9	5.00000	1.97933e5	2.52611e-5			
7.778	2	3	1.00000	1.70436e4	5.86732e-5	1		CLO4-85
		4	2.00000	4.20754e4	4.75337e-5			
		5	5.00000	9.24707e4	5.40712e-5			
		6	10.00000	1.68622e5	5.93041e-5			
		7	25.00000	4.63724e5	5.39114e-5			
		8	50.00000	9.95933e5	5.02042e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		9	75.00000	1.58066e6	4.74484e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 3.581 min To 11.899 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 3.581 min To 11.896 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

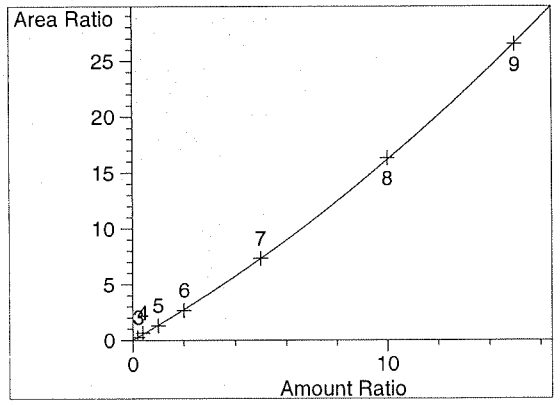
Compound: CLO4-85
- Time Window : From 3.601 min To 11.913 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Peak Sum Table

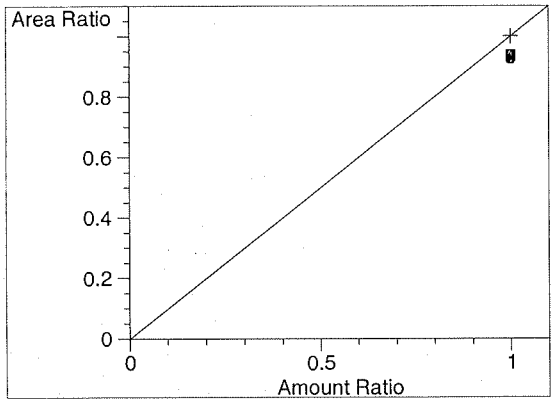
No Entries in table

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

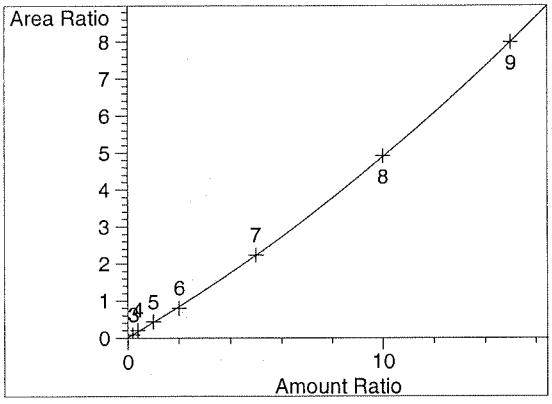
Calibration Curves



Perchlorate at exp. RT: 7.750
MSD1 83, EIC=82.7:83.7
Correlation: 0.99975
Residual Std. Dev.: 0.10284
Formula: $y = ax^2 + bx + c$
a: 3.10463e-2
b: 1.30369
c: 2.19496e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333



CLO4-89-ISTD at exp. RT: 7.767
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 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1
Level 8 : 1
Level 9 : 1



CLO4-85 at exp. RT: 7.778
MSD1 85, EIC=84.7:85.7
Correlation: 0.99969
Residual Std. Dev.: 0.02601
Formula: $y = ax^2 + bx + c$
a: 8.85207e-3
b: 3.99283e-1
c: 1.33505e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333

Batch Report: C:\HPCHEM\1\DATA\20SEP19I\20SEP19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	5.39218e4	7.750	8.75982e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.32825e5	7.797	2.37682
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.76271e5	7.770	4.77237
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	5.61298e5	7.785	9.75097
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	1.51820e6	7.741	25.01082
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	3.31156e6	7.775	50.40300
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.23914e6	7.736	74.79107
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	5.74879e5	7.756	10.11855

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.14568e5	7.767	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.04758e5	7.816	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.13407e5	7.793	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.09246e5	7.798	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.07403e5	7.763	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.02929e5	7.800	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.97933e5	7.765	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	2.06243e5	7.776	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	1.70436e4	7.778	8.24488e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.20754e4	7.805	2.38090
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	9.24707e4	7.787	5.14166
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	1.68622e5	7.781	9.52209
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	4.63724e5	7.760	25.04916
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	9.95933e5	7.793	50.14223
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.58066e6	7.758	74.93659
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	1.71000e5	7.760	9.79043

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

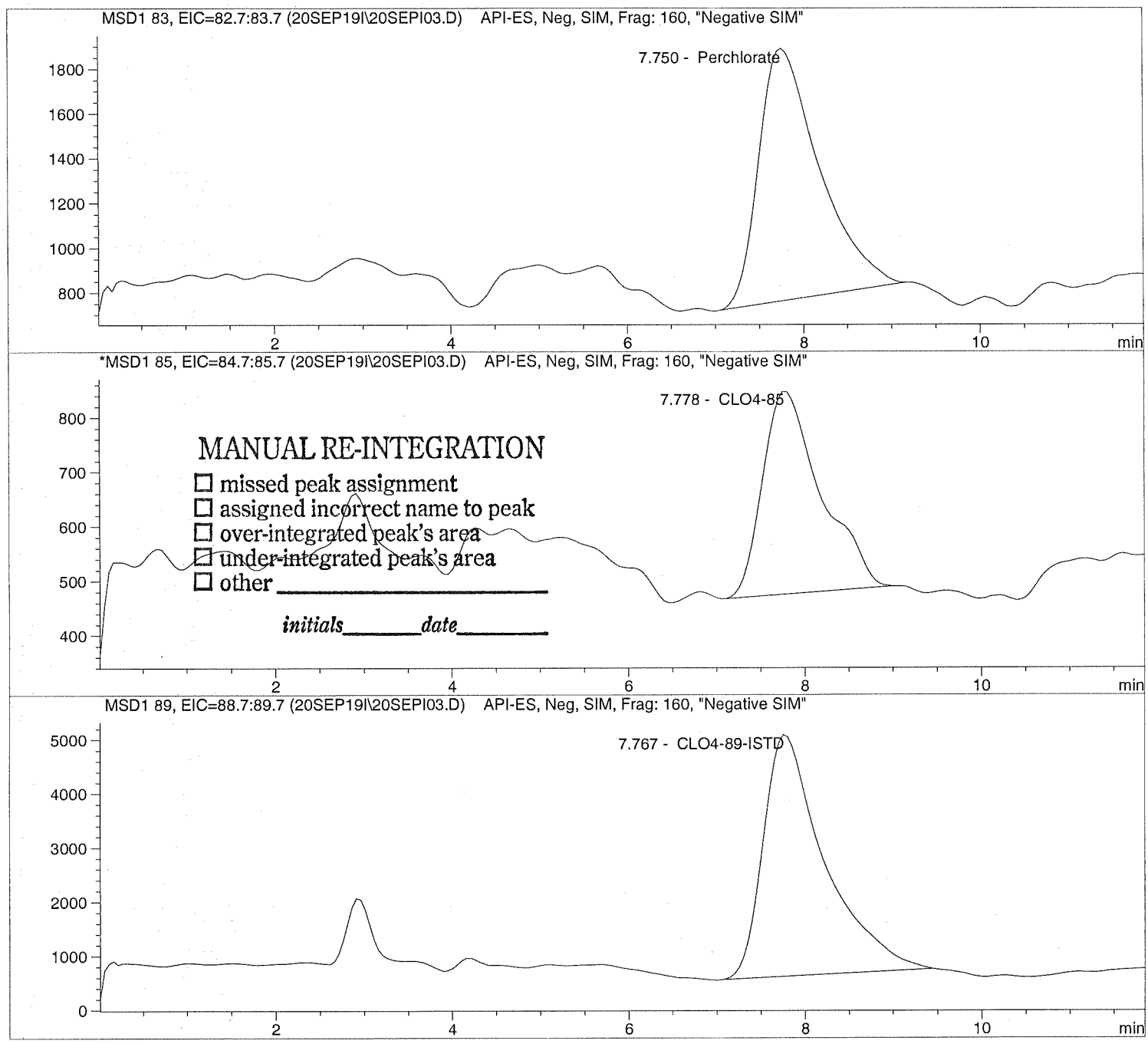
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
11	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.778	MM	17043.6	0.8245	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

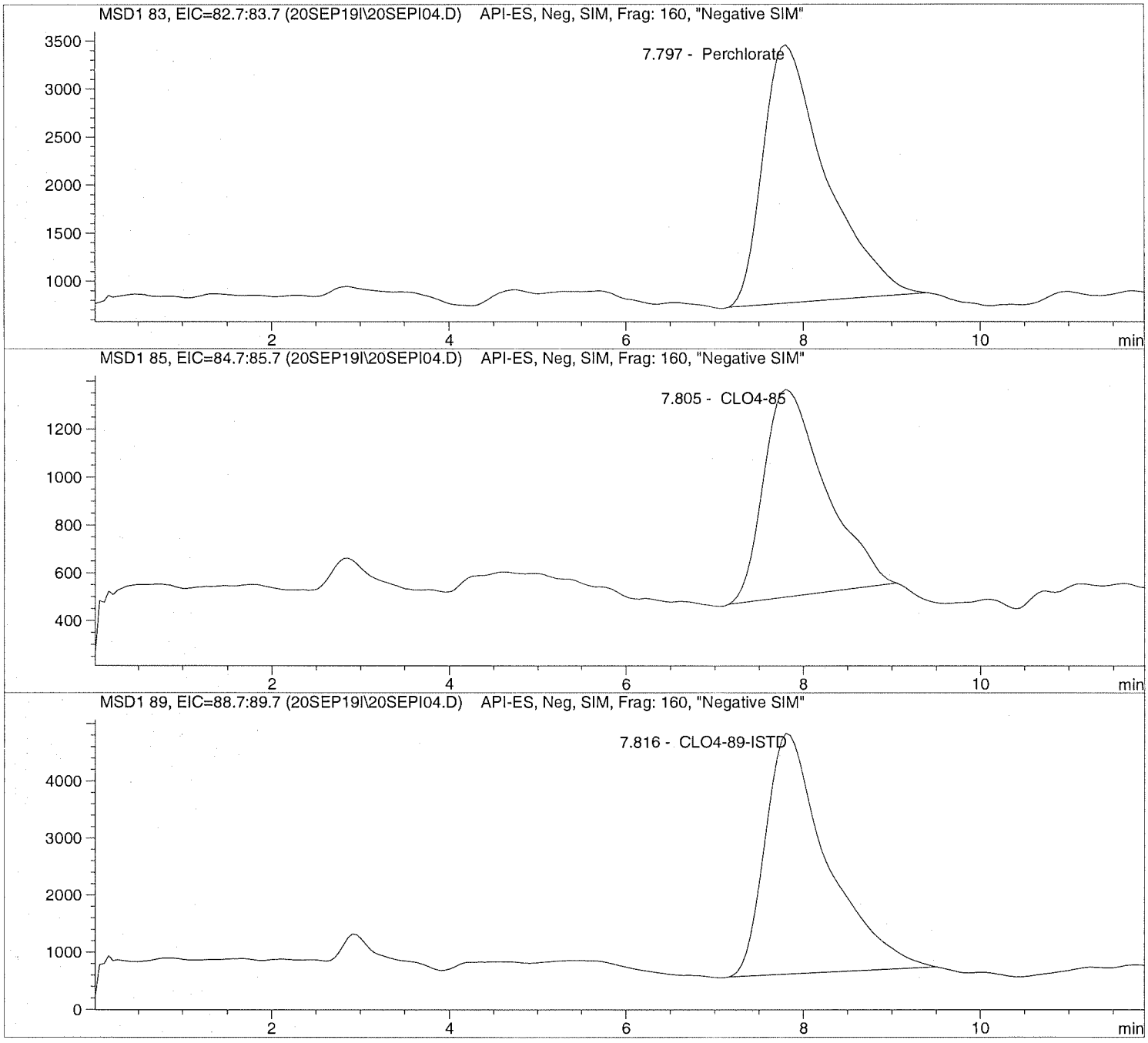
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.797	PBA	132825.2	2.3768	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.805	PBA	42075.4	2.3809	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.816	PBA	204758.3	5.0000	CLO4-89-ISTD

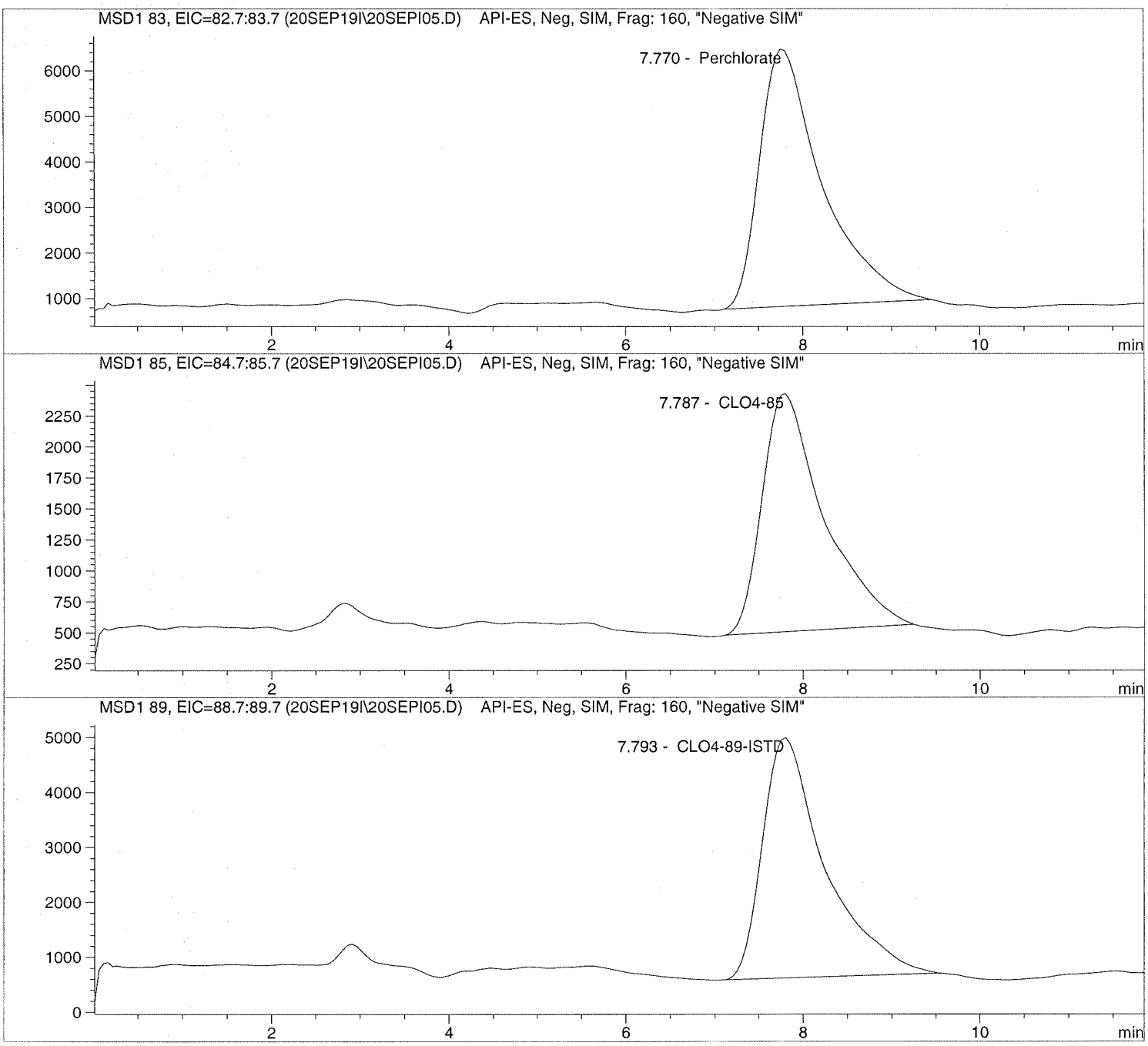
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.770	PBA	276270.7	4.7724	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.787	PBA	92470.7	5.1417	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	213407.0	5.0000	CLO4-89-ISTD

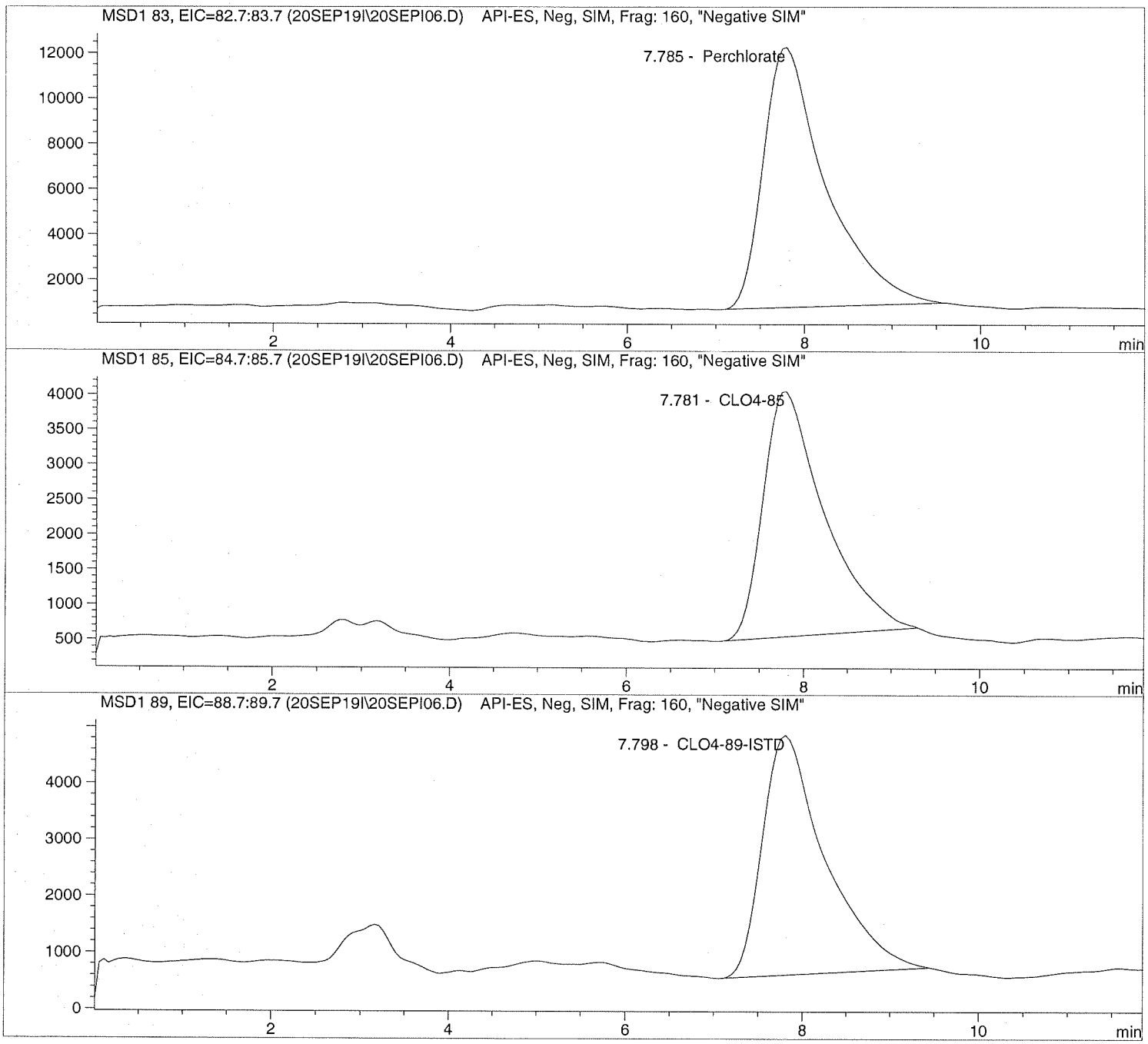
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.785	PBA	561297.7	9.7510	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.781	PBA	168622.4	9.5221	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.798	PBA	209246.3	5.0000	CLO4-89-ISTD

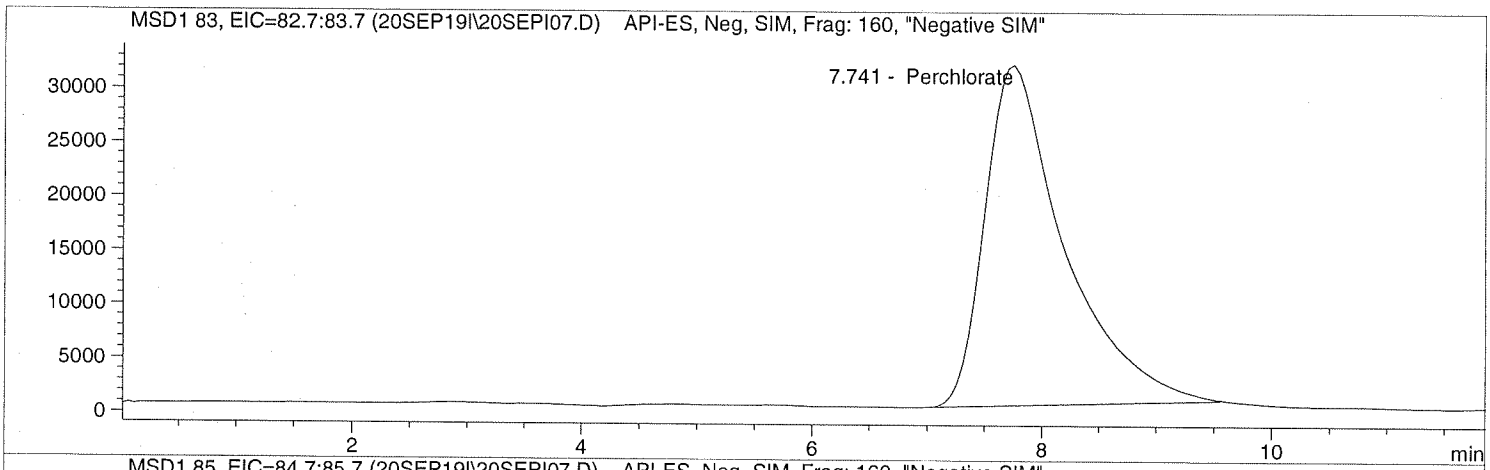
*** End of Report ***

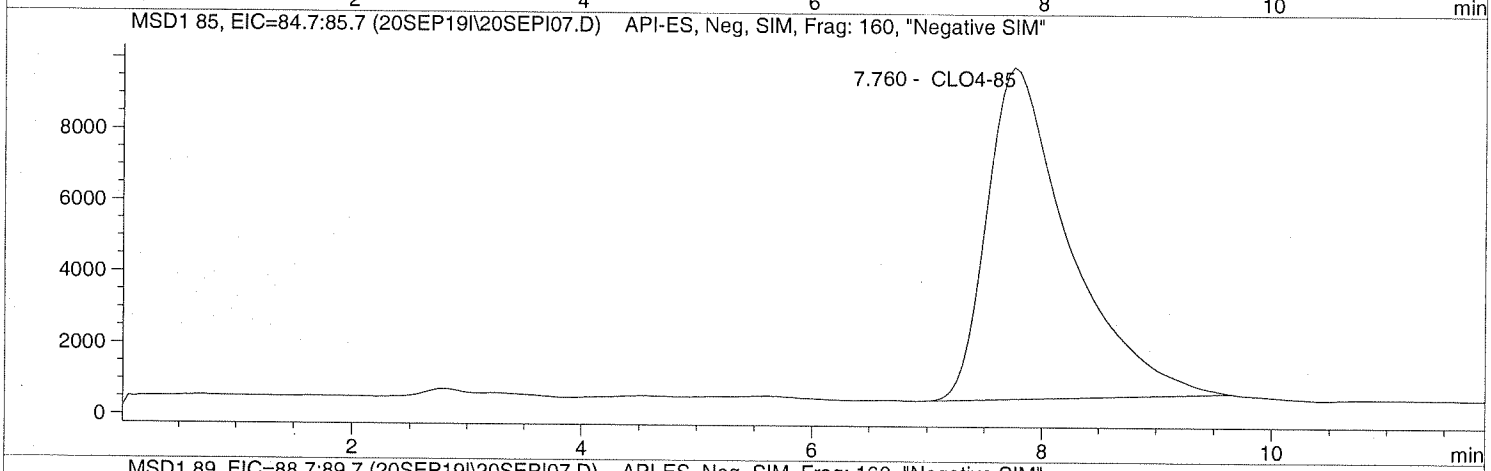
Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

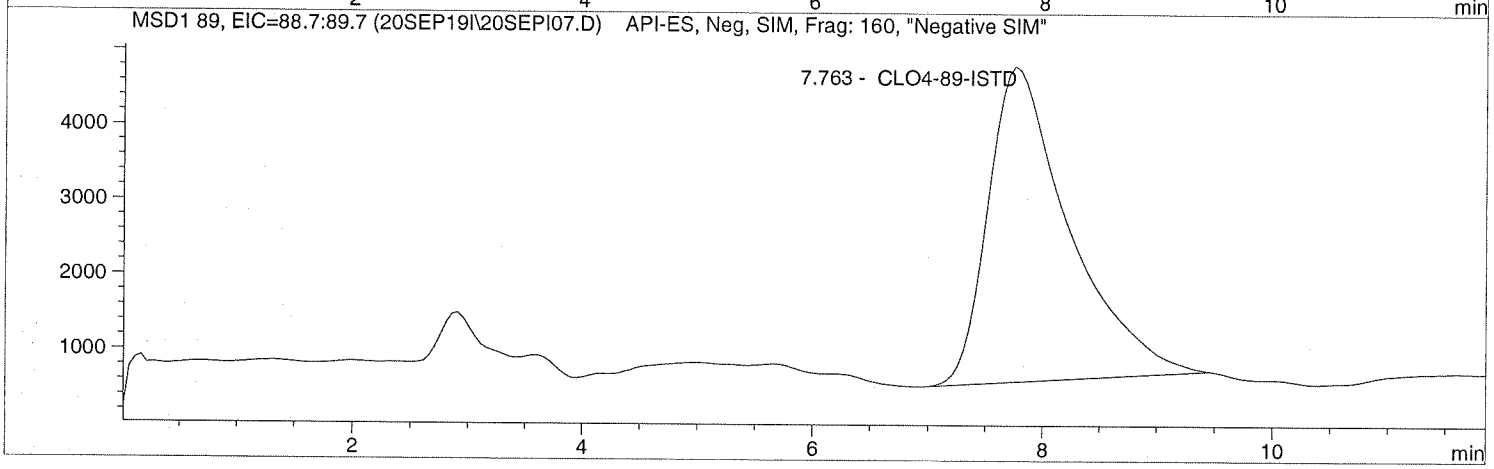
Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.741	PBA	1518197.9	25.0108	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	463724.0	25.0492	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.763	PBA	207402.8	5.0000	CLO4-89-ISTD

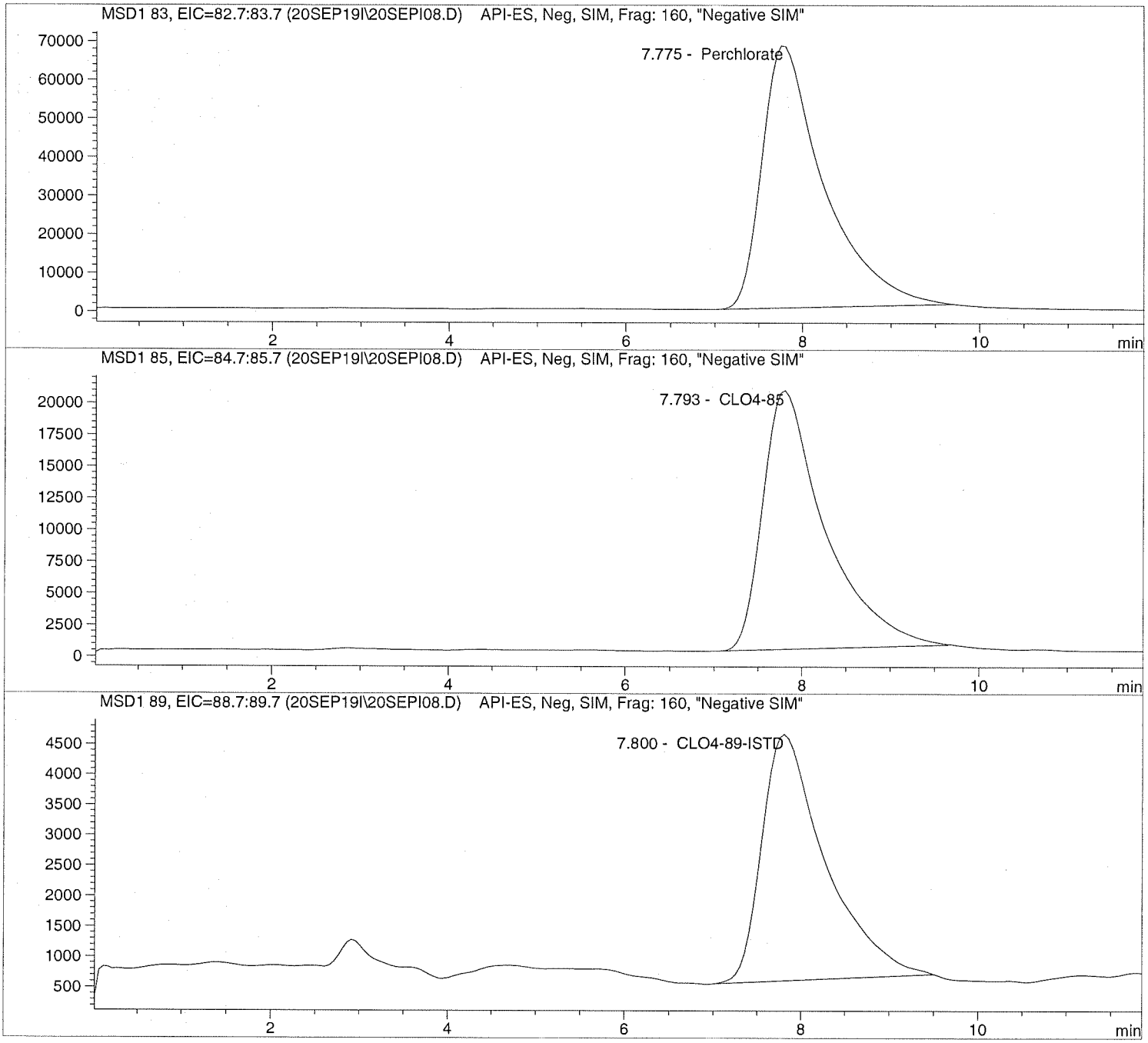
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.775	PBA	3311559.2	50.4030	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	995933.0	50.1422	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.800	PBA	202929.2	5.0000	CLO4-89-ISTD

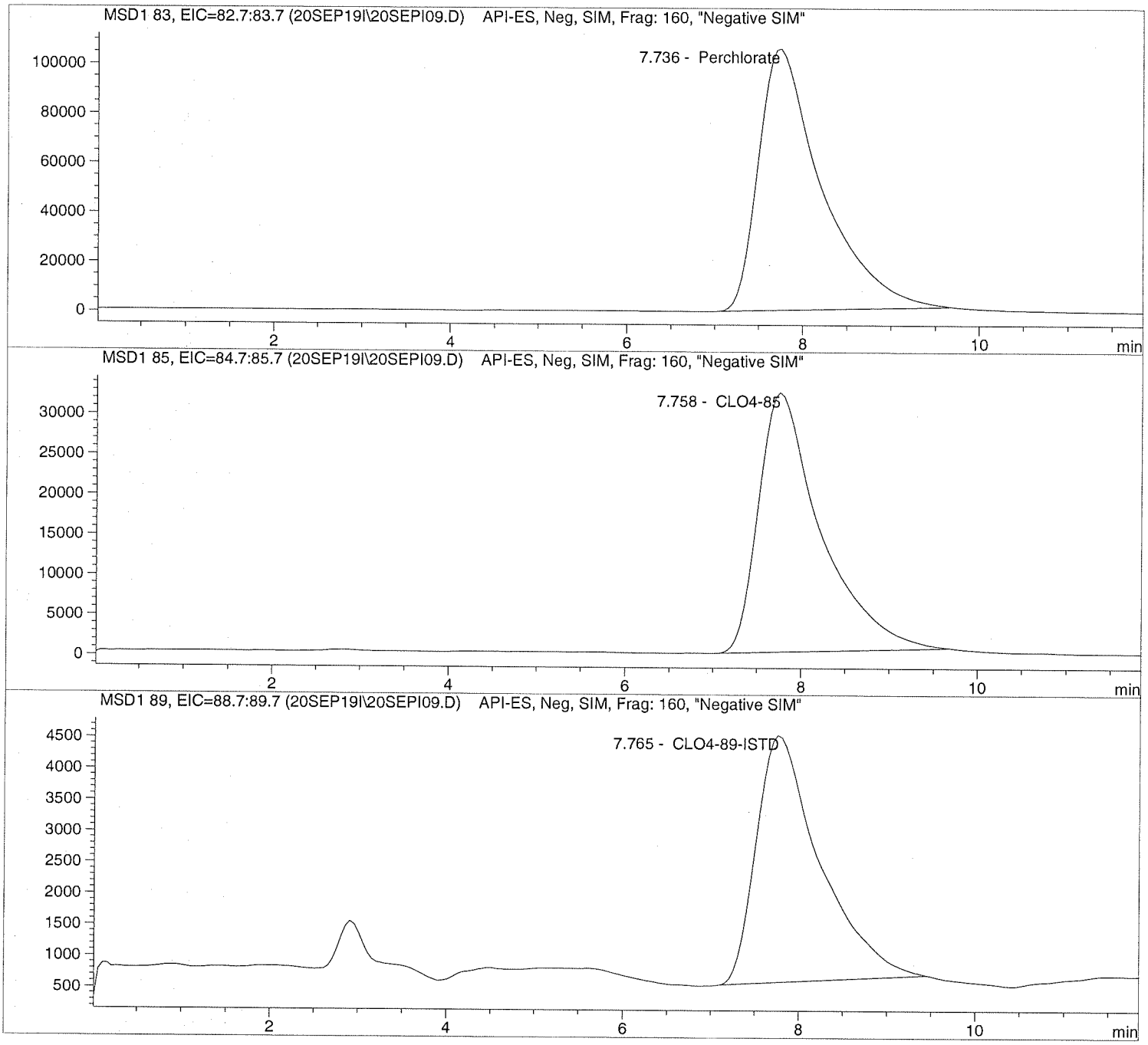
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.736	PBA	5239145.0	74.7911	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.758	PBA	1580664.2	74.9366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.765	PBA	197932.5	5.0000	CLO4-89-ISTD

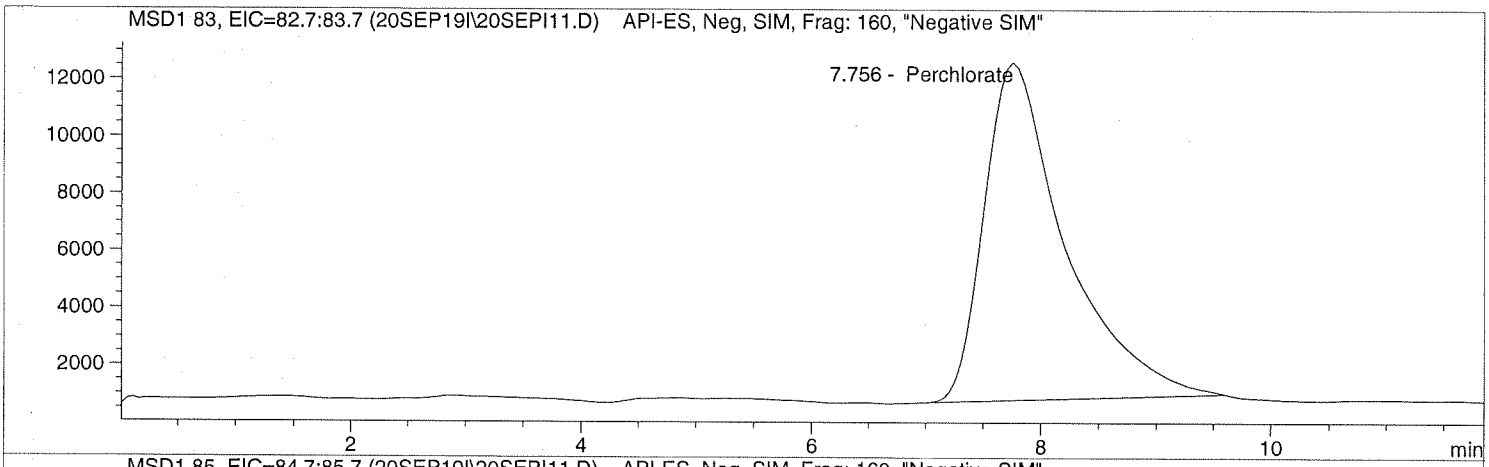
*** End of Report ***

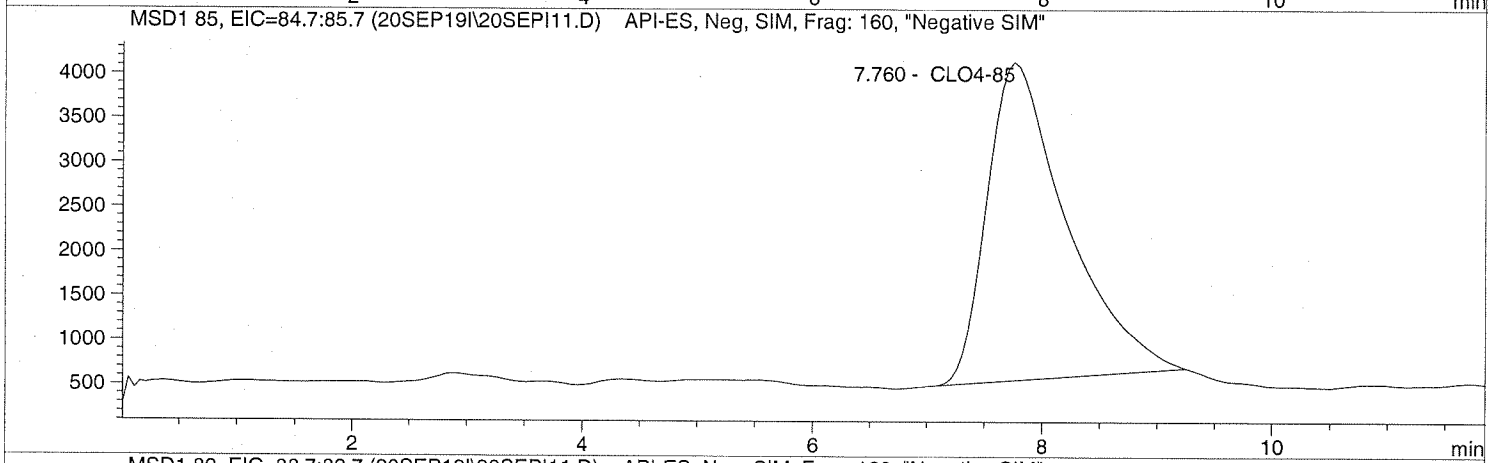
Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

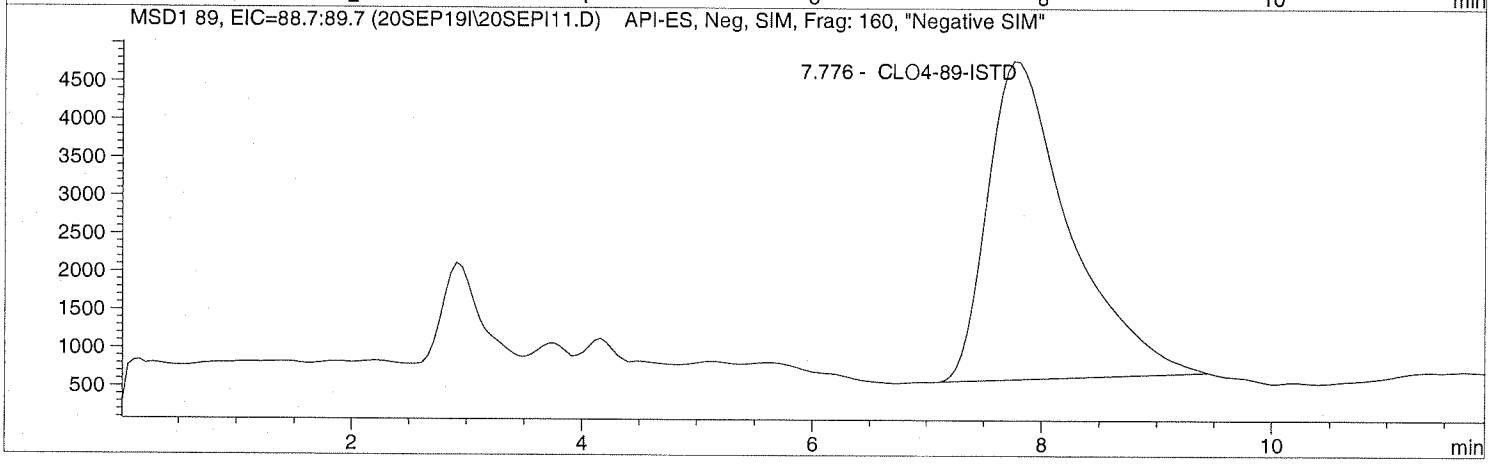
Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.756	PBA	574879.4	10.1185	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	171000.4	9.7904	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.776	PBA	206243.3	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

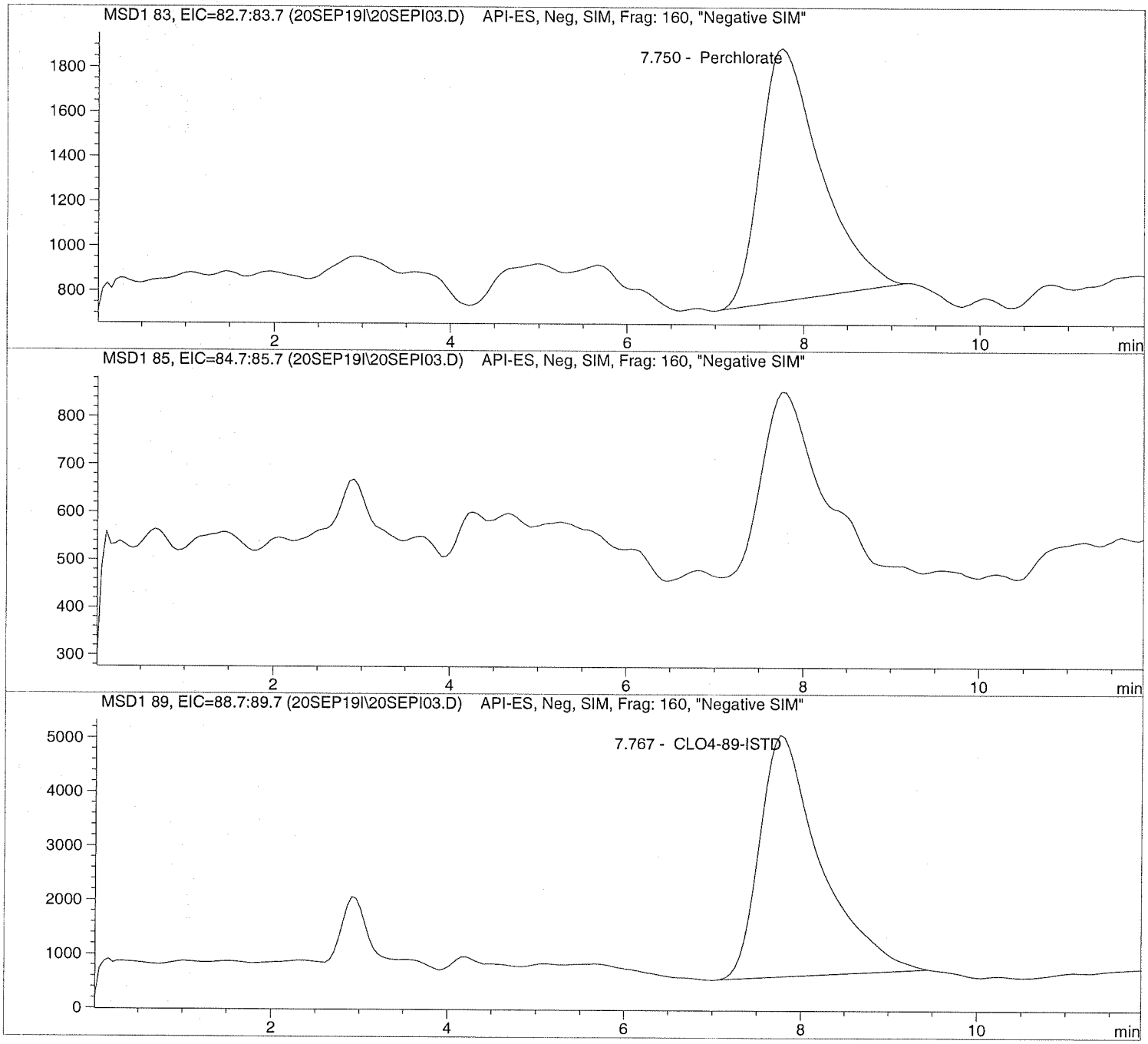
Unmodified

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:27:11

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	9/23/2019 12:27:11

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

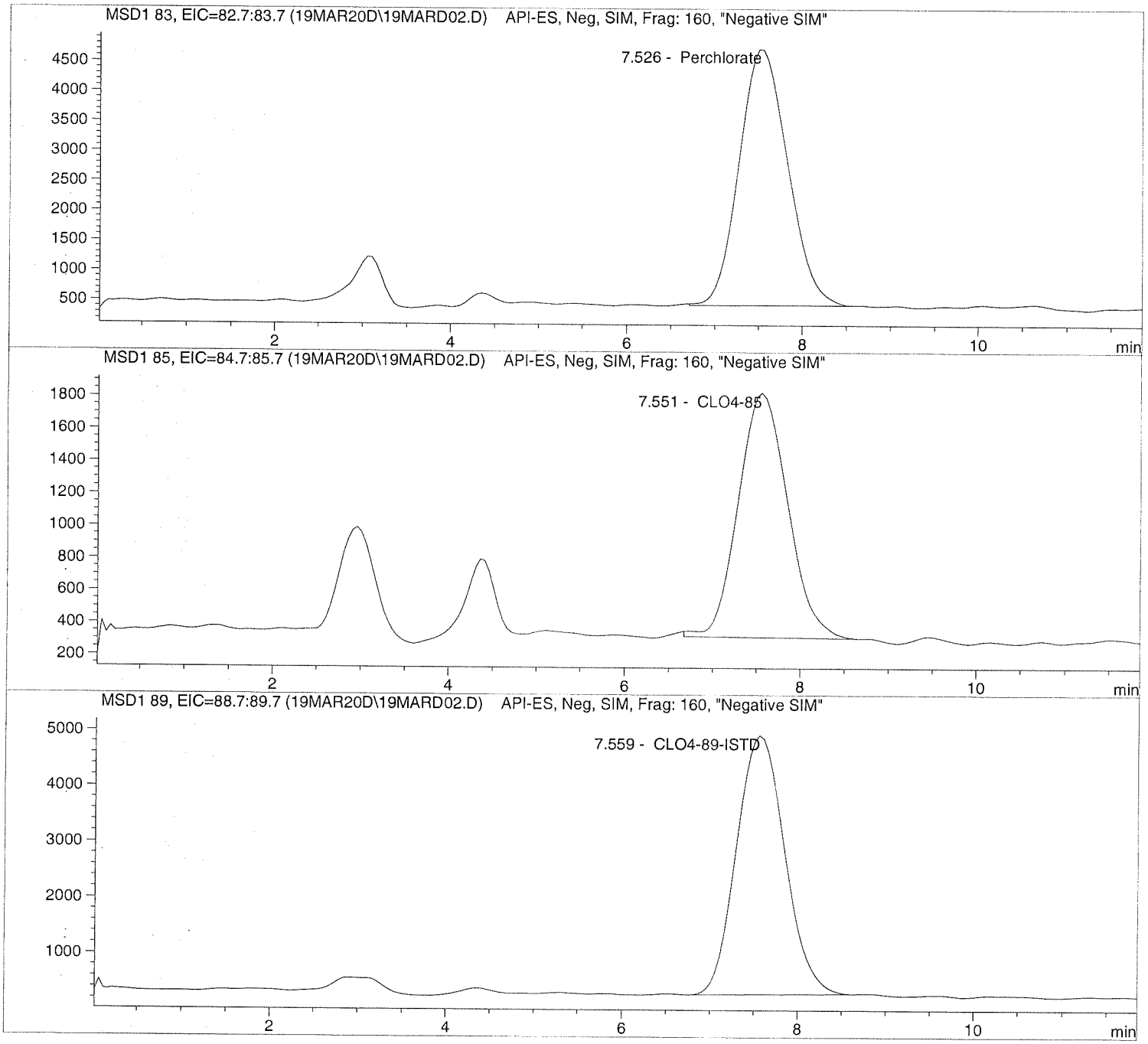
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.526	BBA	165065.5	3.4233	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	BBA	59556.2	3.9609	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.559	PBA	177666.7	5.0000	CLO4-89-ISTD

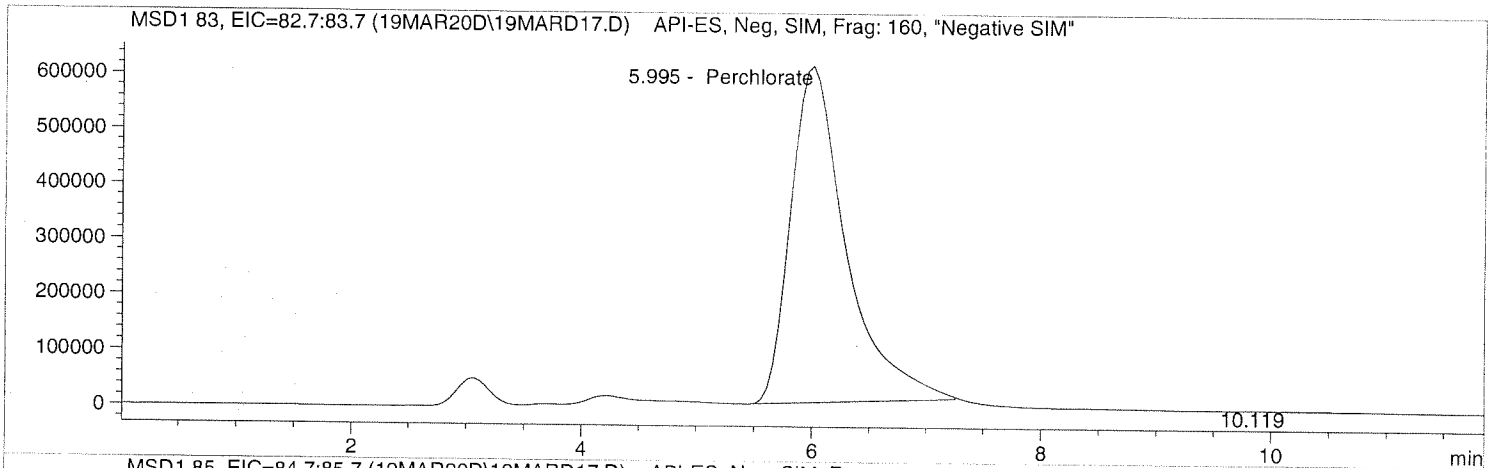
*** End of Report ***

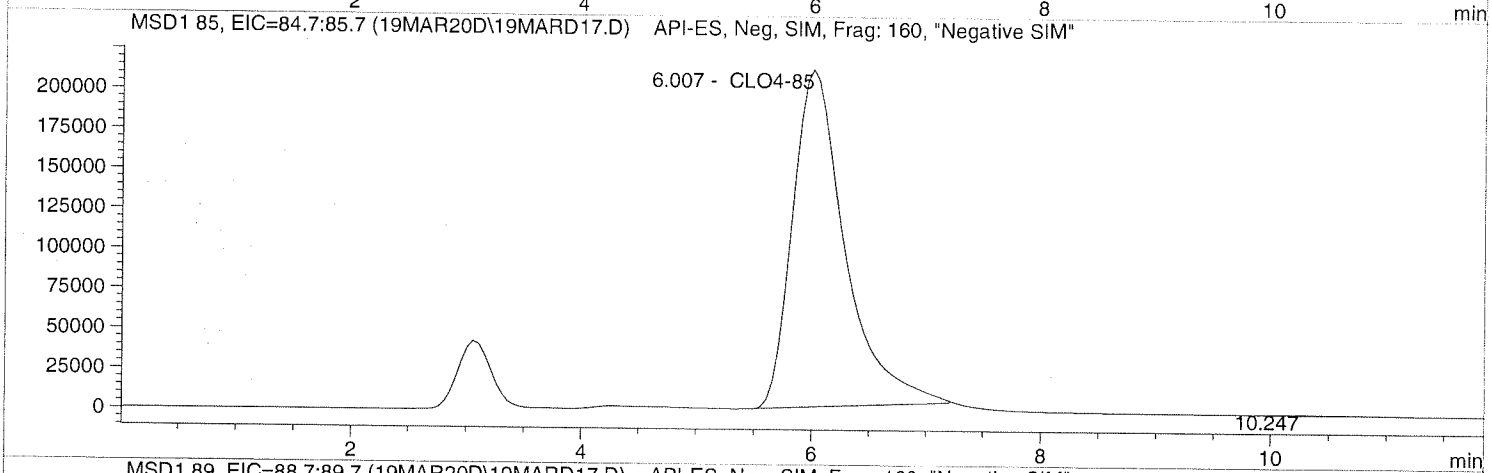
Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

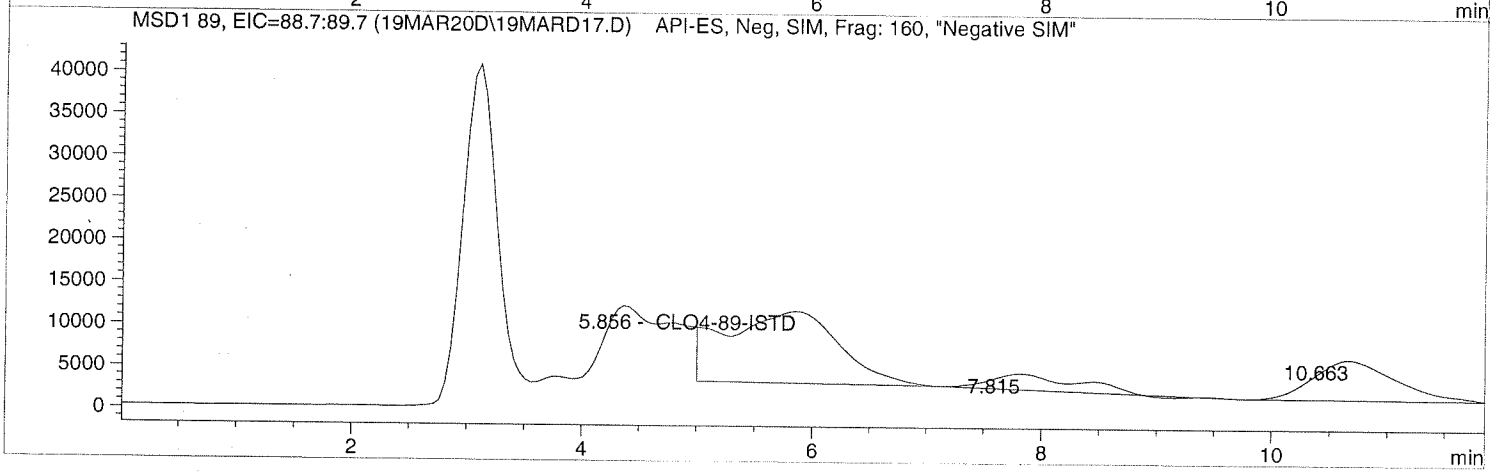
Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.995	PBA	20431220.0	93.1345	Perchlorate
10.119	PBA	49235.6	0.0000	

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.007	PBA	6724059.0	100.0293	CLO4-85
10.247	PBA	21296.1	0.0000	

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.856	BBA	582460.0	5.0000	CLO4-89-ISTD
7.815	VB	96769.7	0.0000	
10.663	VBA	237082.8	0.0000	

*** End of Report ***

HS20030474 8260 Raw Data

ALS WO# HS20030474

MSVOA06 -Logbook

Batch: 40066
Date: 03-19-2020
Method: 8260_W
Comments:

Analyst: Devak Giga
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	03-19-2020 11:10 am	1.00	0.00 mL	0.00 mL	X031901.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	03-19-2020 11:34 am	1.00	5.00 mL	0.00 mL	X031902.D	Liquid	Y	NA
3	VSTD000.5	ICAL2	03-19-2020 11:58 am	1.00	5.00 mL	0.00 mL	X031903.D	Liquid	Y	NA
4	VSTD001	ICAL3	03-19-2020 12:46 pm	1.00	5.00 mL	0.00 mL	X031904.D	Liquid	Y	NA
5	VSTD002	ICAL4	03-19-2020 01:10 pm	1.00	5.00 mL	0.00 mL	X031905.D	Liquid	Y	NA
6	VSTD005	ICAL5	03-19-2020 01:34 pm	1.00	5.00 mL	0.00 mL	X031906.D	Liquid	Y	NA
7	VSTD020	ICAL6	03-19-2020 01:58 pm	1.00	5.00 mL	0.00 mL	X031907.D	Liquid	Y	NA
8	VSTD050	ICAL7	03-19-2020 02:22 pm	1.00	5.00 mL	0.00 mL	X031908.D	Liquid	Y	NA
9	VSTD100	ICAL8	03-19-2020 02:46 pm	1.00	5.00 mL	0.00 mL	X031909.D	Liquid	Y	NA
10	VSTD150	ICAL9	03-19-2020 03:10 pm	1.00	5.00 mL	0.00 mL	X031910.D	Liquid	Y	NA
11	VSTD200	ICAL	03-19-2020 03:33 pm	1.00	5.00 mL	0.00 mL	X031911.D	Liquid	Y	NA
12	BLANK	SAMP	03-19-2020 03:58 pm	1.00	5.00 mL	0.00 mL	X031912.D	Liquid	Y	NA
13	BLANK	SAMP	03-19-2020 04:22 pm	1.00	5.00 mL	0.00 mL	X031913.D	Liquid	Y	NA
14	BLANK	SAMP	03-19-2020 04:46 pm	1.00	5.00 mL	0.00 mL	X031914.D	Liquid	Y	NA
15	ICV	ICV	03-19-2020 05:09 pm	1.00	5.00 mL	0.00 mL	X031915.D	Liquid	Y	NA
16	BLANK	SAMP	03-19-2020 05:33 pm	1.00	5.00 mL	0.00 mL	X031916.D	Liquid	Y	NA
17	VLCSW-200319	LCS	03-19-2020 05:57 pm	1.00	5.00 mL	0.00 mL	X031917.D	Liquid	Y	NA
18	VLCSDW-200319	LCSD	03-19-2020 06:21 pm	1.00	5.00 mL	0.00 mL	X031918.D	Liquid	Y	NA
19	BLANK	SAMP	03-19-2020 06:45 pm	1.00	5.00 mL	0.00 mL	X031919.D	Liquid	Y	NA
20	BLANK	SAMP	03-19-2020 07:10 pm	1.00	5.00 mL	0.00 mL	X031920.D	Liquid	Y	NA
21	VBLKW1-200319	MBLK	03-19-2020 07:34 pm	1.00	5.00 mL	0.00 mL	X031921.D	Liquid	Y	NA
22	VBLKW2-200319	MBLK	03-19-2020 07:58 pm	1.00	5.00 mL	0.00 mL	X031922.D	Liquid	Y	NA
23	VBLKW3-200319	MBLK	03-19-2020 08:22 pm	1.00	5.00 mL	0.00 mL	X031923.D	Liquid	Y	NA
24	HS20021070-01	SAMP	03-19-2020 08:46 pm	1.00	5.00 mL	0.00 mL	X031924.D	Liquid	Y	NA
25	HS20021070-02	SAMP	03-19-2020 09:10 pm	1.00	5.00 mL	0.00 mL	X031925.D	Liquid	Y	NA
26	HS20021070-03	SAMP	03-19-2020 09:33 pm	1.00	5.00 mL	0.00 mL	X031926.D	Liquid	Y	NA
27	BFB	TUNE	03-19-2020 09:57 pm	1.00	0.00 mL	0.00 mL	Y031901.D	Liquid	Y	NA
	Auto find/ purged									
28	CCV	CCV	03-19-2020 10:21 pm	1.00	5.00 mL	0.00 mL	Y031902a.D	Liquid	Y	NA
29	CCV	CCV	03-19-2020 10:45 pm	1.00	5.00 mL	0.00 mL	Y031903.D	Liquid	Y	NA
30	CCB	SAMP	03-19-2020 11:09 pm	1.00	5.00 mL	0.00 mL	Y031904.D	Liquid	Y	NA
31	VLCSW-200319	LCS	03-19-2020 11:33 pm	1.00	5.00 mL	0.00 mL	Y031905.D	Liquid	Y	NA
32	BLANK	SAMP	03-19-2020 11:57 pm	1.00	5.00 mL	0.00 mL	Y031906.D	Liquid	Y	NA
33	VBLKW1-200319	MBLK	03-20-2020 12:21 am	1.00	5.00 mL	0.00 mL	Y031907.D	Liquid	Y	NA
34	HS20030474-07	SAMP	03-20-2020 12:45 am	1.00	5.00 mL	0.00 mL	Y031908.D	Liquid	Y	NA
35	HS20030498-08	SAMP	03-20-2020 01:09 am	1.00	5.00 mL	0.00 mL	Y031909.D	Liquid	Y	NA
36	HS20030838-02	SAMP	03-20-2020 01:34 am	1.00	5.00 mL	0.00 mL	Y031910.D	Liquid	Y	NA
37	HS20030838-01	SAMP	03-20-2020 01:58 am	1.00	5.00 mL	0.00 mL	Y031911.D	Liquid	Y	NA
38	HS20030474-04	SAMP	03-20-2020 02:22 am	1.00	5.00 mL	0.00 mL	Y031912.D	Liquid	Y	NA
39	HS20030474-05	SAMP	03-20-2020 02:46 am	1.00	5.00 mL	0.00 mL	Y031913.D	Liquid	Y	NA
40	HS20030498-03	SAMP	03-20-2020 03:10 am	1.00	5.00 mL	0.00 mL	Y031914.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
41	HS20030498-03MS	MS	03-20-2020 03:34 am	1.00	5.00 mL	0.00 mL	Y031915.D	Liquid	Y	NA
42	HS20030498-03MSD	MSD	03-20-2020 03:58 am	1.00	5.00 mL	0.00 mL	Y031916.D	Liquid	Y	NA
43	HS20030498-03	SAMP	03-20-2020 04:22 am	25.00	5.00 mL	0.00 mL	Y031917.D	Liquid	Y	NA
44	HS20030474-03	SAMP	03-20-2020 04:46 am	1.00	5.00 mL	0.00 mL	Y031918.D	Liquid	Y	NA
45	HS20030474-03	SAMP	03-20-2020 05:10 am	10.00	5.00 mL	0.00 mL	Y031919.D	Liquid	Y	NA
46	HS20030474-06	SAMP	03-20-2020 05:34 am	1.00	5.00 mL	0.00 mL	Y031920.D	Liquid	Y	NA
47	HS20030474-06	SAMP	03-20-2020 05:58 am	25.00	5.00 mL	0.00 mL	Y031921.D	Liquid	Y	NA
48	HS20030498-01	SAMP	03-20-2020 06:22 am	5.00	5.00 mL	0.00 mL	Y031922.D	Liquid	Y	NA
49	HS20030498-01	SAMP	03-20-2020 06:46 am	25.00	5.00 mL	0.00 mL	Y031923.D	Liquid	Y	NA
50	HS20030498-02	SAMP	03-20-2020 07:10 am	5.00	5.00 mL	0.00 mL	Y031924.D	Liquid	Y	NA
51	HS20030498-02	SAMP	03-20-2020 07:34 am	50.00	5.00 mL	0.00 mL	Y031925.D	Liquid	Y	NA
52	HS20030474-01	SAMP	03-20-2020 07:58 am	10.00	5.00 mL	0.00 mL	Y031926.D	Liquid	Y	NA
53	HS20030474-01	SAMP	03-20-2020 08:23 am	100.0(	5.00 mL	0.00 mL	Y031927.D	Liquid	Y	NA
54	HS20030474-02	SAMP	03-20-2020 08:47 am	25.00	5.00 mL	0.00 mL	Y031928.D	Liquid	Y	NA
55	HS20030474-02	SAMP	03-20-2020 09:11 am	250.0(	5.00 mL	0.00 mL	Y031929.D	Liquid	Y	NA
56	CCV-END	CCV	03-20-2020 09:35 am	1.00	5.00 mL	0.00 mL	Y031930.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-16-03
IS ID	31106-16-04
LCS/MS ID	31105-08-01
CAL STD ID	31106-20-01/02
BFB ID	31106-16-03
pH Paper	634-64-11

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030474

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Dichlorodifluoromethane	50.00	47.80	96	80-120
Chloromethane	50.00	47.95	96	80-120
Vinyl Chloride	50.00	47.84	96	80-120
Bromomethane	50.00	56.02	112	80-120
Chloroethane	50.00	49.70	99	80-120
Trichlorofluoromethane	50.00	51.46	103	80-120
Acetone	100.00	111.42	111	80-120
1,1-Dichloroethene	50.00	49.14	98	80-120
Acrylonitrile	100.00	100.14	100	80-120
Methylene Chloride	50.00	51.71	103	80-120
Methyl tert-butyl ether	50.00	48.98	98	80-120
Carbon Disulfide	100.00	101.89	102	80-120
trans-1,2-Dichloroethen	50.00	50.69	101	80-120
1,1-Dichloroethane	50.00	51.04	102	80-120
2-Butanone	100.00	106.43	106	80-120
2,2-Dichloropropane	50.00	52.20	104	80-120
cis-1,2-Dichloroethene	50.00	49.99	100	80-120
Chloroform	50.00	49.48	99	80-120
Bromochloromethane	50.00	49.43	99	80-120
1,1,1-Trichloroethane	50.00	50.79	102	80-120
1,1-Dichloropropene	50.00	48.21	96	80-120
1,2-Dichloroethane	50.00	51.76	104	80-120
Carbon Tetrachloride	50.00	47.80	96	80-120
Benzene	50.00	49.74	99	80-120
Trichloroethene	50.00	50.47	101	80-120
Bromodichloromethane	50.00	49.67	99	80-120
1,2-Dichloropropane	50.00	49.37	99	80-120
Dibromomethane	50.00	50.57	101	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 LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030474

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
4-Methyl-2-Pentanone	100.00	102.03	102	80-120
cis-1,3-Dichloropropene	50.00	51.07	102	80-120
Toluene	50.00	49.68	99	80-120
trans-1,3-Dichloroprope	50.00	52.11	104	80-120
2-Hexanone	100.00	103.01	103	80-120
1,1,2-Trichloroethane	50.00	49.65	99	80-120
1,3-Dichloropropane	50.00	49.69	99	80-120
Dibromochloromethane	50.00	50.41	101	80-120
Tetrachloroethene	50.00	49.80	100	80-120
Acrolein	100.00	95.63	96	80-120
1,2-Dibromoethane	50.00	49.62	99	80-120
1-Chlorohexane	50.00	50.18	100	80-120
Chlorobenzene	50.00	49.80	100	80-120
1,1,1,2-Tetrachloroetha	50.00	49.89	100	80-120
Ethylbenzene	50.00	50.58	101	80-120
m,p-Xylenes	100.00	102.04	102	80-120
o-Xylene	50.00	50.69	101	80-120
Styrene	50.00	51.02	102	80-120
Bromoform	50.00	51.96	104	80-120
Isopropylbenzene	50.00	50.93	102	80-120
1,1,2,2-Tetrachloroetha	50.00	48.52	97	80-120
1,2,3-Trichloropropane	50.00	50.62	101	80-120
n-Propylbenzene	50.00	51.27	102	80-120
Bromobenzene	50.00	49.83	100	80-120
1,3,5-Trimethylbenzene	50.00	50.48	101	80-120
2-Chlorotoluene	50.00	49.86	100	80-120
4-Chlorotoluene	50.00	50.32	101	80-120
tert-Butylbenzene	50.00	49.37	99	80-120

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030474

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
1,2,4-Trimethylbenzene	50.00	51.71	103	80-120
sec-Butylbenzene	50.00	50.63	101	80-120
p-Isopropyltoluene	50.00	51.73	103	80-120
1,3-Dichlorobenzene	50.00	51.18	102	80-120
1,4-Dichlorobenzene	50.00	48.99	98	80-120
n-Butylbenzene	50.00	52.63	105	80-120
1,2-Dichlorobenzene	50.00	51.45	103	80-120
1,2-Dibromo-3-Chloropro	50.00	50.81	102	80-120
1,2,4-Trichlorobenzene	50.00	51.33	103	80-120
Hexachlorobutadiene	50.00	50.08	100	80-120
Naphthalene	50.00	50.64	101	80-120
1,2,3-Trichlorobenzene	50.00	52.57	105	80-120
1,2-Dichloroethylene (t	100.00	100.68	101	80-120
Xylenes (total)	150.00	152.73	102	80-120
1,4-Dioxane	1000.00	1063.69	106	80-120
Freon TF	50.00	52.46	105	80-120
Methyl acetate	50.00	53.58	107	80-120
Methylcyclohexane	50.00	50.64	101	80-120
Cyclohexane	50.00	52.43	105	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
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030474

Lab File ID: X031901 DFTPP Injection Date: 03/19/20

Instrument ID: VOA6 DFTPP Injection Time: 1110

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.4
75	30.0 - 60.0% of mass 95	46.8
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	0.0 (0.0)1
174	Greater than 50.0% of mass 95	79.4
175	5.0 - 9.0% of mass 174	6.2 (7.8)1
176	95.0 - 101.0% of mass 174	77.1 (97.2)1
177	5.0 - 9.0% of mass 176	4.8 (6.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X031902	03/19/20	1134
02	VSTD000.5	VSTD000.5	X031903	03/19/20	1158
03	VSTD001	VSTD001	X031904	03/19/20	1246
04	VSTD002	VSTD002	X031905	03/19/20	1310
05	VSTD005	VSTD005	X031906	03/19/20	1334
06	VSTD020	VSTD020	X031907	03/19/20	1358
07	VSTD050	VSTD050	X031908	03/19/20	1422
08	VSTD100	VSTD100	X031909	03/19/20	1446
09	VSTD150	VSTD150	X031910	03/19/20	1510
10	VSTD200	VSTD200	X031911	03/19/20	1533
11	ICV	ICV	X031915	03/19/20	1709
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030474

Instrument ID: VOA6 Calibration Date(s): 03/19/20 03/19/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1134 1533

LAB FILE ID: RF0.25: X031902 RF0.5: X031903 RF1: X031904
RF2: X031905 RF5: X031906 RF20: X031907

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Vinyl Chloride		0.886	0.813	0.712	0.728	0.737
Methylene Chloride		3149	5960	9972	22460	70573
1,1-Dichloroethene		0.484	0.400	0.446	0.430	0.416
1,2-Dichloroethane		0.487	0.510	0.514	0.548	0.517
Trichloroethene		0.291	0.342	0.344	0.368	0.337
1,1,2-Trichloroethane		0.296	0.308	0.293	0.307	0.281
Dibromofluoromethane		1595	3028	5989	17420	61899
1,2-Dichloroethane-d4		2909	4838	8567	20720	80050
Toluene-d8		6812	12359	23746	62955	225397
4-Bromofluorobenzene		3499	8202	12385	22920	85378

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS2003047

Instrument ID: VOA6 Calibration Date(s): 03/19/20 03/19/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1134 1533

LAB FILE ID: RF50: X031908 RF100: X031909 RF150: X031910
RF200: X031911

COMPOUND	RF50	RF100	RF150	RF200
Vinyl Chloride	0.708	0.760	0.743	0.769
Methylene Chloride	162281	310528	437081	572059
1,1-Dichloroethene	0.399	0.419	0.406	0.413
1,2-Dichloroethane	0.538	0.548	0.536	0.556
Trichloroethene	0.345	0.364	0.357	0.370
1,1,2-Trichloroethane	0.276	0.280	0.273	0.277
Dibromofluoromethane	149393	290125	416931	545685
1,2-Dichloroethane-d4	185105	366265	529642	688377
Toluene-d8	537213	1054666	1518049	1981187
4-Bromofluorobenzene	199673	397823	566125	739220

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS2003047

Instrument ID: VOA6 Calibration Date(s): 03/19/20 03/19/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1134 1533

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	%RSD OR R^2	MAX %RSD OR R^2
Vinyl Chloride	AVRG		0.76175324	7.441	15.000
Methylene Chloride	LINR	-2.83e-002	1.93261442	0.9993556	0.9900000
1,1-Dichloroethene	AVRG		0.42368132	6.348	15.000
1,2-Dichloroethane	AVRG		0.52824438	4.254	15.000
Trichloroethene	AVRG		0.34655559	6.956	15.000
1,1,2-Trichloroethane	AVRG		0.28806737	4.628	15.000
Dibromofluoromethane	LINR	-2.15e-003	2.01723959	0.9996206	0.9900000
1,2-Dichloroethane-d4	LINR	-3.16e-003	1.59695811	0.9996477	0.9900000
Toluene-d8	LINR	-1.51e-003	0.78192287	0.9999532	0.9900000
4-Bromofluorobenzene	LINR	-9.86e-003	2.09903025	0.9999140	0.9900000

FORM VI VOA

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031901.D

Date : 19-MAR-2020 11:10

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

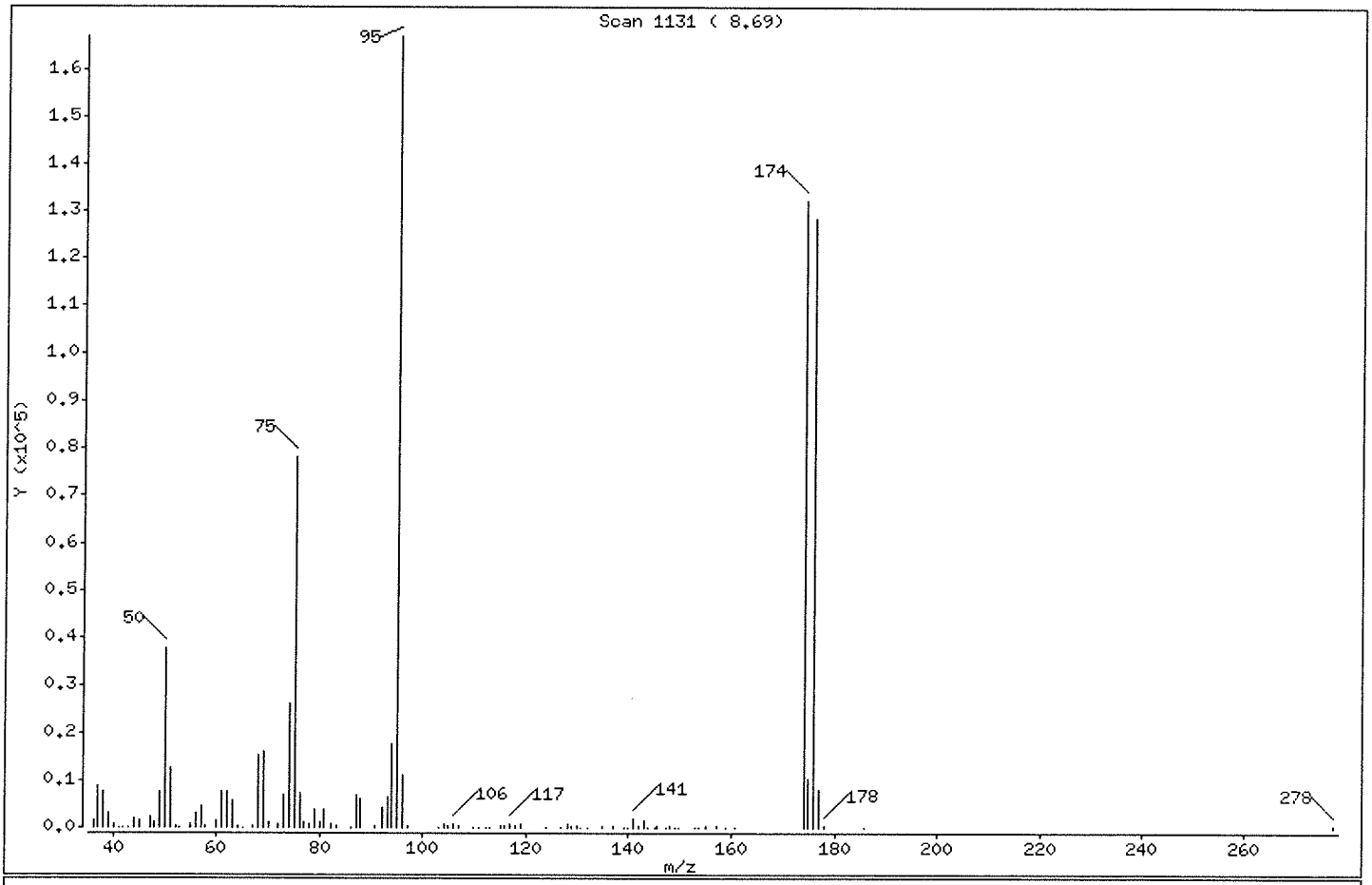
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	22.44
75	30.00 - 60.00% of mass 95	46.84
96	5.00 - 9.00% of mass 95	6.71
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	79.36
175	5.00 - 9.00% of mass 174	6.21 (7.83)
176	95.00 - 101.00% of mass 174	77.12 (97.18)
177	5.00 - 9.00% of mass 176	4.84 (6.28)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031901.D

Date : 19-MAR-2020 11:10

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: X031901.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 101

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	1360	65.00	163	97.10	263	140.90	1836
37.00	8769	67.10	353	103.20	89	142.00	192
38.00	7670	68.00	15485	104.00	727	142.90	1435
39.10	2999	69.00	16031	104.80	202	143.90	95
40.00	952	70.00	1269	105.80	737	145.10	117
41.20	93	72.00	762	106.90	217	145.60	258
41.90	78	73.00	6729	109.90	88	147.10	75
43.00	168	74.00	26176	110.90	73	148.00	387
44.00	1824	75.00	78128	112.20	62	149.10	83
45.00	1552	76.10	7370	112.80	75	149.80	76
47.00	2478	77.00	1071	115.00	259	153.00	135
47.90	1254	78.00	826	115.90	438	153.80	67
49.00	7676	79.00	3833	117.00	918	155.10	401
50.00	37424	80.00	1180	117.90	502	157.10	297
51.00	12563	80.90	3942	118.90	858	158.90	162
52.00	570	82.00	745	123.90	50	160.80	187
52.90	73	83.10	195	126.90	85	174.00	132352
55.00	621	85.90	140	128.00	809	175.00	10363
56.10	2880	87.00	6928	129.00	384	176.00	128616
57.00	4661	87.90	6204	130.00	465	177.00	8074
57.90	288	90.70	380	130.70	179	178.00	201
60.00	1638	92.00	4234	132.10	55	186.00	57
61.00	7723	93.00	6369	134.80	234	277.90	192
62.00	7841	94.00	17568	136.90	228		
63.00	5744	95.00	166784	139.00	69		
64.00	482	96.10	11193	139.90	141		

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Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031902.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 19-MAR-2020 11:34
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

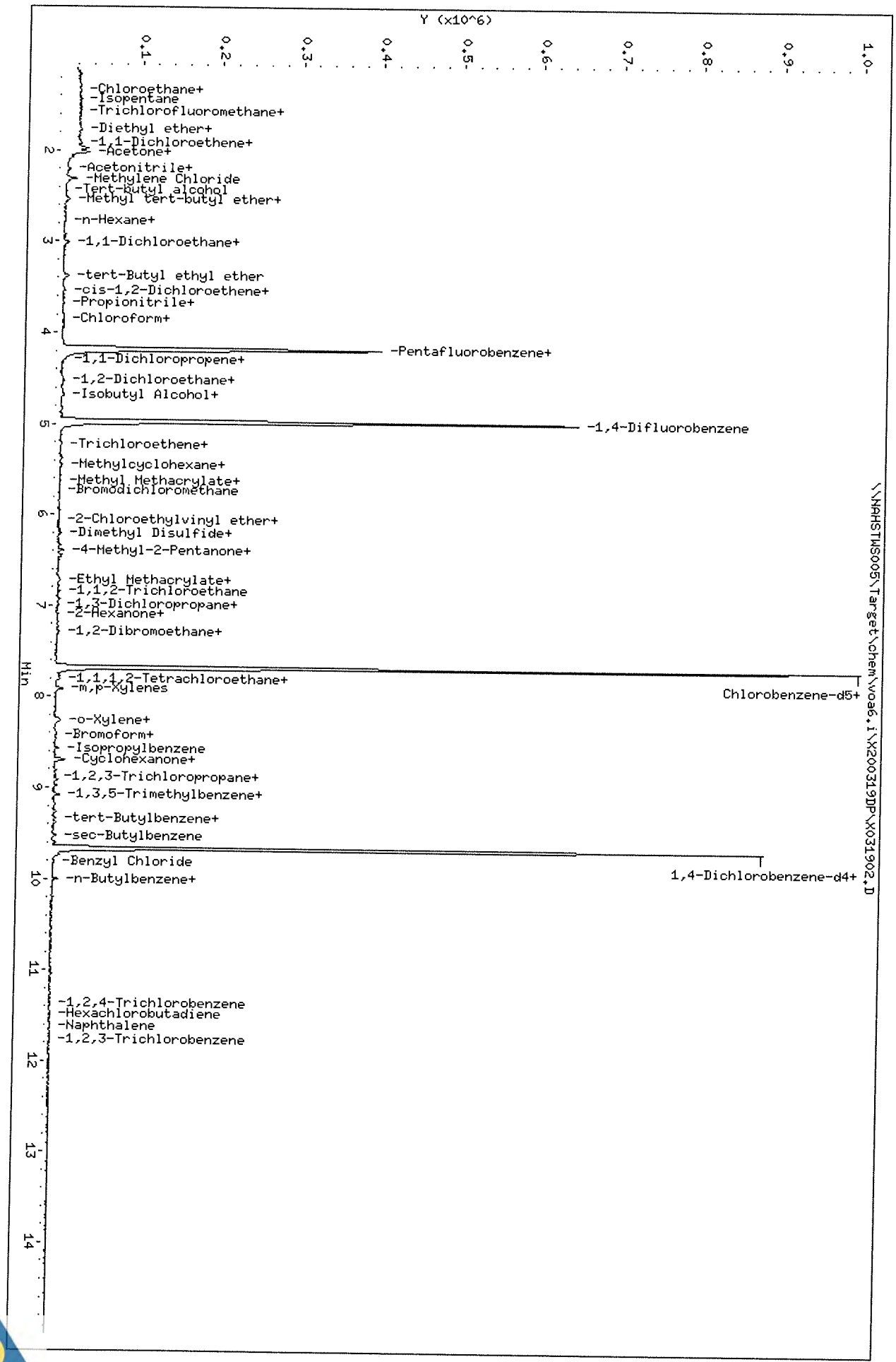
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	334865	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.983)	908	0.25000	0.16(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	1143	0.25000	0.11(Ta)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	508670	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	452074	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	4217	0.25000	0.28(Ta)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	4979	0.25000	0.66(aM)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	214709	50.0000	

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031902.D
Date : 19-MAR-2020 11:34
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031902.D
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031903.D Page 1
Report Date: 07-Apr-2020 16:29

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031903.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 19-MAR-2020 11:58
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 11:34 Cal File: X031902.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

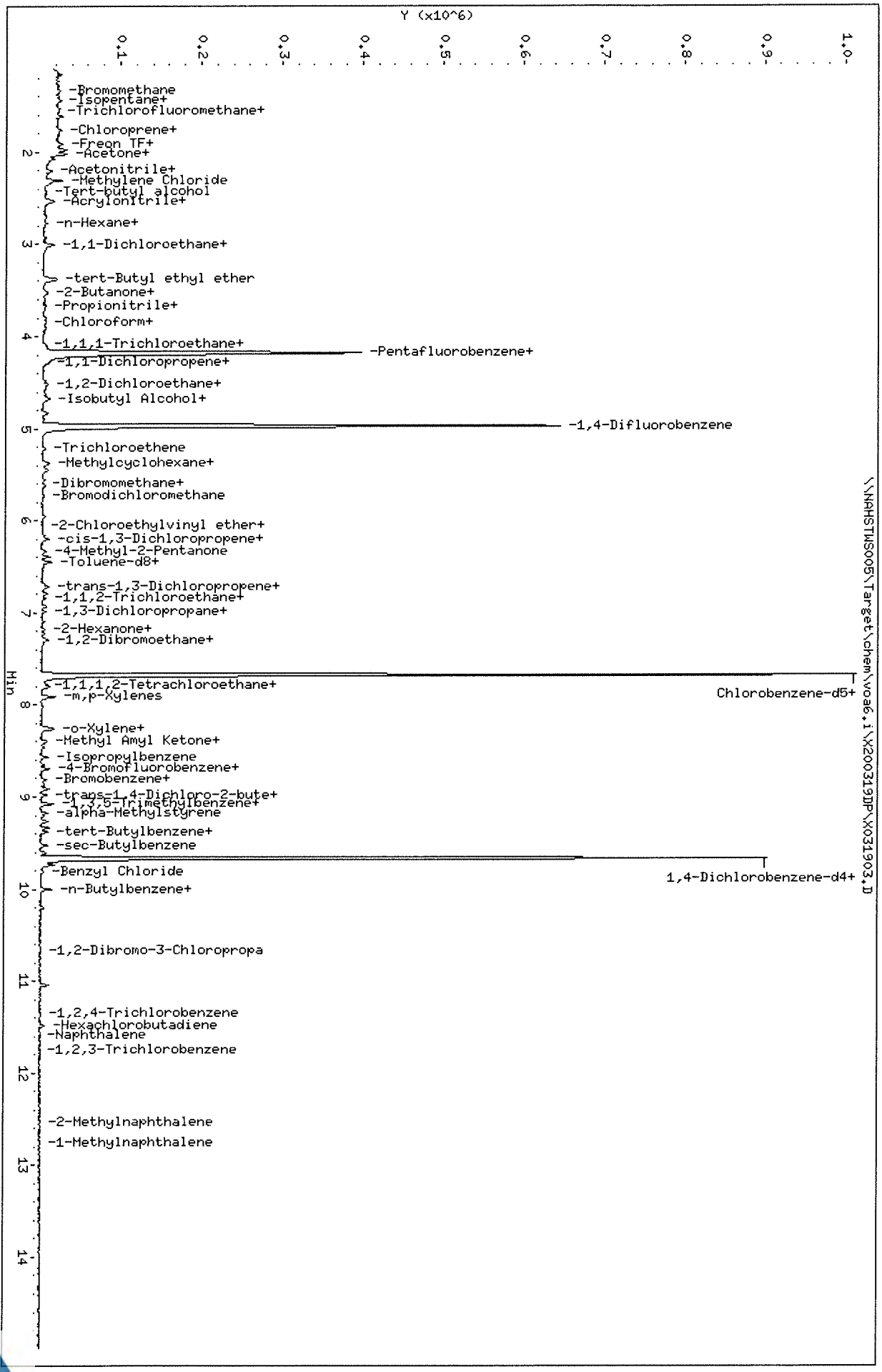
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	332459	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	1595	0.50000	0.37(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	2909	0.50000	0.54(TaM)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	503603	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	451366	50.0000	
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	6812	0.50000	0.51(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3499	0.50000	0.32(a)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	220941	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	2946	0.50000	0.58(aM)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	1608	0.50000	0.57(aM)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	1337	0.50000	0.51(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031903.D
Date : 19-MAR-2020 11:58
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: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031904.D Page 1
Report Date: 07-Apr-2020 16:29

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031904.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 19-MAR-2020 12:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 11:58 Cal File: X031903.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

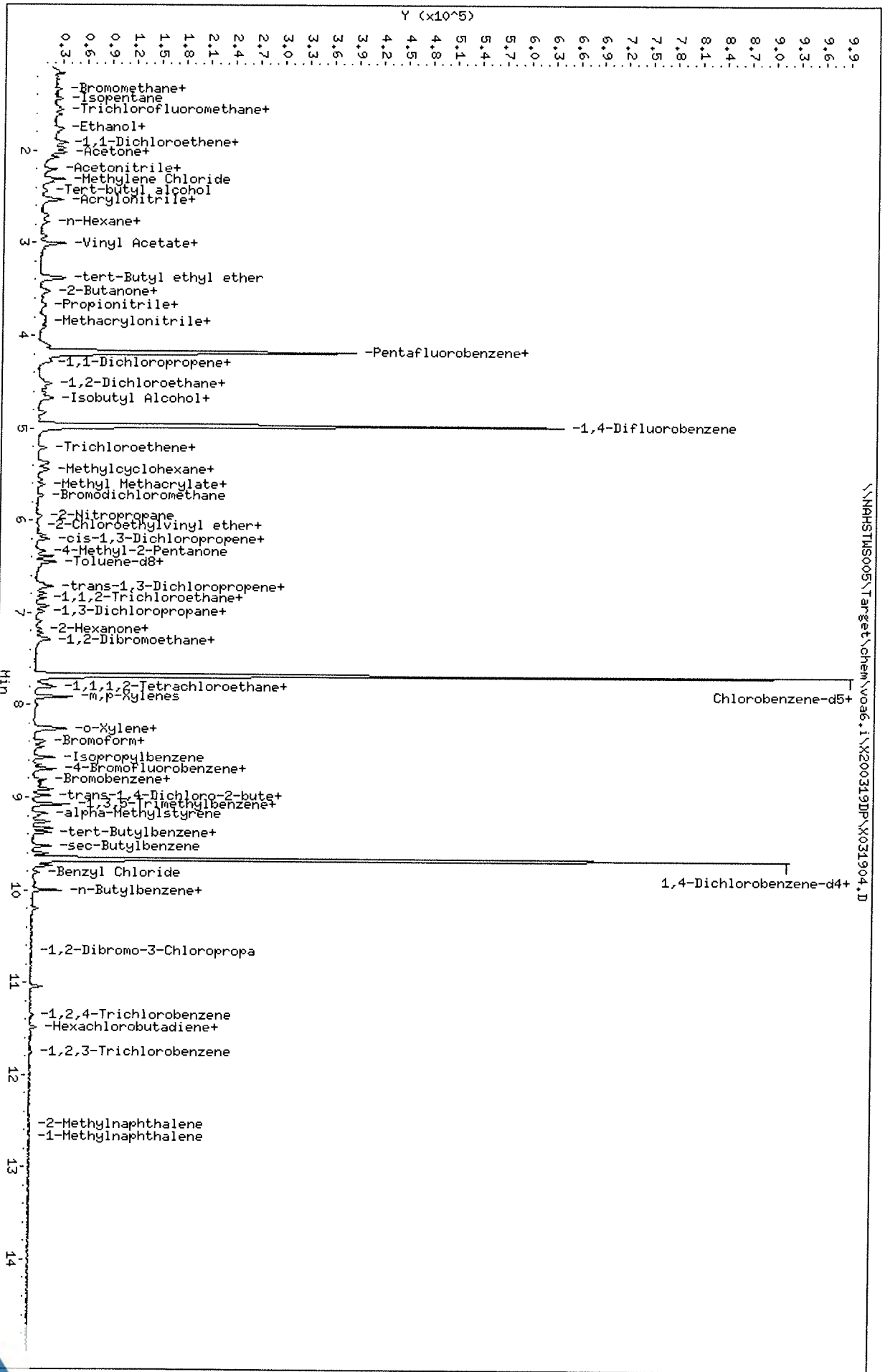
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	323740	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	3028	1.00000	0.83(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4838	1.00000	1.03(a)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	494081	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	442403	50.0000	
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	12359	1.00000	1.01(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	8202	1.00000	1.45(a)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	218790	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	5267	1.00000	1.06(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	2593	1.00000	0.94(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	3714	1.00000	1.00(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	5041	1.00000	0.96(a)
38 Trichloroethene	130	5.206	5.206	(1.048)	3378	1.00000	0.98(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	2724	1.00000	1.06(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031904.D
Date : 19-MAR-2020 12:46
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;;
Purge Volume: 5.0
Column phase: DB624

\\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031904.D

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031905.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 19-MAR-2020 13:10
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 12:46 Cal File: X031904.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

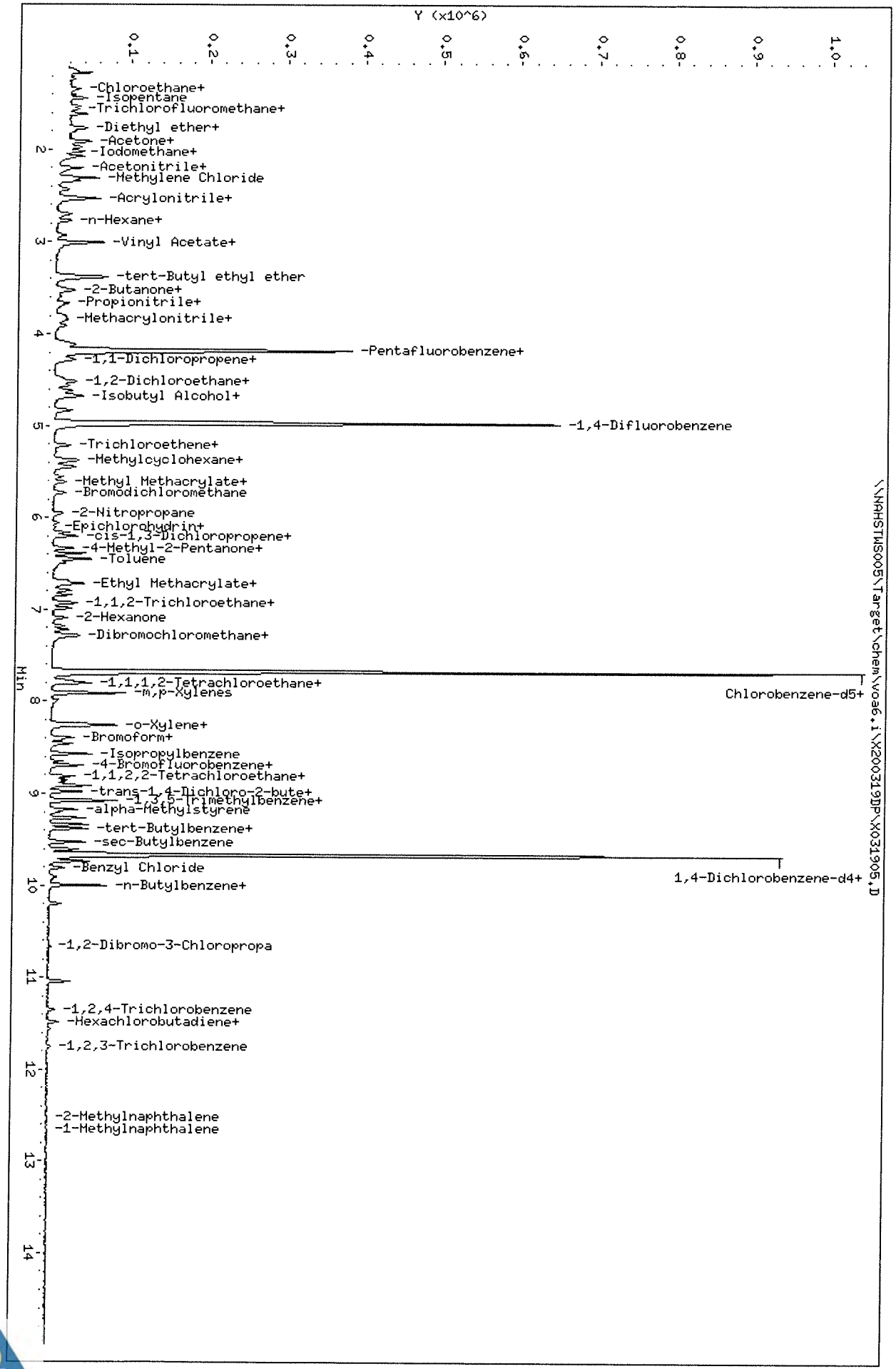
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	317561	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	5989	2.00000	1.79(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	8567	2.00000	1.99(aM)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	498211	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	449226	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	23746	2.00000	1.99(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	12385	2.00000	2.40(a)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	221564	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	9040	2.00000	1.86(a)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	5662	2.00000	2.10(a)
17 Methylene Chloride	84	2.305	2.305	(0.551)	9972	2.00000	1.61(aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	7730	2.00000	2.13(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	10240	2.00000	1.94(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	6853	2.00000	1.98(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	5273	2.00000	2.03(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031905.D
Date : 19-MAR-2020 13:10
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031906.D Page 1
Report Date: 07-Apr-2020 16:29

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031906.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 19-MAR-2020 13:34
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 13:10 Cal File: X031905.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

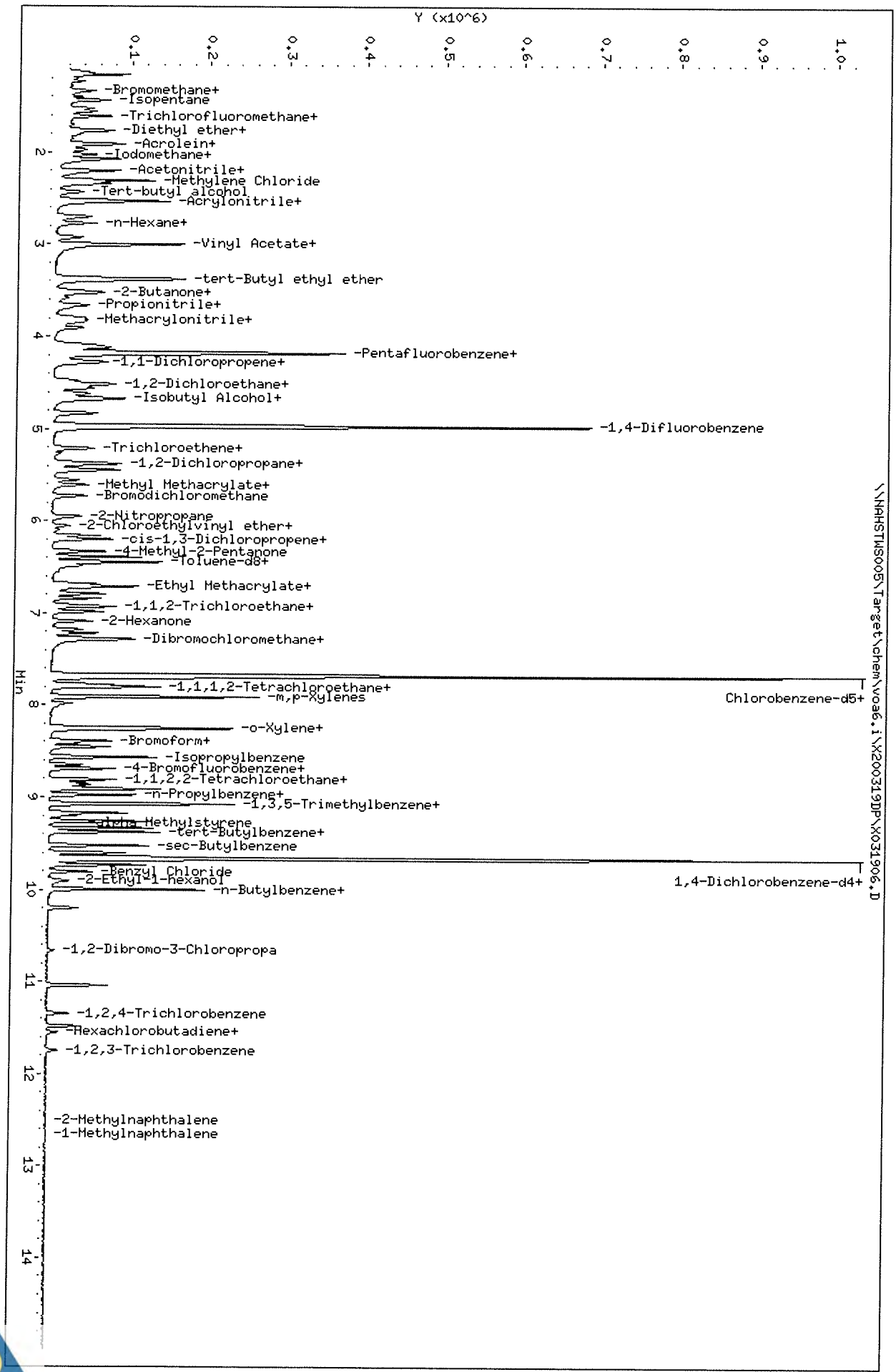
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	309553	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	17420	5.00000	5.56
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	20720	5.00000	5.18
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	486956	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	441541	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	62955	5.00000	5.49
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	22920	5.00000	4.95(a)
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	225770	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	22527	5.00000	4.77(a)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	13314	5.00000	5.07
17 Methylene Chloride	84	2.306	2.306	(0.551)	22460	5.00000	5.59(M)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	19888	5.00000	5.64
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	26678	5.00000	5.18
38 Trichloroethene	130	5.214	5.214	(1.049)	17942	5.00000	5.31
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	13550	5.00000	5.32

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031906.D
Date : 19-MAR-2020 13:34
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031907.D Page 1
Report Date: 07-Apr-2020 16:29

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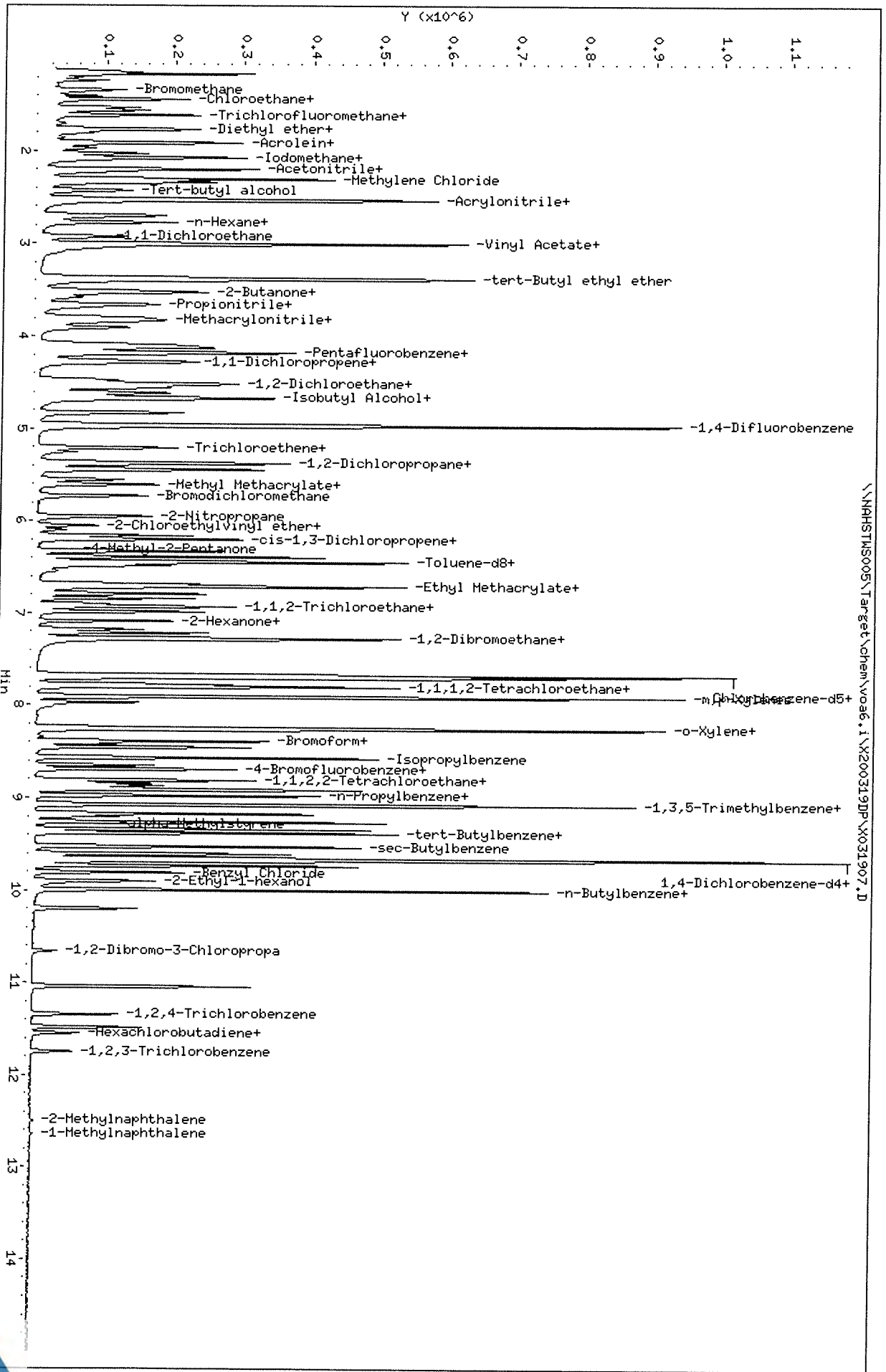
Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031907.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 19-MAR-2020 13:58
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 13:34 Cal File: X031906.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	299061	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	61899	20.0000	20.76
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	80050	20.0000	21.21
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	480908	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	433129	50.0000	
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	225397	20.0000	20.27
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	85378	20.0000	20.19
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	213879	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	88179	20.0000	19.35
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	49791	20.0000	19.64
17 Methylene Chloride	84	2.306	2.306	(0.551)	70573	20.0000	21.38
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	69663	20.0000	20.45
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	99484	20.0000	19.58
38 Trichloroethene	130	5.207	5.207	(1.048)	64841	20.0000	19.45
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	48758	20.0000	19.53



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031907.D
Date : 19-MAR-2020 13:58
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

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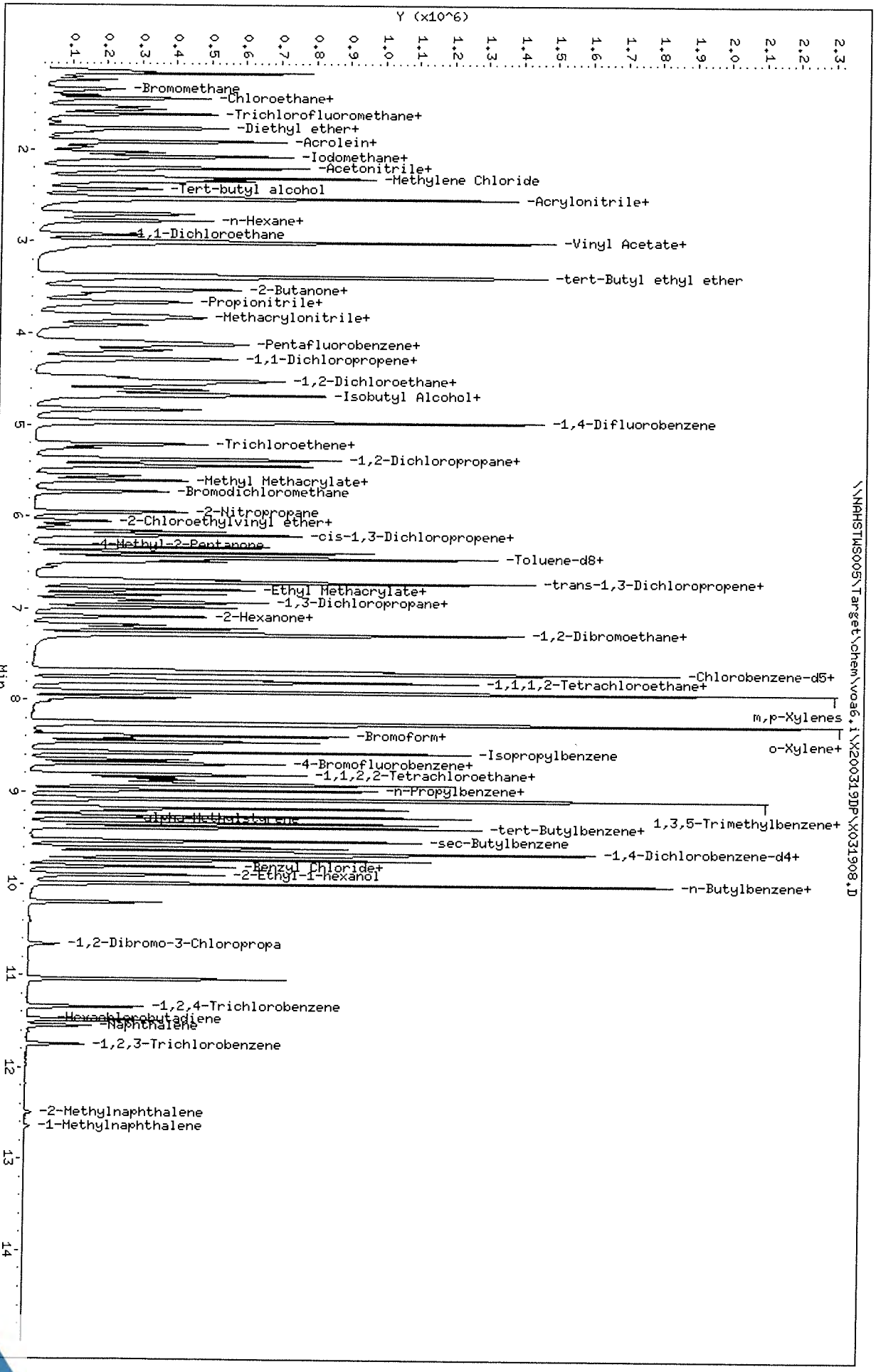
Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031908.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 19-MAR-2020 14:22
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 13:58 Cal File: X031907.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	308394	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	149393	50.0000	48.75
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	185105	50.0000	47.76
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	463946	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	424365	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	537213	50.0000	49.41
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	199673	50.0000	48.88
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	211624	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	218403	50.0000	46.48
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	123020	50.0000	47.07
17 Methylene Chloride	84	2.305	2.305	(0.551)	162281	50.0000	49.43
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	167789	50.0000	47.77
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	249570	50.0000	50.91
38 Trichloroethene	130	5.206	5.206	(1.048)	160161	50.0000	49.80
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	117355	50.0000	47.99



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031908.D
Date : 19-MAR-2020 14:22
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031909.D Page 1
Report Date: 07-Apr-2020 16:29

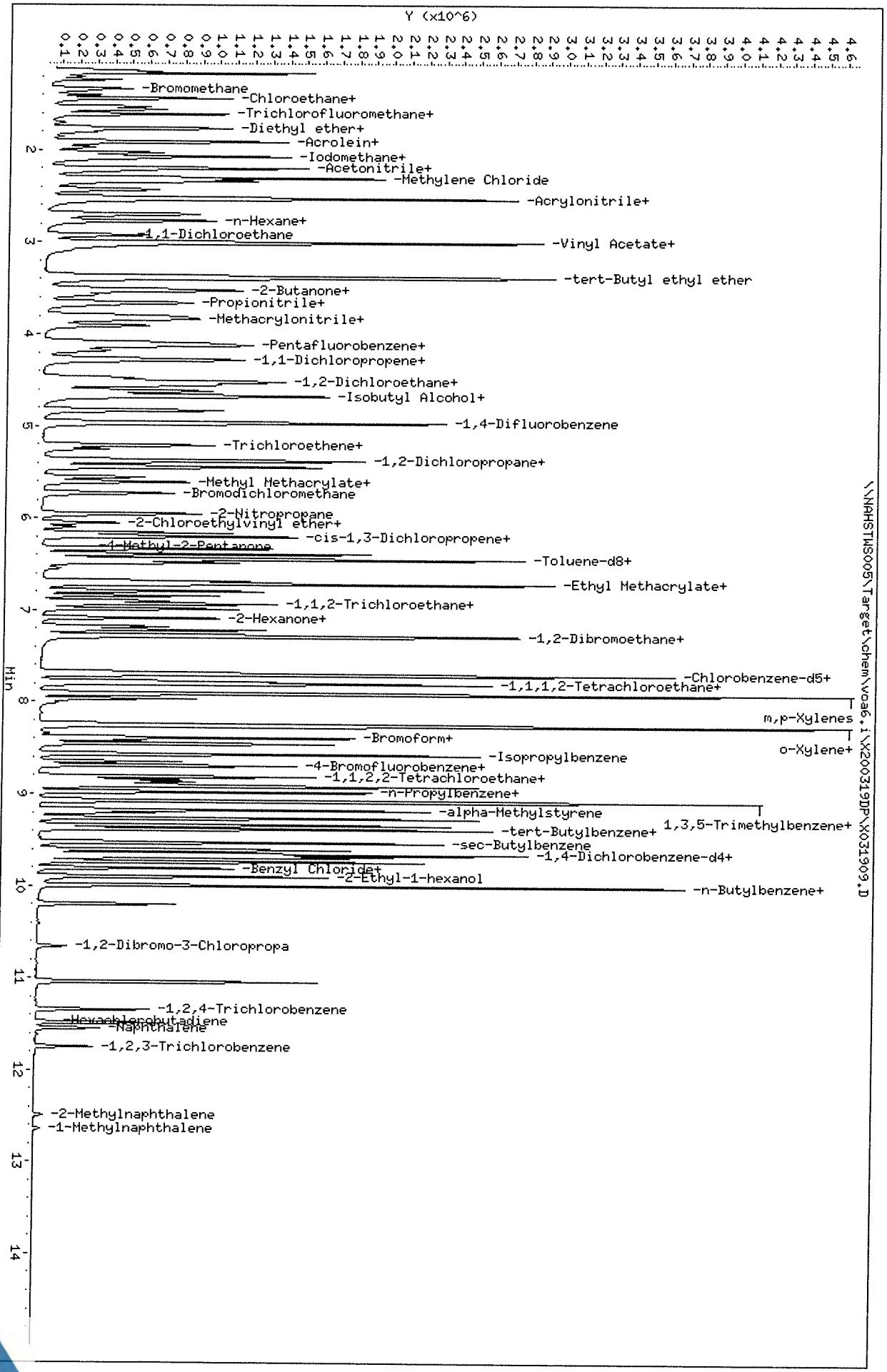
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031909.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 19-MAR-2020 14:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	286614	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	290125	100.000	101.98
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	366265	100.000	101.87
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	439703	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	412807	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1054666	100.000	99.81
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	397823	100.000	100.64
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	202255	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	435381	100.000	99.70
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	240131	100.000	98.87
17 Methylene Chloride	84	2.305	2.305	(0.551)	310528	100.000	103.27
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	331114	100.000	101.44
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	481696	100.000	103.69
38 Trichloroethene	130	5.206	5.206	(1.048)	320532	100.000	105.17
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	230846	100.000	97.06



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031909.D
Date : 19-MAR-2020 14:46
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

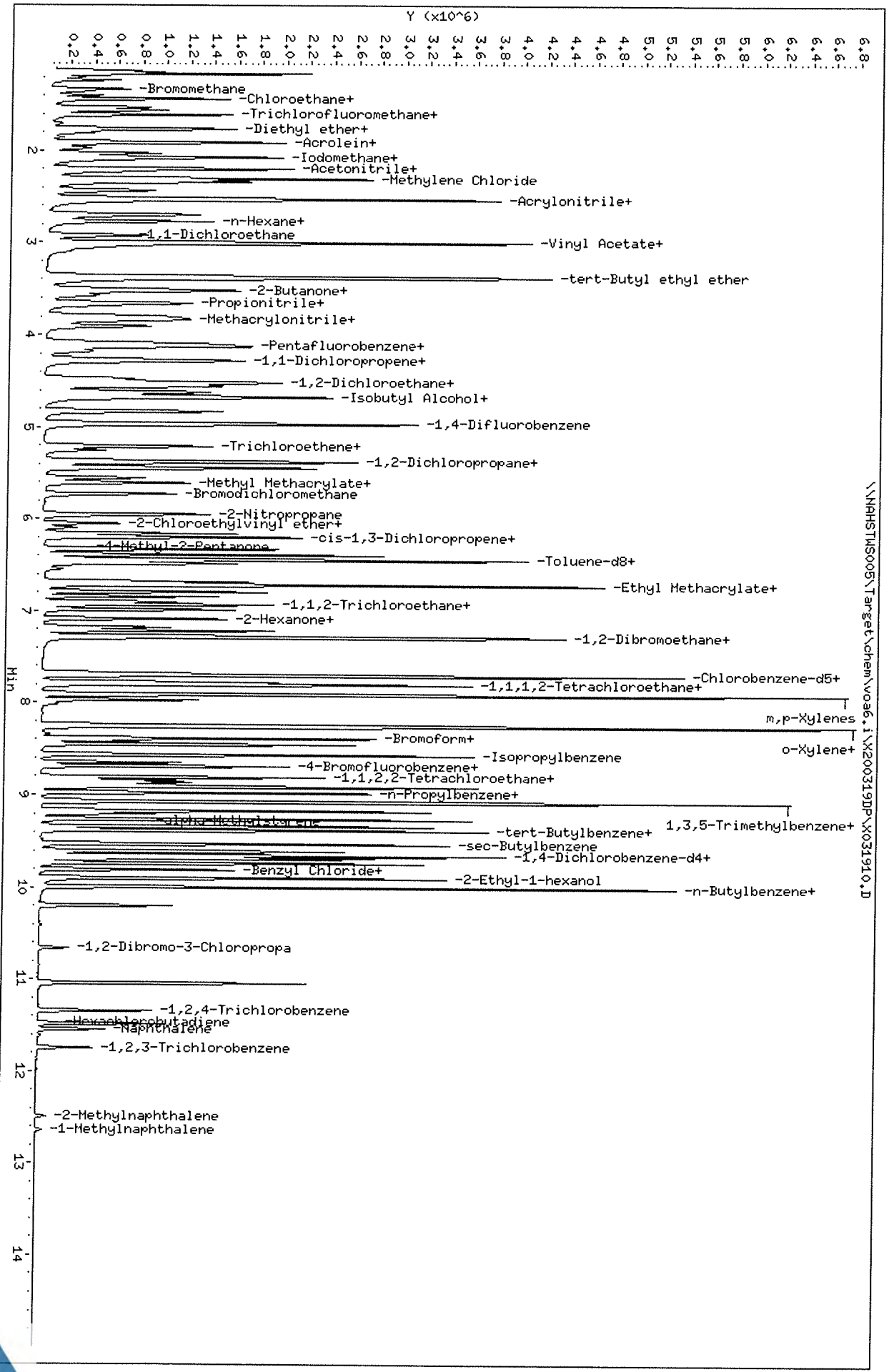
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031910.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 19-MAR-2020 15:10
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:30 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:46 Cal File: X031909.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	285712	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	416931	150.000	147.07
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	529642	150.000	147.86
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	430514	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	397694	50.0000	
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1518049	150.000	149.15
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	566125	150.000	148.90
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	198118	50.0000	
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	636695	150.000	146.27
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	347727	150.000	143.62
	17 Methylene Chloride	84	2.306	2.306	(0.551)	437081	150.000	146.41
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	468820	150.000	144.08
	33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	692218	150.000	152.19
	38 Trichloroethene	130	5.207	5.207	(1.048)	461294	150.000	154.59
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	326278	150.000	142.40



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031910.D
Date : 19-MAR-2020 15:10
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

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031911.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 19-MAR-2020 15:33
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:30 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:10 Cal File: X031910.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

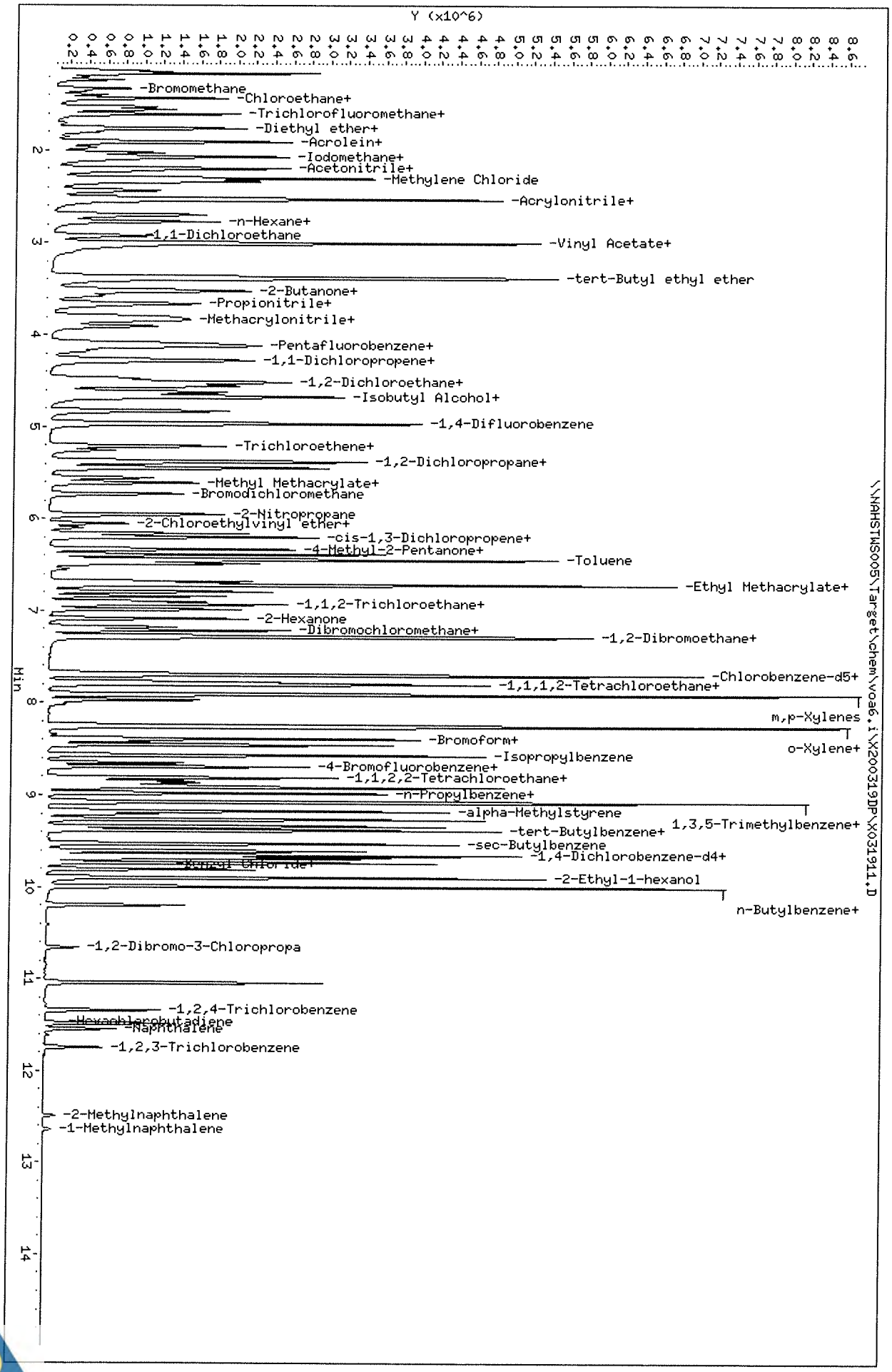
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	273221	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	545685	200.000	201.33(A)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	688377	200.000	201.01(A)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	408332	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	385556	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1981187	200.000	200.82(A)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	739220	200.000	200.72(A)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	190770	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	840563	200.000	201.93(A)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	451814	200.000	195.15
17 Methylene Chloride	84	2.305	2.305	(0.551)	572059	200.000	200.90(A)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	619486	200.000	199.09
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	908572	200.000	210.61(A)
38 Trichloroethene	130	5.207	5.207	(1.048)	603965	200.000	213.40(A)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	427427	200.000	192.42

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031911.D
Date : 19-MAR-2020 15:33
Client ID: VSTD200
Sample Info: VSTD200,VSTD200,1,10,,
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031915.D Page 1
Report Date: 07-Apr-2020 16:30

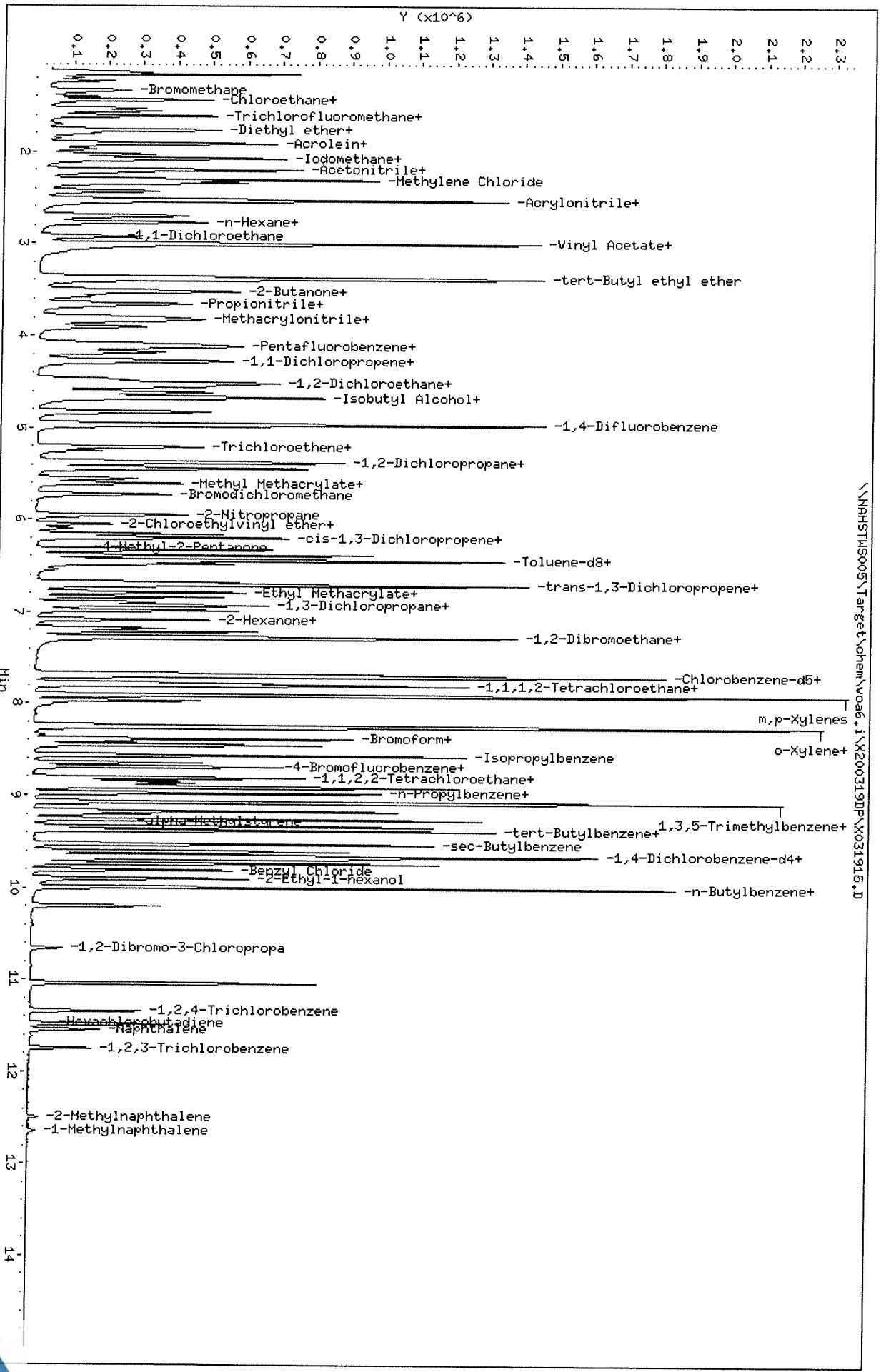
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031915.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 19-MAR-2020 17:09
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 07-Apr-2020 16:30 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 16 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	286433	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	148947	52.3413	52.34
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	188752	52.4596	52.45
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	444859	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	412876	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	528266	49.9474	49.94
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	201904	50.8305	50.83
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	209059	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	208794	47.8466	47.84
11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	119289	49.1482	49.14
17 Methylene Chloride	84	2.305	2.305	(0.551)	157492	51.7167	51.71
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	163069	49.9916	49.99
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	243287	51.7645	51.76
38 Trichloroethene	130	5.206	5.207	(1.048)	155631	50.4744	50.47
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	118115	49.6548	49.65



Data File: \\NAHSTWS005\Target\chem\voa6,i\X200319DP\X031915.D
Date : 19-MAR-2020 17:09
Client ID: ICV
Sample Info: CCV;CCV;2;;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

MSVOA06 -Logbook

Batch: 40066 **Analyst:** Devak Giga
Date: 03-19-2020 **Reviewer:**
Method: 8260_W **Laboratory:** Houston
Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	03-19-2020 11:10 am	1.00	0.00 mL	0.00 mL	X031901.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	03-19-2020 11:34 am	1.00	5.00 mL	0.00 mL	X031902.D	Liquid	Y	NA
3	VSTD000.5	ICAL2	03-19-2020 11:58 am	1.00	5.00 mL	0.00 mL	X031903.D	Liquid	Y	NA
4	VSTD001	ICAL3	03-19-2020 12:46 pm	1.00	5.00 mL	0.00 mL	X031904.D	Liquid	Y	NA
5	VSTD002	ICAL4	03-19-2020 01:10 pm	1.00	5.00 mL	0.00 mL	X031905.D	Liquid	Y	NA
6	VSTD005	ICAL5	03-19-2020 01:34 pm	1.00	5.00 mL	0.00 mL	X031906.D	Liquid	Y	NA
7	VSTD020	ICAL6	03-19-2020 01:58 pm	1.00	5.00 mL	0.00 mL	X031907.D	Liquid	Y	NA
8	VSTD050	ICAL7	03-19-2020 02:22 pm	1.00	5.00 mL	0.00 mL	X031908.D	Liquid	Y	NA
9	VSTD100	ICAL8	03-19-2020 02:46 pm	1.00	5.00 mL	0.00 mL	X031909.D	Liquid	Y	NA
10	VSTD150	ICAL9	03-19-2020 03:10 pm	1.00	5.00 mL	0.00 mL	X031910.D	Liquid	Y	NA
11	VSTD200	ICAL	03-19-2020 03:33 pm	1.00	5.00 mL	0.00 mL	X031911.D	Liquid	Y	NA
12	BLANK	SAMP	03-19-2020 03:58 pm	1.00	5.00 mL	0.00 mL	X031912.D	Liquid	Y	NA
13	BLANK	SAMP	03-19-2020 04:22 pm	1.00	5.00 mL	0.00 mL	X031913.D	Liquid	Y	NA
14	BLANK	SAMP	03-19-2020 04:46 pm	1.00	5.00 mL	0.00 mL	X031914.D	Liquid	Y	NA
15	ICV	ICV	03-19-2020 05:09 pm	1.00	5.00 mL	0.00 mL	X031915.D	Liquid	Y	NA
16	BLANK	SAMP	03-19-2020 05:33 pm	1.00	5.00 mL	0.00 mL	X031916.D	Liquid	Y	NA
17	VLCSW-200319	LCS	03-19-2020 05:57 pm	1.00	5.00 mL	0.00 mL	X031917.D	Liquid	Y	NA
18	VLCSDW-200319	LCSD	03-19-2020 06:21 pm	1.00	5.00 mL	0.00 mL	X031918.D	Liquid	Y	NA
19	BLANK	SAMP	03-19-2020 06:45 pm	1.00	5.00 mL	0.00 mL	X031919.D	Liquid	Y	NA
20	BLANK	SAMP	03-19-2020 07:10 pm	1.00	5.00 mL	0.00 mL	X031920.D	Liquid	Y	NA
21	VBLKW1-200319	MBLK	03-19-2020 07:34 pm	1.00	5.00 mL	0.00 mL	X031921.D	Liquid	Y	NA
22	VBLKW2-200319	MBLK	03-19-2020 07:58 pm	1.00	5.00 mL	0.00 mL	X031922.D	Liquid	Y	NA
23	VBLKW3-200319	MBLK	03-19-2020 08:22 pm	1.00	5.00 mL	0.00 mL	X031923.D	Liquid	Y	NA
24	HS20021070-01	SAMP	03-19-2020 08:46 pm	1.00	5.00 mL	0.00 mL	X031924.D	Liquid	Y	NA
25	HS20021070-02	SAMP	03-19-2020 09:10 pm	1.00	5.00 mL	0.00 mL	X031925.D	Liquid	Y	NA
26	HS20021070-03	SAMP	03-19-2020 09:33 pm	1.00	5.00 mL	0.00 mL	X031926.D	Liquid	Y	NA
27	BFB	TUNE	03-19-2020 09:57 pm	1.00	0.00 mL	0.00 mL	Y031901.D	Liquid	Y	NA
	Auto find/ purged									
28	CCV	CCV	03-19-2020 10:21 pm	1.00	5.00 mL	0.00 mL	Y031902a.D	Liquid	Y	NA
29	CCV	CCV	03-19-2020 10:45 pm	1.00	5.00 mL	0.00 mL	Y031903.D	Liquid	Y	NA
30	CCB	SAMP	03-19-2020 11:09 pm	1.00	5.00 mL	0.00 mL	Y031904.D	Liquid	Y	NA
31	VLCSW-200319	LCS	03-19-2020 11:33 pm	1.00	5.00 mL	0.00 mL	Y031905.D	Liquid	Y	NA
32	BLANK	SAMP	03-19-2020 11:57 pm	1.00	5.00 mL	0.00 mL	Y031906.D	Liquid	Y	NA
33	VBLKW1-200319	MBLK	03-20-2020 12:21 am	1.00	5.00 mL	0.00 mL	Y031907.D	Liquid	Y	NA
34	HS20030474-07	SAMP	03-20-2020 12:45 am	1.00	5.00 mL	0.00 mL	Y031908.D	Liquid	Y	NA
35	HS20030498-08	SAMP	03-20-2020 01:09 am	1.00	5.00 mL	0.00 mL	Y031909.D	Liquid	Y	NA
36	HS20030838-02	SAMP	03-20-2020 01:34 am	1.00	5.00 mL	0.00 mL	Y031910.D	Liquid	Y	NA
37	HS20030838-01	SAMP	03-20-2020 01:58 am	1.00	5.00 mL	0.00 mL	Y031911.D	Liquid	Y	NA
38	HS20030474-04	SAMP	03-20-2020 02:22 am	1.00	5.00 mL	0.00 mL	Y031912.D	Liquid	Y	NA
39	HS20030474-05	SAMP	03-20-2020 02:46 am	1.00	5.00 mL	0.00 mL	Y031913.D	Liquid	Y	NA
40	HS20030498-03	SAMP	03-20-2020 03:10 am	1.00	5.00 mL	0.00 mL	Y031914.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
41	HS20030498-03MS	MS	03-20-2020 03:34 am	1.00	5.00 mL	0.00 mL	Y031915.D	Liquid	Y	NA
42	HS20030498-03MSD	MSD	03-20-2020 03:58 am	1.00	5.00 mL	0.00 mL	Y031916.D	Liquid	Y	NA
43	HS20030498-03	SAMP	03-20-2020 04:22 am	25.00	5.00 mL	0.00 mL	Y031917.D	Liquid	Y	NA
44	HS20030474-03	SAMP	03-20-2020 04:46 am	1.00	5.00 mL	0.00 mL	Y031918.D	Liquid	Y	NA
45	HS20030474-03	SAMP	03-20-2020 05:10 am	10.00	5.00 mL	0.00 mL	Y031919.D	Liquid	Y	NA
46	HS20030474-06	SAMP	03-20-2020 05:34 am	1.00	5.00 mL	0.00 mL	Y031920.D	Liquid	Y	NA
47	HS20030474-06	SAMP	03-20-2020 05:58 am	25.00	5.00 mL	0.00 mL	Y031921.D	Liquid	Y	NA
48	HS20030498-01	SAMP	03-20-2020 06:22 am	5.00	5.00 mL	0.00 mL	Y031922.D	Liquid	Y	NA
49	HS20030498-01	SAMP	03-20-2020 06:46 am	25.00	5.00 mL	0.00 mL	Y031923.D	Liquid	Y	NA
50	HS20030498-02	SAMP	03-20-2020 07:10 am	5.00	5.00 mL	0.00 mL	Y031924.D	Liquid	Y	NA
51	HS20030498-02	SAMP	03-20-2020 07:34 am	50.00	5.00 mL	0.00 mL	Y031925.D	Liquid	Y	NA
52	HS20030474-01	SAMP	03-20-2020 07:58 am	10.00	5.00 mL	0.00 mL	Y031926.D	Liquid	Y	NA
53	HS20030474-01	SAMP	03-20-2020 08:23 am	100.0(	5.00 mL	0.00 mL	Y031927.D	Liquid	Y	NA
54	HS20030474-02	SAMP	03-20-2020 08:47 am	25.00	5.00 mL	0.00 mL	Y031928.D	Liquid	Y	NA
55	HS20030474-02	SAMP	03-20-2020 09:11 am	250.0(	5.00 mL	0.00 mL	Y031929.D	Liquid	Y	NA
56	CCV-END	CCV	03-20-2020 09:35 am	1.00	5.00 mL	0.00 mL	Y031930.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-16-03
IS ID	31106-16-04
LCS/MS ID	31105-08-01
CAL STD ID	31106-20-01/02
BFB ID	31106-16-03
pH Paper	634-64-11

FORM 2
WATER VOLATILE SURROGATE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030474

	CLIENT SAMPLE NO.	S1 #	S2 (DCE) #	S3 (TOL) #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	CCB	94	90	106	94					0
02	VLCSW-200319	106	106	104	105					0
03	VBLKW1-20031	94	90	105	98					0
04	HS20030474-0	94	91	106	98					0
05	HS20030498-0	94	91	107	96					0
06	HS20030474-0	94	90	106	98					0
07	HS20030474-0	94	90	104	99					0
08	HS20030498-0	94	91	104	99					0
09	HS20030498-0	94	92	102	99					0
10	HS20030498-0	94	93	103	98					0
11	HS20030474-0	96	93	105	97					0
12	HS20030474-0	94	89	106	99					0
13	HS20030474-0	94	92	104	100					0
14	HS20030474-0	94	90	107	97					0
15	HS20030474-0	94	90	104	97					0
16	HS20030474-0	94	90	106	96					0
17	HS20030474-0	95	93	105	98					0
18	HS20030474-0	94	90	104	98					0
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										

		QC LIMITS
S1	= Dibromofluoromethane	(70-130)
S2 (DCE)	= 1,2-Dichloroethane-d4	(70-130)
S3 (TOL)	= Toluene-d8	(70-130)
S4	= 4-Bromofluorobenzene	(70-130)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW1-200319

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030474

Lab File ID: Y031907 Lab Sample ID: VBLKW1-200319

Instrument ID: VOA6 Date Extracted:

Matrix: (soil/water) WATER Date Analyzed: 03/20/20

Level: (low/med) LOW Time Analyzed: 0021

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	CCB	CCB	Y031904	03/19/20
02	VLCSW-200319	VLCSW-200319	Y031905	03/19/20
03	HS20030474-0	HS20030474-07	Y031908	03/20/20
04	HS20030498-0	HS20030498-08	Y031909	03/20/20
05	HS20030474-0	HS20030474-04	Y031912	03/20/20
06	HS20030474-0	HS20030474-05	Y031913	03/20/20
07	HS20030498-0	HS20030498-03	Y031914	03/20/20
08	HS20030498-0	HS20030498-03M	Y031915	03/20/20
09	HS20030498-0	HS20030498-03M	Y031916	03/20/20
10	HS20030474-0	HS20030474-03	Y031918	03/20/20
11	HS20030474-0	HS20030474-03	Y031919	03/20/20
12	HS20030474-0	HS20030474-06	Y031920	03/20/20
13	HS20030474-0	HS20030474-06	Y031921	03/20/20
14	HS20030474-0	HS20030474-01	Y031926	03/20/20
15	HS20030474-0	HS20030474-01	Y031927	03/20/20
16	HS20030474-0	HS20030474-02	Y031928	03/20/20
17	HS20030474-0	HS20030474-02	Y031929	03/20/20
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030474

Lab File ID: Y031901 DFTPP Injection Date: 03/19/20

Instrument ID: VOA6 DFTPP Injection Time: 2157

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.8
75	30.0 - 60.0% of mass 95	48.4
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	0.7 (0.9)1
174	Greater than 50.0% of mass 95	77.4
175	5.0 - 9.0% of mass 174	5.9 (7.7)1
176	95.0 - 101.0% of mass 174	74.6 (96.4)1
177	5.0 - 9.0% of mass 176	4.9 (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	CCV	CCV	Y031903	03/19/20	2245
02	CCB	CCB	Y031904	03/19/20	2309
03	VLCSW-200319	VLCSW-200319	Y031905	03/19/20	2333
04	VBLKW1-20031	VBLKW1-200319	Y031907	03/20/20	0021
05	HS20030474-0	HS20030474-07	Y031908	03/20/20	0045
06	HS20030498-0	HS20030498-08	Y031909	03/20/20	0109
07	HS20030474-0	HS20030474-04	Y031912	03/20/20	0222
08	HS20030474-0	HS20030474-05	Y031913	03/20/20	0246
09	HS20030498-0	HS20030498-03	Y031914	03/20/20	0310
10	HS20030498-0	HS20030498-03M	Y031915	03/20/20	0334
11	HS20030498-0	HS20030498-03M	Y031916	03/20/20	0358
12	HS20030474-0	HS20030474-03	Y031918	03/20/20	0446
13	HS20030474-0	HS20030474-03	Y031919	03/20/20	0510
14	HS20030474-0	HS20030474-06	Y031920	03/20/20	0534
15	HS20030474-0	HS20030474-06	Y031921	03/20/20	0558
16	HS20030474-0	HS20030474-01	Y031926	03/20/20	0758
17	HS20030474-0	HS20030474-01	Y031927	03/20/20	0823
18	HS20030474-0	HS20030474-02	Y031928	03/20/20	0847
19	HS20030474-0	HS20030474-02	Y031929	03/20/20	0911
20	CCV-END	CCV-END	Y031930	03/20/20	0935
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030474

Instrument ID: VOA6 Calibration Date: 03/19/20 Time: 2245

Lab File ID: Y031903 Init. Calib. Date(s): 03/19/20 03/19/20

Init. Calib. Times: 1134 1533

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
Vinyl Chloride	0.7620000	0.7762367	0.7762367	0.1	-1.87	20.00	AVRG
Methylene Chloride	51.757329	50.000000	0.5805754	0.1	-3.51	20.00	LINR
1,1-Dichloroethene	0.4240000	0.4250714	0.4250714	0.1	-0.25	20.00	AVRG
1,2-Dichloroethane	0.5280000	0.5501815	0.5501815	0.1	-4.20	20.00	AVRG
Trichloroethene	0.3460000	0.3679396	0.3679396	0.2	-6.34	20.00	AVRG
1,1,2-Trichloroethane	0.2880000	0.2886089	0.2886089	0.1	-0.21	20.00	AVRG
Dibromofluoromethane	50.941103	50.000000	0.5325132	0.1	-1.88	20.00	LINR
1,2-Dichloroethane-d4	50.431890	50.000000	0.6583714	0.1	-0.86	20.00	LINR
Toluene-d8	48.687499	50.000000	1.3211983	0.1	2.62	20.00	LINR
4-Bromofluorobenzene	48.521641	50.000000	0.4973499	0.1	2.96	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030474

Instrument ID: VOA6 Calibration Date: 03/20/20 Time: 0935

Lab File ID: Y031930 Init. Calib. Date(s): 03/19/20 03/19/20

Init. Calib. Times: 1134 1533

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
Vinyl Chloride	0.7620000	0.7762367	0.7762367	0.1	-1.87	20.00	AVRG
Methylene Chloride	54.686840	50.000000	0.5805754	0.1	-9.37	20.00	LINR
1,1-Dichloroethene	0.4240000	0.4250714	0.4250714	0.1	-0.25	20.00	AVRG
1,2-Dichloroethane	0.5280000	0.5501815	0.5501815	0.1	-4.20	20.00	AVRG
Trichloroethene	0.3460000	0.3679396	0.3679396	0.2	-6.34	20.00	AVRG
1,1,2-Trichloroethane	0.2880000	0.2886089	0.2886089	0.1	-0.21	20.00	AVRG
Dibromofluoromethane	53.602736	50.000000	0.5325132	0.1	-7.20	20.00	LINR
1,2-Dichloroethane-d4	52.411477	50.000000	0.6583714	0.1	-4.82	20.00	LINR
Toluene-d8	51.578444	50.000000	1.3211983	0.1	-3.16	20.00	LINR
4-Bromofluorobenzene	51.704853	50.000000	0.4973499	0.1	-3.41	20.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

outputFile debug: C:\tp\envision\results\HS20030474/08bc.01 Lab Code: AL

Lab File ID (Standard): Y031903 Date Analyzed: 03/19/20

Instrument ID: VOA6 Time Analyzed: 2245

		IS1 AREA #	IS1 RT #	IS2(DFB) AREA #	IS2(DFB) RT #	IS3(CBZ) AREA #	IS3(CBZ) RT #
	12 HOUR STD	293829	4.18	458706	4.97	427860	7.67
	UPPER LIMIT	587658	4.68	917412	5.47	855720	8.17
	LOWER LIMIT	146915	3.68	229353	4.47	213930	7.17
	CLIENT SAMPLE NO.						
01	CCB	365256	4.18	539176	4.97	465790	7.67
02	VLCSW-200319	298296	4.18	467530	4.97	423096	7.67
03	VBLKW1-20031	381420	4.18	561159	4.97	485409	7.67
04	HS20030474-0	382543	4.18	564457	4.97	487743	7.67
05	HS20030498-0	389845	4.18	571931	4.97	490909	7.67
06	HS20030474-0	390807	4.18	570782	4.97	494201	7.67
07	HS20030474-0	396628	4.18	583380	4.97	507524	7.67
08	HS20030498-0	388236	4.18	573994	4.97	477433	7.67
09	HS20030498-0	373176	4.18	551051	4.97	475332	7.67
10	HS20030498-0	367736	4.18	541123	4.97	463530	7.67
11	HS20030474-0	374721	4.18	554096	4.97	463629	7.67
12	HS20030474-0	388526	4.18	571699	4.97	491916	7.67
13	HS20030474-0	388414	4.18	577720	4.97	476371	7.67
14	HS20030474-0	383671	4.18	565041	4.97	484910	7.67
15	HS20030474-0	385282	4.18	570095	4.97	492918	7.67
16	HS20030474-0	392156	4.18	580398	4.97	500274	7.67
17	HS20030474-0	360332	4.18	543346	4.97	458688	7.67
18	HS20030474-0	381541	4.18	566030	4.97	491611	7.67
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 internal standard area values with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

outputFile debug: C:\tp\envision\results\HS20030474/08bc.01 Lab Code: AL

Lab File ID (Standard): Y031903 Date Analyzed: 03/19/20

Instrument ID: VOA6 Time Analyzed: 2245

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	207378	9.67				
	UPPER LIMIT	414756	10.17				
	LOWER LIMIT	103689	9.17				
	CLIENT SAMPLE NO.						
01	CCB	210239	9.66				
02	VLCSW-200319	212109	9.66				
03	VBLKW1-20031	229973	9.67				
04	HS20030474-0	230532	9.67				
05	HS20030498-0	231790	9.67				
06	HS20030474-0	230635	9.67				
07	HS20030474-0	239438	9.67				
08	HS20030498-0	233054	9.67				
09	HS20030498-0	233350	9.66				
10	HS20030498-0	224976	9.67				
11	HS20030474-0	220584	9.67				
12	HS20030474-0	233425	9.67				
13	HS20030474-0	236580	9.67				
14	HS20030474-0	225226	9.67				
15	HS20030474-0	236123	9.67				
16	HS20030474-0	231974	9.67				
17	HS20030474-0	217910	9.67				
18	HS20030474-0	234806	9.67				
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 internal standard area values with an asterisk.
* Values outside of QC limits.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031901.D

Date : 19-MAR-2020 21:57

Client ID: BFB

Instrument: voa6.i

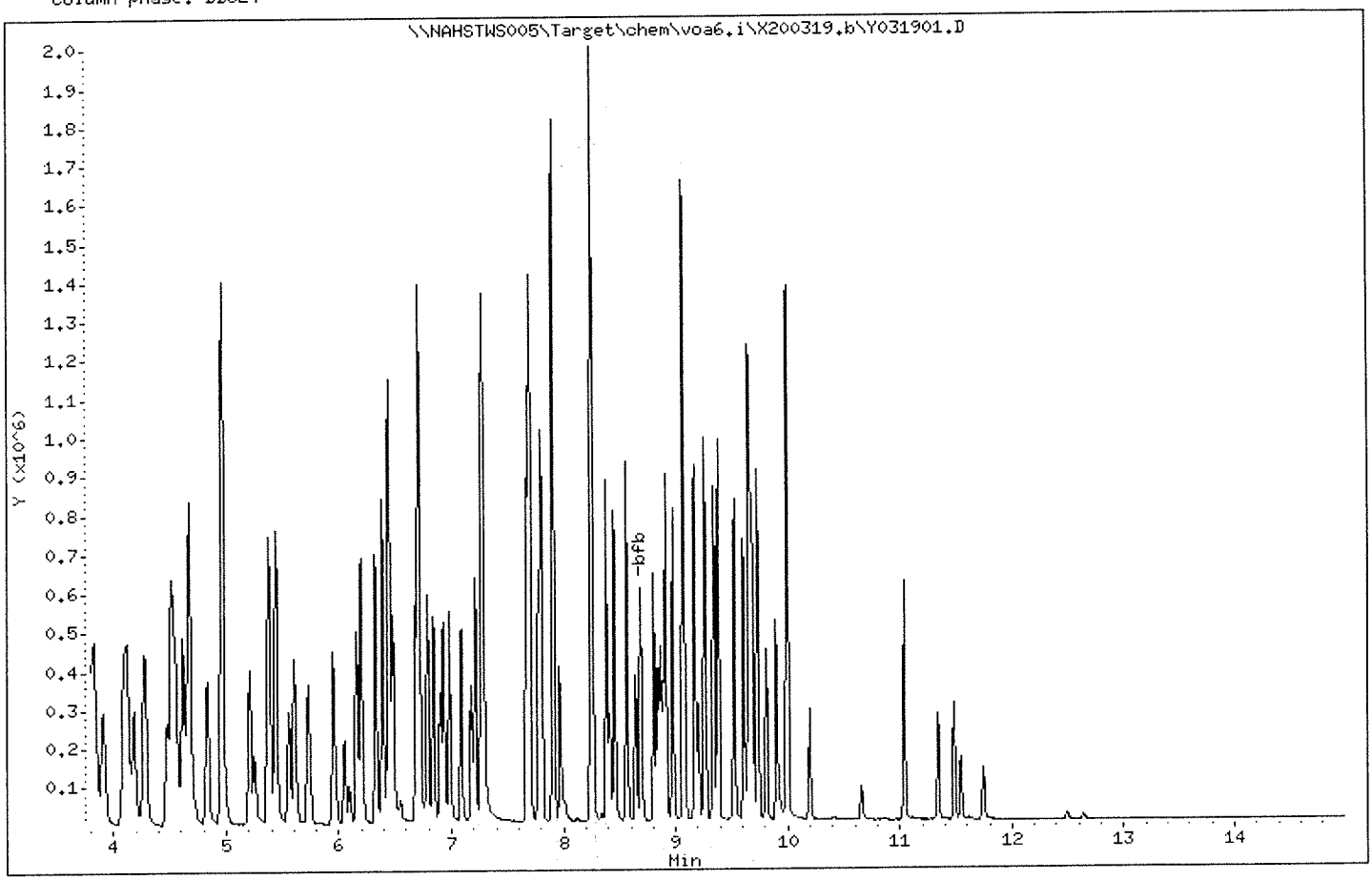
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031901.D

Date : 19-MAR-2020 21:57

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

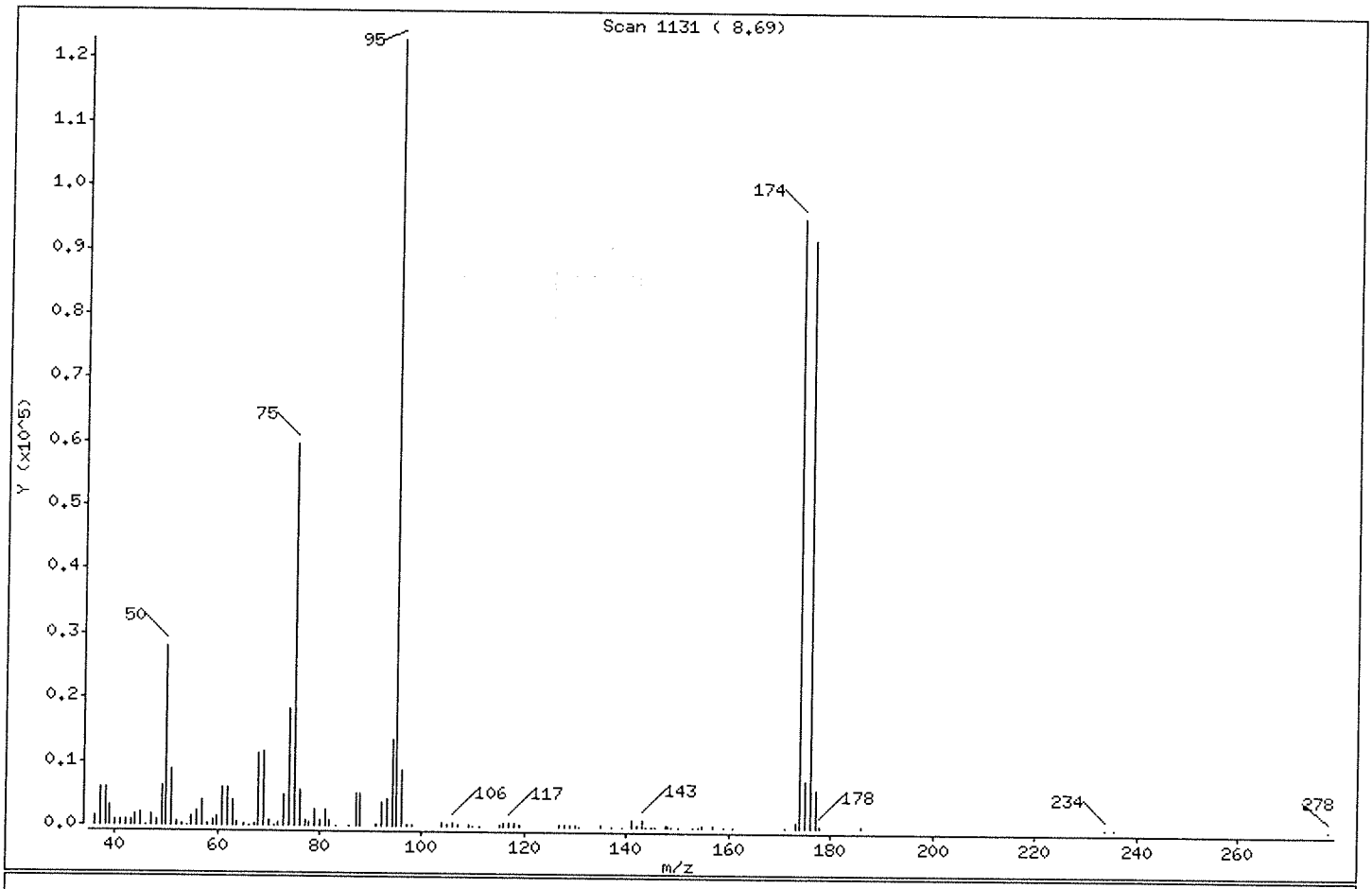
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	22.76
75	30.00 - 60.00% of mass 95	48.41
96	5.00 - 9.00% of mass 95	7.22
173	Less than 2.00% of mass 174	0.71 (0.91)
174	Greater than 50.00% of mass 95	77.39
175	5.00 - 9.00% of mass 174	5.95 (7.68)
176	95.00 - 101.00% of mass 174	74.64 (96.44)
177	5.00 - 9.00% of mass 176	4.87 (6.53)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031901.D

Date : 19-MAR-2020 21:57

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: Y031901.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 107

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1299	63.00	4004	94.00	13533	142.00	236
37.10	5903	63.80	483	95.00	122944	142.90	1050
38.10	5990	65.00	155	96.00	8878	143.80	70
39.00	3137	66.10	60	97.10	213	144.70	94
39.90	975	67.10	392	97.90	340	145.70	86
41.00	816	68.00	11252	103.90	513	147.70	211
42.10	759	69.00	11461	104.80	203	148.00	243
43.00	954	70.00	964	105.90	602	148.80	82
44.00	1681	71.00	107	106.80	301	150.10	63
45.00	1942	72.00	702	107.00	305	152.80	102
46.10	139	73.00	4696	108.90	256	154.00	53
47.00	1733	74.00	18488	109.80	96	154.90	324
48.00	859	75.00	59512	111.00	53	156.80	256
49.00	6183	76.10	5550	115.00	153	159.00	96
50.00	27976	77.00	845	115.80	448	160.80	108
51.00	8880	77.80	476	116.90	675	171.10	81
51.90	503	78.90	2500	117.80	490	173.00	867
52.90	181	79.90	835	119.00	400	174.00	95152
54.20	133	81.00	2449	126.80	273	175.00	7311
55.00	1358	81.90	758	127.90	367	176.00	91768
56.00	2141	83.10	61	128.90	281	177.00	5993
57.00	4086	85.70	97	129.90	347	177.90	225
57.90	217	87.00	5082	130.80	101	186.00	147
59.00	843	87.90	5052	134.80	218	233.80	57
59.90	1303	90.80	334	137.10	93	235.70	57
61.00	6008	92.00	3582	139.20	89	278.10	96
62.00	5866	93.00	4347	140.90	1023		

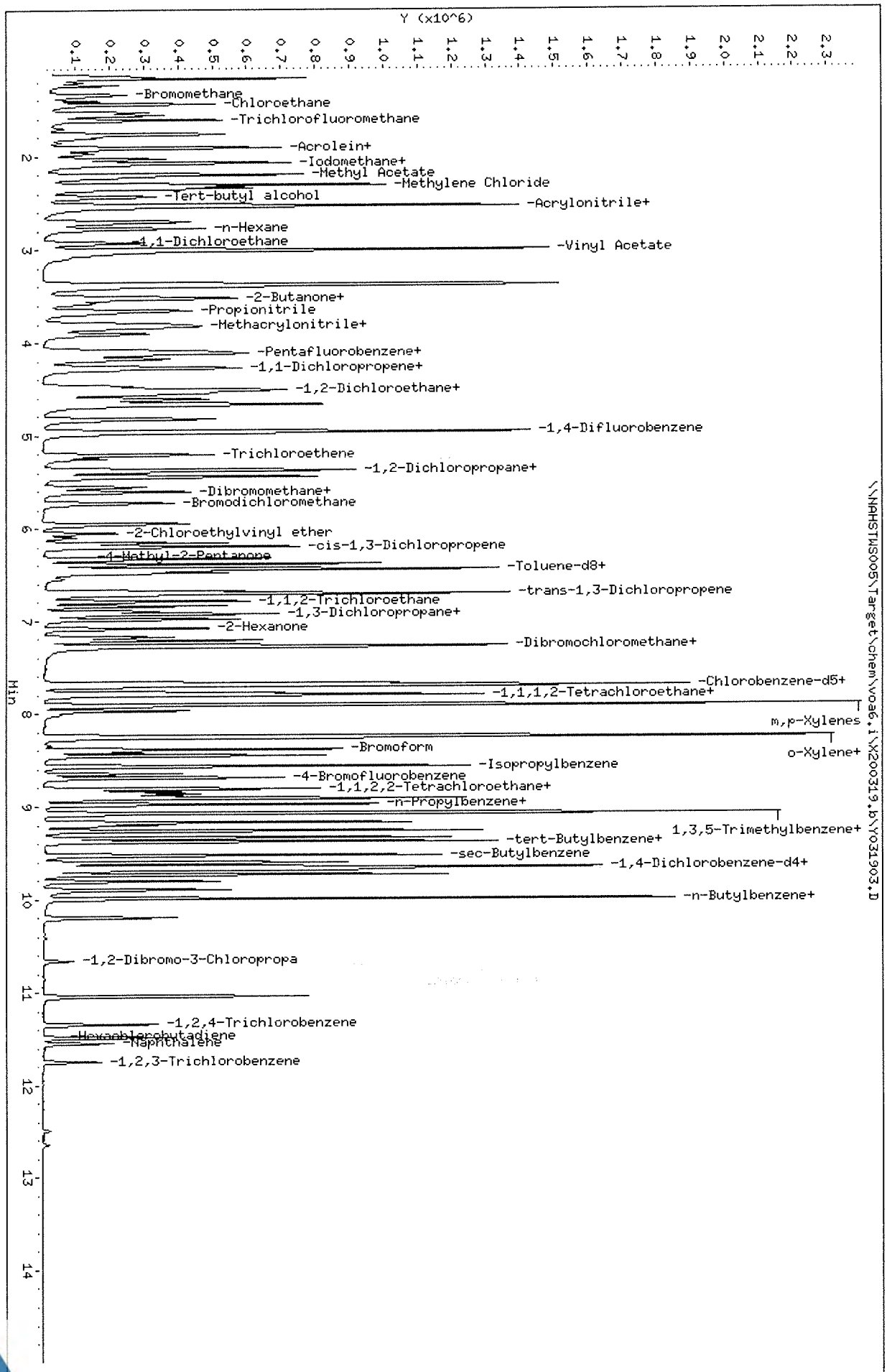
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031903.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 19-MAR-2020 22:45
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 07-Apr-2020 16:41 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 30 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	293829	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	148714	50.0000	50.94
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	186164	50.0000	50.43
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	458706	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	427860	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	533650	50.0000	48.68
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	199819	50.0000	48.52
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	207378	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	215663	50.0000	48.17
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	120672	50.0000	48.46
17 Methylene Chloride	84	2.305	2.305	(0.551)	161682	50.0000	51.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	169573	50.0000	50.67
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	243779	50.0000	50.30
38 Trichloroethene	130	5.206	5.206	(1.048)	159776	50.0000	50.25
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	117902	50.0000	47.82



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031903.D
Date : 19-MAR-2020 22:45
Client ID: CCV
Sample Info: CCV;CCV;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031904.D Page 1
Report Date: 07-Apr-2020 16:41

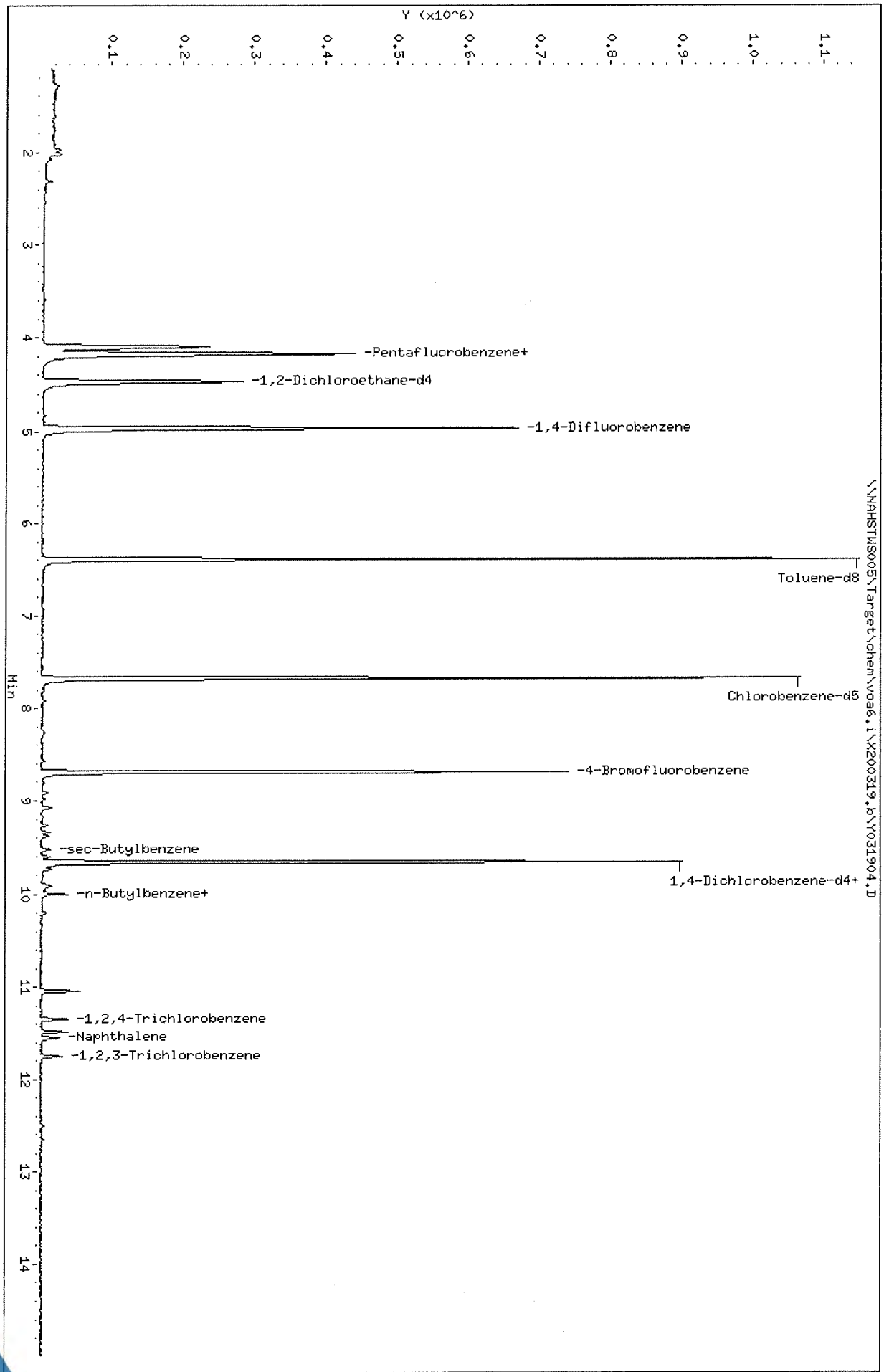
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031904.D
Lab Smp Id: CCB Client Smp ID: CCB
Inj Date : 19-MAR-2020 23:09
Operator : PC Inst ID: voa6.i
Smp Info : CCB;CCB;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 07-Apr-2020 16:41 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 31
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365256	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	170163	46.8813	46.88
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	207623	45.2300	45.22
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	539176	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	465790	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	631739	52.9498	52.94
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	212011	47.2774	47.27
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	210239	50.0000	



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031904.D
Date : 19-MAR-2020 23:09
Client ID: CCB
Sample Info: CCB:CCB;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031905.D Page 1
Report Date: 07-Apr-2020 16:41

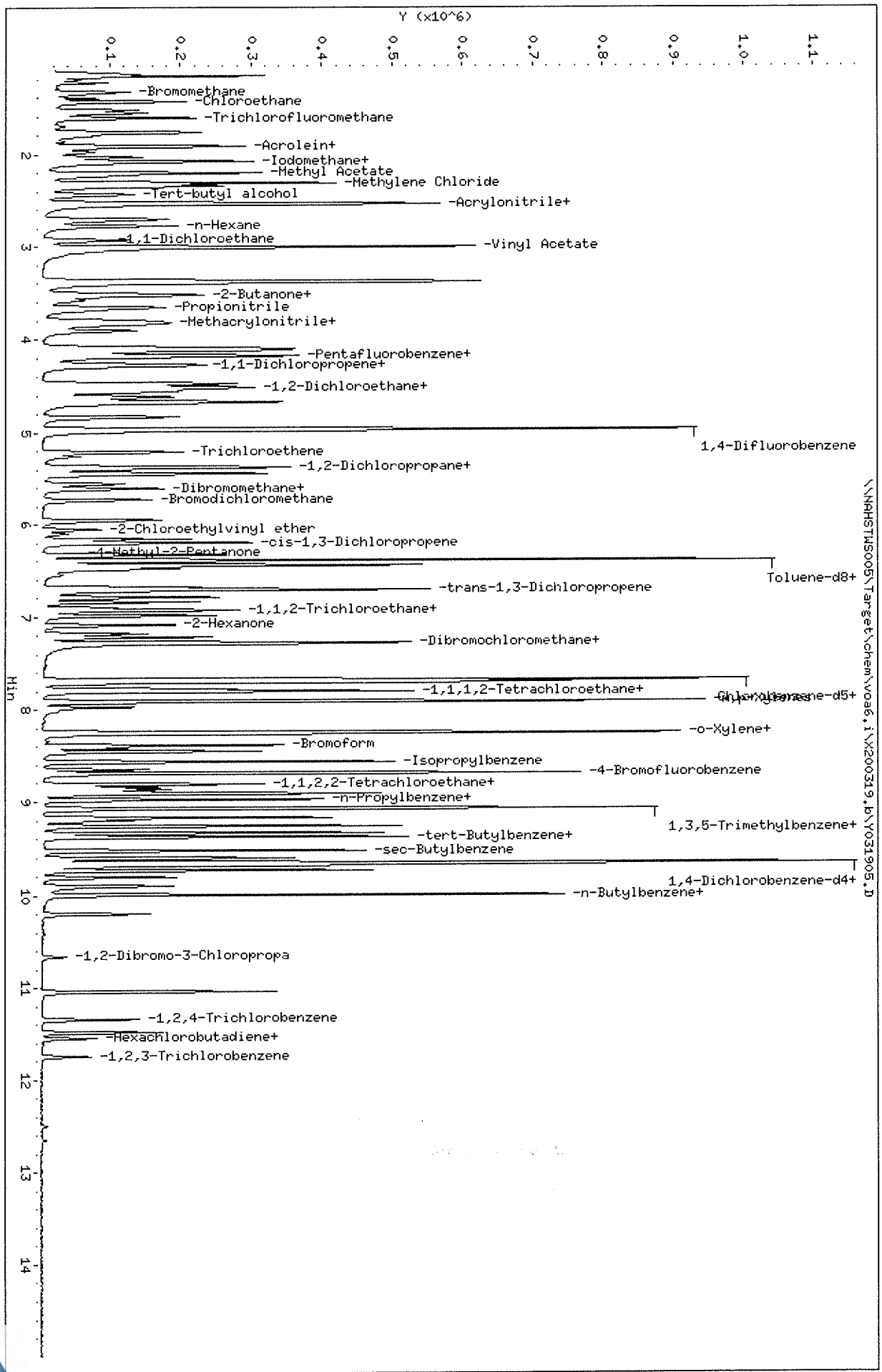
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031905.D
Lab Smp Id: VLCSW-200319 Client Smp ID: VLCSW-200319
Inj Date : 19-MAR-2020 23:33
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200319;VLCSW-200319;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 07-Apr-2020 16:41 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 32 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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	4.182	4.182	(1.000)	298296	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	157675	53.2066	53.20
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	197968	52.8340	52.83
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	467530	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	423096	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	562060	51.8618	51.86
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	214595	52.7388	52.73
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	212109	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	86669	19.0709	19.07
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	49285	19.4984	19.49
17 Methylene Chloride	84	2.306	2.305	(0.551)	69494	21.0975	21.09
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	69232	20.3802	20.38
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	99995	20.2444	20.24
38 Trichloroethene	130	5.214	5.206	(1.049)	66316	20.4647	20.46
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	47739	19.5844	19.58



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031905.D
Date : 19-MAR-2020 23:33
Client ID: VLCSW-200319
Sample Info: VLCSW-200319;VLCSW-200319;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031907.D
Lab Smp Id: VBLKW1-200319 Client Smp ID: VBLKW1-200319
Inj Date : 20-MAR-2020 00:21
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW1-200319;VBLKW1-200319;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 07-Apr-2020 16:41 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 34 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

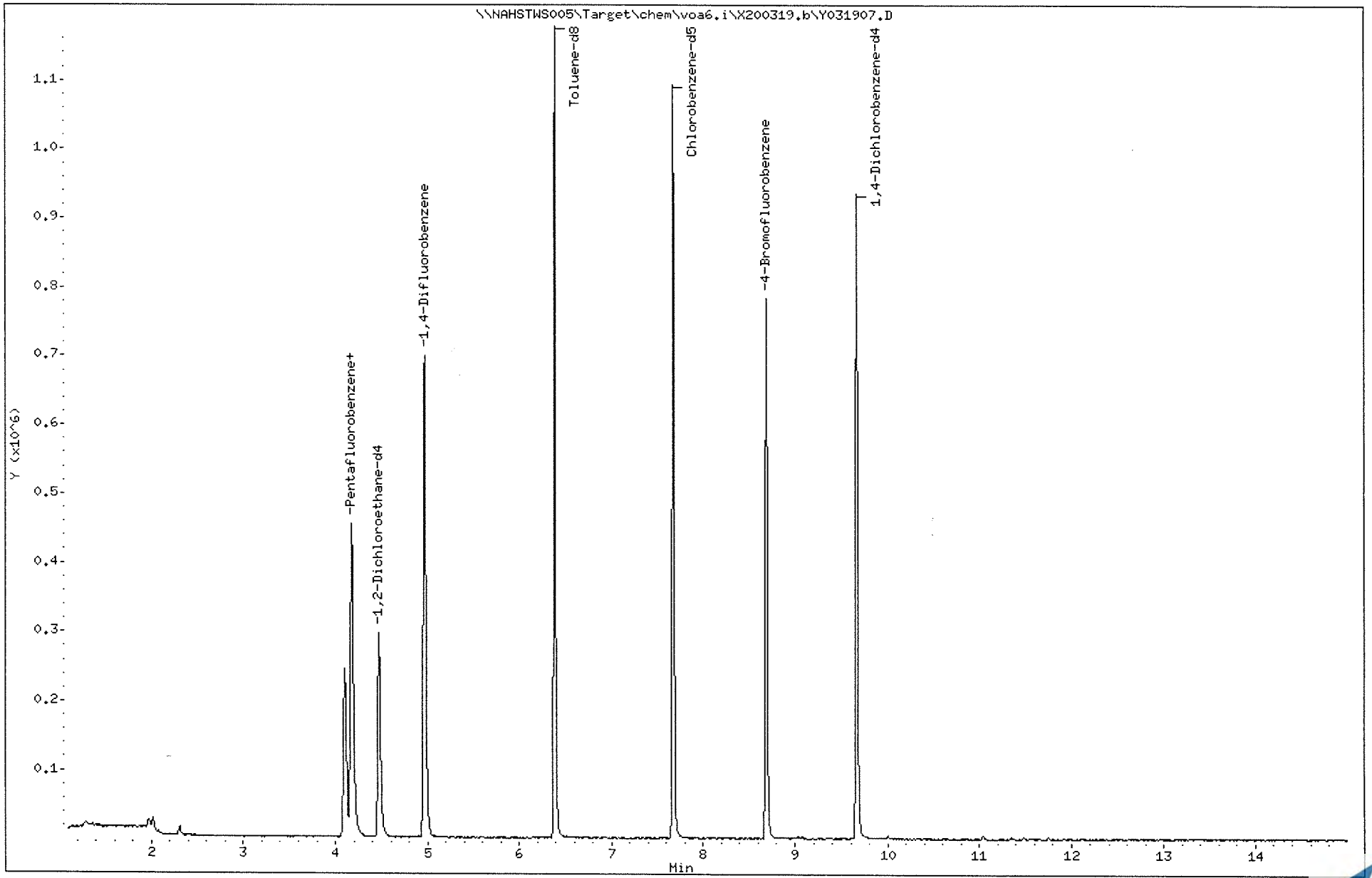
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	381420	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	177592	46.8545	46.85
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	215787	45.0156	45.01
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	561159	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	485409	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	652587	52.4858	52.48
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	228404	48.8910	48.89
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	229973	50.0000	

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031907.D
Date : 20-MAR-2020 00:21
Client ID: VBLKW1-200319
Sample Info: VBLKW1-200319;VBLKW1-200319;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031908.D
Lab Smp Id: HS20030474-07 Client Smp ID: HS20030474-07
Inj Date : 20-MAR-2020 00:45
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-07;HS20030474-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 07-Apr-2020 16:41 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 35
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

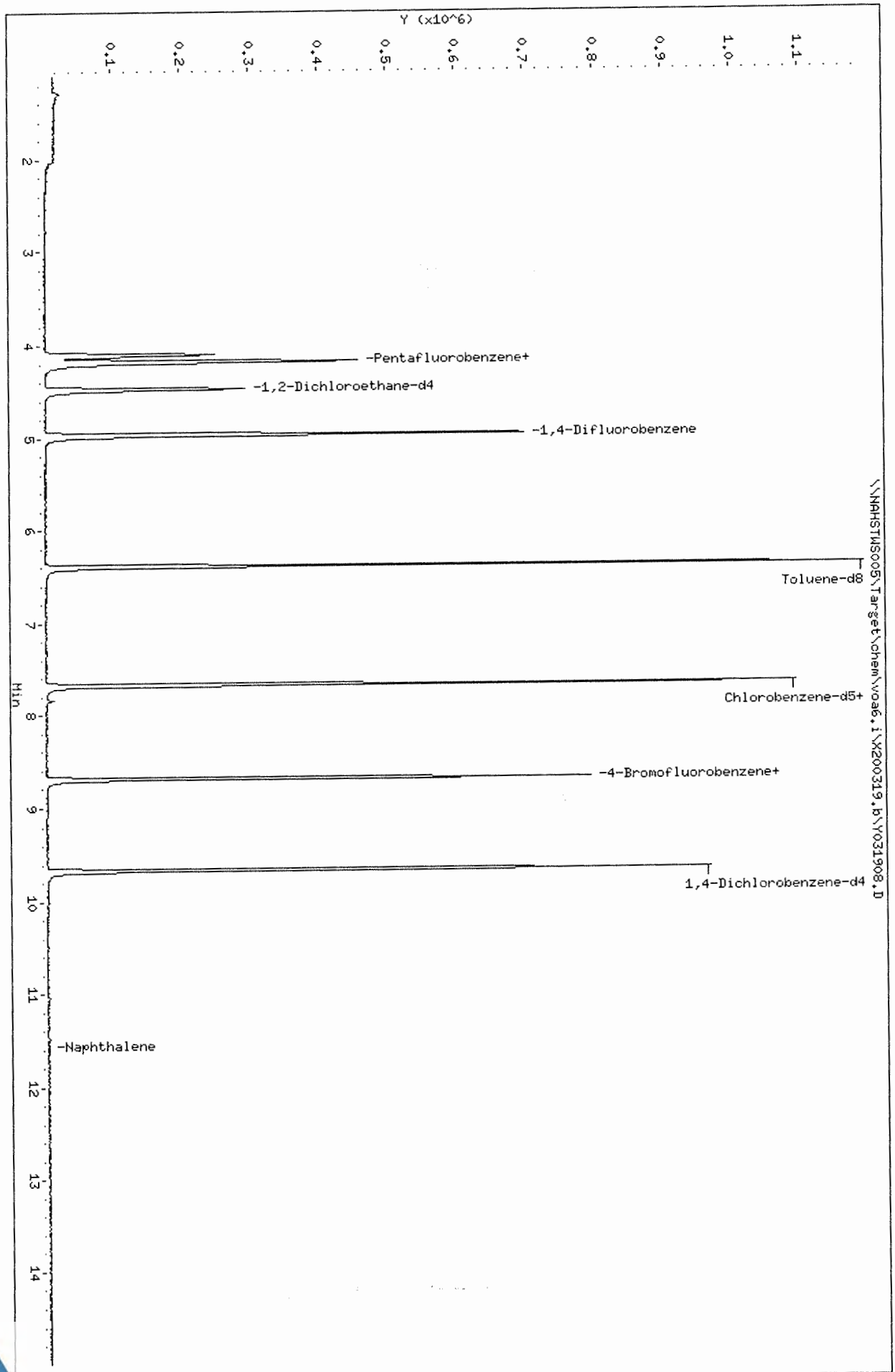
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.182	4.182	(1.000)	382543	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	178051	46.8377	46.83
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	218282	45.4037	45.40
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	564457	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	487743	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	660102	52.8367	52.83
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	230455	49.0961	49.09
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	230532	50.0000	

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031908.D
Date : 20-MAR-2020 00:45
Client ID: HS20030474-07
Sample Info: HS20030474-07;HS20030474-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



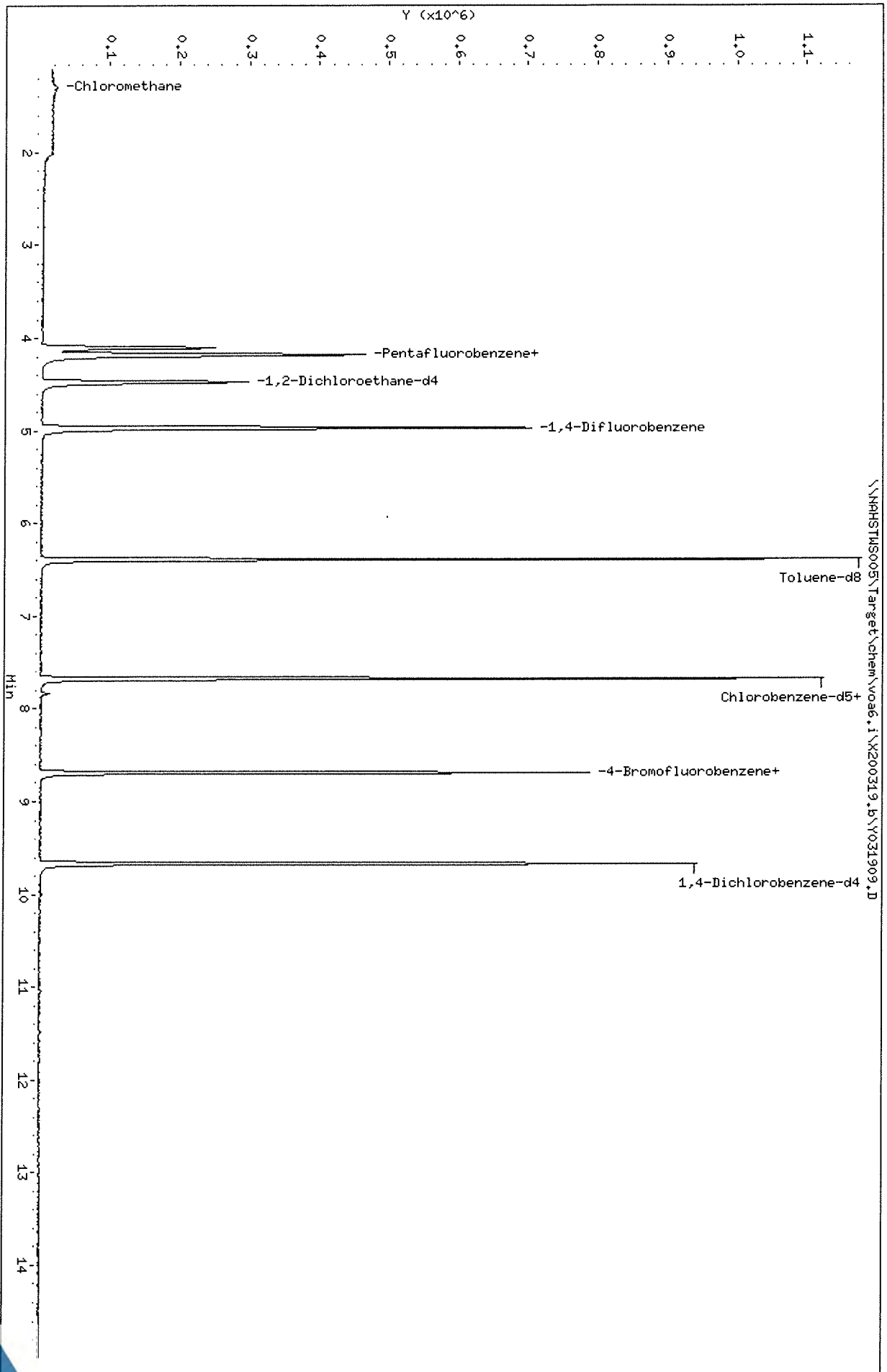
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031909.D
Lab Smp Id: HS20030498-08 Client Smp ID: HS20030498-08
Inj Date : 20-MAR-2020 01:09
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-08;HS20030498-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 36
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7051

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	389845	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	181442	46.8357	46.83
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	223379	45.5943	45.59
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	571931	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	490909	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	673805	53.5867	53.58
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	227385	48.1199	48.11
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	231790	50.0000	



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031909.D
Date : 20-MAR-2020 01:09
Client ID: HS20030498-08
Sample Info: HS20030498-08;HS20030498-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031912.D
Lab Smp Id: HS20030474-04 Client Smp ID: HS20030474-04
Inj Date : 20-MAR-2020 02:22
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-04;HS20030474-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 39
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	390807	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	181816	46.8166	46.81
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	220680	44.9302	44.93
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	570782	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	494201	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	670501	52.9679	52.96
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	232067	48.7904	48.79
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	230635	50.0000	
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	38273	8.59962	8.59
38 Trichloroethene	130	5.207	5.206	(1.048)	13122	3.31686	3.31(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031912.D

Date : 20-MAR-2020 02:22

Client ID: HS20030474-04

Instrument: voa6.i

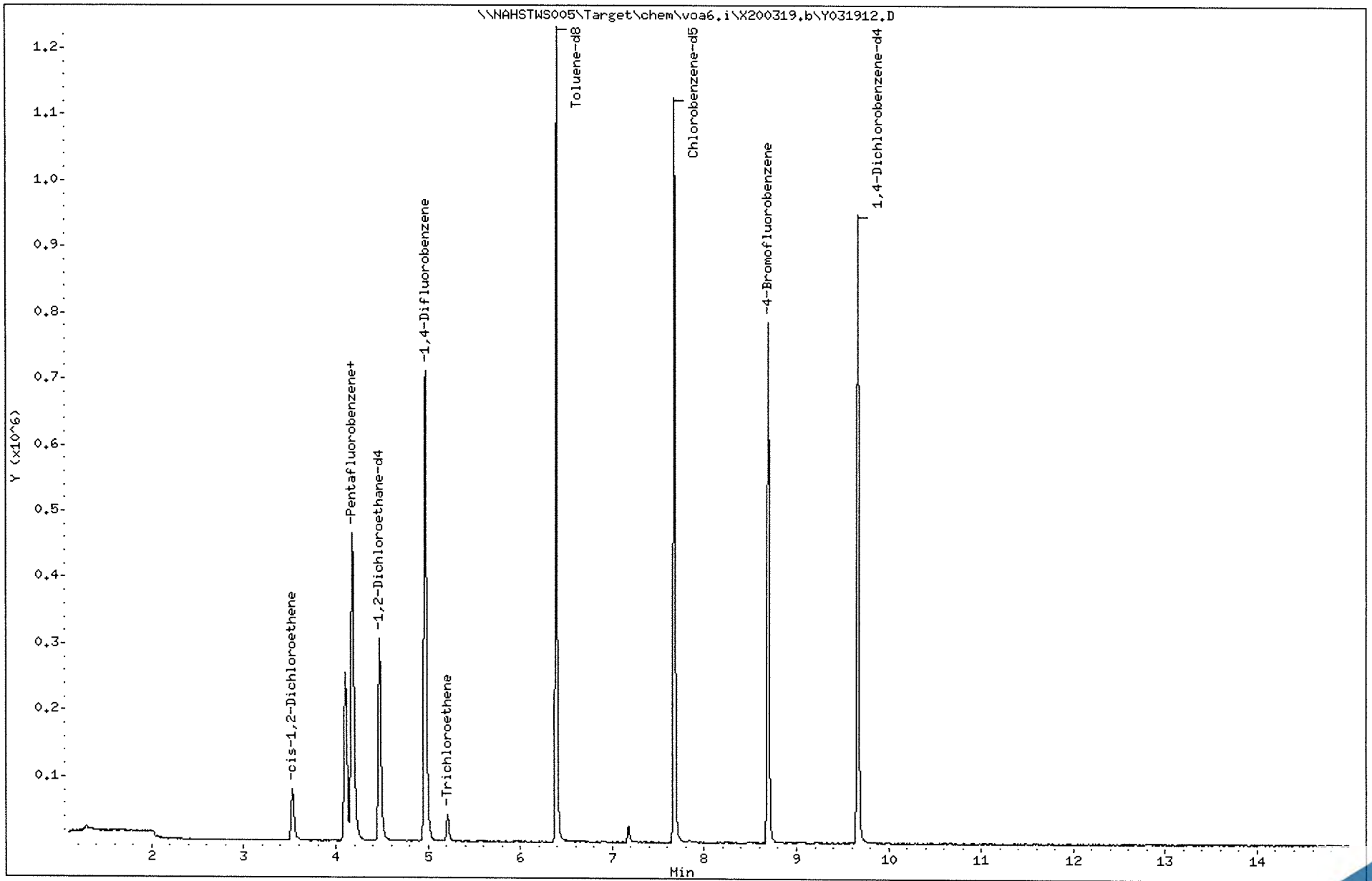
Sample Info: HS20030474-04;HS20030474-04;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031912.D

Date : 20-MAR-2020 02:22

Client ID: HS20030474-04

Instrument: voa6.i

Sample Info: HS20030474-04;HS20030474-04;;;

Purge Volume: 5.0

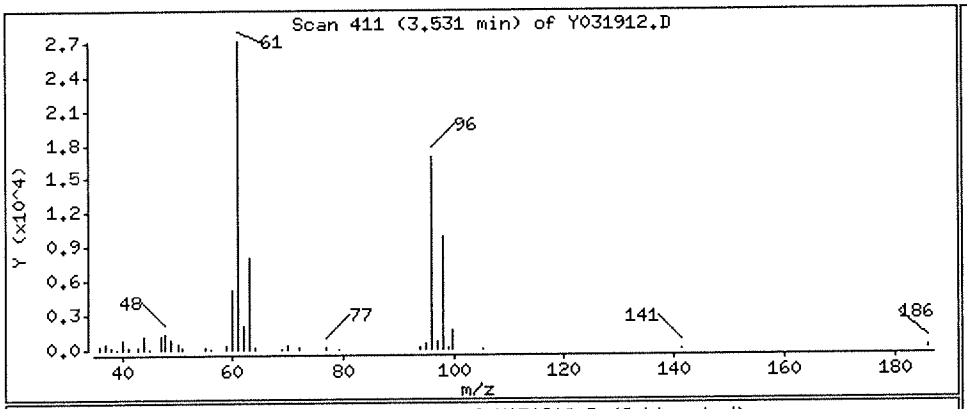
Operator: PC

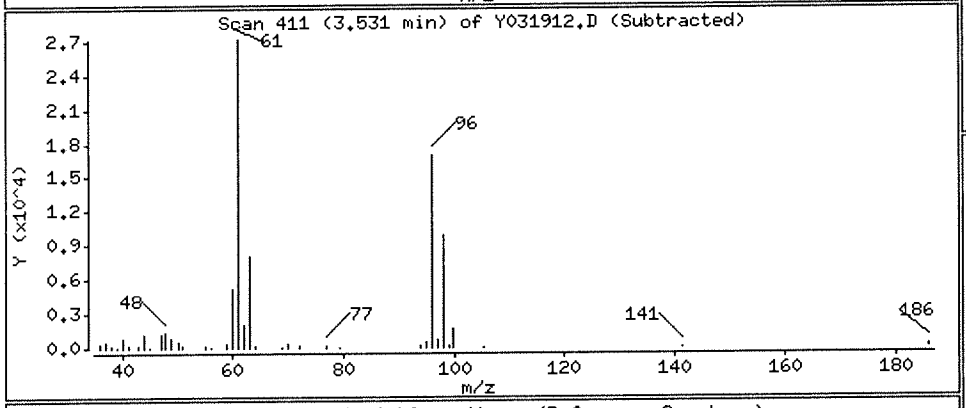
Column phase: DB624

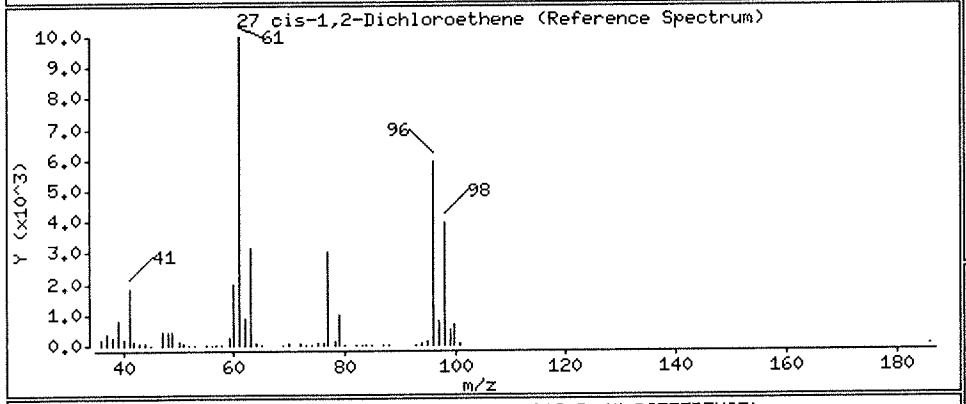
Column diameter: 0.18

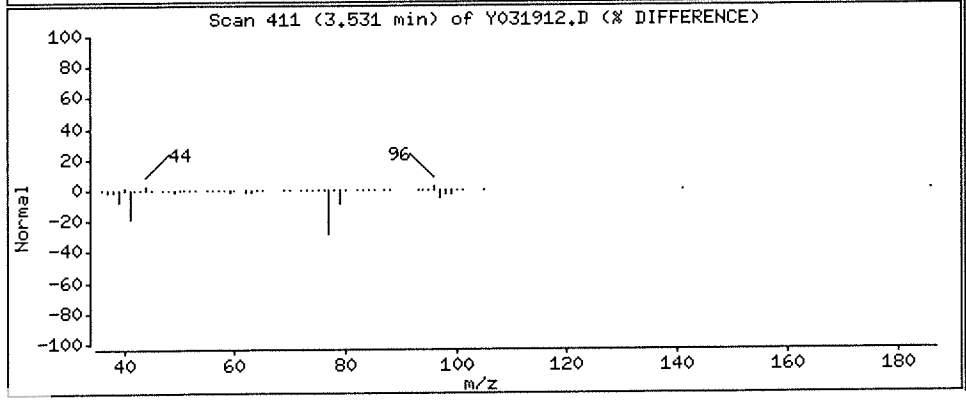
27 cis-1,2-Dichloroethene

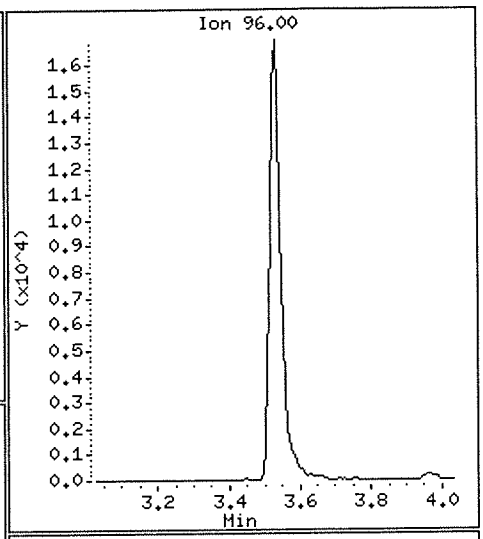
Concentration: 8.59 ug/l

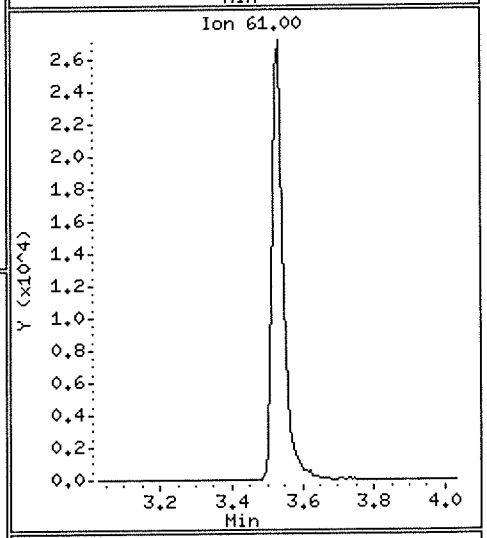


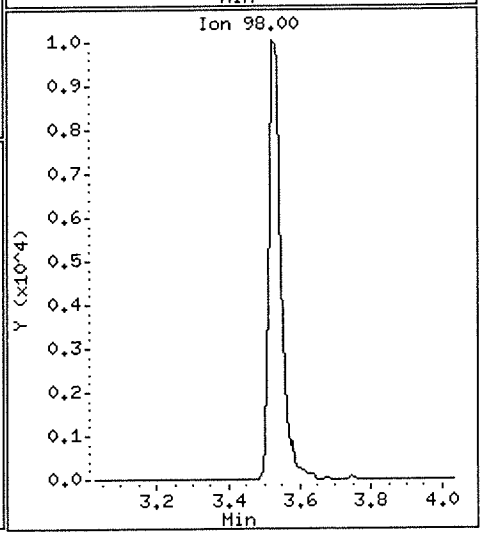












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031912.D

Date : 20-MAR-2020 02:22

Client ID: HS20030474-04

Instrument: voa6.i

Sample Info: HS20030474-04;HS20030474-04;;;

Operator: PC

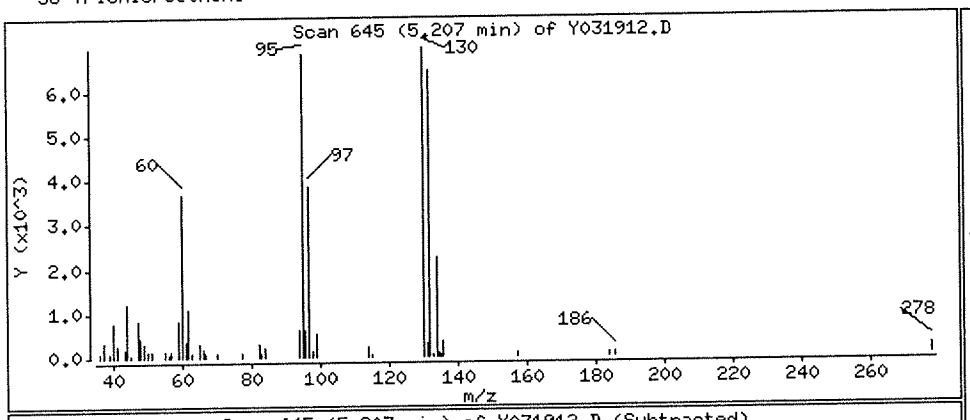
Purge Volume: 5.0

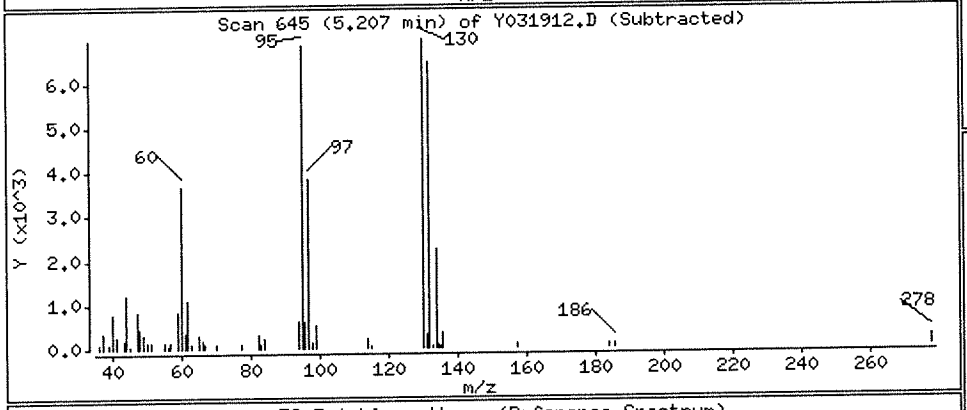
Column phase: DB624

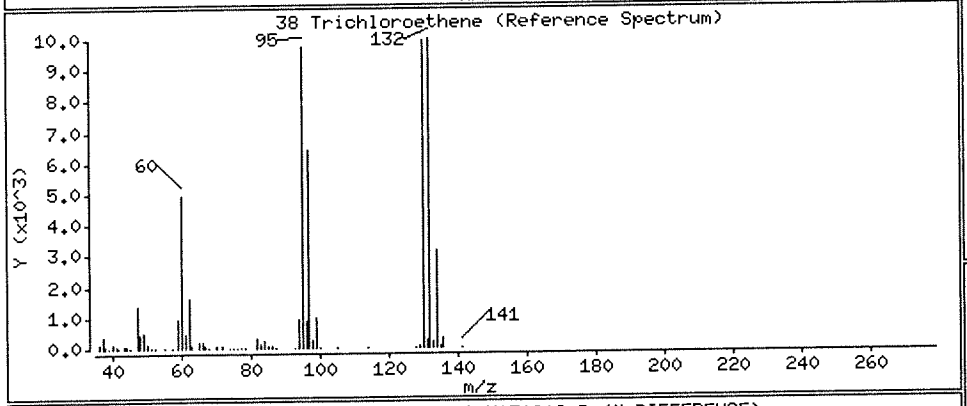
Column diameter: 0.18

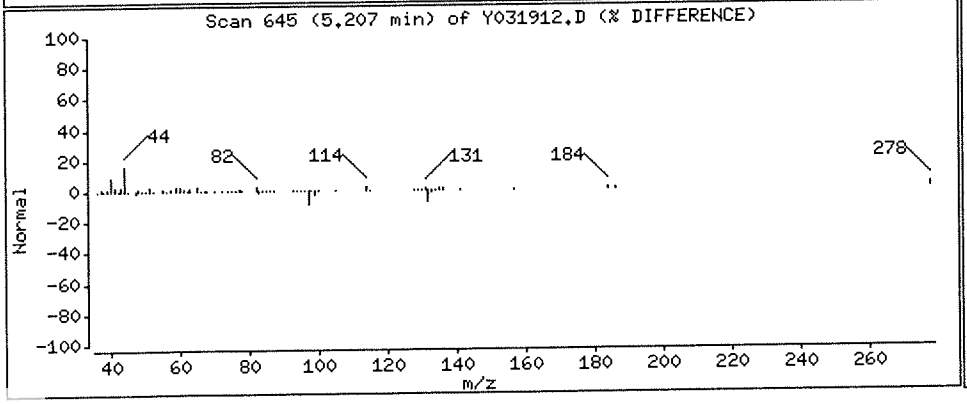
38 Trichloroethene

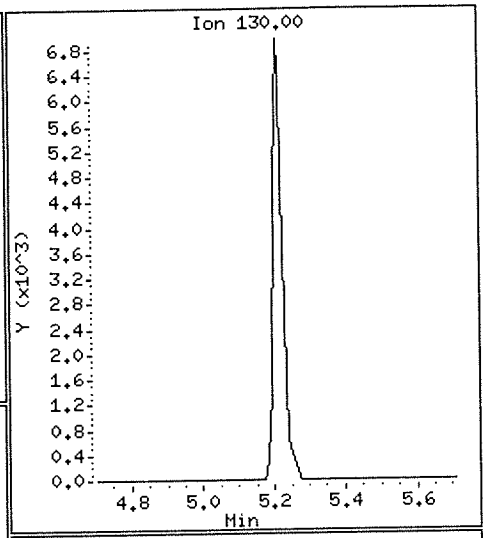
Concentration: 3.31 ug/l

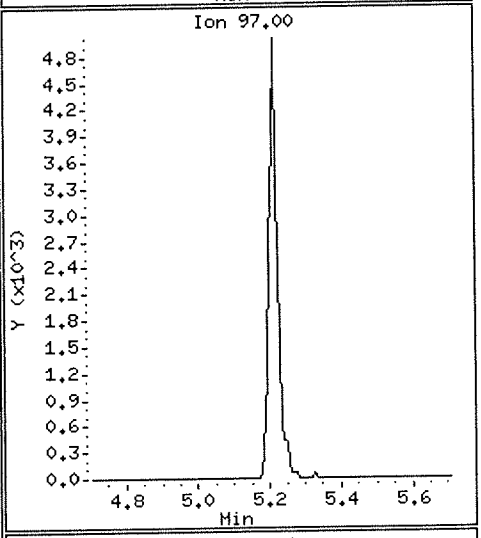


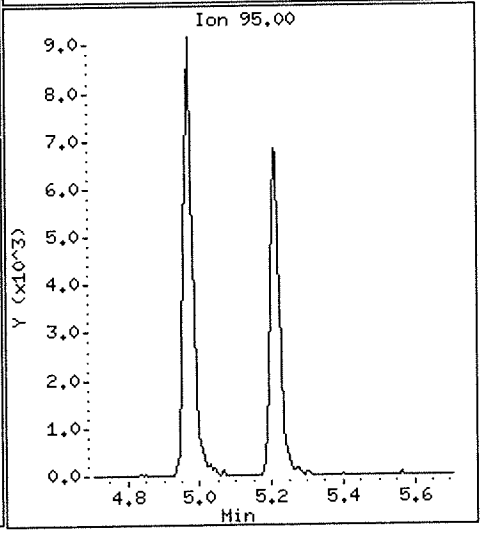












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031913.D Page 1
Report Date: 13-Apr-2020 12:19

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031913.D
Lab Smp Id: HS20030474-05 Client Smp ID: HS20030474-05
Inj Date : 20-MAR-2020 02:46
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-05;HS20030474-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 40
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

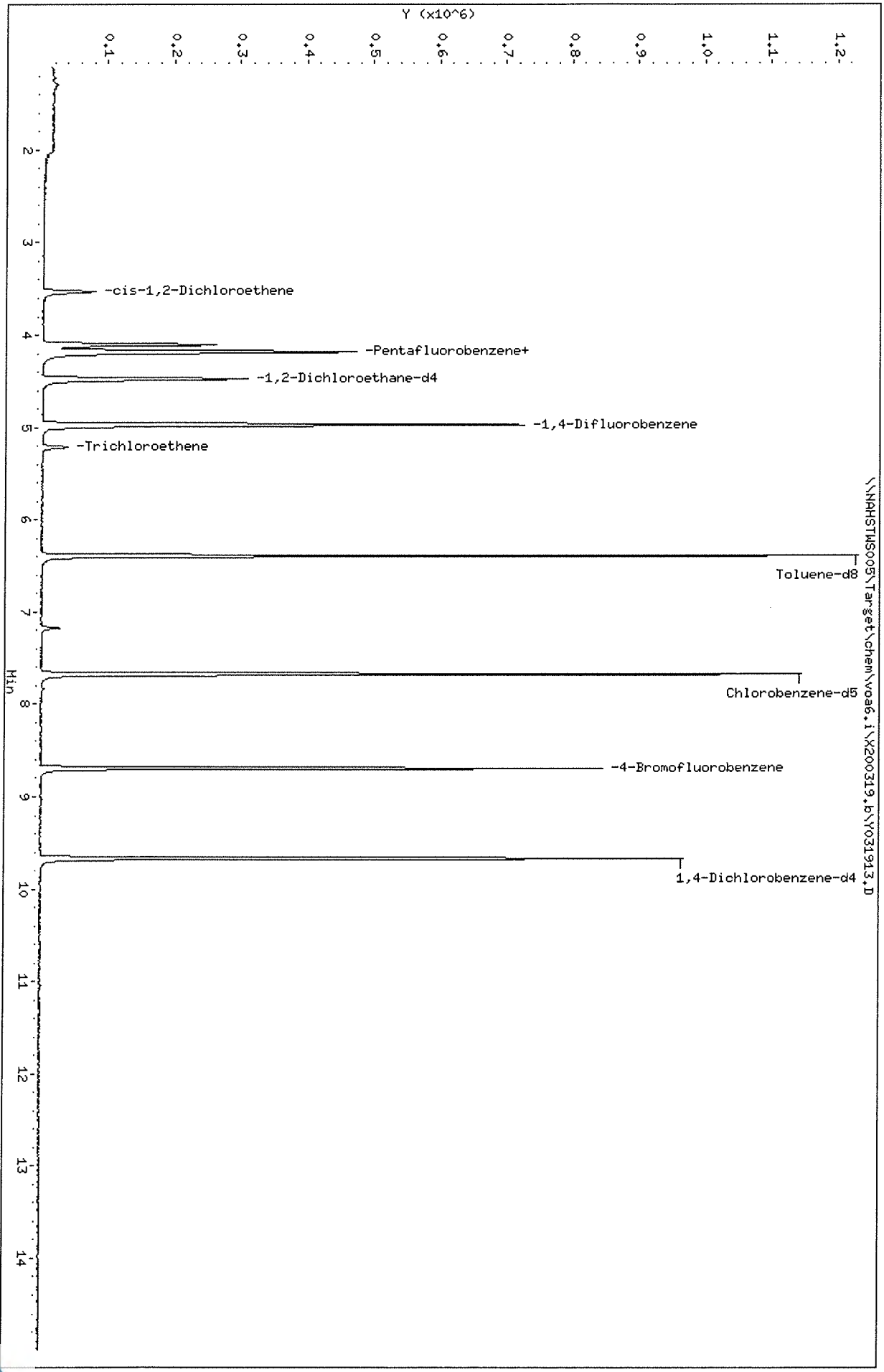
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	396628	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	184786	46.8832	46.88
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	225785	45.2962	45.29
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	583380	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	507524	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	679517	52.2700	52.26
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	241964	49.5433	49.54
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	239438	50.0000	
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	36999	8.19135	8.19
38 Trichloroethene	130	5.214	5.206	(1.049)	13270	3.28183	3.28(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031913.D
Date : 20-MAR-2020 02:46
Client ID: HS200304?4-05
Sample Info: HS200304?4-05;HS200304?4-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031913.D

Date : 20-MAR-2020 02:46

Client ID: HS20030474-05

Instrument: voa6.i

Sample Info: HS20030474-05;HS20030474-05;;;

Purge Volume: 5.0

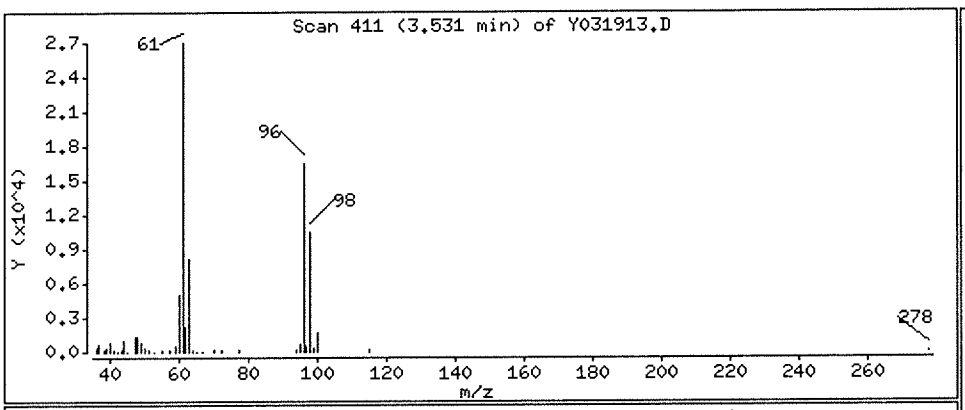
Operator: PC

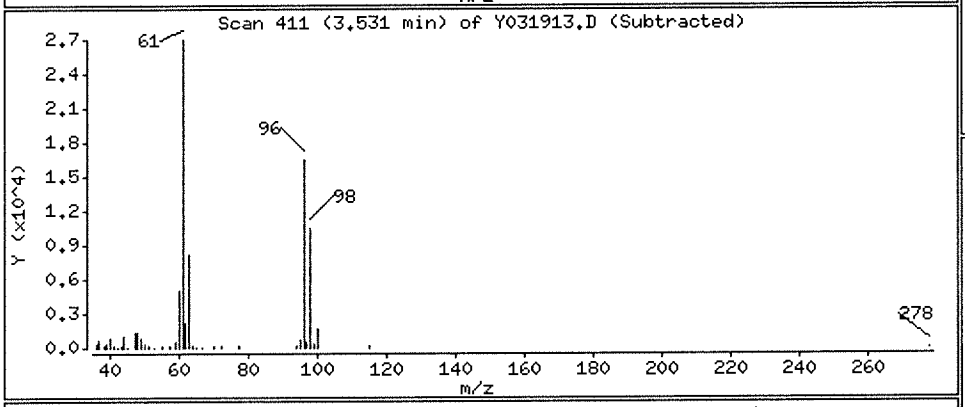
Column phase: DB624

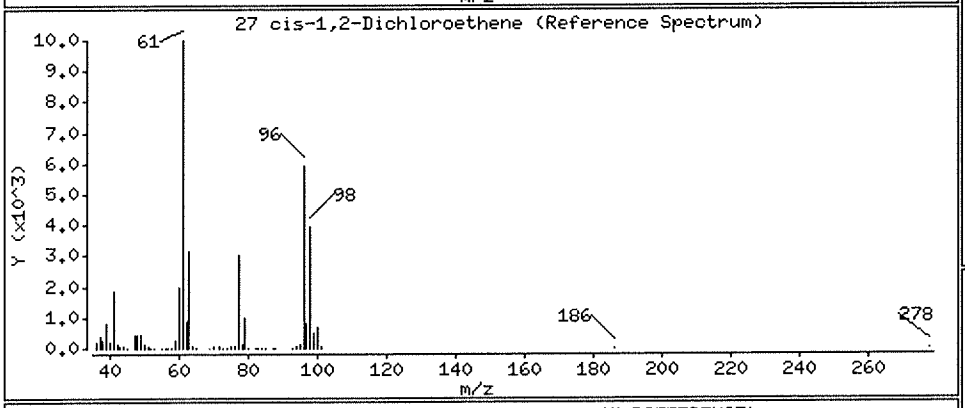
Column diameter: 0.18

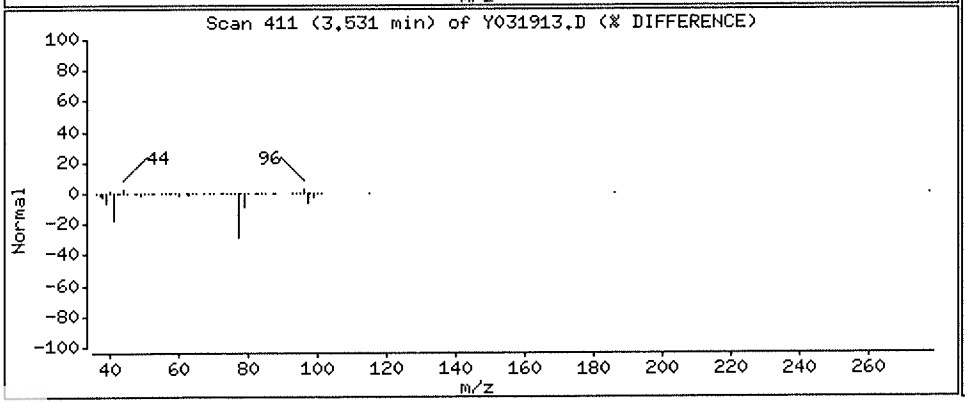
27 cis-1,2-Dichloroethene

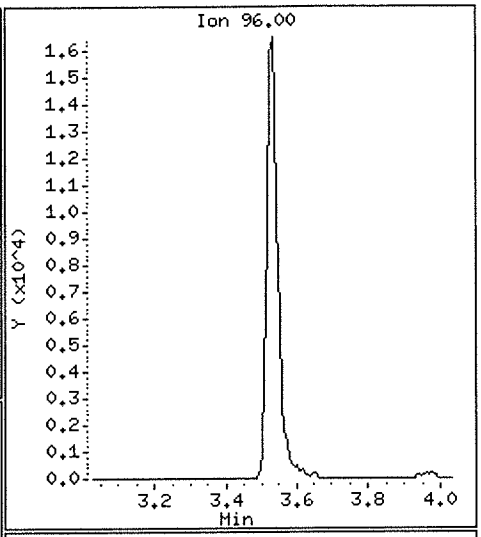
Concentration: 8.19 ug/l

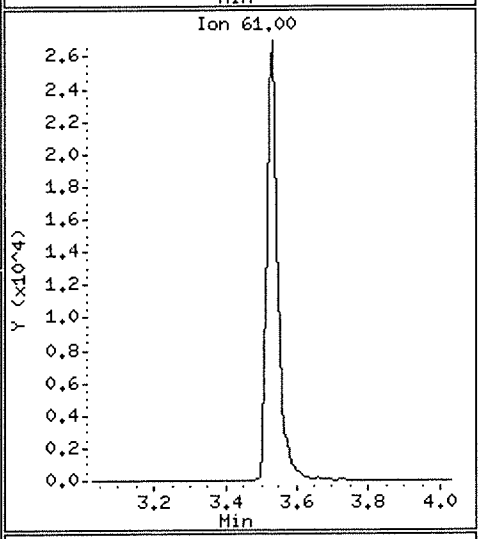


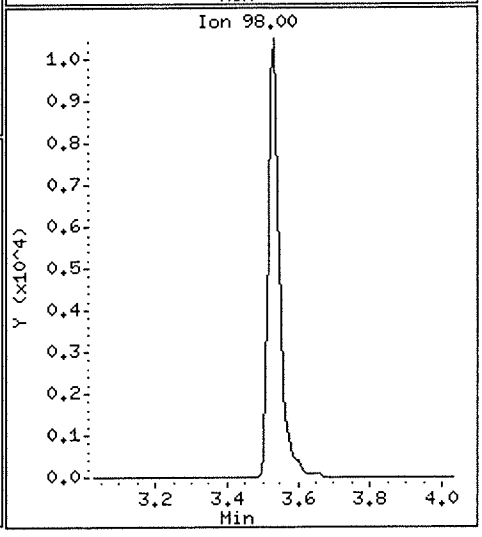












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031913.D

Date : 20-MAR-2020 02:46

Client ID: HS20030474-05

Instrument: voa6.i

Sample Info: HS20030474-05;HS20030474-05;;;

Purge Volume: 5.0

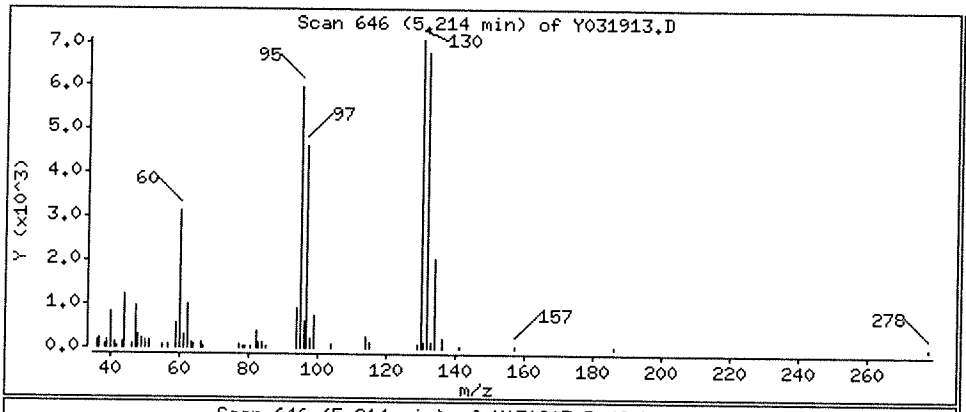
Operator: PC

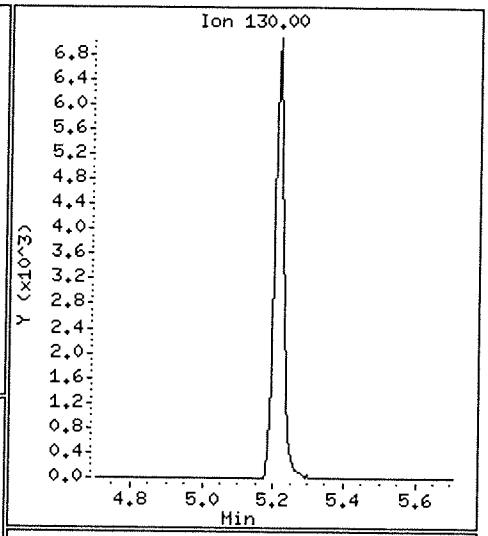
Column phase: DB624

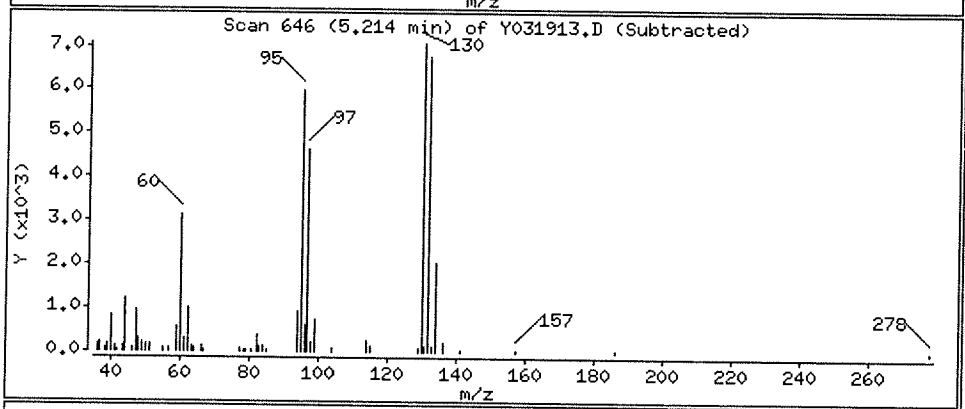
Column diameter: 0.18

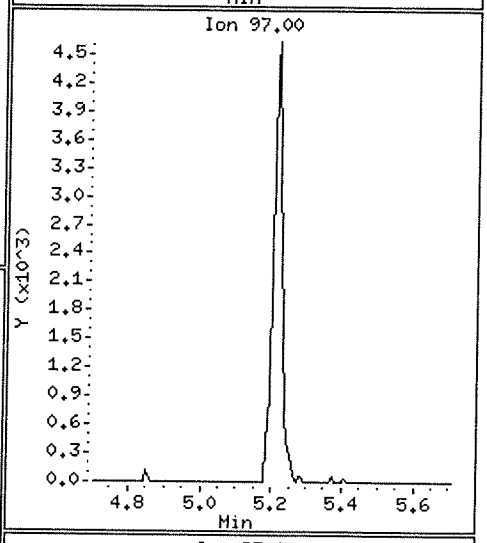
38 Trichloroethene

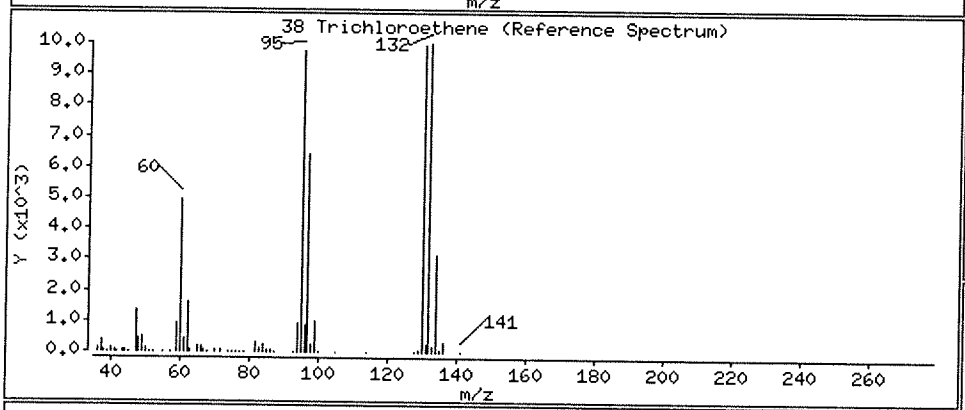
Concentration: 3.28 ug/l

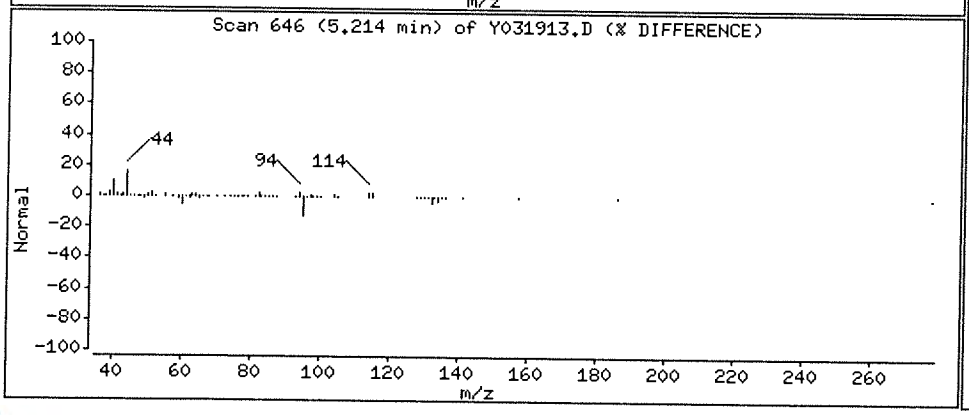


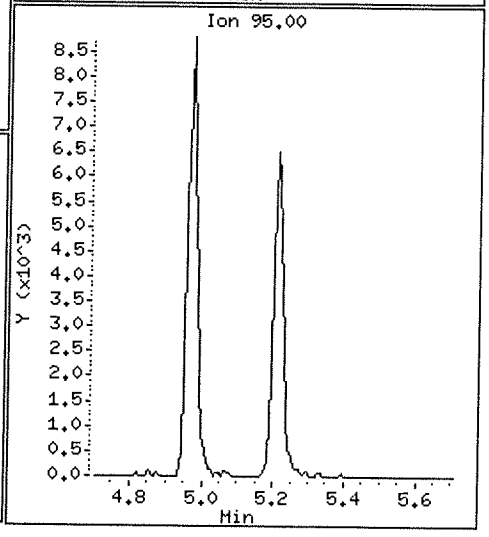












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031914.D Page 1
Report Date: 07-Apr-2020 16:41

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031914.D
Lab Smp Id: HS20030498-03 Client Smp ID: HS20030498-03
Inj Date : 20-MAR-2020 03:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-03;HS20030498-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 07-Apr-2020 16:41 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 41
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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	4.182	4.182	(1.000)	388236	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	181279	46.9879	46.98
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	223019	45.7099	45.70
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	573994	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	477433	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	634202	51.8584	51.85
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	228227	49.6771	49.67
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	233054	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	241154	40.7713	40.77
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	24646	7.49172	7.49
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	151103	34.1764	34.17
38 Trichloroethene	130	5.214	5.206	(1.049)	4913879	1235.13	1235.13(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031914.D

Date : 20-MAR-2020 03:10

Client ID: HS20030498-03

Instrument: voa6.i

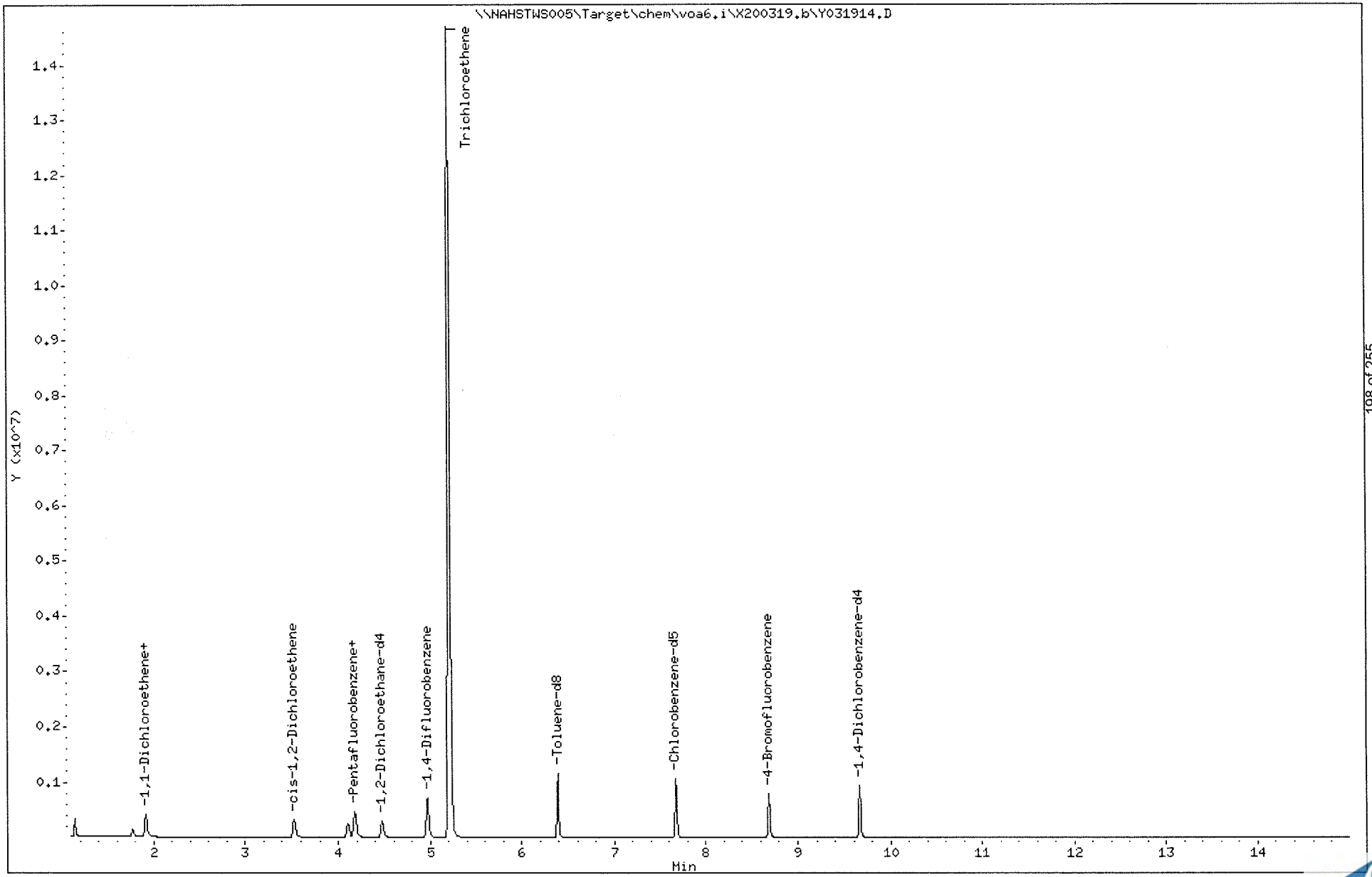
Sample Info: HS20030498-03;HS20030498-03;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031915.D
Lab Smp Id: HS20030498-03MS Client Smp ID: HS20030498-03MS
Inj Date : 20-MAR-2020 03:34
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-03MS;HS20030498-03MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 07-Apr-2020 16:41 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 42 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

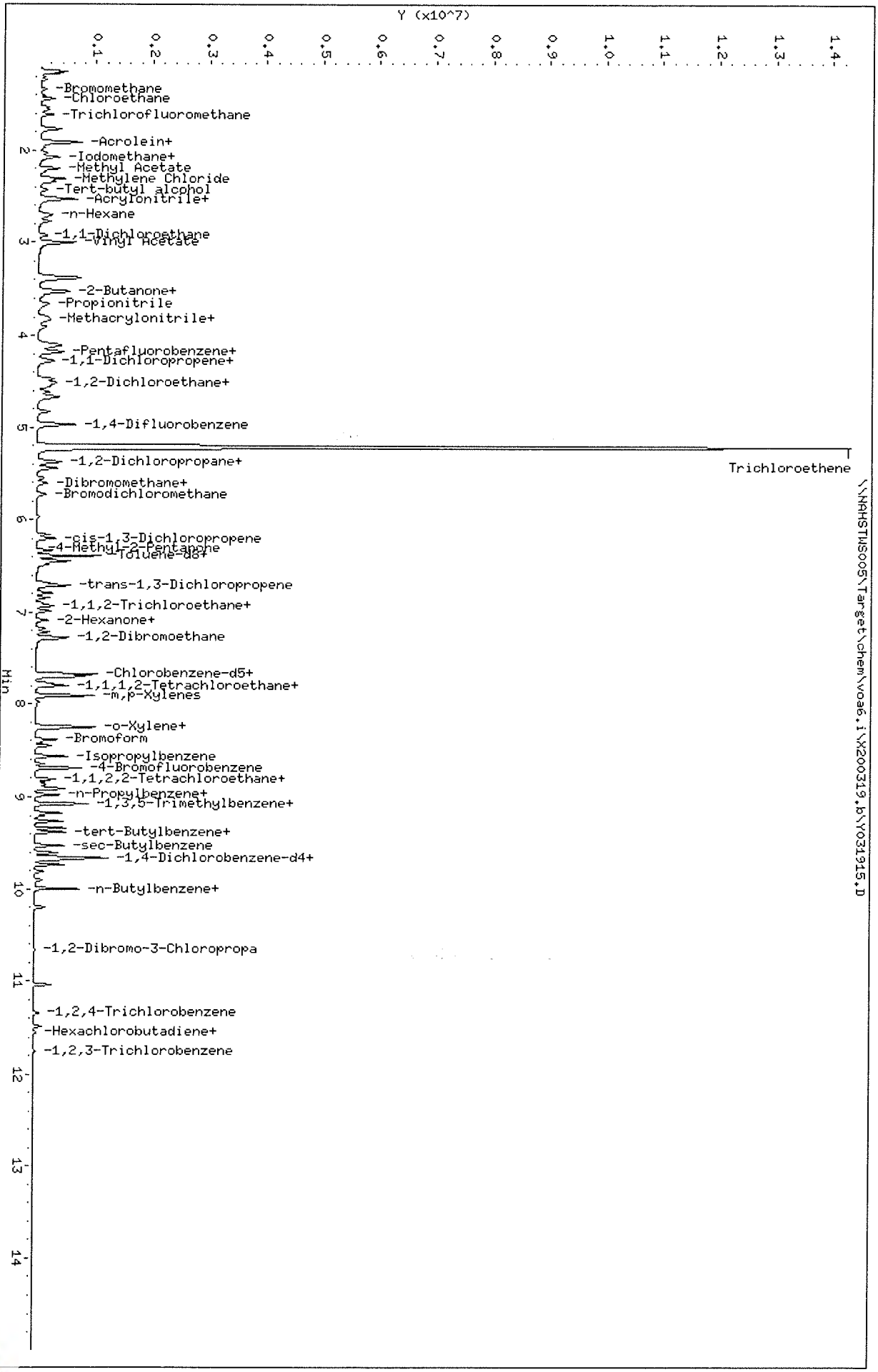
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	373176	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	173731	46.8484	46.84
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	217078	46.2898	46.28
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	551051	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	475332	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	623009	51.1673	51.16
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	226763	49.5756	49.57
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	233350	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	338942	59.6166	59.61
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	82012	25.9355	25.93
17 Methylene Chloride	84	2.305	2.305	(0.551)	74895	17.9788	17.97
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	223238	52.5295	52.52
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	110703	19.0153	19.01
38 Trichloroethene	130	5.214	5.206	(1.049)	4803946	1257.78	1257.77(A)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	51675	18.8695	18.86

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031915.D
Date : 20-MAR-2020 03:34
Client ID: HS20030498-03MS
Sample Info: HS20030498-03MS;HS20030498-03MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031916.D Page 1
Report Date: 07-Apr-2020 16:41

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031916.D
Lab Smp Id: HS20030498-03MSD Client Smp ID: HS20030498-03MSD
Inj Date : 20-MAR-2020 03:58
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-03MSD;HS20030498-03MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 07-Apr-2020 16:41 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 42 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

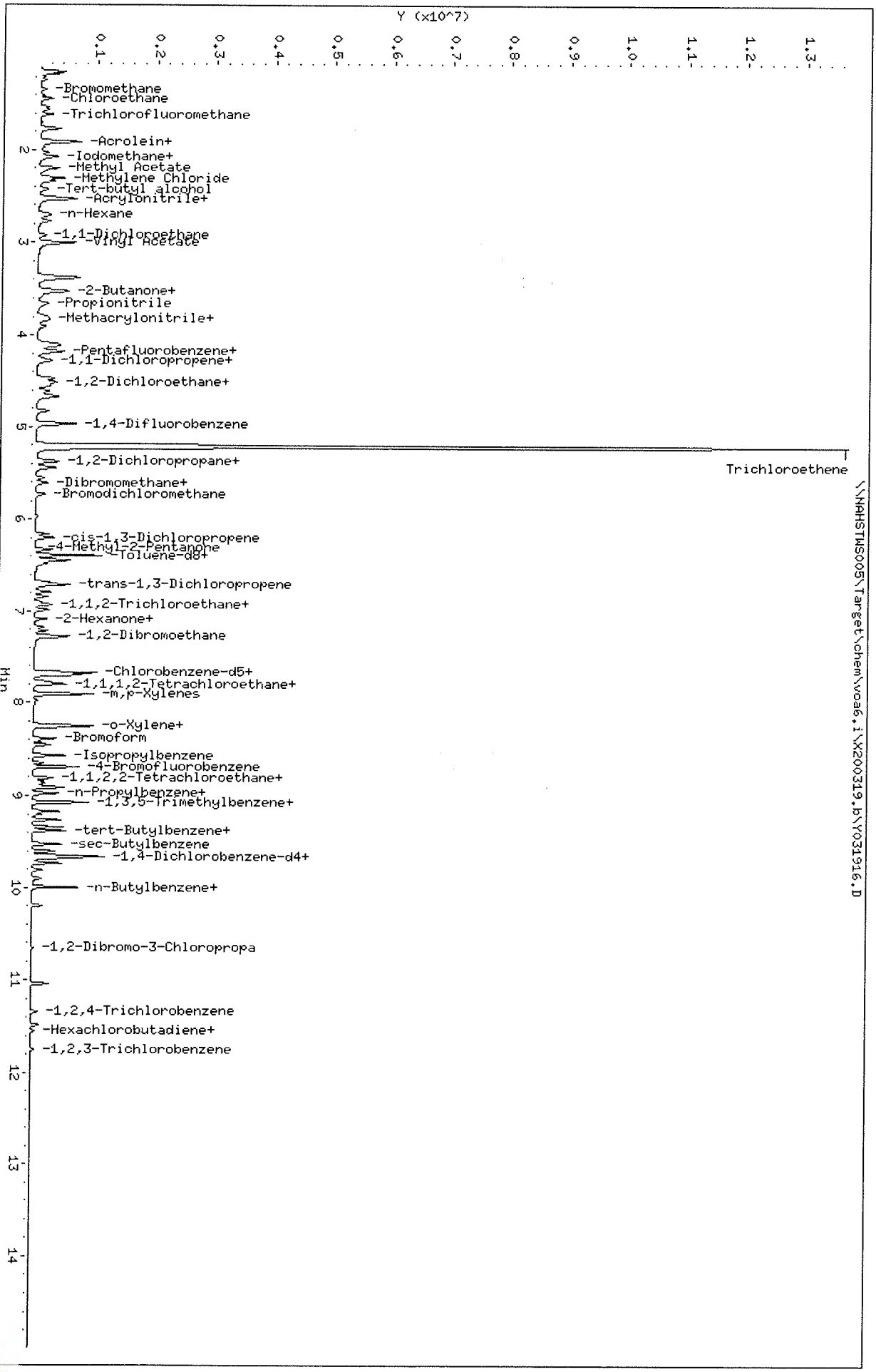
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	367736	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	171711	46.9890	46.98
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	214463	46.4091	46.40
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	541123	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	463530	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	612003	51.5437	51.54
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	219114	49.1186	49.11
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	224976	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	315184	56.2579	56.25
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	76469	24.5403	24.54
17 Methylene Chloride	84	2.306	2.305	(0.551)	70446	17.0967	17.09
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	213860	51.0672	51.06
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	112106	19.6096	19.60
38 Trichloroethene	130	5.214	5.206	(1.049)	4589284	1223.62	1223.61(A)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	50718	18.9915	18.99

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031916.D
Date : 20-MAR-2020 03:58
Client ID: HS20030498-03MSD
Sample Info: HS20030498-03MSD;HS20030498-03MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031918.D
Lab Smp Id: HS20030474-03 Client Smp ID: HS20030474-03
Inj Date : 20-MAR-2020 04:46
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-03;HS20030474-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 44
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

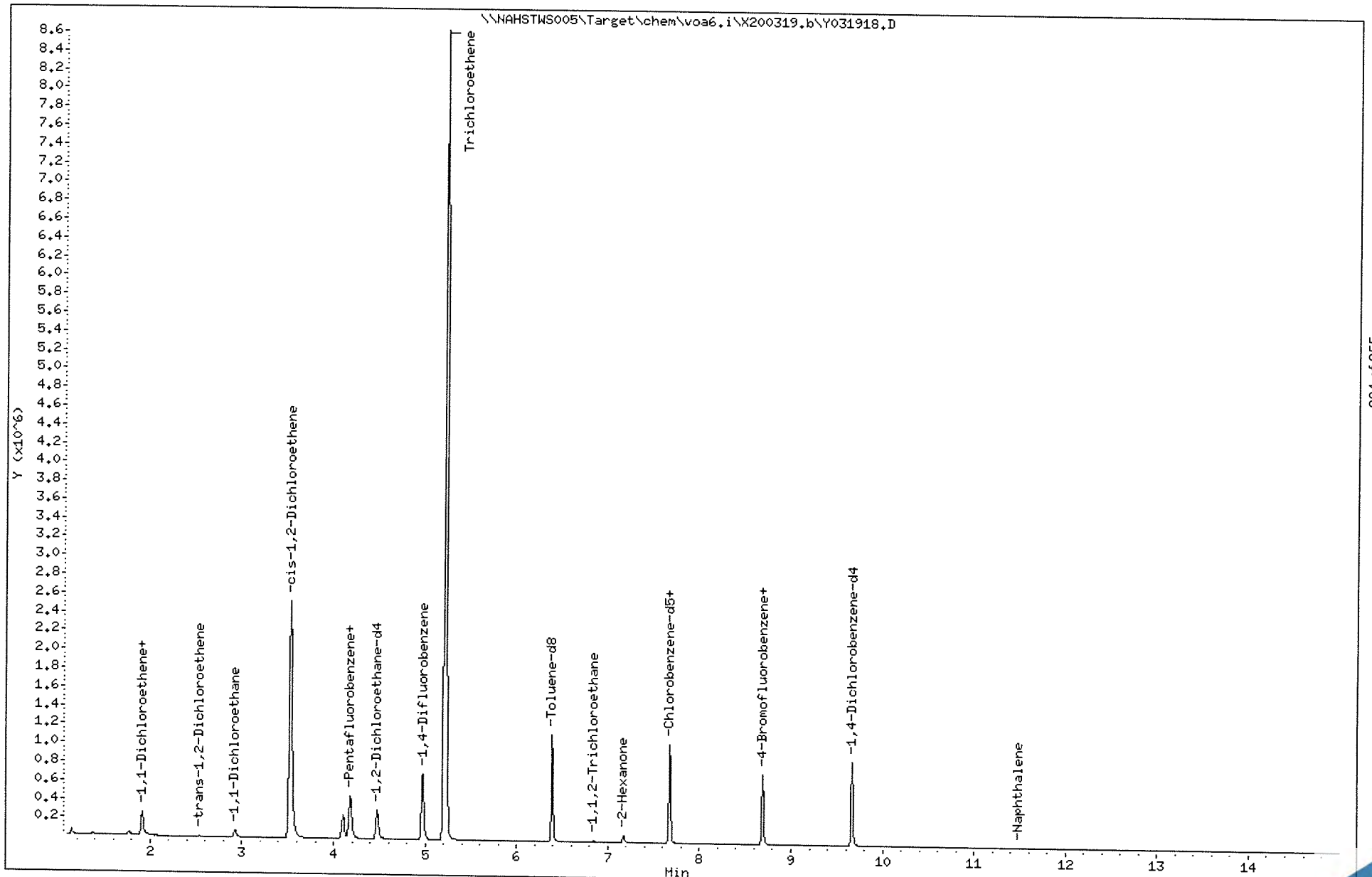
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	374721	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	178660	47.9815	47.98
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	218895	46.4854	46.48
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	554096	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	463629	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	624144	52.5565	52.55
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	215737	48.3435	48.34
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	220584	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	44798	7.84705	7.84
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	44731	14.0874	14.08
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1180894	276.727	276.72(A)
38 Trichloroethene	130	5.206	5.206	(1.048)	2870049	747.311	747.31(A)
53 1,1,2-Trichloroethane	83	6.847	6.840	(0.893)	2733	1.02316	1.02(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: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031918.D
Date : 20-MAR-2020 04:46
Client ID: HS20030474-03
Sample Info: HS20030474-03;HS20030474-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



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Date : 20-MAR-2020 04:46

Client ID: HS20030474-03

Instrument: voa6.i

Sample Info: HS20030474-03;HS20030474-03;;;

Purge Volume: 5.0

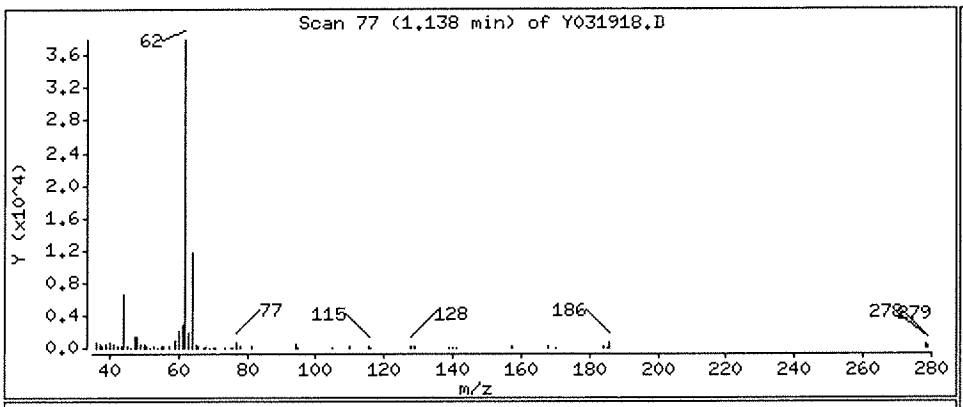
Operator: PC

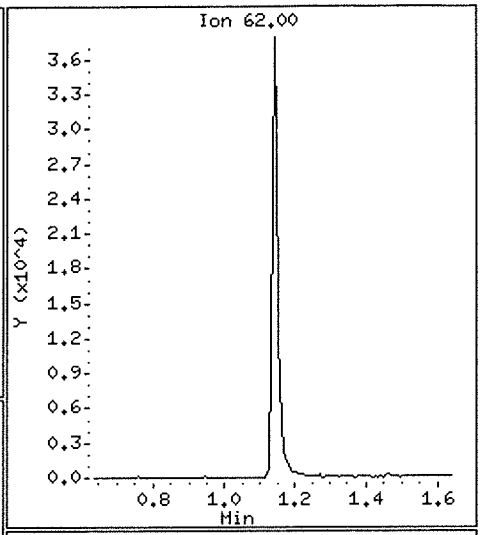
Column phase: DB624

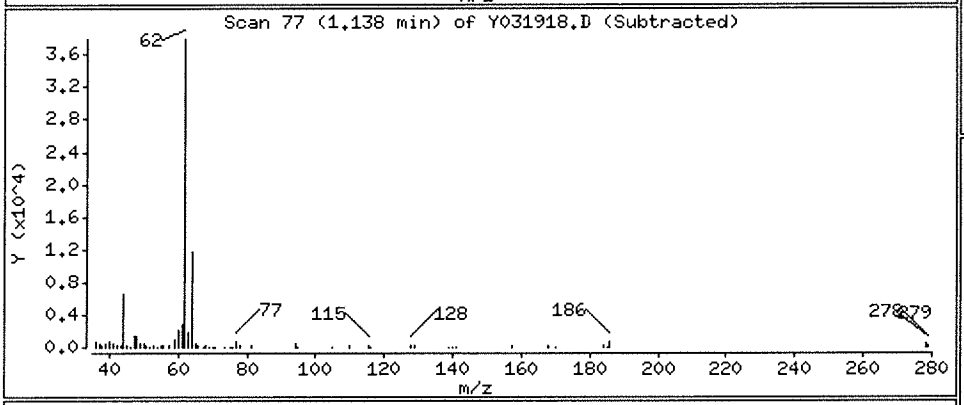
Column diameter: 0.18

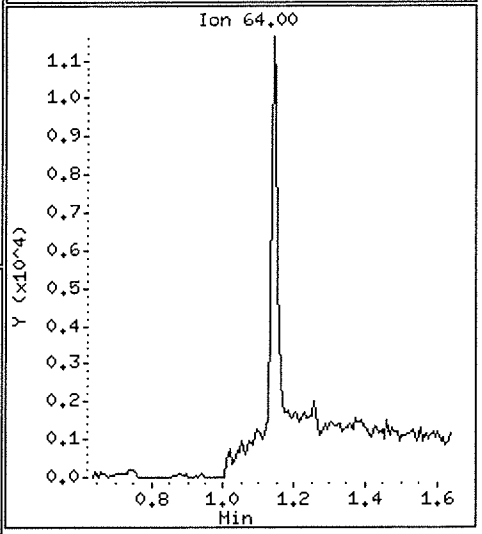
5 Vinyl Chloride

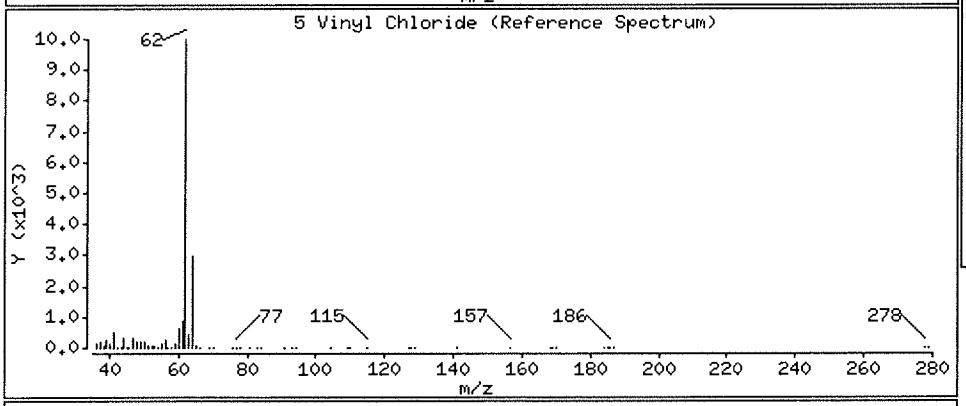
Concentration: 7.84 ug/l

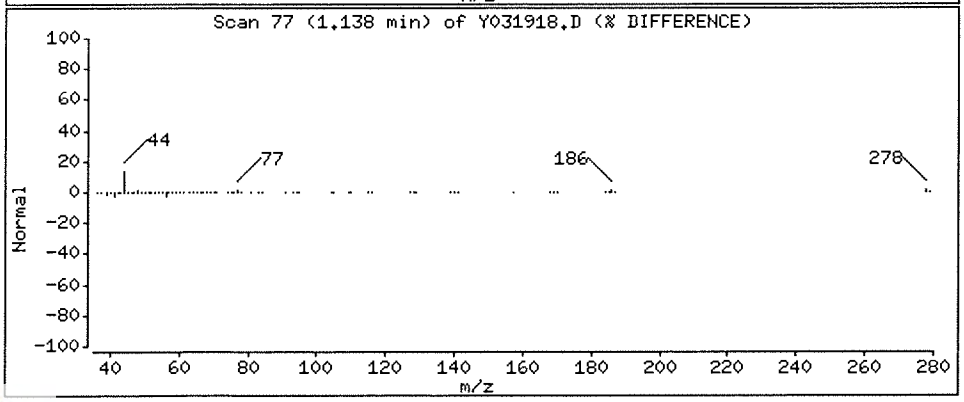












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031918.D

Date : 20-MAR-2020 04:46

Client ID: HS20030474-03

Instrument: voa6.i

Sample Info: HS20030474-03;HS20030474-03;;;

Purge Volume: 5.0

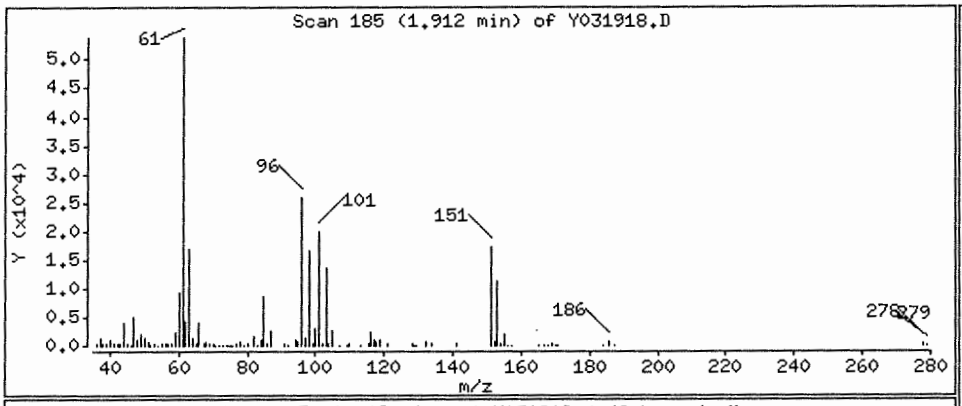
Operator: PC

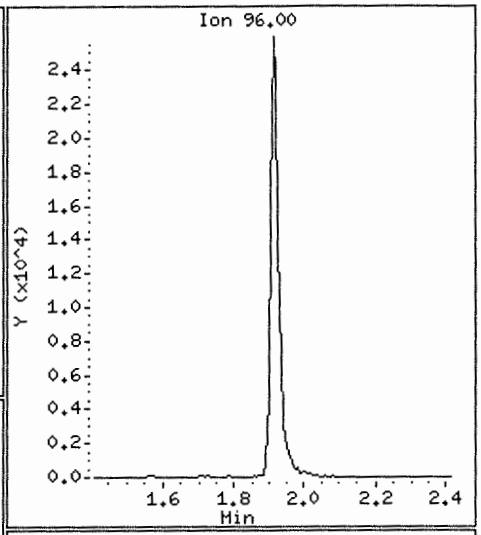
Column phase: DB624

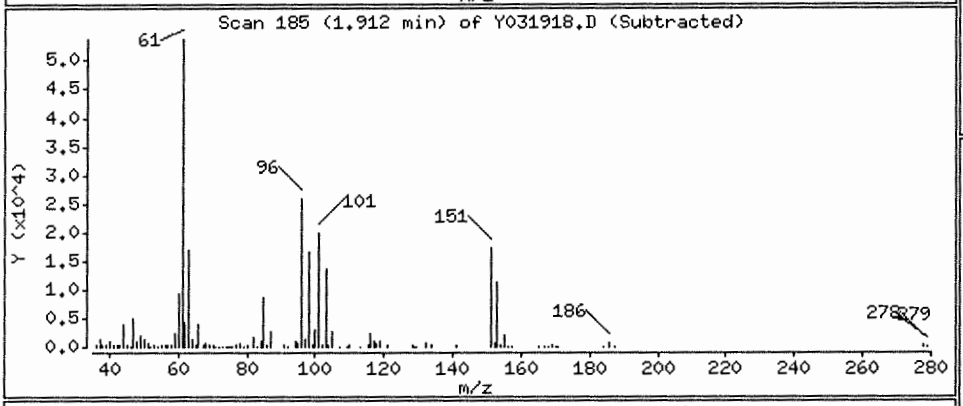
Column diameter: 0.18

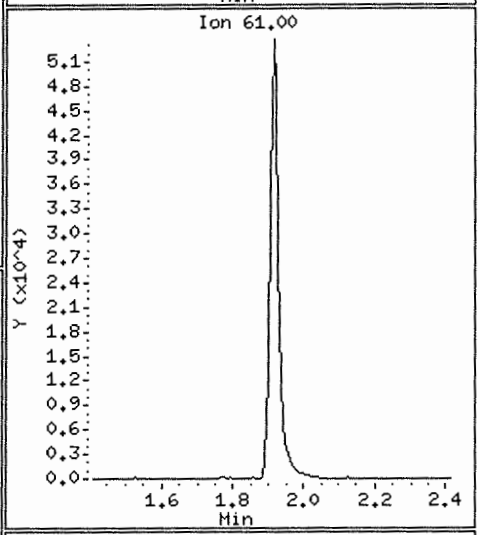
11 1,1-Dichloroethene

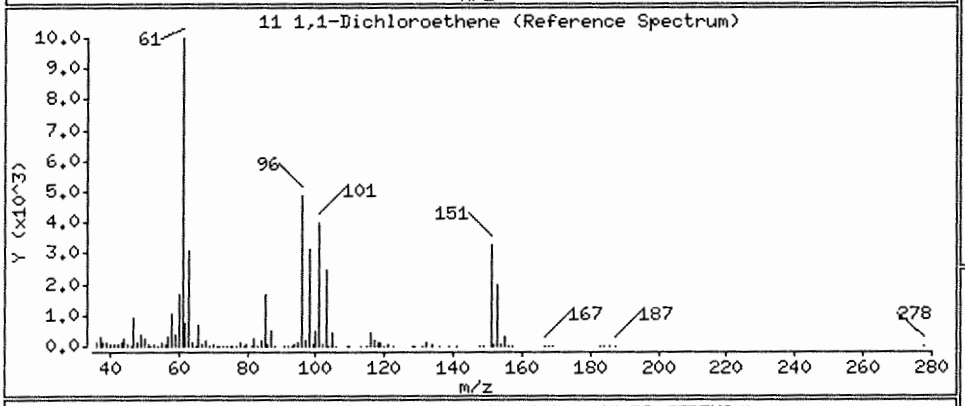
Concentration: 14.08 ug/l

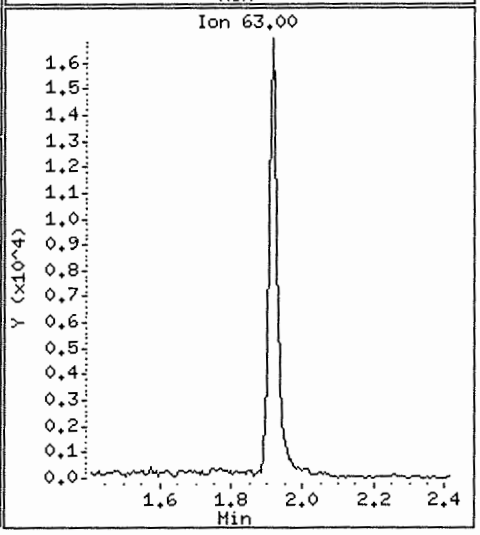


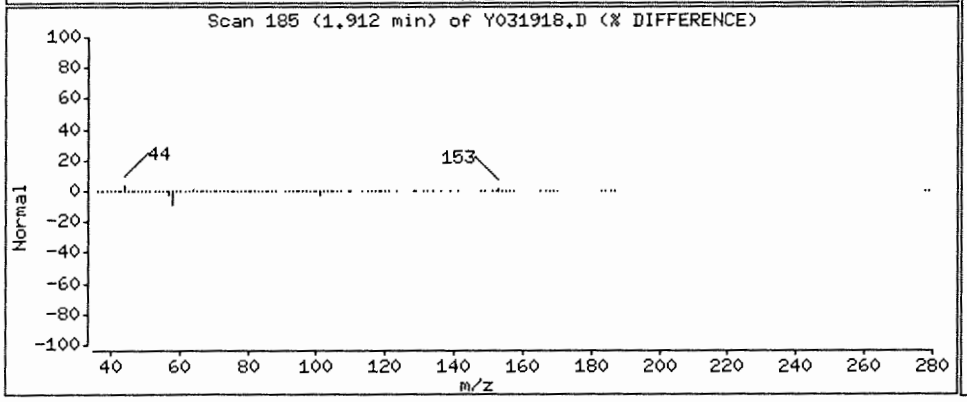












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031918.D

Date : 20-MAR-2020 04:46

Client ID: HS20030474-03

Instrument: voa6.i

Sample Info: HS20030474-03;HS20030474-03;;;

Purge Volume: 5.0

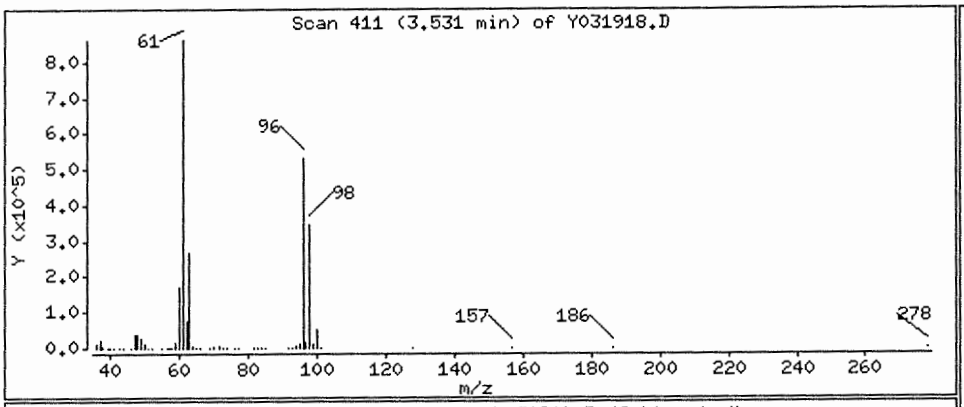
Operator: PC

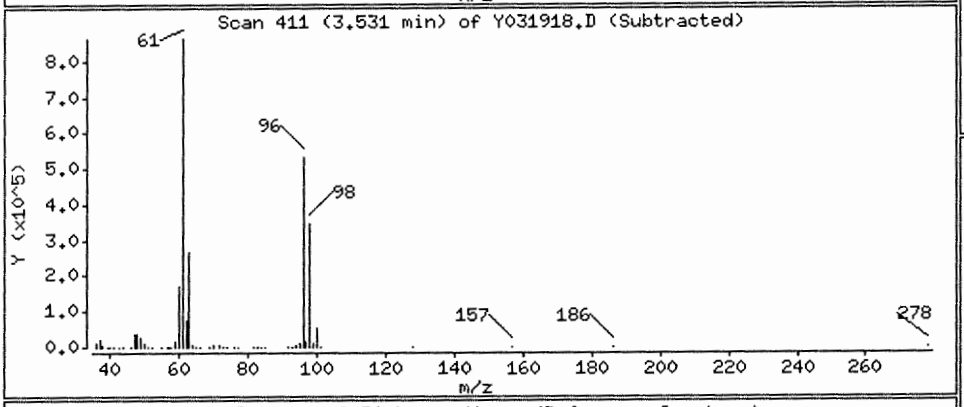
Column phase: DB624

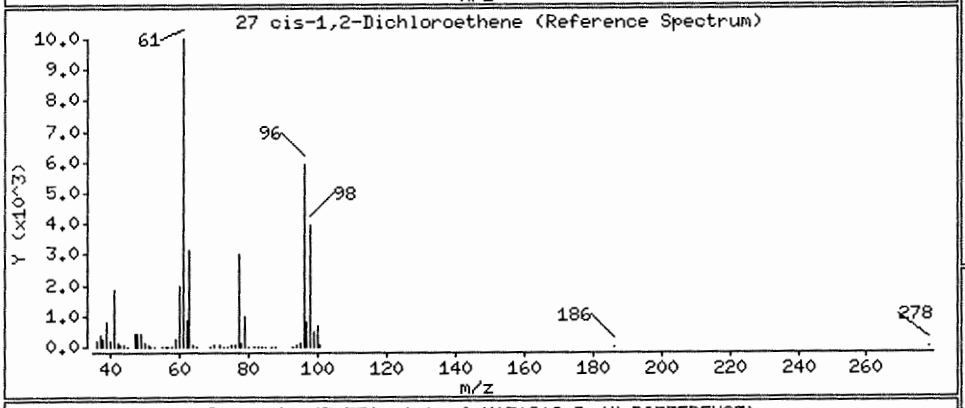
Column diameter: 0.18

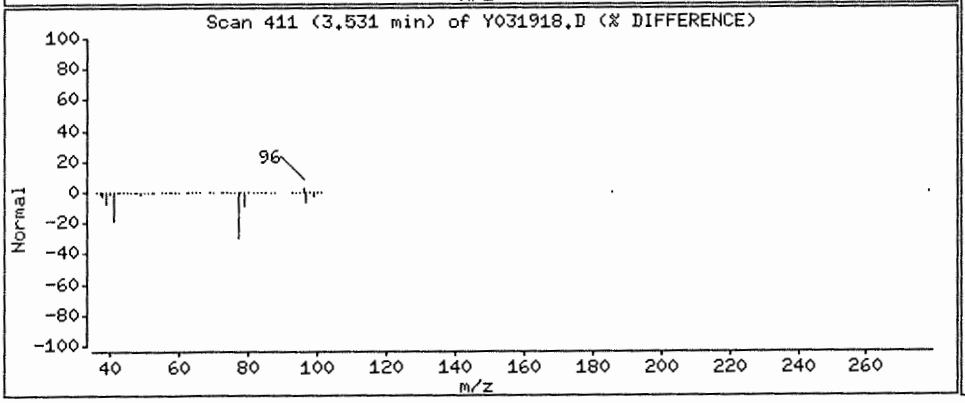
27 cis-1,2-Dichloroethene

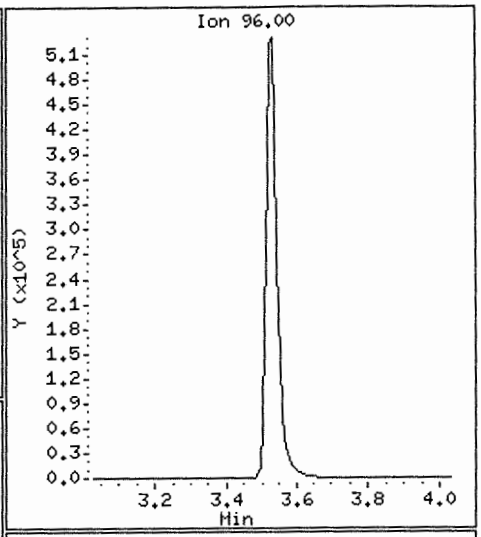
Concentration: 276.72 ug/l

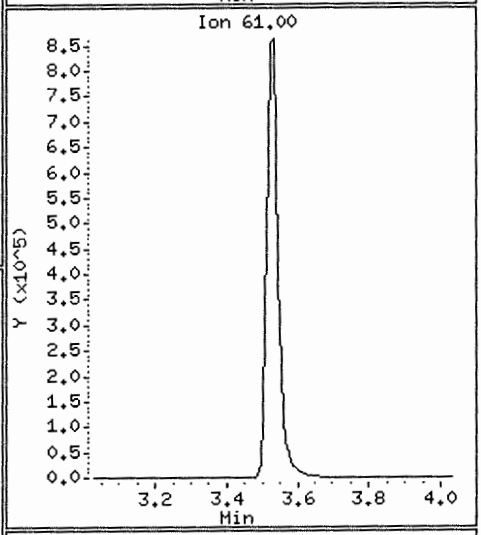


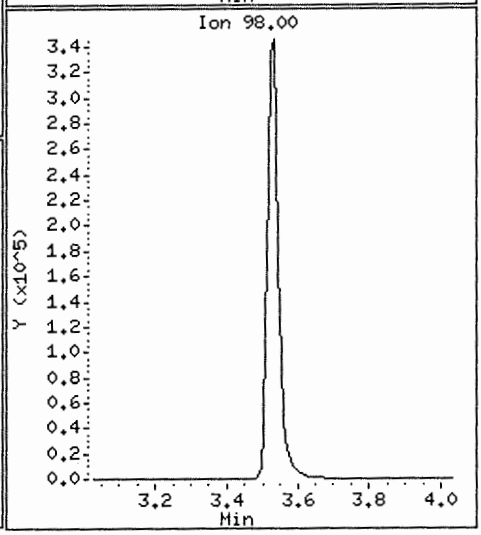












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031918.D

Date : 20-MAR-2020 04:46

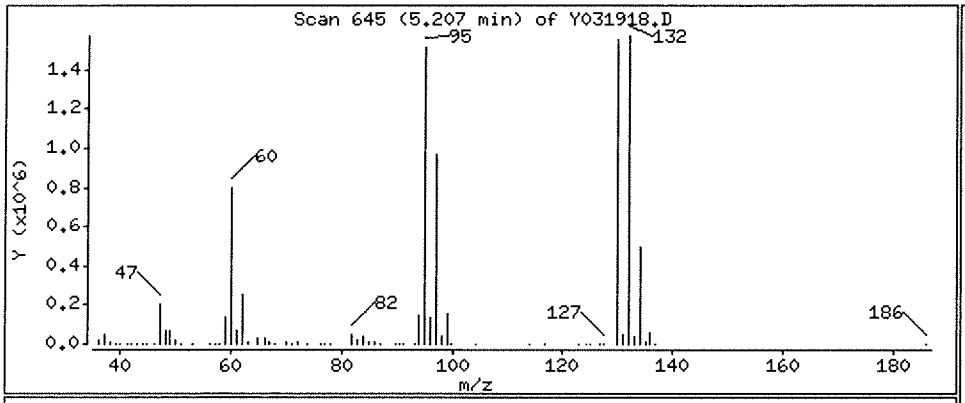
Client ID: HS20030474-03 Instrument: voa6.i

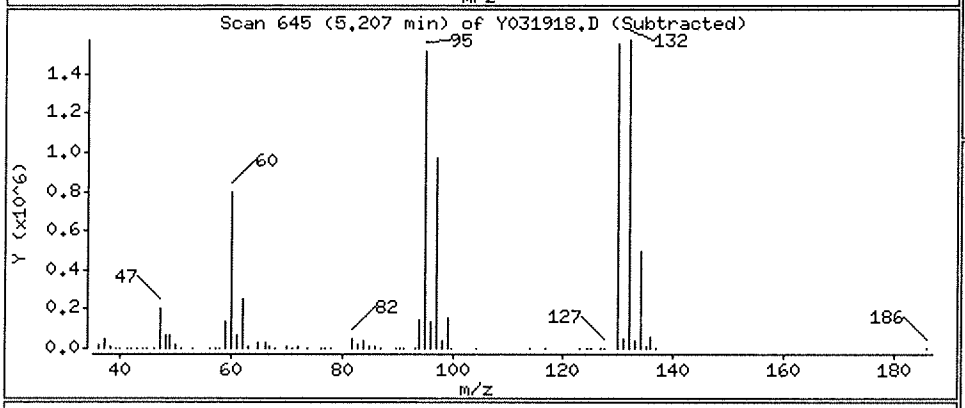
Sample Info: HS20030474-03;HS20030474-03;;;

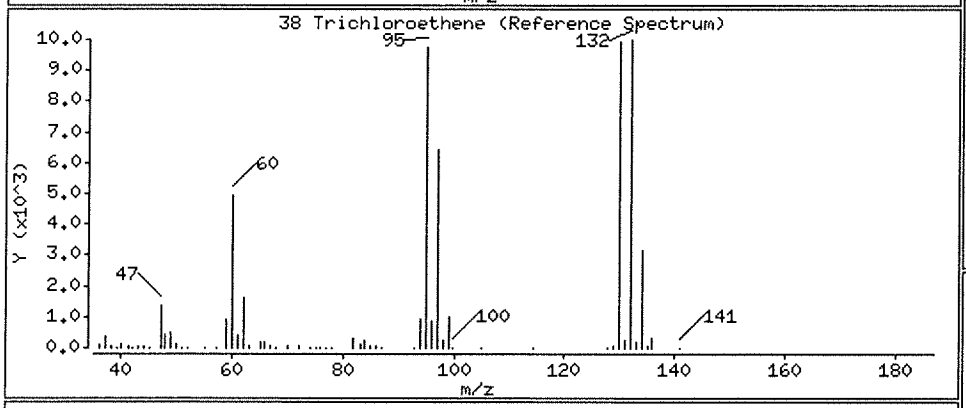
Purge Volume: 5.0 Operator: PC

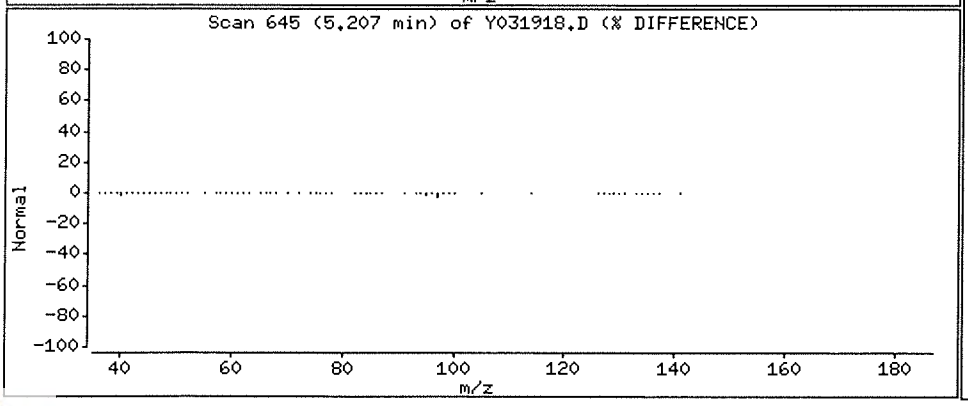
Column phase: DB624 Column diameter: 0.18

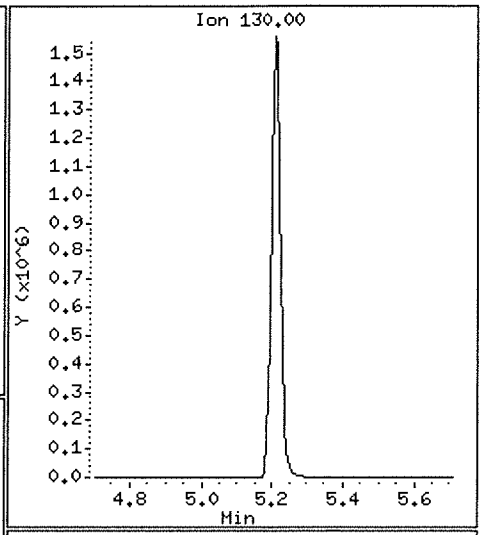
38 Trichloroethene Concentration: 747.31 ug/l

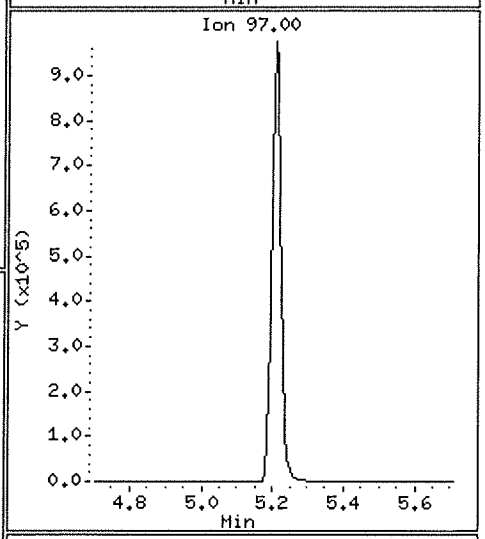


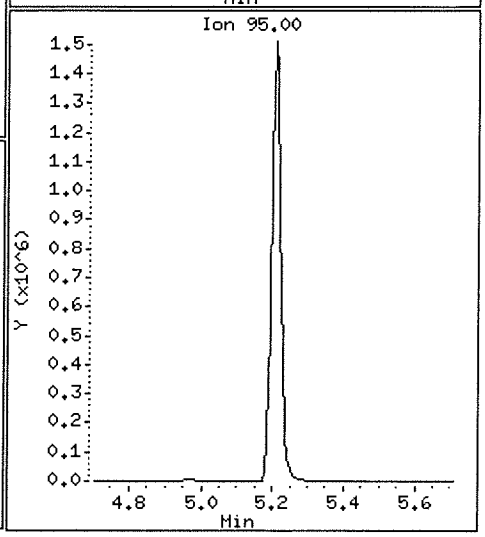












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031918.D

Date : 20-MAR-2020 04:46

Client ID: HS20030474-03

Instrument: voa6.i

Sample Info: HS20030474-03;HS20030474-03;;;

Purge Volume: 5.0

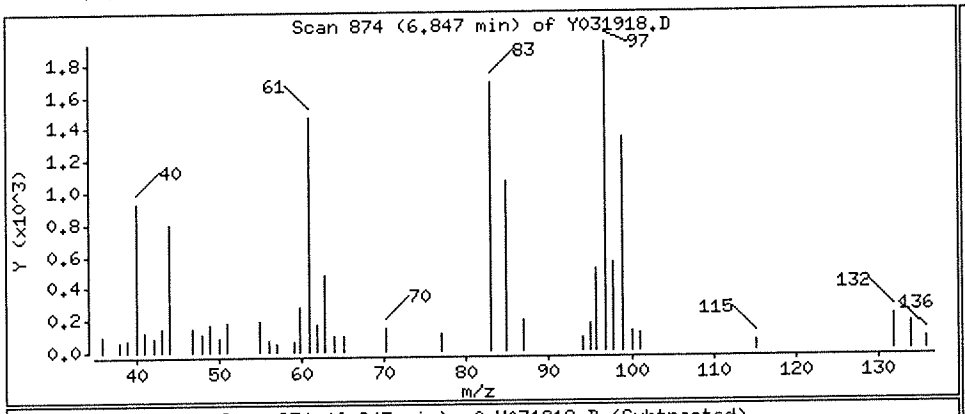
Operator: PC

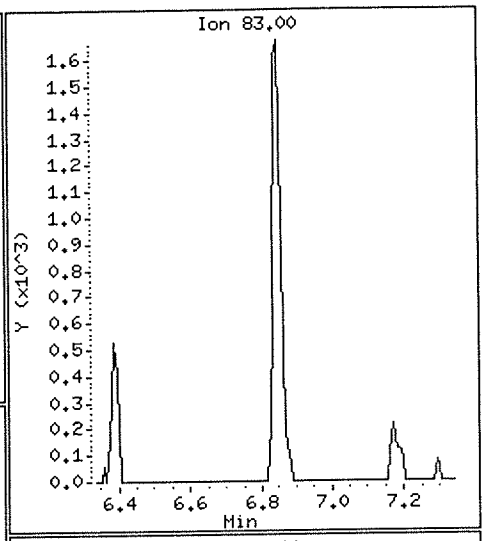
Column phase: DB624

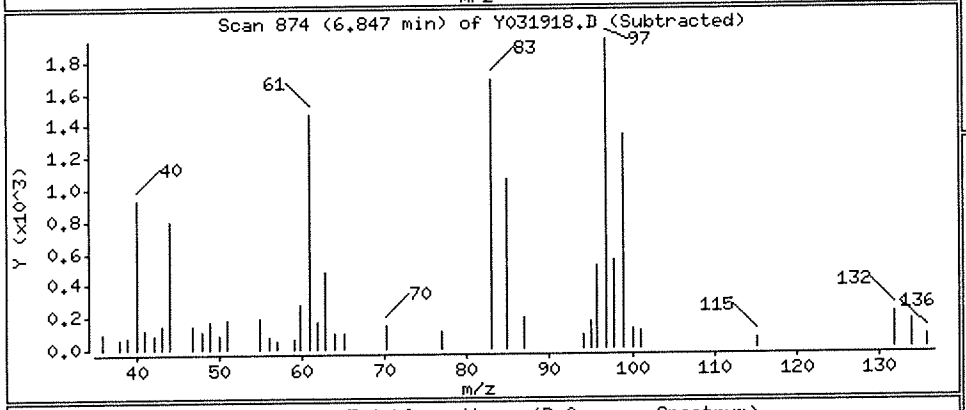
Column diameter: 0.18

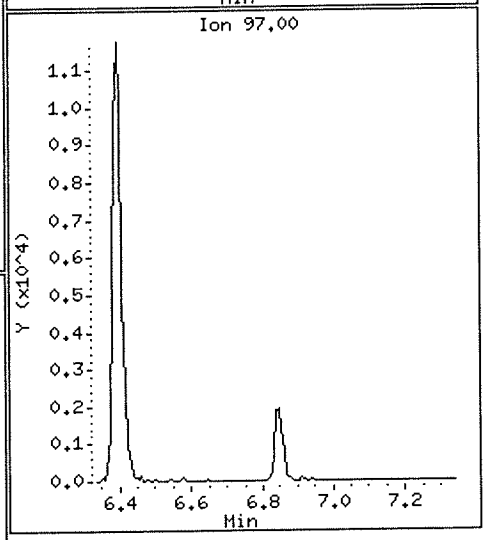
53 1,1,2-Trichloroethane

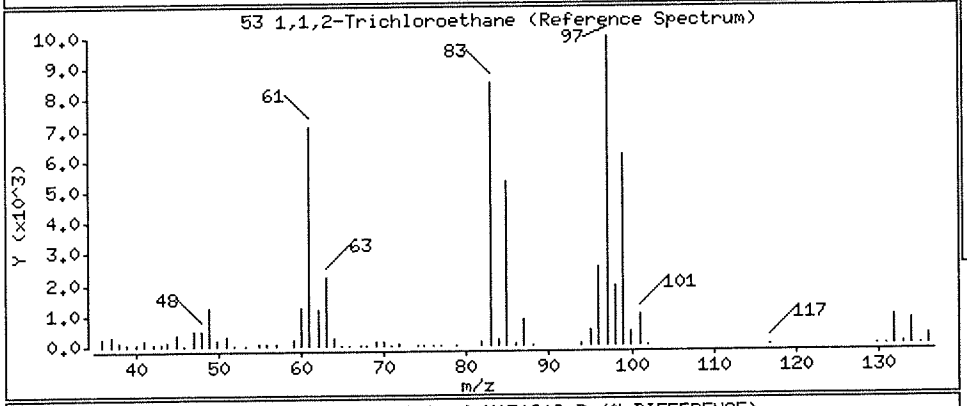
Concentration: 1.02 ug/l

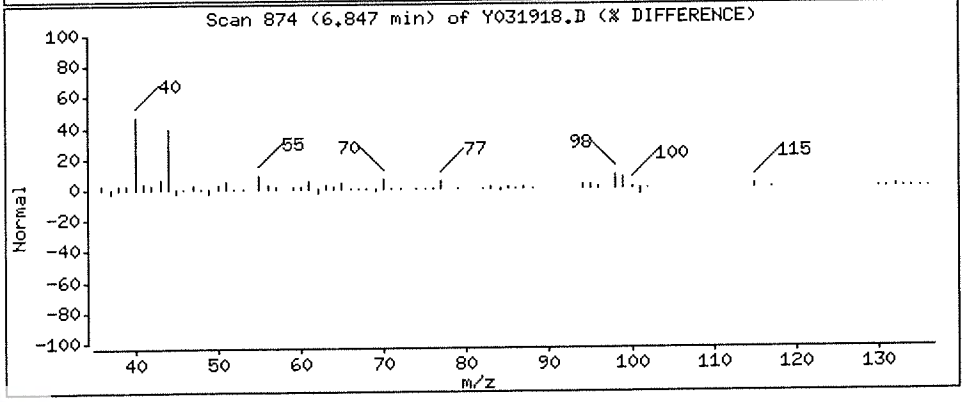












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031919.D Page 1
Report Date: 13-Apr-2020 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031919.D
Lab Smp Id: HS20030474-03 Client Smp ID: HS20030474-03
Inj Date : 20-MAR-2020 05:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-03;HS20030474-03;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 45
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

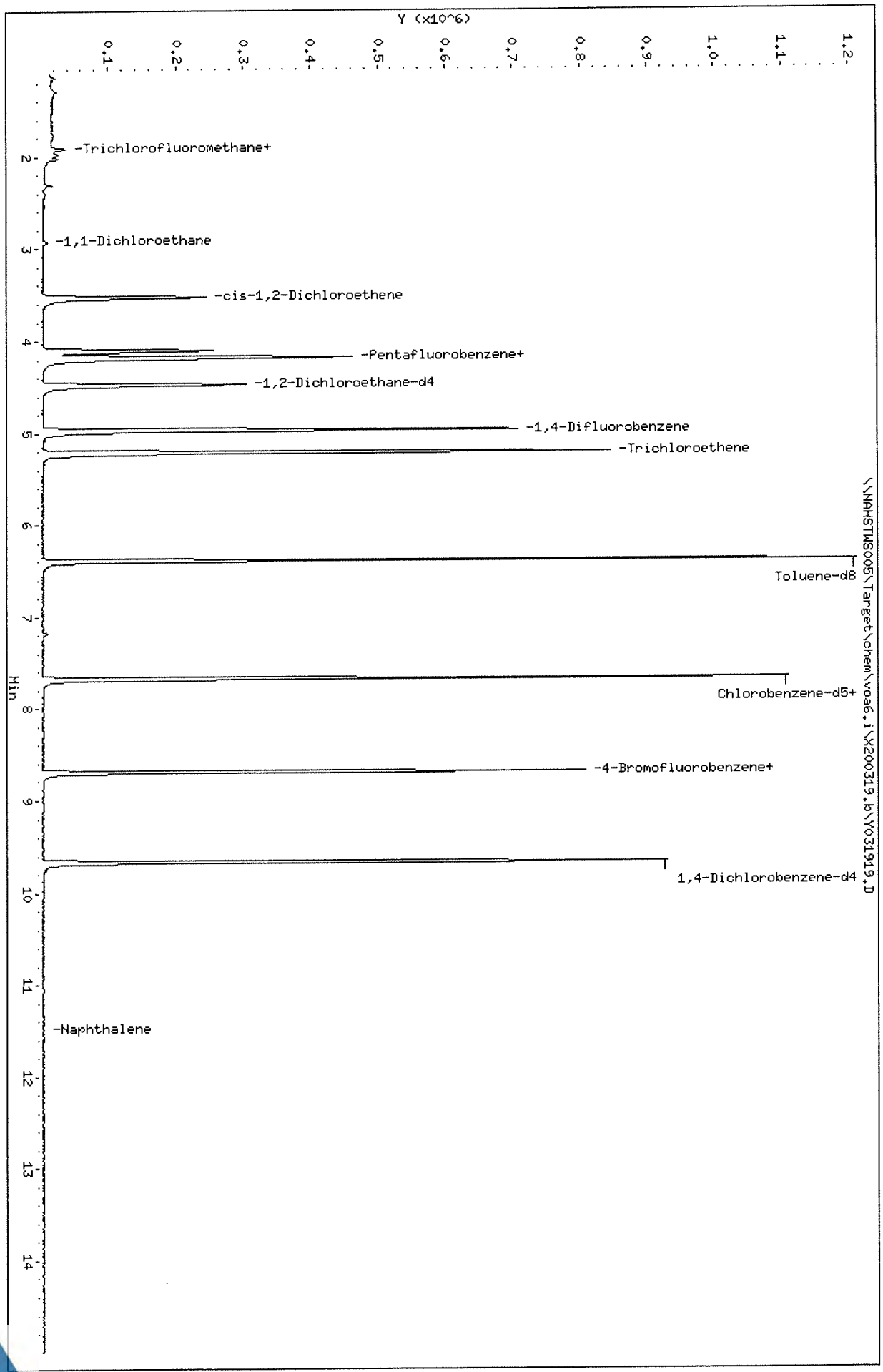
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	388526	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	182145	47.1775	47.17
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	217815	44.6061	44.60
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	571699	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	491916	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	667083	52.9426	52.94
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	234744	49.5905	49.59
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	233425	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	4091	0.69114	6.91(a)
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	4244	1.28910	12.89(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	112667	25.4639	254.63
38 Trichloroethene	130	5.207	5.206	(1.048)	269694	68.0614	680.61

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031919.D
Date : 20-MAR-2020 05:10
Client ID: HS20030474-03
Sample Info: HS20030474-03;HS20030474-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031919.D

Date : 20-MAR-2020 05:10

Client ID: HS20030474-03

Instrument: voa6.i

Sample Info: HS20030474-03;HS20030474-03;;;

Purge Volume: 5.0

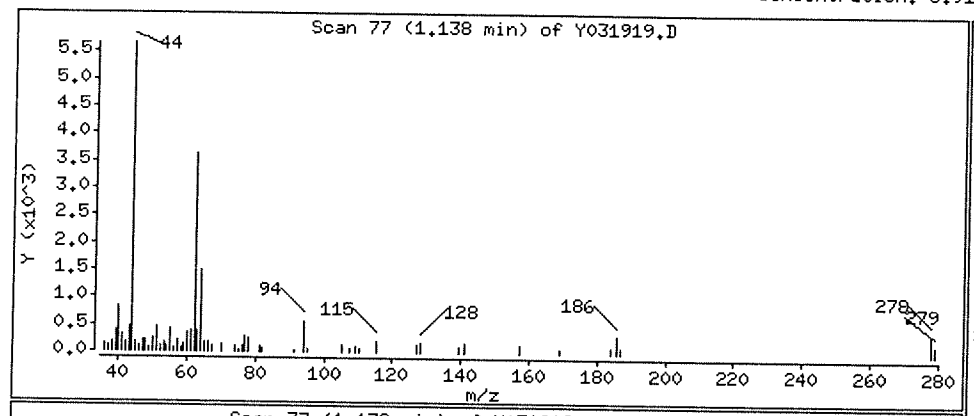
Operator: PC

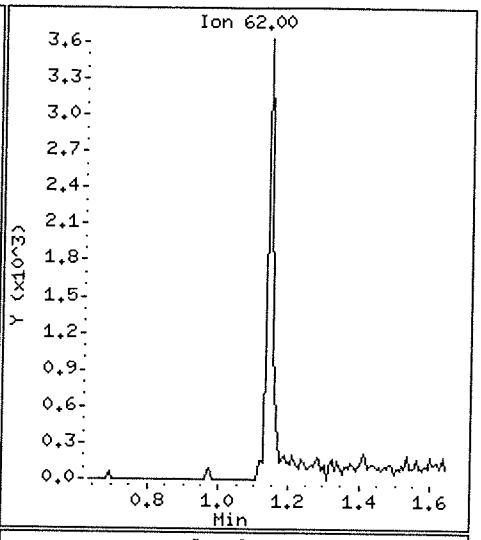
Column phase: DB624

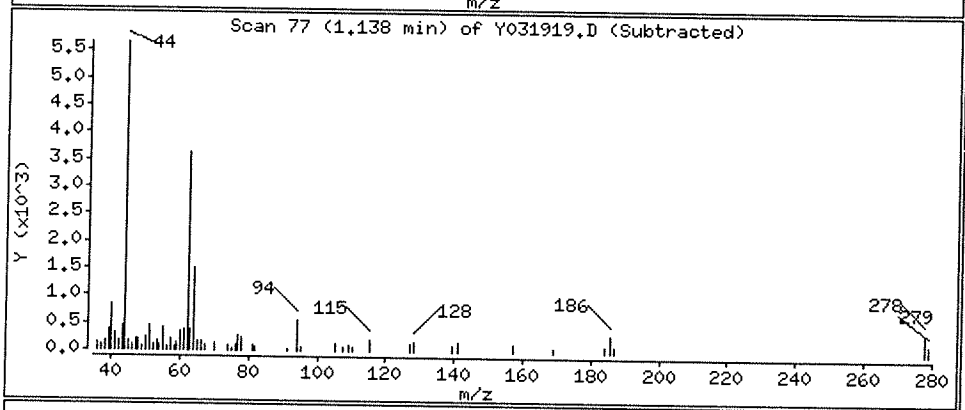
Column diameter: 0.18

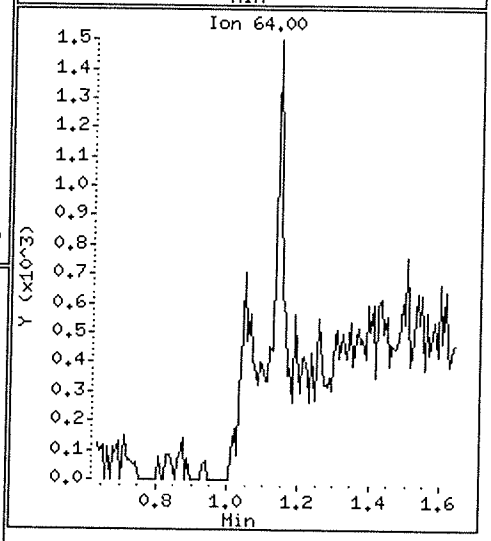
5 Vinyl Chloride

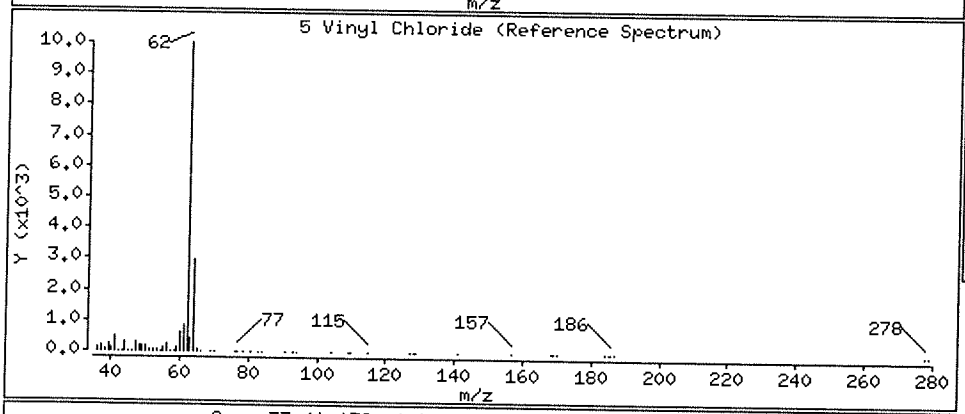
Concentration: 6.91 ug/l

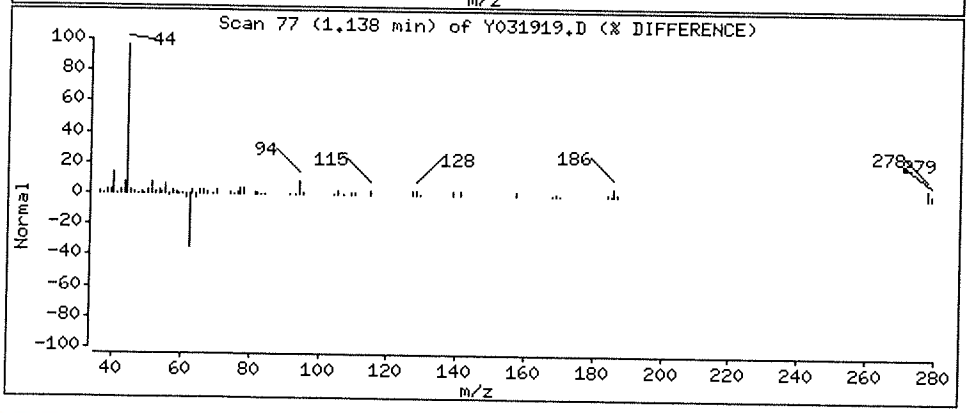












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031919.D

Date : 20-MAR-2020 05:10

Client ID: HS20030474-03

Instrument: voa6.i

Sample Info: HS20030474-03;HS20030474-03;;;

Purge Volume: 5.0

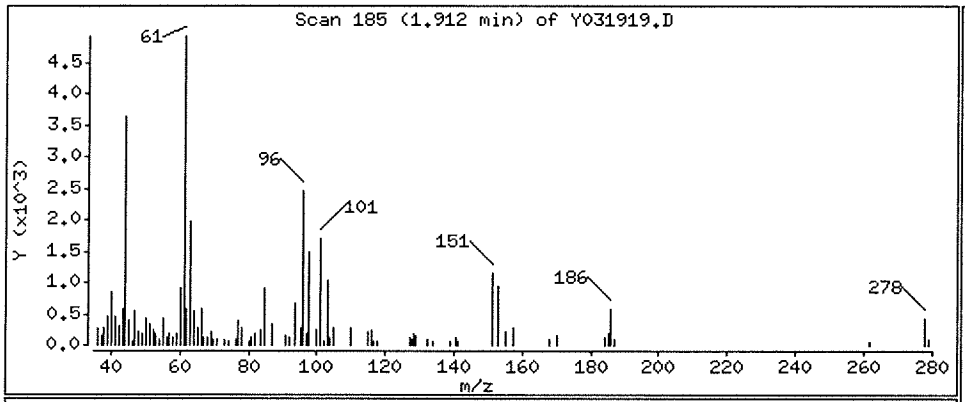
Operator: PC

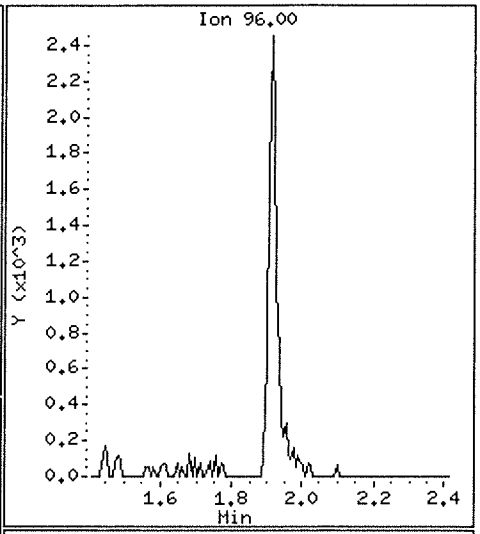
Column phase: DB624

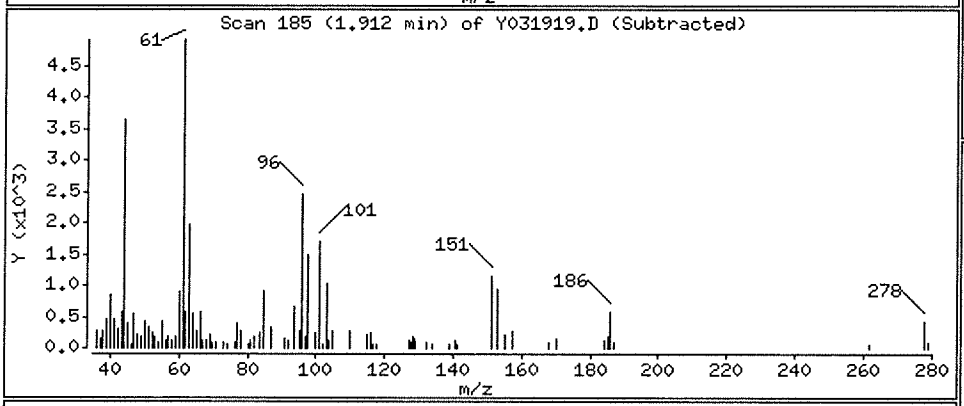
Column diameter: 0.18

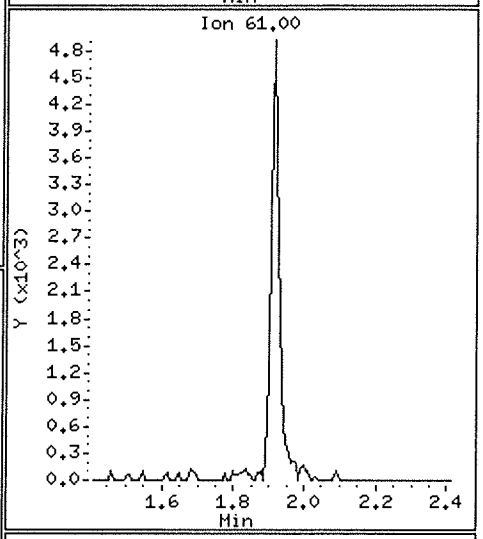
11 1,1-Dichloroethene

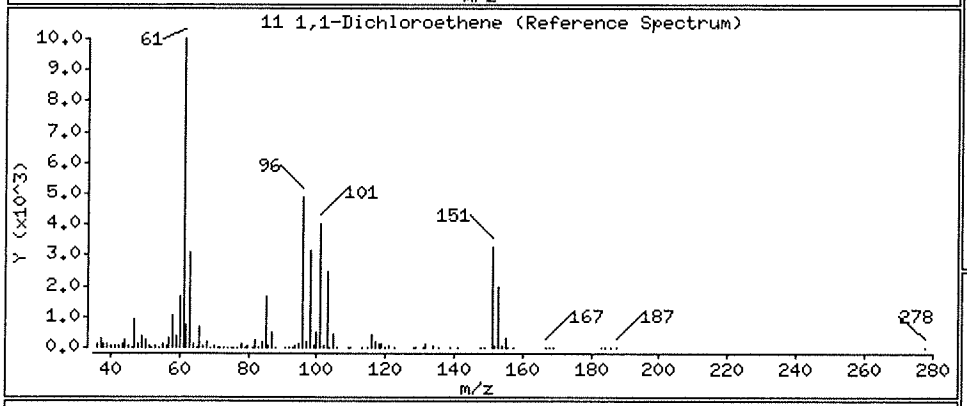
Concentration: 12.89 ug/l

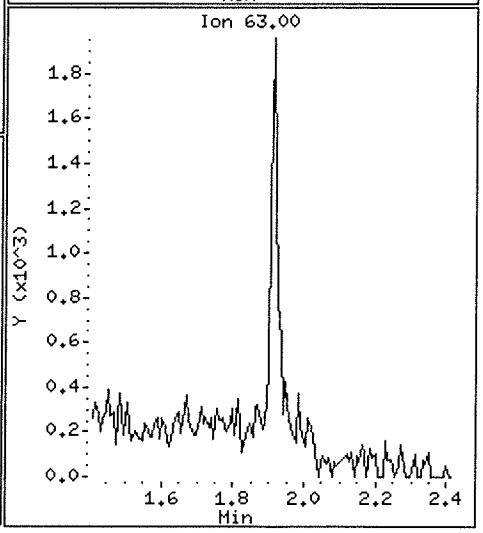


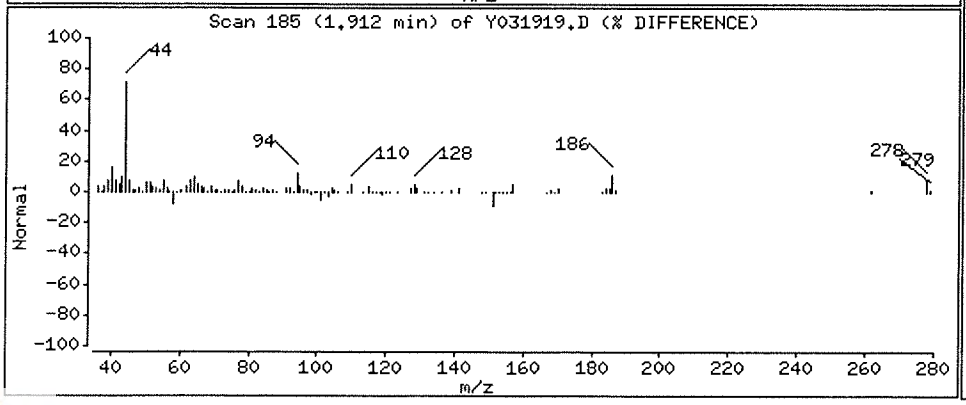












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031919.D

Date : 20-MAR-2020 05:10

Client ID: HS20030474-03

Instrument: voa6.i

Sample Info: HS20030474-03;HS20030474-03;;;

Purge Volume: 5.0

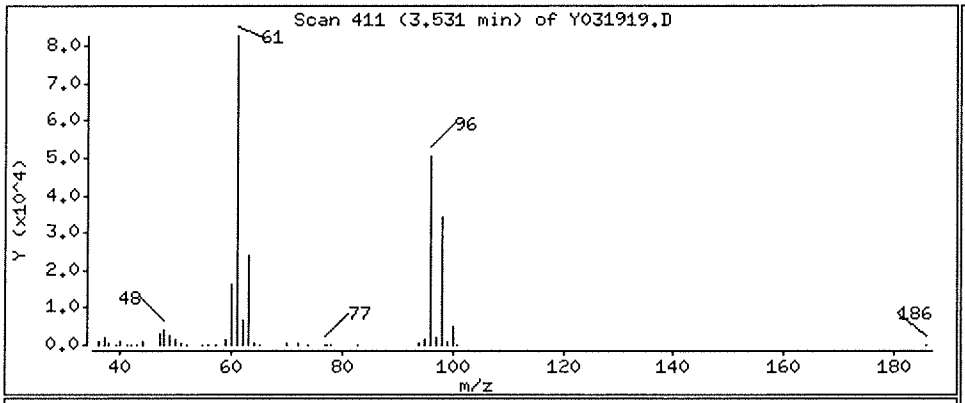
Operator: PC

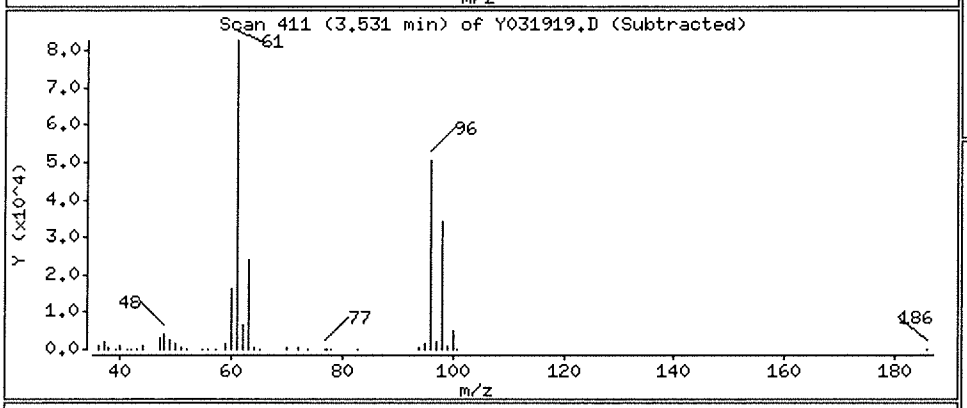
Column phase: DB624

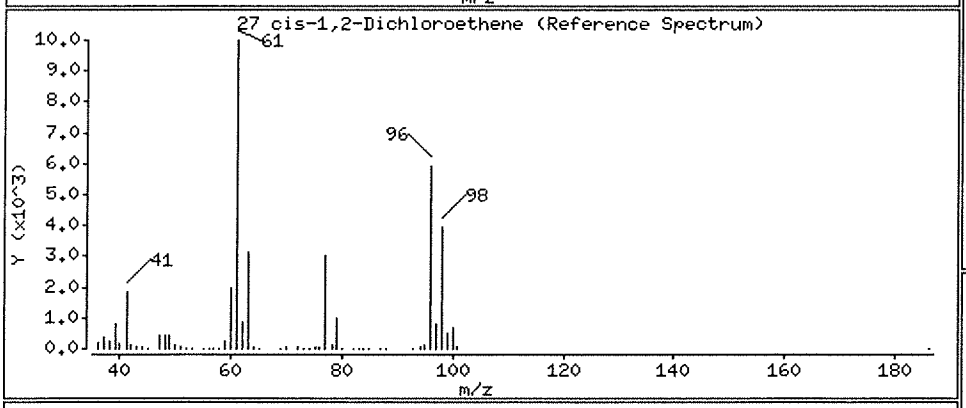
Column diameter: 0.18

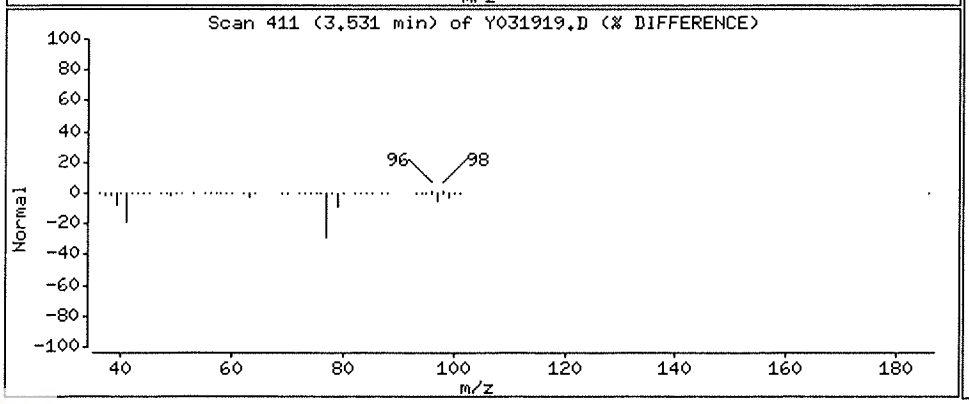
27 cis-1,2-Dichloroethene

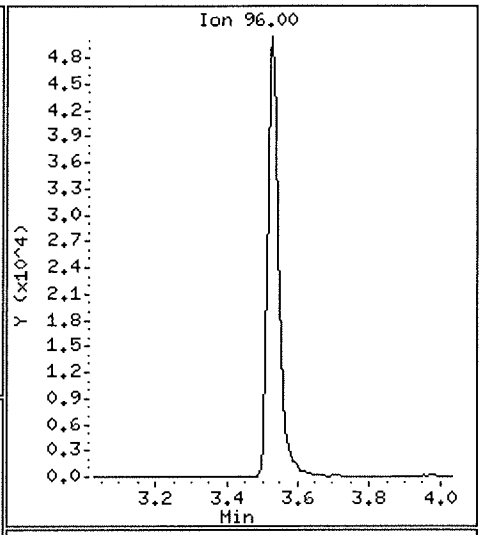
Concentration: 254.63 ug/l

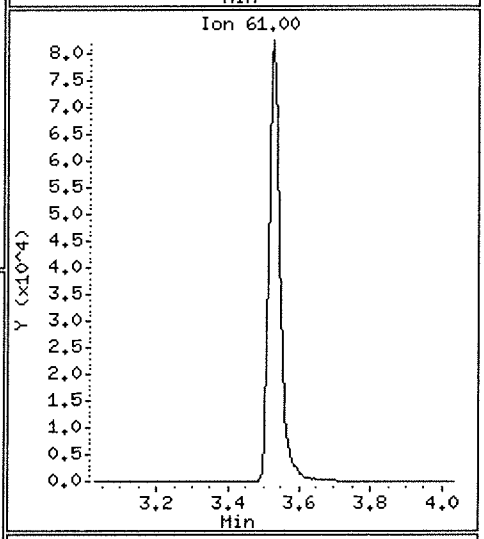


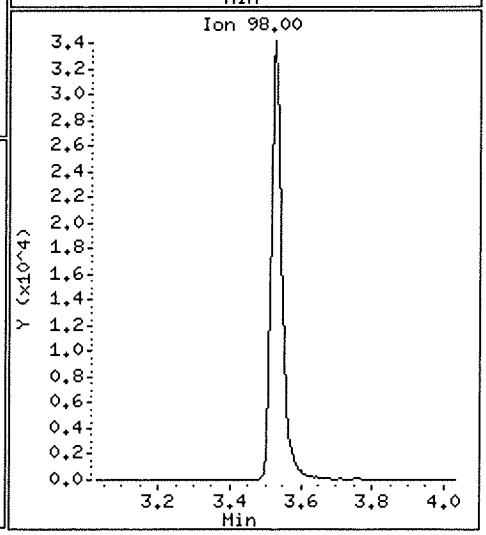












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031919.D

Date : 20-MAR-2020 05:10

Client ID: HS20030474-03

Instrument: voa6.i

Sample Info: HS20030474-03;HS20030474-03;;;

Purge Volume: 5.0

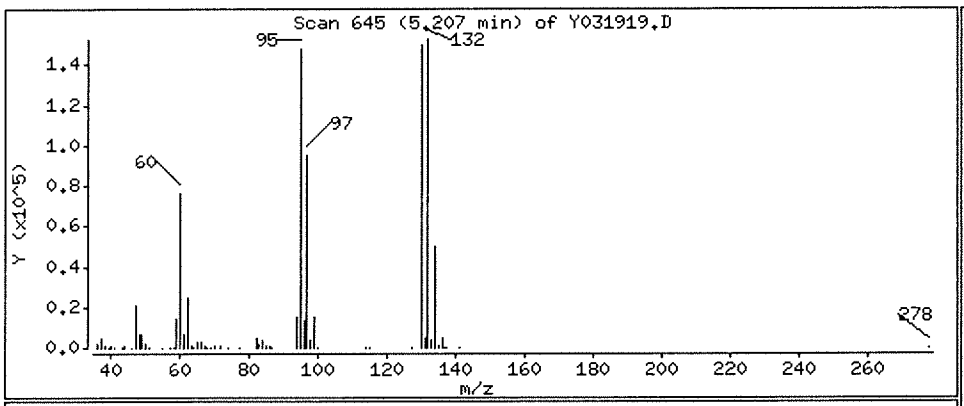
Operator: PC

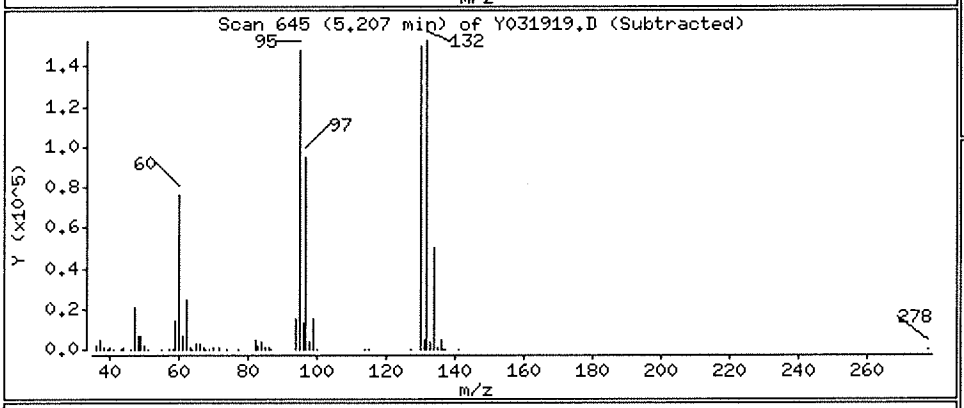
Column phase: DB624

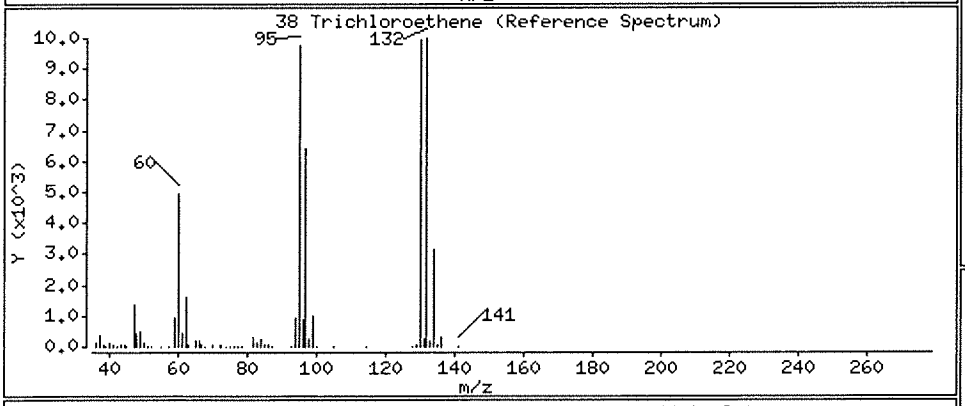
Column diameter: 0.18

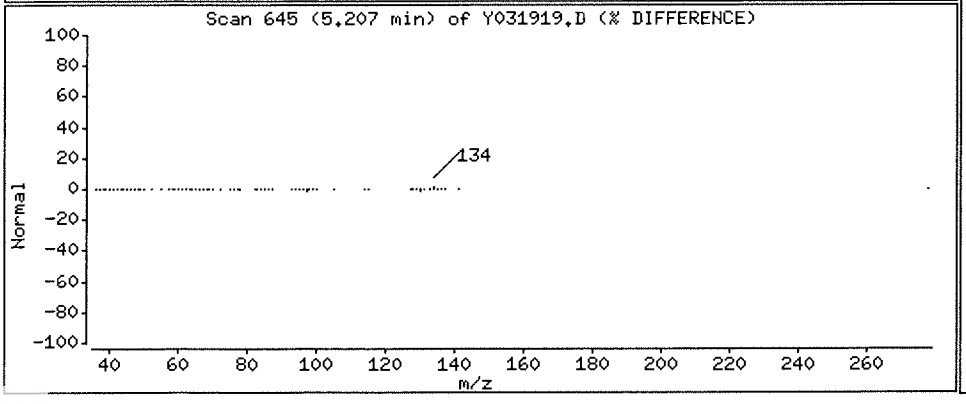
38 Trichloroethene

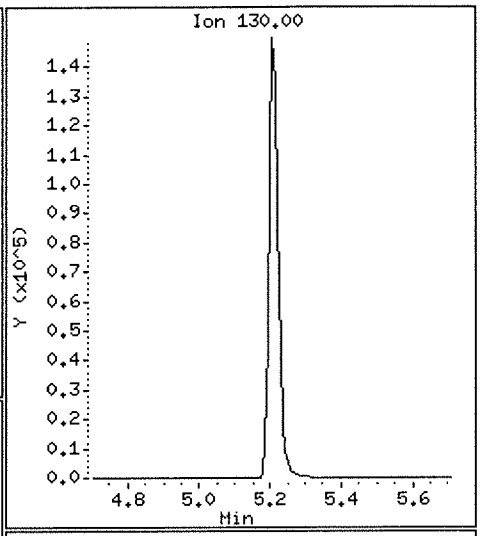
Concentration: 680.61 ug/l

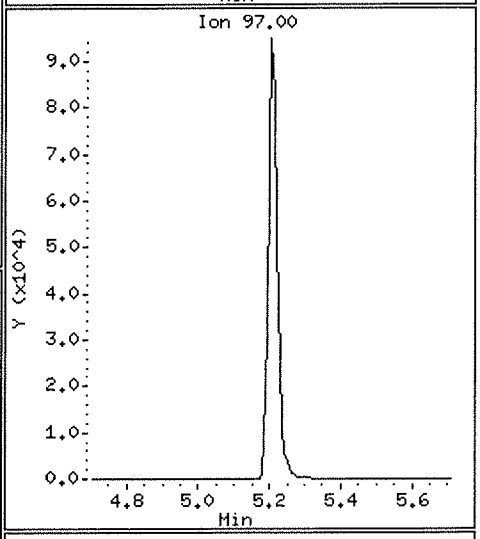


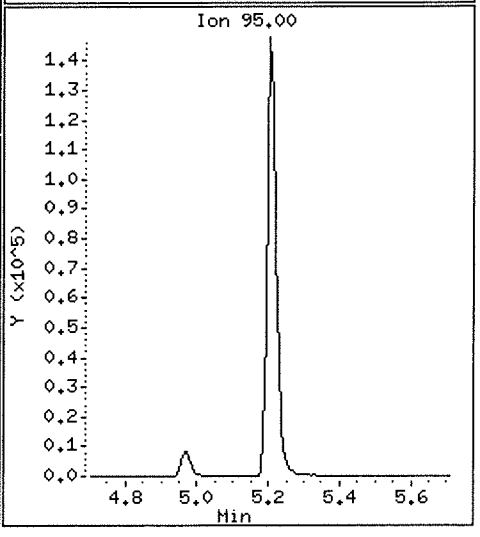












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031920.D
Lab Smp Id: HS20030474-06 Client Smp ID: HS20030474-06
Inj Date : 20-MAR-2020 05:34
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-06;HS20030474-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 46
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	388414	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	181238	46.9556	46.95
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	224180	45.9275	45.92
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	577720	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	476371	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	634400	51.9904	51.99
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	228708	49.8950	49.89
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	236580	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	24061	4.06607	4.06(a)
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	18955	5.75917	5.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	702707	158.865	158.86
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	31646	5.18485	5.18
38 Trichloroethene	130	5.214	5.206	(1.049)	5452182	1361.60	1361.60(A)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031920.D

Date : 20-MAR-2020 05:34

Client ID: HS20030474-06

Instrument: voa6.i

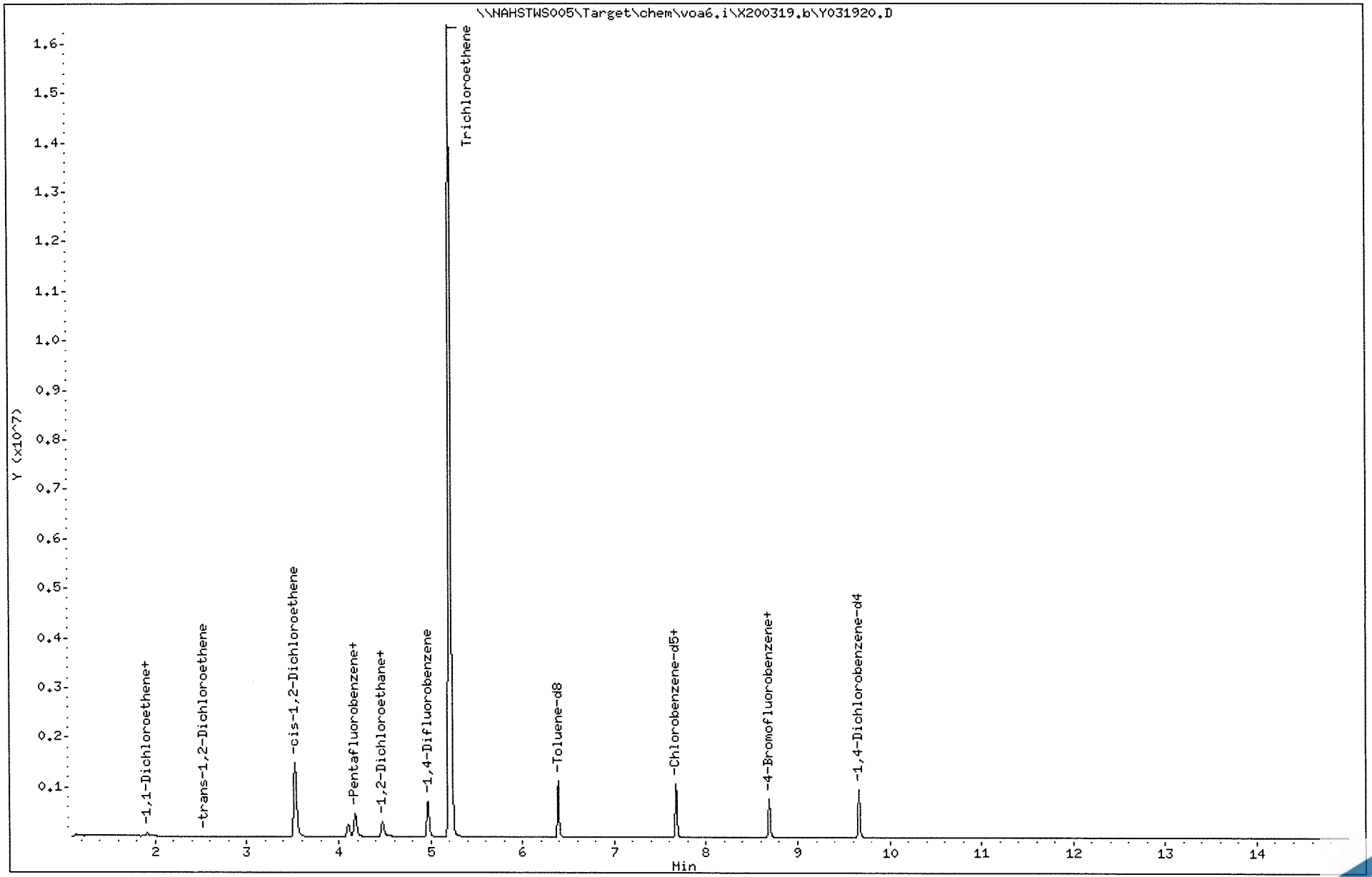
Sample Info: HS20030474-06;HS20030474-06;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031920.D

Date : 20-MAR-2020 05:34

Client ID: HS20030474-06

Instrument: voa6.i

Sample Info: HS20030474-06;HS20030474-06;;;

Purge Volume: 5.0

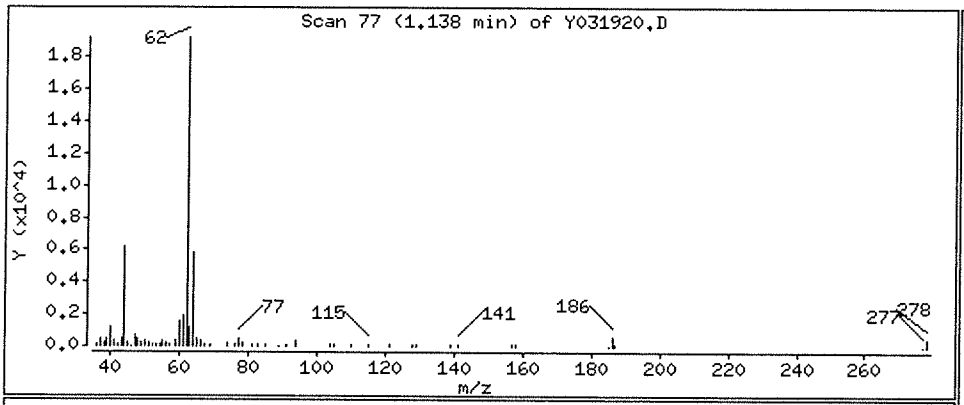
Operator: PC

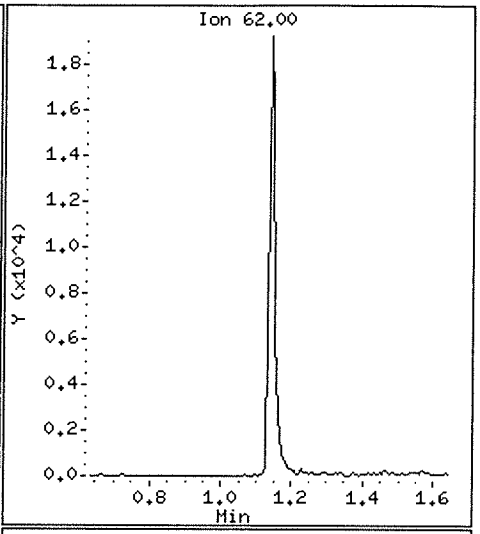
Column phase: DB624

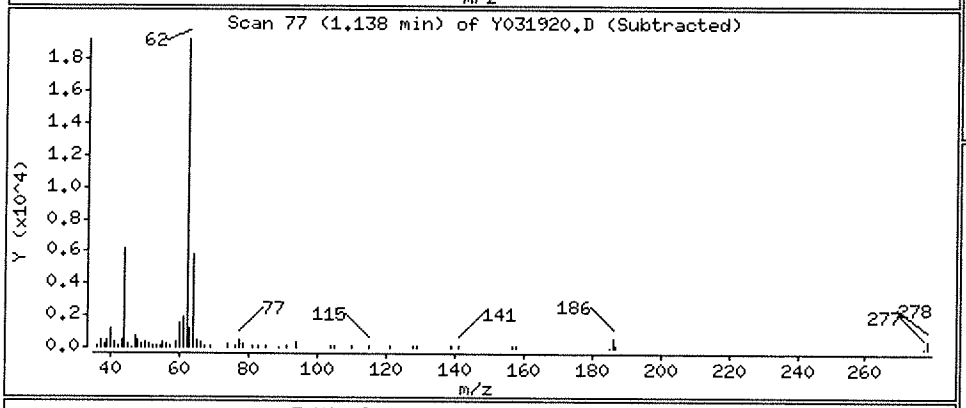
Column diameter: 0.18

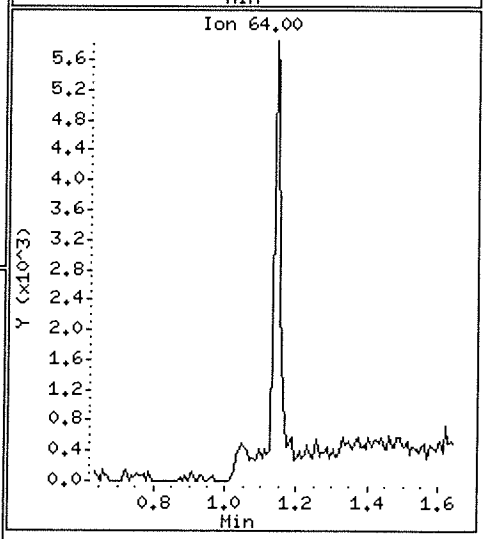
5 Vinyl Chloride

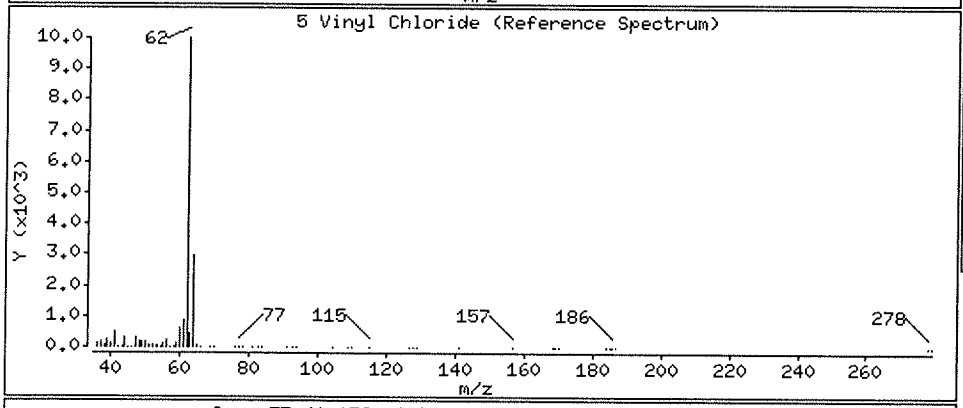
Concentration: 4.06 ug/l

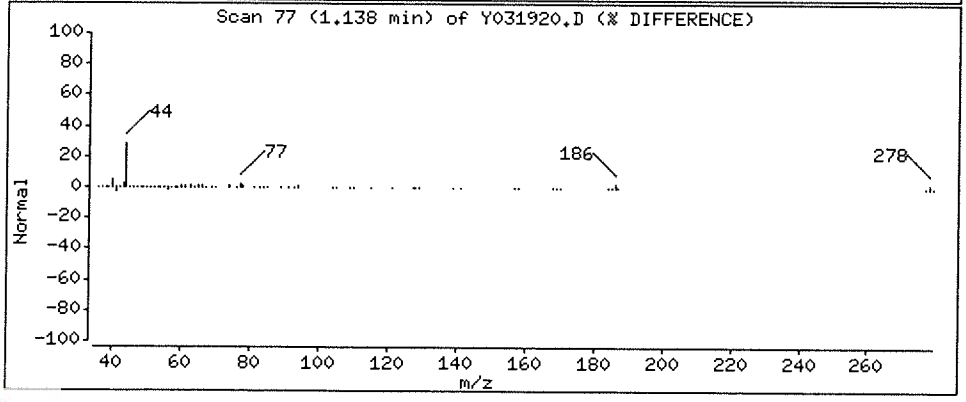












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031920.D

Date : 20-MAR-2020 05:34

Client ID: HS20030474-06

Instrument: voa6.i

Sample Info: HS20030474-06;HS20030474-06;;;

Purge Volume: 5.0

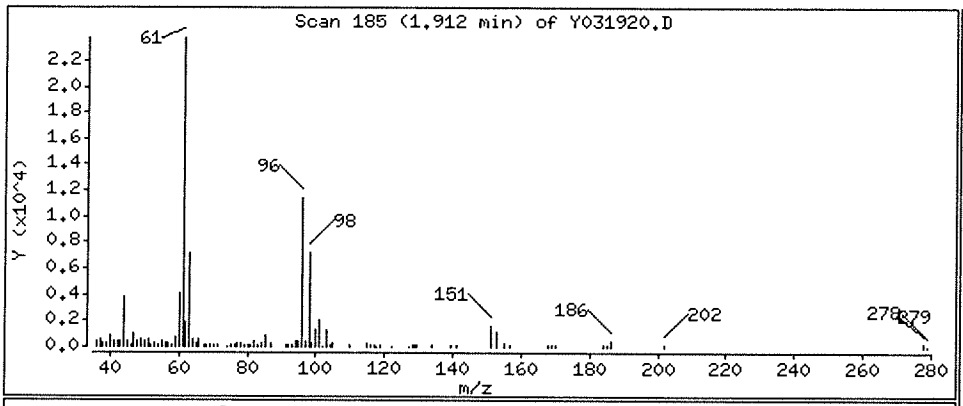
Operator: PC

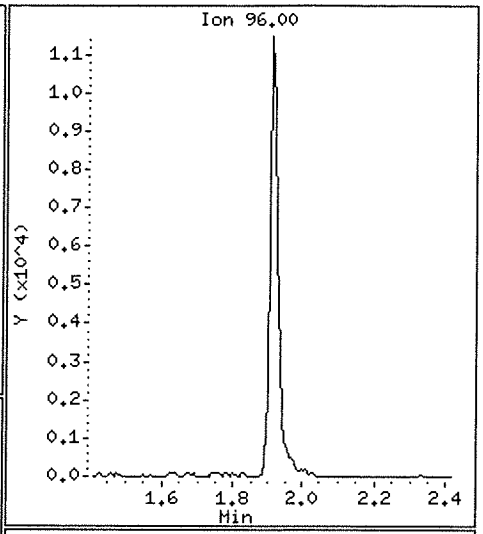
Column phase: DB624

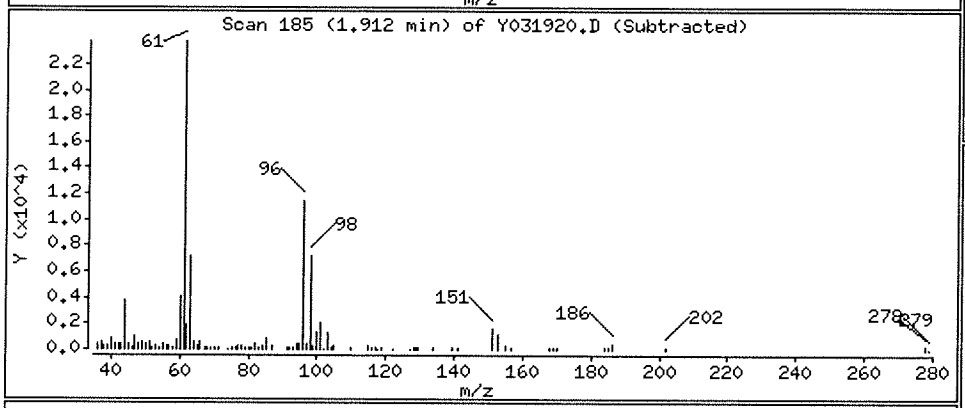
Column diameter: 0.18

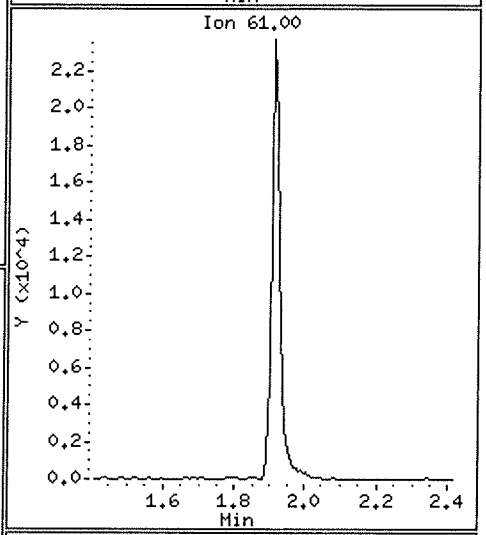
11 1,1-Dichloroethene

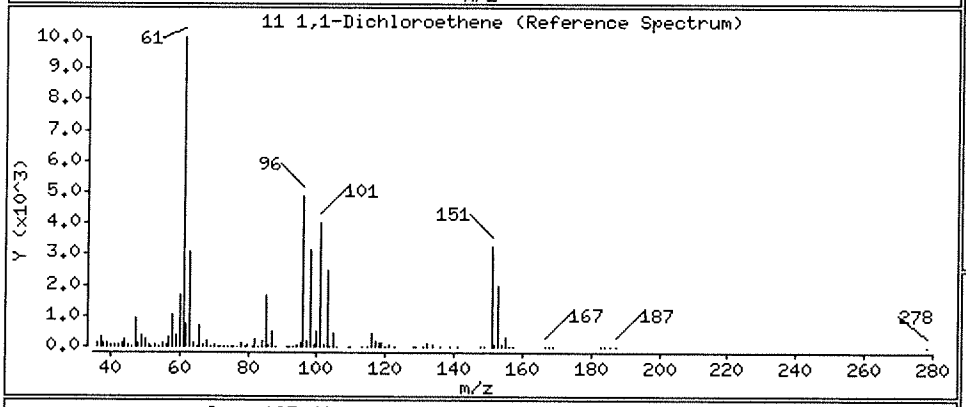
Concentration: 5.75 ug/l

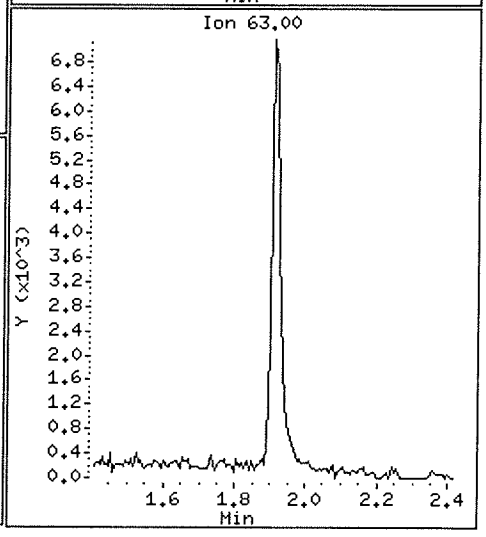


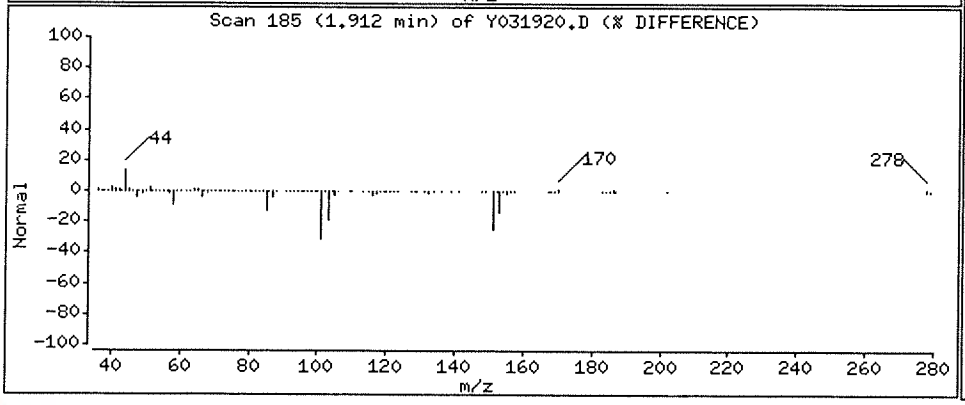












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031920.D Page 5

Date : 20-MAR-2020 05:34

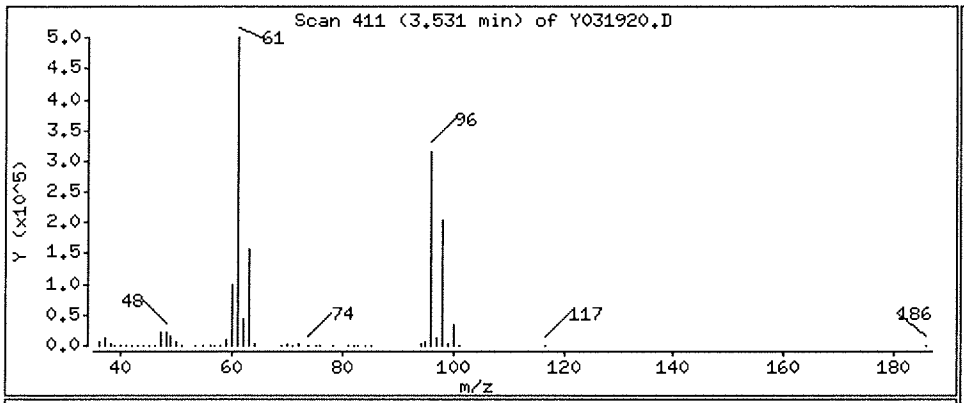
Client ID: HS20030474-06 Instrument: voa6.i

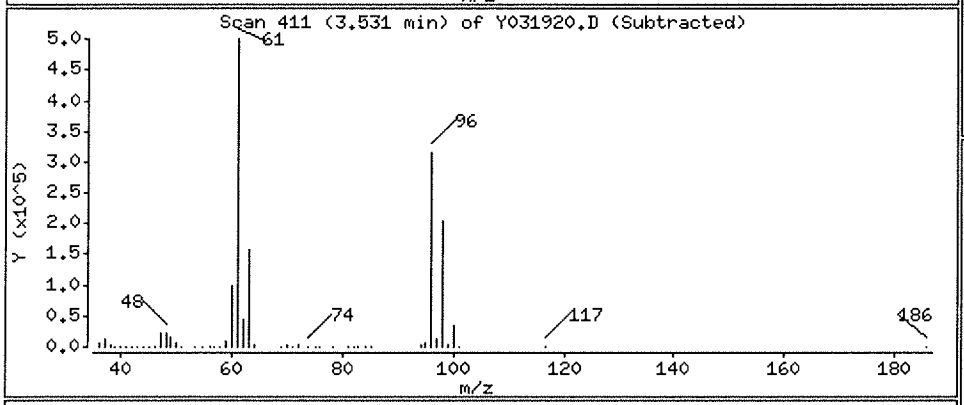
Sample Info: HS20030474-06;HS20030474-06;;;

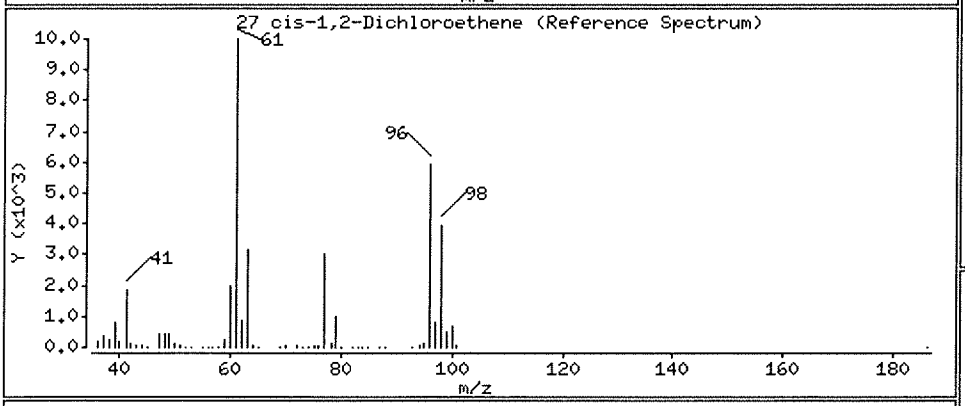
Purge Volume: 5.0 Operator: PC

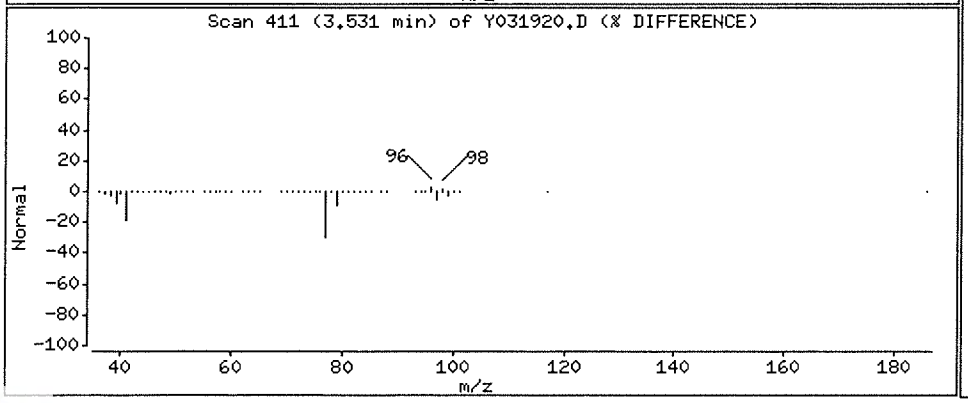
Column phase: DB624 Column diameter: 0.18

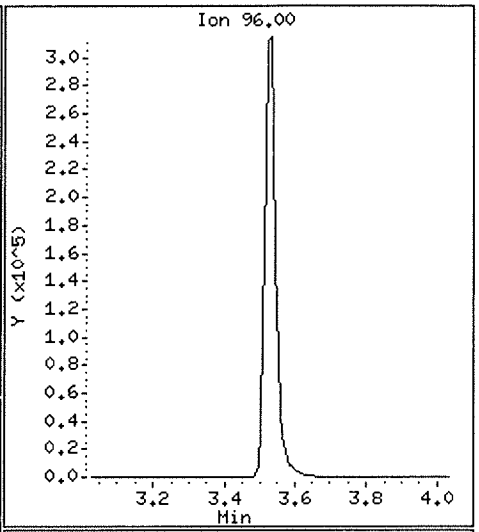
27 cis-1,2-Dichloroethene Concentration: 158.86 ug/l

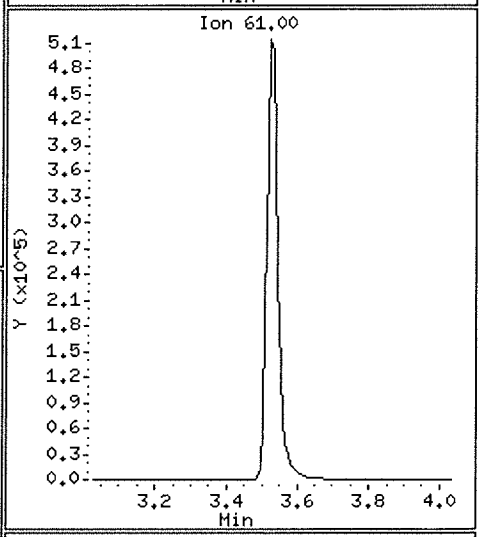


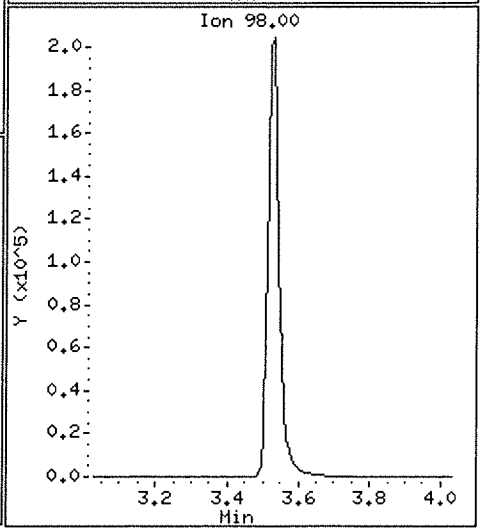












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031920.D

Date : 20-MAR-2020 05:34

Client ID: HS20030474-06

Instrument: voa6.i

Sample Info: HS20030474-06;HS20030474-06;;;

Purge Volume: 5.0

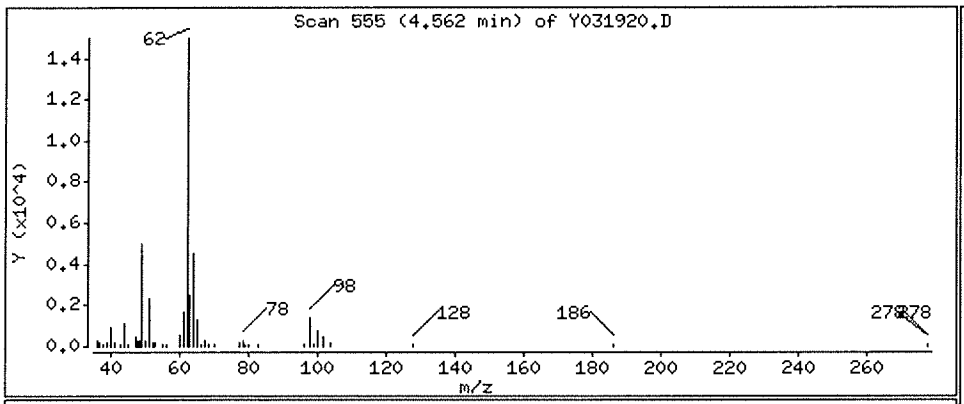
Operator: PC

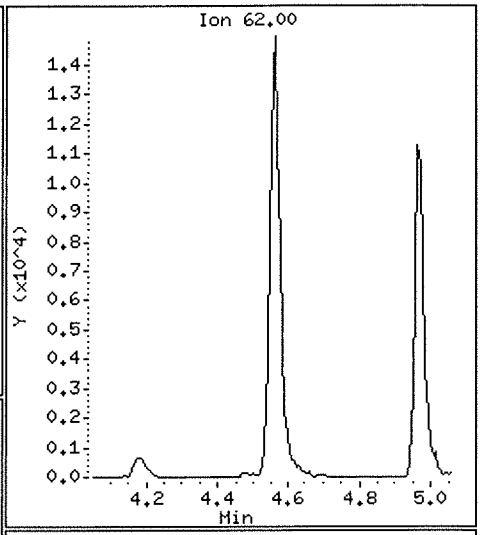
Column phase: DB624

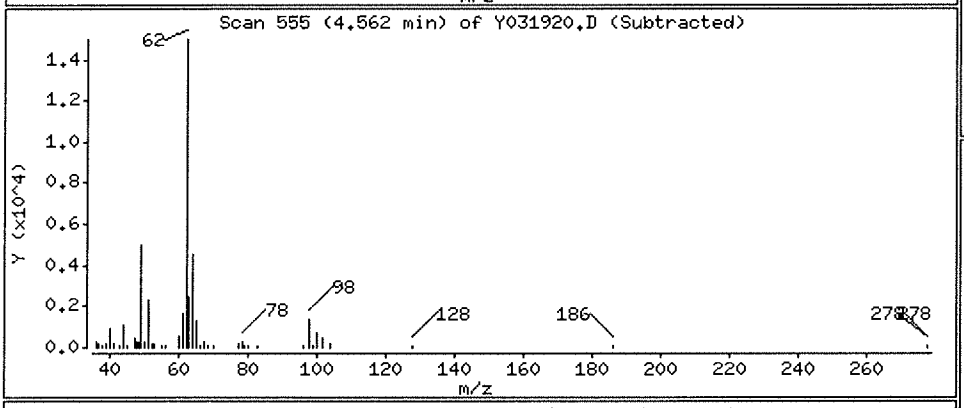
Column diameter: 0.18

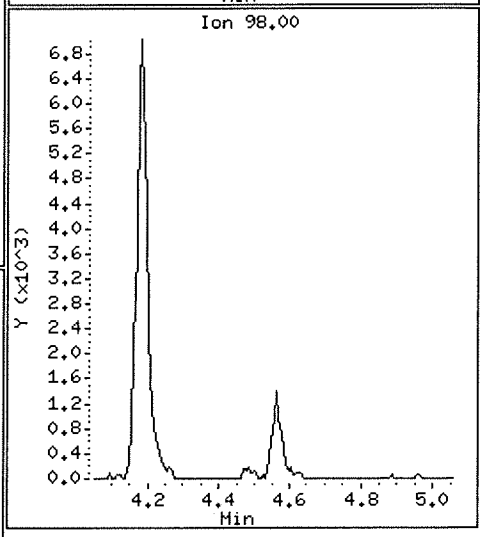
33 1,2-Dichloroethane

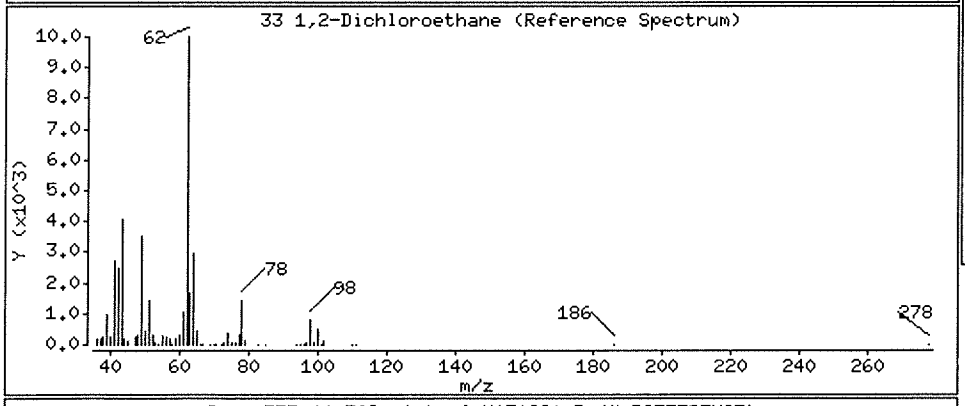
Concentration: 5.18 ug/l

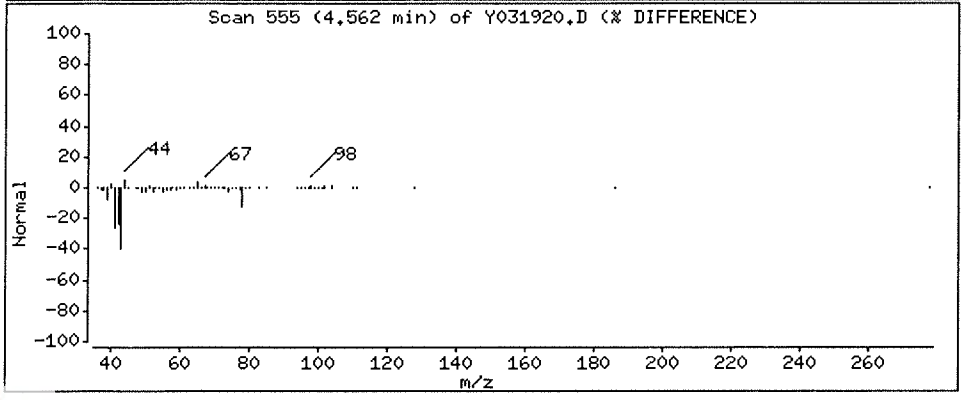












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031920.D

Date : 20-MAR-2020 05:34

Client ID: HS20030474-06

Instrument: voa6.i

Sample Info: HS20030474-06;HS20030474-06;;;

Purge Volume: 5.0

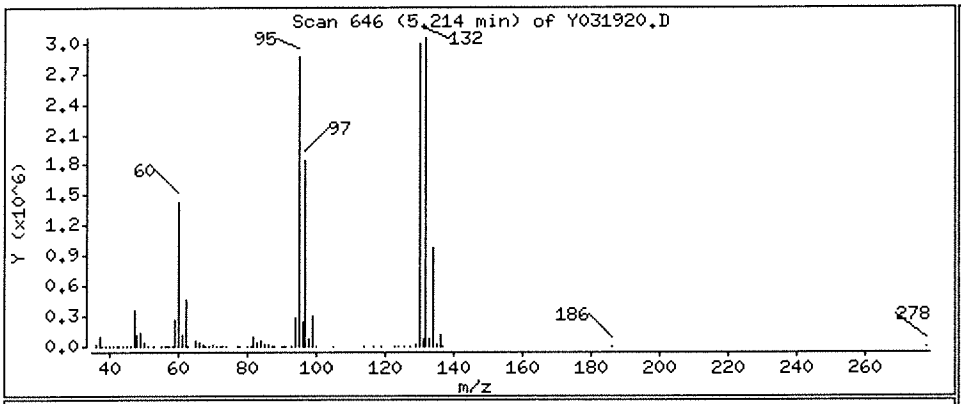
Operator: PC

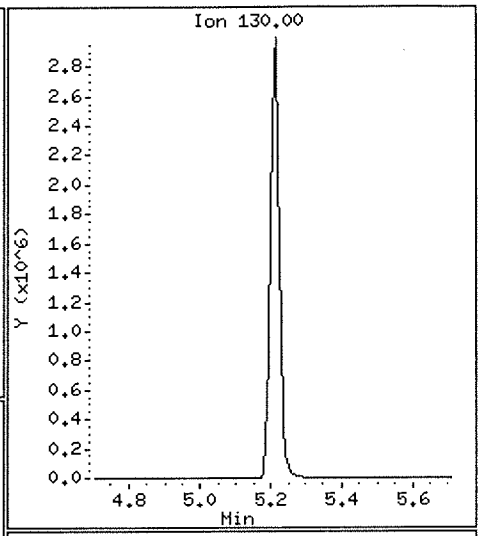
Column phase: DB624

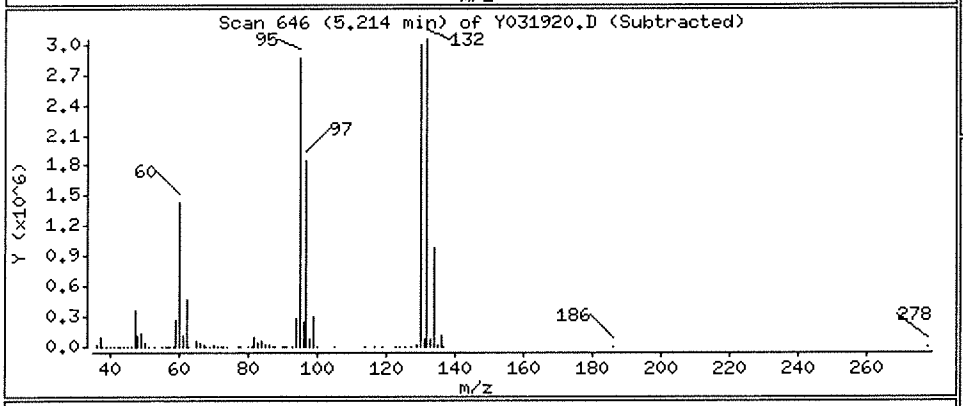
Column diameter: 0.18

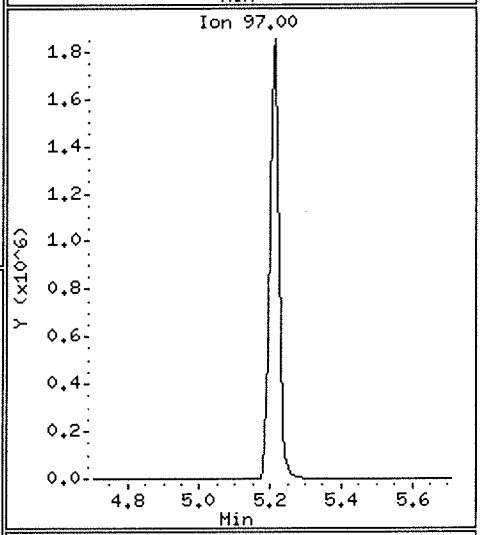
38 Trichloroethene

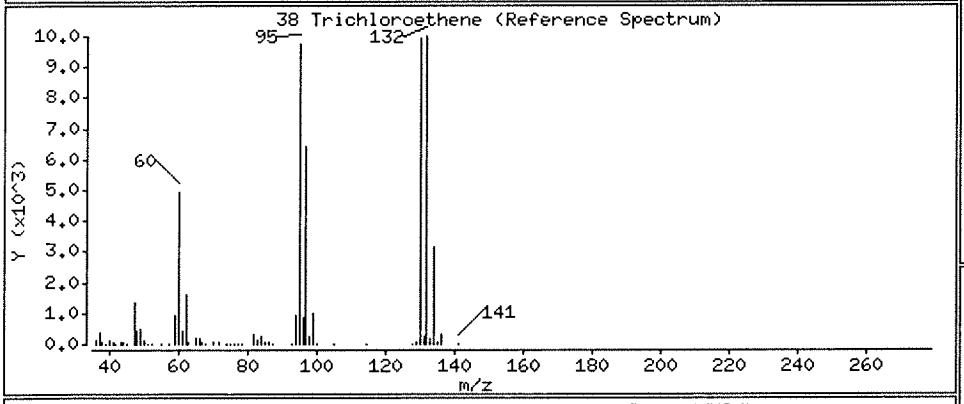
Concentration: 1361.60 ug/l

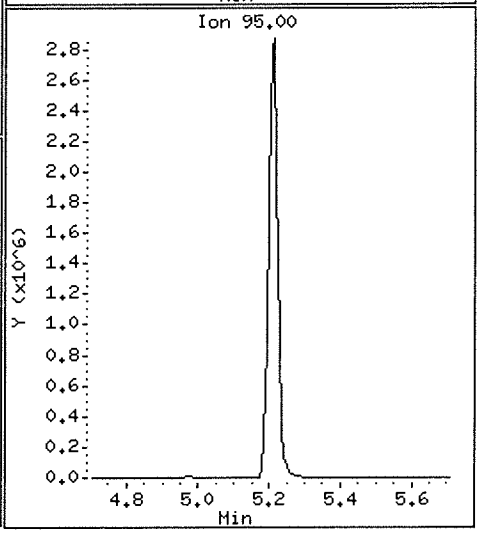


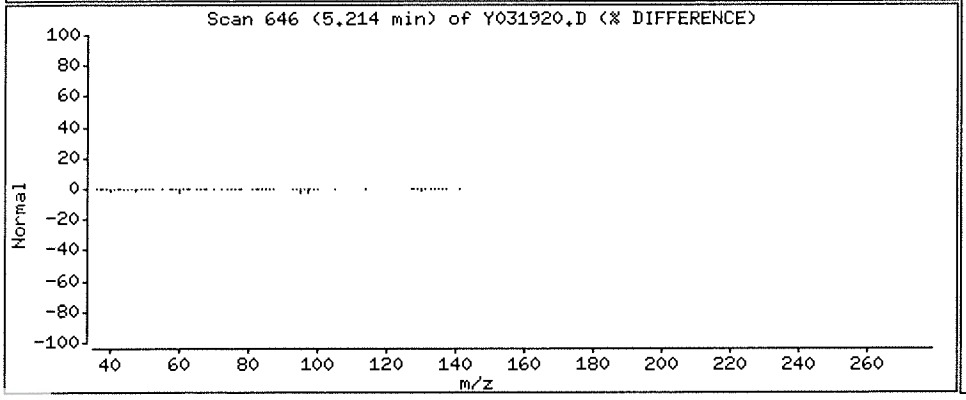












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031921.D Page 1
Report Date: 13-Apr-2020 12:20

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031921.D
Lab Smp Id: HS20030474-06 Client Smp ID: HS20030474-06
Inj Date : 20-MAR-2020 05:58
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-06;HS20030474-06;;;
Misc Info : HS18090001;WATER;0;25;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 47
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

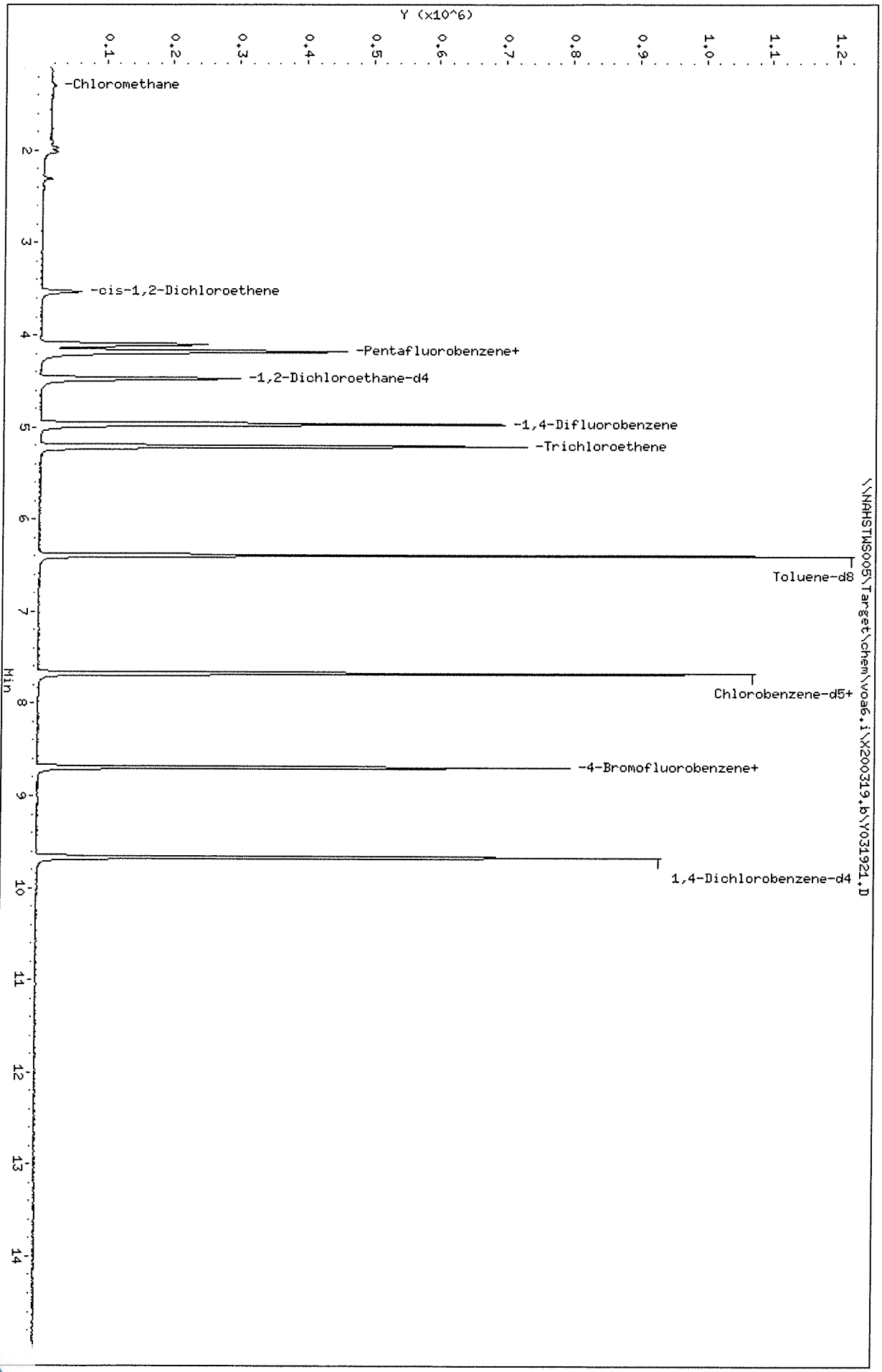
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	383671	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	178321	46.7706	46.77
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	216871	44.9761	44.97
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	565041	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	484910	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	662200	53.3149	53.31
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	226146	48.4531	48.45
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	225226	50.0000	
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	28044	6.41845	160.46
38 Trichloroethene	130	5.207	5.206	(1.048)	238284	60.8432	1521.07

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031921.D
Date : 20-MAR-2020 05:58
Client ID: HS20030474-06
Sample Info: HS20030474-06;HS20030474-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031921.D

Date : 20-MAR-2020 05:58

Client ID: HS20030474-06

Instrument: voa6.i

Sample Info: HS20030474-06;HS20030474-06;;;

Purge Volume: 5.0

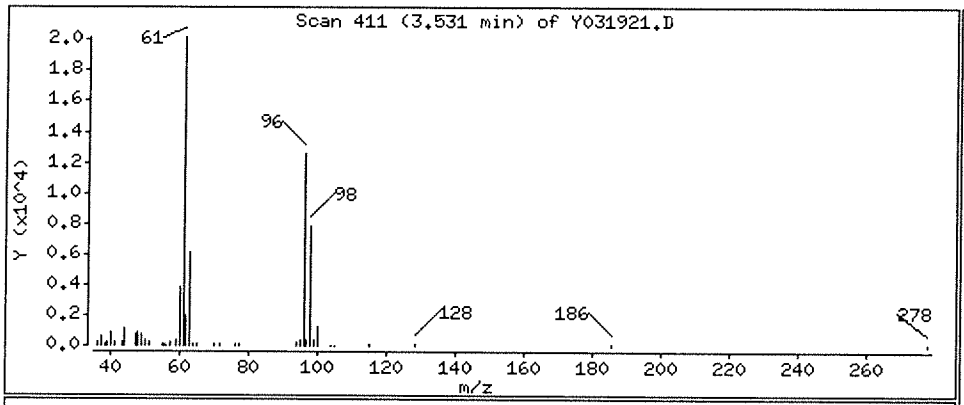
Operator: PC

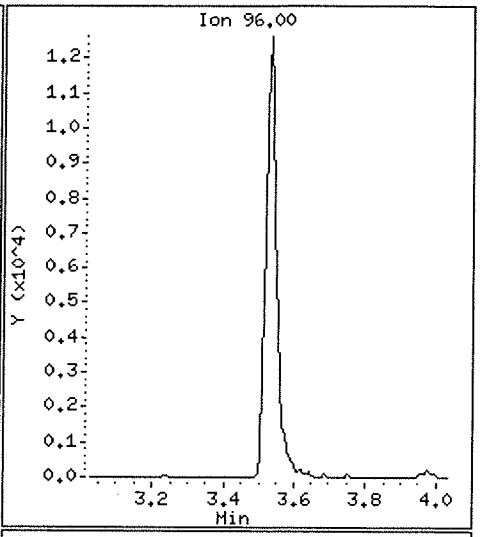
Column phase: DB624

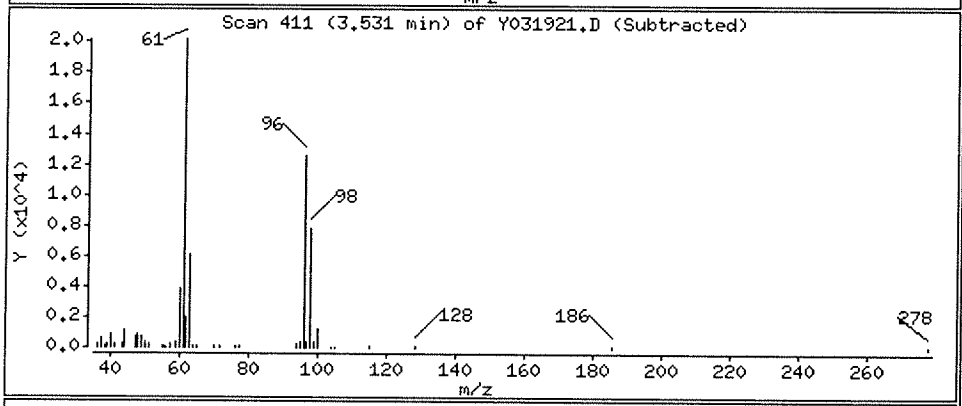
Column diameter: 0.18

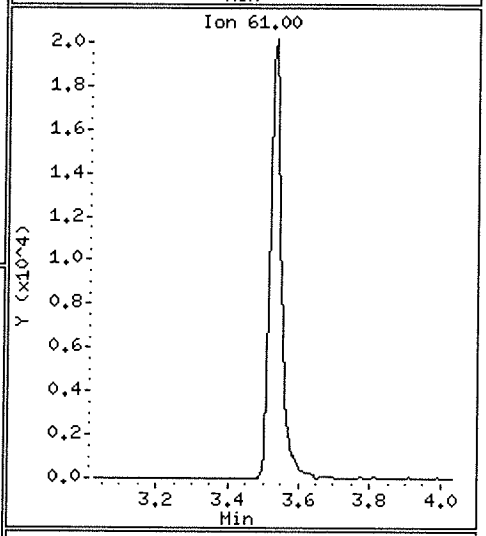
27 cis-1,2-Dichloroethene

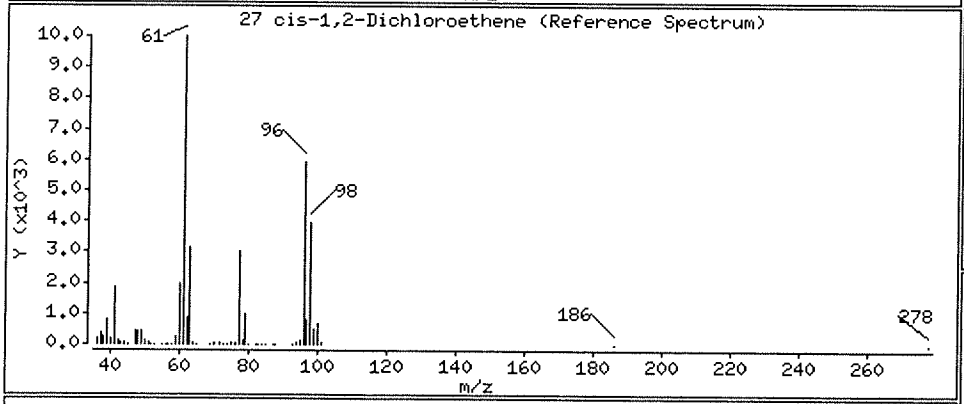
Concentration: 160.46 ug/l

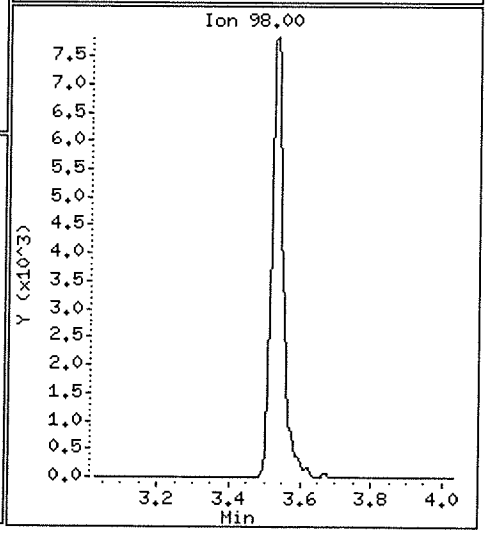


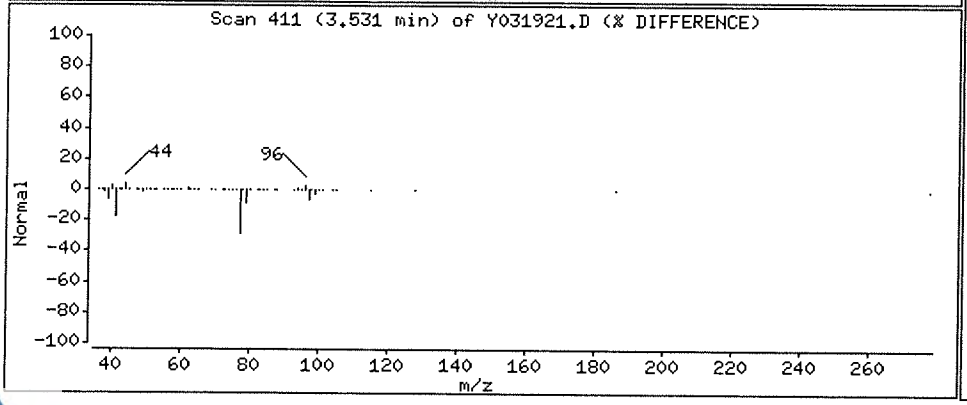












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031921.D

Date : 20-MAR-2020 05:58

Client ID: HS20030474-06

Instrument: voa6.i

Sample Info: HS20030474-06;HS20030474-06;;;

Purge Volume: 5.0

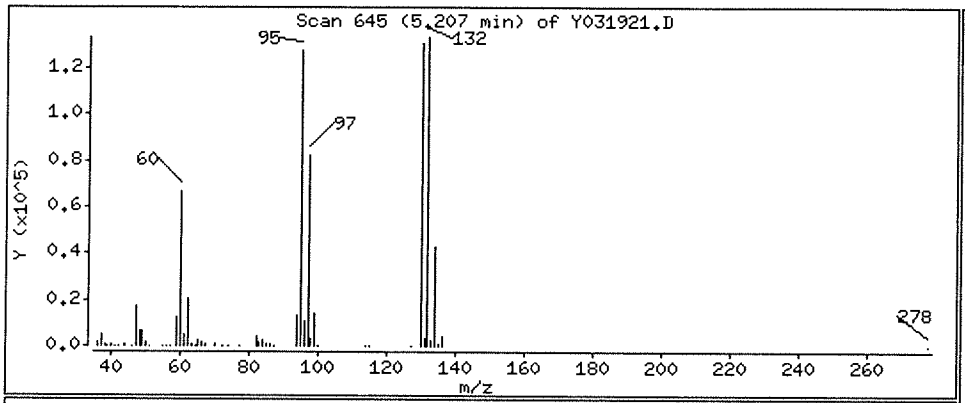
Operator: PC

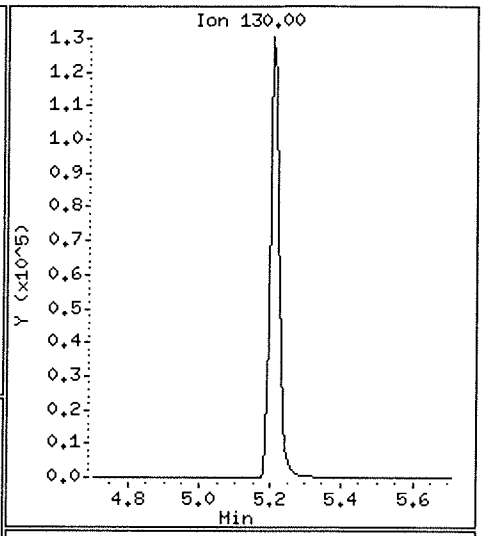
Column phase: DB624

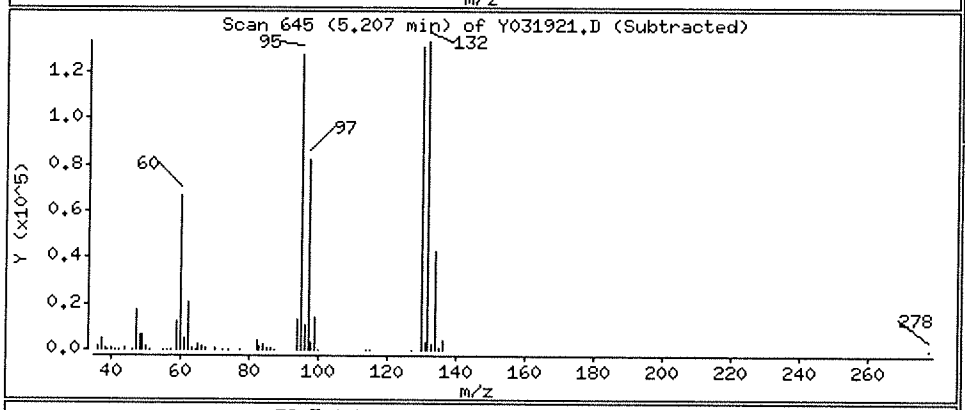
Column diameter: 0.18

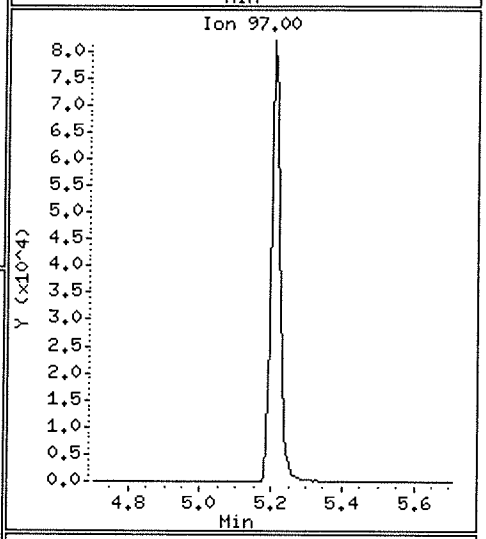
38 Trichloroethene

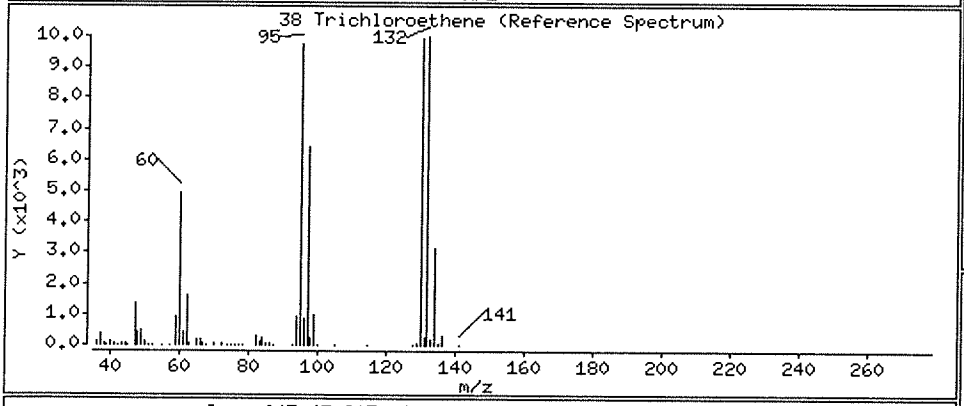
Concentration: 1521.07 ug/l

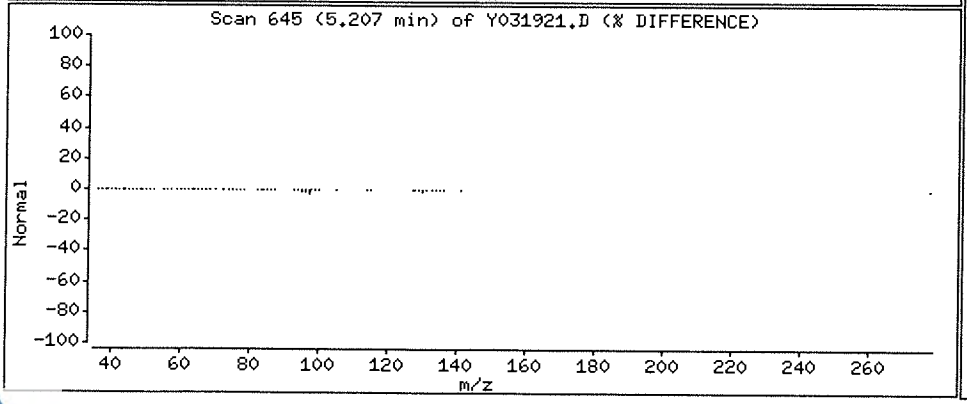


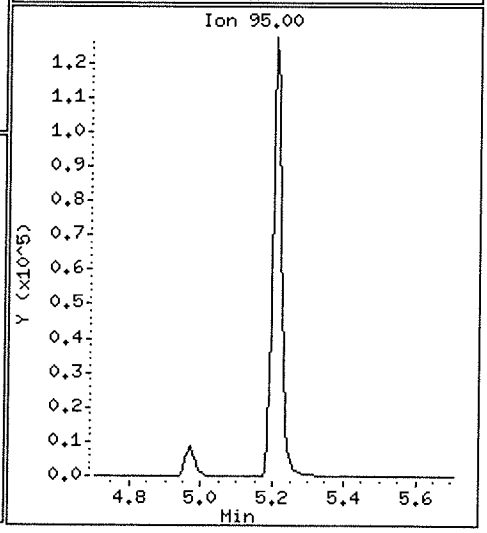












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Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031926.D
Lab Smp Id: HS20030474-01 Client Smp ID: HS20030474-01
Inj Date : 20-MAR-2020 07:58
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-01;HS20030474-01;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 52
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	385282	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	180722	47.2031	47.20
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	218684	45.1631	45.16
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	570095	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	492918	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	657107	52.0436	52.04
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	230946	48.6800	48.67
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	236123	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	64741	11.0295	110.29
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	6465	1.98025	19.80(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1449318	330.319	3303.19(A)
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	15153	2.51586	25.15(a)
38 Trichloroethene	130	5.206	5.206	(1.048)	1692482	428.325	4283.25(A)

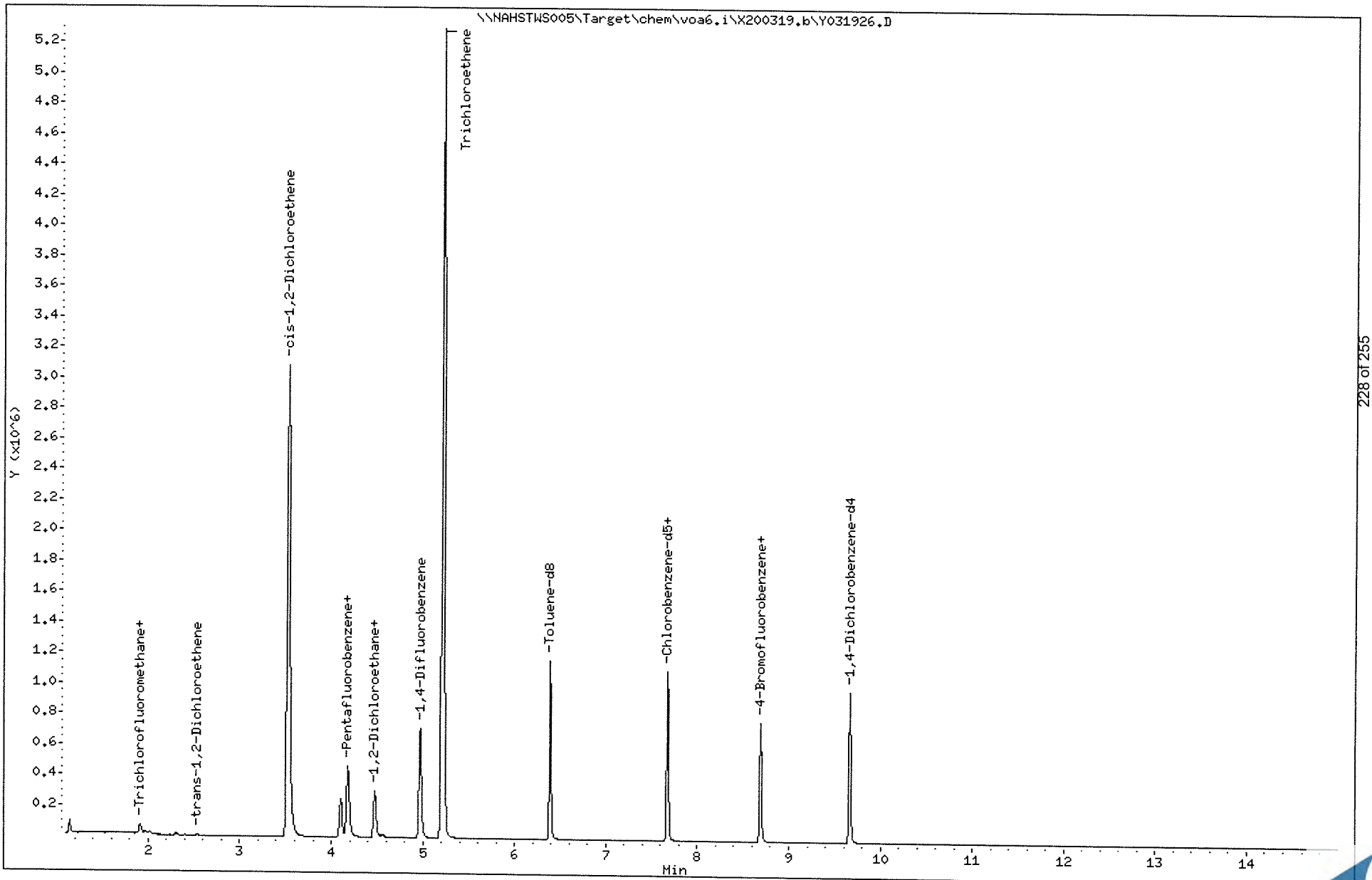
QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount
exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031926.D
Date : 20-MAR-2020 07:58
Client ID: HS20030474-01
Sample Info: HS20030474-01;HS20030474-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031926.D

Date : 20-MAR-2020 07:58

Client ID: HS20030474-01

Instrument: voa6.i

Sample Info: HS20030474-01;HS20030474-01;;;

Purge Volume: 5.0

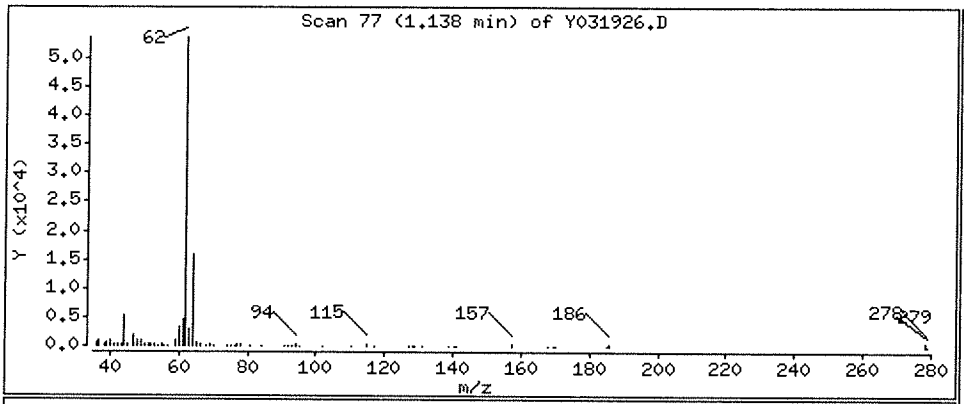
Operator: PC

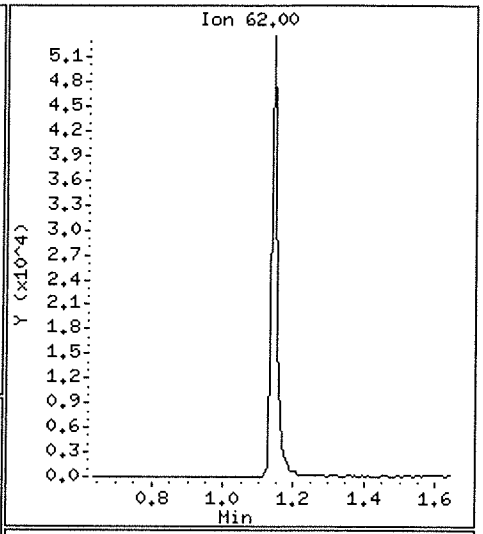
Column phase: DB624

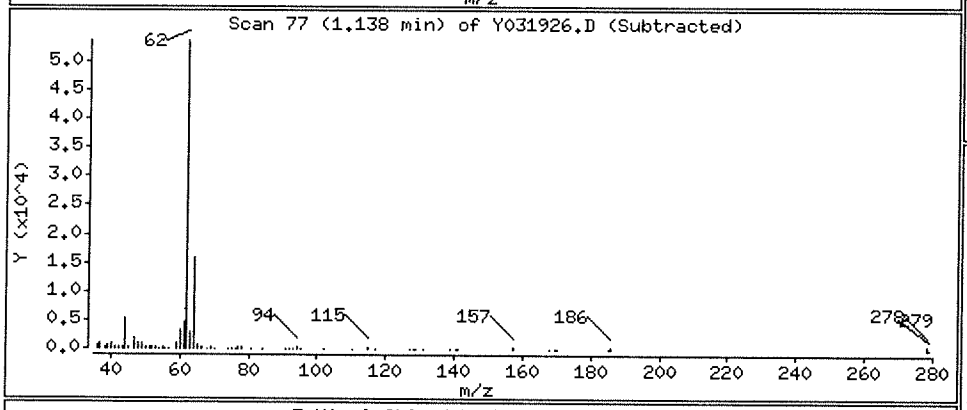
Column diameter: 0.18

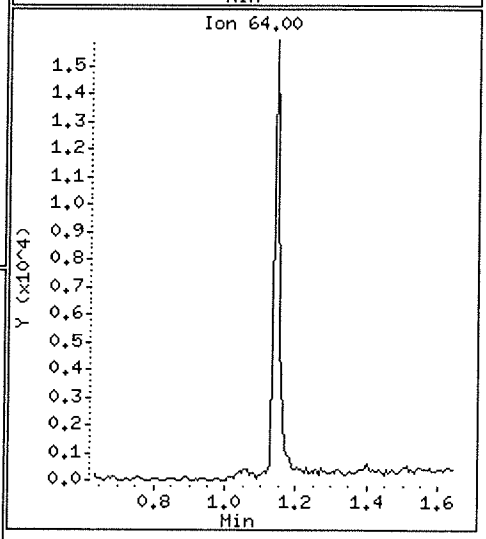
5 Vinyl Chloride

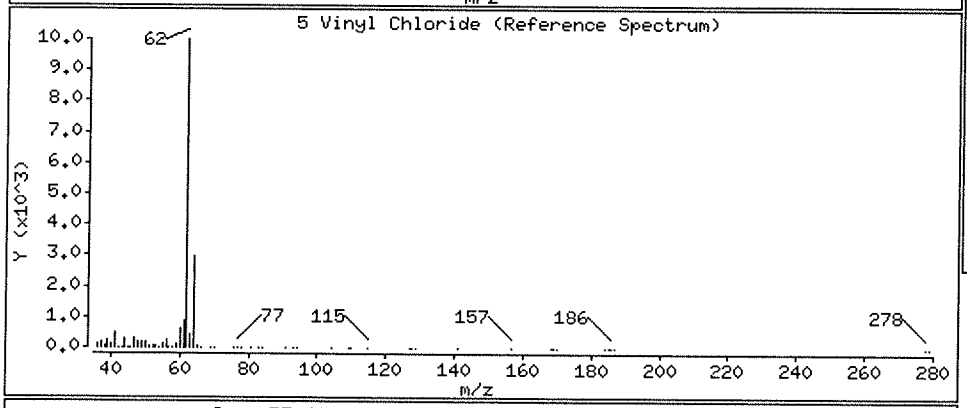
Concentration: 110.29 ug/l

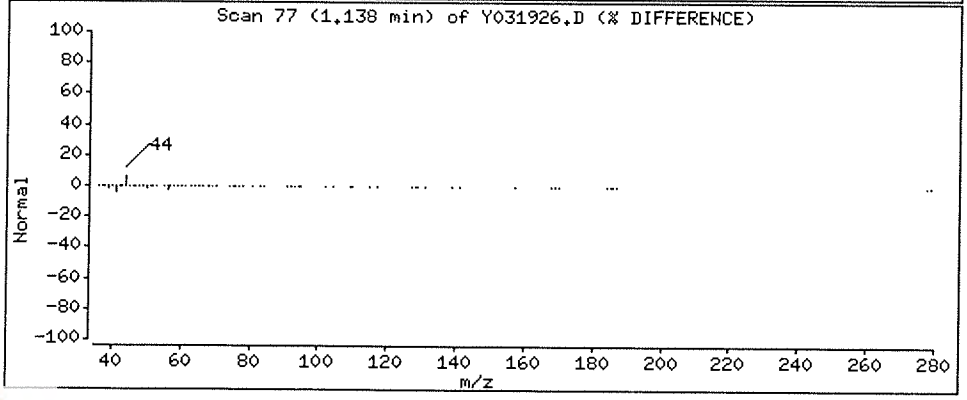












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031926.D

Date : 20-MAR-2020 07:58

Client ID: HS20030474-01

Instrument: voa6.i

Sample Info: HS20030474-01;HS20030474-01;;;

Purge Volume: 5.0

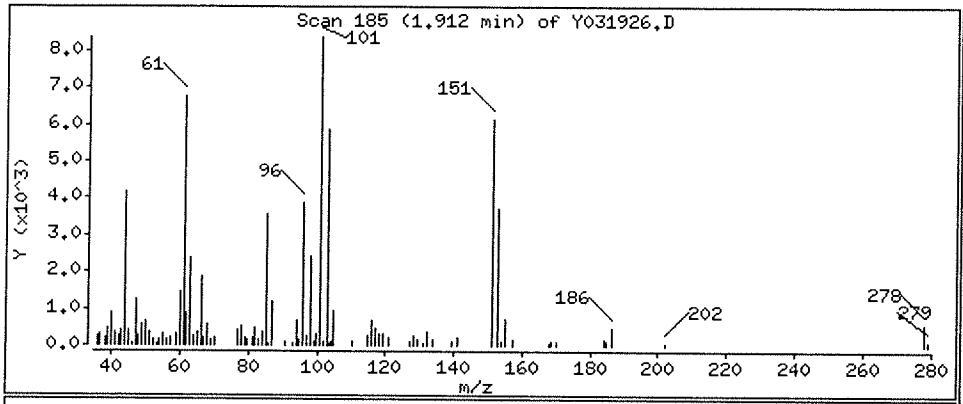
Operator: PC

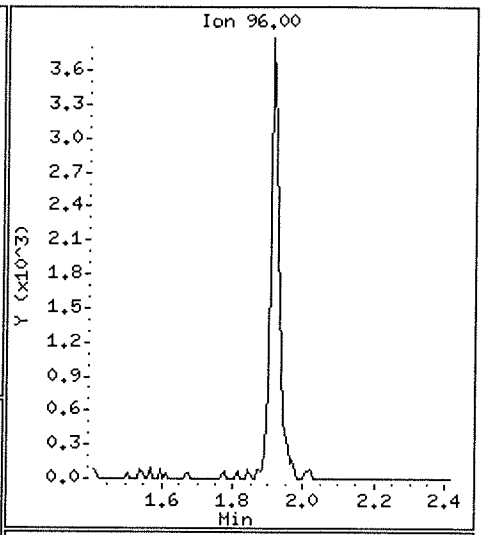
Column phase: DB624

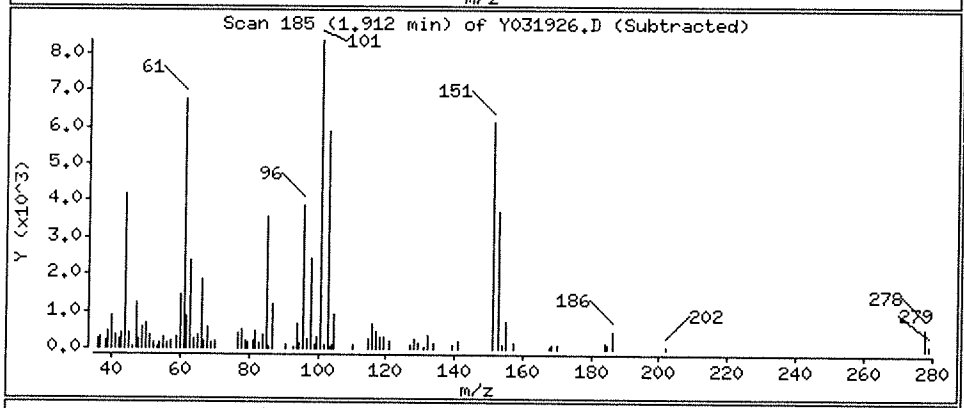
Column diameter: 0.18

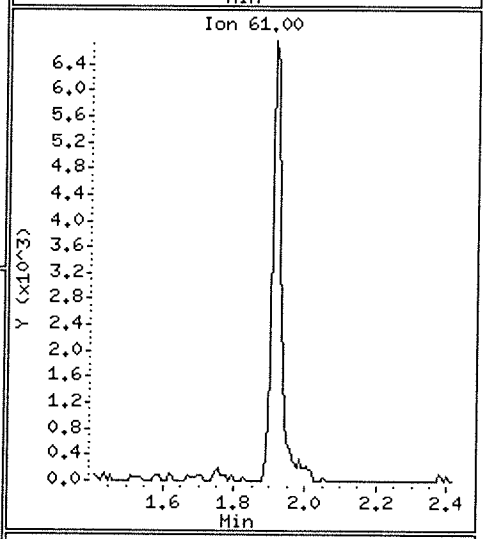
11 1,1-Dichloroethene

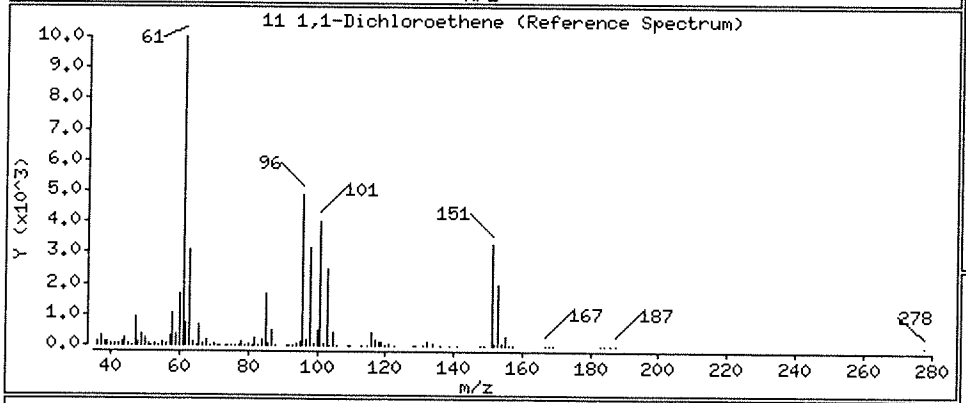
Concentration: 19.80 ug/l

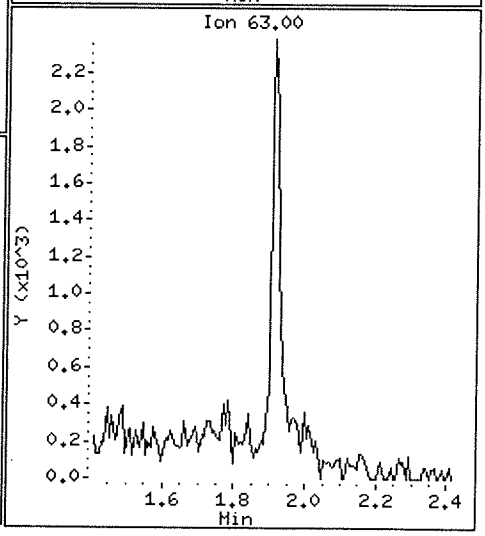


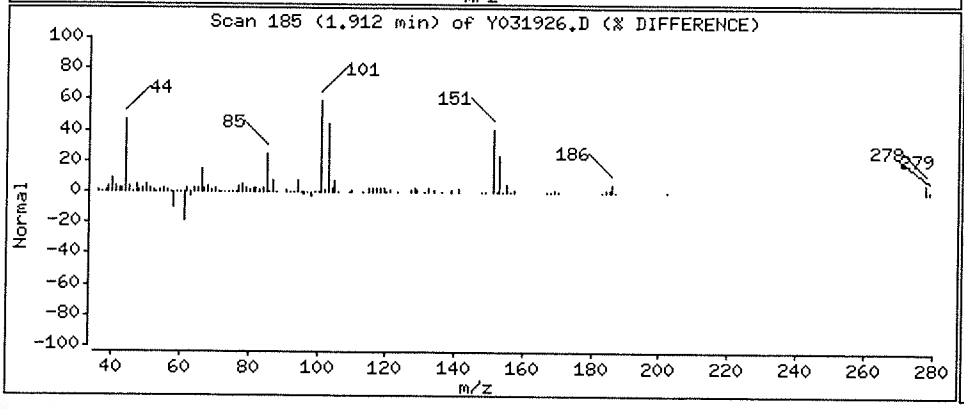












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031926.D

Date : 20-MAR-2020 07:58

Client ID: HS20030474-01

Instrument: voa6.i

Sample Info: HS20030474-01;HS20030474-01;;;

Purge Volume: 5.0

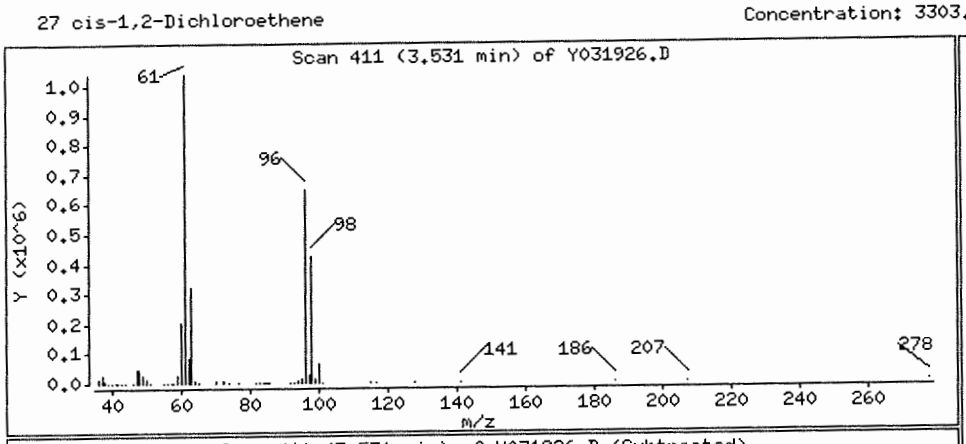
Operator: PC

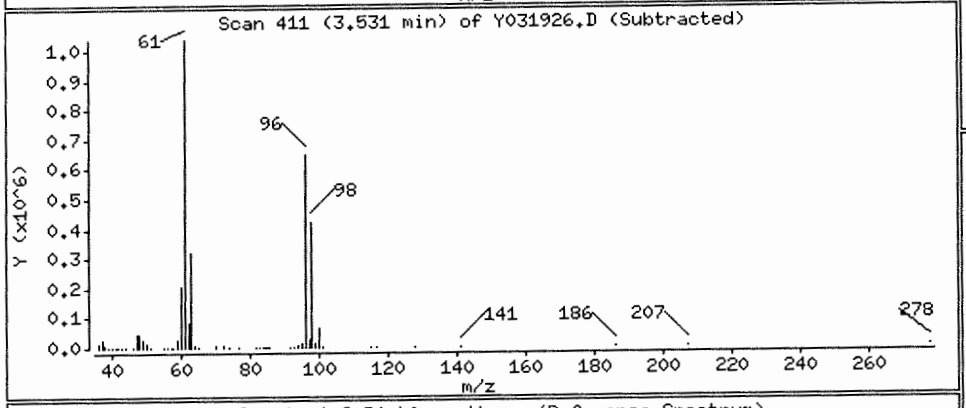
Column phase: DB624

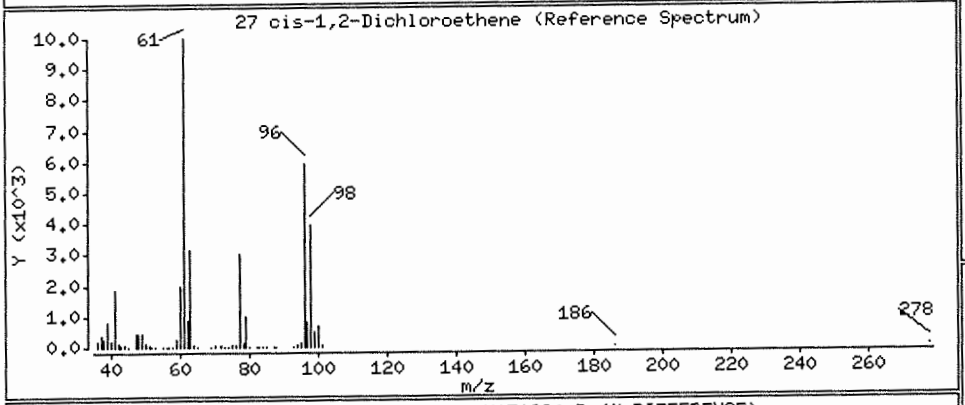
Column diameter: 0.18

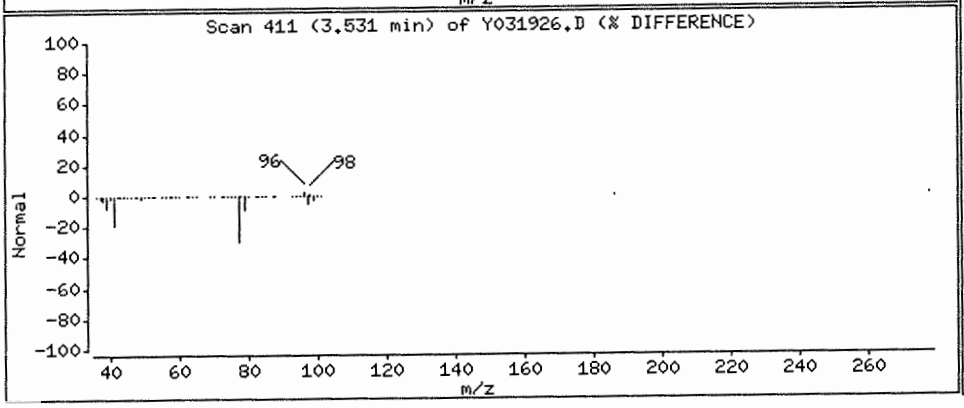
27 cis-1,2-Dichloroethene

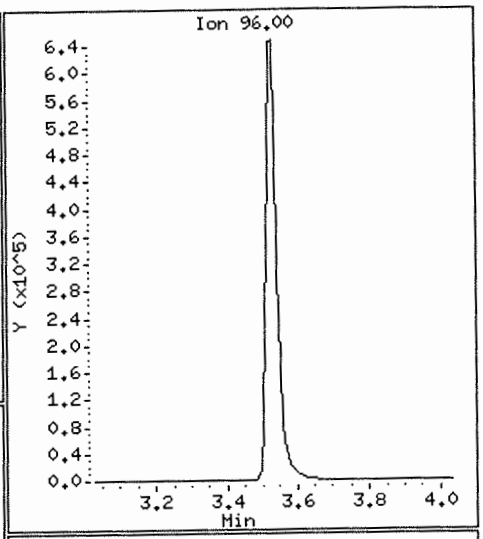
Concentration: 3303.19 ug/l

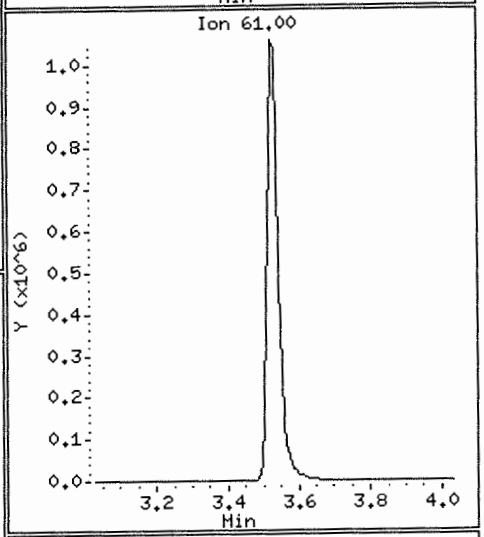


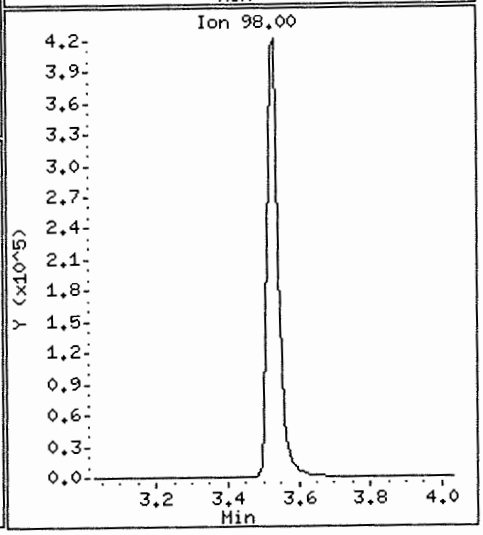












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031926.D Page 6

Date : 20-MAR-2020 07:58

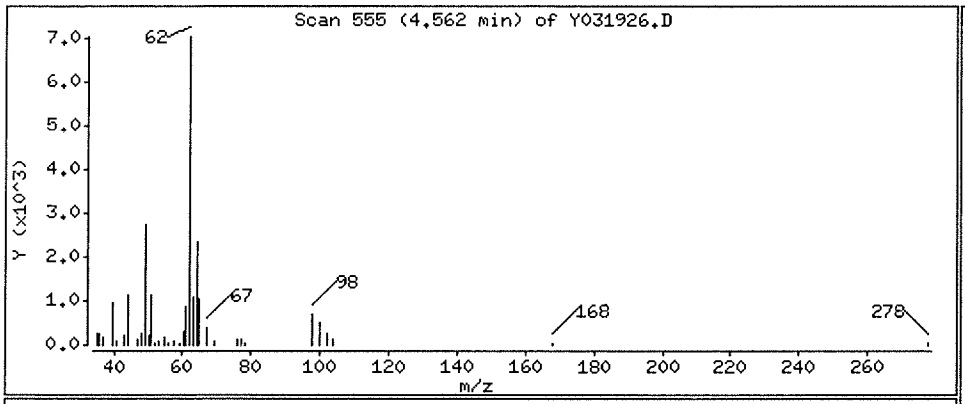
Client ID: HS20030474-01 Instrument: voa6.i

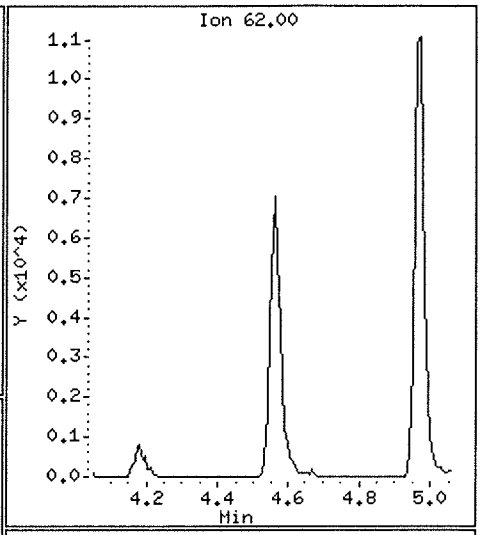
Sample Info: HS20030474-01;HS20030474-01;;;

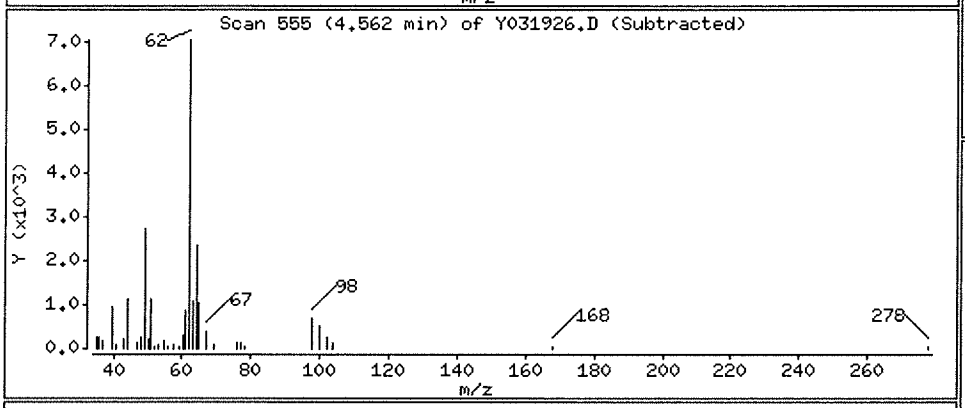
Purge Volume: 5.0 Operator: PC

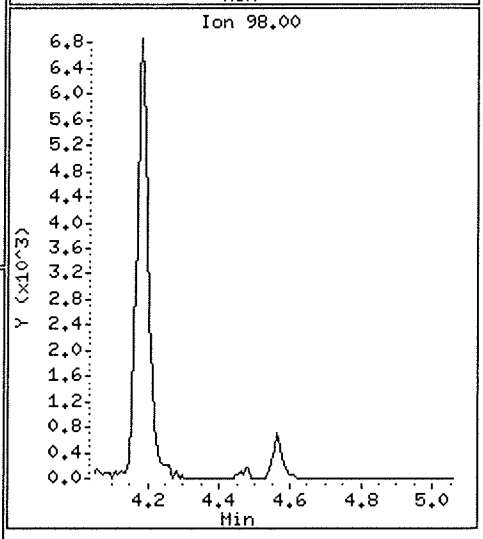
Column phase: DB624 Column diameter: 0.18

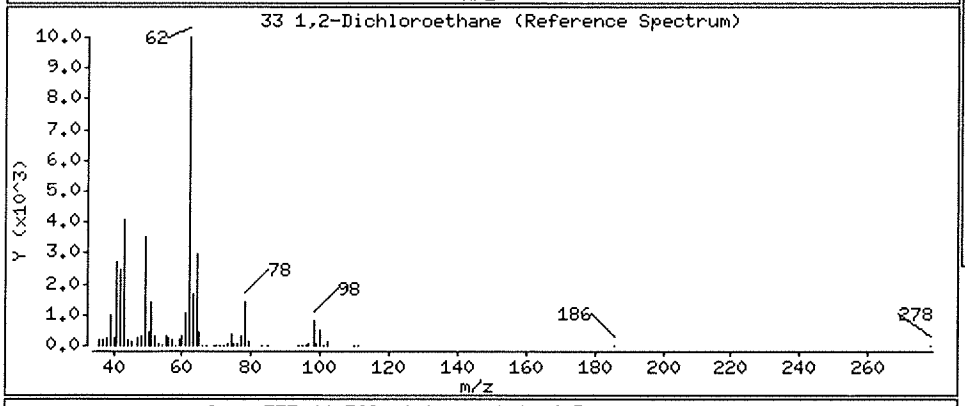
33 1,2-Dichloroethane Concentration: 25.15 ug/l

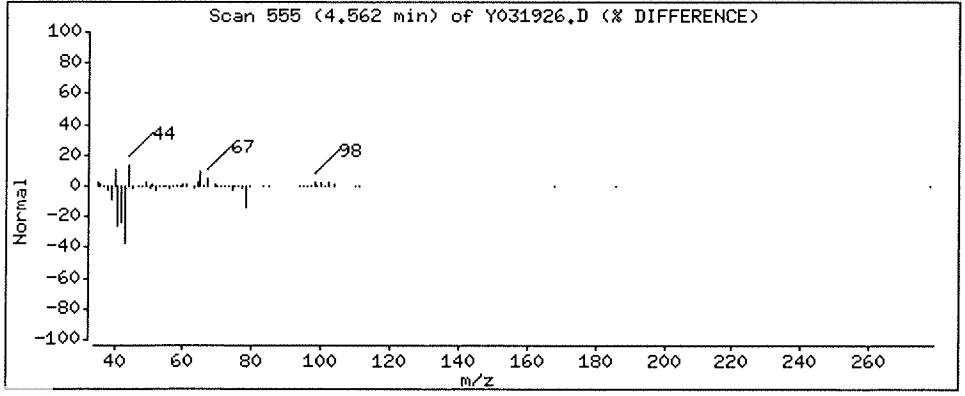












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031926.D Page 7

Date : 20-MAR-2020 07:58

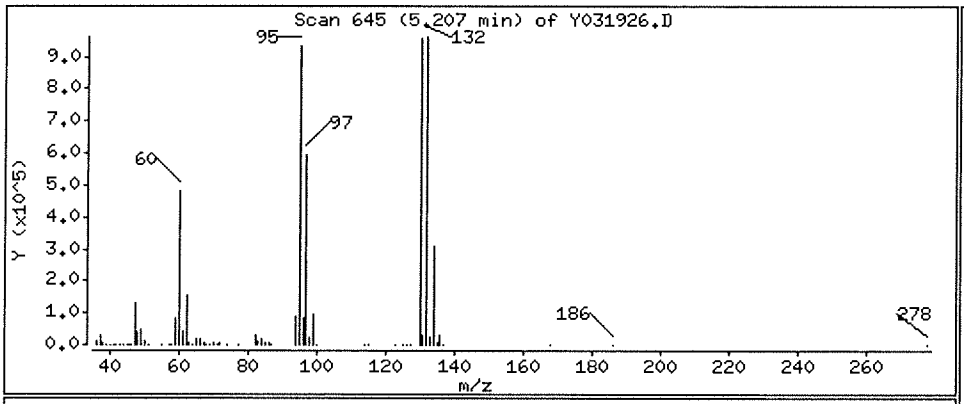
Client ID: HS20030474-01 Instrument: voa6.i

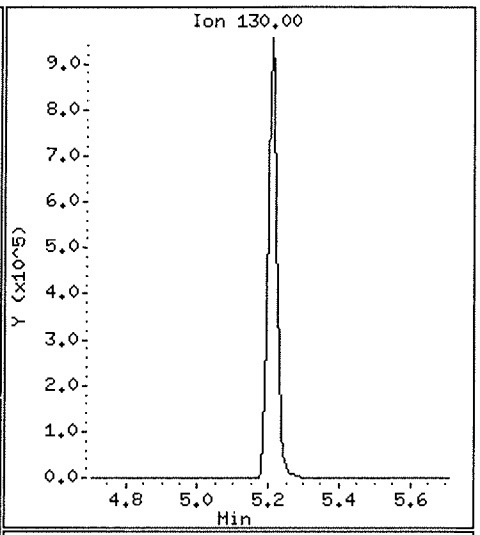
Sample Info: HS20030474-01;HS20030474-01;;;

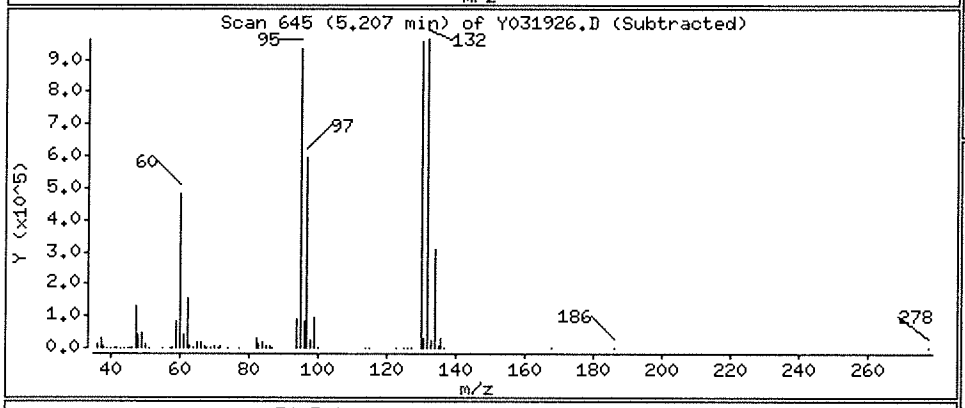
Purge Volume: 5.0 Operator: PC

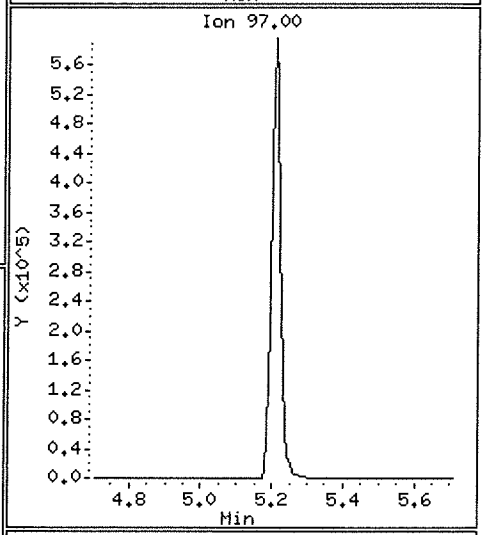
Column phase: DB624 Column diameter: 0.18

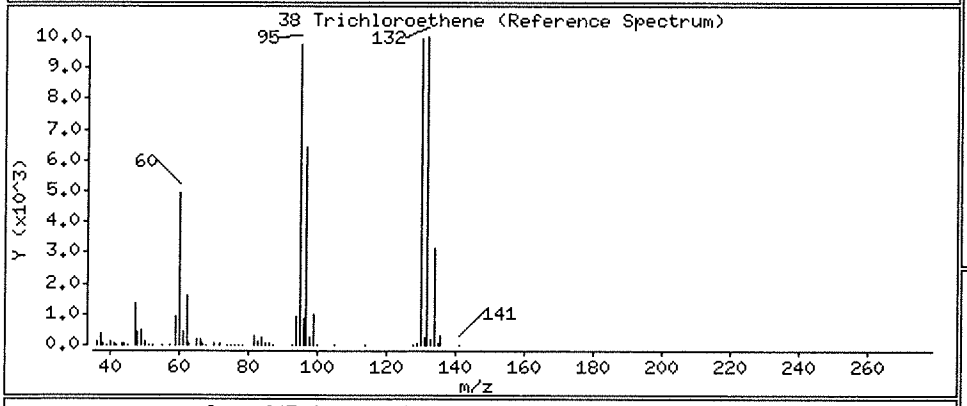
38 Trichloroethene Concentration: 4283.25 ug/l

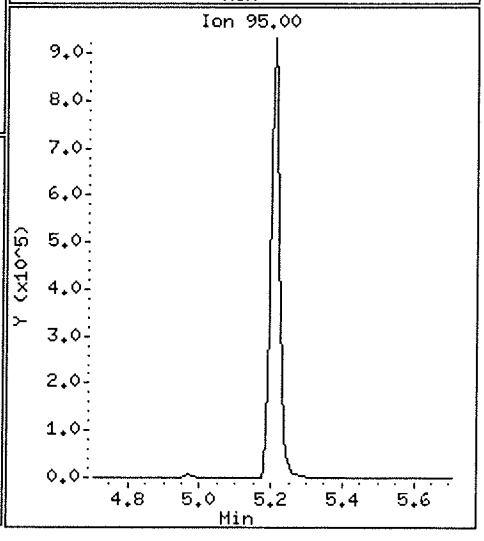


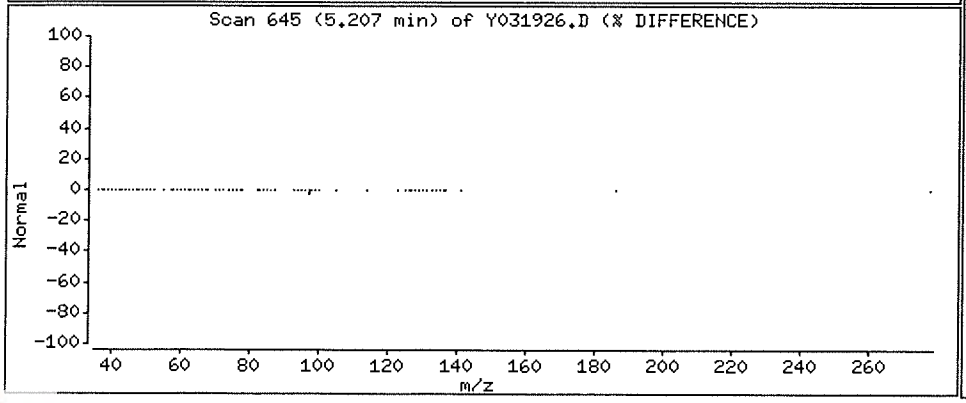












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031927.D Page 1
Report Date: 13-Apr-2020 12:23

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031927.D
Lab Smp Id: HS20030474-01 Client Smp ID: HS20030474-01
Inj Date : 20-MAR-2020 08:23
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-01;HS20030474-01;;;
Misc Info : HS18090001;WATER;0;100;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 53
Dil Factor: 100.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	100.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	392156	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	182586	46.8533	46.85
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	222688	45.1840	45.18
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	580398	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	500274	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	677478	52.8692	52.86
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	231696	48.1143	48.11
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	231974	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	7420	1.24194	124.19(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	155937	34.9172	3491.71
38 Trichloroethene	130	5.207	5.206	(1.048)	196488	48.8436	4884.35

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031927.D

Date : 20-MAR-2020 08:23

Client ID: HS20030474-01

Sample Info: HS20030474-01;HS20030474-01;;;

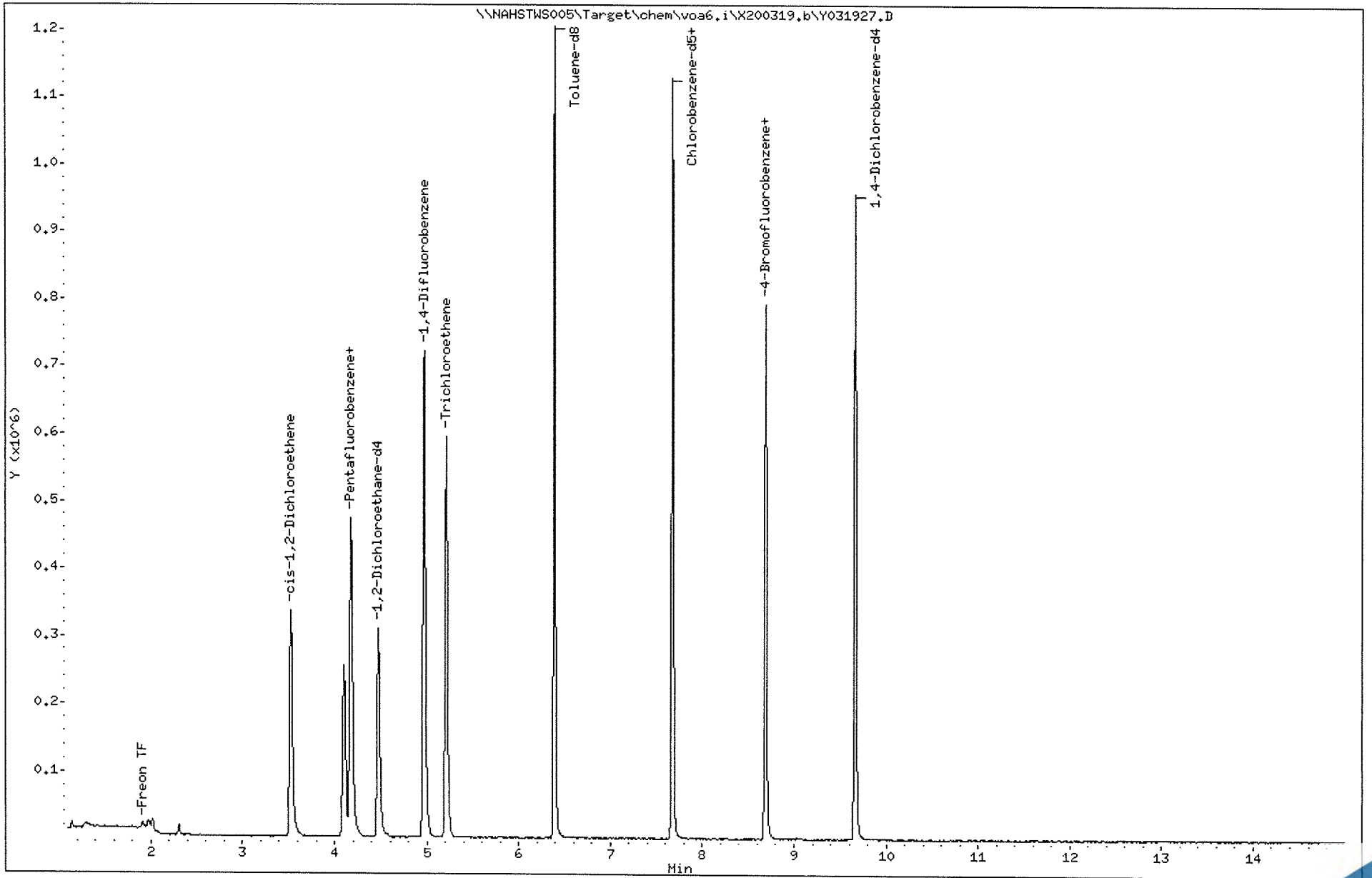
Purge Volume: 5.0

Column phase: DB624

Instrument: voa6.i

Operator: PC

Column diameter: 0.18



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Date : 20-MAR-2020 08:23

Client ID: HS20030474-01

Instrument: voa6.i

Sample Info: HS20030474-01;HS20030474-01;;;

Purge Volume: 5.0

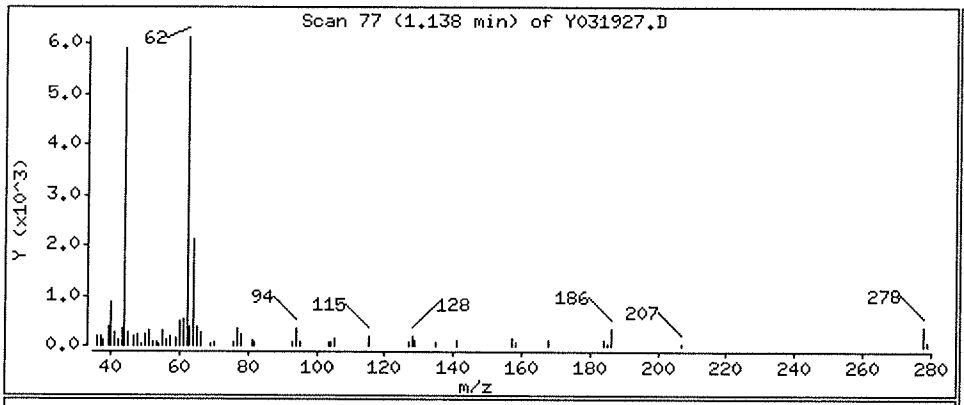
Operator: PC

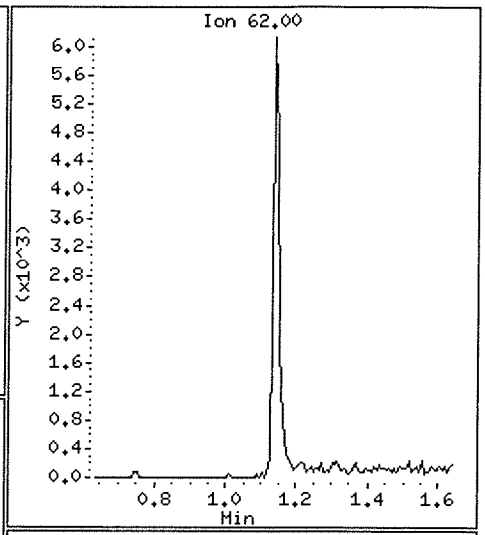
Column phase: DB624

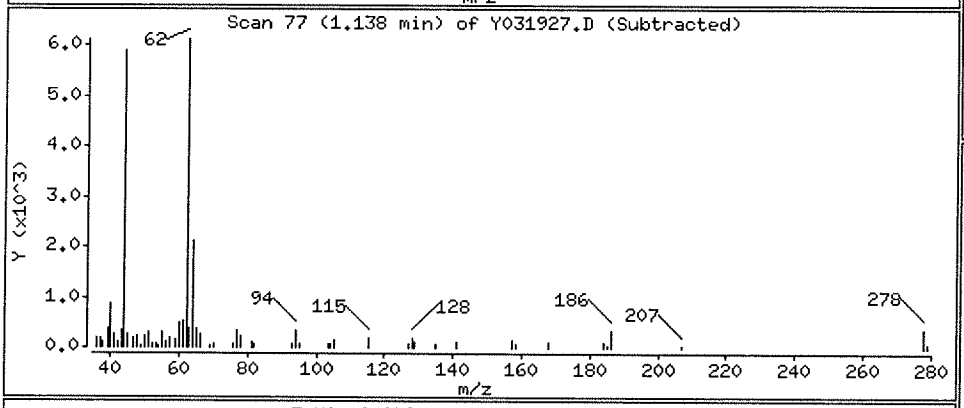
Column diameter: 0.18

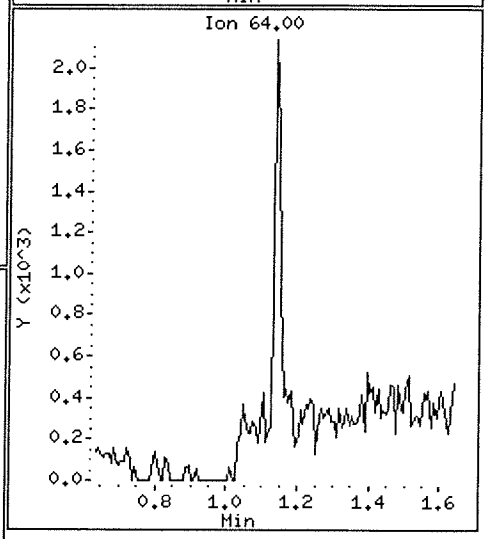
5 Vinyl Chloride

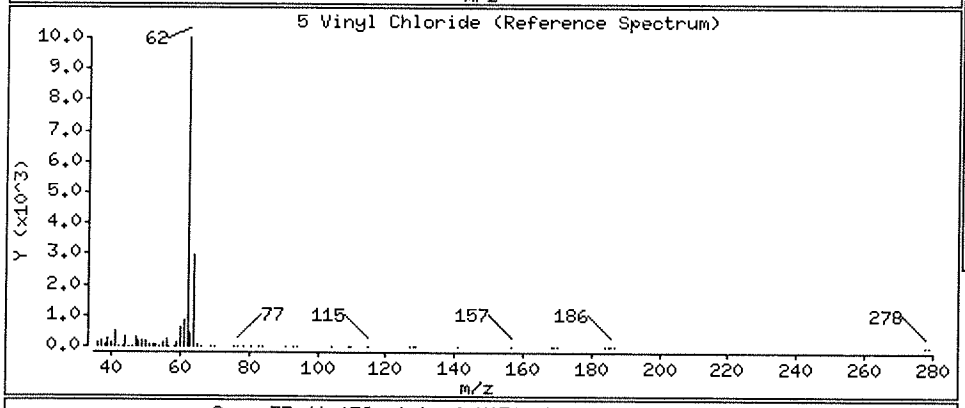
Concentration: 124.19 ug/l

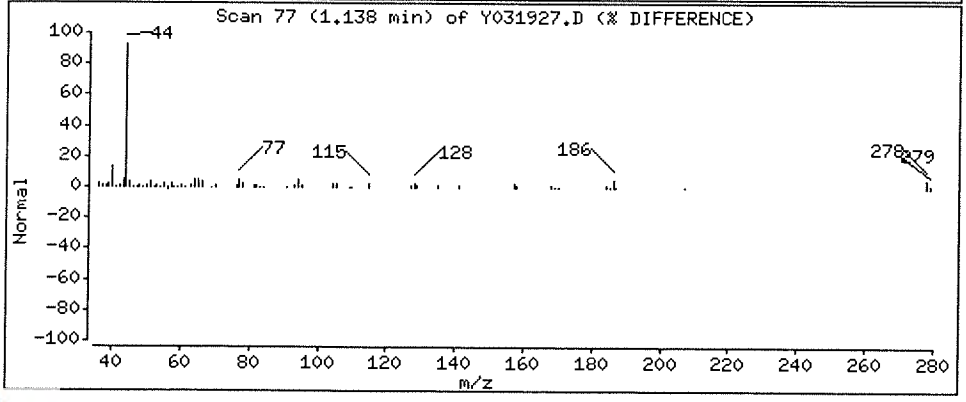












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031927.D

Date : 20-MAR-2020 08:23

Client ID: HS20030474-01

Instrument: voa6.i

Sample Info: HS20030474-01;HS20030474-01;;;

Purge Volume: 5.0

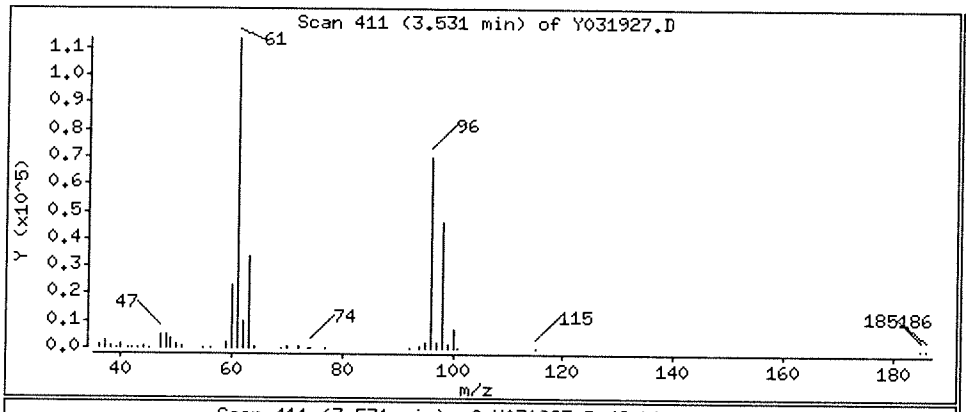
Operator: PC

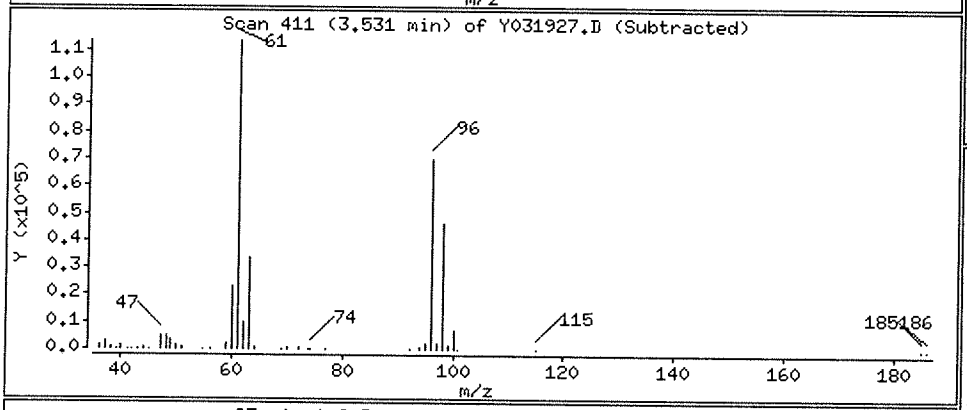
Column phase: DB624

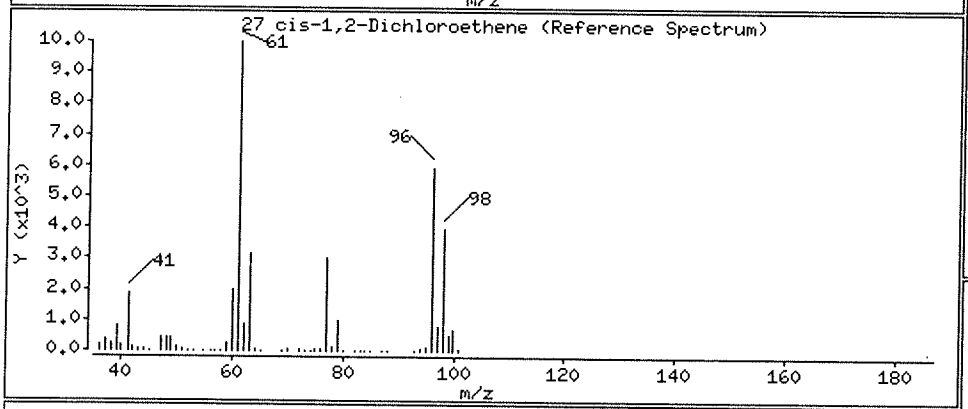
Column diameter: 0.18

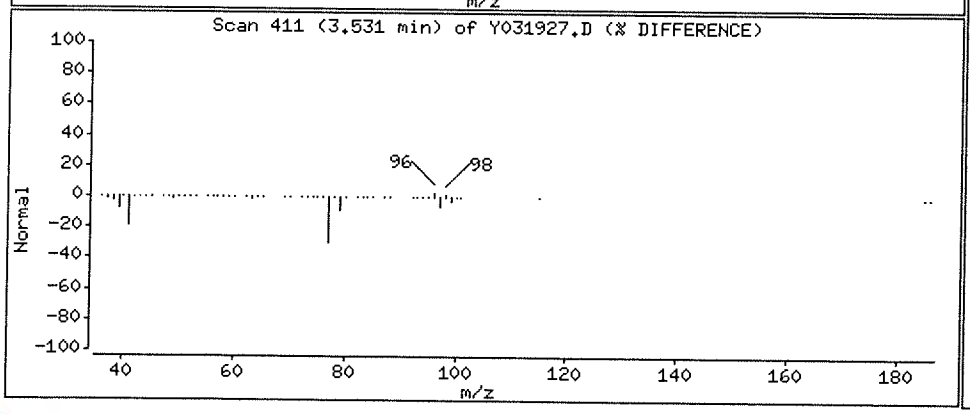
27 cis-1,2-Dichloroethene

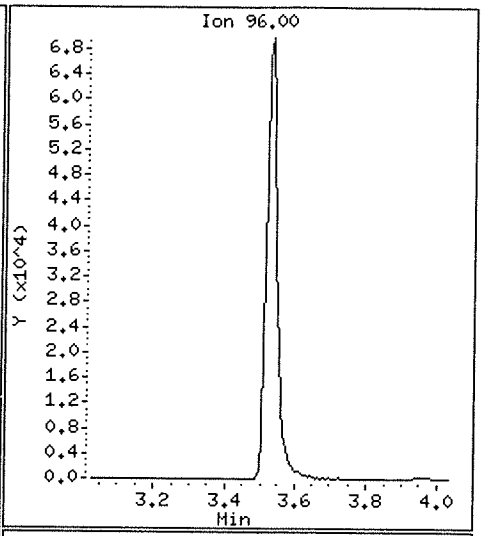
Concentration: 3491.71 ug/l

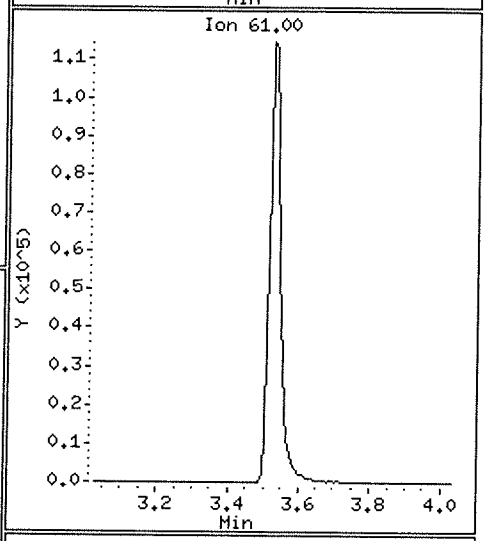


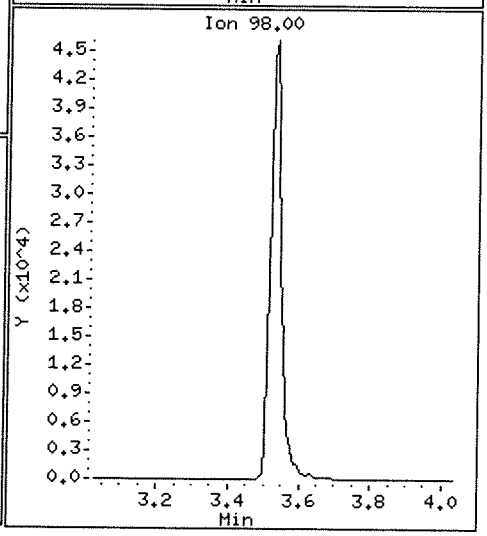












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031927.D

Date : 20-MAR-2020 08:23

Client ID: HS20030474-01

Instrument: voa6.i

Sample Info: HS20030474-01;HS20030474-01;;;

Purge Volume: 5.0

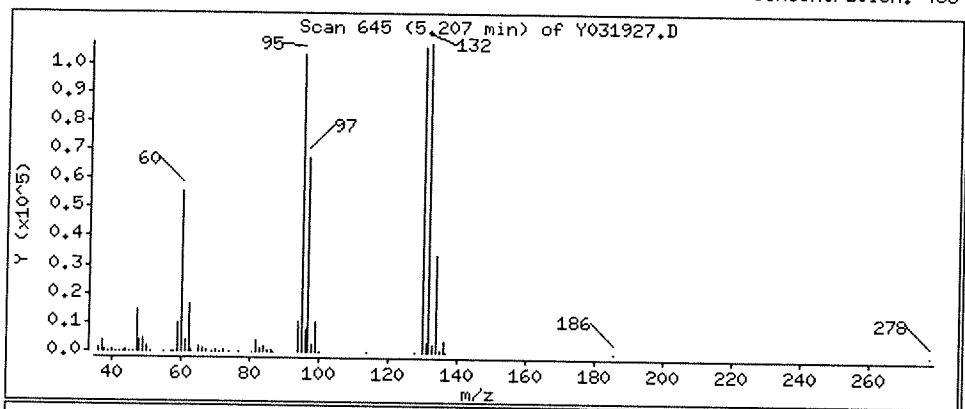
Operator: PC

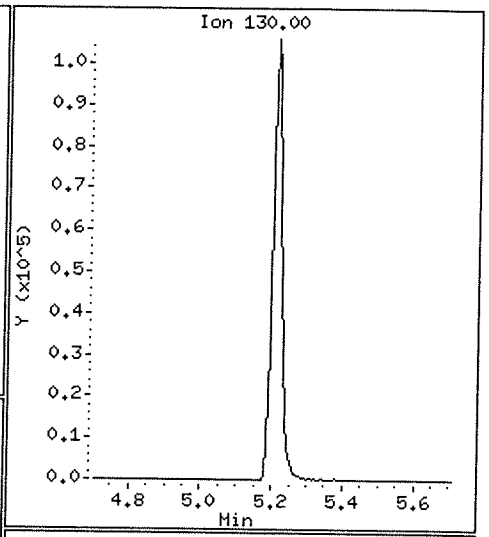
Column phase: DB624

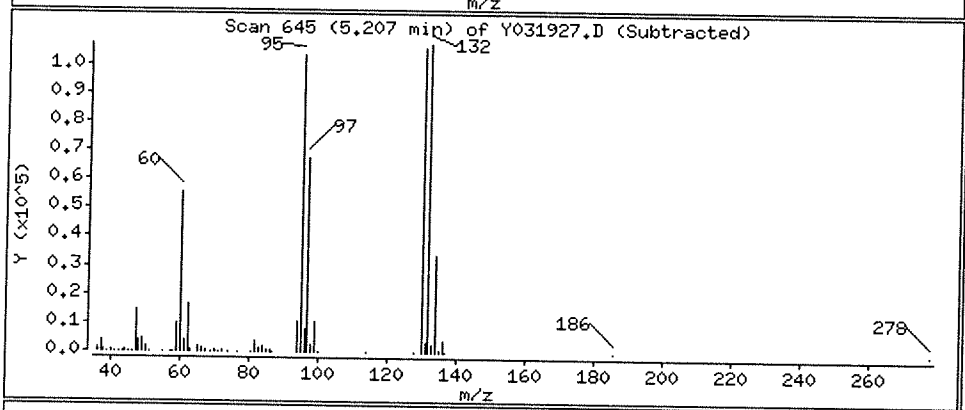
Column diameter: 0.18

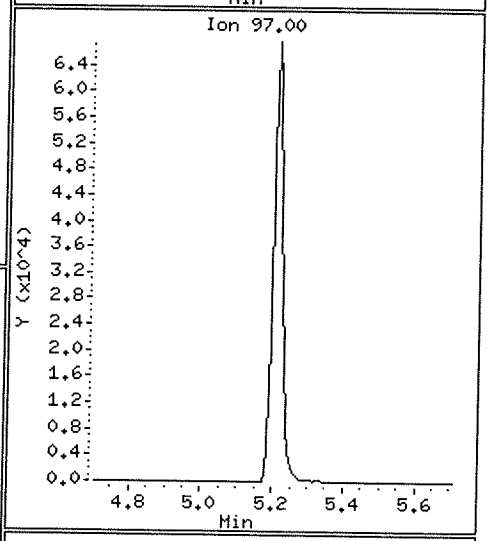
38 Trichloroethene

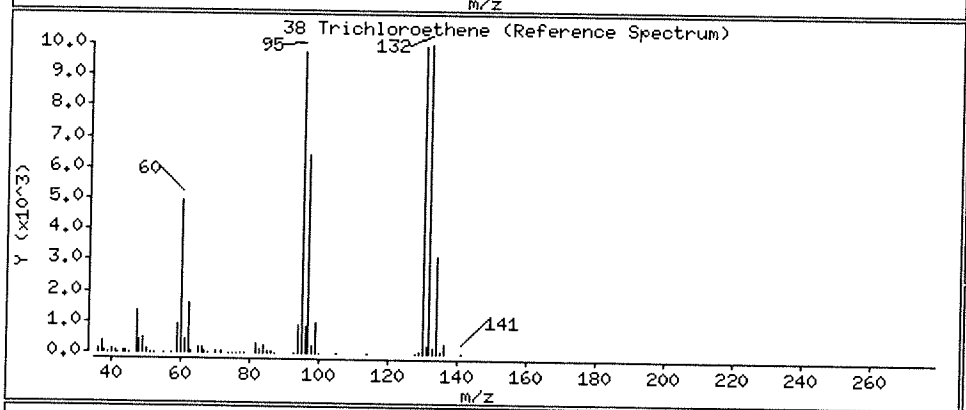
Concentration: 4884.35 ug/l

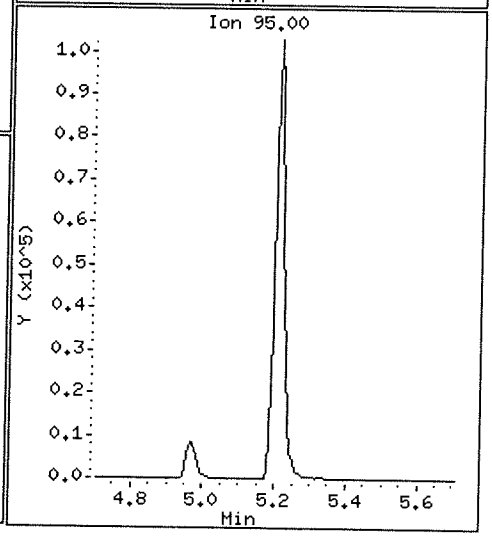


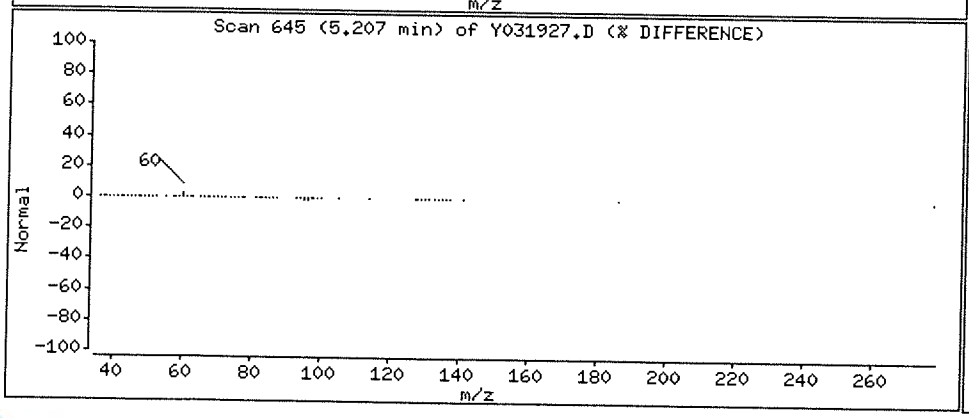












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031928.D
Lab Smp Id: HS20030474-02 Client Smp ID: HS20030474-02
Inj Date : 20-MAR-2020 08:47
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-02;HS20030474-02;;;
Misc Info : HS18090001;WATER;0;25;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 54
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	360332	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	169774	47.4145	47.41
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	211001	46.5987	46.59
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	543346	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	458688	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	618607	52.6515	52.65
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	217387	49.2471	49.24
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	217910	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	363765	66.2634	1656.58
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	14851	4.86389	121.59(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	6546464	1595.34	39883.47(A)
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	10330	1.79953	44.98(a)
38 Trichloroethene	130	5.214	5.206	(1.049)	5914987	1570.63	39265.79(A)

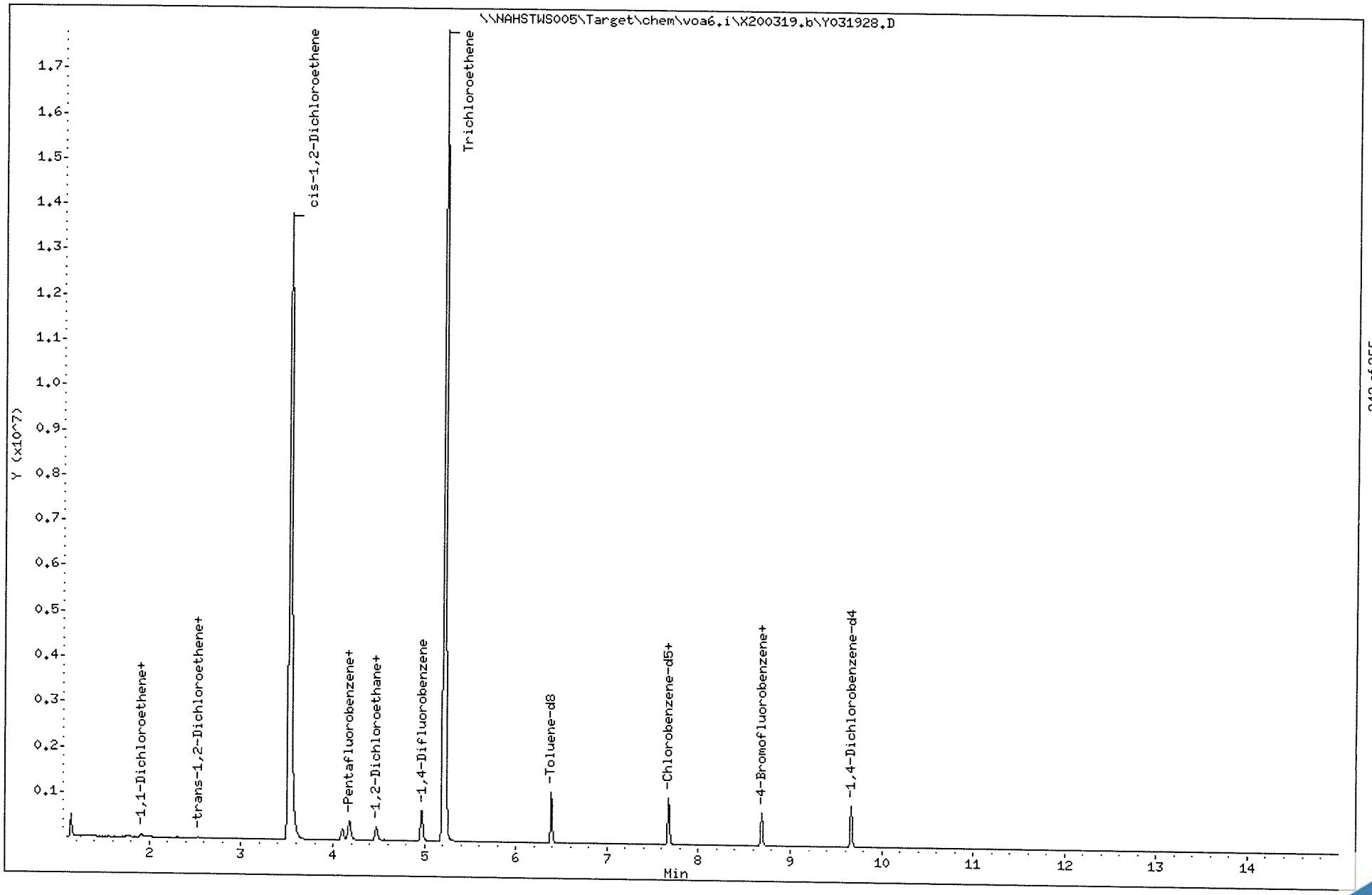
QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031928.D
Date : 20-MAR-2020 08:47
Client ID: HS20030474-02
Sample Info: HS20030474-02;HS20030474-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031928.D

Date : 20-MAR-2020 08:47

Client ID: HS20030474-02

Instrument: voa6.i

Sample Info: HS20030474-02;HS20030474-02;;;

Purge Volume: 5.0

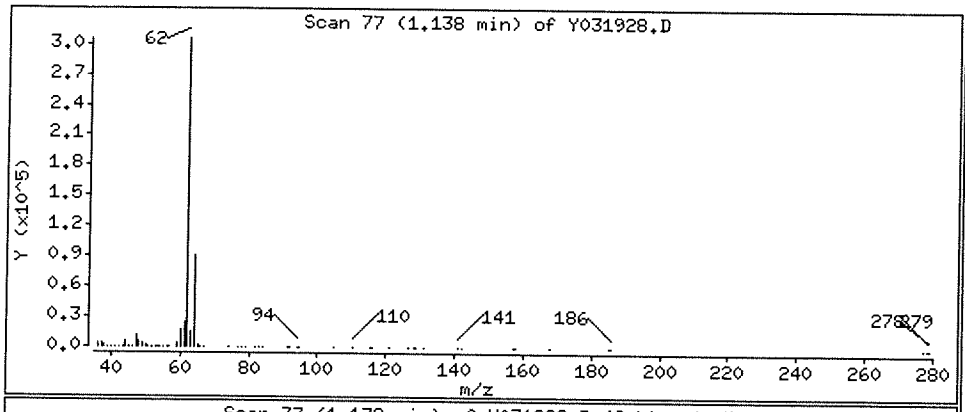
Operator: PC

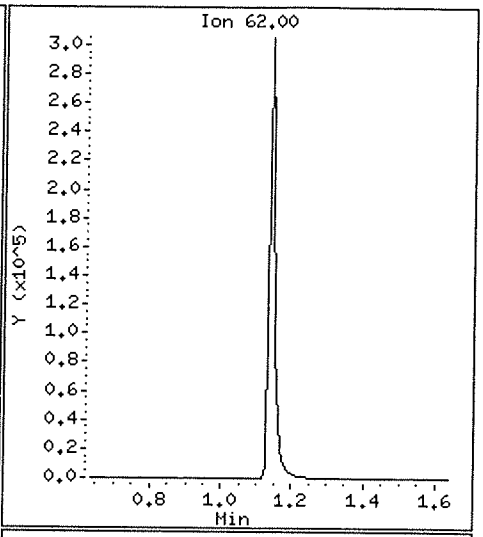
Column phase: DB624

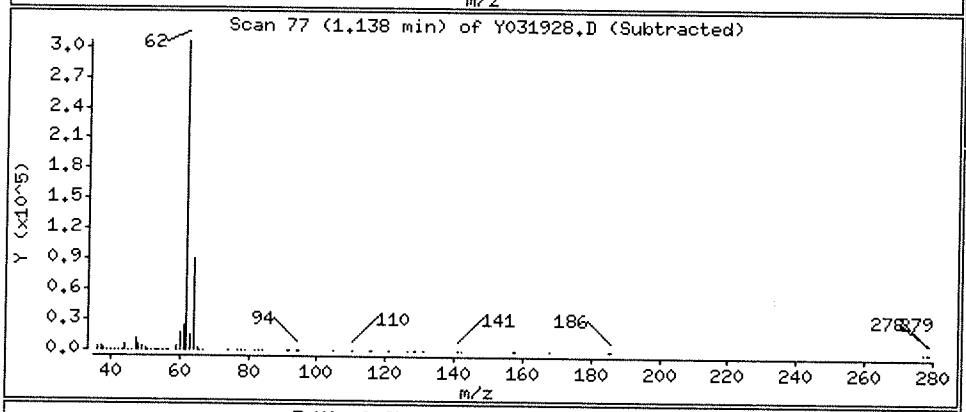
Column diameter: 0.18

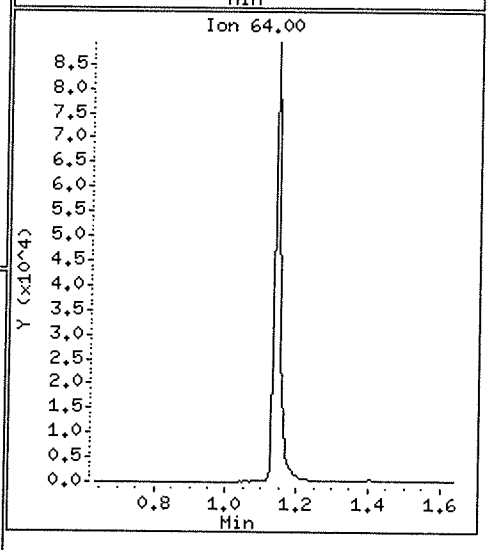
5 Vinyl Chloride

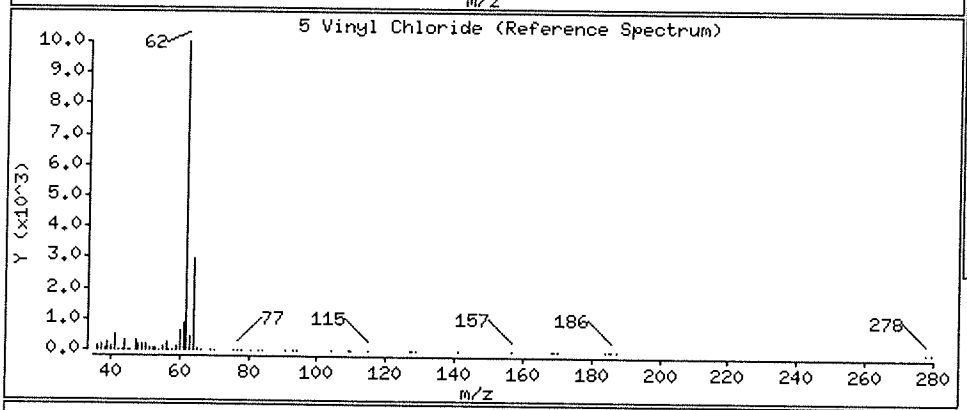
Concentration: 1656.58 ug/l

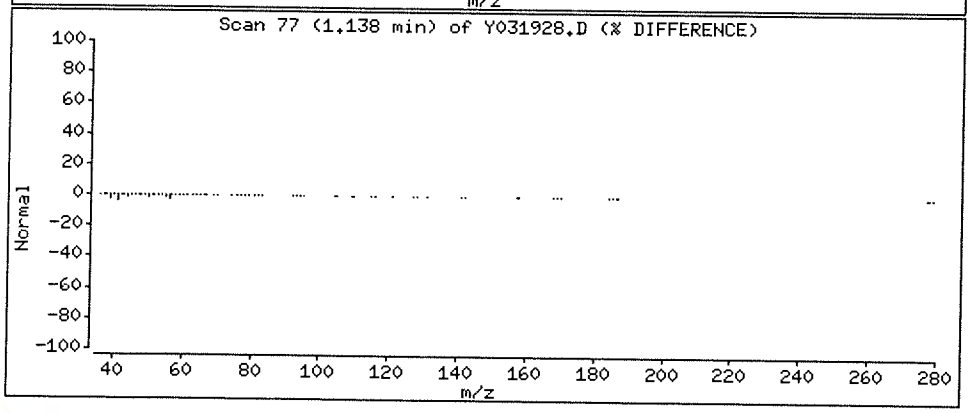












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031928.D

Date : 20-MAR-2020 08:47

Client ID: HS20030474-02

Instrument: voa6.i

Sample Info: HS20030474-02;HS20030474-02;;;

Purge Volume: 5.0

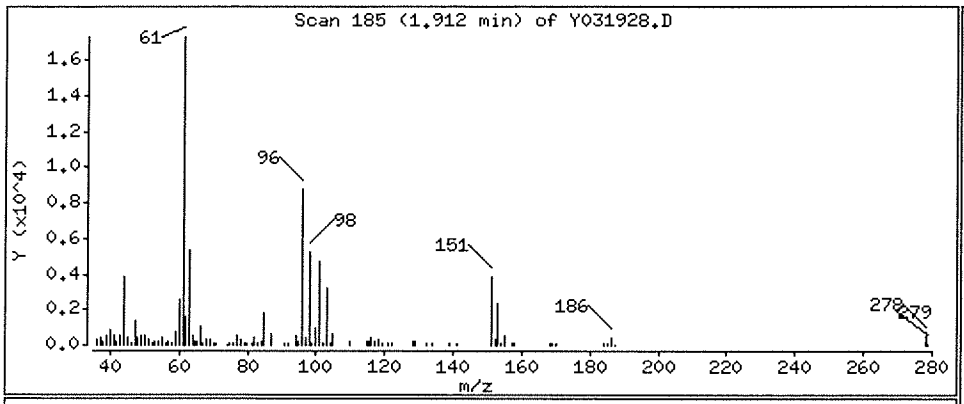
Operator: PC

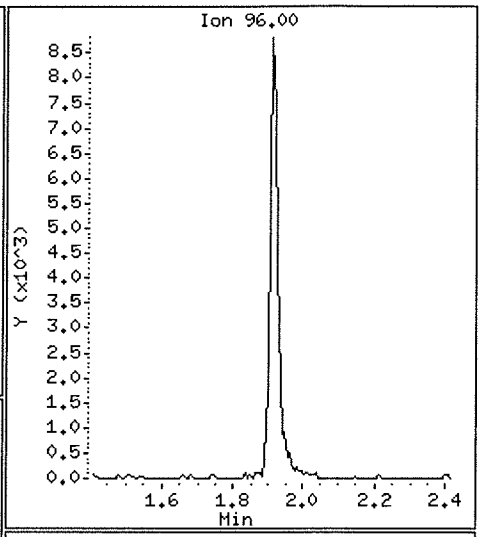
Column phase: DB624

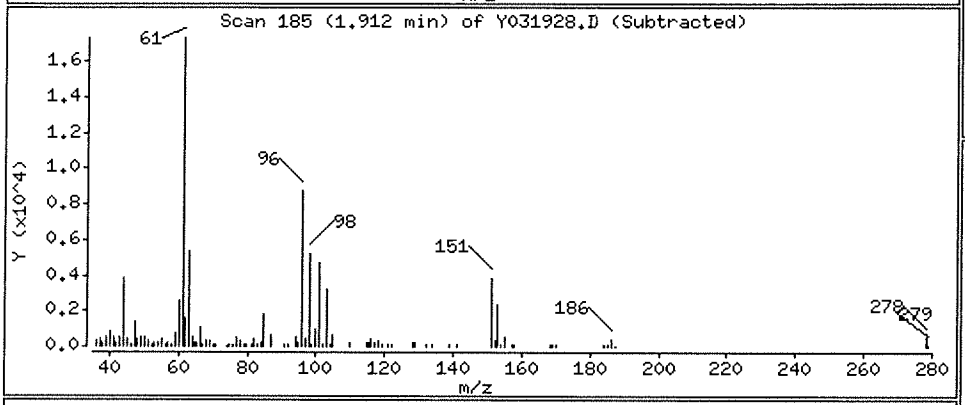
Column diameter: 0.18

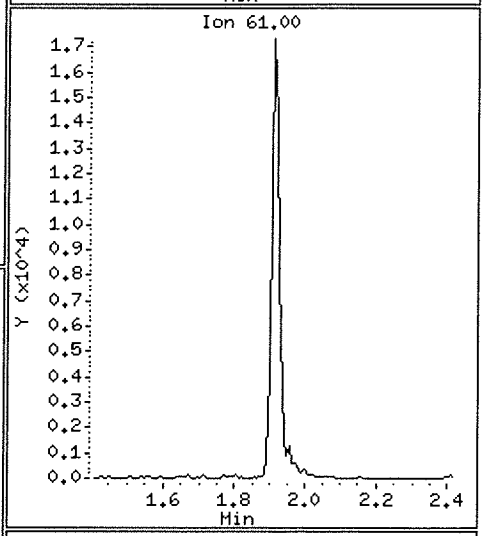
11 1,1-Dichloroethene

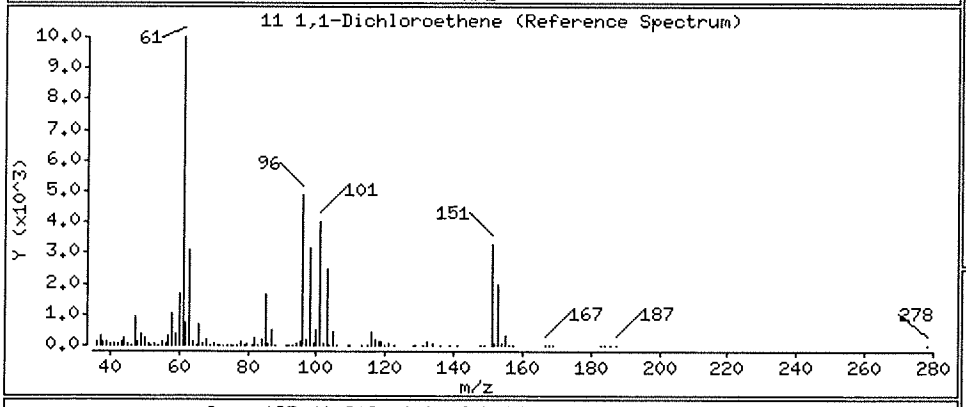
Concentration: 121.59 ug/l

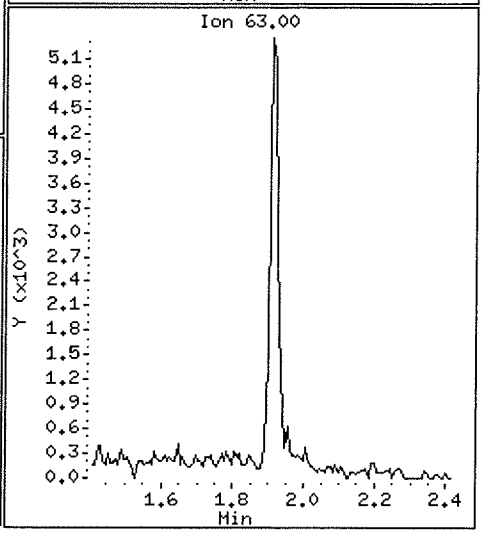


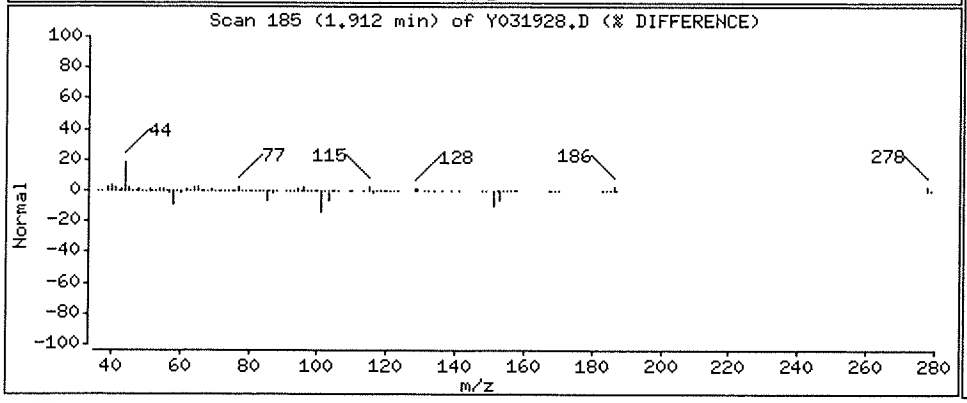












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031928.D

Date : 20-MAR-2020 08:47

Client ID: HS20030474-02

Instrument: voa6.i

Sample Info: HS20030474-02;HS20030474-02;;;

Purge Volume: 5.0

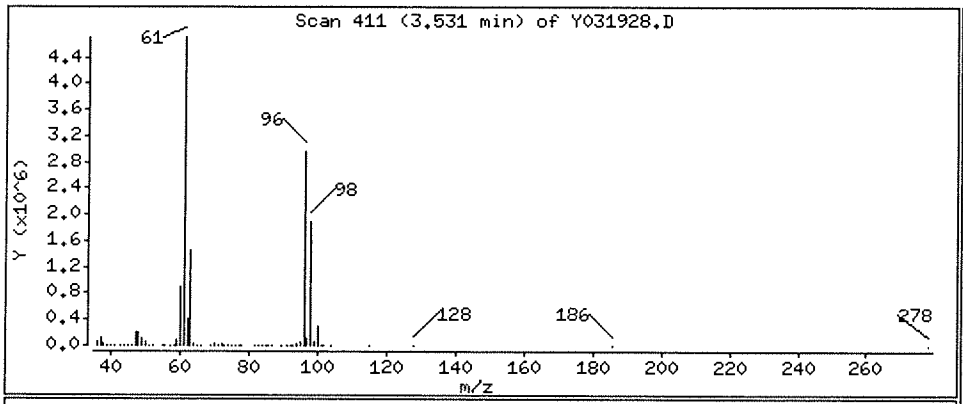
Operator: PC

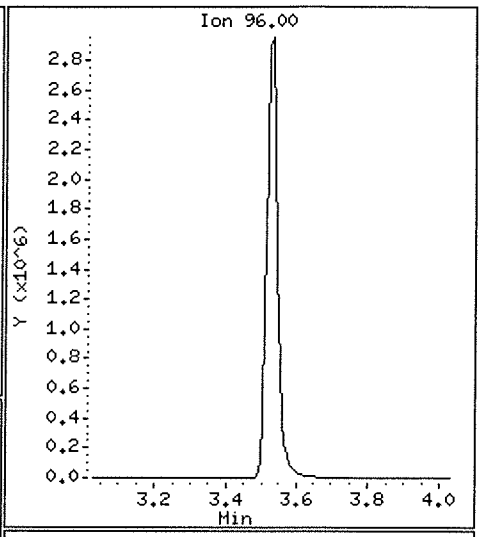
Column phase: DB624

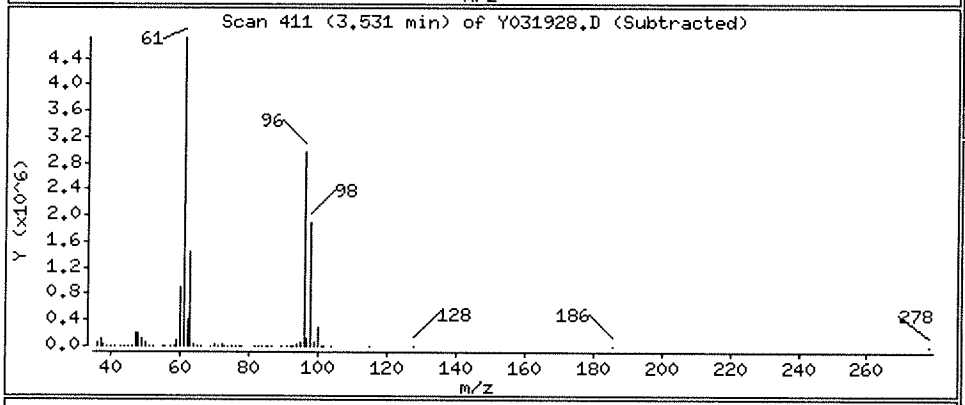
Column diameter: 0.18

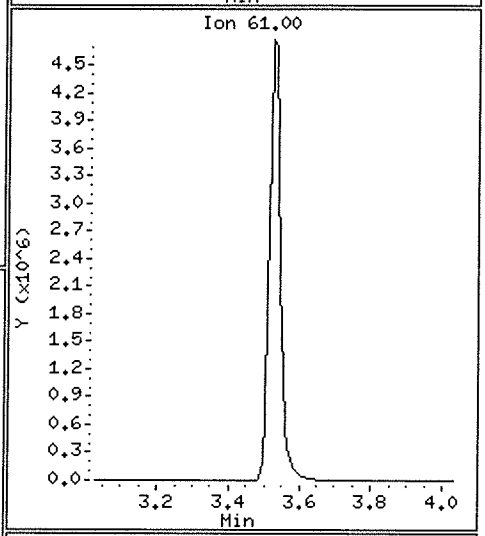
27 cis-1,2-Dichloroethene

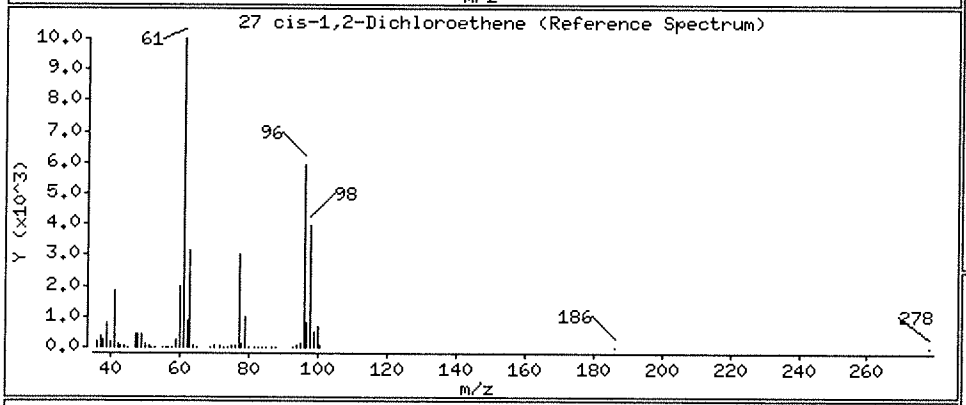
Concentration: 39883.47 ug/l

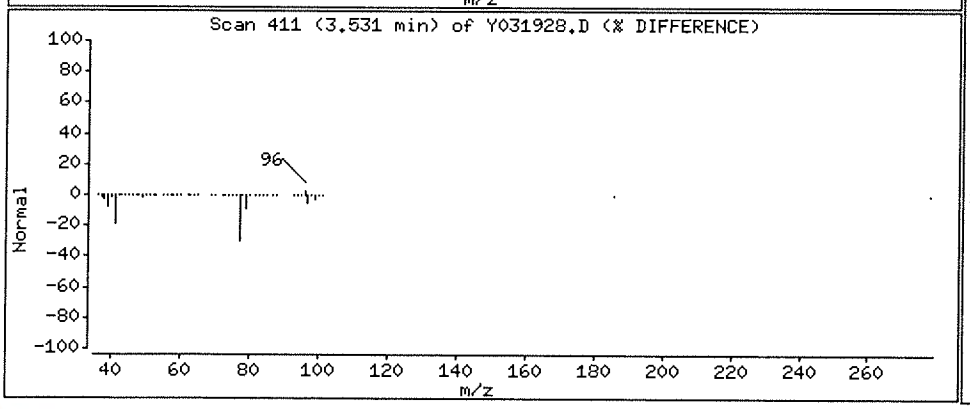


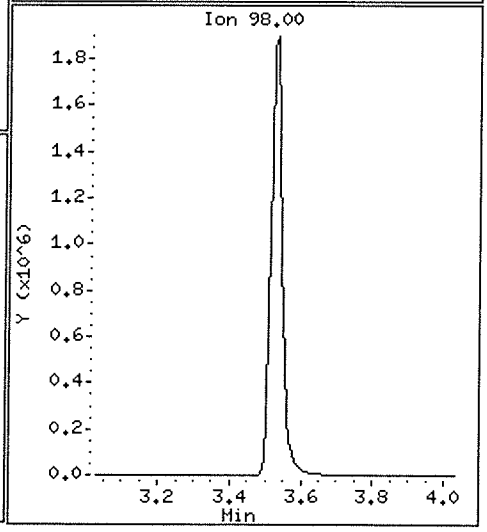












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031928.D

Date : 20-MAR-2020 08:47

Client ID: HS20030474-02

Instrument: voa6.i

Sample Info: HS20030474-02;HS20030474-02;;;

Purge Volume: 5.0

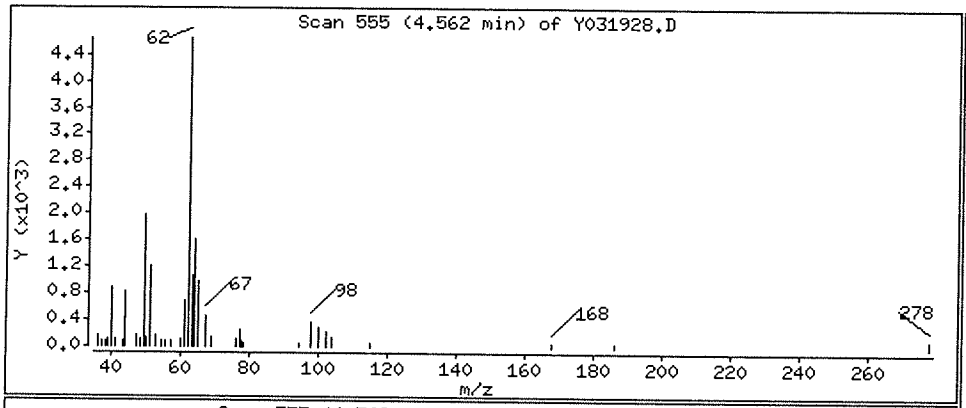
Operator: PC

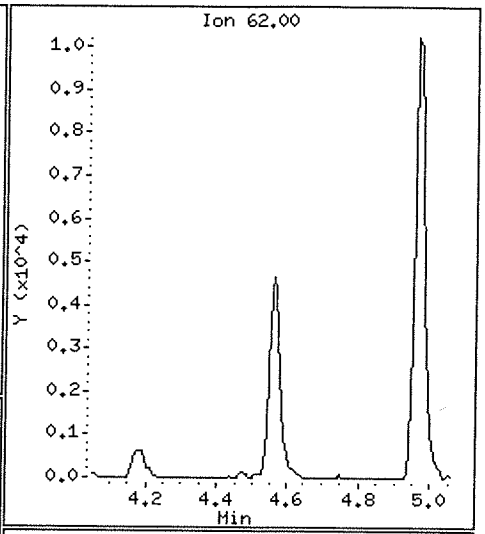
Column phase: DB624

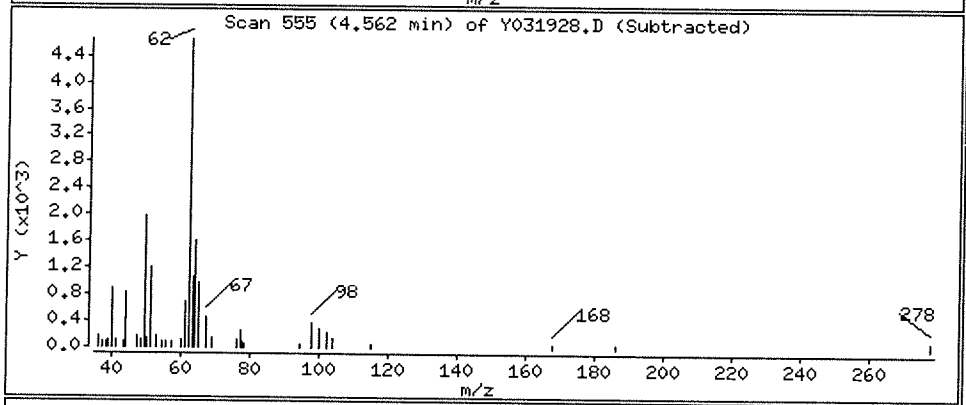
Column diameter: 0.18

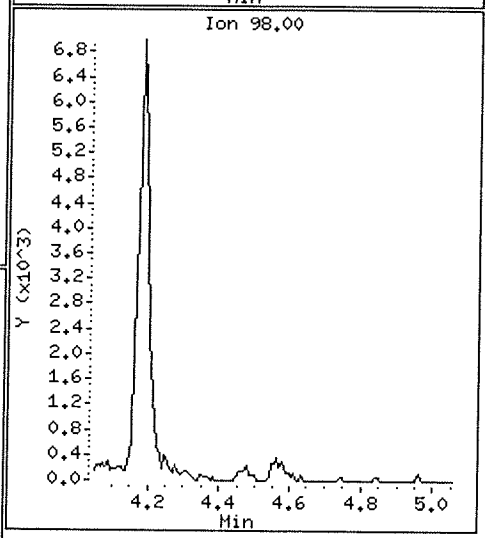
33 1,2-Dichloroethane

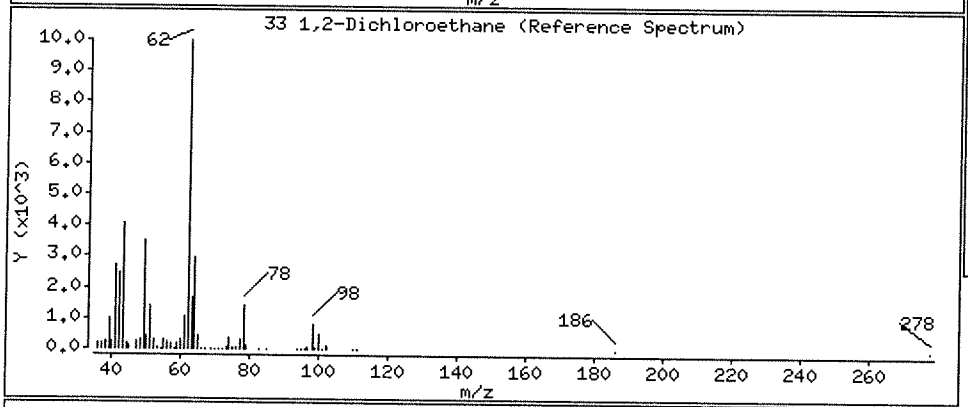
Concentration: 44.98 ug/l

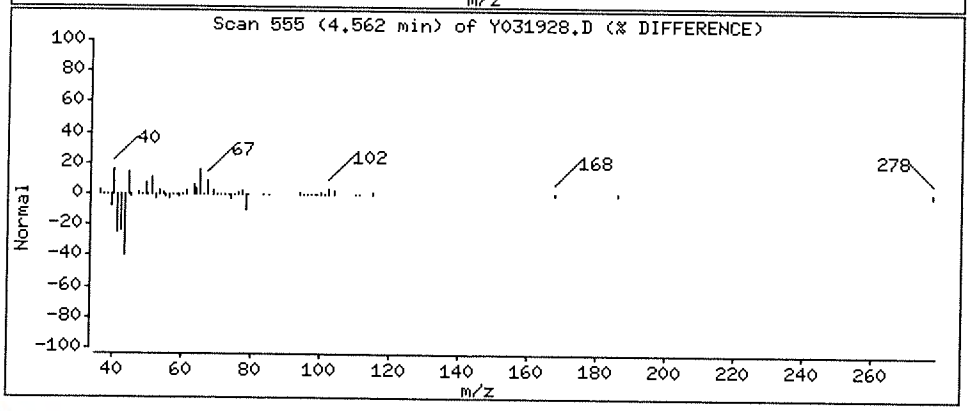












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031928.D

Date : 20-MAR-2020 08:47

Client ID: HS20030474-02

Instrument: voa6.i

Sample Info: HS20030474-02;HS20030474-02;;;

Purge Volume: 5.0

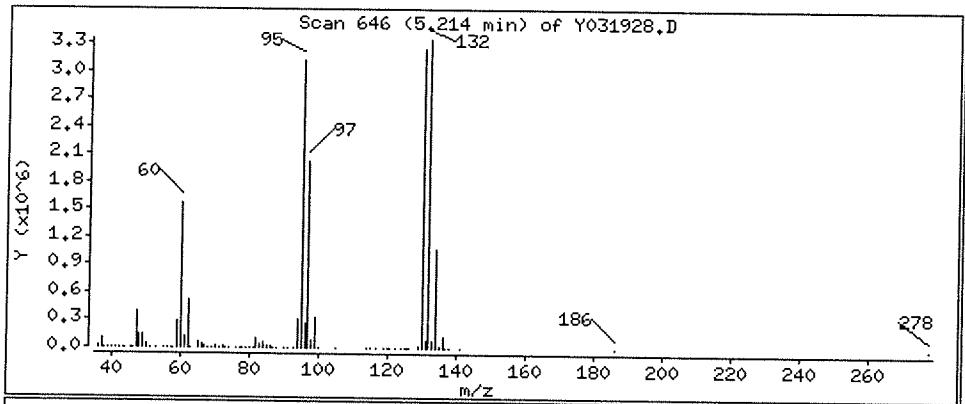
Operator: PC

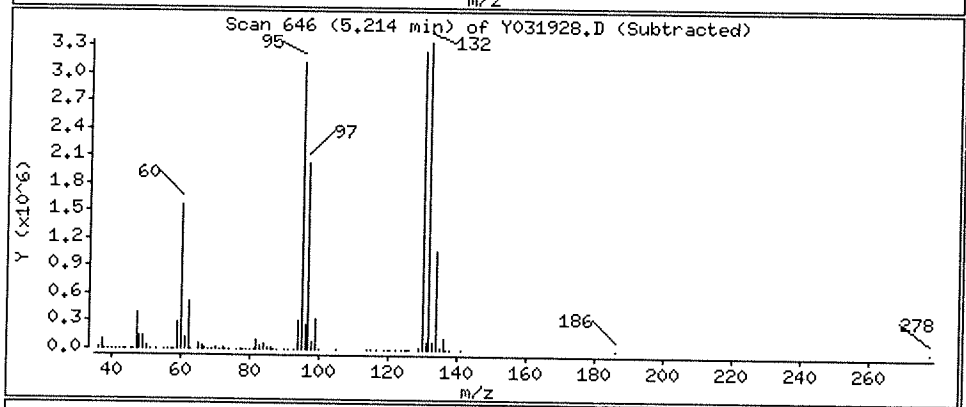
Column phase: DB624

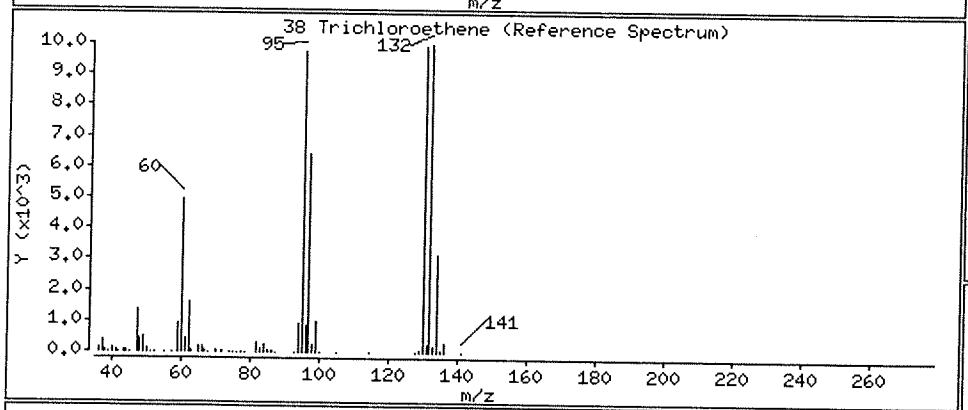
Column diameter: 0.18

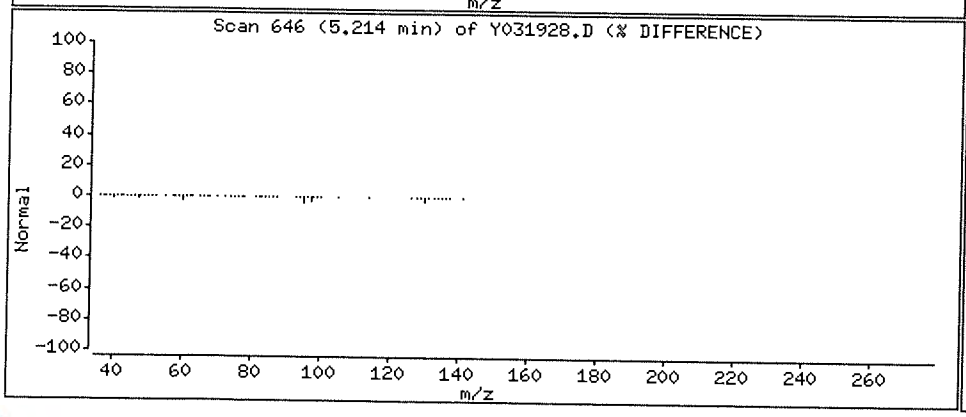
38 Trichloroethene

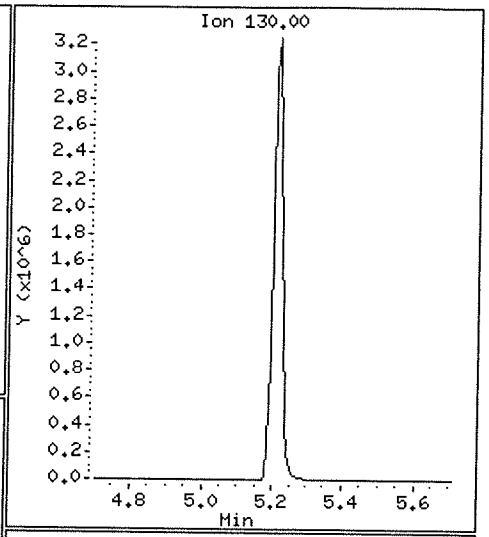
Concentration: 39265.79 ug/l

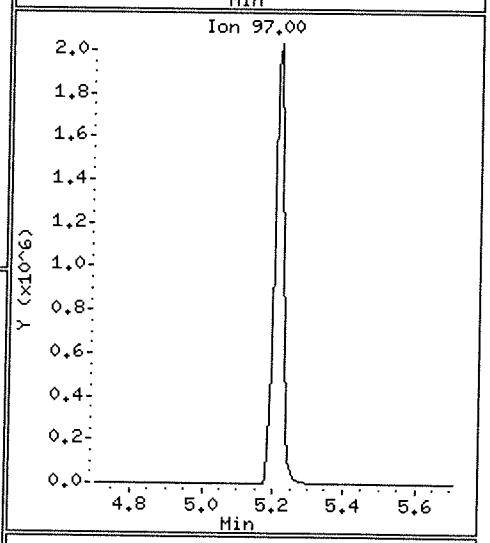


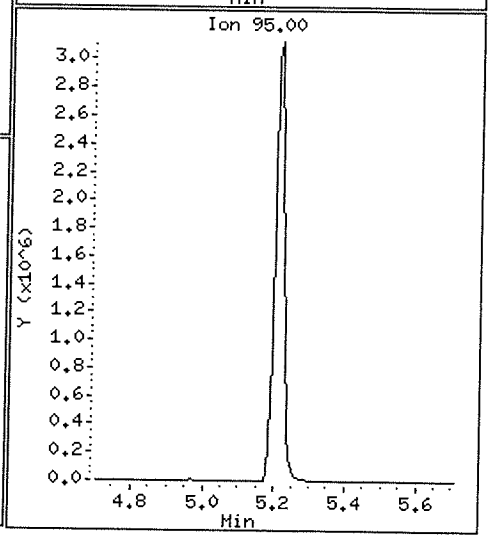












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031929.D Page 1
Report Date: 13-Apr-2020 12:23

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031929.D
Lab Smp Id: HS20030474-02 Client Smp ID: HS20030474-02
Inj Date : 20-MAR-2020 09:11
Operator : PC Inst ID: voa6.i
Smp Info : HS20030474-02;HS20030474-02;;;
Misc Info : HS18090001;WATER;0;250;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 13-Apr-2020 12:09 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 55
Dil Factor: 250.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

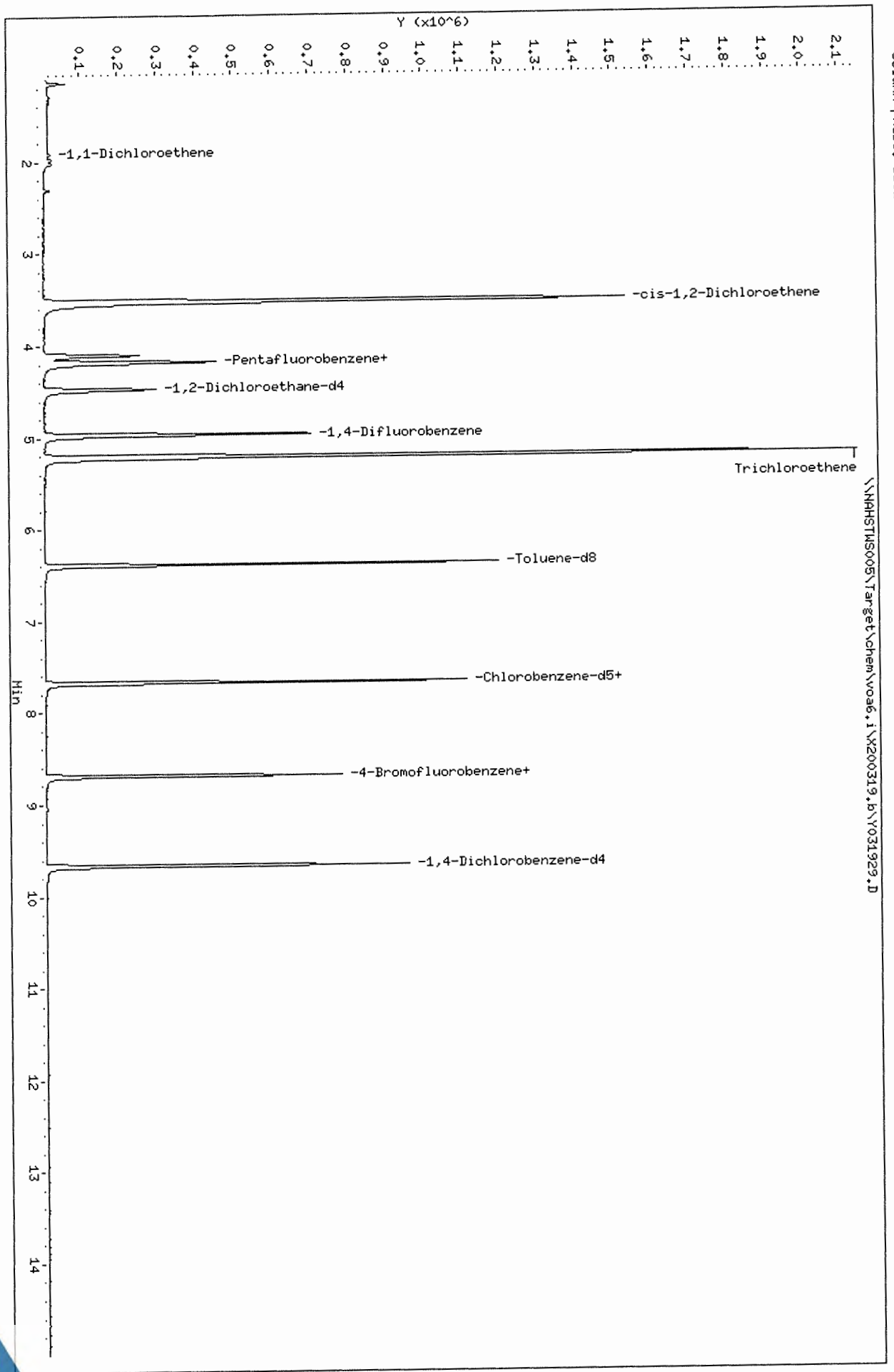
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	250.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	381541	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	177730	46.8761	46.87
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	216286	45.1057	45.10
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	566030	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	491611	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	656980	52.1721	52.17
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	230704	48.7590	48.75
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	234806	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	37260	6.40999	1602.49
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1700	0.52582	131.45(a)
27 cis-1,2-Dichloroethene	96	3.523	3.530	(0.842)	723707	166.560	41639.98
38 Trichloroethene	130	5.206	5.206	(1.048)	694490	177.021	44255.13

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



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Date : 20-MAR-2020 09:11
Client ID: HS20030474-02
Sample Info: HS20030474-02;HS20030474-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031929.D

Date : 20-MAR-2020 09:11

Client ID: HS20030474-02

Instrument: voa6.i

Sample Info: HS20030474-02;HS20030474-02;;;

Purge Volume: 5.0

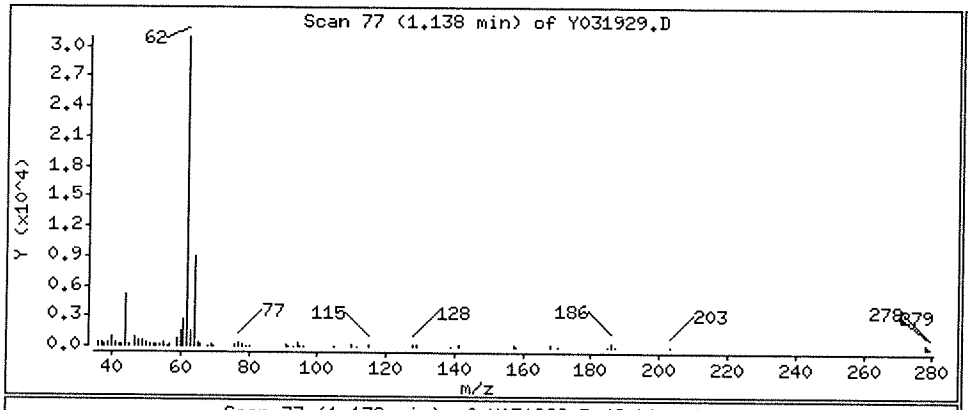
Operator: PC

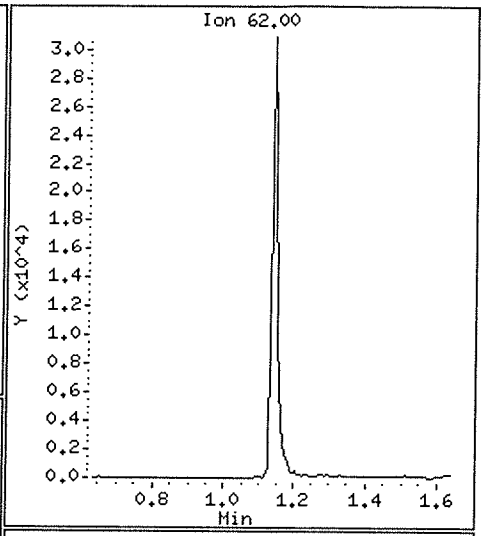
Column phase: DB624

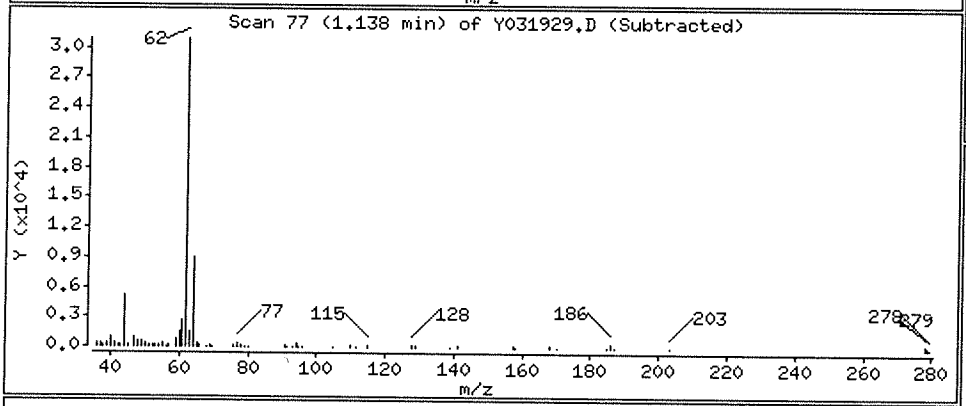
Column diameter: 0.18

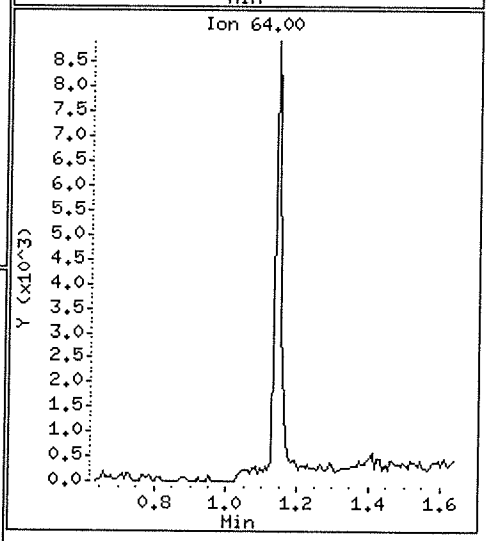
5 Vinyl Chloride

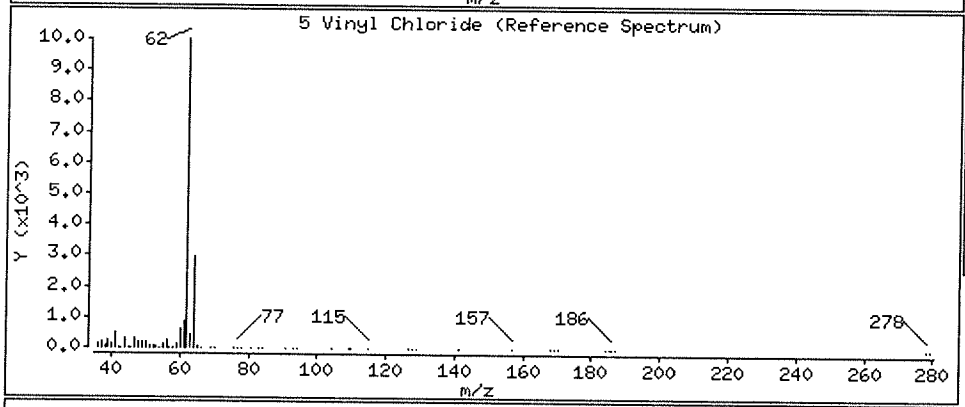
Concentration: 1602.49 ug/l

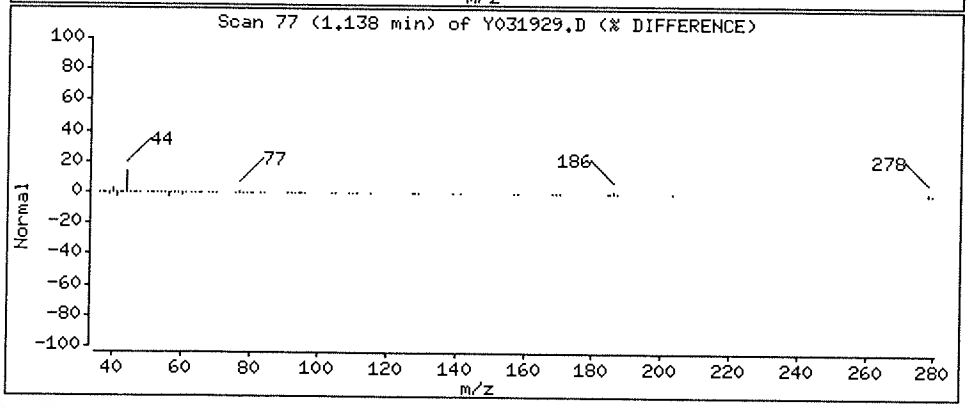












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031929.D

Date : 20-MAR-2020 09:11

Client ID: HS20030474-02

Instrument: voa6.i

Sample Info: HS20030474-02;HS20030474-02;;;

Purge Volume: 5.0

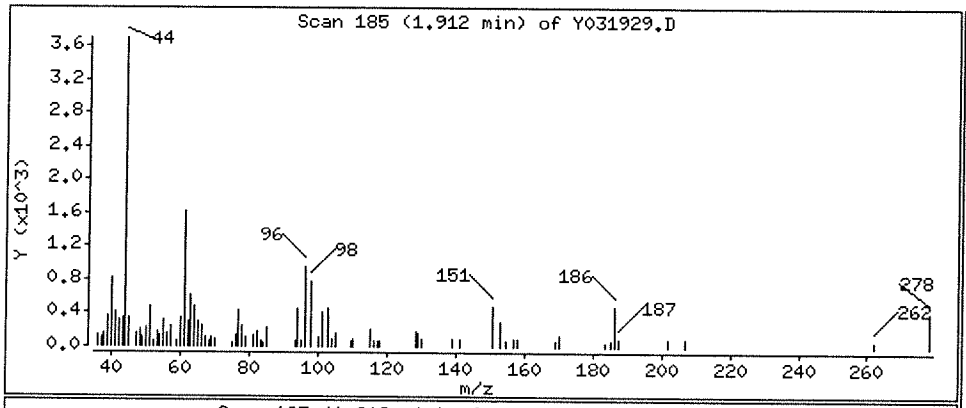
Operator: PC

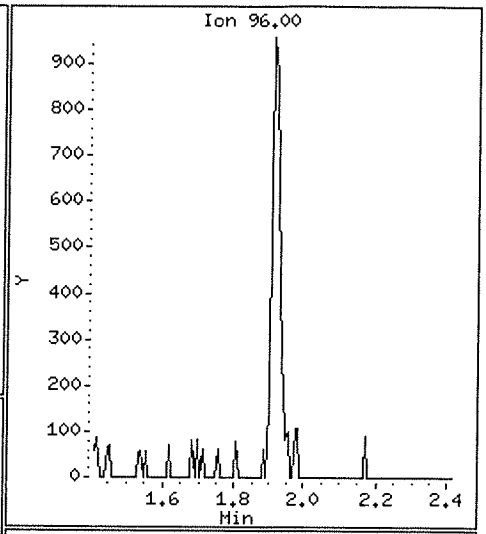
Column phase: DB624

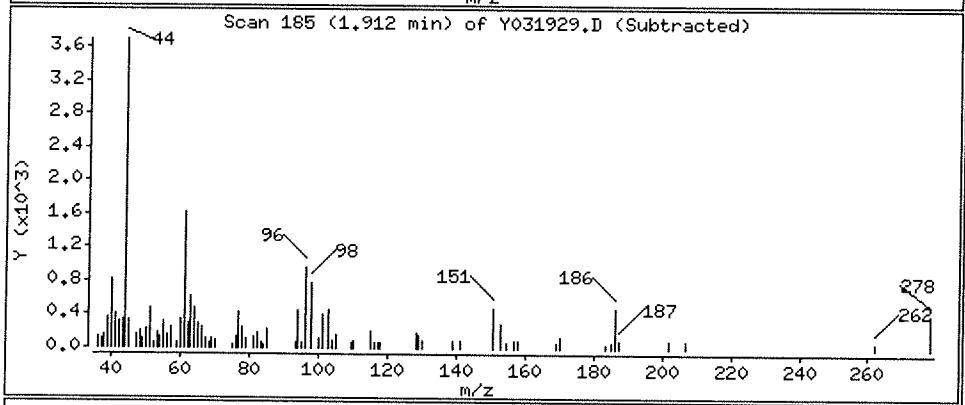
Column diameter: 0.18

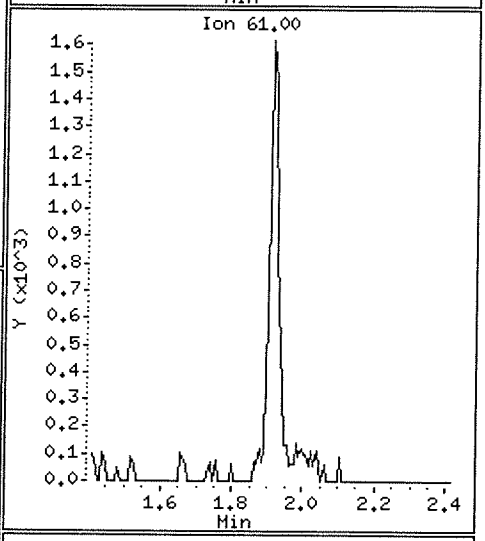
11 1,1-Dichloroethene

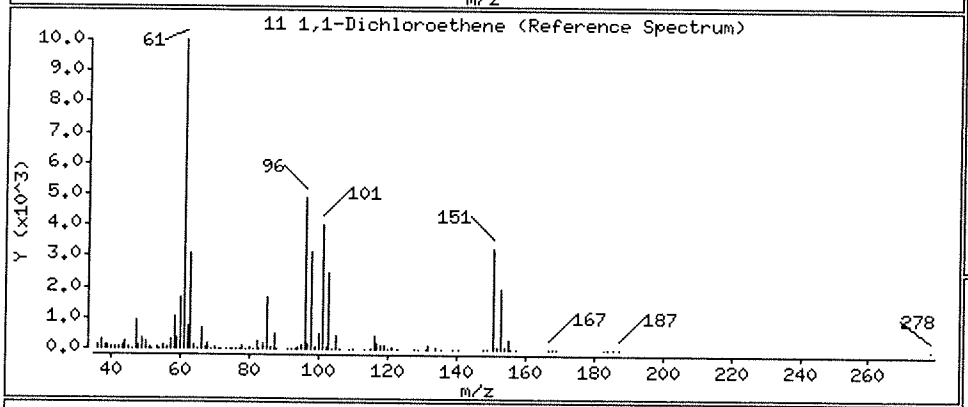
Concentration: 131.45 ug/l

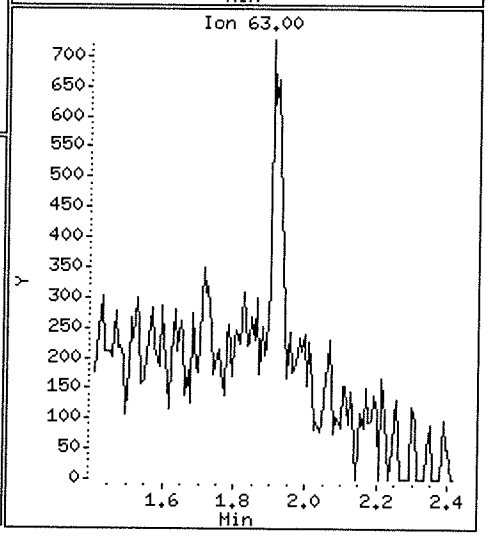


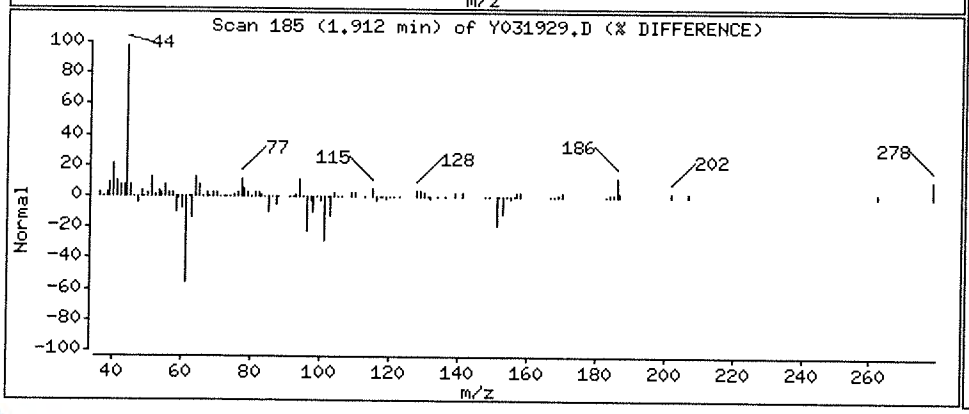












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Date : 20-MAR-2020 09:11

Client ID: HS20030474-02

Instrument: voa6.i

Sample Info: HS20030474-02;HS20030474-02;;;

Purge Volume: 5.0

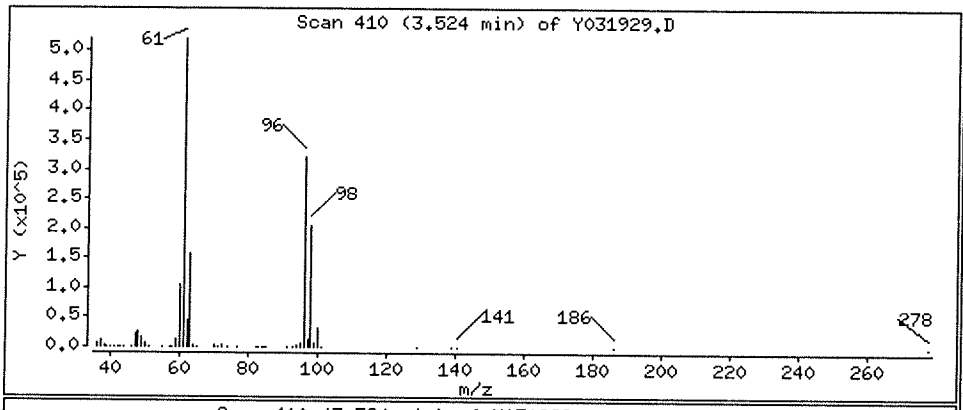
Operator: PC

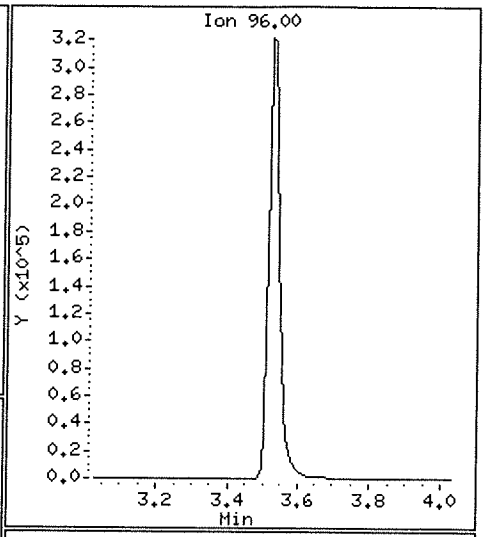
Column phase: DB624

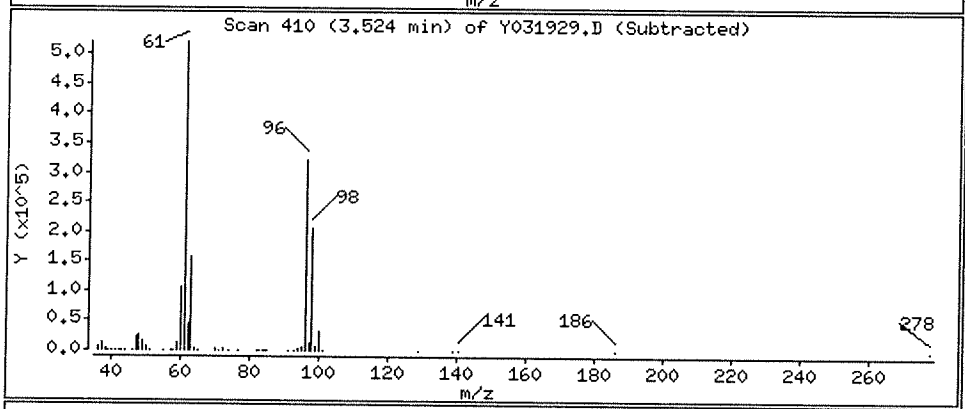
Column diameter: 0.18

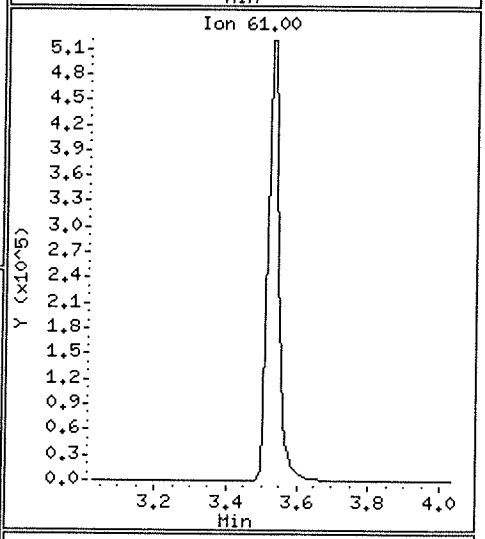
27 cis-1,2-Dichloroethene

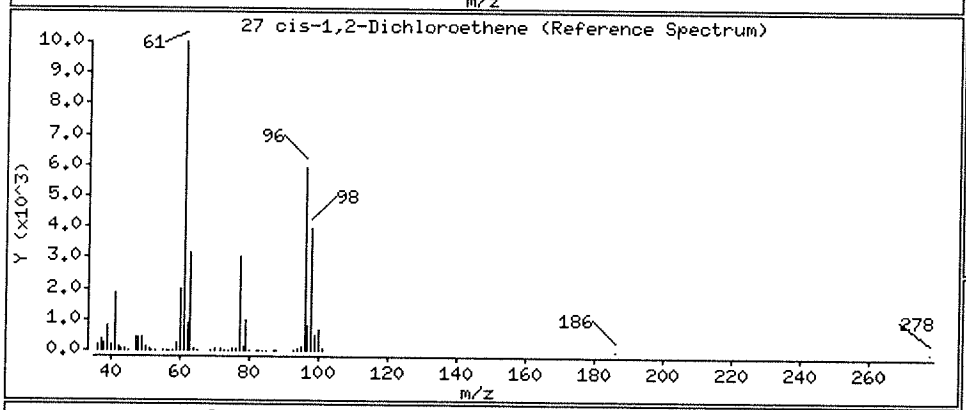
Concentration: 41639.98 ug/l

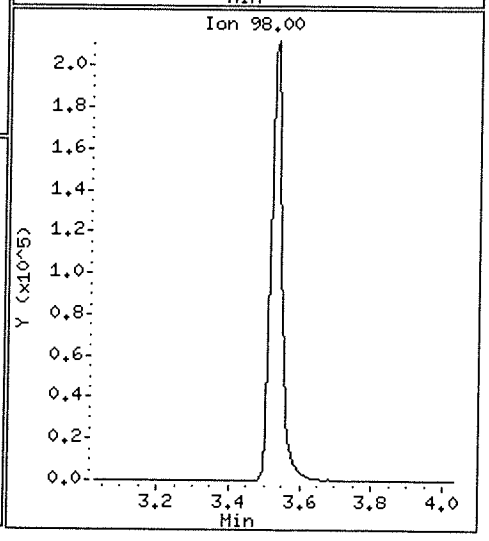


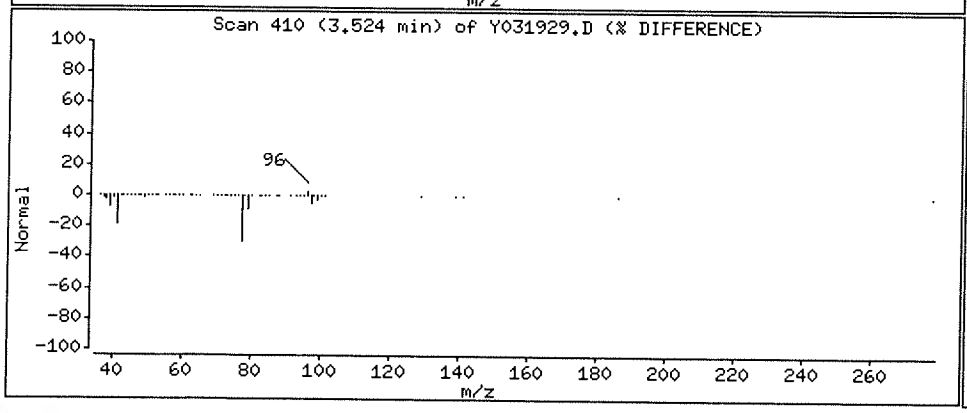












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031929.D

Date : 20-MAR-2020 09:11

Client ID: HS20030474-02

Instrument: voa6.i

Sample Info: HS20030474-02;HS20030474-02;;;

Purge Volume: 5.0

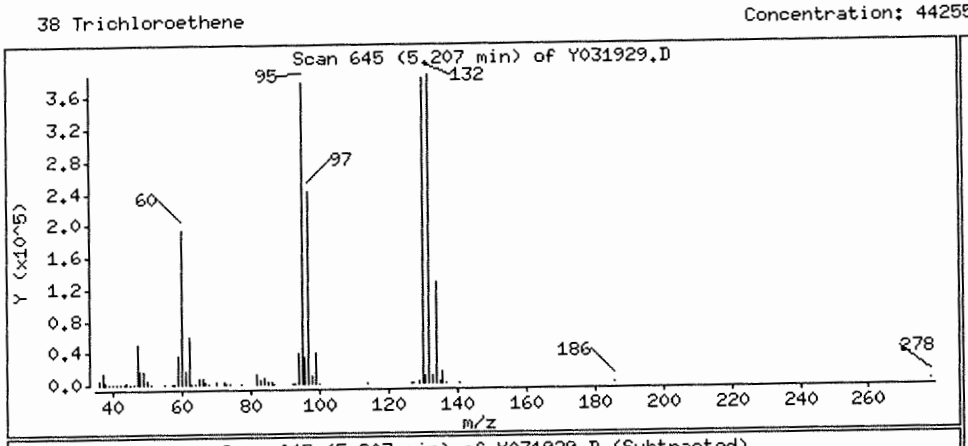
Operator: PC

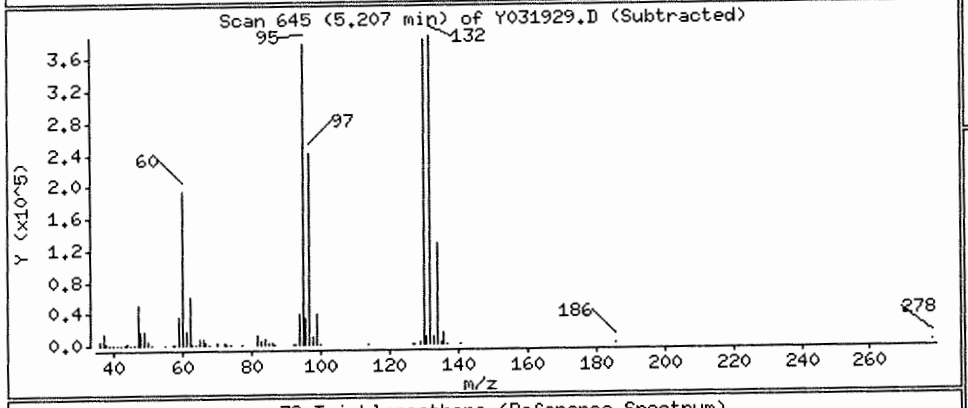
Column phase: DB624

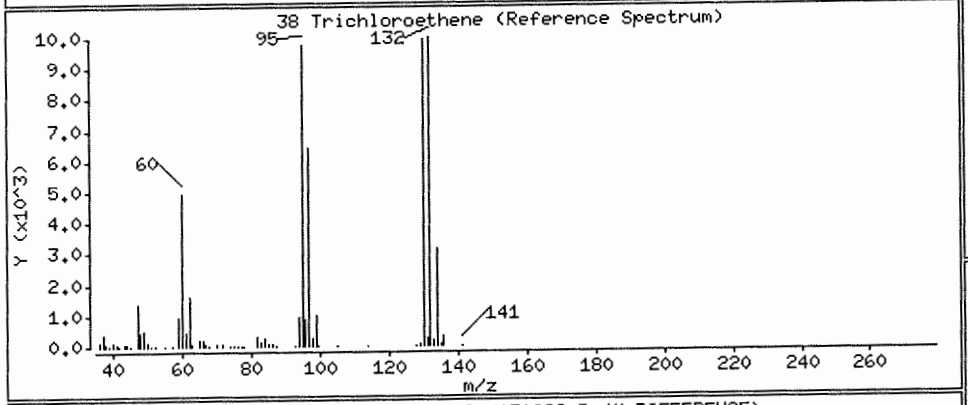
Column diameter: 0.18

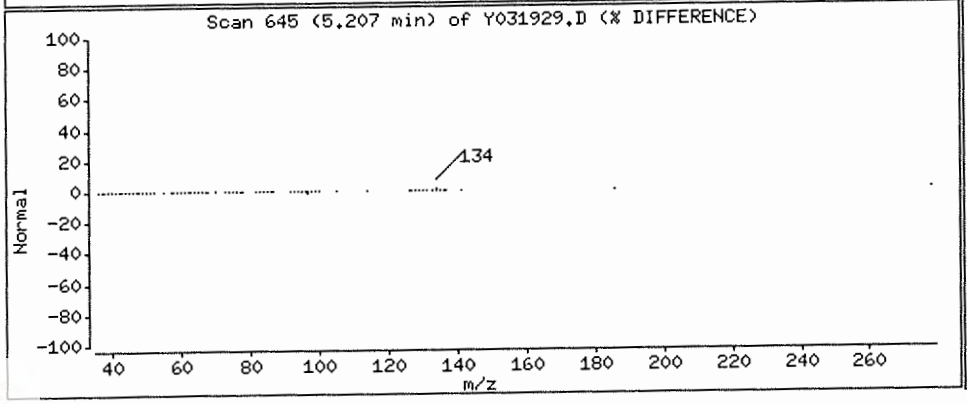
38 Trichloroethene

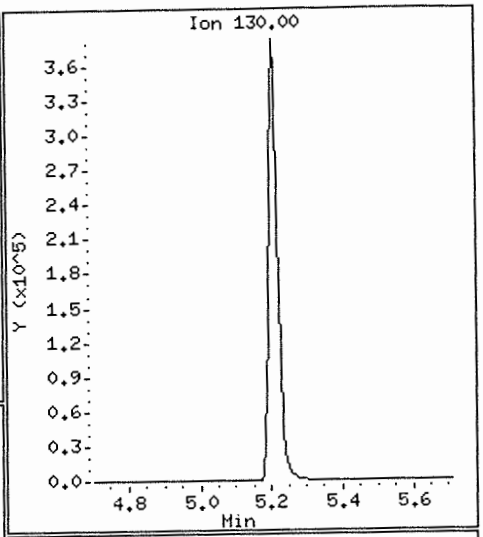
Concentration: 44255.13 ug/l

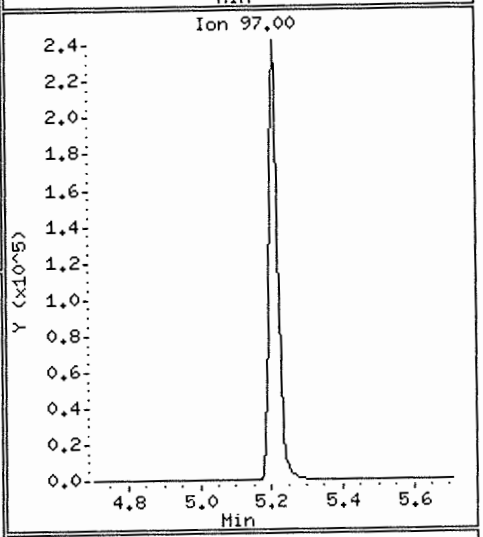


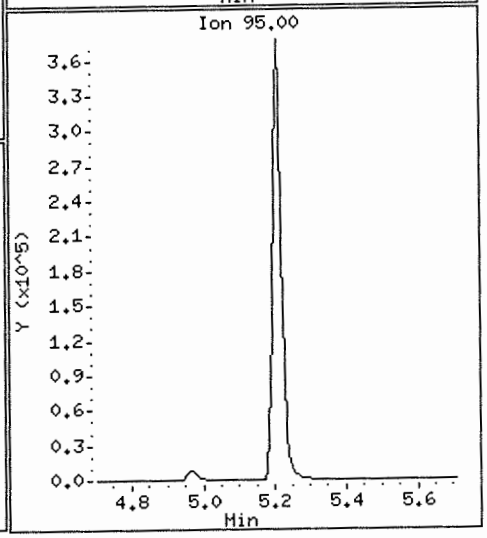












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031930.D Page 1
Report Date: 07-Apr-2020 16:42

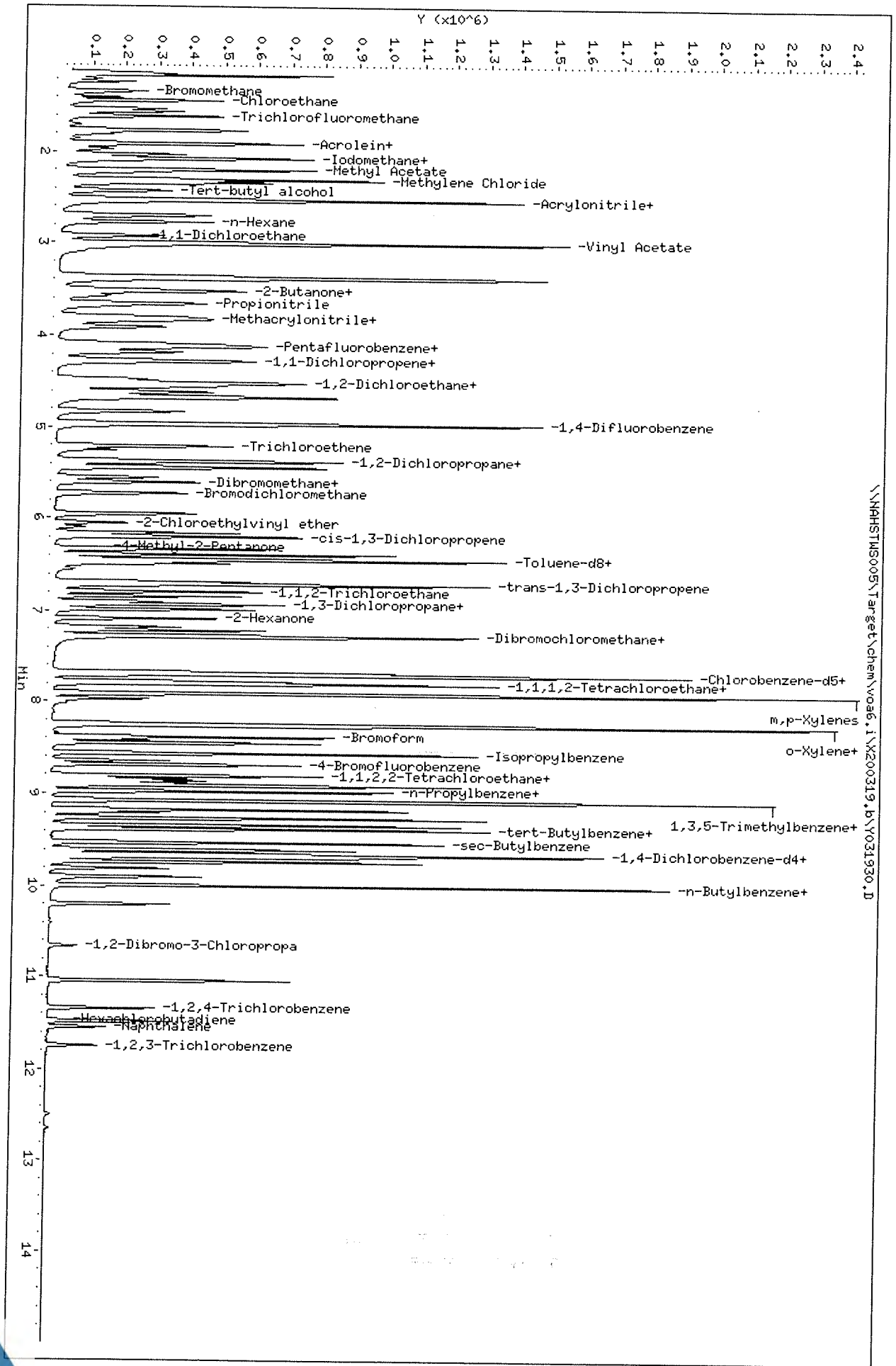
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031930.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 20-MAR-2020 09:35
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 07-Apr-2020 16:42 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 56 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	295388	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	157298	50.0000	53.60
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	194475	50.0000	52.41
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	464454	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	425077	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	561611	50.0000	51.57
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	211412	50.0000	51.70
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	213844	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	229291	50.0000	50.95
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	125561	50.0000	50.16
17 Methylene Chloride	84	2.305	2.305	(0.551)	171495	50.0000	54.68
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	178959	50.0000	53.19
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	255534	50.0000	52.07
38 Trichloroethene	130	5.206	5.206	(1.048)	170891	50.0000	53.08
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	122681	50.0000	50.09



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031930.D
Date : 20-MAR-2020 09:35
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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

March 26, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030498**

Laboratory Results for: **Longhorn Army Ammunition Plant - 16**

Dear Susan,

ALS Environmental received 8 sample(s) on Mar 12, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Work Order: HS20030498

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030498-01	16WW12-200311	Groundwater		11-Mar-2020 08:15	12-Mar-2020 08:50	☐
HS20030498-02	16RW10-200311	Groundwater		11-Mar-2020 09:05	12-Mar-2020 08:50	☐
HS20030498-03	16RW09-200311	Groundwater		11-Mar-2020 10:00	12-Mar-2020 08:50	☐
HS20030498-04	16WW35-200311	Groundwater		11-Mar-2020 11:45	12-Mar-2020 08:50	☐
HS20030498-05	16WW36-200311	Groundwater		11-Mar-2020 12:40	12-Mar-2020 08:50	☐
HS20030498-06	16WW16-200311	Groundwater		11-Mar-2020 13:40	12-Mar-2020 08:50	☐
HS20030498-07	16WW16-200311-FD	Groundwater		11-Mar-2020 13:40	12-Mar-2020 08:50	☐
HS20030498-08	Trip Blank	Water	CG-021720-08	11-Mar-2020 00:00	12-Mar-2020 08:50	☐

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant - 16
Work Order: HS20030498

Work Order Comments

- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

GC Semivolatiles by Method RSK-175

Batch ID: R358305

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

GCMS Volatiles by Method SW8260

Batch ID: R358594

Sample ID: 16RW09-200311 (HS20030498-03MS)

- The recovery of the Matrix Spike (MS) and the Matrix Spike Duplicate (MSD) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The failed recovery of the MS/MSD may be due to sample matrix interference.

Batch ID: R358657

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

WetChemistry by Method SW9056

Batch ID: R358987

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

Batch ID: R358918

Sample ID: HS20030220-01MS

- MS and MSD are for an unrelated sample (Sulfate)

Sample ID: HS20030221-01MS

- MS and MSD are for an unrelated sample (Bromide,Nitrogen, Nitrate (As N),Sulfate)

WetChemistry by Method SM2320B

Batch ID: R358369

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW12-200311
Collection Date: 11-Mar-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	20-Mar-2020 06:22
1,1-Dichloroethene	**3.6**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 06:22
1,2-Dichloroethane	**7.5**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 06:22
cis-1,2-Dichloroethene	**48**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 06:22
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	20-Mar-2020 06:22
Trichloroethene	**1,700**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 06:46
Vinyl chloride	**3.4**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 06:22
Surr: 1,2-Dichloroethane-d4	*90.1*			**0**	*81-118*	*%REC*	*5*	*20-Mar-2020 06:22*
Surr: 1,2-Dichloroethane-d4	*91.6*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 06:46*
Surr: 4-Bromofluorobenzene	*96.7*			**0**	*85-114*	*%REC*	*5*	*20-Mar-2020 06:22*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 06:46*
Surr: Dibromofluoromethane	*95.7*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 06:46*
Surr: Dibromofluoromethane	*93.3*			**0**	*80-119*	*%REC*	*5*	*20-Mar-2020 06:22*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*5*	*20-Mar-2020 06:22*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 06:46*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16RW10-200311
Collection Date: 11-Mar-2020 09:05

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	20-Mar-2020 07:10
1,1-Dichloroethene	**10**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 07:10
1,2-Dichloroethane	**38**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 07:10
cis-1,2-Dichloroethene	**830**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 07:10
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	20-Mar-2020 07:10
Trichloroethene	**4,800**		**10**	**25**	**50**	**UG/L**	50	20-Mar-2020 07:34
Vinyl chloride	**22**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 07:10
Surr: 1,2-Dichloroethane-d4	*91.1*			**0**	*81-118*	*%REC*	*50*	*20-Mar-2020 07:34*
Surr: 1,2-Dichloroethane-d4	*90.2*			**0**	*81-118*	*%REC*	*5*	*20-Mar-2020 07:10*
Surr: 4-Bromofluorobenzene	*97.3*			**0**	*85-114*	*%REC*	*5*	*20-Mar-2020 07:10*
Surr: 4-Bromofluorobenzene	*95.1*			**0**	*85-114*	*%REC*	*50*	*20-Mar-2020 07:34*
Surr: Dibromofluoromethane	*95.0*			**0**	*80-119*	*%REC*	*50*	*20-Mar-2020 07:34*
Surr: Dibromofluoromethane	*94.1*			**0**	*80-119*	*%REC*	*5*	*20-Mar-2020 07:10*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*20-Mar-2020 07:10*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*50*	*20-Mar-2020 07:34*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16RW09-200311
Collection Date: 11-Mar-2020 10:00

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 03:10
1,1-Dichloroethene	**7.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 03:10
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 03:10
cis-1,2-Dichloroethene	**34**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 03:10
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 03:10
Trichloroethene	**1,300**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 04:22
Vinyl chloride	**41**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 03:10
Surr: 1,2-Dichloroethane-d4	*91.4*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 03:10*
Surr: 1,2-Dichloroethane-d4	*89.6*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 04:22*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 03:10*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 04:22*
Surr: Dibromofluoromethane	*94.0*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 03:10*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 04:22*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 03:10*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 04:22*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW35-200311
Collection Date: 11-Mar-2020 11:45

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	20-Mar-2020 14:53
1,1-Dichloroethene	**96**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 14:53
1,2-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	20-Mar-2020 14:53
cis-1,2-Dichloroethene	**4,000**		**20**	**50**	**100**	**UG/L**	100	20-Mar-2020 16:05
Methylene chloride	10	U	4.0	10	20	UG/L	10	20-Mar-2020 14:53
Trichloroethene	**11,000**		**20**	**50**	**100**	**UG/L**	100	20-Mar-2020 16:05
Vinyl chloride	**82**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 14:53
Surr: 1,2-Dichloroethane-d4	*91.2*			**0**	*81-118*	*%REC*	*10*	*20-Mar-2020 14:53*
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*100*	*20-Mar-2020 16:05*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*10*	*20-Mar-2020 14:53*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*100*	*20-Mar-2020 16:05*
Surr: Dibromofluoromethane	*93.2*			**0**	*80-119*	*%REC*	*10*	*20-Mar-2020 14:53*
Surr: Dibromofluoromethane	*94.9*			**0**	*80-119*	*%REC*	*100*	*20-Mar-2020 16:05*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*10*	*20-Mar-2020 14:53*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*100*	*20-Mar-2020 16:05*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00120**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 12:00
Ethene	**0.0109**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 12:00
Methane	**0.140**		**0.00107**	**0.00500**	**0.00500**	**mg/L**	10	16-Mar-2020 12:24
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**1,140**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	17-Mar-2020 21:40
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	1.00	U	0.300	1.00	1.00	mg/L	10	13-Mar-2020 02:46
Nitrogen, Nitrate (As N)	1.00	U	0.300	1.00	1.00	mg/L	10	13-Mar-2020 02:46
Sulfate	**8,660**		**100**	**250**	**250**	**mg/L**	500	26-Mar-2020 14:31
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	26-Mar-2020 09:32

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW36-200311
Collection Date: 11-Mar-2020 12:40

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	12	U	7.5	12	25	UG/L	25	20-Mar-2020 16:29
1,1-Dichloroethene	**160**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 16:29
1,2-Dichloroethane	**13**	J	**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 16:29
cis-1,2-Dichloroethene	**19,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 16:53
Methylene chloride	25	U	10	25	50	UG/L	25	20-Mar-2020 16:29
Trichloroethene	**18,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 16:53
Vinyl chloride	**180**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 16:29
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 16:29*
Surr: 1,2-Dichloroethane-d4	*91.5*			**0**	*81-118*	*%REC*	*250*	*20-Mar-2020 16:53*
Surr: 4-Bromofluorobenzene	*97.3*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 16:29*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*250*	*20-Mar-2020 16:53*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 16:29*
Surr: Dibromofluoromethane	*94.2*			**0**	*80-119*	*%REC*	*250*	*20-Mar-2020 16:53*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 16:29*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*250*	*20-Mar-2020 16:53*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00216**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 12:39
Ethene	**0.0189**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 12:39
Methane	**0.749**		**0.00535**	**0.0250**	**0.0250**	**mg/L**	50	16-Mar-2020 12:53
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**614**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	17-Mar-2020 21:47
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**0.910**		**0.150**	**0.500**	**0.500**	**mg/L**	5	13-Mar-2020 03:04
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	13-Mar-2020 03:04
Sulfate	**2,670**		**100**	**250**	**250**	**mg/L**	500	26-Mar-2020 14:49
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	26-Mar-2020 09:32

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW16-200311
Collection Date: 11-Mar-2020 13:40

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	12	U	7.5	12	25	UG/L	25	20-Mar-2020 17:17
1,1-Dichloroethene	**37**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 17:17
1,2-Dichloroethane	**30**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 17:17
cis-1,2-Dichloroethene	**13,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 17:41
Methylene chloride	25	U	10	25	50	UG/L	25	20-Mar-2020 17:17
Trichloroethene	**27,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 17:41
Vinyl chloride	**300**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 17:17
Surr: 1,2-Dichloroethane-d4	*90.7*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 17:17*
Surr: 1,2-Dichloroethane-d4	*91.2*			**0**	*81-118*	*%REC*	*250*	*20-Mar-2020 17:41*
Surr: 4-Bromofluorobenzene	*97.6*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 17:17*
Surr: 4-Bromofluorobenzene	*96.0*			**0**	*85-114*	*%REC*	*250*	*20-Mar-2020 17:41*
Surr: Dibromofluoromethane	*94.9*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 17:17*
Surr: Dibromofluoromethane	*95.1*			**0**	*80-119*	*%REC*	*250*	*20-Mar-2020 17:41*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 17:17*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*250*	*20-Mar-2020 17:41*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00487**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 13:03
Ethene	**0.0102**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 13:03
Methane	**1.21**		**0.0107**	**0.0500**	**0.0500**	**mg/L**	100	16-Mar-2020 13:14
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**397**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	17-Mar-2020 21:54
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**4.51**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	13-Mar-2020 03:58
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	13-Mar-2020 03:58
Sulfate	**433**		**1.00**	**2.50**	**2.50**	**mg/L**	5	13-Mar-2020 03:40
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	26-Mar-2020 09:32

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW16-200311-FD
Collection Date: 11-Mar-2020 13:40

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	12	U	7.5	12	25	UG/L	25	20-Mar-2020 18:05
1,1-Dichloroethene	**41**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 18:05
1,2-Dichloroethane	**30**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 18:05
cis-1,2-Dichloroethene	**13,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 18:29
Methylene chloride	25	U	10	25	50	UG/L	25	20-Mar-2020 18:05
Trichloroethene	**28,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 18:29
Vinyl chloride	**310**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 18:05
Surr: 1,2-Dichloroethane-d4	*89.2*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 18:05*
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*250*	*20-Mar-2020 18:29*
Surr: 4-Bromofluorobenzene	*95.9*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 18:05*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*250*	*20-Mar-2020 18:29*
Surr: Dibromofluoromethane	*93.5*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 18:05*
Surr: Dibromofluoromethane	*94.1*			**0**	*80-119*	*%REC*	*250*	*20-Mar-2020 18:29*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 18:05*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*250*	*20-Mar-2020 18:29*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00498**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 13:22
Ethene	**0.00984**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 13:22
Methane	**1.29**		**0.0107**	**0.0500**	**0.0500**	**mg/L**	100	16-Mar-2020 13:36
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**393**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	17-Mar-2020 22:01
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**4.62**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	13-Mar-2020 04:34
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	13-Mar-2020 04:34
Sulfate	**437**		**1.00**	**2.50**	**2.50**	**mg/L**	5	13-Mar-2020 04:16
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	26-Mar-2020 09:32

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: Trip Blank
Collection Date: 11-Mar-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 01:09
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 01:09
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 01:09
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 01:09
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 01:09
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 01:09
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 01:09
Surr: 1,2-Dichloroethane-d4	*91.2*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 01:09*
Surr: 4-Bromofluorobenzene	*96.2*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 01:09*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 01:09*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 01:09*

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R358305 (0)	**Test Name :** DISSOLVED GASES BY RSK-175				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			16 Mar 2020 12:24	10
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			16 Mar 2020 12:00	1
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			16 Mar 2020 12:53	50
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			16 Mar 2020 12:39	1
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			16 Mar 2020 13:14	100
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			16 Mar 2020 13:03	1
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			16 Mar 2020 13:36	100
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			16 Mar 2020 13:22	1
Batch ID: R358369 (0)	**Test Name :** ALKALINITY BY SM2320B				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			17 Mar 2020 21:40	1
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			17 Mar 2020 21:47	1
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			17 Mar 2020 21:54	1
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			17 Mar 2020 22:01	1
Batch ID: R358594 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20030498-08	Trip Blank	11 Mar 2020 00:00			20 Mar 2020 01:09	1
Batch ID: R358594 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20030498-01	16WW12-200311	11 Mar 2020 08:15			20 Mar 2020 06:46	25
HS20030498-01	16WW12-200311	11 Mar 2020 08:15			20 Mar 2020 06:22	5
HS20030498-02	16RW10-200311	11 Mar 2020 09:05			20 Mar 2020 07:34	50
HS20030498-02	16RW10-200311	11 Mar 2020 09:05			20 Mar 2020 07:10	5
HS20030498-03	16RW09-200311	11 Mar 2020 10:00			20 Mar 2020 04:22	25
HS20030498-03	16RW09-200311	11 Mar 2020 10:00			20 Mar 2020 03:10	1
Batch ID: R358657 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			20 Mar 2020 16:05	100
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			20 Mar 2020 14:53	10
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			20 Mar 2020 16:53	250
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			20 Mar 2020 16:29	25
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			20 Mar 2020 17:41	250
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			20 Mar 2020 17:17	25
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			20 Mar 2020 18:29	250
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			20 Mar 2020 18:05	25

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R358720 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20030498-01	16WW12-200311	11 Mar 2020 08:15			23 Mar 2020 15:45	1
HS20030498-02	16RW10-200311	11 Mar 2020 09:05			23 Mar 2020 15:45	1
HS20030498-03	16RW09-200311	11 Mar 2020 10:00			23 Mar 2020 15:45	1
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			23 Mar 2020 15:45	1
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			23 Mar 2020 15:45	1
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			23 Mar 2020 15:45	1
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			23 Mar 2020 15:45	1
Batch ID: R358918 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			13 Mar 2020 02:46	10
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			13 Mar 2020 03:04	5
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			13 Mar 2020 03:58	1
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			13 Mar 2020 03:40	5
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			13 Mar 2020 04:34	1
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			13 Mar 2020 04:16	5
Batch ID: R358929 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			26 Mar 2020 09:32	1
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			26 Mar 2020 09:32	1
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			26 Mar 2020 09:32	1
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			26 Mar 2020 09:32	1
Batch ID: R358987 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			26 Mar 2020 14:31	500
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			26 Mar 2020 14:49	500

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358305 (0) **Instrument: FID-4** **Method: DISSOLVED GASES BY RSK-175**

MBLK Sample ID: **MBLK-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 10:02**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515592** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.000500	0.00100								U
Ethene	0.000500	0.00100								U
Methane	0.000500	0.000500								U

LCS Sample ID: **LCS-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 09:35**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515590** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0160	0.00100	0.01804	0	88.8	75 - 125				
Ethene	0.0171	0.00100	0.0168	0	102	75 - 125				
Methane	0.00950	0.000500	0.009647	0	98.5	75 - 125				

LCSD Sample ID: **LCSD-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 09:43**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515591** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0156	0.00100	0.01804	0	86.6	75 - 125	0.01602	2.55	30	
Ethene	0.0165	0.00100	0.0168	0	98.0	75 - 125	0.01707	3.59	30	
Methane	0.00882	0.000500	0.009647	0	91.5	75 - 125	0.009501	7.4	30	

DUP Sample ID: **HS20030383-02DUP** Units: **mg/L** Analysis Date: **16-Mar-2020 11:13**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515597** PrepDate: DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.00316	0.00400					0.003008	0	30	J
Ethene	0.0956	0.00400					0.09278	2.96	30	
Methane	0.0837	0.00200					0.08260	1.32	30	

The following samples were analyzed in this batch: HS20030498-04 HS20030498-05 HS20030498-06 HS20030498-07

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358594 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW1-200319** Units: **UG/L** Analysis Date: **20-Mar-2020 00:21**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522917** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.02*	*1.0*	*50*	*0*	*90.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.89*	*1.0*	*50*	*0*	*97.8*	*85 - 114*				
Surr: Dibromofluoromethane	*46.85*	*1.0*	*50*	*0*	*93.7*	*80 - 119*				
Surr: Toluene-d8	*52.49*	*1.0*	*50*	*0*	*105*	*89 - 112*				

LCS Sample ID: **VLCSW-200319** Units: **UG/L** Analysis Date: **19-Mar-2020 23:33**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522916** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.58	1.0	20	0	97.9	80 - 119				
1,1-Dichloroethene	19.5	1.0	20	0	97.5	71 - 131				
1,2-Dichloroethane	20.24	1.0	20	0	101	73 - 128				
cis-1,2-Dichloroethene	20.38	1.0	20	0	102	78 - 123				
Methylene chloride	21.1	2.0	20	0	105	74 - 124				
Trichloroethene	20.46	1.0	20	0	102	79 - 123				
Vinyl chloride	19.07	1.0	20	0	95.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.83*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.74*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*53.21*	*1.0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*51.86*	*1.0*	*50*	*0*	*104*	*89 - 112*				

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358594 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20030498-03MS** Units: **UG/L** Analysis Date: **20-Mar-2020 03:34**
Client ID: **16RW09-200311** Run ID: **VOA6_358594** SeqNo: **5522925** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.87	1.0	20	0	94.3	80 - 119				
1,1-Dichloroethene	25.94	1.0	20	7.492	92.2	71 - 131				
1,2-Dichloroethane	19.02	1.0	20	0	95.1	73 - 128				
cis-1,2-Dichloroethene	52.53	1.0	20	34.18	91.8	78 - 123				
Methylene chloride	17.98	2.0	20	0	89.9	74 - 124				
Trichloroethene	1258	1.0	20	1235	113	79 - 123				EO
Vinyl chloride	59.62	1.0	20	40.77	94.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.29*	*1.0*	*50*	*0*	*92.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.58*	*1.0*	*50*	*0*	*99.2*	*85 - 114*				
Surr: Dibromofluoromethane	*46.85*	*1.0*	*50*	*0*	*93.7*	*80 - 119*				
Surr: Toluene-d8	*51.17*	*1.0*	*50*	*0*	*102*	*89 - 112*				

MSD Sample ID: **HS20030498-03MSD** Units: **UG/L** Analysis Date: **20-Mar-2020 03:58**
Client ID: **16RW09-200311** Run ID: **VOA6_358594** SeqNo: **5522926** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.99	1.0	20	0	95.0	80 - 119	18.87	0.645	20	
1,1-Dichloroethene	24.54	1.0	20	7.492	85.2	71 - 131	25.94	5.53	20	
1,2-Dichloroethane	19.61	1.0	20	0	98.0	73 - 128	19.02	3.08	20	
cis-1,2-Dichloroethene	51.07	1.0	20	34.18	84.5	78 - 123	52.53	2.82	20	
Methylene chloride	17.1	2.0	20	0	85.5	74 - 124	17.98	5.03	20	
Trichloroethene	1224	1.0	20	1235	-57.6	79 - 123	1258	2.75	20	SEO
Vinyl chloride	56.26	1.0	20	40.77	77.4	58 - 137	59.62	5.8	20	
Surr: 1,2-Dichloroethane-d4	*46.41*	*1.0*	*50*	*0*	*92.8*	*81 - 118*	*46.29*	*0.257*	*20*	
Surr: 4-Bromofluorobenzene	*49.12*	*1.0*	*50*	*0*	*98.2*	*85 - 114*	*49.58*	*0.926*	*20*	
Surr: Dibromofluoromethane	*46.99*	*1.0*	*50*	*0*	*94.0*	*80 - 119*	*46.85*	*0.3*	*20*	
Surr: Toluene-d8	*51.54*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.17*	*0.733*	*20*	

The following samples were analyzed in this batch: HS20030498-01 HS20030498-02 HS20030498-03 HS20030498-08

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358657 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW1-200320** Units: **UG/L** Analysis Date: **20-Mar-2020 12:29**
Client ID: Run ID: **VOA6_358657** SeqNo: **5524245** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.49*	*1.0*	*50*	*0*	*91.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.34*	*1.0*	*50*	*0*	*96.7*	*85 - 114*				
Surr: Dibromofluoromethane	*47.65*	*1.0*	*50*	*0*	*95.3*	*80 - 119*				
Surr: Toluene-d8	*52.97*	*1.0*	*50*	*0*	*106*	*89 - 112*				

LCS Sample ID: **VLCSW-200320** Units: **UG/L** Analysis Date: **20-Mar-2020 11:41**
Client ID: Run ID: **VOA6_358657** SeqNo: **5524244** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.81	1.0	20	0	99.1	80 - 119				
1,1-Dichloroethene	20.25	1.0	20	0	101	71 - 131				
1,2-Dichloroethane	20.65	1.0	20	0	103	73 - 128				
cis-1,2-Dichloroethene	21.05	1.0	20	0	105	78 - 123				
Methylene chloride	21.05	2.0	20	0	105	74 - 124				
Trichloroethene	21.04	1.0	20	0	105	79 - 123				
Vinyl chloride	19.25	1.0	20	0	96.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.57*	*1.0*	*50*	*0*	*103*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.99*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*53.08*	*1.0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*51.59*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358657 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20030848-01MS** Units: **UG/L** Analysis Date: **20-Mar-2020 15:17**
Client ID: Run ID: **VOA6_358657** SeqNo: **5524249** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	21.18	1.0	20	0	106	80 - 119				
1,1-Dichloroethene	19.83	1.0	20	0	99.2	71 - 131				
1,2-Dichloroethane	19.86	1.0	20	0	99.3	73 - 128				
cis-1,2-Dichloroethene	20.41	1.0	20	0	102	78 - 123				
Methylene chloride	18.76	2.0	20	0	93.8	74 - 124				
Trichloroethene	23.21	1.0	20	0	116	79 - 123				
Vinyl chloride	19.36	1.0	20	0	96.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46*	*1.0*	*50*	*0*	*92.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.19*	*1.0*	*50*	*0*	*98.4*	*85 - 114*				
Surr: Dibromofluoromethane	*47.17*	*1.0*	*50*	*0*	*94.3*	*80 - 119*				
Surr: Toluene-d8	*53.75*	*1.0*	*50*	*0*	*108*	*89 - 112*				

MSD Sample ID: **HS20030848-01MSD** Units: **UG/L** Analysis Date: **20-Mar-2020 15:41**
Client ID: Run ID: **VOA6_358657** SeqNo: **5524250** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.59	1.0	20	0	98.0	80 - 119	21.18	7.8	20	
1,1-Dichloroethene	18.35	1.0	20	0	91.7	71 - 131	19.83	7.77	20	
1,2-Dichloroethane	19.46	1.0	20	0	97.3	73 - 128	19.86	2.07	20	
cis-1,2-Dichloroethene	19.09	1.0	20	0	95.5	78 - 123	20.41	6.67	20	
Methylene chloride	18.45	2.0	20	0	92.2	74 - 124	18.76	1.69	20	
Trichloroethene	20.94	1.0	20	0	105	79 - 123	23.21	10.3	20	
Vinyl chloride	18.11	1.0	20	0	90.6	58 - 137	19.36	6.66	20	
Surr: 1,2-Dichloroethane-d4	*45.96*	*1.0*	*50*	*0*	*91.9*	*81 - 118*	*46*	*0.0812*	*20*	
Surr: 4-Bromofluorobenzene	*48.65*	*1.0*	*50*	*0*	*97.3*	*85 - 114*	*49.19*	*1.11*	*20*	
Surr: Dibromofluoromethane	*47.52*	*1.0*	*50*	*0*	*95.0*	*80 - 119*	*47.17*	*0.749*	*20*	
Surr: Toluene-d8	*51.49*	*1.0*	*50*	*0*	*103*	*89 - 112*	*53.75*	*4.3*	*20*	

The following samples were analyzed in this batch: HS20030498-04 HS20030498-05 HS20030498-06 HS20030498-07

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358369 (0) **Instrument: ManTech01** **Method: ALKALINITY BY SM2320B**

MBLK Sample ID: **WBLKW2-200317** Units: **mg/L** Analysis Date: **17-Mar-2020 19:12**
Client ID: Run ID: **ManTech01_358369** SeqNo: **5517380** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	5.00	5.00								U

LCS Sample ID: **LCS2-200317** Units: **mg/L** Analysis Date: **17-Mar-2020 19:22**
Client ID: Run ID: **ManTech01_358369** SeqNo: **5517381** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1057	5.00	1000	0	106	85 - 115				

LCSD Sample ID: **LCSD2-200317** Units: **mg/L** Analysis Date: **17-Mar-2020 19:46**
Client ID: Run ID: **ManTech01_358369** SeqNo: **5517384** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1067	5.00	1000	0	107	85 - 115	1057	0.922	20	

DUP Sample ID: **HS20030659-21DUP** Units: **mg/L** Analysis Date: **17-Mar-2020 20:01**
Client ID: Run ID: **ManTech01_358369** SeqNo: **5517386** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	339.2	5.00					340.6	0.421	20	

The following samples were analyzed in this batch: HS20030498-04 HS20030498-05 HS20030498-06 HS20030498-07

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358918 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 21:20**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530737** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 22:14**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530740** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.834	0.100	4	0	95.8	80 - 120				
Nitrogen, Nitrate (As N)	4.108	0.100	4	0	103	80 - 120				
Sulfate	19.63	0.500	20	0	98.1	80 - 120				

LCSD Sample ID: **WLCSDW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 22:32**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530741** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.818	0.100	4	0	95.4	80 - 120	3.834	0.423	20	
Nitrogen, Nitrate (As N)	4.09	0.100	4	0	102	80 - 120	4.108	0.454	20	
Sulfate	19.56	0.500	20	0	97.8	80 - 120	19.63	0.347	20	

MS Sample ID: **HS20030221-01MS** Units: **mg/L** Analysis Date: **13-Mar-2020 07:53**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530768** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.599	0.100	2	0	79.9	80 - 120				S
Nitrogen, Nitrate (As N)	2.401	0.100	2	0	120	80 - 120				S
Sulfate	30.89	0.500	10	24.4	65.0	80 - 120				S

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358918 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MS Sample ID: **HS20030220-01MS** Units: **mg/L** Analysis Date: **13-Mar-2020 06:59**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530765** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.809	0.100	2	0	90.5	80 - 120				
Nitrogen, Nitrate (As N)	2.054	0.100	2	0	103	80 - 120				
Sulfate	30.66	0.500	10	24.06	66.0	80 - 120				S

MSD Sample ID: **HS20030221-01MSD** Units: **mg/L** Analysis Date: **13-Mar-2020 08:12**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530769** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.606	0.100	2	0	80.3	80 - 120	1.599	0.431	20	
Nitrogen, Nitrate (As N)	2.423	0.100	2	0	121	80 - 120	2.401	0.933	20	S
Sulfate	30.98	0.500	10	24.4	65.9	80 - 120	30.89	0.29	20	S

MSD Sample ID: **HS20030220-01MSD** Units: **mg/L** Analysis Date: **13-Mar-2020 07:17**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530766** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.825	0.100	2	0	91.3	80 - 120	1.809	0.869	20	
Nitrogen, Nitrate (As N)	2.178	0.100	2	0	109	80 - 120	2.054	5.9	20	
Sulfate	30.83	0.500	10	24.06	67.7	80 - 120	30.66	0.53	20	S

The following samples were analyzed in this batch: HS20030498-04 HS20030498-05 HS20030498-06 HS20030498-07

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358987 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-03.24.20 W** Units: **mg/L** Analysis Date: **25-Mar-2020 15:10**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532207** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-03.24.20** Units: **mg/L** Analysis Date: **25-Mar-2020 18:29**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532216** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	18.26	0.500	20	0	91.3	80 - 120				

LCSD Sample ID: **LCSD-03.24.20** Units: **mg/L** Analysis Date: **25-Mar-2020 18:47**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532217** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.82	0.500	20	0	99.1	80 - 120	18.26	8.2	20	

MS Sample ID: **HS20030877-01MS** Units: **mg/L** Analysis Date: **26-Mar-2020 15:25**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532566** PrepDate: DF: **500**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	14340	250	5000	10070	85.3	80 - 120				

MS Sample ID: **HS20030838-01MS** Units: **mg/L** Analysis Date: **26-Mar-2020 00:20**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532313** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	42.57	0.500	10	32.76	98.1	80 - 120				

MSD Sample ID: **HS20030877-01MSD** Units: **mg/L** Analysis Date: **26-Mar-2020 15:43**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532567** PrepDate: DF: **500**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	14550	250	5000	10070	89.7	80 - 120	14340	1.5	20	

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358987 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20030838-01MSD** Units: **mg/L** Analysis Date: **26-Mar-2020 00:38**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532314** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	41.66	0.500	10	32.76	89.0	80 - 120	42.57	2.17	20	

The following samples were analyzed in this batch: HS20030498-04 HS20030498-05

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: **HS20030498**

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 Houston, US Date: 26-Mar-20

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 26-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030498
Date/Time Received: **12-Mar-2020 08:50**
Received by: **AC**

Checklist completed by: *Paresh M. Giga* eSignature 12-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 12-Mar-2020 Date

Matrices: **GW/Water**
Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.8c U/C	IR25
Cooler(s)/Kit(s):	44977	
Date/Time sample(s) sent to storage:	3/12/2020 12:20	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

01093906

APTIM

Page 1 of ____

COC ID: LHAAP16 March 2020 -ALS | TURNAROUND TIME: Normal | RUSH:

PROJECT/CLIENT INFO

Facility Name	Longhorn AAP
Project Number	501032
	LHAAP-16
Address	1203-B East Grand Avenue
	PMB 202
City	Marshall
State	TX
Postal Code	75670
Country	USA
Phone Number	713.243.7264
Project Manager	Praveen Srivastav

LABORATORY

Lab Name	ALS Laboratories
Lab Contact	RJ Modashia
Email	RJ.Modashia@alsglobal.com
Address	10450 Stanciff Rd., Suite 210
City	Houston
State	TX
Postal Code	77099
Country	USA
Phone Number	281.575.2279 or 281.530.5656

OTHER INFO

Email Invoice To	FedInvoices@aptim.com
Email Report To	Susan.Huang@aptim.com
Mail Reports To	Susan Huang
Address	4005 Port Chicago Highway, Suite 200
City	Concord
State	CA
Postal Code	94520
Country	USA
Shipping Company	

SAMPLE DETAILS

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	2-40ml Amber/H2SO4	1-250 ml PE/HNO3	1-250 ml PE/Ice	1-250ml PE /Ice	1-250ml PE/Ice	1-125ml PE/Ice		
									ANALYSIS	VOCs by SW8260B	MEE by RSK175	TOC by SM5310C	Metals (arsenic, chromium, manganese, nickel, and thallium) by SW6020	Anions (sulfate/nitrate/bromide) by SW9056	Anions (bromide only) by SW9056	Alkalinity by SM2320	Perchlorate by SW6850		
16WW12-200311	LHAAP16				W6	3/11/20	0815	4		X							X		
16RW10-200311	LHAAP16				W6	3/11/20	0905	4		X							X		
16RW09-200311	LHAAP16				W6	3/11/20	1000	4		X							X		
16RW09-200311-MS	LHAAP16				W6	3/11/20	1000	4		X							X		
16RW09-200311-MSD	LHAAP16				W6	3/11/20	1000	4		X							X		
16WW35-200311	LHAAP16				W6	3/11/20	1145	11		X	X	X		X		X	X		
16WW36-200311	LHAAP16				W6	3/11/20	1240	11		X	X	X		X		X	X		
16WW16-200311	LHAAP16				W6	3/11/20	1340	11		X	X	X		X		X	X		
16WW16-200311-FD	LHAAP16				W6	3/11/20	1340	11		X	X	X		X		X	X		
TRIP BLANK	LHAAP16				W6	3/11/20		2		X									

HS20030498

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant - 16

RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
[illegible] / BHATT	3/11/20 1730	AC / ALS	3/12/2020 0815

W/C 1-8 IR#25 CF=0 44977

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 3/11
Time: 1430
Name: Scott Beesinger
Company: ALS

Seal Signature By:
Date: 3/12/2021

FedEx
TRK# 0221 1251 0294 7895

THU - 12 MAR 10:30A
PRIORITY OVERNIGHT

AB SGRA

44911 77099
TX-US
IAH

FID 5102232 11MAR20 GGGA 568C7/64C0/05A2

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 2007564; 2007568

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2359 (259282)

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: NA

Method QC data: The method blank (LMB 700240) was less than 1/2 the CRDL. The recovery for the LCS (700237) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on samples 2007568004/05 (Client ID: 16RW09-200311). 3.0µL of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. The spike target was 3.µg/L. The MS/MSD (2007568004/05) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected. The relative percent difference (RPD) was within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 700238) is reported from the analysis of the Laboratory Control Sample (LCS – 700237) at a level of 3.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 19MARD02/17. Field samples 2007564006 and 2007568003/07 had positive results for perchlorate. However, because the 83/85 ion ratio failed, these results were not reported.

Thomas Bosch March 20, 2020
Analyst Date

ANALYTICAL REPORT

Report Date: March 20, 2020

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-2007568**
Project ID: HS20030498
Purchase Order: HS20030498
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
16WW12-200311	2007568001	03/11/20	03/13/20	
16RW10-200311	2007568002	03/11/20	03/13/20	
16RW09-200311	2007568003	03/11/20	03/13/20	
16WW35-200311	2007568006	03/11/20	03/13/20	
16WW36-200311	2007568007	03/11/20	03/13/20	
16WW16-200311	2007568008	03/11/20	03/13/20	
16WW16-200311-FD	2007568009	03/11/20	03/13/20	

Client QC ID *	Lab ID	Collect Date	Receive Date	Sampling Site
16RW09-200311MS	2007568004	03/11/20	03/13/20	
16RW09-200311MSD	2007568005	03/11/20	03/13/20	

***Client QC is reported as part of the Quality Control results report, if requested.**

ANALYTICAL REPORT

Workorder: 34-2007568
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16WW12-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568001 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 10:59 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**53**	1.0	2.0	4.0	1	

Sample ID: **16RW10-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568002 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 11:13 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**150**	10	20	40	10	

Sample ID: **16RW09-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568003 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 11:27 | **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: **16WW35-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568006 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 13:26 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**560**	10	20	40	10	

ANALYTICAL REPORT

Workorder: 34-2007568
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16WW36-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568007 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 12:37 | **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: **16WW16-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568008 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 12:51 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**510**	10	20	40	10	

Sample ID: **16WW16-200311-FD** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568009 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 13:05 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**560**	10	20	40	10	

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 03/20/2020 07:54	/S/ Stephen Brose 03/20/2020 23:20

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: 34-2007568
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.
The following was provided by the client: Sample ID, Collection Date, Sampling Location, Media Type, Sampling Parameter.
Collection Date, Media Type, and Sampling Parameter can potentially affect the validity of the results.
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	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

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.
< Means 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: 2007568

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2359 (HBN: 259282)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 700240
Analyzed: 03/19/2020 09:21
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 700237
Analyzed: 03/19/2020 08:53
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	3.42	3.00	114	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample: 2007568003	**MS:** 2007568004	**MSD:** 2007568005
Analyzed: 03/19/2020 11:27	**Analyzed:** 03/19/2020 11:55	**Analyzed:** 03/19/2020 12:09
Dilution: 1	**Dilution:** 1	**Dilution:** 1
Units: ug/L	**Units:** ug/L	**Units:** ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.18	3	# 139	78.8	123.8	4.35	# 145	3.89	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
03/20/2020 09:30	03/20/2020 23:19

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

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

18698/#2

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense**

COC ID: **13510**

2007568

SUBCONTRACT TO:

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

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20030498
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20030498-01**	**16WW12-200311**	**Groundwater**	**11 Mar 2020 08:15**
	SUB_Perch-6850			26 Mar 2020
2.	**HS20030498-02**	**16RW10-200311**	**Groundwater**	**11 Mar 2020 09:05**
	SUB_Perch-6850			26 Mar 2020
* 3.	**HS20030498-03**	**16RW09-200311** MS/MSD	**Groundwater**	**11 Mar 2020 10:00**
	SUB_Perch-6850			26 Mar 2020
4.	**HS20030498-04**	**16WW35-200311**	**Groundwater**	**11 Mar 2020 11:45**
	SUB_Perch-6850			26 Mar 2020
5.	**HS20030498-05**	**16WW36-200311**	**Groundwater**	**11 Mar 2020 12:40**
	SUB_Perch-6850			26 Mar 2020
6.	**HS20030498-06**	**16WW16-200311**	**Groundwater**	**11 Mar 2020 13:40**
	SUB_Perch-6850			26 Mar 2020
7.	**HS20030498-07**	**16WW16-200311-FD**	**Groundwater**	**11 Mar 2020 13:40**
	SUB_Perch-6850			26 Mar 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20030498-03 = MS/MSD

* 3 samples received for HS20030498-03, RW 03/13/2020

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13510**

QC Level: DOD IV (DoD Data Package)

Relinquished By:	J. Mahoney	Date/Time:	3/12/20 18:00
Received By:		Date/Time:	03/13/2020 0951
Cooler ID(s):		Temperature(s):	

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS20030498	***Split:***	**Workorder ID:** 2007568	**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	Preservatives COOL	Requested Analysis EPA 6850, DoD QSM
1	03/11/2020 08:15	16WW12-200311	2007568001		Water	A	1		A
2	03/11/2020 09:05	16RW10-200311	2007568002		Water	A	1		A
3	03/11/2020 10:00	16RW09-200311	2007568003		Water	A	1		A
4	03/11/2020 10:00	16RW09-200311MS	2007568004	MS	Water	A	1		A
5	03/11/2020 10:00	16RW09-200311MSD	2007568005	MSD	Water	A	1		A
6	03/11/2020 11:45	16WW35-200311	2007568006		Water	A	1		A
7	03/11/2020 12:40	16WW36-200311	2007568007		Water	A	1		A
8	03/11/2020 13:40	16WW16-200311	2007568008		Water	A	1		A
9	03/11/2020 13:40	16WW16-200311-FD	2007568009	FLDDUP	Water	A	1		A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	03/13/2020 09:51	ALS Sample Receiving	Sample Login
Julie Warath	3/13/20 1135	ISC	Storage
R.33-1	03.18.20/10:35	T Bush	client analysis

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

01093918

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

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: HS 20030498

Date/Time of Receipt: 03/13/2020 0951

Number of Coolers Received: 1 2007568

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	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.
1	Good	3 °C	4		°C	7		°C
2		°C	5		°C	8		°C
3		°C	6		°C	9		°C

Taken By: _____ (Signature) Rebecca Wise (Printed Name) 03/13/2020 (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:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

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

01093919

Must Deliver Next Business Day
Time and Temperature Sensitive!

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

SHIP DATE: 12MAR20
ACTWGT: 20.50 LB
CAD: 3001307/CAFE3211
DIMS: 19x16x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS20030498/474 RJ

FedEx Express

TRK# 0201 1251 0295 3938

FRI - 13 MAR 3:00
STANDARD OVERNIGH

AX BTFA

8412
UT-US SL

ALS
10450 Sta
Houston,
Tel. +1 281
Fax +1 281

Batch Worklist

Batch: ELMS/ 2359 Created: 3/19/2020 07:44 Instrument: HBN: 259282

Rule: EPA 6850, DoD QSM Water Analyst: T. Bosch Status: WP

Workorder: 2007564 [ENV_LVL4]

Workorder: 2007568 [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	700236	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	
2	700237	LCS for HBN 259282 [ELMS/2359]				LCS	3		E6850Q413Q	5311		3/26/2020	
3	700238	RLVS for HBN 259282 [ELMS/2359				RLVS	3		E685041C3Q	5311		3/26/2020	
4	700239	ICS for HBN 259282 [ELMS/2359]				ICS	3		E6850..D3Q	5311		3/26/2020	
5	700240	LMB for HBN 259282 [ELMS/2359]				LMB	3		E6850Q413Q	5311		3/26/2020	
6	2007564001	16PM14-200310				SAMPLE	3	2007564001-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
7	2007564002	16PM06-200310				SAMPLE	3	2007564002-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
8	2007564003	16PM09-200310				SAMPLE	3	2007564003-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
9	2007564004	16WW42-200310				SAMPLE	3	2007564004-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
10	2007564005	16WW42-200310-FD				FLDDUP	3	2007564005-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
11	2007564006	16WW40-200310				SAMPLE	3	2007564006-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
12	2007568001	16WW12-200311				SAMPLE	3	2007568001-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
13	2007568002	16RW10-200311				SAMPLE	3	2007568002-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
14	2007568003	16RW09-200311				SAMPLE	3	2007568003-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
15	700241	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	
16	2007568004	16RW09-200311MS				MS	3	2007568004-A	E6850Q413Q	5480		3/26/2020	
17	2007568005	16RW09-200311MSD				MSD	3	2007568005-A	E6850Q413Q	5480		3/26/2020	
18	2007568006	16WW35-200311				SAMPLE	3	2007568006-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
19	2007568007	16WW36-200311				SAMPLE	3	2007568007-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
20	2007568008	16WW16-200311				SAMPLE	3	2007568008-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
21	2007568009	16WW16-200311-FD				FLDDUP	3	2007568009-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
22	700242	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	

01093921

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Analyst Write-up

ALS Work Order #'s & Sample #( )'s: 2007564 (001-06); 2007568 (001-09)
ELMS Batch/HBN ID: 2359 (259282)
Prep Date: 03/18/2020 Analysis Date: 03/19/2020 Analyst: Tom Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\19MAR0D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Tom Bosch. 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 DU461-US)/0.1% glacial acetic acid (JT-Baker Lot 122550).
Eluent B1: 95% ACN (B&J Lot DU461-US)/5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 122550).

STANDARDS: Internal Standard Spiking Solution Horizon# 47863. Dilutions of Working Standards (Horizon: 49947/48) used for ICAL, CCV's, RLVS and ICS.

CALIBRATION CURVE: Used curve from 09/20/2019, sequence 20SEP19D.s Offline Quantitation Method: CLO4-DP3.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: 10 Injection Volume: 40µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1 Run time: 12.0min.

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 3.0µL of QC Solution Horizon ID 47516 was used for LCS 700237; Target = 3.0µg/L. ASTM type II water was used for LMB 700236.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) was performed on samples 2007568004/05 (Client ID: 16RW09-200311). 3.0µl of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. Spike target = 3.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field samples 2007564006 and 2007568003/07 had positive results for perchlorate. However, because the 83/85 ion ratio failed, these results were not reported.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The MS/MSD (2007568004/05) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2020\MAR\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2020\DOD\259282-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 700238) is reported from the analysis of the Laboratory Control Sample (LCS – 700239) at a level of 3.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 19MARD02/17.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria **Batch(es)/SDG:** ELMS: 2359 HBN: 259282 **Sample Set IDs if Applicable:** 2007564 / 2007568	**Analyst Initials**	**Reviewer Initials**
Sample positions on autosampler verified against instrument sequence	TB	NA
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#_____	TB	SB
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L
Standard: 49946	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/23/2019 03:09PM	**Expires:** 09/19/2020
MFG Lot: TNB: 09/20/2019	**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
47863	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	12/05/2028

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		**Description - Perchlorate ISTD Stock**
Standard: **47863**	**Created By:** Thomas Bosch	**Amount:** 1 mL
MFG: Cambridge Isotope	**Create Date:** 05/23/2019 10:05AM	**Expires:** 12/05/2028
MFG Lot: SDIH-016	**Verified By:** Thomas Bosch	**Usable:** Yes
Part ID: OLM-7310-S	**Verify Date:**	**Lab Lot:** CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK		Description - 6850 WKG Std 100.ug/L
Standard: 49948	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 09/20/2019 03:09PM	**Expires:** 07/25/2020
MFG Lot: TNB: 09/20/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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
49947	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	07/25/2020

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

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

Standard: 43659 **Created By:** Thomas Bosch **Amount:** 100 mL
MFG: AccuStandard **Create Date:** 09/17/2018 09:09AM **Expires:** 07/25/2020
MFG Lot: 218065075 **Usable:** Yes
Part ID: IC-PER-10X-1 **Lab Lot:** CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

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

Standard: 49947 **Created By:** Thomas Bosch **Amount:** 10 mL
MFG: ALS/SLC **Create Date:** 09/23/2019 03:09PM **Expires:** 07/25/2020
MFG Lot: TNB: 09/20/2019 **Usable:** Yes
Pipette ID: Not Provided **Lab Lot:** CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK		Description - 6850 QC WKG STD 100ug/L
Standard: 47516	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 05/06/2019 03:05PM	**Expires:** 03/31/2020
MFG Lot: TNB: 05/06/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK		**Description - 6850 QC Stock STD 1,000ug/mL**
Standard: 36748	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: Ultra Scientific	**Create Date:** 05/11/2017 01:05PM	**Expires:** 03/31/2020
MFG Lot: CP-0860		**Usable:** Yes
Part ID: ICC-013		**Lab Lot:** CLO4 QC STOCK

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

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

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

Standard: 47515 **Created By:** Thomas Bosch **Amount:** 10 mL
MFG: ALS/SLC **Create Date:** 05/06/2019 03:05PM **Expires:** 03/31/2020
MFG Lot: TNB: 05/06/2019 **Usable:** Yes
Pipette ID: Not Provided **Lab Lot:** CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

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

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: None

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO 17034 Scope of Accreditation: Yes

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

The gravimetric uncertainty for this product is ±0.24%.

The final solution was checked against an independent standard to verify its concentration.

We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.

All solutions are filtered through a 0.2 µm filter prior to being bottled.

All glassware used in preparation is Class A and calibrated regularly.

All weights are traceable through NIST, Test No. 822-275872-11

All bottles are triple rinsed with deionized water prior to use.

Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.

We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary

Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

AccuStandard®

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

S 36748

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001 Registered Quality System – TUV USA

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

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

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

S 47863

Product Name: PERCHLORIC ACID, SODIUM SALT
(Isotopic Label & Enrichment Specification) (18O4, 90%+) 100 UG/ML IN WATER

Lot Number: SDIH-016

Catalog Number: OLM-7310-S

Product Information

Chemical Purity Specification: ≥98%

MW*: 130.44
* For isotopically labeled compounds, MW listed is for the fully enriched product.

$NaCl^{18}O_4$

Labeled CAS Number: NA

Unlabeled CAS Number: 7601-89-0

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. CIL Certificates of Analysis are occasionally updated with new data following recertification. We recommend checking the website for the latest version.

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.

Approved by: Sashi Sivendran-Basak

Sashi Sivendran-Basak, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	12/05/2018
Expiration Date	12/05/2028
Concentration Based on Gravimetry	100.0 ± 1.0 µg/mL (k=2)
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	105.4 ± 1.1 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\19MAR20D\19MAR20S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	700236 CCV@25	Vial 71	1	Control	1	1.22936e6	7.603	24.07531
*	700237 LCS@3.	Vial 72	1	Control	2	1.65066e5	7.526	3.42325
*	700239 ICS@3.0	Vial 73	1	Control	3	1.10320e5	7.478	2.89335
*	700240 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	2007564001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	2007564002	Vial 76	1	Sample	6	0.00000	0.000	0.00000
*	2007564003	Vial 77	1	Sample	7	0.00000	0.000	0.00000
*	2007564004	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	2007564005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	2007564006	Vial 80	1	Sample	10	2.48609e5	6.728	~~4.28651~~ N.R.
*	2007568001	Vial 81	1	Sample	11	3.51022e6	6.847	52.77083
*	2007568002 10X	Vial 82	1	Sample	12	7.72897e5	7.466	145.91615
*	2007568003	Vial 83	1	Sample	13	6.28393e4	7.236	~~1.23157~~ N.R.
*	700241 CCV@25	Vial 71	1	Control	14	1.28100e6	7.611	25.24165
*	2007568004 MS	Vial 84	1	Sample	15	2.01081e5	7.221	4.18214
*	2007568005 MSD	Vial 85	1	Sample	16	1.97977e5	7.172	4.34825
*	2007568006	Vial 86	1	Sample	17	2.13799e7	5.995	205.68986
*	2007568007	Vial 87	1	Sample	18	1.65269e5	6.913	~~2.98152~~ N.R.
*	2007568008 10X	Vial 88	1	Sample	19	3.07542e6	7.482	514.51319
*	2007568009 10X	Vial 89	1	Sample	20	3.36085e6	7.470	560.28270
*	2007568006 10X	Vial 90	1	Sample	21	3.45541e6	7.167	559.99202
*	700242 CCV@25	Vial 71	1	Control	22	1.36567e6	7.601	25.93886

N.R. - NOT REPORTED / FAILS 83/85 ION RATIO T.B. 3.20.2020

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	700236 CCV@25	Vial 71	1	Control	1	1.75146e5	7.627	5.00000
*	700237 LCS@3.	Vial 72	1	Control	2	1.77667e5	7.559	5.00000
*	700239 ICS@3.0	Vial 73	1	Control	3	1.40222e5	7.501	5.00000
*	700240 LMB	Vial 74	1	Control	4	1.80209e5	7.666	5.00000
*	2007564001	Vial 75	1	Sample	5	1.53505e5	6.948	5.00000
*	2007564002	Vial 76	1	Sample	6	1.89522e5	7.145	5.00000
*	2007564003	Vial 77	1	Sample	7	2.32125e5	7.391	5.00000
*	2007564004	Vial 78	1	Sample	8	2.15184e5	7.551	5.00000
*	2007564005	Vial 79	1	Sample	9	2.11765e5	7.611	5.00000
*	2007564006	Vial 80	1	Sample	10	2.13872e5	6.707	5.00000
*	2007568001	Vial 81	1	Sample	11	2.03614e5	6.864	5.00000
*	2007568002 10X	Vial 82	1	Sample	12	1.88929e5	7.485	50.00000
*	2007568003	Vial 83	1	Sample	13	1.82170e5	7.202	5.00000
*	700241 CCV@25	Vial 71	1	Control	14	1.73233e5	7.640	5.00000
*	2007568004 MS	Vial 84	1	Sample	15	1.77303e5	7.235	5.00000
*	2007568005 MSD	Vial 85	1	Sample	16	1.67893e5	7.182	5.00000
*	2007568006	Vial 86	1	Sample	17	2.01329e5	5.906	5.00000
*	2007568007	Vial 87	1	Sample	18	2.03939e5	6.877	5.00000
*	2007568008 10X	Vial 88	1	Sample	19	1.83884e5	7.512	50.00000
*	2007568009 10X	Vial 89	1	Sample	20	1.81383e5	7.484	50.00000
*	2007568006 10X	Vial 90	1	Sample	21	1.86604e5	7.188	50.00000
*	700242 CCV@25	Vial 71	1	Control	22	1.79204e5	7.628	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	700236 CCV@25	Vial 71	1	Control	1	4.00484e5	7.621	25.56785
*	700237 LCS@3.	Vial 72	1	Control	2	5.75019e4	7.551	3.82098
*	700239 ICS@3.0	Vial 73	1	Control	3	4.52092e4	7.490	3.80598
*	700240 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000

Batch Report: C:\HPCHEM\1\DATA\19MAR20D\19MAR20S.B

#	*	Sample	Location	Inj	SampleType	Run	ClO4-85 Area	ClO4-85 RT	ClO4-85 Amount
	*	2007564001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
	*	2007564002	Vial 76	1	Sample	6	0.00000	0.000	0.00000
	*	2007564003	Vial 77	1	Sample	7	0.00000	0.000	0.00000
	*	2007564004	Vial 78	1	Sample	8	0.00000	0.000	0.00000
	*	2007564005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
	*	2007564006	Vial 80	1	Sample	10	1.53091e4	6.683	7.26839e-1
	*	2007568001	Vial 81	1	Sample	11	1.02484e6	6.861	51.22624
	*	2007568002 10X	Vial 82	1	Sample	12	2.50348e5	7.473	153.77705
	*	2007568003	Vial 83	1	Sample	13	1.07794e4	7.171	5.72351e-1
	*	700241 CCV@25	Vial 71	1	Control	14	4.15085e5	7.618	26.68143
	*	2007568004 MS	Vial 84	1	Sample	15	5.62875e4	7.231	3.74605
	*	2007568005 MSD	Vial 85	1	Sample	16	5.67575e4	7.167	3.99535
	*	2007568006	Vial 86	1	Sample	17	7.10809e6	6.007	222.47923
	*	2007568007	Vial 87	1	Sample	18	1.33916e4	6.874	6.53211e-1
	*	2007568008 10X	Vial 88	1	Sample	19	9.48985e5	7.499	523.20559
	*	2007568009 10X	Vial 89	1	Sample	20	1.05446e6	7.480	578.11984
	*	2007568006 10X	Vial 90	1	Sample	21	1.04884e6	7.184	562.08888
	*	700242 CCV@25	Vial 71	1	Control	22	4.26051e5	7.618	26.49247

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\19MAR20D.S

Sequence Table:

Method and Injection Info Part:

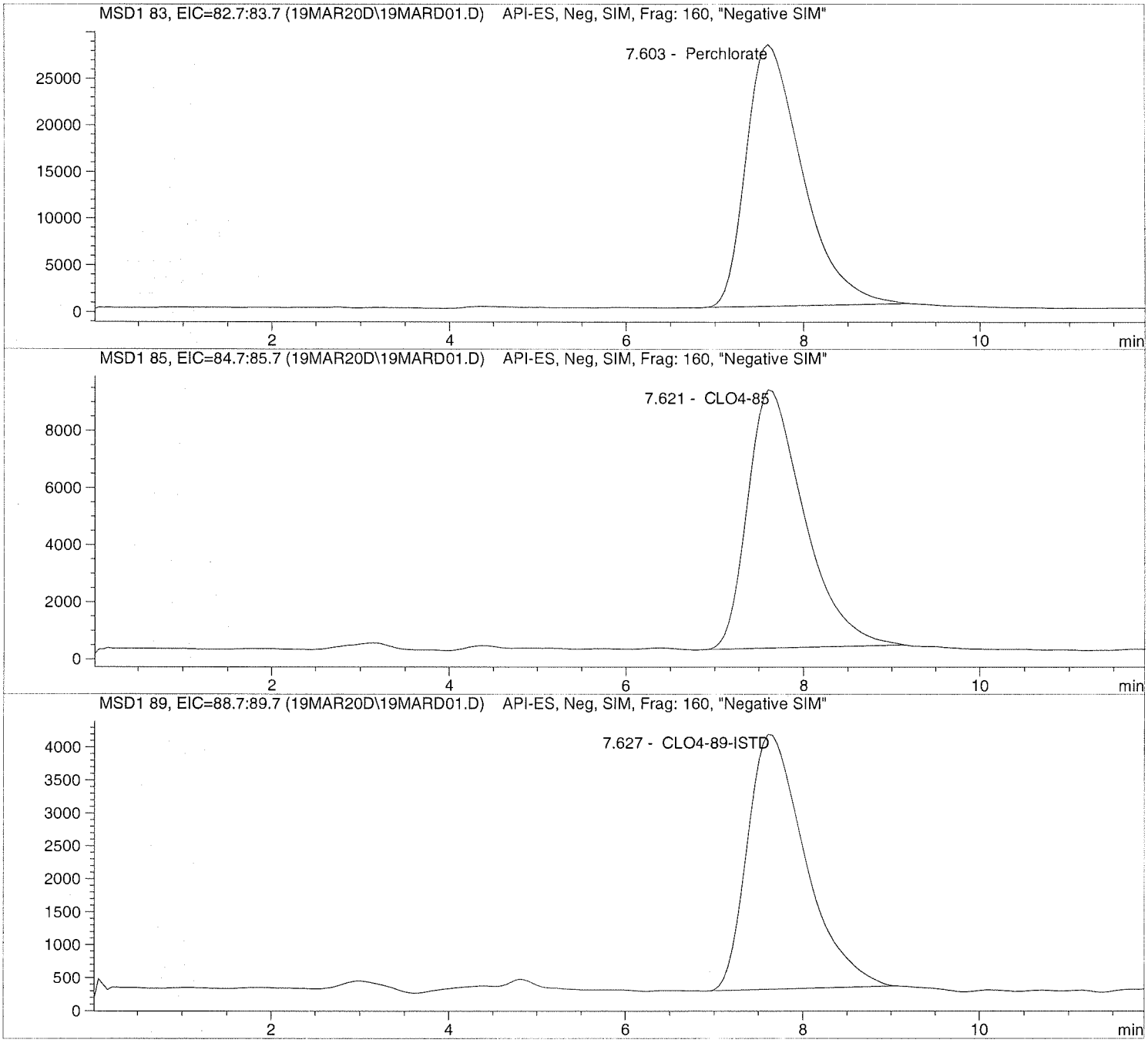
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	700236 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	700237 LCS@3.	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	700239 ICS@3.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	700240 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	2007564001	CLO4-AQN	1	Sample		
6	Vial 76	2007564002	CLO4-AQN	1	Sample		
7	Vial 77	2007564003	CLO4-AQN	1	Sample		
8	Vial 78	2007564004	CLO4-AQN	1	Sample		
9	Vial 79	2007564005	CLO4-AQN	1	Sample		
10	Vial 80	2007564006	CLO4-AQN	1	Sample		
11	Vial 81	2007568001	CLO4-AQN	1	Sample		
12	Vial 82	2007568002 10X	CLO4-AQN	1	Sample		
13	Vial 83	2007568003	CLO4-AQN	1	Sample		
14	Vial 71	700241 CCV@25	CLO4-AQN	1	Ctrl Samp		
15	Vial 84	2007568004 MS	CLO4-AQN	1	Sample		
16	Vial 85	2007568005 MSD	CLO4-AQN	1	Sample		
17	Vial 86	2007568006	CLO4-AQN	1	Sample		
18	Vial 87	2007568007	CLO4-AQN	1	Sample		
19	Vial 88	2007568008 10X	CLO4-AQN	1	Sample		
20	Vial 89	2007568009 10X	CLO4-AQN	1	Sample		
21	Vial 90	2007568006 10X	CLO4-AQN	1	Sample		
22	Vial 71	700242 CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD01.D Sample Name: 700236 CCV@25

Injection Date:	3/19/2020 08:37:03	Seq Line:	1
Sample Name:	700236 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD01.D Sample Name: 700236 CCV@25

Injection Date:	3/19/2020 08:37:03	Seq Line:	1
Sample Name:	700236 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.603	PBA	1229363.2	24.0753	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.621	PBA	400484.1	25.5678	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.627	PBA	175145.5	5.0000	CLO4-89-ISTD

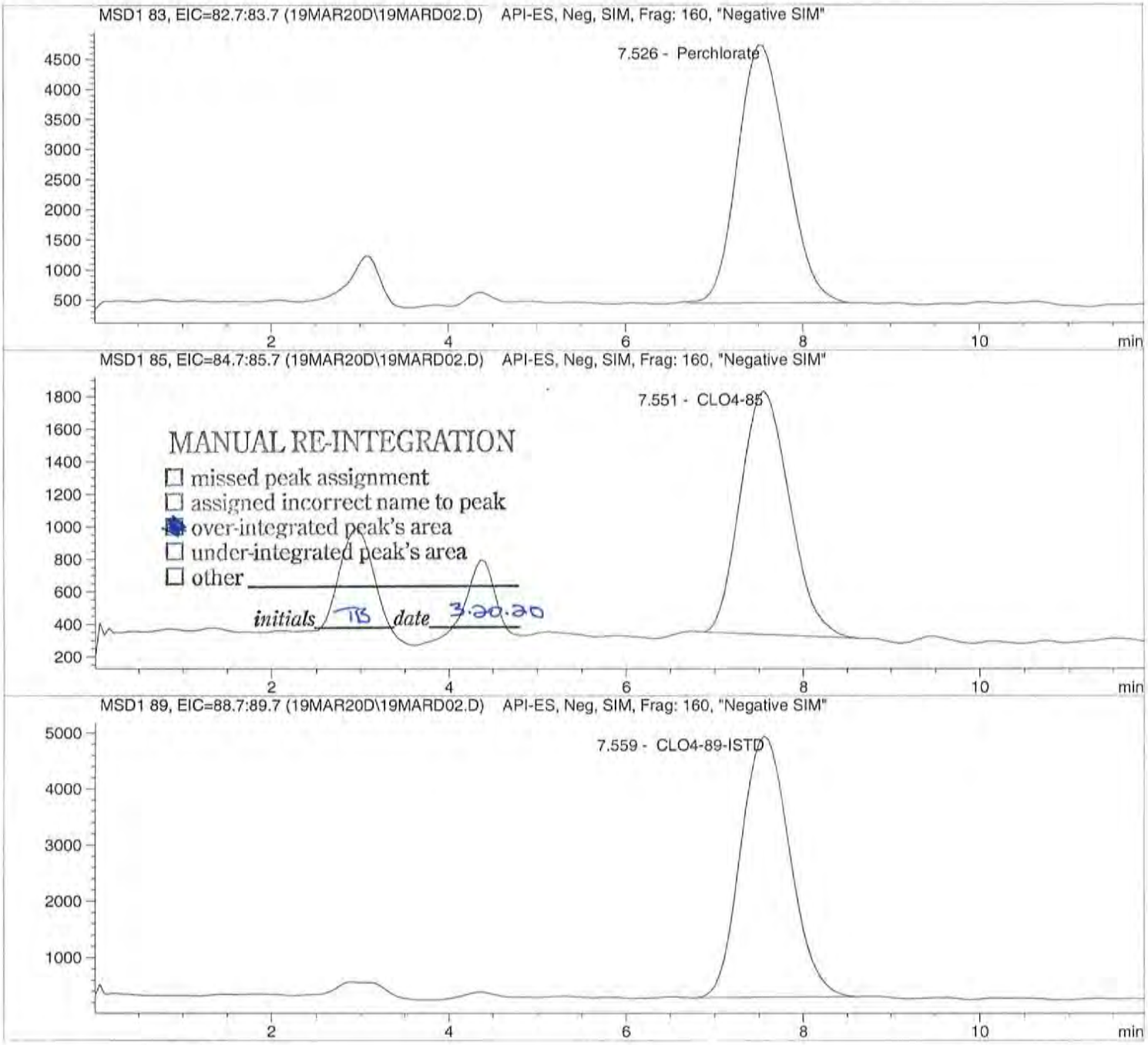
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.526	BBA	165065.5	3.4233	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	MM	57501.9	3.8210	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.559	PBA	177666.7	5.0000	CLO4-89-ISTD

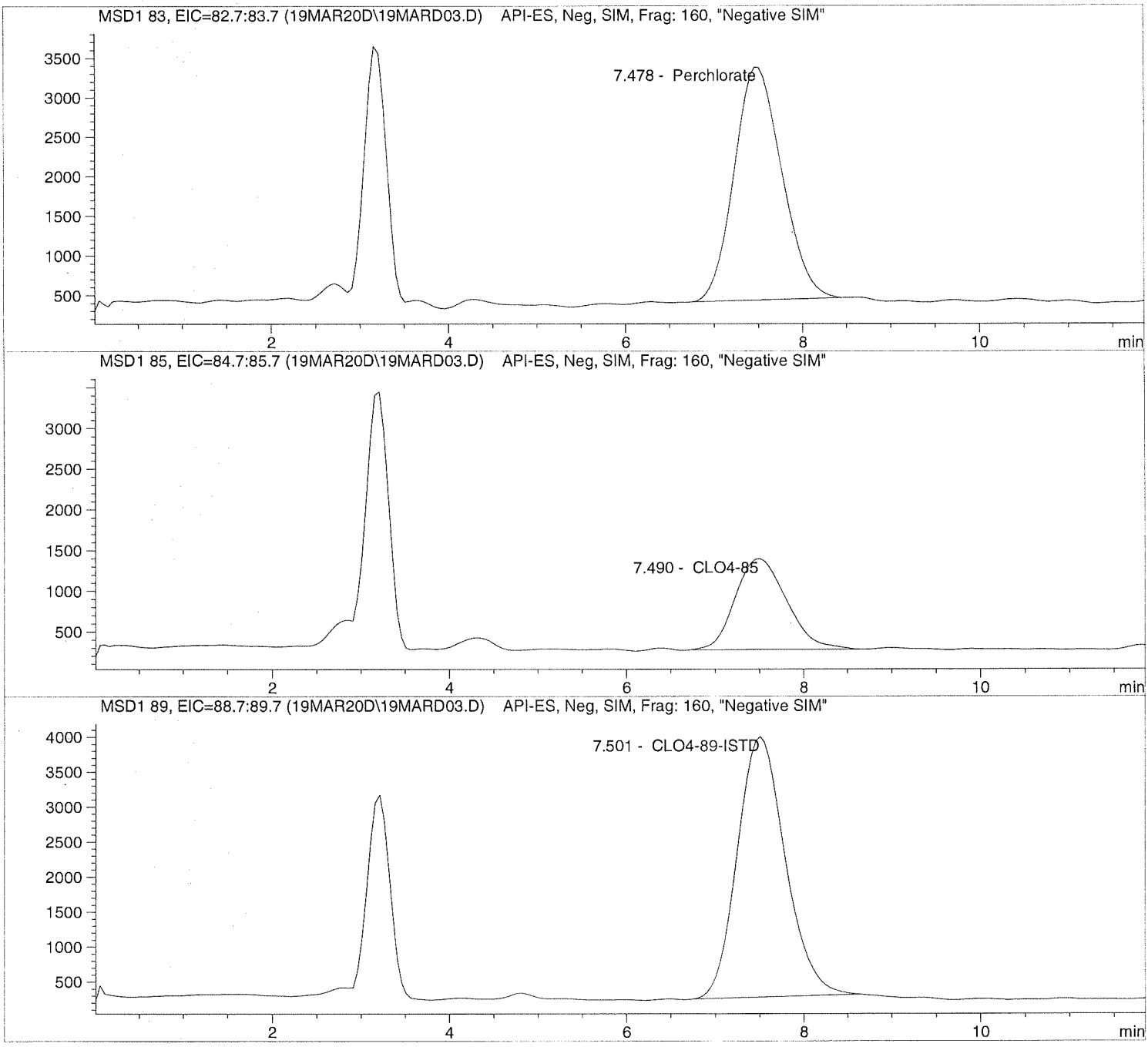
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD03.D Sample Name: 700239 ICS@3.0

Injection Date:	3/19/2020 09:07:23	Seq Line:	3
Sample Name:	700239 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD03.D Sample Name: 700239 ICS@3.0

Injection Date:	3/19/2020 09:07:23	Seq Line:	3
Sample Name:	700239 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.478	PBA	110319.7	2.8933	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.490	PBA	45209.2	3.8060	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.501	PBA	140222.0	5.0000	CLO4-89-ISTD

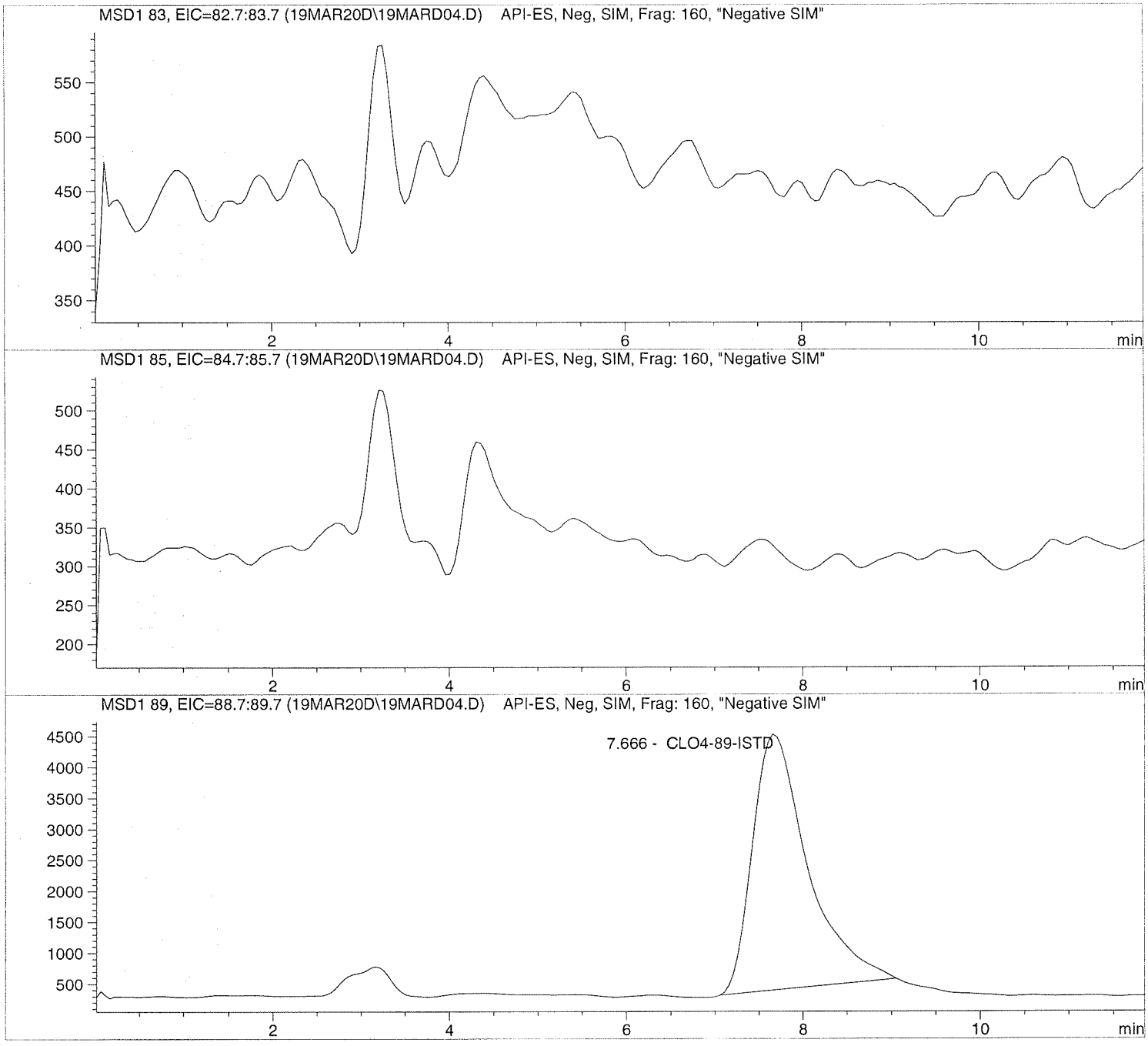
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD04.D Sample Name: 700240 LMB

Injection Date:	3/19/2020 09:21:25	Seq Line:	4
Sample Name:	700240 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD04.D Sample Name: 700240 LMB

Injection Date:	3/19/2020 09:21:25	Seq Line:	4
Sample Name:	700240 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.666	PBA	180209.3	5.0000	CLO4-89-ISTD

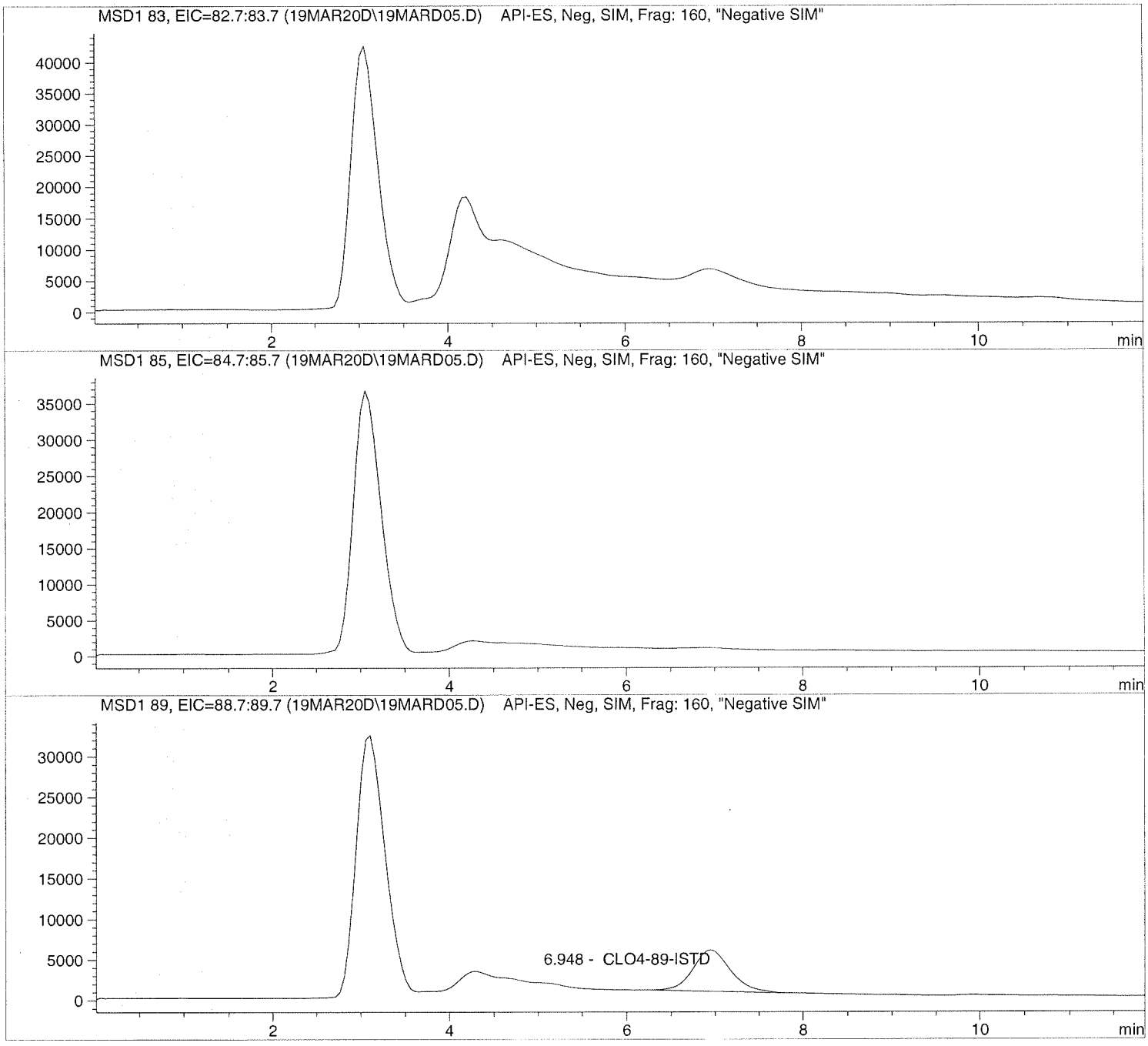
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD05.D Sample Name: 2007564001

Injection Date:	3/19/2020 09:35:23	Seq Line:	5
Sample Name:	2007564001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD05.D Sample Name: 2007564001

Injection Date:	3/19/2020 09:35:23	Seq Line:	5
Sample Name:	2007564001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.948	BBA	153505.3	5.0000	CLO4-89-ISTD

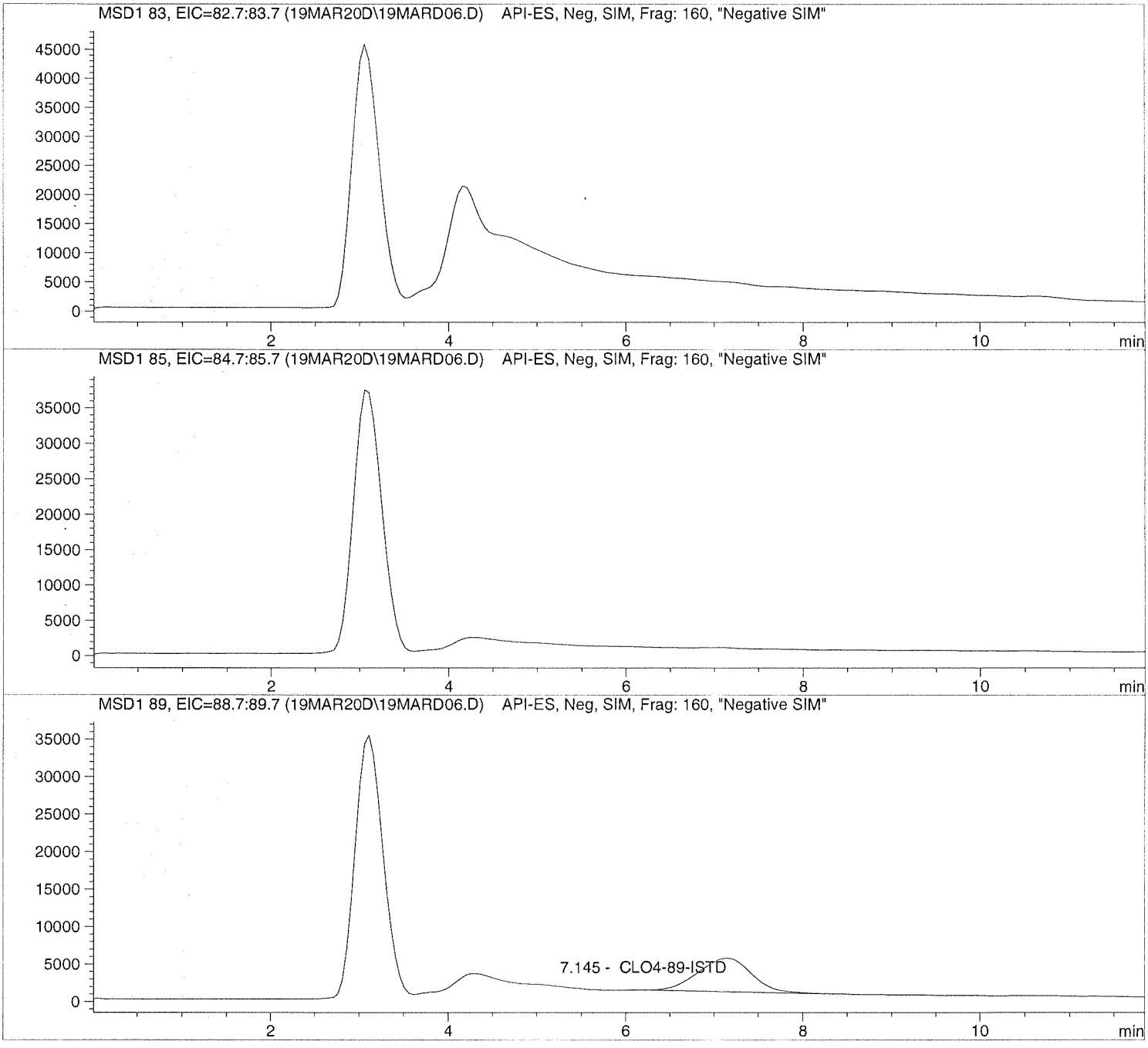
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD06.D Sample Name: 2007564002

Injection Date:	3/19/2020 09:49:24	Seq Line:	6
Sample Name:	2007564002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD06.D Sample Name: 2007564002

Injection Date:	3/19/2020 09:49:24	Seq Line:	6
Sample Name:	2007564002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.145	PBA	189522.4	5.0000	CLO4-89-ISTD

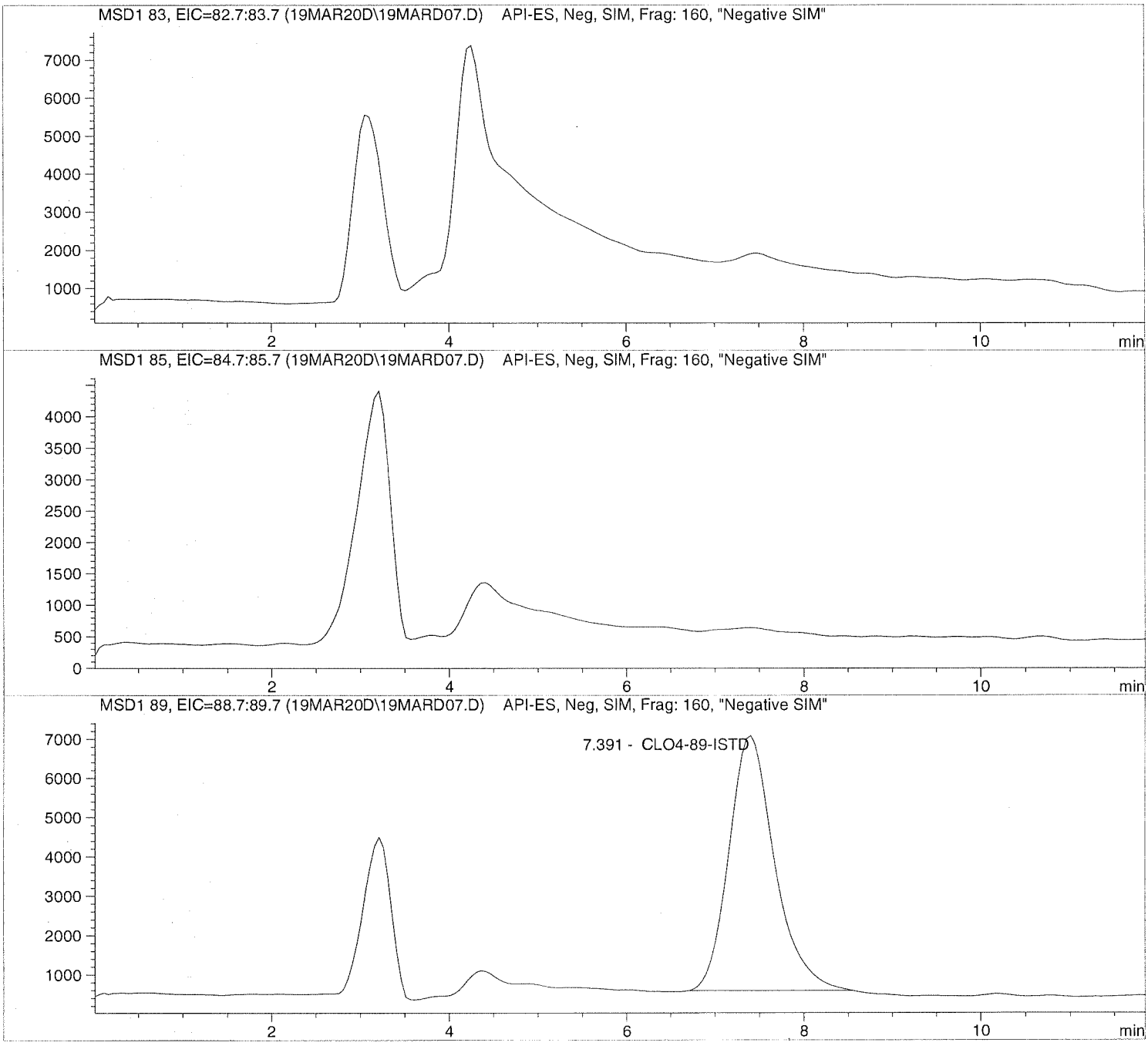
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD07.D Sample Name: 2007564003

Injection Date:	3/19/2020 10:03:23	Seq Line:	7
Sample Name:	2007564003	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD07.D Sample Name: 2007564003

Injection Date:	3/19/2020 10:03:23	Seq Line:	7
Sample Name:	2007564003	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.391	PBA	232125.0	5.0000	CLO4-89-ISTD

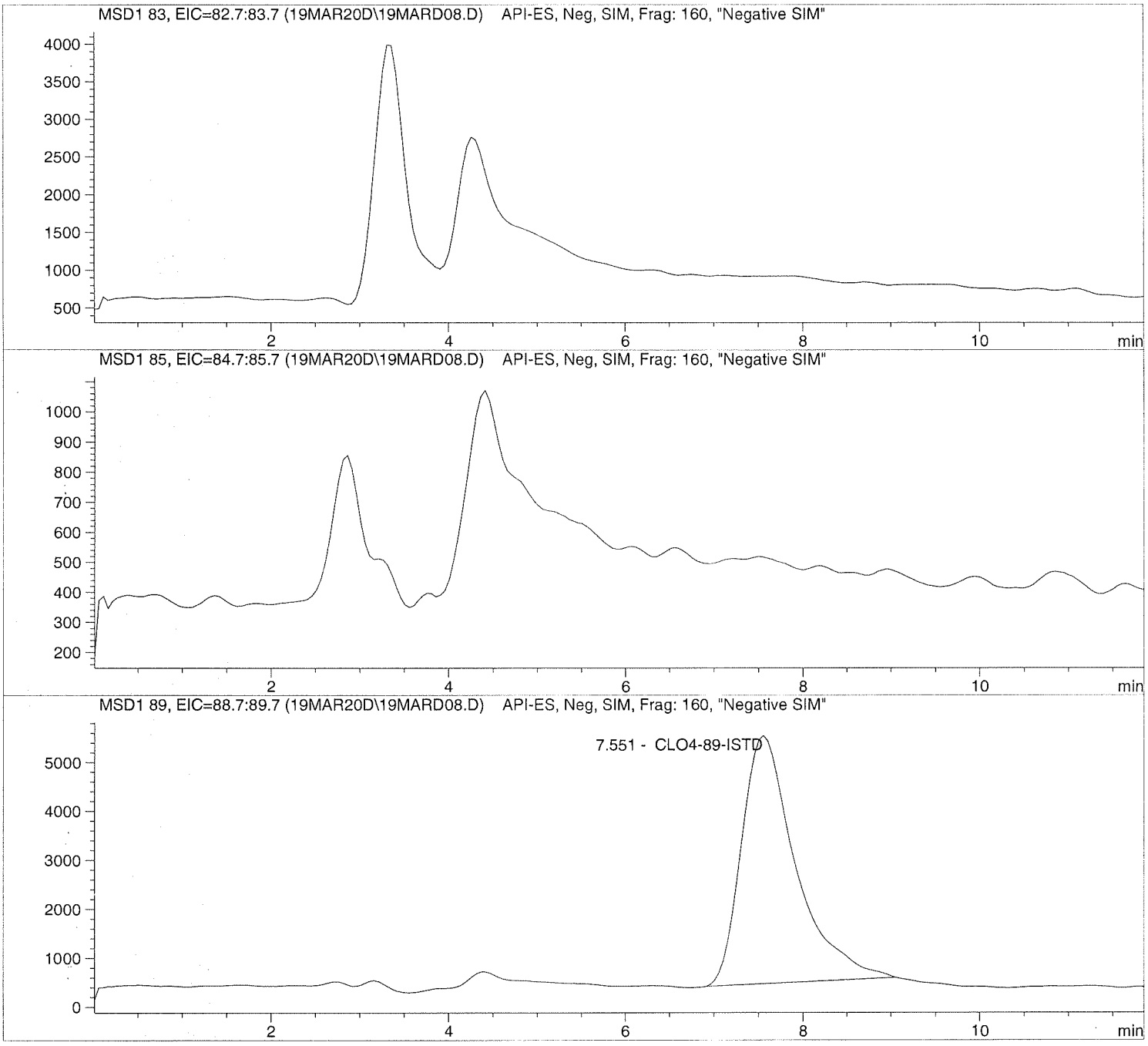
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD08.D Sample Name: 2007564004

Injection Date:	3/19/2020 10:17:21	Seq Line:	8
Sample Name:	2007564004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD08.D Sample Name: 2007564004

Injection Date:	3/19/2020 10:17:21	Seq Line:	8
Sample Name:	2007564004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	PBA	215183.6	5.0000	CLO4-89-ISTD

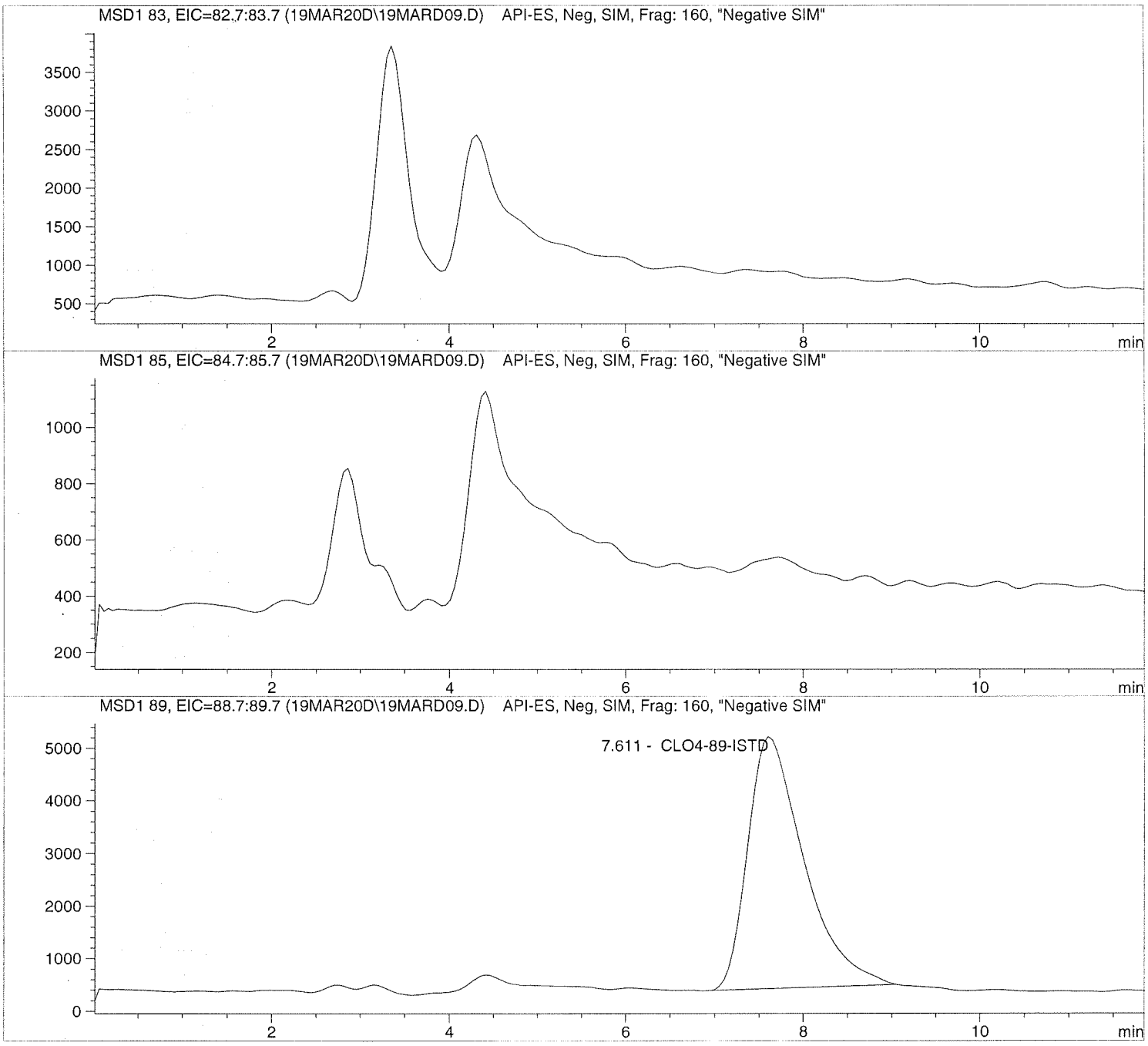
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD09.D Sample Name: 2007564005

Injection Date:	3/19/2020 10:31:21	Seq Line:	9
Sample Name:	2007564005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD09.D Sample Name: 2007564005

Injection Date:	3/19/2020 10:31:21	Seq Line:	9
Sample Name:	2007564005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.611	PBA	211765.4	5.0000	CLO4-89-ISTD

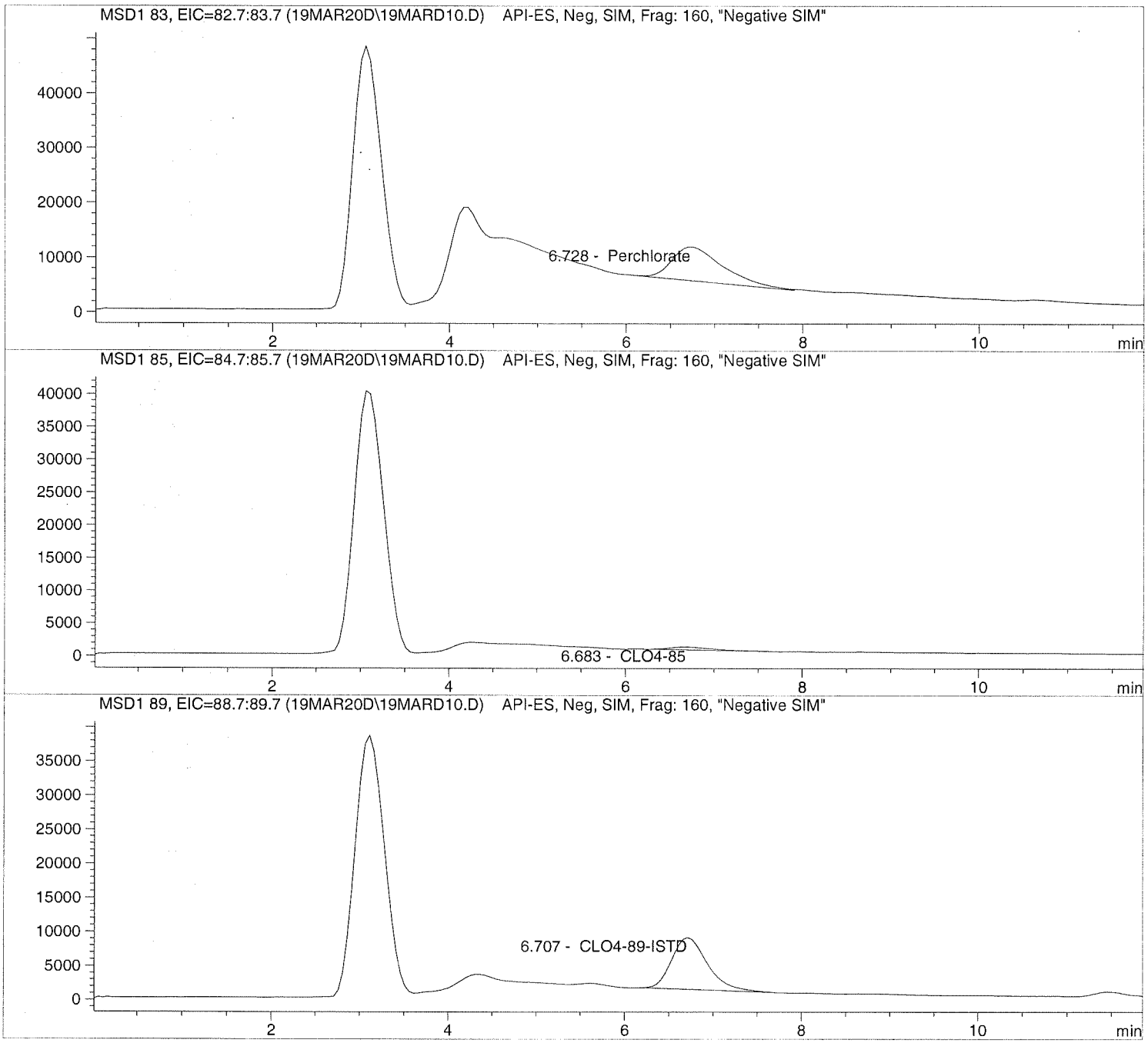
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD10.D Sample Name: 2007564006

Injection Date:	3/19/2020 10:45:23	Seq Line:	10
Sample Name:	2007564006	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD10.D Sample Name: 2007564006

Injection Date:	3/19/2020 10:45:23	Seq Line:	10
Sample Name:	2007564006	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.728	BBA	248609.5	4.2865	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO TB 3.22.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.683	PBA	15309.1	0.7268	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.707	PBA	213872.0	5.0000	CLO4-89-ISTD

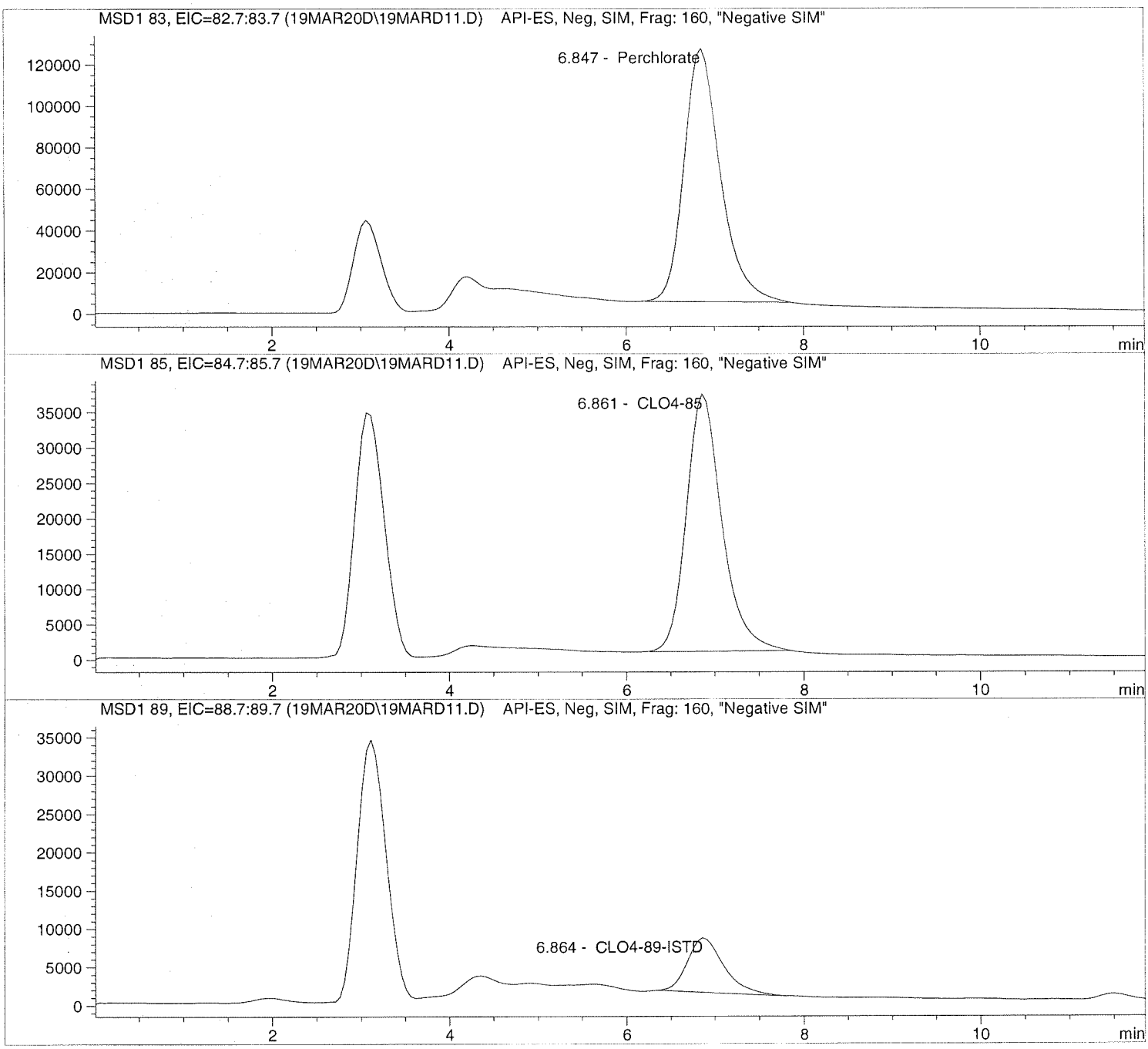
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD11.D Sample Name: 2007568001

Injection Date:	3/19/2020 10:59:22	Seq Line:	11
Sample Name:	2007568001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD11.D Sample Name: 2007568001

Injection Date:	3/19/2020 10:59:22	Seq Line:	11
Sample Name:	2007568001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.847	BBA	3510216.3	52.7708	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.861	PBA	1024842.2	51.2262	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.864	PBA	203614.1	5.0000	CLO4-89-ISTD

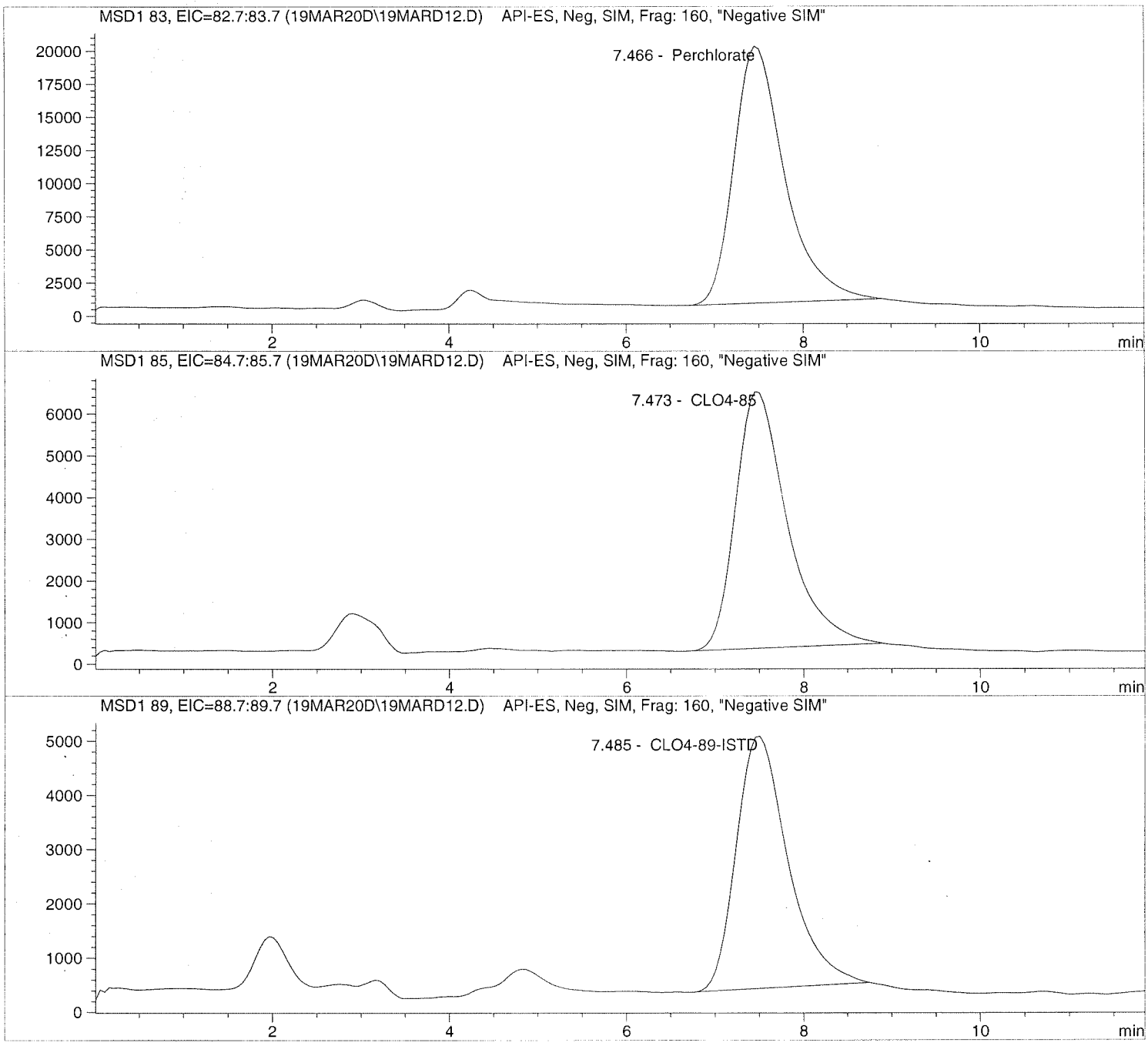
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD12.D Sample Name: 2007568002 10X

Injection Date:	3/19/2020 11:13:19	Seq Line:	12
Sample Name:	2007568002 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD12.D Sample Name: 2007568002 10X

Injection Date:	3/19/2020 11:13:19	Seq Line:	12
Sample Name:	2007568002 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.466	PBA	772896.7	145.9161	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.473	PBA	250347.9	153.7771	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.485	PBA	188928.7	50.0000	CLO4-89-ISTD

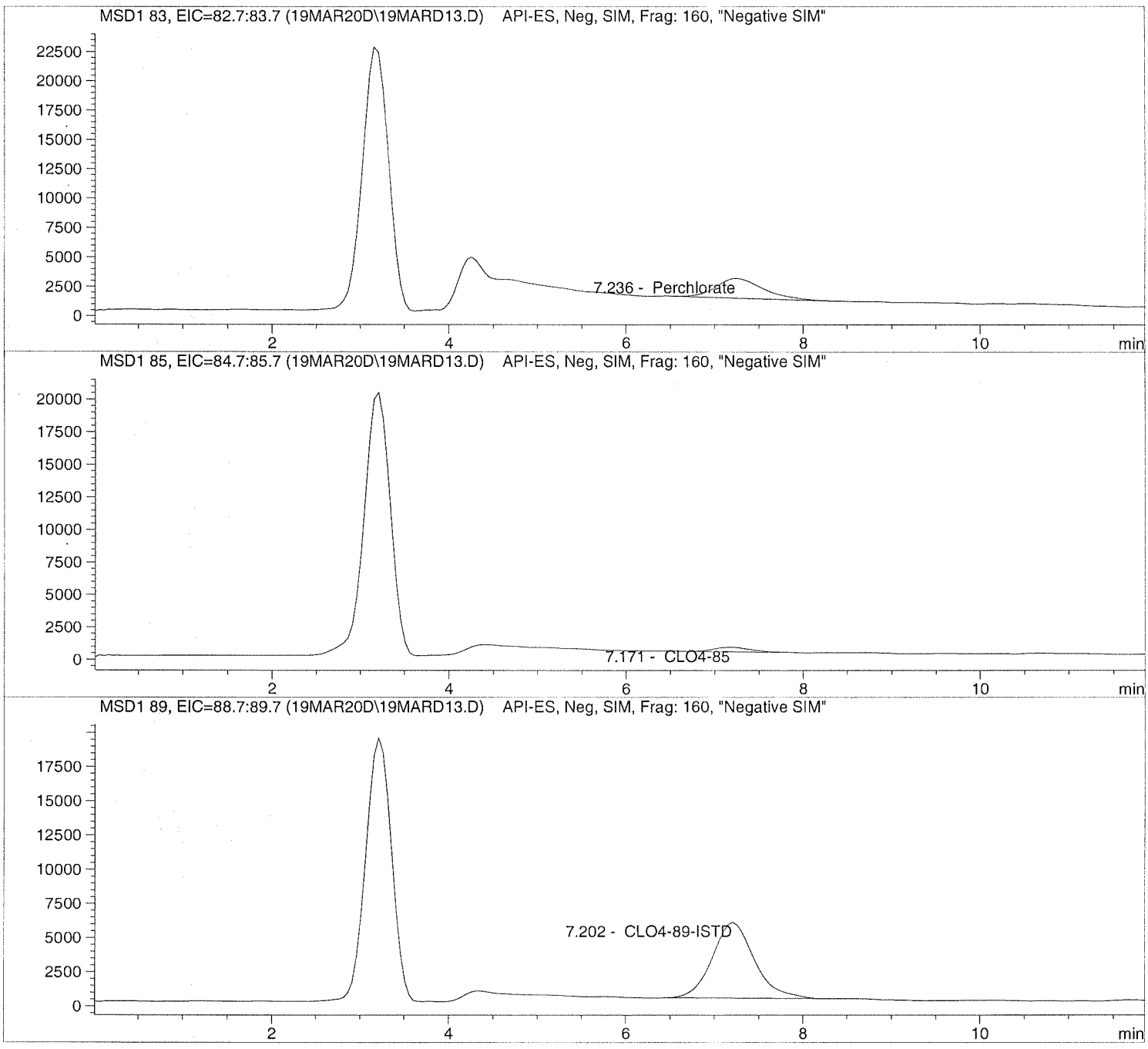
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD13.D Sample Name: 2007568003

Injection Date:	3/19/2020 11:27:19	Seq Line:	13
Sample Name:	2007568003	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD13.D Sample Name: 2007568003

Injection Date:	3/19/2020 11:27:19	Seq Line:	13
Sample Name:	2007568003	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 23. Sep. 2019,00:20:59 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.236	BBA	62839.3	1.2316	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO
TB 3.20.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.171	BBA	10779.4	0.5724	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.202	PBA	182169.8	5.0000	CLO4-89-ISTD

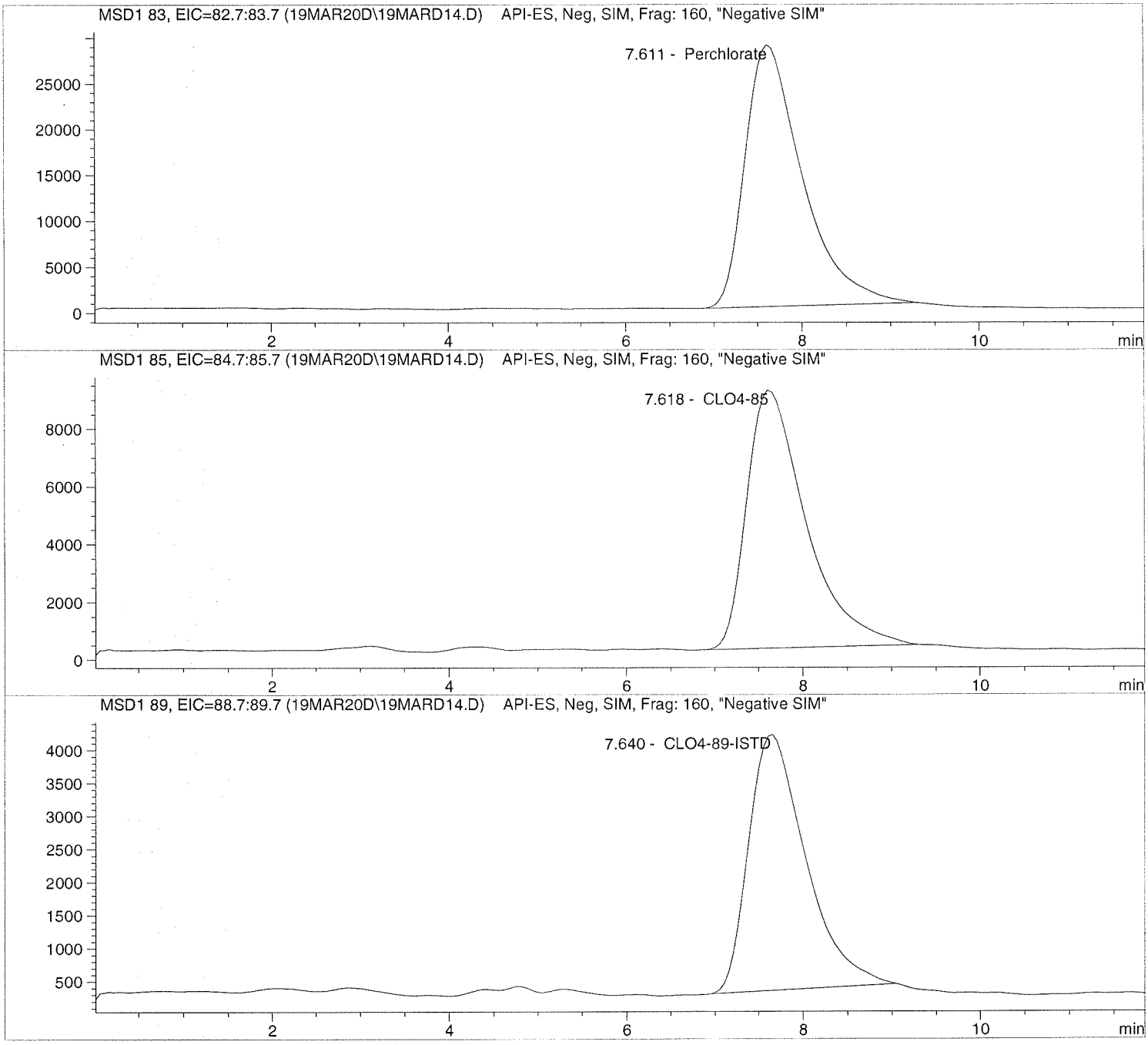
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD14.D Sample Name: 700241 CCV@25

Injection Date:	3/19/2020 11:41:15	Seq Line:	14
Sample Name:	700241 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD14.D Sample Name: 700241 CCV@25

Injection Date:	3/19/2020 11:41:15	Seq Line:	14
Sample Name:	700241 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.611	PBA	1280995.1	25.2416	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.618	PBA	415085.1	26.6814	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.640	PBA	173233.0	5.0000	CLO4-89-ISTD

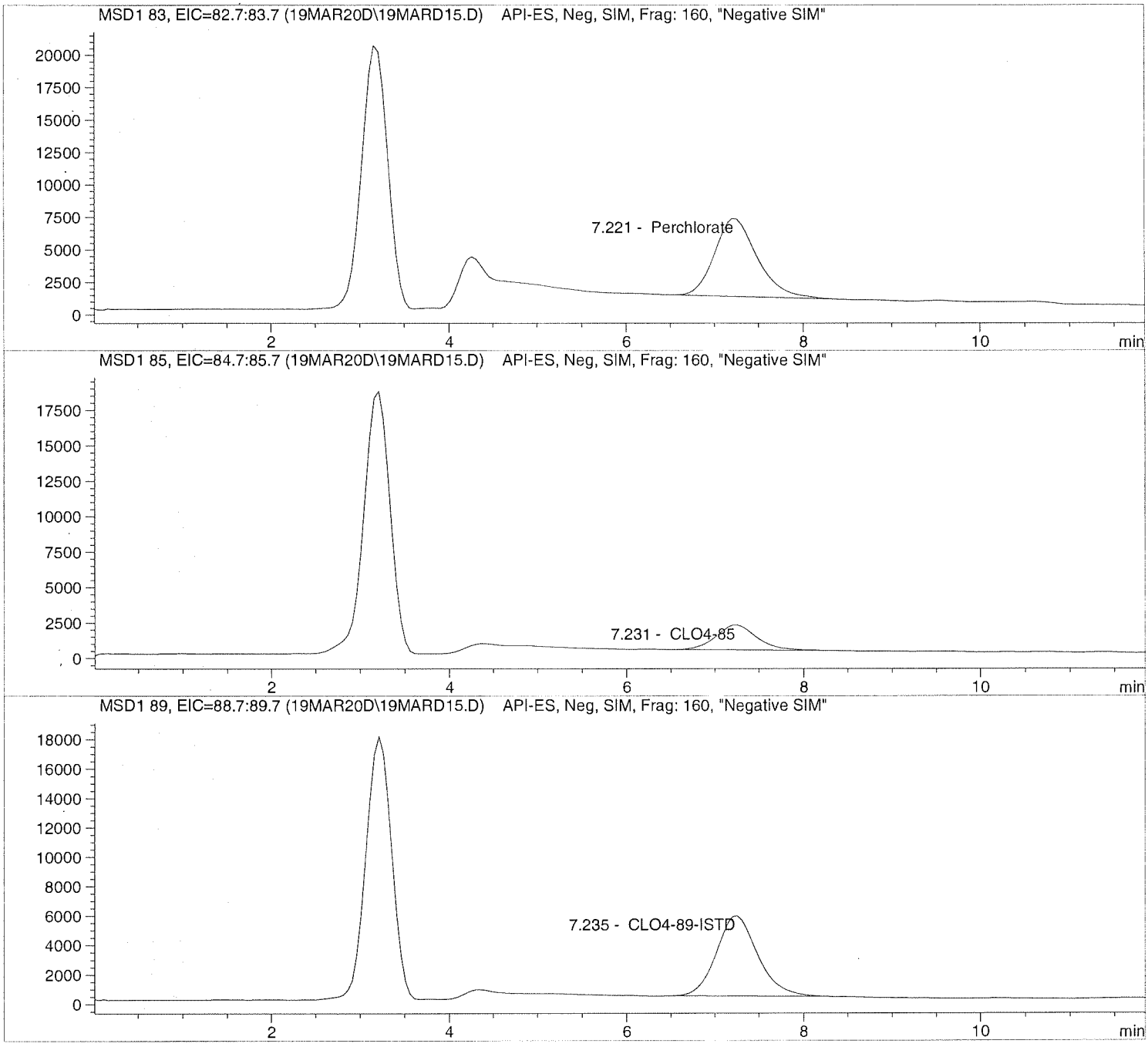
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD15.D Sample Name: 2007568004 MS

Injection Date:	3/19/2020 11:55:13	Seq Line:	15
Sample Name:	2007568004 MS	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD15.D Sample Name: 2007568004 MS

Injection Date:	3/19/2020 11:55:13	Seq Line:	15
Sample Name:	2007568004 MS	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.221	PBA	201081.1	4.1821	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.231	PBA	56287.5	3.7460	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.235	PBA	177302.8	5.0000	CLO4-89-ISTD

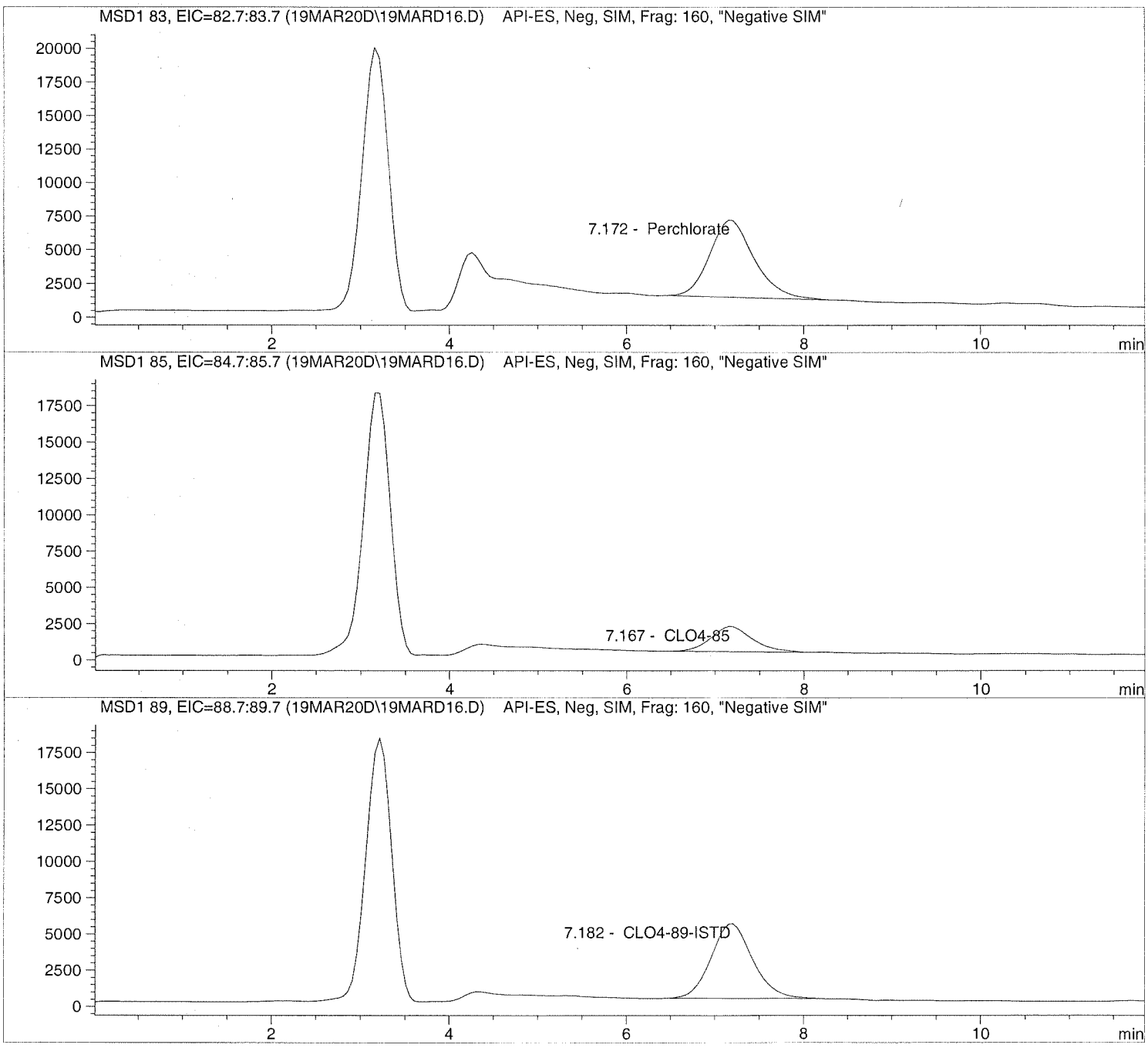
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD16.D Sample Name: 2007568005 MSD

Injection Date:	3/19/2020 12:09:11	Seq Line:	16
Sample Name:	2007568005 MSD	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD16.D Sample Name: 2007568005 MSD

Injection Date:	3/19/2020 12:09:11	Seq Line:	16
Sample Name:	2007568005 MSD	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.172	PBA	197976.7	4.3482	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.167	PBA	56757.5	3.9953	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.182	BBA	167893.3	5.0000	CLO4-89-ISTD

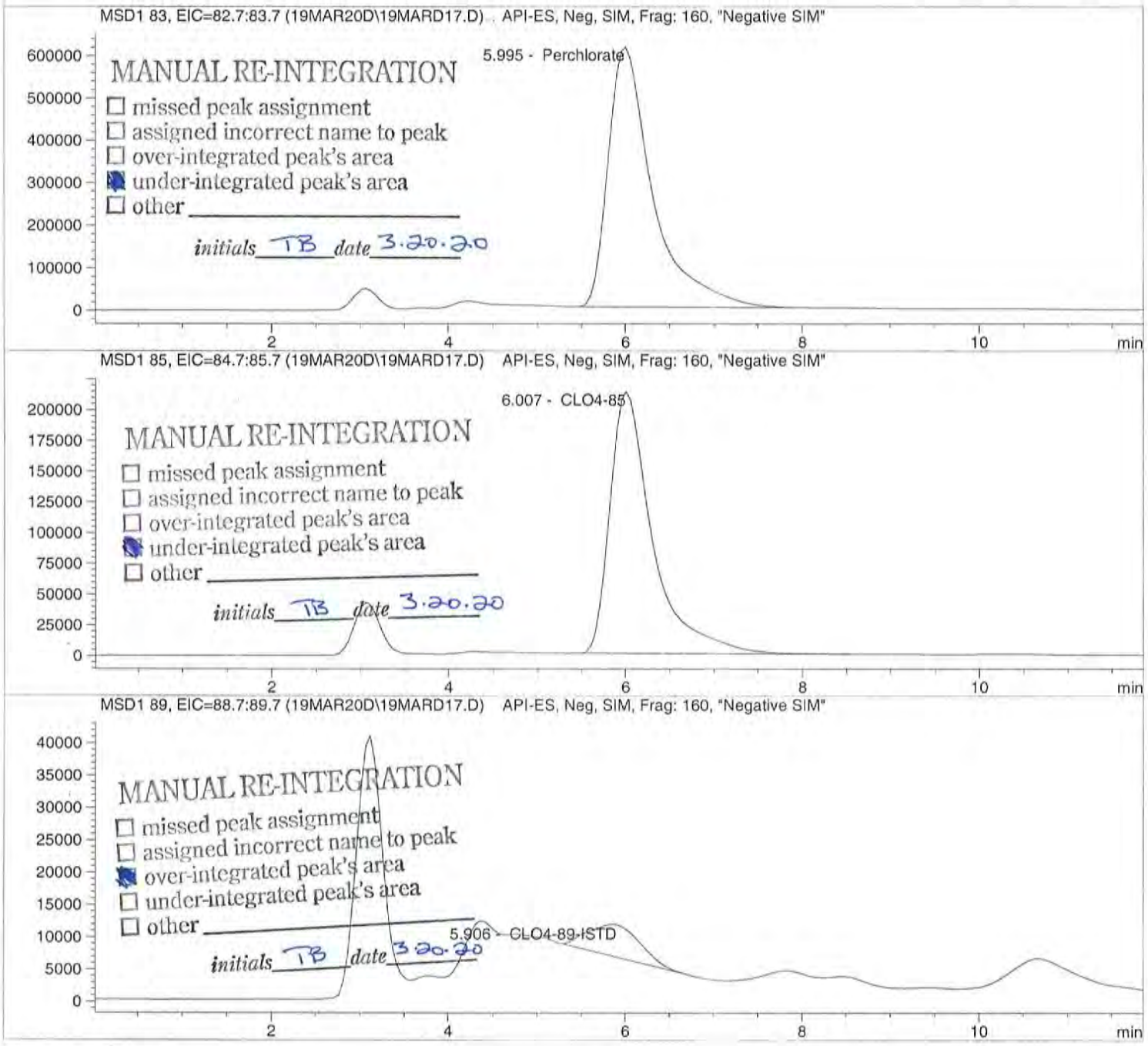
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.995	MM	21379896.0	205.6899	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.007	MM	7108094.0	222.4792	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.906	MM	201329.3	5.0000	CLO4-89-ISTD

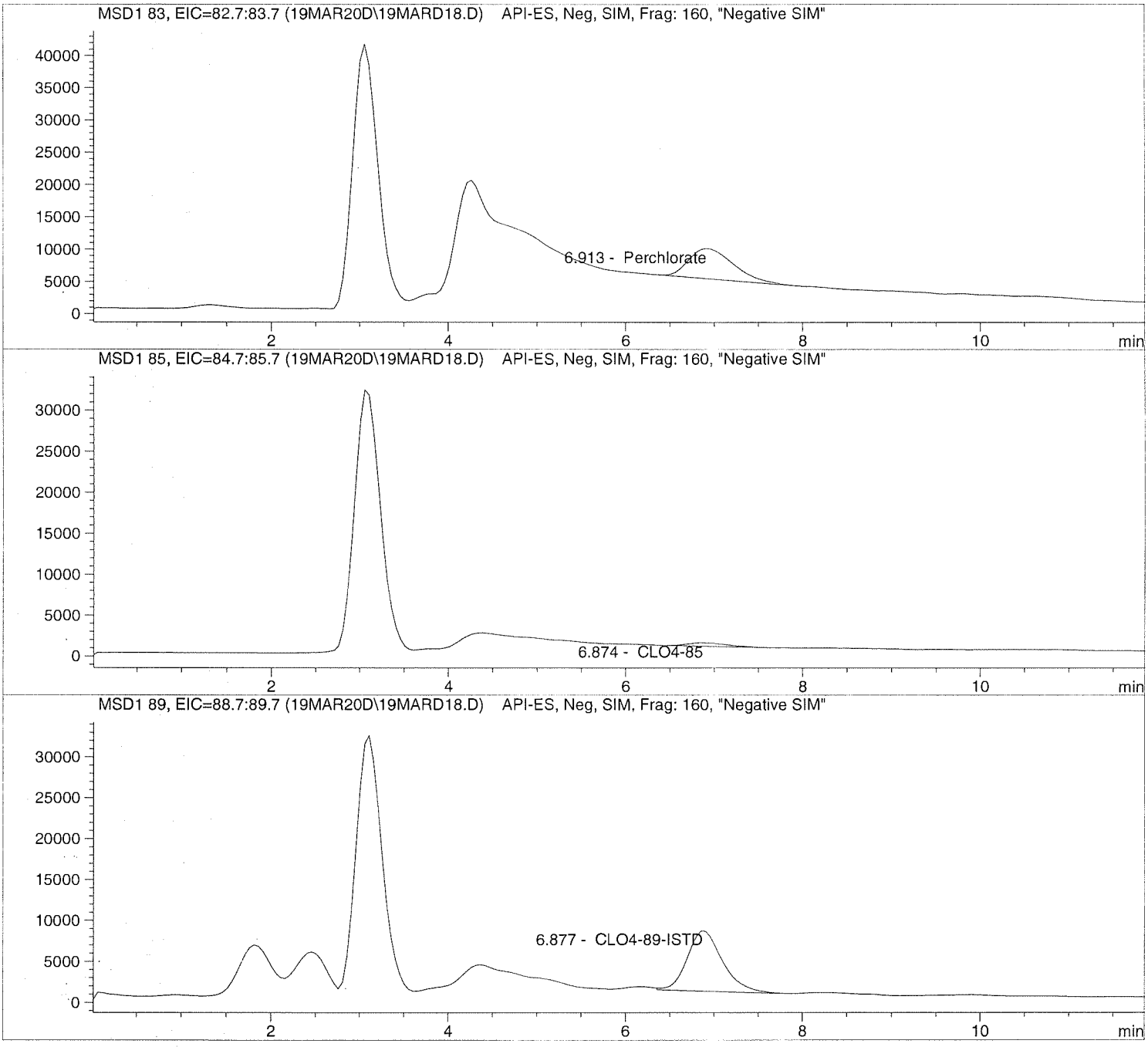
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD18.D Sample Name: 2007568007

Injection Date:	3/19/2020 12:37:08	Seq Line:	18
Sample Name:	2007568007	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD18.D Sample Name: 2007568007

Injection Date:	3/19/2020 12:37:08	Seq Line:	18
Sample Name:	2007568007	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.913	BBA	165268.8	2.9815	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO
T.B. 3.20.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.874	PBA	13391.6	0.6532	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.877	BBA	203938.6	5.0000	CLO4-89-ISTD

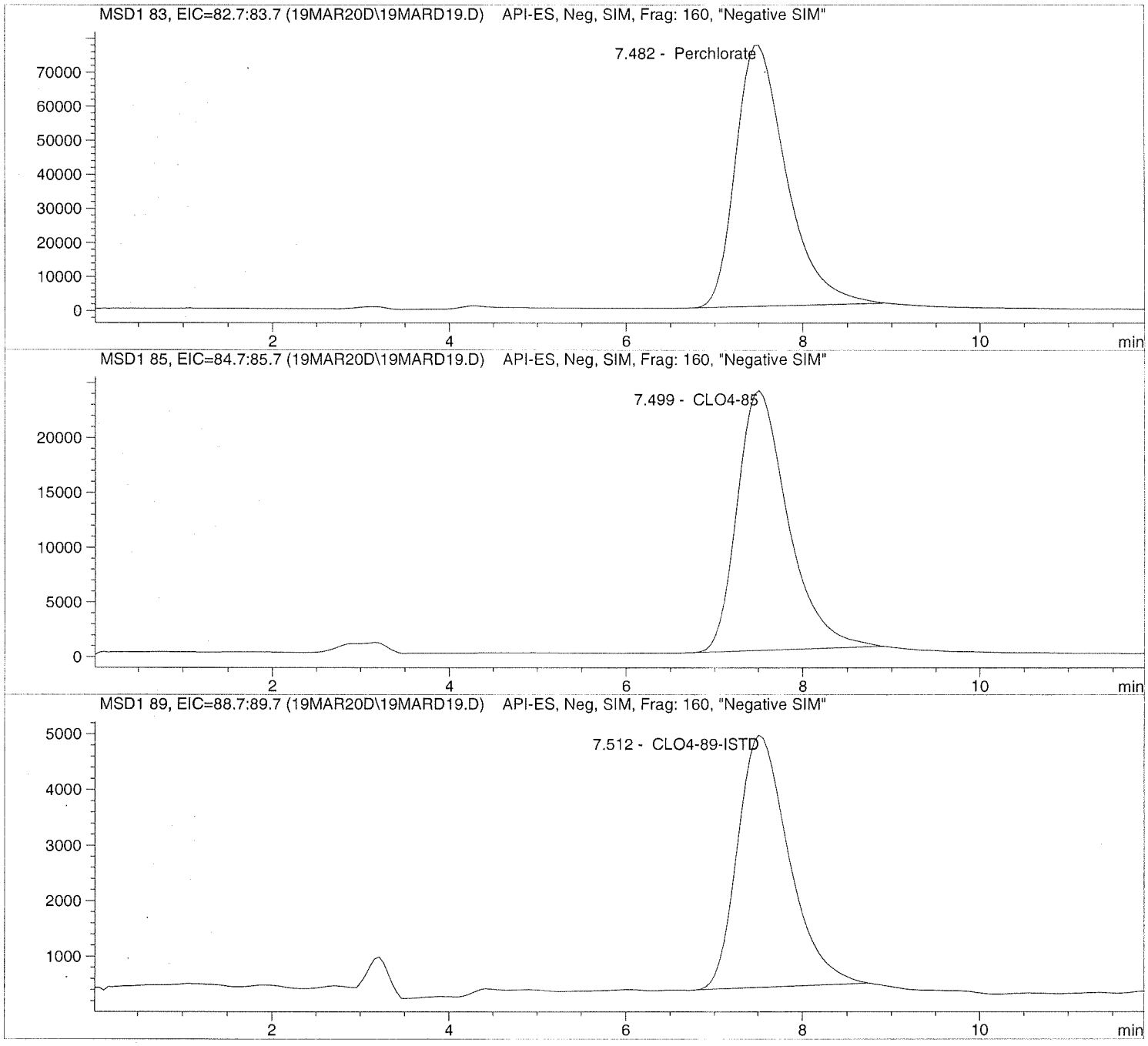
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD19.D Sample Name: 2007568008 10X

Injection Date:	3/19/2020 12:51:11	Seq Line:	19
Sample Name:	2007568008 10X	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD19.D Sample Name: 2007568008 10X

Injection Date:	3/19/2020 12:51:11	Seq Line:	19
Sample Name:	2007568008 10X	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.482	PBA	3075416.5	514.5132	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.499	PBA	948985.0	523.2056	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.512	PBA	183884.4	50.0000	CLO4-89-ISTD

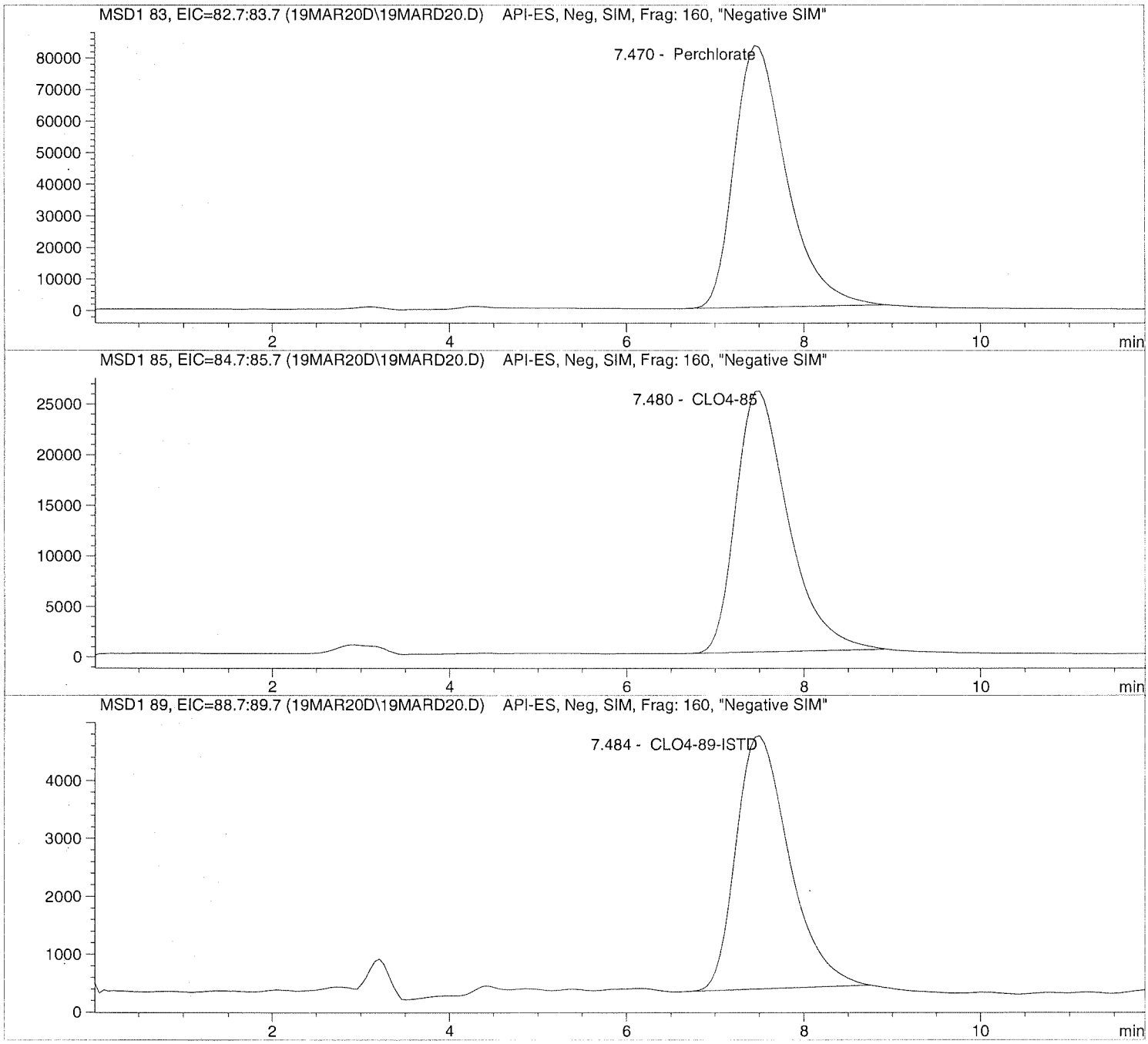
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD20.D Sample Name: 2007568009 10X

Injection Date:	3/19/2020 13:05:20	Seq Line:	20
Sample Name:	2007568009 10X	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD20.D Sample Name: 2007568009 10X

Injection Date:	3/19/2020 13:05:20	Seq Line:	20
Sample Name:	2007568009 10X	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.470	PBA	3360846.3	560.2827	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.480	PBA	1054458.5	578.1198	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.484	PBA	181382.9	50.0000	CLO4-89-ISTD

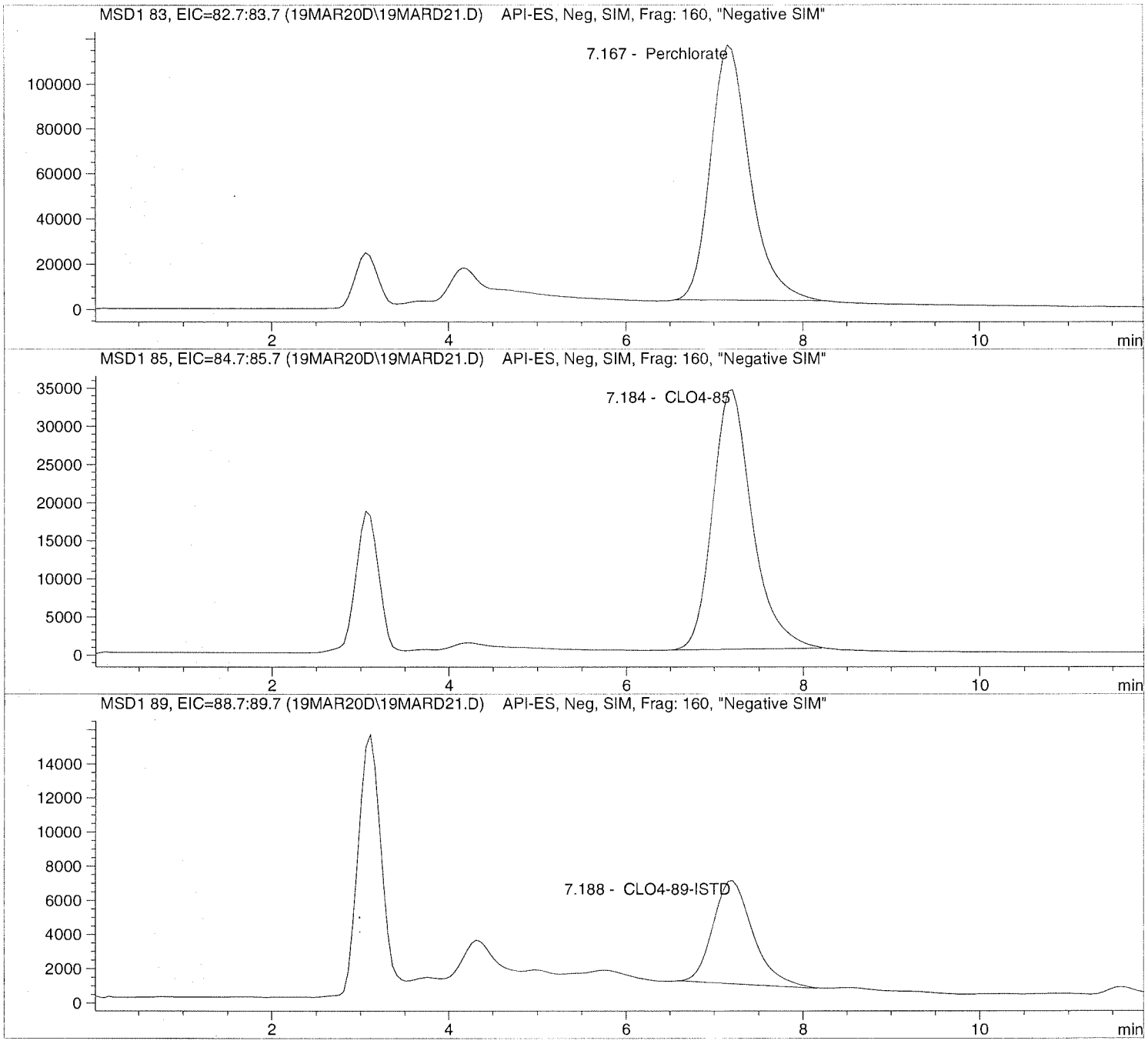
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD21.D Sample Name: 2007568006 10X

Injection Date:	3/19/2020 13:26:53	Seq Line:	21
Sample Name:	2007568006 10X	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD21.D Sample Name: 2007568006 10X

Injection Date:	3/19/2020 13:26:53	Seq Line:	21
Sample Name:	2007568006 10X	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.167	BBA	3455411.3	559.9920	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.184	PBA	1048842.8	562.0889	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.188	PBA	186603.6	50.0000	CLO4-89-ISTD

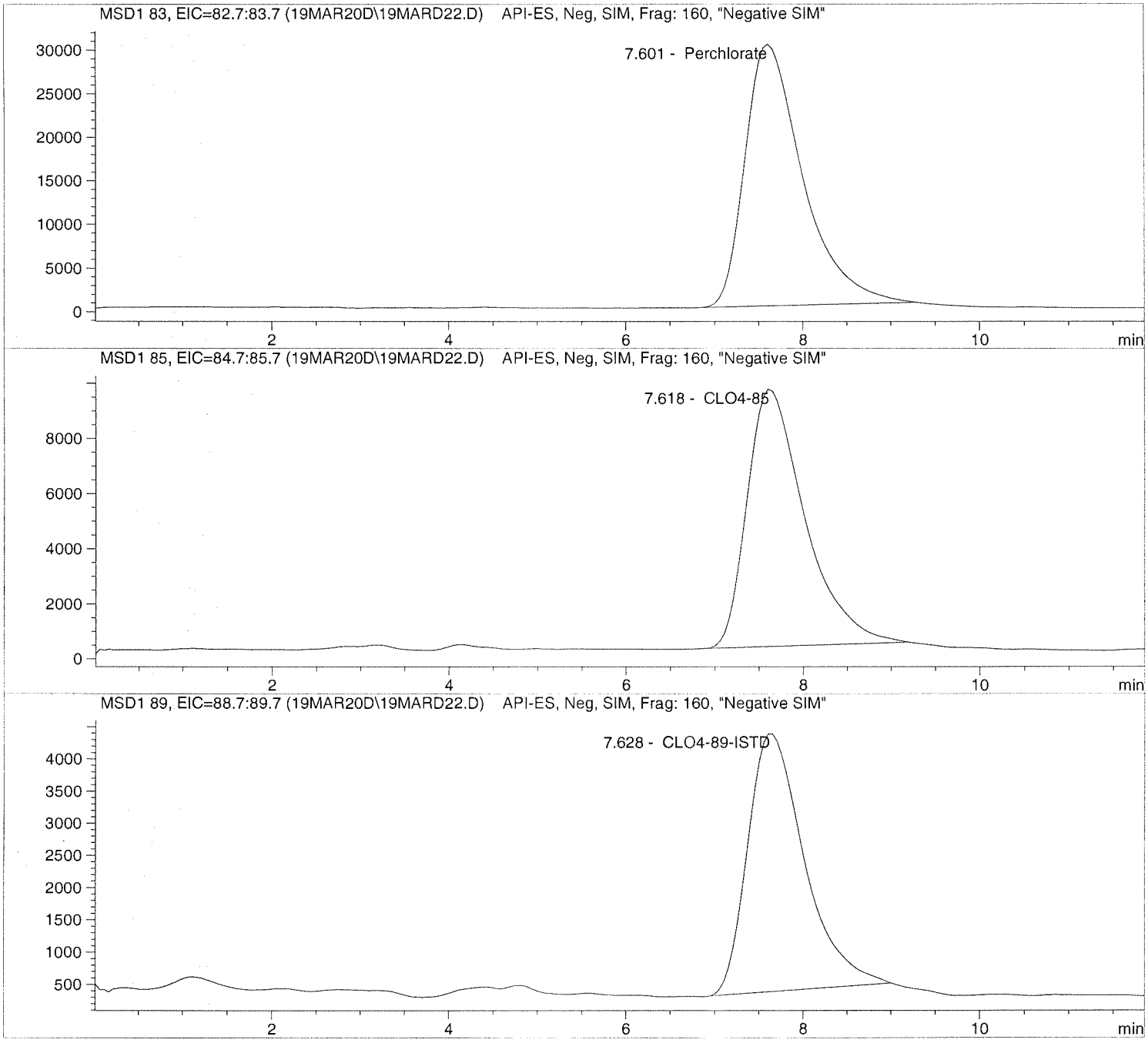
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD22.D Sample Name: 700242 CCV@25

Injection Date:	3/19/2020 13:44:51	Seq Line:	22
Sample Name:	700242 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD22.D Sample Name: 700242 CCV@25

Injection Date:	3/19/2020 13:44:51	Seq Line:	22
Sample Name:	700242 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.601	PBA	1365668.7	25.9389	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.618	PBA	426051.0	26.4925	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.628	PBA	179204.3	5.0000	CLO4-89-ISTD

*** End of Report ***

01093986

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

Calibration Table

Perchlorate

Calib. Data Modified : 9/23/2019 12:20:59 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
7.750	1	3	1.00000	5.39218e4	1.85454e-5		1	Perchlorate
		4	2.00000	1.32825e5	1.50574e-5			
		5	5.00000	2.76271e5	1.80982e-5			
		6	10.00000	5.61298e5	1.78159e-5			
		7	25.00000	1.51820e6	1.64669e-5			
		8	50.00000	3.31156e6	1.50986e-5			
		9	75.00000	5.23914e6	1.43153e-5			
7.767	3	3	5.00000	2.14568e5	2.33026e-5	+I1		CLO4-89-ISTD
		4	5.00000	2.04758e5	2.44190e-5			
		5	5.00000	2.13407e5	2.34294e-5			
		6	5.00000	2.09246e5	2.38953e-5			
		7	5.00000	2.07403e5	2.41077e-5			
		8	5.00000	2.02929e5	2.46391e-5			
		9	5.00000	1.97933e5	2.52611e-5			
7.778	2	3	1.00000	1.70436e4	5.86732e-5		1	CLO4-85
		4	2.00000	4.20754e4	4.75337e-5			
		5	5.00000	9.24707e4	5.40712e-5			
		6	10.00000	1.68622e5	5.93041e-5			
		7	25.00000	4.63724e5	5.39114e-5			
		8	50.00000	9.95933e5	5.02042e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		9	75.00000	1.58066e6	4.74484e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 3.581 min To 11.899 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 3.581 min To 11.896 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Compound: CLO4-85
- Time Window : From 3.601 min To 11.913 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Peak Sum Table

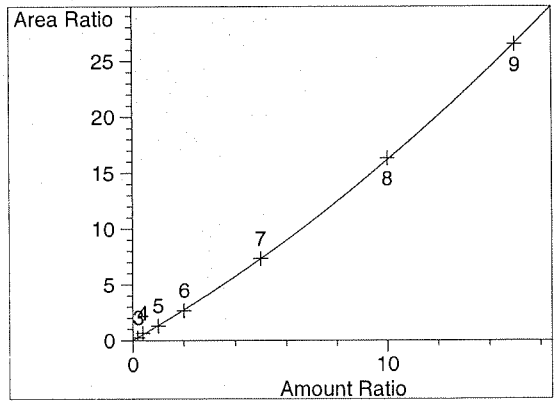
No Entries in table

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

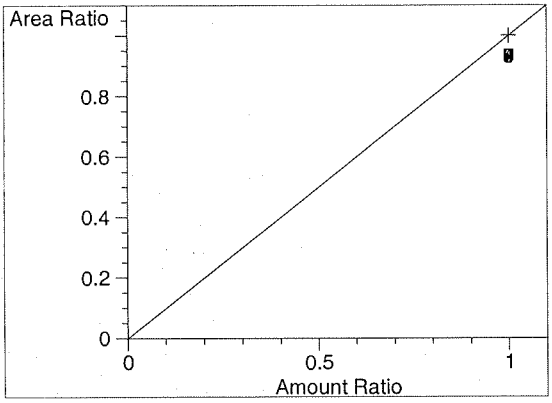
==========

Calibration Curves

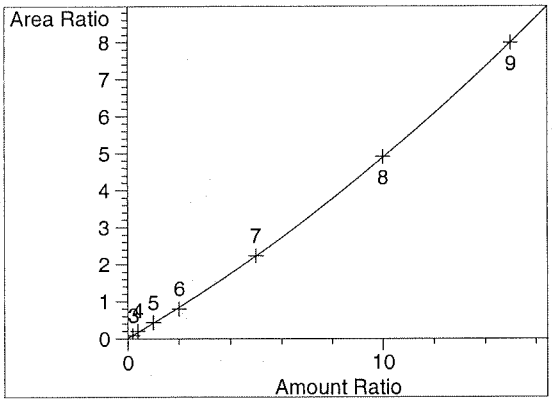
==========



Perchlorate at exp. RT: 7.750
MSD1 83, EIC=82.7:83.7
Correlation: 0.99975
Residual Std. Dev.: 0.10284
Formula: $y = ax^2 + bx + c$
a: 3.10463e-2
b: 1.30369
c: 2.19496e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333



CLO4-89-ISTD at exp. RT: 7.767
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 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1
Level 8 : 1
Level 9 : 1



CLO4-85 at exp. RT: 7.778
MSD1 85, EIC=84.7:85.7
Correlation: 0.99969
Residual Std. Dev.: 0.02601
Formula: $y = ax^2 + bx + c$
a: 8.85207e-3
b: 3.99283e-1
c: 1.33505e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333

==========

01093990

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	5.39218e4	7.750	8.75982e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.32825e5	7.797	2.37682
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.76271e5	7.770	4.77237
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	5.61298e5	7.785	9.75097
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	1.51820e6	7.741	25.01082
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	3.31156e6	7.775	50.40300
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.23914e6	7.736	74.79107
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	5.74879e5	7.756	10.11855

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.14568e5	7.767	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.04758e5	7.816	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.13407e5	7.793	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.09246e5	7.798	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.07403e5	7.763	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.02929e5	7.800	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.97933e5	7.765	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	2.06243e5	7.776	5.00000

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	1.70436e4	7.778	8.24488e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.20754e4	7.805	2.38090
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	9.24707e4	7.787	5.14166
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	1.68622e5	7.781	9.52209
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	4.63724e5	7.760	25.04916
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	9.95933e5	7.793	50.14223
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.58066e6	7.758	74.93659
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	1.71000e5	7.760	9.79043

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

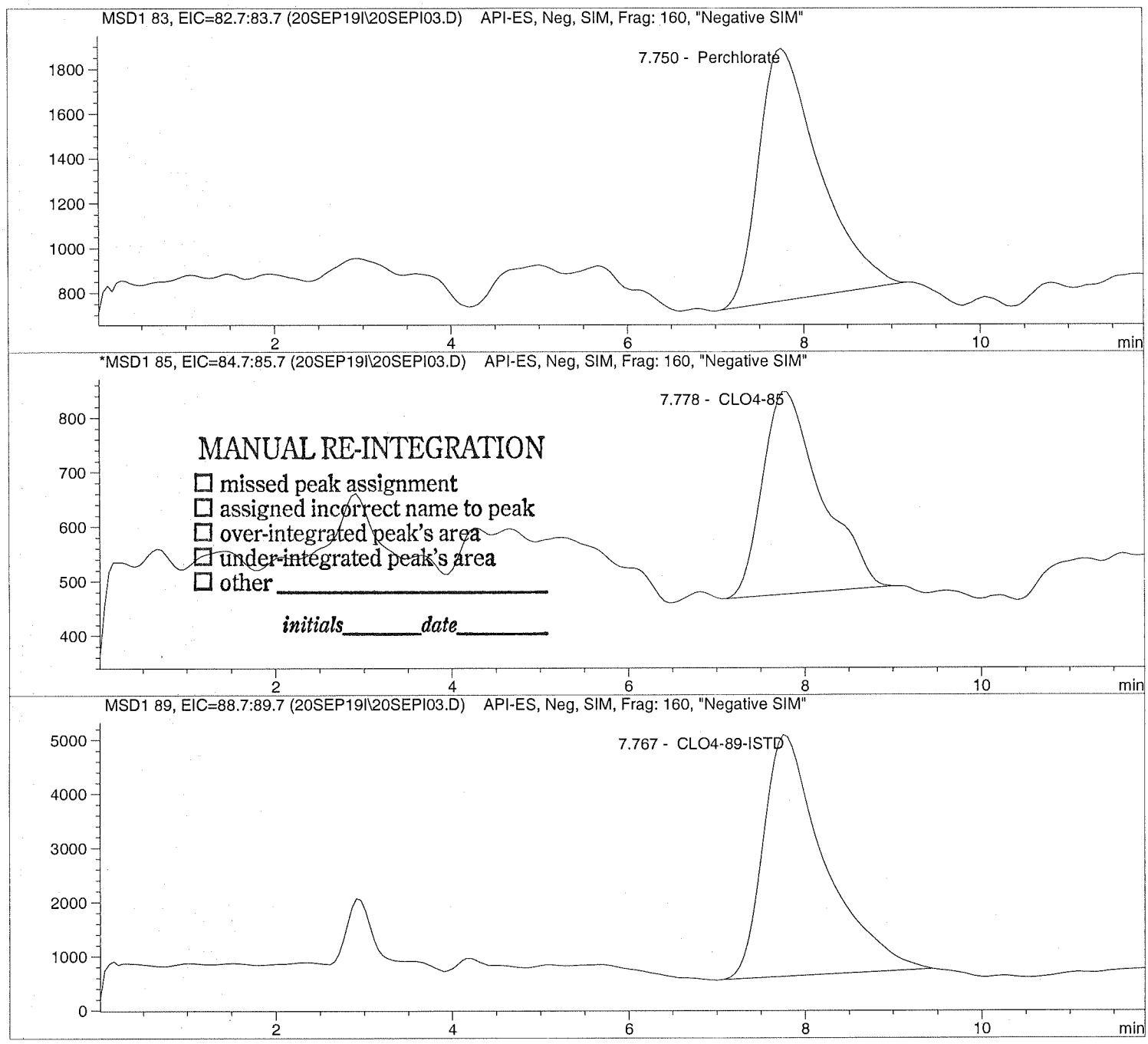
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
11	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.778	MM	17043.6	0.8245	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

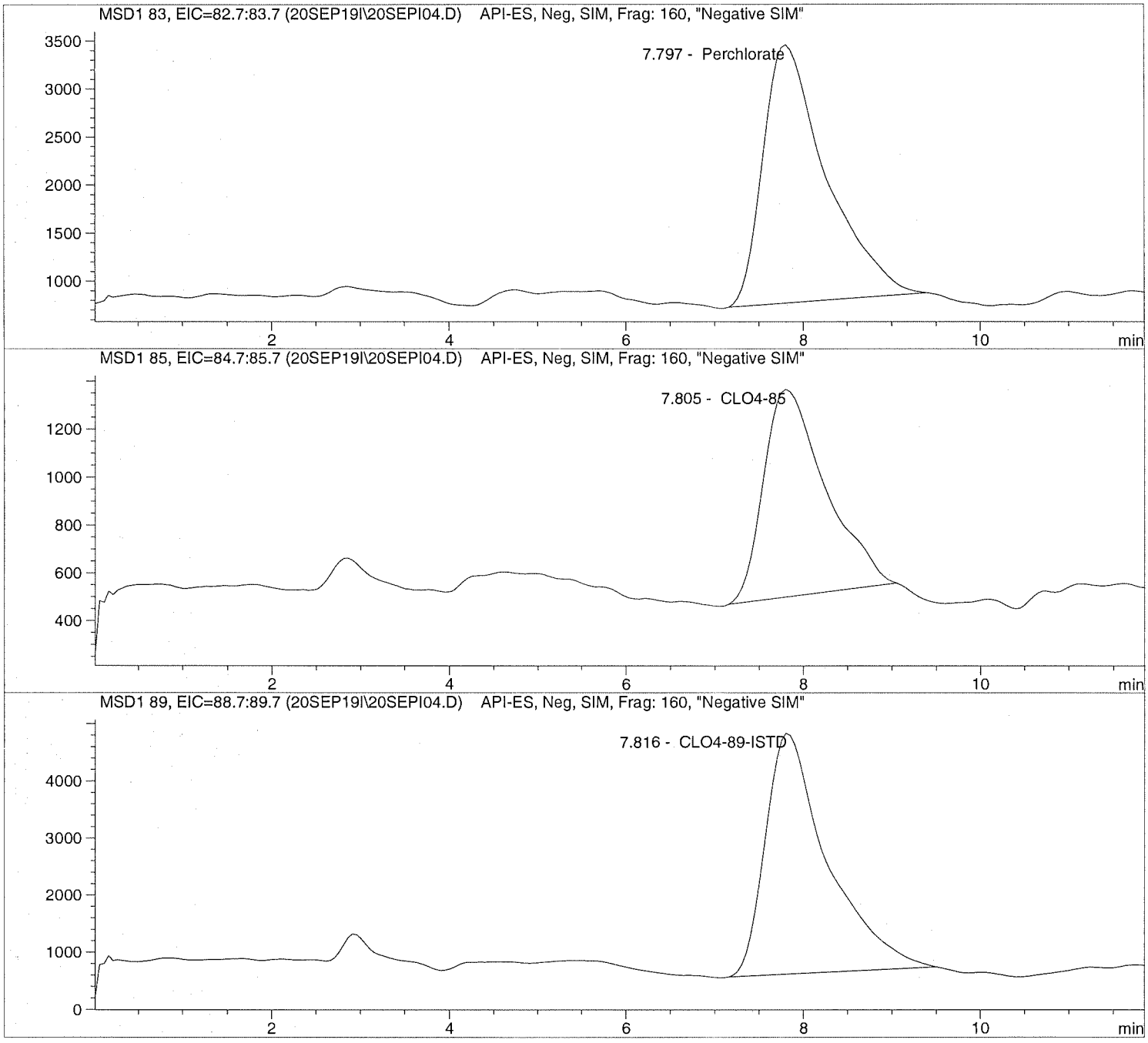
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.797	PBA	132825.2	2.3768	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.805	PBA	42075.4	2.3809	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.816	PBA	204758.3	5.0000	CLO4-89-ISTD

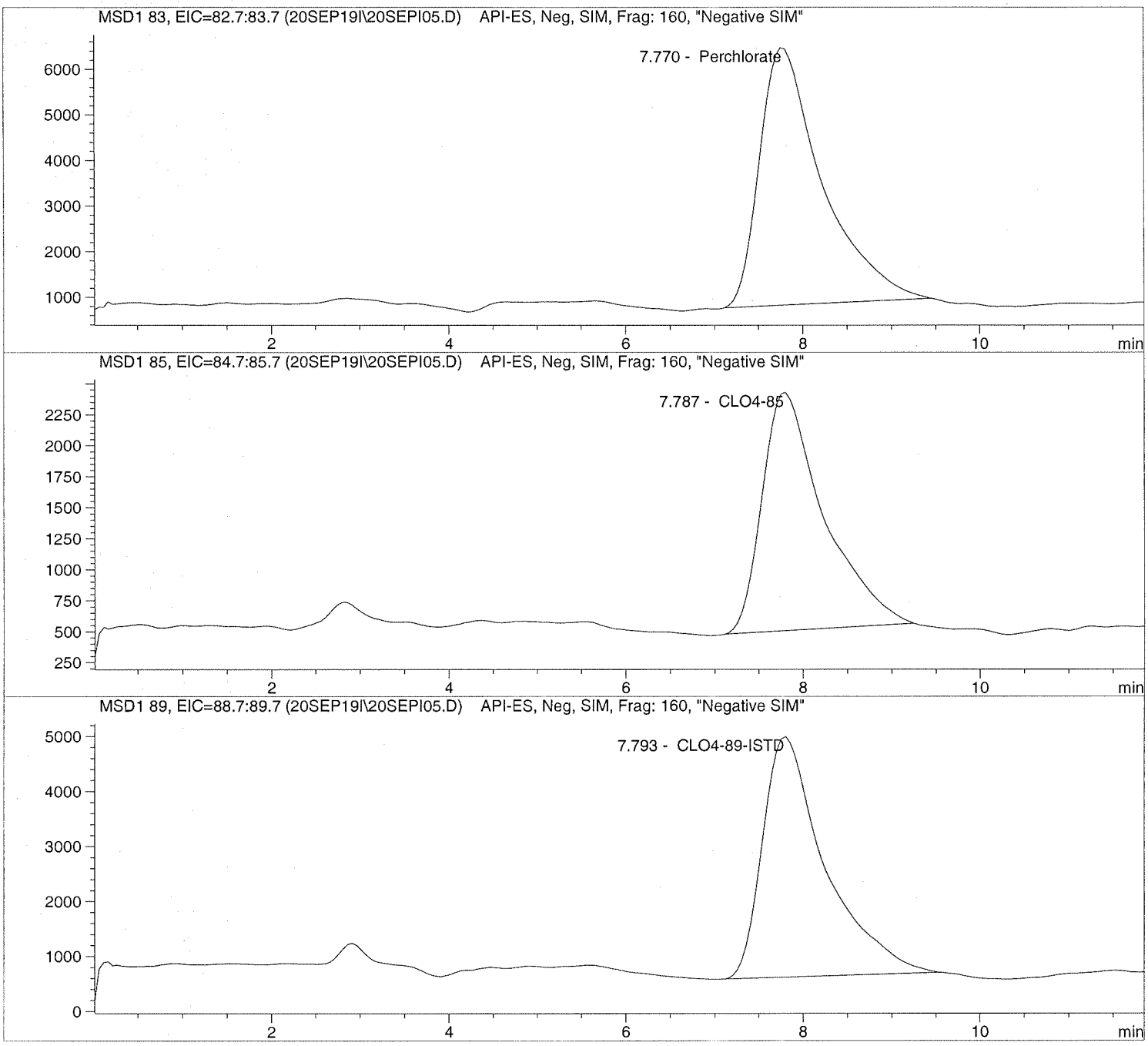
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.770	PBA	276270.7	4.7724	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.787	PBA	92470.7	5.1417	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	213407.0	5.0000	CLO4-89-ISTD

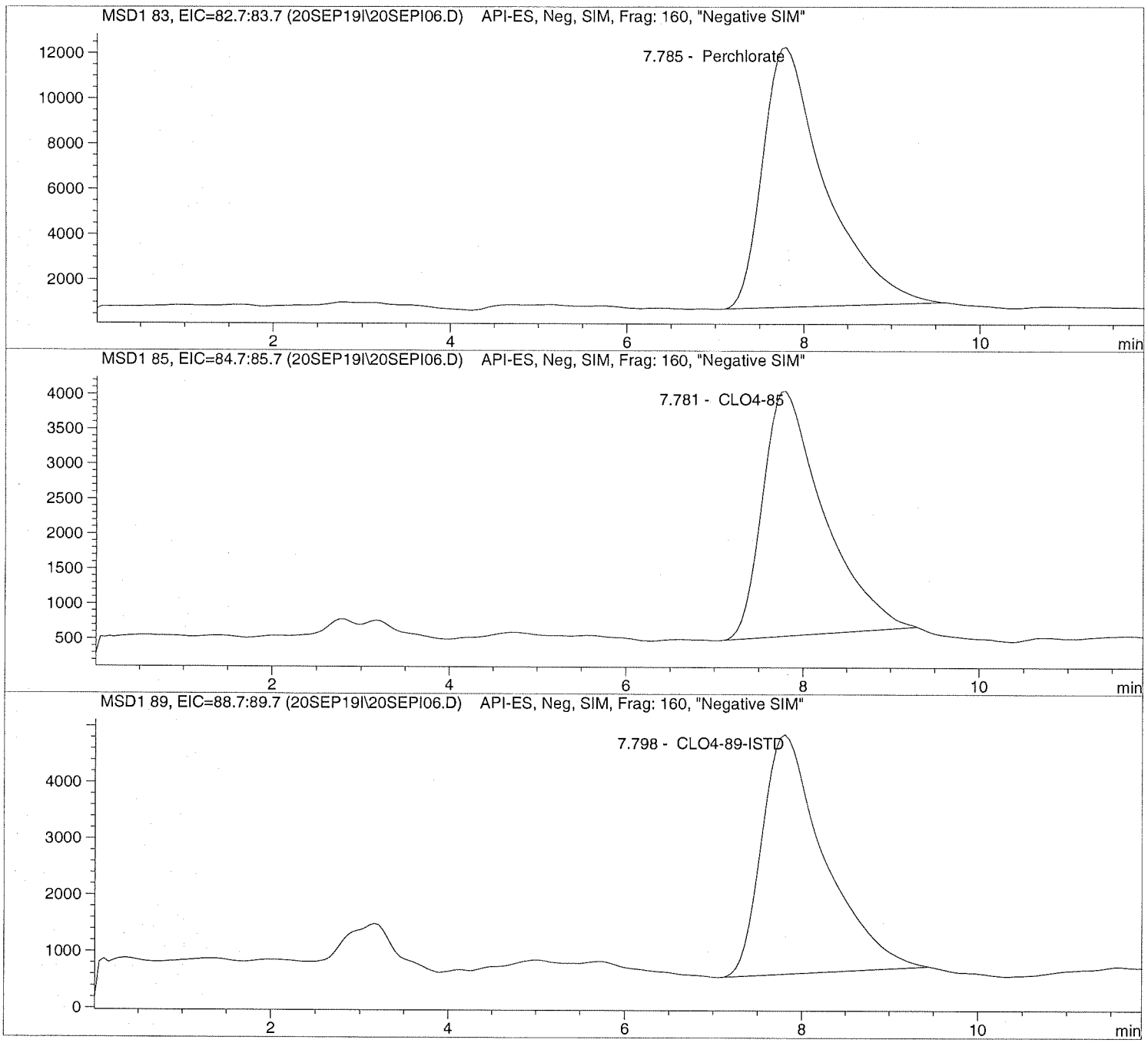
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.785	PBA	561297.7	9.7510	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.781	PBA	168622.4	9.5221	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.798	PBA	209246.3	5.0000	CLO4-89-ISTD

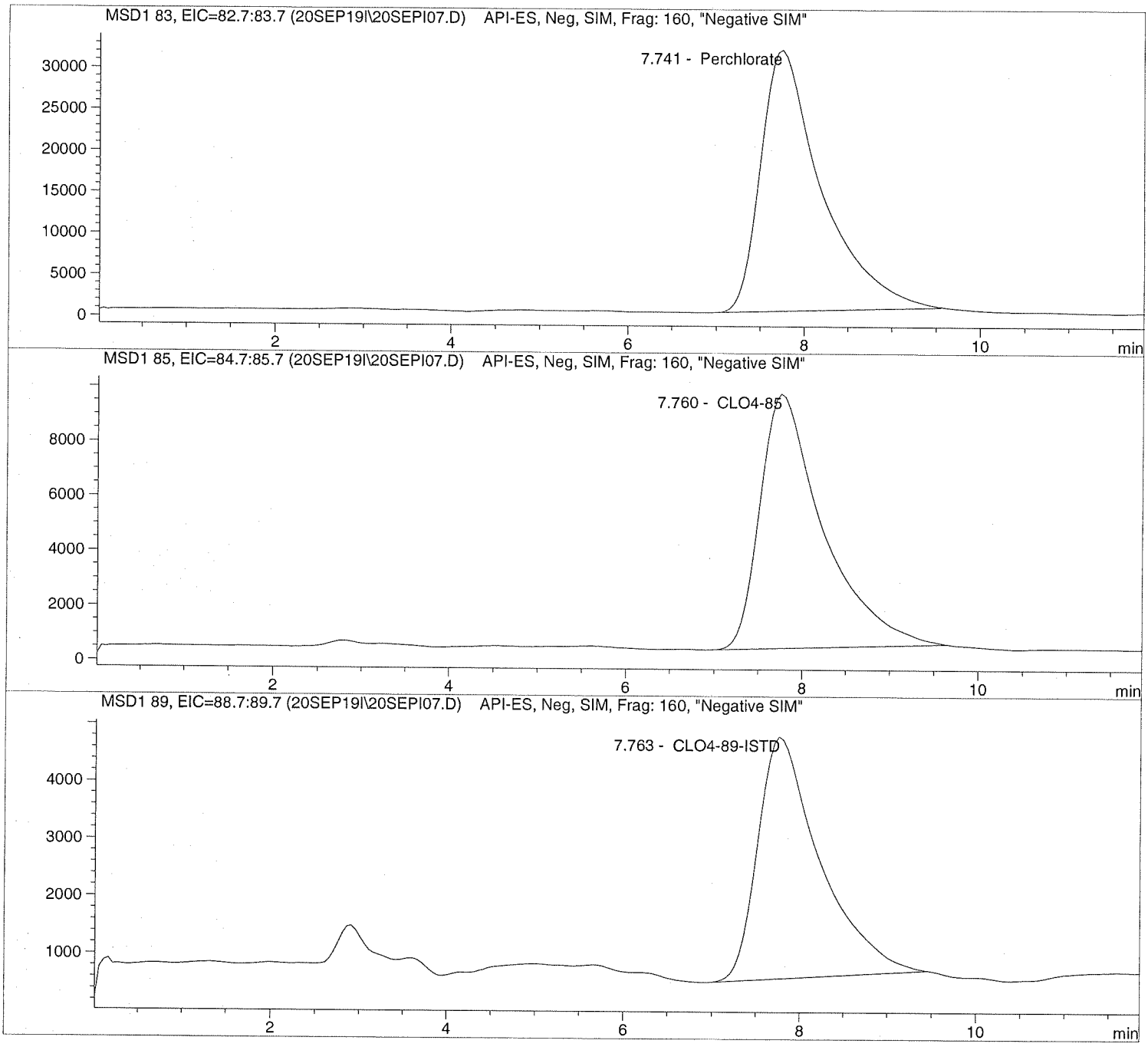
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.741	PBA	1518197.9	25.0108	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	463724.0	25.0492	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.763	PBA	207402.8	5.0000	CLO4-89-ISTD

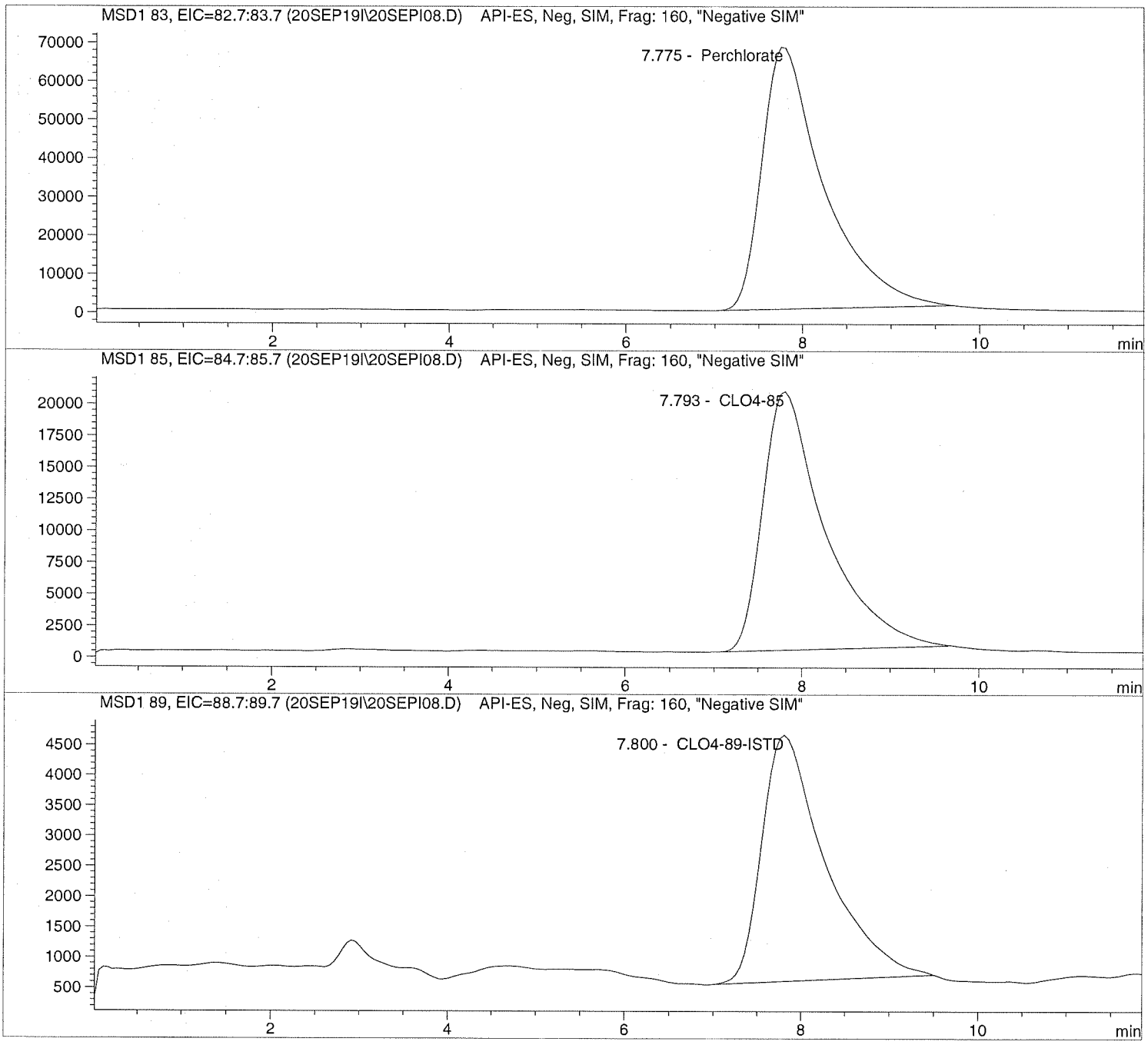
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.775	PBA	3311559.2	50.4030	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	995933.0	50.1422	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.800	PBA	202929.2	5.0000	CLO4-89-ISTD

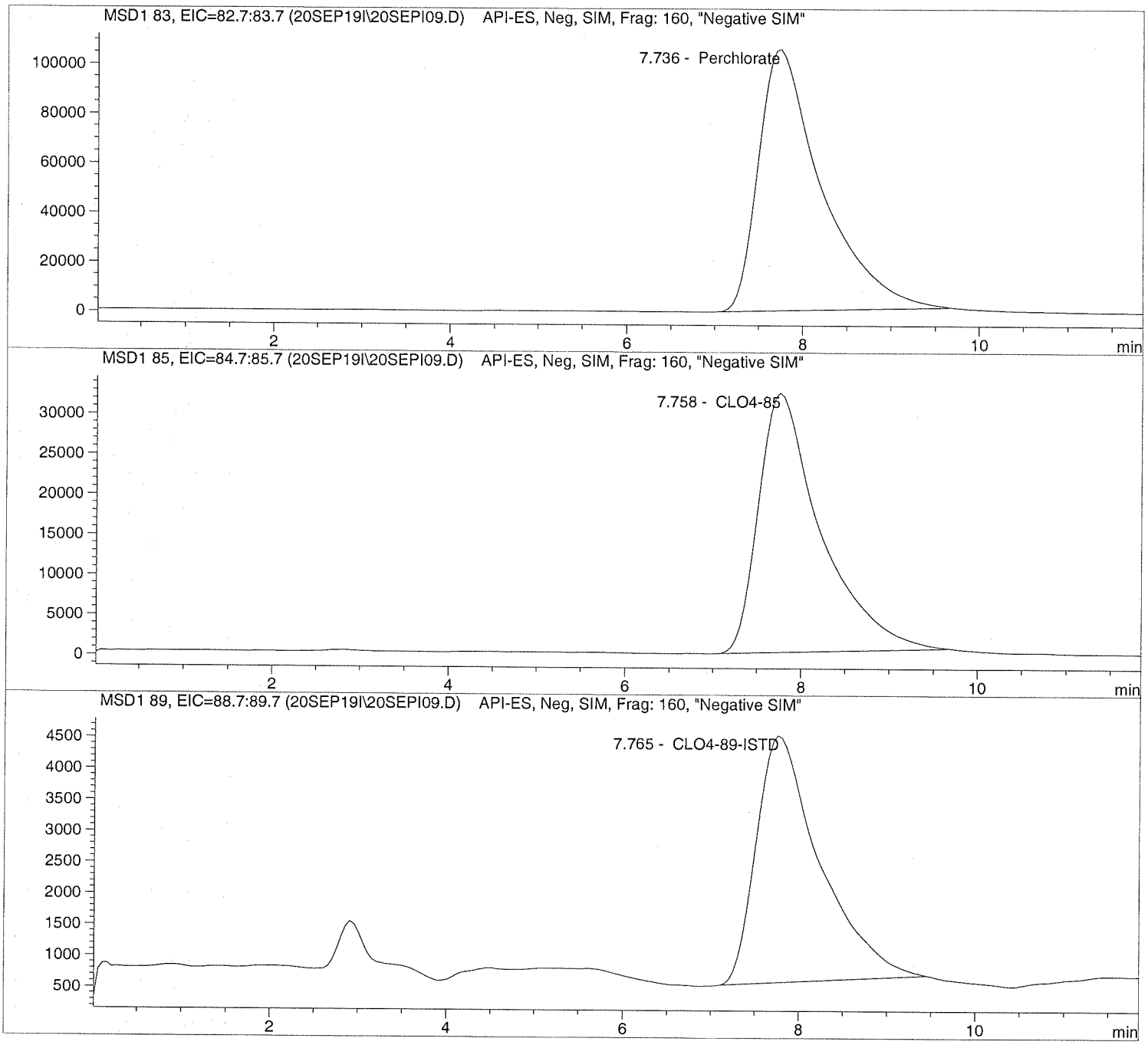
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.736	PBA	5239145.0	74.7911	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.758	PBA	1580664.2	74.9366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.765	PBA	197932.5	5.0000	CLO4-89-ISTD

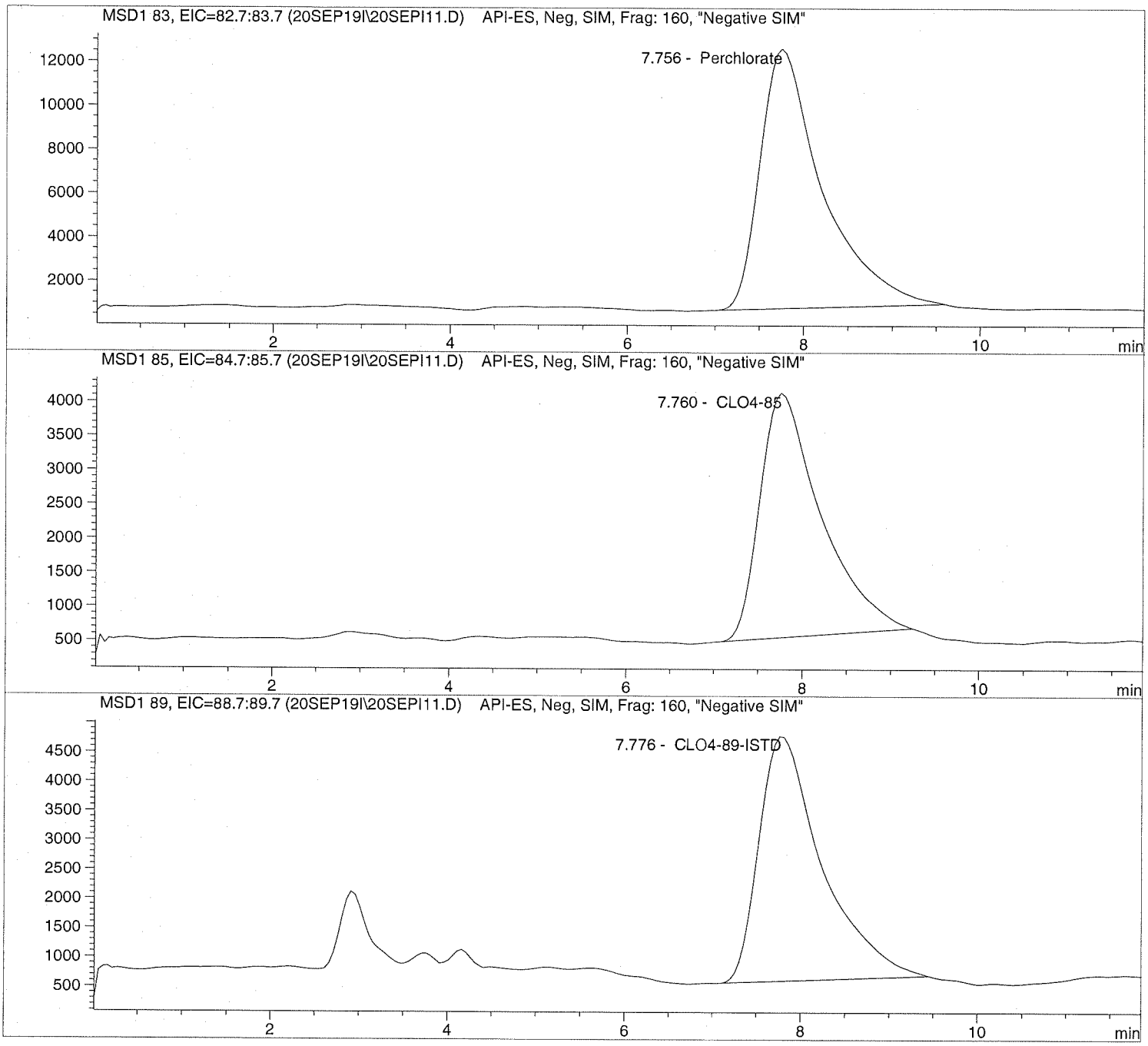
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.756	PBA	574879.4	10.1185	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	171000.4	9.7904	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.776	PBA	206243.3	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

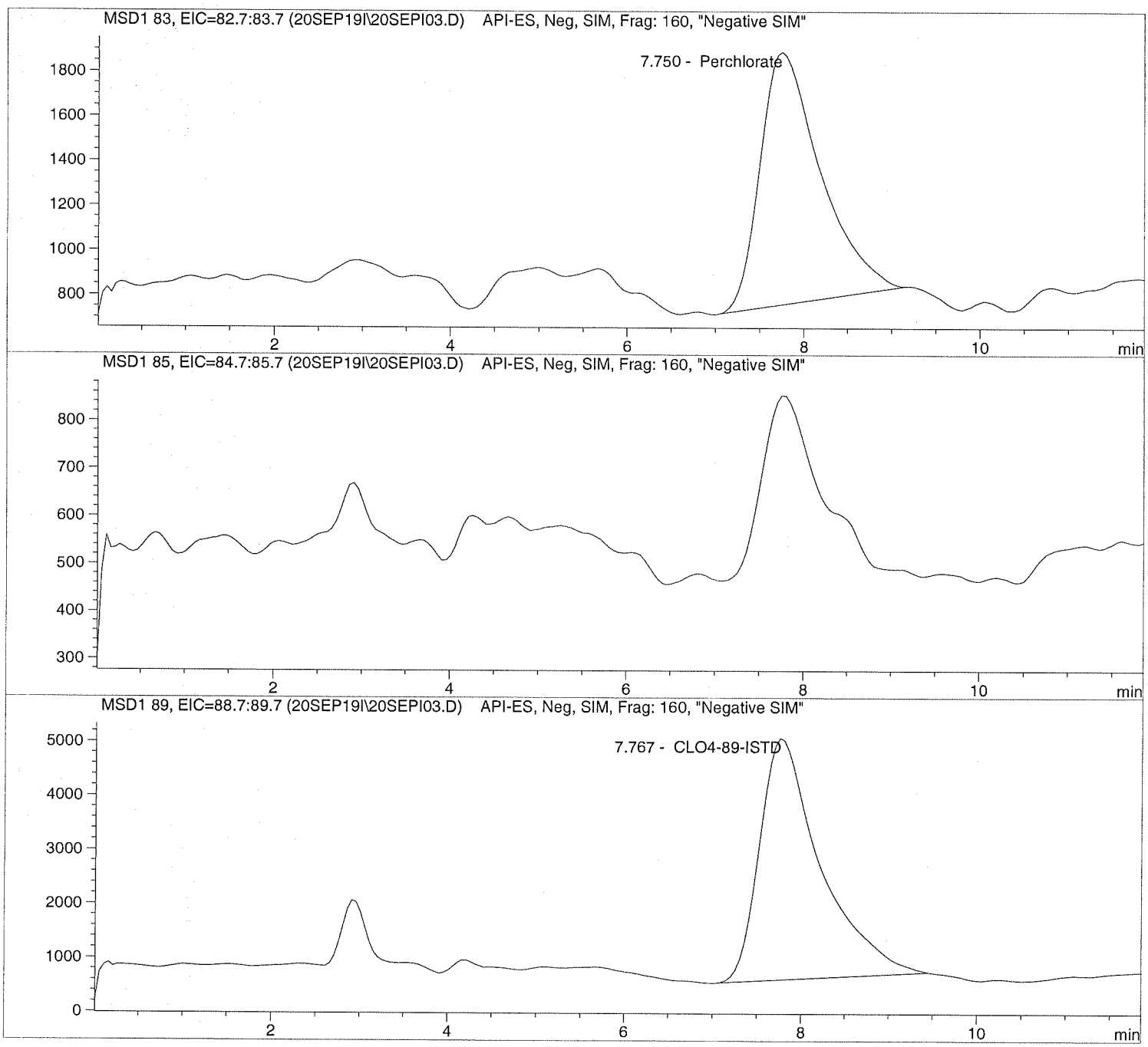
Unmodified

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:27:11

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:27:11

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

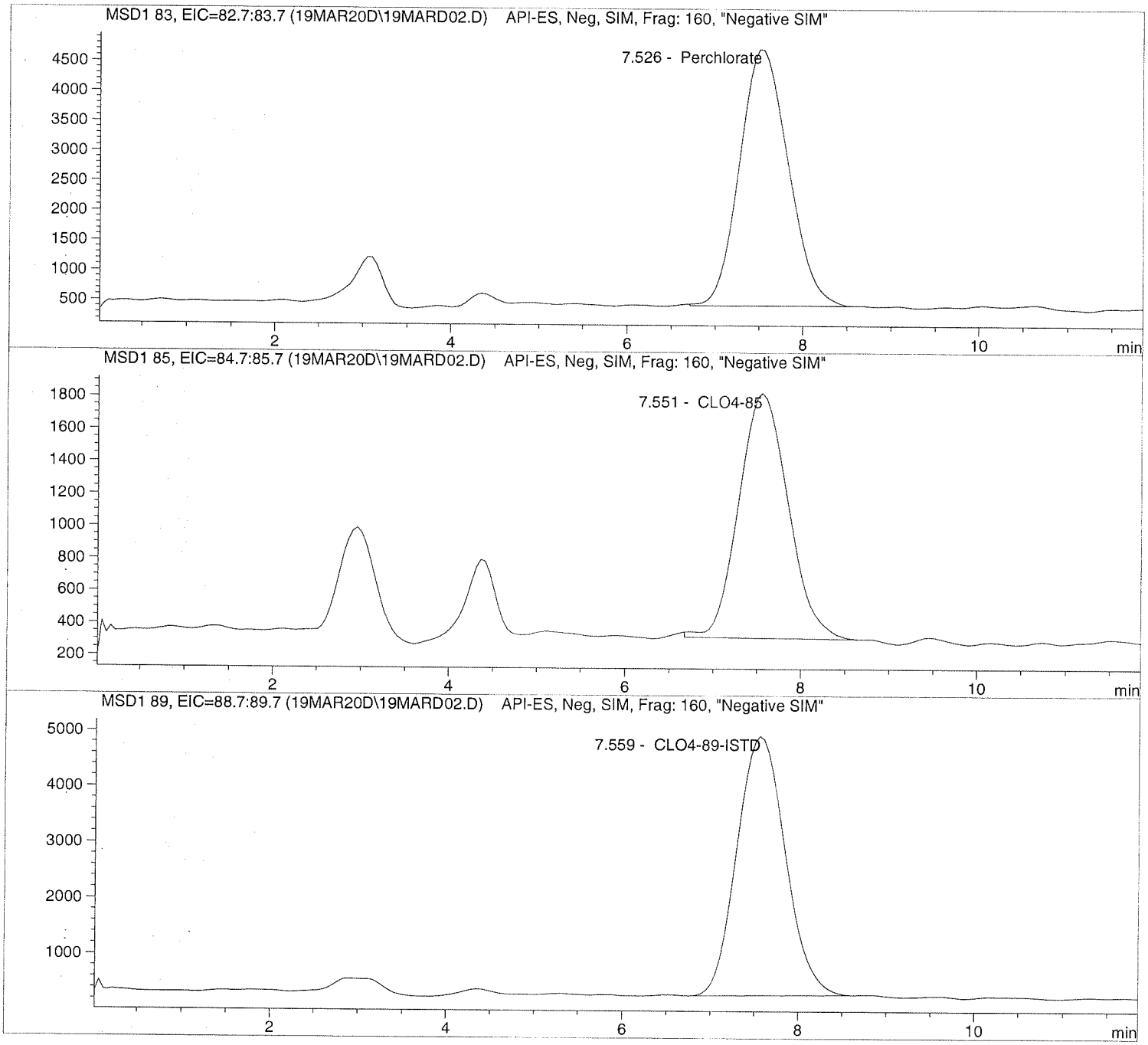
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.526	BBA	165065.5	3.4233	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	BBA	59556.2	3.9609	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.559	PBA	177666.7	5.0000	CLO4-89-ISTD

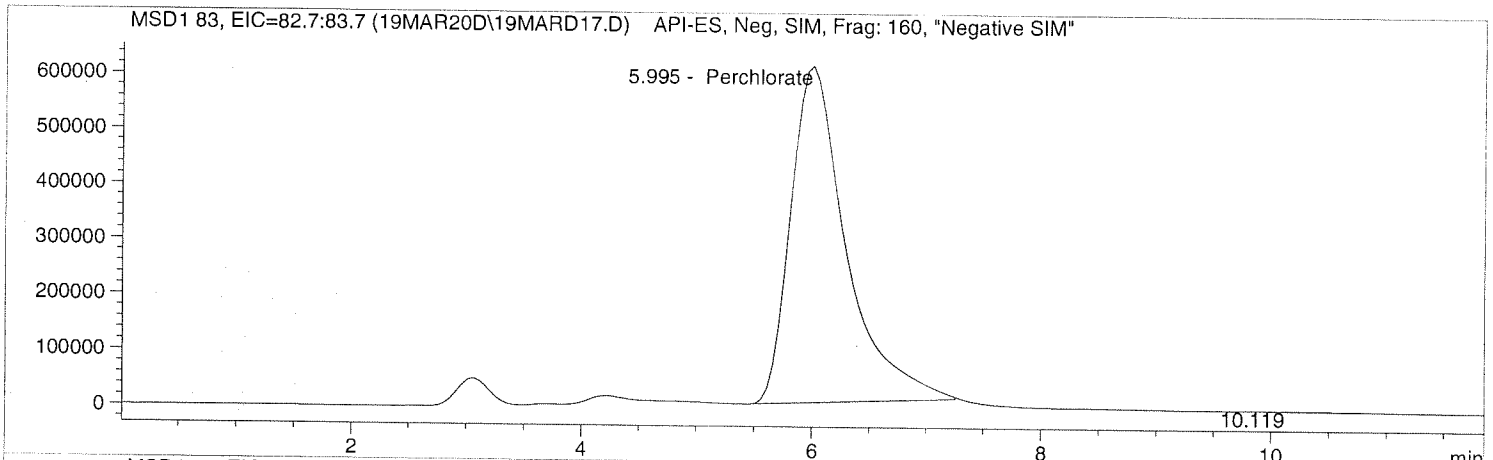
*** End of Report ***

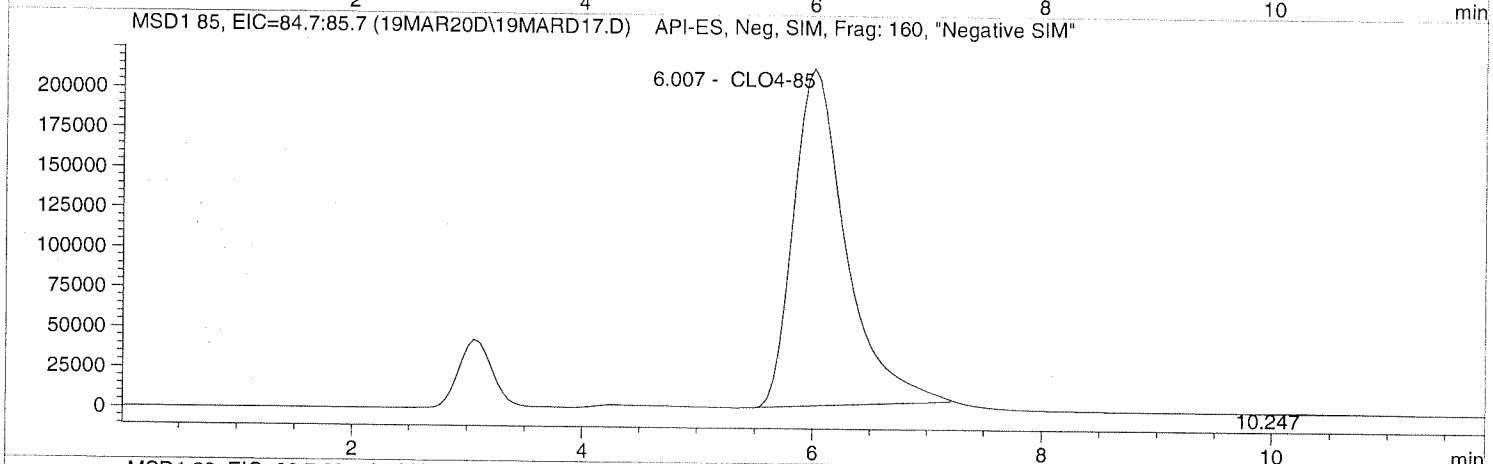
Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

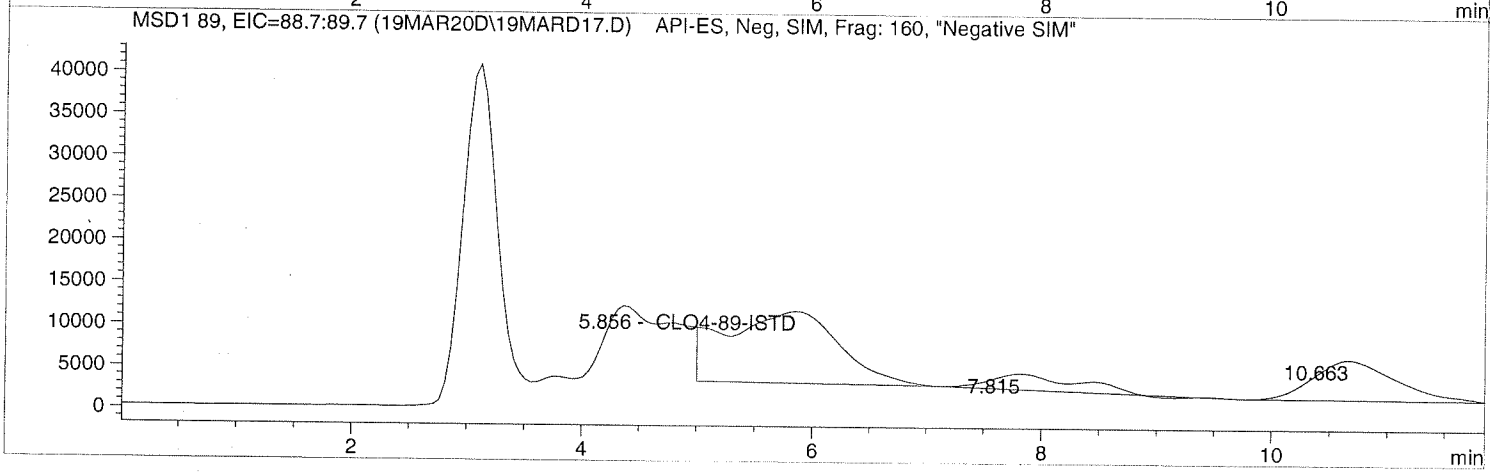
Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.995	PBA	20431220.0	93.1345	Perchlorate
10.119	PBA	49235.6	0.0000	

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.007	PBA	6724059.0	100.0293	CLO4-85
10.247	PBA	21296.1	0.0000	

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.856	BBA	582460.0	5.0000	CLO4-89-ISTD
7.815	VB	96769.7	0.0000	
10.663	VBA	237082.8	0.0000	

*** End of Report ***

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March 25, 2020

Analytical Report for Service Request No: K2002276

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

RE: HS20030498

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory March 13, 2020
For your reference, these analyses have been assigned our service request number **K2002276.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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

Client: ALS Environmental - US
Project: HS20030498
Sample Matrix: Ground Water

Service Request: K2002276
Date Received: 03/13/2020

CASE NARRATIVE

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

Sample Receipt:

Four ground water samples were received for analysis at ALS Environmental on 03/13/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 03/25/2020

Chain of Custody

ALS Environmental—Kelso Laboratory
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10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13509**

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20030498
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20030498-04**	**16WW35-200311**	**Groundwater**	**11 Mar 2020 11:45**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Mar 2020
2.	**HS20030498-05**	**16WW36-200311**	**Groundwater**	**11 Mar 2020 12:40**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Mar 2020
3.	**HS20030498-06**	**16WW16-200311**	**Groundwater**	**11 Mar 2020 13:40**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Mar 2020
4.	**HS20030498-07**	**16WW16-200311-FD**	**Groundwater**	**11 Mar 2020 13:40**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Mar 2020

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. Morrow Date/Time: 3/12/20 18:00

Received By: B Morrow ALS Kelso Date/Time: 3/13/20 0955

Cooler ID(s): Temperature(s):

PC KL

Cooler Receipt and Preservation Form

Client ALS-Houston Service Request K20 02276

Received: 3/13/20 Opened: 3/13/20 By: [signature] Unloaded: 3/13/20 By: [signature]

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	File
-0.3	-0.4	N/A	N/A	-0.1	397	13509	1251 0295 3927	

4. Packing material: *Inserts* (*Baggies*) *Bubble Wrap* *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

12/18/19 *Page____of____*

General Chemistry

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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2002276
Project:	HS20030498	**Date Collected:**	03/11/20
Sample Matrix:	Ground Water	**Date Received:**	03/13/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
16WW35-200311	K2002276-001	**58.5**	5.0	2.0	0.7	10	03/22/20 01:06	
16WW36-200311	K2002276-002	**19.7**	0.50	0.20	0.07	1	03/15/20 08:10	
16WW16-200311	K2002276-003	**4.85**	0.50	0.20	0.07	1	03/15/20 08:43	
16WW16-200311-FD	K2002276-004	**4.97**	0.50	0.20	0.07	1	03/15/20 09:15	
Method Blank	K2002276-MB1	ND U	0.50	0.20	0.07	1	03/15/20 00:20	
Method Blank	K2002276-MB2	**0.29 J**	0.50	0.20	0.07	1	03/21/20 20:07	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2002276
Project	HS20030498	**Date Collected:**	03/11/20
Sample Matrix:	Ground Water	**Date Received:**	03/13/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	LOQ	LOD	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
16WW35-200311	K2002276-001DUP	5.0	2.0	0.7	58.5	59.2	58.9	1	10	03/22/20
16WW36-200311	K2002276-002DUP	0.50	0.20	0.07	19.7	19.2	19.5	2	10	03/15/20
16WW16-200311	K2002276-003DUP	0.50	0.20	0.07	4.85	4.70	4.77	3	10	03/15/20
16WW16-200311-FD	K2002276-004DUP	0.50	0.20	0.07	4.97	4.75	4.86	4	10	03/15/20

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2002276
Project:	HS20030498	**Date Analyzed:**	03/15/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	673405

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2002276-LCS1	24.1	25.0	96	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2002276
Project:	HS20030498	**Date Analyzed:**	03/21/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	674205

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2002276-LCS2	24.9	25.0	100	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2002276
Project: HS20030498

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

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

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	673405	KQ2003794-02	03/14/20 23:47	25.0	25.6	102	90-110
CCV2	673405	KQ2003794-03	03/15/20 03:53	25.0	25.7	103	90-110
CCV3	673405	KQ2003794-04	03/15/20 09:47	25.0	25.5	102	90-110
CCV4	673405	KQ2003794-05	03/15/20 14:08	25.0	25.2	101	90-110
CCV5	674205	KQ2003999-01	03/21/20 19:52	25.0	26.3	105	90-110
CCV6	674205	KQ2003999-02	03/21/20 23:40	25.0	26.3	105	90-110
CCV7	674205	KQ2003999-03	03/22/20 04:51	25.0	26.5	106	90-110
CCV8	674205	KQ2003999-30	03/22/20 09:35	25.0	25.8	103	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K2002276
Project: HS20030498

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

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

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	673405	KQ2003794-06	03/15/20 00:04	0.50	0.20	0.07	ND	U
CCB2	673405	KQ2003794-07	03/15/20 04:09	0.50	0.20	0.07	ND	U
CCB3	673405	KQ2003794-08	03/15/20 10:03	0.50	0.20	0.07	ND	U
CCB4	673405	KQ2003794-09	03/15/20 14:25	0.50	0.20	0.07	ND	U
CCB5	674205	KQ2003999-04	03/21/20 19:37	0.50	0.20	0.07	ND	U
CCB6	674205	KQ2003999-05	03/21/20 23:55	0.50	0.20	0.07	0.12	J
CCB7	674205	KQ2003999-06	03/22/20 05:06	0.50	0.20	0.07	ND	U
CCB8	674205	KQ2003999-31	03/22/20 09:49	0.50	0.20	0.07	ND	U

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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General Chemistry

ALS Environmental—Kelso Laboratory
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Work Request # Original ( ) K2002179, 2149, 2171, 2186, 2240, 2268, 2276, 2277, 2140

Tier: I II I II I II IV IV II

Date Analyzed: 3/19/20

Analyst: BCP

Analysis: TOC/DOC

Run # TOC:673405 DOC:673406

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS: K2002140-3/31 report a high %RSD. However these samples are less than 5x the MRL.

Final Approved by: _____ Date: 3/19/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 673405 **Method/Testcode:** 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002129-001	Carbon, Total Organic	N/A		Water	0.74 mg/L	10 mL	0.74 mg/L	1	0.07	0.50			3/15/20 01:43:00	N	I
K2002129-002	Carbon, Total Organic	N/A		Water	0.95 mg/L	10 mL	0.95 mg/L	1	0.07	0.50			3/15/20 02:48:00	N	I
K2002129-003	Carbon, Total Organic	N/A		Water	0.87 mg/L	10 mL	0.87 mg/L	1	0.07	0.50			3/15/20 03:21:00	N	I
K2002129-004	Carbon, Total Organic	N/A		Water	3.18 mg/L	10 mL	3.18 mg/L	1	0.07	0.50			3/15/20 04:26:00	N	I
K2002149-001	Carbon, Total Organic	N/A		Drinking Water	0.45 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 06:02:00	N	II
K2002171-001	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 01:10:00	N	I
K2002171-002	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 01:27:00	N	I
K2002186-001	Carbon, Total Organic	N/A		Water	4.34 mg/L	10 mL	4.34 mg/L	1	0.07	0.50			3/15/20 04:58:00	N	II
K2002240-001	Carbon, Total Organic	N/A		Water	2.79 mg/L	10 mL	56 mg/L	20	2	10			3/15/20 10:54:00	N	I
K2002268-001	Carbon, Total Organic	N/A		Water	3.24 mg/L	10 mL	3.24 mg/L	1	0.07	0.50			3/15/20 06:34:00	N	II
K2002276-002	Carbon, Total Organic	N/A		Ground Water	19.68 mg/L	10 mL	19.7 mg/L	1	0.07	0.50			3/15/20 08:10:00	N	IV
K2002276-003	Carbon, Total Organic	N/A		Ground Water	4.85 mg/L	10 mL	4.85 mg/L	1	0.07	0.50			3/15/20 08:43:00	N	IV
K2002276-004	Carbon, Total Organic	N/A		Ground Water	4.97 mg/L	10 mL	4.97 mg/L	1	0.07	0.50			3/15/20 09:15:00	N	IV
K2002277-001	Carbon, Total Organic	N/A		Water	2.31 mg/L	10 mL	2.31 mg/L	1	0.07	0.50			3/15/20 05:30:00	N	IV
KQ2003794-01	Carbon, Total Organic	MS	K2002129-001	Water	26.85 mg/L	10 mL	26.9 mg/L	1	0.07	0.50	104		3/15/20 02:15:00	N	I
KQ2003794-02	Carbon, Total Organic	CCV		Reagent Water	25.62 mg/L	10 mL	25.6 mg/L	1					3/14/20 23:47:00	N	I
KQ2003794-02	Carbon, Total Organic	CCV		Reagent Water	25.62 mg/L	10 mL	25.6 mg/L	1					3/14/20 23:47:00	N	I
KQ2003794-03	Carbon, Total Organic	CCV		Reagent Water	25.71 mg/L	10 mL	25.7 mg/L	1					3/15/20 03:53:00	N	I
KQ2003794-03	Carbon, Total Organic	CCV		Reagent Water	25.71 mg/L	10 mL	25.7 mg/L	1					3/15/20 03:53:00	N	I
KQ2003794-04	Carbon, Total Organic	CCV		Reagent Water	25.46 mg/L	10 mL	25.5 mg/L	1					3/15/20 09:47:00	N	I
KQ2003794-04	Carbon, Total Organic	CCV		Reagent Water	25.46 mg/L	10 mL	25.5 mg/L	1					3/15/20 09:47:00	N	I
KQ2003794-05	Carbon, Total Organic	CCV		Reagent Water	25.24 mg/L	10 mL	25.2 mg/L	1					3/15/20 14:08:00	N	I
KQ2003794-05	Carbon, Total Organic	CCV		Reagent Water	25.24 mg/L	10 mL	25.2 mg/L	1					3/15/20 14:08:00	N	I
KQ2003794-06	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 00:04:00	N	I
KQ2003794-06	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 00:04:00	N	I
KQ2003794-07	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 04:09:00	N	I
KQ2003794-07	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 04:09:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 673405 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2003794-08	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 10:03:00	N	I
KQ2003794-08	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 10:03:00	N	I
KQ2003794-09	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 14:25:00	N	I
KQ2003794-09	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 14:25:00	N	I
KQ2003794-10	Carbon, Total Organic	MB		Reagent Water	0.04 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 00:20:00	N	I
KQ2003794-10	Carbon, Total Organic	MB		Reagent Water	0.04 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 00:20:00	N	I
KQ2003794-11	Carbon, Total Organic	LCS		Reagent Water	24.05 mg/L	10 mL	24.1 mg/L	1	0.07	0.50	96		3/15/20 00:37:00	N	I
KQ2003794-11	Carbon, Total Organic	LCS		Reagent Water	24.05 mg/L	10 mL	24.1 mg/L	1	0.07	0.50	96		3/15/20 00:37:00	N	I
KQ2003794-12	Carbon, Total Organic	DUP	K2002186-001	Water	4.35 mg/L	10 mL	4.35 mg/L	1	0.07	0.50		<1	3/15/20 04:58:00	N	II
KQ2003794-13	Carbon, Total Organic	DUP	K2002240-001	Water	2.65 mg/L	10 mL	53 mg/L	20	2	10		5	3/15/20 10:54:00	N	I
KQ2003794-14	Carbon, Total Organic	DUP	K2002268-001	Water	3.20 mg/L	10 mL	3.20 mg/L	1	0.07	0.50		1	3/15/20 06:34:00	N	II
KQ2003794-15	Carbon, Total Organic	DUP	K2002276-002	Ground Water	19.24 mg/L	10 mL	19.2 mg/L	1	0.07	0.50		2	3/15/20 08:10:00	N	IV
KQ2003794-16	Carbon, Total Organic	DUP	K2002276-003	Ground Water	4.70 mg/L	10 mL	4.70 mg/L	1	0.07	0.50		3	3/15/20 08:43:00	N	IV
KQ2003794-17	Carbon, Total Organic	DUP	K2002276-004	Ground Water	4.75 mg/L	10 mL	4.75 mg/L	1	0.07	0.50		4	3/15/20 09:15:00	N	IV
KQ2003794-18	Carbon, Total Organic	DUP	K2002277-001	Water	2.21 mg/L	10 mL	2.21 mg/L	1	0.07	0.50		5	3/15/20 05:30:00	N	IV
KQ2003794-19	Carbon, Total Organic	DUP	K2002149-001	Drinking Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50		NC	3/15/20 06:02:00	N	II
KQ2003794-20	Carbon, Total Organic	DUP	K2002129-002	Water	0.90 mg/L	10 mL	0.90 mg/L	1	0.07	0.50		6	3/15/20 02:48:00	N	I
KQ2003794-21	Carbon, Total Organic	DUP	K2002129-001	Water	0.76 mg/L	10 mL	0.76 mg/L	1	0.07	0.50		2	3/15/20 01:43:00	N	I
KQ2003794-22	Carbon, Total Organic	DUP	K2002129-003	Water	0.78 mg/L	10 mL	0.78 mg/L	1	0.07	0.50		11	3/15/20 03:21:00	N	I
KQ2003794-23	Carbon, Total Organic	DUP	K2002129-004	Water	3.06 mg/L	10 mL	3.06 mg/L	1	0.07	0.50		4	3/15/20 04:26:00	N	I
KQ2003794-24	Carbon, Total Organic	N/A		Water	0.74 mg/L	10 mL	0.74 mg/L	1	0.07	0.50			3/15/20 01:43:00	N	I
KQ2003794-25	Carbon, Total Organic	MS	KQ2003794-24	Water	26.85 mg/L	10 mL	26.9 mg/L	1	0.07	0.50	104		3/15/20 02:15:00	N	I
KQ2003794-26	Carbon, Total Organic	DUP	KQ2003794-24	Water	0.76 mg/L	10 mL	0.76 mg/L	1	0.07	0.50		2	3/15/20 01:43:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 673406 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002140-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.86 mg/L	10 mL	1.86 mg/L	1	0.07	0.50			3/15/20 10:54:00	N	II
K2002140-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.92 mg/L	10 mL	1.92 mg/L	1	0.07	0.50			3/15/20 13:04:00	N	II
K2002140-003	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.36 mg/L	10 mL	0.36 mg/L J	1	0.07	0.50			3/15/20 13:36:00	N	II
K2002140-004	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.38 mg/L	10 mL	1.38 mg/L	1	0.07	0.50			3/15/20 14:41:00	N	II
K2002140-005	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.85 mg/L	10 mL	0.85 mg/L	1	0.07	0.50			3/15/20 15:14:00	N	II
K2002140-006	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.80 mg/L	10 mL	1.80 mg/L	1	0.07	0.50			3/15/20 15:46:00	N	II
K2002140-007	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.97 mg/L	10 mL	1.97 mg/L	1	0.07	0.50			3/15/20 16:18:00	N	II
K2002140-008	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.89 mg/L	10 mL	1.89 mg/L	1	0.07	0.50			3/15/20 16:50:00	N	II
K2002140-009	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.93 mg/L	10 mL	1.93 mg/L	1	0.07	0.50			3/15/20 17:22:00	N	II
K2002140-010	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.90 mg/L	10 mL	0.90 mg/L	1	0.07	0.50			3/15/20 17:54:00	N	II
K2002140-011	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.85 mg/L	10 mL	1.85 mg/L	1	0.07	0.50			3/15/20 18:26:00	N	II
K2002140-012	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.90 mg/L	10 mL	1.90 mg/L	1	0.07	0.50			3/15/20 18:58:00	N	II
KQ2003796-01	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	25.46 mg/L	10 mL	25.5 mg/L	1					3/15/20 09:47:00	N	II
KQ2003796-02	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	25.24 mg/L	10 mL	25.2 mg/L	1					3/15/20 14:08:00	N	II
KQ2003796-03	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	25.04 mg/L	10 mL	25.0 mg/L	1					3/15/20 19:47:00	N	II
KQ2003796-04	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 10:03:00	N	II
KQ2003796-05	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 14:25:00	N	II
KQ2003796-06	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 20:03:00	N	II
KQ2003796-07	Carbon, Dissolved Organic (DOC)	MB		Surface Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 10:20:00	N	II
KQ2003796-08	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	23.95 mg/L	10 mL	24.0 mg/L	1	0.07	0.50	96		3/15/20 10:37:00	N	II
KQ2003796-09	Carbon, Dissolved Organic (DOC)	MS	K2002140-001	Surface Water	28.29 mg/L	10 mL	28.3 mg/L	1	0.07	0.50	106		3/15/20 12:31:00	N	II
KQ2003796-10	Carbon, Dissolved Organic (DOC)	DUP	K2002140-001	Surface Water	1.81 mg/L	10 mL	1.81 mg/L	1	0.07	0.50		3	3/15/20 10:54:00	N	II
KQ2003796-11	Carbon, Dissolved Organic (DOC)	DUP	K2002140-002	Surface Water	1.88 mg/L	10 mL	1.88 mg/L	1	0.07	0.50		2	3/15/20 13:04:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 673406 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2003796-12	Carbon, Dissolved Organic (DOC)	DUP	K2002140-003	Surface Water	0.31 mg/L	10 mL	0.31 mg/L J	1	0.07	0.50		16*	3/15/20 13:36:00	N	II
KQ2003796-13	Carbon, Dissolved Organic (DOC)	DUP	K2002140-004	Surface Water	1.32 mg/L	10 mL	1.32 mg/L	1	0.07	0.50		4	3/15/20 14:41:00	N	II
KQ2003796-14	Carbon, Dissolved Organic (DOC)	DUP	K2002140-005	Surface Water	0.83 mg/L	10 mL	0.83 mg/L	1	0.07	0.50		2	3/15/20 15:14:00	N	II
KQ2003796-15	Carbon, Dissolved Organic (DOC)	DUP	K2002140-006	Surface Water	1.71 mg/L	10 mL	1.71 mg/L	1	0.07	0.50		5	3/15/20 15:46:00	N	II
KQ2003796-16	Carbon, Dissolved Organic (DOC)	DUP	K2002140-007	Surface Water	1.87 mg/L	10 mL	1.87 mg/L	1	0.07	0.50		5	3/15/20 16:18:00	N	II
KQ2003796-17	Carbon, Dissolved Organic (DOC)	DUP	K2002140-008	Surface Water	1.86 mg/L	10 mL	1.86 mg/L	1	0.07	0.50		1	3/15/20 16:50:00	N	II
KQ2003796-18	Carbon, Dissolved Organic (DOC)	DUP	K2002140-009	Surface Water	1.90 mg/L	10 mL	1.90 mg/L	1	0.07	0.50		2	3/15/20 17:22:00	N	II
KQ2003796-19	Carbon, Dissolved Organic (DOC)	DUP	K2002140-010	Surface Water	0.84 mg/L	10 mL	0.84 mg/L	1	0.07	0.50		7	3/15/20 17:54:00	N	II
KQ2003796-20	Carbon, Dissolved Organic (DOC)	DUP	K2002140-011	Surface Water	1.82 mg/L	10 mL	1.82 mg/L	1	0.07	0.50		2	3/15/20 18:26:00	N	II
KQ2003796-21	Carbon, Dissolved Organic (DOC)	DUP	K2002140-012	Surface Water	1.86 mg/L	10 mL	1.86 mg/L	1	0.07	0.50		2	3/15/20 18:58:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

0.007	0.007	######	######	OBSERVATIONS	7	0.0069
0.046				STD Deviation	0.01700	ABOVE
0.000				AVERAGE	0.00750	0
0.000				UCL	0.02450	0
0.000				LCL	-0.00950	0
0.000						0
0.000						0
				OBSERVATIONS	1	0
				STD Deviation	#DIV/0!	0
				AVERAGE	0.00690	0
				UCL	#DIV/0!	0
				LCL	#DIV/0!	0
						0
						0
				OBSERVATIONS	0	0
				STD Deviation	#DIV/0!	0
				AVERAGE	#DIV/0!	0
				UCL	#DIV/0!	0
				LCL	#DIV/0!	0
						0
						0
				OBSERVATIONS	0	0
				STD Deviation	#DIV/0!	0
				AVERAGE	#DIV/0!	0
						0
						0
						0
						0
						0

TOC: 673405
DOC: 673406

Schedule: 03142020 CAL

Version: 3
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/03/14 20:22 - Saturday

Position	Sample Type	Sample ID
(Clean)	Clean	Clean
(Clean)	Clean	Clean
(Clean)	Clean	Clean
D	Sample	RB
D	Cal Standard	[TOC] Extended Reaction 021711 CAL [0.0 ppm]
A	Cal Standard	[TOC] Extended Reaction 021711 CAL [0.50 ppm]
A	Cal Standard	[TOC] Extended Reaction 021711 CAL [1.00 ppm]
A	Cal Standard	[TOC] Extended Reaction 021711 CAL [5.00 ppm]
B	Cal Standard	[TOC] Extended Reaction 021711 CAL [10.0 ppm]
B	Cal Standard	[TOC] Extended Reaction 021711 CAL [25.0 ppm]
B	Cal Standard	[TOC] Extended Reaction 021711 CAL [50.0 ppm]
B	Check Standard	[TOC] CCV 021711 [25 ppm]
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]
1	Sample	MB1
C	Check Standard	[TOC] LCS ER [25.0 ppm]
2	Sample	ICS
3	Sample	K2002171-001.01
4	Sample	K2002171-002.01
5	Sample	K2002129-001.03
6	Sample	K2002129-001.03 ms
7	Sample	RB
8	Sample	K2002129-002.03
9	Sample	K2002129-003.03
B	Check Standard	[TOC] CCV 021711 [25 ppm]
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]
10	Sample	K2002129-004.03
11	Sample	K2002186-001.20
12	Sample	K2002277-001.01
13	Sample	K2002149-001.01
14	Sample	K2002268-001.01
15	Sample	K2002276-001.01
16	Sample	RB
17	Sample	K2002276-002.01
18	Sample	K2002276-003.01
19	Sample	K2002276-004.01
B	Check Standard	[TOC] CCV 021711 [25 ppm]
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]
20	Sample	MB2
C	Check Standard	[TOC] LCS ER [25.0 ppm]
21	Sample	K2002240-001.02 20x
22	Sample	RB
23	Sample	FB 3/11/20 1512
24	Sample	K2002140-001.01 doc
25	Sample	K2002140-001.01 ms doc
26	Sample	RB
27	Sample	K2002140-002.01 doc
28	Sample	K2002140-003.01 doc
B	Check Standard	[TOC] CCV 021711 [25 ppm]
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]
29	Sample	K2002140-004.01 doc
30	Sample	K2002140-005.01 doc
31	Sample	K2002140-006.01 doc
32	Sample	K2002140-007.01 doc
33	Sample	K2002140-008.01 doc

Schedule: 03142020 CAL

Position	Sample Type	Sample ID
34	Sample	K2002140-009.01 doc
35	Sample	K2002140-010.01 doc
36	Sample	K2002140-011.01 doc
37	Sample	K2002140-012.01 doc
38	Sample	RB
B	Check Standard	[TOC] CCV 021711 [25 ppm]
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]

Schedule: 03142020 CAL

Method ID (Calibration ID)	Reps	Use	State
	1	True	Ready
	1	True	Ready
	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready

Schedule: 03142020 CAL

Method ID (Calibration ID)	Reps	Use	State
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
		False	

Fusion Report - 03142020 CAL
Saturday, March 14, 2020 08:15 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/03/17 09:20 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	03142020 CAL	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/03/14 20:15

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.19	16.93	6.73	49.55	05:21
2	TC Clean	10.54	14.62	4.08	50.04	04:02
3	TC Clean	3.17	7.02	3.84	50.07	03:47
4	TC Clean	2.35	6.06	3.71	50.04	03:48

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/03/14 20:37

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.33	5.13	3.81	49.56	05:23
2	TC Clean	5.36	9.31	3.95	50.01	04:03
3	TC Clean	2.36	6.22	3.86	50.00	03:46
4	TC Clean	2.03	5.91	3.87	49.97	03:46

Sample Type: Clean From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/03/14 20:59

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.40	5.27	3.87	49.53	05:11
2	TC Clean	5.41	9.41	4.00	49.93	04:00
3	TC Clean	2.82	6.77	3.95	50.04	03:56
4	TC Clean	2.03	6.13	4.09	49.89	03:52

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.5103 ppm	0.1025 ppm	20.0900%	2020/03/14 21:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5828	5.8281	11.44	15.40	3.96	50.04	12:30
2	TOC	0.4378	4.3783	10.45	14.24	3.79	50.01	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.4542 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v28)

Sample Type: Calibration Standard: Extended Reaction 021711 CAL (Creating calibration Extended Reaction 021711 v29) From Schedule Version 3

	Pos	BAT	Concentration (ppm)	STD Conc	Dil	Sample ID	Result (Abs)	Std. Dev. (Abs)	RSD	Start Time
◆	D	TOC	0.0000	0 ppmC	1:1	[TOC] Extended Reaction 021711 CAL [0.0 ppm]	9.1000	0.0000	0%	2020/03/14 21:53
◆	A	TOC	0.5000	5 ppmC	1:10	[TOC] Extended Reaction 021711 CAL [0.50 ppm]	12.8490	0.0000	0%	2020/03/14 22:09
◆	A	TOC	1.0000	5 ppmC	1:5	[TOC] Extended Reaction 021711 CAL [1.00 ppm]	16.3880	0.0000	0%	2020/03/14 22:26
◆	A	TOC	5.0000	5 ppmC	1:1	[TOC] Extended Reaction 021711 CAL [5.00 ppm]	45.4380	0.0000	0%	2020/03/14 22:42
◆	B	TOC	10.0000	50 ppmC	1:5	[TOC] Extended Reaction 021711 CAL [10.0 ppm]	86.0520	0.0000	0%	2020/03/14 22:58
◆	B	TOC	25.0000	50 ppmC	1:2	[TOC] Extended Reaction 021711 CAL [25.0 ppm]	198.6190	0.0000	0%	2020/03/14 23:15
◆	B	TOC	50.0000	50	1:1	[TOC] Extended	378.4160	0.0000	0%	2020/03/14 23:31

				ppmC		Reaction 021711 CAL [50.0 ppm]				

Pos	Base Analysis Type	ID	Rep #	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	9.10	13.12	4.02	50.02	12:28
A	TOC	0.50 ppm	1	12.85	16.75	3.90	50.00	12:32
A	TOC	1.00 ppm	1	16.39	20.23	3.85	50.04	12:30
A	TOC	5.00 ppm	1	45.44	49.34	3.90	50.04	12:32
B	TOC	10.0 ppm	1	86.05	89.80	3.75	50.00	12:30
B	TOC	25.0 ppm	1	198.62	202.52	3.91	50.01	12:31
B	TOC	50.0 ppm	1	378.42	382.29	3.88	50.03	12:32

Completion State: Success - All Update Conditions met

Method: Extended Reaction 021711 (v4)

Success Action: Auto (always)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	25.6300 ppm (PASS)	0.0000 ppm	0%	2020/03/14 23:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.6300	256.3003	199.78	203.48	3.69	50.02	12:30

Completion State: Success - Criteria met.

Success Action: Do Nothing

Method: Extended Reaction 021711 (v4)

Calibration: Extended Reaction 021711 (v29)

STD Conc - Pos B: 50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0069 ppm (PASS)	0.0000 ppm	0%	2020/03/15 00:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0069	0.0691	9.85	13.73	3.88	50.02	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	1	TOC	MB1	0.0456 ppm	0.0000 ppm	0.0000%	2020/03/15 00:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0456	0.4555	9.40	13.11	3.71	50.01	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> LCS ER — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS ER [25.0 ppm]	0 / infinity (NA / NA)	24.0593 ppm (PASS)	0.0000 ppm	0%	2020/03/15 00:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.0593	240.5930	188.14	191.95	3.80	50.03	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	25 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.4431 ppm	0.0000 ppm	0.0000%	2020/03/15 00:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4431	4.4313	12.34	16.22	3.88	50.03	12:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K2002171-001.01	0.0097 ppm	0.0000 ppm	0.0000%	2020/03/15 01:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.0097	0.0967	9.13	12.87	3.74	50.02	12:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K2002171-002.01	0.0072 ppm	0.0000 ppm	0.0000%	2020/03/15 01:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0072	0.0724	9.11	12.88	3.76	50.03	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K2002129-001.03	0.7581 ppm	0.0104 ppm	1.3700%	2020/03/15 01:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7507	7.5072	14.62	18.49	3.87	50.01	12:25
2	TOC	0.7654	7.6542	14.73	18.49	3.76	50.02	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K2002129-001.03 ms	26.8607 ppm	0.0000 ppm	0.0000%	2020/03/15 02:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.8607	268.6072	208.16	211.99	3.83	50.00	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	RB	0.0813 ppm	0.0000 ppm	0.0000%	2020/03/15 02:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0813	0.8131	9.66	13.59	3.93	50.00	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K2002129-002.03	0.9339 ppm	0.0373 ppm	3.9900%	2020/03/15 02:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.9602	9.6023	16.18	20.07	3.89	49.99	12:27
2	TOC	0.9075	9.0748	15.79	19.70	3.92	50.00	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K2002129-003.03	0.8312 ppm	0.0632 ppm	7.6100%	2020/03/15 03:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8759	8.7591	15.55	19.36	3.81	50.00	12:26
2	TOC	0.7865	7.8647	14.89	18.83	3.94	50.00	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	25.7143 ppm (PASS)	0.0000 ppm	0%	2020/03/15 03:53

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.7143	257.1435	200.41	204.25	3.84	50.03	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/15 04:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	9.29	13.34	4.05	49.99	12:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	0 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K2002129-004.03	3.1312 ppm	0.0841 ppm	2.6900%	2020/03/15 04:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1907	31.9065	32.71	36.65	3.94	50.02	12:28
2	TOC	3.0717	30.7167	31.83	35.74	3.91	50.01	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K2002186-001.20	4.3520 ppm	0.0045 ppm	0.1000%	2020/03/15 04:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.3488	43.4883	41.30	45.08	3.78	50.01	12:28
2	TOC	4.3552	43.5518	41.34	45.27	3.93	50.01	12:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K2002277-001.01	2.2677 ppm	0.0735 ppm	3.2400%	2020/03/15 05:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3197	23.1969	26.25	30.19	3.94	50.02	12:25
2	TOC	2.2157	22.1568	25.48	29.29	3.81	50.03	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K2002149-001.01	0.4631 ppm	0.0065 ppm	1.4000%	2020/03/15 06:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4585	4.5851	12.46	16.30	3.84	50.04	12:32
2	TOC	0.4677	4.6768	12.53	16.31	3.78	50.02	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K2002268-001.01	3.2282 ppm	0.0259 ppm	0.8000%	2020/03/15 06:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.2465	32.4651	33.12	37.09	3.97	50.05	12:30

2	TOC	3.2098	32.0981	32.85	36.64	3.78	50.04	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K2002276-001.01	54.7777 ppm	0.4139 ppm	0.7600%	2020/03/15 07:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	54.4851	544.8506	412.93	416.78	3.85	50.02	12:27
2	TOC	55.0704	550.7042	417.27	421.14	3.87	50.02	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	RB	0.6427 ppm	0.1587 ppm	24.7000%	2020/03/15 07:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5304	5.3041	12.99	16.82	3.83	50.03	12:27
2	TOC	0.7549	7.5490	14.66	18.51	3.85	50.02	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K2002276-002.01	19.4649 ppm	0.3120 ppm	1.6000%	2020/03/15 08:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	19.6855	196.8553	154.98	158.88	3.90	50.02	12:27
2	TOC	19.2442	192.4425	151.71	155.46	3.75	50.01	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K2002276-003.01	4.7814 ppm	0.1077 ppm	2.2500%	2020/03/15 08:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.8576	48.5757	45.07	48.84	3.77	50.03	12:27
2	TOC	4.7053	47.0526	43.94	47.71	3.78	50.02	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈	19	TOC	K2002276-004.01	4.8685 ppm	0.1513 ppm	3.1100%	2020/03/15 09:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.9755	49.7548	45.94	49.86	3.92	50.00	12:28
2	TOC	4.7615	47.6152	44.35	48.16	3.81	50.02	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	25.4637 ppm (PASS)	0.0000 ppm	0%	2020/03/15 09:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4637	254.6369	198.55	202.35	3.80	50.02	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/15 10:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	9.31	13.18	3.87	50.02	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	0 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/15 10:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.68	12.31	3.63	50.04	12:30

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> LCS ER From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◉	C	TOC	25.0000	1:1	[TOC] LCS ER [25.0 ppm]	0 / infinity (NA / NA)	23.9611 ppm (PASS)	0.0000 ppm	0%	2020/03/15 10:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	23.9611	239.6109	187.41	191.21	3.80	50.00	12:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	25 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	21	TOC	K2002240-001.02.20x	2.7279 ppm	0.1006 ppm	3.6900%	2020/03/15 10:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7990	27.9902	29.81	33.75	3.95	49.97	12:25
2	TOC	2.6567	26.5669	28.75	32.69	3.94	50.00	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	22	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/15 11:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.40	12.29	3.89	49.98	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	23	TOC	FB 3/11/20 1512	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/15 11:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.56	12.26	3.71	50.00	12:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC)	Extended Reaction	Extended Reaction

(v1363) 021711 (v4) 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K2002140-001.01 doc	1.8389 ppm	0.0361 ppm	1.9600%	2020/03/15 11:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8644	18.6438	22.88	26.63	3.75	49.99	12:24
2	TOC	1.8134	18.1338	22.50	26.32	3.82	49.99	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K2002140-001.01 ms doc	28.3003 ppm	0.0000 ppm	0.0000%	2020/03/15 12:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.3003	283.0032	218.84	222.73	3.89	50.02	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/15 12:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.98	12.74	3.76	49.99	12:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K2002140-002.01 doc	1.9078 ppm	0.0293 ppm	1.5400%	2020/03/15 13:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9285	19.2846	23.35	27.31	3.96	50.03	12:27
2	TOC	1.8870	18.8704	23.05	26.83	3.78	50.00	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K2002140-003.01 doc	0.3426 ppm	0.0377 ppm	11.0000%	2020/03/15 13:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3692	3.6920	11.80	15.63	3.83	50.02	12:27

2	TOC	0.3159	3.1591	11.40	15.21	3.81	50.00	12:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	25.2446 ppm (PASS)	0.0000 ppm	0%	2020/03/15 14:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.2446	252.4460	196.93	200.59	3.66	49.98	12:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/15 14:25

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	8.38	12.30	3.92	50.01	12:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	0 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	29	TOC	K2002140-004.01 doc	1.3611 ppm	0.0421 ppm	3.0900%	2020/03/15 14:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3909	13.9085	19.37	23.24	3.88	50.03	12:28
2	TOC	1.3314	13.3136	18.93	22.73	3.80	50.00	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

		Analysis			Std. Dev.		

	Pos	Type	Sample ID	Result (ppmC)	(ppmC)	RSD	Start Time
◈	30	TOC	K2002140-005.01 doc	0.8485 ppm	0.0122 ppm	1.4400%	2020/03/15 15:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8572	8.5716	15.41	19.36	3.95	50.01	12:31
2	TOC	0.8399	8.3989	15.28	19.16	3.87	50.02	12:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K2002140-006.01 doc	1.7616 ppm	0.0622 ppm	3.5300%	2020/03/15 15:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8056	18.0556	22.44	26.26	3.82	50.02	12:28
2	TOC	1.7176	17.1760	21.79	25.69	3.90	50.01	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K2002140-007.01 doc	1.9266 ppm	0.0669 ppm	3.4700%	2020/03/15 16:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9739	19.7392	23.69	27.58	3.89	50.02	12:24
2	TOC	1.8794	18.7935	22.99	26.89	3.90	50.00	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K2002140-008.01 doc	1.8800 ppm	0.0186 ppm	0.9900%	2020/03/15 16:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8931	18.9311	23.09	26.92	3.83	50.01	12:29
2	TOC	1.8668	18.6681	22.90	26.72	3.83	49.99	12:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K2002140-009.01 doc	1.9261 ppm	0.0203 ppm	1.0500%	2020/03/15 17:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9405	19.4047	23.44	27.18	3.73	49.97	12:26
2	TOC	1.9117	19.1173	23.23	26.95	3.72	49.99	12:24

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K2002140-010.01 doc	0.8734 ppm	0.0425 ppm	4.8600%	2020/03/15 17:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9034	9.0343	15.76	19.63	3.88	49.99	12:30
2	TOC	0.8434	8.4340	15.31	19.15	3.84	49.99	12:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K2002140-011.01 doc	1.8437 ppm	0.0220 ppm	1.2000%	2020/03/15 18:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8593	18.5925	22.84	26.83	3.99	50.01	12:30
2	TOC	1.8281	18.2809	22.61	26.59	3.98	50.04	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K2002140-012.01 doc	1.8868 ppm	0.0244 ppm	1.2900%	2020/03/15 18:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9040	19.0404	23.17	26.98	3.81	50.08	12:27
2	TOC	1.8695	18.6950	22.92	26.72	3.81	50.07	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/15 19:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.56	11.35	3.79	50.11	12:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 3

	Pos	BAT	Concentration	Dil	Sample ID	Min / Max	Result	Std. Dev.	RSD	Start Time

			(ppm)			(% dev)				
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	25.0447 ppm (PASS)	0.0000 ppm	0%	2020/03/15 19:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0447	250.4466	195.45	199.23	3.79	50.12	12:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/15 20:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	7.92	11.69	3.78	50.10	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1363	1.1840	0.9250	0.0000	0.0000	0.0000	2020/03/11 13:46	Fusion1 (Fusion1)

Calibrations

Name: Extended Reaction 021711 (TOC)

Version:	v28	Calibration curve formula:	TOC: y = 6.836x + 8.019
Ver Creation:	2020/01/08 19:20	r^2 value:	TOC: r^2 = 0.99990
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
0.0 ppm	8.0870	0.0000		2020/01/08 17:41
0.50 ppm	11.6420	0.5000		2020/01/08 17:58
1.00 ppm	14.6390	1.0000		2020/01/08 18:14
5.00 ppm	43.5800	5.0000		2020/01/08 18:30
10.0 ppm	73.9500	10.0000		2020/01/08 18:46
25.0 ppm	180.1790	25.0000		2020/01/08 19:02
50.0 ppm	349.5080	50.0000		2020/01/08 19:18

Name: Extended Reaction 021711 (TOC)

Version:	v29	Calibration curve formula:	TOC: y = 7.413x + 9.803
Ver Creation:	2020/03/14 23:47	r^2 value:	TOC: r^2 = 0.99978
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
0.0 ppm	9.1000	0.0000		2020/03/14 22:08
0.50 ppm	12.8490	0.5000		2020/03/14 22:25
1.00 ppm	16.3880	1.0000		2020/03/14 22:41
5.00 ppm	45.4380	5.0000		2020/03/14 22:57
10.0 ppm	86.0520	10.0000		2020/03/14 23:13
25.0 ppm	198.6190	25.0000		2020/03/14 23:30
50.0 ppm	378.4160	50.0000		2020/03/14 23:46

Methods

Name: Extended Reaction 021711 (TOC)

Version:	v4	Operator:	Fusion1 (Fusion1)
Ver Creation:	2019/01/31 11:21		
Comment:			

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7

PreSpargeTime	4.00 mins
SystemFlow	500 ml/min

SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2020/03/15 20:20

ALS Environmental

StarLIMS Run: 673405, 673406

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/11/2020

ICAL ID: 19-GEN-8-7-E->J

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-8-L

21 % H3PO4: 19-GEN-08-8-K

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By:	Date Analyzed:
Reviewed By: ck	Date Reviewed: 3/19/20

Work Request # Original ( ) F2062276, 2337, 2353, 2365, 2412, 2434, 2416, 2424, 2434, 2462, 2470, 2471, 2489, 2492, 2496, 2432, 2457, 2496, 2422
Tier: IV II IV II IV I IV IV I II IV IV II I II IV I IV II

Date Analyzed: 3/21/20

Analyst: RP

Analysis: TOC/DOC

Run # TOC: 674205, 674225, 674226 DOC: 674227

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS: F2002416-3/3rd, 2412-4/4th, 2412-7/7th report a high %RSD. However, these samples are less than 5x the MRL

Final Approved by: _____ Date: 3/24/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674205 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002276-001	Carbon, Total Organic	N/A		Ground Water	5.85 mg/L	10 mL	58.5 mg/L	10	0.7	5.0			3/22/20 01:06:00	N	IV
K2002337-001	Carbon, Total Organic	N/A		Water	0.92 mg/L	10 mL	0.92 mg/L	1	0.07	0.50			3/21/20 20:51:00	N	II
K2002337-002	Carbon, Total Organic	N/A		Water	0.85 mg/L	10 mL	0.85 mg/L	1	0.07	0.50			3/21/20 21:48:00	N	II
K2002337-003	Carbon, Total Organic	N/A		Water	0.77 mg/L	10 mL	0.77 mg/L	1	0.07	0.50			3/21/20 22:16:00	N	II
K2002337-004	Carbon, Total Organic	N/A		Water	0.68 mg/L	10 mL	0.68 mg/L	1	0.07	0.50			3/21/20 22:44:00	N	II
K2002337-005	Carbon, Total Organic	N/A		Water	0.45 mg/L	10 mL	0.45 mg/L J	1	0.07	0.50			3/21/20 23:12:00	N	II
K2002337-006	Carbon, Total Organic	N/A		Water	1.87 mg/L	10 mL	1.87 mg/L	1	0.07	0.50			3/22/20 00:10:00	N	II
K2002337-007	Carbon, Total Organic	N/A		Water	0.63 mg/L	10 mL	0.63 mg/L	1	0.07	0.50			3/22/20 00:38:00	N	II
K2002353-001	Carbon, Total Organic	N/A		Ground Water	1.25 mg/L	10 mL	500 mg/L	400	30	200			3/22/20 02:03:00	N	IV
K2002365-001	Carbon, Total Organic	N/A		Water	6.75 mg/L	10 mL	6.75 mg/L	1	0.07	0.50			3/22/20 01:34:00	N	II
K2002412-001	Carbon, Total Organic	N/A		Ground Water	10.68 mg/L	10 mL	10.7 mg/L	1	0.07	0.50			3/22/20 02:59:00	N	IV
K2002412-002	Carbon, Total Organic	N/A		Ground Water	2.35 mg/L	10 mL	2.35 mg/L	1	0.07	0.50			3/22/20 03:27:00	N	IV
K2002412-003	Carbon, Total Organic	N/A		Ground Water	44.83 mg/L	10 mL	44.8 mg/L	1	0.07	0.50			3/22/20 03:55:00	N	IV
K2002412-004	Carbon, Total Organic	N/A		Ground Water	1.20 mg/L	10 mL	1.20 mg/L	1	0.07	0.50			3/22/20 04:23:00	N	IV
K2002412-005	Carbon, Total Organic	N/A		Ground Water	4.57 mg/L	10 mL	4.57 mg/L	1	0.07	0.50			3/22/20 05:50:00	N	IV
K2002412-006	Carbon, Total Organic	N/A		Ground Water	31.25 mg/L	10 mL	31.2 mg/L	1	0.07	0.50			3/22/20 06:18:00	N	IV
K2002412-007	Carbon, Total Organic	N/A		Ground Water	0.78 mg/L	10 mL	0.78 mg/L	1	0.07	0.50			3/22/20 06:46:00	N	IV
K2002412-008	Carbon, Total Organic	N/A		Ground Water	5.22 mg/L	10 mL	5.22 mg/L	1	0.07	0.50			3/22/20 07:14:00	N	IV
K2002434-001	Carbon, Total Organic	N/A		Water	0.24 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 07:42:00	N	I
K2002434-002	Carbon, Total Organic	N/A		Water	0.61 mg/L	10 mL	0.61 mg/L	1	0.07	0.50			3/22/20 08:10:00	N	I
KQ2003999-01	Carbon, Total Organic	CCV		Water	26.33 mg/L	10 mL	26.3 mg/L	1					3/21/20 19:52:00	N	II
KQ2003999-02	Carbon, Total Organic	CCV		Water	26.30 mg/L	10 mL	26.3 mg/L	1					3/21/20 23:40:00	N	II
KQ2003999-03	Carbon, Total Organic	CCV		Water	26.46 mg/L	10 mL	26.5 mg/L	1					3/22/20 04:51:00	N	II
KQ2003999-04	Carbon, Total Organic	CCB		Water	-0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/21/20 19:37:00	N	II
KQ2003999-05	Carbon, Total Organic	CCB		Water	0.12 mg/L	10 mL	0.12 mg/L J	1	0.07	0.50			3/21/20 23:55:00	N	II
KQ2003999-06	Carbon, Total Organic	CCB		Water	-0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 05:06:00	N	II
KQ2003999-07	Carbon, Total Organic	MB		Water	0.29 mg/L	10 mL	0.29 mg/L J	1	0.07	0.50			3/21/20 20:07:00	N	II
KQ2003999-08	Carbon, Total Organic	LCS		Water	24.88 mg/L	10 mL	24.9 mg/L	1	0.07	0.50	100		3/21/20 20:21:00	N	II
KQ2003999-09	Carbon, Total Organic	MS	K2002337-001	Water	29.48 mg/L	10 mL	29.5 mg/L	1	0.07	0.50	114		3/21/20 21:19:00	N	II
KQ2003999-10	Carbon, Total Organic	DUP	K2002276-001	Ground Water	5.92 mg/L	10 mL	59.2 mg/L	10	0.7	5.0		1	3/22/20 01:06:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674205 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2003999-11	Carbon, Total Organic	DUP	K2002337-001	Water	0.91 mg/L	10 mL	0.91 mg/L	1	0.07	0.50		1	3/21/20 20:51:00	N	II
KQ2003999-12	Carbon, Total Organic	DUP	K2002337-002	Water	0.79 mg/L	10 mL	0.79 mg/L	1	0.07	0.50		7	3/21/20 21:48:00	N	II
KQ2003999-13	Carbon, Total Organic	DUP	K2002337-003	Water	0.70 mg/L	10 mL	0.70 mg/L	1	0.07	0.50		10	3/21/20 22:16:00	N	II
KQ2003999-14	Carbon, Total Organic	DUP	K2002337-004	Water	0.67 mg/L	10 mL	0.67 mg/L	1	0.07	0.50		2	3/21/20 22:44:00	N	II
KQ2003999-15	Carbon, Total Organic	DUP	K2002337-005	Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50		3	3/21/20 23:12:00	N	II
KQ2003999-16	Carbon, Total Organic	DUP	K2002337-006	Water	1.85 mg/L	10 mL	1.85 mg/L	1	0.07	0.50		1	3/22/20 00:10:00	N	II
KQ2003999-17	Carbon, Total Organic	DUP	K2002337-007	Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		9	3/22/20 00:38:00	N	II
KQ2003999-18	Carbon, Total Organic	DUP	K2002353-001	Ground Water	1.19 mg/L	10 mL	480 mg/L	400	30	200		4	3/22/20 02:03:00	N	IV
KQ2003999-19	Carbon, Total Organic	DUP	K2002365-001	Water	6.74 mg/L	10 mL	6.74 mg/L	1	0.07	0.50		<1	3/22/20 01:34:00	N	II
KQ2003999-20	Carbon, Total Organic	DUP	K2002434-001	Water	0.19 mg/L	10 mL	0.19 mg/L J	1	0.07	0.50		NC	3/22/20 07:42:00	N	I
KQ2003999-21	Carbon, Total Organic	DUP	K2002434-002	Water	0.60 mg/L	10 mL	0.60 mg/L	1	0.07	0.50		2	3/22/20 08:10:00	N	I
KQ2003999-22	Carbon, Total Organic	DUP	K2002412-002	Ground Water	2.15 mg/L	10 mL	2.15 mg/L	1	0.07	0.50		9	3/22/20 03:27:00	N	IV
KQ2003999-23	Carbon, Total Organic	DUP	K2002412-001	Ground Water	10.27 mg/L	10 mL	10.3 mg/L	1	0.07	0.50		4	3/22/20 02:59:00	N	IV
KQ2003999-24	Carbon, Total Organic	DUP	K2002412-003	Ground Water	44.51 mg/L	10 mL	44.5 mg/L	1	0.07	0.50		<1	3/22/20 03:55:00	N	IV
KQ2003999-25	Carbon, Total Organic	DUP	K2002412-004	Ground Water	0.91 mg/L	10 mL	0.91 mg/L	1	0.07	0.50		27*	3/22/20 04:23:00	N	IV
KQ2003999-26	Carbon, Total Organic	DUP	K2002412-005	Ground Water	4.41 mg/L	10 mL	4.41 mg/L	1	0.07	0.50		4	3/22/20 05:50:00	N	IV
KQ2003999-27	Carbon, Total Organic	DUP	K2002412-006	Ground Water	30.72 mg/L	10 mL	30.7 mg/L	1	0.07	0.50		2	3/22/20 06:18:00	N	IV
KQ2003999-28	Carbon, Total Organic	DUP	K2002412-007	Ground Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		30*	3/22/20 06:46:00	N	IV
KQ2003999-29	Carbon, Total Organic	DUP	K2002412-008	Ground Water	5.27 mg/L	10 mL	5.27 mg/L	1	0.07	0.50		<1	3/22/20 07:14:00	N	IV
KQ2003999-30	Carbon, Total Organic	CCV		Water	25.76 mg/L	10 mL	25.8 mg/L	1					3/22/20 09:35:00	N	II
KQ2003999-31	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 09:49:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674225 **Method/Testcode:** 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002416-001	Carbon, Total Organic	N/A		Ground Water	0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 09:07:00	Y	IV
K2002416-002	Carbon, Total Organic	N/A		Ground Water	0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 10:33:00	N	IV
K2002416-003	Carbon, Total Organic	N/A		Ground Water	0.19 mg/L	10 mL	0.19 mg/L J	1	0.07	0.50			3/22/20 11:01:00	N	IV
K2002416-004	Carbon, Total Organic	N/A		Ground Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50			3/22/20 11:29:00	N	IV
K2002421-001	Carbon, Total Organic	N/A		Water	1.53 mg/L	10 mL	1.53 mg/L	1	0.07	0.50			3/22/20 15:45:00	N	IV
K2002421-002	Carbon, Total Organic	N/A		Water	0.79 mg/L	10 mL	0.79 mg/L	1	0.07	0.50			3/22/20 16:14:00	N	IV
K2002421-003	Carbon, Total Organic	N/A		Water	1.69 mg/L	10 mL	1.69 mg/L	1	0.07	0.50			3/22/20 16:42:00	N	IV
K2002421-004	Carbon, Total Organic	N/A		Water	0.82 mg/L	10 mL	0.82 mg/L	1	0.07	0.50			3/22/20 17:10:00	N	IV
K2002434-003	Carbon, Total Organic	N/A		Water	0.11 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 08:39:00	N	I
K2002462-001	Carbon, Total Organic	N/A		Water	2.96 mg/L	10 mL	2.96 mg/L	1	0.07	0.50			3/22/20 11:58:00	N	II
K2002470-001	Carbon, Total Organic	N/A		Water	2.07 mg/L	10 mL	2.07 mg/L	1	0.07	0.50			3/22/20 12:26:00	N	IV
K2002471-001	Carbon, Total Organic	N/A		Ground Water	4.43 mg/L	10 mL	4.43 mg/L	1	0.07	0.50			3/22/20 12:54:00	N	IV
K2002489-001	Carbon, Total Organic	N/A		Water	4.72 mg/L	10 mL	4.72 mg/L	1	0.07	0.50			3/22/20 13:22:00	N	II
K2002492-002	Carbon, Total Organic	N/A		Drinking Water	0.37 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 13:50:00	N	I
K2002496-001	Carbon, Total Organic	N/A		Water	14.38 mg/L	10 mL	14.4 mg/L	1	0.07	0.50			3/22/20 15:17:00	N	II
KQ2004008-01	Carbon, Total Organic	MS	K2002416-001	Ground Water	27.78 mg/L	10 mL	27.8 mg/L	1	0.07	0.50	111		3/22/20 10:04:00	N	IV
KQ2004008-02	Carbon, Total Organic	DUP	K2002416-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	3/22/20 09:07:00	N	IV
KQ2004008-03	Carbon, Total Organic	DUP	K2002416-002	Ground Water	0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	3/22/20 10:33:00	N	IV
KQ2004008-04	Carbon, Total Organic	DUP	K2002416-003	Ground Water	0.16 mg/L	10 mL	0.16 mg/L J	1	0.07	0.50		21*	3/22/20 11:01:00	N	IV
KQ2004008-05	Carbon, Total Organic	DUP	K2002416-004	Ground Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		2	3/22/20 11:29:00	N	IV
KQ2004008-06	Carbon, Total Organic	DUP	K2002421-001	Water	1.47 mg/L	10 mL	1.47 mg/L	1	0.07	0.50		4	3/22/20 15:45:00	N	IV
KQ2004008-07	Carbon, Total Organic	DUP	K2002421-002	Water	0.76 mg/L	10 mL	0.76 mg/L	1	0.07	0.50		3	3/22/20 16:14:00	N	IV
KQ2004008-08	Carbon, Total Organic	DUP	K2002421-003	Water	1.71 mg/L	10 mL	1.71 mg/L	1	0.07	0.50		1	3/22/20 16:42:00	N	IV
KQ2004008-09	Carbon, Total Organic	DUP	K2002421-004	Water	0.78 mg/L	10 mL	0.78 mg/L	1	0.07	0.50		5	3/22/20 17:10:00	N	IV
KQ2004008-10	Carbon, Total Organic	DUP	K2002434-003	Water	0.18 mg/L	10 mL	0.18 mg/L J	1	0.07	0.50		NC	3/22/20 08:39:00	N	I
KQ2004008-11	Carbon, Total Organic	DUP	K2002462-001	Water	2.96 mg/L	10 mL	2.96 mg/L	1	0.07	0.50		<1	3/22/20 11:58:00	N	II
KQ2004008-12	Carbon, Total Organic	DUP	K2002470-001	Water	1.98 mg/L	10 mL	1.98 mg/L	1	0.07	0.50		4	3/22/20 12:26:00	N	IV
KQ2004008-13	Carbon, Total Organic	DUP	K2002471-001	Ground Water	4.30 mg/L	10 mL	4.30 mg/L	1	0.07	0.50		3	3/22/20 12:54:00	N	IV
KQ2004008-14	Carbon, Total Organic	DUP	K2002489-001	Water	4.65 mg/L	10 mL	4.65 mg/L	1	0.07	0.50		2	3/22/20 13:22:00	N	II
KQ2004008-15	Carbon, Total Organic	DUP	K2002492-002	Drinking Water	0.40 mg/L	10 mL	0.40 mg/L J	1	0.07	0.50		NC	3/22/20 13:50:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674225 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2004008-16	Carbon, Total Organic	DUP	K2002496-001	Water	13.50 mg/L	10 mL	13.5 mg/L	1	0.07	0.50		6	3/22/20 15:17:00	N	II
KQ2004008-17	Carbon, Total Organic	CCV		Water	26.46 mg/L	10 mL	26.5 mg/L	1					3/22/20 04:51:00	N	I
KQ2004008-17	Carbon, Total Organic	CCV		Water	26.46 mg/L	10 mL	26.5 mg/L	1					3/22/20 04:51:00	N	I
KQ2004008-18	Carbon, Total Organic	CCV		Water	25.76 mg/L	10 mL	25.8 mg/L	1					3/22/20 09:35:00	N	I
KQ2004008-18	Carbon, Total Organic	CCV		Water	25.76 mg/L	10 mL	25.8 mg/L	1					3/22/20 09:35:00	N	I
KQ2004008-19	Carbon, Total Organic	CCV		Water	25.62 mg/L	10 mL	25.6 mg/L	1					3/22/20 14:19:00	N	I
KQ2004008-19	Carbon, Total Organic	CCV		Water	25.62 mg/L	10 mL	25.6 mg/L	1					3/22/20 14:19:00	N	I
KQ2004008-20	Carbon, Total Organic	CCV		Water	25.34 mg/L	10 mL	25.3 mg/L	1					3/22/20 18:35:00	N	I
KQ2004008-20	Carbon, Total Organic	CCV		Water	25.34 mg/L	10 mL	25.3 mg/L	1					3/22/20 18:35:00	N	I
KQ2004008-21	Carbon, Total Organic	CCB		Water	-0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 05:06:00	N	I
KQ2004008-21	Carbon, Total Organic	CCB		Water	-0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 05:06:00	N	I
KQ2004008-22	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 09:49:00	N	I
KQ2004008-22	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 09:49:00	N	I
KQ2004008-23	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 14:33:00	N	I
KQ2004008-23	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 14:33:00	N	I
KQ2004008-24	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 18:50:00	N	I
KQ2004008-24	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 18:50:00	N	I
KQ2004008-25	Carbon, Total Organic	MB		Water	0.06 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 05:21:00	N	I
KQ2004008-25	Carbon, Total Organic	MB		Water	0.06 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 05:21:00	N	I
KQ2004008-26	Carbon, Total Organic	LCS		Water	24.62 mg/L	10 mL	24.6 mg/L	1	0.07	0.50	98		3/22/20 05:35:00	N	I
KQ2004008-26	Carbon, Total Organic	LCS		Water	24.62 mg/L	10 mL	24.6 mg/L	1	0.07	0.50	98		3/22/20 05:35:00	N	I
KQ2004008-27	Carbon, Total Organic	N/A		Water	0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 09:07:00	N	IV
KQ2004008-28	Carbon, Total Organic	MS	KQ2004008-27	Water	27.78 mg/L	10 mL	27.8 mg/L	1	0.07	0.50	111		3/22/20 10:04:00	N	IV
KQ2004008-29	Carbon, Total Organic	DUP	KQ2004008-27	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	3/22/20 09:07:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674226 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002432-001	Carbon, Total Organic	N/A		Water	0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 17:38:00	N	IV
K2002437-001	Carbon, Total Organic	N/A		Water	1.83 mg/L	10 mL	1.83 mg/L	1	0.07	0.50			3/22/20 19:04:00	N	I
K2002437-002	Carbon, Total Organic	N/A		Water	0.72 mg/L	10 mL	0.72 mg/L	1	0.07	0.50			3/22/20 19:33:00	N	I
K2002437-003	Carbon, Total Organic	N/A		Water	3.10 mg/L	10 mL	3.10 mg/L	1	0.07	0.50			3/22/20 20:00:00	N	I
K2002437-004	Carbon, Total Organic	N/A		Water	0.71 mg/L	10 mL	0.71 mg/L	1	0.07	0.50			3/22/20 20:29:00	N	I
K2002437-005	Carbon, Total Organic	N/A		Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50			3/22/20 20:57:00	N	I
K2002456-001	Carbon, Total Organic	N/A		Water	1.07 mg/L	10 mL	1.07 mg/L	1	0.07	0.50			3/22/20 21:25:00	N	IV
K2002456-002	Carbon, Total Organic	N/A		Water	0.72 mg/L	10 mL	0.72 mg/L	1	0.07	0.50			3/22/20 21:53:00	N	IV
K2002456-003	Carbon, Total Organic	N/A		Water	1.35 mg/L	10 mL	1.35 mg/L	1	0.07	0.50			3/22/20 22:21:00	N	IV
K2002456-004	Carbon, Total Organic	N/A		Water	1.35 mg/L	10 mL	1.35 mg/L	1	0.07	0.50			3/22/20 22:49:00	N	IV
KQ2004009-01	Carbon, Total Organic	CCV		Water	25.62 mg/L	10 mL	25.6 mg/L	1					3/22/20 14:19:00	N	IV
KQ2004009-02	Carbon, Total Organic	CCV		Water	25.34 mg/L	10 mL	25.3 mg/L	1					3/22/20 18:35:00	N	IV
KQ2004009-03	Carbon, Total Organic	CCV		Water	25.05 mg/L	10 mL	25.1 mg/L	1					3/23/20 00:13:00	N	IV
KQ2004009-04	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 14:33:00	N	IV
KQ2004009-05	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 18:50:00	N	IV
KQ2004009-06	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 00:27:00	N	IV
KQ2004009-07	Carbon, Total Organic	MB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 14:48:00	N	IV
KQ2004009-08	Carbon, Total Organic	LCS		Water	24.66 mg/L	10 mL	24.7 mg/L	1	0.07	0.50	99		3/22/20 15:03:00	N	IV
KQ2004009-09	Carbon, Total Organic	MS	K2002432-001	Water	26.30 mg/L	10 mL	26.3 mg/L	1	0.07	0.50	105		3/22/20 18:06:00	N	IV
KQ2004009-10	Carbon, Total Organic	DUP	K2002432-001	Water	0.06 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	3/22/20 17:38:00	N	IV
KQ2004009-11	Carbon, Total Organic	DUP	K2002437-001	Water	1.78 mg/L	10 mL	1.78 mg/L	1	0.07	0.50		3	3/22/20 19:04:00	N	I
KQ2004009-12	Carbon, Total Organic	DUP	K2002437-002	Water	0.71 mg/L	10 mL	0.71 mg/L	1	0.07	0.50		2	3/22/20 19:33:00	N	I
KQ2004009-13	Carbon, Total Organic	DUP	K2002437-003	Water	3.13 mg/L	10 mL	3.13 mg/L	1	0.07	0.50		<1	3/22/20 20:00:00	N	I
KQ2004009-14	Carbon, Total Organic	DUP	K2002437-004	Water	0.64 mg/L	10 mL	0.64 mg/L	1	0.07	0.50		10	3/22/20 20:29:00	N	I
KQ2004009-15	Carbon, Total Organic	DUP	K2002437-005	Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50		4	3/22/20 20:57:00	N	I
KQ2004009-16	Carbon, Total Organic	DUP	K2002456-001	Water	1.04 mg/L	10 mL	1.04 mg/L	1	0.07	0.50		2	3/22/20 21:25:00	N	IV
KQ2004009-17	Carbon, Total Organic	DUP	K2002456-002	Water	0.66 mg/L	10 mL	0.66 mg/L	1	0.07	0.50		9	3/22/20 21:53:00	N	IV
KQ2004009-18	Carbon, Total Organic	DUP	K2002456-003	Water	1.35 mg/L	10 mL	1.35 mg/L	1	0.07	0.50		<1	3/22/20 22:21:00	N	IV
KQ2004009-19	Carbon, Total Organic	DUP	K2002456-004	Water	1.30 mg/L	10 mL	1.30 mg/L	1	0.07	0.50		4	3/22/20 22:49:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674227 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002422-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	9.45 mg/L	10 mL	9.45 mg/L	1	0.07	0.50			3/23/20 02:23:00	N	III
K2002462-002	Carbon, Dissolved Organic	N/A		Water	4.12 mg/L	10 mL	4.12 mg/L	1	0.07	0.50			3/23/20 01:11:00	N	II
KQ2004010-01	Carbon, Dissolved Organic	CCV		Water	25.13 mg/L	10 mL	25.1 mg/L	1					3/23/20 00:13:00	N	II
KQ2004010-01	Carbon, Dissolved Organic (DOC)	CCV		Water	25.13 mg/L	10 mL	25.1 mg/L	1					3/23/20 00:13:00	N	II
KQ2004010-02	Carbon, Dissolved Organic	CCV		Water	25.06 mg/L	10 mL	25.1 mg/L	1					3/23/20 03:20:00	N	II
KQ2004010-02	Carbon, Dissolved Organic (DOC)	CCV		Water	25.06 mg/L	10 mL	25.1 mg/L	1					3/23/20 03:20:00	N	II
KQ2004010-03	Carbon, Dissolved Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 00:27:00	N	II
KQ2004010-03	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 00:27:00	N	II
KQ2004010-04	Carbon, Dissolved Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 03:35:00	N	II
KQ2004010-04	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 03:35:00	N	II
KQ2004010-05	Carbon, Dissolved Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 00:42:00	N	II
KQ2004010-05	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 00:42:00	N	II
KQ2004010-06	Carbon, Dissolved Organic	LCS		Water	24.20 mg/L	10 mL	24.2 mg/L	1	0.07	0.50	97		3/23/20 00:57:00	N	II
KQ2004010-06	Carbon, Dissolved Organic (DOC)	LCS		Water	24.20 mg/L	10 mL	24.2 mg/L	1	0.07	0.50	97		3/23/20 00:57:00	N	II
KQ2004010-07	Carbon, Dissolved Organic	MS	K2002462-002	Water	32.05 mg/L	10 mL	32.0 mg/L	1	0.07	0.50	112		3/23/20 01:40:00	N	II
KQ2004010-08	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	4.12 mg/L	10 mL	4.12 mg/L	1	0.07	0.50			3/23/20 01:11:00	N	III
KQ2004010-09	Carbon, Dissolved Organic (DOC)	MS	KQ2004010-08	Surface Water	32.05 mg/L	10 mL	32.0 mg/L	1	0.07	0.50	112		3/23/20 01:40:00	N	III
KQ2004010-10	Carbon, Dissolved Organic (DOC)	DUP	K2002422-001	Surface Water	9.61 mg/L	10 mL	9.61 mg/L	1	0.07	0.50		2	3/23/20 02:23:00	N	III
KQ2004010-11	Carbon, Dissolved Organic	DUP	K2002462-002	Water	4.07 mg/L	10 mL	4.07 mg/L	1	0.07	0.50		1	3/23/20 01:11:00	N	II
KQ2004010-12	Carbon, Dissolved Organic (DOC)	DUP	KQ2004010-08	Surface Water	4.07 mg/L	10 mL	4.07 mg/L	1	0.07	0.50		1	3/23/20 01:11:00	N	III

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

0.043	0.043			OBSERVATIONS	12	0.0432
0.366				STD Deviation	0.11429	ABOVE
0.200				AVERAGE	0.06658	ABOVE
0.055	0.055	0.055	######	UCL	0.18087	0.0545
0.136	0.136			LCL	-0.04772	0.1357
0.000						0
0.000						0
0.000				OBSERVATIONS	3	0
0.000				STD Deviation	0.02578	0
0.000				AVERAGE	0.07780	0
0.000				UCL	0.10358	0
0.000				LCL	0.05202	0
						0
						0
				OBSERVATIONS	1	0
				STD Deviation	#DIV/0!	0
				AVERAGE	0.05450	0
				UCL	#DIV/0!	0
				LCL	#DIV/0!	0
						0
						0
				OBSERVATIONS	0	0
				STD Deviation	#DIV/0!	0
				AVERAGE	#DIV/0!	0
						0
						0
						0
						0
						0

BLP 3/24/20

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccb	1	0.043	0.0778	-0.0346	-0.0346	<0.5	3/21/2020
3	ccv	1	26.406	0.0778	26.3280	26.328	26.3	3/21/2020
4	mb	1	0.366	0.0778	0.2878	0.2878	<0.5	3/21/2020
5	lcs	1	24.954	0.0778	24.8758	24.8758	24.9	3/21/2020
6	K2002337-001	1	0.994	0.0778	0.9162	0.9162	0.92	3/21/2020
7	K2002337-001	1	0.983	0.0778	0.9055	0.9055	0.9	3/21/2020
8	KQ2003999-09	1	29.561	0.0778	29.4834	29.4834	29	3/21/2020
9	K2002337-002	1	0.927	0.0778	0.8490	0.849	0.85	3/21/2020
10	K2002337-002	1	0.868	0.0778	0.7902	0.7902	0.79	3/21/2020
11	K2002337-003	1	0.851	0.0778	0.7733	0.7733	0.8	3/21/2020
12	K2002337-003	1	0.778	0.0778	0.6997	0.6997	0.70	3/21/2020
13	K2002337-004	1	0.759	0.0778	0.6814	0.6814	0.68	3/21/2020
14	K2002337-004	1	0.748	0.0778	0.6704	0.6704	0.67	3/21/2020
15	K2002337-005	1	0.530	0.0778	0.4518	0.4518	<0.5	3/21/2020
16	K2002337-005	1	0.543	0.0778	0.4649	0.4649	<0.5	3/21/2020
17	ccv	1	26.379	0.0778	26.3014	26.3014	26.30	3/21/2020
18	ccb	1	0.200	0.0778	0.1221	0.1221	<0.5	3/21/2020
19	K2002337-006	1	1.952	0.0778	1.8738	1.8738	1.9	3/22/2020
20	K2002337-006	1	1.929	0.0778	1.8513	1.8513	1.85	3/22/2020
21	K2002337-007	1	0.710	0.0778	0.6317	0.6317	0.63	3/22/2020
22	K2002337-007	1	0.658	0.0778	0.5798	0.5798	0.6	3/22/2020
23	K2002276-001	10	5.931	0.0778	5.8531	58.531	58.5	3/22/2020
24	K2002276-001	10	5.997	0.0778	5.9193	59.193	59.19	3/22/2020
25	K2002365-001	1	6.825	0.0778	6.7471	6.7471	6.75	3/22/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

	date	time
Analyzed By: KD	Date Analyzed 3/21/20	
Reviewed By:	Date Reviewed	

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K2002365-001	1	6.814	0.0778	6.7366	6.7366	6.74	3/22/2020
27	K2002353-001	400	1.325	0.0778	1.2473	498.92	498.92	3/22/2020
28	K2002353-001	400	1.272	0.0778	1.1941	477.64	477.6	3/22/2020
29	K2002412-001	1	10.758	0.0778	10.6798	10.6798	10.7	3/22/2020
30	K2002412-001	1	10.352	0.0778	10.2738	10.2738	10.3	3/22/2020
31	K2002412-002	1	2.431	0.0778	2.3535	2.3535	2.4	3/22/2020
32	K2002412-002	1	2.226	0.0778	2.1484	2.1484	2.1	3/22/2020
33	K2002412-003	1	44.908	0.0778	44.8304	44.8304	44.8	3/22/2020
34	K2002412-003	1	44.589	0.0778	44.5114	44.5114	44.5	3/22/2020
35	K2002412-004	1	1.276	0.0778	1.1981	1.1981	1.2	3/22/2020
36	K2002412-004	1	0.987	0.0778	0.9096	0.9096	0.9	3/22/2020
37	ccv	1	26.538	0.0778	26.4599	26.4599	26.5	3/22/2020
38	ccb	1	0.055	0.0778	-0.0233	-0.0233	<0.5	3/22/2020
39	K2002412-005	1	4.650	0.0778	4.5720	4.572	4.6	3/22/2020
40	K2002412-005	1	4.487	0.0778	4.4096	4.4096	4.4	3/22/2020
41	K2002412-006	1	31.326	0.0778	31.2482	31.2482	31.2	3/22/2020
42	K2002412-006	1	30.802	0.0778	30.7243	30.7243	30.7	3/22/2020
43	K2002412-007	1	0.861	0.0778	0.7828	0.7828	0.8	3/22/2020
44	K2002412-007	1	0.659	0.0778	0.5810	0.581	0.6	3/22/2020
45	K2002412-008	1	5.297	0.0778	5.2192	5.2192	5.2	3/22/2020
46	K2002412-008	1	5.349	0.0778	5.2707	5.2707	5.3	3/22/2020
47	K2002434-001	1	0.318	0.0778	0.2402	0.2402	<0.5	3/22/2020
48	K2002434-001	1	0.271	0.0778	0.1933	0.1933	<0.5	3/22/2020
49	K2002434-002	1	0.689	0.0778	0.6116	0.6116	0.6	3/22/2020
50	K2002434-002	1	0.674	0.0778	0.5965	0.5965	0.6	3/22/2020

Analyzed By: BCD	Date Analyzed 3/24/20
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	ccv	1	25.843	0.0778	25.7647	25.7647	25.76	3/22/2020
52	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
53		1		0.0000	0.0000	0	<0.5	
54		1		0.0000	0.0000	0	<0.5	
55		1		0.0000	0.0000	0	<0.5	
56		1		0.0000	0.0000	0	<0.5	
57		1		0.0000	0.0000	0	<0.5	
58		1		0.0000	0.0000	0	<0.5	
59		1		0.0000	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By: BKP	Date Analyzed 3/24/20
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	26.538	0.0778	26.4599	26.4599	26.5	3/22/2020
3	ccb	1	0.055	0.0778	-0.0233	-0.0233	<0.5	3/22/2020
4	mb	1	0.136	0.0778	0.0579	0.0579	<0.5	3/22/2020
5	lcs	1	24.698	0.0778	24.6205	24.6205	24.6	3/22/2020
6	K2002434-003	1	0.192	0.0778	0.1139	0.1139	<0.5	3/22/2020
7	K2002434-003	1	0.258	0.0778	0.1797	0.1797	<0.5	3/22/2020
8	K2002416-001	1	0.099	0.0778	0.0207	0.0207	<0.5	3/22/2020
9	K2002416-001	1	0.083	0.0778	0.0048	0.0048	<0.5	3/22/2020
10	ccv	1	25.843	0.0778	25.7647	25.7647	25.76	3/22/2020
11	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
12	KQ2004008-01	1	27.862	0.0778	27.7842	27.7842	27.78	3/22/2020
13	K2002416-002	1	0.099	0.0778	0.0210	0.021	<0.5	3/22/2020
14	K2002416-002	1	0.085	0.0778	0.0067	0.0067	<0.5	3/22/2020
15	K2002416-003	1	0.271	0.0778	0.1932	0.1932	<0.5	3/22/2020
16	K2002416-003	1	0.235	0.0778	0.1572	0.1572	<0.5	3/22/2020
17	K2002416-004	1	1.615	0.0778	1.5370	1.537	1.54	3/22/2020
18	K2002416-004	1	1.605	0.0778	1.5267	1.5267	1.5	3/22/2020
19	K2002462-001	1	3.041	0.0778	2.9627	2.9627	3.0	3/22/2020
20	K2002462-001	1	3.038	0.0778	2.9600	2.96	2.96	3/22/2020
21	K2002470-001	1	2.148	0.0778	2.0704	2.0704	2.07	3/22/2020
22	K2002470-001	1	2.061	0.0778	1.9828	1.9828	2.0	3/22/2020
23	K2002471-001	1	4.509	0.0778	4.4308	4.4308	4.4	3/22/2020
24	K2002471-001	1	4.381	0.0778	4.3030	4.303	4.30	3/22/2020
25	K2002489-001	1	4.801	0.0778	4.7227	4.7227	4.72	3/22/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

date time

Analyzed By: [signature]	Date Analyzed 3/22/20
Reviewed By:	Date Reviewed

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K2002489-001	1	4.724	0.0778	4.6460	4.646	4.65	3/22/2020
27	K2002492-002	1	0.452	0.0778	0.3746	0.3746	<0.5	3/22/2020
28	K2002492-002	1	0.479	0.0778	0.4014	0.4014	<0.5	3/22/2020
29	ccv	1	25.695	0.0778	25.6168	25.6168	25.6	3/22/2020
30	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
31	K2002496-001	1	14.459	0.0778	14.3812	14.3812	14.4	3/22/2020
32	K2002496-001	1	13.578	0.0778	13.5000	13.5	13.5	3/22/2020
33	K2002421-001	1	1.605	0.0778	1.5272	1.5272	1.5	3/22/2020
34	K2002421-001	1	1.548	0.0778	1.4705	1.4705	1.5	3/22/2020
35	K2002421-002	1	0.866	0.0778	0.7878	0.7878	0.8	3/22/2020
36	K2002421-002	1	0.842	0.0778	0.7645	0.7645	0.8	3/22/2020
37	K2002421-003	1	1.766	0.0778	1.6881	1.6881	1.7	3/22/2020
38	K2002421-003	1	1.790	0.0778	1.7125	1.7125	1.7	3/22/2020
39	K2002421-004	1	0.896	0.0778	0.8180	0.818	0.8	3/22/2020
40	K2002421-004	1	0.859	0.0778	0.7812	0.7812	0.8	3/22/2020
41	ccv	1	25.418	0.0778	25.3398	25.3398	25.3	3/22/2020
42	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: KP	Date Analyzed 3/22/20
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	25.695	0.0778	25.6168	25.6168	25.6	3/22/2020
3	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
4	mb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
5	lcs	1	24.742	0.0778	24.6645	24.6645	24.7	3/22/2020
6	K2002432-001	1	0.108	0.0778	0.0305	0.0305	<0.5	3/22/2020
7	K2002432-001	1	0.143	0.0778	0.0649	0.0649	<0.5	3/22/2020
8	KQ2004009-09	1	26.380	0.0778	26.3020	26.302	26	3/22/2020
9	ccv	1	25.418	0.0778	25.3398	25.3398	25.34	3/22/2020
10	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
11	K2002437-001	1	1.911	0.0778	1.8331	1.8331	1.8	3/22/2020
12	K2002437-001	1	1.853	0.0778	1.7754	1.7754	1.78	3/22/2020
13	K2002437-002	1	0.802	0.0778	0.7246	0.7246	0.72	3/22/2020
14	K2002437-002	1	0.788	0.0778	0.7099	0.7099	0.71	3/22/2020
15	K2002437-003	1	3.181	0.0778	3.1028	3.1028	3.1	3/22/2020
16	K2002437-003	1	3.208	0.0778	3.1306	3.1306	3.1	3/22/2020
17	K2002437-004	1	0.783	0.0778	0.7056	0.7056	0.71	3/22/2020
18	K2002437-004	1	0.715	0.0778	0.6372	0.6372	0.6	3/22/2020
19	K2002437-005	1	0.665	0.0778	0.5874	0.5874	0.6	3/22/2020
20	K2002437-005	1	0.641	0.0778	0.5633	0.5633	0.56	3/22/2020
21	K2002456-001	1	1.145	0.0778	1.0675	1.0675	1.07	3/22/2020
22	K2002456-001	1	1.122	0.0778	1.0438	1.0438	1.0	3/22/2020
23	K2002456-002	1	0.794	0.0778	0.7165	0.7165	0.7	3/22/2020
24	K2002456-002	1	0.735	0.0778	0.6568	0.6568	0.66	3/22/2020
25	K2002456-003	1	1.431	0.0778	1.3528	1.3528	1.35	3/22/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

date time

Analyzed By: BDP	Date Analyzed 3/12/20
Reviewed By:	Date Reviewed

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K2002456-003	1	1.431	0.0778	1.3528	1.3528	1.35	3/22/2020
27	K2002456-004	1	1.433	0.0778	1.3548	1.3548	1.35	3/22/2020
28	K2002456-004	1	1.375	0.0778	1.2971	1.2971	1.3	3/22/2020
29	ccv	1	25.130	0.0778	25.0525	25.0525	25.1	3/23/2020
30	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/23/2020
31		1		0.0000	0.0000	0	<0.5	
32		1		0.0000	0.0000	0	<0.5	
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: BCP	Date Analyzed 3/21/20
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	25.130	0.0778	25.0525	25.0525	25.1	3/23/2020
3	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/23/2020
4	mb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/23/2020
5	lcs	1	24.199	0.0778	24.1209	24.1209	24.1	3/23/2020
6	K2002462-002	1	4.117	0.0778	4.0393	4.0393	4.04	3/23/2020
7	K2002462-002	1	4.067	0.0778	3.9892	3.9892	4.0	3/23/2020
8	KQ2004010-07	1	32.047	0.0778	31.9695	31.9695	32	3/23/2020
9	K2002422-001	1	9.445	0.0778	9.3675	9.3675	9.37	3/23/2020
10	K2002422-001	1	9.612	0.0778	9.5338	9.5338	9.53	3/23/2020
11	ccv	1	25.060	0.0778	24.9820	24.982	25.0	3/23/2020
12	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/23/2020
13		1		0.0000	0.0000	0	<0.5	
14		1		0.0000	0.0000	0	<0.5	
15		1		0.0000	0.0000	0	<0.5	
16		1		0.0000	0.0000	0	<0.5	
17		1		0.0000	0.0000	0	<0.5	
18		1		0.0000	0.0000	0	<0.5	
19		1		0.0000	0.0000	0	<0.5	
20		1		0.0000	0.0000	0	<0.5	
21		1		0.0000	0.0000	0	<0.5	
22		1		0.0000	0.0000	0	<0.5	
23		1		0.0000	0.0000	0	<0.5	
24		1		0.0000	0.0000	0	<0.5	
25		1		0.0000	0.0000	0	<0.5	

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

date time

Analyzed By: BCP	Date Analyzed 3/21/20
Reviewed By:	Date Reviewed

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

TOC: 674205, 674225, 674226
DOC: 674227

Schedule: 03212020

Version: 4
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/03/21 21:07 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
74	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K2002337-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K2002337-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
5	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K2002337-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K2002337-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K2002337-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K2002337-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K2002337-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K2002337-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K2002276-001.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K2002365-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K2002353-001.01 400x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K2002412-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K2002412-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K2002412-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K2002412-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K2002412-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K2002412-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K2002412-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K2002412-008.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K2002434-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K2002434-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K2002434-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K2002416-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K2002416-001.02 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
30	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
31	Sample	K2002416-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K2002416-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K2002416-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K2002462-001.06	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K2002470-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K2002471-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K2002489-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K2002492-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 03212020

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K2002496-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K2002421-001.12	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K2002421-002.12	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K2002421-003.12	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K2002421-004.12	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K2002432-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K2002432-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
47	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K2002437-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K2002437-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K2002437-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K2002437-004.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K2002437-005.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K2002456-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K2002456-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K2002456-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K2002456-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	K2002462-002.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K2002462-002.04 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
61	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
62	Sample	FB 3/19/20 1619	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
63	Sample	K2002422-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
64	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 03212020
Saturday, March 21, 2020 04:44 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/03/24 09:26 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	03212020	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/03/21 16:44

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.01	16.15	4.14	49.81	08:01
2	TC Clean	18.09	21.86	3.77	49.56	07:17
3	TC Clean	6.93	10.79	3.86	49.61	07:02
4	TC Clean	5.02	8.90	3.88	49.63	07:01

Sample Type: Sample — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	74	TOC	RB	0.4528 ppm	0.0533 ppm	11.7700%	2020/03/21 17:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4804	4.8037	10.62	14.37	3.75	49.71	10:29
2	TOC	0.4973	4.9732	10.74	14.56	3.82	49.67	10:29
3	TOC	0.4567	4.5672	10.46	14.14	3.68	49.67	10:27
4	TOC	0.3769	3.7687	9.93	13.76	3.83	49.65	10:29

Dilution **Blank Contribution** **Method** **Calibration**

1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2020/03/21 18:14

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	9.17	13.91	4.74	49.79	07:59
2	TC Clean	6.79	10.62	3.83	49.55	07:20
3	TC Clean	4.32	8.23	3.91	49.61	07:00
4	TC Clean	3.54	7.40	3.86	49.60	07:01

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2020/03/21 18:48

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.92	4.73	3.81	49.82	07:59
2	TC Clean	8.57	12.40	3.83	49.62	07:17
3	TC Clean	4.30	8.10	3.80	49.63	07:00
4	TC Clean	3.55	7.36	3.81	49.65	07:03

Sample Type: Sample — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	D	TOC	RB	0.2621 ppm	0.0000 ppm	0.0000%	2020/03/21 19:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2621	2.6207	9.15	12.95	3.80	49.69	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0432 ppm (PASS)	0.0000 ppm	0%	2020/03/21 19:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0432	0.4318	8.11	11.92	3.82	49.72	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.4058 ppm (PASS)	0.0000 ppm	0%	2020/03/21 19:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.4058	264.0582	185.40	189.22	3.82	49.75	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.3656 ppm	0.0000 ppm	0.0000%	2020/03/21 20:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3656	3.6557	9.85	13.62	3.77	49.76	10:35

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> LCS — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.9536 ppm (PASS)	0.0000 ppm	0%	2020/03/21 20:21

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.9536	249.5362	175.63	179.68	4.05	49.79	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	25 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	2.0813 ppm	0.0000 ppm	0.0000%	2020/03/21 20:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0813	20.8126	21.39	25.32	3.93	49.83	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K2002337-001.01	0.9886 ppm	0.0076 ppm	0.7700%	2020/03/21 20:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9940	9.9397	14.08	17.85	3.78	49.85	10:28
2	TOC	0.9833	9.8327	14.00	17.80	3.80	49.88	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Sample — From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K2002337-001.01 ms	29.5612 ppm	0.0000 ppm	0.0000%	2020/03/21 21:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.5612	295.6123	206.19	209.98	3.79	49.90	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	RB	0.2728 ppm	0.0000 ppm	0.0000%	2020/03/21 21:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2728	2.7278	9.23	12.95	3.72	49.94	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K2002337-002.01	0.8974 ppm	0.0415 ppm	4.6300%	2020/03/21 21:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9268	9.2676	13.62	17.26	3.63	49.95	10:26
2	TOC	0.8680	8.6802	13.23	17.12	3.89	49.98	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K2002337-003.01	0.8143 ppm	0.0520 ppm	6.3900%	2020/03/21 22:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8511	8.5107	13.12	16.70	3.59	49.97	10:27
2	TOC	0.7775	7.7747	12.62	16.55	3.93	50.00	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K2002337-004.01	0.7537 ppm	0.0078 ppm	1.0300%	2020/03/21 22:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7592	7.5918	12.50	16.55	4.05	50.01	10:30
2	TOC	0.7482	7.4817	12.42	16.32	3.90	50.00	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K2002337-005.01	0.5361 ppm	0.0093 ppm	1.7300%	2020/03/21 23:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5296	5.2958	10.95	14.68	3.72	49.98	10:30
2	TOC	0.5427	5.4267	11.04	14.79	3.75	49.99	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.3792 ppm	0.0000 ppm	0%	2020/03/21 23:40

							(PASS)			

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.3792	263.7921	185.22	188.92	3.71	50.01	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.1999 ppm (PASS)	0.0000 ppm	0%	2020/03/21 23:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.1999	1.9991	9.16	12.96	3.80	50.00	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	10	TOC	K2002337-006.01	1.9404 ppm	0.0159 ppm	0.8200%	2020/03/22 00:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9516	19.5160	20.52	24.28	3.76	50.01	10:33
2	TOC	1.9291	19.2914	20.37	24.25	3.89	49.98	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K2002337-007.01	0.6836 ppm	0.0367 ppm	5.3700%	2020/03/22 00:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7095	7.0951	12.16	15.91	3.75	49.97	10:25
2	TOC	0.6576	6.5762	11.81	15.68	3.87	49.95	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis	Sample ID	Result (ppmC)	Std. Dev.	RSD	Start Time

		Type			(ppmC)		
◆	12	TOC	K2002276-001.01 10x	5.9640 ppm	0.0468 ppm	0.7800%	2020/03/22 01:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.9309	59.3095	47.28	51.18	3.91	49.95	10:27
2	TOC	5.9971	59.9712	47.72	51.51	3.79	49.96	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K2002365-001.01	6.8196 ppm	0.0075 ppm	0.1100%	2020/03/22 01:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.8249	68.2493	53.29	57.25	3.96	49.94	10:26
2	TOC	6.8144	68.1437	53.22	57.13	3.91	49.94	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K2002353-001.01 400x	1.2985 ppm	0.0376 ppm	2.9000%	2020/03/22 02:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3251	13.2513	16.30	20.20	3.90	49.93	10:28
2	TOC	1.2719	12.7189	15.94	19.92	3.97	49.90	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	RB	0.0981 ppm	0.0036 ppm	3.6500%	2020/03/22 02:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1006	1.0059	8.07	11.84	3.77	49.88	10:26
2	TOC	0.0955	0.9553	8.03	12.08	4.05	49.88	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	16	TOC	K2002412-001.01	10.5546 ppm	0.2870 ppm	2.7200%	2020/03/22 02:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.7576	107.5758	79.74	83.68	3.95	49.85	10:29
2	TOC	10.3516	103.5163	77.01	80.95	3.94	49.85	10:26

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	17	TOC	K2002412-002.01	2.3288 ppm	0.1450 ppm	6.2300%	2020/03/22 03:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4313	24.3130	23.74	27.73	3.98	49.85	10:28
2	TOC	2.2262	22.2625	22.36	26.60	4.24	49.85	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	18	TOC	K2002412-003.01	44.7487 ppm	0.2255 ppm	0.5000%	2020/03/22 03:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	44.9082	449.0821	309.40	313.24	3.84	49.85	10:30
2	TOC	44.5892	445.8925	307.25	311.28	4.03	49.85	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	19	TOC	K2002412-004.01	1.1317 ppm	0.2040 ppm	18.0300%	2020/03/22 04:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2759	12.7591	15.97	20.08	4.10	49.87	10:27
2	TOC	0.9874	9.8743	14.03	18.07	4.04	49.92	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.5377 ppm (PASS)	0.0000 ppm	0%	2020/03/22 04:51

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.5377	265.3772	186.28	190.22	3.94	49.88	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	50 ppmC

met.	(v4)	(v32)

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0545 ppm (PASS)	0.0000 ppm	0%	2020/03/22 05:06

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0545	0.5449	8.18	12.24	4.06	49.92	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.1357 ppm	0.0000 ppm	0.0000%	2020/03/22 05:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1357	1.3568	8.30	12.27	3.97	49.92	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> LCS From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.6983 ppm (PASS)	0.0000 ppm	0%	2020/03/22 05:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.6983	246.9831	173.91	177.85	3.94	49.91	10:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	25 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈	21	TOC	K2002412-005.01	4.5686 ppm	0.1148 ppm	2.5100%	2020/03/22 05:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.6498	46.4975	38.66	42.58	3.92	49.92	10:28
2	TOC	4.4874	44.8737	37.57	41.59	4.02	49.93	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K2002412-006.01	31.0641 ppm	0.3704 ppm	1.1900%	2020/03/22 06:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	31.3260	313.2600	218.06	222.06	4.00	49.92	10:27
2	TOC	30.8021	308.0213	214.54	218.63	4.09	49.93	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K2002412-007.01	0.7597 ppm	0.1427 ppm	18.7800%	2020/03/22 06:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8606	8.6059	13.18	17.31	4.14	49.93	10:28
2	TOC	0.6588	6.5880	11.82	15.93	4.11	49.94	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K2002412-008.01	5.3228 ppm	0.0364 ppm	0.6800%	2020/03/22 07:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.2970	52.9704	43.01	47.07	4.06	49.93	10:27
2	TOC	5.3485	53.4849	43.36	47.40	4.04	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K2002434-001.01	0.2946 ppm	0.0331 ppm	11.2400%	2020/03/22 07:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3180	3.1799	9.53	13.49	3.96	49.96	10:27
2	TOC	0.2711	2.7115	9.22	13.14	3.93	49.95	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	26	TOC	K2002434-002.01	0.6819 ppm	0.0107 ppm	1.5700%	2020/03/22 08:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6894	6.8944	12.03	15.93	3.91	49.95	10:31
2	TOC	0.6743	6.7427	11.93	15.87	3.94	49.94	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	27	TOC	K2002434-003.01	0.2246 ppm	0.0465 ppm	20.6900%	2020/03/22 08:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1917	1.9174	8.68	12.65	3.97	49.94	10:25
2	TOC	0.2575	2.5746	9.12	13.14	4.02	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	28	TOC	K2002416-001.02	0.0905 ppm	0.0113 ppm	12.4200%	2020/03/22 09:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0985	0.9850	8.05	11.97	3.92	49.94	10:26
2	TOC	0.0826	0.8259	7.95	11.91	3.97	49.95	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.8425 ppm (PASS)	0.0000 ppm	0%	2020/03/22 09:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.8425	258.4255	181.61	185.65	4.04	49.95	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	50 ppmC

met.	(v4)	(v32)

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/22 09:49

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.06	10.95	3.89	49.94	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	29	TOC	K2002416-001.02 ms	27.8620 ppm	0.0000 ppm	0.0000%	2020/03/22 10:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.8620	278.6204	194.76	198.67	3.91	49.95	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	30	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/22 10:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.09	11.09	4.00	49.95	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	31	TOC	K2002416-002.02	0.0917 ppm	0.0101 ppm	11.0100%	2020/03/22 10:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0988	0.9880	8.06	12.13	4.08	49.96	10:26
2	TOC	0.0845	0.8453	7.96	12.11	4.15	49.97	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	32	TOC	K2002416-003.02	0.2530 ppm	0.0254 ppm	10.0600%	2020/03/22 11:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2710	2.7100	9.21	13.27	4.06	49.93	10:29
2	TOC	0.2350	2.3501	8.97	12.92	3.95	49.92	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	33	TOC	K2002416-004.02	1.6097 ppm	0.0073 ppm	0.4500%	2020/03/22 11:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6148	16.1479	18.25	22.09	3.84	49.94	10:26
2	TOC	1.6045	16.0453	18.18	22.08	3.90	49.92	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	34	TOC	K2002462-001.06	3.0392 ppm	0.0019 ppm	0.0600%	2020/03/22 11:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.0405	30.4052	27.84	31.73	3.89	49.91	10:31
2	TOC	3.0378	30.3785	27.82	31.60	3.78	49.91	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	35	TOC	K2002470-001.01	2.1044 ppm	0.0619 ppm	2.9400%	2020/03/22 12:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1482	21.4818	21.84	25.60	3.76	49.92	10:27
2	TOC	2.0606	20.6059	21.25	25.19	3.94	49.92	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	36	TOC	K2002471-001.01	4.4447 ppm	0.0904 ppm	2.0300%	2020/03/22 12:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.5086	45.0863	37.71	41.74	4.03	49.90	10:29

2	TOC	4.3808	43.8075	36.85	40.81	3.96	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	37	TOC	K2002489-001.01	4.7622 ppm	0.0543 ppm	1.1400%	2020/03/22 13:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.8005	48.0053	39.67	43.66	3.99	49.91	10:29
2	TOC	4.7238	47.2380	39.16	43.00	3.84	49.91	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	38	TOC	K2002492-002.01	0.4658 ppm	0.0189 ppm	4.0600%	2020/03/22 13:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4524	4.5241	10.43	14.40	3.97	49.90	10:27
2	TOC	0.4792	4.7918	10.61	14.28	3.66	49.89	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.6946 ppm (PASS)	0.0000 ppm	0%	2020/03/22 14:19

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.6946	256.9459	180.61	184.49	3.88	49.89	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/22 14:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.32	10.16	3.85	49.87	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/22 14:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.92	9.75	3.83	49.87	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> LCS From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.7423 ppm (PASS)	0.0000 ppm	0%	2020/03/22 15:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.7423	247.4232	174.21	178.06	3.85	49.87	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	25 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	40	TOC	K2002496-001.01	14.0184 ppm	0.6231 ppm	4.4400%	2020/03/22 15:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.4590	144.5901	104.63	108.44	3.81	49.85	10:28
2	TOC	13.5778	135.7782	98.70	102.54	3.83	49.84	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K2002421-001.12	1.5767 ppm	0.0401 ppm	2.5400%	2020/03/22 15:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6050	16.0498	18.18	22.01	3.83	49.82	10:28
2	TOC	1.5483	15.4833	17.80	21.76	3.95	49.80	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K2002421-002.12	0.8540 ppm	0.0165 ppm	1.9300%	2020/03/22 16:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8656	8.6565	13.21	17.17	3.96	49.80	10:29
2	TOC	0.8423	8.4230	13.06	16.87	3.81	49.81	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K2002421-003.12	1.7781 ppm	0.0172 ppm	0.9700%	2020/03/22 16:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7659	17.6587	19.27	23.22	3.95	49.79	10:29
2	TOC	1.7903	17.9026	19.43	23.24	3.81	49.77	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K2002421-004.12	0.8774 ppm	0.0261 ppm	2.9700%	2020/03/22 17:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8958	8.9583	13.42	17.18	3.76	49.77	10:27
2	TOC	0.8590	8.5895	13.17	16.92	3.75	49.78	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K2002432-001.01	0.1255 ppm	0.0243 ppm	19.3500%	2020/03/22 17:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1083	1.0832	8.12	11.94	3.82	49.80	10:28

2	TOC	0.1427	1.4267	8.35	12.16	3.81	49.84	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K2002432-001.01 ms	26.3798 ppm	0.0000 ppm	0.0000%	2020/03/22 18:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.3798	263.7980	184.80	188.75	3.96	49.85	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/22 18:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.97	9.86	3.88	49.86	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.4176 ppm (PASS)	0.0000 ppm	0%	2020/03/22 18:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4176	254.1757	178.75	182.64	3.89	49.88	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/22 18:50

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

D	TOC	0 ppm	1	0.0000	0.0000	6.08	9.82	3.74	49.92	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K2002437-001.03	1.8820 ppm	0.0408 ppm	2.1700%	2020/03/22 19:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9109	19.1085	20.24	24.02	3.78	49.93	10:29
2	TOC	1.8532	18.5316	19.85	23.57	3.71	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K2002437-002.03	0.7951 ppm	0.0104 ppm	1.3100%	2020/03/22 19:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8024	8.0245	12.79	16.50	3.71	50.00	10:24
2	TOC	0.7877	7.8773	12.69	16.46	3.77	49.99	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K2002437-003.03	3.1945 ppm	0.0197 ppm	0.6200%	2020/03/22 20:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1806	31.8060	28.78	32.47	3.69	50.00	10:30
2	TOC	3.2084	32.0841	28.97	32.65	3.68	50.00	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K2002437-004.03	0.7492 ppm	0.0484 ppm	6.4600%	2020/03/22 20:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7834	7.8341	12.66	16.42	3.76	50.00	10:32
2	TOC	0.7150	7.1501	12.20	15.91	3.71	50.03	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC)	CAS_salt_010711	CAS_salt_010711

(v1364) (v4) (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K2002437-005.03	0.6532 ppm	0.0170 ppm	2.6100%	2020/03/22 20:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6652	6.6520	11.86	15.62	3.76	50.00	10:25
2	TOC	0.6411	6.4111	11.70	15.67	3.96	50.03	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K2002456-001.01	1.1335 ppm	0.0168 ppm	1.4800%	2020/03/22 21:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1453	11.4535	15.09	18.93	3.84	50.00	10:25
2	TOC	1.1216	11.2156	14.93	18.88	3.94	50.02	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K2002456-002.01	0.7645 ppm	0.0422 ppm	5.5200%	2020/03/22 21:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7943	7.9427	12.73	16.72	3.99	50.05	10:29
2	TOC	0.7346	7.3464	12.33	16.17	3.83	50.01	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	K2002456-003.01	1.4306 ppm	0.0000 ppm	0.0000%	2020/03/22 22:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4306	14.3056	17.01	21.07	4.05	50.03	10:28
2	TOC	1.4306	14.3056	17.01	20.90	3.89	50.04	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K2002456-004.01	1.4038 ppm	0.0408 ppm	2.9100%	2020/03/22 22:49

Rep	Base	ppm	µg	Adjusted	NDIR (Abs)	Baseline	Pressure	Run

#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	1.4326	14.3264	17.03	21.09	4.07	50.03	10:26
2	TOC	1.3749	13.7494	16.64	20.59	3.96	50.03	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	57	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/22 23:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.12	9.08	3.96	50.08	10:29
2	TOC	0.0000	0.0000	5.08	8.91	3.83	50.03	10:26
3	TOC	0.0000	0.0000	4.92	8.74	3.82	50.02	10:27
4	TOC	0.0000	0.0000	4.82	8.59	3.76	50.04	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.1303 ppm (PASS)	0.0000 ppm	0%	2020/03/23 00:13

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.1303	251.3028	176.82	180.56	3.74	50.04	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/23 00:27

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.42	9.22	3.80	50.03	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/23 00:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.04	8.76	3.72	50.03	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> LCS From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.1987 ppm (PASS)	0.0000 ppm	0%	2020/03/23 00:57

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.1987	241.9868	170.55	174.42	3.87	50.01	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	25 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	59	TOC	K2002462-002.04 doc	4.0921 ppm	0.0354 ppm	0.8700%	2020/03/23 01:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1171	41.1711	35.08	38.88	3.80	50.00	10:29
2	TOC	4.0670	40.6700	34.74	38.61	3.87	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	60	TOC	K2002462-002.04 ms doc	32.0473 ppm	0.0000 ppm	0.0000%	2020/03/23 01:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	32.0473	320.4734	222.91	226.80	3.89	50.01	10:31

Dilution	Blank Contribution	Method	Calibration

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	61	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/23 01:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.10	10.11	4.00	50.00	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	62	TOC	FB 3/19/20 1619	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/23 02:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.24	9.23	4.00	49.99	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	63	TOC	K2002422-001.04 doc	9.5284 ppm	0.1176 ppm	1.2300%	2020/03/23 02:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.4453	94.4531	70.91	74.94	4.03	50.01	10:29
2	TOC	9.6116	96.1156	72.03	75.73	3.70	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	64	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/23 02:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.59	9.48	3.89	49.99	10:29
2	TOC	0.0000	0.0000	5.25	9.15	3.90	49.99	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25	0 / infinity	25.0598	0.0000	0%	2020/03/23 03:20

					ppm [25 ppm]	(NA / NA)	ppm (PASS)	ppm		

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0598	250.5980	176.34	180.27	3.92	49.97	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/23 03:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.46	9.42	3.96	50.00	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1364	1.7787	1.3950	0.0000	0.0000	0.0000	2020/03/19 15:10	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v32	Calibration curve formula:	TOC: y = 6.725x + 7.818
Ver Creation:	2020/03/11 15:55	r^2 value:	TOC: r^2 = 0.99921
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	5.8640	0.0000		2020/03/11 14:28
0.500 ppm	9.5210	0.5000		2020/03/11 14:42
1.0 ppm	12.5930	1.0000		2020/03/11 14:56
5.0 ppm	40.5270	5.0000		2020/03/11 15:10
10 ppm	79.5310	10.0000		2020/03/11 15:25
25 ppm	181.4610	25.0000		2020/03/11 15:39
50 ppm	340.5610	50.0000		2020/03/11 15:53

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)

Ver Creation: 2019/02/21 17:57

Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2020/03/23 03:50

ALS Environmental

StarLIMS Run: 674205, 674225, 674226, 674227

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/11/2020

ICAL ID: 19-GEN-8-7-E->J

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-9-H

21 % H3PO4: 19-GEN-08-8-K

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

21 BKD 3/24/20

Analyzed By: BKP	Date Analyzed: 3/24/20
Reviewed By: QC	Date Reviewed: 3/24/20

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Longhorn Army Ammunition Plant - 16

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24-Apr-2020

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  - 16WW36-200311
  - 16WW16-200311
  - 16WW16-200311-FD
  - Trip Blank
  - Dates Report
  - QC
  - Acronyms
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  - SampleReceiptCheckList
  - COC
  - HS20030498 ALS Salt Lake City Combined Report 2007568
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HS20030498 8260 Raw Data
HS20030498 RSK 175 Raw Data
HS20030498 Wet Chem Raw Data (IC)
HS20030498 ALK

HS20030498 Longhorn Army Ammunition Plant 16 Final

ALS WO# HS20030498

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March 26, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030498**

Laboratory Results for: **Longhorn Army Ammunition Plant - 16**

Dear Susan,

ALS Environmental received 8 sample(s) on Mar 12, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Work Order: HS20030498

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030498-01	16WW12-200311	Groundwater		11-Mar-2020 08:15	12-Mar-2020 08:50	☐
HS20030498-02	16RW10-200311	Groundwater		11-Mar-2020 09:05	12-Mar-2020 08:50	☐
HS20030498-03	16RW09-200311	Groundwater		11-Mar-2020 10:00	12-Mar-2020 08:50	☐
HS20030498-04	16WW35-200311	Groundwater		11-Mar-2020 11:45	12-Mar-2020 08:50	☐
HS20030498-05	16WW36-200311	Groundwater		11-Mar-2020 12:40	12-Mar-2020 08:50	☐
HS20030498-06	16WW16-200311	Groundwater		11-Mar-2020 13:40	12-Mar-2020 08:50	☐
HS20030498-07	16WW16-200311-FD	Groundwater		11-Mar-2020 13:40	12-Mar-2020 08:50	☐
HS20030498-08	Trip Blank	Water	CG-021720-08	11-Mar-2020 00:00	12-Mar-2020 08:50	☐

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Work Order: HS20030498

CASE NARRATIVE

Work Order Comments

- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

GC Semivolatiles by Method RSK-175

Batch ID: R358305

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

GCMS Volatiles by Method SW8260

Batch ID: R358594

Sample ID: 16RW09-200311 (HS20030498-03MS)

- The recovery of the Matrix Spike (MS) and the Matrix Spike Duplicate (MSD) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The failed recovery of the MS/MSD may be due to sample matrix interference.

Batch ID: R358657

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

WetChemistry by Method SW9056

Batch ID: R358987

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

Batch ID: R358918

Sample ID: HS20030220-01MS

- MS and MSD are for an unrelated sample (Sulfate)

Sample ID: HS20030221-01MS

- MS and MSD are for an unrelated sample (Bromide,Nitrogen, Nitrate (As N),Sulfate)

WetChemistry by Method SM2320B

Batch ID: R358369

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW12-200311
Collection Date: 11-Mar-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	20-Mar-2020 06:22
1,1-Dichloroethene	**3.6**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 06:22
1,2-Dichloroethane	**7.5**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 06:22
cis-1,2-Dichloroethene	**48**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 06:22
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	20-Mar-2020 06:22
Trichloroethene	**1,700**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 06:46
Vinyl chloride	**3.4**	J	**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 06:22
Surr: 1,2-Dichloroethane-d4	*90.1*			**0**	*81-118*	*%REC*	*5*	*20-Mar-2020 06:22*
Surr: 1,2-Dichloroethane-d4	*91.6*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 06:46*
Surr: 4-Bromofluorobenzene	*96.7*			**0**	*85-114*	*%REC*	*5*	*20-Mar-2020 06:22*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 06:46*
Surr: Dibromofluoromethane	*95.7*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 06:46*
Surr: Dibromofluoromethane	*93.3*			**0**	*80-119*	*%REC*	*5*	*20-Mar-2020 06:22*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*5*	*20-Mar-2020 06:22*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 06:46*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16RW10-200311
Collection Date: 11-Mar-2020 09:05

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	2.5	U	1.5	2.5	5.0	UG/L	5	20-Mar-2020 07:10
1,1-Dichloroethene	**10**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 07:10
1,2-Dichloroethane	**38**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 07:10
cis-1,2-Dichloroethene	**830**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 07:10
Methylene chloride	5.0	U	2.0	5.0	10	UG/L	5	20-Mar-2020 07:10
Trichloroethene	**4,800**		**10**	**25**	**50**	**UG/L**	50	20-Mar-2020 07:34
Vinyl chloride	**22**		**1.0**	**2.5**	**5.0**	**UG/L**	5	20-Mar-2020 07:10
Surr: 1,2-Dichloroethane-d4	*91.1*			**0**	*81-118*	*%REC*	*50*	*20-Mar-2020 07:34*
Surr: 1,2-Dichloroethane-d4	*90.2*			**0**	*81-118*	*%REC*	*5*	*20-Mar-2020 07:10*
Surr: 4-Bromofluorobenzene	*97.3*			**0**	*85-114*	*%REC*	*5*	*20-Mar-2020 07:10*
Surr: 4-Bromofluorobenzene	*95.1*			**0**	*85-114*	*%REC*	*50*	*20-Mar-2020 07:34*
Surr: Dibromofluoromethane	*95.0*			**0**	*80-119*	*%REC*	*50*	*20-Mar-2020 07:34*
Surr: Dibromofluoromethane	*94.1*			**0**	*80-119*	*%REC*	*5*	*20-Mar-2020 07:10*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*20-Mar-2020 07:10*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*50*	*20-Mar-2020 07:34*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16RW09-200311
Collection Date: 11-Mar-2020 10:00

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 03:10
1,1-Dichloroethene	**7.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 03:10
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 03:10
cis-1,2-Dichloroethene	**34**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 03:10
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 03:10
Trichloroethene	**1,300**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 04:22
Vinyl chloride	**41**		**0.20**	**0.50**	**1.0**	**UG/L**	1	20-Mar-2020 03:10
Surr: 1,2-Dichloroethane-d4	*91.4*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 03:10*
Surr: 1,2-Dichloroethane-d4	*89.6*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 04:22*
Surr: 4-Bromofluorobenzene	*99.4*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 03:10*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 04:22*
Surr: Dibromofluoromethane	*94.0*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 03:10*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 04:22*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 03:10*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 04:22*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW35-200311
Collection Date: 11-Mar-2020 11:45

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	20-Mar-2020 14:53
1,1-Dichloroethene	**96**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 14:53
1,2-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	20-Mar-2020 14:53
cis-1,2-Dichloroethene	**4,000**		**20**	**50**	**100**	**UG/L**	100	20-Mar-2020 16:05
Methylene chloride	10	U	4.0	10	20	UG/L	10	20-Mar-2020 14:53
Trichloroethene	**11,000**		**20**	**50**	**100**	**UG/L**	100	20-Mar-2020 16:05
Vinyl chloride	**82**		**2.0**	**5.0**	**10**	**UG/L**	10	20-Mar-2020 14:53
Surr: 1,2-Dichloroethane-d4	*91.2*			**0**	*81-118*	*%REC*	*10*	*20-Mar-2020 14:53*
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*100*	*20-Mar-2020 16:05*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*10*	*20-Mar-2020 14:53*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*100*	*20-Mar-2020 16:05*
Surr: Dibromofluoromethane	*93.2*			**0**	*80-119*	*%REC*	*10*	*20-Mar-2020 14:53*
Surr: Dibromofluoromethane	*94.9*			**0**	*80-119*	*%REC*	*100*	*20-Mar-2020 16:05*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*10*	*20-Mar-2020 14:53*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*100*	*20-Mar-2020 16:05*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00120**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 12:00
Ethene	**0.0109**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 12:00
Methane	**0.140**		**0.00107**	**0.00500**	**0.00500**	**mg/L**	10	16-Mar-2020 12:24
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**1,140**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	17-Mar-2020 21:40
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	1.00	U	0.300	1.00	1.00	mg/L	10	13-Mar-2020 02:46
Nitrogen, Nitrate (As N)	1.00	U	0.300	1.00	1.00	mg/L	10	13-Mar-2020 02:46
Sulfate	**8,660**		**100**	**250**	**250**	**mg/L**	500	26-Mar-2020 14:31
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	26-Mar-2020 09:32

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW36-200311
Collection Date: 11-Mar-2020 12:40

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	12	U	7.5	12	25	UG/L	25	20-Mar-2020 16:29
1,1-Dichloroethene	**160**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 16:29
1,2-Dichloroethane	**13**	J	**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 16:29
cis-1,2-Dichloroethene	**19,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 16:53
Methylene chloride	25	U	10	25	50	UG/L	25	20-Mar-2020 16:29
Trichloroethene	**18,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 16:53
Vinyl chloride	**180**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 16:29
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 16:29*
Surr: 1,2-Dichloroethane-d4	*91.5*			**0**	*81-118*	*%REC*	*250*	*20-Mar-2020 16:53*
Surr: 4-Bromofluorobenzene	*97.3*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 16:29*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*250*	*20-Mar-2020 16:53*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 16:29*
Surr: Dibromofluoromethane	*94.2*			**0**	*80-119*	*%REC*	*250*	*20-Mar-2020 16:53*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 16:29*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*250*	*20-Mar-2020 16:53*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00216**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 12:39
Ethene	**0.0189**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 12:39
Methane	**0.749**		**0.00535**	**0.0250**	**0.0250**	**mg/L**	50	16-Mar-2020 12:53
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**614**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	17-Mar-2020 21:47
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**0.910**		**0.150**	**0.500**	**0.500**	**mg/L**	5	13-Mar-2020 03:04
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	13-Mar-2020 03:04
Sulfate	**2,670**		**100**	**250**	**250**	**mg/L**	500	26-Mar-2020 14:49
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	26-Mar-2020 09:32

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW16-200311
Collection Date: 11-Mar-2020 13:40

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	12	U	7.5	12	25	UG/L	25	20-Mar-2020 17:17
1,1-Dichloroethene	**37**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 17:17
1,2-Dichloroethane	**30**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 17:17
cis-1,2-Dichloroethene	**13,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 17:41
Methylene chloride	25	U	10	25	50	UG/L	25	20-Mar-2020 17:17
Trichloroethene	**27,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 17:41
Vinyl chloride	**300**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 17:17
Surr: 1,2-Dichloroethane-d4	*90.7*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 17:17*
Surr: 1,2-Dichloroethane-d4	*91.2*			**0**	*81-118*	*%REC*	*250*	*20-Mar-2020 17:41*
Surr: 4-Bromofluorobenzene	*97.6*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 17:17*
Surr: 4-Bromofluorobenzene	*96.0*			**0**	*85-114*	*%REC*	*250*	*20-Mar-2020 17:41*
Surr: Dibromofluoromethane	*94.9*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 17:17*
Surr: Dibromofluoromethane	*95.1*			**0**	*80-119*	*%REC*	*250*	*20-Mar-2020 17:41*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 17:17*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*250*	*20-Mar-2020 17:41*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00487**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 13:03
Ethene	**0.0102**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 13:03
Methane	**1.21**		**0.0107**	**0.0500**	**0.0500**	**mg/L**	100	16-Mar-2020 13:14
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**397**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	17-Mar-2020 21:54
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**4.51**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	13-Mar-2020 03:58
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	13-Mar-2020 03:58
Sulfate	**433**		**1.00**	**2.50**	**2.50**	**mg/L**	5	13-Mar-2020 03:40
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	26-Mar-2020 09:32

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW16-200311-FD
Collection Date: 11-Mar-2020 13:40

ANALYTICAL REPORT
WorkOrder:HS20030498
Lab ID:HS20030498-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	12	U	7.5	12	25	UG/L	25	20-Mar-2020 18:05
1,1-Dichloroethene	**41**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 18:05
1,2-Dichloroethane	**30**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 18:05
cis-1,2-Dichloroethene	**13,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 18:29
Methylene chloride	25	U	10	25	50	UG/L	25	20-Mar-2020 18:05
Trichloroethene	**28,000**		**50**	**120**	**250**	**UG/L**	250	20-Mar-2020 18:29
Vinyl chloride	**310**		**5.0**	**12**	**25**	**UG/L**	25	20-Mar-2020 18:05
Surr: 1,2-Dichloroethane-d4	*89.2*			**0**	*81-118*	*%REC*	*25*	*20-Mar-2020 18:05*
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*250*	*20-Mar-2020 18:29*
Surr: 4-Bromofluorobenzene	*95.9*			**0**	*85-114*	*%REC*	*25*	*20-Mar-2020 18:05*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*250*	*20-Mar-2020 18:29*
Surr: Dibromofluoromethane	*93.5*			**0**	*80-119*	*%REC*	*25*	*20-Mar-2020 18:05*
Surr: Dibromofluoromethane	*94.1*			**0**	*80-119*	*%REC*	*250*	*20-Mar-2020 18:29*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*25*	*20-Mar-2020 18:05*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*250*	*20-Mar-2020 18:29*
DISSOLVED GASES BY RSK-175		**Method:RSK-175**						Analyst: PVL
Ethane	**0.00498**		**0.000144**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 13:22
Ethene	**0.00984**		**0.000234**	**0.000500**	**0.00100**	**mg/L**	1	16-Mar-2020 13:22
Methane	**1.29**		**0.0107**	**0.0500**	**0.0500**	**mg/L**	100	16-Mar-2020 13:36
ALKALINITY BY SM2320B		**Method:SM2320B**						Analyst: TH
Alkalinity, Total (As CaCO3)	**393**	a	**5.00**	**5.00**	**5.00**	**mg/L**	1	17-Mar-2020 22:01
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KVL
Bromide	**4.62**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	13-Mar-2020 04:34
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	13-Mar-2020 04:34
Sulfate	**437**		**1.00**	**2.50**	**2.50**	**mg/L**	5	13-Mar-2020 04:16
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Mar-2020 15:45
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	26-Mar-2020 09:32

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

ALS Houston, US

Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.

ANALYTICAL REPORT

Project: Longhorn Army Ammunition Plant - 16

WorkOrder:HS20030498

Sample ID: Trip Blank

Lab ID:HS20030498-08

Collection Date: 11-Mar-2020 00:00

Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	20-Mar-2020 01:09
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 01:09
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 01:09
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 01:09
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	20-Mar-2020 01:09
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 01:09
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	20-Mar-2020 01:09
Surr: 1,2-Dichloroethane-d4	*91.2*			**0**	*81-118*	*%REC*	*1*	*20-Mar-2020 01:09*
Surr: 4-Bromofluorobenzene	*96.2*			**0**	*85-114*	*%REC*	*1*	*20-Mar-2020 01:09*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*1*	*20-Mar-2020 01:09*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*20-Mar-2020 01:09*

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

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R358305 (0)	**Test Name :** DISSOLVED GASES BY RSK-175				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			16 Mar 2020 12:24	10
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			16 Mar 2020 12:00	1
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			16 Mar 2020 12:53	50
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			16 Mar 2020 12:39	1
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			16 Mar 2020 13:14	100
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			16 Mar 2020 13:03	1
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			16 Mar 2020 13:36	100
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			16 Mar 2020 13:22	1
Batch ID: R358369 (0)	**Test Name :** ALKALINITY BY SM2320B				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			17 Mar 2020 21:40	1
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			17 Mar 2020 21:47	1
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			17 Mar 2020 21:54	1
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			17 Mar 2020 22:01	1
Batch ID: R358594 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20030498-08	Trip Blank	11 Mar 2020 00:00			20 Mar 2020 01:09	1
Batch ID: R358594 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20030498-01	16WW12-200311	11 Mar 2020 08:15			20 Mar 2020 06:46	25
HS20030498-01	16WW12-200311	11 Mar 2020 08:15			20 Mar 2020 06:22	5
HS20030498-02	16RW10-200311	11 Mar 2020 09:05			20 Mar 2020 07:34	50
HS20030498-02	16RW10-200311	11 Mar 2020 09:05			20 Mar 2020 07:10	5
HS20030498-03	16RW09-200311	11 Mar 2020 10:00			20 Mar 2020 04:22	25
HS20030498-03	16RW09-200311	11 Mar 2020 10:00			20 Mar 2020 03:10	1
Batch ID: R358657 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			20 Mar 2020 16:05	100
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			20 Mar 2020 14:53	10
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			20 Mar 2020 16:53	250
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			20 Mar 2020 16:29	25
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			20 Mar 2020 17:41	250
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			20 Mar 2020 17:17	25
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			20 Mar 2020 18:29	250
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			20 Mar 2020 18:05	25

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R358720 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20030498-01	16WW12-200311	11 Mar 2020 08:15			23 Mar 2020 15:45	1
HS20030498-02	16RW10-200311	11 Mar 2020 09:05			23 Mar 2020 15:45	1
HS20030498-03	16RW09-200311	11 Mar 2020 10:00			23 Mar 2020 15:45	1
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			23 Mar 2020 15:45	1
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			23 Mar 2020 15:45	1
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			23 Mar 2020 15:45	1
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			23 Mar 2020 15:45	1
Batch ID: R358918 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			13 Mar 2020 02:46	10
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			13 Mar 2020 03:04	5
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			13 Mar 2020 03:58	1
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			13 Mar 2020 03:40	5
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			13 Mar 2020 04:34	1
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			13 Mar 2020 04:16	5
Batch ID: R358929 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			26 Mar 2020 09:32	1
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			26 Mar 2020 09:32	1
HS20030498-06	16WW16-200311	11 Mar 2020 13:40			26 Mar 2020 09:32	1
HS20030498-07	16WW16-200311-FD	11 Mar 2020 13:40			26 Mar 2020 09:32	1
Batch ID: R358987 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20030498-04	16WW35-200311	11 Mar 2020 11:45			26 Mar 2020 14:31	500
HS20030498-05	16WW36-200311	11 Mar 2020 12:40			26 Mar 2020 14:49	500

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358305 (0) **Instrument:** FID-4 **Method:** DISSOLVED GASES BY RSK-175

MBLK Sample ID: **MBLK-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 10:02**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515592** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.000500	0.00100								U
Ethene	0.000500	0.00100								U
Methane	0.000500	0.000500								U

LCS Sample ID: **LCS-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 09:35**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515590** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0160	0.00100	0.01804	0	88.8	75 - 125				
Ethene	0.0171	0.00100	0.0168	0	102	75 - 125				
Methane	0.00950	0.000500	0.009647	0	98.5	75 - 125				

LCSD Sample ID: **LCSD-200316** Units: **mg/L** Analysis Date: **16-Mar-2020 09:43**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515591** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.0156	0.00100	0.01804	0	86.6	75 - 125	0.01602	2.55	30	
Ethene	0.0165	0.00100	0.0168	0	98.0	75 - 125	0.01707	3.59	30	
Methane	0.00882	0.000500	0.009647	0	91.5	75 - 125	0.009501	7.4	30	

DUP Sample ID: **HS20030383-02DUP** Units: **mg/L** Analysis Date: **16-Mar-2020 11:13**
Client ID: Run ID: **FID-4_358305** SeqNo: **5515597** PrepDate: DF: **4**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethane	0.00316	0.00400					0.003008	0	30	J
Ethene	0.0956	0.00400					0.09278	2.96	30	
Methane	0.0837	0.00200					0.08260	1.32	30	

The following samples were analyzed in this batch: HS20030498-04 HS20030498-05 HS20030498-06 HS20030498-07

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358594 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW1-200319** Units: **UG/L** Analysis Date: **20-Mar-2020 00:21**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522917** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.02*	*1.0*	*50*	*0*	*90.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.89*	*1.0*	*50*	*0*	*97.8*	*85 - 114*				
Surr: Dibromofluoromethane	*46.85*	*1.0*	*50*	*0*	*93.7*	*80 - 119*				
Surr: Toluene-d8	*52.49*	*1.0*	*50*	*0*	*105*	*89 - 112*				

LCS Sample ID: **VLCSW-200319** Units: **UG/L** Analysis Date: **19-Mar-2020 23:33**
Client ID: Run ID: **VOA6_358594** SeqNo: **5522916** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.58	1.0	20	0	97.9	80 - 119				
1,1-Dichloroethene	19.5	1.0	20	0	97.5	71 - 131				
1,2-Dichloroethane	20.24	1.0	20	0	101	73 - 128				
cis-1,2-Dichloroethene	20.38	1.0	20	0	102	78 - 123				
Methylene chloride	21.1	2.0	20	0	105	74 - 124				
Trichloroethene	20.46	1.0	20	0	102	79 - 123				
Vinyl chloride	19.07	1.0	20	0	95.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*52.83*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.74*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*53.21*	*1.0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*51.86*	*1.0*	*50*	*0*	*104*	*89 - 112*				

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358594 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20030498-03MS** Units: **UG/L** Analysis Date: **20-Mar-2020 03:34**
Client ID: **16RW09-200311** Run ID: **VOA6_358594** SeqNo: **5522925** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.87	1.0	20	0	94.3	80 - 119				
1,1-Dichloroethene	25.94	1.0	20	7.492	92.2	71 - 131				
1,2-Dichloroethane	19.02	1.0	20	0	95.1	73 - 128				
cis-1,2-Dichloroethene	52.53	1.0	20	34.18	91.8	78 - 123				
Methylene chloride	17.98	2.0	20	0	89.9	74 - 124				
Trichloroethene	1258	1.0	20	1235	113	79 - 123				EO
Vinyl chloride	59.62	1.0	20	40.77	94.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.29*	*1.0*	*50*	*0*	*92.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.58*	*1.0*	*50*	*0*	*99.2*	*85 - 114*				
Surr: Dibromofluoromethane	*46.85*	*1.0*	*50*	*0*	*93.7*	*80 - 119*				
Surr: Toluene-d8	*51.17*	*1.0*	*50*	*0*	*102*	*89 - 112*				

MSD Sample ID: **HS20030498-03MSD** Units: **UG/L** Analysis Date: **20-Mar-2020 03:58**
Client ID: **16RW09-200311** Run ID: **VOA6_358594** SeqNo: **5522926** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	18.99	1.0	20	0	95.0	80 - 119	18.87	0.645	20	
1,1-Dichloroethene	24.54	1.0	20	7.492	85.2	71 - 131	25.94	5.53	20	
1,2-Dichloroethane	19.61	1.0	20	0	98.0	73 - 128	19.02	3.08	20	
cis-1,2-Dichloroethene	51.07	1.0	20	34.18	84.5	78 - 123	52.53	2.82	20	
Methylene chloride	17.1	2.0	20	0	85.5	74 - 124	17.98	5.03	20	
Trichloroethene	1224	1.0	20	1235	-57.6	79 - 123	1258	2.75	20	SEO
Vinyl chloride	56.26	1.0	20	40.77	77.4	58 - 137	59.62	5.8	20	
Surr: 1,2-Dichloroethane-d4	*46.41*	*1.0*	*50*	*0*	*92.8*	*81 - 118*	*46.29*	*0.257*	*20*	
Surr: 4-Bromofluorobenzene	*49.12*	*1.0*	*50*	*0*	*98.2*	*85 - 114*	*49.58*	*0.926*	*20*	
Surr: Dibromofluoromethane	*46.99*	*1.0*	*50*	*0*	*94.0*	*80 - 119*	*46.85*	*0.3*	*20*	
Surr: Toluene-d8	*51.54*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.17*	*0.733*	*20*	

The following samples were analyzed in this batch: HS20030498-01 HS20030498-02 HS20030498-03 HS20030498-08

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358657 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW1-200320** Units: **UG/L** Analysis Date: **20-Mar-2020 12:29**
Client ID: Run ID: **VOA6_358657** SeqNo: **5524245** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Methylene chloride	1.0	2.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.49*	*1.0*	*50*	*0*	*91.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.34*	*1.0*	*50*	*0*	*96.7*	*85 - 114*				
Surr: Dibromofluoromethane	*47.65*	*1.0*	*50*	*0*	*95.3*	*80 - 119*				
Surr: Toluene-d8	*52.97*	*1.0*	*50*	*0*	*106*	*89 - 112*				

LCS Sample ID: **VLCSW-200320** Units: **UG/L** Analysis Date: **20-Mar-2020 11:41**
Client ID: Run ID: **VOA6_358657** SeqNo: **5524244** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.81	1.0	20	0	99.1	80 - 119				
1,1-Dichloroethene	20.25	1.0	20	0	101	71 - 131				
1,2-Dichloroethane	20.65	1.0	20	0	103	73 - 128				
cis-1,2-Dichloroethene	21.05	1.0	20	0	105	78 - 123				
Methylene chloride	21.05	2.0	20	0	105	74 - 124				
Trichloroethene	21.04	1.0	20	0	105	79 - 123				
Vinyl chloride	19.25	1.0	20	0	96.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.57*	*1.0*	*50*	*0*	*103*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.99*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*53.08*	*1.0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*51.59*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358657 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20030848-01MS** Units: **UG/L** Analysis Date: **20-Mar-2020 15:17**
Client ID: Run ID: **VOA6_358657** SeqNo: **5524249** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	21.18	1.0	20	0	106	80 - 119				
1,1-Dichloroethene	19.83	1.0	20	0	99.2	71 - 131				
1,2-Dichloroethane	19.86	1.0	20	0	99.3	73 - 128				
cis-1,2-Dichloroethene	20.41	1.0	20	0	102	78 - 123				
Methylene chloride	18.76	2.0	20	0	93.8	74 - 124				
Trichloroethene	23.21	1.0	20	0	116	79 - 123				
Vinyl chloride	19.36	1.0	20	0	96.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46*	*1.0*	*50*	*0*	*92.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.19*	*1.0*	*50*	*0*	*98.4*	*85 - 114*				
Surr: Dibromofluoromethane	*47.17*	*1.0*	*50*	*0*	*94.3*	*80 - 119*				
Surr: Toluene-d8	*53.75*	*1.0*	*50*	*0*	*108*	*89 - 112*				

MSD Sample ID: **HS20030848-01MSD** Units: **UG/L** Analysis Date: **20-Mar-2020 15:41**
Client ID: Run ID: **VOA6_358657** SeqNo: **5524250** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,2-Trichloroethane	19.59	1.0	20	0	98.0	80 - 119	21.18	7.8	20	
1,1-Dichloroethene	18.35	1.0	20	0	91.7	71 - 131	19.83	7.77	20	
1,2-Dichloroethane	19.46	1.0	20	0	97.3	73 - 128	19.86	2.07	20	
cis-1,2-Dichloroethene	19.09	1.0	20	0	95.5	78 - 123	20.41	6.67	20	
Methylene chloride	18.45	2.0	20	0	92.2	74 - 124	18.76	1.69	20	
Trichloroethene	20.94	1.0	20	0	105	79 - 123	23.21	10.3	20	
Vinyl chloride	18.11	1.0	20	0	90.6	58 - 137	19.36	6.66	20	
Surr: 1,2-Dichloroethane-d4	*45.96*	*1.0*	*50*	*0*	*91.9*	*81 - 118*	*46*	*0.0812*	*20*	
Surr: 4-Bromofluorobenzene	*48.65*	*1.0*	*50*	*0*	*97.3*	*85 - 114*	*49.19*	*1.11*	*20*	
Surr: Dibromofluoromethane	*47.52*	*1.0*	*50*	*0*	*95.0*	*80 - 119*	*47.17*	*0.749*	*20*	
Surr: Toluene-d8	*51.49*	*1.0*	*50*	*0*	*103*	*89 - 112*	*53.75*	*4.3*	*20*	

The following samples were analyzed in this batch: HS20030498-04 HS20030498-05 HS20030498-06 HS20030498-07

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358369 (0) **Instrument: ManTech01** **Method: ALKALINITY BY SM2320B**

MBLK Sample ID: **WBLKW2-200317** Units: **mg/L** Analysis Date: **17-Mar-2020 19:12**
Client ID: Run ID: **ManTech01_358369** SeqNo: **5517380** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	5.00	5.00								U

LCS Sample ID: **LCS2-200317** Units: **mg/L** Analysis Date: **17-Mar-2020 19:22**
Client ID: Run ID: **ManTech01_358369** SeqNo: **5517381** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1057	5.00	1000	0	106	85 - 115				

LCSD Sample ID: **LCSD2-200317** Units: **mg/L** Analysis Date: **17-Mar-2020 19:46**
Client ID: Run ID: **ManTech01_358369** SeqNo: **5517384** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1067	5.00	1000	0	107	85 - 115	1057	0.922	20	

DUP Sample ID: **HS20030659-21DUP** Units: **mg/L** Analysis Date: **17-Mar-2020 20:01**
Client ID: Run ID: **ManTech01_358369** SeqNo: **5517386** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	339.2	5.00					340.6	0.421	20	

The following samples were analyzed in this batch: HS20030498-04 HS20030498-05 HS20030498-06 HS20030498-07

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358918 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 21:20**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530737** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 22:14**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530740** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.834	0.100	4	0	95.8	80 - 120				
Nitrogen, Nitrate (As N)	4.108	0.100	4	0	103	80 - 120				
Sulfate	19.63	0.500	20	0	98.1	80 - 120				

LCSD Sample ID: **WLCSDW1-031220** Units: **mg/L** Analysis Date: **12-Mar-2020 22:32**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530741** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.818	0.100	4	0	95.4	80 - 120	3.834	0.423	20	
Nitrogen, Nitrate (As N)	4.09	0.100	4	0	102	80 - 120	4.108	0.454	20	
Sulfate	19.56	0.500	20	0	97.8	80 - 120	19.63	0.347	20	

MS Sample ID: **HS20030221-01MS** Units: **mg/L** Analysis Date: **13-Mar-2020 07:53**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530768** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.599	0.100	2	0	79.9	80 - 120				S
Nitrogen, Nitrate (As N)	2.401	0.100	2	0	120	80 - 120				S
Sulfate	30.89	0.500	10	24.4	65.0	80 - 120				S

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358918 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MS Sample ID: **HS20030220-01MS** Units: **mg/L** Analysis Date: **13-Mar-2020 06:59**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530765** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.809	0.100	2	0	90.5	80 - 120				
Nitrogen, Nitrate (As N)	2.054	0.100	2	0	103	80 - 120				
Sulfate	30.66	0.500	10	24.06	66.0	80 - 120				S

MSD Sample ID: **HS20030221-01MSD** Units: **mg/L** Analysis Date: **13-Mar-2020 08:12**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530769** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.606	0.100	2	0	80.3	80 - 120	1.599	0.431	20	
Nitrogen, Nitrate (As N)	2.423	0.100	2	0	121	80 - 120	2.401	0.933	20	S
Sulfate	30.98	0.500	10	24.4	65.9	80 - 120	30.89	0.29	20	S

MSD Sample ID: **HS20030220-01MSD** Units: **mg/L** Analysis Date: **13-Mar-2020 07:17**
Client ID: Run ID: **ICS-Integrion_358918** SeqNo: **5530766** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	1.825	0.100	2	0	91.3	80 - 120	1.809	0.869	20	
Nitrogen, Nitrate (As N)	2.178	0.100	2	0	109	80 - 120	2.054	5.9	20	
Sulfate	30.83	0.500	10	24.06	67.7	80 - 120	30.66	0.53	20	S

The following samples were analyzed in this batch: HS20030498-04 HS20030498-05 HS20030498-06 HS20030498-07

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358987 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-03.24.20 W** Units: **mg/L** Analysis Date: **25-Mar-2020 15:10**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532207** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-03.24.20** Units: **mg/L** Analysis Date: **25-Mar-2020 18:29**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532216** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	18.26	0.500	20	0	91.3	80 - 120				

LCSD Sample ID: **LCSD-03.24.20** Units: **mg/L** Analysis Date: **25-Mar-2020 18:47**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532217** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.82	0.500	20	0	99.1	80 - 120	18.26	8.2	20	

MS Sample ID: **HS20030877-01MS** Units: **mg/L** Analysis Date: **26-Mar-2020 15:25**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532566** PrepDate: DF: **500**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	14340	250	5000	10070	85.3	80 - 120				

MS Sample ID: **HS20030838-01MS** Units: **mg/L** Analysis Date: **26-Mar-2020 00:20**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532313** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	42.57	0.500	10	32.76	98.1	80 - 120				

MSD Sample ID: **HS20030877-01MSD** Units: **mg/L** Analysis Date: **26-Mar-2020 15:43**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532567** PrepDate: DF: **500**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	14550	250	5000	10070	89.7	80 - 120	14340	1.5	20	

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030498

QC BATCH REPORT

Batch ID: R358987 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MSD Sample ID: **HS20030838-01MSD** Units: **mg/L** Analysis Date: **26-Mar-2020 00:38**
Client ID: Run ID: **ICS-Integrion_358987** SeqNo: **5532314** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	41.66	0.500	10	32.76	89.0	80 - 120	42.57	2.17	20	

The following samples were analyzed in this batch: HS20030498-04 HS20030498-05

ALS Houston, US Date: 26-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: **HS20030498**

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 Houston, US Date: 26-Mar-20

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 26-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030498
Date/Time Received: **12-Mar-2020 08:50**
Received by: **AC**

Checklist completed by: *Paresh M. Giga* eSignature — 12-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature — 12-Mar-2020 Date

Matrices: **GW/Water**
Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.8c U/C	IR25	
Cooler(s)/Kit(s):	44977		
Date/Time sample(s) sent to storage:	3/12/2020 12:20		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

Page 1 of

COC ID: LHAAP16 March 2020 -ALS | TURNAROUND TIME: Normal | RUSH:

PROJECT/CLIENT INFO				LABORATORY				OTHER INFO			
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories			Email Invoice To	FedInvoices@aptim.com		
Project Number	501032			Lab Contact	RJ Modashia						
	LHAAP-16			Email	RJ.Modashia@alsglobal.com			Email Report To	Susan.Huang@aptim.com		
Address	1203-B East Grand Avenue			Address	10450 Stanciff Rd., Suite 210			Mail Reports To	Susan Huang		
	PMB 202							Address	4005 Port Chicago Highway, Suite 200		
City	Marshall	State	TX	City	Houston	State	TX	City	Concord	State	CA
Postal Code	75670	Country	USA	Postal Code	77099	Country	USA	Postal Code	94520	Country	USA
Phone Number	713.243.7264			Phone Number	281.575.2279 or 281.530.5656						
Project Manager	Praveen Srivastav							Shipping Company			

SAMPLE DETAILS

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.
16WW12-200311	LHAAP16				WG	3/11/20	0815	4
16RW10-200311	LHAAP16				WG	3/11/20	0905	4
16RW09-200311	LHAAP16				WG	3/11/20	1000	4
16RW09-200311-MS	LHAAP16				WG	3/11/20	1000	4
16RW09-200311-MSD	LHAAP16				WG	3/11/20	1000	4
16WW35-200311	LHAAP16				WG	3/11/20	1145	11
16WW36-200311	LHAAP16				WG	3/11/20	1240	11
16WW16-200311	LHAAP16				WG	3/11/20	1340	11
16WW16-200311-FD	LHAAP16				WG	3/11/20	1340	11
TRIP BLANK	LHAAP16				WG	3/11/20		2

ANALYSIS REQUESTED

Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	2-40ml Amber/H2SO4	1-250 ml PE/HNO3	1-250ml PE/Ice	1-250ml PE /Ice	1-250ml PE/Ice	1-125ml PE/Ice		
ANALYSIS	VOCs by SW8260B	MEE by RSK175	TOC by SM5310C	Metals (arsenic, chromium, manganese, nickel, and thallium) by SW6020	Anions (sulfate/nitrate/bromide) by SW9056	Anions (bromide only) by SW9056	Alkalinity by SM2320	Perchlorate by SW6850		
16WW12-200311	X							X		
16RW10-200311	X							X		
16RW09-200311	X							X		
16RW09-200311-MS	X							X		
16RW09-200311-MSD	X							X		
16WW35-200311	X	X	X		X		X	X		
16WW36-200311	X	X	X		X		X	X		
16WW16-200311	X	X	X		X		X	X		
16WW16-200311-FD	X	X	X		X		X	X		
TRIP BLANK	X									

HS20030498

Aptim Environmental & Infrastucture, Inc.

Longhorn Army Ammunition Plant - 16

RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
Brent Bacon / BHATT	3/11/20 1730	AC / ALS	3/12/2020 0815

W/C 1.8 IR#25 CF 0.0 44977

ALS

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 3/11
Time: 1430
Name: Scott Beesinger
Company: ALS HTX

Seal Signature By:
Date: 3/12/2021

FedEx
TRK# 0221 1251 0294 7895

THU - 12 MAR 10:30A
PRIORITY OVERNIGHT

AB SGRA

44911 77099
TX-US
IAH

FID 5102232 11MAR20 GGGA 560C7/64C0/05A2

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 2007564; 2007568

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2359 (259282)

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: NA

Method QC data: The method blank (LMB 700240) was less than 1/2 the CRDL. The recovery for the LCS (700237) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on samples 2007568004/05 (Client ID: 16RW09-200311). 3.0µL of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. The spike target was 3.µg/L. The MS/MSD (2007568004/05) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected. The relative percent difference (RPD) was within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 700238) is reported from the analysis of the Laboratory Control Sample (LCS – 700237) at a level of 3.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 19MARD02/17. Field samples 2007564006 and 2007568003/07 had positive results for perchlorate. However, because the 83/85 ion ratio failed, these results were not reported.

Thomas Bosch March 20, 2020
Analyst Date

ANALYTICAL REPORT

Report Date: March 20, 2020

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-2007568**
Project ID: HS20030498
Purchase Order: HS20030498
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
16WW12-200311	2007568001	03/11/20	03/13/20	
16RW10-200311	2007568002	03/11/20	03/13/20	
16RW09-200311	2007568003	03/11/20	03/13/20	
16WW35-200311	2007568006	03/11/20	03/13/20	
16WW36-200311	2007568007	03/11/20	03/13/20	
16WW16-200311	2007568008	03/11/20	03/13/20	
16WW16-200311-FD	2007568009	03/11/20	03/13/20	

Client QC ID *	Lab ID	Collect Date	Receive Date	Sampling Site
16RW09-200311MS	2007568004	03/11/20	03/13/20	
16RW09-200311MSD	2007568005	03/11/20	03/13/20	

***Client QC is reported as part of the Quality Control results report, if requested.**

ANALYTICAL REPORT

Workorder: 34-2007568
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16WW12-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568001 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 10:59 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**53**	1.0	2.0	4.0	1	

Sample ID: **16RW10-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568002 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 11:13 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**150**	10	20	40	10	

Sample ID: **16RW09-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568003 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 11:27 | **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: **16WW35-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568006 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 13:26 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**560**	10	20	40	10	

ANALYTICAL REPORT

Workorder: 34-2007568
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **16WW36-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568007 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 12:37 | **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: **16WW16-200311** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568008 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 12:51 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**510**	10	20	40	10	

Sample ID: **16WW16-200311-FD** | Sampling Site: NA | Collected: 03/11/2020
Lab ID: 2007568009 | Media: 125 mL Nalgene | Received: 03/13/2020
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/2359 (HBN: 259282) | **%Solids:** NA
Analyzed: 03/19/2020 13:05 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**560**	10	20	40	10	

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 03/20/2020 07:54	/S/ Stephen Brose 03/20/2020 23:20

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: 34-2007568
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.
The following was provided by the client: Sample ID, Collection Date, Sampling Location, Media Type, Sampling Parameter.
Collection Date, Media Type, and Sampling Parameter can potentially affect the validity of the results.
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	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

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.
< Means 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: 2007568

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2359 (HBN: 259282)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 700240
Analyzed: 03/19/2020 09:21
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 700237
Analyzed: 03/19/2020 08:53
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	3.42	3.00	114	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	2007568003	**MS:**	2007568004	**MSD:**	2007568005
Analyzed:	03/19/2020 11:27	**Analyzed:**	03/19/2020 11:55	**Analyzed:**	03/19/2020 12:09
Dilution:	1	**Dilution:**	1	**Dilution:**	1
Units:	ug/L	**Units:**	ug/L	**Units:**	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	4.18	3	# 139	78.8	123.8	4.35	# 145	3.89	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
03/20/2020 09:30	03/20/2020 23:19

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

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

18698/#2

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13510**

2007568

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123 **Phone:** +1 801 266 7700

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20030498
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20030498-01**	**16WW12-200311**	**Groundwater**	**11 Mar 2020 08:15**
	SUB_Perch-6850			26 Mar 2020
2.	**HS20030498-02**	**16RW10-200311**	**Groundwater**	**11 Mar 2020 09:05**
	SUB_Perch-6850			26 Mar 2020
* 3.	**HS20030498-03**	**16RW09-200311**	**Groundwater**	**11 Mar 2020 10:00**
	SUB_Perch-6850	MS/MSD		26 Mar 2020
4.	**HS20030498-04**	**16WW35-200311**	**Groundwater**	**11 Mar 2020 11:45**
	SUB_Perch-6850			26 Mar 2020
5.	**HS20030498-05**	**16WW36-200311**	**Groundwater**	**11 Mar 2020 12:40**
	SUB_Perch-6850			26 Mar 2020
6.	**HS20030498-06**	**16WW16-200311**	**Groundwater**	**11 Mar 2020 13:40**
	SUB_Perch-6850			26 Mar 2020
7.	**HS20030498-07**	**16WW16-200311-FD**	**Groundwater**	**11 Mar 2020 13:40**
	SUB_Perch-6850			26 Mar 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20030498-03 = MS/MSD

* 3 samples received for HS20030498-03, RW 03/13/2020

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13510**

QC Level: DOD IV (DoD Data Package)

Relinquished By:	J. Mahoney	Date/Time:	3/12/20 18:00
Received By:		Date/Time:	03/13/2020 0951
Cooler ID(s):		Temperature(s):	

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS20030498	***Split:***	**Workorder ID:** 2007568	**Level:** ENV_LVL4	**Requested Analysis**
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	EPA 6850, DoD QSM											
								COOL											
1	03/11/2020 08:15	16WW12-200311	2007568001		Water	A	1	A											
2	03/11/2020 09:05	16RW10-200311	2007568002		Water	A	1	A											
3	03/11/2020 10:00	16RW09-200311	2007568003		Water	A	1	A											
4	03/11/2020 10:00	16RW09-200311MS	2007568004	MS	Water	A	1	A											
5	03/11/2020 10:00	16RW09-200311MSD	2007568005	MSD	Water	A	1	A											
6	03/11/2020 11:45	16WW35-200311	2007568006		Water	A	1	A											
7	03/11/2020 12:40	16WW36-200311	2007568007		Water	A	1	A											
8	03/11/2020 13:40	16WW16-200311	2007568008		Water	A	1	A											
9	03/11/2020 13:40	16WW16-200311-FD	2007568009	FLDDUP	Water	A	1	A											

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	03/13/2020 09:51	ALS Sample Receiving	Sample Login
Julie Warath 3/13/20 1135		ISC	Storage
R.33-1 03.18.20/10.35		T Bosch	client analysis

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

01094148

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

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: HS 20030498

Date/Time of Receipt: 03/13/2020 0951

Number of Coolers Received: 1 2007568

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	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.	Cooler Received	Cooler Condition	Temp.
1	Good	3 °C	4		°C	7		°C
2		°C	5		°C	8		°C
3		°C	6		°C	9		°C

Taken By: _____ (Signature) Rebecca Wise (Printed Name) 03/13/2020 (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:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

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

01094149

Must Deliver Next Business Day
Time and Temperature Sensitive!

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

SHIP DATE: 12MAR20
ACTWGT: 20.50 LB
CAD: 3001307/CAFE3211
DIMS: 19x16x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS20130498/474 RJ

FedEx Express

TRK# 0201 1251 0295 3938

FRI - 13 MAR 3:00
STANDARD OVERNIGH

AX BTFA

8412
UT-US SL

ALS
10450 Sta
Houston,
Tel. +1 281
Fax +1 281

ALS

Batch Worklist

Batch: ELMS/ 2359
Rule: EPA 6850, DoD QSM Water

Created: 3/19/2020 07:44
Analyst: T. Bosch

Instrument:
Status: WP

HBN: 259282

Workorder: 2007564 [ENV_LVL4]
Workorder: 2007568 [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	700236	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	
2	700237	LCS for HBN 259282 [ELMS/2359]				LCS	3		E6850Q413Q	5311		3/26/2020	
3	700238	RLVS for HBN 259282 [ELMS/2359				RLVS	3		E685041C3Q	5311		3/26/2020	
4	700239	ICS for HBN 259282 [ELMS/2359]				ICS	3		E6850..D3Q	5311		3/26/2020	
5	700240	LMB for HBN 259282 [ELMS/2359]				LMB	3		E6850Q413Q	5311		3/26/2020	
6	2007564001	16PM14-200310				SAMPLE	3	2007564001-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
7	2007564002	16PM06-200310				SAMPLE	3	2007564002-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
8	2007564003	16PM09-200310				SAMPLE	3	2007564003-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
9	2007564004	16WW42-200310				SAMPLE	3	2007564004-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
10	2007564005	16WW42-200310-FD				FLDDUP	3	2007564005-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
11	2007564006	16WW40-200310				SAMPLE	3	2007564006-A	E6850Q41.3	5480	4/7/2020	3/26/2020	
12	2007568001	16WW12-200311				SAMPLE	3	2007568001-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
13	2007568002	16RW10-200311				SAMPLE	3	2007568002-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
14	2007568003	16RW09-200311				SAMPLE	3	2007568003-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
15	700241	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	
16	2007568004	16RW09-200311MS				MS	3	2007568004-A	E6850Q413Q	5480		3/26/2020	
17	2007568005	16RW09-200311MSD				MSD	3	2007568005-A	E6850Q413Q	5480		3/26/2020	
18	2007568006	16WW35-200311				SAMPLE	3	2007568006-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
19	2007568007	16WW36-200311				SAMPLE	3	2007568007-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
20	2007568008	16WW16-200311				SAMPLE	3	2007568008-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
21	2007568009	16WW16-200311-FD				FLDDUP	3	2007568009-A	E6850Q41.3	5480	4/8/2020	3/26/2020	
22	700242	CCV for HBN 259282 [ELMS/2359]				CCV	3		E685041C3Q	5311		3/26/2020	

01094151

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

Analyst Write-up

ALS Work Order #'s & Sample #( )'s: 2007564 (001-06); 2007568 (001-09)
ELMS Batch/HBN ID: 2359 (259282)
Prep Date: 03/18/2020 Analysis Date: 03/19/2020 Analyst: Tom Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\19MAR0D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Tom Bosch. 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 DU461-US)/0.1% glacial acetic acid (JT-Baker Lot 122550).
Eluent B1: 95% ACN (B&J Lot DU461-US)/5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 122550).

STANDARDS: Internal Standard Spiking Solution Horizon# 47863. Dilutions of Working Standards (Horizon: 49947/48) used for ICAL, CCV's, RLVS and ICS.

CALIBRATION CURVE: Used curve from 09/20/2019, sequence 20SEP19D.s Offline Quantitation Method: CLO4-DP3.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: 10 Injection Volume: 40µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1 Run time: 12.0min.

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 3.0µL of QC Solution Horizon ID 47516 was used for LCS 700237; Target = 3.0µg/L. ASTM type II water was used for LMB 700236.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) was performed on samples 2007568004/05 (Client ID: 16RW09-200311). 3.0µl of Working Standard Solution Horizon ID 49947 was added to 10.0mL of sample preparation. Spike target = 3.0µg/L.

COMMENTS:

1) Results reported in µg/L. Field samples 2007564006 and 2007568003/07 had positive results for perchlorate. However, because the 83/85 ion ratio failed, these results were not reported.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters, except for the following. The MS/MSD (2007568004/05) failed QC acceptance criteria for percent recoveries. The relative percent difference (RPD) passed acceptance criteria. The Matrix Spike and Matrix Spike duplicate is reported for the clients' information only. The sample matrix may be inappropriate for the method selected.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2020\MAR\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2020\DOD\259282-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 700238) is reported from the analysis of the Laboratory Control Sample (LCS – 700239) at a level of 3.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 20SEPI03) along with datafiles 19MARD02/17.

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria **Batch(es)/SDG:** ELMS: 2359 HBN: 259282 **Sample Set IDs if Applicable:** 2007564 / 2007568	**Analyst Initials**	**Reviewer Initials**
Sample positions on autosampler verified against instrument sequence	TB	NA
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#_____	TB	SB
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L	
Standard: 49946	**Created By:** Thomas Bosch	**Amount:** 25 mL	
MFG: ALS/SLC	**Create Date:** 09/23/2019 03:09PM	**Expires:** 09/19/2020	
MFG Lot: TNB: 09/20/2019	**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
47863	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	12/05/2028

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 47863	**Created By:** Thomas Bosch	**Amount:** 1 mL
MFG: Cambridge Isotope	**Create Date:** 05/23/2019 10:05AM	**Expires:** 12/05/2028
MFG Lot: SDIH-016	**Verified By:** Thomas Bosch	**Usable:** Yes
Part ID: OLM-7310-S	**Verify Date:**	**Lab Lot:** CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK		Description - 6850 WKG Std 100.ug/L
Standard: 49948	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 09/20/2019 03:09PM	**Expires:** 07/25/2020
MFG Lot: TNB: 09/20/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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
49947	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	07/25/2020

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

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

Standard:	43659	**Created By:**	Thomas Bosch	**Amount:**	100 mL
MFG:	AccuStandard	**Create Date:**	09/17/2018 09:09AM	**Expires:**	07/25/2020
MFG Lot:	218065075			**Usable:**	Yes
Part ID:	IC-PER-10X-1			**Lab Lot:**	CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025
MFG Lot: Not Provided		**Usable:** Yes
Part ID: Not Provided		**Lab Lot:** LAB 109

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

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

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

Standard: 49947 **Created By:** Thomas Bosch **Amount:** 10 mL
MFG: ALS/SLC **Create Date:** 09/23/2019 03:09PM **Expires:** 07/25/2020
MFG Lot: TNB: 09/20/2019 **Usable:** Yes
Pipette ID: Not Provided **Lab Lot:** CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL
2	14797-73-0-8385	Perchlorate 83:85 Ratio	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK		Description - 6850 QC WKG STD 100ug/L
Standard: 47516	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 05/06/2019 03:05PM	**Expires:** 03/31/2020
MFG Lot: TNB: 05/06/2019		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	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:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

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

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

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

Standard:	36748	**Created By:**	Thomas Bosch	**Amount:**	100 mL
MFG:	Ultra Scientific	**Create Date:**	05/11/2017 01:05PM	**Expires:**	03/31/2020
MFG Lot:	CP-0860			**Usable:**	Yes
Part ID:	ICC-013			**Lab Lot:**	CLO4 QC STOCK

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

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

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

Standard: 47515 **Created By:** Thomas Bosch **Amount:** 10 mL
MFG: ALS/SLC **Create Date:** 05/06/2019 03:05PM **Expires:** 03/31/2020
MFG Lot: TNB: 05/06/2019 **Usable:** Yes
Pipette ID: Not Provided **Lab Lot:** CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

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New Haven, CT 06513
USA

AccuStandard®

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www.AccuStandard.com

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: None

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO 17034 Scope of Accreditation: Yes

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

The gravimetric uncertainty for this product is ±0.24%.

The final solution was checked against an independent standard to verify its concentration.

We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.

All solutions are filtered through a 0.2 µm filter prior to being bottled.

All glassware used in preparation is Class A and calibrated regularly.

All weights are traceable through NIST, Test No. 822-275872-11

All bottles are triple rinsed with deionized water prior to use.

Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.

We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary

Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

AccuStandard®

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

S 36748

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER
ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

ISO 9001 Registered Quality System – TUV USA

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

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

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

ANAB ACCREDITED ISO 17025 TESTING LABORATORY

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

S 47863

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDIH-016
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥ 98%
MW*: ** For isotopically labeled compounds, MW listed is for the fully enriched product.*	130.44
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

$NaCl^{18}O_4$

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. CIL Certificates of Analysis are occasionally updated with new data following recertification. We recommend checking the website for the latest version.

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.

Approved by: Sashi Sivendran-Basak

Sashi Sivendran-Basak, Ph.D., Quality Review

Quality Control Tests and Results

QC Release Date	12/05/2018
Expiration Date	12/05/2028
Concentration Based on Gravimetry	100.0 ± 1.0 µg/mL (k=2)
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	105.4 ± 1.1 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\19MAR20D\19MAR20S.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	700236 CCV@25	Vial 71	1	Control	1	1.22936e6	7.603	24.07531
*	700237 LCS@3.	Vial 72	1	Control	2	1.65066e5	7.526	3.42325
*	700239 ICS@3.0	Vial 73	1	Control	3	1.10320e5	7.478	2.89335
*	700240 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	2007564001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	2007564002	Vial 76	1	Sample	6	0.00000	0.000	0.00000
*	2007564003	Vial 77	1	Sample	7	0.00000	0.000	0.00000
*	2007564004	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	2007564005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	2007564006	Vial 80	1	Sample	10	2.48609e5	6.728	~~4.28651~~ N.R.
*	2007568001	Vial 81	1	Sample	11	3.51022e6	6.847	52.77083
*	2007568002 10X	Vial 82	1	Sample	12	7.72897e5	7.466	145.91615
*	2007568003	Vial 83	1	Sample	13	6.28393e4	7.236	~~1.23157~~ N.R.
*	700241 CCV@25	Vial 71	1	Control	14	1.28100e6	7.611	25.24165
*	2007568004 MS	Vial 84	1	Sample	15	2.01081e5	7.221	4.18214
*	2007568005 MSD	Vial 85	1	Sample	16	1.97977e5	7.172	4.34825
*	2007568006	Vial 86	1	Sample	17	2.13799e7	5.995	205.68986
*	2007568007	Vial 87	1	Sample	18	1.65269e5	6.913	~~2.98152~~ N.R.
*	2007568008 10X	Vial 88	1	Sample	19	3.07542e6	7.482	514.51319
*	2007568009 10X	Vial 89	1	Sample	20	3.36085e6	7.470	560.28270
*	2007568006 10X	Vial 90	1	Sample	21	3.45541e6	7.167	559.99202
*	700242 CCV@25	Vial 71	1	Control	22	1.36567e6	7.601	25.93886

N.R. - NOT REPORTED / FAILS 83/85 ION RATIO T.B. 3.20.2020

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	700236 CCV@25	Vial 71	1	Control	1	1.75146e5	7.627	5.00000
*	700237 LCS@3.	Vial 72	1	Control	2	1.77667e5	7.559	5.00000
*	700239 ICS@3.0	Vial 73	1	Control	3	1.40222e5	7.501	5.00000
*	700240 LMB	Vial 74	1	Control	4	1.80209e5	7.666	5.00000
*	2007564001	Vial 75	1	Sample	5	1.53505e5	6.948	5.00000
*	2007564002	Vial 76	1	Sample	6	1.89522e5	7.145	5.00000
*	2007564003	Vial 77	1	Sample	7	2.32125e5	7.391	5.00000
*	2007564004	Vial 78	1	Sample	8	2.15184e5	7.551	5.00000
*	2007564005	Vial 79	1	Sample	9	2.11765e5	7.611	5.00000
*	2007564006	Vial 80	1	Sample	10	2.13872e5	6.707	5.00000
*	2007568001	Vial 81	1	Sample	11	2.03614e5	6.864	5.00000
*	2007568002 10X	Vial 82	1	Sample	12	1.88929e5	7.485	50.00000
*	2007568003	Vial 83	1	Sample	13	1.82170e5	7.202	5.00000
*	700241 CCV@25	Vial 71	1	Control	14	1.73233e5	7.640	5.00000
*	2007568004 MS	Vial 84	1	Sample	15	1.77303e5	7.235	5.00000
*	2007568005 MSD	Vial 85	1	Sample	16	1.67893e5	7.182	5.00000
*	2007568006	Vial 86	1	Sample	17	2.01329e5	5.906	5.00000
*	2007568007	Vial 87	1	Sample	18	2.03939e5	6.877	5.00000
*	2007568008 10X	Vial 88	1	Sample	19	1.83884e5	7.512	50.00000
*	2007568009 10X	Vial 89	1	Sample	20	1.81383e5	7.484	50.00000
*	2007568006 10X	Vial 90	1	Sample	21	1.86604e5	7.188	50.00000
*	700242 CCV@25	Vial 71	1	Control	22	1.79204e5	7.628	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	700236 CCV@25	Vial 71	1	Control	1	4.00484e5	7.621	25.56785
*	700237 LCS@3.	Vial 72	1	Control	2	5.75019e4	7.551	3.82098
*	700239 ICS@3.0	Vial 73	1	Control	3	4.52092e4	7.490	3.80598
*	700240 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000

Batch Report: C:\HPCHEM\1\DATA\19MAR20D\19MAR20S.B

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	2007564001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	2007564002	Vial 76	1	Sample	6	0.00000	0.000	0.00000
*	2007564003	Vial 77	1	Sample	7	0.00000	0.000	0.00000
*	2007564004	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	2007564005	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	2007564006	Vial 80	1	Sample	10	1.53091e4	6.683	7.26839e-1
*	2007568001	Vial 81	1	Sample	11	1.02484e6	6.861	51.22624
*	2007568002 10X	Vial 82	1	Sample	12	2.50348e5	7.473	153.77705
*	2007568003	Vial 83	1	Sample	13	1.07794e4	7.171	5.72351e-1
*	700241 CCV@25	Vial 71	1	Control	14	4.15085e5	7.618	26.68143
*	2007568004 MS	Vial 84	1	Sample	15	5.62875e4	7.231	3.74605
*	2007568005 MSD	Vial 85	1	Sample	16	5.67575e4	7.167	3.99535
*	2007568006	Vial 86	1	Sample	17	7.10809e6	6.007	222.47923
*	2007568007	Vial 87	1	Sample	18	1.33916e4	6.874	6.53211e-1
*	2007568008 10X	Vial 88	1	Sample	19	9.48985e5	7.499	523.20559
*	2007568009 10X	Vial 89	1	Sample	20	1.05446e6	7.480	578.11984
*	2007568006 10X	Vial 90	1	Sample	21	1.04884e6	7.184	562.08888
*	700242 CCV@25	Vial 71	1	Control	22	4.26051e5	7.618	26.49247

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2020\MAR\19MAR20D.S

Sequence Table:

Method and Injection Info Part:

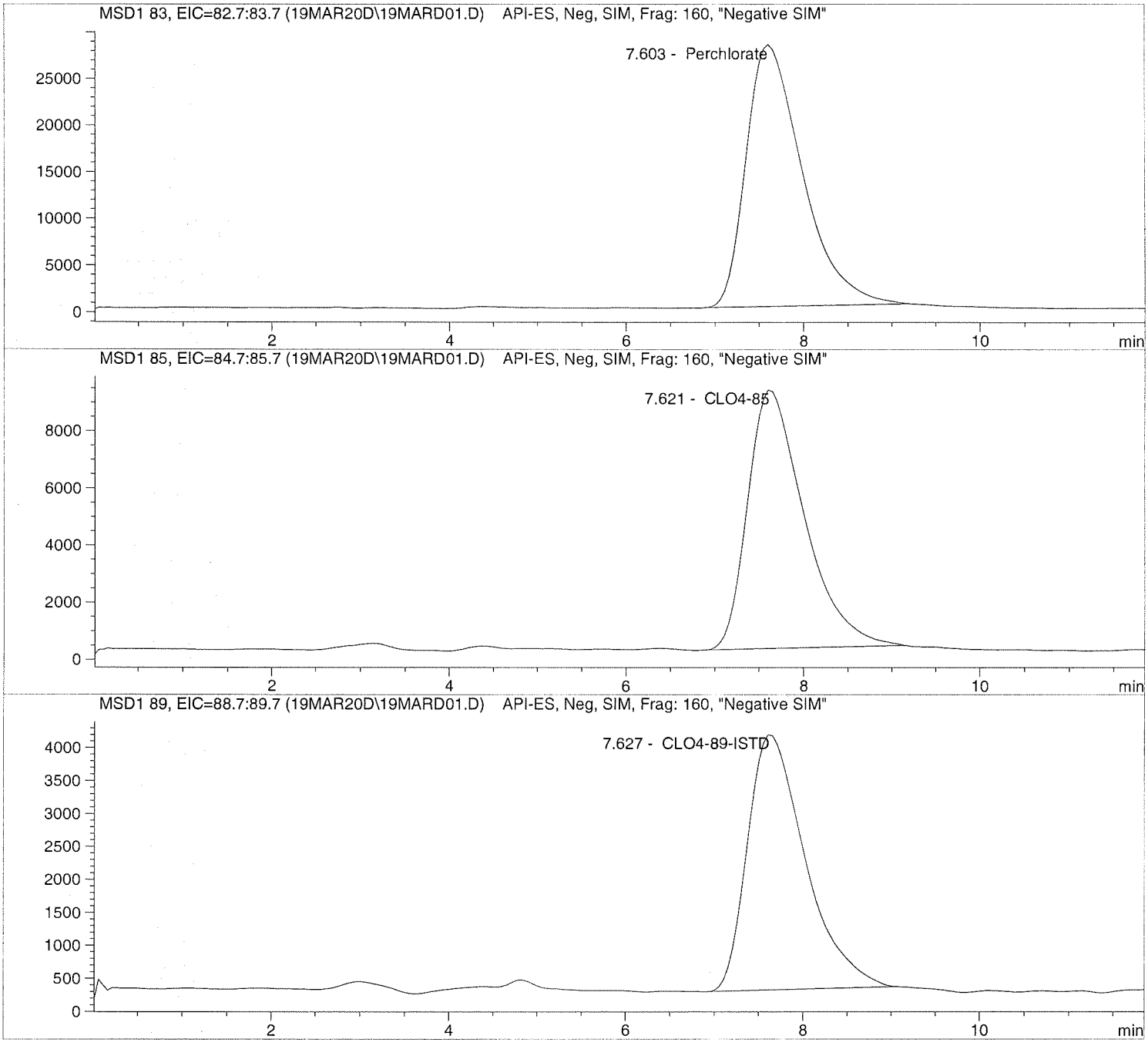
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	700236 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	700237 LCS@3.	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	700239 ICS@3.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	700240 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	2007564001	CLO4-AQN	1	Sample		
6	Vial 76	2007564002	CLO4-AQN	1	Sample		
7	Vial 77	2007564003	CLO4-AQN	1	Sample		
8	Vial 78	2007564004	CLO4-AQN	1	Sample		
9	Vial 79	2007564005	CLO4-AQN	1	Sample		
10	Vial 80	2007564006	CLO4-AQN	1	Sample		
11	Vial 81	2007568001	CLO4-AQN	1	Sample		
12	Vial 82	2007568002 10X	CLO4-AQN	1	Sample		
13	Vial 83	2007568003	CLO4-AQN	1	Sample		
14	Vial 71	700241 CCV@25	CLO4-AQN	1	Ctrl Samp		
15	Vial 84	2007568004 MS	CLO4-AQN	1	Sample		
16	Vial 85	2007568005 MSD	CLO4-AQN	1	Sample		
17	Vial 86	2007568006	CLO4-AQN	1	Sample		
18	Vial 87	2007568007	CLO4-AQN	1	Sample		
19	Vial 88	2007568008 10X	CLO4-AQN	1	Sample		
20	Vial 89	2007568009 10X	CLO4-AQN	1	Sample		
21	Vial 90	2007568006 10X	CLO4-AQN	1	Sample		
22	Vial 71	700242 CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD01.D Sample Name: 700236 CCV@25

Injection Date:	3/19/2020 08:37:03	Seq Line:	1
Sample Name:	700236 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD01.D Sample Name: 700236 CCV@25

Injection Date:	3/19/2020 08:37:03	Seq Line:	1
Sample Name:	700236 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.603	PBA	1229363.2	24.0753	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.621	PBA	400484.1	25.5678	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.627	PBA	175145.5	5.0000	CLO4-89-ISTD

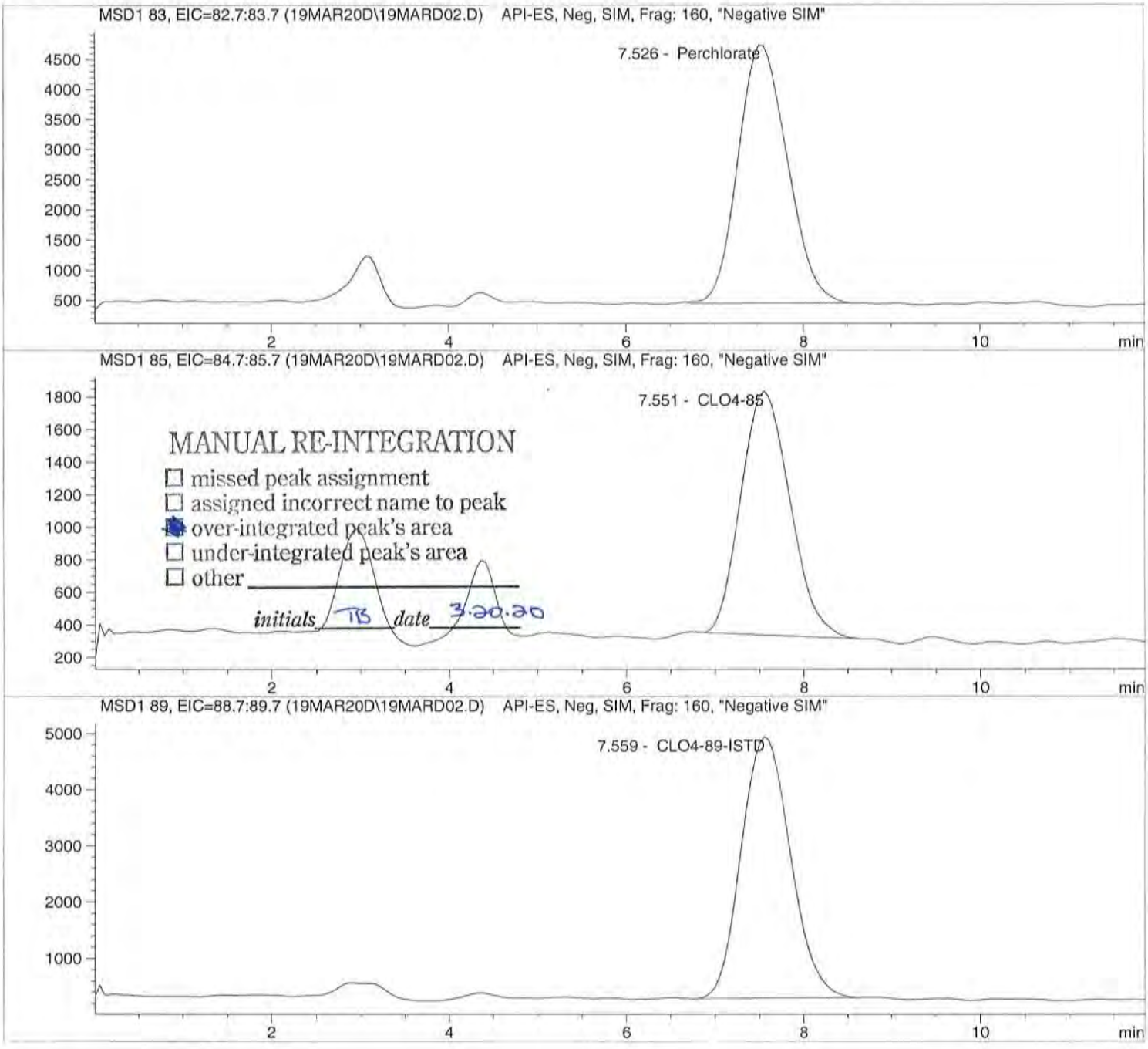
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.526	BBA	165065.5	3.4233	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	MM	57501.9	3.8210	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.559	PBA	177666.7	5.0000	CLO4-89-ISTD

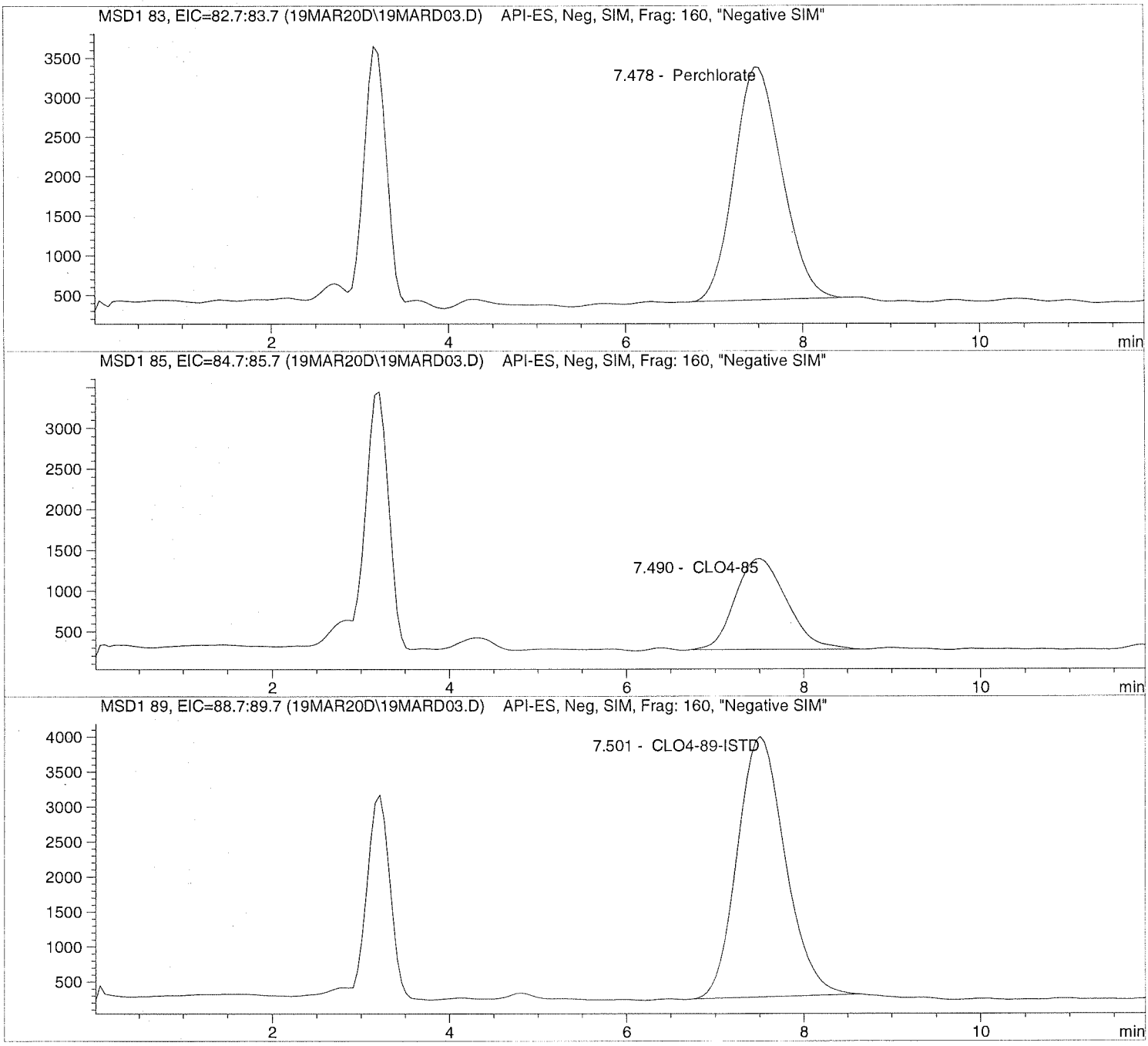
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD03.D Sample Name: 700239 ICS@3.0

Injection Date:	3/19/2020 09:07:23	Seq Line:	3
Sample Name:	700239 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD03.D Sample Name: 700239 ICS@3.0

Injection Date:	3/19/2020 09:07:23	Seq Line:	3
Sample Name:	700239 ICS@3.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.478	PBA	110319.7	2.8933	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.490	PBA	45209.2	3.8060	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.501	PBA	140222.0	5.0000	CLO4-89-ISTD

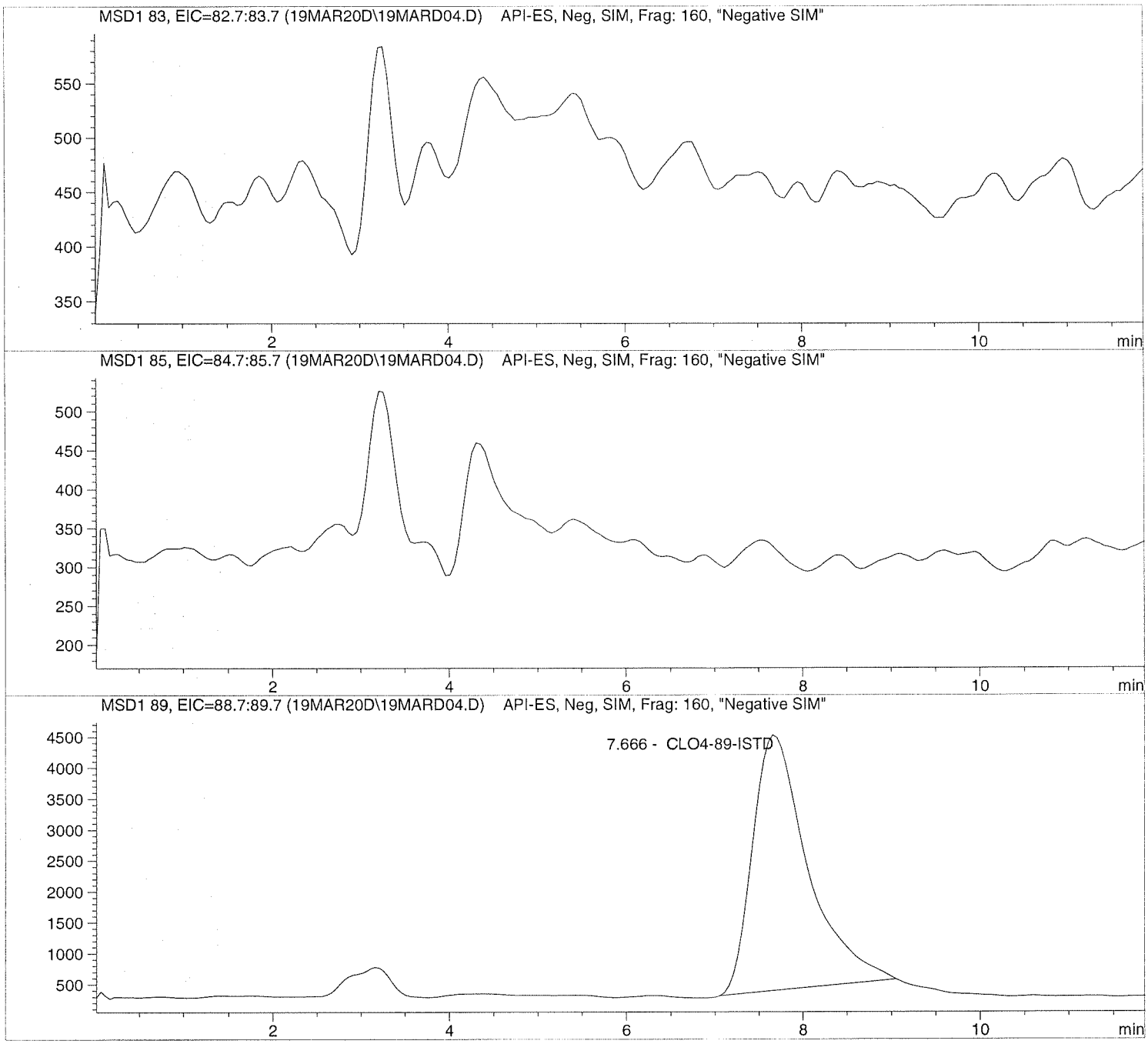
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD04.D Sample Name: 700240 LMB

Injection Date:	3/19/2020 09:21:25	Seq Line:	4
Sample Name:	700240 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD04.D Sample Name: 700240 LMB

Injection Date:	3/19/2020 09:21:25	Seq Line:	4
Sample Name:	700240 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.666	PBA	180209.3	5.0000	CLO4-89-ISTD

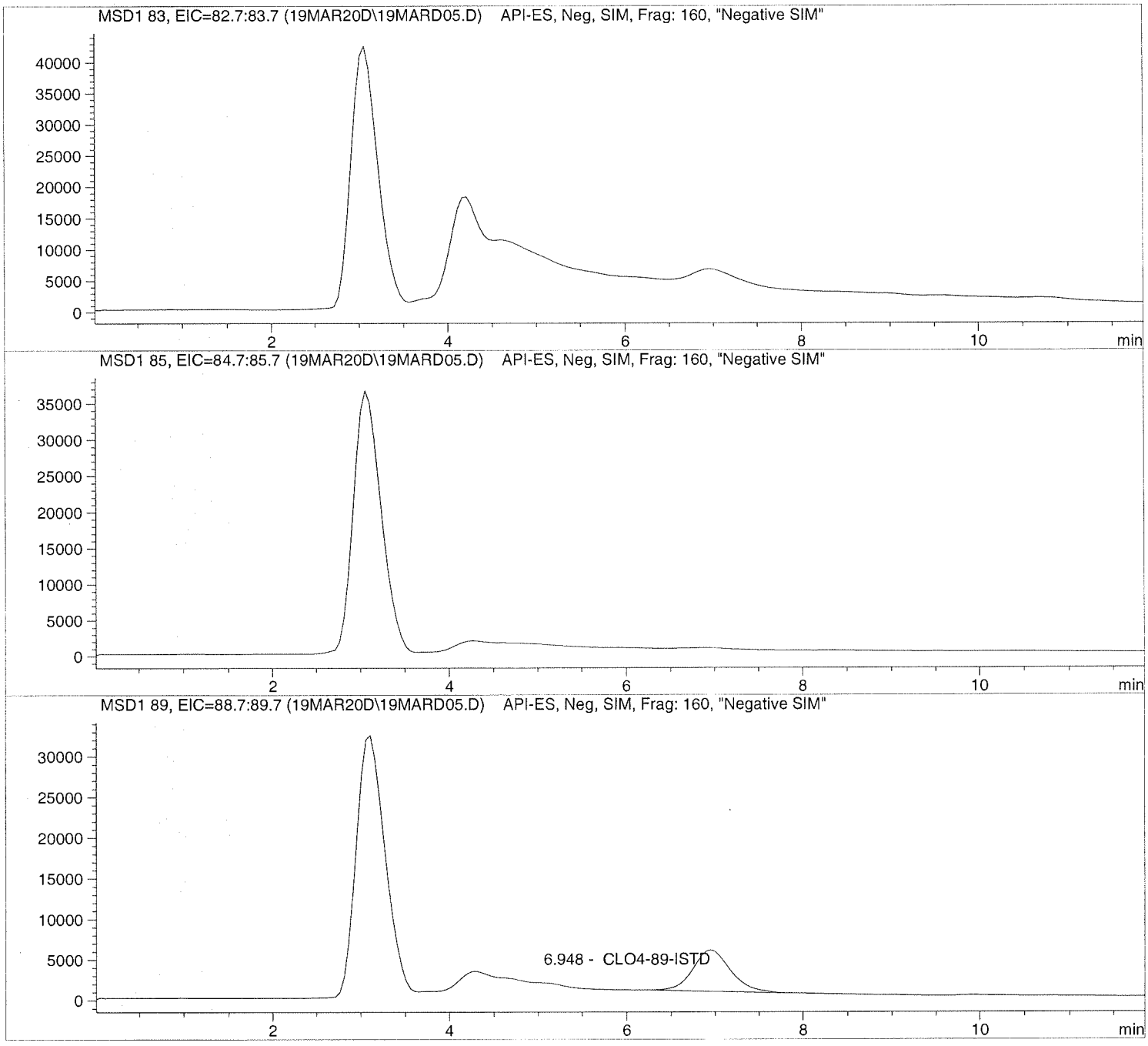
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD05.D Sample Name: 2007564001

Injection Date:	3/19/2020 09:35:23	Seq Line:	5
Sample Name:	2007564001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD05.D Sample Name: 2007564001

Injection Date:	3/19/2020 09:35:23	Seq Line:	5
Sample Name:	2007564001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.948	BBA	153505.3	5.0000	CLO4-89-ISTD

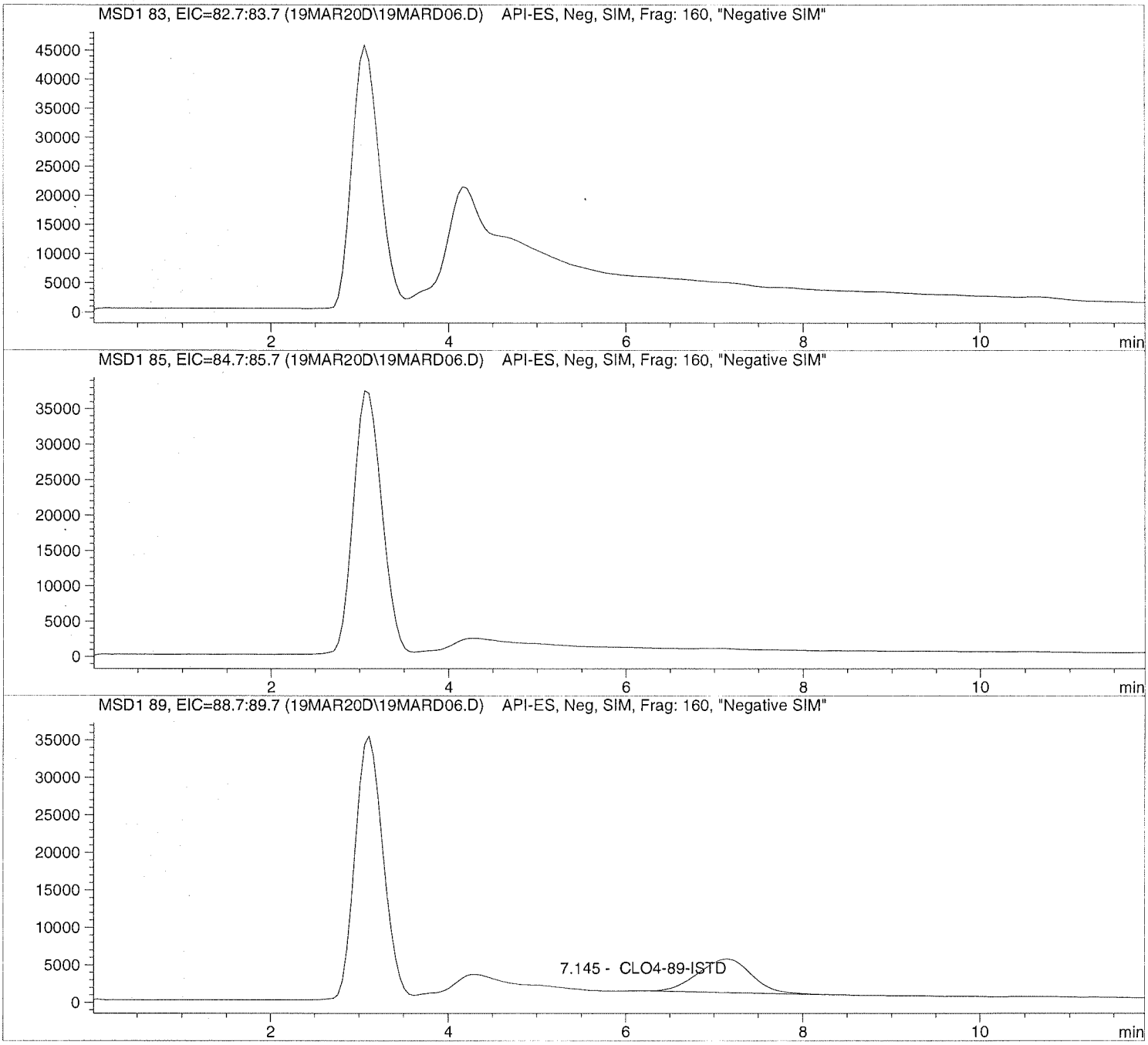
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD06.D Sample Name: 2007564002

Injection Date:	3/19/2020 09:49:24	Seq Line:	6
Sample Name:	2007564002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD06.D Sample Name: 2007564002

Injection Date:	3/19/2020 09:49:24	Seq Line:	6
Sample Name:	2007564002	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.145	PBA	189522.4	5.0000	CLO4-89-ISTD

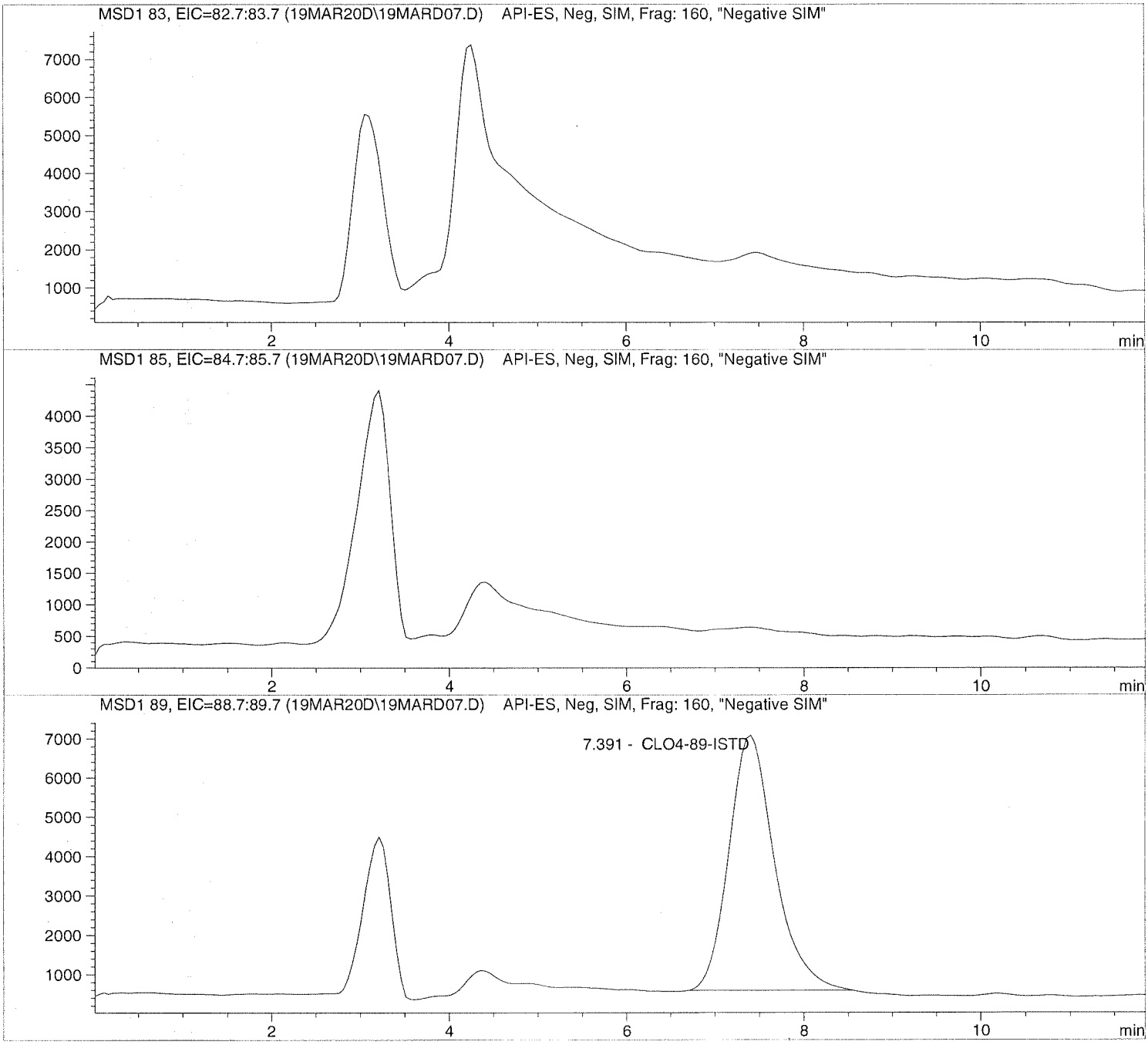
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD07.D Sample Name: 2007564003

Injection Date:	3/19/2020 10:03:23	Seq Line:	7
Sample Name:	2007564003	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD07.D Sample Name: 2007564003

Injection Date:	3/19/2020 10:03:23	Seq Line:	7
Sample Name:	2007564003	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.391	PBA	232125.0	5.0000	CLO4-89-ISTD

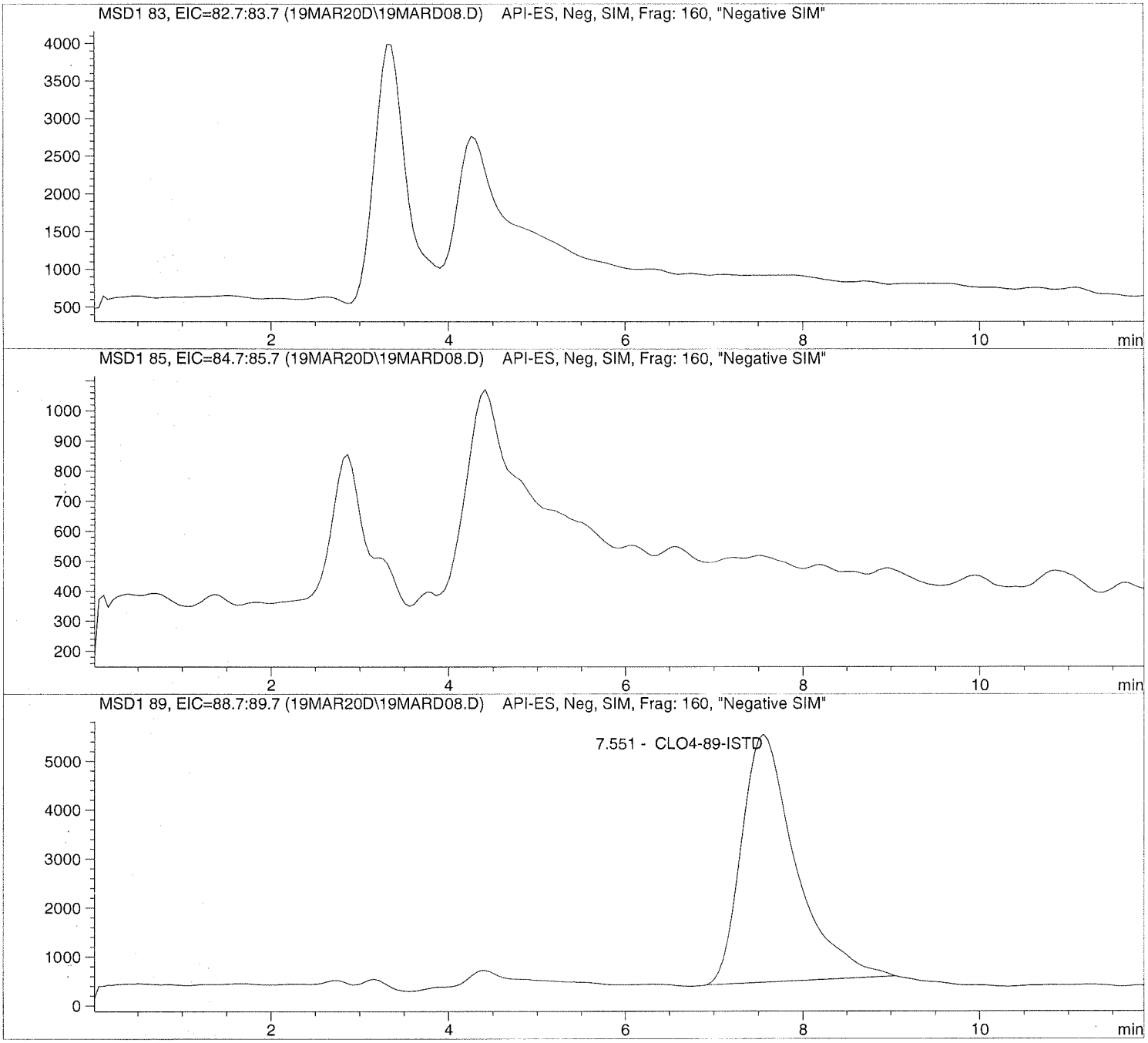
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD08.D Sample Name: 2007564004

Injection Date:	3/19/2020 10:17:21	Seq Line:	8
Sample Name:	2007564004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD08.D Sample Name: 2007564004

Injection Date:	3/19/2020 10:17:21	Seq Line:	8
Sample Name:	2007564004	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	PBA	215183.6	5.0000	CLO4-89-ISTD

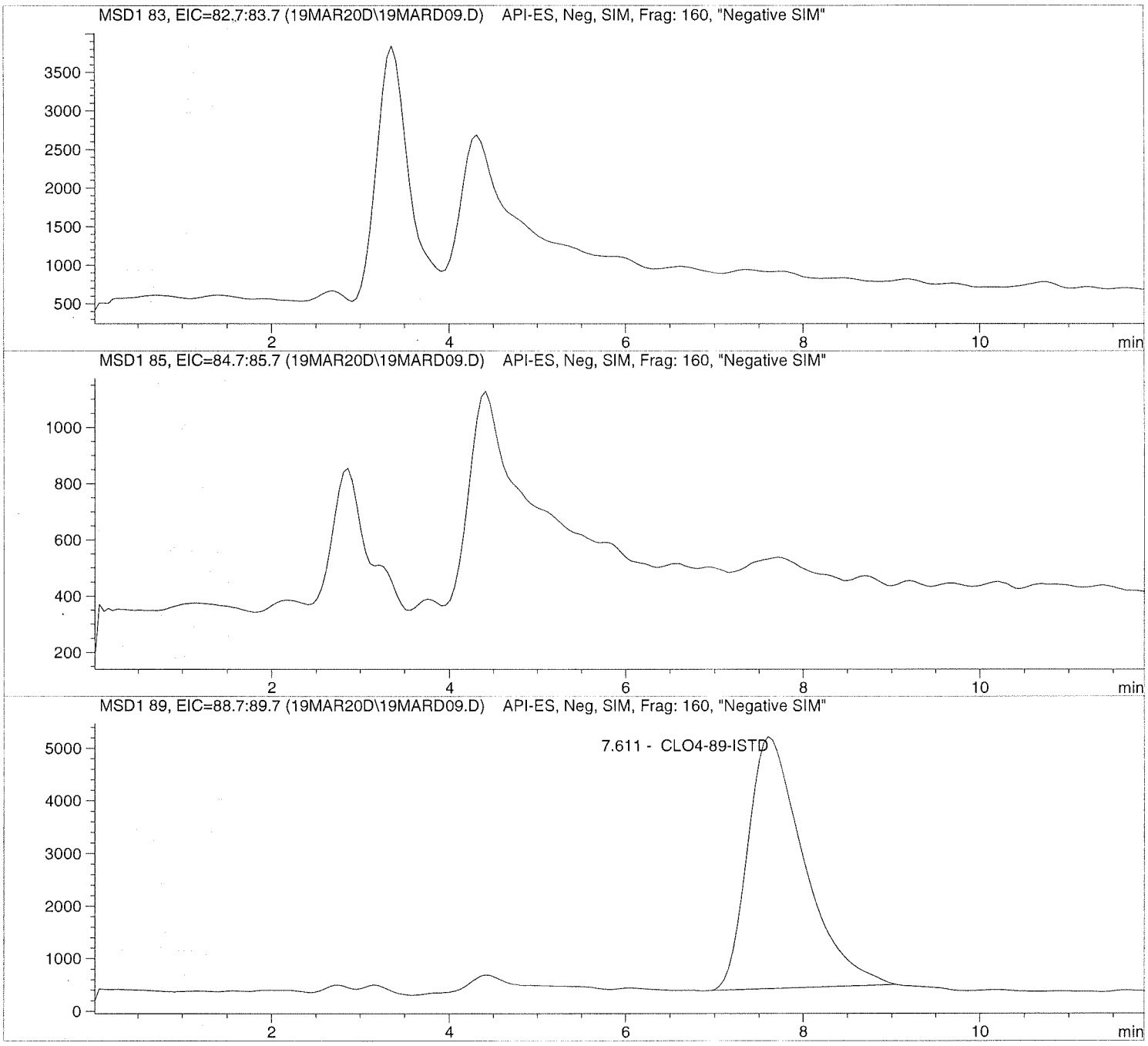
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD09.D Sample Name: 2007564005

Injection Date:	3/19/2020 10:31:21	Seq Line:	9
Sample Name:	2007564005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD09.D Sample Name: 2007564005

Injection Date:	3/19/2020 10:31:21	Seq Line:	9
Sample Name:	2007564005	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.611	PBA	211765.4	5.0000	CLO4-89-ISTD

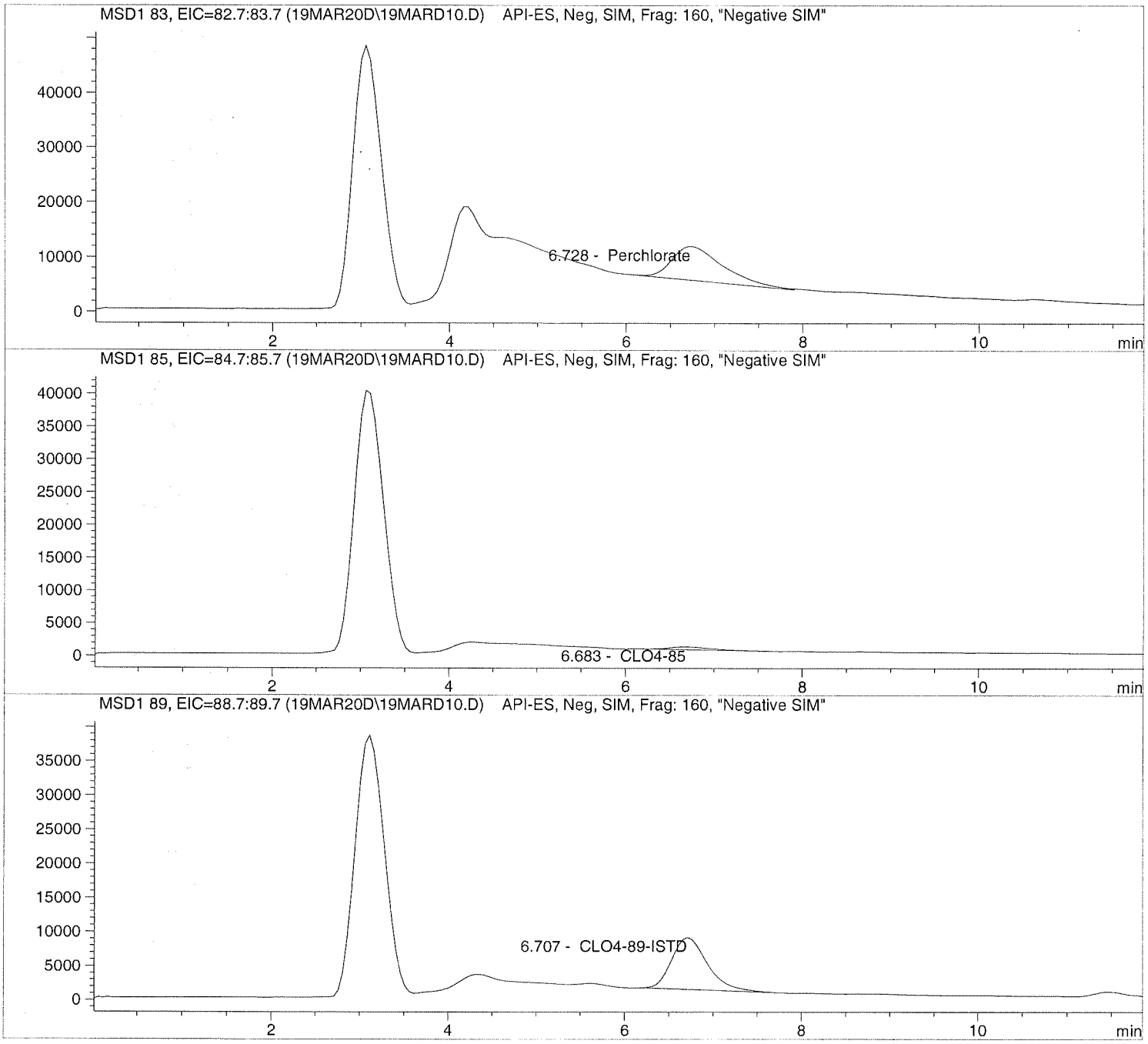
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD10.D Sample Name: 2007564006

Injection Date:	3/19/2020 10:45:23	Seq Line:	10
Sample Name:	2007564006	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD10.D Sample Name: 2007564006

Injection Date:	3/19/2020 10:45:23	Seq Line:	10
Sample Name:	2007564006	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.728	BBA	248609.5	4.2865	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO TB 3.20.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.683	PBA	15309.1	0.7268	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.707	PBA	213872.0	5.0000	CLO4-89-ISTD

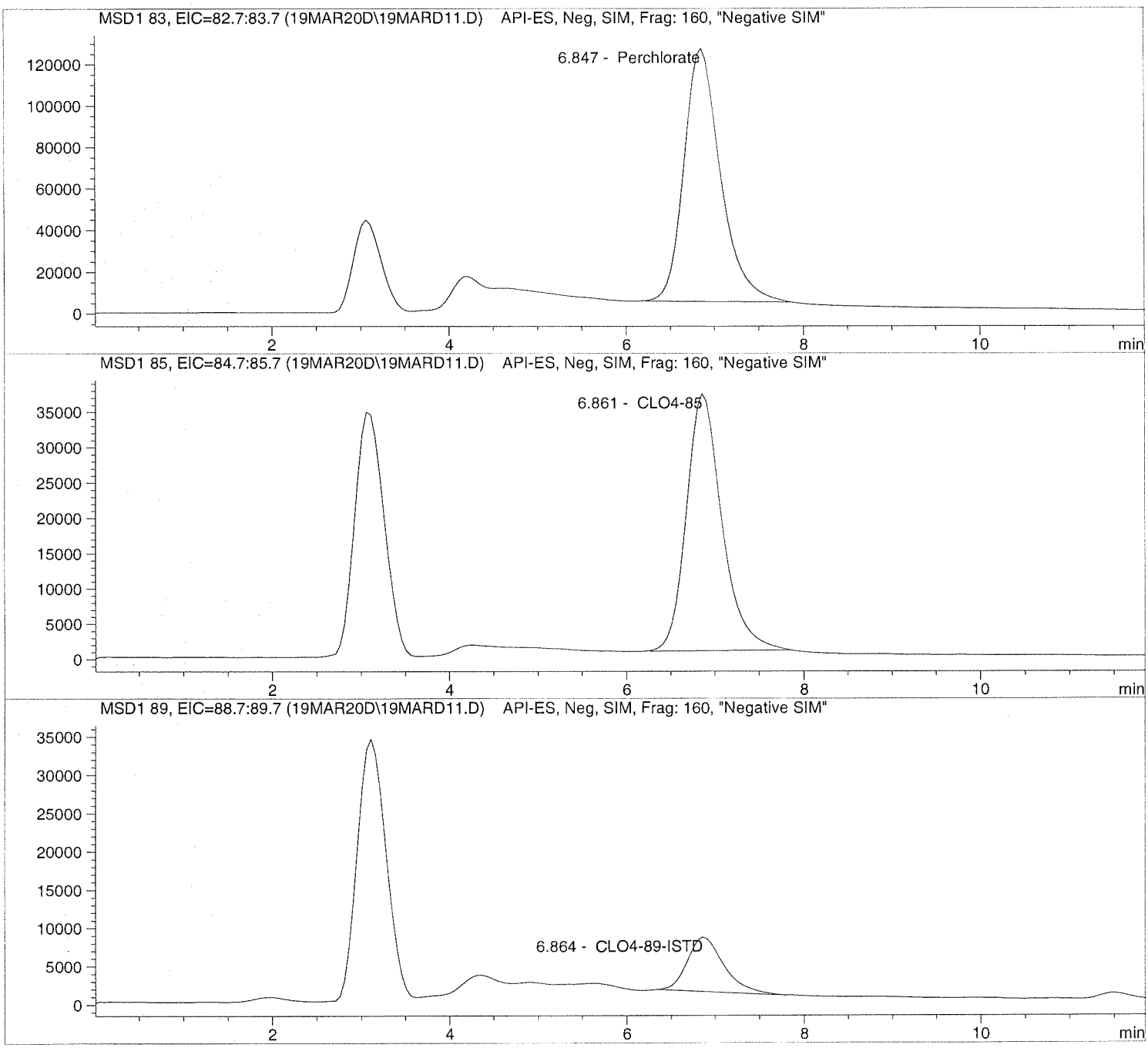
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD11.D Sample Name: 2007568001

Injection Date:	3/19/2020 10:59:22	Seq Line:	11
Sample Name:	2007568001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD11.D Sample Name: 2007568001

Injection Date:	3/19/2020 10:59:22	Seq Line:	11
Sample Name:	2007568001	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.847	BBA	3510216.3	52.7708	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.861	PBA	1024842.2	51.2262	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.864	PBA	203614.1	5.0000	CLO4-89-ISTD

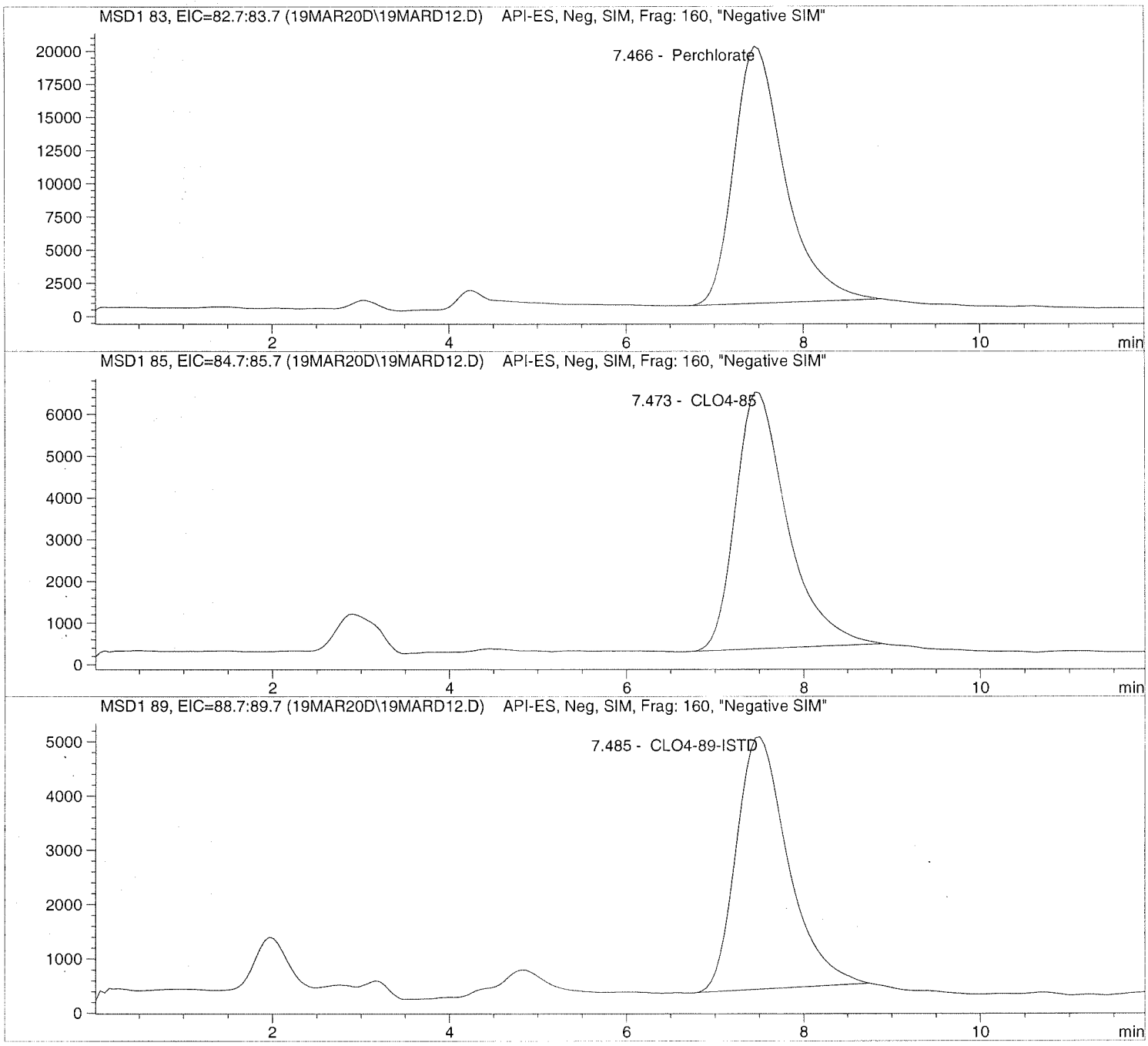
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD12.D Sample Name: 2007568002 10X

Injection Date:	3/19/2020 11:13:19	Seq Line:	12
Sample Name:	2007568002 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD12.D Sample Name: 2007568002 10X

Injection Date:	3/19/2020 11:13:19	Seq Line:	12
Sample Name:	2007568002 10X	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLQ4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.466	PBA	772896.7	145.9161	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.473	PBA	250347.9	153.7771	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.485	PBA	188928.7	50.0000	CLO4-89-ISTD

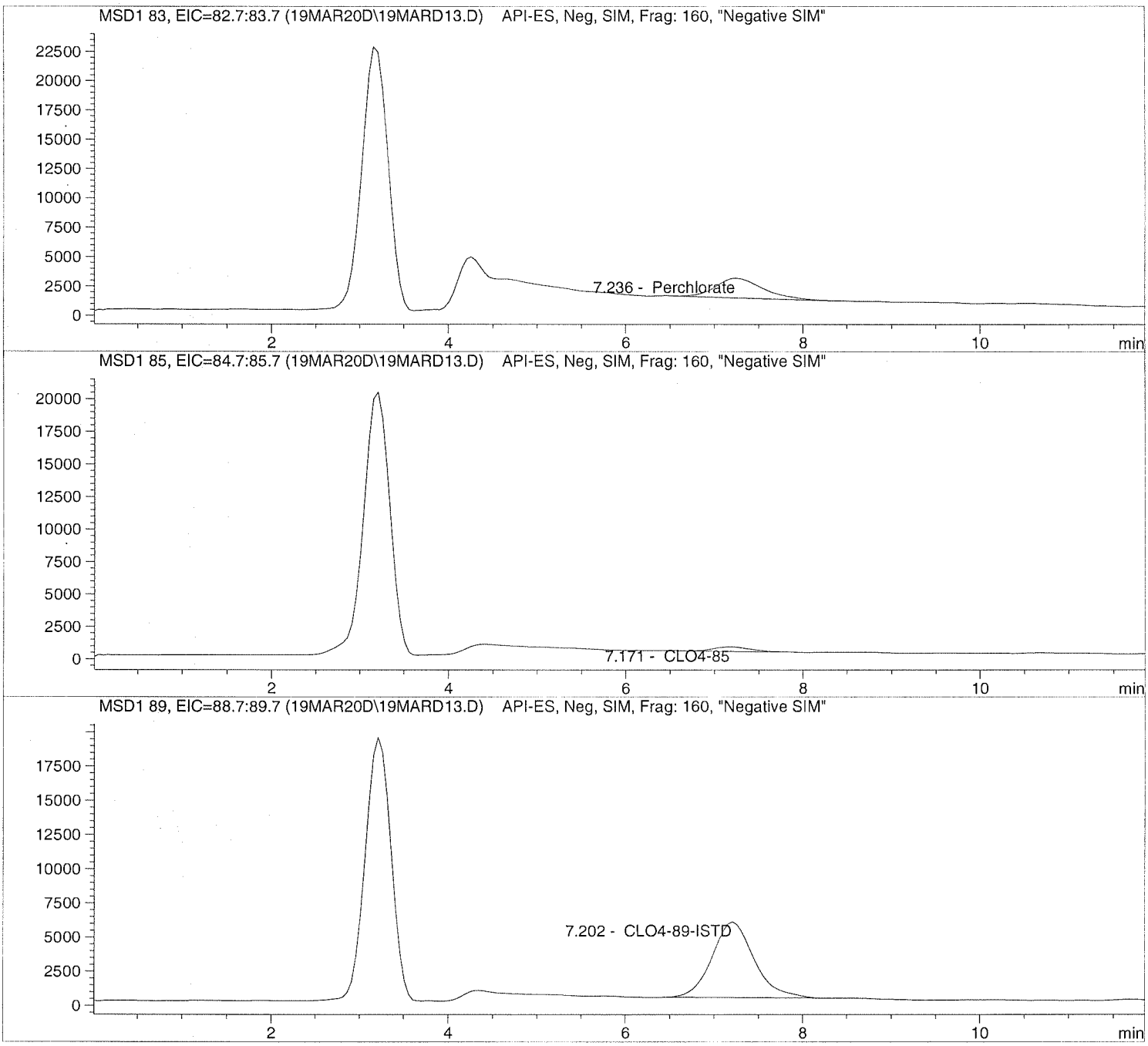
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD13.D Sample Name: 2007568003

Injection Date:	3/19/2020 11:27:19	Seq Line:	13
Sample Name:	2007568003	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD13.D Sample Name: 2007568003

Injection Date:	3/19/2020 11:27:19	Seq Line:	13
Sample Name:	2007568003	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 23. Sep. 2019,00:20:59 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.236	BBA	62839.3	1.2316	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO
TB 3.20.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.171	BBA	10779.4	0.5724	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.202	PBA	182169.8	5.0000	CLO4-89-ISTD

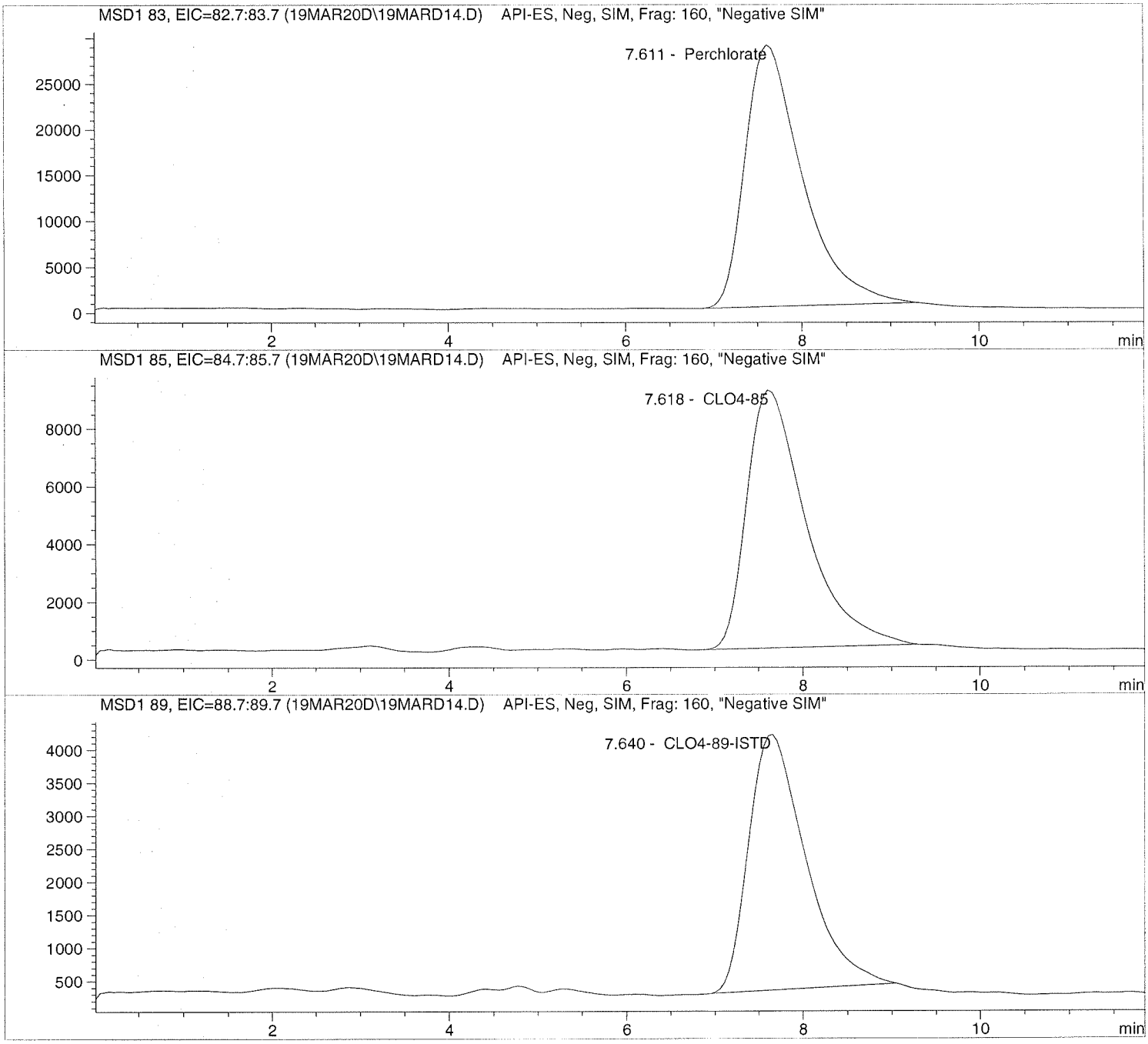
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD14.D Sample Name: 700241 CCV@25

Injection Date:	3/19/2020 11:41:15	Seq Line:	14
Sample Name:	700241 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD14.D Sample Name: 700241 CCV@25

Injection Date:	3/19/2020 11:41:15	Seq Line:	14
Sample Name:	700241 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 23. Sep. 2019,00:20:59 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.611	PBA	1280995.1	25.2416	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.618	PBA	415085.1	26.6814	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.640	PBA	173233.0	5.0000	CLO4-89-ISTD

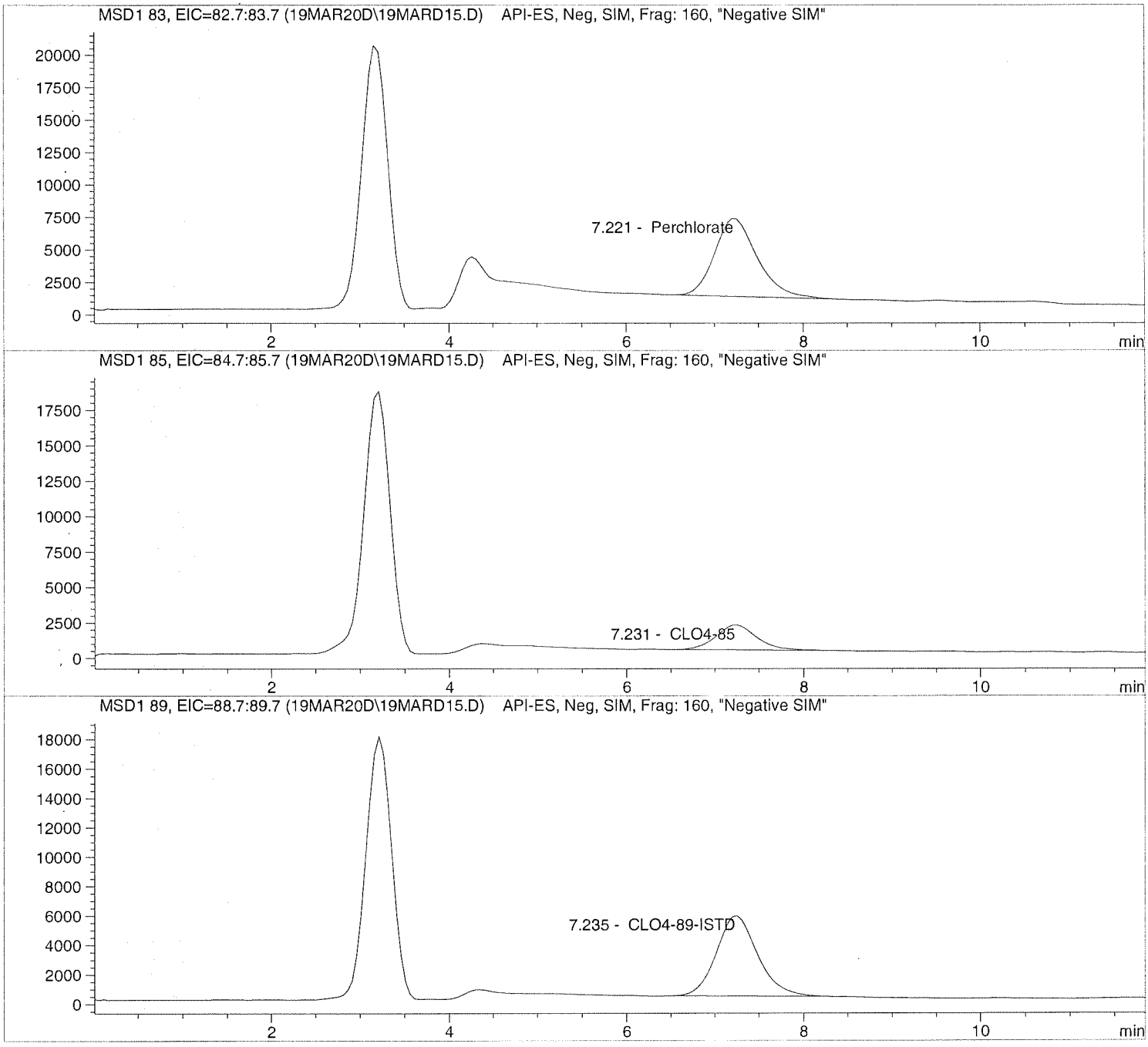
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD15.D Sample Name: 2007568004 MS

Injection Date:	3/19/2020 11:55:13	Seq Line:	15
Sample Name:	2007568004 MS	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD15.D Sample Name: 2007568004 MS

Injection Date:	3/19/2020 11:55:13	Seq Line:	15
Sample Name:	2007568004 MS	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.221	PBA	201081.1	4.1821	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.231	PBA	56287.5	3.7460	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.235	PBA	177302.8	5.0000	CLO4-89-ISTD

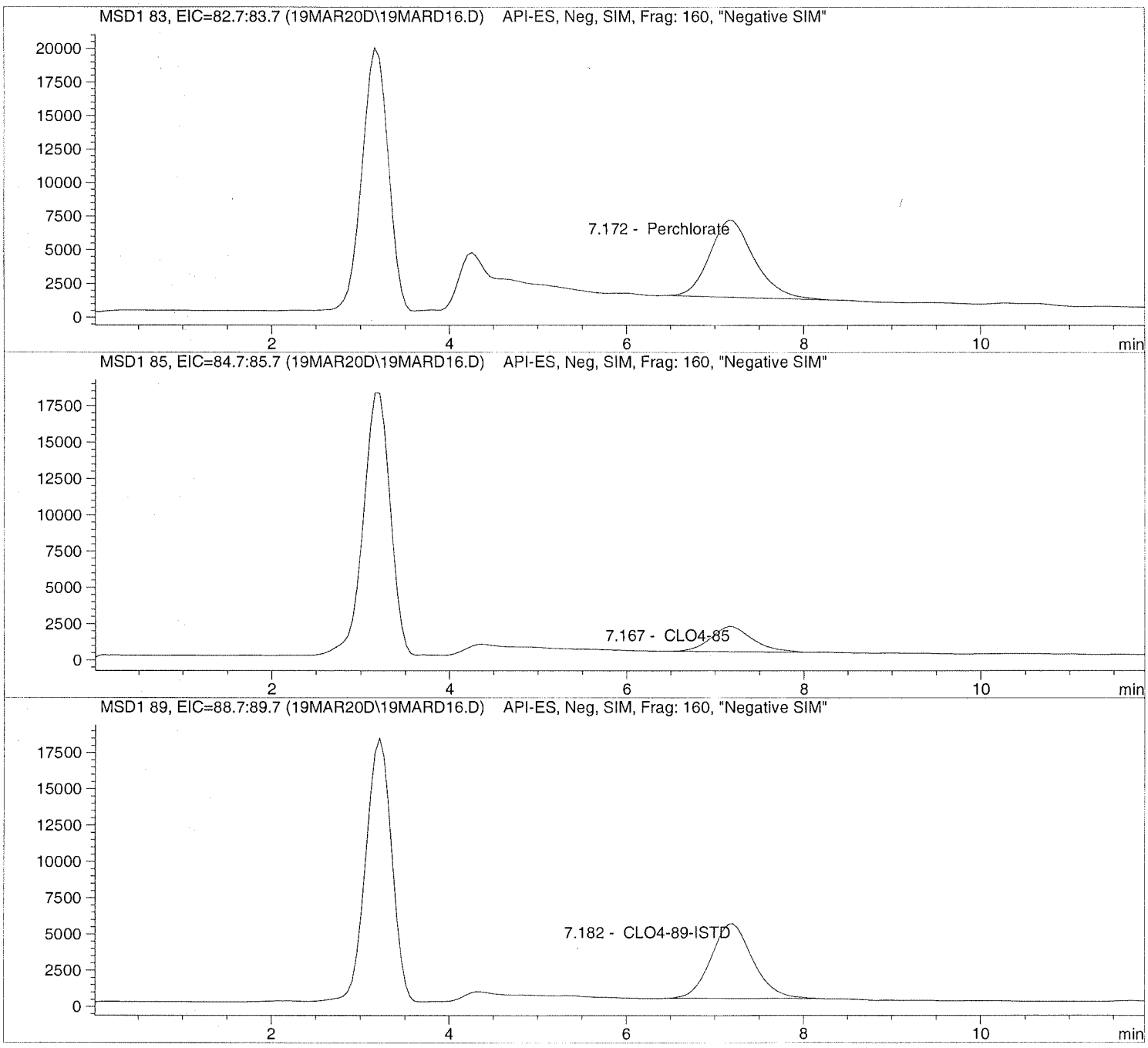
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD16.D Sample Name: 2007568005 MSD

Injection Date:	3/19/2020 12:09:11	Seq Line:	16
Sample Name:	2007568005 MSD	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD16.D Sample Name: 2007568005 MSD

Injection Date:	3/19/2020 12:09:11	Seq Line:	16
Sample Name:	2007568005 MSD	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.172	PBA	197976.7	4.3482	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.167	PBA	56757.5	3.9953	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.182	BBA	167893.3	5.0000	CLO4-89-ISTD

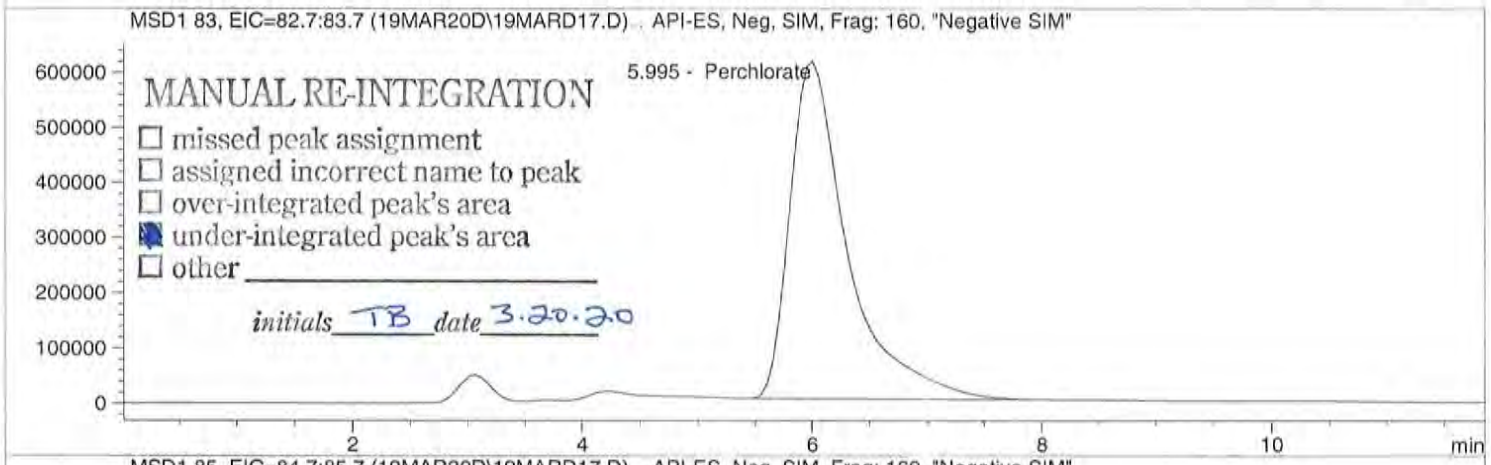
*** End of Report ***

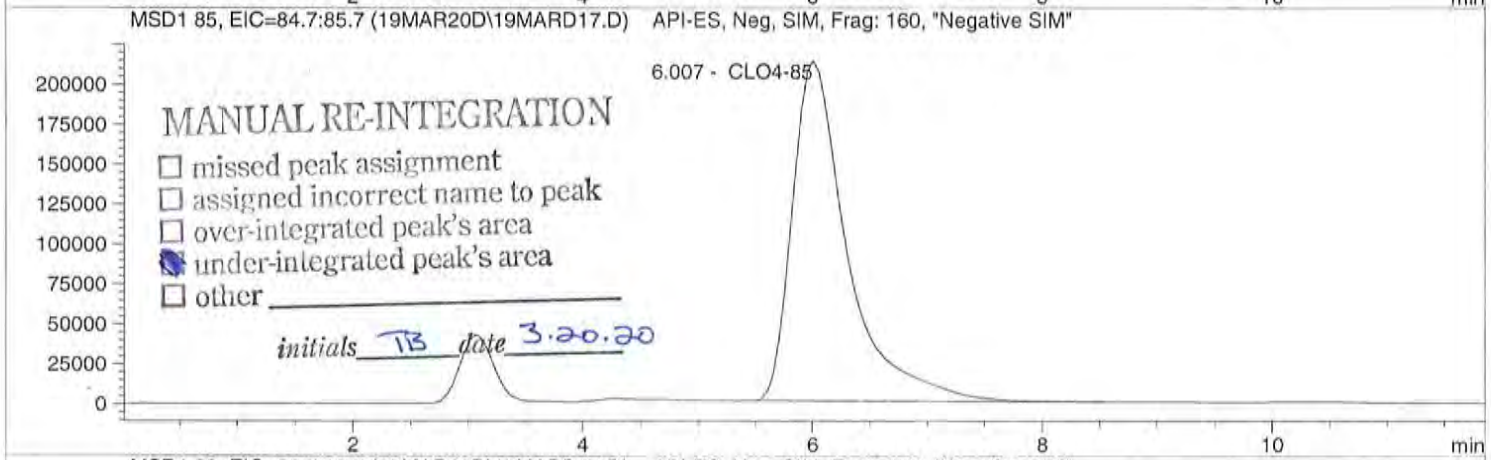
Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

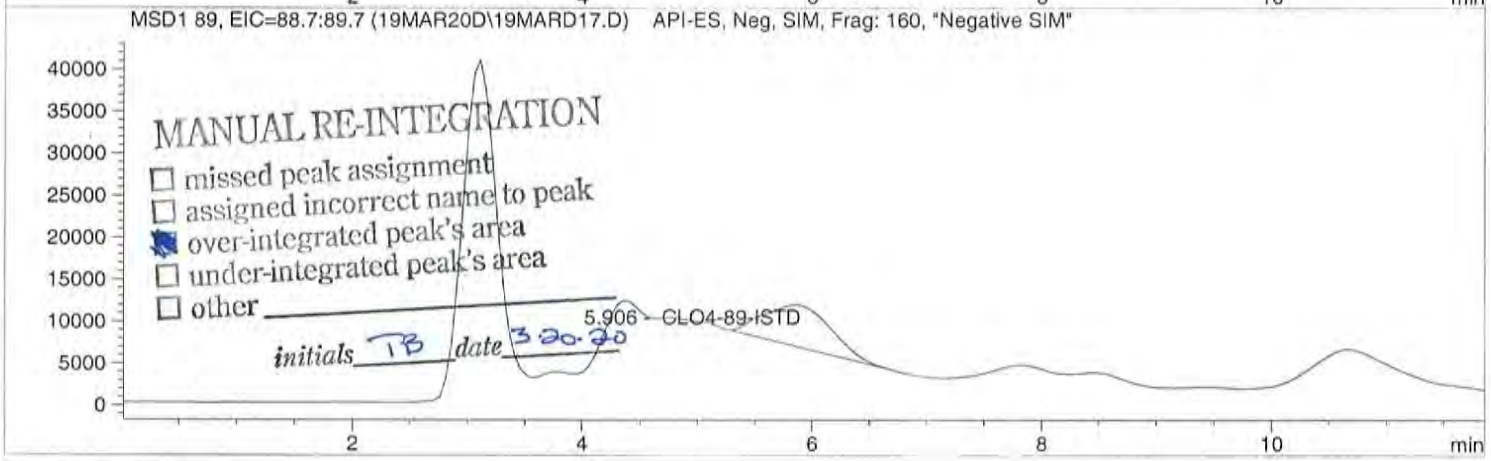
Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.995	MM	21379896.0	205.6899	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.007	MM	7108094.0	222.4792	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.906	MM	201329.3	5.0000	CLO4-89-ISTD

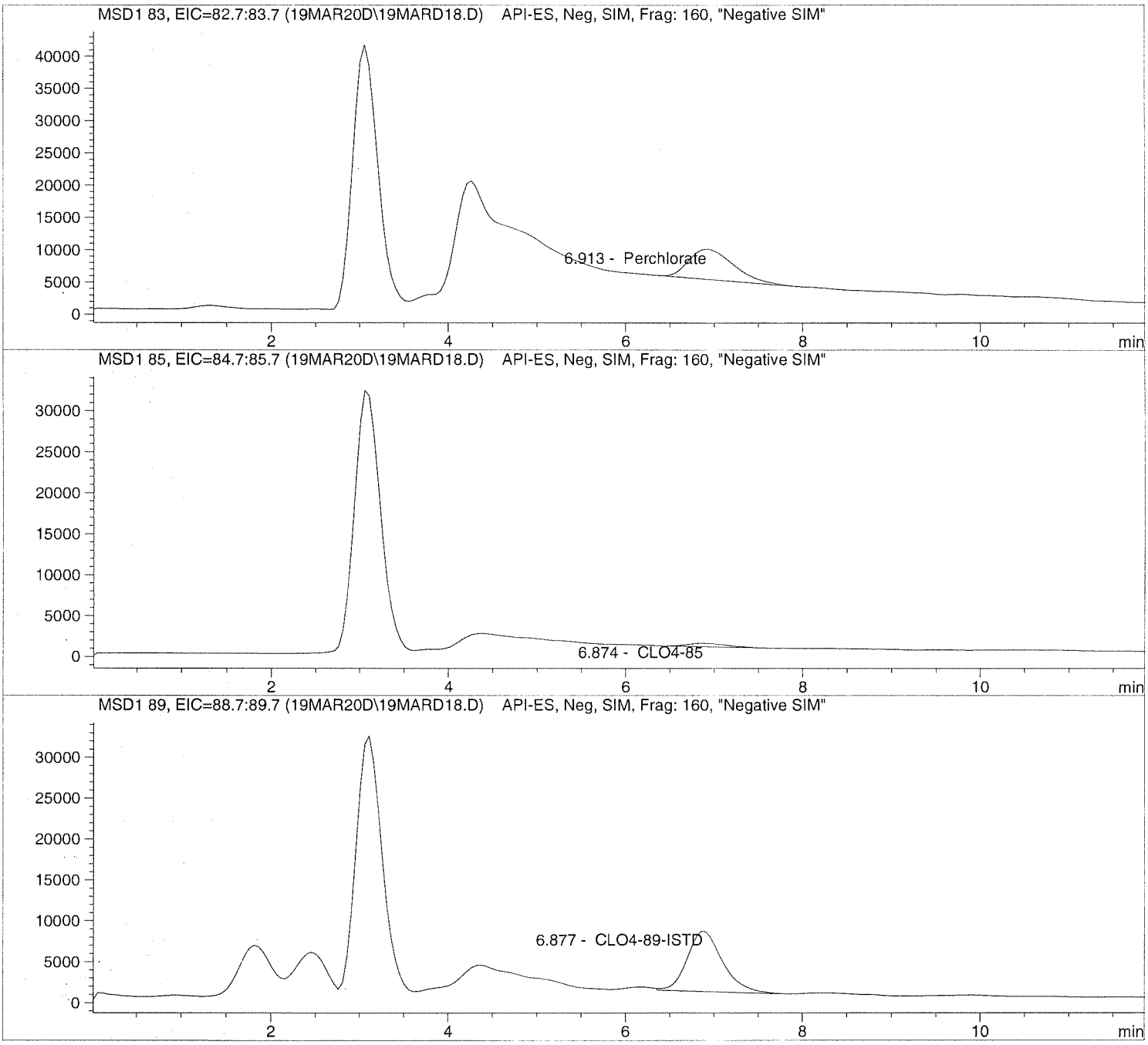
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD18.D Sample Name: 2007568007

Injection Date:	3/19/2020 12:37:08	Seq Line:	18
Sample Name:	2007568007	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD18.D Sample Name: 2007568007

Injection Date:	3/19/2020 12:37:08	Seq Line:	18
Sample Name:	2007568007	Location:	Vial 87
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.913	BBA	165268.8	2.9815	Perchlorate

NOT REPORTED / FAILS 83/85 ION RATIO
T.B. 3.20.20

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.874	PBA	13391.6	0.6532	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.877	BBA	203938.6	5.0000	CLO4-89-ISTD

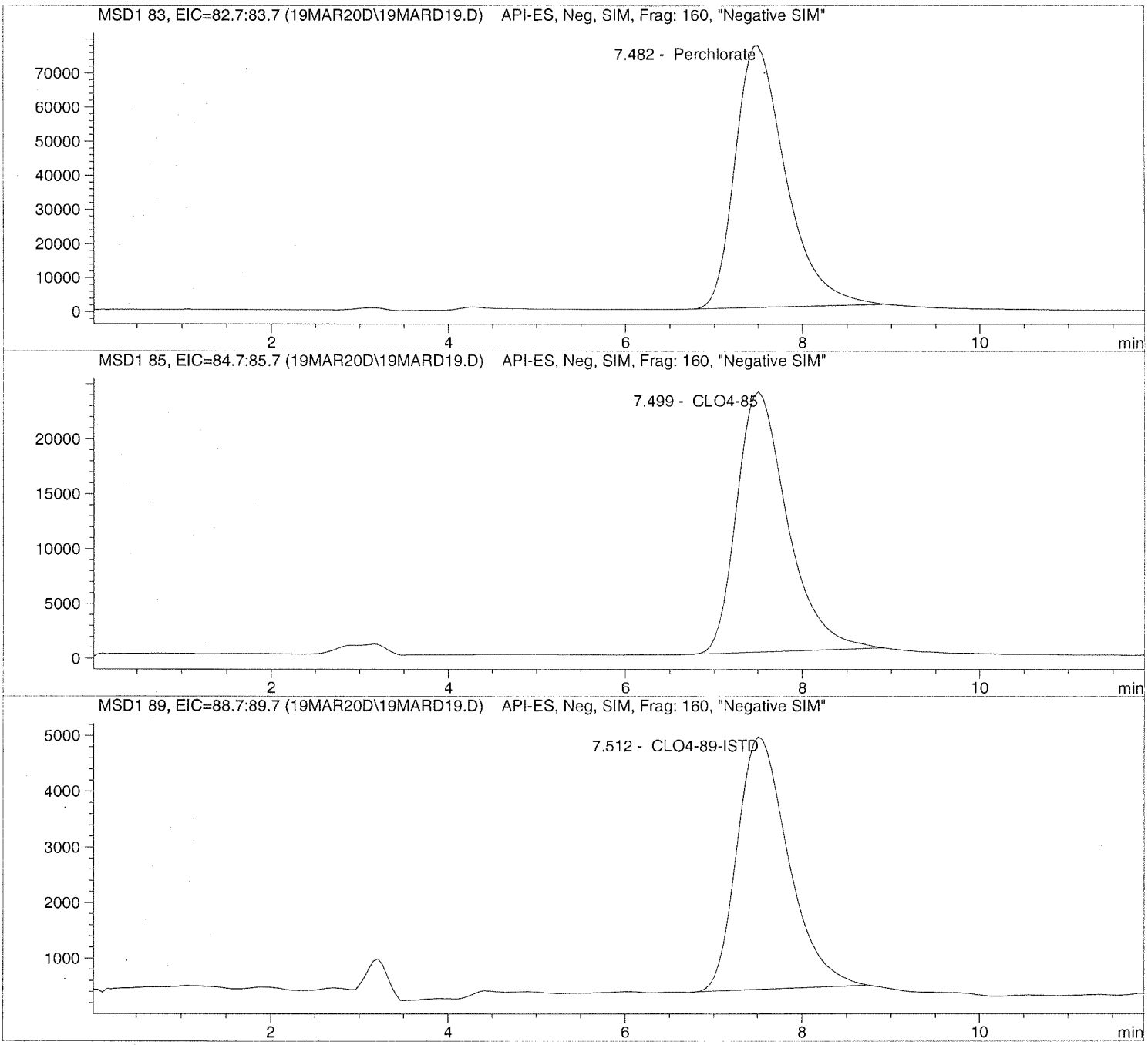
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD19.D Sample Name: 2007568008 10X

Injection Date:	3/19/2020 12:51:11	Seq Line:	19
Sample Name:	2007568008 10X	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD19.D Sample Name: 2007568008 10X

Injection Date:	3/19/2020 12:51:11	Seq Line:	19
Sample Name:	2007568008 10X	Location:	Vial 88
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.482	PBA	3075416.5	514.5132	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.499	PBA	948985.0	523.2056	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.512	PBA	183884.4	50.0000	CLO4-89-ISTD

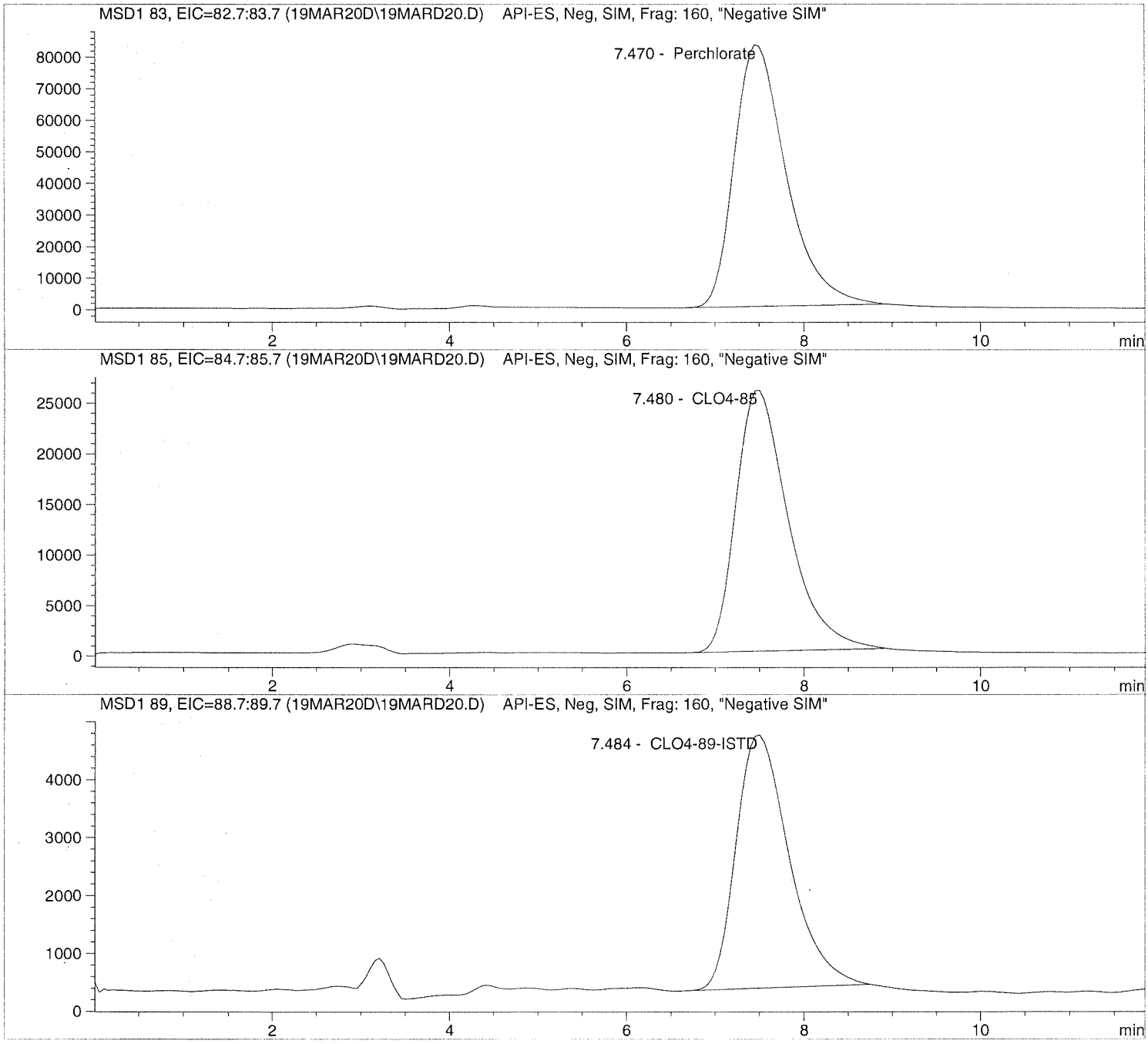
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD20.D Sample Name: 2007568009 10X

Injection Date:	3/19/2020 13:05:20	Seq Line:	20
Sample Name:	2007568009 10X	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD20.D Sample Name: 2007568009 10X

Injection Date:	3/19/2020 13:05:20	Seq Line:	20
Sample Name:	2007568009 10X	Location:	Vial 89
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.470	PBA	3360846.3	560.2827	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.480	PBA	1054458.5	578.1198	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.484	PBA	181382.9	50.0000	CLO4-89-ISTD

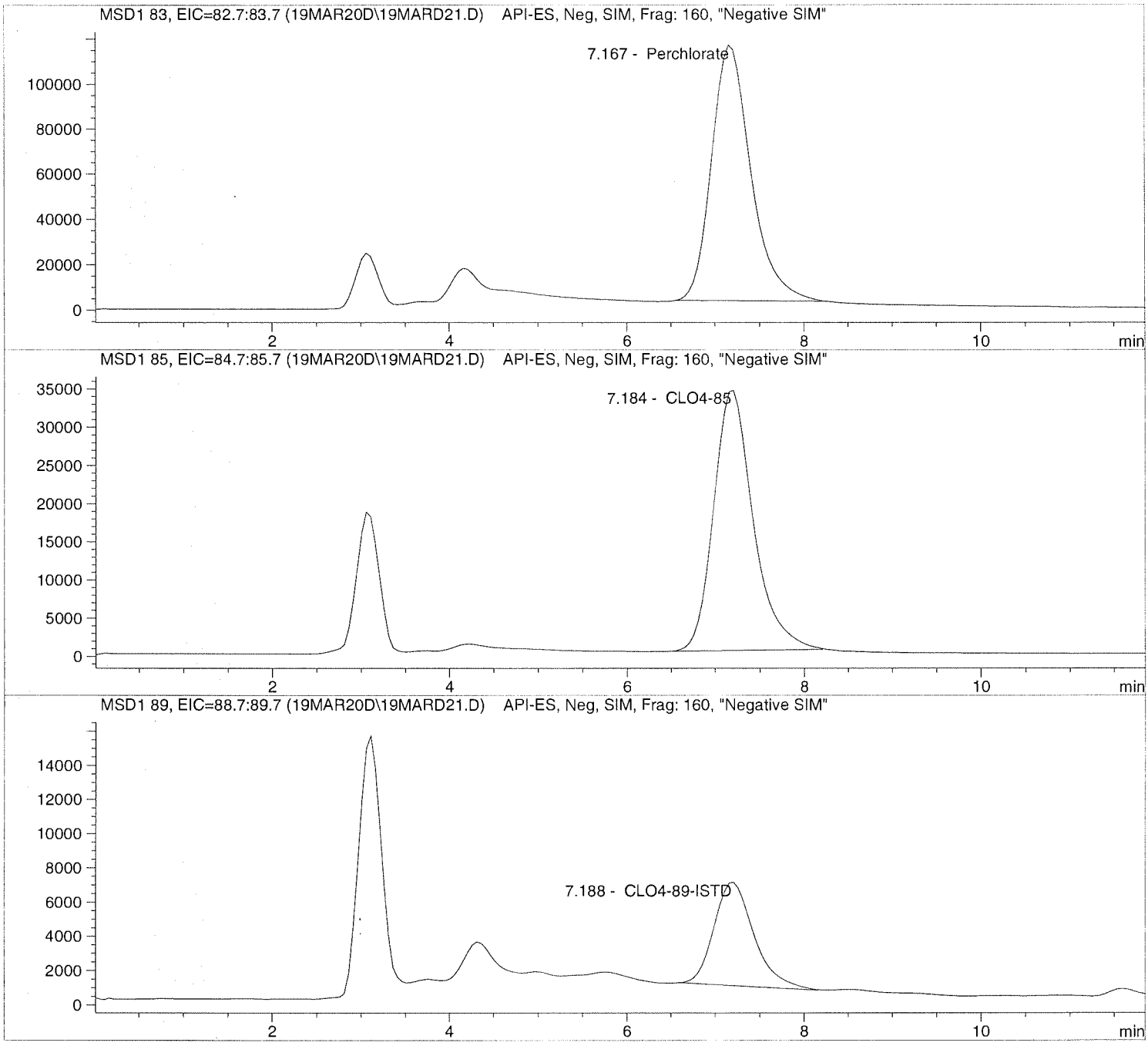
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD21.D Sample Name: 2007568006 10X

Injection Date:	3/19/2020 13:26:53	Seq Line:	21
Sample Name:	2007568006 10X	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD21.D Sample Name: 2007568006 10X

Injection Date:	3/19/2020 13:26:53	Seq Line:	21
Sample Name:	2007568006 10X	Location:	Vial 90
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.167	BBA	3455411.3	559.9920	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.184	PBA	1048842.8	562.0889	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.188	PBA	186603.6	50.0000	CLO4-89-ISTD

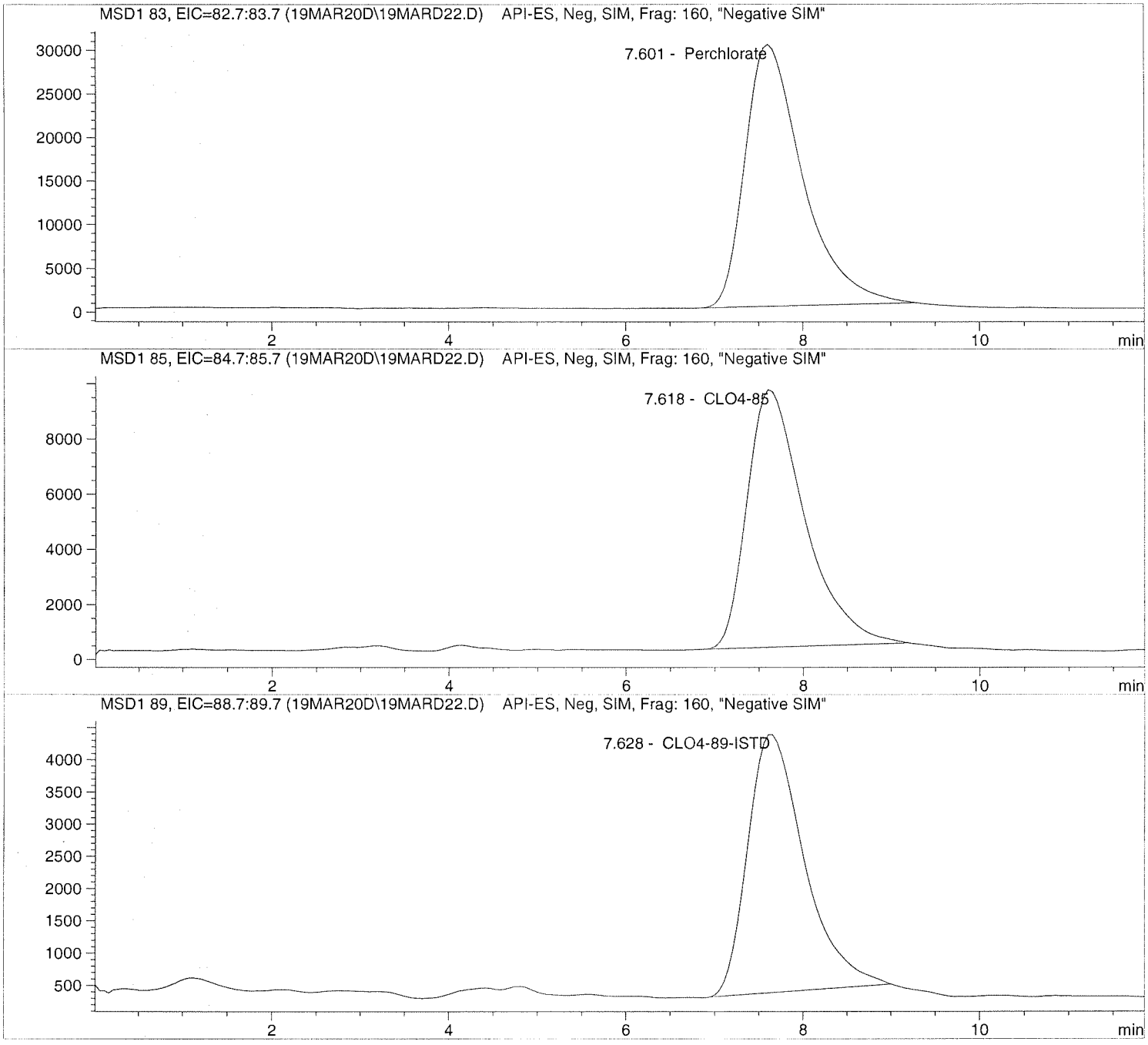
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD22.D Sample Name: 700242 CCV@25

Injection Date:	3/19/2020 13:44:51	Seq Line:	22
Sample Name:	700242 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD22.D Sample Name: 700242 CCV@25

Injection Date:	3/19/2020 13:44:51	Seq Line:	22
Sample Name:	700242 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Mon, 23. Sep. 2019,00:20:59 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.601	PBA	1365668.7	25.9389	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.618	PBA	426051.0	26.4925	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.628	PBA	179204.3	5.0000	CLO4-89-ISTD

*** End of Report ***

01094216

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

Calibration Table

Perchlorate

Calib. Data Modified : 9/23/2019 12:20:59 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
7.750	1	3	1.00000	5.39218e4	1.85454e-5	1		Perchlorate
		4	2.00000	1.32825e5	1.50574e-5			
		5	5.00000	2.76271e5	1.80982e-5			
		6	10.00000	5.61298e5	1.78159e-5			
		7	25.00000	1.51820e6	1.64669e-5			
		8	50.00000	3.31156e6	1.50986e-5			
		9	75.00000	5.23914e6	1.43153e-5			
7.767	3	3	5.00000	2.14568e5	2.33026e-5	+I1		CLO4-89-ISTD
		4	5.00000	2.04758e5	2.44190e-5			
		5	5.00000	2.13407e5	2.34294e-5			
		6	5.00000	2.09246e5	2.38953e-5			
		7	5.00000	2.07403e5	2.41077e-5			
		8	5.00000	2.02929e5	2.46391e-5			
		9	5.00000	1.97933e5	2.52611e-5			
7.778	2	3	1.00000	1.70436e4	5.86732e-5	1		CLO4-85
		4	2.00000	4.20754e4	4.75337e-5			
		5	5.00000	9.24707e4	5.40712e-5			
		6	10.00000	1.68622e5	5.93041e-5			
		7	25.00000	4.63724e5	5.39114e-5			
		8	50.00000	9.95933e5	5.02042e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		9	75.00000	1.58066e6	4.74484e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 3.581 min To 11.899 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 3.581 min To 11.896 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

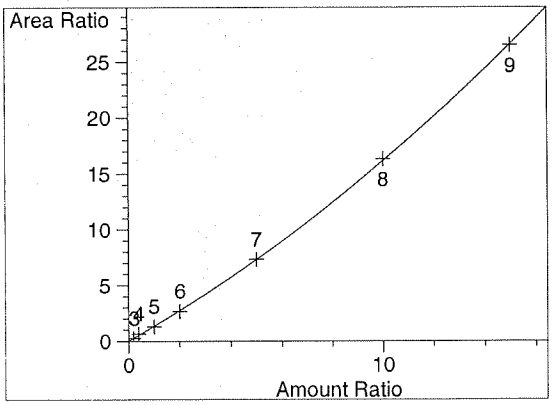
Compound: CLO4-85
- Time Window : From 3.601 min To 11.913 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 3 : 1
  - Level 4 : 0.5
  - Level 5 : 0.2
  - Level 6 : 0.1
  - Level 7 : 0.04
  - Level 8 : 0.02
  - Level 9 : 0.013333

Peak Sum Table

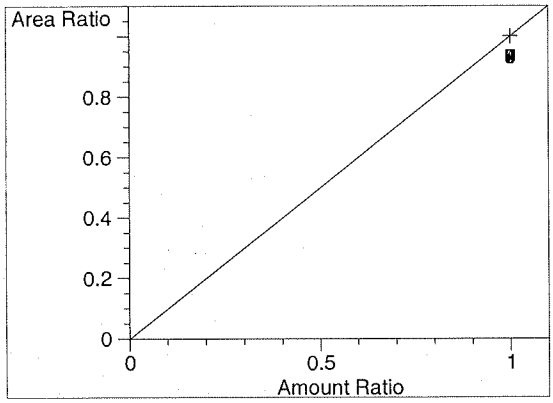
No Entries in table

Method C:\HPCHEM\1\METHODS\CLO4-DP3.M

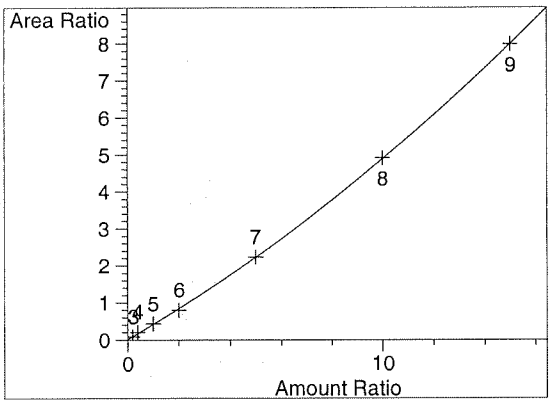
Calibration Curves



Perchlorate at exp. RT: 7.750
MSD1 83, EIC=82.7:83.7
Correlation: 0.99975
Residual Std. Dev.: 0.10284
Formula: $y = ax^2 + bx + c$
a: 3.10463e-2
b: 1.30369
c: 2.19496e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333



CLO4-89-ISTD at exp. RT: 7.767
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 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1
Level 8 : 1
Level 9 : 1



CLO4-85 at exp. RT: 7.778
MSD1 85, EIC=84.7:85.7
Correlation: 0.99969
Residual Std. Dev.: 0.02601
Formula: $y = ax^2 + bx + c$
a: 8.85207e-3
b: 3.99283e-1
c: 1.33505e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 3 : 1
Level 4 : 0.5
Level 5 : 0.2
Level 6 : 0.1
Level 7 : 0.04
Level 8 : 0.02
Level 9 : 0.013333

Batch Report: C:\HPCHEM\1\DATA\20SEP19I\20SEP19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP3.M

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

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	5.39218e4	7.750	8.75982e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.32825e5	7.797	2.37682
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.76271e5	7.770	4.77237
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	5.61298e5	7.785	9.75097
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	1.51820e6	7.741	25.01082
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	3.31156e6	7.775	50.40300
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.23914e6	7.736	74.79107
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	5.74879e5	7.756	10.11855

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.14568e5	7.767	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.04758e5	7.816	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.13407e5	7.793	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.09246e5	7.798	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.07403e5	7.763	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.02929e5	7.800	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.97933e5	7.765	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	2.06243e5	7.776	5.00000

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	1.70436e4	7.778	8.24488e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.20754e4	7.805	2.38090
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	9.24707e4	7.787	5.14166
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	1.68622e5	7.781	9.52209
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	4.63724e5	7.760	25.04916
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	9.95933e5	7.793	50.14223
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.58066e6	7.758	74.93659
#*	ICAL Verf@10ug/L	Vial 80	1	Control	11	1.71000e5	7.760	9.79043

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\SEP\20SEP19I.S

Sequence Table:

Method and Injection Info Part:

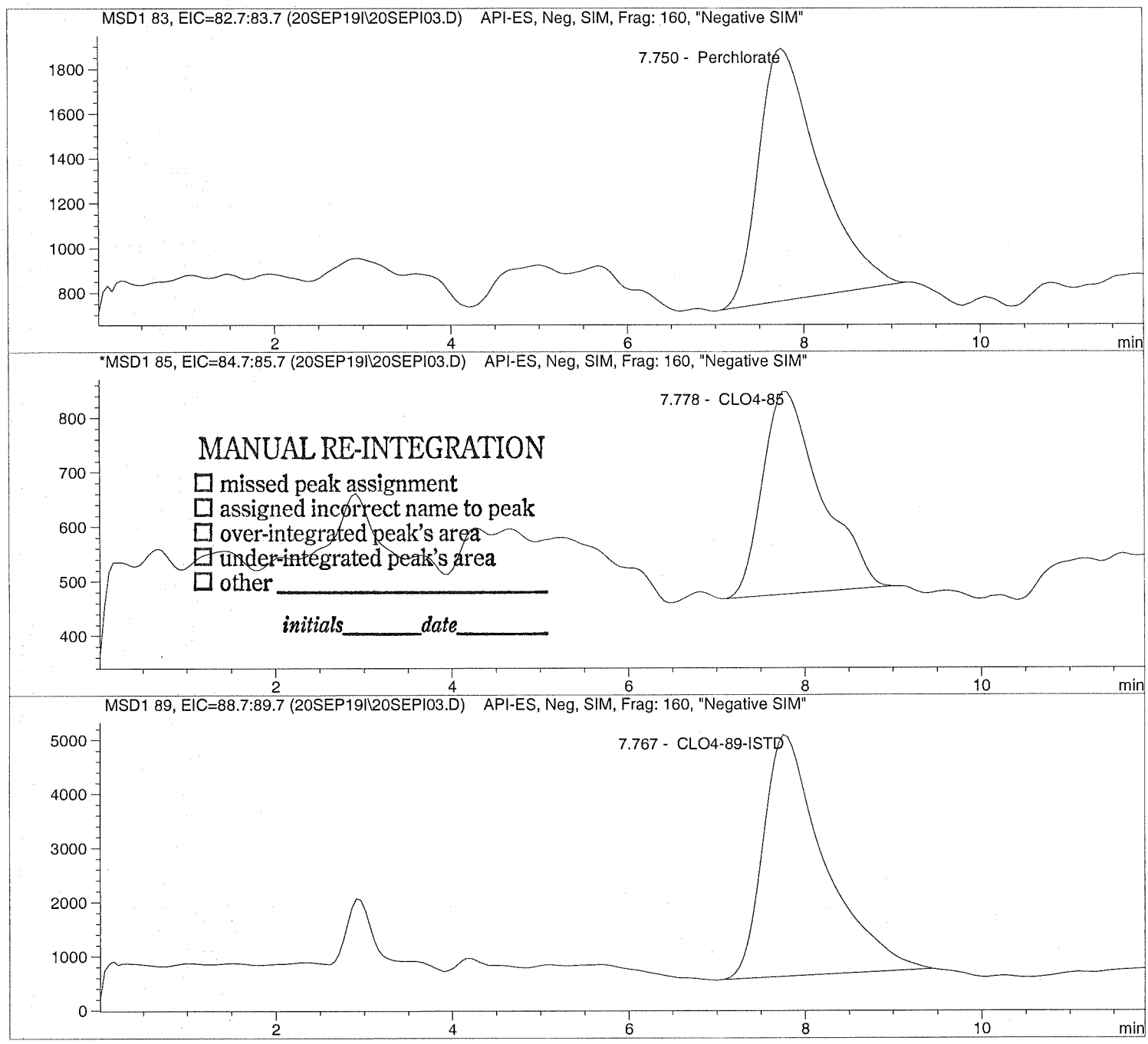
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
11	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.778	MM	17043.6	0.8245	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

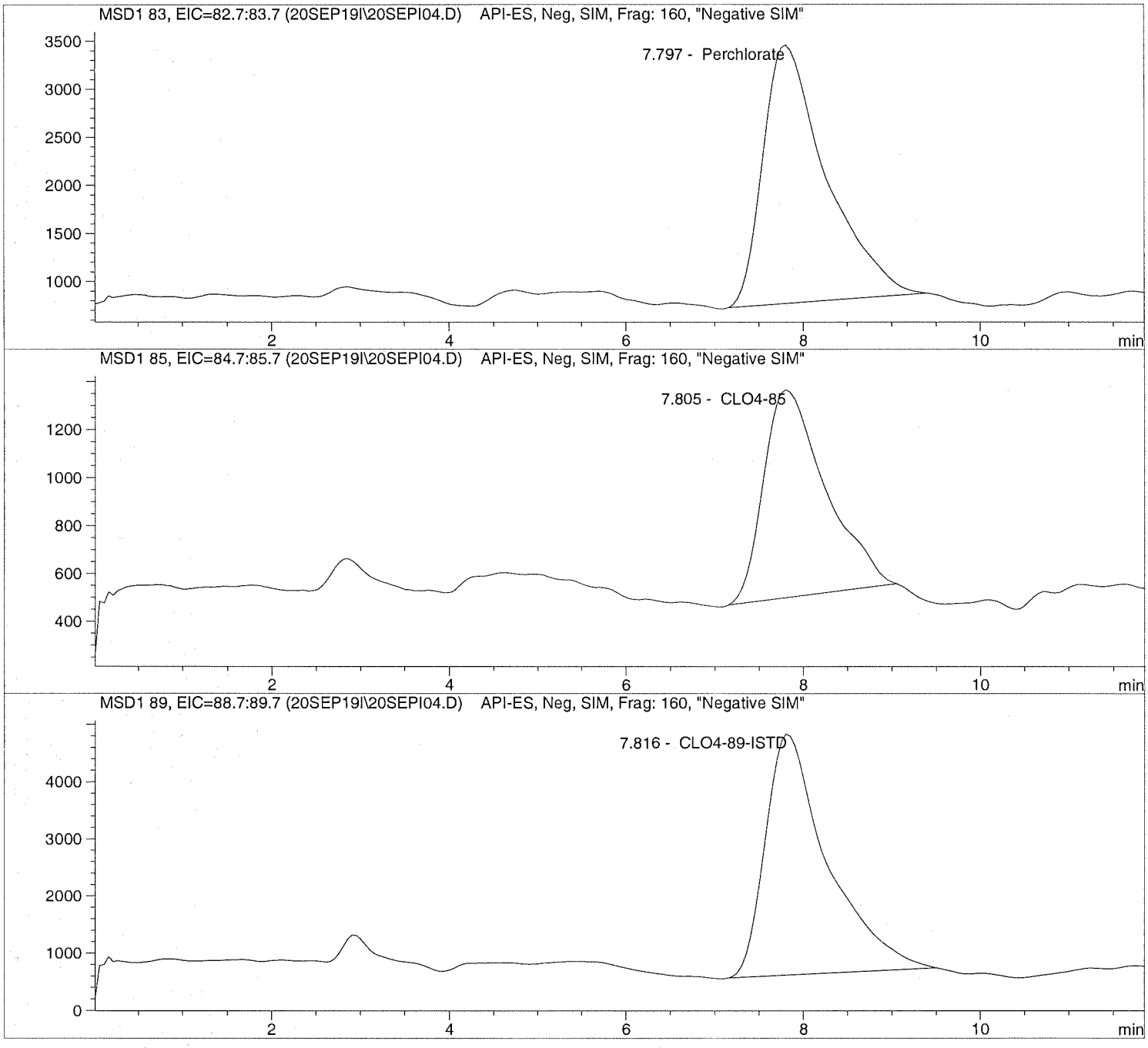
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	9/20/2019 09:37:58	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.797	PBA	132825.2	2.3768	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.805	PBA	42075.4	2.3809	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.816	PBA	204758.3	5.0000	CLO4-89-ISTD

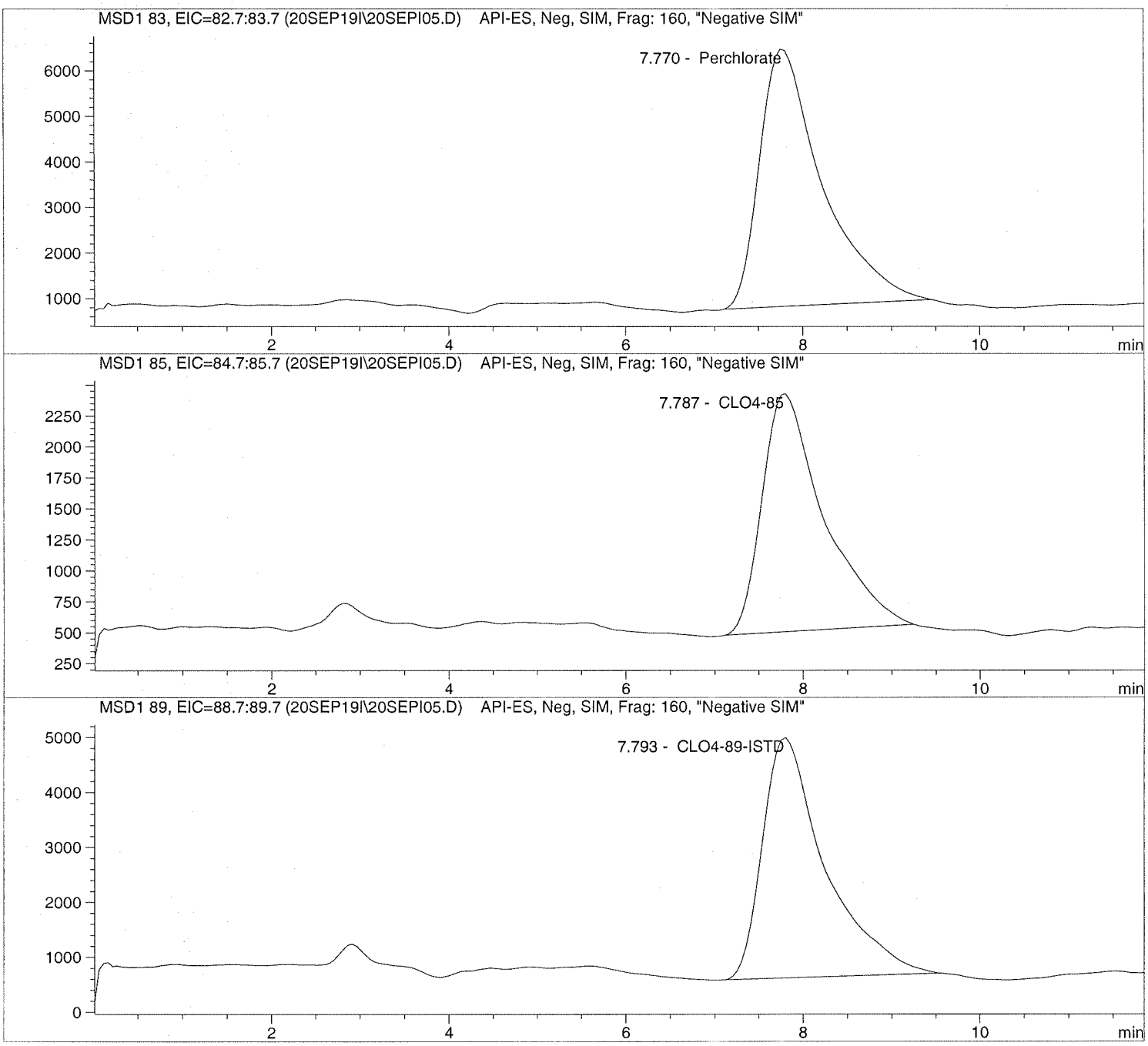
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	9/20/2019 09:51:49	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.770	PBA	276270.7	4.7724	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.787	PBA	92470.7	5.1417	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	213407.0	5.0000	CLO4-89-ISTD

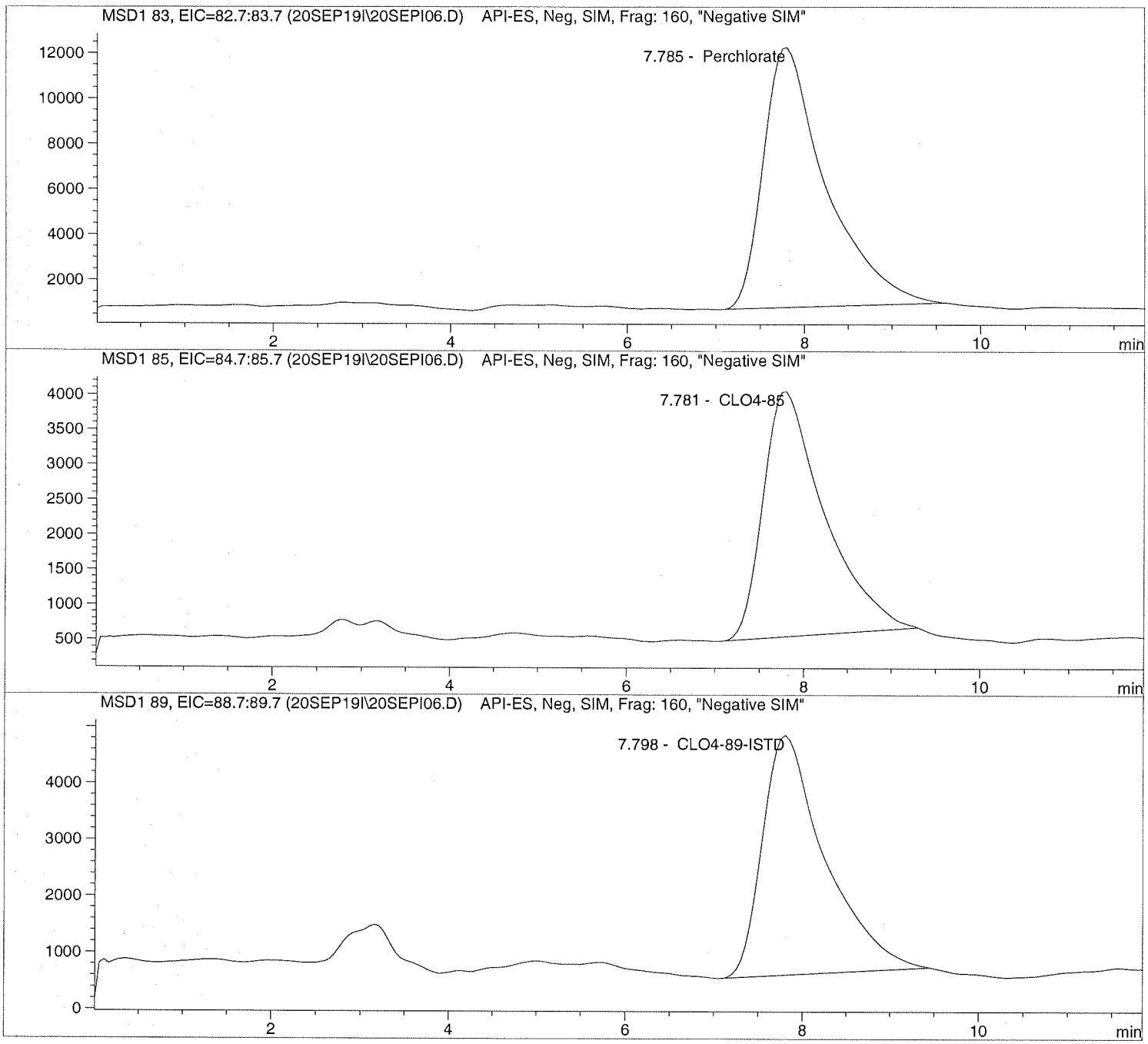
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	9/20/2019 10:05:36	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.785	PBA	561297.7	9.7510	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.781	PBA	168622.4	9.5221	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.798	PBA	209246.3	5.0000	CLO4-89-ISTD

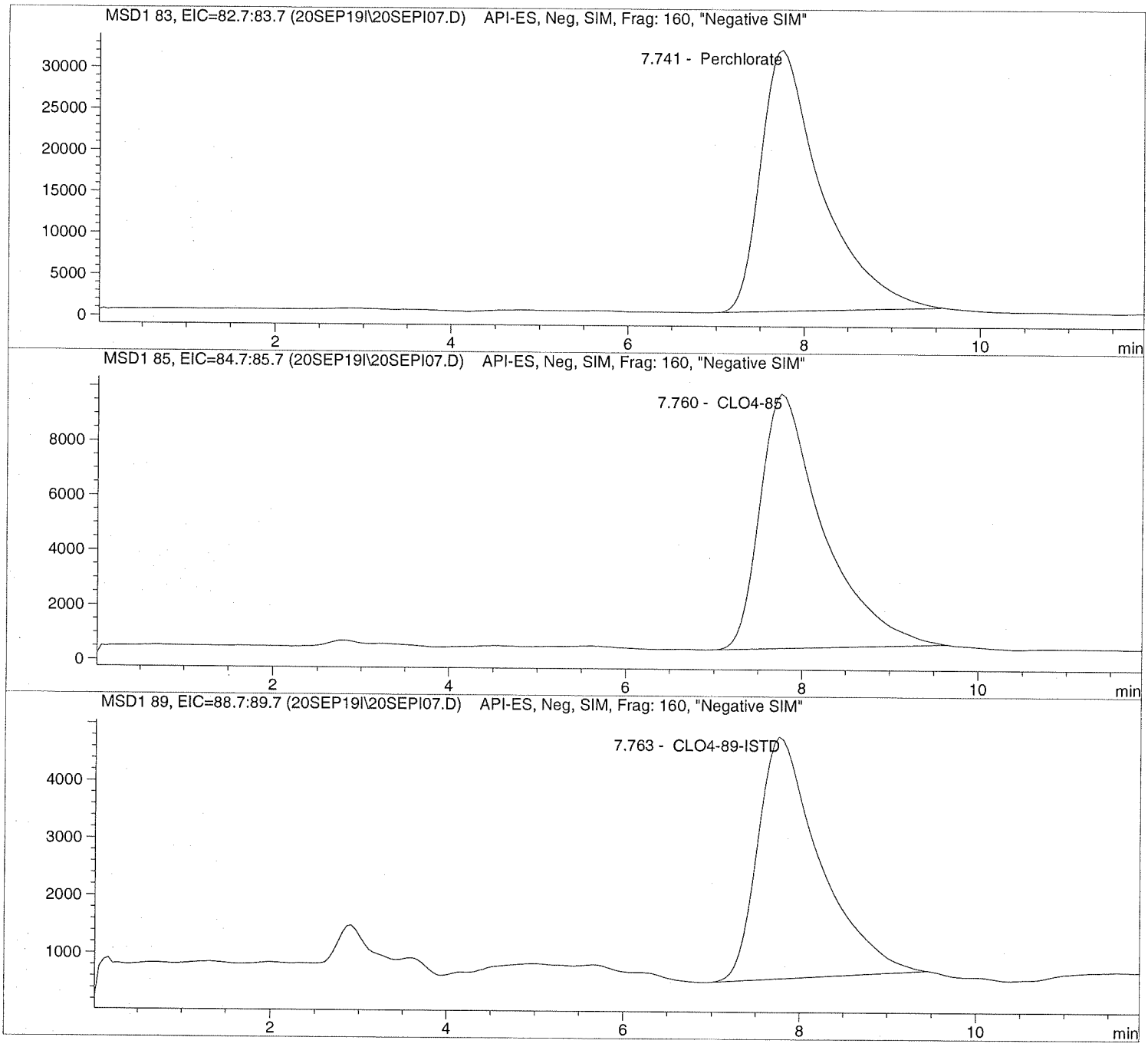
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	9/20/2019 10:19:23	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.741	PBA	1518197.9	25.0108	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	463724.0	25.0492	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.763	PBA	207402.8	5.0000	CLO4-89-ISTD

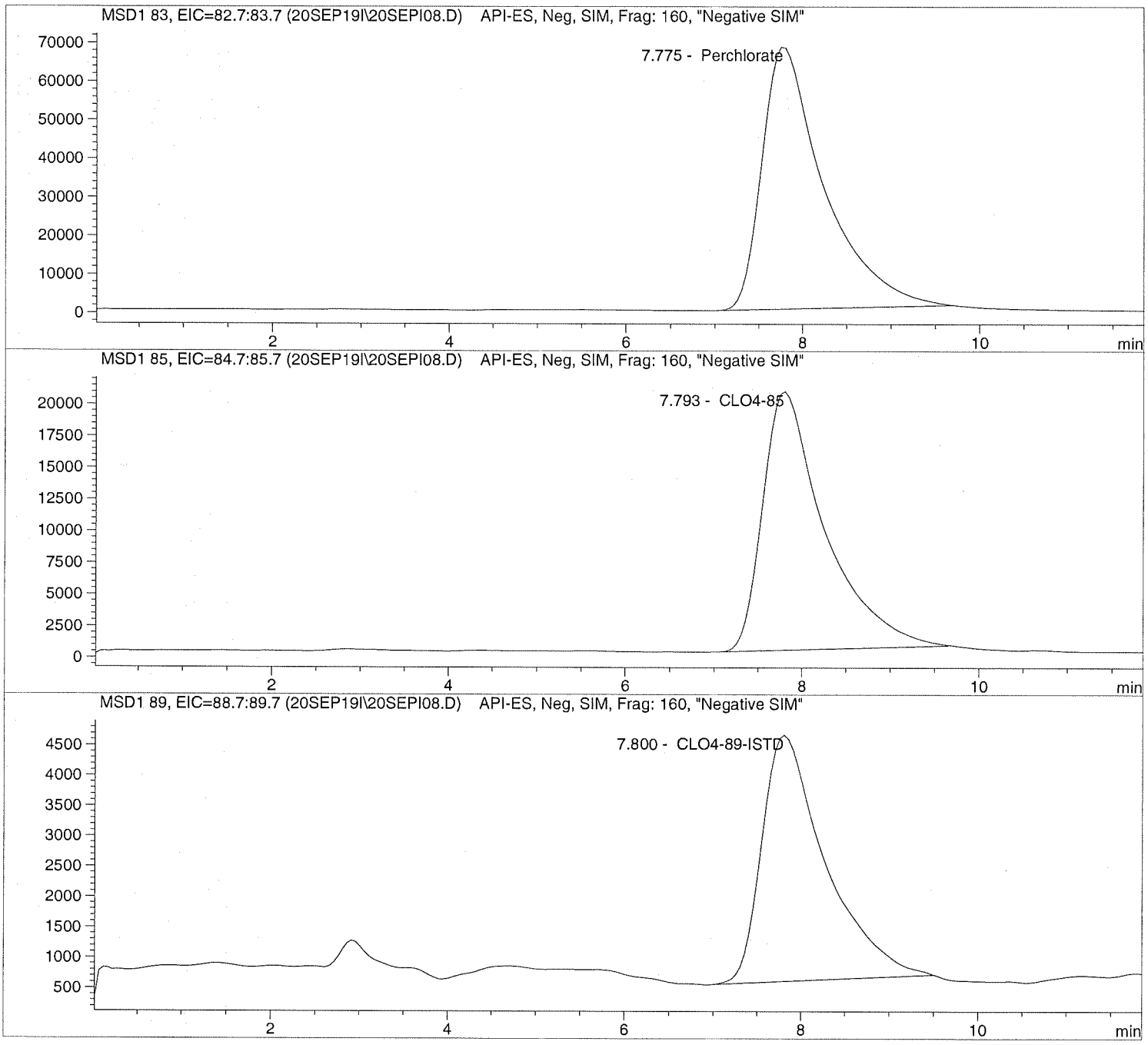
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	9/20/2019 10:33:18	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.775	PBA	3311559.2	50.4030	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.793	PBA	995933.0	50.1422	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.800	PBA	202929.2	5.0000	CLO4-89-ISTD

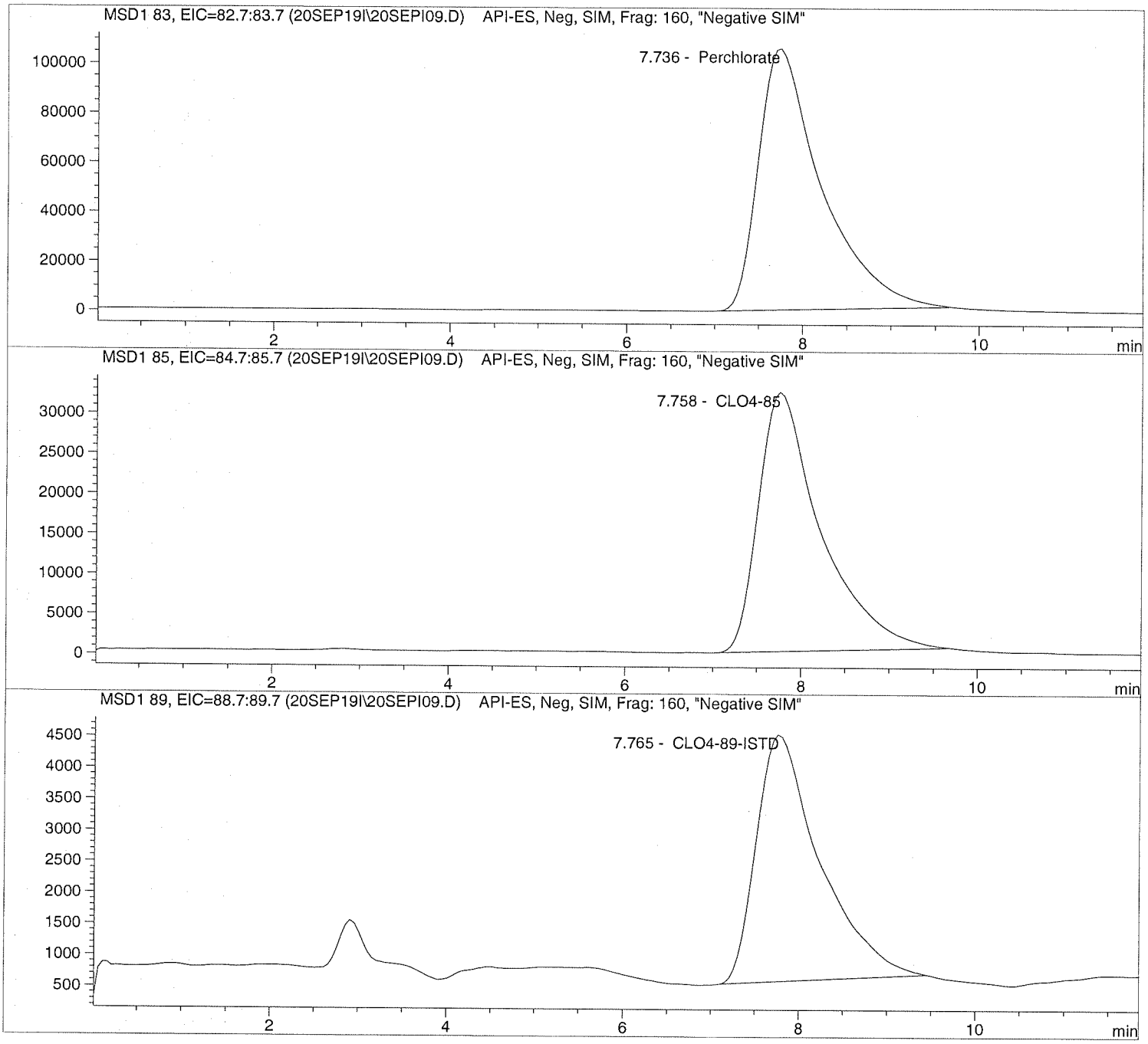
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	9/20/2019 10:47:05	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
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
7.736	PBA	5239145.0	74.7911	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.758	PBA	1580664.2	74.9366	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.765	PBA	197932.5	5.0000	CLO4-89-ISTD

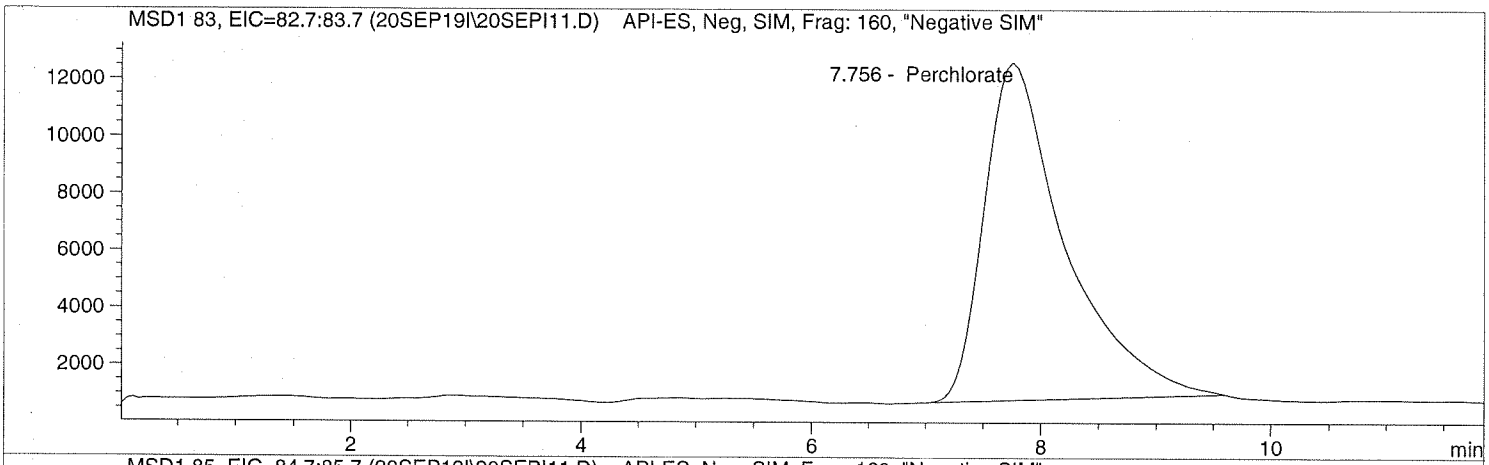
*** End of Report ***

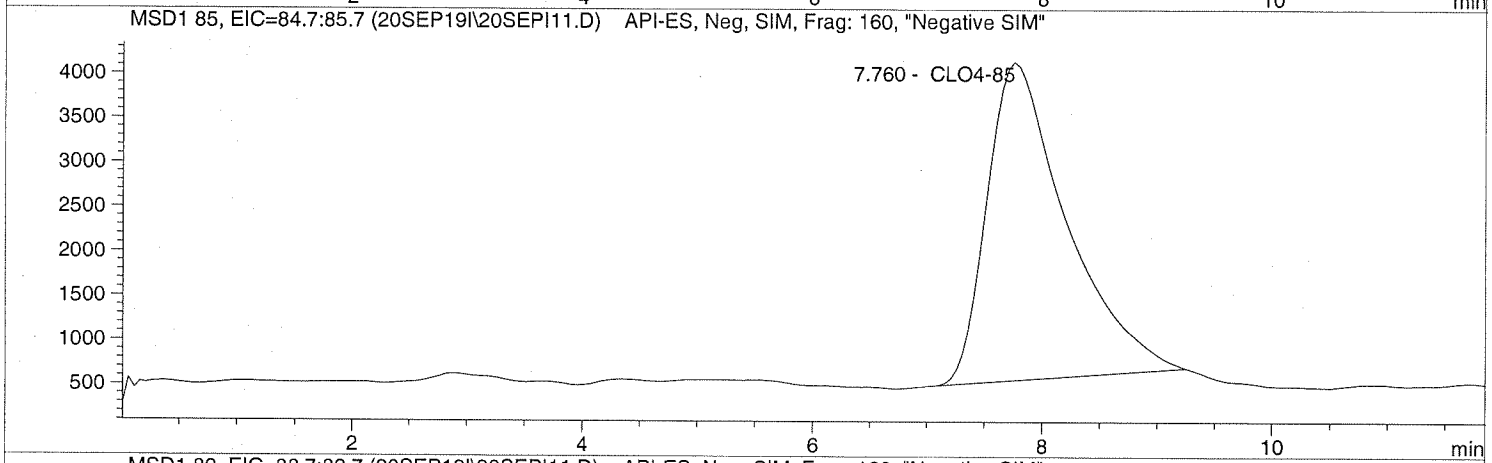
Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

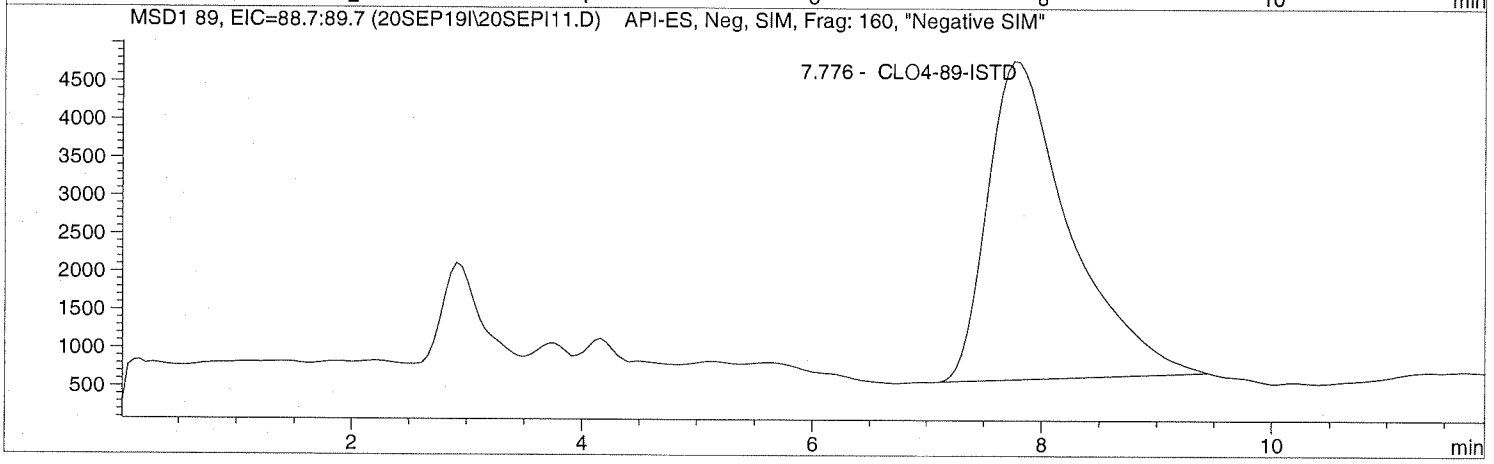
Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:21:47

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI11.D Sample Name: ICAL Verf@10ug/L

Injection Date:	9/20/2019 11:14:45	Seq Line:	11
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	9/23/2019 12:21:47

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.756	PBA	574879.4	10.1185	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.760	PBA	171000.4	9.7904	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.776	PBA	206243.3	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

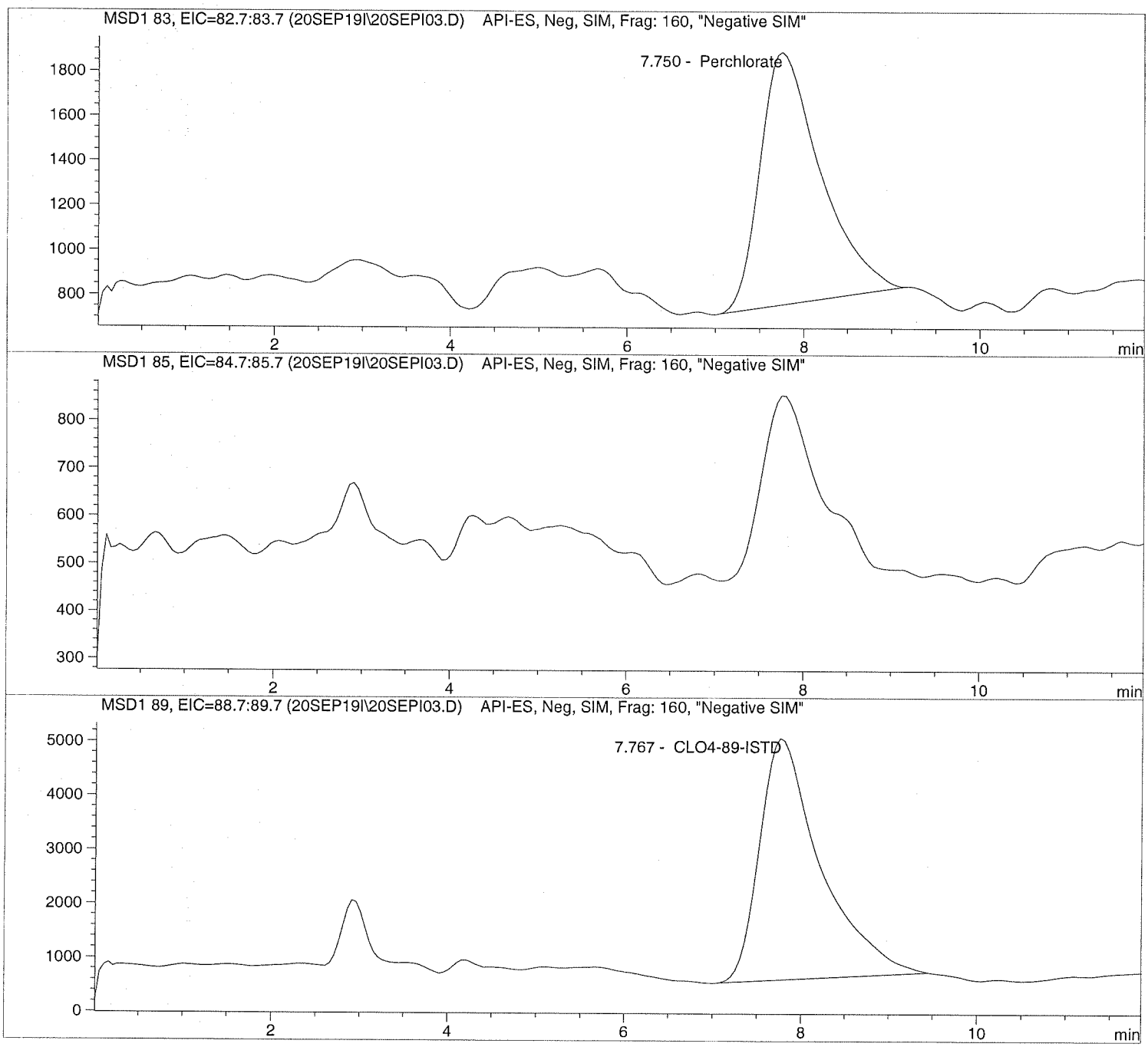
Unmodified

Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 9/23/2019 12:27:11

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\20SEP19I\20SEPI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	9/20/2019 09:24:05	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	9/23/2019 12:27:11

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.750	PBA	53921.8	0.8760	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.767	PBA	214568.1	5.0000	CLO4-89-ISTD

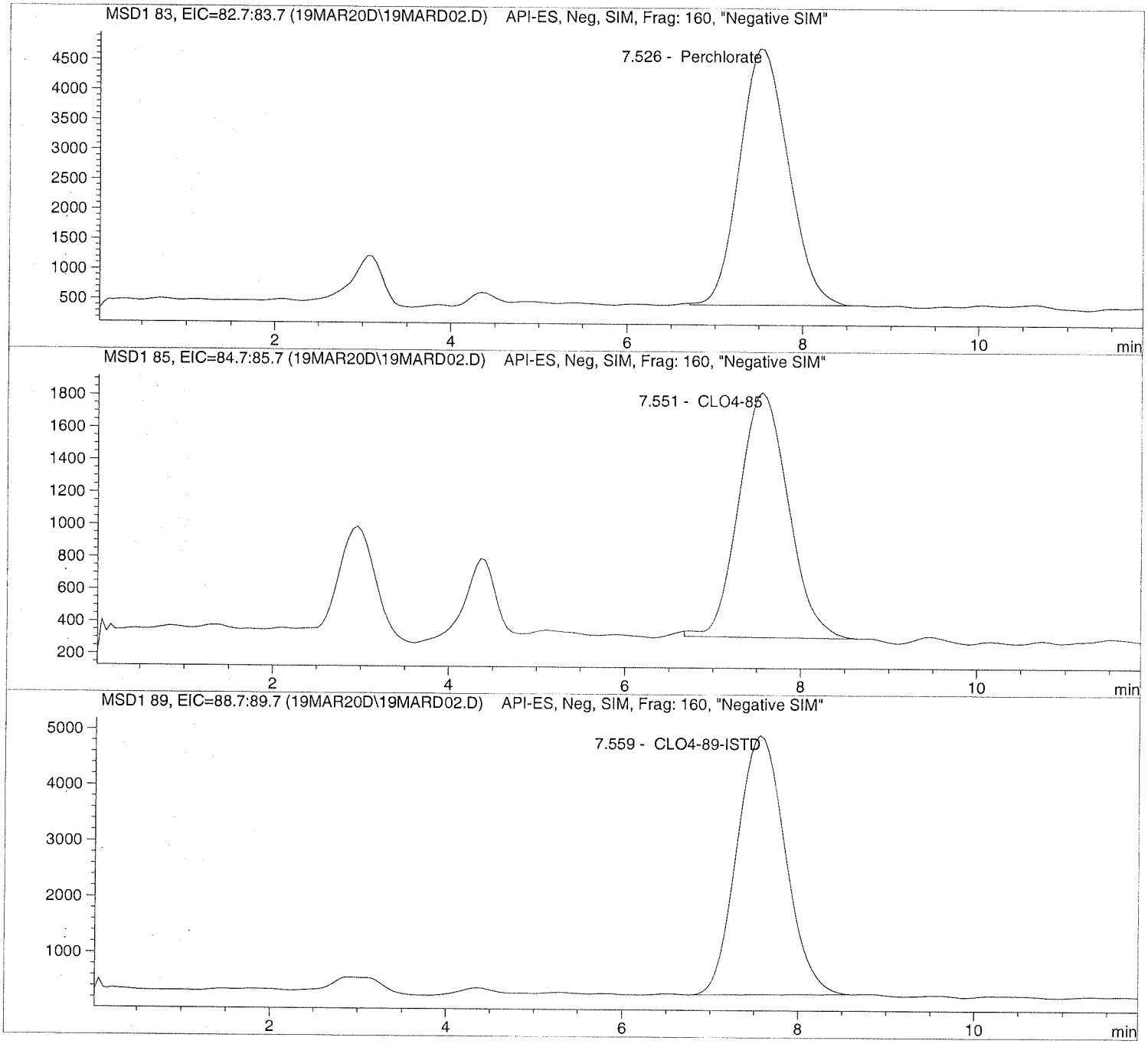
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD02.D Sample Name: 700237 LCS@3.

Injection Date:	3/19/2020 08:53:26	Seq Line:	2
Sample Name:	700237 LCS@3.	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed:	2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	3.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.526	BBA	165065.5	3.4233	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.551	BBA	59556.2	3.9609	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
7.559	PBA	177666.7	5.0000	CLO4-89-ISTD

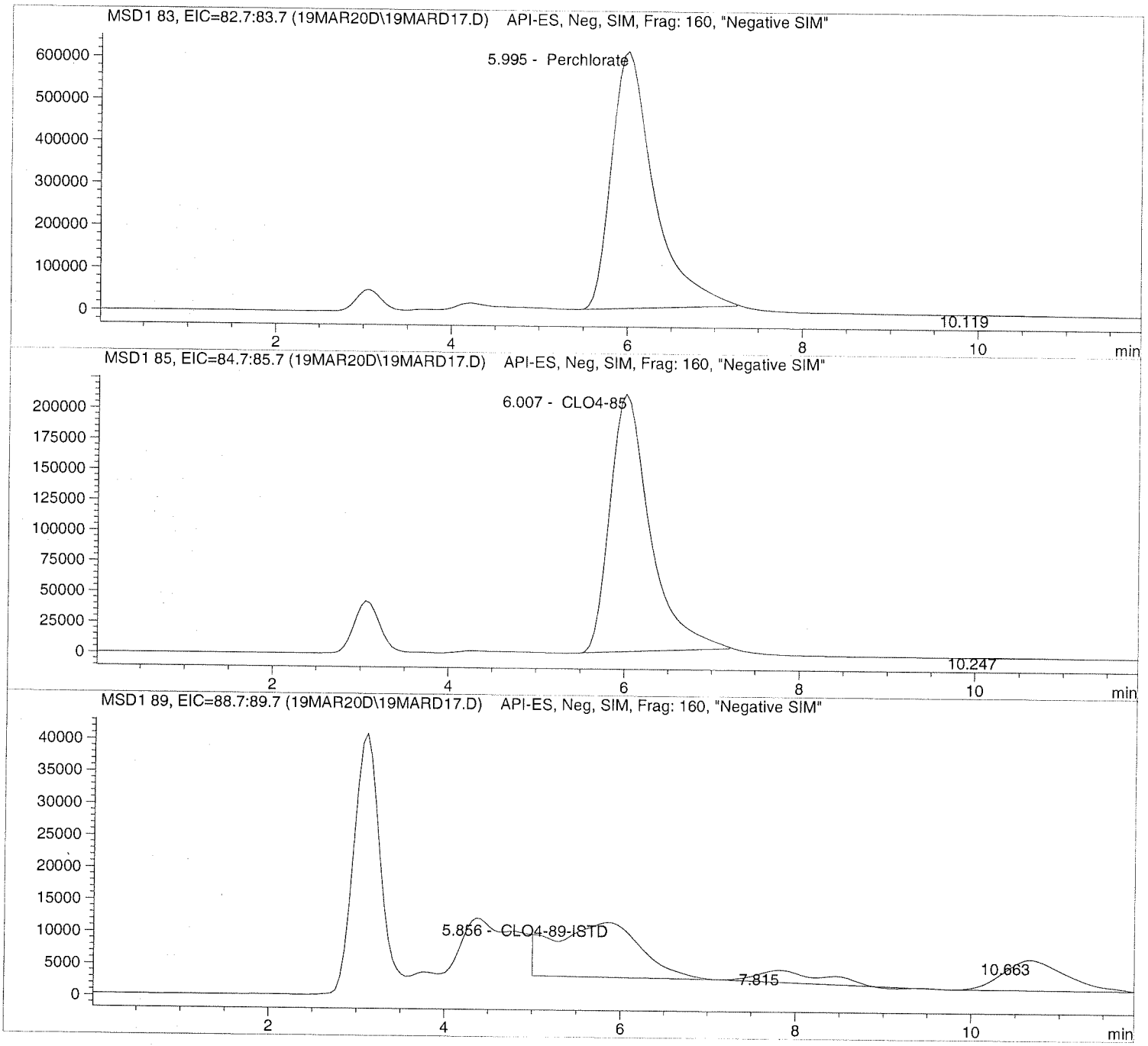
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR20D\19MARD17.D Sample Name: 2007568006

Injection Date:	3/19/2020 12:23:11	Seq Line:	17
Sample Name:	2007568006	Location:	Vial 86
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	40 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP3.M
Last Changed: 2/17/2020 15:42:52

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Mon, 23. Sep. 2019,00:20:59 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.995	PBA	20431220.0	93.1345	Perchlorate
10.119	PBA	49235.6	0.0000	

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
6.007	PBA	6724059.0	100.0293	CLO4-85
10.247	PBA	21296.1	0.0000	

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
5.856	BBA	582460.0	5.0000	CLO4-89-ISTD
7.815	VB	96769.7	0.0000	
10.663	VBA	237082.8	0.0000	

*** End of Report ***

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March 25, 2020

Analytical Report for Service Request No: K2002276

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

RE: HS20030498

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory March 13, 2020
For your reference, these analyses have been assigned our service request number **K2002276.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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Client: ALS Environmental - US
Project: HS20030498
Sample Matrix: Ground Water

Service Request: K2002276
Date Received: 03/13/2020

CASE NARRATIVE

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

Sample Receipt:

Four ground water samples were received for analysis at ALS Environmental on 03/13/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 03/25/2020

Chain of Custody

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

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13509**

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20030498
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20030498-04**	**16WW35-200311**	**Groundwater**	**11 Mar 2020 11:45**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Mar 2020
2.	**HS20030498-05**	**16WW36-200311**	**Groundwater**	**11 Mar 2020 12:40**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Mar 2020
3.	**HS20030498-06**	**16WW16-200311**	**Groundwater**	**11 Mar 2020 13:40**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Mar 2020
4.	**HS20030498-07**	**16WW16-200311-FD**	**Groundwater**	**11 Mar 2020 13:40**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			26 Mar 2020

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. Mirenda Date/Time: 3/12/20 18:00

Received By: K Morrow ALS Kelso Date/Time: 3/13/20 0955

Cooler ID(s): Temperature(s):

PC KK

Cooler Receipt and Preservation Form

Client ALS-Houston Service Request K20 02276

Received: 3/13/20 Opened: 3/13/20 By: [signature] Unloaded: 3/13/20 By: PK

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	File
-0.3	-0.4	N/A	NA	-0.1	397	13509	1251 0295 3927	

4. Packing material: *Inserts* (*Baggies*) *Bubble Wrap* *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

12/18/19

Page _____ *of* _____

General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2002276
Project:	HS20030498	**Date Collected:**	03/11/20
Sample Matrix:	Ground Water	**Date Received:**	03/13/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
16WW35-200311	K2002276-001	**58.5**	5.0	2.0	0.7	10	03/22/20 01:06	
16WW36-200311	K2002276-002	**19.7**	0.50	0.20	0.07	1	03/15/20 08:10	
16WW16-200311	K2002276-003	**4.85**	0.50	0.20	0.07	1	03/15/20 08:43	
16WW16-200311-FD	K2002276-004	**4.97**	0.50	0.20	0.07	1	03/15/20 09:15	
Method Blank	K2002276-MB1	ND U	0.50	0.20	0.07	1	03/15/20 00:20	
Method Blank	K2002276-MB2	**0.29 J**	0.50	0.20	0.07	1	03/21/20 20:07	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2002276
Project	HS20030498	**Date Collected:**	03/11/20
Sample Matrix:	Ground Water	**Date Received:**	03/13/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	LOQ	LOD	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
16WW35-200311	K2002276-001DUP	5.0	2.0	0.7	58.5	59.2	58.9	1	10	03/22/20
16WW36-200311	K2002276-002DUP	0.50	0.20	0.07	19.7	19.2	19.5	2	10	03/15/20
16WW16-200311	K2002276-003DUP	0.50	0.20	0.07	4.85	4.70	4.77	3	10	03/15/20
16WW16-200311-FD	K2002276-004DUP	0.50	0.20	0.07	4.97	4.75	4.86	4	10	03/15/20

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2002276
Project:	HS20030498	**Date Analyzed:**	03/15/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	673405

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2002276-LCS1	24.1	25.0	96	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2002276
Project:	HS20030498	**Date Analyzed:**	03/21/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	674205

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2002276-LCS2	24.9	25.0	100	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2002276
Project: HS20030498

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

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

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	673405	KQ2003794-02	03/14/20 23:47	25.0	25.6	102	90-110
CCV2	673405	KQ2003794-03	03/15/20 03:53	25.0	25.7	103	90-110
CCV3	673405	KQ2003794-04	03/15/20 09:47	25.0	25.5	102	90-110
CCV4	673405	KQ2003794-05	03/15/20 14:08	25.0	25.2	101	90-110
CCV5	674205	KQ2003999-01	03/21/20 19:52	25.0	26.3	105	90-110
CCV6	674205	KQ2003999-02	03/21/20 23:40	25.0	26.3	105	90-110
CCV7	674205	KQ2003999-03	03/22/20 04:51	25.0	26.5	106	90-110
CCV8	674205	KQ2003999-30	03/22/20 09:35	25.0	25.8	103	90-110

ALS Group USA, Corp.
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QA/QC Report

Client: ALS Environmental - US **Service Request:**K2002276
Project: HS20030498

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

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

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	673405	KQ2003794-06	03/15/20 00:04	0.50	0.20	0.07	ND	U
CCB2	673405	KQ2003794-07	03/15/20 04:09	0.50	0.20	0.07	ND	U
CCB3	673405	KQ2003794-08	03/15/20 10:03	0.50	0.20	0.07	ND	U
CCB4	673405	KQ2003794-09	03/15/20 14:25	0.50	0.20	0.07	ND	U
CCB5	674205	KQ2003999-04	03/21/20 19:37	0.50	0.20	0.07	ND	U
CCB6	674205	KQ2003999-05	03/21/20 23:55	0.50	0.20	0.07	0.12	J
CCB7	674205	KQ2003999-06	03/22/20 05:06	0.50	0.20	0.07	ND	U
CCB8	674205	KQ2003999-31	03/22/20 09:49	0.50	0.20	0.07	ND	U

Raw Data

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General Chemistry

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Work Request # Original ( ) K2002129, 2149, 2171, 2186, 2240, 2268, 2276, 2277, 2140

Tier: I II I II I II IV IV II

Date Analyzed: 3/19/20

Analyst: BCD

Analysis: TOC/DOC

Run # TOC:673405 DOC:673406

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS: K2002140-3/3d report a high %RSD. However these samples are less than 5x the MRL.

Final Approved by: _____ Date: 3/19/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 673405 **Method/Testcode:** 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002129-001	Carbon, Total Organic	N/A		Water	0.74 mg/L	10 mL	0.74 mg/L	1	0.07	0.50			3/15/20 01:43:00	N	I
K2002129-002	Carbon, Total Organic	N/A		Water	0.95 mg/L	10 mL	0.95 mg/L	1	0.07	0.50			3/15/20 02:48:00	N	I
K2002129-003	Carbon, Total Organic	N/A		Water	0.87 mg/L	10 mL	0.87 mg/L	1	0.07	0.50			3/15/20 03:21:00	N	I
K2002129-004	Carbon, Total Organic	N/A		Water	3.18 mg/L	10 mL	3.18 mg/L	1	0.07	0.50			3/15/20 04:26:00	N	I
K2002149-001	Carbon, Total Organic	N/A		Drinking Water	0.45 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 06:02:00	N	II
K2002171-001	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 01:10:00	N	I
K2002171-002	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 01:27:00	N	I
K2002186-001	Carbon, Total Organic	N/A		Water	4.34 mg/L	10 mL	4.34 mg/L	1	0.07	0.50			3/15/20 04:58:00	N	II
K2002240-001	Carbon, Total Organic	N/A		Water	2.79 mg/L	10 mL	56 mg/L	20	2	10			3/15/20 10:54:00	N	I
K2002268-001	Carbon, Total Organic	N/A		Water	3.24 mg/L	10 mL	3.24 mg/L	1	0.07	0.50			3/15/20 06:34:00	N	II
K2002276-002	Carbon, Total Organic	N/A		Ground Water	19.68 mg/L	10 mL	19.7 mg/L	1	0.07	0.50			3/15/20 08:10:00	N	IV
K2002276-003	Carbon, Total Organic	N/A		Ground Water	4.85 mg/L	10 mL	4.85 mg/L	1	0.07	0.50			3/15/20 08:43:00	N	IV
K2002276-004	Carbon, Total Organic	N/A		Ground Water	4.97 mg/L	10 mL	4.97 mg/L	1	0.07	0.50			3/15/20 09:15:00	N	IV
K2002277-001	Carbon, Total Organic	N/A		Water	2.31 mg/L	10 mL	2.31 mg/L	1	0.07	0.50			3/15/20 05:30:00	N	IV
KQ2003794-01	Carbon, Total Organic	MS	K2002129-001	Water	26.85 mg/L	10 mL	26.9 mg/L	1	0.07	0.50	104		3/15/20 02:15:00	N	I
KQ2003794-02	Carbon, Total Organic	CCV		Reagent Water	25.62 mg/L	10 mL	25.6 mg/L	1					3/14/20 23:47:00	N	I
KQ2003794-02	Carbon, Total Organic	CCV		Reagent Water	25.62 mg/L	10 mL	25.6 mg/L	1					3/14/20 23:47:00	N	I
KQ2003794-03	Carbon, Total Organic	CCV		Reagent Water	25.71 mg/L	10 mL	25.7 mg/L	1					3/15/20 03:53:00	N	I
KQ2003794-03	Carbon, Total Organic	CCV		Reagent Water	25.71 mg/L	10 mL	25.7 mg/L	1					3/15/20 03:53:00	N	I
KQ2003794-04	Carbon, Total Organic	CCV		Reagent Water	25.46 mg/L	10 mL	25.5 mg/L	1					3/15/20 09:47:00	N	I
KQ2003794-04	Carbon, Total Organic	CCV		Reagent Water	25.46 mg/L	10 mL	25.5 mg/L	1					3/15/20 09:47:00	N	I
KQ2003794-05	Carbon, Total Organic	CCV		Reagent Water	25.24 mg/L	10 mL	25.2 mg/L	1					3/15/20 14:08:00	N	I
KQ2003794-05	Carbon, Total Organic	CCV		Reagent Water	25.24 mg/L	10 mL	25.2 mg/L	1					3/15/20 14:08:00	N	I
KQ2003794-06	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 00:04:00	N	I
KQ2003794-06	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 00:04:00	N	I
KQ2003794-07	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 04:09:00	N	I
KQ2003794-07	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 04:09:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 673405 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2003794-08	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 10:03:00	N	I
KQ2003794-08	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 10:03:00	N	I
KQ2003794-09	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 14:25:00	N	I
KQ2003794-09	Carbon, Total Organic	CCB		Reagent Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 14:25:00	N	I
KQ2003794-10	Carbon, Total Organic	MB		Reagent Water	0.04 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 00:20:00	N	I
KQ2003794-10	Carbon, Total Organic	MB		Reagent Water	0.04 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 00:20:00	N	I
KQ2003794-11	Carbon, Total Organic	LCS		Reagent Water	24.05 mg/L	10 mL	24.1 mg/L	1	0.07	0.50	96		3/15/20 00:37:00	N	I
KQ2003794-11	Carbon, Total Organic	LCS		Reagent Water	24.05 mg/L	10 mL	24.1 mg/L	1	0.07	0.50	96		3/15/20 00:37:00	N	I
KQ2003794-12	Carbon, Total Organic	DUP	K2002186-001	Water	4.35 mg/L	10 mL	4.35 mg/L	1	0.07	0.50		<1	3/15/20 04:58:00	N	II
KQ2003794-13	Carbon, Total Organic	DUP	K2002240-001	Water	2.65 mg/L	10 mL	53 mg/L	20	2	10		5	3/15/20 10:54:00	N	I
KQ2003794-14	Carbon, Total Organic	DUP	K2002268-001	Water	3.20 mg/L	10 mL	3.20 mg/L	1	0.07	0.50		1	3/15/20 06:34:00	N	II
KQ2003794-15	Carbon, Total Organic	DUP	K2002276-002	Ground Water	19.24 mg/L	10 mL	19.2 mg/L	1	0.07	0.50		2	3/15/20 08:10:00	N	IV
KQ2003794-16	Carbon, Total Organic	DUP	K2002276-003	Ground Water	4.70 mg/L	10 mL	4.70 mg/L	1	0.07	0.50		3	3/15/20 08:43:00	N	IV
KQ2003794-17	Carbon, Total Organic	DUP	K2002276-004	Ground Water	4.75 mg/L	10 mL	4.75 mg/L	1	0.07	0.50		4	3/15/20 09:15:00	N	IV
KQ2003794-18	Carbon, Total Organic	DUP	K2002277-001	Water	2.21 mg/L	10 mL	2.21 mg/L	1	0.07	0.50		5	3/15/20 05:30:00	N	IV
KQ2003794-19	Carbon, Total Organic	DUP	K2002149-001	Drinking Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50		NC	3/15/20 06:02:00	N	II
KQ2003794-20	Carbon, Total Organic	DUP	K2002129-002	Water	0.90 mg/L	10 mL	0.90 mg/L	1	0.07	0.50		6	3/15/20 02:48:00	N	I
KQ2003794-21	Carbon, Total Organic	DUP	K2002129-001	Water	0.76 mg/L	10 mL	0.76 mg/L	1	0.07	0.50		2	3/15/20 01:43:00	N	I
KQ2003794-22	Carbon, Total Organic	DUP	K2002129-003	Water	0.78 mg/L	10 mL	0.78 mg/L	1	0.07	0.50		11	3/15/20 03:21:00	N	I
KQ2003794-23	Carbon, Total Organic	DUP	K2002129-004	Water	3.06 mg/L	10 mL	3.06 mg/L	1	0.07	0.50		4	3/15/20 04:26:00	N	I
KQ2003794-24	Carbon, Total Organic	N/A		Water	0.74 mg/L	10 mL	0.74 mg/L	1	0.07	0.50			3/15/20 01:43:00	N	I
KQ2003794-25	Carbon, Total Organic	MS	KQ2003794-24	Water	26.85 mg/L	10 mL	26.9 mg/L	1	0.07	0.50	104		3/15/20 02:15:00	N	I
KQ2003794-26	Carbon, Total Organic	DUP	KQ2003794-24	Water	0.76 mg/L	10 mL	0.76 mg/L	1	0.07	0.50		2	3/15/20 01:43:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 673406 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002140-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.86 mg/L	10 mL	1.86 mg/L	1	0.07	0.50			3/15/20 10:54:00	N	II
K2002140-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.92 mg/L	10 mL	1.92 mg/L	1	0.07	0.50			3/15/20 13:04:00	N	II
K2002140-003	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.36 mg/L	10 mL	0.36 mg/L J	1	0.07	0.50			3/15/20 13:36:00	N	II
K2002140-004	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.38 mg/L	10 mL	1.38 mg/L	1	0.07	0.50			3/15/20 14:41:00	N	II
K2002140-005	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.85 mg/L	10 mL	0.85 mg/L	1	0.07	0.50			3/15/20 15:14:00	N	II
K2002140-006	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.80 mg/L	10 mL	1.80 mg/L	1	0.07	0.50			3/15/20 15:46:00	N	II
K2002140-007	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.97 mg/L	10 mL	1.97 mg/L	1	0.07	0.50			3/15/20 16:18:00	N	II
K2002140-008	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.89 mg/L	10 mL	1.89 mg/L	1	0.07	0.50			3/15/20 16:50:00	N	II
K2002140-009	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.93 mg/L	10 mL	1.93 mg/L	1	0.07	0.50			3/15/20 17:22:00	N	II
K2002140-010	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.90 mg/L	10 mL	0.90 mg/L	1	0.07	0.50			3/15/20 17:54:00	N	II
K2002140-011	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.85 mg/L	10 mL	1.85 mg/L	1	0.07	0.50			3/15/20 18:26:00	N	II
K2002140-012	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.90 mg/L	10 mL	1.90 mg/L	1	0.07	0.50			3/15/20 18:58:00	N	II
KQ2003796-01	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	25.46 mg/L	10 mL	25.5 mg/L	1					3/15/20 09:47:00	N	II
KQ2003796-02	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	25.24 mg/L	10 mL	25.2 mg/L	1					3/15/20 14:08:00	N	II
KQ2003796-03	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	25.04 mg/L	10 mL	25.0 mg/L	1					3/15/20 19:47:00	N	II
KQ2003796-04	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 10:03:00	N	II
KQ2003796-05	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 14:25:00	N	II
KQ2003796-06	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 20:03:00	N	II
KQ2003796-07	Carbon, Dissolved Organic (DOC)	MB		Surface Water	-0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/15/20 10:20:00	N	II
KQ2003796-08	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	23.95 mg/L	10 mL	24.0 mg/L	1	0.07	0.50	96		3/15/20 10:37:00	N	II
KQ2003796-09	Carbon, Dissolved Organic (DOC)	MS	K2002140-001	Surface Water	28.29 mg/L	10 mL	28.3 mg/L	1	0.07	0.50	106		3/15/20 12:31:00	N	II
KQ2003796-10	Carbon, Dissolved Organic (DOC)	DUP	K2002140-001	Surface Water	1.81 mg/L	10 mL	1.81 mg/L	1	0.07	0.50		3	3/15/20 10:54:00	N	II
KQ2003796-11	Carbon, Dissolved Organic (DOC)	DUP	K2002140-002	Surface Water	1.88 mg/L	10 mL	1.88 mg/L	1	0.07	0.50		2	3/15/20 13:04:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 673406 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2003796-12	Carbon, Dissolved Organic (DOC)	DUP	K2002140-003	Surface Water	0.31 mg/L	10 mL	0.31 mg/L J	1	0.07	0.50		16*	3/15/20 13:36:00	N	II
KQ2003796-13	Carbon, Dissolved Organic (DOC)	DUP	K2002140-004	Surface Water	1.32 mg/L	10 mL	1.32 mg/L	1	0.07	0.50		4	3/15/20 14:41:00	N	II
KQ2003796-14	Carbon, Dissolved Organic (DOC)	DUP	K2002140-005	Surface Water	0.83 mg/L	10 mL	0.83 mg/L	1	0.07	0.50		2	3/15/20 15:14:00	N	II
KQ2003796-15	Carbon, Dissolved Organic (DOC)	DUP	K2002140-006	Surface Water	1.71 mg/L	10 mL	1.71 mg/L	1	0.07	0.50		5	3/15/20 15:46:00	N	II
KQ2003796-16	Carbon, Dissolved Organic (DOC)	DUP	K2002140-007	Surface Water	1.87 mg/L	10 mL	1.87 mg/L	1	0.07	0.50		5	3/15/20 16:18:00	N	II
KQ2003796-17	Carbon, Dissolved Organic (DOC)	DUP	K2002140-008	Surface Water	1.86 mg/L	10 mL	1.86 mg/L	1	0.07	0.50		1	3/15/20 16:50:00	N	II
KQ2003796-18	Carbon, Dissolved Organic (DOC)	DUP	K2002140-009	Surface Water	1.90 mg/L	10 mL	1.90 mg/L	1	0.07	0.50		2	3/15/20 17:22:00	N	II
KQ2003796-19	Carbon, Dissolved Organic (DOC)	DUP	K2002140-010	Surface Water	0.84 mg/L	10 mL	0.84 mg/L	1	0.07	0.50		7	3/15/20 17:54:00	N	II
KQ2003796-20	Carbon, Dissolved Organic (DOC)	DUP	K2002140-011	Surface Water	1.82 mg/L	10 mL	1.82 mg/L	1	0.07	0.50		2	3/15/20 18:26:00	N	II
KQ2003796-21	Carbon, Dissolved Organic (DOC)	DUP	K2002140-012	Surface Water	1.86 mg/L	10 mL	1.86 mg/L	1	0.07	0.50		2	3/15/20 18:58:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

0.007	0.007	######	######	OBSERVATIONS	7	0.0069
0.046				STD Deviation	0.01700	ABOVE
0.000				AVERAGE	0.00750	0
0.000				UCL	0.02450	0
0.000				LCL	-0.00950	0
0.000						0
0.000						0
				OBSERVATIONS	1	0
				STD Deviation	#DIV/0!	0
				AVERAGE	0.00690	0
				UCL	#DIV/0!	0
				LCL	#DIV/0!	0
						0
						0
				OBSERVATIONS	0	0
				STD Deviation	#DIV/0!	0
				AVERAGE	#DIV/0!	0
				UCL	#DIV/0!	0
				LCL	#DIV/0!	0
						0
						0
				OBSERVATIONS	0	0
				STD Deviation	#DIV/0!	0
				AVERAGE	#DIV/0!	0
						0
						0
						0
						0
						0

TOC: 673405
DOC: 673406

Schedule: 03142020 CAL

Version: 3
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/03/14 20:22 - Saturday

Position	Sample Type	Sample ID
(Clean)	Clean	Clean
(Clean)	Clean	Clean
(Clean)	Clean	Clean
D	Sample	RB
D	Cal Standard	[TOC] Extended Reaction 021711 CAL [0.0 ppm]
A	Cal Standard	[TOC] Extended Reaction 021711 CAL [0.50 ppm]
A	Cal Standard	[TOC] Extended Reaction 021711 CAL [1.00 ppm]
A	Cal Standard	[TOC] Extended Reaction 021711 CAL [5.00 ppm]
B	Cal Standard	[TOC] Extended Reaction 021711 CAL [10.0 ppm]
B	Cal Standard	[TOC] Extended Reaction 021711 CAL [25.0 ppm]
B	Cal Standard	[TOC] Extended Reaction 021711 CAL [50.0 ppm]
B	Check Standard	[TOC] CCV 021711 [25 ppm]
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]
1	Sample	MB1
C	Check Standard	[TOC] LCS ER [25.0 ppm]
2	Sample	ICS
3	Sample	K2002171-001.01
4	Sample	K2002171-002.01
5	Sample	K2002129-001.03
6	Sample	K2002129-001.03 ms
7	Sample	RB
8	Sample	K2002129-002.03
9	Sample	K2002129-003.03
B	Check Standard	[TOC] CCV 021711 [25 ppm]
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]
10	Sample	K2002129-004.03
11	Sample	K2002186-001.20
12	Sample	K2002277-001.01
13	Sample	K2002149-001.01
14	Sample	K2002268-001.01
15	Sample	K2002276-001.01
16	Sample	RB
17	Sample	K2002276-002.01
18	Sample	K2002276-003.01
19	Sample	K2002276-004.01
B	Check Standard	[TOC] CCV 021711 [25 ppm]
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]
20	Sample	MB2
C	Check Standard	[TOC] LCS ER [25.0 ppm]
21	Sample	K2002240-001.02 20x
22	Sample	RB
23	Sample	FB 3/11/20 1512
24	Sample	K2002140-001.01 doc
25	Sample	K2002140-001.01 ms doc
26	Sample	RB
27	Sample	K2002140-002.01 doc
28	Sample	K2002140-003.01 doc
B	Check Standard	[TOC] CCV 021711 [25 ppm]
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]
29	Sample	K2002140-004.01 doc
30	Sample	K2002140-005.01 doc
31	Sample	K2002140-006.01 doc
32	Sample	K2002140-007.01 doc
33	Sample	K2002140-008.01 doc

Schedule: 03142020 CAL

Position	Sample Type	Sample ID
34	Sample	K2002140-009.01 doc
35	Sample	K2002140-010.01 doc
36	Sample	K2002140-011.01 doc
37	Sample	K2002140-012.01 doc
38	Sample	RB
B	Check Standard	[TOC] CCV 021711 [25 ppm]
D	Check Standard	[TOC] CCB 021711 [0.0 ppm]

Schedule: 03142020 CAL

Method ID (Calibration ID)	Reps	Use	State
	1	True	Ready
	1	True	Ready
	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	2	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready

Schedule: 03142020 CAL

Method ID (Calibration ID)	Reps	Use	State
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
Extended Reaction 021711 (Extended Reaction 021711)	1	True	Ready
		False	

Fusion Report - 03142020 CAL
Saturday, March 14, 2020 08:15 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/03/17 09:20 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	03142020 CAL	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2020/03/14 20:15

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.19	16.93	6.73	49.55	05:21
2	TC Clean	10.54	14.62	4.08	50.04	04:02
3	TC Clean	3.17	7.02	3.84	50.07	03:47
4	TC Clean	2.35	6.06	3.71	50.04	03:48

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2020/03/14 20:37

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.33	5.13	3.81	49.56	05:23
2	TC Clean	5.36	9.31	3.95	50.01	04:03
3	TC Clean	2.36	6.22	3.86	50.00	03:46
4	TC Clean	2.03	5.91	3.87	49.97	03:46

Sample Type: Clean From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/03/14 20:59

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.40	5.27	3.87	49.53	05:11
2	TC Clean	5.41	9.41	4.00	49.93	04:00
3	TC Clean	2.82	6.77	3.95	50.04	03:56
4	TC Clean	2.03	6.13	4.09	49.89	03:52

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.5103 ppm	0.1025 ppm	20.0900%	2020/03/14 21:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5828	5.8281	11.44	15.40	3.96	50.04	12:30
2	TOC	0.4378	4.3783	10.45	14.24	3.79	50.01	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.4542 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v28)

Sample Type: Calibration Standard: Extended Reaction 021711 CAL (Creating calibration Extended Reaction 021711 v29) From Schedule Version 3

	Pos	BAT	Concentration (ppm)	STD Conc	Dil	Sample ID	Result (Abs)	Std. Dev. (Abs)	RSD	Start Time
◆	D	TOC	0.0000	0 ppmC	1:1	[TOC] Extended Reaction 021711 CAL [0.0 ppm]	9.1000	0.0000	0%	2020/03/14 21:53
◆	A	TOC	0.5000	5 ppmC	1:10	[TOC] Extended Reaction 021711 CAL [0.50 ppm]	12.8490	0.0000	0%	2020/03/14 22:09
◆	A	TOC	1.0000	5 ppmC	1:5	[TOC] Extended Reaction 021711 CAL [1.00 ppm]	16.3880	0.0000	0%	2020/03/14 22:26
◆	A	TOC	5.0000	5 ppmC	1:1	[TOC] Extended Reaction 021711 CAL [5.00 ppm]	45.4380	0.0000	0%	2020/03/14 22:42
◆	B	TOC	10.0000	50 ppmC	1:5	[TOC] Extended Reaction 021711 CAL [10.0 ppm]	86.0520	0.0000	0%	2020/03/14 22:58
◆	B	TOC	25.0000	50 ppmC	1:2	[TOC] Extended Reaction 021711 CAL [25.0 ppm]	198.6190	0.0000	0%	2020/03/14 23:15
◆	B	TOC	50.0000	50	1:1	[TOC] Extended	378.4160	0.0000	0%	2020/03/14 23:31

				ppmC		Reaction 021711 CAL [50.0 ppm]					

Pos	Base Analysis Type	ID	Rep #	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	9.10	13.12	4.02	50.02	12:28
A	TOC	0.50 ppm	1	12.85	16.75	3.90	50.00	12:32
A	TOC	1.00 ppm	1	16.39	20.23	3.85	50.04	12:30
A	TOC	5.00 ppm	1	45.44	49.34	3.90	50.04	12:32
B	TOC	10.0 ppm	1	86.05	89.80	3.75	50.00	12:30
B	TOC	25.0 ppm	1	198.62	202.52	3.91	50.01	12:31
B	TOC	50.0 ppm	1	378.42	382.29	3.88	50.03	12:32

Completion State: Success - All Update Conditions met

Method: Extended Reaction 021711 (v4)

Success Action: Auto (always)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	25.6300 ppm (PASS)	0.0000 ppm	0%	2020/03/14 23:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.6300	256.3003	199.78	203.48	3.69	50.02	12:30

Completion State: Success - Criteria met.

Success Action: Do Nothing

Method: Extended Reaction 021711 (v4)

Calibration: Extended Reaction 021711 (v29)

STD Conc - Pos B: 50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0069 ppm (PASS)	0.0000 ppm	0%	2020/03/15 00:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0069	0.0691	9.85	13.73	3.88	50.02	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	0 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	1	TOC	MB1	0.0456 ppm	0.0000 ppm	0.0000%	2020/03/15 00:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0456	0.4555	9.40	13.11	3.71	50.01	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> LCS ER — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS ER [25.0 ppm]	0 / infinity (NA / NA)	24.0593 ppm (PASS)	0.0000 ppm	0%	2020/03/15 00:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.0593	240.5930	188.14	191.95	3.80	50.03	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	25 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.4431 ppm	0.0000 ppm	0.0000%	2020/03/15 00:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4431	4.4313	12.34	16.22	3.88	50.03	12:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K2002171-001.01	0.0097 ppm	0.0000 ppm	0.0000%	2020/03/15 01:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.0097	0.0967	9.13	12.87	3.74	50.02	12:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K2002171-002.01	0.0072 ppm	0.0000 ppm	0.0000%	2020/03/15 01:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0072	0.0724	9.11	12.88	3.76	50.03	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K2002129-001.03	0.7581 ppm	0.0104 ppm	1.3700%	2020/03/15 01:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7507	7.5072	14.62	18.49	3.87	50.01	12:25
2	TOC	0.7654	7.6542	14.73	18.49	3.76	50.02	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K2002129-001.03 ms	26.8607 ppm	0.0000 ppm	0.0000%	2020/03/15 02:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.8607	268.6072	208.16	211.99	3.83	50.00	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	RB	0.0813 ppm	0.0000 ppm	0.0000%	2020/03/15 02:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0813	0.8131	9.66	13.59	3.93	50.00	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K2002129-002.03	0.9339 ppm	0.0373 ppm	3.9900%	2020/03/15 02:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.9602	9.6023	16.18	20.07	3.89	49.99	12:27
2	TOC	0.9075	9.0748	15.79	19.70	3.92	50.00	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K2002129-003.03	0.8312 ppm	0.0632 ppm	7.6100%	2020/03/15 03:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8759	8.7591	15.55	19.36	3.81	50.00	12:26
2	TOC	0.7865	7.8647	14.89	18.83	3.94	50.00	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	25.7143 ppm (PASS)	0.0000 ppm	0%	2020/03/15 03:53

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.7143	257.1435	200.41	204.25	3.84	50.03	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/15 04:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	9.29	13.34	4.05	49.99	12:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	0 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K2002129-004.03	3.1312 ppm	0.0841 ppm	2.6900%	2020/03/15 04:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1907	31.9065	32.71	36.65	3.94	50.02	12:28
2	TOC	3.0717	30.7167	31.83	35.74	3.91	50.01	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K2002186-001.20	4.3520 ppm	0.0045 ppm	0.1000%	2020/03/15 04:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.3488	43.4883	41.30	45.08	3.78	50.01	12:28
2	TOC	4.3552	43.5518	41.34	45.27	3.93	50.01	12:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K2002277-001.01	2.2677 ppm	0.0735 ppm	3.2400%	2020/03/15 05:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3197	23.1969	26.25	30.19	3.94	50.02	12:25
2	TOC	2.2157	22.1568	25.48	29.29	3.81	50.03	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K2002149-001.01	0.4631 ppm	0.0065 ppm	1.4000%	2020/03/15 06:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4585	4.5851	12.46	16.30	3.84	50.04	12:32
2	TOC	0.4677	4.6768	12.53	16.31	3.78	50.02	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K2002268-001.01	3.2282 ppm	0.0259 ppm	0.8000%	2020/03/15 06:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.2465	32.4651	33.12	37.09	3.97	50.05	12:30

2	TOC	3.2098	32.0981	32.85	36.64	3.78	50.04	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K2002276-001.01	54.7777 ppm	0.4139 ppm	0.7600%	2020/03/15 07:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	54.4851	544.8506	412.93	416.78	3.85	50.02	12:27
2	TOC	55.0704	550.7042	417.27	421.14	3.87	50.02	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	RB	0.6427 ppm	0.1587 ppm	24.7000%	2020/03/15 07:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5304	5.3041	12.99	16.82	3.83	50.03	12:27
2	TOC	0.7549	7.5490	14.66	18.51	3.85	50.02	12:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K2002276-002.01	19.4649 ppm	0.3120 ppm	1.6000%	2020/03/15 08:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	19.6855	196.8553	154.98	158.88	3.90	50.02	12:27
2	TOC	19.2442	192.4425	151.71	155.46	3.75	50.01	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K2002276-003.01	4.7814 ppm	0.1077 ppm	2.2500%	2020/03/15 08:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.8576	48.5757	45.07	48.84	3.77	50.03	12:27
2	TOC	4.7053	47.0526	43.94	47.71	3.78	50.02	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◉	19	TOC	K2002276-004.01	4.8685 ppm	0.1513 ppm	3.1100%	2020/03/15 09:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.9755	49.7548	45.94	49.86	3.92	50.00	12:28
2	TOC	4.7615	47.6152	44.35	48.16	3.81	50.02	12:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◉	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	25.4637 ppm (PASS)	0.0000 ppm	0%	2020/03/15 09:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4637	254.6369	198.55	202.35	3.80	50.02	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◉	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/15 10:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	9.31	13.18	3.87	50.02	12:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	0 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◉	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/15 10:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.68	12.31	3.63	50.04	12:30

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> LCS ER From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS ER [25.0 ppm]	0 / infinity (NA / NA)	23.9611 ppm (PASS)	0.0000 ppm	0%	2020/03/15 10:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	23.9611	239.6109	187.41	191.21	3.80	50.00	12:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	25 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K2002240-001.02.20x	2.7279 ppm	0.1006 ppm	3.6900%	2020/03/15 10:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7990	27.9902	29.81	33.75	3.95	49.97	12:25
2	TOC	2.6567	26.5669	28.75	32.69	3.94	50.00	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/15 11:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.40	12.29	3.89	49.98	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	FB 3/11/20 1512	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/15 11:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.56	12.26	3.71	50.00	12:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC)	Extended Reaction	Extended Reaction

(v1363) 021711 (v4) 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K2002140-001.01 doc	1.8389 ppm	0.0361 ppm	1.9600%	2020/03/15 11:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8644	18.6438	22.88	26.63	3.75	49.99	12:24
2	TOC	1.8134	18.1338	22.50	26.32	3.82	49.99	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K2002140-001.01 ms doc	28.3003 ppm	0.0000 ppm	0.0000%	2020/03/15 12:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.3003	283.0032	218.84	222.73	3.89	50.02	12:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/15 12:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.98	12.74	3.76	49.99	12:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K2002140-002.01 doc	1.9078 ppm	0.0293 ppm	1.5400%	2020/03/15 13:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9285	19.2846	23.35	27.31	3.96	50.03	12:27
2	TOC	1.8870	18.8704	23.05	26.83	3.78	50.00	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K2002140-003.01 doc	0.3426 ppm	0.0377 ppm	11.0000%	2020/03/15 13:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3692	3.6920	11.80	15.63	3.83	50.02	12:27

2	TOC	0.3159	3.1591	11.40	15.21	3.81	50.00	12:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	25.2446 ppm (PASS)	0.0000 ppm	0%	2020/03/15 14:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.2446	252.4460	196.93	200.59	3.66	49.98	12:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/15 14:25

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	8.38	12.30	3.92	50.01	12:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	0 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	29	TOC	K2002140-004.01 doc	1.3611 ppm	0.0421 ppm	3.0900%	2020/03/15 14:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3909	13.9085	19.37	23.24	3.88	50.03	12:28
2	TOC	1.3314	13.3136	18.93	22.73	3.80	50.00	12:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

		Analysis			Std. Dev.		

	Pos	Type	Sample ID	Result (ppmC)	(ppmC)	RSD	Start Time
◆	30	TOC	K2002140-005.01 doc	0.8485 ppm	0.0122 ppm	1.4400%	2020/03/15 15:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8572	8.5716	15.41	19.36	3.95	50.01	12:31
2	TOC	0.8399	8.3989	15.28	19.16	3.87	50.02	12:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	31	TOC	K2002140-006.01 doc	1.7616 ppm	0.0622 ppm	3.5300%	2020/03/15 15:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8056	18.0556	22.44	26.26	3.82	50.02	12:28
2	TOC	1.7176	17.1760	21.79	25.69	3.90	50.01	12:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	32	TOC	K2002140-007.01 doc	1.9266 ppm	0.0669 ppm	3.4700%	2020/03/15 16:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9739	19.7392	23.69	27.58	3.89	50.02	12:24
2	TOC	1.8794	18.7935	22.99	26.89	3.90	50.00	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	33	TOC	K2002140-008.01 doc	1.8800 ppm	0.0186 ppm	0.9900%	2020/03/15 16:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8931	18.9311	23.09	26.92	3.83	50.01	12:29
2	TOC	1.8668	18.6681	22.90	26.72	3.83	49.99	12:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	34	TOC	K2002140-009.01 doc	1.9261 ppm	0.0203 ppm	1.0500%	2020/03/15 17:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9405	19.4047	23.44	27.18	3.73	49.97	12:26
2	TOC	1.9117	19.1173	23.23	26.95	3.72	49.99	12:24

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K2002140-010.01 doc	0.8734 ppm	0.0425 ppm	4.8600%	2020/03/15 17:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9034	9.0343	15.76	19.63	3.88	49.99	12:30
2	TOC	0.8434	8.4340	15.31	19.15	3.84	49.99	12:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K2002140-011.01 doc	1.8437 ppm	0.0220 ppm	1.2000%	2020/03/15 18:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8593	18.5925	22.84	26.83	3.99	50.01	12:30
2	TOC	1.8281	18.2809	22.61	26.59	3.98	50.04	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K2002140-012.01 doc	1.8868 ppm	0.0244 ppm	1.2900%	2020/03/15 18:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9040	19.0404	23.17	26.98	3.81	50.08	12:27
2	TOC	1.8695	18.6950	22.92	26.72	3.81	50.07	12:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/15 19:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.56	11.35	3.79	50.11	12:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0593 (IC) (v1363)	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)

Sample Type: Check Standard --> CCV 021711 From Schedule Version 3

	Pos	BAT	Concentration	Dil	Sample ID	Min / Max	Result	Std. Dev.	RSD	Start Time

			(ppm)			(% dev)				
◆	B	TOC	25.0000	1:2	[TOC] CCV 021711 [25 ppm]	0 / infinity (NA / NA)	25.0447 ppm (PASS)	0.0000 ppm	0%	2020/03/15 19:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0447	250.4466	195.45	199.23	3.79	50.12	12:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	50 ppmC

Sample Type: Check Standard --> CCB 021711 From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:2	[TOC] CCB 021711 [0.0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/15 20:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0.0 ppm	1	0.0000	0.0000	7.92	11.69	3.78	50.10	12:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	Extended Reaction 021711 (v4)	Extended Reaction 021711 (v29)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1363	1.1840	0.9250	0.0000	0.0000	0.0000	2020/03/11 13:46	Fusion1 (Fusion1)

Calibrations

Name: Extended Reaction 021711 (TOC)

Version:	v28	Calibration curve formula:	TOC: y = 6.836x + 8.019
Ver Creation:	2020/01/08 19:20	r^2 value:	TOC: r^2 = 0.99990
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
0.0 ppm	8.0870	0.0000		2020/01/08 17:41
0.50 ppm	11.6420	0.5000		2020/01/08 17:58
1.00 ppm	14.6390	1.0000		2020/01/08 18:14
5.00 ppm	43.5800	5.0000		2020/01/08 18:30
10.0 ppm	73.9500	10.0000		2020/01/08 18:46
25.0 ppm	180.1790	25.0000		2020/01/08 19:02
50.0 ppm	349.5080	50.0000		2020/01/08 19:18

Name: Extended Reaction 021711 (TOC)

Version:	v29	Calibration curve formula:	TOC: y = 7.413x + 9.803
Ver Creation:	2020/03/14 23:47	r^2 value:	TOC: r^2 = 0.99978
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
0.0 ppm	9.1000	0.0000		2020/03/14 22:08
0.50 ppm	12.8490	0.5000		2020/03/14 22:25
1.00 ppm	16.3880	1.0000		2020/03/14 22:41
5.00 ppm	45.4380	5.0000		2020/03/14 22:57
10.0 ppm	86.0520	10.0000		2020/03/14 23:13
25.0 ppm	198.6190	25.0000		2020/03/14 23:30
50.0 ppm	378.4160	50.0000		2020/03/14 23:46

Methods

Name: Extended Reaction 021711 (TOC)

Version:	v4	Operator:	Fusion1 (Fusion1)
Ver Creation:	2019/01/31 11:21		
Comment:			

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7

PreSpargeTime	4.00 mins	SyringeSpeedDIWater	7
SystemFlow	500 ml/min	NDIRPressurization	60 psig
		SyringeSpeedSampleDispense	5
		SyringeSpeedSampleAspirate	4
		SyringeSpeedUVDispense	5
		SyringeSpeedUVAspirate	5
		SyringeSpeedICDispense	5
		SyringeSpeedICAspirate	5
		NDIRPressureStabilize	1.75 min
		SampleMixing	Off
		SampleMixingCycles	1
		SampleMixingVolume	10.0
		LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2020/03/15 20:20

ALS Environmental

StarLIMS Run: 673405, 673406

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/11/2020

ICAL ID: 19-GEN-8-7-E->J

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-8-L

21 % H3PO4: 19-GEN-08-8-K

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By:	Date Analyzed:
Reviewed By: ck	Date Reviewed: 3/19/20

Work Request # Original ( ) K2062276, 2337, 2353, 2365, 2412, 2434, 2416, 2424, 2434, 2462, 2470, 2471, 2489, 2492, 2496, 2432, 2437, 2456, 2422

Tier: IV II IV II IV I IV IV I II IV IV II I II IV I IV

Date Analyzed: 3/21/20

Analyst: RD

Analysis: TOC/DOC

Run # TOC: 674205, 674225, 674226, TOC: 674227

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS: K2002416-3/3rd, 2412-4/4th, 2412-7/7th report a high %RSD. However, these samples are less than 5x the MRL

Final Approved by: _____ Date: 3/24/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674205 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002276-001	Carbon, Total Organic	N/A		Ground Water	5.85 mg/L	10 mL	58.5 mg/L	10	0.7	5.0			3/22/20 01:06:00	N	IV
K2002337-001	Carbon, Total Organic	N/A		Water	0.92 mg/L	10 mL	0.92 mg/L	1	0.07	0.50			3/21/20 20:51:00	N	II
K2002337-002	Carbon, Total Organic	N/A		Water	0.85 mg/L	10 mL	0.85 mg/L	1	0.07	0.50			3/21/20 21:48:00	N	II
K2002337-003	Carbon, Total Organic	N/A		Water	0.77 mg/L	10 mL	0.77 mg/L	1	0.07	0.50			3/21/20 22:16:00	N	II
K2002337-004	Carbon, Total Organic	N/A		Water	0.68 mg/L	10 mL	0.68 mg/L	1	0.07	0.50			3/21/20 22:44:00	N	II
K2002337-005	Carbon, Total Organic	N/A		Water	0.45 mg/L	10 mL	0.45 mg/L J	1	0.07	0.50			3/21/20 23:12:00	N	II
K2002337-006	Carbon, Total Organic	N/A		Water	1.87 mg/L	10 mL	1.87 mg/L	1	0.07	0.50			3/22/20 00:10:00	N	II
K2002337-007	Carbon, Total Organic	N/A		Water	0.63 mg/L	10 mL	0.63 mg/L	1	0.07	0.50			3/22/20 00:38:00	N	II
K2002353-001	Carbon, Total Organic	N/A		Ground Water	1.25 mg/L	10 mL	500 mg/L	400	30	200			3/22/20 02:03:00	N	IV
K2002365-001	Carbon, Total Organic	N/A		Water	6.75 mg/L	10 mL	6.75 mg/L	1	0.07	0.50			3/22/20 01:34:00	N	II
K2002412-001	Carbon, Total Organic	N/A		Ground Water	10.68 mg/L	10 mL	10.7 mg/L	1	0.07	0.50			3/22/20 02:59:00	N	IV
K2002412-002	Carbon, Total Organic	N/A		Ground Water	2.35 mg/L	10 mL	2.35 mg/L	1	0.07	0.50			3/22/20 03:27:00	N	IV
K2002412-003	Carbon, Total Organic	N/A		Ground Water	44.83 mg/L	10 mL	44.8 mg/L	1	0.07	0.50			3/22/20 03:55:00	N	IV
K2002412-004	Carbon, Total Organic	N/A		Ground Water	1.20 mg/L	10 mL	1.20 mg/L	1	0.07	0.50			3/22/20 04:23:00	N	IV
K2002412-005	Carbon, Total Organic	N/A		Ground Water	4.57 mg/L	10 mL	4.57 mg/L	1	0.07	0.50			3/22/20 05:50:00	N	IV
K2002412-006	Carbon, Total Organic	N/A		Ground Water	31.25 mg/L	10 mL	31.2 mg/L	1	0.07	0.50			3/22/20 06:18:00	N	IV
K2002412-007	Carbon, Total Organic	N/A		Ground Water	0.78 mg/L	10 mL	0.78 mg/L	1	0.07	0.50			3/22/20 06:46:00	N	IV
K2002412-008	Carbon, Total Organic	N/A		Ground Water	5.22 mg/L	10 mL	5.22 mg/L	1	0.07	0.50			3/22/20 07:14:00	N	IV
K2002434-001	Carbon, Total Organic	N/A		Water	0.24 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 07:42:00	N	I
K2002434-002	Carbon, Total Organic	N/A		Water	0.61 mg/L	10 mL	0.61 mg/L	1	0.07	0.50			3/22/20 08:10:00	N	I
KQ2003999-01	Carbon, Total Organic	CCV		Water	26.33 mg/L	10 mL	26.3 mg/L	1					3/21/20 19:52:00	N	II
KQ2003999-02	Carbon, Total Organic	CCV		Water	26.30 mg/L	10 mL	26.3 mg/L	1					3/21/20 23:40:00	N	II
KQ2003999-03	Carbon, Total Organic	CCV		Water	26.46 mg/L	10 mL	26.5 mg/L	1					3/22/20 04:51:00	N	II
KQ2003999-04	Carbon, Total Organic	CCB		Water	-0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/21/20 19:37:00	N	II
KQ2003999-05	Carbon, Total Organic	CCB		Water	0.12 mg/L	10 mL	0.12 mg/L J	1	0.07	0.50			3/21/20 23:55:00	N	II
KQ2003999-06	Carbon, Total Organic	CCB		Water	-0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 05:06:00	N	II
KQ2003999-07	Carbon, Total Organic	MB		Water	0.29 mg/L	10 mL	0.29 mg/L J	1	0.07	0.50			3/21/20 20:07:00	N	II
KQ2003999-08	Carbon, Total Organic	LCS		Water	24.88 mg/L	10 mL	24.9 mg/L	1	0.07	0.50	100		3/21/20 20:21:00	N	II
KQ2003999-09	Carbon, Total Organic	MS	K2002337-001	Water	29.48 mg/L	10 mL	29.5 mg/L	1	0.07	0.50	114		3/21/20 21:19:00	N	II
KQ2003999-10	Carbon, Total Organic	DUP	K2002276-001	Ground Water	5.92 mg/L	10 mL	59.2 mg/L	10	0.7	5.0		1	3/22/20 01:06:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674205 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2003999-11	Carbon, Total Organic	DUP	K2002337-001	Water	0.91 mg/L	10 mL	0.91 mg/L	1	0.07	0.50		1	3/21/20 20:51:00	N	II
KQ2003999-12	Carbon, Total Organic	DUP	K2002337-002	Water	0.79 mg/L	10 mL	0.79 mg/L	1	0.07	0.50		7	3/21/20 21:48:00	N	II
KQ2003999-13	Carbon, Total Organic	DUP	K2002337-003	Water	0.70 mg/L	10 mL	0.70 mg/L	1	0.07	0.50		10	3/21/20 22:16:00	N	II
KQ2003999-14	Carbon, Total Organic	DUP	K2002337-004	Water	0.67 mg/L	10 mL	0.67 mg/L	1	0.07	0.50		2	3/21/20 22:44:00	N	II
KQ2003999-15	Carbon, Total Organic	DUP	K2002337-005	Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50		3	3/21/20 23:12:00	N	II
KQ2003999-16	Carbon, Total Organic	DUP	K2002337-006	Water	1.85 mg/L	10 mL	1.85 mg/L	1	0.07	0.50		1	3/22/20 00:10:00	N	II
KQ2003999-17	Carbon, Total Organic	DUP	K2002337-007	Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		9	3/22/20 00:38:00	N	II
KQ2003999-18	Carbon, Total Organic	DUP	K2002353-001	Ground Water	1.19 mg/L	10 mL	480 mg/L	400	30	200		4	3/22/20 02:03:00	N	IV
KQ2003999-19	Carbon, Total Organic	DUP	K2002365-001	Water	6.74 mg/L	10 mL	6.74 mg/L	1	0.07	0.50		<1	3/22/20 01:34:00	N	II
KQ2003999-20	Carbon, Total Organic	DUP	K2002434-001	Water	0.19 mg/L	10 mL	0.19 mg/L J	1	0.07	0.50		NC	3/22/20 07:42:00	N	I
KQ2003999-21	Carbon, Total Organic	DUP	K2002434-002	Water	0.60 mg/L	10 mL	0.60 mg/L	1	0.07	0.50		2	3/22/20 08:10:00	N	I
KQ2003999-22	Carbon, Total Organic	DUP	K2002412-002	Ground Water	2.15 mg/L	10 mL	2.15 mg/L	1	0.07	0.50		9	3/22/20 03:27:00	N	IV
KQ2003999-23	Carbon, Total Organic	DUP	K2002412-001	Ground Water	10.27 mg/L	10 mL	10.3 mg/L	1	0.07	0.50		4	3/22/20 02:59:00	N	IV
KQ2003999-24	Carbon, Total Organic	DUP	K2002412-003	Ground Water	44.51 mg/L	10 mL	44.5 mg/L	1	0.07	0.50		<1	3/22/20 03:55:00	N	IV
KQ2003999-25	Carbon, Total Organic	DUP	K2002412-004	Ground Water	0.91 mg/L	10 mL	0.91 mg/L	1	0.07	0.50		27*	3/22/20 04:23:00	N	IV
KQ2003999-26	Carbon, Total Organic	DUP	K2002412-005	Ground Water	4.41 mg/L	10 mL	4.41 mg/L	1	0.07	0.50		4	3/22/20 05:50:00	N	IV
KQ2003999-27	Carbon, Total Organic	DUP	K2002412-006	Ground Water	30.72 mg/L	10 mL	30.7 mg/L	1	0.07	0.50		2	3/22/20 06:18:00	N	IV
KQ2003999-28	Carbon, Total Organic	DUP	K2002412-007	Ground Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		30*	3/22/20 06:46:00	N	IV
KQ2003999-29	Carbon, Total Organic	DUP	K2002412-008	Ground Water	5.27 mg/L	10 mL	5.27 mg/L	1	0.07	0.50		<1	3/22/20 07:14:00	N	IV
KQ2003999-30	Carbon, Total Organic	CCV		Water	25.76 mg/L	10 mL	25.8 mg/L	1					3/22/20 09:35:00	N	II
KQ2003999-31	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 09:49:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674225 **Method/Testcode:** 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002416-001	Carbon, Total Organic	N/A		Ground Water	0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 09:07:00	Y	IV
K2002416-002	Carbon, Total Organic	N/A		Ground Water	0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 10:33:00	N	IV
K2002416-003	Carbon, Total Organic	N/A		Ground Water	0.19 mg/L	10 mL	0.19 mg/L J	1	0.07	0.50			3/22/20 11:01:00	N	IV
K2002416-004	Carbon, Total Organic	N/A		Ground Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50			3/22/20 11:29:00	N	IV
K2002421-001	Carbon, Total Organic	N/A		Water	1.53 mg/L	10 mL	1.53 mg/L	1	0.07	0.50			3/22/20 15:45:00	N	IV
K2002421-002	Carbon, Total Organic	N/A		Water	0.79 mg/L	10 mL	0.79 mg/L	1	0.07	0.50			3/22/20 16:14:00	N	IV
K2002421-003	Carbon, Total Organic	N/A		Water	1.69 mg/L	10 mL	1.69 mg/L	1	0.07	0.50			3/22/20 16:42:00	N	IV
K2002421-004	Carbon, Total Organic	N/A		Water	0.82 mg/L	10 mL	0.82 mg/L	1	0.07	0.50			3/22/20 17:10:00	N	IV
K2002434-003	Carbon, Total Organic	N/A		Water	0.11 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 08:39:00	N	I
K2002462-001	Carbon, Total Organic	N/A		Water	2.96 mg/L	10 mL	2.96 mg/L	1	0.07	0.50			3/22/20 11:58:00	N	II
K2002470-001	Carbon, Total Organic	N/A		Water	2.07 mg/L	10 mL	2.07 mg/L	1	0.07	0.50			3/22/20 12:26:00	N	IV
K2002471-001	Carbon, Total Organic	N/A		Ground Water	4.43 mg/L	10 mL	4.43 mg/L	1	0.07	0.50			3/22/20 12:54:00	N	IV
K2002489-001	Carbon, Total Organic	N/A		Water	4.72 mg/L	10 mL	4.72 mg/L	1	0.07	0.50			3/22/20 13:22:00	N	II
K2002492-002	Carbon, Total Organic	N/A		Drinking Water	0.37 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 13:50:00	N	I
K2002496-001	Carbon, Total Organic	N/A		Water	14.38 mg/L	10 mL	14.4 mg/L	1	0.07	0.50			3/22/20 15:17:00	N	II
KQ2004008-01	Carbon, Total Organic	MS	K2002416-001	Ground Water	27.78 mg/L	10 mL	27.8 mg/L	1	0.07	0.50	111		3/22/20 10:04:00	N	IV
KQ2004008-02	Carbon, Total Organic	DUP	K2002416-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	3/22/20 09:07:00	N	IV
KQ2004008-03	Carbon, Total Organic	DUP	K2002416-002	Ground Water	0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	3/22/20 10:33:00	N	IV
KQ2004008-04	Carbon, Total Organic	DUP	K2002416-003	Ground Water	0.16 mg/L	10 mL	0.16 mg/L J	1	0.07	0.50		21*	3/22/20 11:01:00	N	IV
KQ2004008-05	Carbon, Total Organic	DUP	K2002416-004	Ground Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		2	3/22/20 11:29:00	N	IV
KQ2004008-06	Carbon, Total Organic	DUP	K2002421-001	Water	1.47 mg/L	10 mL	1.47 mg/L	1	0.07	0.50		4	3/22/20 15:45:00	N	IV
KQ2004008-07	Carbon, Total Organic	DUP	K2002421-002	Water	0.76 mg/L	10 mL	0.76 mg/L	1	0.07	0.50		3	3/22/20 16:14:00	N	IV
KQ2004008-08	Carbon, Total Organic	DUP	K2002421-003	Water	1.71 mg/L	10 mL	1.71 mg/L	1	0.07	0.50		1	3/22/20 16:42:00	N	IV
KQ2004008-09	Carbon, Total Organic	DUP	K2002421-004	Water	0.78 mg/L	10 mL	0.78 mg/L	1	0.07	0.50		5	3/22/20 17:10:00	N	IV
KQ2004008-10	Carbon, Total Organic	DUP	K2002434-003	Water	0.18 mg/L	10 mL	0.18 mg/L J	1	0.07	0.50		NC	3/22/20 08:39:00	N	I
KQ2004008-11	Carbon, Total Organic	DUP	K2002462-001	Water	2.96 mg/L	10 mL	2.96 mg/L	1	0.07	0.50		<1	3/22/20 11:58:00	N	II
KQ2004008-12	Carbon, Total Organic	DUP	K2002470-001	Water	1.98 mg/L	10 mL	1.98 mg/L	1	0.07	0.50		4	3/22/20 12:26:00	N	IV
KQ2004008-13	Carbon, Total Organic	DUP	K2002471-001	Ground Water	4.30 mg/L	10 mL	4.30 mg/L	1	0.07	0.50		3	3/22/20 12:54:00	N	IV
KQ2004008-14	Carbon, Total Organic	DUP	K2002489-001	Water	4.65 mg/L	10 mL	4.65 mg/L	1	0.07	0.50		2	3/22/20 13:22:00	N	II
KQ2004008-15	Carbon, Total Organic	DUP	K2002492-002	Drinking Water	0.40 mg/L	10 mL	0.40 mg/L J	1	0.07	0.50		NC	3/22/20 13:50:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674225 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2004008-16	Carbon, Total Organic	DUP	K2002496-001	Water	13.50 mg/L	10 mL	13.5 mg/L	1	0.07	0.50		6	3/22/20 15:17:00	N	II
KQ2004008-17	Carbon, Total Organic	CCV		Water	26.46 mg/L	10 mL	26.5 mg/L	1					3/22/20 04:51:00	N	I
KQ2004008-17	Carbon, Total Organic	CCV		Water	26.46 mg/L	10 mL	26.5 mg/L	1					3/22/20 04:51:00	N	I
KQ2004008-18	Carbon, Total Organic	CCV		Water	25.76 mg/L	10 mL	25.8 mg/L	1					3/22/20 09:35:00	N	I
KQ2004008-18	Carbon, Total Organic	CCV		Water	25.76 mg/L	10 mL	25.8 mg/L	1					3/22/20 09:35:00	N	I
KQ2004008-19	Carbon, Total Organic	CCV		Water	25.62 mg/L	10 mL	25.6 mg/L	1					3/22/20 14:19:00	N	I
KQ2004008-19	Carbon, Total Organic	CCV		Water	25.62 mg/L	10 mL	25.6 mg/L	1					3/22/20 14:19:00	N	I
KQ2004008-20	Carbon, Total Organic	CCV		Water	25.34 mg/L	10 mL	25.3 mg/L	1					3/22/20 18:35:00	N	I
KQ2004008-20	Carbon, Total Organic	CCV		Water	25.34 mg/L	10 mL	25.3 mg/L	1					3/22/20 18:35:00	N	I
KQ2004008-21	Carbon, Total Organic	CCB		Water	-0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 05:06:00	N	I
KQ2004008-21	Carbon, Total Organic	CCB		Water	-0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 05:06:00	N	I
KQ2004008-22	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 09:49:00	N	I
KQ2004008-22	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 09:49:00	N	I
KQ2004008-23	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 14:33:00	N	I
KQ2004008-23	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 14:33:00	N	I
KQ2004008-24	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 18:50:00	N	I
KQ2004008-24	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 18:50:00	N	I
KQ2004008-25	Carbon, Total Organic	MB		Water	0.06 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 05:21:00	N	I
KQ2004008-25	Carbon, Total Organic	MB		Water	0.06 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 05:21:00	N	I
KQ2004008-26	Carbon, Total Organic	LCS		Water	24.62 mg/L	10 mL	24.6 mg/L	1	0.07	0.50	98		3/22/20 05:35:00	N	I
KQ2004008-26	Carbon, Total Organic	LCS		Water	24.62 mg/L	10 mL	24.6 mg/L	1	0.07	0.50	98		3/22/20 05:35:00	N	I
KQ2004008-27	Carbon, Total Organic	N/A		Water	0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 09:07:00	N	IV
KQ2004008-28	Carbon, Total Organic	MS	KQ2004008-27	Water	27.78 mg/L	10 mL	27.8 mg/L	1	0.07	0.50	111		3/22/20 10:04:00	N	IV
KQ2004008-29	Carbon, Total Organic	DUP	KQ2004008-27	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	3/22/20 09:07:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674226 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002432-001	Carbon, Total Organic	N/A		Water	0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 17:38:00	N	IV
K2002437-001	Carbon, Total Organic	N/A		Water	1.83 mg/L	10 mL	1.83 mg/L	1	0.07	0.50			3/22/20 19:04:00	N	I
K2002437-002	Carbon, Total Organic	N/A		Water	0.72 mg/L	10 mL	0.72 mg/L	1	0.07	0.50			3/22/20 19:33:00	N	I
K2002437-003	Carbon, Total Organic	N/A		Water	3.10 mg/L	10 mL	3.10 mg/L	1	0.07	0.50			3/22/20 20:00:00	N	I
K2002437-004	Carbon, Total Organic	N/A		Water	0.71 mg/L	10 mL	0.71 mg/L	1	0.07	0.50			3/22/20 20:29:00	N	I
K2002437-005	Carbon, Total Organic	N/A		Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50			3/22/20 20:57:00	N	I
K2002456-001	Carbon, Total Organic	N/A		Water	1.07 mg/L	10 mL	1.07 mg/L	1	0.07	0.50			3/22/20 21:25:00	N	IV
K2002456-002	Carbon, Total Organic	N/A		Water	0.72 mg/L	10 mL	0.72 mg/L	1	0.07	0.50			3/22/20 21:53:00	N	IV
K2002456-003	Carbon, Total Organic	N/A		Water	1.35 mg/L	10 mL	1.35 mg/L	1	0.07	0.50			3/22/20 22:21:00	N	IV
K2002456-004	Carbon, Total Organic	N/A		Water	1.35 mg/L	10 mL	1.35 mg/L	1	0.07	0.50			3/22/20 22:49:00	N	IV
KQ2004009-01	Carbon, Total Organic	CCV		Water	25.62 mg/L	10 mL	25.6 mg/L	1					3/22/20 14:19:00	N	IV
KQ2004009-02	Carbon, Total Organic	CCV		Water	25.34 mg/L	10 mL	25.3 mg/L	1					3/22/20 18:35:00	N	IV
KQ2004009-03	Carbon, Total Organic	CCV		Water	25.05 mg/L	10 mL	25.1 mg/L	1					3/23/20 00:13:00	N	IV
KQ2004009-04	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 14:33:00	N	IV
KQ2004009-05	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 18:50:00	N	IV
KQ2004009-06	Carbon, Total Organic	CCB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 00:27:00	N	IV
KQ2004009-07	Carbon, Total Organic	MB		Water	-0.08 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/22/20 14:48:00	N	IV
KQ2004009-08	Carbon, Total Organic	LCS		Water	24.66 mg/L	10 mL	24.7 mg/L	1	0.07	0.50	99		3/22/20 15:03:00	N	IV
KQ2004009-09	Carbon, Total Organic	MS	K2002432-001	Water	26.30 mg/L	10 mL	26.3 mg/L	1	0.07	0.50	105		3/22/20 18:06:00	N	IV
KQ2004009-10	Carbon, Total Organic	DUP	K2002432-001	Water	0.06 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	3/22/20 17:38:00	N	IV
KQ2004009-11	Carbon, Total Organic	DUP	K2002437-001	Water	1.78 mg/L	10 mL	1.78 mg/L	1	0.07	0.50		3	3/22/20 19:04:00	N	I
KQ2004009-12	Carbon, Total Organic	DUP	K2002437-002	Water	0.71 mg/L	10 mL	0.71 mg/L	1	0.07	0.50		2	3/22/20 19:33:00	N	I
KQ2004009-13	Carbon, Total Organic	DUP	K2002437-003	Water	3.13 mg/L	10 mL	3.13 mg/L	1	0.07	0.50		<1	3/22/20 20:00:00	N	I
KQ2004009-14	Carbon, Total Organic	DUP	K2002437-004	Water	0.64 mg/L	10 mL	0.64 mg/L	1	0.07	0.50		10	3/22/20 20:29:00	N	I
KQ2004009-15	Carbon, Total Organic	DUP	K2002437-005	Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50		4	3/22/20 20:57:00	N	I
KQ2004009-16	Carbon, Total Organic	DUP	K2002456-001	Water	1.04 mg/L	10 mL	1.04 mg/L	1	0.07	0.50		2	3/22/20 21:25:00	N	IV
KQ2004009-17	Carbon, Total Organic	DUP	K2002456-002	Water	0.66 mg/L	10 mL	0.66 mg/L	1	0.07	0.50		9	3/22/20 21:53:00	N	IV
KQ2004009-18	Carbon, Total Organic	DUP	K2002456-003	Water	1.35 mg/L	10 mL	1.35 mg/L	1	0.07	0.50		<1	3/22/20 22:21:00	N	IV
KQ2004009-19	Carbon, Total Organic	DUP	K2002456-004	Water	1.30 mg/L	10 mL	1.30 mg/L	1	0.07	0.50		4	3/22/20 22:49:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 674227 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2002422-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	9.45 mg/L	10 mL	9.45 mg/L	1	0.07	0.50			3/23/20 02:23:00	N	III
K2002462-002	Carbon, Dissolved Organic	N/A		Water	4.12 mg/L	10 mL	4.12 mg/L	1	0.07	0.50			3/23/20 01:11:00	N	II
KQ2004010-01	Carbon, Dissolved Organic	CCV		Water	25.13 mg/L	10 mL	25.1 mg/L	1					3/23/20 00:13:00	N	II
KQ2004010-01	Carbon, Dissolved Organic (DOC)	CCV		Water	25.13 mg/L	10 mL	25.1 mg/L	1					3/23/20 00:13:00	N	II
KQ2004010-02	Carbon, Dissolved Organic	CCV		Water	25.06 mg/L	10 mL	25.1 mg/L	1					3/23/20 03:20:00	N	II
KQ2004010-02	Carbon, Dissolved Organic (DOC)	CCV		Water	25.06 mg/L	10 mL	25.1 mg/L	1					3/23/20 03:20:00	N	II
KQ2004010-03	Carbon, Dissolved Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 00:27:00	N	II
KQ2004010-03	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 00:27:00	N	II
KQ2004010-04	Carbon, Dissolved Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 03:35:00	N	II
KQ2004010-04	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 03:35:00	N	II
KQ2004010-05	Carbon, Dissolved Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 00:42:00	N	II
KQ2004010-05	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			3/23/20 00:42:00	N	II
KQ2004010-06	Carbon, Dissolved Organic	LCS		Water	24.20 mg/L	10 mL	24.2 mg/L	1	0.07	0.50	97		3/23/20 00:57:00	N	II
KQ2004010-06	Carbon, Dissolved Organic (DOC)	LCS		Water	24.20 mg/L	10 mL	24.2 mg/L	1	0.07	0.50	97		3/23/20 00:57:00	N	II
KQ2004010-07	Carbon, Dissolved Organic	MS	K2002462-002	Water	32.05 mg/L	10 mL	32.0 mg/L	1	0.07	0.50	112		3/23/20 01:40:00	N	II
KQ2004010-08	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	4.12 mg/L	10 mL	4.12 mg/L	1	0.07	0.50			3/23/20 01:11:00	N	III
KQ2004010-09	Carbon, Dissolved Organic (DOC)	MS	KQ2004010-08	Surface Water	32.05 mg/L	10 mL	32.0 mg/L	1	0.07	0.50	112		3/23/20 01:40:00	N	III
KQ2004010-10	Carbon, Dissolved Organic (DOC)	DUP	K2002422-001	Surface Water	9.61 mg/L	10 mL	9.61 mg/L	1	0.07	0.50		2	3/23/20 02:23:00	N	III
KQ2004010-11	Carbon, Dissolved Organic	DUP	K2002462-002	Water	4.07 mg/L	10 mL	4.07 mg/L	1	0.07	0.50		1	3/23/20 01:11:00	N	II
KQ2004010-12	Carbon, Dissolved Organic (DOC)	DUP	KQ2004010-08	Surface Water	4.07 mg/L	10 mL	4.07 mg/L	1	0.07	0.50		1	3/23/20 01:11:00	N	III

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

0.043	0.043			OBSERVATIONS	12	0.0432
0.366				STD Deviation	0.11429	ABOVE
0.200				AVERAGE	0.06658	ABOVE
0.055	0.055	0.055	######	UCL	0.18087	0.0545
0.136	0.136			LCL	-0.04772	0.1357
0.000						0
0.000						0
0.000				OBSERVATIONS	3	0
0.000				STD Deviation	0.02578	0
0.000				AVERAGE	0.07780	0
0.000				UCL	0.10358	0
0.000				LCL	0.05202	0
						0
						0
				OBSERVATIONS	1	0
				STD Deviation	#DIV/0!	0
				AVERAGE	0.05450	0
				UCL	#DIV/0!	0
				LCL	#DIV/0!	0
						0
						0
				OBSERVATIONS	0	0
				STD Deviation	#DIV/0!	0
				AVERAGE	#DIV/0!	0
						0
						0
						0
						0
						0

BLD 3/24/20

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccb	1	0.043	0.0778	-0.0346	-0.0346	<0.5	3/21/2020
3	ccv	1	26.406	0.0778	26.3280	26.328	26.3	3/21/2020
4	mb	1	0.366	0.0778	0.2878	0.2878	<0.5	3/21/2020
5	lcs	1	24.954	0.0778	24.8758	24.8758	24.9	3/21/2020
6	K2002337-001	1	0.994	0.0778	0.9162	0.9162	0.92	3/21/2020
7	K2002337-001	1	0.983	0.0778	0.9055	0.9055	0.9	3/21/2020
8	KQ2003999-09	1	29.561	0.0778	29.4834	29.4834	29	3/21/2020
9	K2002337-002	1	0.927	0.0778	0.8490	0.849	0.85	3/21/2020
10	K2002337-002	1	0.868	0.0778	0.7902	0.7902	0.79	3/21/2020
11	K2002337-003	1	0.851	0.0778	0.7733	0.7733	0.8	3/21/2020
12	K2002337-003	1	0.778	0.0778	0.6997	0.6997	0.70	3/21/2020
13	K2002337-004	1	0.759	0.0778	0.6814	0.6814	0.68	3/21/2020
14	K2002337-004	1	0.748	0.0778	0.6704	0.6704	0.67	3/21/2020
15	K2002337-005	1	0.530	0.0778	0.4518	0.4518	<0.5	3/21/2020
16	K2002337-005	1	0.543	0.0778	0.4649	0.4649	<0.5	3/21/2020
17	ccv	1	26.379	0.0778	26.3014	26.3014	26.30	3/21/2020
18	ccb	1	0.200	0.0778	0.1221	0.1221	<0.5	3/21/2020
19	K2002337-006	1	1.952	0.0778	1.8738	1.8738	1.9	3/22/2020
20	K2002337-006	1	1.929	0.0778	1.8513	1.8513	1.85	3/22/2020
21	K2002337-007	1	0.710	0.0778	0.6317	0.6317	0.63	3/22/2020
22	K2002337-007	1	0.658	0.0778	0.5798	0.5798	0.6	3/22/2020
23	K2002276-001	10	5.931	0.0778	5.8531	58.531	58.5	3/22/2020
24	K2002276-001	10	5.997	0.0778	5.9193	59.193	59.19	3/22/2020
25	K2002365-001	1	6.825	0.0778	6.7471	6.7471	6.75	3/22/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

	date	time
Analyzed By: KW	Date Analyzed 3/21/20	
Reviewed By:	Date Reviewed	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K2002365-001	1	6.814	0.0778	6.7366	6.7366	6.74	3/22/2020
27	K2002353-001	400	1.325	0.0778	1.2473	498.92	498.92	3/22/2020
28	K2002353-001	400	1.272	0.0778	1.1941	477.64	477.6	3/22/2020
29	K2002412-001	1	10.758	0.0778	10.6798	10.6798	10.7	3/22/2020
30	K2002412-001	1	10.352	0.0778	10.2738	10.2738	10.3	3/22/2020
31	K2002412-002	1	2.431	0.0778	2.3535	2.3535	2.4	3/22/2020
32	K2002412-002	1	2.226	0.0778	2.1484	2.1484	2.1	3/22/2020
33	K2002412-003	1	44.908	0.0778	44.8304	44.8304	44.8	3/22/2020
34	K2002412-003	1	44.589	0.0778	44.5114	44.5114	44.5	3/22/2020
35	K2002412-004	1	1.276	0.0778	1.1981	1.1981	1.2	3/22/2020
36	K2002412-004	1	0.987	0.0778	0.9096	0.9096	0.9	3/22/2020
37	ccv	1	26.538	0.0778	26.4599	26.4599	26.5	3/22/2020
38	ccb	1	0.055	0.0778	-0.0233	-0.0233	<0.5	3/22/2020
39	K2002412-005	1	4.650	0.0778	4.5720	4.572	4.6	3/22/2020
40	K2002412-005	1	4.487	0.0778	4.4096	4.4096	4.4	3/22/2020
41	K2002412-006	1	31.326	0.0778	31.2482	31.2482	31.2	3/22/2020
42	K2002412-006	1	30.802	0.0778	30.7243	30.7243	30.7	3/22/2020
43	K2002412-007	1	0.861	0.0778	0.7828	0.7828	0.8	3/22/2020
44	K2002412-007	1	0.659	0.0778	0.5810	0.581	0.6	3/22/2020
45	K2002412-008	1	5.297	0.0778	5.2192	5.2192	5.2	3/22/2020
46	K2002412-008	1	5.349	0.0778	5.2707	5.2707	5.3	3/22/2020
47	K2002434-001	1	0.318	0.0778	0.2402	0.2402	<0.5	3/22/2020
48	K2002434-001	1	0.271	0.0778	0.1933	0.1933	<0.5	3/22/2020
49	K2002434-002	1	0.689	0.0778	0.6116	0.6116	0.6	3/22/2020
50	K2002434-002	1	0.674	0.0778	0.5965	0.5965	0.6	3/22/2020

Analyzed By: BCD	Date Analyzed 3/24/20
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	ccv	1	25.843	0.0778	25.7647	25.7647	25.76	3/22/2020
52	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
53		1		0.0000	0.0000	0	<0.5	
54		1		0.0000	0.0000	0	<0.5	
55		1		0.0000	0.0000	0	<0.5	
56		1		0.0000	0.0000	0	<0.5	
57		1		0.0000	0.0000	0	<0.5	
58		1		0.0000	0.0000	0	<0.5	
59		1		0.0000	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By: BKP	Date Analyzed 3/24/20
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	26.538	0.0778	26.4599	26.4599	26.5	3/22/2020
3	ccb	1	0.055	0.0778	-0.0233	-0.0233	<0.5	3/22/2020
4	mb	1	0.136	0.0778	0.0579	0.0579	<0.5	3/22/2020
5	lcs	1	24.698	0.0778	24.6205	24.6205	24.6	3/22/2020
6	K2002434-003	1	0.192	0.0778	0.1139	0.1139	<0.5	3/22/2020
7	K2002434-003	1	0.258	0.0778	0.1797	0.1797	<0.5	3/22/2020
8	K2002416-001	1	0.099	0.0778	0.0207	0.0207	<0.5	3/22/2020
9	K2002416-001	1	0.083	0.0778	0.0048	0.0048	<0.5	3/22/2020
10	ccv	1	25.843	0.0778	25.7647	25.7647	25.76	3/22/2020
11	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
12	KQ2004008-01	1	27.862	0.0778	27.7842	27.7842	27.78	3/22/2020
13	K2002416-002	1	0.099	0.0778	0.0210	0.021	<0.5	3/22/2020
14	K2002416-002	1	0.085	0.0778	0.0067	0.0067	<0.5	3/22/2020
15	K2002416-003	1	0.271	0.0778	0.1932	0.1932	<0.5	3/22/2020
16	K2002416-003	1	0.235	0.0778	0.1572	0.1572	<0.5	3/22/2020
17	K2002416-004	1	1.615	0.0778	1.5370	1.537	1.54	3/22/2020
18	K2002416-004	1	1.605	0.0778	1.5267	1.5267	1.5	3/22/2020
19	K2002462-001	1	3.041	0.0778	2.9627	2.9627	3.0	3/22/2020
20	K2002462-001	1	3.038	0.0778	2.9600	2.96	2.96	3/22/2020
21	K2002470-001	1	2.148	0.0778	2.0704	2.0704	2.07	3/22/2020
22	K2002470-001	1	2.061	0.0778	1.9828	1.9828	2.0	3/22/2020
23	K2002471-001	1	4.509	0.0778	4.4308	4.4308	4.4	3/22/2020
24	K2002471-001	1	4.381	0.0778	4.3030	4.303	4.30	3/22/2020
25	K2002489-001	1	4.801	0.0778	4.7227	4.7227	4.72	3/22/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

date time

Analyzed By: [signature]	Date Analyzed 3/22/20
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K2002489-001	1	4.724	0.0778	4.6460	4.646	4.65	3/22/2020
27	K2002492-002	1	0.452	0.0778	0.3746	0.3746	<0.5	3/22/2020
28	K2002492-002	1	0.479	0.0778	0.4014	0.4014	<0.5	3/22/2020
29	ccv	1	25.695	0.0778	25.6168	25.6168	25.6	3/22/2020
30	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
31	K2002496-001	1	14.459	0.0778	14.3812	14.3812	14.4	3/22/2020
32	K2002496-001	1	13.578	0.0778	13.5000	13.5	13.5	3/22/2020
33	K2002421-001	1	1.605	0.0778	1.5272	1.5272	1.5	3/22/2020
34	K2002421-001	1	1.548	0.0778	1.4705	1.4705	1.5	3/22/2020
35	K2002421-002	1	0.866	0.0778	0.7878	0.7878	0.8	3/22/2020
36	K2002421-002	1	0.842	0.0778	0.7645	0.7645	0.8	3/22/2020
37	K2002421-003	1	1.766	0.0778	1.6881	1.6881	1.7	3/22/2020
38	K2002421-003	1	1.790	0.0778	1.7125	1.7125	1.7	3/22/2020
39	K2002421-004	1	0.896	0.0778	0.8180	0.818	0.8	3/22/2020
40	K2002421-004	1	0.859	0.0778	0.7812	0.7812	0.8	3/22/2020
41	ccv	1	25.418	0.0778	25.3398	25.3398	25.3	3/22/2020
42	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: KP	Date Analyzed 3/22/20
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	25.695	0.0778	25.6168	25.6168	25.6	3/22/2020
3	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
4	mb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
5	lcs	1	24.742	0.0778	24.6645	24.6645	24.7	3/22/2020
6	K2002432-001	1	0.108	0.0778	0.0305	0.0305	<0.5	3/22/2020
7	K2002432-001	1	0.143	0.0778	0.0649	0.0649	<0.5	3/22/2020
8	KQ2004009-09	1	26.380	0.0778	26.3020	26.302	26	3/22/2020
9	ccv	1	25.418	0.0778	25.3398	25.3398	25.34	3/22/2020
10	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/22/2020
11	K2002437-001	1	1.911	0.0778	1.8331	1.8331	1.8	3/22/2020
12	K2002437-001	1	1.853	0.0778	1.7754	1.7754	1.78	3/22/2020
13	K2002437-002	1	0.802	0.0778	0.7246	0.7246	0.72	3/22/2020
14	K2002437-002	1	0.788	0.0778	0.7099	0.7099	0.71	3/22/2020
15	K2002437-003	1	3.181	0.0778	3.1028	3.1028	3.1	3/22/2020
16	K2002437-003	1	3.208	0.0778	3.1306	3.1306	3.1	3/22/2020
17	K2002437-004	1	0.783	0.0778	0.7056	0.7056	0.71	3/22/2020
18	K2002437-004	1	0.715	0.0778	0.6372	0.6372	0.6	3/22/2020
19	K2002437-005	1	0.665	0.0778	0.5874	0.5874	0.6	3/22/2020
20	K2002437-005	1	0.641	0.0778	0.5633	0.5633	0.56	3/22/2020
21	K2002456-001	1	1.145	0.0778	1.0675	1.0675	1.07	3/22/2020
22	K2002456-001	1	1.122	0.0778	1.0438	1.0438	1.0	3/22/2020
23	K2002456-002	1	0.794	0.0778	0.7165	0.7165	0.7	3/22/2020
24	K2002456-002	1	0.735	0.0778	0.6568	0.6568	0.66	3/22/2020
25	K2002456-003	1	1.431	0.0778	1.3528	1.3528	1.35	3/22/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

date time

Analyzed By: BDP	Date Analyzed 3/12/20
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K2002456-003	1	1.431	0.0778	1.3528	1.3528	1.35	3/22/2020
27	K2002456-004	1	1.433	0.0778	1.3548	1.3548	1.35	3/22/2020
28	K2002456-004	1	1.375	0.0778	1.2971	1.2971	1.3	3/22/2020
29	ccv	1	25.130	0.0778	25.0525	25.0525	25.1	3/23/2020
30	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/23/2020
31		1		0.0000	0.0000	0	<0.5	
32		1		0.0000	0.0000	0	<0.5	
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: BCP	Date Analyzed 3/21/20
Reviewed By:	Date Reviewed

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	25.130	0.0778	25.0525	25.0525	25.1	3/23/2020
3	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/23/2020
4	mb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/23/2020
5	lcs	1	24.199	0.0778	24.1209	24.1209	24.1	3/23/2020
6	K2002462-002	1	4.117	0.0778	4.0393	4.0393	4.04	3/23/2020
7	K2002462-002	1	4.067	0.0778	3.9892	3.9892	4.0	3/23/2020
8	KQ2004010-07	1	32.047	0.0778	31.9695	31.9695	32	3/23/2020
9	K2002422-001	1	9.445	0.0778	9.3675	9.3675	9.37	3/23/2020
10	K2002422-001	1	9.612	0.0778	9.5338	9.5338	9.53	3/23/2020
11	ccv	1	25.060	0.0778	24.9820	24.982	25.0	3/23/2020
12	ccb	1	0.000	0.0778	-0.0778	-0.0778	<0.5	3/23/2020
13		1		0.0000	0.0000	0	<0.5	
14		1		0.0000	0.0000	0	<0.5	
15		1		0.0000	0.0000	0	<0.5	
16		1		0.0000	0.0000	0	<0.5	
17		1		0.0000	0.0000	0	<0.5	
18		1		0.0000	0.0000	0	<0.5	
19		1		0.0000	0.0000	0	<0.5	
20		1		0.0000	0.0000	0	<0.5	
21		1		0.0000	0.0000	0	<0.5	
22		1		0.0000	0.0000	0	<0.5	
23		1		0.0000	0.0000	0	<0.5	
24		1		0.0000	0.0000	0	<0.5	
25		1		0.0000	0.0000	0	<0.5	

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

date time

Analyzed By: BCP	Date Analyzed 3/21/20
Reviewed By:	Date Reviewed

TOC: 674205, 674225, 674226
DOC: 674227

Schedule: 03212020

Version: 4
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/03/21 21:07 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
74	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K2002337-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K2002337-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
5	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K2002337-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K2002337-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K2002337-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K2002337-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K2002337-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K2002337-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K2002276-001.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K2002365-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K2002353-001.01 400x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K2002412-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K2002412-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K2002412-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K2002412-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K2002412-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K2002412-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K2002412-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K2002412-008.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K2002434-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K2002434-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K2002434-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K2002416-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K2002416-001.02 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
30	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
31	Sample	K2002416-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K2002416-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K2002416-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K2002462-001.06	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K2002470-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K2002471-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K2002489-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K2002492-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 03212020

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K2002496-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K2002421-001.12	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K2002421-002.12	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K2002421-003.12	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K2002421-004.12	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K2002432-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K2002432-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
47	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K2002437-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K2002437-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K2002437-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K2002437-004.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K2002437-005.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K2002456-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K2002456-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K2002456-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K2002456-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	K2002462-002.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K2002462-002.04 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
61	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
62	Sample	FB 3/19/20 1619	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
63	Sample	K2002422-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
64	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 03212020
Saturday, March 21, 2020 04:44 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/03/24 09:26 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	03212020	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/03/21 16:44

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.01	16.15	4.14	49.81	08:01
2	TC Clean	18.09	21.86	3.77	49.56	07:17
3	TC Clean	6.93	10.79	3.86	49.61	07:02
4	TC Clean	5.02	8.90	3.88	49.63	07:01

Sample Type: Sample — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	74	TOC	RB	0.4528 ppm	0.0533 ppm	11.7700%	2020/03/21 17:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4804	4.8037	10.62	14.37	3.75	49.71	10:29
2	TOC	0.4973	4.9732	10.74	14.56	3.82	49.67	10:29
3	TOC	0.4567	4.5672	10.46	14.14	3.68	49.67	10:27
4	TOC	0.3769	3.7687	9.93	13.76	3.83	49.65	10:29

Dilution **Blank Contribution** **Method** **Calibration**

1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/03/21 18:14

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	9.17	13.91	4.74	49.79	07:59
2	TC Clean	6.79	10.62	3.83	49.55	07:20
3	TC Clean	4.32	8.23	3.91	49.61	07:00
4	TC Clean	3.54	7.40	3.86	49.60	07:01

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/03/21 18:48

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.92	4.73	3.81	49.82	07:59
2	TC Clean	8.57	12.40	3.83	49.62	07:17
3	TC Clean	4.30	8.10	3.80	49.63	07:00
4	TC Clean	3.55	7.36	3.81	49.65	07:03

Sample Type: Sample — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.2621 ppm	0.0000 ppm	0.0000%	2020/03/21 19:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2621	2.6207	9.15	12.95	3.80	49.69	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCB — From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0432 ppm (PASS)	0.0000 ppm	0%	2020/03/21 19:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0432	0.4318	8.11	11.92	3.82	49.72	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.4058 ppm (PASS)	0.0000 ppm	0%	2020/03/21 19:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.4058	264.0582	185.40	189.22	3.82	49.75	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Sample From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.3656 ppm	0.0000 ppm	0.0000%	2020/03/21 20:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3656	3.6557	9.85	13.62	3.77	49.76	10:35

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> LCS From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.9536 ppm (PASS)	0.0000 ppm	0%	2020/03/21 20:21

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.9536	249.5362	175.63	179.68	4.05	49.79	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	25 ppmC

Sample Type: Sample — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	2	TOC	ICS	2.0813 ppm	0.0000 ppm	0.0000%	2020/03/21 20:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0813	20.8126	21.39	25.32	3.93	49.83	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	3	TOC	K2002337-001.01	0.9886 ppm	0.0076 ppm	0.7700%	2020/03/21 20:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9940	9.9397	14.08	17.85	3.78	49.85	10:28
2	TOC	0.9833	9.8327	14.00	17.80	3.80	49.88	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Sample — From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	4	TOC	K2002337-001.01 ms	29.5612 ppm	0.0000 ppm	0.0000%	2020/03/21 21:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.5612	295.6123	206.19	209.98	3.79	49.90	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	5	TOC	RB	0.2728 ppm	0.0000 ppm	0.0000%	2020/03/21 21:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2728	2.7278	9.23	12.95	3.72	49.94	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	6	TOC	K2002337-002.01	0.8974 ppm	0.0415 ppm	4.6300%	2020/03/21 21:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9268	9.2676	13.62	17.26	3.63	49.95	10:26
2	TOC	0.8680	8.6802	13.23	17.12	3.89	49.98	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	7	TOC	K2002337-003.01	0.8143 ppm	0.0520 ppm	6.3900%	2020/03/21 22:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8511	8.5107	13.12	16.70	3.59	49.97	10:27
2	TOC	0.7775	7.7747	12.62	16.55	3.93	50.00	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	8	TOC	K2002337-004.01	0.7537 ppm	0.0078 ppm	1.0300%	2020/03/21 22:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7592	7.5918	12.50	16.55	4.05	50.01	10:30
2	TOC	0.7482	7.4817	12.42	16.32	3.90	50.00	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	9	TOC	K2002337-005.01	0.5361 ppm	0.0093 ppm	1.7300%	2020/03/21 23:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5296	5.2958	10.95	14.68	3.72	49.98	10:30
2	TOC	0.5427	5.4267	11.04	14.79	3.75	49.99	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.3792 ppm	0.0000 ppm	0%	2020/03/21 23:40

						(PASS)				

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.3792	263.7921	185.22	188.92	3.71	50.01	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.1999 ppm (PASS)	0.0000 ppm	0%	2020/03/21 23:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.1999	1.9991	9.16	12.96	3.80	50.00	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	10	TOC	K2002337-006.01	1.9404 ppm	0.0159 ppm	0.8200%	2020/03/22 00:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9516	19.5160	20.52	24.28	3.76	50.01	10:33
2	TOC	1.9291	19.2914	20.37	24.25	3.89	49.98	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K2002337-007.01	0.6836 ppm	0.0367 ppm	5.3700%	2020/03/22 00:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7095	7.0951	12.16	15.91	3.75	49.97	10:25
2	TOC	0.6576	6.5762	11.81	15.68	3.87	49.95	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis	Sample ID	Result (ppmC)	Std. Dev.	RSD	Start Time

		Type			(ppmC)		
◆	12	TOC	K2002276-001.01 10x	5.9640 ppm	0.0468 ppm	0.7800%	2020/03/22 01:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.9309	59.3095	47.28	51.18	3.91	49.95	10:27
2	TOC	5.9971	59.9712	47.72	51.51	3.79	49.96	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K2002365-001.01	6.8196 ppm	0.0075 ppm	0.1100%	2020/03/22 01:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.8249	68.2493	53.29	57.25	3.96	49.94	10:26
2	TOC	6.8144	68.1437	53.22	57.13	3.91	49.94	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K2002353-001.01 400x	1.2985 ppm	0.0376 ppm	2.9000%	2020/03/22 02:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3251	13.2513	16.30	20.20	3.90	49.93	10:28
2	TOC	1.2719	12.7189	15.94	19.92	3.97	49.90	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	RB	0.0981 ppm	0.0036 ppm	3.6500%	2020/03/22 02:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1006	1.0059	8.07	11.84	3.77	49.88	10:26
2	TOC	0.0955	0.9553	8.03	12.08	4.05	49.88	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	16	TOC	K2002412-001.01	10.5546 ppm	0.2870 ppm	2.7200%	2020/03/22 02:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.7576	107.5758	79.74	83.68	3.95	49.85	10:29
2	TOC	10.3516	103.5163	77.01	80.95	3.94	49.85	10:26

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	17	TOC	K2002412-002.01	2.3288 ppm	0.1450 ppm	6.2300%	2020/03/22 03:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4313	24.3130	23.74	27.73	3.98	49.85	10:28
2	TOC	2.2262	22.2625	22.36	26.60	4.24	49.85	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	18	TOC	K2002412-003.01	44.7487 ppm	0.2255 ppm	0.5000%	2020/03/22 03:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	44.9082	449.0821	309.40	313.24	3.84	49.85	10:30
2	TOC	44.5892	445.8925	307.25	311.28	4.03	49.85	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	19	TOC	K2002412-004.01	1.1317 ppm	0.2040 ppm	18.0300%	2020/03/22 04:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2759	12.7591	15.97	20.08	4.10	49.87	10:27
2	TOC	0.9874	9.8743	14.03	18.07	4.04	49.92	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.5377 ppm (PASS)	0.0000 ppm	0%	2020/03/22 04:51

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.5377	265.3772	186.28	190.22	3.94	49.88	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	50 ppmC

met.	(v4)	(v32)

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0545 ppm (PASS)	0.0000 ppm	0%	2020/03/22 05:06

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0545	0.5449	8.18	12.24	4.06	49.92	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.1357 ppm	0.0000 ppm	0.0000%	2020/03/22 05:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1357	1.3568	8.30	12.27	3.97	49.92	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> LCS From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.6983 ppm (PASS)	0.0000 ppm	0%	2020/03/22 05:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.6983	246.9831	173.91	177.85	3.94	49.91	10:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	25 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◆	21	TOC	K2002412-005.01	4.5686 ppm	0.1148 ppm	2.5100%	2020/03/22 05:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.6498	46.4975	38.66	42.58	3.92	49.92	10:28
2	TOC	4.4874	44.8737	37.57	41.59	4.02	49.93	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	22	TOC	K2002412-006.01	31.0641 ppm	0.3704 ppm	1.1900%	2020/03/22 06:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	31.3260	313.2600	218.06	222.06	4.00	49.92	10:27
2	TOC	30.8021	308.0213	214.54	218.63	4.09	49.93	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	23	TOC	K2002412-007.01	0.7597 ppm	0.1427 ppm	18.7800%	2020/03/22 06:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8606	8.6059	13.18	17.31	4.14	49.93	10:28
2	TOC	0.6588	6.5880	11.82	15.93	4.11	49.94	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	24	TOC	K2002412-008.01	5.3228 ppm	0.0364 ppm	0.6800%	2020/03/22 07:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.2970	52.9704	43.01	47.07	4.06	49.93	10:27
2	TOC	5.3485	53.4849	43.36	47.40	4.04	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	25	TOC	K2002434-001.01	0.2946 ppm	0.0331 ppm	11.2400%	2020/03/22 07:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3180	3.1799	9.53	13.49	3.96	49.96	10:27
2	TOC	0.2711	2.7115	9.22	13.14	3.93	49.95	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	26	TOC	K2002434-002.01	0.6819 ppm	0.0107 ppm	1.5700%	2020/03/22 08:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6894	6.8944	12.03	15.93	3.91	49.95	10:31
2	TOC	0.6743	6.7427	11.93	15.87	3.94	49.94	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	27	TOC	K2002434-003.01	0.2246 ppm	0.0465 ppm	20.6900%	2020/03/22 08:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1917	1.9174	8.68	12.65	3.97	49.94	10:25
2	TOC	0.2575	2.5746	9.12	13.14	4.02	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	28	TOC	K2002416-001.02	0.0905 ppm	0.0113 ppm	12.4200%	2020/03/22 09:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0985	0.9850	8.05	11.97	3.92	49.94	10:26
2	TOC	0.0826	0.8259	7.95	11.91	3.97	49.95	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.8425 ppm (PASS)	0.0000 ppm	0%	2020/03/22 09:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.8425	258.4255	181.61	185.65	4.04	49.95	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	50 ppmC

met.	(v4)	(v32)

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/22 09:49

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.06	10.95	3.89	49.94	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	29	TOC	K2002416-001.02 ms	27.8620 ppm	0.0000 ppm	0.0000%	2020/03/22 10:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.8620	278.6204	194.76	198.67	3.91	49.95	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	30	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/22 10:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.09	11.09	4.00	49.95	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	31	TOC	K2002416-002.02	0.0917 ppm	0.0101 ppm	11.0100%	2020/03/22 10:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0988	0.9880	8.06	12.13	4.08	49.96	10:26
2	TOC	0.0845	0.8453	7.96	12.11	4.15	49.97	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	32	TOC	K2002416-003.02	0.2530 ppm	0.0254 ppm	10.0600%	2020/03/22 11:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2710	2.7100	9.21	13.27	4.06	49.93	10:29
2	TOC	0.2350	2.3501	8.97	12.92	3.95	49.92	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	33	TOC	K2002416-004.02	1.6097 ppm	0.0073 ppm	0.4500%	2020/03/22 11:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6148	16.1479	18.25	22.09	3.84	49.94	10:26
2	TOC	1.6045	16.0453	18.18	22.08	3.90	49.92	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	34	TOC	K2002462-001.06	3.0392 ppm	0.0019 ppm	0.0600%	2020/03/22 11:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.0405	30.4052	27.84	31.73	3.89	49.91	10:31
2	TOC	3.0378	30.3785	27.82	31.60	3.78	49.91	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	35	TOC	K2002470-001.01	2.1044 ppm	0.0619 ppm	2.9400%	2020/03/22 12:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1482	21.4818	21.84	25.60	3.76	49.92	10:27
2	TOC	2.0606	20.6059	21.25	25.19	3.94	49.92	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	36	TOC	K2002471-001.01	4.4447 ppm	0.0904 ppm	2.0300%	2020/03/22 12:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.5086	45.0863	37.71	41.74	4.03	49.90	10:29

2	TOC	4.3808	43.8075	36.85	40.81	3.96	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	37	TOC	K2002489-001.01	4.7622 ppm	0.0543 ppm	1.1400%	2020/03/22 13:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.8005	48.0053	39.67	43.66	3.99	49.91	10:29
2	TOC	4.7238	47.2380	39.16	43.00	3.84	49.91	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	38	TOC	K2002492-002.01	0.4658 ppm	0.0189 ppm	4.0600%	2020/03/22 13:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4524	4.5241	10.43	14.40	3.97	49.90	10:27
2	TOC	0.4792	4.7918	10.61	14.28	3.66	49.89	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.6946 ppm (PASS)	0.0000 ppm	0%	2020/03/22 14:19

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.6946	256.9459	180.61	184.49	3.88	49.89	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/22 14:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.32	10.16	3.85	49.87	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/22 14:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.92	9.75	3.83	49.87	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> LCS From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.7423 ppm (PASS)	0.0000 ppm	0%	2020/03/22 15:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.7423	247.4232	174.21	178.06	3.85	49.87	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	25 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	40	TOC	K2002496-001.01	14.0184 ppm	0.6231 ppm	4.4400%	2020/03/22 15:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.4590	144.5901	104.63	108.44	3.81	49.85	10:28
2	TOC	13.5778	135.7782	98.70	102.54	3.83	49.84	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	41	TOC	K2002421-001.12	1.5767 ppm	0.0401 ppm	2.5400%	2020/03/22 15:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6050	16.0498	18.18	22.01	3.83	49.82	10:28
2	TOC	1.5483	15.4833	17.80	21.76	3.95	49.80	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	42	TOC	K2002421-002.12	0.8540 ppm	0.0165 ppm	1.9300%	2020/03/22 16:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8656	8.6565	13.21	17.17	3.96	49.80	10:29
2	TOC	0.8423	8.4230	13.06	16.87	3.81	49.81	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	43	TOC	K2002421-003.12	1.7781 ppm	0.0172 ppm	0.9700%	2020/03/22 16:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7659	17.6587	19.27	23.22	3.95	49.79	10:29
2	TOC	1.7903	17.9026	19.43	23.24	3.81	49.77	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	44	TOC	K2002421-004.12	0.8774 ppm	0.0261 ppm	2.9700%	2020/03/22 17:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8958	8.9583	13.42	17.18	3.76	49.77	10:27
2	TOC	0.8590	8.5895	13.17	16.92	3.75	49.78	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	45	TOC	K2002432-001.01	0.1255 ppm	0.0243 ppm	19.3500%	2020/03/22 17:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1083	1.0832	8.12	11.94	3.82	49.80	10:28

2	TOC	0.1427	1.4267	8.35	12.16	3.81	49.84	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	46	TOC	K2002432-001.01 ms	26.3798 ppm	0.0000 ppm	0.0000%	2020/03/22 18:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.3798	263.7980	184.80	188.75	3.96	49.85	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	47	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/22 18:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.97	9.86	3.88	49.86	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.4176 ppm (PASS)	0.0000 ppm	0%	2020/03/22 18:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4176	254.1757	178.75	182.64	3.89	49.88	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/22 18:50

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

D	TOC	0 ppm	1	0.0000	0.0000	6.08	9.82	3.74	49.92	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	48	TOC	K2002437-001.03	1.8820 ppm	0.0408 ppm	2.1700%	2020/03/22 19:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9109	19.1085	20.24	24.02	3.78	49.93	10:29
2	TOC	1.8532	18.5316	19.85	23.57	3.71	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	49	TOC	K2002437-002.03	0.7951 ppm	0.0104 ppm	1.3100%	2020/03/22 19:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8024	8.0245	12.79	16.50	3.71	50.00	10:24
2	TOC	0.7877	7.8773	12.69	16.46	3.77	49.99	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	50	TOC	K2002437-003.03	3.1945 ppm	0.0197 ppm	0.6200%	2020/03/22 20:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1806	31.8060	28.78	32.47	3.69	50.00	10:30
2	TOC	3.2084	32.0841	28.97	32.65	3.68	50.00	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	51	TOC	K2002437-004.03	0.7492 ppm	0.0484 ppm	6.4600%	2020/03/22 20:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7834	7.8341	12.66	16.42	3.76	50.00	10:32
2	TOC	0.7150	7.1501	12.20	15.91	3.71	50.03	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC)	CAS_salt_010711	CAS_salt_010711

(v1364) (v4) (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	52	TOC	K2002437-005.03	0.6532 ppm	0.0170 ppm	2.6100%	2020/03/22 20:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6652	6.6520	11.86	15.62	3.76	50.00	10:25
2	TOC	0.6411	6.4111	11.70	15.67	3.96	50.03	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	53	TOC	K2002456-001.01	1.1335 ppm	0.0168 ppm	1.4800%	2020/03/22 21:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1453	11.4535	15.09	18.93	3.84	50.00	10:25
2	TOC	1.1216	11.2156	14.93	18.88	3.94	50.02	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	54	TOC	K2002456-002.01	0.7645 ppm	0.0422 ppm	5.5200%	2020/03/22 21:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7943	7.9427	12.73	16.72	3.99	50.05	10:29
2	TOC	0.7346	7.3464	12.33	16.17	3.83	50.01	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	55	TOC	K2002456-003.01	1.4306 ppm	0.0000 ppm	0.0000%	2020/03/22 22:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4306	14.3056	17.01	21.07	4.05	50.03	10:28
2	TOC	1.4306	14.3056	17.01	20.90	3.89	50.04	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	56	TOC	K2002456-004.01	1.4038 ppm	0.0408 ppm	2.9100%	2020/03/22 22:49

Rep	Base	ppm	µg	Adjusted	NDIR (Abs)	Baseline	Pressure	Run

#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	1.4326	14.3264	17.03	21.09	4.07	50.03	10:26
2	TOC	1.3749	13.7494	16.64	20.59	3.96	50.03	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	57	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/22 23:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.12	9.08	3.96	50.08	10:29
2	TOC	0.0000	0.0000	5.08	8.91	3.83	50.03	10:26
3	TOC	0.0000	0.0000	4.92	8.74	3.82	50.02	10:27
4	TOC	0.0000	0.0000	4.82	8.59	3.76	50.04	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.1303 ppm (PASS)	0.0000 ppm	0%	2020/03/23 00:13

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.1303	251.3028	176.82	180.56	3.74	50.04	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/23 00:27

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.42	9.22	3.80	50.03	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/23 00:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.04	8.76	3.72	50.03	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> LCS From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.1987 ppm (PASS)	0.0000 ppm	0%	2020/03/23 00:57

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.1987	241.9868	170.55	174.42	3.87	50.01	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	25 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	59	TOC	K2002462-002.04 doc	4.0921 ppm	0.0354 ppm	0.8700%	2020/03/23 01:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1171	41.1711	35.08	38.88	3.80	50.00	10:29
2	TOC	4.0670	40.6700	34.74	38.61	3.87	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	60	TOC	K2002462-002.04 ms doc	32.0473 ppm	0.0000 ppm	0.0000%	2020/03/23 01:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	32.0473	320.4734	222.91	226.80	3.89	50.01	10:31

Dilution	Blank Contribution	Method	Calibration

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	61	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/23 01:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.10	10.11	4.00	50.00	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	62	TOC	FB 3/19/20 1619	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/23 02:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.24	9.23	4.00	49.99	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	63	TOC	K2002422-001.04 doc	9.5284 ppm	0.1176 ppm	1.2300%	2020/03/23 02:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.4453	94.4531	70.91	74.94	4.03	50.01	10:29
2	TOC	9.6116	96.1156	72.03	75.73	3.70	49.98	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	64	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/03/23 02:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.59	9.48	3.89	49.99	10:29
2	TOC	0.0000	0.0000	5.25	9.15	3.90	49.99	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 7.3916 (IC) (v1364)	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25	0 / infinity	25.0598	0.0000	0%	2020/03/23 03:20

					ppm [25 ppm]	(NA / NA)	ppm (PASS)	ppm		

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0598	250.5980	176.34	180.27	3.92	49.97	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/03/23 03:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.46	9.42	3.96	50.00	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v32)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1364	1.7787	1.3950	0.0000	0.0000	0.0000	2020/03/19 15:10	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v32	Calibration curve formula:	TOC: y = 6.725x + 7.818
Ver Creation:	2020/03/11 15:55	r^2 value:	TOC: r^2 = 0.99921
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	5.8640	0.0000		2020/03/11 14:28
0.500 ppm	9.5210	0.5000		2020/03/11 14:42
1.0 ppm	12.5930	1.0000		2020/03/11 14:56
5.0 ppm	40.5270	5.0000		2020/03/11 15:10
10 ppm	79.5310	10.0000		2020/03/11 15:25
25 ppm	181.4610	25.0000		2020/03/11 15:39
50 ppm	340.5610	50.0000		2020/03/11 15:53

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)

Ver Creation: 2019/02/21 17:57

Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2020/03/23 03:50

ALS Environmental

StarLIMS Run:	674205, 674225, 674226, 674227
Analysis:	DOC/TOC
Method:	SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/11/2020

ICAL ID: 19-GEN-8-7-E->J

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-9-H

21 % H3PO4: 19-GEN-08-8-K

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

21 BCP 3/24/20

Analyzed By: BCP	Date Analyzed: 3/24/20
Reviewed By:	Date Reviewed: 3/24/20

HS20030498 8260 Raw Data

ALS WO# HS20030498

MSVOA06 -Logbook

Batch: 40066
Date: 03-19-2020
Method: 8260_W
Comments:

Analyst: Devak Giga
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	03-19-2020 11:10 am	1.00	0.00 mL	0.00 mL	X031901.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	03-19-2020 11:34 am	1.00	5.00 mL	0.00 mL	X031902.D	Liquid	Y	NA
3	VSTD000.5	ICAL2	03-19-2020 11:58 am	1.00	5.00 mL	0.00 mL	X031903.D	Liquid	Y	NA
4	VSTD001	ICAL3	03-19-2020 12:46 pm	1.00	5.00 mL	0.00 mL	X031904.D	Liquid	Y	NA
5	VSTD002	ICAL4	03-19-2020 01:10 pm	1.00	5.00 mL	0.00 mL	X031905.D	Liquid	Y	NA
6	VSTD005	ICAL5	03-19-2020 01:34 pm	1.00	5.00 mL	0.00 mL	X031906.D	Liquid	Y	NA
7	VSTD020	ICAL6	03-19-2020 01:58 pm	1.00	5.00 mL	0.00 mL	X031907.D	Liquid	Y	NA
8	VSTD050	ICAL7	03-19-2020 02:22 pm	1.00	5.00 mL	0.00 mL	X031908.D	Liquid	Y	NA
9	VSTD100	ICAL8	03-19-2020 02:46 pm	1.00	5.00 mL	0.00 mL	X031909.D	Liquid	Y	NA
10	VSTD150	ICAL9	03-19-2020 03:10 pm	1.00	5.00 mL	0.00 mL	X031910.D	Liquid	Y	NA
11	VSTD200	ICAL	03-19-2020 03:33 pm	1.00	5.00 mL	0.00 mL	X031911.D	Liquid	Y	NA
12	BLANK	SAMP	03-19-2020 03:58 pm	1.00	5.00 mL	0.00 mL	X031912.D	Liquid	Y	NA
13	BLANK	SAMP	03-19-2020 04:22 pm	1.00	5.00 mL	0.00 mL	X031913.D	Liquid	Y	NA
14	BLANK	SAMP	03-19-2020 04:46 pm	1.00	5.00 mL	0.00 mL	X031914.D	Liquid	Y	NA
15	ICV	ICV	03-19-2020 05:09 pm	1.00	5.00 mL	0.00 mL	X031915.D	Liquid	Y	NA
16	BLANK	SAMP	03-19-2020 05:33 pm	1.00	5.00 mL	0.00 mL	X031916.D	Liquid	Y	NA
17	VLCSW-200319	LCS	03-19-2020 05:57 pm	1.00	5.00 mL	0.00 mL	X031917.D	Liquid	Y	NA
18	VLCSDW-200319	LCSD	03-19-2020 06:21 pm	1.00	5.00 mL	0.00 mL	X031918.D	Liquid	Y	NA
19	BLANK	SAMP	03-19-2020 06:45 pm	1.00	5.00 mL	0.00 mL	X031919.D	Liquid	Y	NA
20	BLANK	SAMP	03-19-2020 07:10 pm	1.00	5.00 mL	0.00 mL	X031920.D	Liquid	Y	NA
21	VBLKW1-200319	MBLK	03-19-2020 07:34 pm	1.00	5.00 mL	0.00 mL	X031921.D	Liquid	Y	NA
22	VBLKW2-200319	MBLK	03-19-2020 07:58 pm	1.00	5.00 mL	0.00 mL	X031922.D	Liquid	Y	NA
23	VBLKW3-200319	MBLK	03-19-2020 08:22 pm	1.00	5.00 mL	0.00 mL	X031923.D	Liquid	Y	NA
24	HS20021070-01	SAMP	03-19-2020 08:46 pm	1.00	5.00 mL	0.00 mL	X031924.D	Liquid	Y	NA
25	HS20021070-02	SAMP	03-19-2020 09:10 pm	1.00	5.00 mL	0.00 mL	X031925.D	Liquid	Y	NA
26	HS20021070-03	SAMP	03-19-2020 09:33 pm	1.00	5.00 mL	0.00 mL	X031926.D	Liquid	Y	NA
27	BFB	TUNE	03-19-2020 09:57 pm	1.00	0.00 mL	0.00 mL	Y031901.D	Liquid	Y	NA
	Auto find/ purged									
28	CCV	CCV	03-19-2020 10:21 pm	1.00	5.00 mL	0.00 mL	Y031902a.D	Liquid	Y	NA
29	CCV	CCV	03-19-2020 10:45 pm	1.00	5.00 mL	0.00 mL	Y031903.D	Liquid	Y	NA
30	CCB	SAMP	03-19-2020 11:09 pm	1.00	5.00 mL	0.00 mL	Y031904.D	Liquid	Y	NA
31	VLCSW-200319	LCS	03-19-2020 11:33 pm	1.00	5.00 mL	0.00 mL	Y031905.D	Liquid	Y	NA
32	BLANK	SAMP	03-19-2020 11:57 pm	1.00	5.00 mL	0.00 mL	Y031906.D	Liquid	Y	NA
33	VBLKW1-200319	MBLK	03-20-2020 12:21 am	1.00	5.00 mL	0.00 mL	Y031907.D	Liquid	Y	NA
34	HS20030474-07	SAMP	03-20-2020 12:45 am	1.00	5.00 mL	0.00 mL	Y031908.D	Liquid	Y	NA
35	HS20030498-08	SAMP	03-20-2020 01:09 am	1.00	5.00 mL	0.00 mL	Y031909.D	Liquid	Y	NA
36	HS20030838-02	SAMP	03-20-2020 01:34 am	1.00	5.00 mL	0.00 mL	Y031910.D	Liquid	Y	NA
37	HS20030838-01	SAMP	03-20-2020 01:58 am	1.00	5.00 mL	0.00 mL	Y031911.D	Liquid	Y	NA
38	HS20030474-04	SAMP	03-20-2020 02:22 am	1.00	5.00 mL	0.00 mL	Y031912.D	Liquid	Y	NA
39	HS20030474-05	SAMP	03-20-2020 02:46 am	1.00	5.00 mL	0.00 mL	Y031913.D	Liquid	Y	NA
40	HS20030498-03	SAMP	03-20-2020 03:10 am	1.00	5.00 mL	0.00 mL	Y031914.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
41	HS20030498-03MS	MS	03-20-2020 03:34 am	1.00	5.00 mL	0.00 mL	Y031915.D	Liquid	Y	N/
42	HS20030498-03MSD	MSD	03-20-2020 03:58 am	1.00	5.00 mL	0.00 mL	Y031916.D	Liquid	Y	N/
43	HS20030498-03	SAMP	03-20-2020 04:22 am	25.00	5.00 mL	0.00 mL	Y031917.D	Liquid	Y	N/
44	HS20030474-03	SAMP	03-20-2020 04:46 am	1.00	5.00 mL	0.00 mL	Y031918.D	Liquid	Y	N/
45	HS20030474-03	SAMP	03-20-2020 05:10 am	10.00	5.00 mL	0.00 mL	Y031919.D	Liquid	Y	N/
46	HS20030474-06	SAMP	03-20-2020 05:34 am	1.00	5.00 mL	0.00 mL	Y031920.D	Liquid	Y	N/
47	HS20030474-06	SAMP	03-20-2020 05:58 am	25.00	5.00 mL	0.00 mL	Y031921.D	Liquid	Y	N/
48	HS20030498-01	SAMP	03-20-2020 06:22 am	5.00	5.00 mL	0.00 mL	Y031922.D	Liquid	Y	N/
49	HS20030498-01	SAMP	03-20-2020 06:46 am	25.00	5.00 mL	0.00 mL	Y031923.D	Liquid	Y	N/
50	HS20030498-02	SAMP	03-20-2020 07:10 am	5.00	5.00 mL	0.00 mL	Y031924.D	Liquid	Y	N/
51	HS20030498-02	SAMP	03-20-2020 07:34 am	50.00	5.00 mL	0.00 mL	Y031925.D	Liquid	Y	N/
52	HS20030474-01	SAMP	03-20-2020 07:58 am	10.00	5.00 mL	0.00 mL	Y031926.D	Liquid	Y	N/
53	HS20030474-01	SAMP	03-20-2020 08:23 am	100.0(	5.00 mL	0.00 mL	Y031927.D	Liquid	Y	N/
54	HS20030474-02	SAMP	03-20-2020 08:47 am	25.00	5.00 mL	0.00 mL	Y031928.D	Liquid	Y	N/
55	HS20030474-02	SAMP	03-20-2020 09:11 am	250.0(	5.00 mL	0.00 mL	Y031929.D	Liquid	Y	N/
56	CCV-END	CCV	03-20-2020 09:35 am	1.00	5.00 mL	0.00 mL	Y031930.D	Liquid	Y	N/

Chemical	Value
SURR SPK ID	31106-16-03
IS ID	31106-16-04
LCS/MS ID	31105-08-01
CAL STD ID	31106-20-01/02
BFB ID	31106-16-03
pH Paper	634-64-11

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT (ug/l)	% REC #	QC. LIMITS REC.
cis-1,2-Dichloroethene	50.00	49.94	100	80-120
Vinyl Chloride	50.00	46.97	94	80-120
Methylene Chloride	50.00	51.57	103	80-120
1,1-Dichloroethene	50.00	50.03	100	80-120
1,2-Dichloroethane	50.00	51.86	104	80-120
Trichloroethene	50.00	50.47	101	80-120
1,1,2-Trichloroethane	50.00	49.65	99	80-120
Dibromofluoromethane	50.00	52.34	105	80-120
1,2-Dichloroethane-d4	50.00	52.41	105	80-120
Toluene-d8	50.00	49.94	100	80-120
4-Bromofluorobenzene	50.00	50.93	102	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
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Lab File ID: X031901 DFTPP Injection Date: 03/19/20

Instrument ID: VOA6 DFTPP Injection Time: 1110

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.4
75	30.0 - 60.0% of mass 95	46.8
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	0.0 (0.0)1
174	Greater than 50.0% of mass 95	79.4
175	5.0 - 9.0% of mass 174	6.2 (7.8)1
176	95.0 - 101.0% of mass 174	77.1 (97.2)1
177	5.0 - 9.0% of mass 176	4.8 (6.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X031902	03/19/20	1134
02	VSTD000.5	VSTD000.5	X031903	03/19/20	1158
03	VSTD001	VSTD001	X031904	03/19/20	1246
04	VSTD002	VSTD002	X031905	03/19/20	1310
05	VSTD005	VSTD005	X031906	03/19/20	1334
06	VSTD020	VSTD020	X031907	03/19/20	1358
07	VSTD050	VSTD050	X031908	03/19/20	1422
08	VSTD100	VSTD100	X031909	03/19/20	1446
09	VSTD150	VSTD150	X031910	03/19/20	1510
10	VSTD200	VSTD200	X031911	03/19/20	1533
11	ICV	ICV	X031915	03/19/20	1709
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Instrument ID: VOA6 Calibration Date(s): 03/19/20 03/19/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1134 1533

LAB FILE ID: RF0.25: X031902 RF0.5: X031903 RF1: X031904
RF2: X031905 RF5: X031906 RF20: X031907

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Vinyl Chloride		1.013	0.813	0.712	0.728	0.737
Methylene Chloride		5758	6397	10725	22525	70573
1,1-Dichloroethene			0.400	0.446	0.430	0.416
1,2-Dichloroethane		0.487	0.510	0.514	0.548	0.517
Trichloroethene		0.291	0.342	0.344	0.368	0.337
cis-1,2-Dichloroethene		0.482	0.578	0.608	0.642	0.582
1,1,2-Trichloroethane		0.296	0.310	0.293	0.307	0.281
Dibromofluoromethane		1595	2958	5989	17420	61899
1,2-Dichloroethane-d4		3270	4734	9969	20720	80050
Toluene-d8		6812	11874	23746	62955	225397
4-Bromofluorobenzene		3499	8202	12385	22920	85378

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS2003049

Instrument ID: VOA6 Calibration Date(s): 03/19/20 03/19/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1134 1533

LAB FILE ID: RF50: X031908 RF100: X031909 RF150: X031910
RF200: X031911

COMPOUND	RF50	RF100	RF150	RF200
Vinyl Chloride	0.708	0.760	0.743	0.769
Methylene Chloride	162281	310528	437081	572059
1,1-Dichloroethene	0.399	0.419	0.406	0.413
1,2-Dichloroethane	0.538	0.538	0.536	0.556
Trichloroethene	0.345	0.364	0.357	0.370
cis-1,2-Dichloroethene	0.544	0.578	0.547	0.567
1,1,2-Trichloroethane	0.277	0.280	0.273	0.277
Dibromofluoromethane	149393	290125	416931	545685
1,2-Dichloroethane-d4	185105	366265	529642	688377
Toluene-d8	537269	1055270	1518049	1981187
4-Bromofluorobenzene	199192	397823	566125	739220

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS2003049

Instrument ID: VOA6 Calibration Date(s): 03/19/20 03/19/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1134 1533

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	%RSD OR R^2	MAX %RSD OR R^2
Vinyl Chloride	AVRG		0.77582348	12.182	15.000
Methylene Chloride	LINR	-3.26e-002	1.93554595	0.9993879	0.9900000
1,1-Dichloroethene	AVRG		0.41618290	3.786	15.000
1,2-Dichloroethane	AVRG		0.52719771	4.107	15.000
Trichloroethene	AVRG		0.34655152	6.956	15.000
cis-1,2-Dichloroethene	AVRG		0.56987978	7.832	15.000
1,1,2-Trichloroethane	AVRG		0.28844951	4.742	15.000
Dibromofluoromethane	LINR	-2.07e-003	2.01718202	0.9996204	0.9900000
1,2-Dichloroethane-d4	LINR	-4.7e-003	1.59780273	0.9996454	0.9900000
Toluene-d8	LINR	-1.42e-003	0.78183893	0.9999537	0.9900000
4-Bromofluorobenzene	LINR	-9.56e-003	2.09896810	0.9999078	0.9900000

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031901.D

Date : 19-MAR-2020 11:10

Client ID: BFB

Instrument: voa6.i

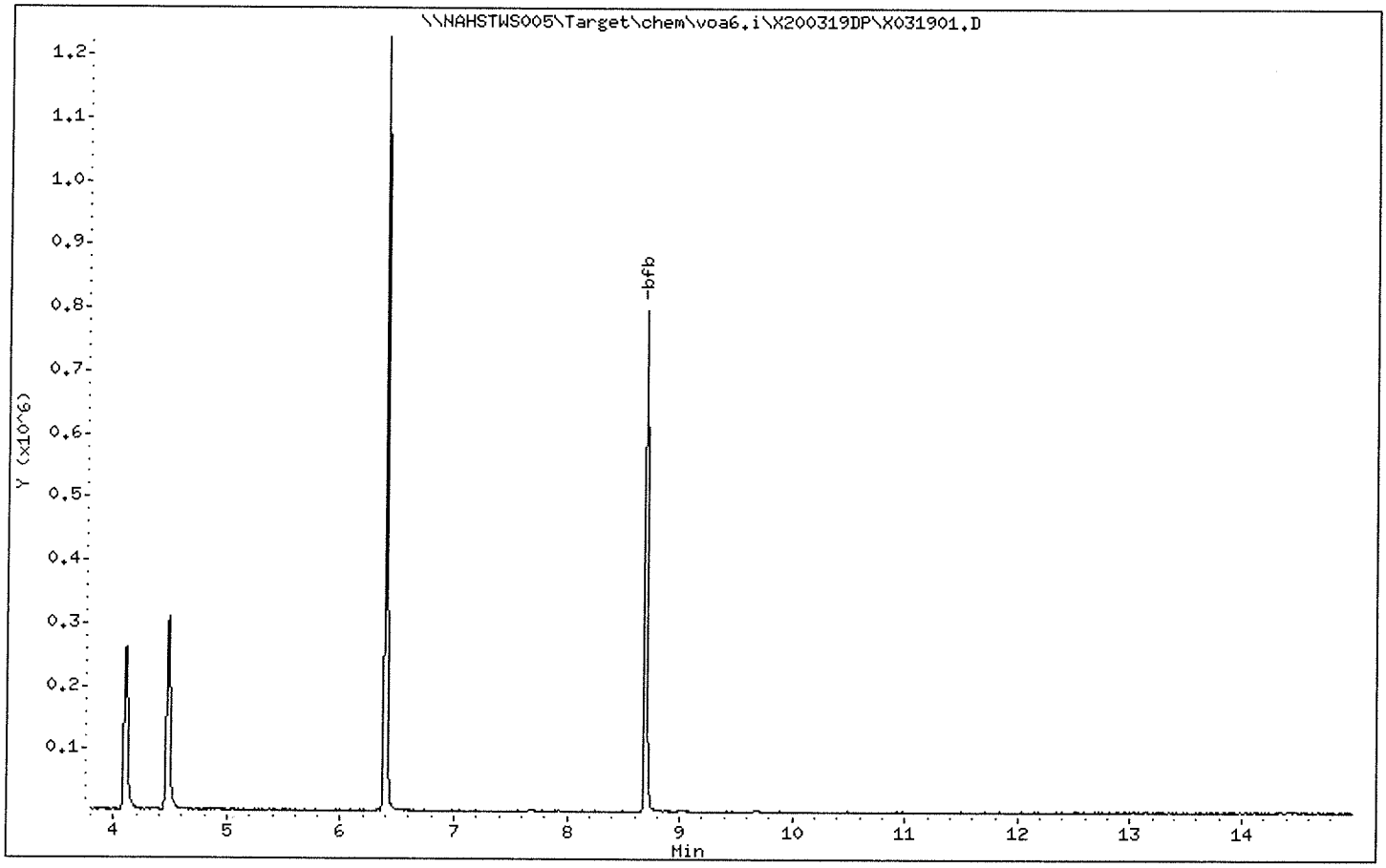
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031901.D

Date : 19-MAR-2020 11:10

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

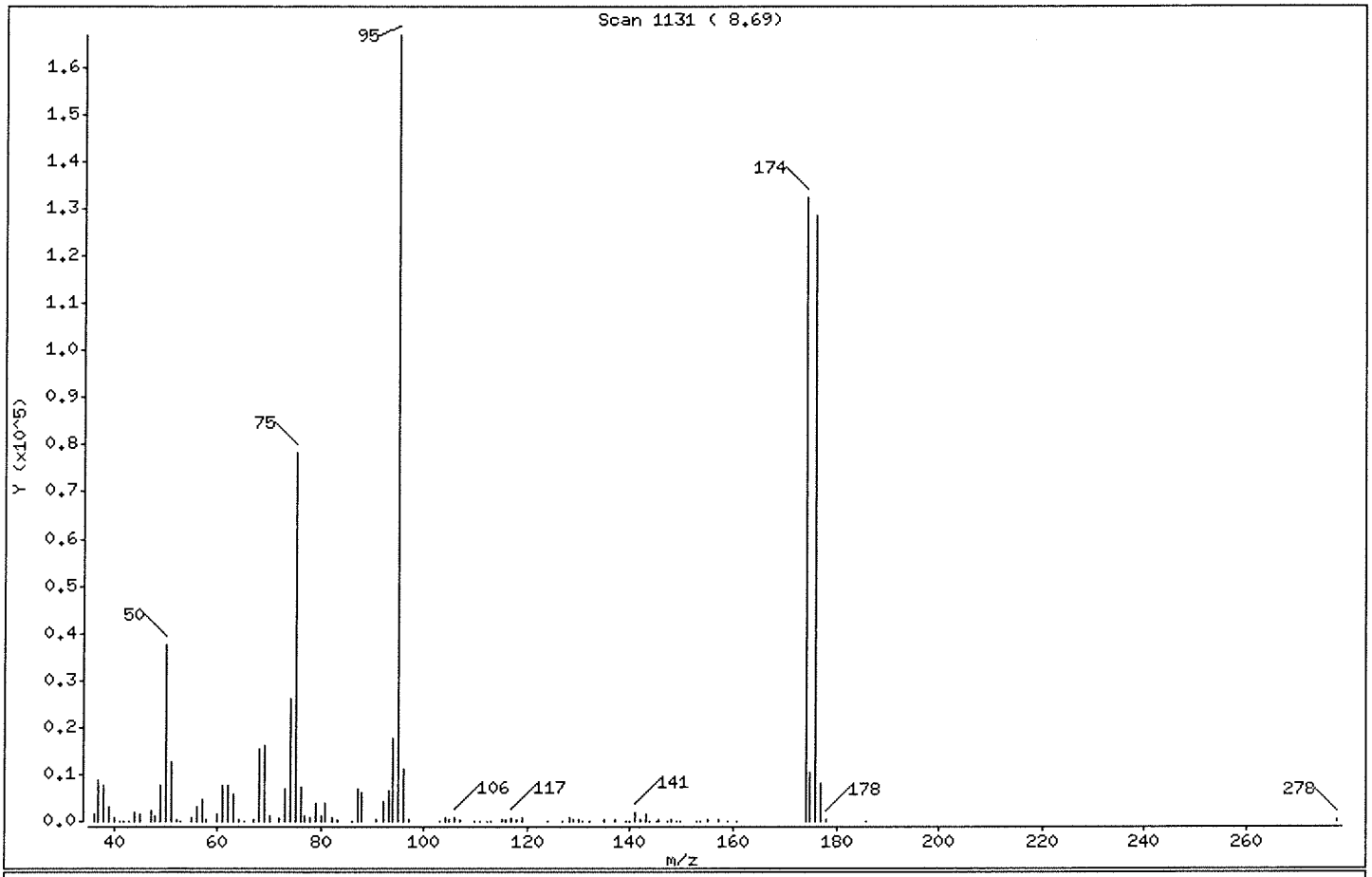
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	22.44
75	30.00 - 60.00% of mass 95	46.84
96	5.00 - 9.00% of mass 95	6.71
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	79.36
175	5.00 - 9.00% of mass 174	6.21 (7.83)
176	95.00 - 101.00% of mass 174	77.12 (97.18)
177	5.00 - 9.00% of mass 176	4.84 (6.28)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031901.D

Date : 19-MAR-2020 11:10

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: X031901.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 101

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	1360	65.00	163	97.10	263	140.90	1836
37.00	8769	67.10	353	103.20	89	142.00	192
38.00	7670	68.00	15485	104.00	727	142.90	1435
39.10	2999	69.00	16031	104.80	202	143.90	95
40.00	952	70.00	1269	105.80	737	145.10	117
41.20	93	72.00	762	106.90	217	145.60	258
41.90	78	73.00	6729	109.90	88	147.10	75
43.00	168	74.00	26176	110.90	73	148.00	387
44.00	1824	75.00	78128	112.20	62	149.10	83
45.00	1552	76.10	7370	112.80	75	149.80	76
47.00	2478	77.00	1071	115.00	259	153.00	135
47.90	1254	78.00	826	115.90	438	153.80	67
49.00	7676	79.00	3833	117.00	918	155.10	401
50.00	37424	80.00	1180	117.90	502	157.10	297
51.00	12563	80.90	3942	118.90	858	158.90	162
52.00	570	82.00	745	123.90	50	160.80	187
52.90	73	83.10	195	126.90	85	174.00	132352
55.00	621	85.90	140	128.00	809	175.00	10363
56.10	2880	87.00	6928	129.00	384	176.00	128616
57.00	4661	87.90	6204	130.00	465	177.00	8074
57.90	288	90.70	380	130.70	179	178.00	201
60.00	1638	92.00	4234	132.10	55	186.00	57
61.00	7723	93.00	6369	134.80	234	277.90	192
62.00	7841	94.00	17568	136.90	228		
63.00	5744	95.00	166784	139.00	69		
64.00	482	96.10	11193	139.90	141		

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031902.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 19-MAR-2020 11:34
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:14 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 11:34 Cal File: X031902.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

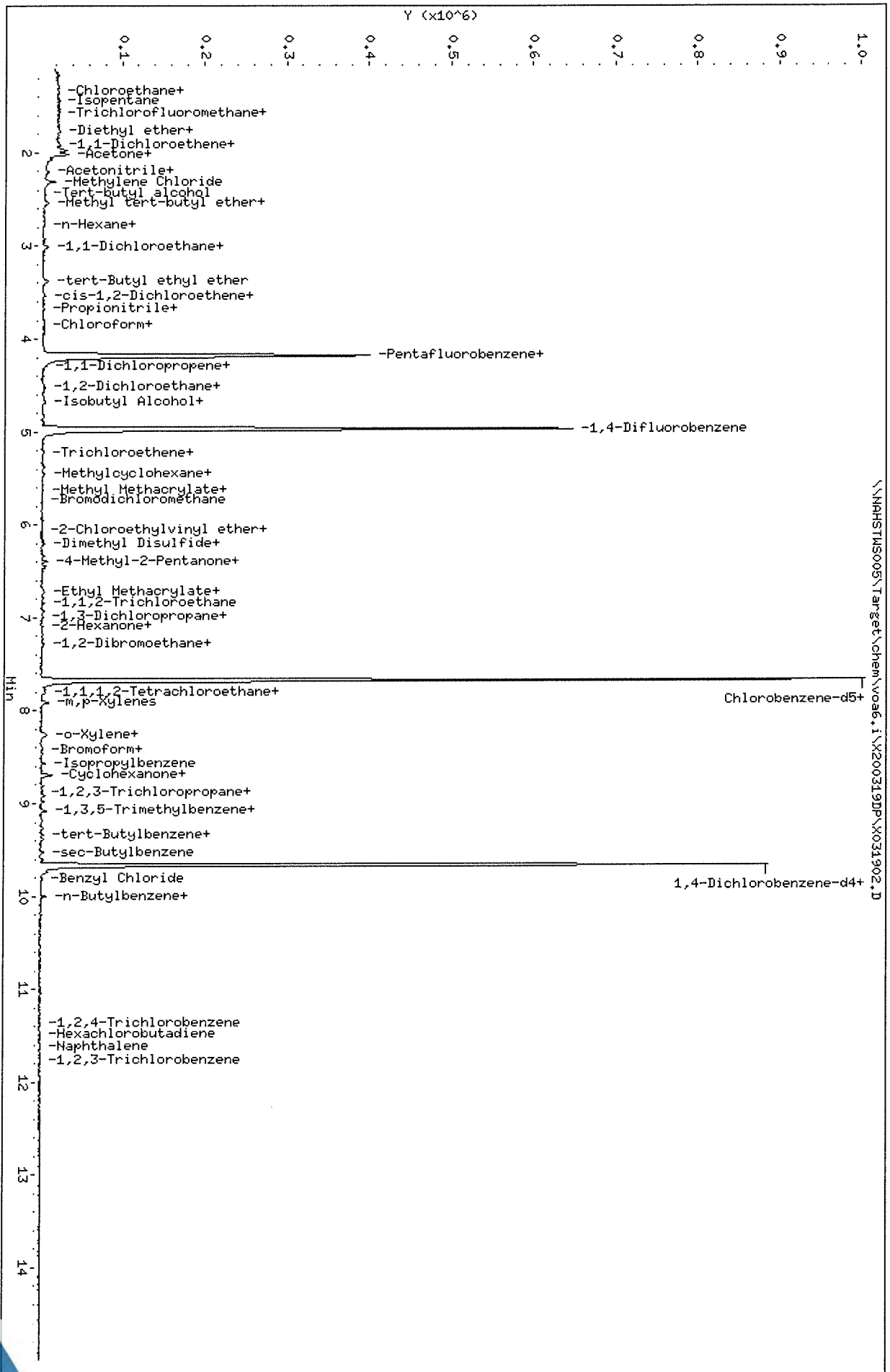
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	334865	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.983)	908	0.25000	0.16(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	1143	0.25000	0.11(Ta)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	508670	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	452074	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	4217	0.25000	0.28(Ta)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	4979	0.25000	0.66(aM)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	214709	50.0000	

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031902.D
Date : 19-MAR-2020 11:34
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031903.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 19-MAR-2020 11:58
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:14 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 11:34 Cal File: X031902.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	332459	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	1595	0.50000	0.37(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	2909	0.50000	0.54(TaM)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	503603	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	451366	50.0000	
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	6812	0.50000	0.51(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3499	0.50000	0.32(a)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	220941	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	2946	0.50000	0.58(aM)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	1608	0.50000	0.57(aM)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	1337	0.50000	0.51(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031903.D
Date : 19-MAR-2020 11:58
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

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031904.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 19-MAR-2020 12:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:14 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 11:58 Cal File: X031903.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	323740	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	3028	1.00000	0.83(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4838	1.00000	1.03(a)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	494081	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	442403	50.0000	
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	12359	1.00000	1.01(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	8202	1.00000	1.45(a)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	218790	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	5267	1.00000.	1.06(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	2593	1.00000	0.94(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	3714	1.00000	1.00(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	5041	1.00000	0.96(a)
38 Trichloroethene	130	5.206	5.206	(1.048)	3378	1.00000	0.98(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	2724	1.00000	1.06(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031904.D
Date : 19-MAR-2020 12:46
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

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031905.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 19-MAR-2020 13:10
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:15 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 12:46 Cal File: X031904.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

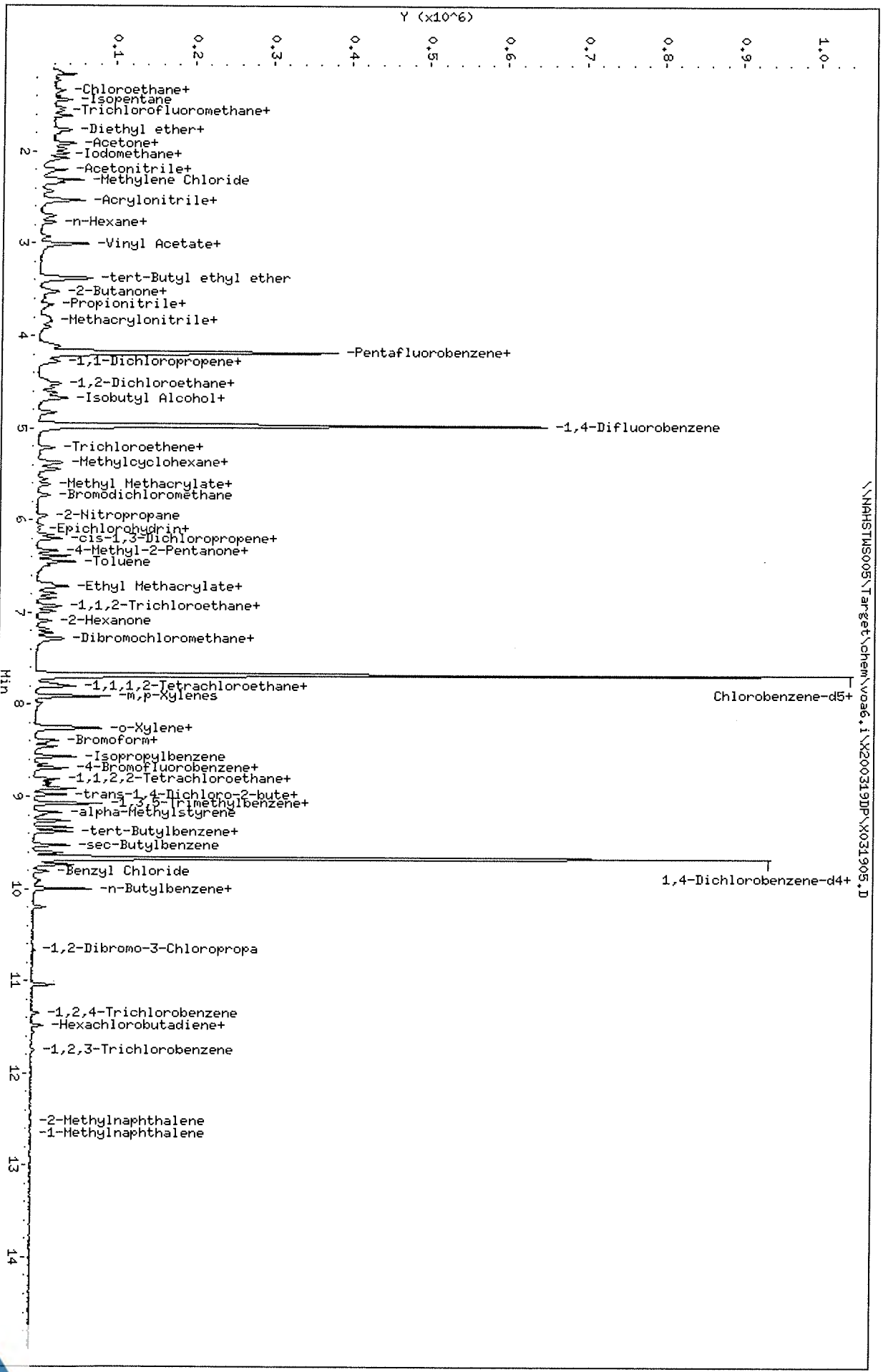
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	317561	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	5989	2.00000	1.79(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	8567	2.00000	1.99(aM)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	498211	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	449226	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	23746	2.00000	1.99(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	12385	2.00000	2.40(a)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	221564	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	9040	2.00000	1.86(a)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	5662	2.00000	2.10(a)
17 Methylene Chloride	84	2.305	2.305	(0.551)	9972	2.00000	1.61(aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	7730	2.00000	2.13(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	10240	2.00000	1.94(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	6853	2.00000	1.98(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	5273	2.00000	2.03(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031905.D
Date : 19-MAR-2020 13:10
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

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031906.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 19-MAR-2020 13:34
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:15 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 13:10 Cal File: X031905.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

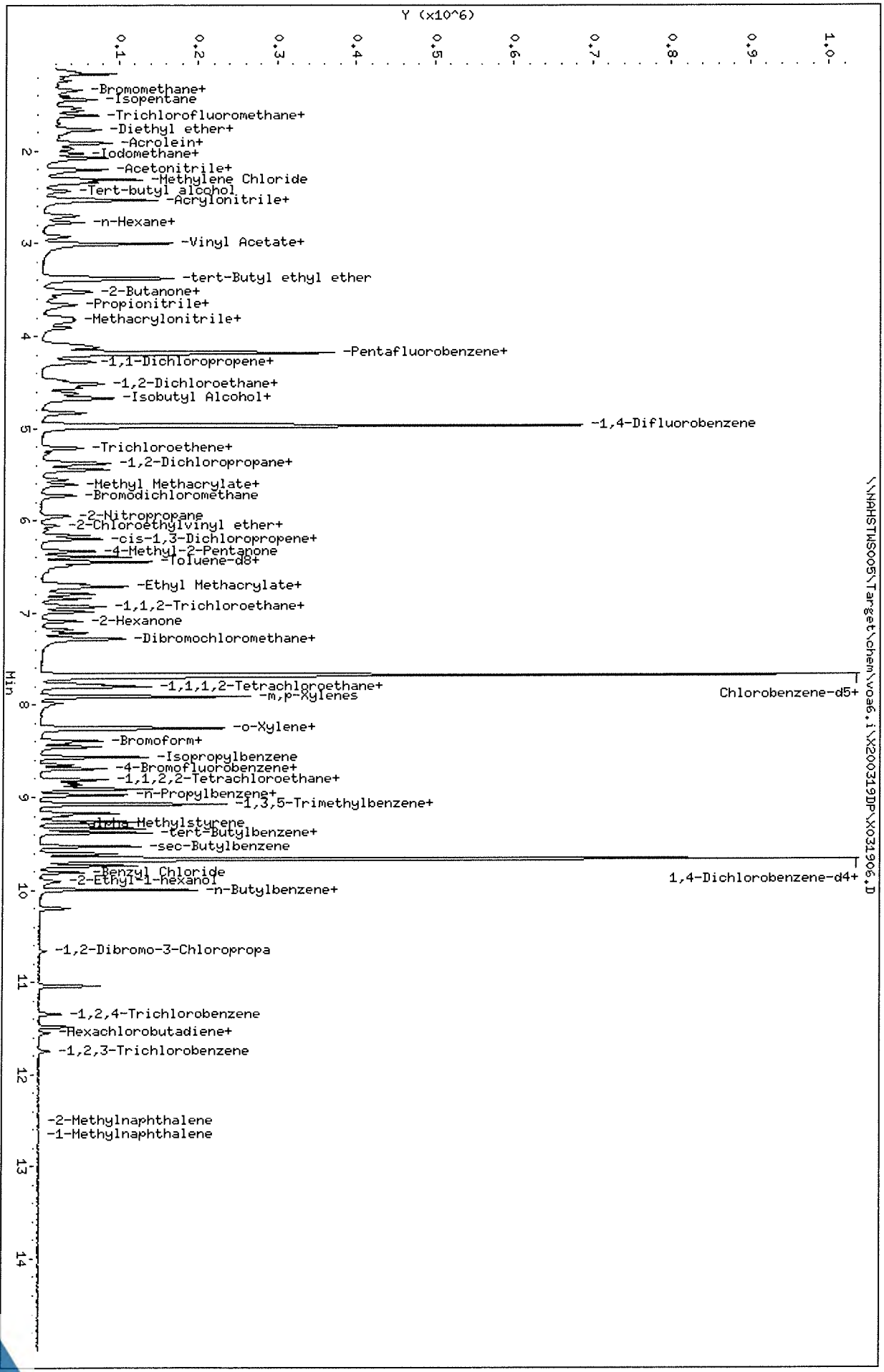
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	309553	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	17420	5.00000	5.56
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	20720	5.00000	5.18
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	486956	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	441541	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	62955	5.00000	5.49
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	22920	5.00000	4.95(a)
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	225770	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	22527	5.00000	4.77(a)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	13314	5.00000	5.07
17 Methylene Chloride	84	2.306	2.306	(0.551)	22460	5.00000	5.59(M)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	19888	5.00000	5.64
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	26678	5.00000	5.18
38 Trichloroethene	130	5.214	5.214	(1.049)	17942	5.00000	5.31
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	13550	5.00000	5.32

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031906.D
Date : 19-MAR-2020 13:34
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031907.D Page 1
Report Date: 14-Apr-2020 12:15

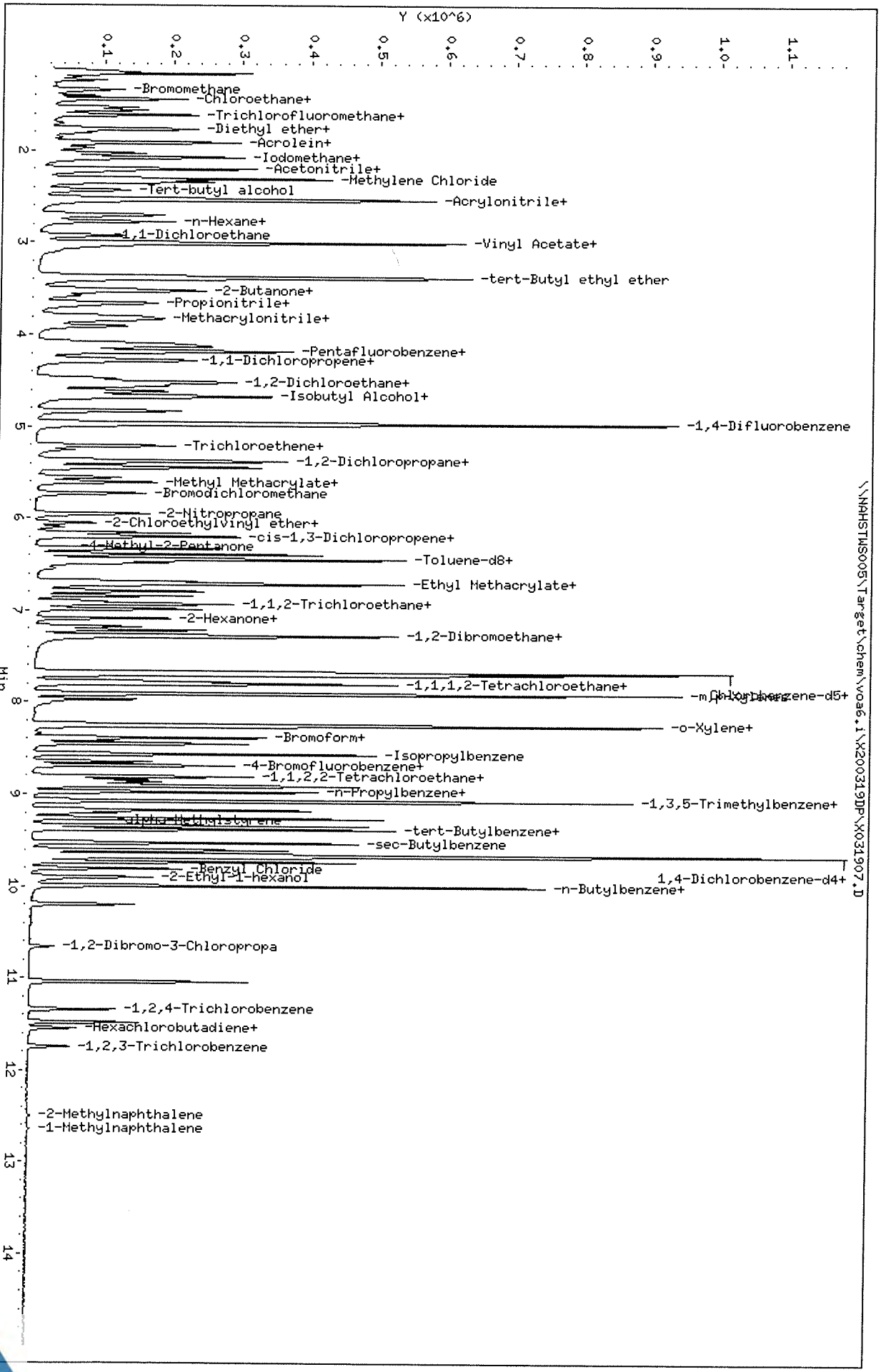
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031907.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 19-MAR-2020 13:58
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:15 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 13:34 Cal File: X031906.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	299061	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	61899	20.0000	20.76
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	80050	20.0000	21.21
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	480908	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	433129	50.0000	
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	225397	20.0000	20.27
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	85378	20.0000	20.19
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	213879	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	88179	20.0000	19.35
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	49791	20.0000	19.64
17 Methylene Chloride	84	2.306	2.306	(0.551)	70573	20.0000	21.38
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	69663	20.0000	20.45
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	99484	20.0000	19.58
38 Trichloroethene	130	5.207	5.207	(1.048)	64841	20.0000	19.45
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	48758	20.0000	19.53



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031907.D
Date : 19-MAR-2020 13:58
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

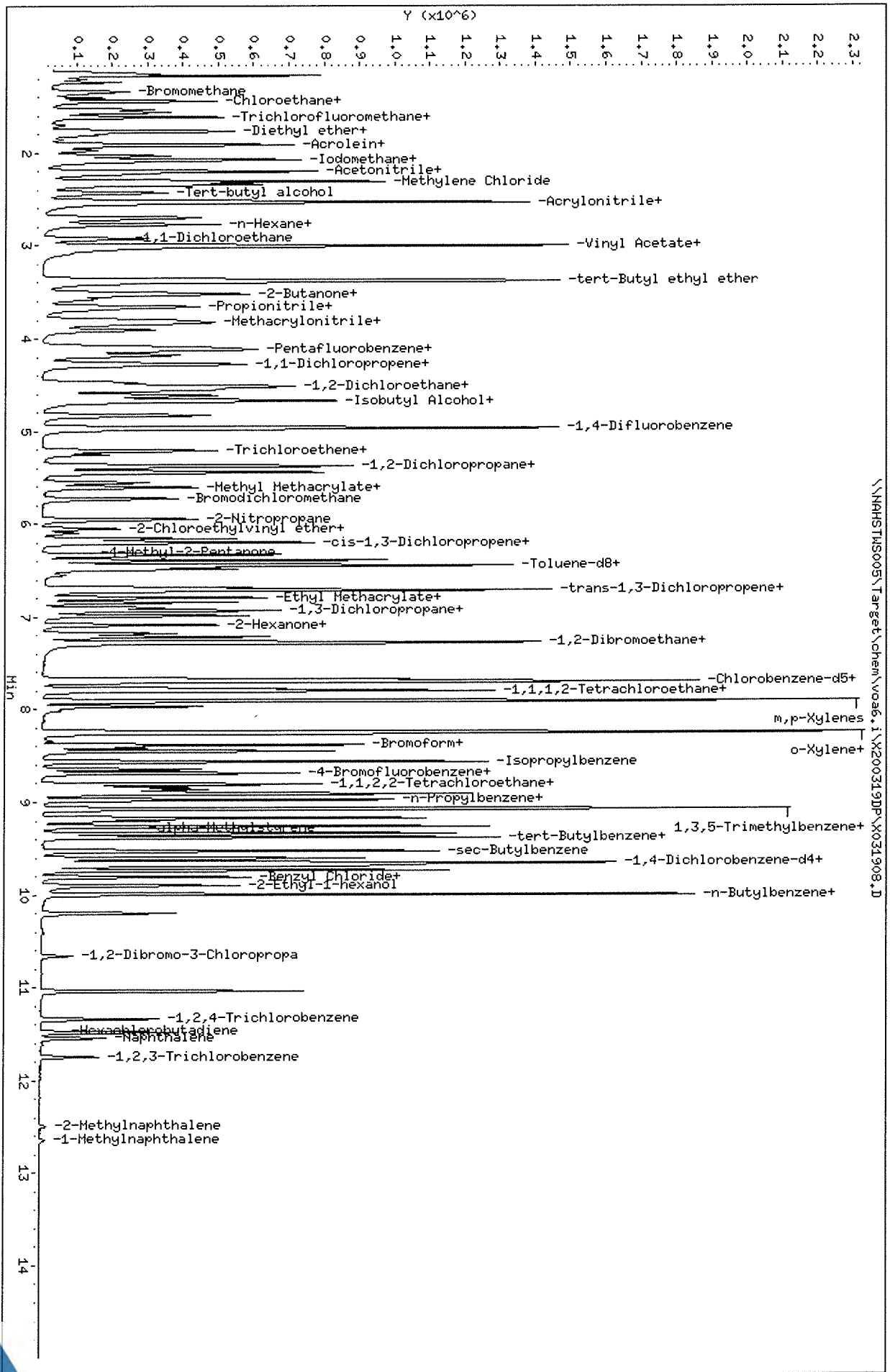
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031908.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 19-MAR-2020 14:22
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:15 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 13:58 Cal File: X031907.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	308394	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	149393	50.0000	48.75
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	185105	50.0000	47.76
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	463946	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	424365	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	537213	50.0000	49.41
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	199673	50.0000	48.88
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	211624	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	218403	50.0000	46.48
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	123020	50.0000	47.07
17 Methylene Chloride	84	2.305	2.305	(0.551)	162281	50.0000	49.43
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	167789	50.0000	47.77
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	249570	50.0000	50.91
38 Trichloroethene	130	5.206	5.206	(1.048)	160161	50.0000	49.80
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	117355	50.0000	47.99



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031908.D
Date : 19-MAR-2020 14:22
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

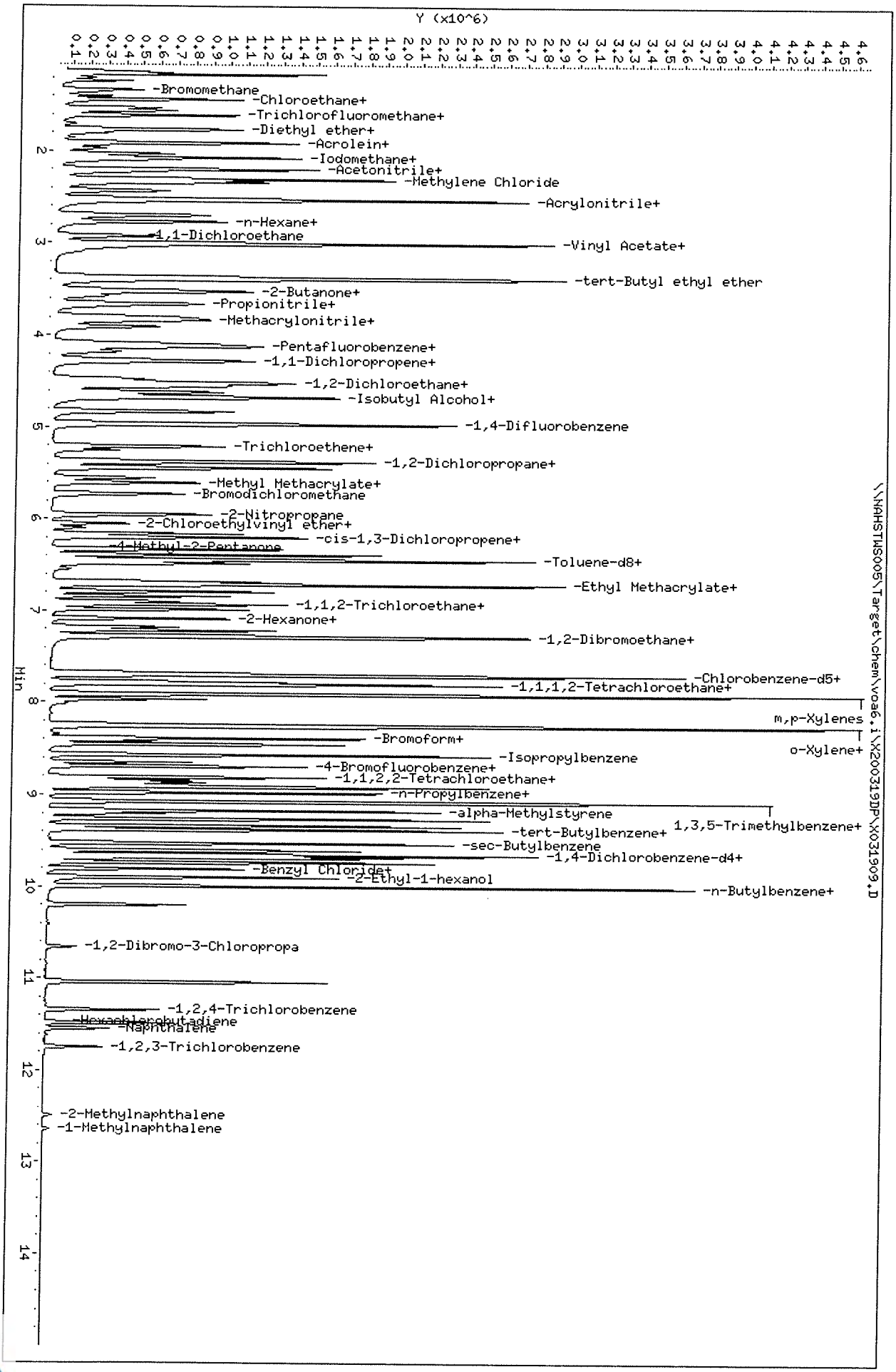
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031909.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 19-MAR-2020 14:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:15 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	286614	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	290125	100.000	101.98
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	366265	100.000	101.87
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	439703	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	412807	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1054666	100.000	99.81
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	397823	100.000	100.64
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	202255	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	435381	100.000	99.70
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	240131	100.000	98.87
17 Methylene Chloride	84	2.305	2.305	(0.551)	310528	100.000	103.27
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	331114	100.000	101.44
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	481696	100.000	103.69
38 Trichloroethene	130	5.206	5.206	(1.048)	320532	100.000	105.17
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	230846	100.000	97.06



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031909.D
Date : 19-MAR-2020 14:46
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

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031910.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 19-MAR-2020 15:10
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:15 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:46 Cal File: X031909.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	285712	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	416931	150.000	147.07
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	529642	150.000	147.86
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	430514	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	397694	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1518049	150.000	149.15
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	566125	150.000	148.90
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	198118	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	636695	150.000	146.27
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	347727	150.000	143.62
17 Methylene Chloride	84	2.306	2.306	(0.551)	437081	150.000	146.41
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	468820	150.000	144.08
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	692218	150.000	152.19
38 Trichloroethene	130	5.207	5.207	(1.048)	461294	150.000	154.59
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	326278	150.000	142.40

01094364

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031910.D

Date : 19-MAR-2020 15:10

Client ID: VSTD150

Instrument: voa6.i

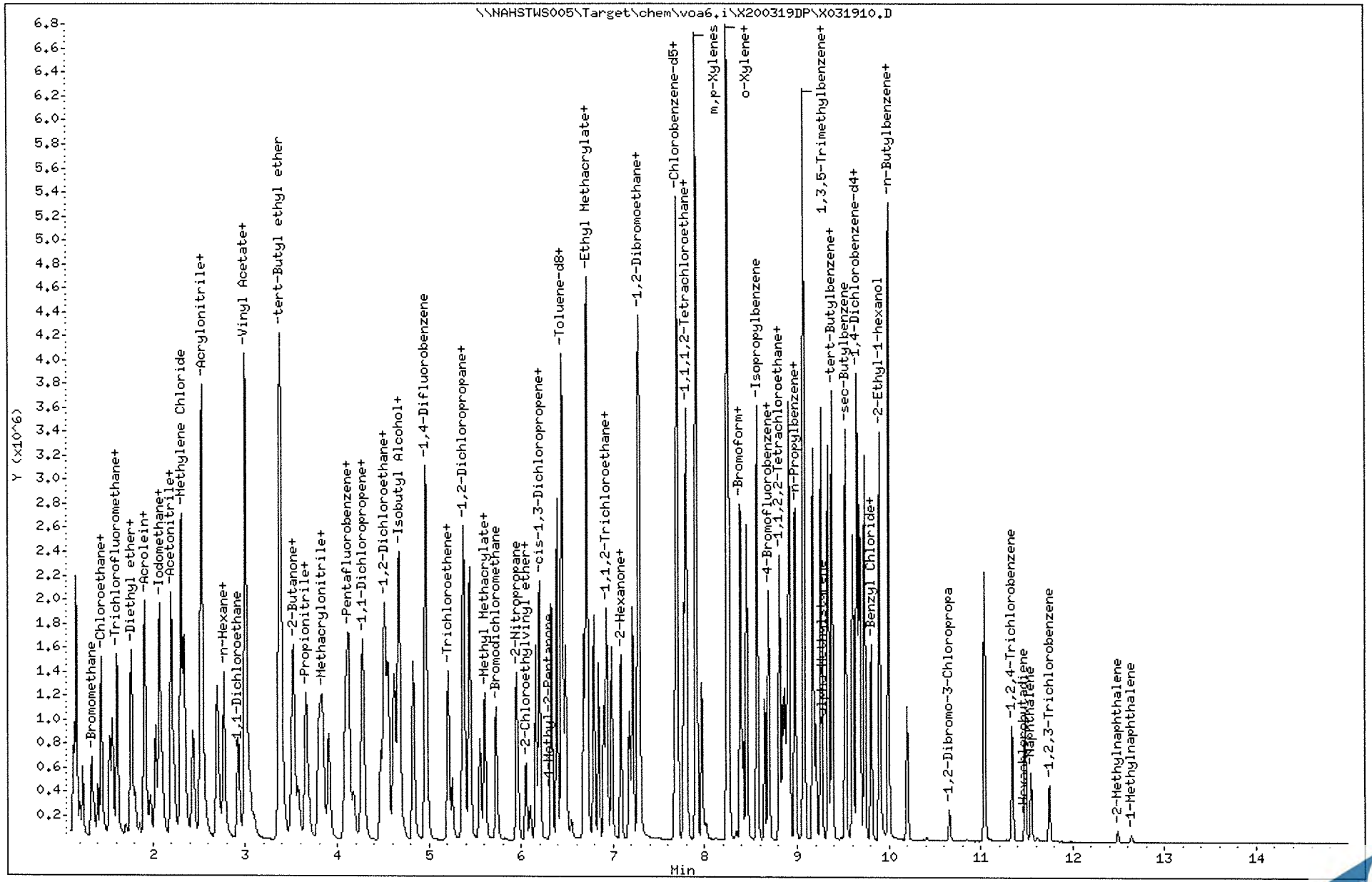
Sample Info: VSTD150;VSTD150;1;9;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031911.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 19-MAR-2020 15:33
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:15 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:10 Cal File: X031910.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

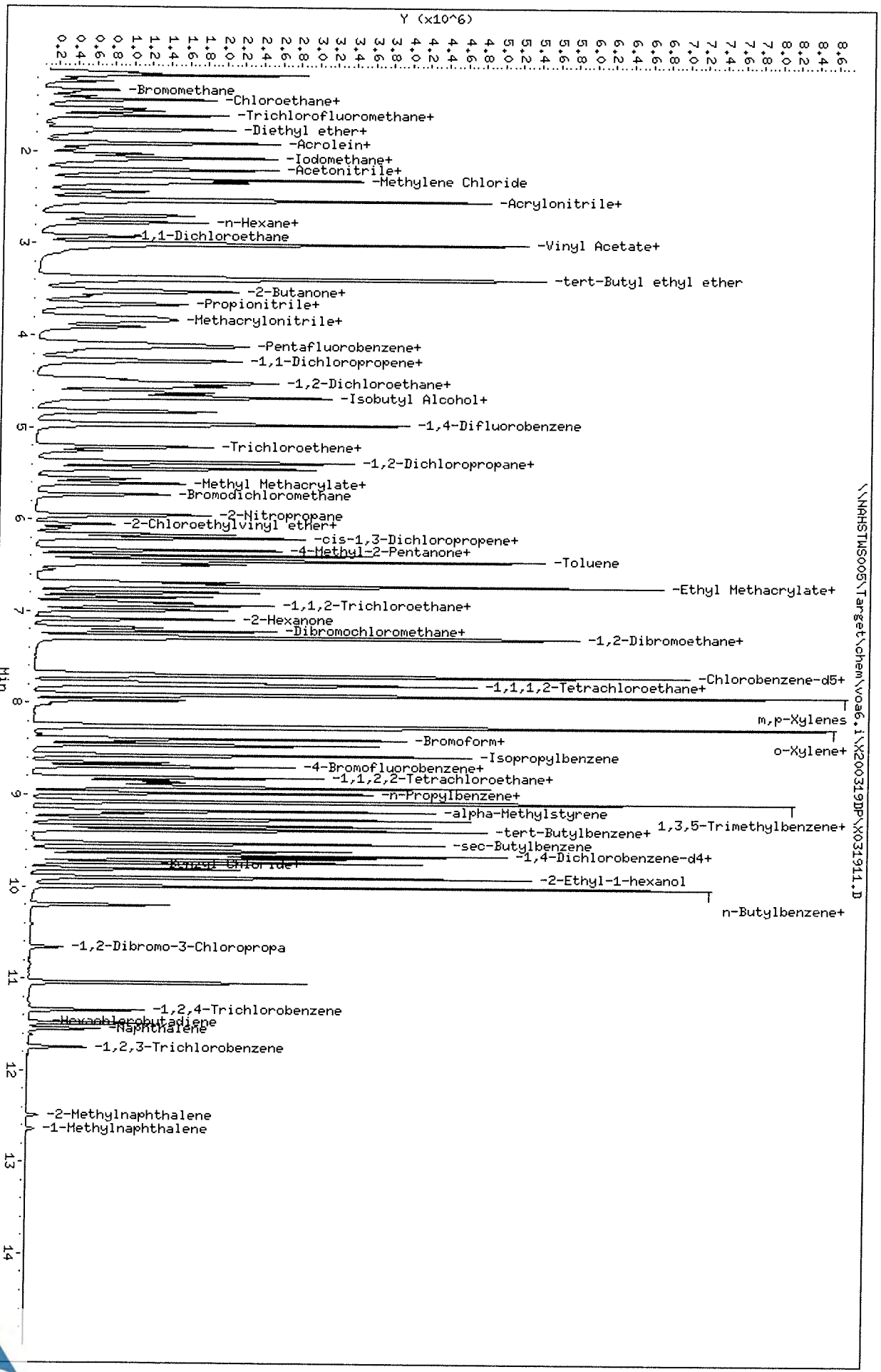
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	273221	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	545685	200.000	201.33(A)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	688377	200.000	201.01(A)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	408332	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	385556	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1981187	200.000	200.82(A)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	739220	200.000	200.72(A)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	190770	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	840563	200.000	201.93(A)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	451814	200.000	195.15
17 Methylene Chloride	84	2.305	2.305	(0.551)	572059	200.000	200.90(A)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	619486	200.000	199.09
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	908572	200.000	210.61(A)
38 Trichloroethene	130	5.207	5.207	(1.048)	603965	200.000	213.40(A)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	427427	200.000	192.42

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031911.D
Date : 19-MAR-2020 15:33
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

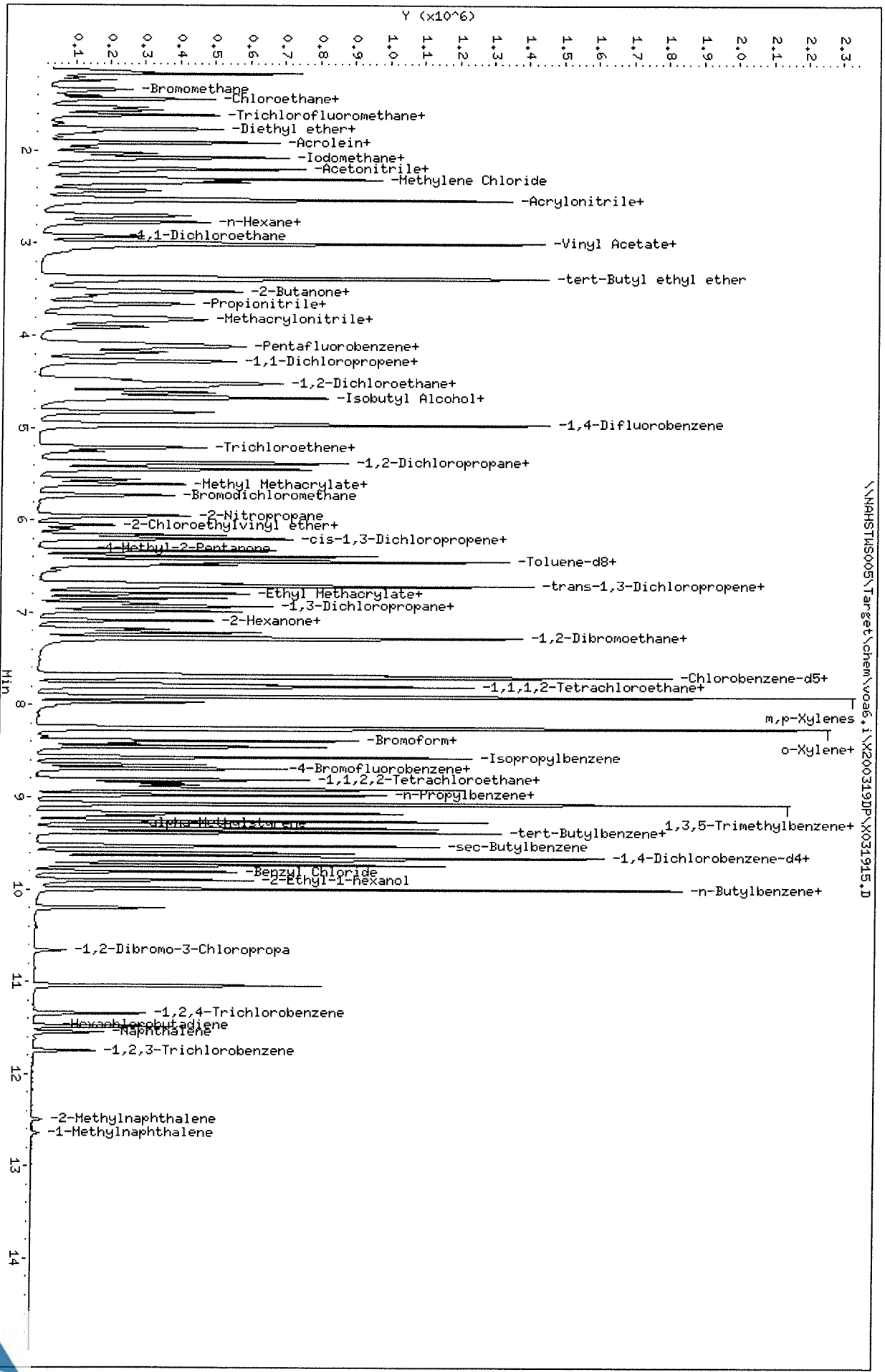
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\X031915.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 19-MAR-2020 17:09
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319DP\8260W.m
Meth Date : 14-Apr-2020 12:15 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 16 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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	4.182	4.182	(1.000)	286433	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	148947	52.3413	52.34
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	188752	52.4596	52.45
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	444859	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	412876	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	528266	49.9474	49.94
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	201904	50.8305	50.83
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	209059	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	208794	47.8466	47.84
11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	119289	49.1482	49.14
17 Methylene Chloride	84	2.305	2.305	(0.551)	157492	51.7167	51.71
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	163069	49.9916	49.99
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	243287	51.7645	51.76
38 Trichloroethene	130	5.206	5.207	(1.048)	155631	50.4744	50.47
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	118115	49.6548	49.65



Data File: \\NAHSTWS005\Target\chem\voa6,i\X200319DP\X031915.D
Date : 19-MAR-2020 17:09
Client ID: ICV
Sample Info: CCV;CCV;2;;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

MSVOA06 -Logbook

Batch: 40066
Date: 03-19-2020
Method: 8260_W
Comments:

Analyst: Devak Giga
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	03-19-2020 11:10 am	1.00	0.00 mL	0.00 mL	X031901.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	03-19-2020 11:34 am	1.00	5.00 mL	0.00 mL	X031902.D	Liquid	Y	NA
3	VSTD000.5	ICAL2	03-19-2020 11:58 am	1.00	5.00 mL	0.00 mL	X031903.D	Liquid	Y	NA
4	VSTD001	ICAL3	03-19-2020 12:46 pm	1.00	5.00 mL	0.00 mL	X031904.D	Liquid	Y	NA
5	VSTD002	ICAL4	03-19-2020 01:10 pm	1.00	5.00 mL	0.00 mL	X031905.D	Liquid	Y	NA
6	VSTD005	ICAL5	03-19-2020 01:34 pm	1.00	5.00 mL	0.00 mL	X031906.D	Liquid	Y	NA
7	VSTD020	ICAL6	03-19-2020 01:58 pm	1.00	5.00 mL	0.00 mL	X031907.D	Liquid	Y	NA
8	VSTD050	ICAL7	03-19-2020 02:22 pm	1.00	5.00 mL	0.00 mL	X031908.D	Liquid	Y	NA
9	VSTD100	ICAL8	03-19-2020 02:46 pm	1.00	5.00 mL	0.00 mL	X031909.D	Liquid	Y	NA
10	VSTD150	ICAL9	03-19-2020 03:10 pm	1.00	5.00 mL	0.00 mL	X031910.D	Liquid	Y	NA
11	VSTD200	ICAL	03-19-2020 03:33 pm	1.00	5.00 mL	0.00 mL	X031911.D	Liquid	Y	NA
12	BLANK	SAMP	03-19-2020 03:58 pm	1.00	5.00 mL	0.00 mL	X031912.D	Liquid	Y	NA
13	BLANK	SAMP	03-19-2020 04:22 pm	1.00	5.00 mL	0.00 mL	X031913.D	Liquid	Y	NA
14	BLANK	SAMP	03-19-2020 04:46 pm	1.00	5.00 mL	0.00 mL	X031914.D	Liquid	Y	NA
15	ICV	ICV	03-19-2020 05:09 pm	1.00	5.00 mL	0.00 mL	X031915.D	Liquid	Y	NA
16	BLANK	SAMP	03-19-2020 05:33 pm	1.00	5.00 mL	0.00 mL	X031916.D	Liquid	Y	NA
17	VLCSW-200319	LCS	03-19-2020 05:57 pm	1.00	5.00 mL	0.00 mL	X031917.D	Liquid	Y	NA
18	VLCSDW-200319	LCSD	03-19-2020 06:21 pm	1.00	5.00 mL	0.00 mL	X031918.D	Liquid	Y	NA
19	BLANK	SAMP	03-19-2020 06:45 pm	1.00	5.00 mL	0.00 mL	X031919.D	Liquid	Y	NA
20	BLANK	SAMP	03-19-2020 07:10 pm	1.00	5.00 mL	0.00 mL	X031920.D	Liquid	Y	NA
21	VBLKW1-200319	MBLK	03-19-2020 07:34 pm	1.00	5.00 mL	0.00 mL	X031921.D	Liquid	Y	NA
22	VBLKW2-200319	MBLK	03-19-2020 07:58 pm	1.00	5.00 mL	0.00 mL	X031922.D	Liquid	Y	NA
23	VBLKW3-200319	MBLK	03-19-2020 08:22 pm	1.00	5.00 mL	0.00 mL	X031923.D	Liquid	Y	NA
24	HS20021070-01	SAMP	03-19-2020 08:46 pm	1.00	5.00 mL	0.00 mL	X031924.D	Liquid	Y	NA
25	HS20021070-02	SAMP	03-19-2020 09:10 pm	1.00	5.00 mL	0.00 mL	X031925.D	Liquid	Y	NA
26	HS20021070-03	SAMP	03-19-2020 09:33 pm	1.00	5.00 mL	0.00 mL	X031926.D	Liquid	Y	NA
27	BFB	TUNE	03-19-2020 09:57 pm	1.00	0.00 mL	0.00 mL	Y031901.D	Liquid	Y	NA
	Auto find/ purged									
28	CCV	CCV	03-19-2020 10:21 pm	1.00	5.00 mL	0.00 mL	Y031902a.D	Liquid	Y	NA
29	CCV	CCV	03-19-2020 10:45 pm	1.00	5.00 mL	0.00 mL	Y031903.D	Liquid	Y	NA
30	CCB	SAMP	03-19-2020 11:09 pm	1.00	5.00 mL	0.00 mL	Y031904.D	Liquid	Y	NA
31	VLCSW-200319	LCS	03-19-2020 11:33 pm	1.00	5.00 mL	0.00 mL	Y031905.D	Liquid	Y	NA
32	BLANK	SAMP	03-19-2020 11:57 pm	1.00	5.00 mL	0.00 mL	Y031906.D	Liquid	Y	NA
33	VBLKW1-200319	MBLK	03-20-2020 12:21 am	1.00	5.00 mL	0.00 mL	Y031907.D	Liquid	Y	NA
34	HS20030474-07	SAMP	03-20-2020 12:45 am	1.00	5.00 mL	0.00 mL	Y031908.D	Liquid	Y	NA
35	HS20030498-08	SAMP	03-20-2020 01:09 am	1.00	5.00 mL	0.00 mL	Y031909.D	Liquid	Y	NA
36	HS20030838-02	SAMP	03-20-2020 01:34 am	1.00	5.00 mL	0.00 mL	Y031910.D	Liquid	Y	NA
37	HS20030838-01	SAMP	03-20-2020 01:58 am	1.00	5.00 mL	0.00 mL	Y031911.D	Liquid	Y	NA
38	HS20030474-04	SAMP	03-20-2020 02:22 am	1.00	5.00 mL	0.00 mL	Y031912.D	Liquid	Y	NA
39	HS20030474-05	SAMP	03-20-2020 02:46 am	1.00	5.00 mL	0.00 mL	Y031913.D	Liquid	Y	NA
40	HS20030498-03	SAMP	03-20-2020 03:10 am	1.00	5.00 mL	0.00 mL	Y031914.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
41	HS20030498-03MS	MS	03-20-2020 03:34 am	1.00	5.00 mL	0.00 mL	Y031915.D	Liquid	Y	NA
42	HS20030498-03MSD	MSD	03-20-2020 03:58 am	1.00	5.00 mL	0.00 mL	Y031916.D	Liquid	Y	NA
43	HS20030498-03	SAMP	03-20-2020 04:22 am	25.00	5.00 mL	0.00 mL	Y031917.D	Liquid	Y	NA
44	HS20030474-03	SAMP	03-20-2020 04:46 am	1.00	5.00 mL	0.00 mL	Y031918.D	Liquid	Y	NA
45	HS20030474-03	SAMP	03-20-2020 05:10 am	10.00	5.00 mL	0.00 mL	Y031919.D	Liquid	Y	NA
46	HS20030474-06	SAMP	03-20-2020 05:34 am	1.00	5.00 mL	0.00 mL	Y031920.D	Liquid	Y	NA
47	HS20030474-06	SAMP	03-20-2020 05:58 am	25.00	5.00 mL	0.00 mL	Y031921.D	Liquid	Y	NA
48	HS20030498-01	SAMP	03-20-2020 06:22 am	5.00	5.00 mL	0.00 mL	Y031922.D	Liquid	Y	NA
49	HS20030498-01	SAMP	03-20-2020 06:46 am	25.00	5.00 mL	0.00 mL	Y031923.D	Liquid	Y	NA
50	HS20030498-02	SAMP	03-20-2020 07:10 am	5.00	5.00 mL	0.00 mL	Y031924.D	Liquid	Y	NA
51	HS20030498-02	SAMP	03-20-2020 07:34 am	50.00	5.00 mL	0.00 mL	Y031925.D	Liquid	Y	NA
52	HS20030474-01	SAMP	03-20-2020 07:58 am	10.00	5.00 mL	0.00 mL	Y031926.D	Liquid	Y	NA
53	HS20030474-01	SAMP	03-20-2020 08:23 am	100.0(	5.00 mL	0.00 mL	Y031927.D	Liquid	Y	NA
54	HS20030474-02	SAMP	03-20-2020 08:47 am	25.00	5.00 mL	0.00 mL	Y031928.D	Liquid	Y	NA
55	HS20030474-02	SAMP	03-20-2020 09:11 am	250.0(	5.00 mL	0.00 mL	Y031929.D	Liquid	Y	NA
56	CCV-END	CCV	03-20-2020 09:35 am	1.00	5.00 mL	0.00 mL	Y031930.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-16-03
IS ID	31106-16-04
LCS/MS ID	31105-08-01
CAL STD ID	31106-20-01/02
BFB ID	31106-16-03
pH Paper	634-64-11

FORM 2
WATER VOLATILE SURROGATE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

	CLIENT SAMPLE NO.	S1 #	S2 (DCE)#	S3 (TOL)#	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	CCB	94	90	106	94					0
02	VLCSW-200319	106	106	104	105					0
03	VBLKW1-20031	94	90	105	98					0
04	HS20030498-0	94	91	107	96					0
05	HS20030498-0	94	91	104	99					0
06	HS20030498-0	94	92	102	99					0
07	HS20030498-0	94	93	103	98					0
08	HS20030498-0	93	90	105	99					0
09	HS20030498-0	93	90	105	97					0
10	HS20030498-0	96	92	107	96					0
11	HS20030498-0	94	90	104	97					0
12	HS20030498-0	95	91	106	95					0
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										

		QC LIMITS
S1	= Dibromofluoromethane	(70-130)
S2 (DCE)	= 1,2-Dichloroethane-d4	(70-130)
S3 (TOL)	= Toluene-d8	(70-130)
S4	= 4-Bromofluorobenzene	(70-130)

\# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW1-200319

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Lab File ID: Y031907 Lab Sample ID: VBLKW1-200319

Instrument ID: VOA6 Date Extracted:

Matrix: (soil/water) WATER Date Analyzed: 03/20/20

Level: (low/med) LOW Time Analyzed: 0021

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	CCB	CCB	Y031904	03/19/20
02	VLCSW-200319	VLCSW-200319	Y031905	03/19/20
03	HS20030498-0	HS20030498-08	Y031909	03/20/20
04	HS20030498-0	HS20030498-03	Y031914	03/20/20
05	HS20030498-0	HS20030498-03M	Y031915	03/20/20
06	HS20030498-0	HS20030498-03M	Y031916	03/20/20
07	HS20030498-0	HS20030498-03	Y031917	03/20/20
08	HS20030498-0	HS20030498-01	Y031922	03/20/20
09	HS20030498-0	HS20030498-01	Y031923	03/20/20
10	HS20030498-0	HS20030498-02	Y031924	03/20/20
11	HS20030498-0	HS20030498-02	Y031925	03/20/20
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Lab File ID: Y031901 DFTPP Injection Date: 03/19/20

Instrument ID: VOA6 DFTPP Injection Time: 2157

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.8
75	30.0 - 60.0% of mass 95	48.4
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	0.7 (0.9)1
174	Greater than 50.0% of mass 95	77.4
175	5.0 - 9.0% of mass 174	5.9 (7.7)1
176	95.0 - 101.0% of mass 174	74.6 (96.4)1
177	5.0 - 9.0% of mass 176	4.9 (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	CCV	CCV	Y031903	03/19/20	2245
02	CCB	CCB	Y031904	03/19/20	2309
03	VLCSW-200319	VLCSW-200319	Y031905	03/19/20	2333
04	VBLKW1-20031	VBLKW1-200319	Y031907	03/20/20	0021
05	HS20030498-0	HS20030498-08	Y031909	03/20/20	0109
06	HS20030498-0	HS20030498-03	Y031914	03/20/20	0310
07	HS20030498-0	HS20030498-03M	Y031915	03/20/20	0334
08	HS20030498-0	HS20030498-03M	Y031916	03/20/20	0358
09	HS20030498-0	HS20030498-03	Y031917	03/20/20	0422
10	HS20030498-0	HS20030498-01	Y031922	03/20/20	0622
11	HS20030498-0	HS20030498-01	Y031923	03/20/20	0646
12	HS20030498-0	HS20030498-02	Y031924	03/20/20	0710
13	HS20030498-0	HS20030498-02	Y031925	03/20/20	0734
14	CCV-END	CCV-END	Y031930	03/20/20	0935
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Instrument ID: VOA6 Calibration Date: 03/19/20 Time: 2245

Lab File ID: Y031903 Init. Calib. Date(s): 03/19/20 03/19/20

Init. Calib. Times: 1134 1533

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
Vinyl Chloride	0.7620000	0.7339745	0.7339745	0.1	3.68	20.00	AVRG
1,1-Dichloroethene	0.4240000	0.4106878	0.4106878	0.1	3.14	20.00	AVRG
Methylene Chloride	51.757329	50.000000	0.5502588	0.1	-3.51	20.00	LINR
cis-1,2-Dichloroethene	0.5690000	0.5771146	0.5771146	0.1	-1.43	20.00	AVRG
1,2-Dichloroethane	0.5280000	0.5314493	0.5314493	0.1	-0.65	20.00	AVRG
Trichloroethene	0.3460000	0.3483190	0.3483190	0.2	-0.67	20.00	AVRG
1,1,2-Trichloroethane	0.2880000	0.2755621	0.2755621	0.1	4.32	20.00	AVRG
Dibromofluoromethane	50.941103	50.000000	0.5061243	0.1	-1.88	20.00	LINR
1,2-Dichloroethane-d4	50.431890	50.000000	0.6335794	0.1	-0.86	20.00	LINR
Toluene-d8	48.687499	50.000000	1.2472538	0.1	2.62	20.00	LINR
4-Bromofluorobenzene	48.521641	50.000000	0.4670196	0.1	2.96	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Instrument ID: VOA6 Calibration Date: 03/20/20 Time: 0935

Lab File ID: Y031930 Init. Calib. Date(s): 03/19/20 03/19/20

Init. Calib. Times: 1134 1533

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
Vinyl Chloride	0.7620000	0.7339745	0.7339745	0.1	3.68	20.00	AVRG
1,1-Dichloroethene	0.4240000	0.4106878	0.4106878	0.1	3.14	20.00	AVRG
Methylene Chloride	54.686840	50.000000	0.5502588	0.1	-9.37	20.00	LINR
cis-1,2-Dichloroethene	0.5690000	0.5771146	0.5771146	0.1	-1.43	20.00	AVRG
1,2-Dichloroethane	0.5280000	0.5314493	0.5314493	0.1	-0.65	20.00	AVRG
Trichloroethene	0.3460000	0.3483190	0.3483190	0.2	-0.67	20.00	AVRG
1,1,2-Trichloroethane	0.2880000	0.2755621	0.2755621	0.1	4.32	20.00	AVRG
Dibromofluoromethane	53.602736	50.000000	0.5061243	0.1	-7.20	20.00	LINR
1,2-Dichloroethane-d4	52.411477	50.000000	0.6335794	0.1	-4.82	20.00	LINR
Toluene-d8	51.578444	50.000000	1.2472538	0.1	-3.16	20.00	LINR
4-Bromofluorobenzene	51.704853	50.000000	0.4670196	0.1	-3.41	20.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

outputFile debug: C:\tp\envision\results\HS20030498/08bc.01 Lab Code: AL

Lab File ID (Standard): Y031903 Date Analyzed: 03/19/20

Instrument ID: VOA6 Time Analyzed: 2245

		IS1 AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	293829	4.18	458706	4.97	427860	7.67
	UPPER LIMIT	587658	4.68	917412	5.47	855720	8.17
	LOWER LIMIT	146915	3.68	229353	4.47	213930	7.17
	CLIENT SAMPLE NO.						
01	CCB	365256	4.18	539176	4.97	465790	7.67
02	VLCSW-200319	298296	4.18	467530	4.97	423096	7.67
03	VBLKW1-20031	381420	4.18	561159	4.97	485409	7.67
04	HS20030498-0	389845	4.18	571931	4.97	490909	7.67
05	HS20030498-0	388236	4.18	573994	4.97	477433	7.67
06	HS20030498-0	373176	4.18	551051	4.97	475332	7.67
07	HS20030498-0	367736	4.18	541123	4.97	463530	7.67
08	HS20030498-0	381832	4.18	565120	4.97	491401	7.67
09	HS20030498-0	394791	4.18	577546	4.97	492114	7.67
10	HS20030498-0	386076	4.18	570988	4.97	485630	7.67
11	HS20030498-0	392317	4.18	577968	4.97	483737	7.67
12	HS20030498-0	387079	4.18	572133	4.97	488104	7.67
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 internal standard area values with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

outputFile debug: C:\tp\envision\results\HS20030498/08bc.01 Lab Code: AL

Lab File ID (Standard): Y031903 Date Analyzed: 03/19/20

Instrument ID: VOA6 Time Analyzed: 2245

		IS4 (DCB) AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	207378		9.67									
	UPPER LIMIT	414756		10.17									
	LOWER LIMIT	103689		9.17									
	CLIENT SAMPLE NO.												
01	CCB	210239		9.66									
02	VLCSW-200319	212109		9.66									
03	VBLKW1-20031	229973		9.67									
04	HS20030498-0	231790		9.67									
05	HS20030498-0	233054		9.67									
06	HS20030498-0	233350		9.66									
07	HS20030498-0	224976		9.67									
08	HS20030498-0	234718		9.67									
09	HS20030498-0	234184		9.67									
10	HS20030498-0	227234		9.67									
11	HS20030498-0	226076		9.67									
12	HS20030498-0	224674		9.66									
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 internal standard area values with an asterisk.
* Values outside of QC limits.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031901.D

Date : 19-MAR-2020 21:57

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

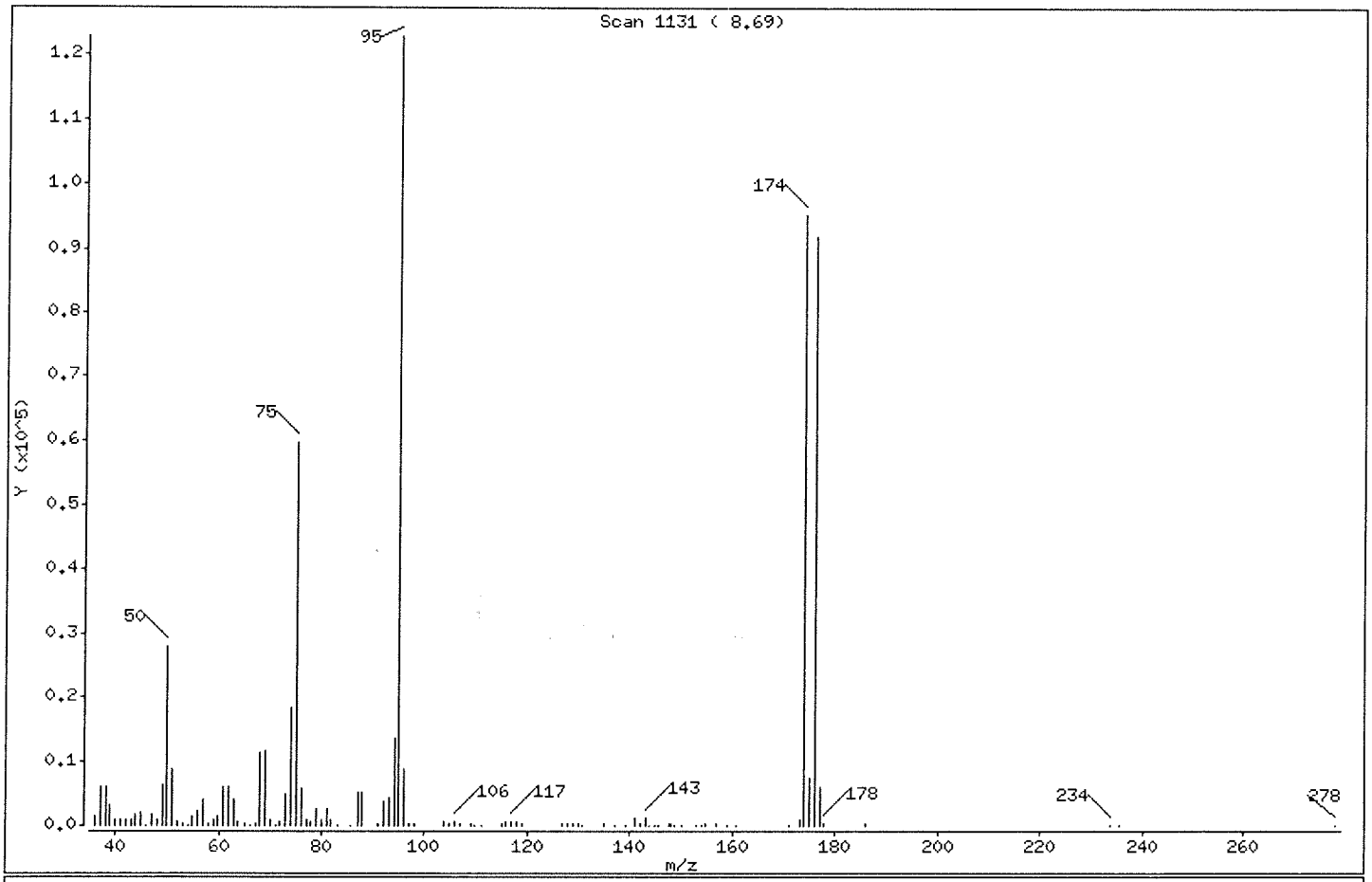
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	22.76
75	30.00 - 60.00% of mass 95	48.41
96	5.00 - 9.00% of mass 95	7.22
173	Less than 2.00% of mass 174	0.71 (0.91)
174	Greater than 50.00% of mass 95	77.39
175	5.00 - 9.00% of mass 174	5.95 (7.68)
176	95.00 - 101.00% of mass 174	74.64 (96.44)
177	5.00 - 9.00% of mass 176	4.87 (6.53)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031901.D

Date : 19-MAR-2020 21:57

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: Y031901.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 107

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1299	63.00	4004	94.00	13533	142.00	236
37.10	5903	63.80	483	95.00	122944	142.90	1050
38.10	5990	65.00	155	96.00	8878	143.80	70
39.00	3137	66.10	60	97.10	213	144.70	94
39.90	975	67.10	392	97.90	340	145.70	86
41.00	816	68.00	11252	103.90	513	147.70	211
42.10	759	69.00	11461	104.80	203	148.00	243
43.00	954	70.00	964	105.90	602	148.80	82
44.00	1681	71.00	107	106.80	301	150.10	63
45.00	1942	72.00	702	107.00	305	152.80	102
46.10	139	73.00	4696	108.90	256	154.00	53
47.00	1733	74.00	18488	109.80	96	154.90	324
48.00	859	75.00	59512	111.00	53	156.80	256
49.00	6183	76.10	5550	115.00	153	159.00	96
50.00	27976	77.00	845	115.80	448	160.80	108
51.00	8880	77.80	476	116.90	675	171.10	81
51.90	503	78.90	2500	117.80	490	173.00	867
52.90	181	79.90	835	119.00	400	174.00	95152
54.20	133	81.00	2449	126.80	273	175.00	7311
55.00	1358	81.90	758	127.90	367	176.00	91768
56.00	2141	83.10	61	128.90	281	177.00	5993
57.00	4086	85.70	97	129.90	347	177.90	225
57.90	217	87.00	5082	130.80	101	186.00	147
59.00	843	87.90	5052	134.80	218	233.80	57
59.90	1303	90.80	334	137.10	93	235.70	57
61.00	6008	92.00	3582	139.20	89	278.10	96
62.00	5866	93.00	4347	140.90	1023		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031901.D

Date : 19-MAR-2020 21:57

Client ID: BFB

Instrument: voa6.i

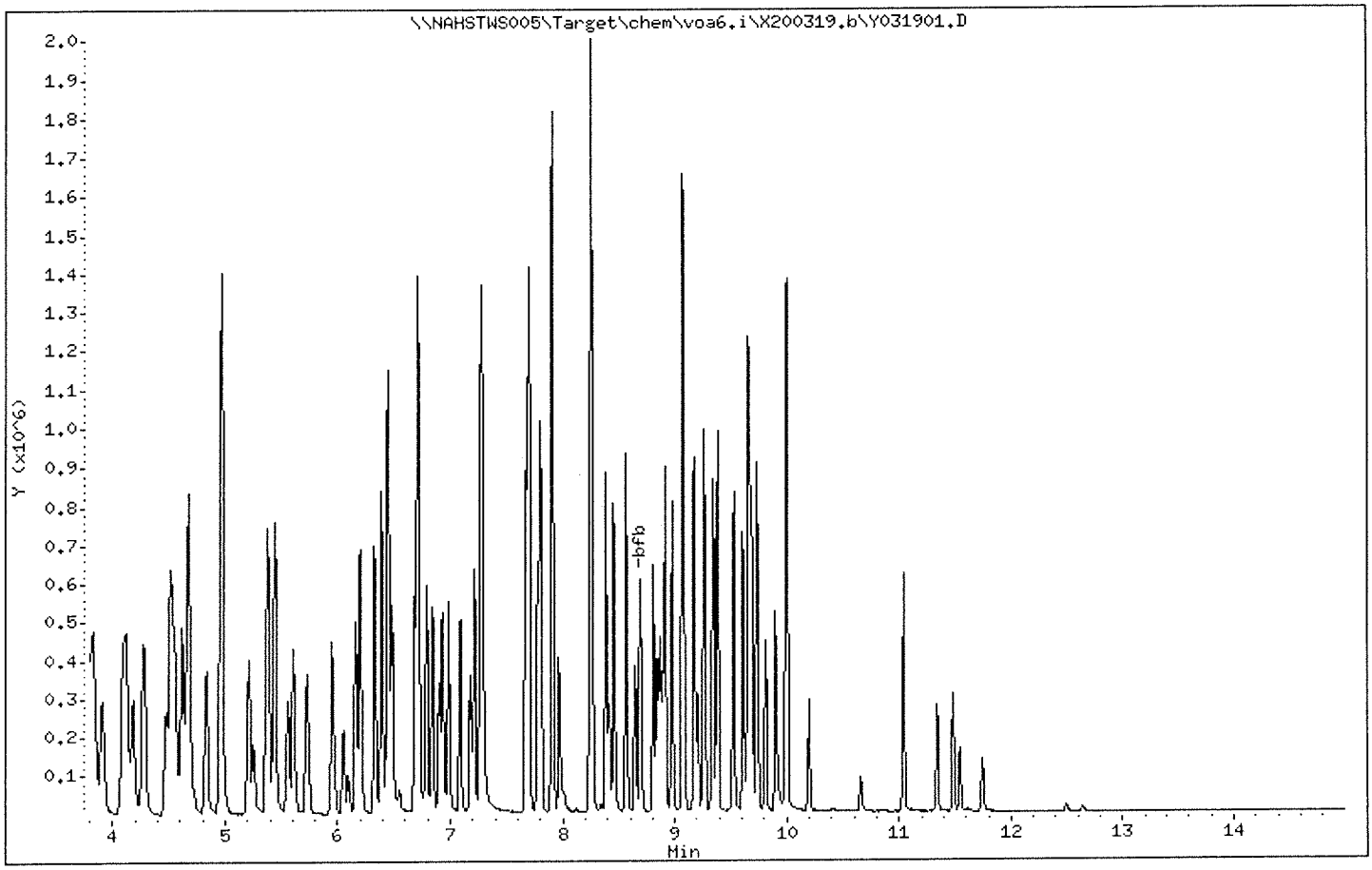
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031903.D Page 1
Report Date: 14-Apr-2020 12:29

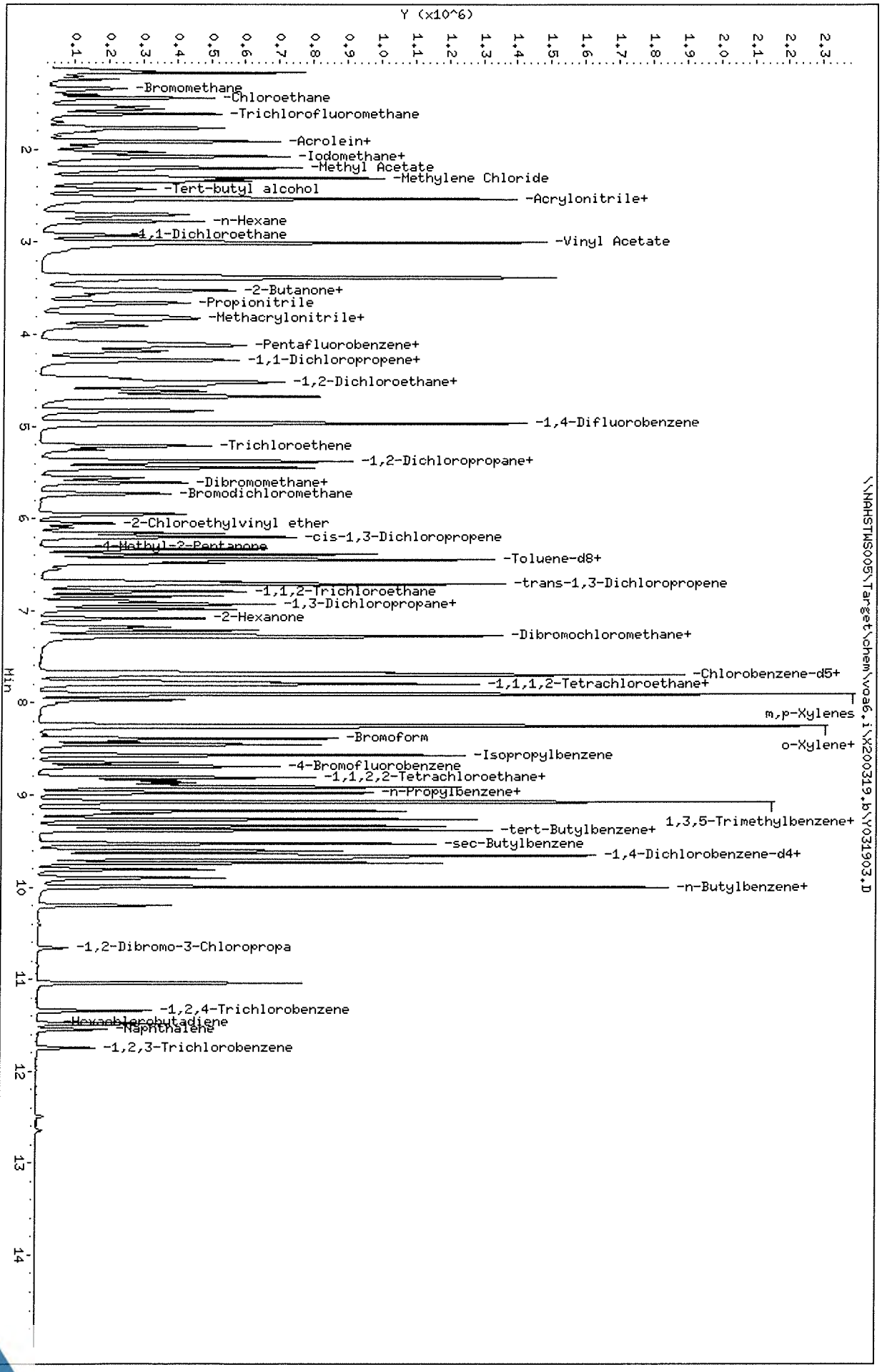
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031903.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 19-MAR-2020 22:45
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 30 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	293829	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	148714	50.0000	50.94
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	186164	50.0000	50.43
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	458706	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	427860	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	533650	50.0000	48.68
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	199819	50.0000	48.52
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	207378	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	215663	50.0000	48.17
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	120672	50.0000	48.46
17 Methylene Chloride	84	2.305	2.305	(0.551)	161682	50.0000	51.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	169573	50.0000	50.67
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	243779	50.0000	50.30
38 Trichloroethene	130	5.206	5.206	(1.048)	159776	50.0000	50.25
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	117902	50.0000	47.82



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031903.D
Date : 19-MAR-2020 22:45
Client ID: CCV
Sample Info: CCV;CCV;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031904.D
Lab Smp Id: CCB Client Smp ID: CCB
Inj Date : 19-MAR-2020 23:09
Operator : PC Inst ID: voa6.i
Smp Info : CCB;CCB;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 31
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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

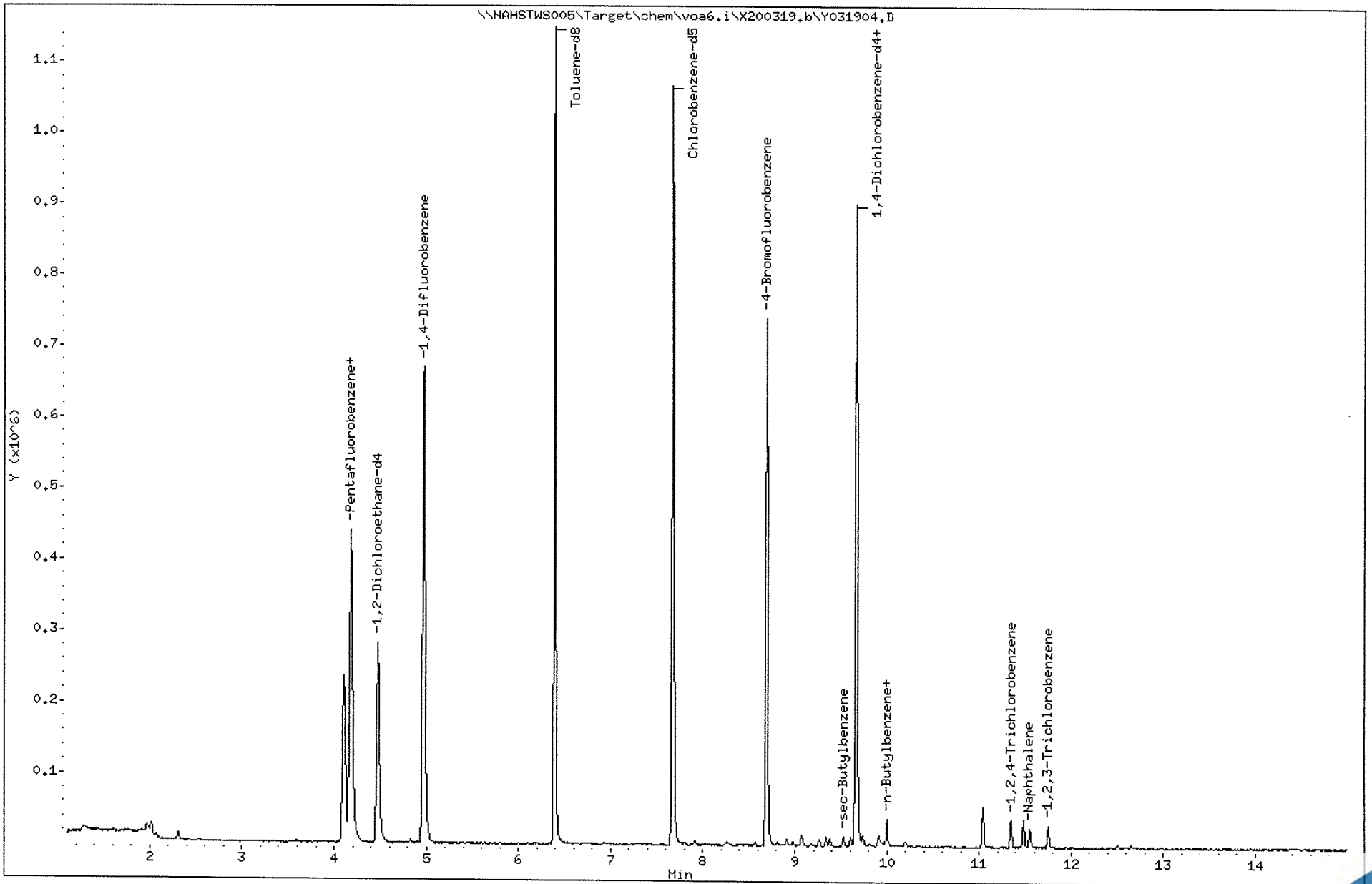
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365256	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	170163	46.8813	46.88
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	207623	45.2300	45.22
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	539176	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	465790	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	631739	52.9498	52.94
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	212011	47.2774	47.27
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	210239	50.0000	

01094384

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031904.D
Date : 19-MAR-2020 23:09
Client ID: CCB
Sample Info: CCB;CCB;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031905.D Page 1
Report Date: 14-Apr-2020 12:29

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031905.D
Lab Smp Id: VLCSW-200319 Client Smp ID: VLCSW-200319
Inj Date : 19-MAR-2020 23:33
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200319;VLCSW-200319;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 32 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	298296	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	157675	53.2066	53.20
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	197968	52.8340	52.83
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	467530	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	423096	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	562060	51.8618	51.86
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	214595	52.7388	52.73
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	212109	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	86669	19.0709	19.07
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	49285	19.4984	19.49
17 Methylene Chloride	84	2.306	2.305	(0.551)	69494	21.0975	21.09
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	69232	20.3802	20.38
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	99995	20.2444	20.24
38 Trichloroethene	130	5.214	5.206	(1.049)	66316	20.4647	20.46
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	47739	19.5844	19.58

01094386

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031905.D

Date : 19-MAR-2020 23:33

Client ID: WLCSW-200319

Instrument: voa6.i

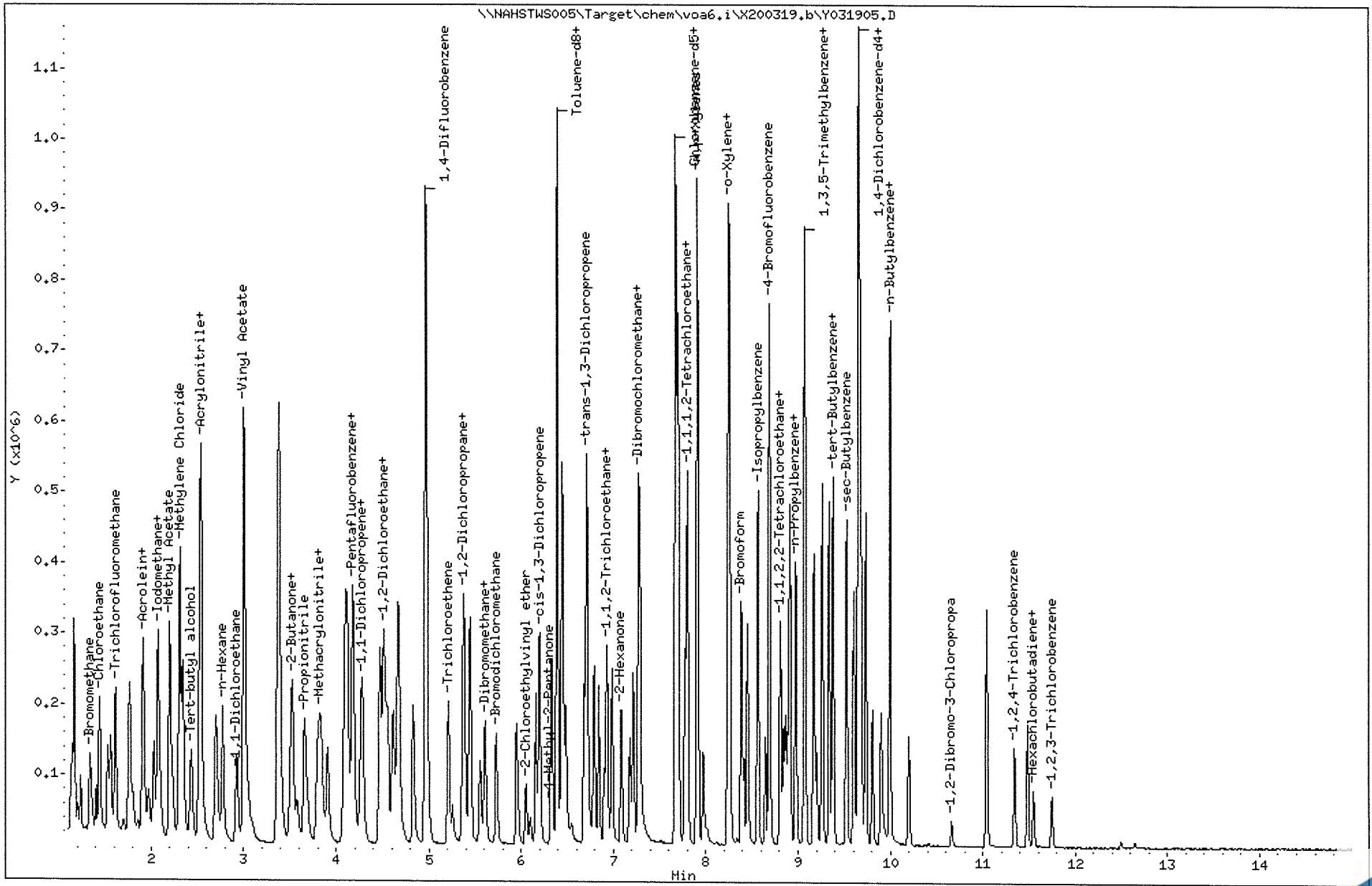
Sample Info: WLCSW-200319;WLCSW-200319;3;;LCS

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031907.D
Lab Smp Id: VBLKW1-200319 Client Smp ID: VBLKW1-200319
Inj Date : 20-MAR-2020 00:21
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW1-200319;VBLKW1-200319;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 34 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

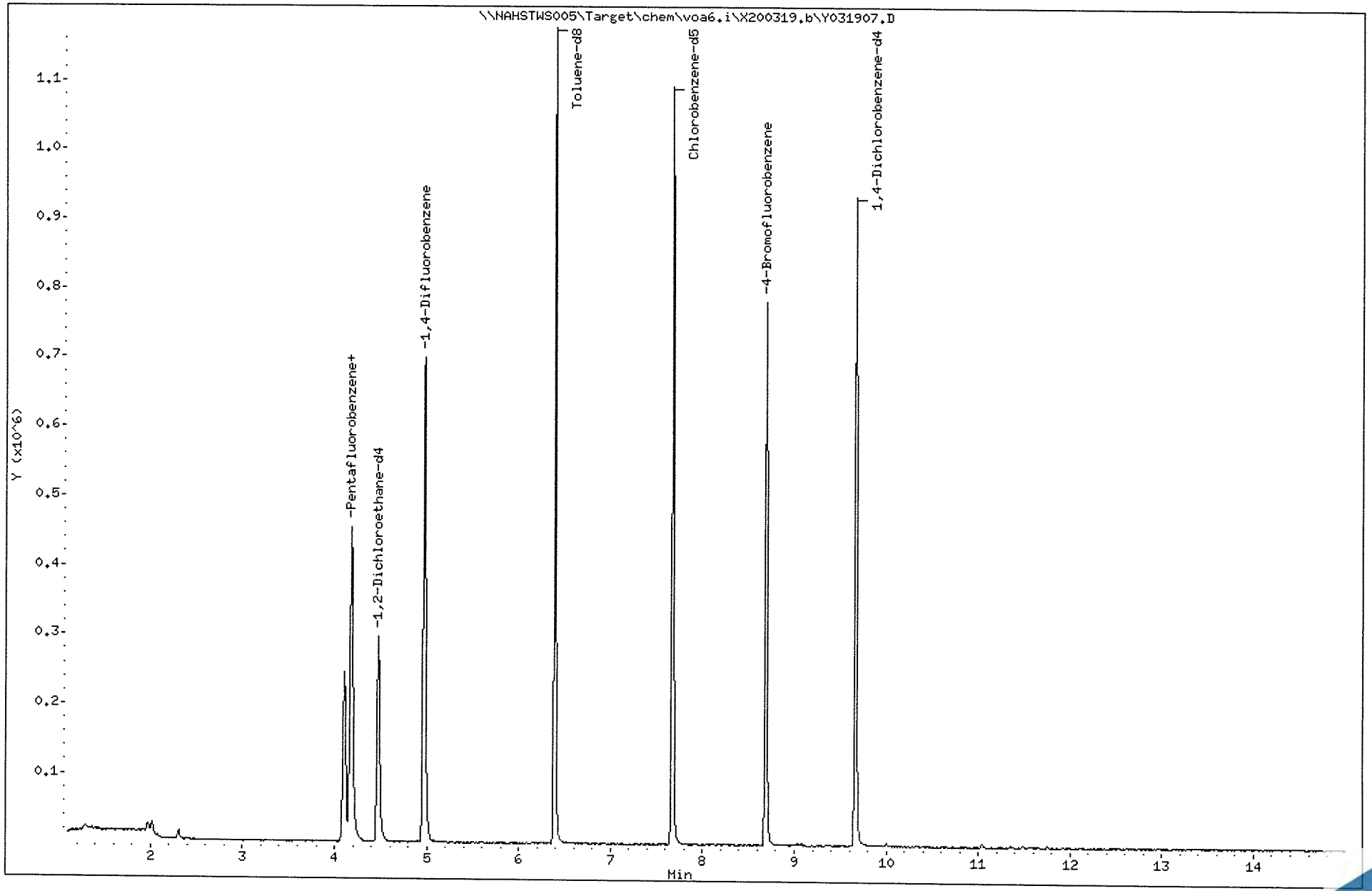
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	381420	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	177592	46.8545	46.85
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	215787	45.0156	45.01
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	561159	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	485409	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	652587	52.4858	52.48
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	228404	48.8910	48.89
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	229973	50.0000	

01094388

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031907.D
Date : 20-MAR-2020 00:21
Client ID: VBLKW1-200319
Sample Info: VBLKW1-200319;VBLKW1-200319;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031909.D
Lab Smp Id: HS20030498-08 Client Smp ID: HS20030498-08
Inj Date : 20-MAR-2020 01:09
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-08;HS20030498-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 36
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	389845	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	181442	46.8357	46.83
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	223379	45.5943	45.59
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	571931	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	490909	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	673805	53.5867	53.58
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	227385	48.1199	48.11
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	231790	50.0000	

01094390

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031909.D

Date : 20-MAR-2020 01:09

Client ID: HS20030498-08

Instrument: voa6.i

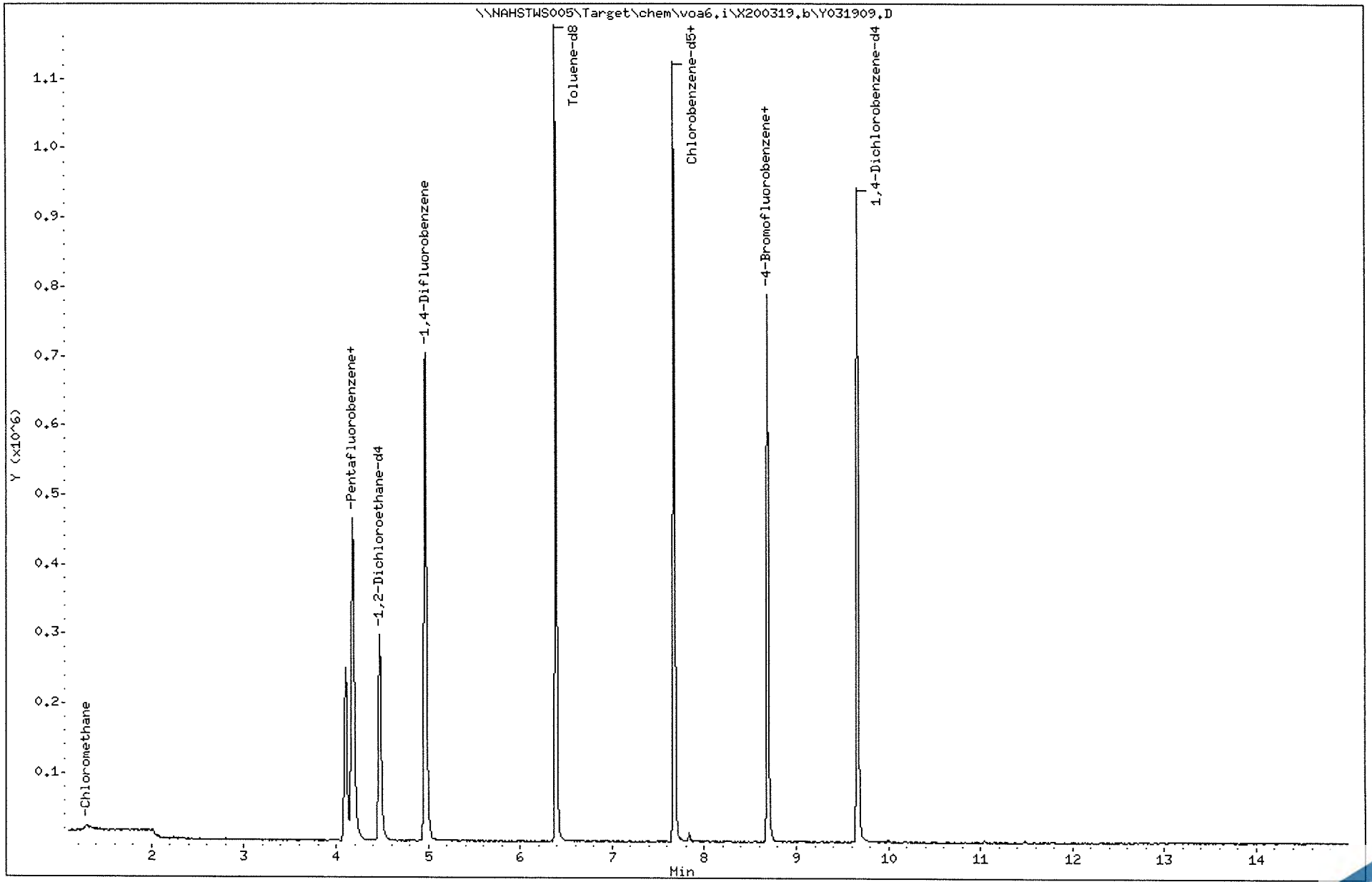
Sample Info: HS20030498-08;HS20030498-08;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031914.D Page 1
Report Date: 14-Apr-2020 12:29

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031914.D
Lab Smp Id: HS20030498-03 Client Smp ID: HS20030498-03
Inj Date : 20-MAR-2020 03:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-03;HS20030498-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 41
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	388236	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	181279	46.9879	46.98
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	223019	45.7099	45.70
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	573994	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	477433	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	634202	51.8584	51.85
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	228227	49.6771	49.67
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	233054	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	241154	40.7713	40.77
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	24646	7.49172	7.49
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	151103	34.1764	34.17
38 Trichloroethene	130	5.214	5.206	(1.049)	4913879	1235.13	1235.13(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

01094392

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031914.D

Date : 20-MAR-2020 03:10

Client ID: HS20030498-03

Sample Info: HS20030498-03;HS20030498-03;;;

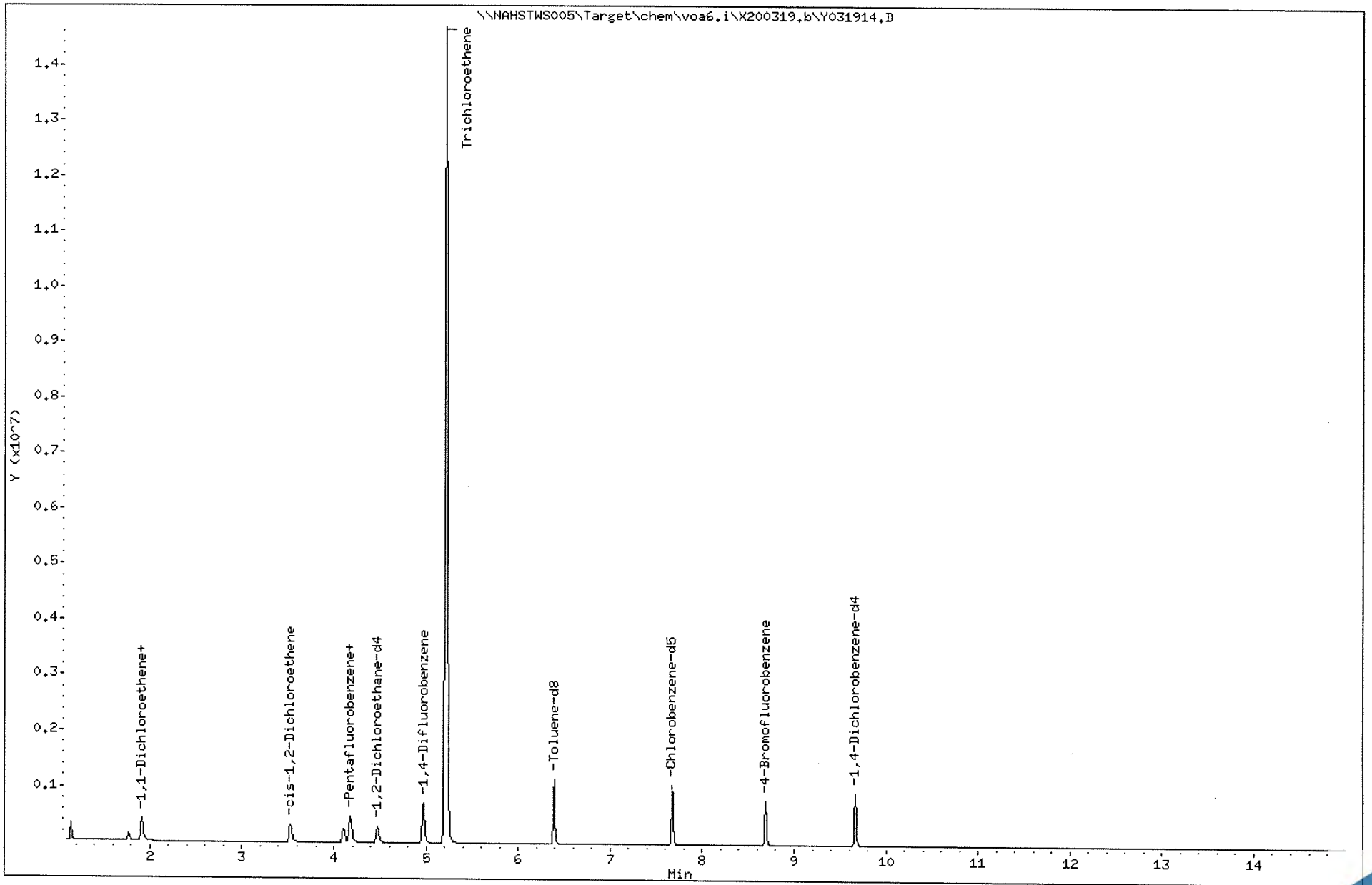
Purge Volume: 5.0

Column phase: DB624

Instrument: voa6.i

Operator: PC

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031914.D

Date : 20-MAR-2020 03:10

Client ID: HS20030498-03

Instrument: voa6.i

Sample Info: HS20030498-03;HS20030498-03;;;

Purge Volume: 5.0

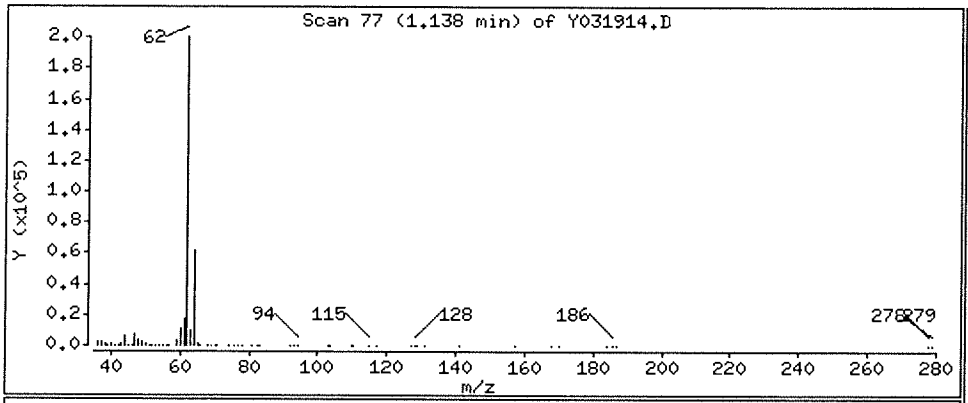
Operator: PC

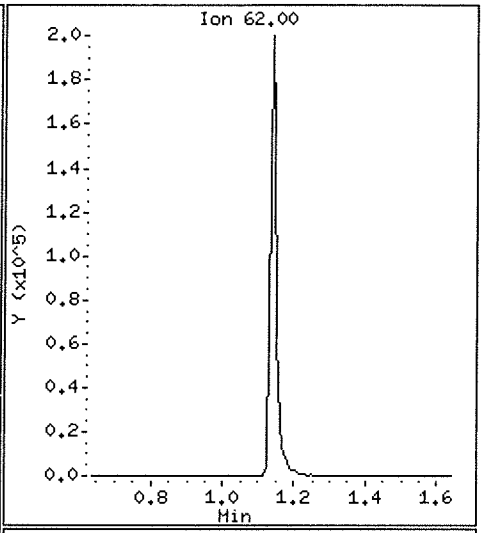
Column phase: DB624

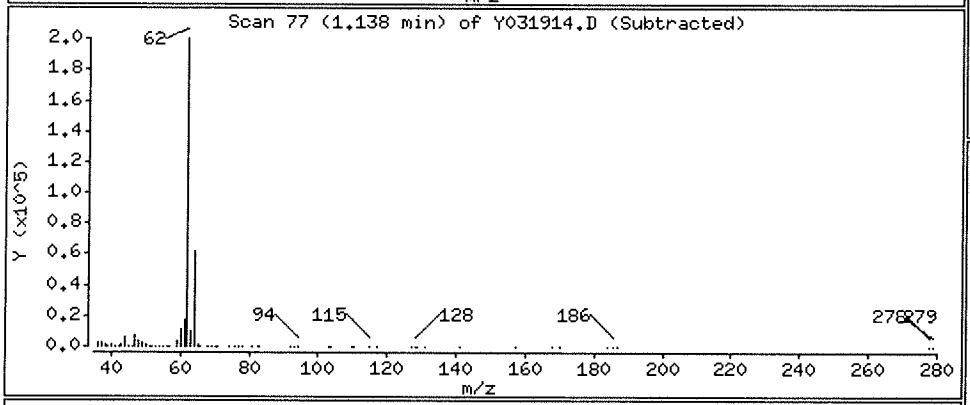
Column diameter: 0.18

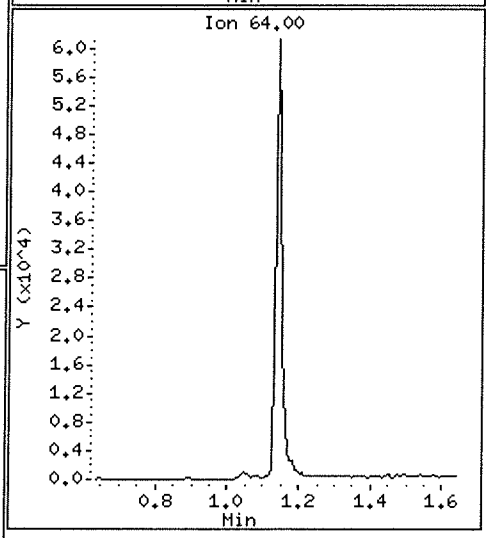
5 Vinyl Chloride

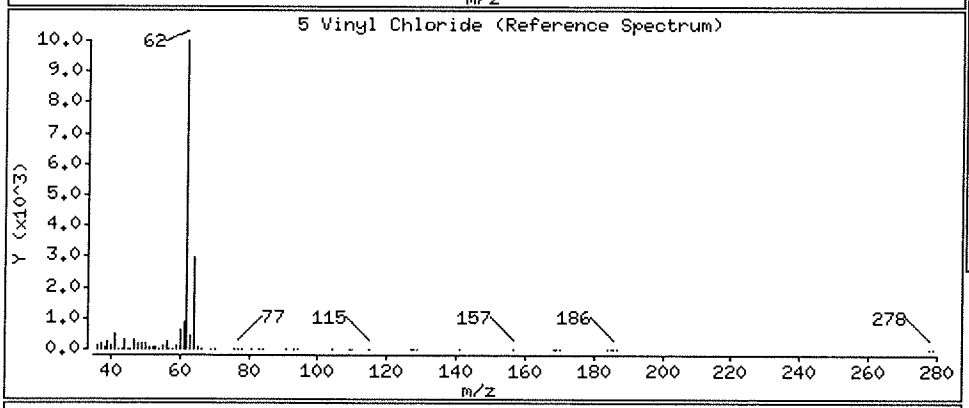
Concentration: 40.77 ug/l

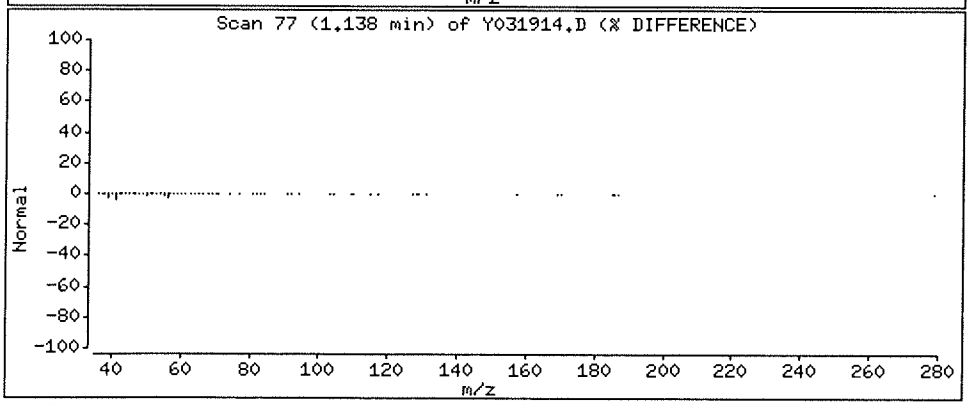












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031914.D

Date : 20-MAR-2020 03:10

Client ID: HS20030498-03

Instrument: voa6.i

Sample Info: HS20030498-03;HS20030498-03;;;

Purge Volume: 5.0

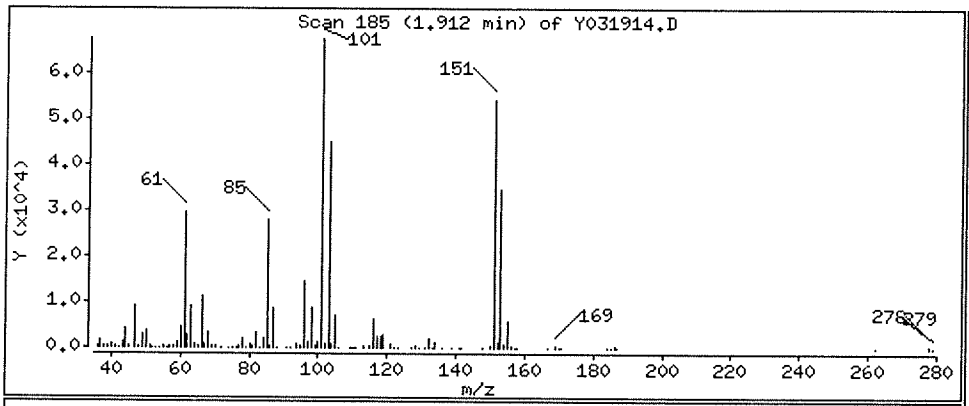
Operator: PC

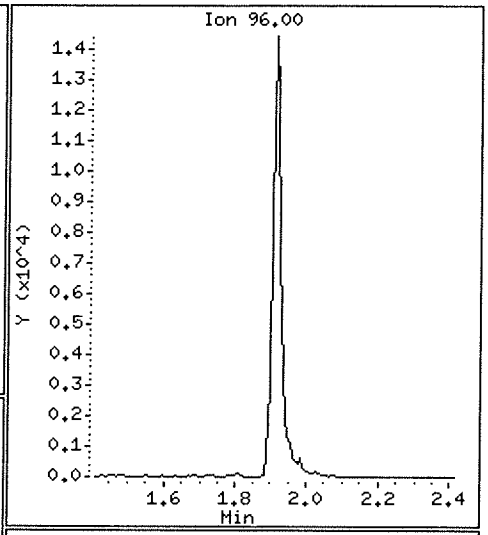
Column phase: DB624

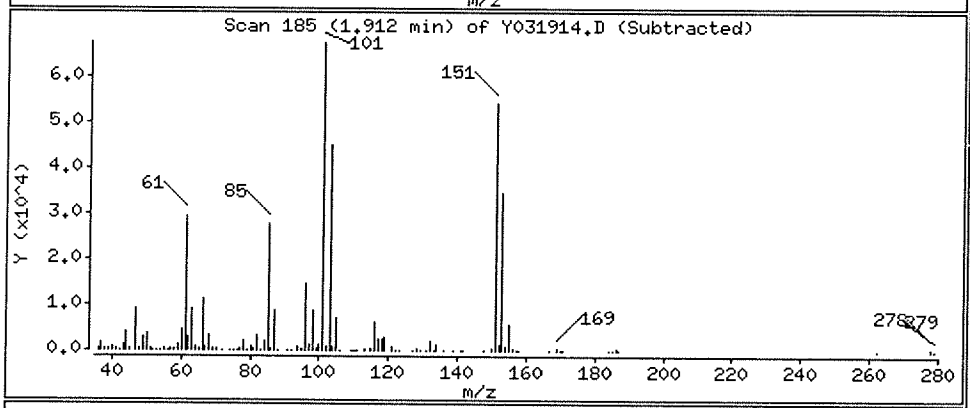
Column diameter: 0.18

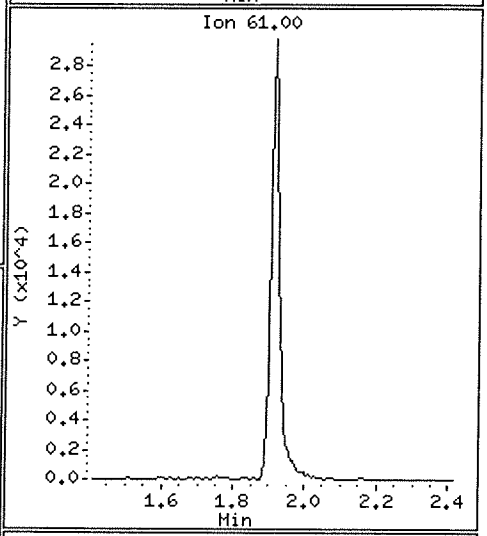
11 1,1-Dichloroethene

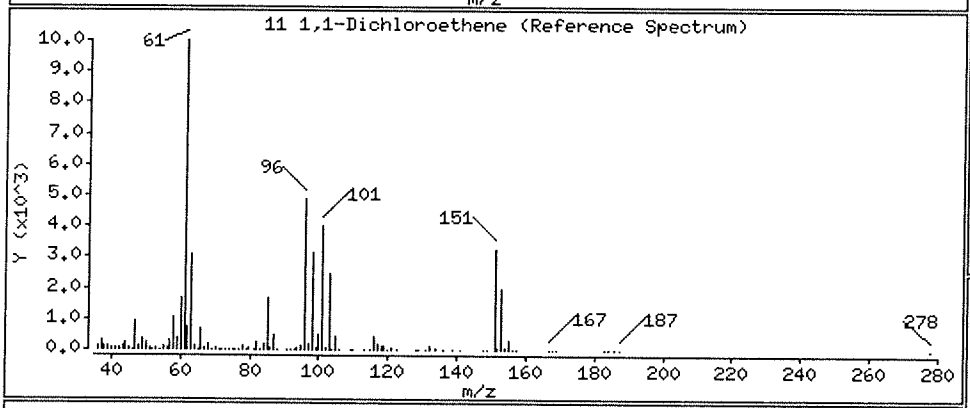
Concentration: 7.49 ug/l

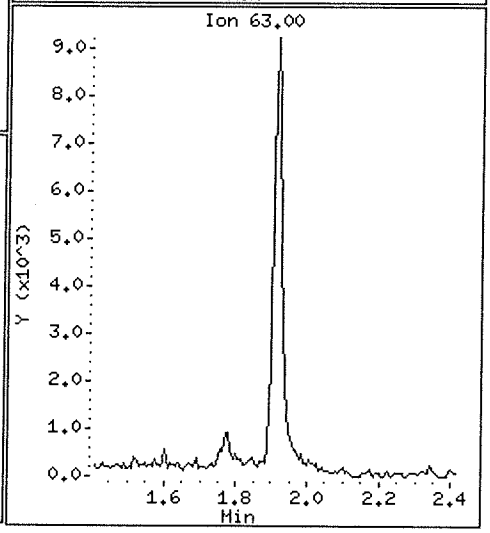


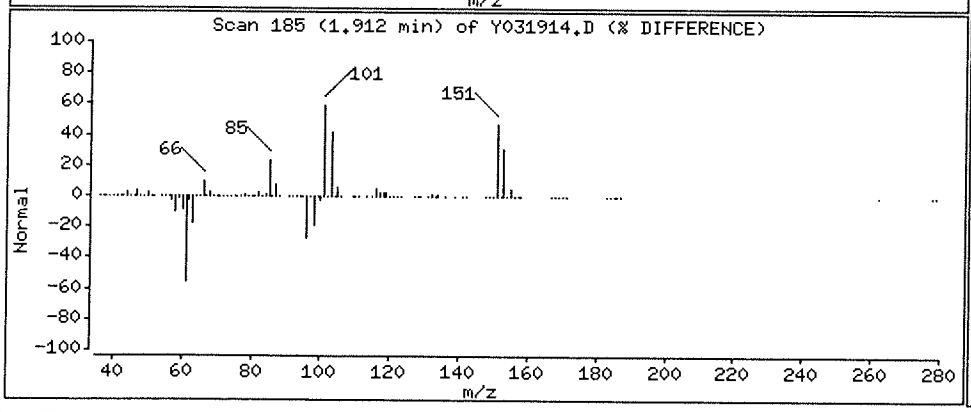












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031914.D

Date : 20-MAR-2020 03:10

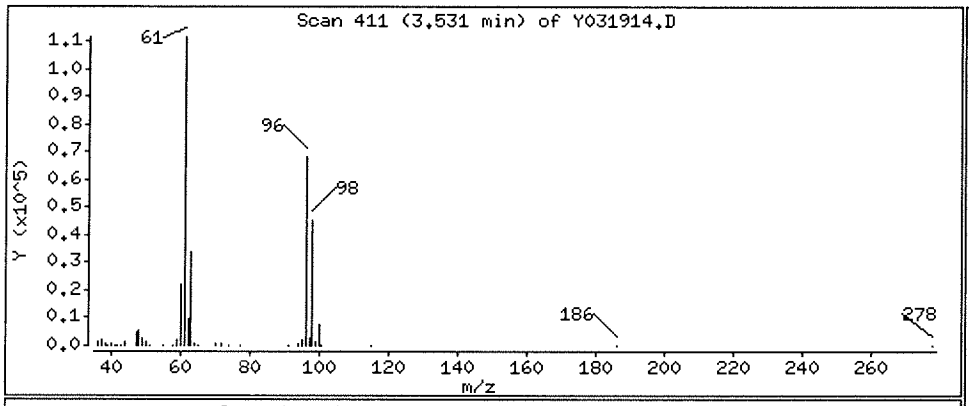
Client ID: HS20030498-03 Instrument: voa6.i

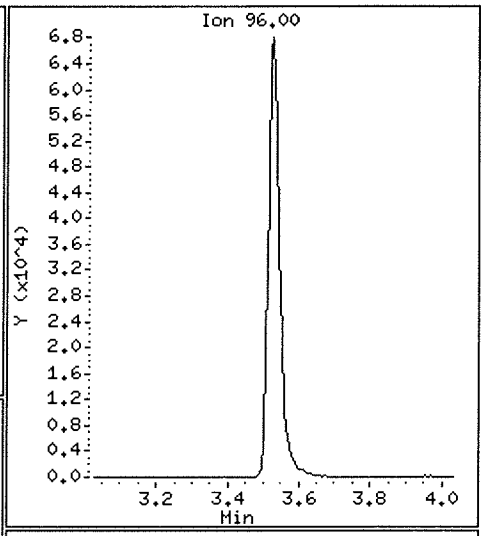
Sample Info: HS20030498-03;HS20030498-03;;;

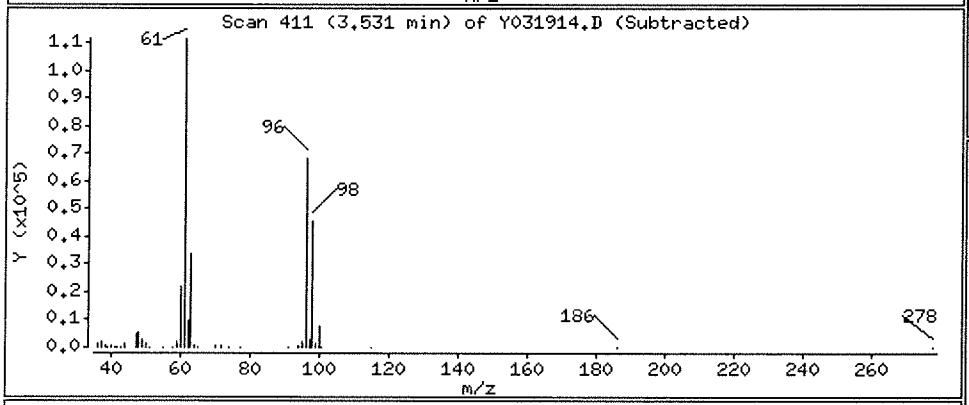
Purge Volume: 5.0 Operator: PC

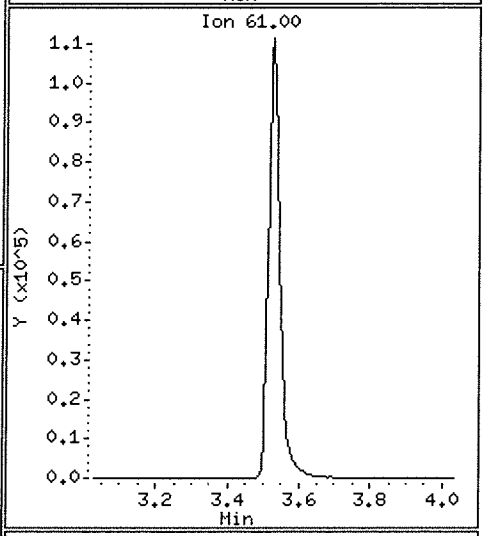
Column phase: DB624 Column diameter: 0.18

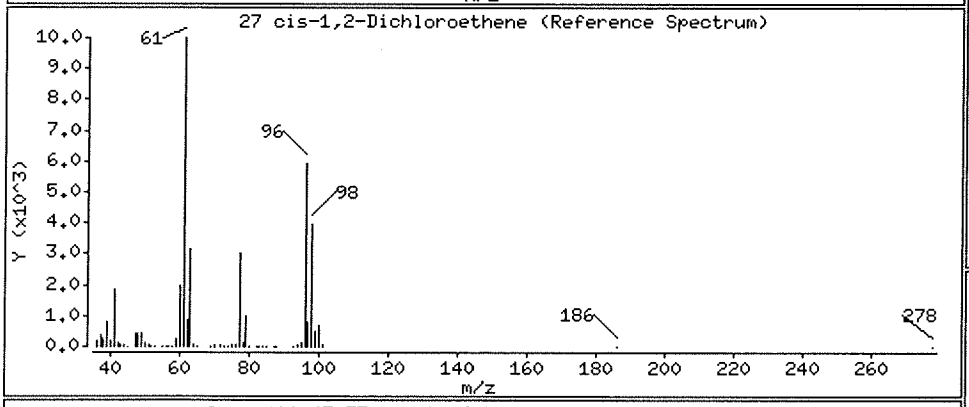
27 cis-1,2-Dichloroethene Concentration: 34.17 ug/l

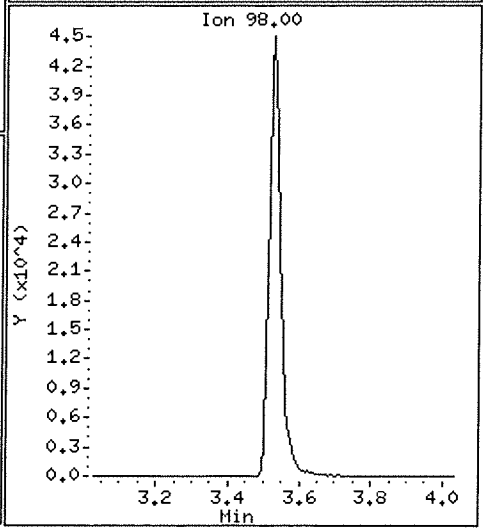


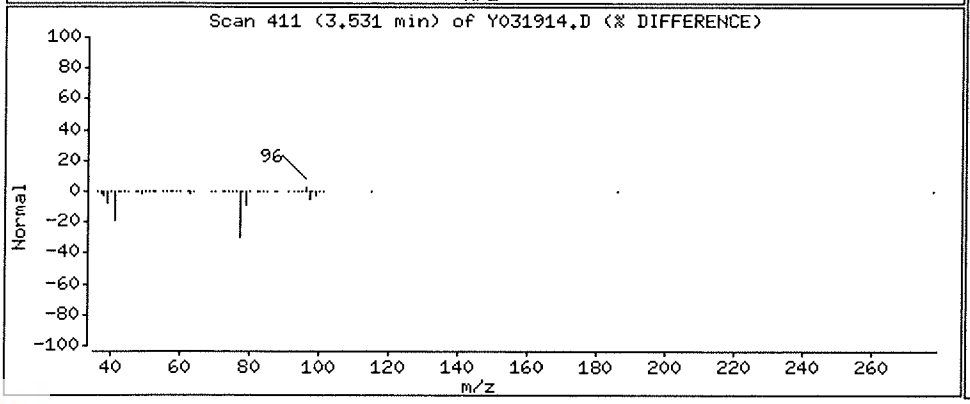












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031914.D Page 6

Date : 20-MAR-2020 03:10

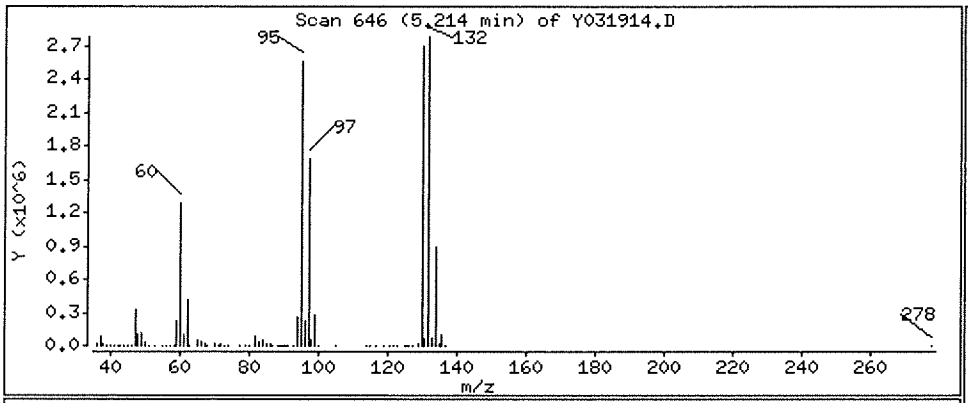
Client ID: HS20030498-03 Instrument: voa6.i

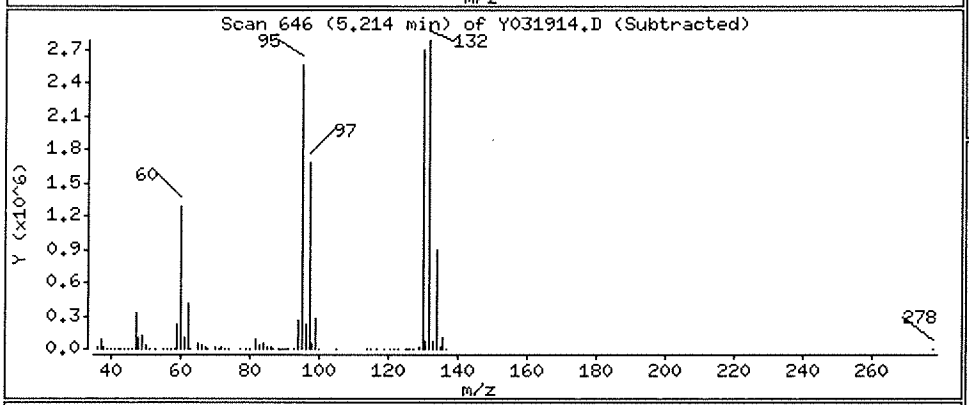
Sample Info: HS20030498-03;HS20030498-03;;;

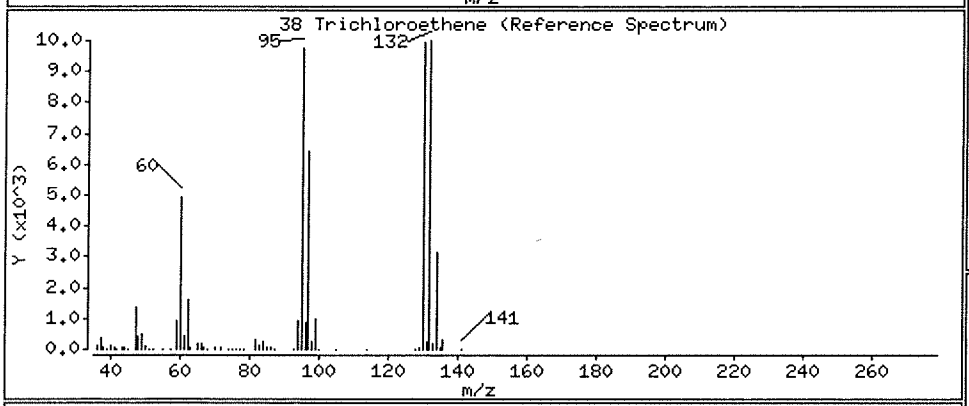
Purge Volume: 5.0 Operator: PC

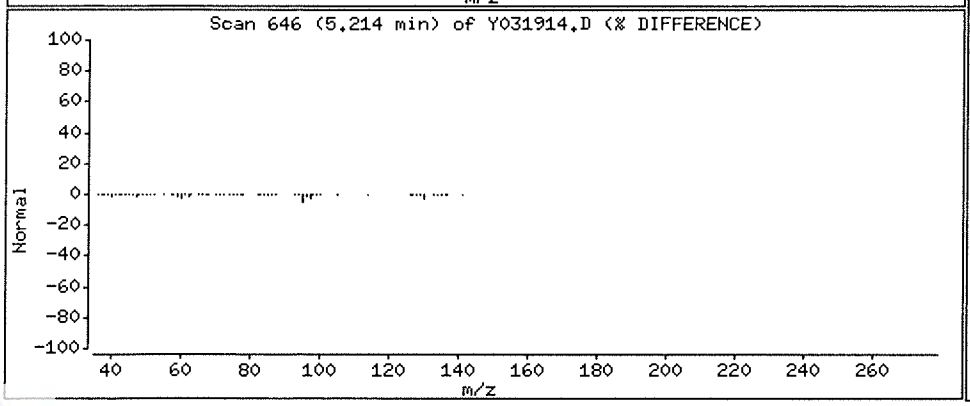
Column phase: DB624 Column diameter: 0.18

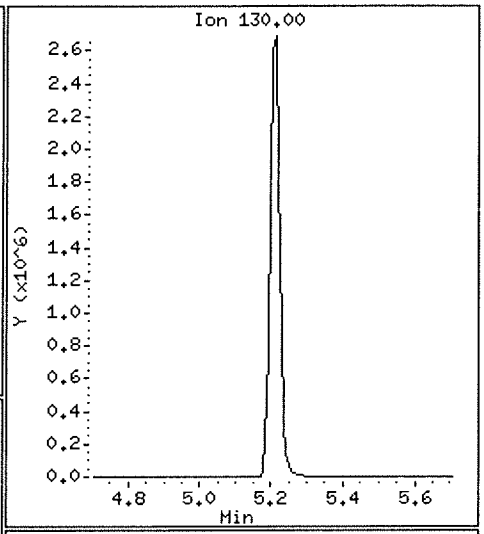
38 Trichloroethene Concentration: 1235.13 ug/l

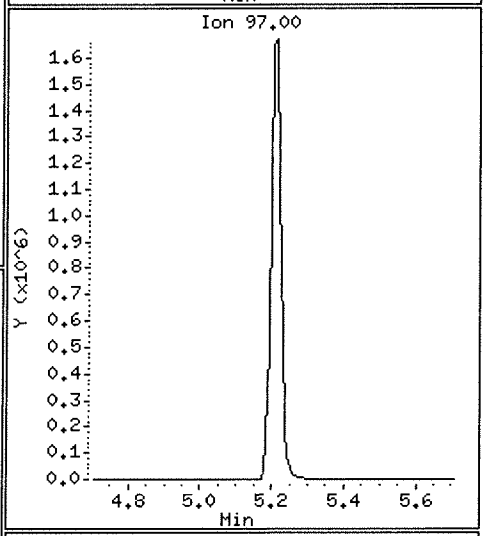


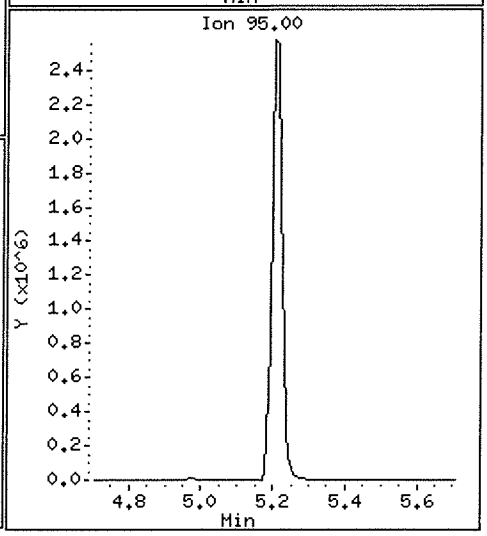












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031915.D Page 1
Report Date: 14-Apr-2020 12:29

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031915.D
Lab Smp Id: HS20030498-03MS Client Smp ID: HS20030498-03MS
Inj Date : 20-MAR-2020 03:34
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-03MS;HS20030498-03MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 42 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	373176	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	173731	46.8484	46.84
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	217078	46.2898	46.28
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	551051	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	475332	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	623009	51.1673	51.16
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	226763	49.5756	49.57
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	233350	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	338942	59.6166	59.61
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	82012	25.9355	25.93
17 Methylene Chloride	84	2.305	2.305	(0.551)	74895	17.9788	17.97
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	223238	52.5295	52.52
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	110703	19.0153	19.01
38 Trichloroethene	130	5.214	5.206	(1.049)	4803946	1257.78	1257.77(A)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	51675	18.8695	18.86

QC Flag Legend

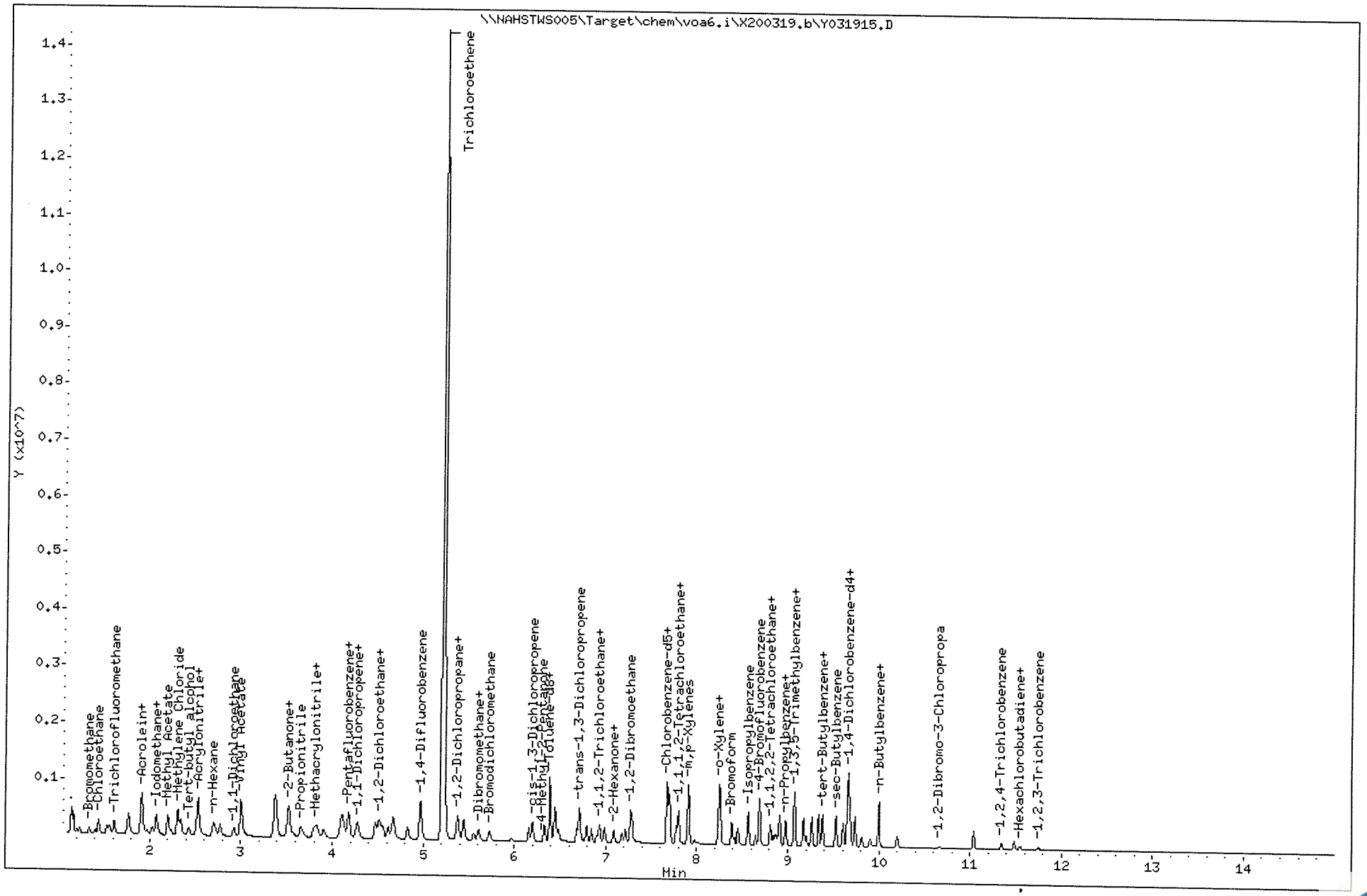
A - Target compound detected but, quantitated amount exceeded maximum amount.

01094398

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031915.D
Date : 20-MAR-2020 03:34
Client ID: HS20030498-03MS
Sample Info: HS20030498-03MS;HS20030498-03MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031916.D
Lab Smp Id: HS20030498-03MSD Client Smp ID: HS20030498-03MSD
Inj Date : 20-MAR-2020 03:58
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-03MSD;HS20030498-03MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 42 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

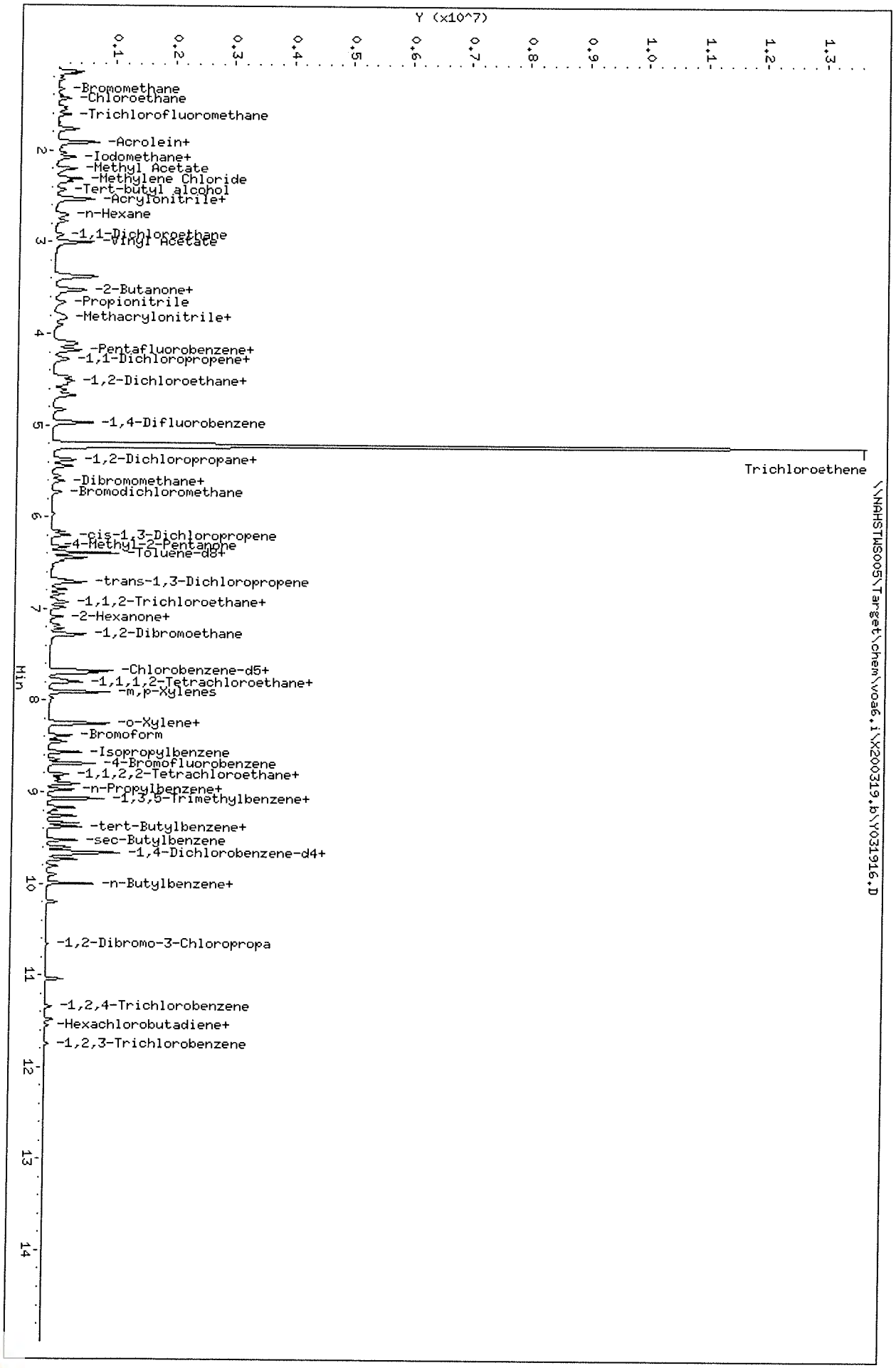
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	367736	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	171711	46.9890	46.98
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	214463	46.4091	46.40
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	541123	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	463530	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	612003	51.5437	51.54
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	219114	49.1186	49.11
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	224976	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	315184	56.2579	56.25
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	76469	24.5403	24.54
17 Methylene Chloride	84	2.306	2.305	(0.551)	70446	17.0967	17.09
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	213860	51.0672	51.06
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	112106	19.6096	19.60
38 Trichloroethene	130	5.214	5.206	(1.049)	4589284	1223.62	1223.61(A)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	50718	18.9915	18.99

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031916.D
Date : 20-MAR-2020 03:58
Client ID: HS20030498-03MSD
Sample Info: HS20030498-03MSD;HS20030498-03MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031917.D
Lab Smp Id: HS20030498-03 Client Smp ID: HS20030498-03
Inj Date : 20-MAR-2020 04:22
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-03;HS20030498-03;;;
Misc Info : HS18090001;WATER;0;25;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 43
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	381832	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	177256	46.7151	46.71
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	214902	44.7818	44.78
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	565120	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	491401	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	659897	52.4265	52.42
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	233353	49.3459	49.34
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	234718	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	9501	1.63325	40.83(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	5879	1.35201	33.80(a)
38 Trichloroethene	130	5.207	5.206	(1.048)	204040	52.0921	1302.30

QC Flag Legend

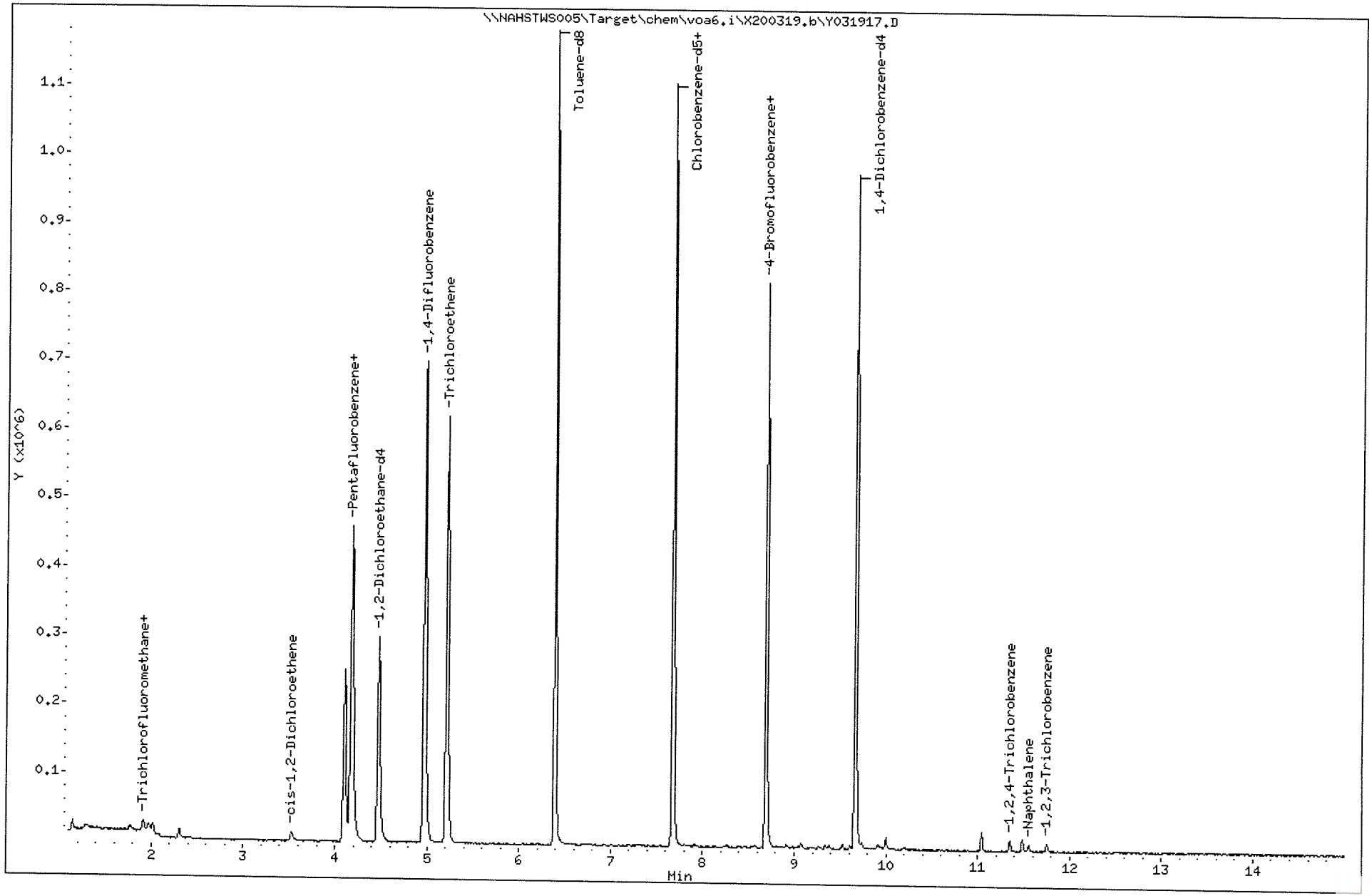
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

01094402

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031917.D
Date : 20-MAR-2020 04:22
Client ID: HS20030498-03
Sample Info: HS20030498-03;HS20030498-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031917.D

Date : 20-MAR-2020 04:22

Client ID: HS20030498-03

Instrument: voa6.i

Sample Info: HS20030498-03;HS20030498-03;;;

Purge Volume: 5.0

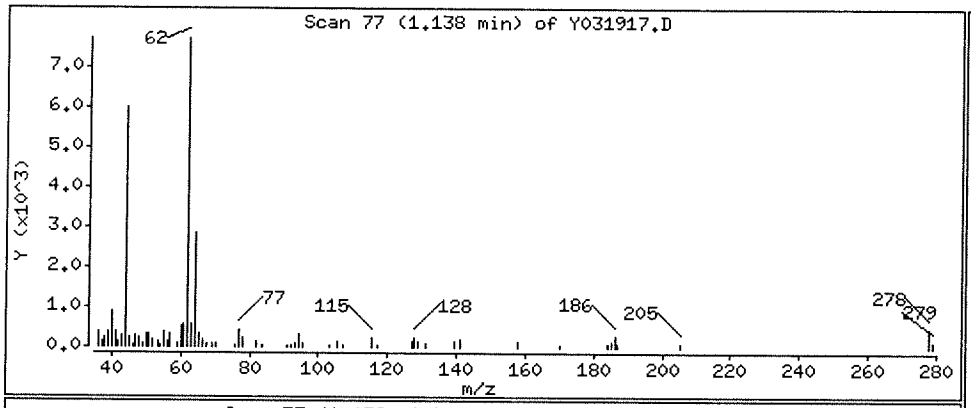
Operator: PC

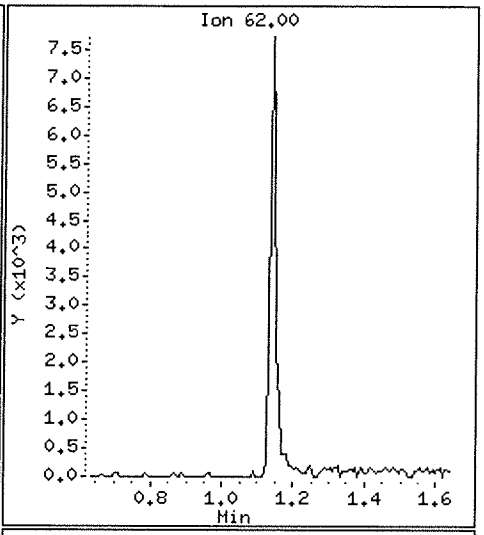
Column phase: DB624

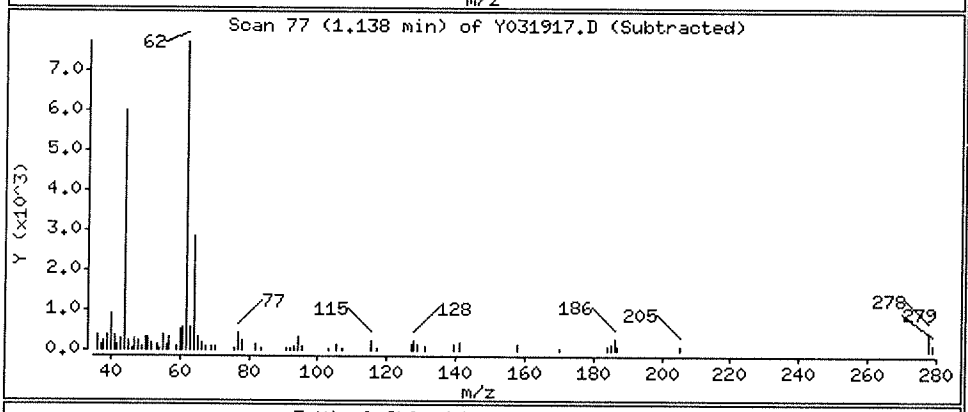
Column diameter: 0.18

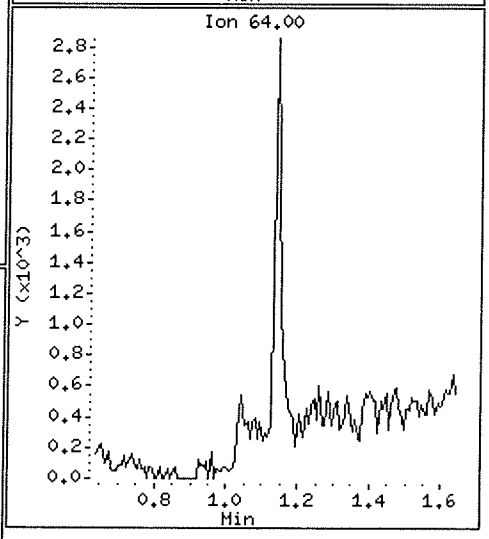
5 Vinyl Chloride

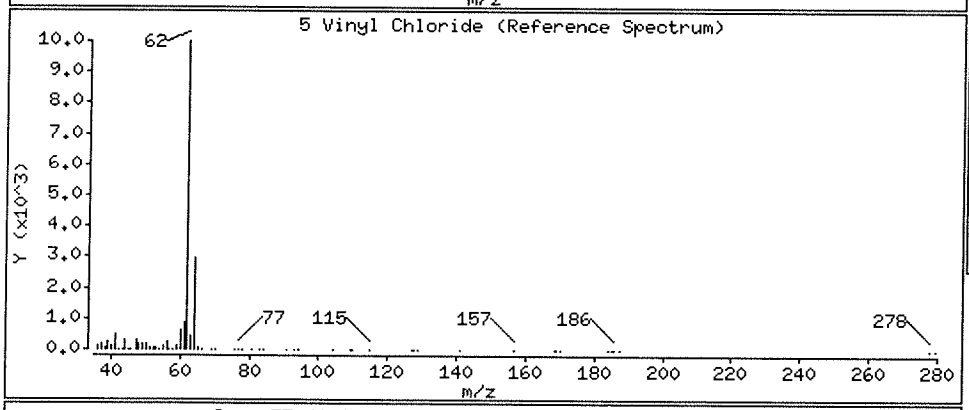
Concentration: 40.83 ug/l

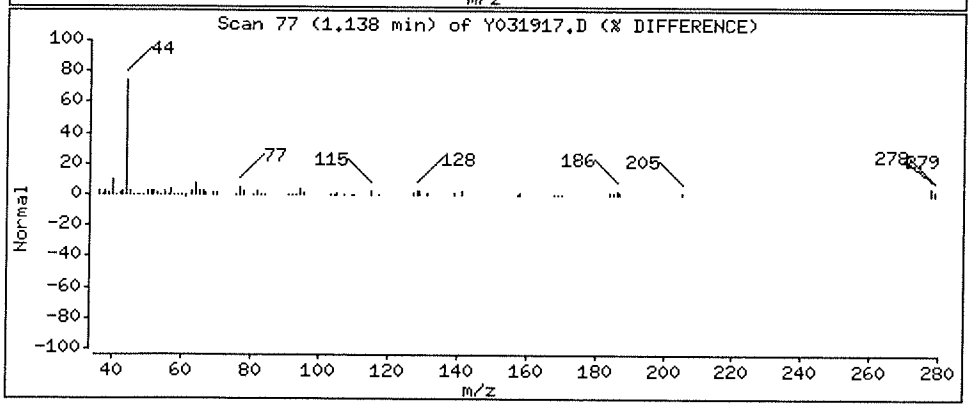












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031917.D

Date : 20-MAR-2020 04:22

Client ID: HS20030498-03

Instrument: voa6.i

Sample Info: HS20030498-03;HS20030498-03;;;

Purge Volume: 5.0

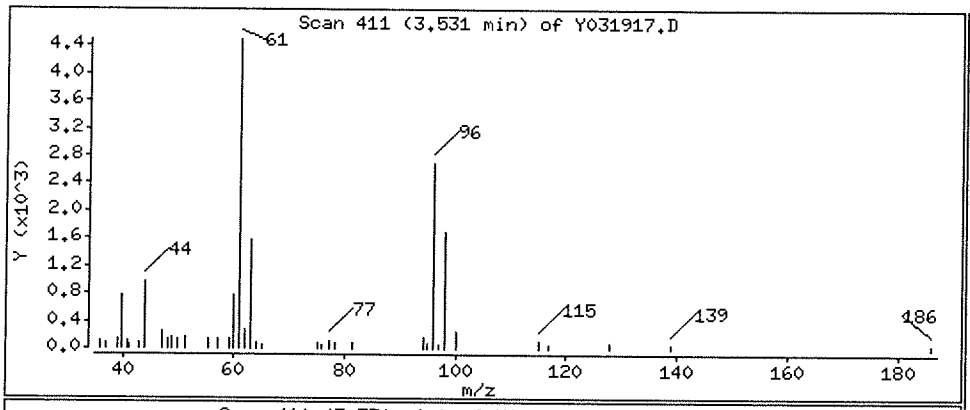
Operator: PC

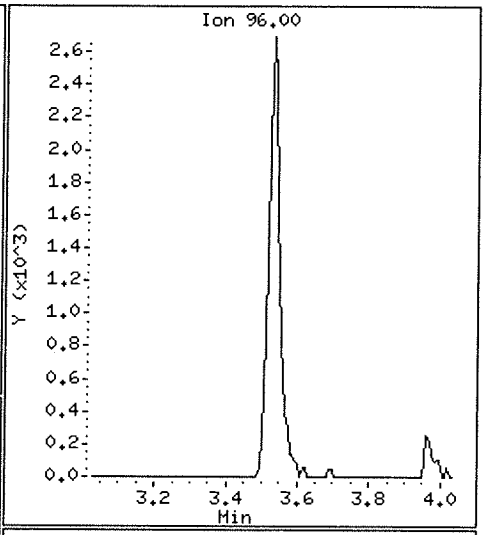
Column phase: DB624

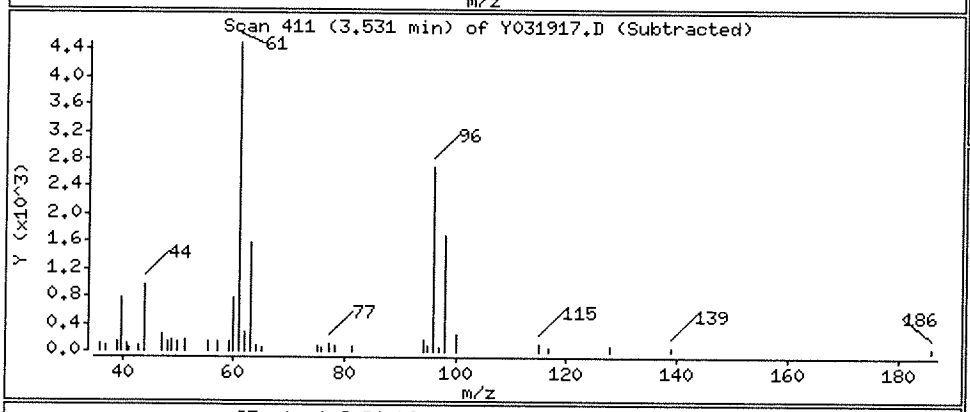
Column diameter: 0.18

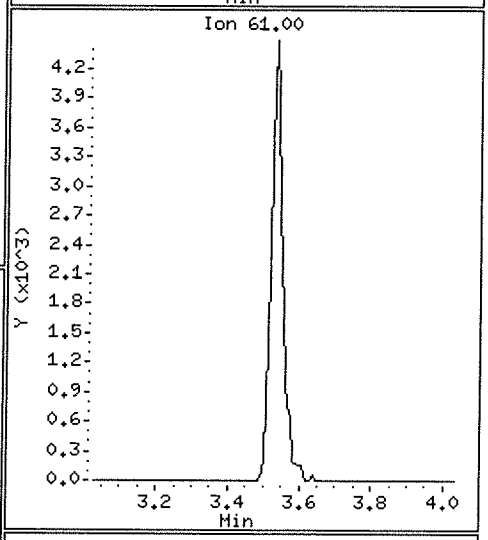
27 cis-1,2-Dichloroethene

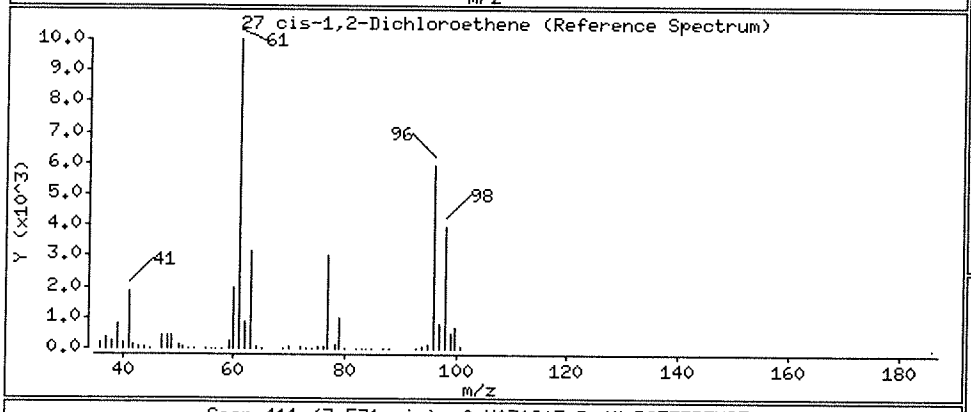
Concentration: 33.80 ug/l

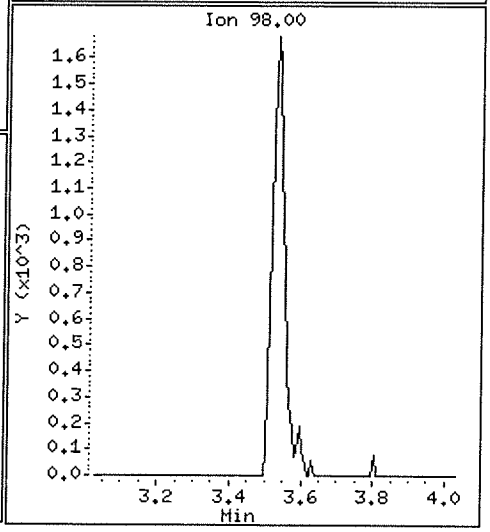


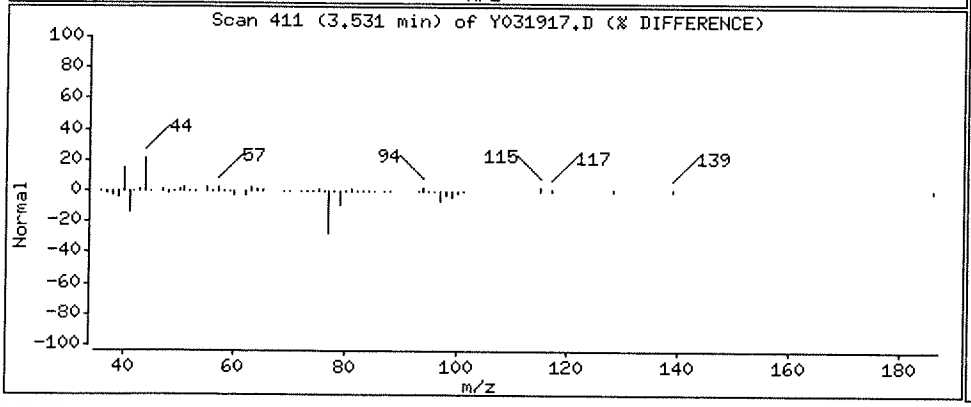












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031917.D

Date : 20-MAR-2020 04:22

Client ID: HS20030498-03

Instrument: voa6.i

Sample Info: HS20030498-03;HS20030498-03;;;

Purge Volume: 5.0

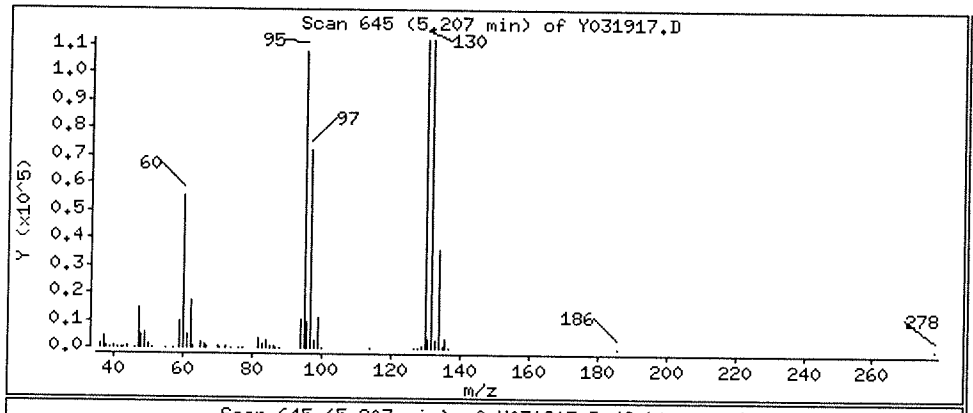
Operator: PC

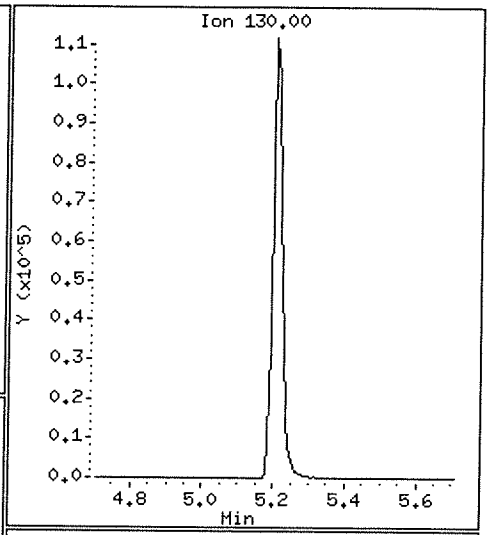
Column phase: DB624

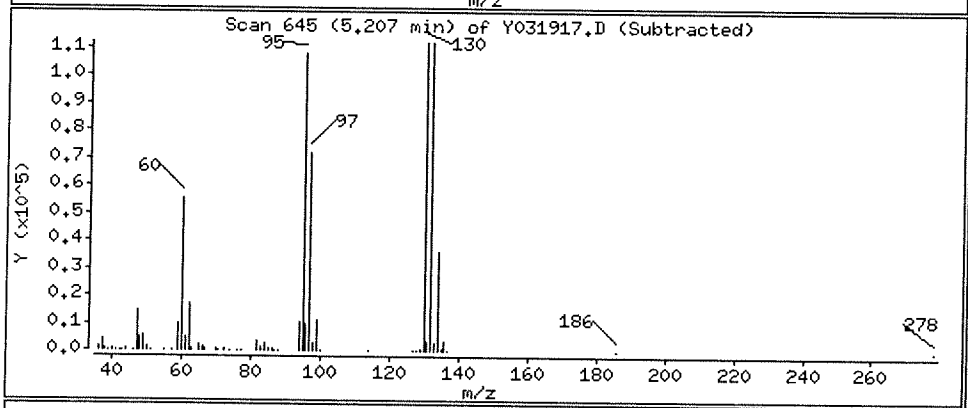
Column diameter: 0.18

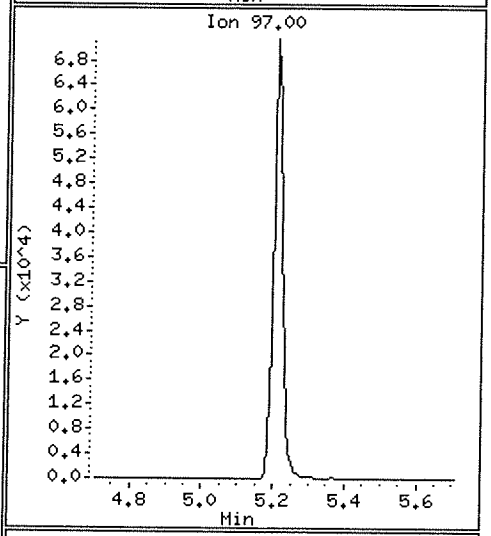
38 Trichloroethene

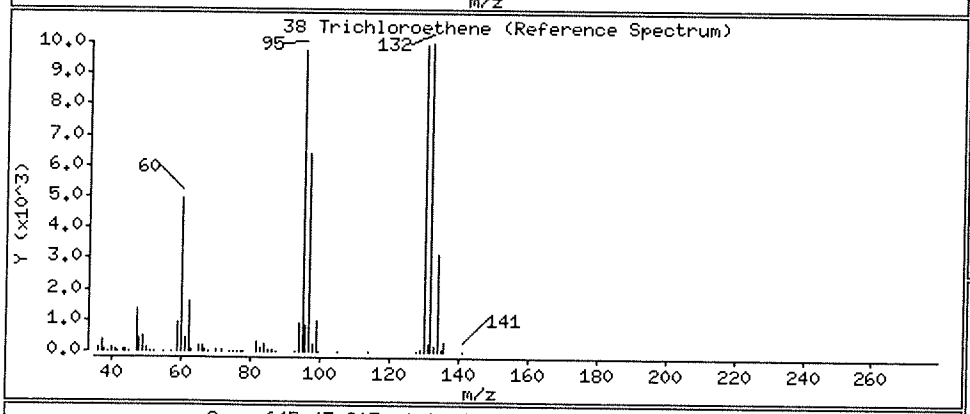
Concentration: 1302.30 ug/l

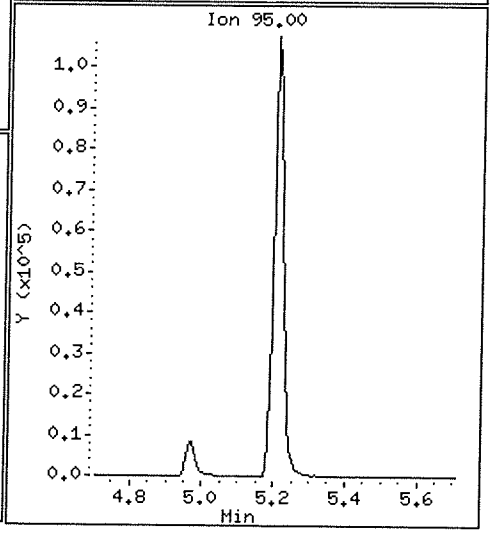


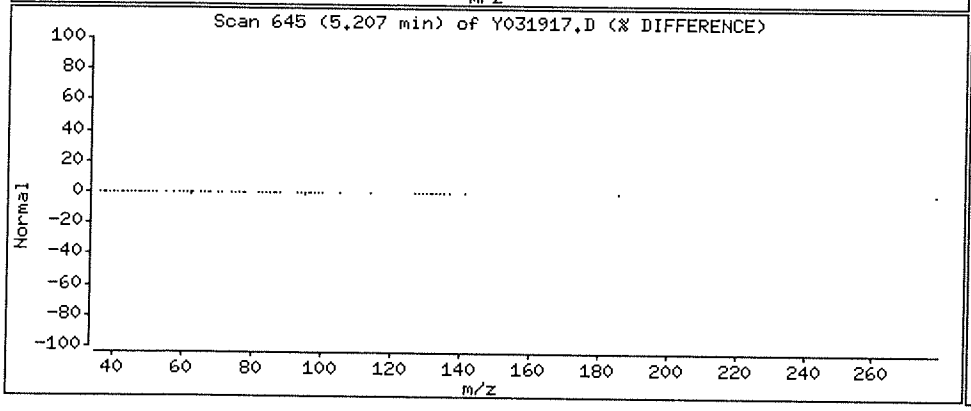












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031922.D
Lab Smp Id: HS20030498-01 Client Smp ID: HS20030498-01
Inj Date : 20-MAR-2020 06:22
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-01;HS20030498-01;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 48
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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	4.182	4.182	(1.000)	394791	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	182937	46.6295	46.62
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	223552	45.0561	45.05
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	577546	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	492114	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	663510	52.6374	52.63
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	229029	48.3515	48.35
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	234184	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	4131	0.68682	3.43(a)
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	2427	0.72549	3.62(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	43541	9.68457	48.42
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	9098	1.49106	7.45(a)
38 Trichloroethene	130	5.207	5.206	(1.048)	1198236	299.332	1496.65(A)

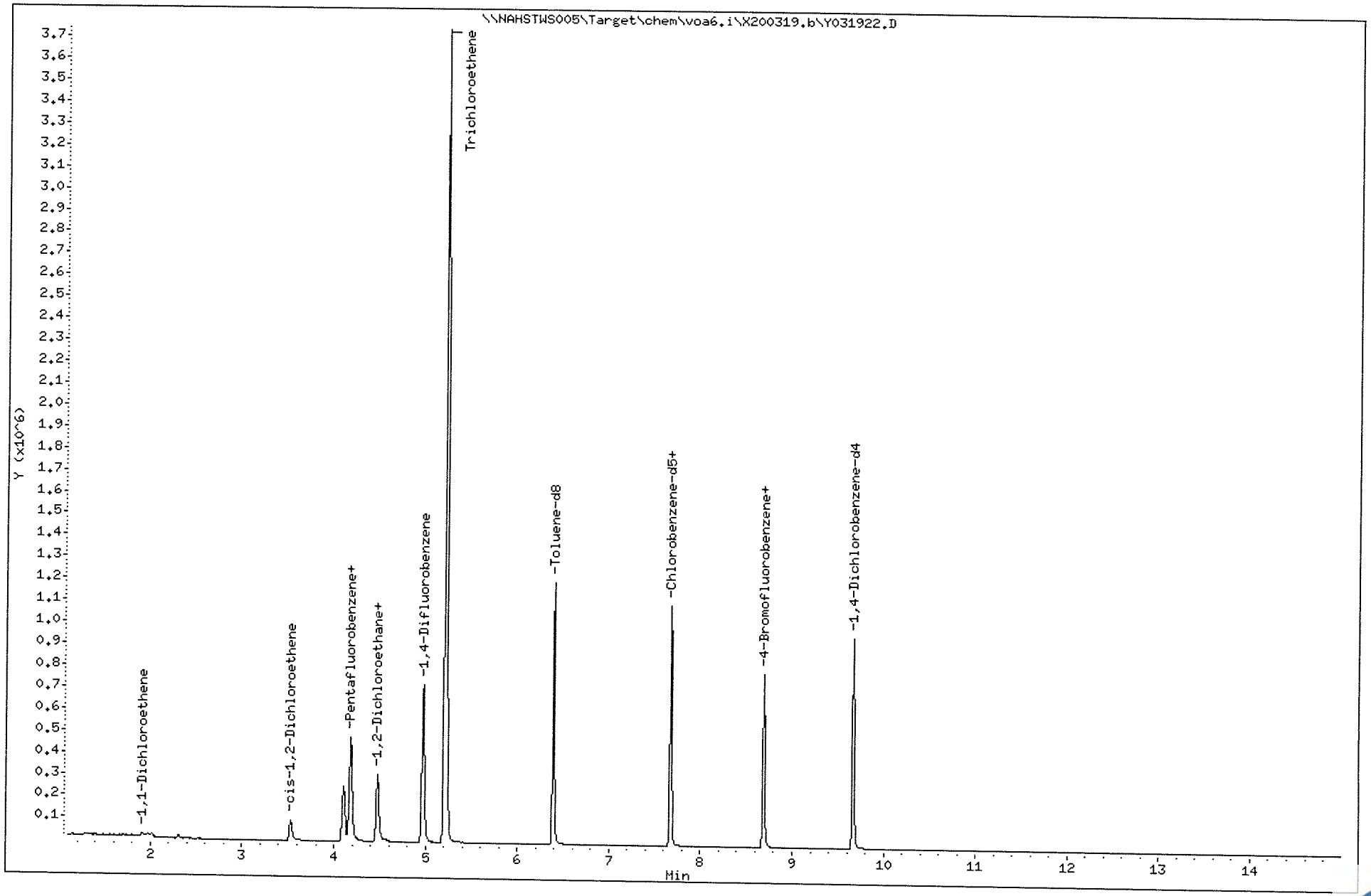
QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031922.D
Date : 20-MAR-2020 06:22
Client ID: HS20030498-01
Sample Info: HS20030498-01;HS20030498-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031922.D

Date : 20-MAR-2020 06:22

Client ID: HS20030498-01

Instrument: voa6.i

Sample Info: HS20030498-01;HS20030498-01;;;

Purge Volume: 5.0

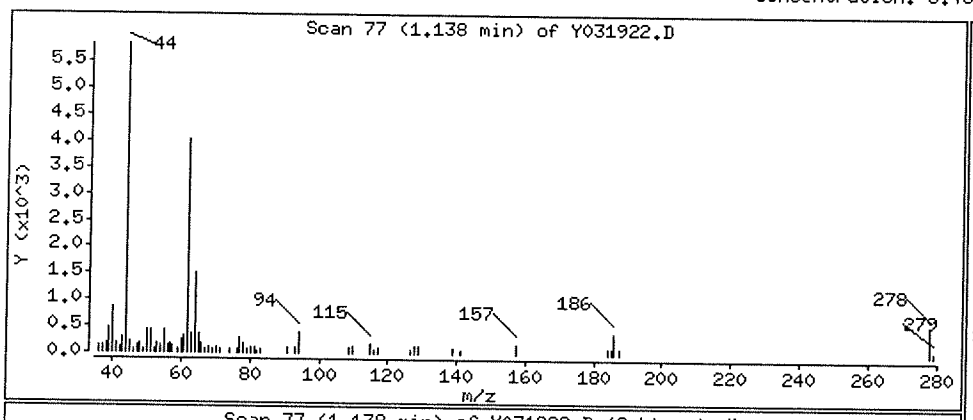
Operator: PC

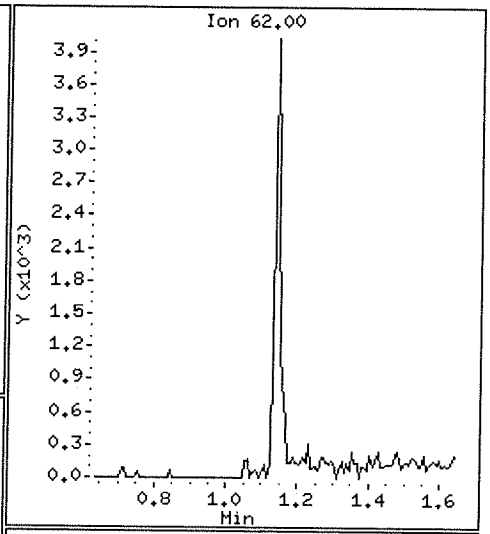
Column phase: DB624

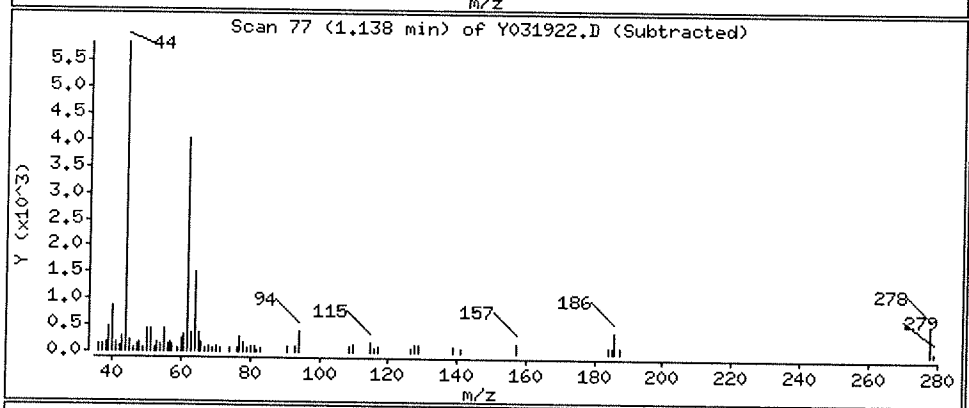
Column diameter: 0.18

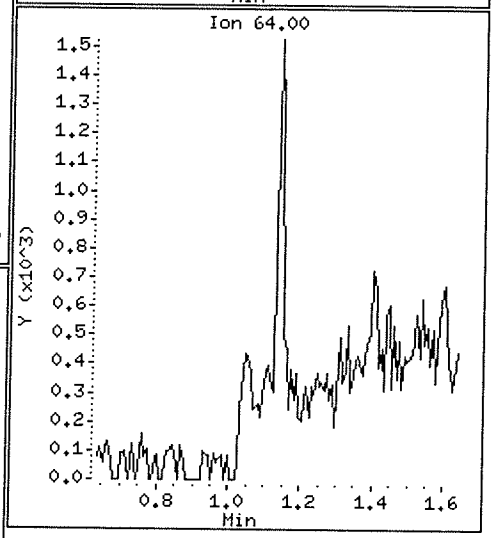
5 Vinyl Chloride

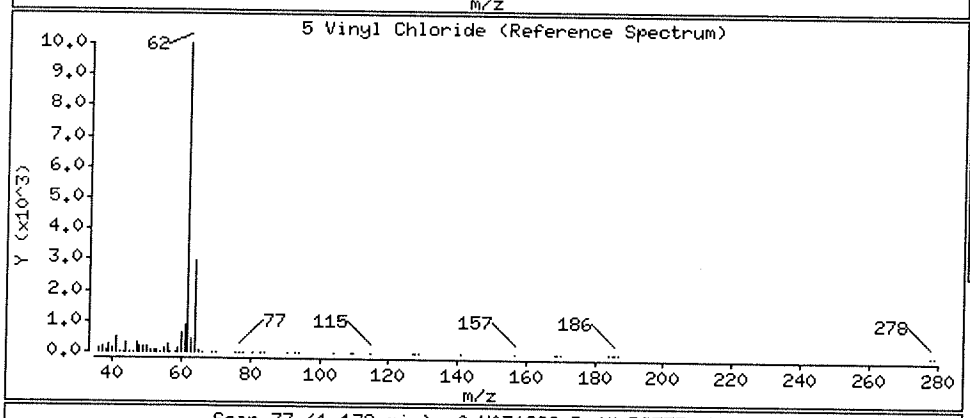
Concentration: 3.43 ug/l

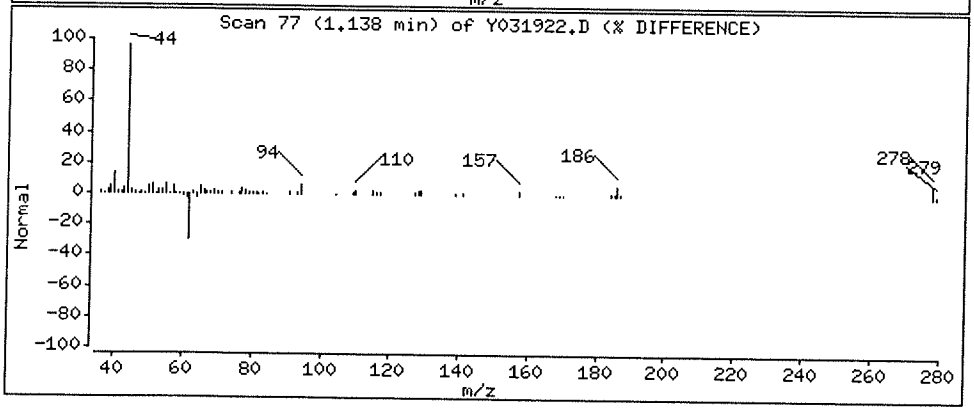












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031922.D

Date : 20-MAR-2020 06:22

Client ID: HS20030498-01

Instrument: voa6.i

Sample Info: HS20030498-01;HS20030498-01;;;

Purge Volume: 5.0

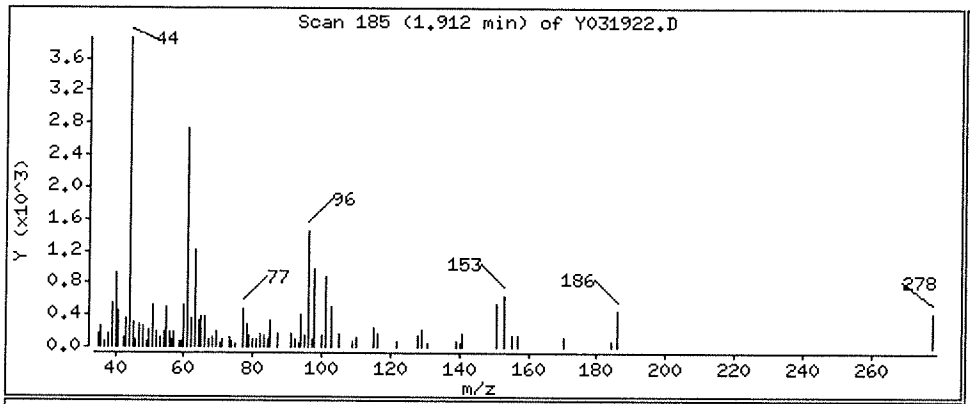
Operator: PC

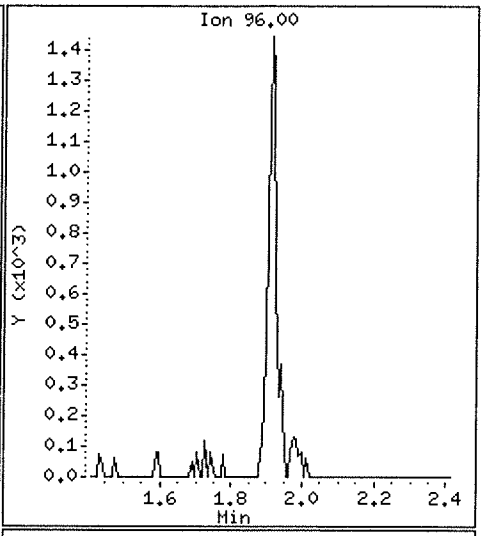
Column phase: DB624

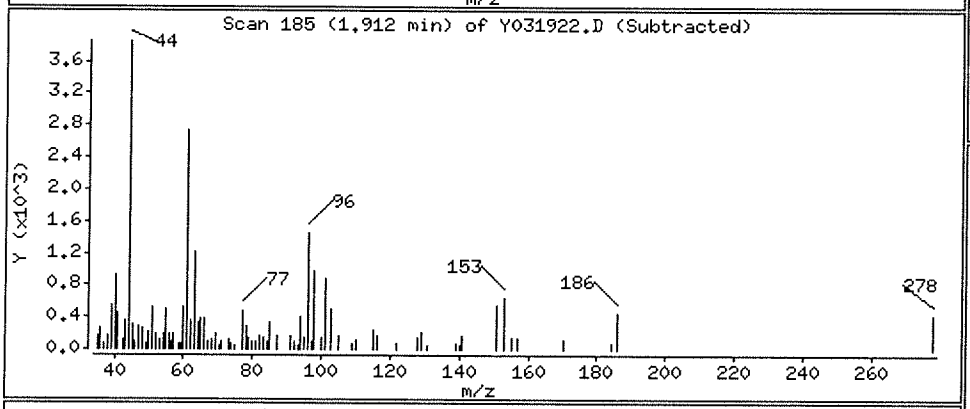
Column diameter: 0.18

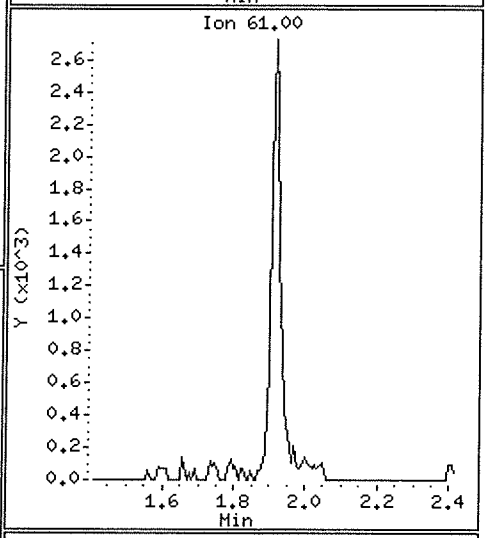
11 1,1-Dichloroethene

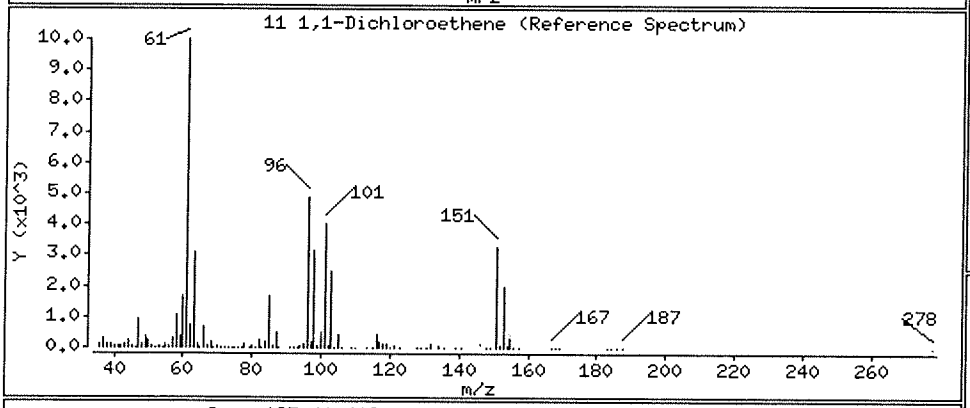
Concentration: 3.62 ug/l

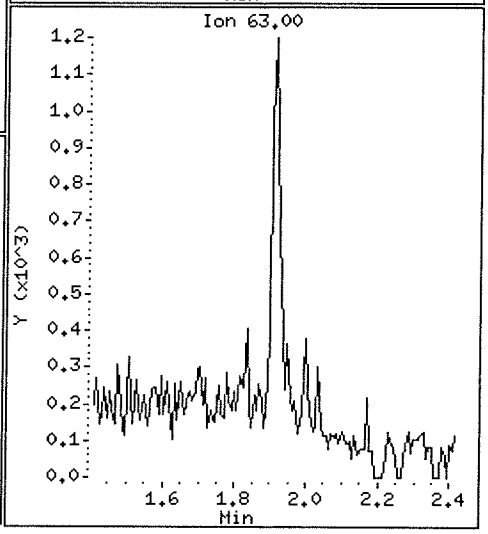


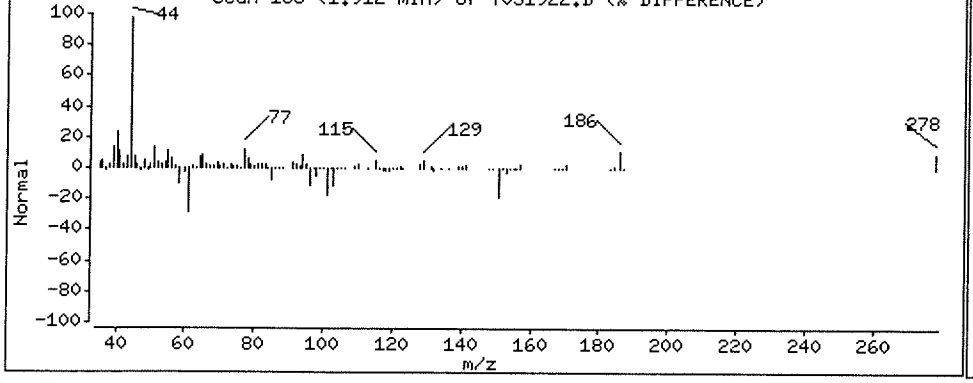












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031922.D

Date : 20-MAR-2020 06:22

Client ID: HS20030498-01

Instrument: voa6.i

Sample Info: HS20030498-01;HS20030498-01;;;

Purge Volume: 5.0

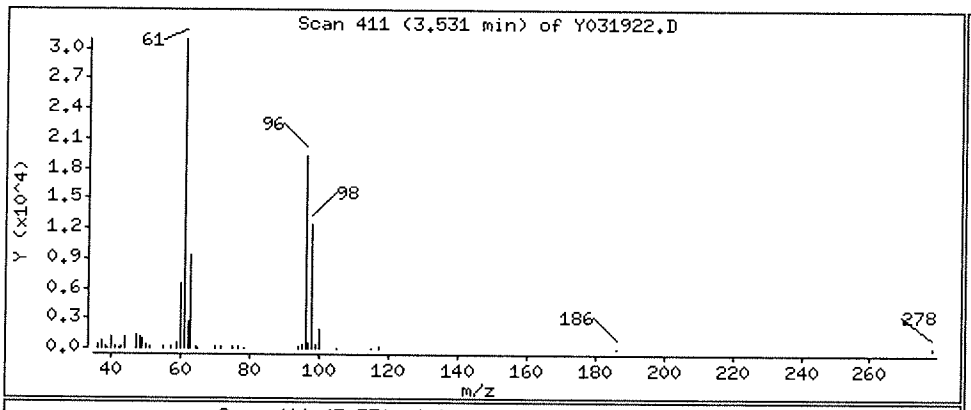
Operator: PC

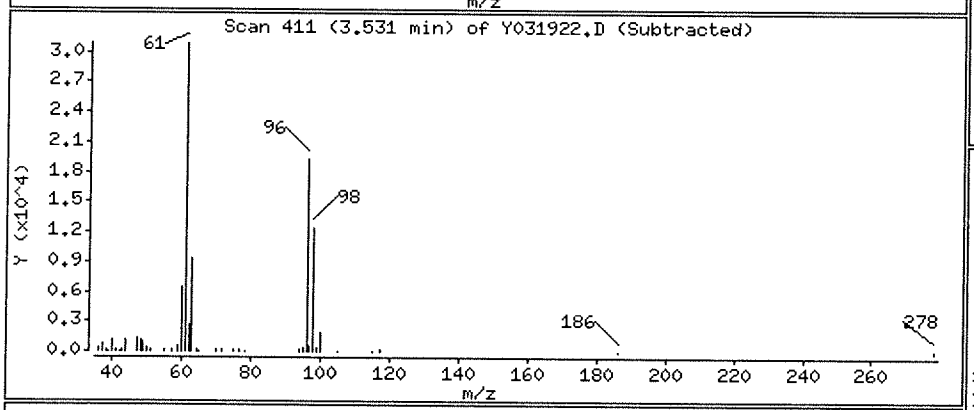
Column phase: DB624

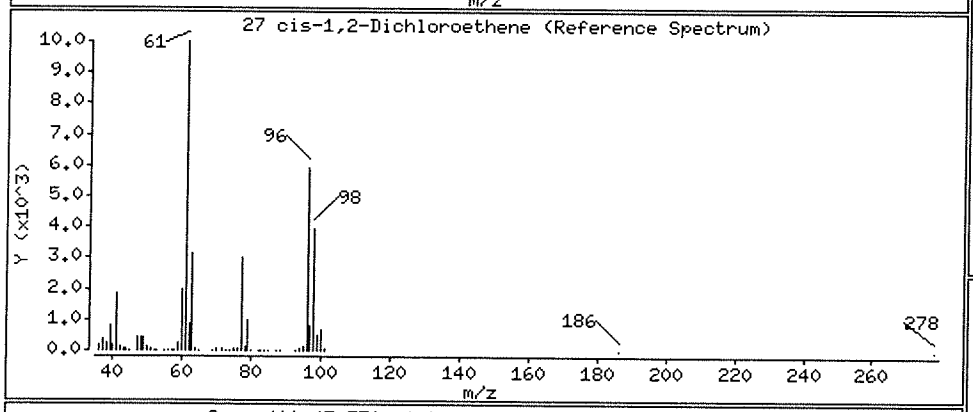
Column diameter: 0.18

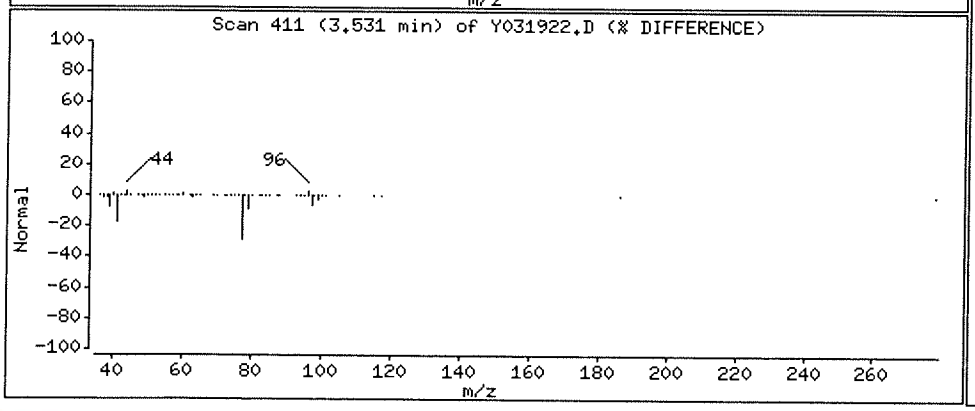
27 cis-1,2-Dichloroethene

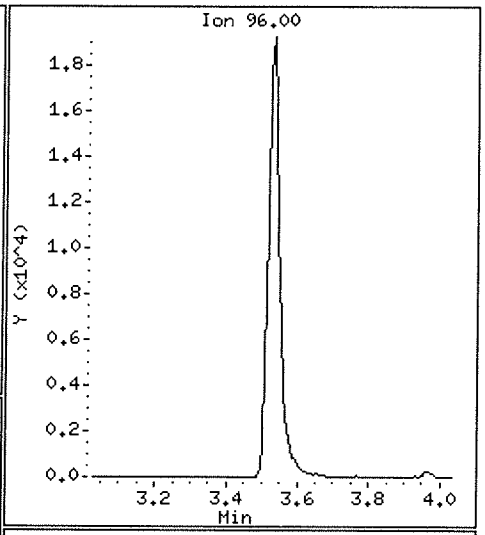
Concentration: 48.42 ug/l

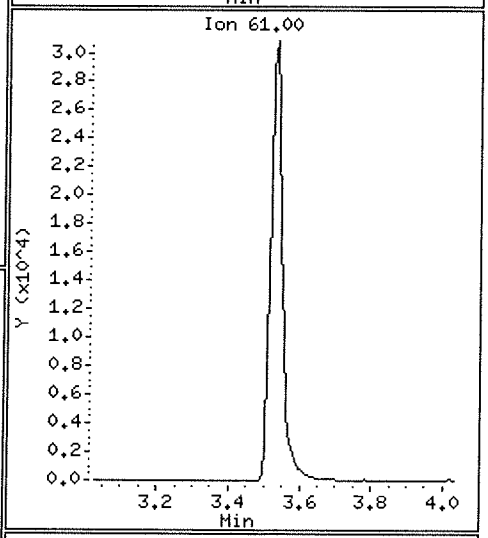


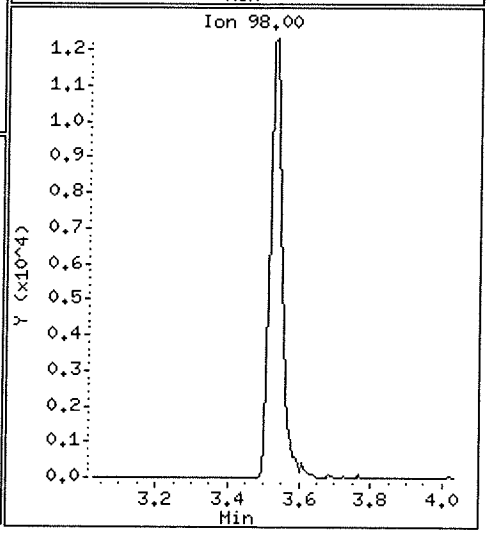












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031922.D

Date : 20-MAR-2020 06:22

Client ID: HS20030498-01

Instrument: voa6.i

Sample Info: HS20030498-01;HS20030498-01;;;

Purge Volume: 5.0

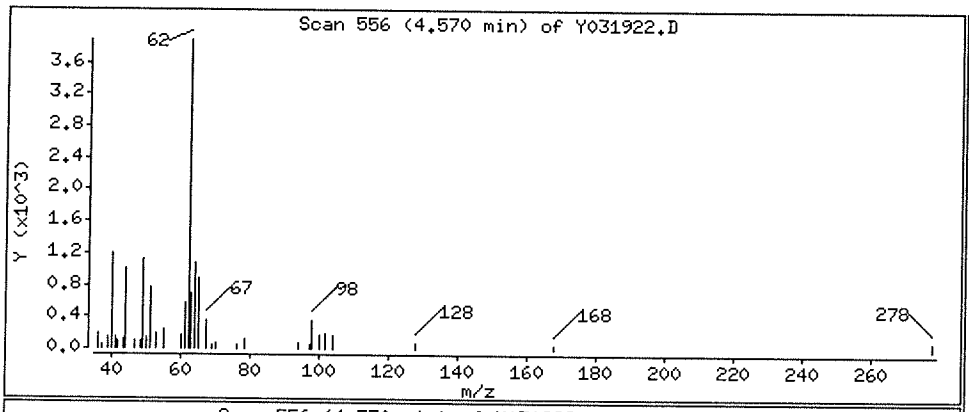
Operator: PC

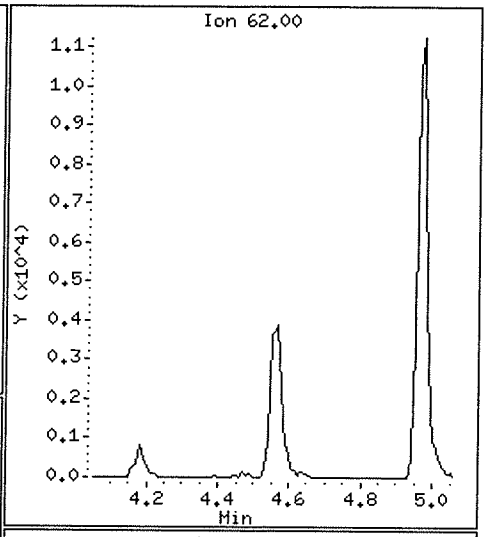
Column phase: DB624

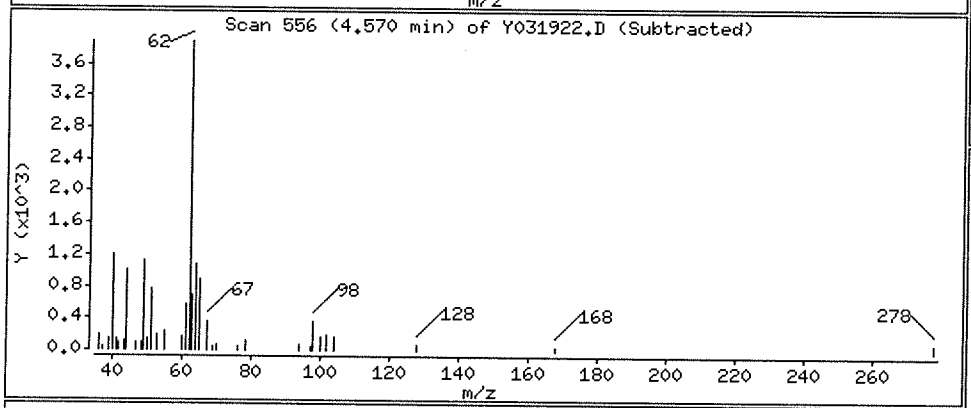
Column diameter: 0.18

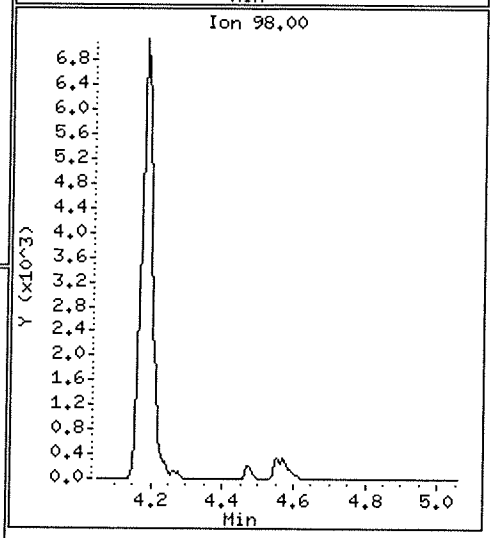
33 1,2-Dichloroethane

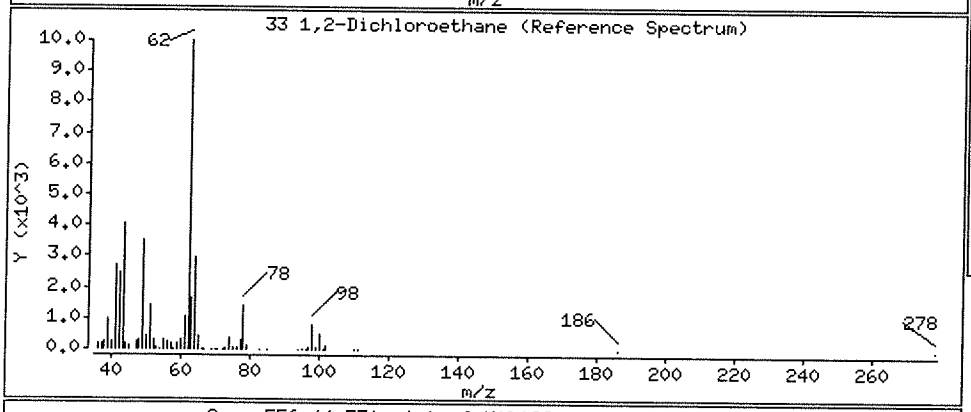
Concentration: 7.45 ug/l

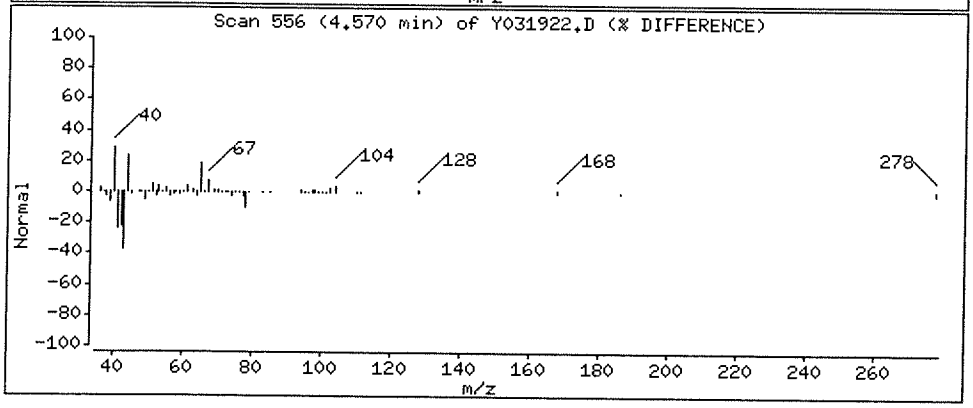












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031922.D

Date : 20-MAR-2020 06:22

Client ID: HS20030498-01

Instrument: voa6.i

Sample Info: HS20030498-01;HS20030498-01;;;

Purge Volume: 5.0

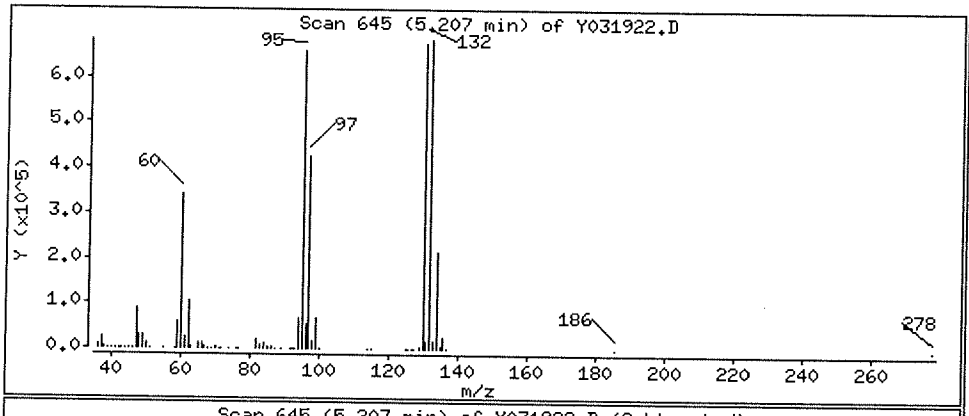
Operator: PC

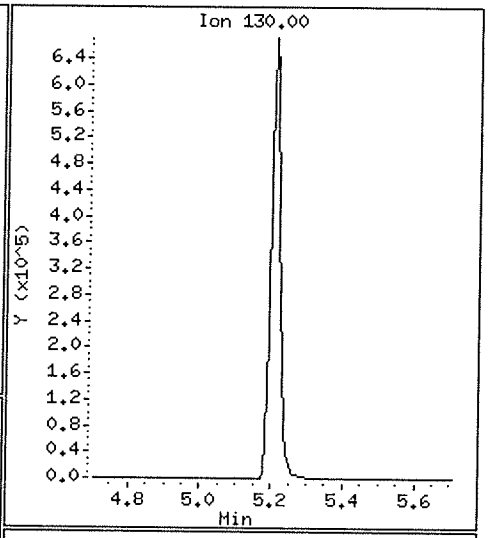
Column phase: DB624

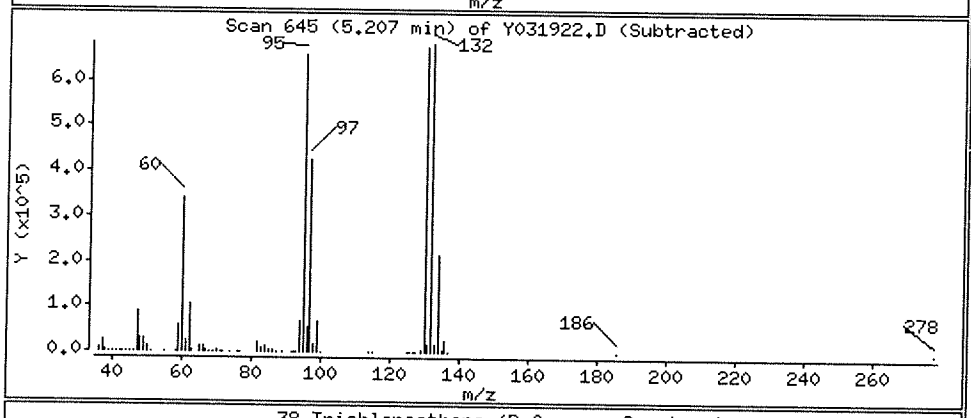
Column diameter: 0.18

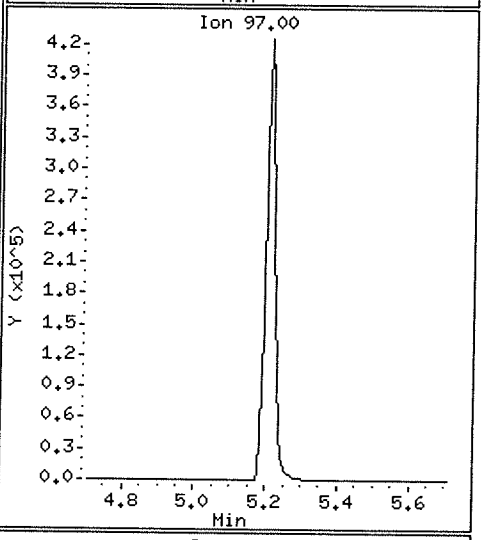
38 Trichloroethene

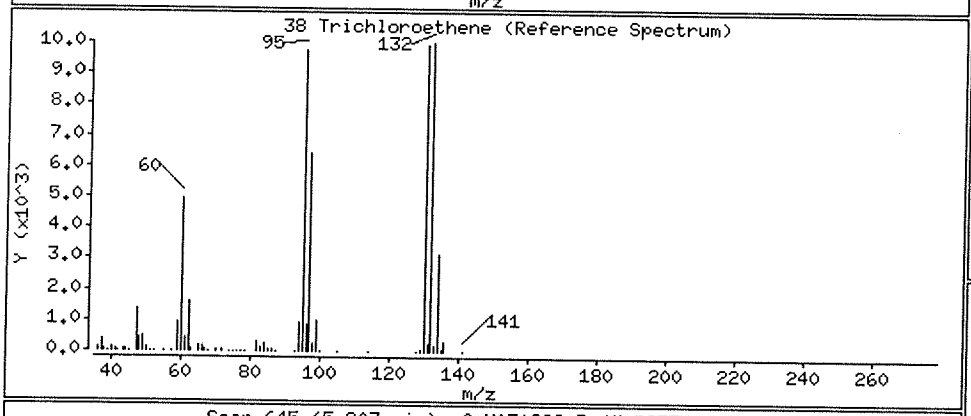
Concentration: 1496.65 ug/l

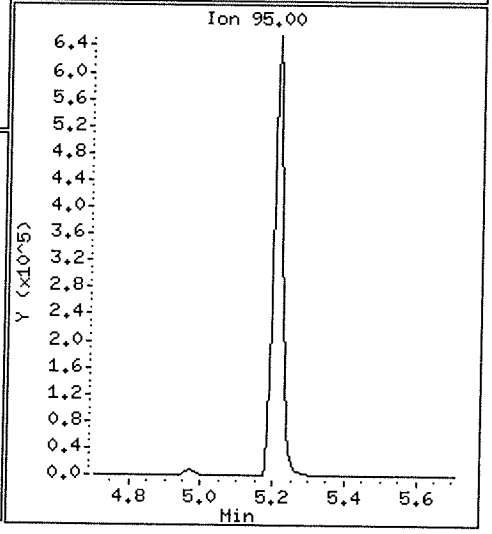


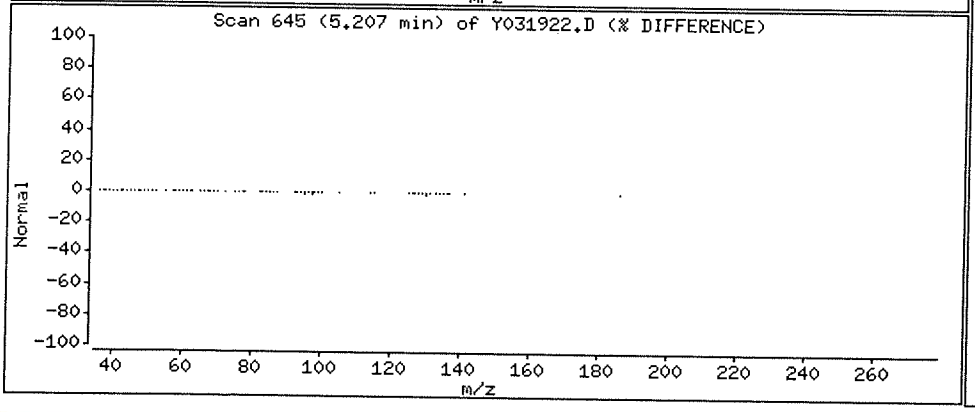












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031923.D Page 1
Report Date: 14-Apr-2020 12:29

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031923.D
Lab Smp Id: HS20030498-01 Client Smp ID: HS20030498-01
Inj Date : 20-MAR-2020 06:46
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-01;HS20030498-01;;;
Misc Info : HS18090001;WATER;0;25;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 49
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	386076	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	183617	47.8622	47.86
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	222321	45.8221	45.82
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	570988	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	485630	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	668266	53.7241	53.72
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	225190	48.1740	48.17
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	227234	50.0000	
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	9531	2.16778	54.19(a)
38 Trichloroethene	130	5.207	5.206	(1.048)	268543	67.8553	1696.38

QC Flag Legend

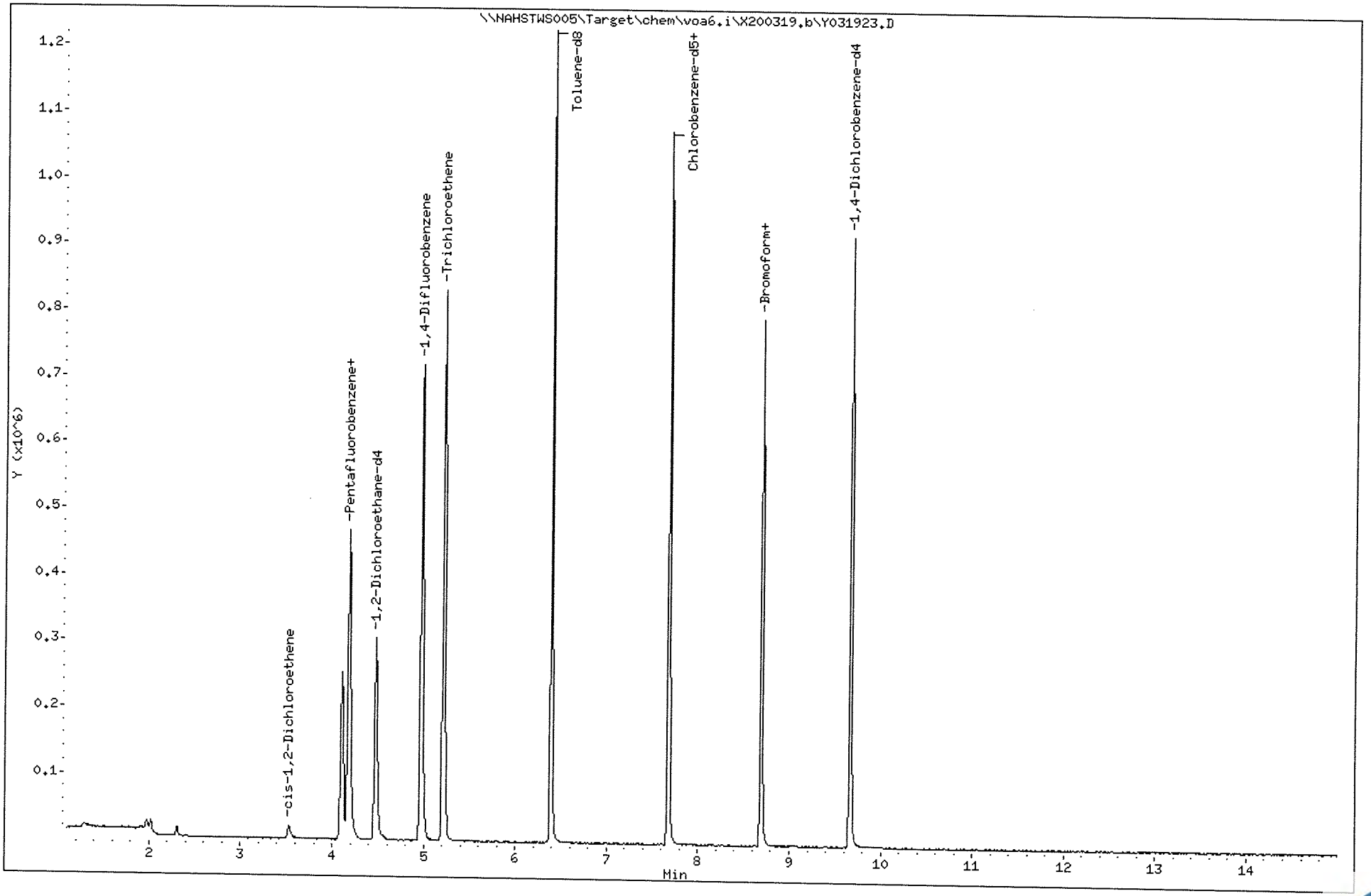
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

01094414

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031923.D
Date : 20-MAR-2020 06:46
Client ID: HS20030498-01
Sample Info: HS20030498-01;HS20030498-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031923.D

Date : 20-MAR-2020 06:46

Client ID: HS20030498-01

Instrument: voa6.i

Sample Info: HS20030498-01;HS20030498-01;;;

Purge Volume: 5.0

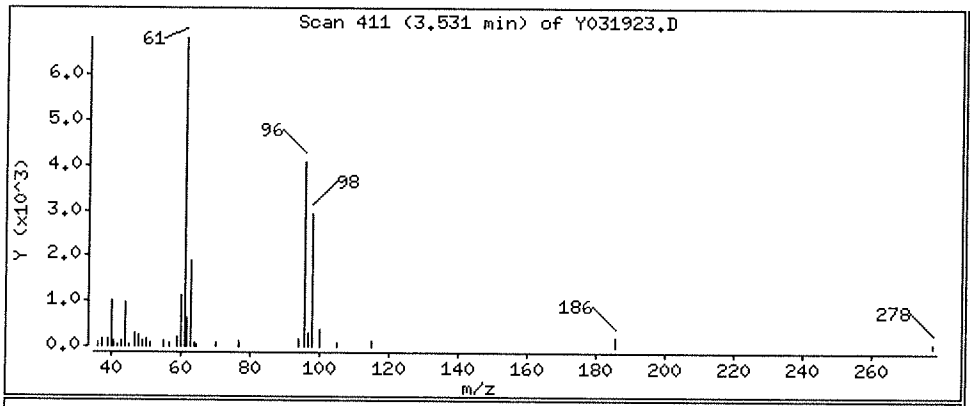
Operator: PC

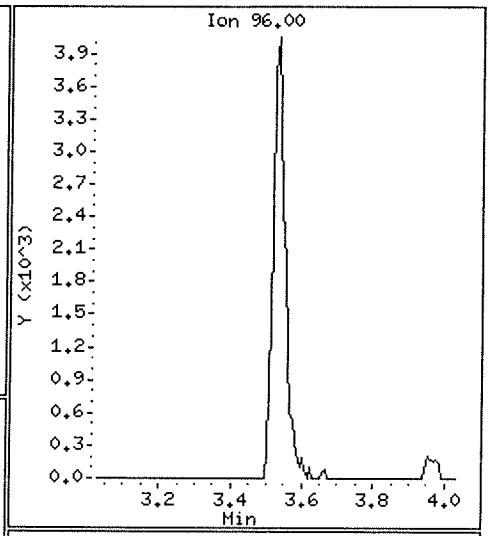
Column phase: DB624

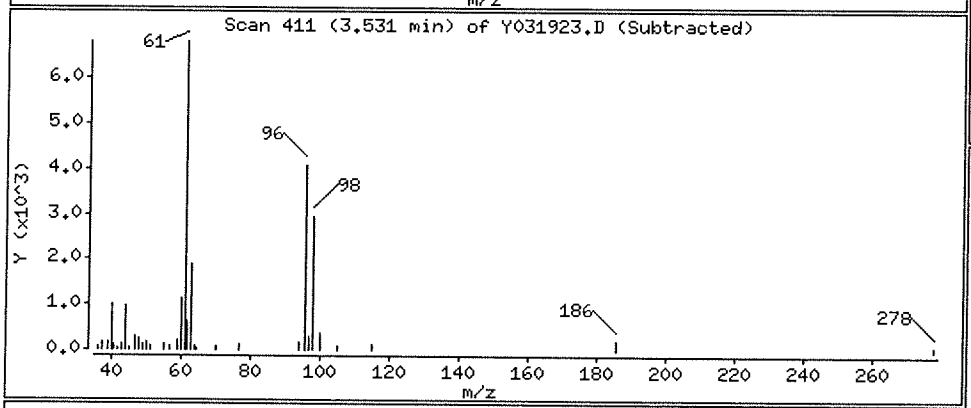
Column diameter: 0.18

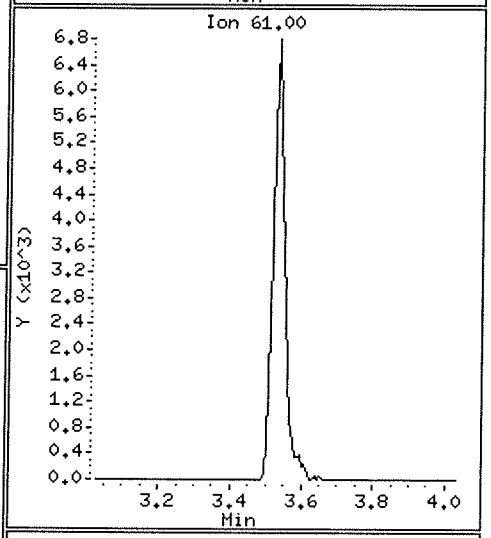
27 cis-1,2-Dichloroethene

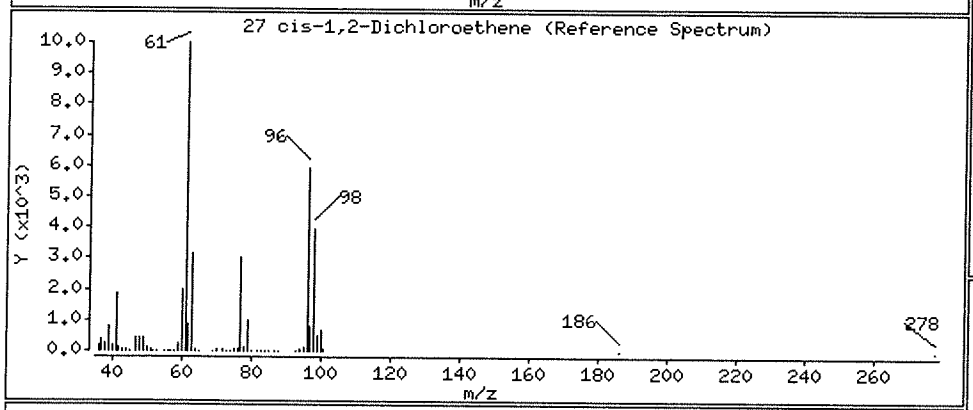
Concentration: 54.19 ug/l

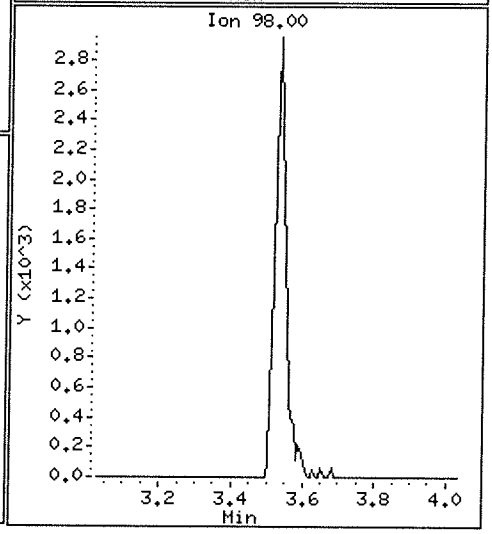


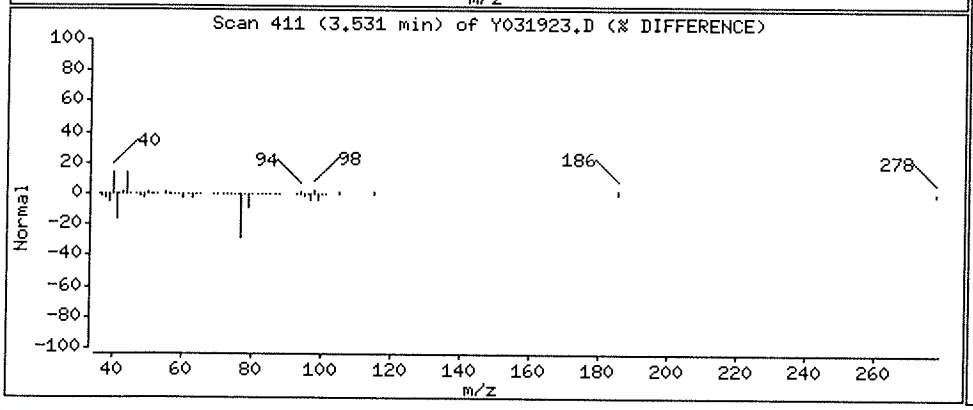












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031923.D

Date : 20-MAR-2020 06:46

Client ID: HS20030498-01

Instrument: voa6.i

Sample Info: HS20030498-01;HS20030498-01;;;

Purge Volume: 5.0

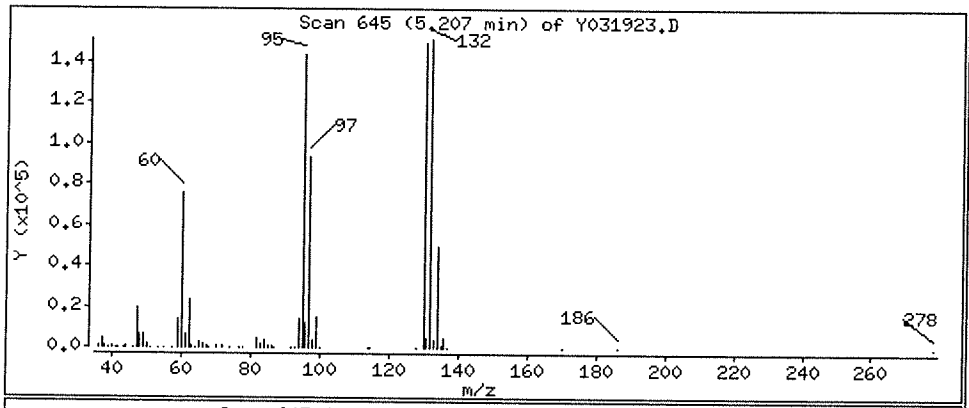
Operator: PC

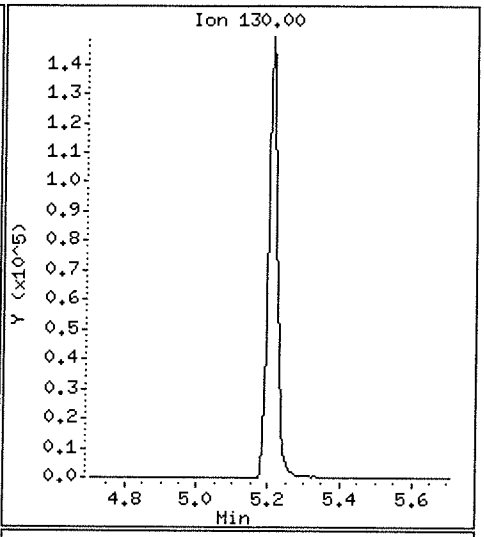
Column phase: DB624

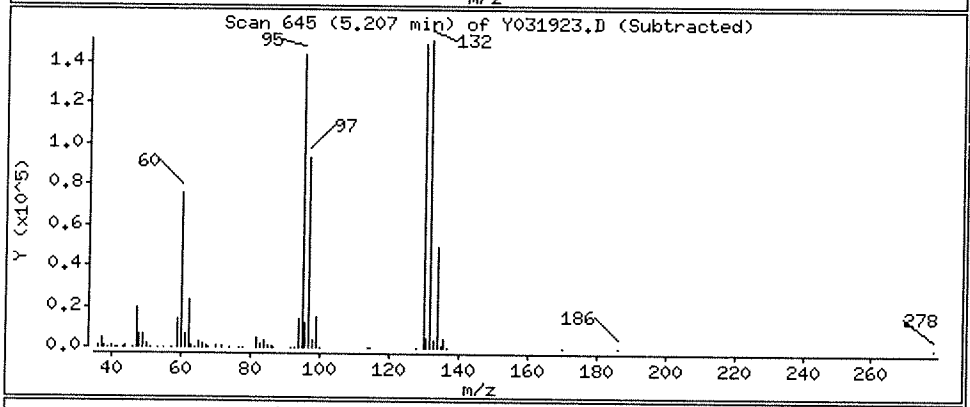
Column diameter: 0.18

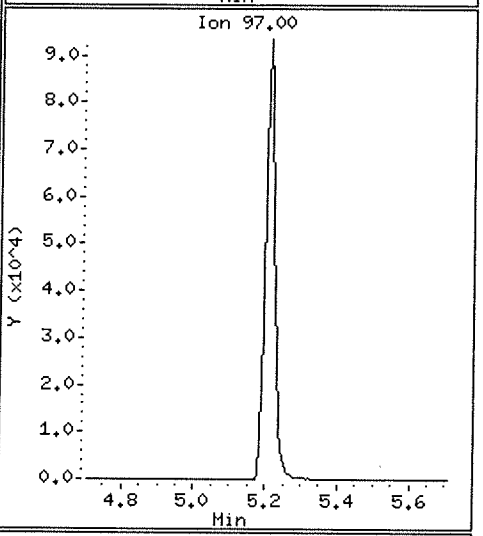
38 Trichloroethene

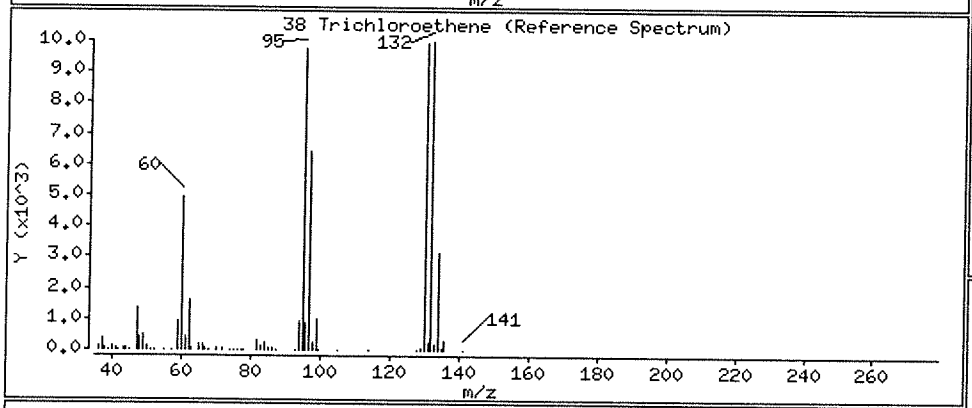
Concentration: 1696.38 ug/l

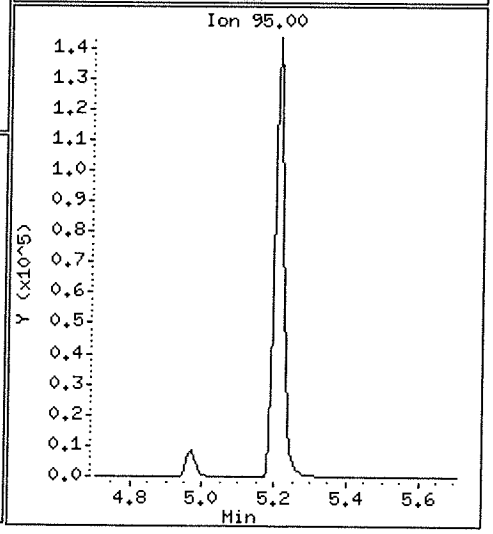


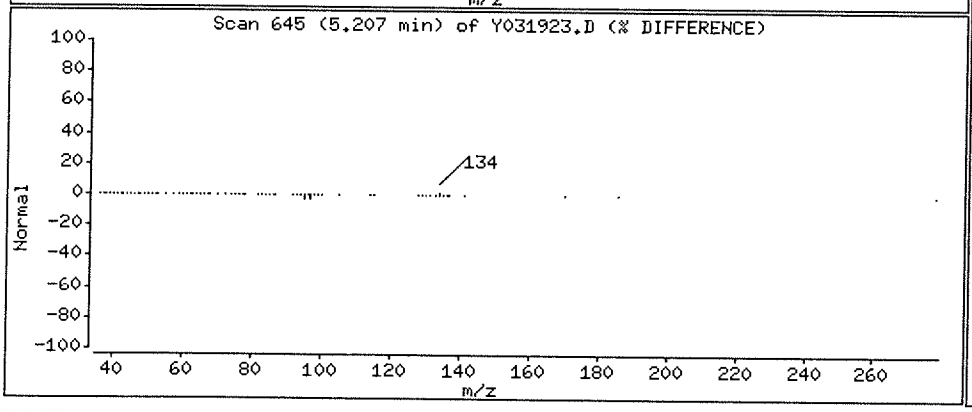












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031924.D
Lab Smp Id: HS20030498-02 Client Smp ID: HS20030498-02
Inj Date : 20-MAR-2020 07:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-02;HS20030498-02;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 50
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	392317	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	183435	47.0523	47.05
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	222462	45.1194	45.11
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	577968	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	483737	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	645229	52.0728	52.07
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	226438	48.6352	48.63
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	226076	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	26588	4.44840	22.24(a)
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	6787	2.04160	10.20(a)
27 cis-1,2-Dichloroethene	96	3.523	3.530	(0.842)	741528	165.974	829.86
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	46081	7.54663	37.73
38 Trichloroethene	130	5.207	5.206	(1.048)	3278443	818.391	4091.95(A)

QC Flag Legend

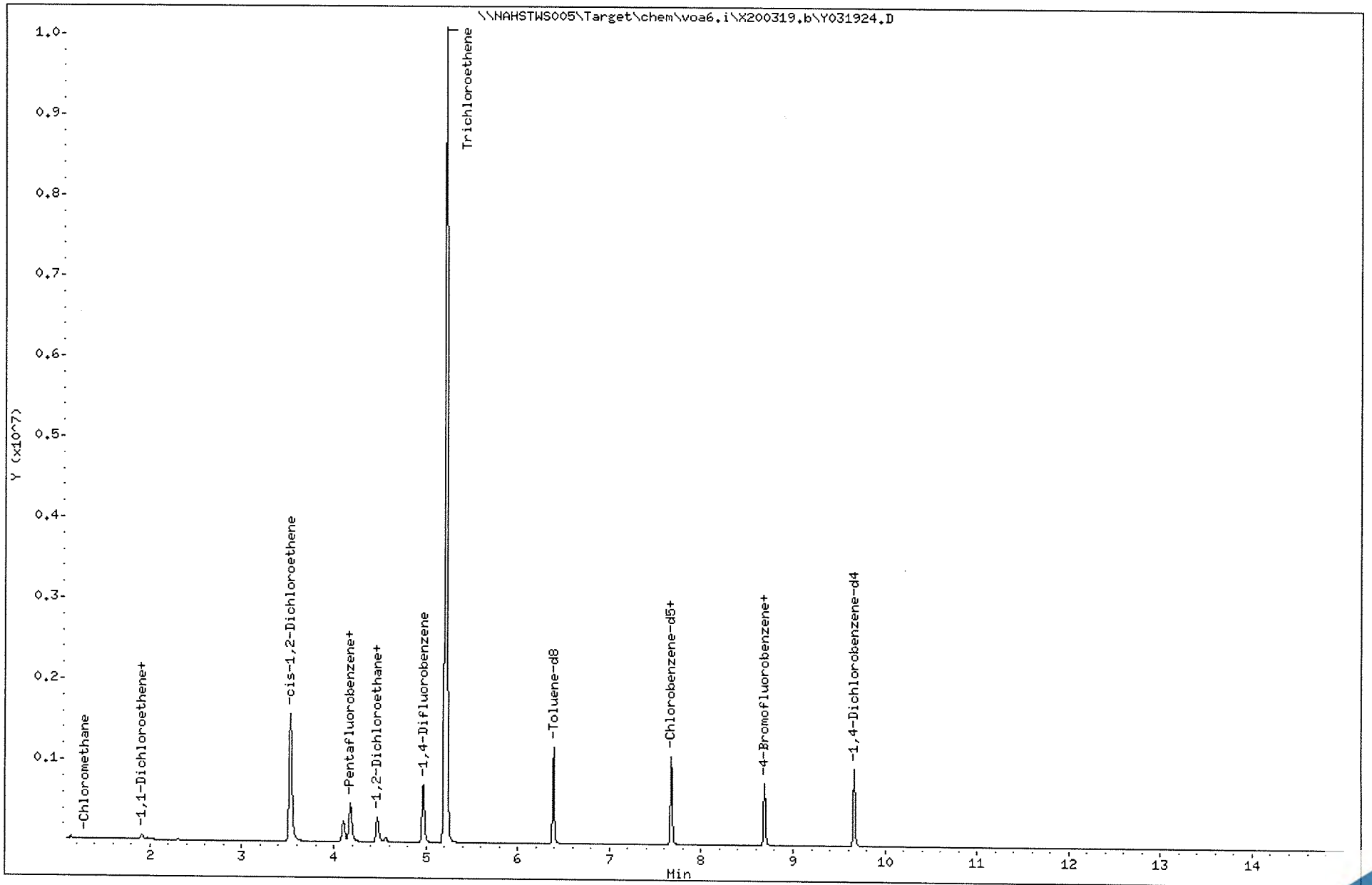
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

01094418

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031924.D
Date : 20-MAR-2020 07:10
Client ID: HS20030498-02
Sample Info: HS20030498-02;HS20030498-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031924.D

Date : 20-MAR-2020 07:10

Client ID: HS20030498-02

Instrument: voa6.i

Sample Info: HS20030498-02;HS20030498-02;;;

Purge Volume: 5.0

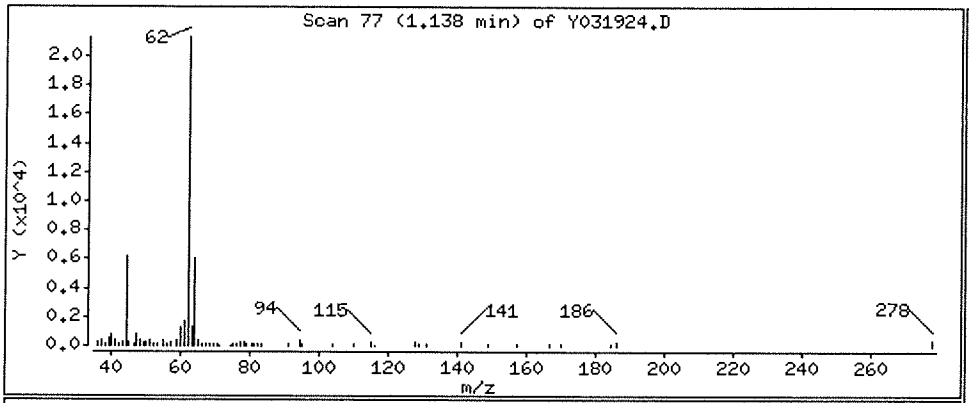
Operator: PC

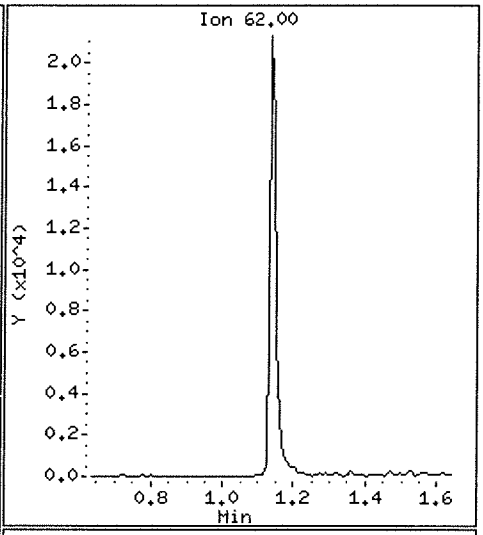
Column phase: DB624

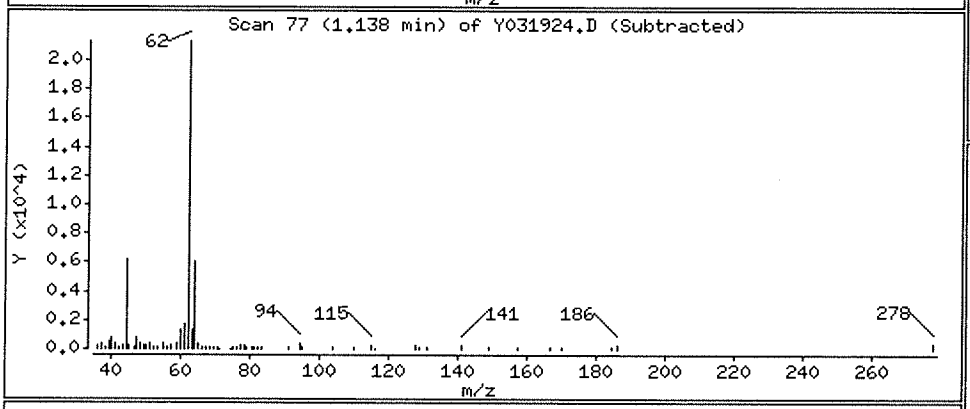
Column diameter: 0.18

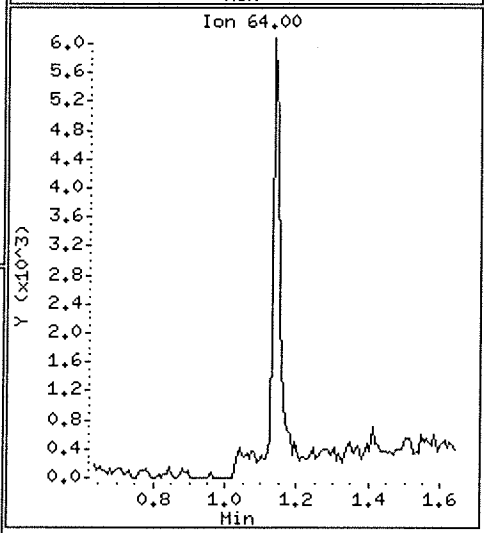
5 Vinyl Chloride

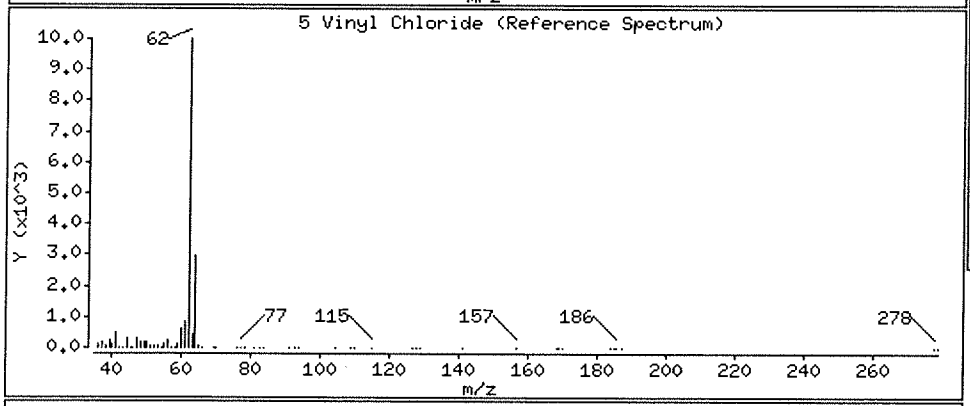
Concentration: 22.24 ug/l

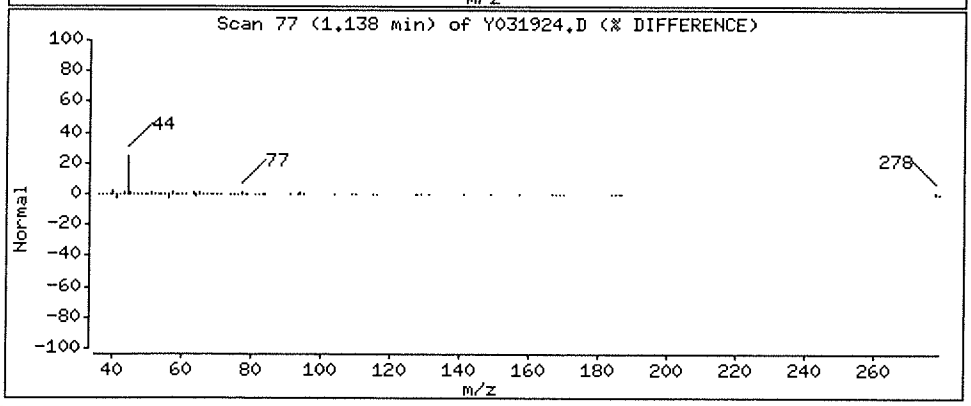












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031924.D

Date : 20-MAR-2020 07:10

Client ID: HS20030498-02

Instrument: voa6.i

Sample Info: HS20030498-02;HS20030498-02;;;

Purge Volume: 5.0

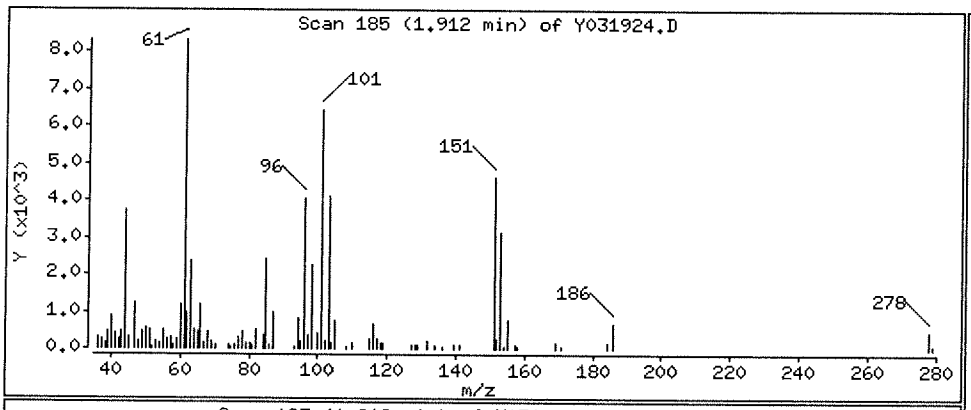
Operator: PC

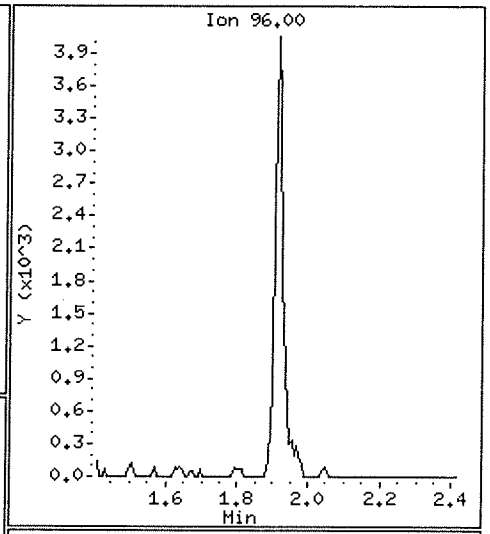
Column phase: DB624

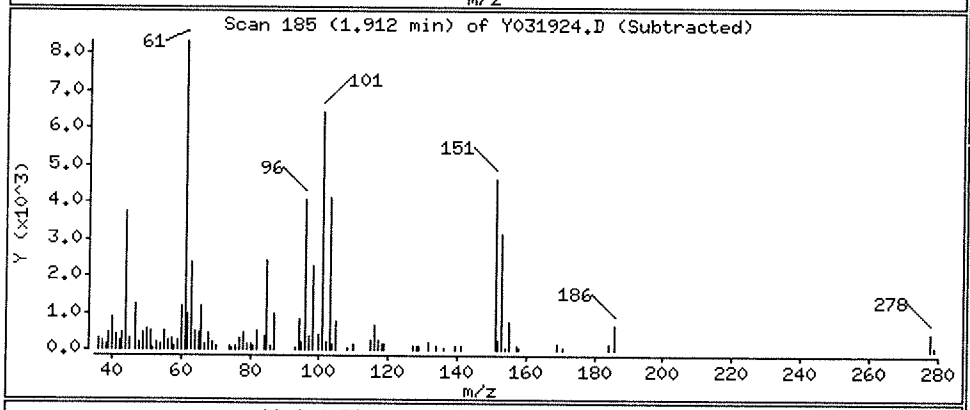
Column diameter: 0.18

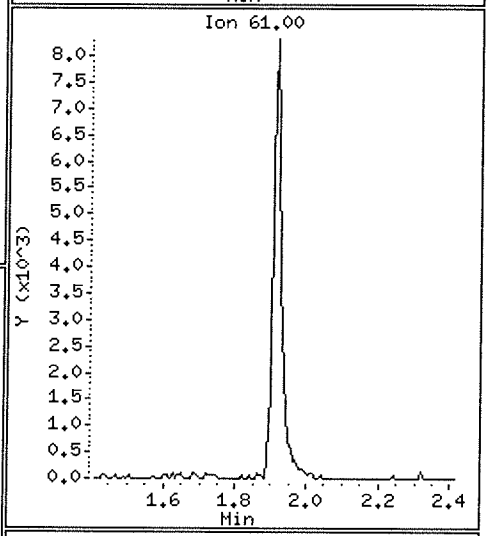
11 1,1-Dichloroethene

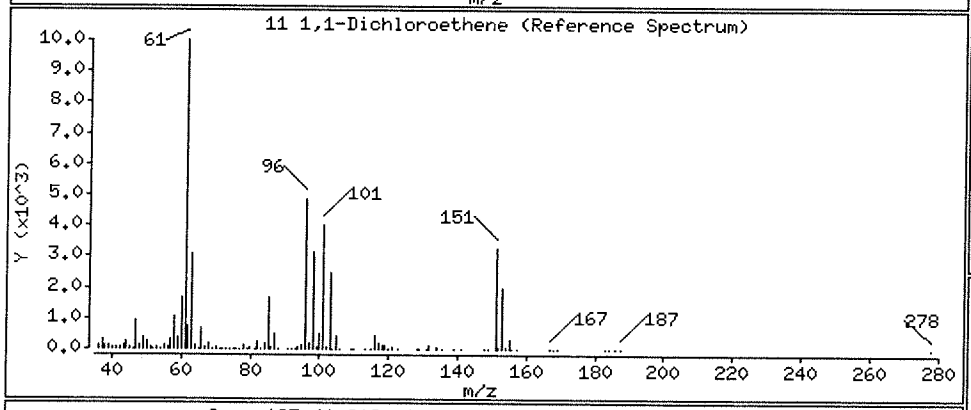
Concentration: 10.20 ug/l

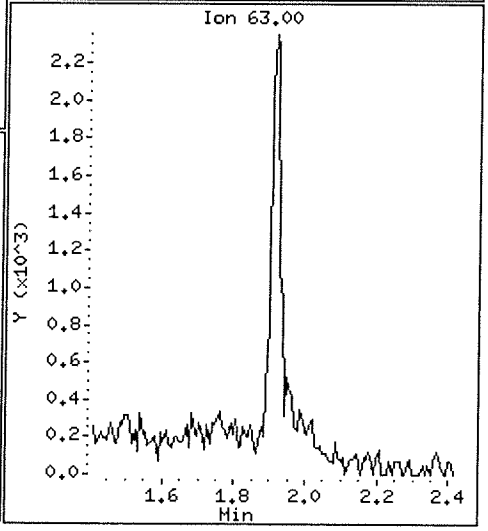


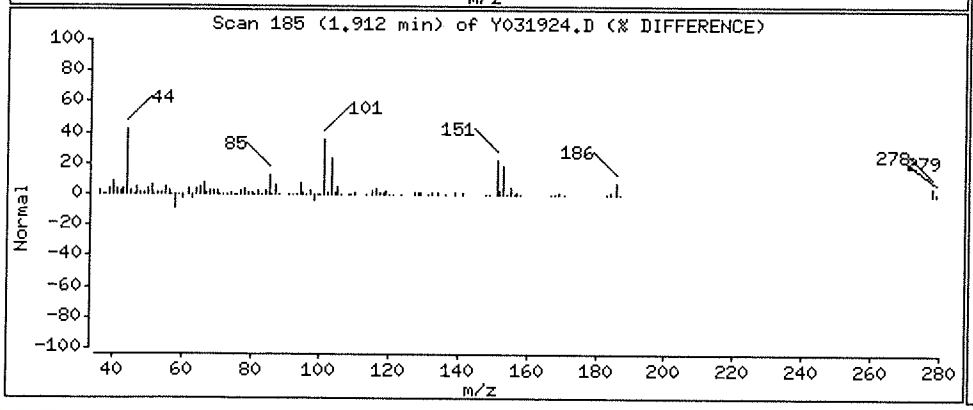












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031924.D

Date : 20-MAR-2020 07:10

Client ID: HS20030498-02

Instrument: voa6.i

Sample Info: HS20030498-02;HS20030498-02;;;

Purge Volume: 5.0

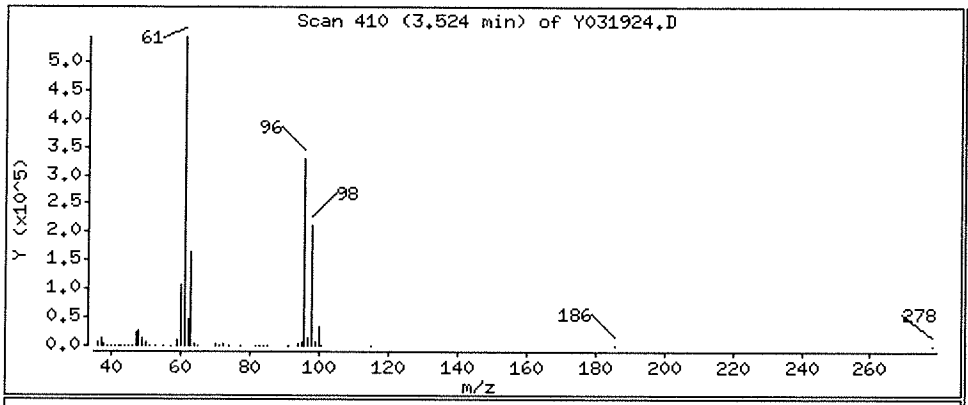
Operator: PC

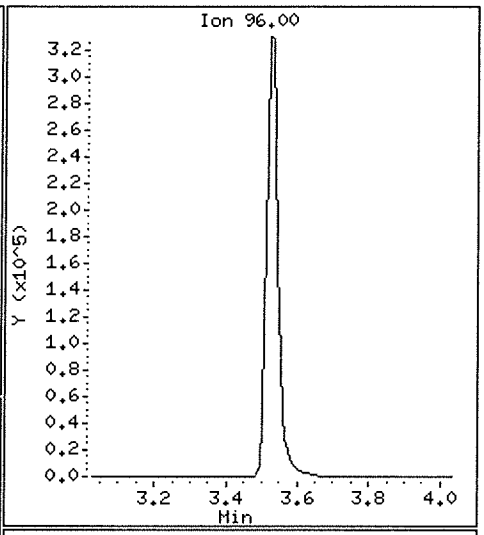
Column phase: DB624

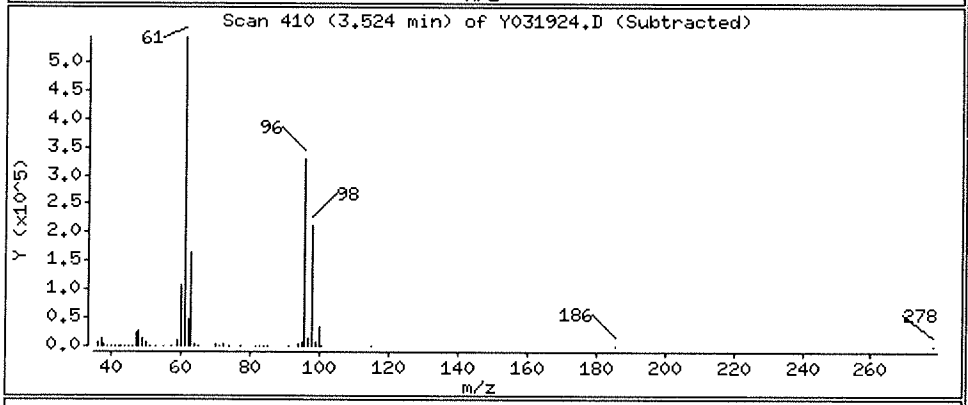
Column diameter: 0.18

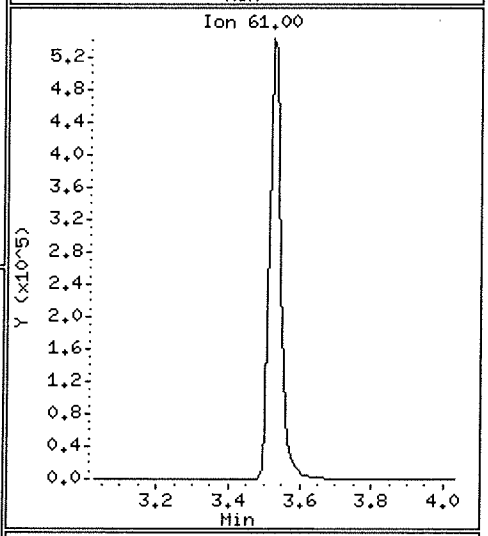
27 cis-1,2-Dichloroethene

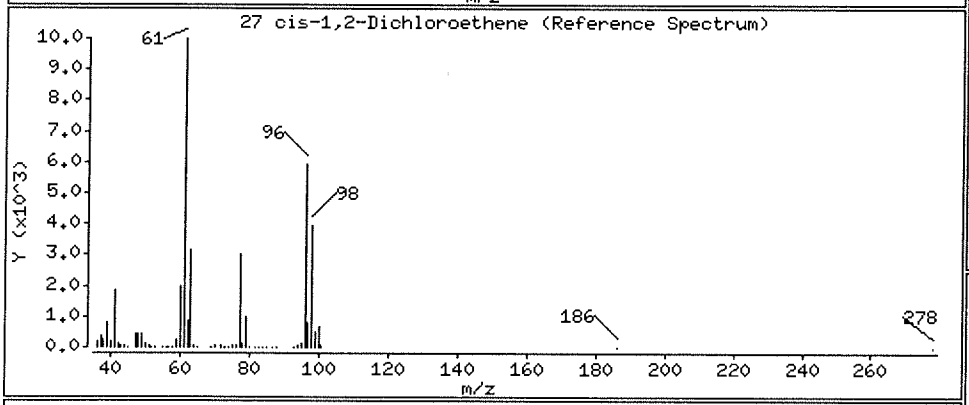
Concentration: 829.86 ug/l

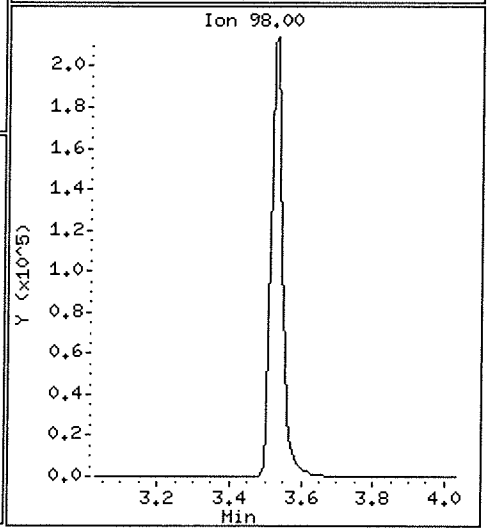


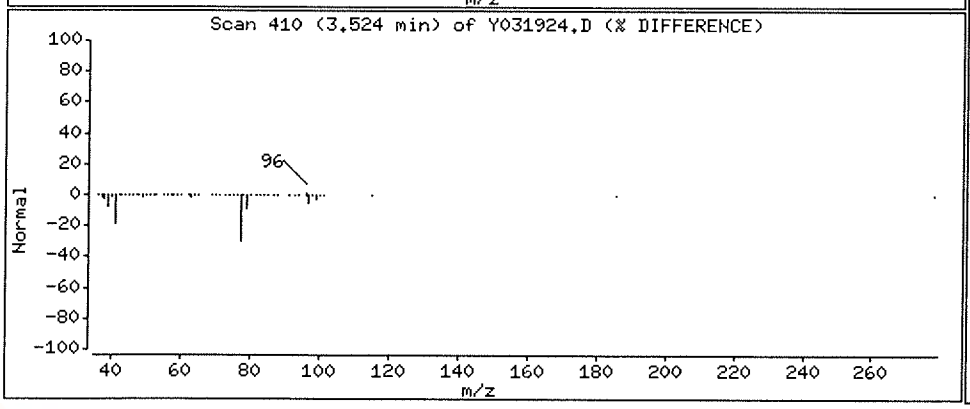












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031924.D

Date : 20-MAR-2020 07:10

Client ID: HS20030498-02

Instrument: voa6.i

Sample Info: HS20030498-02;HS20030498-02;;;

Purge Volume: 5.0

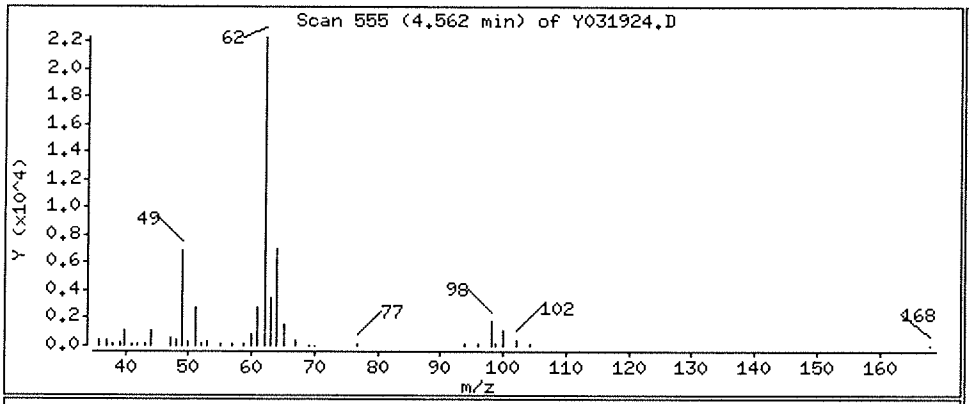
Operator: PC

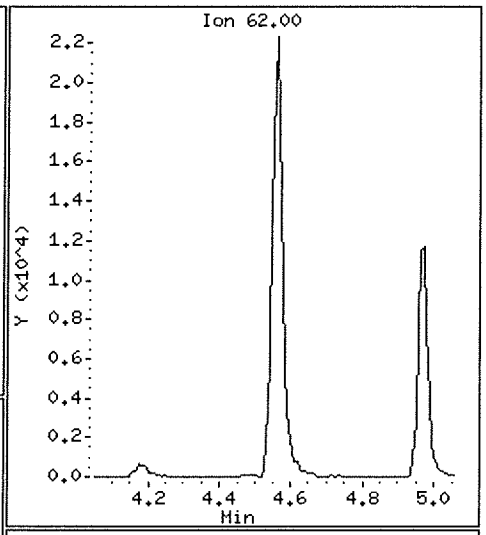
Column phase: DB624

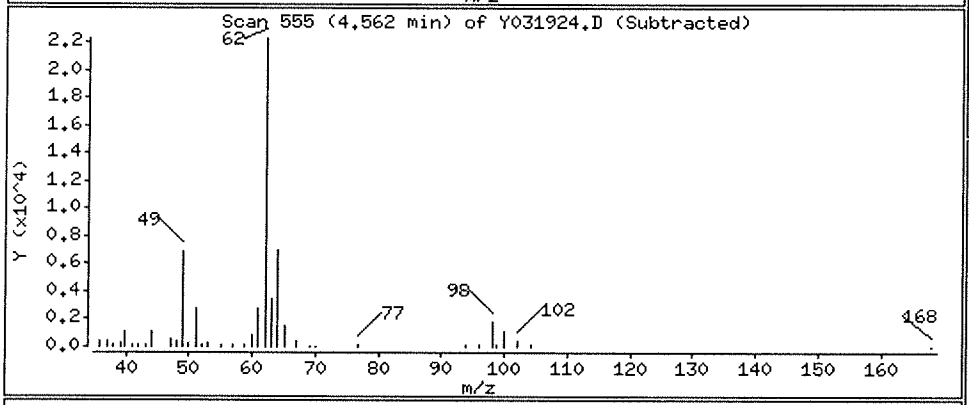
Column diameter: 0.18

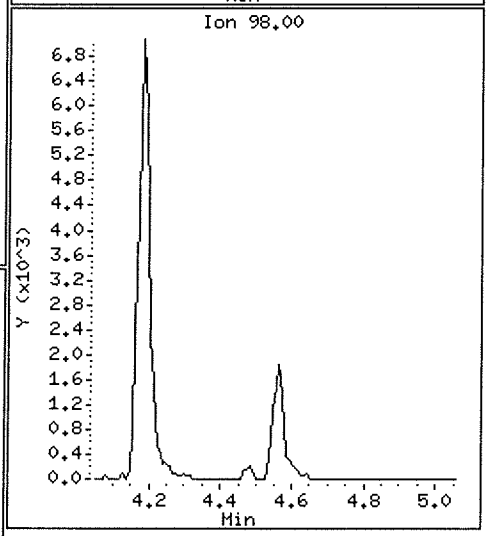
33 1,2-Dichloroethane

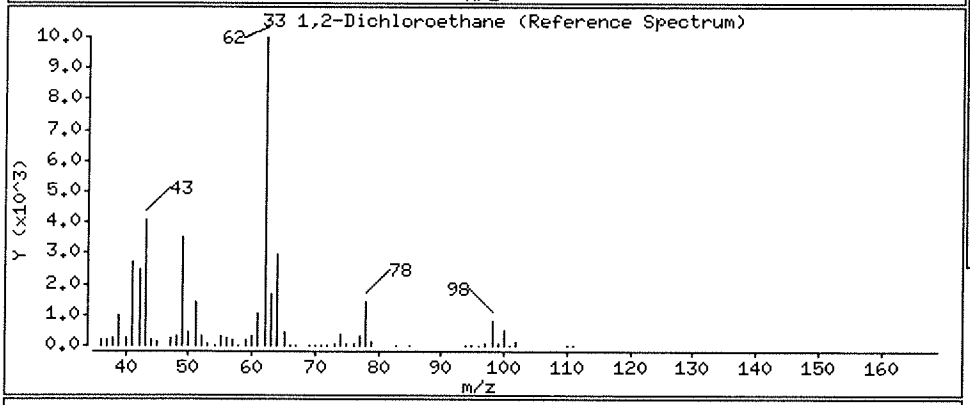
Concentration: 37.73 ug/l

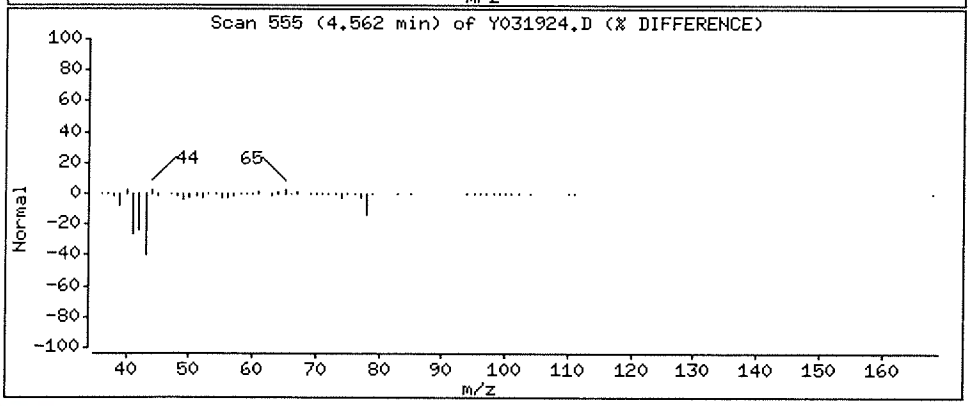












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031924.D

Date : 20-MAR-2020 07:10

Client ID: HS20030498-02

Instrument: voa6.i

Sample Info: HS20030498-02;HS20030498-02;;;

Purge Volume: 5.0

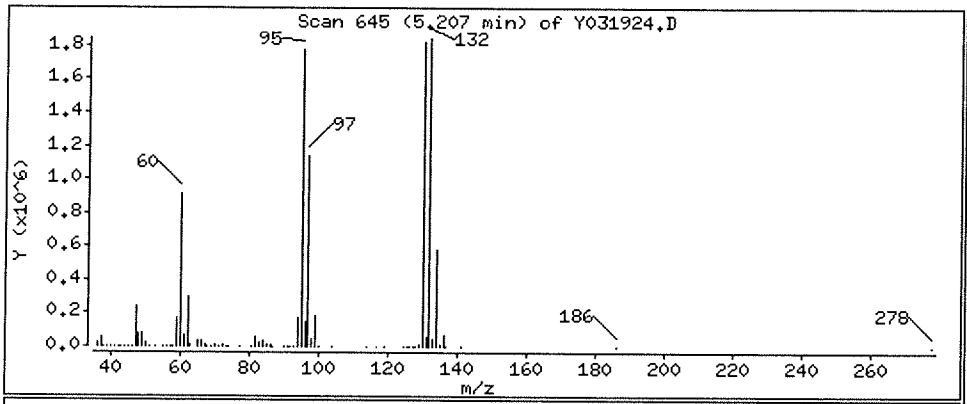
Operator: PC

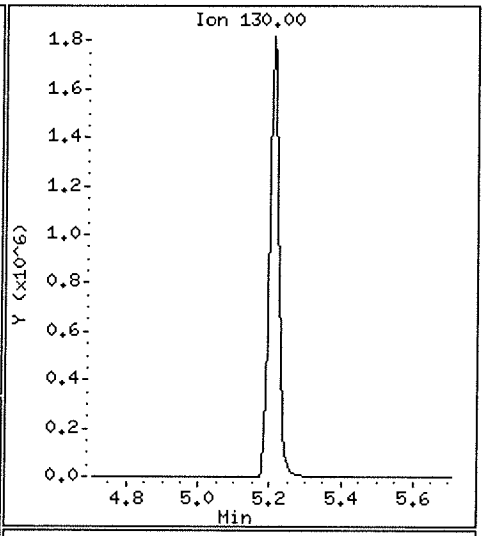
Column phase: DB624

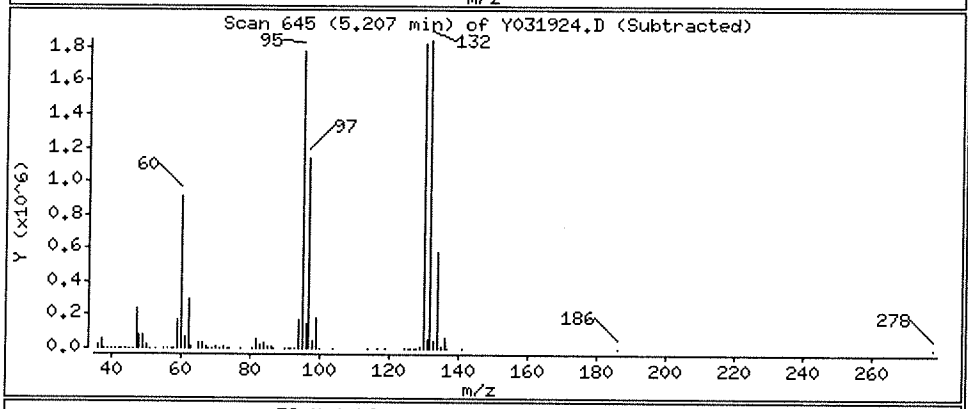
Column diameter: 0.18

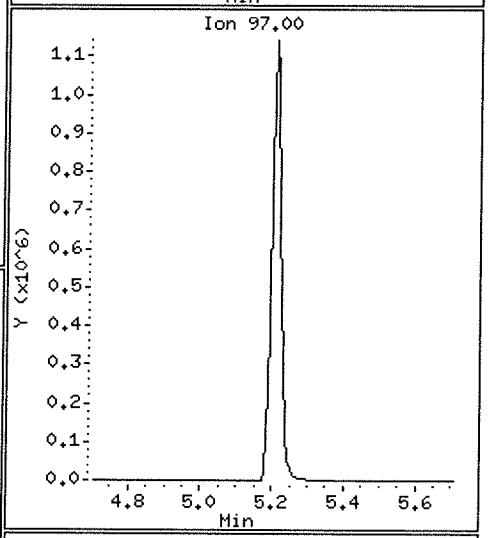
38 Trichloroethene

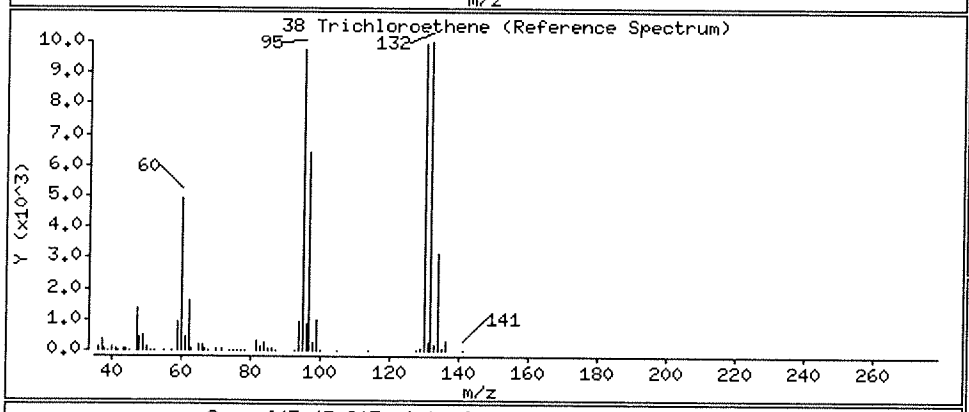
Concentration: 4091.95 ug/l

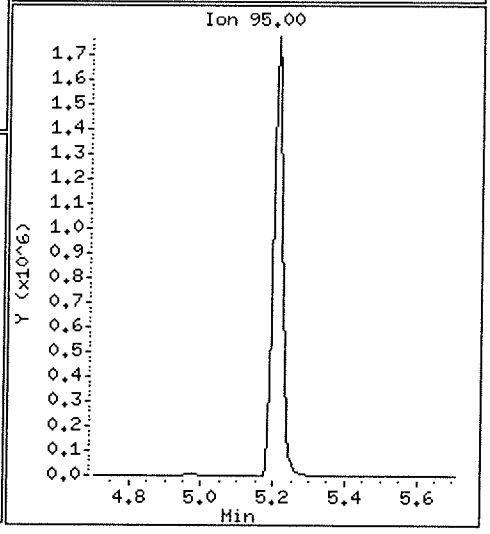


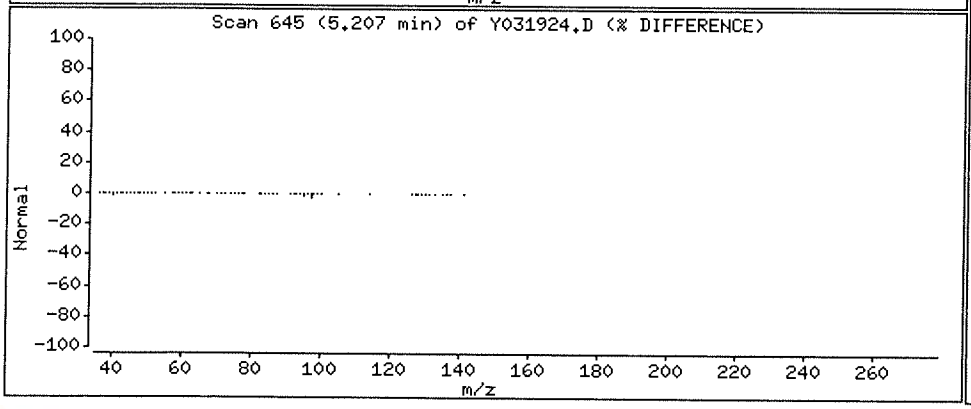












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031925.D
Lab Smp Id: HS20030498-02 Client Smp ID: HS20030498-02
Inj Date : 20-MAR-2020 07:34
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-02;HS20030498-02;;;
Misc Info : HS18090001;WATER;0;50;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:29 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 51
Dil Factor: 50.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	50.000	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	4.182	4.182	(1.000)	387079	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	182616	47.4770	47.47
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	221681	45.5710	45.57
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	572133	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	488104	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	664274	53.1317	53.13
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	223392	47.5407	47.54
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	224674	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	3776	0.64031	32.01(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	77207	17.5148	875.74
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	5094	0.84275	42.13(a)
38 Trichloroethene	130	5.207	5.206	(1.048)	377217	95.1243	4756.21

QC Flag Legend

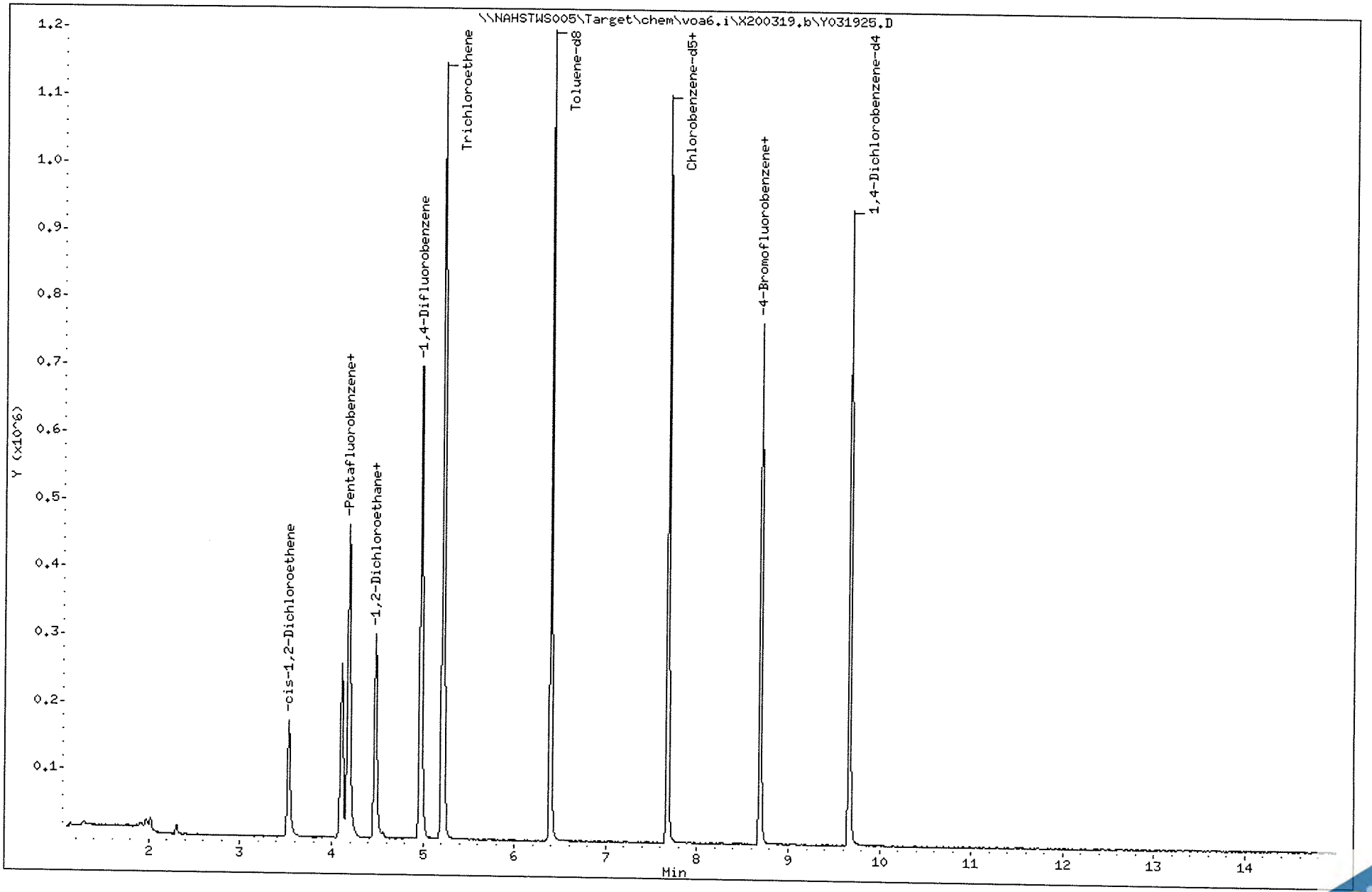
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

01094425

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031925.D
Date : 20-MAR-2020 07:34
Client ID: HS20030498-02
Sample Info: HS20030498-02;HS20030498-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



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Date : 20-MAR-2020 07:34

Client ID: HS20030498-02

Instrument: voa6.i

Sample Info: HS20030498-02;HS20030498-02;;;

Purge Volume: 5.0

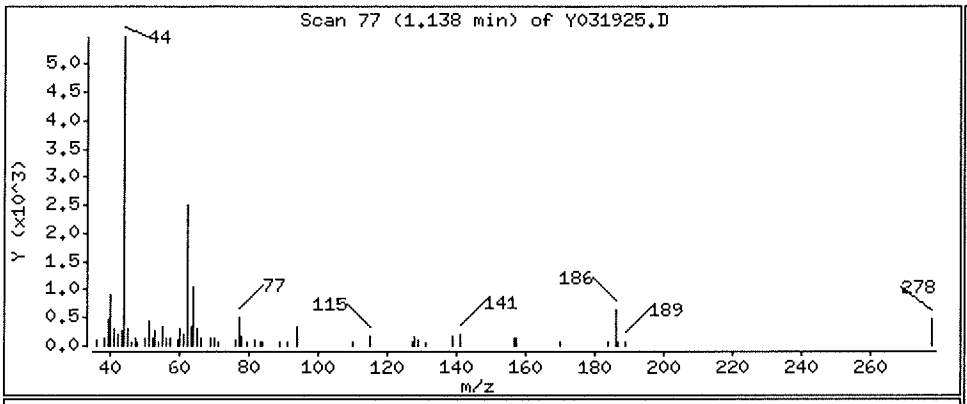
Operator: PC

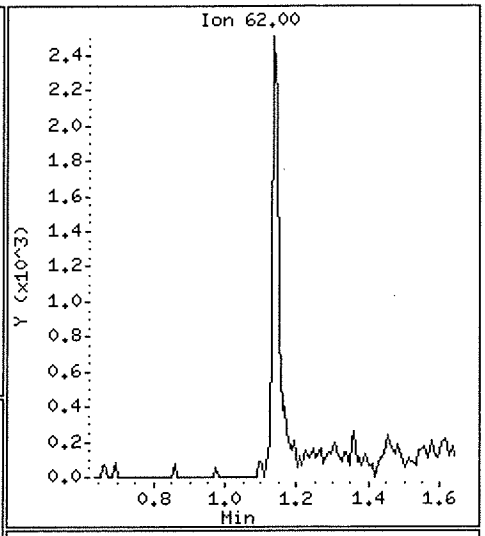
Column phase: DB624

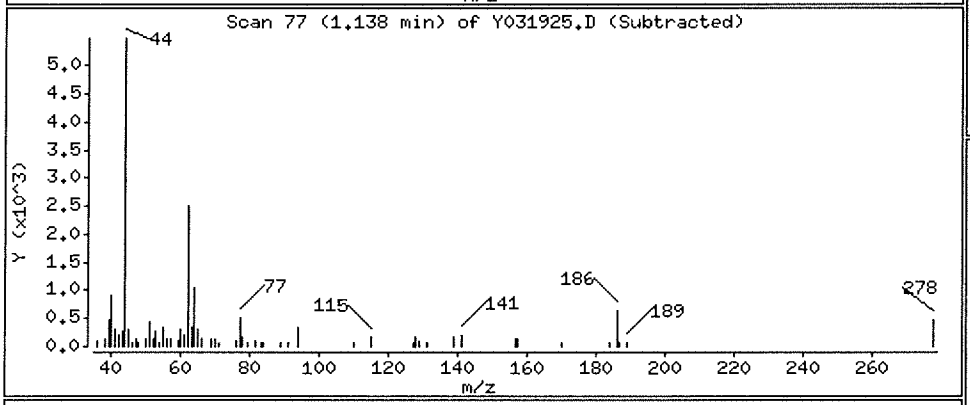
Column diameter: 0.18

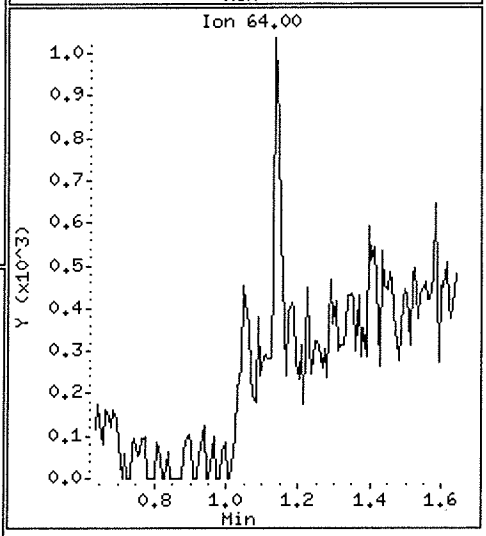
5 Vinyl Chloride

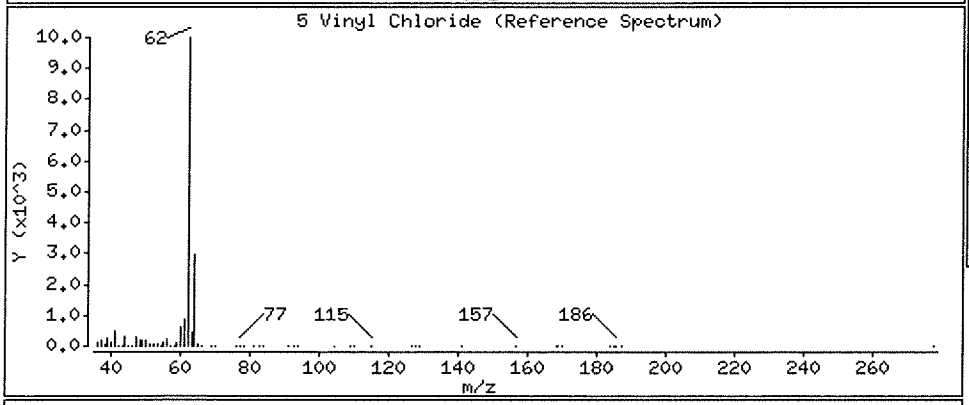
Concentration: 32.01 ug/l

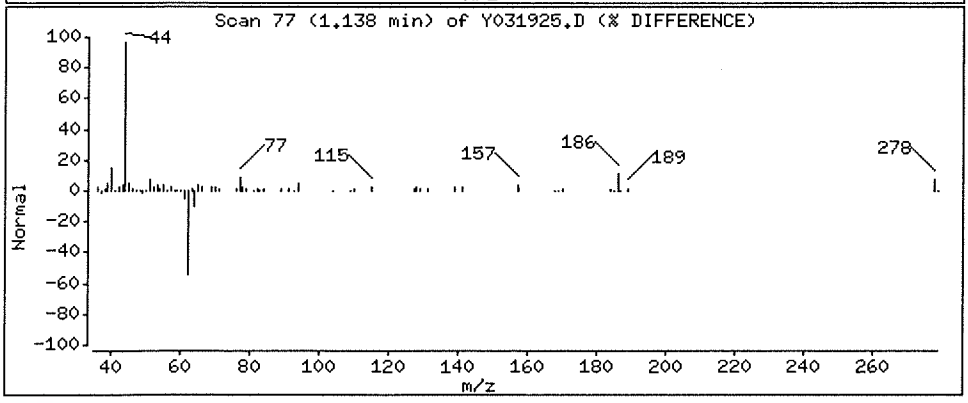












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031925.D

Date : 20-MAR-2020 07:34

Client ID: HS20030498-02

Instrument: voa6.i

Sample Info: HS20030498-02;HS20030498-02;;;

Purge Volume: 5.0

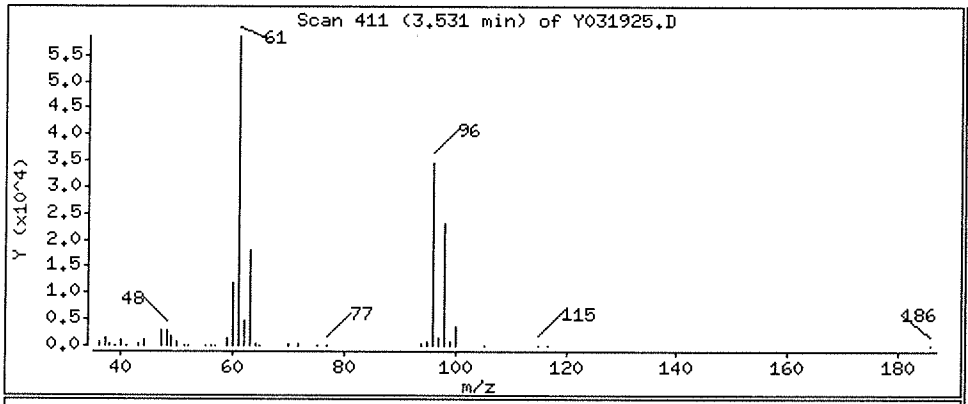
Operator: PC

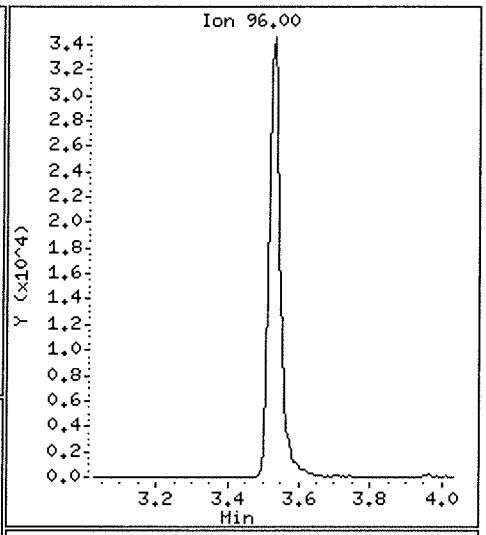
Column phase: DB624

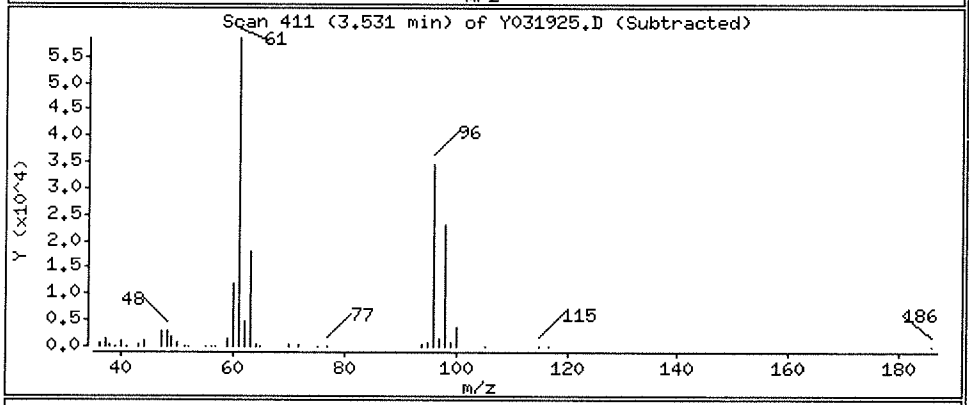
Column diameter: 0.18

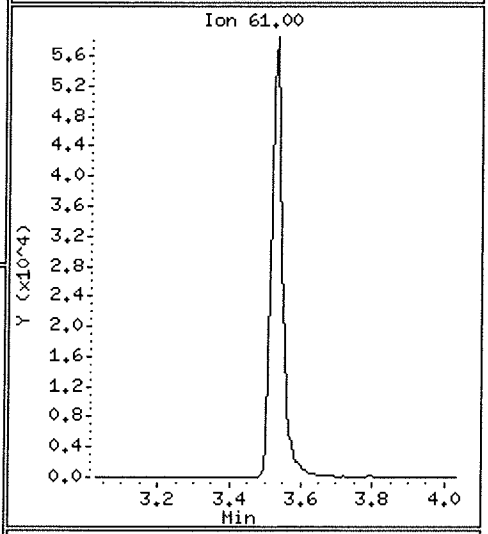
27 cis-1,2-Dichloroethene

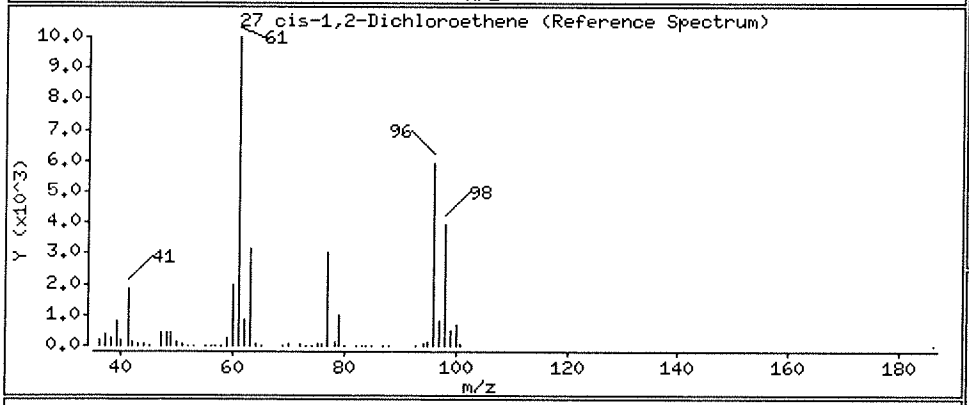
Concentration: 875.74 ug/l

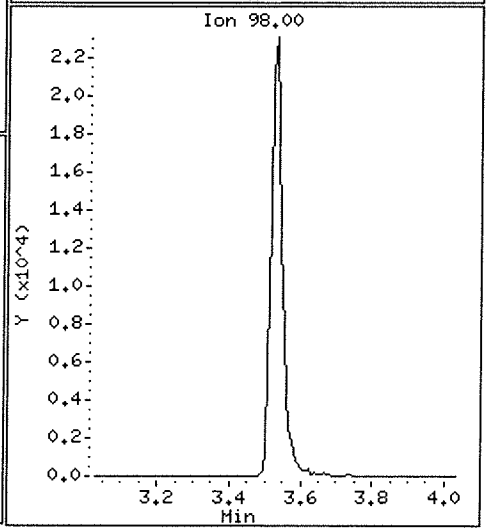


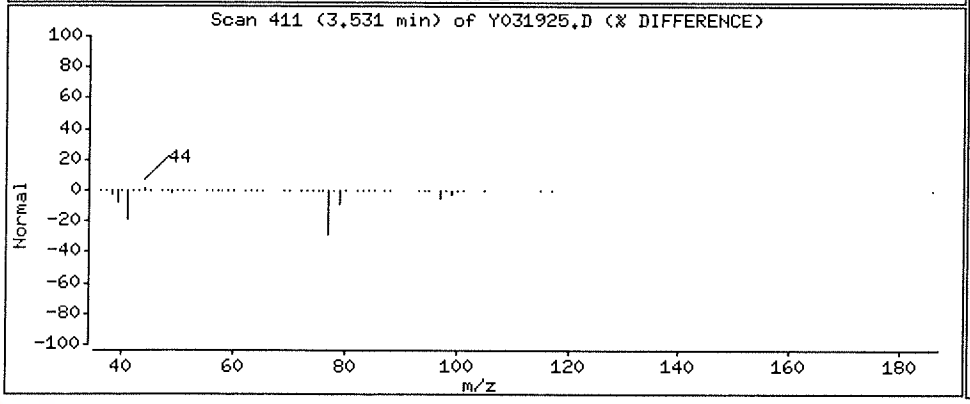












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031925.D

Date : 20-MAR-2020 07:34

Client ID: HS20030498-02

Instrument: voa6.i

Sample Info: HS20030498-02;HS20030498-02;;;

Purge Volume: 5.0

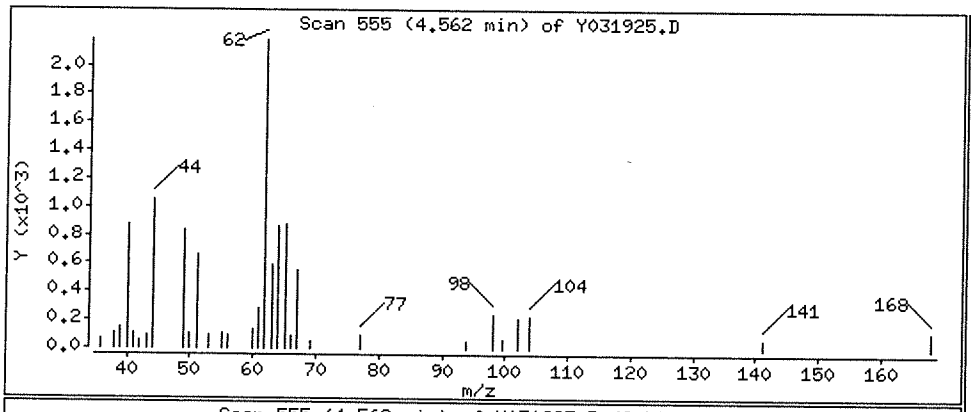
Operator: PC

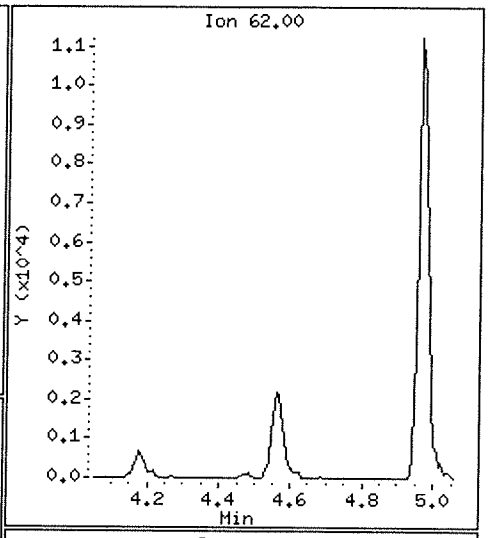
Column phase: DB624

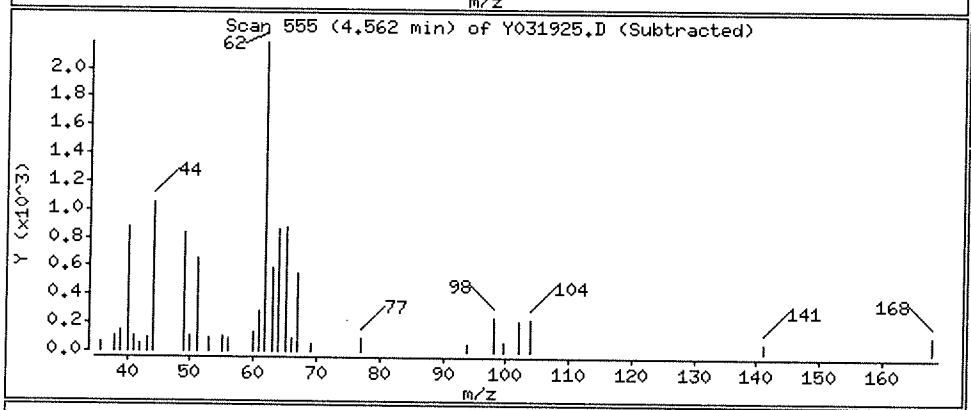
Column diameter: 0.18

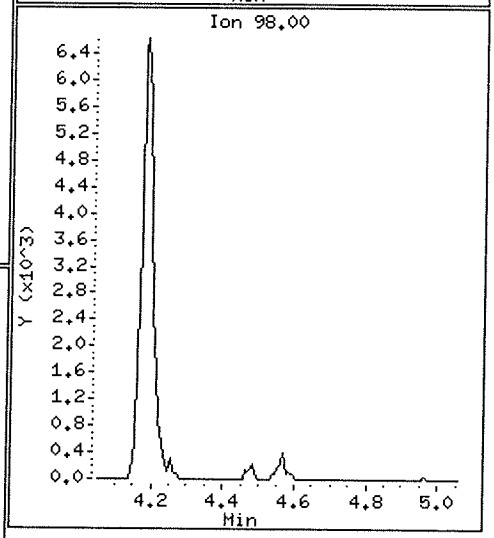
33 1,2-Dichloroethane

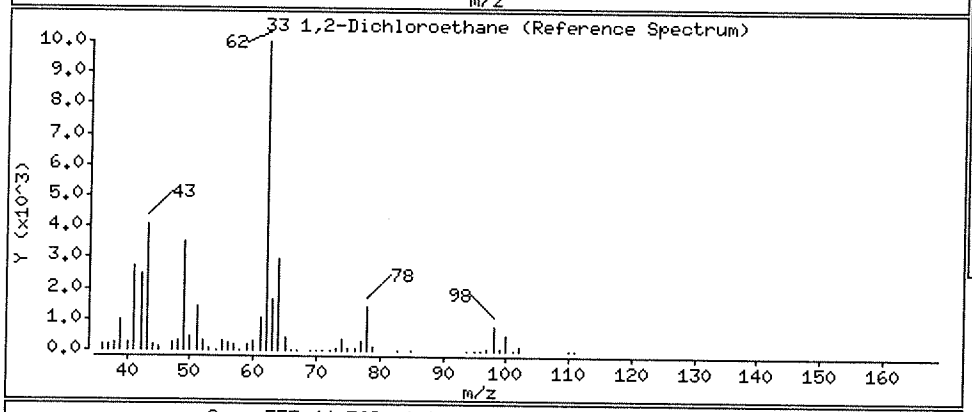
Concentration: 42.13 ug/l

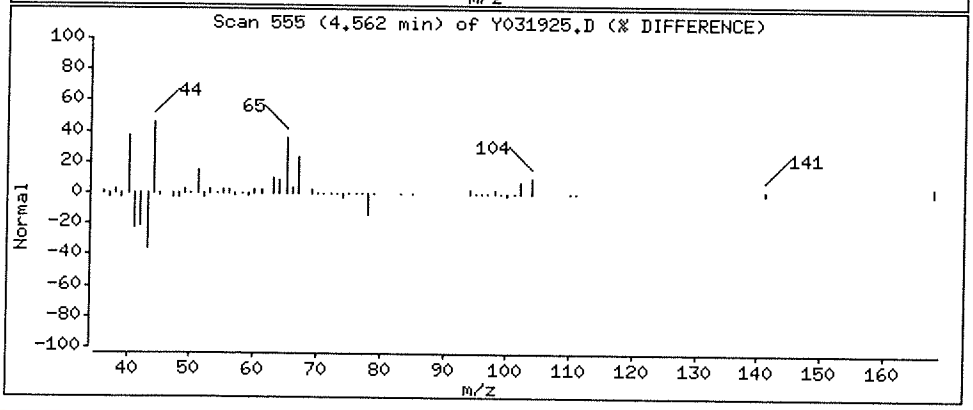












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031925.D

Date : 20-MAR-2020 07:34

Client ID: HS20030498-02

Instrument: voa6.i

Sample Info: HS20030498-02;HS20030498-02;;;

Purge Volume: 5.0

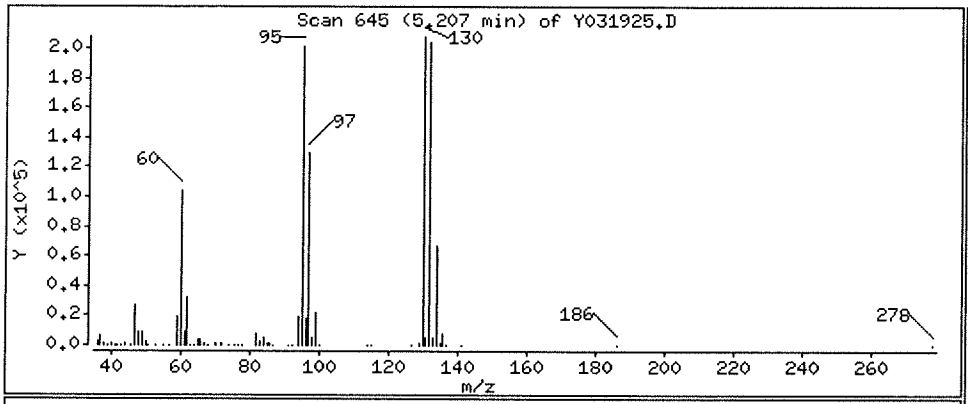
Operator: PC

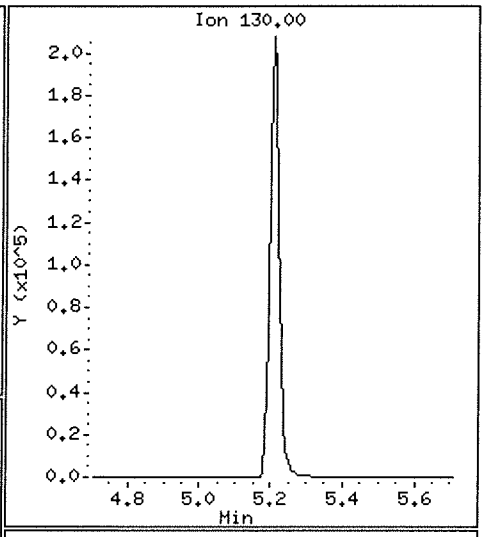
Column phase: DB624

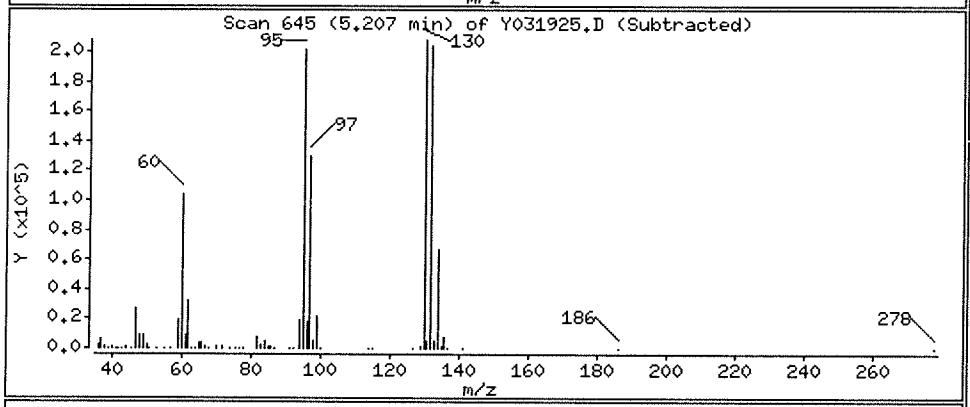
Column diameter: 0.18

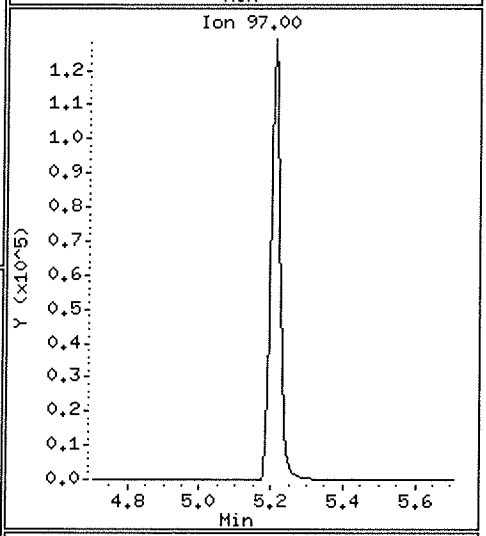
38 Trichloroethene

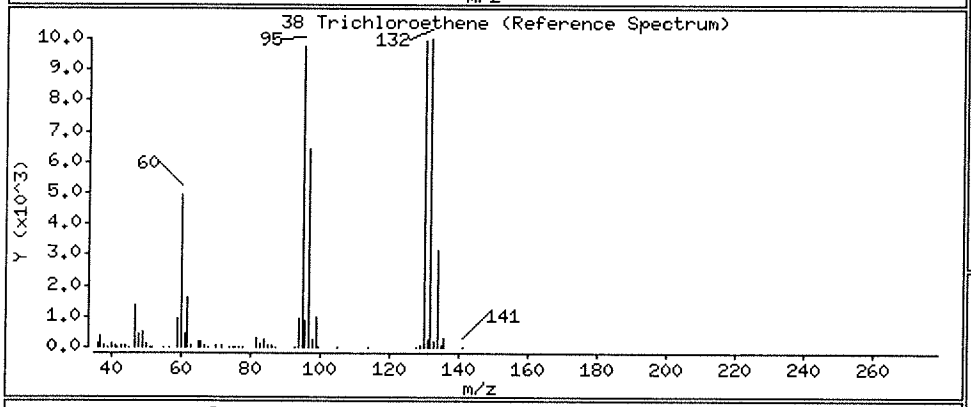
Concentration: 4756.21 ug/l

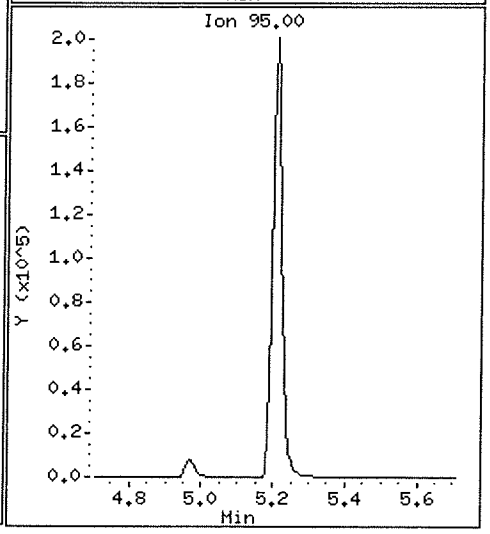


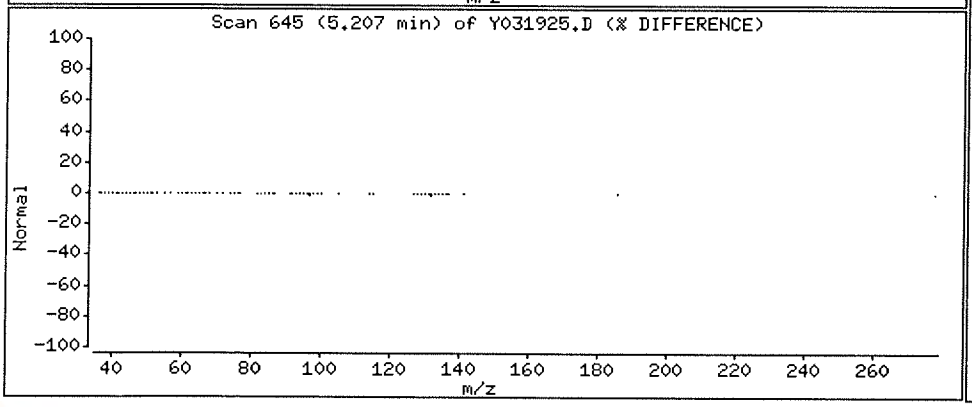












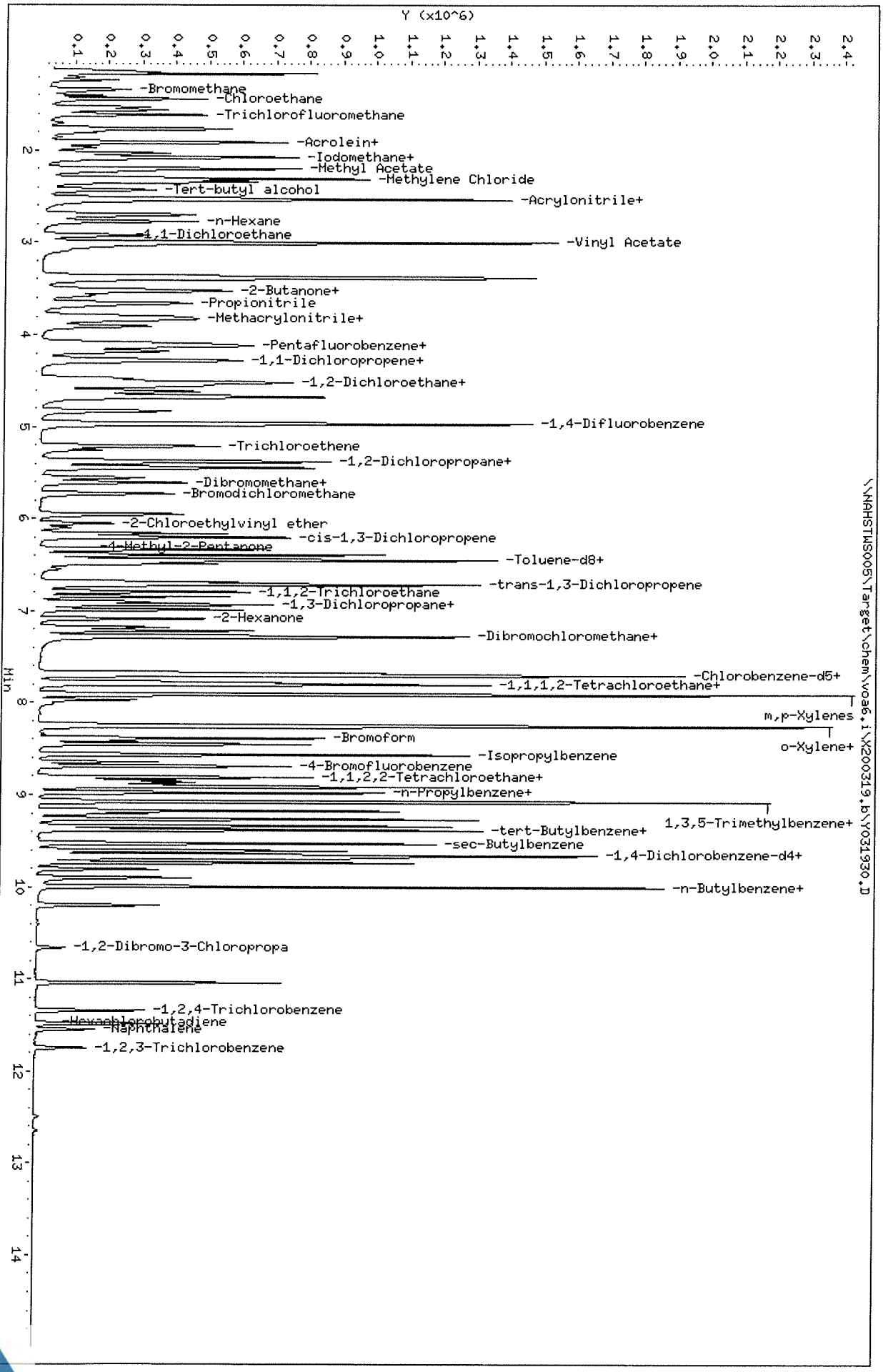
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031930.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 20-MAR-2020 09:35
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200319.b\8260W.m
Meth Date : 14-Apr-2020 12:30 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 15:33 Cal File: X031911.D
Als bottle: 56 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	295388	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	157298	50.0000	53.60
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	194475	50.0000	52.41
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	464454	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	425077	50.0000	
$	48 Toluene-d8	98	6.388	6.388	(0.833)	561611	50.0000	51.57
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	211412	50.0000	51.70
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	213844	50.0000	
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	229291	50.0000	50.95
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	125561	50.0000	50.16
	17 Methylene Chloride	84	2.305	2.305	(0.551)	171495	50.0000	54.68
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	178959	50.0000	53.19
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	255534	50.0000	52.07
	38 Trichloroethene	130	5.206	5.206	(1.048)	170891	50.0000	53.08
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	122681	50.0000	50.09



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200319.b\Y031930.D
Date : 20-MAR-2020 09:35
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

MSVOA06 -Logbook

Batch: 40073
Date: 03-20-2020
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	03-20-2020 10:05 am	1.00	50 mL	50 mL	X032001.D	Liquid	Y	NA
2	*Auto find/ purged* CCV	CCV	03-20-2020 10:29 am	1.00	50 mL	50 mL	X032002a.D	Liquid	Y	NA
3	*10 uL cal std/50 mL DI* CCV	CCV	03-20-2020 10:53 am	1.00	50 mL	50 mL	X032003.D	Liquid	Y	NA
4	*10 uL cal std/50 mL DI* CCB	SAMP	03-20-2020 11:17 am	1.00	50 mL	50 mL	X032004.D	Liquid	Y	NA
5	VLCSW-200320	LCS	03-20-2020 11:41 am	1.00	50 mL	50 mL	X032005.D	Liquid	Y	NA
6	*4.0 uL cal std/50 mL DI* BLANK	SAMP	03-20-2020 12:05 pm	1.00	50 mL	50 mL	X032006.D	Liquid	Y	NA
7	VBLKW1-200320	MBLK	03-20-2020 12:29 pm	1.00	50 mL	50 mL	X032007.D	Liquid	Y	NA
8	VBLKW2-200320	MBLK	03-20-2020 12:53 pm	1.00	50 mL	50 mL	X032008.D	Liquid	Y	NA
9	HS20021070-04	SAMP	03-20-2020 01:17 pm	1.00	50 mL	50 mL	X032009.D	Liquid	Y	NA
10	HS20021070-05	SAMP	03-20-2020 01:41 pm	1.00	50 mL	50 mL	X032010.D	Liquid	Y	NA
11	HS20030848-01	SAMP	03-20-2020 02:05 pm	1.00	50 mL	50 mL	X032011.D	Liquid	Y	<2
12	HS20030521-03	SAMP	03-20-2020 02:29 pm	1.00	50 mL	50 mL	X032012.D	Liquid	Y	<2
13	HS20030498-04	SAMP	03-20-2020 02:53 pm	10.00	5 mL	50 mL	X032013.D	Liquid	Y	<2
14	HS20030848-01MS	MS	03-20-2020 03:17 pm	1.00	50 mL	50 mL	X032014.D	Liquid	Y	<2
15	*3.5 uL cal std/40 mL samp* HS20030848-01MSD	MSD	03-20-2020 03:41 pm	1.00	50 mL	50 mL	X032015.D	Liquid	Y	<2
16	*3.5 uL cal std/40 mL samp* HS20030498-04	SAMP	03-20-2020 04:05 pm	100.0(	500 µL	50 mL	X032016.D	Liquid	Y	<2
17	HS20030498-05	SAMP	03-20-2020 04:29 pm	25.00	2 mL	50 mL	X032017.D	Liquid	Y	<2
18	HS20030498-05	SAMP	03-20-2020 04:53 pm	250.0(	200 µL	50 mL	X032018.D	Liquid	Y	<2
19	HS20030498-06	SAMP	03-20-2020 05:17 pm	25.00	2 mL	50 mL	X032019.D	Liquid	Y	<2
20	HS20030498-06	SAMP	03-20-2020 05:41 pm	250.0(	200 µL	50 mL	X032020.D	Liquid	Y	<2
21	HS20030498-07	SAMP	03-20-2020 06:05 pm	25.00	2 mL	50 mL	X032021.D	Liquid	Y	<2
22	HS20030498-07	SAMP	03-20-2020 06:29 pm	250.0(	200 µL	50 mL	X032022.D	Liquid	Y	<2
23	HS20030701-01	SAMP	03-20-2020 06:53 pm	1.00	50 mL	50 mL	X032023.D	Liquid	Y	<2
24	HS20030701-02	SAMP	03-20-2020 07:17 pm	1.00	50 mL	50 mL	X032024.D	Liquid	Y	<2
25	HS20030701-03	SAMP	03-20-2020 07:41 pm	1.00	50 mL	50 mL	X032025.D	Liquid	Y	<2
26	HS20030701-04	SAMP	03-20-2020 08:05 pm	1.00	50 mL	50 mL	X032026.D	Liquid	Y	<2
27	HS20030701-05	SAMP	03-20-2020 08:30 pm	1.00	50 mL	50 mL	X032027.D	Liquid	Y	<2
28	HS20030701-06	SAMP	03-20-2020 08:54 pm	1.00	50 mL	50 mL	X032028.D	Liquid	Y	<2
29	HS20030701-07	SAMP	03-20-2020 09:18 pm	1.00	50 mL	50 mL	X032029.D	Liquid	Y	<2
30	CCV-END	CCV	03-20-2020 09:42 pm	1.00	50 mL	50 mL	X032030.D	Liquid	Y	na
31	BFB	TUNE	03-20-2020 10:06 pm	1.00	50 mL	50 mL	Y032001.D	Liquid	Y	na
32	*Auto find/ purged* CCV	CCV	03-20-2020 10:29 pm	1.00	50 mL	50 mL	Y032002a.D	Liquid	Y	na
33	*10 uL cal std/50 mL DI* CCV	CCV	03-20-2020 10:53 pm	1.00	50 mL	50 mL	Y032003.D	Liquid	Y	na
34	*10 uL cal std/50 mL DI* CCB	SAMP	03-20-2020 11:17 pm	1.00	50 mL	50 mL	Y032004.D	Liquid	Y	na
35	VLCSW-200320	LCS	03-20-2020 11:41 pm	1.00	50 mL	50 mL	Y032005.D	Liquid	Y	na
36	*4.0 uL cal std/50 mL DI* BLANK	SAMP	03-21-2020 12:05 am	1.00	50 mL	50 mL	Y032006.D	Liquid	Y	na

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
37	VBLKW1-200320	MBLK	03-21-2020 12:29 am	1.00	50 mL	50 mL	Y032007.D	Liquid	Y	na
38	HS20030621-13	SAMP	03-21-2020 12:54 am	1.00	50 mL	50 mL	Y032008.D	Liquid	Y	<2
39	HS20030733-09	SAMP	03-21-2020 01:18 am	1.00	50 mL	50 mL	Y032009.D	Liquid	Y	<2
40	HS20030621-01	SAMP	03-21-2020 01:42 am	1.00	50 mL	50 mL	Y032010.D	Liquid	Y	<2
41	HS20030621-09	SAMP	03-21-2020 02:06 am	1.00	50 mL	50 mL	Y032011.D	Liquid	Y	<2
42	HS20030621-01MS	MS	03-21-2020 02:30 am	1.00	50 mL	50 mL	Y032012.D	Liquid	Y	<2
43	*3.5 uL cal std/40 mL samp* HS20030621-01MSD	MSD	03-21-2020 02:54 am	1.00	50 mL	50 mL	Y032013.D	Liquid	Y	<2
44	*3.5 uL cal std/40 mL samp* HS20030621-09n/r	SAMP	03-21-2020 03:18 am	5.00	10 mL	50 mL	Y032014.D	Liquid	Y	<2
45	HS20030621-02	SAMP	03-21-2020 03:42 am	1.00	50 mL	50 mL	Y032015.D	Liquid	Y	<2
46	HS20030621-03	SAMP	03-21-2020 04:06 am	1.00	50 mL	50 mL	Y032016.D	Liquid	Y	<2
47	HS20030621-04	SAMP	03-21-2020 04:30 am	1.00	50 mL	50 mL	Y032017.D	Liquid	Y	<2
48	HS20030621-05	SAMP	03-21-2020 04:54 am	1.00	50 mL	50 mL	Y032018.D	Liquid	Y	<2
49	HS20030621-06	SAMP	03-21-2020 05:18 am	1.00	50 mL	50 mL	Y032019.D	Liquid	Y	<2
50	HS20030621-08	SAMP	03-21-2020 05:42 am	1.00	50 mL	50 mL	Y032020.D	Liquid	Y	<2
51	HS20030621-10	SAMP	03-21-2020 06:06 am	1.00	50 mL	50 mL	Y032021.D	Liquid	Y	<2
52	HS20030621-11	SAMP	03-21-2020 06:30 am	1.00	50 mL	50 mL	Y032022.D	Liquid	Y	<2
53	HS20030621-12	SAMP	03-21-2020 06:54 am	1.00	50 mL	50 mL	Y032023.D	Liquid	Y	<2
54	HS20030733-02	SAMP	03-21-2020 07:19 am	1.00	50 mL	50 mL	Y032024.D	Liquid	Y	<2
55	HS20030733-04	SAMP	03-21-2020 07:43 am	1.00	50 mL	50 mL	Y032025.D	Liquid	Y	<2
56	HS20030733-06	SAMP	03-21-2020 08:07 am	1.00	50 mL	50 mL	Y032026.D	Liquid	Y	<2
57	HS20030733-07	SAMP	03-21-2020 08:31 am	1.00	50 mL	50 mL	Y032027.D	Liquid	Y	<2
58	HS20030621-07	SAMP	03-21-2020 08:55 am	5.00	10 mL	50 mL	Y032028.D	Liquid	Y	<2
59	HS20030621-07	SAMP	03-21-2020 09:19 am	50.00	1 mL	50 mL	Y032029.D	Liquid	Y	<2
60	CCV-END	CCV	03-21-2020 09:43 am	1.00	50 mL	50 mL	Y032030.D	Liquid	Y	na

Chemical	Value
SURR SPK ID	31106-21-06
IS ID	31106-21-06
LCS/MS ID	
CAL STD ID	31106-21-01/02
BFB ID	31106-21-06
pH Paper	634-64-11

FORM 2
WATER VOLATILE SURROGATE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

	CLIENT SAMPLE NO.	S1 #	S2 (DCE)#	S3 (TOL)#	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	VLCSW-200320	106	103	103	102					0
02	VBLKW1-20032	95	91	106	97					0
03	HS20030498-0	93	91	104	98					0
04	HS20030848-0	94	92	108	98					0
05	HS20030848-0	95	92	103	97					0
06	HS20030498-0	95	91	104	98					0
07	HS20030498-0	94	90	104	97					0
08	HS20030498-0	94	91	104	96					0
09	HS20030498-0	95	91	104	98					0
10	HS20030498-0	95	91	106	96					0
11	HS20030498-0	93	89	105	96					0
12	HS20030498-0	94	91	105	97					0
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										

		QC LIMITS
S1	= Dibromofluoromethane	(70-130)
S2 (DCE)	= 1,2-Dichloroethane-d4	(70-130)
S3 (TOL)	= Toluene-d8	(70-130)
S4	= 4-Bromofluorobenzene	(70-130)

\# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW1-200320

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Lab File ID: X032007 Lab Sample ID: VBLKW1-200320

Instrument ID: VOA6 Date Extracted:

Matrix: (soil/water) WATER Date Analyzed: 03/20/20

Level:(low/med) LOW Time Analyzed: 1229

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	CCB	CCB	X032004	03/20/20
02	VLCSW-200320	VLCSW-200320	X032005	03/20/20
03	HS20030498-0	HS20030498-04	X032013	03/20/20
04	HS20030848-0	HS20030848-01M	X032014	03/20/20
05	HS20030848-0	HS20030848-01M	X032015	03/20/20
06	HS20030498-0	HS20030498-04	X032016	03/20/20
07	HS20030498-0	HS20030498-05	X032017	03/20/20
08	HS20030498-0	HS20030498-05	X032018	03/20/20
09	HS20030498-0	HS20030498-06	X032019	03/20/20
10	HS20030498-0	HS20030498-06	X032020	03/20/20
11	HS20030498-0	HS20030498-07	X032021	03/20/20
12	HS20030498-0	HS20030498-07	X032022	03/20/20
13				
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30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Lab File ID: X032001 DFTPP Injection Date: 03/20/20

Instrument ID: VOA6 DFTPP Injection Time: 1005

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.3
75	30.0 - 60.0% of mass 95	47.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.7 (0.8)1
174	Greater than 50.0% of mass 95	80.6
175	5.0 - 9.0% of mass 174	6.2 (7.7)1
176	95.0 - 101.0% of mass 174	77.5 (96.2)1
177	5.0 - 9.0% of mass 176	4.8 (6.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X032003	03/20/20	1053
02	CCB	CCB	X032004	03/20/20	1117
03	VLCSW-200320	VLCSW-200320	X032005	03/20/20	1141
04	VBLKW1-20032	VBLKW1-200320	X032007	03/20/20	1229
05	HS20030498-0	HS20030498-04	X032013	03/20/20	1453
06	HS20030848-0	HS20030848-01M	X032014	03/20/20	1517
07	HS20030848-0	HS20030848-01M	X032015	03/20/20	1541
08	HS20030498-0	HS20030498-04	X032016	03/20/20	1605
09	HS20030498-0	HS20030498-05	X032017	03/20/20	1629
10	HS20030498-0	HS20030498-05	X032018	03/20/20	1653
11	HS20030498-0	HS20030498-06	X032019	03/20/20	1717
12	HS20030498-0	HS20030498-06	X032020	03/20/20	1741
13	HS20030498-0	HS20030498-07	X032021	03/20/20	1805
14	HS20030498-0	HS20030498-07	X032022	03/20/20	1829
15	CCV-END	CCV-END	X032030	03/20/20	2142
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Instrument ID: VOA6 Calibration Date: 03/20/20 Time: 1053

Lab File ID: X032003 Init. Calib. Date(s): 03/19/20 03/19/20

Init. Calib. Times: 1134 1533

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
Vinyl Chloride	0.7620000	0.7960162	0.7960162	0.1	-4.46	50.00	AVRG
Methylene Chloride	52.138889	50.000000	0.5835749	0.1	-4.28	50.00	LINR
1,1-Dichloroethene	0.4240000	0.4343280	0.4343280	0.1	-2.44	50.00	AVRG
1,2-Dichloroethane	0.5280000	0.5236797	0.5236797	0.1	0.82	50.00	AVRG
Trichloroethene	0.3460000	0.3486618	0.3486618	0.2	-0.77	50.00	AVRG
1,1,2-Trichloroethane	0.2880000	0.2785471	0.2785471	0.1	3.28	50.00	AVRG
Dibromofluoromethane	52.469176	50.000000	0.5311017	0.1	-4.94	50.00	LINR
1,2-Dichloroethane-d4	51.672481	50.000000	0.6579624	0.1	-3.34	50.00	LINR
Toluene-d8	50.194136	50.000000	1.3014582	0.1	-0.39	50.00	LINR
4-Bromofluorobenzene	51.073964	50.000000	0.4749378	0.1	-2.15	50.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS20030498

Instrument ID: VOA6 Calibration Date: 03/20/20 Time: 2142

Lab File ID: X032030 Init. Calib. Date(s): 03/19/20 03/19/20

Init. Calib. Times: 1134 1533

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
Vinyl Chloride	0.7620000	0.7960162	0.7960162	0.1	-4.46	50.00	AVRG
Methylene Chloride	54.976682	50.000000	0.5835749	0.1	-9.95	50.00	LINR
1,1-Dichloroethene	0.4240000	0.4343280	0.4343280	0.1	-2.44	50.00	AVRG
1,2-Dichloroethane	0.5280000	0.5236797	0.5236797	0.1	0.82	50.00	AVRG
Trichloroethene	0.3460000	0.3486618	0.3486618	0.2	-0.77	50.00	AVRG
1,1,2-Trichloroethane	0.2880000	0.2785471	0.2785471	0.1	3.28	50.00	AVRG
Dibromofluoromethane	53.460375	50.000000	0.5311017	0.1	-6.92	50.00	LINR
1,2-Dichloroethane-d4	52.378825	50.000000	0.6579624	0.1	-4.76	50.00	LINR
Toluene-d8	50.806684	50.000000	1.3014582	0.1	-1.61	50.00	LINR
4-Bromofluorobenzene	49.352668	50.000000	0.4749378	0.1	1.29	50.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

outputFile debug: C:\tp\envision\results\HS20030498/08bc.01 Lab Code: AL

Lab File ID (Standard): X032003 Date Analyzed: 03/20/20

Instrument ID: VOA6 Time Analyzed: 1053

		IS1 AREA #	IS1 RT #	IS2(DFB) AREA #	IS2(DFB) RT #	IS3(CBZ) AREA #	IS3(CBZ) RT #
	12 HOUR STD	292017	4.18	459441	4.97	425511	7.67
	UPPER LIMIT	584034	4.68	918882	5.47	851022	8.17
	LOWER LIMIT	146009	3.68	229721	4.47	212756	7.17
	CLIENT SAMPLE NO.						
01	CCB	372400	4.18	556640	4.97	478873	7.67
02	VLCSW-200320	313803	4.18	490387	4.97	447606	7.67
03	VBLKW1-20032	391048	4.18	578785	4.97	501581	7.67
04	HS20030498-0	386209	4.18	577925	4.97	490524	7.67
05	HS20030848-0	371563	4.18	553467	4.97	467711	7.67
06	HS20030848-0	370548	4.18	555961	4.97	490740	7.67
07	HS20030498-0	384222	4.18	571272	4.97	500759	7.67
08	HS20030498-0	376356	4.18	565873	4.97	486706	7.67
09	HS20030498-0	386830	4.18	571475	4.97	501065	7.67
10	HS20030498-0	380554	4.18	566281	4.97	478677	7.67
11	HS20030498-0	387194	4.18	571468	4.97	495517	7.67
12	HS20030498-0	384012	4.18	569650	4.97	478708	7.67
13	HS20030498-0	389167	4.18	578370	4.97	501749	7.67
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 internal standard area values with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

outputFile debug: C:\tp\envision\results\HS20030498/08bc.01 Lab Code: AL

Lab File ID (Standard): X032003 Date Analyzed: 03/20/20

Instrument ID: VOA6 Time Analyzed: 1053

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	212504	9.67				
	UPPER LIMIT	425008	10.17				
	LOWER LIMIT	106252	9.17				
	CLIENT SAMPLE NO.						
01	CCB	216551	9.67				
02	VLCSW-200320	218708	9.66				
03	VBLKW1-20032	236794	9.67				
04	HS20030498-0	240364	9.67				
05	HS20030848-0	221329	9.67				
06	HS20030848-0	237990	9.66				
07	HS20030498-0	237141	9.67				
08	HS20030498-0	233083	9.67				
09	HS20030498-0	238234	9.67				
10	HS20030498-0	228026	9.67				
11	HS20030498-0	230131	9.67				
12	HS20030498-0	223772	9.67				
13	HS20030498-0	238267	9.67				
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 internal standard area values with an asterisk.
* Values outside of QC limits.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032001.D

Date : 20-MAR-2020 10:05

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

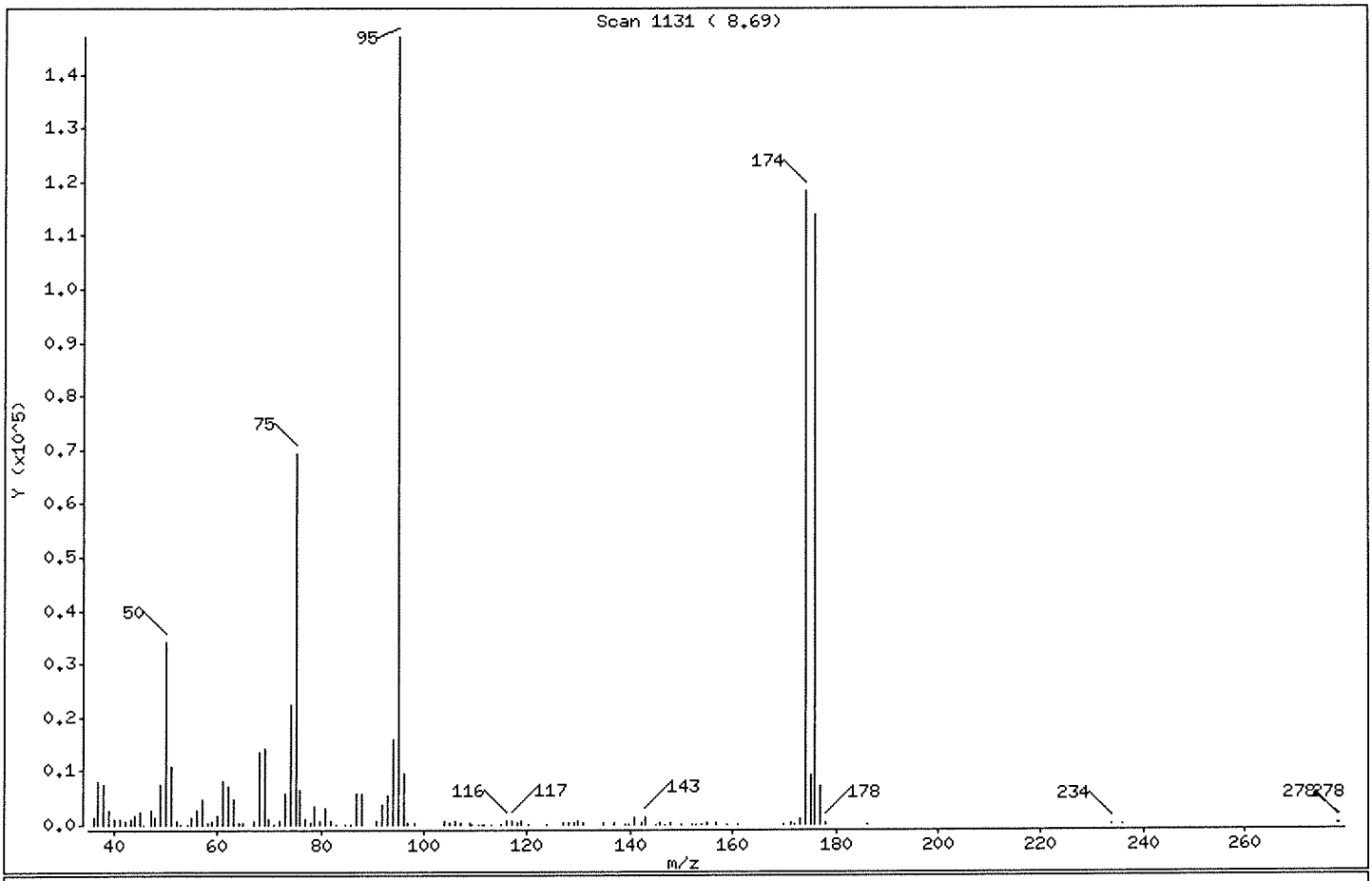
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	23.31
75	30.00 - 60.00% of mass 95	47.03
96	5.00 - 9.00% of mass 95	6.49
173	Less than 2.00% of mass 174	0.65 (0.81)
174	Greater than 50.00% of mass 95	80.56
175	5.00 - 9.00% of mass 174	6.18 (7.68)
176	95.00 - 101.00% of mass 174	77.53 (96.23)
177	5.00 - 9.00% of mass 176	4.81 (6.20)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032001.D

Date : 20-MAR-2020 10:05

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

Data File: X032001.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 114

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	1358	64.90	172	98.10	319	142.90	1395
37.00	8166	67.00	536	103.80	563	145.10	96
38.00	7365	68.00	13457	105.00	427	145.70	199
39.00	2806	69.00	14154	106.00	527	146.90	91
40.00	971	70.00	1158	107.00	359	148.00	295
41.00	1120	71.00	122	108.70	199	150.00	101
42.10	818	72.00	826	109.20	103	152.00	116
43.10	866	73.00	5805	110.60	86	152.80	126
44.10	1528	74.00	22152	111.20	62	153.90	151
45.00	2319	75.00	69104	111.70	81	154.90	442
45.90	123	76.00	6476	113.10	65	156.80	198
47.00	2744	76.90	880	114.90	133	158.90	127
48.00	1224	78.00	393	115.90	605	160.90	156
49.00	7423	78.80	3348	116.90	743	170.00	77
50.00	34248	79.90	710	117.90	407	171.10	192
51.00	10715	80.90	3133	118.90	726	171.80	113
52.00	603	81.90	834	120.10	64	172.90	956
53.00	142	83.00	112	123.90	90	174.00	118384
54.20	164	84.80	65	126.90	191	175.00	9088
55.00	1488	85.80	161	127.90	454	175.90	113920
56.00	2591	87.00	5806	128.90	315	177.00	7068
57.00	4686	88.00	5641	129.80	552	178.00	188
58.00	411	90.90	595	130.80	197	186.00	151
59.00	833	92.00	3849	134.70	289	233.80	63
60.00	1633	93.00	5572	136.90	242	235.80	54
61.00	8052	94.00	15801	139.00	91	277.90	87
62.00	7024	95.00	146944	139.80	84	278.40	63
63.00	4768	96.00	9538	140.90	1393		
64.00	456	96.90	221	142.10	212		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032001.D

Date : 20-MAR-2020 10:05

Client ID: BFB

Instrument: voa6.i

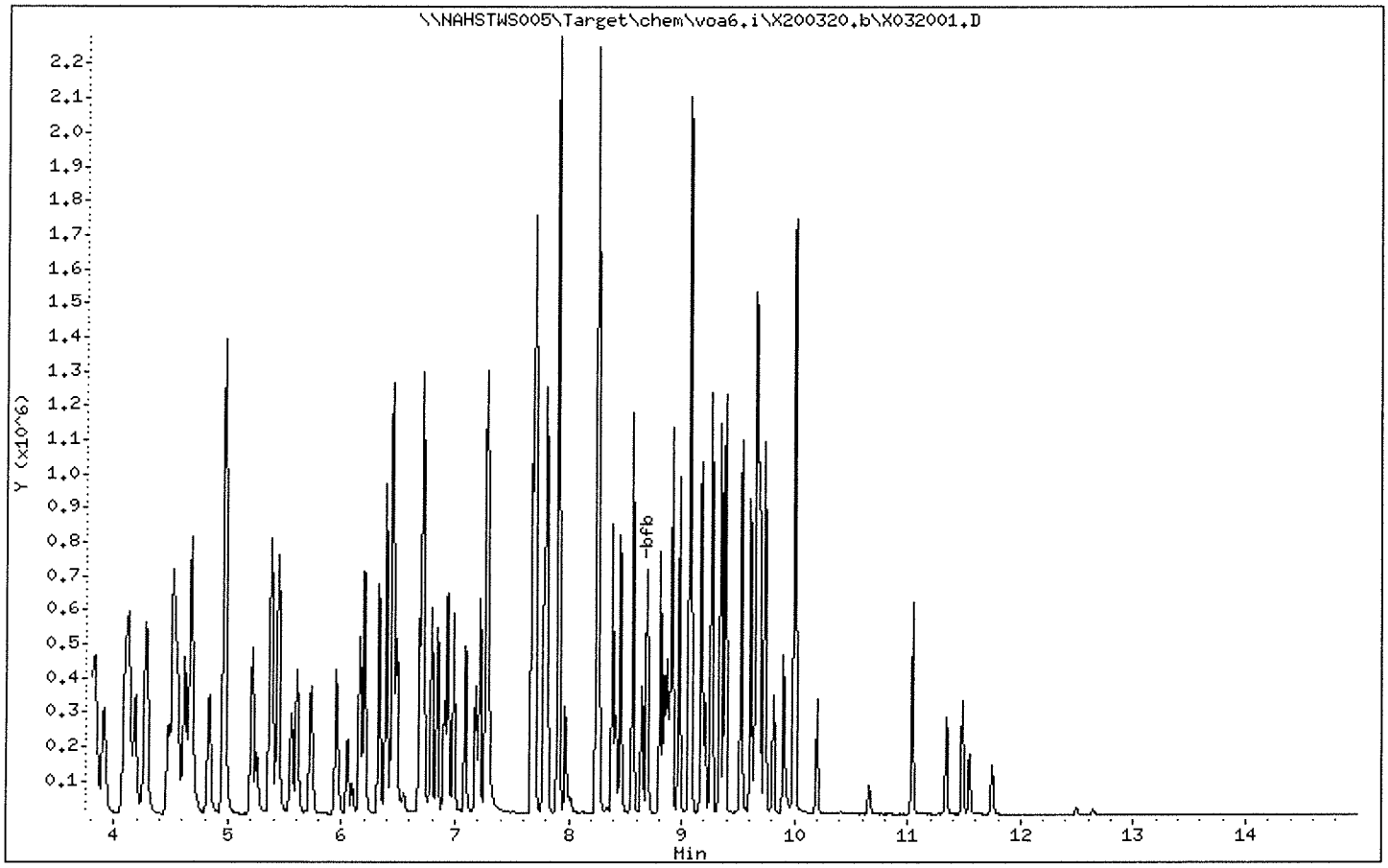
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



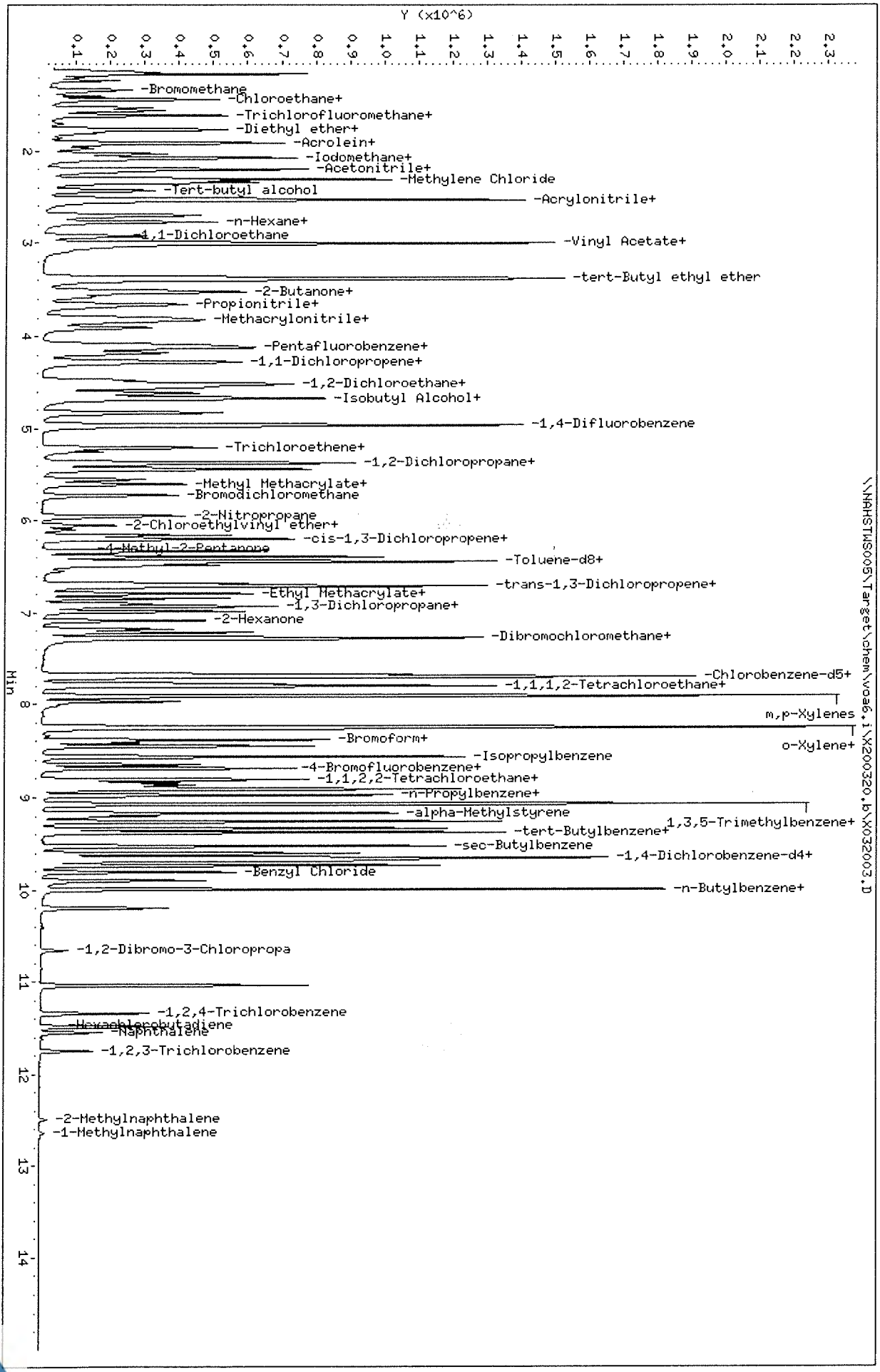
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032003.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 20-MAR-2020 10:53
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:44 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	292017	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	152221	50.0000	52.46
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	189553	50.0000	51.67
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	459441	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	425511	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	547118	50.0000	50.19
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	209070	50.0000	51.07
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	212504	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	220684	50.0000	49.60
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	123438	50.0000	49.88
17 Methylene Chloride	84	2.306	2.306	(0.551)	161838	50.0000	52.13
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	170453	50.0000	51.25
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	244959	50.0000	50.46
38 Trichloroethene	130	5.207	5.207	(1.048)	165256	50.0000	51.89
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	117298	50.0000	47.84



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032003.D
Date : 20-MAR-2020 10:53
Client ID: CCV
Sample Info: CCV;CCV;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032004.D Page 1
Report Date: 14-Apr-2020 12:44

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032004.D
Lab Smp Id: CCB Client Smp ID: CCB
Inj Date : 20-MAR-2020 11:17
Operator : PC Inst ID: voa6.i
Smp Info : CCB;CCB;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:44 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

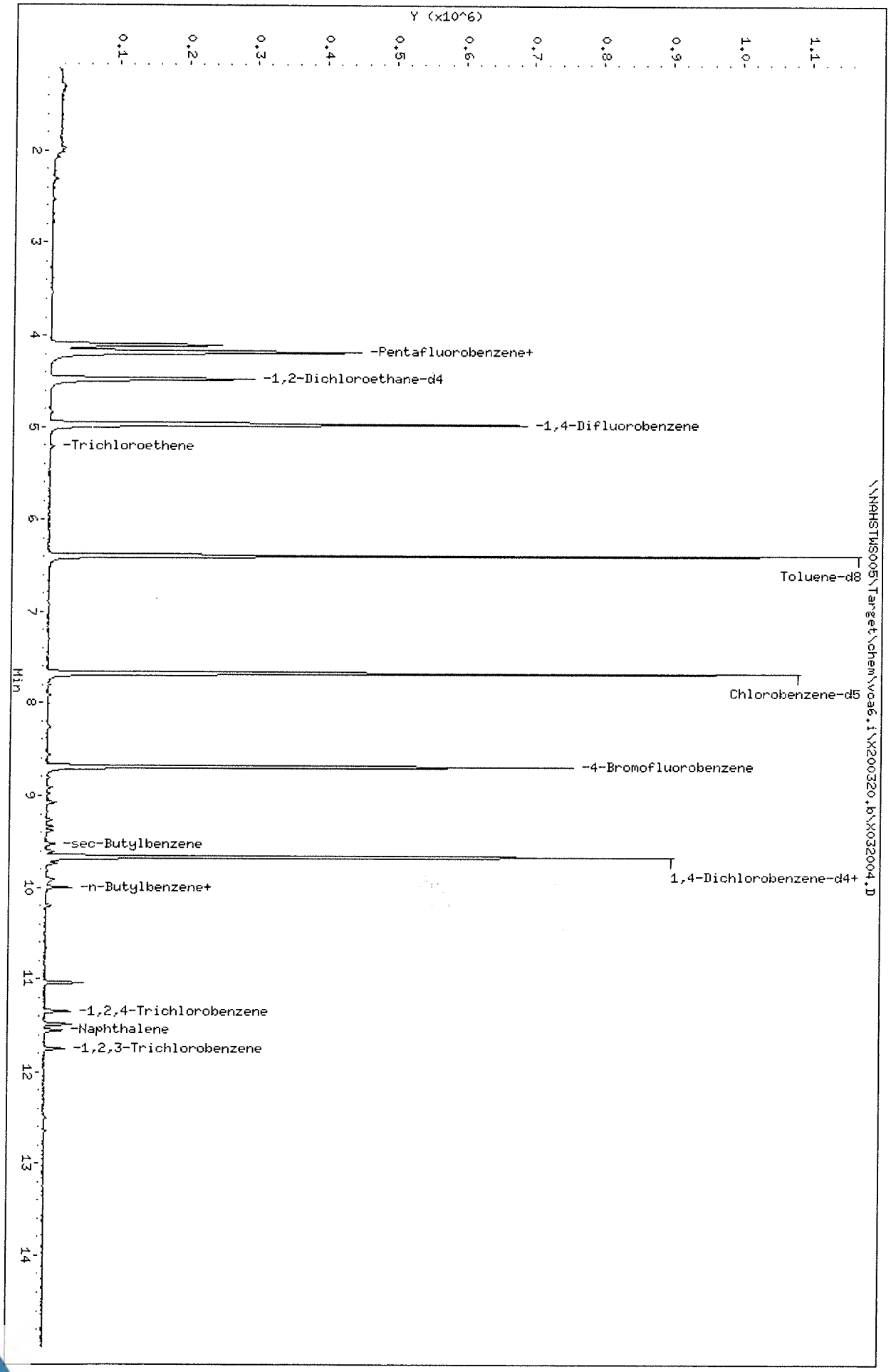
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	372400	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	177077	47.8525	47.85
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	213839	45.6921	45.69
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	556640	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	478873	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	653735	53.2969	53.29
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	219332	47.5768	47.57
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	216551	50.0000	
38 Trichloroethene	130	5.206	5.207	(1.048)	1975	0.51191	0.51(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032004.D
Date : 20-MAR-2020 11:17
Client ID: CCB
Sample Info: CCB;CCB;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032005.D Page 1
Report Date: 14-Apr-2020 12:44

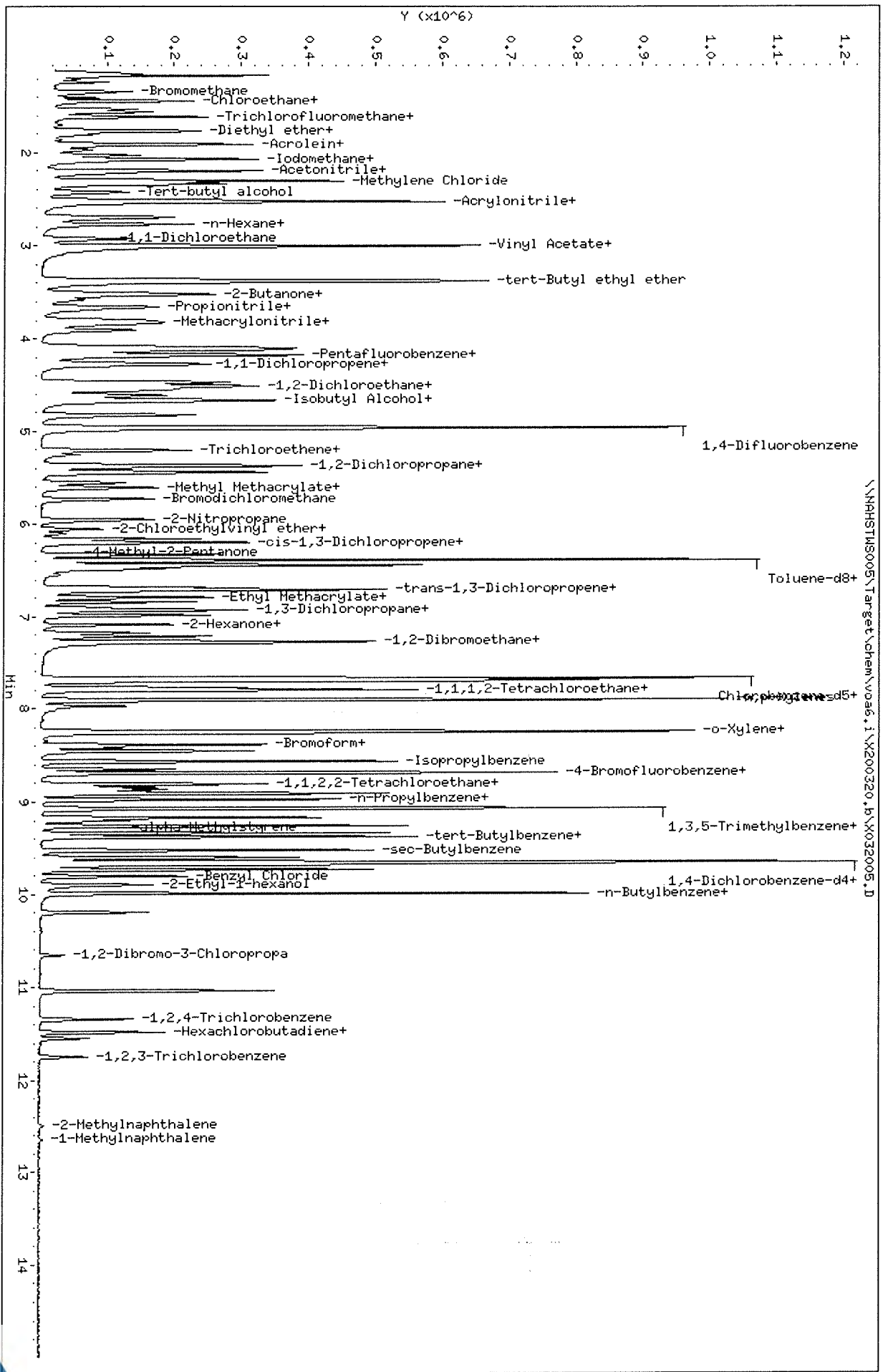
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032005.D
Lab Smp Id: VLCSW-200320 Client Smp ID: VLCSW-200320
Inj Date : 20-MAR-2020 11:41
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200320;VLCSW-200320;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:44 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	313803	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	165481	53.0810	53.08
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	203294	51.5705	51.57
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	490387	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	447606	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	591518	51.5908	51.59
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	219571	50.9907	50.99
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	218708	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	92013	19.2463	19.24
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	53853	20.2527	20.25
17 Methylene Chloride	84	2.306	2.306	(0.551)	72939	21.0458	21.04
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	75216	21.0476	21.04
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	106965	20.6461	20.64
38 Trichloroethene	130	5.207	5.207	(1.048)	71525	21.0434	21.04
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	51098	19.8145	19.81



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032005.D
Date : 20-MAR-2020 11:41
Client ID: VLCSW-200320
Sample Info: VLCSW-200320;VLCSW-200320;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032007.D Page 1
Report Date: 14-Apr-2020 12:44

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032007.D
Lab Smp Id: VBLKW1-200320 Client Smp ID: VBLKW1-200320
Inj Date : 20-MAR-2020 12:29
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW1-200320;VBLKW1-200320;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:44 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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	4.182	4.182	(1.000)	391048	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	185168	47.6523	47.65
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	223558	45.4901	45.49
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	578785	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	501581	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	680520	52.9684	52.96
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	233374	48.3387	48.33
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	236794	50.0000	

01094451

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032007.D

Date : 20-MAR-2020 12:29

Client ID: VBLKW1-200320

Instrument: voa6.i

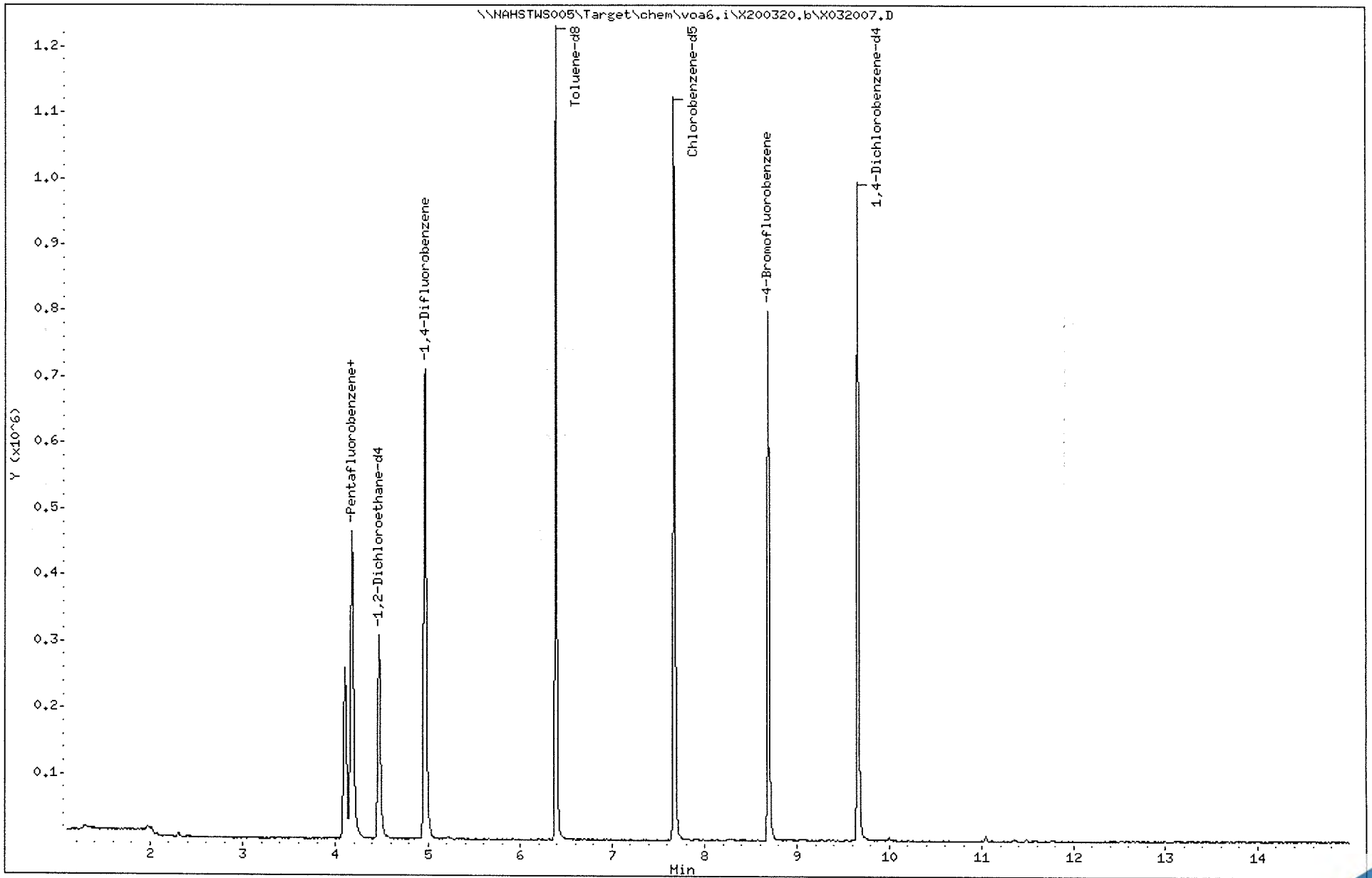
Sample Info: VBLKW1-200320;VBLKW1-200320;3;;BLANK

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032013.D Page 1
Report Date: 14-Apr-2020 13:03

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032013.D
Lab Smp Id: HS20030498-04 Client Smp ID: HS20030498-04
Inj Date : 20-MAR-2020 14:53
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-04;HS20030498-04;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:48 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 13
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	386209	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	178807	46.5895	46.58
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	221353	45.6062	45.60
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	577925	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	490524	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	651034	51.8139	51.81
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	232613	49.2766	49.27
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	240364	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	48431	8.23108	82.31
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	31560	9.64374	96.43
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1674807	380.795	3807.95(A)
38 Trichloroethene	130	5.206	5.206	(1.048)	3988534	995.724	9957.23(A)

QC Flag Legend

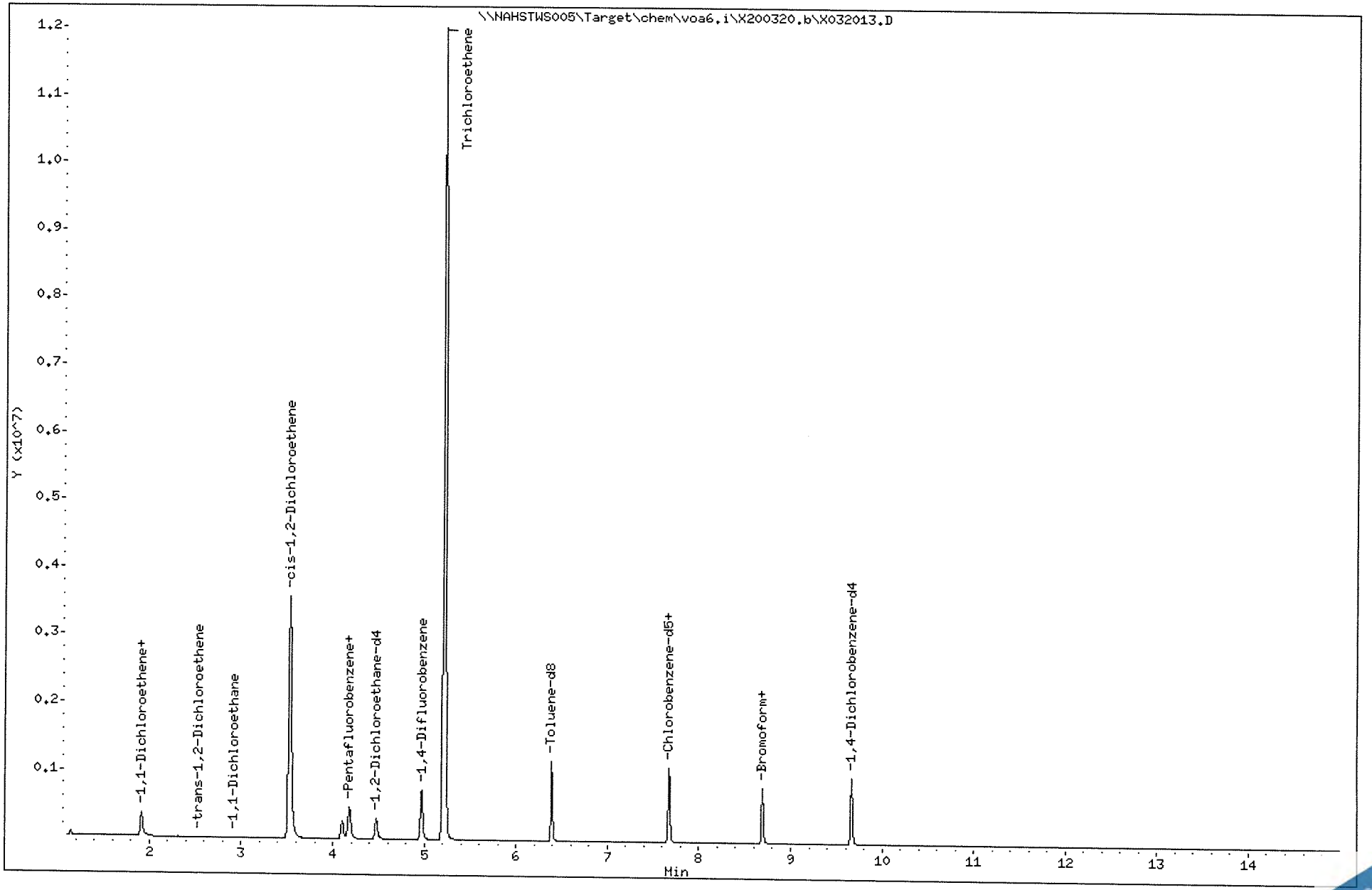
A - Target compound detected but, quantitated amount exceeded maximum amount.

01094453

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032013.D
Date : 20-MAR-2020 14:53
Client ID: HS20030498-04
Sample Info: HS20030498-04;HS20030498-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032013.D

Date : 20-MAR-2020 14:53

Client ID: HS20030498-04

Instrument: voa6.i

Sample Info: HS20030498-04;HS20030498-04;;;

Purge Volume: 5.0

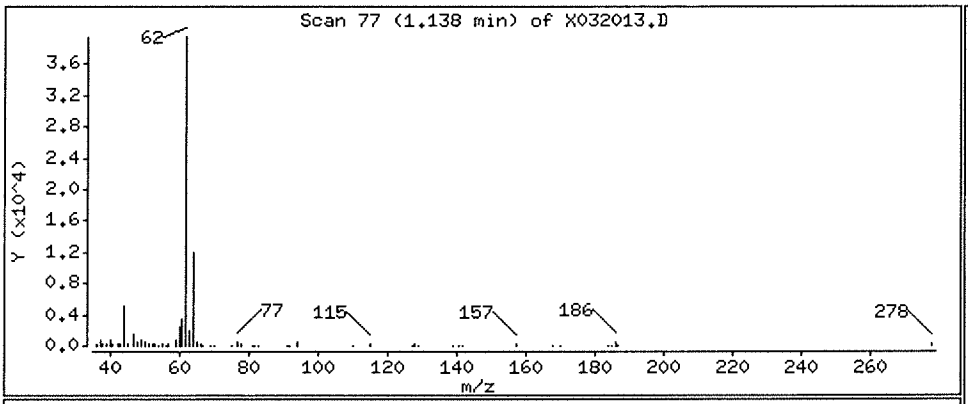
Operator: PC

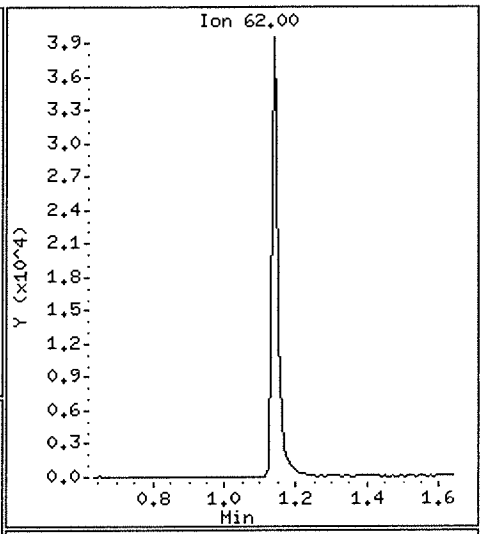
Column phase: DB624

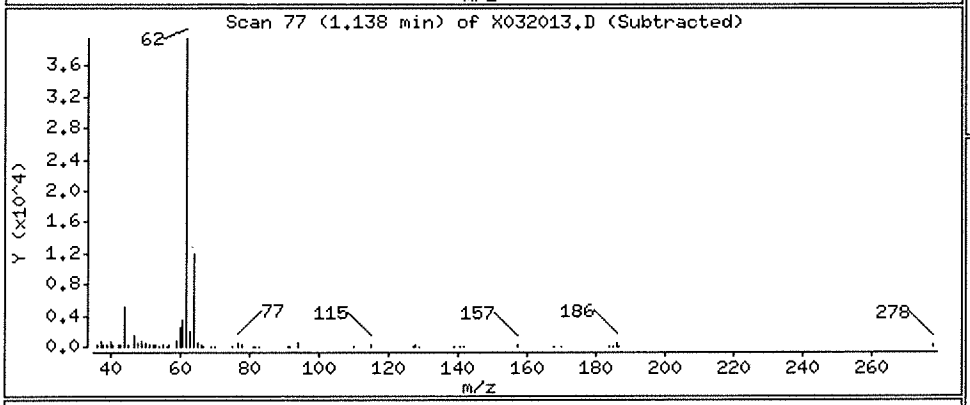
Column diameter: 0.18

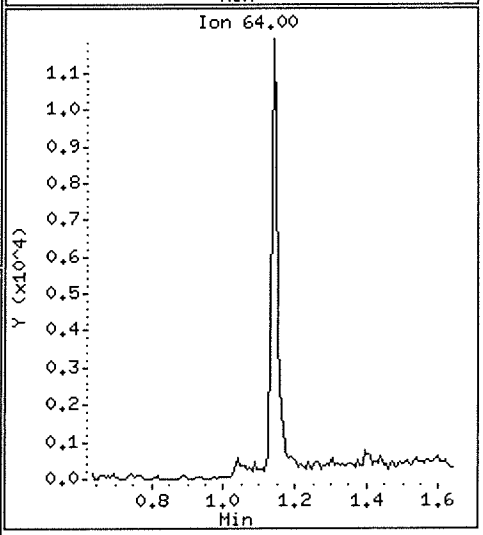
5 Vinyl Chloride

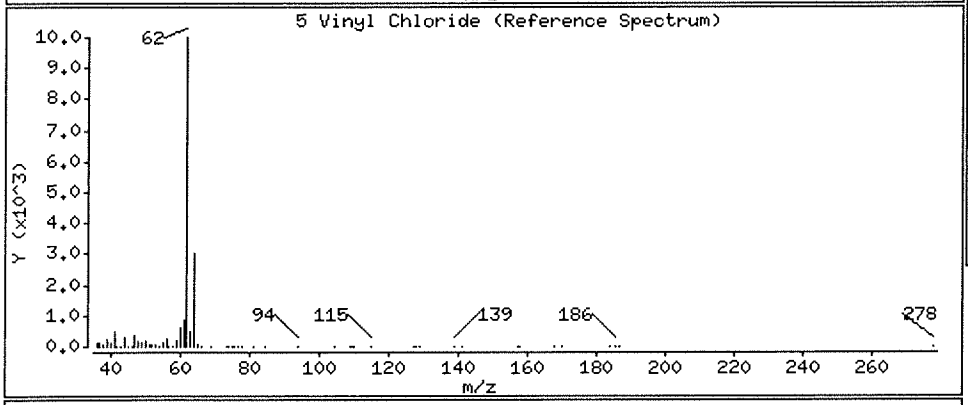
Concentration: 82.31 ug/l

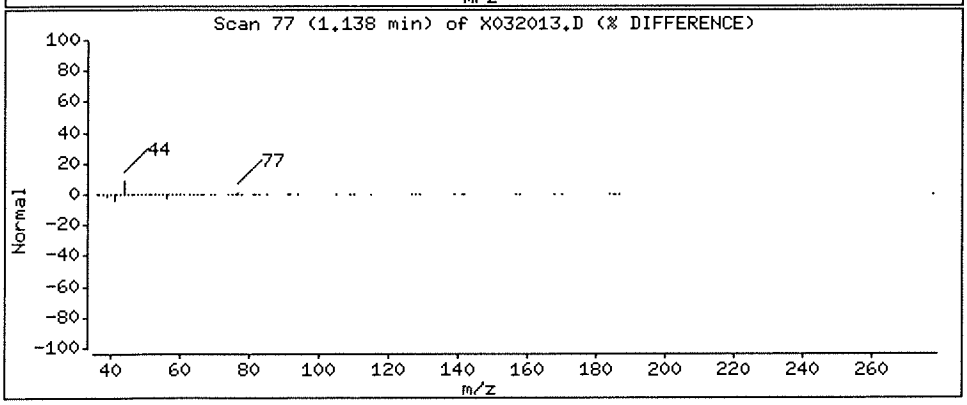












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032013.D

Date : 20-MAR-2020 14:53

Client ID: HS20030498-04

Instrument: voa6.i

Sample Info: HS20030498-04;HS20030498-04;;;

Purge Volume: 5.0

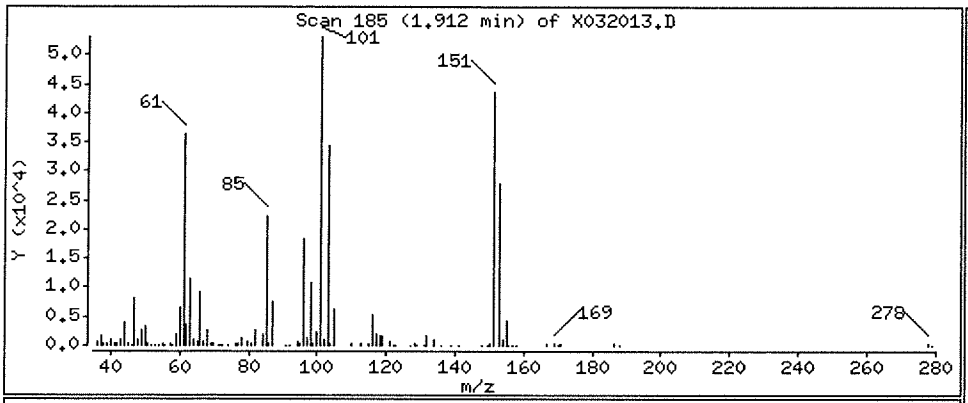
Operator: PC

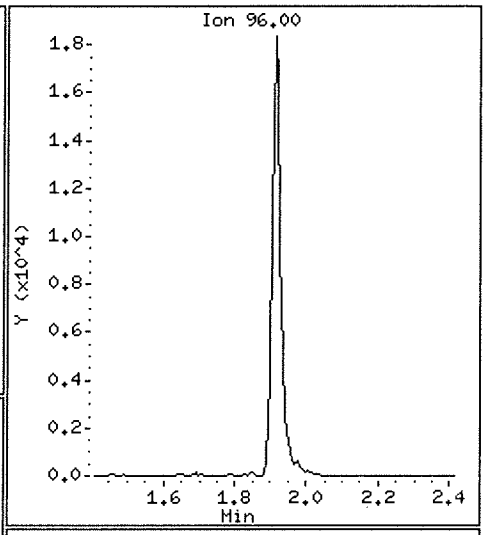
Column phase: DB624

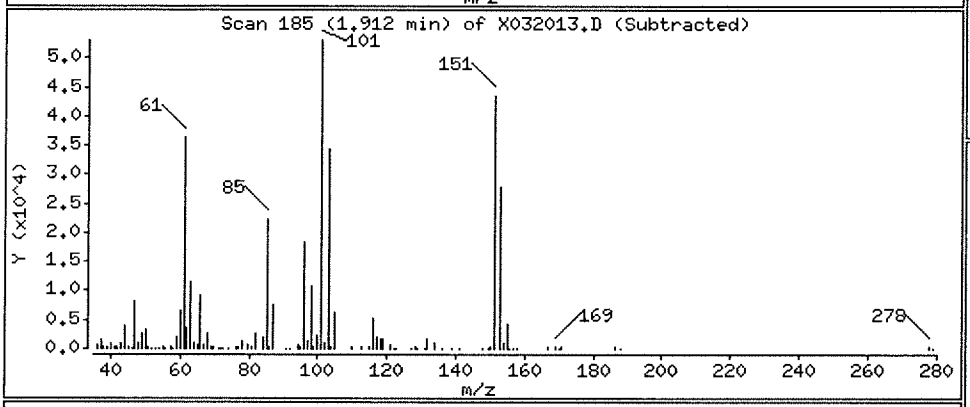
Column diameter: 0.18

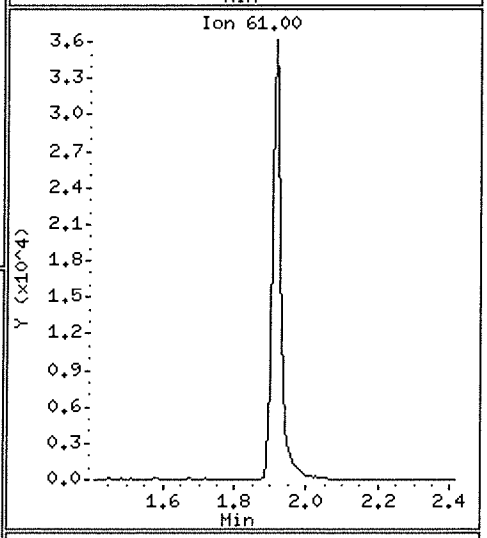
11 1,1-Dichloroethene

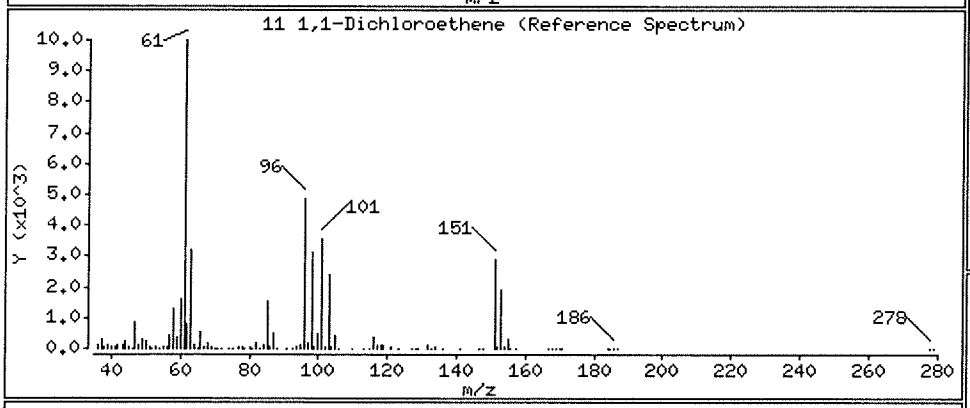
Concentration: 96.43 ug/l

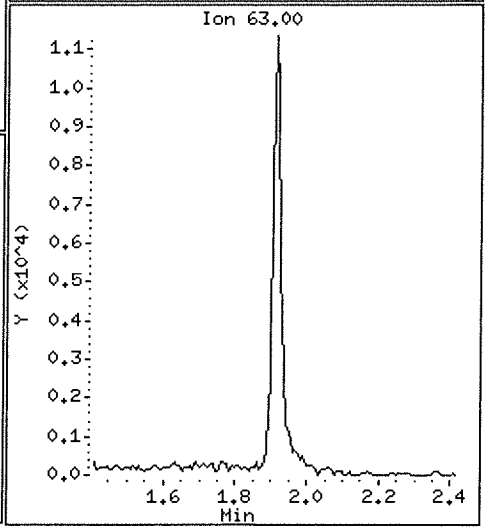


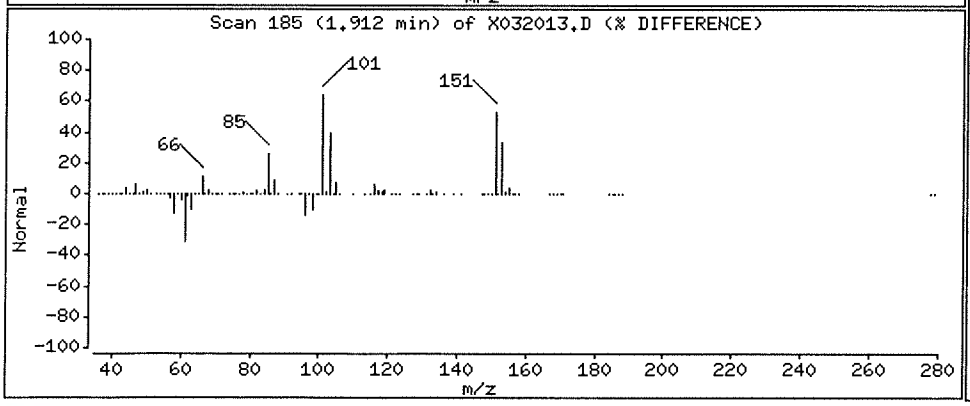












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032013.D

Date : 20-MAR-2020 14:53

Client ID: HS20030498-04

Instrument: voa6.i

Sample Info: HS20030498-04;HS20030498-04;;;

Purge Volume: 5.0

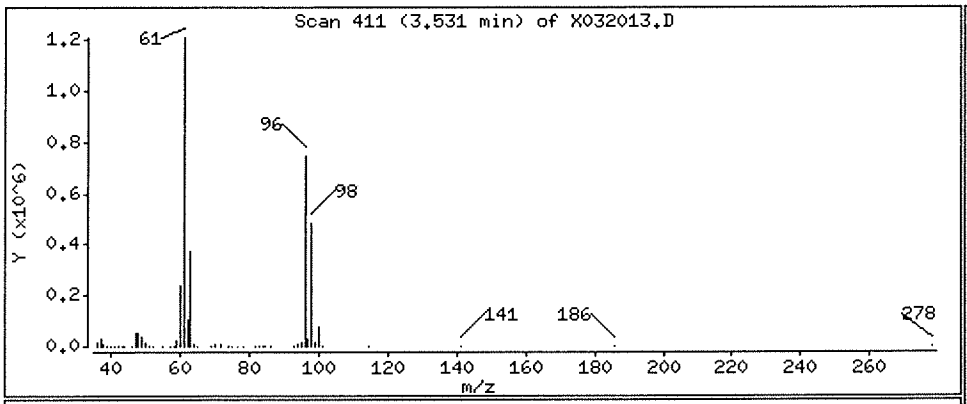
Operator: PC

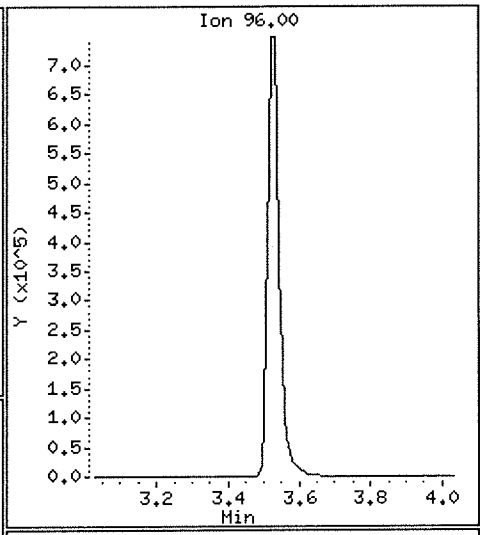
Column phase: DB624

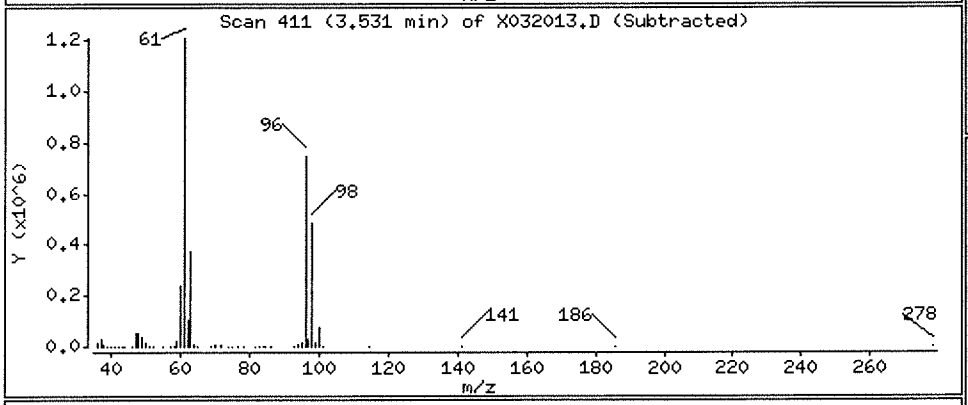
Column diameter: 0.18

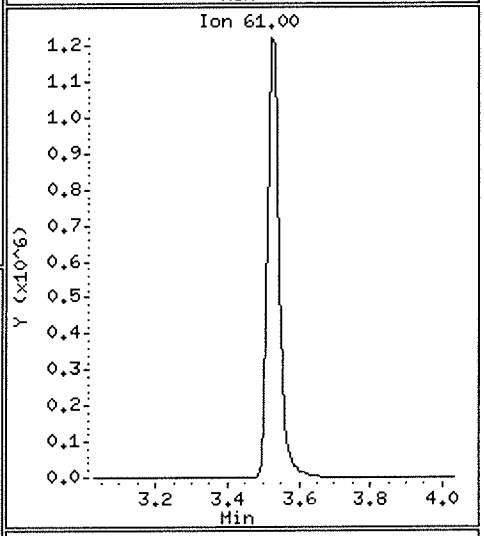
27 cis-1,2-Dichloroethene

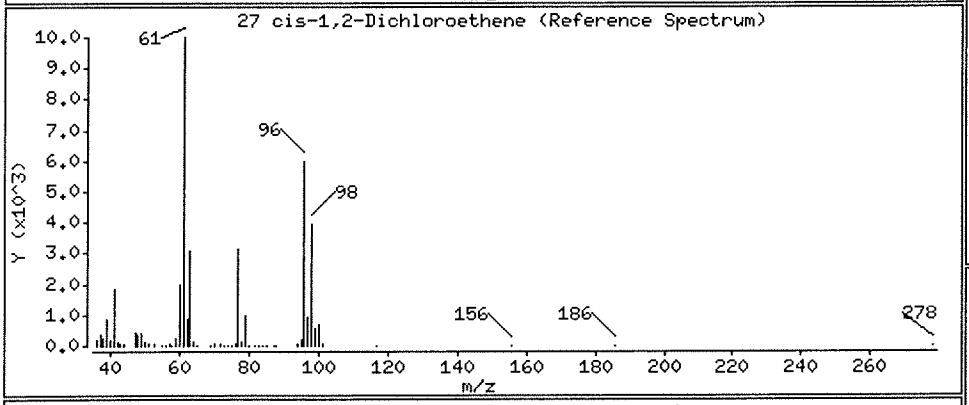
Concentration: 3807.95 ug/l

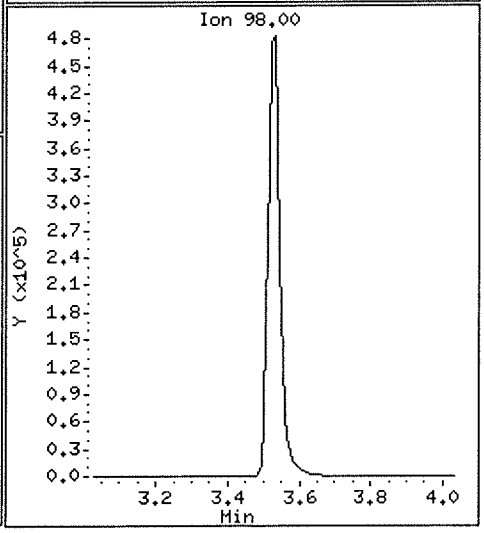


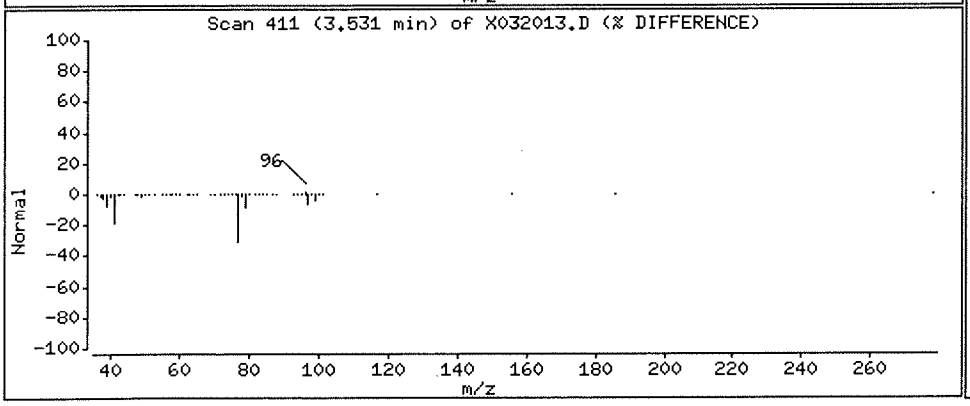












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032013.D

Date : 20-MAR-2020 14:53

Client ID: HS20030498-04

Instrument: voa6.i

Sample Info: HS20030498-04;HS20030498-04;;;

Purge Volume: 5.0

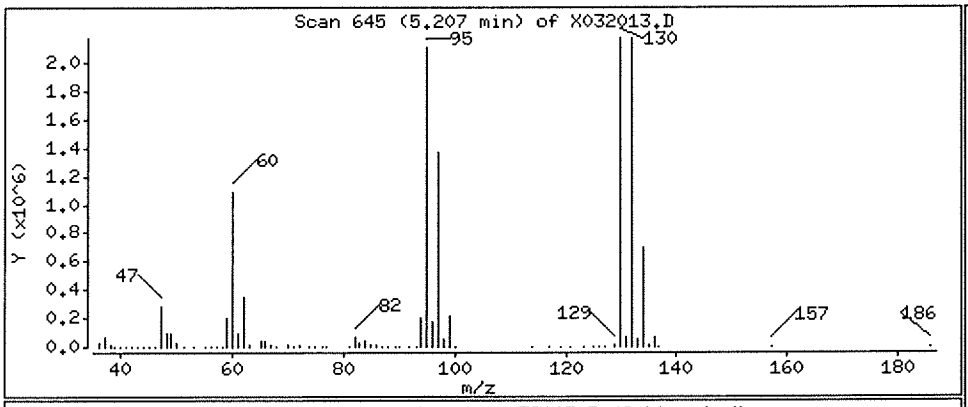
Operator: PC

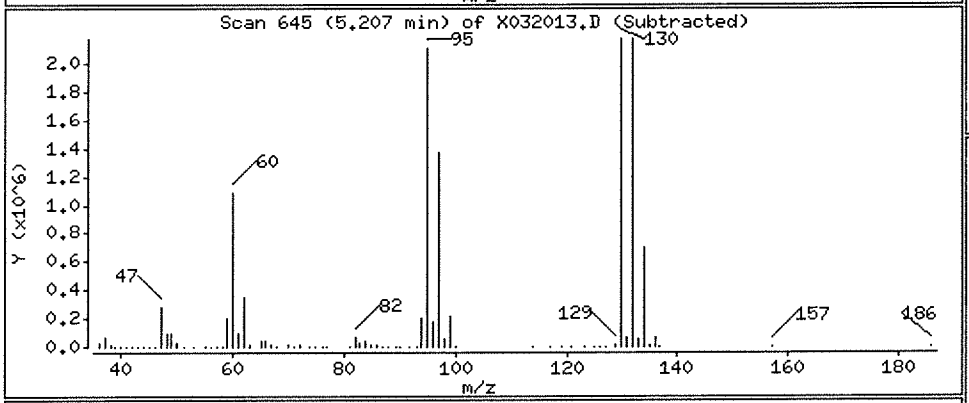
Column phase: DB624

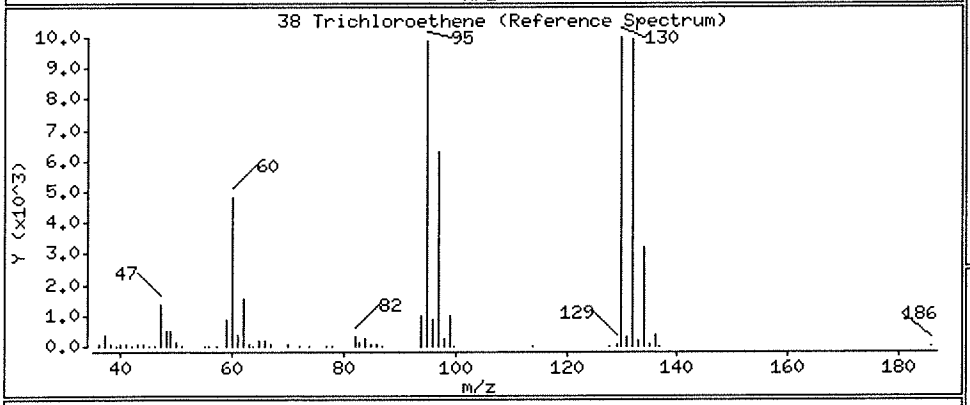
Column diameter: 0.18

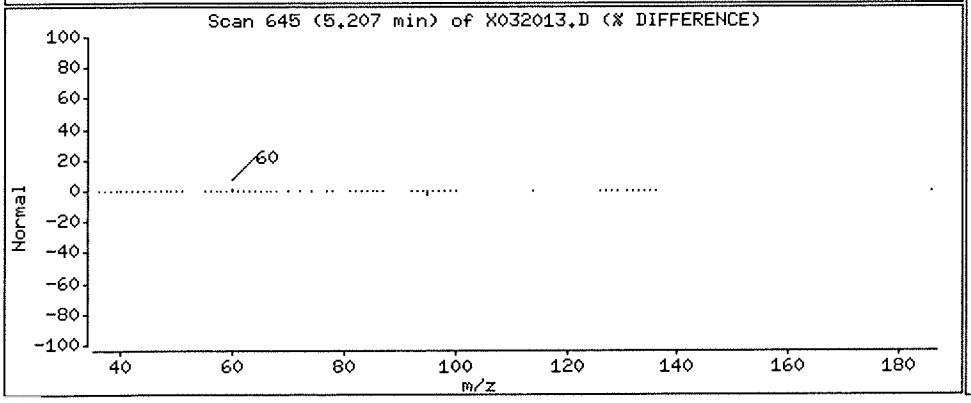
38 Trichloroethene

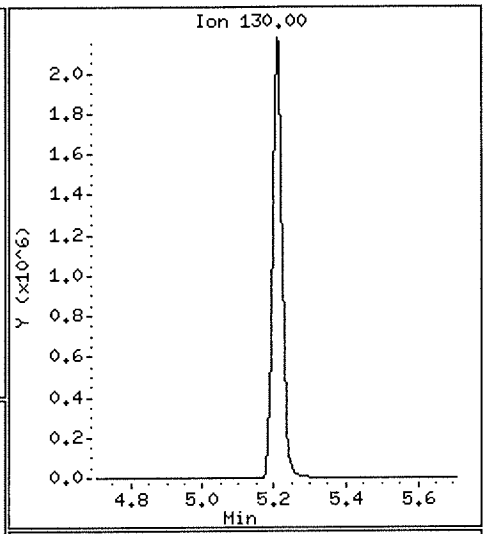
Concentration: 9957.23 ug/l

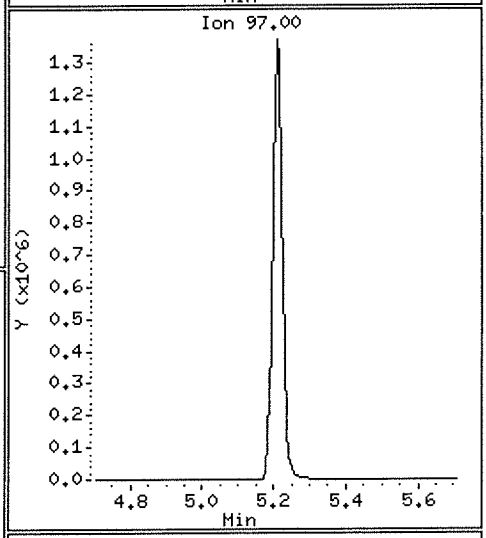


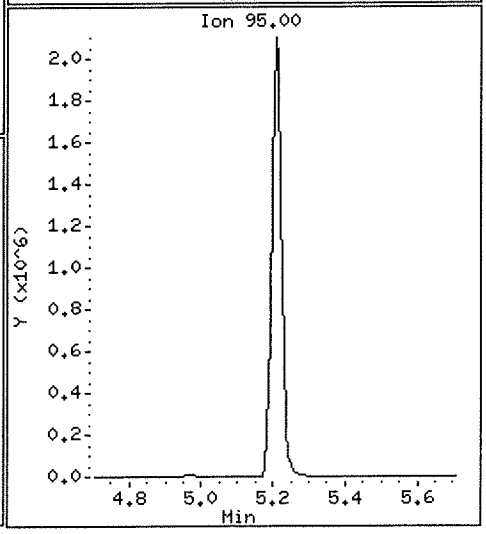












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032014.D Page 1
Report Date: 14-Apr-2020 12:44

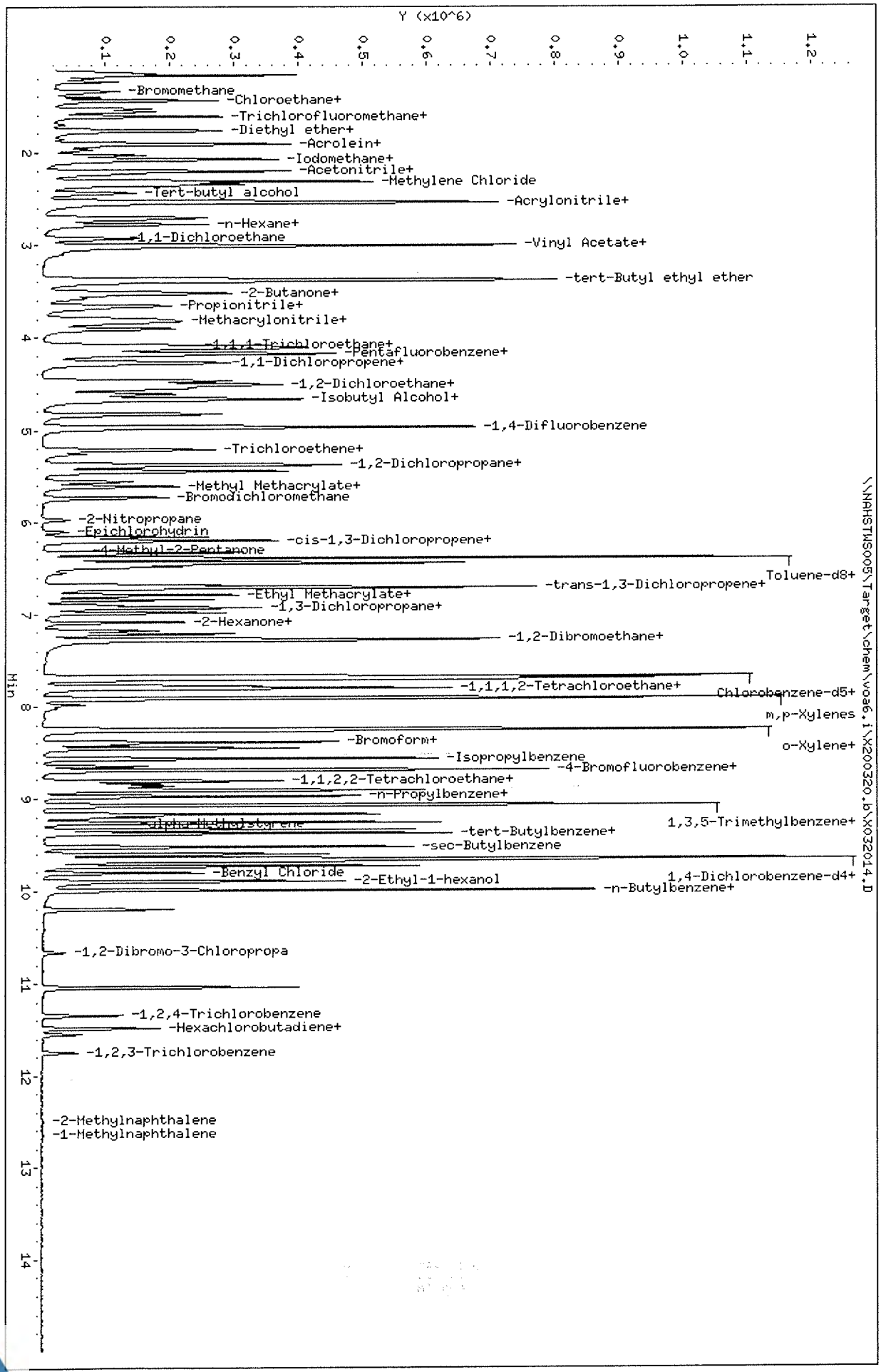
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032014.D
Lab Smp Id: HS20030848-01MS Client Smp ID: HS20030848-01MS
Inj Date : 20-MAR-2020 15:17
Operator : PC Inst ID: voa6.i
Smp Info : HS20030848-01MS;HS20030848-01MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:44 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 14 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	371563	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	174166	47.1703	47.17
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	214796	46.0010	46.00
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	553467	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	467711	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	643969	53.7543	53.75
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	221411	49.1905	49.19
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	221329	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	109583	19.3583	19.35
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	62436	19.8305	19.83
17 Methylene Chloride	84	2.306	2.306	(0.551)	77588	18.7634	18.76
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	86368	20.4112	20.41
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	116144	19.8628	19.86
38 Trichloroethene	130	5.207	5.207	(1.048)	89039	23.2106	23.21
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	57084	21.1842	21.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032014.D
Date : 20-MAR-2020 15:17
Client ID: HS200330848-01MS
Sample Info: HS200330848-01MS;HS200330848-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

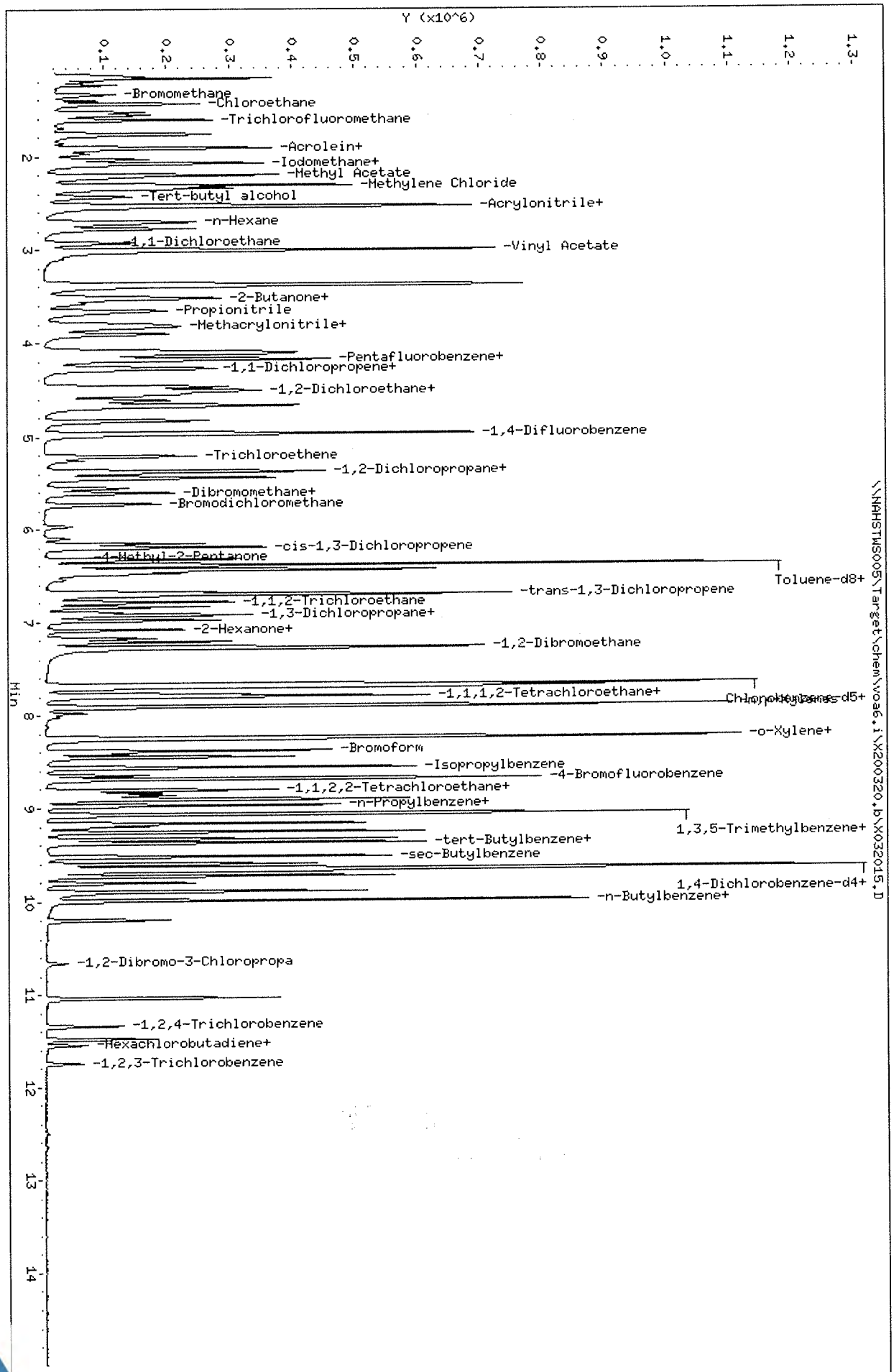
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032015.D
Lab Smp Id: HS20030848-01MSD Client Smp ID: HS20030848-01MSD
Inj Date : 20-MAR-2020 15:41
Operator : PC Inst ID: voa6.i
Smp Info : HS20030848-01MSD;HS20030848-01MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:44 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 14 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	370548	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	174993	47.5249	47.52
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	214036	45.9637	45.96
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	555961	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	490740	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	647306	51.4941	51.49
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	229769	48.6465	48.64
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	237990	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	102238	18.1102	18.11
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	57606	18.3465	18.34
17 Methylene Chloride	84	2.306	2.306	(0.551)	76169	18.4486	18.44
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	80574	19.0941	19.09
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	114278	19.4560	19.45
38 Trichloroethene	130	5.207	5.207	(1.048)	80709	20.9447	20.94
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	55396	19.5931	19.59



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032015.D
Date : 20-MAR-2020 15:41
Client ID: HS20030848-01MSD
Sample Info: HS20030848-01MSD;HS20030848-01MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032016.D Page 1
Report Date: 14-Apr-2020 13:04

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032016.D
Lab Smp Id: HS20030498-04 Client Smp ID: HS20030498-04
Inj Date : 20-MAR-2020 16:05
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-04;HS20030498-04;;;
Misc Info : HS18090001;WATER;0;100;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:48 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 15
Dil Factor: 100.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	100.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	384222	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	181197	47.4584	47.45
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	218844	45.3214	45.32
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	571272	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	500759	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	665337	51.8701	51.87
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	236048	48.9793	48.97
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	237141	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	6078	1.03833	103.83(a)
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	3541	1.08761	108.76(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	172991	39.5358	3953.57
38 Trichloroethene	130	5.207	5.206	(1.048)	438461	110.735	11073.50

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

01094463

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032016.D

Date : 20-MAR-2020 16:05

Client ID: HS20030498-04

Sample Info: HS20030498-04;HS20030498-04;;;

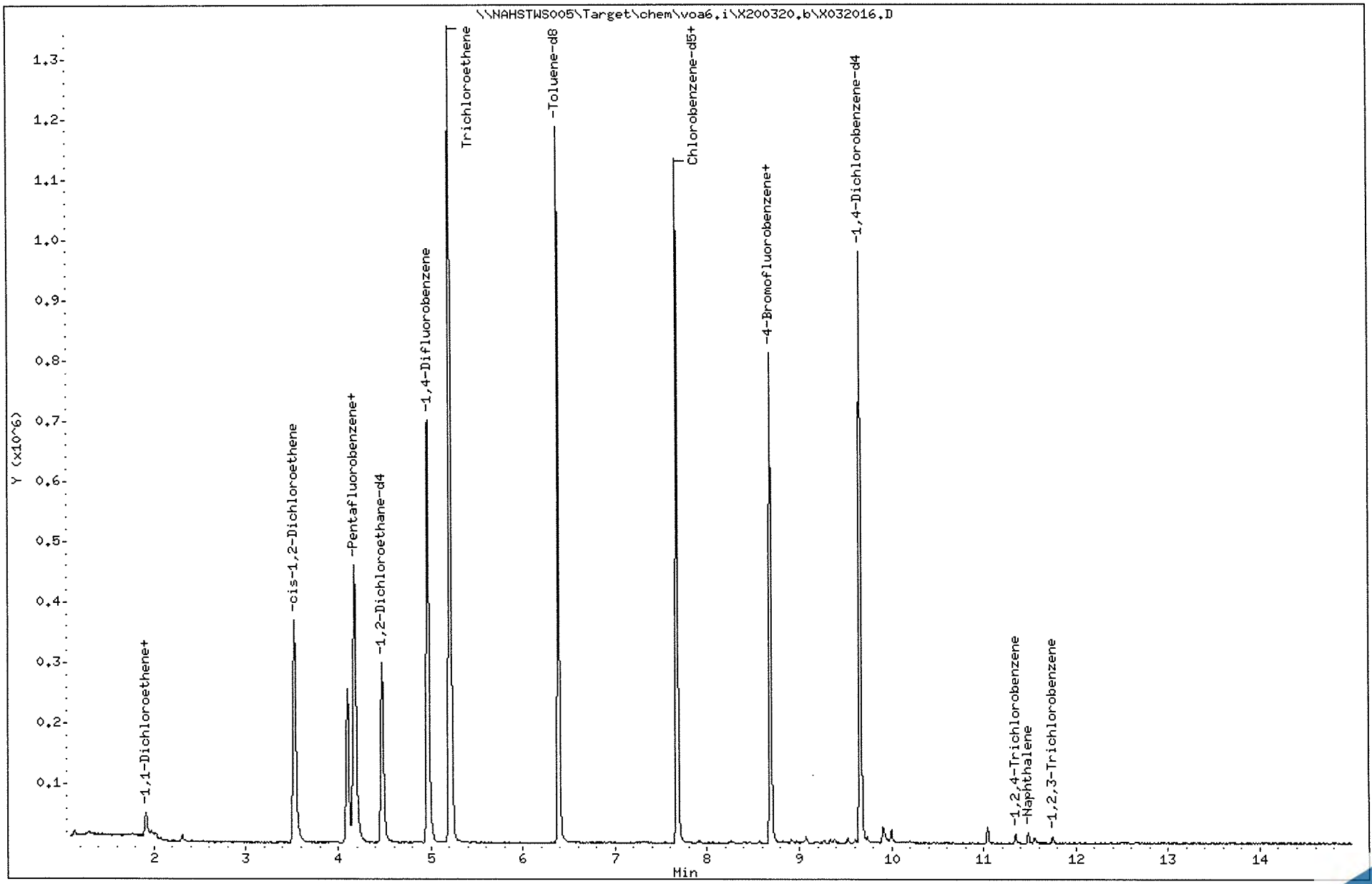
Purge Volume: 5.0

Column phase: DB624

Instrument: voa6.i

Operator: PC

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032016.D

Date : 20-MAR-2020 16:05

Client ID: HS20030498-04

Instrument: voa6.i

Sample Info: HS20030498-04;HS20030498-04;;;

Purge Volume: 5.0

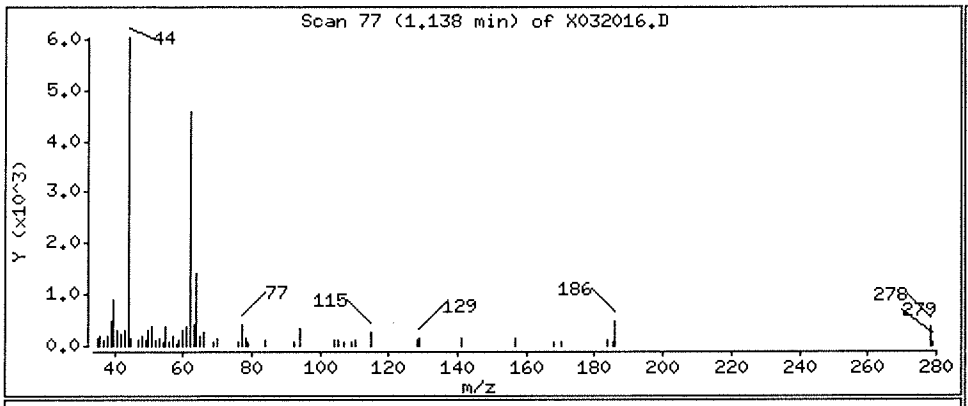
Operator: PC

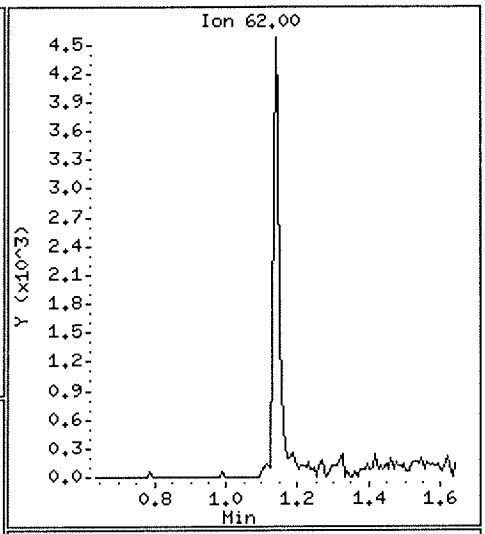
Column phase: DB624

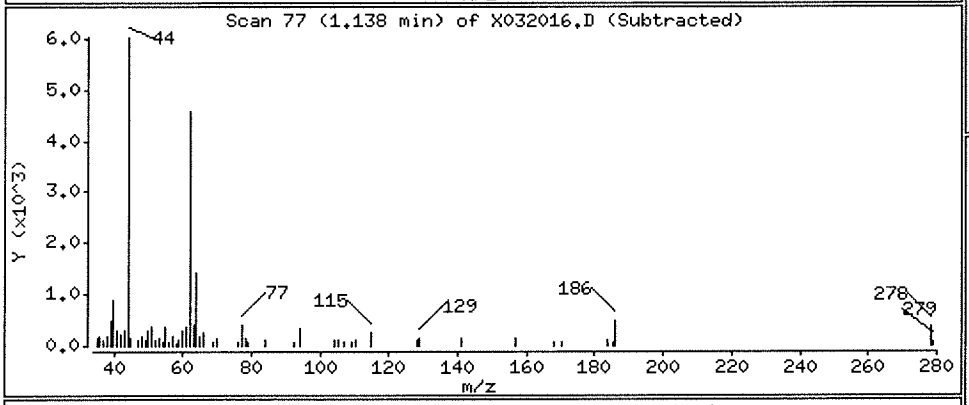
Column diameter: 0.18

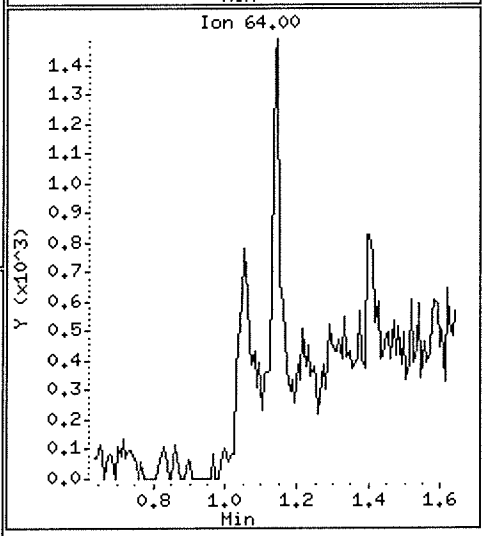
5 Vinyl Chloride

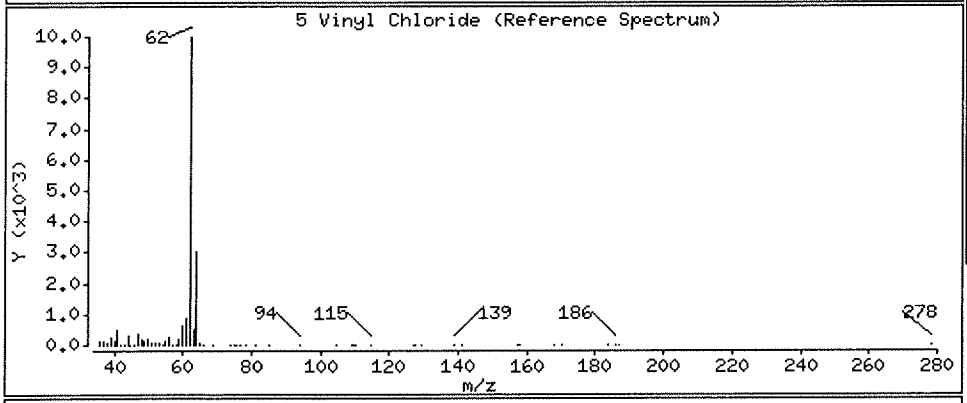
Concentration: 103.83 ug/l

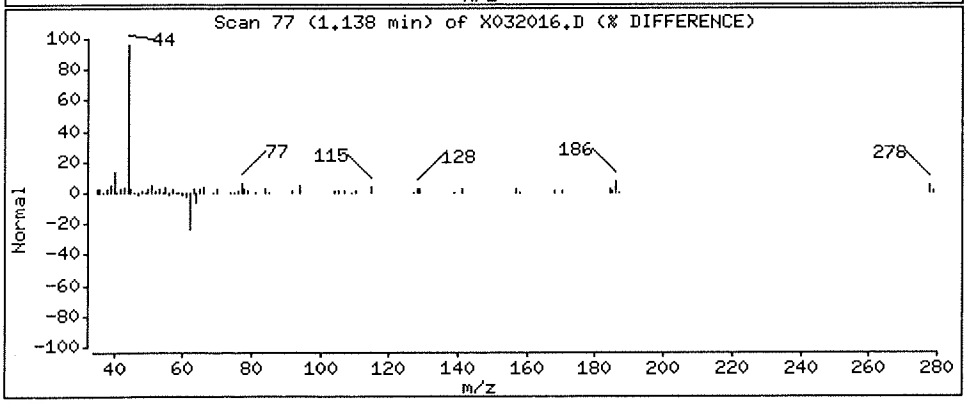












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032016.D

Date : 20-MAR-2020 16:05

Client ID: HS20030498-04

Instrument: voa6.i

Sample Info: HS20030498-04;HS20030498-04;;;

Purge Volume: 5.0

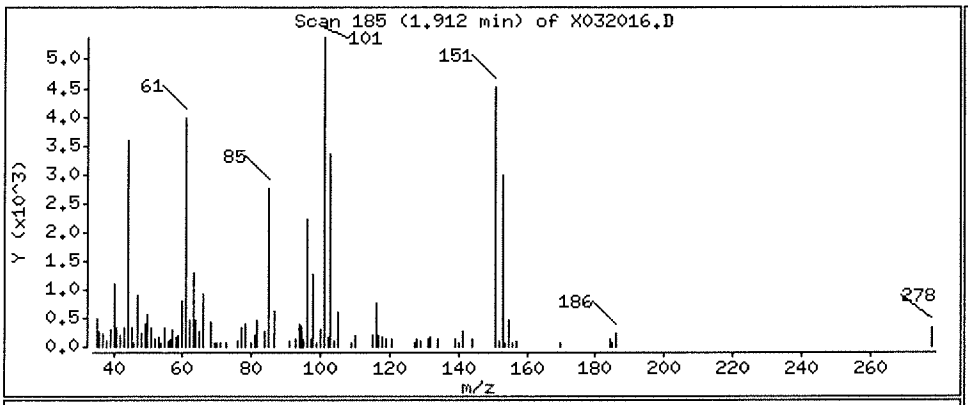
Operator: PC

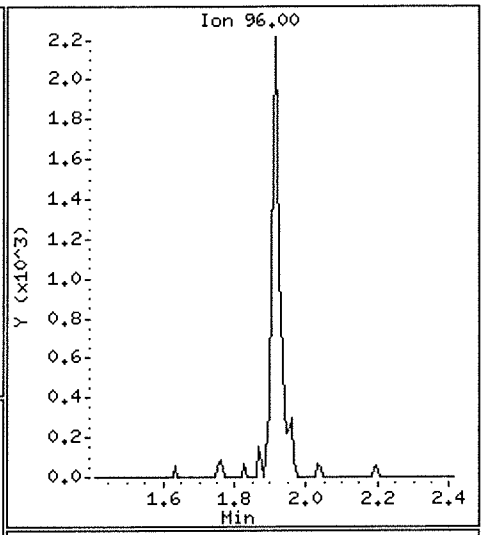
Column phase: DB624

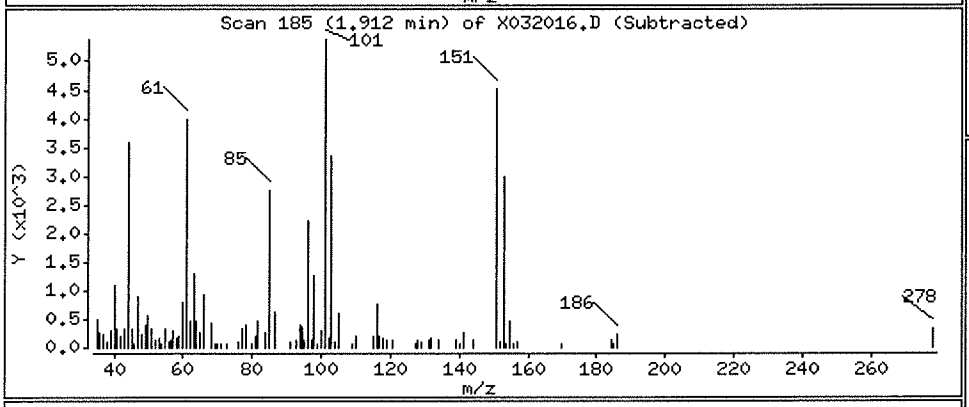
Column diameter: 0.18

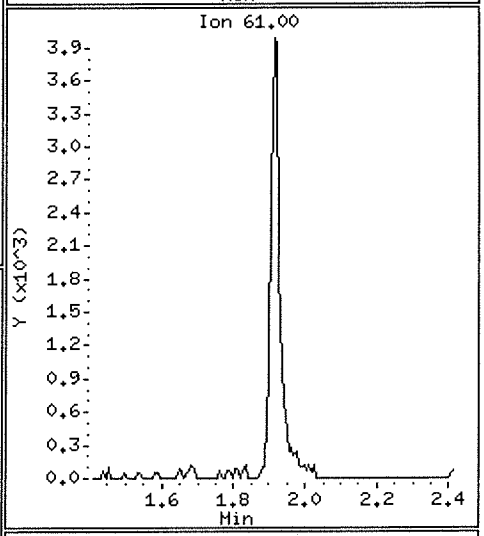
11 1,1-Dichloroethene

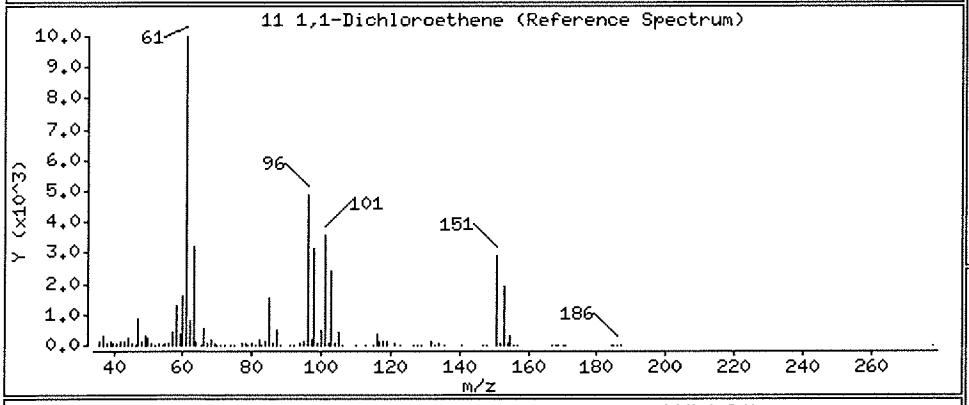
Concentration: 108.76 ug/l

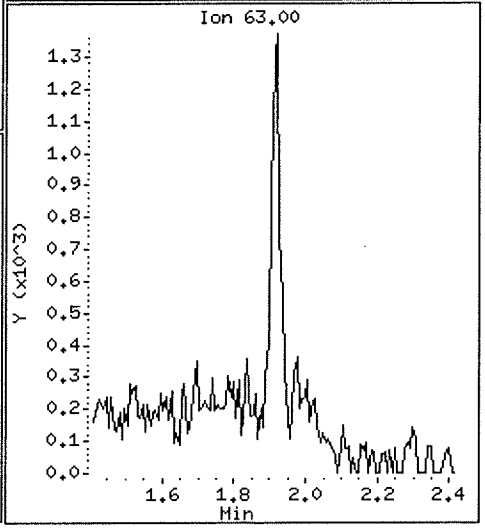


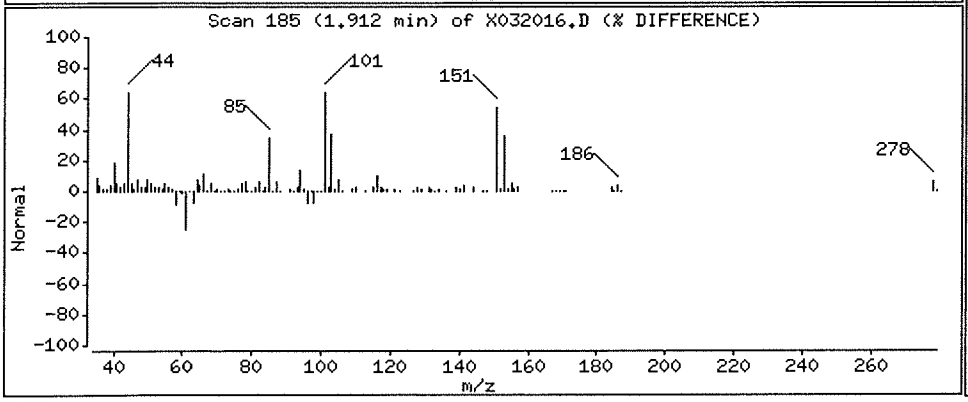












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032016.D

Date : 20-MAR-2020 16:05

Client ID: HS20030498-04

Instrument: voa6.i

Sample Info: HS20030498-04;HS20030498-04;;;

Purge Volume: 5.0

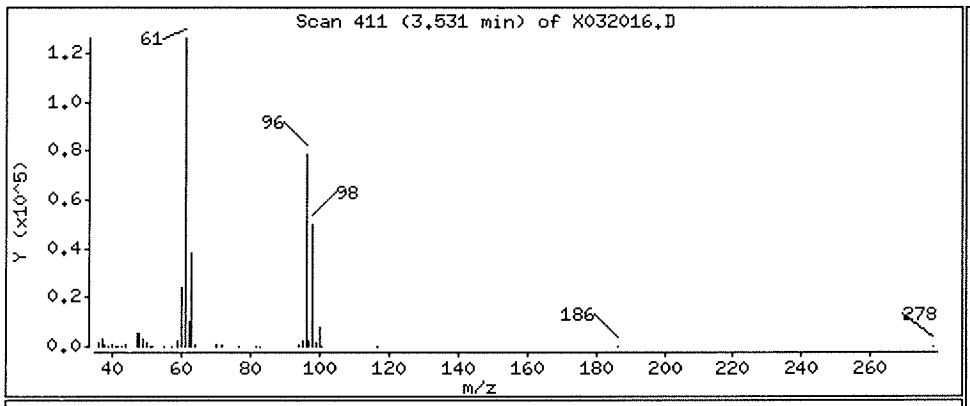
Operator: PC

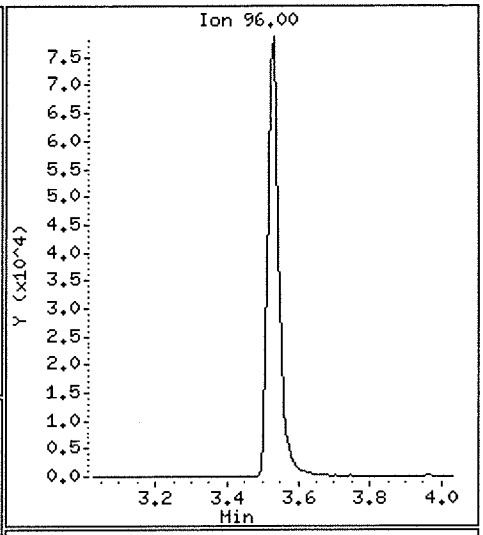
Column phase: DB624

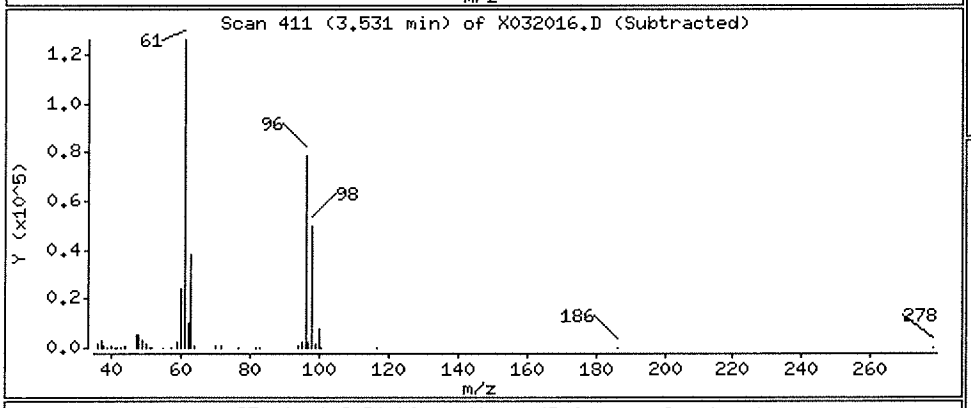
Column diameter: 0.18

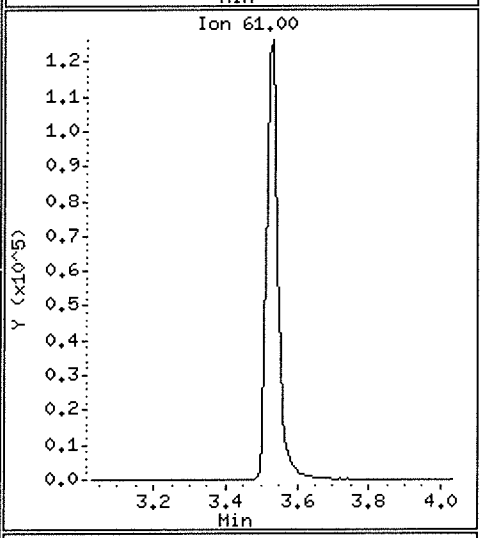
27 cis-1,2-Dichloroethene

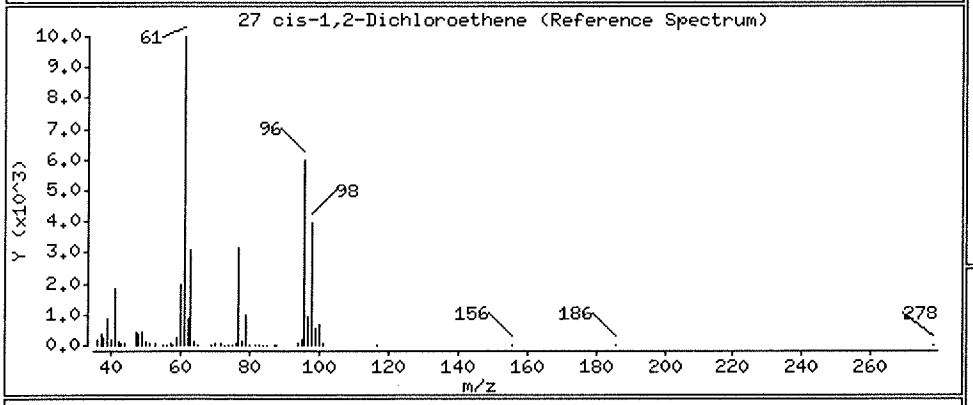
Concentration: 3953.57 ug/l

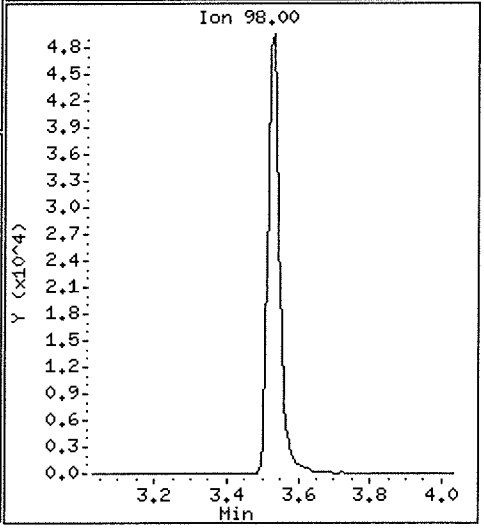


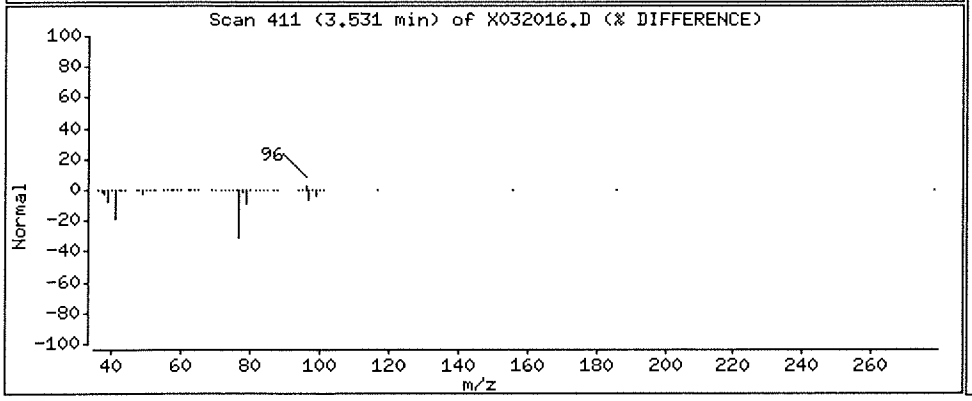












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032016.D

Date : 20-MAR-2020 16:05

Client ID: HS20030498-04

Instrument: voa6.i

Sample Info: HS20030498-04;HS20030498-04;;;

Purge Volume: 5.0

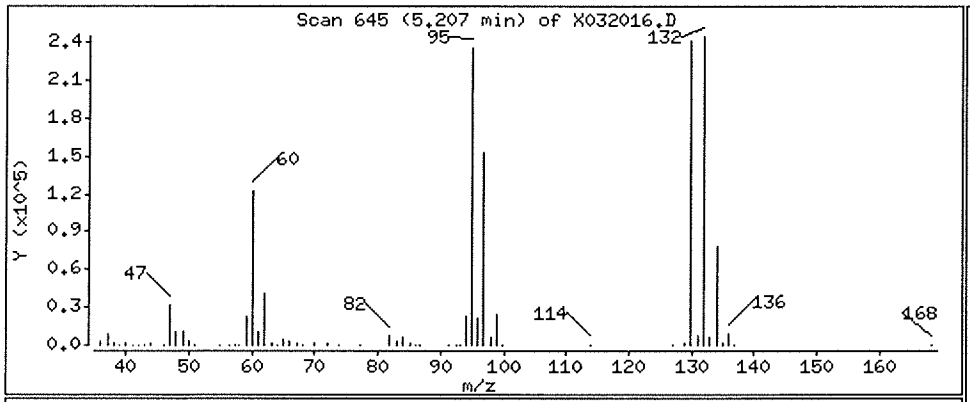
Operator: PC

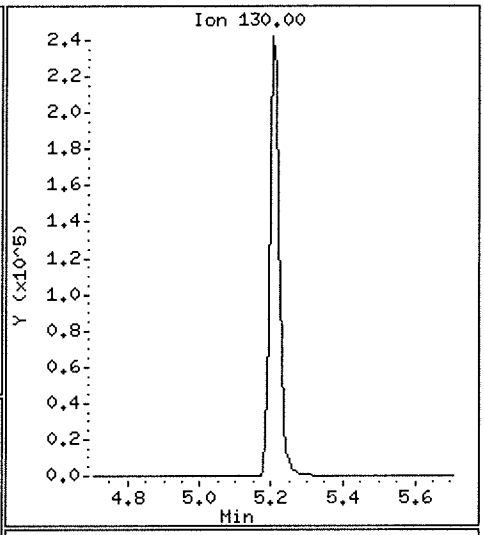
Column phase: DB624

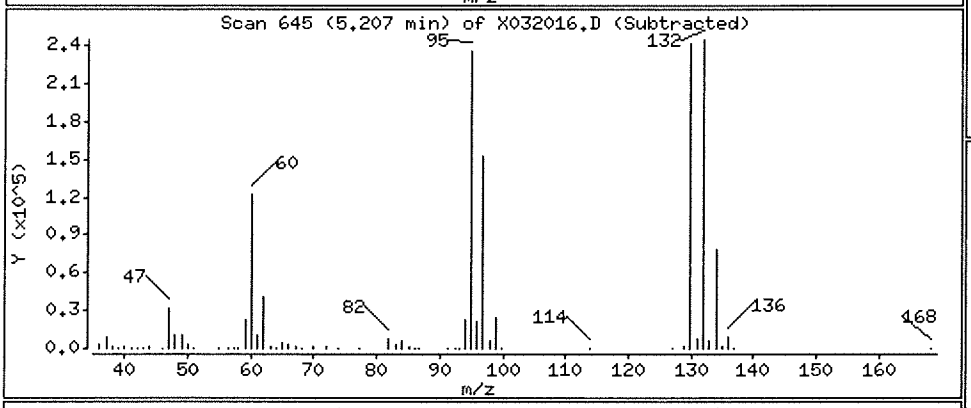
Column diameter: 0.18

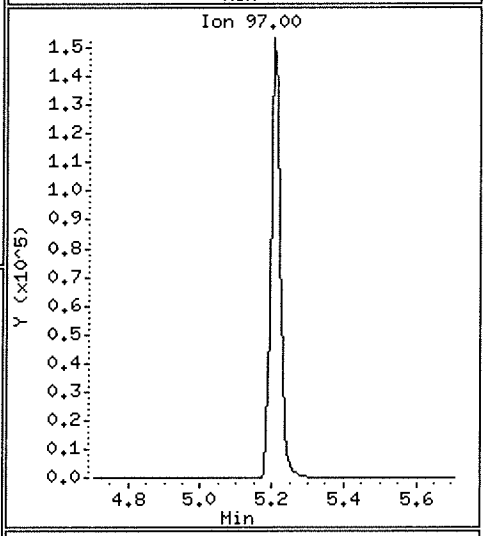
38 Trichloroethene

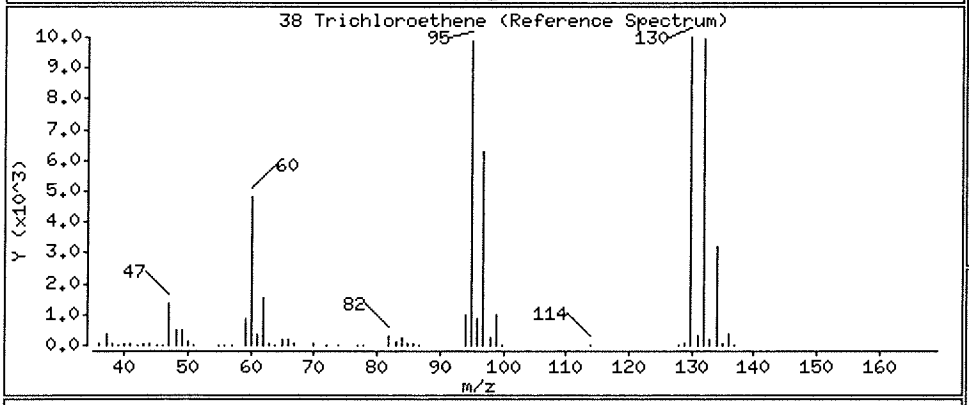
Concentration: 11073.50 ug/l

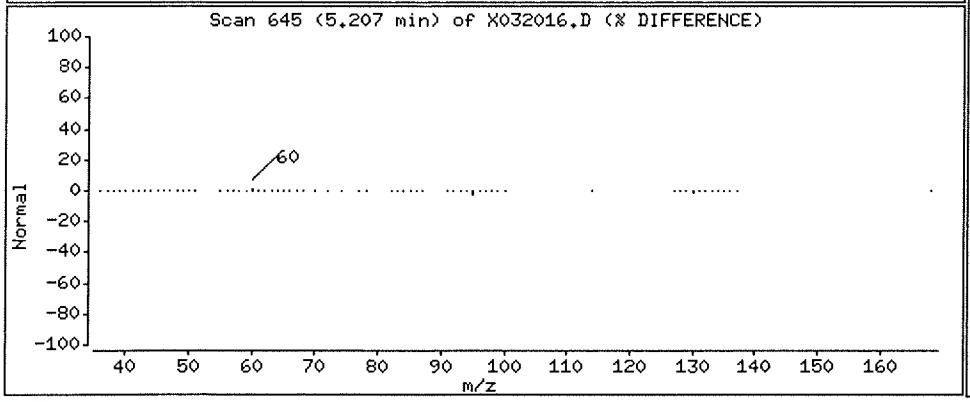


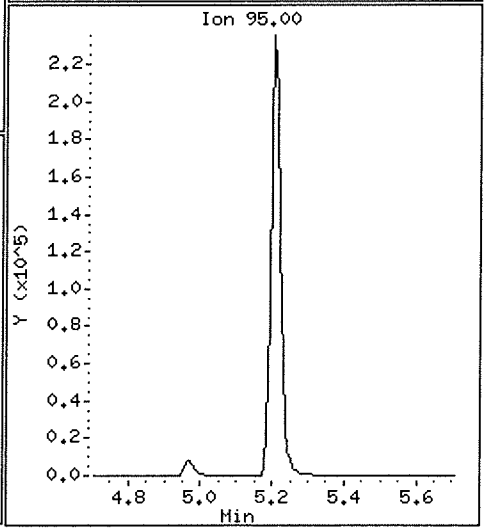












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032017.D
Lab Smp Id: HS20030498-05 Client Smp ID: HS20030498-05
Inj Date : 20-MAR-2020 16:29
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-05;HS20030498-05;;;
Misc Info : HS18090001;WATER;0;25;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:48 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 16
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	376356	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	175164	46.8357	46.83
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	214221	45.2912	45.29
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	565873	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	486706	50.0000	
$	48 Toluene-d8	98	6.389	6.388	(0.833)	647930	51.9716	51.97
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	227956	48.6628	48.66
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	233083	50.0000	
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	40814	7.11813	177.95
	11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	20970	6.57552	164.38
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	2990520	697.745	17443.63(A)
	33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	3182	0.53225	13.30(a)
	38 Trichloroethene	130	5.207	5.206	(1.048)	2485059	633.600	15839.98(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.

01094469

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032017.D

Date : 20-MAR-2020 16:29

Client ID: HS20030498-05

Instrument: voa6.i

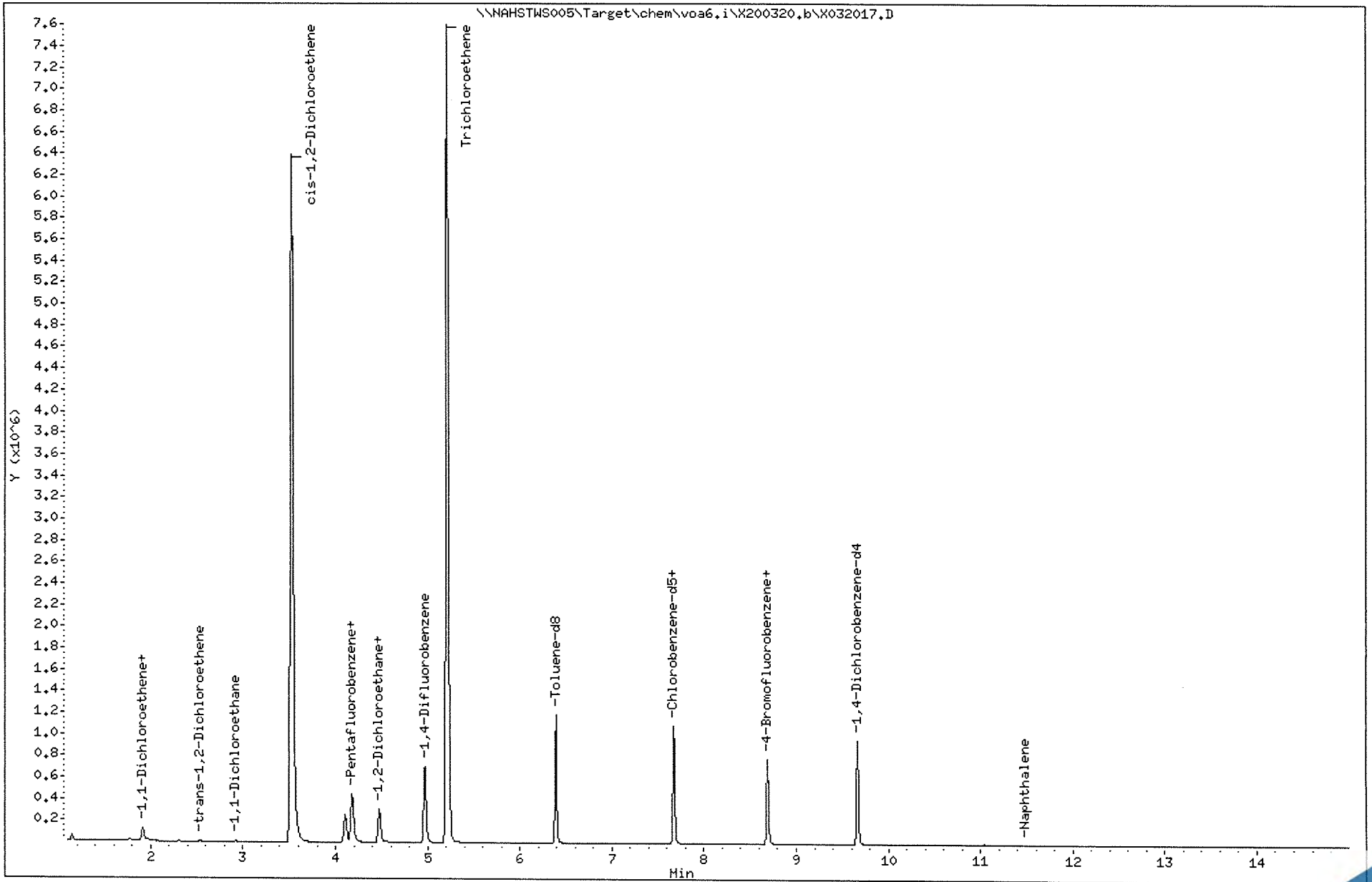
Sample Info: HS20030498-05;HS20030498-05;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032017.D

Date : 20-MAR-2020 16:29

Client ID: HS20030498-05

Instrument: voa6.i

Sample Info: HS20030498-05;HS20030498-05;;;

Purge Volume: 5.0

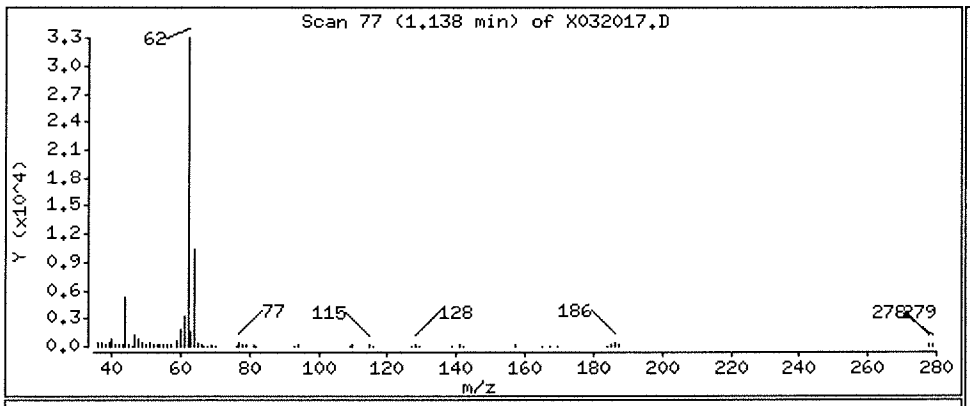
Operator: PC

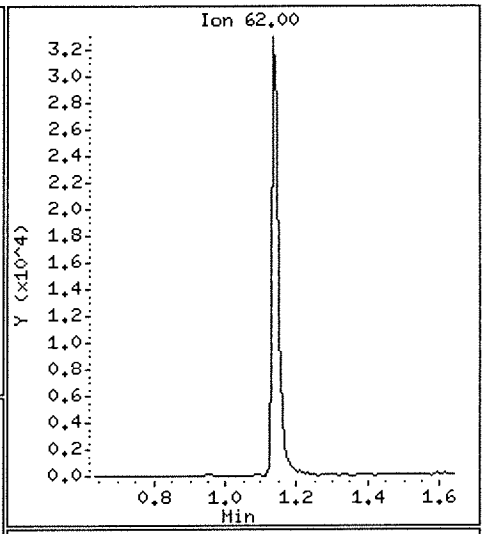
Column phase: DB624

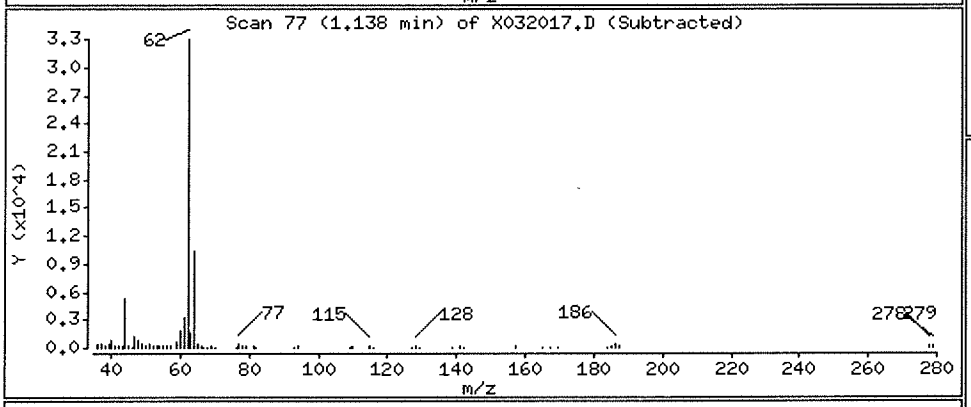
Column diameter: 0.18

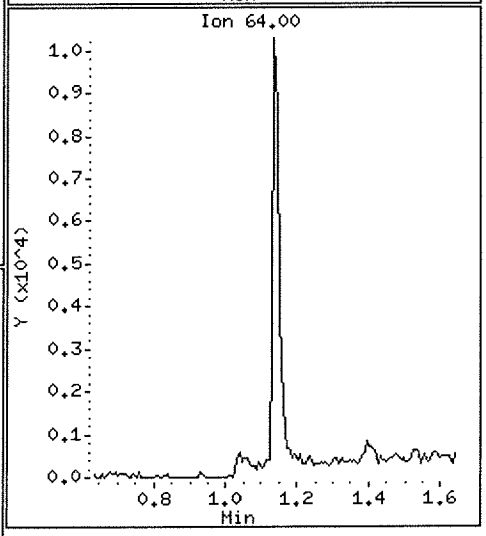
5 Vinyl Chloride

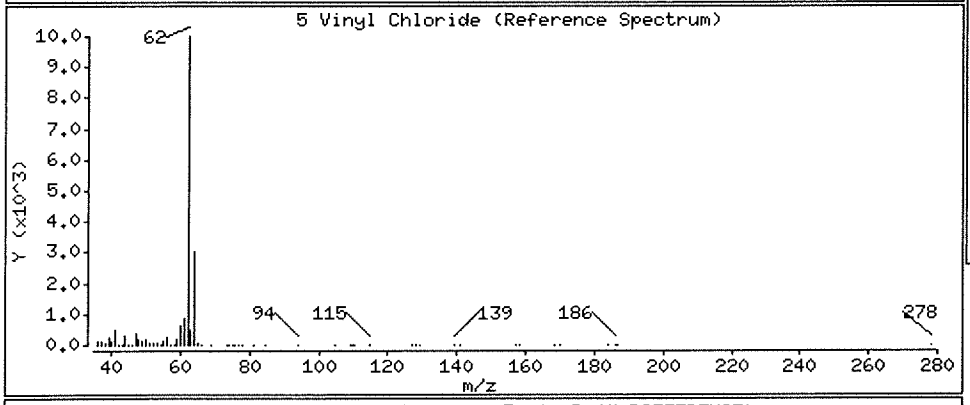
Concentration: 177.95 ug/l

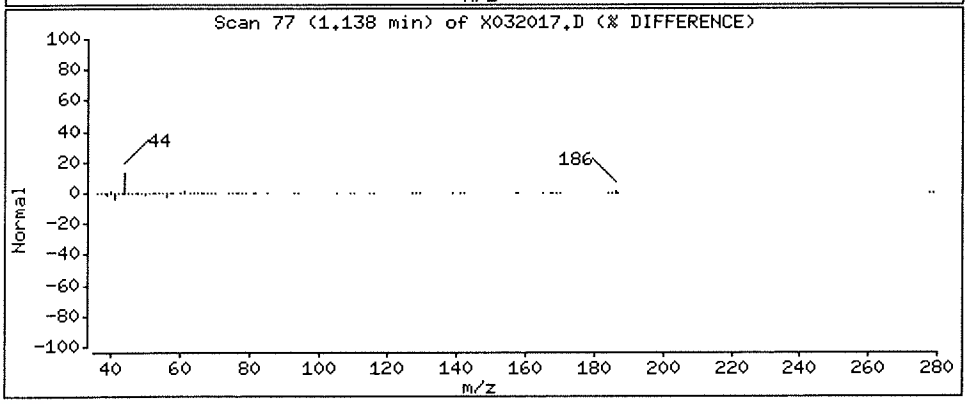












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032017.D

Date : 20-MAR-2020 16:29

Client ID: HS20030498-05

Instrument: voa6.i

Sample Info: HS20030498-05;HS20030498-05;;;

Purge Volume: 5.0

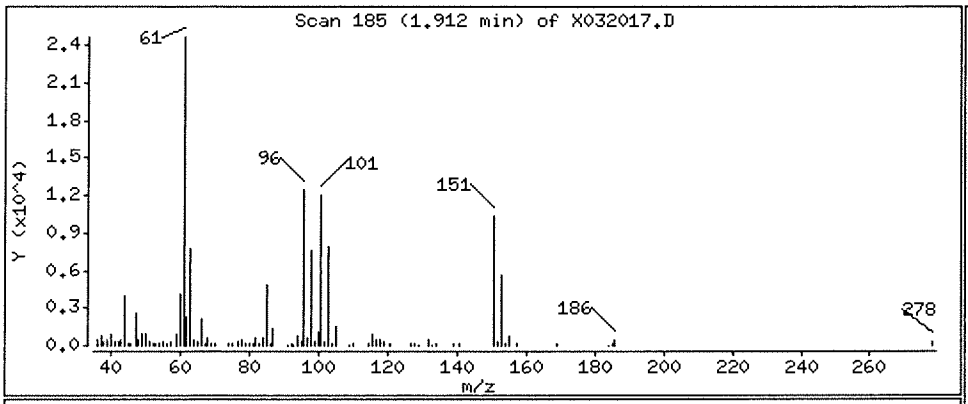
Operator: PC

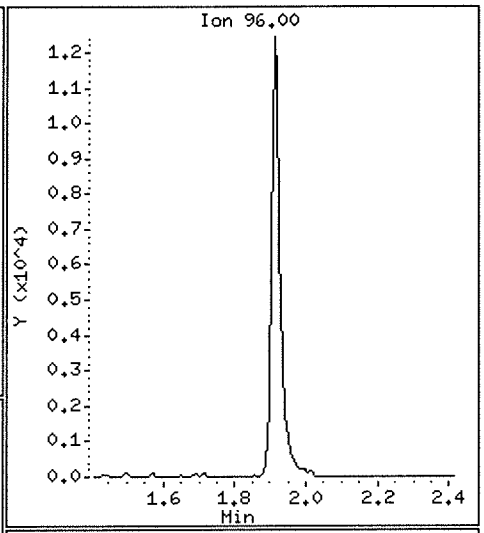
Column phase: DB624

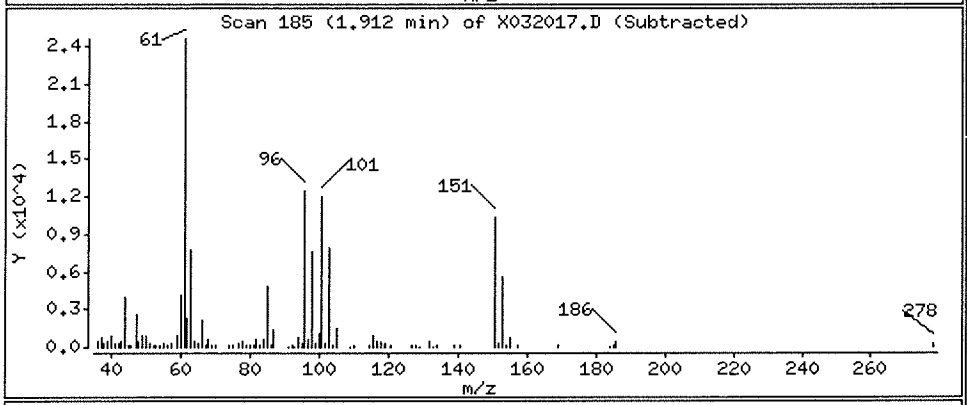
Column diameter: 0.18

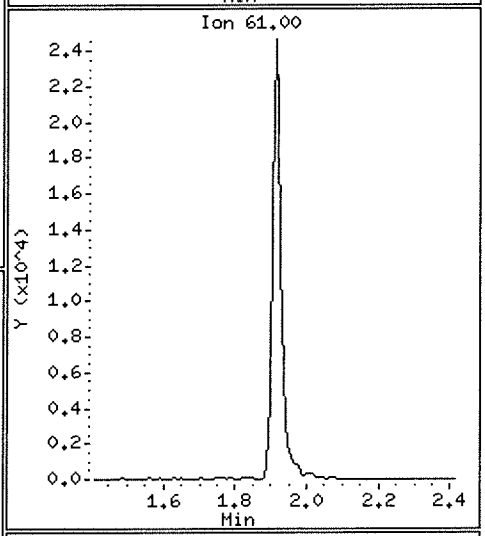
11 1,1-Dichloroethene

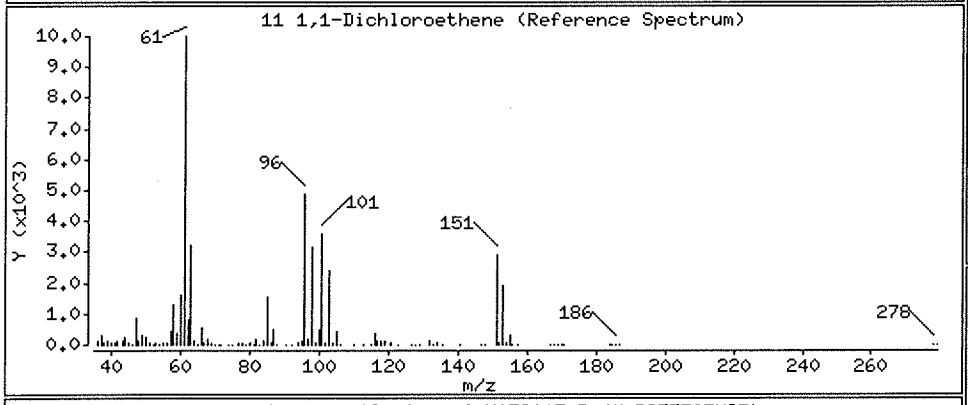
Concentration: 164.38 ug/l

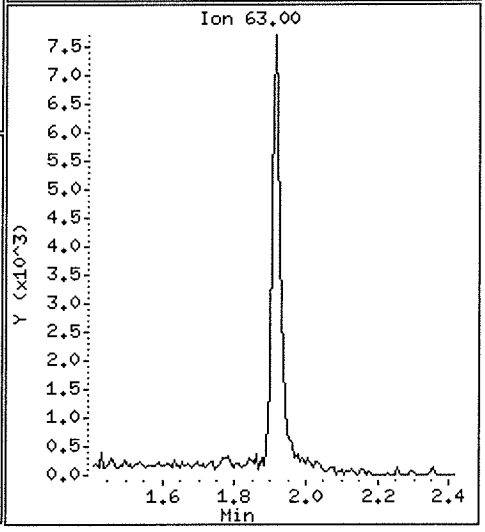


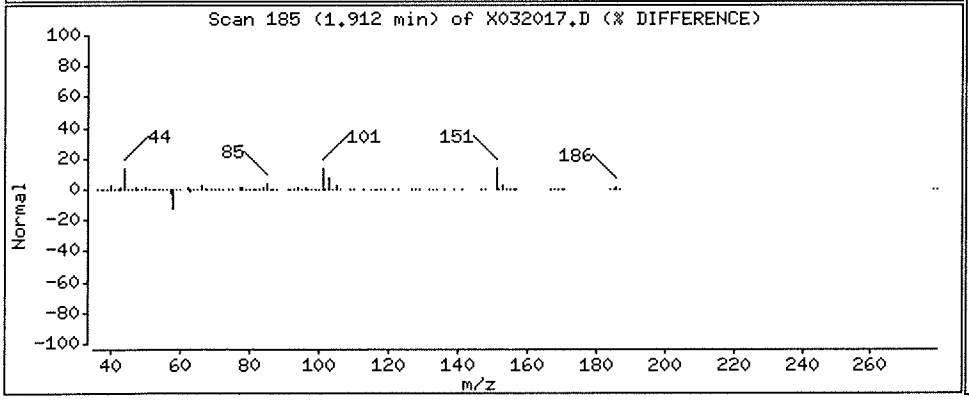












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032017.D

Date : 20-MAR-2020 16:29

Client ID: HS20030498-05

Instrument: voa6.i

Sample Info: HS20030498-05;HS20030498-05;;;

Purge Volume: 5.0

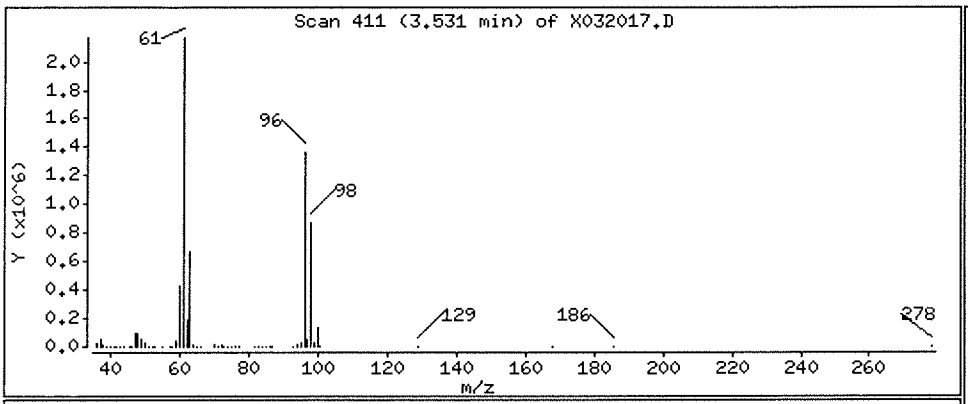
Operator: PC

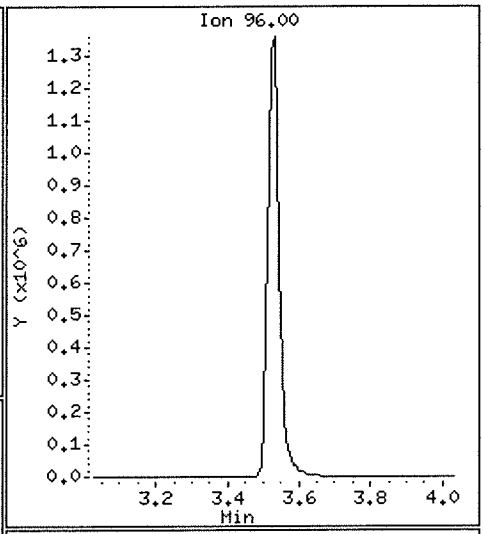
Column phase: DB624

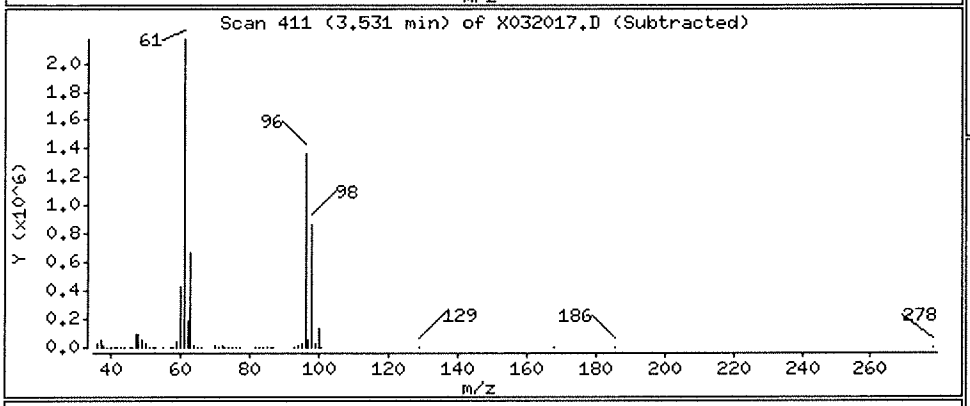
Column diameter: 0.18

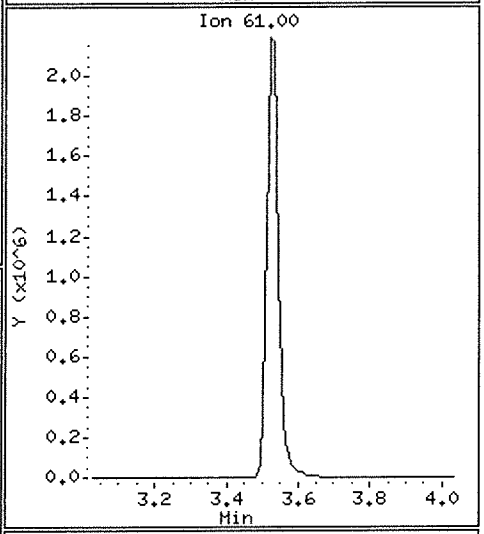
27 cis-1,2-Dichloroethene

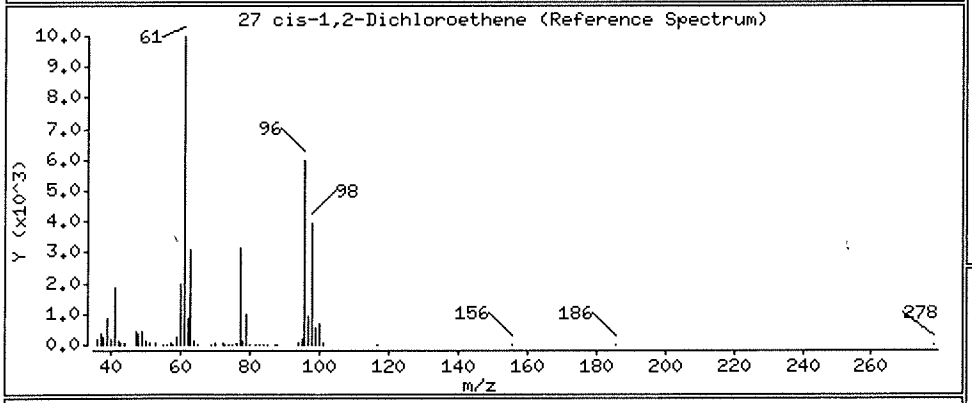
Concentration: 17443.63 ug/l

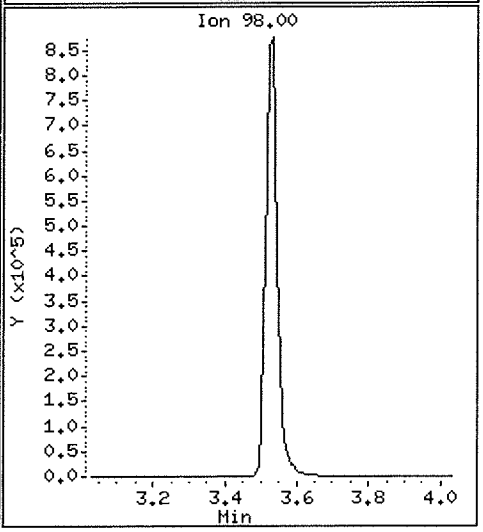


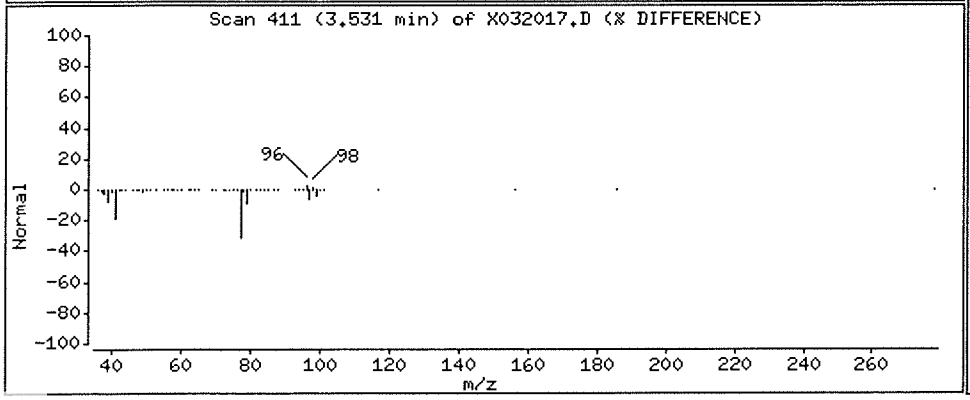












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032017.D

Date : 20-MAR-2020 16:29

Client ID: HS20030498-05

Instrument: voa6.i

Sample Info: HS20030498-05;HS20030498-05;;;

Purge Volume: 5.0

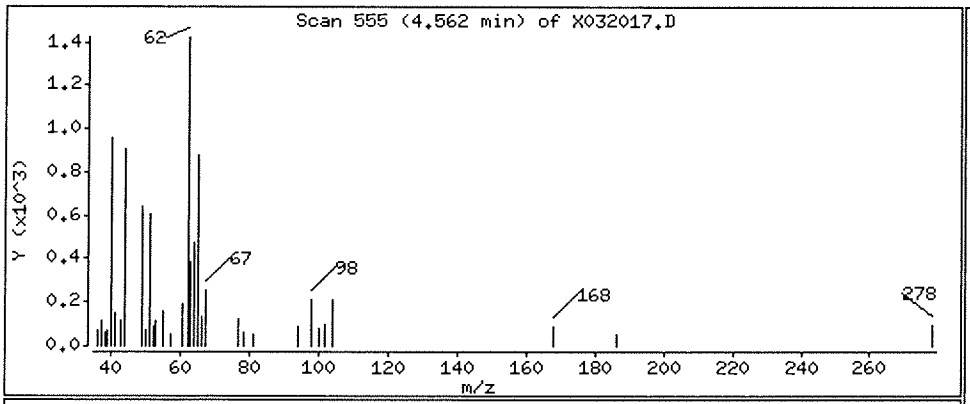
Operator: PC

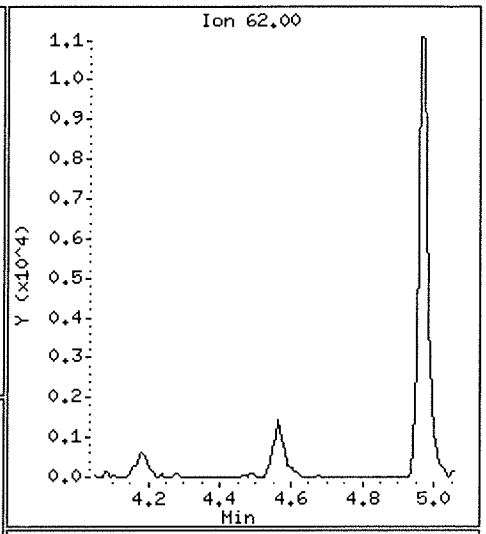
Column phase: DB624

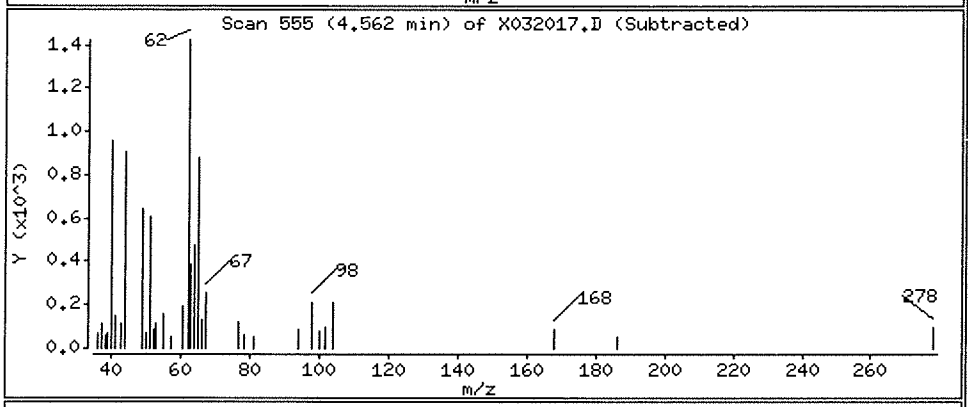
Column diameter: 0.18

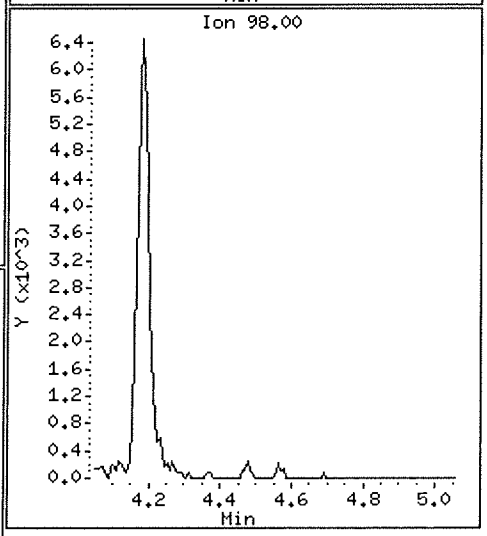
33 1,2-Dichloroethane

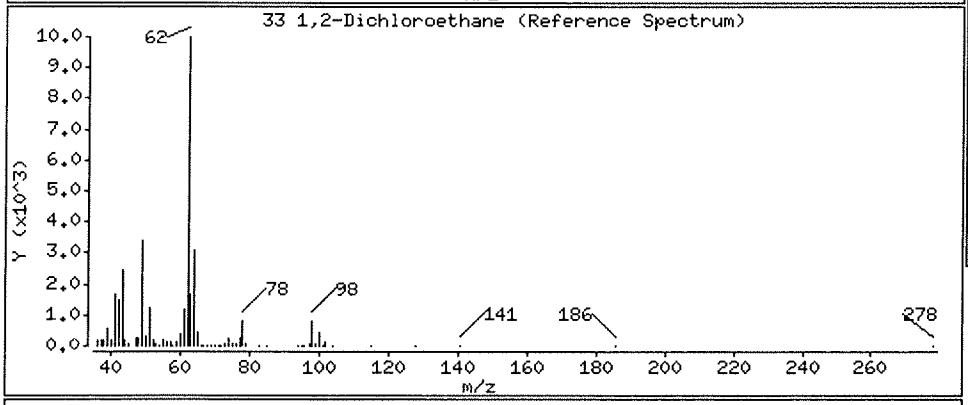
Concentration: 13.30 ug/l

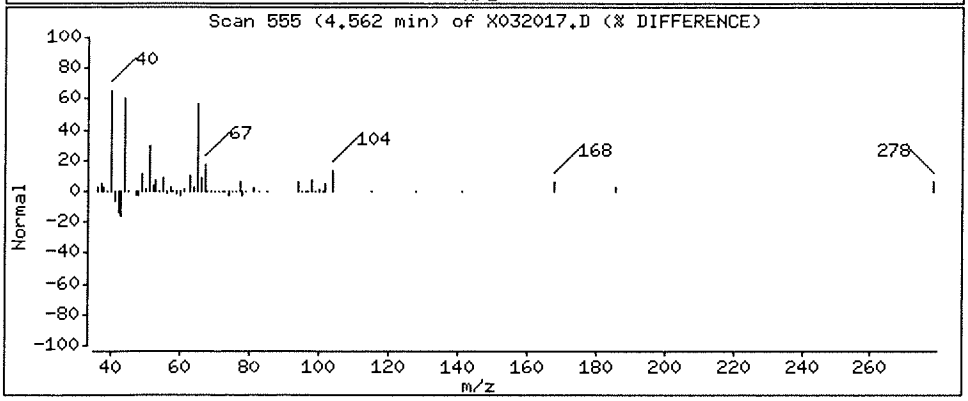












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Date : 20-MAR-2020 16:29

Client ID: HS20030498-05

Instrument: voa6.i

Sample Info: HS20030498-05;HS20030498-05;;;

Purge Volume: 5.0

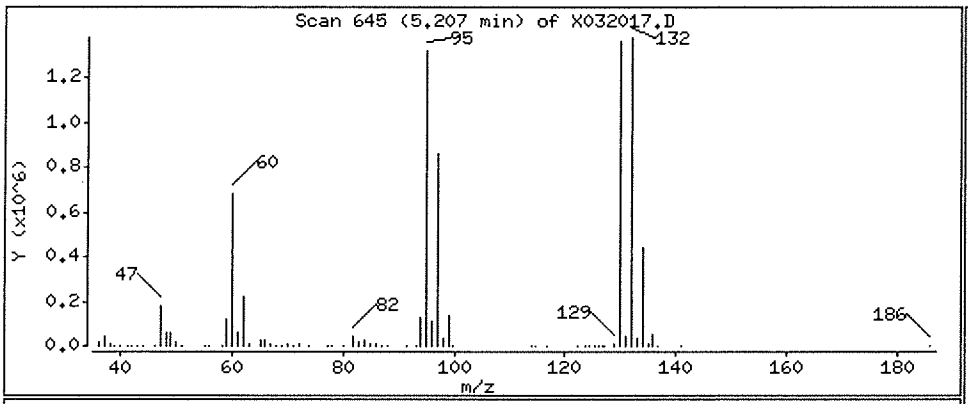
Operator: PC

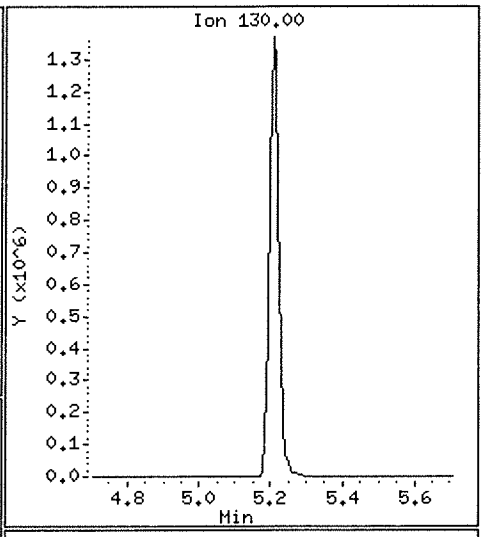
Column phase: DB624

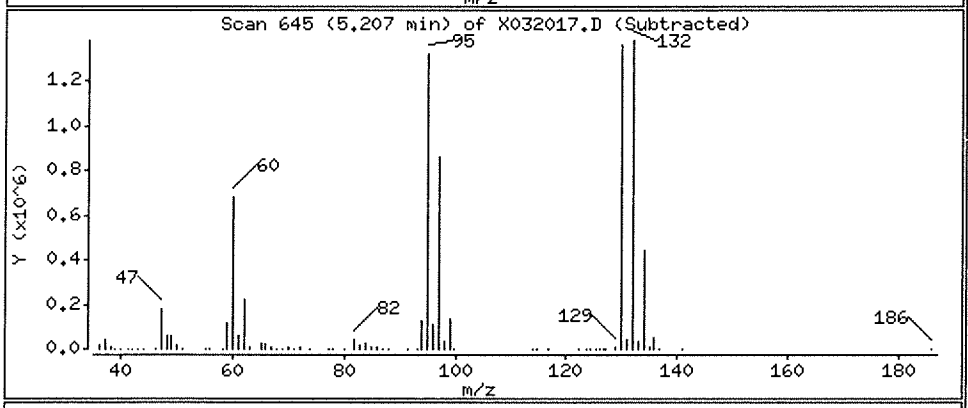
Column diameter: 0.18

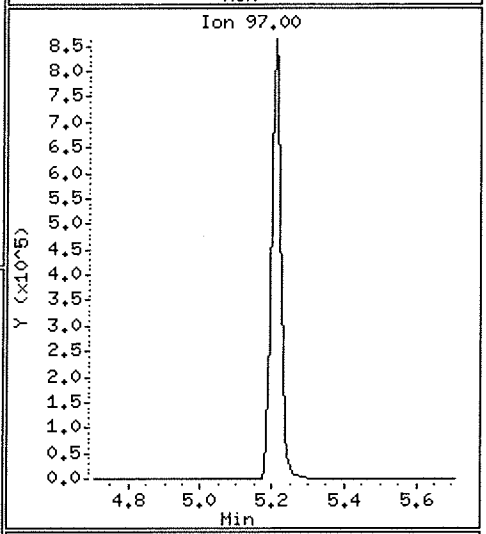
38 Trichloroethene

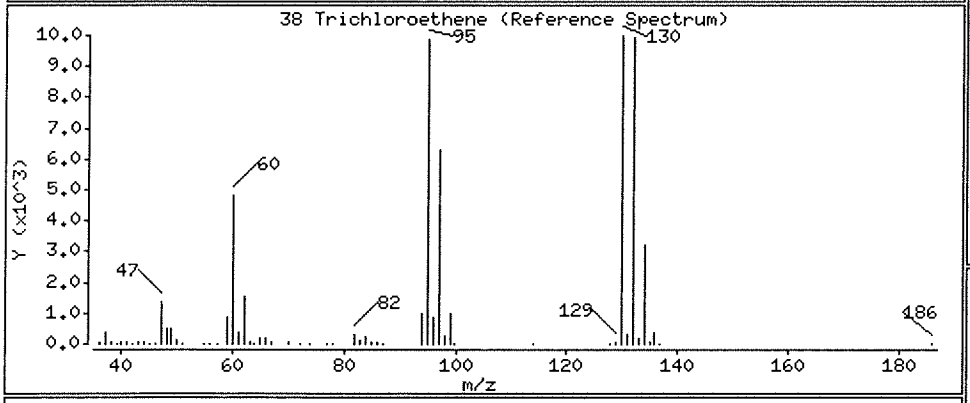
Concentration: 15839.98 ug/l

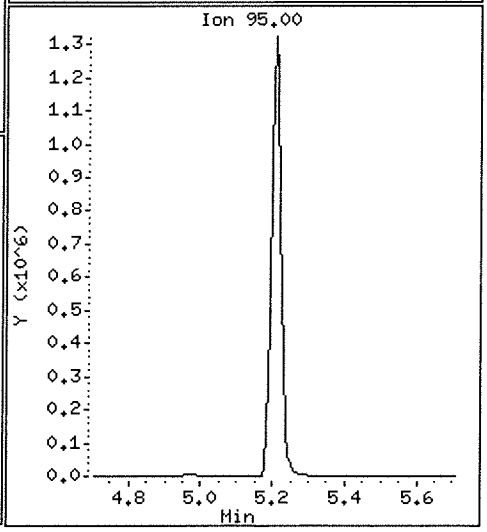


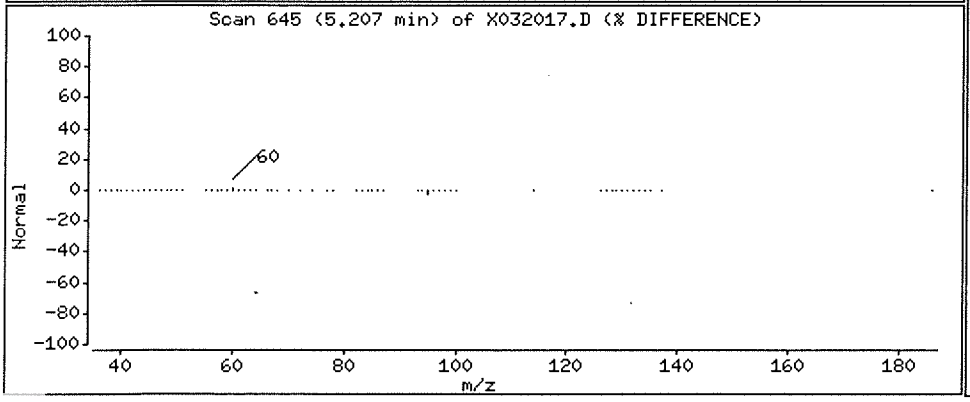












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032018.D
Lab Smp Id: HS20030498-05 Client Smp ID: HS20030498-05
Inj Date : 20-MAR-2020 16:53
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-05;HS20030498-05;;;
Misc Info : HS18090001;WATER;0;250;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:48 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 17
Dil Factor: 250.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	250.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	386830	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	181100	47.1124	47.11
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	222400	45.7488	45.74
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	571475	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	501065	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	670396	52.2331	52.23
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	232645	48.2363	48.23
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	238234	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	4614	0.78291	195.72(a)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	2324	0.70900	177.25(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	327298	74.2972	18574.29
38 Trichloroethene	130	5.206	5.206	(1.048)	284117	71.7294	17932.34

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

01094476

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032018.D

Page 2

Date : 20-MAR-2020 16:53

Client ID: HS20030498-05

Instrument: voa6.i

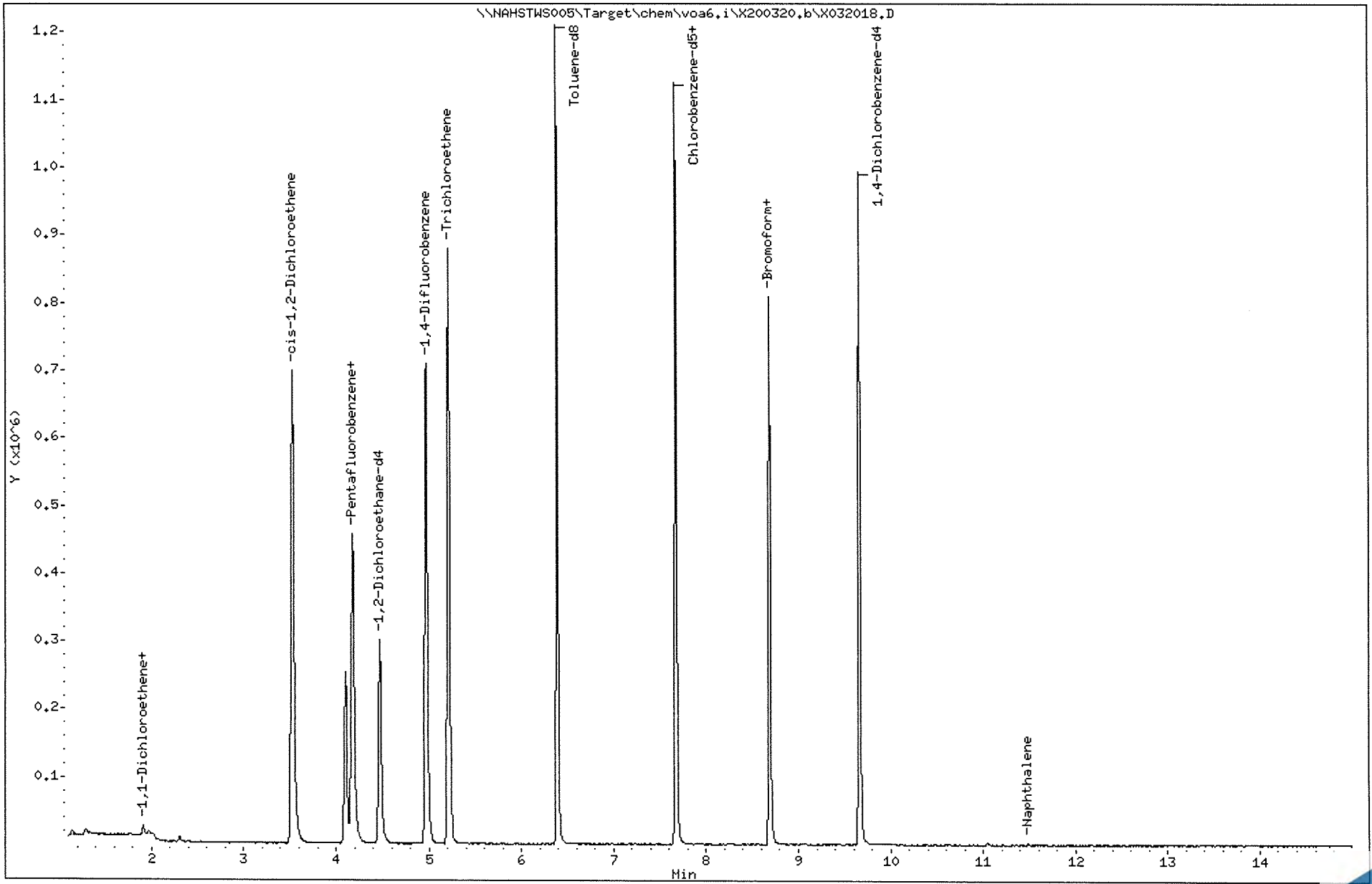
Sample Info: HS20030498-05;HS20030498-05;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



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Date : 20-MAR-2020 16:53

Client ID: HS20030498-05

Instrument: voa6.i

Sample Info: HS20030498-05;HS20030498-05;;;

Purge Volume: 5.0

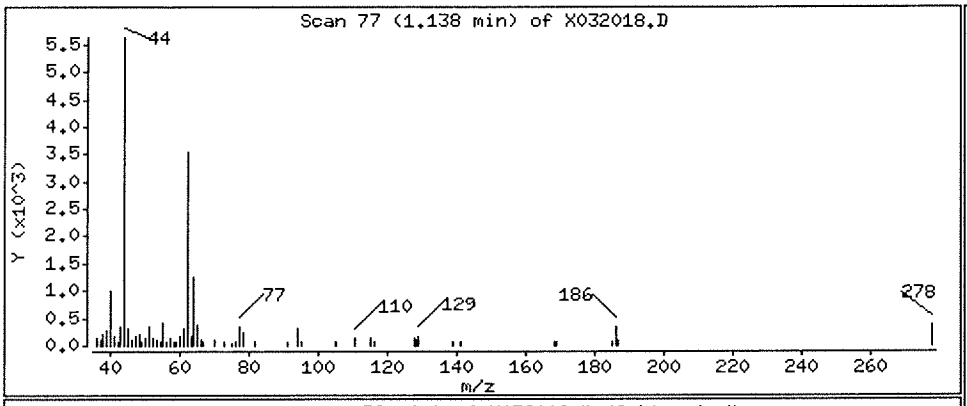
Operator: PC

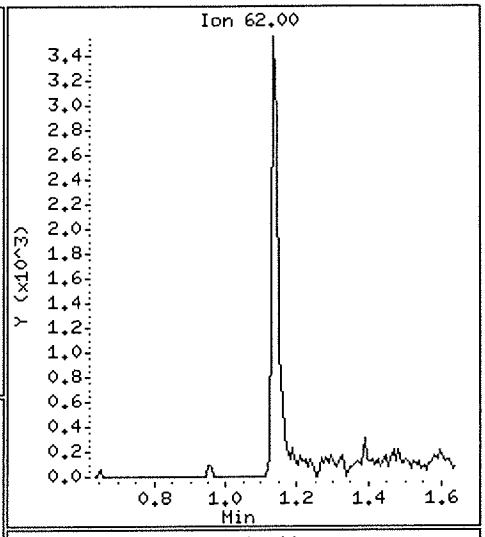
Column phase: DB624

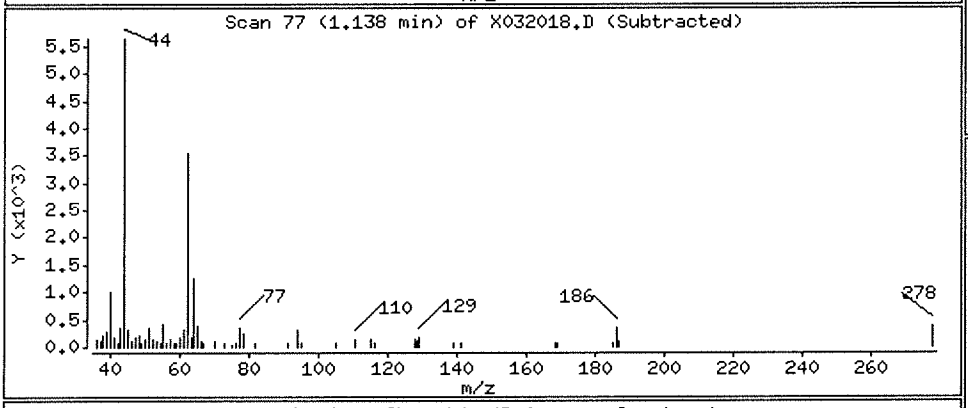
Column diameter: 0.18

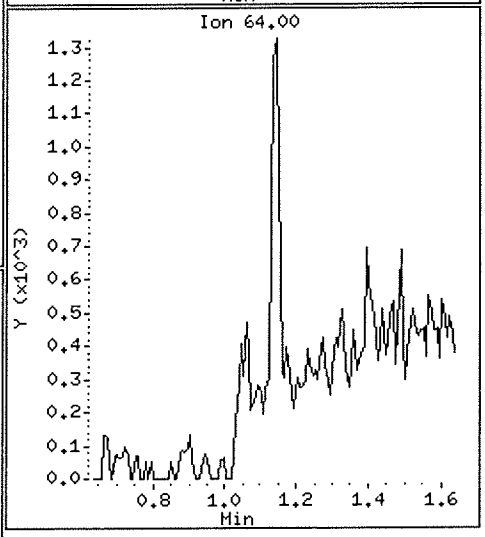
5 Vinyl Chloride

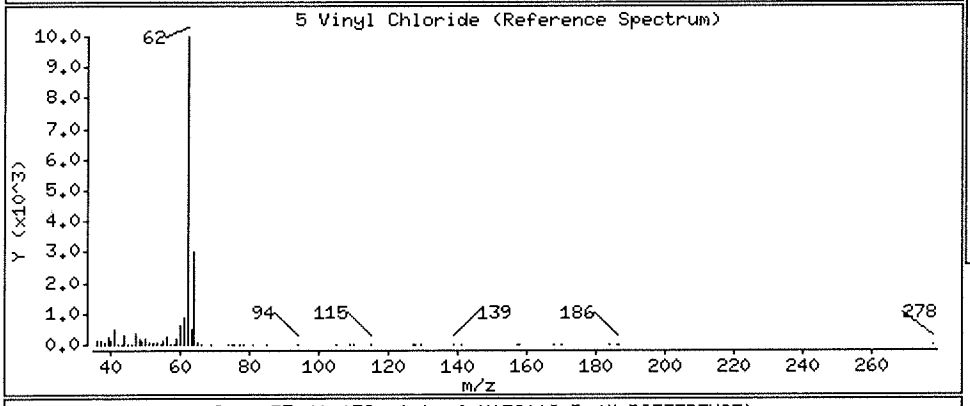
Concentration: 195.72 ug/l

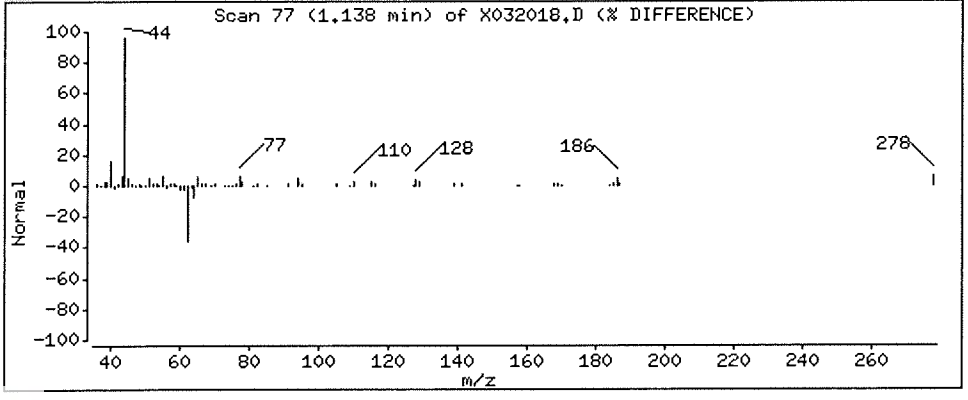












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Date : 20-MAR-2020 16:53

Client ID: HS20030498-05

Instrument: voa6.i

Sample Info: HS20030498-05;HS20030498-05;;;

Purge Volume: 5.0

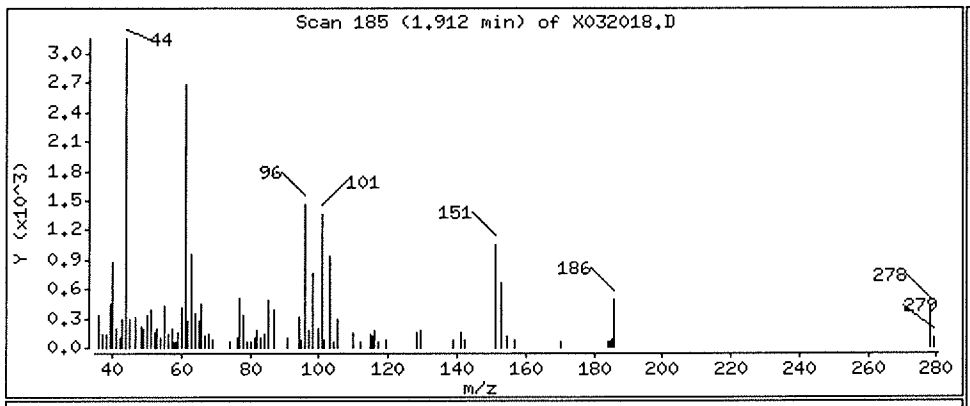
Operator: PC

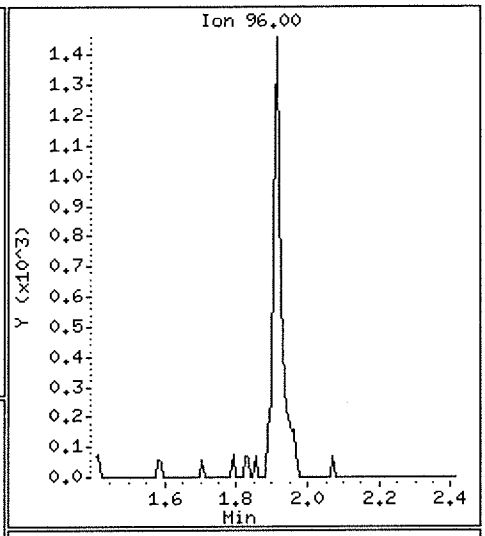
Column phase: DB624

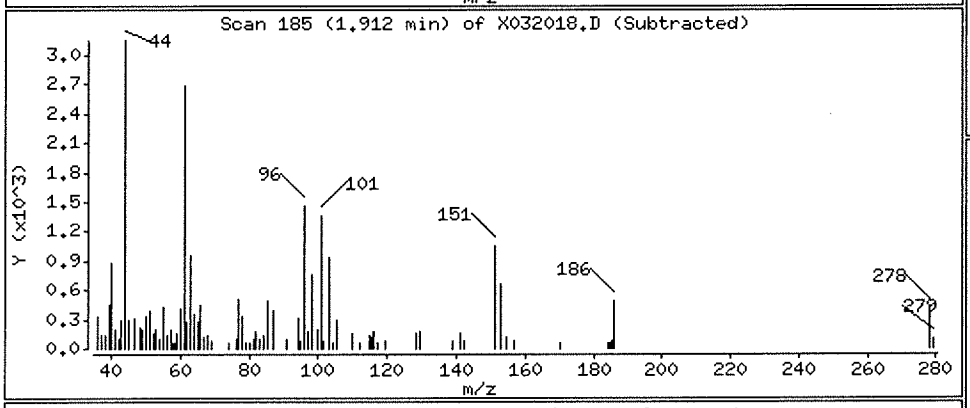
Column diameter: 0.18

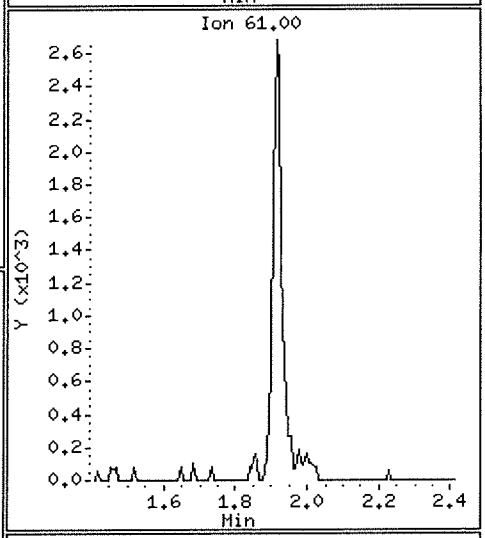
11 1,1-Dichloroethene

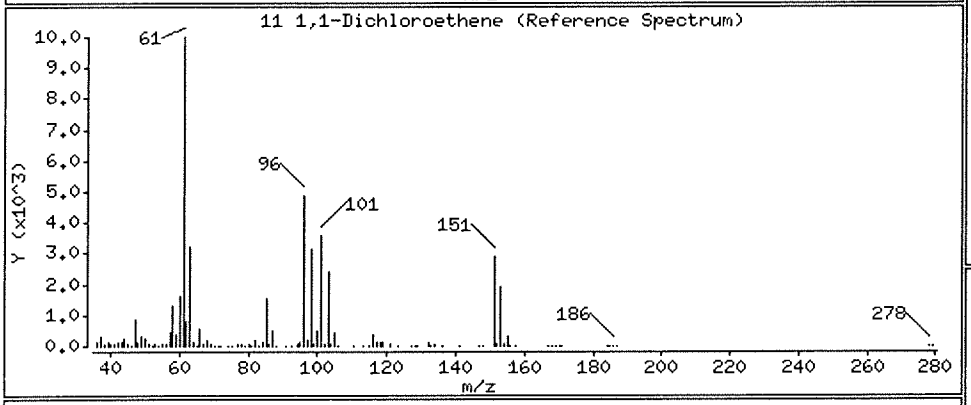
Concentration: 177.25 ug/l

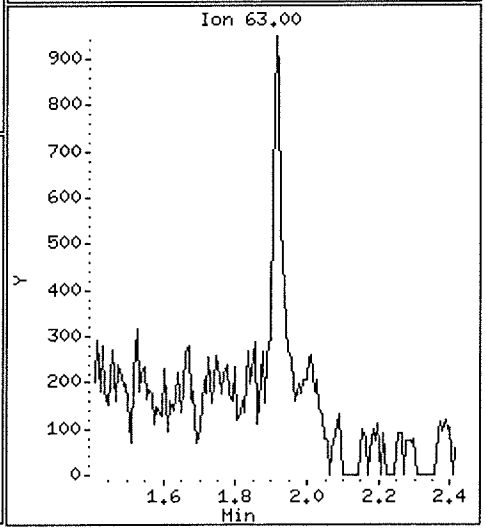


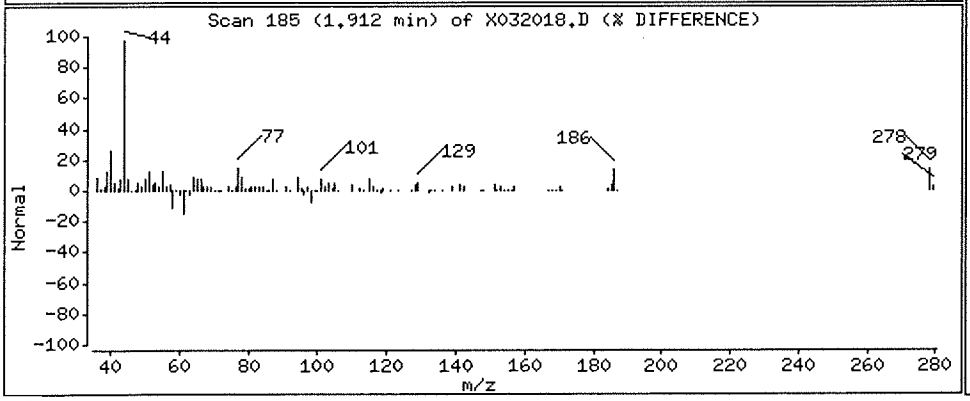












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032018.D Page 5

Date : 20-MAR-2020 16:53

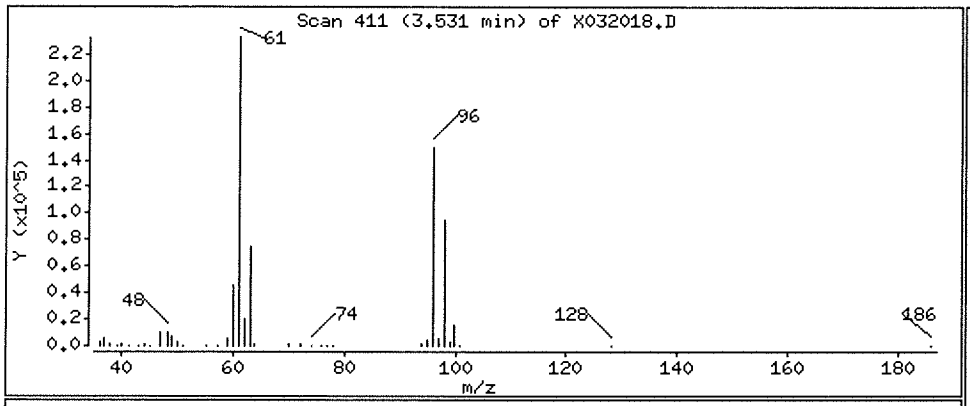
Client ID: HS20030498-05 Instrument: voa6.i

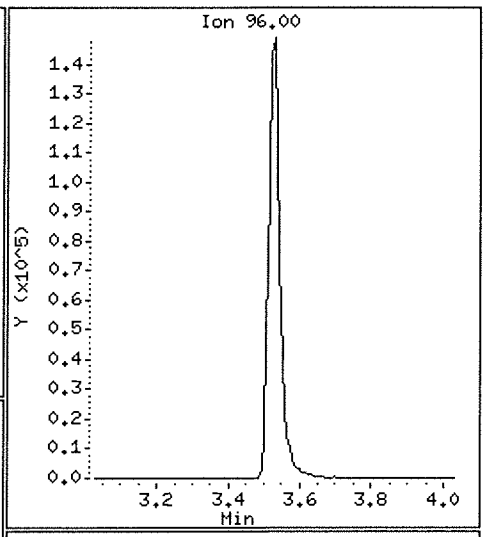
Sample Info: HS20030498-05;HS20030498-05;;;

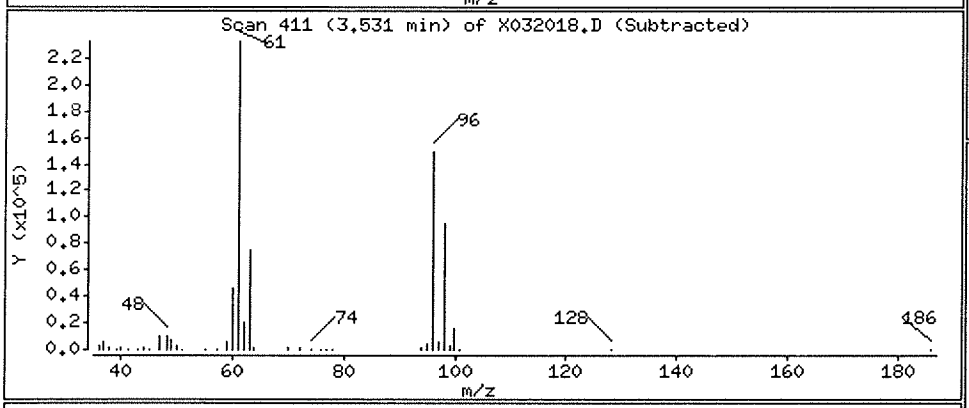
Purge Volume: 5.0 Operator: PC

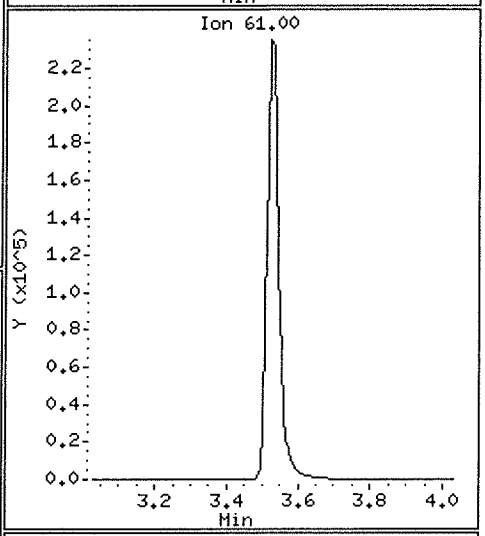
Column phase: DB624 Column diameter: 0.18

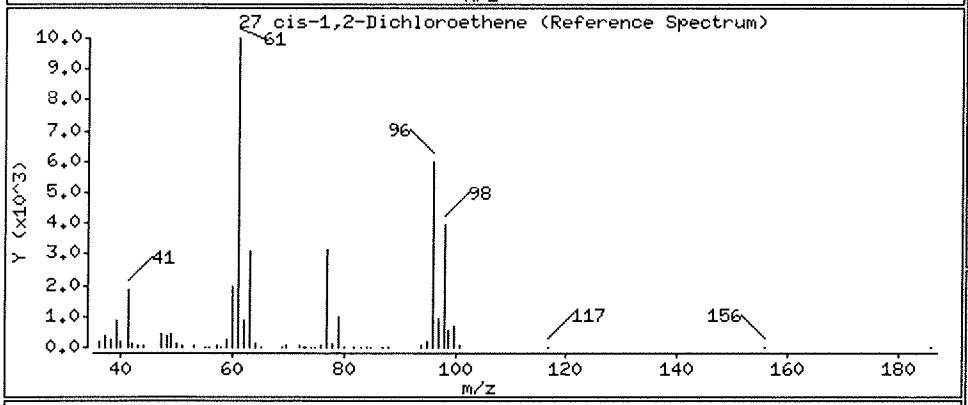
27 cis-1,2-Dichloroethene Concentration: 18574.29 ug/l

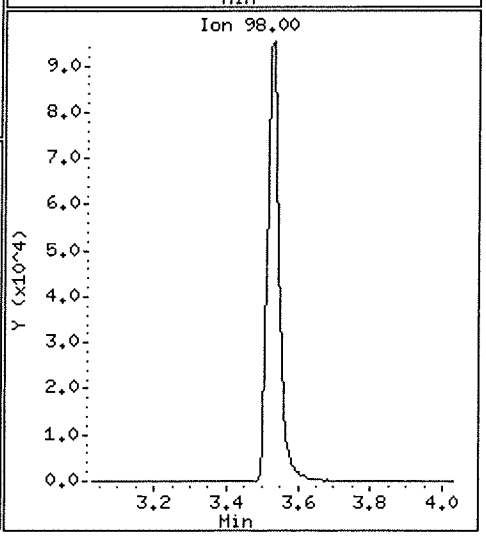


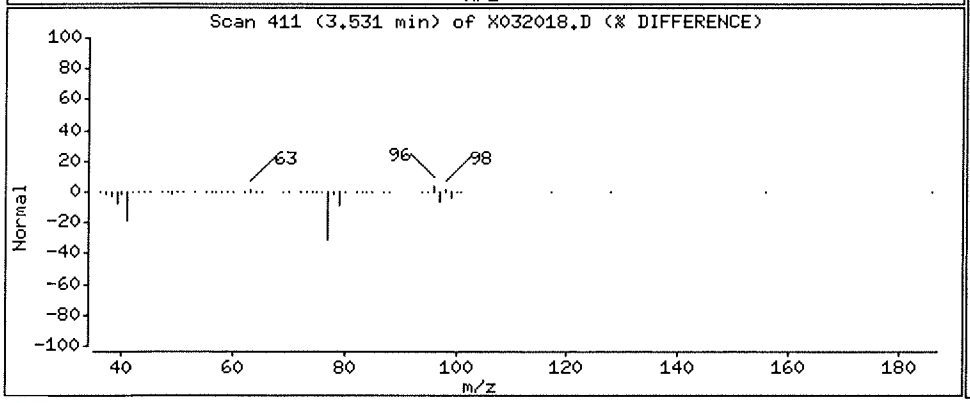












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Date : 20-MAR-2020 16:53

Client ID: HS20030498-05

Instrument: voa6.i

Sample Info: HS20030498-05;HS20030498-05;;;

Purge Volume: 5.0

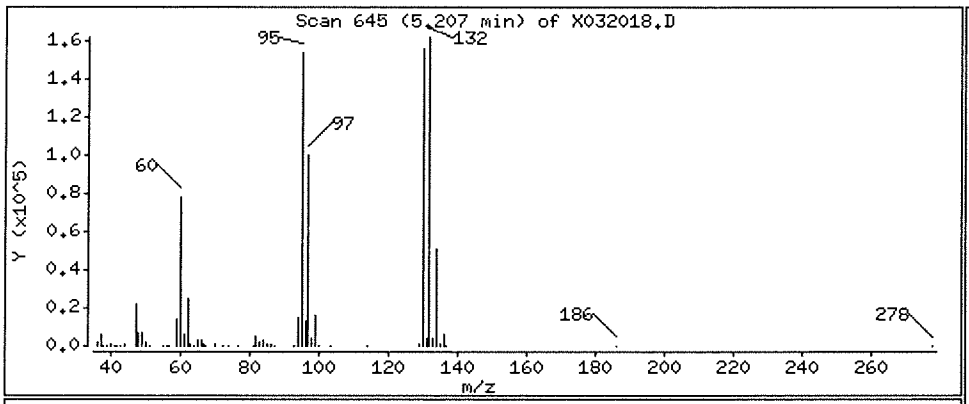
Operator: PC

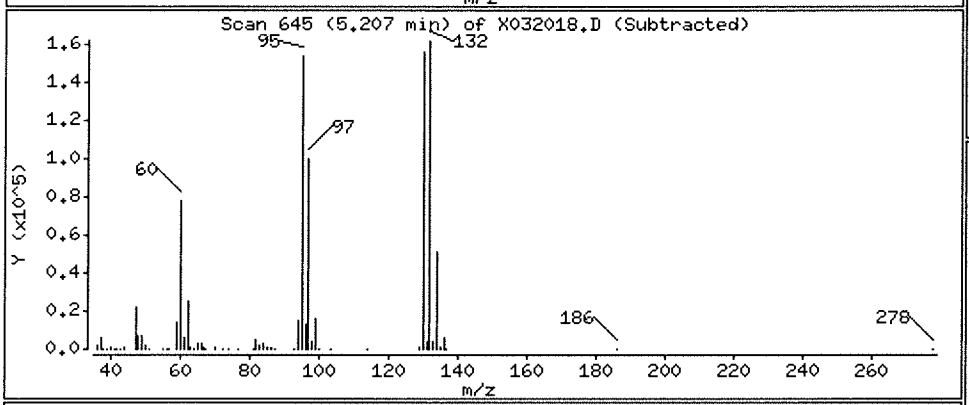
Column phase: DB624

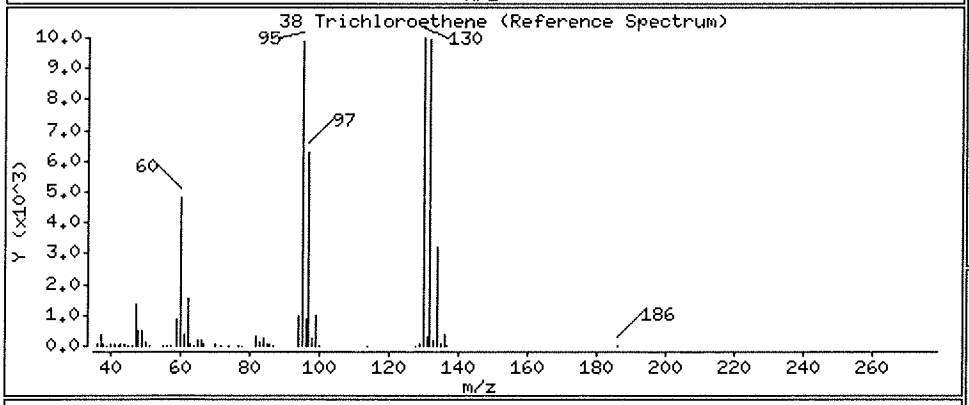
Column diameter: 0.18

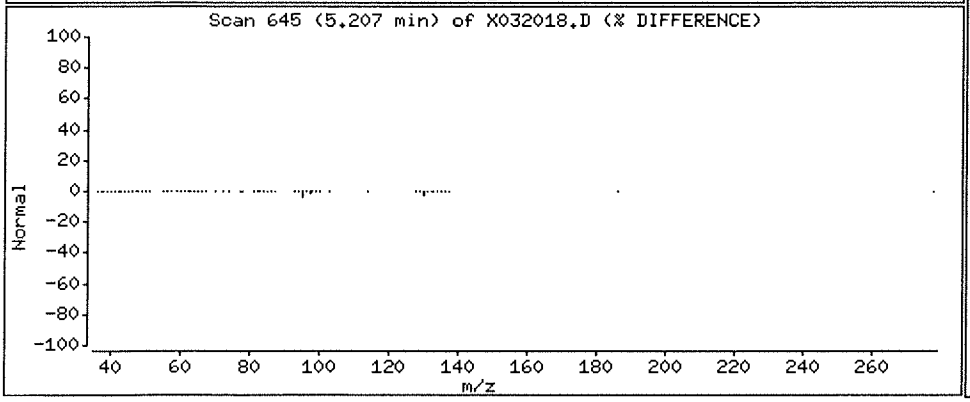
38 Trichloroethene

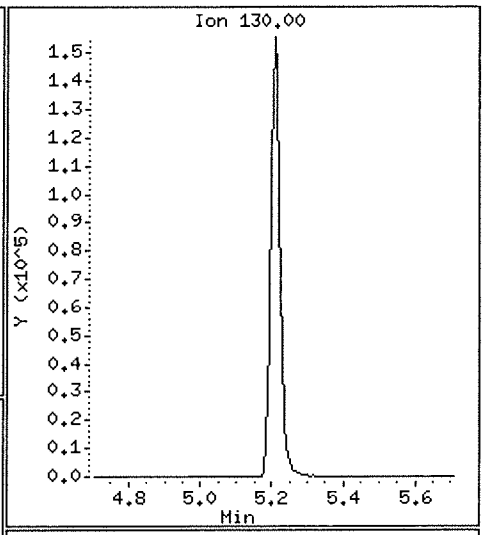
Concentration: 17932.34 ug/l

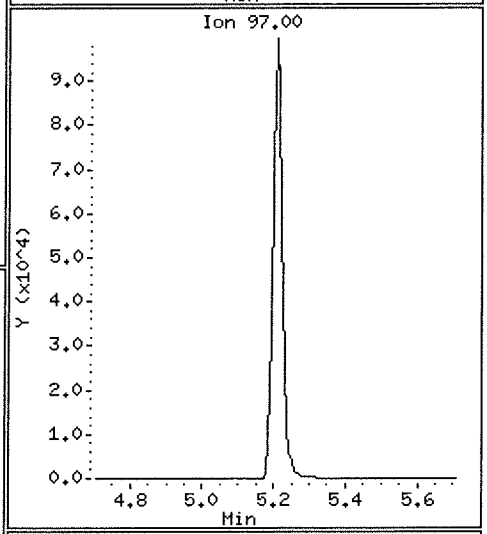


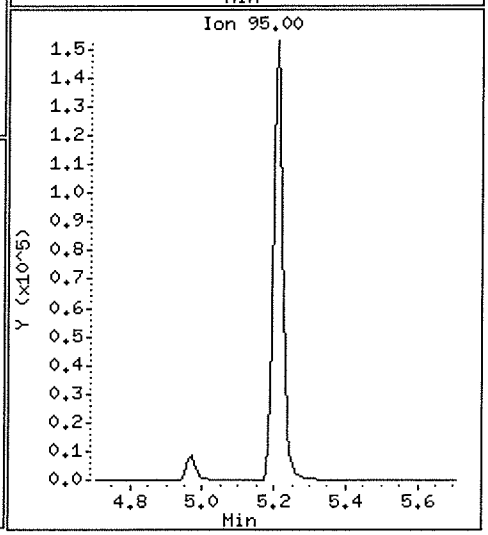












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032019.D
Lab Smp Id: HS20030498-06 Client Smp ID: HS20030498-06
Inj Date : 20-MAR-2020 17:17
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-06;HS20030498-06;;;
Misc Info : HS18090001;WATER;0;25;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:48 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 18
Dil Factor: 25.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

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)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	380554	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	179347	47.4265	47.42
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	216886	45.3490	45.34
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	566281	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	478677	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	637479	51.9910	51.99
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	224832	48.8024	48.80
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	228026	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	68917	11.8868	297.17
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	4729	1.46651	36.66(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	2098503	484.220	12105.48(A)
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	7136	1.19277	29.81(a)
38 Trichloroethene	130	5.214	5.206	(1.049)	3809468	970.576	24264.39(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.

01094482

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032019.D

Date : 20-MAR-2020 17:17

Client ID: HS20030498-06

Instrument: voa6.i

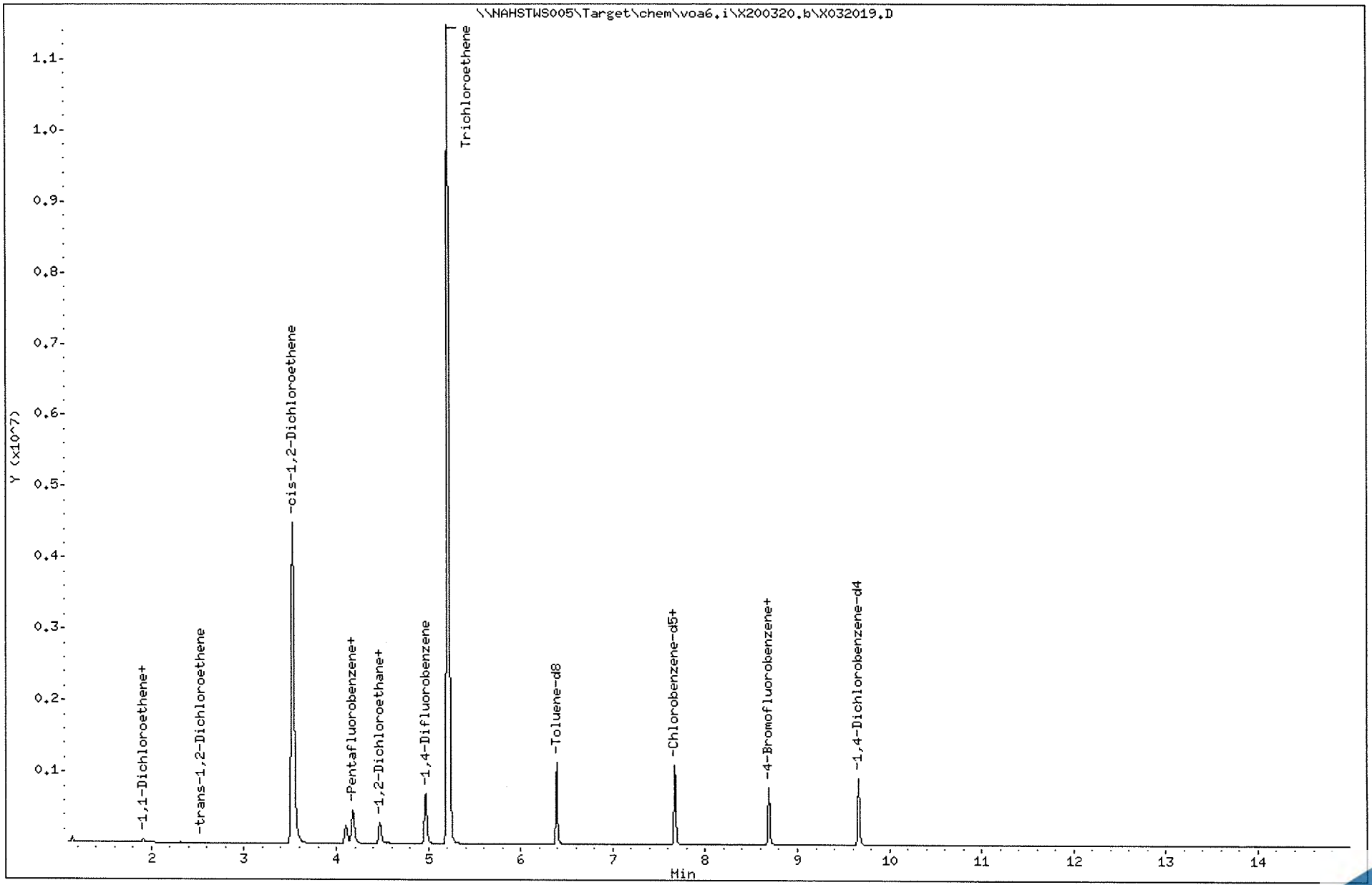
Sample Info: HS20030498-06;HS20030498-06;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032019.D

Date : 20-MAR-2020 17:17

Client ID: HS20030498-06

Instrument: voa6.i

Sample Info: HS20030498-06;HS20030498-06;;;

Purge Volume: 5.0

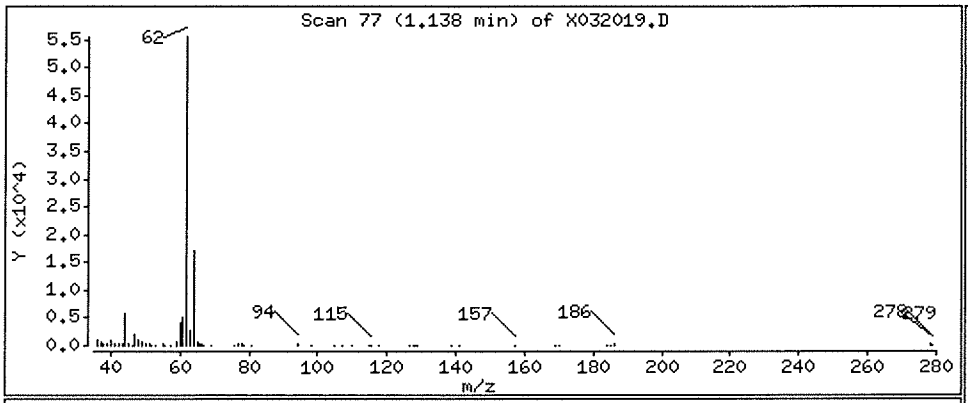
Operator: PC

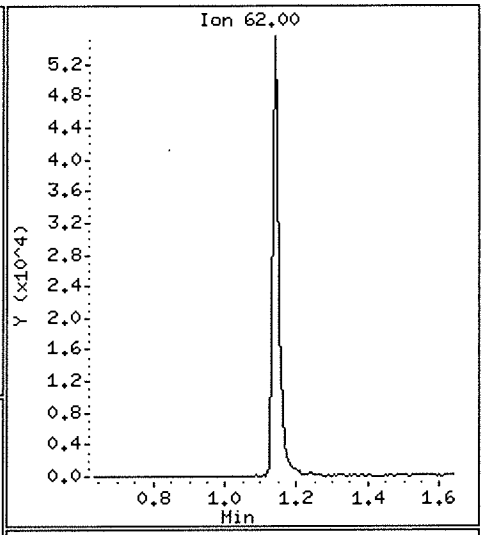
Column phase: DB624

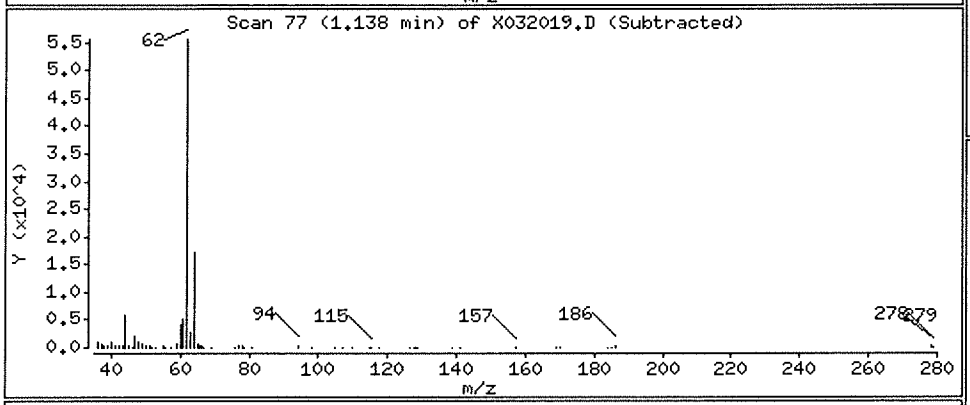
Column diameter: 0.18

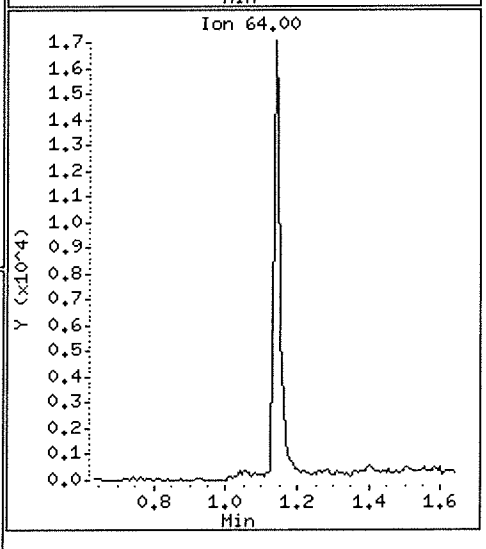
5 Vinyl Chloride

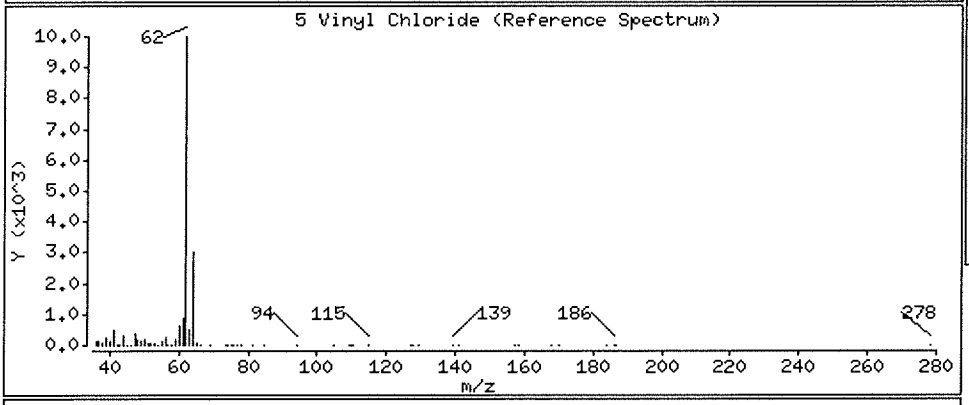
Concentration: 297.17 ug/l

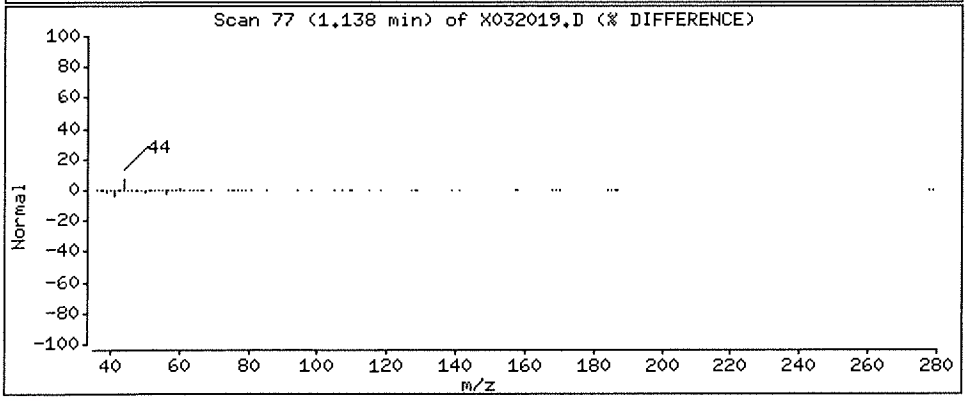












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032019.D

Date : 20-MAR-2020 17:17

Client ID: HS20030498-06

Instrument: voa6.i

Sample Info: HS20030498-06;HS20030498-06;;;

Purge Volume: 5.0

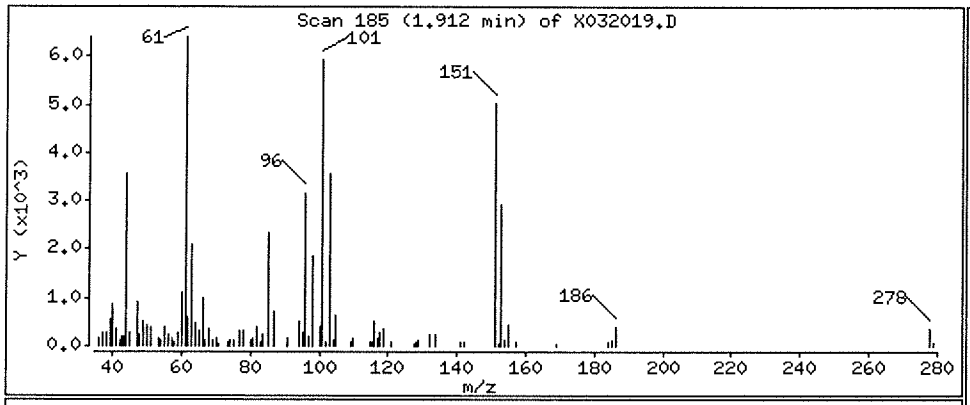
Operator: PC

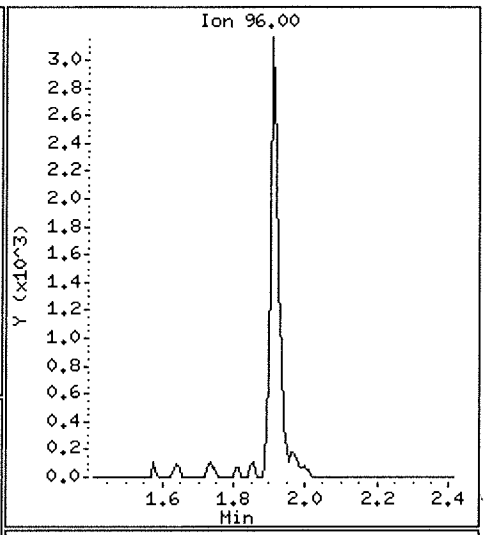
Column phase: DB624

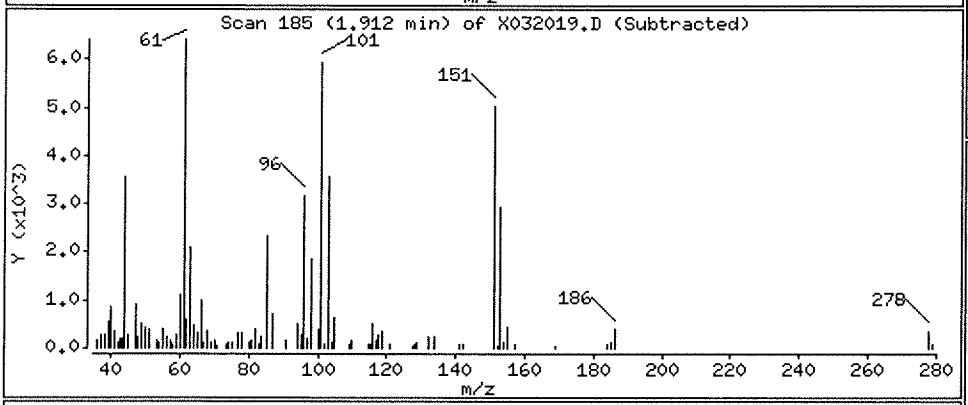
Column diameter: 0.18

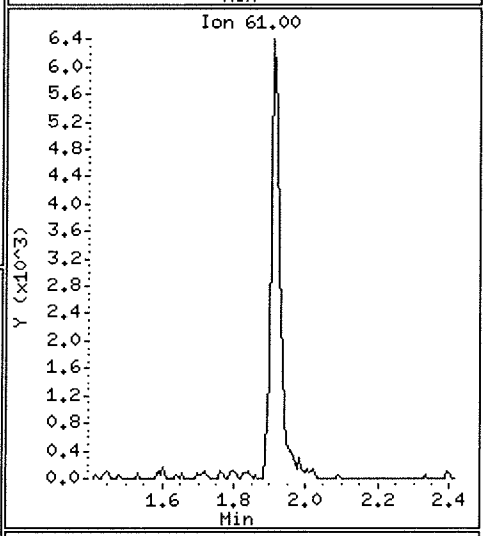
11 1,1-Dichloroethene

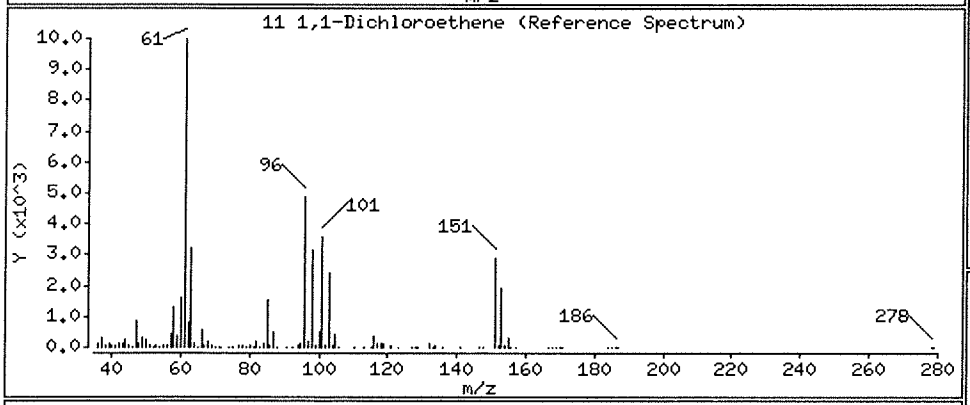
Concentration: 36.66 ug/l

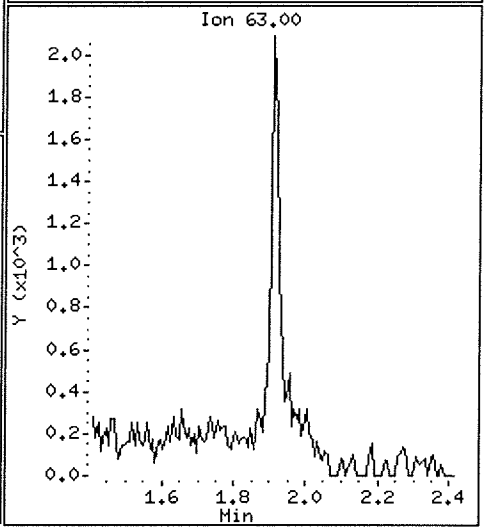


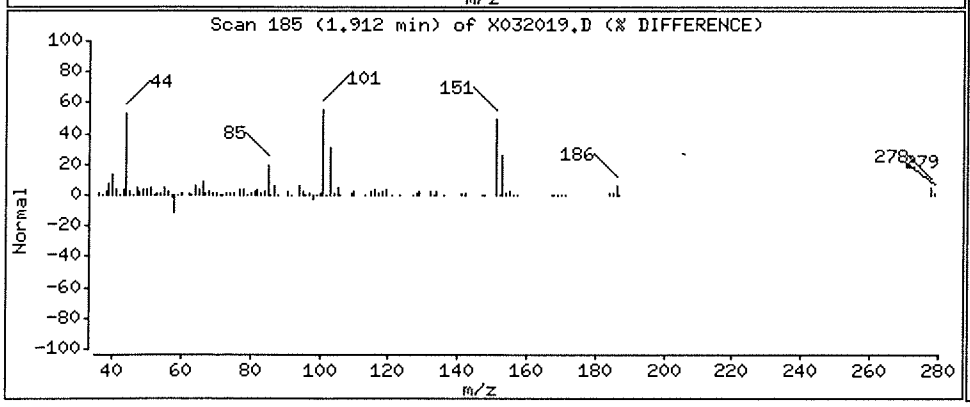












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032019.D

Date : 20-MAR-2020 17:17

Client ID: HS20030498-06

Instrument: voa6.i

Sample Info: HS20030498-06;HS20030498-06;;;

Purge Volume: 5.0

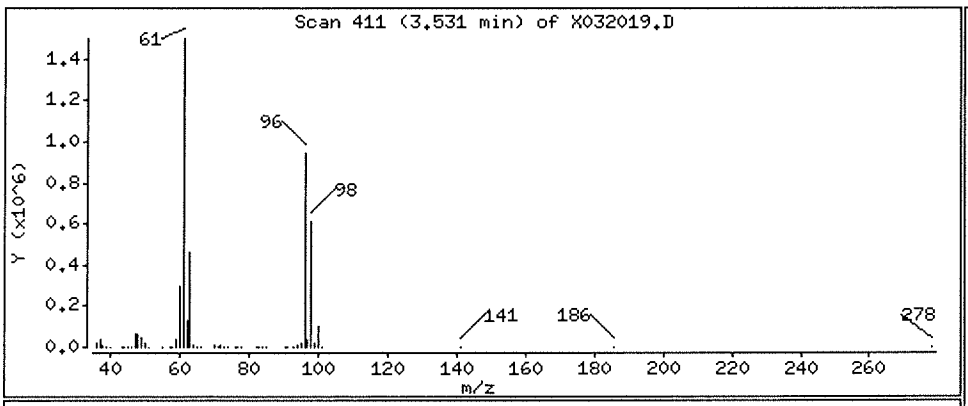
Operator: PC

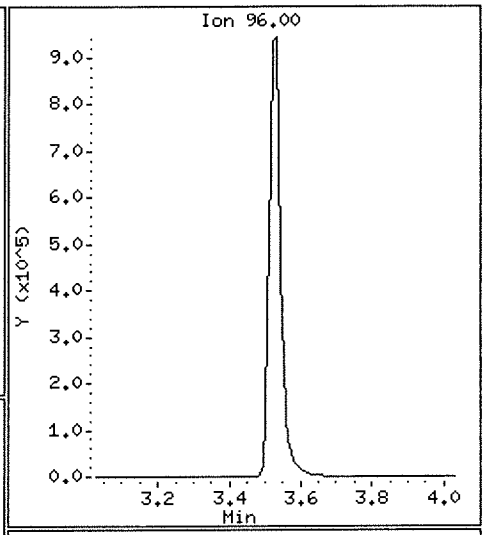
Column phase: DB624

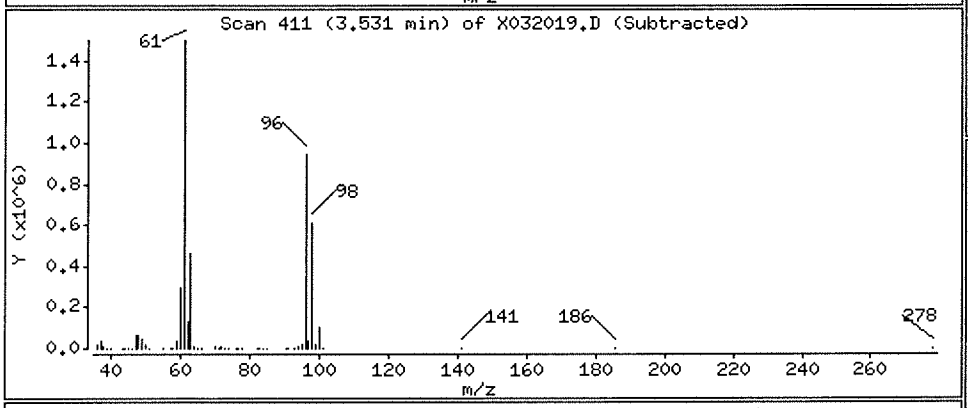
Column diameter: 0.18

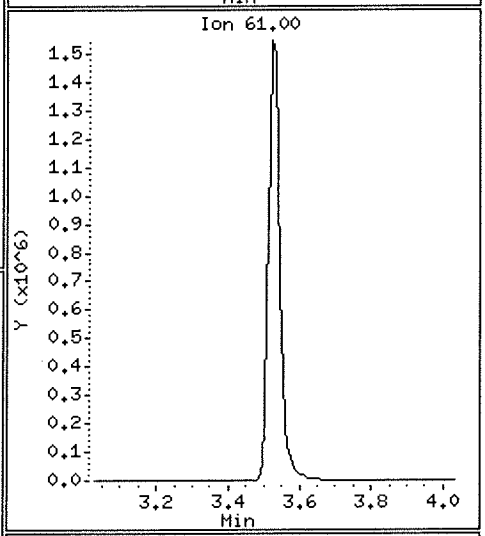
27 cis-1,2-Dichloroethene

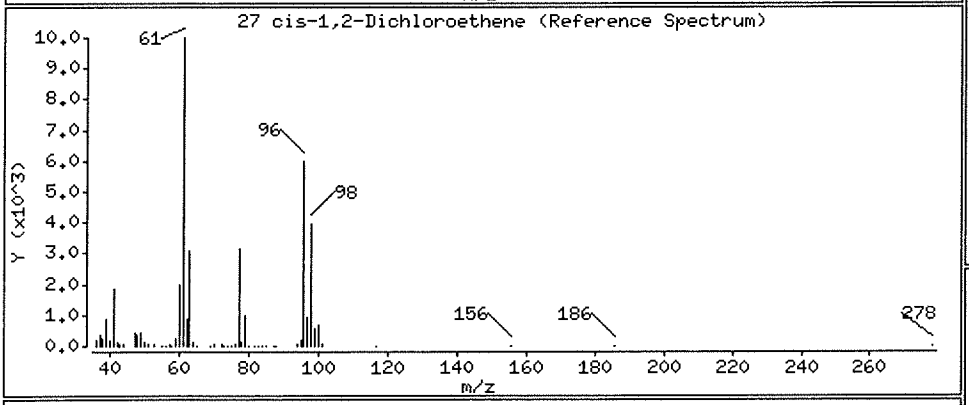
Concentration: 12105.48 ug/l

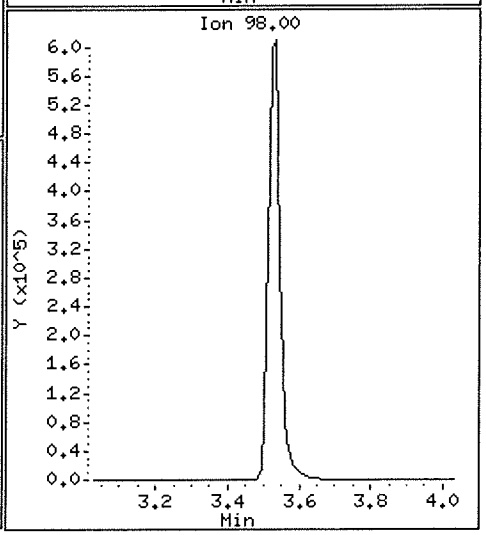


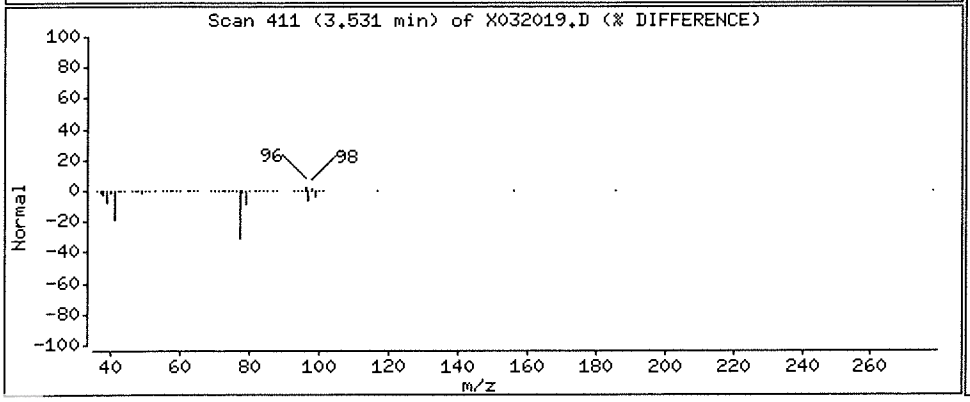












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032019.D

Date : 20-MAR-2020 17:17

Client ID: HS20030498-06

Instrument: voa6.i

Sample Info: HS20030498-06;HS20030498-06;;;

Purge Volume: 5.0

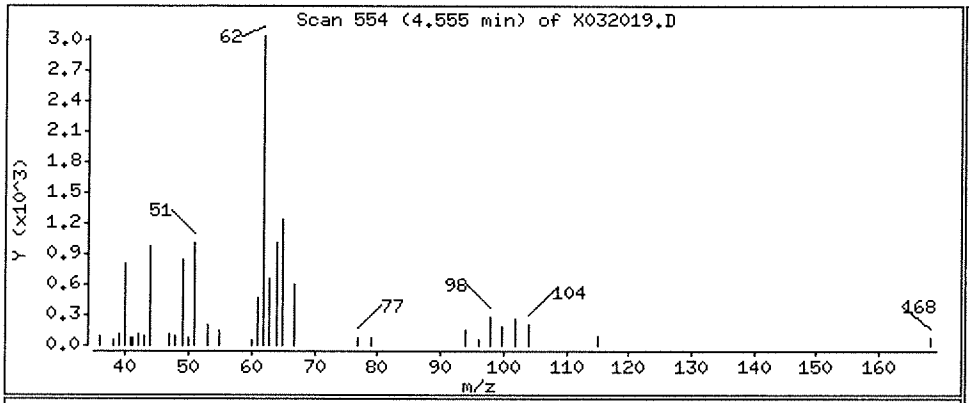
Operator: PC

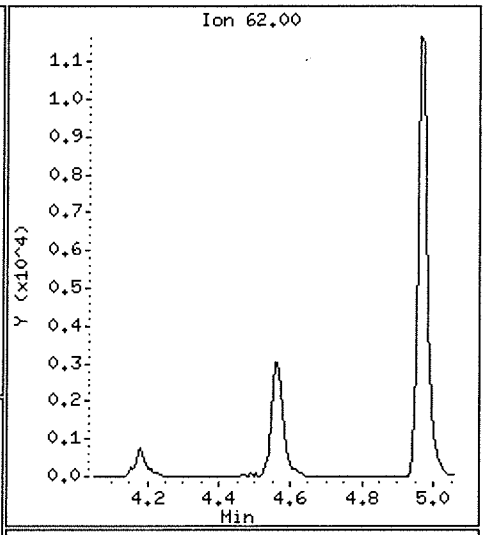
Column phase: DB624

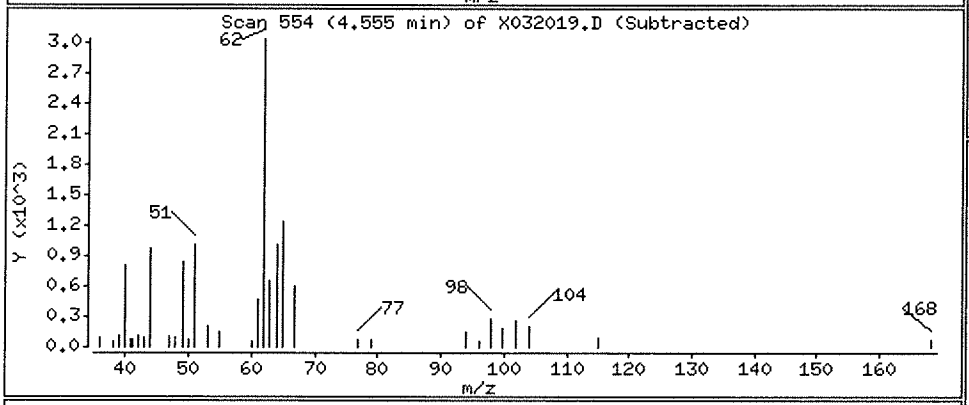
Column diameter: 0.18

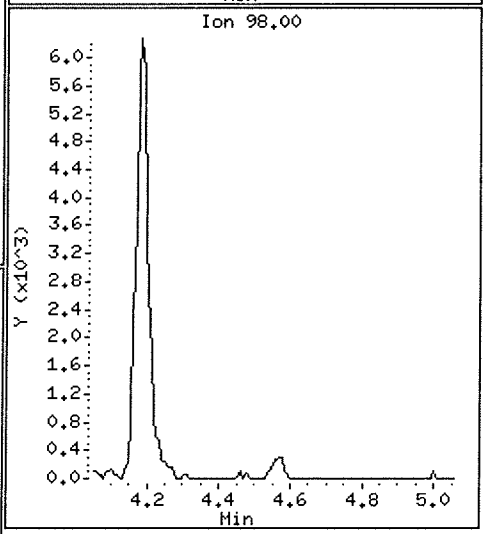
33 1,2-Dichloroethane

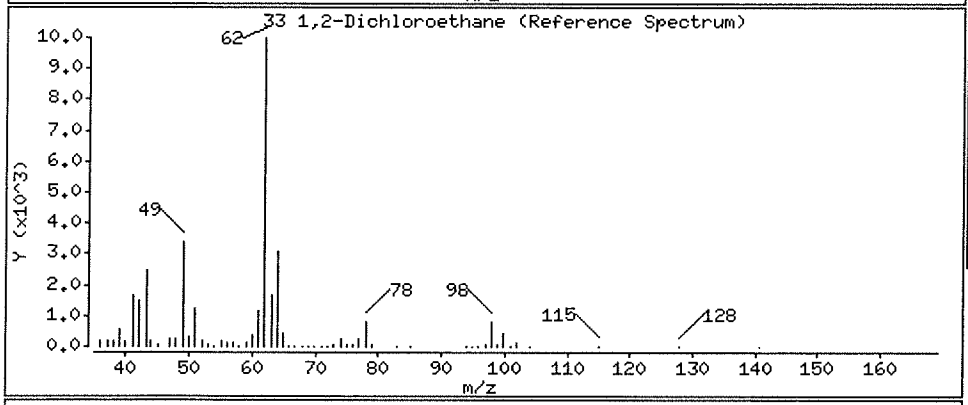
Concentration: 29.81 ug/l

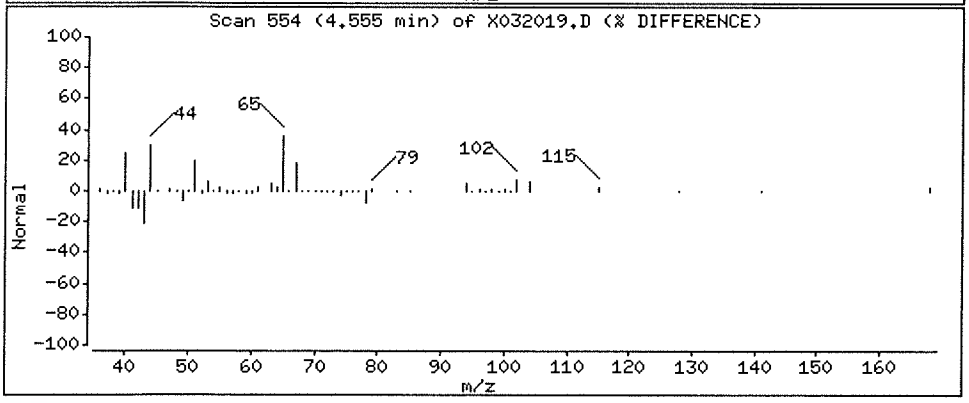












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032019.D

Date : 20-MAR-2020 17:17

Client ID: HS20030498-06

Instrument: voa6.i

Sample Info: HS20030498-06;HS20030498-06;;;

Purge Volume: 5.0

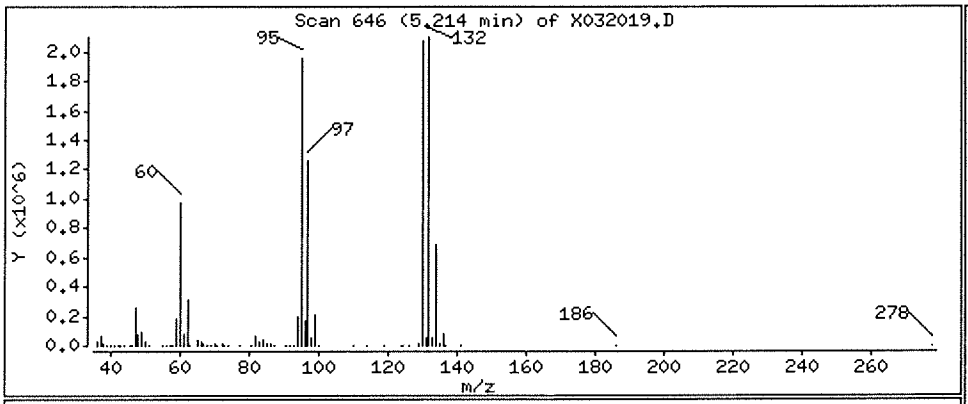
Operator: PC

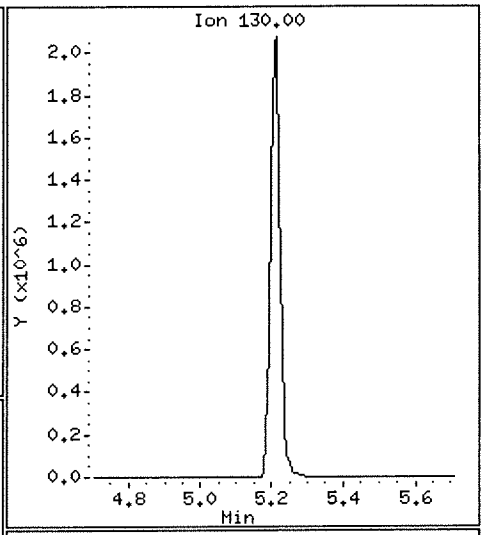
Column phase: DB624

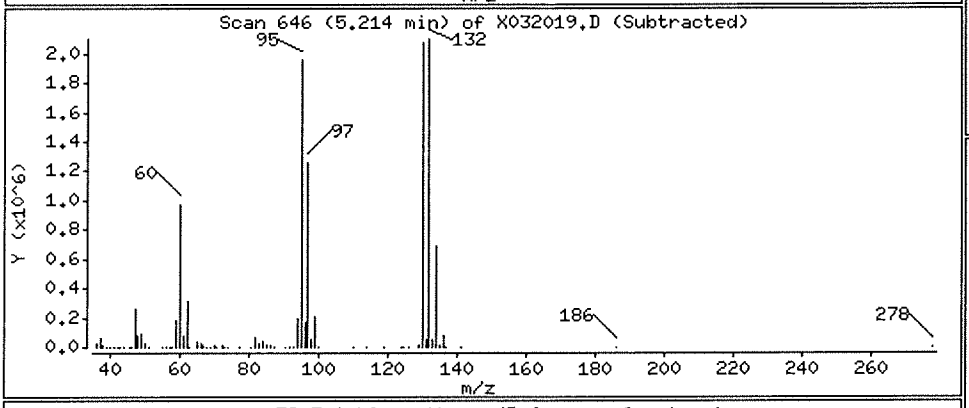
Column diameter: 0.18

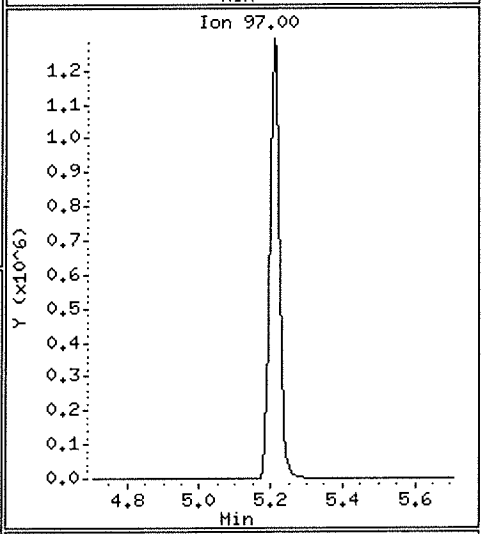
38 Trichloroethene

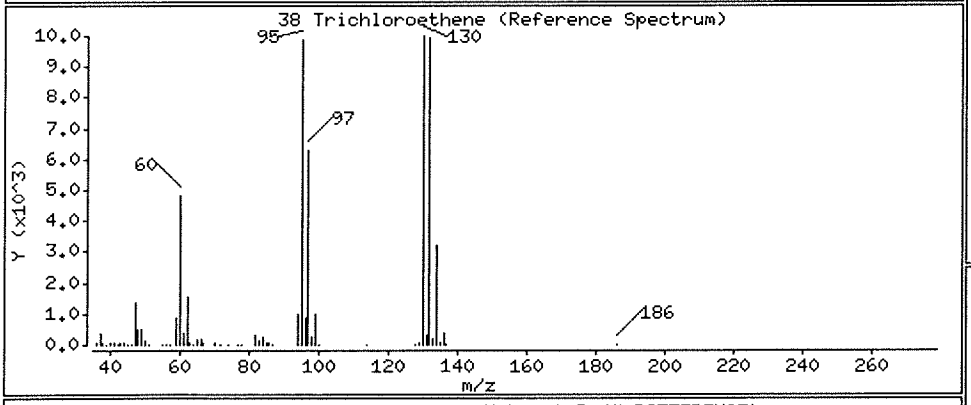
Concentration: 24264.39 ug/l

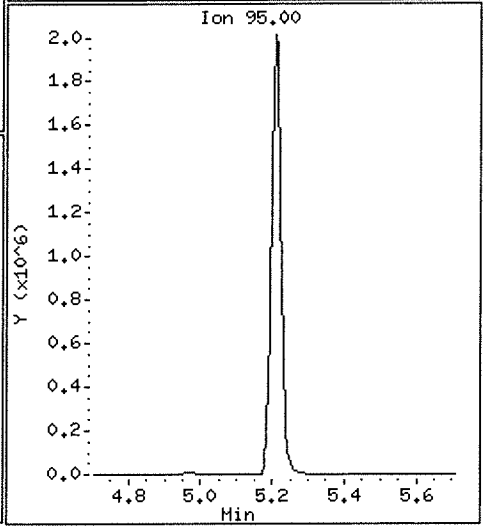


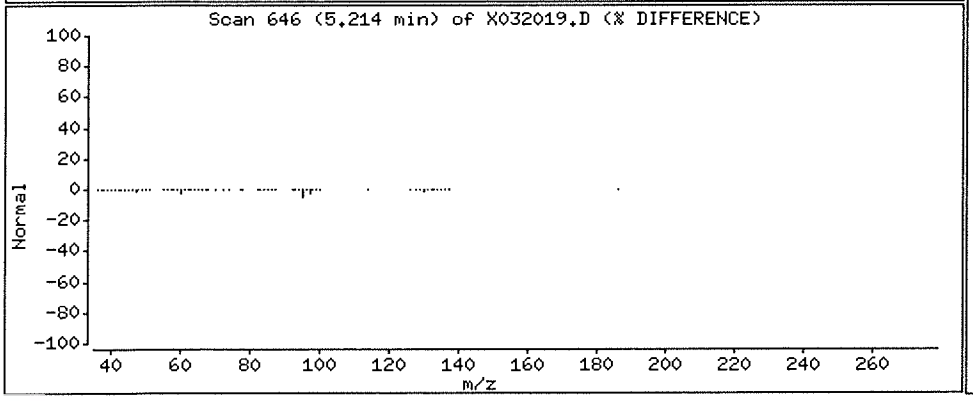












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032020.D
Lab Smp Id: HS20030498-06 Client Smp ID: HS20030498-06
Inj Date : 20-MAR-2020 17:41
Operator : PC Inst ID: voa6.i
Smp Info : HS20030498-06;HS20030498-06;;;
Misc Info : HS18090001;WATER;0;250;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:48 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 19
Dil Factor: 250.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	250.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	387194	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	182947	47.5491	47.54
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	221798	45.5815	45.58
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	571468	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	495517	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	674455	53.1390	53.13
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	228868	47.9819	47.98
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	230131	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	7564	1.28227	320.56(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	229543	52.0576	13014.41
38 Trichloroethene	130	5.206	5.206	(1.048)	431236	108.873	27218.25

QC Flag Legend

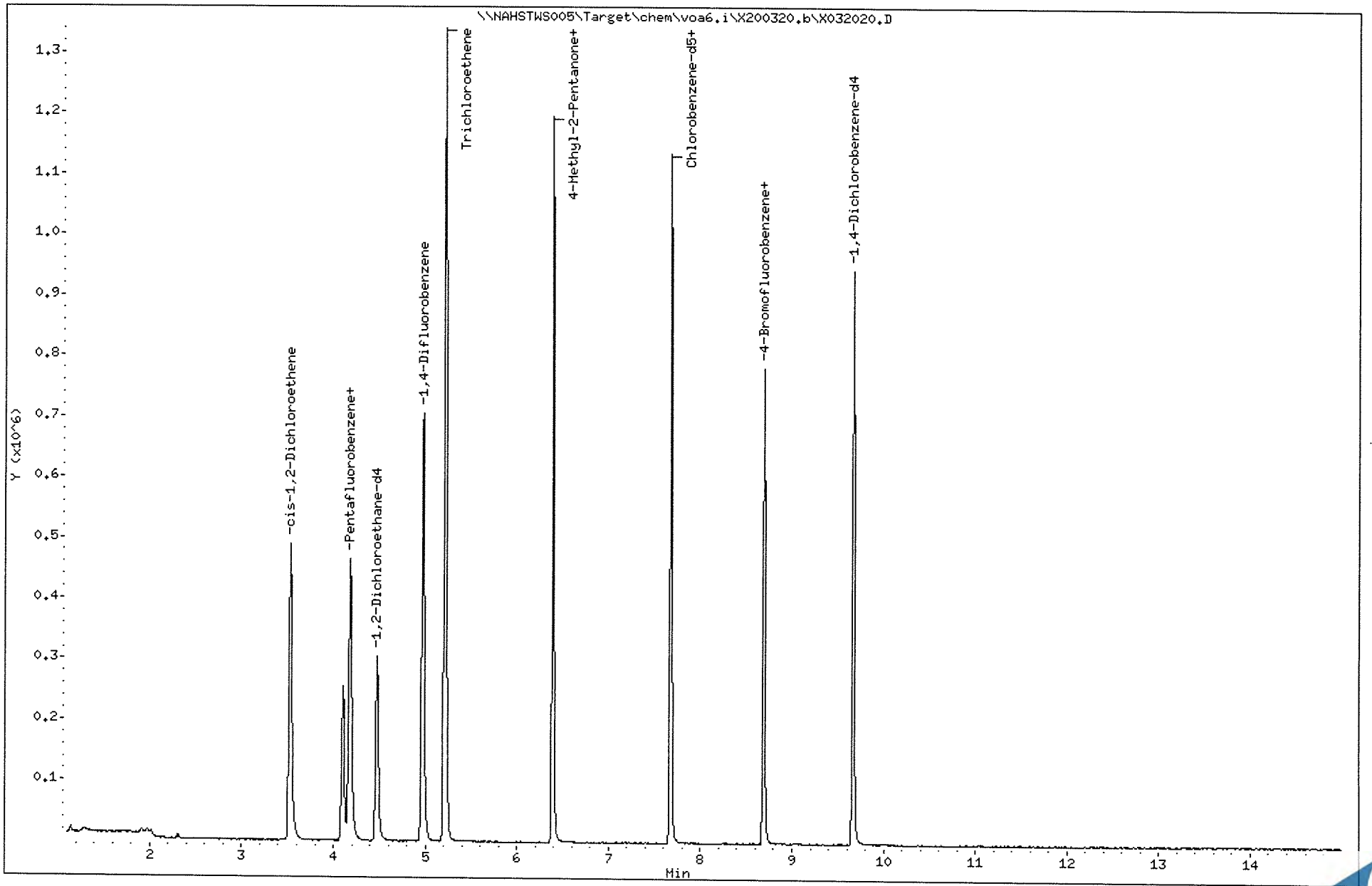
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

01094489

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032020.D
Date : 20-MAR-2020 17:41
Client ID: HS20030498-06
Sample Info: HS20030498-06;HS20030498-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032020.D

Date : 20-MAR-2020 17:41

Client ID: HS20030498-06

Instrument: voa6.i

Sample Info: HS20030498-06;HS20030498-06;;;

Purge Volume: 5.0

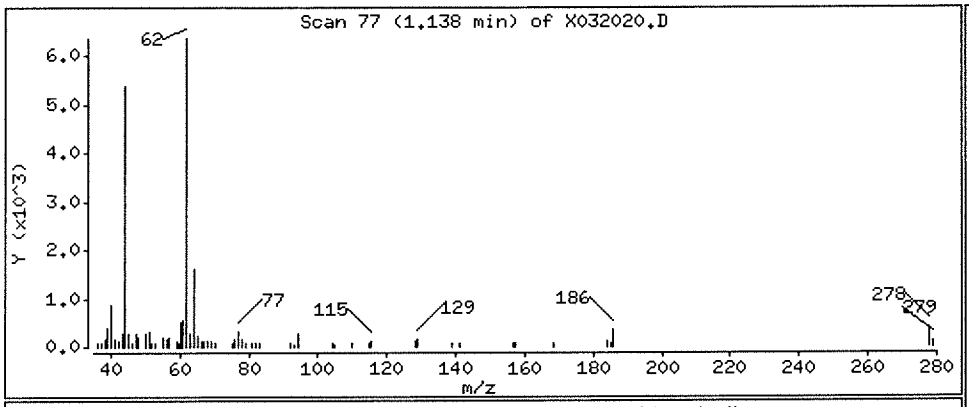
Operator: PC

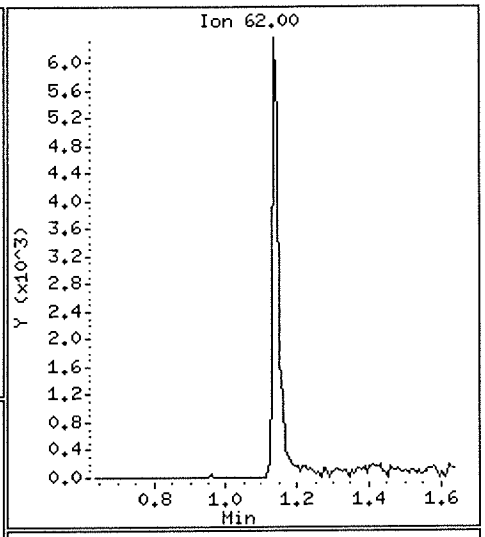
Column phase: DB624

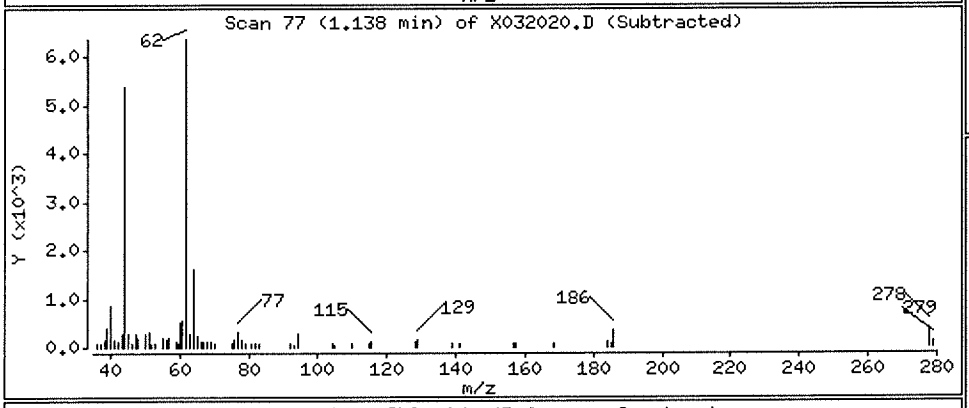
Column diameter: 0.18

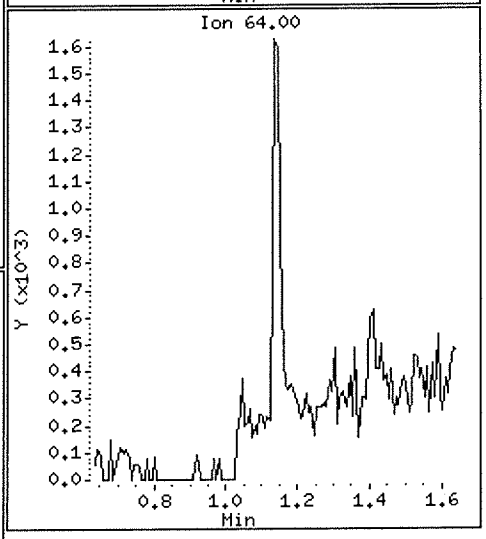
5 Vinyl Chloride

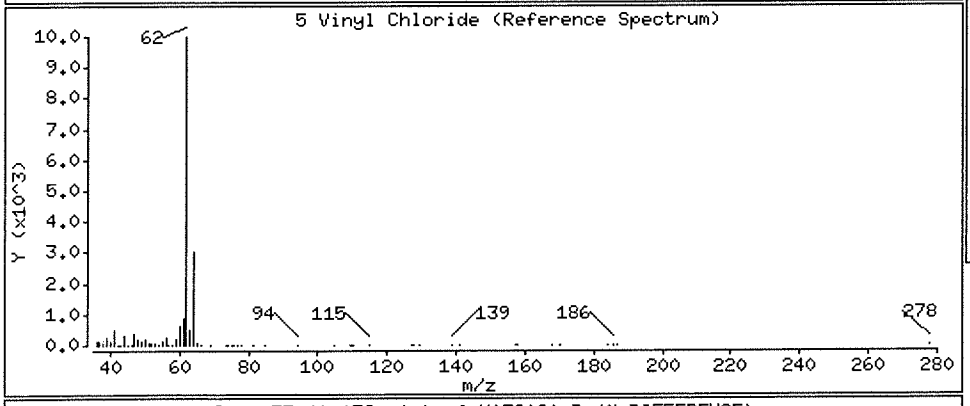
Concentration: 320.56 ug/l

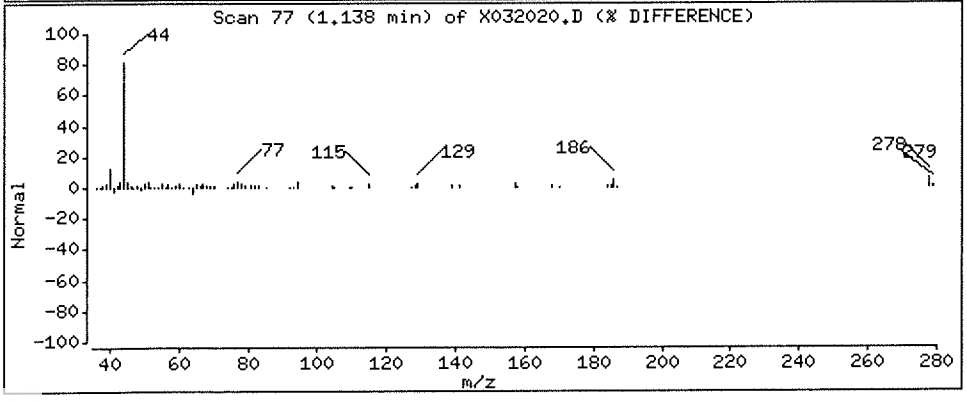












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032020.D

Date : 20-MAR-2020 17:41

Client ID: HS20030498-06

Instrument: voa6.i

Sample Info: HS20030498-06;HS20030498-06;;;

Purge Volume: 5.0

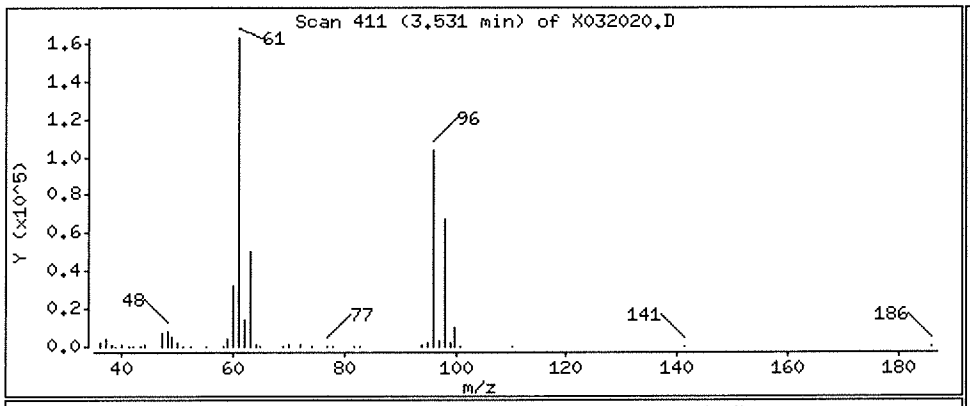
Operator: PC

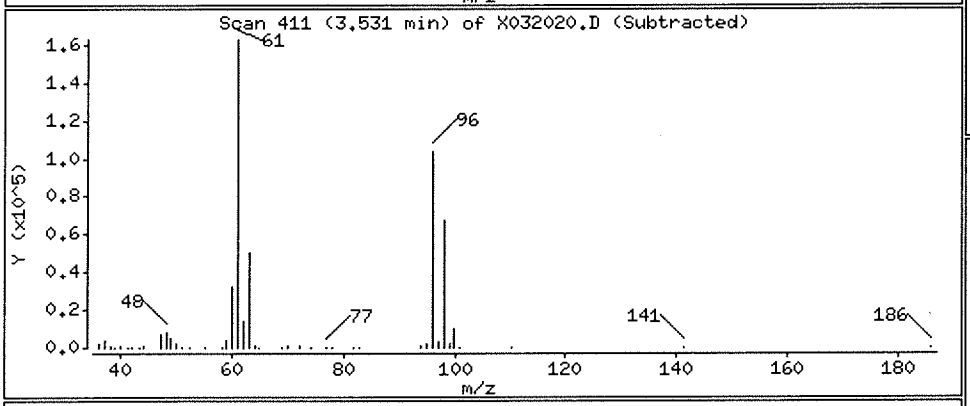
Column phase: DB624

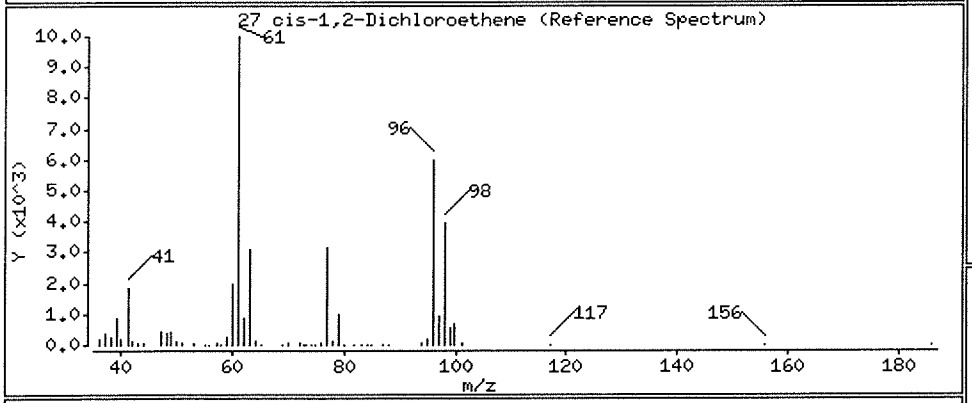
Column diameter: 0.18

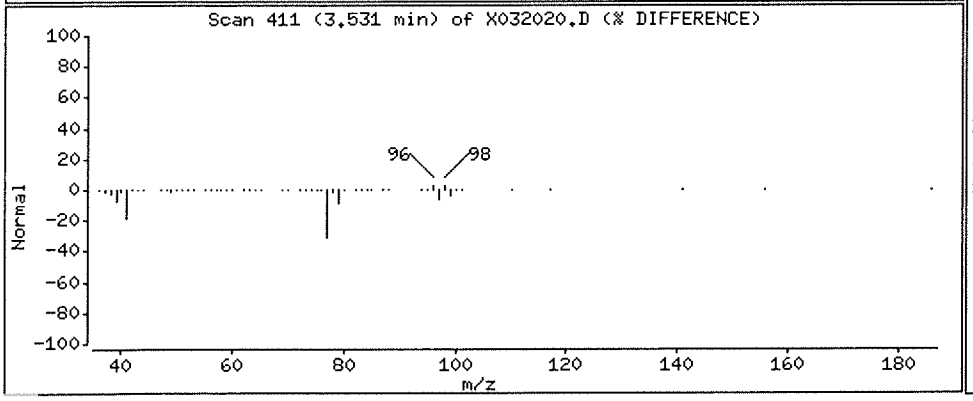
27 cis-1,2-Dichloroethene

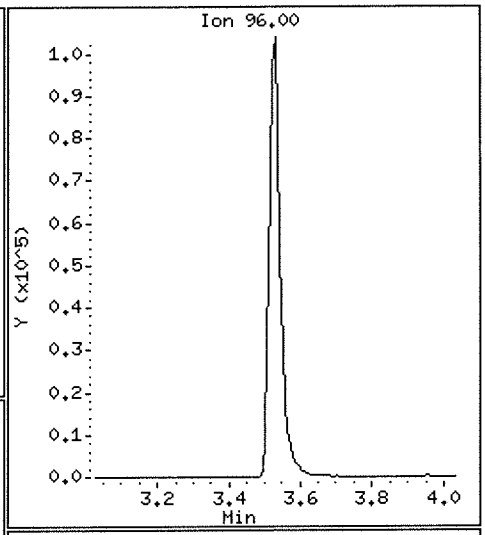
Concentration: 13014.41 ug/l

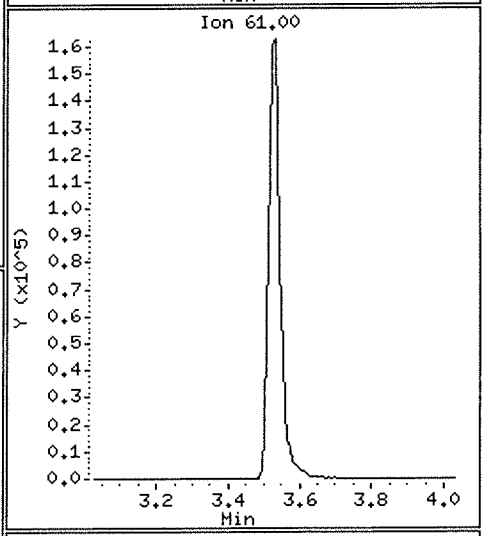


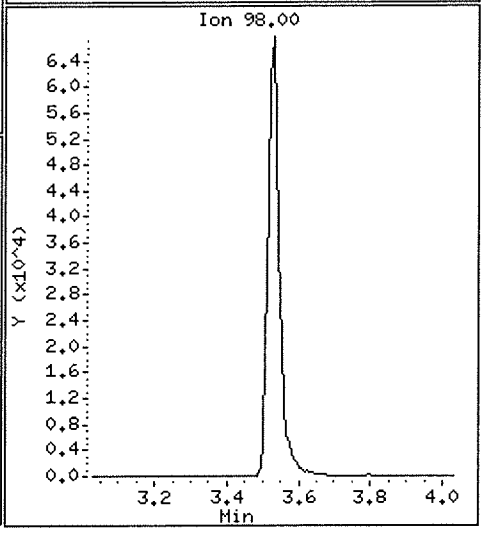












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032020.D

Date : 20-MAR-2020 17:41

Client ID: HS20030498-06

Instrument: voa6.i

Sample Info: HS20030498-06;HS20030498-06;;;

Purge Volume: 5.0

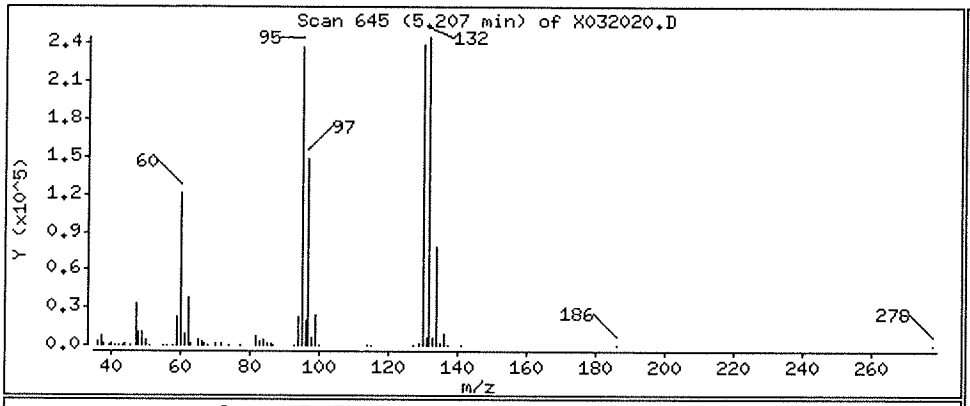
Operator: PC

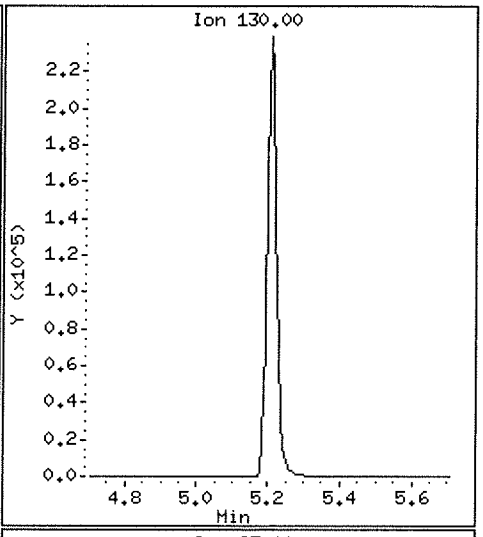
Column phase: DB624

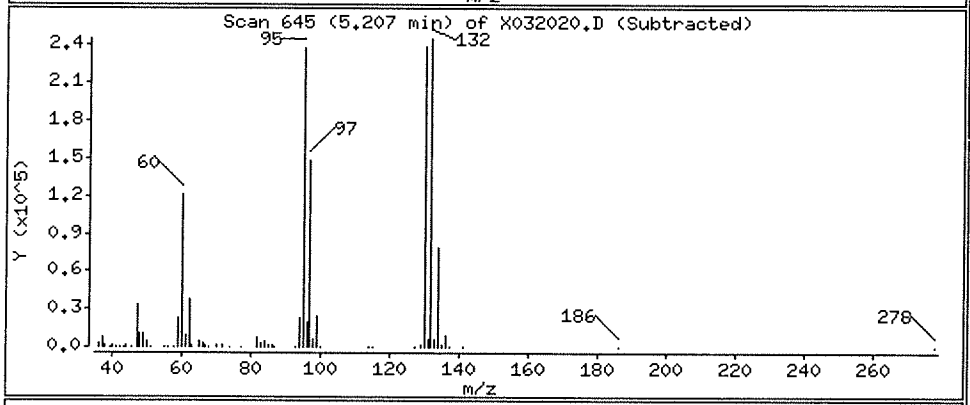
Column diameter: 0.18

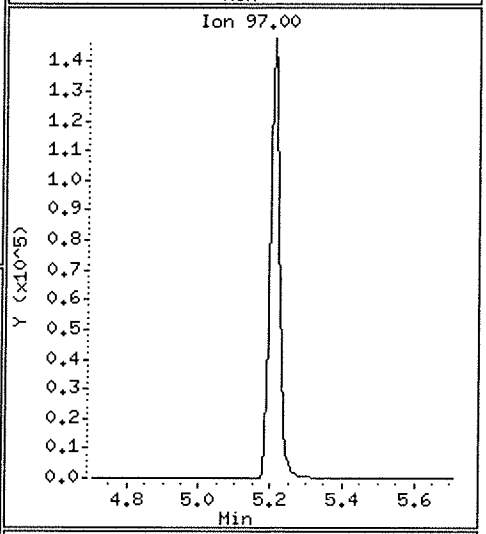
38 Trichloroethene

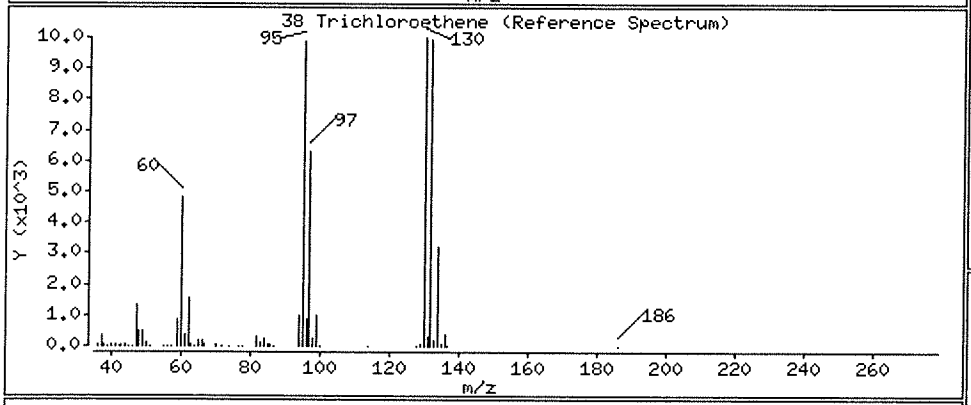
Concentration: 27218.25 ug/l

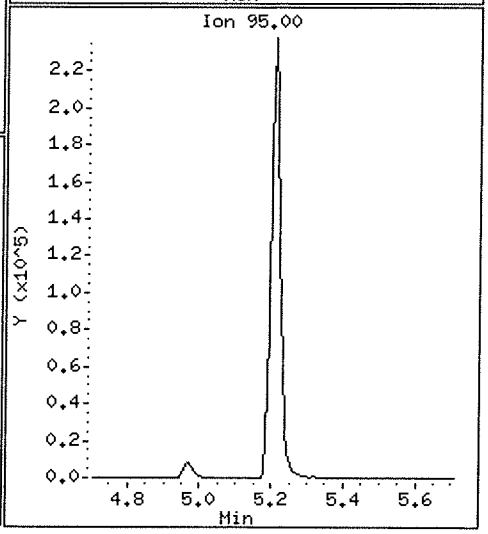


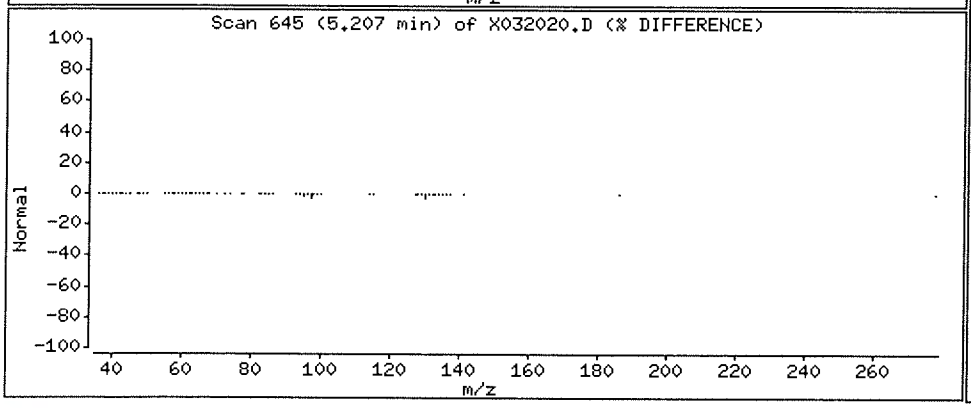












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\Y032021.D
Lab Smp Id: HS20030621-10 Client Smp ID: HS20030621-10
Inj Date : 21-MAR-2020 06:06
Operator : PC Inst ID: voa6.i
Smp Info : HS20030621-10;HS20030621-10;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:48 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 49
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	397662	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	187391	47.4218	47.42
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	226905	45.4029	45.40
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	597555	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	522793	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	701827	52.4096	52.40
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	251442	49.9846	49.98
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	246396	50.0000	
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	3602	0.79539	0.79(a)
38 Trichloroethene	130	5.214	5.206	(1.049)	41005	9.90048	9.90

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

01094494

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\Y032021.D

Date : 21-MAR-2020 06:06

Client ID: HS20030621-10

Instrument: voa6.i

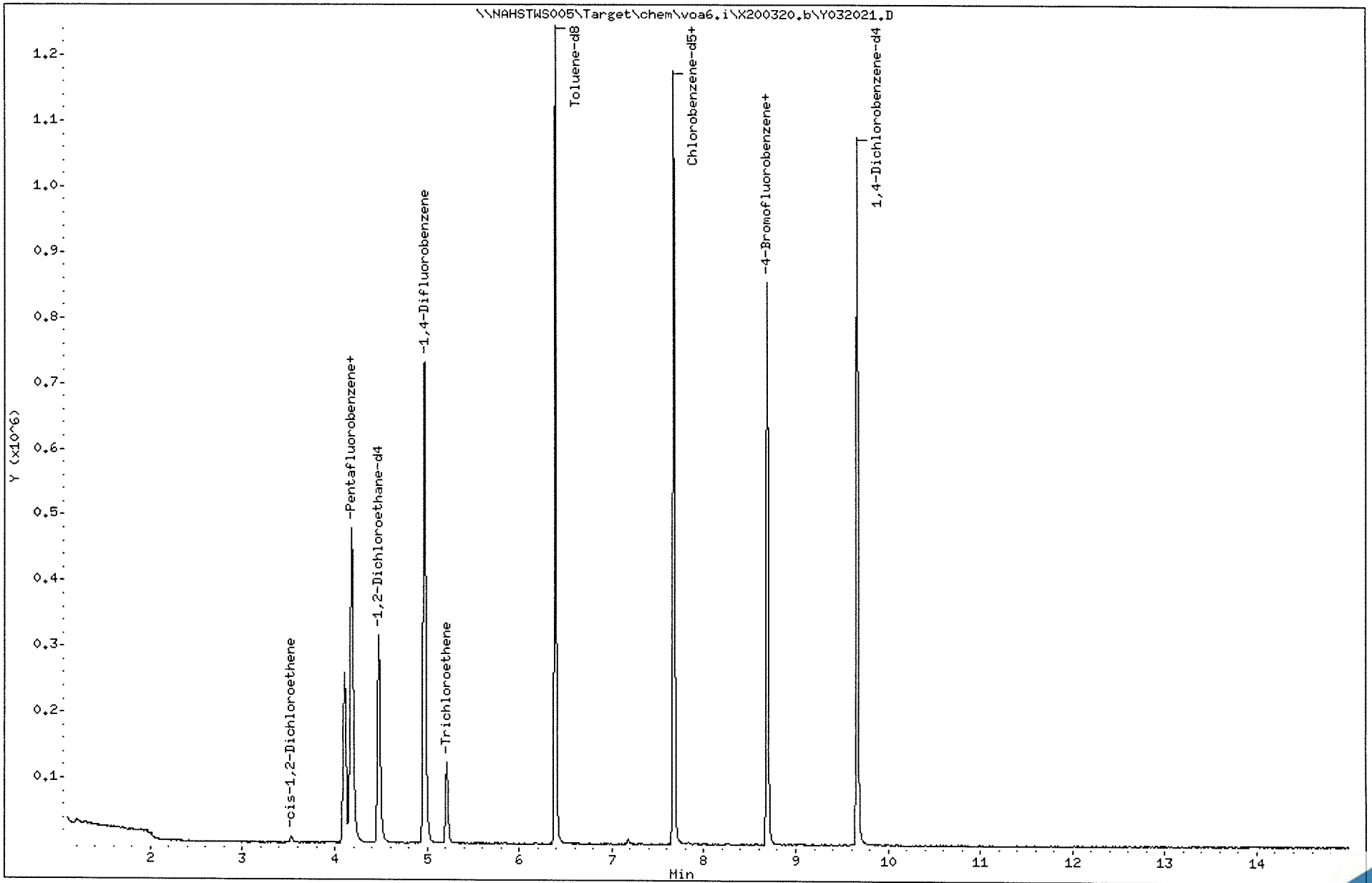
Sample Info: HS20030621-10;HS20030621-10;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\Y032021.D

Date : 21-MAR-2020 06:06

Client ID: HS20030621-10

Instrument: voa6.i

Sample Info: HS20030621-10;HS20030621-10;;;

Purge Volume: 5.0

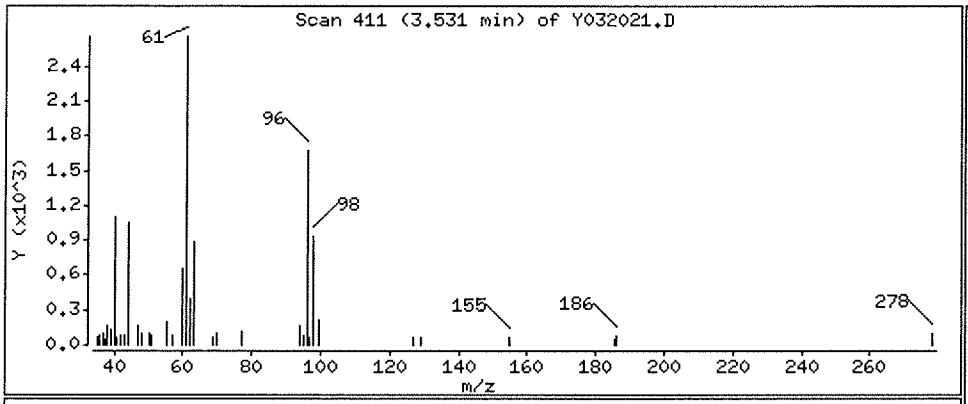
Operator: PC

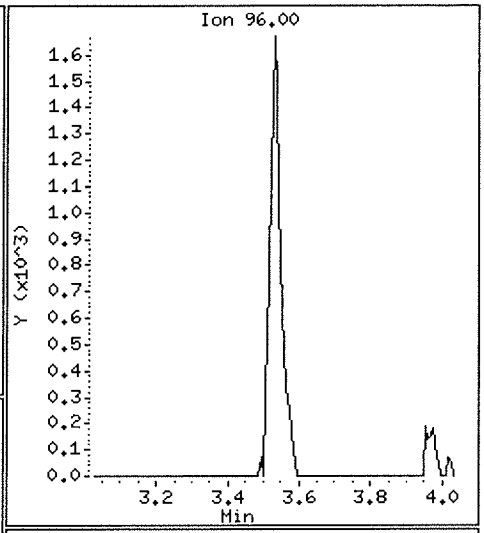
Column phase: DB624

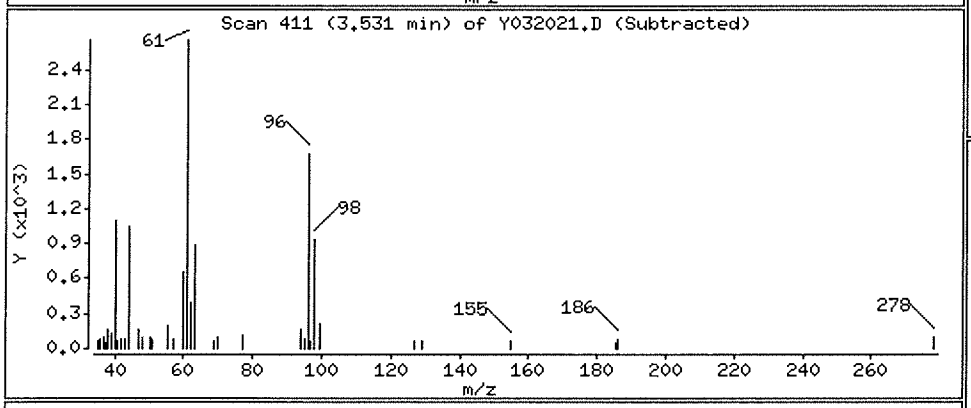
Column diameter: 0.18

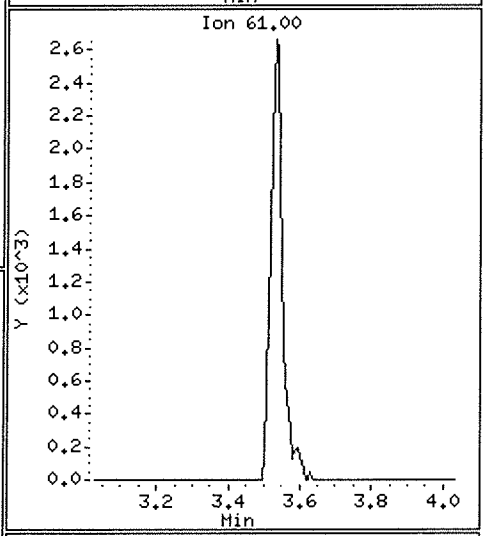
27 cis-1,2-Dichloroethene

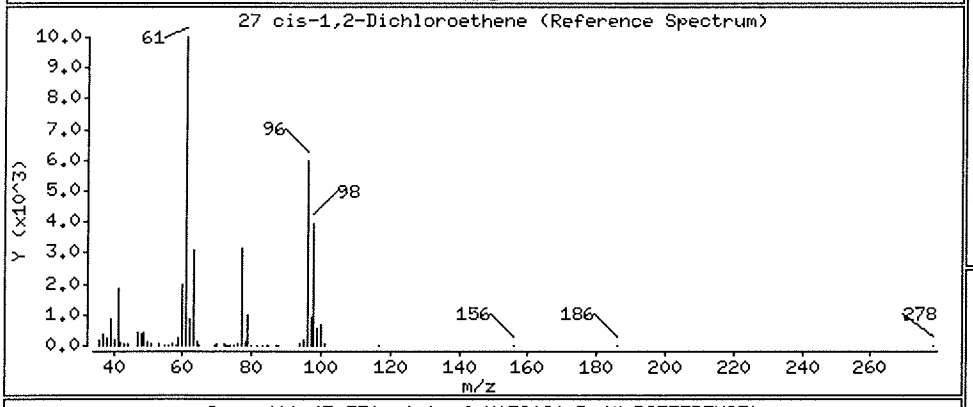
Concentration: 0.79 ug/l

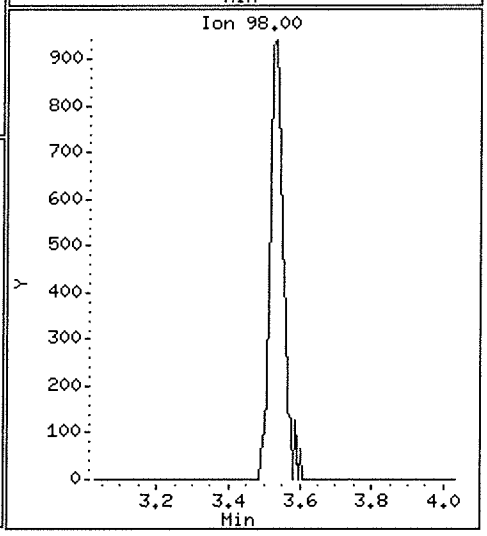


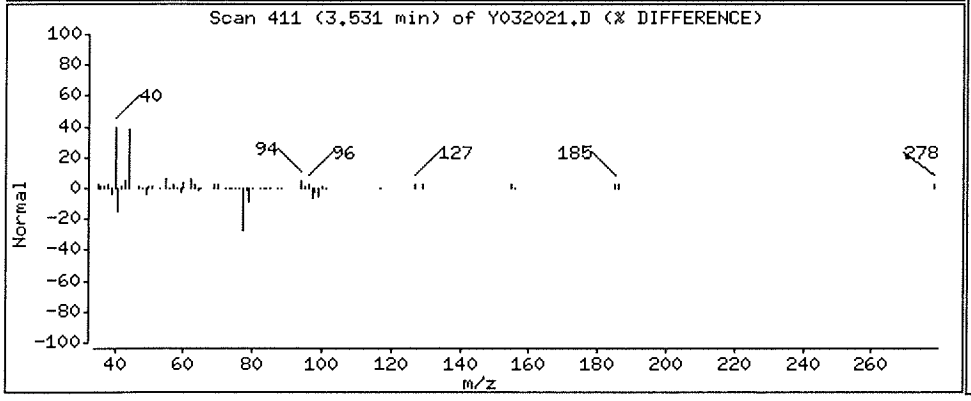












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\Y032021.D

Date : 21-MAR-2020 06:06

Client ID: HS20030621-10

Instrument: voa6.i

Sample Info: HS20030621-10;HS20030621-10;;;

Purge Volume: 5.0

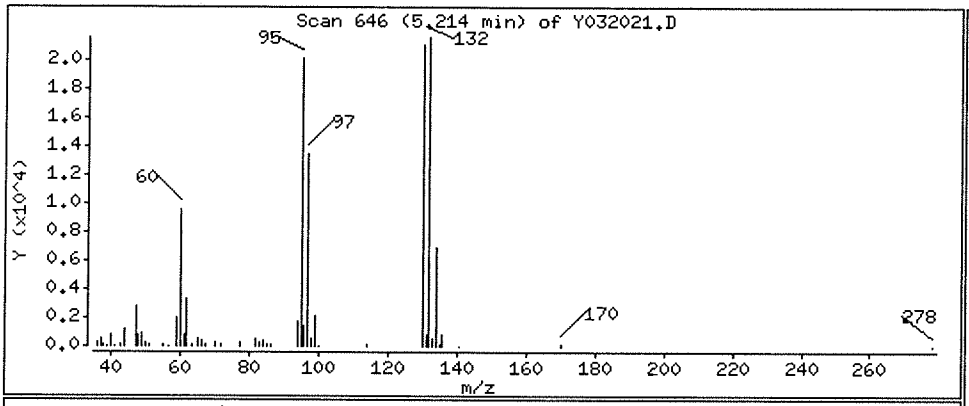
Operator: PC

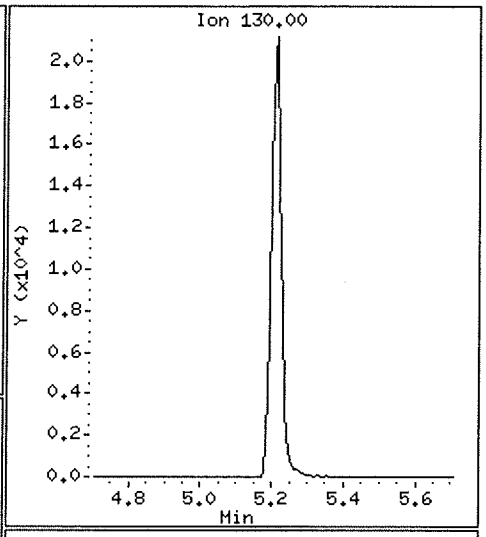
Column phase: DB624

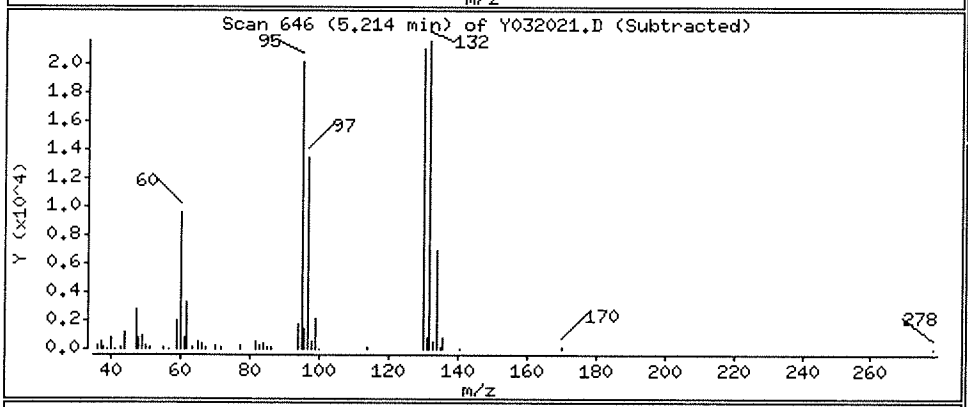
Column diameter: 0.18

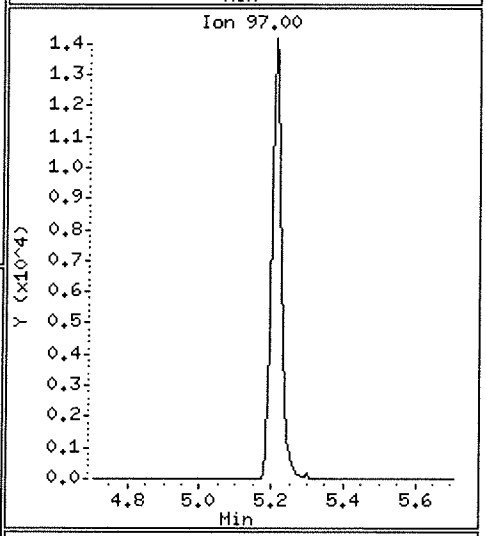
38 Trichloroethene

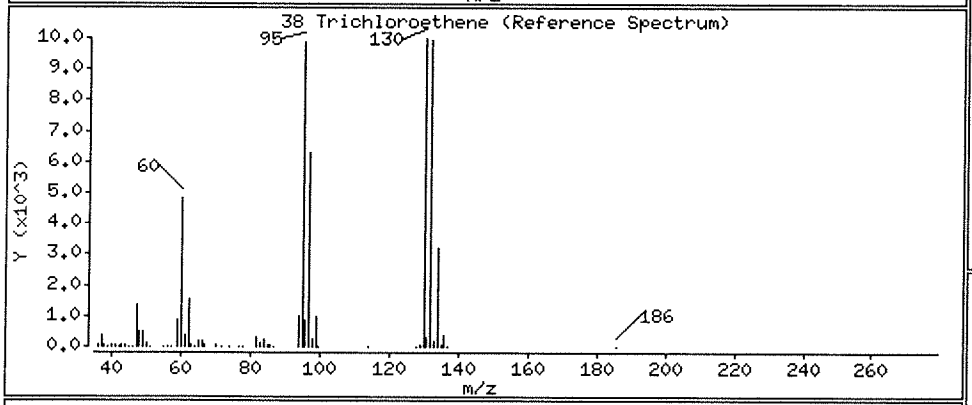
Concentration: 9.90 ug/l

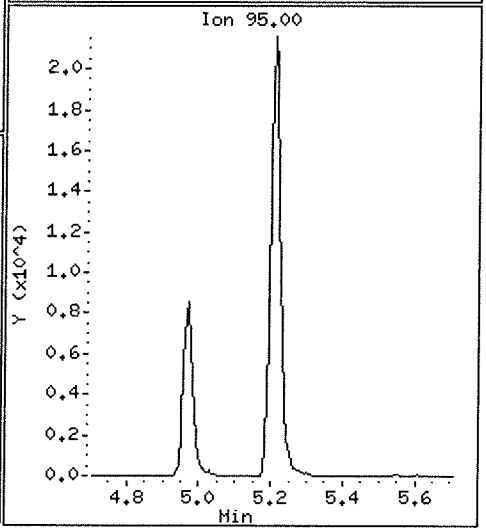


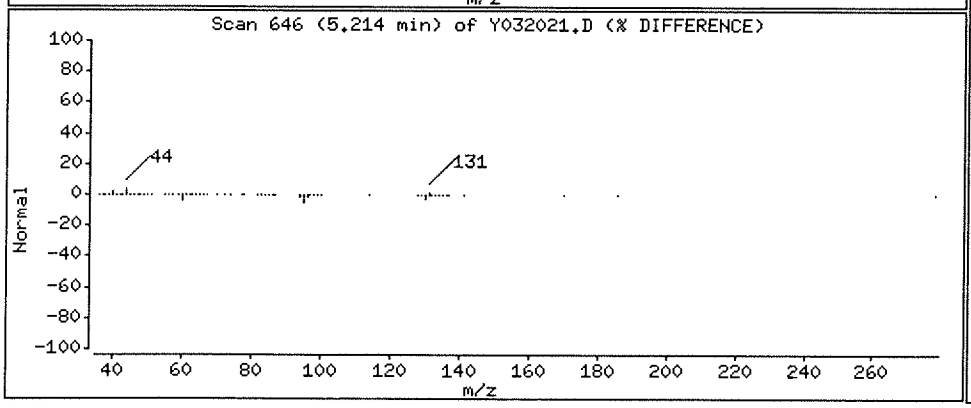












ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\Y032022.D
Lab Smp Id: HS20030621-11 Client Smp ID: HS20030621-11
Inj Date : 21-MAR-2020 06:30
Operator : PC Inst ID: voa6.i
Smp Info : HS20030621-11;HS20030621-11;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:48 Qin.Xu Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 50
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	398927	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	190363	48.0225	48.02
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	228868	45.6514	45.65
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	592990	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	514930	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	696703	52.8220	52.82
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	243093	49.0537	49.05
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	238674	50.0000	
38 Trichloroethene	130	5.206	5.206	(1.048)	4665	1.13501	1.13(a)

QC Flag Legend

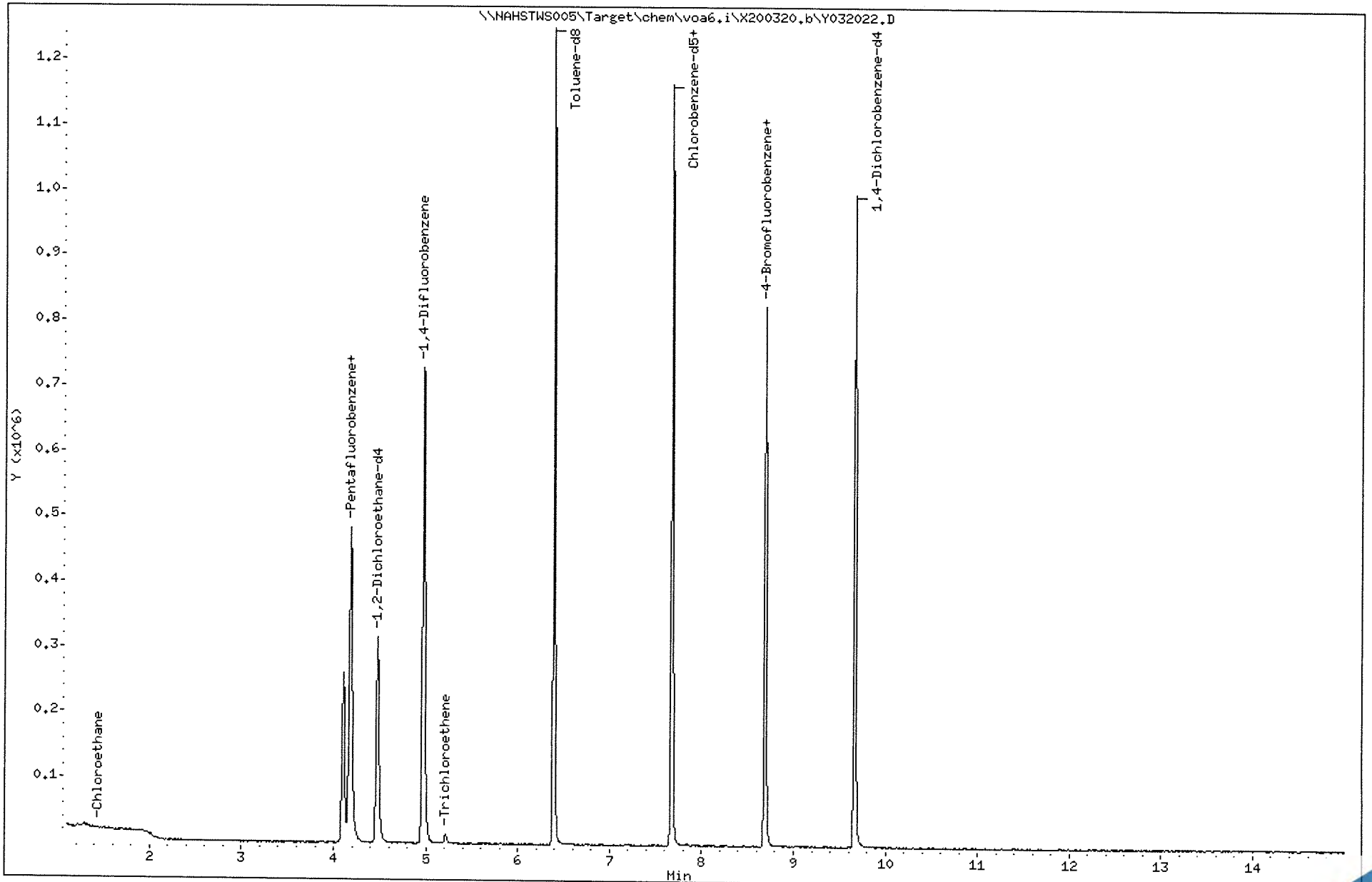
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

01094498

Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\Y032022.D
Date : 21-MAR-2020 06:30
Client ID: HS20030621-11
Sample Info: HS20030621-11;HS20030621-11;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\Y032022.D

Date : 21-MAR-2020 06:30

Client ID: HS20030621-11

Instrument: voa6.i

Sample Info: HS20030621-11;HS20030621-11;;;

Purge Volume: 5.0

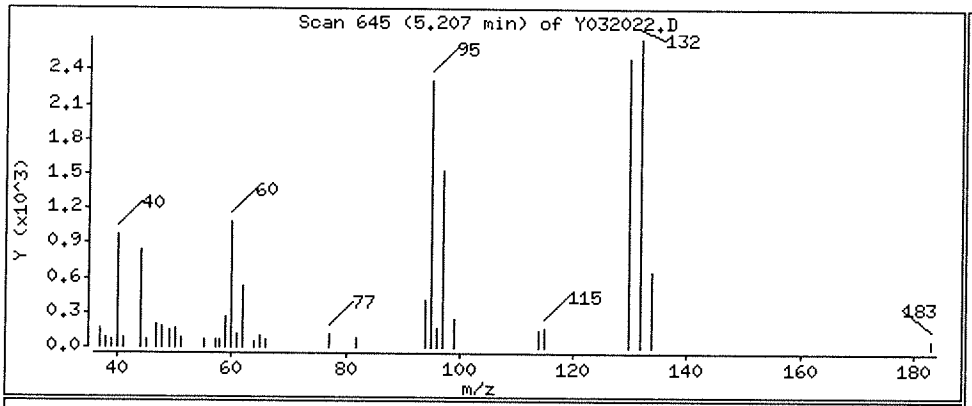
Operator: PC

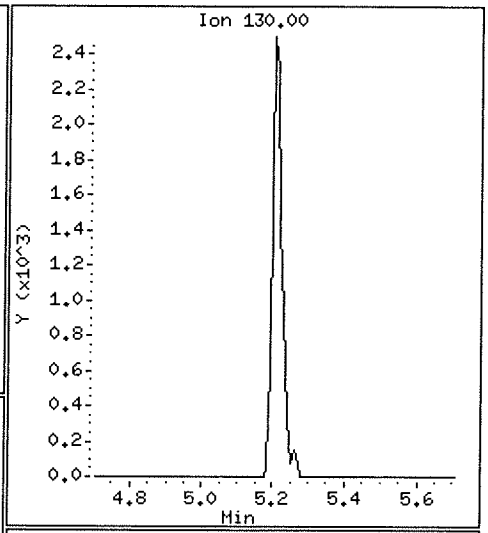
Column phase: DB624

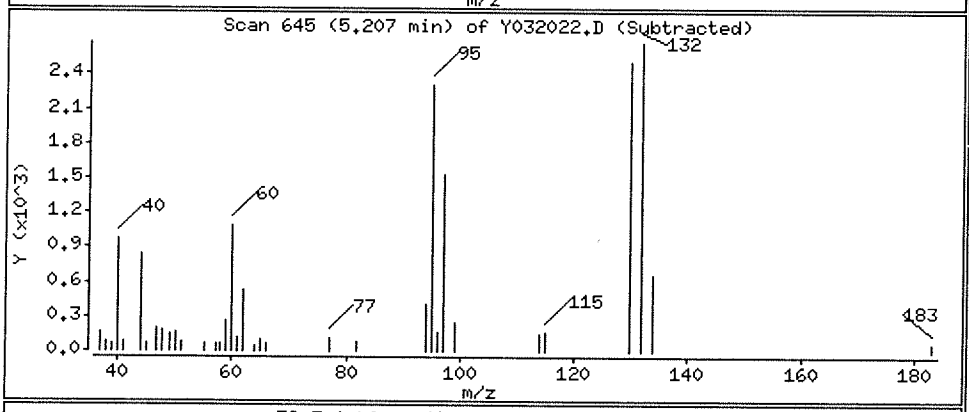
Column diameter: 0.18

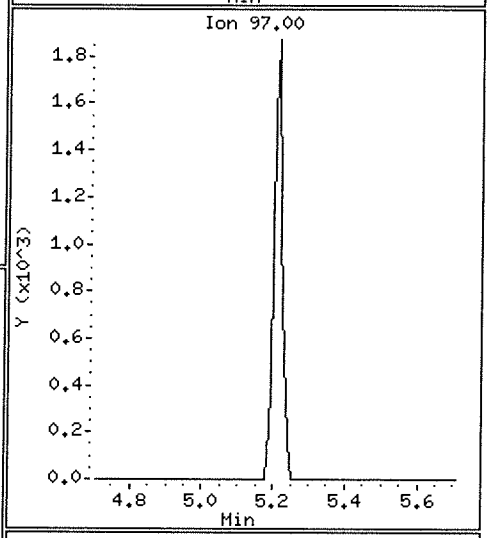
38 Trichloroethene

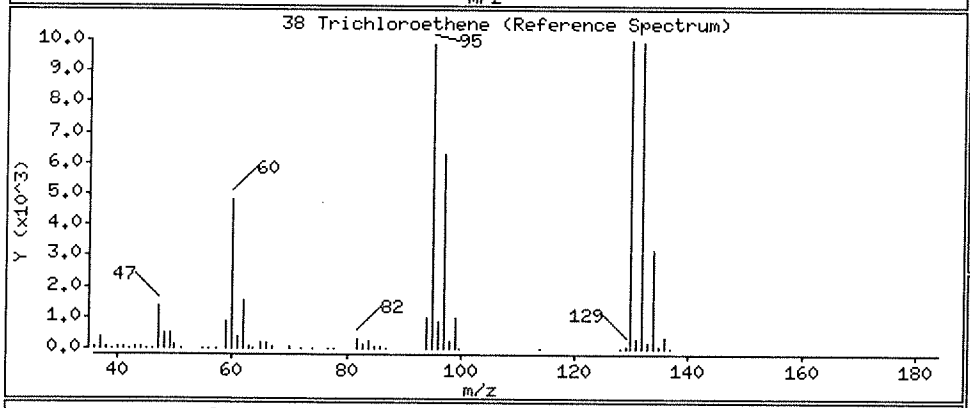
Concentration: 1.13 ug/l

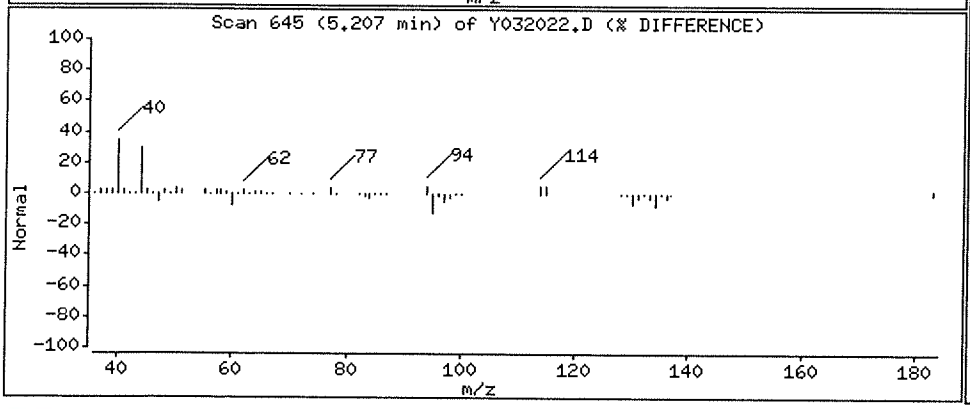


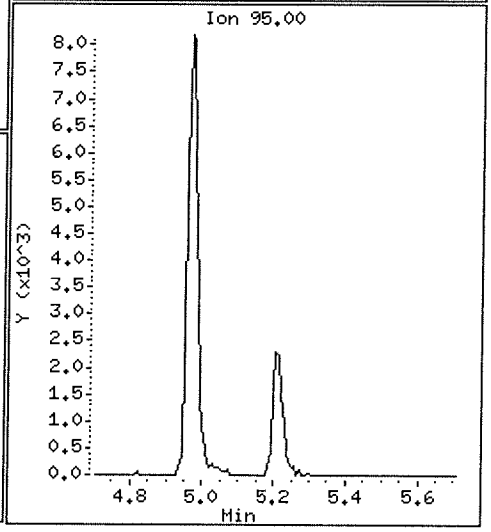












Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032030.D Page 1
Report Date: 14-Apr-2020 12:44

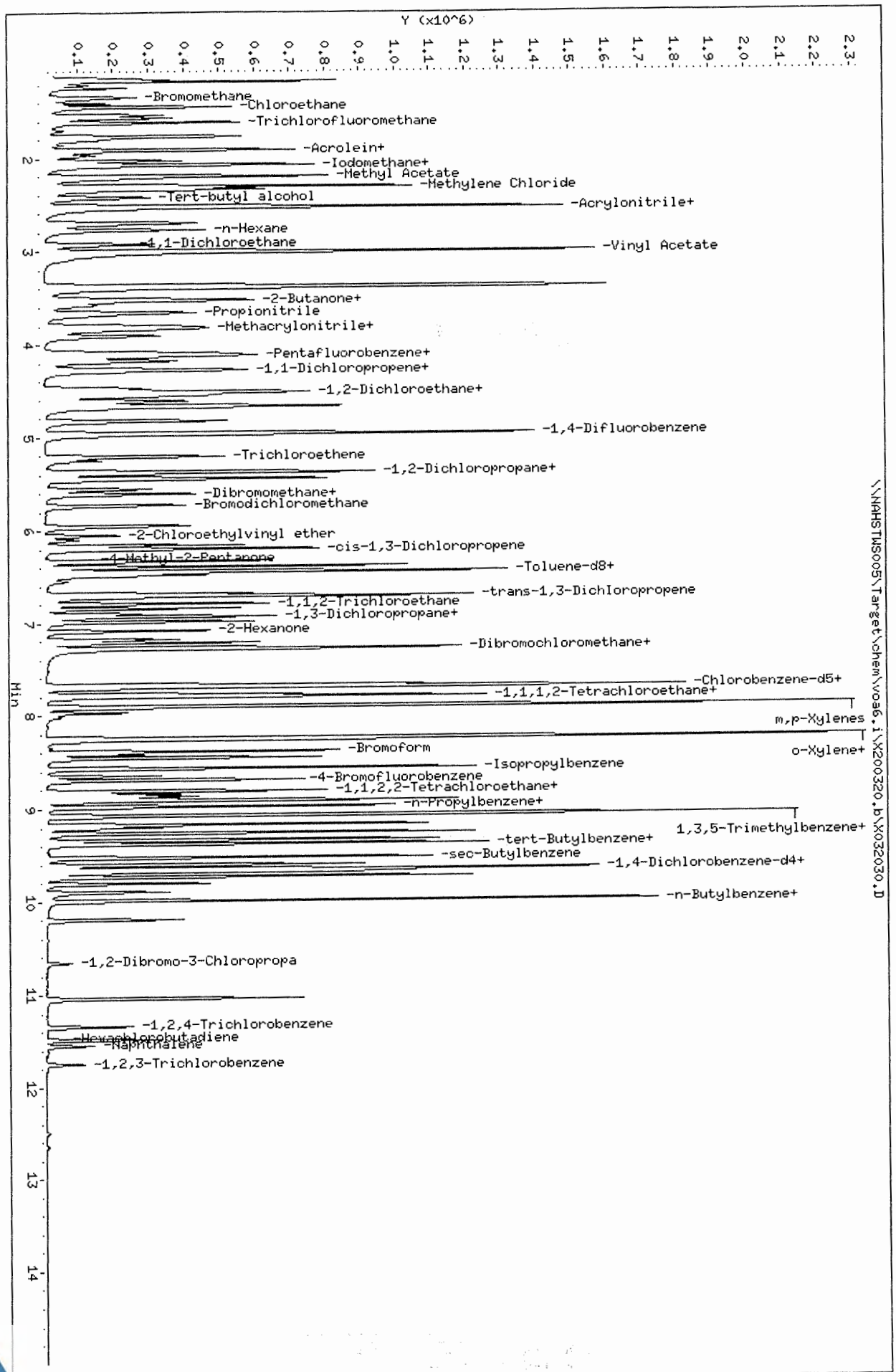
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032030.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 20-MAR-2020 21:42
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X200320.b\8260W.m
Meth Date : 14-Apr-2020 12:44 voa6.i Quant Type: ISTD
Cal Date : 19-MAR-2020 14:22 Cal File: X031908.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 0474-dod.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	294646	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	156487	50.0000	53.46
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	193866	50.0000	52.37
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	476020	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	435596	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	566910	50.0000	50.80
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	206881	50.0000	49.35
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	211909	50.0000	
5 Vinyl Chloride	62	1.138	1.138	(0.272)	234543	50.0000	52.24
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	127973	50.0000	51.25
17 Methylene Chloride	84	2.305	2.305	(0.551)	171948	50.0000	54.97
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	175999	50.0000	52.45
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	249282	50.0000	49.56
38 Trichloroethene	130	5.206	5.206	(1.048)	165970	50.0000	50.30
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	121334	50.0000	48.34



Data File: \\NAHSTWS005\Target\chem\voa6.i\X200320.b\X032030.D
Date : 20-MAR-2020 21:42
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

HS20030498 RSK 175 Raw Data

ALS WO# HS20030498

FID04 -Logbook

Batch: 26730
Date: 01-24-2017
Method: RSK 175 ICAL
Comments: Target Sequence 170124

Analyst: Nosa Izekor
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	ICAL1	CALIB_1	01-24-2017 09:06 am	1.00	0.00 mL	0.00 mL	001.D	Liquid	Y	NA
2	ICAL2	CALIB_2	01-24-2017 09:30 am	1.00	0.00 mL	0.00 mL	002.D	Liquid	Y	NA
3	ICAL3	CALIB_3	01-24-2017 09:59 am	1.00	0.00 mL	0.00 mL	003.D	Liquid	Y	NA
4	ICAL4	CALIB_4	01-24-2017 10:15 am	1.00	0.00 mL	0.00 mL	004.D	Liquid	Y	NA
5	ICAL5	CALIB_5	01-24-2017 10:39 am	1.00	0.00 mL	0.00 mL	005.D	Liquid	Y	NA
6	ICAL6	CALIB_6	01-24-2017 10:57 am	1.00	0.00 mL	0.00 mL	006.D	Liquid	Y	NA
7	ICAL7	CALIB_7	01-24-2017 11:13 am	1.00	0.00 mL	0.00 mL	007.D	Liquid	Y	NA
8	ICV	METHSPIKI	01-24-2017 12:05 pm	1.00	0.00 mL	0.00 mL	008.D	Liquid	Y	NA
9	LCS-170124	LCS	01-24-2017 12:24 pm	1.00	0.00 mL	0.00 mL	009.D	Liquid	Y	NA
10	LCSD-170124	LCSD	01-24-2017 12:40 pm	1.00	0.00 mL	0.00 mL	010.D	Liquid	Y	NA
11	MBLK-170124	MBLK	01-24-2017 12:57 pm	1.00	0.00 mL	0.00 mL	011.D	Liquid	Y	NA
12	HS17010778-01	SAMP	01-24-2017 01:14 pm	1.00	0.00 mL	0.00 mL	012.D	Liquid	Y	NA
13	HS17010779-01	SAMP	01-24-2017 01:31 pm	1.00	0.00 mL	0.00 mL	013.D	Liquid	Y	NA
14	HS17010779-01DUP	SAMP	01-24-2017 01:47 pm	1.00	0.00 mL	0.00 mL	014.D	Liquid	Y	NA
15	CCV	CCV	01-24-2017 02:01 pm	1.00	0.00 mL	0.00 mL	015.D	Liquid	Y	NA

Chemical	Value
ICAL STD ID	30010700217
ICV STD ID	30010700610

FORM 3
WATER GASES METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030498

Matrix Spike - ENG SC Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Ethene	16.800	19.090	114	75-125
Methane	9.647	9.597	99	75-125
Ethane	18.043	19.657	109	75-125
Propane	26.463	27.238	103	75-125
N-Butane	34.955	36.010	103	75-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

_____

FORM 6
GASES INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030498

Instrument ID: FID-4 Calibration Date(s): 01/24/17 01/24/17

Column: RTX-PLOT ID: 0.53 (mm) Calibration Time(s): 0906 1113

LAB FILE ID: RF10: 001 RF25: 002 RF50: 003
RF100: 004 RF250: 005 RF500: 006

COMPOUND	RF10	RF25	RF50	RF100	RF250	RF500
Ethene	535.608	567.359	564.985	516.024	665.282	425.678
Methane	968.912	978.238	1019.699	880.798	960.713	930.704
Ethane	602.493	670.177	658.908	597.201	808.513	817.630
Propane	500	1279	2602	4785	18294	38286
N-Butane	438	936	2034	3864	18446	42817

FORM 6
GASES INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2003049

Instrument ID: FID-4 Calibration Date(s): 01/24/17 01/24/17

Column: RTX-PLOT ID: 0.53 (mm) Calibration Time(s): 0906 1113

RF1000: 007

COMPOUND	RF1000	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MA
Ethene	828.858	AVRG		586.256273		21.932	
Methane	1081.580	AVRG		974.377787		6.550	
Ethane	999.335	AVRG		736.322546		19.885	
Propane	96509	2ORDR	0.97987006	1.529e-003	-4.58e-009	0.9991365	0
N-Butane	114164	2ORDR	2.46870151	1.834e-003	-5.54e-009	0.9980766	0

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030498

Instrument ID: FID-4 Calibration Date: 03/16/20 Time: 0925

Lab File ID: 001 Init. Calib. Date(s): 01/24/17 01/24/17

Init. Calib. Times: 0906 1113

GC Column: RTX-PLOT ID: 0.53 (mm)

COMPOUND	RRF OR AMOUNT	RRF250.00 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Ethane	719.48900	690.68337	0.01	4.00	20.00	AVRG
Methane	974.99200	1014.7196	0.01	-4.07	20.00	AVRG
Ethene	585.76000	624.27300	0.01	-6.57	20.00	AVRG

FORM VII GASES

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030498

Instrument ID: FID-4 Calibration Date: 03/16/20 Time: 1132

Lab File ID: 011 Init. Calib. Date(s): 01/24/17 01/24/17

Init. Calib. Times: 0906 1113

GC Column: RTX-PLOT ID: 0.53 (mm)

COMPOUND	RRF OR AMOUNT	RRF250.00 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Ethane	719.48900	607.93660	0.01	15.50	20.00	AVRG
Methane	974.99200	1022.7014	0.01	-4.89	20.00	AVRG
Ethene	585.76000	566.88427	0.01	3.22	20.00	AVRG

FORM 7B
GASES CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20030498

Instrument ID: FID-4 Calibration Date: 03/16/20 Time: 1409

Lab File ID: 021 Init. Calib. Date(s): 01/24/17 01/24/17

Init. Calib. Times: 0906 1113

GC Column: RTX-PLOT ID: 0.53 (mm)

COMPOUND	RRF OR AMOUNT	RRF250.00 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Ethane	719.48900	611.42825	0.01	15.02	20.00	AVRG
Methane	974.99200	877.78584	0.01	9.97	20.00	AVRG
Ethene	585.76000	530.50445	0.01	9.43	20.00	AVRG

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\001.D Page 1
Report Date: 08-Apr-2020 10:47

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\001.D
Lab Smp Id: ICAL1 Client Smp ID: ICAL1
Inj Date : 24-JAN-2017 09:06
Operator : JA Inst ID: FID-4.i
Smp Info : ICAL1;ICAL1;;;
Misc Info :
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 09:06 Cal File: 001.D
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	ON-COL (ug/L)
1 Methane	1.043	1.030	0.013	374	0.38600	0.383(a)
2 Ethene	1.553	1.556	-0.003	361	0.67400	0.615(a)
3 Ethane	1.716	1.723	-0.007	435	0.72200	0.590(a)
4 Propane	4.073	4.113	-0.040	500	1.05900	1.743
5 N-Butane	7.640	7.690	-0.050	438	1.39800	3.271

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

01094511

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\001.D

Date : 24-JAN-2017 09:06

Client ID: ICAL1

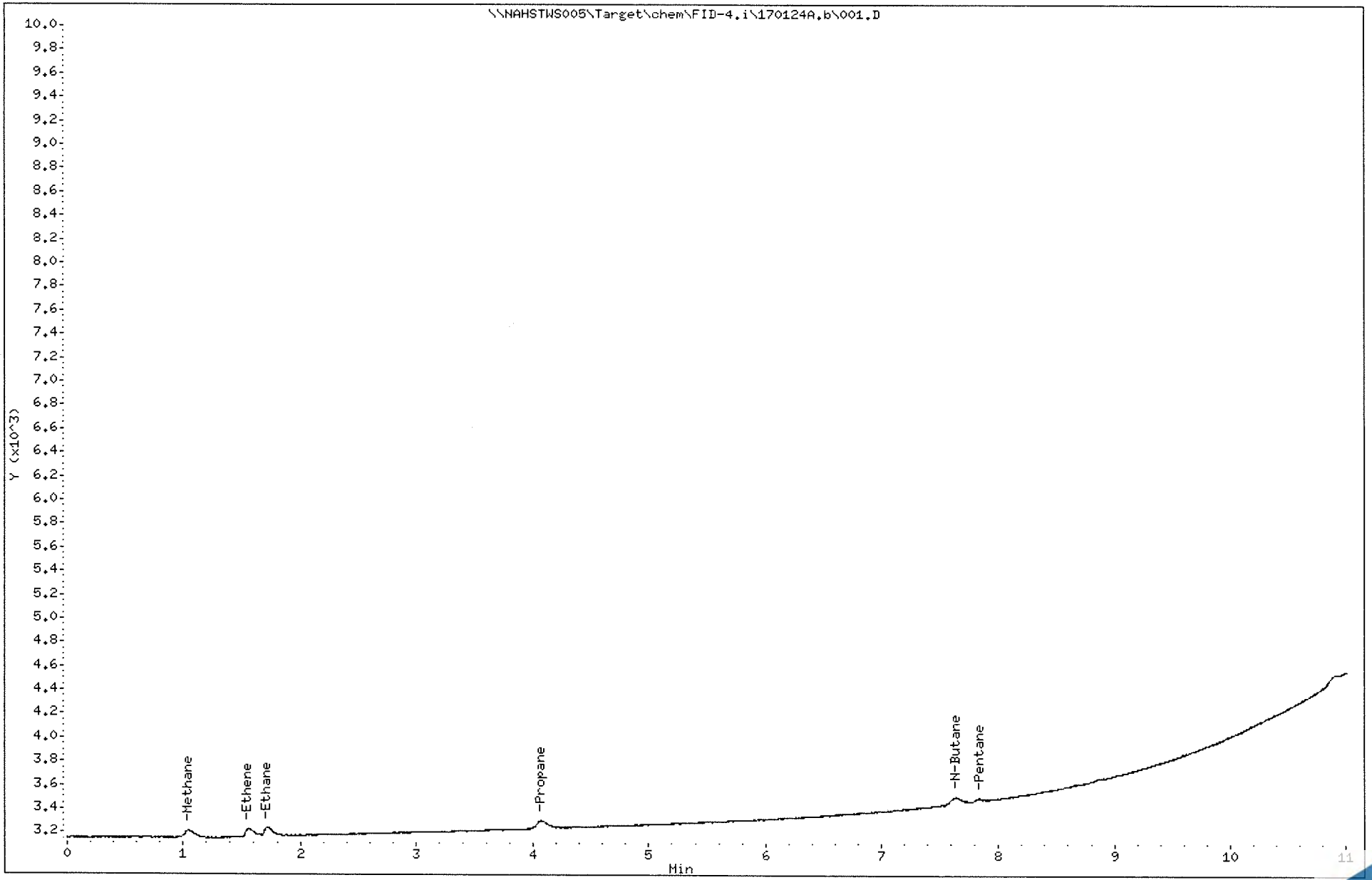
Sample Info: ICAL1;ICAL1;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: JA

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\002.D
Lab Smp Id: ICAL2 Client Smp ID: ICAL2
Inj Date : 24-JAN-2017 09:30
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL2;ICAL2;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 09:59 Cal File: 003.D
Als bottle: 2 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	1.023	1.030	-0.007	944	0.96500	0.968
2 Ethene	1.560	1.556	0.004	956	1.68500	1.630
3 Ethane	1.723	1.723	0.000	1209	1.80400	1.641
4 Propane	4.123	4.113	0.010	1279	2.64600	2.927
5 N-Butane	7.716	7.690	0.026	936	3.49600	4.180

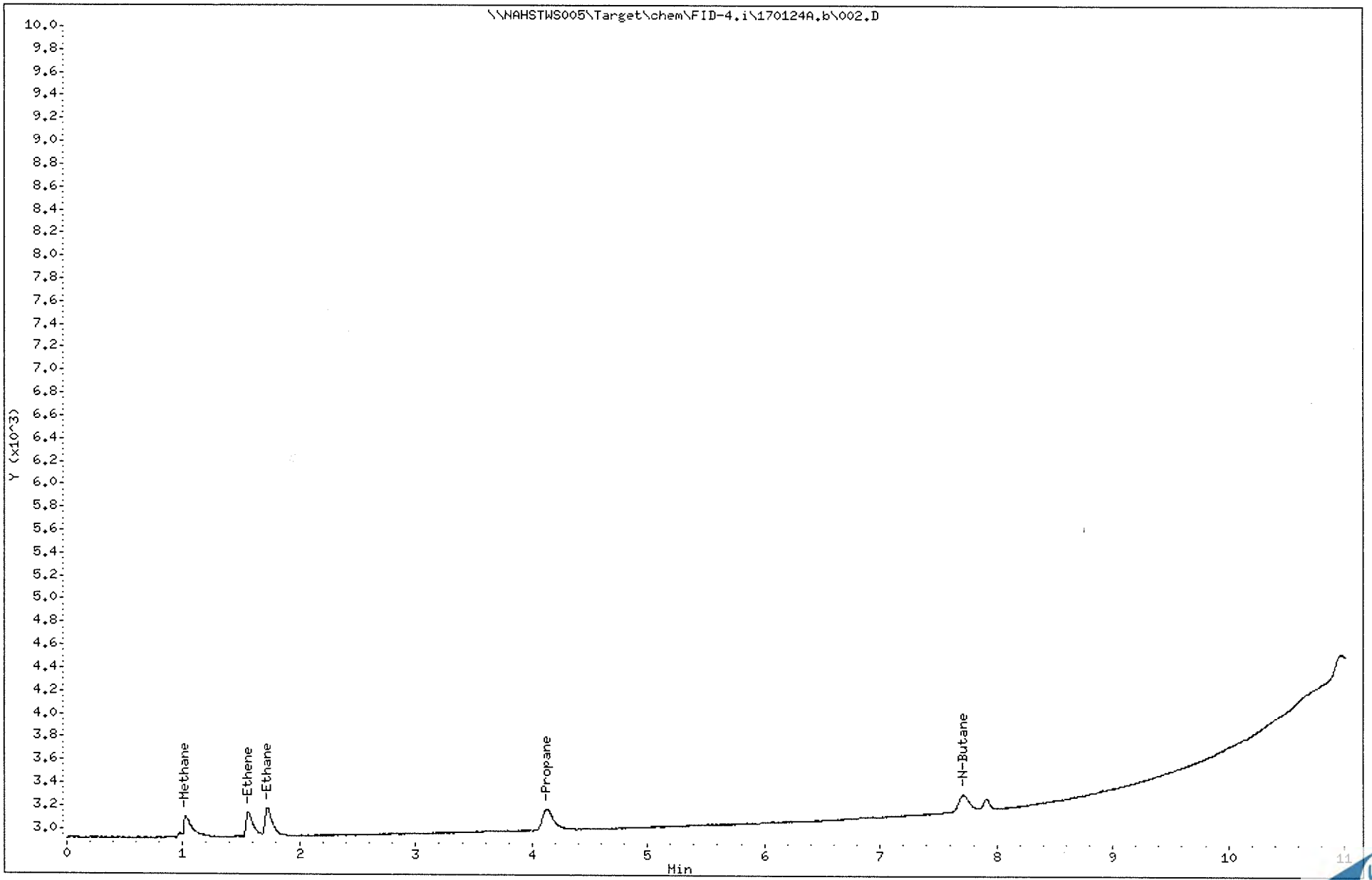
01094513

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\002.D
Date : 24-JAN-2017 09:30
Client ID: ICAL2
Sample Info: ICAL2;ICAL2;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\003.D Page 1
Report Date: 08-Apr-2020 10:47

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\003.D
Lab Smp Id: ICAL3 Client Smp ID: ICAL3
Inj Date : 24-JAN-2017 09:59
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL3;ICAL3;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 11:13 Cal File: 007.D
Als bottle: 3 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.043	1.030	0.013	1967	1.92900	2.018
2 Ethene	1.570	1.556	0.014	1904	3.37000	3.247
3 Ethane	1.736	1.723	0.013	2378	3.60900	3.229
4 Propane	4.123	4.113	0.010	2602	5.29300	4.926
5 N-Butane	7.703	7.690	0.013	2034	6.99100	6.176

01094515

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\003.D

Date : 24-JAN-2017 09:59

Client ID: ICAL3

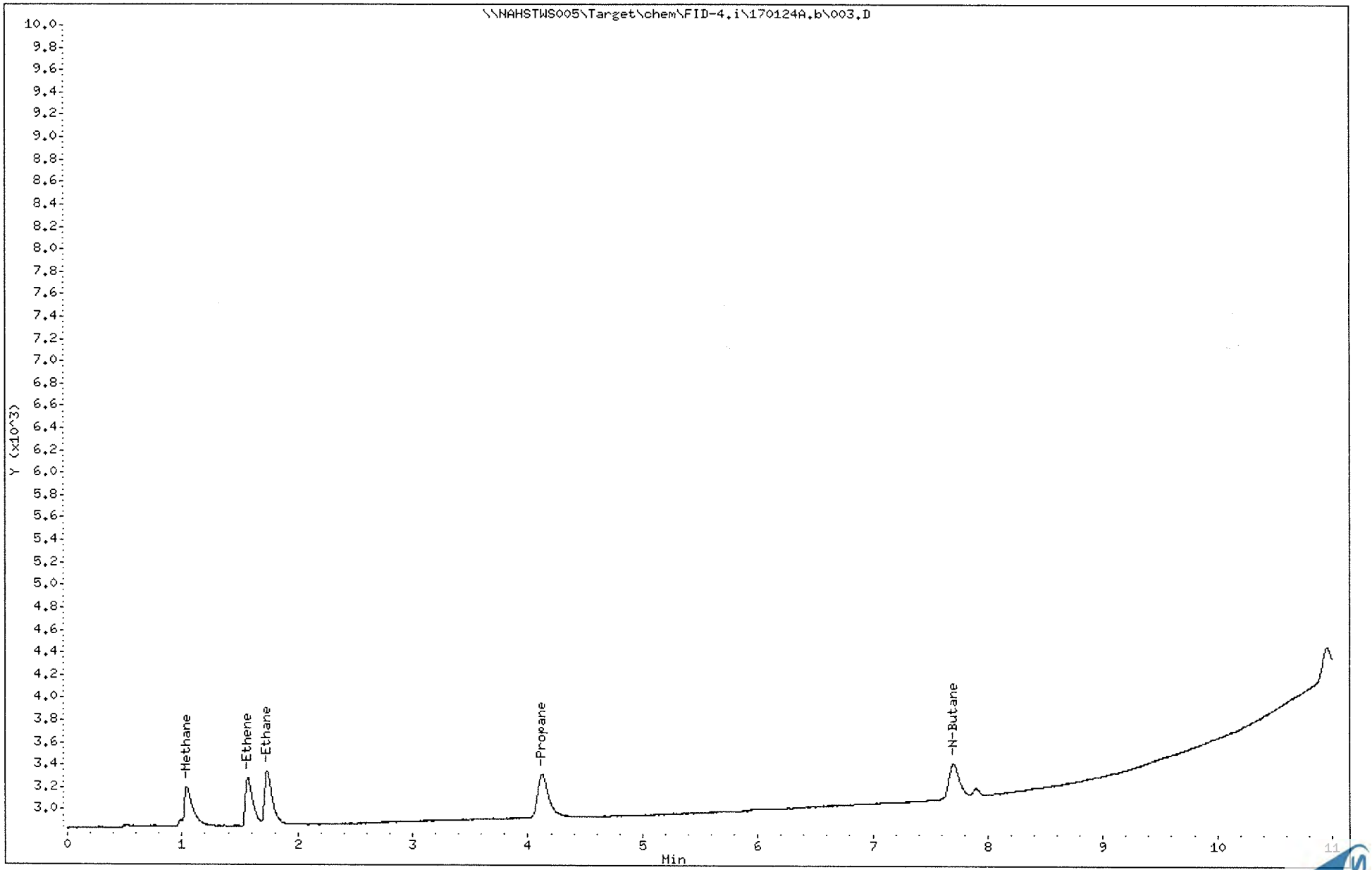
Sample Info: ICAL3;ICAL3;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA

Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\004.D Page 1
Report Date: 08-Apr-2020 10:47

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\004.D
Lab Smp Id: ICAL4 Client Smp ID: ICAL4
Inj Date : 24-JAN-2017 10:15
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL4;ICAL4;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 09:30 Cal File: 002.D
Als bottle: 4 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	1.033	1.030	0.003	3399	3.85900	3.488
2 Ethene	1.563	1.556	0.007	3478	6.74000	5.932
3 Ethane	1.726	1.723	0.003	4310	7.21700	5.853
4 Propane	4.120	4.113	0.007	4785	10.5850	8.190
5 N-Butane	7.703	7.690	0.013	3864	13.9820	9.473(M)

QC Flag Legend

M - Compound response manually integrated.

01094517

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\004.D

Date : 24-JAN-2017 10:15

Client ID: ICAL4

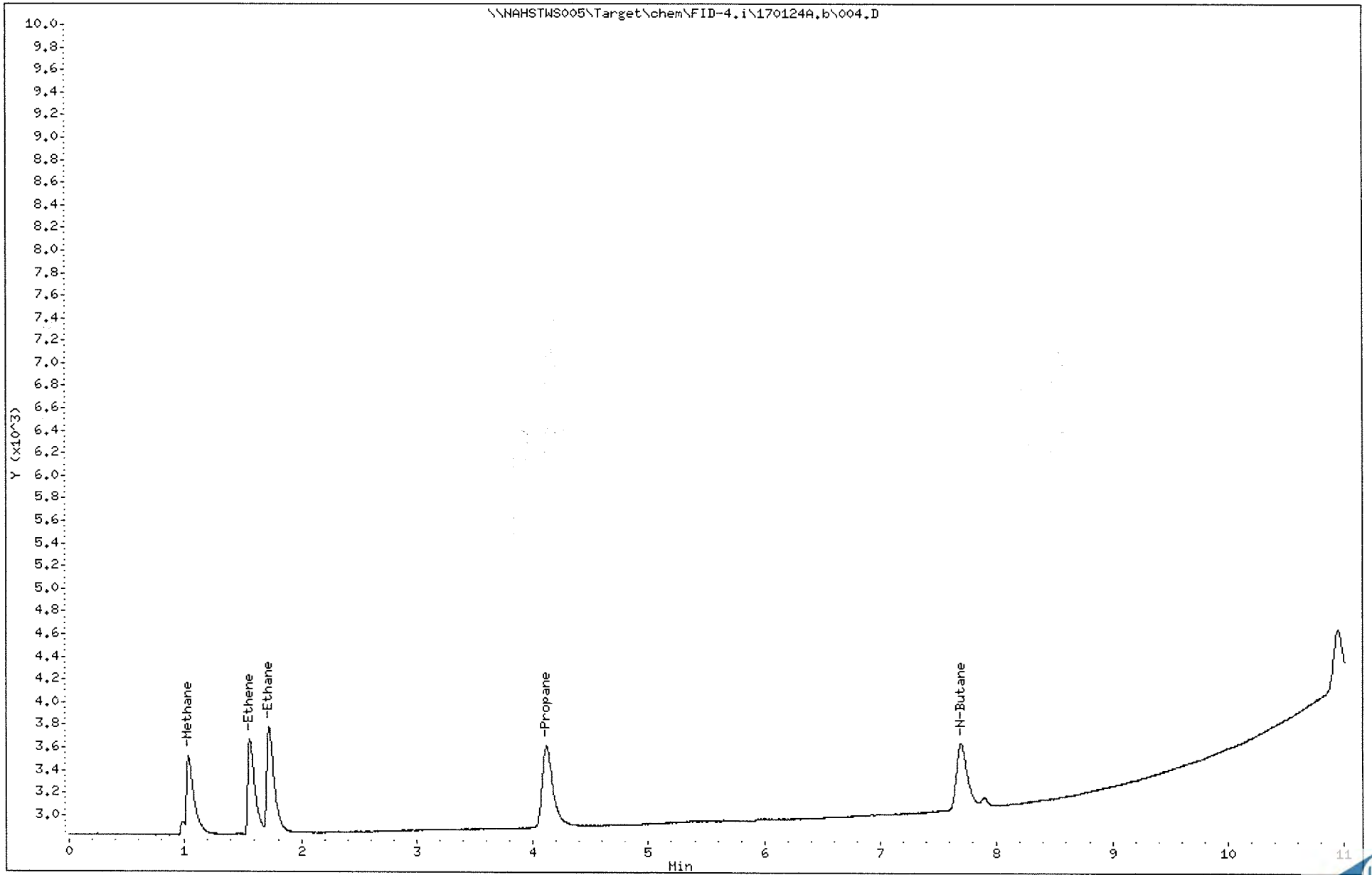
Sample Info: ICAL4;ICAL4;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA

Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\005.D Page 1
Report Date: 08-Apr-2020 10:47

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\005.D
Lab Smp Id: ICAL5 Client Smp ID: ICAL5
Inj Date : 24-JAN-2017 10:39
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL5;ICAL5;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 10:39 Cal File: 005.D
Als bottle: 5 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.043	1.030	0.013	9268	9.64700	9.511
2 Ethene	1.570	1.556	0.014	11210	16.8500	19.121
3 Ethane	1.733	1.723	0.010	14588	18.0430	19.811
4 Propane	4.120	4.113	0.007	18294	26.4630	27.415
5 N-Butane	7.700	7.690	0.010	18446	34.9550	34.419(M)

QC Flag Legend

M - Compound response manually integrated.

01094519

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\005.D

Date : 24-JAN-2017 10:39

Client ID: ICAL5

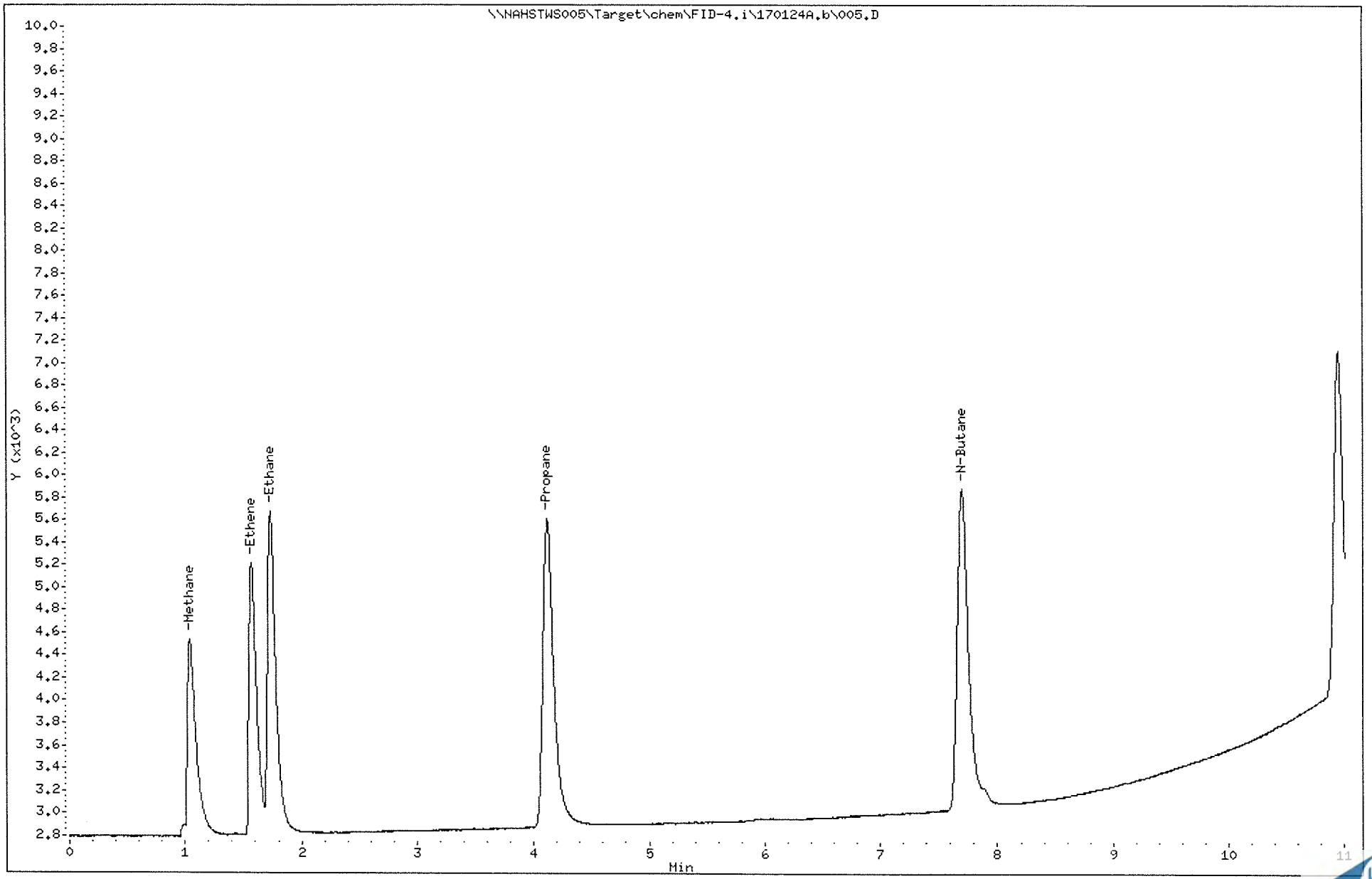
Sample Info: ICAL5;ICAL5;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA

Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\006.D
Report Date: 08-Apr-2020 10:47

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\006.D
Lab Smp Id: ICAL6 Client Smp ID: ICAL6
Inj Date : 24-JAN-2017 10:57
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL6;ICAL6;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 10:39 Cal File: 005.D
Als bottle: 6 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.023	1.030	-0.007	17957	19.2940	18.429
2 Ethene	1.550	1.556	-0.006	22910	53.8200	39.078
3 Ethane	1.716	1.723	-0.007	29505	36.0860	40.070
4 Propane	4.110	4.113	-0.003	38286	52.9260	52.796
5 N-Butane	7.696	7.690	0.006	42817	69.9110	70.855

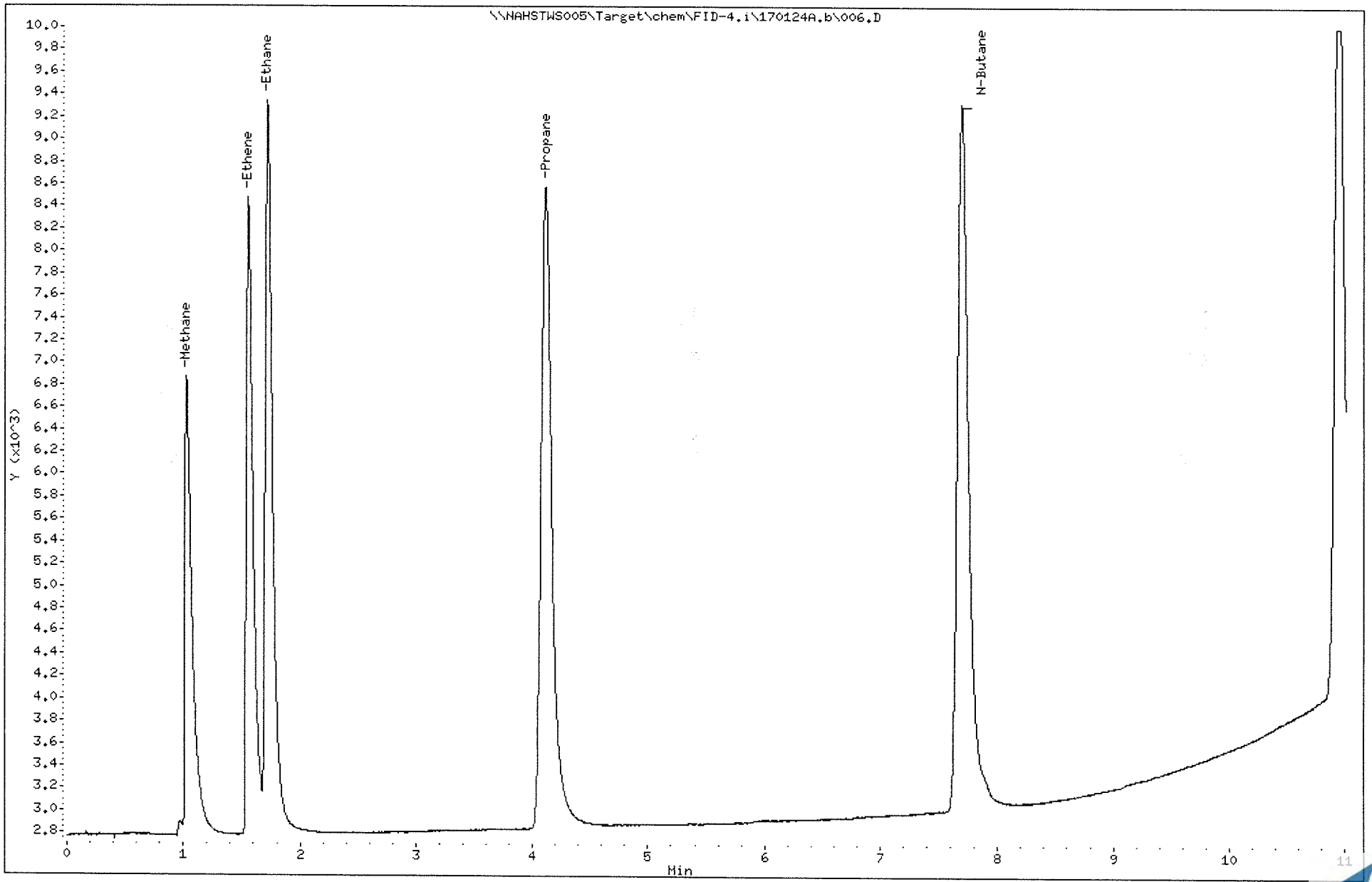
01094521

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\006.D
Date : 24-JAN-2017 10:57
Client ID: ICAL6
Sample Info: ICAL6;ICAL6;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\007.D Page 1
Report Date: 08-Apr-2020 10:47

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\007.D
Lab Smp Id: ICAL7 Client Smp ID: ICAL7
Inj Date : 24-JAN-2017 11:13
Operator : MA Inst ID: FID-4.i
Smp Info : ICAL7;ICAL7;;;
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 10:57 Cal File: 006.D
Als bottle: 7 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	1.030	1.030	0.000	41736	38.5880	42.833(A)
2 Ethene	1.556	1.556	0.000	55865	67.4000	95.291(A)
3 Ethane	1.723	1.723	0.000	72124	72.1720	97.951(A)
4 Propane	4.113	4.113	0.000	96509	105.852	105.844
5 N-Butane	7.690	7.690	0.000	114164	139.821	139.707

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

01094523

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\007.D

Date : 24-JAN-2017 11:13

Client ID: ICAL7

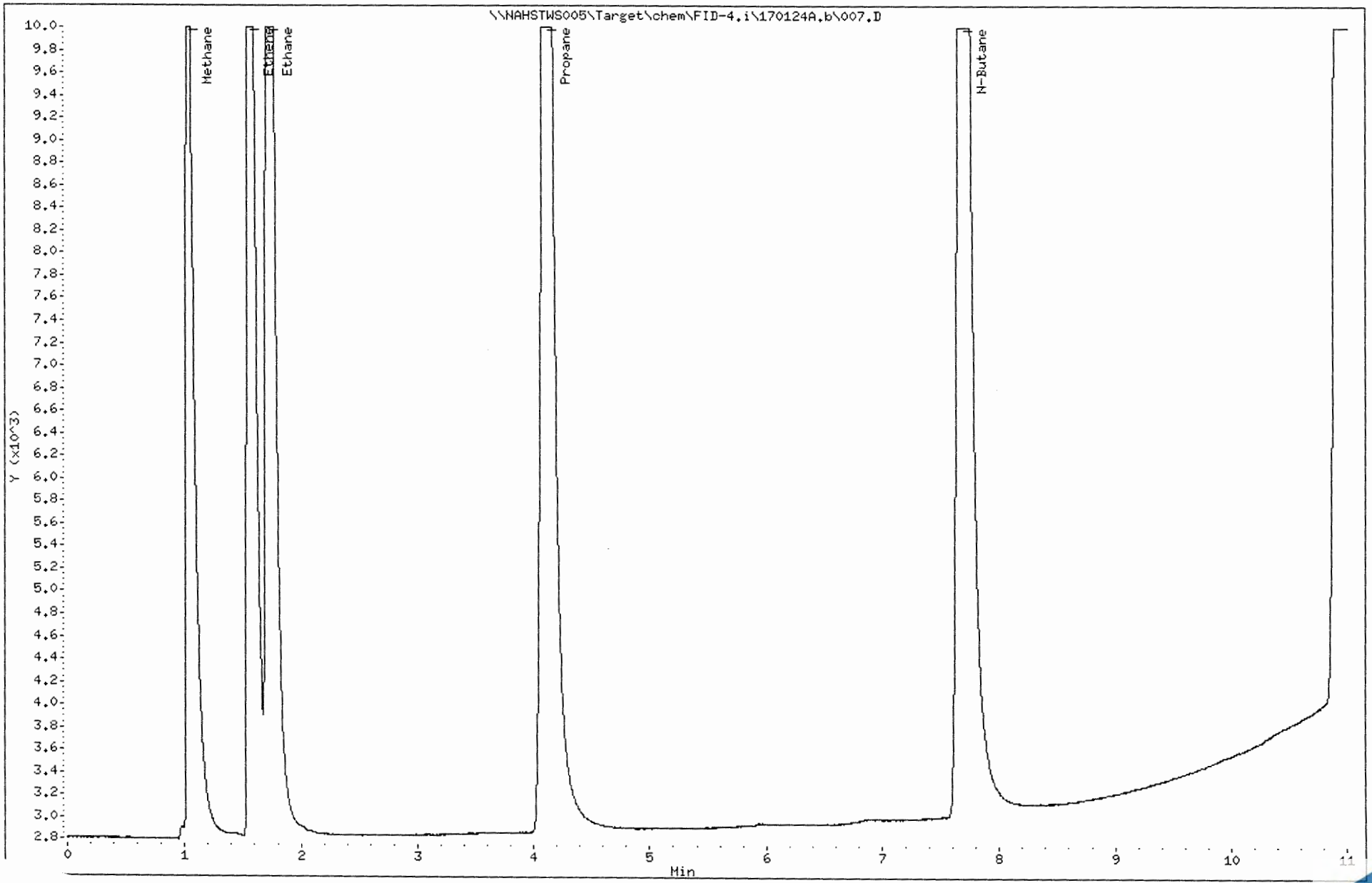
Sample Info: ICAL7;ICAL7;;;

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: MA

Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\008.D Page 1
Report Date: 08-Apr-2020 10:47

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\008.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 24-JAN-2017 12:05
Operator : MA Inst ID: FID-4.i
Smp Info : ICV;ICV;;;
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\RSKNI2.m
Meth Date : 26-Feb-2020 16:33 Purvi.lad Quant Type: ESTD
Cal Date : 24-JAN-2017 11:13 Cal File: 007.D
Als bottle: 8 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: stdNIP2.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	1.046	1.030	0.016	9352	9.59792	9.597
2 Ethene	1.573	1.556	0.017	11192	19.0906	19.090
3 Ethane	1.736	1.723	0.013	14474	19.6571	19.657
4 Propane	4.116	4.113	0.003	18164	27.2381	27.238
5 N-Butane	7.696	7.690	0.006	19425	36.0103	36.010

01094525

Data File: \\NAHSTWS005\Target\chem\FID-4.i\170124A.b\008.D

Date : 24-JAN-2017 12:05

Client ID: ICV

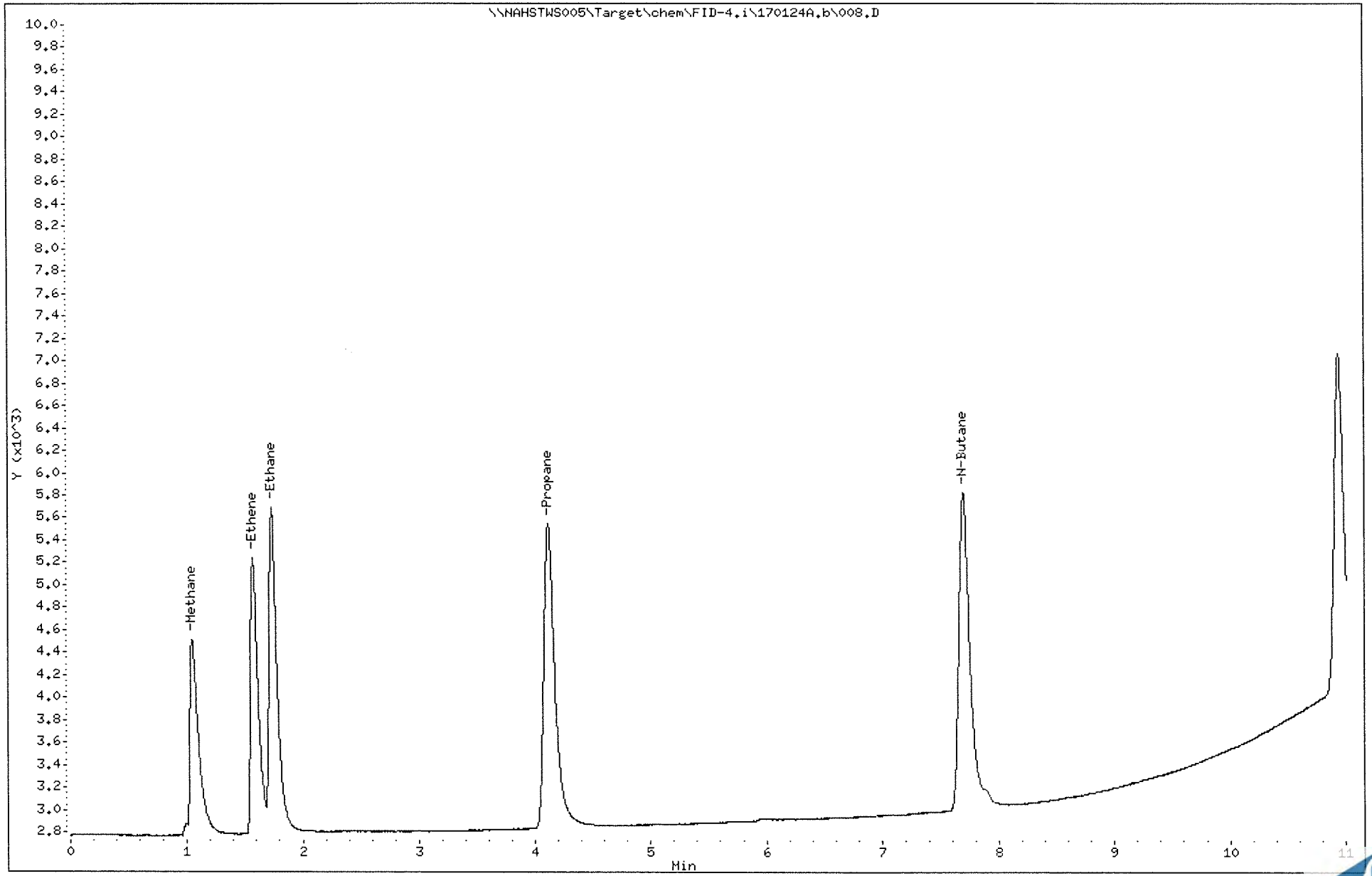
Instrument: FID-4.i

Sample Info: ICV;ICV;;;

Operator: MA

Column phase: Rtx-PLOT

Column diameter: 0.53



FID04 -Logbook

Batch: 39931
Date: 03-16-2020
Method: rsk 175
Comments:

Analyst: Purvi Lad
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	RSK-CCV	CCV	03-16-2020 09:25 am	1.00	0.00 mL	0.00 mL	001.D	Liquid	Y	NA
2	LCS-200316	LCS	03-16-2020 09:35 am	1.00	0.00 mL	30	002.D	Liquid	Y	NA
3	LCSD-200316	LCSD	03-16-2020 09:43 am	1.00	0.00 mL	30	003.D	Liquid	Y	NA
4	MBLK-200316	MBLK	03-16-2020 10:02 am	1.00	0.00 mL	30	004.D	Liquid	Y	NA
5	HS20030383-01	SAMP	03-16-2020 10:19 am	1.00	0.00 mL	29.55	005.D	Liquid	Y	<2
6	HS20030383-01	SAMP	03-16-2020 10:38 am	2.00	0.00 mL	29.55	006.D	Liquid	Y	<2
7	HS20030383-02	SAMP	03-16-2020 10:51 am	1.00	0.00 mL	27.87	007.D	Liquid	Y	<2
8	HS20030383-02	SAMP	03-16-2020 11:02 am	4.00	0.00 mL	27.87	008.D	Liquid	Y	<2
9	HS20030383-02DUP	SAMP	03-16-2020 11:13 am	4.00	0.00 mL	27.87	009.D	Liquid	Y	<2
10	HS20030383-03	SAMP	03-16-2020 11:22 am	1.00	0.00 mL	29.55	010.D	Liquid	Y	<2
11	RSK-CCV	CCV	03-16-2020 11:32 am	1.00	0.00 mL	0.00 mL	011.D	Liquid	Y	NA
12	HS20030383-06	SAMP	03-16-2020 11:51 am	1.00	0.00 mL	29.87	012.D	Liquid	Y	<2
13	HS20030498-04	SAMP	03-16-2020 12:00 pm	1.00	0.00 mL	29.37	013.D	Liquid	Y	<2
14	HS20030498-04	SAMP	03-16-2020 12:24 pm	10.00	0.00 mL	29.37	014.D	Liquid	Y	<2
15	HS20030498-05	SAMP	03-16-2020 12:39 pm	1.00	0.00 mL	29.34	015.D	Liquid	Y	<2
16	HS20030498-05	SAMP	03-16-2020 12:53 pm	50.00	0.00 mL	29.34	016.D	Liquid	Y	<2
17	HS20030498-06	SAMP	03-16-2020 01:03 pm	1.00	0.00 mL	29.83	017.D	Liquid	Y	<2
18	HS20030498-06	SAMP	03-16-2020 01:14 pm	100.0(	0.00 mL	29.83	018.D	Liquid	Y	<2
19	HS20030498-07	SAMP	03-16-2020 01:22 pm	1.00	0.00 mL	30.01	019.D	Liquid	Y	<2
20	HS20030498-07	SAMP	03-16-2020 01:36 pm	100.0(	0.00 mL	30.01	020.D	Liquid	Y	<2
21	RSK-CCV	CCV	03-16-2020 02:09 pm	1.00	0.00 mL	0.00 mL	021.D	Liquid	Y	NA

Chemical	Value
pH Paper	300107043-22
CCV/LC/LSD/MS/MSD	300107035-01

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\001.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 16-MAR-2020 09:25
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					AMOUNTS	
					CAL-AMT	ON-COL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.463	0.470	-0.007	9789	9.64700	10.040
2 Ethene	0.700	0.710	-0.010	10519	16.8500	17.957
3 Ethane	0.780	0.786	-0.006	12462	18.0430	17.320(M)

QC Flag Legend

M - Compound response manually integrated.

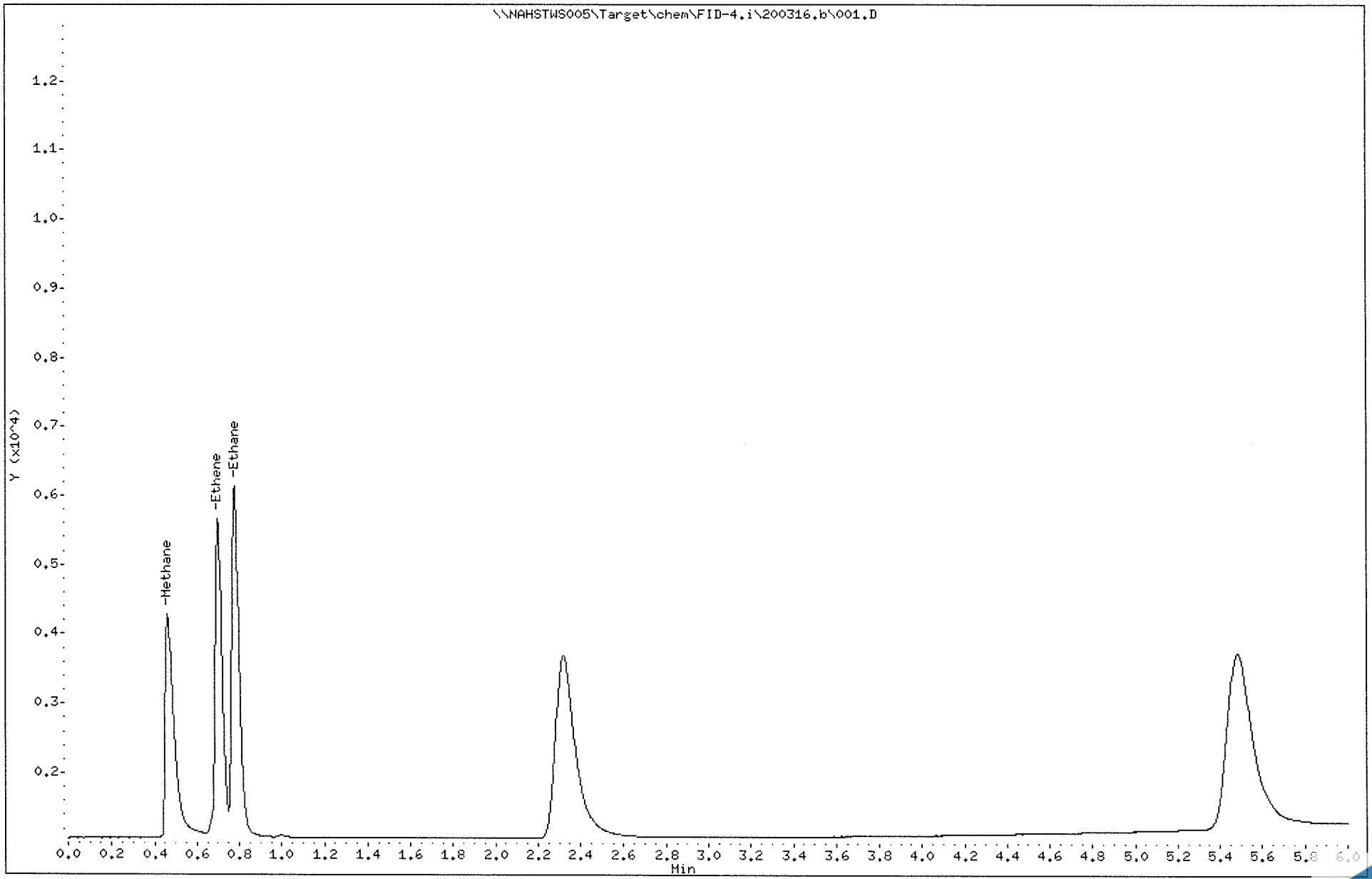
01094528

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\001.D
Date : 16-MAR-2020 09:25
Client ID: RSK-CCV
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\002.D Page 1
Report Date: 08-Apr-2020 10:36

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\002.D
Lab Smp Id: LCS-200316 Client Smp ID: LCS-200316
Inj Date : 16-MAR-2020 09:35
Operator : PL Inst ID: FID-4.i
Smp Info : LCS-200316;LCS-200316;3;;LCS
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 2 QC Sample: LCS
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.466	0.470	-0.004	9263	9.50059	9.500
2 Ethene	0.706	0.710	-0.004	9999	17.0701	17.070
3 Ethane	0.786	0.786	0.000	11529	16.0239	16.023

01094530

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\002.D

Date : 16-MAR-2020 09:35

Client ID: LCS-200316

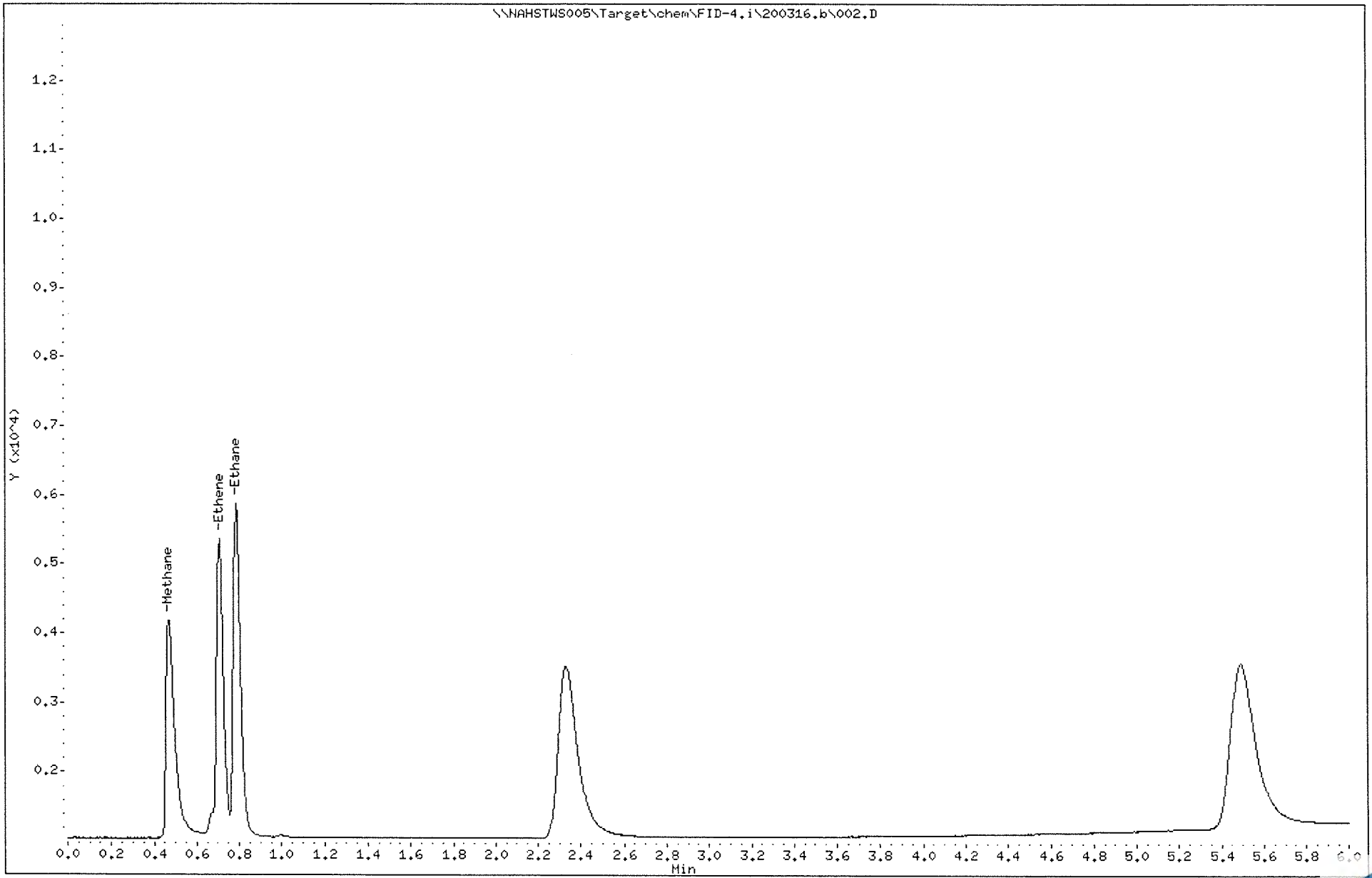
Sample Info: LCS-200316;LCS-200316;3;;LCS

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\003.D
Lab Smp Id: LCSD-200316 Client Smp ID: LCSD-200316
Inj Date : 16-MAR-2020 09:43
Operator : PL Inst ID: FID-4.i
Smp Info : LCSD-200316;LCSD-200316;3;;LCSD
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 3 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.466	0.470	-0.004	8602	8.82263	8.822
2 Ethene	0.706	0.710	-0.004	9646	16.4675	16.467
3 Ethane	0.786	0.786	0.000	11239	15.6208	15.620

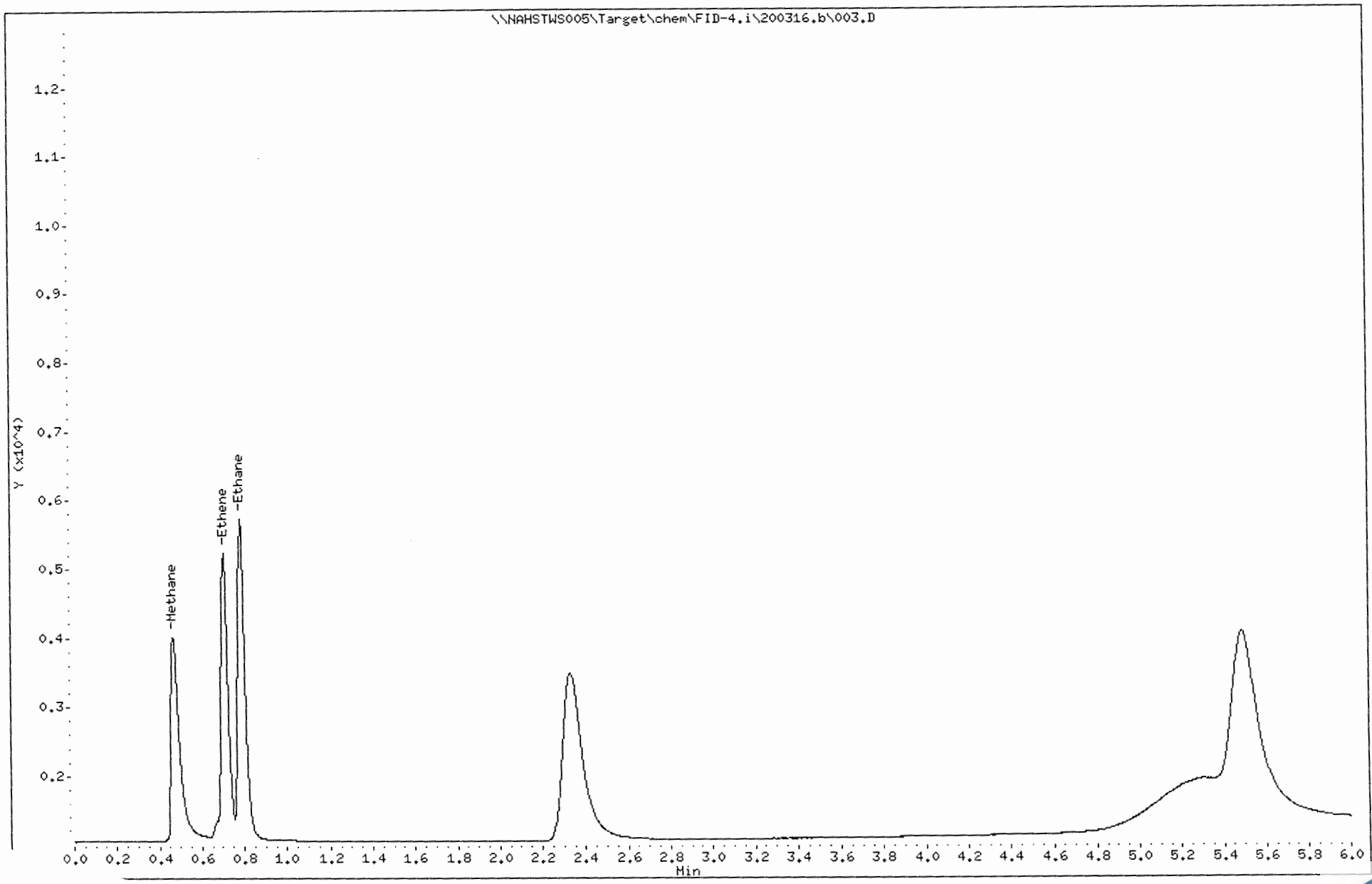
01094532

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\003.D
Date : 16-MAR-2020 09:43
Client ID: LCSD-200316
Sample Info: LCSD-200316;LCSD-200316;3;;LCSD

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\004.D Page 1
Report Date: 08-Apr-2020 10:36

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\004.D
Lab Smp Id: MBLK-200316 Client Smp ID: MBLK-200316
Inj Date : 16-MAR-2020 10:02
Operator : PL Inst ID: FID-4.i
Smp Info : MBLK-200316;MBLK-200316;3;;BLANK
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 4 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)

01094534

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\004.D

Date : 16-MAR-2020 10:02

Client ID: MBLK-200316

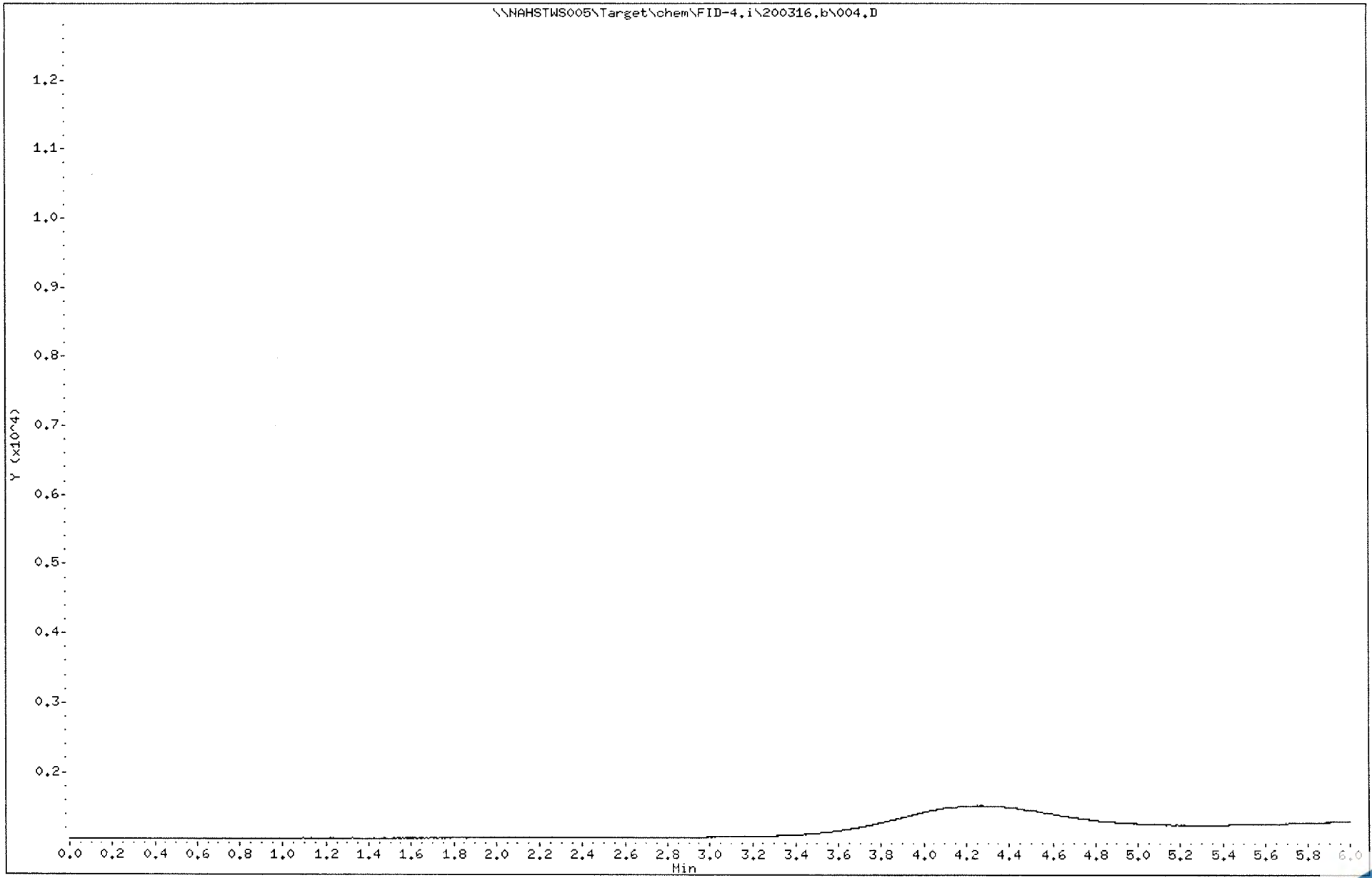
Instrument: FID-4.i

Sample Info: MBLK-200316;MBLK-200316;3;;BLANK

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\009.D Page 1
Report Date: 08-Apr-2020 10:37

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\009.D
Lab Smp Id: HS20030383-02DUP Client Smp ID: HS20030383-02DUP
Inj Date : 16-MAR-2020 11:13
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030383-02DUP;HS20030383-02DUP
Misc Info : ;1;0;4X
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 8
Dil Factor: 4.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.470	0.470	0.000	20400	20.9232	83.692
2 Ethene	0.710	0.710	0.000	13995	23.8920	95.568(M)
3 Ethane	0.786	0.786	0.000	569	0.79084	3.163(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

01094536

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\009.D

Date : 16-MAR-2020 11:13

Client ID: HS20030383-02DUP

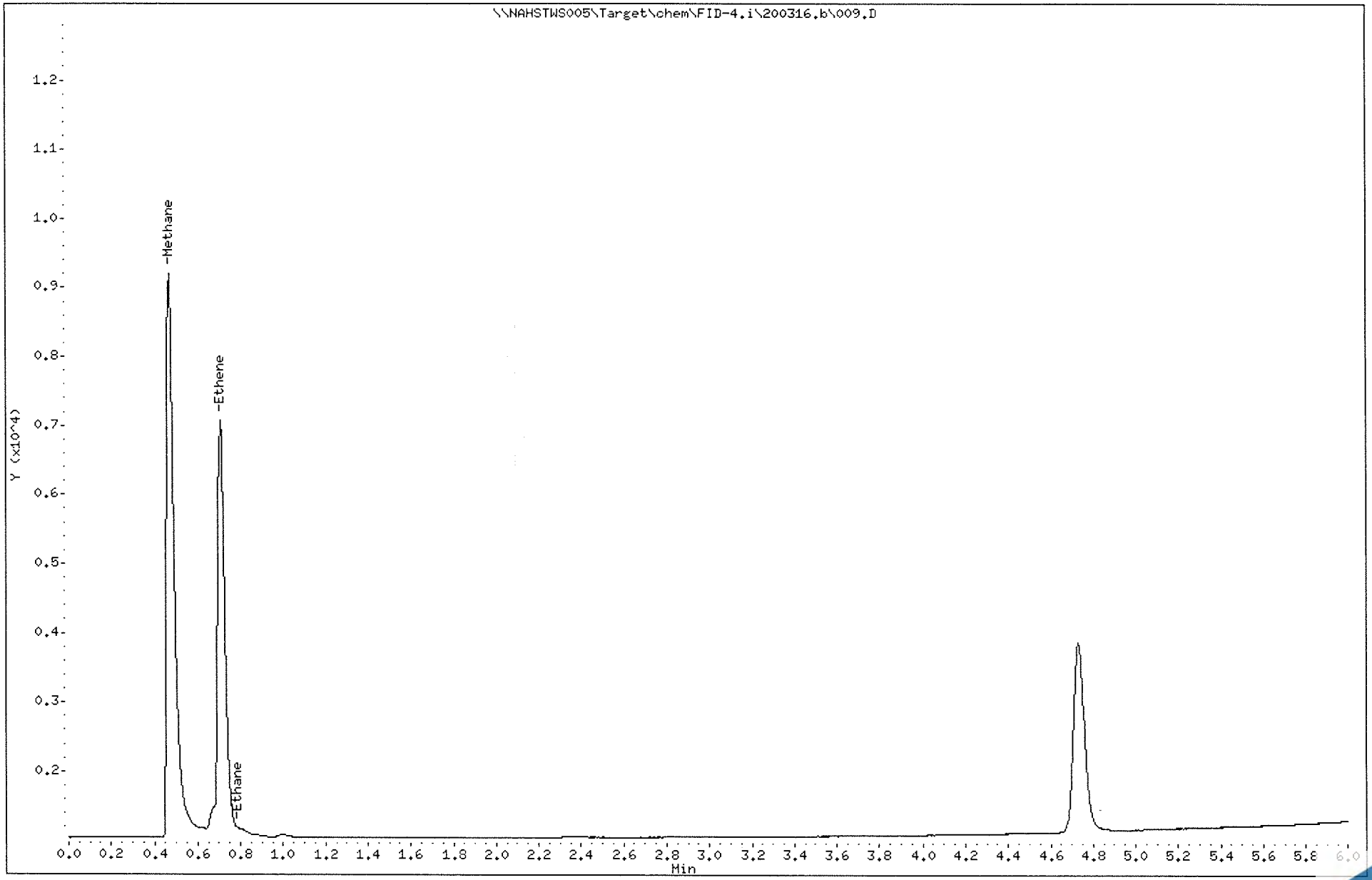
Sample Info: HS20030383-02DUP;HS20030383-02DUP

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL

Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\011.D Page 1
Report Date: 08-Apr-2020 10:36

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\011.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 16-MAR-2020 11:32
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 10 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

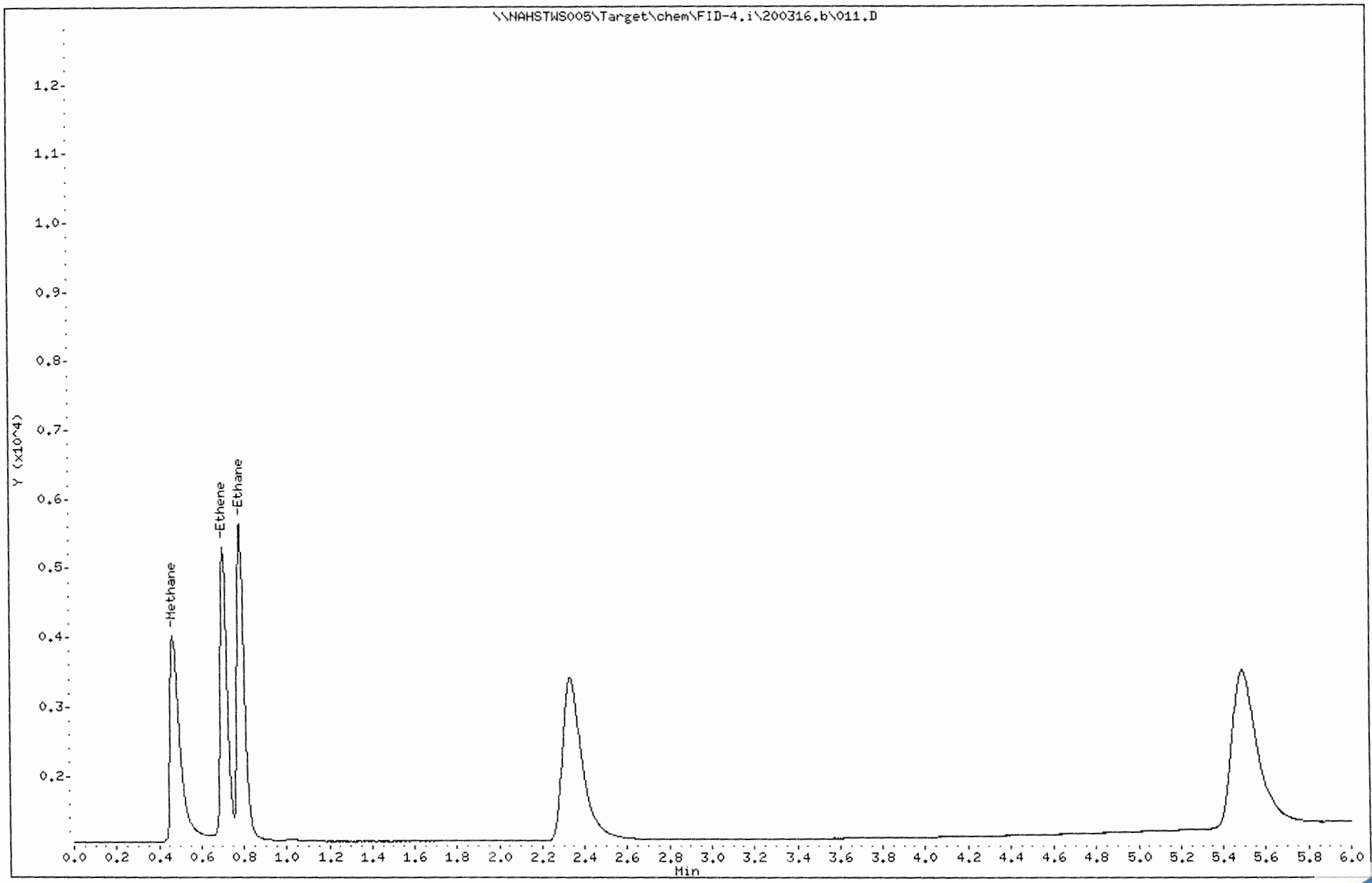
Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.466	0.470	-0.004	9866	9.64700	10.119
2 Ethene	0.706	0.710	-0.004	9552	16.8500	16.307
3 Ethane	0.786	0.786	0.000	10969	18.0430	15.245

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\011.D
Date : 16-MAR-2020 11:32
Client ID: RSK-CCV
Sample Info: RSK-CCV;RSK-CCV;2;4

Instrument: FID-4.i
Operator: PL
Column diameter: 0.53

Column phase: Rtx-PLOT



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\013.D
Lab Smp Id: HS20030498-04 Client Smp ID: HS20030498-04
Inj Date : 16-MAR-2020 12:00
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030498-04;HS20030498-04
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.470	0.470	0.000	126320	129.560	129.559(AM)
2 Ethene	0.703	0.710	-0.007	6398	10.9226	10.922(M)
3 Ethane	0.780	0.786	-0.006	862	1.19807	1.198(M)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

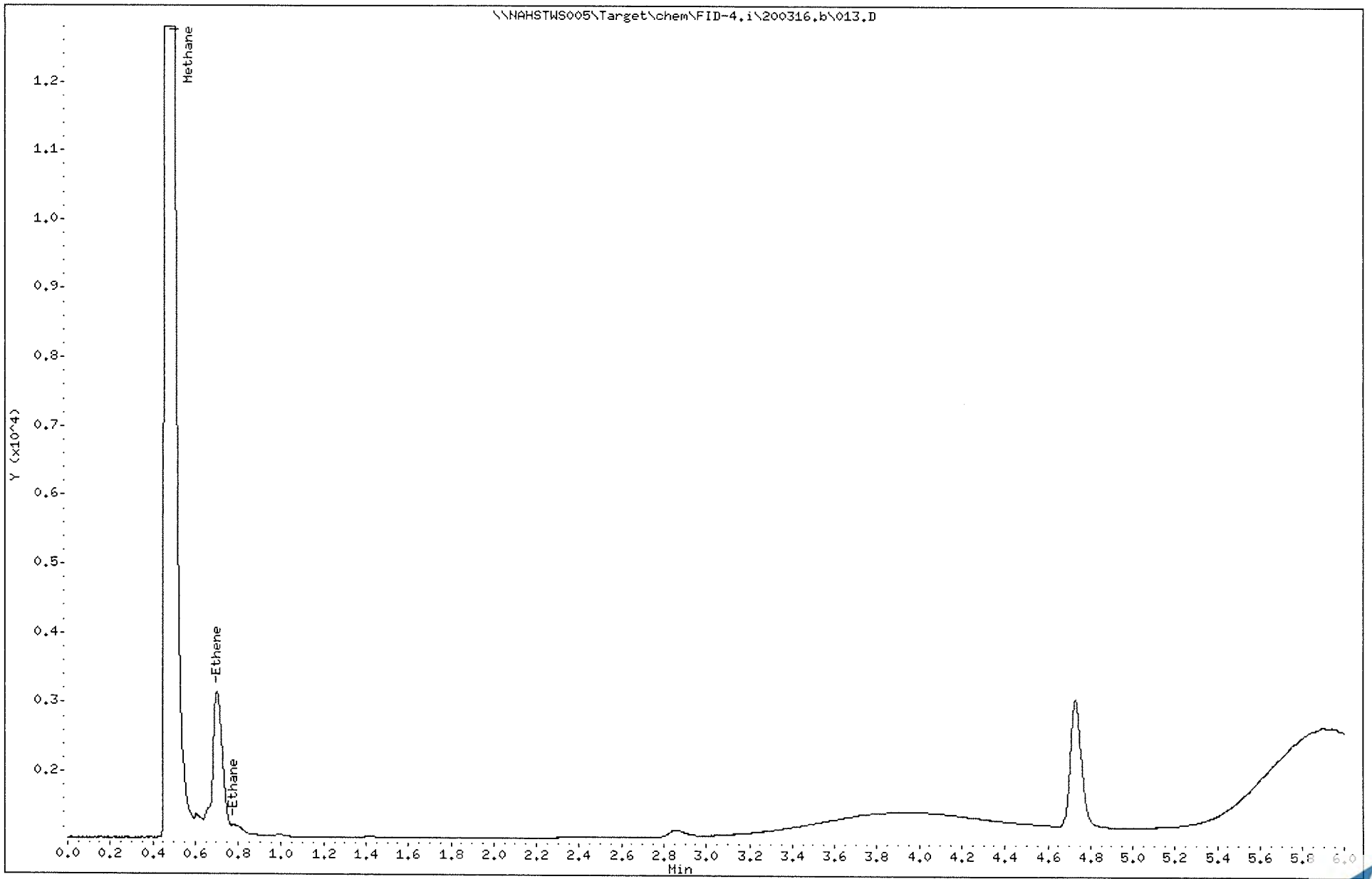
01094540

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\013.D
Date : 16-MAR-2020 12:00
Client ID: HS20030498-04
Sample Info: HS20030498-04;HS20030498-04

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\014.D
Lab Smp Id: HS20030498-04 Client Smp ID: HS20030498-04
Inj Date : 16-MAR-2020 12:24
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030498-04;HS20030498-04
Misc Info : ;1;0;10
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 14
Dil Factor: 10.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

					CONCENTRATIONS	
					ON-COLUMN	FINAL
Compounds	RT	EXP RT	DLT RT	RESPONSE	(ug/L)	(ug/L)
1 Methane	0.466	0.470	-0.004	13608	13.9570	139.570
2 Ethene	0.703	0.710	-0.007	971	1.65767	16.576(M)
3 Ethane	0.786	0.786	0.000	218	0.30299	3.029(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

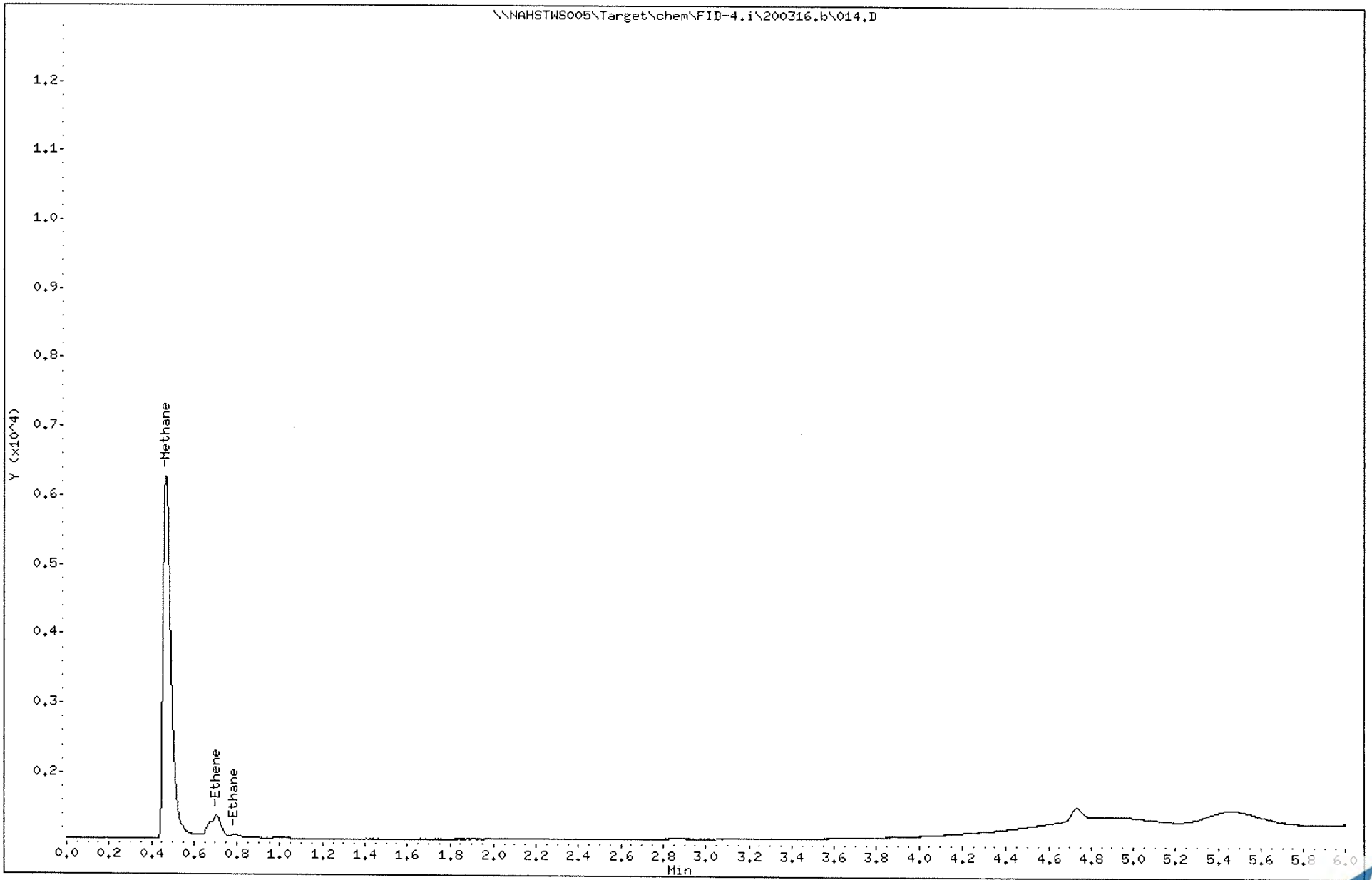
01094542

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\014.D
Date : 16-MAR-2020 12:24
Client ID: HS20030498-04
Sample Info: HS20030498-04;HS20030498-04

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\015.D Page 1
Report Date: 08-Apr-2020 10:36

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\015.D
Lab Smp Id: HS20030498-05 Client Smp ID: HS20030498-05
Inj Date : 16-MAR-2020 12:39
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030498-05;HS20030498-05
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.466	0.470	-0.004	602269	617.717	617.716(AM)
2 Ethene	0.700	0.710	-0.010	11079	18.9139	18.913(M)
3 Ethane	0.776	0.786	-0.010	1555	2.16125	2.161(M)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

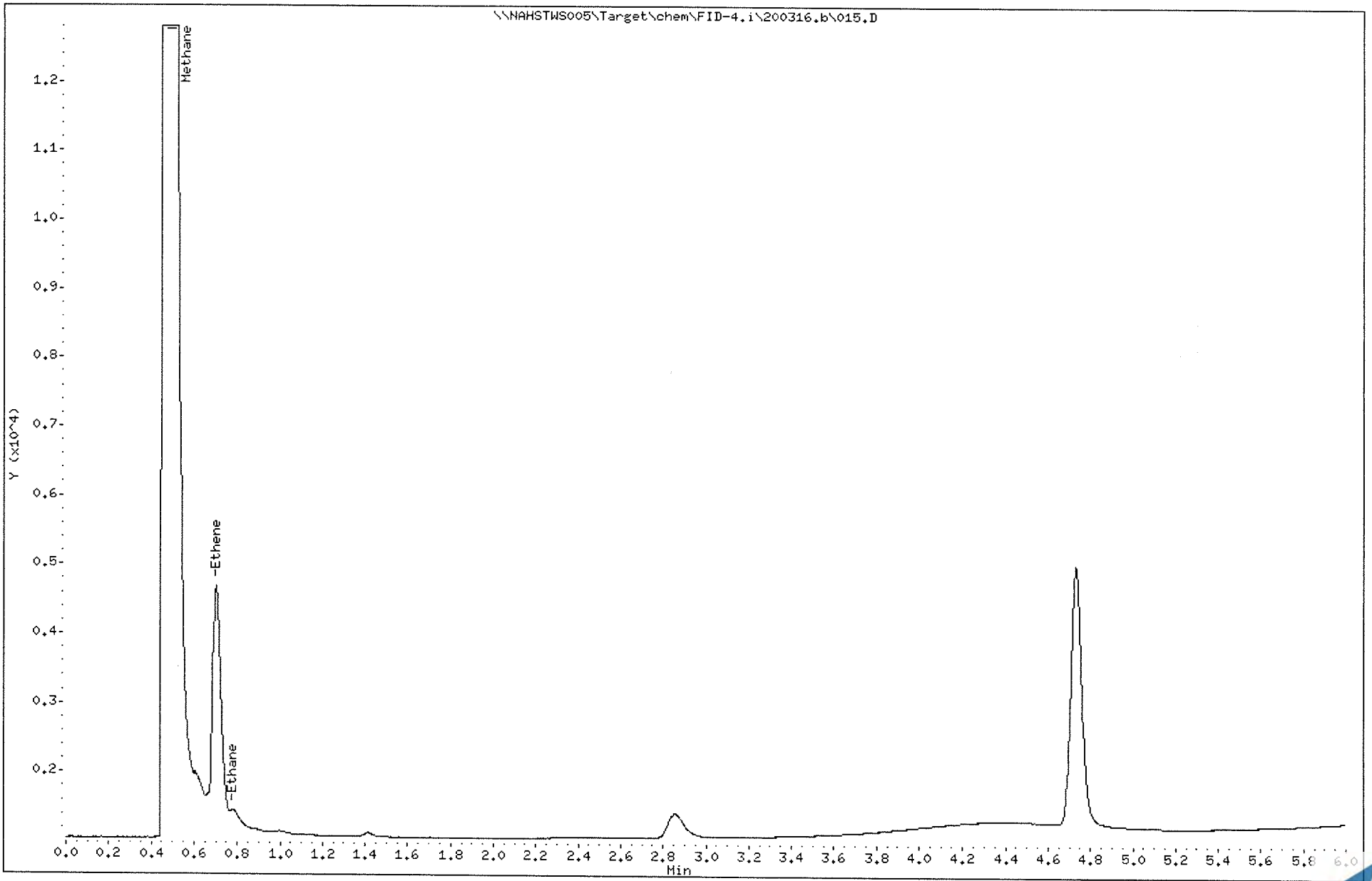
01094544

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\015.D
Date : 16-MAR-2020 12:39
Client ID: HS20030498-05
Sample Info: HS20030498-05;HS20030498-05

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\016.D
Lab Smp Id: HS20030498-05 Client Smp ID: HS20030498-05
Inj Date : 16-MAR-2020 12:53
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030498-05;HS20030498-05
Misc Info : ;1;0;50
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 16
Dil Factor: 50.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.476	0.470	0.006	14605	14.9796	748.980
2 Ethene	0.706	0.710	-0.004	1009	1.72255	86.127(M)
3 Ethane	0.796	0.786	0.010	181	0.25157	12.578(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

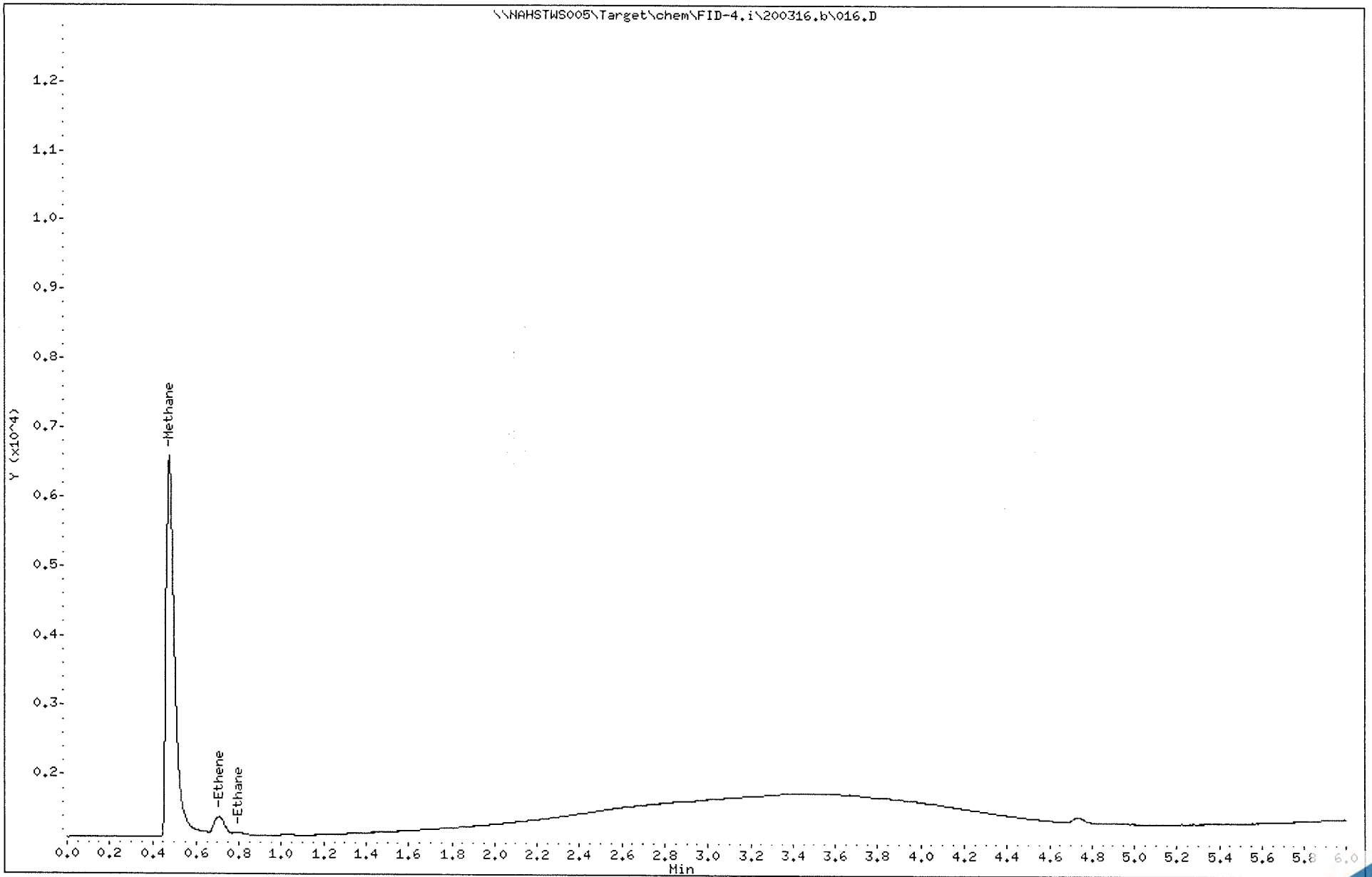
01094546

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\016.D
Date : 16-MAR-2020 12:53
Client ID: HS20030498-05
Sample Info: HS20030498-05;HS20030498-05

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\017.D Page 1
Report Date: 08-Apr-2020 10:36

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\017.D
Lab Smp Id: HS20030498-06 Client Smp ID: HS20030498-06
Inj Date : 16-MAR-2020 13:03
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030498-06;HS20030498-06
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.470	0.470	0.000	1148199	1177.65	1177.649(AM)
2 Ethene	0.706	0.710	-0.004	5979	10.2072	10.207
3 Ethane	0.786	0.786	0.000	3506	4.87290	4.872(M)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

01094548

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\017.D

Page 2

Date : 16-MAR-2020 13:03

Client ID: HS20030498-06

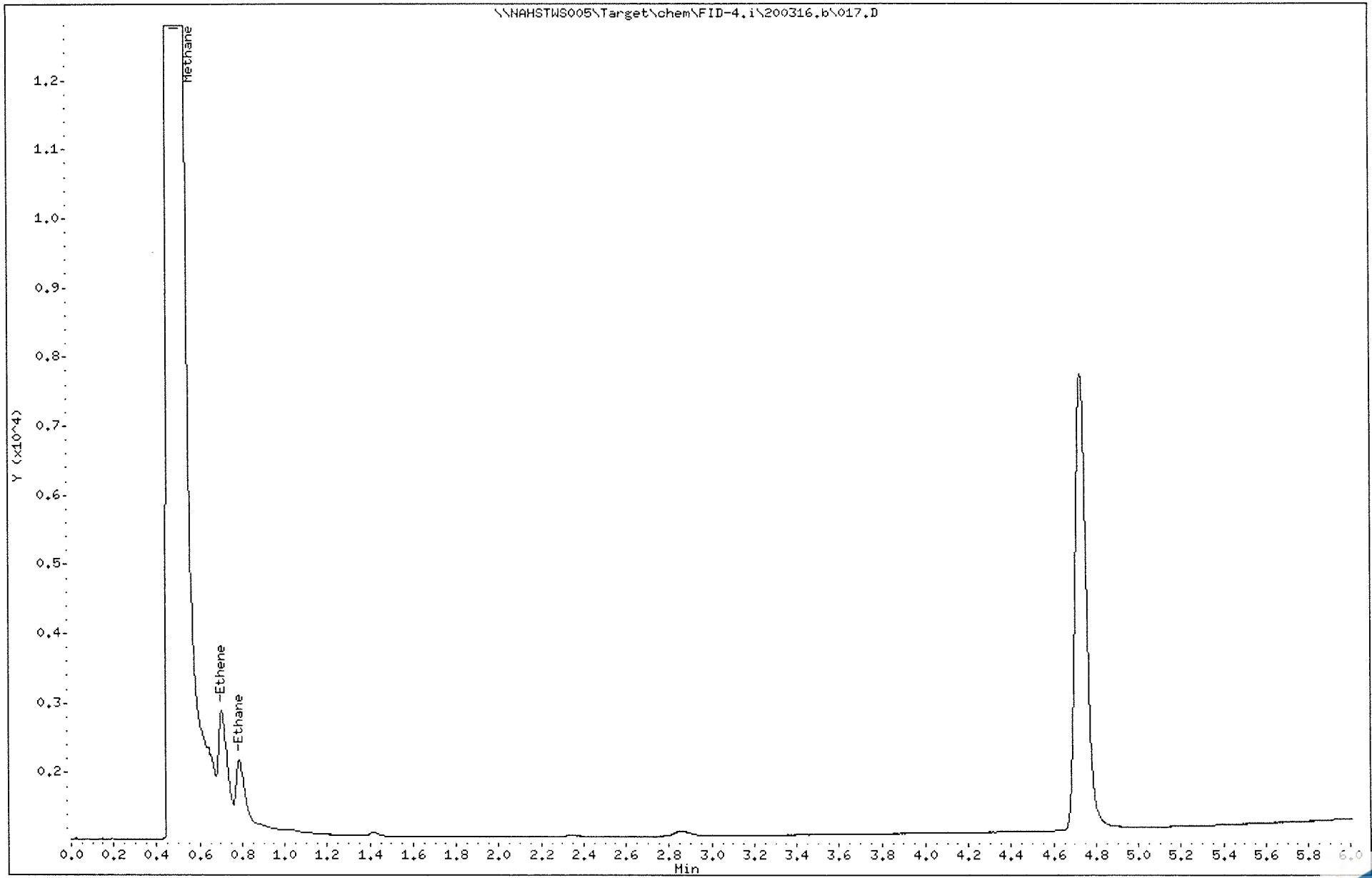
Instrument: FID-4.i

Sample Info: HS20030498-06;HS20030498-06

Operator: PL

Column phase: Rtx-PLOT

Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\018.D Page 1
Report Date: 08-Apr-2020 10:36

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\018.D
Lab Smp Id: HS20030498-06 Client Smp ID: HS20030498-06
Inj Date : 16-MAR-2020 13:14
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030498-06;HS20030498-06
Misc Info : ;1;0;100
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 18
Dil Factor: 100.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)
1 Methane	0.476	0.470	0.006	11841	12.1447	1214.471(M)
2 Ethene	0.670	0.710	-0.040	658	1.12333	112.332(M)
3 Ethane	0.810	0.786	0.024	156	0.21682	21.682(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

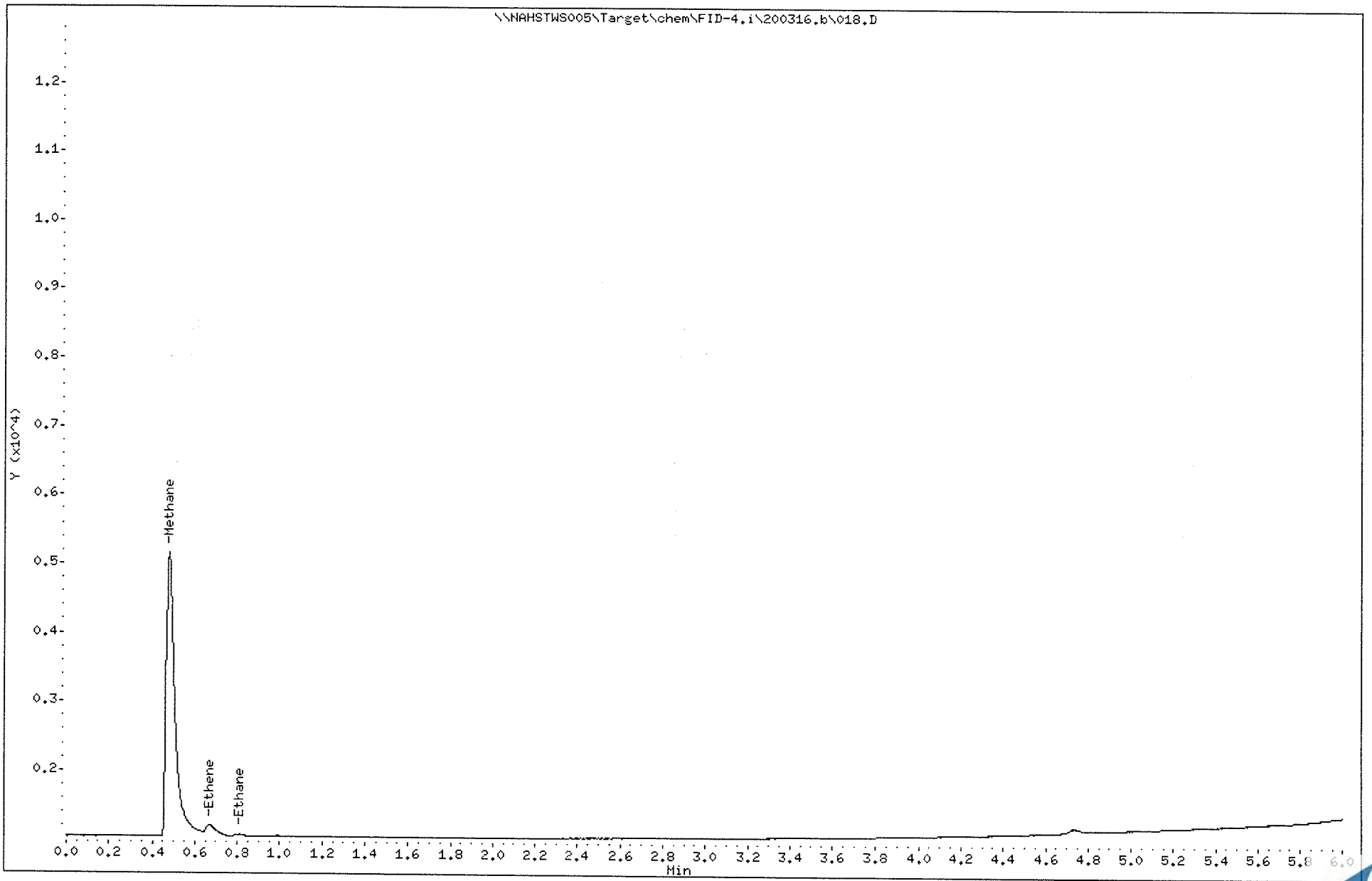
01094550

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\018.D
Date : 16-MAR-2020 13:14
Client ID: HS20030498-06
Sample Info: HS20030498-06;HS20030498-06

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\019.D
Lab Smp Id: HS20030498-07 Client Smp ID: HS20030498-07
Inj Date : 16-MAR-2020 13:22
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030498-07;HS20030498-07
Misc Info : ;1;0;1
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.466	0.470	-0.004	1217269	1248.49	1248.490(AM)
2 Ethene	0.706	0.710	-0.004	5765	9.84191	9.841
3 Ethane	0.790	0.786	0.004	3585	4.98270	4.982(M)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

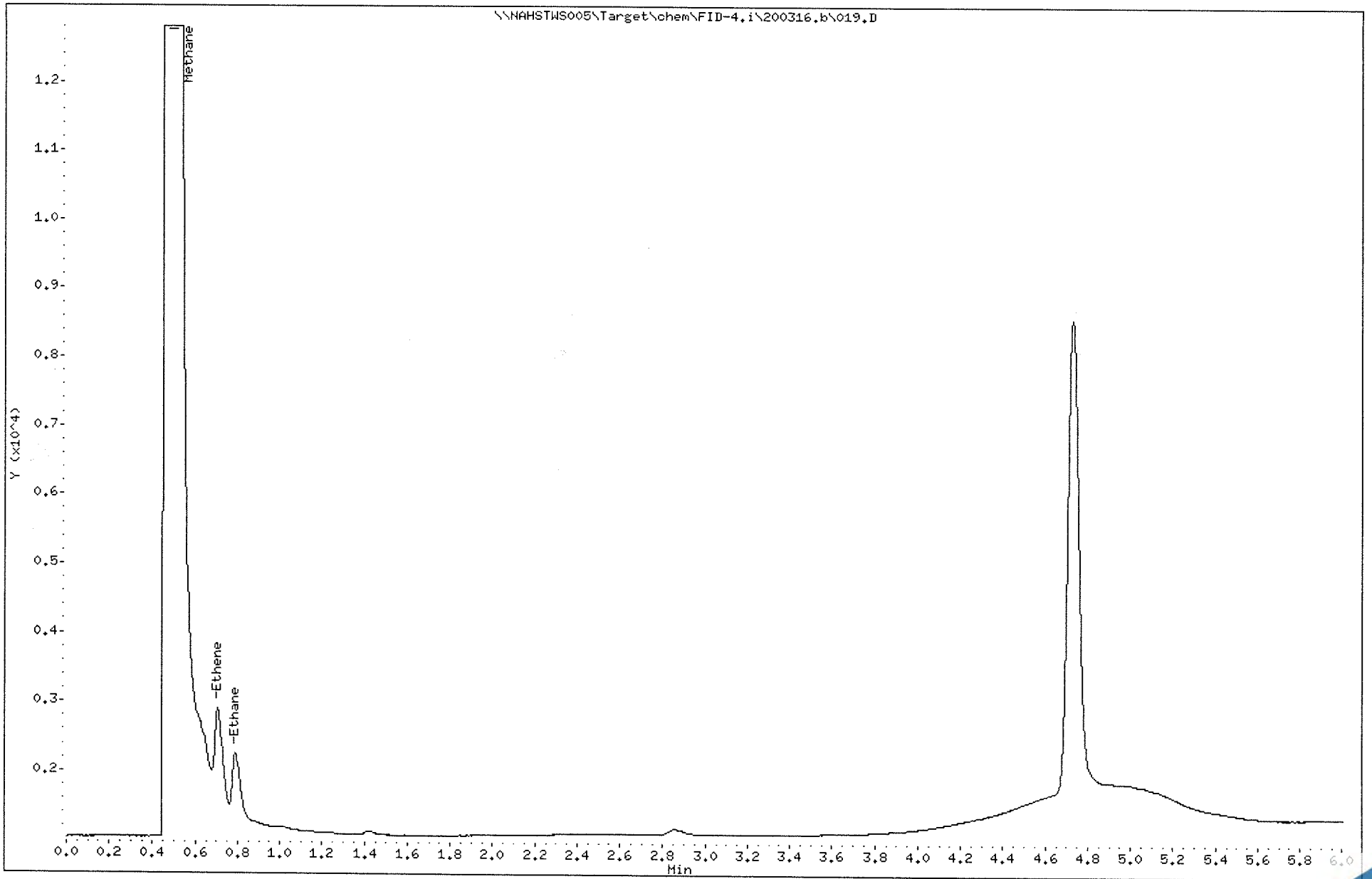
01094552

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\019.D
Date : 16-MAR-2020 13:22
Client ID: HS20030498-07
Sample Info: HS20030498-07;HS20030498-07

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\020.D Page 1
Report Date: 08-Apr-2020 10:36

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\020.D
Lab Smp Id: HS20030498-07 Client Smp ID: HS20030498-07
Inj Date : 16-MAR-2020 13:36
Operator : PL Inst ID: FID-4.i
Smp Info : HS20030498-07;HS20030498-07
Misc Info : ;1;0;100
Comment :
Method : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 20
Dil Factor: 100.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14
Processing Host: ALSHSW7104

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
1 Methane	0.476	0.470	0.006	12529	12.8504	1285.035
2 Ethene	0.676	0.710	-0.034	1009	1.72255	172.254(M)
3 Ethane	0.803	0.786	0.017	184	0.25574	25.573(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

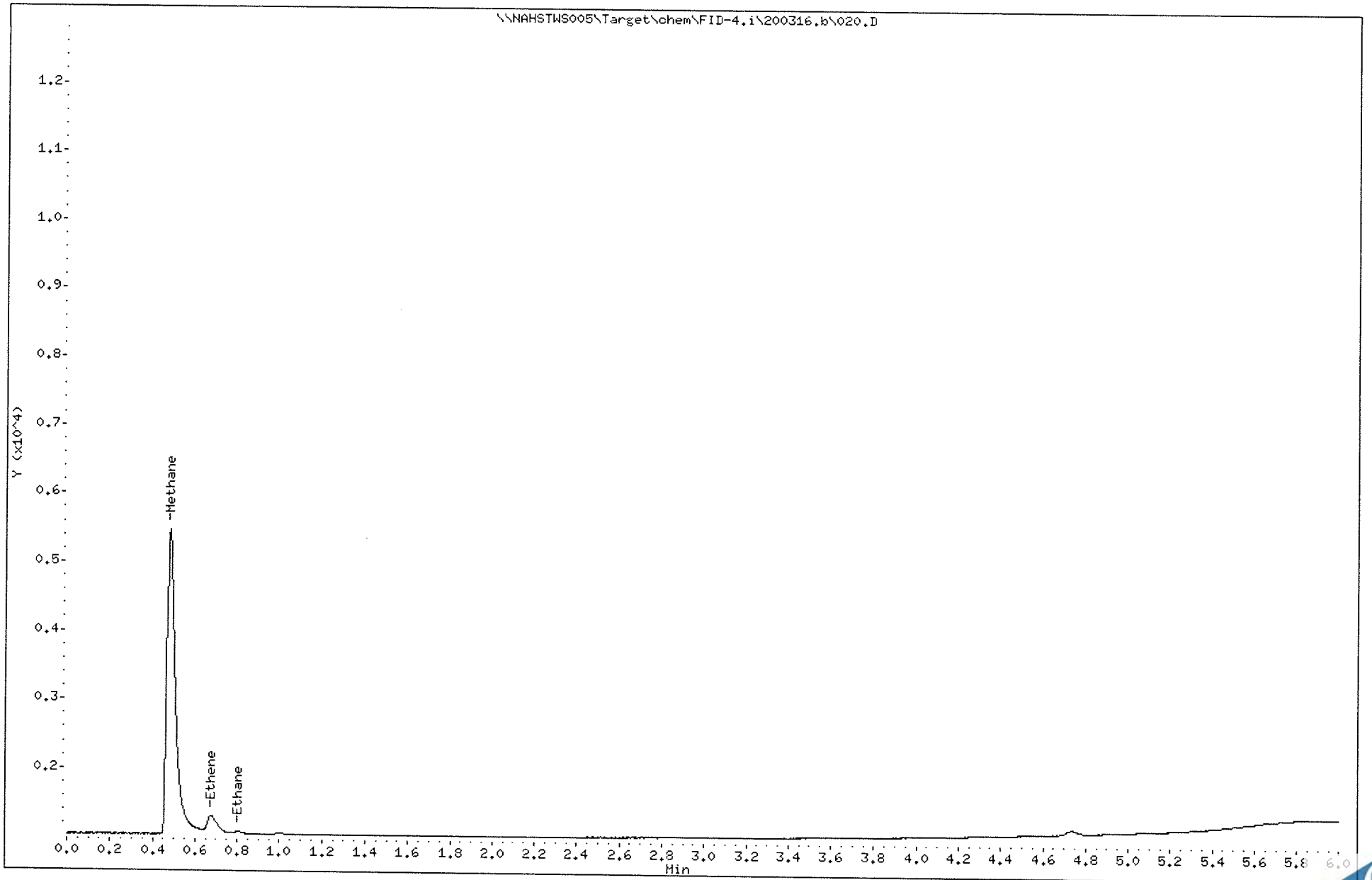
01094554

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\020.D
Date : 16-MAR-2020 13:36
Client ID: HS20030498-07
Sample Info: HS20030498-07;HS20030498-07

Column phase: Rtx-PLOT

Instrument: FID-4.i

Operator: PL
Column diameter: 0.53



Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\021.D Page 1
Report Date: 08-Apr-2020 10:36

ALS Laboratory Group

Dissolved Gases Analysis

Data file : \\NAHSTWS005\Target\chem\FID-4.i\200316.b\021.D
Lab Smp Id: RSK-CCV Client Smp ID: RSK-CCV
Inj Date : 16-MAR-2020 14:09
Operator : PL Inst ID: FID-4.i
Smp Info : RSK-CCV;RSK-CCV;2;4
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\FID-4.i\200316.b\RSKNI3.m
Meth Date : 30-Mar-2020 08:38 FID-4.i Quant Type: ESTD
Cal Date : 24-JAN-2017 10:15 Cal File: 004.D
Als bottle: 21 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: Falcon Compound Sublist: RSK175.sub
Target Version: 4.14

Concentration Formula: Amt * DF * CpndVariable
Cpnd Variable Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
1 Methane	0.470	0.470	0.000	8468	9.64700	8.685
2 Ethene	0.710	0.710	0.000	8939	16.8500	15.260
3 Ethane	0.786	0.786	0.000	11032	18.0430	15.333(M)

QC Flag Legend

M - Compound response manually integrated.

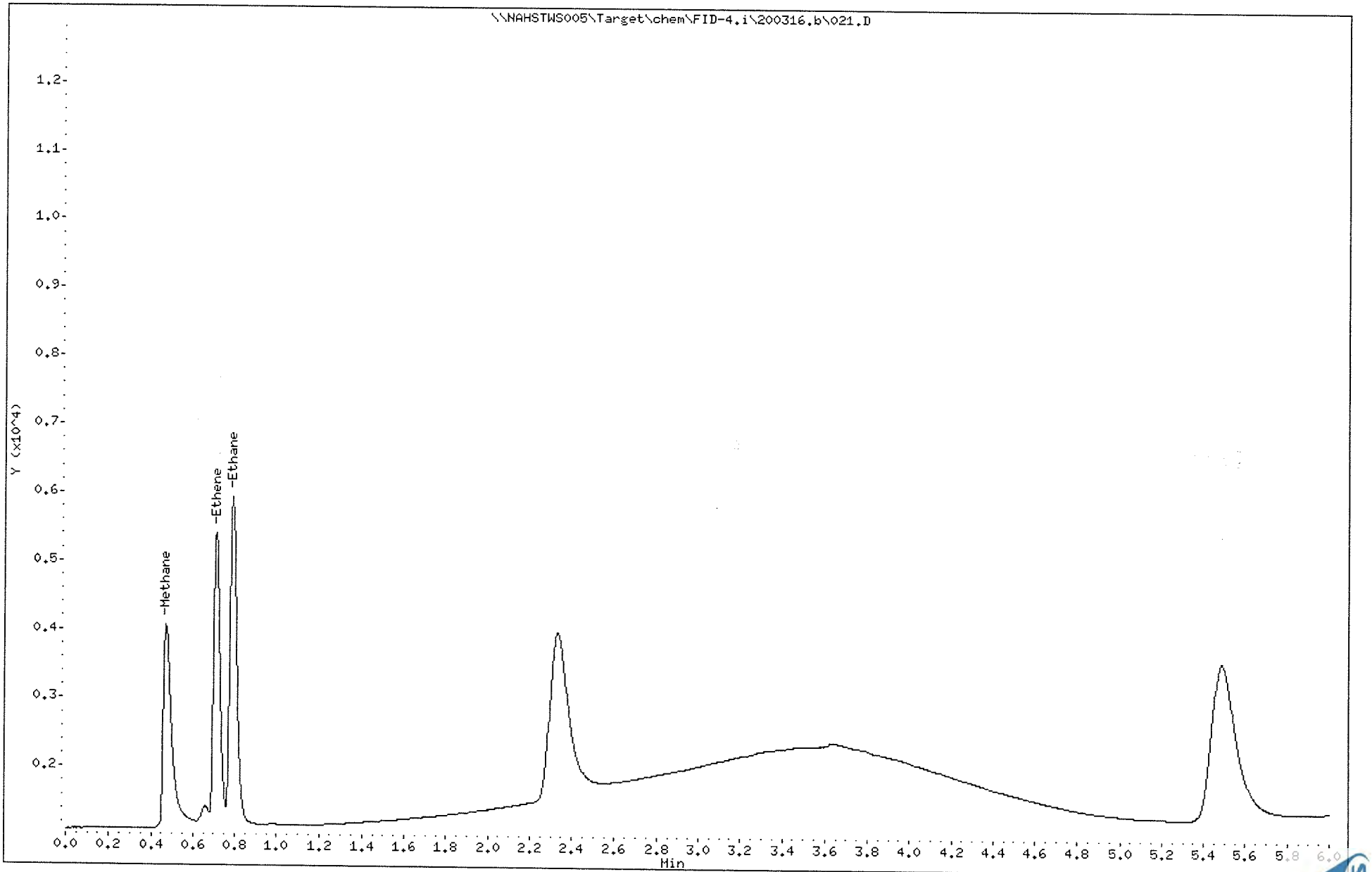
01094556

Data File: \\NAHSTWS005\Target\chem\FID-4.i\200316.b\021.D
Date : 16-MAR-2020 14:09
Client ID: RSK-CCV
Sample Info: RSK-CCV;RSK-CCV;2;4

Column phase: Rtx-PLOT

Instrument: FID-4.i

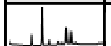
Operator: PL
Column diameter: 0.53



HS20030498 Wet Chem Raw Data (IC)

ALS WO# HS20030498

Sequence: 030820
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	STD1	2970209205	Calibration	GA1	1.0000	1	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 7:39:11 PM -06:00
	STD2	NEW PRGM	Calibration	GA2	1.0000	2	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 7:57:16 PM -06:00
	STD3		Calibration	GA3	1.0000	3	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:15:24 PM -06:00
	STD4		Calibration	GA4	1.0000	4	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:33:31 PM -06:00
	STD5	NO2/PO4	Calibration	GA5	1.0000	5	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:51:36 PM -06:00
	STD6	MAX 10PPM	Calibration	GA6	1.0000	6	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 9:09:41 PM -06:00
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	ICB		Unknown	GA8	1.0000		Anions Prog	Anions Proce	5.0	Finished	2/5/2020 9:45:53 PM -06:00
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	CCB		Unknown	BA6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/12/2020 6:19:00 PM -05:00
	WBLKW1-031220	NEW BATCH 03.1	Unknown	GE6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/12/2020 9:20:15 PM -05:00
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	CCV		Unknown	BA5	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 1:15:40 AM -05:00
	CCB		Unknown	BA6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 1:33:46 AM -05:00
	HS20030498-04DF50		Unknown	RD5	50.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 2:28:05 AM -05:00
	HS20030498-04DF10		Unknown	RD6	10.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 2:46:10 AM -05:00
	HS20030498-05DF5		Unknown	RD7	5.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 3:04:18 AM -05:00
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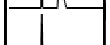	HS20030498-06DF5		Unknown	RE1	5.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 3:40:30 AM -05:00
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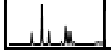
	HS20030498-07DF5		Unknown	RE3	5.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 4:16:42 AM -05:00
	HS20030498-07		Unknown	RE4	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 4:34:48 AM -05:00

Sequence: 030820
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	CCV1		Unknown	BA7	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 4:52:54 AM -05:00
	CCB		Unknown	BA8	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 5:10:59 AM -05:00
	HS20030220-01		Unknown	GA1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 6:41:27 AM -05:00
	HS20030220-01MS		Unknown	GA2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 6:59:33 AM -05:00
	HS20030220-01MSD		Unknown	GA3	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 7:17:38 AM -05:00
	HS20030221-01		Unknown	GA4	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 7:35:45 AM -05:00
	HS20030221-01MS		Unknown	GA5	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 7:53:53 AM -05:00
	HS20030221-01MSD		Unknown	GA6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 8:12:00 AM -05:00
	CCB		Unknown	BA6	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 11:23:19 AM -05:00
	CCV(GR PREP)		Unknown	BE3	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/13/2020 11:42:07 AM -05:00

Sequence: 030820
Injection #6: STD6

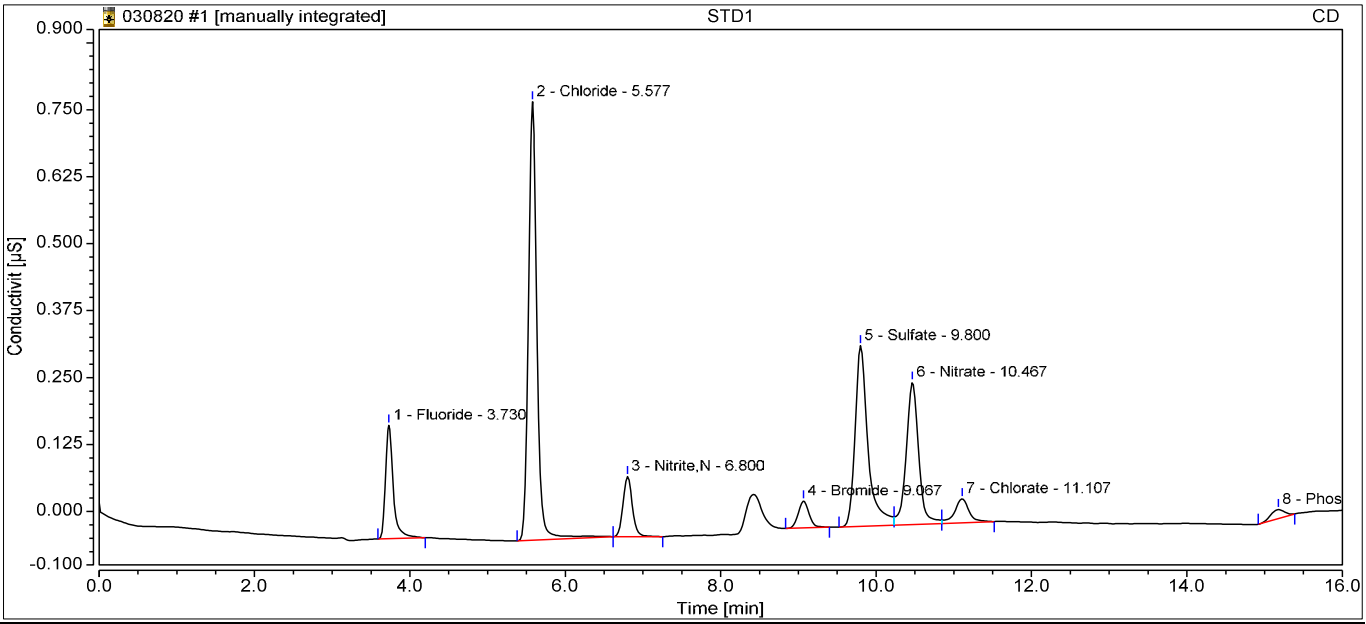
Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*Fluoride*	*Lin, WithOffset, 1/*	*Area*	*6*	*13.4314*	*0.99915*	*-0.0083*	*0.3414*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	2.2020	0.99998	-0.0141	0.2320	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	5	19.9747	0.99771	-0.0251	0.4962	0.0000
4	Bromide	Lin, WithOffset, 1/	Area	6	12.1436	0.99933	-0.0033	0.0991	0.0000
5	Sulfate	Lin, WithOffset, 1/	Area	6	4.2312	0.99991	-0.0170	0.1679	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	2.3081	0.99997	-0.0076	0.5843	0.0000
7	Chlorate	Lin, WithOffset, 1/	Area	6	9.7729	0.99945	0.0017	0.0949	0.0000
8	Phosphate	Lin, WithOffset, 1/	Area	5	18.6678	0.99857	-0.0214	0.2119	0.0000
Maximum					**19.9747**	0.99998			
Minimum					2.2020	**0.99771**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:39**	*Sample Weight:*	**1.0000**

Run Time:



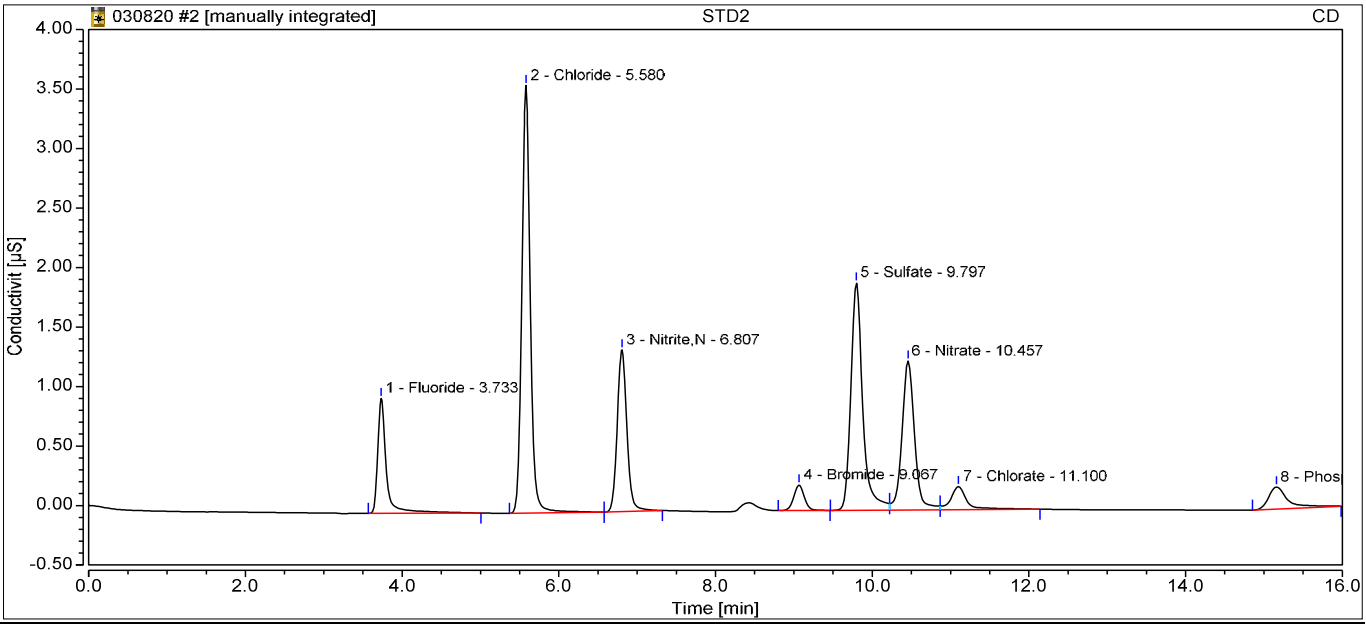
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.024	0.0955	0.0955	1.0000
2	5.58	Chloride	BMB	0.103	0.5065	0.5065	1.0000
3	6.80	Nitrite,N	BMB	0.016	0.0821	0.0821	1.0000
4	9.07	Bromide	BMB	0.008	0.1156	0.1156	1.0000
5	9.80	Sulfate	BM	0.065	0.4885	0.4885	1.0000
6	10.47	Nitrate	M	0.049	0.0974	0.0974	1.0000
7	11.11	Chlorate	MB	0.010	0.0834	0.0834	1.0000
8	15.18	Phosphate	BMB*	0.003	0.1173	0.1173	1.0000
Total:			**0.000**	**0.279**		**1.59**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:57**	*Sample Weight:*	**1.0000**

Run Time:



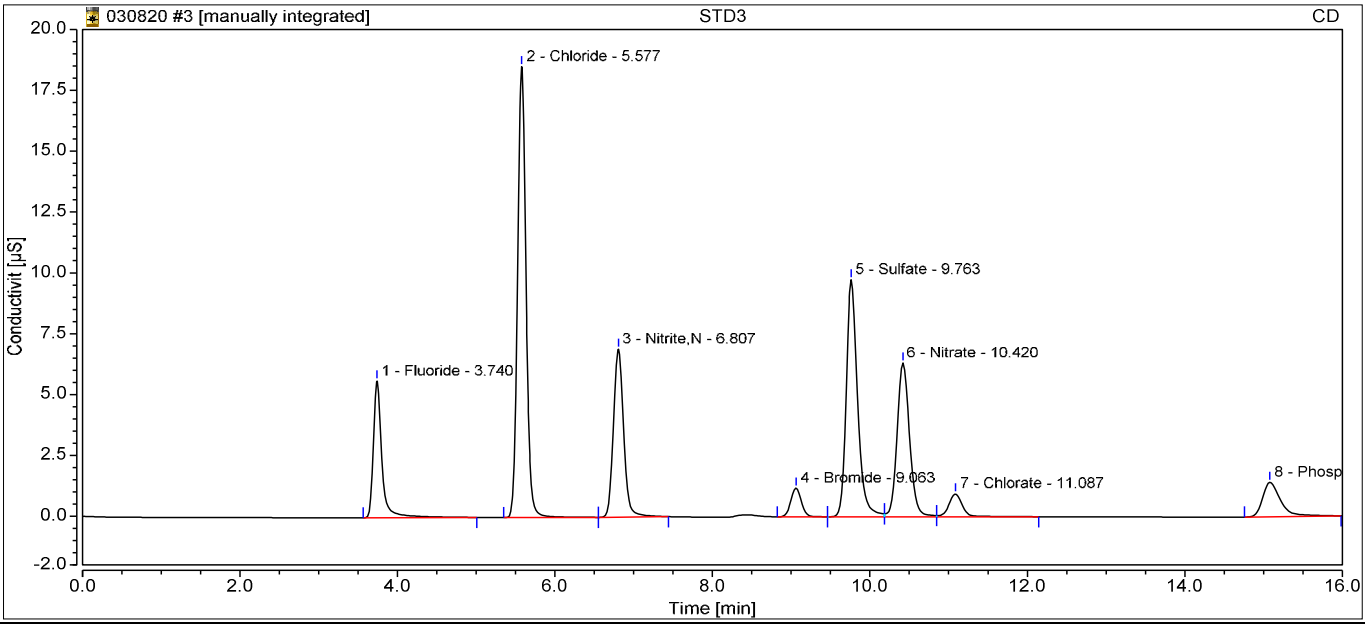
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.123	0.3833	0.3833	1.0000
2	5.58	Chloride	BMb*	0.449	1.9963	1.9963	1.0000
3	6.81	Nitrite,N	bMB*	0.194	0.4423	0.4423	1.0000
4	9.07	Bromide	BMB	0.034	0.3722	0.3722	1.0000
5	9.80	Sulfate	BM	0.335	2.0973	2.0973	1.0000
6	10.46	Nitrate	M	0.232	0.4103	0.4103	1.0000
7	11.10	Chlorate	MB	0.047	0.4759	0.4759	1.0000
8	15.16	Phosphate	BMB	0.053	0.3518	0.3518	1.0000
Total:			**0.000**	**1.467**		**6.53**	

3 STD3

Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:15**	*Sample Weight:*	**1.0000**

Run Time:



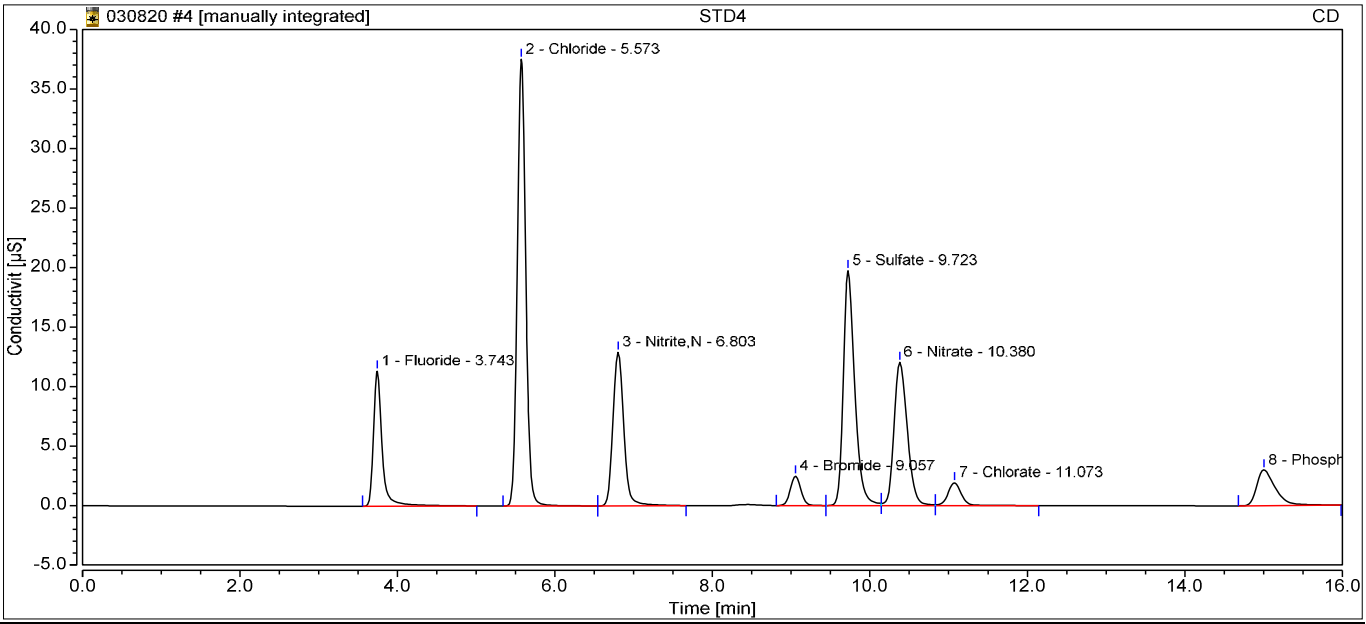
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.701	2.0769	2.0769	1.0000
2	5.58	Chloride	BMb*	2.284	9.9073	9.9073	1.0000
3	6.81	Nitrite,N	bMB*	1.029	2.1245	2.1245	1.0000
4	9.06	Bromide	BM	0.182	1.8657	1.8657	1.0000
5	9.76	Sulfate	M	1.624	9.7730	9.7730	1.0000
6	10.42	Nitrate	M	1.160	1.9980	1.9980	1.0000
7	11.09	Chlorate	MB	0.189	1.9689	1.9689	1.0000
8	15.08	Phosphate	BMB	0.374	1.8664	1.8664	1.0000
Total:			**0.000**	**7.542**		**31.58**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:33**	*Sample Weight:*	**1.0000**

Run Time:



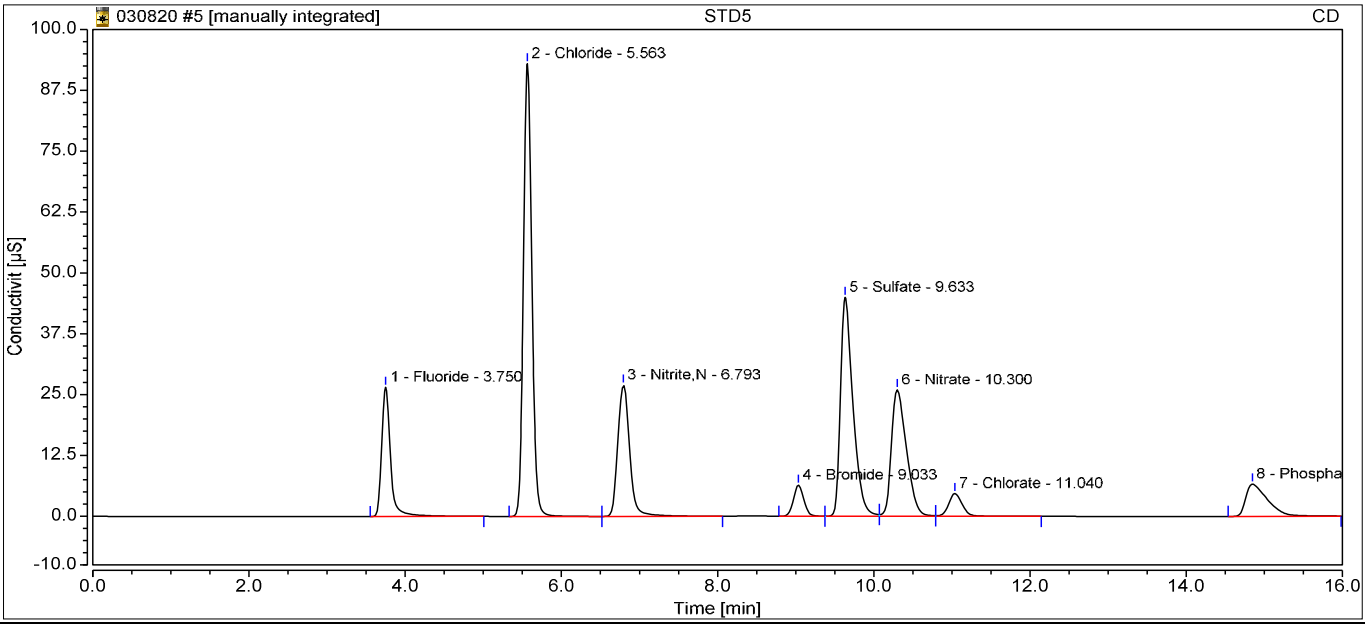
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.428	4.2080	4.2080	1.0000
2	5.57	Chloride	BMb*	4.627	20.0069	20.0069	1.0000
3	6.80	Nitrite,N	bMB*	2.046	4.1745	4.1745	1.0000
4	9.06	Bromide	BM	0.382	3.8871	3.8871	1.0000
5	9.72	Sulfate	M	3.337	19.9713	19.9713	1.0000
6	10.38	Nitrate	M	2.343	4.0228	4.0228	1.0000
7	11.07	Chlorate	MB	0.380	3.9830	3.9830	1.0000
8	15.00	Phosphate	BMB	0.824	3.9874	3.9874	1.0000
Total:			**0.000**	**15.366**		**64.24**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:51**	*Sample Weight:*	**1.0000**

Run Time:



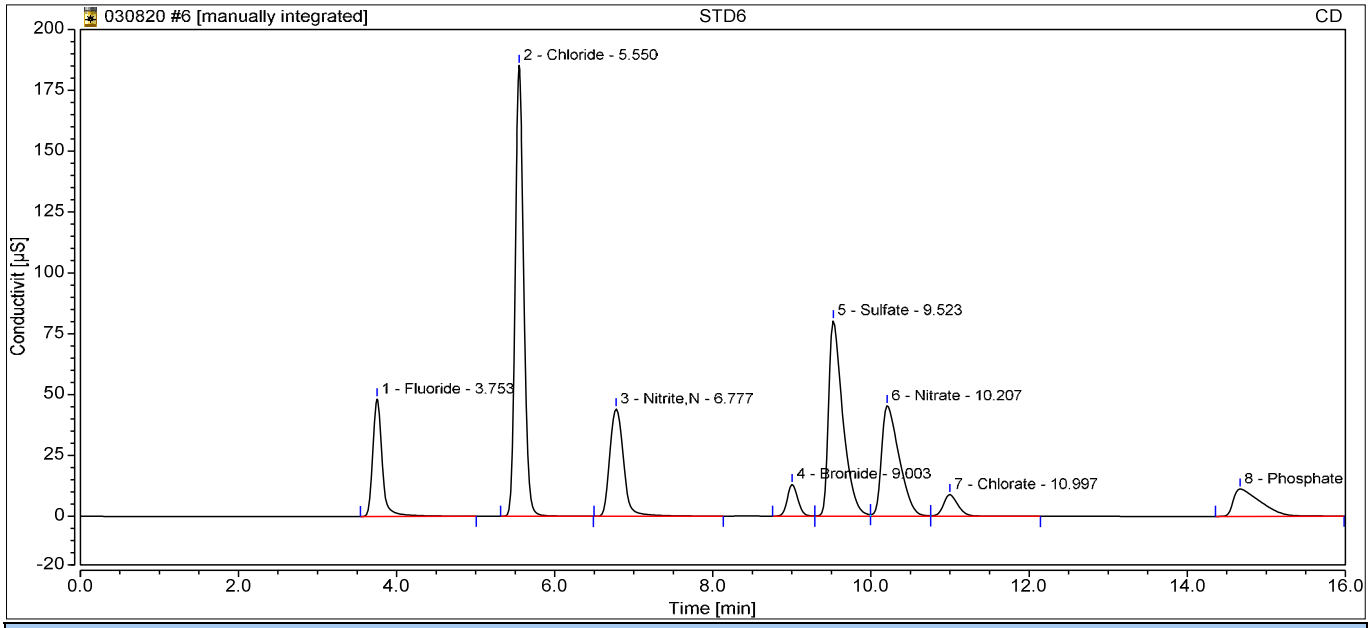
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.472	10.1940	10.1940	1.0000
2	5.56	Chloride	BMB	11.516	49.7057	49.7057	1.0000
3	6.79	Nitrite,N	BMB*	4.776	9.6766	9.6766	1.0000
4	9.03	Bromide	BM	0.981	9.9279	9.9279	1.0000
5	9.63	Sulfate	M	8.325	49.6811	49.6811	1.0000
6	10.30	Nitrate	M	5.799	9.9382	9.9382	1.0000
7	11.04	Chlorate	MB	0.944	9.9252	9.9252	1.0000
8	14.85	Phosphate	BMB	2.135	10.1771	10.1771	1.0000
Total:			**0.000**	**37.949**		**159.23**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**GA6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:09**	*Sample Weight:*	**1.0000**

Run Time:



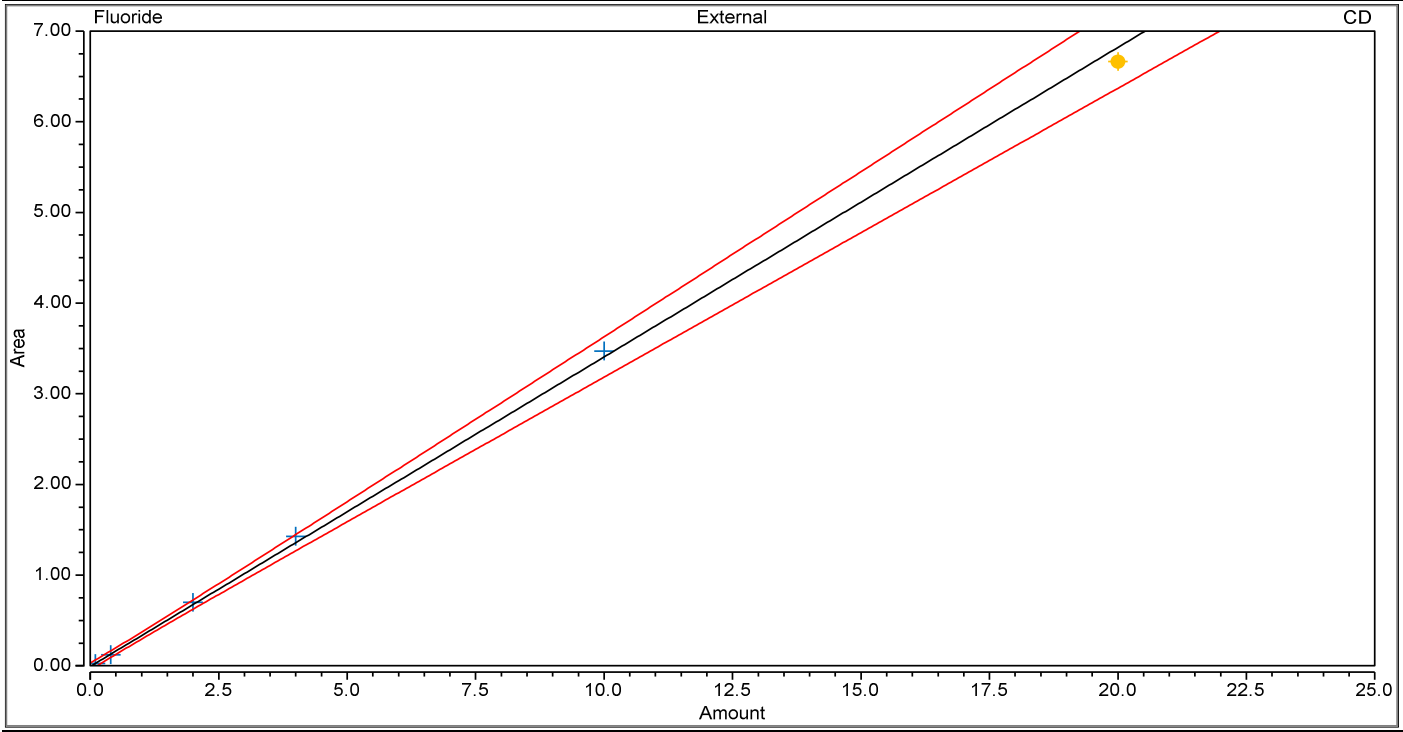
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	6.664	19.5424	19.5424	1.0000
2	5.55	Chloride	BMB	23.270	100.3774	100.3774	1.0000
3	6.78	Nitrite,N	BMB*	8.893	17.9725	17.9725	1.0000
4	9.00	Bromide	BM	2.012	20.3316	20.3316	1.0000
5	9.52	Sulfate	M	16.857	100.4888	100.4888	1.0000
6	10.21	Nitrate	M	11.698	20.0333	20.0333	1.0000
7	11.00	Chlorate	MB	1.906	20.0635	20.0635	1.0000
8	14.67	Phosphate	BMB	4.450	21.0985	21.0985	1.0000
Total:			**0.000**	**75.750**		**319.91**	

Calibration

Calibration Details	Fluoride		
Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	-0.0083
Evaluation Type	Area	*Slope (C1)*	0.3414
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9991

Calibration Plot **Fluoride**



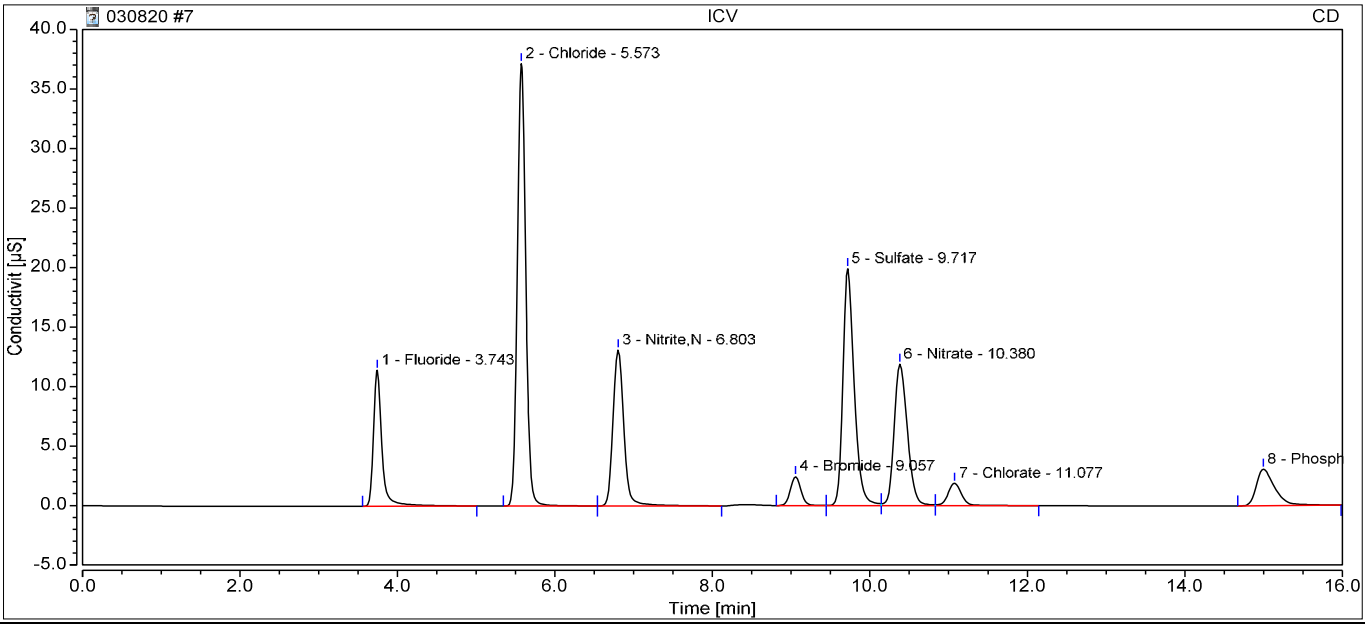
Calibration Results **Fluoride**

No.	Injection Name	Calibration Level	X Value CD Fluoride	Y Value CD Fluoride	Y Value CD Fluoride	Area µS*min CD Fluoride	Height µS CD Fluoride
1	STD1	1	0.1000	0.0243	0.0243	0.024	0.212
2	STD2	2	0.4000	0.1226	0.1226	0.123	0.964
3	STD3	3	2.0000	0.7008	0.7008	0.701	5.614
4	STD4	4	4.0000	1.4284	1.4284	1.428	11.345
5	STD5	5	10.0000	3.4723	3.4723	3.472	26.547
6	STD6	6	20.0000	6.6641	6.6641	6.664	48.233

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:27**	*Sample Weight:*	**1.0000**

Run Time:



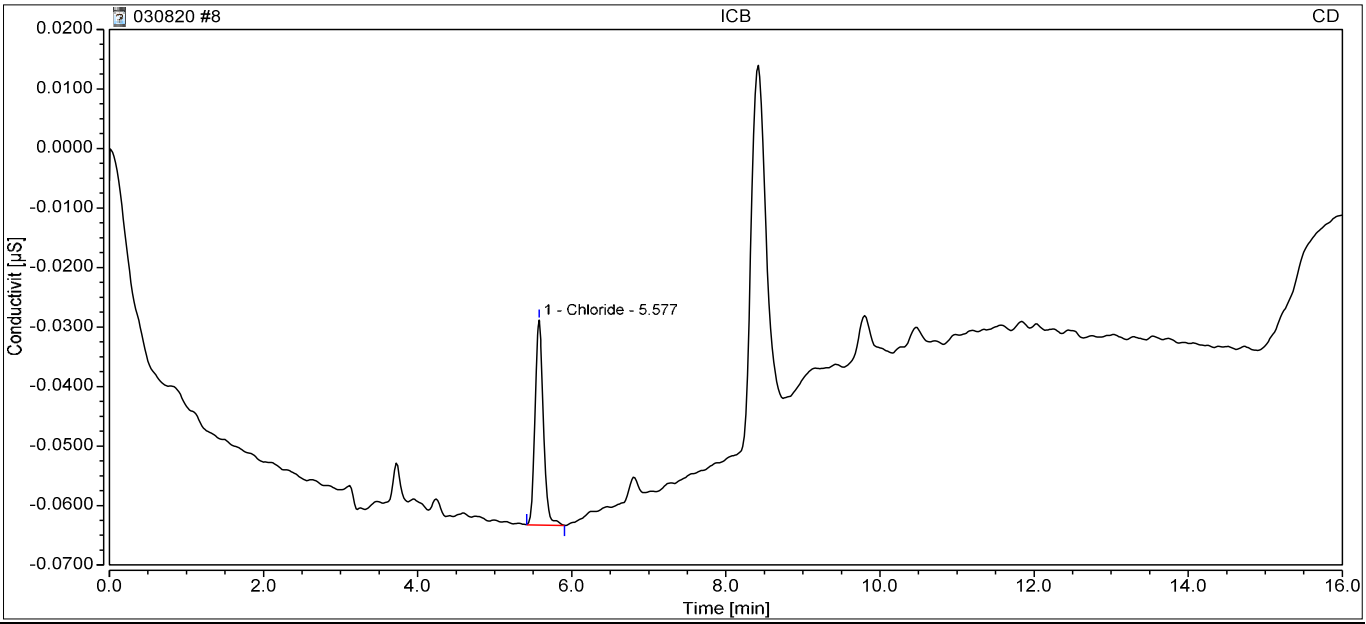
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.412	4.1607	4.1607	1.0000
2	5.57	Chloride	BMB	4.570	19.7627	19.7627	1.0000
3	6.80	Nitrite,N	BMB	2.081	4.2442	4.2442	1.0000
4	9.06	Bromide	BM	0.374	3.8104	3.8104	1.0000
5	9.72	Sulfate	M	3.327	19.9126	19.9126	1.0000
6	10.38	Nitrate	M	2.299	3.9478	3.9478	1.0000
7	11.08	Chlorate	MB	0.379	3.9799	3.9799	1.0000
8	15.00	Phosphate	BMB	0.835	4.0417	4.0417	1.0000
Total:			**0.000**	**15.278**		**63.86**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**GA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:45**	*Sample Weight:*	**1.0000**

Run Time:



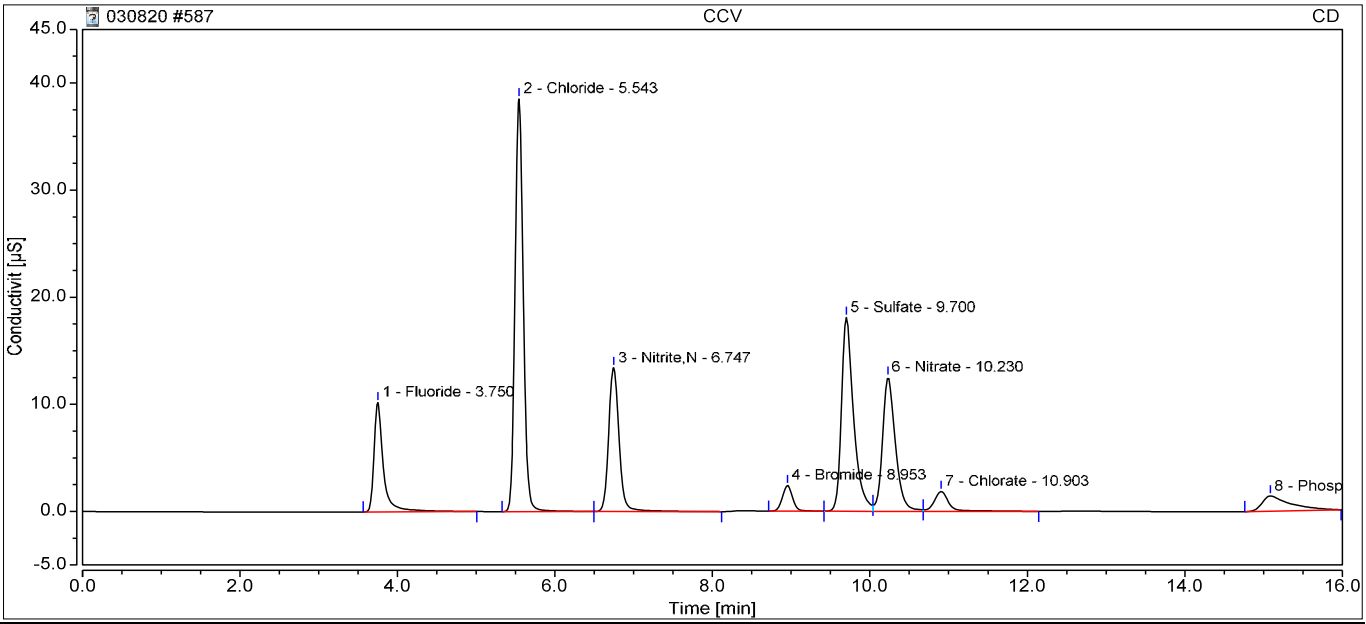
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.58	Chloride	BMB	0.004	0.0794	0.0794	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.004**		**0.08**	

587 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/12/2020 18:00**	*Sample Weight:*	**1.0000**

Run Time:



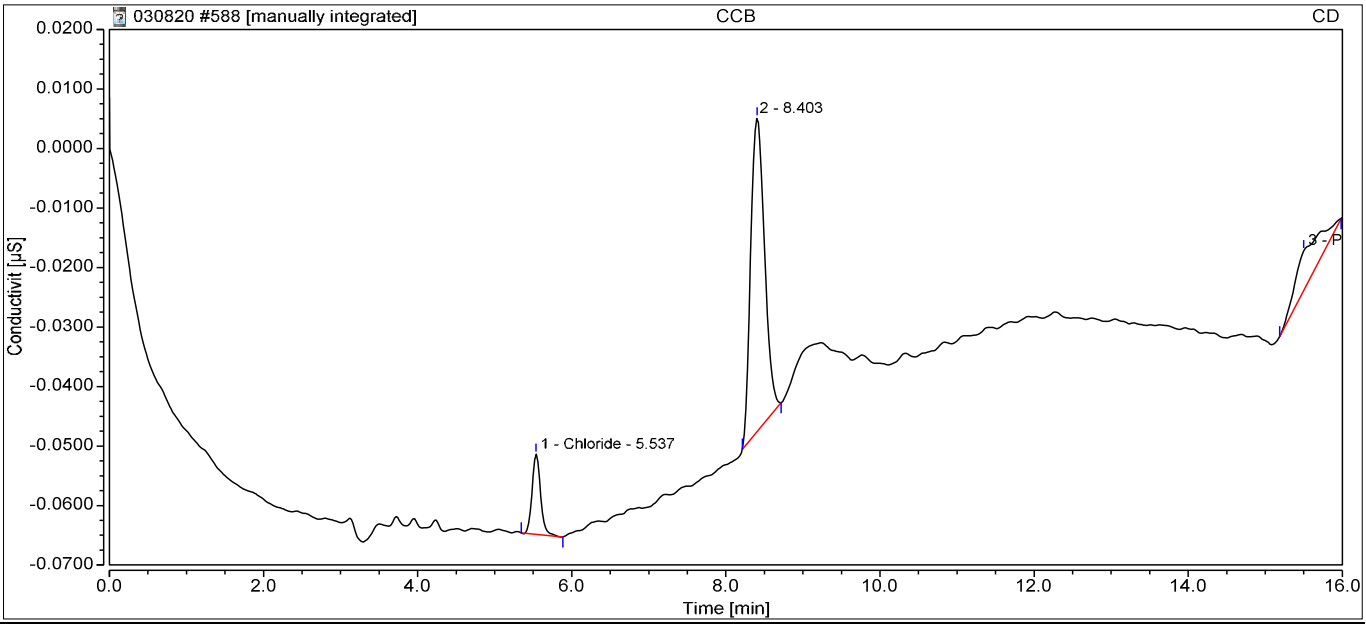
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.408	4.1490	4.1490	1.0000
2	5.54	Chloride	BMB	4.630	20.0205	20.0205	1.0000
3	6.75	Nitrite,N	BMB	2.069	4.2205	4.2205	1.0000
4	8.95	Bromide	BM	0.368	3.7501	3.7501	1.0000
5	9.70	Sulfate	M	3.253	19.4728	19.4728	1.0000
6	10.23	Nitrate	M	2.382	4.0897	4.0897	1.0000
7	10.90	Chlorate	MB	0.401	4.2099	4.2099	1.0000
8	15.09	Phosphate	BMB	0.594	2.9038	2.9038	1.0000
Total:			**0.000**	**15.106**		**62.82**	

588 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/12/2020 18:19**	*Sample Weight:*	**1.0000**

Run Time:



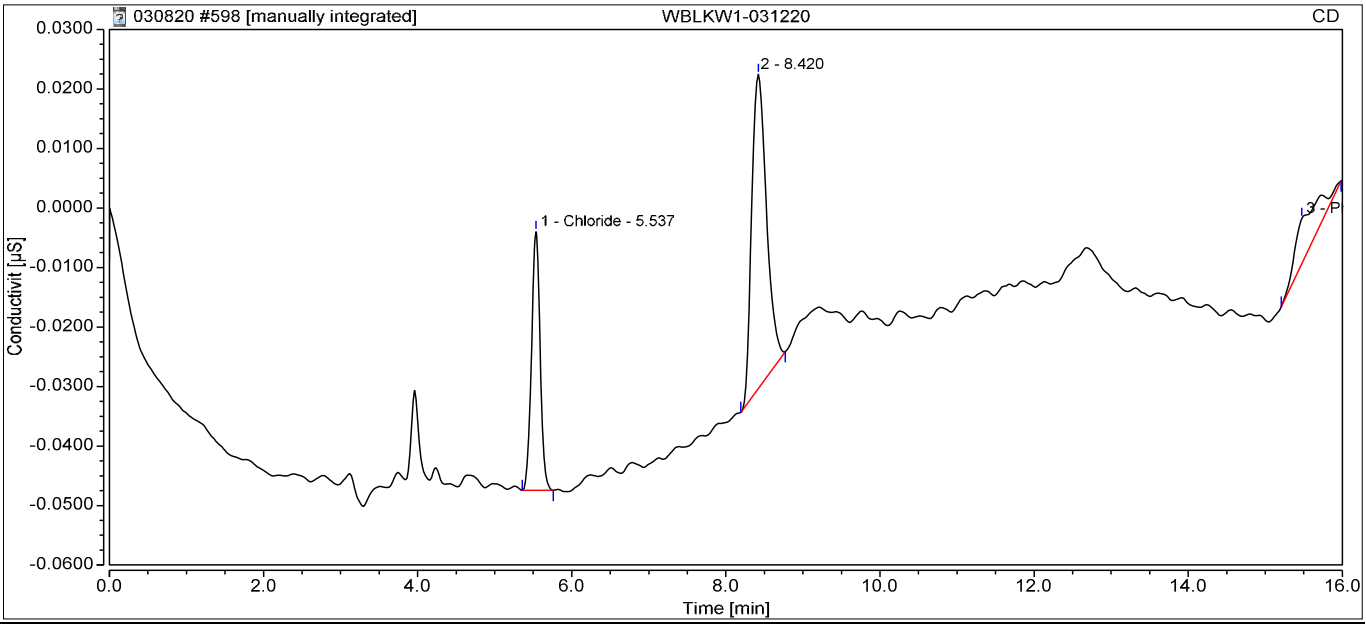
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.54	Chloride	BMB*	0.002	0.0684	0.0684	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
3	15.50	Phosphate	BMB	0.003	0.1135	0.1135	1.0000
Total:			**0.000**	**0.004**		**0.18**	

598 WBLKW1-031220

Sample Name:	**WBLKW1-031220**	*Injection Volume:*	**5.00**
Vial Number:	**GE6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/12/2020 21:20**	*Sample Weight:*	**1.0000**

Run Time:



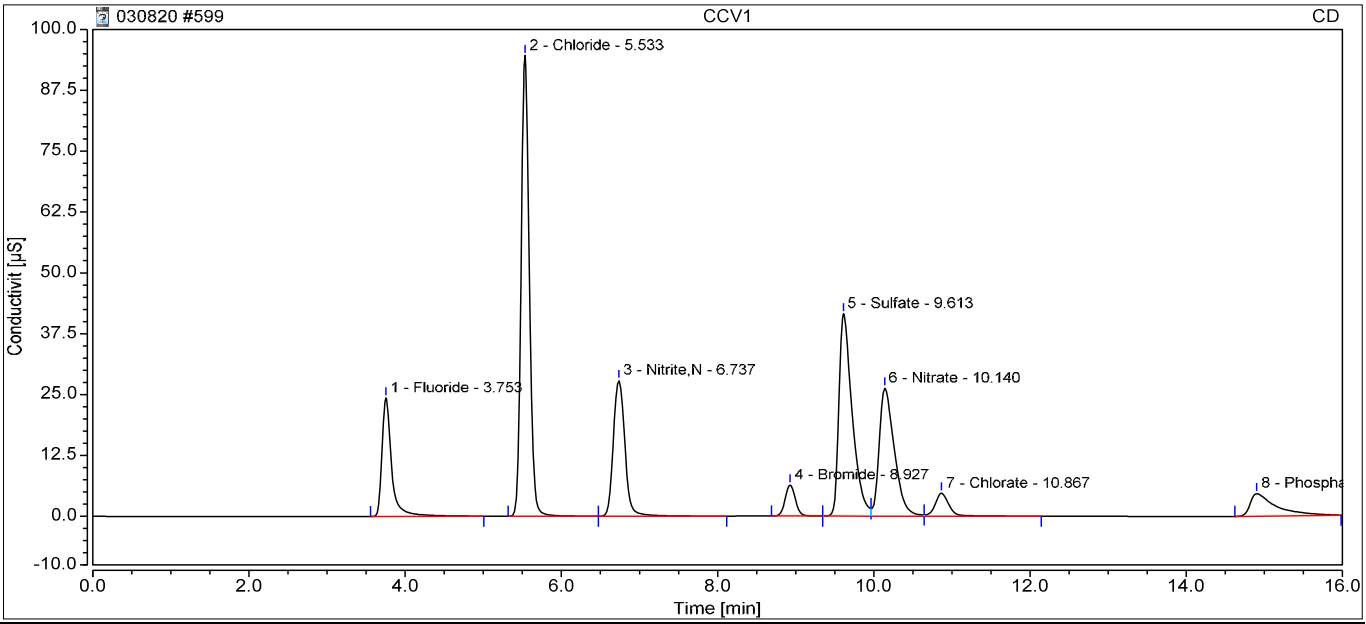
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.54	Chloride	BMB	0.006	0.0853	0.0853	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
3	15.47	Phosphate	BMB	0.003	0.1139	0.1139	1.0000
Total:			**0.000**	**0.008**		**0.20**	

599 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/12/2020 21:38**	*Sample Weight:*	**1.0000**

Run Time:



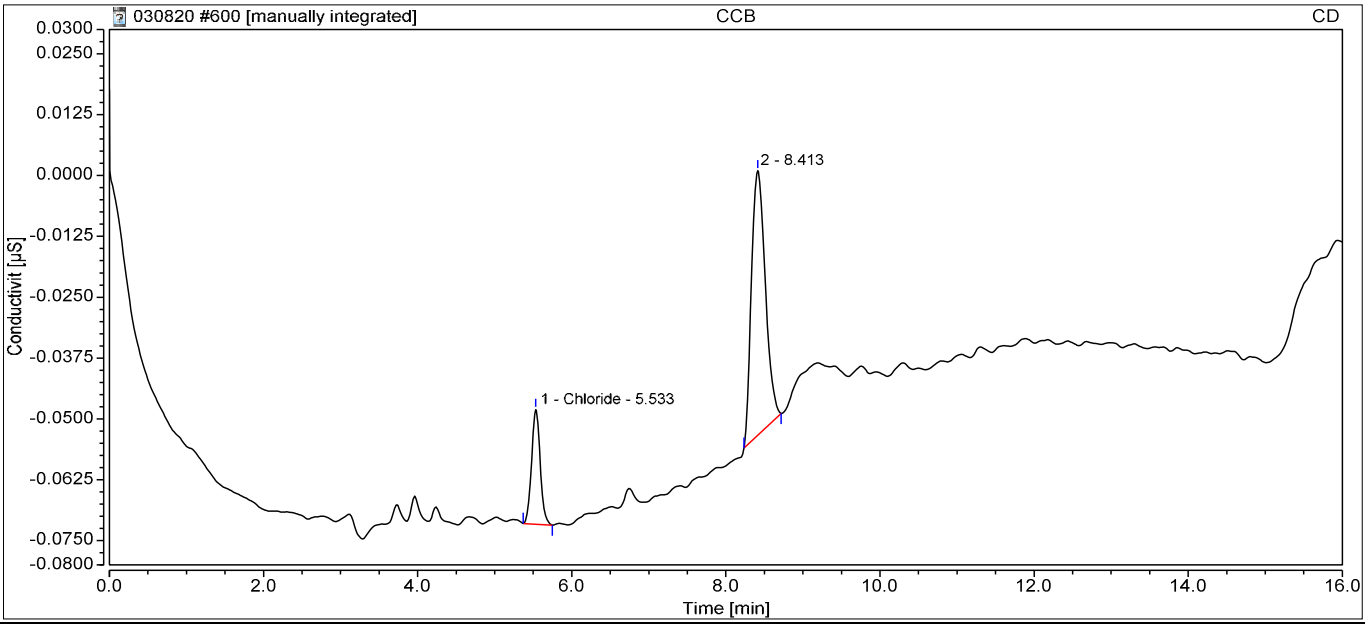
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.478	10.2107	10.2107	1.0000
2	5.53	Chloride	BMB	11.503	49.6522	49.6522	1.0000
3	6.74	Nitrite,N	BMB	4.814	9.7530	9.7530	1.0000
4	8.93	Bromide	BM	0.964	9.7635	9.7635	1.0000
5	9.61	Sulfate	M	8.166	48.7346	48.7346	1.0000
6	10.14	Nitrate	M	5.897	10.1047	10.1047	1.0000
7	10.87	Chlorate	MB	0.972	10.2262	10.2262	1.0000
8	14.90	Phosphate	BMB	1.781	8.5052	8.5052	1.0000
Total:			**0.000**	**37.577**		**156.95**	

600 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/12/2020 21:56**	*Sample Weight:*	**1.0000**

Run Time:



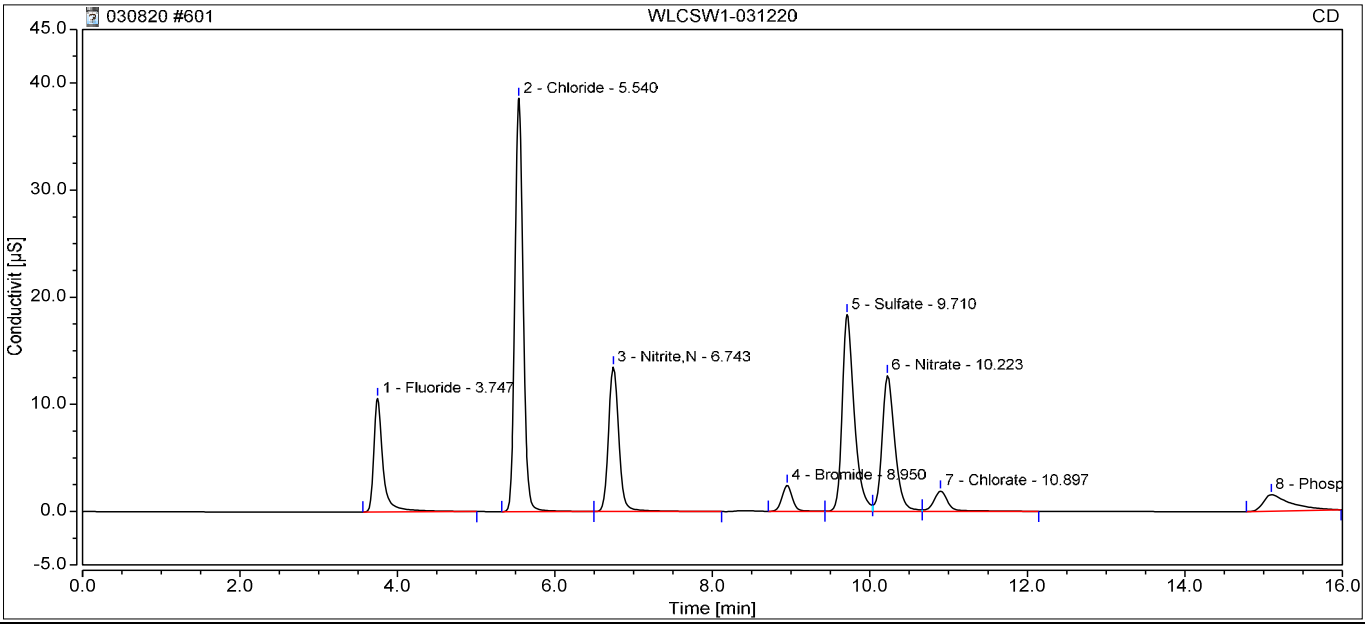
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.53	Chloride	BMB	0.003	0.0742	0.0742	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.003**		**0.07**	

601 WLCSW1-031220

Sample Name:	**WLCSW1-031220**	*Injection Volume:*	**5.00**
Vial Number:	**GE7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/12/2020 22:14**	*Sample Weight:*	**1.0000**

Run Time:



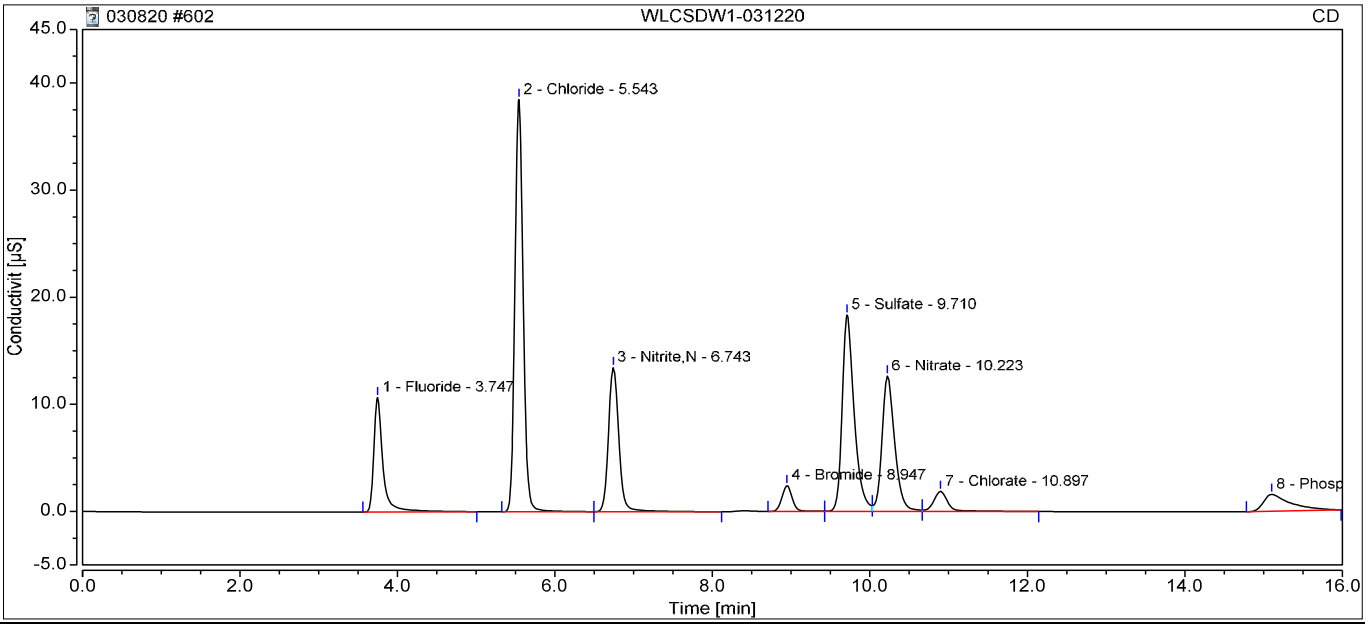
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.435	4.2282	4.2282	1.0000
2	5.54	Chloride	BMB	4.650	20.1077	20.1077	1.0000
3	6.74	Nitrite,N	BMB	2.077	4.2369	4.2369	1.0000
4	8.95	Bromide	BM	0.377	3.8338	3.8338	1.0000
5	9.71	Sulfate	M	3.279	19.6268	19.6268	1.0000
6	10.22	Nitrate	M	2.393	4.1085	4.1085	1.0000
7	10.90	Chlorate	MB	0.406	4.2559	4.2559	1.0000
8	15.10	Phosphate	BMB	0.625	3.0492	3.0492	1.0000
Total:			**0.000**	**15.242**		**63.45**	

602 WLCSDW1-031220

Sample Name:	**WLCSDW1-031220**	*Injection Volume:*	**5.00**
Vial Number:	**GE8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/12/2020 22:32**	*Sample Weight:*	**1.0000**

Run Time:



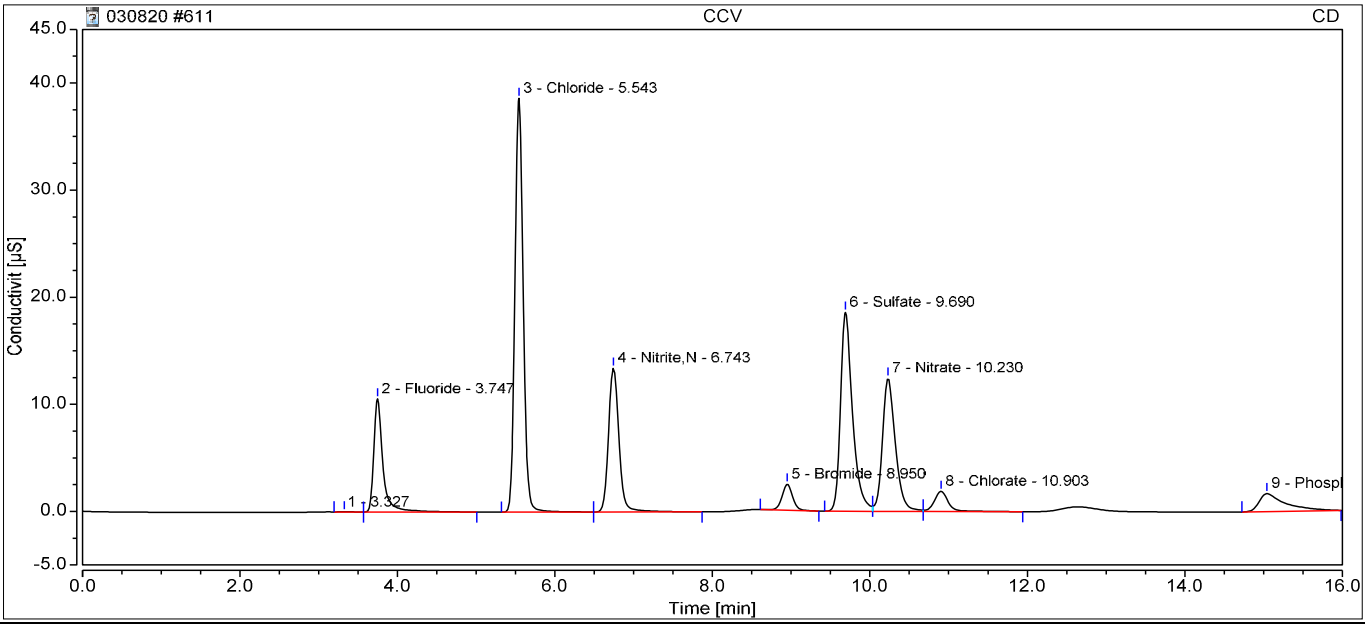
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.429	4.2102	4.2102	1.0000
2	5.54	Chloride	BMB	4.630	20.0205	20.0205	1.0000
3	6.74	Nitrite,N	BMB	2.069	4.2199	4.2199	1.0000
4	8.95	Bromide	BM	0.375	3.8176	3.8176	1.0000
5	9.71	Sulfate	M	3.267	19.5588	19.5588	1.0000
6	10.22	Nitrate	M	2.382	4.0899	4.0899	1.0000
7	10.90	Chlorate	MB	0.404	4.2385	4.2385	1.0000
8	15.10	Phosphate	BMB	0.635	3.0981	3.0981	1.0000
Total:			**0.000**	**15.192**		**63.25**	

611 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 01:15**	*Sample Weight:*	**1.0000**

Run Time:



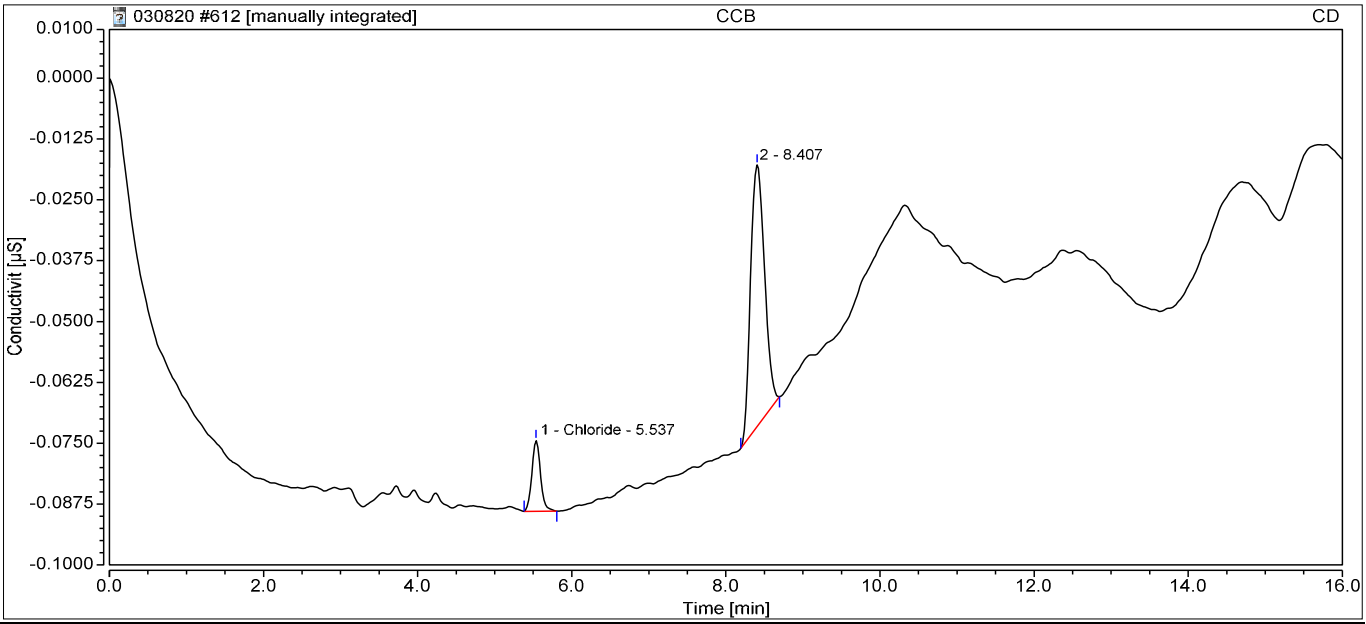
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
2	3.75	Fluoride	BMB	1.416	4.1718	4.1718	1.0000
3	5.54	Chloride	BMB	4.659	20.1454	20.1454	1.0000
4	6.74	Nitrite,N	BMB	2.081	4.2454	4.2454	1.0000
5	8.95	Bromide	BMB	0.377	3.8338	3.8338	1.0000
6	9.69	Sulfate	BM	3.292	19.7062	19.7062	1.0000
7	10.23	Nitrate	M	2.372	4.0731	4.0731	1.0000
8	10.90	Chlorate	MB	0.387	4.0565	4.0565	1.0000
9	15.04	Phosphate	BMB	0.653	3.1827	3.1827	1.0000
Total:			**0.000**	**15.237**		**63.41**	

612 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 01:33**	*Sample Weight:*	**1.0000**

Run Time:



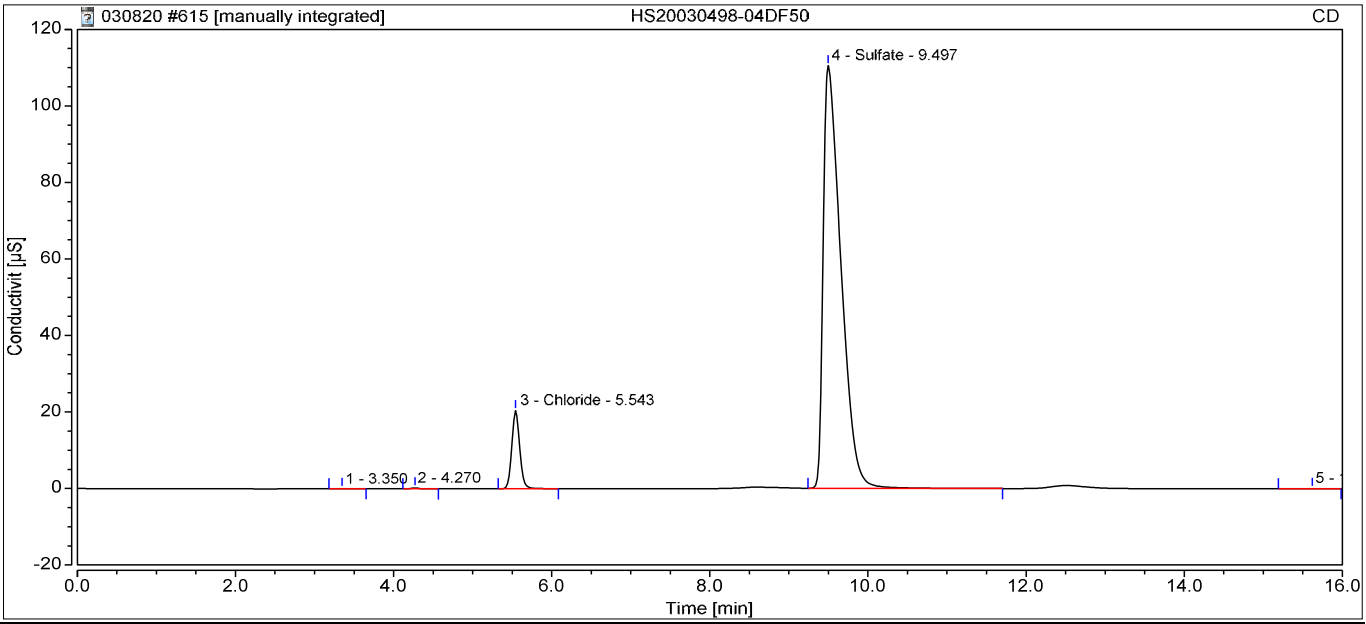
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.54	Chloride	BMB*	0.002	0.0691	0.0691	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.002**		**0.07**	

615 HS20030498-04DF50

Sample Name:	**HS20030498-04DF50**	*Injection Volume:*	**5.00**
Vial Number:	**RD5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**50.0000**
Recording Time:	**03/13/2020 02:28**	*Sample Weight:*	**1.0000**

Run Time:



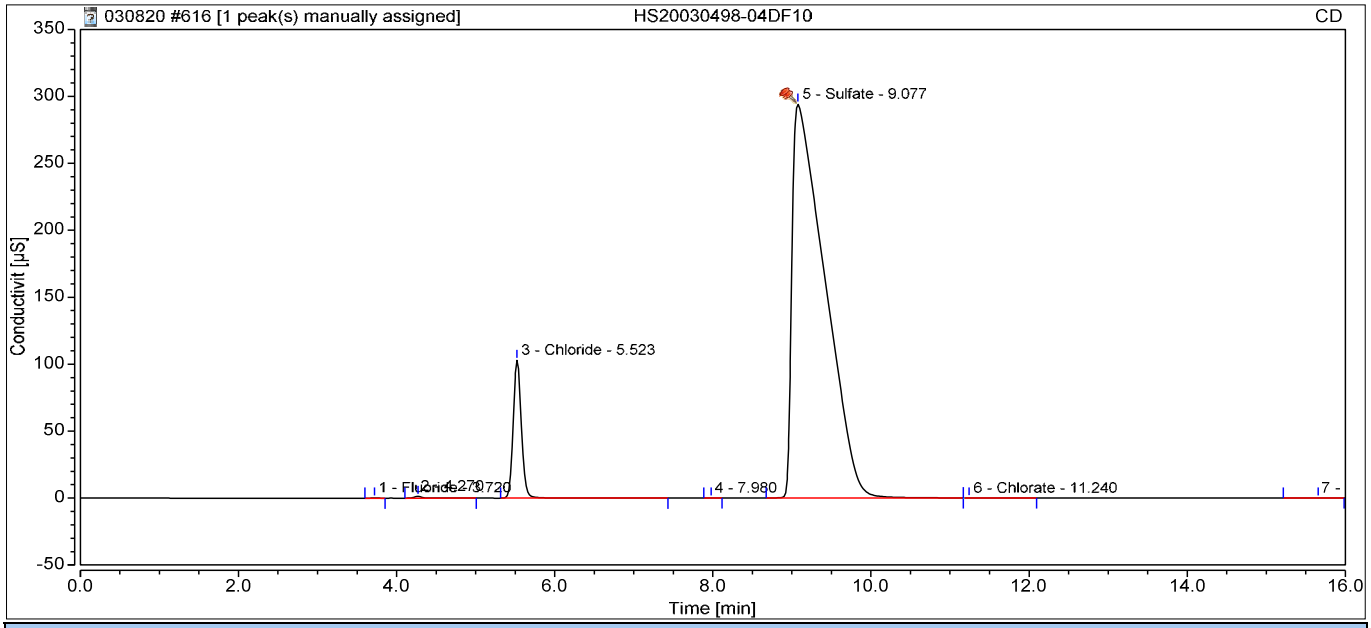
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	50.0000
3	5.54	Chloride	BMB*	2.431	10.5405	527.0252	50.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	50.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	50.0000
4	9.50	Sulfate	BMB	28.639	170.6534	8532.6694	50.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	50.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	50.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	50.0000
Total:			**0.000**	**31.070**		**9059.69**	

616 HS20030498-04DF10

Sample Name:	**HS20030498-04DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RD6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**03/13/2020 02:46**	*Sample Weight:*	**1.0000**

Run Time:



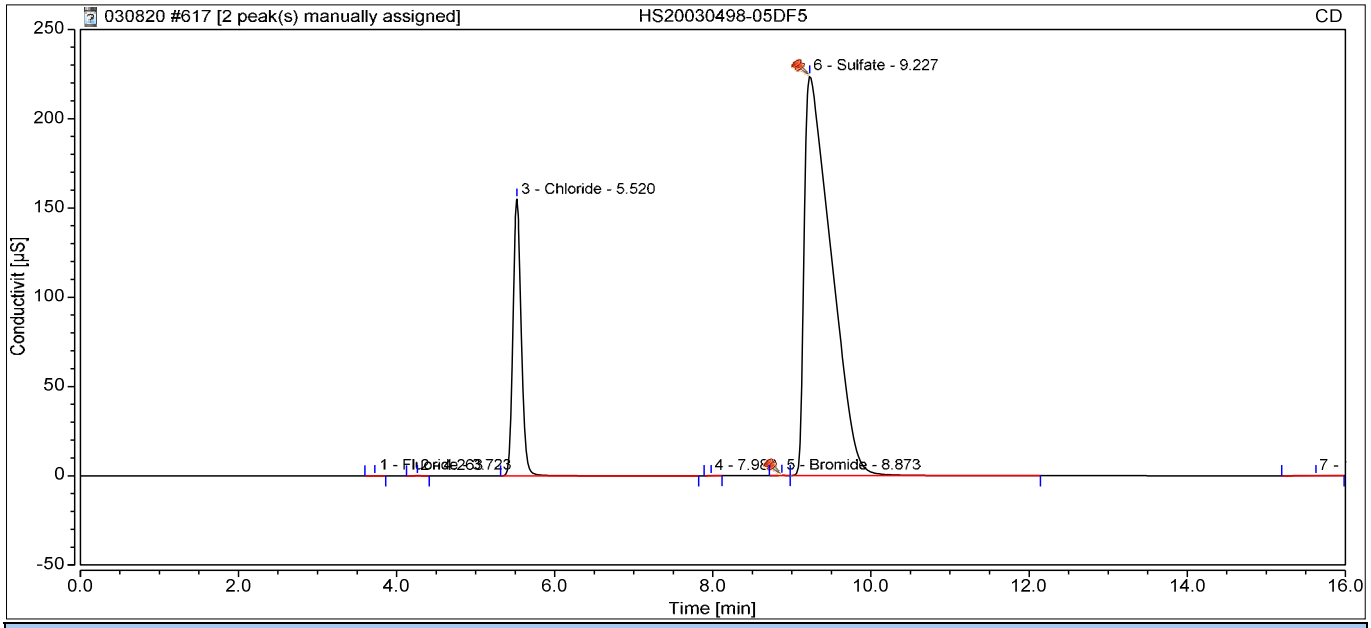
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.004	0.0354	0.3544	10.0000
3	5.52	Chloride	BMB	12.505	53.9701	539.7010	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	10.0000
5	9.08	Sulfate	BM ^	140.476	836.6722	8366.7220	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
6	11.24	Chlorate	MB	0.015	0.1418	1.4177	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**153.000**		**8908.20**	

617 HS20030498-05DF5

Sample Name:	**HS20030498-05DF5**	*Injection Volume:*	**5.00**
Vial Number:	**RD7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**03/13/2020 03:04**	*Sample Weight:*	**1.0000**

Run Time:



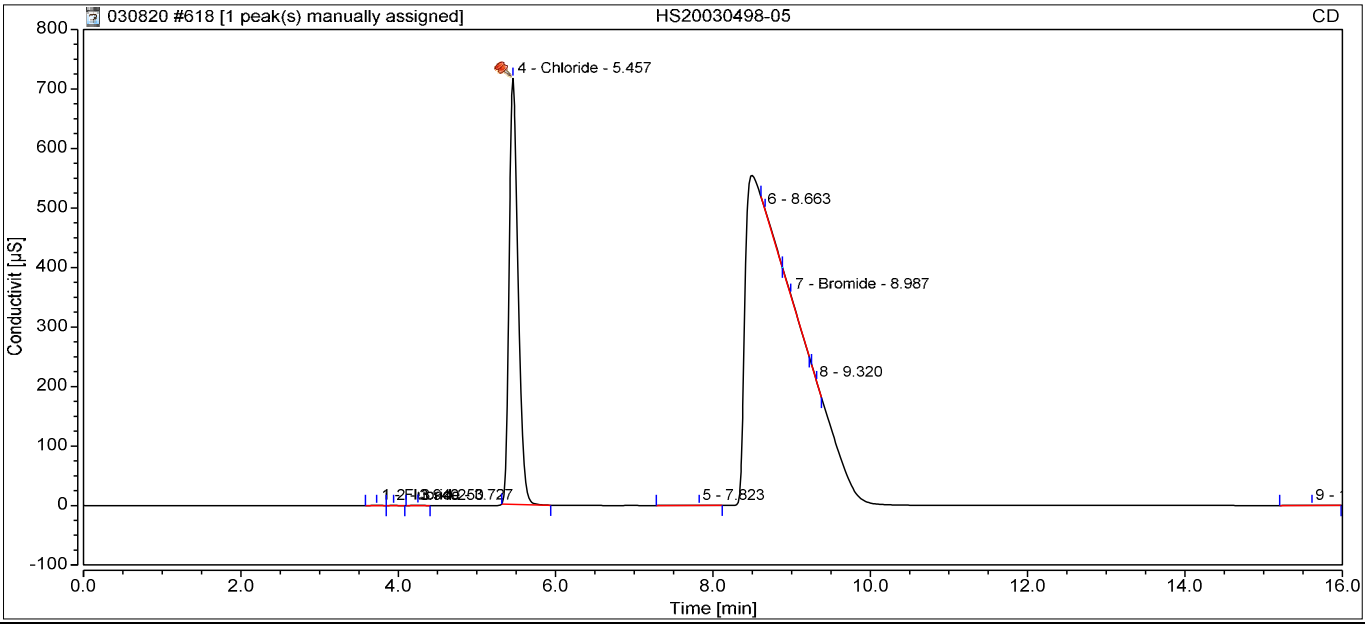
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.005	0.0393	0.1967	5.0000
3	5.52	Chloride	BMB	19.017	82.0447	410.2233	5.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	5.0000
5	8.87	Bromide	BM ^	0.015	0.1819	0.9093	5.0000
6	9.23	Sulfate	MB^	87.945	523.8398	2619.1988	5.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**106.983**		**3030.53**	

618 HS20030498-05

Sample Name:	**HS20030498-05**	*Injection Volume:*	**5.00**
Vial Number:	**RD8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 03:22**	*Sample Weight:*	**1.0000**

Run Time:



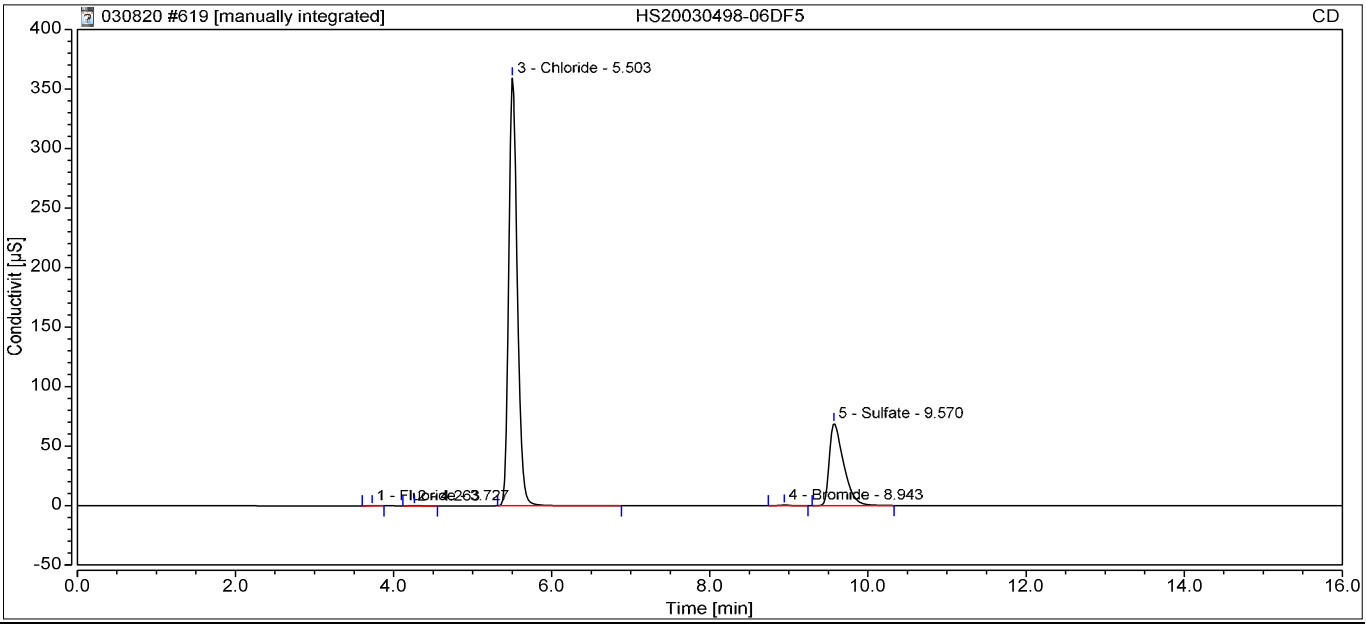
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.022	0.0899	0.0899	1.0000
4	5.46	Chloride	BMB^	95.027	409.7205	409.7205	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
7	8.99	Bromide	MB	0.240	2.4555	2.4555	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**95.290**		**412.27**	

619 HS20030498-06DF5

Sample Name:	**HS20030498-06DF5**	*Injection Volume:*	**5.00**
Vial Number:	**RE1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**03/13/2020 03:40**	*Sample Weight:*	**1.0000**

Run Time:



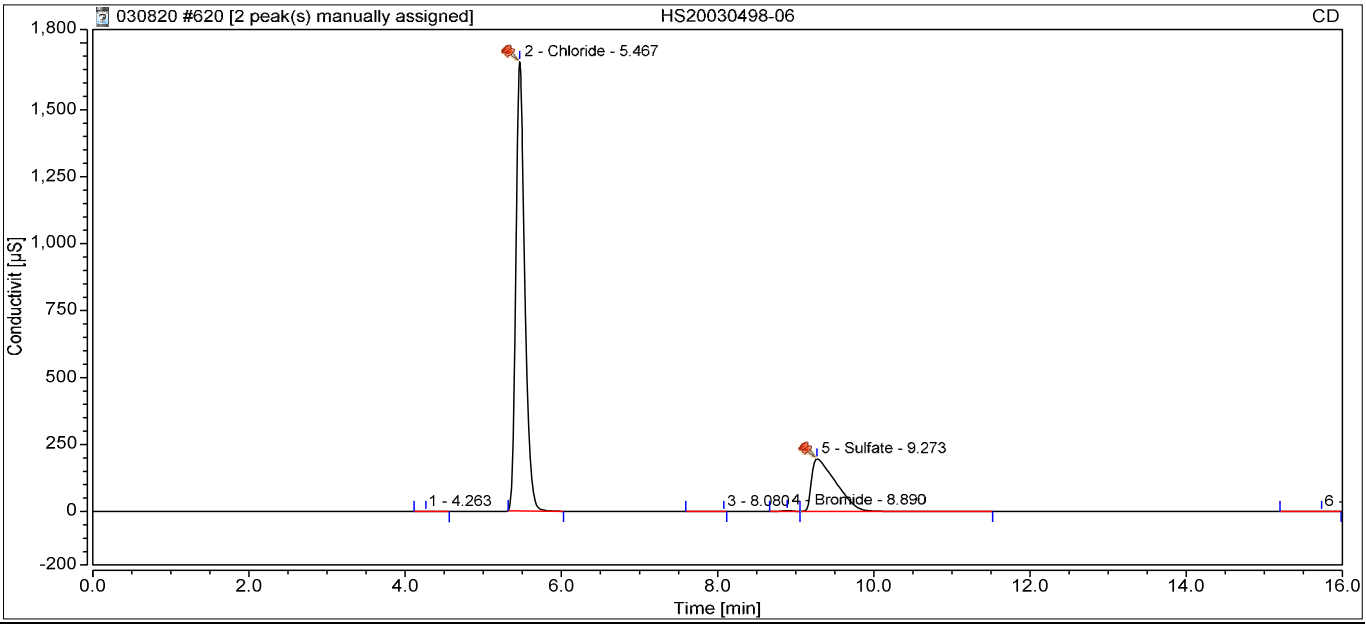
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.004	0.0369	0.1845	5.0000
3	5.50	Chloride	BMB	45.832	197.6422	988.2109	5.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	5.0000
4	8.94	Bromide	BMB	0.075	0.7905	3.9527	5.0000
5	9.57	Sulfate	BMB*	14.538	86.6790	433.3952	5.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**60.450**		**1425.74**	

620 HS20030498-06

Sample Name:	**HS20030498-06**	*Injection Volume:*	**5.00**
Vial Number:	**RE2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 03:58**	*Sample Weight:*	**1.0000**

Run Time:



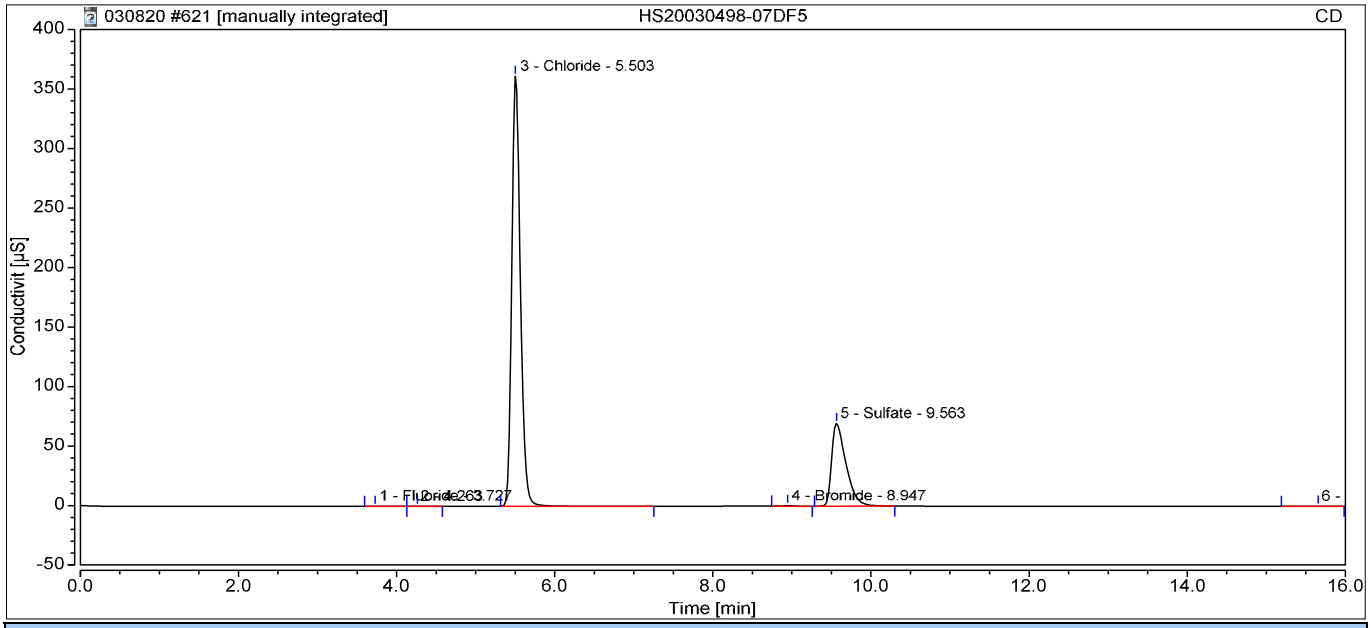
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
2	5.47	Chloride	BMB^	221.034	952.9302	952.9302	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.89	Bromide	BM	0.444	4.5103	4.5103	1.0000
5	9.27	Sulfate	MB^	70.640	420.7791	420.7791	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**292.117**		**1378.22**	

621 HS20030498-07DF5

Sample Name:	**HS20030498-07DF5**	*Injection Volume:*	**5.00**
Vial Number:	**RE3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**5.0000**
Recording Time:	**03/13/2020 04:16**	*Sample Weight:*	**1.0000**

Run Time:



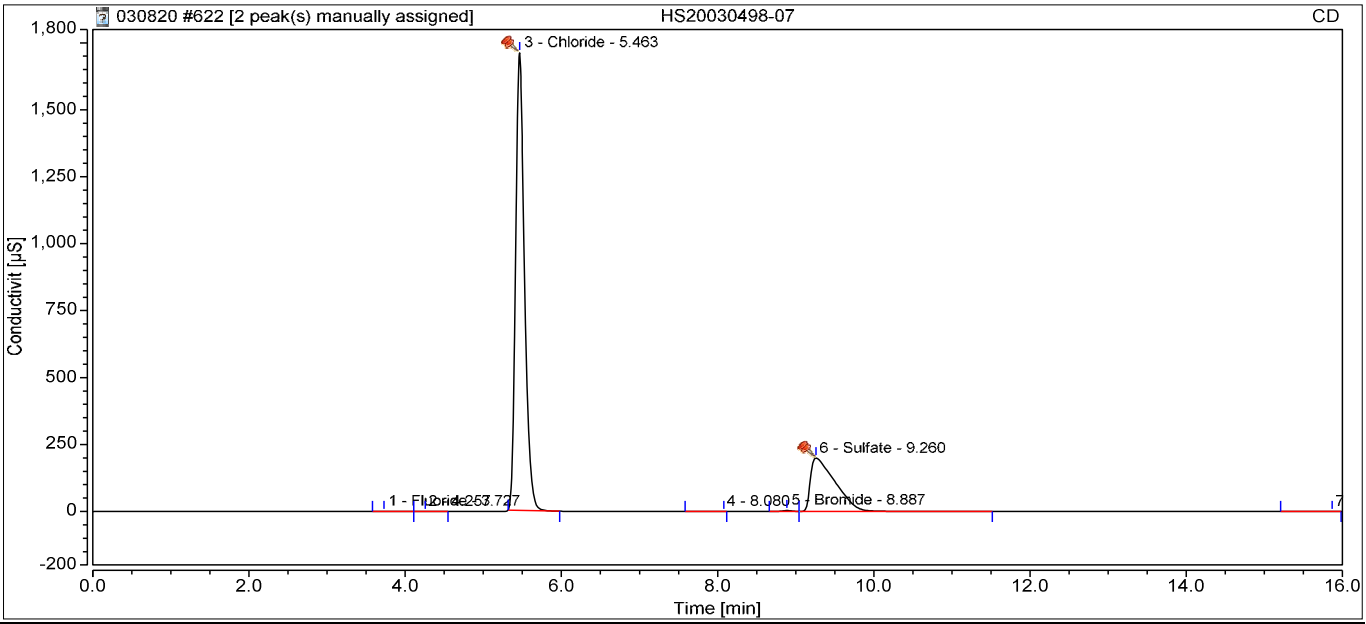
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.006	0.0411	0.2057	5.0000
3	5.50	Chloride	BMB	46.091	198.7565	993.7824	5.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	5.0000
4	8.95	Bromide	BMB	0.076	0.8007	4.0033	5.0000
5	9.56	Sulfate	BMB*	14.648	87.3319	436.6593	5.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	5.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	5.0000
Total:			**0.000**	**60.820**		**1434.65**	

622 HS20030498-07

Sample Name:	**HS20030498-07**	*Injection Volume:*	**5.00**
Vial Number:	**RE4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 04:34**	*Sample Weight:*	**1.0000**

Run Time:



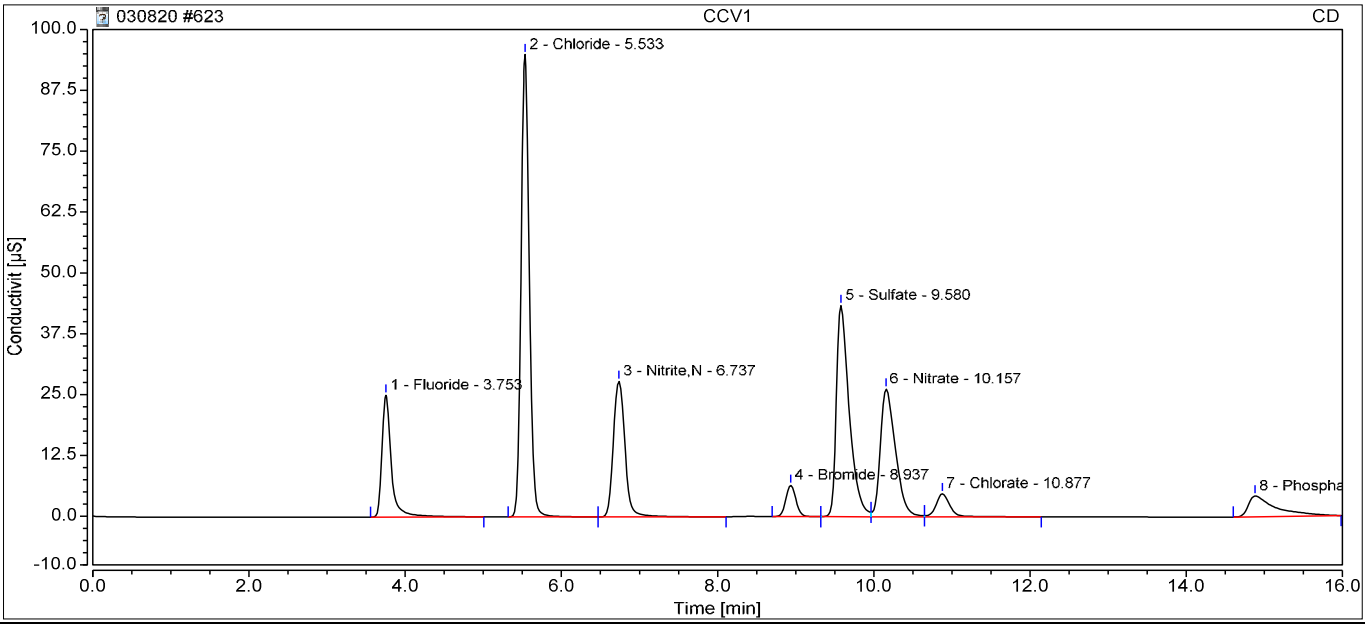
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.028	0.1073	0.1073	1.0000
3	5.46	Chloride	BMB^	225.587	972.5574	972.5574	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.89	Bromide	BM	0.455	4.6189	4.6189	1.0000
6	9.26	Sulfate	MB^	72.690	432.9881	432.9881	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**298.759**		**1410.27**	

623 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 04:52**	*Sample Weight:*	**1.0000**

Run Time:



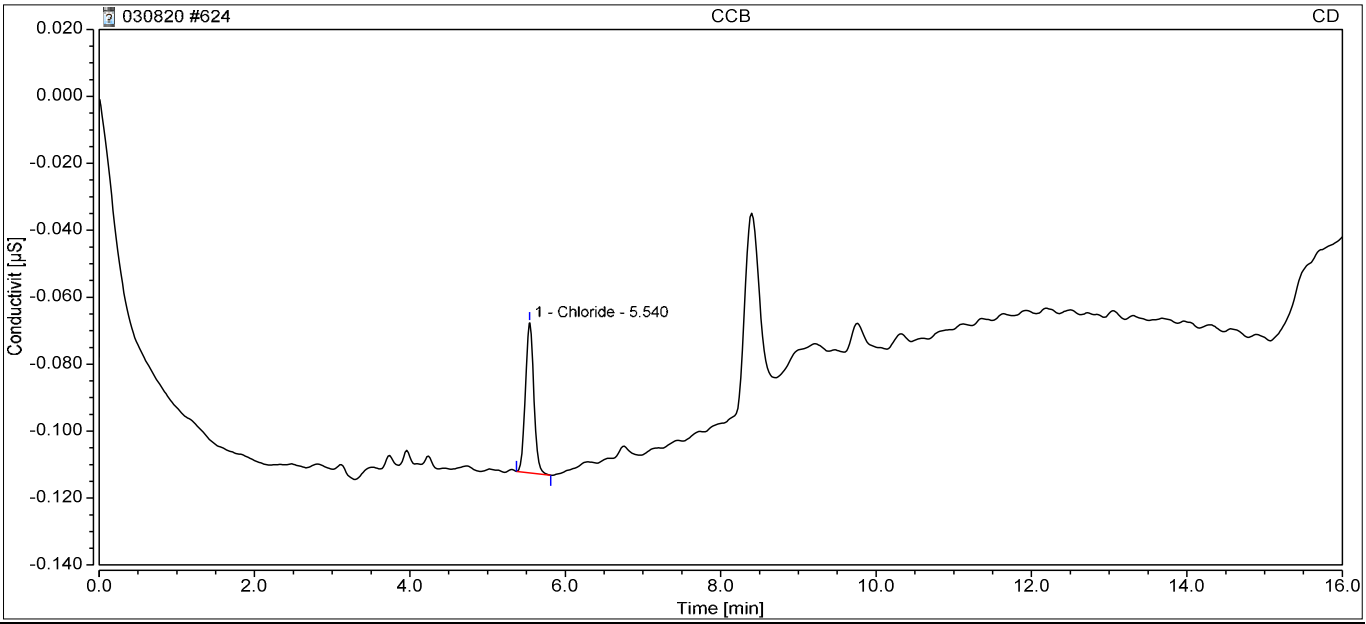
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.482	10.2227	10.2227	1.0000
2	5.53	Chloride	BMB	11.549	49.8466	49.8466	1.0000
3	6.74	Nitrite,N	BMB	4.825	9.7747	9.7747	1.0000
4	8.94	Bromide	BM	0.971	9.8269	9.8269	1.0000
5	9.58	Sulfate	M	8.273	49.3689	49.3689	1.0000
6	10.16	Nitrate	M	5.861	10.0429	10.0429	1.0000
7	10.88	Chlorate	MB	0.970	10.1988	10.1988	1.0000
8	14.88	Phosphate	BMB	1.747	8.3461	8.3461	1.0000
Total:			**0.000**	**37.677**		**157.63**	

624 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 05:10**	*Sample Weight:*	**1.0000**

Run Time:



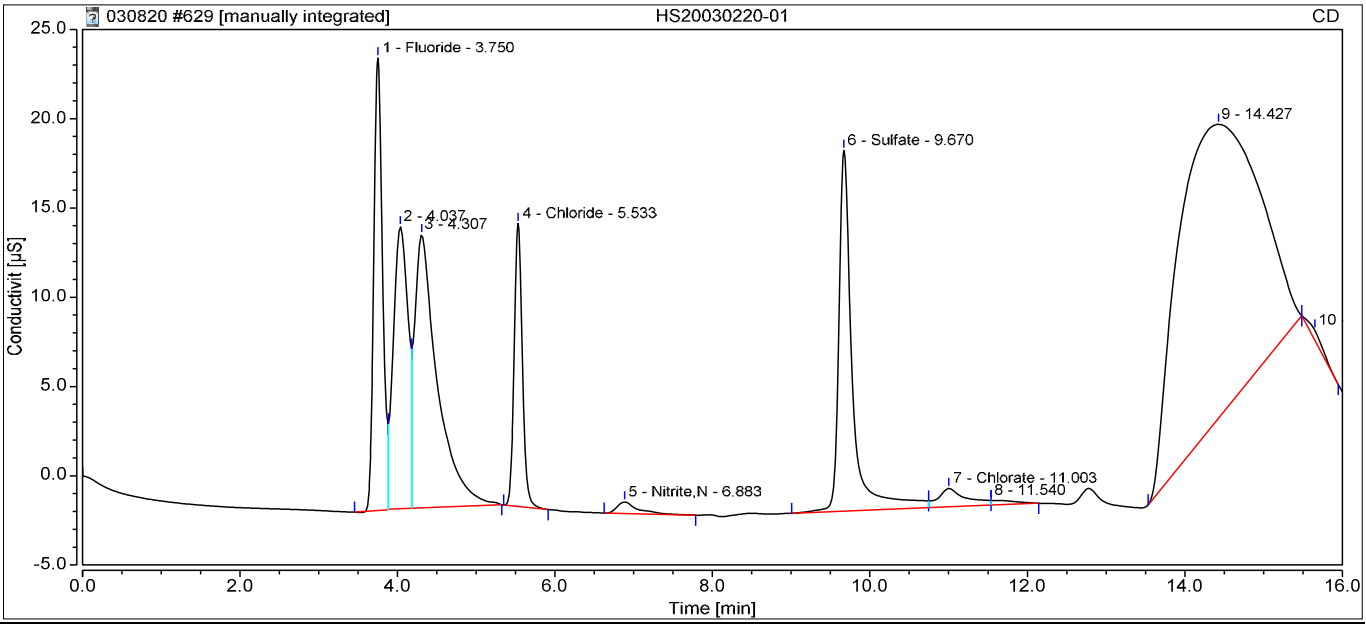
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.54	Chloride	BMB	0.006	0.0851	0.0851	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.006**		**0.09**	

629 HS20030220-01

Sample Name:	**HS20030220-01**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 06:41**	*Sample Weight:*	**1.0000**

Run Time:



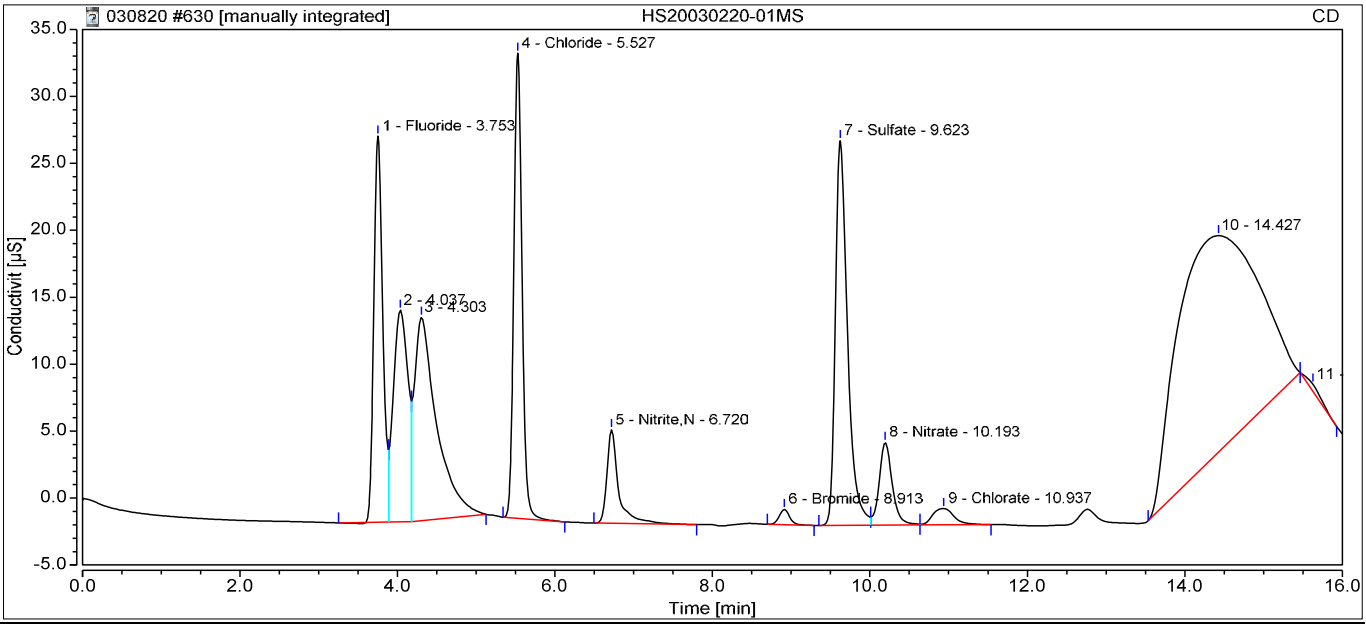
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BM *	3.246	9.5323	9.5323	1.0000
4	5.53	Chloride	BMB	1.891	8.2124	8.2124	1.0000
5	6.88	Nitrite,N	BMB	0.198	0.4501	0.4501	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
6	9.67	Sulfate	BM	4.023	24.0592	24.0592	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
7	11.00	Chlorate	M	0.428	4.4867	4.4867	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**9.786**		**46.74**	

630 HS20030220-01MS

Sample Name:	**HS20030220-01MS**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 06:59**	*Sample Weight:*	**1.0000**

Run Time:



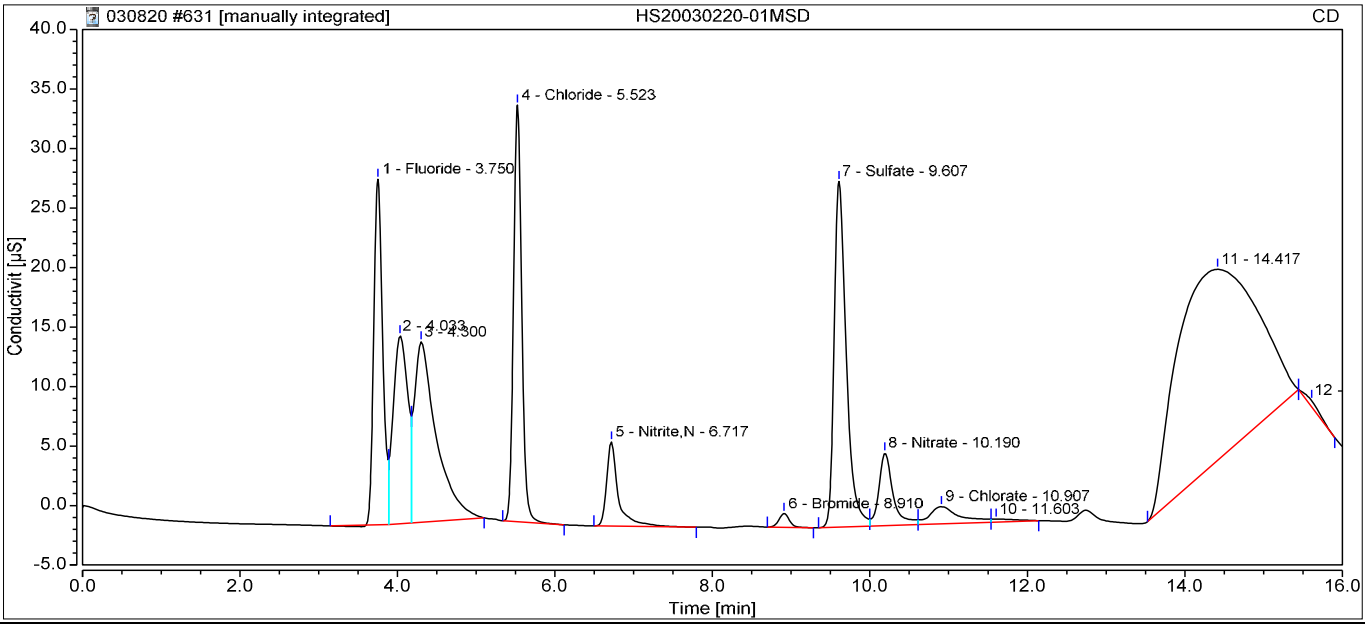
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BM *	3.750	11.0073	11.0073	1.0000
4	5.53	Chloride	BMB	4.154	17.9692	17.9692	1.0000
5	6.72	Nitrite,N	BMB	1.211	2.4915	2.4915	1.0000
6	8.91	Bromide	BMB	0.176	1.8093	1.8093	1.0000
7	9.62	Sulfate	BM	5.132	30.6636	30.6636	1.0000
8	10.19	Nitrate	M	1.192	2.0535	2.0535	1.0000
9	10.94	Chlorate	MB	0.389	4.0796	4.0796	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**16.004**		**70.07**	

631 HS20030220-01MSD

Sample Name:	**HS20030220-01MSD**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 07:17**	*Sample Weight:*	**1.0000**

Run Time:



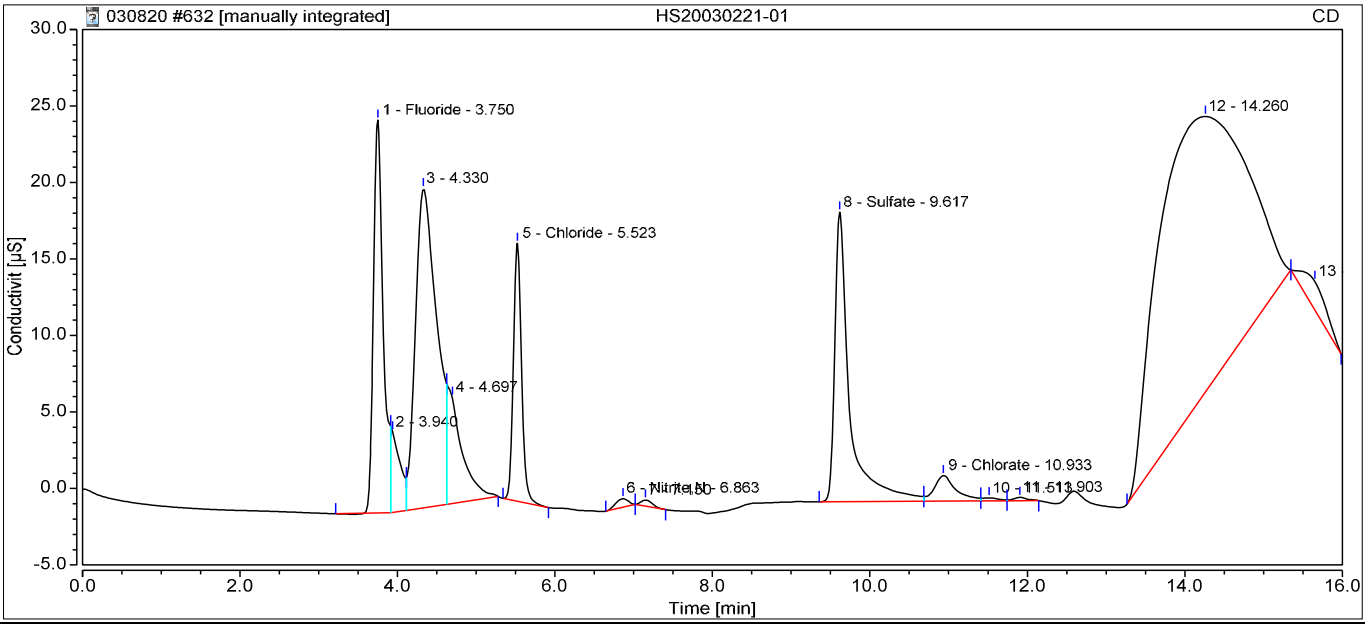
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BM *	3.760	11.0360	11.0360	1.0000
4	5.52	Chloride	BMB	4.181	18.0831	18.0831	1.0000
5	6.72	Nitrite,N	BMB	1.227	2.5240	2.5240	1.0000
6	8.91	Bromide	BMB	0.178	1.8251	1.8251	1.0000
7	9.61	Sulfate	BM	5.159	30.8265	30.8265	1.0000
8	10.19	Nitrate	M	1.265	2.1784	2.1784	1.0000
9	10.91	Chlorate	M	0.634	6.6595	6.6595	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**16.404**		**73.13**	

632 HS20030221-01

Sample Name:	**HS20030221-01**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 07:35**	*Sample Weight:*	**1.0000**

Run Time:



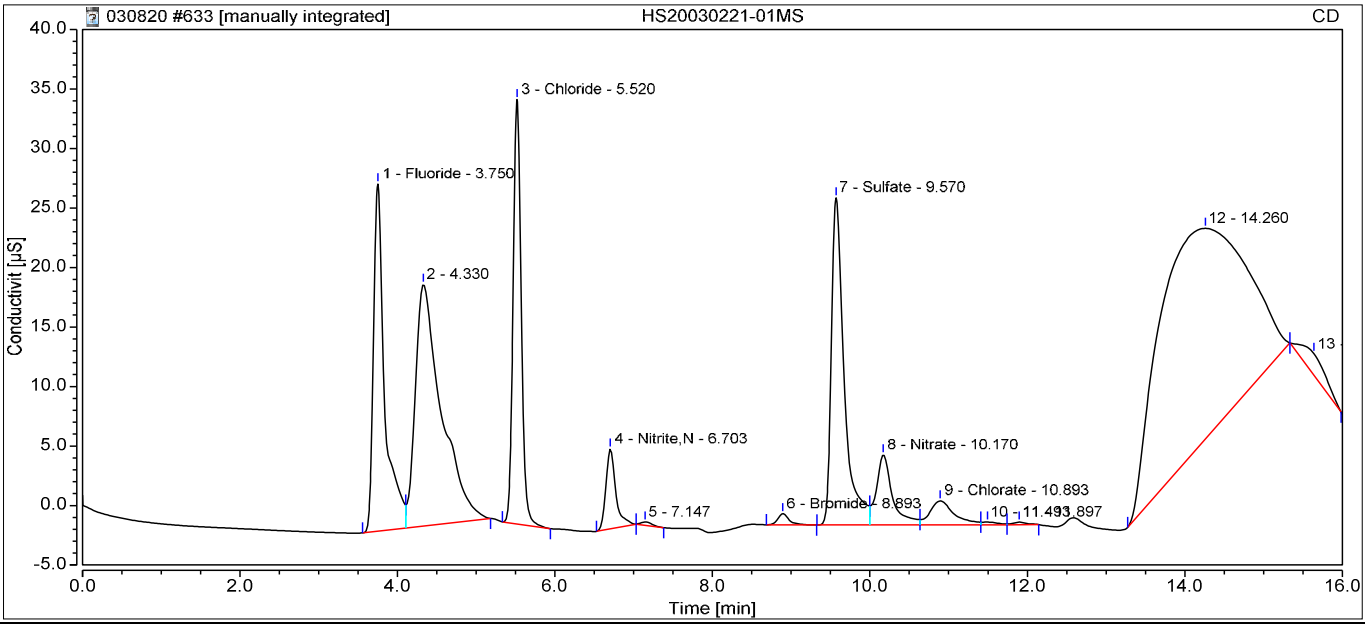
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BM *	3.614	10.6098	10.6098	1.0000
5	5.52	Chloride	BMB	2.006	8.7105	8.7105	1.0000
6	6.86	Nitrite,N	BMB	0.103	0.2588	0.2588	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
8	9.62	Sulfate	BM	4.080	24.3970	24.3970	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
9	10.93	Chlorate	M	0.530	5.5665	5.5665	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**10.334**		**49.54**	

633 HS20030221-01MS

Sample Name:	**HS20030221-01MS**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 07:53**	*Sample Weight:*	**1.0000**

Run Time:



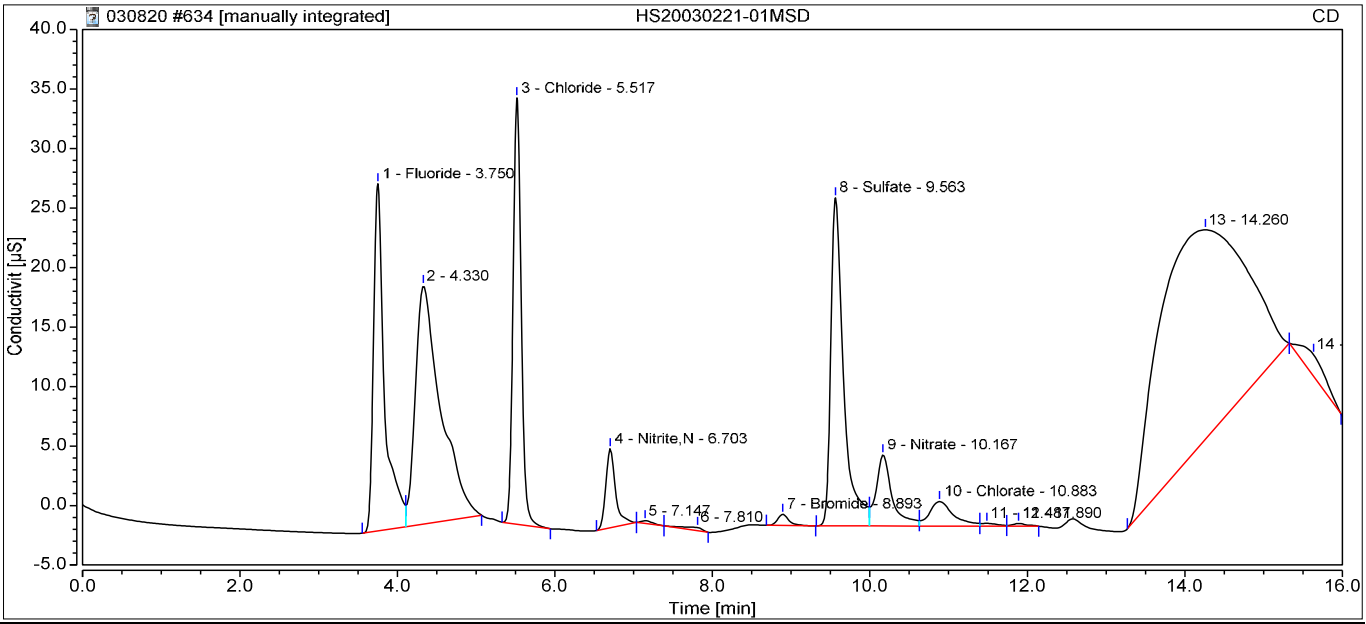
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BM *	4.780	14.0247	14.0247	1.0000
3	5.52	Chloride	BMB	4.222	18.2606	18.2606	1.0000
4	6.70	Nitrite,N	BMB	0.985	2.0359	2.0359	1.0000
6	8.89	Bromide	BMB	0.155	1.5986	1.5986	1.0000
7	9.57	Sulfate	BM	5.170	30.8924	30.8924	1.0000
8	10.17	Nitrate	M	1.395	2.4006	2.4006	1.0000
9	10.89	Chlorate	M	0.717	7.5345	7.5345	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**17.425**		**76.75**	

634 HS20030221-01MSD

Sample Name:	**HS20030221-01MSD**	*Injection Volume:*	**5.00**
Vial Number:	**GA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 08:12**	*Sample Weight:*	**1.0000**

Run Time:



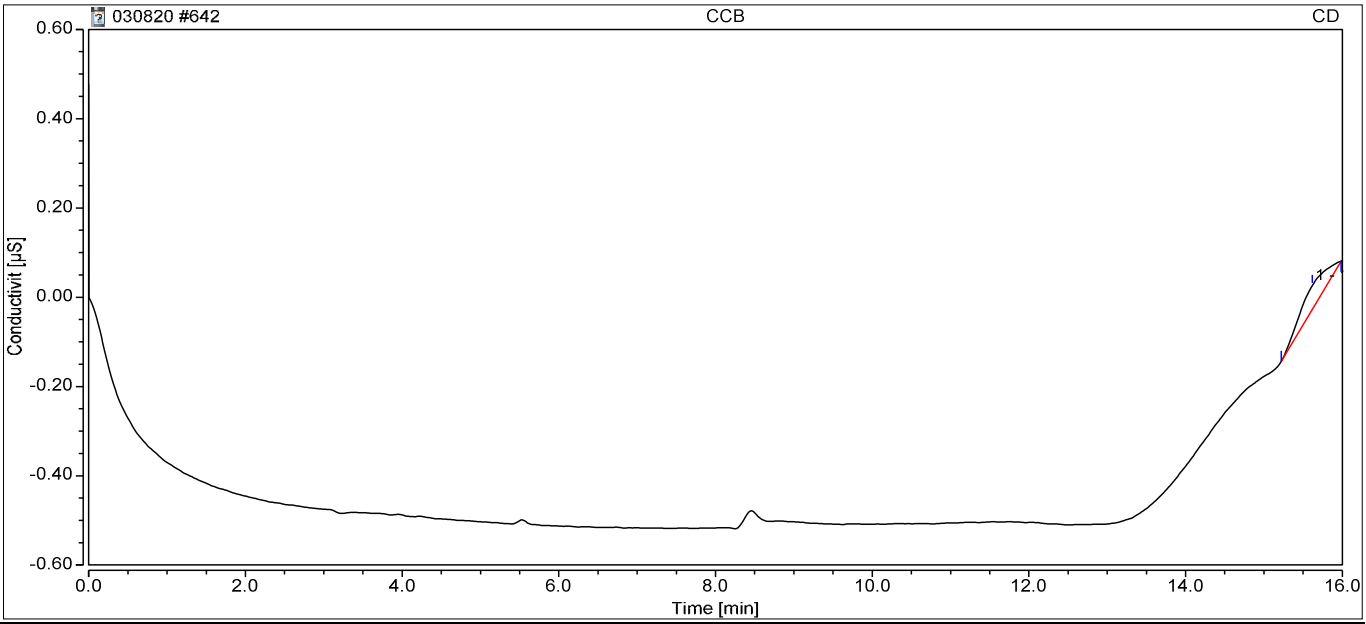
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BM *	4.731	13.8799	13.8799	1.0000
3	5.52	Chloride	BMB	4.238	18.3312	18.3312	1.0000
4	6.70	Nitrite,N	BMB	0.967	2.0000	2.0000	1.0000
7	8.89	Bromide	BMB	0.156	1.6055	1.6055	1.0000
8	9.56	Sulfate	BM	5.185	30.9821	30.9821	1.0000
9	10.17	Nitrate	M	1.408	2.4231	2.4231	1.0000
10	10.88	Chlorate	M	0.729	7.6659	7.6659	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**17.415**		**76.89**	

642 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 11:23**	*Sample Weight:*	**1.0000**

Run Time:



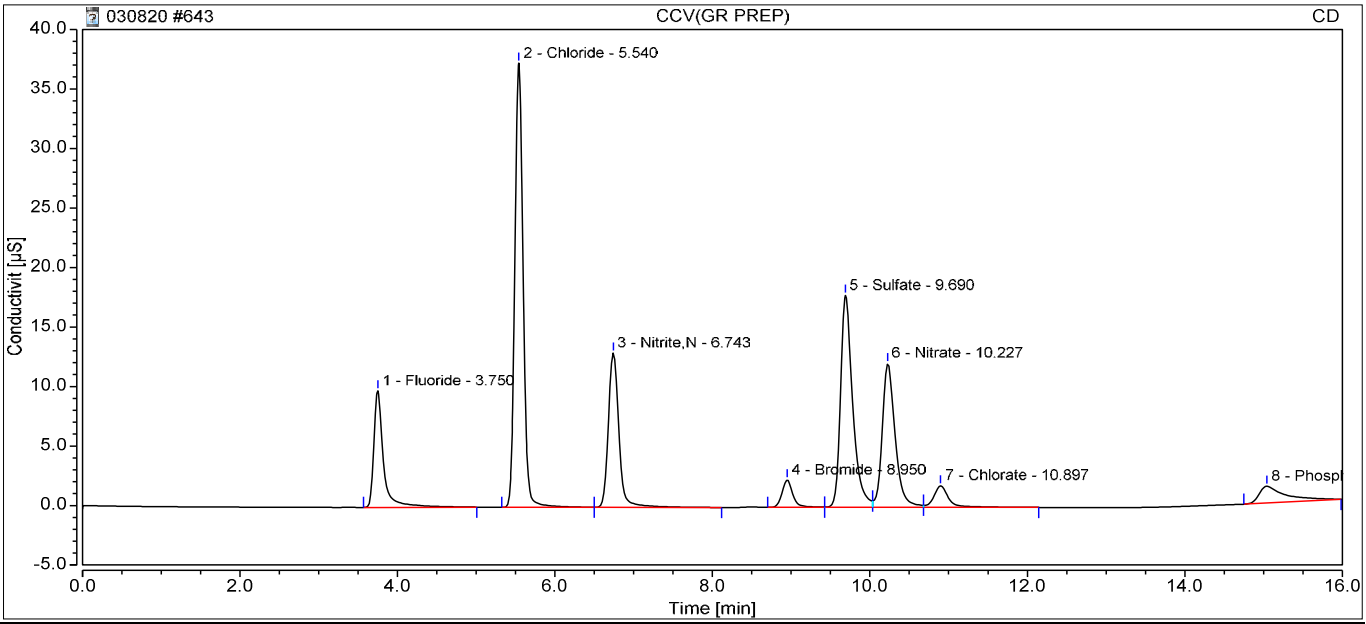
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

643 CCV(GR PREP)

Sample Name:	**CCV(GR PREP)**	*Injection Volume:*	**5.00**
Vial Number:	**BE3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/13/2020 11:42**	*Sample Weight:*	**1.0000**

Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.380	4.0647	4.0647	1.0000
2	5.54	Chloride	BMB	4.518	19.5400	19.5400	1.0000
3	6.74	Nitrite,N	BMB	2.025	4.1327	4.1327	1.0000
4	8.95	Bromide	BM	0.366	3.7283	3.7283	1.0000
5	9.69	Sulfate	M	3.186	19.0764	19.0764	1.0000
6	10.23	Nitrate	M	2.311	3.9674	3.9674	1.0000
7	10.90	Chlorate	MB	0.401	4.2019	4.2019	1.0000
8	15.04	Phosphate	BMB	0.559	2.7371	2.7371	1.0000
Total:			**0.000**	**14.746**		**61.45**	

Sequence: 032420
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	STD1	2970209205	Calibration	GA1	1.0000	1	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 7:39:11 PM -06:00
	STD2	NEW PRGM	Calibration	GA2	1.0000	2	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 7:57:16 PM -06:00
	STD3		Calibration	GA3	1.0000	3	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:15:24 PM -06:00
	STD4		Calibration	GA4	1.0000	4	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:33:31 PM -06:00
	STD5	NO2/PO4	Calibration	GA5	1.0000	5	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 8:51:36 PM -06:00
	STD6	MAX 10PPM	Calibration	GA6	1.0000	6	Anions Prog	Anions Proce	5.0	Finished	2/5/2020 9:09:41 PM -06:00
None	ICV	2970209123	Unknown	GA7	1.0000		Anions Prog	Anions Proce	5.0	Interrupted	
None	ICB		Unknown	GA8	1.0000		Anions Prog	Anions Proce	5.0	Interrupted	
	CCV1		Unknown	BA3	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/25/2020 12:16:39 PM -05:00
	CCB		Unknown	BA4	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/25/2020 12:34:48 PM -05:00
	MBLK-03.24.20 W	2ND BATCH	Unknown	RA1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/25/2020 3:10:20 PM -05:00
	CCV		Unknown	BA1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/25/2020 5:17:17 PM -05:00
	CCB		Unknown	BA2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/25/2020 5:35:24 PM -05:00
	LCS-03.24.20		Unknown	RA2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/25/2020 6:29:23 PM -05:00
	LCSD-03.24.20		Unknown	RA3	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/25/2020 6:47:29 PM -05:00
	CCV1		Unknown	BA3	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/25/2020 10:31:31 PM -05:00
	CCB		Unknown	BA4	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/25/2020 10:49:40 PM -05:00
	HS20030838-01	15	Unknown	RB5	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/25/2020 11:44:06 PM -05:00
	HS20030838-01MS		Unknown	RB7	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 12:20:19 AM -05:00
	HS20030838-01MSD		Unknown	RB8	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 12:38:26 AM -05:00
	CCV		Unknown	BA1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 2:08:55 AM -05:00
	CCB		Unknown	BA2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 2:27:01 AM -05:00
	CCV1		Unknown	BA3	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 12:42:34 PM -05:00
	CCB		Unknown	BA4	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 1:00:40 PM -05:00
	HS20030498-04DF500		Unknown	BB2	500.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 2:31:14 PM -05:00
	HS20030498-05DF500		Unknown	BB3	500.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 2:49:22 PM -05:00
	HS20030877-01DF500		Unknown	BB4	500.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 3:07:27 PM -05:00
	HS20030877-01MSDF500		Unknown	BB5	500.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 3:25:32 PM -05:00
	HS20030877-01MSDDF500		Unknown	BB6	500.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 3:43:37 PM -05:00

Sequence: 032420
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume	Status	Inject Time
	CCV	8	Unknown	BA1	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 7:01:57 PM -05:00
	CCB		Unknown	BA2	1.0000		Anions Prog	Anions Proce	5.0	Finished	3/26/2020 7:20:03 PM -05:00

Sequence: 032420
Injection #6: STD6

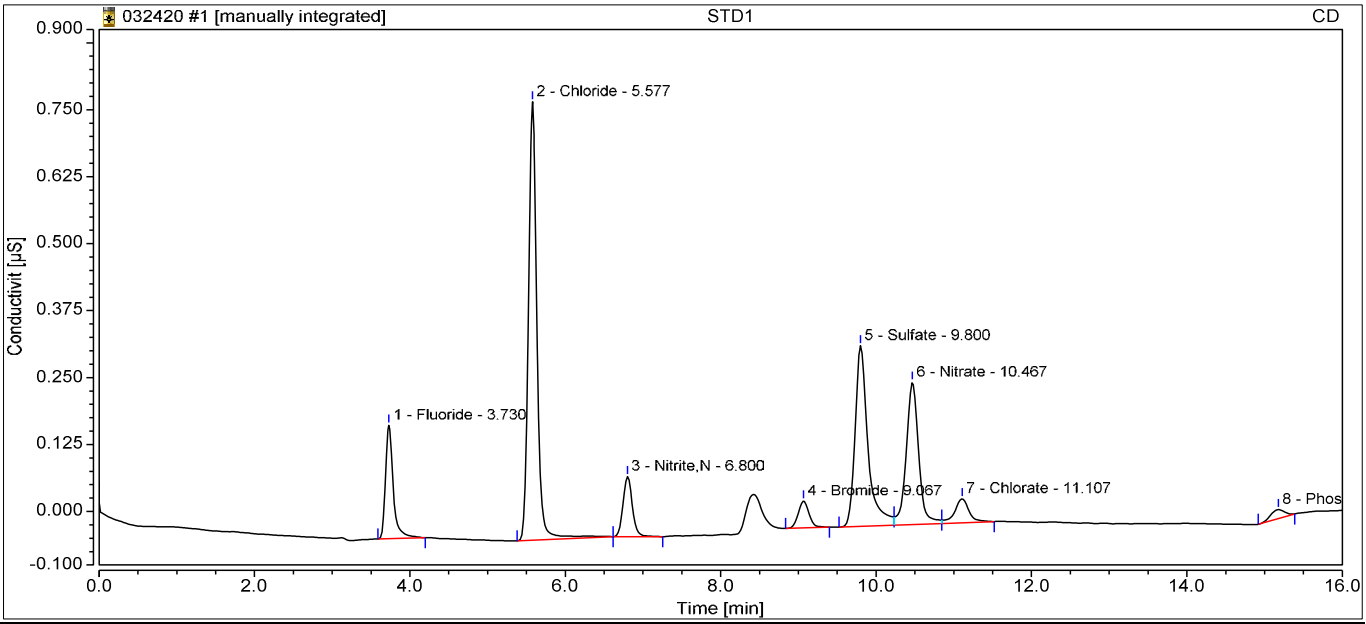
Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*Fluoride*	*Lin, WithOffset, 1/*	*Area*	*6*	*13.4314*	*0.99915*	*-0.0083*	*0.3414*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	2.2020	0.99998	-0.0141	0.2320	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	6	30.0137	0.99594	-0.0159	0.4671	0.0000
4	Bromide	Lin, WithOffset, 1/	Area	6	12.1436	0.99933	-0.0033	0.0991	0.0000
5	Sulfate	Lin, WithOffset, 1/	Area	6	4.2312	0.99991	-0.0170	0.1679	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	2.3081	0.99997	-0.0076	0.5843	0.0000
7	Chlorate	Lin, WithOffset, 1/	Area	6	9.7729	0.99945	0.0017	0.0949	0.0000
8	Phosphate	Lin, WithOffset, 1/	Area	6	20.6471	0.99870	-0.0235	0.2186	0.0000
Maximum					**30.0137**	0.99998			
Minimum					2.2020	**0.99594**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:39**	*Sample Weight:*	**1.0000**

Run Time:



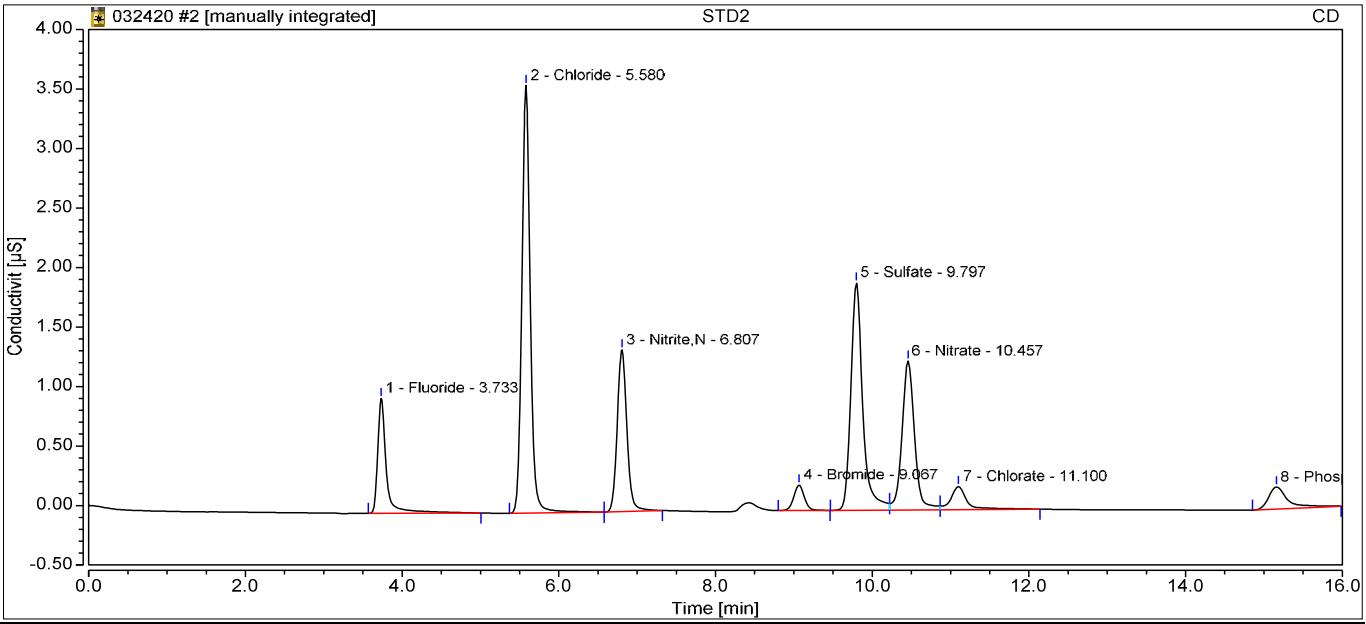
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.024	0.0955	0.0955	1.0000
2	5.58	Chloride	BMB	0.103	0.5065	0.5065	1.0000
3	6.80	Nitrite,N	BMB	0.016	0.0673	0.0673	1.0000
4	9.07	Bromide	BMB	0.008	0.1156	0.1156	1.0000
5	9.80	Sulfate	BM	0.065	0.4885	0.4885	1.0000
6	10.47	Nitrate	M	0.049	0.0974	0.0974	1.0000
7	11.11	Chlorate	MB	0.010	0.0834	0.0834	1.0000
8	15.18	Phosphate	BMB*	0.003	0.1235	0.1235	1.0000
Total:			**0.000**	**0.279**		**1.58**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 19:57**	*Sample Weight:*	**1.0000**

Run Time:



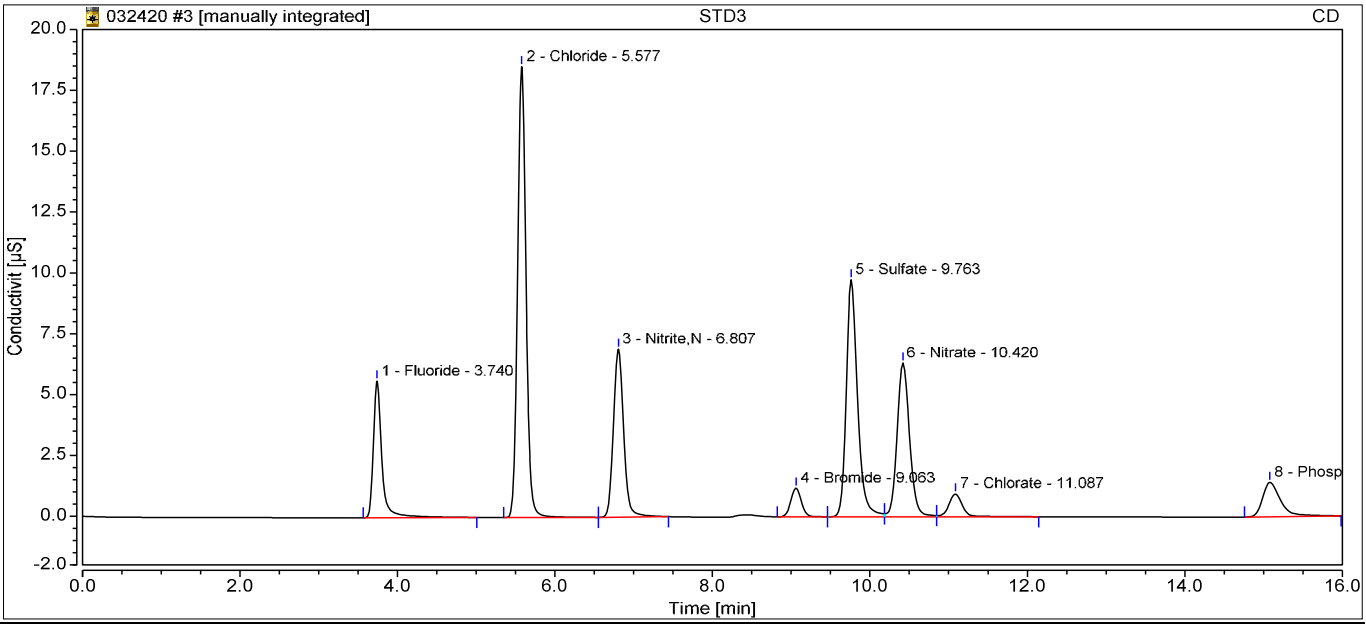
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.123	0.3833	0.3833	1.0000
2	5.58	Chloride	BMb*	0.449	1.9963	1.9963	1.0000
3	6.81	Nitrite,N	bMB*	0.194	0.4500	0.4500	1.0000
4	9.07	Bromide	BMB	0.034	0.3722	0.3722	1.0000
5	9.80	Sulfate	BM	0.335	2.0973	2.0973	1.0000
6	10.46	Nitrate	M	0.232	0.4103	0.4103	1.0000
7	11.10	Chlorate	MB	0.047	0.4759	0.4759	1.0000
8	15.16	Phosphate	BMB	0.053	0.3508	0.3508	1.0000
Total:			**0.000**	**1.467**		**6.54**	

3 STD3

Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:15**	*Sample Weight:*	**1.0000**

Run Time:



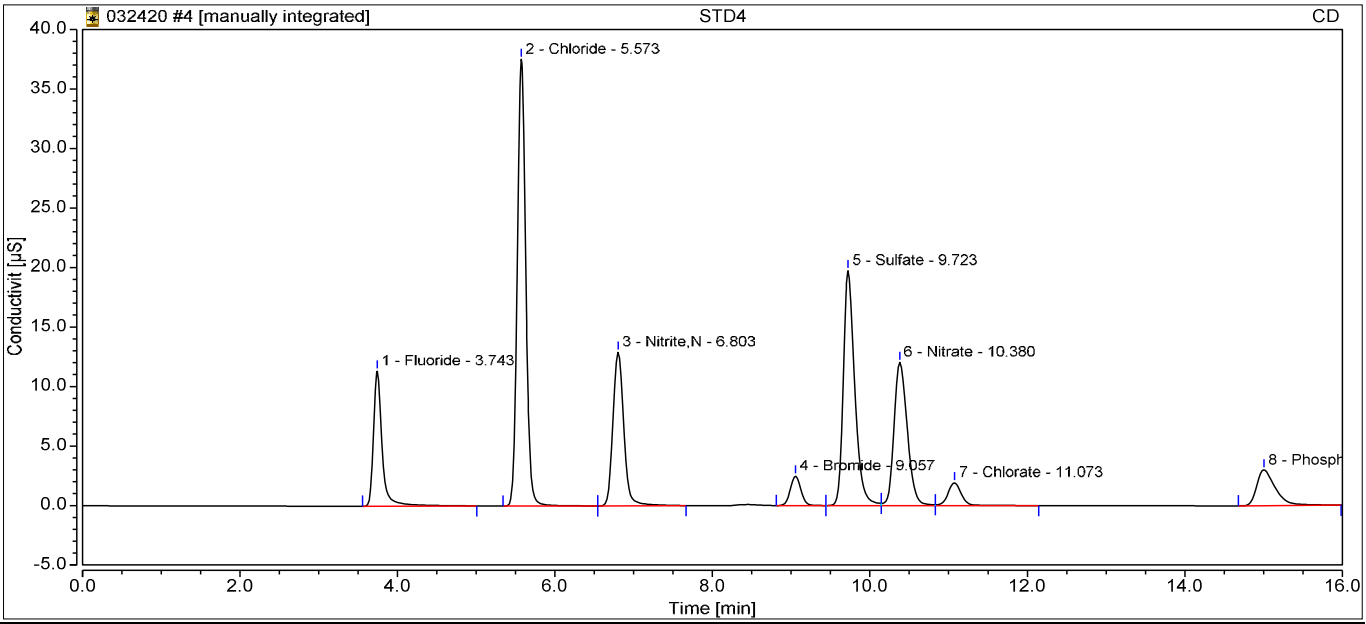
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.701	2.0769	2.0769	1.0000
2	5.58	Chloride	BMb*	2.284	9.9073	9.9073	1.0000
3	6.81	Nitrite,N	bMB*	1.029	2.2369	2.2369	1.0000
4	9.06	Bromide	BM	0.182	1.8657	1.8657	1.0000
5	9.76	Sulfate	M	1.624	9.7730	9.7730	1.0000
6	10.42	Nitrate	M	1.160	1.9980	1.9980	1.0000
7	11.09	Chlorate	MB	0.189	1.9689	1.9689	1.0000
8	15.08	Phosphate	BMB	0.374	1.8187	1.8187	1.0000
Total:			**0.000**	**7.542**		**31.65**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:33**	*Sample Weight:*	**1.0000**

Run Time:



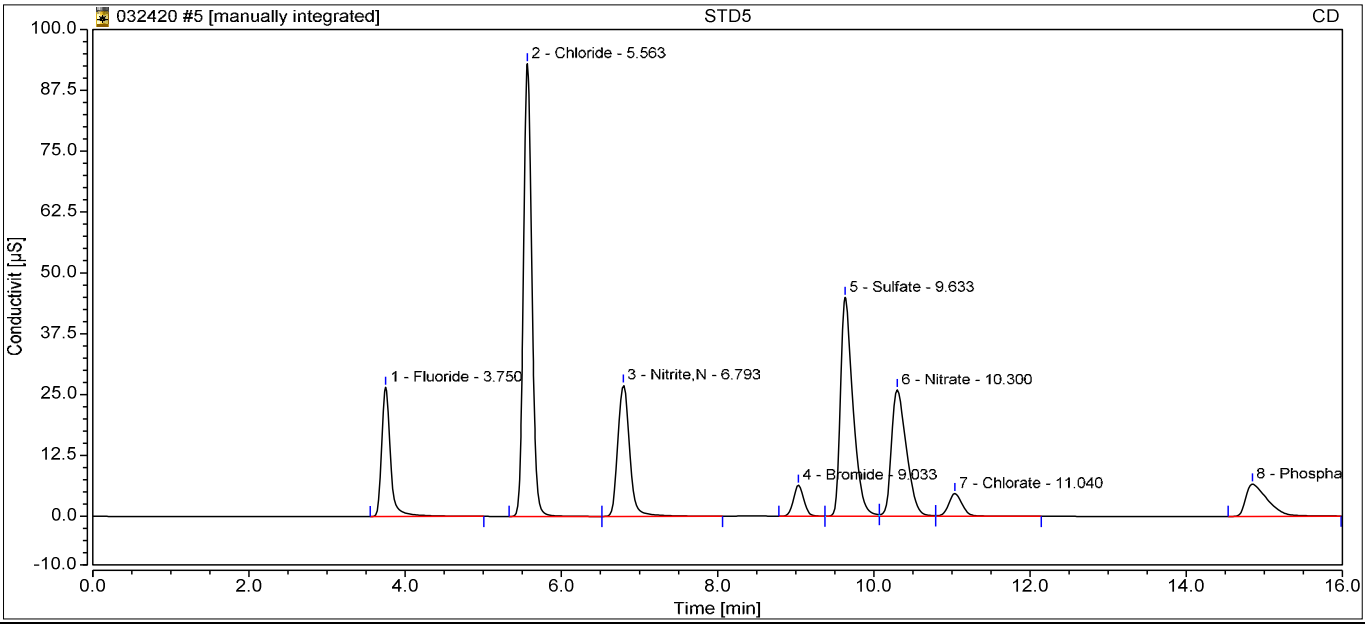
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.428	4.2080	4.2080	1.0000
2	5.57	Chloride	BMb*	4.627	20.0069	20.0069	1.0000
3	6.80	Nitrite,N	bMB*	2.046	4.4146	4.4146	1.0000
4	9.06	Bromide	BM	0.382	3.8871	3.8871	1.0000
5	9.72	Sulfate	M	3.337	19.9713	19.9713	1.0000
6	10.38	Nitrate	M	2.343	4.0228	4.0228	1.0000
7	11.07	Chlorate	MB	0.380	3.9830	3.9830	1.0000
8	15.00	Phosphate	BMB	0.824	3.8745	3.8745	1.0000
Total:			**0.000**	**15.366**		**64.37**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 20:51**	*Sample Weight:*	**1.0000**

Run Time:



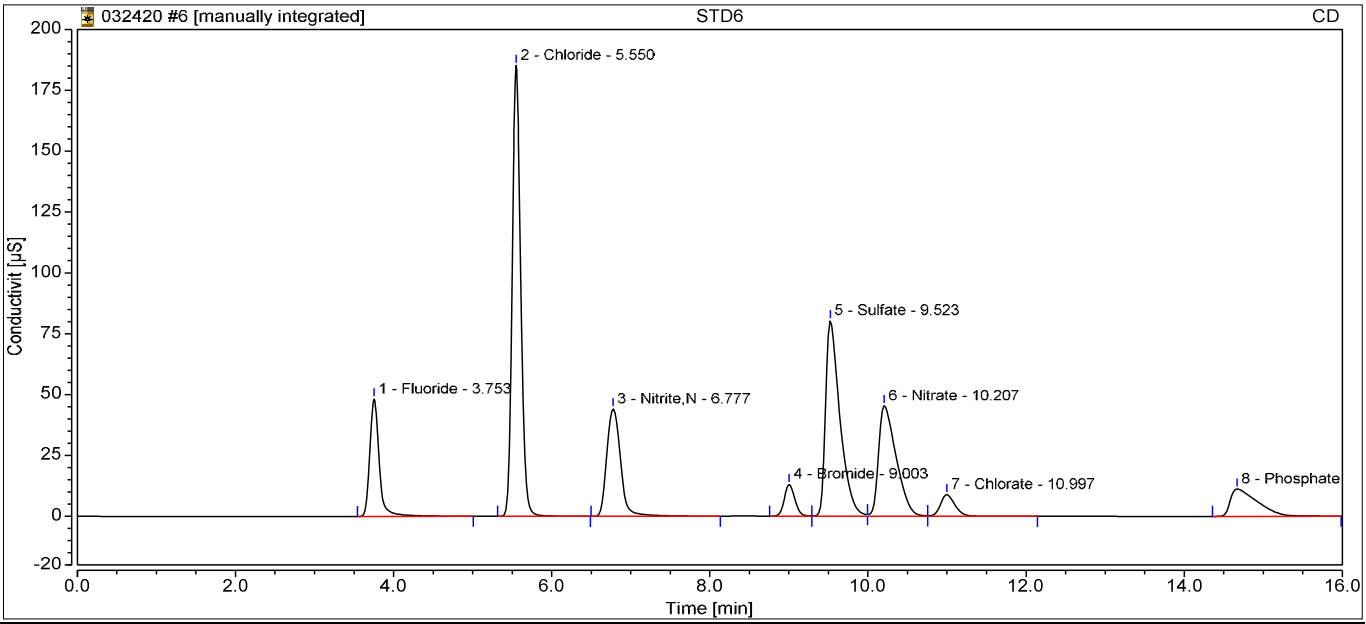
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.472	10.1940	10.1940	1.0000
2	5.56	Chloride	BMB	11.516	49.7057	49.7057	1.0000
3	6.79	Nitrite,N	BMB*	4.776	10.2593	10.2593	1.0000
4	9.03	Bromide	BM	0.981	9.9279	9.9279	1.0000
5	9.63	Sulfate	M	8.325	49.6811	49.6811	1.0000
6	10.30	Nitrate	M	5.799	9.9382	9.9382	1.0000
7	11.04	Chlorate	MB	0.944	9.9252	9.9252	1.0000
8	14.85	Phosphate	BMB	2.135	9.8737	9.8737	1.0000
Total:			**0.000**	**37.949**		**159.51**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**GA6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**02/05/2020 21:09**	*Sample Weight:*	**1.0000**

Run Time:



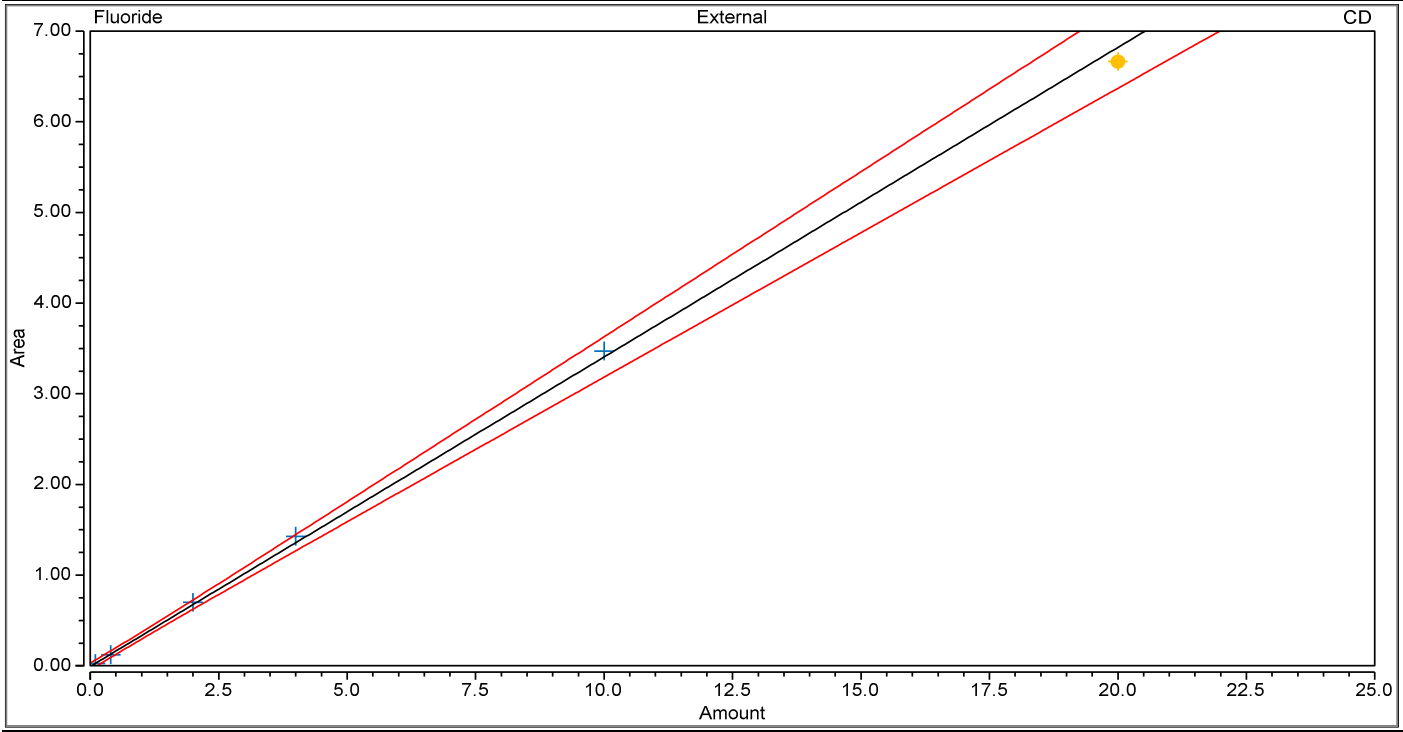
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	6.664	19.5424	19.5424	1.0000
2	5.55	Chloride	BMB	23.270	100.3774	100.3774	1.0000
3	6.78	Nitrite,N	BMB*	8.893	19.0718	19.0718	1.0000
4	9.00	Bromide	BM	2.012	20.3316	20.3316	1.0000
5	9.52	Sulfate	M	16.857	100.4888	100.4888	1.0000
6	10.21	Nitrate	M	11.698	20.0333	20.0333	1.0000
7	11.00	Chlorate	MB	1.906	20.0635	20.0635	1.0000
8	14.67	Phosphate	BMB	4.450	20.4589	20.4589	1.0000
Total:			**0.000**	**75.750**		**320.37**	

Calibration

Calibration Details	Fluoride		
Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	-0.0083
Evaluation Type	Area	*Slope (C1)*	0.3414
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9991

Calibration Plot **Fluoride**



Calibration Results **Fluoride**

No.	Injection Name	Calibration Level	X Value CD Fluoride	Y Value CD Fluoride	Y Value CD Fluoride	Area µS*min CD Fluoride	Height µS CD Fluoride
1	STD1	1	0.1000	0.0243	0.0243	0.024	0.212
2	STD2	2	0.4000	0.1226	0.1226	0.123	0.964
3	STD3	3	2.0000	0.7008	0.7008	0.701	5.614
4	STD4	4	4.0000	1.4284	1.4284	1.428	11.345
5	STD5	5	10.0000	3.4723	3.4723	3.472	26.547
6	STD6	6	20.0000	6.6641	6.6641	6.664	48.233

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**n.a.**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**n.a.**	*Sample Weight:*	**1.0000**

Run Time:

Channel CD is not available for injection #7 - ICV.

Integration Results

No.	Retention min	Peak Name	Peak Type	Area n.a.	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**GA8**	*Channel:*	**n.a.**
Sample Type:	**Unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**n.a.**	*Sample Weight:*	**1.0000**

Run Time:

Channel CD is not available for injection #8 - ICB.

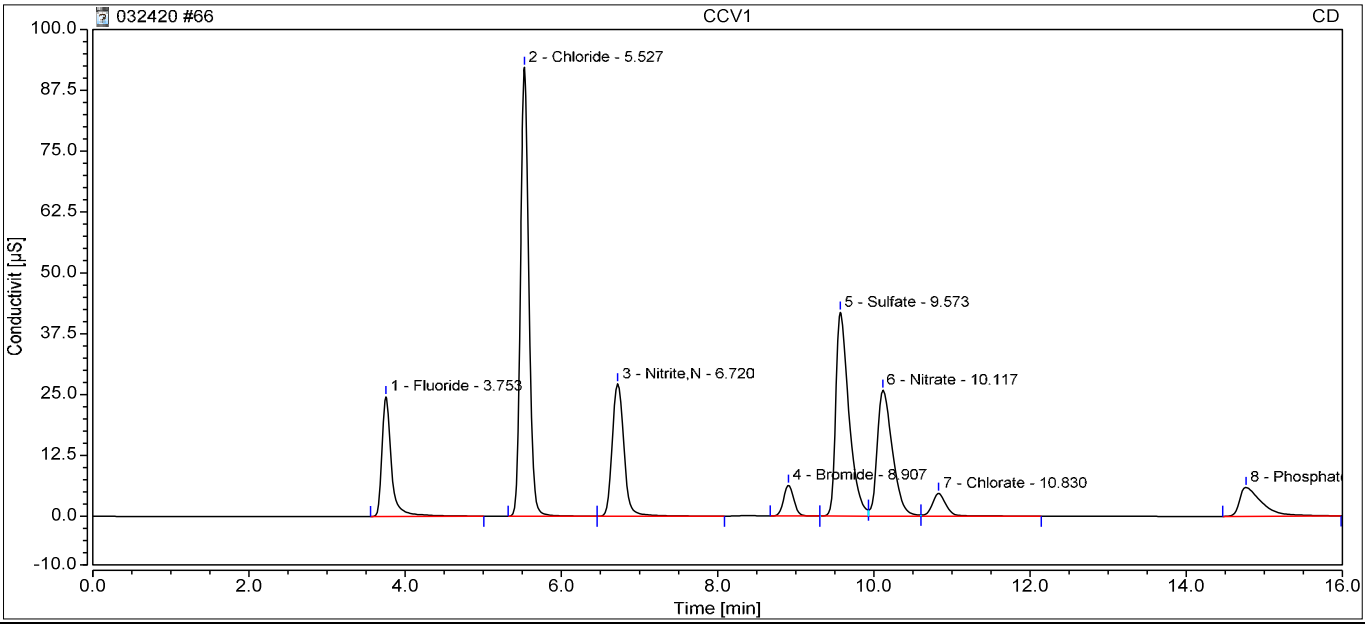
Integration Results

No.	Retention min	Peak Name	Peak Type	Area n.a.	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

66 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/25/2020 12:16**	*Sample Weight:*	**1.0000**

Run Time:



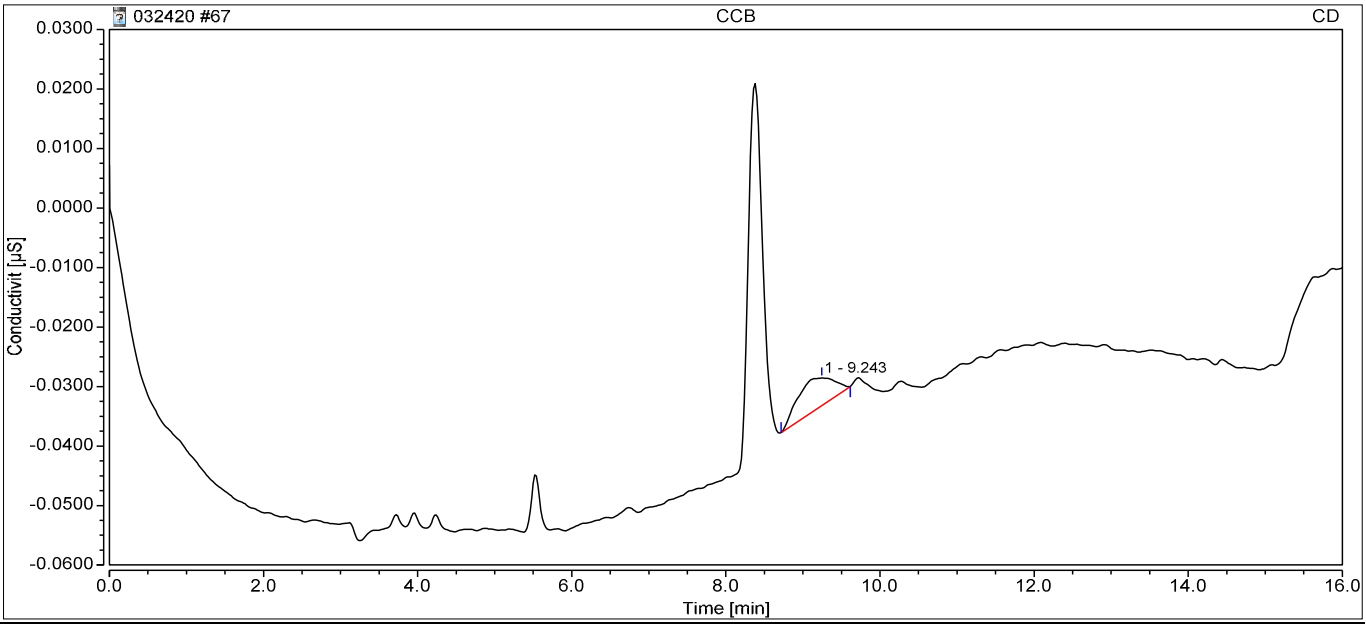
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.454	10.1403	10.1403	1.0000
2	5.53	Chloride	BMB	11.410	49.2500	49.2500	1.0000
3	6.72	Nitrite,N	BMB	4.765	10.2358	10.2358	1.0000
4	8.91	Bromide	BM	0.958	9.6999	9.6999	1.0000
5	9.57	Sulfate	M	8.164	48.7186	48.7186	1.0000
6	10.12	Nitrate	M	5.822	9.9774	9.9774	1.0000
7	10.83	Chlorate	MB	0.960	10.0951	10.0951	1.0000
8	14.77	Phosphate	BMB	1.971	9.1203	9.1203	1.0000
Total:			**0.000**	**37.504**		**157.24**	

67 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/25/2020 12:34**	*Sample Weight:*	**1.0000**

Run Time:



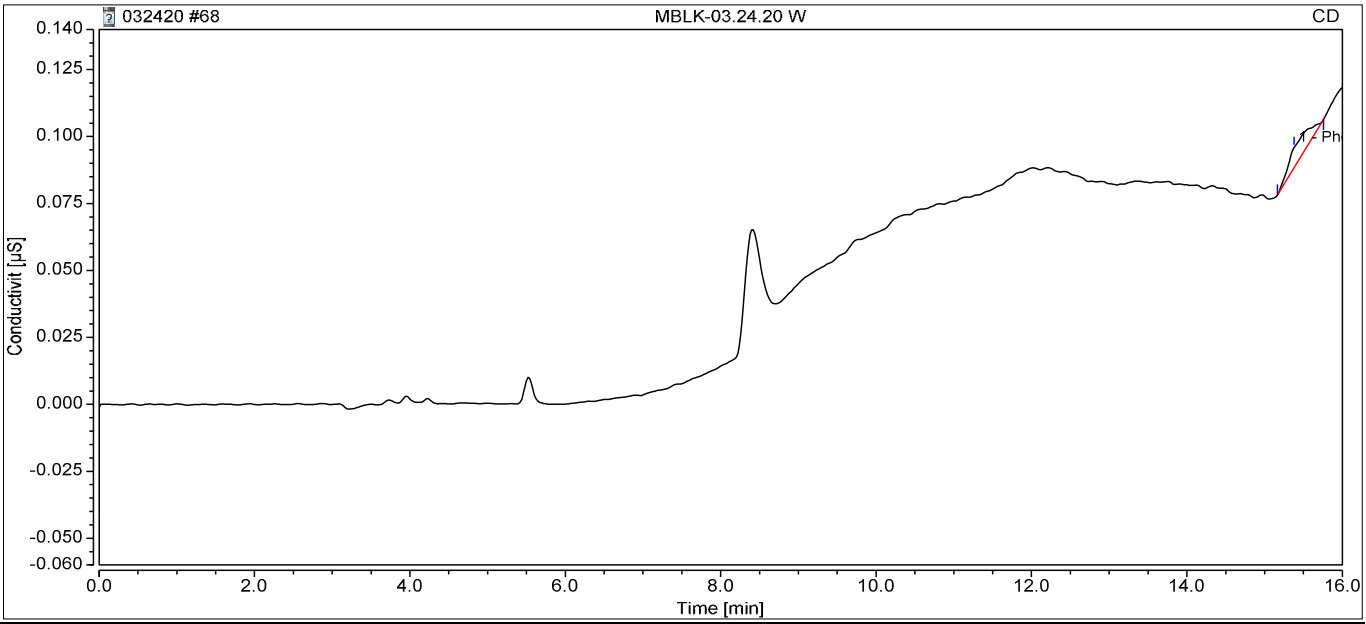
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

68 MBLK-03.24.20 W

Sample Name:	**MBLK-03.24.20 W**	*Injection Volume:*	**5.00**
Vial Number:	**RA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/25/2020 15:10**	*Sample Weight:*	**1.0000**

Run Time:



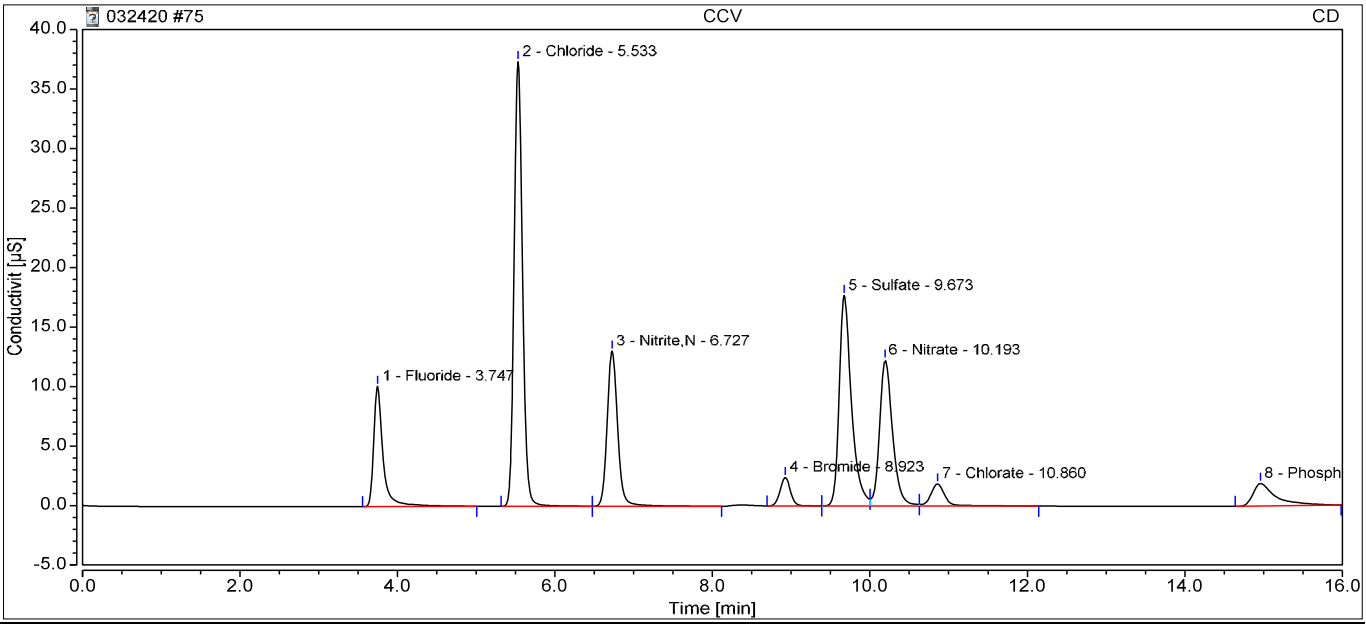
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
1	15.38	Phosphate	BMB	0.003	0.1191	0.1191	1.0000
Total:			**0.000**	**0.003**		**0.12**	

75 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/25/2020 17:17**	*Sample Weight:*	**1.0000**

Run Time:



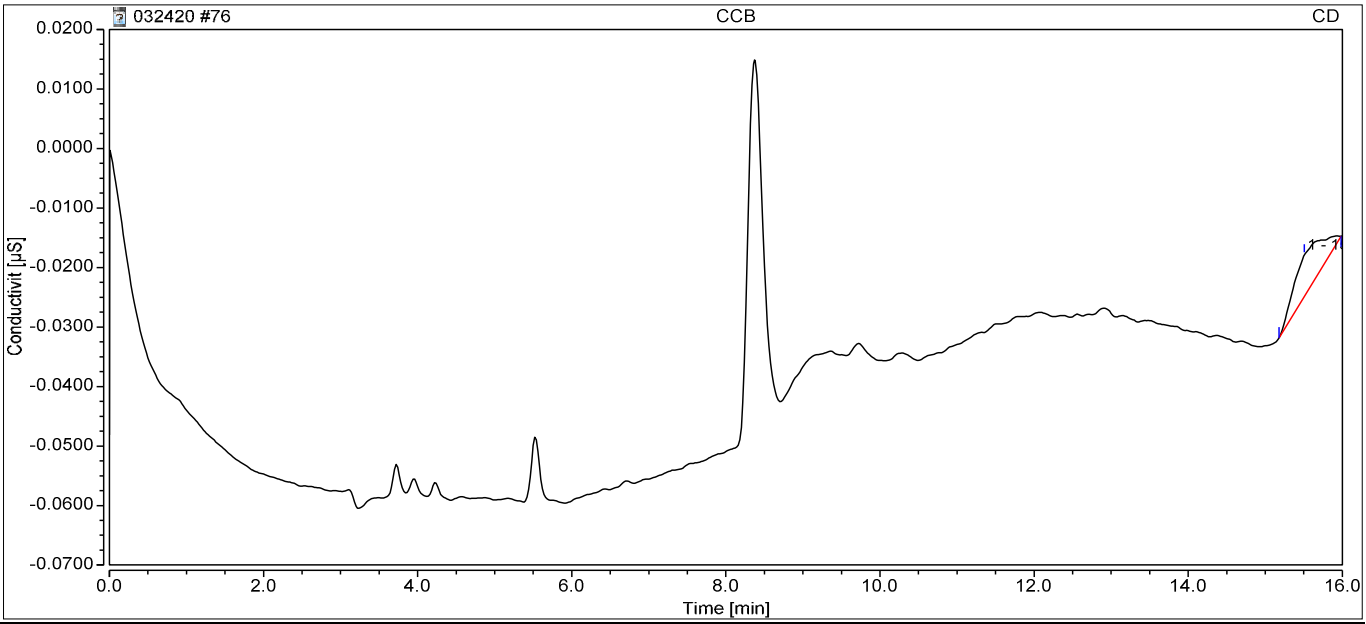
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.395	4.1098	4.1098	1.0000
2	5.53	Chloride	BMB	4.575	19.7825	19.7825	1.0000
3	6.73	Nitrite,N	BMB	2.035	4.3899	4.3899	1.0000
4	8.92	Bromide	BM	0.364	3.7054	3.7054	1.0000
5	9.67	Sulfate	M	3.198	19.1475	19.1475	1.0000
6	10.19	Nitrate	M	2.345	4.0266	4.0266	1.0000
7	10.86	Chlorate	MB	0.393	4.1201	4.1201	1.0000
8	14.96	Phosphate	BMB	0.646	3.0629	3.0629	1.0000
Total:			**0.000**	**14.951**		**62.34**	

76 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/25/2020 17:35**	*Sample Weight:*	**1.0000**

Run Time:



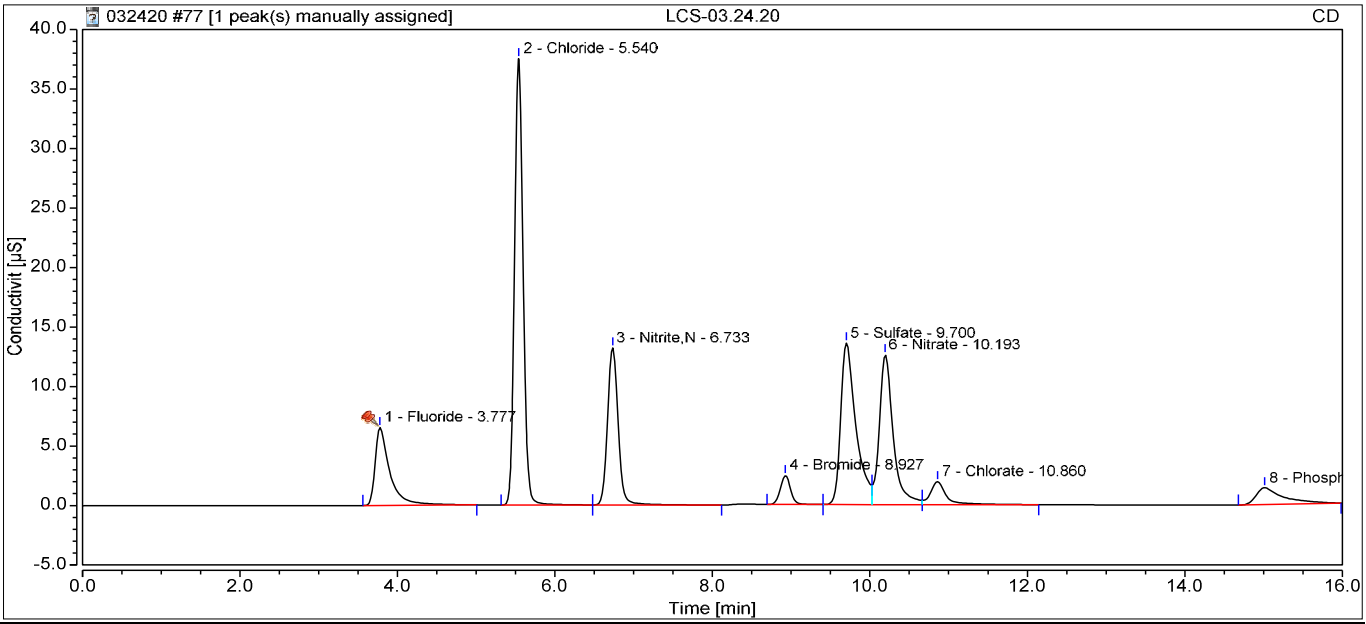
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

77 LCS-03.24.20

Sample Name:	**LCS-03.24.20**	*Injection Volume:*	**5.00**
Vial Number:	**RA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/25/2020 18:29**	*Sample Weight:*	**1.0000**

Run Time:



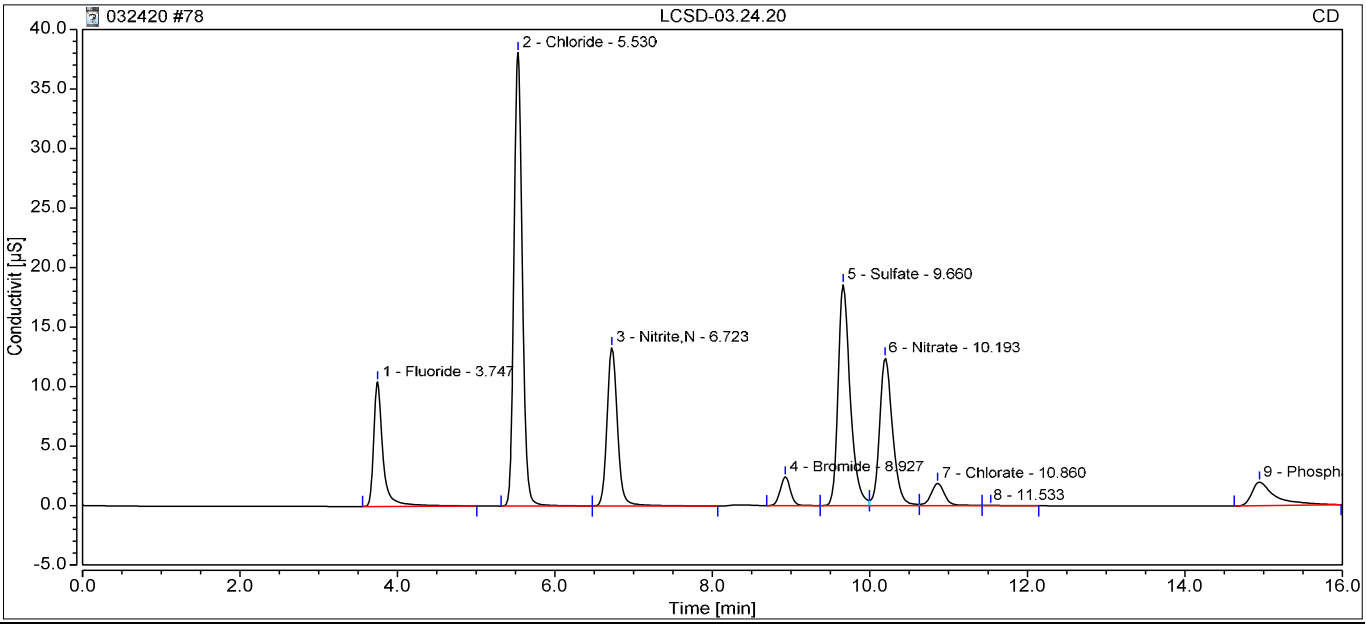
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.78	Fluoride	BMB^	1.408	4.1467	4.1467	1.0000
2	5.54	Chloride	BMB	4.684	20.2537	20.2537	1.0000
3	6.73	Nitrite,N	BMB	2.085	4.4984	4.4984	1.0000
4	8.93	Bromide	BM	0.368	3.7416	3.7416	1.0000
5	9.70	Sulfate	M	3.048	18.2550	18.2550	1.0000
6	10.19	Nitrate	M	2.575	4.4197	4.4197	1.0000
7	10.86	Chlorate	MB	0.453	4.7490	4.7490	1.0000
8	15.01	Phosphate	BMB	0.569	2.7115	2.7115	1.0000
Total:			**0.000**	**15.190**		**62.78**	

78 LCSD-03.24.20

Sample Name:	**LCSD-03.24.20**	*Injection Volume:*	**5.00**
Vial Number:	**RA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/25/2020 18:47**	*Sample Weight:*	**1.0000**

Run Time:



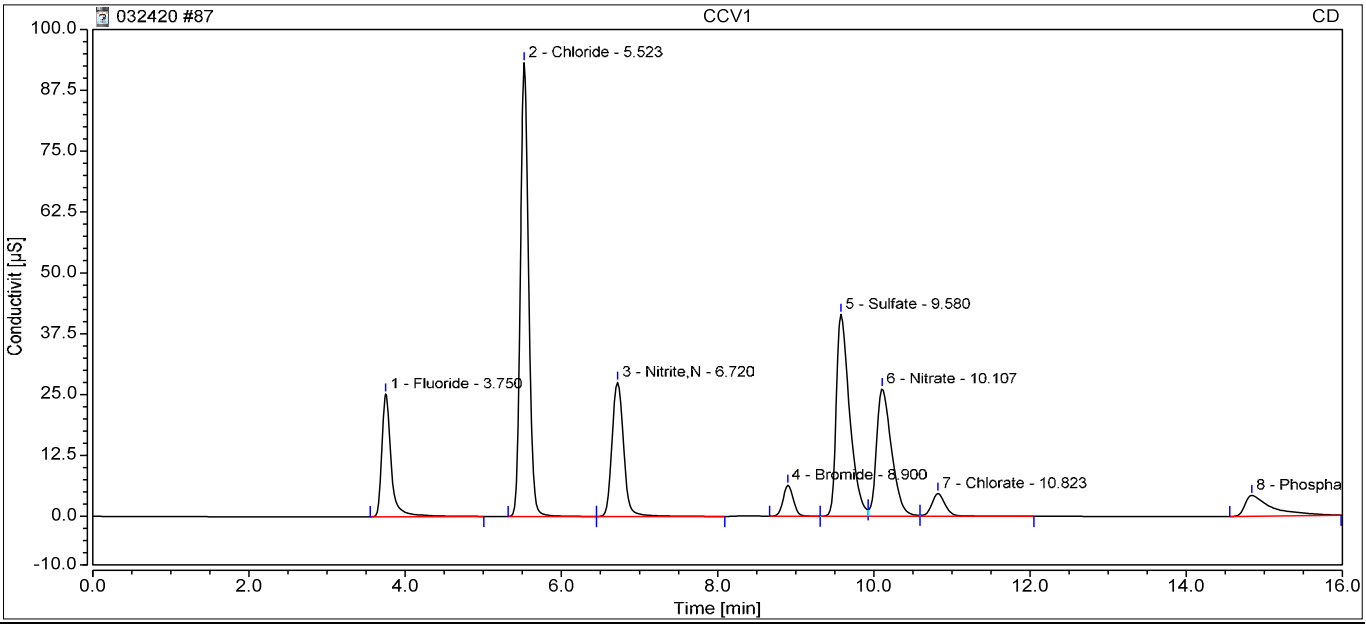
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.423	4.1906	4.1906	1.0000
2	5.53	Chloride	BMB	4.646	20.0889	20.0889	1.0000
3	6.72	Nitrite,N	BMB	2.067	4.4583	4.4583	1.0000
4	8.93	Bromide	BM	0.370	3.7671	3.7671	1.0000
5	9.66	Sulfate	M	3.310	19.8159	19.8159	1.0000
6	10.19	Nitrate	M	2.377	4.0803	4.0803	1.0000
7	10.86	Chlorate	M	0.384	4.0296	4.0296	1.0000
9	14.95	Phosphate	BMB	0.684	3.2380	3.2380	1.0000
Total:			**0.000**	**15.261**		**63.67**	

87 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/25/2020 22:31**	*Sample Weight:*	**1.0000**

Run Time:



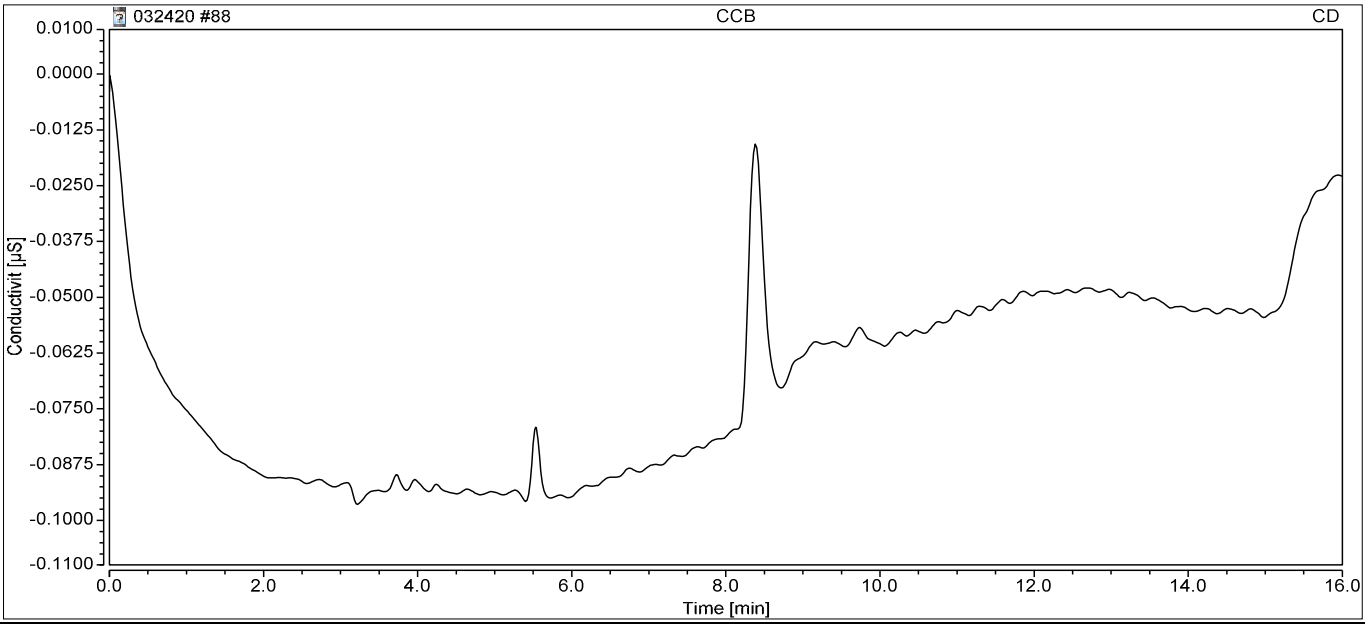
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.477	10.2075	10.2075	1.0000
2	5.52	Chloride	BMB	11.408	49.2416	49.2416	1.0000
3	6.72	Nitrite,N	BMB	4.768	10.2419	10.2419	1.0000
4	8.90	Bromide	BM	0.959	9.7105	9.7105	1.0000
5	9.58	Sulfate	M	8.208	48.9840	48.9840	1.0000
6	10.11	Nitrate	M	5.837	10.0034	10.0034	1.0000
7	10.82	Chlorate	MB	0.957	10.0638	10.0638	1.0000
8	14.84	Phosphate	BMB	1.722	7.9851	7.9851	1.0000
Total:			**0.000**	**37.338**		**156.44**	

88 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/25/2020 22:49**	*Sample Weight:*	**1.0000**

Run Time:

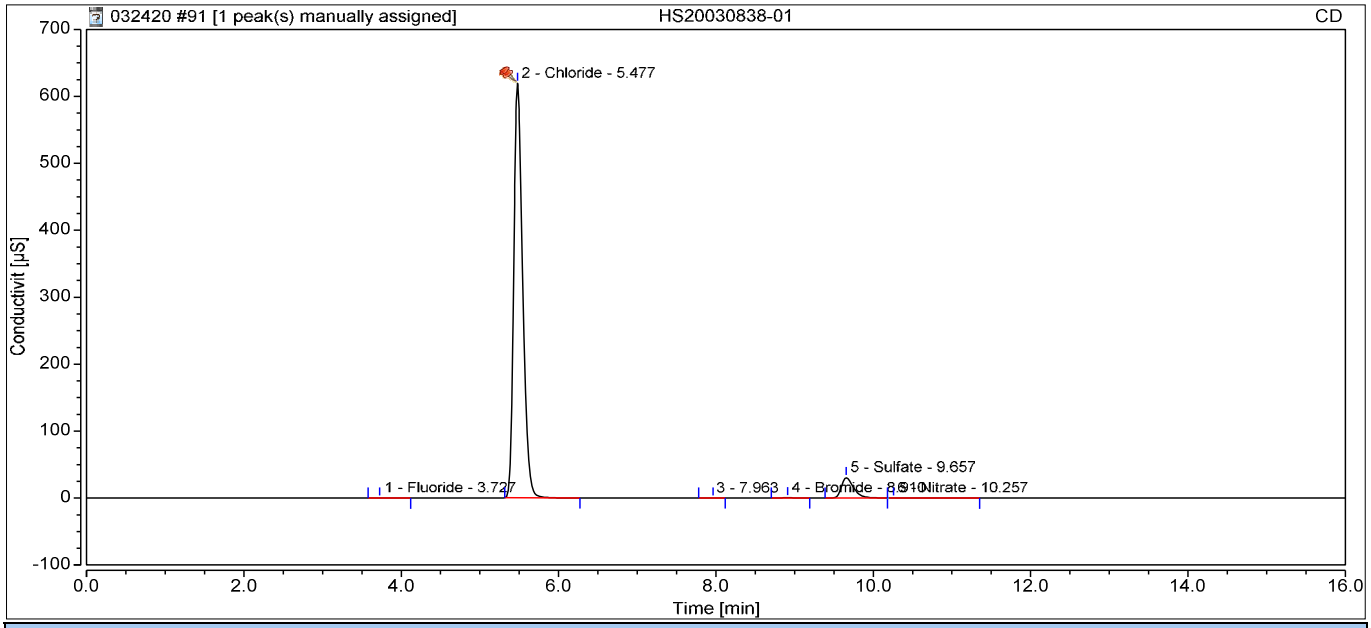


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

91	*HS20030838-01*		
Sample Name:	**HS20030838-01**	*Injection Volume:*	**5.00**
Vial Number:	**RB5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/25/2020 23:44**	*Sample Weight:*	**1.0000**

Run Time:



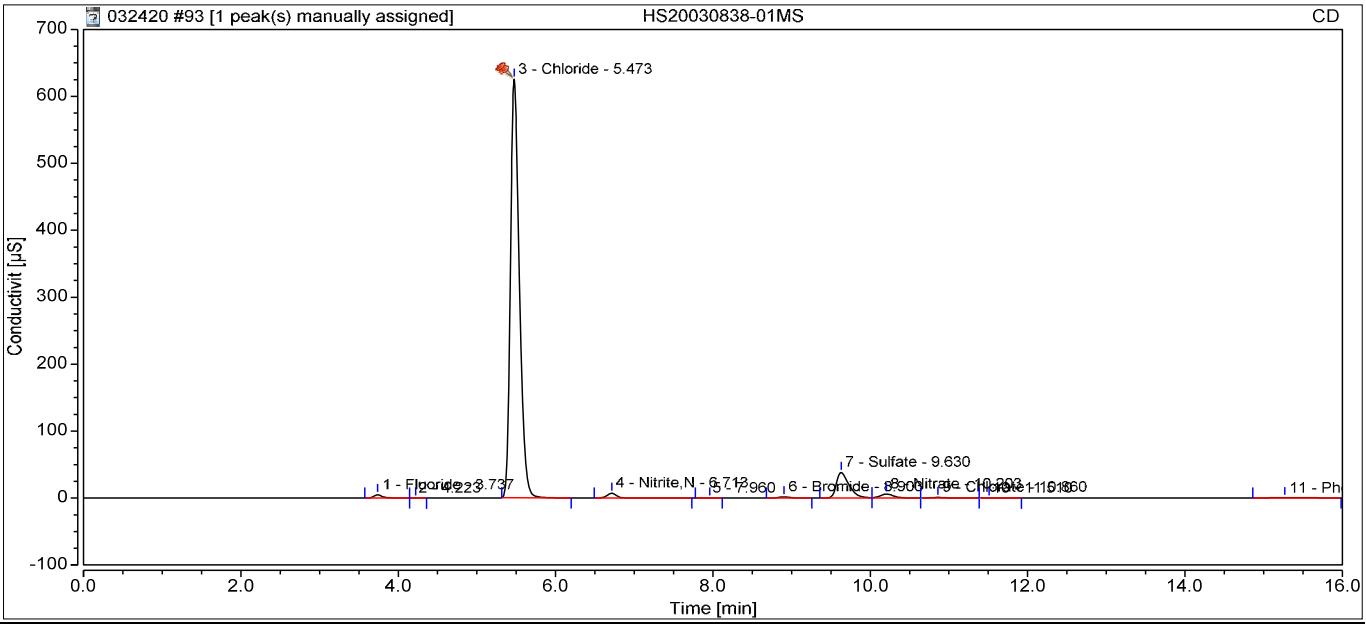
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.025	0.0978	0.0978	1.0000
2	5.48	Chloride	BMB^	81.749	352.4777	352.4777	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.91	Bromide	BMB	0.073	0.7681	0.7681	1.0000
5	9.66	Sulfate	BM	5.483	32.7551	32.7551	1.0000
6	10.26	Nitrate	MB	0.051	0.1010	0.1010	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**87.381**		**386.20**	

93 HS20030838-01MS

Sample Name:	**HS20030838-01MS**	*Injection Volume:*	**5.00**
Vial Number:	**RB7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/26/2020 00:20**	*Sample Weight:*	**1.0000**

Run Time:



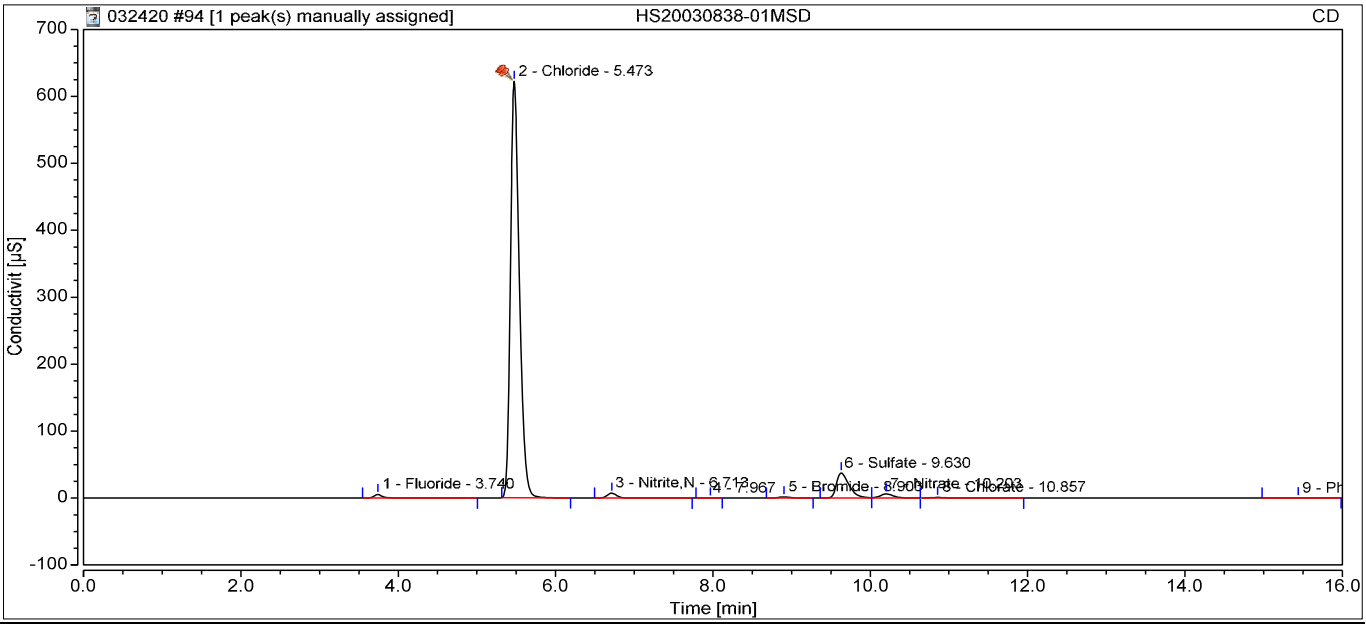
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.637	1.8890	1.8890	1.0000
3	5.47	Chloride	BMB^	82.579	356.0555	356.0555	1.0000
4	6.71	Nitrite,N	BMB	1.039	2.2579	2.2579	1.0000
6	8.90	Bromide	BMB	0.250	2.5535	2.5535	1.0000
7	9.63	Sulfate	BM	7.131	42.5698	42.5698	1.0000
8	10.20	Nitrate	M	1.198	2.0635	2.0635	1.0000
9	10.86	Chlorate	M	0.184	1.9187	1.9187	1.0000
11	15.27	Phosphate	BMB	0.342	1.6708	1.6708	1.0000
Total:			**0.000**	**93.359**		**410.98**	

94 HS20030838-01MSD

Sample Name:	**HS20030838-01MSD**	*Injection Volume:*	**5.00**
Vial Number:	**RB8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/26/2020 00:38**	*Sample Weight:*	**1.0000**

Run Time:



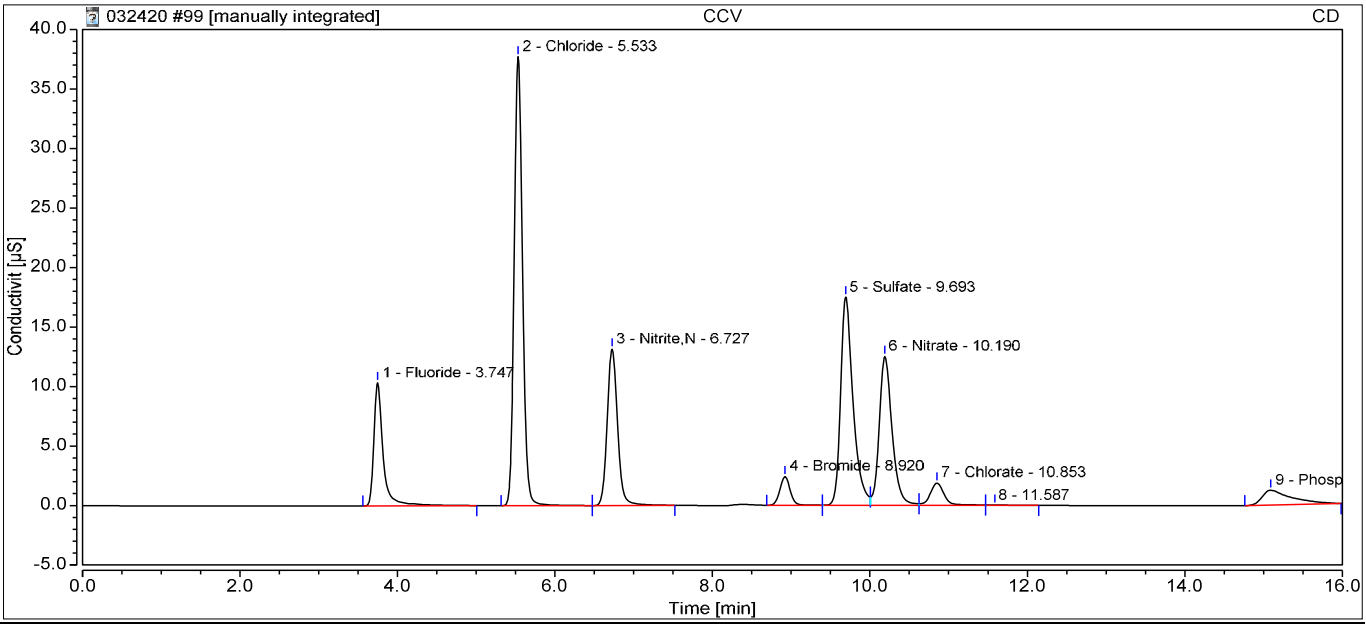
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.742	2.1968	2.1968	1.0000
2	5.47	Chloride	BMB^	82.058	353.8122	353.8122	1.0000
3	6.71	Nitrite,N	BMB	1.068	2.3208	2.3208	1.0000
5	8.90	Bromide	BMB	0.255	2.6094	2.6094	1.0000
6	9.63	Sulfate	BM	6.978	41.6576	41.6576	1.0000
7	10.20	Nitrate	M	1.233	2.1224	2.1224	1.0000
8	10.86	Chlorate	MB	0.193	2.0157	2.0157	1.0000
9	15.44	Phosphate	BMB	0.151	0.7970	0.7970	1.0000
Total:			**0.000**	**92.678**		**407.53**	

99 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/26/2020 02:08**	*Sample Weight:*	**1.0000**

Run Time:



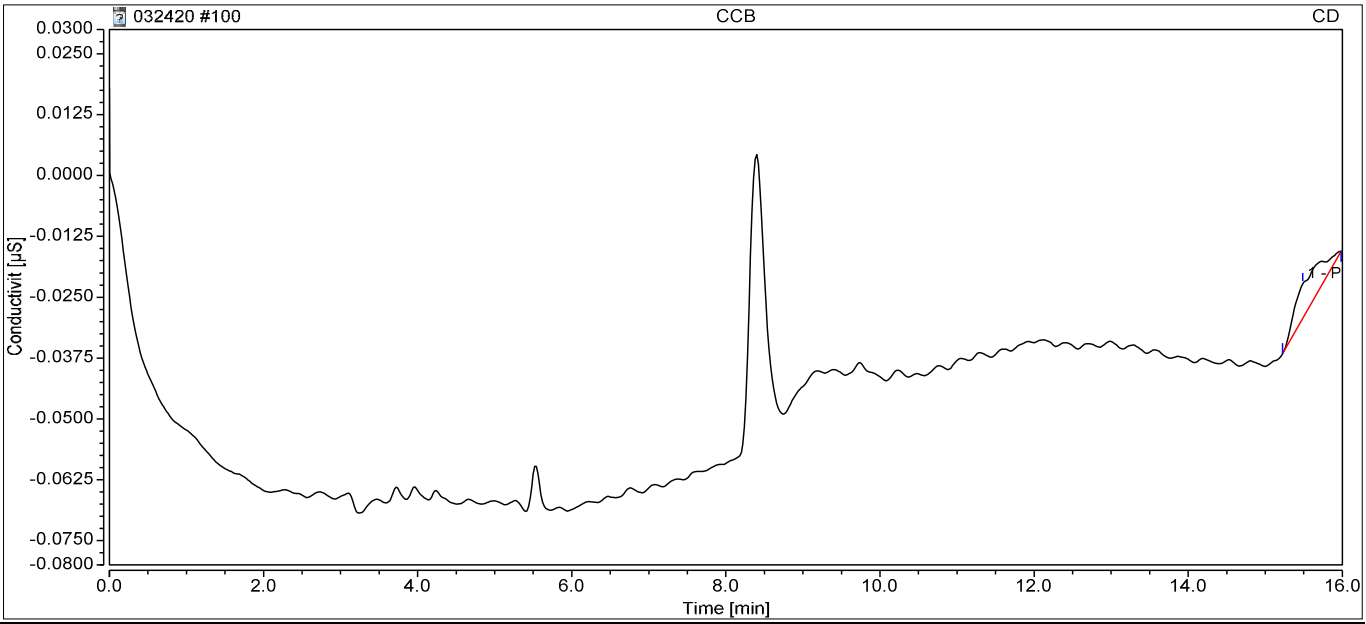
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	1.407	4.1465	4.1465	1.0000
2	5.53	Chloride	BMb*	4.578	19.7960	19.7960	1.0000
3	6.73	Nitrite,N	bMB*	2.022	4.3626	4.3626	1.0000
4	8.92	Bromide	BM	0.366	3.7285	3.7285	1.0000
5	9.69	Sulfate	M	3.219	19.2729	19.2729	1.0000
6	10.19	Nitrate	M	2.364	4.0587	4.0587	1.0000
7	10.85	Chlorate	M	0.388	4.0662	4.0662	1.0000
9	15.09	Phosphate	BMB	0.546	2.6048	2.6048	1.0000
Total:			**0.000**	**14.890**		**62.04**	

100 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/26/2020 02:27**	*Sample Weight:*	**1.0000**

Run Time:



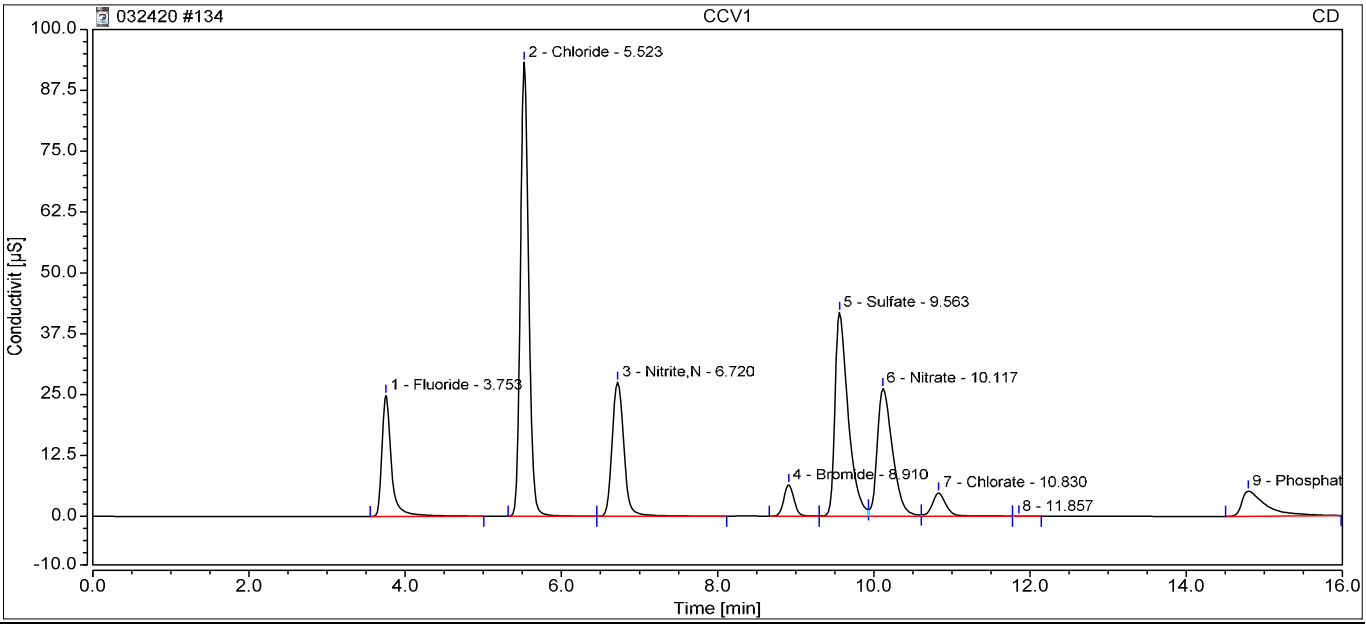
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
1	15.49	Phosphate	BMB	0.003	0.1215	0.1215	1.0000
Total:			**0.000**	**0.003**		**0.12**	

134 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/26/2020 12:42**	*Sample Weight:*	**1.0000**

Run Time:



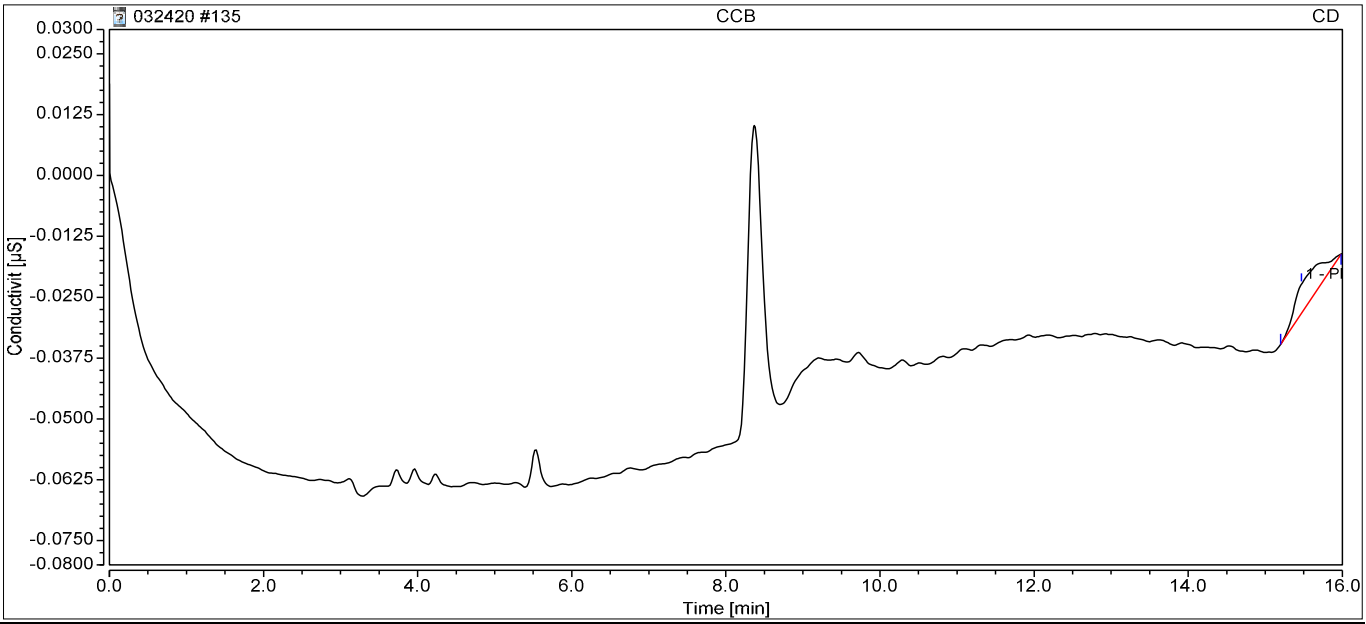
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.75	Fluoride	BMB	3.489	10.2435	10.2435	1.0000
2	5.52	Chloride	BMB	11.491	49.5978	49.5978	1.0000
3	6.72	Nitrite,N	BMB	4.816	10.3432	10.3432	1.0000
4	8.91	Bromide	BM	0.980	9.9155	9.9155	1.0000
5	9.56	Sulfate	M	8.235	49.1404	49.1404	1.0000
6	10.12	Nitrate	M	5.917	10.1388	10.1388	1.0000
7	10.83	Chlorate	M	0.985	10.3611	10.3611	1.0000
9	14.80	Phosphate	BMB	1.860	8.6164	8.6164	1.0000
Total:			**0.000**	**37.772**		**158.36**	

135 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/26/2020 13:00**	*Sample Weight:*	**1.0000**

Run Time:



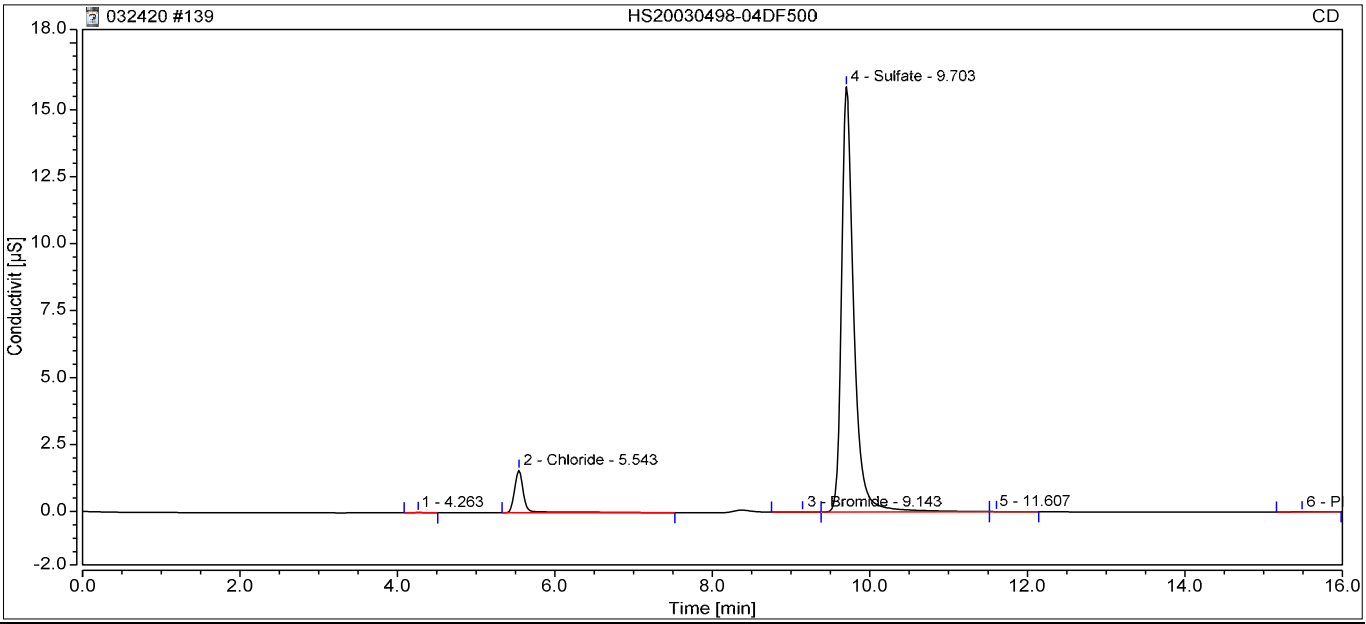
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
1	15.47	Phosphate	BMB	0.003	0.1195	0.1195	1.0000
Total:			**0.000**	**0.003**		**0.12**	

139 HS20030498-04DF500

Sample Name:	**HS20030498-04DF500**	*Injection Volume:*	**5.00**
Vial Number:	**BB2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**500.0000**
Recording Time:	**03/26/2020 14:31**	*Sample Weight:*	**1.0000**

Run Time:



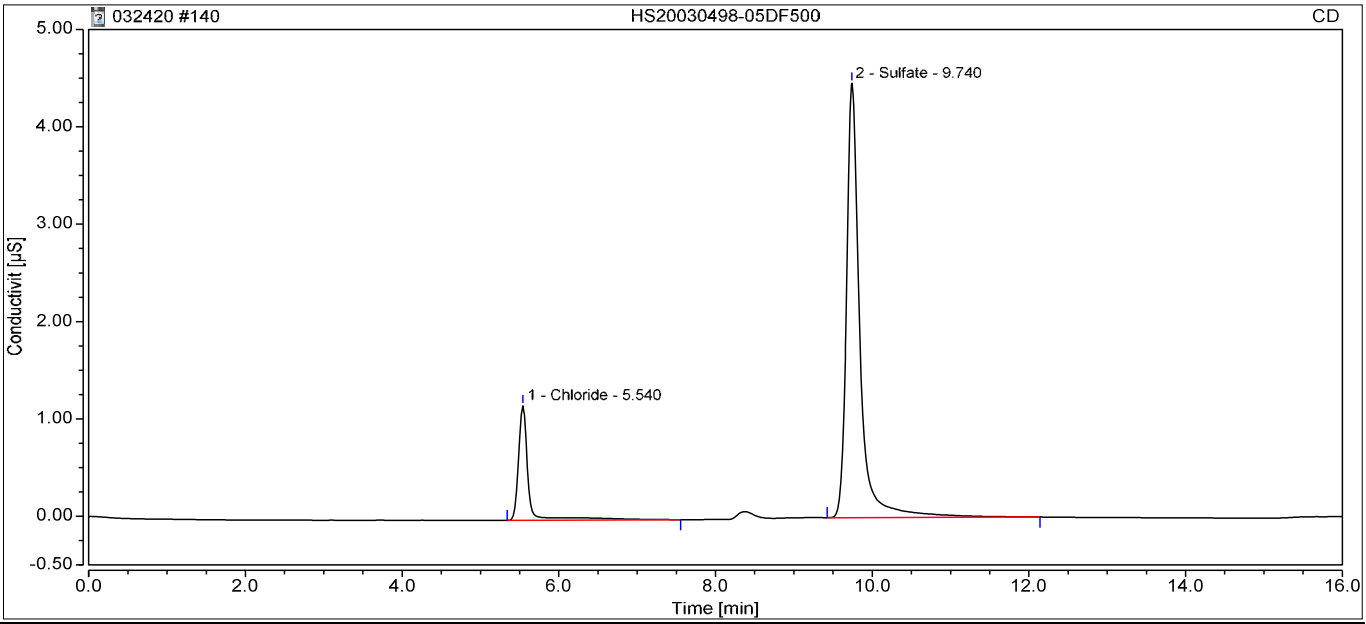
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	500.0000
2	5.54	Chloride	BMB	0.225	1.0320	516.0135	500.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	500.0000
3	9.14	Bromide	BM	0.002	0.0572	28.6226	500.0000
4	9.70	Sulfate	M	2.892	17.3245	8662.2362	500.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	500.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	500.0000
6	15.49	Phosphate	BMB	0.003	0.1201	60.0595	500.0000
Total:			**0.000**	**3.122**		**9266.93**	

140 HS20030498-05DF500

Sample Name:	**HS20030498-05DF500**	*Injection Volume:*	**5.00**
Vial Number:	**BB3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**500.0000**
Recording Time:	**03/26/2020 14:49**	*Sample Weight:*	**1.0000**

Run Time:



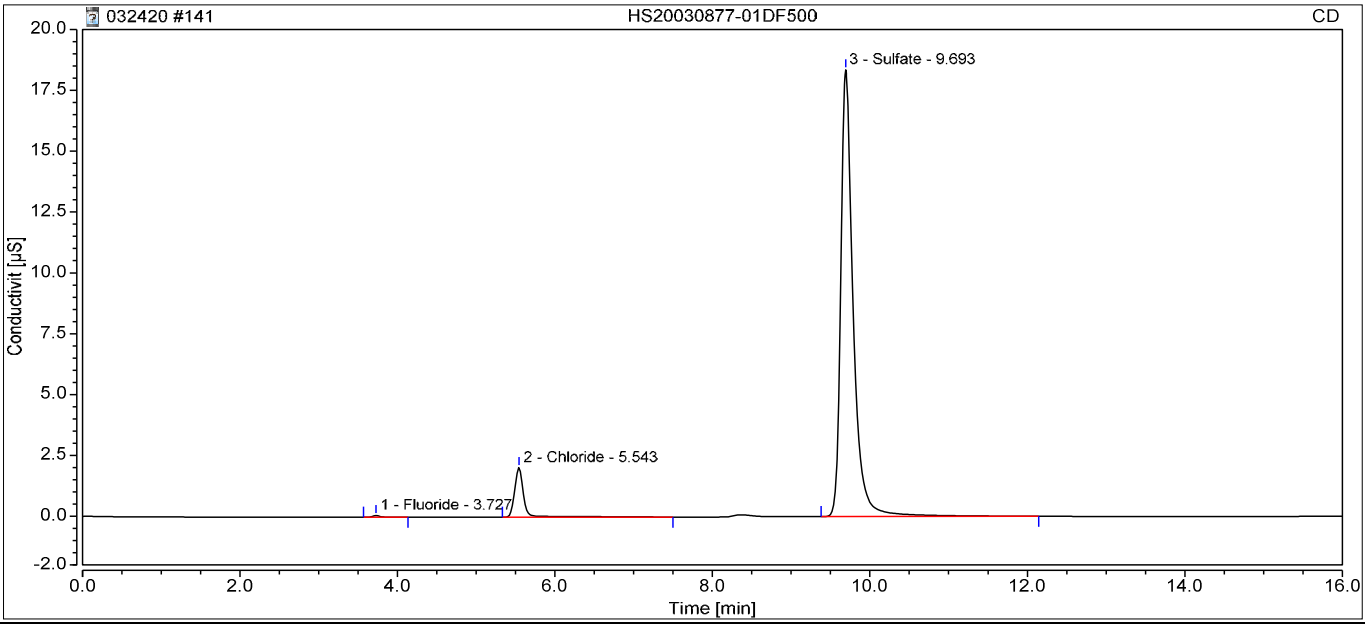
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	500.0000
1	5.54	Chloride	BMB	0.172	0.8012	400.5903	500.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	500.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	500.0000
2	9.74	Sulfate	BMB	0.880	5.3422	2671.1117	500.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	500.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	500.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	500.0000
Total:			**0.000**	**1.052**		**3071.70**	

141 HS20030877-01DF500

Sample Name:	**HS20030877-01DF500**	*Injection Volume:*	**5.00**
Vial Number:	**BB4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**500.0000**
Recording Time:	**03/26/2020 15:07**	*Sample Weight:*	**1.0000**

Run Time:



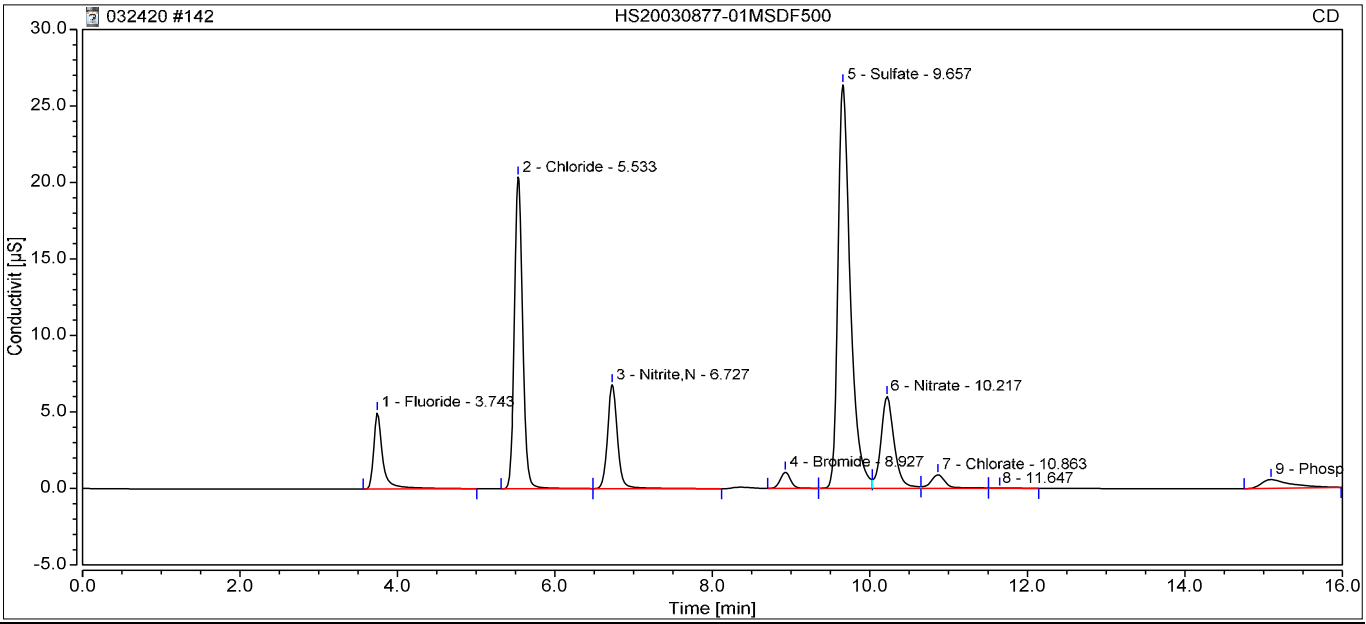
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.008	0.0474	23.7107	500.0000
2	5.54	Chloride	BMB	0.277	1.2555	627.7356	500.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	500.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	500.0000
3	9.69	Sulfate	BMB	3.365	20.1379	10068.9392	500.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	500.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	500.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	500.0000
Total:			**0.000**	**3.650**		**10720.39**	

142 HS20030877-01MSDF500

Sample Name:	**HS20030877-01MSDF500**	*Injection Volume:*	**5.00**
Vial Number:	**BB5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**500.0000**
Recording Time:	**03/26/2020 15:25**	*Sample Weight:*	**1.0000**

Run Time:



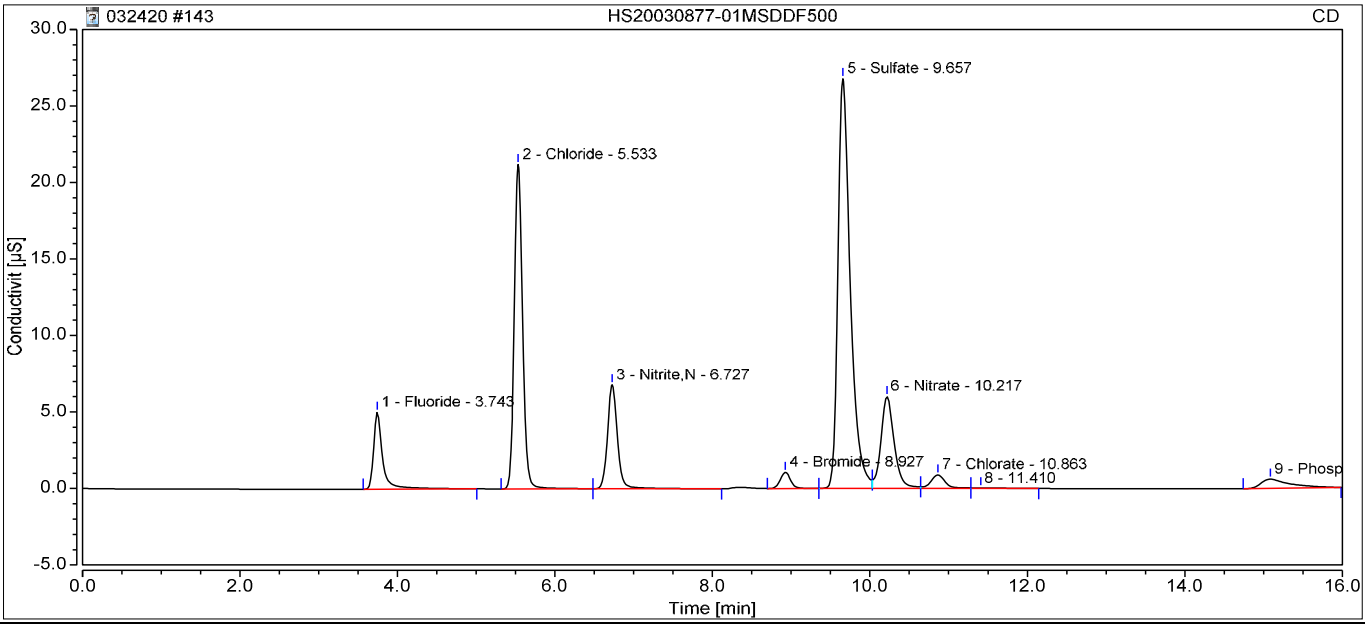
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.670	1.9865	993.2438	500.0000
2	5.53	Chloride	BMB	2.460	10.6675	5333.7417	500.0000
3	6.73	Nitrite,N	BMB	0.998	2.1702	1085.1237	500.0000
4	8.93	Bromide	BM	0.162	1.6714	835.7217	500.0000
5	9.66	Sulfate	M	4.798	28.6720	14336.0138	500.0000
6	10.22	Nitrate	M	1.178	2.0297	1014.8730	500.0000
7	10.86	Chlorate	M	0.196	2.0472	1023.6145	500.0000
9	15.09	Phosphate	BMB	0.252	1.2615	630.7710	500.0000
Total:			**0.000**	**10.715**		**25253.10**	

143 HS20030877-01MSDDF500

Sample Name:	**HS20030877-01MSDDF500**	*Injection Volume:*	**5.00**
Vial Number:	**BB6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**500.0000**
Recording Time:	**03/26/2020 15:43**	*Sample Weight:*	**1.0000**

Run Time:



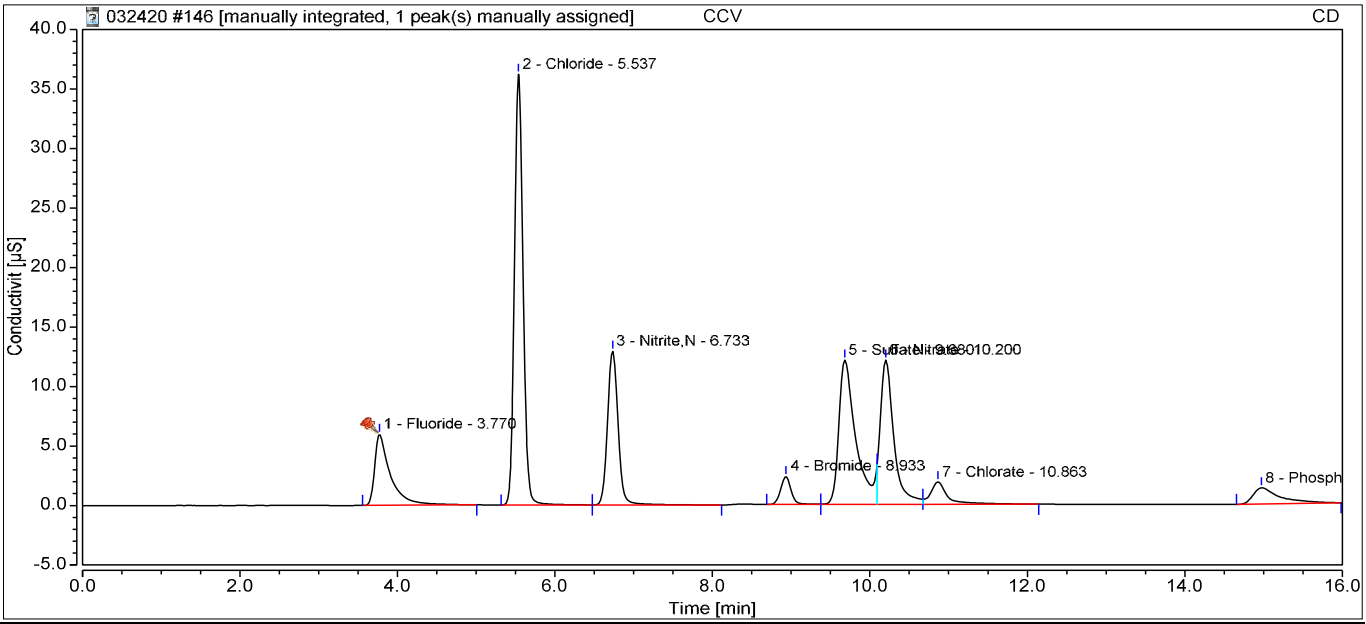
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	0.668	1.9813	990.6614	500.0000
2	5.53	Chloride	BMB	2.560	11.0975	5548.7320	500.0000
3	6.73	Nitrite,N	BMB	0.998	2.1708	1085.4157	500.0000
4	8.93	Bromide	BM	0.163	1.6745	837.2748	500.0000
5	9.66	Sulfate	M	4.870	29.1062	14553.1144	500.0000
6	10.22	Nitrate	M	1.178	2.0297	1014.8561	500.0000
7	10.86	Chlorate	M	0.190	1.9819	990.9458	500.0000
9	15.09	Phosphate	BMB	0.263	1.3119	655.9741	500.0000
Total:			**0.000**	**10.891**		**25676.97**	

146 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/26/2020 19:01**	*Sample Weight:*	**1.0000**

Run Time:



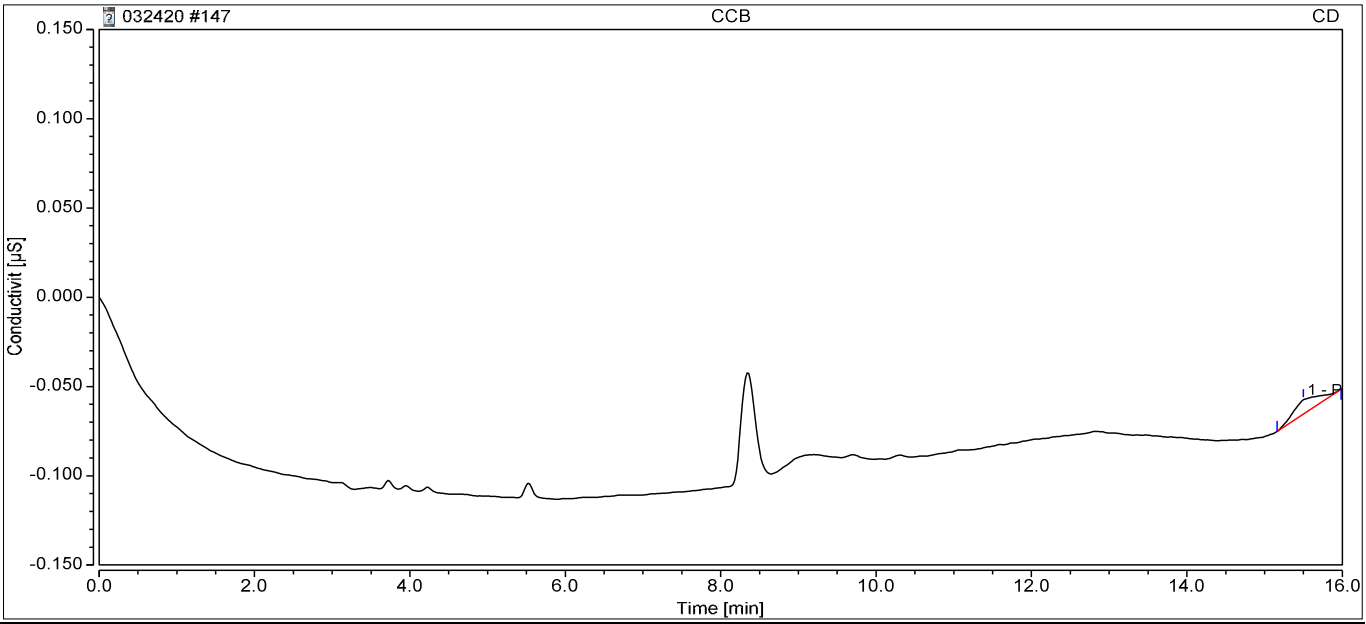
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.77	Fluoride	BMB^	1.380	4.0663	4.0663	1.0000
2	5.54	Chloride	BMB	4.546	19.6607	19.6607	1.0000
3	6.73	Nitrite,N	BMB	2.032	4.3843	4.3843	1.0000
4	8.93	Bromide	BM	0.362	3.6851	3.6851	1.0000
5	9.68	Sulfate	M *	3.042	18.2186	18.2186	1.0000
6	10.20	Nitrate	M *	2.389	4.1012	4.1012	1.0000
7	10.86	Chlorate	MB	0.475	4.9897	4.9897	1.0000
8	14.97	Phosphate	BMB	0.542	2.5888	2.5888	1.0000
Total:			**0.000**	**14.769**		**61.69**	

147 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 02052020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/26/2020 19:20**	*Sample Weight:*	**1.0000**

Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
1	15.50	Phosphate	BMB	0.003	0.1215	0.1215	1.0000
Total:			**0.000**	**0.003**		**0.12**	

HS20030498 ALK

ALS WO# HS20030498

Report Date: 03/17/2020 : 1:50

PC-TitratION PLUS
Calibration Report

Calibration Record # 2229

Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	03/17/2020
Channel	1	Time	1:50 PM
Probe Type	pH	Temperature	294.14 K 20.99 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-57.778	CorrCoeff	0.9998
Intercept	4.233	Equation:	Y = (-57.778) X + (4.233)

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-57.778	-65.00	-53.00
Intercept	4.233	-100.00	100.00
Correlation Coefficient	0.9998	0.99	1.00

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	179.32
	7.00	0.73
	10.00	-167.35

358367

358369

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Report Date: 3/17/2020 : 11:13 PM

PC-TitratION PLUS
Water Analysis Report

Run Number 3783 **Order Number** 20200317-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
ICV-PH	3/17/2020	2:50 PM	21.01	-1.00	6.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
TAP WATER	3/17/2020	2:57 PM	21.06	-1.00	7.92	.00	378.43	378.43	.00	.00	.00	3.60	3.60
WBLKW1-200317	3/17/2020	3:02 PM	21.09	-1.00	5.81	.00	.48	.48	.00	.00	.00	.02	.02
LCS1-200317	3/17/2020	3:11 PM	21.24	-1.00	11.02	541.63	1,051.44	.00	1,019.62	31.83	5.16	10.01	10.01
LCSD1-200317	3/17/2020	3:20 PM	21.32	-1.00	11.01	545.12	1,061.27	.00	1,032.30	28.97	5.19	10.11	10.11
HS20030659-06	3/17/2020	3:30 PM	21.27	-1.00	8.51	35.31	1,154.63	1,084.01	70.63	.00	.34	11.00	11.00
HS20030659-06DUP	3/17/2020	3:39 PM	21.18	-1.00	8.52	36.99	1,154.32	1,080.34	73.98	.00	.35	10.99	10.99
HS20030544-01	3/17/2020	3:45 PM	21.06	-1.00	8.19	.00	152.76	152.76	.00	.00	.00	1.45	1.45
HS20030545-01	3/17/2020	4:00 PM	21.11	-1.00	11.87	.00	.00	.00	.00	.00	.00	.00	.00
HS20030545-01DF10	3/17/2020	4:16 PM	21.16	-1.00	11.81	1,800.82	2,610.24	.00	1,618.83	991.40	17.15	24.86	24.86
HS20030584-01	3/17/2020	4:22 PM	21.28	-1.00	8.50	5.44	171.14	160.26	10.88	.00	.05	1.63	1.63
CCV-PH	3/17/2020	4:25 PM	21.40	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/17/2020	4:33 PM	21.31	-1.00	10.98	538.08	1,055.20	.00	1,034.23	20.96	5.12	10.05	10.05
DI RINSE	3/17/2020	4:38 PM	21.30	-1.00	6.07	.00	.54	.54	.00	.00	.00	.02	.02
HS20030490-06	3/17/2020	4:45 PM	21.30	-1.00	8.42	10.78	433.79	412.22	21.57	.00	.10	4.13	4.13
HS20030490-07	3/17/2020	4:52 PM	21.16	-1.00	8.30	2.19	408.58	404.21	4.37	.00	.02	3.89	3.89
HS20030582-01	3/17/2020	5:02 PM	21.15	-1.00	8.24	.00	1,018.22	1,018.22	.00	.00	.00	9.70	9.70
HS20030659-01	3/17/2020	5:09 PM	21.15	-1.00	8.16	.00	533.15	533.15	.00	.00	.00	5.08	5.08
HS20030659-02	3/17/2020	5:17 PM	21.09	-1.00	8.21	.00	633.89	633.89	.00	.00	.00	6.04	6.04
HS20030659-03	3/17/2020	5:24 PM	21.14	-1.00	8.23	.00	635.38	635.38	.00	.00	.00	6.05	6.05
HS20030659-04	3/17/2020	5:35 PM	21.21	-1.00	8.32	10.07	1,302.96	1,282.81	20.15	.00	.10	12.41	12.41
HS20030659-05	3/17/2020	5:44 PM	21.21	-1.00	8.60	49.16	1,185.32	1,087.01	98.32	.00	.47	11.29	11.29
HS20030659-07	3/17/2020	5:52 PM	21.79	-1.00	8.19	.00	569.07	569.07	.00	.00	.00	5.42	5.42
CCV-PH	3/17/2020	5:55 PM	22.31	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/17/2020	6:03 PM	22.22	-1.00	10.92	532.35	1,059.01	.00	1,053.32	5.69	5.07	10.09	10.09
DI RINSE	3/17/2020	6:08 PM	22.70	-1.00	5.96	.00	.43	.43	.00	.00	.00	.02	.02
HS20030659-08	3/17/2020	6:15 PM	22.80	-1.00	8.11	.00	469.05	469.05	.00	.00	.00	4.47	4.47

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Run Number 3783 **Order Number** 20200317-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS20030659-09	3/17/2020	6:23 PM	23.09	-1.00	8.34	8.61	737.63	720.41	17.22	.00	.08	7.03	7.03
HS20030659-10	3/17/2020	6:33 PM	23.39	-1.00	8.47	29.17	1,125.92	1,067.58	58.34	.00	.28	10.72	10.72
HS20030659-11	3/17/2020	6:40 PM	23.47	-1.00	8.31	1.19	274.02	271.63	2.39	.00	.01	2.61	2.61
HS20030659-12	3/17/2020	6:48 PM	23.52	-1.00	8.33	8.88	900.68	882.92	17.75	.00	.08	8.58	8.58
HS20030659-13	3/17/2020	6:58 PM	23.70	-1.00	8.46	28.00	1,095.03	1,039.03	56.00	.00	.27	10.43	10.43
HS20030659-14	3/17/2020	7:07 PM	23.92	-1.00	8.48	30.46	1,123.66	1,062.74	60.92	.00	.29	10.70	10.70
WBLKW2-200317	3/17/2020	7:12 PM	24.02	-1.00	5.91	.00	.26	.26	.00	.00	.00	.02	.02
LCS2-200317	3/17/2020	7:22 PM	23.83	-1.00	10.86	523.66	1,056.88	9.55	1,047.33	.00	4.99	10.07	10.07
CCV-PH	3/17/2020	7:24 PM	24.14	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/17/2020	7:33 PM	24.07	-1.00	10.86	527.56	1,065.48	10.36	1,055.12	.00	5.02	10.15	10.15
DI RINSE	3/17/2020	7:38 PM	24.45	-1.00	5.96	.00	.26	.26	.00	.00	.00	.02	.02
LCSD2-200317	3/17/2020	7:46 PM	24.22	-1.00	10.85	525.46	1,066.67	15.75	1,050.92	.00	5.00	10.16	10.16
HS20030659-21	3/17/2020	7:54 PM	24.44	-1.00	8.06	.00	340.62	340.62	.00	.00	.00	3.24	3.24
HS20030659-21DUP	3/17/2020	8:01 PM	24.47	-1.00	8.06	.00	339.19	339.19	.00	.00	.00	3.23	3.23
HS20030659-15	3/17/2020	8:09 PM	24.40	-1.00	8.28	.00	716.70	716.70	.00	.00	.00	6.83	6.83
HS20030659-16	3/17/2020	8:16 PM	24.50	-1.00	8.14	.00	597.08	597.08	.00	.00	.00	5.69	5.69
HS20030659-17	3/17/2020	8:23 PM	24.59	-1.00	8.10	.00	500.15	500.15	.00	.00	.00	4.76	4.76
HS20030659-18	3/17/2020	8:31 PM	24.72	-1.00	8.05	.00	482.45	482.45	.00	.00	.00	4.59	4.59
HS20030659-19	3/17/2020	8:38 PM	24.99	-1.00	8.16	.00	405.29	405.29	.00	.00	.00	3.86	3.86
HS20030659-20	3/17/2020	8:45 PM	24.90	-1.00	8.11	.00	388.62	388.62	.00	.00	.00	3.70	3.70
CCV-PH	3/17/2020	8:48 PM	24.67	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/17/2020	8:56 PM	24.39	-1.00	10.82	520.26	1,063.03	22.51	1,040.51	.00	4.95	10.12	10.12
DI RINSE	3/17/2020	9:01 PM	24.74	-1.00	5.99	.00	.25	.25	.00	.00	.00	.02	.02
HS20030659-22	3/17/2020	9:09 PM	24.69	-1.00	9.84	63.78	122.41	.00	117.27	5.14	.61	1.17	1.17
HS20030659-23	3/17/2020	9:16 PM	24.80	-1.00	8.29	.00	278.16	278.16	.00	.00	.00	2.65	2.65
HS20030659-24	3/17/2020	9:24 PM	24.90	-1.00	8.24	.00	294.15	294.15	.00	.00	.00	2.80	2.80
HS20030659-25	3/17/2020	9:31 PM	25.06	-1.00	8.22	.00	449.37	449.37	.00	.00	.00	4.28	4.28
HS20030498-04	3/17/2020	9:40 PM	25.14	-1.00	7.66	.00	1,138.48	1,138.48	.00	.00	.00	10.84	10.84
HS20030498-05	3/17/2020	9:47 PM	25.07	-1.00	7.60	.00	614.45	614.45	.00	.00	.00	5.85	5.85
HS20030498-06	3/17/2020	9:54 PM	25.04	-1.00	7.58	.00	396.81	396.81	.00	.00	.00	3.78	3.78

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01094636

Run Number 3783 **Order Number** 20200317-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS20030498-07	3/17/2020	10:01 PM	25.00	-1.00	7.46	.00	393.19	393.19	.00	.00	.00	3.74	3.74
CCV-PH	3/17/2020	10:03 PM	24.89	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/17/2020	10:12 PM	24.70	-1.00	10.80	519.43	1,069.26	30.39	1,038.87	.00	4.95	10.18	10.18
DI RINSE	3/17/2020	10:17 PM	25.06	-1.00	5.98	.00	.59	.59	.00	.00	.00	.02	.02
HS20030521-01	3/17/2020	10:24 PM	25.04	-1.00	7.96	.00	599.43	599.43	.00	.00	.00	5.71	5.71
HS20030521-02	3/17/2020	10:32 PM	25.25	-1.00	8.05	.00	606.78	606.78	.00	.00	.00	5.78	5.78
HS20030521-03	3/17/2020	10:39 PM	25.29	-1.00	8.34	1.46	184.88	181.97	2.91	.00	.01	1.76	1.76
HS20030521-04	3/17/2020	10:46 PM	25.25	-1.00	7.86	.00	567.94	567.94	.00	.00	.00	5.41	5.41
HS20030521-05	3/17/2020	10:54 PM	25.20	-1.00	8.16	.00	576.03	576.03	.00	.00	.00	5.49	5.49
CCV-PH	3/17/2020	10:57 PM	25.11	-1.00	7.08	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	3/17/2020	11:06 PM	24.94	-1.00	10.81	519.20	1,067.16	28.75	1,038.41	.00	4.94	10.16	10.16
DI RINSE	3/17/2020	11:11 PM	25.20	-1.00	5.99	.00	.35	.35	.00	.00	.00	.02	.02

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March 19, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030502**

Laboratory Results for: **Longhorn Army Ammunition Plant - 16**

Dear Susan,

ALS Environmental received 4 sample(s) on Mar 12, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Work Order: HS20030502

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030502-01	16WW12-200311	Groundwater		11-Mar-2020 08:15	12-Mar-2020 08:50	☐
HS20030502-02	16RW10-200311	Groundwater		11-Mar-2020 09:05	12-Mar-2020 08:50	☐
HS20030502-03	16RW09-200311	Groundwater		11-Mar-2020 10:00	12-Mar-2020 08:50	☐
HS20030502-04	16RW08-200311	Groundwater		11-Mar-2020 10:55	12-Mar-2020 08:50	☐

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Work Order: HS20030502

CASE NARRATIVE

WetChemistry by Method SW9056

Batch ID: R358445

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

WetChemistry by Method SM5310B

Batch ID: R358346,R358436

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW12-200311
Collection Date: 11-Mar-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20030502
Lab ID:HS20030502-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**7.08**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	17-Mar-2020 00:04
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**3.71**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 01:12

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16RW10-200311
Collection Date: 11-Mar-2020 09:05

ANALYTICAL REPORT
WorkOrder:HS20030502
Lab ID:HS20030502-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**4.08**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	18-Mar-2020 14:22
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**3.33**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 01:48

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16RW09-200311
Collection Date: 11-Mar-2020 10:00

ANALYTICAL REPORT
WorkOrder:HS20030502
Lab ID:HS20030502-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**2.56**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	18-Mar-2020 14:35
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**4.86**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 03:01

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16RW08-200311
Collection Date: 11-Mar-2020 10:55

ANALYTICAL REPORT
WorkOrder:HS20030502
Lab ID:HS20030502-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**2.60**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	18-Mar-2020 14:50
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**5.10**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 04:50

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030502

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R358346 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Groundwater	
HS20030502-01	16WW12-200311	11 Mar 2020 08:15			17 Mar 2020 00:04	1
Batch ID: R358436 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Groundwater	
HS20030502-02	16RW10-200311	11 Mar 2020 09:05			18 Mar 2020 14:22	1
HS20030502-03	16RW09-200311	11 Mar 2020 10:00			18 Mar 2020 14:35	1
HS20030502-04	16RW08-200311	11 Mar 2020 10:55			18 Mar 2020 14:50	1
Batch ID: R358445 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20030502-01	16WW12-200311	11 Mar 2020 08:15			19 Mar 2020 01:12	10
HS20030502-02	16RW10-200311	11 Mar 2020 09:05			19 Mar 2020 01:48	10
HS20030502-03	16RW09-200311	11 Mar 2020 10:00			19 Mar 2020 03:01	10
HS20030502-04	16RW08-200311	11 Mar 2020 10:55			19 Mar 2020 04:50	10

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030502

QC BATCH REPORT

Batch ID: R358346 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW4-031620** Units: **mg/L** Analysis Date: **16-Mar-2020 20:37**
Client ID: Run ID: **TOC_02_358346** SeqNo: **5516678** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW4-031620** Units: **mg/L** Analysis Date: **16-Mar-2020 20:52**
Client ID: Run ID: **TOC_02_358346** SeqNo: **5516679** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.594	1.00	10	0	85.9	85 - 115				

LCSD Sample ID: **WLCSDW4-031620** Units: **mg/L** Analysis Date: **16-Mar-2020 21:06**
Client ID: Run ID: **TOC_02_358346** SeqNo: **5516680** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.751	1.00	10	0	87.5	85 - 115	8.594	1.81	20	

MS Sample ID: **HS20030483-33MS** Units: **mg/L** Analysis Date: **16-Mar-2020 23:51**
Client ID: Run ID: **TOC_02_358346** SeqNo: **5516692** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	11.18	1.00	10	1.863	93.2	80 - 120				

The following samples were analyzed in this batch: HS20030502-01

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030502

QC BATCH REPORT

Batch ID: R358436 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW2-031720** Units: **mg/L** Analysis Date: **18-Mar-2020 13:24**
Client ID: Run ID: **TOC_02_358436** SeqNo: **5518865** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW2-031720** Units: **mg/L** Analysis Date: **18-Mar-2020 13:40**
Client ID: Run ID: **TOC_02_358436** SeqNo: **5518866** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.483	1.00	10	0	94.8	85 - 115				

LCSD Sample ID: **WLCSDW2-031720** Units: **mg/L** Analysis Date: **18-Mar-2020 13:53**
Client ID: Run ID: **TOC_02_358436** SeqNo: **5518867** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.497	1.00	10	0	95.0	85 - 115	9.483	0.148	20	

MS Sample ID: **HS20030502-03MS** Units: **mg/L** Analysis Date: **19-Mar-2020 09:48**
Client ID: **16RW09-200311** Run ID: **TOC_02_358436** SeqNo: **5520428** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	13.35	1.00	10	2.562	108	80 - 120				

The following samples were analyzed in this batch: HS20030502-02 HS20030502-03 HS20030502-04

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030502

QC BATCH REPORT

Batch ID: R358445 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WMBLKW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 19:28**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519255** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U

LCS Sample ID: **WLCSW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 19:46**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519256** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.677	0.100	4	0	91.9	80 - 120				

LCSD Sample ID: **WLCSDW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 20:04**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519257** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.652	0.100	4	0	91.3	80 - 120	3.677	0.674	20	

MS Sample ID: **HS20030502-03MS** Units: **mg/L** Analysis Date: **19-Mar-2020 04:13**
Client ID: **16RW09-200311** Run ID: **ICS-Integrion_358445** SeqNo: **5519284** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	88.13	5.00	100	5.705	82.4	80 - 120				

MS Sample ID: **HS20030502-03MS** Units: **mg/L** Analysis Date: **19-Mar-2020 03:19**
Client ID: **16RW09-200311** Run ID: **ICS-Integrion_358445** SeqNo: **5519281** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	21.51	1.00	20	4.865	83.2	80 - 120				

MSD Sample ID: **HS20030502-03MSD** Units: **mg/L** Analysis Date: **19-Mar-2020 03:37**
Client ID: **16RW09-200311** Run ID: **ICS-Integrion_358445** SeqNo: **5519282** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	21.64	1.00	20	4.865	83.9	80 - 120	21.51	0.57	20	

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030502

QC BATCH REPORT

Batch ID: **R358445 (0)** **Instrument:** **ICS-Integrion** **Method:** **ANIONS BY SW9056A**

MSD Sample ID: **HS20030502-03MSD** Units: **mg/L** Analysis Date: **19-Mar-2020 04:31**
Client ID: **16RW09-200311** Run ID: **ICS-Integrion_358445** SeqNo: **5519285** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	88.07	5.00	100	5.705	82.4	80 - 120	88.13	0.0681	20	

The following samples were analyzed in this batch: HS20030502-01 HS20030502-02 HS20030502-03 HS20030502-04

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: **HS20030502**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Work Order: HS20030502

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20030502-01	16WW12-200311	Login	3/12/2020 12:34:30 PM	PMG	Sub
HS20030502-01	16WW12-200311	Login	3/12/2020 12:34:30 PM	PMG	VOA012

ALS Houston, US Date: 19-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030502
Date/Time Received: **12-Mar-2020 08:50**
Received by: **AC**

Checklist completed by: *Paresh M. Giga* eSignature 12-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 12-Mar-2020 Date

Matrices: **GW**
Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.8c U/C	IR25	
Cooler(s)/Kit(s):	44977		
Date/Time sample(s) sent to storage:	3/12/2020 12:50		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

COC ID: LHAAP16-Effectiveness_ALSHT-2020-

TURNAROUND TIME: 5 Business Days

RUSH: 5 Business Days

Page 1 of

PROJECT/CLIENT INFO				LABORATORY					
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories			Fedinvoices @aptim.com	
Project Number	501032			Lab Contact	RJ Modashia				
	LHAAP-16			Email	RJ.Modashia@alsglobal.com			Susan.Huang@aptim.com	
Address	1203-B East Grand Avenue			Address	10450 Stanciff Rd., Suite 210			Susan Huang	
	PMB 202							4005 Port Chicago Hwy	
City	Marshall	State	TX	City	Houston	State	TX	Concord	State CA
Postal Code	75670	Country	USA	Postal Code	77099	Country	USA	94520	Country USA
Phone Number	713.243.7264			Phone Number	281.575.2279 or 281.530.5656				
Project Manager	Praveen Srivastav								

SAMPLE DETAILS

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	ANALYSIS	Bromide by SW9056 (Containers and Preservatives: 1-250 ml HDPE, Ice)	TOC by SM5310 (2X40ml Vox Vials /H2SO4)
16RW12-200311	LHAAP16				WG	3/11/20	0815	3		X	X
16RW10-200311	LHAAP16				WG	3/11/20	0905	3		X	X
16RW09-200311	LHAAP16				WG	3/11/20	1000	3		X	X
16RW09-200311-MS	LHAAP16				WG	3/11/20	1000	3		X	X
16RW09-200311-MSD	LHAAP16				WG	3/11/20	1000	3		X	X
16RW08-200311	LHAAP16				WG	3/11/20	1055	3		X	X

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant - 16

HS20030502

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Scott Berger / BHAPE	3/11/20 1430	AC /ALS	3/12/2020 0850

0/C 1.8 IR #25 CF 0.0 44977

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 3/11/20 Time: 1430
Name: Scott Beesinger
Company: BHATS

Seal Broken By:
Date: 3/12/20

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

WorkOrder: HS20030502

Longhorn Army Ammunition Plant - 16

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

24-Apr-2020

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

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  - CaseNarrative
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- HS20030502 Wet Chem Raw Data (IC)

HS20030502 Longhorn Army Ammunition Plant
16 Final

ALS WO# HS20030502

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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March 19, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20030502**

Laboratory Results for: **Longhorn Army Ammunition Plant - 16**

Dear Susan,

ALS Environmental received 4 sample(s) on Mar 12, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Work Order: HS20030502

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20030502-01	16WW12-200311	Groundwater		11-Mar-2020 08:15	12-Mar-2020 08:50	☐
HS20030502-02	16RW10-200311	Groundwater		11-Mar-2020 09:05	12-Mar-2020 08:50	☐
HS20030502-03	16RW09-200311	Groundwater		11-Mar-2020 10:00	12-Mar-2020 08:50	☐
HS20030502-04	16RW08-200311	Groundwater		11-Mar-2020 10:55	12-Mar-2020 08:50	☐

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Work Order: HS20030502

CASE NARRATIVE

WetChemistry by Method SW9056

Batch ID: R358445

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

WetChemistry by Method SM5310B

Batch ID: R358346,R358436

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16WW12-200311
Collection Date: 11-Mar-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20030502
Lab ID:HS20030502-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**7.08**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	17-Mar-2020 00:04
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**3.71**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 01:12

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16RW10-200311
Collection Date: 11-Mar-2020 09:05

ANALYTICAL REPORT
WorkOrder:HS20030502
Lab ID:HS20030502-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**4.08**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	18-Mar-2020 14:22
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**3.33**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 01:48

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16RW09-200311
Collection Date: 11-Mar-2020 10:00

ANALYTICAL REPORT
WorkOrder:HS20030502
Lab ID:HS20030502-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**2.56**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	18-Mar-2020 14:35
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**4.86**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 03:01

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Sample ID: 16RW08-200311
Collection Date: 11-Mar-2020 10:55

ANALYTICAL REPORT
WorkOrder:HS20030502
Lab ID:HS20030502-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: GR
Organic Carbon, Total	**2.60**	a	**0.500**	**1.00**	**1.00**	**mg/L**	1	18-Mar-2020 14:50
ANIONS BY SW9056A		**Method:SW9056**						Analyst: GR
Bromide	**5.10**		**0.300**	**1.00**	**1.00**	**mg/L**	10	19-Mar-2020 04:50

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

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030502

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R358346 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Groundwater	
HS20030502-01	16WW12-200311	11 Mar 2020 08:15			17 Mar 2020 00:04	1
Batch ID: R358436 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Groundwater	
HS20030502-02	16RW10-200311	11 Mar 2020 09:05			18 Mar 2020 14:22	1
HS20030502-03	16RW09-200311	11 Mar 2020 10:00			18 Mar 2020 14:35	1
HS20030502-04	16RW08-200311	11 Mar 2020 10:55			18 Mar 2020 14:50	1
Batch ID: R358445 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20030502-01	16WW12-200311	11 Mar 2020 08:15			19 Mar 2020 01:12	10
HS20030502-02	16RW10-200311	11 Mar 2020 09:05			19 Mar 2020 01:48	10
HS20030502-03	16RW09-200311	11 Mar 2020 10:00			19 Mar 2020 03:01	10
HS20030502-04	16RW08-200311	11 Mar 2020 10:55			19 Mar 2020 04:50	10

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030502

QC BATCH REPORT

Batch ID: R358346 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW4-031620** Units: **mg/L** Analysis Date: **16-Mar-2020 20:37**
Client ID: Run ID: **TOC_02_358346** SeqNo: **5516678** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW4-031620** Units: **mg/L** Analysis Date: **16-Mar-2020 20:52**
Client ID: Run ID: **TOC_02_358346** SeqNo: **5516679** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.594	1.00	10	0	85.9	85 - 115				

LCSD Sample ID: **WLCSDW4-031620** Units: **mg/L** Analysis Date: **16-Mar-2020 21:06**
Client ID: Run ID: **TOC_02_358346** SeqNo: **5516680** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	8.751	1.00	10	0	87.5	85 - 115	8.594	1.81	20	

MS Sample ID: **HS20030483-33MS** Units: **mg/L** Analysis Date: **16-Mar-2020 23:51**
Client ID: Run ID: **TOC_02_358346** SeqNo: **5516692** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	11.18	1.00	10	1.863	93.2	80 - 120				

The following samples were analyzed in this batch: HS20030502-01

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030502

QC BATCH REPORT

Batch ID: R358436 (0) **Instrument: TOC_02** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **WBLKW2-031720** Units: **mg/L** Analysis Date: **18-Mar-2020 13:24**
Client ID: Run ID: **TOC_02_358436** SeqNo: **5518865** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW2-031720** Units: **mg/L** Analysis Date: **18-Mar-2020 13:40**
Client ID: Run ID: **TOC_02_358436** SeqNo: **5518866** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.483	1.00	10	0	94.8	85 - 115				

LCSD Sample ID: **WLCSDW2-031720** Units: **mg/L** Analysis Date: **18-Mar-2020 13:53**
Client ID: Run ID: **TOC_02_358436** SeqNo: **5518867** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.497	1.00	10	0	95.0	85 - 115	9.483	0.148	20	

MS Sample ID: **HS20030502-03MS** Units: **mg/L** Analysis Date: **19-Mar-2020 09:48**
Client ID: **16RW09-200311** Run ID: **TOC_02_358436** SeqNo: **5520428** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	13.35	1.00	10	2.562	108	80 - 120				

The following samples were analyzed in this batch: HS20030502-02 HS20030502-03 HS20030502-04

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030502

QC BATCH REPORT

Batch ID: R358445 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MBLK Sample ID: **WMBLKW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 19:28**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519255** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	0.100	0.100								U

LCS Sample ID: **WLCSW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 19:46**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519256** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.677	0.100	4	0	91.9	80 - 120				

LCSD Sample ID: **WLCSDW1-031820** Units: **mg/L** Analysis Date: **18-Mar-2020 20:04**
Client ID: Run ID: **ICS-Integrion_358445** SeqNo: **5519257** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	3.652	0.100	4	0	91.3	80 - 120	3.677	0.674	20	

MS Sample ID: **HS20030502-03MS** Units: **mg/L** Analysis Date: **19-Mar-2020 04:13**
Client ID: **16RW09-200311** Run ID: **ICS-Integrion_358445** SeqNo: **5519284** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	88.13	5.00	100	5.705	82.4	80 - 120				

MS Sample ID: **HS20030502-03MS** Units: **mg/L** Analysis Date: **19-Mar-2020 03:19**
Client ID: **16RW09-200311** Run ID: **ICS-Integrion_358445** SeqNo: **5519281** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	21.51	1.00	20	4.865	83.2	80 - 120				

MSD Sample ID: **HS20030502-03MSD** Units: **mg/L** Analysis Date: **19-Mar-2020 03:37**
Client ID: **16RW09-200311** Run ID: **ICS-Integrion_358445** SeqNo: **5519282** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	21.64	1.00	20	4.865	83.9	80 - 120	21.51	0.57	20	

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: HS20030502

QC BATCH REPORT

Batch ID: R358445 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MSD Sample ID: **HS20030502-03MSD** Units: **mg/L** Analysis Date: **19-Mar-2020 04:31**
Client ID: **16RW09-200311** Run ID: **ICS-Integrion_358445** SeqNo: **5519285** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	88.07	5.00	100	5.705	82.4	80 - 120	88.13	0.0681	20	

The following samples were analyzed in this batch: HS20030502-01 HS20030502-02 HS20030502-03 HS20030502-04

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
WorkOrder: **HS20030502**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	T104704231-19-25	30-Apr-2020

ALS Houston, US Date: 19-Mar-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant - 16
Work Order: HS20030502

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20030502-01	16WW12-200311	Login	3/12/2020 12:34:30 PM	PMG	Sub
HS20030502-01	16WW12-200311	Login	3/12/2020 12:34:30 PM	PMG	VOA012

ALS Houston, US Date: 19-Mar-20

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS20030502
Date/Time Received: **12-Mar-2020 08:50**
Received by: **AC**

Checklist completed by: *Paresh M. Giga* eSignature 12-Mar-2020 Date
Reviewed by: *RJ Modashia* eSignature 12-Mar-2020 Date

Matrices: **GW**
Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.8c U/C	IR25	
Cooler(s)/Kit(s):	44977		
Date/Time sample(s) sent to storage:	3/12/2020 12:50		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

COC ID: LHAAP16-Effectiveness_ALSHT-2020-____ TURNAROUND TIME: 5 Business Days RUSH: 5 Business Days

PROJECT/CLIENT INFO				LABORATORY					
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories			Fedinvoices @aptim.com	
Project Number	501032			Lab Contact	RJ Modashia				
	LHAAP-16			Email	RJ.Modashia@alsglobal.com			Susan.Huang@aptim.com	
Address	1203-B East Grand Avenue			Address	10450 Stanciff Rd., Suite 210			Susan Huang	
	PMB 202							4005 Port Chicago Hwy	
City	Marshall	State	TX	City	Houston	State	TX	Concord	State CA
Postal Code	75670	Country	USA	Postal Code	77099	Country	USA	94520	Country USA
Phone Number	713 243.7264			Phone Number	281.575.2279 or 281.530.5656				
Project Manager	Praveen Srivastav								

SAMPLE DETAILS / ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Containers and Preservative: ANALYSIS	1-250 ml HDPE, Ice: Bromide by SW9056	2X40ml Vial Vials /H2SO4: TOC by SM5310
16RW12-200311	LHAAP16				WG	3/11/20	0815	3		X	X
16RW10-200311	LHAAP16				WG	3/11/20	0905	3		X	X
16RW09-200311	LHAAP16				WG	3/11/20	1000	3		X	X
16RW09-200311-MS	LHAAP16				WG	3/11/20	1000	3		X	X
16RW09-200311-MSD	LHAAP16				WG	3/11/20	1000	3		X	X
16RW08-200311	LHAAP16				WG	3/11/20	1055	3		X	X

HS20030502

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant - 16

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Scott Belanger / BHATE	3/11/20 1430	AC /ALS	3/12/2020 08:50

U/C 1.8 IR #25 CF:0 44977

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Date: 3/11
Name:
Company:

CUSTODY SEAL

Time: 1430
Stott Beesinger
BHGE

Seal Broken By:
Date: 3/12

HS20030502 WC Raw Data (TOC)

ALS WO# HS20030502

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	Type	Analysis	Sample Name	Sample ID	Origin	Result	Notes	Status
1	Standard	NPOC	CAL	312.093(401-	12-27-2019.2			Completed
2	Unknown	NPOC	ICV	312.093.407	12-27-2019.c	NPOC:9.611		Completed
3	Unknown	NPOC	ICB	Untitled	12-27-2019.c	NPOC:0.160		Completed
4	Unknown	NPOC	WBLKW1-122719	5310B	12-27-2019.c	NPOC:0.140		Completed
5	Unknown	NPOC	WLCSW-122719		12-27-2019.c	NPOC:9.499		Completed
6	Unknown	NPOC	WLCSDW-122719		12-27-2019.c	NPOC:9.534		Completed
7	Unknown	NPOC	HS19120594-01	1/2	12-27-2019.c	NPOC:3.476		Completed
8	Unknown	NPOC	HS19120596-01	1/2	12-27-2019.c	NPOC:6.586		Completed
9	Unknown	NPOC	HS19120790-01DF20	1/1	12-27-2019.c	NPOC:3.832		Completed
10	Unknown	NPOC	HS19120790-02DF20	1/1	12-27-2019.c	NPOC:2.895		Completed
11	Unknown	NPOC	HS19120790-03DF20	1/1	12-27-2019.c	NPOC:6.811		Completed
12	Unknown	NPOC	HS19120790-04DF20	1/1	12-27-2019.c	NPOC:5.517		Completed
13	Unknown	NPOC	HS19120790-05DF20	1/1	12-27-2019.c	NPOC:6.992		Completed
14	Unknown	NPOC	CCV	312.093.408	12-27-2019.c	NPOC:23.75		Completed
15	Unknown	NPOC	CCB		12-27-2019.c	NPOC:0.227		Completed
16	Unknown	NPOC	HS19120790-06DF5	1/1	12-27-2019.c	NPOC:3.066		Completed
17	Unknown	NPOC	HS19120790-07DF20	1/1	12-27-2019.c	NPOC:21.59		Completed
18	Unknown	NPOC	HS19121167-01	1/2	12-27-2019.c	NPOC:11.90		Completed
19	Unknown	NPOC	HS19121167-01MS	1/2	12-27-2019.c	NPOC:21.31		Completed
20	Unknown	NPOC	CCV		12-27-2019.c	NPOC:24.98		Completed
21	Unknown	NPOC	CCB		12-27-2019.c	NPOC:0.254		Completed
22	Unknown	NPOC	WBLKW-122719	415.1 DISS	12-27-2019.c	NPOC:0.300		Completed
23	Unknown	NPOC	WLCSW-122719		12-27-2019.c	NPOC:9.382		Completed
24	Unknown	NPOC	WLCSDW-122719		12-27-2019.c	NPOC:9.440		Completed
25	Unknown	NPOC	HS19120742-01	1/1 PH=2	12-27-2019.c	NPOC:1.819		Completed
26	Unknown	NPOC	HS19120742-01MS	1/1	12-27-2019.c	NPOC:11.68		Completed
27	Unknown	NPOC	CCV		12-27-2019.c	NPOC:24.53		Completed
28	Unknown	NPOC	CCB		12-27-2019.c	NPOC:0.205		Completed
29	Unknown	NPOC	WBLKW2-122719		12-27-2019.c	NPOC:0.262		Completed
30	Unknown	NPOC	WLCSW2-122719		12-27-2019.c	NPOC:9.431		Completed
31	Unknown	NPOC	WLCSDW2-122719		12-27-2019.c	NPOC:9.464		Completed
32	Unknown	NPOC	HS19121045-02	1/2	12-27-2019.c	NPOC:3.736		Completed
33	Unknown	NPOC	HS19121097-01	1/2	12-27-2019.c	NPOC:3.892		Completed
34	Unknown	NPOC	HS19121134-01	1/2	12-27-2019.c	NPOC:4.409		Completed
35	Unknown	NPOC	HS19121188-01	1/2	12-27-2019.c	NPOC:2.718		Completed
36	Unknown	NPOC	HS19121084-01	1/2	12-27-2019.c	NPOC:4.135		Completed
37	Unknown	NPOC	HS19120862-01	1/2	12-27-2019.c	NPOC:8.834		Completed
38	Unknown	NPOC	HS19120874-01	1/2	12-27-2019.c	NPOC:4.295		Completed
39	Unknown	NPOC	CCV		12-27-2019.c	NPOC:24.64		Completed
40	Unknown	NPOC	CCB		12-27-2019.c	NPOC:0.224		Completed
41	Unknown	NPOC	HS19121214-01DF20	1/2	12-27-2019.c	NPOC:1.360		Completed
42	Unknown	NPOC	HS19121263-01	1/2	12-27-2019.c	NPOC:10.06		Completed
43	Unknown	NPOC	HS19121274-01	1/2	12-27-2019.c	NPOC:11.12		Completed
44	Unknown	NPOC	HS19121274-01MS	1/2	12-27-2019.c	NPOC:21.21		Completed
45	Unknown	NPOC	WBLKW3-122719		12-27-2019.c	NPOC:0.312		Completed
46	Unknown	NPOC	WLCSW3-122719		12-27-2019.c	NPOC:9.562		Completed
47	Unknown	NPOC	WLCSDW3-122719		12-27-2019.c	NPOC:9.521		Completed
48	Unknown	NPOC	HS191121313-01DF2000	1/2	12-27-2019.c	NPOC:11.47		Completed
49	Unknown	NPOC	HS191121313-02DF2000	1/2	12-27-2019.c	NPOC:77.35		Completed
50	Unknown	NPOC	HS191121313-03DF2000	1/2	12-27-2019.c	NPOC:72.13		Completed
51	Unknown	NPOC	CCV		12-27-2019.c	NPOC:24.45		Completed
52	Unknown	NPOC	CCB		12-27-2019.c	NPOC:0.380		Completed
53	Unknown	NPOC	HS191121313-04DF2000	1/6	12-27-2019.c	NPOC:24.00		Completed
54	Unknown	NPOC	HS191121313-04MSDF2000	1/6	12-27-2019.c	NPOC:35.48		Completed

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	Date / Time	Vial
1	12/27/2019 7:01:10 PM	1, 2, 3, 4, 5, 6
2	12/27/2019 7:14:23 PM	7
3	12/27/2019 7:27:36 PM	8
4	12/27/2019 7:42:54 PM	9
5	12/27/2019 8:12:28 PM	10
6	12/27/2019 8:25:41 PM	11
7	12/27/2019 8:38:54 PM	12
8	12/27/2019 8:52:07 PM	13
9	12/27/2019 9:07:25 PM	14
10	12/27/2019 9:20:33 PM	15
11	12/27/2019 9:33:48 PM	16
12	12/27/2019 9:52:06 PM	17
13	12/27/2019 10:06:30 PM	18
14	12/27/2019 10:20:02 PM	19
15	12/27/2019 10:35:20 PM	20
16	12/27/2019 10:48:28 PM	21
17	12/27/2019 11:01:58 PM	22
18	12/27/2019 11:15:26 PM	23
19	12/27/2019 11:28:39 PM	24
20	12/27/2019 11:41:54 PM	25
21	12/27/2019 11:57:12 PM	26
22	12/28/2019 12:12:26 AM	27
23	12/28/2019 12:25:35 AM	28
24	12/28/2019 12:38:49 AM	29
25	12/28/2019 12:52:03 AM	30
26	12/28/2019 1:05:17 AM	31
27	12/28/2019 1:18:31 AM	32
28	12/28/2019 1:31:45 AM	33
29	12/28/2019 1:44:59 AM	34
30	12/28/2019 1:58:13 AM	35
31	12/28/2019 2:11:27 AM	36
32	12/28/2019 2:26:55 AM	37
33	12/28/2019 2:40:04 AM	38
34	12/28/2019 2:53:18 AM	39
35	12/28/2019 3:06:32 AM	40
36	12/28/2019 3:19:46 AM	41
37	12/28/2019 3:33:00 AM	42
38	12/28/2019 3:48:19 AM	43
39	12/28/2019 4:01:28 AM	44
40	12/28/2019 4:16:47 AM	45
41	12/28/2019 4:32:01 AM	46
42	12/28/2019 4:45:11 AM	47
43	12/28/2019 4:58:26 AM	48
44	12/28/2019 5:11:41 AM	49
45	12/28/2019 5:27:02 AM	50
46	12/28/2019 5:40:12 AM	51
47	12/28/2019 5:53:27 AM	52
48	12/28/2019 6:08:47 AM	53
49	12/28/2019 6:22:19 AM	54
50	12/28/2019 6:36:06 AM	55
51	12/28/2019 6:49:37 AM	56
52	12/28/2019 7:02:52 AM	57
53	12/28/2019 7:18:13 AM	58
54	12/28/2019 7:33:28 AM	59

Instr.Information

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

Cal. Curve

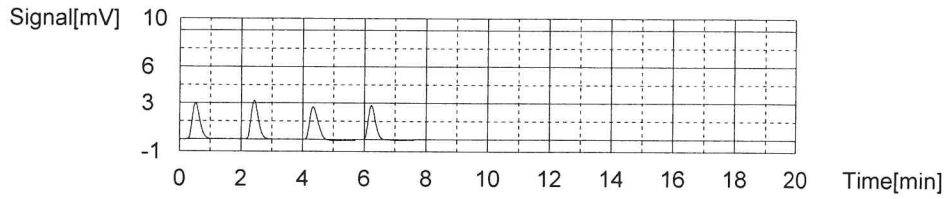
Sample Name:	CAL
Sample ID:	312.093(401-406)
Cal. Curve:	12-27-2019.2019_12_27_17_39_54.cal
Status	Completed

Type	Anal.
Standard	NPOC

Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	5.197	50uL	1	*******		12/27/2019 5:48:38 PM
2	5.190	50uL	1	*******		12/27/2019 5:50:43 PM
3	4.974	50uL	1	*******		12/27/2019 5:52:48 PM
4	4.605	50uL	1	*******	E	12/27/2019 5:54:53 PM

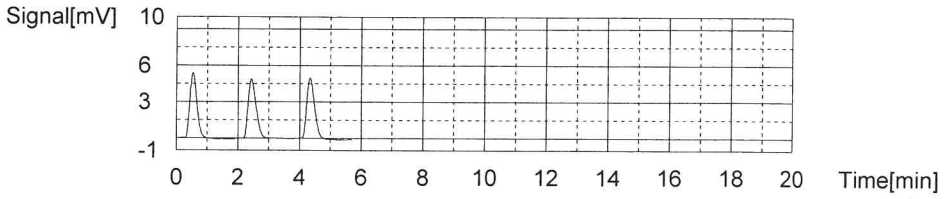
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 5.120



Conc: 2.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	8.696	50uL	1	*******		12/27/2019 6:03:51 PM
2	8.755	50uL	1	*******		12/27/2019 6:05:56 PM
3	8.629	50uL	1	*******		12/27/2019 6:08:01 PM

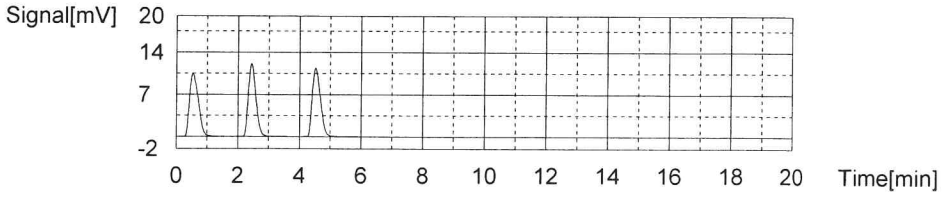
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 8.693



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	20.77	50uL	1	*******		12/27/2019 6:17:04 PM
2	20.80	50uL	1	*******		12/27/2019 6:19:20 PM
3	20.69	50uL	1	*******		12/27/2019 6:21:25 PM

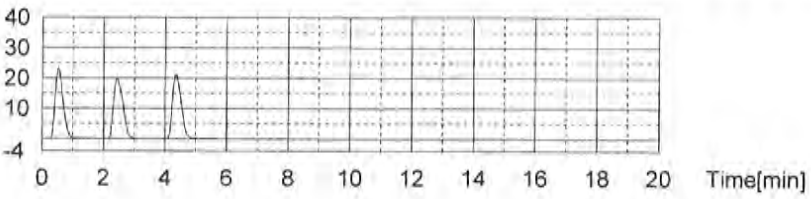
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 20.75



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	41.28	50uL	1	*******		12/27/2019 6:30:28 PM
2	41.15	50uL	1	*******		12/27/2019 6:32:33 PM
3	41.51	50uL	1	*******		12/27/2019 6:34:38 PM

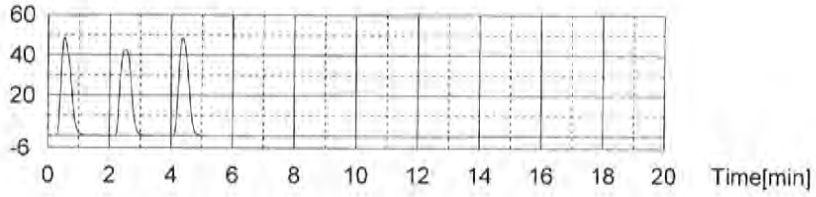
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 41.31



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	104.6	50uL	1	*******		12/27/2019 6:43:41 PM
2	104.2	50uL	1	*******		12/27/2019 6:45:46 PM
3	104.9	50uL	1	*******		12/27/2019 6:47:51 PM

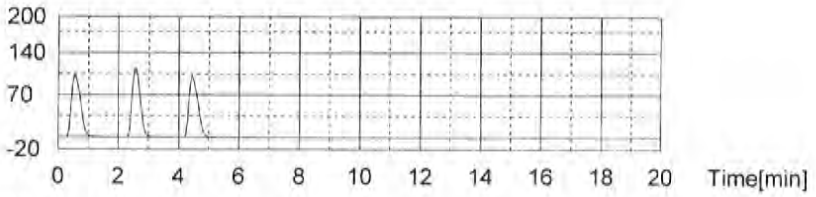
Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 104.6



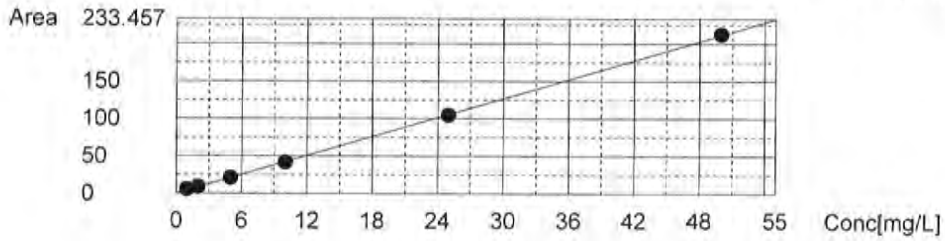
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	212.1	50uL	1	*******		12/27/2019 6:57:00 PM
2	212.9	50uL	1	*******		12/27/2019 6:59:05 PM
3	211.7	50uL	1	*******		12/27/2019 7:01:10 PM

Acid Add. 0.000%
Sp. Time 180.0sec
Mean Area 212.2



Slope: 4.234
Intercept 0.000
r^2 0.9999
r 0.9999
Zero Shift Yes



Sample

Sample Name: ICV
Sample ID: 312.093.407
Origin: 12-27-2019.cal
Status Completed
Chk. Result

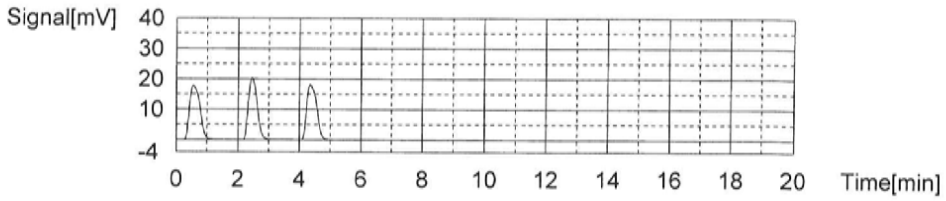
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.611mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	40.69	9.610mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	12/27/2019 7:10:13 PM
2	40.63	9.596mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	12/27/2019 7:12:18 PM
3	40.76	9.626mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	12/27/2019 7:14:23 PM

Mean Area 40.69
Mean Conc. 9.611mg/L



Sample

Sample Name: ICB
Sample ID: Untitled
Origin: 12-27-2019.cal
Status Completed
Chk. Result

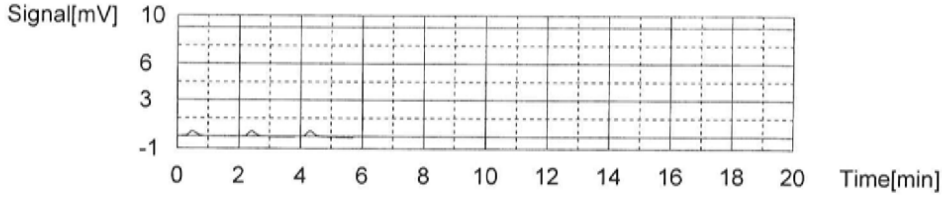
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1604mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.6561	0.1550mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	12/27/2019 7:23:26 PM
2	0.6578	0.1554mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	12/27/2019 7:25:31 PM
3	0.7234	0.1708mg/L	50uL	1		12-27-2019.2019_12_27_17_39_54.cal	12/27/2019 7:27:36 PM

Mean Area 0.6791
Mean Conc. 0.1604mg/L



C:\TOC3201\Data\2020_03_13_001.t32

	Type	Analysis	Sample Name	Sample ID	Origin	Result	Notes	Status
1	Unknown	NPOC	CCV	313101006	12-27-2019.c	NPOC:24.62		Completed
2	Unknown	NPOC	CCB	Untitled	12-27-2019.c	NPOC:0.205		Completed
3	Unknown	NPOC	WBLKW1-031320	5310B	12-27-2019.c	NPOC:0.266		Completed
4	Unknown	NPOC	WLCSW1-031320	Untitled	12-27-2019.c	NPOC:9.293		Completed
5	Unknown	NPOC	WLCSDW1-031320	Untitled	12-27-2019.c	NPOC:9.379		Completed
6	Unknown	NPOC	HS20030504-04DF10	Untitled	12-27-2019.c	NPOC:8.903		Completed
7	Unknown	NPOC	HS20030504-04MSDF10	Untitled	12-27-2019.c	NPOC:19.33		Completed
8	Unknown	NPOC	CCV	Untitled	12-27-2019.c	NPOC:25.36		Completed
9	Unknown	NPOC	CCB	Untitled	12-27-2019.c	NPOC:0.281		Completed
10	Unknown	NPOC	HS20030389-02DF20	1/2	12-27-2019.c	NPOC:34.89		Completed
11	Unknown	NPOC	HS20030389-03DF20	1/2	12-27-2019.c	NPOC:24.99		Completed
12	Unknown	NPOC	HS20030483-08	1/2	12-27-2019.c	NPOC:2.063		Completed
13	Unknown	NPOC	HS20030483-09	1/2	12-27-2019.c	NPOC:2.141		Completed
14	Unknown	NPOC	HS20030483-10	1/2	12-27-2019.c	NPOC:1.427		Completed
15	Unknown	NPOC	CCV	313101006	12-27-2019.c	NPOC:24.80		Completed
16	Unknown	NPOC	CCB	Untitled	12-27-2019.c	NPOC:0.236		Completed
17	Unknown	NPOC	HS20030483-11	1/2	12-27-2019.c	NPOC:1.427		Completed
18	Unknown	NPOC	HS20030483-12	1/2	12-27-2019.c	NPOC:1.454		Completed
19	Unknown	NPOC	HS20030483-13	1/2	12-27-2019.c	NPOC:0.947		Completed
20	Unknown	NPOC	HS20030483-14	1/2	12-27-2019.c	NPOC:0.883		Completed
21	Unknown	NPOC	CCV	313101006	12-27-2019.c	NPOC:23.33		Completed
22	Unknown	NPOC	CCB	Untitled	12-27-2019.c	NPOC:0.135		Completed
23	Unknown	NPOC	HS20030472-03MS	1/2	12-27-2019.c	NPOC:0.000		Completed
24	Unknown	NPOC	WBLKW2-031320	1/2	12-27-2019.c	NPOC:0.000		Aborted
25	Unknown	NPOC	CCV	Untitled	12-27-2019.c	NPOC:23.27		Completed
26	Unknown	NPOC	CCB	Untitled	12-27-2019.c	NPOC:0.198		Completed
27	Unknown	NPOC	WBLKW1-031620	5310B	12-27-2019.c	NPOC:0.091		Completed
28	Unknown	NPOC	WLCSW1-031620	Untitled	12-27-2019.c	NPOC:8.980		Completed
29	Unknown	NPOC	WLCSDW1-031620	Untitled	12-27-2019.c	NPOC:9.523		Completed
30	Unknown	NPOC	HS20030312-01	Untitled	12-27-2019.c	NPOC:38.63		Completed
31	Unknown	NPOC	HS20030312-01MS	Untitled	12-27-2019.c	NPOC:45.12		Completed
32	Unknown	NPOC	CCV	Untitled	12-27-2019.c	NPOC:24.74		Completed
33	Unknown	NPOC	CCB	Untitled	12-27-2019.c	NPOC:0.121		Completed
34	Unknown	NPOC	WBLKW2-031620	Untitled	12-27-2019.c	NPOC:0.098		Completed
35	Unknown	NPOC	WLCSW2-031620	Untitled	12-27-2019.c	NPOC:9.001		Completed
36	Unknown	NPOC	WLCSDW2-031620	Untitled	12-27-2019.c	NPOC:9.582		Completed
37	Unknown	NPOC	HS20030624-01	1/2	12-27-2019.c	NPOC:529.0		Completed
38	Unknown	NPOC	HS20030624-01MS	1/2	12-27-2019.c	NPOC:532.6		Completed
39	Unknown	NPOC	CCV	Untitled	12-27-2019.c	NPOC:24.80		Completed
40	Unknown	NPOC	CCB	Untitled	12-27-2019.c	NPOC:0.299		Completed
41	Unknown	NPOC	HS20030624-01DF50	Untitled	12-27-2019.c	NPOC:9.002		Completed
42	Unknown	NPOC	CCV	Untitled	12-27-2019.c	NPOC:24.19		Completed
43	Unknown	NPOC	CCB	Untitled	12-27-2019.c	NPOC:0.163		Completed
44	Unknown	NPOC	HS20030446-02	1/2	12-27-2019.c	NPOC:239.8		Completed
45	Unknown	NPOC	HS20030506-01	1/2	12-27-2019.c	NPOC:11.63		Completed
46	Unknown	NPOC	CCV	Untitled	12-27-2019.c	NPOC:23.12		Completed
47	Unknown	NPOC	CCB	Untitled	12-27-2019.c	NPOC:0.196		Completed
48	Unknown	NPOC	HS20030472-03MS	Untitled	12-27-2019.c	NPOC:18.22		Completed
49	Unknown	NPOC	WBLKW3-031620	Untitled	12-27-2019.c	NPOC:0.213		Completed
50	Unknown	NPOC	WLCSW3-031620	1/2	12-27-2019.c	NPOC:9.643		Completed
51	Unknown	NPOC	WLCSDW3-031620	1/2	12-27-2019.c	NPOC:9.561		Completed
52	Unknown	NPOC	HS20030483-15	1/2	12-27-2019.c	NPOC:1.136		Completed
53	Unknown	NPOC	HS20030483-16	1/2	12-27-2019.c	NPOC:1.989		Completed
54	Unknown	NPOC	HS20030483-17	1/2	12-27-2019.c	NPOC:2.063		Completed

	Date / Time	Vial
1	3/13/2020 11:23:21 AM	1
2	3/13/2020 11:38:39 AM	2
3	3/13/2020 11:53:52 AM	3
4	3/13/2020 12:07:08 PM	4
5	3/13/2020 12:20:21 PM	5
6	3/13/2020 12:34:01 PM	6
7	3/13/2020 12:47:27 PM	7
8	3/13/2020 1:19:23 PM	1
9	3/13/2020 1:34:41 PM	2
10	3/13/2020 1:48:19 PM	8
11	3/13/2020 2:20:52 PM	9
12	3/13/2020 2:41:42 PM	10
13	3/13/2020 2:54:50 PM	11
14	3/13/2020 3:10:08 PM	12
15	3/13/2020 3:23:16 PM	13
16	3/13/2020 3:38:34 PM	14
17	3/13/2020 3:53:47 PM	15
18	3/13/2020 4:09:00 PM	16
19	3/13/2020 4:24:13 PM	17
20	3/13/2020 4:39:26 PM	18
21	3/13/2020 4:52:34 PM	19
22	3/13/2020 5:07:52 PM	20
23	3/13/2020 5:21:00 PM	21
24		22
25	3/16/2020 10:05:10 AM	1
26	3/16/2020 10:18:23 AM	2
27	3/16/2020 10:33:41 AM	3
28	3/16/2020 10:46:54 AM	4
29	3/16/2020 11:00:10 AM	5
30	3/16/2020 11:13:37 AM	6
31	3/16/2020 11:27:00 AM	7
32	3/16/2020 11:40:35 AM	8
33	3/16/2020 11:53:48 AM	9
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37	3/16/2020 12:48:44 PM	11
38	3/16/2020 1:03:54 PM	12
39	3/16/2020 1:17:07 PM	13
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54	3/16/2020 5:35:18 PM	27