LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 18

2021

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Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976–2021

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

VOLUME 18

2021

A. Title: Report – Level IV DoD Lab Reports for the Final Third Annual Remedial Action Operation Report, LHAAP-35 B (37) (Chemical Laboratory), Longhorn Army Ammunition Plant, Karnack, Texas, December 2020
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: December 15, 2020
Bate Stamp: 01038925 – 01040618

Item A above was supposed to be placed in the Oct–Dec 2020 AR quarter; however, it was left out, so that is why it is included in this Admin Record.

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

WorkOrder: HS19111153

LHAAP-37

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

18-Dec-2019

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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ALS WO# HS19111153

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

December 12, 2019

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

Work Order: **HS19111153**

Laboratory Results for: **LHAAP-37**

Dear Susan,

ALS Environmental received 9 sample(s) on Nov 22, 2019 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
Work Order: HS19111153

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19111153-01	35BWW16-191121	Groundwater		21-Nov-2019 08:05	22-Nov-2019 09:05	☐
HS19111153-02	35BWW17-191121	Groundwater		21-Nov-2019 08:50	22-Nov-2019 09:05	☐
HS19111153-03	35BWW04-191121	Groundwater		21-Nov-2019 09:35	22-Nov-2019 09:05	☐
HS19111153-04	35BWW04-191121-FD	Groundwater		21-Nov-2019 09:35	22-Nov-2019 09:05	☐
HS19111153-05	35BWW08-191121	Groundwater		21-Nov-2019 10:35	22-Nov-2019 09:05	☐
HS19111153-06	35BWW26-191121	Groundwater		21-Nov-2019 11:25	22-Nov-2019 09:05	☐
HS19111153-07	35BWW01-191121	Groundwater		21-Nov-2019 12:15	22-Nov-2019 09:05	☐
HS19111153-08	35BWW11-191121	Groundwater		21-Nov-2019 13:00	22-Nov-2019 09:05	☐
HS19111153-09	Trip Blank	Groundwater	CG-101419-13	21-Nov-2019 00:00	22-Nov-2019 09:05	☐

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP-37
Work Order: HS19111153

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R351197

Sample ID: CCV

- Acetone exceeded %D limits for CCV. Samples are ND for this compound.

Sample ID: HS19111239-05MSD

- MSD is performed on unrelated sample

WetChemistry by Method SW9056

Batch ID: R351218

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
Sample ID: 35BWW16-191121
Collection Date: 21-Nov-2019 08:05

ANALYTICAL REPORT
WorkOrder:HS19111153
Lab ID:HS19111153-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1,2-Trichlor-1,2,2-trifluoroethane	**7.5**		**0.50**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 17:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,1-Dichloroethene	**0.75**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 17:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 17:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 17:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 17:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 17:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 17:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-37 WorkOrder:HS19111153
Sample ID: 35BWW16-191121 Lab ID:HS19111153-01
Collection Date: 21-Nov-2019 08:05 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 17:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 17:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Tetrachloroethene	**8.1**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 17:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Trichloroethene	**3.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 17:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:25
Surr: 1,2-Dichloroethane-d4	*93.5*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 17:25*
Surr: 4-Bromofluorobenzene	*93.6*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 17:25*
Surr: Dibromofluoromethane	*95.9*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 17:25*
Surr: Toluene-d8	*95.9*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 17:25*

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-37 WorkOrder:HS19111153
Sample ID: 35BWW17-191121 Lab ID:HS19111153-02
Collection Date: 21-Nov-2019 08:50 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 17:49
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 17:49
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 17:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 17:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 17:49
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
Sample ID: 35BWW17-191121
Collection Date: 21-Nov-2019 08:50

ANALYTICAL REPORT
WorkOrder:HS19111153
Lab ID:HS19111153-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 17:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 17:49
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 17:49
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 17:49
Surr: 1,2-Dichloroethane-d4	*92.3*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 17:49*
Surr: 4-Bromofluorobenzene	*93.0*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 17:49*
Surr: Dibromofluoromethane	*95.9*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 17:49*
Surr: Toluene-d8	*97.9*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 17:49*

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
Sample ID: 35BWW04-191121
Collection Date: 21-Nov-2019 09:35

ANALYTICAL REPORT
WorkOrder:HS19111153
Lab ID:HS19111153-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 18:13
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 18:13
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 18:13
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 18:13
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 18:13
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-37 WorkOrder:HS19111153
Sample ID: 35BWW04-191121 Lab ID:HS19111153-03
Collection Date: 21-Nov-2019 09:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 18:13
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 18:13
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:13
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Tetrachloroethene	**8.3**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 18:13
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Trichloroethene	**0.93**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 18:13
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:13
Surr: 1,2-Dichloroethane-d4	*92.8*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 18:13*
Surr: 4-Bromofluorobenzene	*92.4*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 18:13*
Surr: Dibromofluoromethane	*96.4*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 18:13*
Surr: Toluene-d8	*97.6*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 18:13*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**3.51**		**0.200**	**0.500**	**0.500**	**mg/L**	1	22-Nov-2019 22:44
Nitrogen, Nitrate (As N)	**0.145**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	22-Nov-2019 22:44
Sulfate	**28.9**		**0.200**	**0.500**	**0.500**	**mg/L**	1	22-Nov-2019 22:44
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Dec-2019 09:33
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	03-Dec-2019 09:38

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
Sample ID: 35BWW04-191121-FD
Collection Date: 21-Nov-2019 09:35

ANALYTICAL REPORT
WorkOrder:HS19111153
Lab ID:HS19111153-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 18:37
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 18:37
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 18:37
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 18:37
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 18:37
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-37 WorkOrder:HS19111153
Sample ID: 35BWW04-191121-FD Lab ID:HS19111153-04
Collection Date: 21-Nov-2019 09:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 18:37
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 18:37
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 18:37
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Tetrachloroethene	**7.7**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 18:37
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Trichloroethene	**0.93**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 18:37
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 18:37
Surr: 1,2-Dichloroethane-d4	*92.3*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 18:37*
Surr: 4-Bromofluorobenzene	*92.8*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 18:37*
Surr: Dibromofluoromethane	*95.9*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 18:37*
Surr: Toluene-d8	*97.4*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 18:37*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**3.48**		**0.200**	**0.500**	**0.500**	**mg/L**	1	22-Nov-2019 23:33
Nitrogen, Nitrate (As N)	**0.132**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	22-Nov-2019 23:33
Sulfate	**26.5**		**0.200**	**0.500**	**0.500**	**mg/L**	1	22-Nov-2019 23:33
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Dec-2019 09:33
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	03-Dec-2019 09:38

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
Sample ID: 35BWW08-191121
Collection Date: 21-Nov-2019 10:35

ANALYTICAL REPORT
WorkOrder:HS19111153
Lab ID:HS19111153-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:01
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 19:01
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 19:01
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:01
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 19:01
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-37 WorkOrder:HS19111153
Sample ID: 35BWW08-191121 Lab ID:HS19111153-05
Collection Date: 21-Nov-2019 10:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:01
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:01
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:01
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:01
Surr: 1,2-Dichloroethane-d4	*94.6*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 19:01*
Surr: 4-Bromofluorobenzene	*94.3*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 19:01*
Surr: Dibromofluoromethane	*98.0*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 19:01*
Surr: Toluene-d8	*97.7*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 19:01*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**6.66**		**0.200**	**0.500**	**0.500**	**mg/L**	1	22-Nov-2019 23:50
Nitrogen, Nitrate (As N)	**0.301**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	22-Nov-2019 23:50
Sulfate	**30.1**		**0.200**	**0.500**	**0.500**	**mg/L**	1	22-Nov-2019 23:50
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Dec-2019 09:33
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	03-Dec-2019 09:38

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-37 WorkOrder:HS19111153
Sample ID: 35BWW26-191121 Lab ID:HS19111153-06
Collection Date: 21-Nov-2019 11:25 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 19:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 19:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 19:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-37 WorkOrder:HS19111153
Sample ID: 35BWW26-191121 Lab ID:HS19111153-06
Collection Date: 21-Nov-2019 11:25 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:25
Surr: 1,2-Dichloroethane-d4	*93.1*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 19:25*
Surr: 4-Bromofluorobenzene	*92.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 19:25*
Surr: Dibromofluoromethane	*97.3*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 19:25*
Surr: Toluene-d8	*97.6*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 19:25*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**30.6**		**0.200**	**0.500**	**0.500**	**mg/L**	1	23-Nov-2019 00:07
Nitrogen, Nitrate (As N)	**0.0743**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	23-Nov-2019 00:07
Sulfate	**26.0**		**0.200**	**0.500**	**0.500**	**mg/L**	1	23-Nov-2019 00:07
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	12-Dec-2019 09:33
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	03-Dec-2019 09:38

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
Sample ID: 35BWW01-191121
Collection Date: 21-Nov-2019 12:15

ANALYTICAL REPORT
WorkOrder:HS19111153
Lab ID:HS19111153-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:49
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 19:49
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 19:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 19:49
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
Sample ID: 35BWW01-191121
Collection Date: 21-Nov-2019 12:15

ANALYTICAL REPORT
WorkOrder:HS19111153
Lab ID:HS19111153-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 19:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 19:49
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 19:49
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 19:49
Surr: 1,2-Dichloroethane-d4	*94.4*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 19:49*
Surr: 4-Bromofluorobenzene	*94.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 19:49*
Surr: Dibromofluoromethane	*97.7*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 19:49*
Surr: Toluene-d8	*97.9*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 19:49*

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-37 WorkOrder:HS19111153
Sample ID: 35BWW11-191121 Lab ID:HS19111153-08
Collection Date: 21-Nov-2019 13:00 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 20:13
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 20:13
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 20:13
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 20:13
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 20:13
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-37 WorkOrder:HS19111153
Sample ID: 35BWW11-191121 Lab ID:HS19111153-08
Collection Date: 21-Nov-2019 13:00 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 20:13
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 20:13
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:13
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:13
Surr: 1,2-Dichloroethane-d4	*92.7*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 20:13*
Surr: 4-Bromofluorobenzene	*92.3*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 20:13*
Surr: Dibromofluoromethane	*96.0*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 20:13*
Surr: Toluene-d8	*96.2*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 20:13*

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
Sample ID: Trip Blank
Collection Date: 21-Nov-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19111153
Lab ID:HS19111153-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:00
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 15:00
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 15:00
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:00
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 15:00
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00

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

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-37 WorkOrder:HS19111153
Sample ID: Trip Blank Lab ID:HS19111153-09
Collection Date: 21-Nov-2019 00:00 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:00
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:00
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:00
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:00
Surr: 1,2-Dichloroethane-d4	*93.3*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 15:00*
Surr: 4-Bromofluorobenzene	*93.5*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 15:00*
Surr: Dibromofluoromethane	*96.1*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 15:00*
Surr: Toluene-d8	*96.8*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 15:00*

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

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R351197 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19111153-01	35BWW16-191121	21 Nov 2019 08:05			24 Nov 2019 17:25	1
HS19111153-02	35BWW17-191121	21 Nov 2019 08:50			24 Nov 2019 17:49	1
HS19111153-03	35BWW04-191121	21 Nov 2019 09:35			24 Nov 2019 18:13	1
HS19111153-04	35BWW04-191121-FD	21 Nov 2019 09:35			24 Nov 2019 18:37	1
HS19111153-05	35BWW08-191121	21 Nov 2019 10:35			24 Nov 2019 19:01	1
HS19111153-06	35BWW26-191121	21 Nov 2019 11:25			24 Nov 2019 19:25	1
HS19111153-07	35BWW01-191121	21 Nov 2019 12:15			24 Nov 2019 19:49	1
HS19111153-08	35BWW11-191121	21 Nov 2019 13:00			24 Nov 2019 20:13	1
HS19111153-09	Trip Blank	21 Nov 2019 00:00			24 Nov 2019 15:00	1
Batch ID: R351218 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS19111153-03	35BWW04-191121	21 Nov 2019 09:35			22 Nov 2019 22:44	1
HS19111153-04	35BWW04-191121-FD	21 Nov 2019 09:35			22 Nov 2019 23:33	1
HS19111153-05	35BWW08-191121	21 Nov 2019 10:35			22 Nov 2019 23:50	1
HS19111153-06	35BWW26-191121	21 Nov 2019 11:25			23 Nov 2019 00:07	1
Batch ID: R351628 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS19111153-03	35BWW04-191121	21 Nov 2019 09:35			03 Dec 2019 09:38	1
HS19111153-04	35BWW04-191121-FD	21 Nov 2019 09:35			03 Dec 2019 09:38	1
HS19111153-05	35BWW08-191121	21 Nov 2019 10:35			03 Dec 2019 09:38	1
HS19111153-06	35BWW26-191121	21 Nov 2019 11:25			03 Dec 2019 09:38	1
Batch ID: R352312 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS19111153-03	35BWW04-191121	21 Nov 2019 09:35			12 Dec 2019 09:33	1
HS19111153-04	35BWW04-191121-FD	21 Nov 2019 09:35			12 Dec 2019 09:33	1
HS19111153-05	35BWW08-191121	21 Nov 2019 10:35			12 Dec 2019 09:33	1
HS19111153-06	35BWW26-191121	21 Nov 2019 11:25			12 Dec 2019 09:33	1

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Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 14:36**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359047** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U

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Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
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QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 14:36**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359047** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	0.50	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	0.50	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.83*	*1.0*	*50*	*0*	*91.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*45.55*	*1.0*	*50*	*0*	*91.1*	*85 - 114*				
Surr: Dibromofluoromethane	*47.85*	*1.0*	*50*	*0*	*95.7*	*80 - 119*				

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 14:36**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359047** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*48.8*	*1.0*	*50*	*0*	*97.6*	*89 - 112*				

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
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QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 13:48**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359046** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.62	1.0	20	0	103	78 - 124				
1,1,1-Trichloroethane	20.64	1.0	20	0	103	74 - 131				
1,1,2,2-Tetrachloroethane	20.35	1.0	20	0	102	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	19.89	1.0	20	0	99.5	70 - 136				
1,1,2-Trichloroethane	20.38	1.0	20	0	102	80 - 119				
1,1-Dichloroethane	20.55	1.0	20	0	103	77 - 125				
1,1-Dichloroethene	19.43	1.0	20	0	97.1	71 - 131				
1,1-Dichloropropene	20.19	1.0	20	0	101	78 - 125				
1,2,3-Trichlorobenzene	21.94	1.0	20	0	110	69 - 129				
1,2,3-Trichloropropane	19.97	1.0	20	0	99.9	73 - 122				
1,2,4-Trichlorobenzene	21.34	1.0	20	0	107	69 - 130				
1,2,4-Trimethylbenzene	20.39	1.0	20	0	102	76 - 124				
1,2-Dibromo-3-chloropropane	20.16	1.0	20	0	101	62 - 128				
1,2-Dibromoethane	20.05	1.0	20	0	100	77 - 121				
1,2-Dichlorobenzene	20.48	1.0	20	0	102	80 - 119				
1,2-Dichloroethane	20.29	1.0	20	0	101	73 - 128				
1,2-Dichloropropane	20.26	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	20.66	1.0	20	0	103	75 - 124				
1,3-Dichlorobenzene	20.59	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	19.68	1.0	20	0	98.4	80 - 119				
1,4-Dichlorobenzene	20.5	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	20.47	1.0	20	0	102	60 - 139				
2-Butanone	39.49	2.0	40	0	98.7	56 - 143				
2-Chlorotoluene	21.32	1.0	20	0	107	79 - 122				
2-Hexanone	39.78	2.0	40	0	99.5	57 - 139				
4-Chlorotoluene	20.52	1.0	20	0	103	78 - 122				
4-Isopropyltoluene	20.47	1.0	20	0	102	77 - 127				
4-Methyl-2-pentanone	38.77	2.0	40	0	96.9	67 - 130				
Acetone	43.21	2.0	40	0	108	39 - 160				
Benzene	20.71	1.0	20	0	104	79 - 120				
Bromobenzene	20.96	1.0	20	0	105	80 - 120				
Bromochloromethane	20.43	1.0	20	0	102	78 - 123				
Bromodichloromethane	20.51	1.0	20	0	103	79 - 125				
Bromoform	20.06	1.0	20	0	100	66 - 130				

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Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
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QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 13:48**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359046** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	21.53	1.0	20	0	108	53 - 141				
Carbon disulfide	41.92	2.0	40	0	105	64 - 133				
Carbon tetrachloride	19.98	1.0	20	0	99.9	72 - 136				
Chlorobenzene	19.9	1.0	20	0	99.5	82 - 118				
Chloroethane	18.17	1.0	20	0	90.9	60 - 138				
Chloroform	20.14	1.0	20	0	101	79 - 124				
Chloromethane	15.24	1.0	20	0	76.2	50 - 139				
cis-1,2-Dichloroethene	21.32	1.0	20	0	107	78 - 123				
cis-1,3-Dichloropropene	20.55	1.0	20	0	103	75 - 124				
Dibromochloromethane	20.29	1.0	20	0	101	74 - 126				
Dibromomethane	20.7	1.0	20	0	103	79 - 123				
Dichlorodifluoromethane	15.73	1.0	20	0	78.7	32 - 152				
Ethylbenzene	20.21	1.0	20	0	101	79 - 121				
Hexachlorobutadiene	20.68	1.0	20	0	103	66 - 134				
Isopropylbenzene	20.02	1.0	20	0	100	72 - 131				
m,p-Xylene	40.31	2.0	40	0	101	80 - 121				
Methylene chloride	19.82	2.0	20	0	99.1	74 - 124				
Naphthalene	18.54	1.0	20	0	92.7	61 - 128				
n-Butylbenzene	20.99	1.0	20	0	105	75 - 128				
n-Propylbenzene	21.12	1.0	20	0	106	76 - 126				
o-Xylene	20.1	1.0	20	0	100	78 - 122				
sec-Butylbenzene	20.93	1.0	20	0	105	77 - 126				
Styrene	20.09	1.0	20	0	100	78 - 123				
tert-Butylbenzene	20.85	1.0	20	0	104	78 - 124				
Tetrachloroethene	19.88	1.0	20	0	99.4	74 - 129				
Toluene	20.27	1.0	20	0	101	80 - 121				
trans-1,2-Dichloroethene	20.72	1.0	20	0	104	75 - 124				
trans-1,3-Dichloropropene	20.09	1.0	20	0	100	73 - 127				
Trichloroethene	20.68	1.0	20	0	103	79 - 123				
Trichlorofluoromethane	19.6	1.0	20	0	98.0	65 - 141				
Vinyl chloride	16.98	1.0	20	0	84.9	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.3*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.99*	*1.0*	*50*	*0*	*94.0*	*85 - 114*				
Surr: Dibromofluoromethane	*50.21*	*1.0*	*50*	*0*	*100*	*80 - 119*				

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
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QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 13:48**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359046** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*46.49*	*1.0*	*50*	*0*	*93.0*	*89 - 112*				

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
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QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111239-05MS** Units: **UG/L** Analysis Date: **24-Nov-2019 16:13**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359051** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.24	1.0	20	0	91.2	78 - 124				
1,1,1-Trichloroethane	18.88	1.0	20	0	94.4	74 - 131				
1,1,2,2-Tetrachloroethane	18.01	1.0	20	0	90.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	18.99	1.0	20	0	95.0	70 - 136				
1,1,2-Trichloroethane	18.24	1.0	20	0	91.2	80 - 119				
1,1-Dichloroethane	18.35	1.0	20	0	91.7	77 - 125				
1,1-Dichloroethene	18.12	1.0	20	0	90.6	71 - 131				
1,1-Dichloropropene	19.12	1.0	20	0	95.6	78 - 125				
1,2,3-Trichlorobenzene	14.41	1.0	20	0	72.1	69 - 129				
1,2,3-Trichloropropane	17.24	1.0	20	0	86.2	73 - 122				
1,2,4-Trichlorobenzene	15.26	1.0	20	0	76.3	69 - 130				
1,2,4-Trimethylbenzene	19.07	1.0	20	0	95.3	76 - 124				
1,2-Dibromo-3-chloropropane	16.49	1.0	20	0	82.5	62 - 128				
1,2-Dibromoethane	17.78	1.0	20	0	88.9	77 - 121				
1,2-Dichlorobenzene	18.64	1.0	20	0	93.2	80 - 119				
1,2-Dichloroethane	18.26	1.0	20	0	91.3	73 - 128				
1,2-Dichloropropane	18.08	1.0	20	0	90.4	78 - 122				
1,3,5-Trimethylbenzene	19.64	1.0	20	0	98.2	75 - 124				
1,3-Dichlorobenzene	19.23	1.0	20	0	96.2	80 - 119				
1,3-Dichloropropane	17.67	1.0	20	0	88.4	80 - 119				
1,4-Dichlorobenzene	18.82	1.0	20	0	94.1	79 - 118				
2,2-Dichloropropane	18.17	1.0	20	0	90.9	60 - 139				
2-Butanone	30.13	2.0	40	0	75.3	56 - 143				
2-Chlorotoluene	19.75	1.0	20	0	98.7	79 - 122				
2-Hexanone	31.85	2.0	40	0	79.6	57 - 139				
4-Chlorotoluene	18.99	1.0	20	0	94.9	78 - 122				
4-Isopropyltoluene	19.48	1.0	20	0	97.4	77 - 127				
4-Methyl-2-pentanone	32.34	2.0	40	0	80.8	67 - 130				
Acetone	25.48	2.0	40	0	63.7	39 - 160				
Benzene	19.17	1.0	20	0	95.9	79 - 120				
Bromobenzene	19.09	1.0	20	0	95.5	80 - 120				
Bromochloromethane	17.63	1.0	20	0	88.1	78 - 123				
Bromodichloromethane	18.27	1.0	20	0	91.3	79 - 125				
Bromoform	17.79	1.0	20	0	89.0	66 - 130				

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111239-05MS** Units: **UG/L** Analysis Date: **24-Nov-2019 16:13**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359051** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	19.73	1.0	20	0	98.6	53 - 141				
Carbon disulfide	39.23	2.0	40	0	98.1	64 - 133				
Carbon tetrachloride	19.24	1.0	20	0	96.2	72 - 136				
Chlorobenzene	18.32	1.0	20	0	91.6	82 - 118				
Chloroethane	17.02	1.0	20	0	85.1	60 - 138				
Chloroform	17.4	1.0	20	0	87.0	79 - 124				
Chloromethane	14.84	1.0	20	0	74.2	50 - 139				
cis-1,2-Dichloroethene	18.73	1.0	20	0	93.6	78 - 123				
cis-1,3-Dichloropropene	18.4	1.0	20	0	92.0	75 - 124				
Dibromochloromethane	18.2	1.0	20	0	91.0	74 - 126				
Dibromomethane	18.14	1.0	20	0	90.7	79 - 123				
Dichlorodifluoromethane	18.37	1.0	20	0	91.8	32 - 152				
Ethylbenzene	18.84	1.0	20	0	94.2	79 - 121				
Hexachlorobutadiene	15.65	1.0	20	0	78.3	66 - 134				
Isopropylbenzene	19.15	1.0	20	0	95.8	72 - 131				
m,p-Xylene	37.63	2.0	40	0	94.1	80 - 121				
Methylene chloride	17.19	2.0	20	0	86.0	74 - 124				
Naphthalene	13.75	1.0	20	0	68.8	61 - 128				
n-Butylbenzene	19.96	1.0	20	0	99.8	75 - 128				
n-Propylbenzene	20.13	1.0	20	0	101	76 - 126				
o-Xylene	18.35	1.0	20	0	91.8	78 - 122				
sec-Butylbenzene	20.02	1.0	20	0	100	77 - 126				
Styrene	18.54	1.0	20	0	92.7	78 - 123				
tert-Butylbenzene	19.89	1.0	20	0	99.5	78 - 124				
Tetrachloroethene	22.84	1.0	20	4.209	93.2	74 - 129				
Toluene	18.9	1.0	20	0	94.5	80 - 121				
trans-1,2-Dichloroethene	18.85	1.0	20	0	94.3	75 - 124				
trans-1,3-Dichloropropene	17.61	1.0	20	0	88.1	73 - 127				
Trichloroethene	19.67	1.0	20	0	98.4	79 - 123				
Trichlorofluoromethane	19.15	1.0	20	0	95.7	65 - 141				
Vinyl chloride	17.07	1.0	20	0	85.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.74*	*1.0*	*50*	*0*	*93.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.36*	*1.0*	*50*	*0*	*94.7*	*85 - 114*				
Surr: Dibromofluoromethane	*48.71*	*1.0*	*50*	*0*	*97.4*	*80 - 119*				

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111239-05MS** Units: **UG/L** Analysis Date: **24-Nov-2019 16:13**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359051** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*47.72*	*1.0*	*50*	*0*	*95.4*	*89 - 112*				

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111239-05MSD** Units: **UG/L** Analysis Date: **24-Nov-2019 16:37**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359052** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.12	1.0	20	0	90.6	78 - 124	18.24	0.661	20	
1,1,1-Trichloroethane	18.11	1.0	20	0	90.6	74 - 131	18.88	4.16	20	
1,1,2,2-Tetrachloroethane	17.59	1.0	20	0	87.9	71 - 121	18.01	2.36	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	17.46	1.0	20	0	87.3	70 - 136	18.99	8.39	20	
1,1,2-Trichloroethane	18.04	1.0	20	0	90.2	80 - 119	18.24	1.12	20	
1,1-Dichloroethane	17.57	1.0	20	0	87.8	77 - 125	18.35	4.35	20	
1,1-Dichloroethene	17.36	1.0	20	0	86.8	71 - 131	18.12	4.26	20	
1,1-Dichloropropene	17.8	1.0	20	0	89.0	78 - 125	19.12	7.16	20	
1,2,3-Trichlorobenzene	18.23	1.0	20	0	91.1	69 - 129	14.41	23.4	20	R
1,2,3-Trichloropropane	17.01	1.0	20	0	85.0	73 - 122	17.24	1.38	20	
1,2,4-Trichlorobenzene	17.59	1.0	20	0	87.9	69 - 130	15.26	14.2	20	
1,2,4-Trimethylbenzene	18.33	1.0	20	0	91.6	76 - 124	19.07	3.96	20	
1,2-Dibromo-3-chloropropane	16.61	1.0	20	0	83.1	62 - 128	16.49	0.724	20	
1,2-Dibromoethane	17.93	1.0	20	0	89.7	77 - 121	17.78	0.846	20	
1,2-Dichlorobenzene	18.01	1.0	20	0	90.1	80 - 119	18.64	3.43	20	
1,2-Dichloroethane	17.68	1.0	20	0	88.4	73 - 128	18.26	3.23	20	
1,2-Dichloropropane	17.55	1.0	20	0	87.8	78 - 122	18.08	2.99	20	
1,3,5-Trimethylbenzene	18.76	1.0	20	0	93.8	75 - 124	19.64	4.54	20	
1,3-Dichlorobenzene	18.48	1.0	20	0	92.4	80 - 119	19.23	3.98	20	
1,3-Dichloropropane	17.53	1.0	20	0	87.6	80 - 119	17.67	0.82	20	
1,4-Dichlorobenzene	18.44	1.0	20	0	92.2	79 - 118	18.82	2.06	20	
2,2-Dichloropropane	17.45	1.0	20	0	87.2	60 - 139	18.17	4.07	20	
2-Butanone	30.35	2.0	40	0	75.9	56 - 143	30.13	0.72	20	
2-Chlorotoluene	18.87	1.0	20	0	94.3	79 - 122	19.75	4.57	20	
2-Hexanone	32.59	2.0	40	0	81.5	57 - 139	31.85	2.3	20	
4-Chlorotoluene	18.2	1.0	20	0	91.0	78 - 122	18.99	4.21	20	
4-Isopropyltoluene	18.83	1.0	20	0	94.1	77 - 127	19.48	3.4	20	
4-Methyl-2-pentanone	33.16	2.0	40	0	82.9	67 - 130	32.34	2.53	20	
Acetone	26.02	2.0	40	0	65.1	39 - 160	25.48	2.1	20	
Benzene	18.31	1.0	20	0	91.5	79 - 120	19.17	4.61	20	
Bromobenzene	18.45	1.0	20	0	92.2	80 - 120	19.09	3.45	20	
Bromochloromethane	17.29	1.0	20	0	86.5	78 - 123	17.63	1.92	20	
Bromodichloromethane	18.04	1.0	20	0	90.2	79 - 125	18.27	1.29	20	
Bromoform	17.89	1.0	20	0	89.4	66 - 130	17.79	0.53	20	

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111239-05MSD** Units: **UG/L** Analysis Date: **24-Nov-2019 16:37**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359052** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	18.39	1.0	20	0	92.0	53 - 141	19.73	6.98	20	
Carbon disulfide	36.94	2.0	40	0	92.4	64 - 133	39.23	6.02	20	
Carbon tetrachloride	18.2	1.0	20	0	91.0	72 - 136	19.24	5.56	20	
Chlorobenzene	17.8	1.0	20	0	89.0	82 - 118	18.32	2.89	20	
Chloroethane	16.57	1.0	20	0	82.9	60 - 138	17.02	2.63	20	
Chloroform	16.85	1.0	20	0	84.2	79 - 124	17.4	3.23	20	
Chloromethane	14.12	1.0	20	0	70.6	50 - 139	14.84	4.94	20	
cis-1,2-Dichloroethene	18.13	1.0	20	0	90.6	78 - 123	18.73	3.23	20	
cis-1,3-Dichloropropene	18.02	1.0	20	0	90.1	75 - 124	18.4	2.09	20	
Dibromochloromethane	17.96	1.0	20	0	89.8	74 - 126	18.2	1.3	20	
Dibromomethane	17.8	1.0	20	0	89.0	79 - 123	18.14	1.87	20	
Dichlorodifluoromethane	17.31	1.0	20	0	86.5	32 - 152	18.37	5.94	20	
Ethylbenzene	18.45	1.0	20	0	92.2	79 - 121	18.84	2.13	20	
Hexachlorobutadiene	17.06	1.0	20	0	85.3	66 - 134	15.65	8.61	20	
Isopropylbenzene	18.42	1.0	20	0	92.1	72 - 131	19.15	3.87	20	
m,p-Xylene	36.59	2.0	40	0	91.5	80 - 121	37.63	2.78	20	
Methylene chloride	16.77	2.0	20	0	83.8	74 - 124	17.19	2.51	20	
Naphthalene	16.13	1.0	20	0	80.6	61 - 128	13.75	15.9	20	
n-Butylbenzene	19.32	1.0	20	0	96.6	75 - 128	19.96	3.28	20	
n-Propylbenzene	19.27	1.0	20	0	96.4	76 - 126	20.13	4.34	20	
o-Xylene	18.08	1.0	20	0	90.4	78 - 122	18.35	1.51	20	
sec-Butylbenzene	19.25	1.0	20	0	96.2	77 - 126	20.02	3.91	20	
Styrene	17.88	1.0	20	0	89.4	78 - 123	18.54	3.6	20	
tert-Butylbenzene	19.11	1.0	20	0	95.6	78 - 124	19.89	3.99	20	
Tetrachloroethene	22.2	1.0	20	4.209	90.0	74 - 129	22.84	2.83	20	
Toluene	18.32	1.0	20	0	91.6	80 - 121	18.9	3.12	20	
trans-1,2-Dichloroethene	17.92	1.0	20	0	89.6	75 - 124	18.85	5.04	20	
trans-1,3-Dichloropropene	17.29	1.0	20	0	86.5	73 - 127	17.61	1.81	20	
Trichloroethene	18.77	1.0	20	0	93.8	79 - 123	19.67	4.7	20	
Trichlorofluoromethane	17.92	1.0	20	0	89.6	65 - 141	19.15	6.64	20	
Vinyl chloride	16.23	1.0	20	0	81.2	58 - 137	17.07	5.03	20	
Surr: 1,2-Dichloroethane-d4	*46.43*	*1.0*	*50*	*0*	*92.9*	*81 - 118*	*46.74*	*0.658*	*20*	
Surr: 4-Bromofluorobenzene	*48.06*	*1.0*	*50*	*0*	*96.1*	*85 - 114*	*47.36*	*1.46*	*20*	
Surr: Dibromofluoromethane	*48.44*	*1.0*	*50*	*0*	*96.9*	*80 - 119*	*48.71*	*0.556*	*20*	

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111239-05MSD** Units: **UG/L** Analysis Date: **24-Nov-2019 16:37**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359052** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*47.65*	*1.0*	*50*	*0*	*95.3*	*89 - 112*	*47.72*	*0.151*	*20*	

The following samples were analyzed in this batch: HS19111153-01 HS19111153-02 HS19111153-03 HS19111153-04 HS19111153-05 HS19111153-06 HS19111153-07 HS19111153-08 HS19111153-09

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351218 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-112219** Units: **mg/L** Analysis Date: **22-Nov-2019 13:35**
Client ID: Run ID: **ICS-Integrion_351218** SeqNo: **5359370** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW1-112219** Units: **mg/L** Analysis Date: **22-Nov-2019 13:52**
Client ID: Run ID: **ICS-Integrion_351218** SeqNo: **5359371** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.94	0.500	20	0	99.7	80 - 120				
Nitrogen, Nitrate (As N)	4.083	0.100	4	0	102	80 - 120				
Sulfate	19.3	0.500	20	0	96.5	80 - 120				

LCSD Sample ID: **WLCSDW1-112219** Units: **mg/L** Analysis Date: **22-Nov-2019 14:08**
Client ID: Run ID: **ICS-Integrion_351218** SeqNo: **5359372** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.97	0.500	20	0	99.8	80 - 120	19.94	0.165	20	
Nitrogen, Nitrate (As N)	4.066	0.100	4	0	102	80 - 120	4.083	0.405	20	
Sulfate	19.54	0.500	20	0	97.7	80 - 120	19.3	1.23	20	

MS Sample ID: **HS19111104-01MS** Units: **mg/L** Analysis Date: **22-Nov-2019 14:42**
Client ID: Run ID: **ICS-Integrion_351218** SeqNo: **5359374** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	41.37	0.500	10	32.25	91.2	80 - 120				
Nitrogen, Nitrate (As N)	3.793	0.100	2	1.85	97.1	80 - 120				
Sulfate	93.75	0.500	10	85.29	84.6	80 - 120				O

ALS Houston, US Date: 12-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: HS19111153

QC BATCH REPORT

Batch ID: R351218 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MSD Sample ID: **HS19111104-01MSD** Units: **mg/L** Analysis Date: **22-Nov-2019 14:58**
Client ID: Run ID: **ICS-Integrion_351218** SeqNo: **5359375** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	41.55	0.500	10	32.25	93.0	80 - 120	41.37	0.446	20	
Nitrogen, Nitrate (As N)	3.837	0.100	2	1.85	99.4	80 - 120	3.793	1.17	20	
Sulfate	93.41	0.500	10	85.29	81.3	80 - 120	93.75	0.354	20	O

The following samples were analyzed in this batch: HS19111153-03 HS19111153-04 HS19111153-05 HS19111153-06

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-37
WorkOrder: **HS19111153**

QUALIFIERS, ACRONYMS, UNITS

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

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical 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	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 12-Dec-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19111153
Date/Time Received: **22-Nov-2019 09:05**
Received by: **PMG**

Checklist completed by: *Paresh M. Giga* eSignature 22-Nov-2019 Date
Reviewed by: *RJ Modashia* eSignature 22-Nov-2019 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):	0.7c U/C	IR25
Cooler(s)/Kit(s):	45220	
Date/Time sample(s) sent to storage:	11/22/19 13:15	

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:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

Page 1 of

COC ID: 37NOV2019-1911__-ALS

TURNAROUND TIME:

RUSH:

PROJECT/CLIENT INFO

Facility Name	Longhorn AAP
Project Number	501032
	LHAAP-37
Address	1203-B East Grand Avenue
	PMB 202
City	Marshall
State	TX
Postal Code	75670
Country	USA
Phone Number	715.243.7264
Project Manager	Praveen Srivastav

LABORATORY

Lab Name	ALS Laboratories
Lab Contact	RJ Modashia
Email	RJ.Modashia@alsglobal.com
Address	10450 Stancliff Rd , Suite 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	3-40 ml VOA/Cool to 6 deg C	2-40ml Amber/H2SO4	1-250ml /Cool to 6 deg C
ANALYSIS										Vocs by 8260B	MEE by RSK175	CO2 by RSK175	TOC by SM5310C	Anions (chloride/sulfate/nitrate) by 9056
35BWW16-191121	LHAAP37				WG	11/21/19	0805	3		X				
35BWW17-191121	LHAAP37				WG	11/21/19	0850	3		X				
35BWW04-191121	LHAAP37				WG	11/21/19	0935	12		X	X	X	X	X
35BWW04-191121-FD	LHAAP37				WG	11/21/19	0935	12		X	X	X	X	X
35BWW08-191121	LHAAP37				WG	11/21/19	1035	12		X	X	X	X	X
35BWW26-191121	LHAAP37				WG	11/21/19	1125	12		X	X	X	X	X
35BWW01-191121	LHAAP37				WG	11/21/19	1215	3		X				
35BWW11-191121	LHAAP37				WG	11/21/19	1300	3		X				
TRIP BLANK	LHAAP 37				W	11/21/19		2		X				

HS19111153

Aptim Environmental & Infrastucture, Inc.

LHAAP-37

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Swati Bhatt / BHATT	11/21/19 1745		11/22/19 0910

45220 ULC 0.9° -42° cff 0.0

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

45220

CUSTODY SEAL

Date: 11/21/19 Time: 1415
Name: SCOTT BEESINGER
Company: BHATA

Seal Broken By: (SJ)
Date: 11/22/19

45220

Must Deliver Next Business Day
Time and Tempature Sensitive!

45220

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIROMENTAL & INFASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 24APR19
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) 530-5868
REF: LHAAP - 37 - BO 65124 - RJ

RMA:

FedEx Express

FedEx
TRK# 0221 4809 7833 1372

FRI - 22 NOV 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

December 02, 2019 **Analytical Report for Service Request No:** K1911085

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

RE: HS19111153

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 23, 2019
For your reference, these analyses have been assigned our service request number **K1911085.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

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

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

ALS Environmental

Client: ALS Environmental - US
Project: HS19111153
Sample Matrix: Ground Water

Service Request: K1911085
Date Received: 11/23/2019

CASE NARRATIVE

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

Sample Receipt:

Four ground water samples were received for analysis at ALS Environmental on 11/23/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 12/02/2019

Chain of Custody

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

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

KL911085

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **12704**

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS19111153
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19111153-03**	**35BWW04-191121**	**Groundwater**	**21 Nov 2019 09:35**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			04 Dec 2019
2.	**HS19111153-04**	**35BWW04-191121-FD**	**Groundwater**	**21 Nov 2019 09:35**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			04 Dec 2019
3.	**HS19111153-05**	**35BWW08-191121**	**Groundwater**	**21 Nov 2019 10:35**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			04 Dec 2019
4.	**HS19111153-06**	**35BWW26-191121**	**Groundwater**	**21 Nov 2019 11:25**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			04 Dec 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: M Date/Time: 11/22/19 18:00

Received By: MAnderson Date/Time: 11/23/19 1015

Cooler ID(s): Temperature(s):

RIGHT SOLUTIONS | RIGHT PARTNER

PC KL

Cooler Receipt and Preservation Form

Client ALS Houston Service Request K19 1108S

Received: 11/23/19 Opened: 11/23/19 By: NP Unloaded: 11/23/19 By: NP

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____

   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.3	0.0	1.0	1.3	0.3	379	12704	1251 0292 1428	

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA Y N

   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
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:**	K1911085
Project:	HS19111153	**Date Collected:**	11/21/19
Sample Matrix:	Ground Water	**Date Received:**	11/23/19
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
35BWW04-191121	K1911085-001	**1.17**	0.50	0.20	0.07	1	11/26/19 16:18	
35BWW04-191121-FD	K1911085-002	**1.28**	0.50	0.20	0.07	1	11/26/19 17:30	
35BWW08-191121	K1911085-003	**0.73**	0.50	0.20	0.07	1	11/26/19 17:58	
35BWW26-191121	K1911085-004	**0.44 J**	0.50	0.20	0.07	1	11/26/19 18:26	
Method Blank	K1911085-MB	ND U	0.50	0.20	0.07	1	11/26/19 13:13	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911085
Project	HS19111153	**Date Collected:**	11/21/19
Sample Matrix:	Ground Water	**Date Received:**	11/23/19
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
35BWW04-191121	K1911085-001DUP	0.50	0.20	0.07	1.17	1.26	1.21	8	10	11/26/19
35BWW04-191121-FD	K1911085-002DUP	0.50	0.20	0.07	1.28	1.21	1.24	5	10	11/26/19
35BWW08-191121	K1911085-003DUP	0.50	0.20	0.07	0.73	0.71	0.724	3	10	11/26/19
35BWW26-191121	K1911085-004DUP	0.50	0.20	0.07	0.44 J	0.42 J	0.431	5	10	11/26/19

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911085
Project:	HS19111153	**Date Collected:**	11/21/19
Sample Matrix:	Ground Water	**Date Received:**	11/23/19
		Date Analyzed:	11/26/19
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	35BWW04-191121	**Units:**	mg/L
Lab Code:	K1911085-001	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K1911085-001MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	1.17	27.0	25.0	103	83-117

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911085
Project:	HS19111153	**Date Analyzed:**	11/26/19
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:	661464

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1911085-LCS	25.0	25.0	100	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1911085
Project: HS19111153

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	661464	KQ1917720-01	11/26/19 12:44	25.0	24.4	98	90-110
CCV2	661464	KQ1917720-02	11/26/19 17:01	25.0	24.8	99	90-110
CCV3	661464	KQ1917720-03	11/26/19 22:11	25.0	24.4	97	90-110
CCV4	661464	KQ1917720-04	11/27/19 02:54	25.0	24.6	98	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1911085
Project: HS19111153

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C **Units:**mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	661464	KQ1917720-05	11/26/19 12:59	0.50	0.20	0.07	ND	U
CCB2	661464	KQ1917720-06	11/26/19 17:15	0.50	0.20	0.07	ND	U
CCB3	661464	KQ1917720-07	11/26/19 22:26	0.50	0.20	0.07	ND	U
CCB4	661464	KQ1917720-08	11/27/19 03:09	0.50	0.20	0.07	ND	U

Raw Data

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

General Chemistry

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

Work Request # Original ( ) K1910803, 847, 1037, 1050, 1084, 1085, 1096963, 1034, 963, 1043

Tier: IV IV II II II IV II II II II II

Date Analyzed: 11/26/19

Analyst: BeN

Analysis: TOC/DOC

TOC: 661464, 661465

Run # DOC: 661466

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS: K1911037-3rd report a high %RSD. However, these samples are less than 5x the MRL.

Final Approved by: _____ Date: 12/2/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 661464 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1910803-002	Carbon, Total Organic	N/A		Water	0.90 mg/L	10 ml	180 mg/L	200	20	100			11/26/19 14:26	N	IV
K1910803-003	Carbon, Total Organic	N/A		Water	14.27 mg/L	10 ml	14.3 mg/L	1	0.07	0.50			11/26/19 14:54	N	IV
K1910803-004	Carbon, Total Organic	N/A		Water	13.03 mg/L	10 ml	1300 mg/L	100	7	50			11/26/19 15:22	N	IV
K1910803-005	Carbon, Total Organic	N/A		Water	16.70 mg/L	10 ml	16.7 mg/L	1	0.07	0.50			11/26/19 15:50	N	IV
K1910847-004	Carbon, Total Organic	N/A		Ground Water	3.25 mg/L	10 ml	65 mg/L	20	2	10			11/26/19 13:58	N	IV
K1911037-001	Carbon, Total Organic	N/A		Water	5.79 mg/L	10 ml	5.79 mg/L	1	0.07	0.50			11/26/19 21:43	N	II
K1911037-002	Carbon, Total Organic	N/A		Water	25.83 mg/L	10 ml	25.8 mg/L	1	0.07	0.50			11/26/19 23:10	N	II
K1911037-003	Carbon, Total Organic	N/A		Water	0.63 mg/L	10 ml	0.63 mg/L	1	0.07	0.50			11/26/19 23:38	N	II
K1911050-001	Carbon, Total Organic	N/A		Ground Water	16.22 mg/L	10 ml	16.2 mg/L	1	0.07	0.50			11/27/19 00:06	N	II
K1911050-005	Carbon, Total Organic	N/A		Ground Water	1.98 mg/L	10 ml	1.98 mg/L	1	0.07	0.50			11/27/19 00:34	N	II
K1911084-001	Carbon, Total Organic	N/A		Water	0.12 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 19:23	N	II
K1911084-002	Carbon, Total Organic	N/A		Water	0.18 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 19:51	N	II
K1911084-003	Carbon, Total Organic	N/A		Water	10.56 mg/L	10 ml	10.6 mg/L	1	0.07	0.50			11/26/19 20:19	N	II
K1911084-004	Carbon, Total Organic	N/A		Water	0.43 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 20:47	N	II
K1911084-005	Carbon, Total Organic	N/A		Water	0.14 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 21:15	N	II
K1911085-001	Carbon, Total Organic	N/A		Ground Water	1.17 mg/L	10 ml	1.17 mg/L	1	0.07	0.50			11/26/19 16:18	N	IV
K1911085-002	Carbon, Total Organic	N/A		Ground Water	1.28 mg/L	10 ml	1.28 mg/L	1	0.07	0.50			11/26/19 17:30	N	IV
K1911085-003	Carbon, Total Organic	N/A		Ground Water	0.73 mg/L	10 ml	0.73 mg/L	1	0.07	0.50			11/26/19 17:58	N	IV
K1911085-004	Carbon, Total Organic	N/A		Ground Water	0.44 mg/L	10 ml	0.44 mg/L J	1	0.07	0.50			11/26/19 18:26	N	IV
K1911096-001	Carbon, Total Organic	N/A		Water	0.79 mg/L	10 ml	0.79 mg/L	1	0.07	0.50			11/26/19 18:54	N	II
KQ1917720-01	Carbon, Total Organic	CCV		Ground Water	24.38 mg/L	10 ml	24.4 mg/L	1					11/26/19 12:44	N	IV
KQ1917720-02	Carbon, Total Organic	CCV		Ground Water	24.84 mg/L	10 ml	24.8 mg/L	1					11/26/19 17:01	N	IV
KQ1917720-03	Carbon, Total Organic	CCV		Ground Water	24.37 mg/L	10 ml	24.4 mg/L	1					11/26/19 22:11	N	IV
KQ1917720-04	Carbon, Total Organic	CCV		Ground Water	24.59 mg/L	10 ml	24.6 mg/L	1					11/27/19 02:54	N	IV
KQ1917720-05	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 12:59	N	IV
KQ1917720-06	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 17:15	N	IV
KQ1917720-07	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 22:26	N	IV
KQ1917720-08	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/27/19 03:09	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 661464 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1917720-09	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 13:13	N	IV
KQ1917720-10	Carbon, Total Organic	LCS		Ground Water	25.01 mg/L	10 ml	25.0 mg/L	1	0.07	0.50	100		11/26/19 13:28	N	IV
KQ1917720-11	Carbon, Total Organic	MS	K1911085-001	Ground Water	27.01 mg/L	10 ml	27.0 mg/L	1	0.07	0.50	103		11/26/19 16:46	N	IV
KQ1917720-12	Carbon, Total Organic	DUP	K1910803-002	Water	0.92 mg/L	10 ml	180 mg/L	200	20	100		3	11/26/19 14:26	N	IV
KQ1917720-13	Carbon, Total Organic	DUP	K1910803-003	Water	15.17 mg/L	10 ml	15.2 mg/L	1	0.07	0.50		6	11/26/19 14:54	N	IV
KQ1917720-14	Carbon, Total Organic	DUP	K1910803-004	Water	12.36 mg/L	10 ml	1240 mg/L	100	7	50		5	11/26/19 15:22	N	IV
KQ1917720-15	Carbon, Total Organic	DUP	K1910803-005	Water	16.52 mg/L	10 ml	16.5 mg/L	1	0.07	0.50		1	11/26/19 15:50	N	IV
KQ1917720-16	Carbon, Total Organic	DUP	K1910847-004	Ground Water	3.24 mg/L	10 mL	65 mg/L	20	2	10		<1	11/26/19 13:58:00	N	IV
KQ1917720-17	Carbon, Total Organic	DUP	K1911037-001	Water	5.88 mg/L	10 ml	5.88 mg/L	1	0.07	0.50		1	11/26/19 21:43	N	II
KQ1917720-18	Carbon, Total Organic	DUP	K1911037-002	Water	26.23 mg/L	10 ml	26.2 mg/L	1	0.07	0.50		2	11/26/19 23:10	N	II
KQ1917720-19	Carbon, Total Organic	DUP	K1911037-003	Water	0.41 mg/L	10 ml	0.41 mg/L J	1	0.07	0.50		43*	11/26/19 23:38	N	II
KQ1917720-20	Carbon, Total Organic	DUP	K1911050-001	Ground Water	16.34 mg/L	10 ml	16.3 mg/L	1	0.07	0.50		<1	11/27/19 00:06	N	II
KQ1917720-21	Carbon, Total Organic	DUP	K1911050-005	Ground Water	1.94 mg/L	10 ml	1.94 mg/L	1	0.07	0.50		2	11/27/19 00:34	N	II
KQ1917720-22	Carbon, Total Organic	DUP	K1911085-002	Ground Water	1.21 mg/L	10 ml	1.21 mg/L	1	0.07	0.50		5	11/26/19 17:30	N	IV
KQ1917720-23	Carbon, Total Organic	DUP	K1911085-001	Ground Water	1.26 mg/L	10 ml	1.26 mg/L	1	0.07	0.50		8	11/26/19 16:18	N	IV
KQ1917720-24	Carbon, Total Organic	DUP	K1911085-003	Ground Water	0.71 mg/L	10 ml	0.71 mg/L	1	0.07	0.50		3	11/26/19 17:58	N	IV
KQ1917720-25	Carbon, Total Organic	DUP	K1911085-004	Ground Water	0.42 mg/L	10 ml	0.42 mg/L J	1	0.07	0.50		5	11/26/19 18:26	N	IV
KQ1917720-26	Carbon, Total Organic	DUP	K1911084-001	Water	0.13 mg/L	10 ml	0.13 mg/L J	1	0.07	0.50		NC	11/26/19 19:23	N	II
KQ1917720-27	Carbon, Total Organic	DUP	K1911084-005	Water	0.06 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	11/26/19 21:15	N	II
KQ1917720-28	Carbon, Total Organic	DUP	K1911084-002	Water	0.17 mg/L	10 ml	0.17 mg/L J	1	0.07	0.50		NC	11/26/19 19:51	N	II
KQ1917720-29	Carbon, Total Organic	DUP	K1911084-003	Water	10.56 mg/L	10 ml	10.6 mg/L	1	0.07	0.50		<1	11/26/19 20:19	N	II
KQ1917720-30	Carbon, Total Organic	DUP	K1911084-004	Water	0.32 mg/L	10 ml	0.32 mg/L J	1	0.07	0.50		NC	11/26/19 20:47	N	II
KQ1917720-31	Carbon, Total Organic	DUP	K1911096-001	Water	0.83 mg/L	10 ml	0.83 mg/L	1	0.07	0.50		5	11/26/19 18:54	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 661465 **Method/Testcode:** 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1910963-001	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/27/19 06:12	N	II
K1911034-001	Carbon, Total Organic	N/A		Water	4.16 mg/L	10 ml	4.16 mg/L	1	0.07	0.50			11/27/19 01:02	N	II
K1911034-002	Carbon, Total Organic	N/A		Water	5.08 mg/L	10 ml	5.08 mg/L	1	0.07	0.50			11/27/19 01:30	N	II
K1911034-003	Carbon, Total Organic	N/A		Water	4.26 mg/L	10 ml	4.26 mg/L	1	0.07	0.50			11/27/19 01:58	N	II
K1911034-004	Carbon, Total Organic	N/A		Water	12.66 mg/L	10 ml	12.7 mg/L	1	0.07	0.50			11/27/19 02:26	N	II
K1911034-005	Carbon, Total Organic	N/A		Water	2.85 mg/L	10 ml	2.85 mg/L	1	0.07	0.50			11/27/19 03:24	N	II
K1911034-006	Carbon, Total Organic	N/A		Water	6.47 mg/L	10 ml	6.47 mg/L	1	0.07	0.50			11/27/19 03:52	N	II
K1911034-007	Carbon, Total Organic	N/A		Water	3.58 mg/L	10 ml	3.58 mg/L	1	0.07	0.50			11/27/19 04:20	N	II
K1911034-008	Carbon, Total Organic	N/A		Water	4.73 mg/L	10 ml	4.73 mg/L	1	0.07	0.50			11/27/19 04:48	N	II
K1911034-009	Carbon, Total Organic	N/A		Water	3.59 mg/L	10 ml	3.59 mg/L	1	0.07	0.50			11/27/19 05:16	N	II
K1911034-010	Carbon, Total Organic	N/A		Water	4.73 mg/L	10 ml	4.73 mg/L	1	0.07	0.50			11/27/19 05:44	N	II
KQ1917721-01	Carbon, Total Organic	CCV		Water	24.37 mg/L	10 ml	24.4 mg/L	1					11/26/19 22:11	N	II
KQ1917721-02	Carbon, Total Organic	CCV		Water	24.59 mg/L	10 ml	24.6 mg/L	1					11/27/19 02:54	N	II
KQ1917721-03	Carbon, Total Organic	CCV		Water	24.12 mg/L	10 ml	24.1 mg/L	1					11/27/19 07:24	N	II
KQ1917721-04	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 22:26	N	II
KQ1917721-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/27/19 03:09	N	II
KQ1917721-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/27/19 07:38	N	II
KQ1917721-07	Carbon, Total Organic	MB		Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			11/26/19 22:41	N	II
KQ1917721-08	Carbon, Total Organic	LCS		Water	24.70 mg/L	10 ml	24.7 mg/L	1	0.07	0.50	99		11/26/19 22:55	N	II
KQ1917721-09	Carbon, Total Organic	MS	K1910963-001	Water	25.13 mg/L	10 ml	25.1 mg/L	1	0.07	0.50	101		11/27/19 06:40	N	II
KQ1917721-10	Carbon, Total Organic	DUP	K1910963-001	Water	0.00 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	11/27/19 06:12	N	II
KQ1917721-11	Carbon, Total Organic	DUP	K1911034-001	Water	4.16 mg/L	10 ml	4.16 mg/L	1	0.07	0.50		<1	11/27/19 01:02	N	II
KQ1917721-12	Carbon, Total Organic	DUP	K1911034-002	Water	5.09 mg/L	10 ml	5.09 mg/L	1	0.07	0.50		<1	11/27/19 01:30	N	II
KQ1917721-13	Carbon, Total Organic	DUP	K1911034-003	Water	4.26 mg/L	10 ml	4.26 mg/L	1	0.07	0.50		<1	11/27/19 01:58	N	II
KQ1917721-14	Carbon, Total Organic	DUP	K1911034-004	Water	12.37 mg/L	10 ml	12.4 mg/L	1	0.07	0.50		2	11/27/19 02:26	N	II
KQ1917721-15	Carbon, Total Organic	DUP	K1911034-005	Water	2.84 mg/L	10 ml	2.84 mg/L	1	0.07	0.50		<1	11/27/19 03:24	N	II
KQ1917721-16	Carbon, Total Organic	DUP	K1911034-006	Water	6.43 mg/L	10 ml	6.43 mg/L	1	0.07	0.50		<1	11/27/19 03:52	N	II
KQ1917721-17	Carbon, Total Organic	DUP	K1911034-007	Water	3.62 mg/L	10 ml	3.62 mg/L	1	0.07	0.50		1	11/27/19 04:20	N	II
KQ1917721-18	Carbon, Total Organic	DUP	K1911034-008	Water	4.76 mg/L	10 ml	4.76 mg/L	1	0.07	0.50		<1	11/27/19 04:48	N	II
KQ1917721-19	Carbon, Total Organic	DUP	K1911034-009	Water	3.55 mg/L	10 ml	3.55 mg/L	1	0.07	0.50		1	11/27/19 05:16	N	II
KQ1917721-20	Carbon, Total Organic	DUP	K1911034-010	Water	4.60 mg/L	10 ml	4.60 mg/L	1	0.07	0.50		3	11/27/19 05:44	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 661466 **Method/Testcode:** 415.1/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1910963-002	Carbon, Dissolved Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 08:23:00	N	II
K1911043-002	Carbon, Dissolved Organic (DOC)	N/A		Water	1.70 mg/L	10 mL	1.70 mg/L	1	0.07	0.50			11/27/19 09:20:00	N	II
KQ1917722-01	Carbon, Dissolved Organic	CCV		Water	24.12 mg/L	10 mL	24.1 mg/L	1					11/27/19 07:24:00	N	II
KQ1917722-01	Carbon, Dissolved Organic (DOC)	CCV		Water	24.12 mg/L	10 mL	24.1 mg/L	1					11/27/19 07:24:00	N	II
KQ1917722-02	Carbon, Dissolved Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 07:38:00	N	II
KQ1917722-02	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 07:38:00	N	II
KQ1917722-03	Carbon, Dissolved Organic	CCV		Water	24.23 mg/L	10 mL	24.2 mg/L	1					11/27/19 10:17:00	N	II
KQ1917722-03	Carbon, Dissolved Organic (DOC)	CCV		Water	24.23 mg/L	10 mL	24.2 mg/L	1					11/27/19 10:17:00	N	II
KQ1917722-04	Carbon, Dissolved Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 10:31:00	N	II
KQ1917722-04	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 10:31:00	N	II
KQ1917722-05	Carbon, Dissolved Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 07:53:00	N	II
KQ1917722-05	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 07:53:00	N	II
KQ1917722-06	Carbon, Dissolved Organic	LCS		Water	24.76 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		11/27/19 08:08:00	N	II
KQ1917722-06	Carbon, Dissolved Organic (DOC)	LCS		Water	24.76 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		11/27/19 08:08:00	N	II
KQ1917722-07	Carbon, Dissolved Organic	MS	K1910963-002	Water	25.49 mg/L	10 mL	25.5 mg/L	1	0.07	0.50	102		11/27/19 08:51:00	N	II
KQ1917722-08	Carbon, Dissolved Organic	DUP	K1910963-002	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	11/27/19 08:23:00	N	II
KQ1917722-09	Carbon, Dissolved Organic (DOC)	DUP	K1911043-002	Water	1.75 mg/L	10 mL	1.75 mg/L	1	0.07	0.50		3	11/27/19 09:20:00	N	II
KQ1917722-10	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/27/19 08:23:00	N	II
KQ1917722-11	Carbon, Dissolved Organic (DOC)	DUP	KQ1917722-10	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	11/27/19 08:23:00	N	II
KQ1917722-12	Carbon, Dissolved Organic (DOC)	MS	KQ1917722-10	Water	25.49 mg/L	10 mL	25.5 mg/L	1	0.07	0.50	102		11/27/19 08:51:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	24.383	0.0000	24.3827	24.3827	24.4	11/26/2019
3	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
4	mb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
5	lcs	1	25.010	0.0000	25.0096	25.0096	25.0	11/26/2019
6	K1910847-004	20	3.251	0.0000	3.2507	65.014	65.01	11/26/2019
7	K1910847-004	20	3.241	0.0000	3.2405	64.81	64.8	11/26/2019
8	K1910803-002	200	0.898	0.0000	0.8975	179.5	180	11/26/2019
9	K1910803-002	200	0.925	0.0000	0.9249	184.98	184.98	11/26/2019
10	K1910803-003	1	14.267	0.0000	14.2670	14.267	14.27	11/26/2019
11	K1910803-003	1	15.165	0.0000	15.1650	15.165	15.2	11/26/2019
12	K1910803-004	100	13.033	0.0000	13.0326	1303.26	1303.26	11/26/2019
13	K1910803-004	100	12.361	0.0000	12.3610	1236.1	1236.10	11/26/2019
14	K1910803-005	1	16.696	0.0000	16.6964	16.6964	16.70	11/26/2019
15	K1910803-005	1	16.522	0.0000	16.5216	16.5216	16.5	11/26/2019
16	K1911085-001	1	1.165	0.0000	1.1654	1.1654	1.2	11/26/2019
17	K1911085-001	1	1.261	0.0000	1.2605	1.2605	1.26	11/26/2019
18	KQ1917720-11	1	27.011	0.0000	27.0105	27.0105	27.0	11/26/2019
19	ccv	1	24.839	0.0000	24.8385	24.8385	24.8	11/26/2019
20	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
21	K1911085-002	1	1.276	0.0000	1.2760	1.276	1.28	11/26/2019
22	K1911085-002	1	1.208	0.0000	1.2081	1.2081	1.2	11/26/2019
23	K1911085-003	1	0.733	0.0000	0.7327	0.7327	0.7	11/26/2019
24	K1911085-003	1	0.715	0.0000	0.7146	0.7146	0.71	11/26/2019
25	K1911085-004	1	0.442	0.0000	0.4422	0.4422	<0.5	11/26/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: BCP	Date Analyzed	11/20/19	
Reviewed By:	Date Reviewed	12/2/19	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1911085-004	1	0.421	0.0000	0.4205	0.4205	<0.5	11/26/2019
27	K1911096-001	1	0.788	0.0000	0.7884	0.7884	0.79	11/26/2019
28	K1911096-001	1	0.831	0.0000	0.8314	0.8314	0.8	11/26/2019
29	K1911084-001	1	0.122	0.0000	0.1219	0.1219	<0.5	11/26/2019
30	K1911084-001	1	0.126	0.0000	0.1262	0.1262	<0.5	11/26/2019
31	K1911084-002	1	0.175	0.0000	0.1751	0.1751	<0.5	11/26/2019
32	K1911084-002	1	0.172	0.0000	0.1718	0.1718	<0.5	11/26/2019
33	K1911084-003	1	10.564	0.0000	10.5636	10.5636	10.6	11/26/2019
34	K1911084-003	1	10.562	0.0000	10.5616	10.5616	10.6	11/26/2019
35	K1911084-004	1	0.431	0.0000	0.4313	0.4313	<0.5	11/26/2019
36	K1911084-004	1	0.316	0.0000	0.3155	0.3155	<0.5	11/26/2019
37	K1911084-005	1	0.144	0.0000	0.1438	0.1438	<0.5	11/26/2019
38	K1911084-005	1	0.059	0.0000	0.0587	0.0587	<0.5	11/26/2019
39	K1911037-001	1	5.794	0.0000	5.7939	5.7939	5.8	11/26/2019
40	K1911037-001	1	5.877	0.0000	5.8773	5.8773	5.9	11/26/2019
41	ccv	1	24.373	0.0000	24.3729	24.3729	24.4	11/26/2019
42	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
43	K1911037-002	1	25.829	0.0000	25.8285	25.8285	25.8	11/26/2019
44	K1911037-002	1	26.233	0.0000	26.2334	26.2334	26.2	11/26/2019
45	K1911037-003	1	0.631	0.0000	0.6306	0.6306	0.6	11/26/2019
46	K1911037-003	1	0.406	0.0000	0.4058	0.4058	<0.5	11/26/2019
47	K1911050-001	1	16.222	0.0000	16.2221	16.2221	16.2	11/27/2019
48	K1911050-001	1	16.339	0.0000	16.3389	16.3389	16.3	11/27/2019
49	K1911050-005	1	1.977	0.0000	1.9767	1.9767	2.0	11/27/2019
50	K1911050-005	1	1.935	0.0000	1.9351	1.9351	1.9	11/27/2019

Analyzed By: BCP	Date Analyzed 11/26/19
Reviewed By:	Date Reviewed 12/2/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	ccv	1	24.586	0.0000	24.5857	24.5857	24.59	11/27/2019
52	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
53		1		0.0000	0.0000	0	<0.5	
54		1		0.0000	0.0000	0	<0.5	
55		1		0.0000	0.0000	0	<0.5	
56		1		0.0000	0.0000	0	<0.5	
57		1		0.0000	0.0000	0	<0.5	
58		1		0.0000	0.0000	0	<0.5	
59		1		0.0000	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By: [illegible]	Date Analyzed 11/26/19
Reviewed By: [illegible]	Date Reviewed 12/2/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	24.373	0.0000	24.3729	24.3729	24.4	11/26/2019
3	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
4	mb	1	0.000	0.0000	0.0000	0	<0.5	11/26/2019
5	lcs	1	24.702	0.0000	24.7023	24.7023	24.7	11/26/2019
6	K1911034-001	1	4.162	0.0000	4.1616	4.1616	4.16	11/27/2019
7	K1911034-001	1	4.162	0.0000	4.1619	4.1619	4.2	11/27/2019
8	K1911034-002	1	5.084	0.0000	5.0839	5.0839	5	11/27/2019
9	K1911034-002	1	5.087	0.0000	5.0872	5.0872	5.09	11/27/2019
10	K1911034-003	1	4.263	0.0000	4.2629	4.2629	4.26	11/27/2019
11	K1911034-003	1	4.258	0.0000	4.2581	4.2581	4.3	11/27/2019
12	K1911034-004	1	12.665	0.0000	12.6646	12.6646	12.66	11/27/2019
13	K1911034-004	1	12.375	0.0000	12.3749	12.3749	12.37	11/27/2019
14	ccv	1	24.586	0.0000	24.5857	24.5857	24.59	11/27/2019
15	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
16	K1911034-005	1	2.851	0.0000	2.8509	2.8509	2.9	11/27/2019
17	K1911034-005	1	2.841	0.0000	2.8414	2.8414	2.84	11/27/2019
18	K1911034-006	1	6.468	0.0000	6.4677	6.4677	6.5	11/27/2019
19	K1911034-006	1	6.427	0.0000	6.4268	6.4268	6.4	11/27/2019
20	K1911034-007	1	3.577	0.0000	3.5774	3.5774	3.58	11/27/2019
21	K1911034-007	1	3.619	0.0000	3.6185	3.6185	3.62	11/27/2019
22	K1911034-008	1	4.732	0.0000	4.7321	4.7321	4.7	11/27/2019
23	K1911034-008	1	4.765	0.0000	4.7648	4.7648	4.8	11/27/2019
24	K1911034-009	1	3.591	0.0000	3.5914	3.5914	3.59	11/27/2019
25	K1911034-009	1	3.548	0.0000	3.5484	3.5484	3.55	11/27/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: BCB	Date Analyzed	11/26/19	
Reviewed By: JC	Date Reviewed	12/2/19	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1911034-010	1	4.735	0.0000	4.7348	4.7348	4.73	11/27/2019
27	K1911034-010	1	4.602	0.0000	4.6022	4.6022	4.60	11/27/2019
28	K1910963-001	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
29	K1910963-001	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
30	KQ1917721-09	1	25.134	0.0000	25.1340	25.134	25.1	11/27/2019
31	ccv	1	24.121	0.0000	24.1211	24.1211	24.1	11/27/2019
32	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: BCB	Date Analyzed 11/26/19
Reviewed By:	Date Reviewed 12/2/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	24.121	0.0000	24.1211	24.1211	24.1	11/27/2019
3	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
4	mb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
5	lcs	1	24.756	0.0000	24.7562	24.7562	24.8	11/27/2019
6	K1910963-002	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
7	K1910963-002	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
8	K1910963-002 ms	1	25.491	0.0000	25.4906	25.4906	25	11/27/2019
9	K1911043-002	50	1.697	0.0000	1.6970	84.85	84.85	11/27/2019
10	K1911043-002	50	1.748	0.0000	1.7483	87.415	87.42	11/27/2019
11	ccv	1	24.234	0.0000	24.2344	24.2344	24.2	11/27/2019
12	ccb	1	0.000	0.0000	0.0000	0	<0.5	11/27/2019
13		1		0.0000	0.0000	0	<0.5	
14		1		0.0000	0.0000	0	<0.5	
15		1		0.0000	0.0000	0	<0.5	
16		1		0.0000	0.0000	0	<0.5	
17		1		0.0000	0.0000	0	<0.5	
18		1		0.0000	0.0000	0	<0.5	
19		1		0.0000	0.0000	0	<0.5	
20		1		0.0000	0.0000	0	<0.5	
21		1		0.0000	0.0000	0	<0.5	
22		1		0.0000	0.0000	0	<0.5	
23		1		0.0000	0.0000	0	<0.5	
24		1		0.0000	0.0000	0	<0.5	
25		1		0.0000	0.0000	0	<0.5	

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By:		Date Analyzed	11/26/19
Reviewed By:		Date Reviewed	12/2/19

TOC: 661464, 661465
DOC: 661466

Schedule: 11262019

Version: 5
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/11/26 11:38 - Tuesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1910847-004.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1910803-002.01 200x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1910803-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1910803-004.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1910803-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1911085-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1911085-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1911085-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1911085-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1911085-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1911096-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1911084-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1911084-002.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1911084-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1911084-004.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1911084-005.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1911037-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1911037-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1911037-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1911050-001.08	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1911050-005.09	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1911034-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1911034-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1911034-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1911034-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1911034-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1911034-006.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1911034-007.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1911034-008.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1911034-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1911034-010.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1910963-001.08	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1910963-001.08 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
37	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
38	Sample	FB 11/22/19	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 11262019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1910963-002.10 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1910963-002.10 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
42	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
43	Sample	K1911043-002.01 doc 50x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 11262019
Tuesday, November 26, 2019 10:48 AM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/11/27 12:19 - Wednesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	11262019	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) Fusion1 (Fusion1) (v5)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/11/26 10:48

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	14.10	17.92	3.82	49.80	05:22
2	TC Clean	10.56	14.21	3.66	50.06	04:02
3	TC Clean	2.88	6.61	3.72	50.11	03:48
4	TC Clean	2.30	5.98	3.68	50.04	03:46

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/11/26 11:10

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	11.69	15.35	3.66	49.64	05:11
2	TC Clean	4.38	8.07	3.69	50.07	04:02
3	TC Clean	1.75	5.60	3.85	50.06	03:46

4	TC Clean	1.69	5.44	3.75	50.04	03:46

Sample Type: Clean From Schedule Version 4

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/11/26 11:33

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	11.94	15.55	3.61	49.82	05:24
2	TC Clean	4.50	8.40	3.90	50.14	04:02
3	TC Clean	1.90	5.70	3.81	50.15	03:57
4	TC Clean	1.54	5.37	3.83	50.13	03:56

Sample Type: Blank (Creating v1324) From Schedule Version 5

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2019/11/26 11:56

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.95	4.60	3.65	49.63	05:20
2	TC Clean	5.07	8.76	3.70	50.08	04:02
3	TC Clean	2.11	5.67	3.55	50.12	03:49
4	TC Clean	2.00	5.72	3.72	50.10	03:45
5	Reagent Blank	4.00	7.73	3.74	50.16	05:07
6	Acid Blank	1.33	4.87	3.54	49.64	05:27

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.3449 ppm	0.0000 ppm	0.0000%	2019/11/26 12:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3449	3.4494	11.12	14.98	3.86	50.33	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3827 ppm (PASS)	0.0000 ppm	0%	2019/11/26 12:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3827	243.8273	174.97	178.89	3.92	50.40	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/26 12:59

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.52	11.31	3.79	50.39	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/26 13:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.58	10.65	4.06	50.39	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.0096 ppm (PASS)	0.0000 ppm	0%	2019/11/26 13:28

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0096	250.0957	179.23	183.05	3.83	50.39	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	2	TOC	ICS	0.5966 ppm	0.0000 ppm	0.0000%	2019/11/26 13:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5966	5.9656	12.83	16.66	3.83	50.42	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	3	TOC	K1910847-004.01 20x	3.2456 ppm	0.0072 ppm	0.2200%	2019/11/26 13:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.2507	32.5068	30.85	34.44	3.59	50.32	10:28
2	TOC	3.2405	32.4052	30.78	34.52	3.74	50.36	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	4	TOC	K1910803-002.01 200x	0.9112 ppm	0.0194 ppm	2.1300%	2019/11/26 14:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8975	8.9754	14.88	18.48	3.60	50.30	10:25
2	TOC	0.9249	9.2494	15.06	18.56	3.50	50.32	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	5	TOC	K1910803-003.01	14.7160 ppm	0.6350 ppm	4.3200%	2019/11/26 14:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.2670	142.6698	105.63	109.34	3.72	50.29	10:27
2	TOC	15.1650	151.6504	111.72	115.38	3.65	50.36	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	6	TOC	K1910803-004.01 100x	12.6968 ppm	0.4749 ppm	3.7400%	2019/11/26 15:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.0326	130.3259	97.25	100.87	3.62	50.25	10:29
2	TOC	12.3610	123.6095	92.69	96.45	3.76	50.27	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	7	TOC	K1910803-005.01	16.6090 ppm	0.1237 ppm	0.7400%	2019/11/26 15:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.6964	166.9644	122.12	125.79	3.68	50.24	10:29
2	TOC	16.5216	165.2157	120.93	124.49	3.56	50.25	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	8	TOC	K1911085-001.01	1.2129 ppm	0.0673 ppm	5.5500%	2019/11/26 16:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1654	11.6536	16.69	20.36	3.67	50.28	10:31
2	TOC	1.2605	12.6053	17.34	20.94	3.60	50.25	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	9	TOC	K1911085-001.01 ms	27.0105 ppm	0.0000 ppm	0.0000%	2019/11/26 16:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.0105	270.1046	192.13	195.57	3.44	50.25	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 5

			Concentration			Min / Max				

	Pos	BAT	(ppm)	Dil	Sample ID	(% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.8385 ppm (PASS)	0.0000 ppm	0%	2019/11/26 17:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8385	248.3854	178.06	181.67	3.60	50.28	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/26 17:15

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.91	11.57	3.66	50.23	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K1911085-002.01	1.2420 ppm	0.0480 ppm	3.8700%	2019/11/26 17:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2760	12.7600	17.44	21.14	3.70	50.29	10:27
2	TOC	1.2081	12.0809	16.98	20.57	3.58	50.24	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K1911085-003.01	0.7236 ppm	0.0128 ppm	1.7700%	2019/11/26 17:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7327	7.3269	13.76	17.23	3.47	50.29	10:31
2	TOC	0.7146	7.1457	13.63	17.20	3.56	50.29	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC)	CAS_salt_010711	CAS_salt_010711

(v1324) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	K1911085-004.01	0.4313 ppm	0.0153 ppm	3.5500%	2019/11/26 18:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4422	4.4217	11.78	15.35	3.56	50.28	10:27
2	TOC	0.4205	4.2051	11.64	15.08	3.44	50.24	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K1911096-001.01	0.8099 ppm	0.0304 ppm	3.7600%	2019/11/26 18:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7884	7.8837	14.13	17.80	3.66	50.36	10:27
2	TOC	0.8314	8.3139	14.43	18.14	3.71	50.35	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K1911084-001.04	0.1240 ppm	0.0030 ppm	2.4400%	2019/11/26 19:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1219	1.2190	9.61	13.15	3.54	50.37	10:26
2	TOC	0.1262	1.2617	9.64	13.19	3.55	50.38	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	K1911084-002.04	0.1735 ppm	0.0023 ppm	1.3200%	2019/11/26 19:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1751	1.7508	9.97	13.43	3.46	50.37	10:27
2	TOC	0.1718	1.7184	9.95	13.43	3.48	50.37	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	16	TOC	K1911084-003.04	10.5626 ppm	0.0015 ppm	0.0100%	2019/11/26 20:19

Rep	Base	ppm	µg	Adjusted	NDIR (Abs)	Baseline	Pressure	Run

#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	10.5636	105.6365	80.49	84.23	3.74	50.34	10:27
2	TOC	10.5616	105.6159	80.47	84.07	3.59	50.31	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1911084-004.04	0.3734 ppm	0.0819 ppm	21.9300%	2019/11/26 20:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4313	4.3127	11.71	15.33	3.62	50.32	10:25
2	TOC	0.3155	3.1548	10.92	14.83	3.91	50.28	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1911084-005.04	0.1013 ppm	0.0602 ppm	59.4500%	2019/11/26 21:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1438	1.4385	9.76	13.29	3.53	50.29	10:31
2	TOC	0.0587	0.5870	9.18	12.97	3.79	50.26	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1911037-001.02	5.8356 ppm	0.0590 ppm	1.0100%	2019/11/26 21:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.7939	57.9387	48.11	51.69	3.57	50.25	10:27
2	TOC	5.8773	58.7725	48.68	52.12	3.45	50.26	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3729 ppm (PASS)	0.0000 ppm	0%	2019/11/26 22:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

B	TOC	25 ppm	1	24.3729	243.7286	174.90	178.54	3.63	50.23	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/26 22:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.16	9.80	3.64	50.22	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/26 22:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.40	9.08	3.68	50.22	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.7023 ppm (PASS)	0.0000 ppm	0%	2019/11/26 22:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.7023	247.0227	177.14	180.67	3.53	50.21	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	21	TOC	K1911037-002.02	26.0309 ppm	0.2863 ppm	1.1000%	2019/11/26 23:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.8285	258.2851	184.10	187.69	3.59	50.23	10:26
2	TOC	26.2334	262.3335	186.85	190.55	3.70	50.22	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	22	TOC	K1911037-003.02	0.5182 ppm	0.1590 ppm	30.6800%	2019/11/26 23:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6306	6.3059	13.06	16.67	3.61	50.22	10:31
2	TOC	0.4058	4.0578	11.54	15.13	3.59	50.21	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	23	TOC	K1911050-001.08	16.2805 ppm	0.0826 ppm	0.5100%	2019/11/27 00:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.2221	162.2207	118.90	122.49	3.59	50.22	10:30
2	TOC	16.3389	163.3889	119.69	123.24	3.55	50.22	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	24	TOC	K1911050-005.09	1.9559 ppm	0.0294 ppm	1.5000%	2019/11/27 00:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9767	19.7666	22.20	25.66	3.46	50.20	10:27
2	TOC	1.9351	19.3511	21.92	25.52	3.60	50.19	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	25	TOC	K1911034-001.02	4.1617 ppm	0.0002 ppm	0.0100%	2019/11/27 01:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	4.1616	41.6156	37.03	40.51	3.48	50.18	10:27
2	TOC	4.1619	41.6186	37.03	40.56	3.53	50.19	10:28

Dilution 1:10 **Blank Contribution** (TC) 8.7826 (IC) (v1324) **Method** CAS_salt_010711 (v4) **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	26	TOC	K1911034-002.02	5.0856 ppm	0.0023 ppm	0.0500%	2019/11/27 01:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.0839	50.8393	43.29	46.91	3.62	50.22	10:29
2	TOC	5.0872	50.8717	43.31	46.84	3.52	50.20	10:26

Dilution 1:10 **Blank Contribution** (TC) 8.7826 (IC) (v1324) **Method** CAS_salt_010711 (v4) **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	27	TOC	K1911034-003.02	4.2605 ppm	0.0034 ppm	0.0800%	2019/11/27 01:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.2629	42.6292	37.72	41.27	3.55	50.18	10:30
2	TOC	4.2581	42.5806	37.69	41.21	3.53	50.18	10:27

Dilution 1:10 **Blank Contribution** (TC) 8.7826 (IC) (v1324) **Method** CAS_salt_010711 (v4) **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	28	TOC	K1911034-004.02	12.5198 ppm	0.2048 ppm	1.6400%	2019/11/27 02:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	12.6646	126.6458	94.75	98.26	3.51	50.20	10:26
2	TOC	12.3749	123.7495	92.78	96.37	3.58	50.17	10:25

Dilution 1:10 **Blank Contribution** (TC) 8.7826 (IC) (v1324) **Method** CAS_salt_010711 (v4) **Calibration** CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5857 ppm (PASS)	0.0000 ppm	0%	2019/11/27 02:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5857	245.8573	176.35	180.01	3.66	50.20	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/27 03:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.59	9.21	3.62	50.20	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	29	TOC	K1911034-005.02	2.8461 ppm	0.0067 ppm	0.2300%	2019/11/27 03:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.8509	28.5085	28.13	31.62	3.49	50.18	10:28
2	TOC	2.8414	28.4143	28.07	31.70	3.63	50.17	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	30	TOC	K1911034-006.02	6.4472 ppm	0.0290 ppm	0.4500%	2019/11/27 03:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.4677	64.6771	52.68	56.17	3.48	50.19	10:29
2	TOC	6.4268	64.2675	52.41	55.95	3.55	50.21	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	31	TOC	K1911034-007.02	3.5980 ppm	0.0291 ppm	0.8100%	2019/11/27 04:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.5774	35.7744	33.07	36.76	3.69	50.19	10:28

2	TOC	3.6185	36.1854	33.34	36.91	3.56	50.19	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1911034-008.02	4.7485 ppm	0.0231 ppm	0.4900%	2019/11/27 04:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7321	47.3213	40.90	44.39	3.48	50.17	10:27
2	TOC	4.7648	47.6484	41.13	44.66	3.53	50.23	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1911034-009.02	3.5699 ppm	0.0304 ppm	0.8500%	2019/11/27 05:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.5914	35.9143	33.16	36.78	3.62	50.21	10:32
2	TOC	3.5484	35.4841	32.87	36.46	3.59	50.23	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1911034-010.02	4.6685 ppm	0.0938 ppm	2.0100%	2019/11/27 05:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7348	47.3478	40.92	44.47	3.54	50.21	10:31
2	TOC	4.6022	46.0219	40.02	43.57	3.55	50.21	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1910963-001.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 06:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.60	9.13	3.53	50.20	10:27
2	TOC	0.0000	0.0000	5.48	9.09	3.61	50.20	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◆	36	TOC	K1910963-001.08 ms	25.1340 ppm	0.0000 ppm	0.0000%	2019/11/27 06:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.1340	251.3405	179.39	183.06	3.67	50.18	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	37	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 06:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.20	9.87	3.67	50.20	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	38	TOC	FB 11/22/19	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 07:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.41	9.05	3.64	50.19	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.1211 ppm (PASS)	0.0000 ppm	0%	2019/11/27 07:24

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.1211	241.2109	173.20	176.64	3.44	50.16	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/27 07:38

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.36	8.98	3.61	50.19	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 07:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.44	8.13	3.69	50.14	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.7562 ppm (PASS)	0.0000 ppm	0%	2019/11/27 08:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.7562	247.5618	177.51	181.18	3.68	50.13	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	40	TOC	K1910963-002.10 doc	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 08:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.50	11.12	3.62	50.20	10:29
2	TOC	0.0000	0.0000	7.53	11.19	3.66	50.15	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	41	TOC	K1910963-002.10 ms doc	25.4906 ppm	0.0000 ppm	0.0000%	2019/11/27 08:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.4906	254.9056	181.81	185.37	3.56	50.16	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	42	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 09:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.58	9.04	3.47	50.18	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	43	TOC	K1911043-002.01 doc 50x	1.7227 ppm	0.0363 ppm	2.1000%	2019/11/27 09:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6970	16.9704	20.30	23.88	3.58	50.17	10:26
2	TOC	1.7483	17.4831	20.65	24.23	3.58	50.23	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	44	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/27 09:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.12	8.91	3.79	50.22	10:25
2	TOC	0.0000	0.0000	5.28	8.95	3.67	50.19	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7826 (IC) (v1324)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.2344 ppm	0.0000 ppm	0%	2019/11/27 10:17

							(PASS)			

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.2344	242.3438	173.96	177.48	3.52	50.20	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/27 10:31

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.35	8.99	3.64	50.23	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	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
v1323	1.3397	1.1360	0.0000	0.0000	0.0000	2019/11/23 16:30	Fusion1 (Fusion1)
v1324	1.3317	1.3300	0.0000	0.0000	0.0000	2019/11/26 12:29	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v30	Calibration curve formula:	TOC: y = 6.788x + 9.463
Ver Creation:	2019/03/05 17:42	r^2 value:	TOC: r^2 = 0.99963
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)

Ver Creation: 2019/02/21 17:57

Comment:

Parameter	Value
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	2019/11/27 10:46

ALS Environmental

StarLIMS Run: 661464, 661465, 661466

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-83D

21 % H3PO4: 11-GEN-05-83E

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By: BCD	Date Analyzed: 11/30/19
Reviewed By: JC	Date Reviewed: 12/2/19

25 BCD 11/30/19

LABORATORY REPORT

December 11, 2019

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

RE: HS19111153

Dear RJ:

Enclosed are the results of the sample submitted to our laboratory on November 23, 2019. For your reference, these analyses have been assigned our service request number P1907202.

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

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

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 4:42 pm, Dec 11, 2019

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P1907202
Project: HS19111153

CASE NARRATIVE

The samples were received intact under chain of custody on November 23, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Methane, Ethene and Ethane Analysis

The samples were analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

Carbon Dioxide Analysis

The samples were also analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

The recovery for the laboratory control sample and its duplicate were below the DOD control limit criteria. However the recoveries were within the laboratory's control limits.

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

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

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

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

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

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS19111153

Service Request: P1907202

Date Received: 11/23/2019
Time Received: 09:48

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35BWW04-191121	P1907202-001	Water	11/21/2019	09:35	X	X
35BWW04-191121-FD	P1907202-002	Water	11/21/2019	09:35	X	X
35BWW08-191121	P1907202-003	Water	11/21/2019	10:35	X	X
35BWW26-191121	P1907202-004	Water	11/21/2019	11:25	X	X

P1907202

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

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **12703**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065 **Phone:** +1 805 526 7161

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19111153
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19111153-03**	**35BWW04-191121**	**Groundwater**	**21 Nov 2019 09:35**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			04 Dec 2019
2.	**HS19111153-04**	**35BWW04-191121-FD**	**Groundwater**	**21 Nov 2019 09:35**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			04 Dec 2019
3.	**HS19111153-05**	**35BWW08-191121**	**Groundwater**	**21 Nov 2019 10:35**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			04 Dec 2019
4.	**HS19111153-06**	**35BWW26-191121**	**Groundwater**	**21 Nov 2019 11:25**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			04 Dec 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 11/22/19 1800

Received By: Kate Kanelko Date/Time: 11/23/19 0948

Cooler ID(s): _____ Temperature(s): 6.0 °C wet ice, still frozen

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1907202

Project: HS19111153

Sample(s) received on: 11/23/19 Date opened: 11/23/19 by: ADAVID

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

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 6° C Thermometer ID T-111 Wet Ic			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? _____ Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1907202-001.01	40mL VOA NP		6		A	WH/LD 11/27/2019
P1907202-001.02	40mL VOA NP				A	
P1907202-001.03	40mL VOA NP				A	
P1907202-001.04	40ml VOA HCL				A	
P1907202-001.05	40ml VOA HCL				A	
P1907202-001.06	40ml VOA HCL				A	
P1907202-002.01	40mL VOA NP		5		A	WH/LD 11/27/2019
P1907202-002.02	40mL VOA NP				A	
P1907202-002.03	40mL VOA NP				A	
P1907202-002.04	40ml VOA HCL				A	
P1907202-002.05	40ml VOA HCL				A	
P1907202-002.06	40ml VOA HCL				A	
P1907202-003.01	40mL VOA NP		6		A	WH/LD 11/27/2019
P1907202-003.02	40mL VOA NP				A	
P1907202-003.03	40mL VOA NP				A	

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

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

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1907202

Project: HS19111153

Sample(s) received on: 11/23/19 Date opened: 11/23/19 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1907202-003.04	40ml VOA HCL				A	
P1907202-003.05	40ml VOA HCL				A	
P1907202-003.06	40ml VOA HCL				A	
P1907202-004.01	40mL VOA NP		6		A	WH/LD 11/27/2019
P1907202-004.02	40mL VOA NP				A	
P1907202-004.03	40mL VOA NP				A	
P1907202-004.04	40ml VOA HCL				A	
P1907202-004.05	40ml VOA HCL				A	
P1907202-004.06	40ml VOA HCL				A	

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS19111153** ALS Project ID: P1907202

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD Date(s) Collected: 11/21/19
Analyst: Li Donghao/Wade Henton Date Received: 11/23/19
Matrix: Water Date Analyzed: 11/27/19
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L
35BWW04-191121	P1907202-001	0.10	**100,000**	1,000	860	370
35BWW04-191121-FD	P1907202-002	0.10	**87,000**	1,000	860	370
35BWW08-191121	P1907202-003	0.10	**14,000**	1,000	860	370
35BWW26-191121	P1907202-004	0.10	**100,000**	1,000	860	370
Method Control Sample	P191127-MB	0.10	860	1,000	860	370

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced me
L = Laboratory control sample recovery outside the specified limits, results may be biased low.

Data Qualifier
L
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thod.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1907202
Client Project ID: **HS19111153** ALS Sample ID: P191127-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Li Donghao/Wade Henton Date Analyzed: 11/27/19
Matrix: Water Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	17,600	17,700	**77**	**77**	80-122	0	12	**L**

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.
L = Laboratory control sample recovery outside the specified limits, results may be biased low.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW04-191121**
Client Project ID: **HS19111153**

ALS Project ID: P1907202
ALS Sample ID: P1907202-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 11/21/19
Date Received: 11/23/19
Date Analyzed: 12/02/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW04-191121-FD**
Client Project ID: **HS19111153**

ALS Project ID: P1907202
ALS Sample ID: P1907202-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 11/21/19
Date Received: 11/23/19
Date Analyzed: 12/02/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW08-191121**
Client Project ID: **HS19111153**

ALS Project ID: P1907202
ALS Sample ID: P1907202-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 11/21/19
Date Received: 11/23/19
Date Analyzed: 12/02/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW26-191121**
Client Project ID: **HS19111153**

ALS Project ID: P1907202
ALS Sample ID: P1907202-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 11/21/19
Date Received: 11/23/19
Date Analyzed: 12/02/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS19111153**

ALS Project ID: P1907202
ALS Sample ID: P191202-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/02/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS19111153**

ALS Project ID: P1907202
ALS Sample ID: P191202-LCS
P191202-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/02/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.60	2.53	**103**	**100**	73-125	3	26	
74-85-1	Ethene	4.40	4.43	4.17	**101**	**95**	72-133	6	11	
74-84-0	Ethane	4.72	4.43	4.21	**94**	**89**	74-131	5	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:40:52
Operator : WH/LD
Sample : P1907202-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:11 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

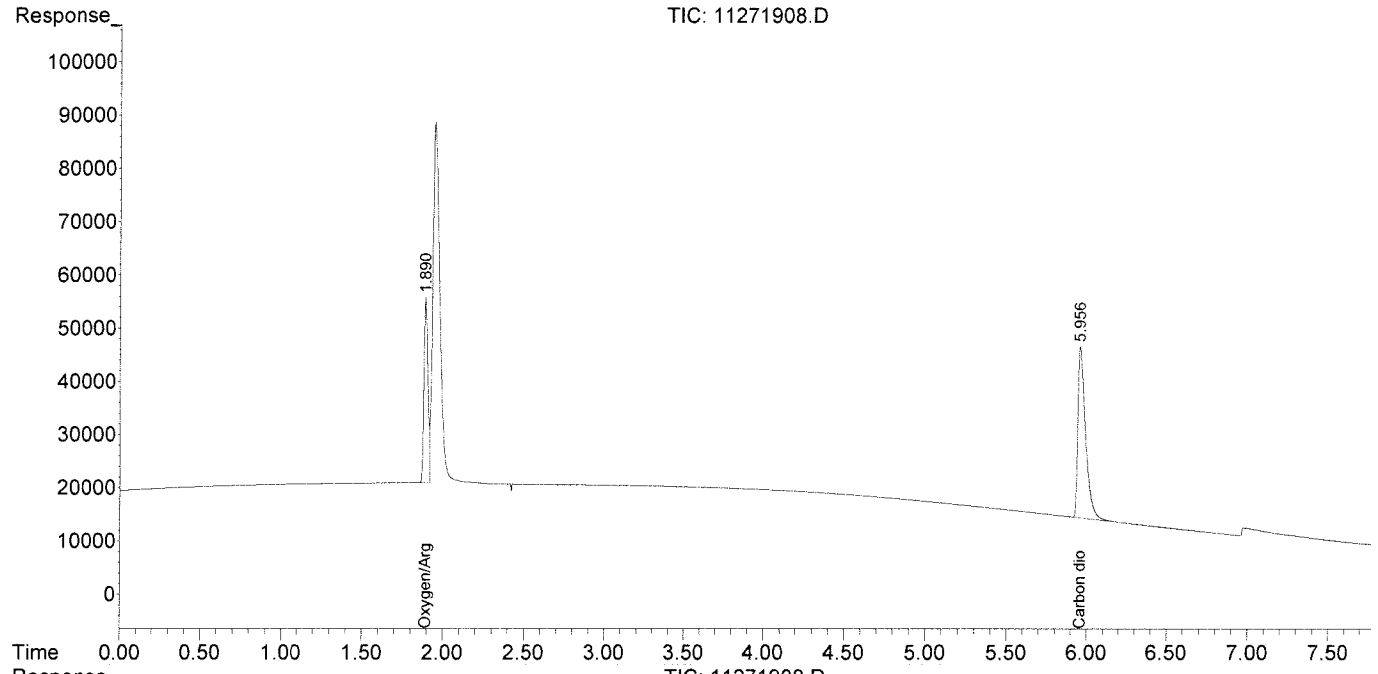
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.891	591920	0.124	ppm
2)	Carbon monoxide	1.891	591920	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.956	1080806	4604.482	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

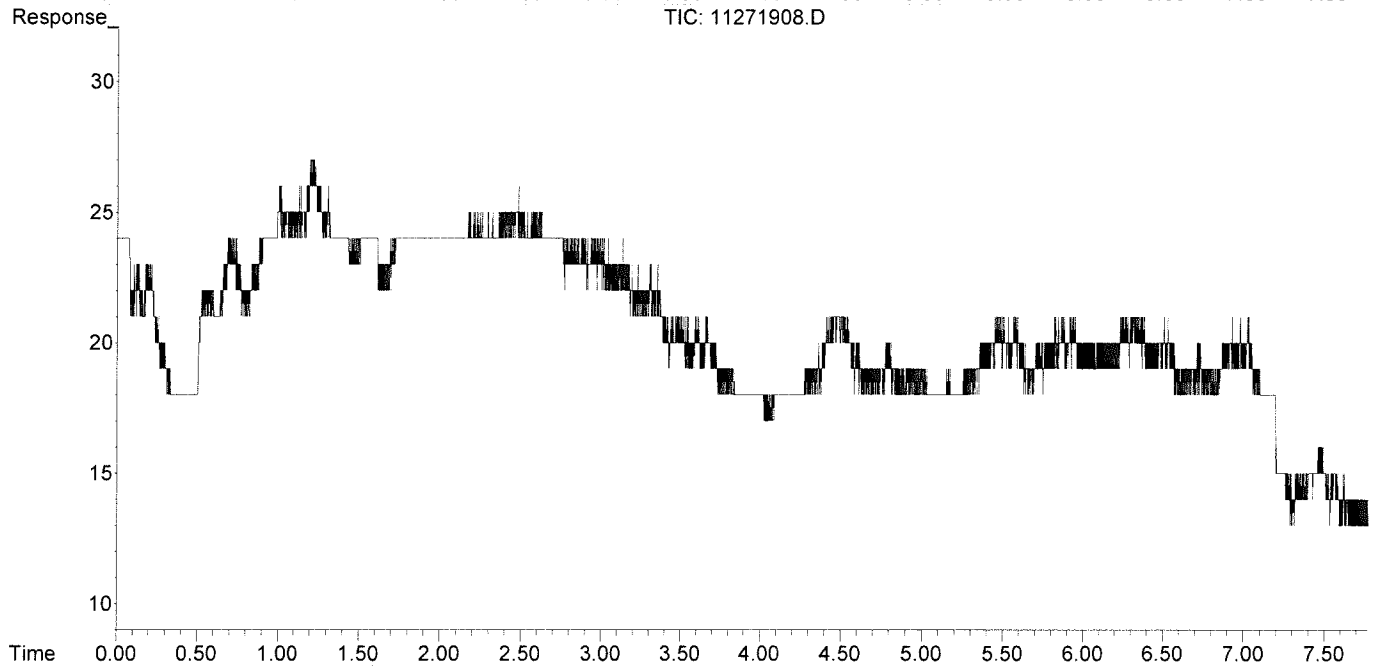
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:40:52
Operator : WH/LD
Sample : P1907202-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:11 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:54:02
Operator : WH/LD
Sample : P1907202-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

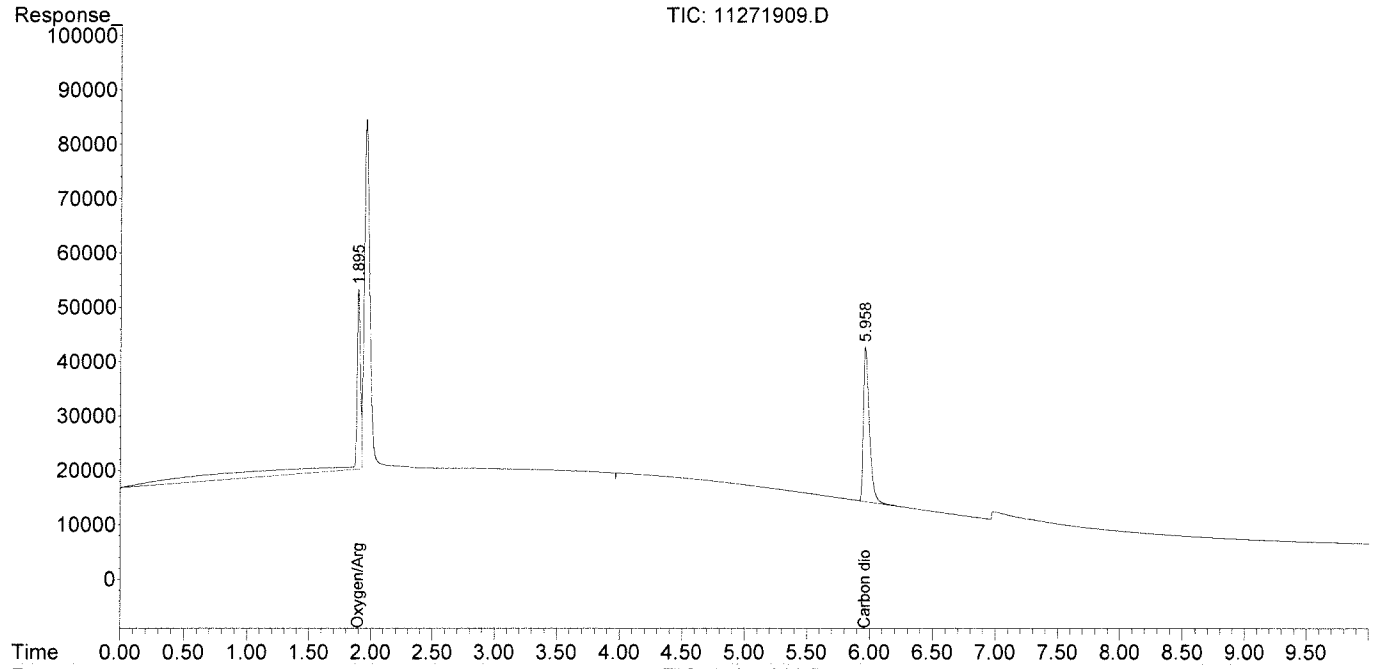
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.895	1505599	0.316	ppm
2)	Carbon monoxide	1.895	1505599	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.959	932687	3973.458	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

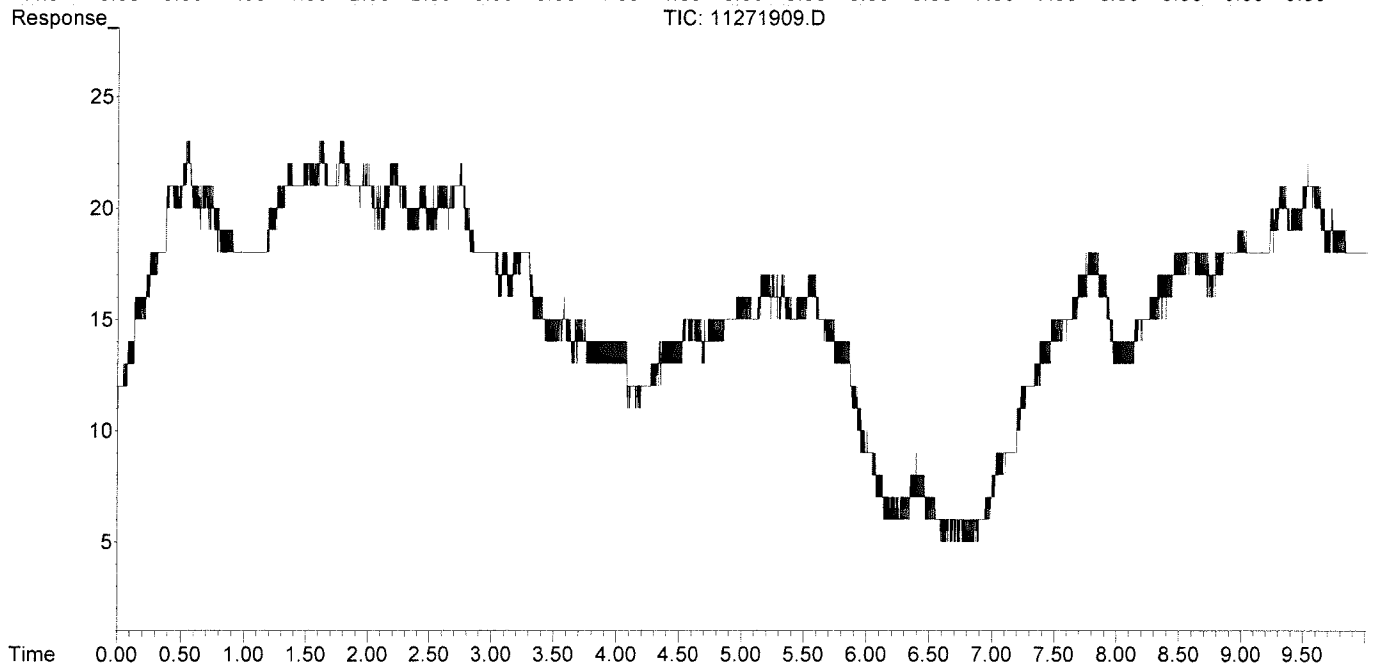
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:54:02
Operator : WH/LD
Sample : P1907202-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:08:56
Operator : WH/LD
Sample : P1907202-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

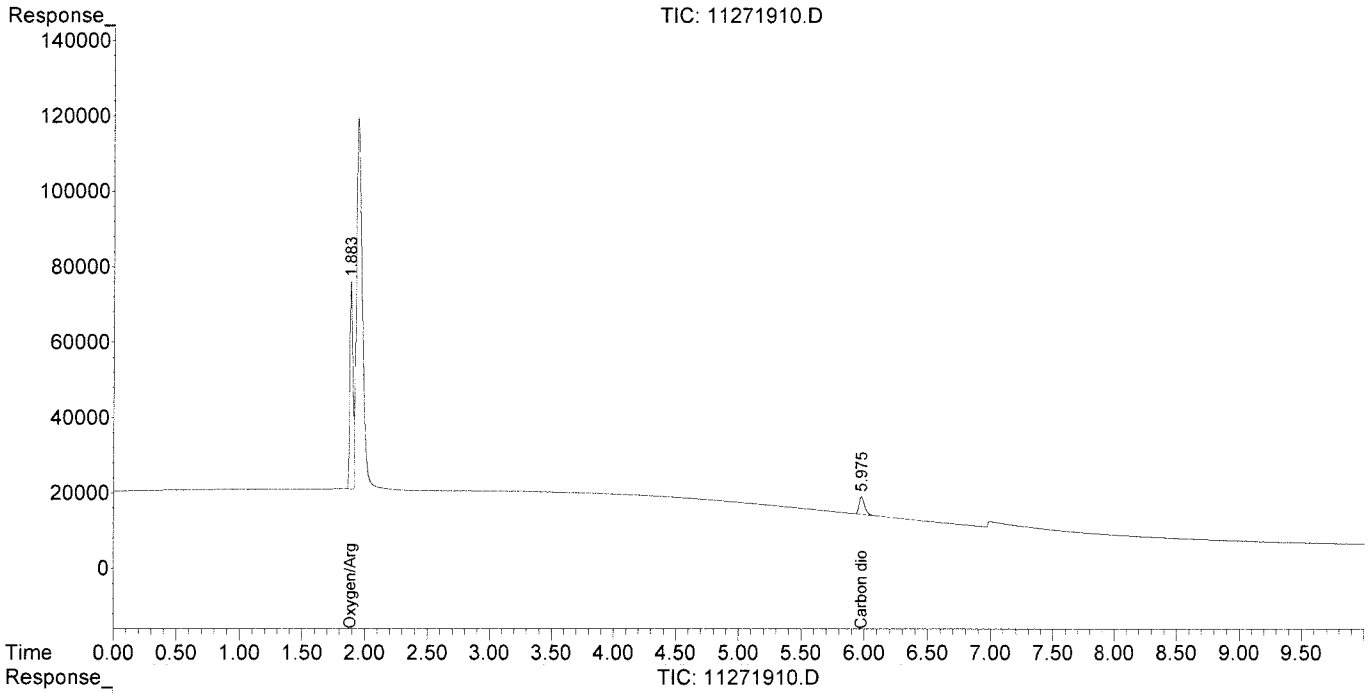
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.883	923283	0.194	ppm
2)	Carbon monoxide	1.883	923283	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.976	147914	630.147	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

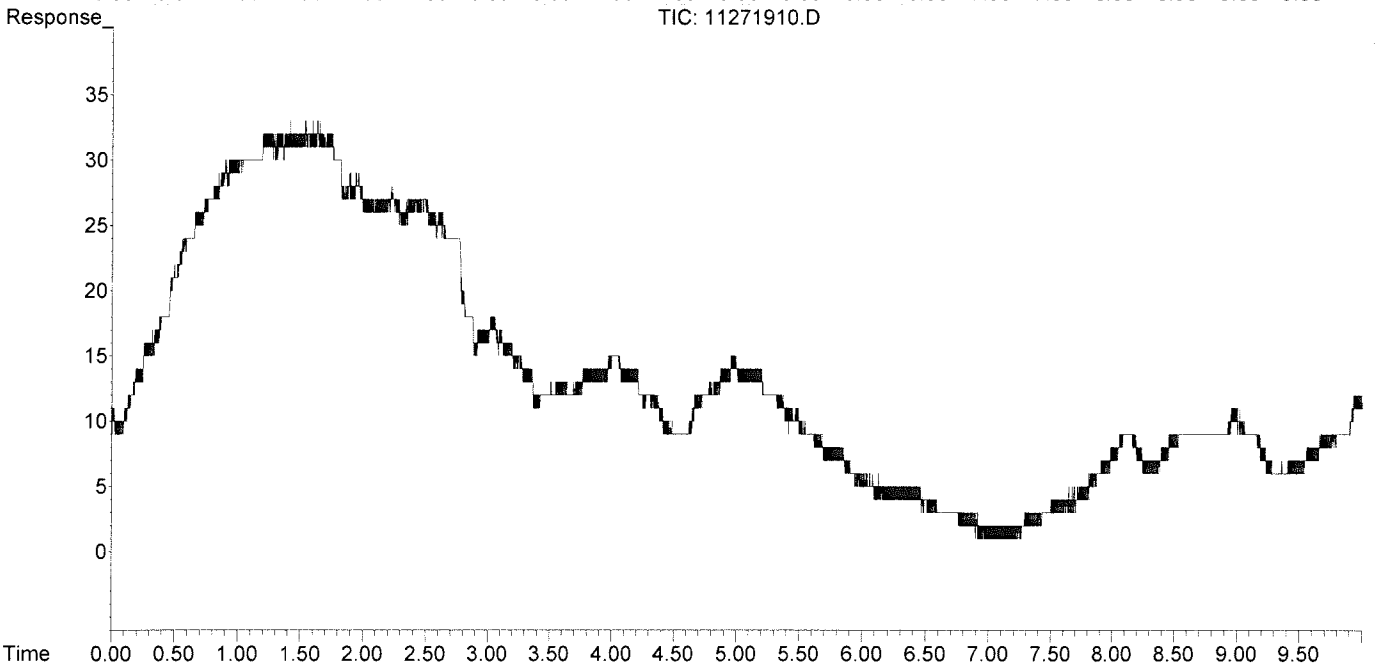
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:08:56
Operator : WH/LD
Sample : P1907202-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:21:54
Operator : WH/LD
Sample : P1907202-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

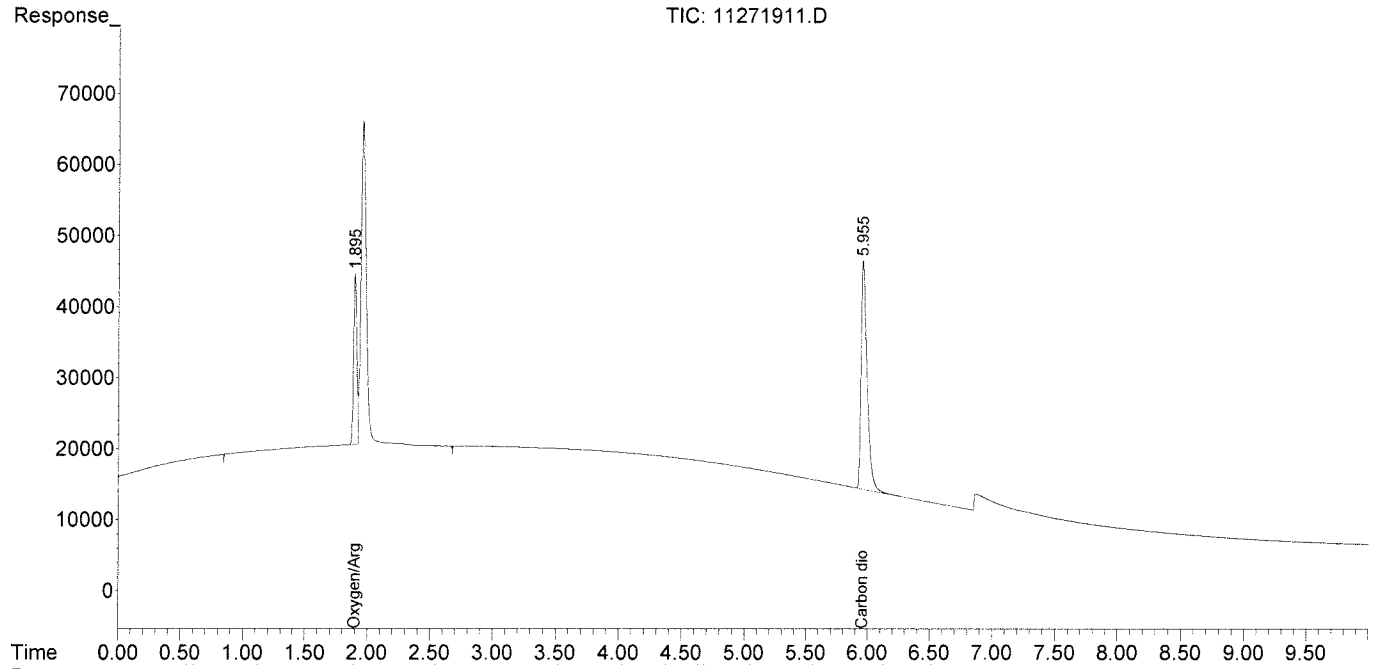
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.895	420642	0.088	ppm
2)	Carbon monoxide	1.895	420642	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.956	1073966	4575.339	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

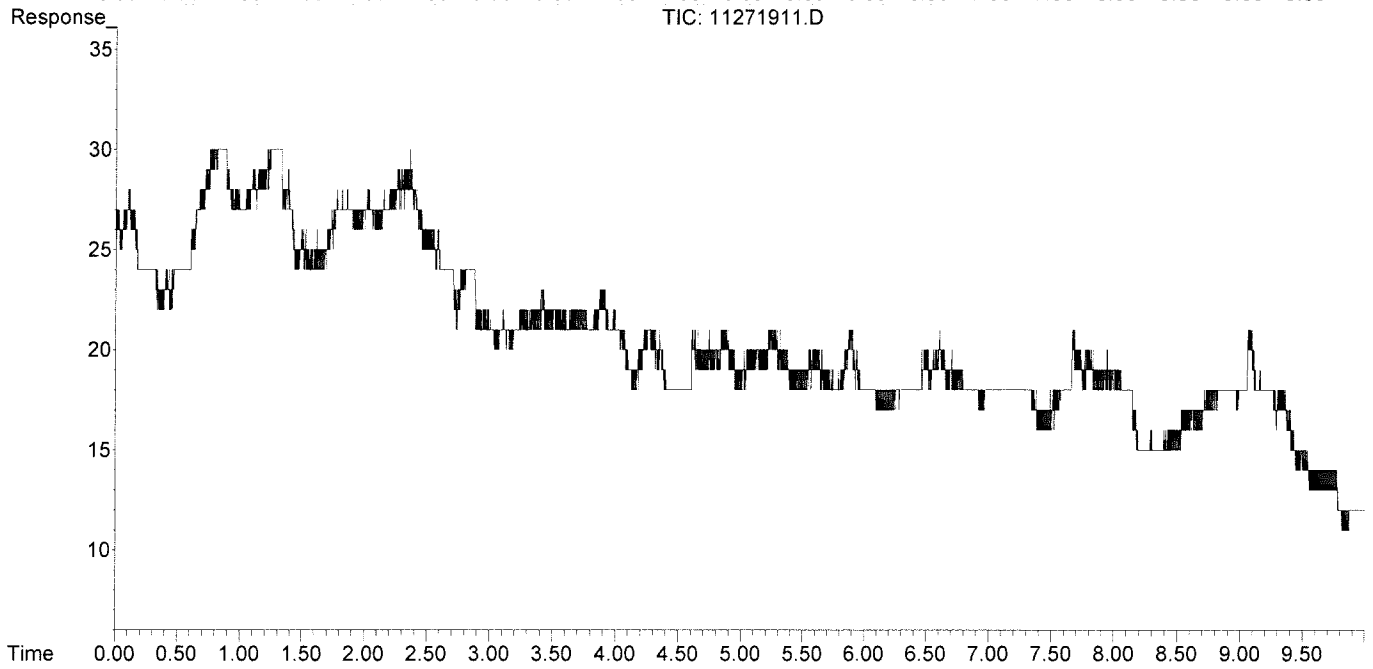
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:21:54
Operator : WH/LD
Sample : P1907202-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 14:46:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 12:15:56
Operator : WH/LD
Sample : MCS 0.1 ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 11:27:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

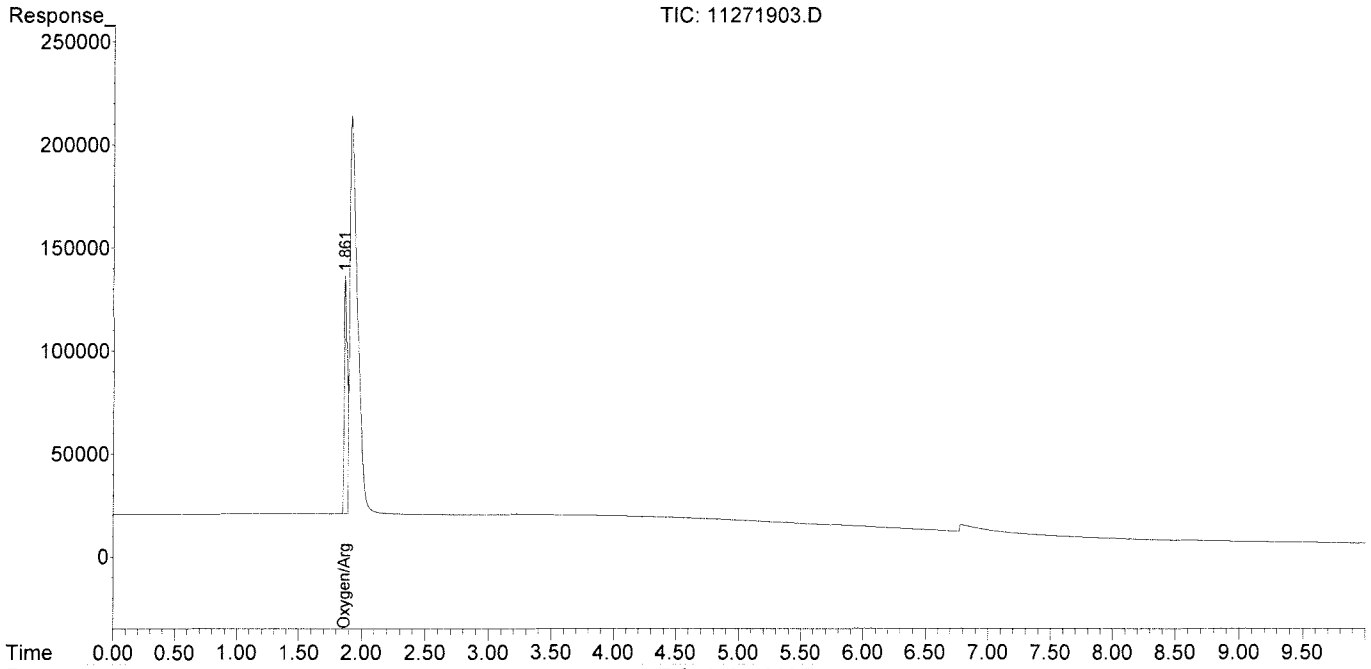
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.862	1859048	0.391	ppm
2)	Carbon monoxide	1.862	1859048	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

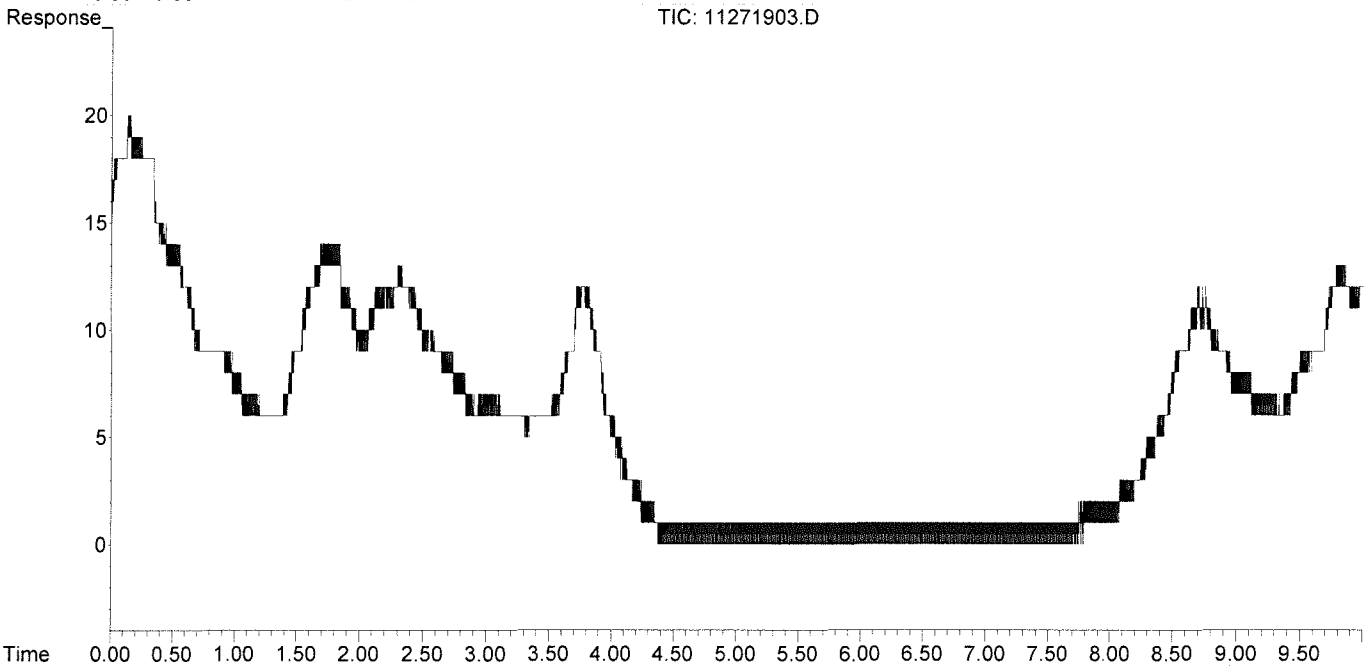
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 12:15:56
Operator : WH/LD
Sample : MCS 0.1 ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 11:27:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:11:55
Operator : WH/LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 13:48:16 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

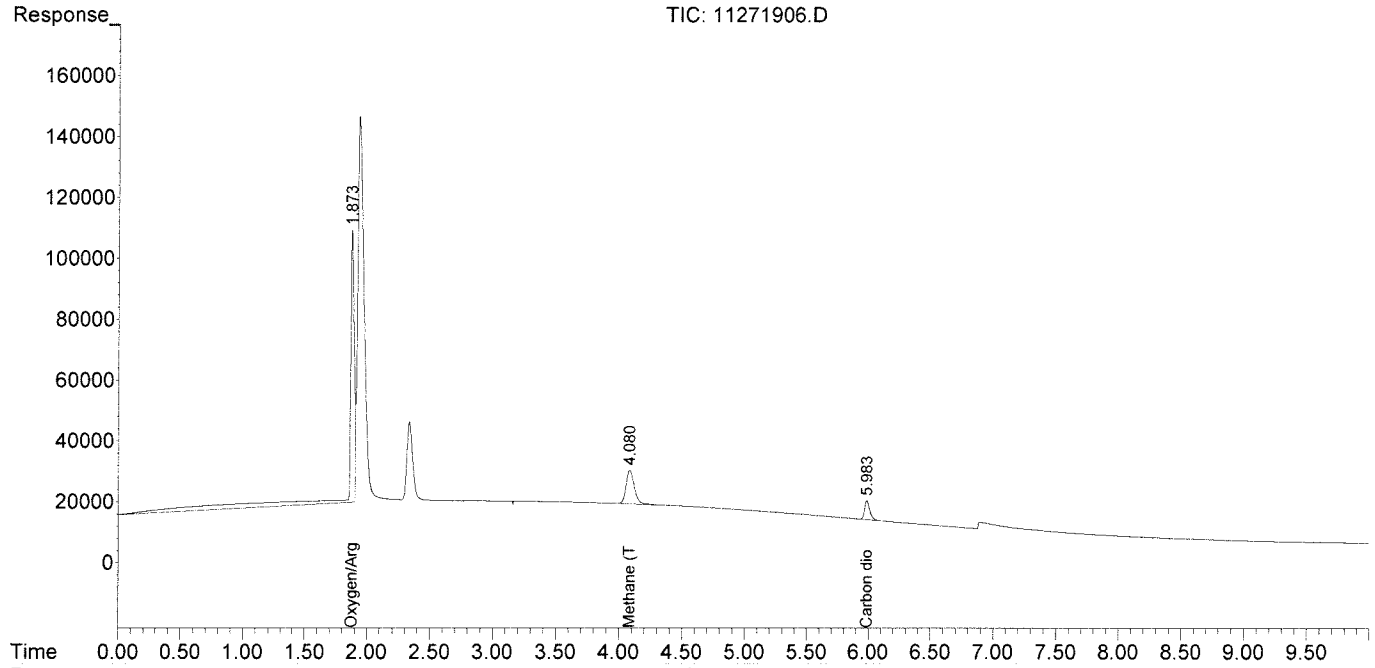
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.873	2793157	0.587	ppm	
2)	Carbon monoxide	1.873	2793157	N.D.	ppm	
3)	Methane (TCD)	4.081f	510597	53989.438	ppm	
4)	Carbon dioxide	5.983	189692	808.132	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

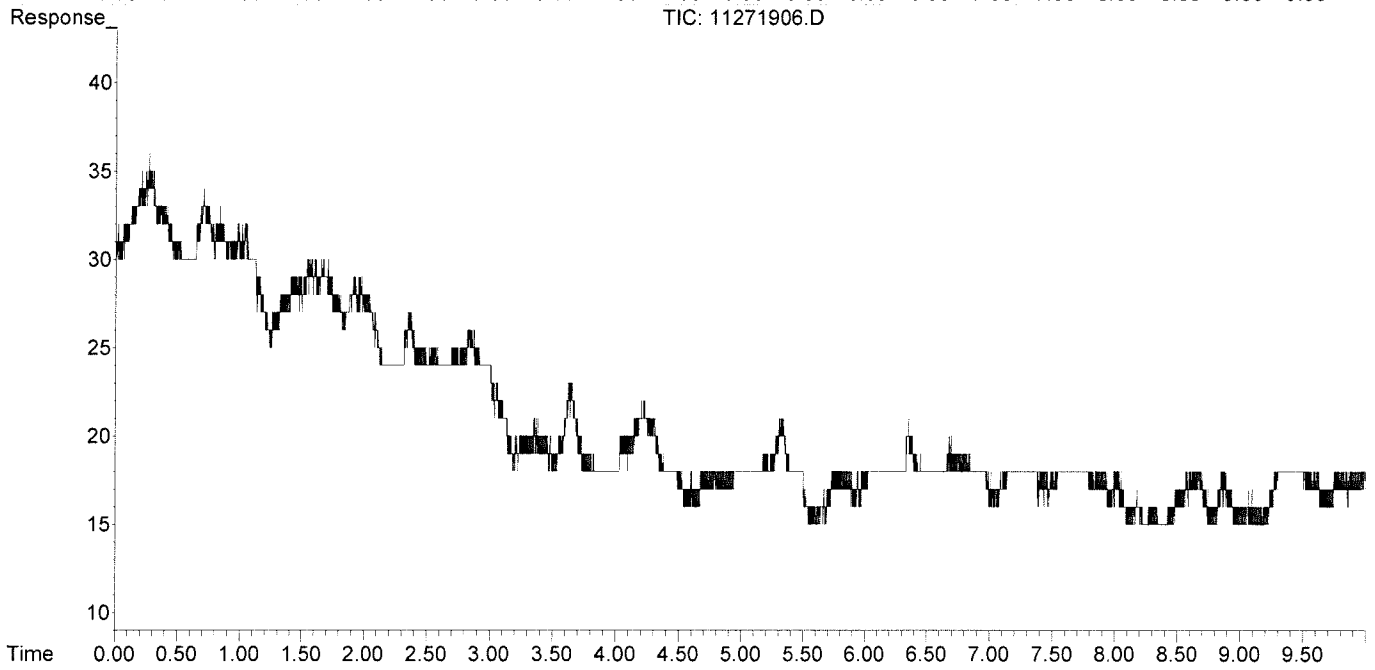
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:11:55
Operator : WH/LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 13:48:16 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

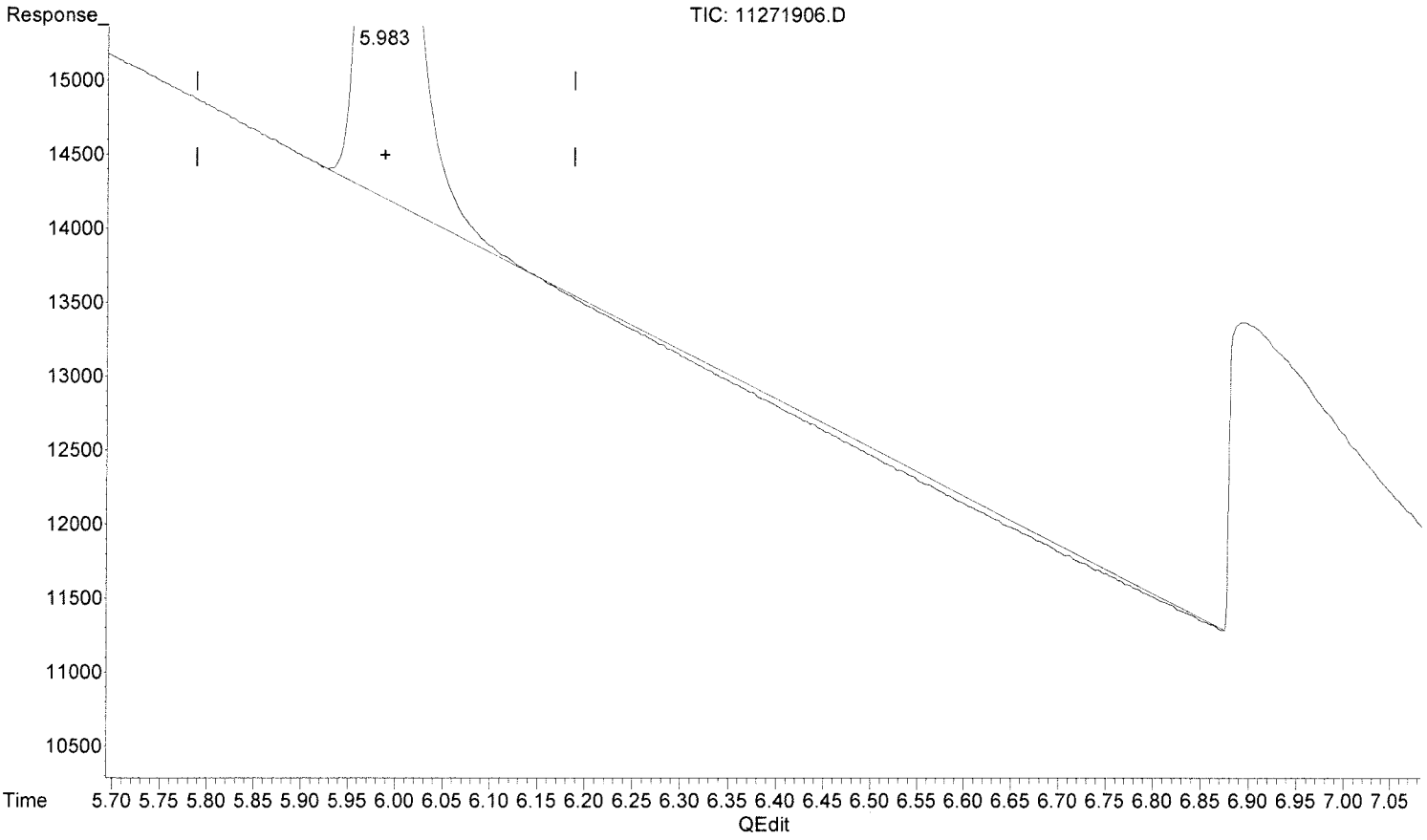




Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:11:55
Operator : WH/LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 13:48:16 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.984min 738.423 ppm

response 173329

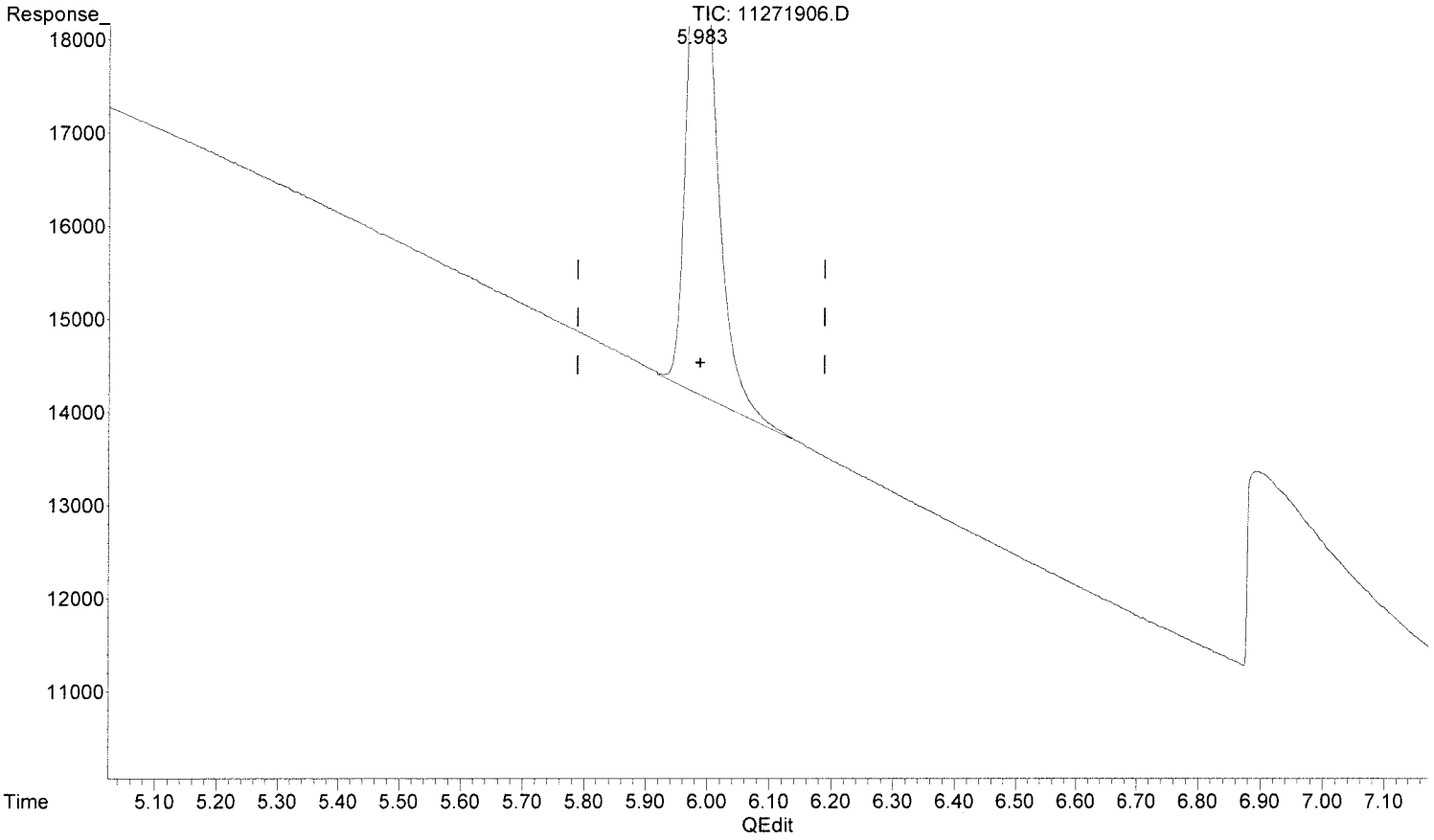
(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:11:55
Operator : WH/LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 13:48:16 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
BLC
12/02

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.983min 808.132 ppm m

response 189692

12/2/19

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:26:48
Operator : WH/LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:00 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

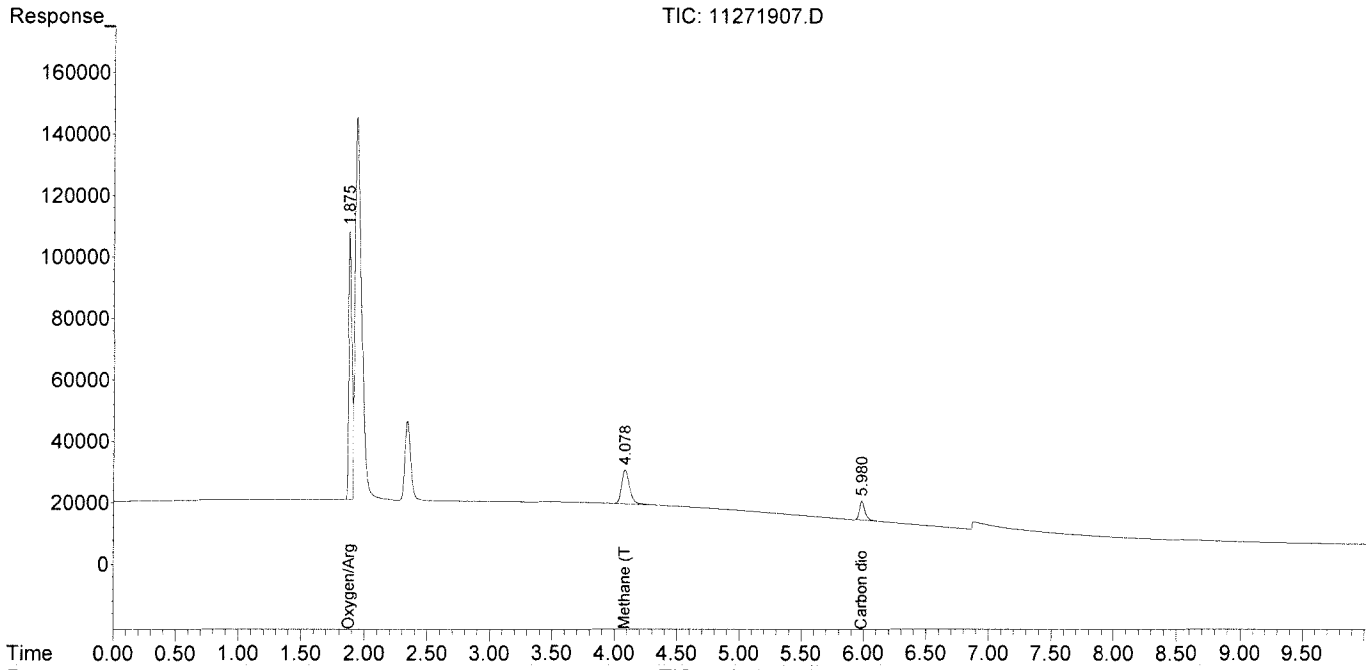
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.876	1532624	0.322	ppm	
2)	Carbon monoxide	1.876	1532624	N.D.	ppm	
3)	Methane (TCD)	4.079f	511098	54042.402	ppm	
4)	Carbon dioxide	5.980	190152	810.090	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

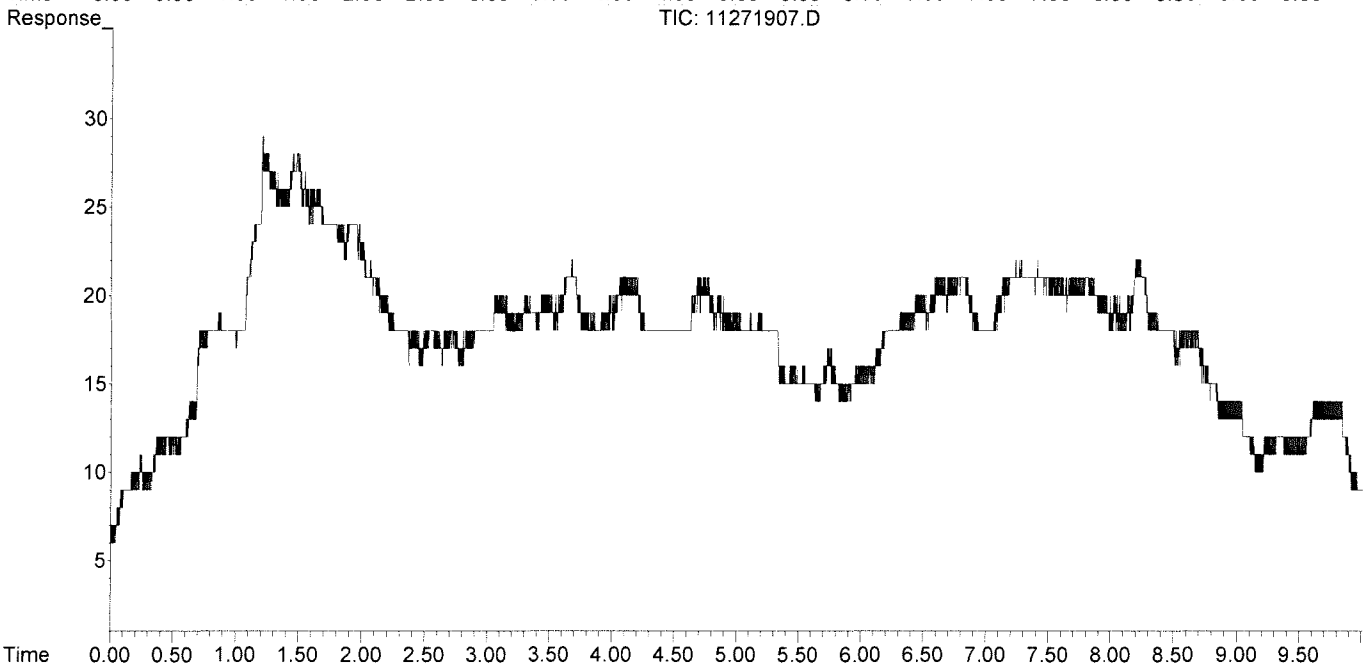
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:26:48
Operator : WH/LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:00 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

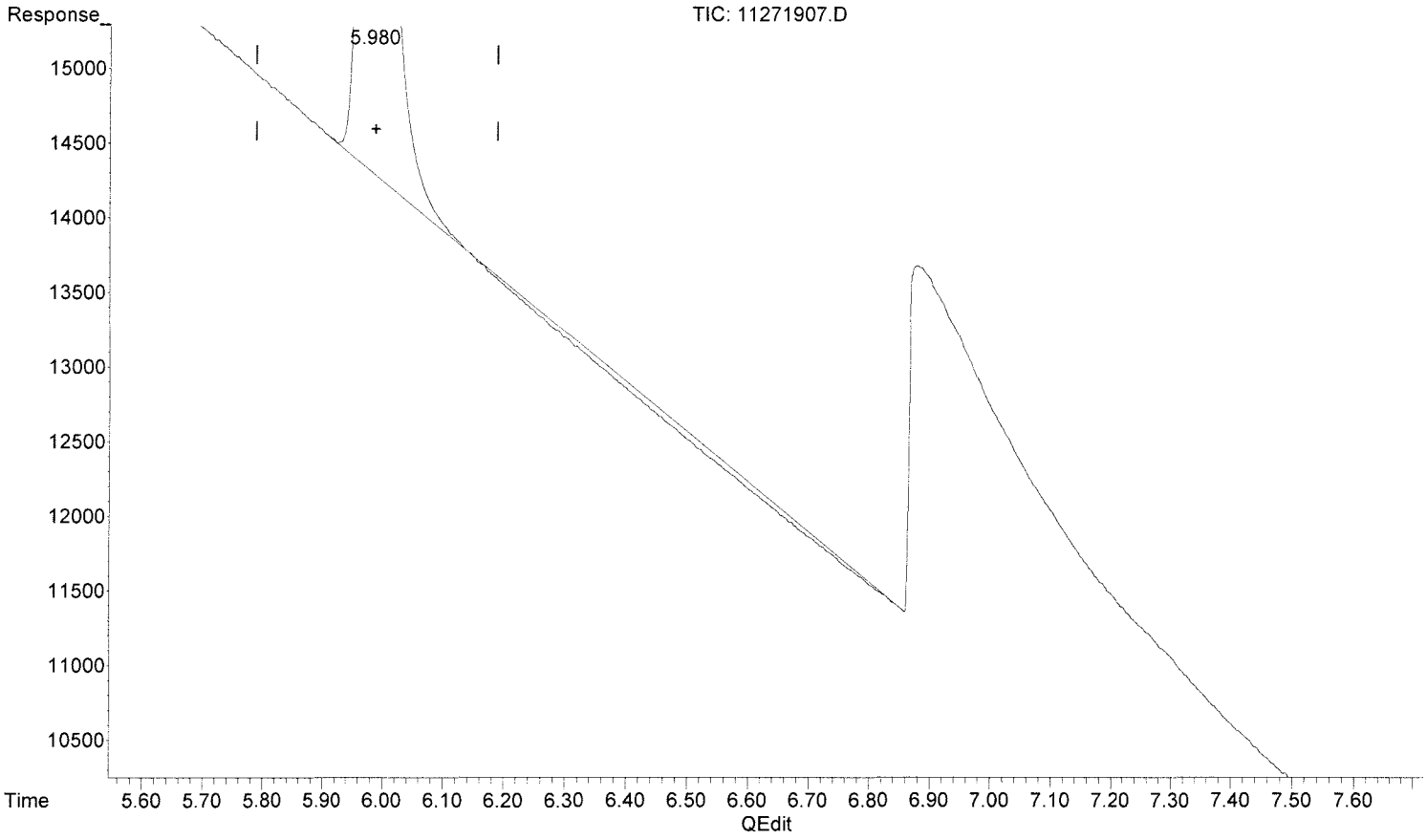




Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:26:48
Operator : WH/LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:00 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.981min 753.491 ppm

response 176866

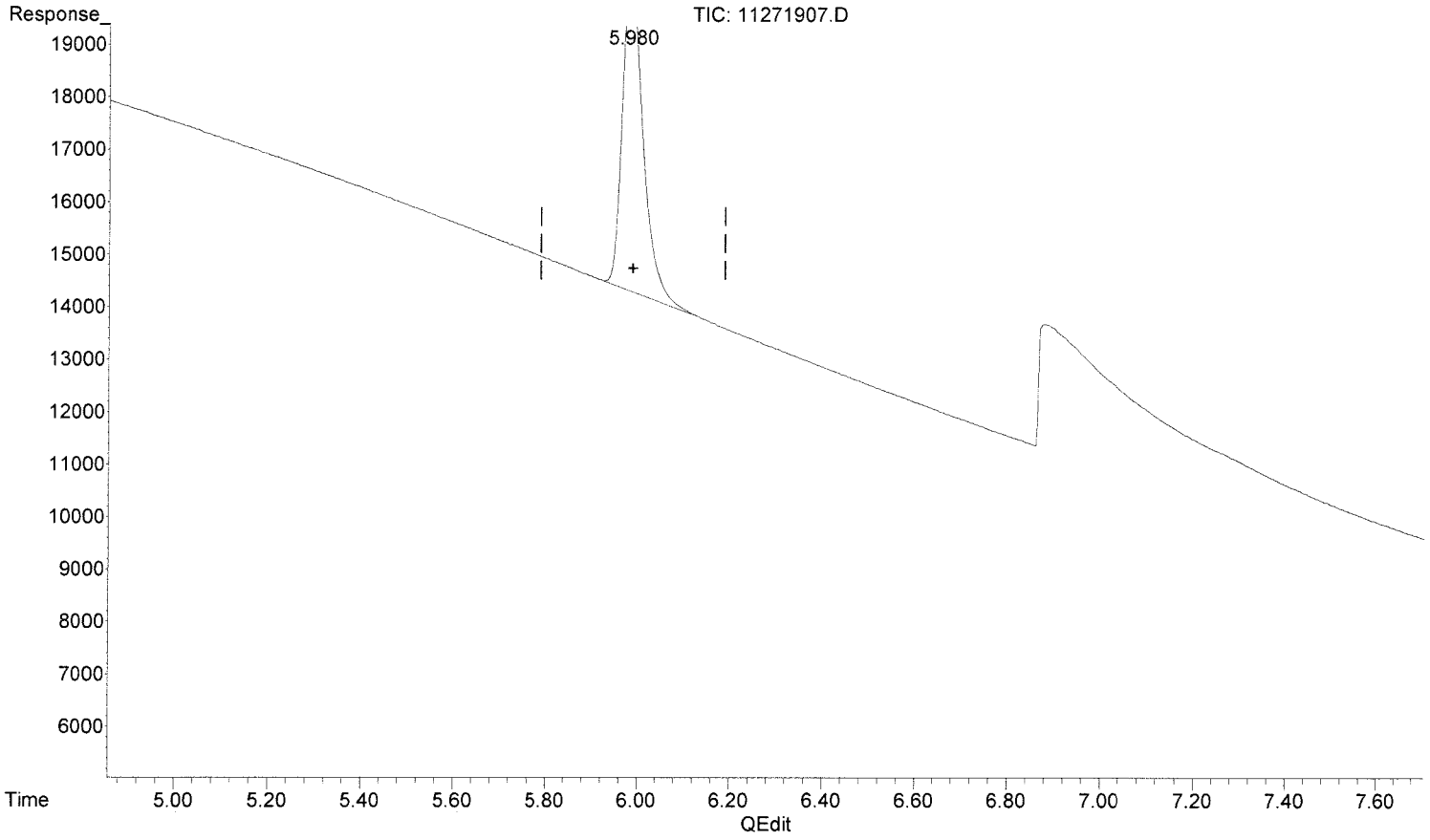
(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 14:26:48
Operator : WH/LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:00 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
12/02
BLC

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.980min 810.090 ppm m

response 190152

LM 12/2/19

(+) = Expected Retention Time

Response Factor Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	4.760						4.760	E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657	E6	170.12
3)	Methane (TCD)							9.457		0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347	E2	7.99

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945	E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684	E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723	E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449	E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655	E4	7.75
11)	Isobutylene							0.000		-1.00
12)	Isobutane							0.000		-1.00
13)	n-Butane							0.000		-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

dit Compounds -- Compound #4 -- Carbon dioxide

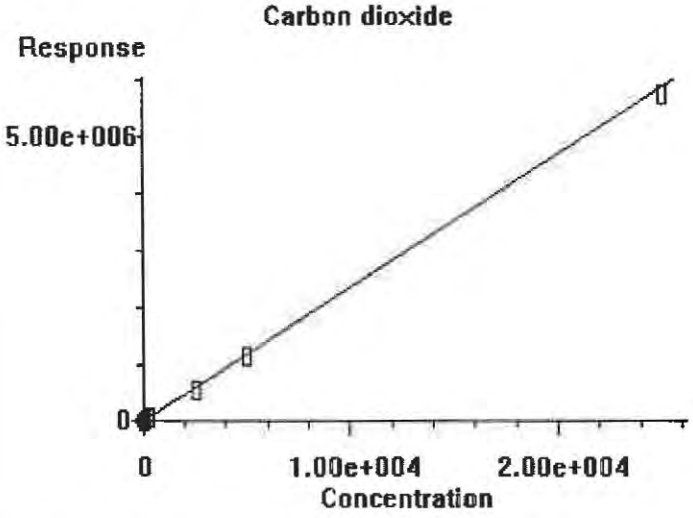
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

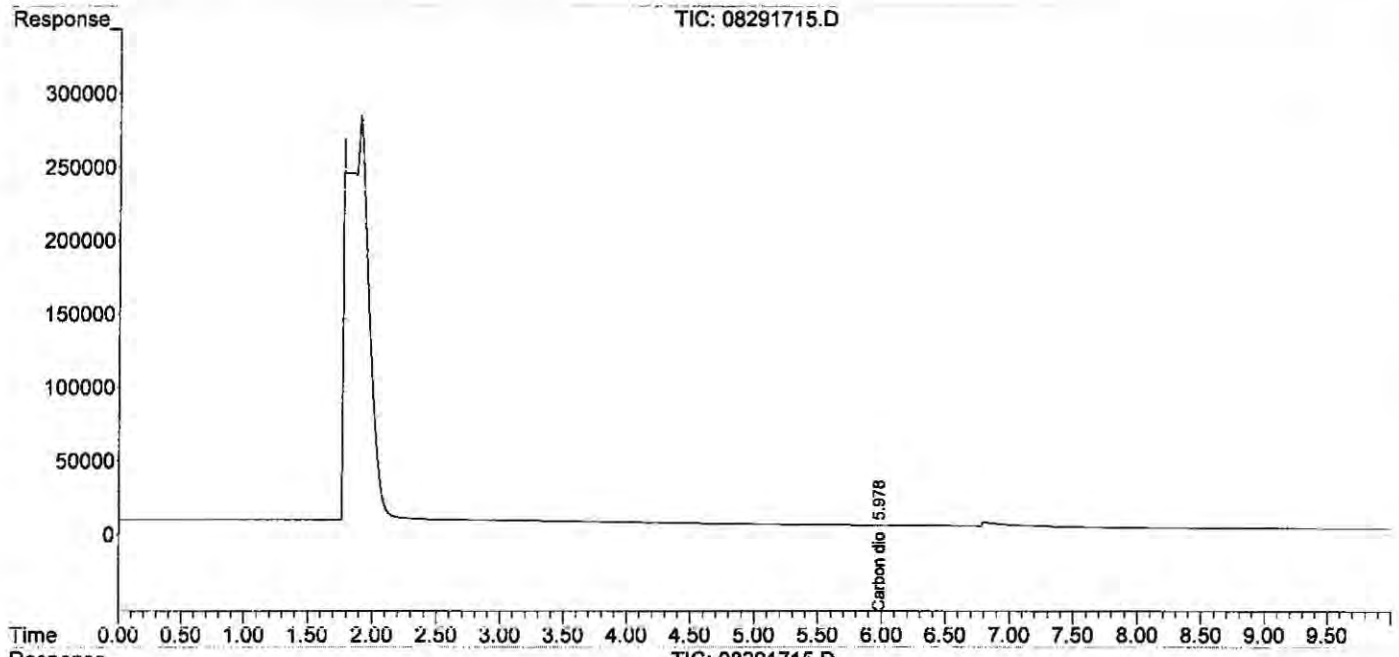
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

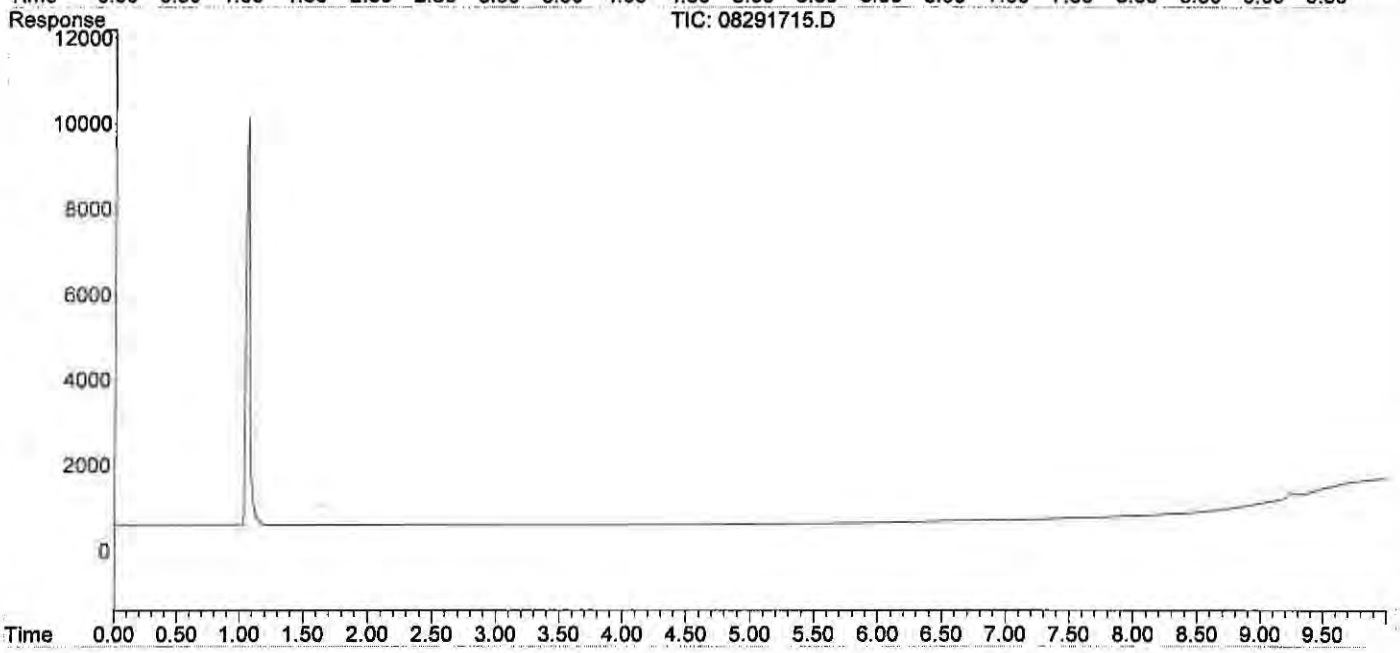
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

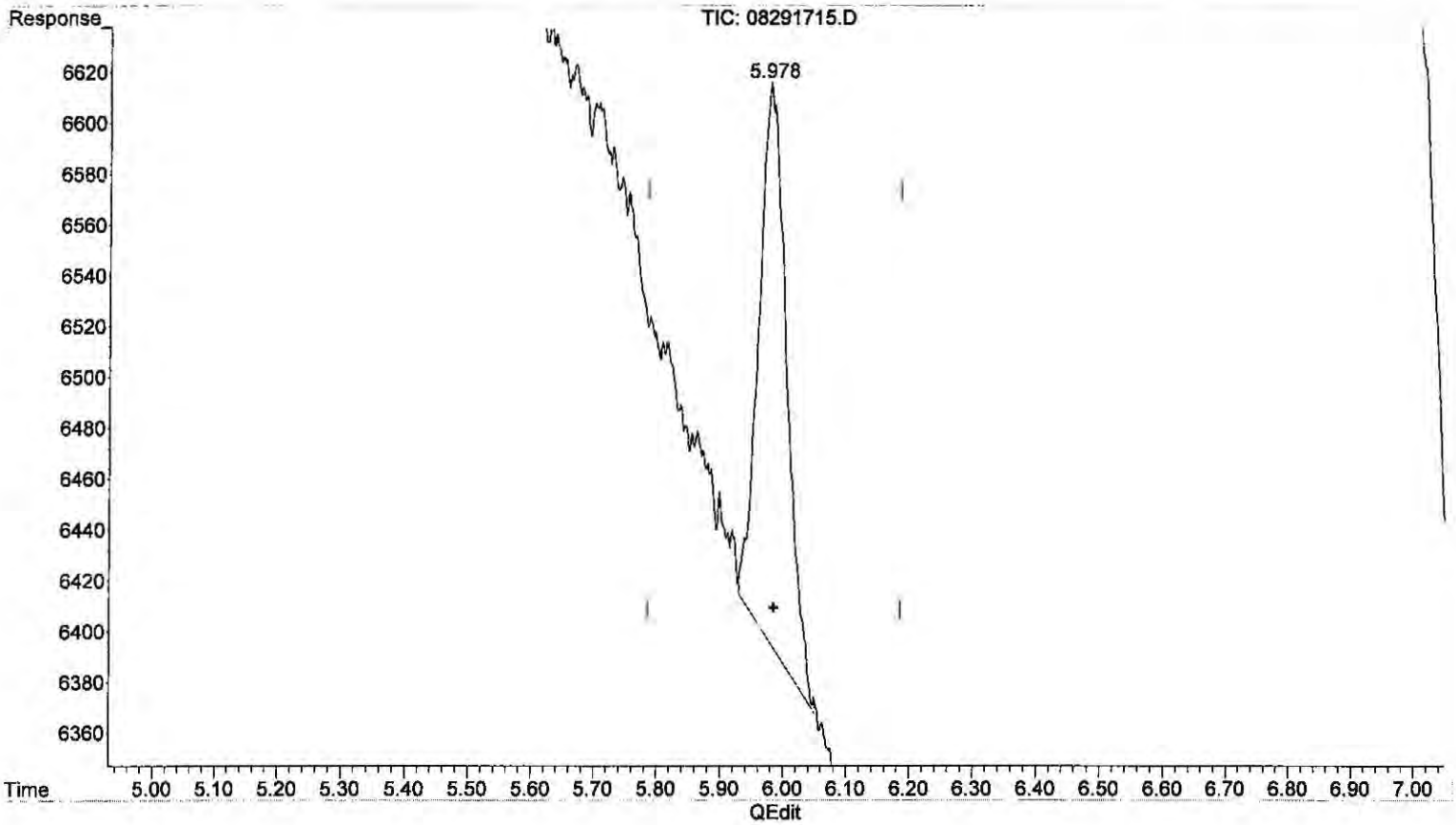




Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

8/30/17 BW M. prcvw

8/4/17

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:17:47 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

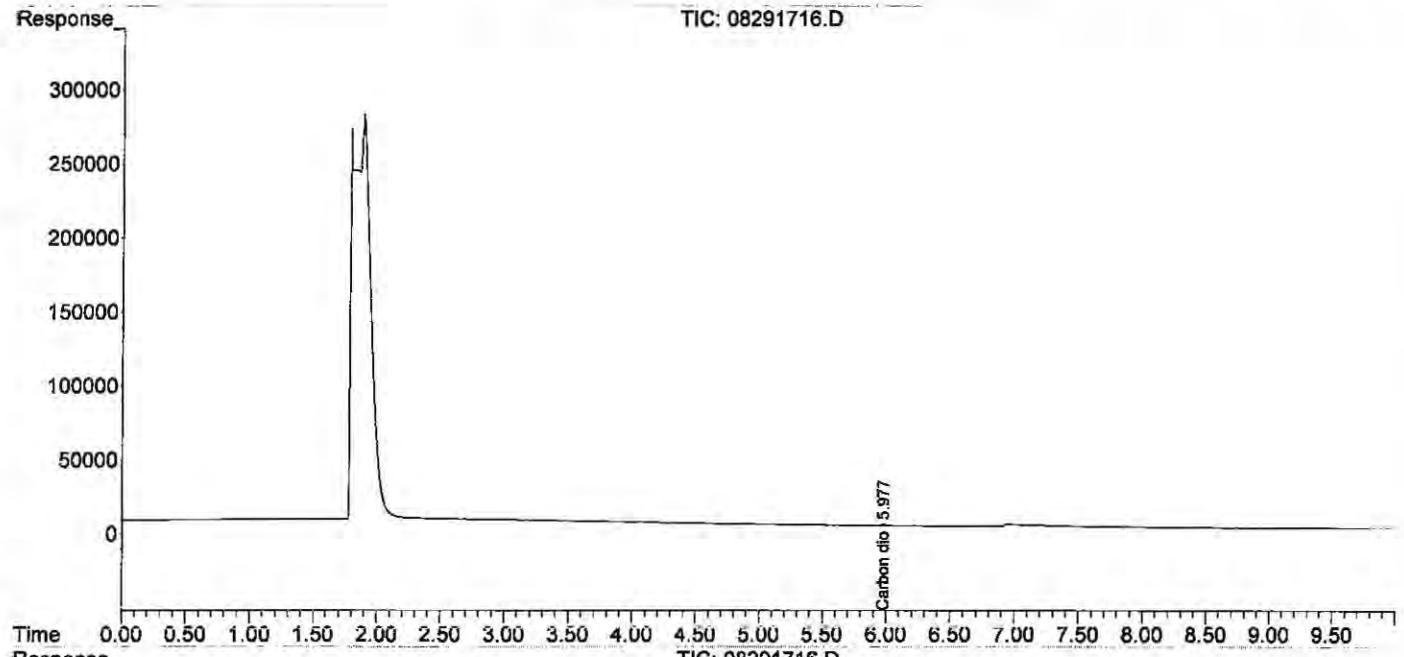
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.790	-598962	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	21932	87.858	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

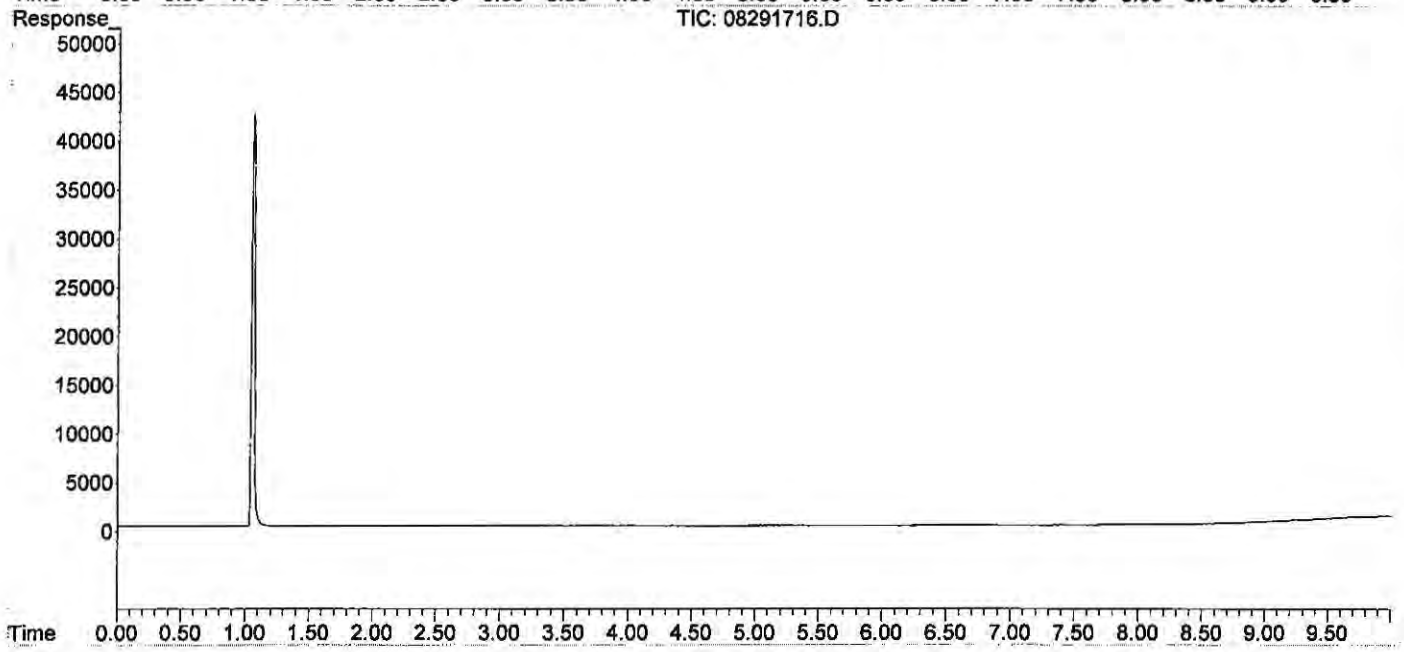
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

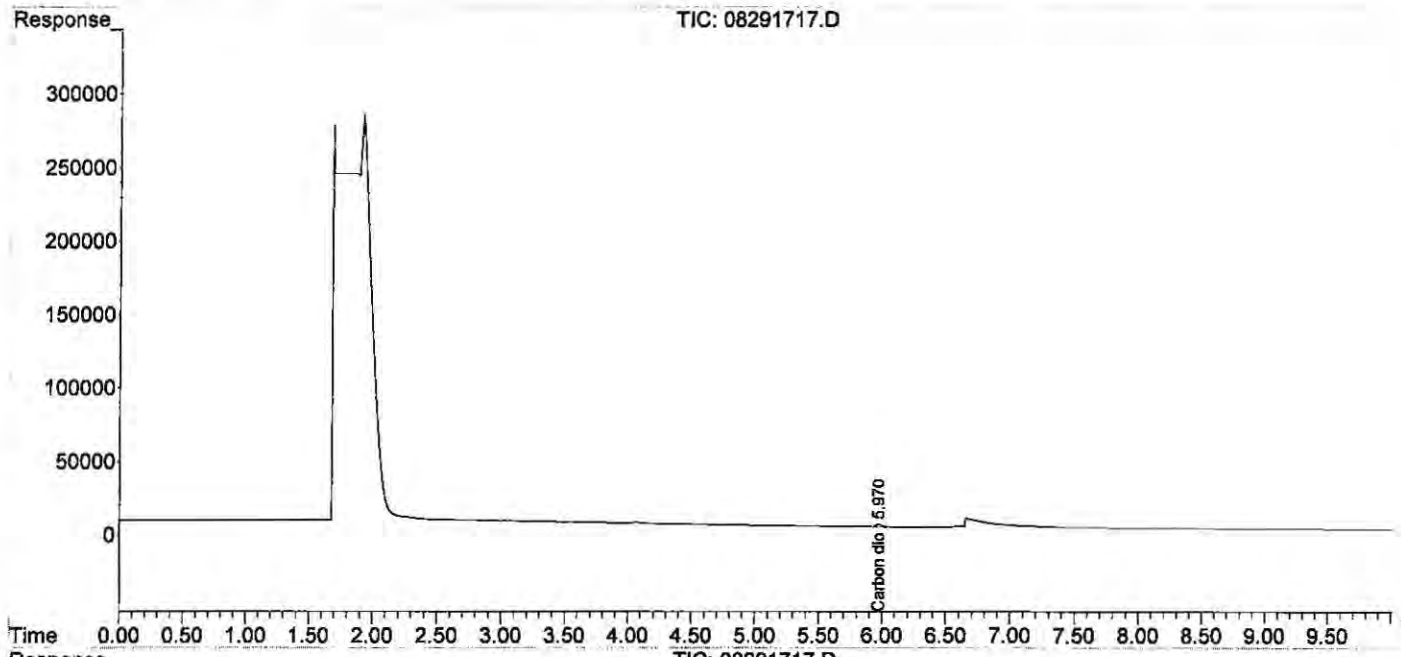
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

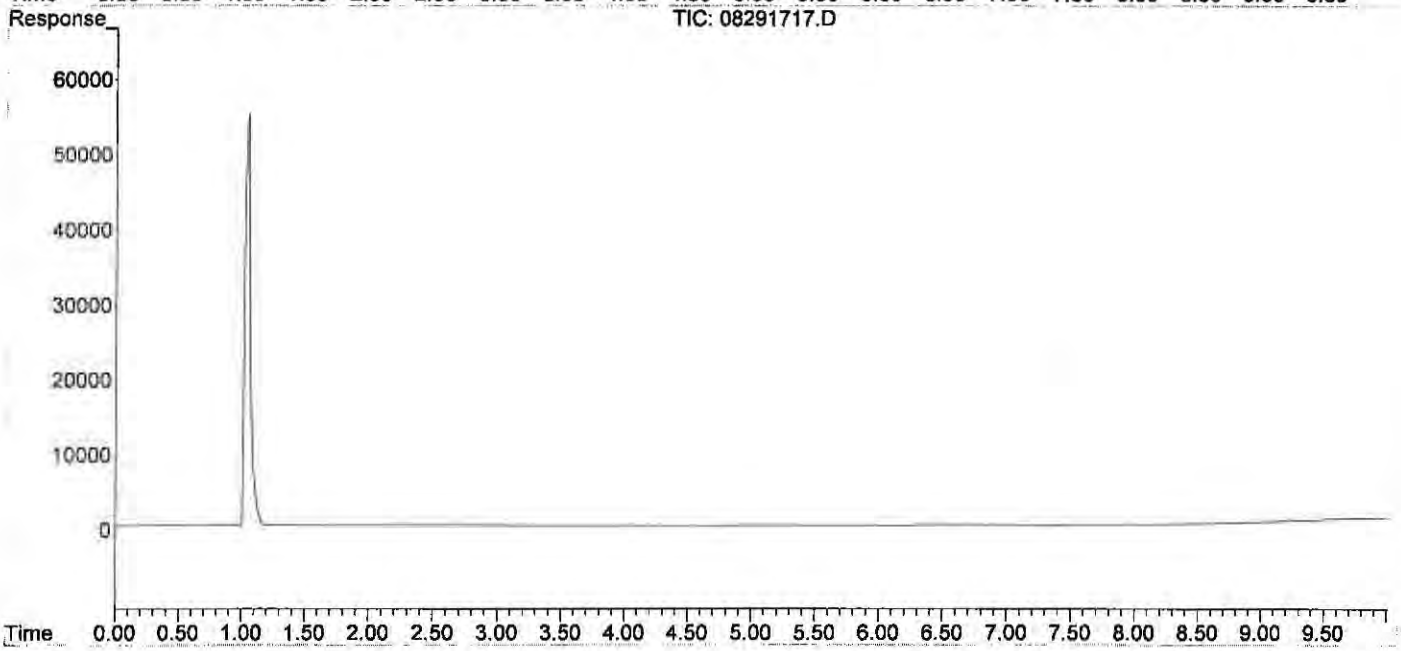
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

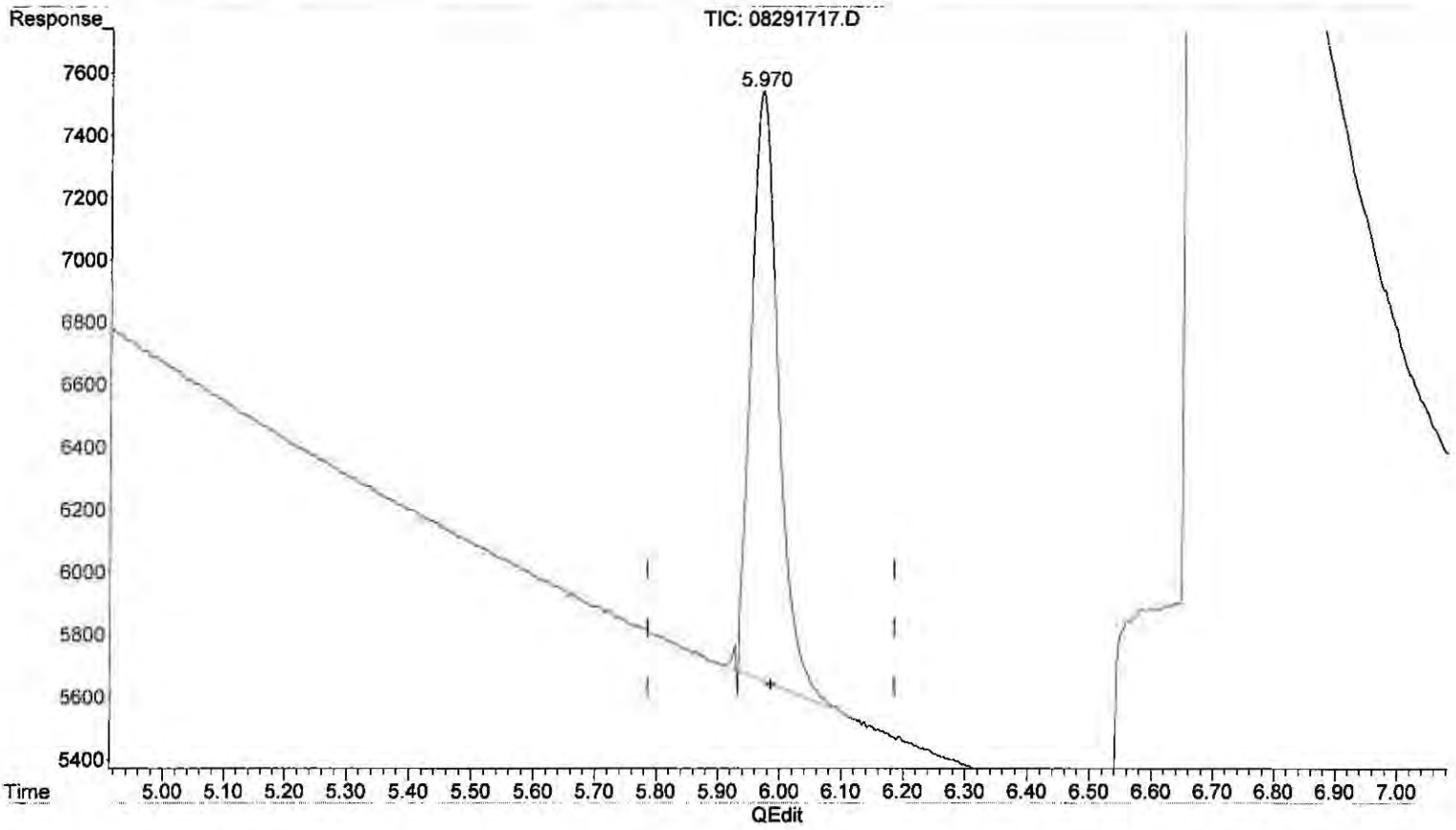




Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
5.970min 240.204 ppm m
response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

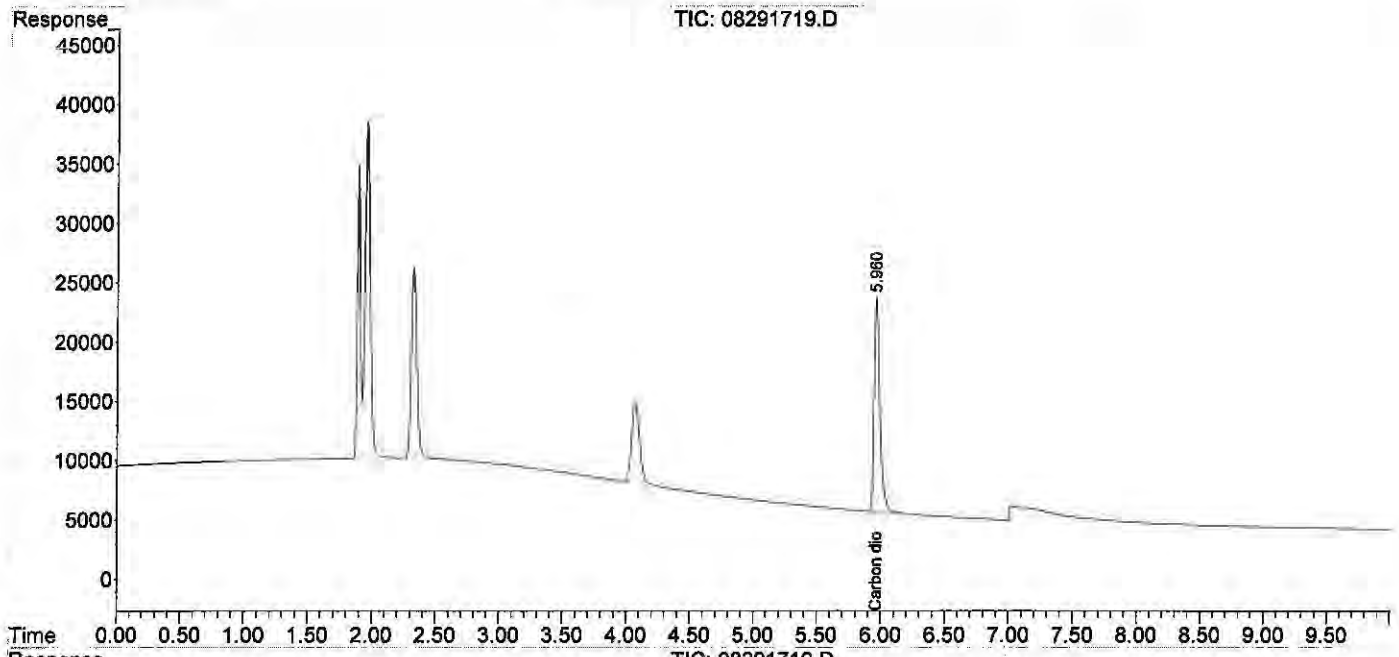
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.891	425113	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.962	568043	2369.673	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

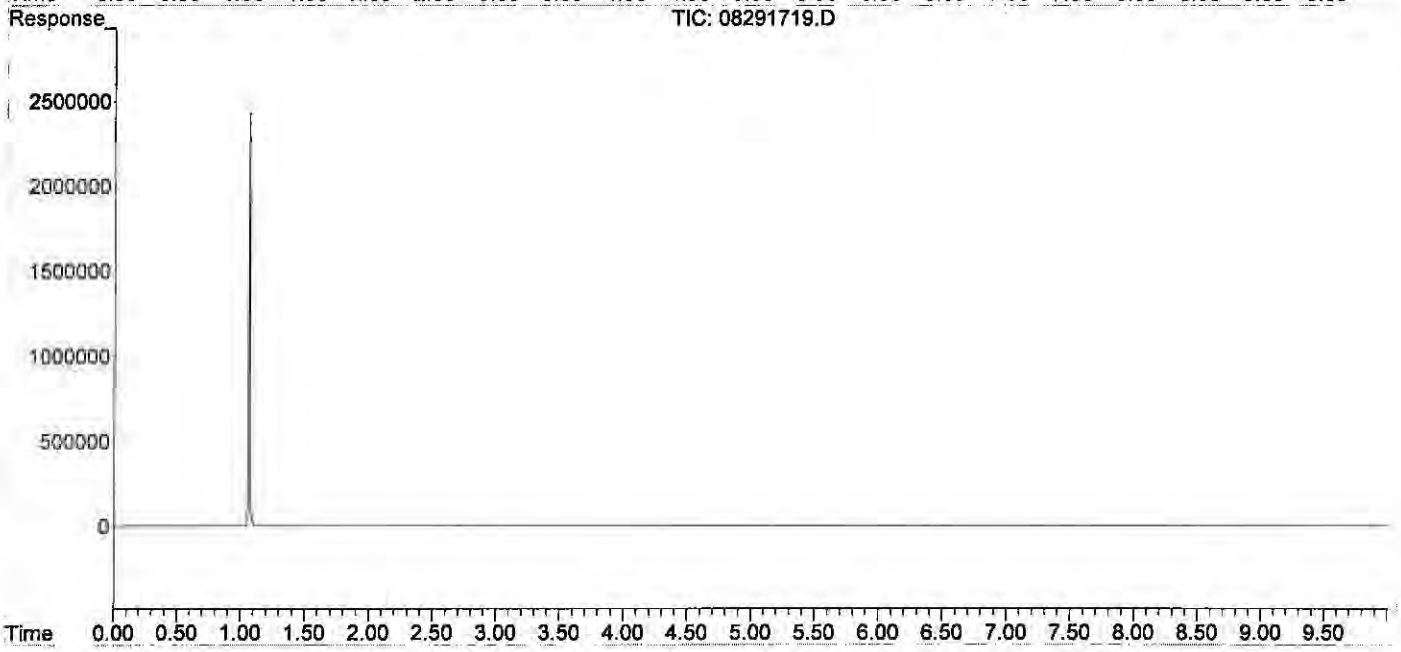
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

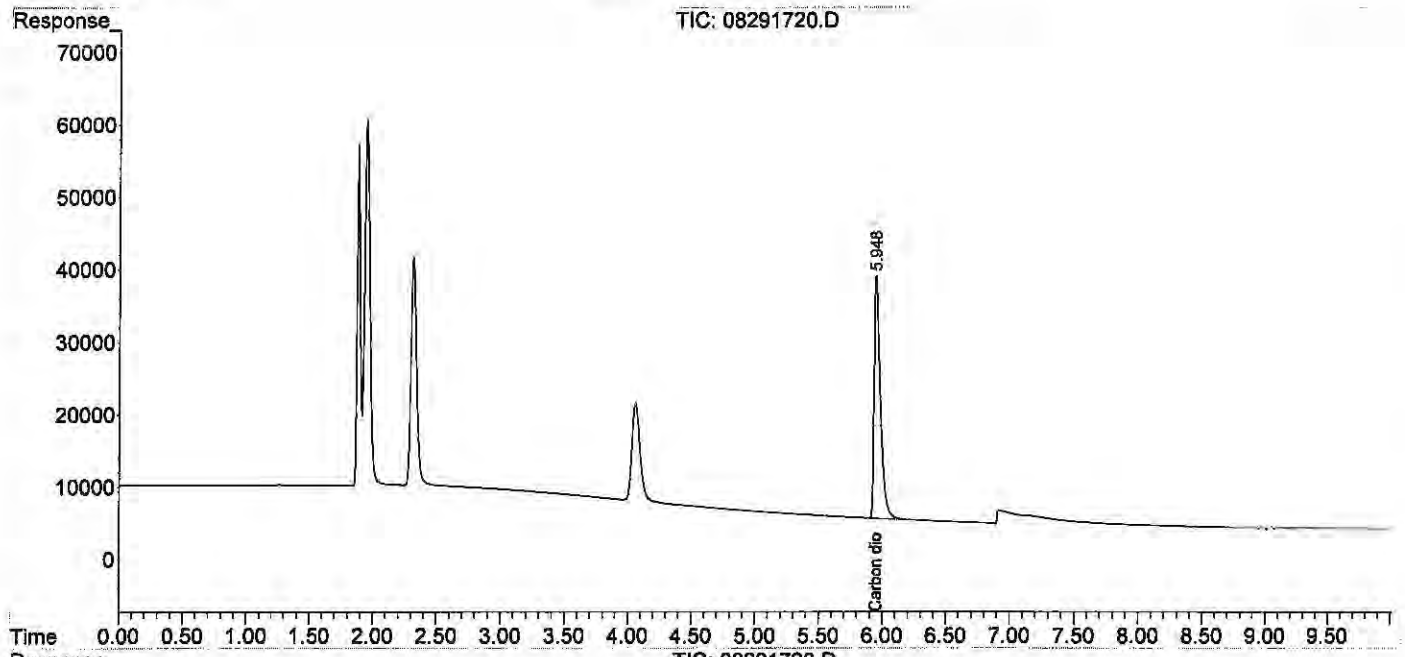
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

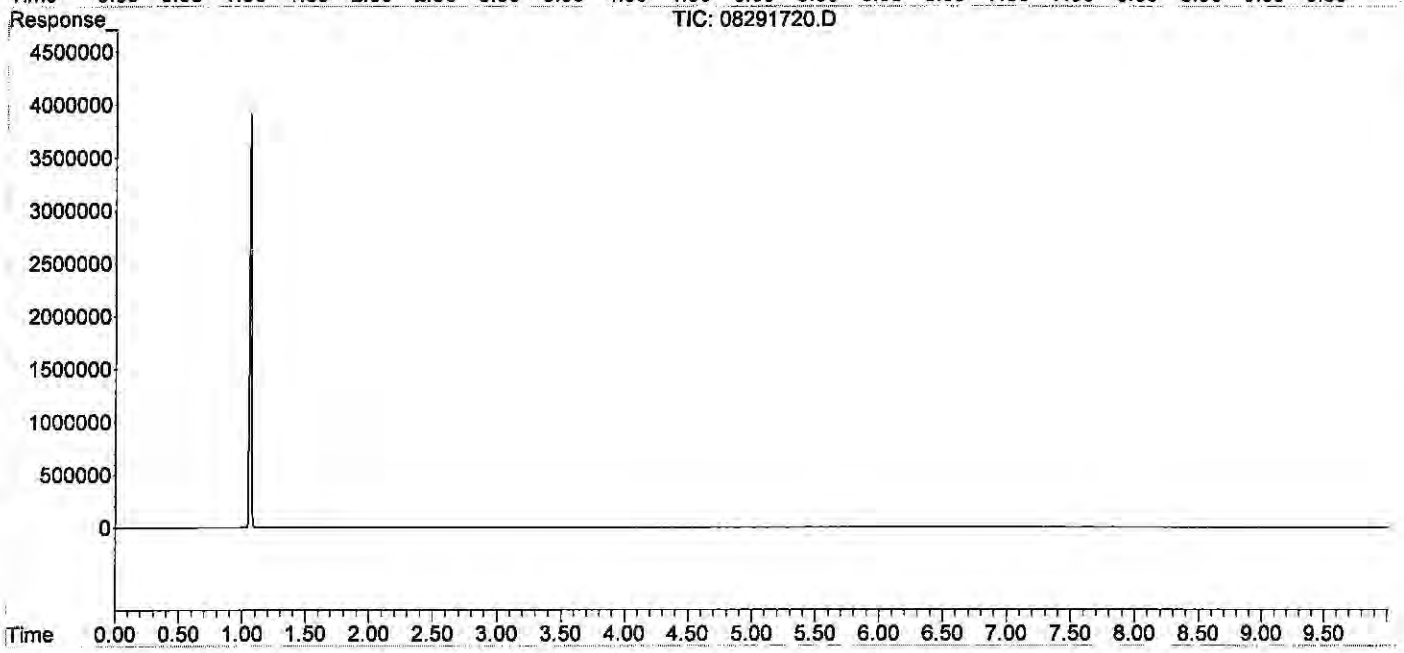
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

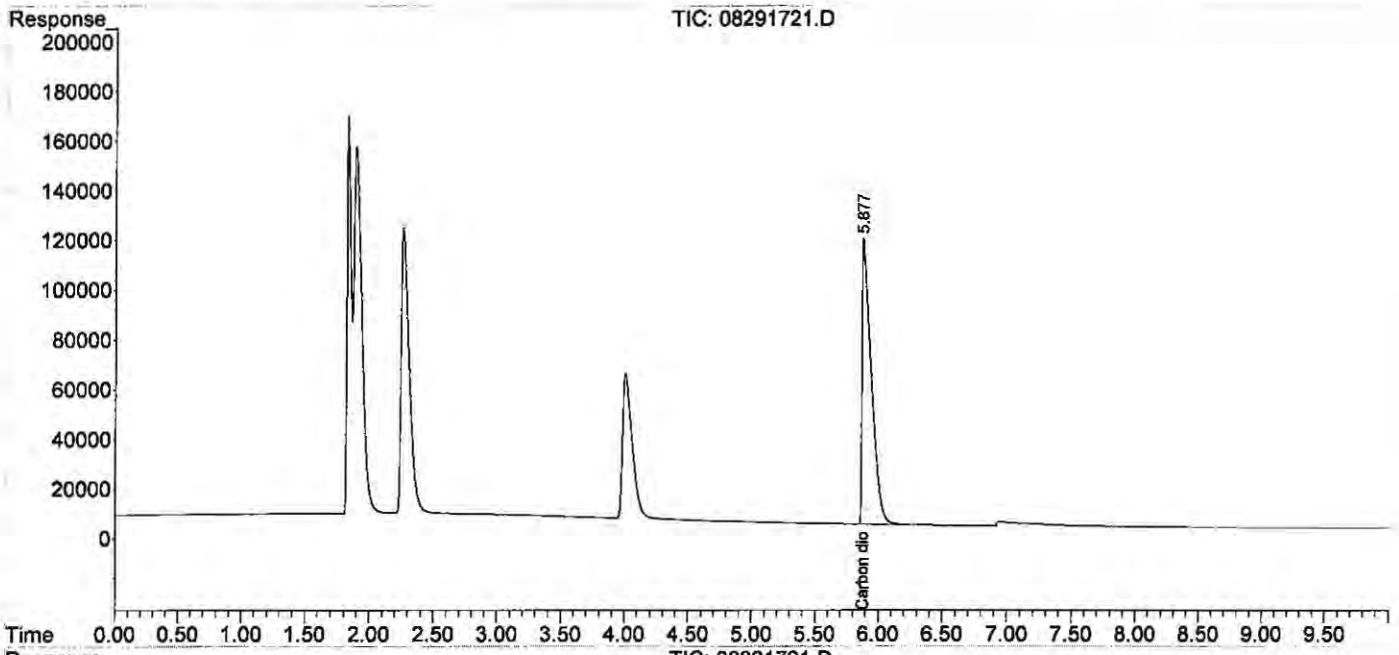
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

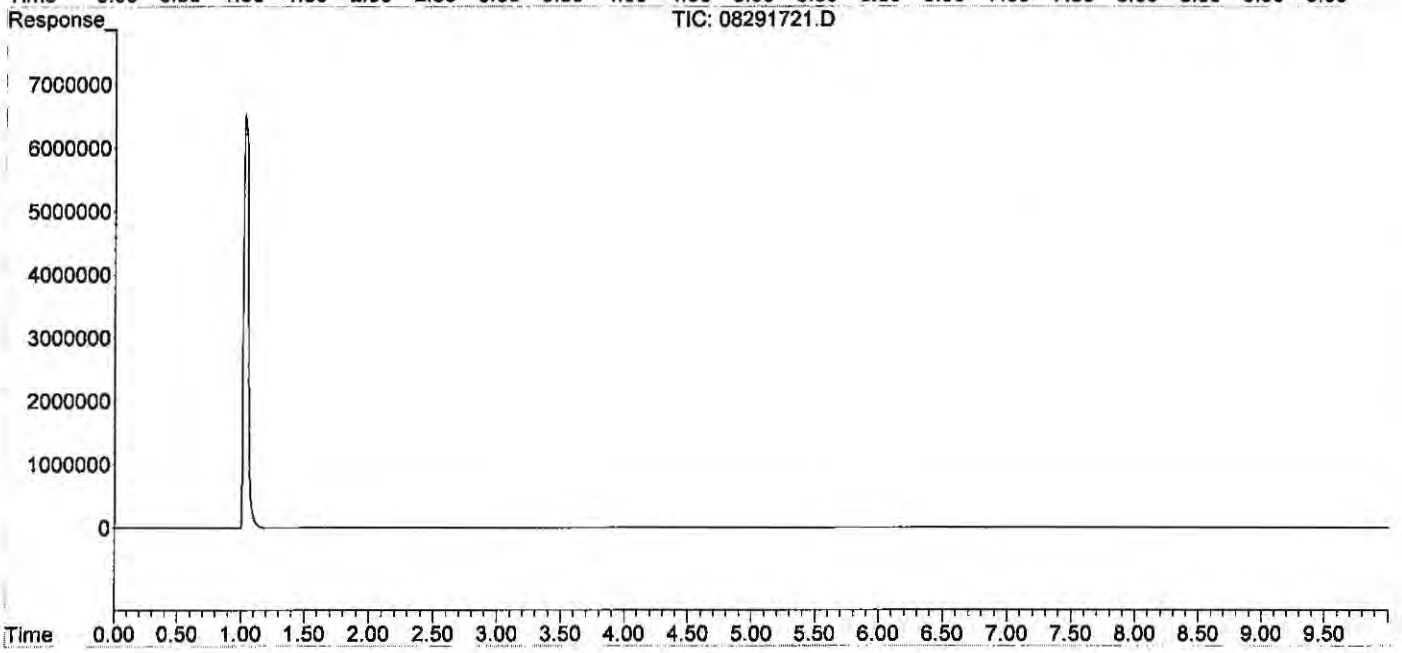
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.886	536422	0.113	ppm
2)	Carbon monoxide	1.886	536422	N.D.	ppm
3)	Methane (TCD)	4.059f	626500	66244.710	ppm
4)	Carbon dioxide	5.947	1163775	4957.948	ppm
6)	Methane (FID)	1.062	37290742	3947.023	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

Actual %D
5000 99.16

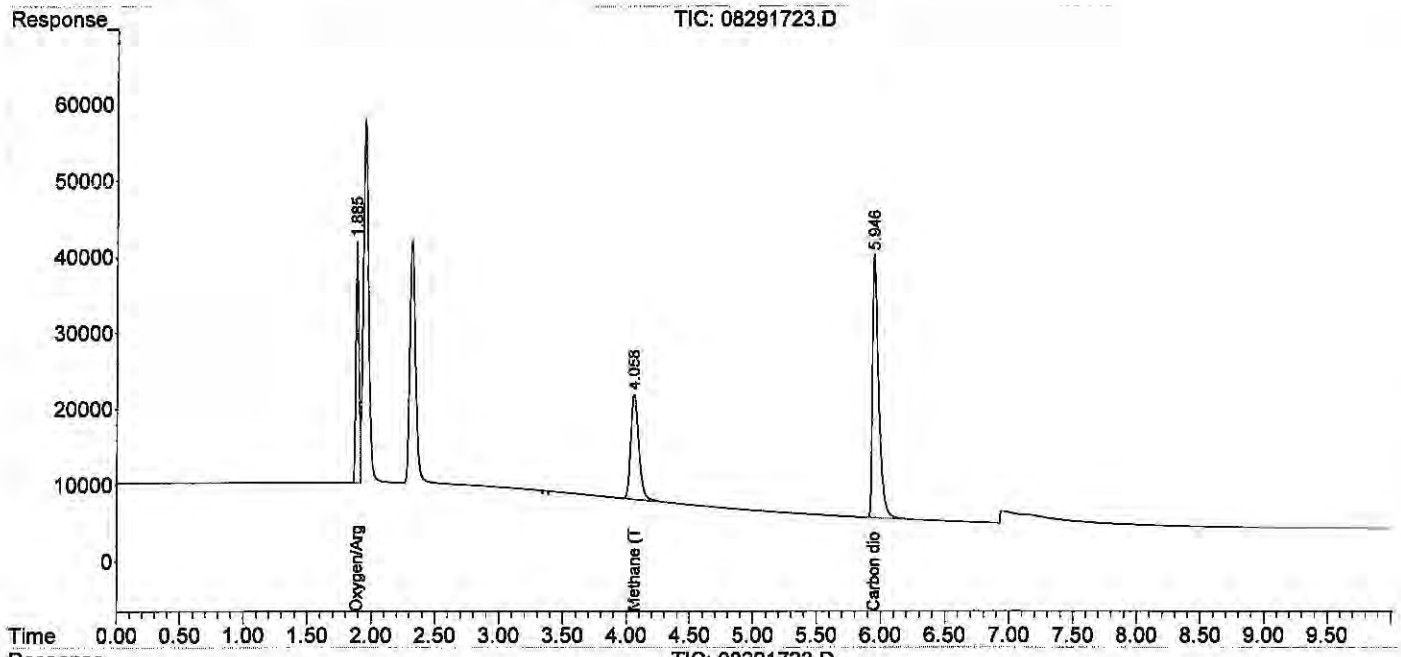
(f)=RT Delta > 1/2 Window (m)=manual int.

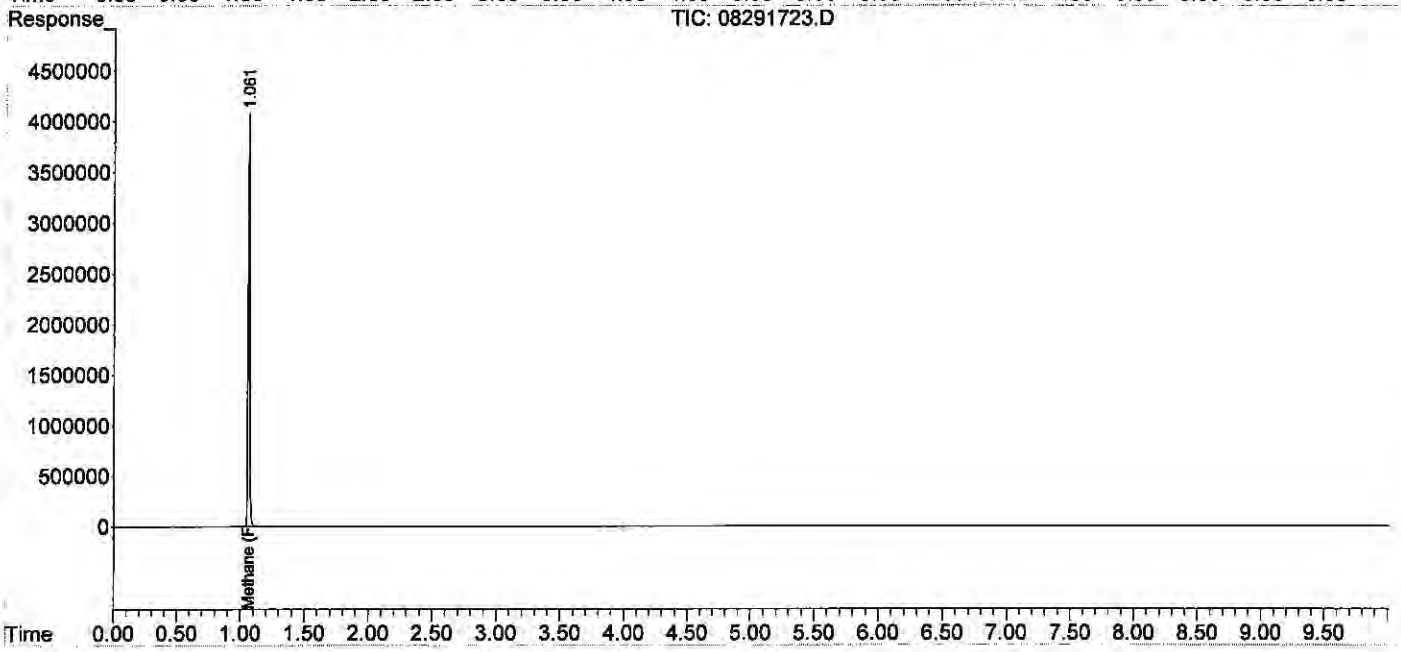
W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Dissolved Gases by RSK175

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group | Analyst : WH/LD | Instrument : GC#10
Service Request: P1907202 | Date Analysis : 11/27/19 | Detector : FID#10, TCD#10
Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
STD S32-10291901	0.100	4982.595
ACTUAL		5000.00
%Difference		0.3%
MCS 0.1 ml	0.100	0.000
RB 0.1ml	0.100	0.000
LCS S32-08141901	0.100	808.132
LCSD S32-08141901	0.100	810.090
P1907202-001 0.1ml	0.100	4604.482
P1907202-002 0.1ml	0.100	3973.458
P1907202-003 0.1ml	0.100	630.147
P1907202-004 0.1ml	0.100	4575.339

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
MCS 0.1 ml	0.000
LCS S32-08141901	8081.320
LCSD S32-08141901	8100.900
P1907202-001 0.1ml	46044.820
P1907202-002 0.1ml	39734.580
P1907202-003 0.1ml	6301.470
P1907202-004 0.1ml	45753.390

LD
12/02

STD S32-10291901	4814.557
ACTUAL	5000.00
%Difference	3.7%

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 08:49:18
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 08:00:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD 12/02

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

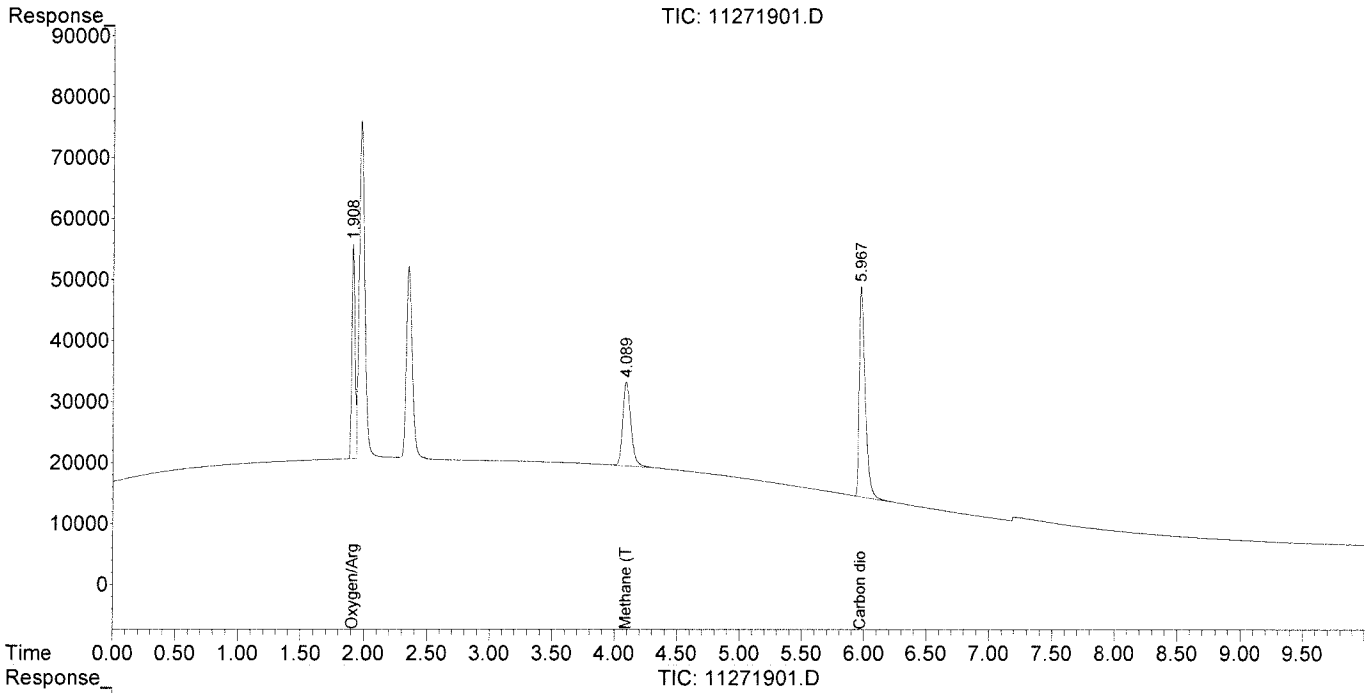
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.909f	607099	0.128	ppm	
2)	Carbon monoxide	1.909f	607099	N.D.	ppm	
3)	Methane (TCD)	4.089f	625766	66167.171	ppm	
4)	Carbon dioxide	5.967	1169560	4982.595	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

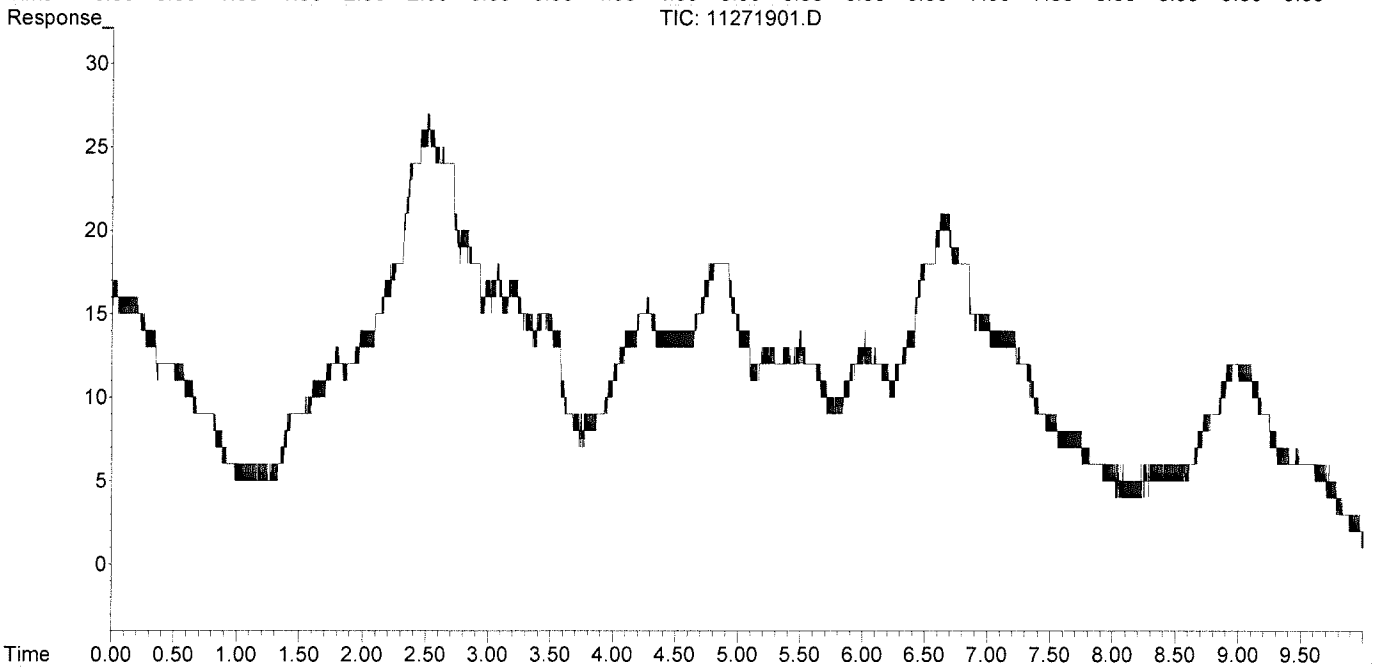
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 08:49:18
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 08:00:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

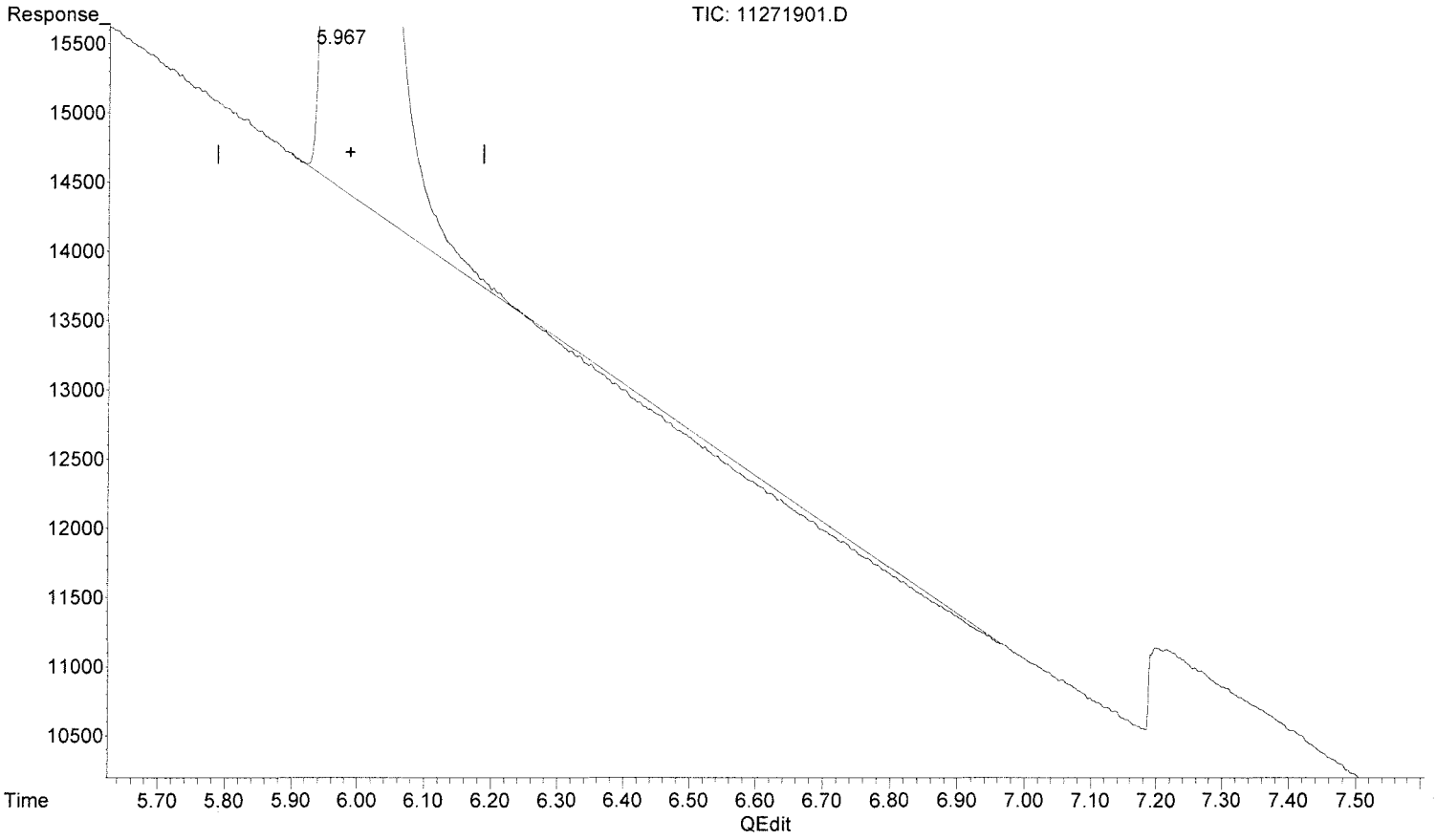




Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 08:49:18
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 08:00:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.969min 4902.979 ppm

response 1150872

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 08:49:18
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Nov 27 08:00:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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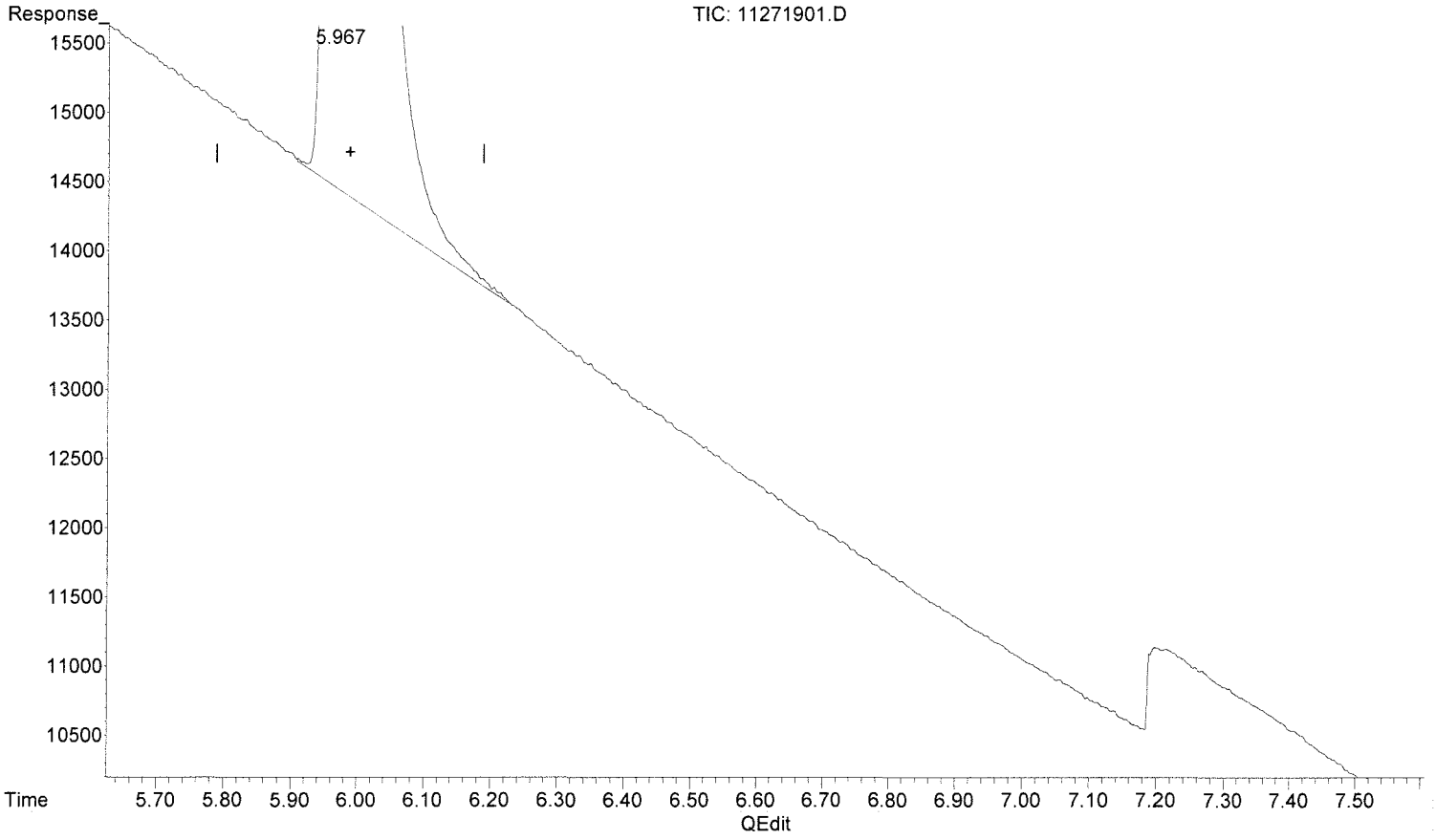
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.967min 4982.595 ppm m

response 1169560

12/2/19

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:38:46
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

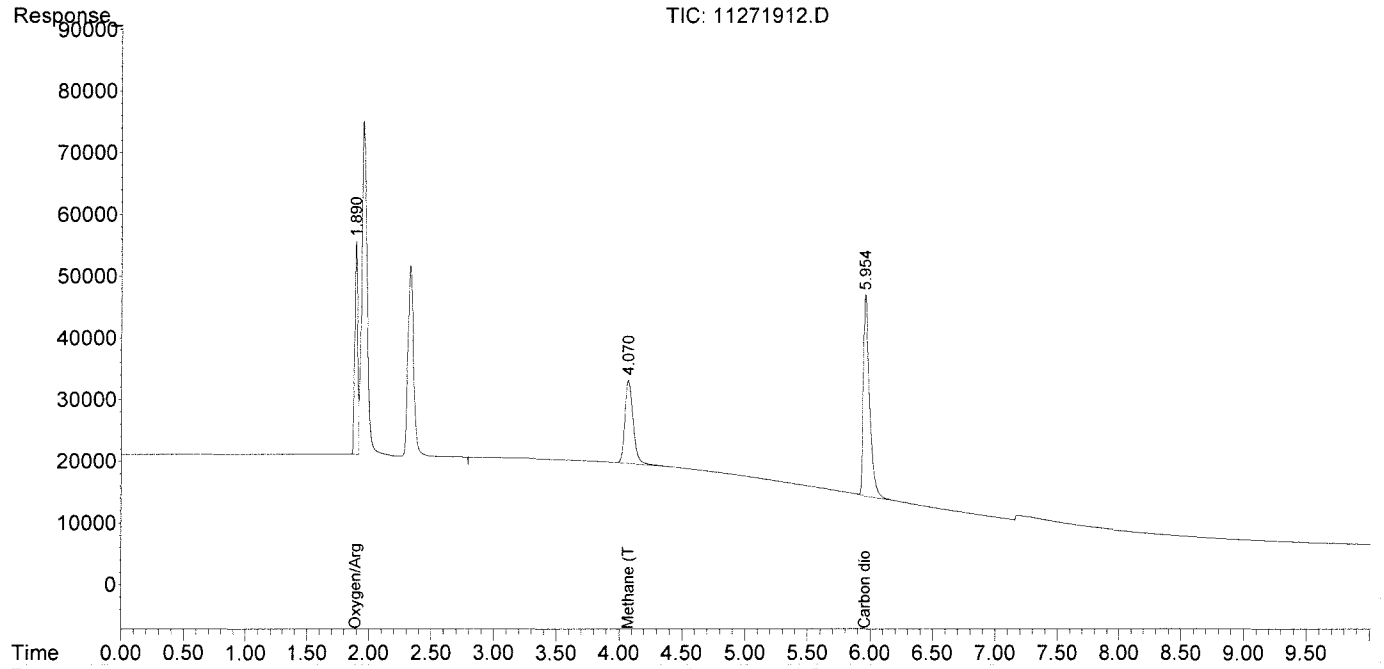
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.890	595945	0.125	ppm	
2)	Carbon monoxide	1.890	595945	N.D.	ppm	
3)	Methane (TCD)	4.070f	627465	66346.818	ppm	
4)	Carbon dioxide	5.954	1130117	4814.557	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

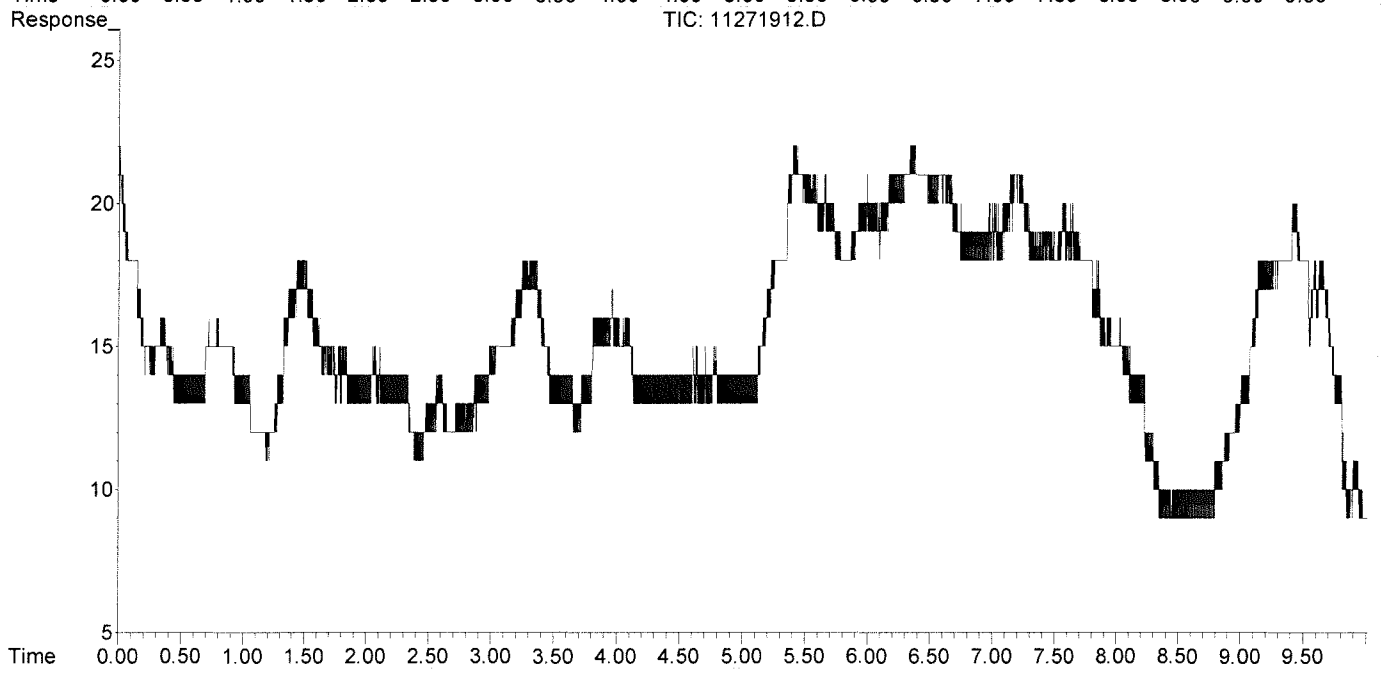
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:38:46
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

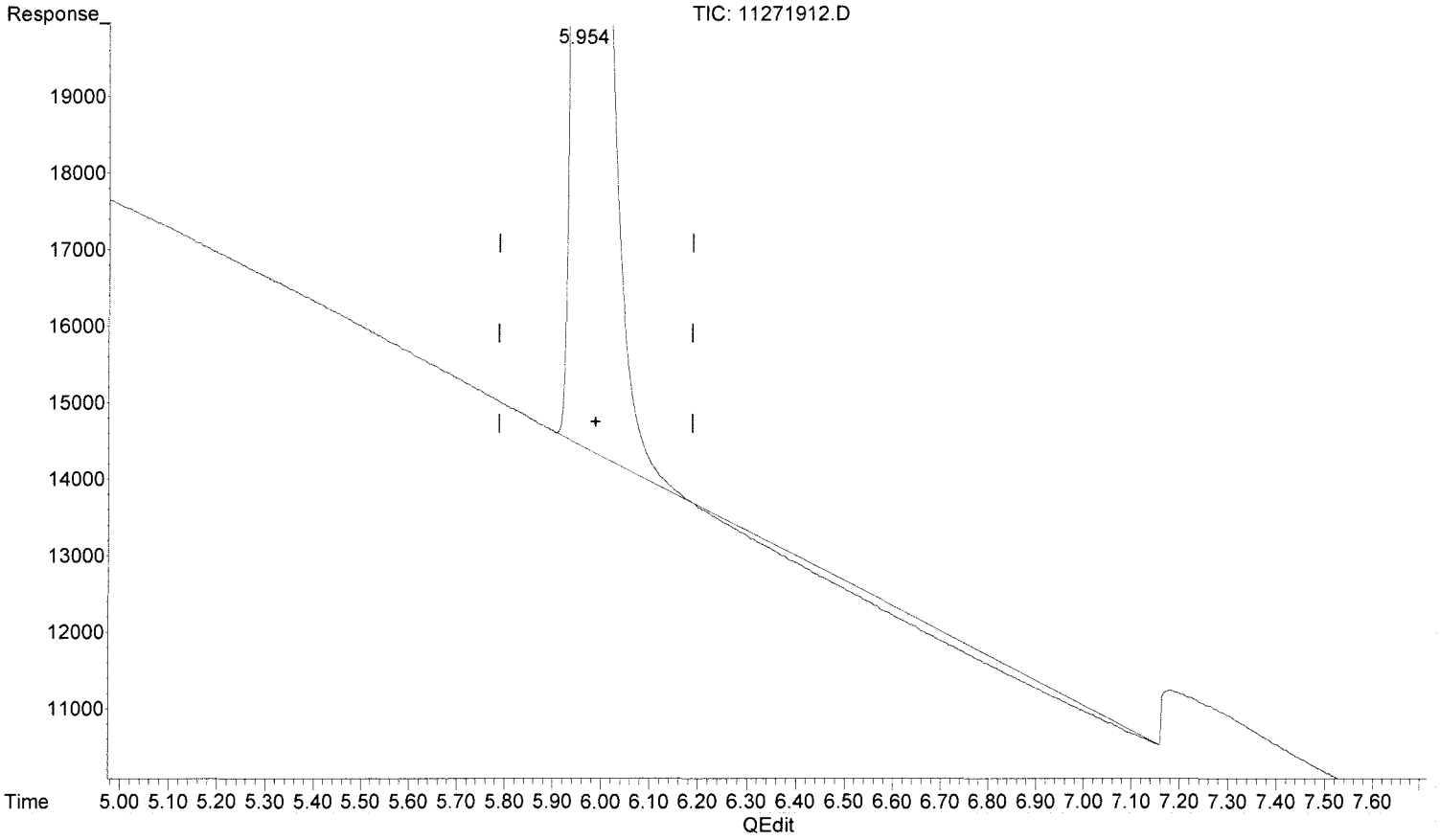




Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:38:46
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.956min 4583.021 ppm

response 1075769

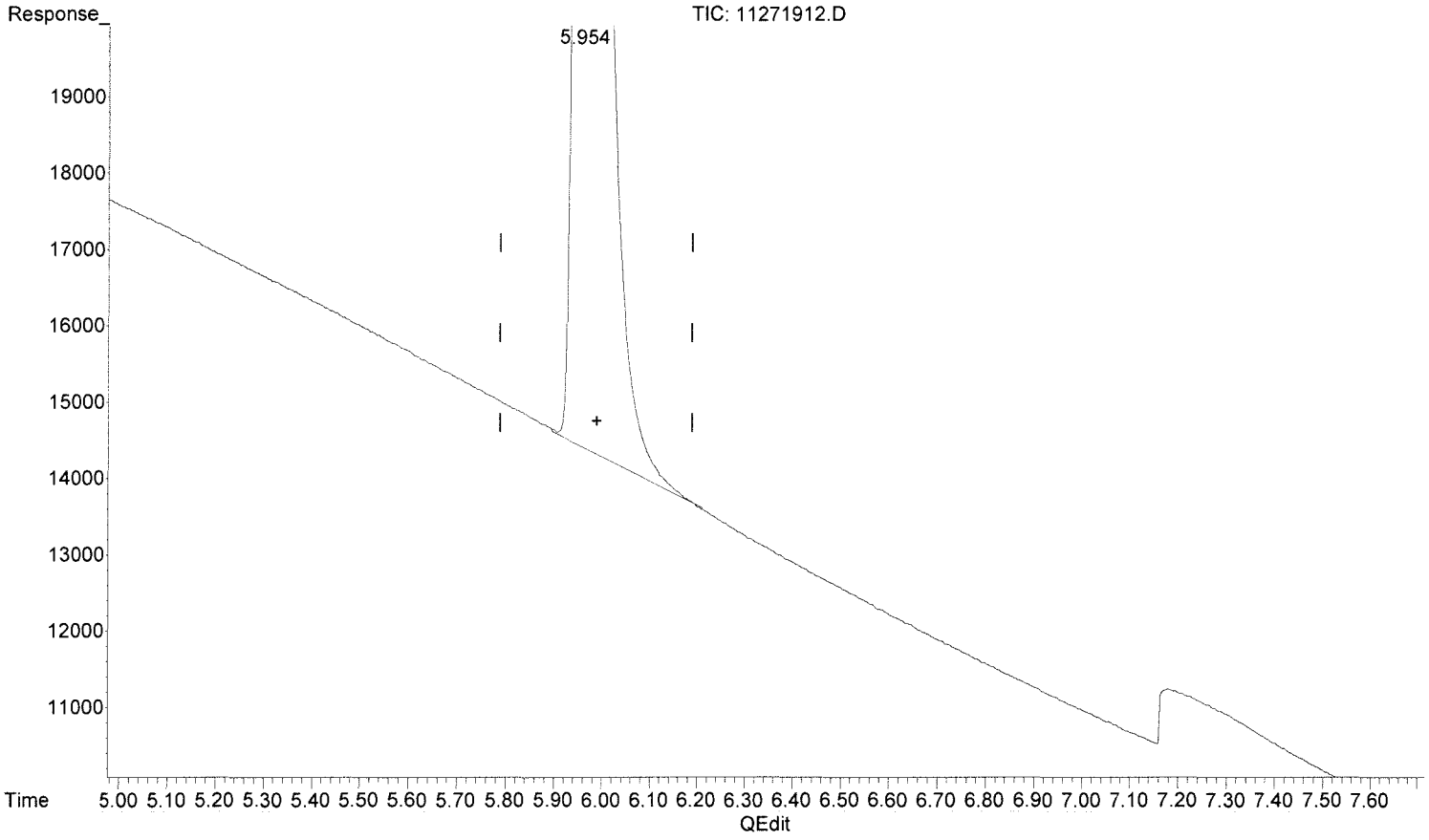
(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_TCD\2019_11\27\
Data File : 11271912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Nov-2019, 15:38:46
Operator : WH/LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 09:25:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
BLC
12/02

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.954min 4814.557 ppm m

response 1130117

12/2/19

(+) = Expected Retention Time

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	29-Aug-17, 07:58:00	08291701.D	std s30-06161601		MC	RSKBOTH.M	Pass
2	29-Aug-17, 08:11:02	08291702.D	mb 0.5ml		MC	RSKBOTH.M	Pass
3	29-Aug-17, 08:24:13	08291703.D	4089-001 0.5ml		MC	RSKBOTH.M	
4	29-Aug-17, 08:39:29	08291704.D	4089-002 0.5ml		MC	RSKBOTH.M	
5	29-Aug-17, 08:53:38	08291705.D	4089-003 0.5ml		MC	RSKBOTH.M	
6	29-Aug-17, 09:33:52	08291706.D	4089-004 0.5ml		MC	RSKBOTH.M	
7	29-Aug-17, 09:50:51	08291707.D	4089-005 0.5ml		MC	RSKBOTH.M	
8	29-Aug-17, 10:07:54	08291708.D	4089-006 0.5ml		MC	RSKBOTH.M	
9	29-Aug-17, 10:42:34	08291709.D	4089-007 0.5ml		MC	RSKBOTH.M	
10	29-Aug-17, 11:06:01	08291710.D	4089-008 0.5ml		MC	RSKBOTH.M	
11	29-Aug-17, 11:23:53	08291711.D	4089-009 0.5ml		MC	RSKBOTH.M	
12	29-Aug-17, 11:37:17	08291712.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
13	29-Aug-17, 11:50:31	08291713.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
14	29-Aug-17, 12:29:45	08291714.D	std s30-06161601		MC	RSKBOTH.M	Pass
15	29-Aug-17, 14:07:01	08291715.D	25ppm s32-08291701 0.25ml		MC	RSKBOTH.M	Curve
16	29-Aug-17, 14:22:12	08291716.D	100ppm s32-08291702 0.2ml		MC	RSKBOTH.M	Curve
17	29-Aug-17, 14:53:00	08291717.D	250ppm s32-08291702 0.5ml		MC	RSKBOTH.M	Curve
18	29-Aug-17, 15:07:43	08291718.D	mls inject		MC	RSKBOTH.M	
19	29-Aug-17, 15:23:21	08291719.D	2500ppm s32-08231701 50ul		MC	RSKBOTH.M	Curve
20	29-Aug-17, 15:44:54	08291720.D	5000ppm s32-08231701 0.1ml		MC	RSKBOTH.M	Curve
21	29-Aug-17, 16:00:09	08291721.D	25000ppm s32-08231701 0.5ml		MC	RSKBOTH.M	Curve
22	29-Aug-17, 16:15:43	08291722.D	mb 0.1ml		MC	RSKBOTH.M	Pass
23	29-Aug-17, 16:35:37	08291723.D	lcv s30-07071701		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2019_11\27\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	27-Nov-19, 08:49:18	11271901.D	STD S32-10291901		WH/LD	RSKBOTH.M	pass
2	27-Nov-19, 09:04:00	11271902.D	RB 0.1ml		WH/LD	RSKBOTH.M	pass
3	27-Nov-19, 12:15:56	11271903.D	MCS 0.1 ml		WH/LD	RSKBOTH.M	pass
4	27-Nov-19, 12:28:56	11271904.D	xxxxLCS S32-08141901		WH/LD	RSKBOTH.M	fail
5	27-Nov-19, 13:58:59	11271905.D	xxxxLCS S32-08141901		WH/LD	RSKBOTH.M	fail
6	27-Nov-19, 14:11:55	11271906.D	LCS S32-08141901		WH/LD	RSKBOTH.M	pass
7	27-Nov-19, 14:26:48	11271907.D	LCSD S32-08141901		WH/LD	RSKBOTH.M	pass
8	27-Nov-19, 14:40:52	11271908.D	P1907202-001 0.1ml		WH/LD	RSKBOTH.M	
9	27-Nov-19, 14:54:02	11271909.D	P1907202-002 0.1ml		WH/LD	RSKBOTH.M	
10	27-Nov-19, 15:08:56	11271910.D	P1907202-003 0.1ml		WH/LD	RSKBOTH.M	
11	27-Nov-19, 15:21:54	11271911.D	P1907202-004 0.1ml		WH/LD	RSKBOTH.M	
12	27-Nov-19, 15:38:46	11271912.D	STD S32-10291901		WH/LD	RSKBOTH.M	pass

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:31:15
Operator : LD
Sample : P1907202-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:45:07 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

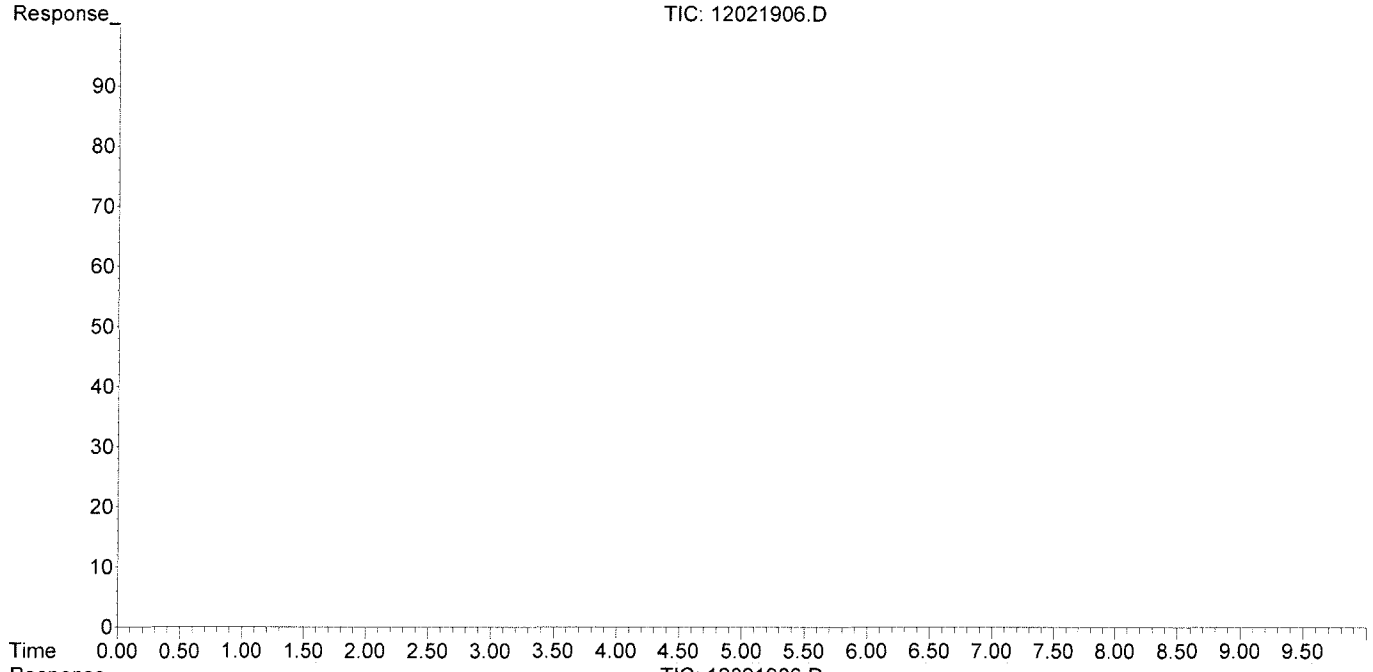
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.119	2265	0.250	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

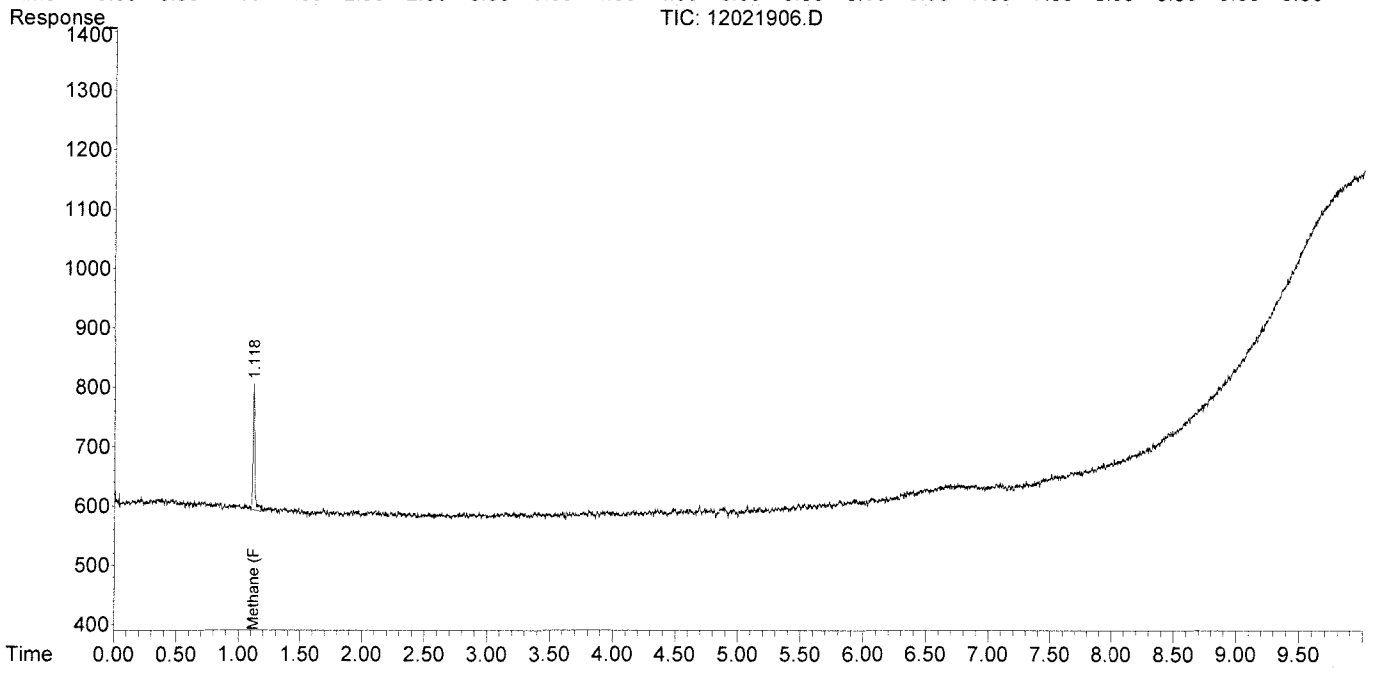
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:31:15
Operator : LD
Sample : P1907202-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:45:07 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:44:22
Operator : LD
Sample : P1907202-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:33:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

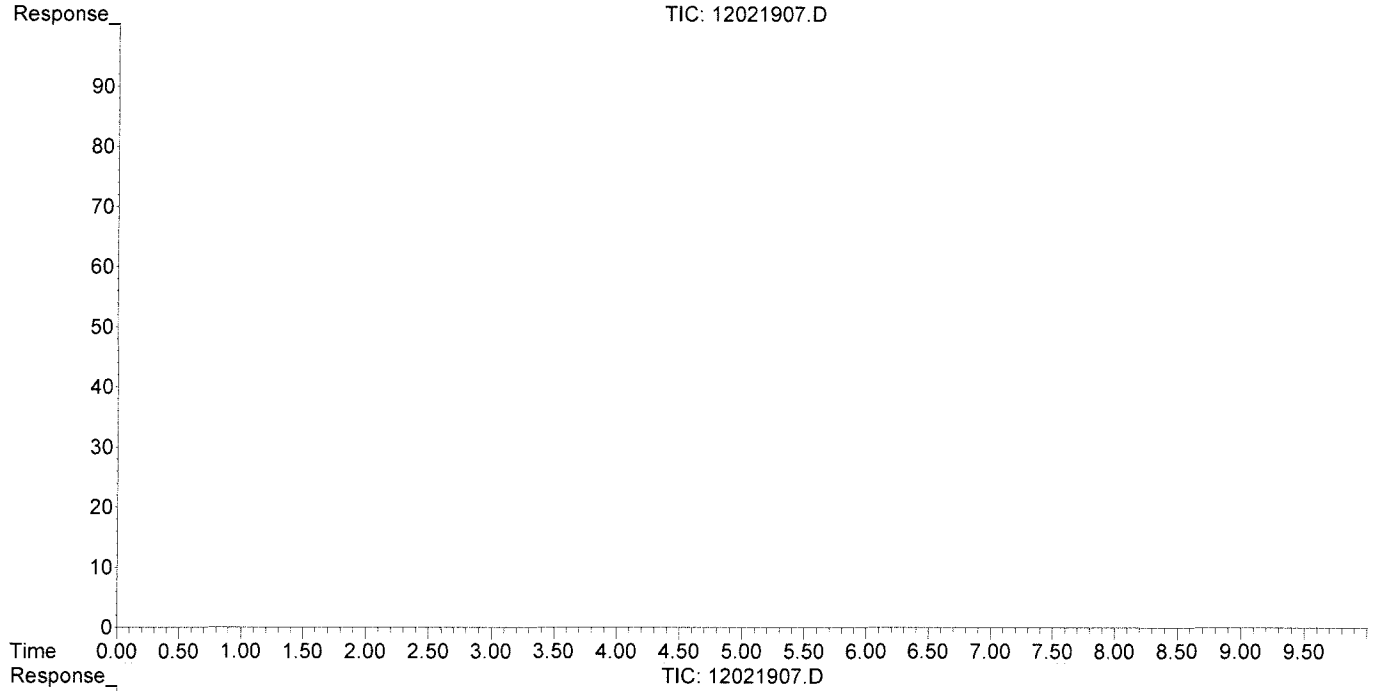
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.123	2085	0.230	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

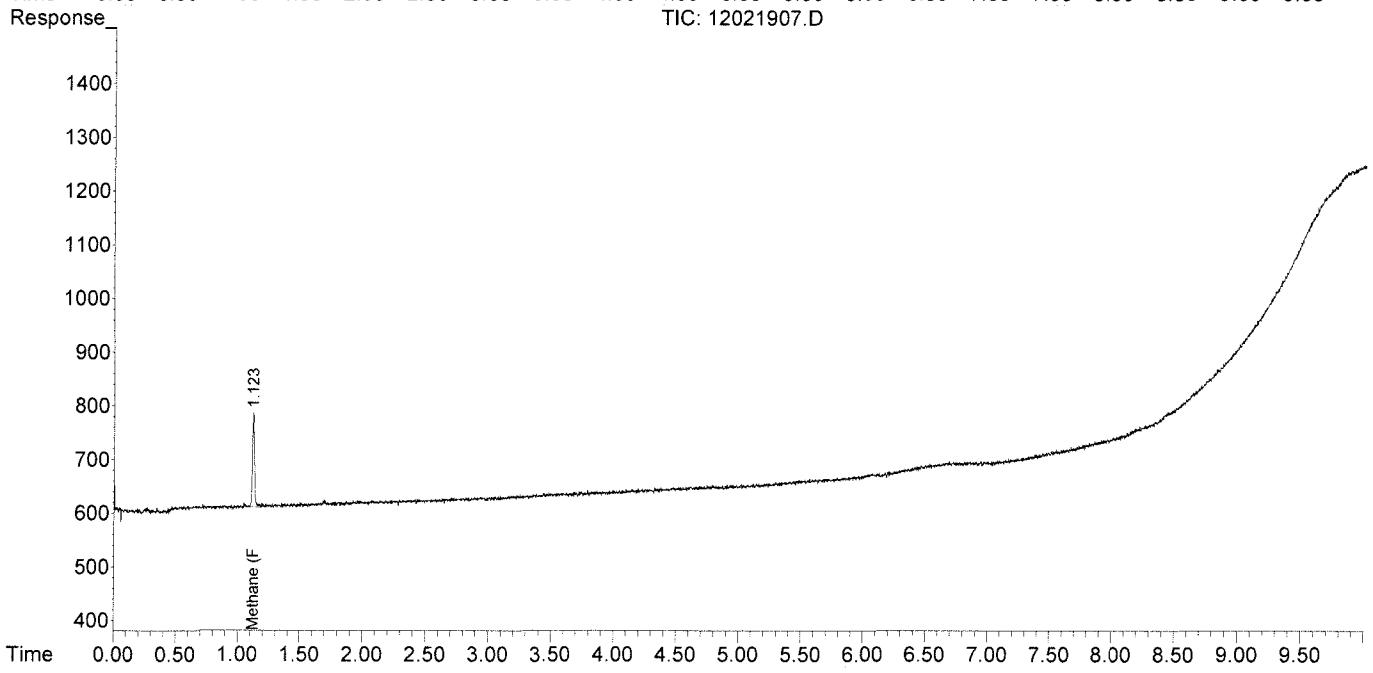
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:44:22
Operator : LD
Sample : P1907202-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:33:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:57:09
Operator : LD
Sample : P1907202-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:34:06 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

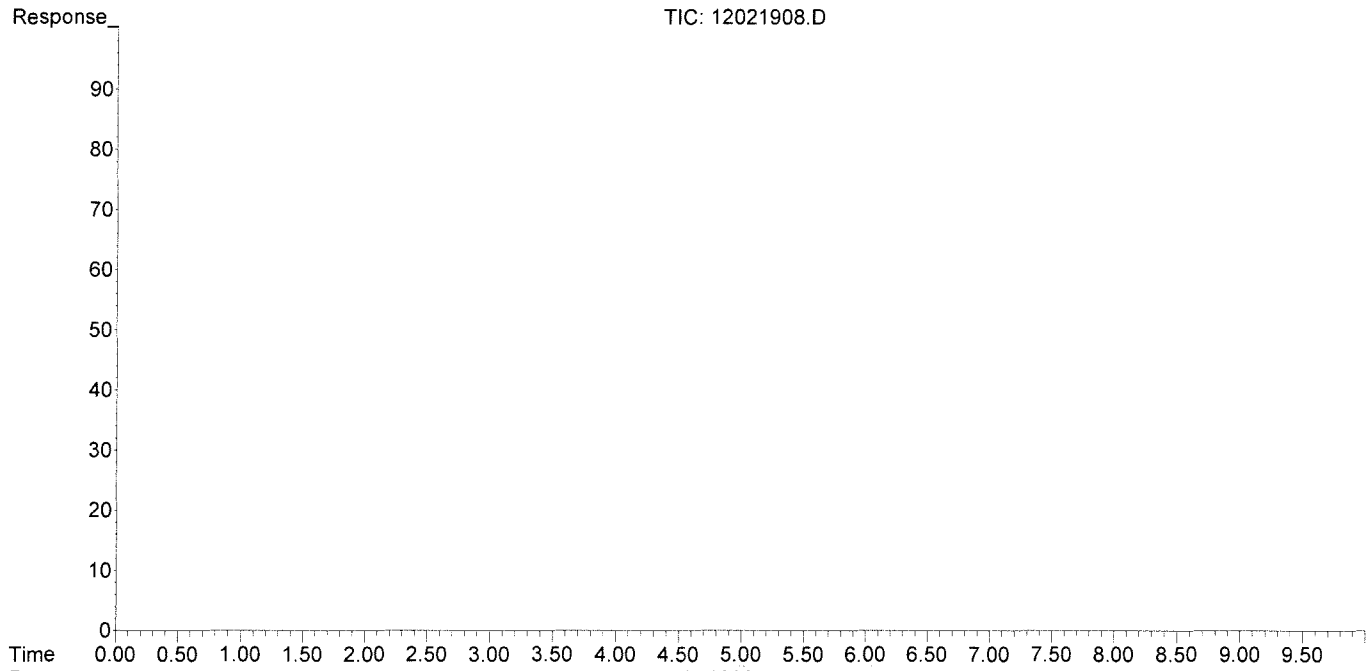
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

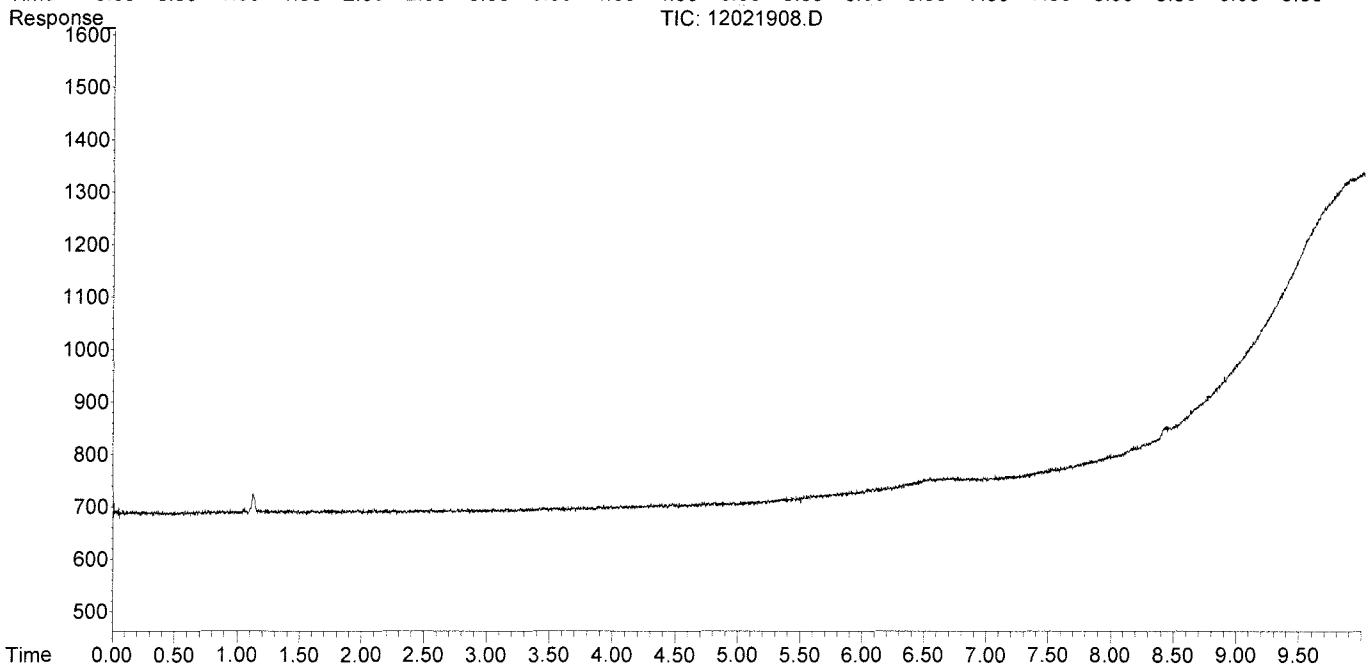
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:57:09
Operator : LD
Sample : P1907202-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:34:06 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 11:10:11
Operator : LD
Sample : P1907202-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:34:17 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

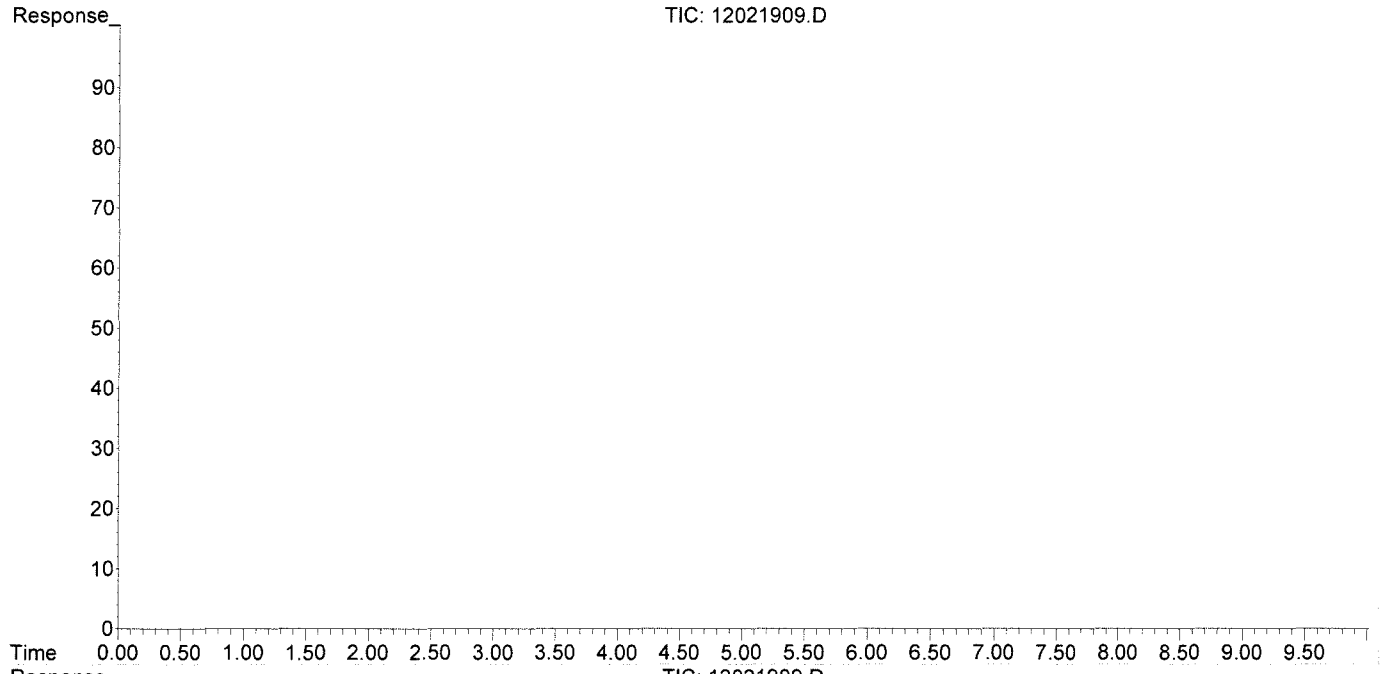
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

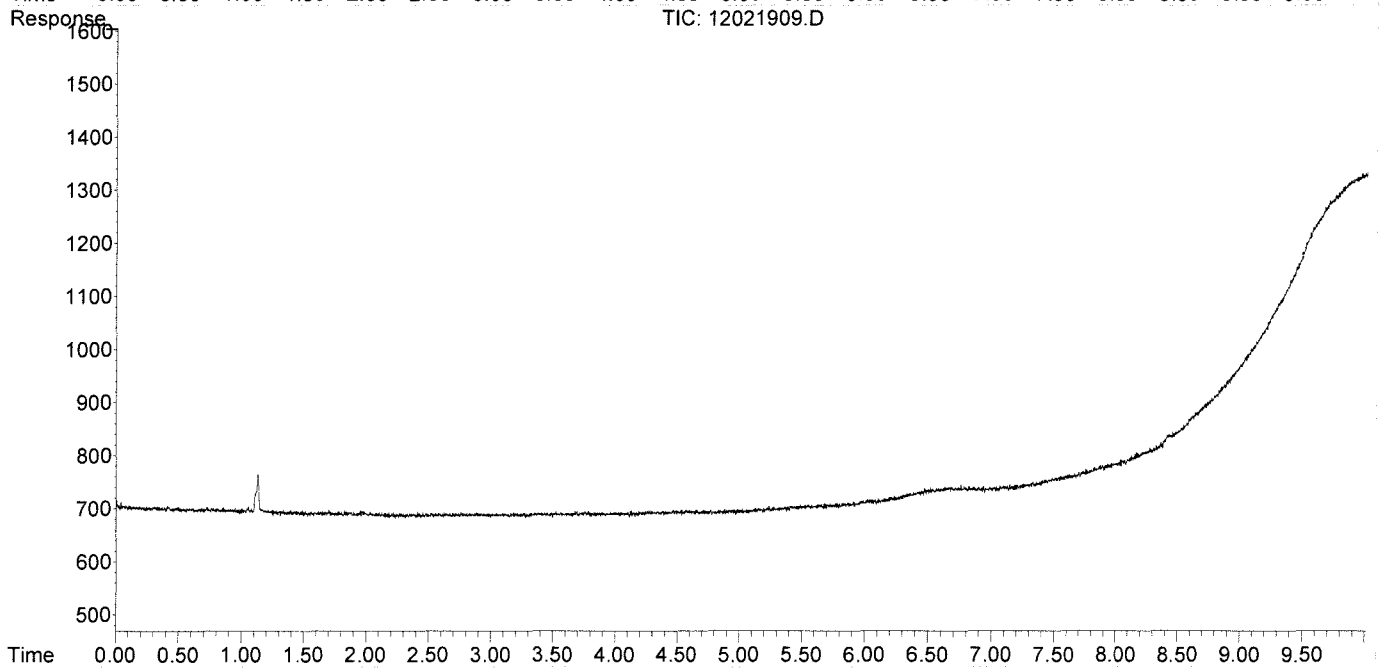
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 11:10:11
Operator : LD
Sample : P1907202-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 12:34:17 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 09:41:59
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:03:29 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

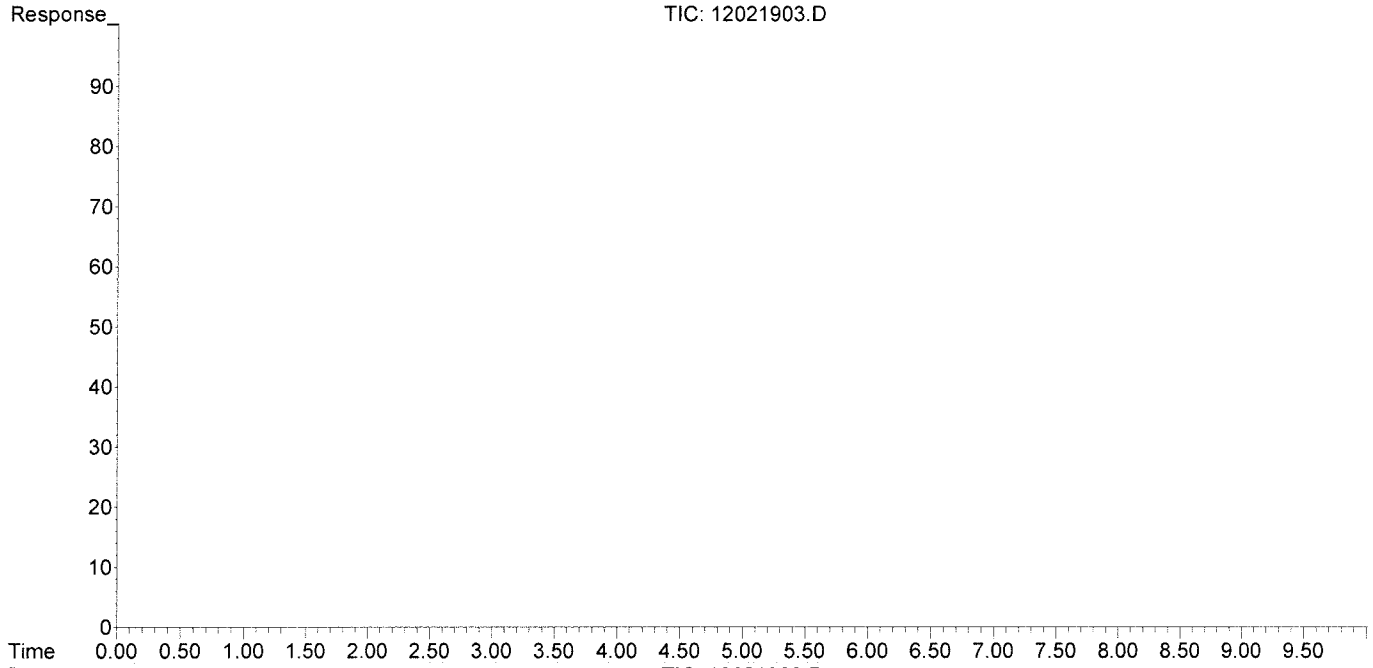
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

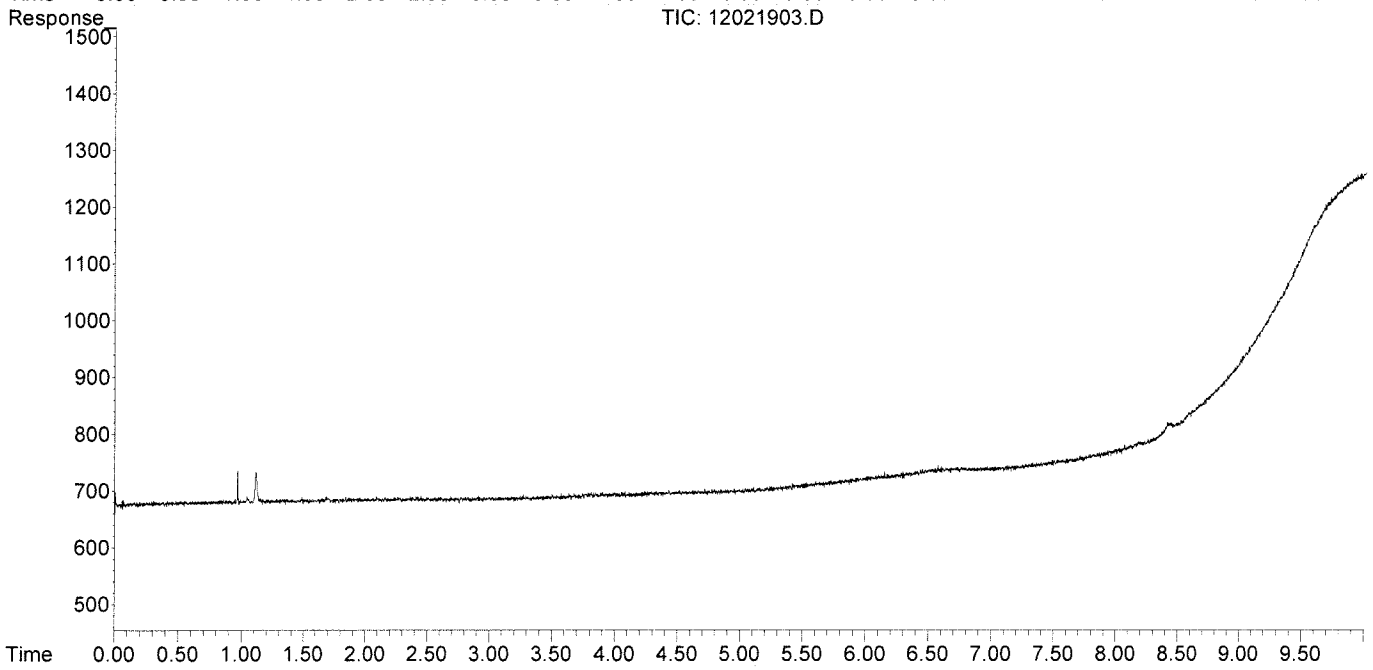
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 09:41:59
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:03:29 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:00:43
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:22:45 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

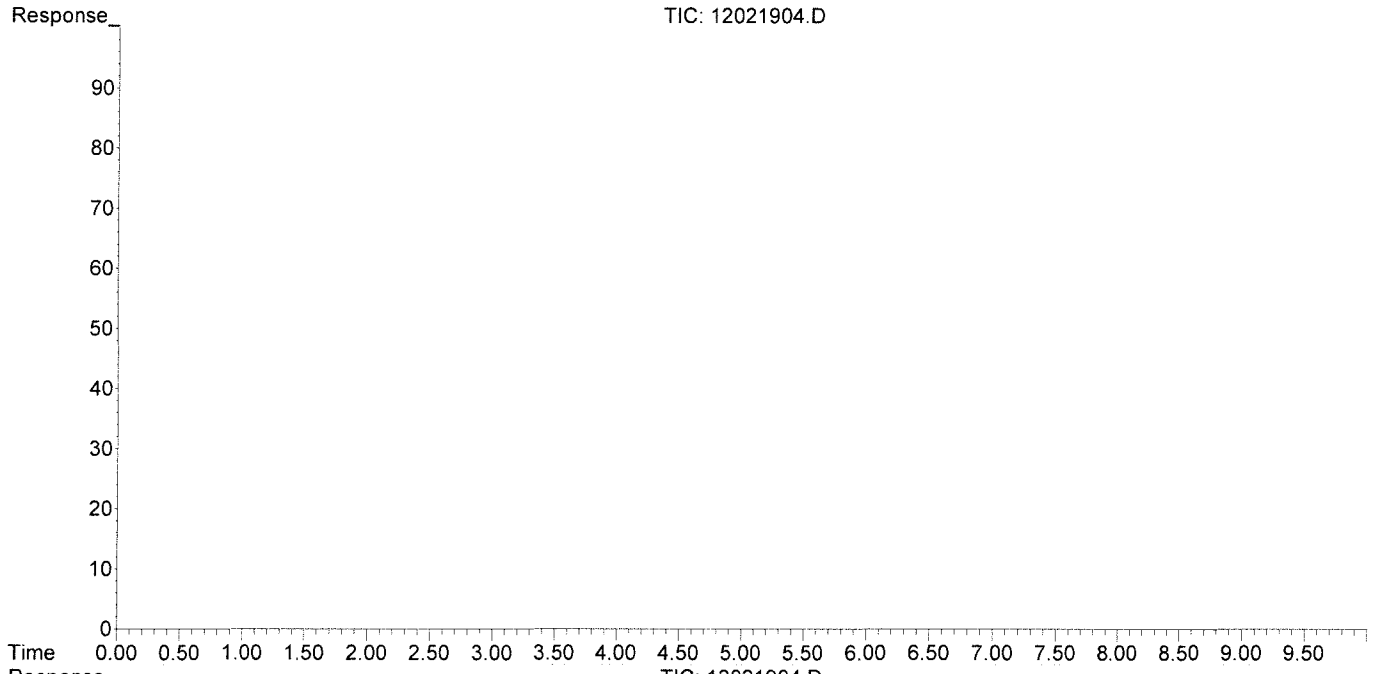
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.120	12401	1.367	ppm
7)	Ethylene	1.698	16693	0.998	ppm
8)	Ethane	1.967	19954	1.177	ppm
9)	Propylene	4.346	21985	0.938	ppm
10)	Propane	4.468	30317	1.219	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.668	39797	1.495	ppm
13)	n-Butane	6.668	39797	1.495	ppm

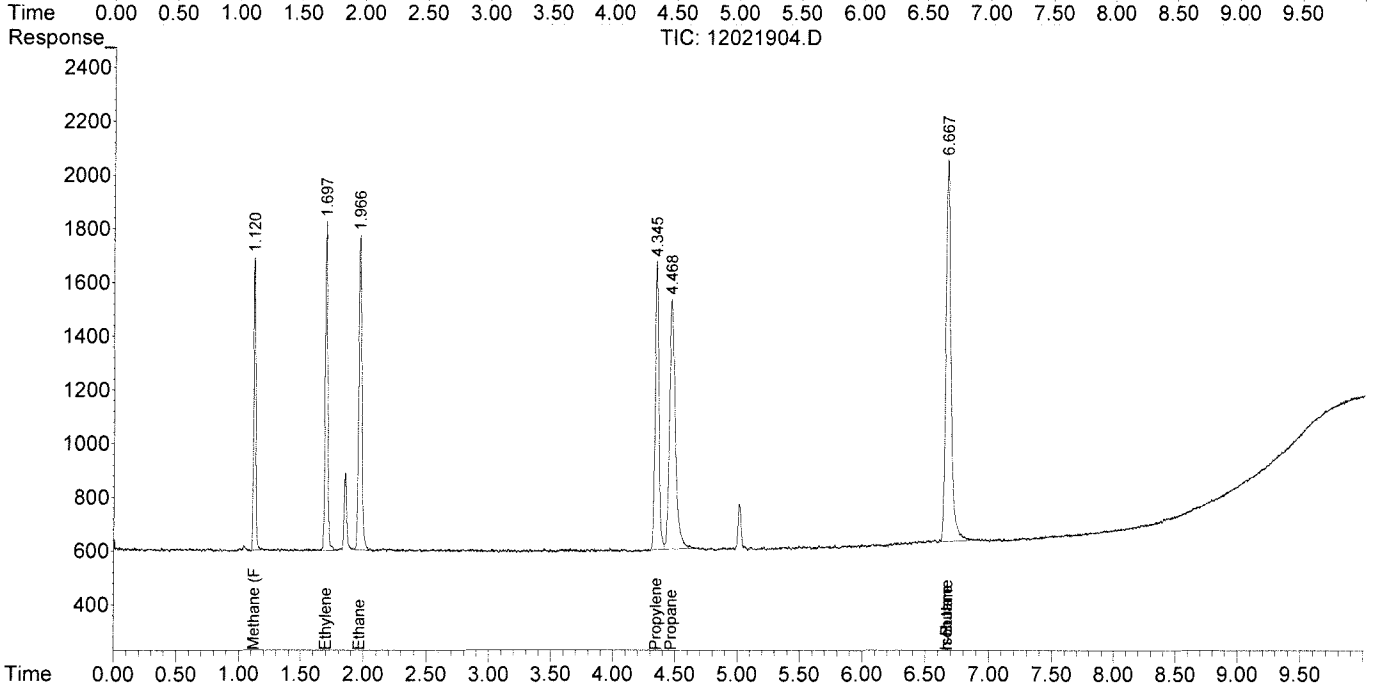
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:00:43
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:22:45 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:18:13
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:29:07 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

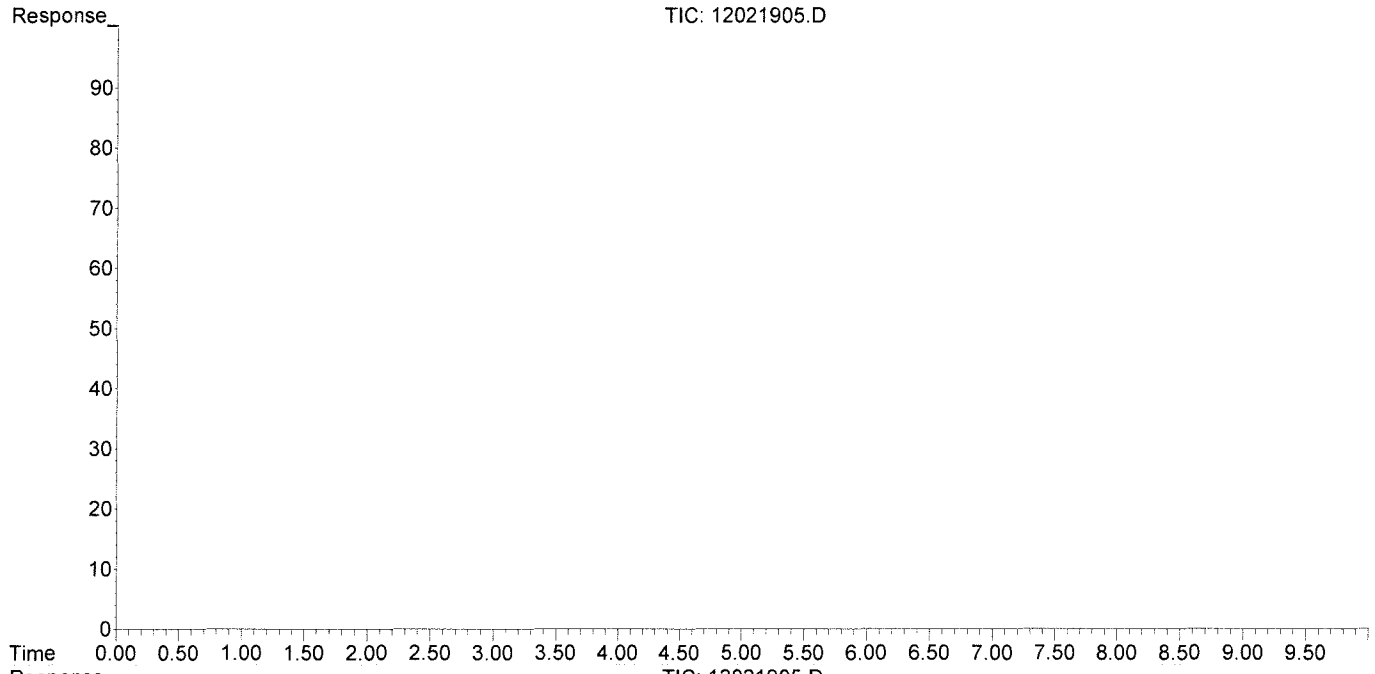
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.123	12055	1.329	ppm
7)	Ethylene	1.701	15721	0.939	ppm
8)	Ethane	1.970	18973	1.119	ppm
9)	Propylene	4.349	21011	0.897	ppm
10)	Propane	4.471	29359	1.180	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.669	37908	1.424	ppm
13)	n-Butane	6.669	37908	1.424	ppm

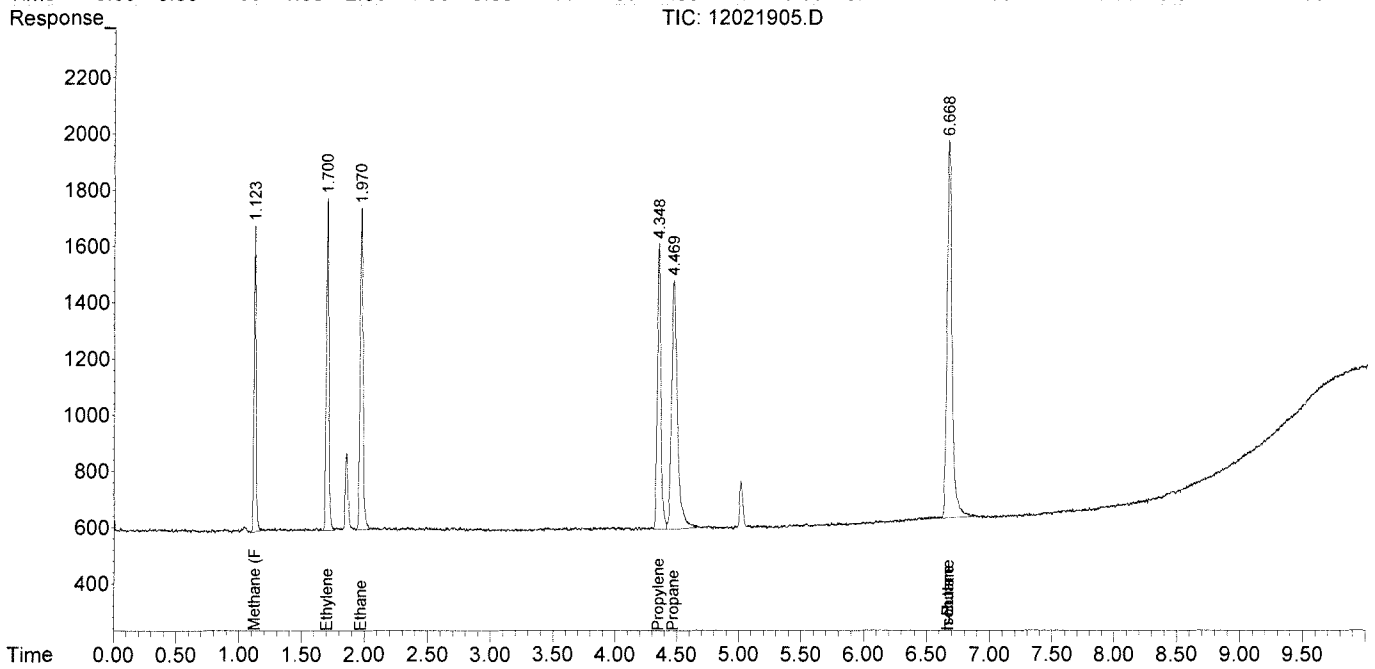
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 10:18:13
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 10:29:07 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017

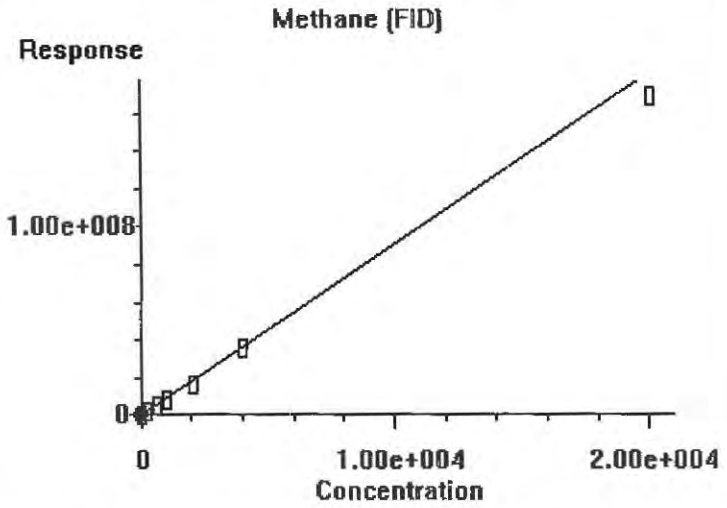
Edit Compounds -- Compound #6 -- Methane (FID)

Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	
2	0.302000	3564.400000
3	1.510000	14725.268625
4	4.530000	41128.575000
5	10.570000	91966.784531
6	200.000000	1735997.497500
7	600.000000	5189848.900000
8	1000.000000	8598533.570000
9	2000.000000	16098209.390000
10	4000.000000	35776839.311362
11	20000.000000	169009160.49199



0.000e+000	Quadratic term
9.071e+003	Linear term
0.000e+000	Constant term
11.657%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

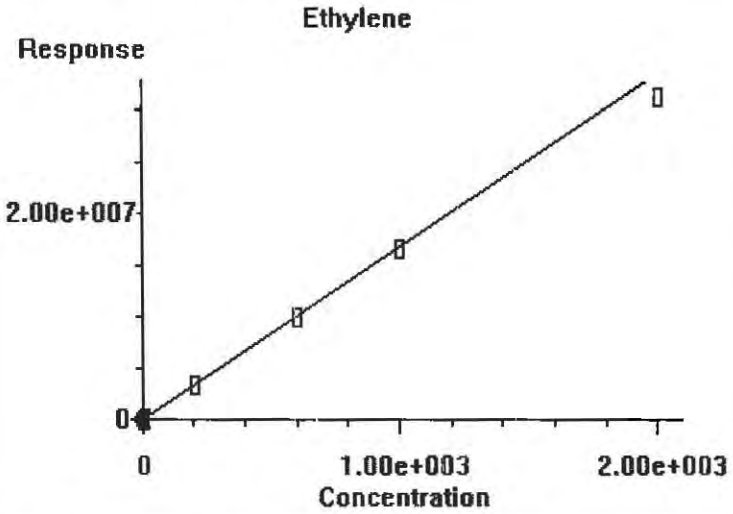
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #8 -- Ethane

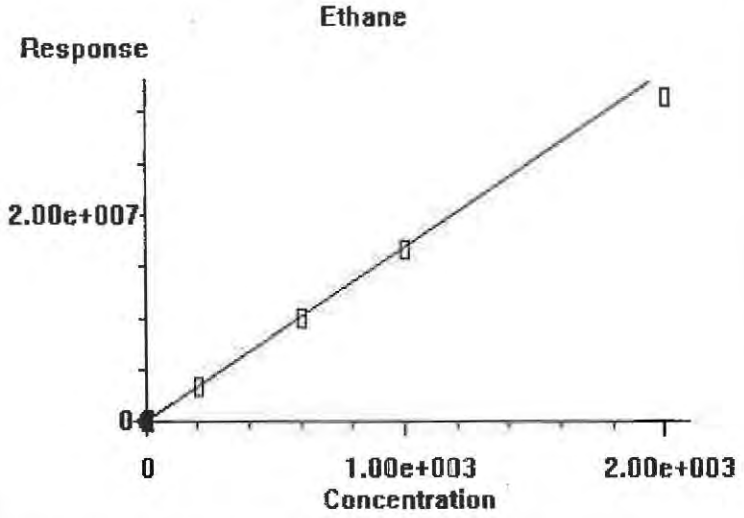
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
  - External Standard Compoun
    - Oxygen/Argon
    - Carbon monoxide
    - Methane (TCD)
    - Carbon dioxide
    - Signal #2
    - Methane (FID)
    - Ethylene
    - Ethane
    - Propylene
    - Propane
    - Isobutylene
    - Isobutane
    - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #9 -- Propylene

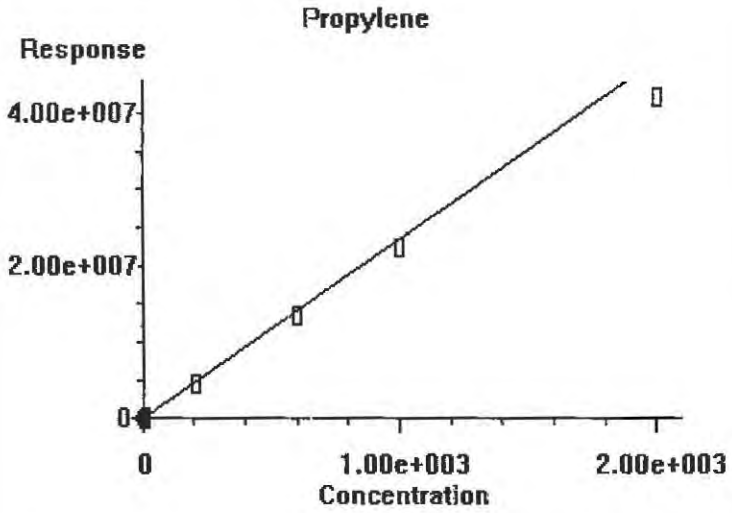
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #10 -- Propane

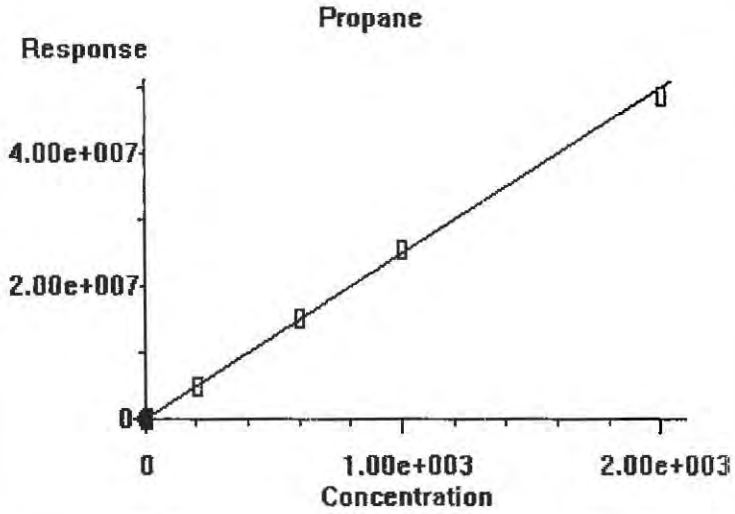
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663316
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

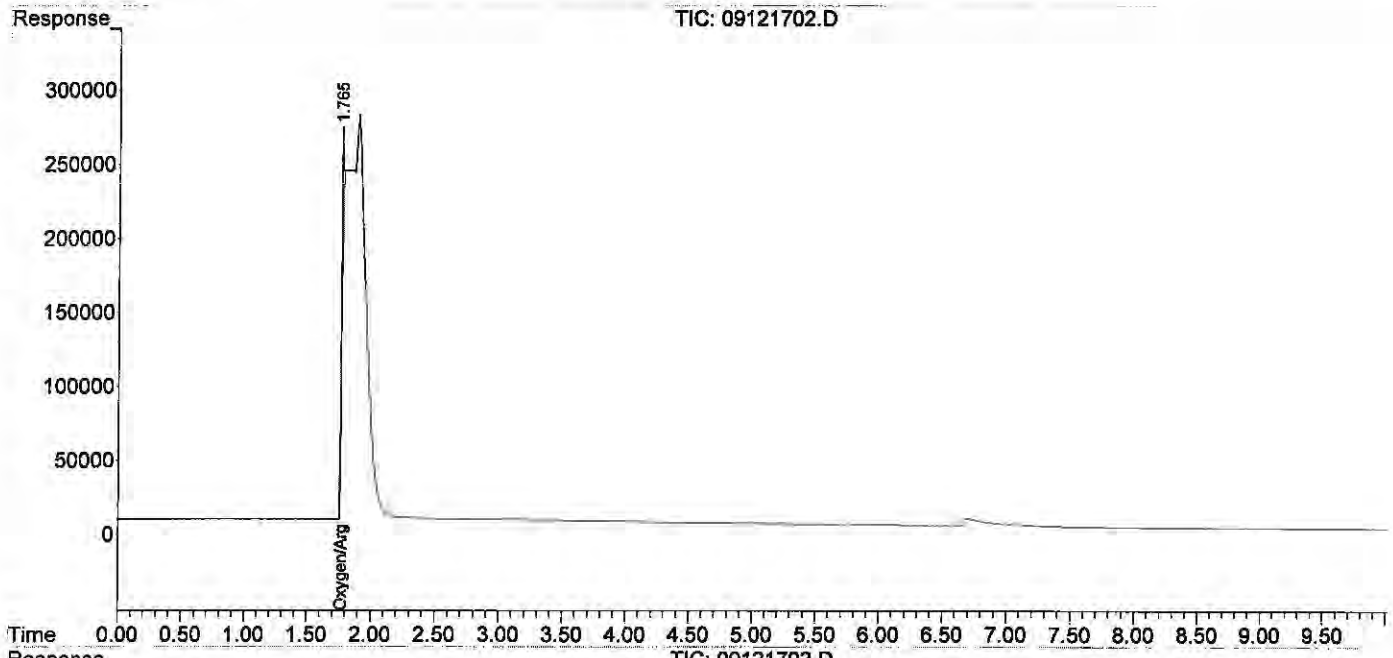
(f)=RT Delta > 1/2 Window (m)=manual int.

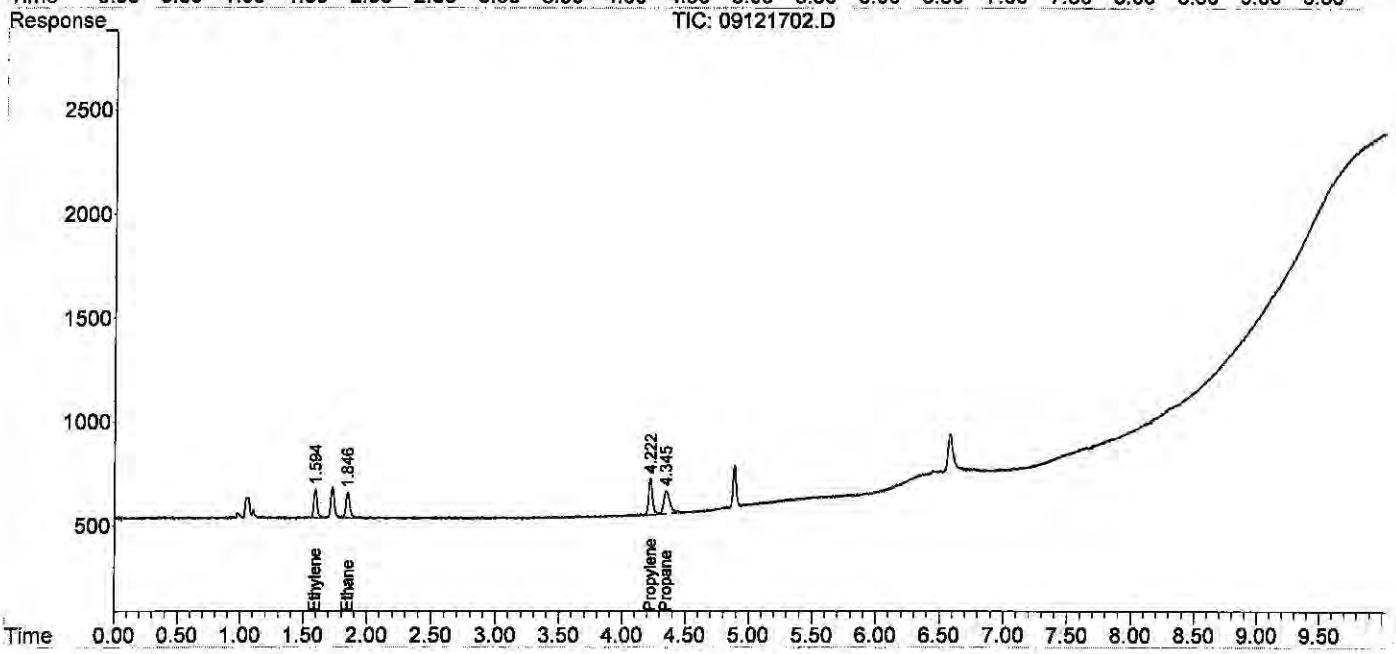
ME 9/13/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

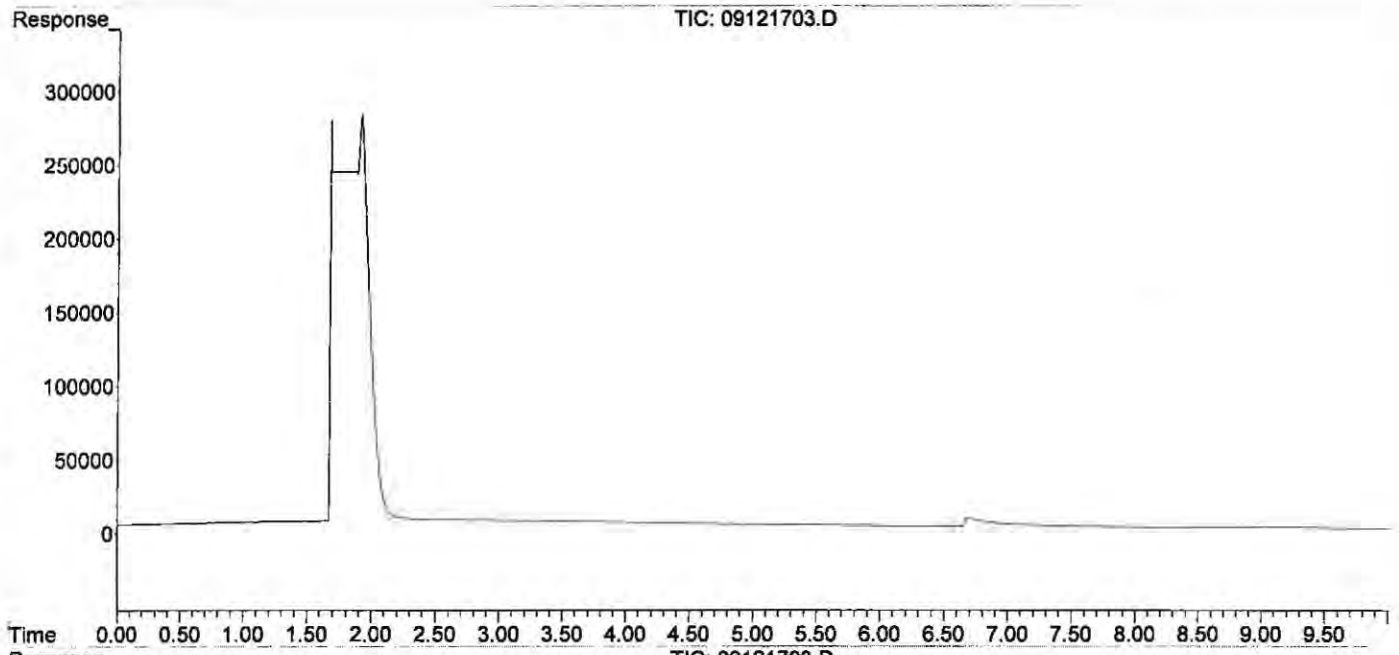
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

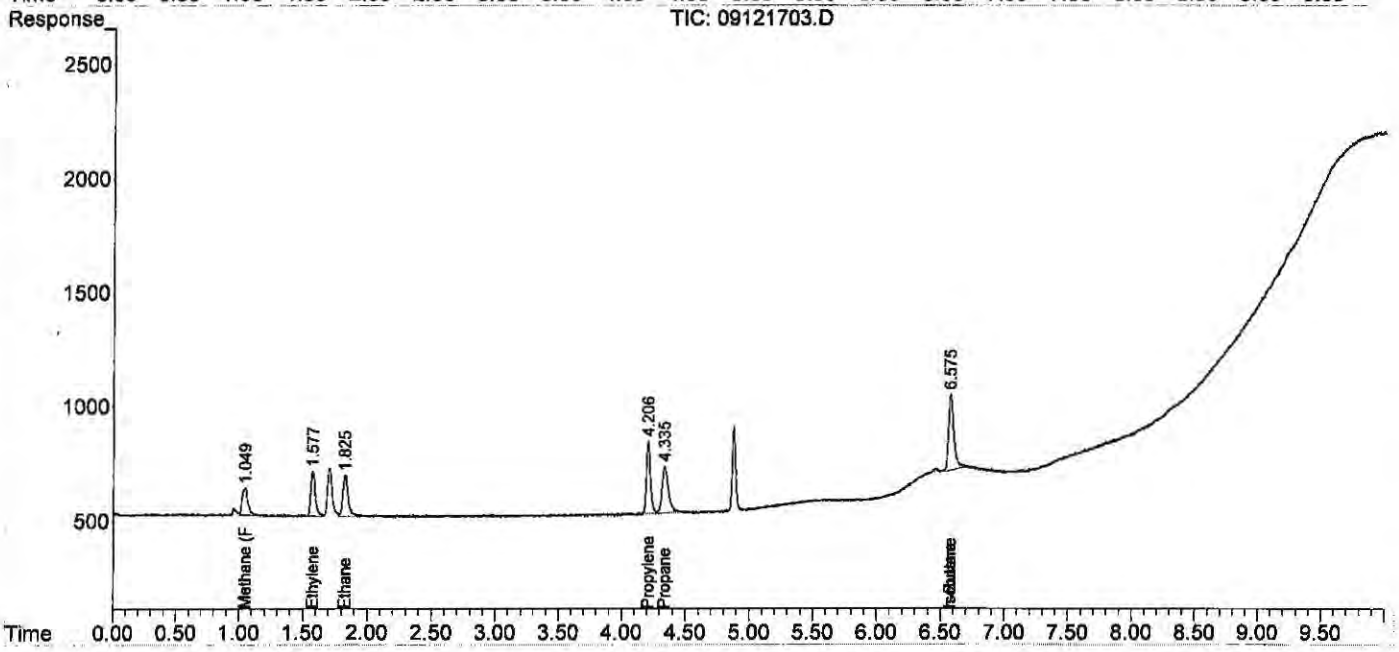
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



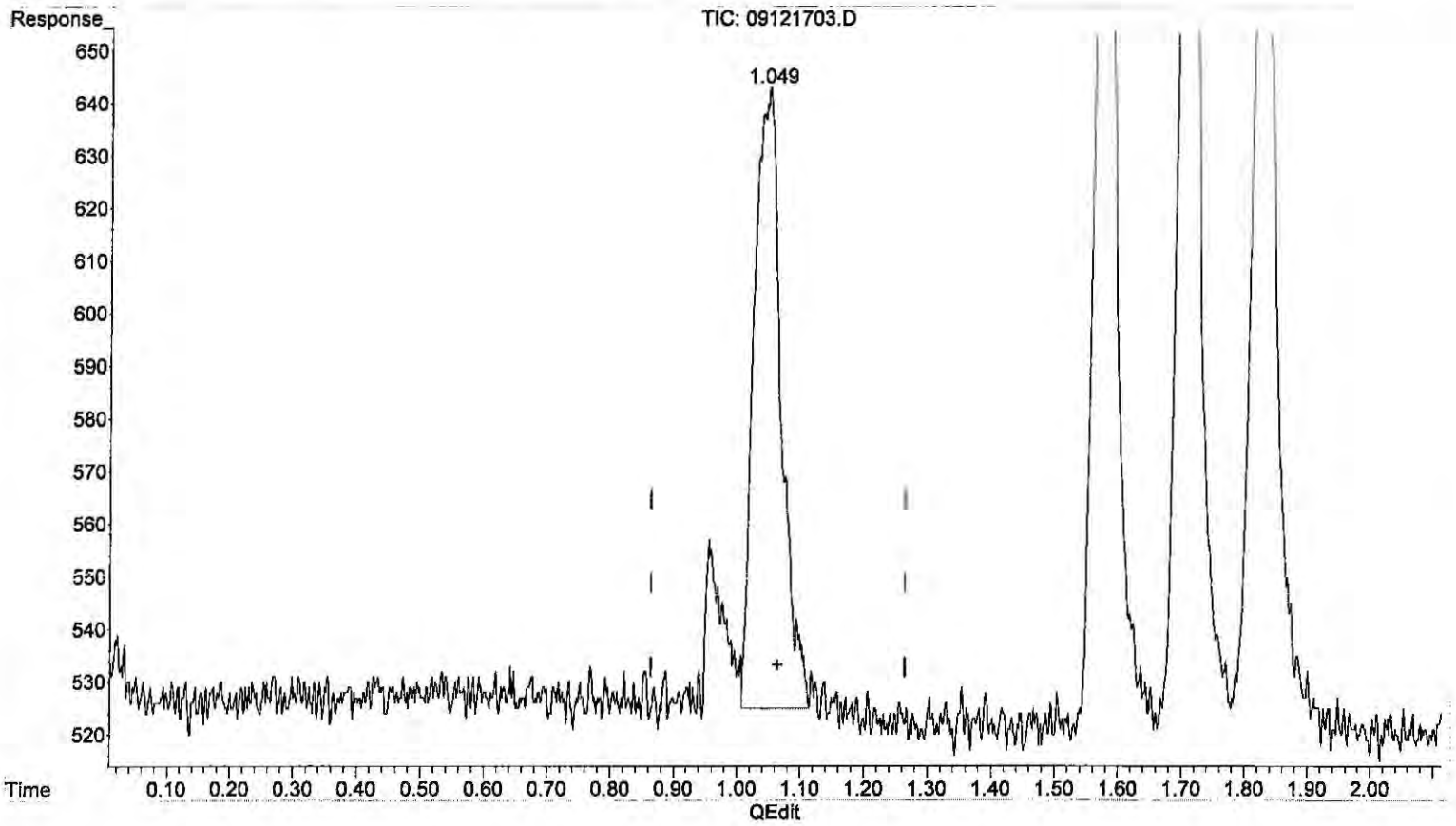


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

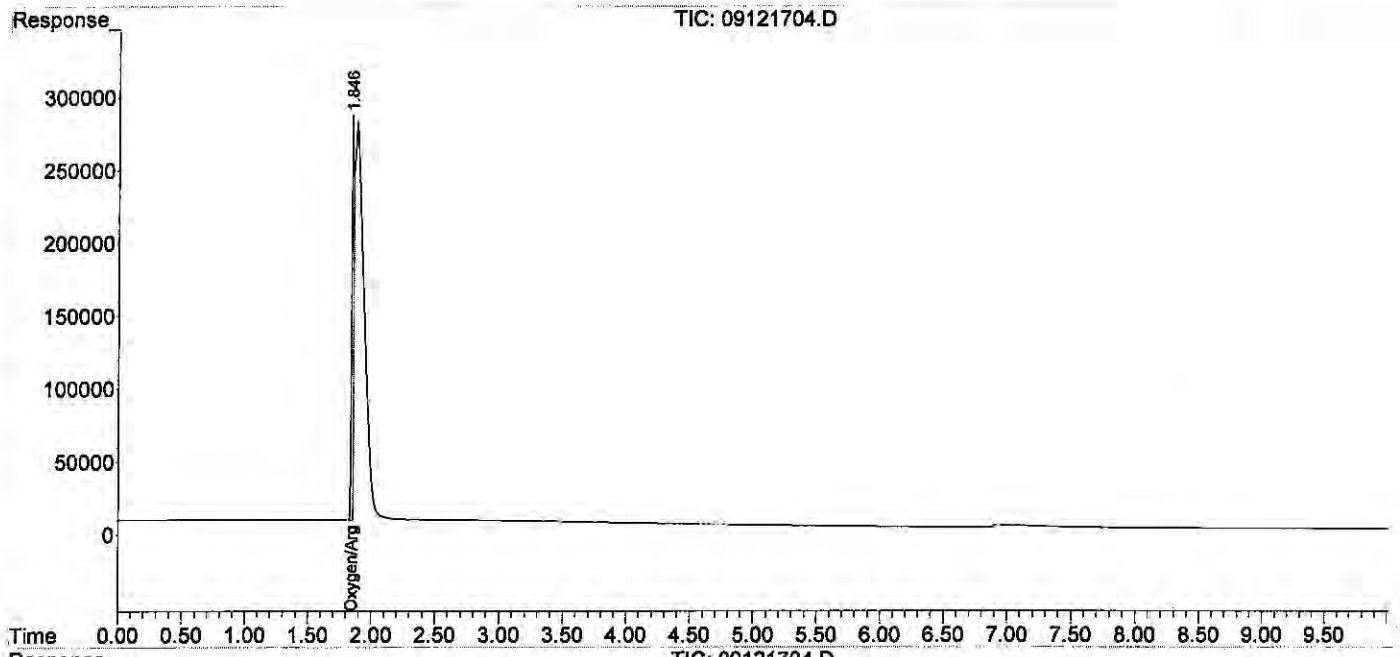
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

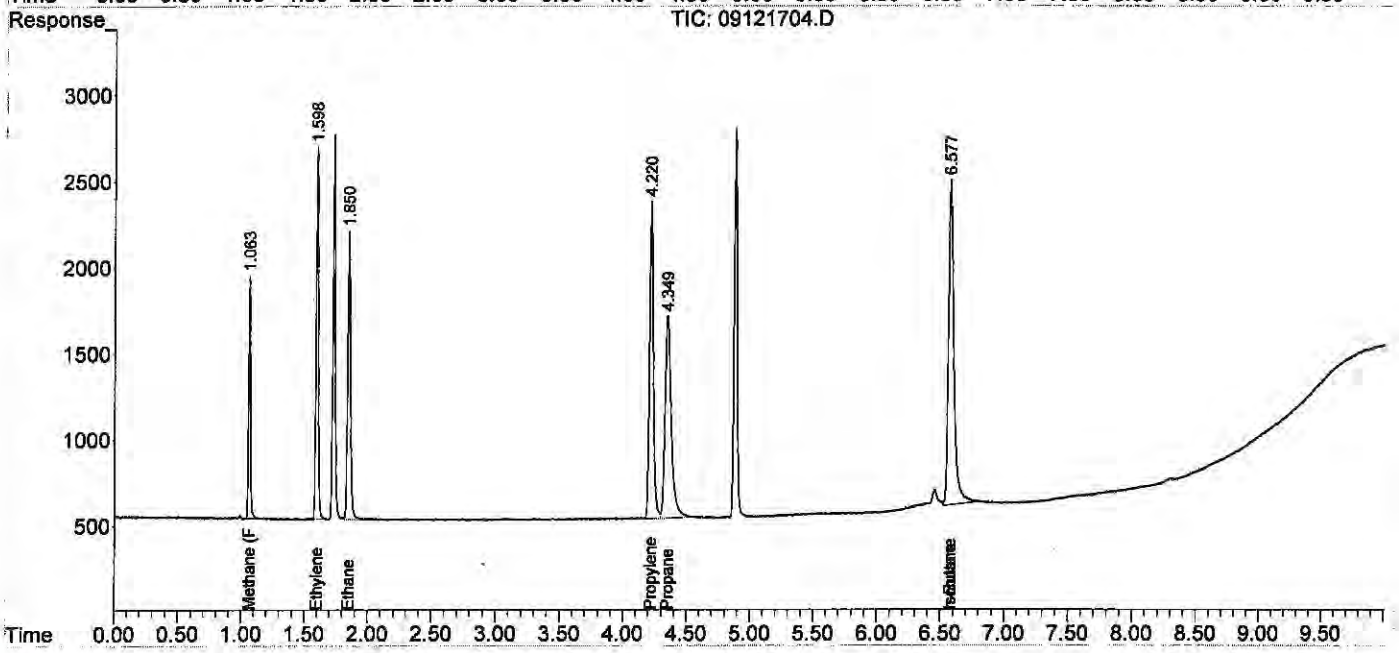
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

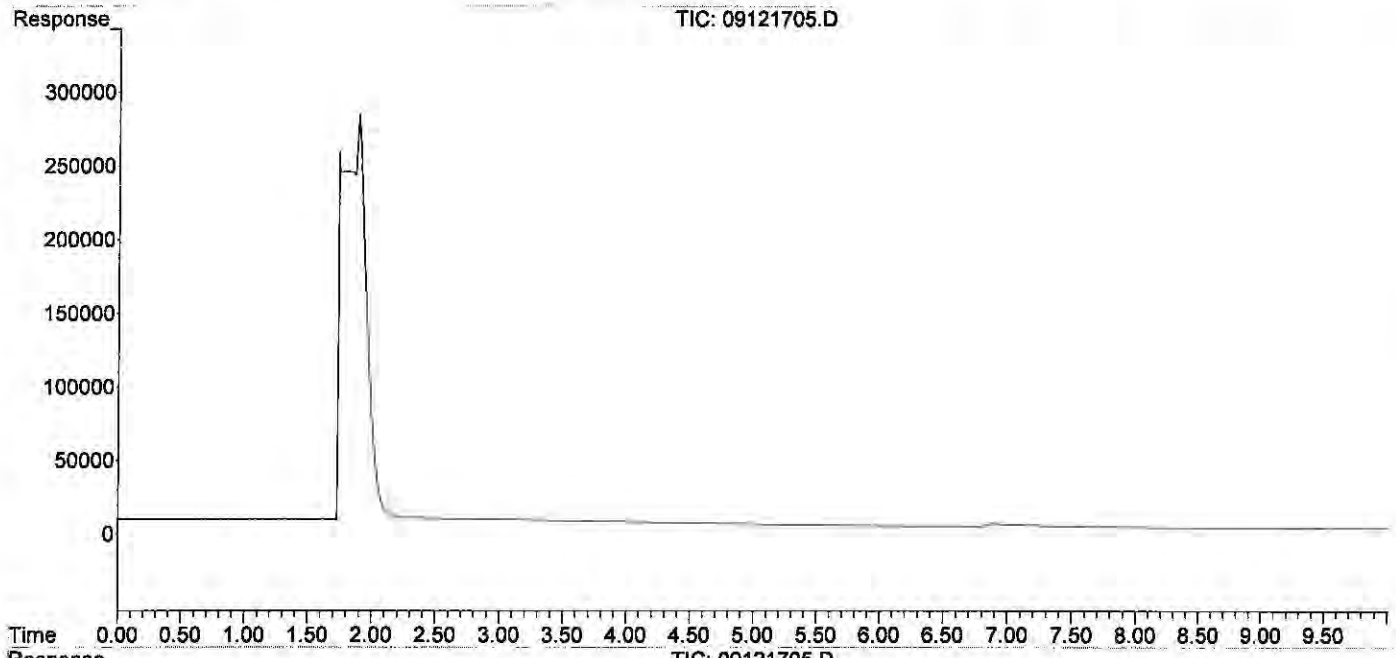
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

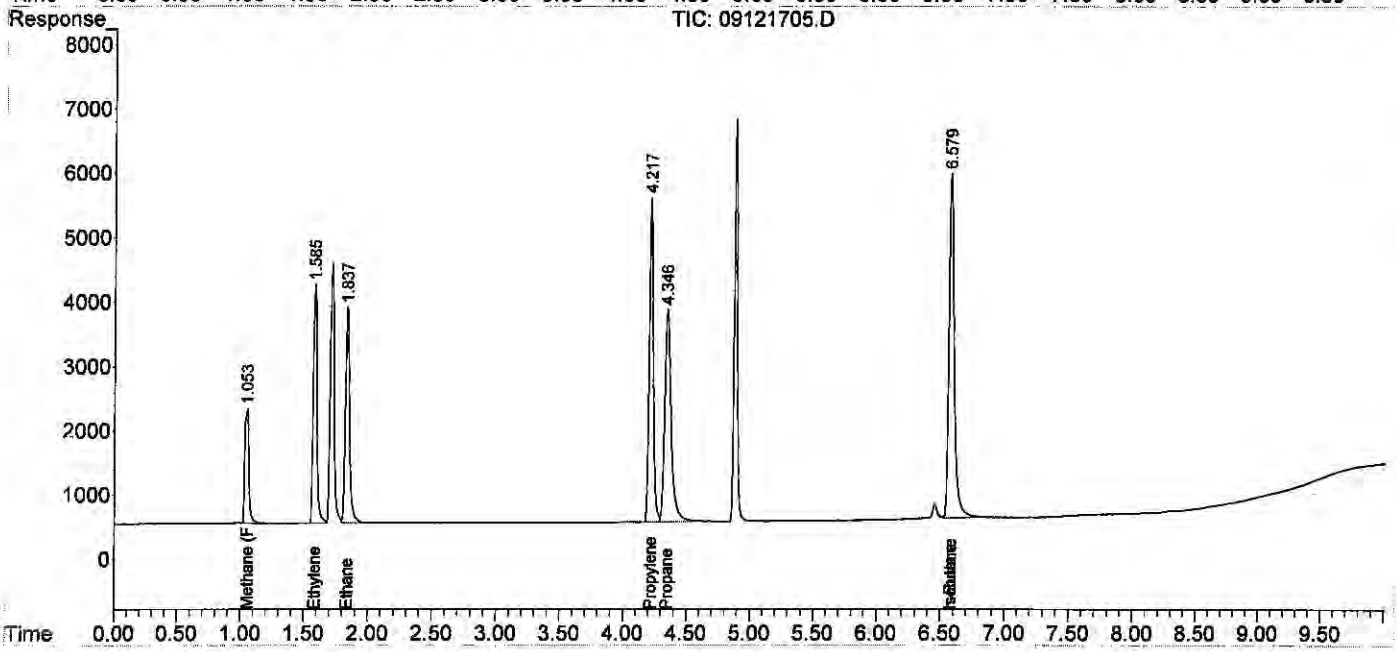
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

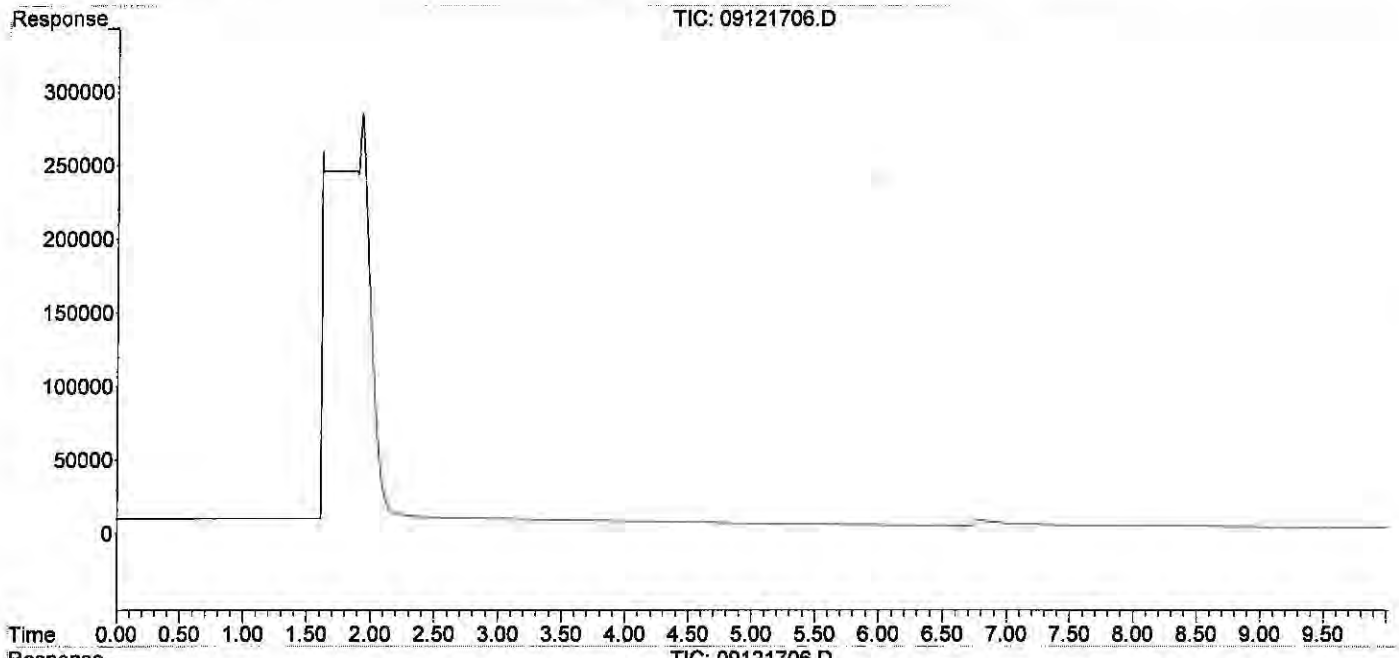
	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

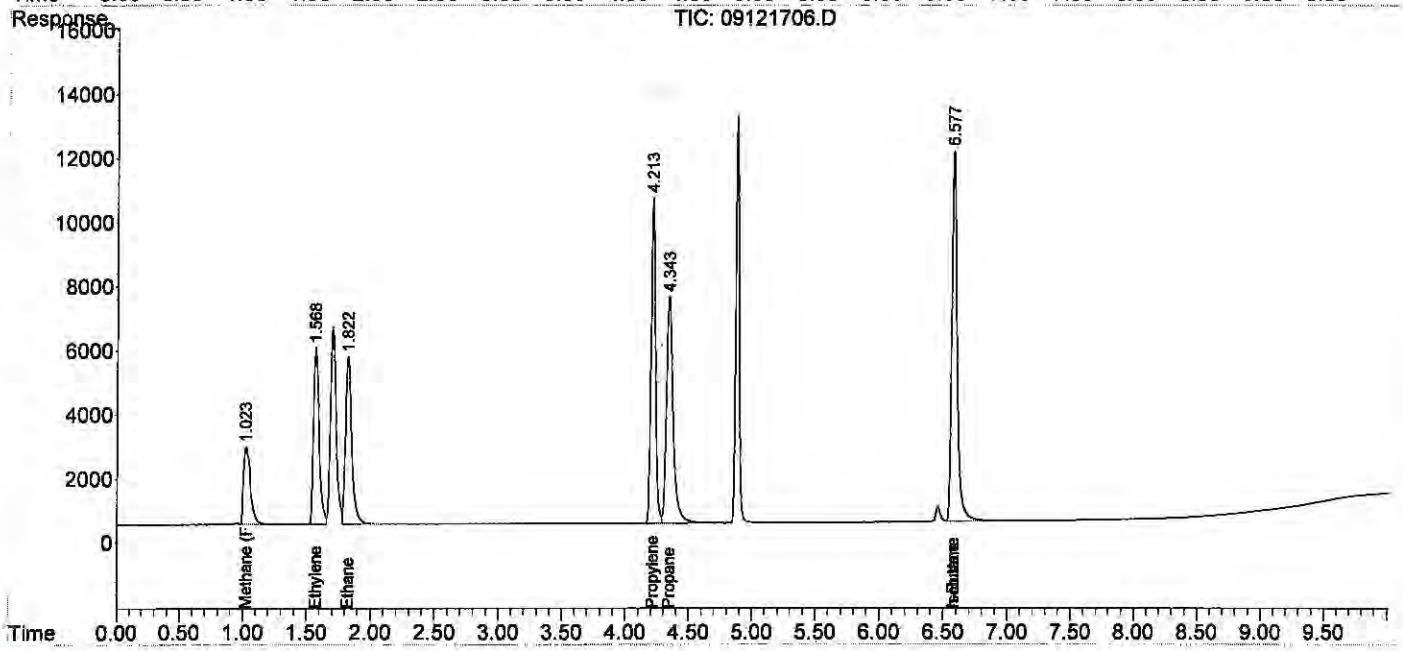
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

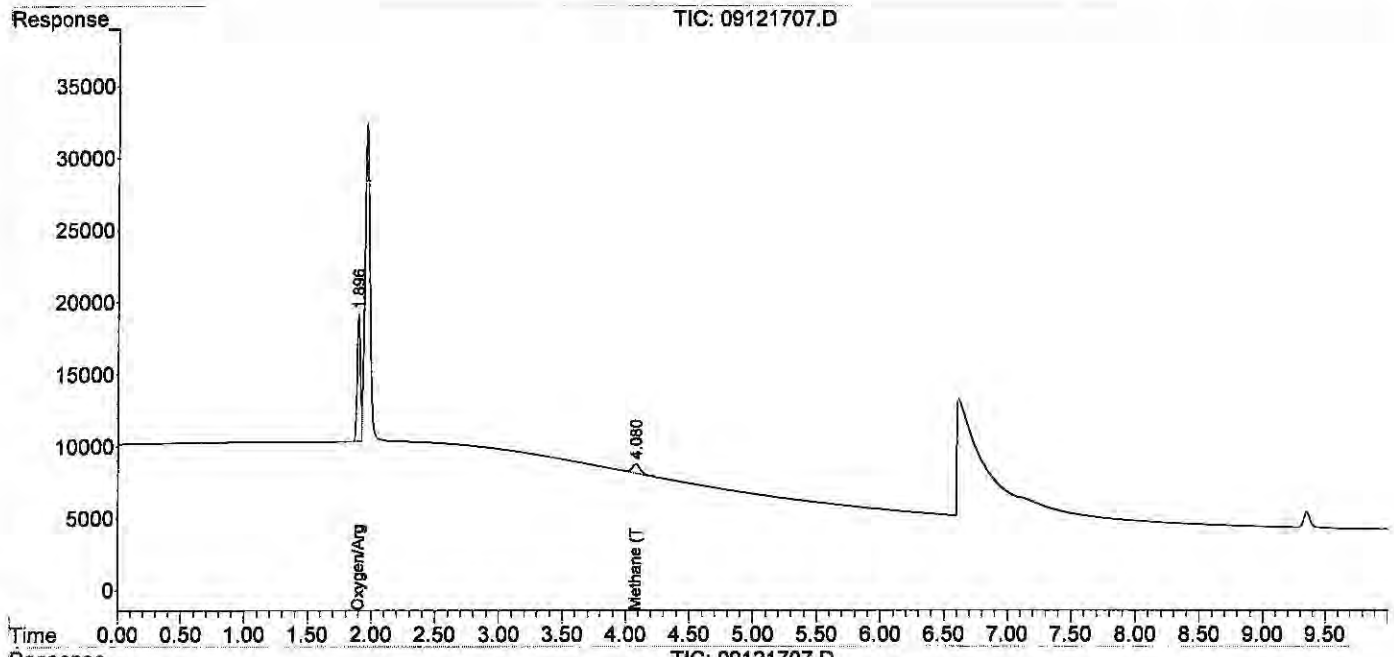
(f)=RT Delta > 1/2 Window (m)=manual int.

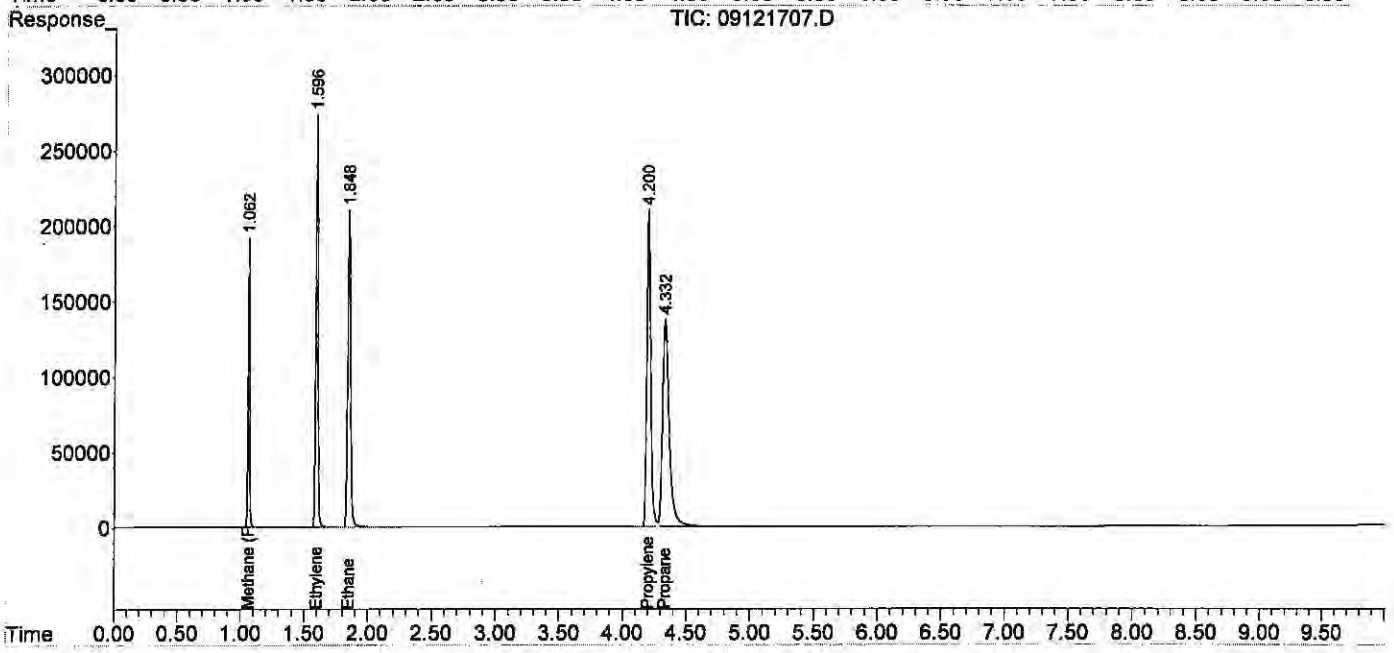
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

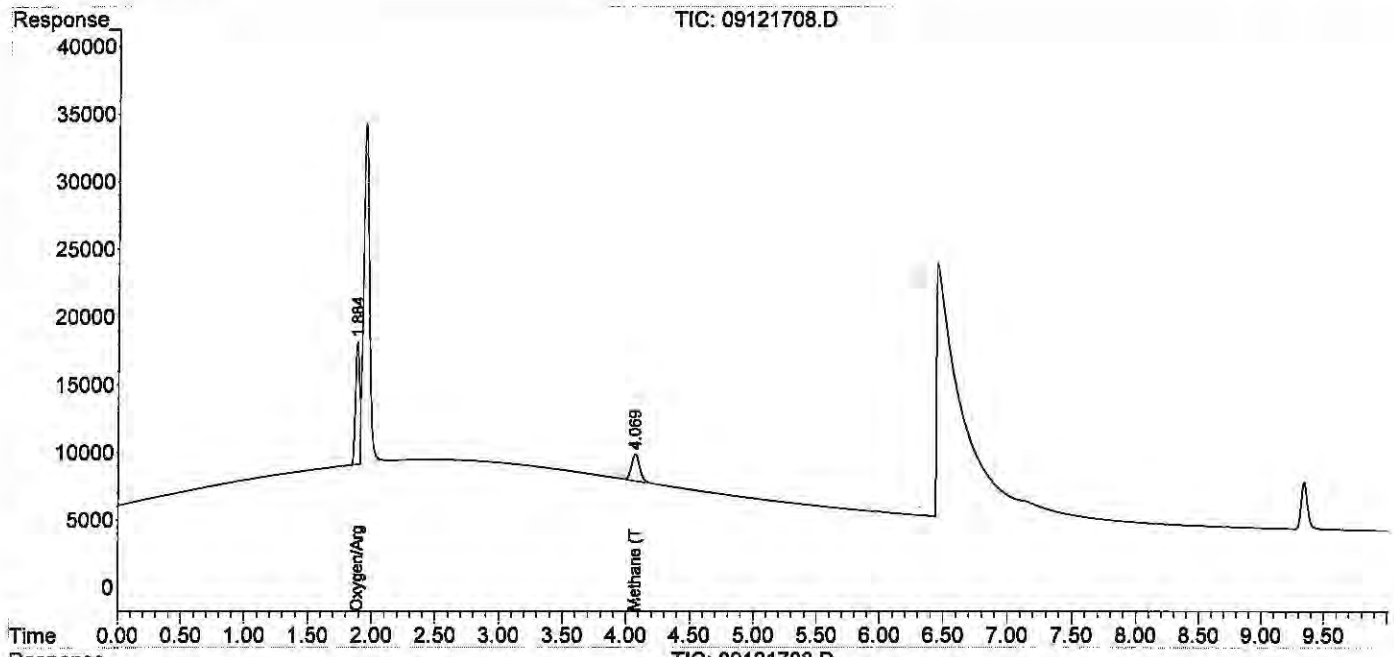
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

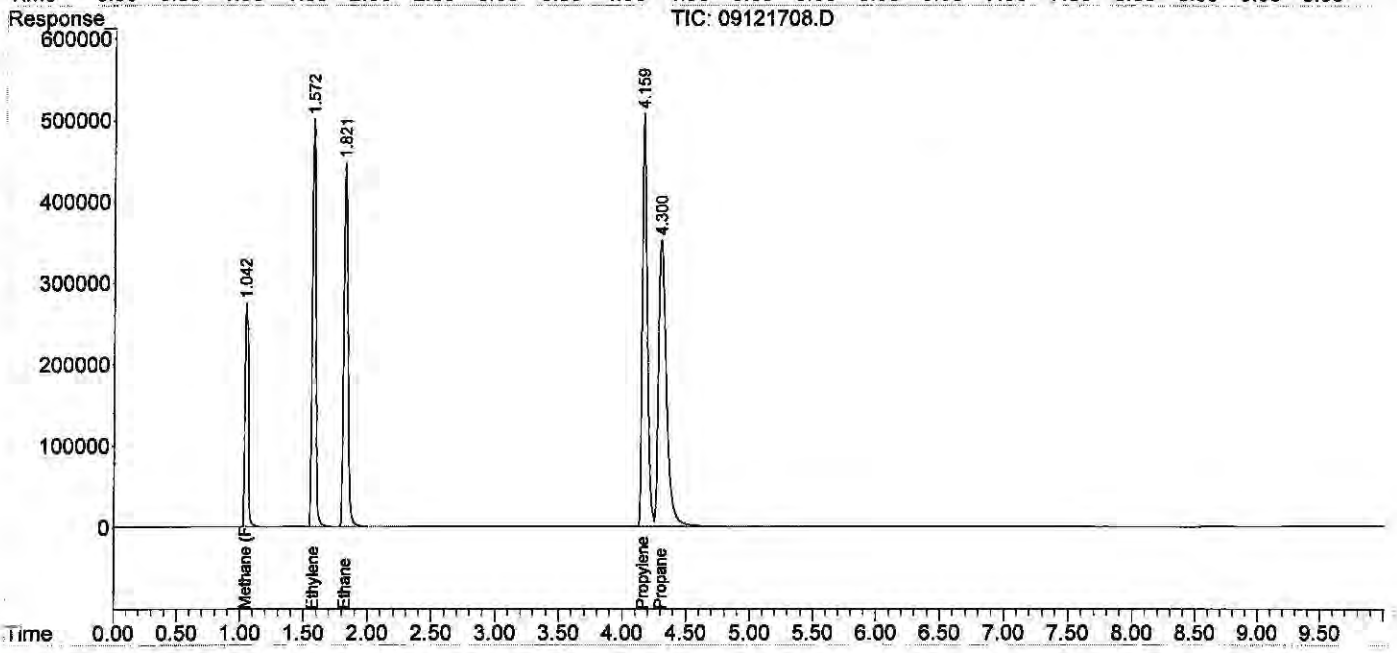
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

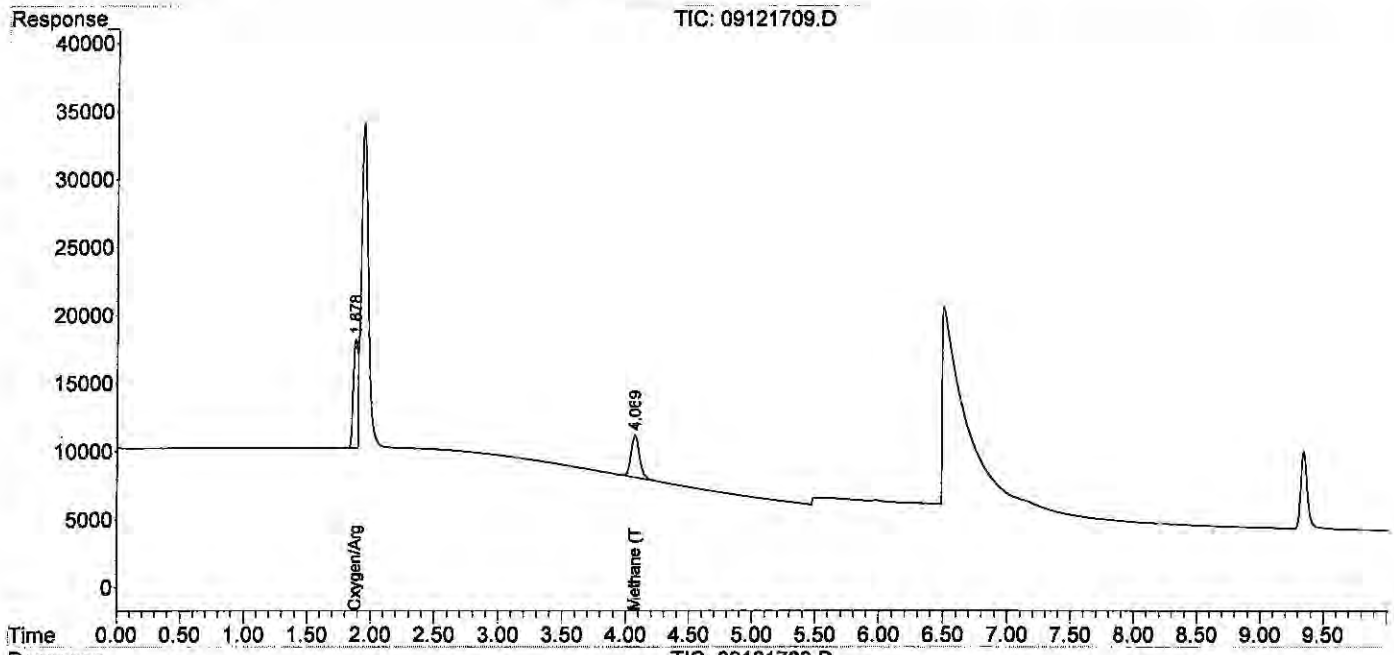
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

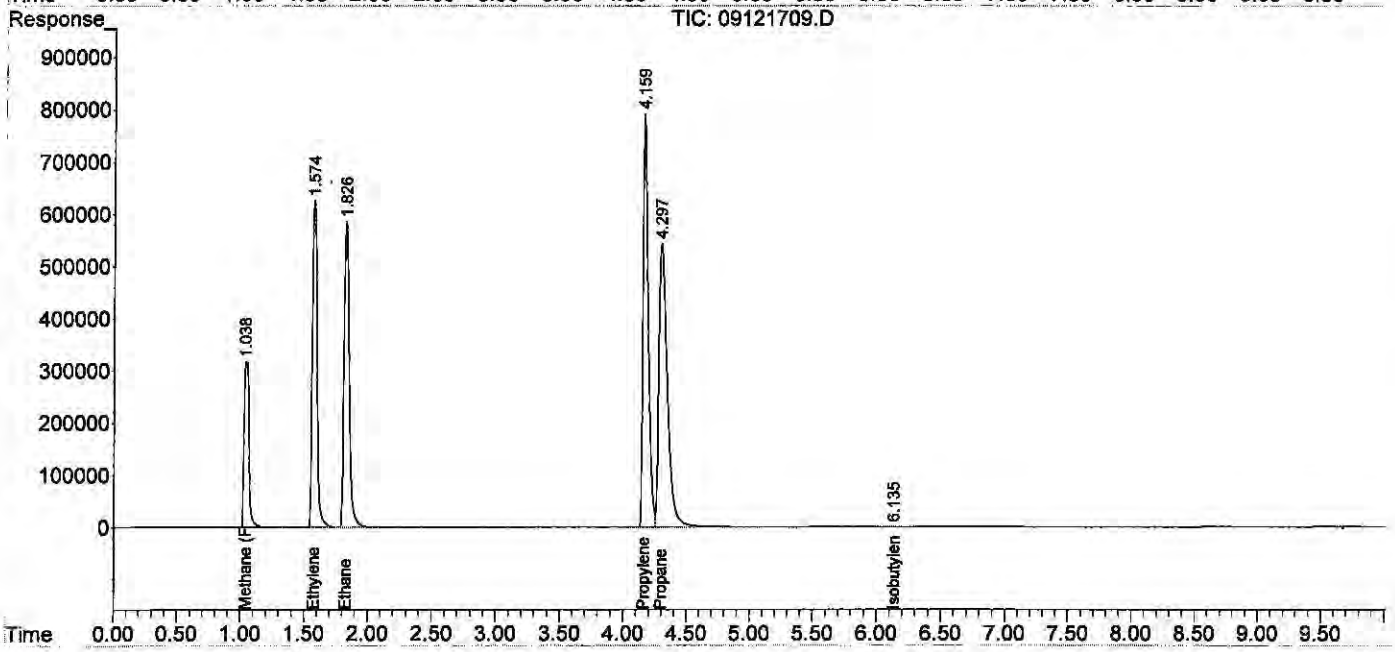
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

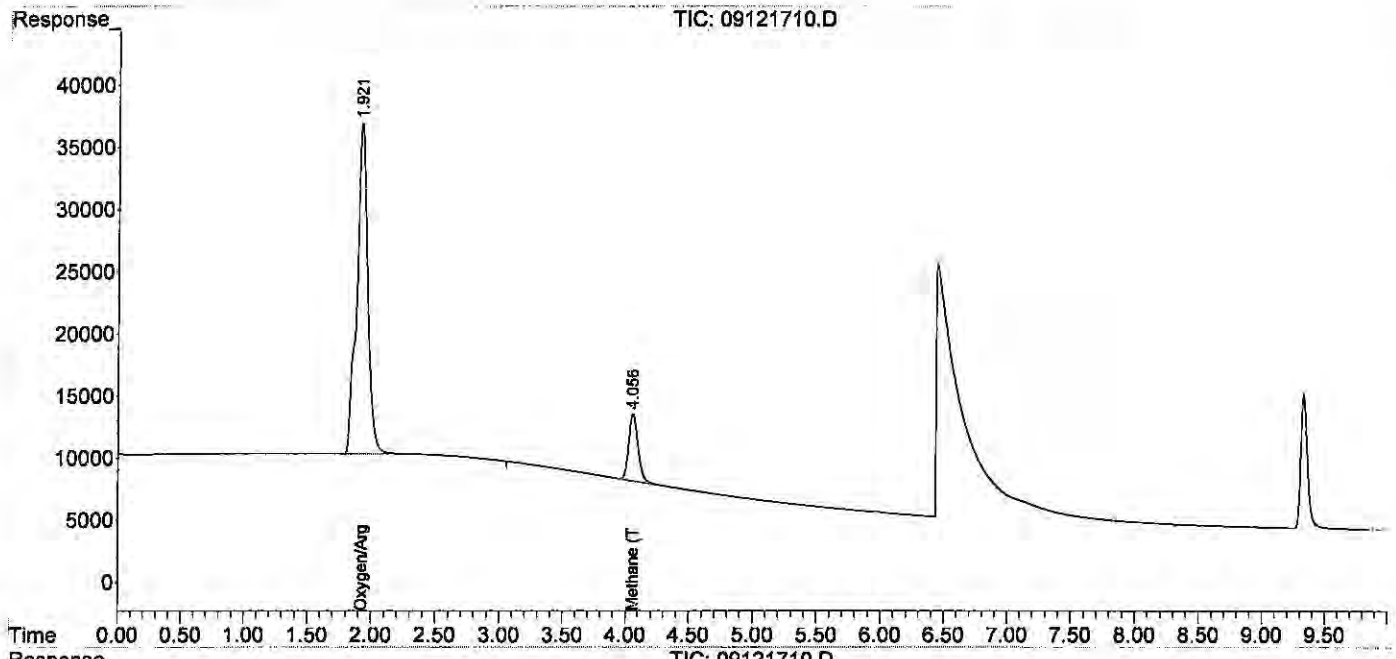
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

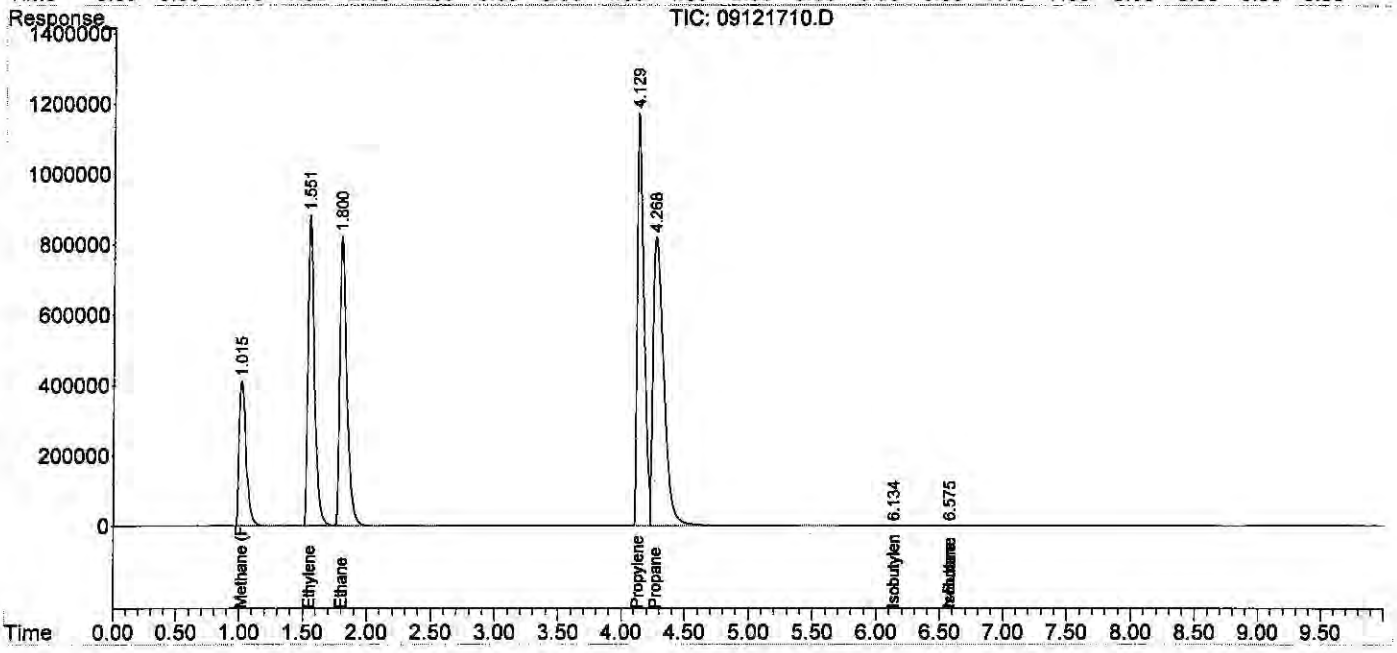
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



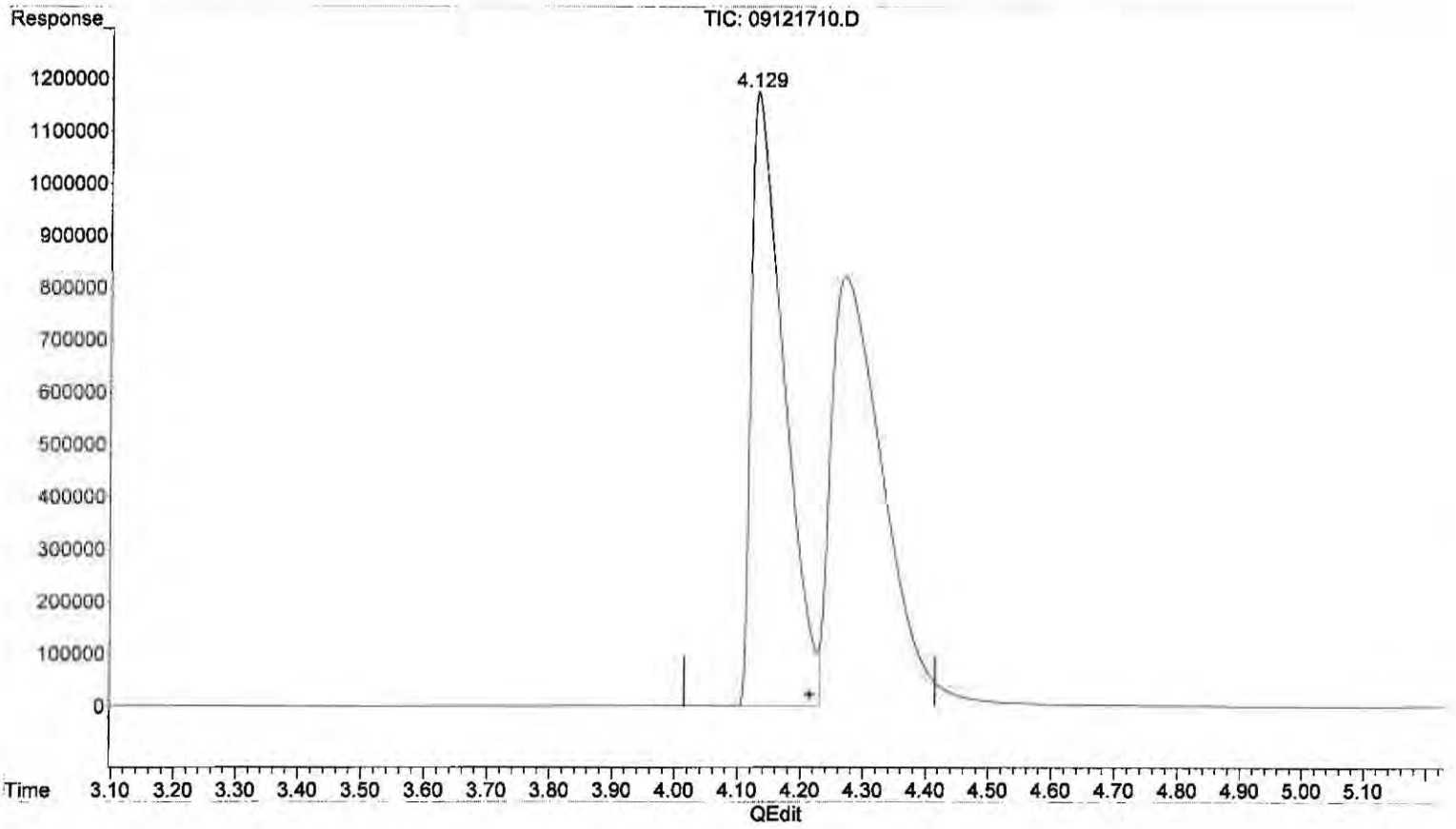


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(9) Propylene

4.129min 1775.341 ppm m

response 42124690

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

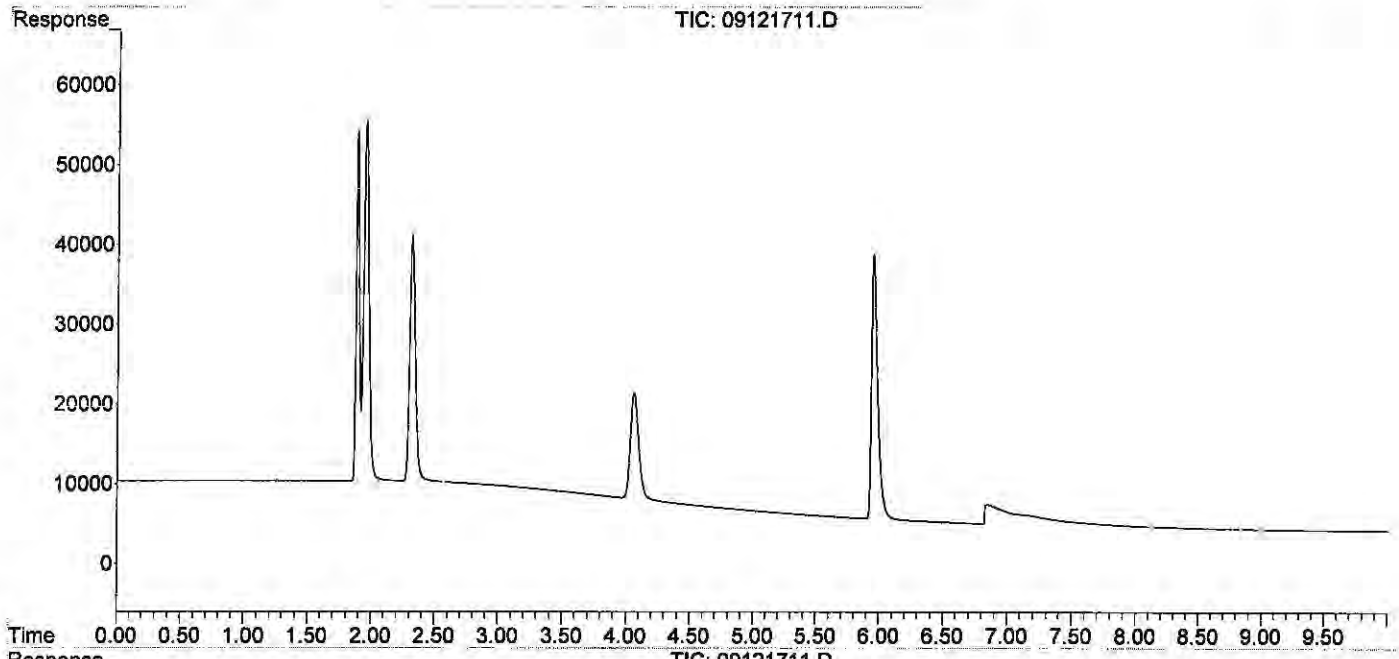
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

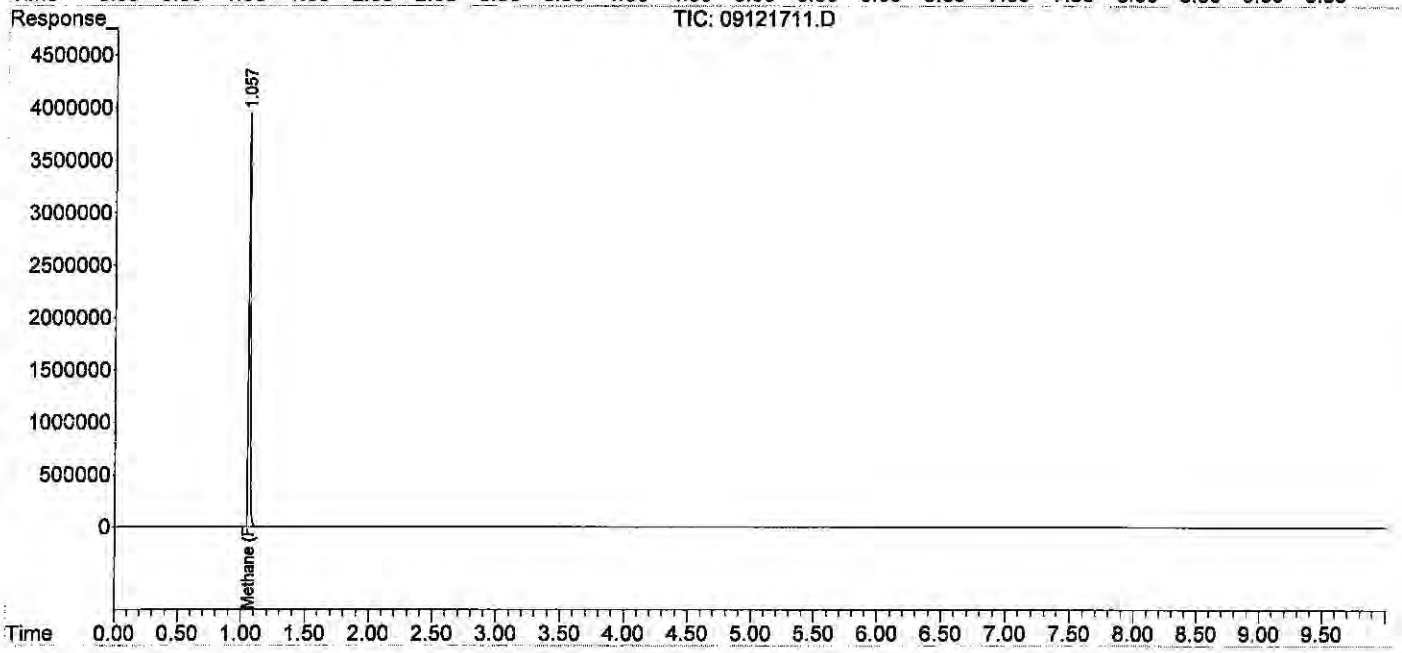
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

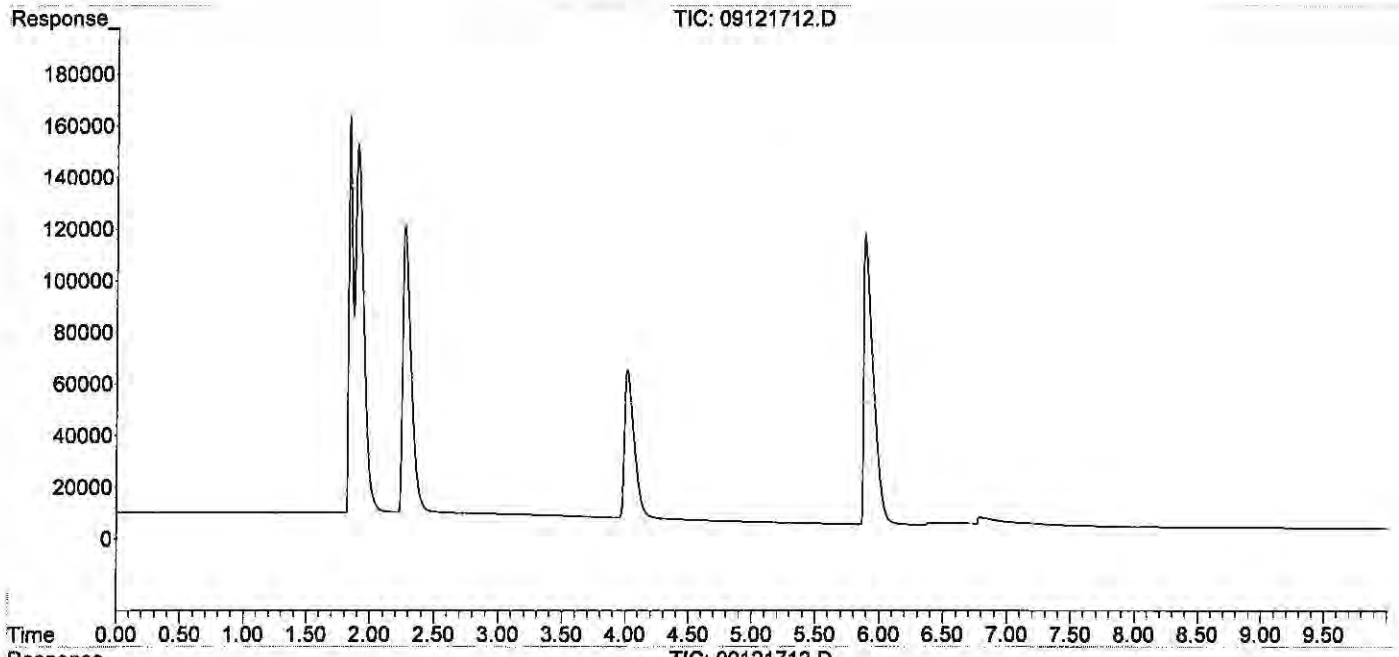
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

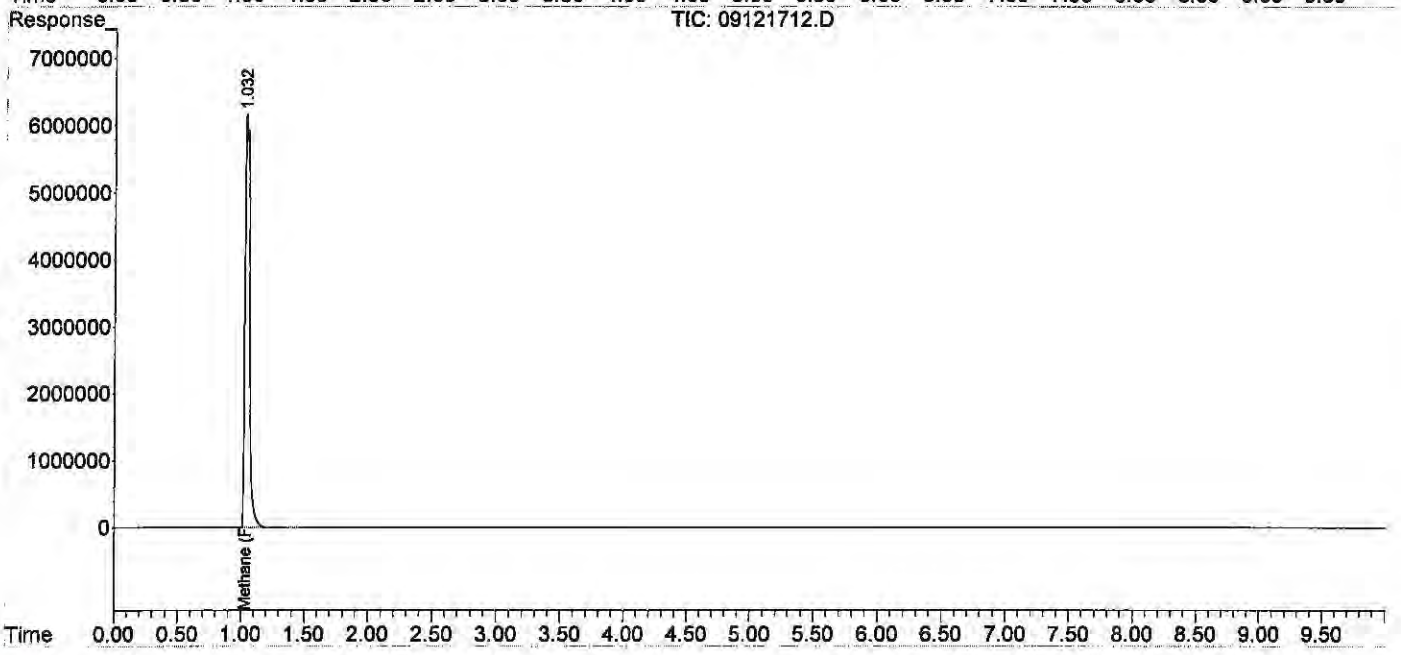
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	acked %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/14/2
13)	n-Butane	6.579f	48019	1.804	ppm	

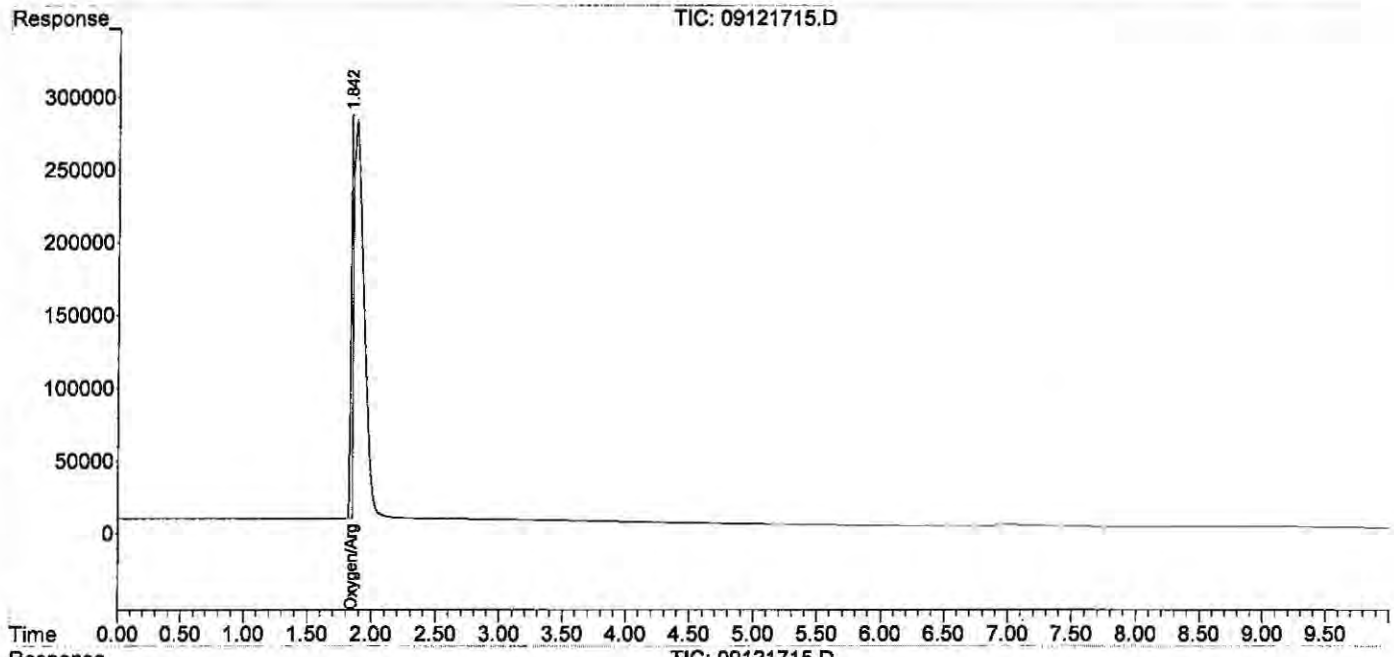
(f)=RT Delta > 1/2 Window (m)=manual int.

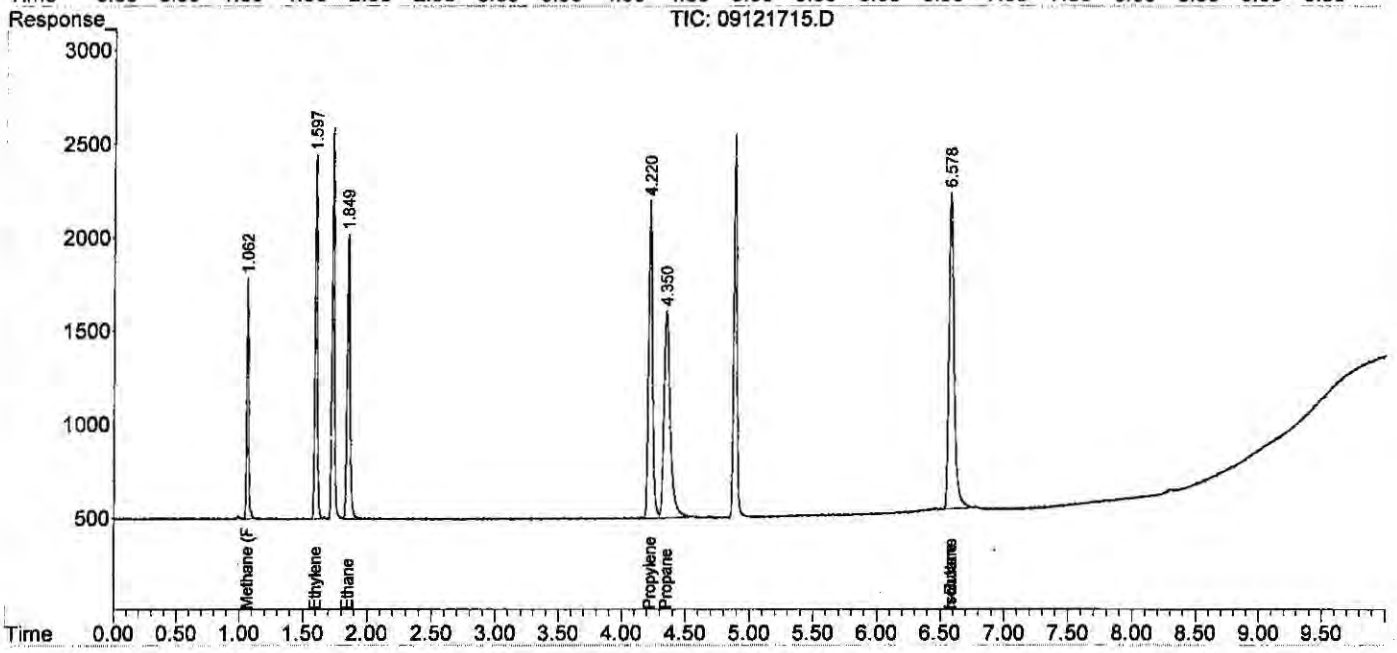
9/14/2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Dissolved Gases by RSK175

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1907202
Sample Vol. (ml) : 32.00 ml
Analyst : LD
Date Analysis : 12/02/19
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
STD S32-05221901	0.100	101.646	108.086	107.225
ACTUAL		101.50	100.90	101.40
%Difference		0.1%	7.1%	5.7%
MCS 0.1ml	0.100	0.000	0.000	0.000
RB 0.1ml	0.100	0.000	0.000	0.000
LCS FID 0.1ml	0.100	1.367	0.998	1.177
LCSD FID 0.1ml	0.100	1.329	0.939	1.119
P1907202-001 0.1ml	0.100	0.250	0.000	0.000
P1907202-002 0.1ml	0.100	0.230	0.000	0.000
P1907202-003 0.1ml	0.100	0.000	0.000	0.000
P1907202-004 0.1ml	0.100	0.000	0.000	0.000

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
MCS 0.1ml	0.000	0.000	0.000
LCS FID 0.1ml	13.670	9.980	11.770
LCSD FID 0.1ml	13.290	9.390	11.190
P1907202-001 0.1ml	2.500	0.000	0.000
P1907202-002 0.1ml	2.300	0.000	0.000
P1907202-003 0.1ml	0.000	0.000	0.000
P1907202-004 0.1ml	0.000	0.000	0.000

LD
12/02

STD S32-05221901	95.598	102.196	101.612
ACTUAL	101.50	100.90	101.40
%Difference	5.8%	1.3%	0.2%

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 08:47:07
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 08:58:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
12/02

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

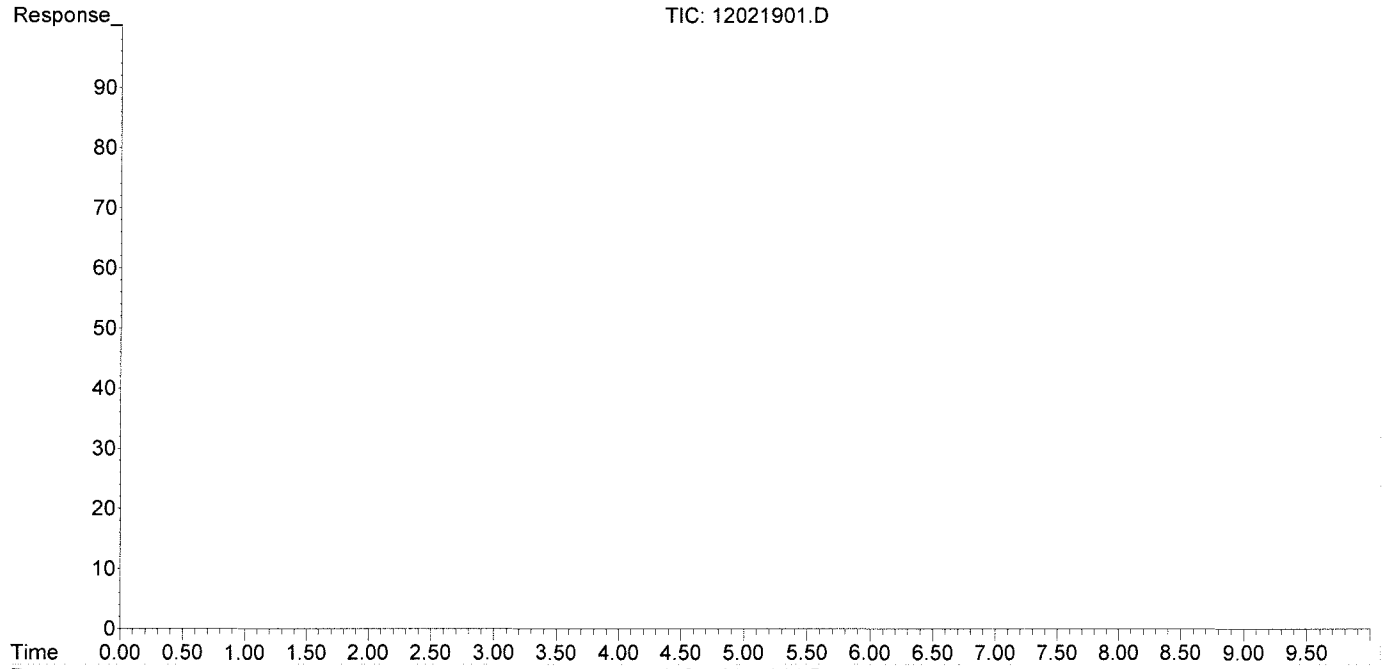
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.107	921997	101.646	ppm
7)	Ethylene	1.682	1808753	108.086	ppm
8)	Ethane	1.949	1817479	107.225	ppm
9)	Propylene	4.332	2664020	113.694	ppm
10)	Propane	4.455	2729543	109.707	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

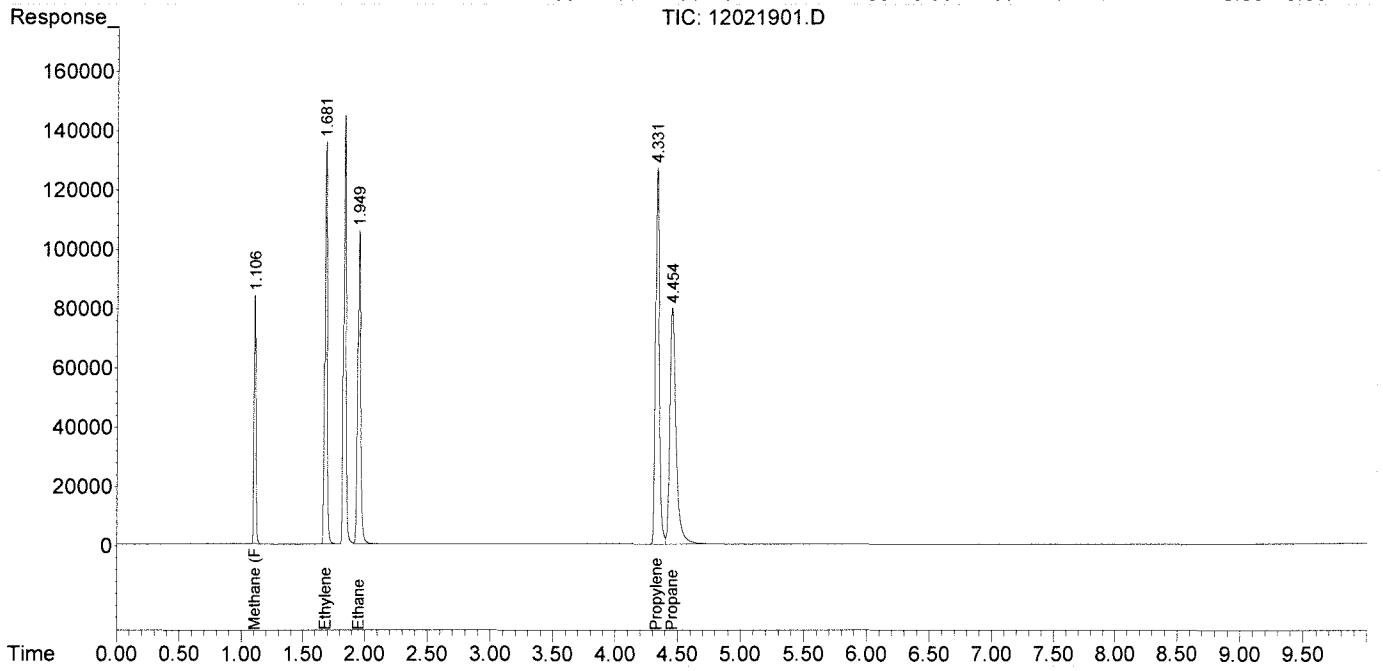
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 08:47:07
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 08:58:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 13:12:31
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 13:21:50 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

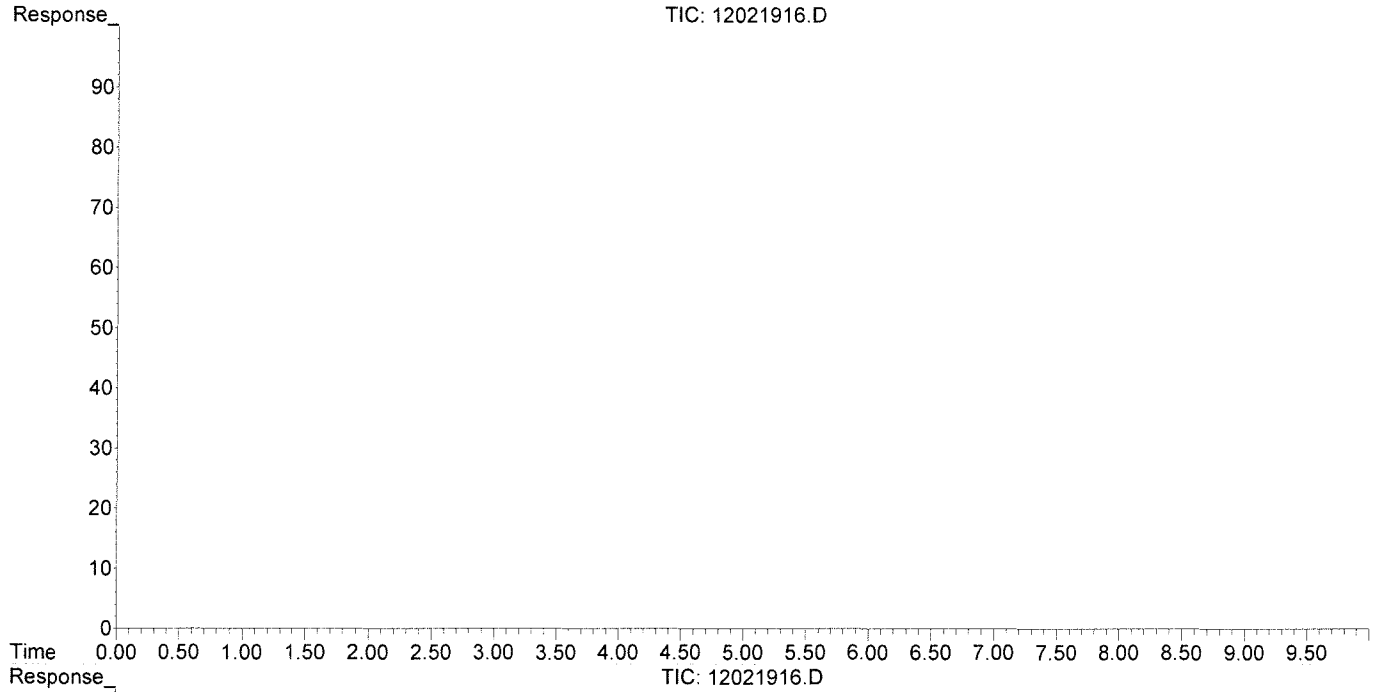
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.114	867135	95.598	ppm
7)	Ethylene	1.683	1710180	102.196	ppm
8)	Ethane	1.949	1722334	101.612	ppm
9)	Propylene	4.332	2524951	107.759	ppm
10)	Propane	4.455	2596281	104.351	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

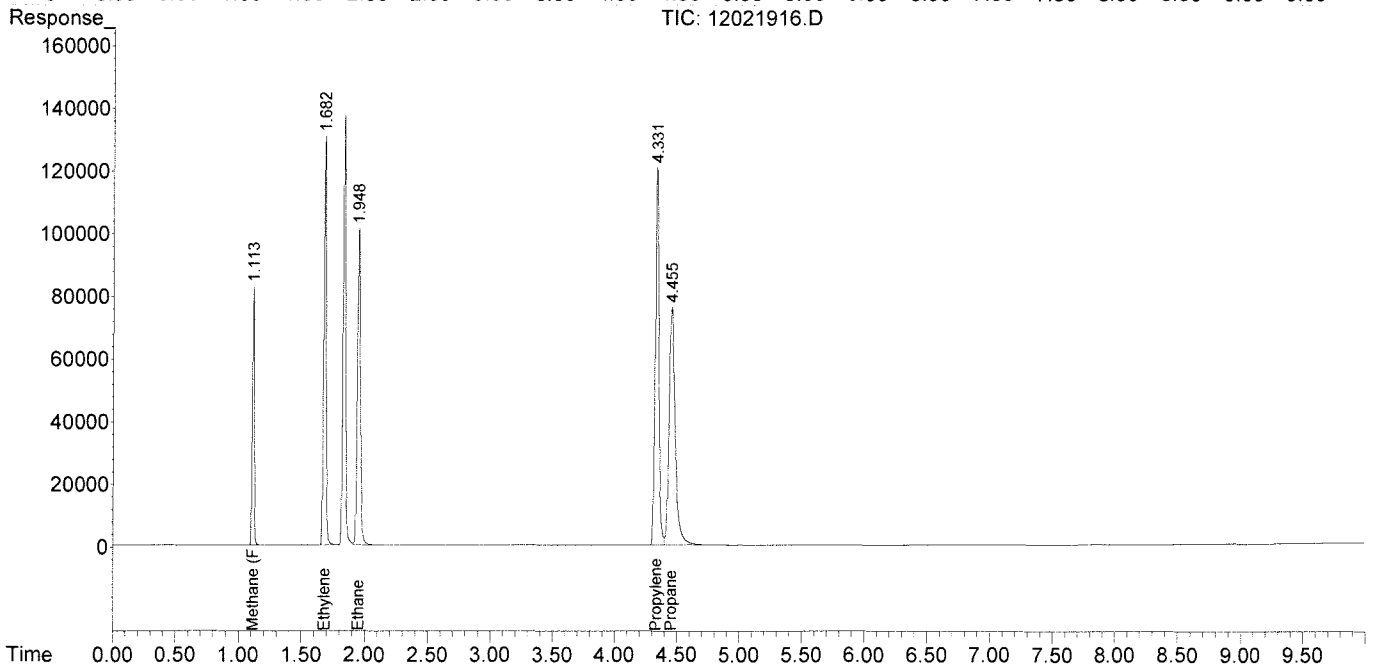
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\02\
Data File : 12021916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 02-Dec-2019, 13:12:31
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 02 13:21:50 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2019_12\02\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	02-Dec-19, 08:47:07	12021901.D	STD S32-05221901		LD	RSKBOTH.M	pass
2	02-Dec-19, 09:12:30	12021902.D	RB 0.1ml		LD	RSKBOTH.M	pass
3	02-Dec-19, 09:41:59	12021903.D	MCS 0.1ml		LD	RSKBOTH.M	pass
4	02-Dec-19, 10:00:43	12021904.D	LCS FID 0.1ml		LD	RSKBOTH.M	pass
5	02-Dec-19, 10:18:13	12021905.D	LCSD FID 0.1ml		LD	RSKBOTH.M	pass
6	02-Dec-19, 10:31:15	12021906.D	P1907202-001 0.1ml		LD	RSKBOTH.M	
7	02-Dec-19, 10:44:22	12021907.D	P1907202-002 0.1ml		LD	RSKBOTH.M	
8	02-Dec-19, 10:57:09	12021908.D	P1907202-003 0.1ml		LD	RSKBOTH.M	
9	02-Dec-19, 11:10:11	12021909.D	P1907202-004 0.1ml		LD	RSKBOTH.M	
10	02-Dec-19, 11:25:10	12021910.D	J1906995-009 0.1ml		LD	RSKBOTH.M	
11	02-Dec-19, 11:38:01	12021911.D	J1907002-006 0.1ml		LD	RSKBOTH.M	
12	02-Dec-19, 11:50:53	12021912.D	J1907002-007 0.1ml		LD	RSKBOTH.M	
13	02-Dec-19, 12:32:53	12021913.D	J1907002-011 0.1ml		LD	RSKBOTH.M	
14	02-Dec-19, 12:45:41	12021914.D	K1911034-001 0.1ml		LD	RSKBOTH.M	
15	02-Dec-19, 12:59:39	12021915.D	K1911034-002 0.1ml		LD	RSKBOTH.M	
16	02-Dec-19, 13:12:31	12021916.D	STD S32-05221901		LD	RSKBOTH.M	pass
17	02-Dec-19, 13:25:50	12021917.D	K1911034-003 0.1ml		LD	RSKBOTH.M	
18	02-Dec-19, 13:43:06	12021918.D	K1911034-004 0.1ml		LD	RSKBOTH.M	
19	02-Dec-19, 13:56:42	12021919.D	K1911034-005 0.1ml		LD	RSKBOTH.M	
20	02-Dec-19, 14:09:38	12021920.D	K1911034-006 0.1ml		LD	RSKBOTH.M	
21	02-Dec-19, 14:22:26	12021921.D	K1911034-007 0.1ml		LD	RSKBOTH.M	
22	02-Dec-19, 14:35:23	12021922.D	K1911034-008 0.1ml		LD	RSKBOTH.M	
23	02-Dec-19, 14:48:17	12021923.D	K1911034-009 0.1ml		LD	RSKBOTH.M	
24	02-Dec-19, 15:01:09	12021924.D	K1911034-010 0.1ml		LD	RSKBOTH.M	
25	02-Dec-19, 15:13:56	12021925.D	STD S32-05221901		LD	RSKBOTH.M	pass

HS19111153 8260 Raw Data

ALS WO# HS19111153

MSVOA06 -Logbook

Batch: 38366 **Analyst:** Presenta Cabascango

Date: 11-18-2019 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	11-18-2019 01:23 pm	1.00	50 mL	50 mL	X111801.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	11-18-2019 01:47 pm	1.00	50 mL	50 mL	X111802.D	Liquid	Y	NA
	0.10 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	11-18-2019 02:35 pm	1.00	50 mL	50 mL	X111803.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	11-18-2019 02:59 pm	1.00	50 mL	50 mL	X111804.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	11-18-2019 03:23 pm	1.00	50 mL	50 mL	X111805.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	11-18-2019 03:47 pm	1.00	50 mL	50 mL	X111806.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	11-18-2019 04:11 pm	1.00	50 mL	50 mL	X111807.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	11-18-2019 04:35 pm	1.00	50 mL	50 mL	X111808.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	11-18-2019 04:59 pm	1.00	50 mL	50 mL	X111809.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	11-18-2019 05:22 pm	1.00	50 mL	50 mL	X111810.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	11-18-2019 05:46 pm	1.00	50 mL	50 mL	X111811.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	11-18-2019 06:10 pm	1.00	50 mL	50 mL	X111812.D	Liquid	Y	NA
13	BLANK	SAMP	11-18-2019 06:34 pm	1.00	50 mL	50 mL	X111813.D	Liquid	Y	NA
14	CCV	ICCV	11-18-2019 06:58 pm	1.00	50 mL	50 mL	X111814.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
15	BLANK	SAMP	11-18-2019 07:22 pm	1.00	50 mL	50 mL	X111815.D	Liquid	Y	NA
16	BFB	TUNE	11-18-2019 07:47 pm	1.00	50 mL	50 mL	Y111801.D	Liquid	Y	NA
	Auto find/ purged									
17	CCV	CCV	11-18-2019 08:10 pm	1.00	50 mL	50 mL	Y111802a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI/ not used									
18	CCV	CCV	11-18-2019 08:34 pm	1.00	50 mL	50 mL	Y111803.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
19	CCB	SAMP	11-18-2019 08:58 pm	1.00	50 mL	50 mL	Y111804.D	Liquid	Y	NA
20	VLCSW-191118	LCS	11-18-2019 09:22 pm	1.00	50 mL	50 mL	Y111805.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
21	BLK	SAMP	11-18-2019 09:46 pm	1.00	50 mL	50 mL	Y111806.D	Liquid	Y	NA
22	VBLKW-191118	MBLK	11-18-2019 10:10 pm	1.00	50 mL	50 mL	Y111807.D	Liquid	Y	NA
23	HS19110861-01	SAMP	11-18-2019 10:34 pm	1.00	50 mL	50 mL	Y111808.D	Liquid	Y	NA
24	HS19110861-02	SAMP	11-18-2019 10:59 pm	1.00	50 mL	50 mL	Y111809.D	Liquid	Y	NA
25	HS19110861-03	SAMP	11-18-2019 11:23 pm	1.00	50 mL	50 mL	Y111810.D	Liquid	Y	NA
26	HS19110861-04	SAMP	11-18-2019 11:47 pm	1.00	50 mL	50 mL	Y111811.D	Liquid	Y	NA
27	HS19110861-05	SAMP	11-19-2019 12:11 am	1.00	50 mL	50 mL	Y111812.D	Liquid	Y	NA
28	HS19110861-06	SAMP	11-19-2019 12:35 am	1.00	50 mL	50 mL	Y111813.D	Liquid	Y	NA
29	HS19110829-13	SAMP	11-19-2019 12:59 am	1.00	50 mL	50 mL	Y111814.D	Liquid	Y	NA
30	HS19110829-11	SAMP	11-19-2019 01:23 am	1.00	50 mL	50 mL	Y111815.D	Liquid	Y	NA
31	HS19110829-01	SAMP	11-19-2019 01:47 am	1.00	50 mL	50 mL	Y111816.D	Liquid	Y	NA
32	HS19110829-01MS	MS	11-19-2019 02:11 am	1.00	50 mL	50 mL	Y111817.D	Liquid	Y	NA
	3.50 uL cal std/40 mL samp									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
33	HS19110829-01MSD	MSD	11-19-2019 02:35 am	1.00	50 mL	50 mL	Y111818.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
34	HS19110829-02	SAMP	11-19-2019 02:59 am	1.00	50 mL	50 mL	Y111819.D	Liquid	Y	NA
35	HS19110829-03	SAMP	11-19-2019 03:23 am	1.00	50 mL	50 mL	Y111820.D	Liquid	Y	NA
36	HS19110829-04	SAMP	11-19-2019 03:47 am	1.00	50 mL	50 mL	Y111821.D	Liquid	Y	NA
37	HS19110829-05	SAMP	11-19-2019 04:11 am	1.00	50 mL	50 mL	Y111822.D	Liquid	Y	NA
38	HS19110829-06	SAMP	11-19-2019 04:35 am	1.00	50 mL	50 mL	Y111823.D	Liquid	Y	NA
39	HS19110829-07	SAMP	11-19-2019 04:59 am	1.00	50 mL	50 mL	Y111824.D	Liquid	Y	NA
40	HS19110829-08	SAMP	11-19-2019 05:23 am	1.00	50 mL	50 mL	Y111825.D	Liquid	Y	NA
41	HS19110829-09	SAMP	11-19-2019 05:47 am	1.00	50 mL	50 mL	Y111826.D	Liquid	Y	NA
42	HS19110829-10	SAMP	11-19-2019 06:11 am	1.00	50 mL	50 mL	Y111827.D	Liquid	Y	NA
43	HS19110829-12	SAMP	11-19-2019 06:36 am	1.00	50 mL	50 mL	Y111828.D	Liquid	Y	NA
44	HS19110716-06	SAMP	11-19-2019 07:00 am	1.00	50 mL	50 mL	Y111829.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
ICV STD ID	30603-92-01
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	52.07	104	80-120
trans-1,3-Dichloroprope	50.00	51.83	104	80-120
1,3-Dichlorobenzene	50.00	50.58	101	80-120
2,2-Dichloropropane	50.00	52.35	105	80-120
1,1-Dichloropropene	50.00	49.88	100	80-120
Dibromomethane	50.00	50.50	101	80-120
1,2-Dibromoethane	50.00	50.00	100	80-120
trans-1,2-Dichloroethen	50.00	52.31	105	80-120
1,1,1,2-Tetrachloroetha	50.00	51.37	103	80-120
1,1,1-Trichloroethane	50.00	52.74	105	80-120
1,1,2,2-Tetrachloroetha	50.00	49.68	99	80-120
Toluene	50.00	49.55	99	80-120
1,1,2-Trichloroethane	50.00	49.22	98	80-120
1,1-Dichloroethane	50.00	51.46	103	80-120
1,1-Dichloroethene	50.00	53.02	106	80-120
Trichlorofluoromethane	50.00	55.57	111	80-120
1,2,3-Trichlorobenzene	50.00	58.28	116	80-120
Tetrachloroethene	50.00	49.33	99	80-120
1,2,4-Trichlorobenzene	50.00	55.34	111	80-120
1,2,4-Trimethylbenzene	50.00	50.40	101	80-120
tert-Butylbenzene	50.00	51.37	103	80-120
Trichloroethene	50.00	51.78	104	80-120
1,2-Dichlorobenzene	50.00	49.42	99	80-120
1,2-Dichloroethane	50.00	51.38	103	80-120
1,2-Dichloropropane	50.00	49.50	99	80-120
1,3,5-Trimethylbenzene	50.00	52.04	104	80-120
1,3-Dichloropropane	50.00	49.18	98	80-120
1,4-Dichlorobenzene	50.00	49.63	99	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Butanone	100.00	105.25	105	80-120
2-Chlorotoluene	50.00	50.41	101	80-120
2-Hexanone	100.00	96.09	96	80-120
4-Chlorotoluene	50.00	50.58	101	80-120
Styrene	50.00	50.35	101	80-120
4-Methyl-2-Pentanone	100.00	97.68	98	80-120
Acetone	100.00	111.37	111	80-120
Benzene	50.00	50.85	102	80-120
Bromobenzene	50.00	51.16	102	80-120
Bromochloromethane	50.00	51.34	103	80-120
Bromodichloromethane	50.00	51.00	102	80-120
Bromoform	50.00	49.08	98	80-120
Bromomethane	50.00	57.73	115	80-120
Carbon Disulfide	100.00	109.76	110	80-120
Carbon Tetrachloride	50.00	51.07	102	80-120
Chlorobenzene	50.00	49.20	98	80-120
Chloroethane	50.00	51.64	103	80-120
Chloroform	50.00	49.36	99	80-120
Chloromethane	50.00	50.43	101	80-120
cis-1,2-Dichloroethene	50.00	53.16	106	80-120
Dibromochloromethane	50.00	49.93	100	80-120
Dichlorodifluoromethane	50.00	52.99	106	80-120
Ethylbenzene	50.00	50.22	100	80-120
Hexachlorobutadiene	50.00	61.69	123*	80-120
Isopropylbenzene	50.00	50.14	100	80-120
m,p-Xylenes	100.00	101.69	102	80-120
Methylene Chloride	50.00	49.65	99	80-120
n-Butylbenzene	50.00	52.07	104	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
n-Propylbenzene	50.00	51.90	104	80-120
Naphthalene	50.00	51.04	102	80-120
o-Xylene	50.00	49.72	99	80-120
sec-Butylbenzene	50.00	51.77	104	80-120
Vinyl Chloride	50.00	51.98	104	80-120
1,2,3-Trichloropropane	50.00	49.40	99	80-120
p-Isopropyltoluene	50.00	51.77	104	80-120
1,2-Dibromo-3-Chloropro	50.00	51.39	103	80-120
Freon TF	50.00	55.79	112	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Lab File ID: X111801 BFB Injection Date: 11/18/19

Instrument ID: VOA6 BFB Injection Time: 1323

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.9
75	30.0 - 60.0% of mass 95	54.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	65.0
175	5.0 - 9.0% of mass 174	5.8 (8.9)1
176	95.0 - 101.0% of mass 174	62.0 (95.4)1
177	5.0 - 9.0% of mass 176	5.1 (8.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X111802	11/18/19	1347
02	VSTD000.5	VSTD000.5	X111803	11/18/19	1435
03	VSTD001	VSTD001	X111804	11/18/19	1459
04	VSTD002	VSTD002	X111805	11/18/19	1523
05	VSTD005	VSTD005	X111806	11/18/19	1547
06	VSTD020	VSTD020	X111807	11/18/19	1611
07	VSTD050	VSTD050	X111808	11/18/19	1635
08	VSTD100	VSTD100	X111809	11/18/19	1659
09	VSTD150	VSTD150	X111810	11/18/19	1722
10	VSTD200	VSTD200	X111811	11/18/19	1746
11	ICV	ICV	X111814	11/18/19	1858
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		0.326	0.553	0.497	0.554	0.476
trans-1,3-Dichloropropene		0.304	0.464	0.458	0.504	0.445
1,3-Dichlorobenzene		1.036	1.601	1.542	1.622	1.411
2,2-Dichloropropane		0.547	0.815	0.674	0.705	0.610
1,1-Dichloropropene		0.332	0.476	0.441	0.432	0.372
Dibromomethane		0.139	0.244	0.233	0.245	0.207
1,2-Dibromoethane		0.245	0.385	0.380	0.402	0.348
trans-1,2-Dichloroethene		0.285	0.489	0.436	0.440	0.386
1,1,1,2-Tetrachloroethane		0.248	0.403	0.375	0.406	0.356
1,1,1-Trichloroethane		0.492	0.775	0.723	0.717	0.640
1,1,2,2-Tetrachloroethane		0.602	0.844	0.735	0.800	0.680
Toluene		1.077	1.582	1.498	1.570	1.359
1,1,2-Trichloroethane		0.180	0.311	0.285	0.294	0.253
1,1-Dichloroethane		0.569	0.830	0.781	0.786	0.690
1,1-Dichloroethene		0.349	0.423	0.469	0.464	0.390
Trichlorofluoromethane		0.511	0.831	0.818	0.813	0.707
1,2,3-Trichlorobenzene		421	1182	2753	6553	21856
Tetrachloroethene		0.266	0.412	0.394	0.398	0.333
1,2,4-Trichlorobenzene		0.325	0.435	0.465	0.518	0.418
1,2,4-Trimethylbenzene		1.739	2.619	2.442	2.563	2.286
tert-Butylbenzene		1.338	2.168	2.060	2.126	1.865
Trichloroethene		0.226	0.390	0.387	0.396	0.344
1,2-Dichlorobenzene		0.916	1.484	1.429	1.497	1.292
1,2-Dichloroethane		0.277	0.470	0.408	0.432	0.391
1,2-Dichloropropane		0.294	0.294	0.312	0.339	0.284
1,3,5-Trimethylbenzene		1.606	2.354	2.372	2.481	2.215
1,3-Dichloropropane		0.431	0.613	0.570	0.583	0.512
1,4-Dichlorobenzene		1.108	1.632	1.581	1.609	1.417
2-Butanone		0.167	0.156	0.152	0.164	0.146
2-Chlorotoluene		1.263	1.990	1.903	2.032	1.735
2-Hexanone		0.180	0.237	0.204	0.235	0.191
4-Chlorotoluene		1.550	2.500	2.222	2.378	2.079
Styrene		0.702	1.134	1.076	1.148	1.004
4-Methyl-2-Pentanone		0.220	0.321	0.313	0.331	0.281
Acetone		4579	5956	7954	15992	43200
Benzene		0.788	1.327	1.220	1.289	1.109
Bromobenzene		0.584	1.003	0.940	0.994	0.873
Bromochloromethane		0.229	0.323	0.309	0.284	0.255
Bromodichloromethane		0.298	0.490	0.424	0.473	0.395
Bromoform		887	3197	5989	16084	56416
Bromomethane		2741	6334	12041	28671	93456
Carbon Disulfide		0.747	1.257	1.216	1.254	1.101
Carbon Tetrachloride		0.340	0.503	0.483	0.478	0.403
Chlorobenzene		0.738	1.108	1.028	1.090	0.934

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911115

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		0.279	0.361	0.345	0.323	0.283
Chloroform		0.775	0.990	0.890	0.850	0.736
Chloromethane		2201	6118	10461	24949	85402
cis-1,2-Dichloroethene		0.327	0.540	0.493	0.541	0.454
Dibromochloromethane		0.253	0.433	0.392	0.429	0.370
Dichlorodifluoromethane		1269	3829	7335	18346	63810
Ethylbenzene		0.353	0.562	0.515	0.576	0.493
Hexachlorobutadiene		1376	2468	4522	11525	37789
Isopropylbenzene		1.054	1.627	1.570	1.602	1.425
m,p-Xylenes		0.393	0.653	0.644	0.678	0.591
Methylene Chloride		0.422	0.556	0.483	0.491	0.406
n-Butylbenzene		1.620	2.055	2.004	2.069	1.888
n-Propylbenzene		2.290	3.358	3.192	3.345	2.976
Naphthalene		0.510	0.569	0.604	0.614	0.512
o-Xylene		0.390	0.677	0.656	0.658	0.582
sec-Butylbenzene		1.995	2.859	2.859	2.813	2.501
Vinyl Chloride		0.490	0.545	0.546	0.504	0.454
1,2,3-Trichloropropane		0.455	0.730	0.701	0.662	0.580
p-Isopropyltoluene		1.839	2.630	2.538	2.573	2.307
1,2-Dibromo-3-Chloropropane		125	464	859	2641	8805
Freon TF		0.296	0.488	0.452	0.457	0.380
4-Bromofluorobenzene		3844	5731	10468	25804	94194
Dibromofluoromethane		2303	3882	8127	20237	75094
Toluene-d8		1.628	1.327	1.357	1.369	1.263
1,2-Dichloroethane-d4		2522	4458	8034	20921	75813

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911115

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	0.499	0.494	0.497	0.493
trans-1,3-Dichloropropene	0.452	0.455	0.456	0.461
1,3-Dichlorobenzene	1.457	1.422	1.398	1.417
2,2-Dichloropropane	0.644	0.644	0.646	0.658
1,1-Dichloropropene	0.402	0.392	0.391	0.392
Dibromomethane	0.211	0.206	0.208	0.208
1,2-Dibromoethane	0.348	0.347	0.350	0.351
trans-1,2-Dichloroethene	0.410	0.413	0.416	0.427
1,1,1,2-Tetrachloroethane	0.368	0.369	0.369	0.370
1,1,1-Trichloroethane	0.673	0.676	0.678	0.697
1,1,2,2-Tetrachloroethane	0.672	0.670	0.662	0.661
Toluene	1.411	1.408	1.420	1.435
1,1,2-Trichloroethane	0.256	0.258	0.256	0.259
1,1-Dichloroethane	0.710	0.716	0.728	0.737
1,1-Dichloroethene	0.430	0.429	0.426	0.434
Trichlorofluoromethane	0.823	0.824	0.813	0.840
1,2,3-Trichlorobenzene	52554	102660	156391	210414
Tetrachloroethene	0.352	0.340	0.332	0.334
1,2,4-Trichlorobenzene	0.421	0.402	0.400	0.406
1,2,4-Trimethylbenzene	2.419	2.440	2.397	2.446
tert-Butylbenzene	2.012	2.011	1.967	1.996
Trichloroethene	0.359	0.350	0.348	0.348
1,2-Dichlorobenzene	1.330	1.327	1.324	1.344
1,2-Dichloroethane	0.401	0.397	0.397	0.398
1,2-Dichloropropane	0.295	0.290	0.290	0.290
1,3,5-Trimethylbenzene	2.368	2.377	2.339	2.377
1,3-Dichloropropane	0.516	0.521	0.514	0.516
1,4-Dichlorobenzene	1.465	1.445	1.412	1.445
2-Butanone	0.146	0.147	0.153	0.148
2-Chlorotoluene	1.853	1.827	1.787	1.800
2-Hexanone	0.192	0.201	0.204	0.204
4-Chlorotoluene	2.208	2.230	2.205	2.250
Styrene	1.056	1.073	1.093	1.113
4-Methyl-2-Pentanone	0.283	0.291	0.298	0.298
Acetone	103091	202207	284604	372223
Benzene	1.164	1.135	1.133	1.128
Bromobenzene	0.878	0.857	0.837	0.854
Bromochloromethane	0.263	0.261	0.260	0.255
Bromodichloromethane	0.412	0.408	0.412	0.412
Bromoform	143798	293256	447981	602595
Bromomethane	215480	396733	529714	
Carbon Disulfide	1.192	1.188	1.192	1.228
Carbon Tetrachloride	0.452	0.442	0.435	0.440
Chlorobenzene	0.965	0.966	0.974	0.982

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911115

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
Chloroethane	0.311	0.311	0.310	0.311
Chloroform	0.751	0.754	0.761	0.780
Chloromethane	215753	420936	613254	811388
cis-1,2-Dichloroethene	0.470	0.475	0.478	0.488
Dibromochloromethane	0.381	0.386	0.386	0.387
Dichlorodifluoromethane	186161	359790	504807	695305
Ethylbenzene	0.512	0.509	0.506	0.512
Hexachlorobutadiene	99881	192455		
Isopropylbenzene	1.523	1.544	1.538	1.560
m,p-Xylenes	0.623	0.628	0.627	0.639
Methylene Chloride	0.421	0.425	0.428	0.436
n-Butylbenzene	2.162	2.176	2.153	2.197
n-Propylbenzene	3.234	3.176	3.089	3.155
Naphthalene	0.521	0.505	0.514	0.512
o-Xylene	0.600	0.608	0.611	0.623
sec-Butylbenzene	2.823	2.798	2.726	2.790
Vinyl Chloride	0.505	0.510	0.510	0.523
1,2,3-Trichloropropane	0.577	0.564	0.549	0.543
p-Isopropyltoluene	2.571	2.546	2.480	2.534
1,2-Dibromo-3-Chloropropane	21800	42468	65470	86827
Freon TF	0.459	0.462	0.452	0.472
4-Bromofluorobenzene	222328	465570	688600	933083
Dibromofluoromethane	173990	354918	514854	681300
Toluene-d8	1.212	1.246	1.223	1.231
1,2-Dichloroethane-d4	178006	364646	532181	713282

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911115

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	AVRG		0.48761342		13.630	15.000
trans-1,3-Dichloropropene	AVRG		0.44441818		12.432	15.000
1,3-Dichlorobenzene	AVRG		1.43390401		11.978	15.000
2,2-Dichloropropane	AVRG		0.66029305		11.040	15.000
1,1-Dichloropropene	AVRG		0.40332539		10.380	15.000
Dibromomethane	AVRG		0.21136309		14.886	15.000
1,2-Dibromoethane	AVRG		0.35067597		12.763	15.000
trans-1,2-Dichloroethene	AVRG		0.41138839		13.381	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.36274186		12.717	15.000
1,1,1-Trichloroethane	AVRG		0.67453438		11.648	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.70308768		10.825	15.000
Toluene	AVRG		1.41788930		10.479	15.000
1,1,2-Trichloroethane	AVRG		0.26137158		14.102	15.000
1,1-Dichloroethane	AVRG		0.72750643		10.197	15.000
1,1-Dichloroethene	AVRG		0.42373367		8.607	15.000
Trichlorofluoromethane	AVRG		0.77561874		13.736	15.000
1,2,3-Trichlorobenzene	2ORDR	-1.73e-002	5.50264123	-0.1707432	0.9998373	0.9900000
Tetrachloroethene	AVRG		0.35131312		12.801	15.000
1,2,4-Trichlorobenzene	AVRG		0.42118311		12.391	15.000
1,2,4-Trimethylbenzene	AVRG		2.37245105		10.778	15.000
tert-Butylbenzene	AVRG		1.94917789		12.586	15.000
Trichloroethene	AVRG		0.34966887		14.517	15.000
1,2-Dichlorobenzene	AVRG		1.32701574		12.905	15.000
1,2-Dichloroethane	AVRG		0.39691390		12.978	15.000
1,2-Dichloropropane	AVRG		0.29867989		5.660	15.000
1,3,5-Trimethylbenzene	AVRG		2.27648393		11.444	15.000
1,3-Dichloropropane	AVRG		0.53064503		9.928	15.000
1,4-Dichlorobenzene	AVRG		1.45709302		10.715	15.000
2-Butanone	AVRG		0.15342086		5.109	15.000
2-Chlorotoluene	AVRG		1.79889065		12.374	15.000
2-Hexanone	AVRG		0.20539492		9.225	15.000
4-Chlorotoluene	AVRG		2.18043218		12.121	15.000
Styrene	AVRG		1.04451403		12.966	15.000
4-Methyl-2-Pentanone	AVRG		0.29296235		10.958	15.000
Acetone	LINR	-7.72e-002	8.02348321		0.9999004	0.9900000
Benzene	AVRG		1.14377224		13.444	15.000
Bromobenzene	AVRG		0.86897432		14.186	15.000
Bromochloromethane	AVRG		0.27086566		10.835	15.000
Bromodichloromethane	AVRG		0.41377448		13.021	15.000
Bromoform	LINR	1.997e-002	3.29171060		0.9995506	0.9900000
Bromomethane	LINR	-4.72e-002	2.10632186		0.9967362	0.9900000
Carbon Disulfide	AVRG		1.15275096		13.789	15.000
Carbon Tetrachloride	AVRG		0.44181701		10.990	15.000
Chlorobenzene	AVRG		0.97614522		10.975	15.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911115

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroethane	AVRG		0.31480657		8.302	15.000
Chloroform	AVRG		0.80974969		10.425	15.000
Chloromethane	LINR	3.748e-003	1.83460007		0.9998260	0.9900000
cis-1,2-Dichloroethene	AVRG		0.47416954		13.204	15.000
Dibromochloromethane	AVRG		0.37970849		13.683	15.000
Dichlorodifluoromethane	LINR	1.763e-002	2.15619239		0.9988587	0.9900000
Ethylbenzene	AVRG		0.50436028		12.486	15.000
Hexachlorobutadiene	LINR	-1.03e-002	2.88504774		0.9991601	0.9900000
Isopropylbenzene	AVRG		1.49389834		11.672	15.000
m,p-Xylenes	AVRG		0.60861655		13.850	15.000
Methylene Chloride	AVRG		0.45210476		10.732	15.000
n-Butylbenzene	AVRG		2.03598696		9.063	15.000
n-Propylbenzene	AVRG		3.09059969		10.434	15.000
Naphthalene	AVRG		0.54020307		8.055	15.000
o-Xylene	AVRG		0.60066696		14.145	15.000
sec-Butylbenzene	AVRG		2.68486077		10.468	15.000
Vinyl Chloride	AVRG		0.50958661		5.494	15.000
1,2,3-Trichloropropane	AVRG		0.59573805		14.502	15.000
p-Isopropyltoluene	AVRG		2.44651692		10.015	15.000
1,2-Dibromo-3-Chloropropane	LINR	-6.81e-003	12.9714748		0.9998714	0.9900000
Freon TF	AVRG		0.43530320		13.846	15.000
4-Bromofluorobenzene	LINR	8.357e-003	2.13170980		0.9997055	0.9900000
Dibromofluoromethane	LINR	7.36e-003	2.18334297		0.9997712	0.9900000
Toluene-d8	AVRG		1.31739803		9.895	15.000
1,2-Dichloroethane-d4	LINR	1.473e-002	2.09453233		0.9994184	0.9900000

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

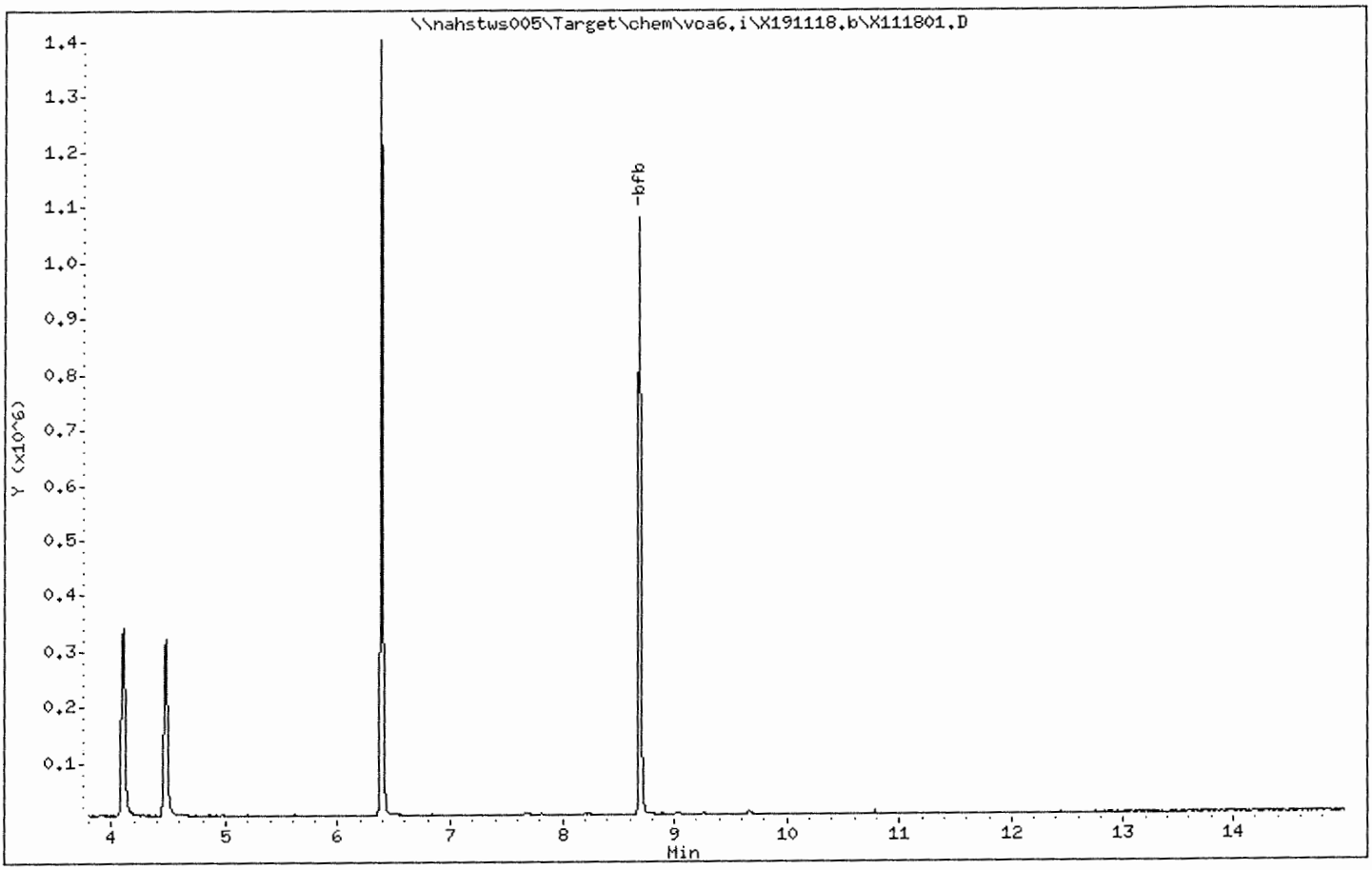
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

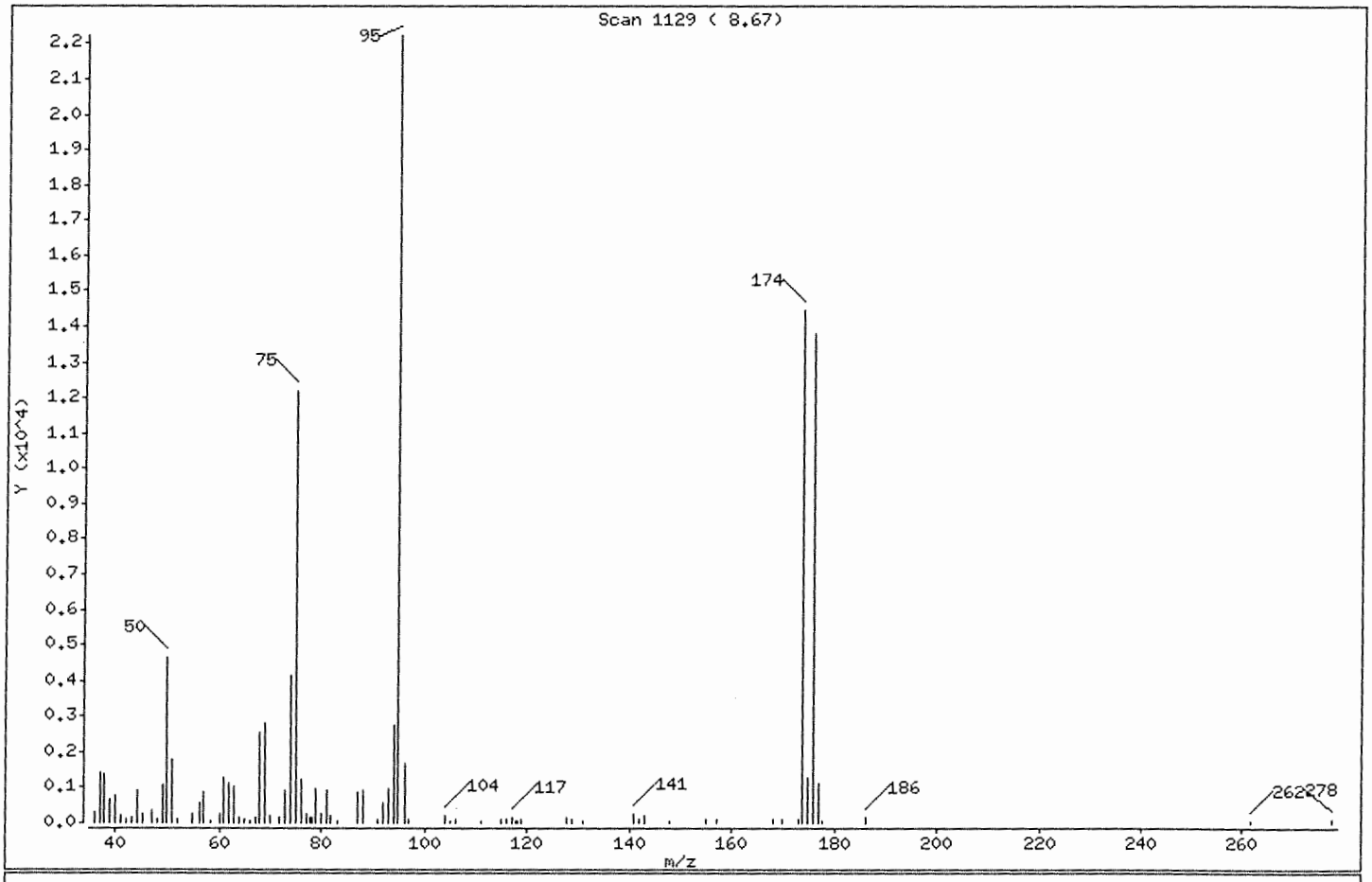
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.86
75	30.00 - 60.00% of mass 95	54.86
96	5.00 - 9.00% of mass 95	7.62
173	Less than 2.00% of mass 174	0.43 (0.66)
174	Greater than 50.00% of mass 95	65.03
175	5.00 - 9.00% of mass 174	5.82 (8.95)
176	95.00 - 101.00% of mass 174	62.04 (95.41)
177	5.00 - 9.00% of mass 176	5.11 (8.24)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X111801.D
Spectrum: Scan 1129 (8.67)
Location of Maximum: 95.00
Number of points: 83

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	329	61.00	1259	81.80	217	127.90	153
37.00	1409	62.00	1149	83.00	50	128.90	116
38.00	1370	62.90	1001	86.90	880	130.90	70
39.00	662	64.00	138	88.00	941	141.00	249
40.00	775	65.10	110	91.10	116	141.90	94
41.00	191	66.00	72	92.10	565	142.90	216
42.00	77	67.10	153	93.00	990	148.10	62
43.00	166	68.00	2578	94.00	2783	155.00	87
44.10	928	69.00	2816	95.00	22224	157.00	77
45.10	261	69.90	217	96.10	1694	168.00	85
47.00	367	71.90	143	97.00	111	170.00	86
48.10	104	73.00	931	103.90	180	172.90	96
49.00	1057	74.00	4135	105.10	52	173.90	14452
50.00	4636	75.00	12193	106.00	100	174.90	1293
51.00	1802	76.00	1227	111.10	63	175.90	13788
52.10	85	77.10	248	115.10	93	176.90	1136
55.00	269	77.80	150	116.00	100	177.80	71
56.10	539	78.10	174	117.00	158	186.00	161
56.90	843	78.90	948	117.70	74	261.90	57
58.20	60	79.90	265	118.10	74	277.90	85
60.00	231	80.90	936	119.00	127		

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 18-NOV-2019 13:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

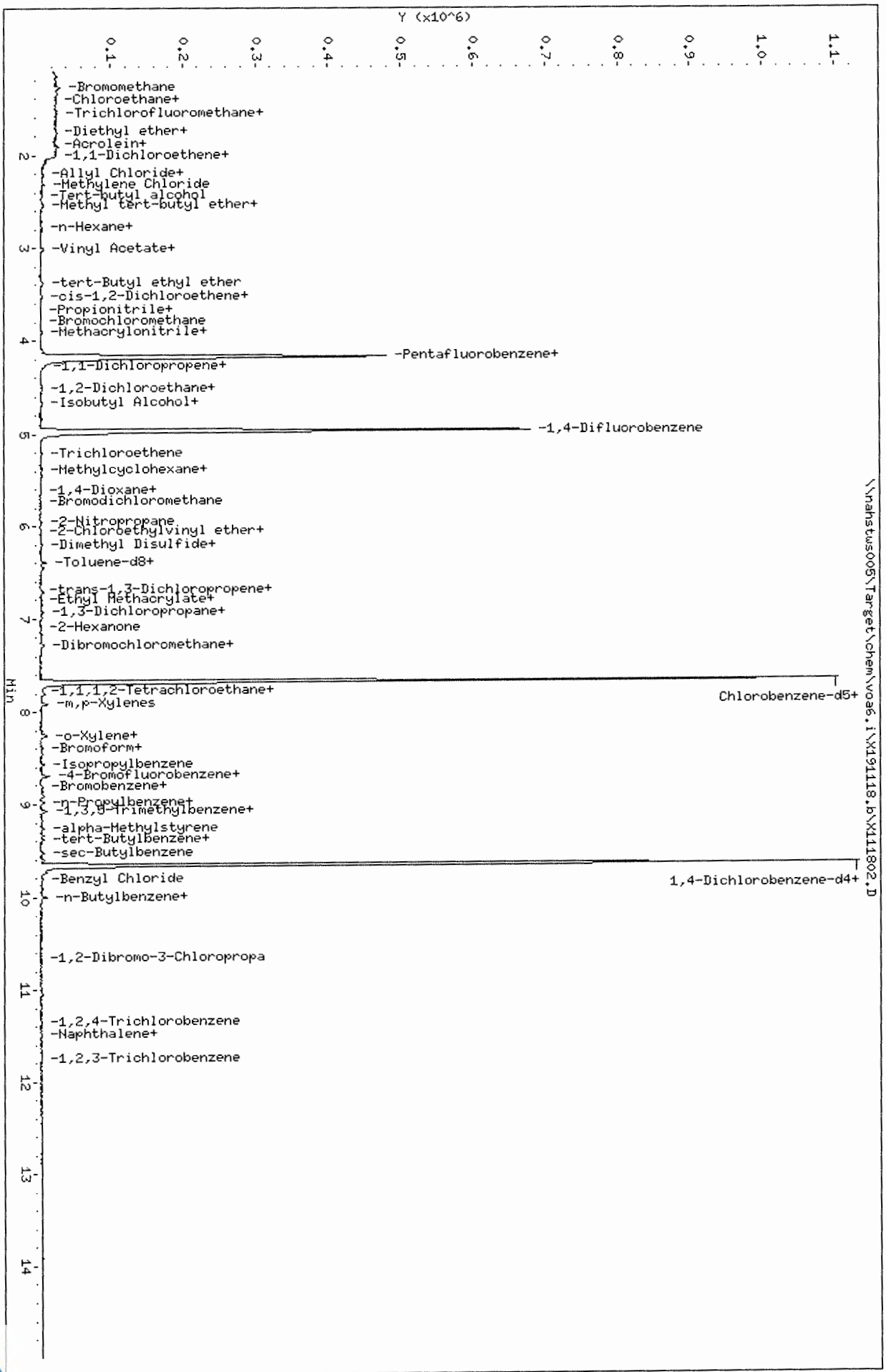
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	431958	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	586737	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	529029	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	277425	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	1323	0.25000	1.05(Ta)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3260	0.25000	1.07(a)
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	1295	0.25000	0.69(a)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	5247	0.25000	0.37(Ta)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	814	0.25000	0.21(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	1177	0.25000	0.20(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	861	0.25000	0.22(aM)
138 Freon TF	101	1.912	1.912	(0.457)	755	0.25000	0.20(aM)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	656	0.25000	0.23(aM)
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	1571	0.25000	0.24(aM)
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	909	0.25000	0.24(a)
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	1579	0.25000	0.33(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	224	0.25000	(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	702	0.25000	0.21(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	320	0.25000	0.13(aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	2742	0.25000	0.20(a)
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	103	0.25000	(aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	708	0.25000	0.19(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	1523	0.25000	0.20(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	938	0.25000	0.20(aM)
42	1,2-Dichloropropane	63	5.450	5.450	(1.097)	858	0.25000	0.24(aM)
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	2444	0.25000	0.19(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	1534	0.25000	0.19(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1126	0.25000	0.20(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	1760	0.25000	0.21(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	1234	0.25000	0.21(aM)
24	2-Butanone	43	3.588	3.588	(0.858)	827	0.50000	0.62(aM)
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	2277	0.25000	0.22(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	809	0.50000	0.37(Ta)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	2873	0.25000	0.23(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2596	0.25000	0.19(a)
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	1190	0.50000	0.38(aM)
10	Acetone	43	1.969	1.969	(0.471)	3213	0.50000	(aM)
37	Benzene	78	4.519	4.519	(0.909)	3088	0.25000	0.23(a)
74	Bromobenzene	156	8.817	8.817	(0.913)	940	0.25000	0.19(a)
29	Bromochloromethane	128	3.795	3.795	(0.908)	660	0.25000	0.28(aM)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1101	0.25000	0.22(aM)
66	Bromoform	173	8.416	8.416	(1.097)	495	0.25000	1.15(aM)
6	Bromomethane	94	1.339	1.339	(0.320)	1552	0.25000	(aM)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	3999	0.50000	0.40(a)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	1084	0.25000	0.20(aM)
59	Chlorobenzene	112	7.692	7.692	(1.003)	2603	0.25000	0.25(a)
7	Chloroethane	64	1.403	1.403	(0.336)	672	0.25000	0.24(aM)
28	Chloroform	83	3.910	3.910	(0.935)	2414	0.25000	0.34(aM)
3	Chloromethane	50	1.074	1.074	(0.257)	1640	0.25000	0.53(aM)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1103	0.25000	0.26(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1351	0.25000	0.23(aM)
55	Dibromochloromethane	129	7.184	7.184	(0.937)	883	0.25000	0.21(a)
44	Dibromomethane	93	5.558	5.558	(1.118)	573	0.25000	0.23(aM)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	642	0.25000	1.04(aM)
61	Ethylbenzene	106	7.800	7.800	(1.017)	1072	0.25000	0.20(a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	367	0.25000	(aM)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	2992	0.25000	0.18(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	2521	0.50000	0.39(a)
17	Methylene Chloride	84	2.306	2.306	(0.551)	1174	0.25000	0.30(a)
87	n-Butylbenzene	91	9.999	9.999	(1.035)	2169	0.25000	0.19(a)
73	n-Propylbenzene	91	8.917	8.917	(0.923)	3456	0.25000	0.20(a)
92	Naphthalene	128	11.553	11.553	(1.196)	764	0.25000	0.25(a)
63	o-Xylene	106	8.244	8.244	(1.075)	1221	0.25000	0.19(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	3012	0.25000	0.20(a)
64	Styrene	104	8.265	8.265	(1.078)	2388	0.25000	0.21(a)
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	2350	0.25000	0.21(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	914	0.25000	0.24(a)
50	Toluene	91	6.453	6.453	(0.841)	3631	0.25000	0.24(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	826	0.25000	0.23(aM)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	996	0.25000	0.19(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	945	0.25000	0.23(a)
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	1233	0.25000	0.18(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	1052	0.25000	0.23(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D
Date : 18-NOV-2019 13:47
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

\\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 18-NOV-2019 14:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 13:47 Cal File: X111802.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

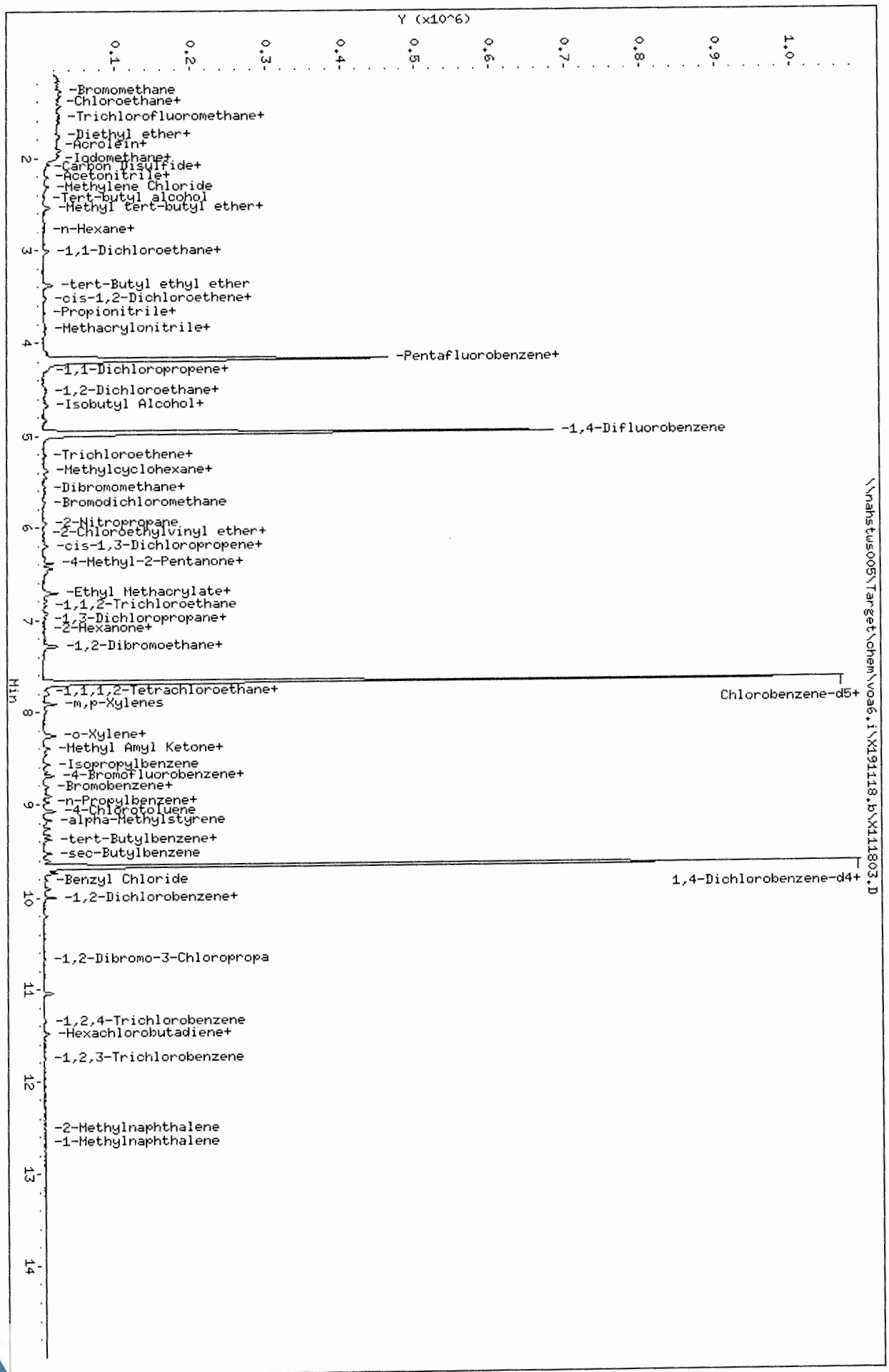
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	417797	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	575000	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	520290	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	274172	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	2522	0.50000	1.36(Ta)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3844	0.50000	1.20(a)
$	30 Dibromofluoromethane	113	4.110	4.110	(0.983)	2303	0.50000	0.96(a)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	8468	0.50000	0.61(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1290	0.50000	0.34(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	2055	0.50000	0.36(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1652	0.50000	0.42(aM)
	138 Freon TF	101	1.911	1.911	(0.457)	1235	0.50000	0.33(a)
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	936	0.50000	0.34(a)
	22 1,1-Dichloroethane	63	2.928	2.928	(0.700)	2376	0.50000	0.39(Ta)
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1458	0.50000	0.41(aM)
	32 1,1-Dichloropropene	75	4.289	4.289	(0.863)	1907	0.50000	0.41(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	421	0.50000	(aM)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	1248	0.50000	0.38(aM)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	892	0.50000	0.38(aM)
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	4769	0.50000	0.36(aM)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	125	0.50000	(aM)
	57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	1273	0.50000	0.34(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	2511	0.50000	0.34 (a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	1591	0.50000	0.34 (aM)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	1693	0.50000	0.49 (aM)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	4403	0.50000	0.35 (a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	2841	0.50000	0.36 (a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	2241	0.50000	0.40 (a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	3038	0.50000	0.38 (a)
26	2,2-Dichloropropane	77	3.523	3.523	(0.842)	2284	0.50000	0.41 (aM)
24	2-Butanone	43	3.595	3.595	(0.860)	1395	1.00000	1.08 (aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	3464	0.50000	0.35 (a)
52	2-Hexanone	43	7.090	7.090	(0.924)	1875	1.00000	0.87 (a)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	4251	0.50000	0.35 (a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	5043	0.50000	0.37 (a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	2291	1.00000	0.75 (a)
10	Acetone	43	1.976	1.976	(0.473)	4579	1.00000	0.53 (aM)
37	Benzene	78	4.519	4.519	(0.909)	4530	0.50000	0.34 (a)
74	Bromobenzene	156	8.809	8.809	(0.911)	1601	0.50000	0.33 (a)
29	Bromochloromethane	128	3.802	3.802	(0.909)	956	0.50000	0.42 (a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1712	0.50000	0.35 (aM)
66	Bromoform	173	8.415	8.415	(1.097)	887	0.50000	1.27 (aM)
6	Bromomethane	94	1.338	1.338	(0.320)	2741	0.50000	(a)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	6243	1.00000	0.64 (aM)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	1955	0.50000	0.38 (aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	3839	0.50000	0.37 (a)
7	Chloroethane	64	1.403	1.403	(0.336)	1164	0.50000	0.44 (aM)
28	Chloroform	83	3.917	3.917	(0.937)	3238	0.50000	0.47 (a)
3	Chloromethane	50	1.073	1.073	(0.257)	2201	0.50000	0.67 (a)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1368	0.50000	0.34 (a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1873	0.50000	0.33 (a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	1318	0.50000	0.33 (a)
44	Dibromomethane	93	5.564	5.564	(1.120)	802	0.50000	0.32 (a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	1269	0.50000	1.20 (aM)
61	Ethylbenzene	106	7.807	7.807	(1.018)	1838	0.50000	0.35 (a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	1376	0.50000	0.21 (a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	5484	0.50000	0.35 (a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	4089	1.00000	0.64 (a)
17	Methylene Chloride	84	2.305	2.305	(0.551)	1764	0.50000	0.46 (aM)
87	n-Butylbenzene	91	9.998	9.998	(1.034)	4442	0.50000	0.39 (aM)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	6280	0.50000	0.37 (a)
92	Naphthalene	128	11.560	11.560	(1.196)	1399	0.50000	0.47 (a)
63	o-Xylene	106	8.243	8.243	(1.075)	2028	0.50000	0.32 (a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	5469	0.50000	0.37 (a)
64	Styrene	104	8.265	8.265	(1.078)	3653	0.50000	0.33 (a)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	3670	0.50000	0.34 (a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	1382	0.50000	0.37 (a)
50	Toluene	91	6.453	6.453	(0.841)	5603	0.50000	0.37 (a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	1192	0.50000	0.34 (a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	1749	0.50000	0.34 (a)
38	Trichloroethene	130	5.206	5.206	(1.048)	1298	0.50000	0.32 (a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	2137	0.50000	0.32 (a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	2046	0.50000	0.48 (aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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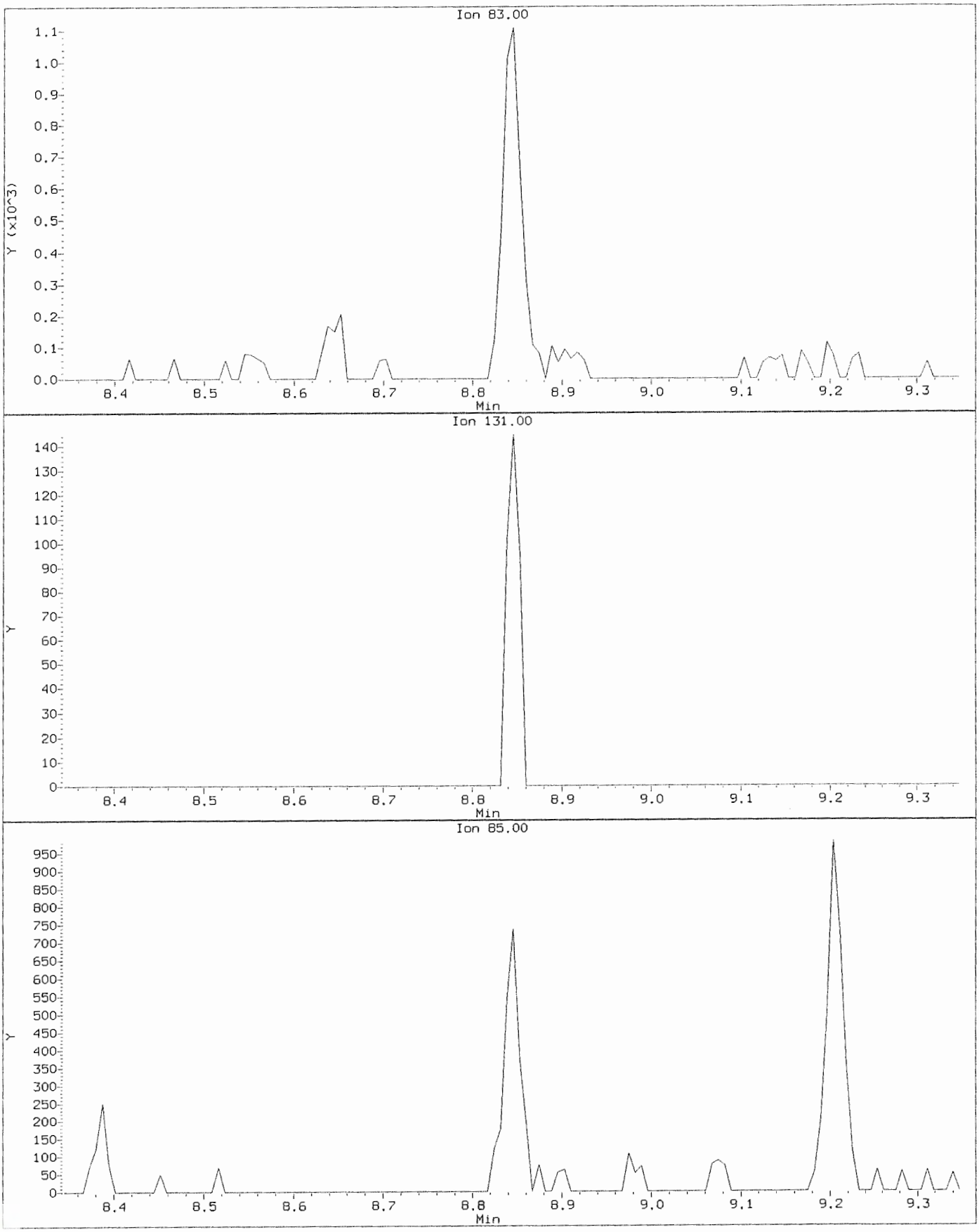
Date : 18-NOV-2019 14:35
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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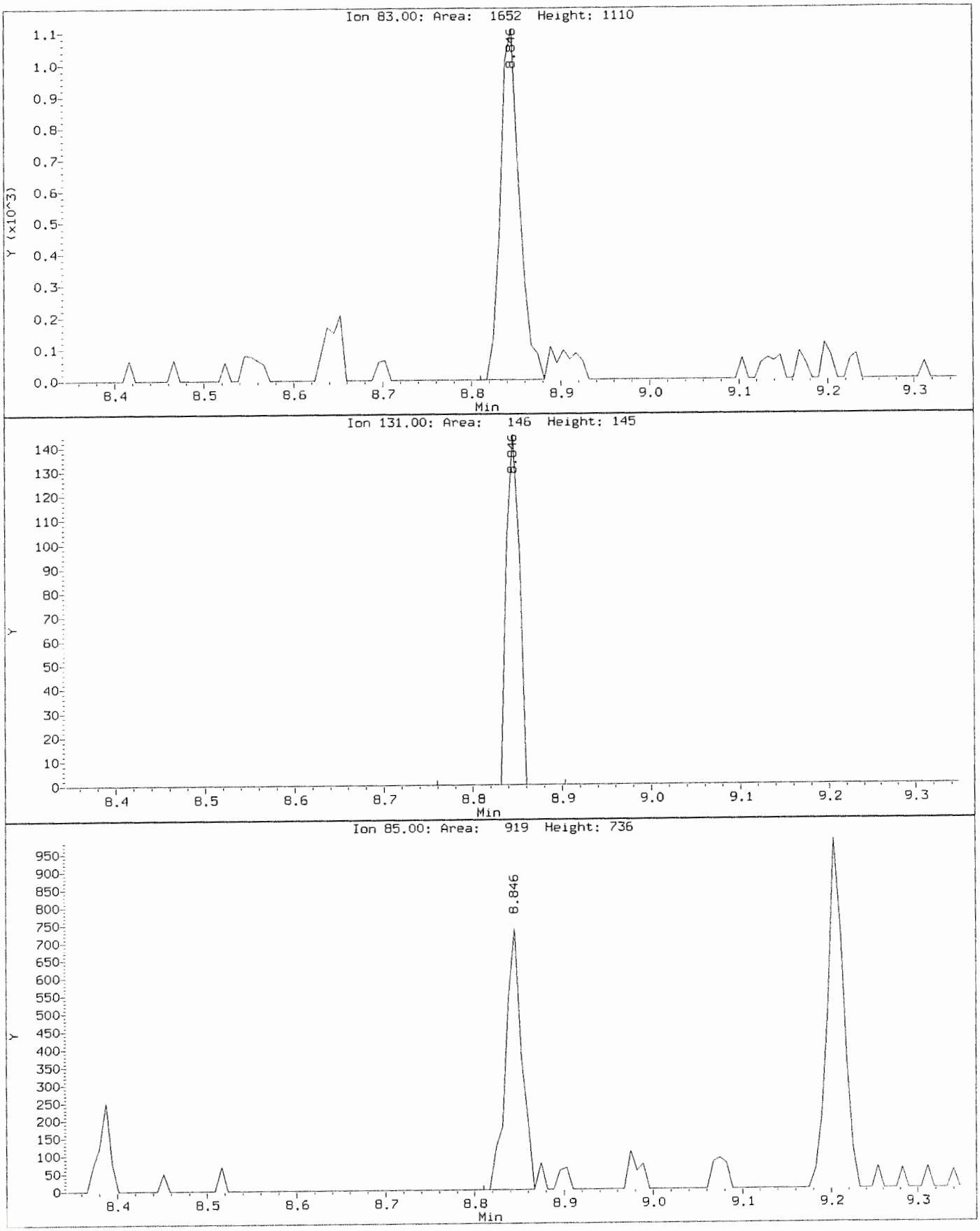
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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Injection Date: 18-NOV-2019 14:35
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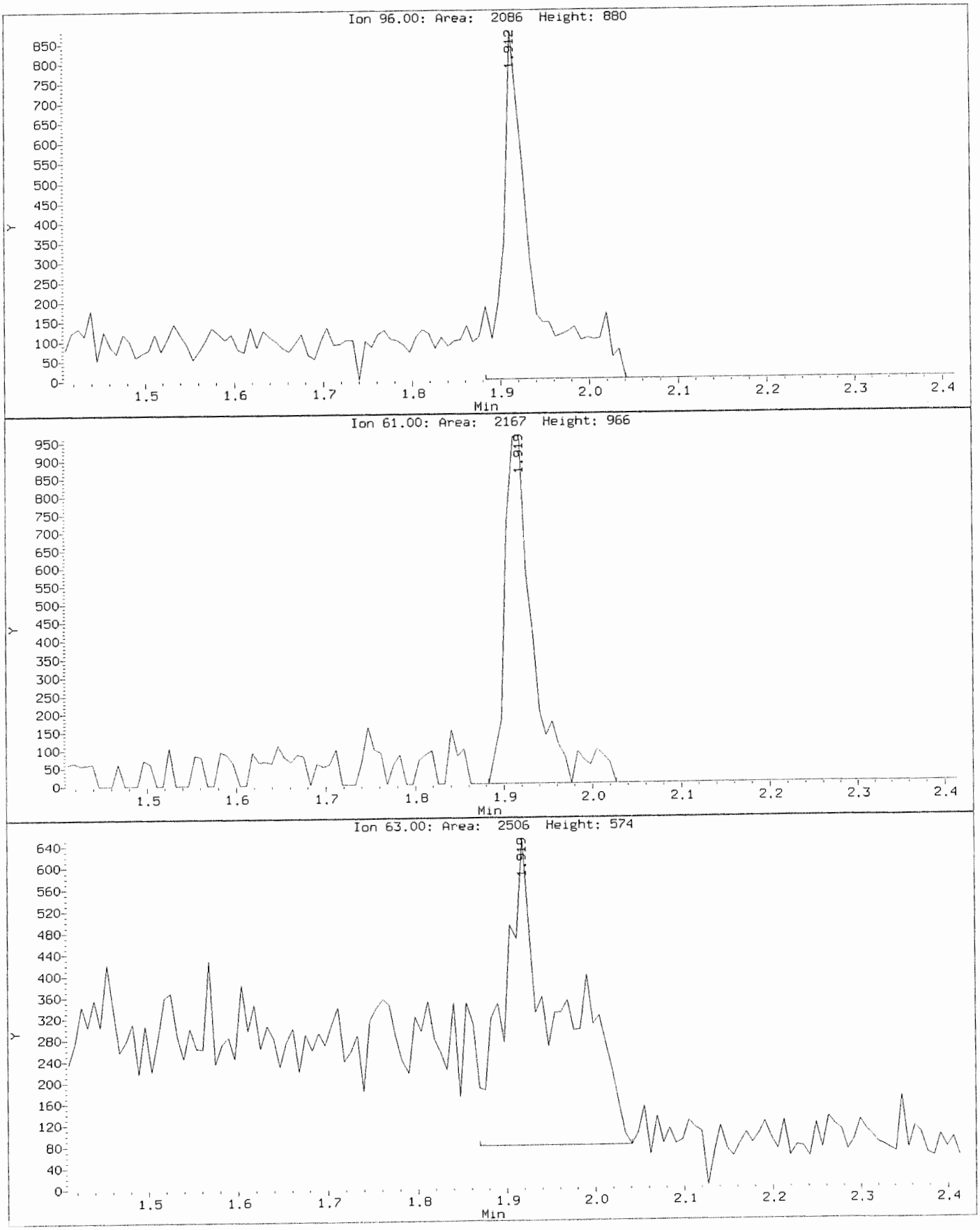
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



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Instrument: voa6.i
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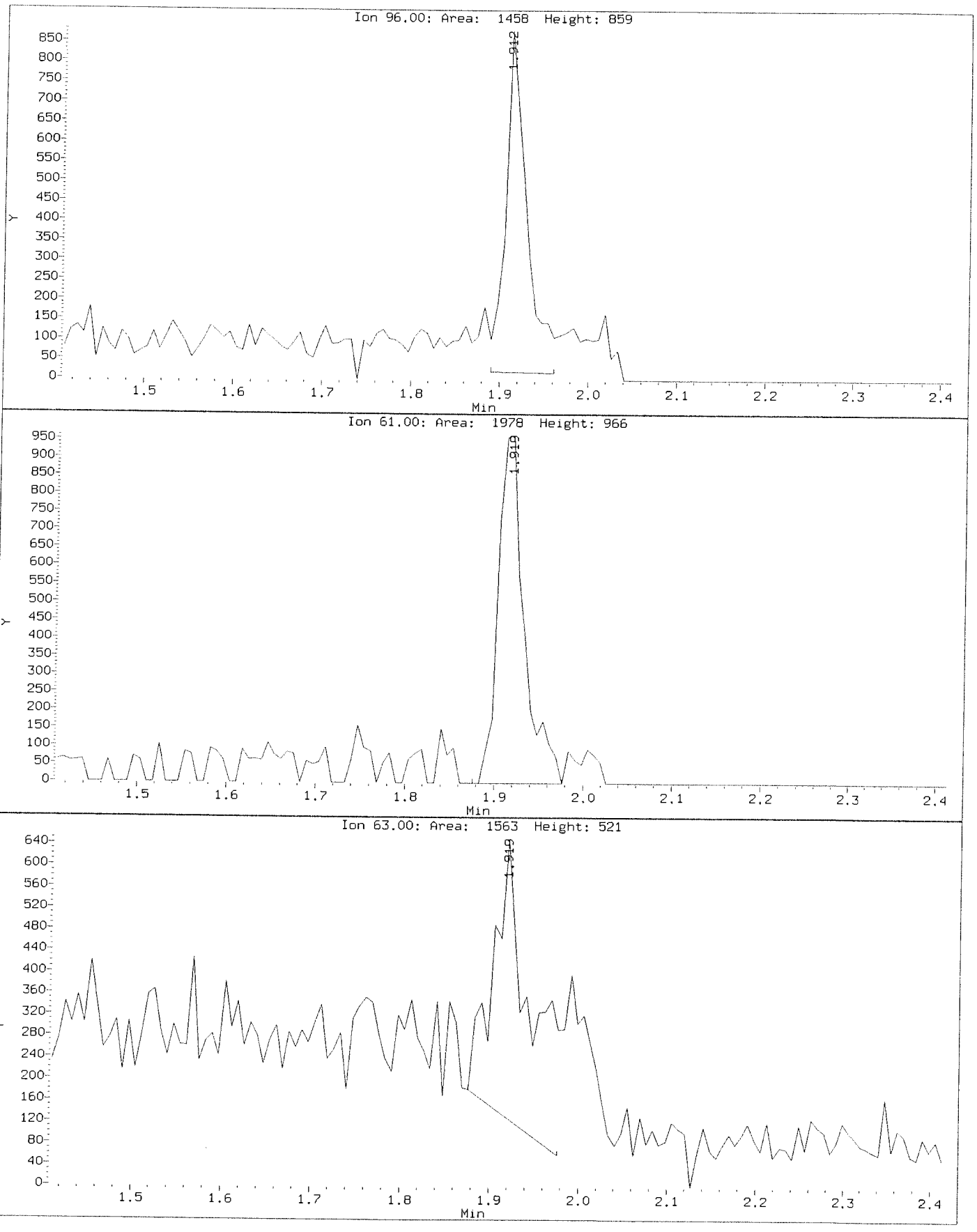
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



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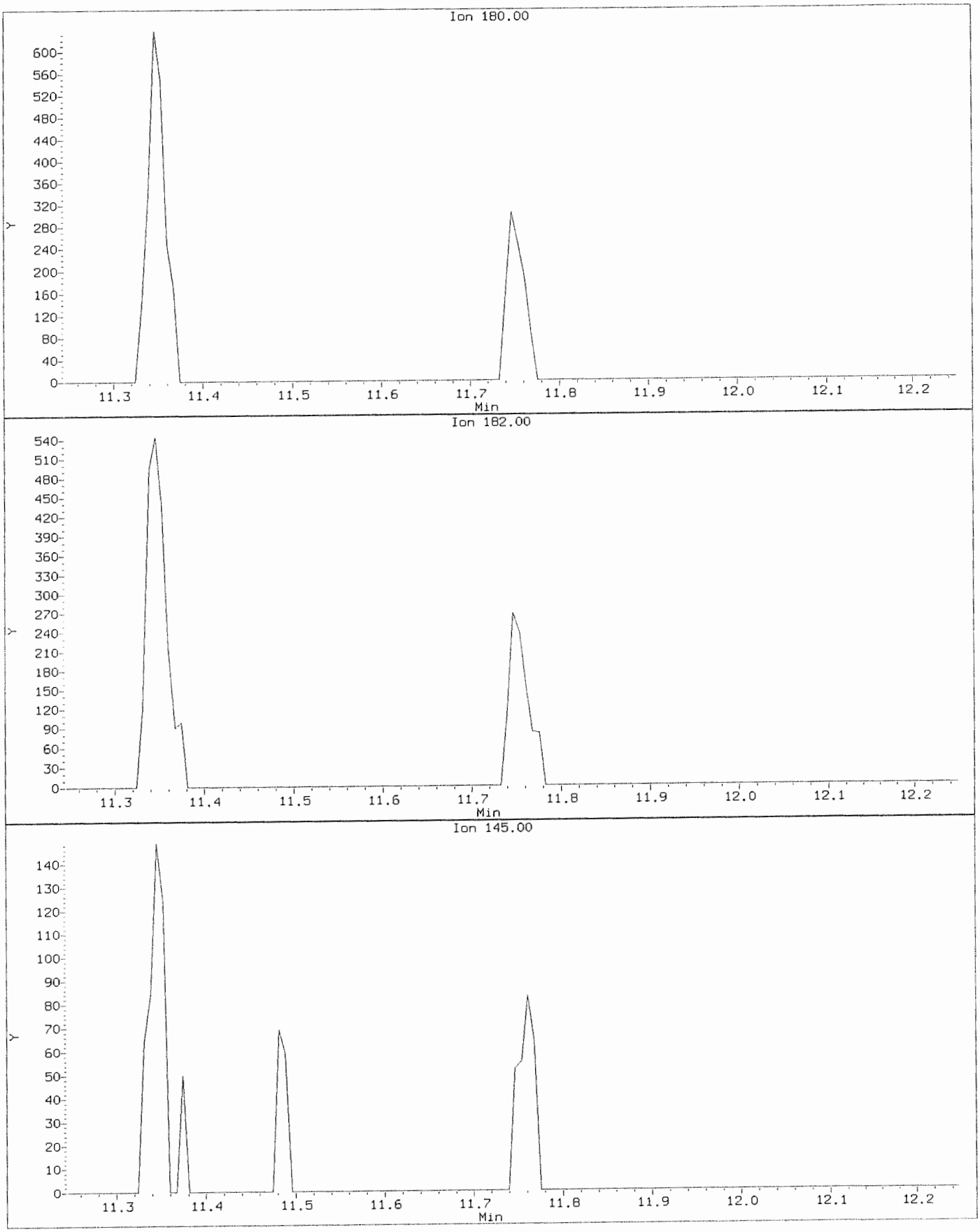
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



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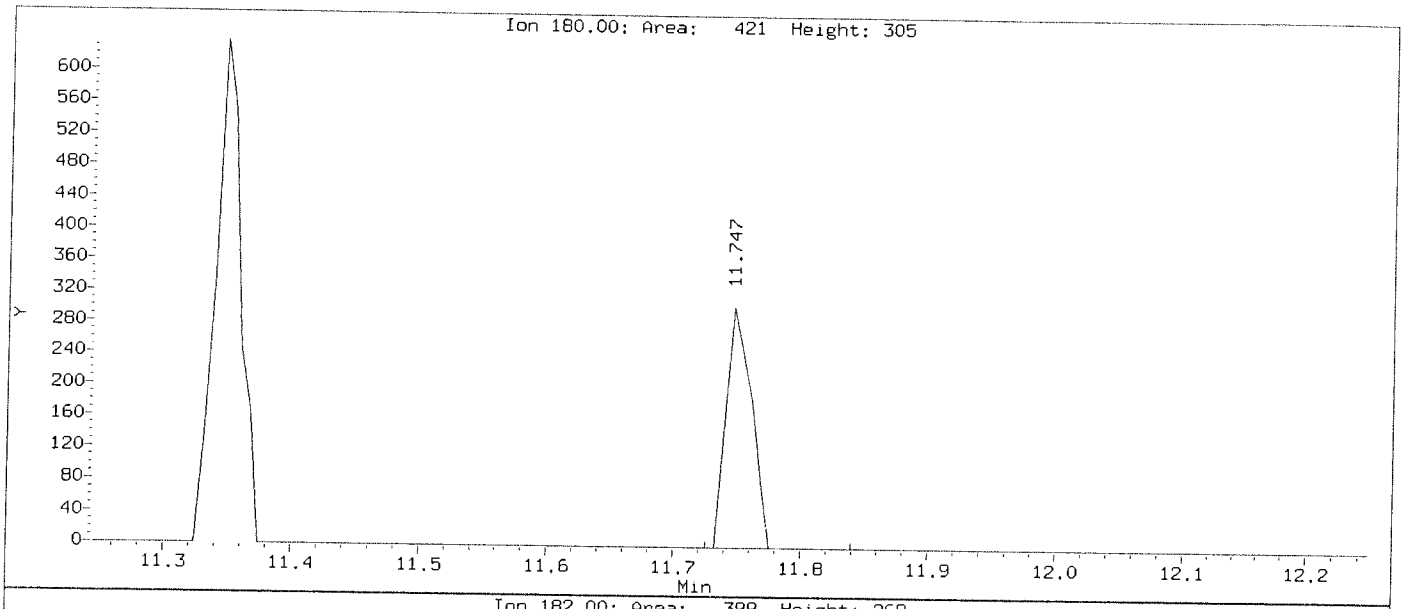
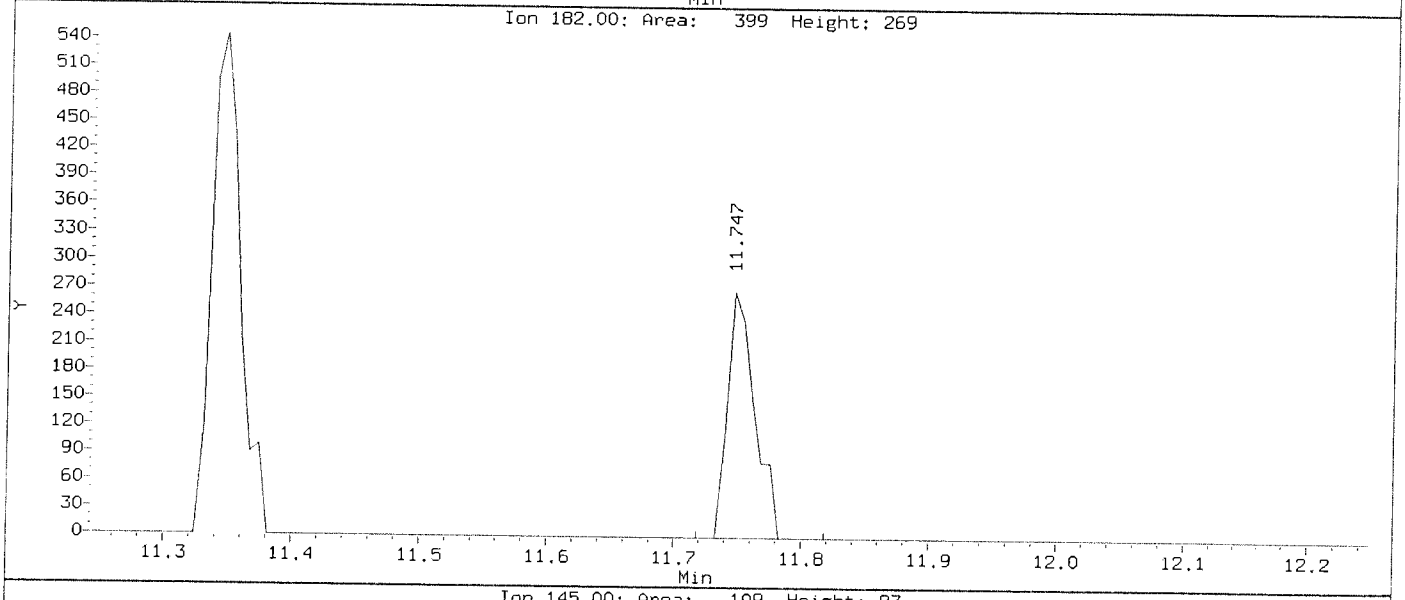
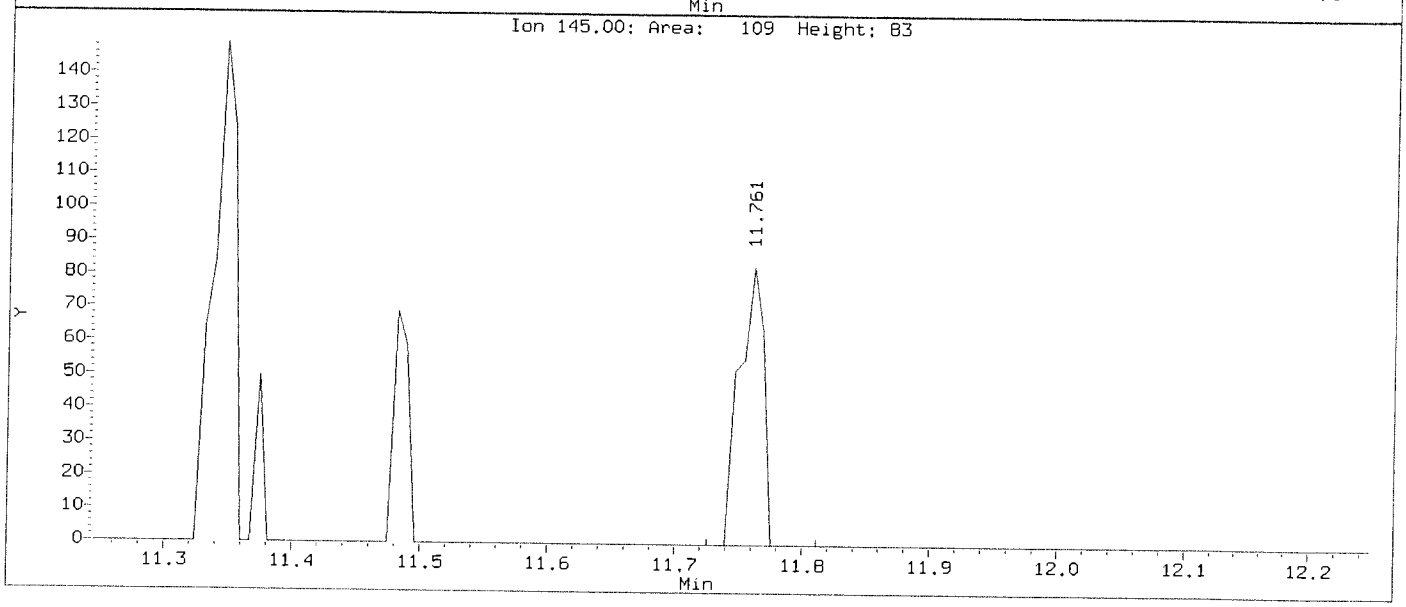
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1.2,3-Trichlorobenzene
CAS Number: 87-61-6







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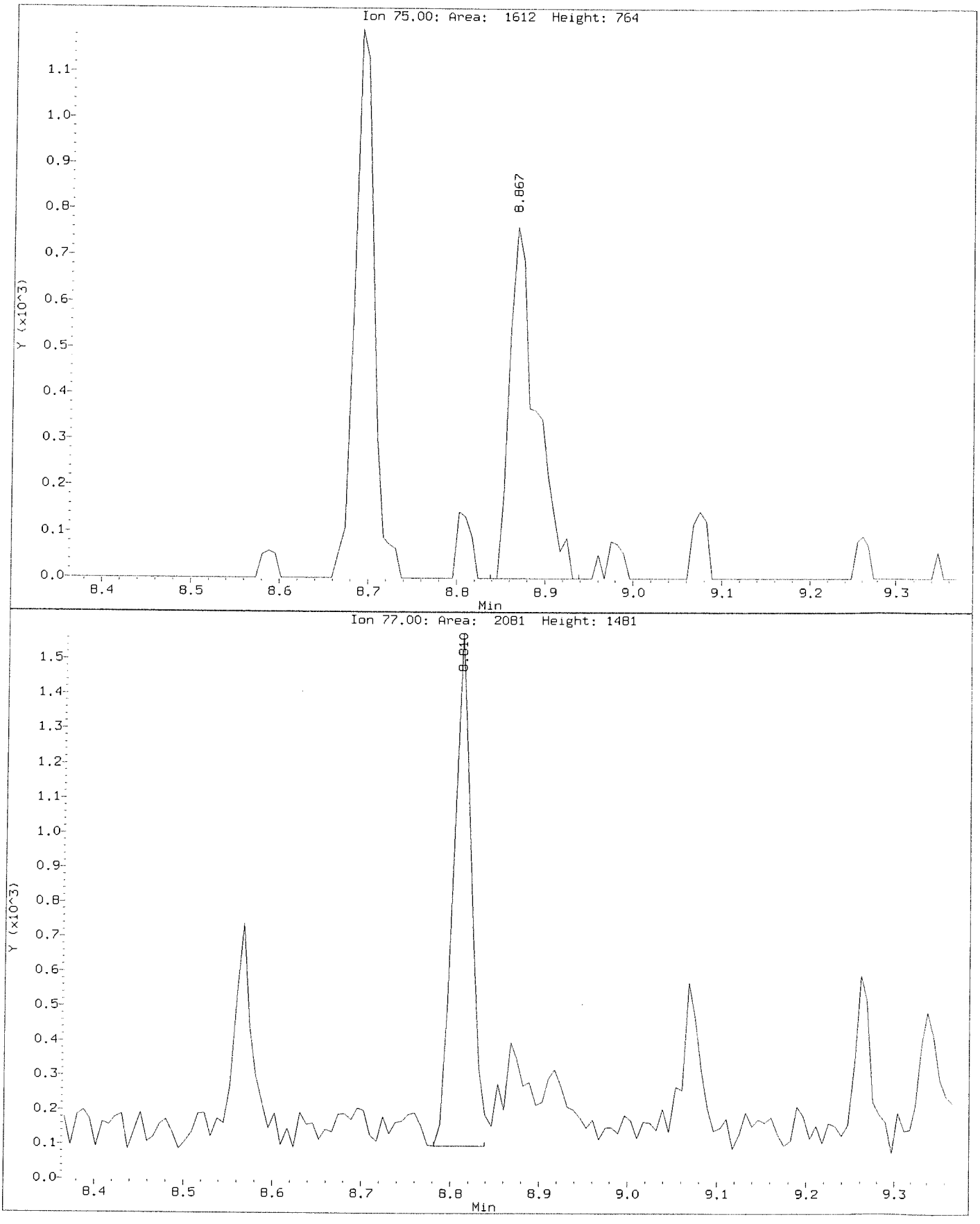
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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Instrument: voa6.i
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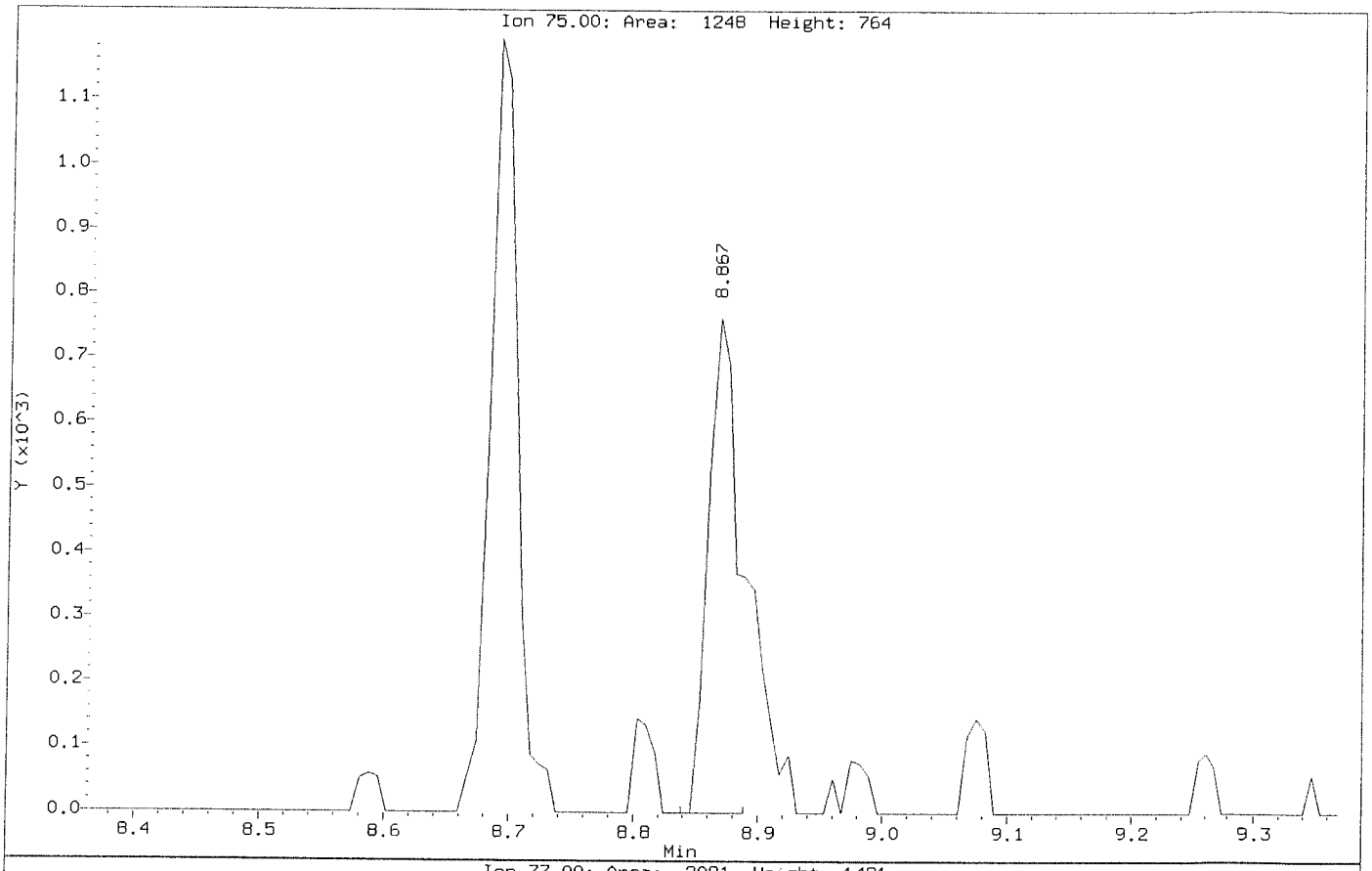
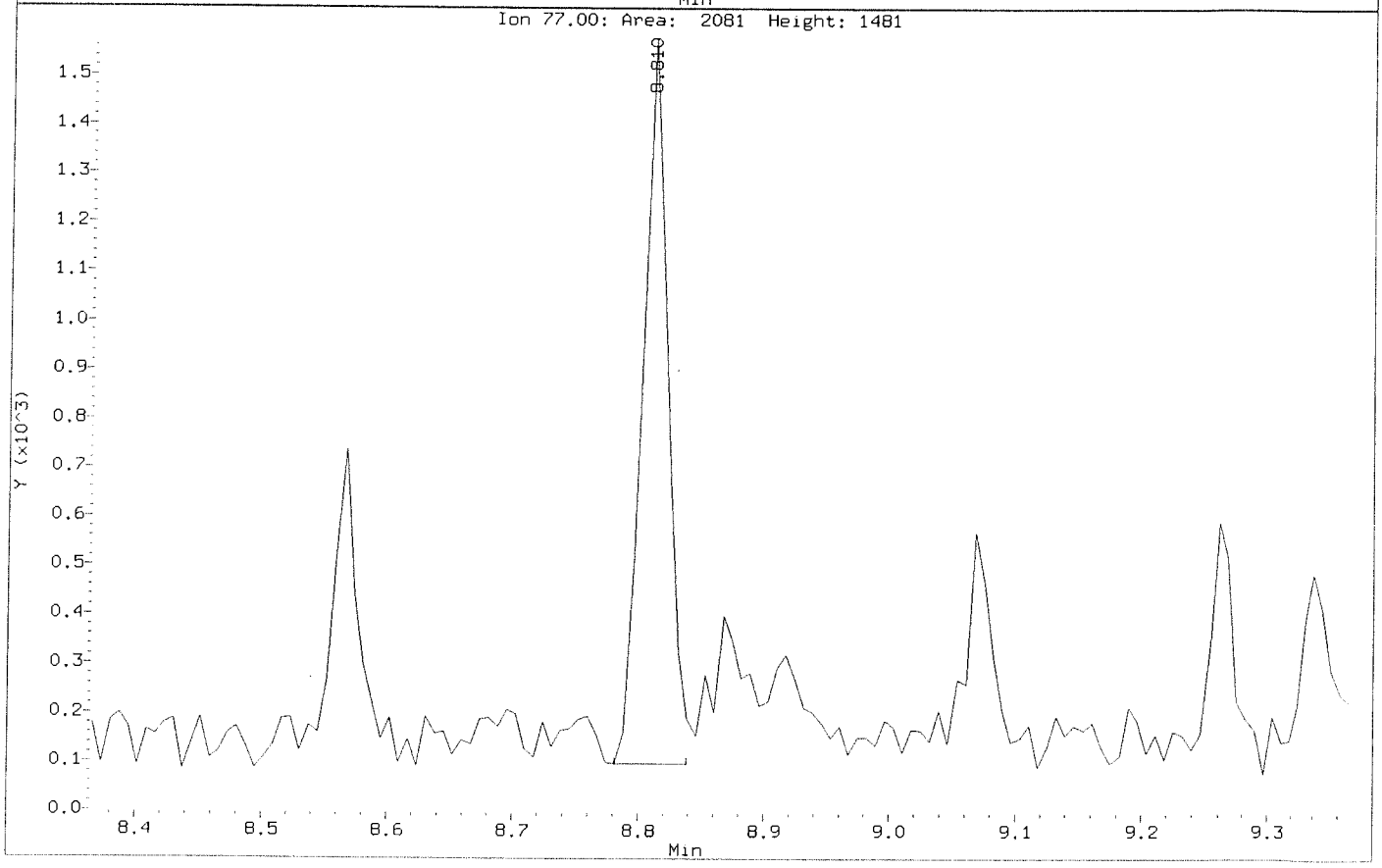
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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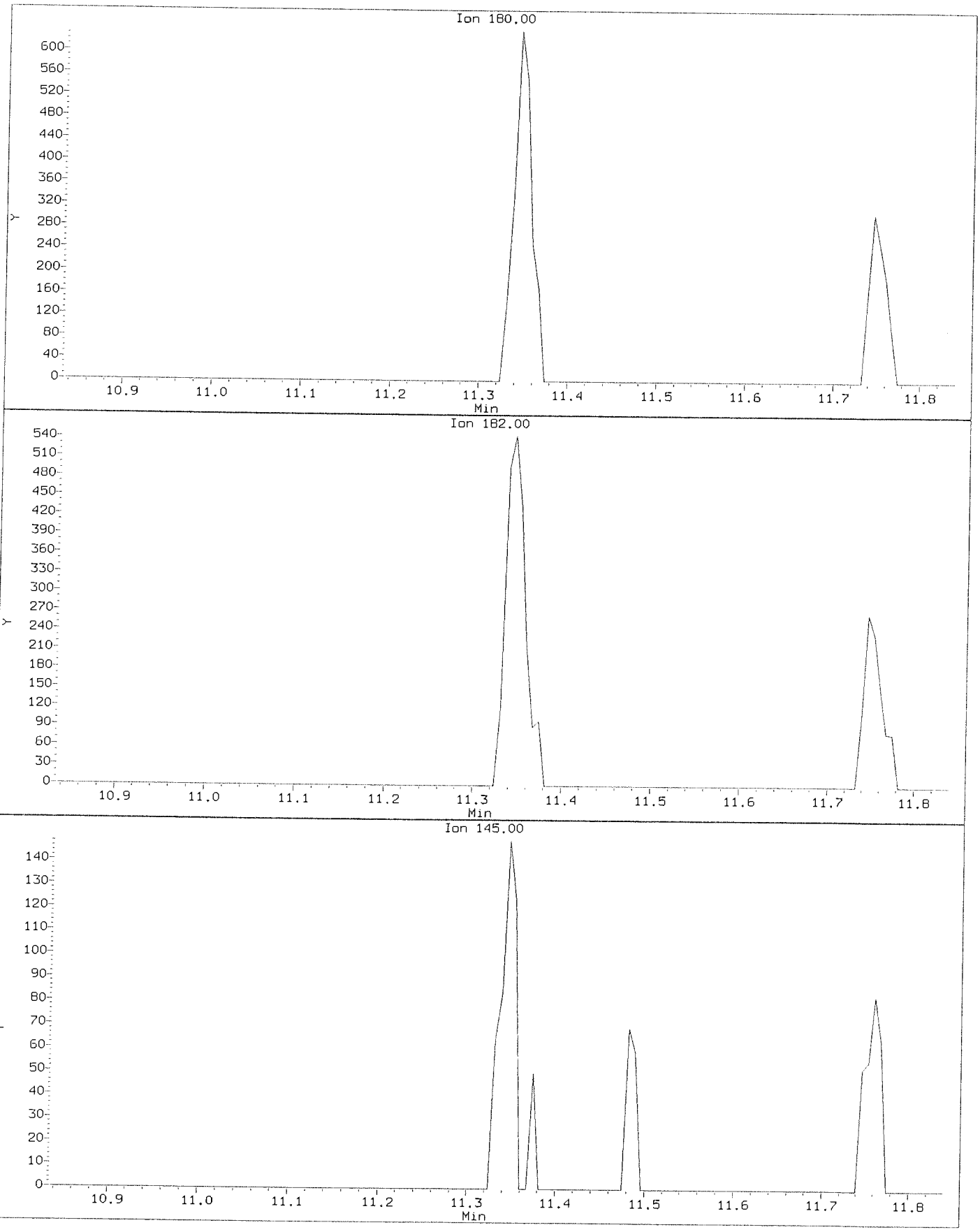
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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Instrument: voa6.i
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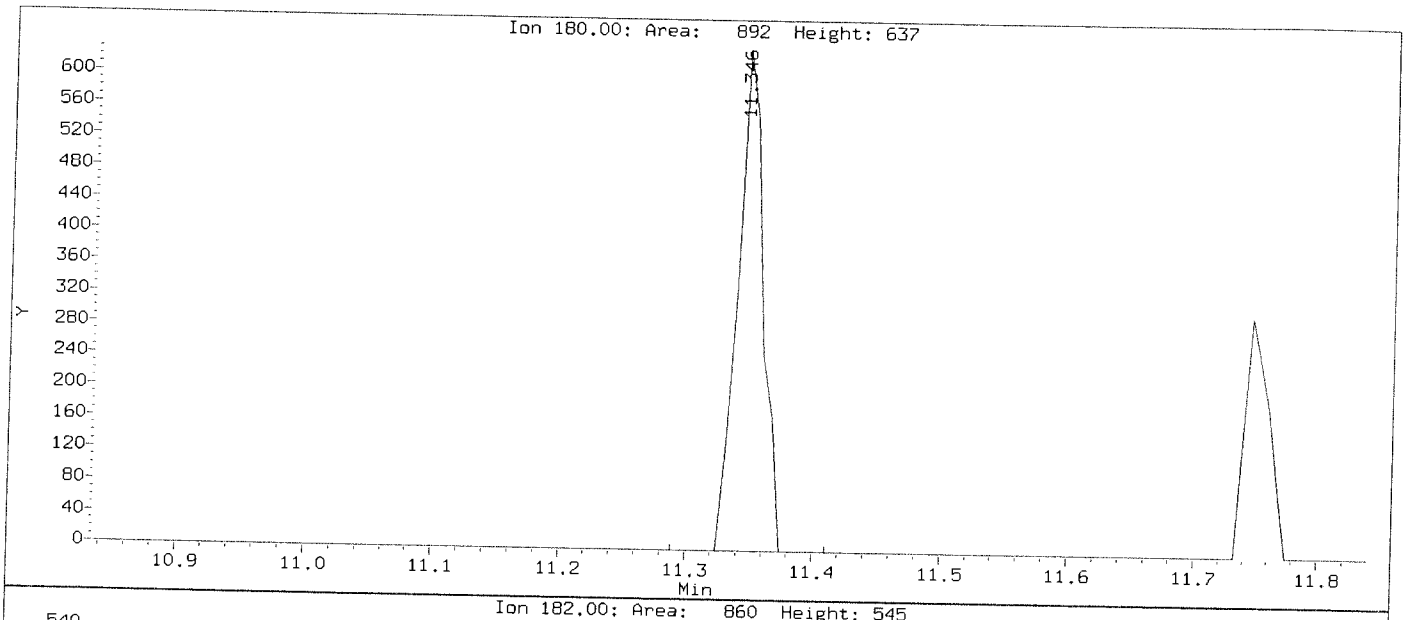
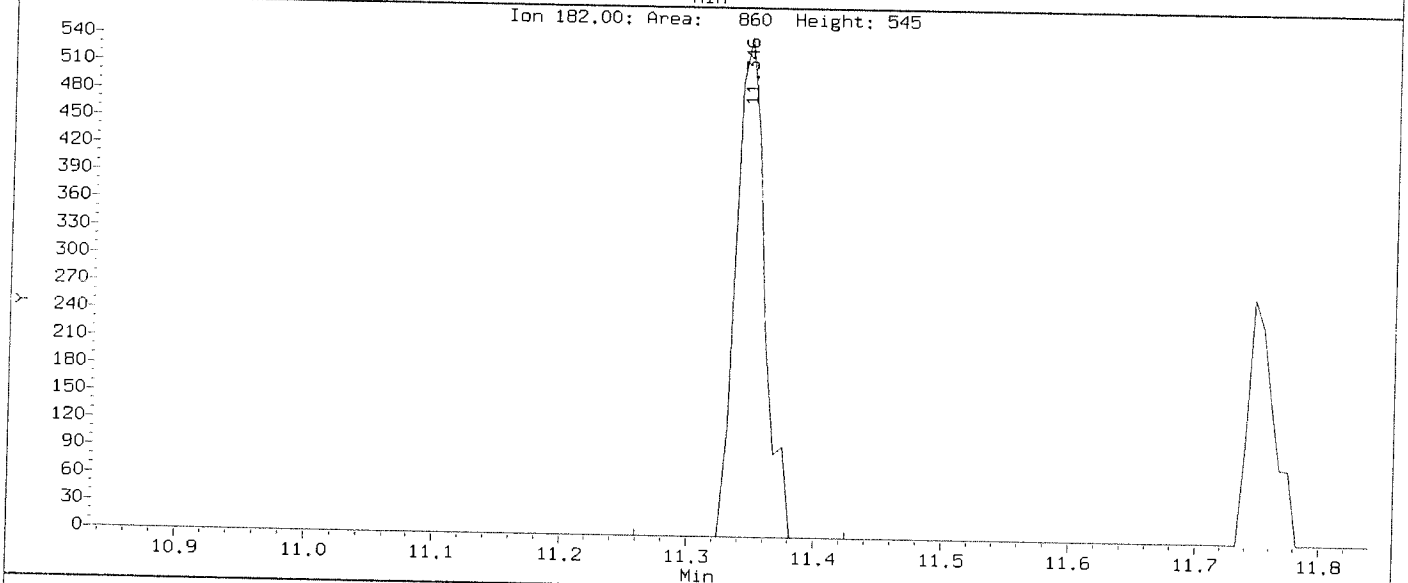
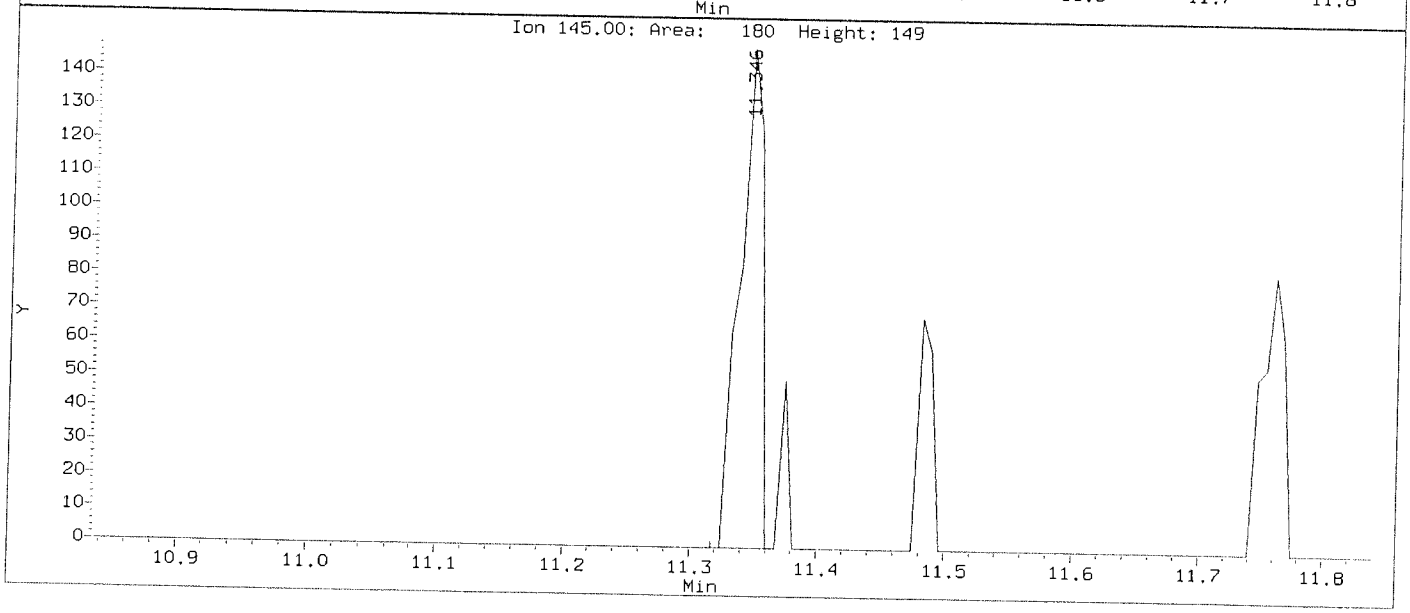
Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1







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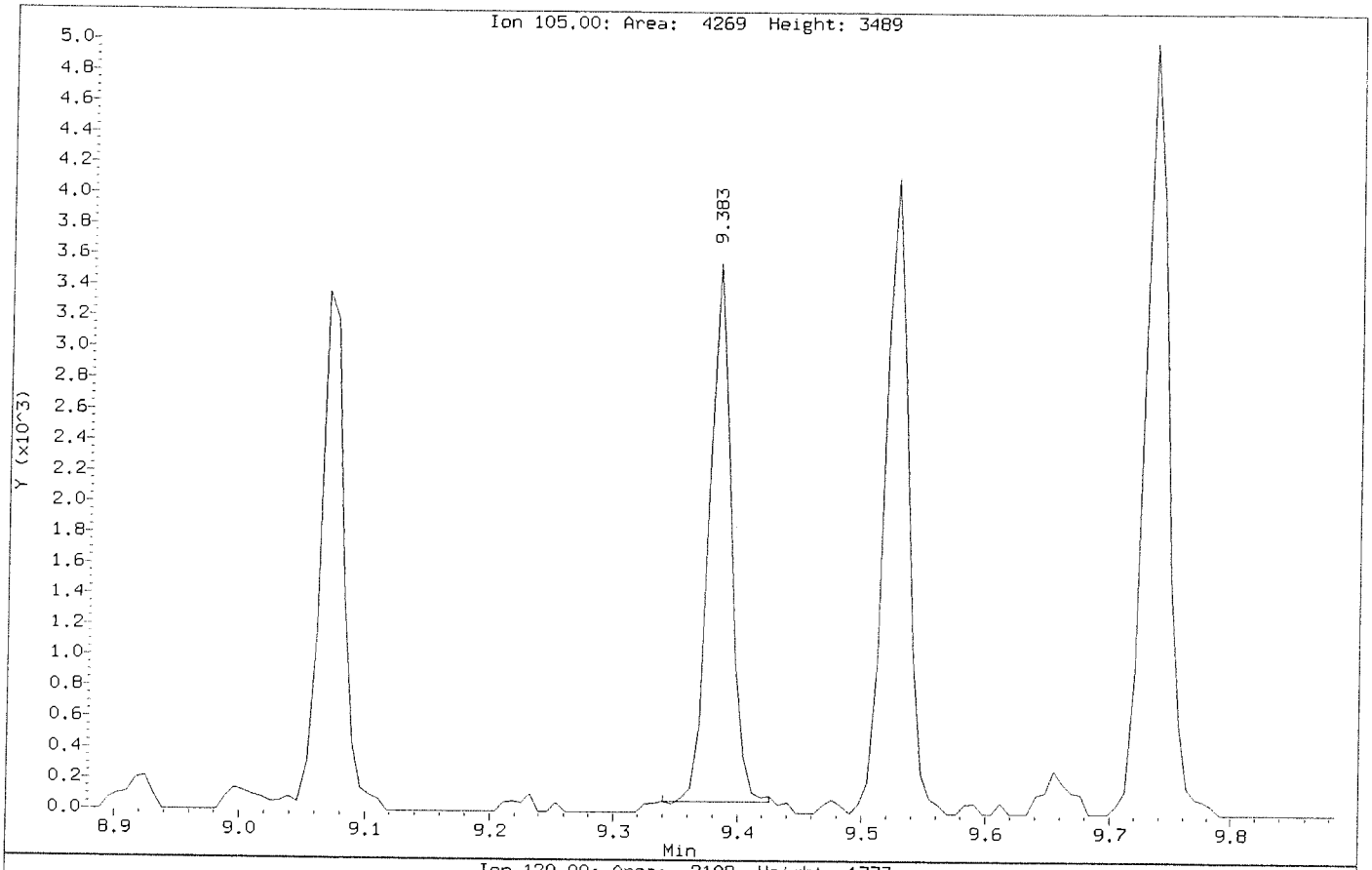
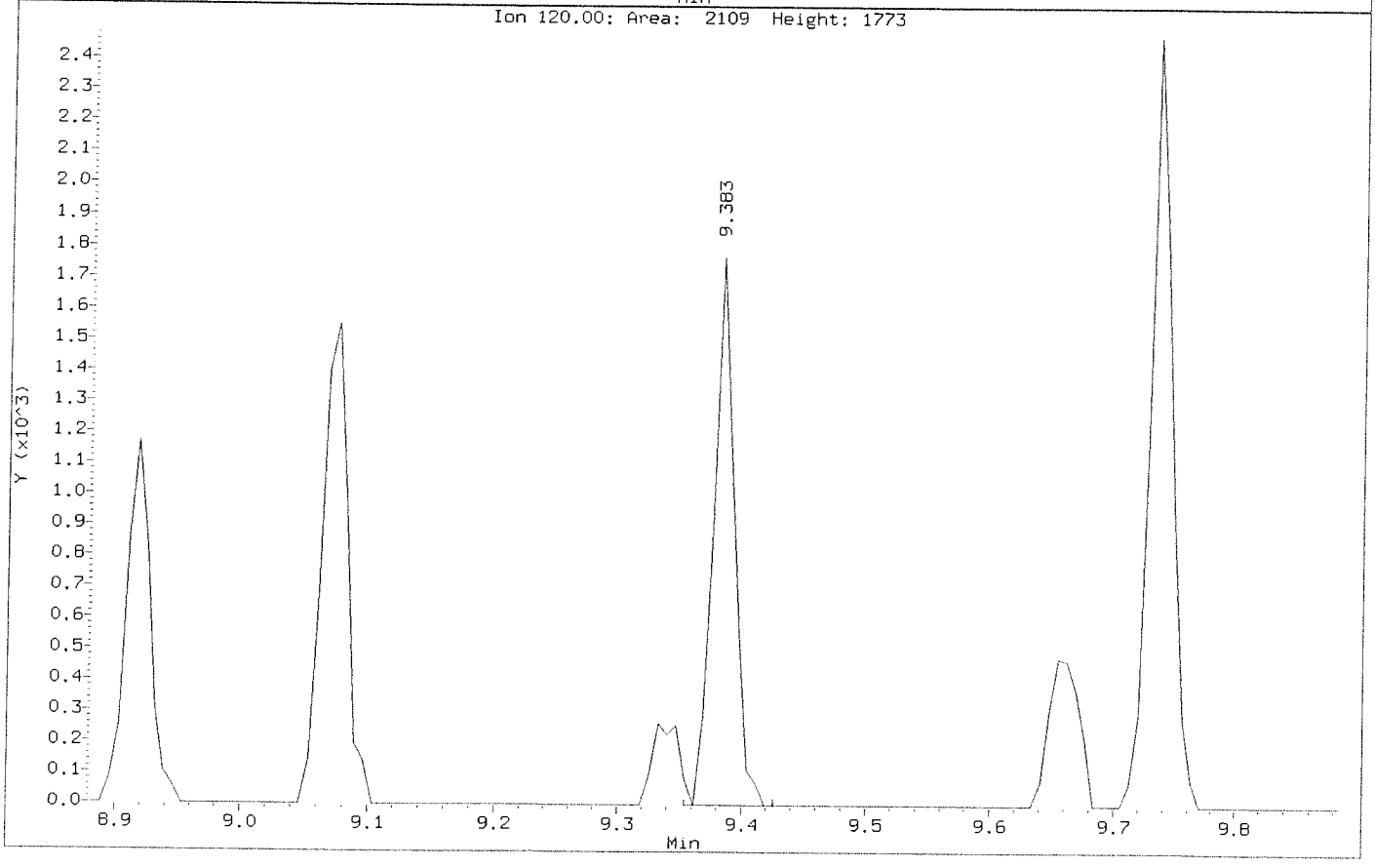
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6





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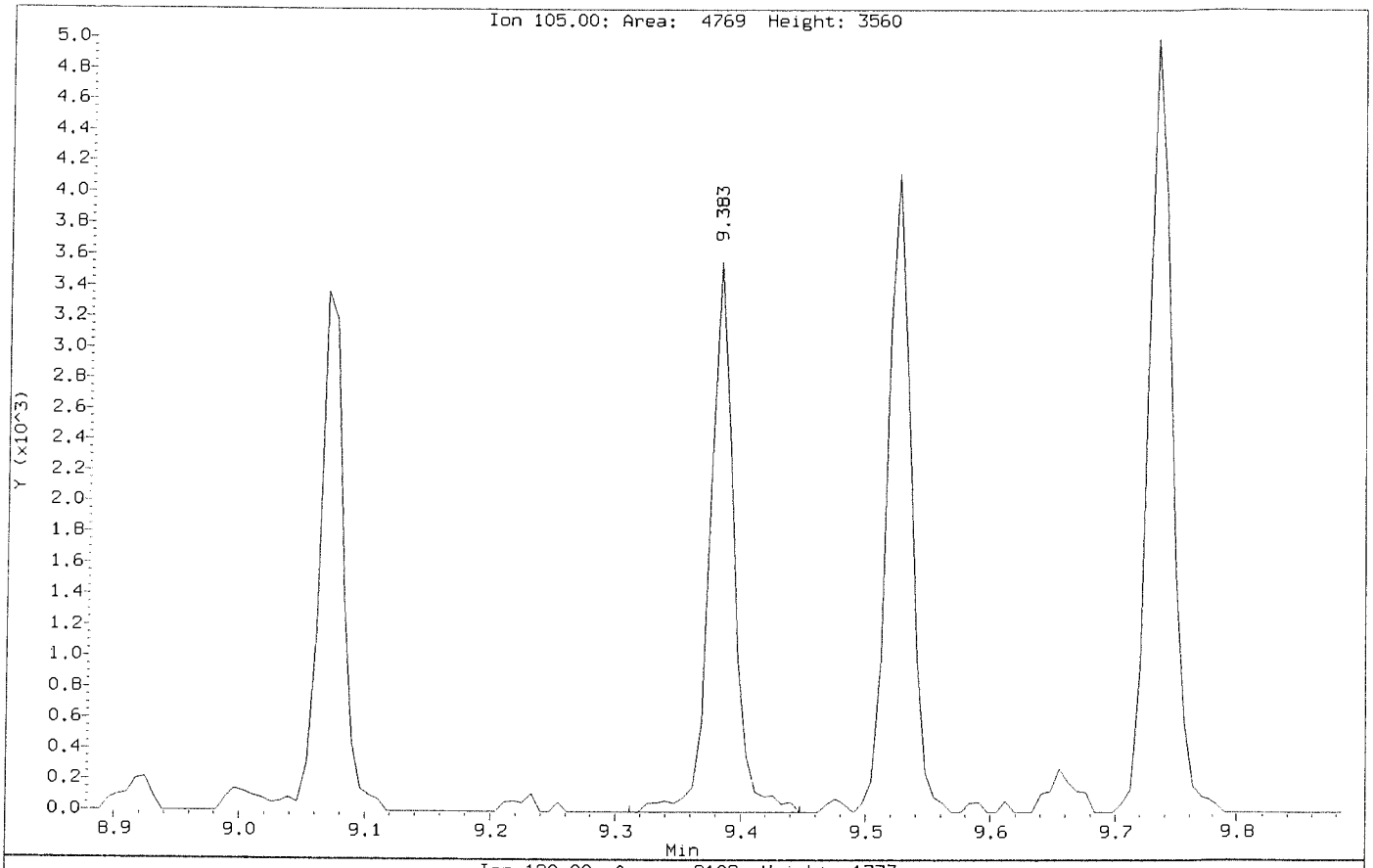
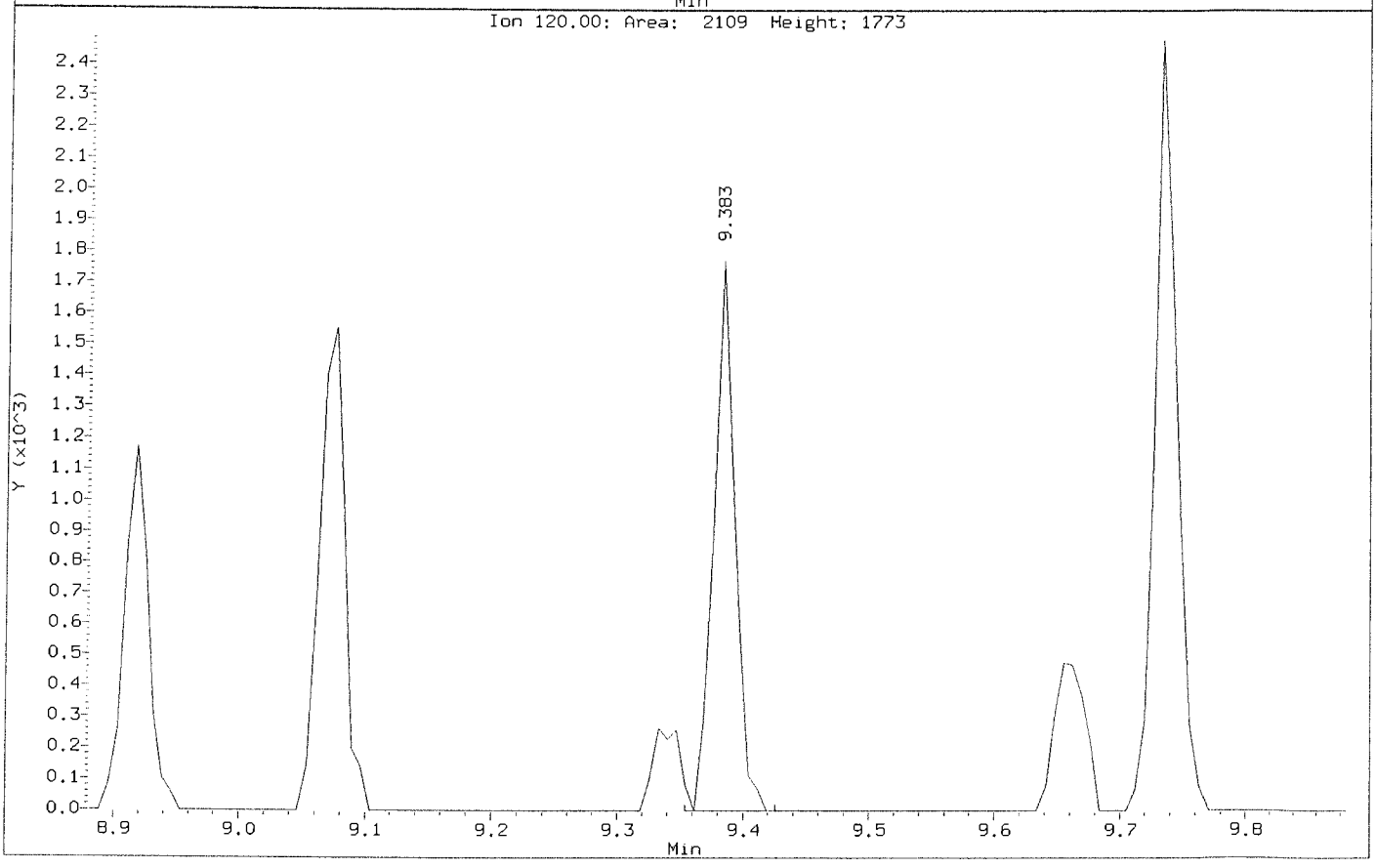
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6





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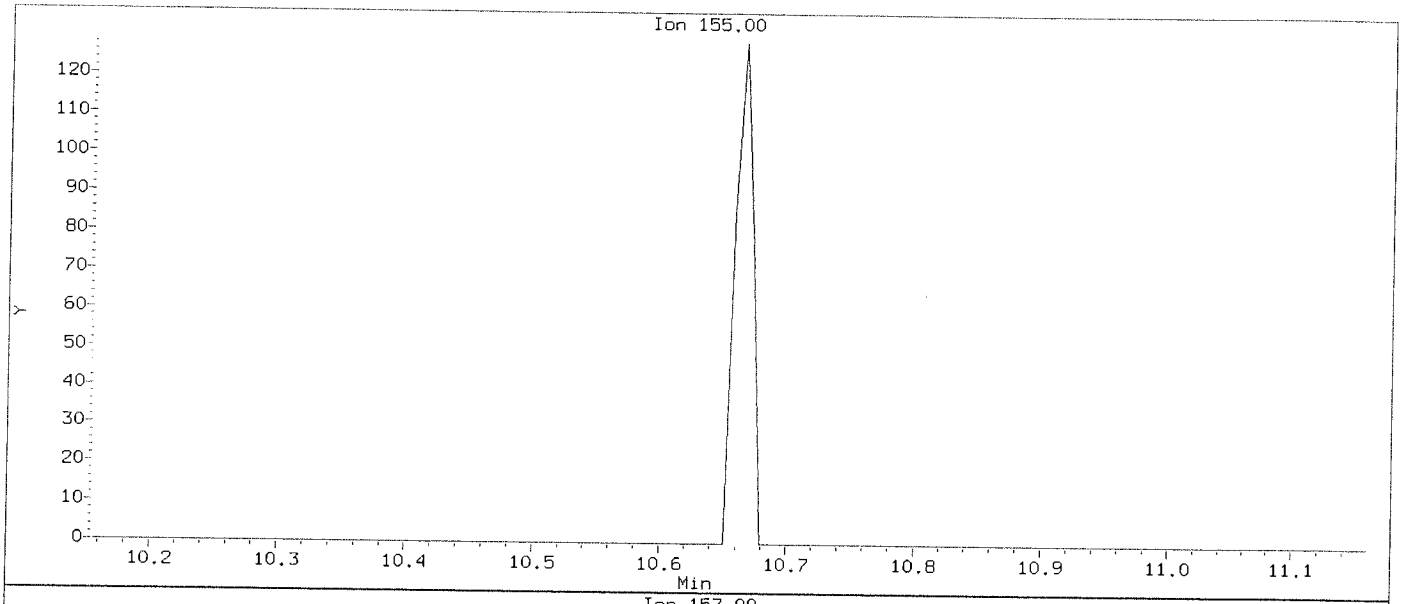
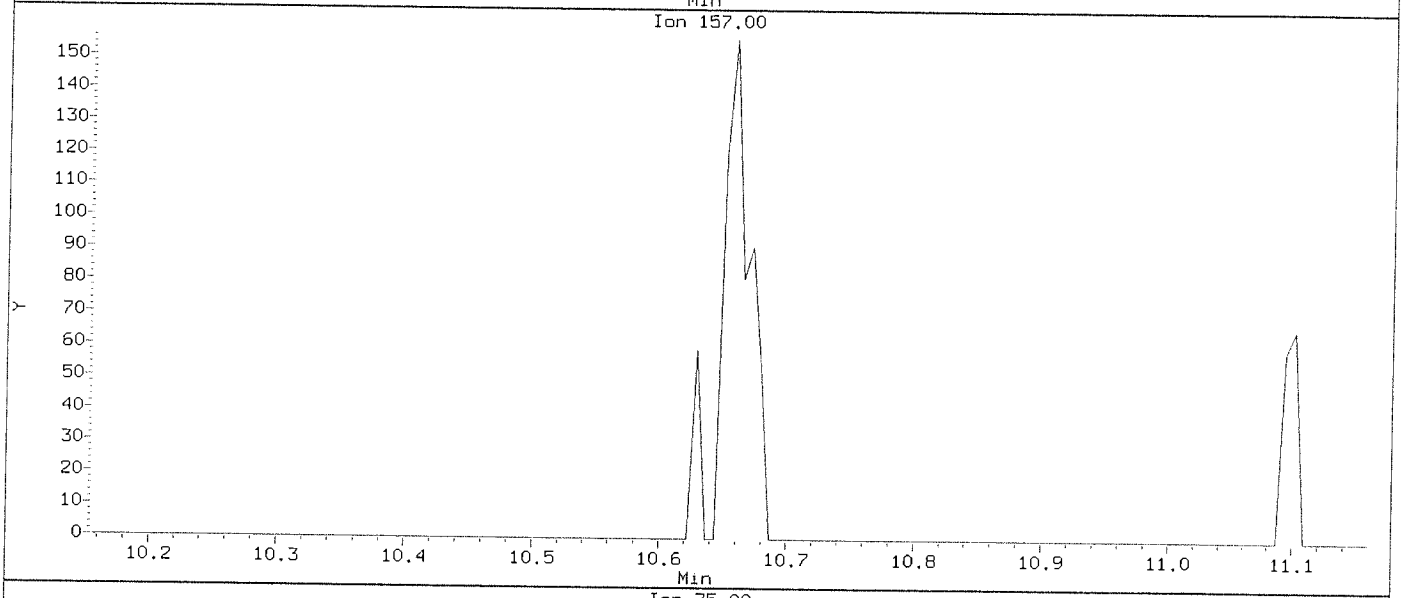
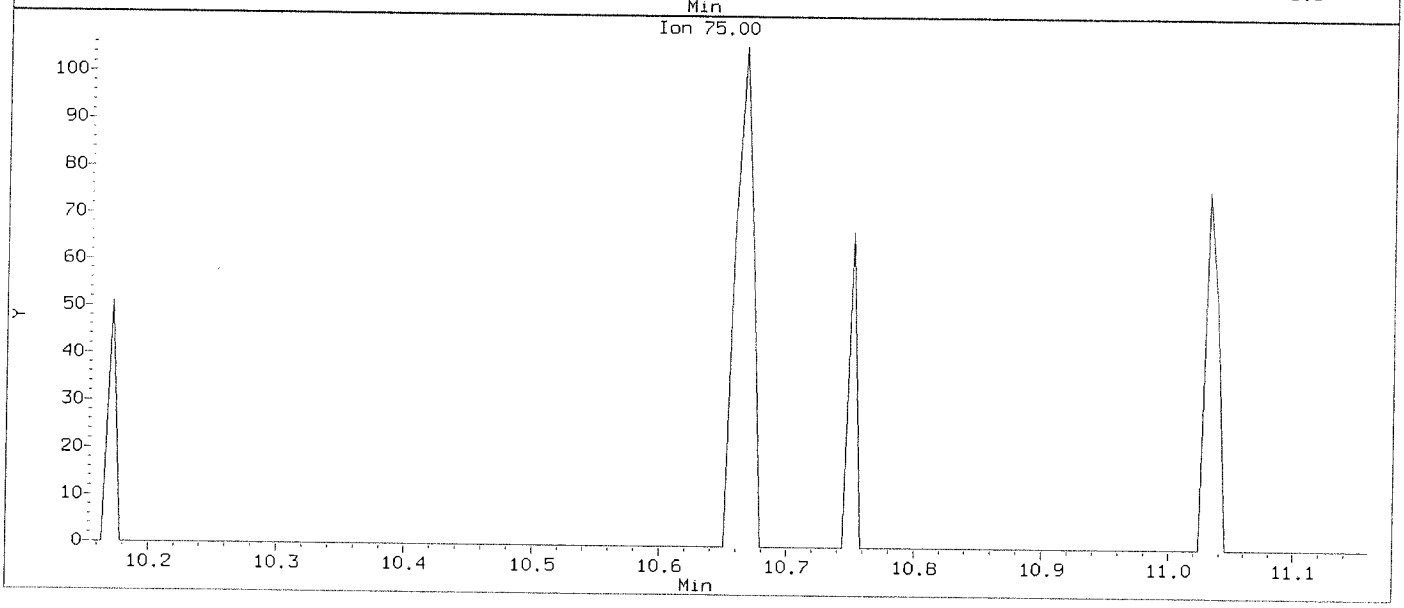
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

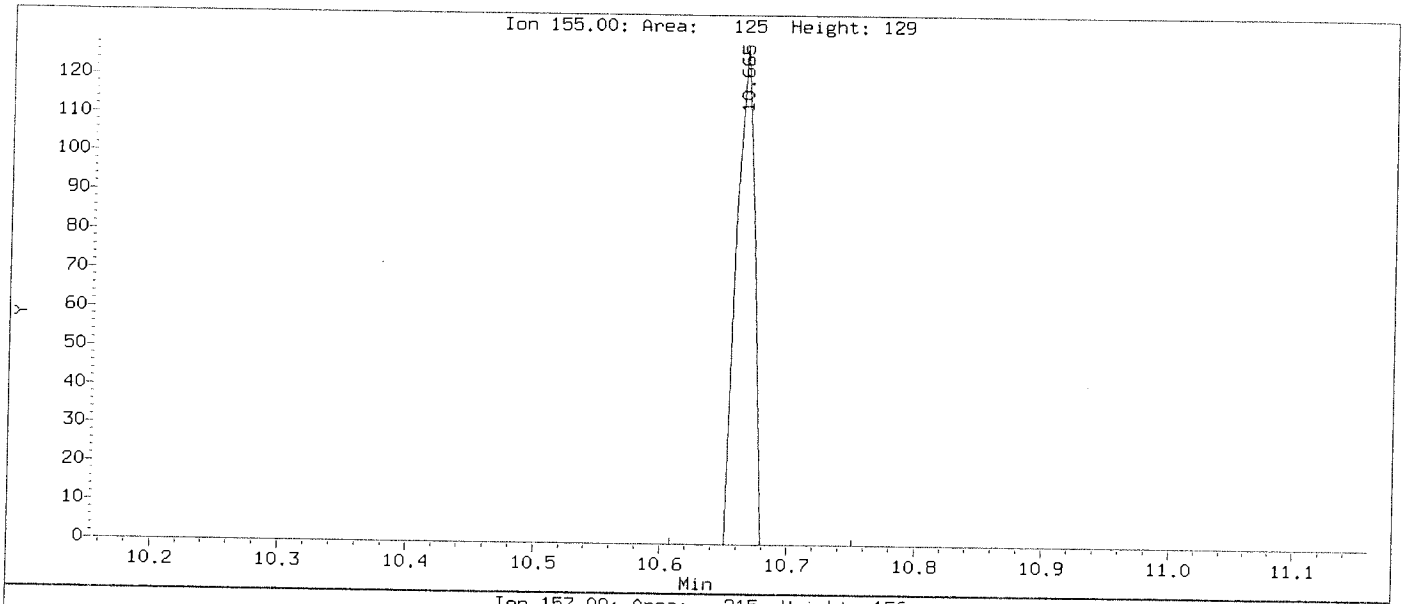


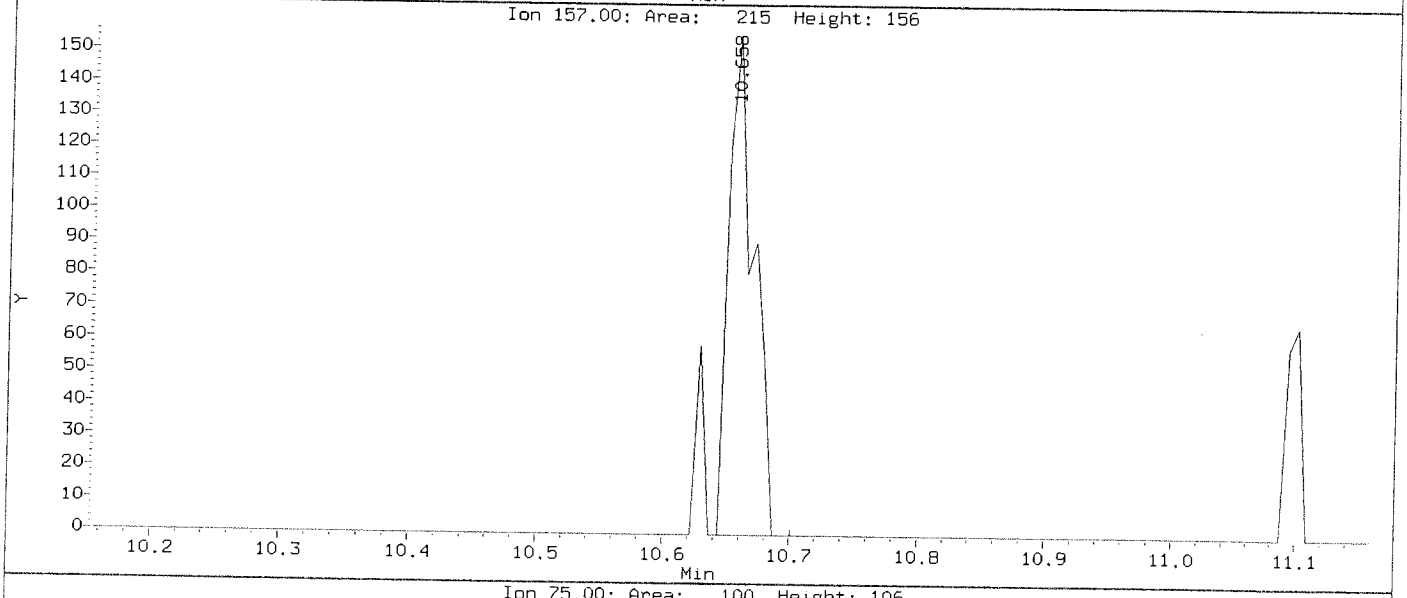


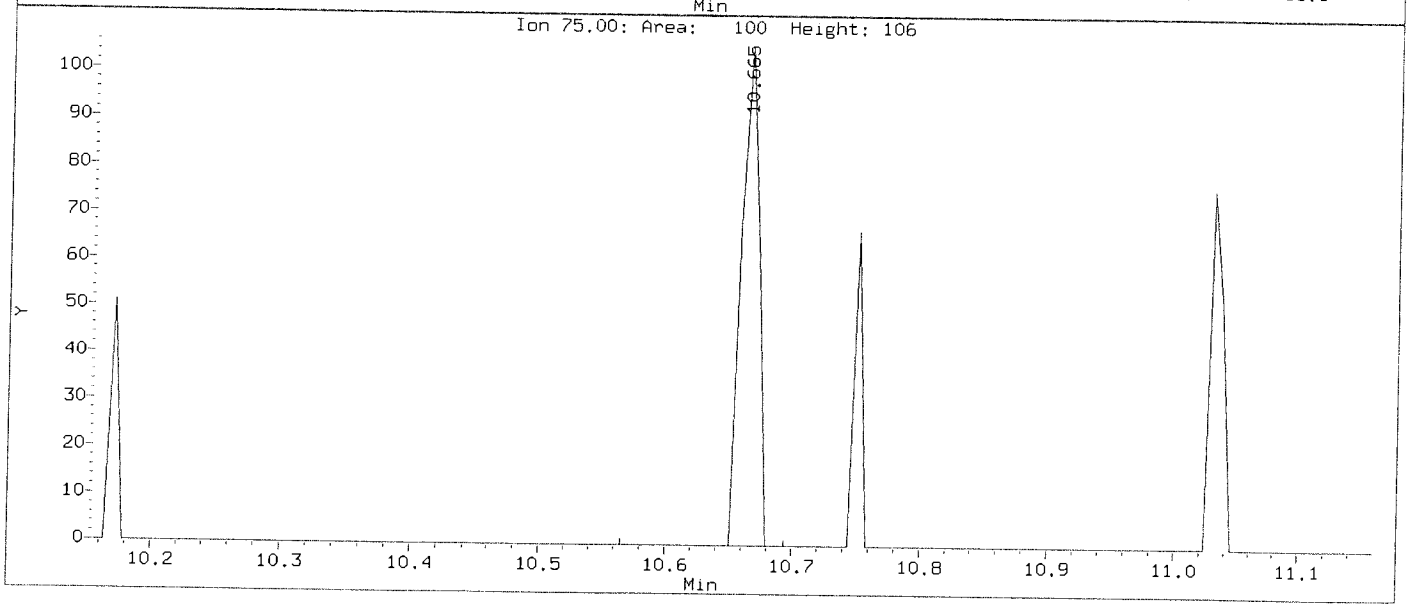


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

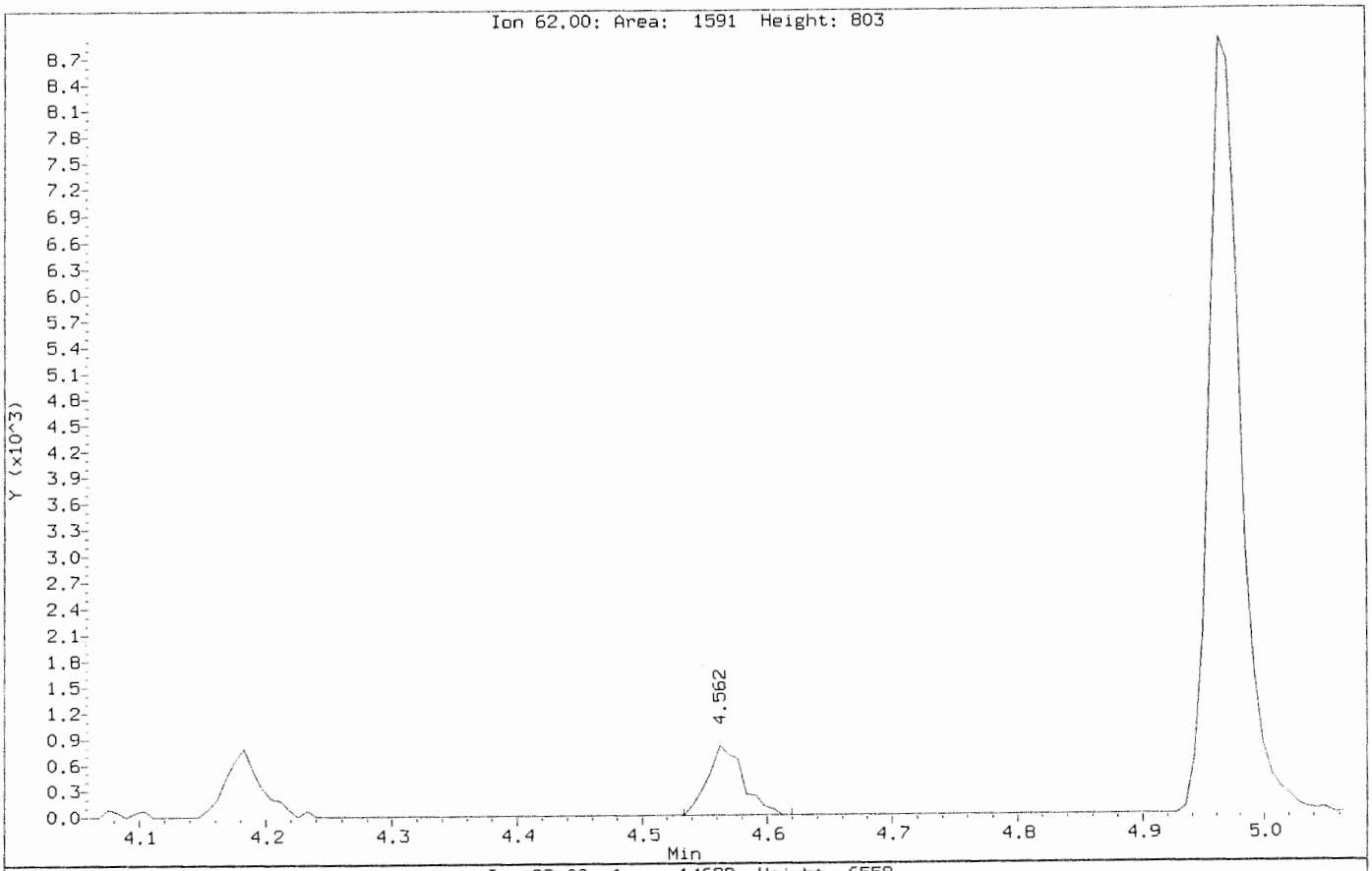


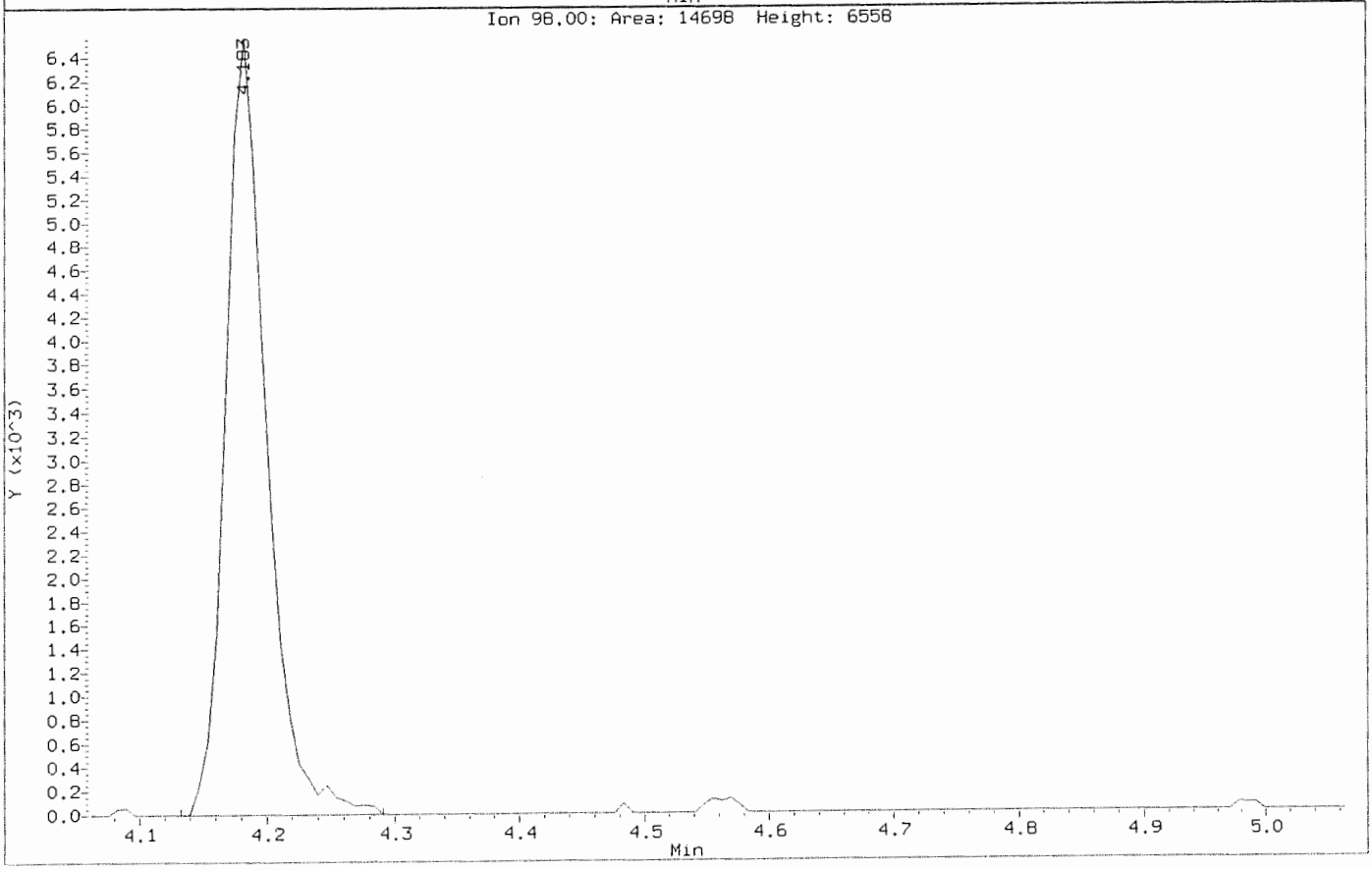




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





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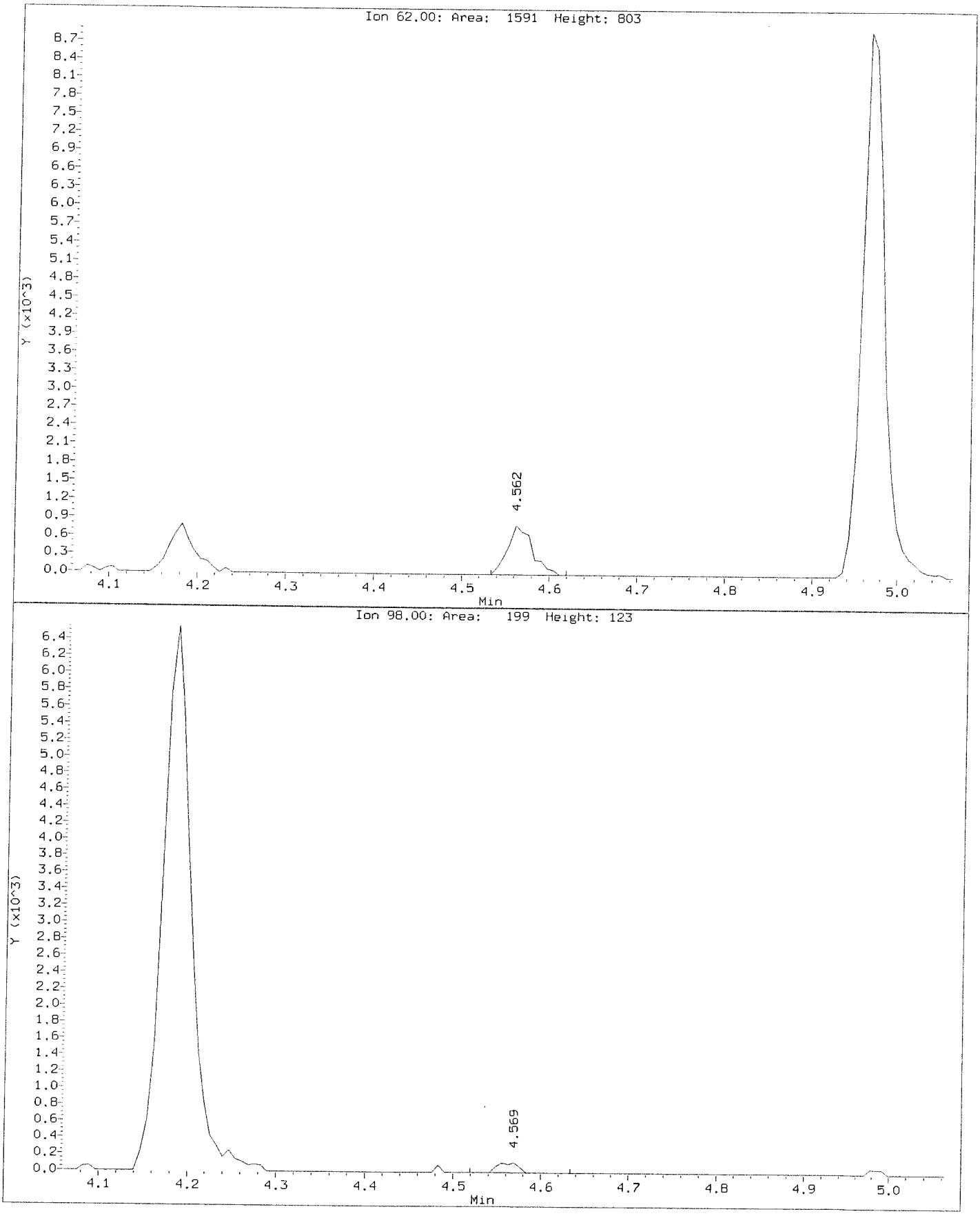
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



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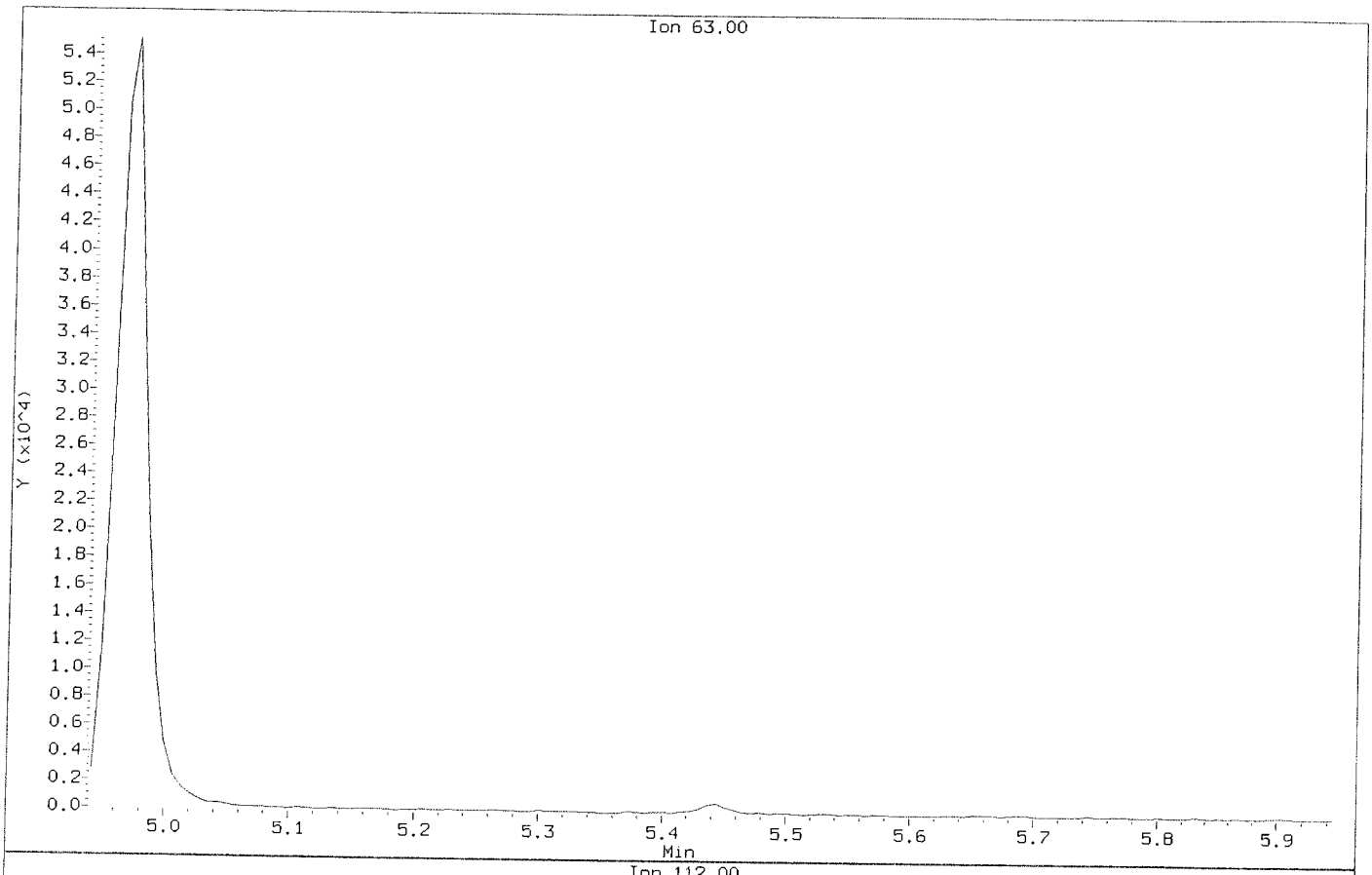
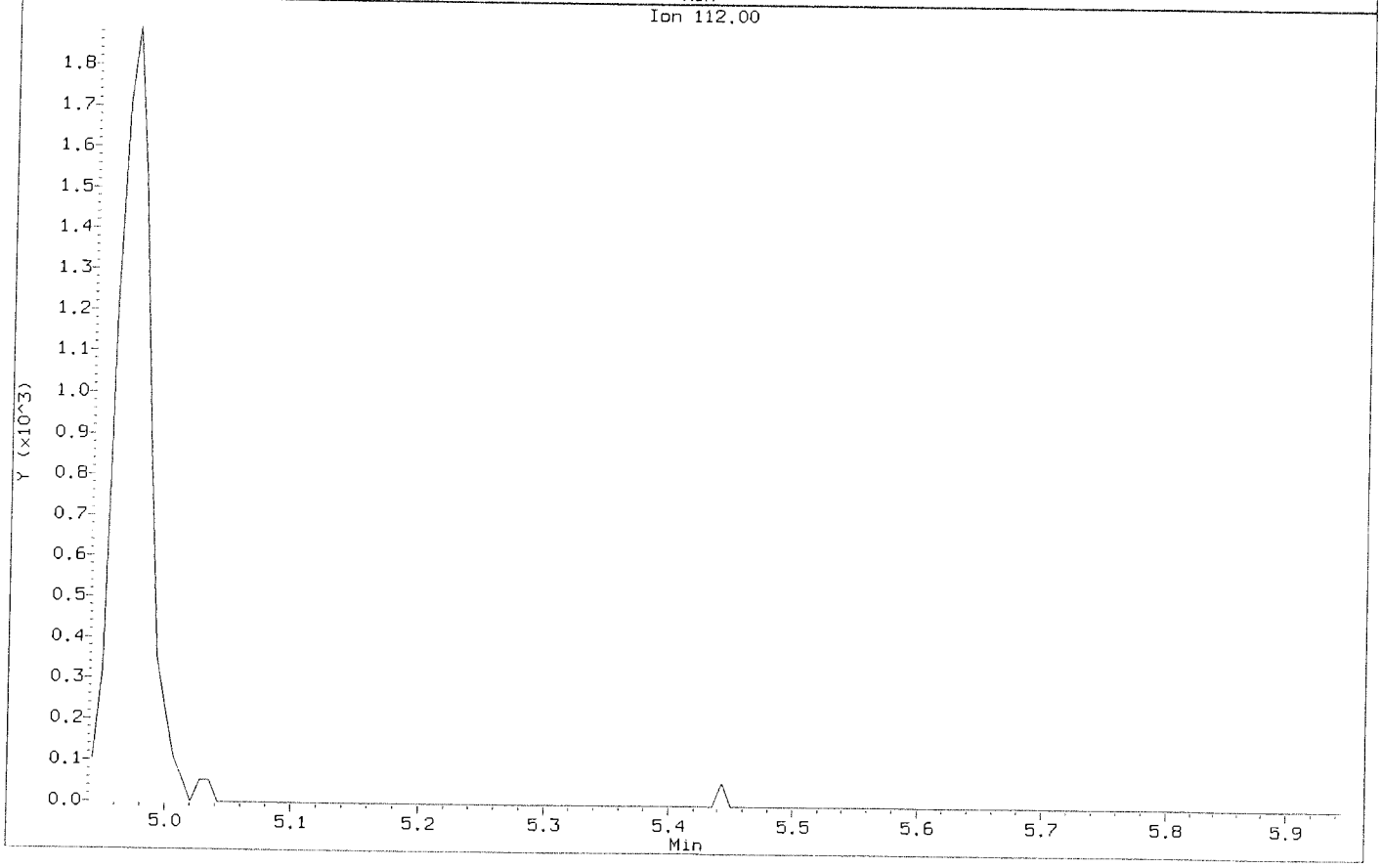
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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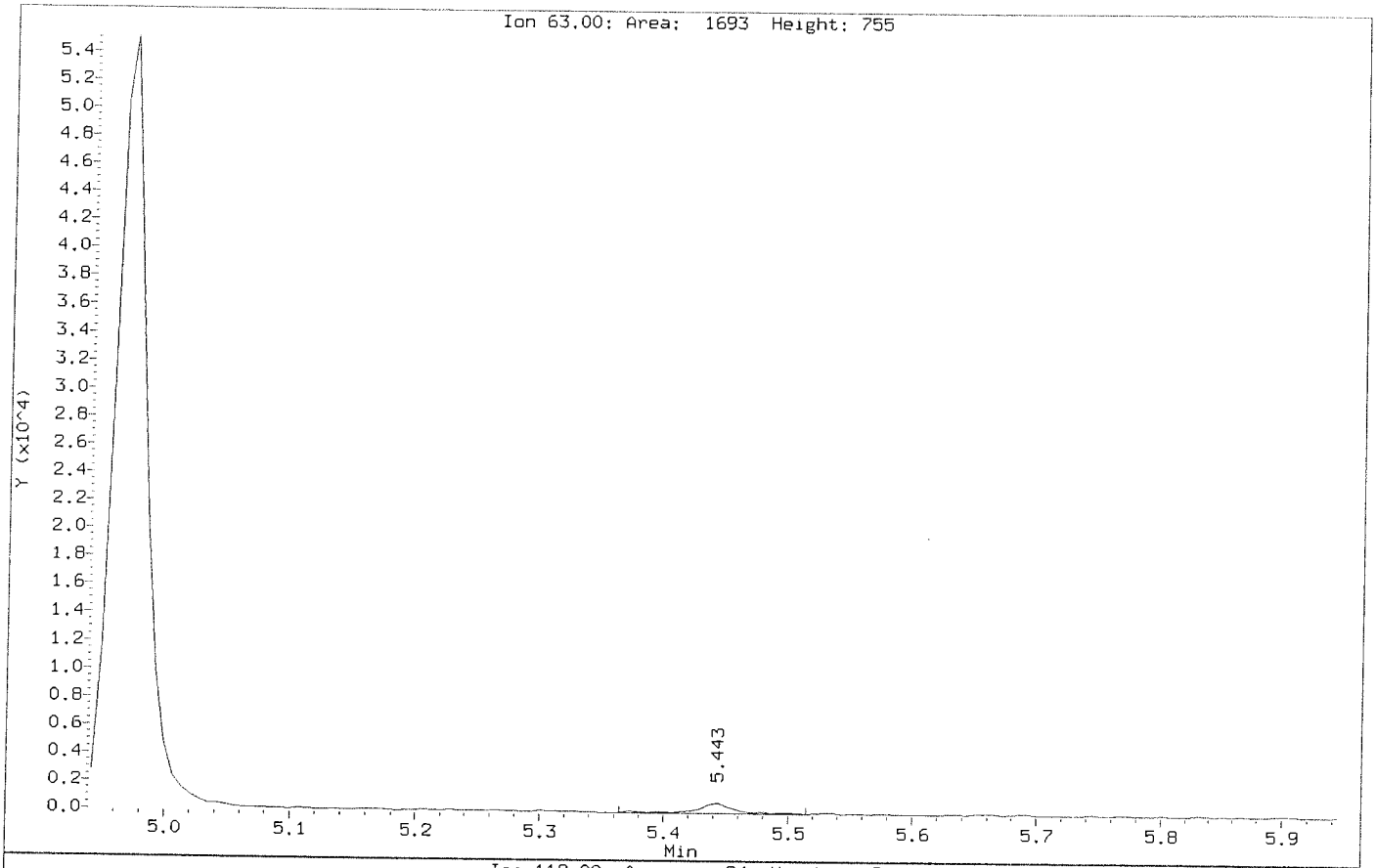
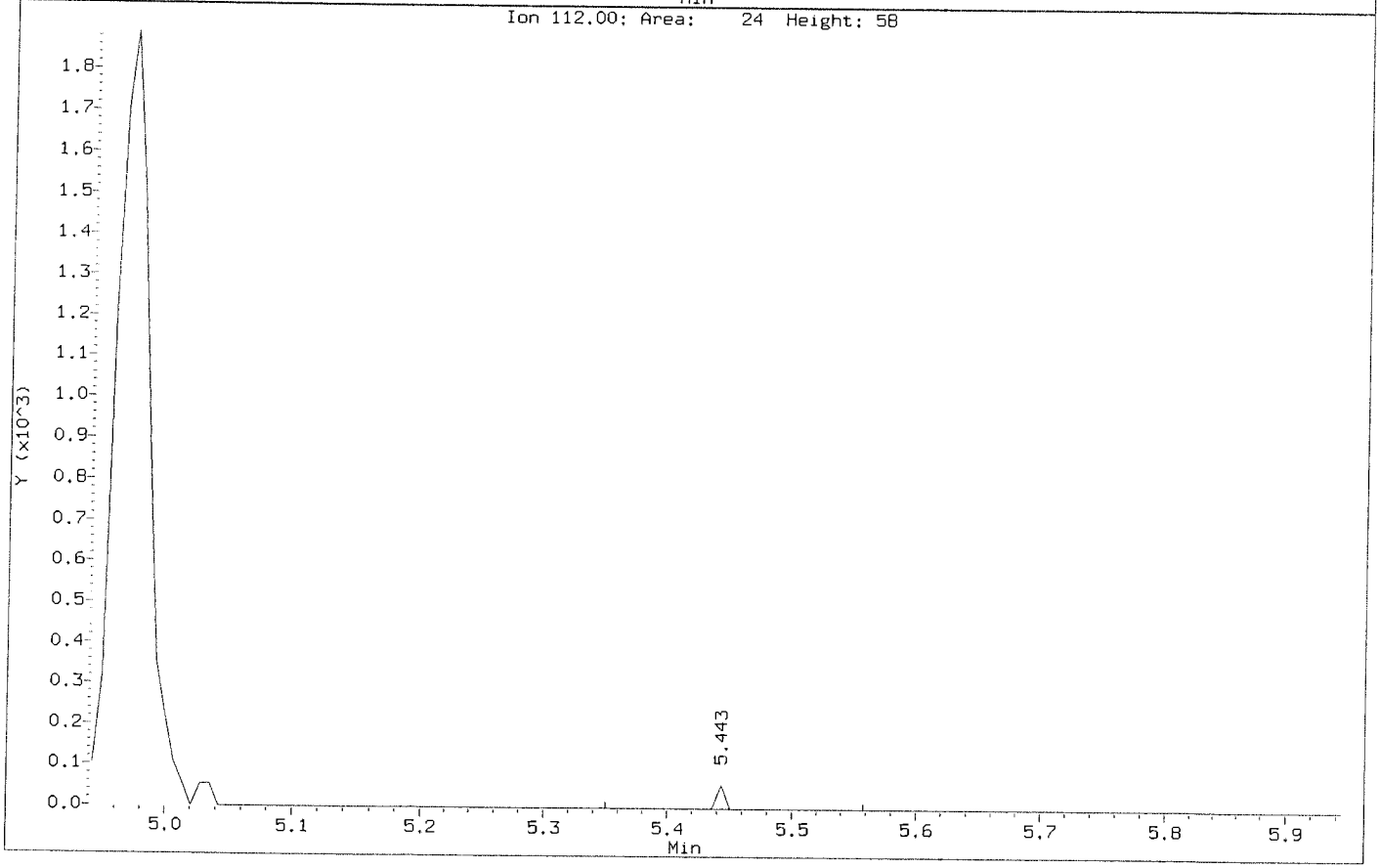
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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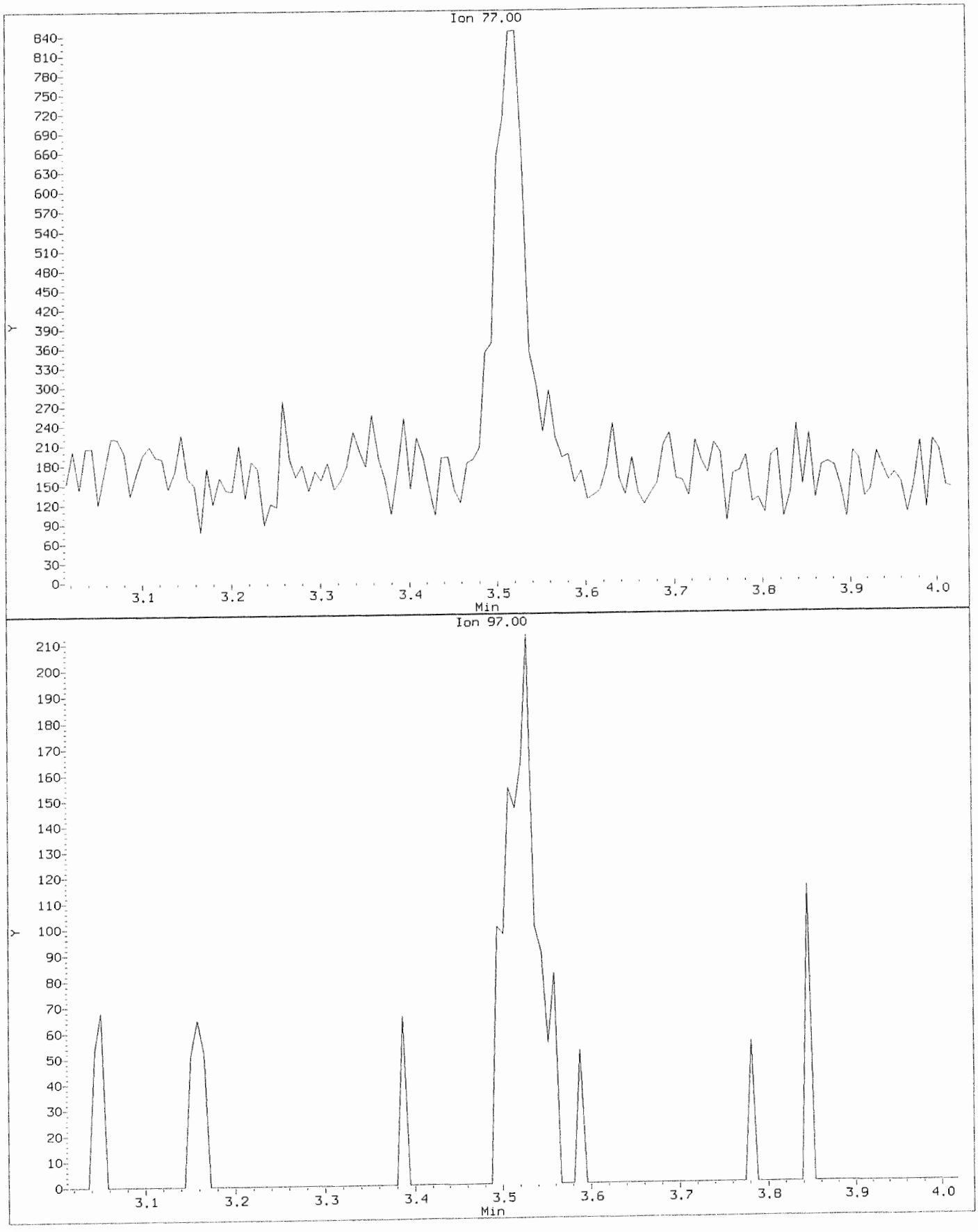
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



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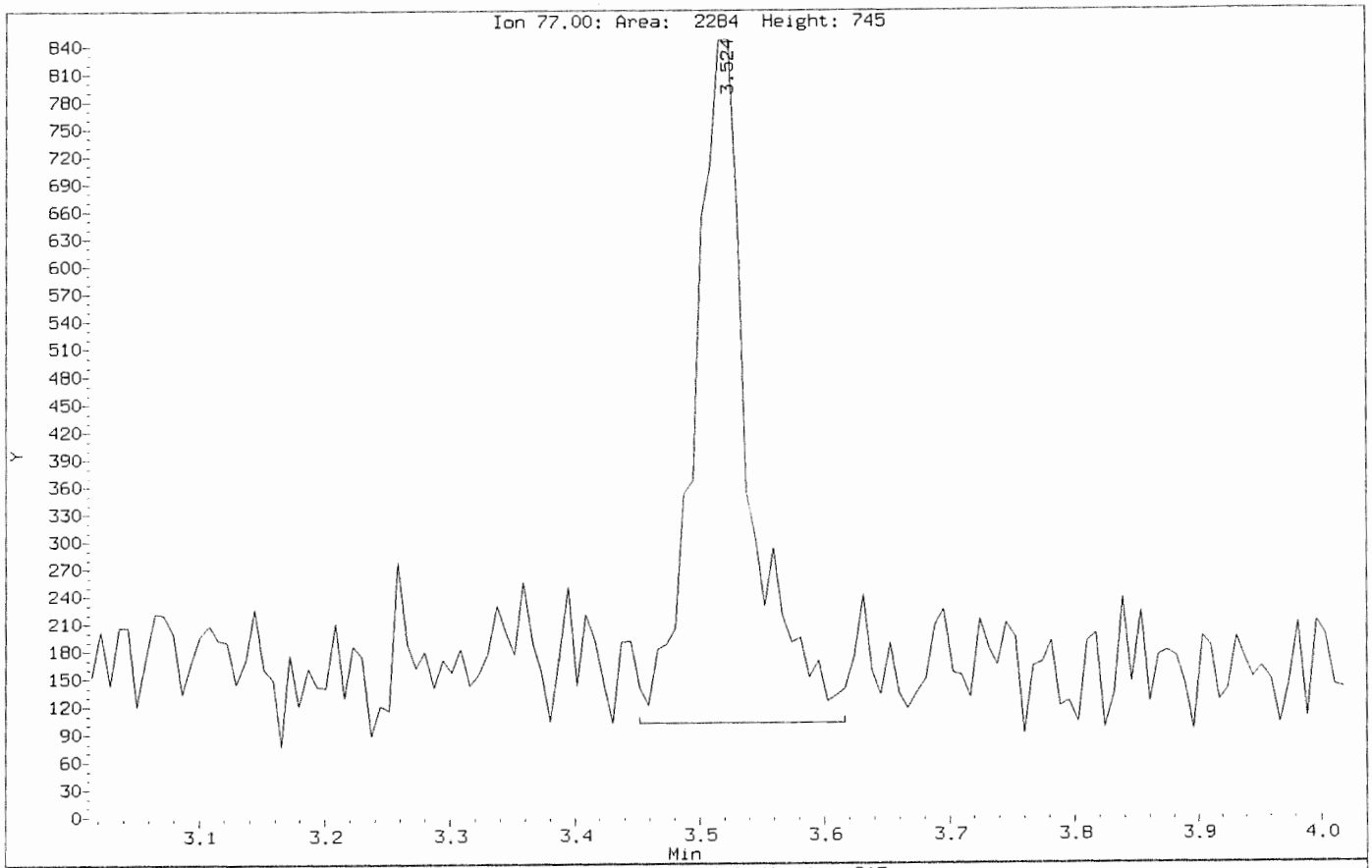
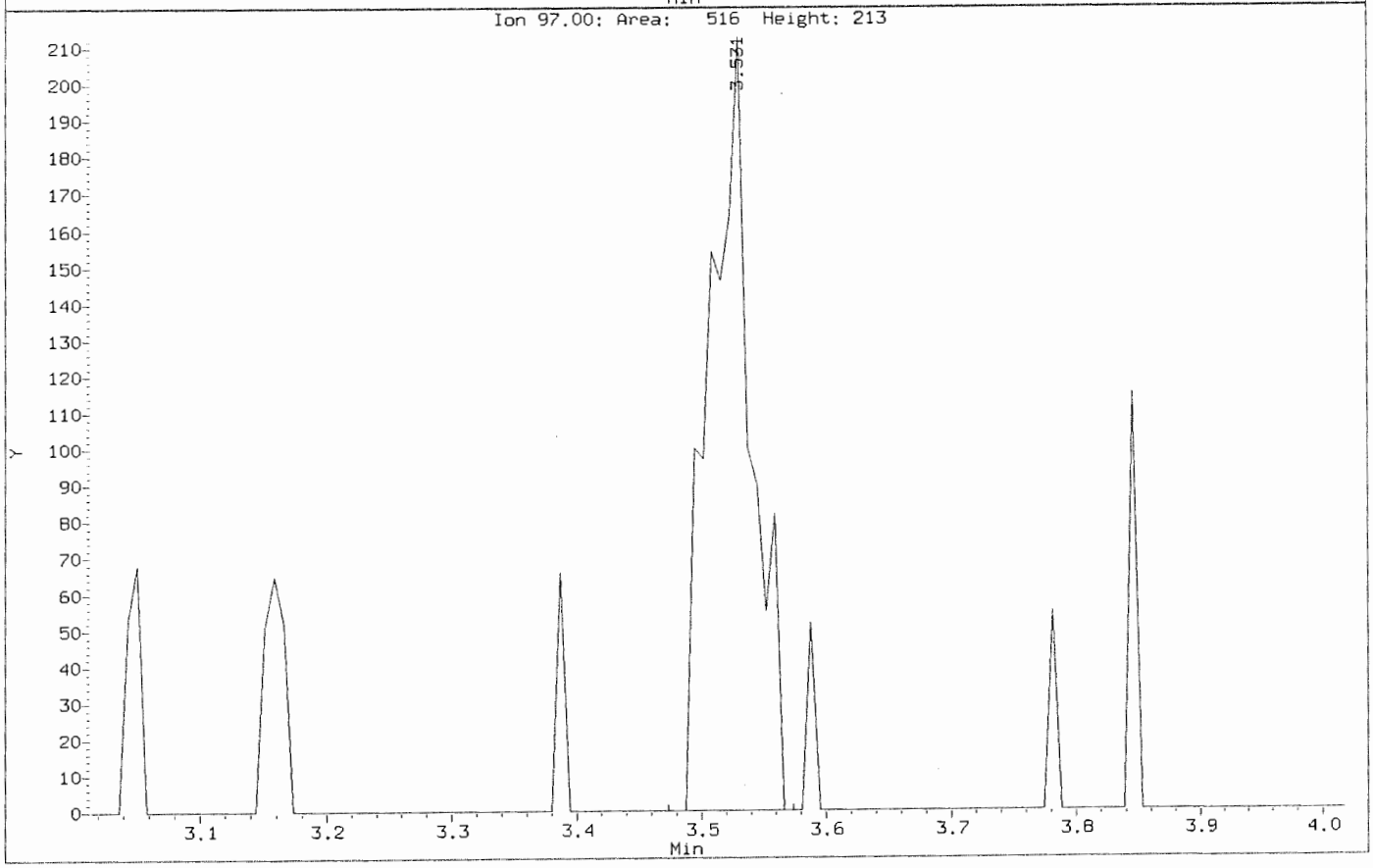
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





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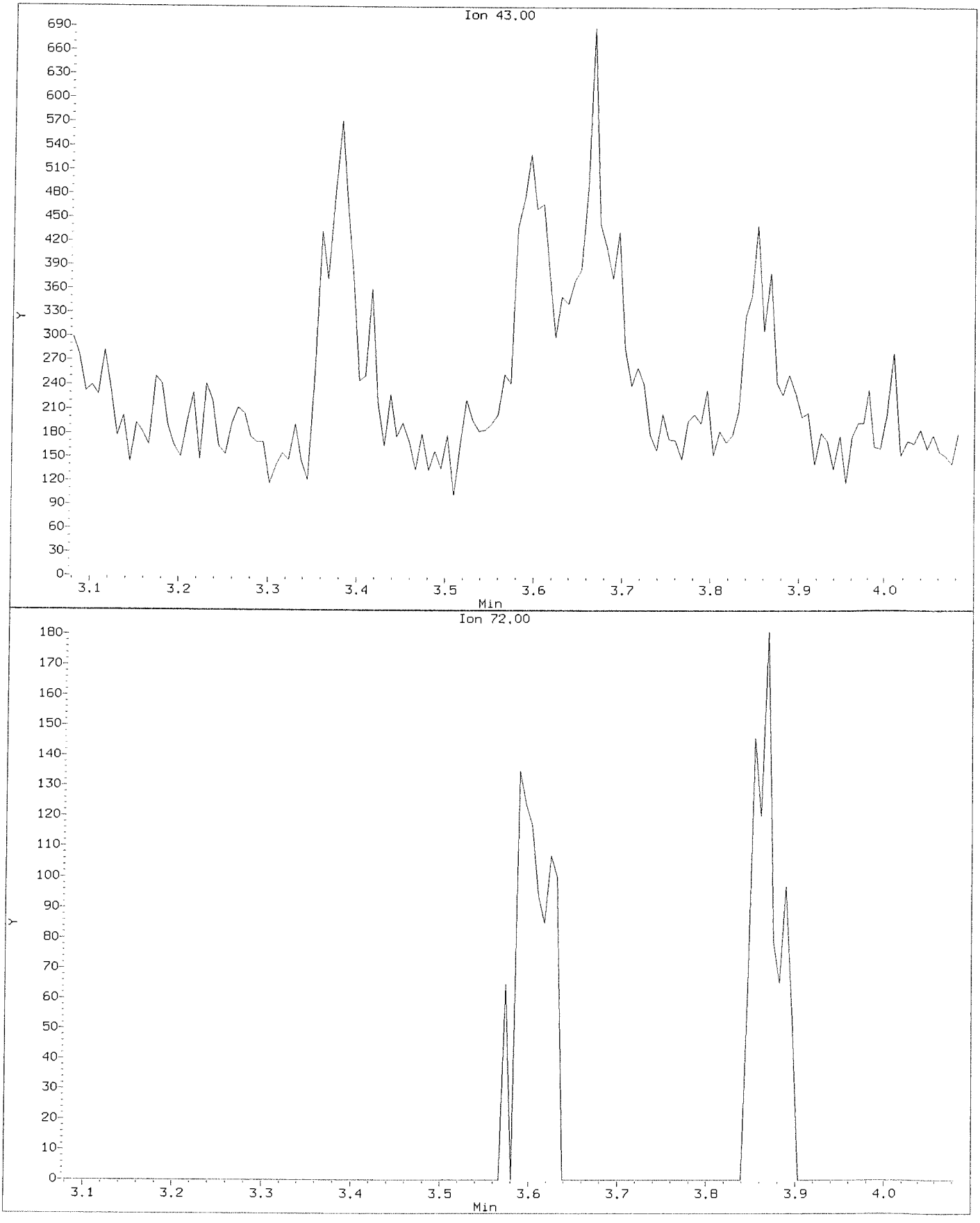
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3



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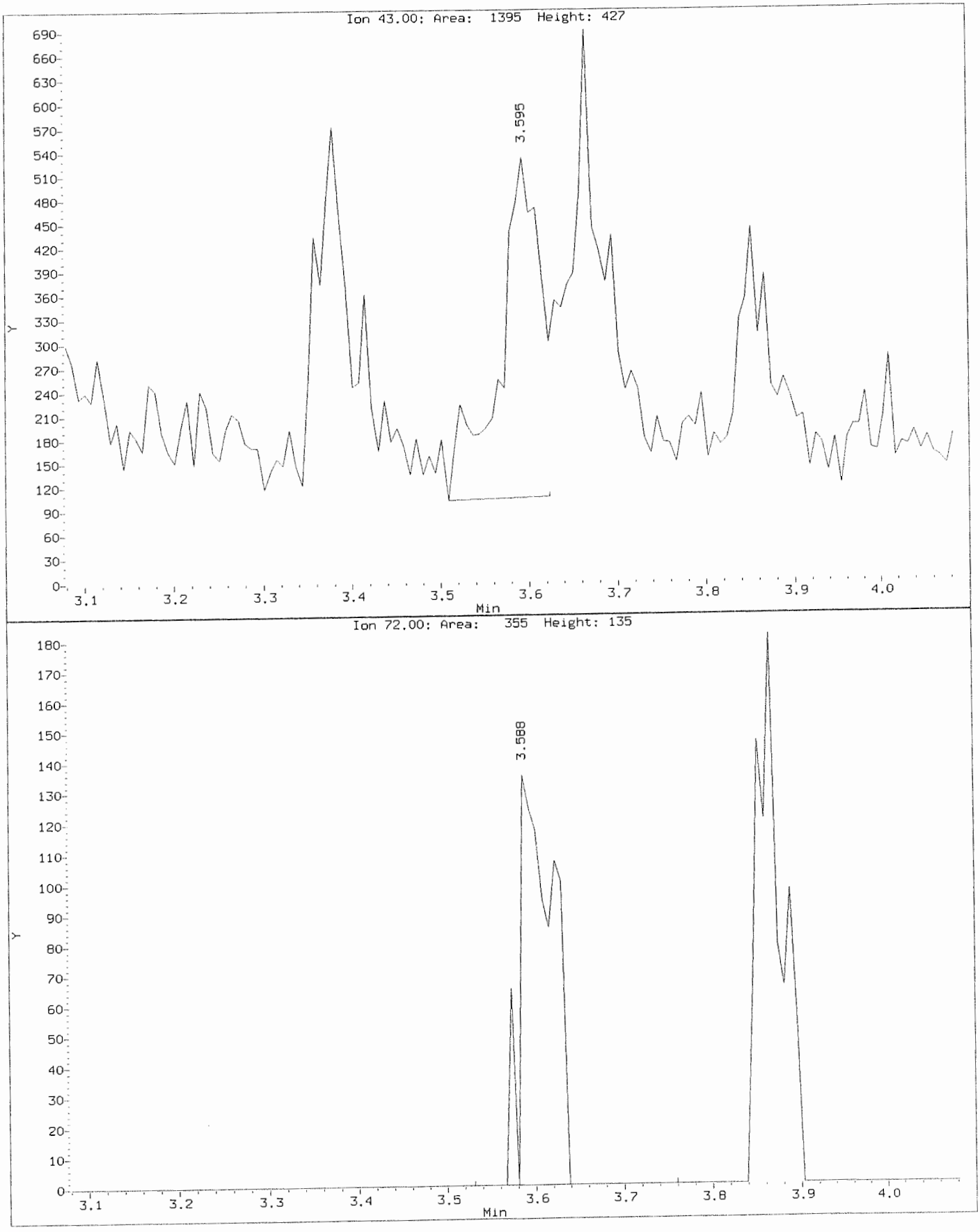
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3



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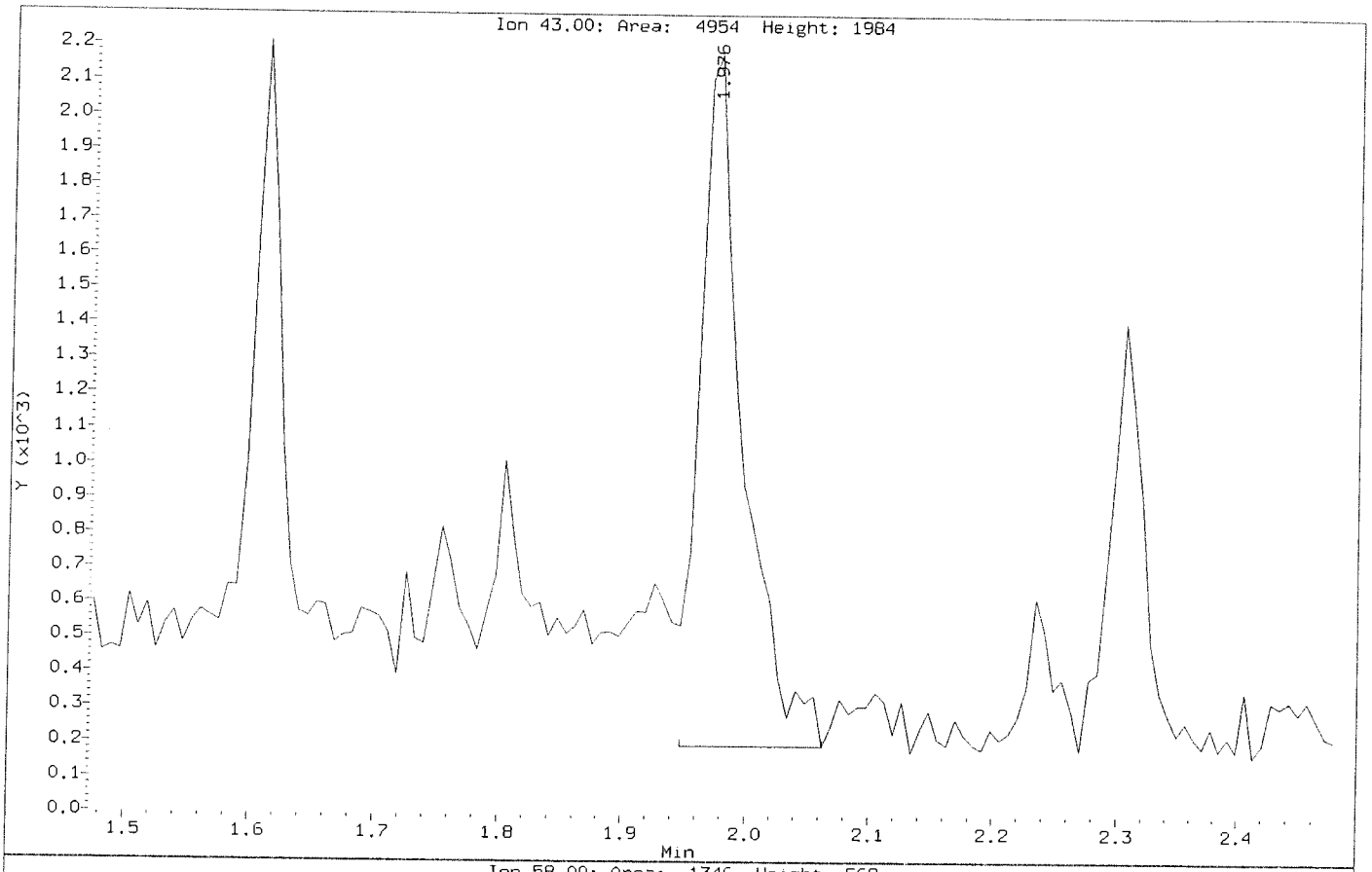
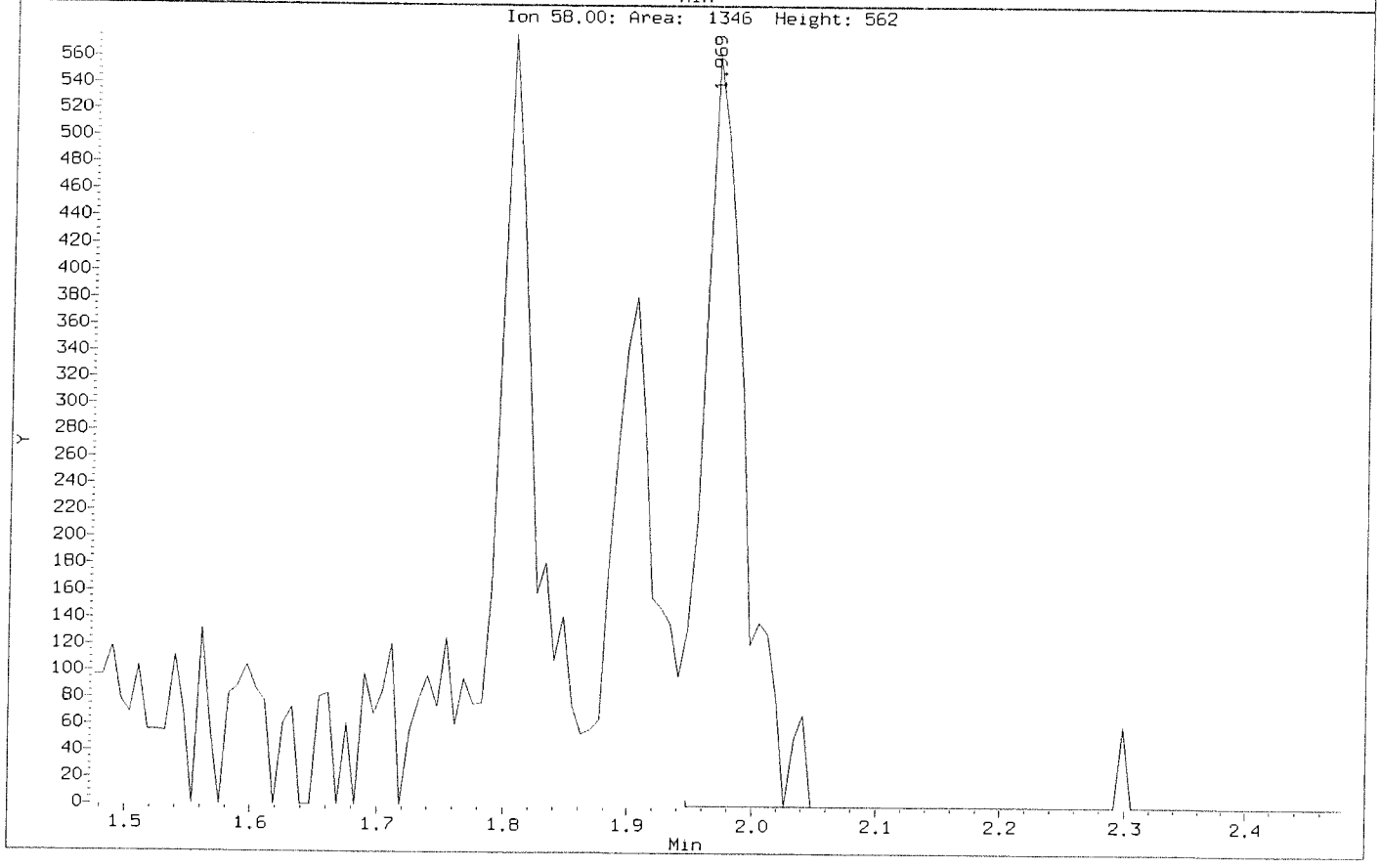
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Acetone
CAS Number: 67-64-1





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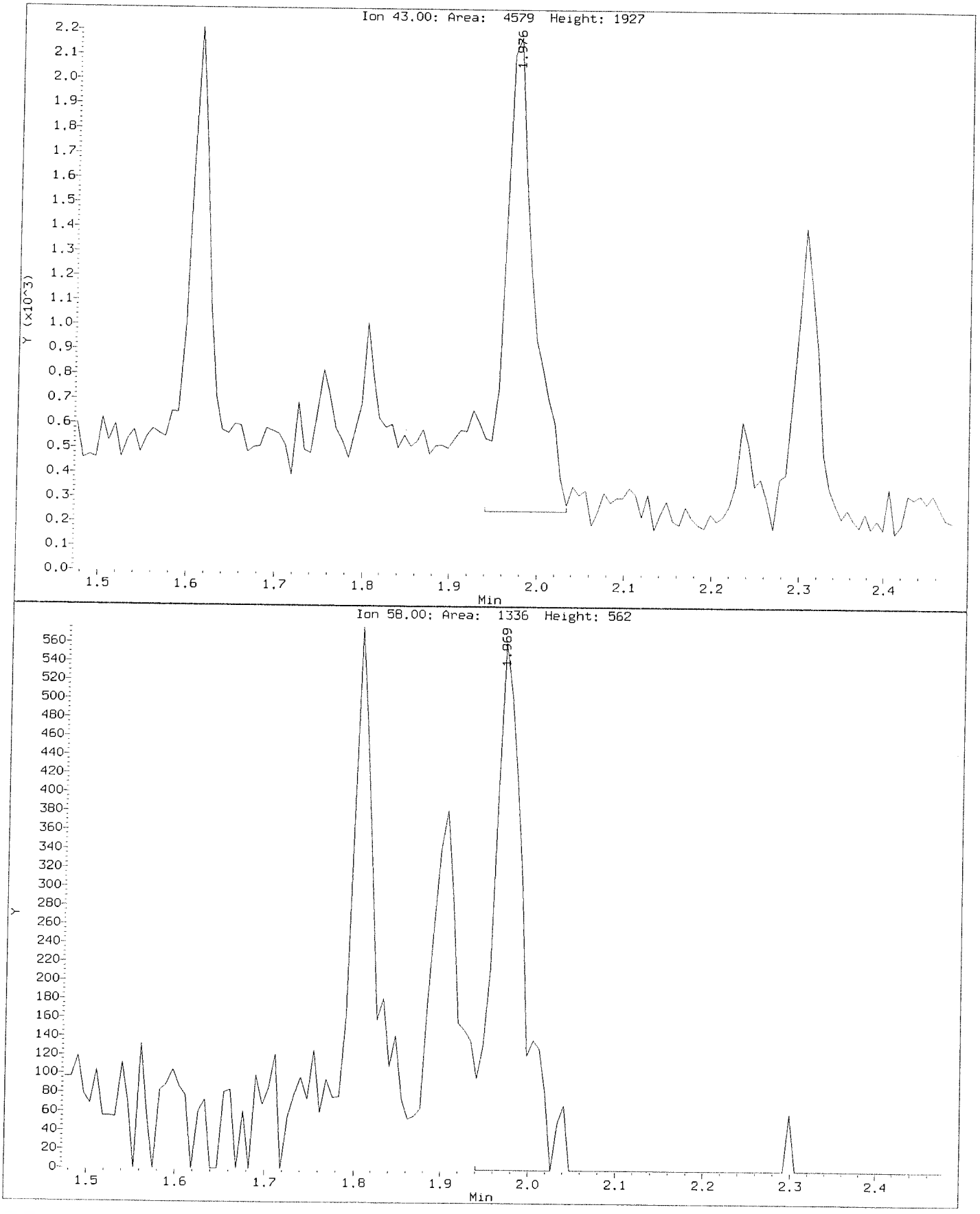
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Acetone
CAS Number: 67-64-1



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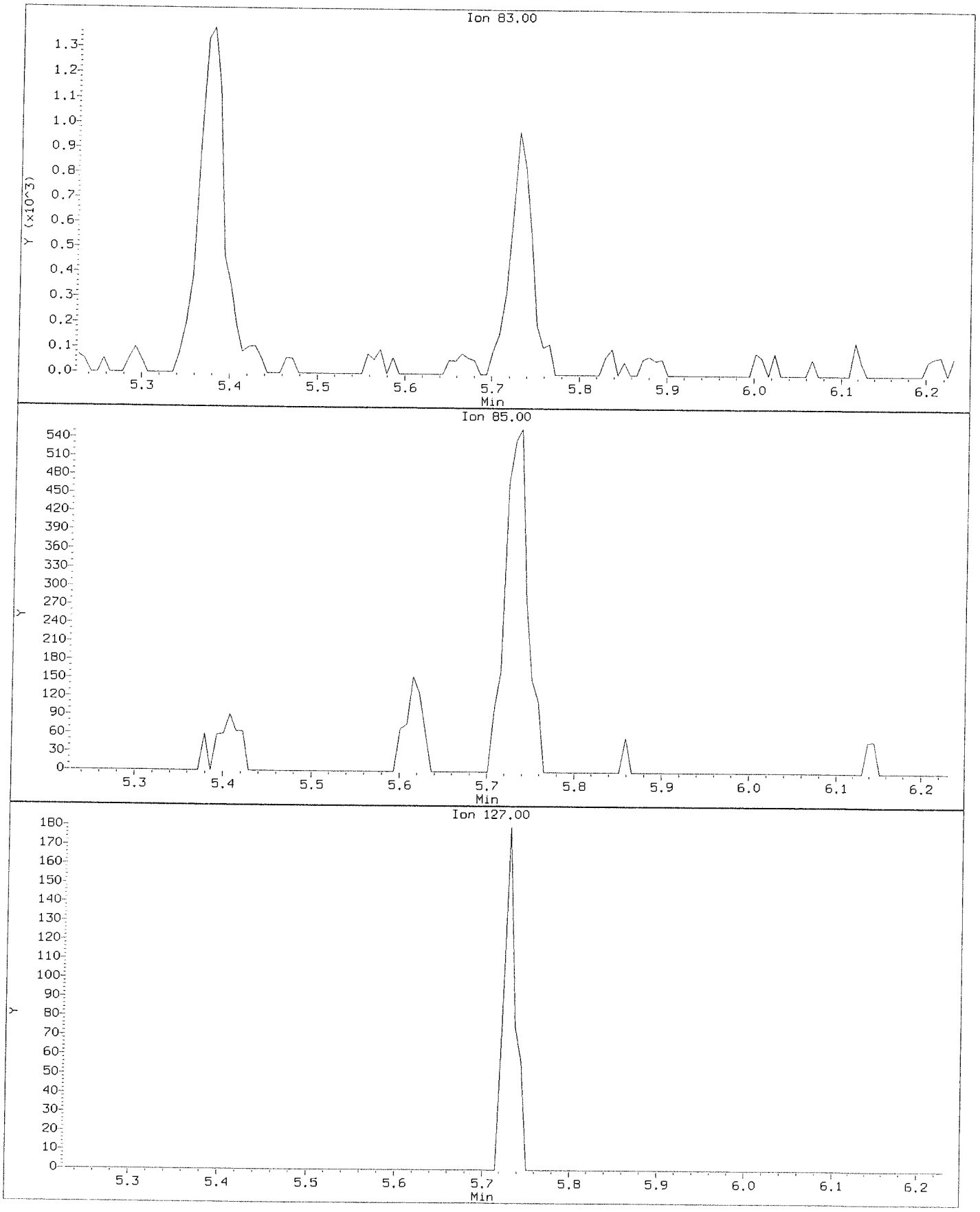
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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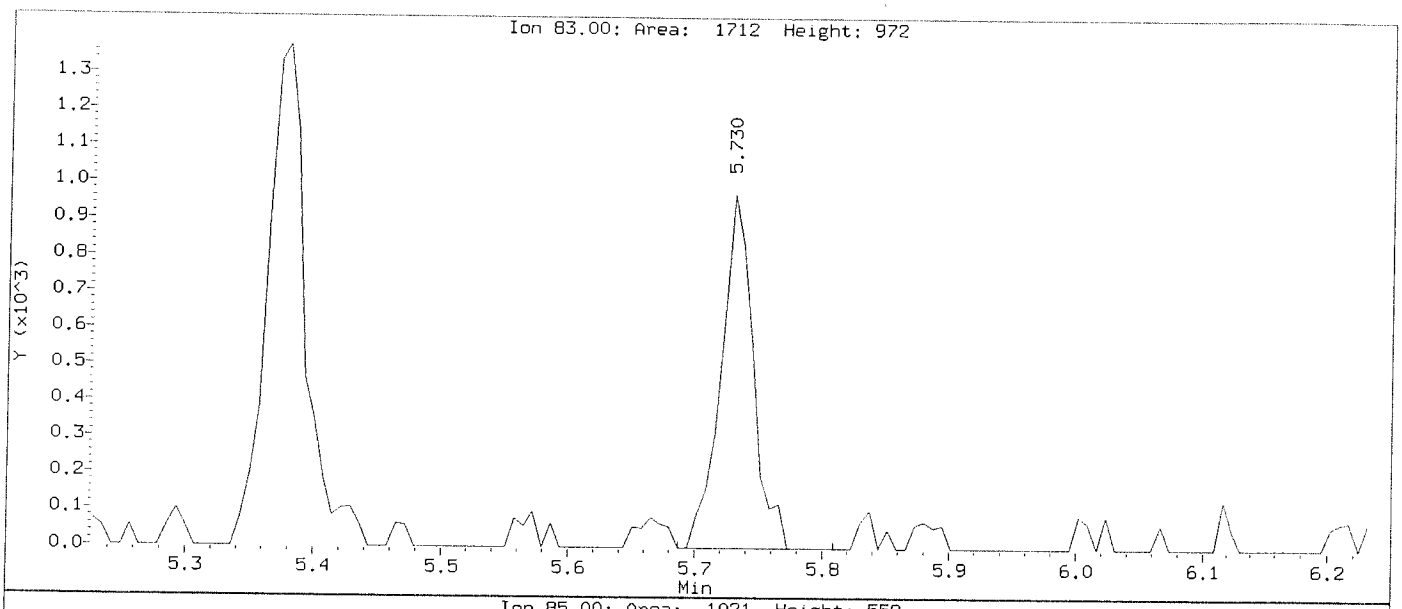
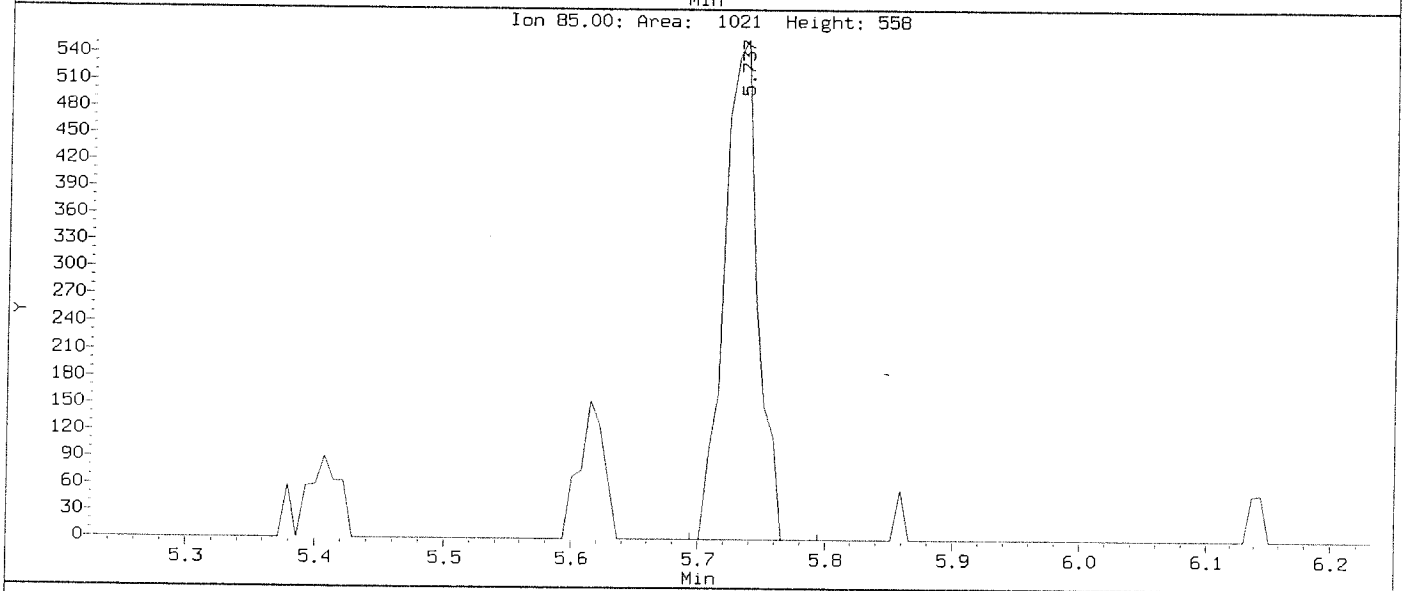
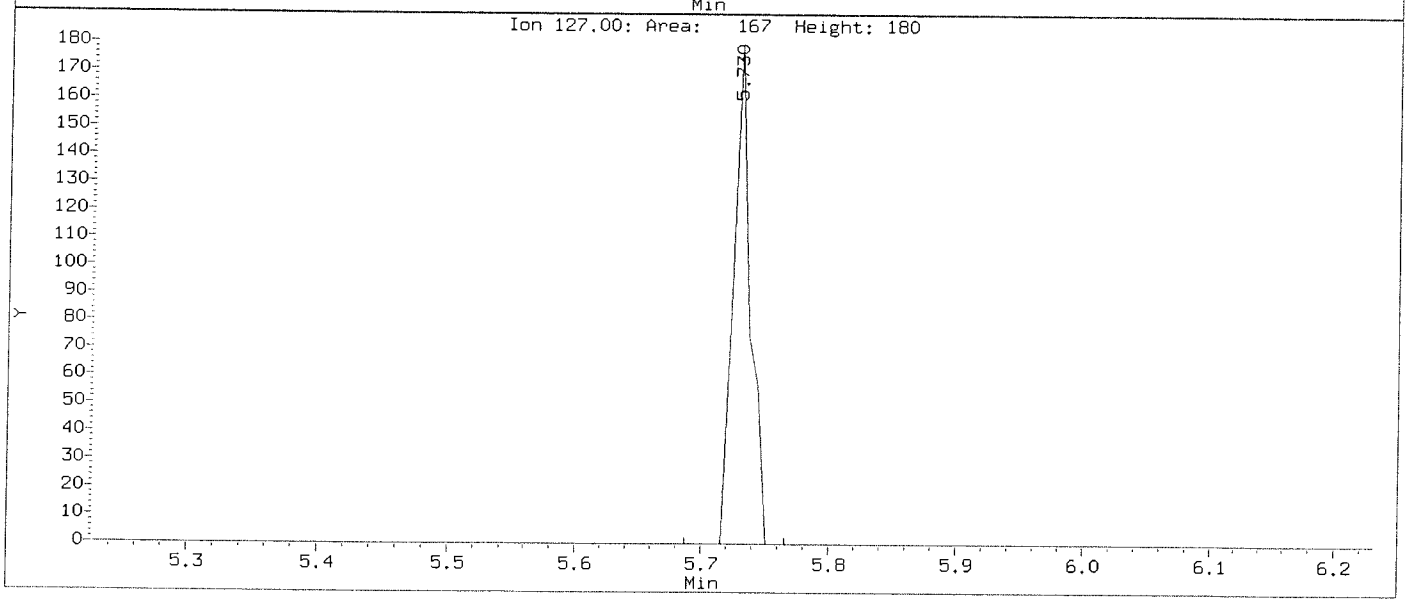
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4

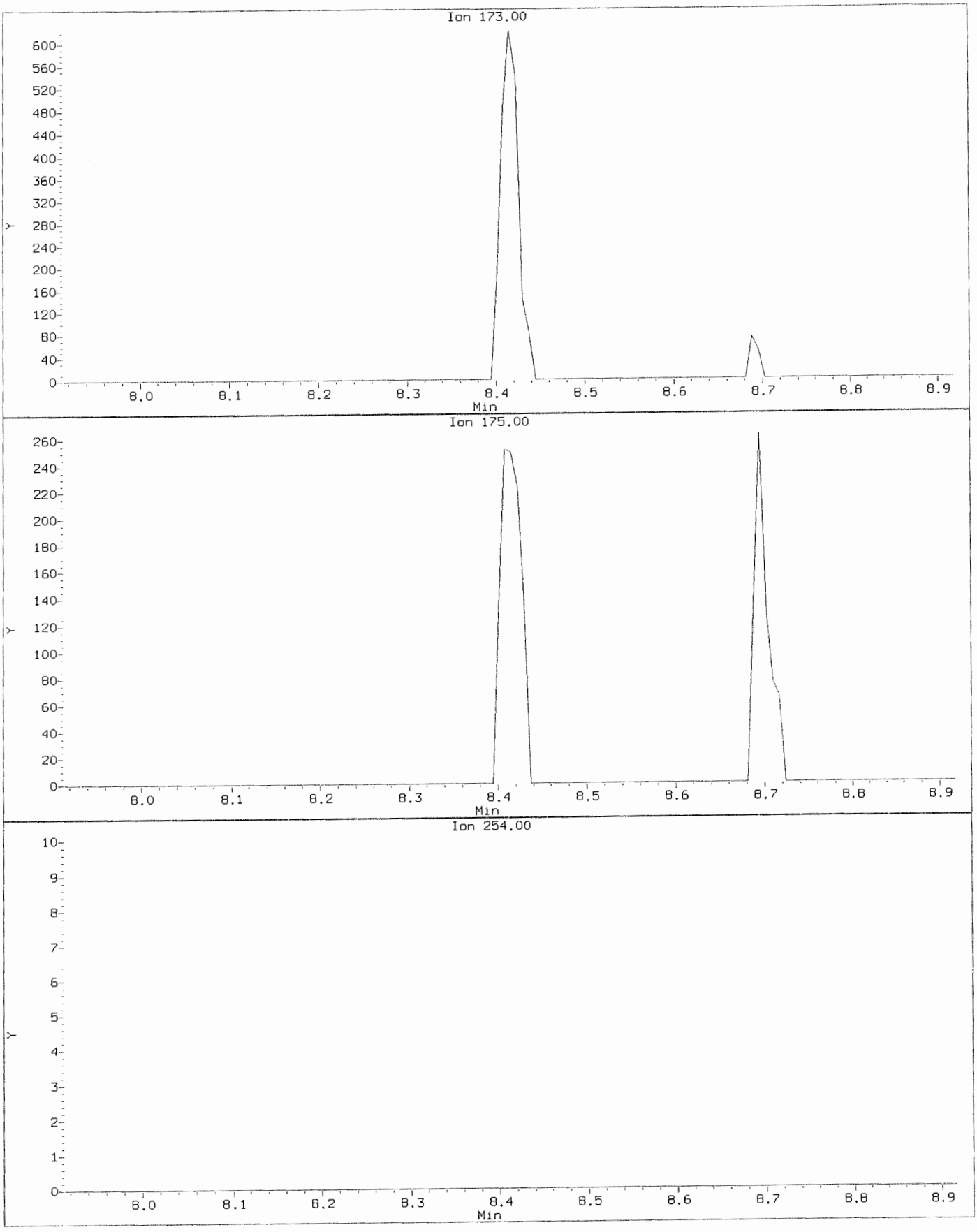






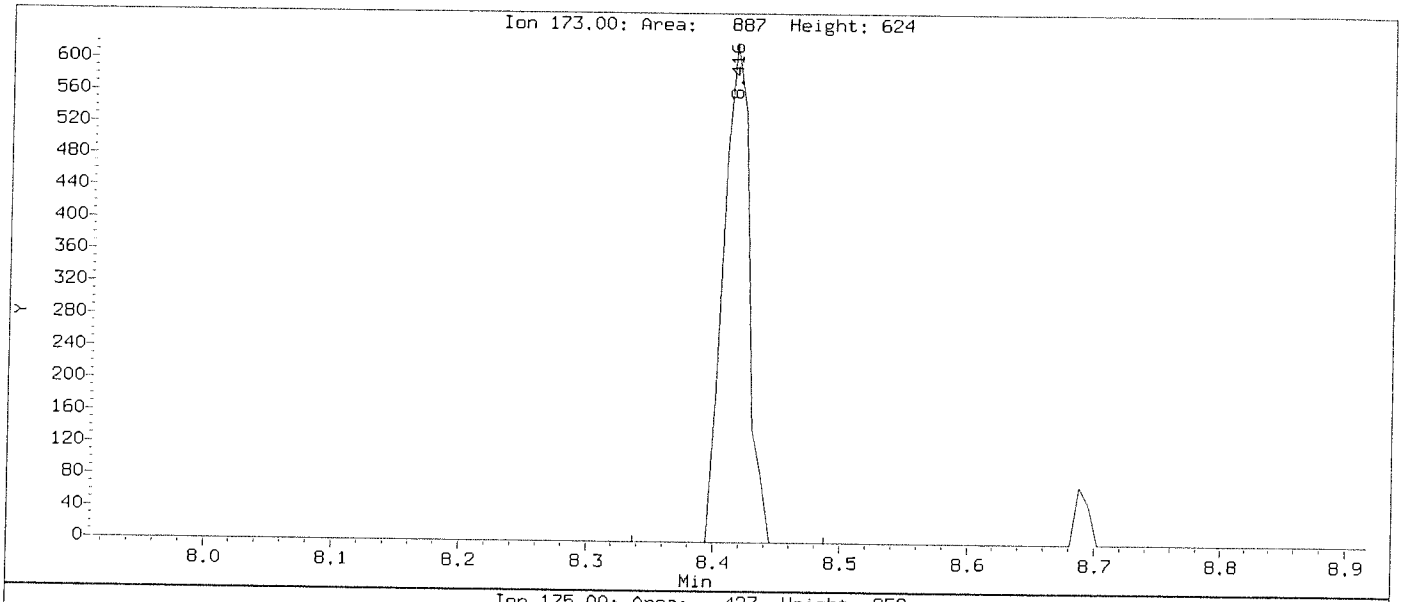
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

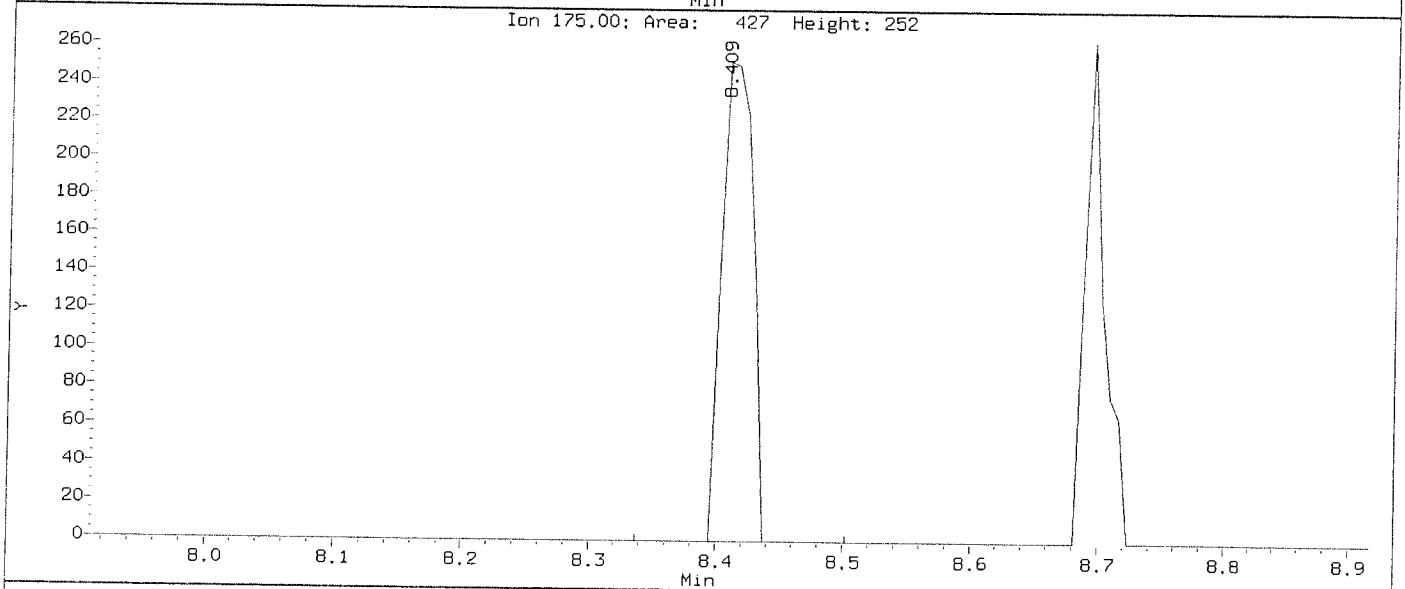
Compound: Bromoform
CAS Number: 75-25-2

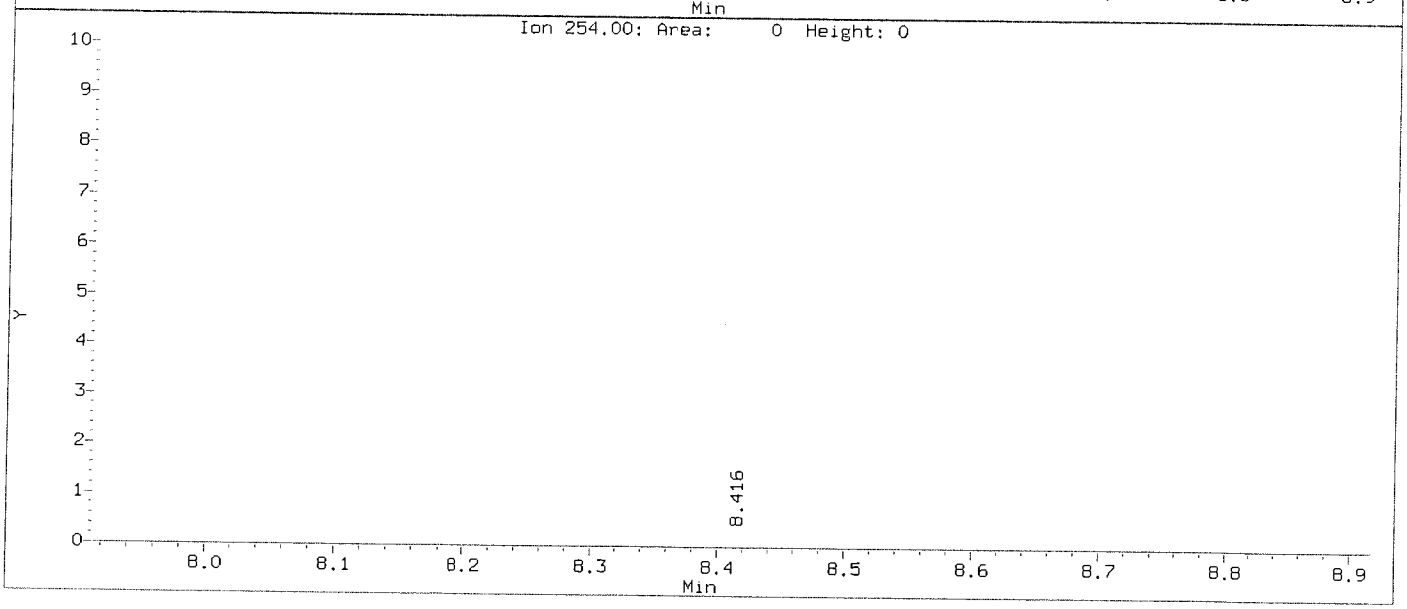


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2







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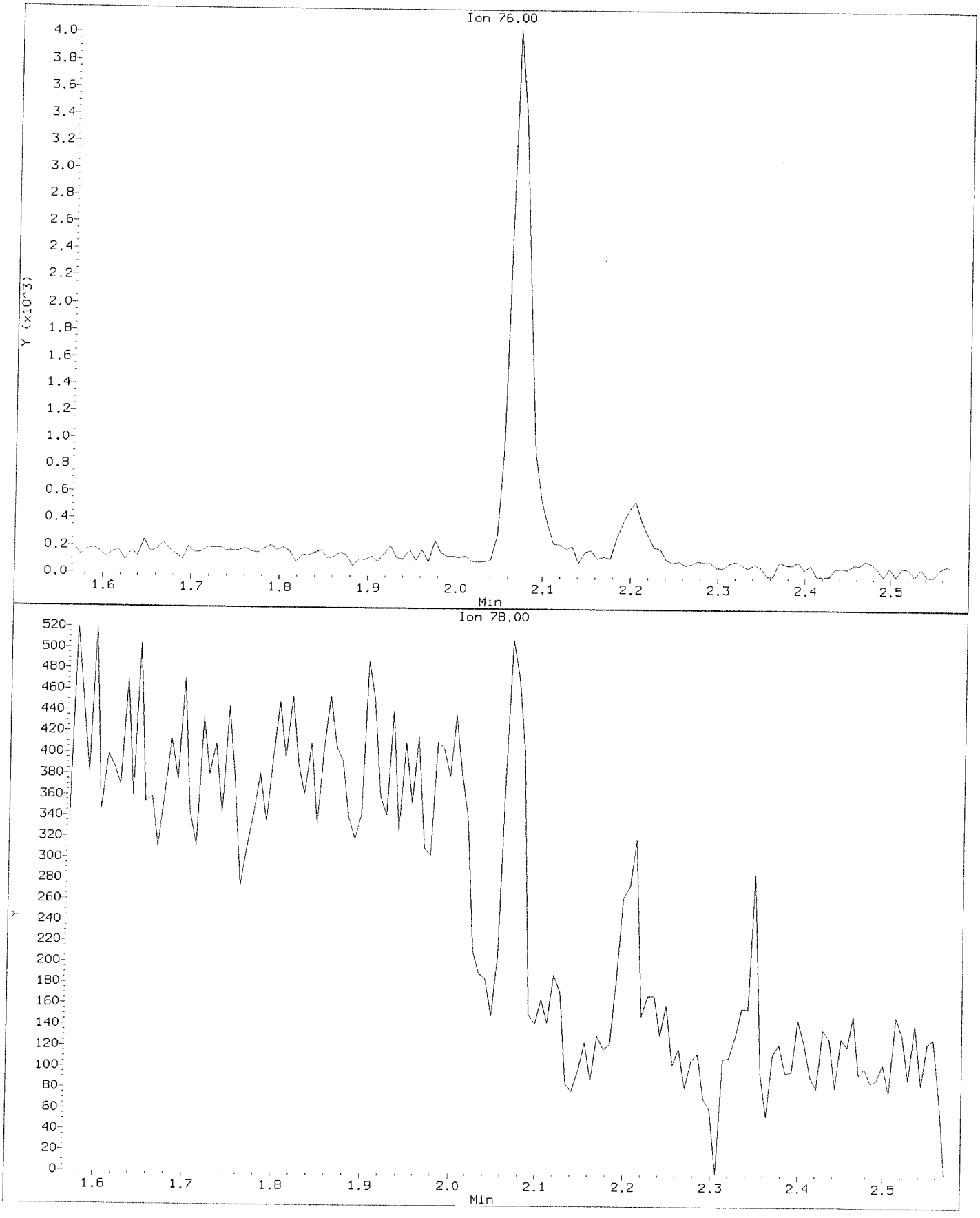
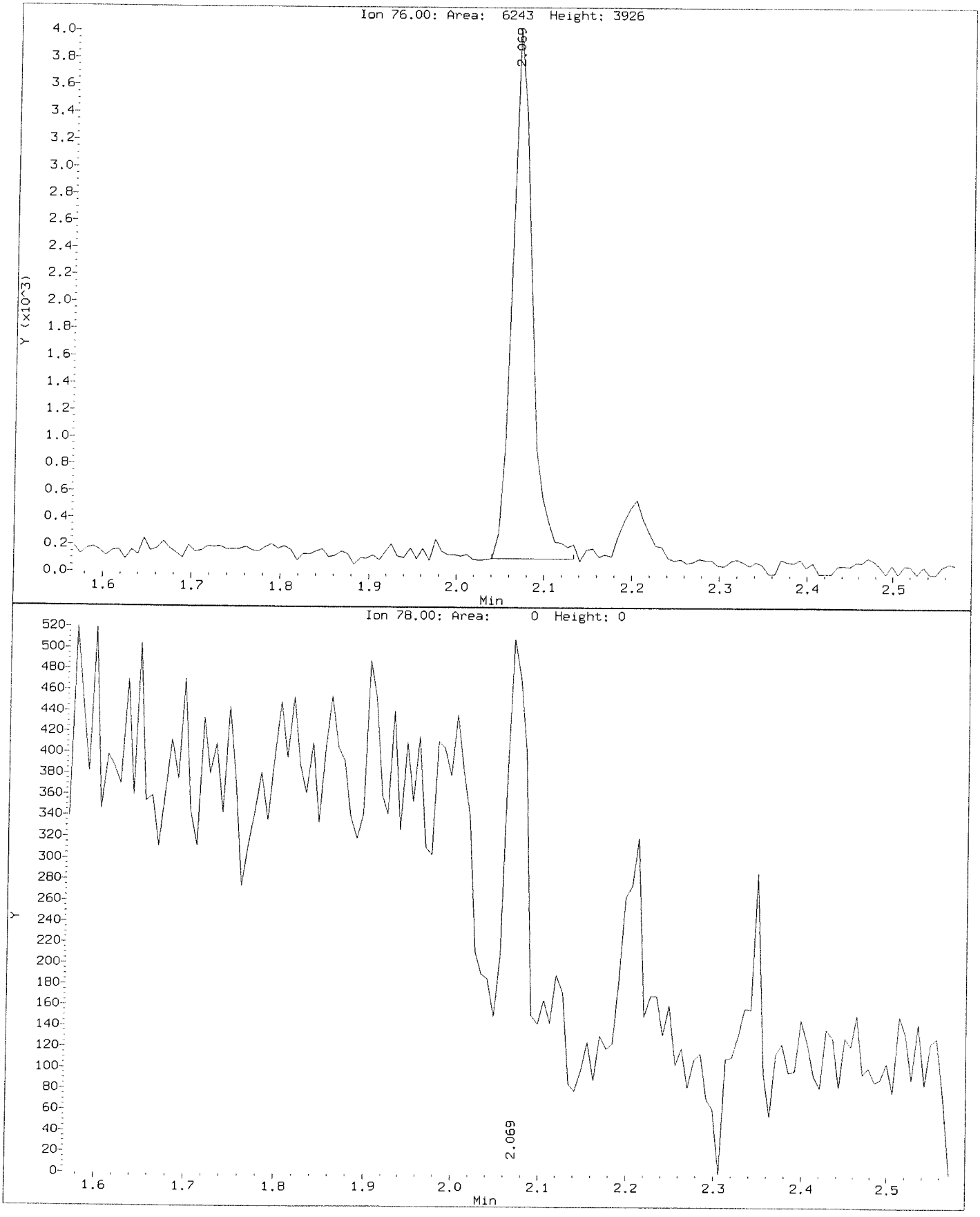
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



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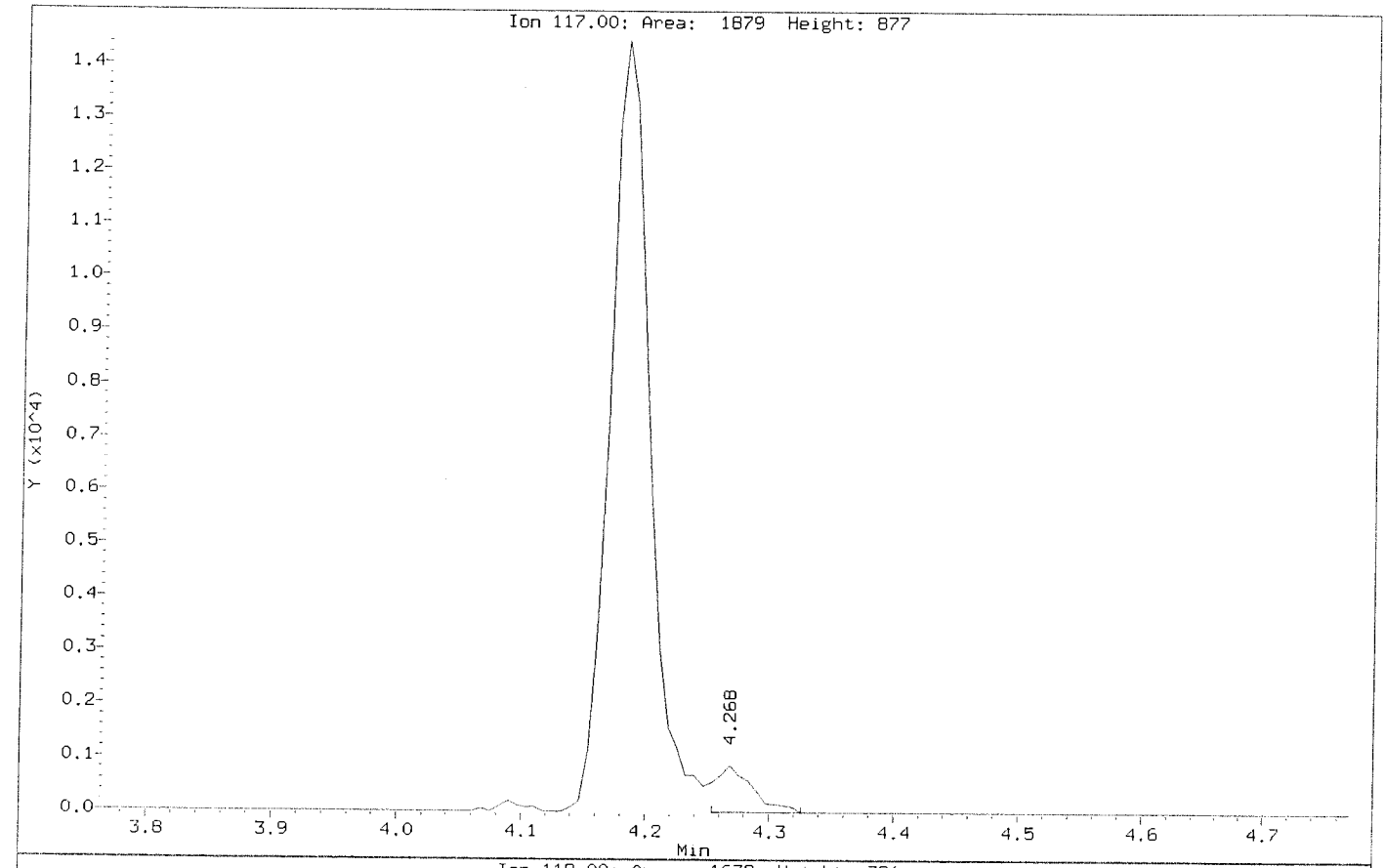
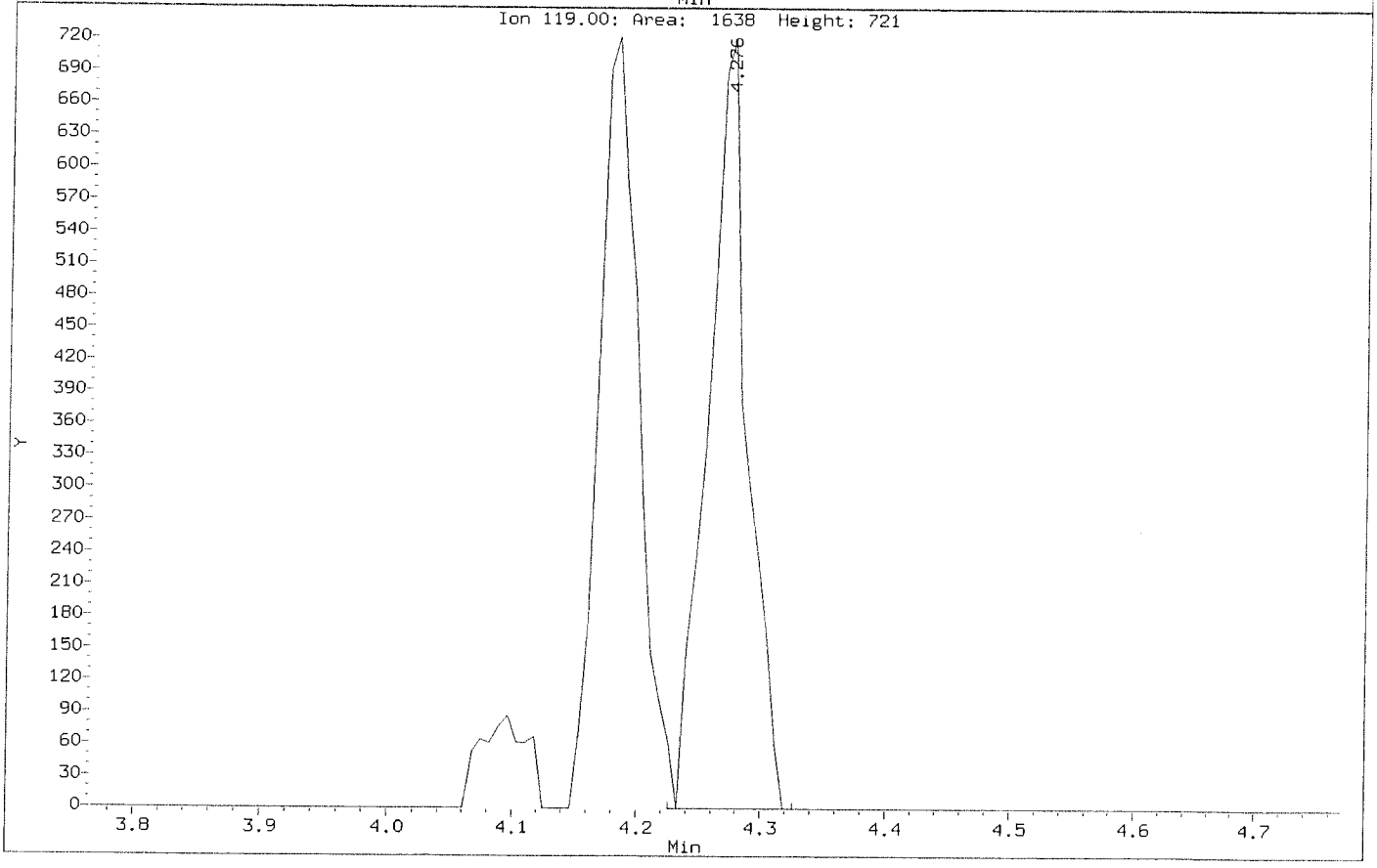
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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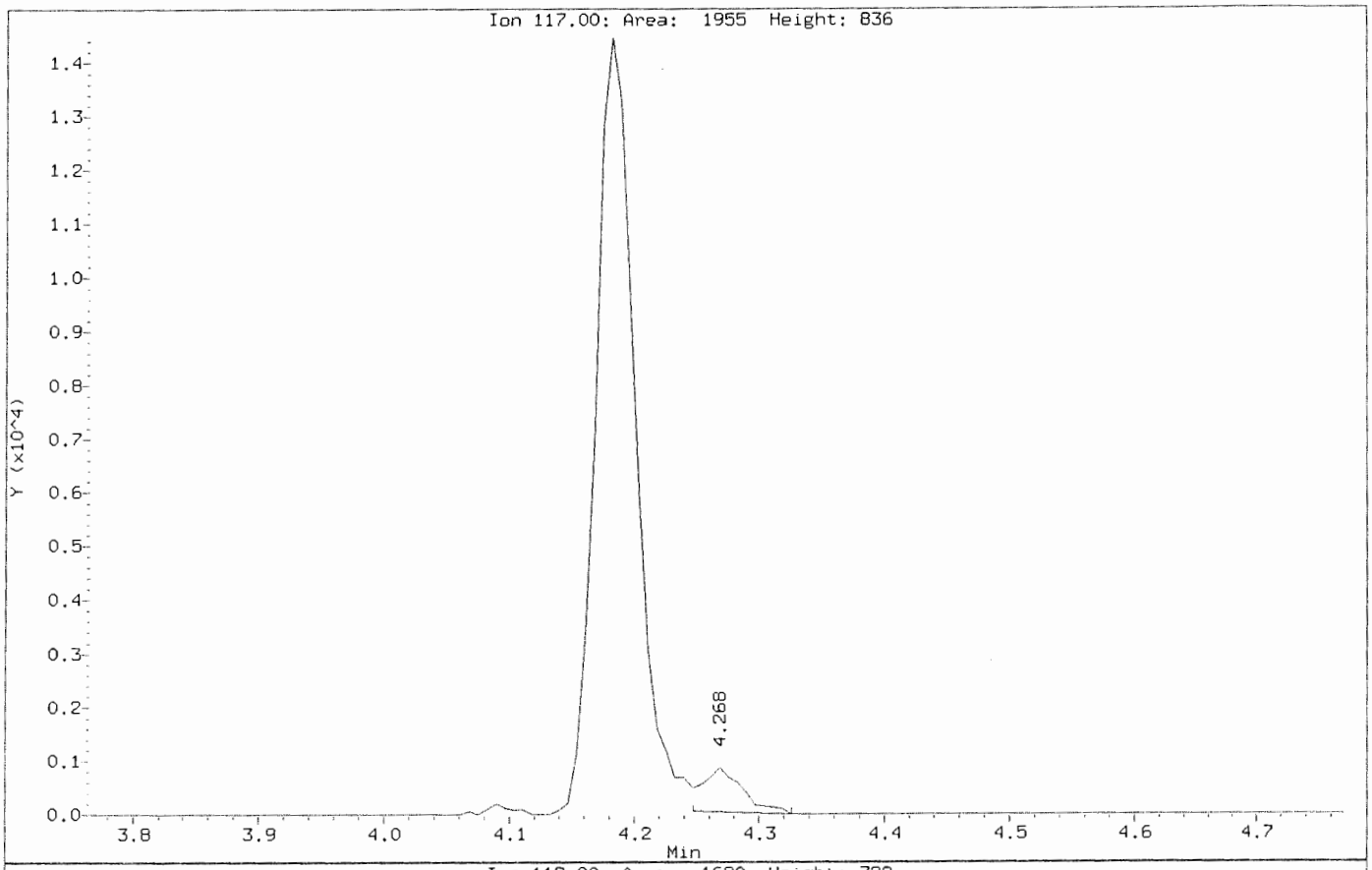
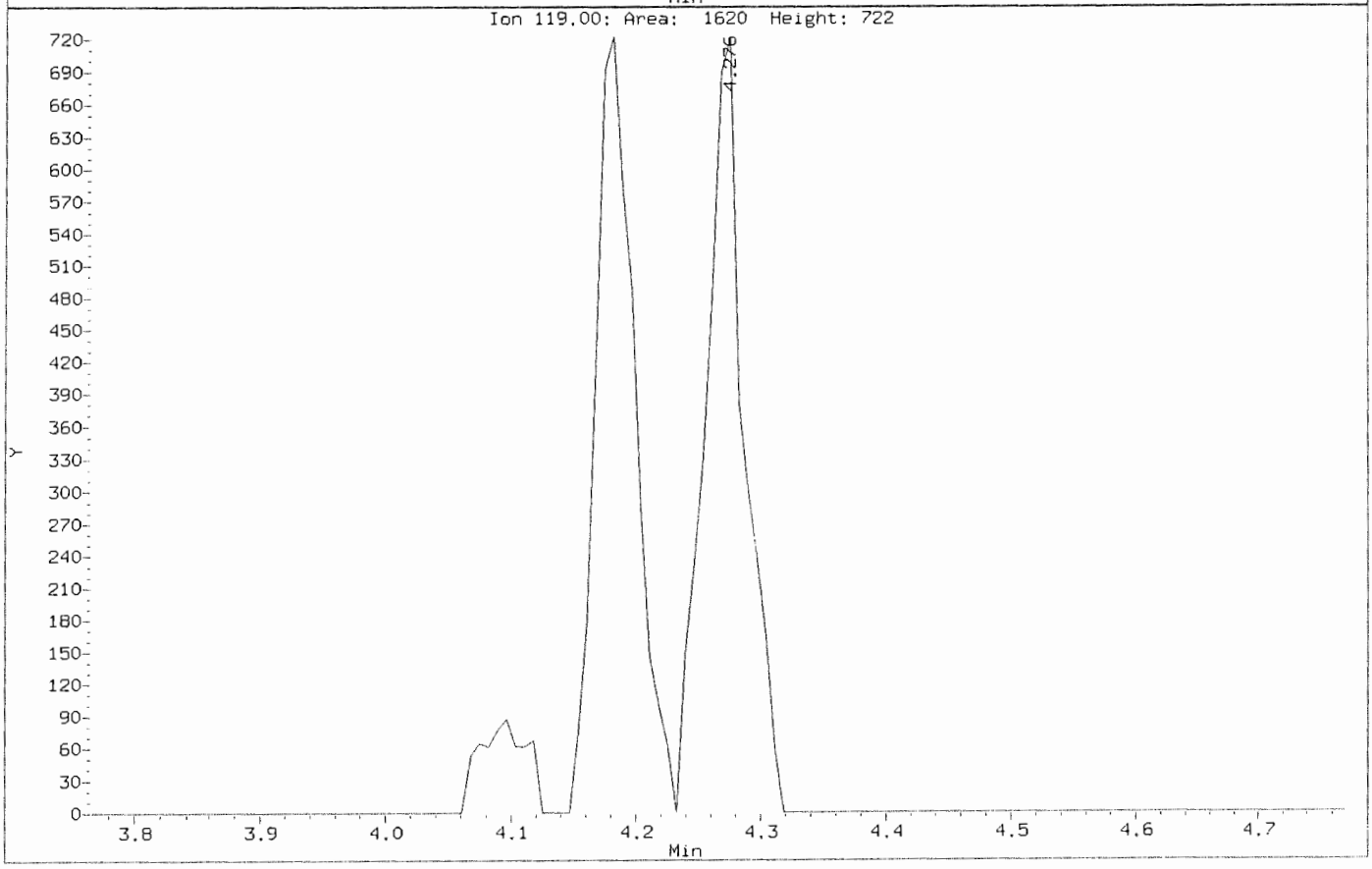
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

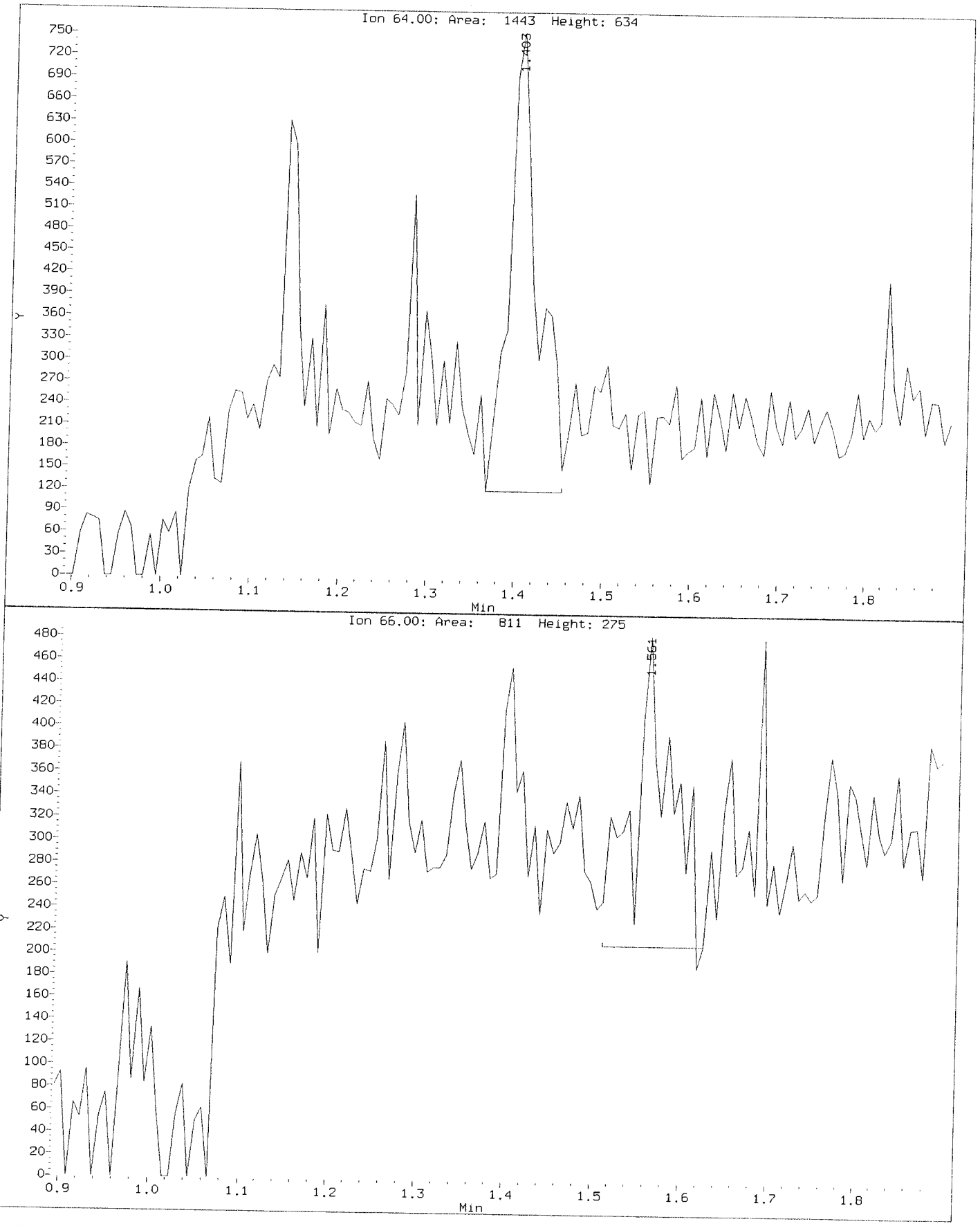
Compound: Carbon Tetrachloride
CAS Number: 56-23-5





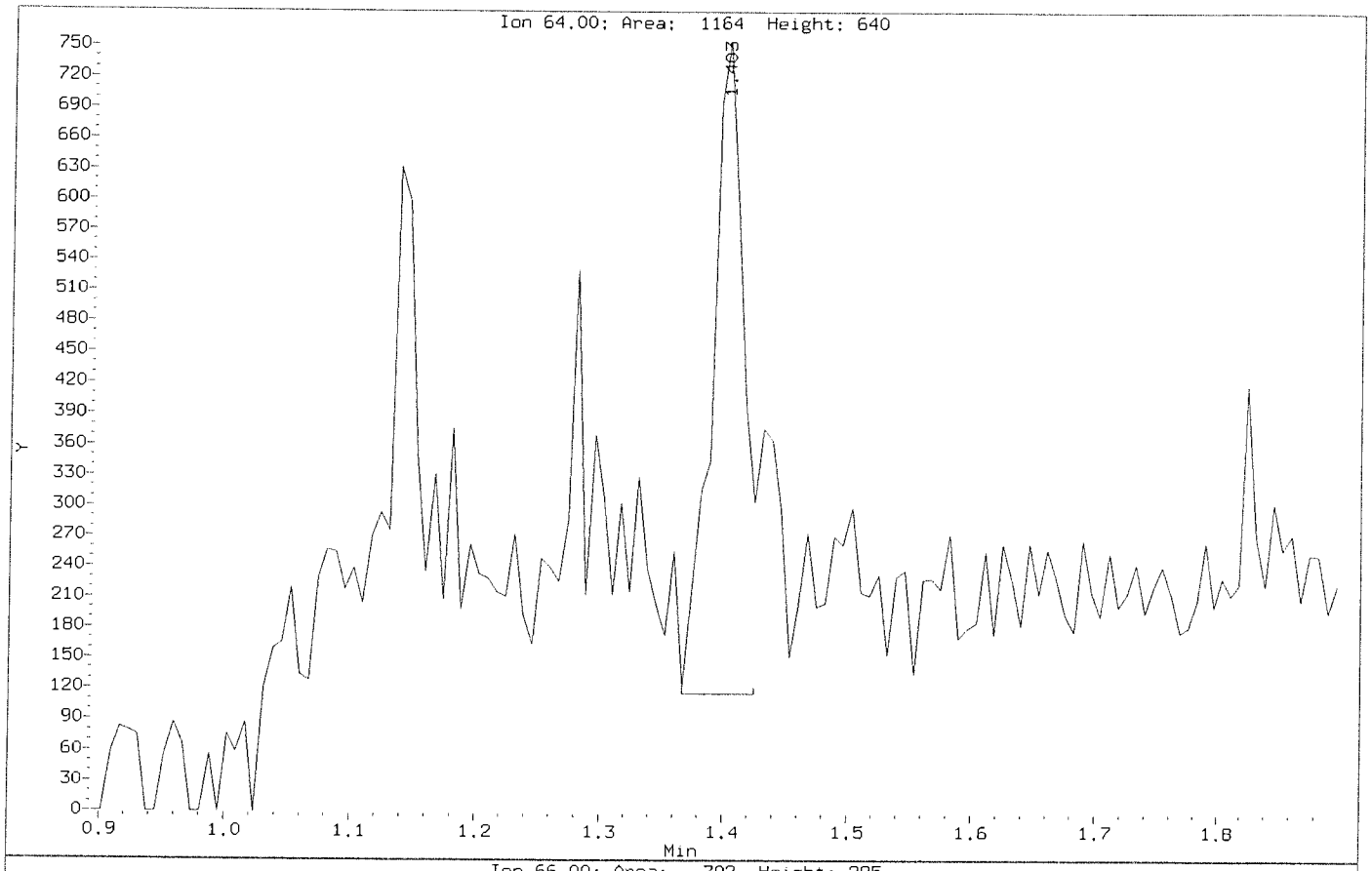
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

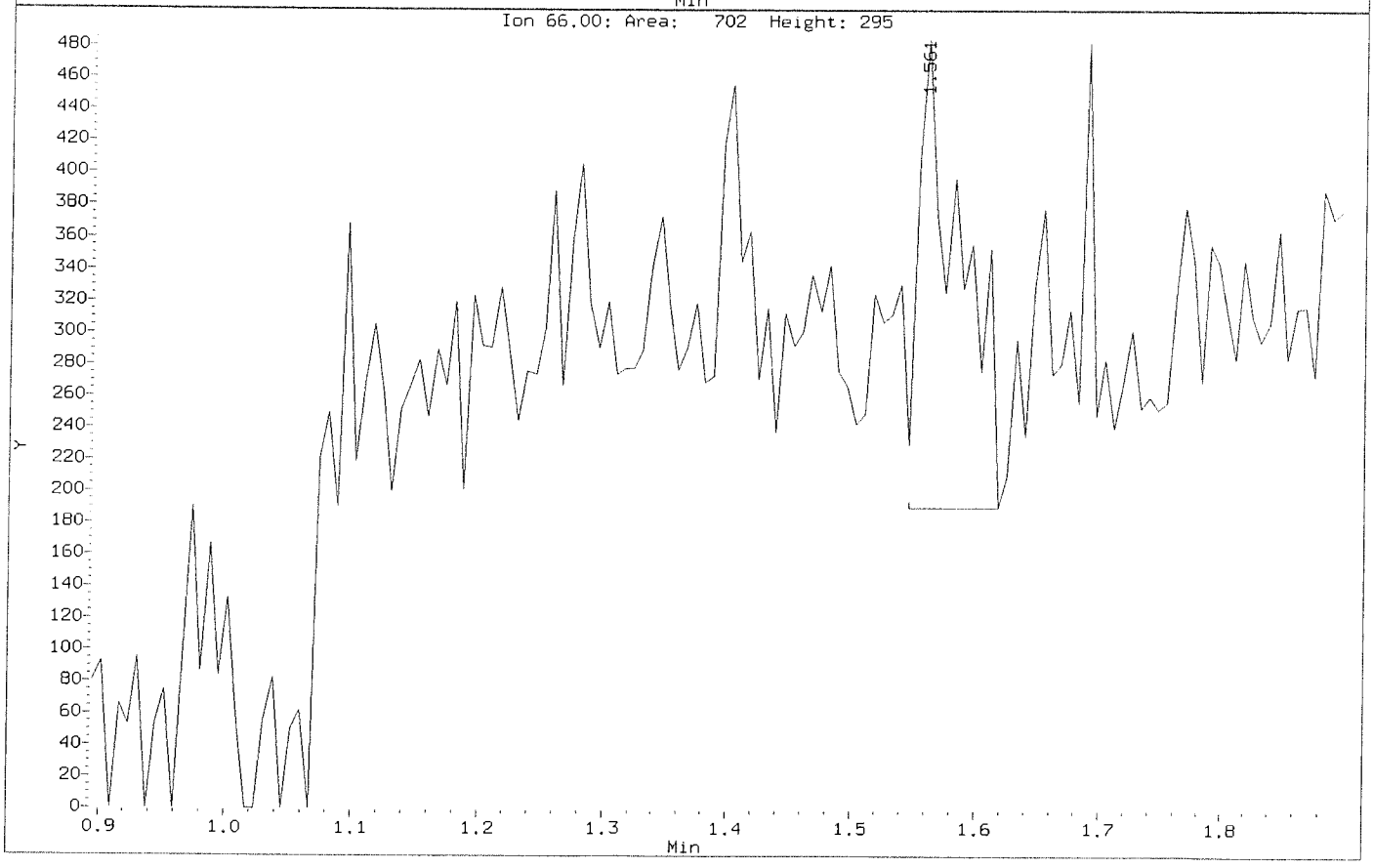
Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

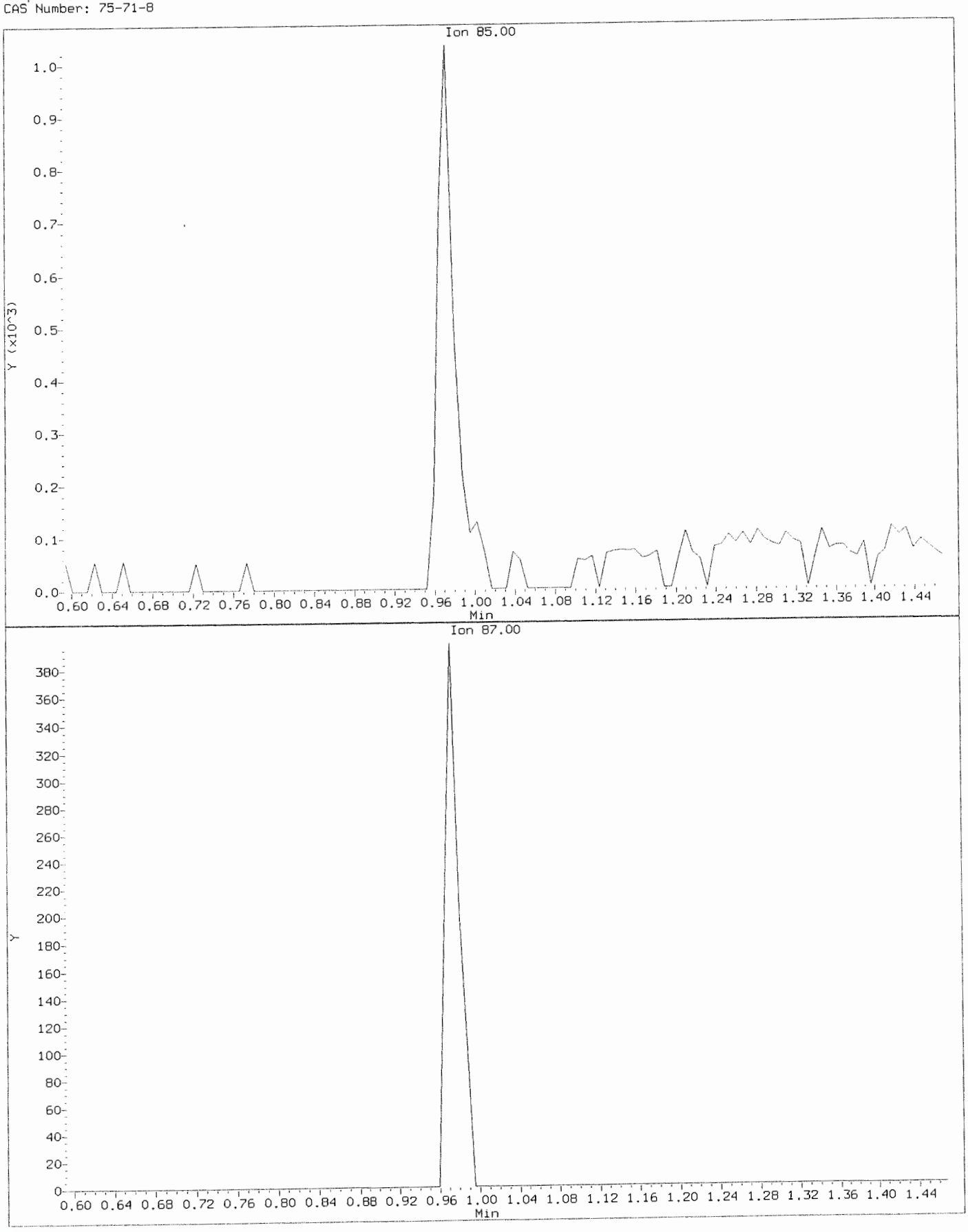
Compound: Chloroethane
CAS Number: 75-00-3





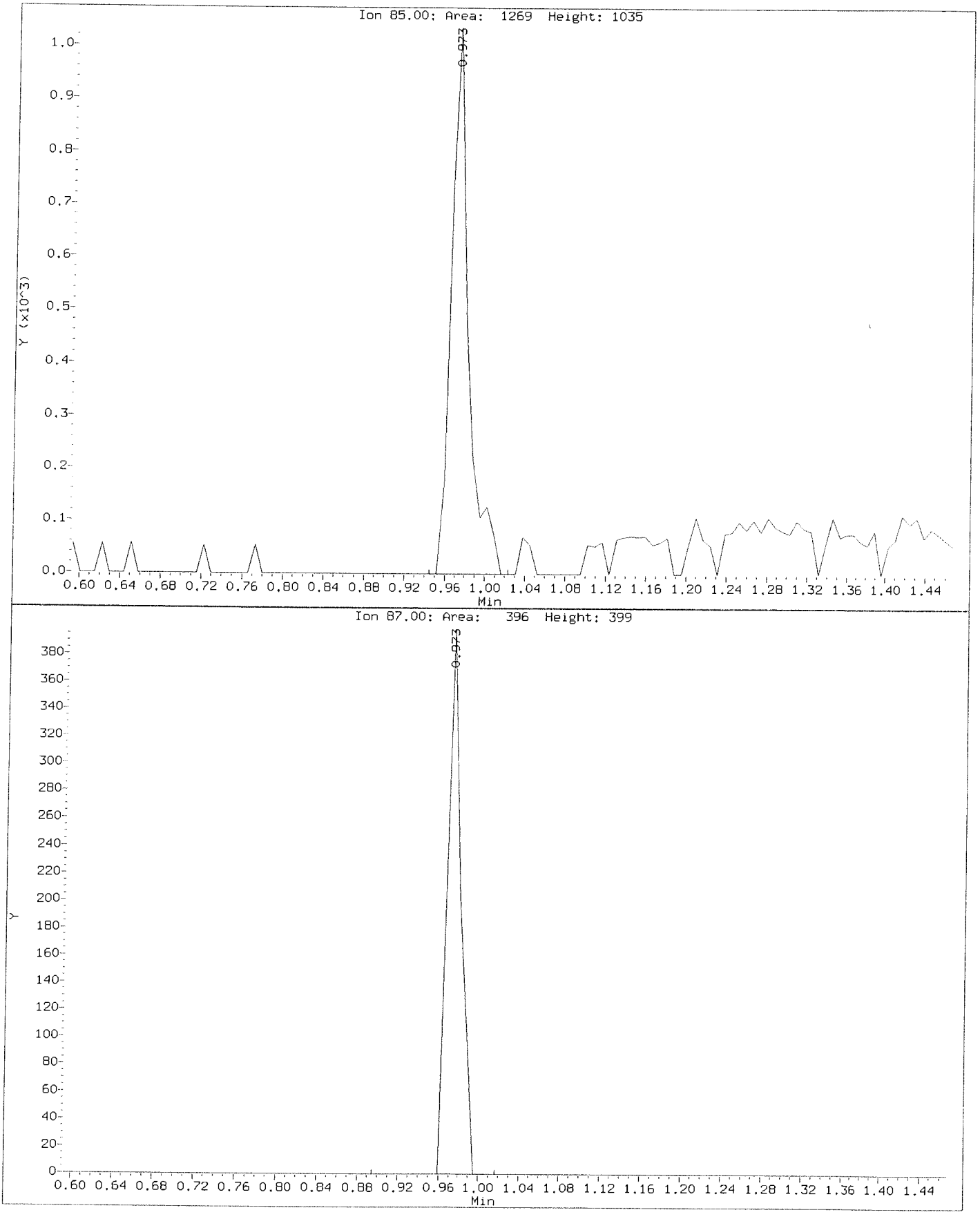
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



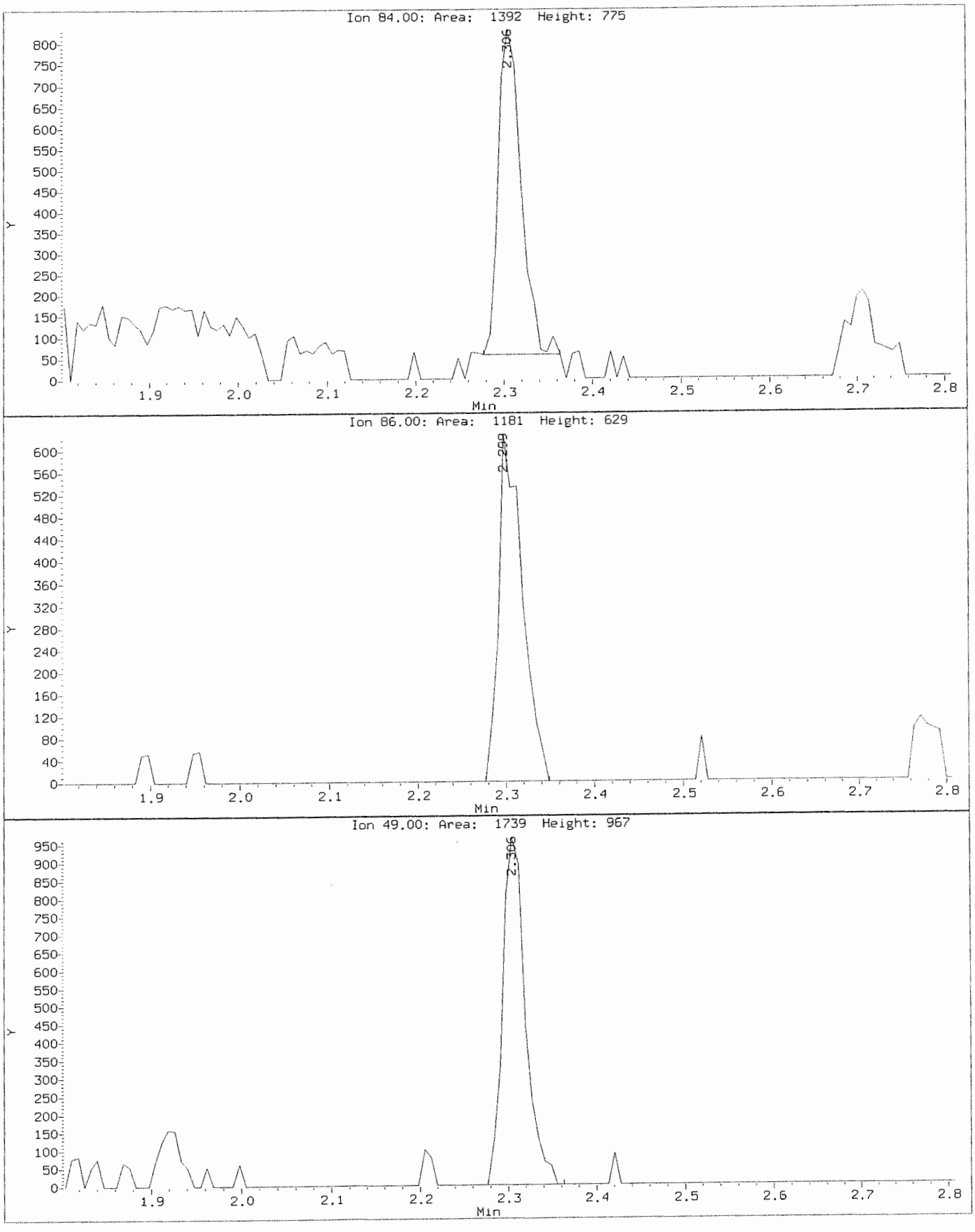
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



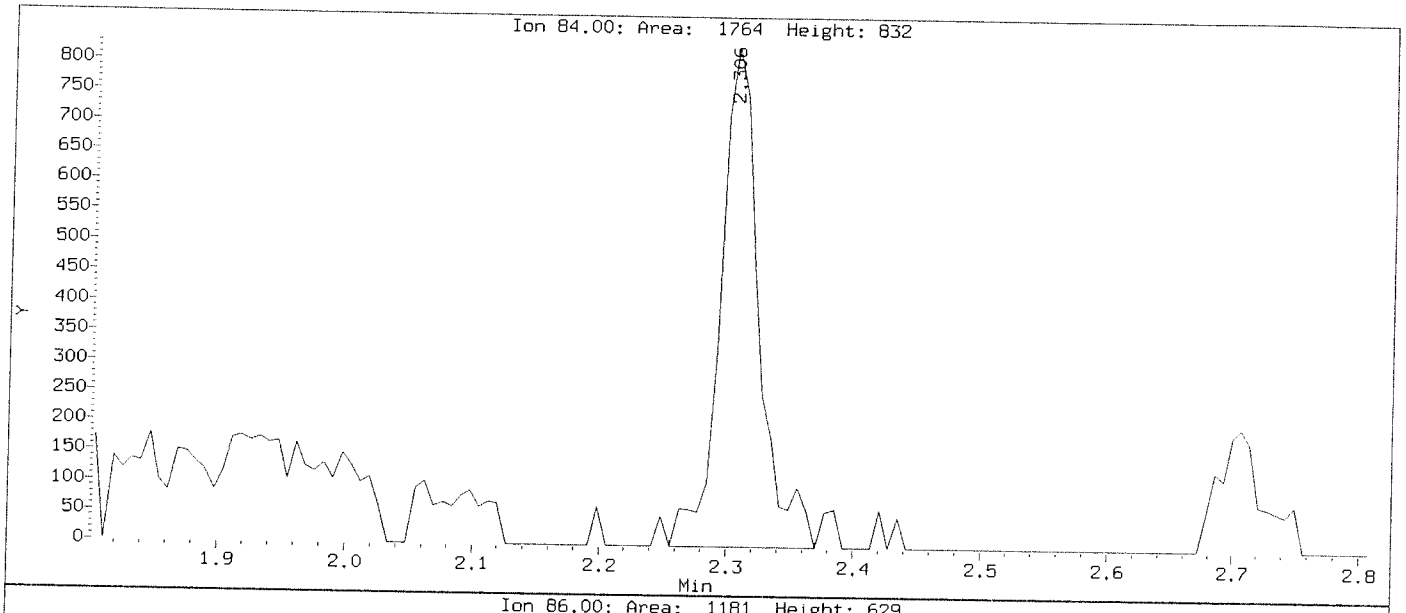
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

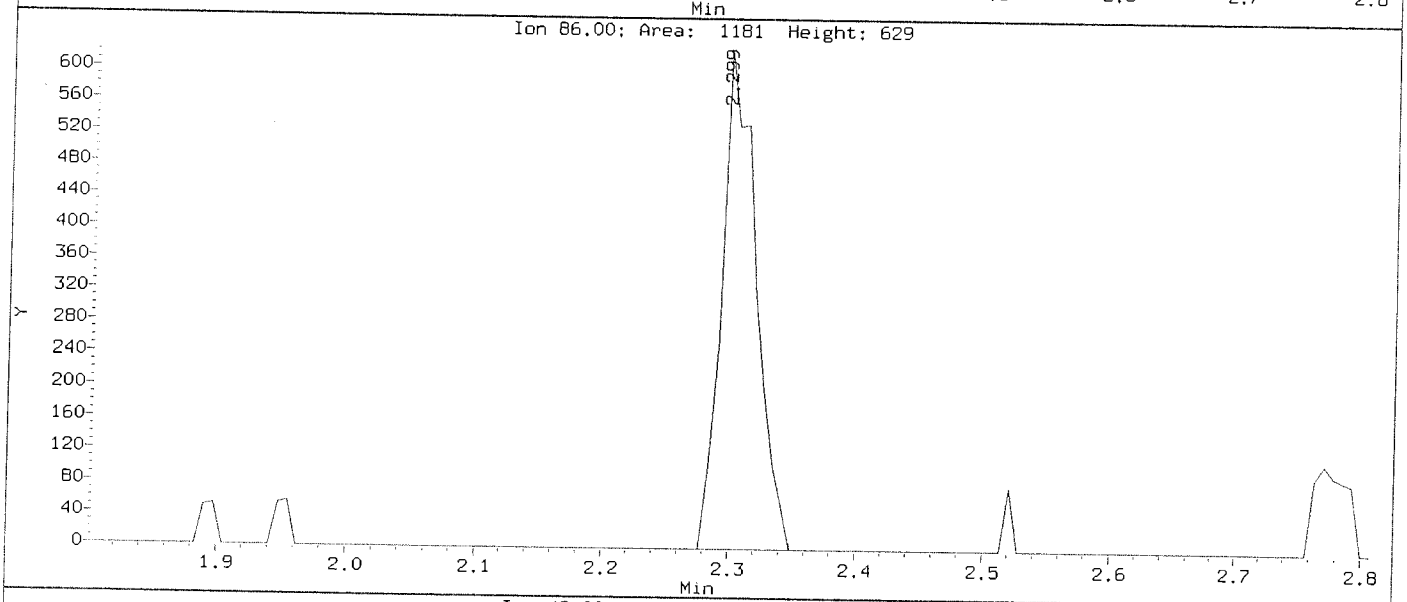
Compound: Methylene Chloride
CAS Number: 75-09-2

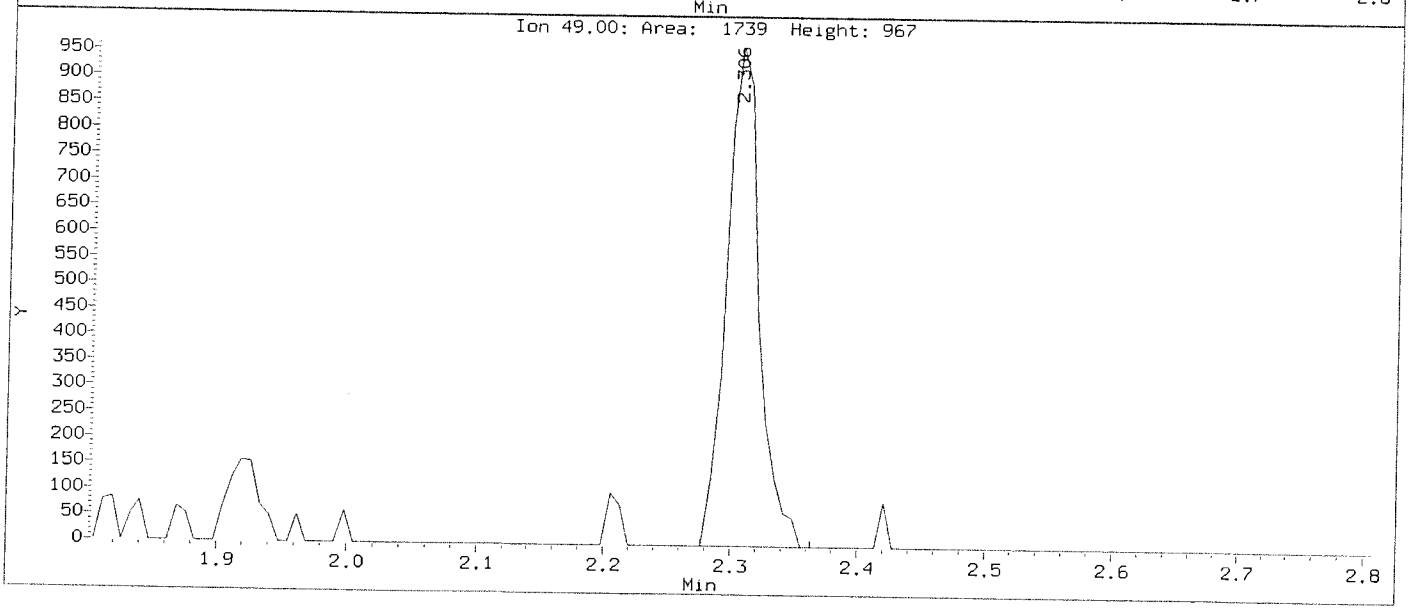


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2







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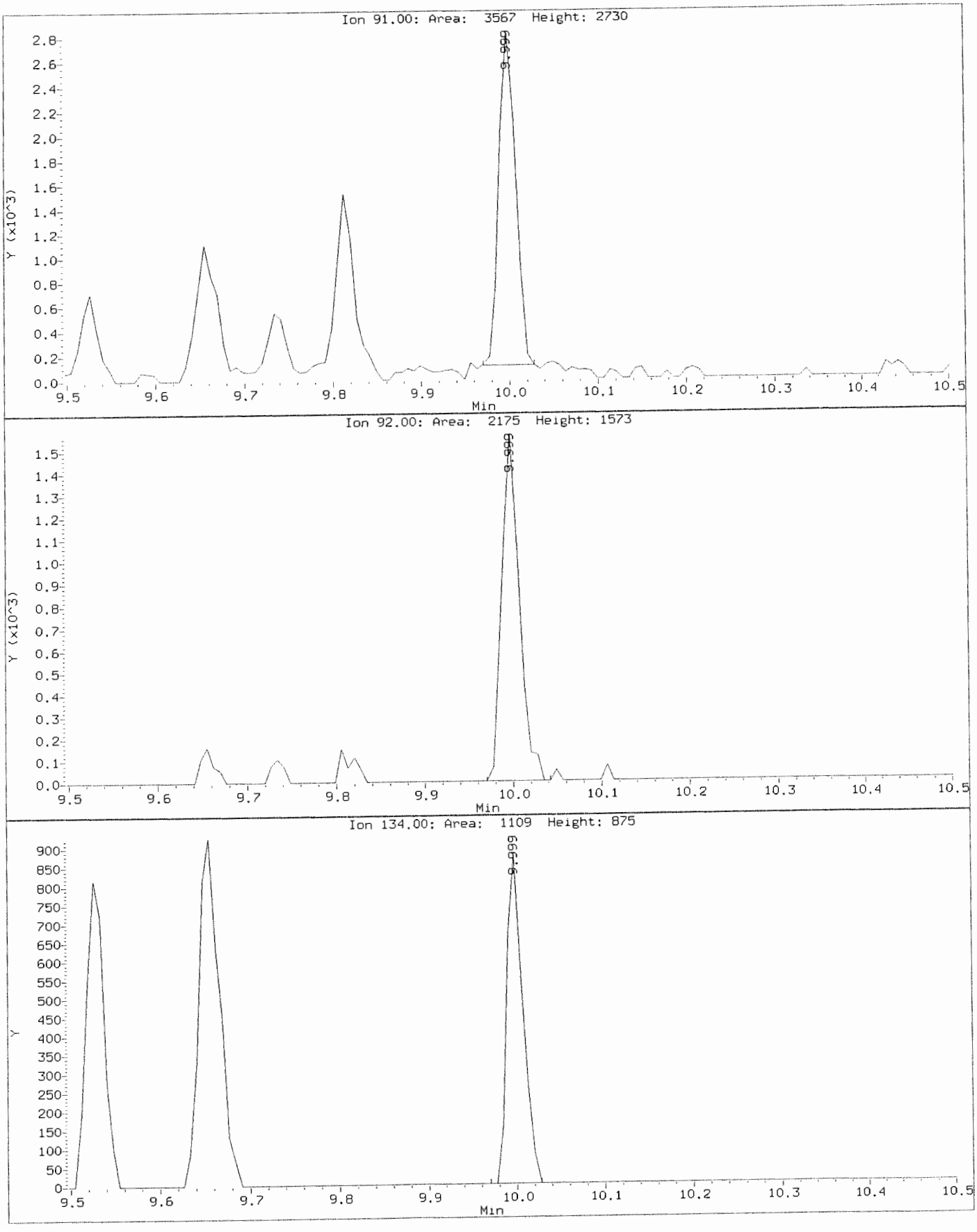
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8



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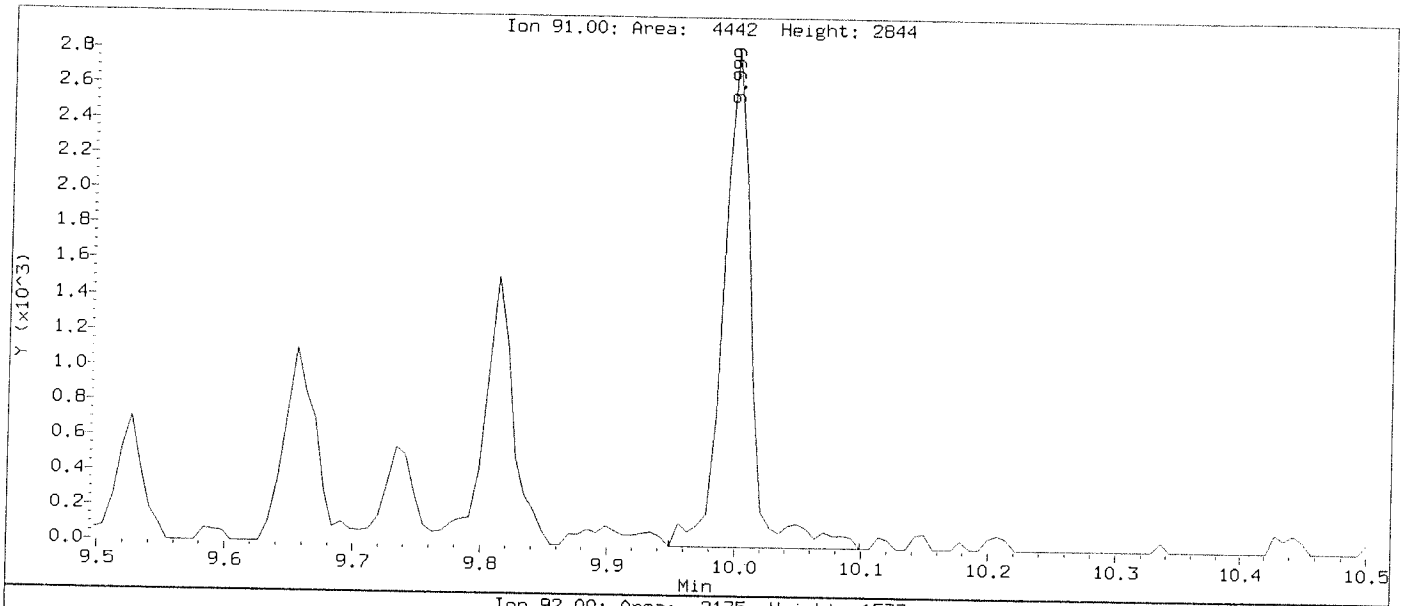
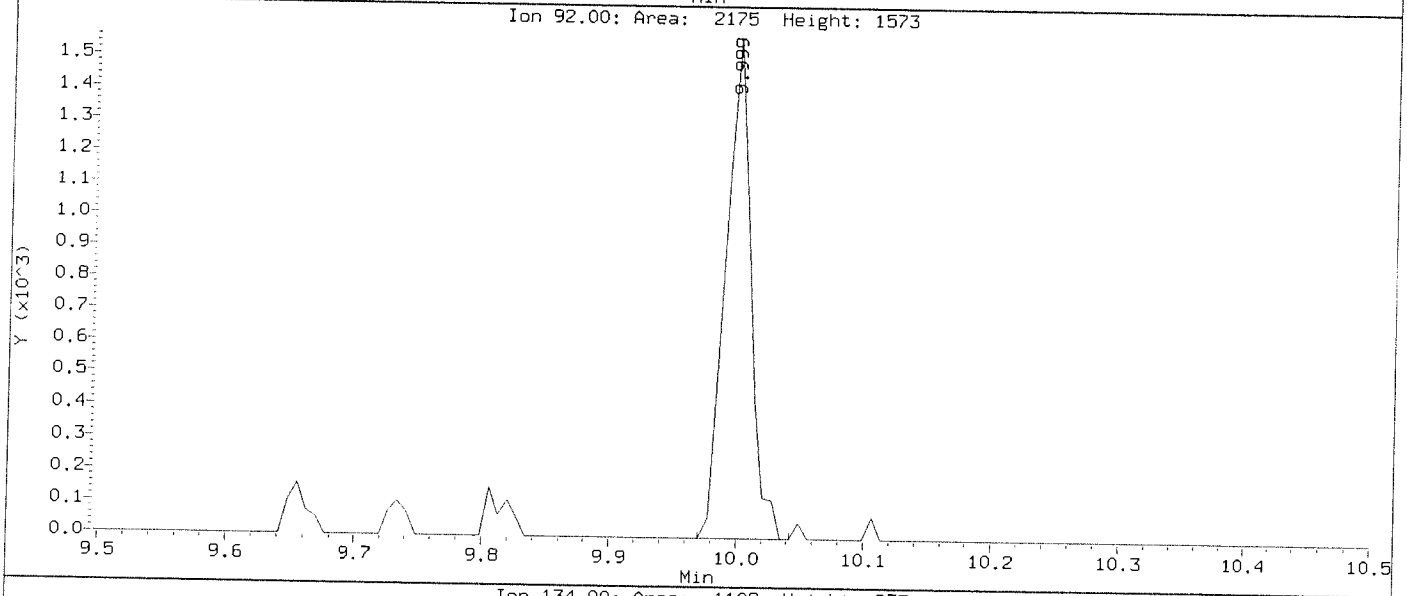
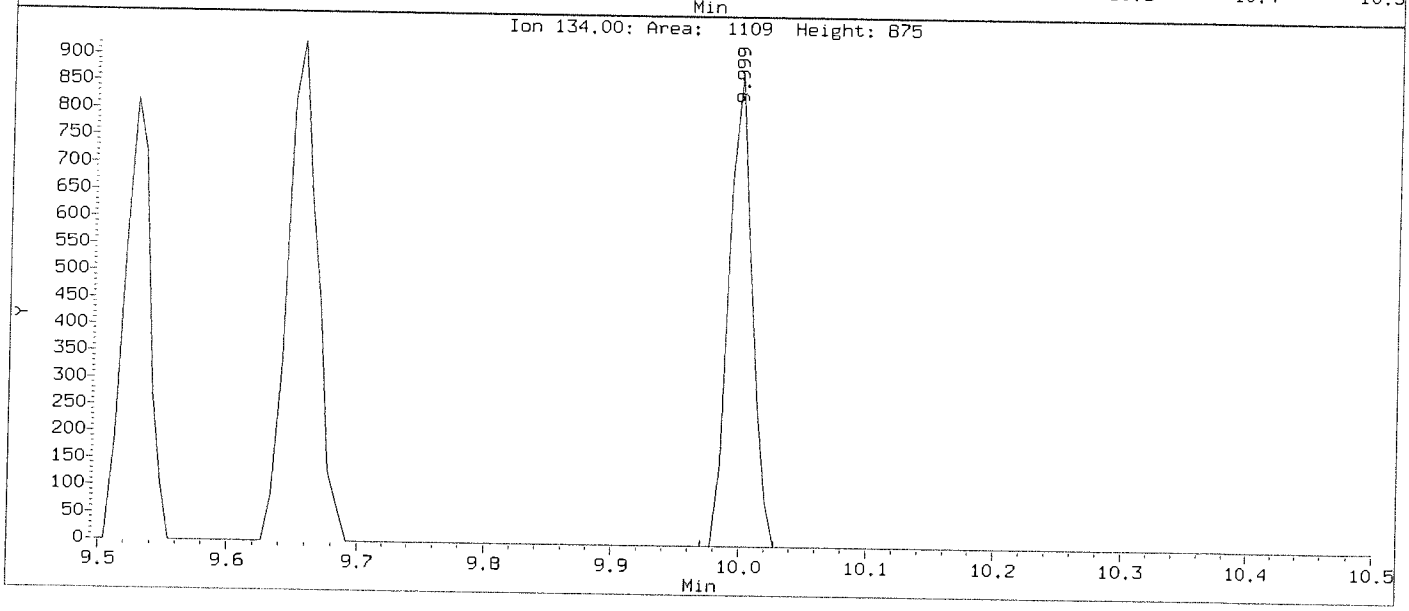
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8







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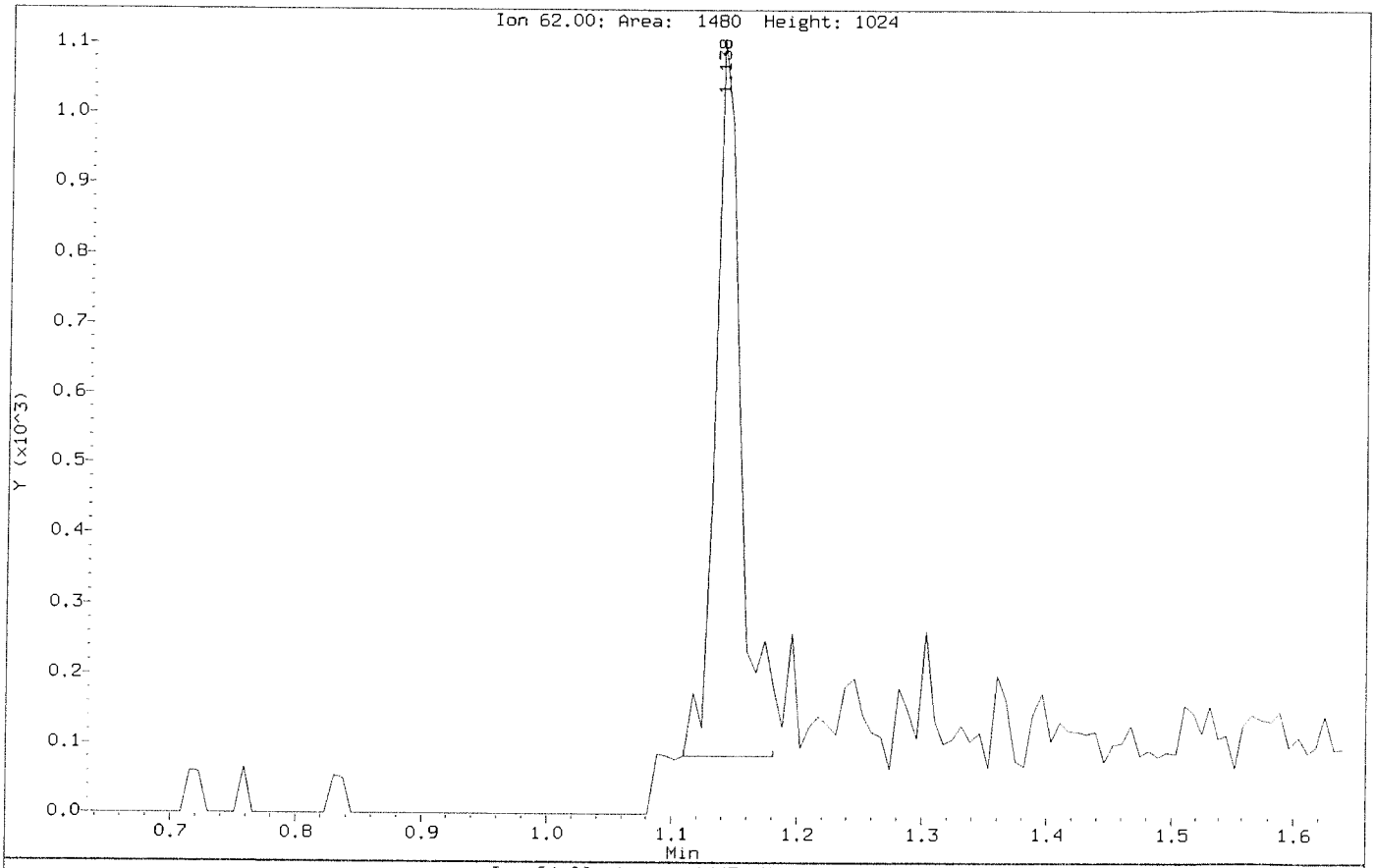
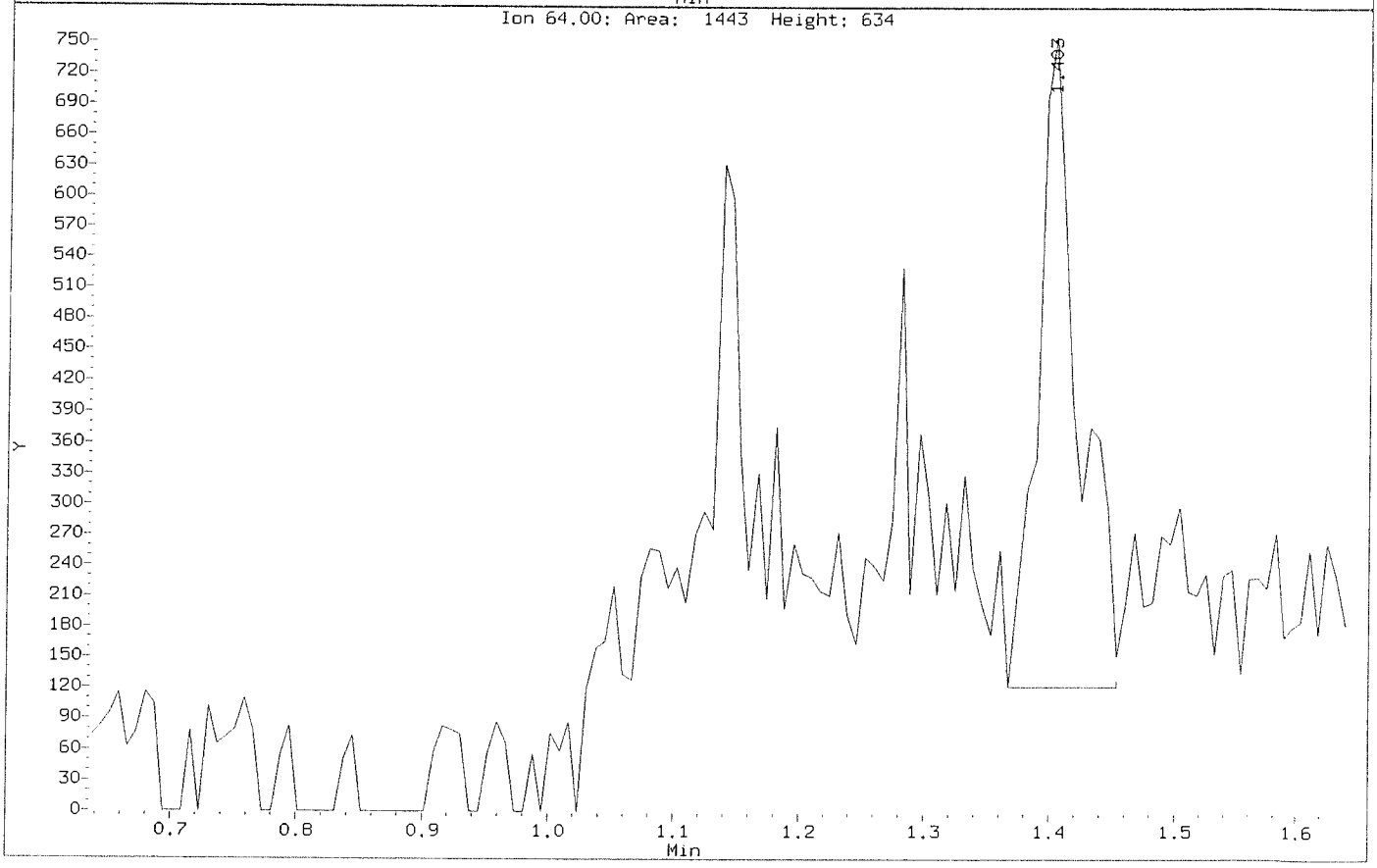
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4





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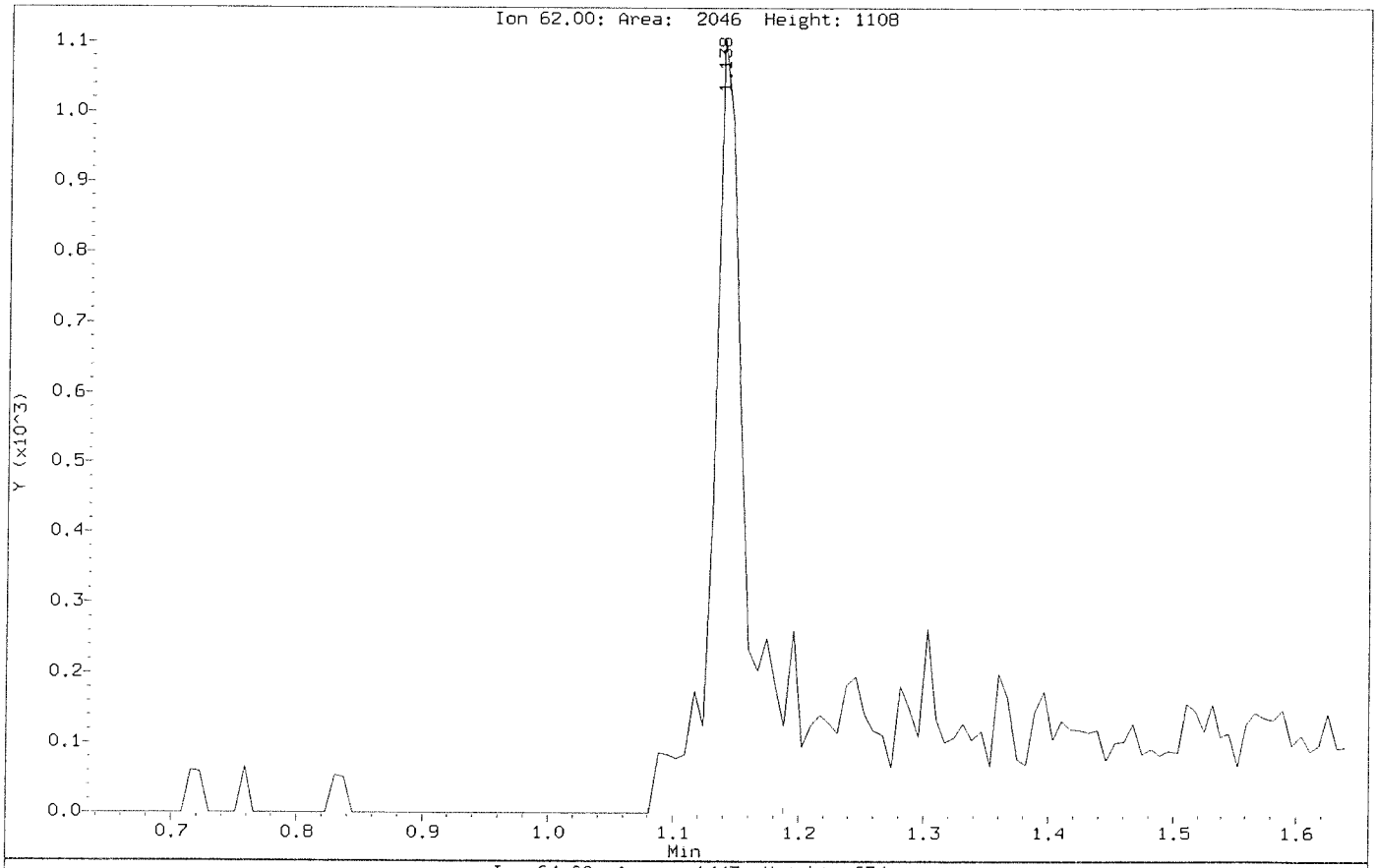
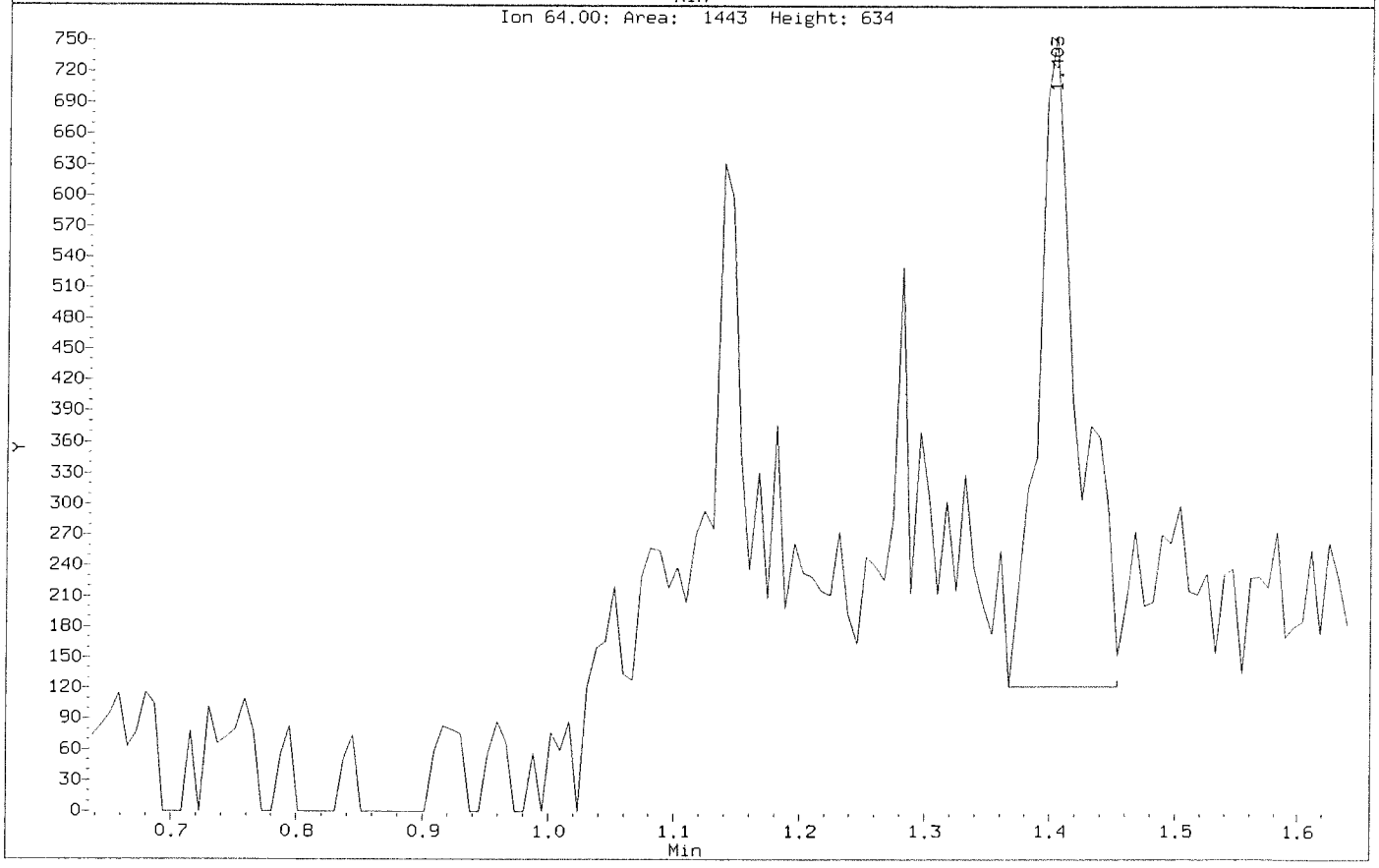
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 18-NOV-2019 14:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 14:35 Cal File: X111803.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

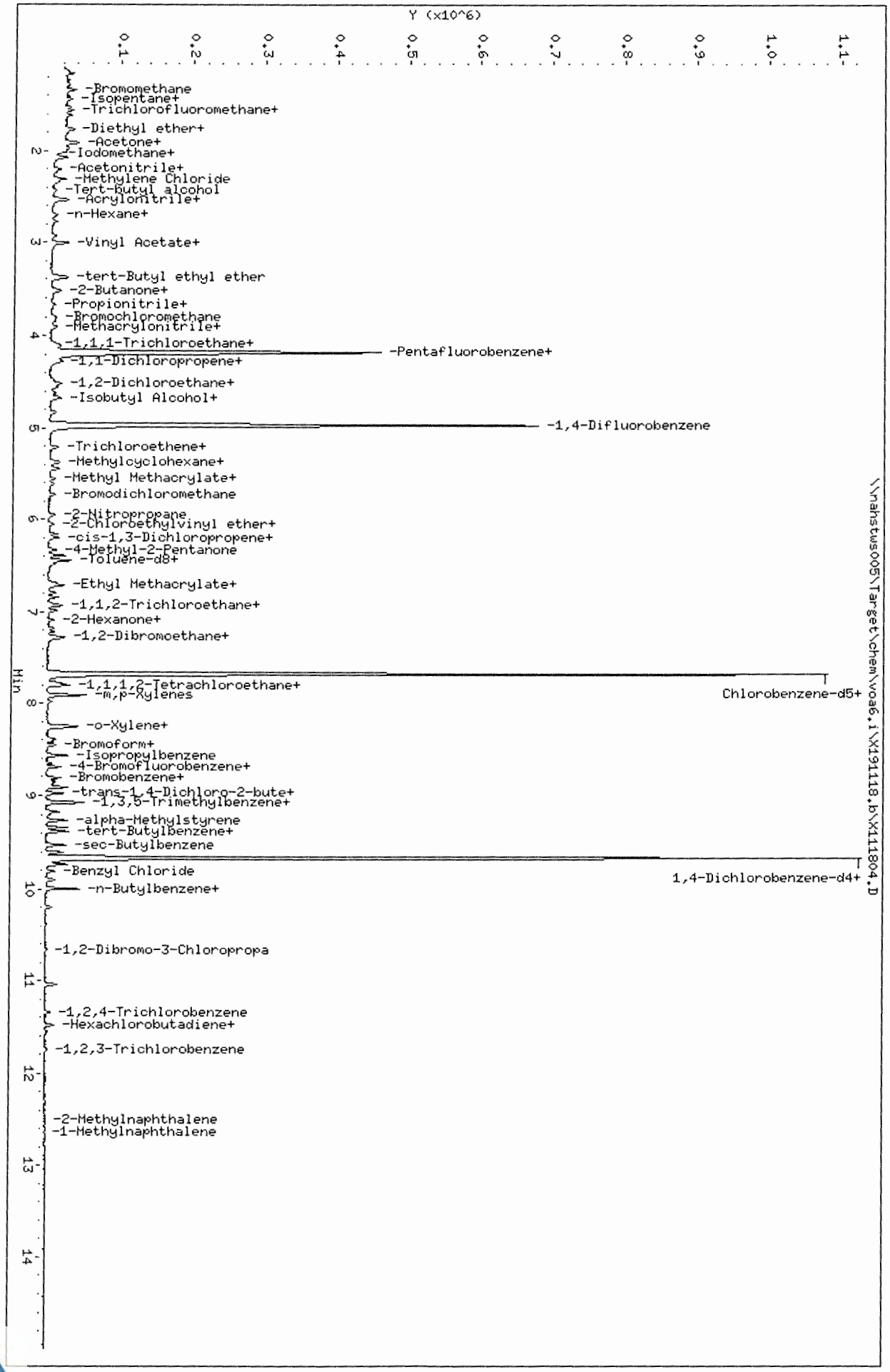
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	416007	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	570122	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	516622	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	279609	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4458	1.00000	1.85(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	5731	1.00000	1.60(a)
$	30 Dibromofluoromethane	113	4.104	4.104	(0.981)	3882	1.00000	1.38(a)
$	48 Toluene-d8	98	6.389	6.389	(0.833)	13715	1.00000	1.00(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	4166	1.00000	1.11(a)
	31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	6451	1.00000	1.14(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	4719	1.00000	1.20(aM)
	138 Freon TF	101	1.919	1.919	(0.459)	4065	1.00000	1.12(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	3216	1.00000	1.19(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	6907	1.00000	1.14(a)
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	3522	1.00000	0.99(a)
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	5427	1.00000	1.18(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	1182	1.00000	0.29(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	4081	1.00000	1.22(aM)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	2432	1.00000	1.03(aM)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	14648	1.00000	1.10(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	464	1.00000	0.73(aM)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	3982	1.00000	1.09(a)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	8297	1.00000	1.11(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	5359	1.00000	1.18(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	3352	1.00000	0.98(aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	13162	1.00000	1.03(a)
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	8955	1.00000	1.11(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	6334	1.00000	1.15(a)
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	9129	1.00000	1.12(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	6785	1.00000	1.23(a)
24 2-Butanone	43	3.588	3.588	(0.858)	2602	2.00000	2.03(a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	11127	1.00000	1.10(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	4893	2.00000	2.30(a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	13982	1.00000	1.14(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	14705	1.00000	1.07(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	6643	2.00000	2.19(a)
10 Acetone	43	1.969	1.969	(0.471)	5956	2.00000	1.88(a)
37 Benzene	78	4.519	4.519	(0.909)	15129	1.00000	1.16(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	5611	1.00000	1.15(a)
29 Bromochloromethane	128	3.803	3.803	(0.909)	2687	1.00000	1.19(a)
39 Bromodichloromethane	83	5.730	5.730	(1.153)	5583	1.00000	1.18(aM)
66 Bromoform	173	8.416	8.416	(1.097)	3197	1.00000	2.01(Ta)
6 Bromomethane	94	1.339	1.339	(0.320)	6334	1.00000	(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	20920	2.00000	2.18(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	5740	1.00000	1.13(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	11449	1.00000	1.13(a)
7 Chloroethane	64	1.403	1.403	(0.336)	3001	1.00000	1.14(aM)
28 Chloroform	83	3.910	3.910	(0.935)	8234	1.00000	1.22(a)
3 Chloromethane	50	1.074	1.074	(0.257)	6118	1.00000	1.53(aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	4494	1.00000	1.13(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	6302	1.00000	1.13(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	4470	1.00000	1.13(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	2789	1.00000	1.15(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	3829	1.00000	1.87(aM)
61 Ethylbenzene	106	7.800	7.800	(1.017)	5813	1.00000	1.11(a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	2468	1.00000	0.76(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	16809	1.00000	1.08(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	13495	2.00000	2.14(a)
17 Methylene Chloride	84	2.306	2.306	(0.551)	4626	1.00000	1.22(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	11491	1.00000	1.00(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	18779	1.00000	1.08(a)
92 Naphthalene	128	11.553	11.553	(1.195)	3182	1.00000	1.05(a)
63 o-Xylene	106	8.244	8.244	(1.075)	6995	1.00000	1.12(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	15987	1.00000	1.06(a)
64 Styrene	104	8.265	8.265	(1.078)	11719	1.00000	1.08(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	12122	1.00000	1.11(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	4263	1.00000	1.17(a)
50 Toluene	91	6.453	6.453	(0.841)	16346	1.00000	1.11(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	4068	1.00000	1.18(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	5295	1.00000	1.04(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	4445	1.00000	1.11(a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	6912	1.00000	1.07(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	4533	1.00000	1.06(aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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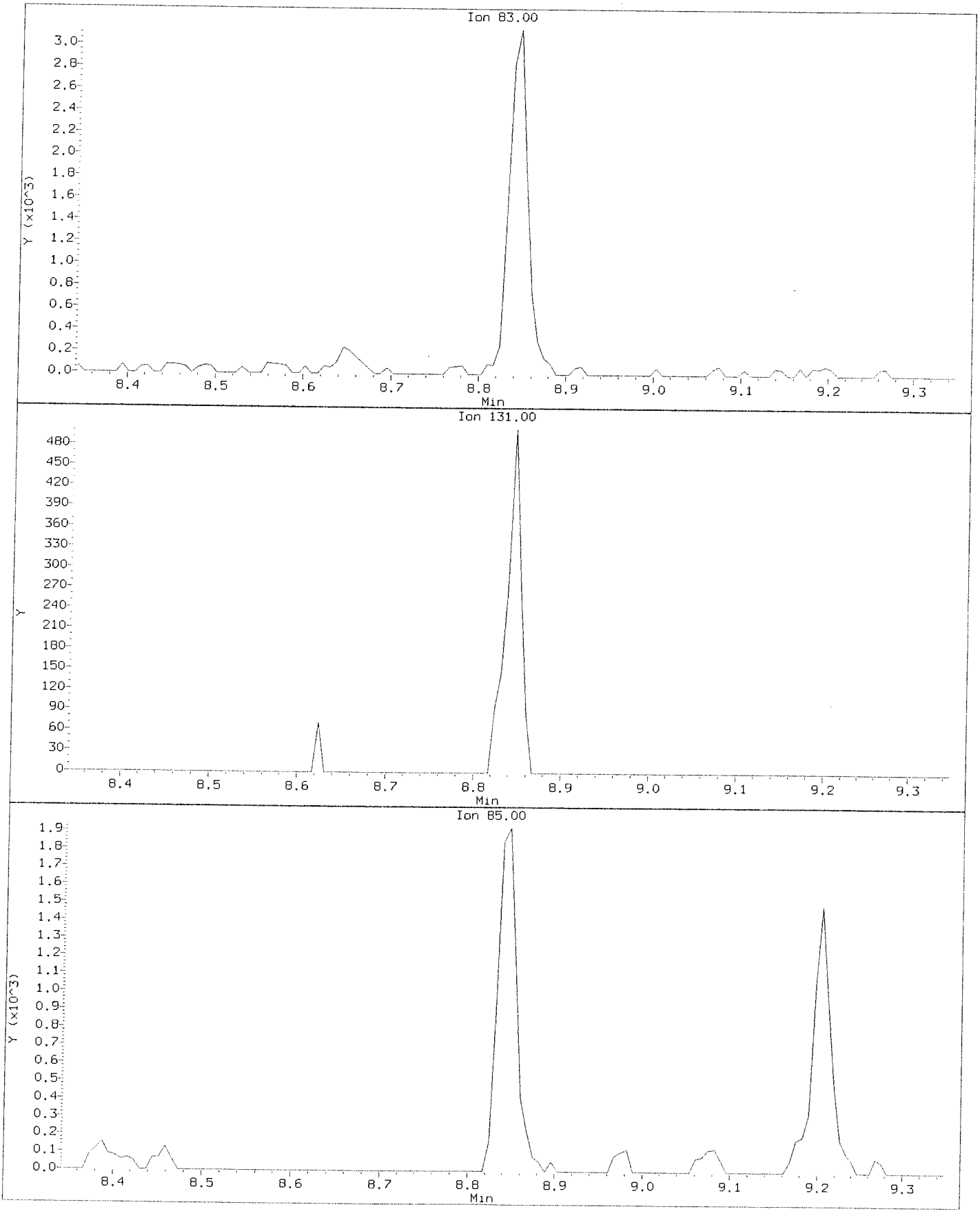
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111804.D
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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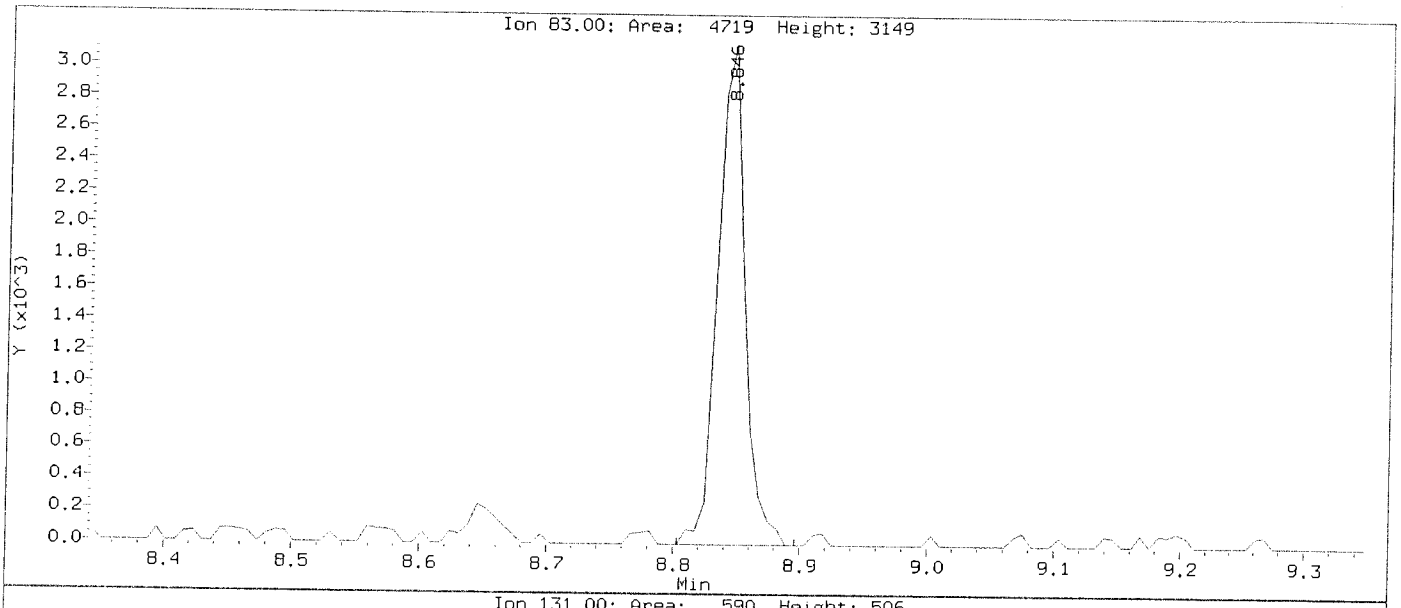
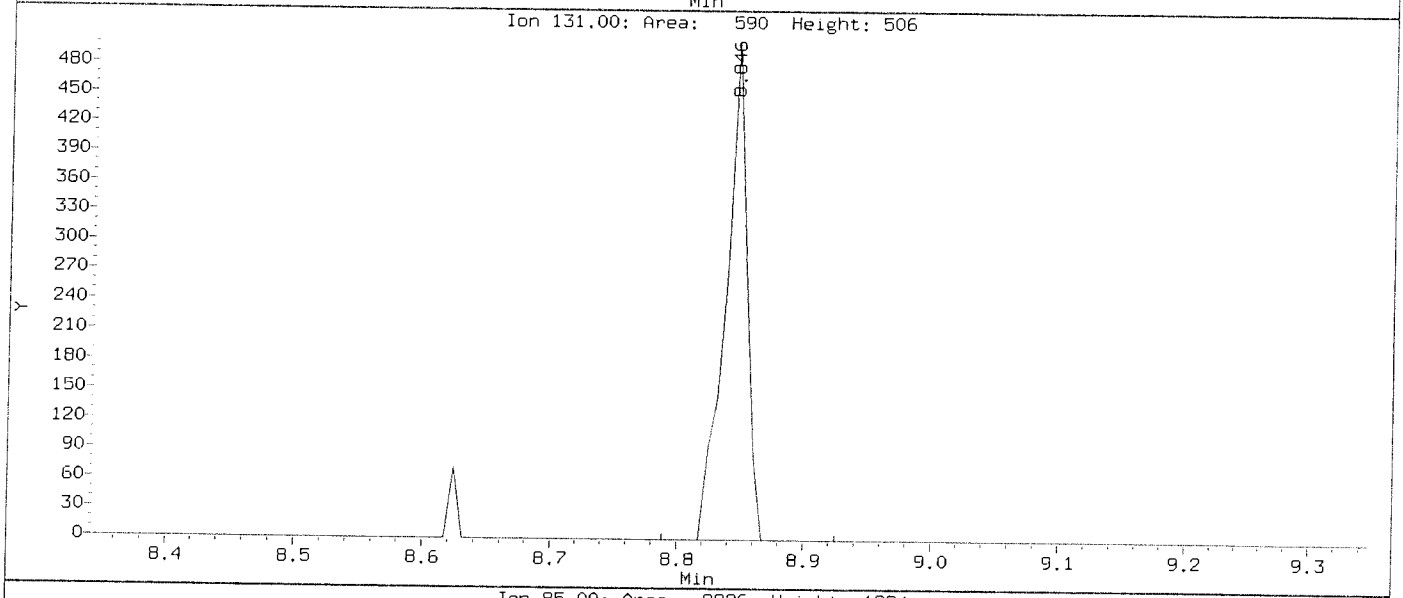
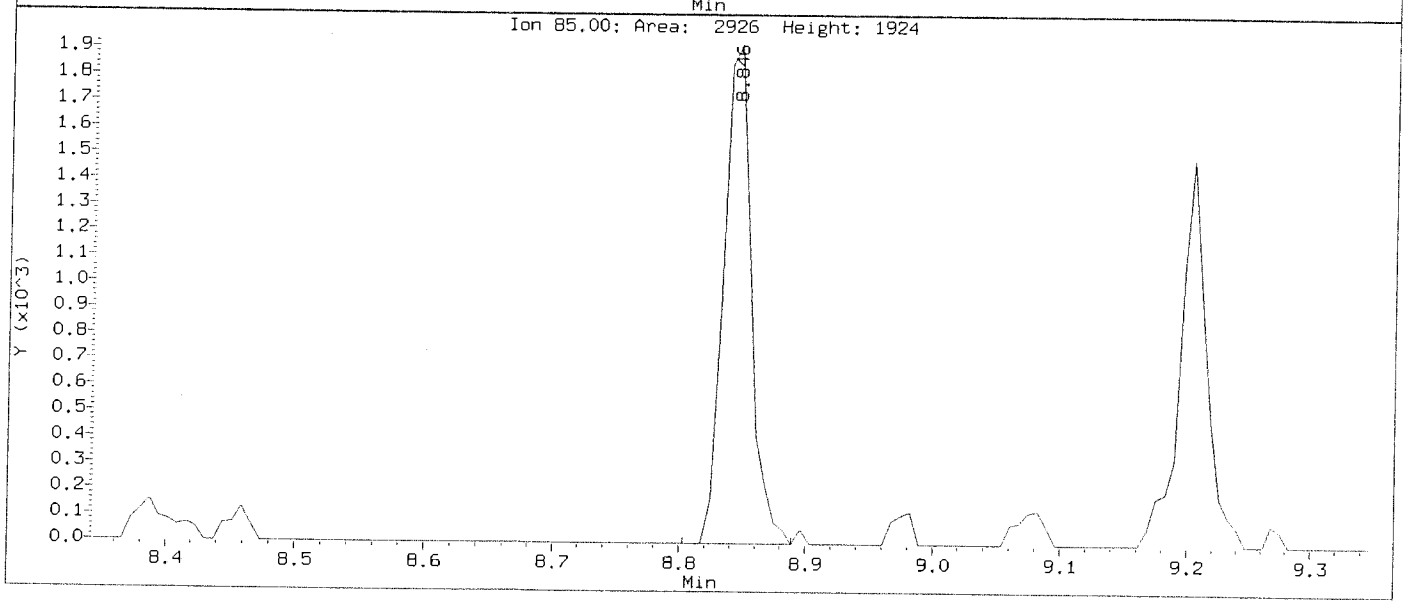
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5







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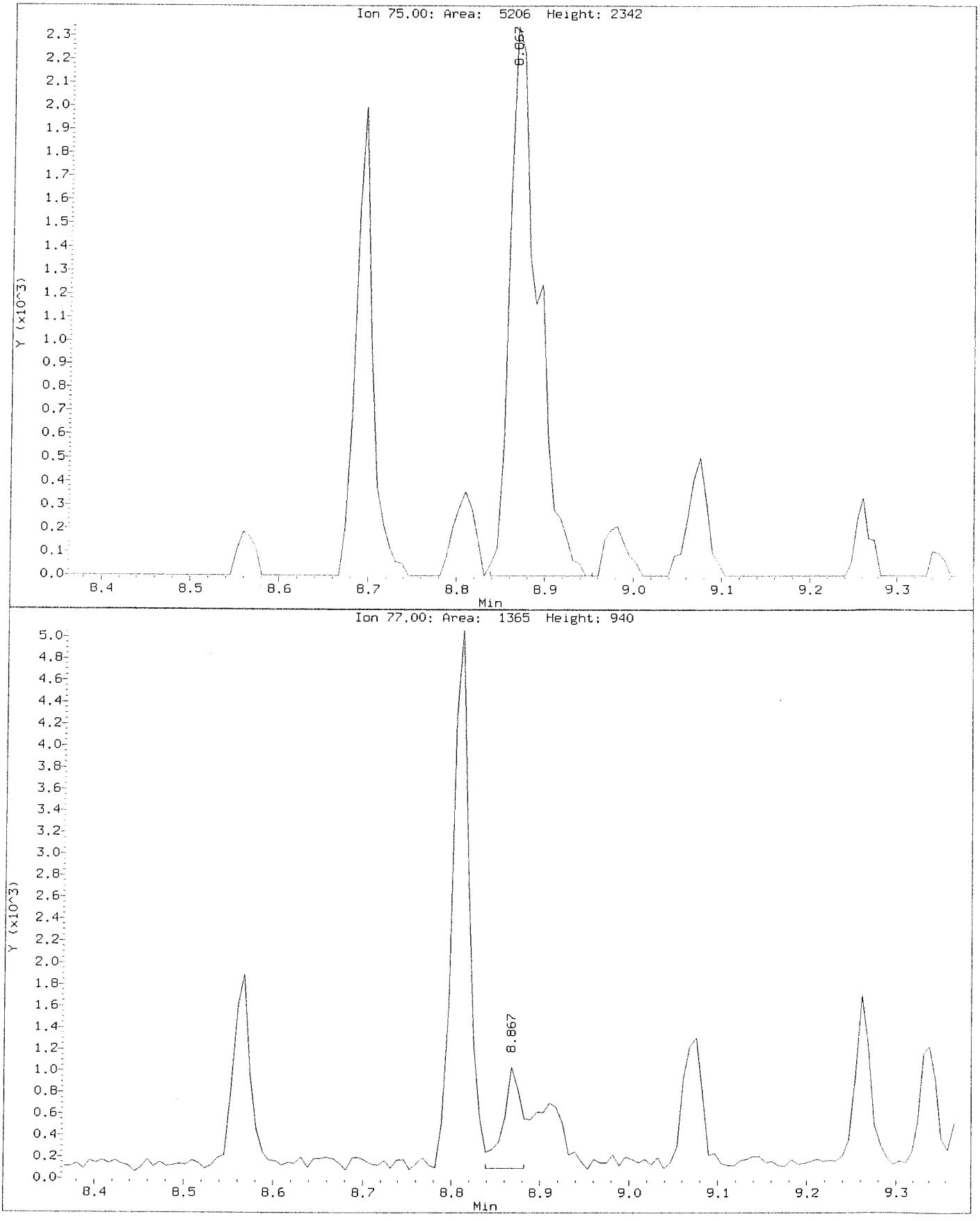
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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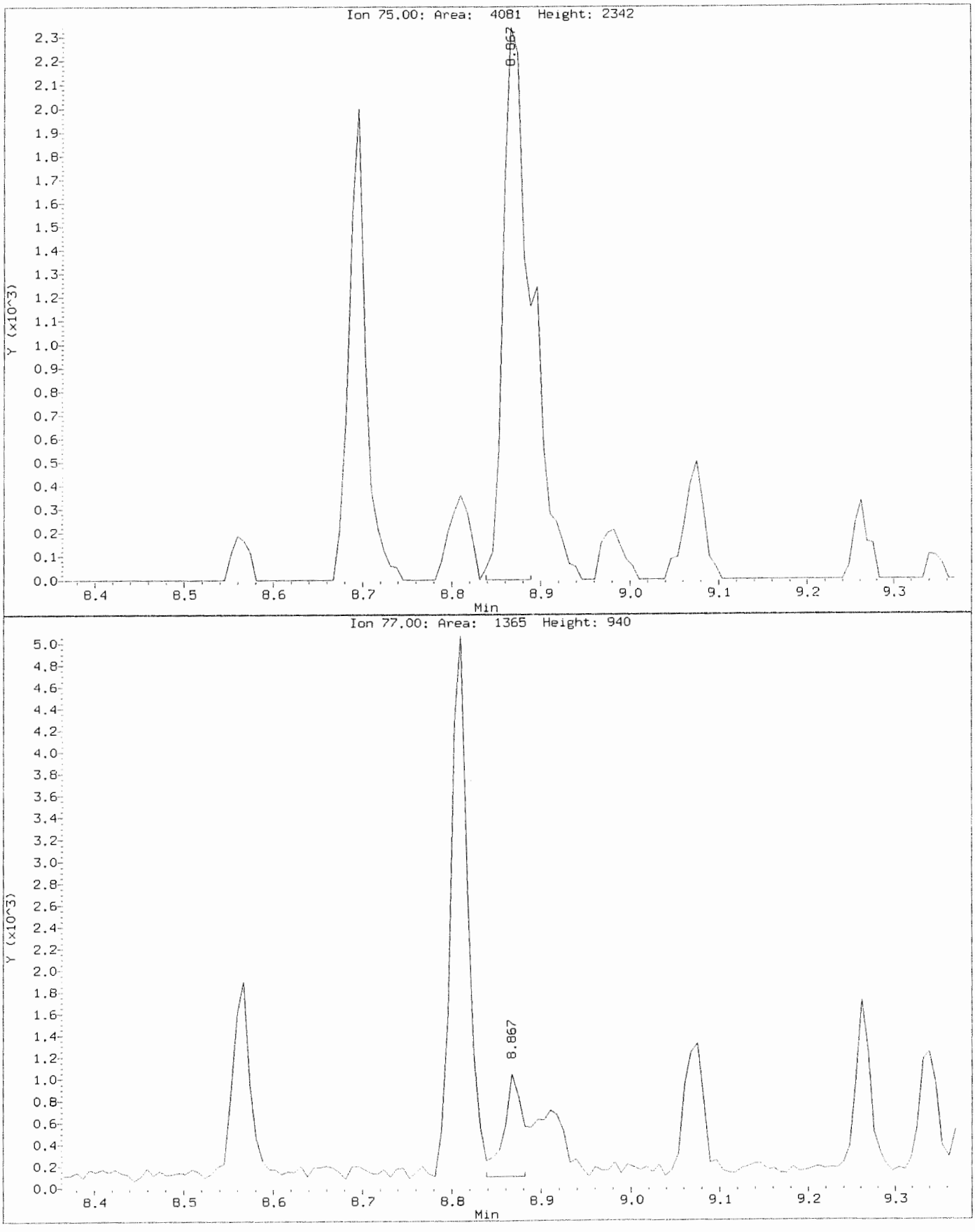
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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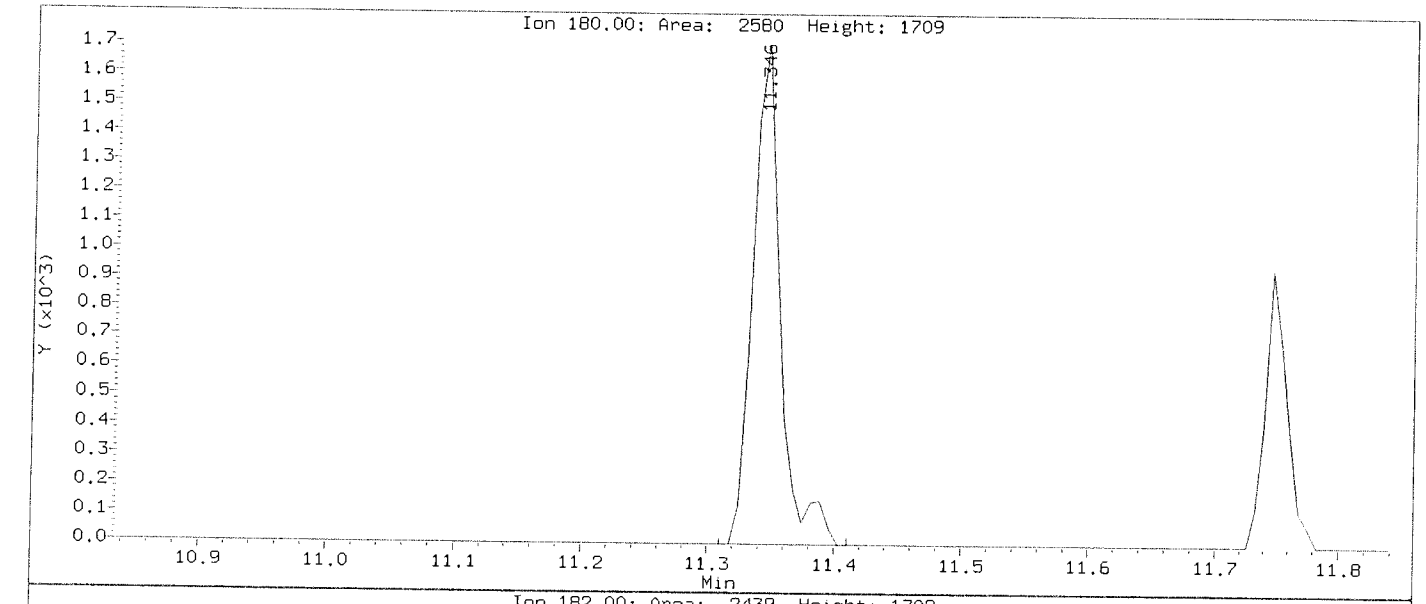
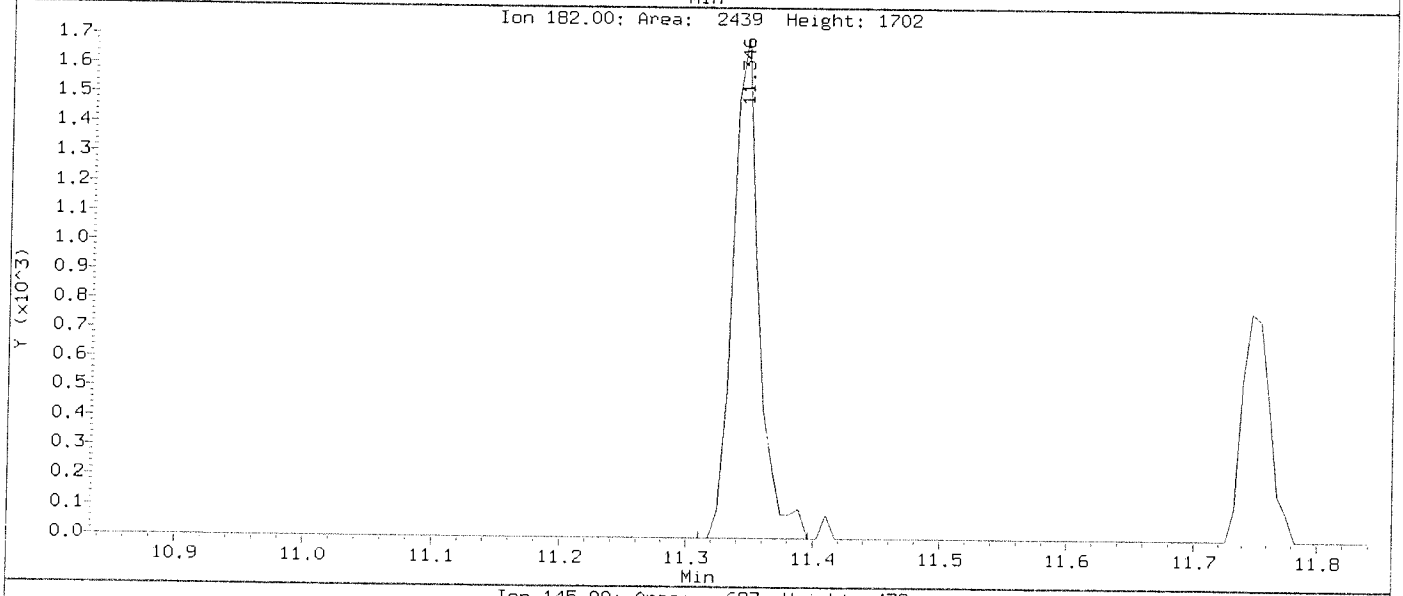
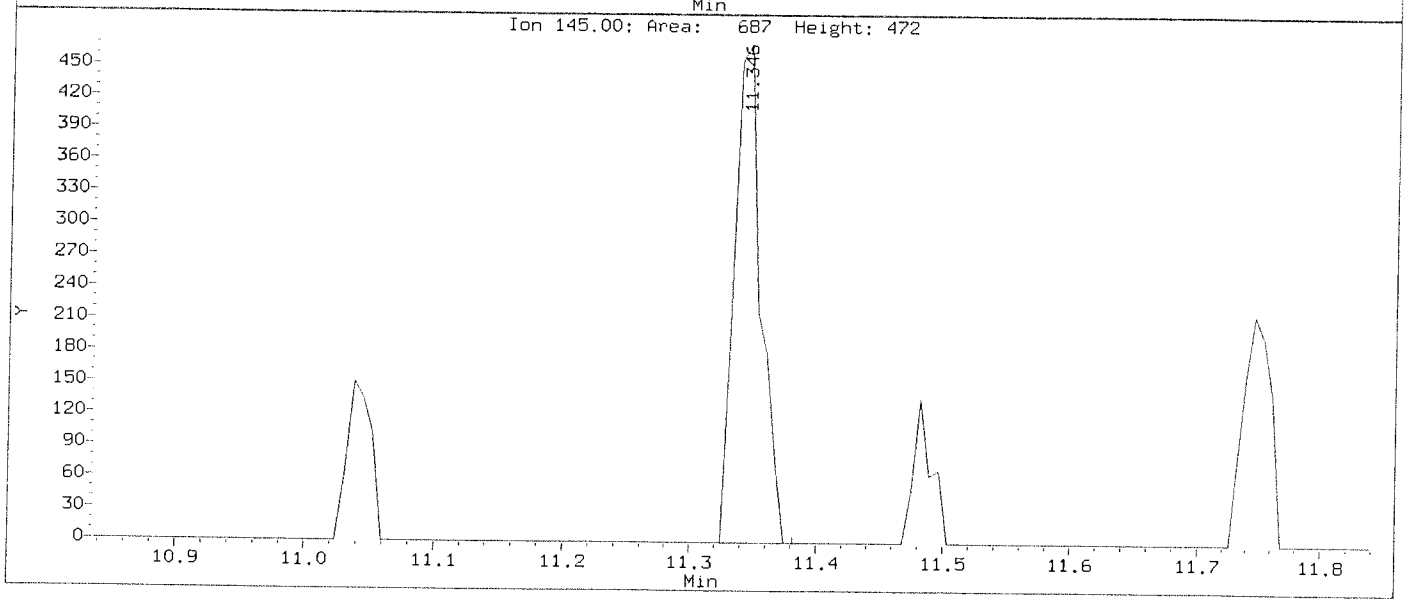
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1







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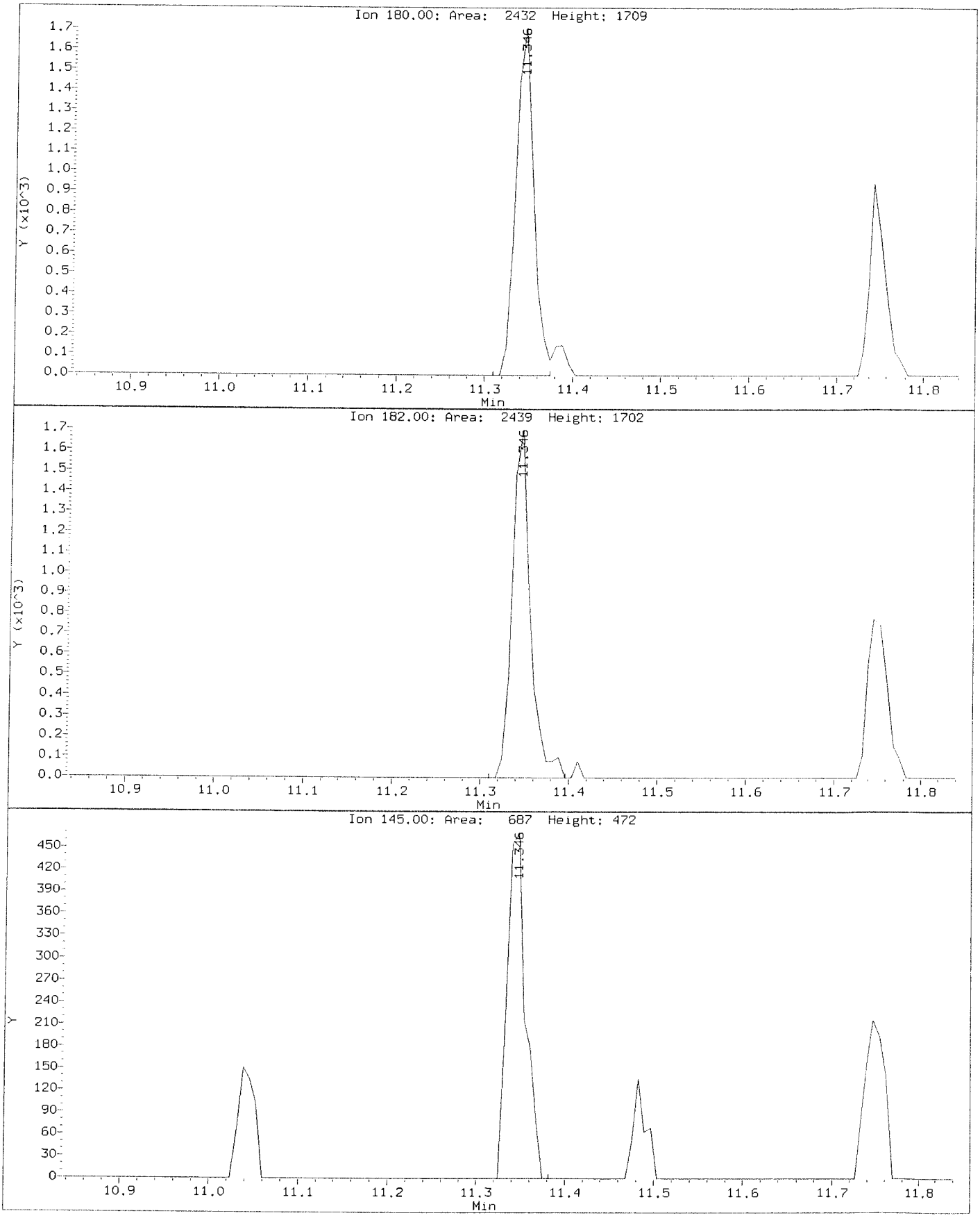
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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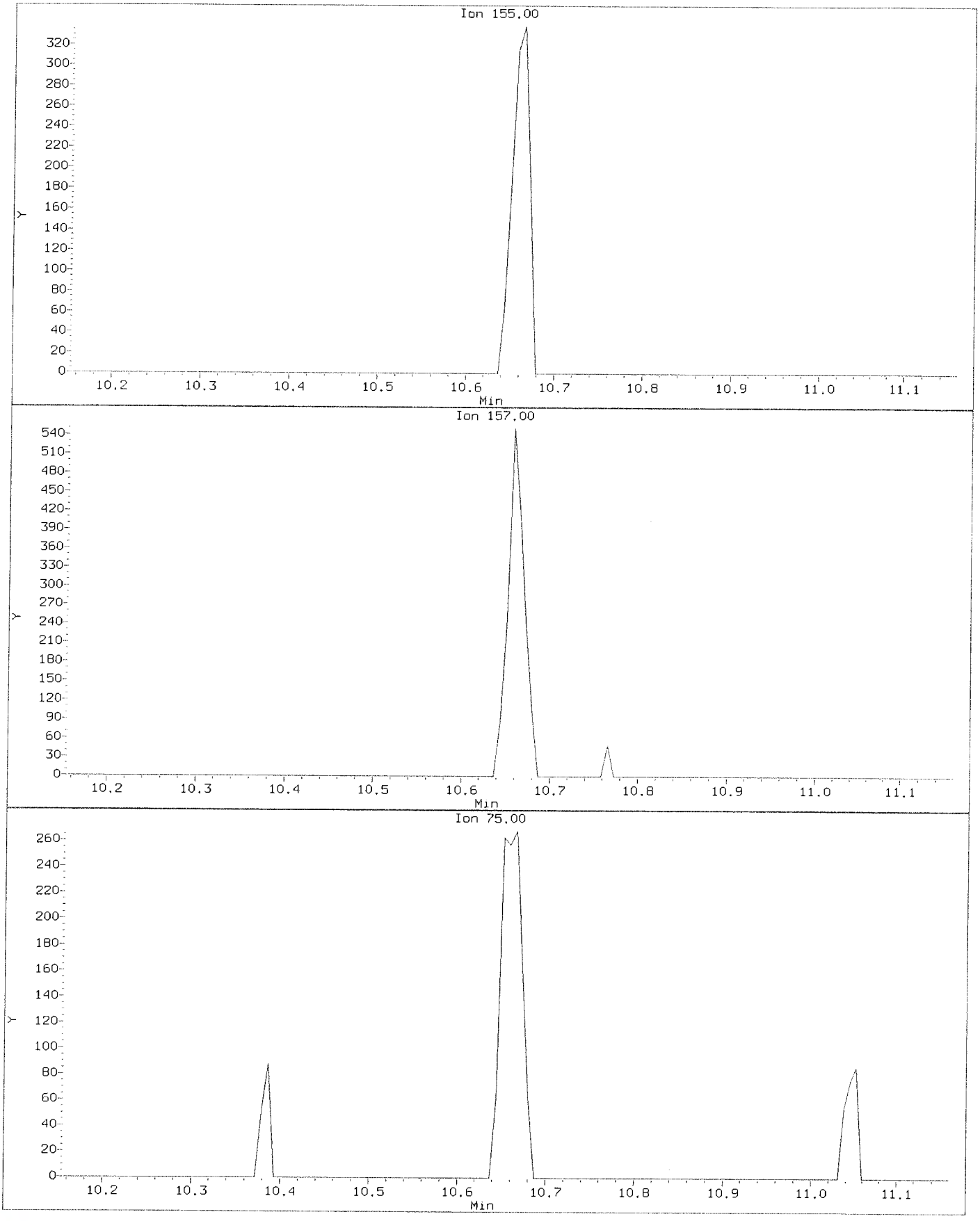
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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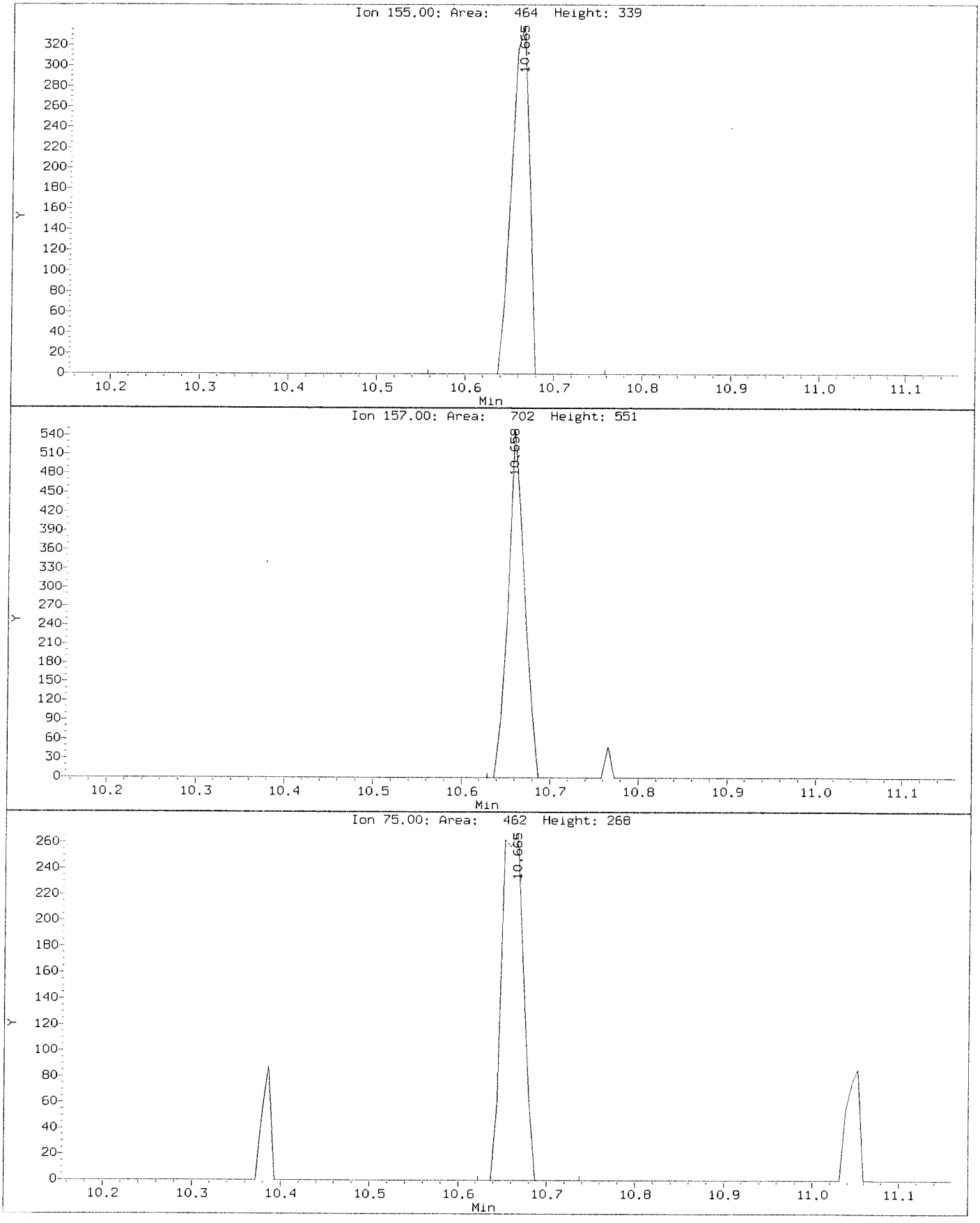
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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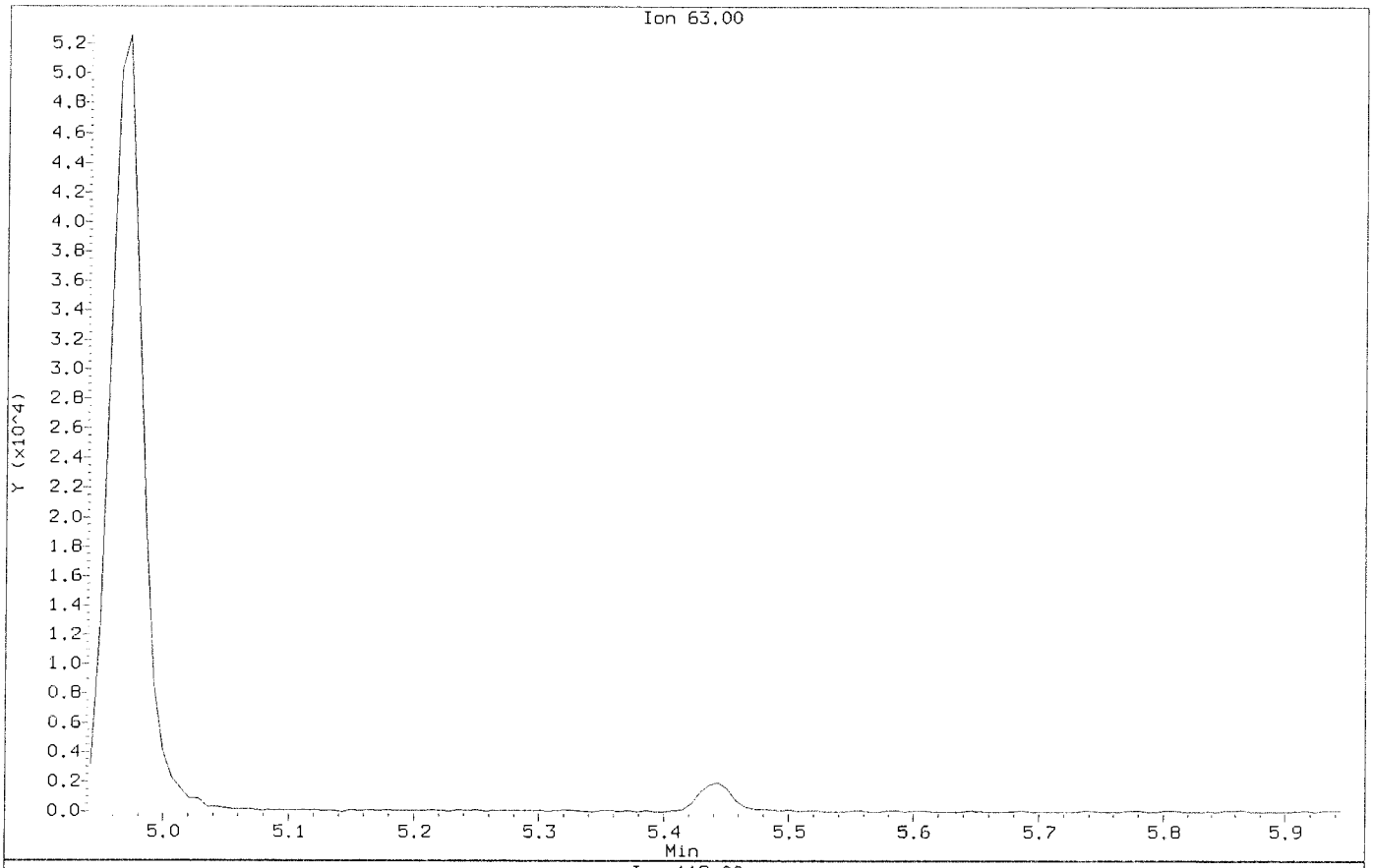
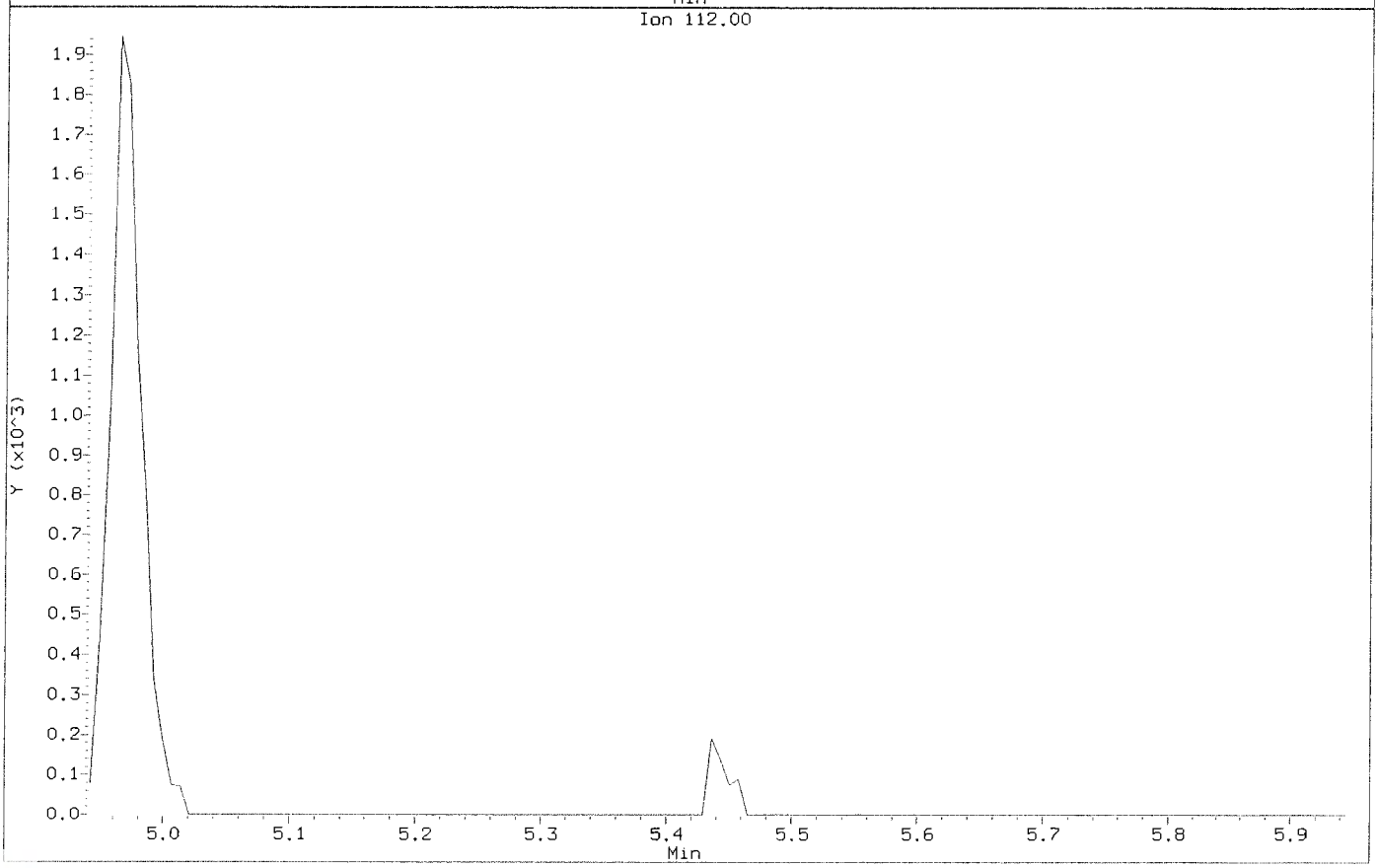
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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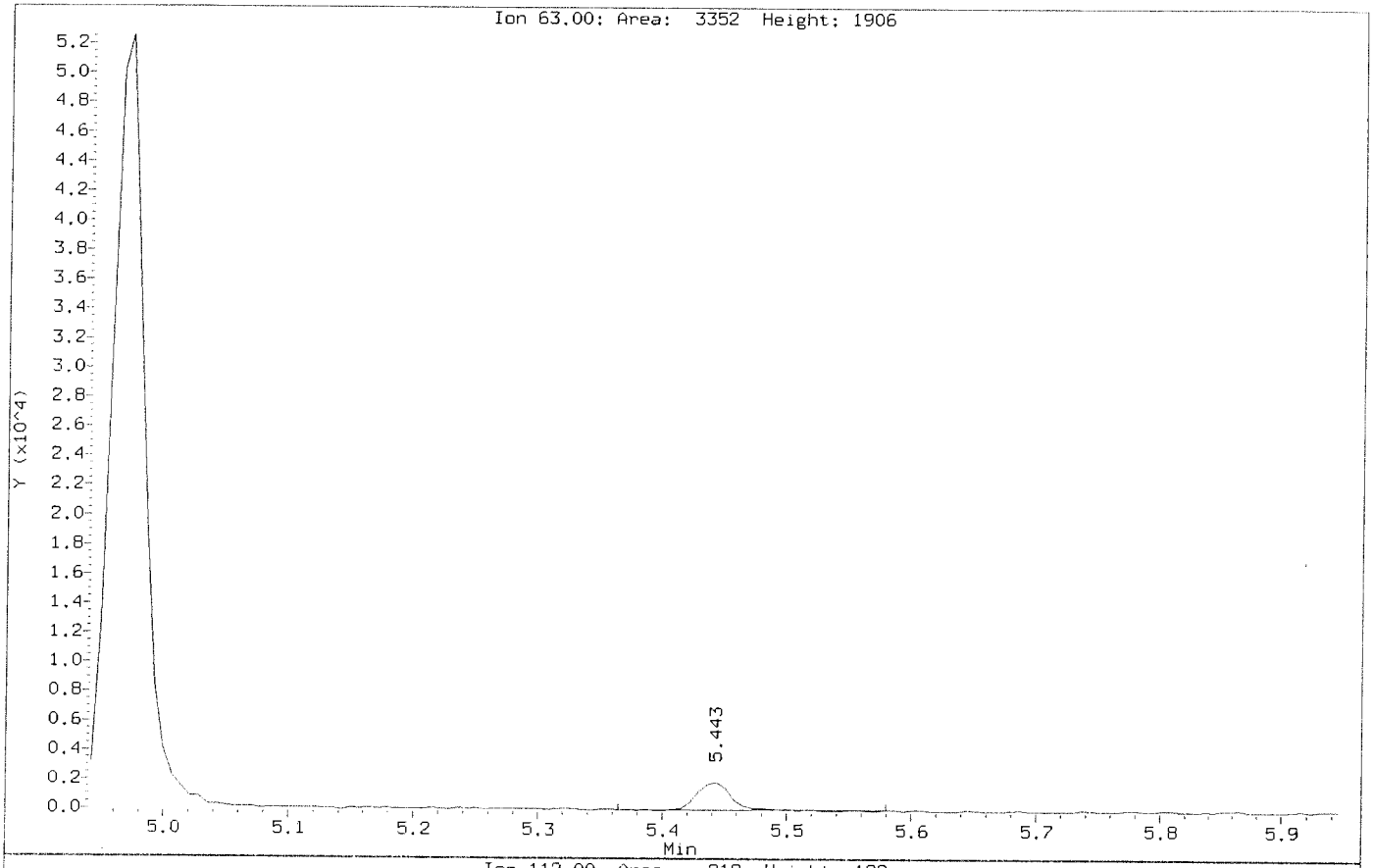
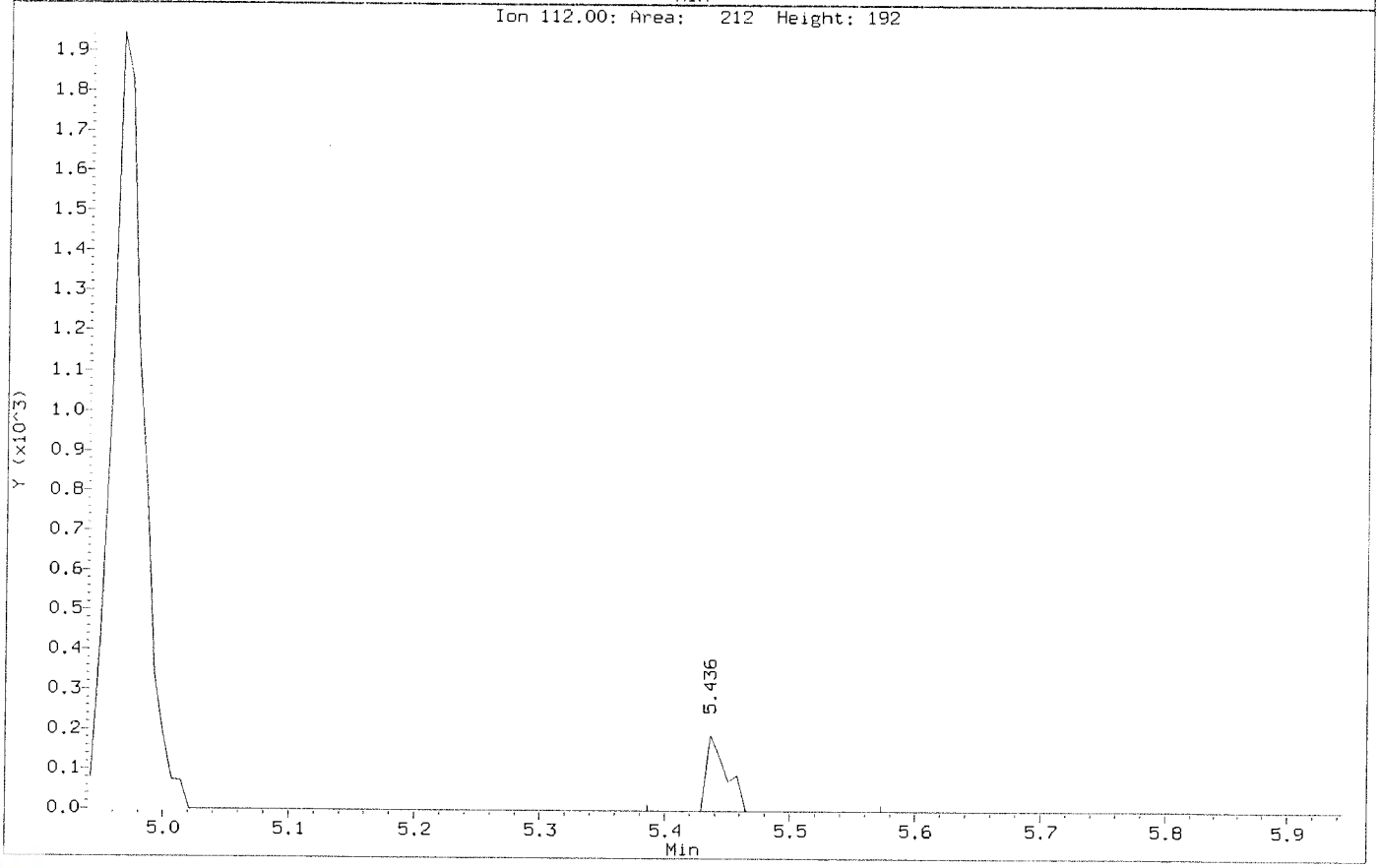
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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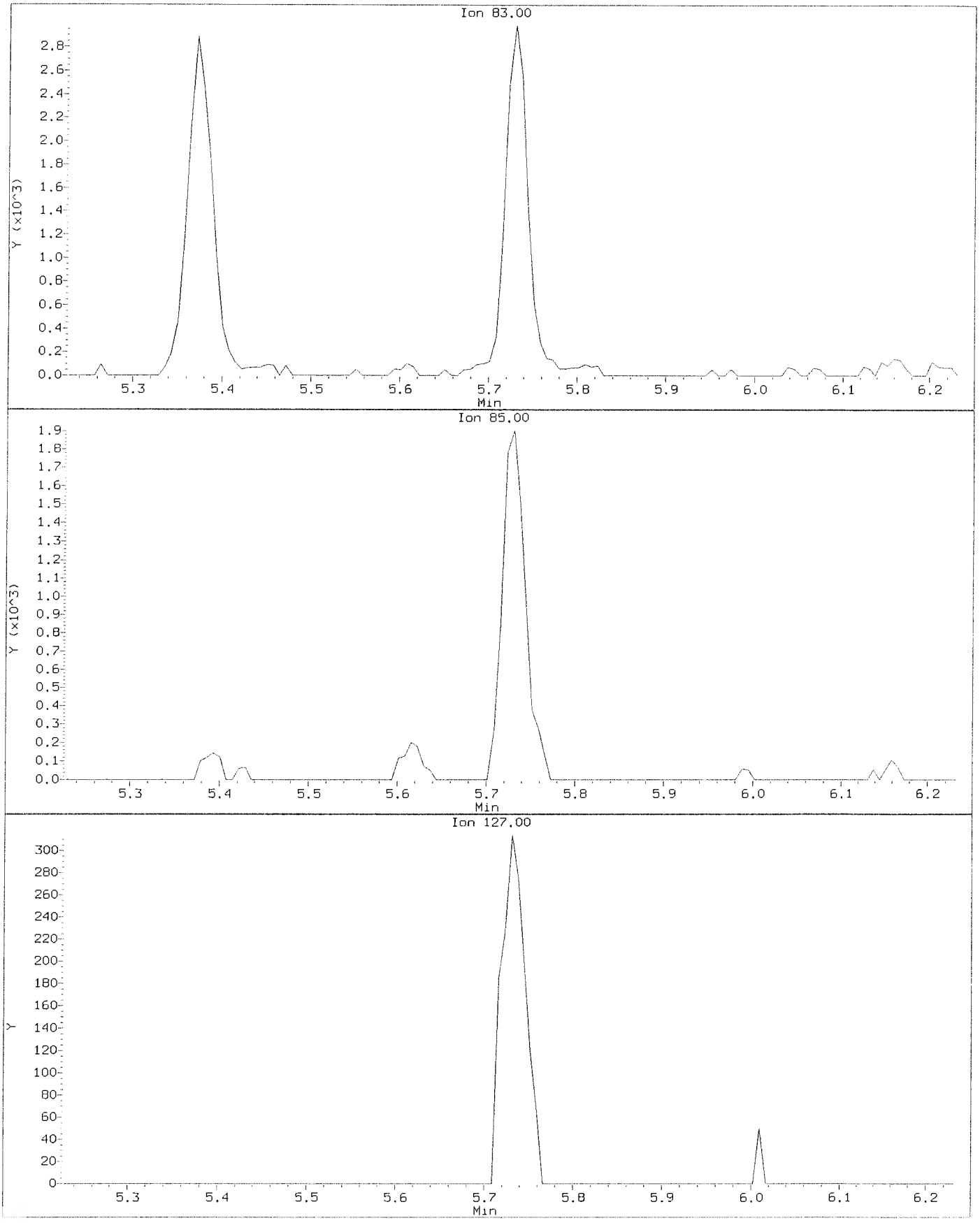
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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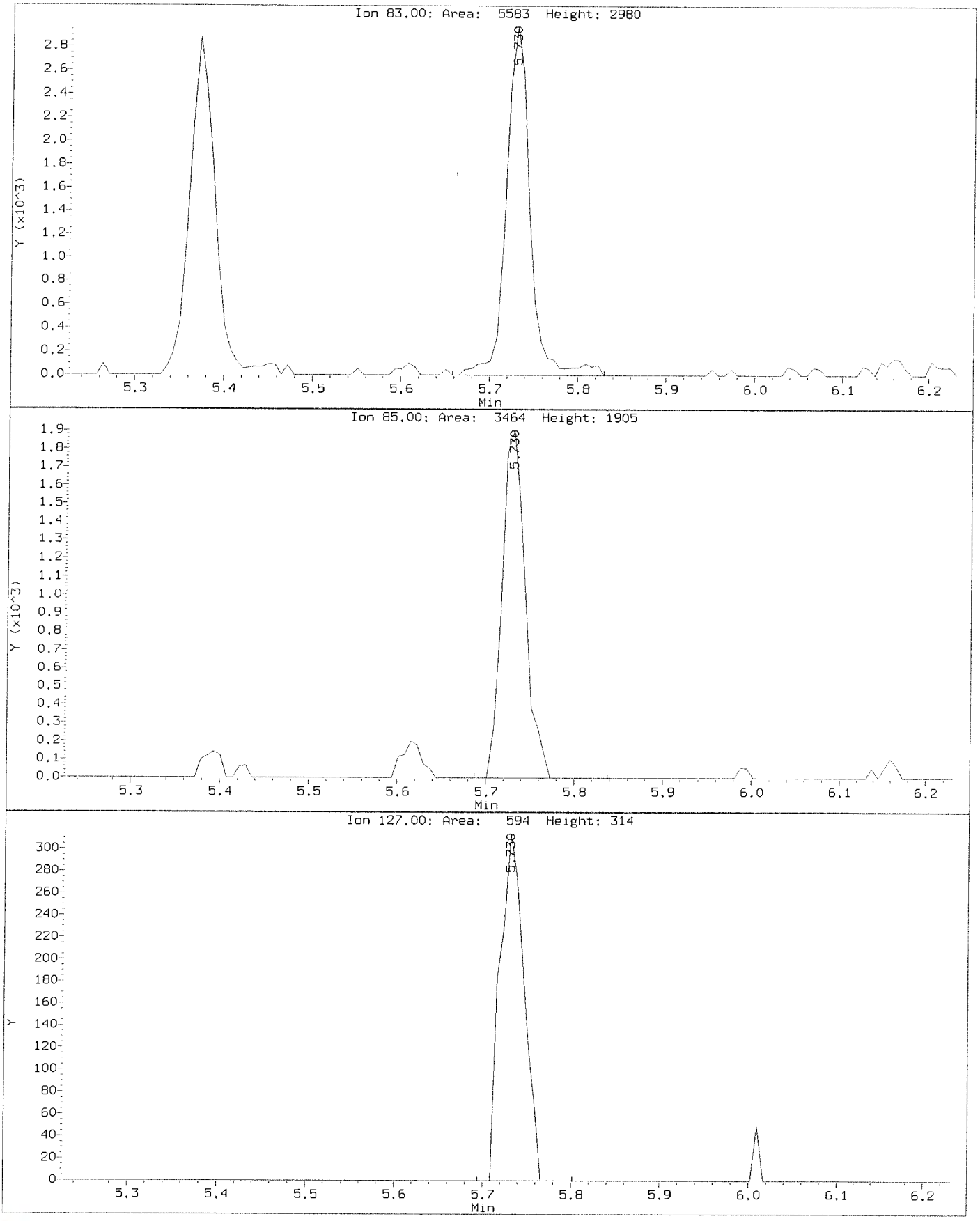
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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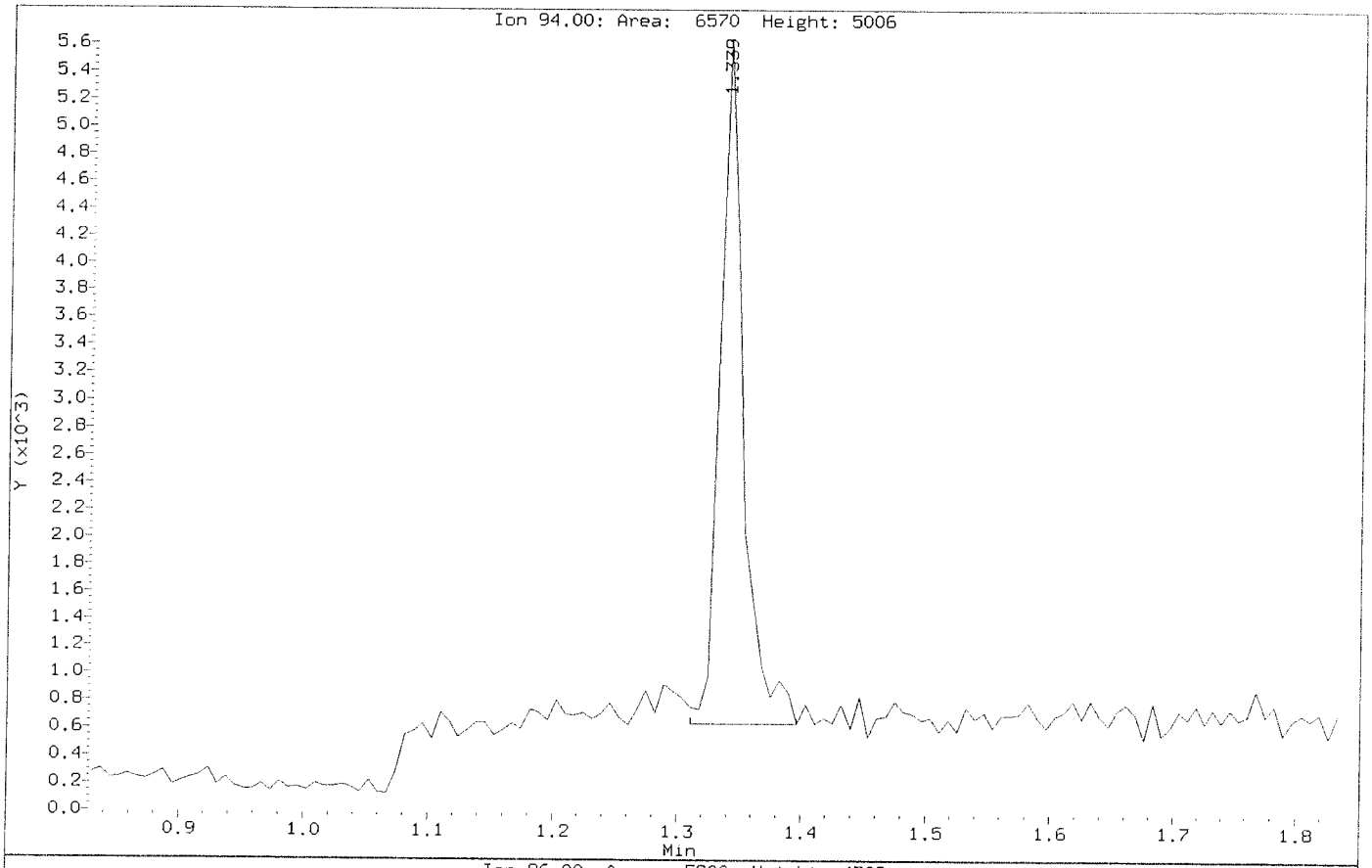
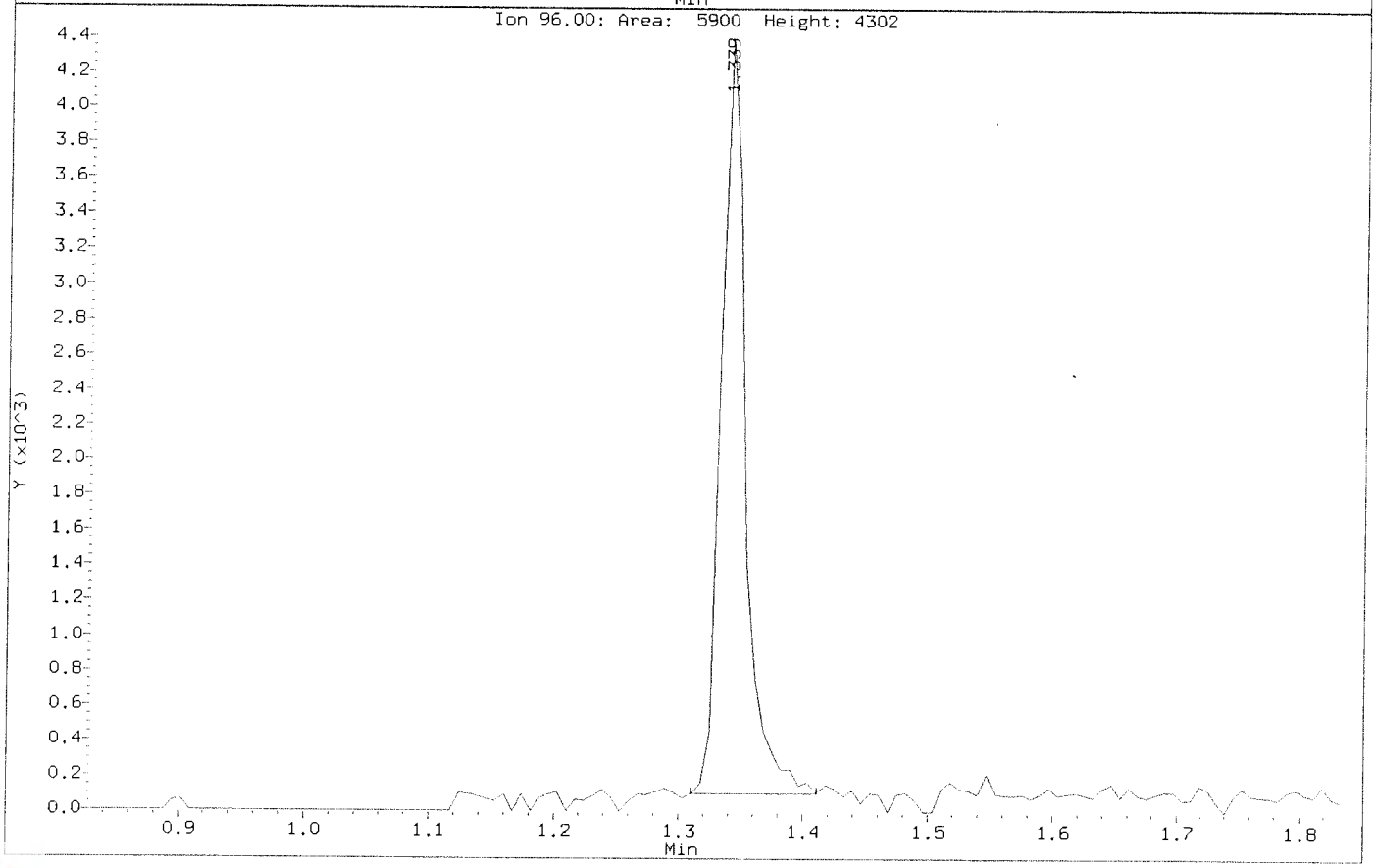
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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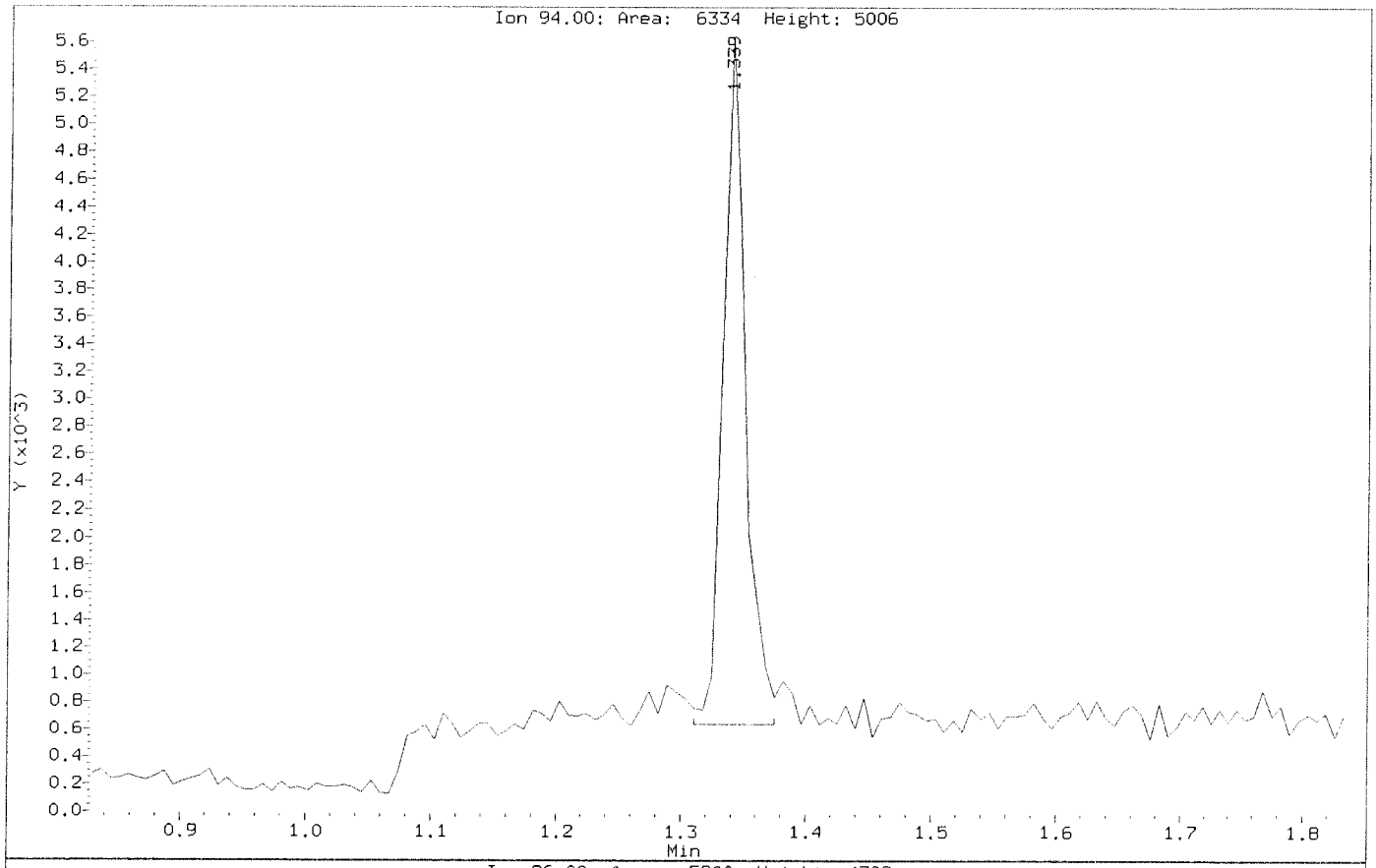
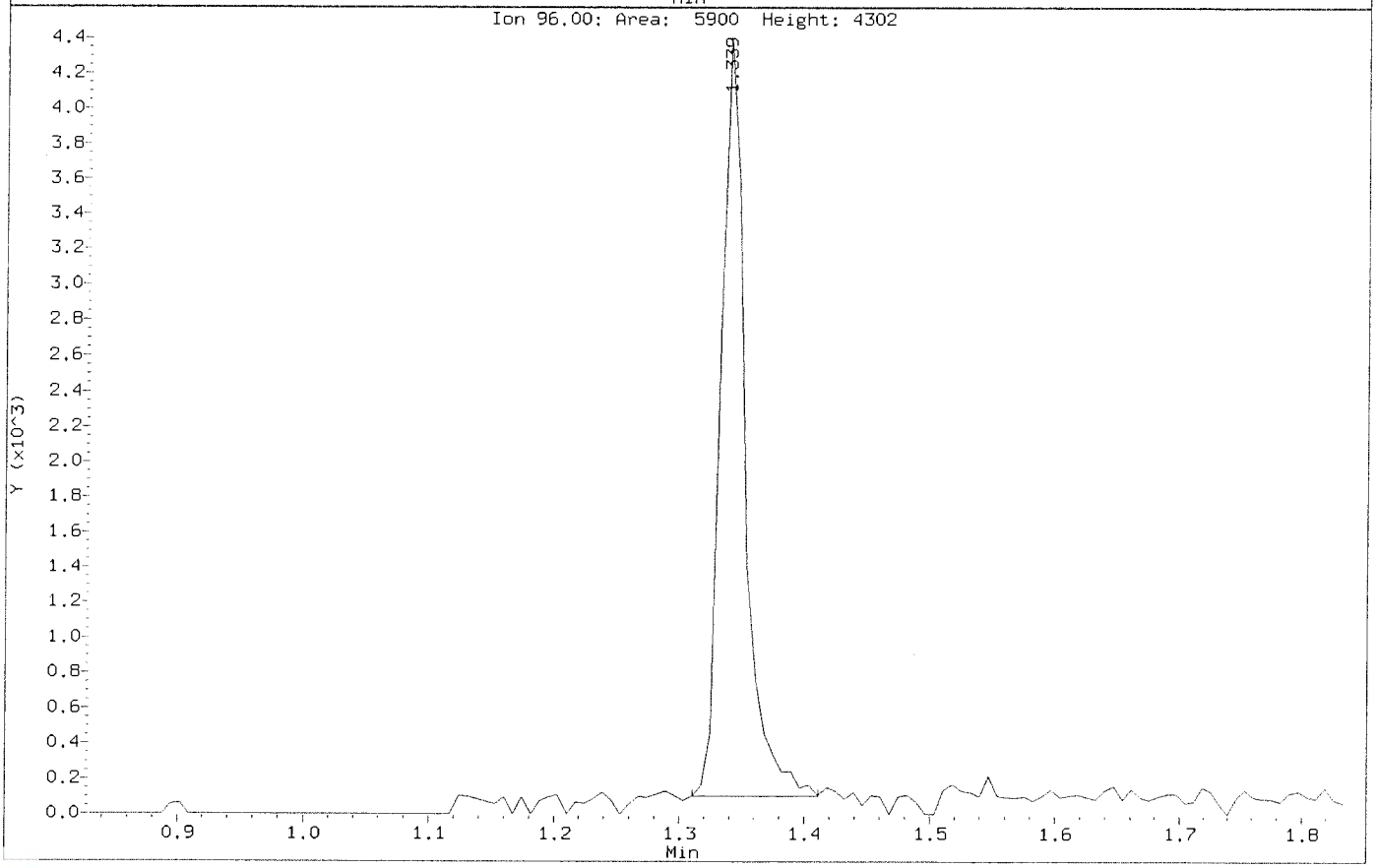
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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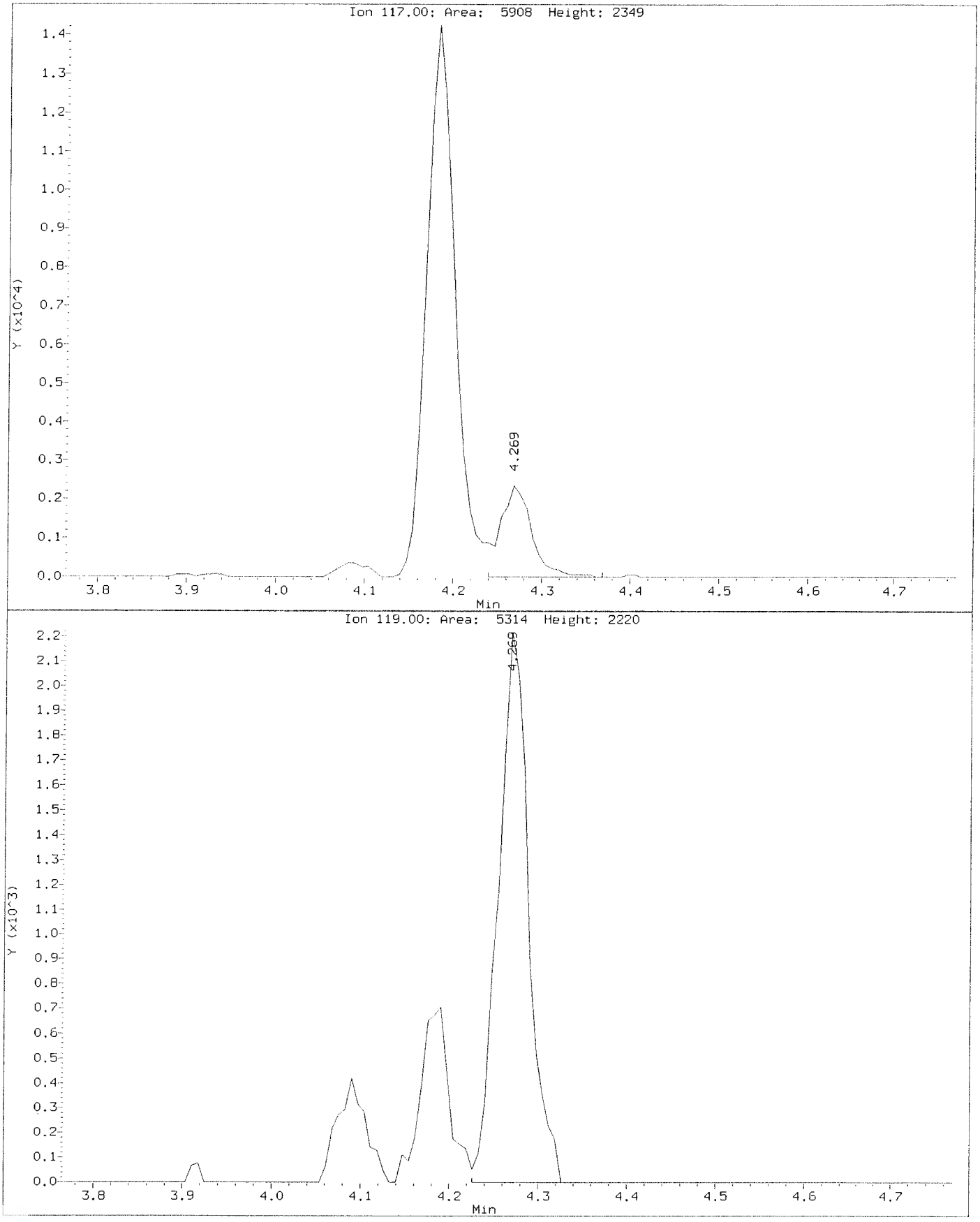
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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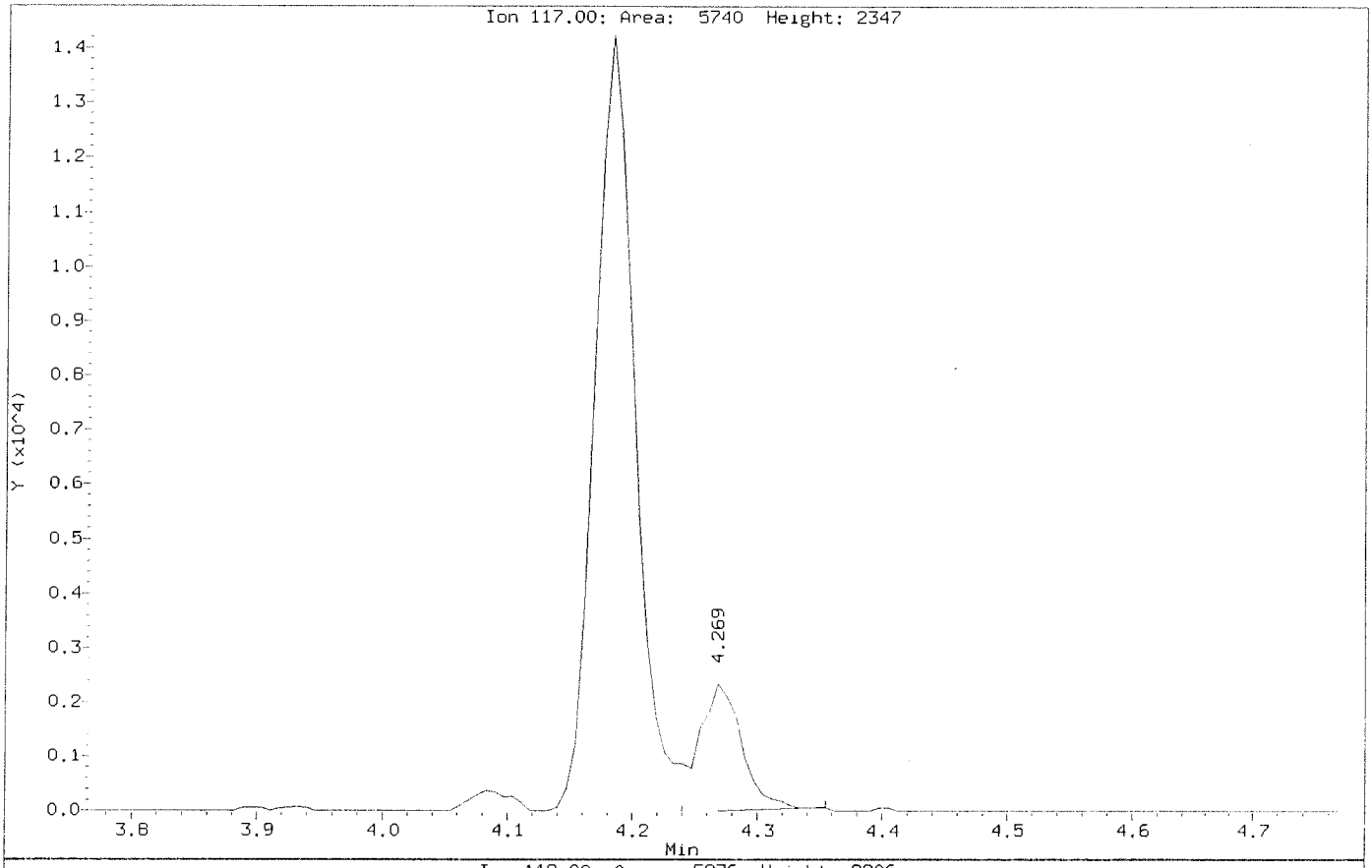
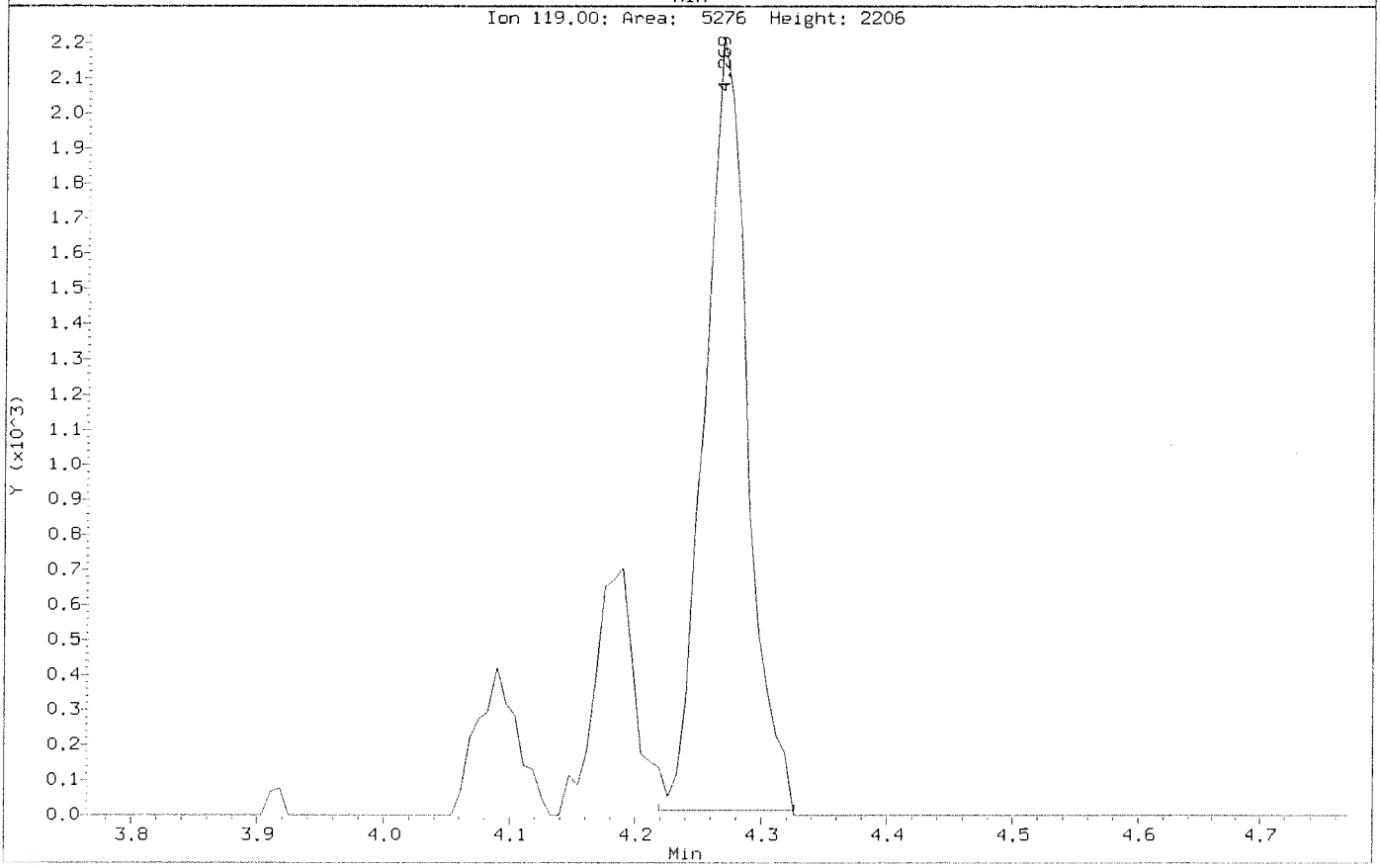
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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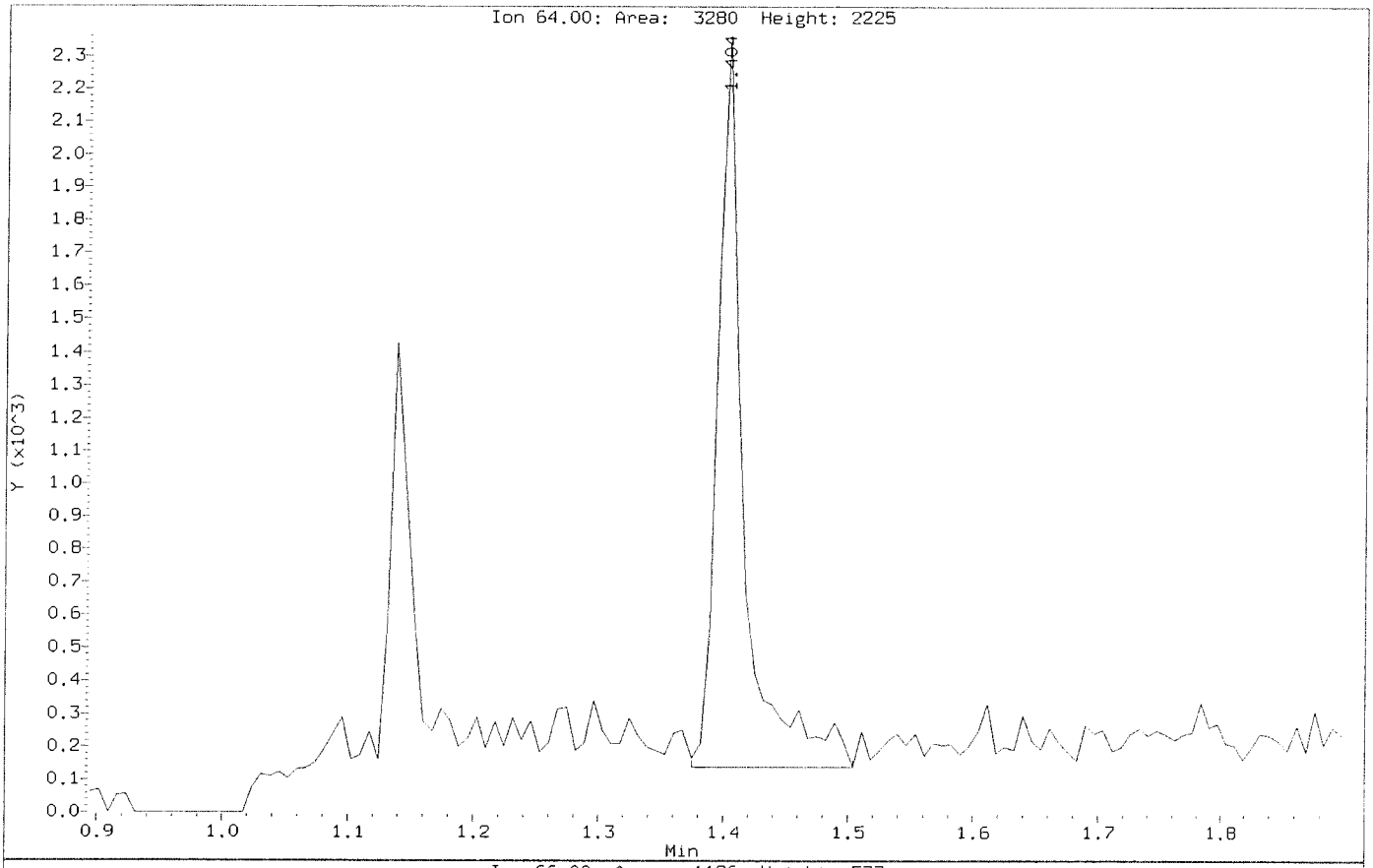
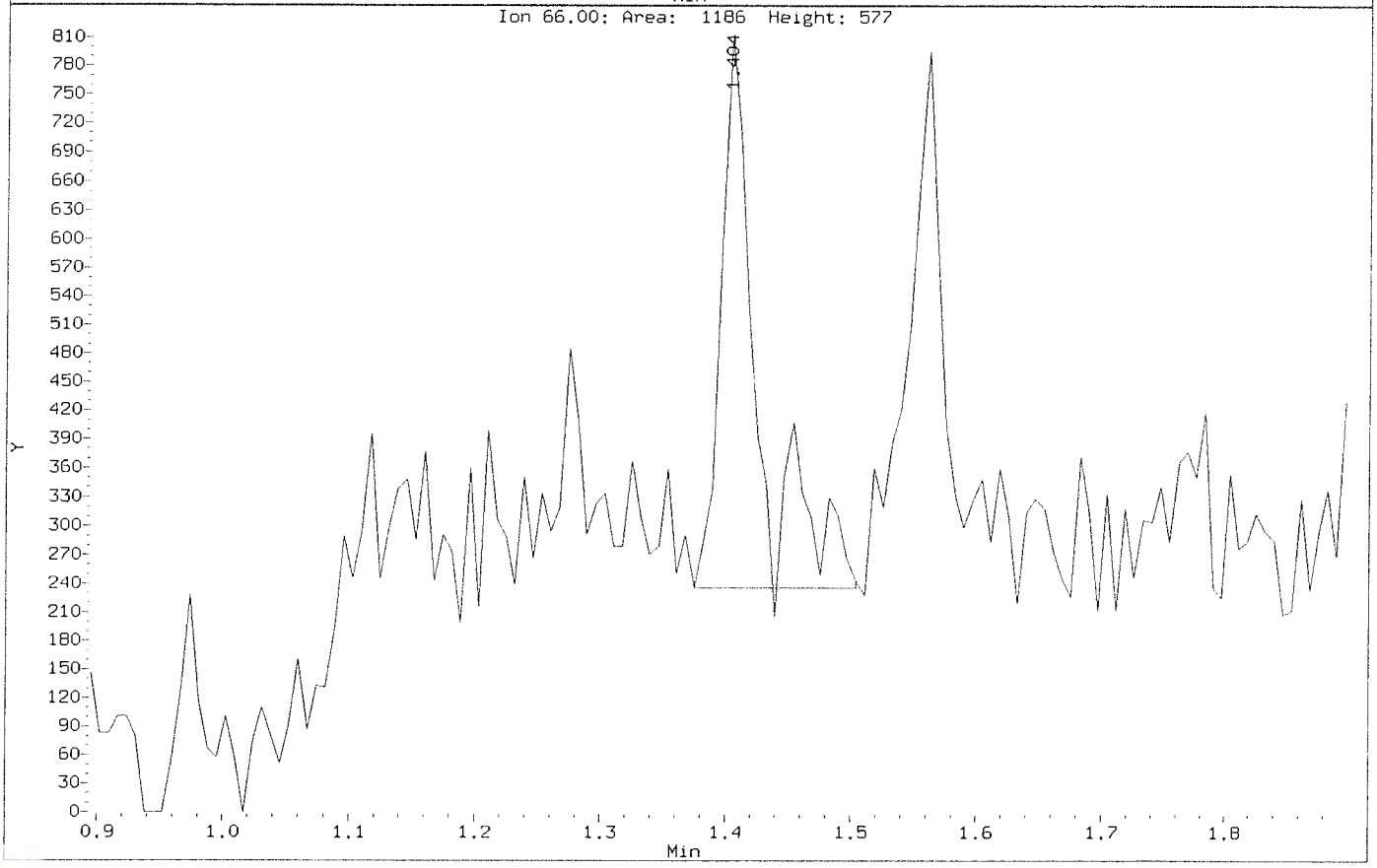
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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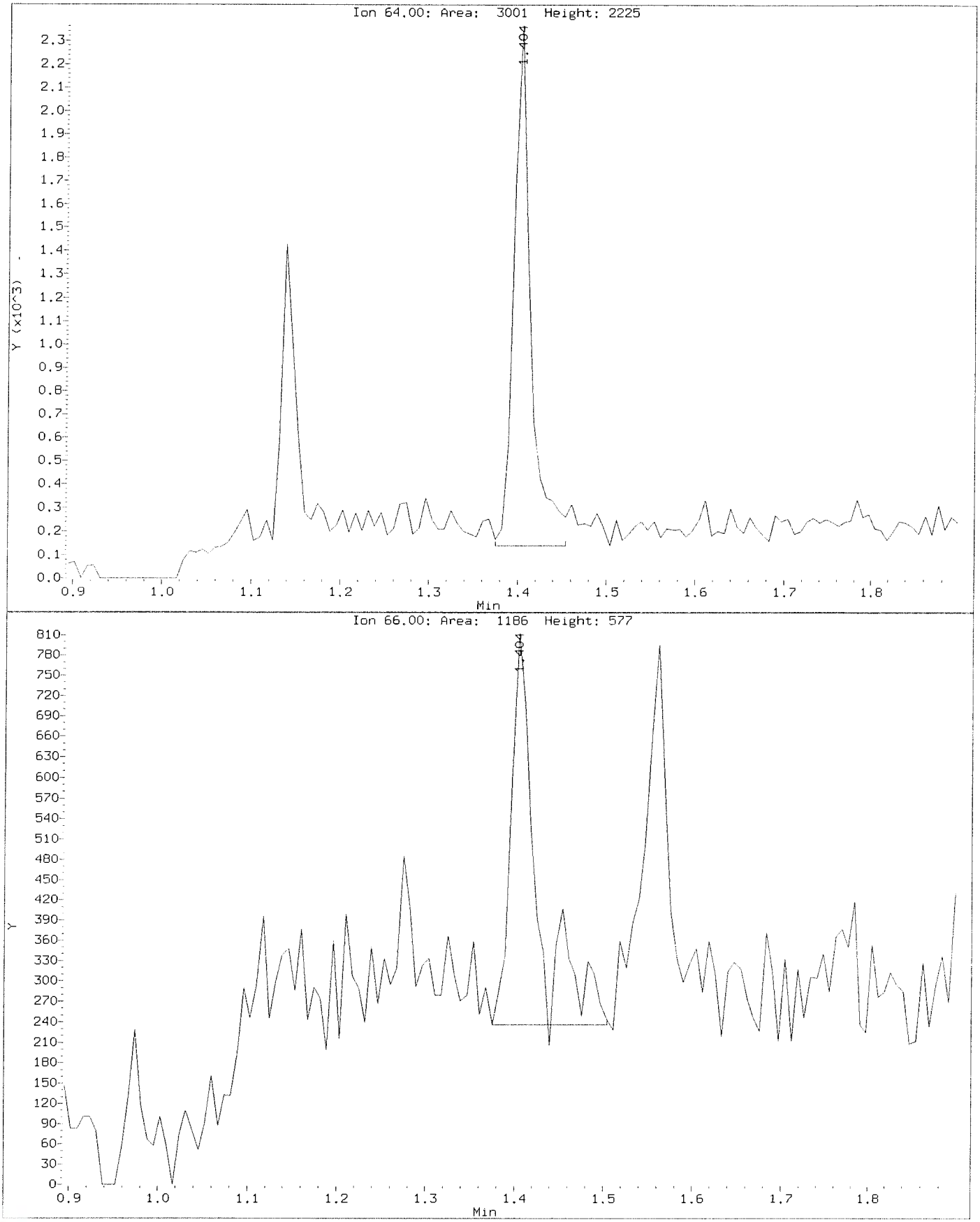
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



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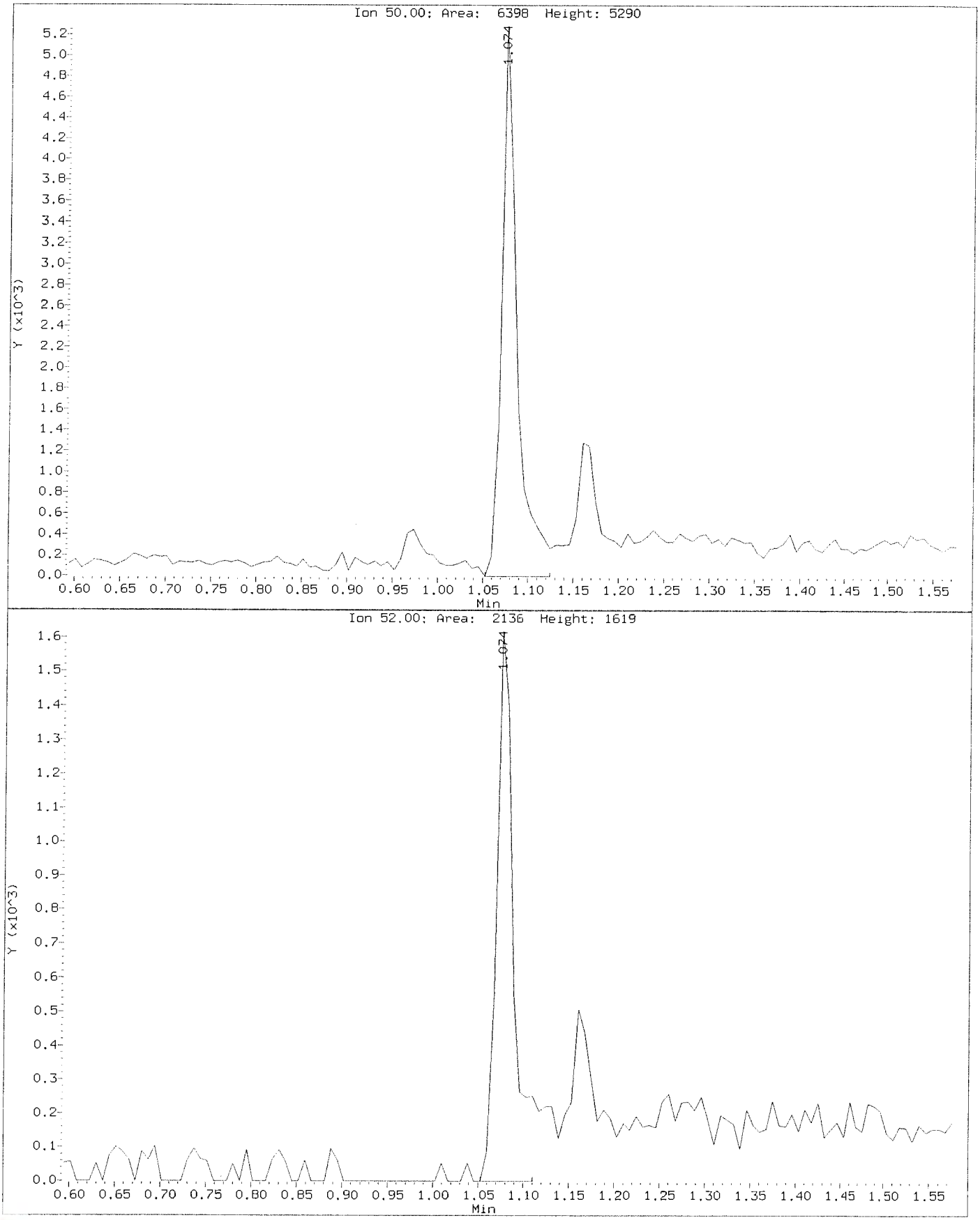
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



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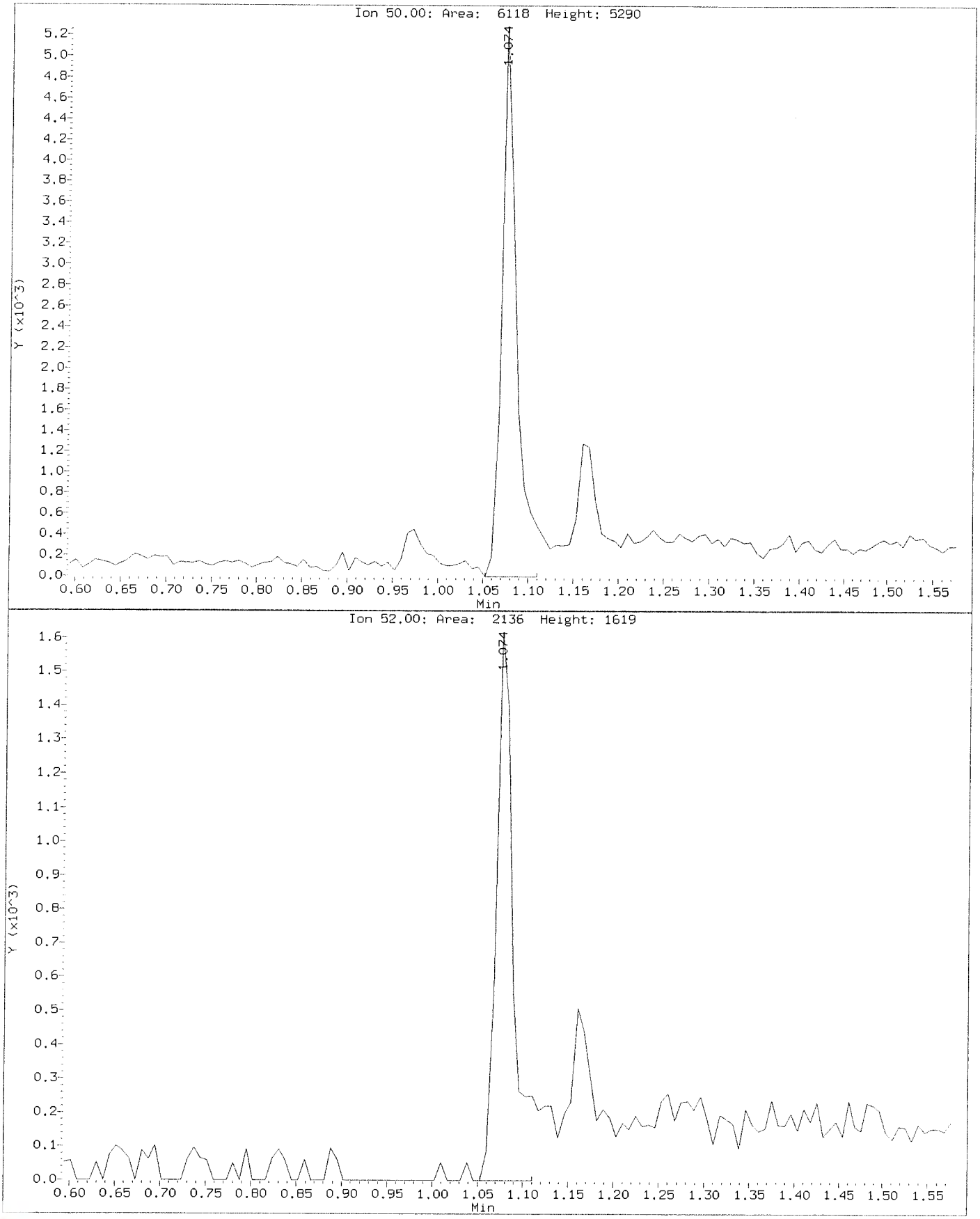
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



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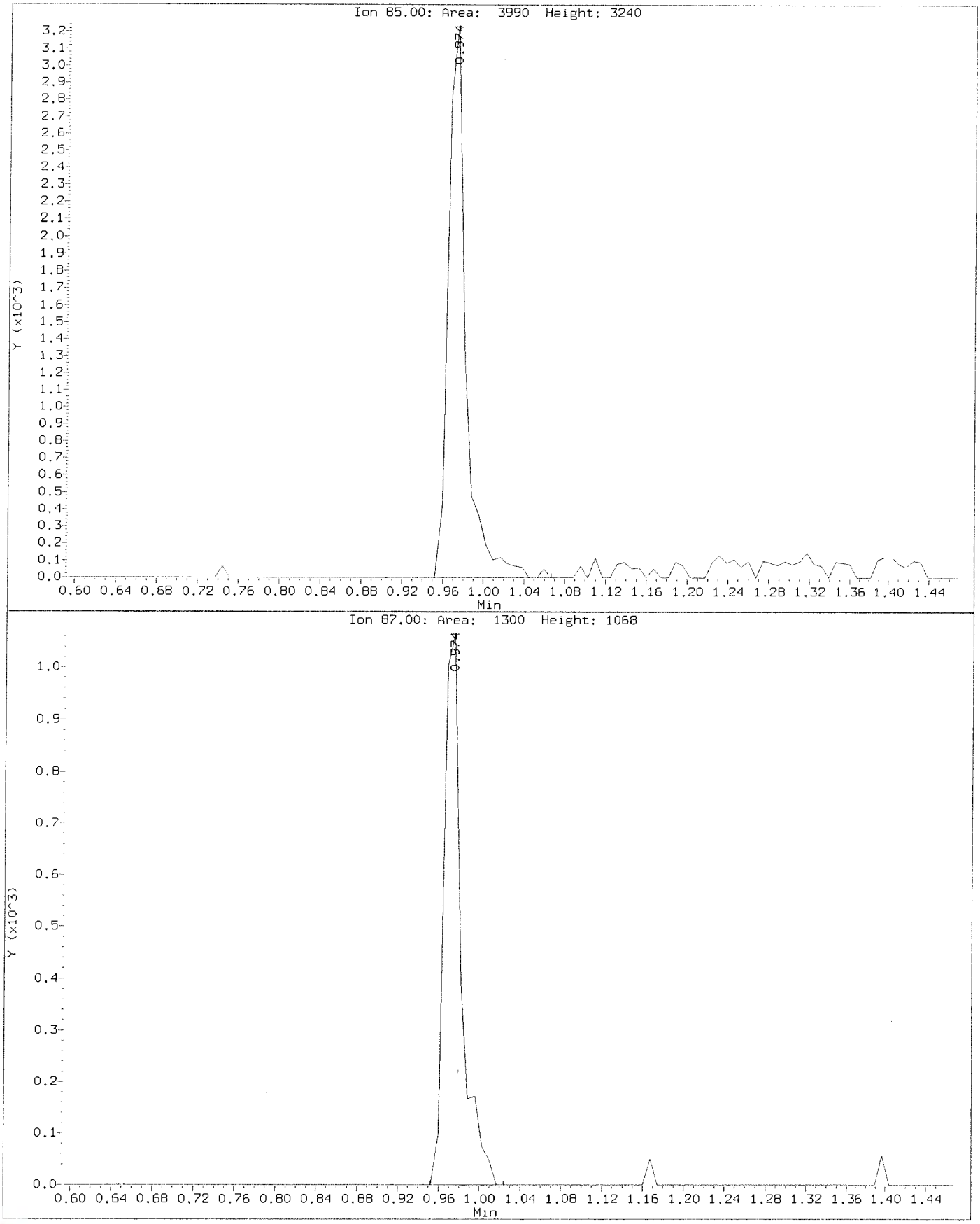
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



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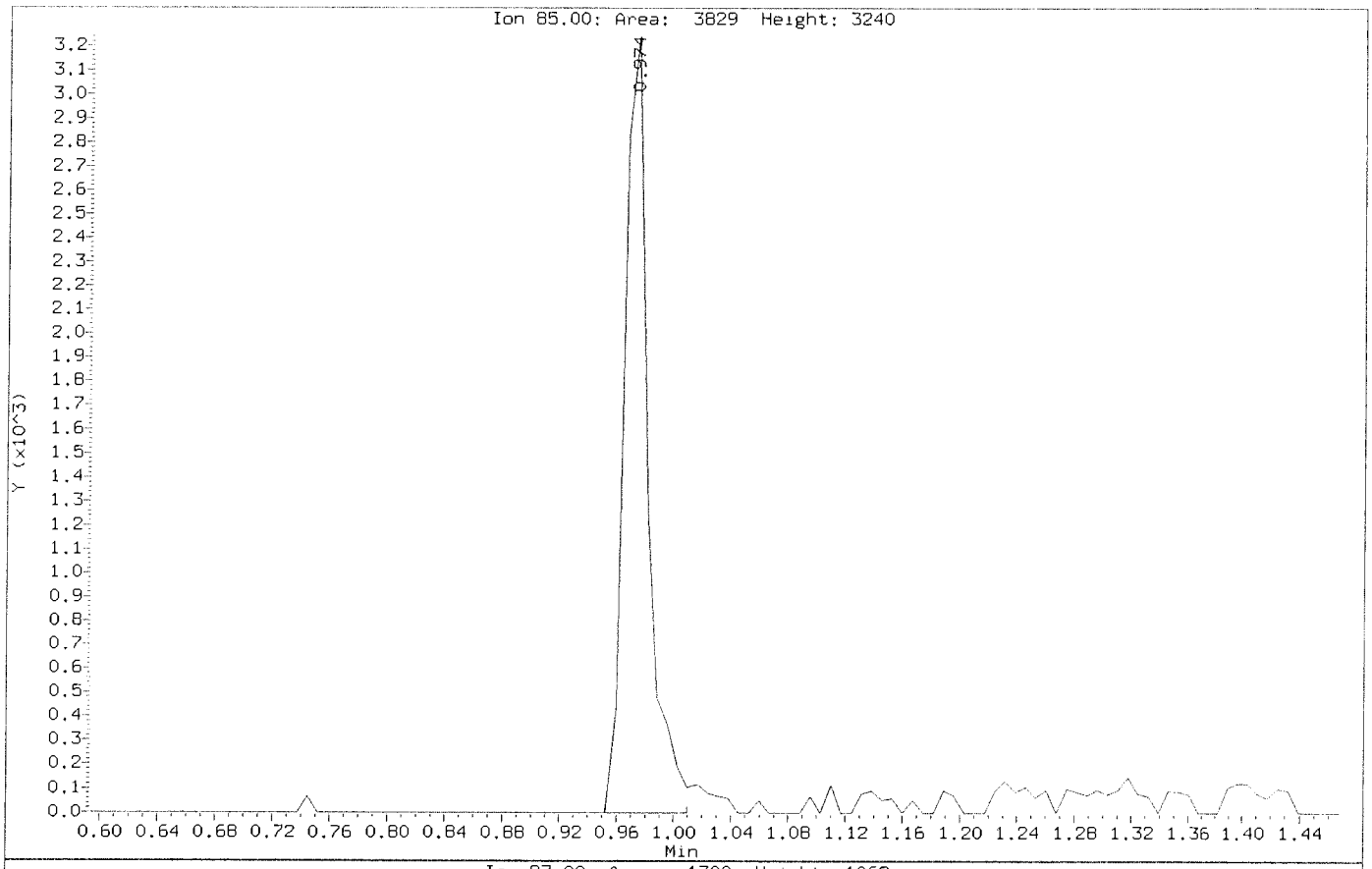
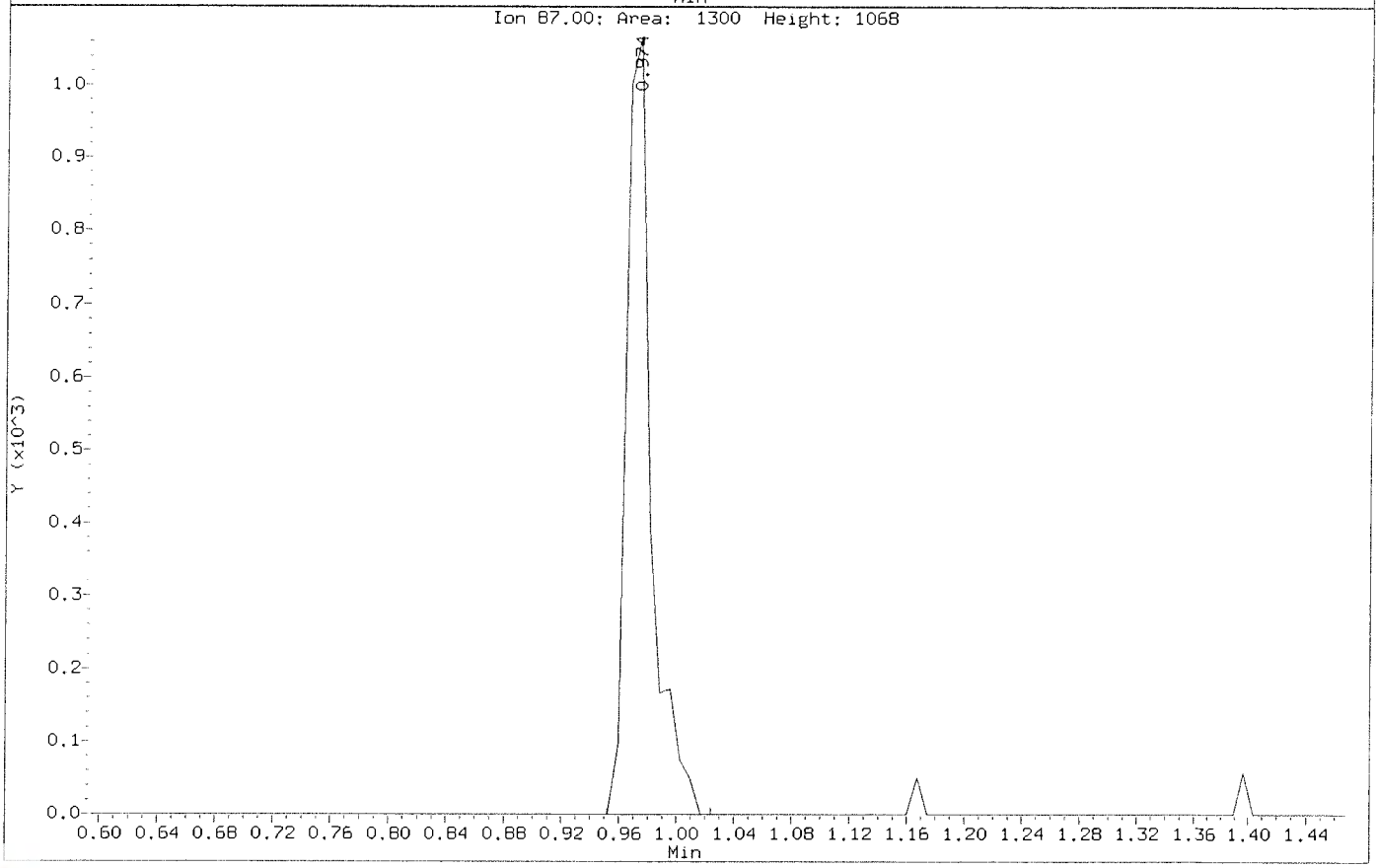
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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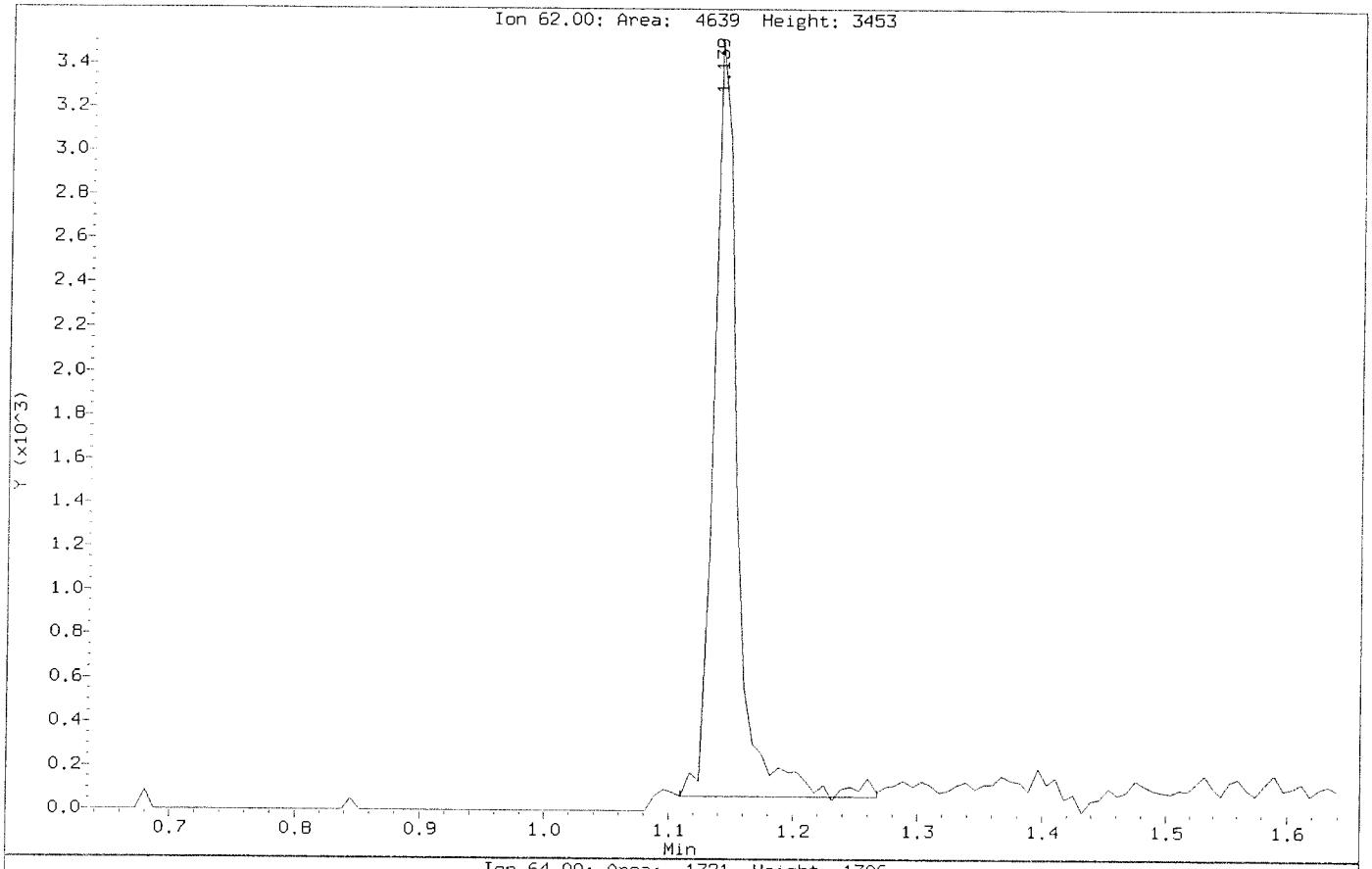
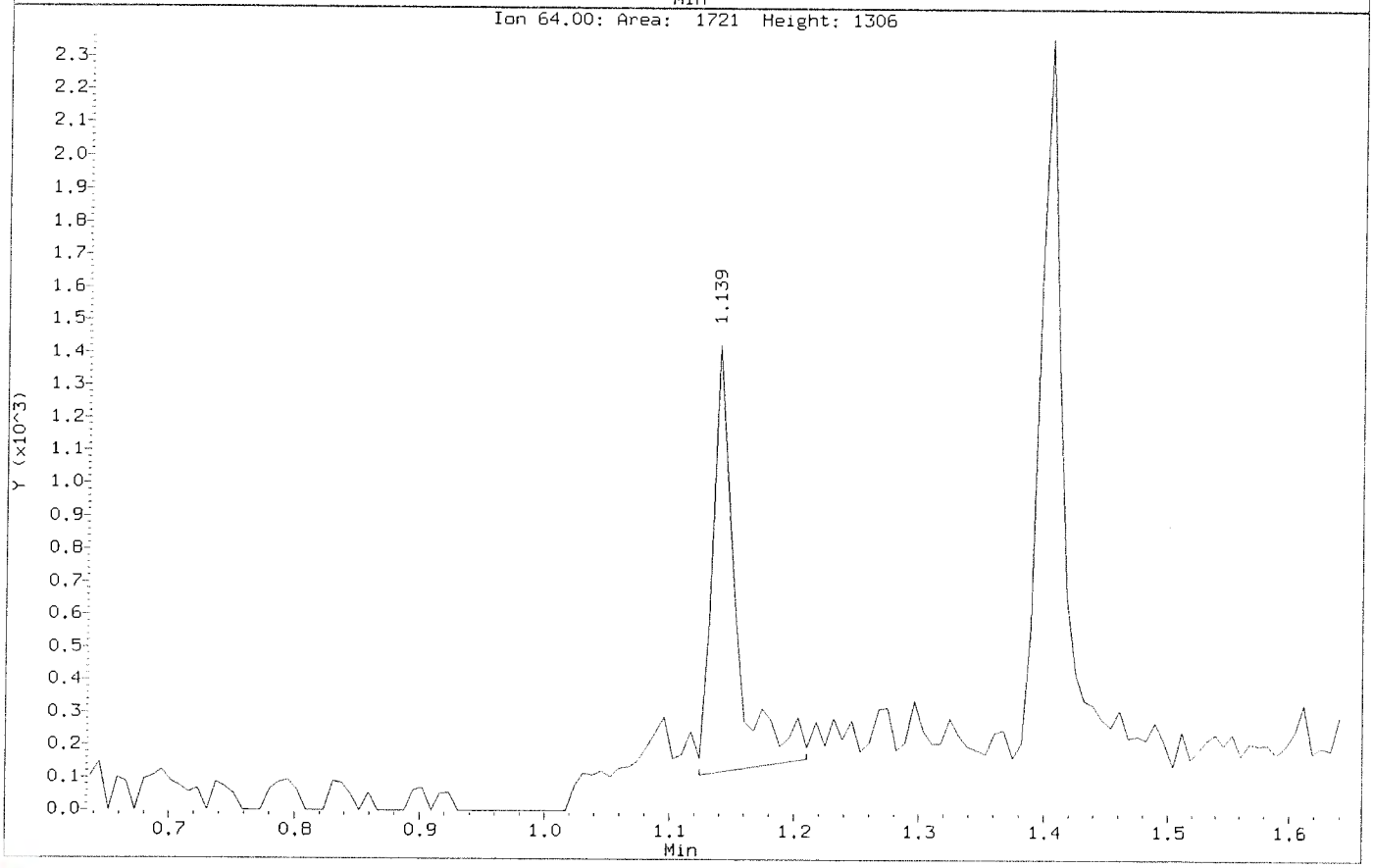
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4





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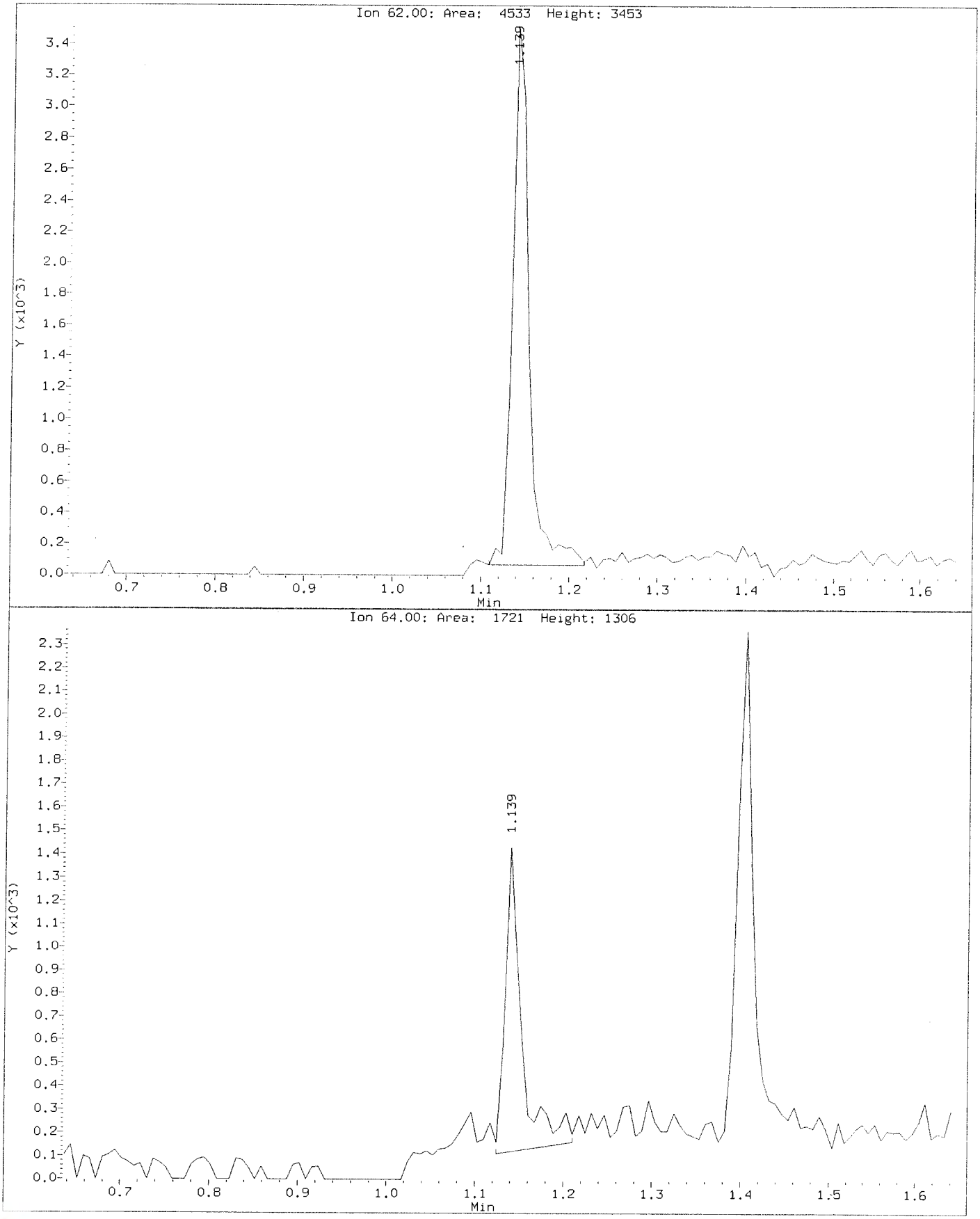
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 18-NOV-2019 15:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 14:59 Cal File: X111804.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

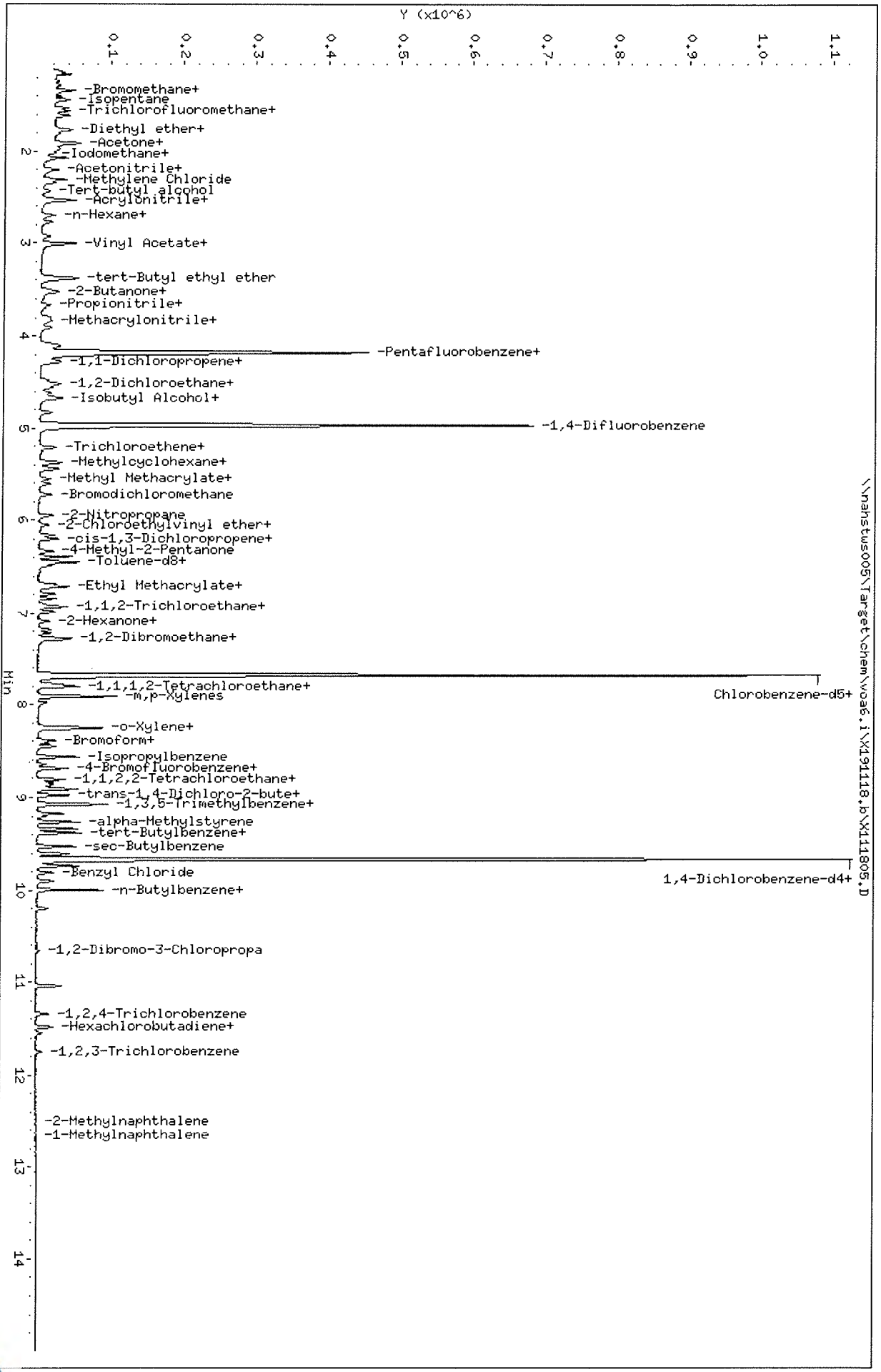
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	415277	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	574320	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	519547	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278615	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	8034	2.00000	2.76(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	10468	2.00000	2.56(a)
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	8127	2.00000	2.50(a)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	28201	2.00000	2.06(a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	7788	2.00000	2.06(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	12006	2.00000	2.14(a)
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	8194	2.00000	2.09(a)
138 Freon TF	101	1.911	1.911	(0.457)	7504	2.00000	2.07(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	5924	2.00000	2.18(a)
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	12973	2.00000	2.14(a)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	7795	2.00000	2.21(a)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	10135	2.00000	2.18(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	2753	2.00000	1.85(a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	7810	2.00000	2.35(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	5184	2.00000	2.20(a)
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	27218	2.00000	2.05(a)
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	859	2.00000	1.65(a)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	7900	2.00000	2.16(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	15931	2.00000	2.15(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	9378	2.00000	2.05(a)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	7169	2.00000	2.08(aM)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	26432	2.00000	2.08(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	17183	2.00000	2.15(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	11850	2.00000	2.14(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	17620	2.00000	2.17(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	11201	2.00000	2.04(a)
24	2-Butanone	43	3.588	3.588	(0.858)	5067	4.00000	3.97(a)
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	21210	2.00000	2.11(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	8468	4.00000	3.96(a)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	24759	2.00000	2.03(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	28289	2.00000	2.07(a)
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	13007	4.00000	4.27(a)
10	Acetone	43	1.976	1.976	(0.473)	7954	4.00000	3.82(a)
37	Benzene	78	4.519	4.519	(0.909)	28031	2.00000	2.13(a)
74	Bromobenzene	156	8.809	8.809	(0.911)	10482	2.00000	2.16(a)
29	Bromochloromethane	128	3.795	3.795	(0.908)	5128	2.00000	2.27(a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	9742	2.00000	2.04(a)
66	Bromoform	173	8.415	8.415	(1.097)	5989	2.00000	2.89(a)
6	Bromomethane	94	1.338	1.338	(0.320)	12041	2.00000	0.69(a)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	40384	4.00000	4.21(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	11097	2.00000	2.18(aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	21369	2.00000	2.10(a)
7	Chloroethane	64	1.403	1.403	(0.336)	5731	2.00000	2.19(a)
28	Chloroform	83	3.910	3.910	(0.935)	14792	2.00000	2.19(a)
3	Chloromethane	50	1.073	1.073	(0.257)	10461	2.00000	2.49(a)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	8197	2.00000	2.08(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	11415	2.00000	2.03(a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	8154	2.00000	2.06(a)
44	Dibromomethane	93	5.557	5.557	(1.118)	5355	2.00000	2.20(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	7335	2.00000	2.78(a)
61	Ethylbenzene	106	7.799	7.799	(1.017)	10700	2.00000	2.04(a)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	4522	2.00000	1.82(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	32629	2.00000	2.10(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	26786	4.00000	4.23(a)
17	Methylene Chloride	84	2.305	2.305	(0.551)	8025	2.00000	2.13(a)
87	n-Butylbenzene	91	9.998	9.998	(1.034)	22333	2.00000	1.96(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	35573	2.00000	2.06(a)
92	Naphthalene	128	11.553	11.553	(1.195)	6733	2.00000	2.23(a)
63	o-Xylene	106	8.244	8.244	(1.075)	13637	2.00000	2.18(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	31860	2.00000	2.12(a)
64	Styrene	104	8.265	8.265	(1.078)	22366	2.00000	2.06(a)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	22956	2.00000	2.11(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	8185	2.00000	2.24(a)
50	Toluene	91	6.453	6.453	(0.841)	31139	2.00000	2.11(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	7239	2.00000	2.11(a)
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	10523	2.00000	2.06(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	8894	2.00000	2.21(a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	13581	2.00000	2.10(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	9073	2.00000	2.14(a)

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\X191118,b\X111805,D
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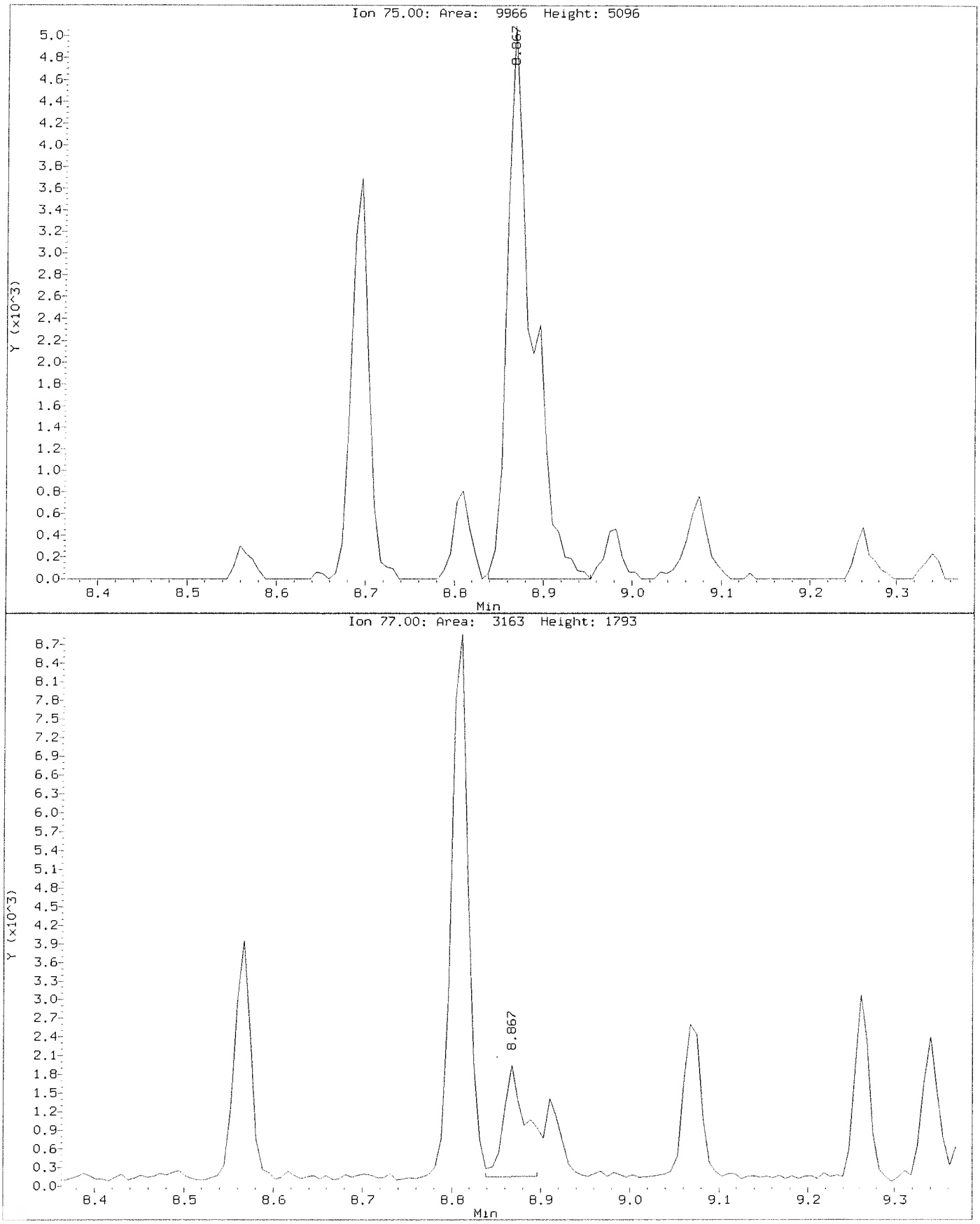
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111805.D
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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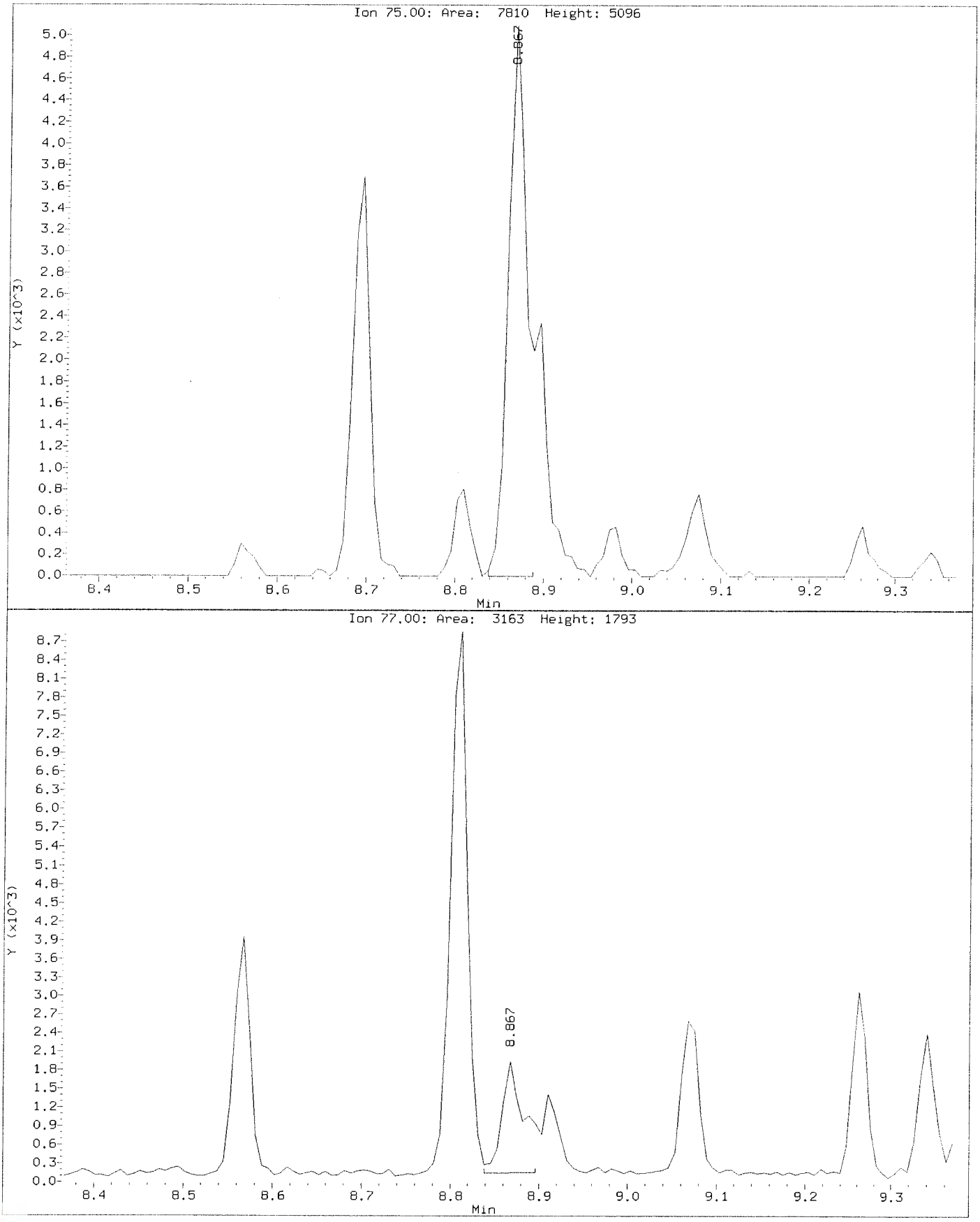
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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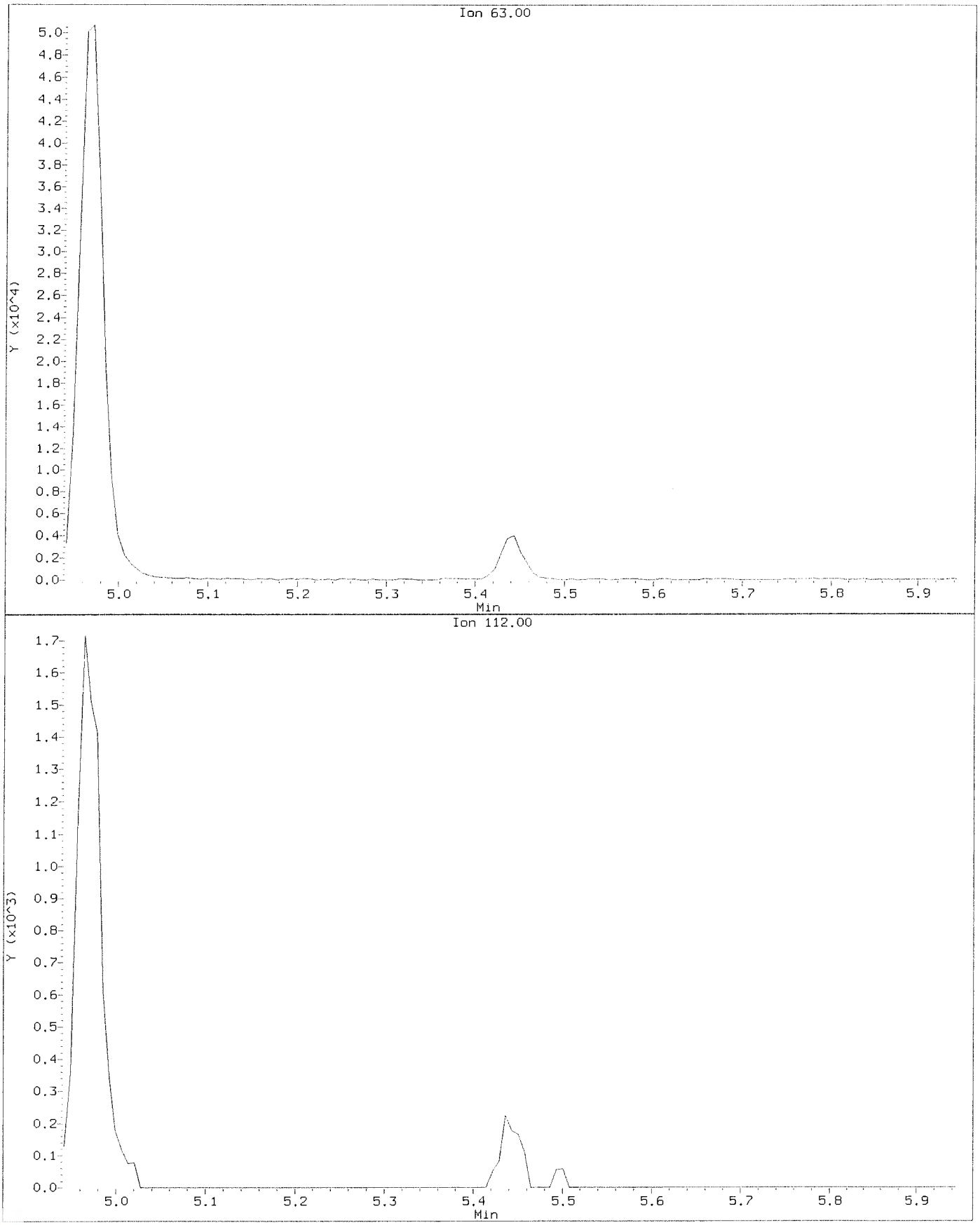
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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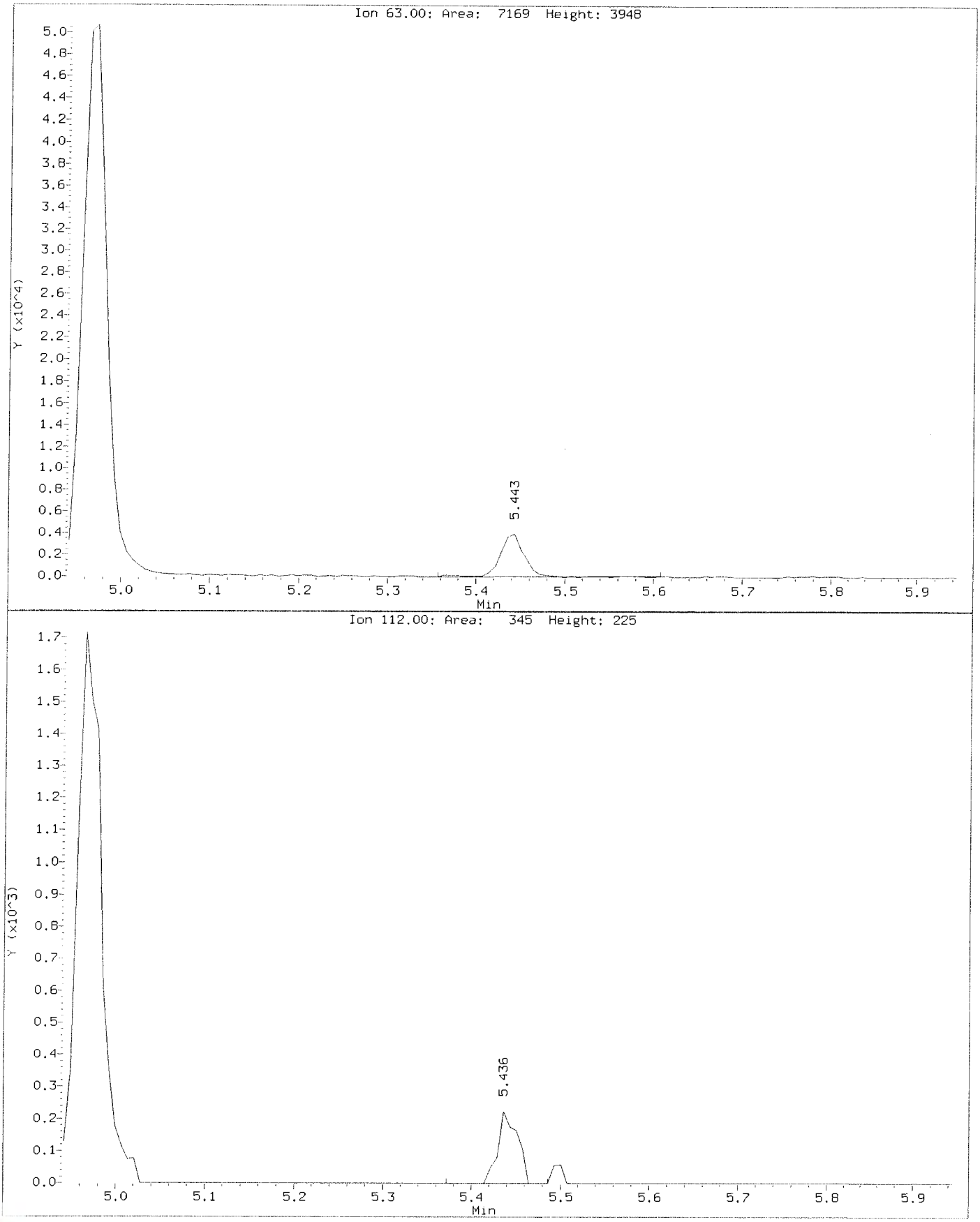
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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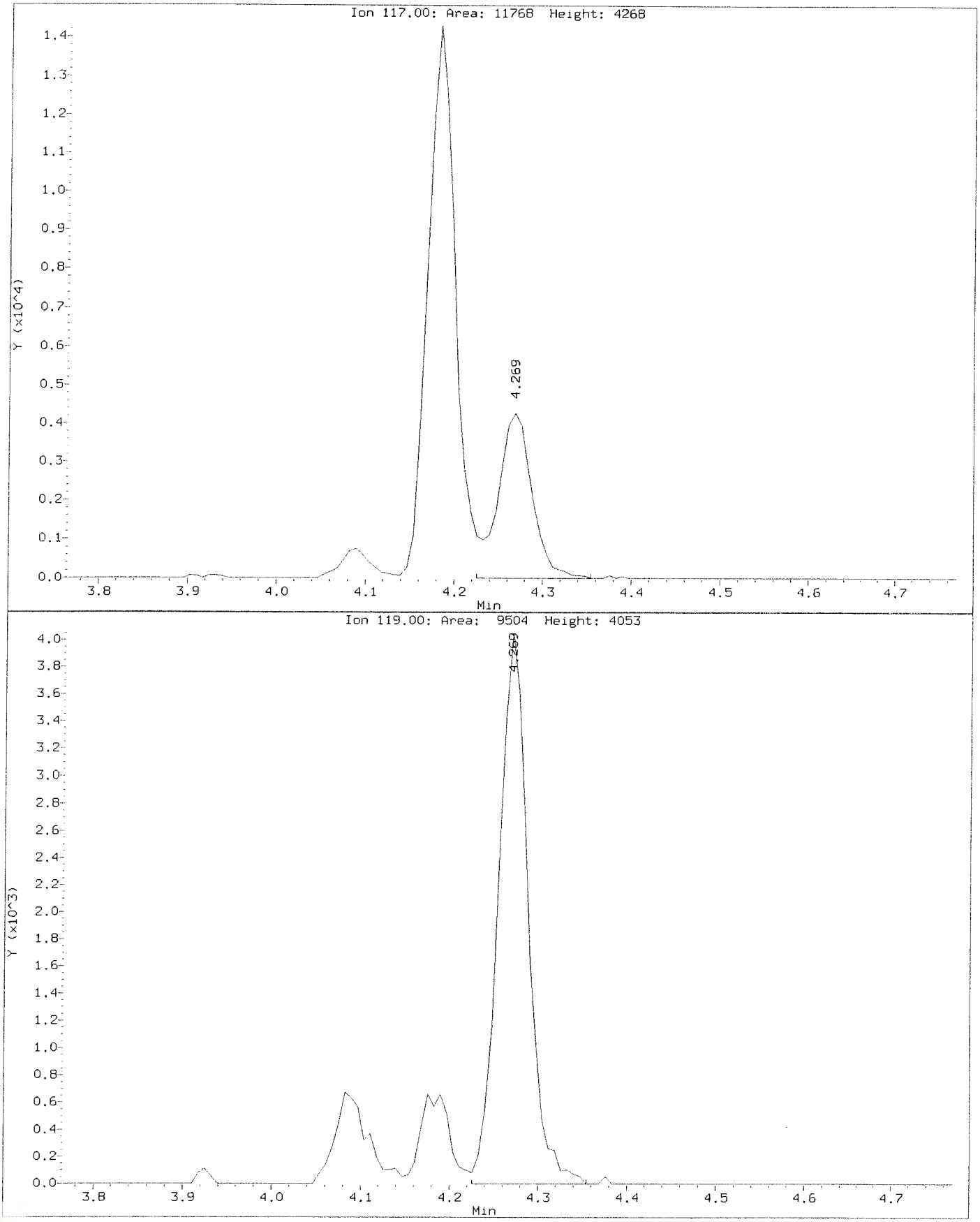
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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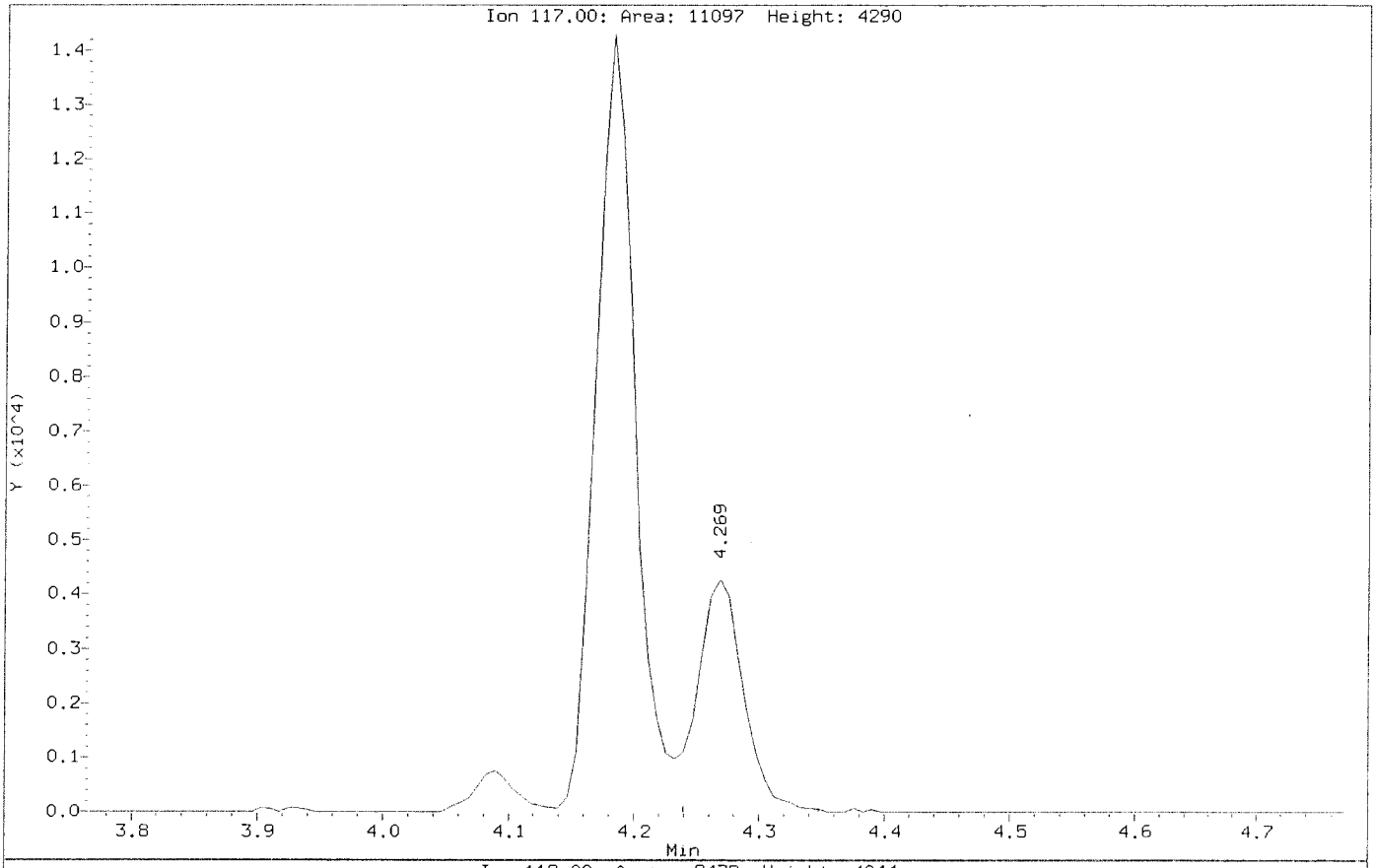
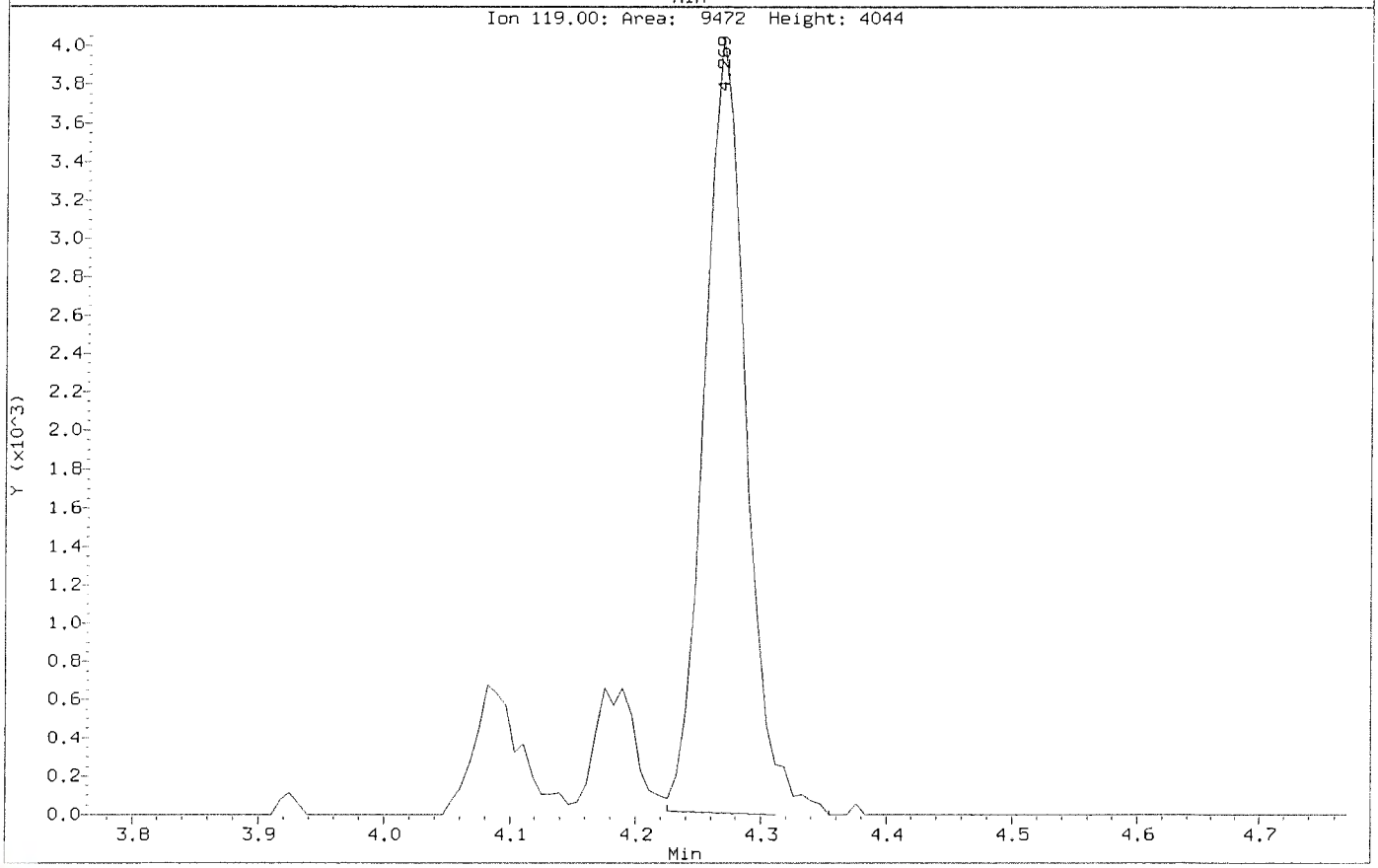
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 18-NOV-2019 15:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 15:23 Cal File: X111805.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

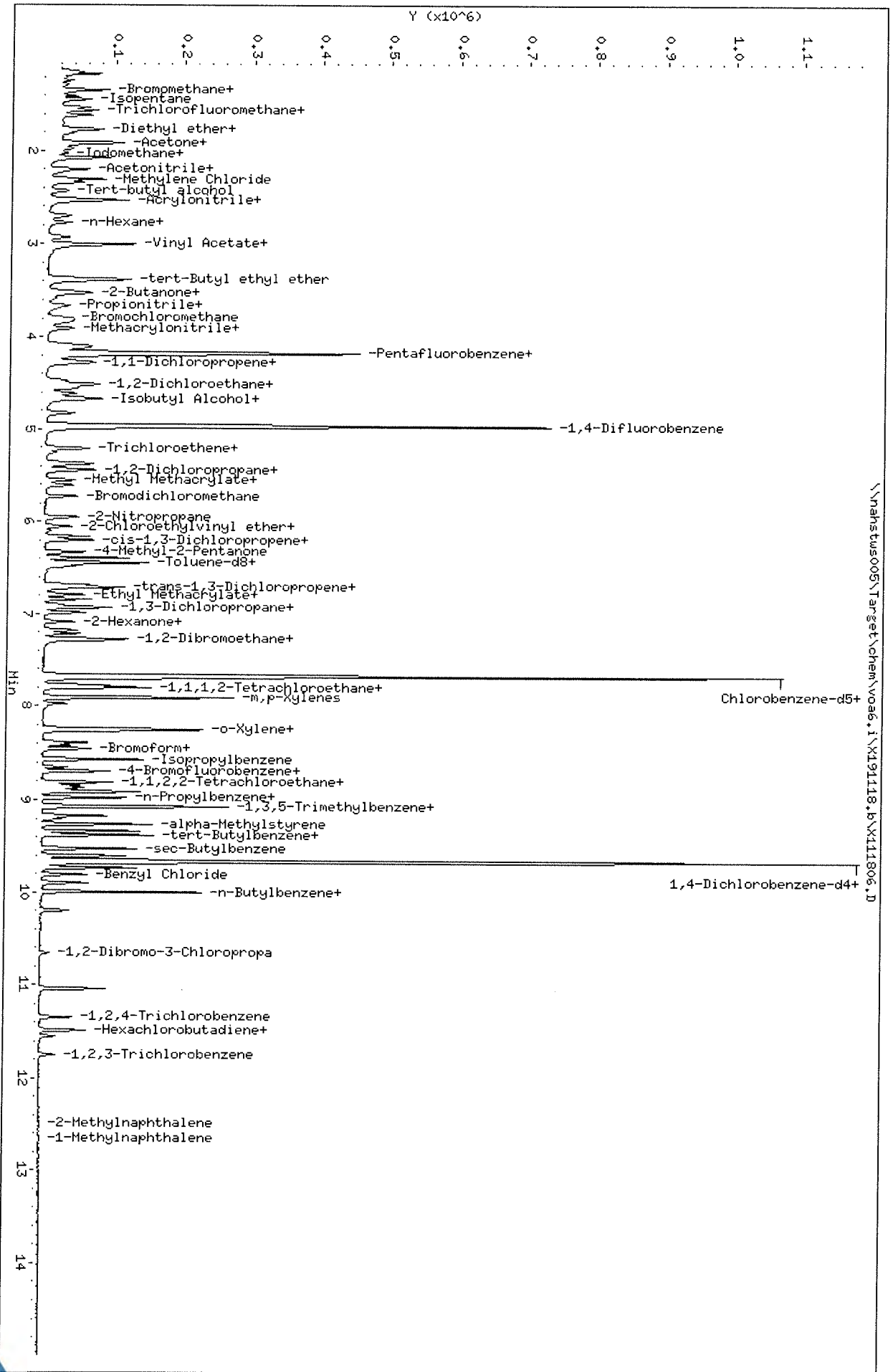
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	410845	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563063	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	510927	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	277846	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	20921	5.00000	6.06
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	25804	5.00000	5.80
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	20237	5.00000	5.74
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	69936	5.00000	5.19
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	20728	5.00000	5.59
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	29459	5.00000	5.31
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	22230	5.00000	5.68
138 Freon TF	101	1.919	1.919	(0.459)	18786	5.00000	5.25
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	15003	5.00000	5.61
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	32313	5.00000	5.40
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	19077	5.00000	5.47
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	24310	5.00000	5.35
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	6553	5.00000	5.62
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	18403	5.00000	5.55(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	14399	5.00000	6.15
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	71210	5.00000	5.40
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	2641	5.00000	5.82
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	20565	5.00000	5.73

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	41602	5.00000	5.64
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	24346	5.00000	5.44
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	19076	5.00000	5.67
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	68944	5.00000	5.45
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	45064	5.00000	5.65
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	29776	5.00000	5.49
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	44703	5.00000	5.52
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	28965	5.00000	5.33
24 2-Butanone	43	3.581	3.581	(0.856)	13522	10.0000	10.72
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	56464	5.00000	5.64
52 2-Hexanone	43	7.090	7.090	(0.924)	23980	10.0000	11.42
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	66074	5.00000	5.45
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	71485	5.00000	5.25
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	33803	10.0000	11.29
10 Acetone	43	1.969	1.969	(0.471)	15992	10.0000	11.75
37 Benzene	78	4.512	4.512	(0.908)	72584	5.00000	5.63
74 Bromobenzene	156	8.810	8.810	(0.911)	27619	5.00000	5.71
29 Bromochloromethane	128	3.795	3.795	(0.908)	11669	5.00000	5.24
39 Bromodichloromethane	83	5.729	5.729	(1.153)	26638	5.00000	5.71
66 Bromoform	173	8.416	8.416	(1.097)	16084	5.00000	6.17
6 Bromomethane	94	1.338	1.338	(0.320)	28671	5.00000	4.99(a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	103008	10.0000	10.87
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	26931	5.00000	5.41(M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	55668	5.00000	5.58
7 Chloroethane	64	1.403	1.403	(0.336)	13261	5.00000	5.12
28 Chloroform	83	3.910	3.910	(0.935)	34944	5.00000	5.25
3 Chloromethane	50	1.073	1.073	(0.257)	24949	5.00000	5.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	22227	5.00000	5.70
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	31191	5.00000	5.68
55 Dibromochloromethane	129	7.176	7.176	(0.936)	21920	5.00000	5.64
44 Dibromomethane	93	5.558	5.558	(1.118)	13775	5.00000	5.78
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	18346	5.00000	5.69
61 Ethylbenzene	106	7.800	7.800	(1.017)	29424	5.00000	5.70
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	11525	5.00000	5.47
67 Isopropylbenzene	105	8.566	8.566	(1.117)	81869	5.00000	5.36
62 m,p-Xylenes	106	7.907	7.907	(1.031)	69325	10.0000	11.14
17 Methylene Chloride	84	2.306	2.306	(0.551)	20180	5.00000	5.43
87 n-Butylbenzene	91	9.999	9.999	(1.034)	57498	5.00000	5.08
73 n-Propylbenzene	91	8.917	8.917	(0.922)	92937	5.00000	5.41
92 Naphthalene	128	11.546	11.546	(1.194)	17063	5.00000	5.68
63 o-Xylene	106	8.244	8.244	(1.075)	33646	5.00000	5.48
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	78149	5.00000	5.23
64 Styrene	104	8.258	8.258	(1.077)	58650	5.00000	5.49
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	59074	5.00000	5.45
56 Tetrachloroethene	164	6.933	6.933	(0.904)	20334	5.00000	5.66
50 Toluene	91	6.446	6.446	(0.840)	80201	5.00000	5.53
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	18086	5.00000	5.35
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	28395	5.00000	5.67
38 Trichloroethene	130	5.207	5.207	(1.048)	22280	5.00000	5.65
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	33411	5.00000	5.24
5 Vinyl Chloride	62	1.138	1.138	(0.272)	20691	5.00000	4.94(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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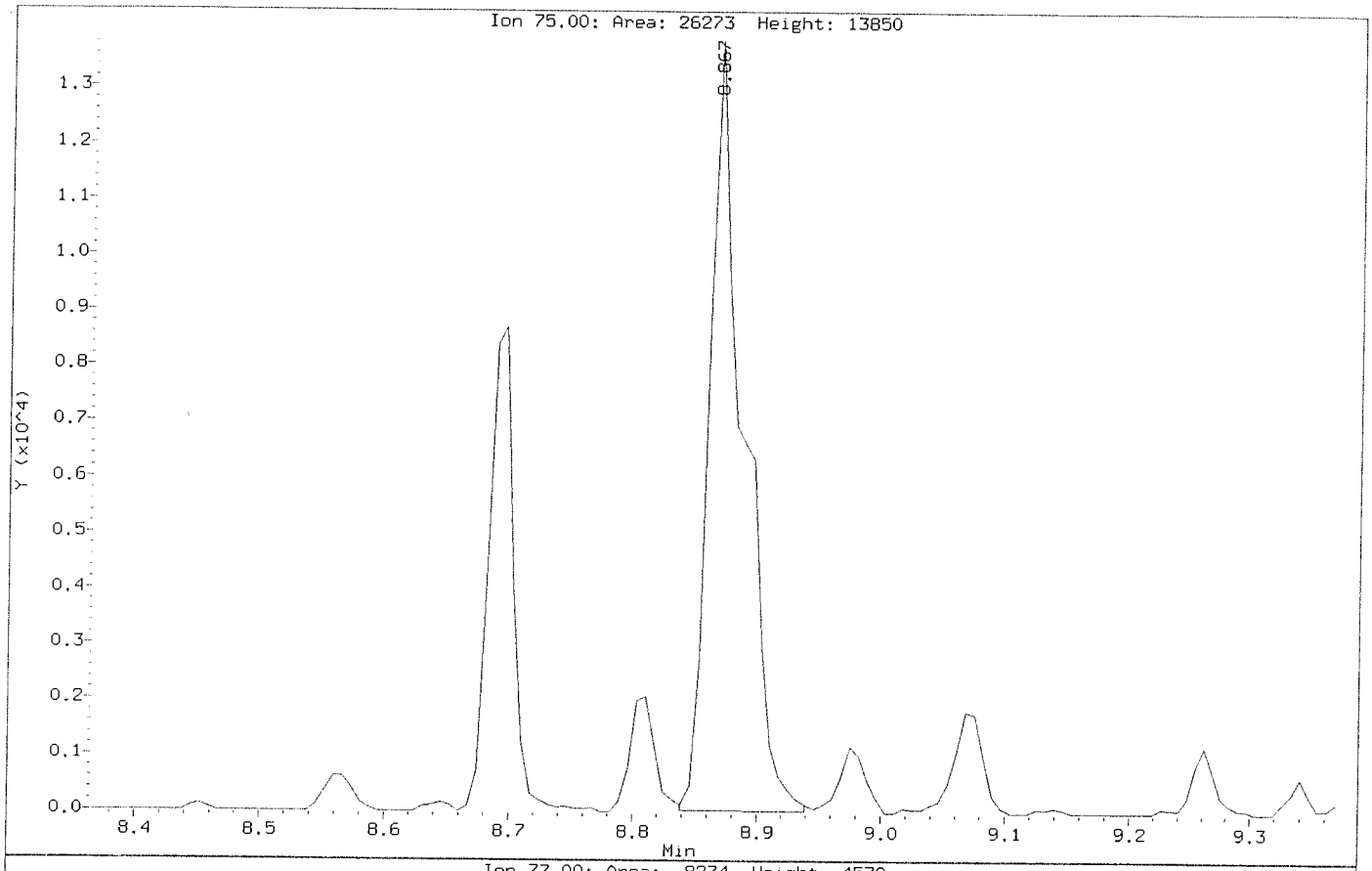
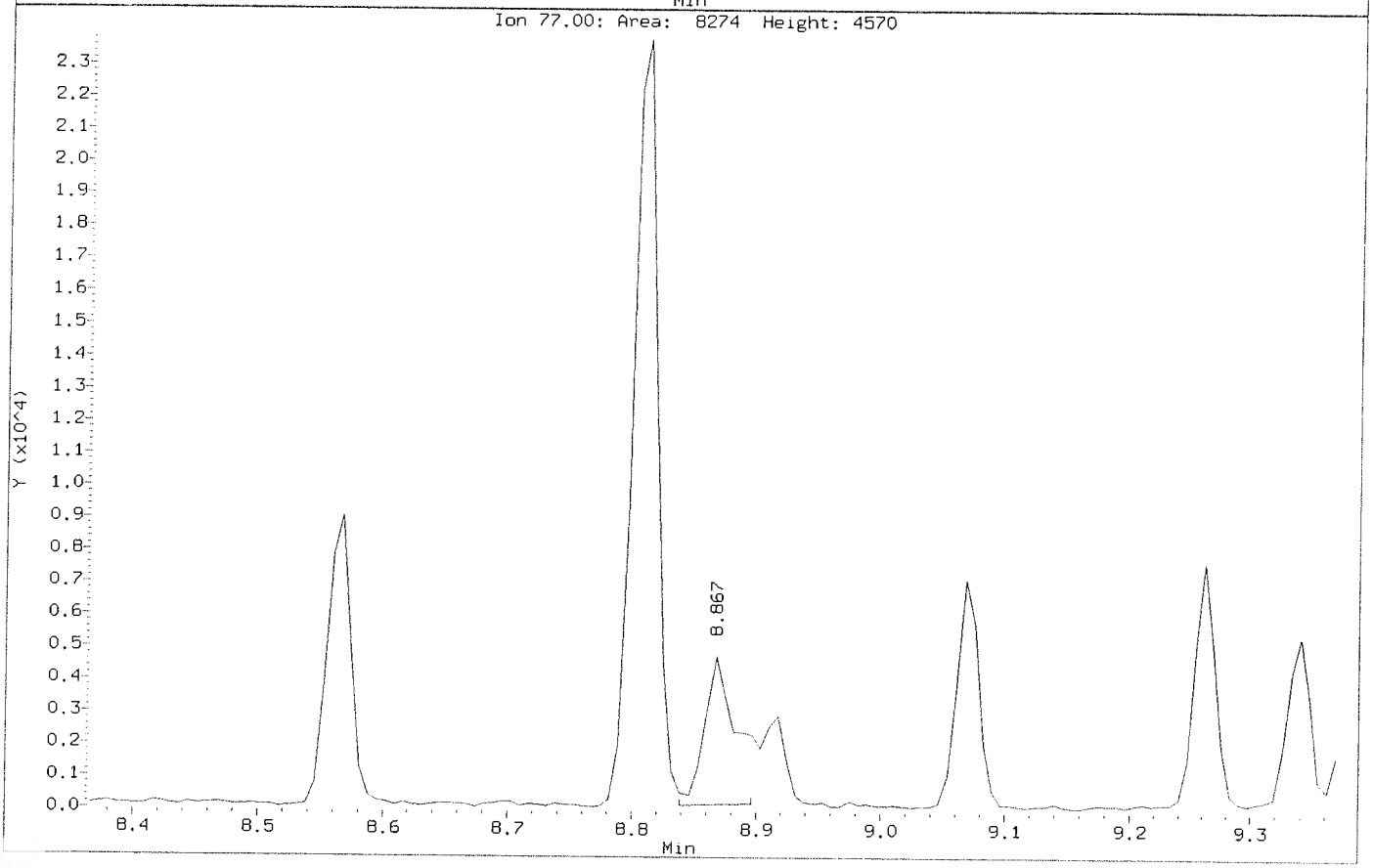
Date : 18-NOV-2019 15:47
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111806.D
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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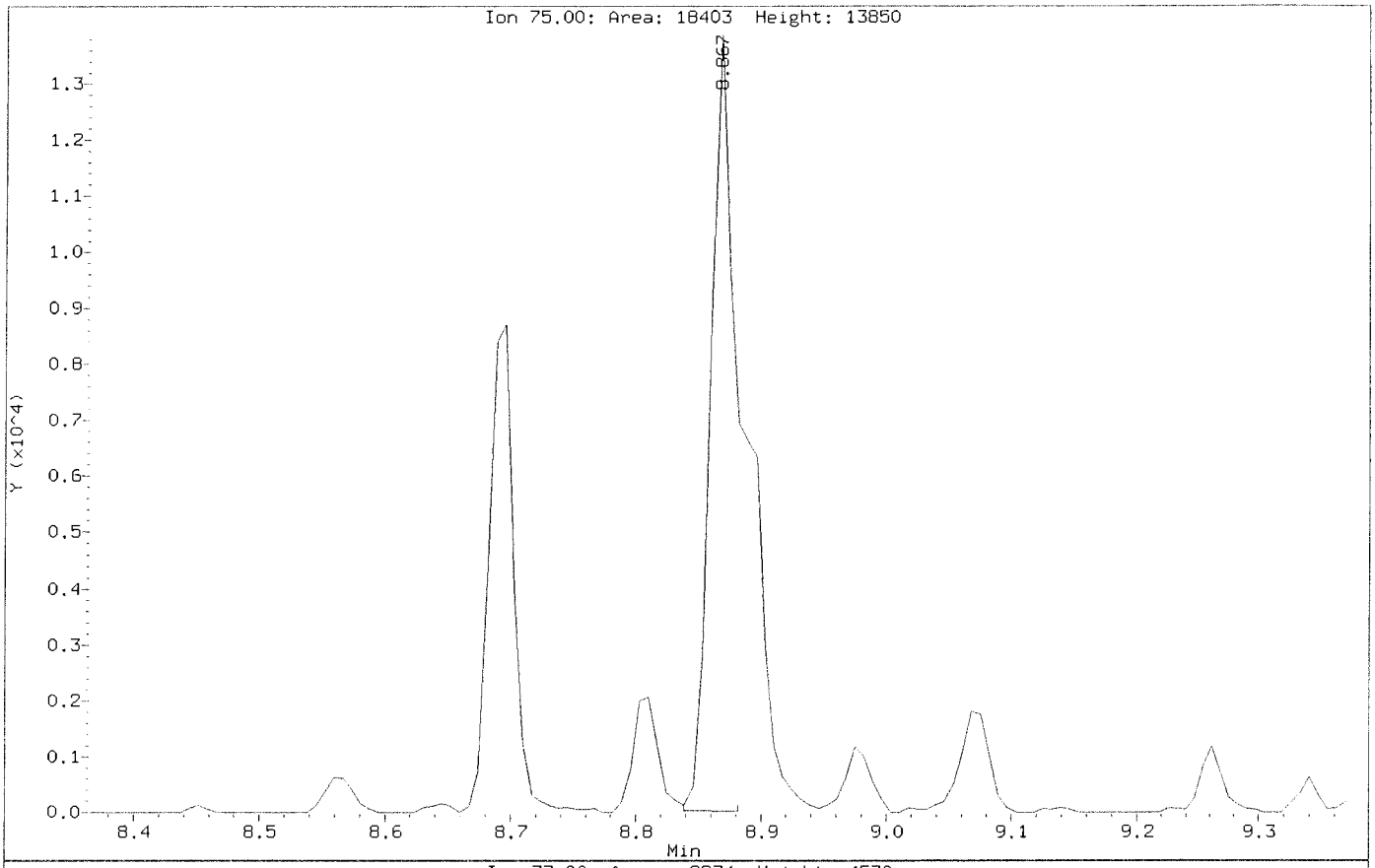
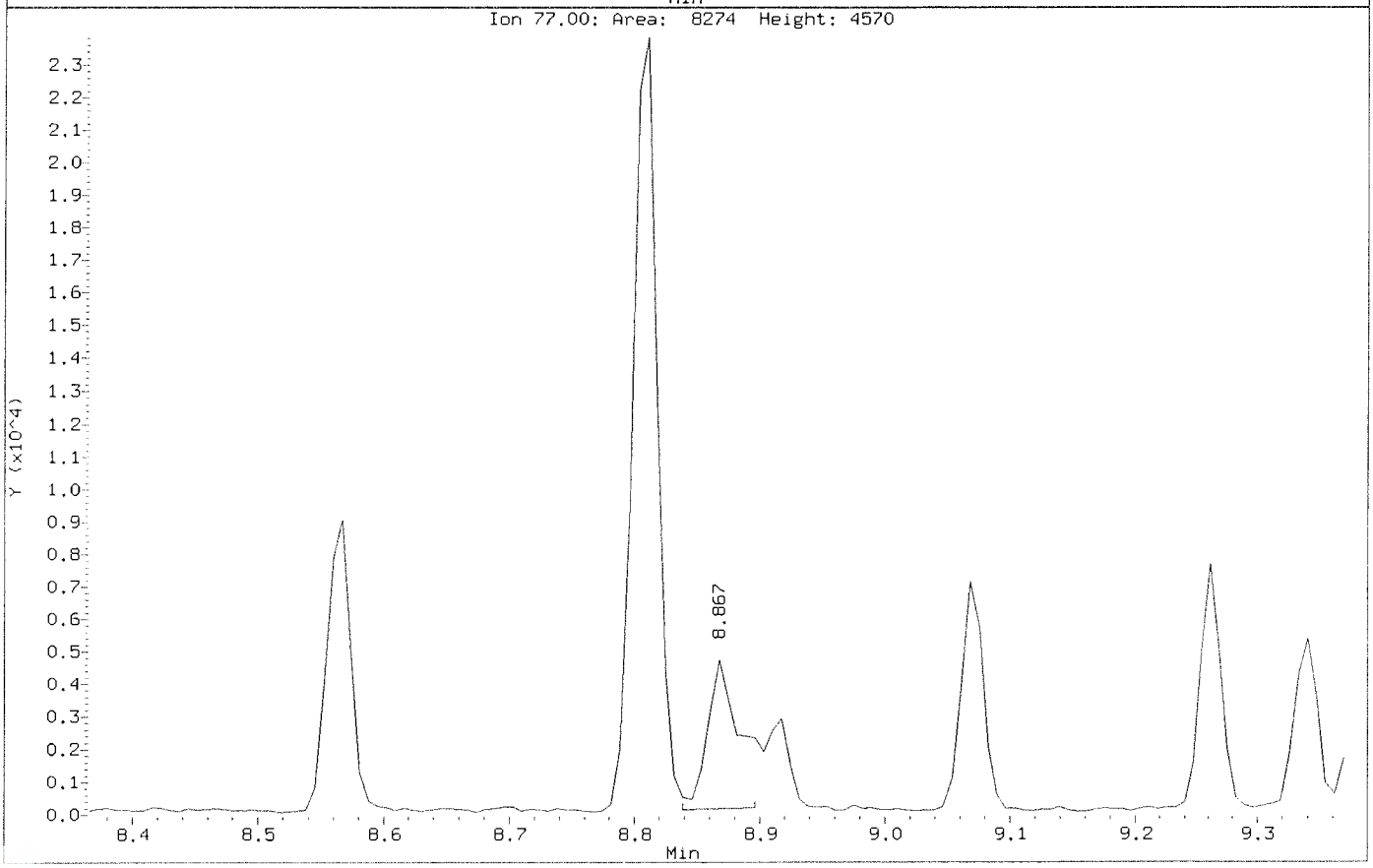
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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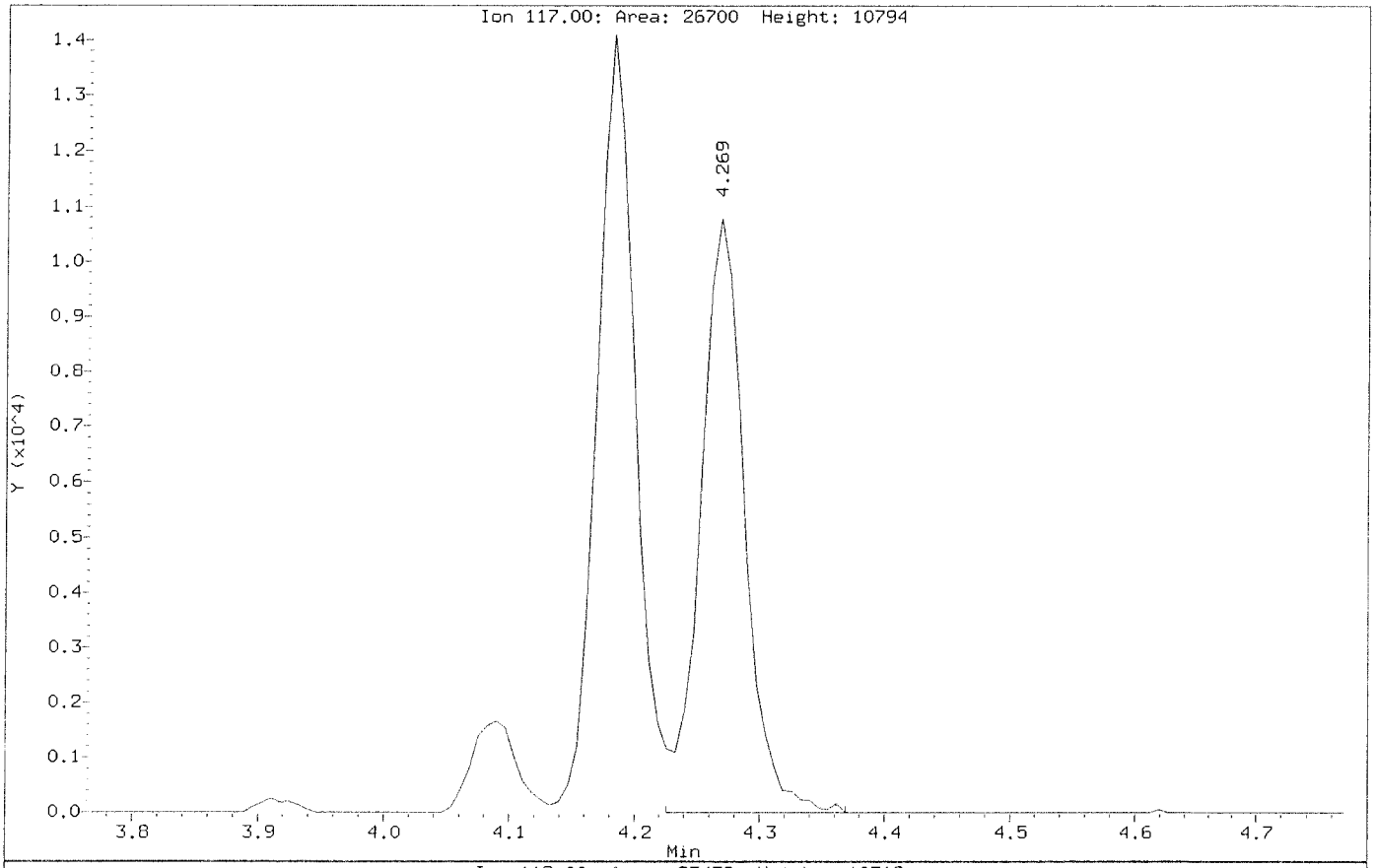
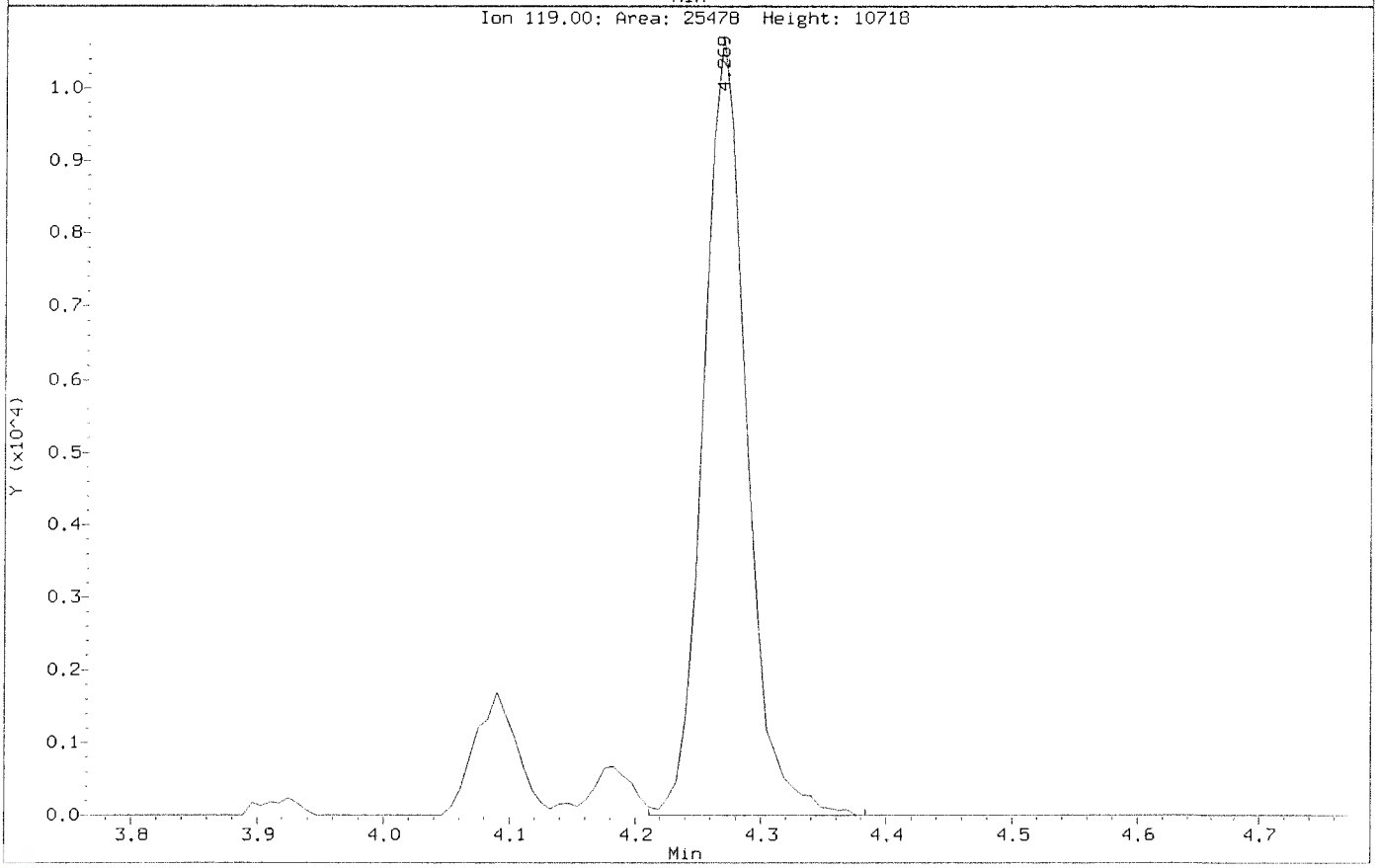
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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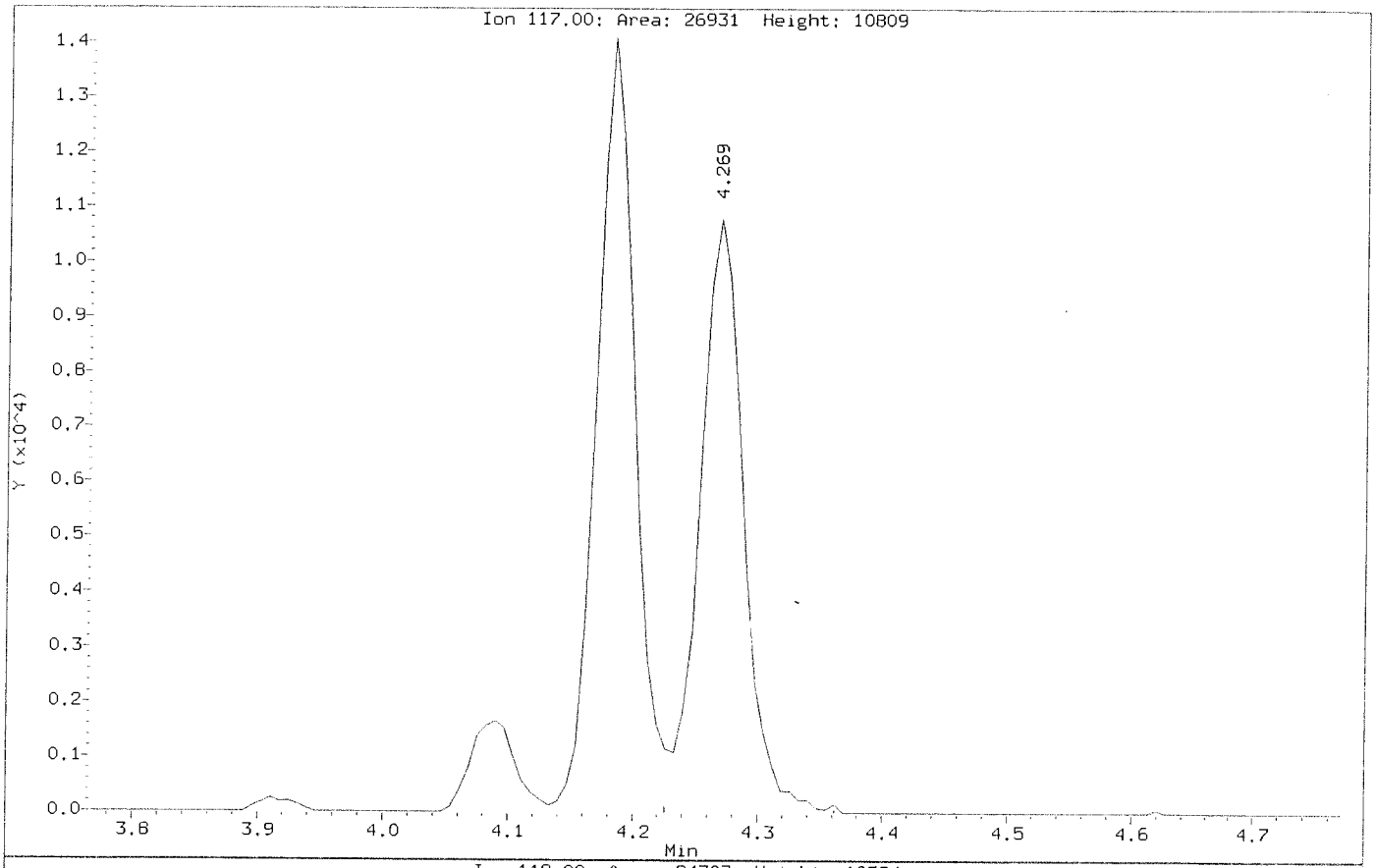
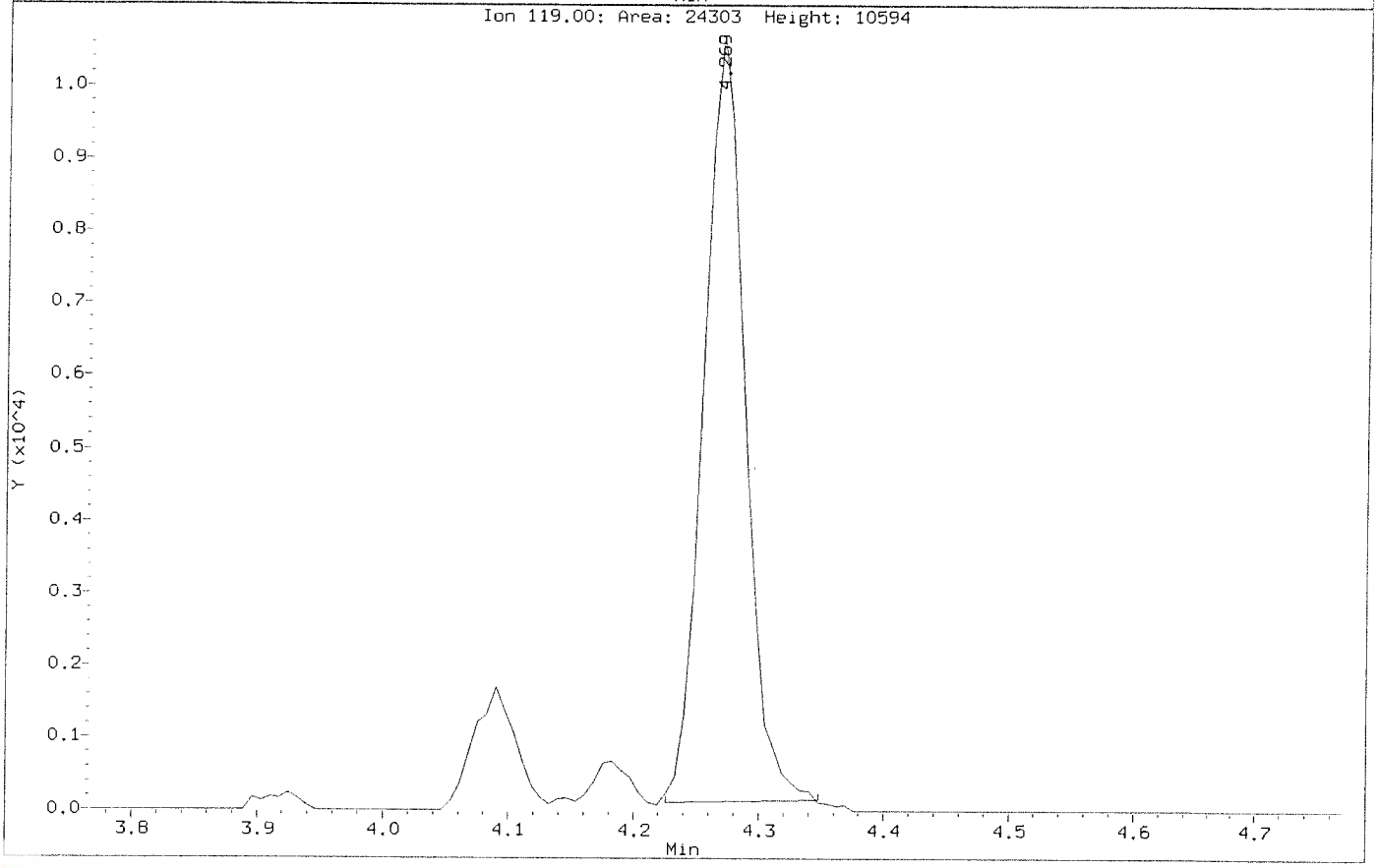
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 18-NOV-2019 16:11
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 15:47 Cal File: X111806.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

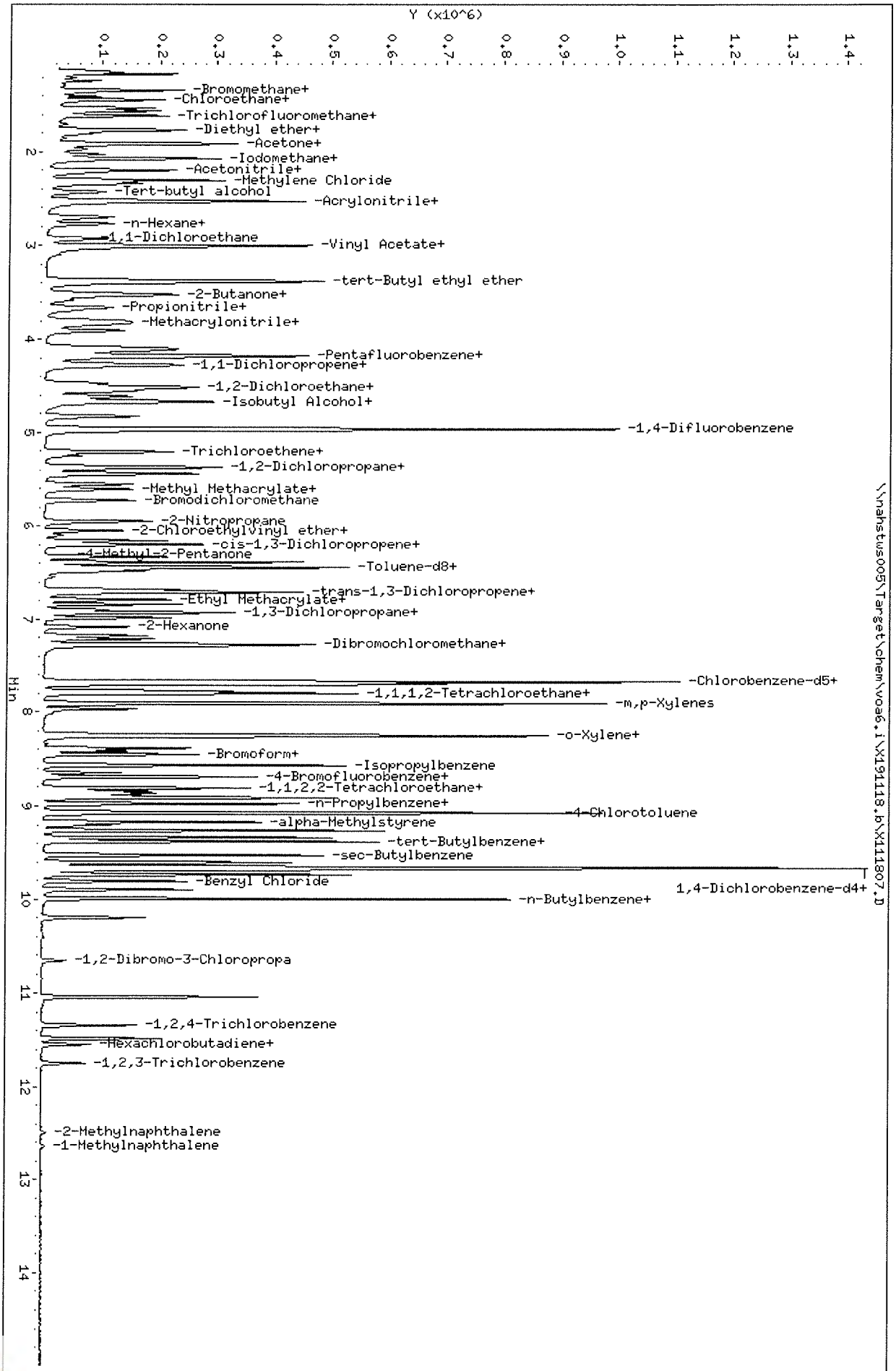
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	411693	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563792	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	515046	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	278890	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	75813	20.0000	20.02
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	94194	20.0000	19.91
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	75094	20.0000	20.28
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	260273	20.0000	19.17
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	73347	20.0000	19.62
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	105363	20.0000	18.97
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	75821	20.0000	19.33
138 Freon TF	101	1.919	1.919	(0.459)	62543	20.0000	17.44
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	52184	20.0000	19.38
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	113669	20.0000	18.97
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	64160	20.0000	18.38
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	84000	20.0000	18.47
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21856	20.0000	20.64
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64689	20.0000	19.46(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	46623	20.0000	19.84
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	254992	20.0000	19.26
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	8805	20.0000	20.13
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	71738	20.0000	19.85

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.035)	144121	20.0000	19.47
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	88277	20.0000	19.72
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	64004	20.0000	19.00
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	247054	20.0000	19.45
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	157428	20.0000	19.68
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	105400	20.0000	19.28
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	158049	20.0000	19.44
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	100376	20.0000	18.46
24	2-Butanone	43	3.580	3.580	(0.856)	48098	40.0000	38.07
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	193547	20.0000	19.28
52	2-Hexanone	43	7.083	7.083	(0.923)	78795	40.0000	37.24
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	231980	20.0000	19.07
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	257377	20.0000	18.86
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	115695	40.0000	38.33
10	Acetone	43	1.976	1.976	(0.473)	43200	40.0000	38.23
37	Benzene	78	4.512	4.512	(0.908)	250181	20.0000	19.39
74	Bromobenzene	156	8.809	8.809	(0.912)	97394	20.0000	20.09
29	Bromochloromethane	128	3.795	3.795	(0.908)	41933	20.0000	18.80
39	Bromodichloromethane	83	5.729	5.729	(1.153)	89170	20.0000	19.11
66	Bromoform	173	8.415	8.415	(1.097)	56416	20.0000	19.02
6	Bromomethane	94	1.338	1.338	(0.320)	93456	20.0000	21.54
19	Carbon Disulfide	76	2.069	2.069	(0.495)	362755	40.0000	38.21
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	90839	20.0000	18.23(M)
59	Chlorobenzene	112	7.699	7.699	(1.004)	192384	20.0000	19.13
7	Chloroethane	64	1.403	1.403	(0.336)	46616	20.0000	17.98
28	Chloroform	83	3.910	3.910	(0.935)	121141	20.0000	18.16
3	Chloromethane	50	1.073	1.073	(0.257)	85402	20.0000	19.21
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	74754	20.0000	19.14
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	107408	20.0000	19.53
55	Dibromochloromethane	129	7.176	7.176	(0.936)	76215	20.0000	19.48
44	Dibromomethane	93	5.557	5.557	(1.118)	46676	20.0000	19.58
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	63810	20.0000	17.59
61	Ethylbenzene	106	7.799	7.799	(1.017)	101554	20.0000	19.54
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	37789	20.0000	19.03
67	Isopropylbenzene	105	8.566	8.566	(1.117)	293670	20.0000	19.08
62	m,p-Xylenes	106	7.907	7.907	(1.031)	243460	40.0000	38.83
17	Methylene Chloride	84	2.305	2.305	(0.551)	66846	20.0000	17.95
87	n-Butylbenzene	91	9.998	9.998	(1.035)	210608	20.0000	18.54
73	n-Propylbenzene	91	8.917	8.917	(0.923)	331965	20.0000	19.25
92	Naphthalene	128	11.546	11.546	(1.195)	57138	20.0000	18.96
63	o-Xylene	106	8.244	8.244	(1.075)	119876	20.0000	19.37
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	278964	20.0000	18.62
64	Styrene	104	8.258	8.258	(1.077)	206802	20.0000	19.22
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	208031	20.0000	19.13
56	Tetrachloroethene	164	6.933	6.933	(0.904)	68625	20.0000	18.96
50	Toluene	91	6.446	6.446	(0.840)	280019	20.0000	19.17
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	63600	20.0000	18.77
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100272	20.0000	20.00
38	Trichloroethene	130	5.206	5.206	(1.048)	77608	20.0000	19.68
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	116474	20.0000	18.23
5	Vinyl Chloride	62	1.138	1.138	(0.272)	74818	20.0000	17.83

QC Flag Legend

M - Compound response manually integrated.



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Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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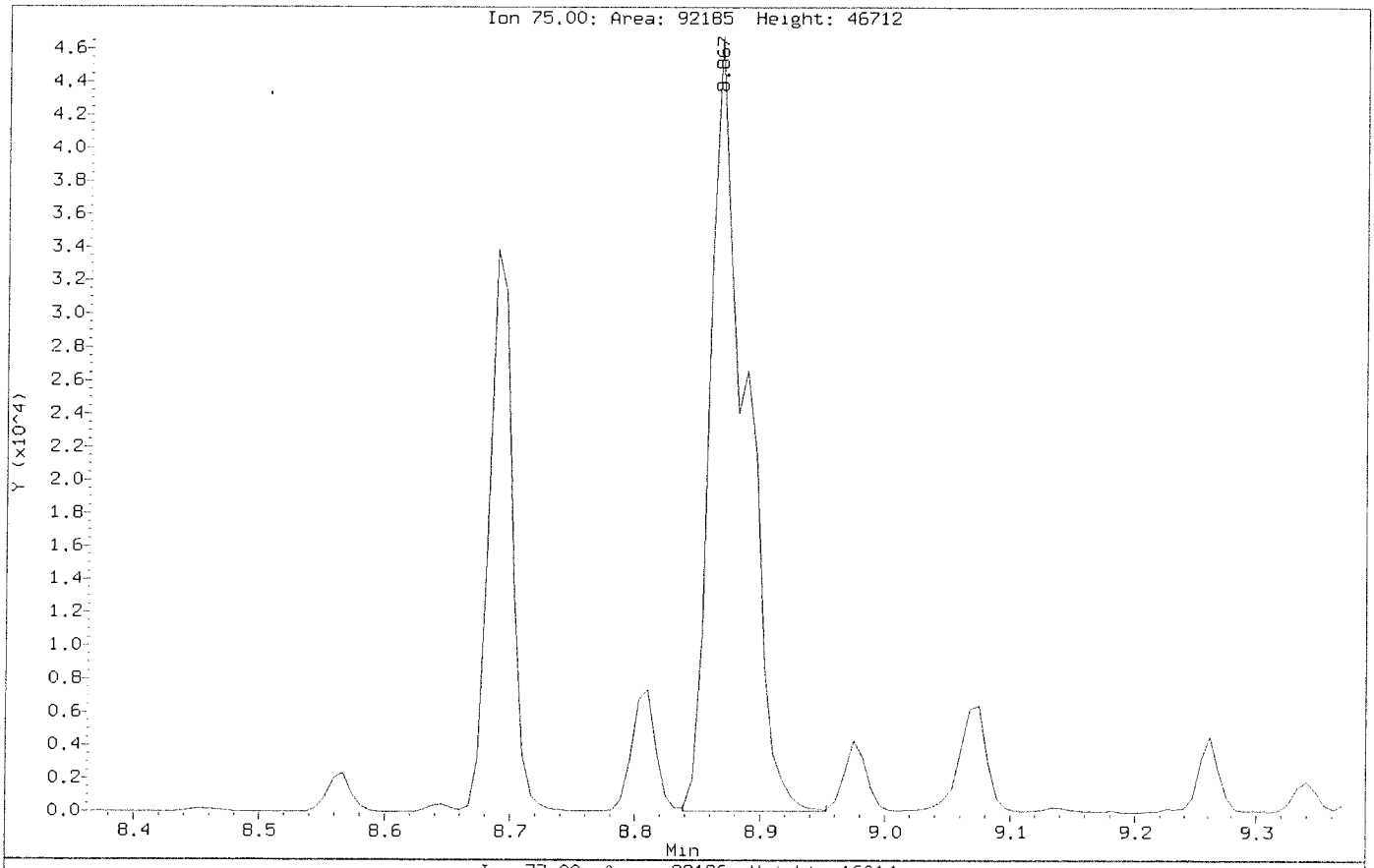
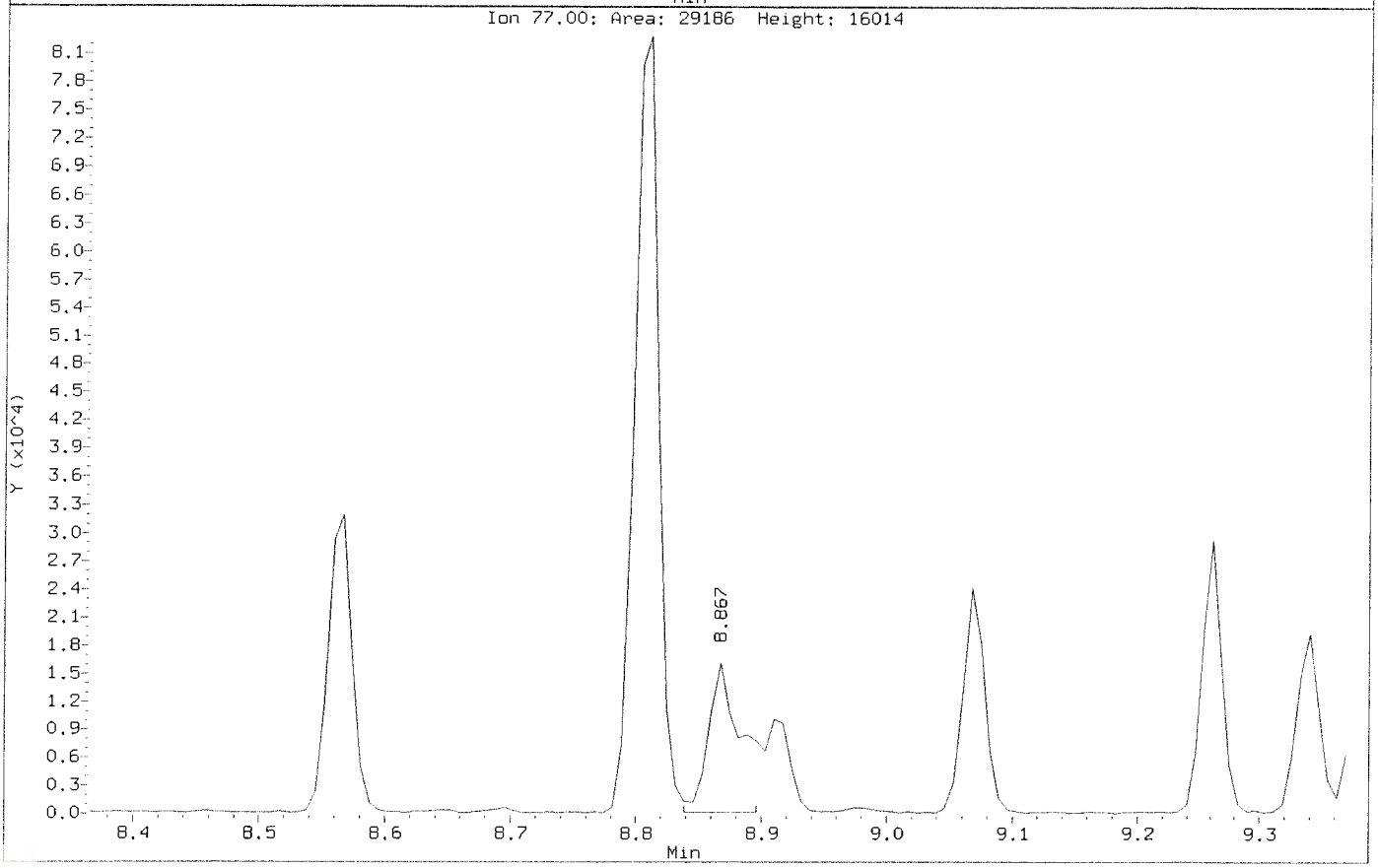
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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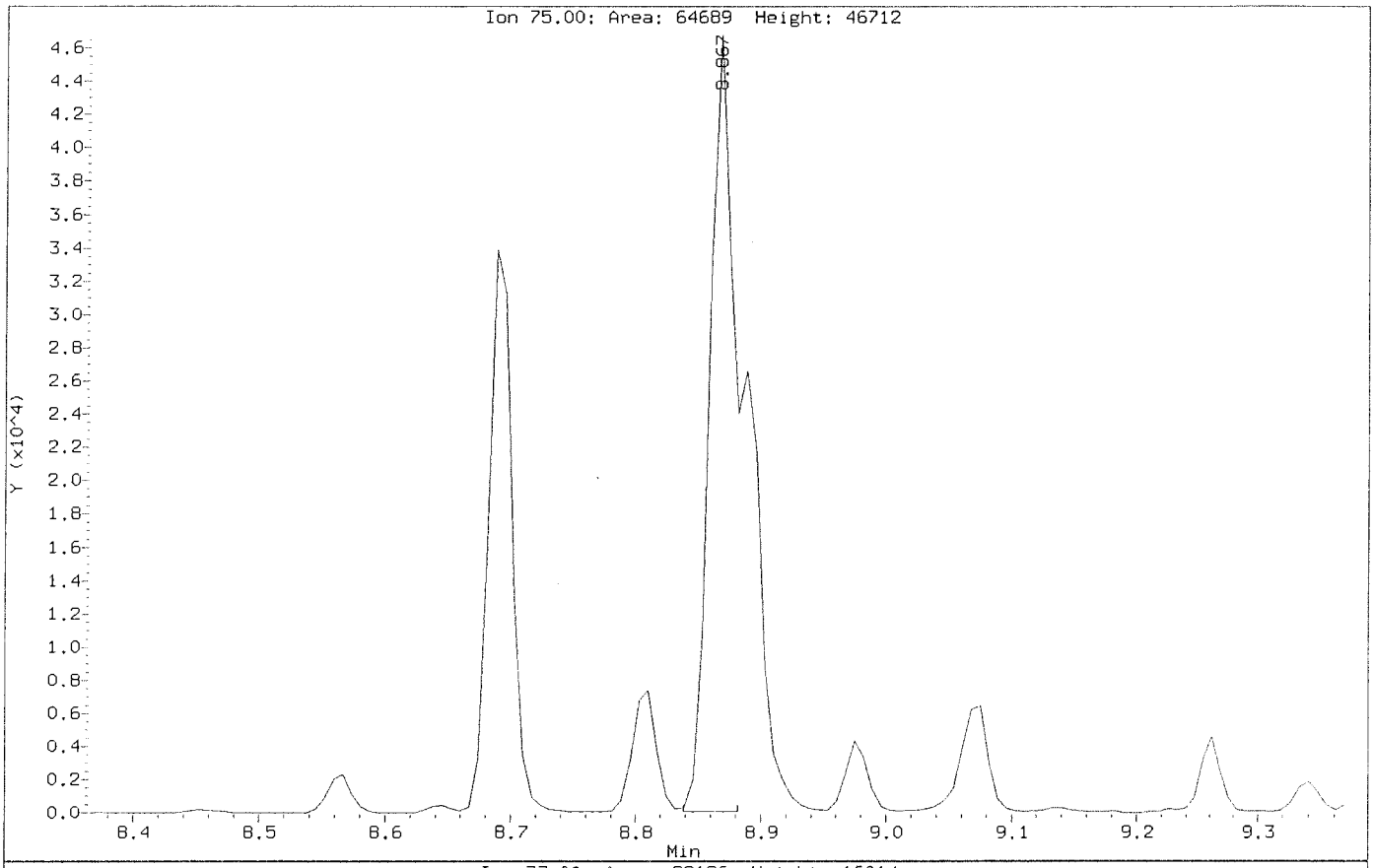
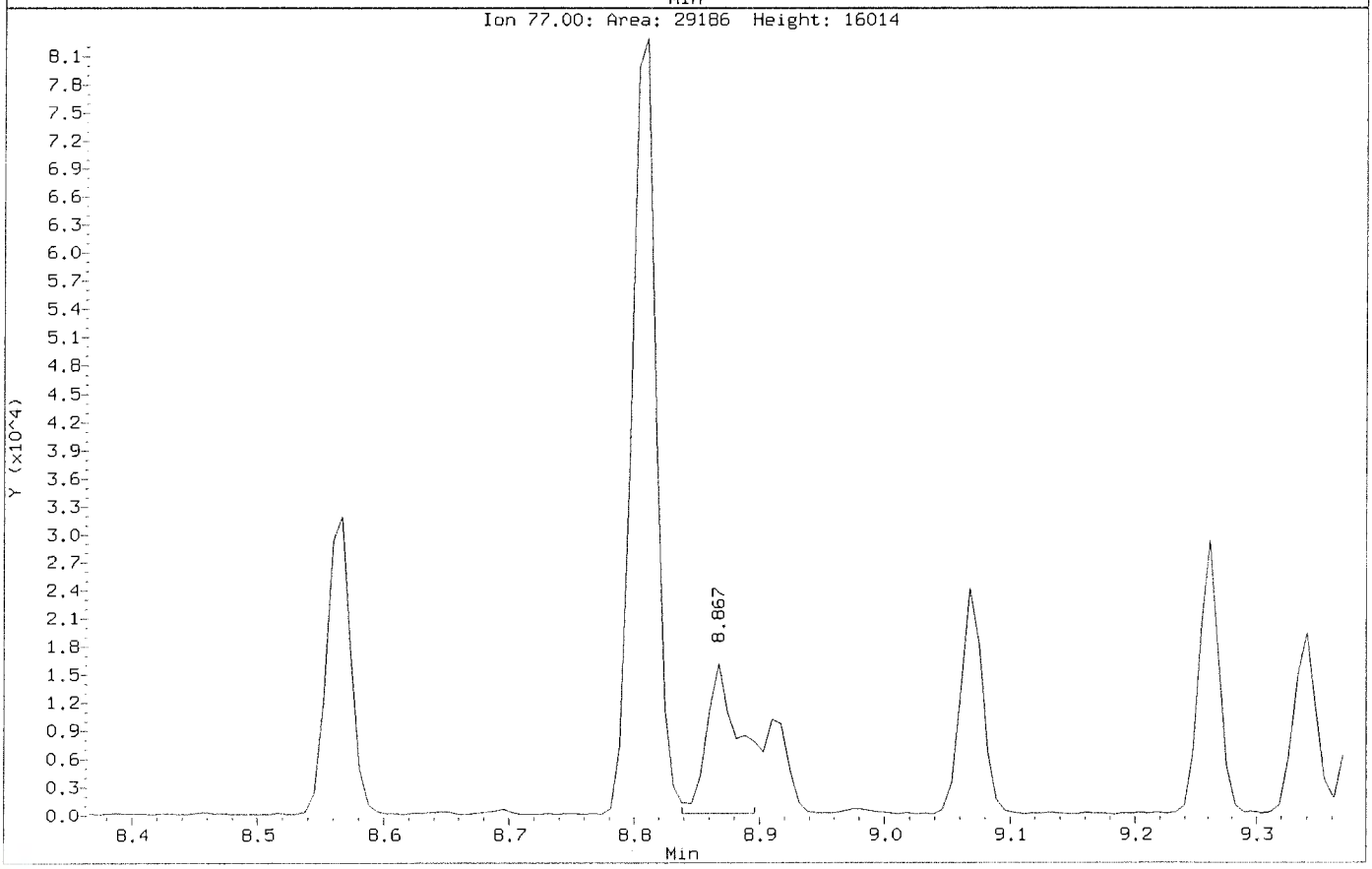
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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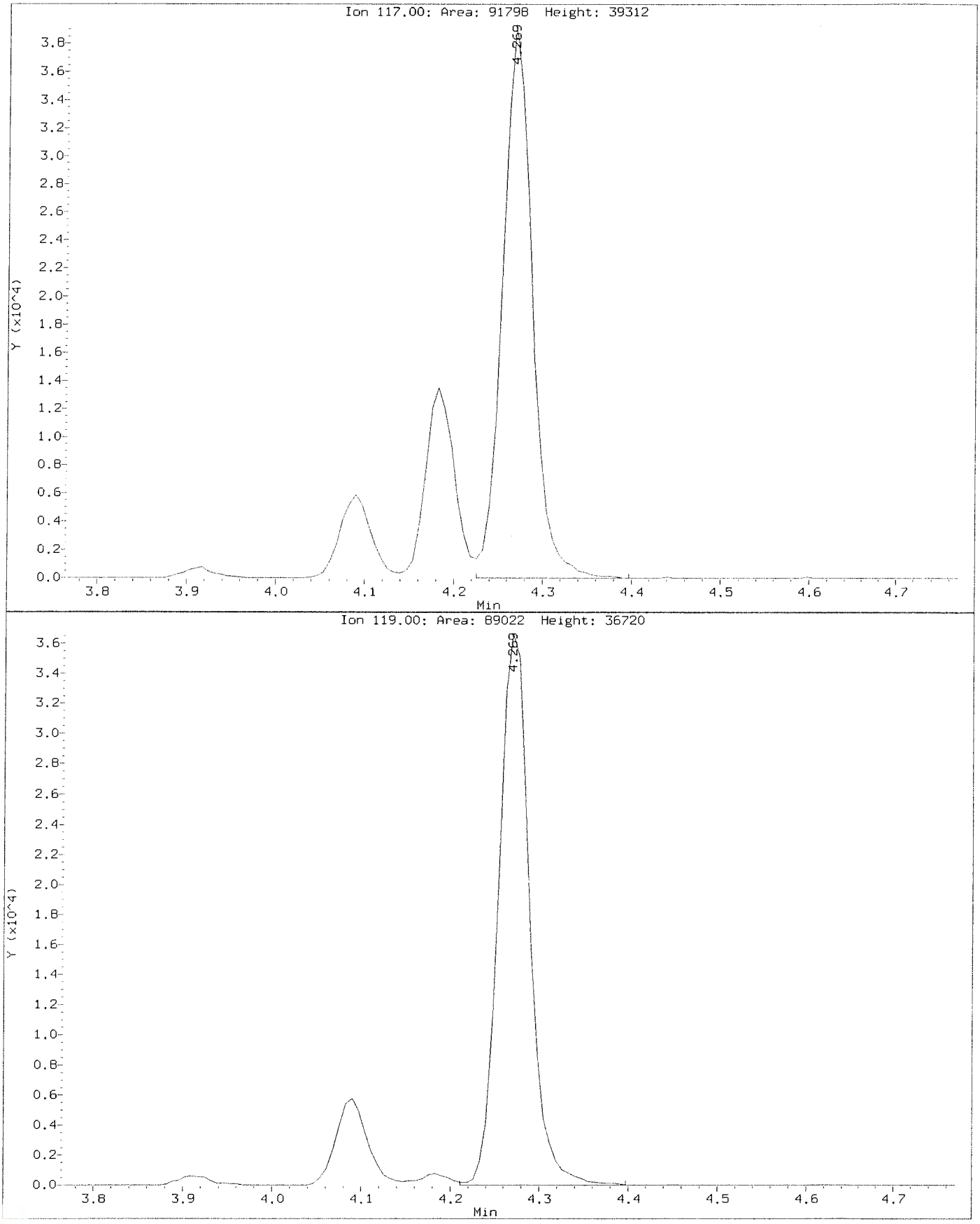
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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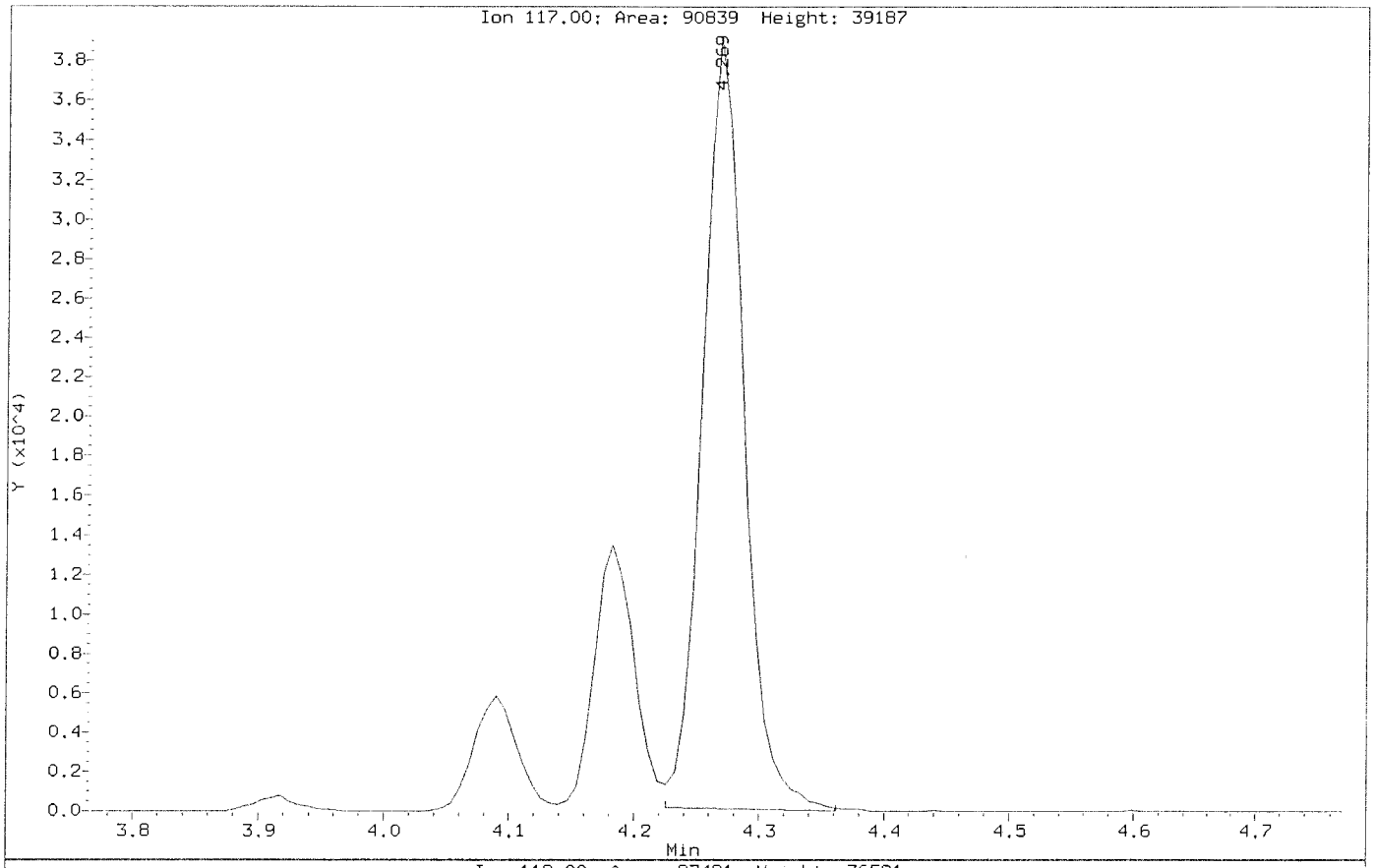
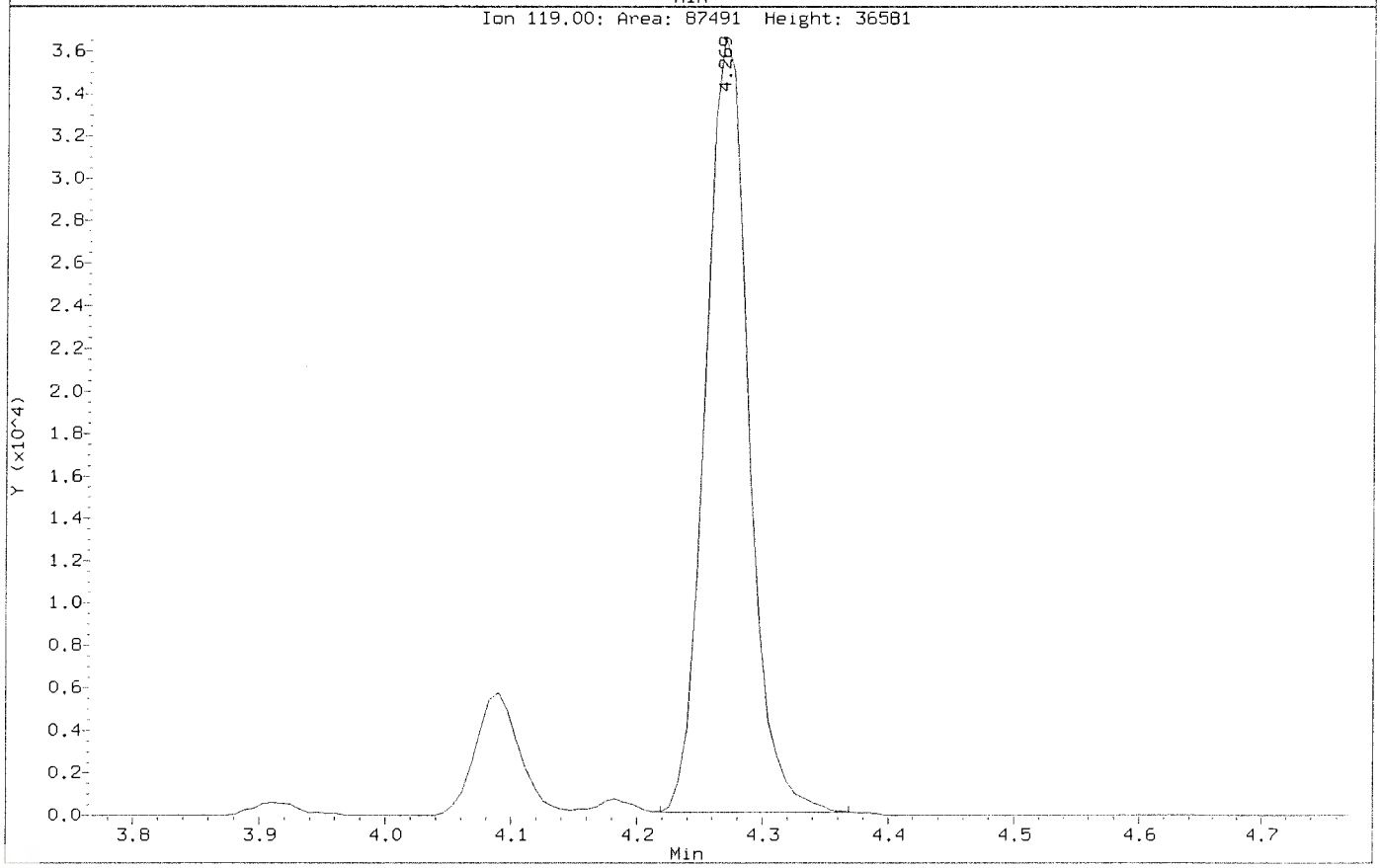
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 18-NOV-2019 16:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:11 Cal File: X111807.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

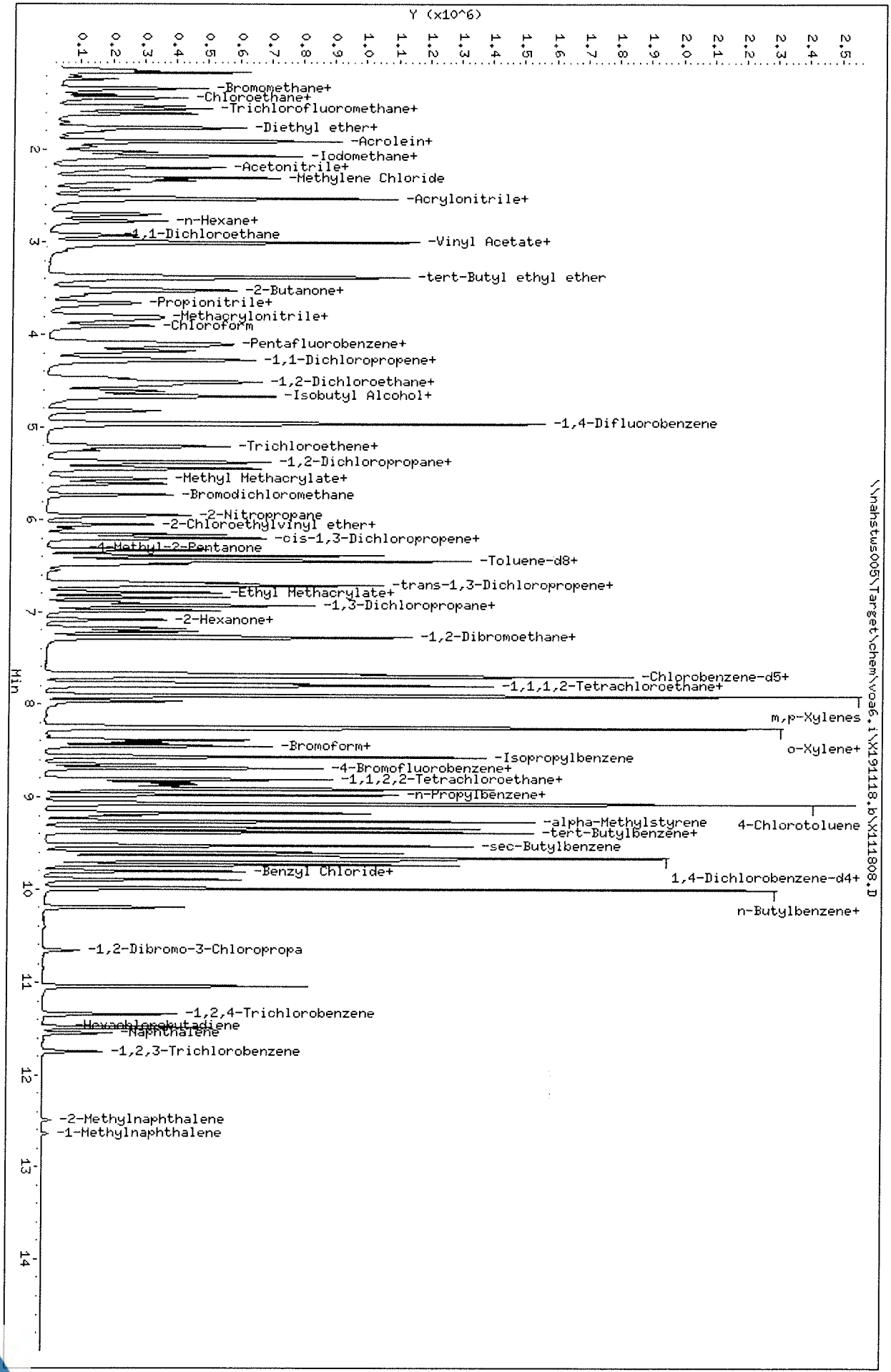
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	399282	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	548073	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502523	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	273444	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	178006	50.0000	47.42
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	222328	50.0000	47.57
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	173990	50.0000	47.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	608955	50.0000	45.99
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	184913	50.0000	50.72
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	268813	50.0000	49.90
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183844	50.0000	47.81
138 Freon TF	101	1.911	1.911	(0.457)	183115	50.0000	52.67
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	128481	50.0000	48.90
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	283343	50.0000	48.77
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	171500	50.0000	50.68
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	220463	50.0000	49.86
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	52554	50.0000	51.69
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	157820	50.0000	48.44(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	115181	50.0000	50.00
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	661580	50.0000	50.99
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	21800	50.0000	51.36
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	174730	50.0000	49.57

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	363670	50.0000	50.11
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	219760	50.0000	50.51
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	161607	50.0000	49.36
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	647527	50.0000	52.01
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	398343	50.0000	50.79
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	259218	50.0000	48.60
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	400593	50.0000	50.27
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	257082	50.0000	48.75
24	2-Butanone	43	3.573	3.573	(0.854)	116745	100.000	95.28
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	506692	50.0000	51.50
52	2-Hexanone	43	7.090	7.090	(0.924)	193251	100.000	93.61
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	603806	50.0000	50.63
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	703086	50.0000	52.54
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	284508	100.000	96.62
10	Acetone	43	1.976	1.976	(0.473)	103091	100.000	99.72
37	Benzene	78	4.512	4.512	(0.908)	637799	50.0000	50.87
74	Bromobenzene	156	8.809	8.809	(0.911)	240153	50.0000	50.53
29	Bromochloromethane	128	3.795	3.795	(0.908)	105150	50.0000	48.61
39	Bromodichloromethane	83	5.729	5.729	(1.153)	226127	50.0000	49.85
66	Bromoform	173	8.416	8.416	(1.097)	143798	50.0000	48.09
6	Bromomethane	94	1.338	1.338	(0.320)	215480	50.0000	54.47
19	Carbon Disulfide	76	2.069	2.069	(0.495)	951783	100.000	103.39
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	247524	50.0000	51.11(M)
59	Chlorobenzene	112	7.699	7.699	(1.004)	485055	50.0000	49.44
7	Chloroethane	64	1.403	1.403	(0.336)	124291	50.0000	49.44
28	Chloroform	83	3.910	3.910	(0.935)	300015	50.0000	46.39
3	Chloromethane	50	1.073	1.073	(0.257)	215753	50.0000	49.75
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	187629	50.0000	49.55
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	273432	50.0000	51.15
55	Dibromochloromethane	129	7.176	7.176	(0.936)	191497	50.0000	50.17
44	Dibromomethane	93	5.557	5.557	(1.118)	115707	50.0000	49.94
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	186161	50.0000	51.14
61	Ethylbenzene	106	7.799	7.799	(1.017)	257283	50.0000	50.75
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	99881	50.0000	52.17
67	Isopropylbenzene	105	8.566	8.566	(1.117)	765390	50.0000	50.97
62	m,p-Xylenes	106	7.907	7.907	(1.031)	625932	100.000	102.32
17	Methylene Chloride	84	2.305	2.305	(0.551)	168044	50.0000	46.54
87	n-Butylbenzene	91	9.999	9.999	(1.034)	591076	50.0000	53.08
73	n-Propylbenzene	91	8.917	8.917	(0.922)	884464	50.0000	52.32
92	Naphthalene	128	11.546	11.546	(1.194)	142473	50.0000	48.22
63	o-Xylene	106	8.244	8.244	(1.075)	301622	50.0000	49.96
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	772064	50.0000	52.58
64	Styrene	104	8.258	8.258	(1.077)	530825	50.0000	50.56
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	550071	50.0000	51.60
56	Tetrachloroethene	164	6.933	6.933	(0.904)	176674	50.0000	50.03
50	Toluene	91	6.446	6.446	(0.840)	709296	50.0000	49.77
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	163591	50.0000	49.79
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	247921	50.0000	50.89
38	Trichloroethene	130	5.206	5.206	(1.048)	196625	50.0000	51.29
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	328789	50.0000	53.08
5	Vinyl Chloride	62	1.138	1.138	(0.272)	201503	50.0000	49.51

QC Flag Legend

M - Compound response manually integrated.



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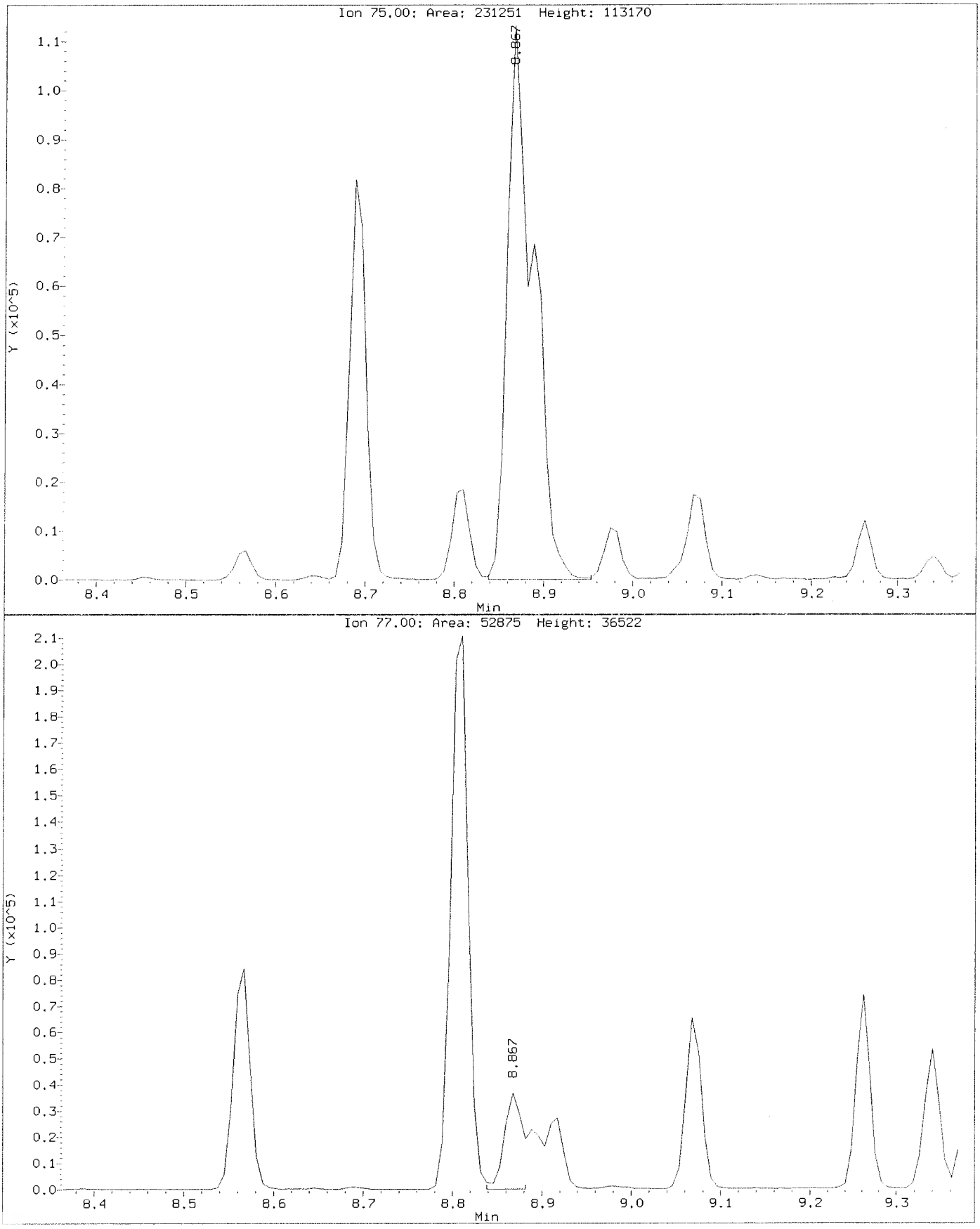
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111808.D
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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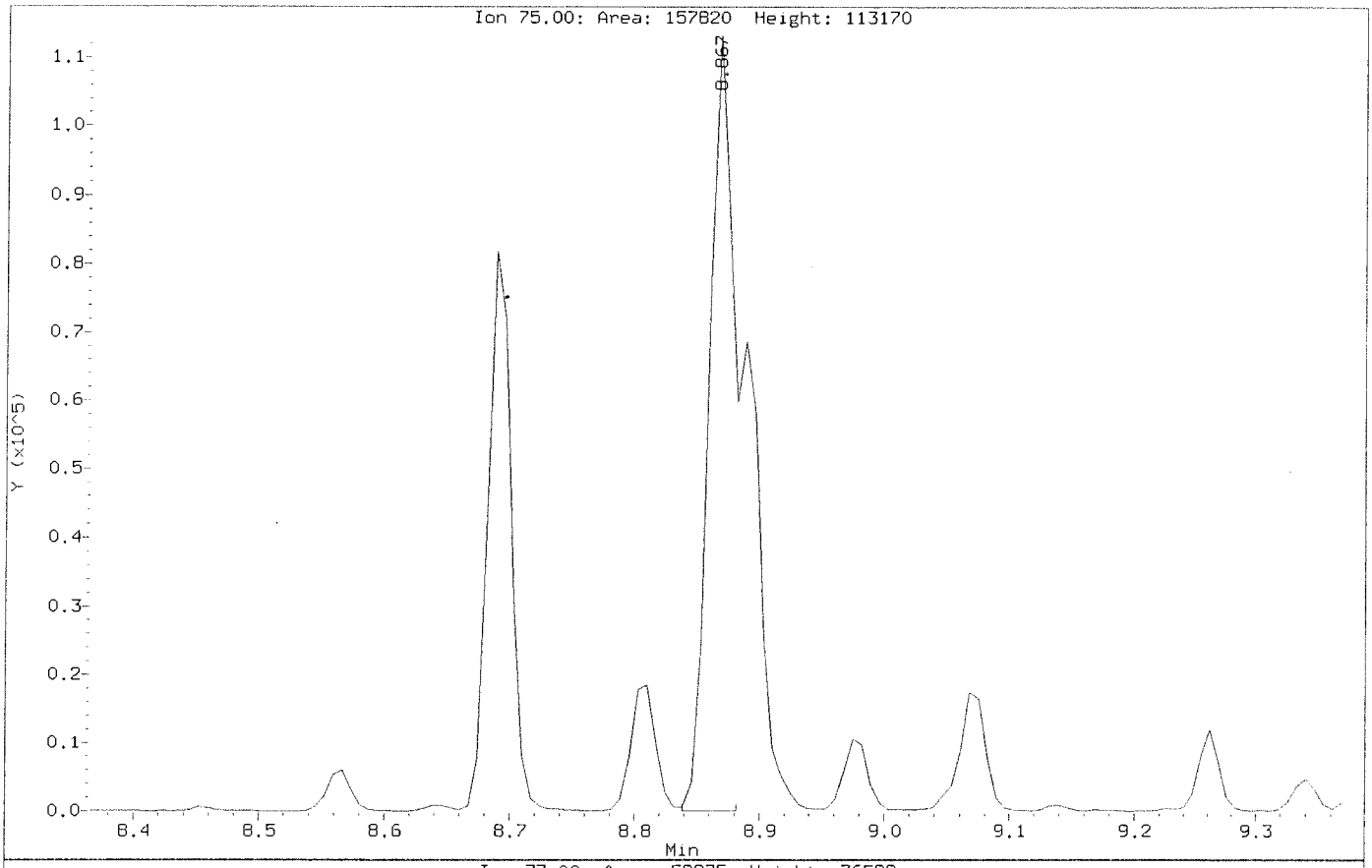
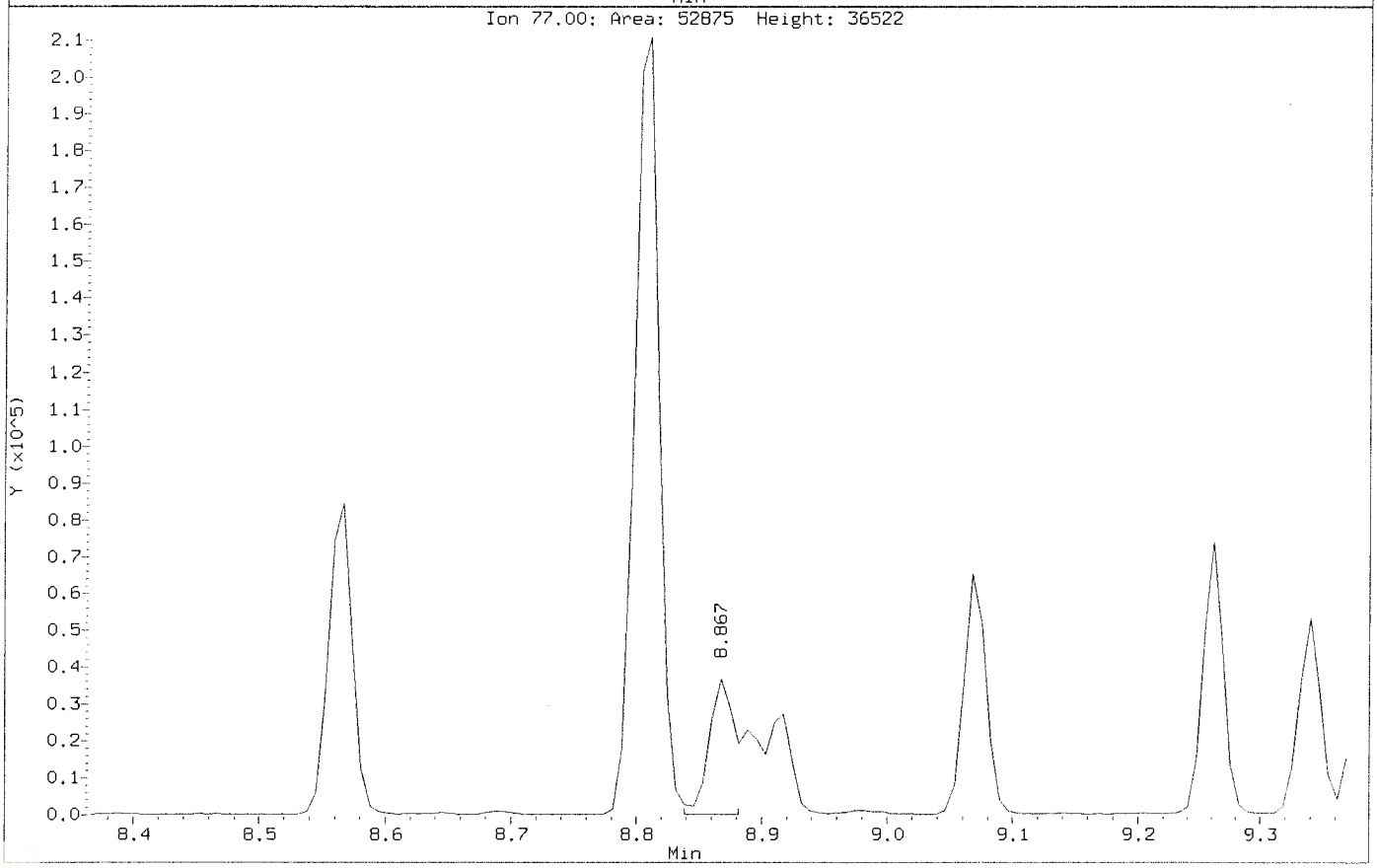
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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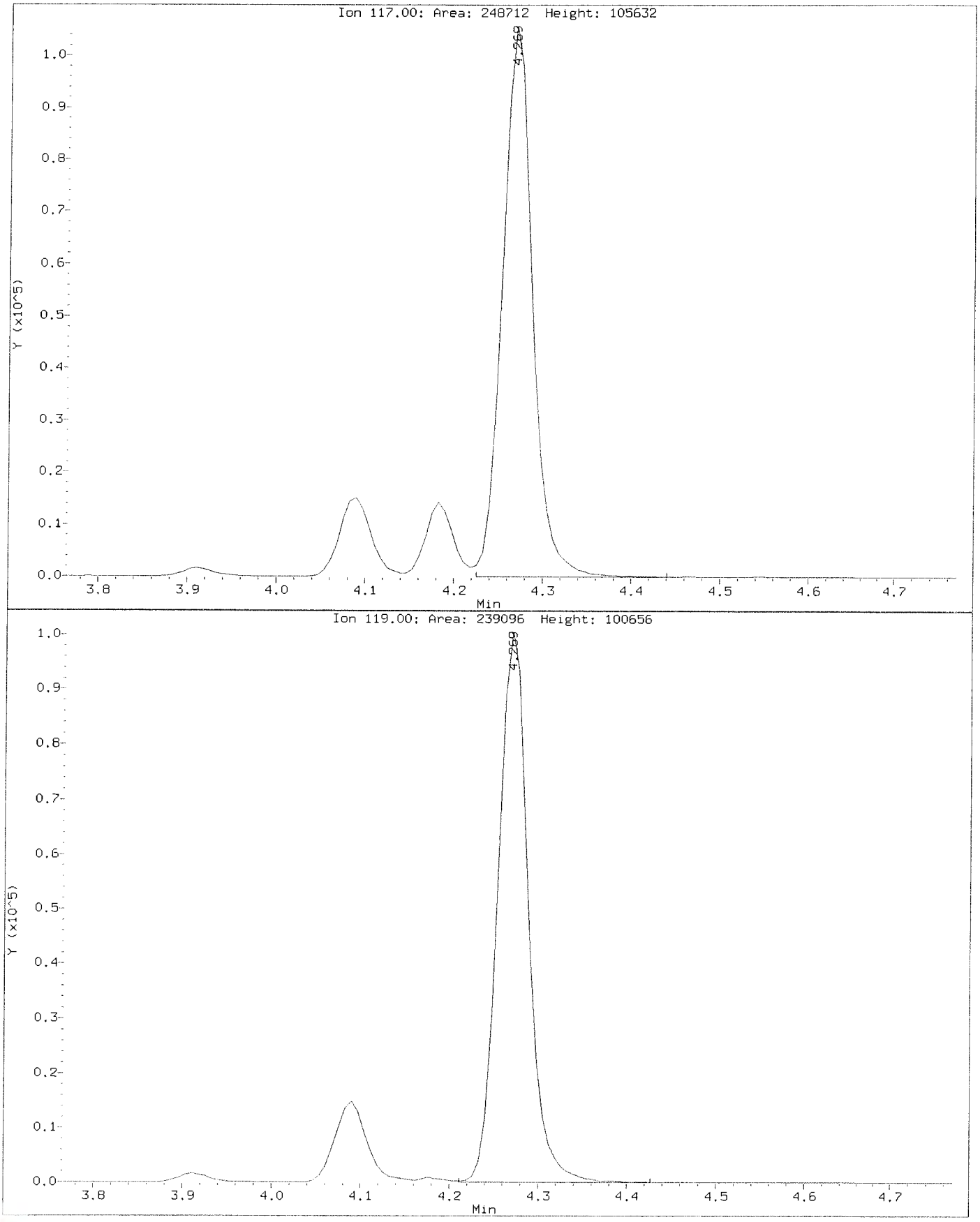
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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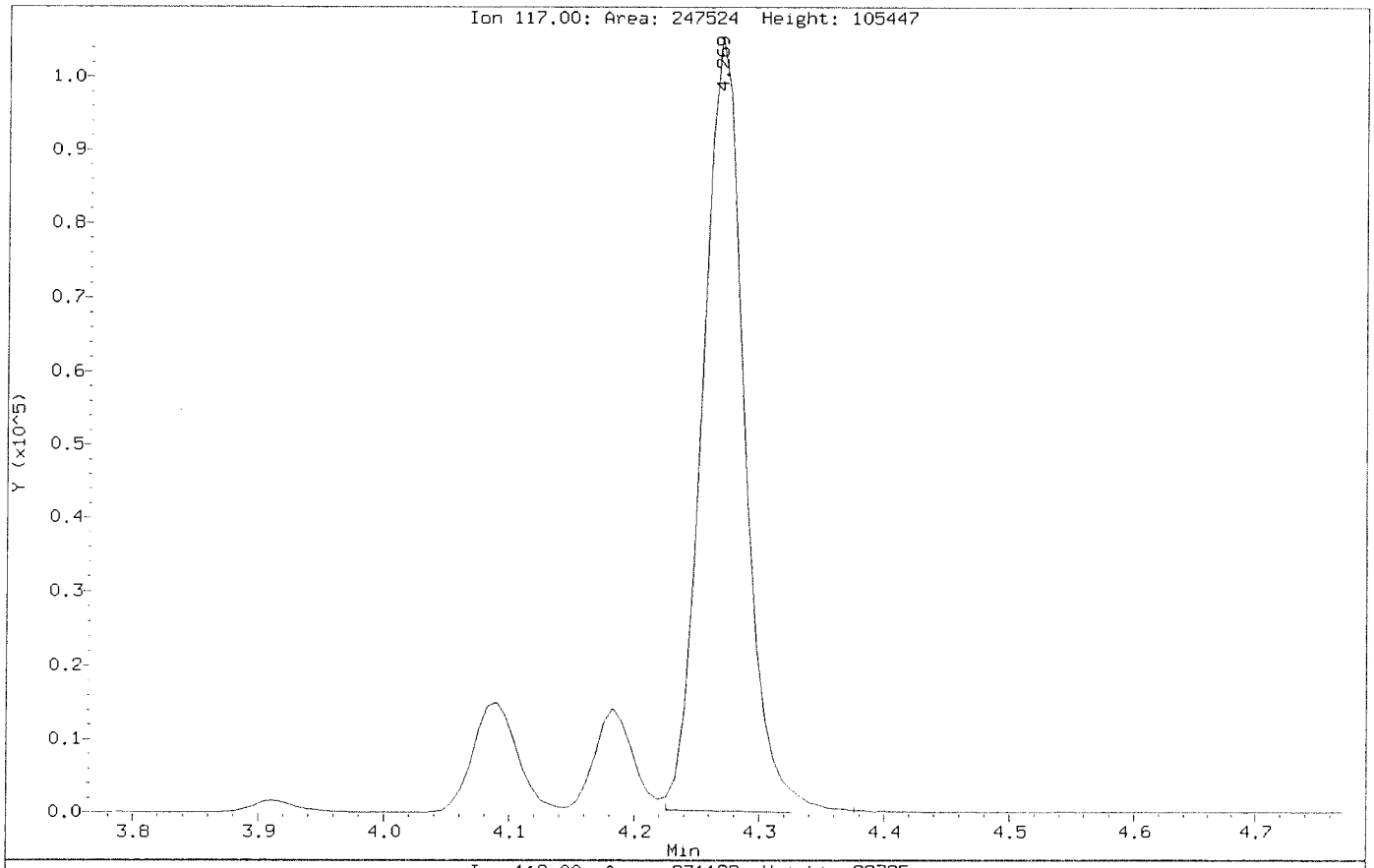
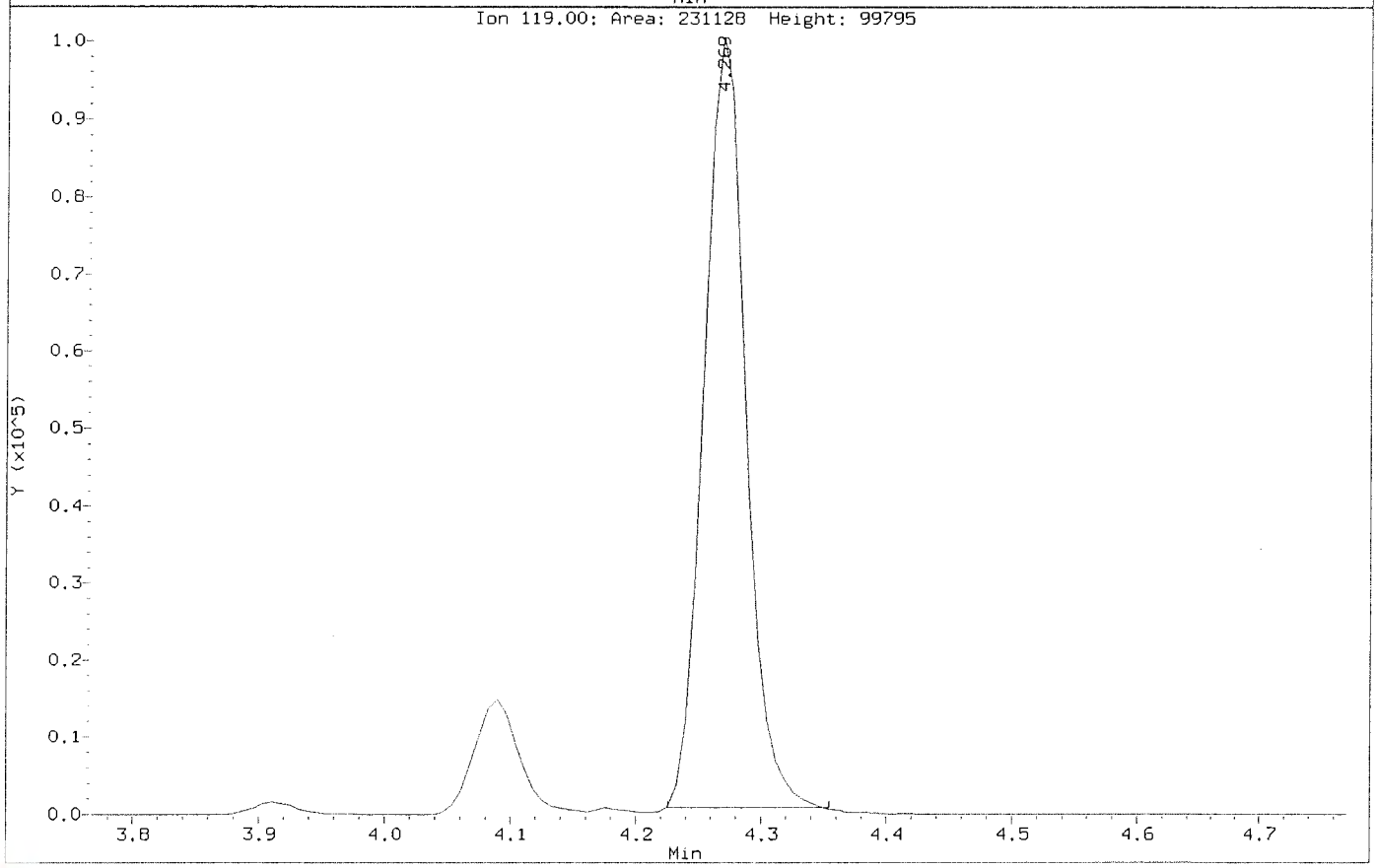
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 18-NOV-2019 16:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

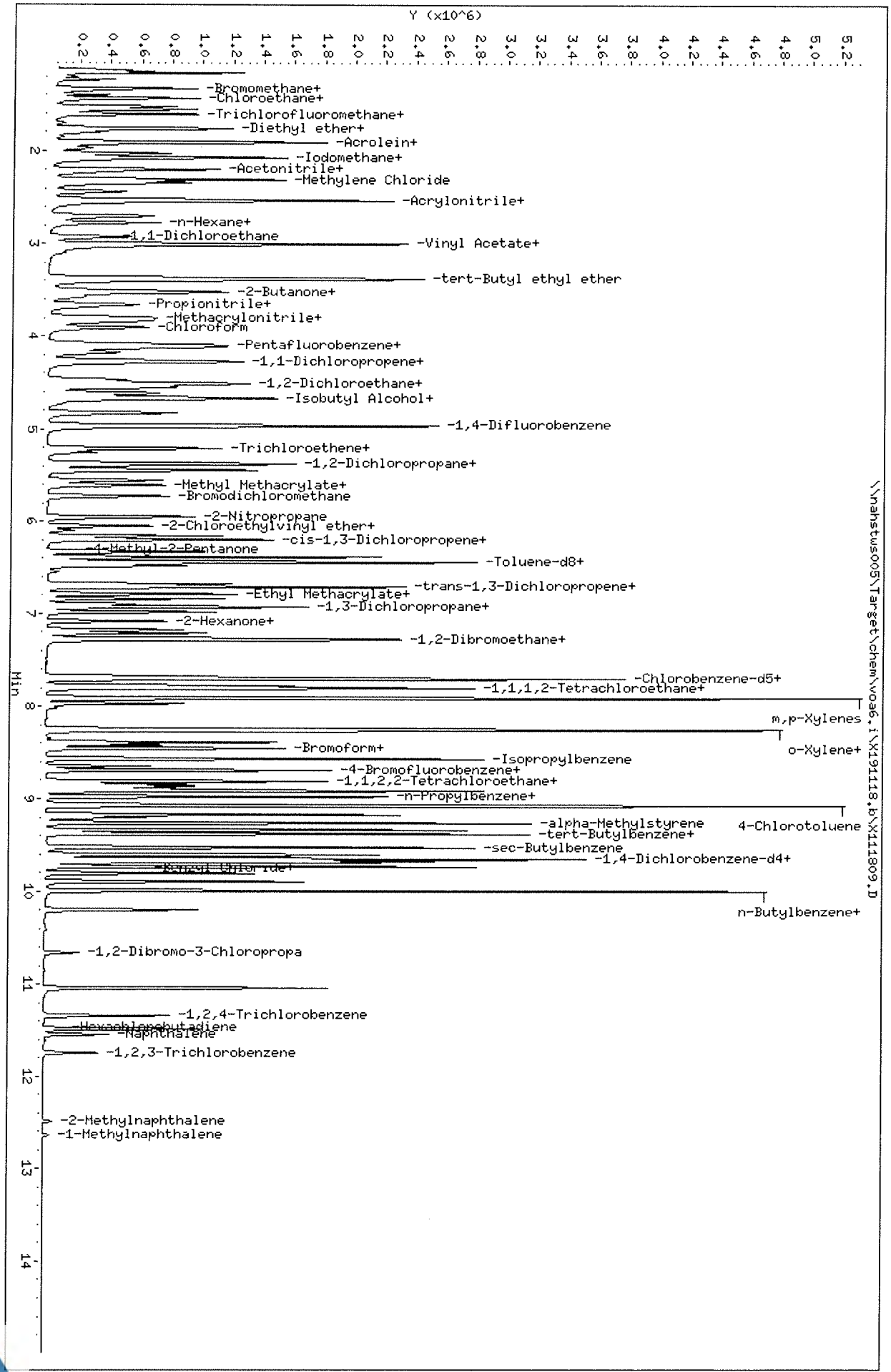
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	392699	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	554744	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502006	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278931	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	364646	100.000	97.98
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	465570	100.000	99.26
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	354918	100.000	99.03
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1251601	100.000	94.62
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	370675	100.000	101.77
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	531073	100.000	100.24
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	374065	100.000	95.36
138 Freon TF	101	1.911	1.911	(0.457)	363001	100.000	106.17
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	259169	100.000	98.76
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	562516	100.000	98.44
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	336639	100.000	101.15
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	435155	100.000	97.24
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	102660	100.000	99.24
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	314678	100.000	94.68(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	224252	100.000	95.44
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	1360930	100.000	102.82
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	42468	100.000	98.40
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	348356	100.000	98.94

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	740257	100.000	99.99
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	440676	100.000	100.06
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	322033	100.000	97.17
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1326043	100.000	104.41
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	793024	100.000	99.13
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	523367	100.000	98.23
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	805891	100.000	99.14
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	505741	100.000	97.52
24 2-Butanone	43	3.580	3.580	(0.856)	231090	200.000	191.78
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	1019206	100.000	101.56
52 2-Hexanone	43	7.090	7.090	(0.924)	404339	200.000	196.07
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	1244013	100.000	102.27
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	1420650	100.000	104.09
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	584699	200.000	198.78
10 Acetone	43	1.976	1.976	(0.473)	202207	200.000	202.71(A)
37 Benzene	78	4.519	4.519	(0.909)	1259183	100.000	99.22
74 Bromobenzene	156	8.809	8.809	(0.911)	477901	100.000	98.58
29 Bromochloromethane	128	3.795	3.795	(0.908)	204995	100.000	96.36
39 Bromodichloromethane	83	5.729	5.729	(1.153)	453036	100.000	98.68
66 Bromoform	173	8.415	8.415	(1.097)	293256	100.000	97.14
6 Bromomethane	94	1.331	1.331	(0.318)	396733	100.000	104.04
19 Carbon Disulfide	76	2.069	2.069	(0.495)	1866170	200.000	206.12(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	490954	100.000	100.15(H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	969904	100.000	98.96
7 Chloroethane	64	1.396	1.396	(0.334)	244234	100.000	98.78
28 Chloroform	83	3.910	3.910	(0.935)	592217	100.000	93.11
3 Chloromethane	50	1.073	1.073	(0.257)	420936	100.000	98.51
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	373378	100.000	100.25
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	548280	100.000	101.34
55 Dibromochloromethane	129	7.176	7.176	(0.936)	387071	100.000	101.53
44 Dibromomethane	93	5.557	5.557	(1.118)	228649	100.000	97.50
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	359790	100.000	99.65
61 Ethylbenzene	106	7.799	7.799	(1.017)	511284	100.000	100.96
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	192455	100.000	99.01
67 Isopropylbenzene	105	8.566	8.566	(1.117)	1550450	100.000	103.37
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1262031	200.000	206.53(A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	333987	100.000	94.05
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1214189	100.000	106.90
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1771664	100.000	102.75
92 Naphthalene	128	11.546	11.546	(1.194)	281768	100.000	93.49
63 o-Xylene	106	8.244	8.244	(1.075)	610719	100.000	101.26
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	1561099	100.000	104.22
64 Styrene	104	8.258	8.258	(1.077)	1077784	100.000	102.77
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1121644	100.000	103.15
56 Tetrachloroethene	164	6.933	6.933	(0.904)	341567	100.000	96.83
50 Toluene	91	6.446	6.446	(0.840)	1413996	100.000	99.32
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	324394	100.000	100.39
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	504686	100.000	102.35
38 Trichloroethene	130	5.206	5.206	(1.048)	388311	100.000	100.09
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	647137	100.000	106.23
5 Vinyl Chloride	62	1.138	1.138	(0.272)	400884	100.000	100.16

QC Flag Legend

A - Target compound detected but, quantitated amount
exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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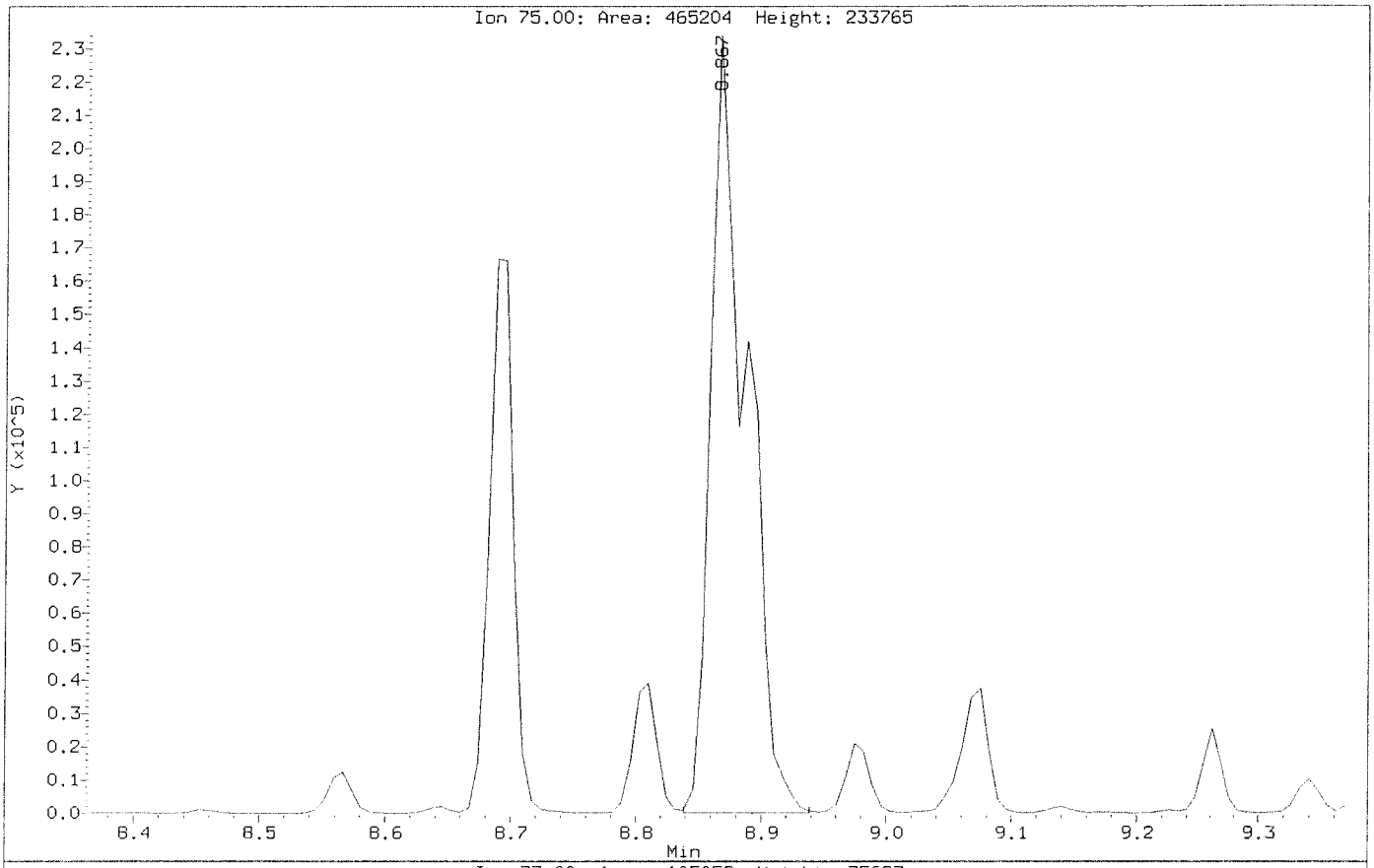
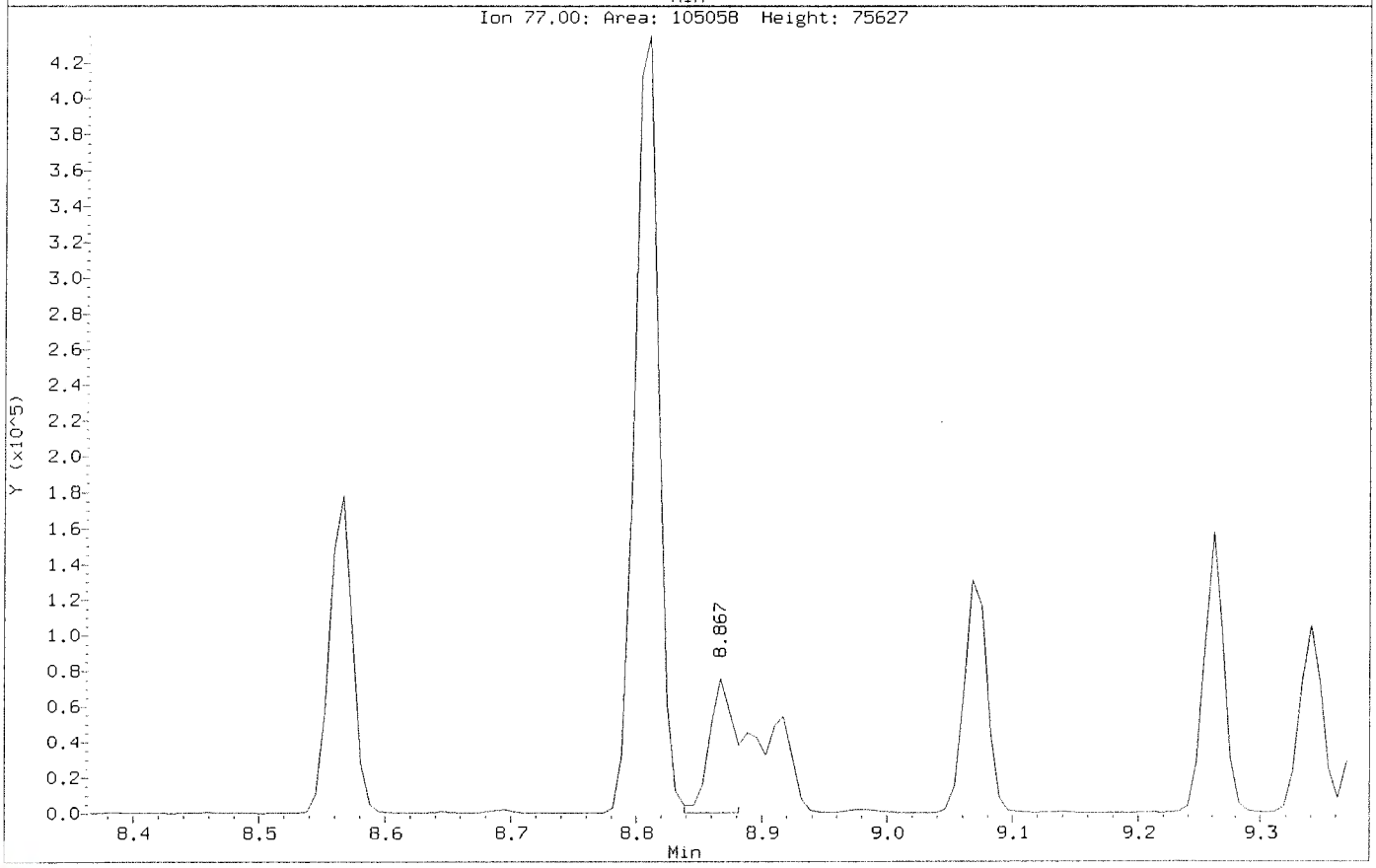
Date : 18-NOV-2019 16:59
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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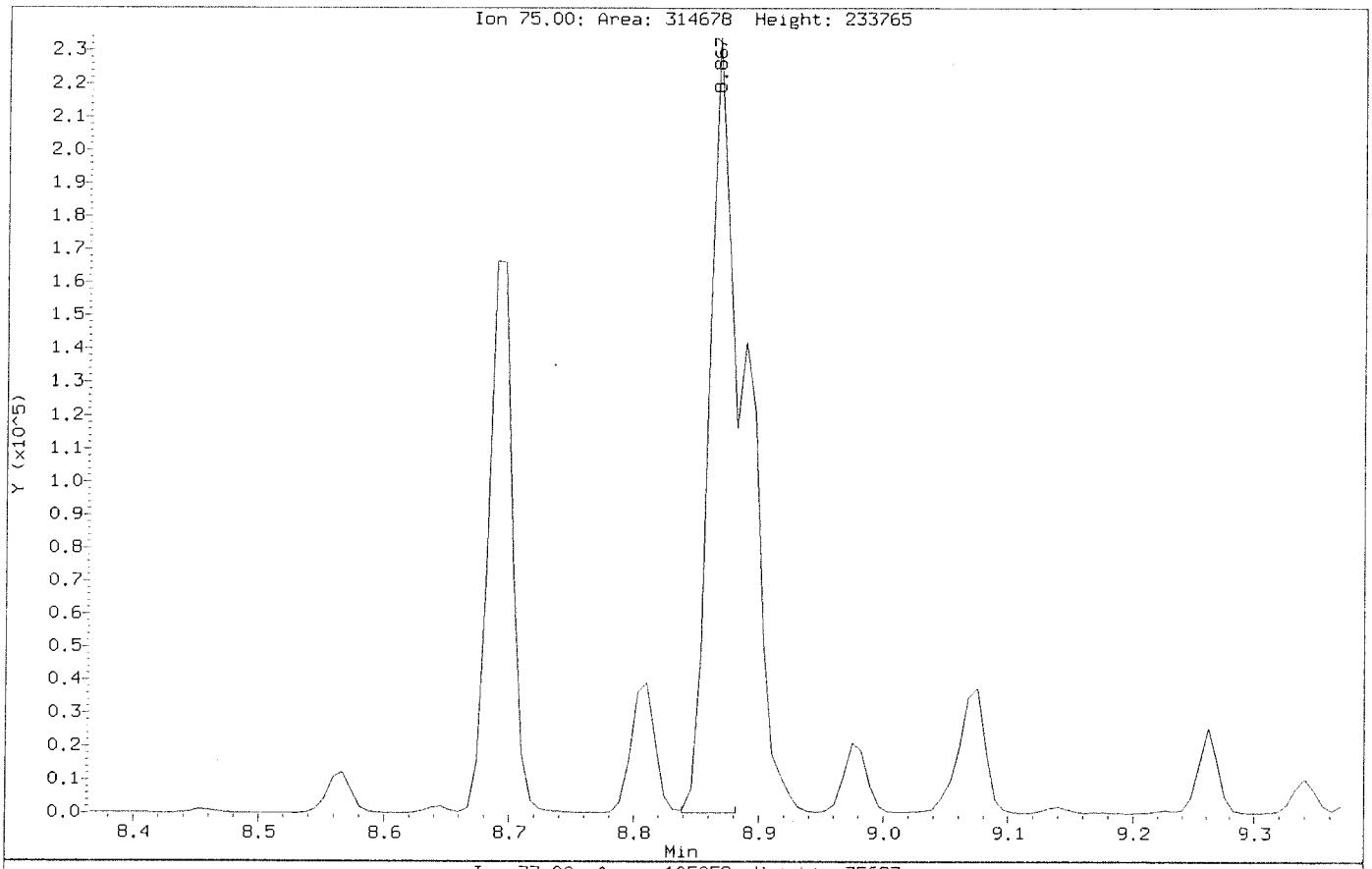
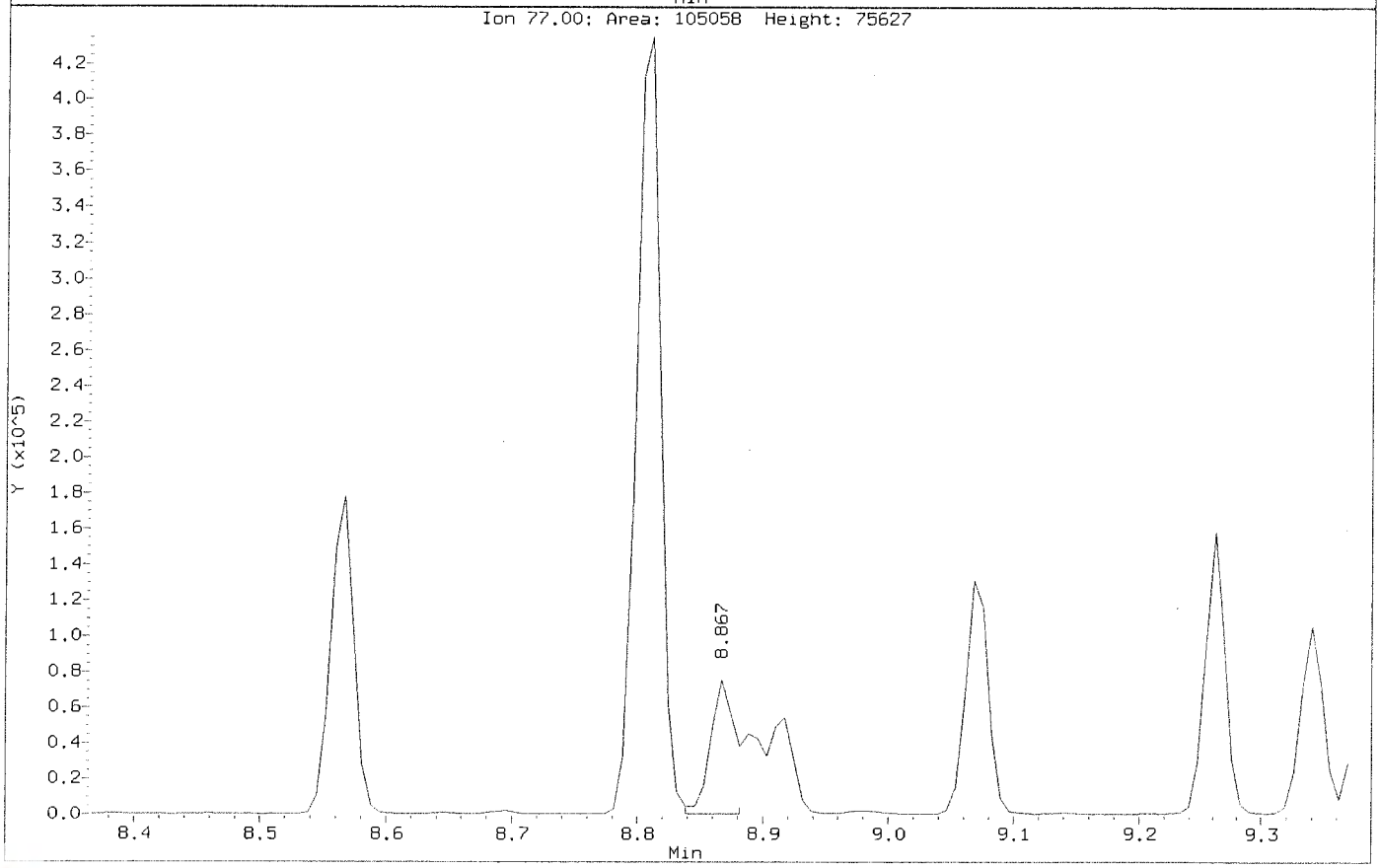
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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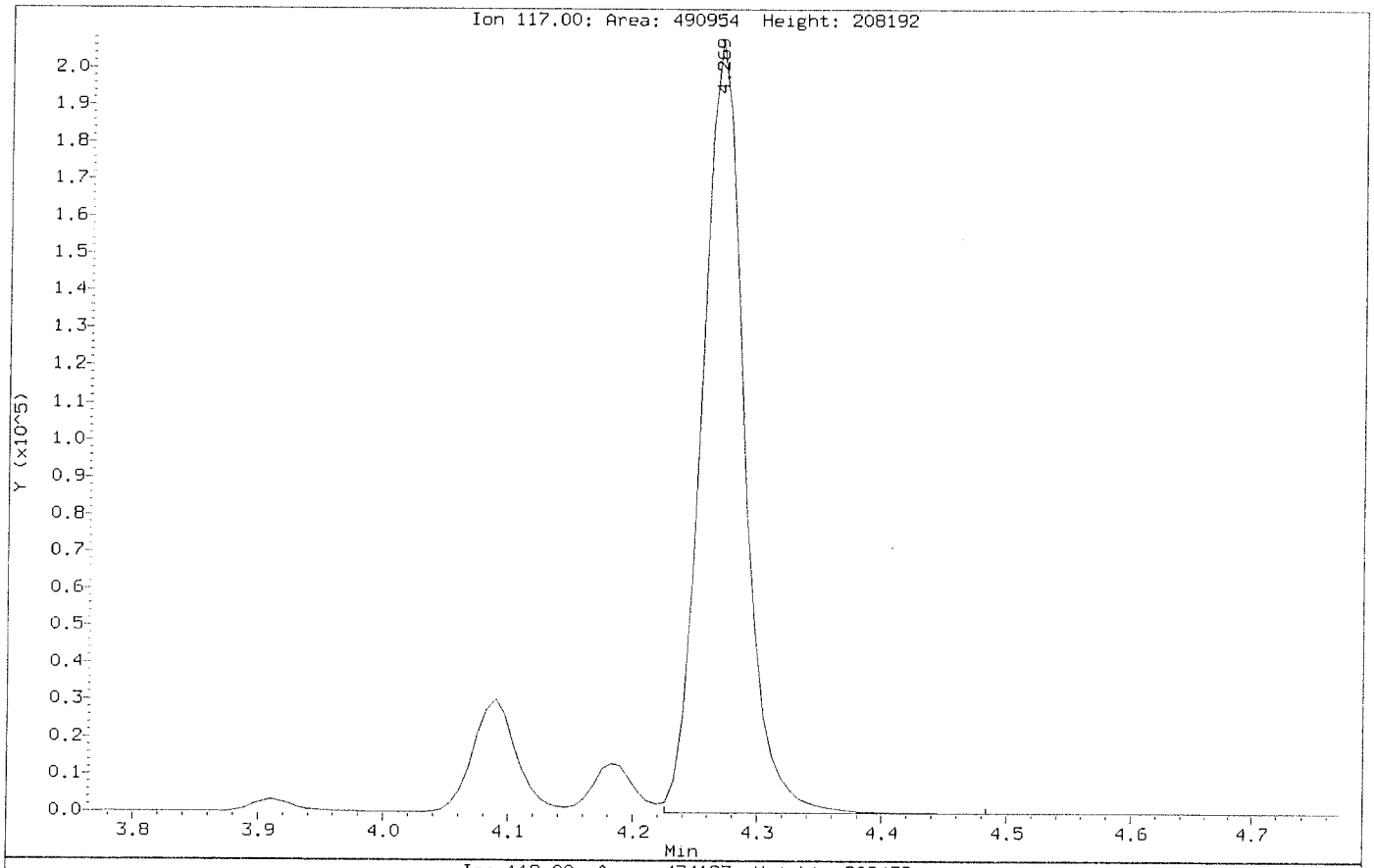
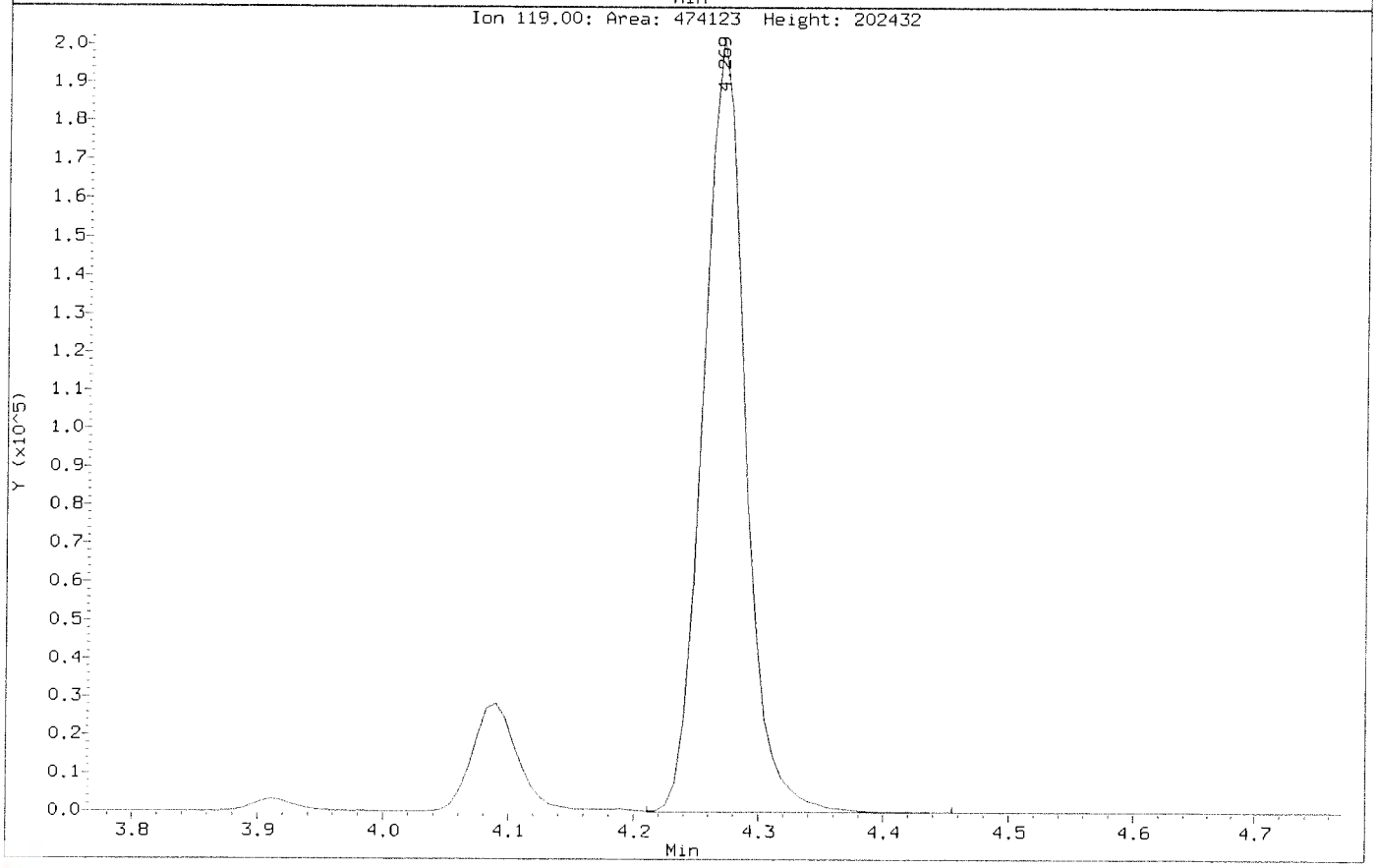
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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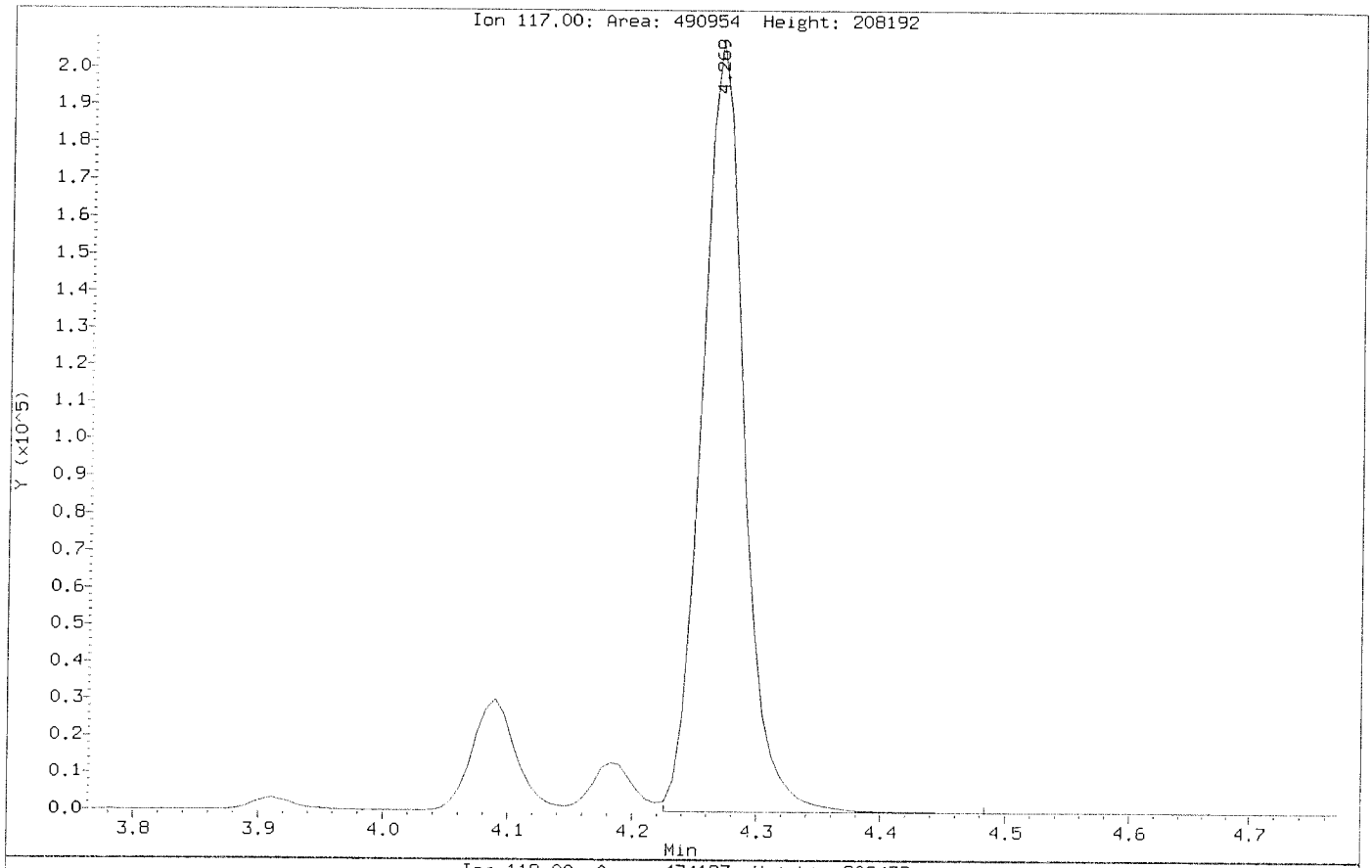
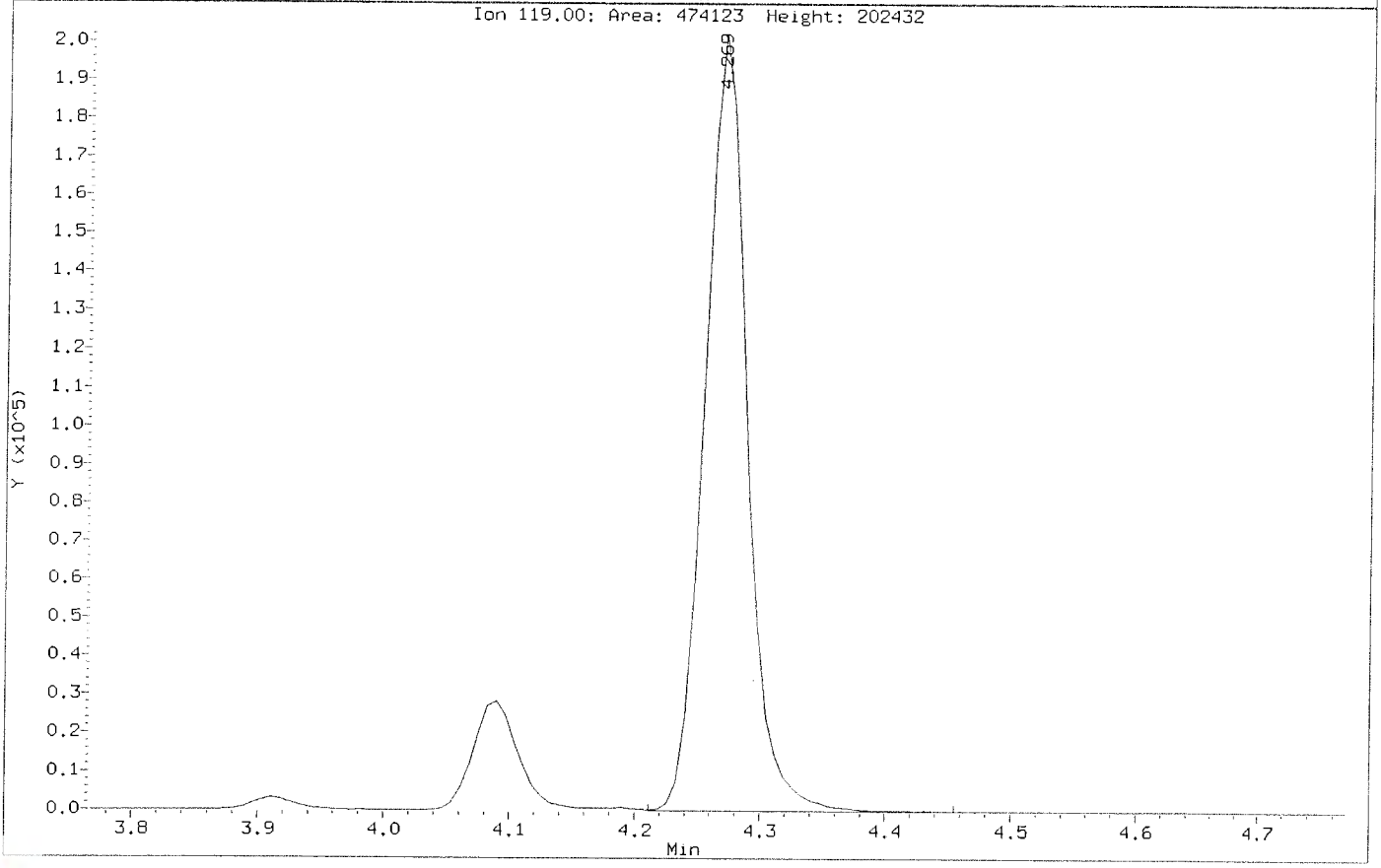
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 18-NOV-2019 17:22
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:59 Cal File: X111809.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

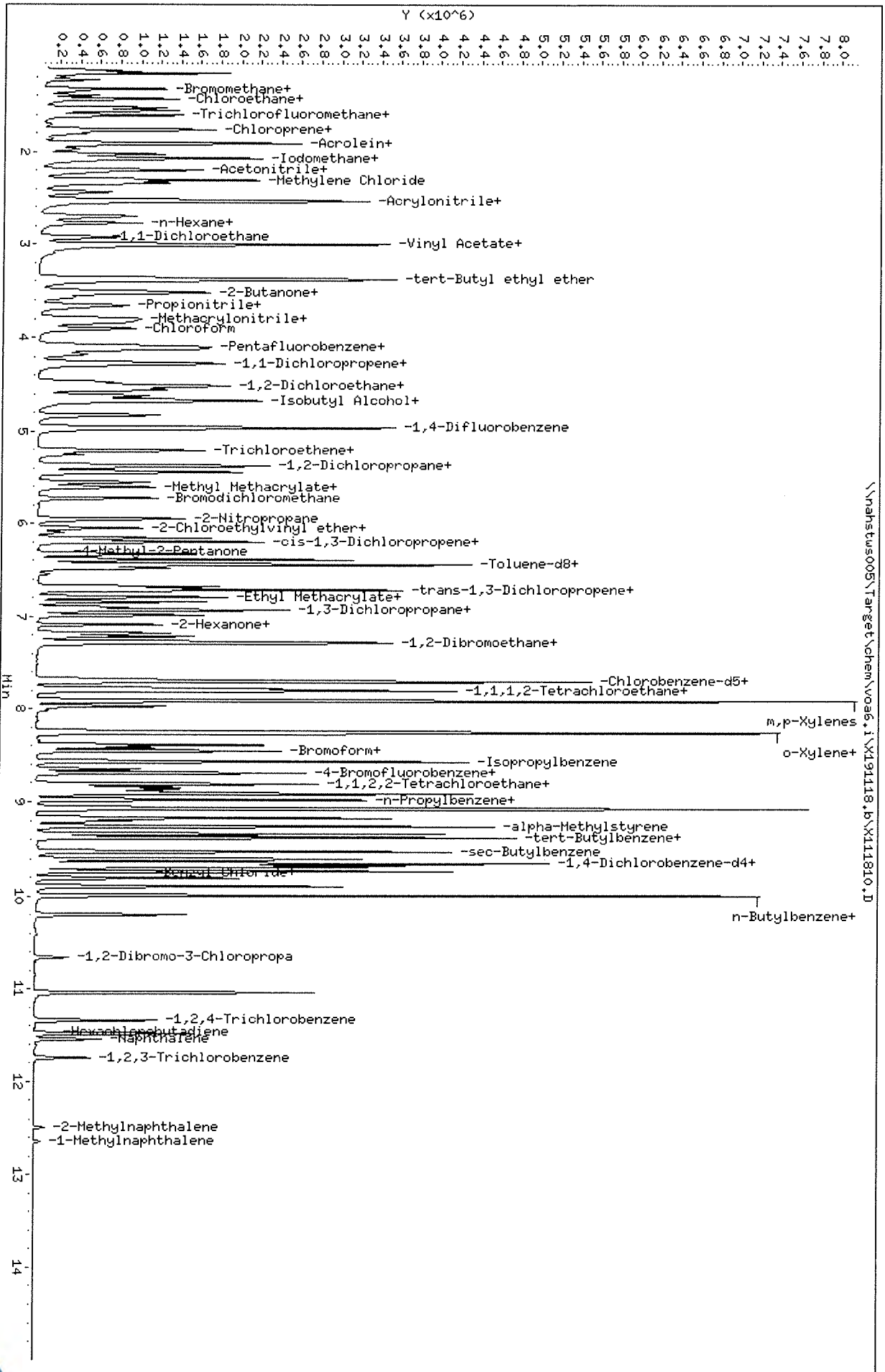
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	378157	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542191	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	494760	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	282310	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	532181	150.000	148.11
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	688600	150.000	148.76
$	30 Dibromofluoromethane	113	4.104	4.104	(0.981)	514854	150.000	148.99
$	48 Toluene-d8	98	6.389	6.389	(0.833)	1815269	150.000	139.25
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	548257	150.000	152.74
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	768782	150.000	150.69
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	560927	150.000	141.29
	138 Freon TF	101	1.912	1.912	(0.457)	513260	150.000	155.89
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	380298	150.000	147.04
	22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	825788	150.000	150.08
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	483391	150.000	150.83
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	635821	150.000	145.37
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	156391	150.000	148.93
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	465353	150.000	138.34(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	338737	150.000	142.44
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	2030171	150.000	151.55
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	65470	150.000	150.06
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	518766	150.000	149.49

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1121580	150.000	149.69
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	645436	150.000	149.95
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	471959	150.000	145.71
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1980658	150.000	154.09
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1183710	150.000	146.20
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	763789	150.000	145.46
84	1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	1195790	150.000	145.34
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	732900	150.000	146.75
24	2-Butanone	43	3.573	3.573	(0.854)	346972	300.000	299.02(A)
76	2-Chlorotoluene	91	8.982	8.982	(0.929)	1513395	150.000	149.00
52	2-Hexanone	43	7.090	7.090	(0.924)	606144	300.000	298.23(A)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	1867848	150.000	151.71
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2100293	150.000	152.04
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	884349	300.000	305.06(A)
10	Acetone	43	1.976	1.976	(0.473)	284604	300.000	298.06(A)
37	Benzene	78	4.512	4.512	(0.908)	1843665	150.000	148.64
74	Bromobenzene	156	8.810	8.810	(0.911)	709083	150.000	144.52
29	Bromochloromethane	128	3.795	3.795	(0.908)	294445	150.000	143.73
39	Bromodichloromethane	83	5.730	5.730	(1.153)	669356	150.000	149.18
66	Bromoform	173	8.416	8.416	(1.097)	447981	150.000	150.02
6	Bromomethane	94	1.331	1.331	(0.318)	529714	150.000	145.16
19	Carbon Disulfide	76	2.069	2.069	(0.495)	2705391	300.000	310.30(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	707541	150.000	147.68(H)
59	Chlorobenzene	112	7.699	7.699	(1.004)	1445648	150.000	149.66
7	Chloroethane	64	1.396	1.396	(0.334)	351927	150.000	147.81
28	Chloroform	83	3.910	3.910	(0.935)	863467	150.000	140.99
3	Chloromethane	50	1.074	1.074	(0.257)	613254	150.000	148.94
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	542390	150.000	151.24
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	808388	150.000	152.88
55	Dibromochloromethane	129	7.176	7.176	(0.936)	573494	150.000	152.63
44	Dibromomethane	93	5.558	5.558	(1.118)	338759	150.000	147.80
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	504807	150.000	144.79
61	Ethylbenzene	106	7.800	7.800	(1.017)	751250	150.000	150.52
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	279881	150.000	142.49
67	Isopropylbenzene	105	8.566	8.566	(1.117)	2283588	150.000	154.47
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1861660	300.000	309.12(A)
17	Methylene Chloride	84	2.306	2.306	(0.551)	485622	150.000	142.02
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1823176	150.000	158.59
73	n-Propylbenzene	91	8.917	8.917	(0.922)	2616190	150.000	149.92
92	Naphthalene	128	11.546	11.546	(1.194)	435593	150.000	142.81
63	o-Xylene	106	8.244	8.244	(1.075)	906786	150.000	152.56
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	2308597	150.000	152.28
64	Styrene	104	8.258	8.258	(1.077)	1622659	150.000	156.99
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1665732	150.000	151.35
56	Tetrachloroethene	164	6.933	6.933	(0.904)	493485	150.000	141.95
50	Toluene	91	6.446	6.446	(0.840)	2107838	150.000	150.23
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	472385	150.000	151.82
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	741568	150.000	153.87
38	Trichloroethene	130	5.207	5.207	(1.048)	566006	150.000	149.27
8	Trichlorofluoromethane	101	1.553	1.553	(0.372)	922117	150.000	157.19
5	Vinyl Chloride	62	1.138	1.138	(0.272)	578026	150.000	149.97

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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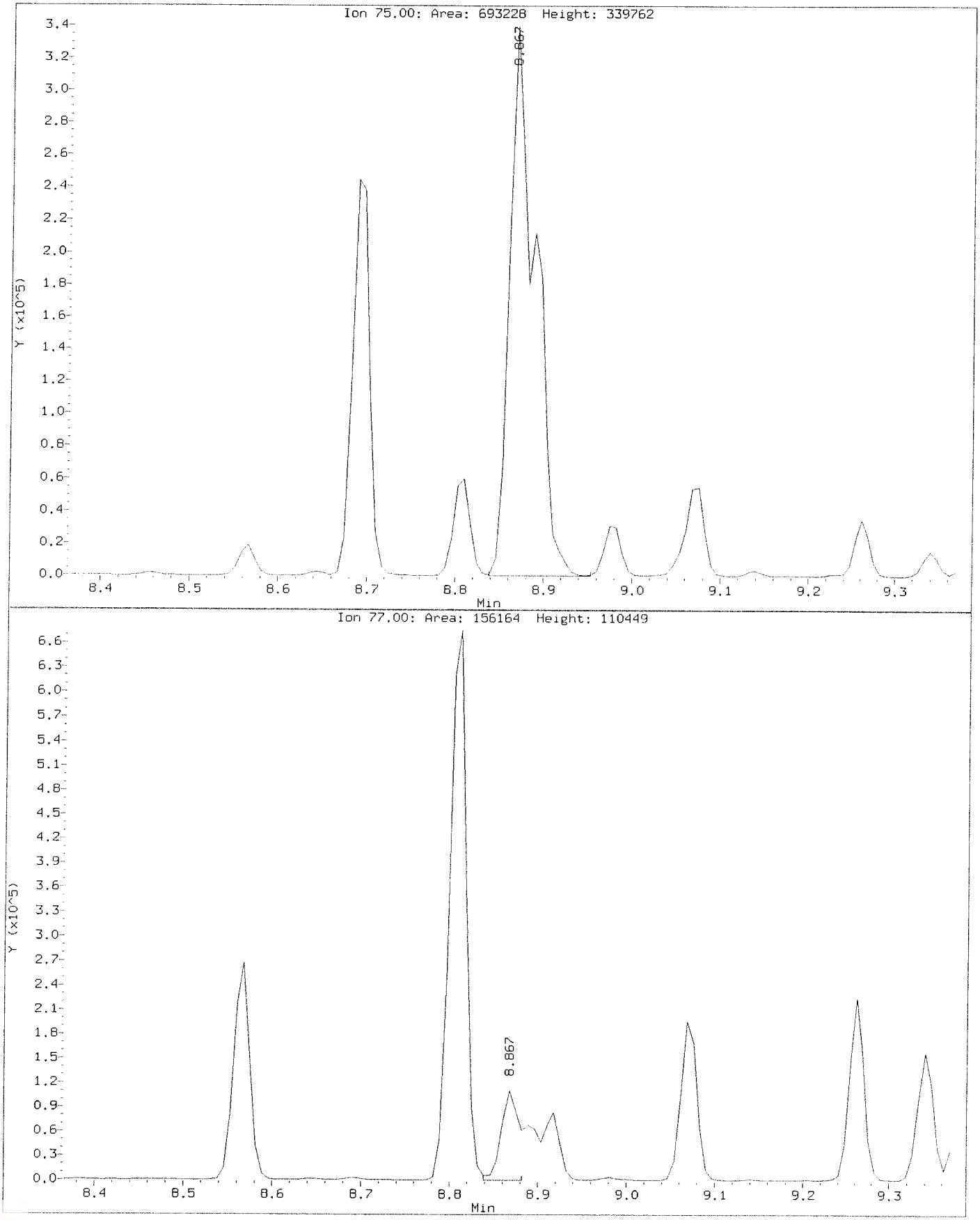
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111810.D
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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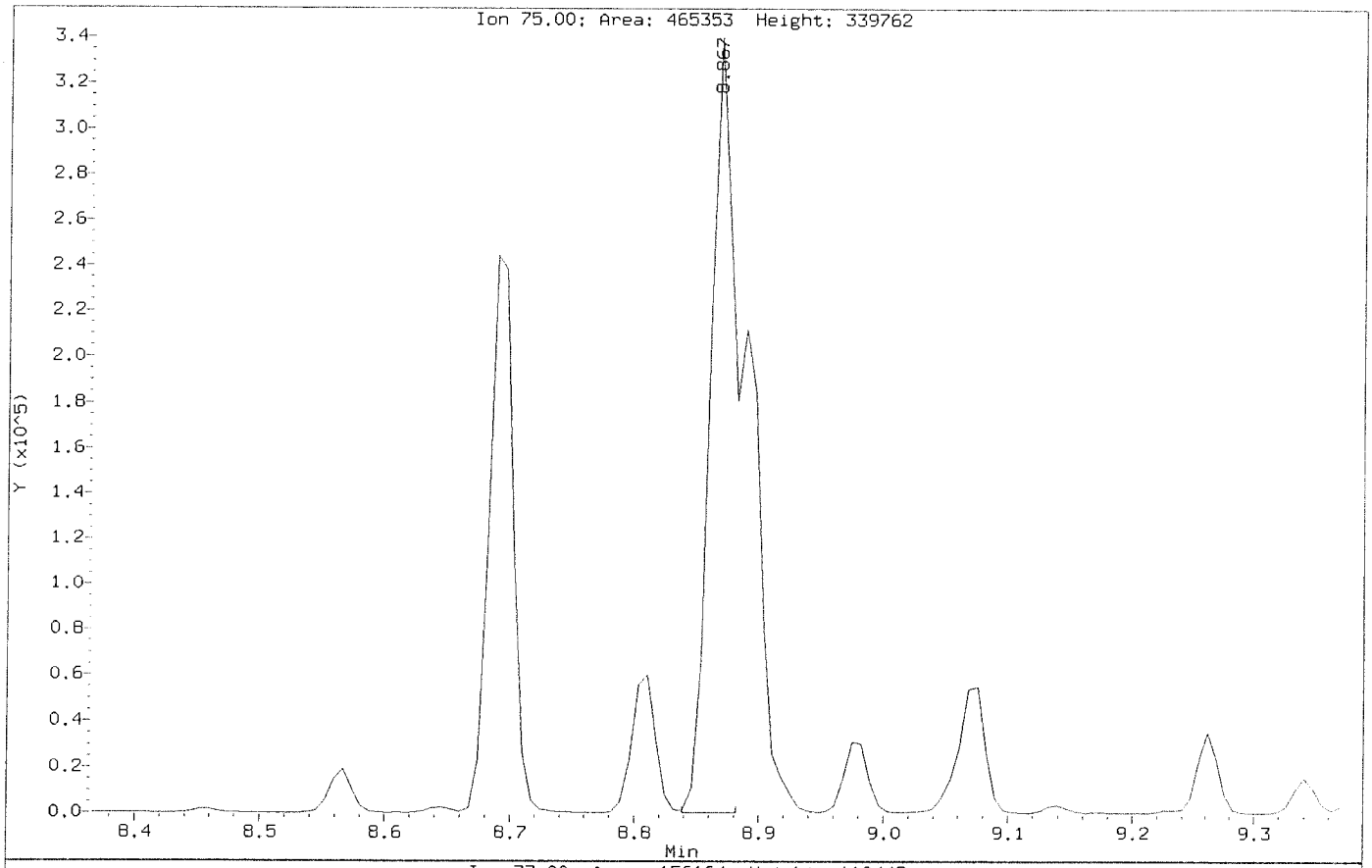
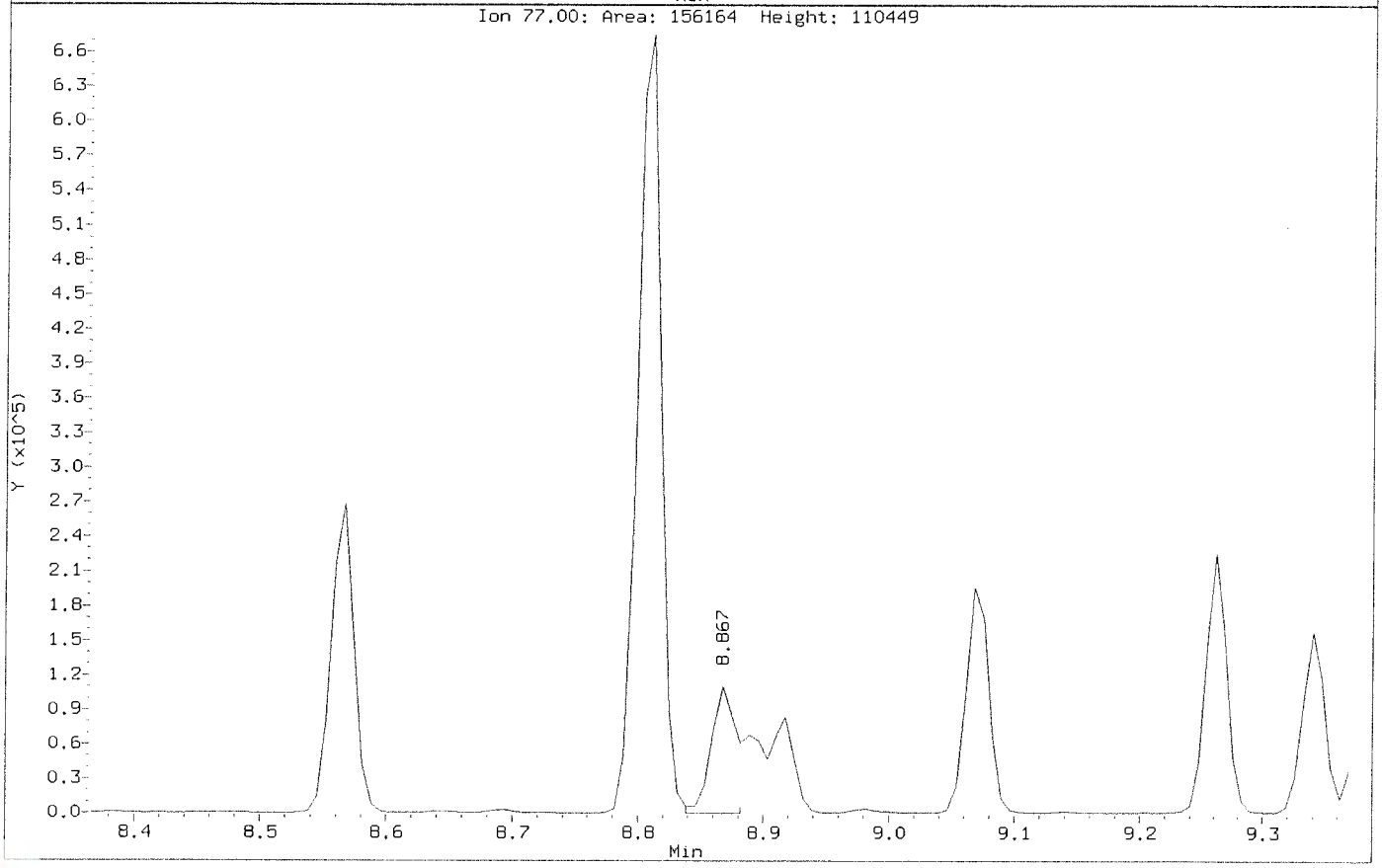
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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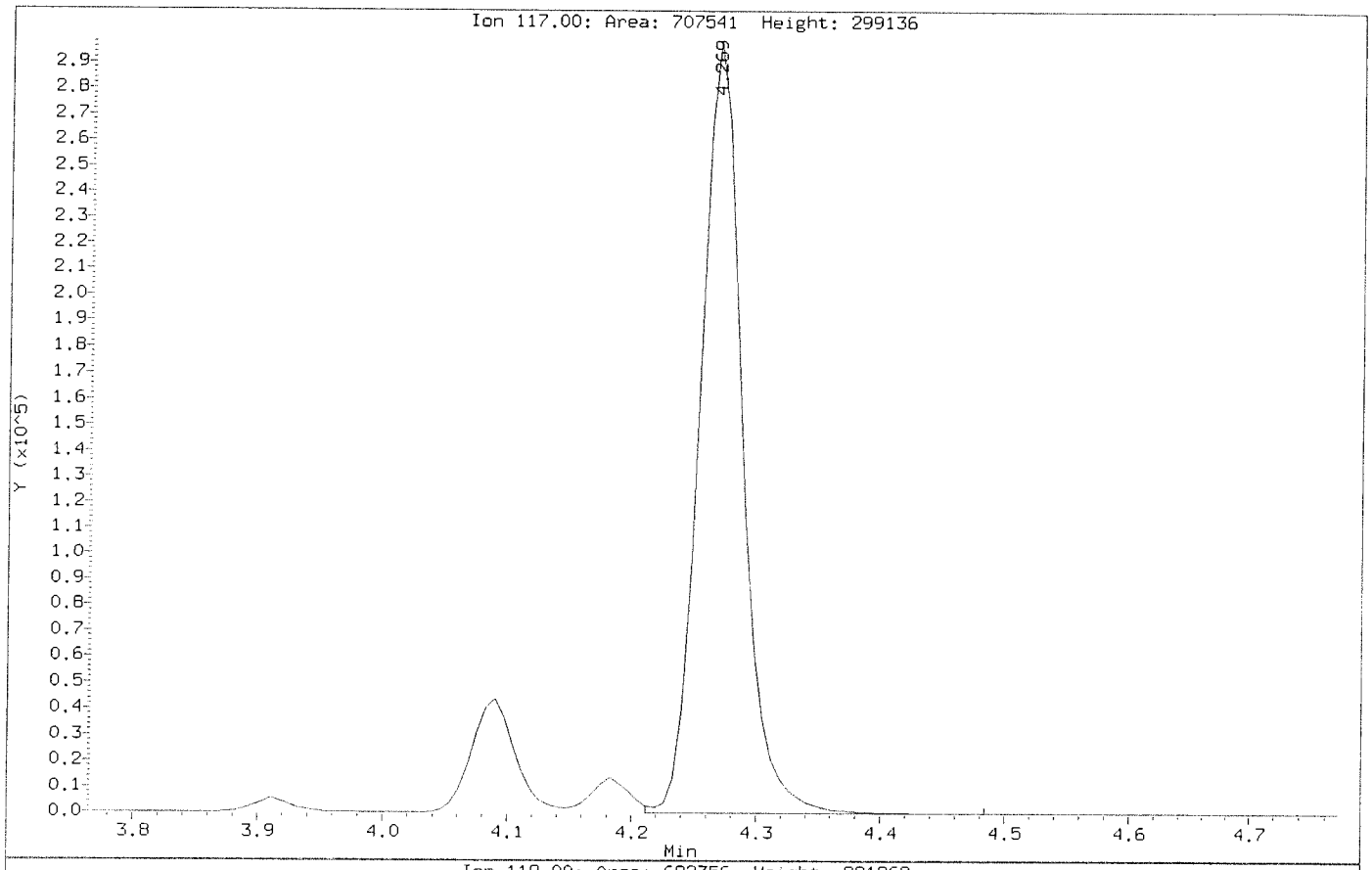
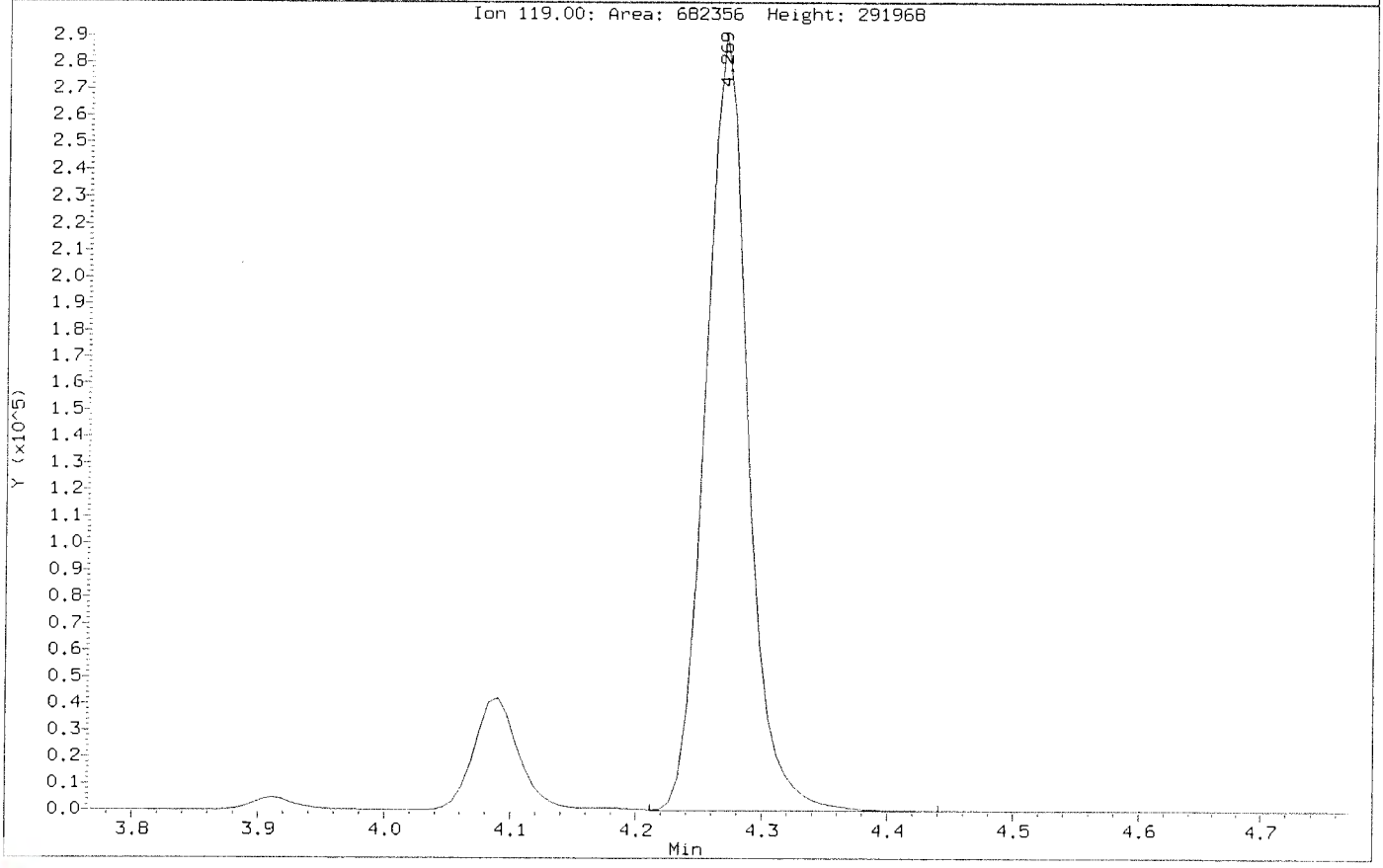
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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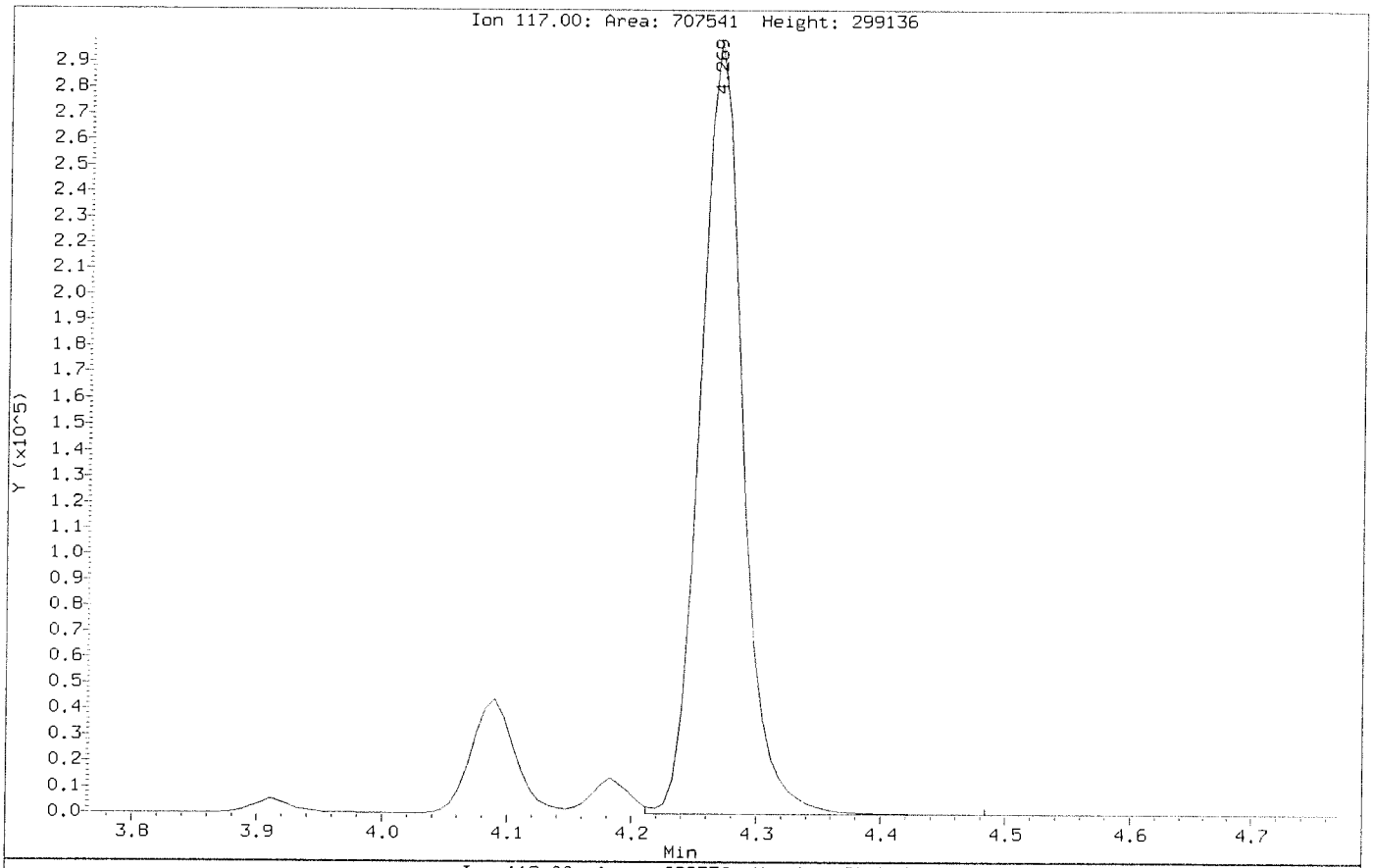
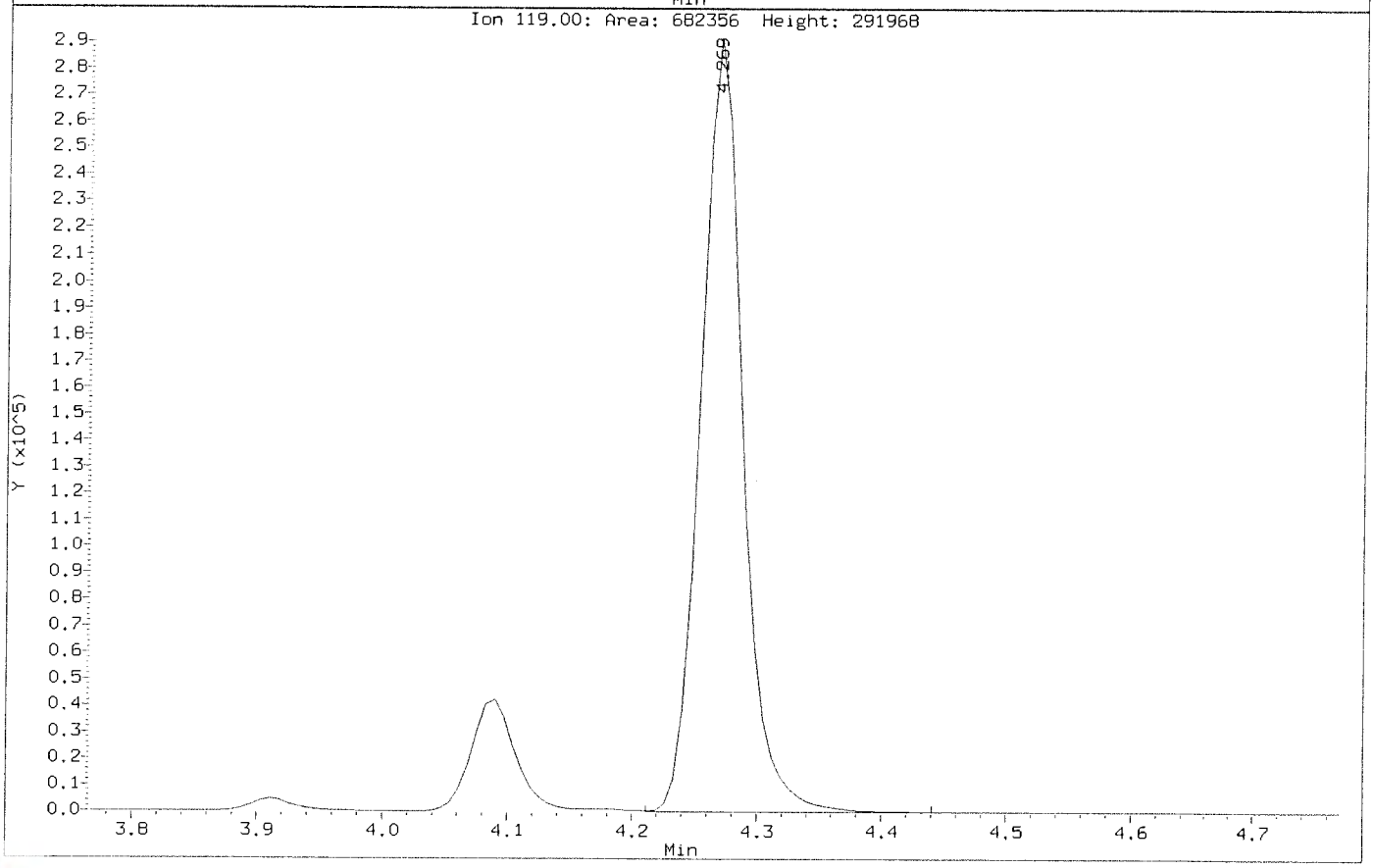
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 18-NOV-2019 17:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:22 Cal File: X111810.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

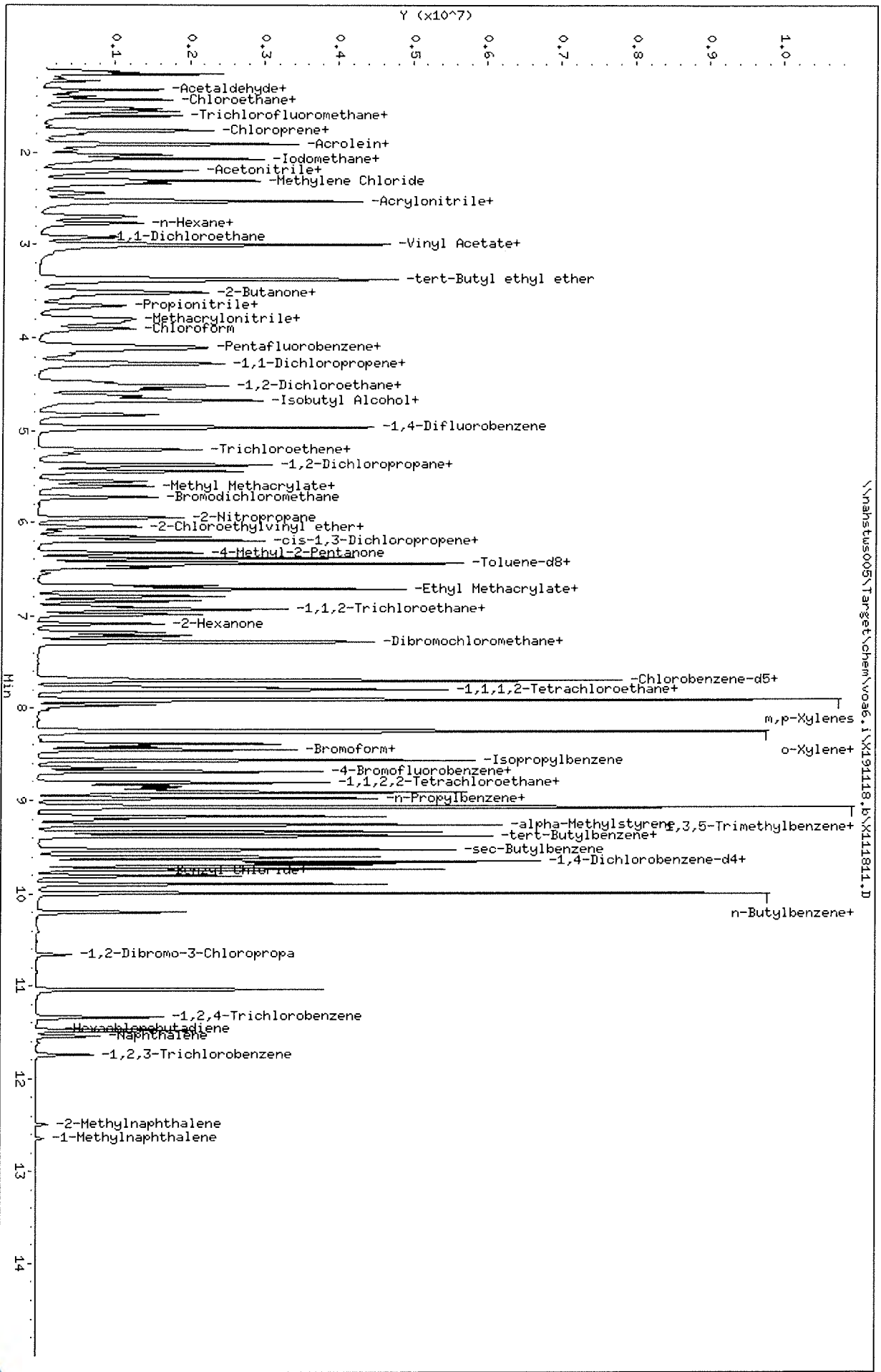
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	369517	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542684	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	493817	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	280605	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	713282	200.000	202.89(A)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	933083	200.000	201.81(A)
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	681300	200.000	201.64(A)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	2431773	200.000	186.90
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	731912	200.000	204.29(A)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	1030058	200.000	206.62(A)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	742176	200.000	188.09
	138 Freon TF	101	1.911	1.911	(0.457)	696977	200.000	216.65(A)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	511936	200.000	198.31
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	1089650	200.000	202.66(A)
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	641291	200.000	204.78(A)
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	849992	200.000	194.17
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	210414	200.000	200.64(A)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	609450	200.000	182.28(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	455609	200.000	192.75
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	2745695	200.000	206.21(A)
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	86827	200.000	200.34(A)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	693307	200.000	200.18(A)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	1508205	200.000	202.51(A)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	865099	200.000	200.81(A)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	629023	200.000	194.03
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	2668415	200.000	208.86(A)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1590132	200.000	197.60
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1018788	200.000	194.39
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1621999	200.000	198.35
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	972273	200.000	199.24
24	2-Butanone	43	3.580	3.580	(0.856)	437867	400.000	386.18(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	2019887	200.000	200.07(A)
52	2-Hexanone	43	7.090	7.090	(0.924)	806375	400.000	397.51(A)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	2525879	200.000	206.41(A)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2843849	200.000	207.12(A)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1178590	400.000	407.33(A)
10	Acetone	43	1.976	1.976	(0.473)	372223	400.000	400.25(A)
37	Benzene	78	4.512	4.512	(0.908)	2449808	200.000	197.34
74	Bromobenzene	156	8.809	8.809	(0.911)	958177	200.000	196.47
29	Bromochloromethane	128	3.795	3.795	(0.908)	376537	200.000	188.10
39	Bromodichloromethane	83	5.729	5.729	(1.153)	893499	200.000	198.95
66	Bromoform	173	8.415	8.415	(1.097)	602595	200.000	201.83(A)
6	Bromomethane	94	1.331	1.331	(0.318)	631015	200.000	177.48(M)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	3628864	400.000	425.96(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	954439	200.000	199.03(H)
59	Chlorobenzene	112	7.699	7.699	(1.004)	1940751	200.000	201.30(A)
7	Chloroethane	64	1.396	1.396	(0.334)	459143	200.000	197.35
28	Chloroform	83	3.910	3.910	(0.935)	1152726	200.000	192.62
3	Chloromethane	50	1.073	1.073	(0.257)	811388	200.000	201.60(A)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	721487	200.000	205.88(A)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1069987	200.000	202.17(A)
55	Dibromochloromethane	129	7.183	7.183	(0.937)	764698	200.000	203.91(A)
44	Dibromomethane	93	5.557	5.557	(1.118)	451528	200.000	196.82
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	695305	200.000	203.74(A)
61	Ethylbenzene	106	7.807	7.807	(1.018)	1011964	200.000	203.15(A)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	373475	200.000	191.48
67	Isopropylbenzene	105	8.566	8.566	(1.117)	3082382	200.000	208.91(A)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	2525960	400.000	420.22(A)
17	Methylene Chloride	84	2.305	2.305	(0.551)	644942	200.000	193.02
87	n-Butylbenzene	91	9.998	9.998	(1.034)	2465783	200.000	215.80(A)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	3540988	200.000	204.15(A)
92	Naphthalene	128	11.546	11.546	(1.194)	574298	200.000	189.43
63	o-Xylene	106	8.244	8.244	(1.075)	1231007	200.000	207.50(A)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	3131997	200.000	207.86(A)
64	Styrene	104	8.265	8.265	(1.078)	2199171	200.000	213.18(A)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	2240944	200.000	204.85(A)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	660581	200.000	190.38
50	Toluene	91	6.453	6.453	(0.841)	2834294	200.000	202.39(A)
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	630988	200.000	207.54(A)
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1000892	200.000	207.50(A)
38	Trichloroethene	130	5.206	5.206	(1.048)	754871	200.000	198.90
8	Trichlorofluoromethane	101	1.553	1.553	(0.371)	1241567	200.000	216.59(A)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	773023	200.000	205.26(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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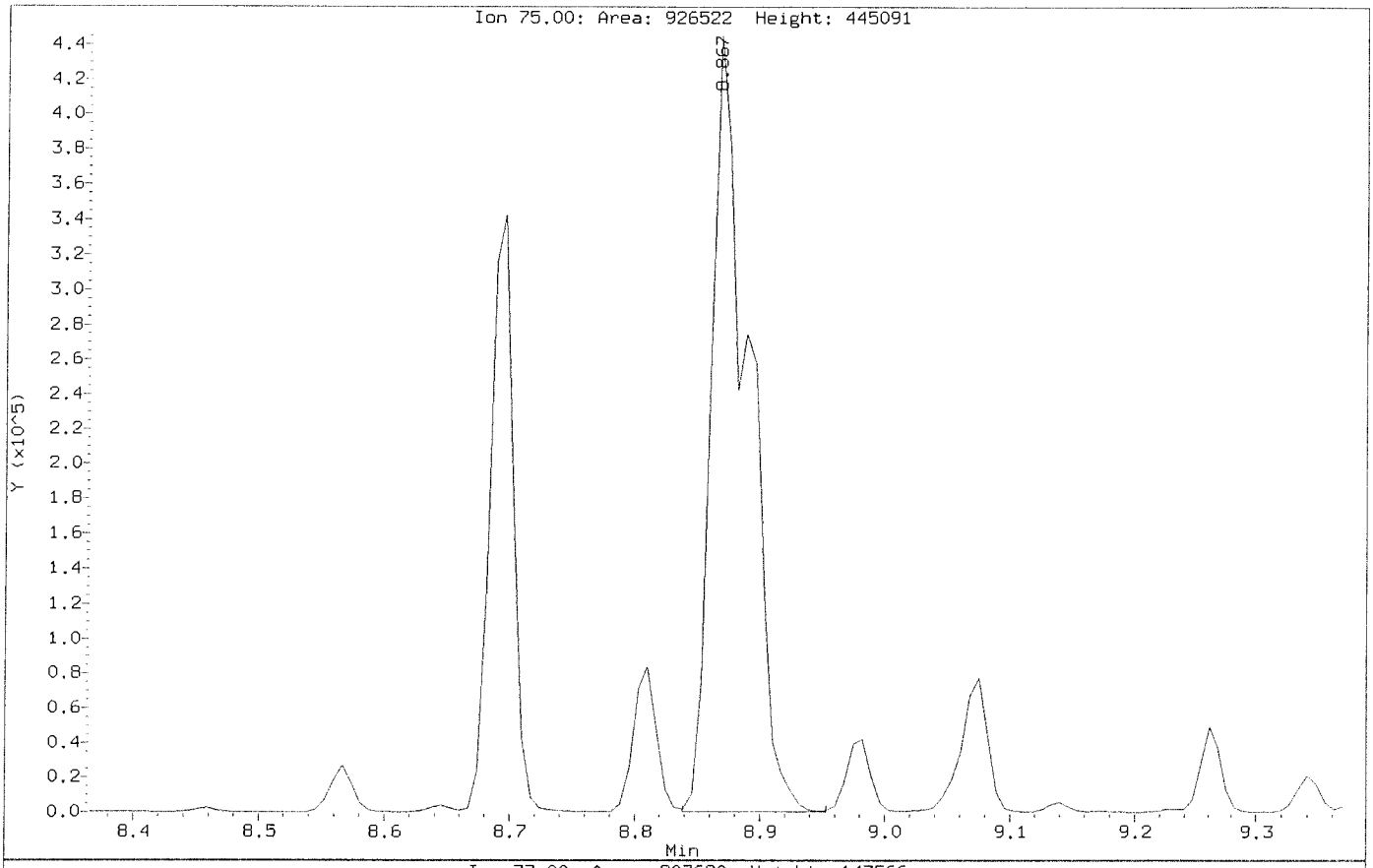
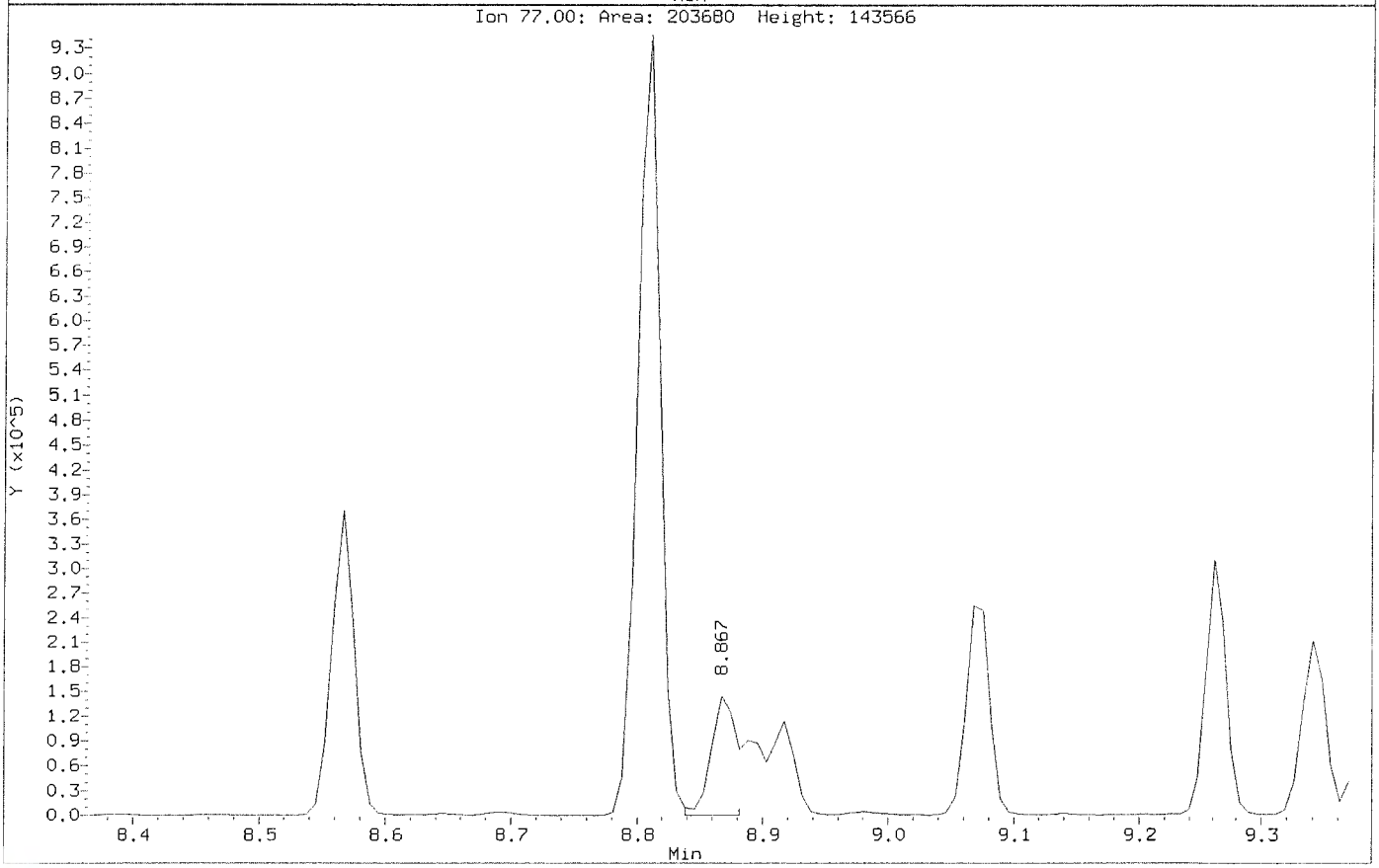
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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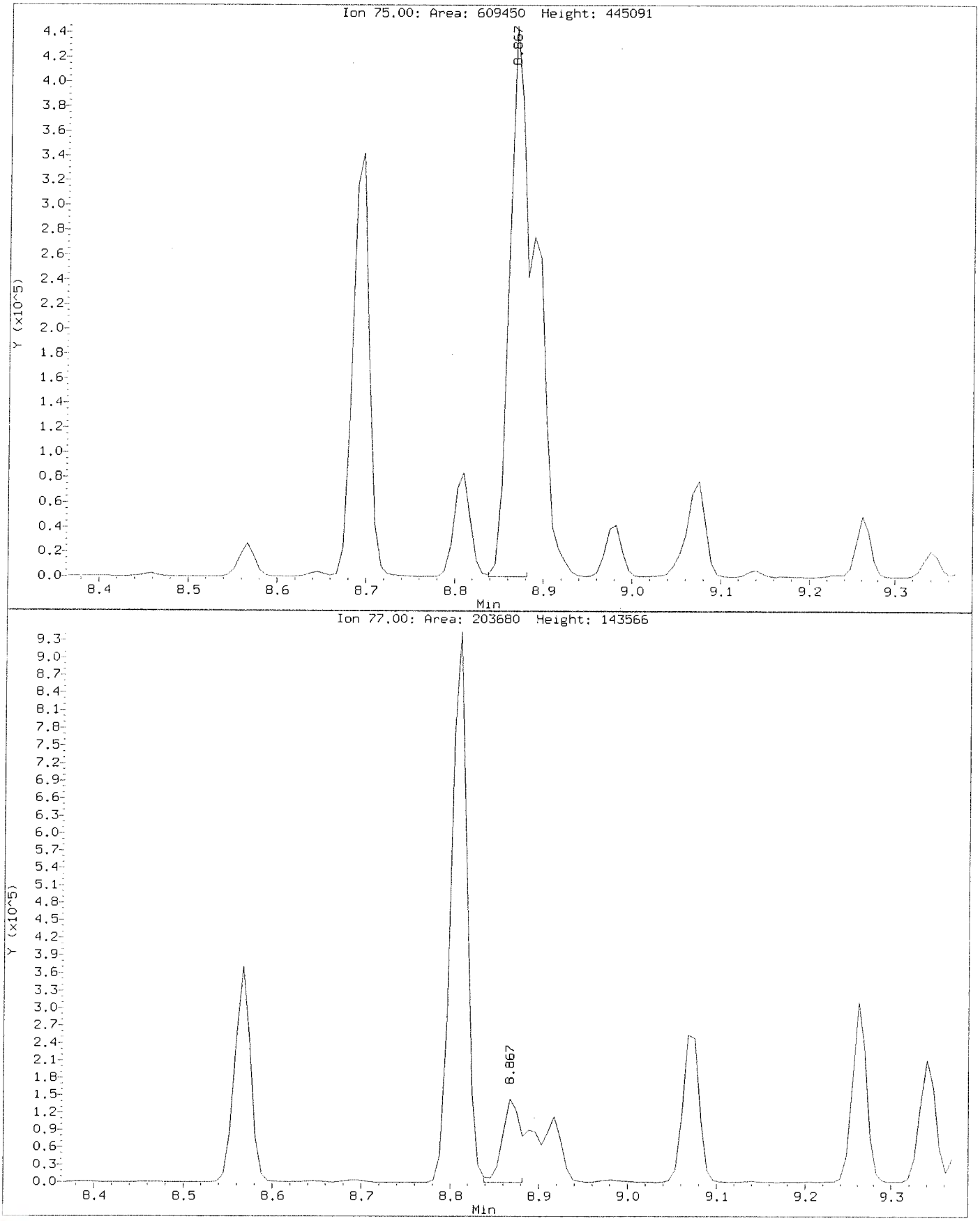
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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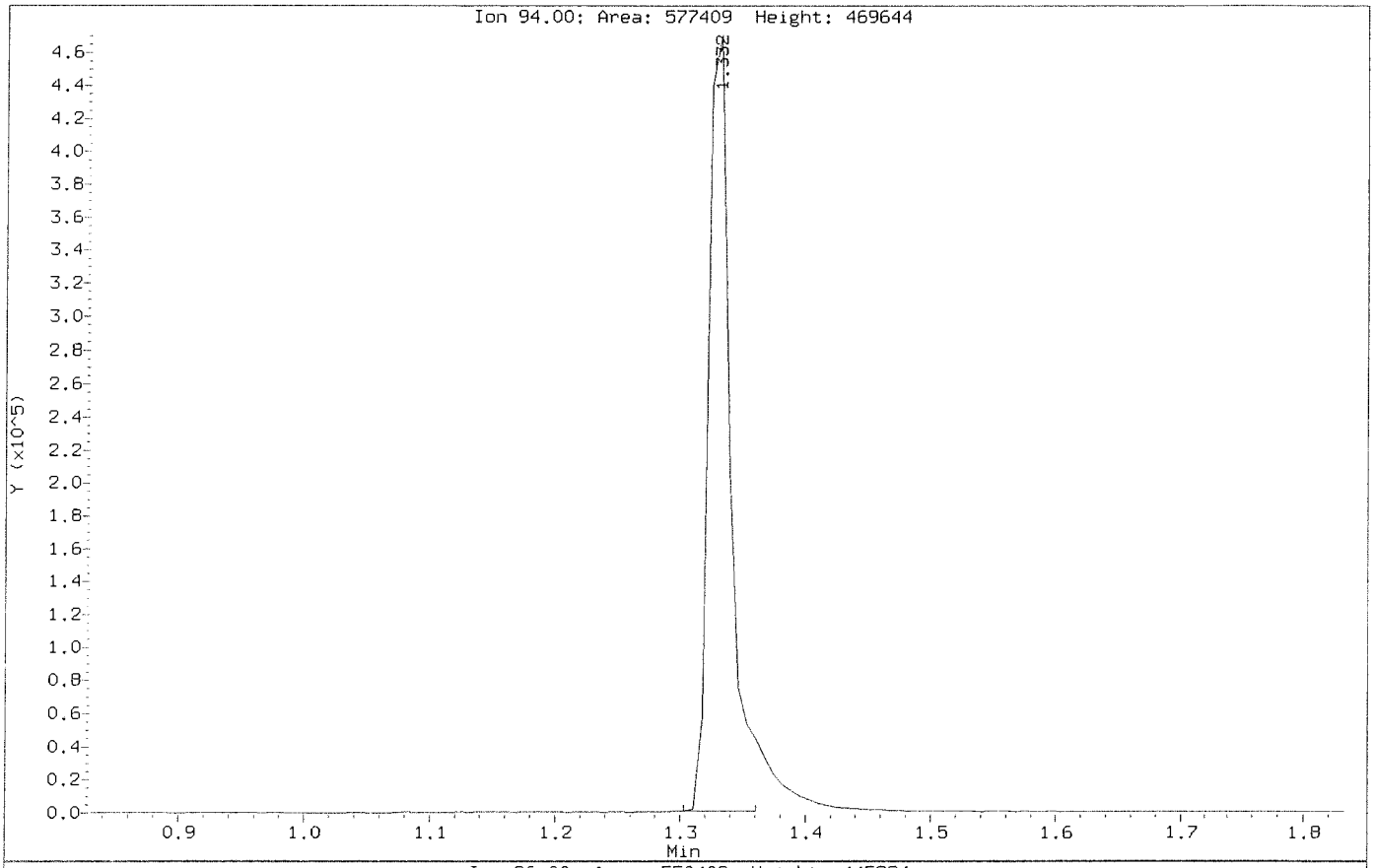
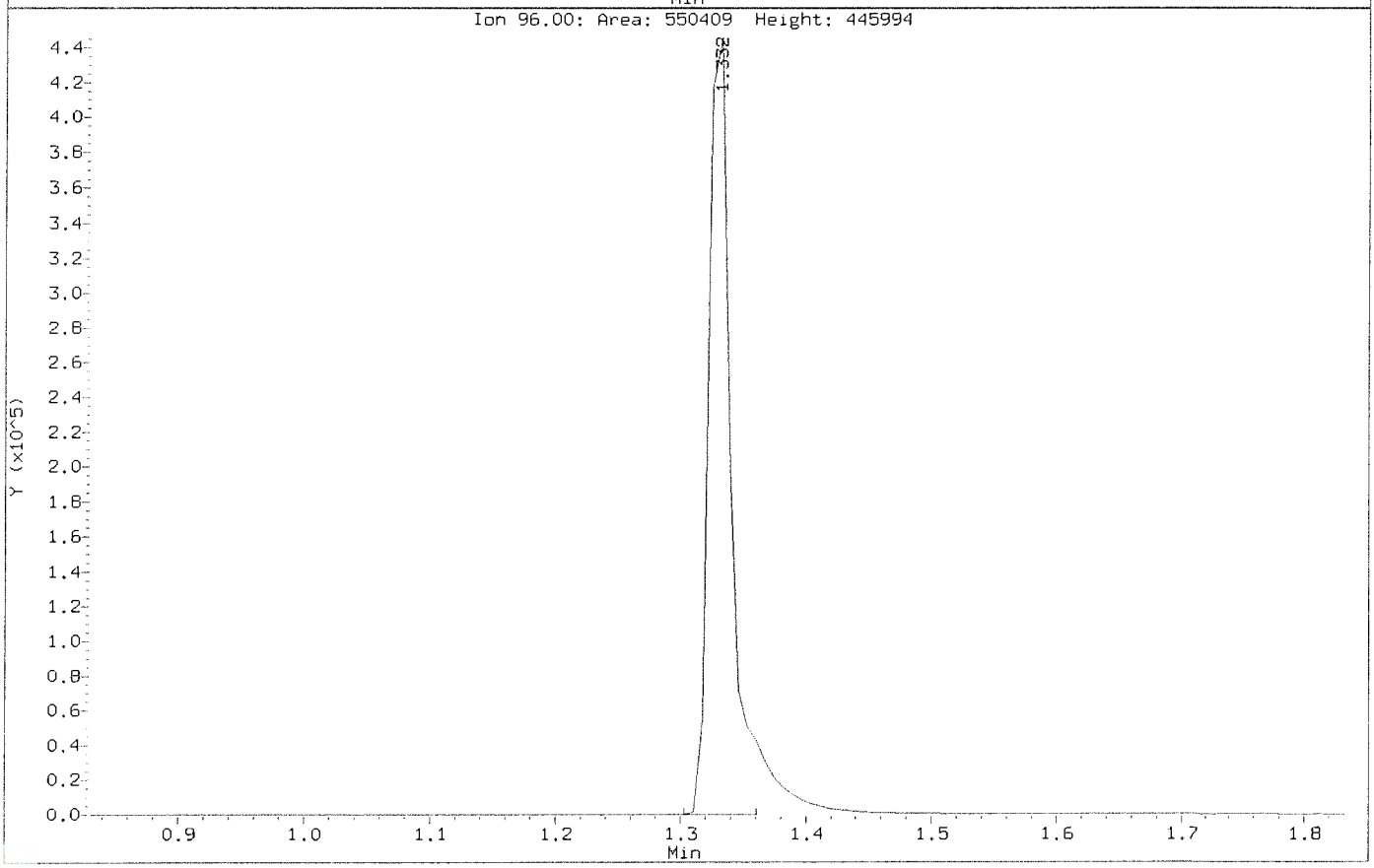
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9





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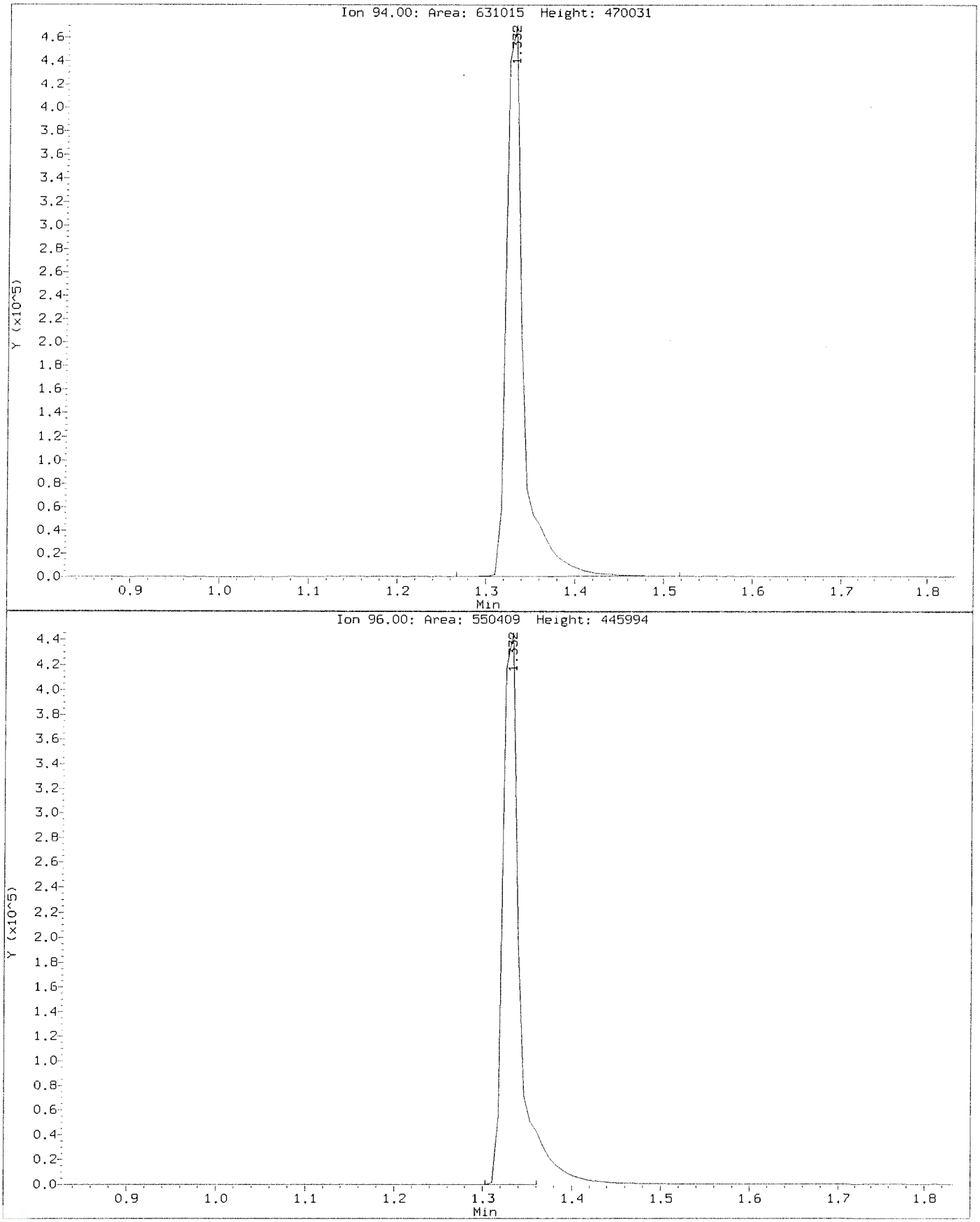
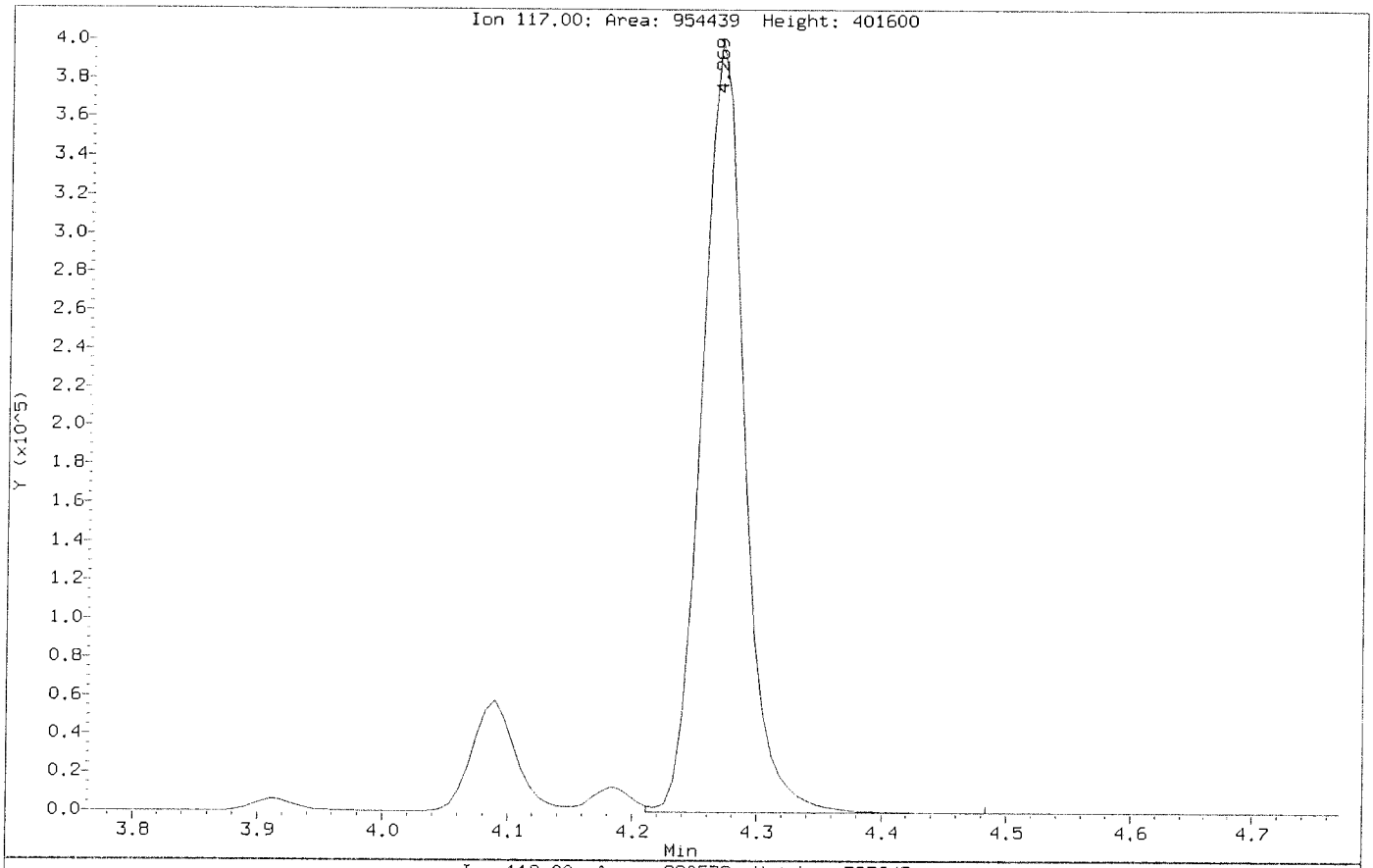
Instrument: voa6.i
Client Sample ID: VSTD200

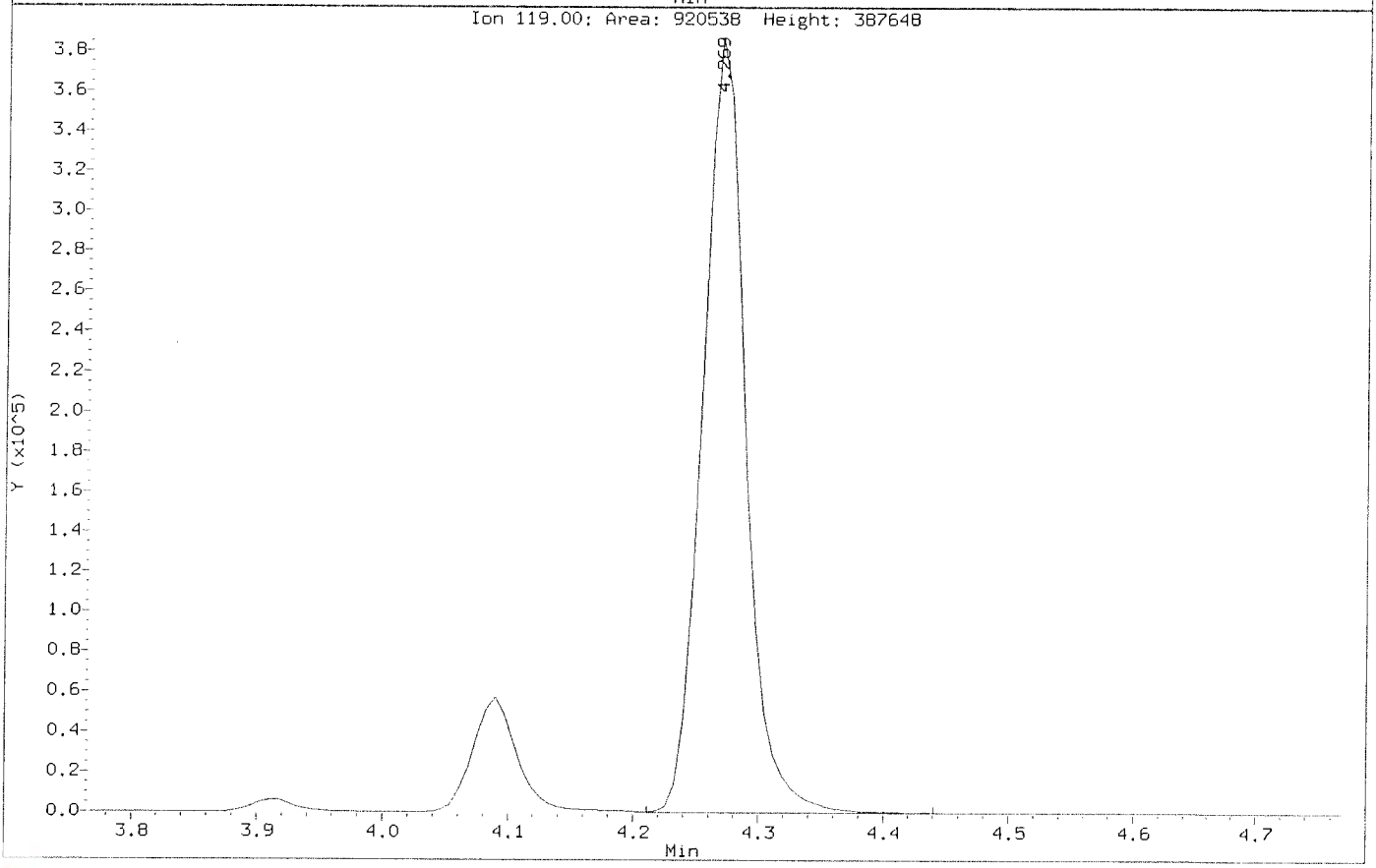
Compound: Bromomethane
CAS Number: 74-83-9



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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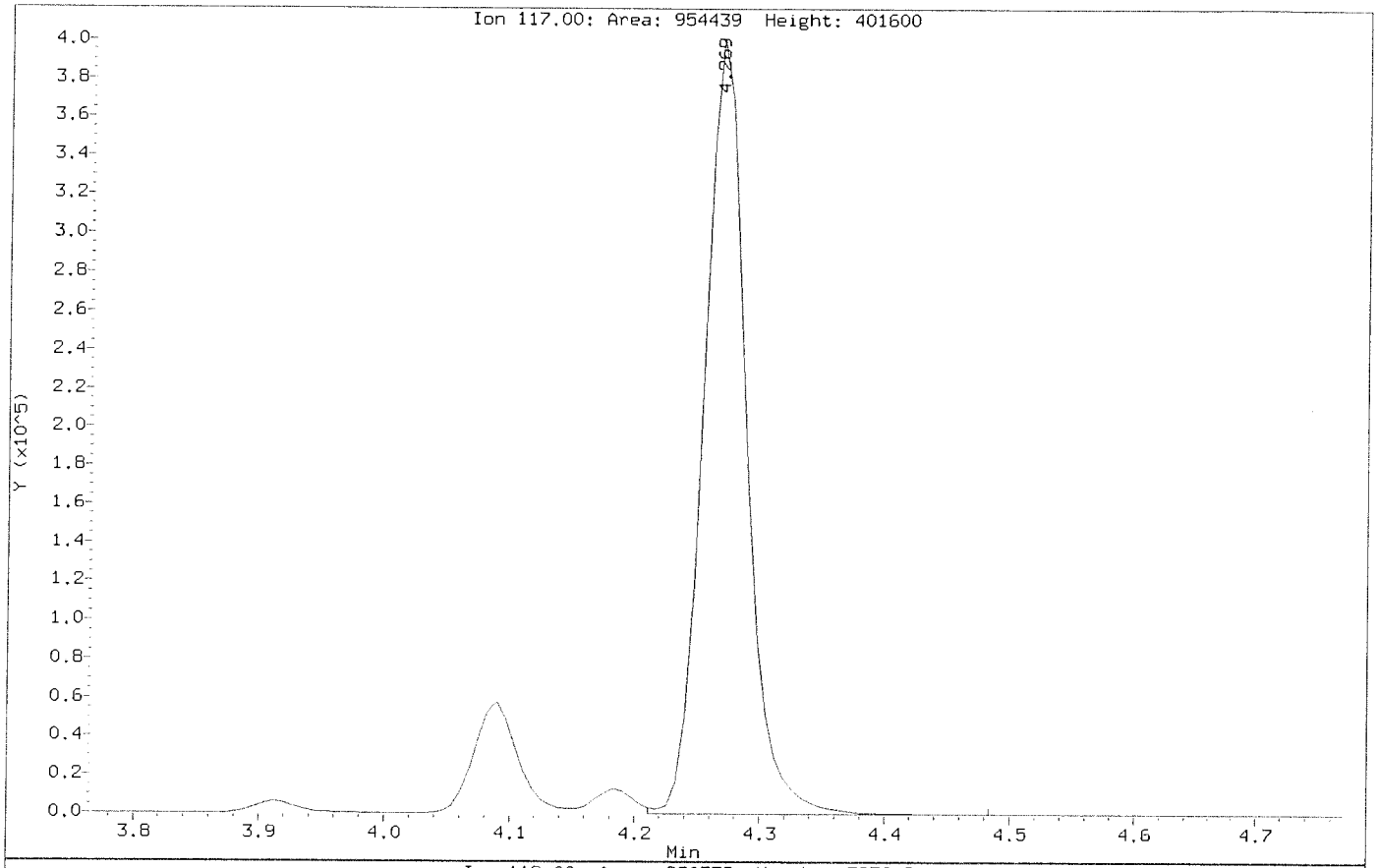
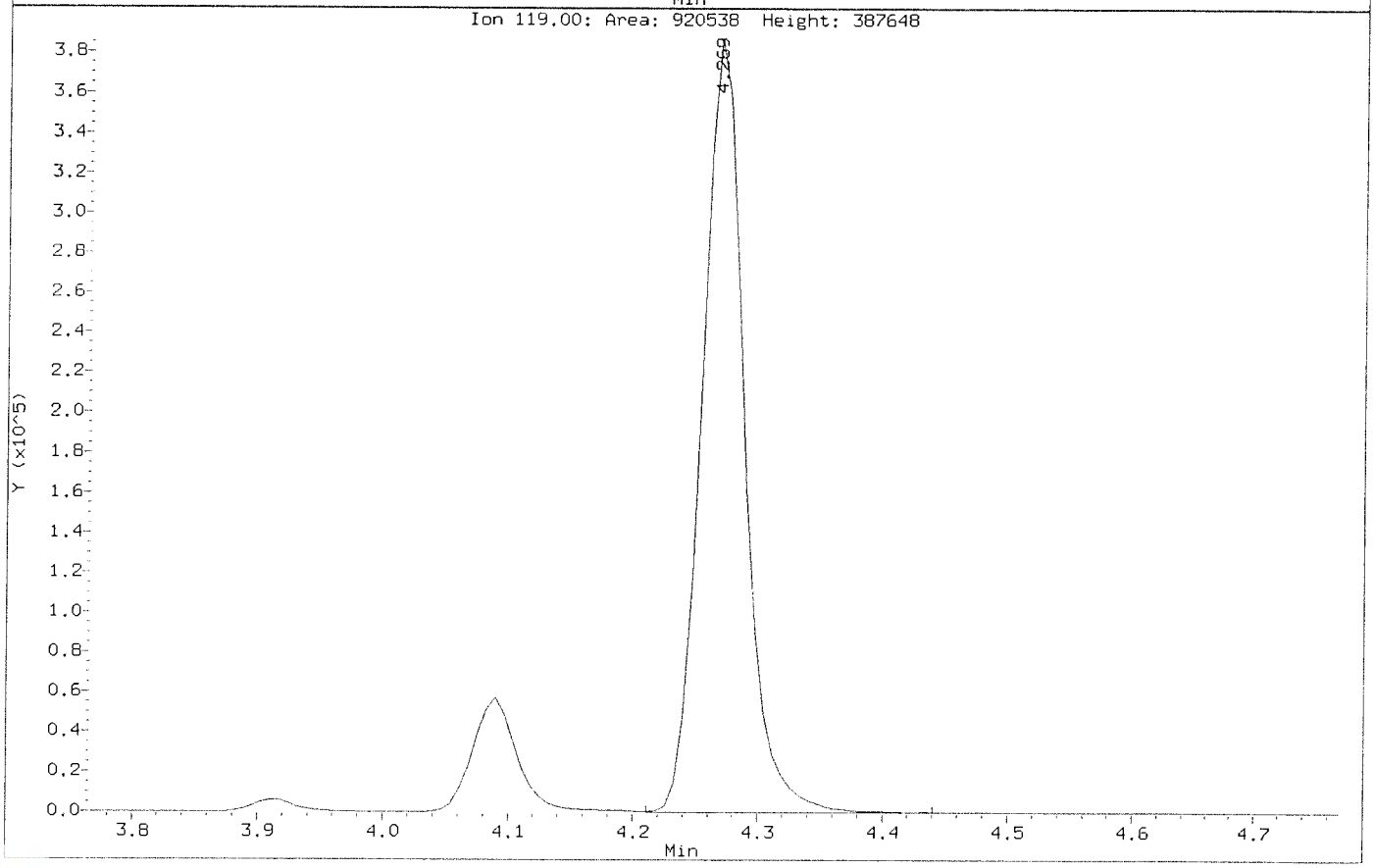
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 18-NOV-2019 18:58
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

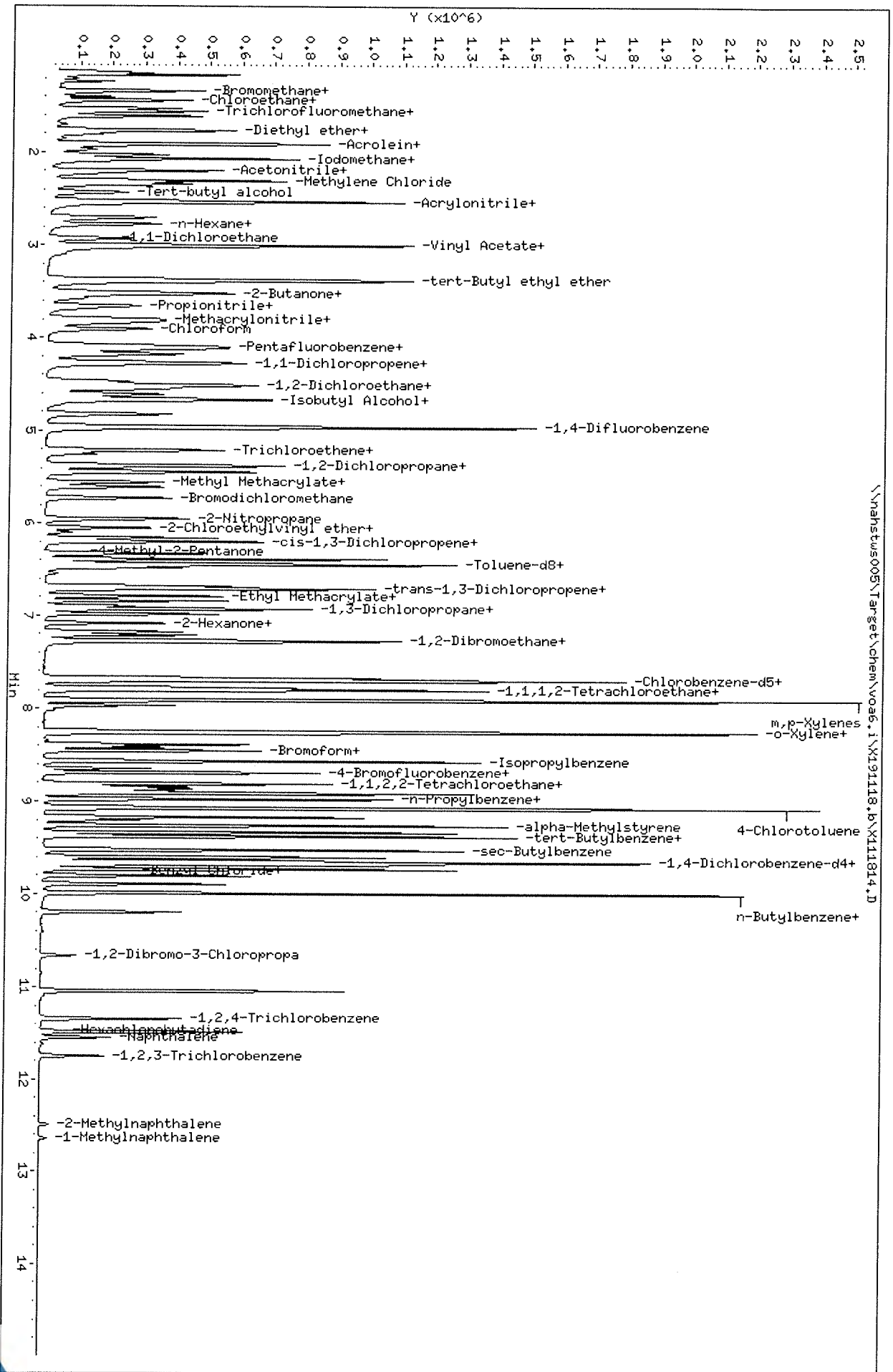
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365284	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	526230	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	487659	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	262170	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	177715	51.6875	51.68
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	217553	47.9674	47.96
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	172534	51.9307	51.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	603087	46.9372	46.93
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181751	51.3728	51.37
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	259914	52.7430	52.74
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183157	49.6822	49.68
138 Freon TF	101	1.919	1.911	(0.459)	177448	55.7980	55.79
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	125473	49.2205	49.22
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	273555	51.4692	51.46
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	164159	53.0287	53.02
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	211745	49.8829	49.88
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	56746	58.2884	58.28
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	154338	49.4088	49.40(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	122229	55.3465	55.34
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	627033	50.4058	50.40
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	20914	51.3981	51.39
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	171012	50.0005	50.00

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	343886	49.4226	49.42
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	214666	51.3880	51.38
42 1,2-Dichloropropane	63	5.436	5.443	(1.094)	155619	49.5052	49.50
75 1,3,5-Trimethylbenzene	105	9.067	9.074	(0.938)	621241	52.0454	52.04
83 1,3-Dichlorobenzene	146	9.604	9.612	(0.993)	380305	50.5823	50.58
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	254579	49.1895	49.18
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	379206	49.6335	49.63
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	252567	52.3575	52.35
24 2-Butanone	43	3.573	3.580	(0.854)	117980	105.260	105.25
76 2-Chlorotoluene	91	8.974	8.981	(0.928)	475545	50.4166	50.41
52 2-Hexanone	43	7.090	7.090	(0.924)	192493	96.0902	96.09
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	578291	50.5814	50.58
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	664137	51.7722	51.77
45 4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	279109	97.6823	97.68
10 Acetone	43	1.969	1.976	(0.471)	104925	111.376	111.37
37 Benzene	78	4.512	4.512	(0.908)	612198	50.8565	50.85
74 Bromobenzene	156	8.809	8.809	(0.911)	233126	51.1647	51.16
29 Bromochloromethane	128	3.795	3.795	(0.908)	101596	51.3407	51.34
39 Bromodichloromethane	83	5.729	5.729	(1.153)	222106	51.0024	51.00
66 Bromoform	173	8.415	8.415	(1.097)	142491	49.0895	49.08
6 Bromomethane	94	1.338	1.331	(0.320)	208417	57.7314	57.73
19 Carbon Disulfide	76	2.069	2.069	(0.495)	924383	109.763	109.76
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	237498	51.0754	51.07
59 Chlorobenzene	112	7.699	7.699	(1.004)	468418	49.2009	49.20
7 Chloroethane	64	1.403	1.396	(0.336)	118785	51.6484	51.64
28 Chloroform	83	3.910	3.910	(0.935)	292027	49.3641	49.36
3 Chloromethane	50	1.073	1.073	(0.257)	200113	50.4397	50.43
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	184183	53.1686	53.16
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	267228	52.0716	52.07
55 Dibromochloromethane	129	7.176	7.183	(0.936)	184910	49.9303	49.93
44 Dibromomethane	93	5.557	5.557	(1.118)	112351	50.5059	50.50
2 Dichlorodifluoromethane	85	0.973	0.966	(0.233)	176572	52.9949	52.99
61 Ethylbenzene	106	7.799	7.807	(1.017)	247055	50.2234	50.22
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	113053	61.6918	61.69(R)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	730633	50.1455	50.14
62 m,p-Xylenes	106	7.907	7.907	(1.031)	603641	101.692	101.69
17 Methylene Chloride	84	2.305	2.305	(0.551)	164000	49.6528	49.65
87 n-Butylbenzene	91	9.998	9.998	(1.034)	555875	52.0702	52.07
73 n-Propylbenzene	91	8.917	8.917	(0.922)	841108	51.9034	51.90
92 Naphthalene	128	11.546	11.546	(1.194)	144573	51.0408	51.04
63 o-Xylene	106	8.243	8.244	(1.075)	291303	49.7239	49.72
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	728868	51.7743	51.77
64 Styrene	104	8.258	8.265	(1.077)	512981	50.3548	50.35
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	525095	51.3776	51.37
56 Tetrachloroethene	164	6.933	6.933	(0.904)	169030	49.3314	49.33
50 Toluene	91	6.446	6.453	(0.840)	685240	49.5512	49.55
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	157233	52.3156	52.31
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	242451	51.8354	51.83
38 Trichloroethene	130	5.206	5.206	(1.048)	190582	51.7868	51.78
8 Trichlorofluoromethane	101	1.560	1.553	(0.373)	314898	55.5726	55.57
5 Vinyl Chloride	62	1.138	1.138	(0.272)	193522	51.9818	51.98

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.



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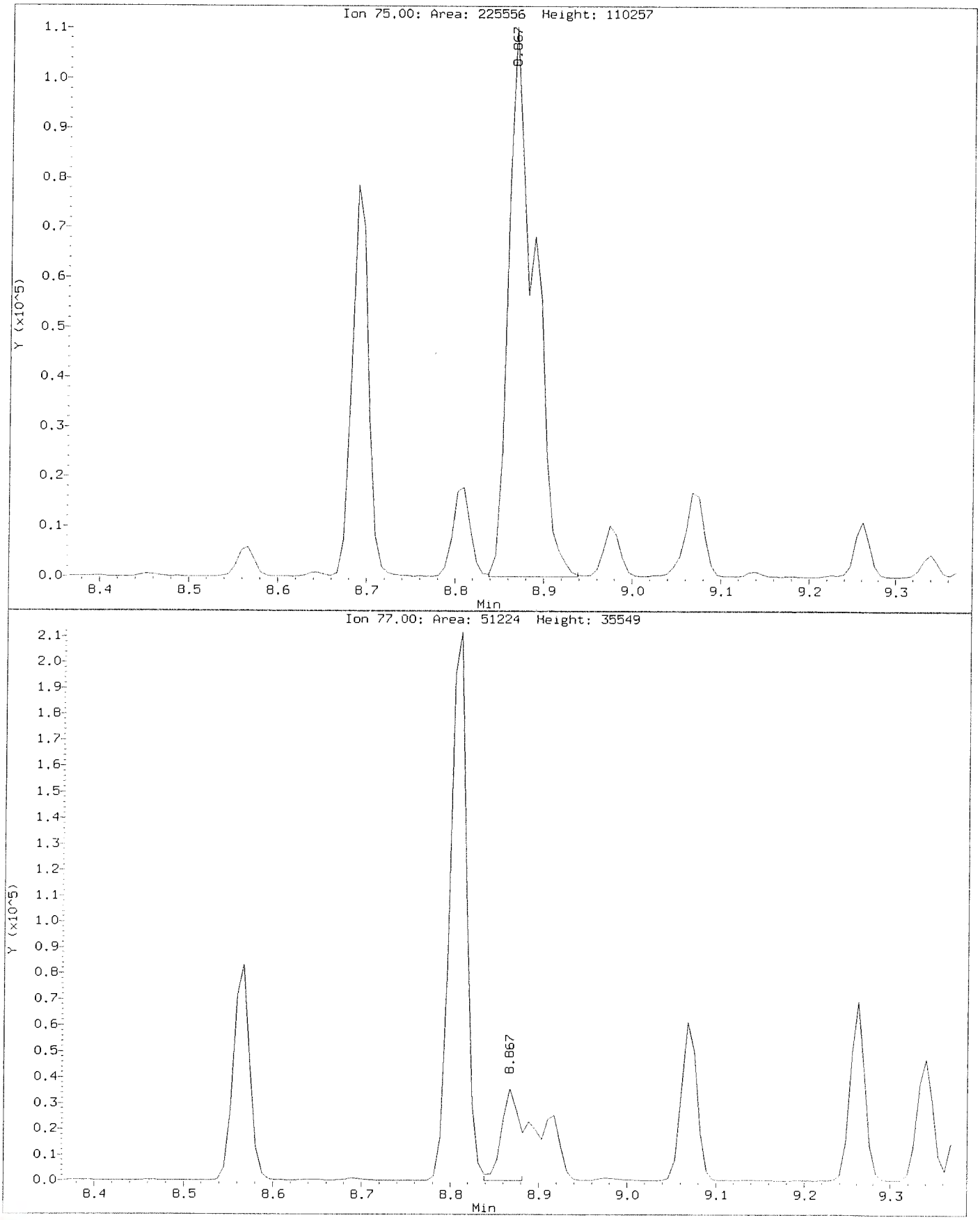
Date : 18-NOV-2019 18:58
Client ID: ICV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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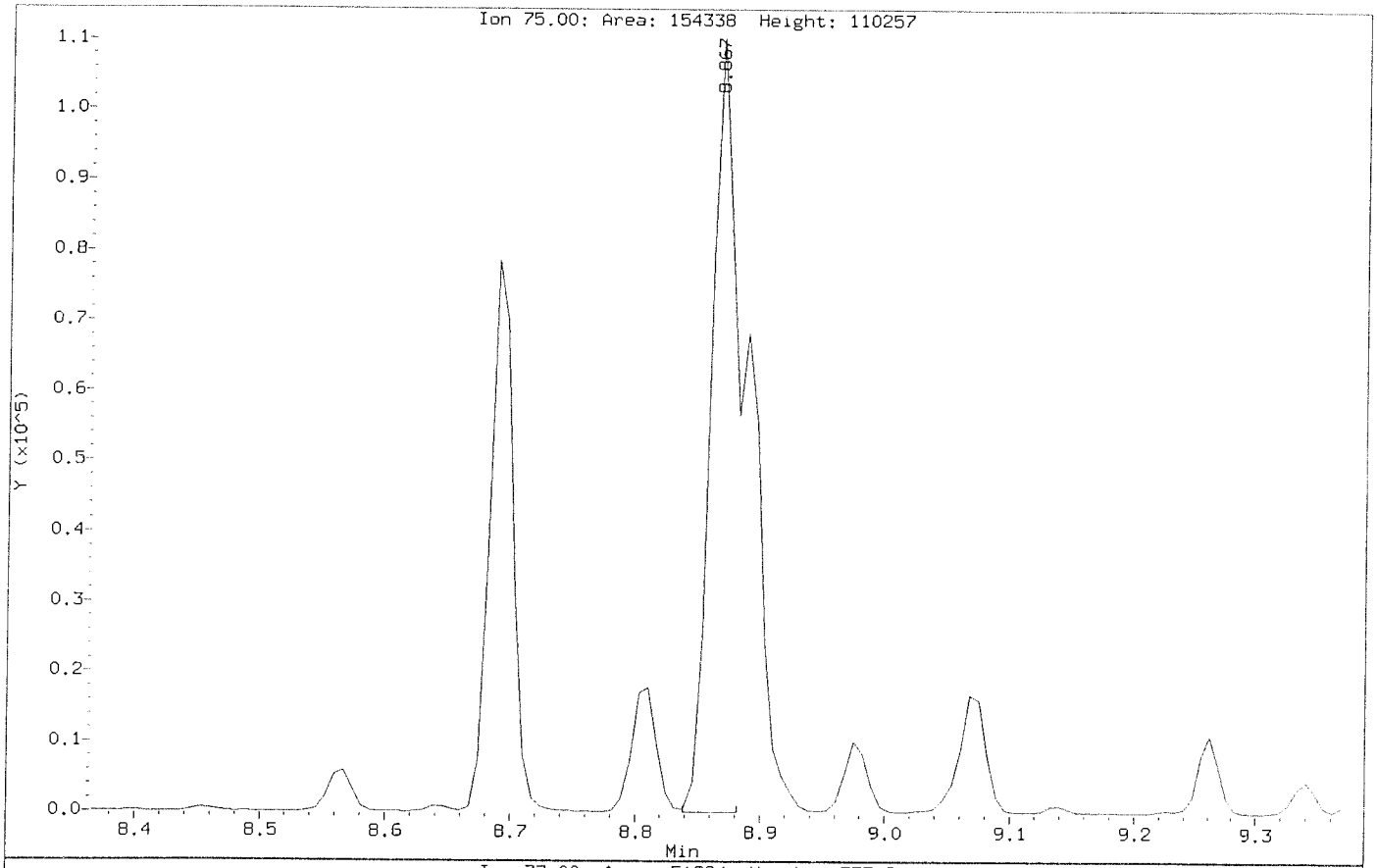
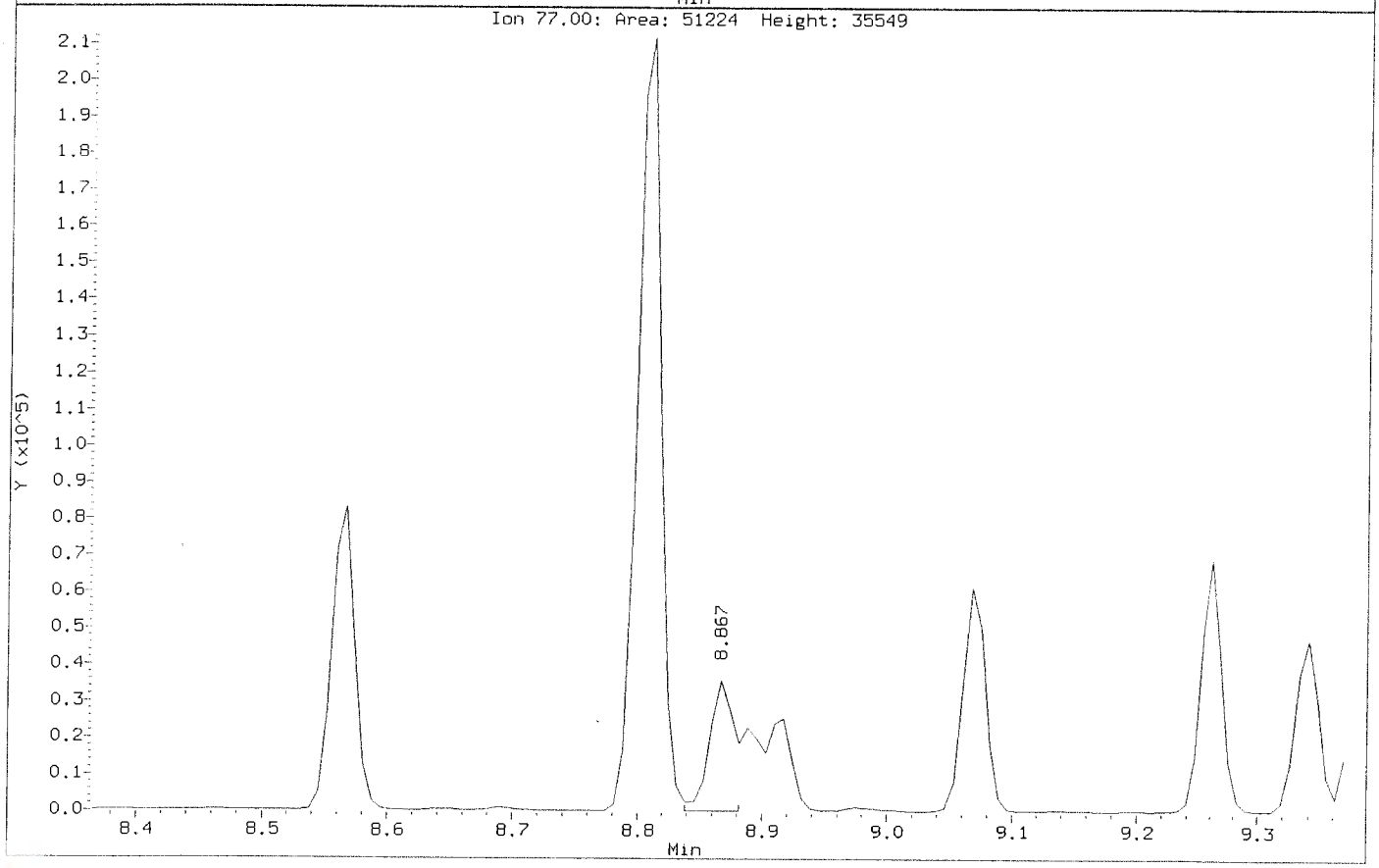
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





MSVOA06 -Logbook

Batch: 38384 **Analyst:** Presenta Cabascango

Date: 11-24-2019 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	11-24-2019 12:12 pm	1.00	50 mL	50 mL	X112401.D	Liquid	Y	na
	Auto find/ purged									
2	CCV	CCV	11-24-2019 12:36 pm	1.00	50 mL	50 mL	X112402a.D	Liquid	Y	na
	10 uL cal std/50 mL DI/not used									
3	CCV	CCV	11-24-2019 01:00 pm	1.00	50 mL	50 mL	X112403.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
4	CCB	SAMP	11-24-2019 01:24 pm	1.00	50 mL	50 mL	X112404.D	Liquid	Y	na
5	VLCSW-191124	LCS	11-24-2019 01:48 pm	1.00	50 mL	50 mL	X112405.D	Liquid	Y	na
	4.0 uL cal std/50 mL DI									
6	BLK	SAMP	11-24-2019 02:12 pm	1.00	50 mL	50 mL	X112406.D	Liquid	Y	na
7	VBLKW-191124	MBLK	11-24-2019 02:36 pm	1.00	50 mL	50 mL	X112407.D	Liquid	Y	na
8	HS19111153-09	SAMP	11-24-2019 03:00 pm	1.00	50 mL	50 mL	X112408.D	Liquid	Y	>2
9	HS19111239-07	SAMP	11-24-2019 03:24 pm	1.00	50 mL	50 mL	X112409.D	Liquid	Y	>2
10	HS19111239-05	SAMP	11-24-2019 03:48 pm	1.00	50 mL	50 mL	X112410.D	Liquid	Y	>2
11	HS19111239-05MS	MS	11-24-2019 04:13 pm	1.00	50 mL	50 mL	X112411.D	Liquid	Y	>2
	3.5 uL cal std/40 mL samp									
12	HS19111239-05MSD	MSD	11-24-2019 04:37 pm	1.00	50 mL	50 mL	X112412.D	Liquid	Y	>2
	3.5 uL cal std/40 mL samp									
13	HS19111040-15	SAMP	11-24-2019 05:01 pm	1.00	50 mL	50 mL	X112413.D	Liquid	Y	>2
14	HS19111153-01	SAMP	11-24-2019 05:25 pm	1.00	50 mL	50 mL	X112414.D	Liquid	Y	>2
15	HS19111153-02	SAMP	11-24-2019 05:49 pm	1.00	50 mL	50 mL	X112415.D	Liquid	Y	>2
16	HS19111153-03	SAMP	11-24-2019 06:13 pm	1.00	50 mL	50 mL	X112416.D	Liquid	Y	>2
17	HS19111153-04	SAMP	11-24-2019 06:37 pm	1.00	50 mL	50 mL	X112417.D	Liquid	Y	>2
18	HS19111153-05	SAMP	11-24-2019 07:01 pm	1.00	50 mL	50 mL	X112418.D	Liquid	Y	>2
19	HS19111153-06	SAMP	11-24-2019 07:25 pm	1.00	50 mL	50 mL	X112419.D	Liquid	Y	>2
20	HS19111153-07	SAMP	11-24-2019 07:49 pm	1.00	50 mL	50 mL	X112420.D	Liquid	Y	>2
21	HS19111153-08	SAMP	11-24-2019 08:13 pm	1.00	50 mL	50 mL	X112421.D	Liquid	Y	>2
22	HS19111239-01	SAMP	11-24-2019 08:37 pm	1.00	50 mL	50 mL	X112422.D	Liquid	Y	>2
23	HS19111239-02	SAMP	11-24-2019 09:01 pm	1.00	50 mL	50 mL	X112423.D	Liquid	Y	>2
24	HS19111239-03	SAMP	11-24-2019 09:25 pm	1.00	50 mL	50 mL	X112424.D	Liquid	Y	>2
25	HS19111239-04	SAMP	11-24-2019 09:49 pm	1.00	50 mL	50 mL	X112425.D	Liquid	Y	>2
26	HS19111239-06	SAMP	11-24-2019 10:13 pm	1.00	50 mL	50 mL	X112426.D	Liquid	Y	>2
27	CCV-END	CCV	11-24-2019 10:37 pm	1.00	50 mL	50 mL	X112427.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
28	HS19111042-15	SAMP	11-24-2019 11:01 pm	1.00	50 mL	50 mL	X112428.D	Liquid	Y	>2
29	HS19111193-01	SAMP	11-24-2019 11:25 pm	1.00	50 mL	50 mL	X112429.D	Liquid	Y	>2
30	HS19111193-04	SAMP	11-24-2019 11:50 pm	1.00	50 mL	50 mL	X112430.D	Liquid	Y	>2
31	BFB	TUNE	11-25-2019 12:13 am	1.00	50 mL	50 mL	Y112401.D	Liquid	Y	na
	Auto find/ purged									
32	CCV	CCV	11-25-2019 12:37 am	1.00	50 mL	50 mL	Y112402a.D	Liquid	Y	na
	10 uL cal std/50 mL DI/not used									
33	CCV	CCV	11-25-2019 01:01 am	1.00	50 mL	50 mL	Y112403.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
34	CCB	SAMP	11-25-2019 01:25 am	1.00	50 mL	50 mL	Y112404.D	Liquid	Y	na
35	VLCSW-191124	LCS	11-25-2019 01:49 am	1.00	50 mL	50 mL	Y112405.D	Liquid	Y	na
	4.0 uL cal std/50 mL DI									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	BLK	SAMP	11-25-2019 02:13 am	1.00	50 mL	50 mL	Y112406.D	Liquid	Y	na
37	VBLKW-191124	MBLK	11-25-2019 02:37 am	1.00	50 mL	50 mL	Y112407.D	Liquid	Y	na
38	HS19111226-01	SAMP	11-25-2019 03:01 am	1.00	50 mL	50 mL	Y112408.D	Liquid	Y	>2
39	HS19111226-01MS	MS	11-25-2019 03:25 am	1.00	50 mL	50 mL	Y112409.D	Liquid	Y	>2
	3.5 uL cal std/40 mL samp									
40	HS19111226-01MSD	MSD	11-25-2019 03:50 am	1.00	50 mL	50 mL	Y112410.D	Liquid	Y	>2
	3.5 uL cal std/40 mL samp									
41	HS19110933-03	SAMP	11-25-2019 04:16 am	5.00	10 mL	50 mL	Y112411.D	Liquid	Y	>2
42	HS19110933-12	SAMP	11-25-2019 04:43 am	5.00	10 mL	50 mL	Y112412.D	Liquid	Y	>2
43	HS19111140-02	SAMP	11-25-2019 05:07 am	1.00	50 mL	50 mL	Y112413.D	Liquid	Y	>2
44	HS19111194-14	SAMP	11-25-2019 05:31 am	1.00	50 mL	50 mL	Y112414.D	Liquid	Y	>2
45	HS19111194-20	SAMP	11-25-2019 05:55 am	1.00	50 mL	50 mL	Y112415.D	Liquid	Y	>2
46	HS19111194-21	SAMP	11-25-2019 06:19 am	1.00	50 mL	50 mL	Y112416.D	Liquid	Y	>2
47	HS19111194-22	SAMP	11-25-2019 06:43 am	1.00	50 mL	50 mL	Y112417.D	Liquid	Y	>2
48	HS19111194-23	SAMP	11-25-2019 07:07 am	1.00	50 mL	50 mL	Y112418.D	Liquid	Y	>2
49	HS19111229-07	SAMP	11-25-2019 07:31 am	1.00	50 mL	50 mL	Y112419.D	Liquid	Y	>2
50	HS19111229-08	SAMP	11-25-2019 07:55 am	1.00	50 mL	50 mL	Y112420.D	Liquid	Y	>2
51	HS19111228-05	SAMP	11-25-2019 08:19 am	1.00	50 mL	50 mL	Y112421.D	Liquid	Y	>2
52	HS19111228-06	SAMP	11-25-2019 08:43 am	1.00	50 mL	50 mL	Y112422.D	Liquid	Y	>2
53	HS19111233-11	SAMP	11-25-2019 09:07 am	1.00	50 mL	50 mL	Y112423.D	Liquid	Y	>2
54	HS19111237-25	SAMP	11-25-2019 09:31 am	1.00	50 mL	50 mL	Y112424.D	Liquid	Y	>2
55	HS19111238-17	SAMP	11-25-2019 09:55 am	1.00	50 mL	50 mL	Y112425.D	Liquid	Y	>2
56	MBLK-147908	MBLK	11-25-2019 10:20 am	20.00	2.5 mL	50 mL	Y112426.D	Liquid	Y	na
57	HS19111086-01	SAMP	11-25-2019 10:44 am	20.00	2.5 mL	50 mL	Y112427.D	Liquid	Y	na
58	HS19111092-01	SAMP	11-25-2019 11:08 am	20.00	2.5 mL	50 mL	Y112428.D	Liquid	Y	na
59	HS19111124-01	SAMP	11-25-2019 11:32 am	20.00	2.5 mL	50 mL	Y112429.D	Liquid	Y	na
60	HS19111145-01	SAMP	11-25-2019 11:56 am	20.00	2.5 mL	50 mL	Y112430.D	Liquid	Y	na

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL) #	OTHER (DCE) #	TOT OUT
01	VLCSW-19124	94	100	93	101	0
02	VBLKW-191124	91	96	98	92	0
03	HS19111153-09	94	96	97	93	0
04	HS19111153-01	94	96	96	93	0
05	HS19111153-02	93	96	98	92	0
06	HS19111153-03	92	96	98	93	0
07	HS19111153-04	93	96	97	92	0
08	HS19111153-05	94	98	98	94	0
09	HS19111153-06	93	97	98	93	0
10	HS19111153-07	95	98	98	94	0
11	HS19111153-08	92	96	96	93	0
12						
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		QC LIMITS
SMC1	= 4-Bromofluorobenzene	(70-130)
SMC2	= Dibromofluoromethane	(70-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER(DCE)	= 1,2-Dichloroethane-d4	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-191124

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Lab File ID: X112407 Lab Sample ID: VBLKW-191124

Date Analyzed: 11/24/19 Time Analyzed: 1436

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-19124	VLCSW-191124	X112405	1348
02	HS19111153-0	HS19111153-09	X112408	1500
03	HS19111239-0	HS19111239-05M	X112411	1613
04	HS19111239-0	HS19111239-05M	X112412	1637
05	HS19111153-0	HS19111153-01	X112414	1725
06	HS19111153-0	HS19111153-02	X112415	1749
07	HS19111153-0	HS19111153-03	X112416	1813
08	HS19111153-0	HS19111153-04	X112417	1837
09	HS19111153-0	HS19111153-05	X112418	1901
10	HS19111153-0	HS19111153-06	X112419	1925
11	HS19111153-0	HS19111153-07	X112420	1949
12	HS19111153-0	HS19111153-08	X112421	2013
13				
14				
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COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Lab File ID: X112401 BFB Injection Date: 11/24/19

Instrument ID: VOA6 BFB Injection Time: 1212

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.0
75	30.0 - 60.0% of mass 95	52.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.7 (0.9)1
174	Greater than 50.0% of mass 95	78.4
175	5.0 - 9.0% of mass 174	6.2 (7.9)1
176	95.0 - 101.0% of mass 174	75.4 (96.2)1
177	5.0 - 9.0% of mass 176	5.7 (7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X112403	11/24/19	1300
02	VLCSW-19124	VLCSW-191124	X112405	11/24/19	1348
03	VBLKW-191124	VBLKW-191124	X112407	11/24/19	1436
04	HS19111153-0	HS19111153-09	X112408	11/24/19	1500
05	HS19111239-0	HS19111239-05M	X112411	11/24/19	1613
06	HS19111239-0	HS19111239-05M	X112412	11/24/19	1637
07	HS19111153-0	HS19111153-01	X112414	11/24/19	1725
08	HS19111153-0	HS19111153-02	X112415	11/24/19	1749
09	HS19111153-0	HS19111153-03	X112416	11/24/19	1813
10	HS19111153-0	HS19111153-04	X112417	11/24/19	1837
11	HS19111153-0	HS19111153-05	X112418	11/24/19	1901
12	HS19111153-0	HS19111153-06	X112419	11/24/19	1925
13	HS19111153-0	HS19111153-07	X112420	11/24/19	1949
14	HS19111153-0	HS19111153-08	X112421	11/24/19	2013
15	CCV-END	CCV-END	X112427	11/24/19	2237
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Instrument ID: VOA6 Calibration Date: 11/24/19 Time: 1300

Lab File ID: X112403 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
cis-1,3-Dichloropropene	0.4880000	0.5368675	0.5368675	0.2	-10.01	20.00	AVRG	
trans-1,3-Dichloropropene	0.4440000	0.4928203	0.4928203	0.1	-11.00	20.00	AVRG	
1,3-Dichlorobenzene	1.4340000	1.5498848	1.5498848	0.6	-8.08	20.00	AVRG	
2,2-Dichloropropane	0.6600000	0.7359097	0.7359097	0.1	-11.50	20.00	AVRG	
1,1-Dichloropropene	0.4030000	0.4275042	0.4275042	0.1	-6.08	20.00	AVRG	
Dibromomethane	0.2110000	0.2311425	0.2311425	0.1	-9.55	20.00	AVRG	
1,2-Dibromoethane	0.3510000	0.3802645	0.3802645	0.1	-8.34	20.00	AVRG	
trans-1,2-Dichloroethene	0.4110000	0.4705113	0.4705113	0.1	-14.48	20.00	AVRG	
1,1,1,2-Tetrachloroethane	0.3630000	0.3931101	0.3931101	0.1	-8.29	20.00	AVRG	
1,1,1-Trichloroethane	0.6740000	0.7622326	0.7622326	0.1	-13.09	20.00	AVRG	
1,1,2,2-Tetrachloroethane	0.7030000	0.7508510	0.7508510	0.3	-6.81	20.00	AVRG	
Toluene	1.4180000	1.5200719	1.5200719	0.4	-7.20	20.00	AVRG	
1,1,2-Trichloroethane	0.2610000	0.2799293	0.2799293	0.1	-7.25	20.00	AVRG	
1,1-Dichloroethane	0.7270000	0.8097068	0.8097068	0.2	-11.38	20.00	AVRG	
1,1-Dichloroethene	0.4240000	0.4610694	0.4610694	0.1	-8.74	20.00	AVRG	
Trichlorofluoromethane	0.7760000	0.8757357	0.8757357	0.1	-12.85	20.00	AVRG	
1,2,3-Trichlorobenzene	59.869410	50.000000	0.2222731	0.1	-19.74	20.00	2RDR	
Tetrachloroethene	0.3510000	0.3606409	0.3606409	0.2	-2.75	20.00	AVRG	
1,2,4-Trichlorobenzene	0.4210000	0.4528376	0.4528376	0.2	-7.56	20.00	AVRG	
1,2,4-Trimethylbenzene	2.3720000	2.6388075	2.6388075	0.1	-11.25	20.00	AVRG	
tert-Butylbenzene	1.9490000	2.1474166	2.1474166	0.1	-10.18	20.00	AVRG	
Trichloroethene	0.3500000	0.3847539	0.3847539	0.2	-9.93	20.00	AVRG	
1,2-Dichlorobenzene	1.3270000	1.4427857	1.4427857	0.4	-8.72	20.00	AVRG	
1,2-Dichloroethane	0.3970000	0.4237764	0.4237764	0.1	-6.74	20.00	AVRG	
1,2-Dichloropropane	0.2990000	0.3163490	0.3163490	0.1	-5.80	20.00	AVRG	
1,3,5-Trimethylbenzene	2.2760000	2.5219796	2.5219796	0.1	-10.81	20.00	AVRG	
1,3-Dichloropropane	0.5310000	0.5564504	0.5564504	0.1	-4.79	20.00	AVRG	
1,4-Dichlorobenzene	1.4570000	1.5941882	1.5941882	0.4	-9.42	20.00	AVRG	
2-Butanone	0.1530000	0.1750049	0.1750049	0.1	-14.38	20.00	AVRG	
2-Chlorotoluene	1.7990000	1.9918861	1.9918861	0.1	-10.72	20.00	AVRG	
2-Hexanone	0.2050000	0.2180471	0.2180471	0.1	-6.36	20.00	AVRG	
4-Chlorotoluene	2.1800000	2.3894810	2.3894810	0.1	-9.61	20.00	AVRG	
Styrene	1.0440000	1.1795658	1.1795658	0.3	-12.98	20.00	AVRG	
4-Methyl-2-Pentanone	0.2930000	0.3074384	0.3074384	0.1	-4.93	20.00	AVRG	
Acetone	125.85768	100.00000	0.1616705	0.1	-25.86	20.00	LINR	<-
Benzene	1.1440000	1.2581264	1.2581264	0.5	-9.98	20.00	AVRG	
Bromobenzene	0.8690000	0.9114216	0.9114216	0.1	-4.88	20.00	AVRG	
Bromochloromethane	0.2710000	0.2983961	0.2983961	0.1	-10.11	20.00	AVRG	
Bromodichloromethane	0.4140000	0.4531664	0.4531664	0.2	-9.46	20.00	AVRG	
Bromoform	54.348504	50.000000	0.3241467	0.1	-8.70	20.00	LINR	
Bromomethane	56.851028	50.000000	0.5622019	0.1	-13.70	20.00	LINR	
Carbon Disulfide	1.1530000	1.3274079	1.3274079	0.1	-15.13	20.00	AVRG	

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911115

Instrument ID: VOA6 Calibration Date: 11/24/19 Time: 1300

Lab File ID: X112403 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4420000	0.4671428	0.4671428	0.1	-5.69	20.00	AVRG
Chlorobenzene	0.9760000	1.0379305	1.0379305	0.5	-6.34	20.00	AVRG
Chloroethane	0.3150000	0.3259909	0.3259909	0.1	-3.49	20.00	AVRG
Chloroform	0.8100000	0.8785306	0.8785306	0.2	-8.46	20.00	AVRG
Chloromethane	40.392158	50.000000	0.4382946	0.1	19.22	20.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5473069	0.5473069	0.1	-15.46	20.00	AVRG
Dibromochloromethane	0.3800000	0.4126384	0.4126384	0.1	-8.59	20.00	AVRG
Dichlorodifluoromethane	42.746658	50.000000	0.3883239	0.1	14.51	20.00	LINR
Ethylbenzene	0.5040000	0.5465037	0.5465037	0.1	-8.43	20.00	AVRG
Hexachlorobutadiene	0.4020000	0.3683374	0.3683374	0.1	8.37	20.00	AVRG
Isopropylbenzene	1.4940000	1.6641173	1.6641173	0.1	-11.39	20.00	AVRG
m,p-Xylenes	0.6080000	0.6690744	0.6690744	0.1	-10.04	20.00	AVRG
Methylene Chloride	0.4520000	0.4842822	0.4842822	0.1	-7.14	20.00	AVRG
n-Butylbenzene	2.0360000	2.3328364	2.3328364	0.5	-14.58	20.00	AVRG
n-Propylbenzene	3.0900000	3.4157713	3.4157713	0.1	-10.54	20.00	AVRG
Naphthalene	0.5400000	0.5863405	0.5863405	0.2	-8.58	20.00	AVRG
o-Xylene	0.6000000	0.6481880	0.6481880	0.3	-8.03	20.00	AVRG
sec-Butylbenzene	2.6850000	2.9950522	2.9950522	0.1	-11.55	20.00	AVRG
Vinyl Chloride	0.5100000	0.4975844	0.4975844	0.1	2.43	20.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.6191795	0.6191795	0.1	-3.89	20.00	AVRG
p-Isopropyltoluene	2.4460000	2.6809955	2.6809955	0.1	-9.61	20.00	AVRG
1,2-Dibromo-3-Chloropropane	55.230831	50.000000	8.57e-002	0.05	-10.46	20.00	LINR
Freon TF	0.4350000	0.4941619	0.4941619	0.1	-13.60	20.00	AVRG
4-Bromofluorobenzene	51.614238	50.000000	0.4803318	0.1	-3.23	20.00	LINR
Dibromofluoromethane	53.906503	50.000000	0.4904270	0.1	-7.81	20.00	LINR
Toluene-d8	1.3170000	1.2341904	1.2341904	0.1	6.29	20.00	AVRG
1,2-Dichloroethane-d4	53.432466	50.000000	0.5031742	0.1	-6.86	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Instrument ID: VOA6 Calibration Date: 11/24/19 Time: 2237

Lab File ID: X112427 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	0.4880000	0.4747030	0.4747030	0.2	2.72	50.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.4314600	0.4314600	0.1	2.82	50.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.4186410	1.4186410	0.6	1.07	50.00	AVRG
2,2-Dichloropropane	0.6600000	0.5907701	0.5907701	0.1	10.49	50.00	AVRG
1,1-Dichloropropene	0.4030000	0.3824624	0.3824624	0.1	5.10	50.00	AVRG
Dibromomethane	0.2110000	0.2115844	0.2115844	0.1	-0.28	50.00	AVRG
1,2-Dibromoethane	0.3510000	0.3503197	0.3503197	0.1	0.19	50.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4304146	0.4304146	0.1	-4.72	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3612077	0.3612077	0.1	0.49	50.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.6966269	0.6966269	0.1	-3.36	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.6885276	0.6885276	0.3	2.06	50.00	AVRG
Toluene	1.4180000	1.3847759	1.3847759	0.4	2.34	50.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2617036	0.2617036	0.1	-0.27	50.00	AVRG
1,1-Dichloroethane	0.7270000	0.7466630	0.7466630	0.2	-2.70	50.00	AVRG
1,1-Dichloroethene	0.4240000	0.4110590	0.4110590	0.1	3.05	50.00	AVRG
Trichlorofluoromethane	0.7760000	0.7612427	0.7612427	0.1	1.90	50.00	AVRG
1,2,3-Trichlorobenzene	42.666437	50.000000	0.1589983	0.1	14.67	50.00	2RDR
Tetrachloroethene	0.3510000	0.3299206	0.3299206	0.2	6.00	50.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.3558336	0.3558336	0.2	15.48	50.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.3771169	2.3771169	0.1	-0.22	50.00	AVRG
tert-Butylbenzene	1.9490000	1.9391360	1.9391360	0.1	0.51	50.00	AVRG
Trichloroethene	0.3500000	0.3483569	0.3483569	0.2	0.47	50.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.3289706	1.3289706	0.4	-0.15	50.00	AVRG
1,2-Dichloroethane	0.3970000	0.3976601	0.3976601	0.1	-0.17	50.00	AVRG
1,2-Dichloropropane	0.2990000	0.2867487	0.2867487	0.1	4.10	50.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.2615498	2.2615498	0.1	0.63	50.00	AVRG
1,3-Dichloropropane	0.5310000	0.5137352	0.5137352	0.1	3.25	50.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.4425688	1.4425688	0.4	0.99	50.00	AVRG
2-Butanone	0.1530000	0.1509645	0.1509645	0.1	1.33	50.00	AVRG
2-Chlorotoluene	1.7990000	1.7964626	1.7964626	0.1	0.14	50.00	AVRG
2-Hexanone	0.2050000	0.1967670	0.1967670	0.1	4.02	50.00	AVRG
4-Chlorotoluene	2.1800000	2.1356226	2.1356226	0.1	2.04	50.00	AVRG
Styrene	1.0440000	1.0386862	1.0386862	0.3	0.51	50.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.2903661	0.2903661	0.1	0.90	50.00	AVRG
Acetone	90.980196	100.00000	0.1182013	0.1	9.02	50.00	LINR
Benzene	1.1440000	1.1502871	1.1502871	0.5	-0.55	50.00	AVRG
Bromobenzene	0.8690000	0.8651221	0.8651221	0.1	0.45	50.00	AVRG
Bromochloromethane	0.2710000	0.2794833	0.2794833	0.1	-3.13	50.00	AVRG
Bromodichloromethane	0.4140000	0.4116628	0.4116628	0.2	0.56	50.00	AVRG
Bromoform	48.626831	50.000000	0.2893826	0.1	2.75	50.00	LINR
Bromomethane	52.683904	50.000000	0.5226341	0.1	-5.37	50.00	LINR
Carbon Disulfide	1.1530000	1.1979251	1.1979251	0.1	-3.90	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911115

Instrument ID: VOA6 Calibration Date: 11/24/19 Time: 2237

Lab File ID: X112427 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4420000	0.4195907	0.4195907	0.1	5.07	50.00	AVRG
Chlorobenzene	0.9760000	0.9474375	0.9474375	0.5	2.93	50.00	AVRG
Chloroethane	0.3150000	0.2896801	0.2896801	0.1	8.04	50.00	AVRG
Chloroform	0.8100000	0.8076153	0.8076153	0.2	0.29	50.00	AVRG
Chloromethane	37.363944	50.000000	0.4052824	0.1	25.27	50.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5006132	0.5006132	0.1	-5.61	50.00	AVRG
Dibromochloromethane	0.3800000	0.3796339	0.3796339	0.1	0.10	50.00	AVRG
Dichlorodifluoromethane	38.957044	50.000000	0.3531729	0.1	22.08	50.00	LINR
Ethylbenzene	0.5040000	0.4919353	0.4919353	0.1	2.39	50.00	AVRG
Hexachlorobutadiene	0.4020000	0.2979883	0.2979883	0.1	25.87	50.00	AVRG
Isopropylbenzene	1.4940000	1.4587607	1.4587607	0.1	2.36	50.00	AVRG
m,p-Xylenes	0.6080000	0.5939111	0.5939111	0.1	2.32	50.00	AVRG
Methylene Chloride	0.4520000	0.4584510	0.4584510	0.1	-1.43	50.00	AVRG
n-Butylbenzene	2.0360000	2.0336559	2.0336559	0.5	0.12	50.00	AVRG
n-Propylbenzene	3.0900000	3.0647036	3.0647036	0.1	0.82	50.00	AVRG
Naphthalene	0.5400000	0.4567759	0.4567759	0.2	15.41	50.00	AVRG
o-Xylene	0.6000000	0.5852126	0.5852126	0.3	2.46	50.00	AVRG
sec-Butylbenzene	2.6850000	2.6671752	2.6671752	0.1	0.66	50.00	AVRG
Vinyl Chloride	0.5100000	0.4438793	0.4438793	0.1	12.96	50.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.5738977	0.5738977	0.1	3.71	50.00	AVRG
p-Isopropyltoluene	2.4460000	2.3948475	2.3948475	0.1	2.09	50.00	AVRG
1,2-Dibromo-3-Chloropropane	50.403168	50.000000	7.82e-002	0.05	-0.81	50.00	LINR
Freon TF	0.4350000	0.4217177	0.4217177	0.1	3.05	50.00	AVRG
4-Bromofluorobenzene	47.970747	50.000000	0.4461481	0.1	4.06	50.00	LINR
Dibromofluoromethane	52.345892	50.000000	0.4761314	0.1	-4.69	50.00	LINR
Toluene-d8	1.3170000	1.2115552	1.2115552	0.1	8.01	50.00	AVRG
1,2-Dichloroethane-d4	52.170618	50.000000	0.4911253	0.1	-4.34	50.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Lab File ID (Standard): X112403 Date Analyzed: 11/24/19

Instrument ID: VOA6 Time Analyzed: 1300

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DFB) AREA #	RT #
	12 HOUR STD	281739	9.67	492928	7.67	527389	4.97
	UPPER LIMIT	563478	10.17	985856	8.17	1054778	5.47
	LOWER LIMIT	140870	9.17	246464	7.17	263695	4.47
	CLIENT SAMPLE NO.						
01	VLCSW-19124	266132	9.67	504151	7.67	550313	4.97
02	VBLKW-191124	275898	9.66	581309	7.67	666006	4.97
03	HS19111153-09	309576	9.67	604211	7.67	671293	4.97
04	HS19111239-05	312391	9.66	592999	7.67	653867	4.97
05	HS19111239-05	313244	9.66	584590	7.67	652154	4.97
06	HS19111153-01	298914	9.66	585647	7.67	659523	4.97
07	HS19111153-02	293650	9.67	583117	7.67	659984	4.97
08	HS19111153-03	293035	9.67	584329	7.67	662716	4.97
09	HS19111153-04	299918	9.67	590794	7.67	665789	4.97
10	HS19111153-05	293356	9.66	576684	7.67	662171	4.97
11	HS19111153-06	284404	9.67	580473	7.67	664407	4.97
12	HS19111153-07	301309	9.67	579509	7.67	660206	4.97
13	HS19111153-08	305975	9.67	597931	7.67	676586	4.97
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111153

Lab File ID (Standard): X112403 Date Analyzed: 11/24/19

Instrument ID: VOA6 Time Analyzed: 1300

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	358510	4.18				
	UPPER LIMIT	717020	4.68				
	LOWER LIMIT	179255	3.68				
	CLIENT SAMPLE NO.						
01	VLCSW-19124	388055	4.18				
02	VBLKW-191124	484385	4.18				
03	HS19111153-09	491442	4.18				
04	HS19111239-05	477258	4.18				
05	HS19111239-05	472494	4.18				
06	HS19111153-01	481308	4.18				
07	HS19111153-02	481747	4.18				
08	HS19111153-03	484797	4.18				
09	HS19111153-04	491312	4.18				
10	HS19111153-05	477552	4.18				
11	HS19111153-06	481405	4.18				
12	HS19111153-07	478123	4.18				
13	HS19111153-08	492619	4.18				
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Date : 24-NOV-2019 12:12

Client ID: BFB

Instrument: voa6.i

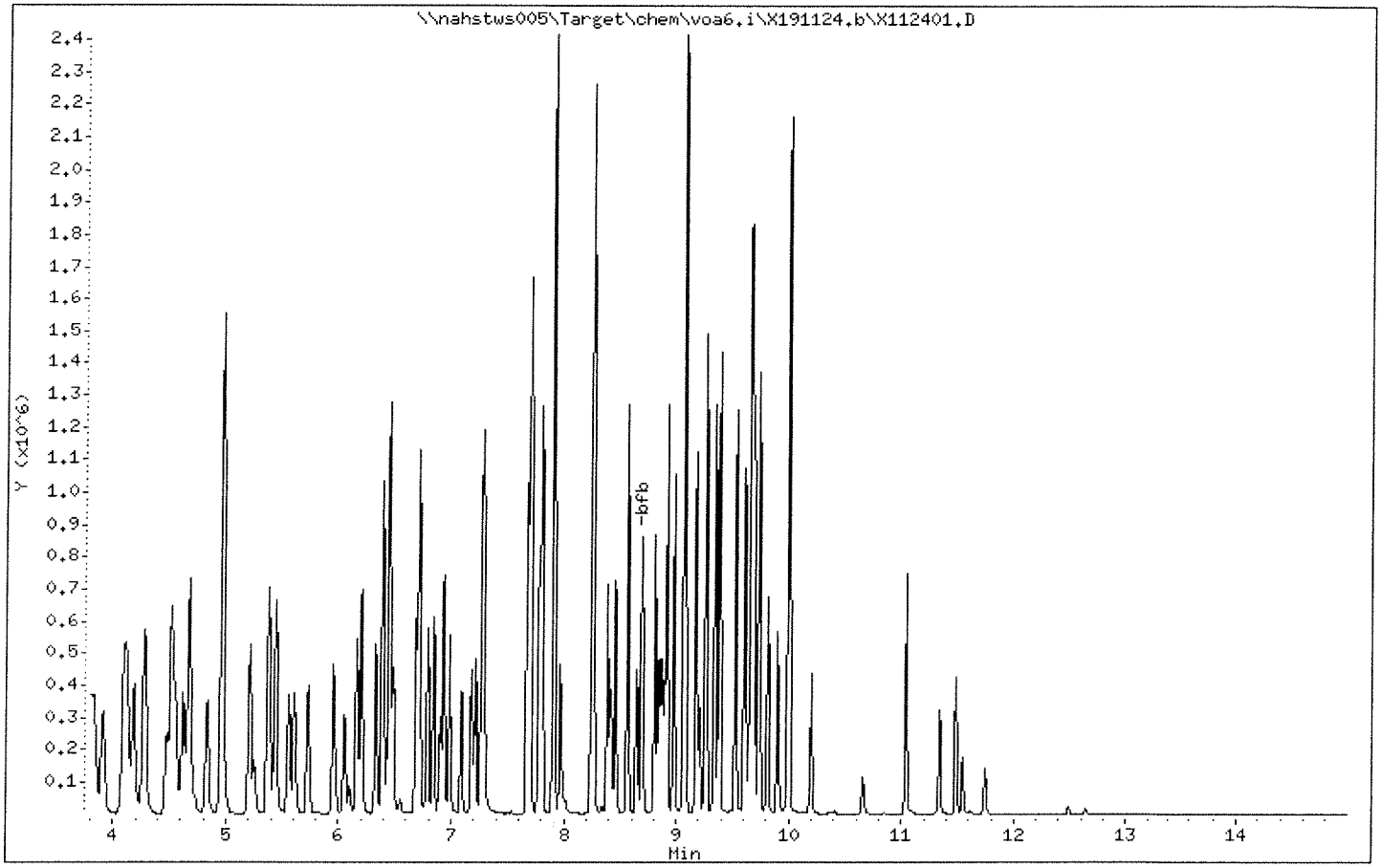
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Date : 24-NOV-2019 12:12

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

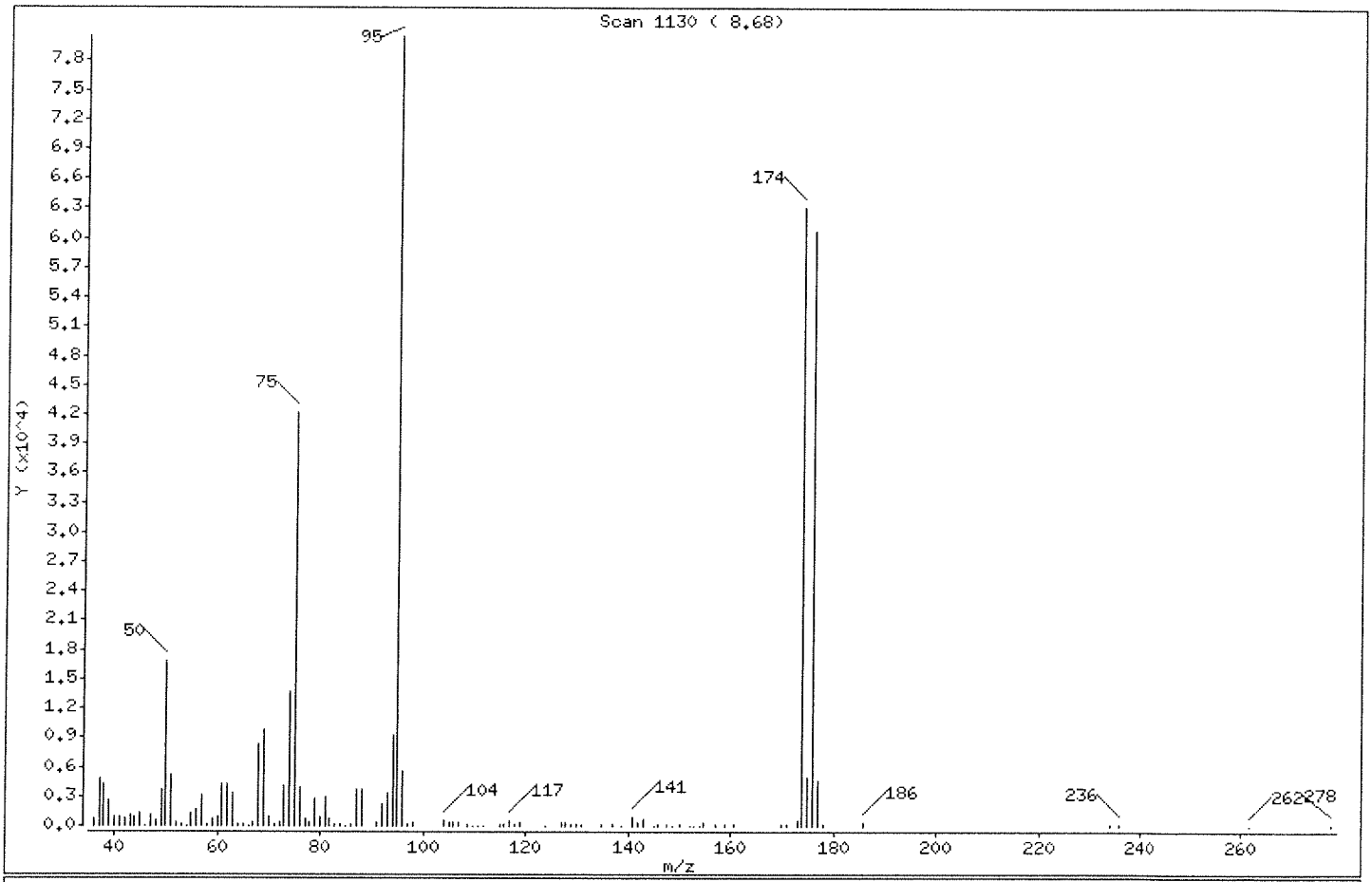
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.97
75	30.00 - 60.00% of mass 95	52.51
96	5.00 - 9.00% of mass 95	6.88
173	Less than 2.00% of mass 174	0.67 (0.86)
174	Greater than 50.00% of mass 95	78.38
175	5.00 - 9.00% of mass 174	6.20 (7.91)
176	95.00 - 101.00% of mass 174	75.42 (96.23)
177	5.00 - 9.00% of mass 176	5.67 (7.52)

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Date : 24-NOV-2019 12:12

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X112401.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 111

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	727	64.00	274	94.00	9304	142.00	305
37.00	4823	65.00	114	95.00	80464	142.90	730
38.00	4282	66.10	68	96.00	5535	145.00	54
39.00	2641	67.00	293	96.90	213	145.80	152
40.00	855	68.00	8379	98.00	391	147.70	180
41.10	1012	69.00	9736	103.90	472	148.80	88
42.00	810	69.90	887	105.00	285	149.90	102
43.00	1161	71.10	105	105.90	384	152.30	71
44.00	968	72.00	439	106.90	448	152.90	74
45.00	1211	73.00	4066	108.80	267	153.80	63
46.00	83	74.00	13658	109.80	70	154.80	328
47.00	1039	75.00	42248	110.90	86	157.00	172
48.00	500	76.00	3862	111.80	60	158.80	120
49.00	3688	77.00	733	115.00	160	160.80	98
50.00	16872	77.90	413	115.80	224	170.00	107
51.00	5102	78.90	2744	116.90	619	170.90	180
52.00	284	79.90	858	117.90	248	172.90	541
53.00	134	80.90	3029	118.80	360	173.90	63064
54.00	59	81.90	708	123.90	59	174.90	4987
55.00	1350	82.90	200	126.90	429	175.90	60688
56.00	1754	84.00	161	127.80	407	176.90	4562
57.00	3126	84.90	69	128.80	154	177.90	137
58.00	250	85.90	105	129.90	237	185.90	417
59.10	788	86.90	3767	130.80	123	233.90	100
60.00	843	88.00	3694	134.80	162	235.70	104
61.00	4184	90.80	438	136.80	110	261.90	58
62.00	4180	92.00	2304	138.80	84	277.90	117
63.00	3319	93.00	3386	140.90	840		

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D Page 1
Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 24-NOV-2019 13:00
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

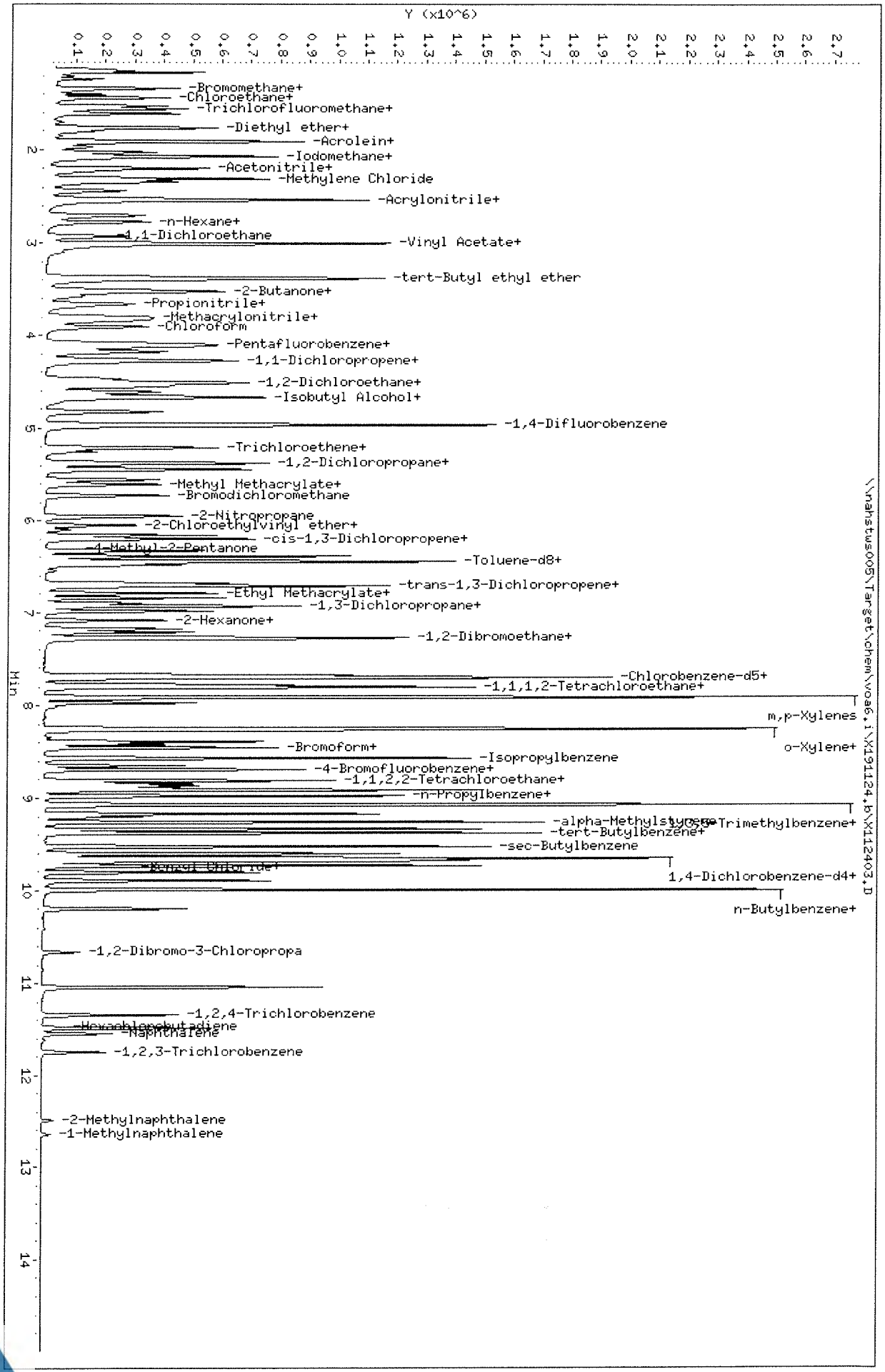
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

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)	358510	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	527389	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	492928	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	281739	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	180393	50.0000	53.43
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	236769	50.0000	51.61
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	175823	50.0000	53.90
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	608367	50.0000	46.84
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	193775	50.0000	54.18
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	273268	50.0000	56.50
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	211544	50.0000	53.39
138 Freon TF	101	1.919	1.919	(0.459)	177162	50.0000	56.76
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	137985	50.0000	53.55
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	290288	50.0000	55.64
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	165298	50.0000	54.40
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	225461	50.0000	52.99
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	62623	50.0000	59.86
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	174447	50.0000	51.96(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	127582	50.0000	53.75
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	743455	50.0000	55.61
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	24140	50.0000	55.23
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	187443	50.0000	54.21
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	406489	50.0000	54.36

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	223495	50.0000	53.38
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	166839	50.0000	52.95
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	710540	50.0000	55.39
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	436663	50.0000	54.04
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	274290	50.0000	52.43
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	449145	50.0000	54.70
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	263831	50.0000	55.72
24	2-Butanone	43	3.580	3.573	(0.856)	125482	100.000	114.06
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	561192	50.0000	55.36
52	2-Hexanone	43	7.090	7.090	(0.924)	214963	100.000	106.15
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	673210	50.0000	54.79
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	755341	50.0000	54.79
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	303090	100.000	104.94
10	Acetone	43	1.976	1.976	(0.473)	115921	100.000	125.85
37	Benzene	78	4.512	4.512	(0.908)	663522	50.0000	54.99
74	Bromobenzene	156	8.809	8.809	(0.911)	256783	50.0000	52.44
29	Bromochloromethane	128	3.795	3.795	(0.908)	106978	50.0000	55.08
39	Bromodichloromethane	83	5.729	5.729	(1.153)	238995	50.0000	54.76
66	Bromoform	173	8.415	8.416	(1.097)	159781	50.0000	54.34
6	Bromomethane	94	1.338	1.338	(0.320)	201555	50.0000	56.85
19	Carbon Disulfide	76	2.069	2.069	(0.495)	951778	100.000	115.15
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	246366	50.0000	52.86
59	Chlorobenzene	112	7.699	7.699	(1.004)	511625	50.0000	53.16
7	Chloroethane	64	1.403	1.403	(0.336)	116871	50.0000	51.77
28	Chloroform	83	3.910	3.910	(0.935)	314962	50.0000	54.24
3	Chloromethane	50	1.073	1.073	(0.257)	157133	50.0000	40.39(M)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	196215	50.0000	57.71
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	283138	50.0000	55.05
55	Dibromochloromethane	129	7.176	7.176	(0.936)	203401	50.0000	54.33
44	Dibromomethane	93	5.557	5.557	(1.118)	121902	50.0000	54.67
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	139218	50.0000	42.74
61	Ethylbenzene	106	7.799	7.799	(1.017)	269387	50.0000	54.17
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	103775	50.0000	45.83
67	Isopropylbenzene	105	8.566	8.566	(1.117)	820290	50.0000	55.69
62	m,p-Xylenes	106	7.907	7.907	(1.031)	659611	100.000	109.93
17	Methylene Chloride	84	2.305	2.305	(0.551)	173620	50.0000	53.55
87	n-Butylbenzene	91	9.998	9.999	(1.034)	657251	50.0000	57.29
73	n-Propylbenzene	91	8.917	8.917	(0.922)	962356	50.0000	55.26
92	Naphthalene	128	11.546	11.546	(1.194)	165195	50.0000	54.27
63	o-Xylene	106	8.244	8.244	(1.075)	319510	50.0000	53.95
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	843823	50.0000	55.77
64	Styrene	104	8.258	8.258	(1.077)	581441	50.0000	56.46
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	605011	50.0000	55.08
56	Tetrachloroethene	164	6.933	6.933	(0.904)	177770	50.0000	51.32
50	Toluene	91	6.446	6.446	(0.840)	749286	50.0000	53.60
20	trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	168683	50.0000	57.18
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	259908	50.0000	55.44
38	Trichloroethene	130	5.206	5.206	(1.048)	202915	50.0000	55.01
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	313960	50.0000	56.45
5	Vinyl Chloride	62	1.138	1.138	(0.272)	178389	50.0000	48.82

QC Flag Legend

M - Compound response manually integrated.



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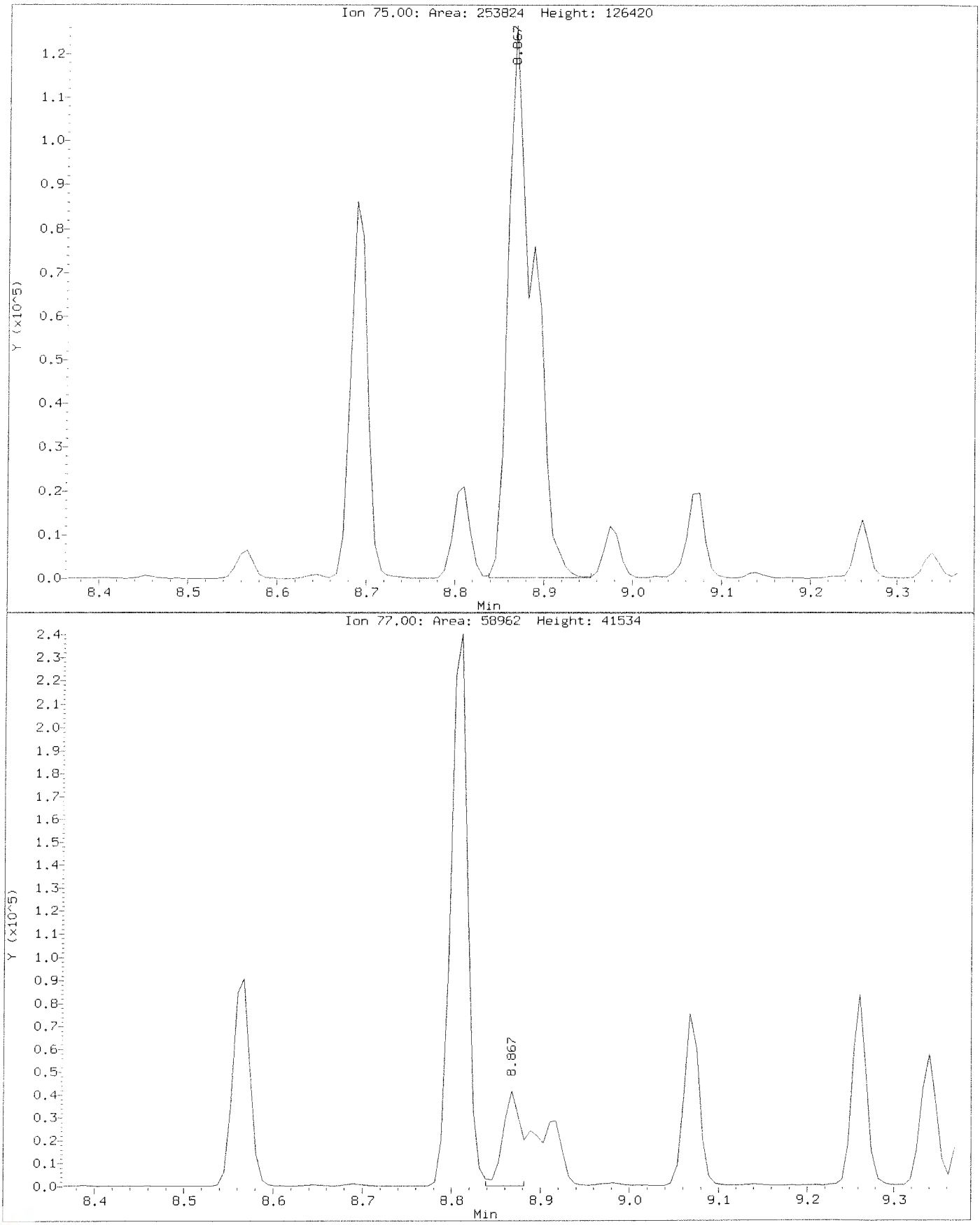
Date : 24-NOV-2019 13:00
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112403.D
Injection Date: 24-NOV-2019 13:00
Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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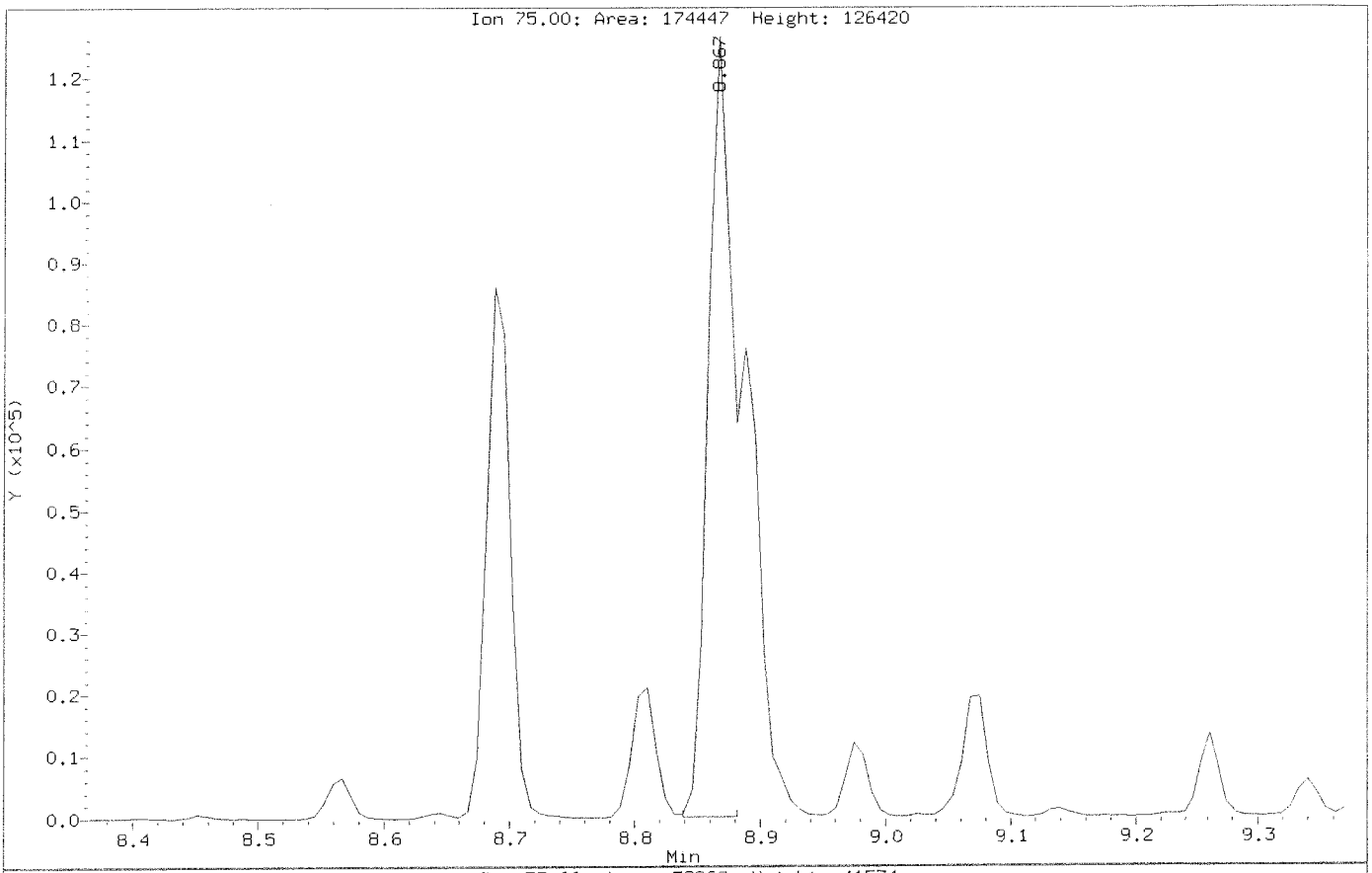
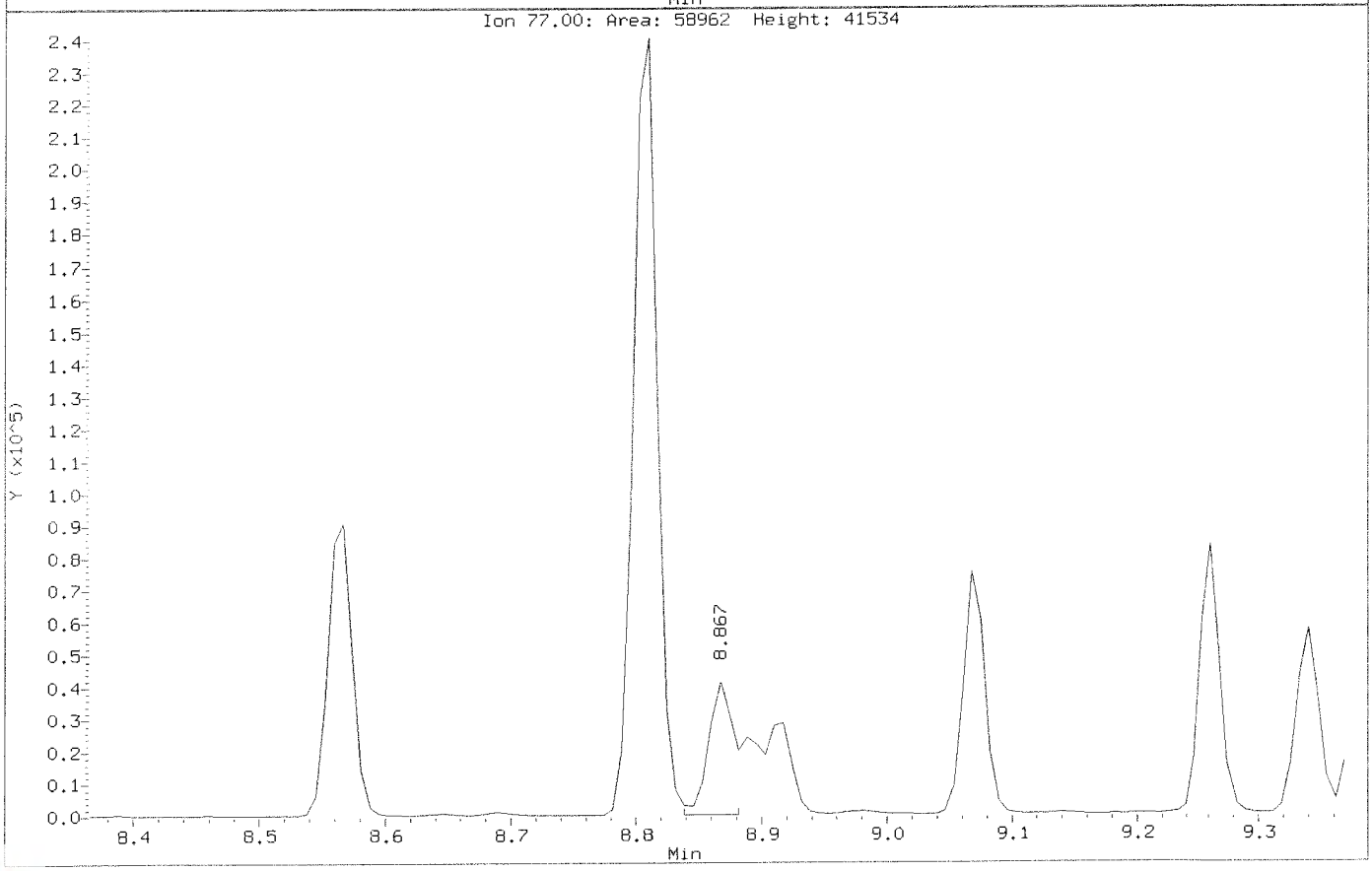
Injection Date: 24-NOV-2019 13:00
Instrument: voa6.i
Client Sample ID: CCV

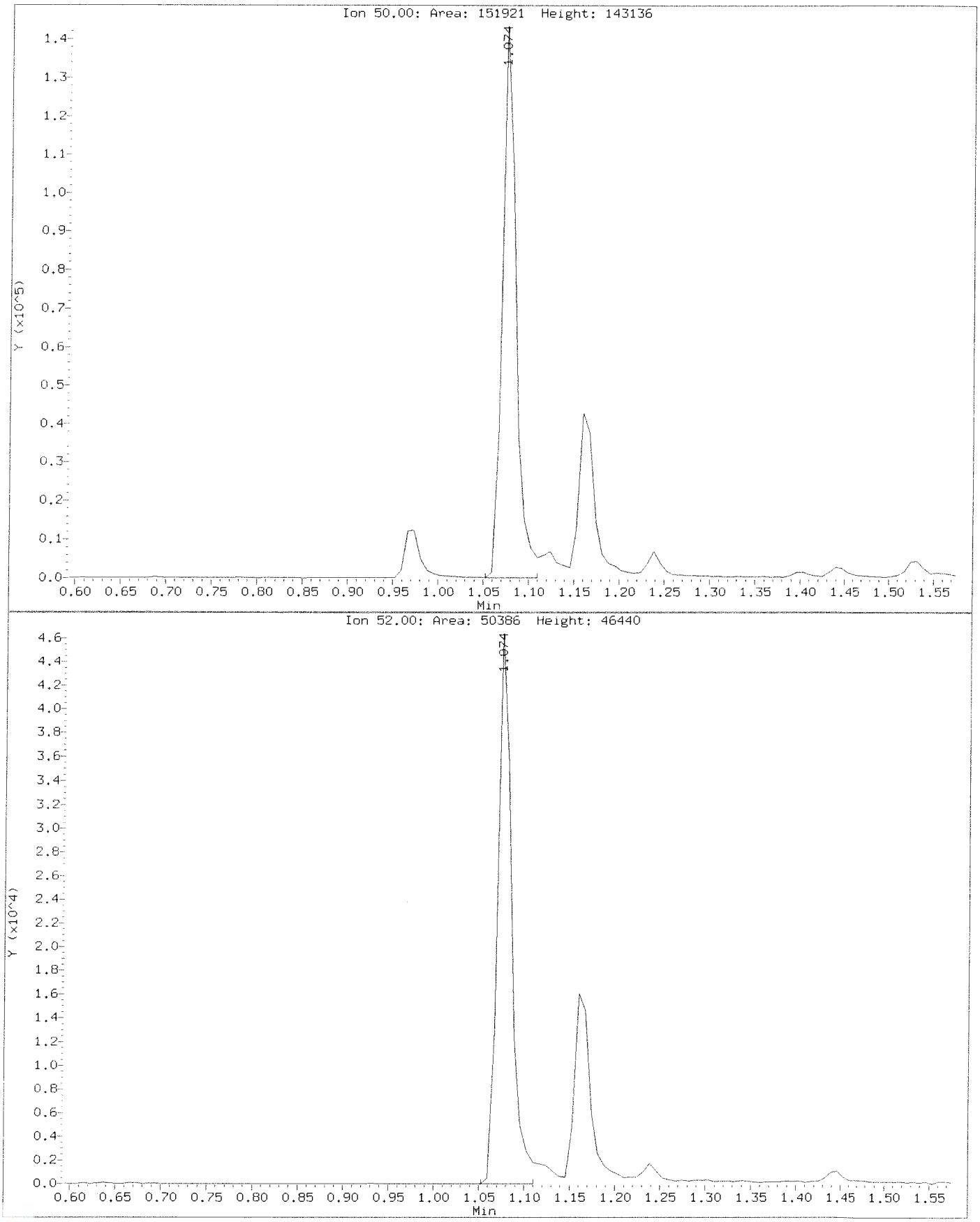
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





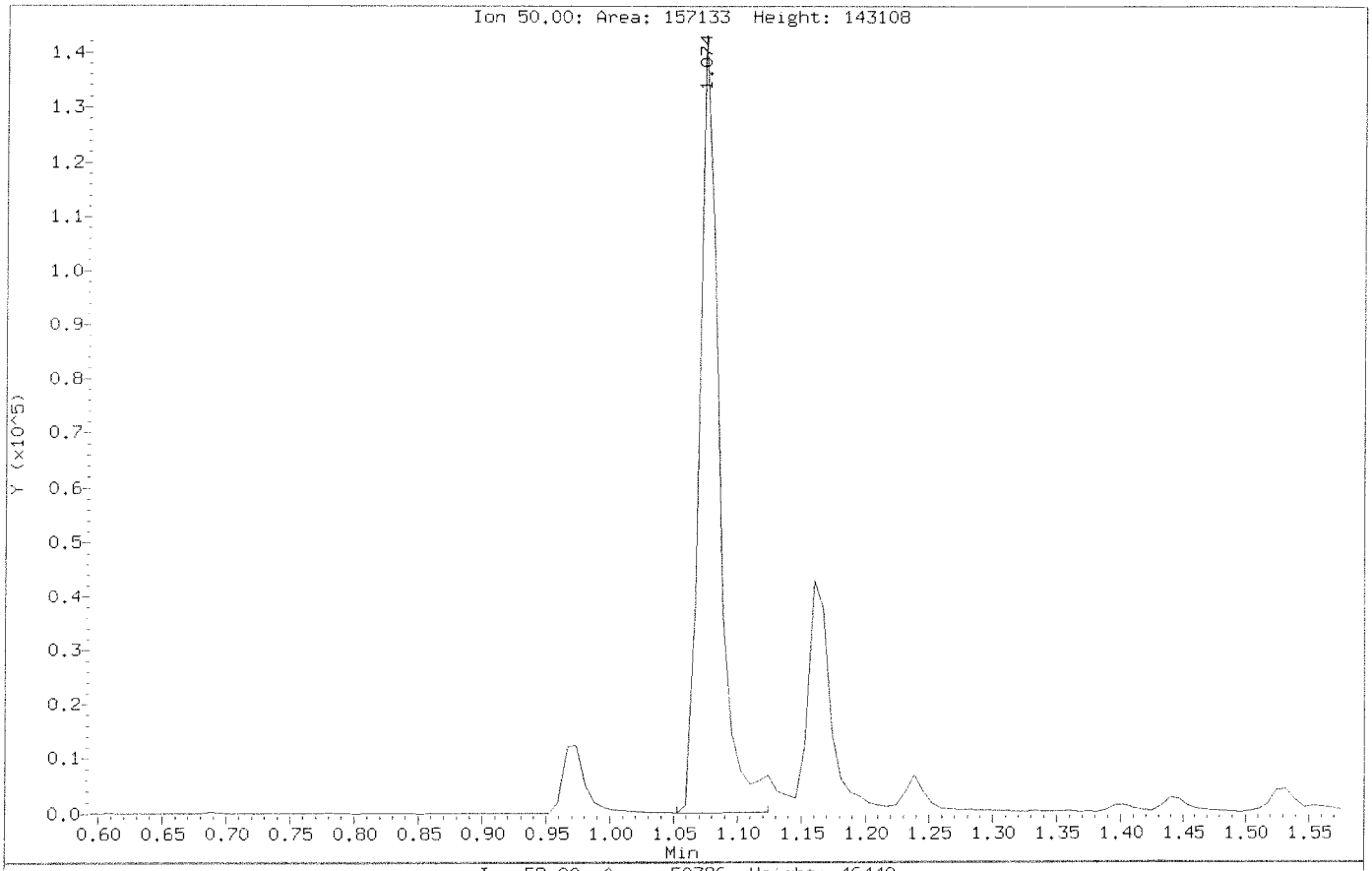
Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112403.D
Injection Date: 24-NOV-2019 13:00
Instrument: voa6.i
Client Sample ID: CCV

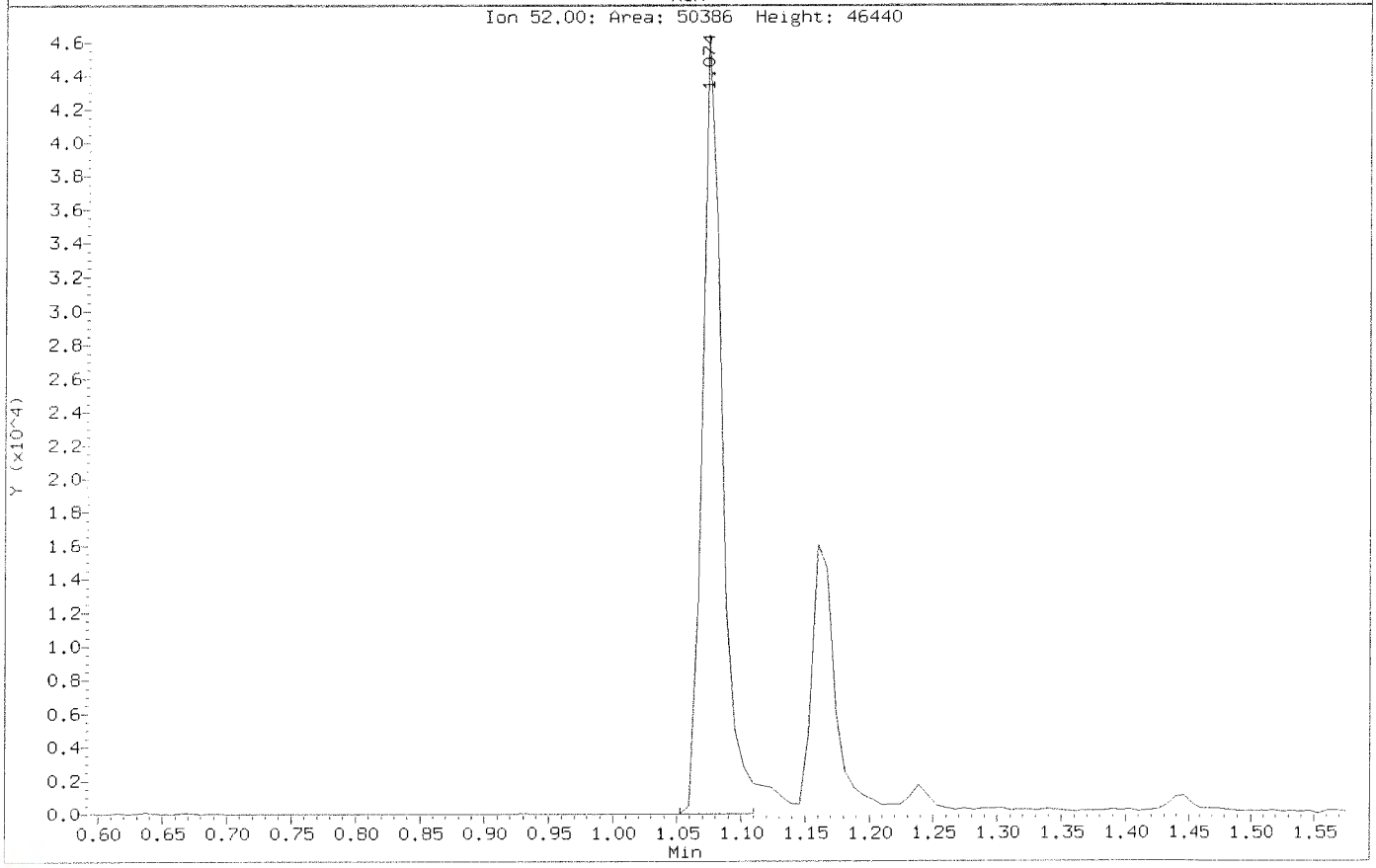
Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D
Injection Date: 24-NOV-2019 13:00
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3





Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D Page 1
Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D
Lab Smp Id: VLCSW-191124 Client Smp ID: VLCSW-19124
Inj Date : 24-NOV-2019 13:48
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-191124;VLCSW-19124;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

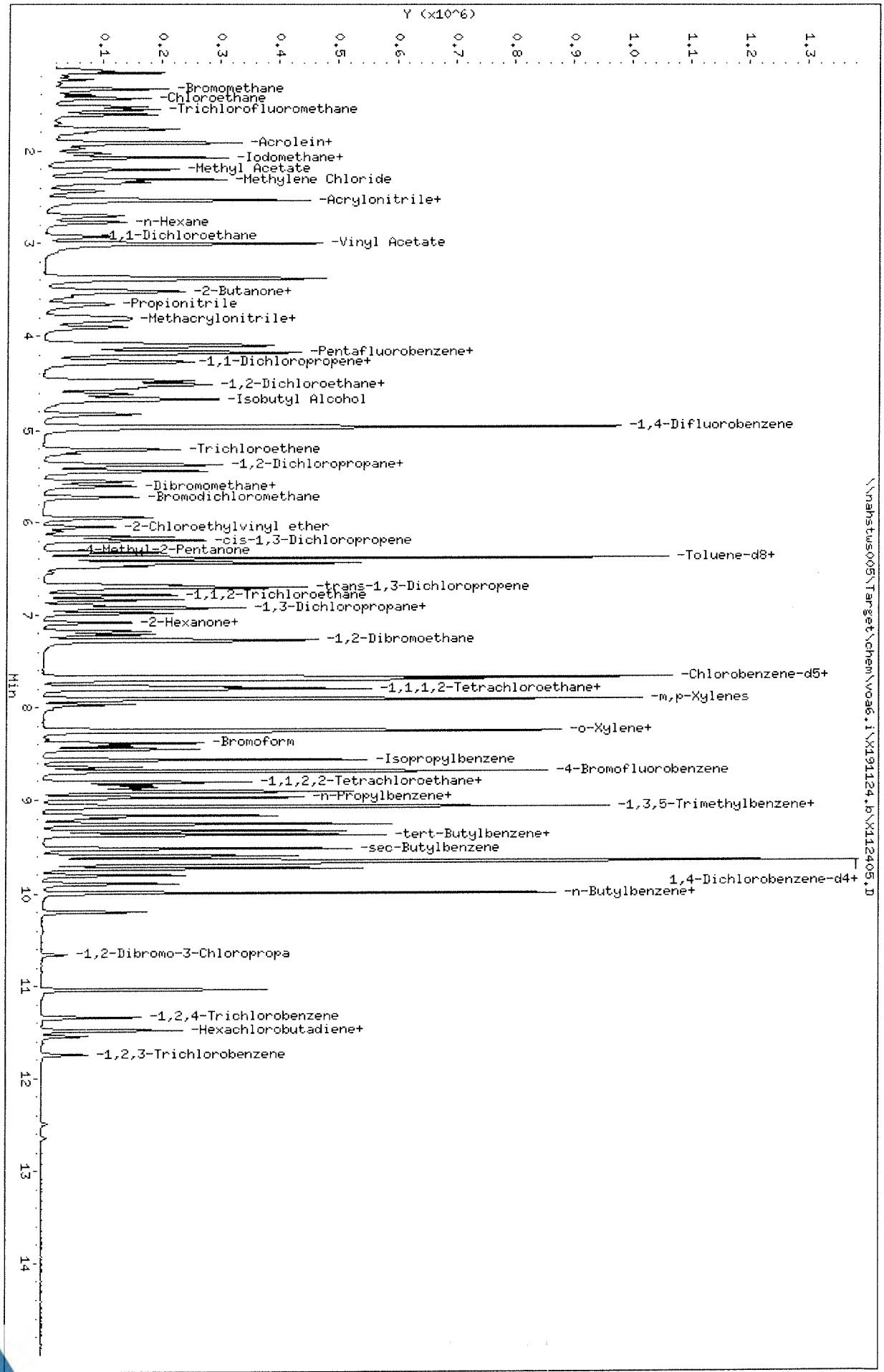
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	388055	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	550313	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	504151	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	266132	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	183657	50.3013	50.30
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	220276	46.9877	46.98
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	177170	50.2092	50.20
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	617598	46.4941	46.49
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	75422	20.6210	20.62
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	108042	20.6379	20.63
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	76156	20.3501	20.35
138 Freon TF	101	1.919	1.919	(0.459)	67205	19.8924	19.89
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	53715	20.3820	20.38
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	116042	20.5520	20.55
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	63884	19.4257	19.42
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	89644	20.1942	20.19
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	22116	21.9417	21.94
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	63337	19.9745	19.97(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	47850	21.3444	21.34
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	257494	20.3912	20.39
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	8410	20.1551	20.15
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	70877	20.0451	20.04
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	144657	20.4803	20.48

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D Page 2
Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	88620	20.2860	20.28
42 1,2-Dichloropropane	63	5.443	5.436	(1.095)	66609	20.2622	20.26
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	250392	20.6647	20.66
83 1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	157151	20.5906	20.59
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	105292	19.6789	19.67
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	158993	20.5005	20.50
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	104881	20.4662	20.46
24 2-Butanone	43	3.580	3.573	(0.856)	47024	39.4922	39.49
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	204142	21.3207	21.32
52 2-Hexanone	43	7.083	7.090	(0.923)	82392	39.7837	39.78
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	238168	20.5217	20.52
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	266591	20.4725	20.47
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	114520	38.7685	38.76
10 Acetone	43	1.976	1.976	(0.473)	45525	43.2057	43.20
37 Benzene	78	4.512	4.512	(0.908)	260754	20.7134	20.71
74 Bromobenzene	156	8.809	8.809	(0.911)	96965	20.9643	20.96
29 Bromochloromethane	128	3.802	3.795	(0.909)	42939	20.4256	20.42
39 Bromodichloromethane	83	5.729	5.729	(1.153)	93422	20.5138	20.51
66 Bromoform	173	8.415	8.416	(1.097)	58399	20.0636	20.06
6 Bromomethane	94	1.338	1.338	(0.320)	88012	21.5281	21.52
19 Carbon Disulfide	76	2.069	2.069	(0.495)	375038	41.9195	41.91
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	97153	19.9790	19.97
59 Chlorobenzene	112	7.699	7.699	(1.004)	195902	19.9037	19.90
7 Chloroethane	64	1.403	1.403	(0.336)	44399	18.1721	18.17
28 Chloroform	83	3.910	3.910	(0.935)	126568	20.1396	20.13
3 Chloromethane	50	1.073	1.073	(0.257)	63669	15.2377	15.23
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	78451	21.3178	21.31
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	110281	20.5487	20.54
55 Dibromochloromethane	129	7.176	7.176	(0.936)	77681	20.2896	20.28
44 Dibromomethane	93	5.557	5.557	(1.118)	48147	20.6967	20.69
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	53453	15.7319	15.73
61 Ethylbenzene	106	7.799	7.799	(1.017)	102753	20.2052	20.20
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	44230	20.6802	20.68
67 Isopropylbenzene	105	8.566	8.566	(1.117)	301546	20.0190	20.01
62 m,p-Xylenes	106	7.907	7.907	(1.031)	247364	40.3090	40.30
17 Methylene Chloride	84	2.305	2.305	(0.551)	69553	19.8223	19.82
87 n-Butylbenzene	91	9.998	9.999	(1.034)	227429	20.9867	20.98
73 n-Propylbenzene	91	8.917	8.917	(0.922)	347351	21.1154	21.11
92 Naphthalene	128	11.546	11.546	(1.194)	53313	18.5417	18.54
63 o-Xylene	106	8.244	8.244	(1.075)	121724	20.0980	20.09
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	299048	20.9263	20.92
64 Styrene	104	8.258	8.258	(1.077)	211547	20.0864	20.08
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	216302	20.8488	20.84
56 Tetrachloroethene	164	6.933	6.933	(0.904)	70420	19.8798	19.87
50 Toluene	91	6.446	6.446	(0.840)	289815	20.2716	20.27
20 trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	66159	20.7211	20.72
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	98261	20.0886	20.08
38 Trichloroethene	130	5.206	5.206	(1.048)	79569	20.6751	20.67
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	117968	19.5971	19.59
5 Vinyl Chloride	62	1.138	1.138	(0.272)	67139	16.9759	16.97

QC Flag Legend

M - Compound response manually integrated.



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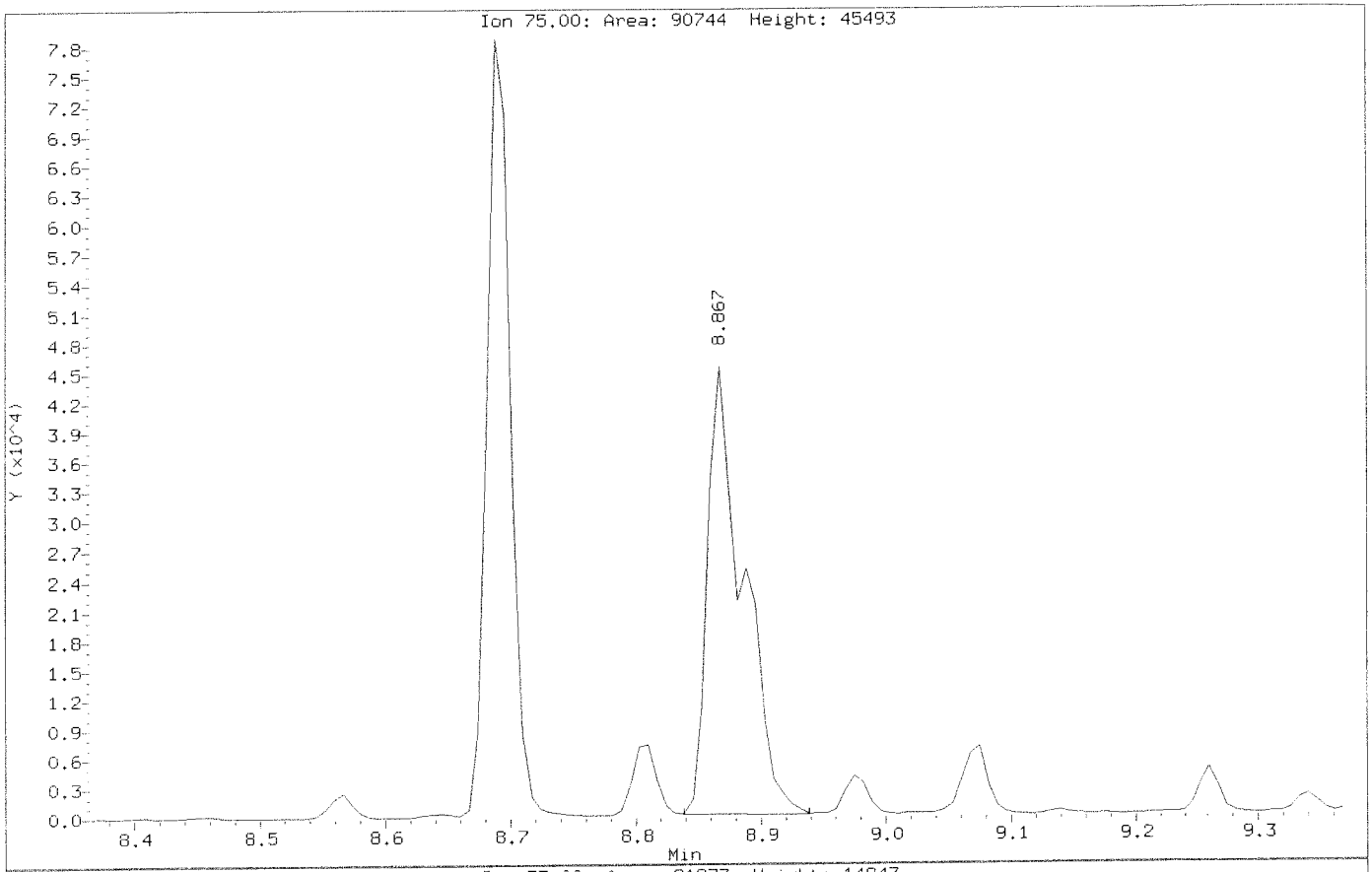
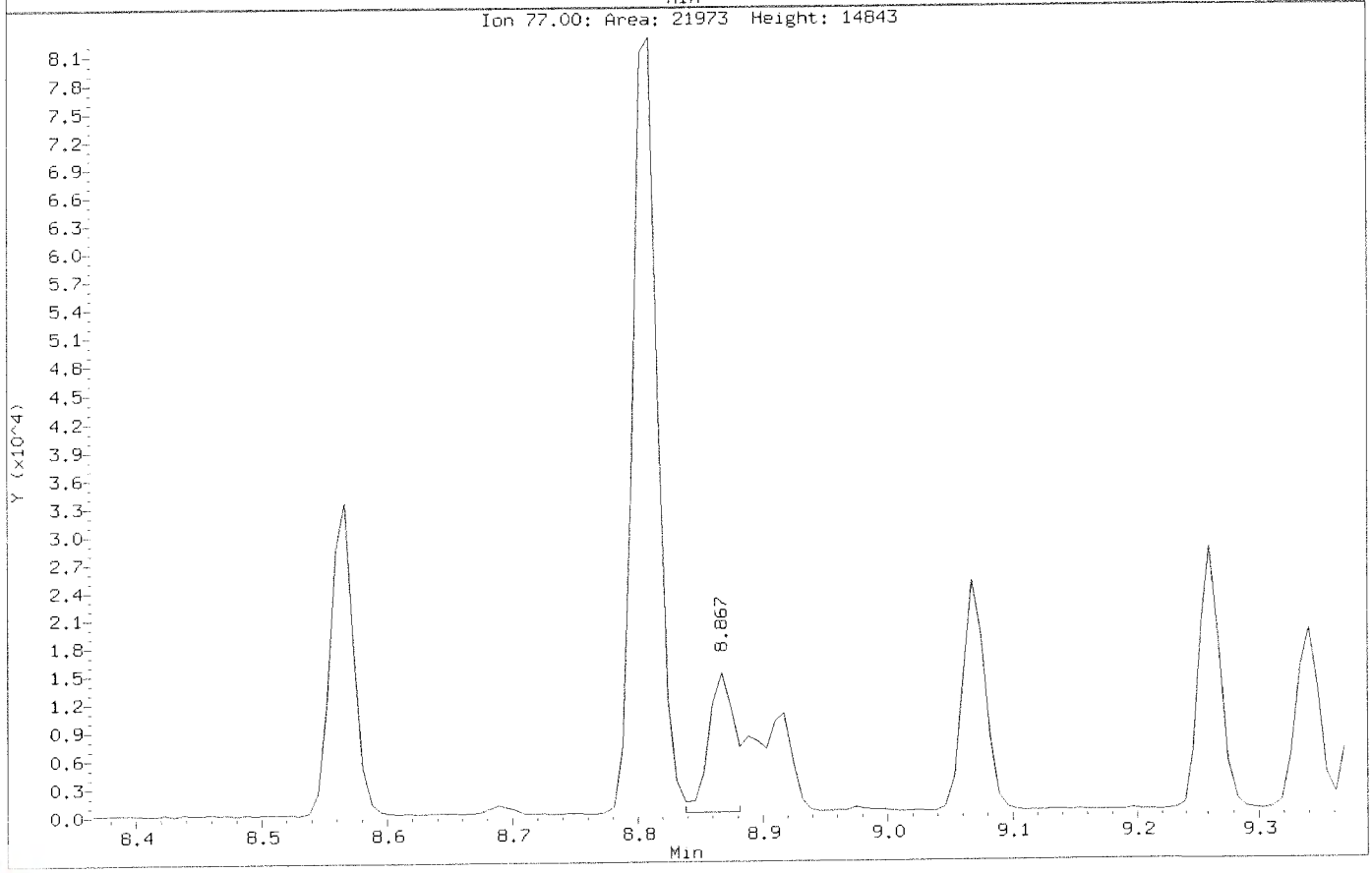
Client ID: VLCSW-19124
Sample Info: VLCSW-191124;VLCSW-19124;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112405.D
Injection Date: 24-NOV-2019 13:48
Instrument: voa6.i
Client Sample ID: VLCSW-19124

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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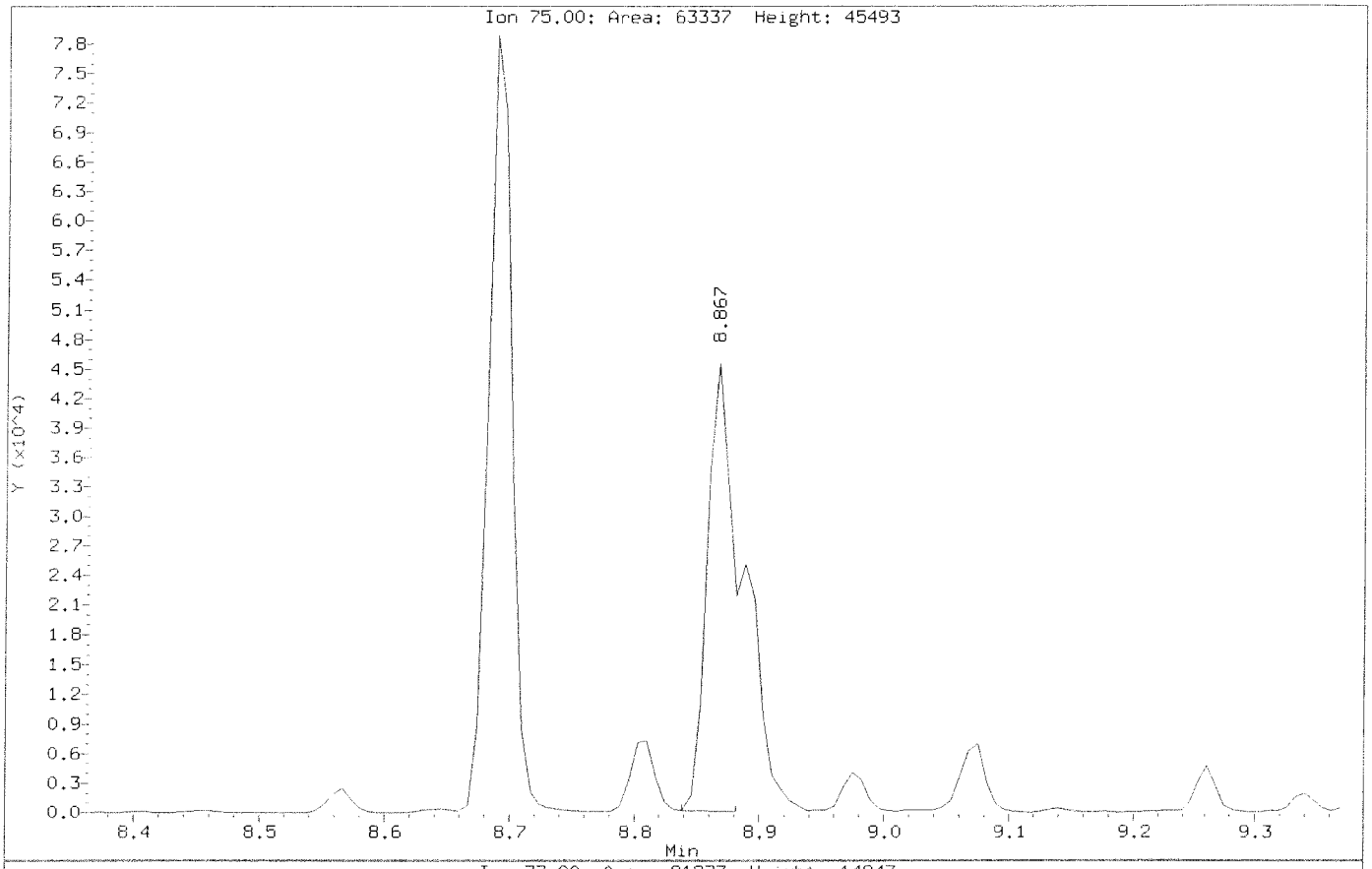
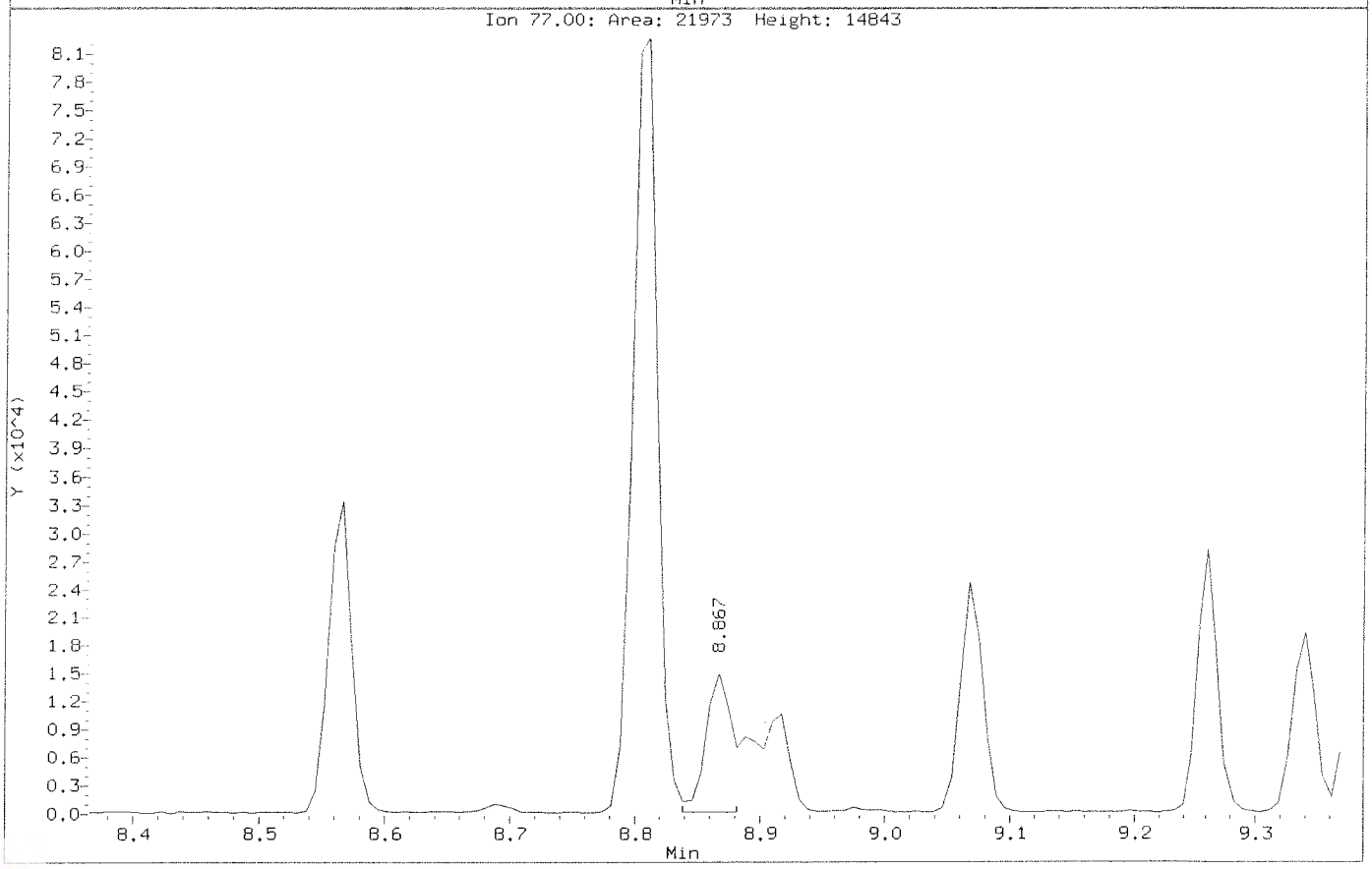
Injection Date: 24-NOV-2019 13:48
Instrument: voa6.i
Client Sample ID: VLCSW-19124

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112407.D Page 1
Report Date: 17-Dec-2019 15:49

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Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112407.D
Lab Smp Id: VBLKW-191124 Client Smp ID: VBLKW-191124
Inj Date : 24-NOV-2019 14:36
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-191124;VBLKW-191124;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

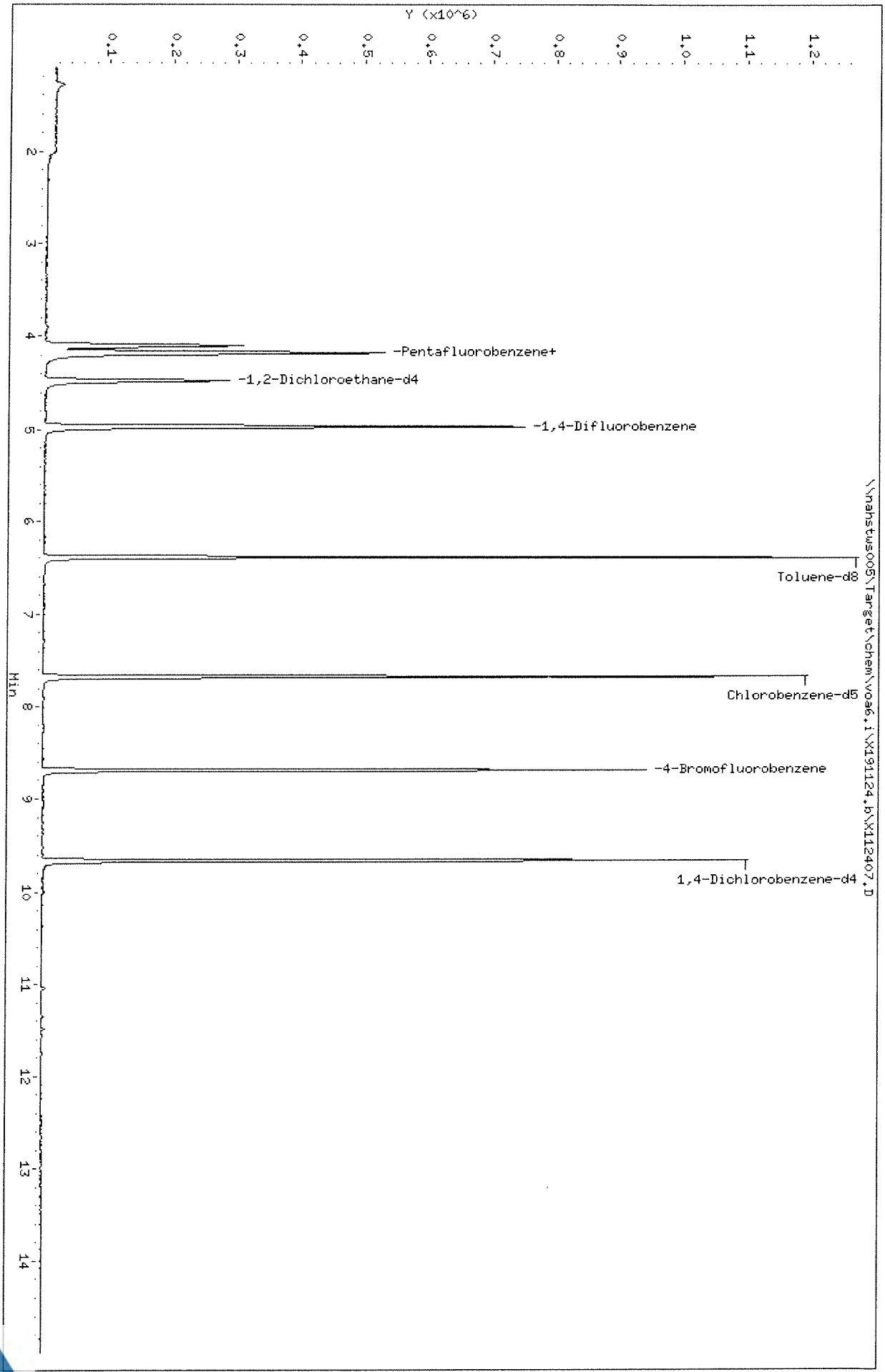
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	484385	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	666006	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	581309	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	275898	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	208585	45.8339	45.83
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	246158	45.5520	45.55
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	210671	47.8475	47.84
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	747496	48.8039	48.80

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112407.D
Date : 24-NOV-2019 14:36
Client ID: VBLKW-191124
Sample Info: VBLKW-191124;VBLKW-191124;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112408.D Page 1
Report Date: 17-Dec-2019 15:56

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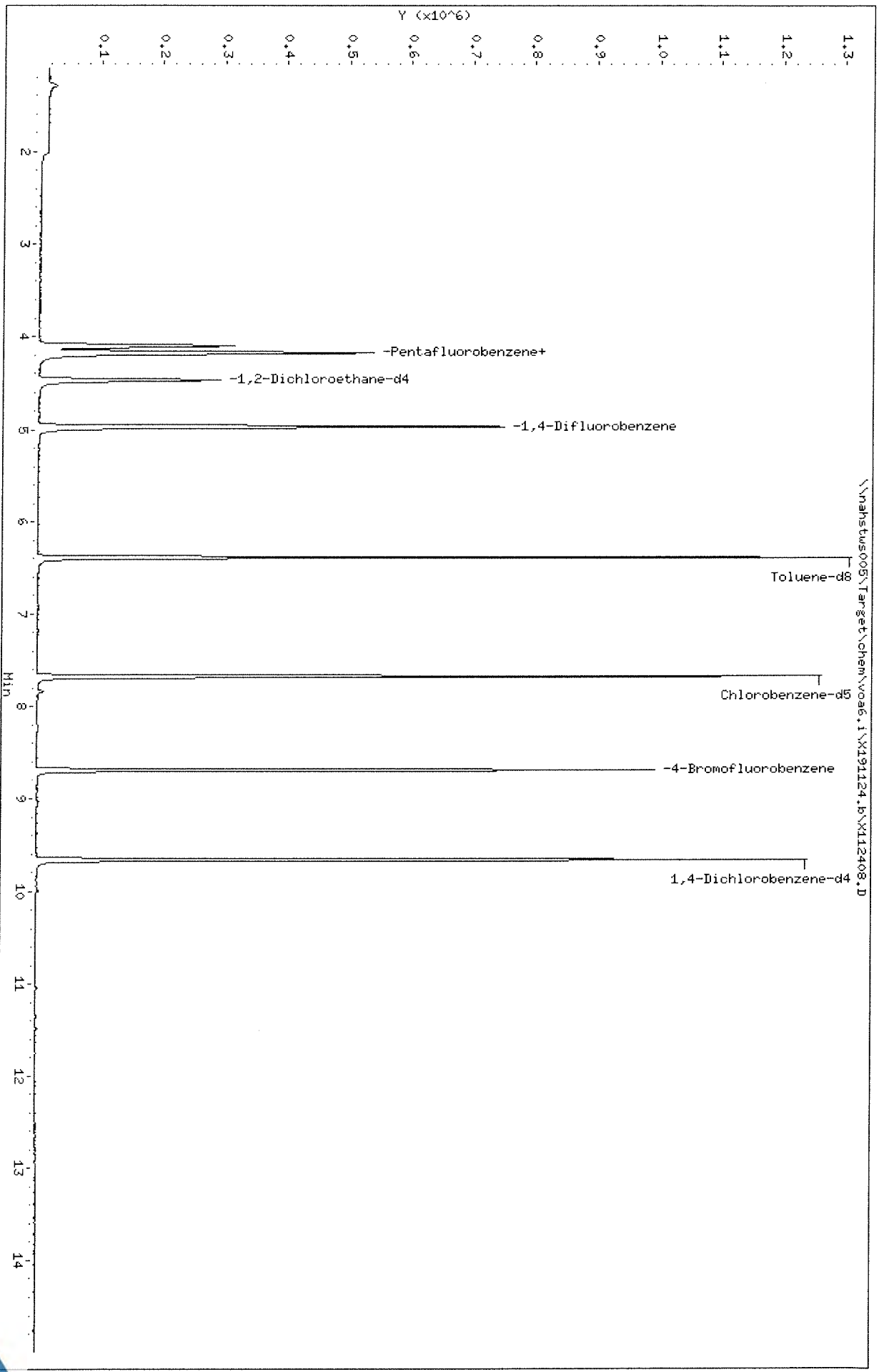
Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112408.D
Lab Smp Id: HS19111153-09 Client Smp ID: HS19111153-09
Inj Date : 24-NOV-2019 15:00
Operator : PC Inst ID: voa6.i
Smp Info : HS19111153-09;HS19111153-09;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	491442	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	671293	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	604211	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	309576	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	215566	46.6740	46.67
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	262714	46.7617	46.76
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	214719	48.0649	48.06
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	770222	48.3816	48.38



Data File: \\mahstws005\Target\chem\voa6,i\X191124,b\X112408.D
Date : 24-NOV-2019 15:00
Client ID: HS19111153-09
Sample Info: HS19111153-09;HS19111153-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D Page 1
Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D
Lab Smp Id: HS19111239-05MS Client Smp ID: HS19111239-05MS
Inj Date : 24-NOV-2019 16:13
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-05MS;HS19111239-05MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 11 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

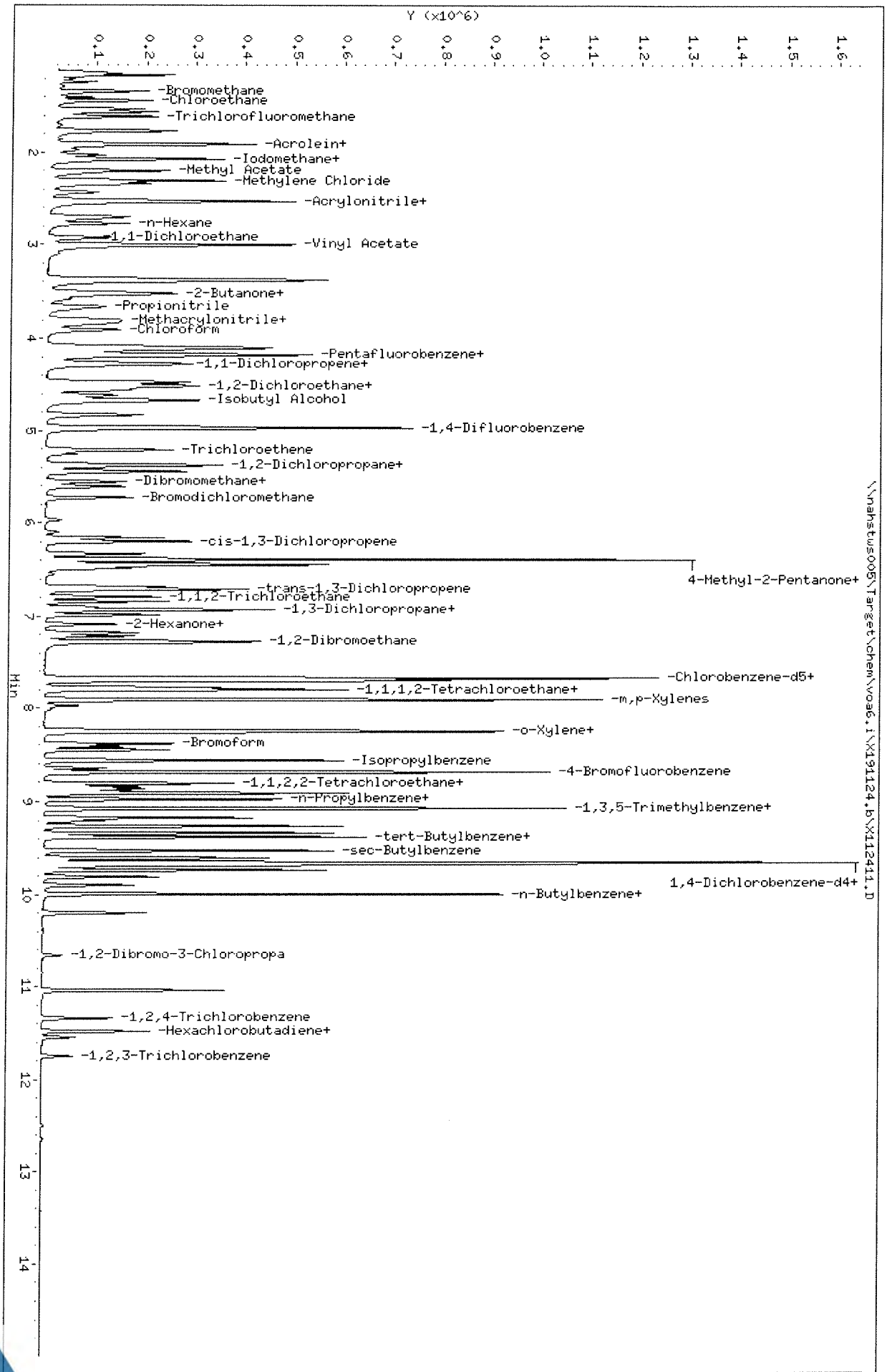
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	477258	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	653867	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	592999	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	312391	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	209623	46.7351	46.73
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	261165	47.3596	47.35
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	211339	48.7093	48.70
$	48 Toluene-d8	98	6.388	6.388	(0.833)	745667	47.7248	47.72
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	78468	18.2394	18.23
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	121582	18.8835	18.88
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.838	(0.915)	79097	18.0062	18.00
	138 Freon TF	101	1.912	1.919	(0.457)	78919	18.9936	18.99
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	56552	18.2434	18.24
	22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	127407	18.3473	18.34
	11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	73287	18.1197	18.11
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	100844	19.1194	19.11
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	17373	14.4113	14.41
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64183	17.2439	17.24(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	40144	15.2553	15.25
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	282667	19.0699	19.06
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	8108	16.4932	16.49
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	73944	17.7792	17.77
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	154553	18.6412	18.64

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D Page 2
Report Date: 17-Dec-2019 15:49

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	94771	18.2583	18.25
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	70628	18.0822	18.08
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	279278	19.6356	19.63
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	172281	19.2304	19.23
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	111206	17.6701	17.67
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	171321	18.8189	18.81
26 2,2-Dichloropropane	77	3.509	3.516	(0.839)	114522	18.1706	18.17
24 2-Butanone	43	3.581	3.573	(0.856)	44128	30.1333	30.13
76 2-Chlorotoluene	91	8.974	8.974	(0.929)	221959	19.7487	19.74
52 2-Hexanone	43	7.090	7.090	(0.924)	77587	31.8504	31.85
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	258653	18.9866	18.98
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	297755	19.4797	19.47
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	112354	32.3365	32.33
10 Acetone	43	1.976	1.976	(0.473)	34905	25.4821	25.48
37 Benzene	78	4.512	4.512	(0.908)	286765	19.1720	19.17
74 Bromobenzene	156	8.810	8.809	(0.912)	103662	19.0934	19.09
29 Bromochloromethane	128	3.795	3.795	(0.908)	45574	17.6271	17.62
39 Bromodichloromethane	83	5.729	5.729	(1.153)	98855	18.2690	18.26
66 Bromoform	173	8.416	8.416	(1.097)	60507	17.7922	17.79
6 Bromomethane	94	1.338	1.338	(0.320)	100077	19.7260	19.72
19 Carbon Disulfide	76	2.069	2.069	(0.495)	431683	39.2325	39.23
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	111172	19.2413	19.24
59 Chlorobenzene	112	7.699	7.699	(1.004)	212140	18.3242	18.32
7 Chloroethane	64	1.403	1.403	(0.336)	51130	17.0157	17.01
28 Chloroform	83	3.910	3.910	(0.935)	134484	17.3995	17.39
3 Chloromethane	50	1.073	1.073	(0.257)	76212	14.8355	14.83
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	84750	18.7250	18.72
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	117301	18.3953	18.39
55 Dibromochloromethane	129	7.176	7.176	(0.936)	81954	18.1985	18.19
44 Dibromomethane	93	5.558	5.557	(1.118)	50135	18.1381	18.13
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	77408	18.3676	18.36
61 Ethylbenzene	106	7.800	7.799	(1.017)	112709	18.8423	18.84
91 Hexachlorobutadiene	225	11.489	11.488	(1.189)	39301	15.6545	15.65
67 Isopropylbenzene	105	8.566	8.566	(1.117)	339340	19.1527	19.15
62 m,p-Xylenes	106	7.907	7.907	(1.031)	271586	37.6253	37.62
17 Methylene Chloride	84	2.305	2.305	(0.551)	74200	17.1942	17.19
87 n-Butylbenzene	91	9.999	9.999	(1.035)	253912	19.9609	19.96
73 n-Propylbenzene	91	8.917	8.917	(0.923)	388610	20.1253	20.12
92 Naphthalene	128	11.546	11.546	(1.195)	46422	13.7543	13.75
63 o-Xylene	106	8.244	8.244	(1.075)	130735	18.3516	18.35
81 sec-Butylbenzene	105	9.526	9.526	(0.986)	335752	20.0156	20.01
64 Styrene	104	8.258	8.258	(1.077)	229668	18.5397	18.53
78 tert-Butylbenzene	119	9.340	9.340	(0.967)	242255	19.8927	19.89
56 Tetrachloroethene	164	6.933	6.933	(0.904)	95174	22.8423	22.84
50 Toluene	91	6.446	6.446	(0.840)	317877	18.9031	18.90
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	74024	18.8511	18.85
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	102349	17.6105	17.61
38 Trichloroethene	130	5.207	5.206	(1.048)	89959	19.6729	19.67
8 Trichlorofluoromethane	101	1.561	1.560	(0.373)	141771	19.1494	19.14
5 Vinyl Chloride	62	1.138	1.138	(0.272)	83033	17.0706	17.07

QC Flag Legend

M - Compound response manually integrated.



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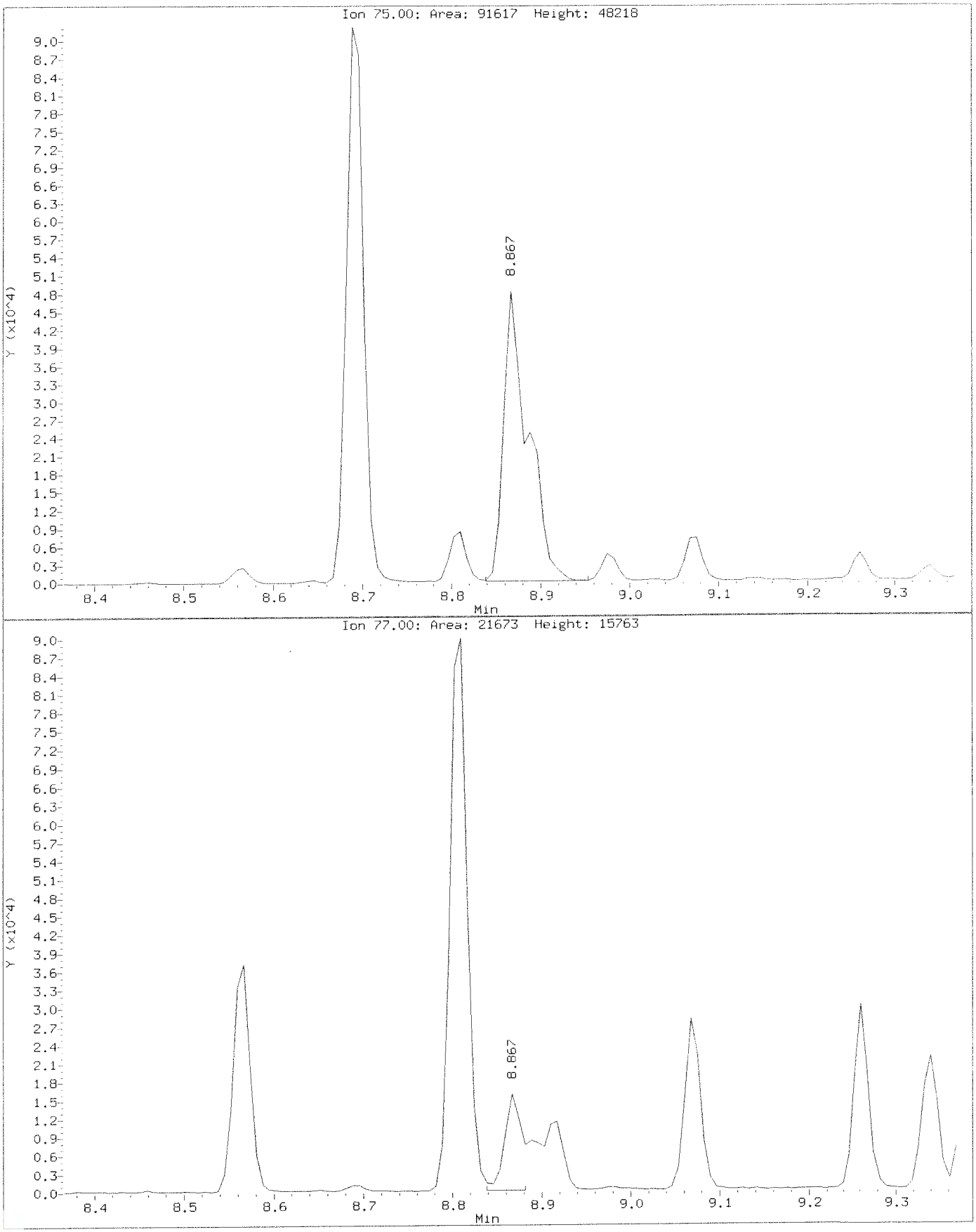
Client ID: HS19111239-05MS
Sample Info: HS19111239-05MS;HS19111239-05MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112411.D
Injection Date: 24-NOV-2019 16:13
Instrument: voa6.i
Client Sample ID: HS19111239-05MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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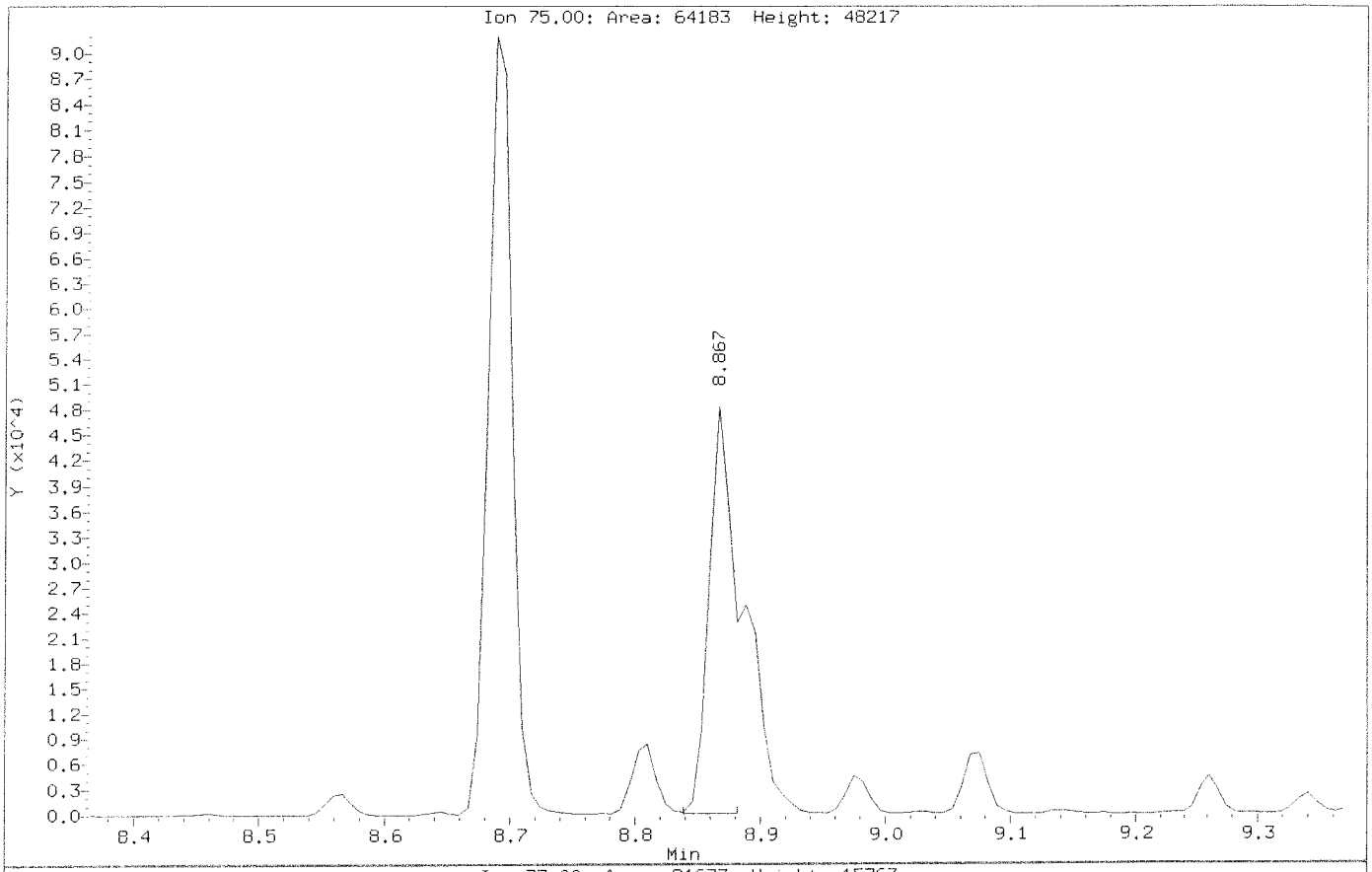
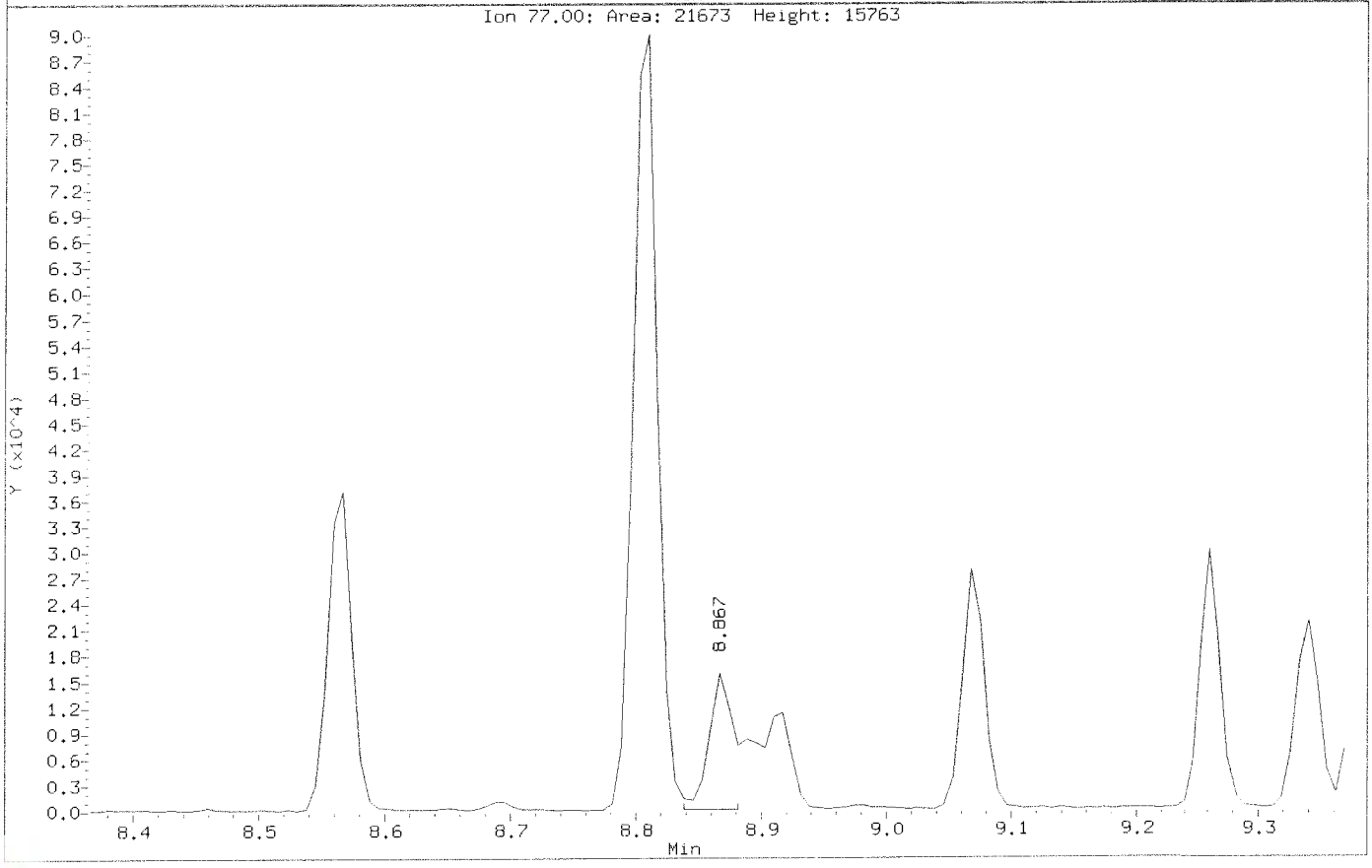
Injection Date: 24-NOV-2019 16:13
Instrument: voa6.i
Client Sample ID: HS19111239-05MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D
Lab Smp Id: HS19111239-05MSD Client Smp ID: HS19111239-05MSD
Inj Date : 24-NOV-2019 16:37
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-05MSD;HS19111239-05MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 11 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

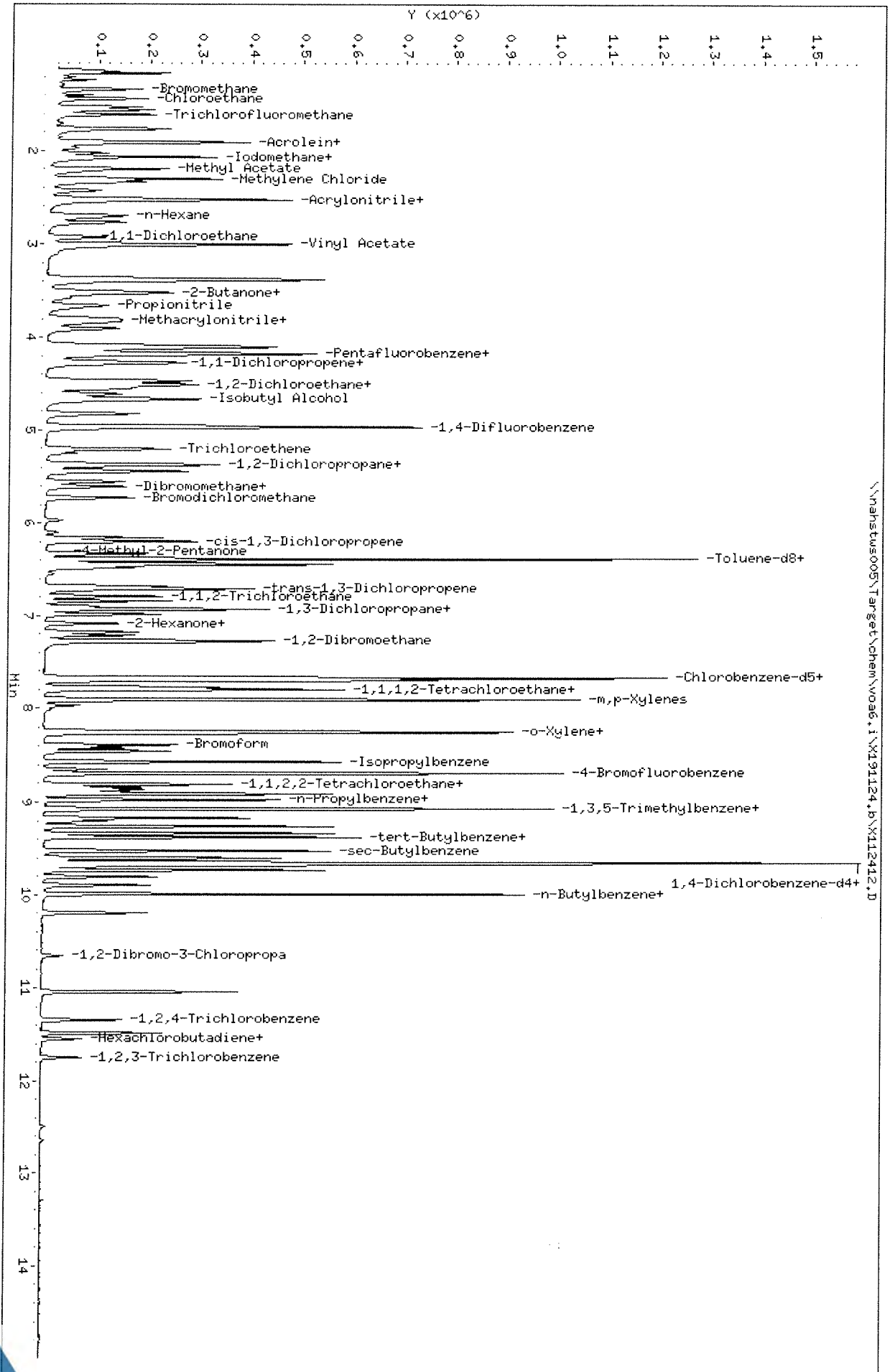
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	472494	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	652154	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	584590	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	313244	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	206148	46.4287	46.42
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	261285	48.0567	48.05
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	208060	48.4391	48.43
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	733983	47.6527	47.65
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	76846	18.1193	18.11
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	115462	18.1138	18.11
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	77463	17.5862	17.58
138 Freon TF	101	1.911	1.919	(0.457)	71843	17.4649	17.46
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	55130	18.0405	18.04
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	120770	17.5669	17.56
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	69527	17.3634	17.36
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	93629	17.7981	17.79
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21781	18.2264	18.22
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	63475	17.0073	17.00(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	46412	17.5892	17.58
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.971)	272441	18.3300	18.33
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.103)	8188	16.6130	16.61
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	73515	17.9303	17.93
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.035)	149754	18.0131	18.01

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D Page 2
Report Date: 17-Dec-2019 15:49

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	91522	17.6786	17.67
42	1,2-Dichloropropane	63	5.443	5.436	(1.095)	68371	17.5504	17.55
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	267622	18.7648	18.76
83	1,3-Dichlorobenzene	146	9.604	9.612	(0.994)	166009	18.4799	18.47
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	108734	17.5259	17.52
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	168293	18.4360	18.43
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	108858	17.4461	17.44
24	2-Butanone	43	3.580	3.573	(0.856)	44003	30.3509	30.35
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	212615	18.8659	18.86
52	2-Hexanone	43	7.090	7.090	(0.924)	78263	32.5901	32.59
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	248653	18.2028	18.20
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	288597	18.8292	18.82
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	113597	33.1645	33.16
10	Acetone	43	1.976	1.976	(0.473)	35194	26.0233	26.02
37	Benzene	78	4.512	4.512	(0.908)	273116	18.3074	18.30
74	Bromobenzene	156	8.809	8.809	(0.912)	100415	18.4450	18.44
29	Bromochloromethane	128	3.795	3.795	(0.908)	44263	17.2926	17.29
39	Bromodichloromethane	83	5.729	5.729	(1.153)	97334	18.0352	18.03
66	Bromoform	173	8.415	8.416	(1.097)	59985	17.8868	17.88
6	Bromomethane	94	1.338	1.338	(0.320)	93106	18.3949	18.39
19	Carbon Disulfide	76	2.069	2.069	(0.495)	402402	36.9401	36.94
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	104884	18.2006	18.20
59	Chlorobenzene	112	7.699	7.699	(1.004)	203181	17.8028	17.80
7	Chloroethane	64	1.403	1.403	(0.336)	49308	16.5748	16.57
28	Chloroform	83	3.910	3.910	(0.935)	128904	16.8457	16.84
3	Chloromethane	50	1.073	1.073	(0.257)	71770	14.1208	14.12
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	81236	18.1296	18.12
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	114576	18.0151	18.01
55	Dibromochloromethane	129	7.176	7.176	(0.936)	79747	17.9632	17.96
44	Dibromomethane	93	5.557	5.557	(1.118)	49076	17.8016	17.80
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	71993	17.3084	17.30
61	Ethylbenzene	106	7.799	7.799	(1.017)	108768	18.4450	18.44
91	Hexachlorobutadiene	225	11.481	11.488	(1.188)	42952	17.0622	17.06
67	Isopropylbenzene	105	8.566	8.566	(1.117)	321812	18.4247	18.42
62	m,p-Xylenes	106	7.907	7.907	(1.031)	260394	36.5937	36.59
17	Methylene Chloride	84	2.305	2.305	(0.551)	71635	16.7672	16.76
87	n-Butylbenzene	91	9.998	9.999	(1.035)	246391	19.3169	19.31
73	n-Propylbenzene	91	8.917	8.917	(0.923)	373119	19.2704	19.27
92	Naphthalene	128	11.546	11.546	(1.195)	54573	16.1253	16.12
63	o-Xylene	106	8.243	8.244	(1.075)	126953	18.0771	18.07
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	323762	19.2483	19.24
64	Styrene	104	8.258	8.258	(1.077)	218409	17.8844	17.88
78	tert-Butylbenzene	119	9.339	9.340	(0.967)	233410	19.1142	19.11
56	Tetrachloroethene	164	6.933	6.933	(0.904)	91203	22.2041	22.20
50	Toluene	91	6.446	6.446	(0.840)	303731	18.3217	18.32
20	trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	69681	17.9240	17.92
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100251	17.2948	17.29
38	Trichloroethene	130	5.206	5.206	(1.048)	85604	18.7697	18.76
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	131338	17.9191	17.91
5	Vinyl Chloride	62	1.138	1.138	(0.272)	78167	16.2323	16.23

QC Flag Legend

M - Compound response manually integrated.



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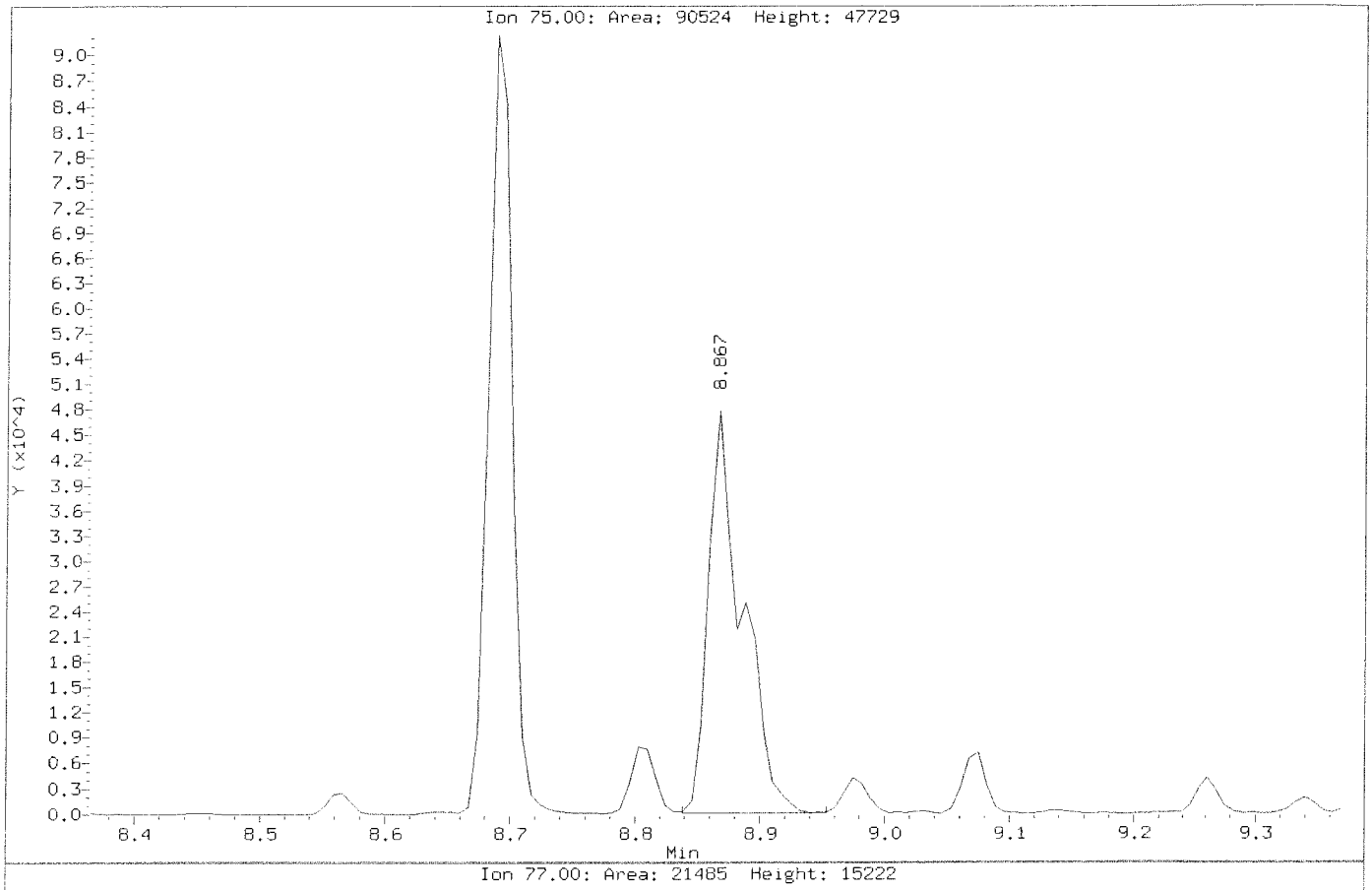
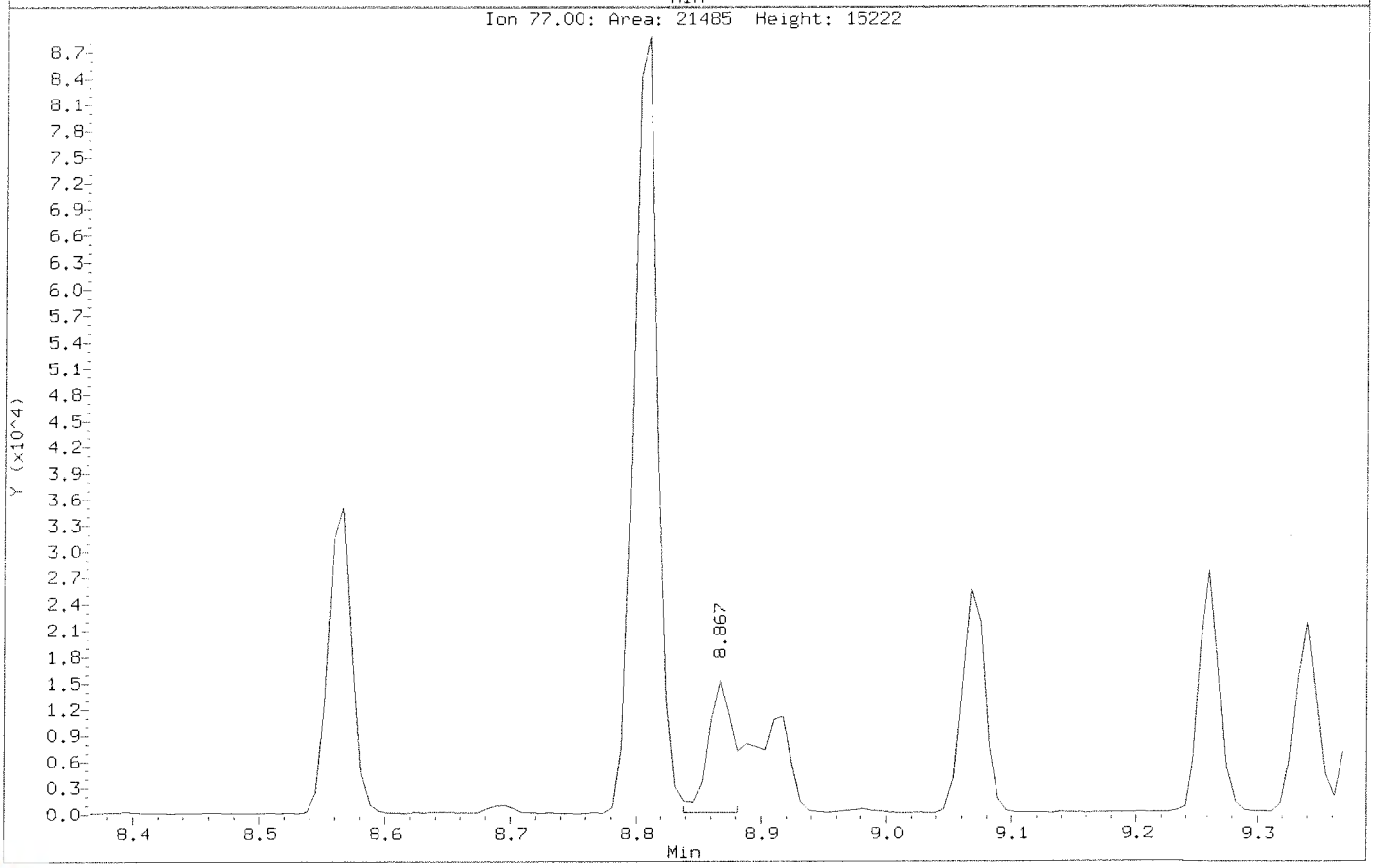
Client ID: HS191111239-05HSD
Sample Info: HS191111239-05HSD;HS191111239-05HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112412.D
Injection Date: 24-NOV-2019 16:37
Instrument: voa6.i
Client Sample ID: HS19111239-05MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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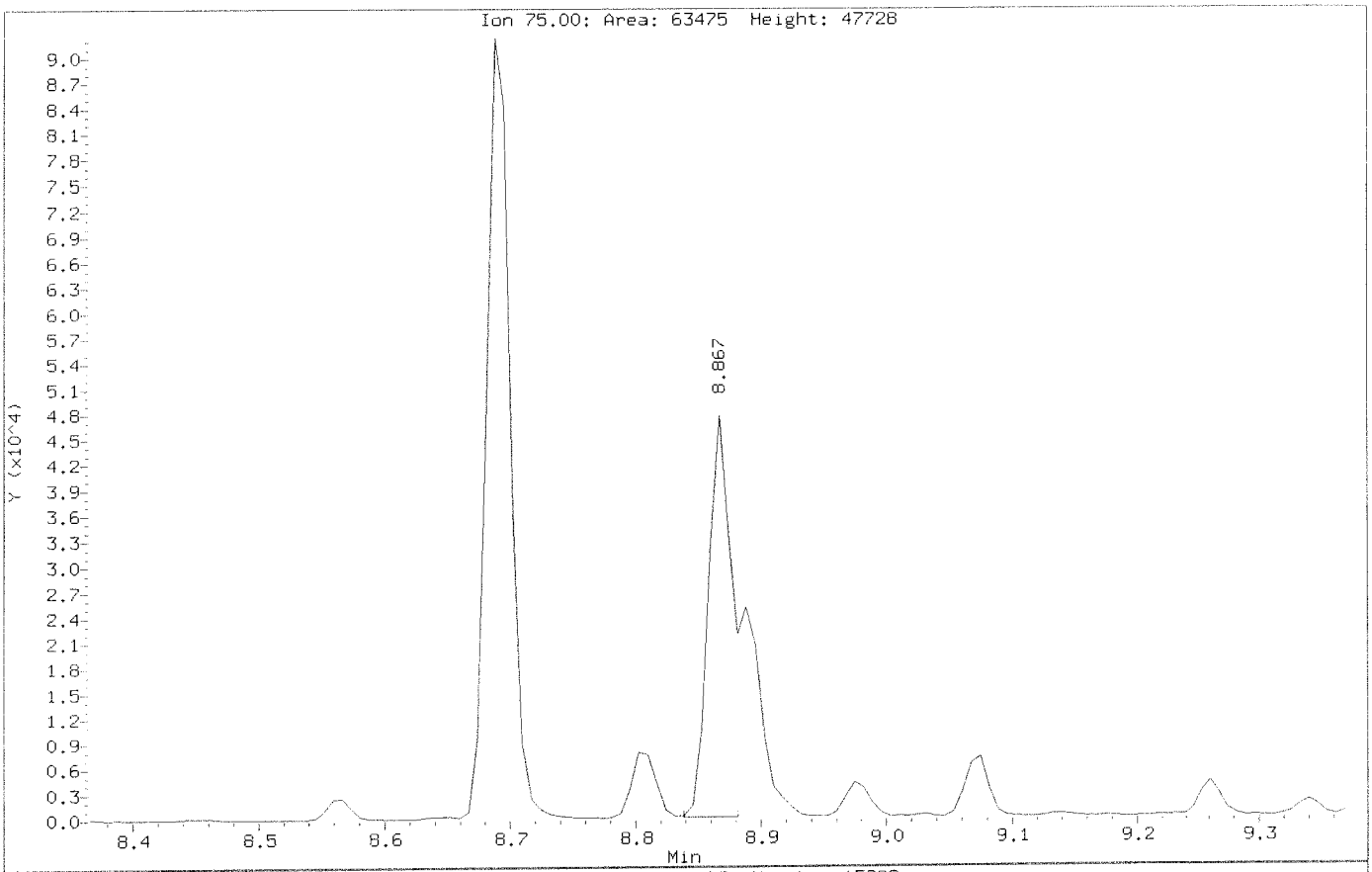
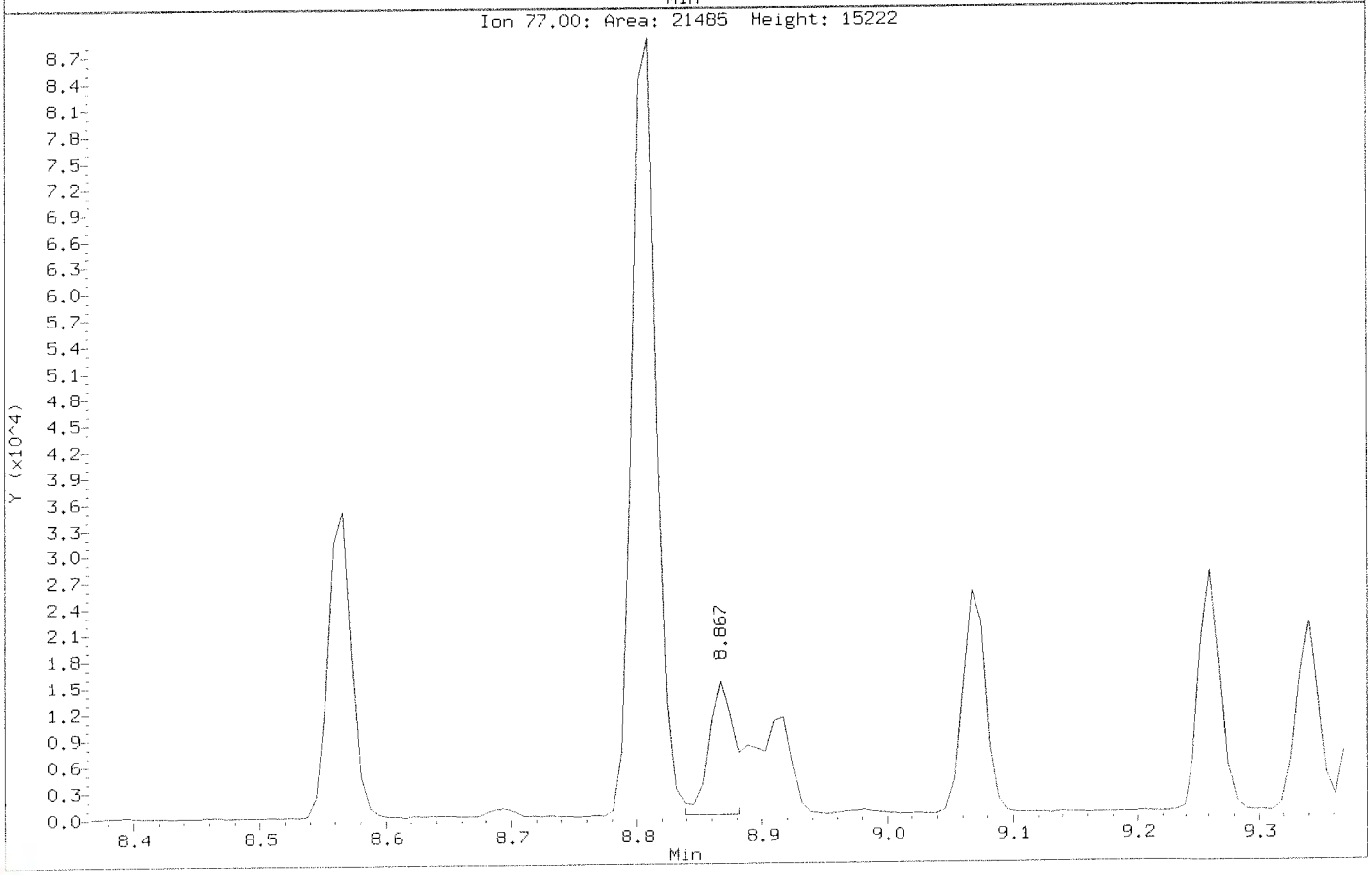
Instrument: voa6.i
Client Sample ID: HS19111239-05MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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Report Date: 17-Dec-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112414.D
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Inj Date : 24-NOV-2019 17:25
Operator : PC Inst ID: voa6.i
Smp Info : HS19111153-01;HS19111153-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

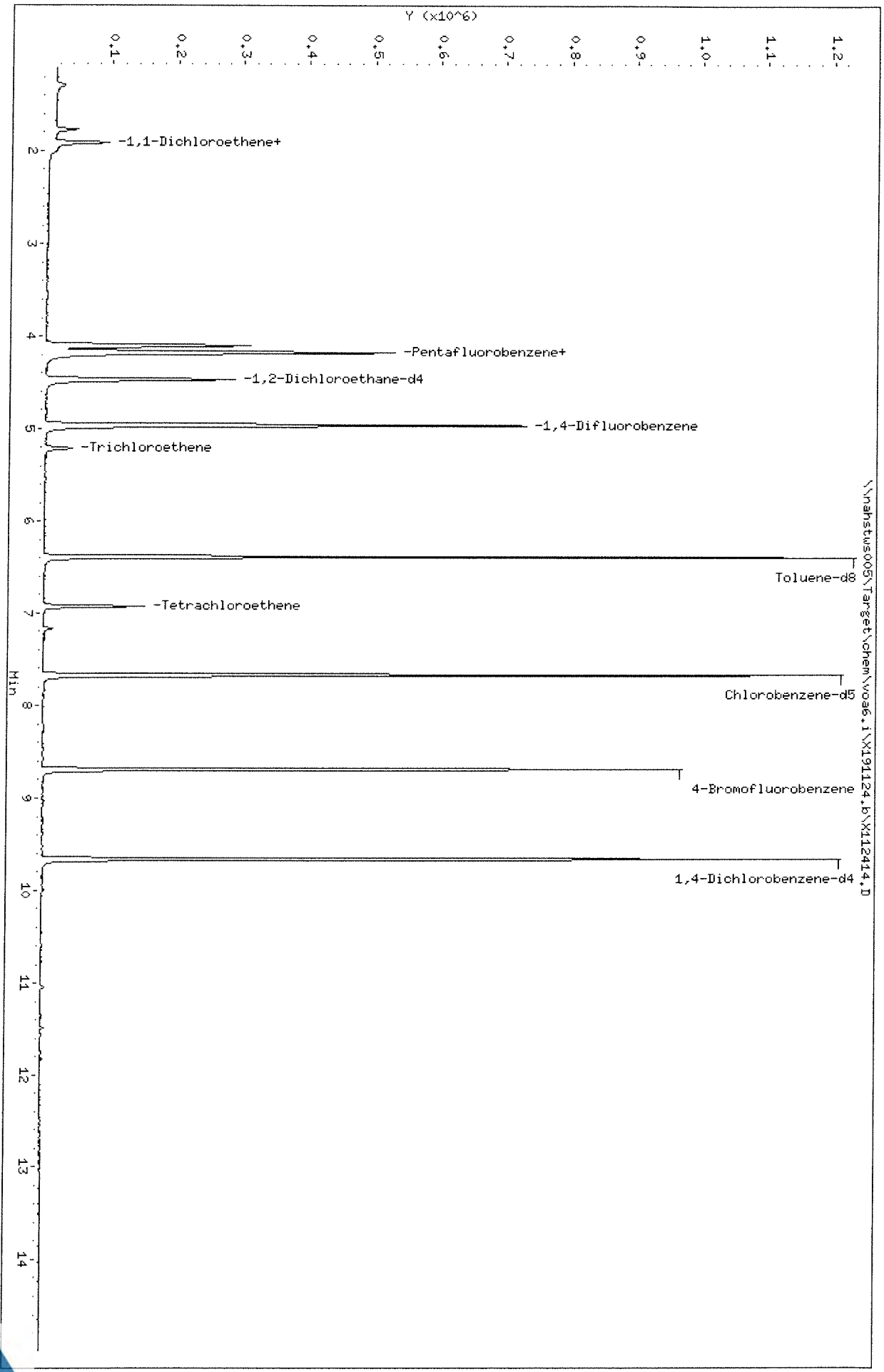
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	481308	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	659523	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	585647	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	298914	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	211440	46.7434	46.74
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	254922	46.8127	46.81
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	209887	47.9732	47.97
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	740193	47.9692	47.96
138 Freon TF	101	1.919	1.919	(0.459)	31594	7.53980	7.53
11 1,1-Dichloroethene	96	1.919	1.911	(0.459)	3044	0.74627	0.74(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	33224	8.07405	8.07
38 Trichloroethene	130	5.214	5.206	(1.049)	14553	3.15526	3.15(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112414.D
Date : 24-NOV-2019 17:25
Client ID: HS19111153-01
Sample Info: HS19111153-01;HS19111153-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112414.D Page 3

Date : 24-NOV-2019 17:25

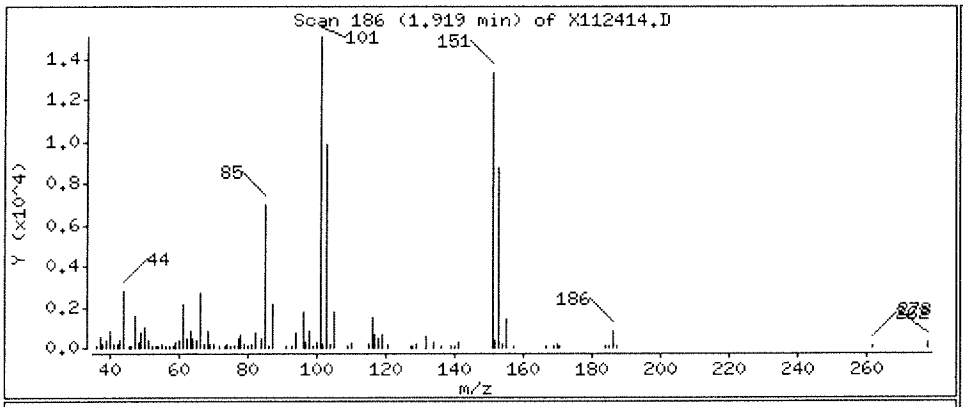
Client ID: HS19111153-01 Instrument: voa6.i

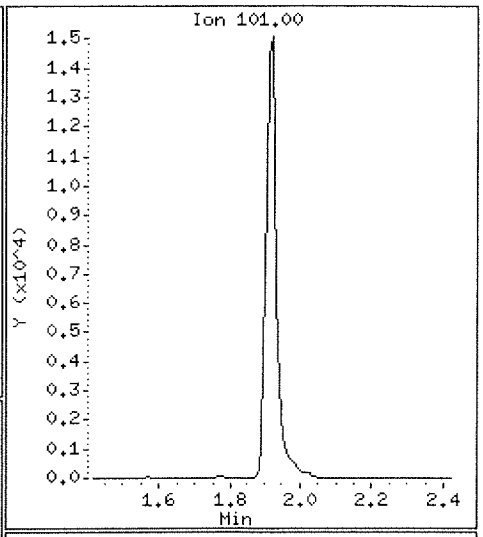
Sample Info: HS19111153-01;HS19111153-01;;;

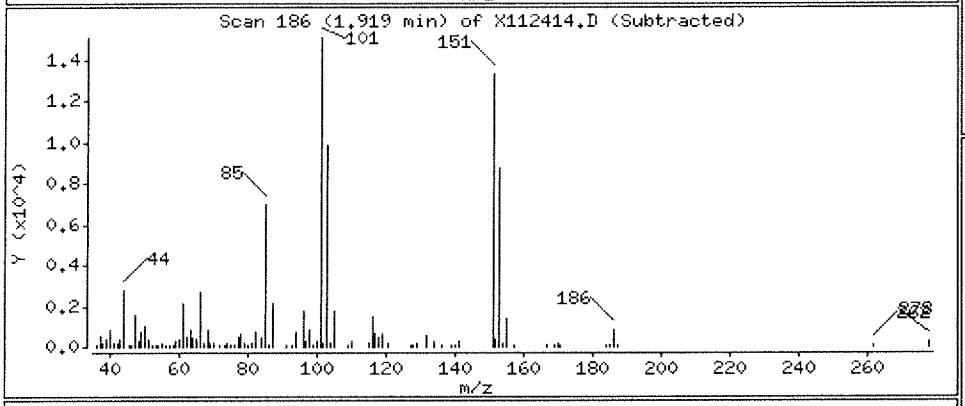
Purge Volume: 5.0 Operator: PC

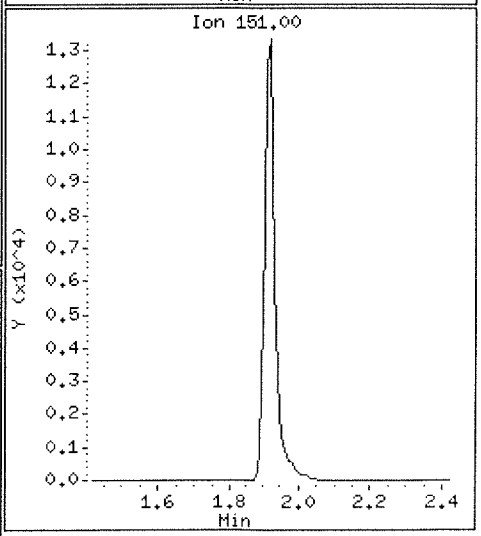
Column phase: DB624 Column diameter: 0.18

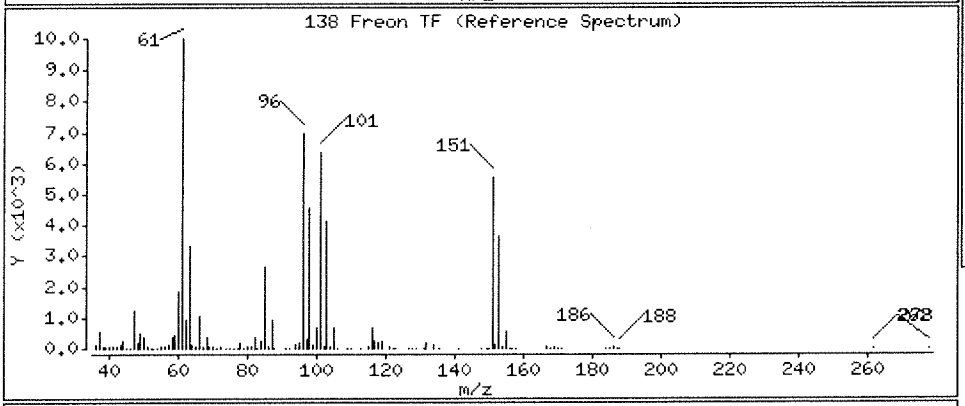
138 Freon TF Concentration: 7.53 ug/l

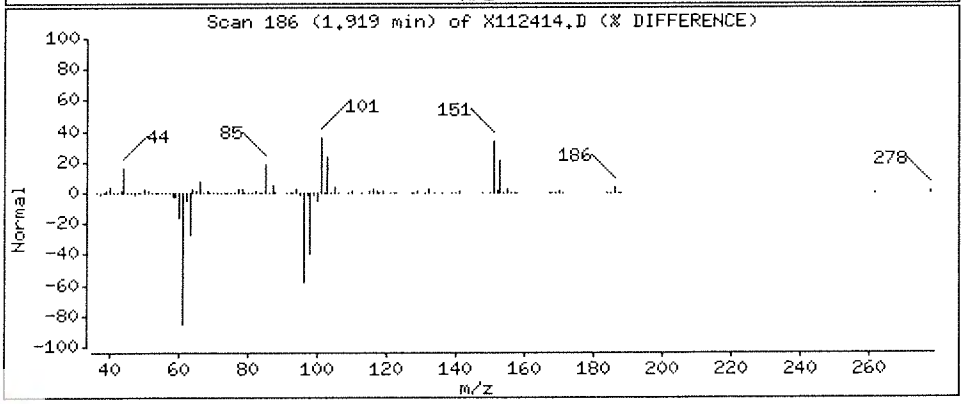












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112414.D

Date : 24-NOV-2019 17:25

Client ID: HS19111153-01

Instrument: voa6.i

Sample Info: HS19111153-01;HS19111153-01;;;

Purge Volume: 5.0

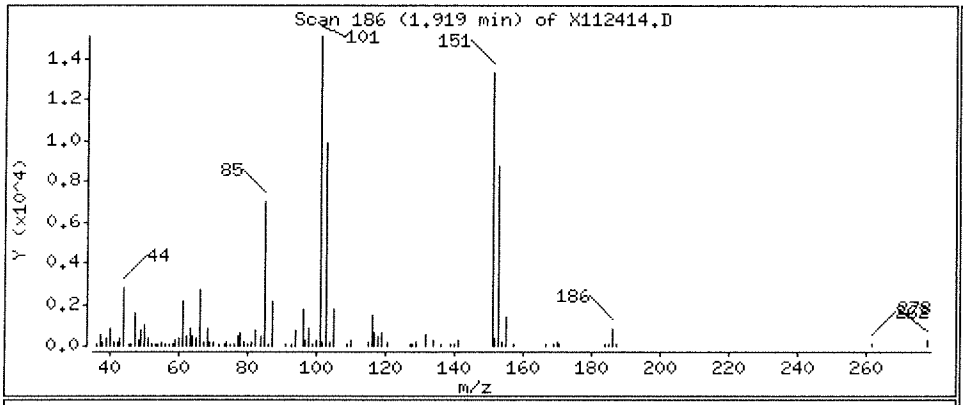
Operator: PC

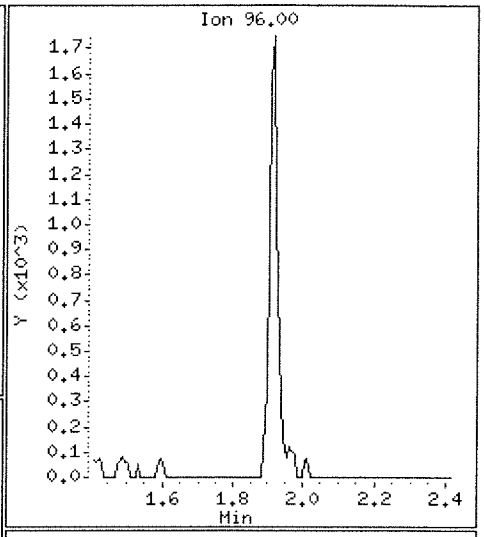
Column phase: DB624

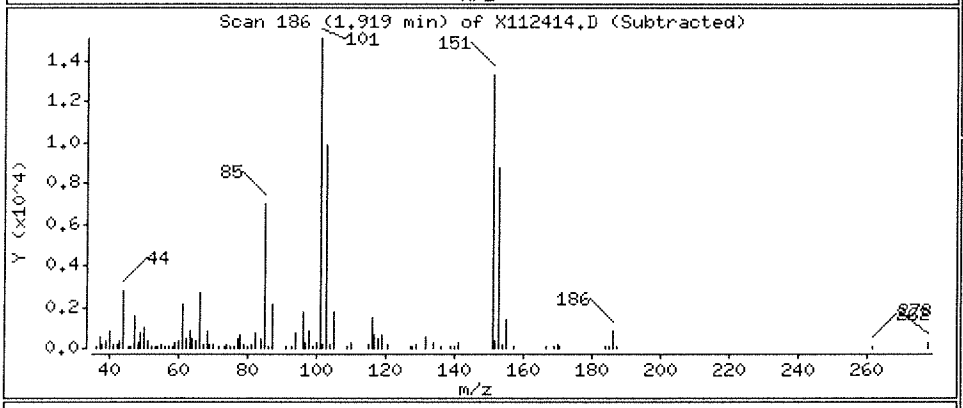
Column diameter: 0.18

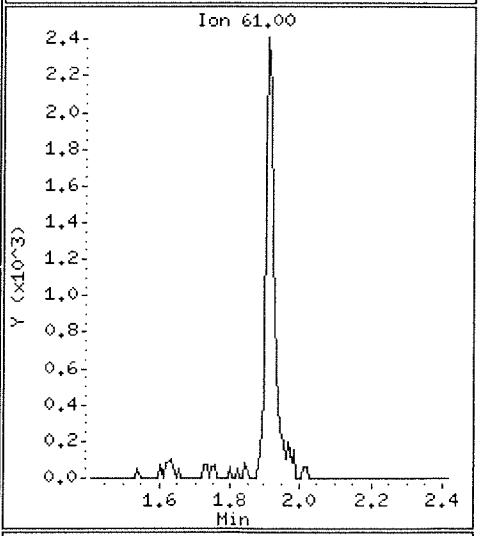
11 1,1-Dichloroethene

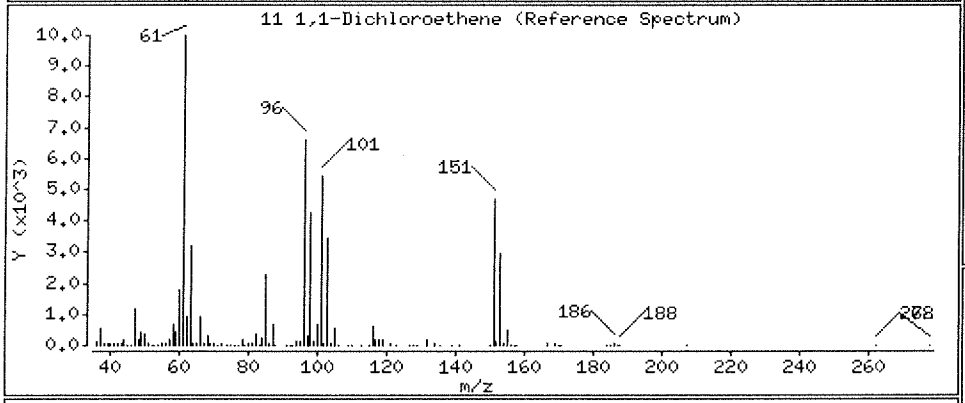
Concentration: 0.74 ug/l

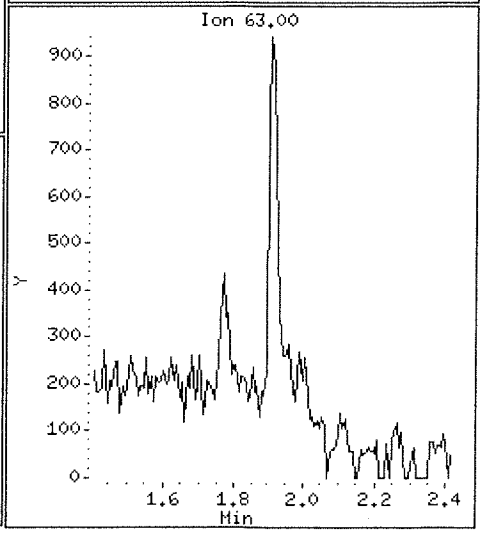


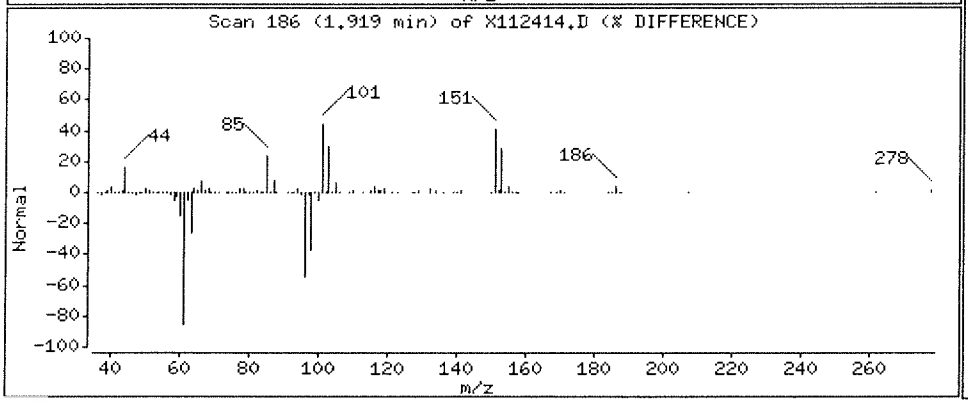












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112414.D

Date : 24-NOV-2019 17:25

Client ID: HS19111153-01

Instrument: voa6.i

Sample Info: HS19111153-01;HS19111153-01;;;

Purge Volume: 5.0

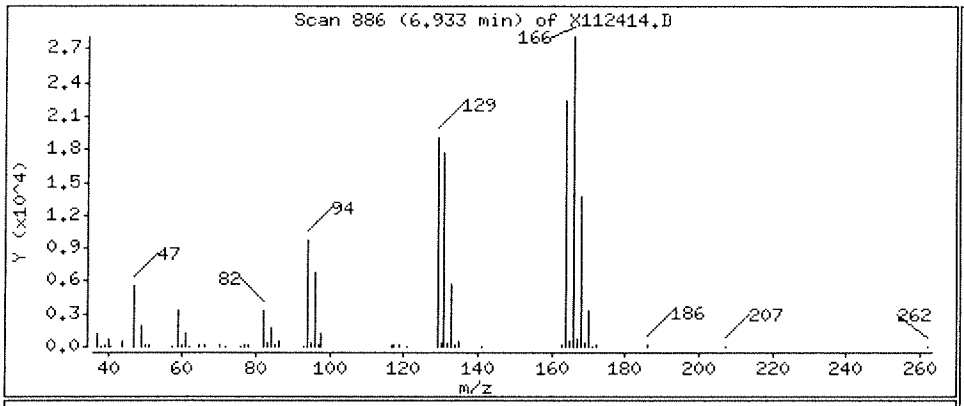
Operator: PC

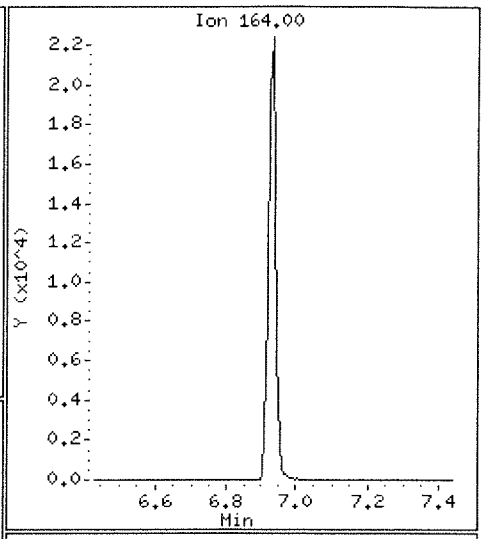
Column phase: DB624

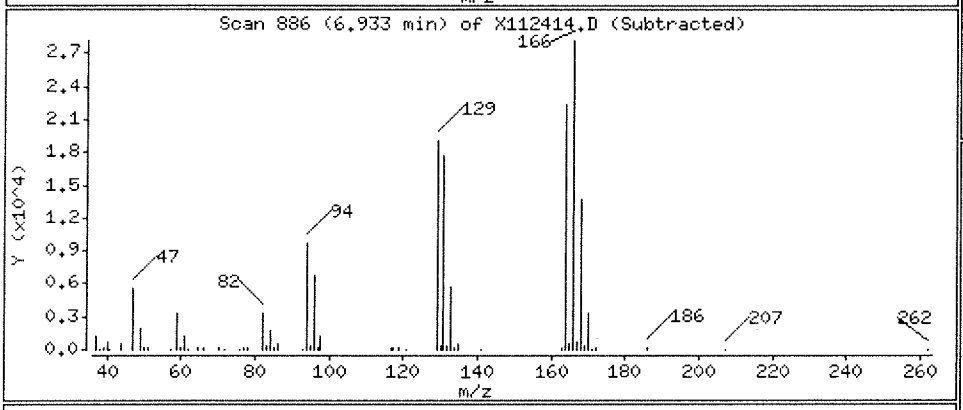
Column diameter: 0.18

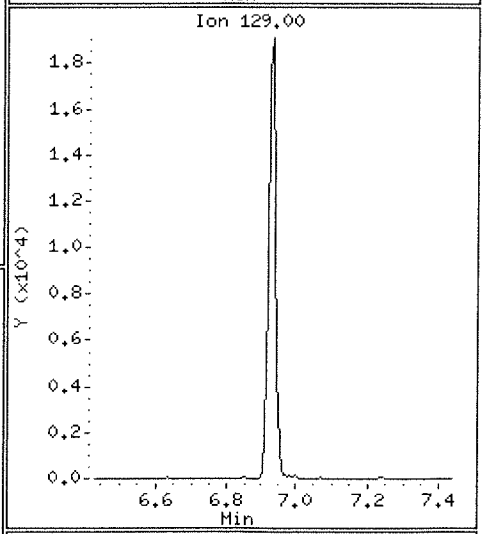
56 Tetrachloroethene

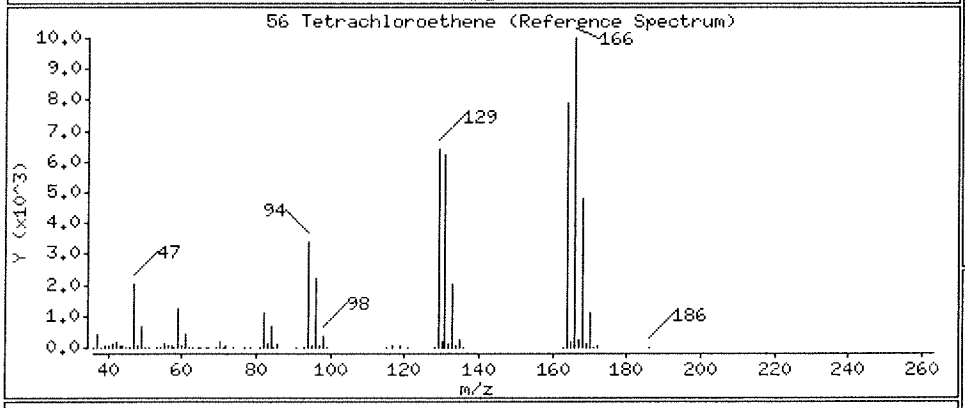
Concentration: 8.07 ug/l

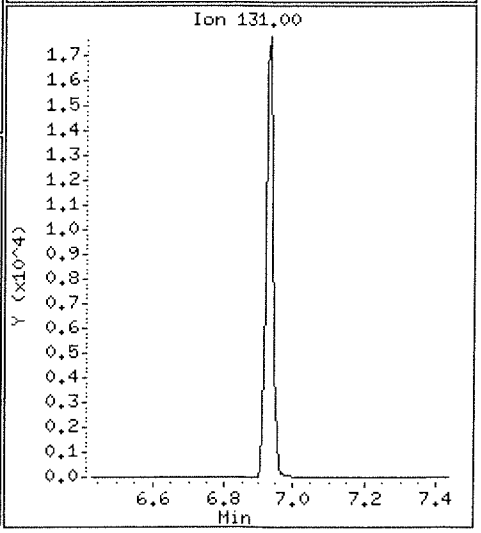


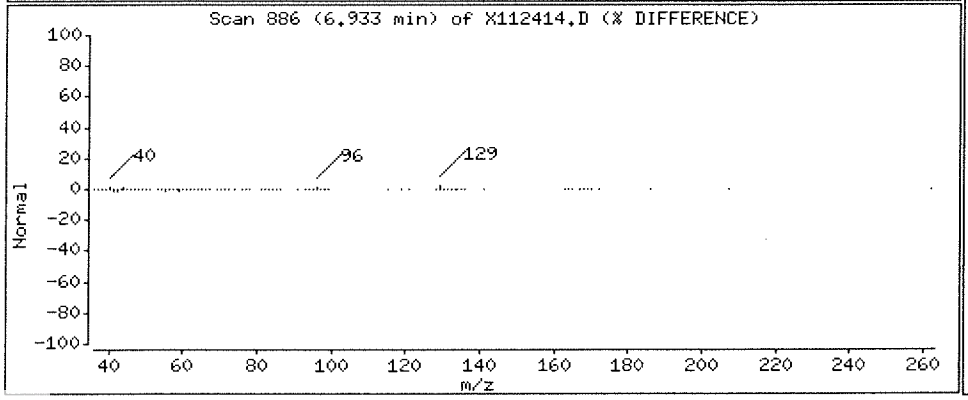












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112414.D

Date : 24-NOV-2019 17:25

Client ID: HS19111153-01

Instrument: voa6.i

Sample Info: HS19111153-01;HS19111153-01;;;

Purge Volume: 5.0

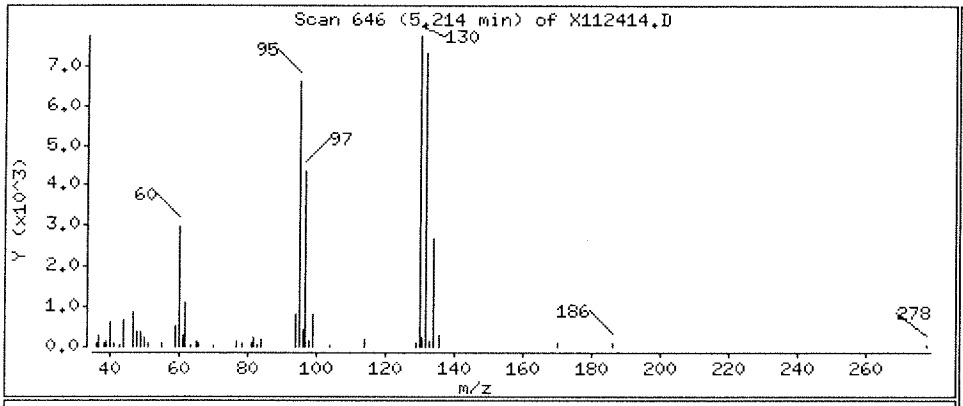
Operator: PC

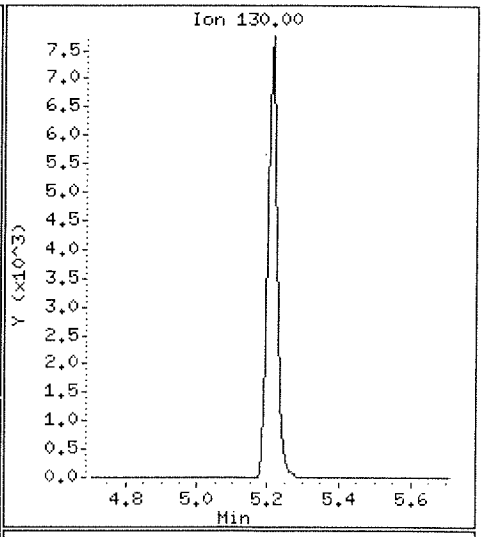
Column phase: DB624

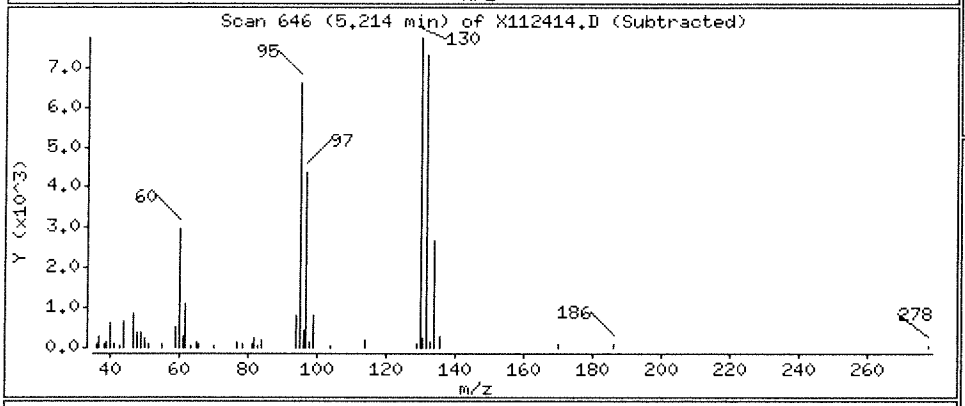
Column diameter: 0.18

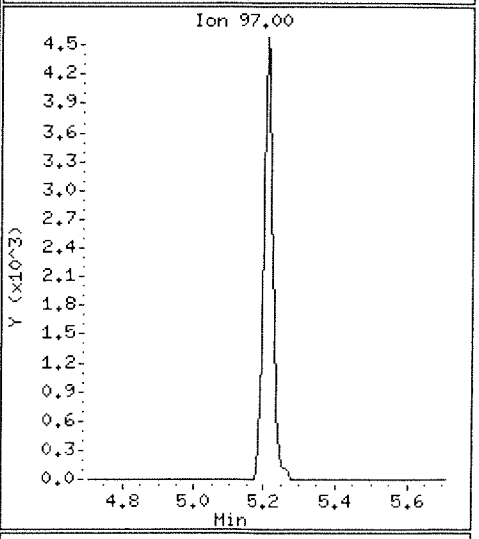
38 Trichloroethene

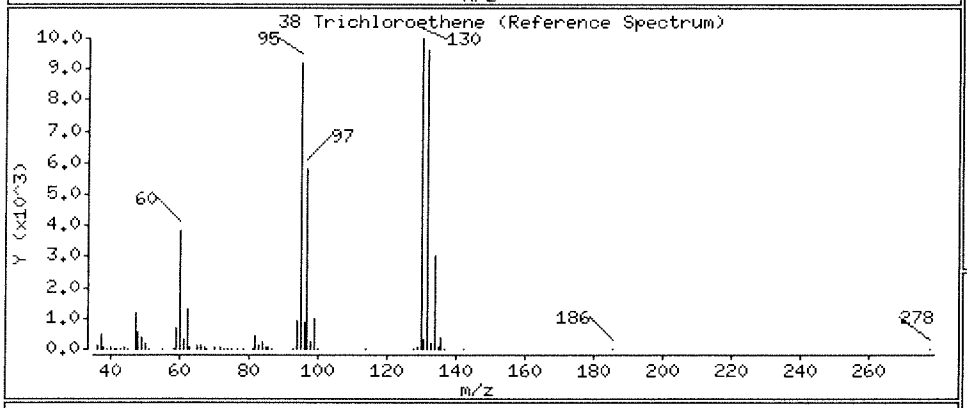
Concentration: 3.15 ug/l

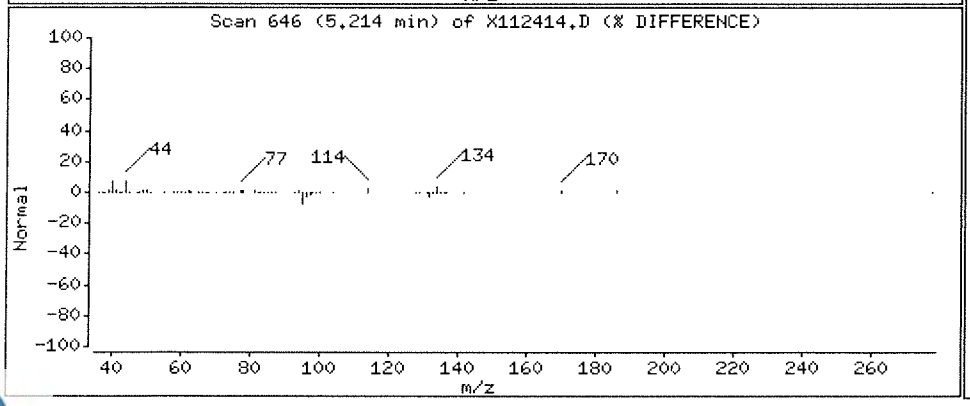


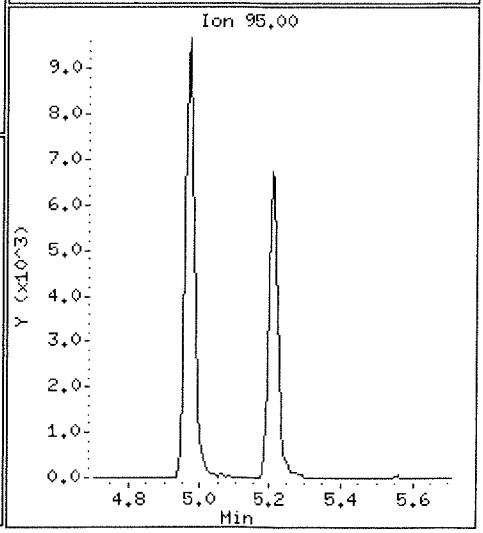












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112415.D Page 1
Report Date: 17-Dec-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112415.D
Lab Smp Id: HS19111153-02 Client Smp ID: HS19111153-02
Inj Date : 24-NOV-2019 17:49
Operator : PC Inst ID: voa6.i
Smp Info : HS19111153-02;HS19111153-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

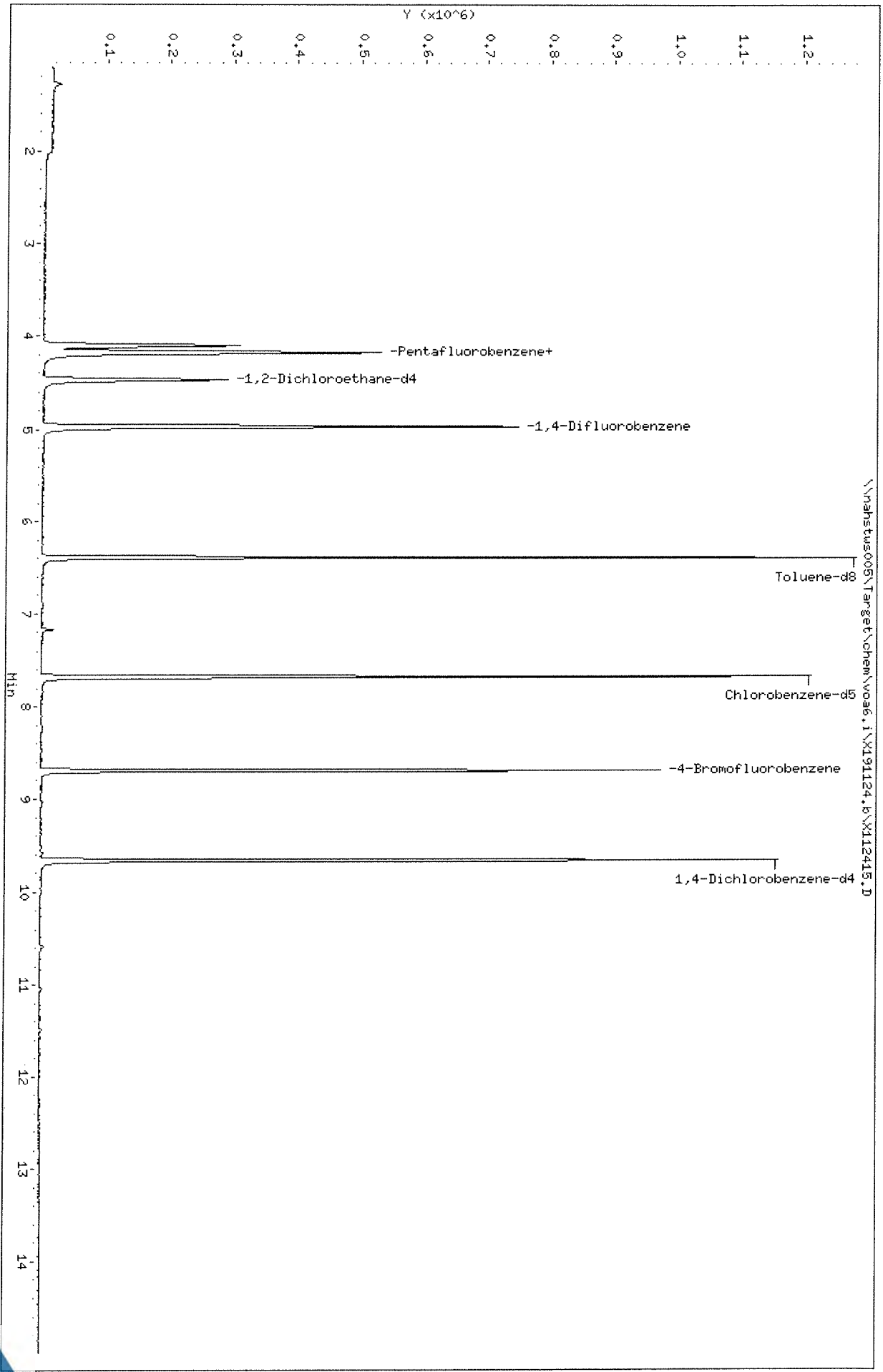
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	481747	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	659984	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	583117	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	293650	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	209007	46.1726	46.17
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	252050	46.4890	46.48
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	209931	47.9398	47.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	752134	48.9545	48.95

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112415.D
Date : 24-NOV-2019 17:49
Client ID: HS19111153-02
Sample Info: HS19111153-02;HS19111153-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112416.D Page 1
Report Date: 17-Dec-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112416.D
Lab Smp Id: HS19111153-03 Client Smp ID: HS19111153-03
Inj Date : 24-NOV-2019 18:13
Operator : PC Inst ID: voa6.i
Smp Info : HS19111153-03;HS19111153-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

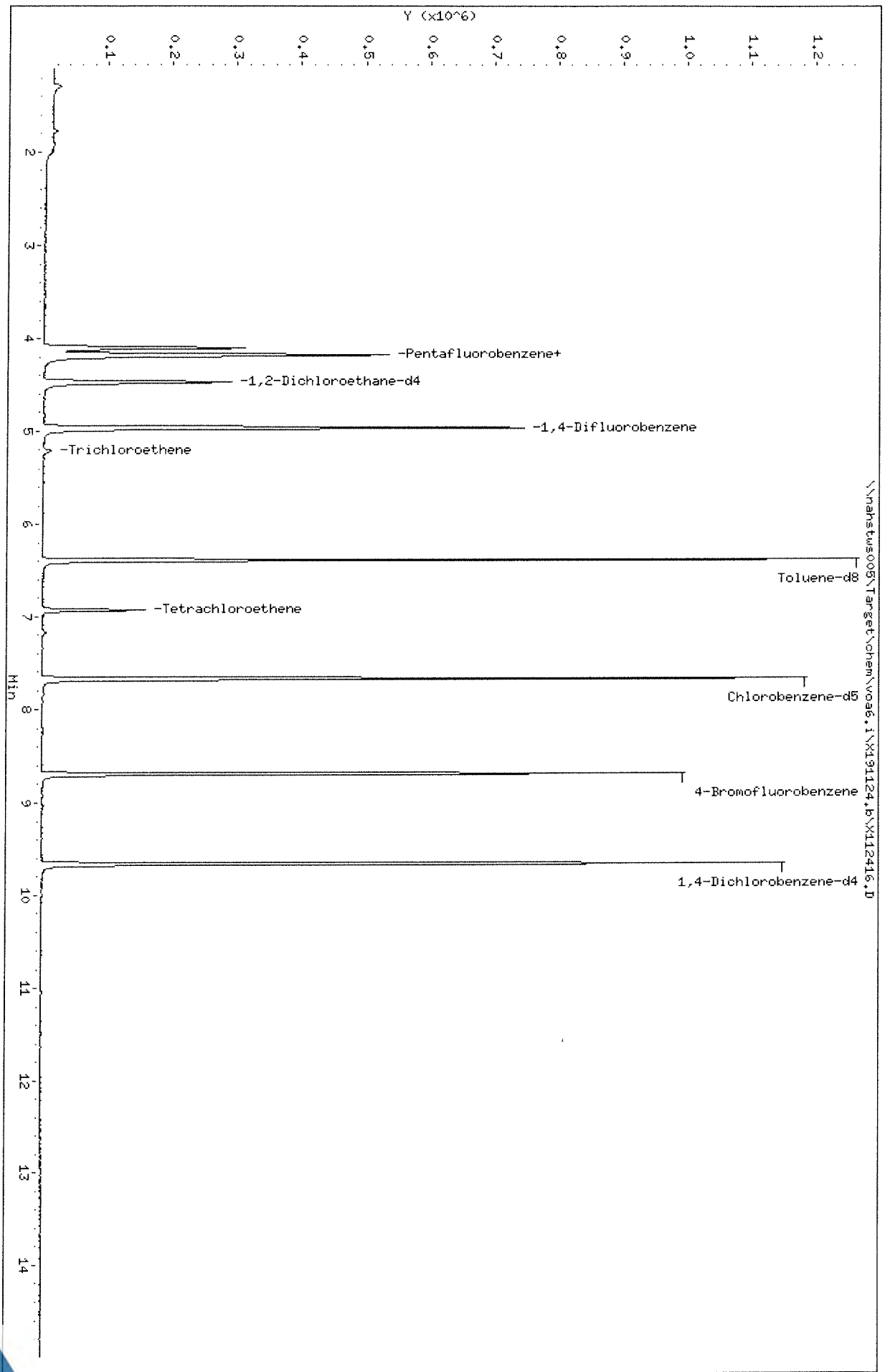
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	484797	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	662716	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	584329	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	293035	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	211454	46.4154	46.41
$	69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	250961	46.1948	46.19
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	212333	48.1814	48.18
$	48 Toluene-d8	98	6.388	6.388	(0.833)	751292	48.7983	48.79
	56 Tetrachloroethene	164	6.933	6.933	(0.904)	33936	8.26568	8.26
	38 Trichloroethene	130	5.206	5.206	(1.048)	4306	0.92909	0.92(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112416.D
Date : 24-NOV-2019 18:13
Client ID: HS191111153-03
Sample Info: HS191111153-03;HS191111153-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112416.D

Date : 24-NOV-2019 18:13

Client ID: HS19111153-03

Instrument: voa6.i

Sample Info: HS19111153-03;HS19111153-03;;;

Purge Volume: 5.0

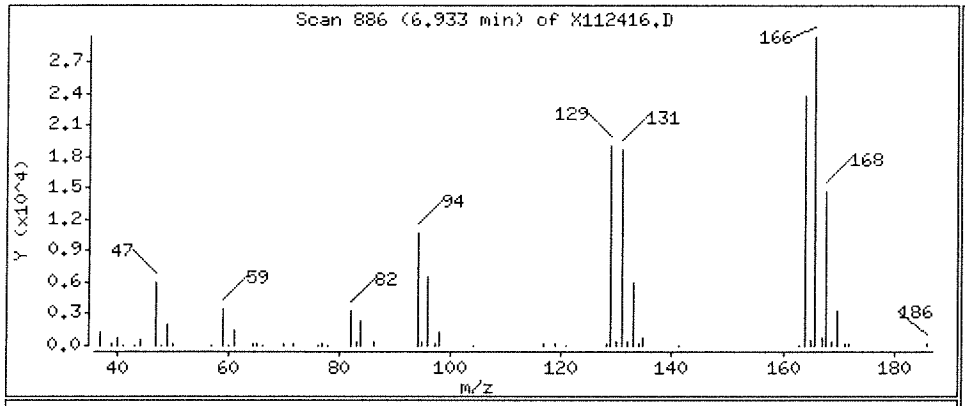
Operator: PC

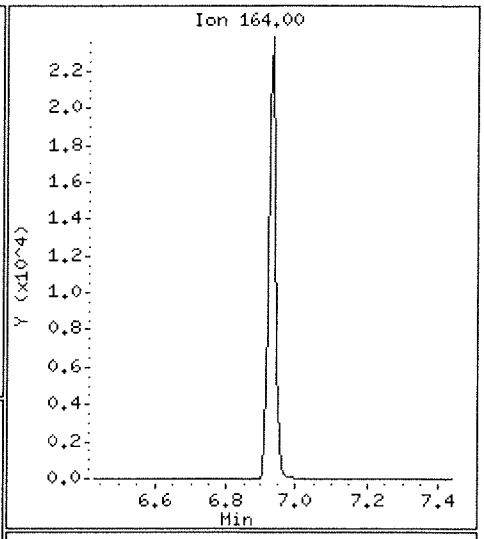
Column phase: DB624

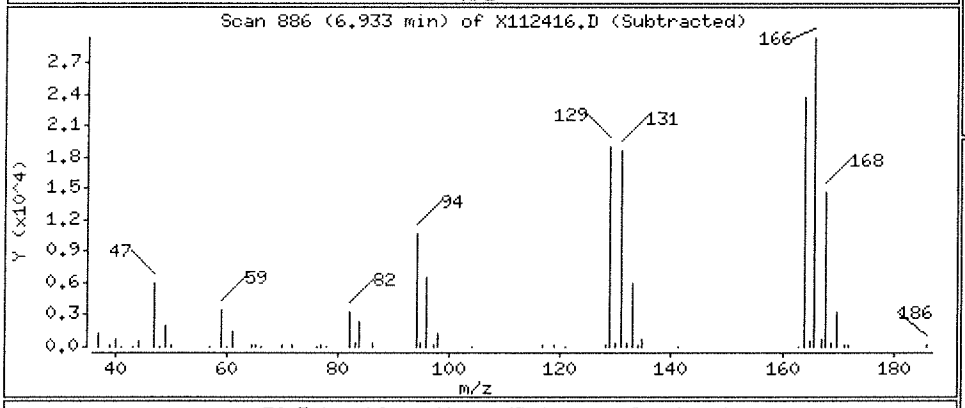
Column diameter: 0.18

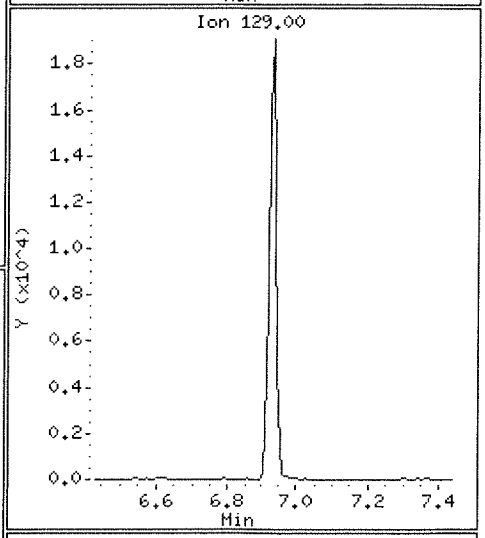
56 Tetrachloroethene

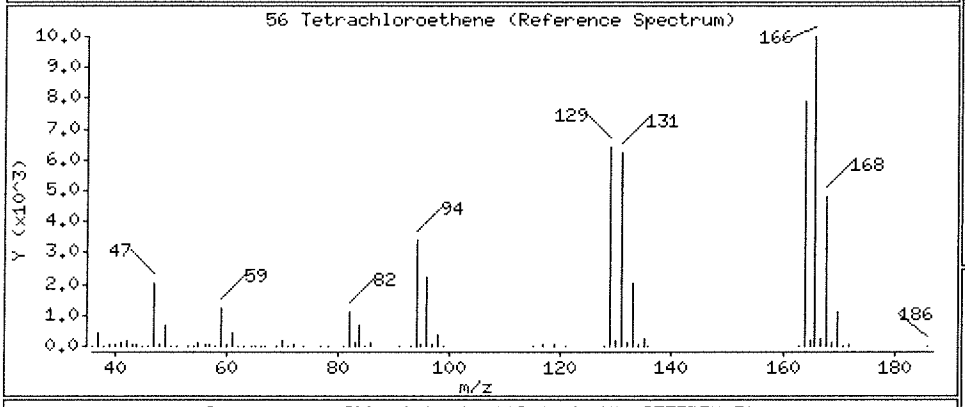
Concentration: 8.26 ug/l

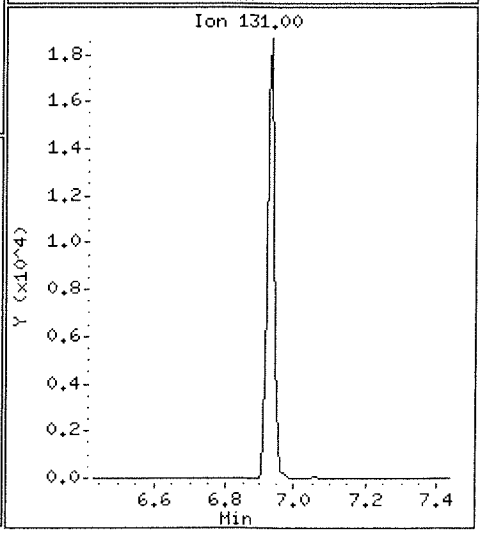


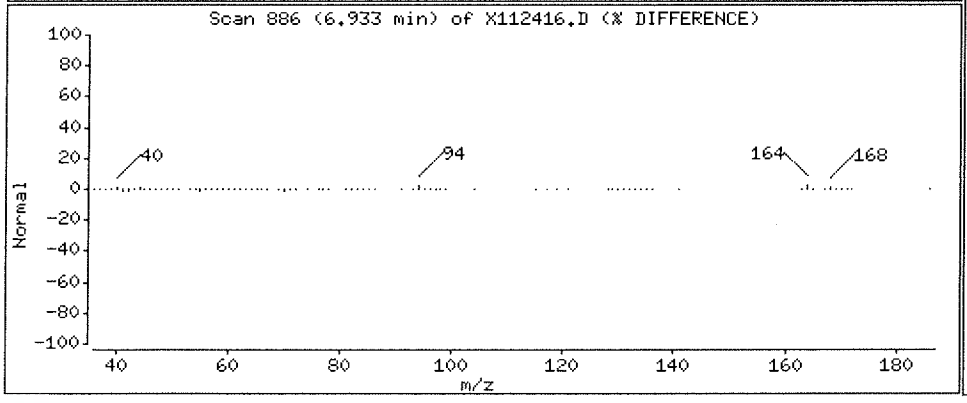












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112416.D

Date : 24-NOV-2019 18:13

Client ID: HS19111153-03

Instrument: voa6.i

Sample Info: HS19111153-03;HS19111153-03;;;

Purge Volume: 5.0

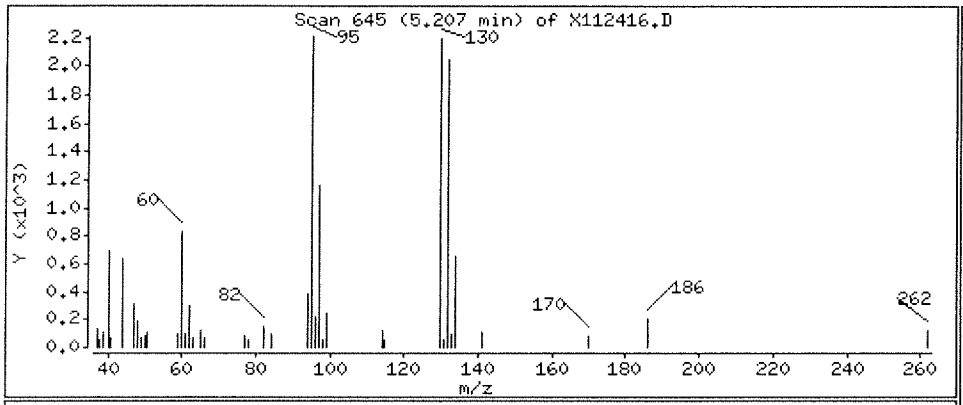
Operator: PC

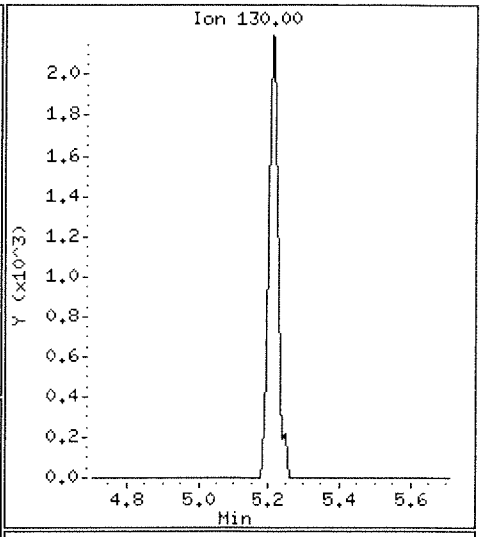
Column phase: DB624

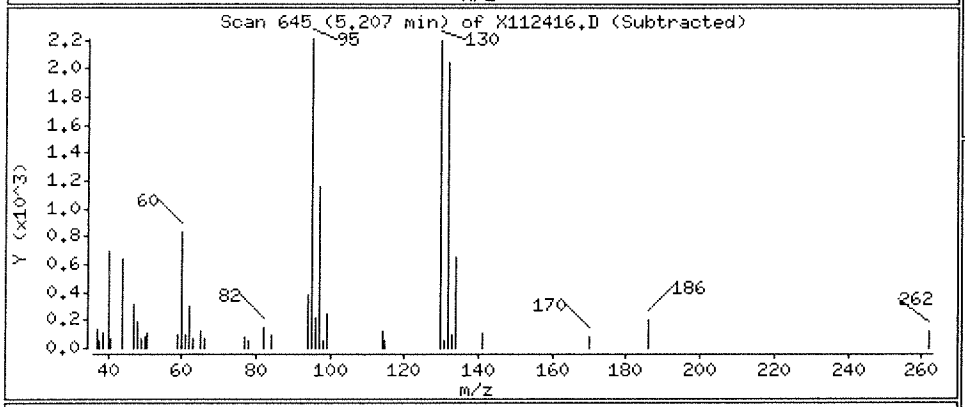
Column diameter: 0.18

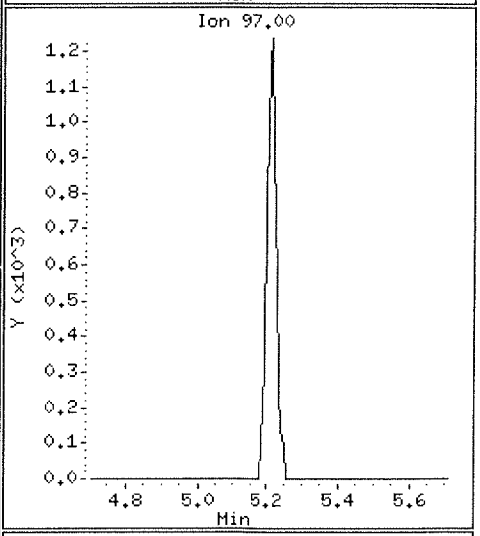
38 Trichloroethene

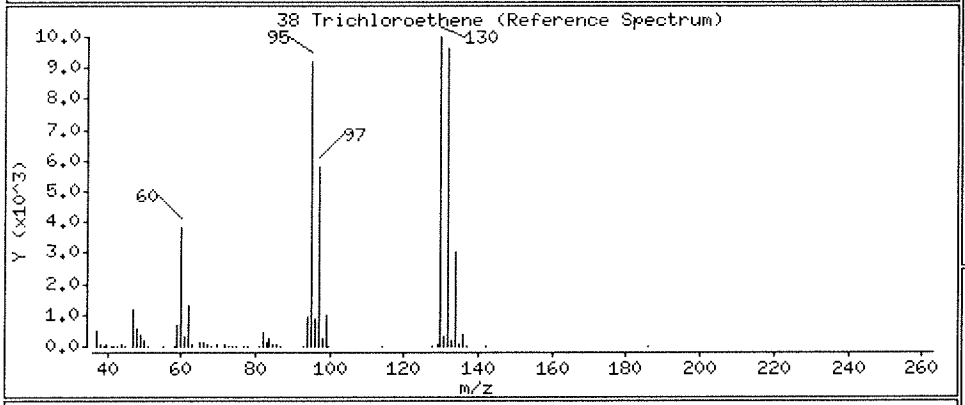
Concentration: 0.92 ug/l

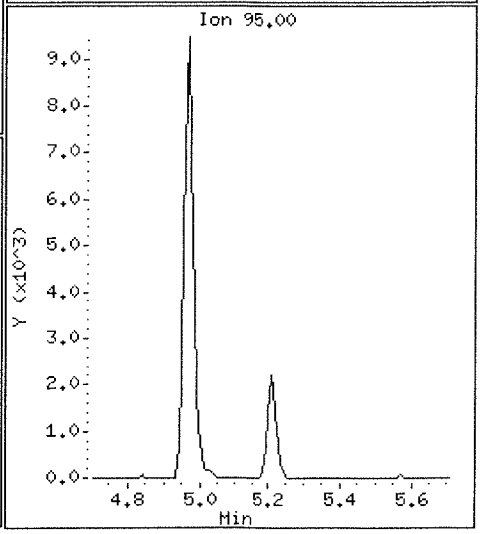


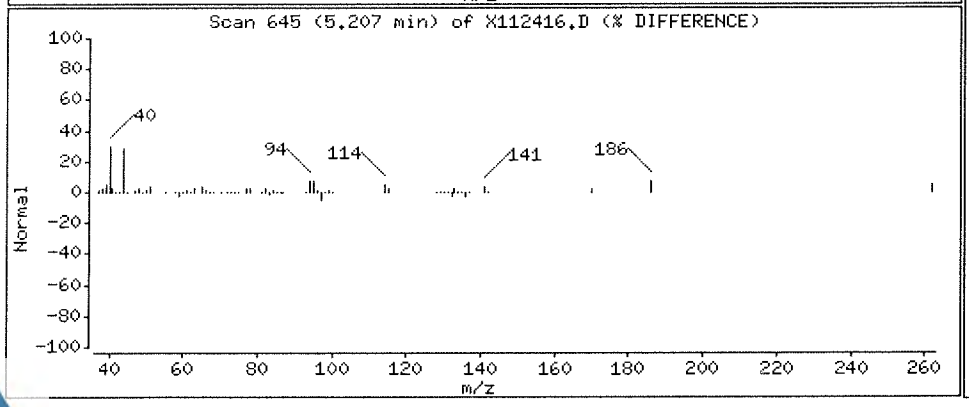












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112417.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112417.D
Lab Smp Id: HS19111153-04 Client Smp ID: HS19111153-04
Inj Date : 24-NOV-2019 18:37
Operator : PC Inst ID: voa6.i
Smp Info : HS19111153-04;HS19111153-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

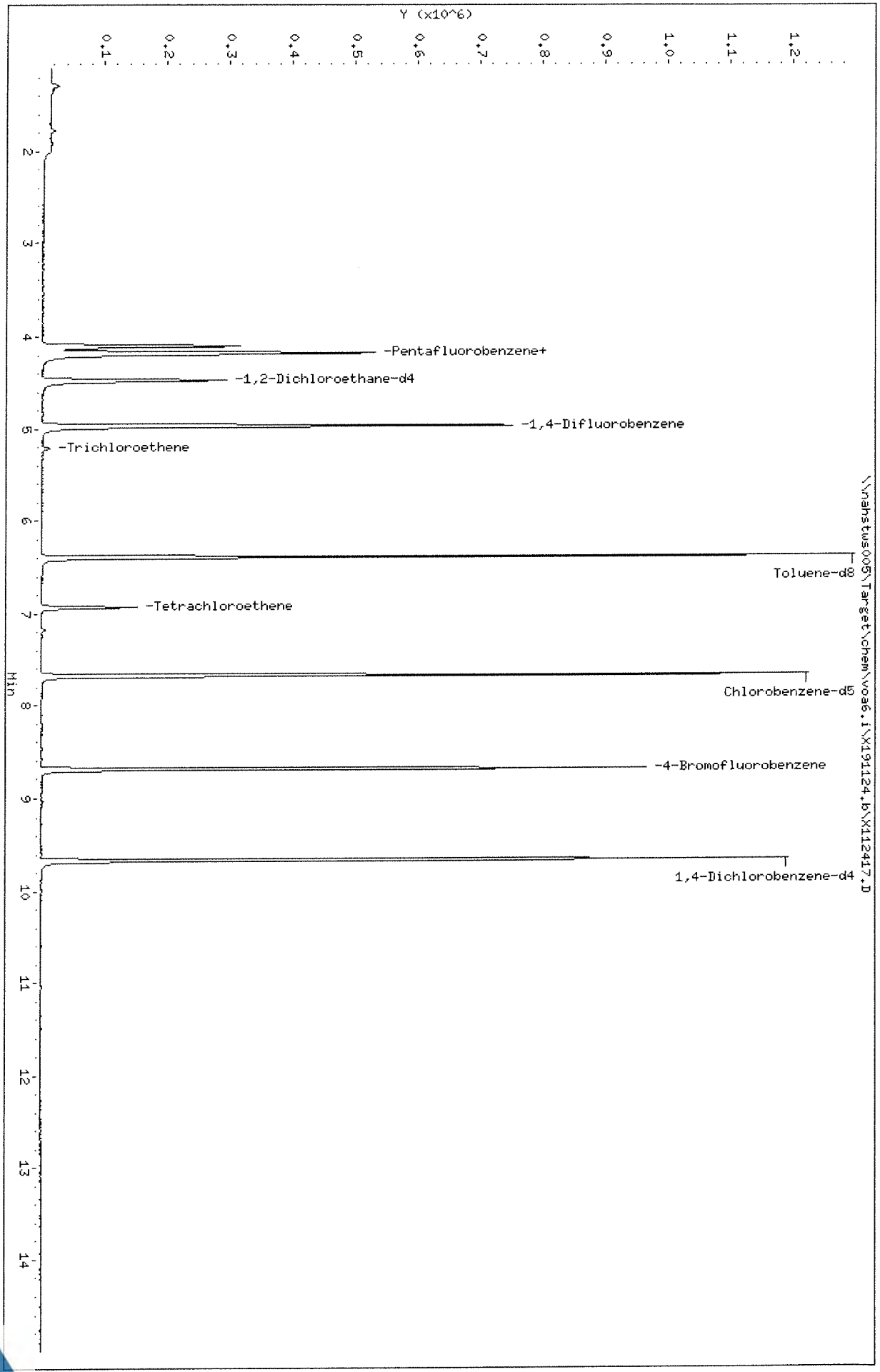
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	491312	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	665789	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	590794	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	299918	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	213116	46.1639	46.16
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	254824	46.3908	46.39
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	214180	47.9577	47.95
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	757745	48.6788	48.67
56 Tetrachloroethene	164	6.933	6.933	(0.904)	31993	7.70716	7.70
38 Trichloroethene	130	5.214	5.206	(1.049)	4326	0.92910	0.92(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112417.D
Date : 24-NOV-2019 18:37
Client ID: HS19111153-04
Sample Info: HS19111153-04;HS19111153-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112417.D Page 3

Date : 24-NOV-2019 18:37

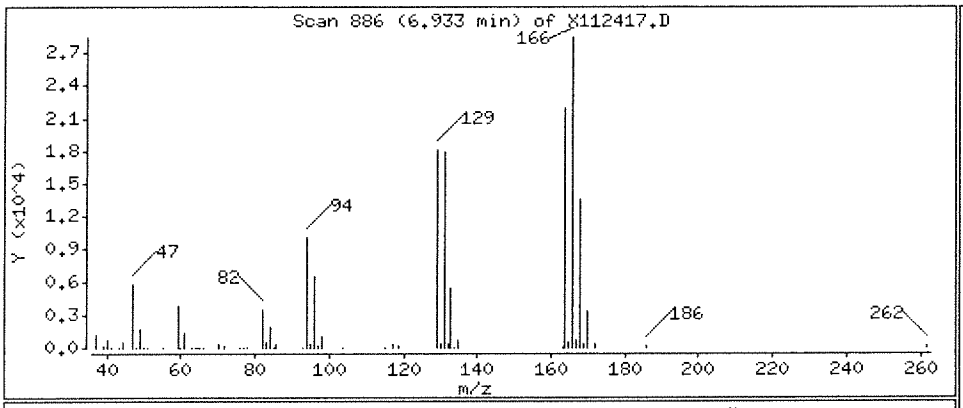
Client ID: HS19111153-04 Instrument: voa6.i

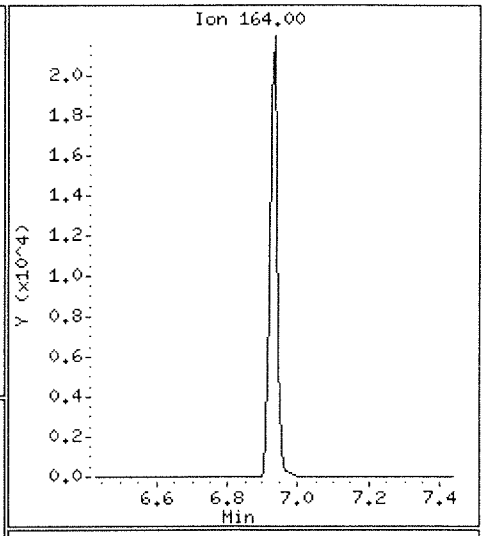
Sample Info: HS19111153-04;HS19111153-04;;;

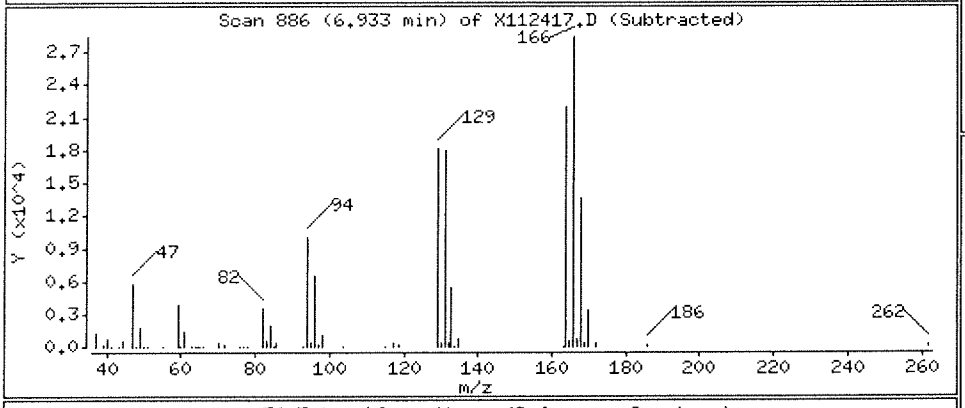
Purge Volume: 5.0 Operator: PC

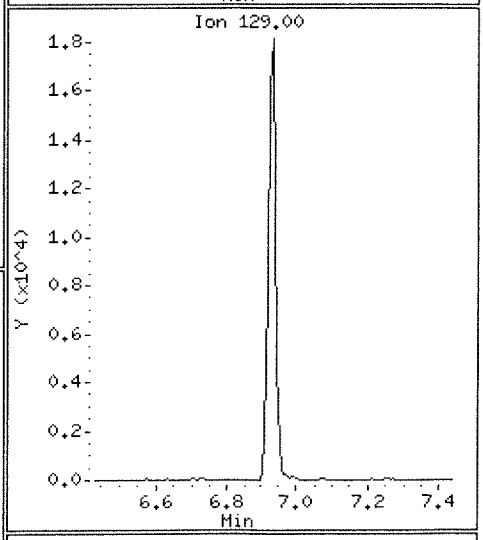
Column phase: DB624 Column diameter: 0.18

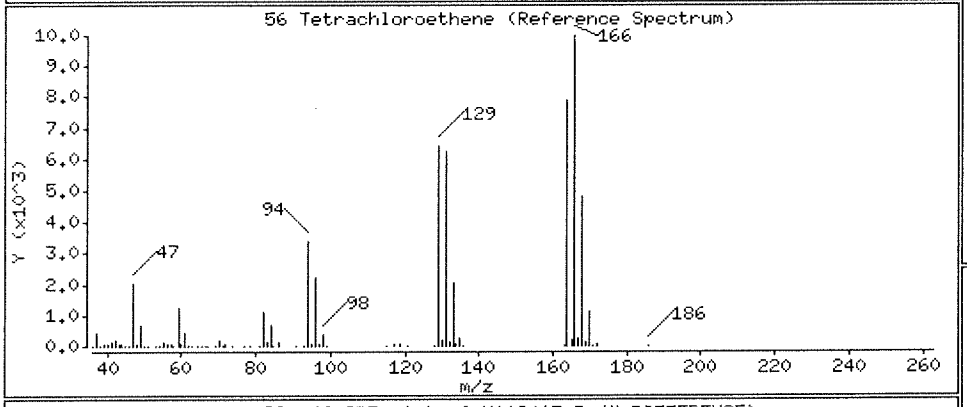
56 Tetrachloroethene Concentration: 7.70 ug/l

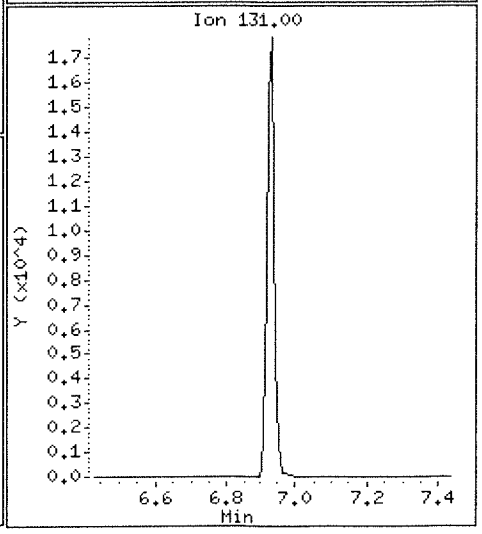


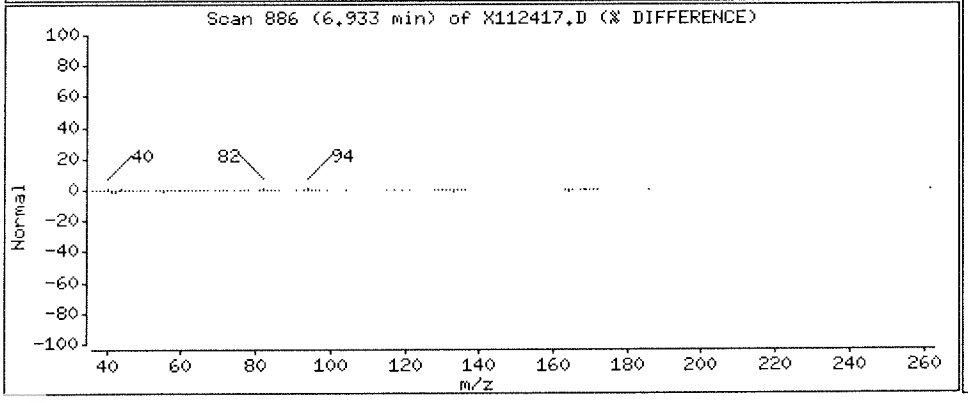












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112417.D Page 4

Date : 24-NOV-2019 18:37

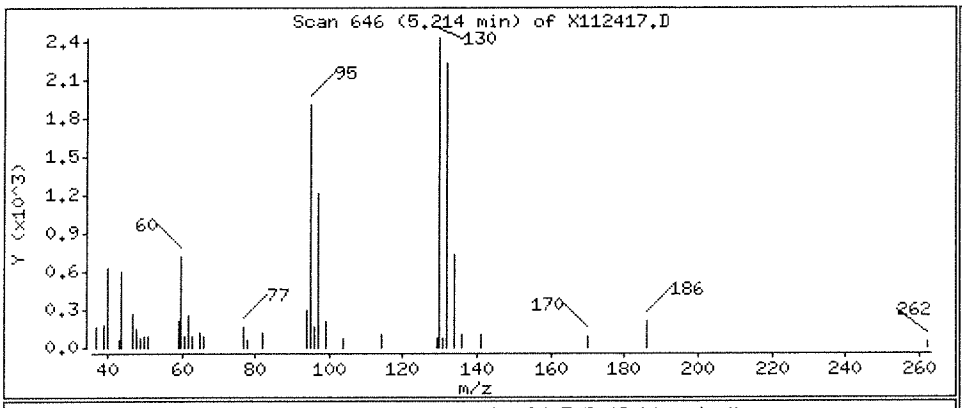
Client ID: HS19111153-04 Instrument: voa6.i

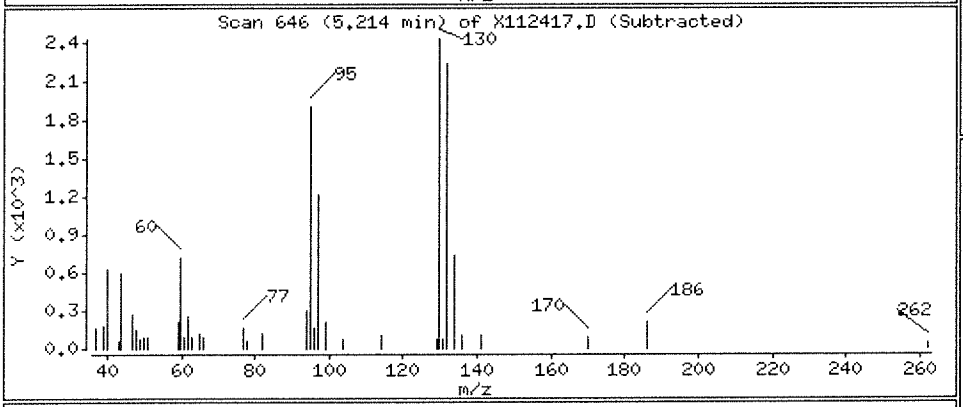
Sample Info: HS19111153-04;HS19111153-04;;;

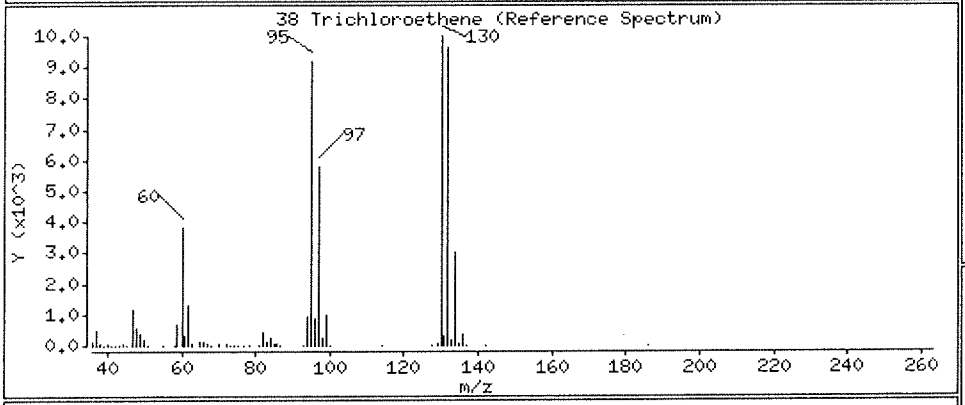
Purge Volume: 5.0 Operator: PC

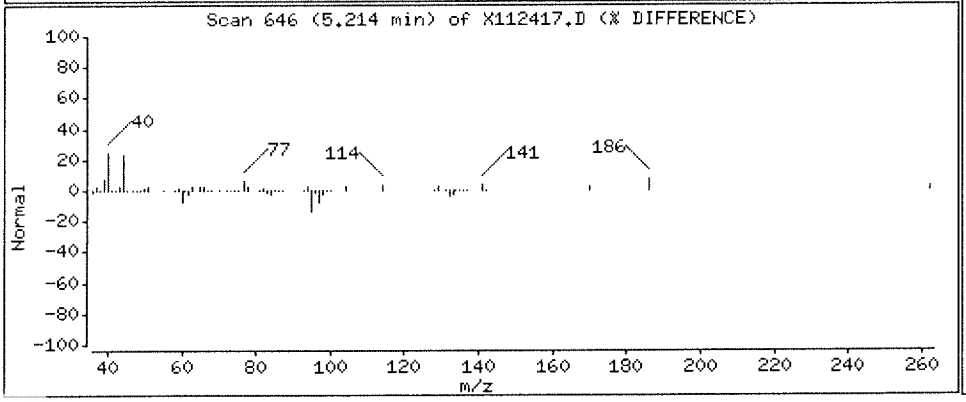
Column phase: DB624 Column diameter: 0.18

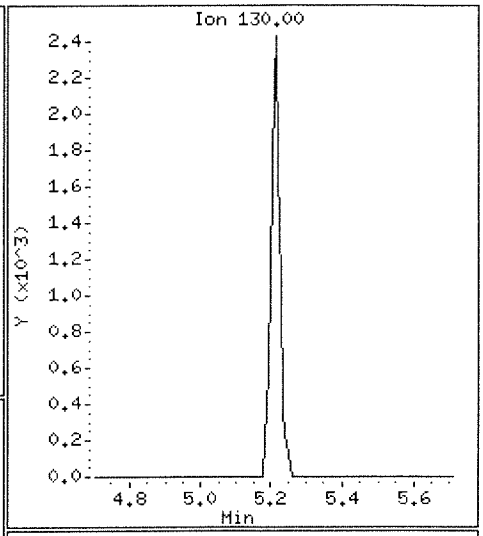
38 Trichloroethene Concentration: 0.92 ug/l

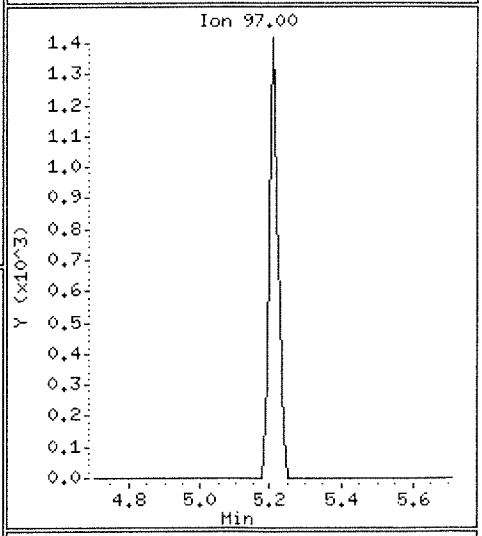


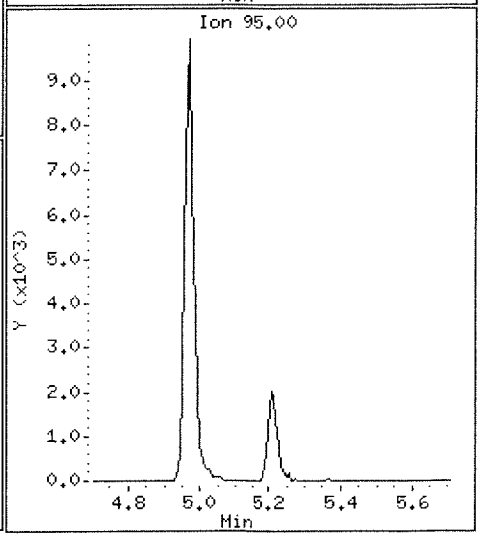












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112418.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112418.D
Lab Smp Id: HS19111153-05 Client Smp ID: HS19111153-05
Inj Date : 24-NOV-2019 19:01
Operator : PC Inst ID: voa6.i
Smp Info : HS19111153-05;HS19111153-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

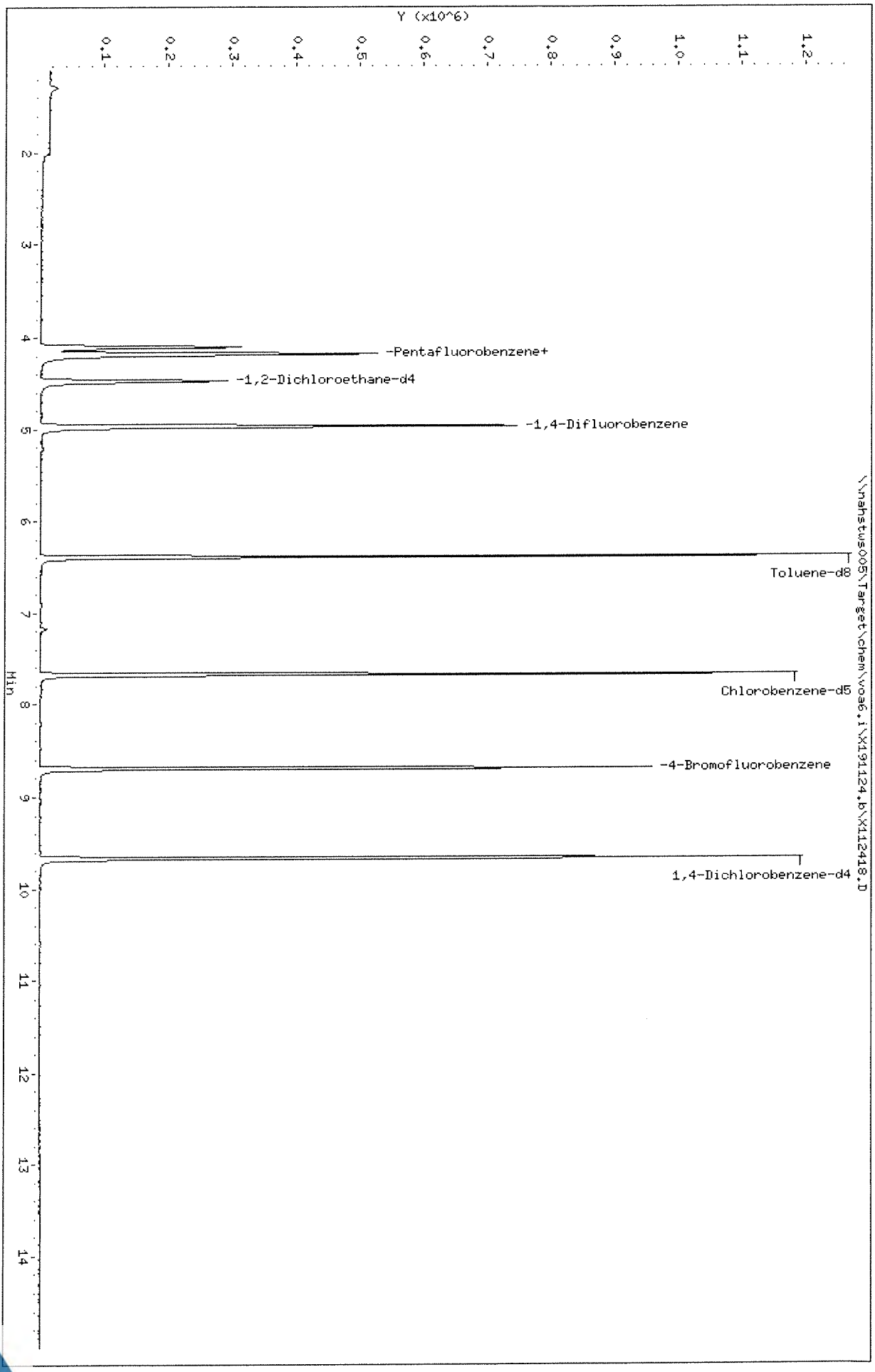
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	477552	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	662171	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	576684	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	293356	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	212227	47.2779	47.27
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	252893	47.1587	47.15
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	212726	48.9966	48.99
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	742517	48.8677	48.86

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112418.D
Date : 24-NOV-2019 19:01
Client ID: HS19111153-05
Sample Info: HS19111153-05;HS19111153-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112419.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112419.D
Lab Smp Id: HS19111153-06 Client Smp ID: HS19111153-06
Inj Date : 24-NOV-2019 19:25
Operator : PC Inst ID: voa6.i
Smp Info : HS19111153-06;HS19111153-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

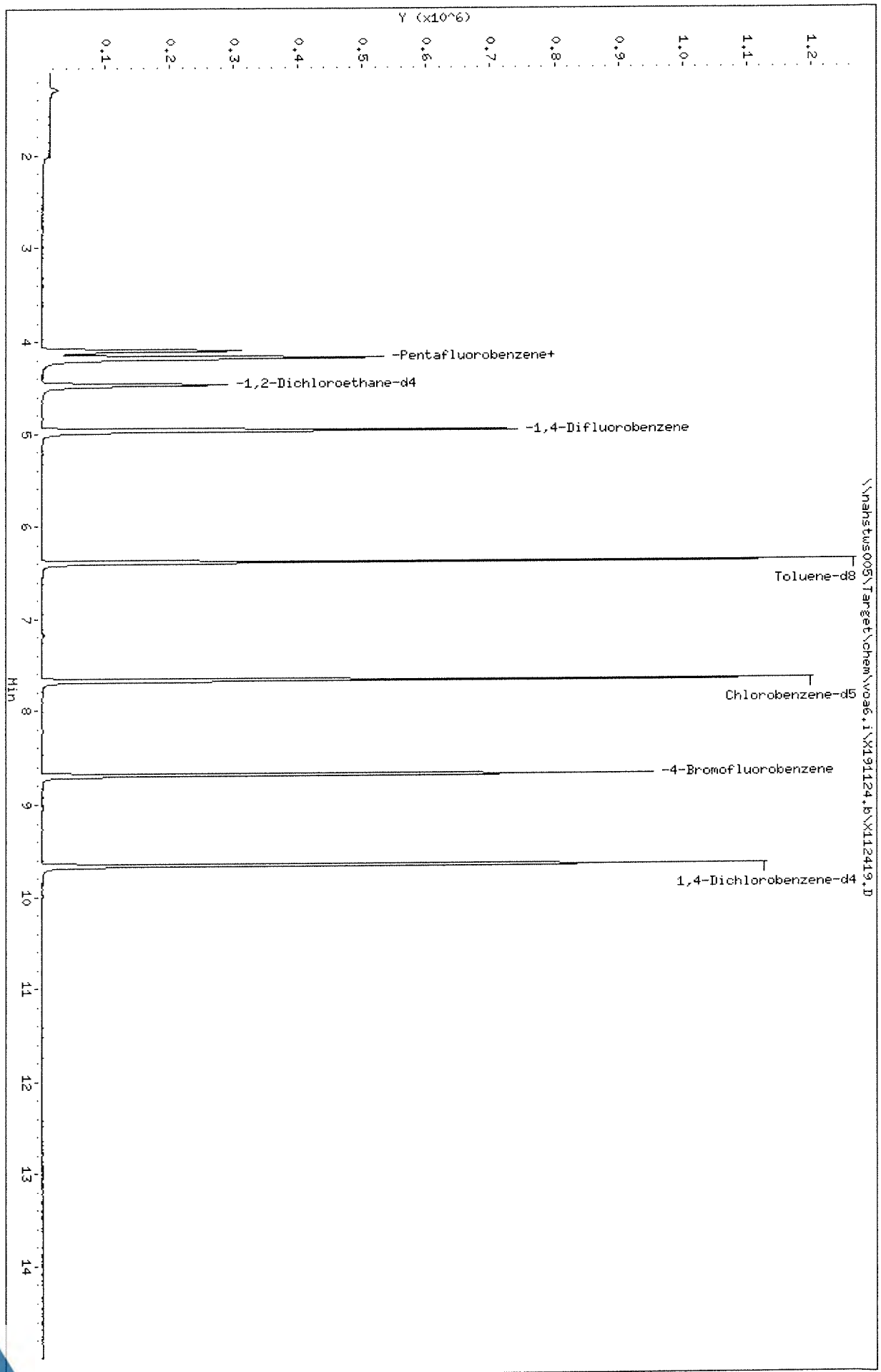
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	481405	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	664407	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	580473	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	284404	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	210566	46.5440	46.54
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	250574	46.4278	46.42
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	212848	48.6351	48.63
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	746380	48.8013	48.80

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112419.D
Date : 24-NOV-2019 19:25
Client ID: HS19111153-06
Sample Info: HS19111153-06;HS19111153-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112420.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112420.D
Lab Smp Id: HS19111153-07 Client Smp ID: HS19111153-07
Inj Date : 24-NOV-2019 19:49
Operator : PC Inst ID: voa6.i
Smp Info : HS19111153-07;HS19111153-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

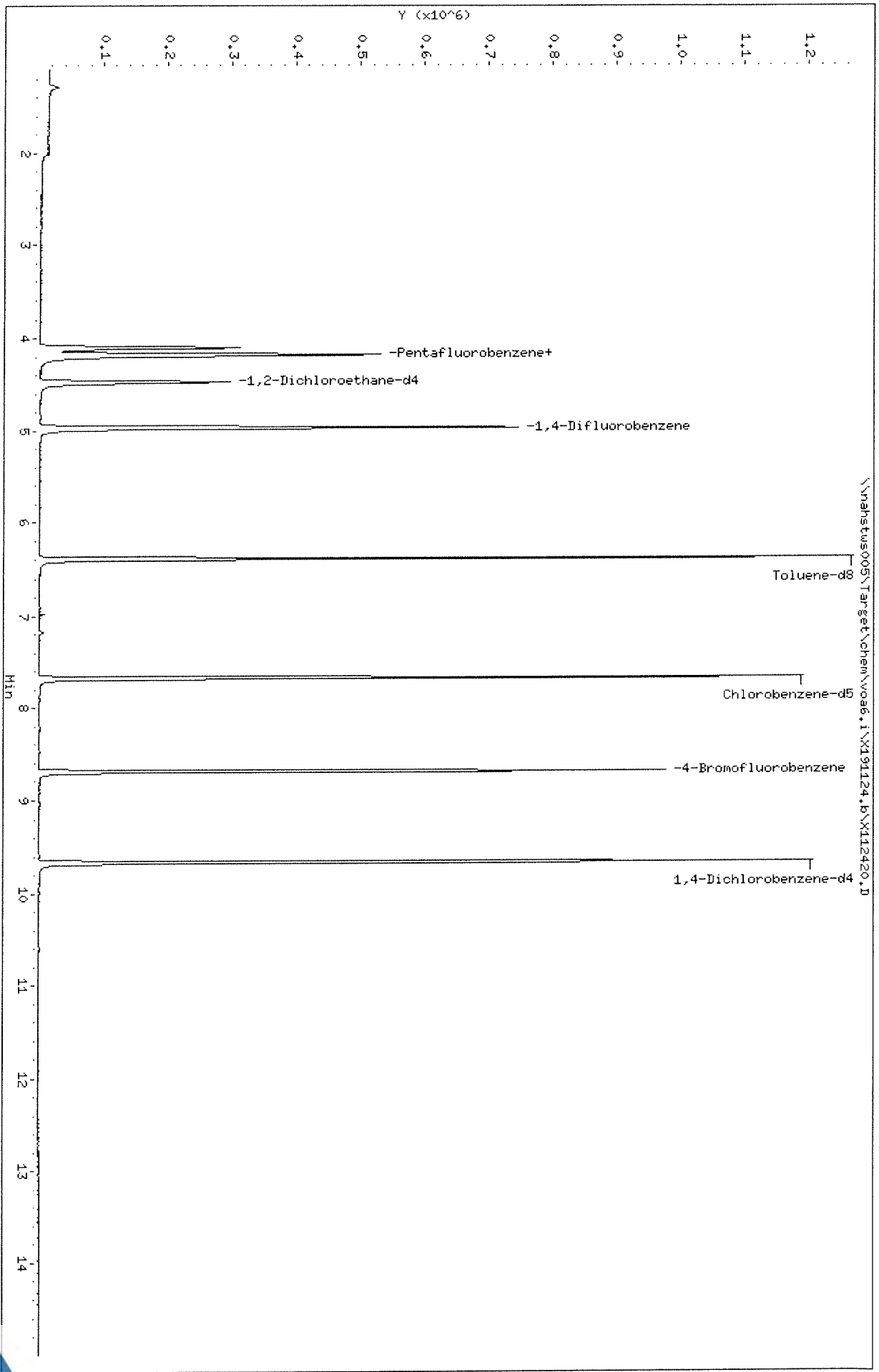
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	478123	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	660206	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	579509	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	301309	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	212024	47.1778	47.17
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	255674	47.4424	47.44
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	212402	48.8645	48.86
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	747582	48.9612	48.96

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112420.D
Date : 24-NOV-2019 19:49
Client ID: HS19111153-07
Sample Info: HS19111153-07;HS19111153-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112421.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112421.D
Lab Smp Id: HS19111153-08 Client Smp ID: HS19111153-08
Inj Date : 24-NOV-2019 20:13
Operator : PC Inst ID: voa6.i
Smp Info : HS19111153-08;HS19111153-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

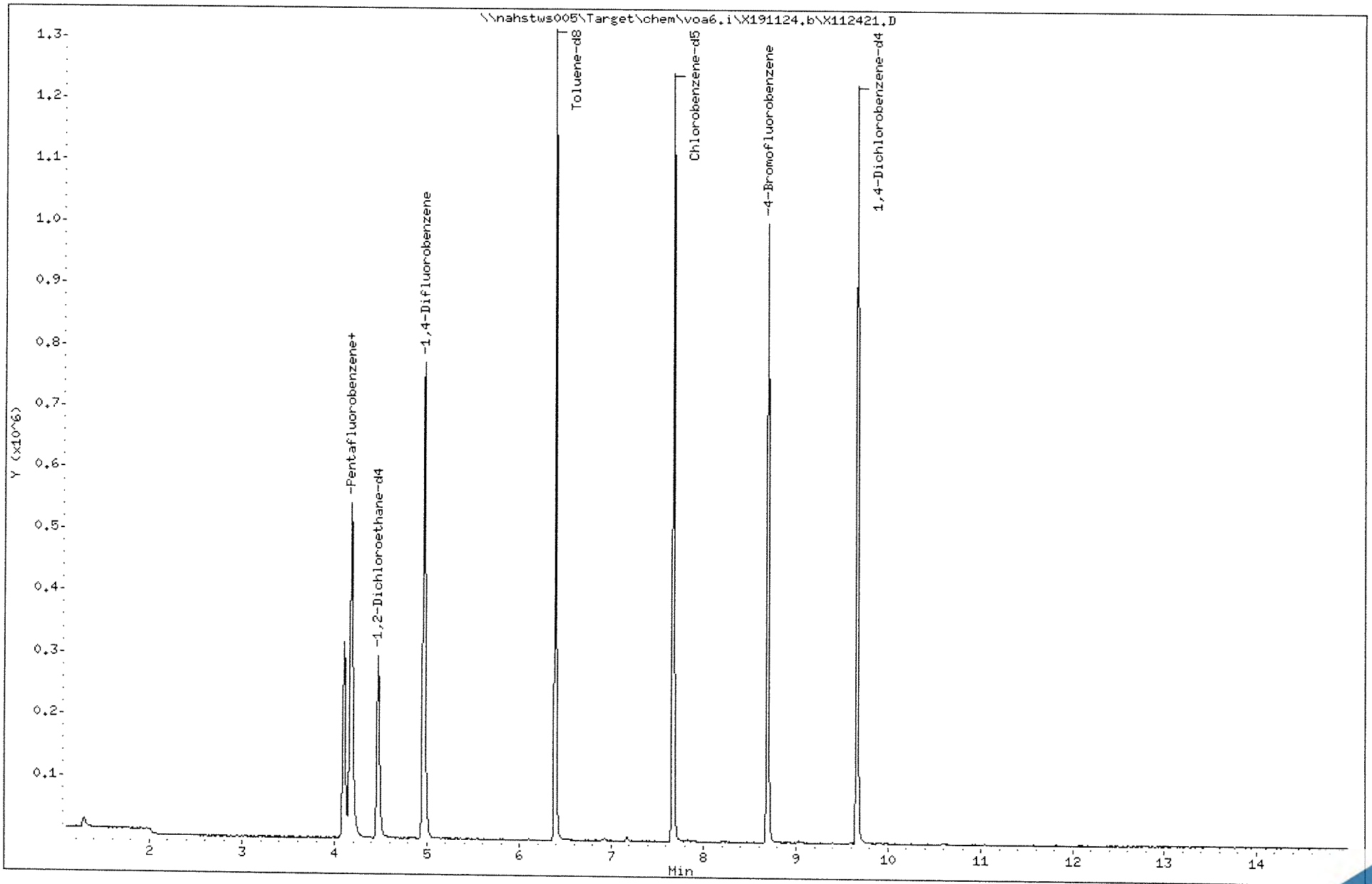
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	492619	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	676586	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	597931	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	305975	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	214491	46.3357	46.33
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	256523	46.1449	46.14
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	214909	47.9930	47.99
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	757853	48.1046	48.10

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112421.D
Date : 24-NOV-2019 20:13
Client ID: HS19111153-08
Sample Info: HS19111153-08;HS19111153-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D Page 1
Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 24-NOV-2019 22:37
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 26 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

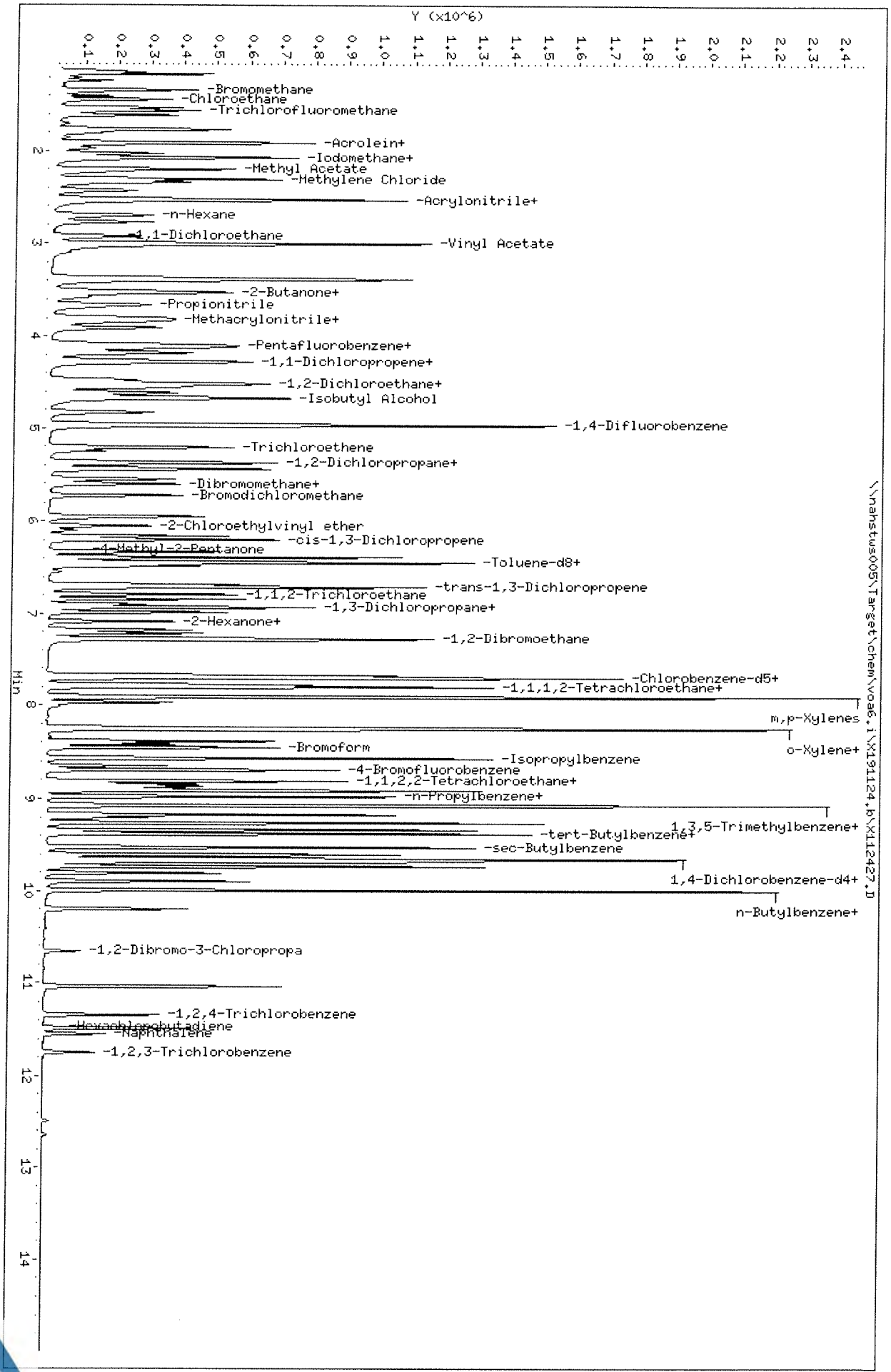
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	376688	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	553108	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	503306	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	275286	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	185001	50.0000	52.17
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	224549	50.0000	47.97
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	179353	50.0000	52.34
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	609783	50.0000	45.98
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181798	50.0000	49.78
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	262411	50.0000	51.63
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	189542	50.0000	48.96
138 Freon TF	101	1.919	1.919	(0.459)	158856	50.0000	48.43
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	131717	50.0000	50.06
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	281259	50.0000	51.31
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	154841	50.0000	48.50
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	211543	50.0000	47.41
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	43770	50.0000	42.66
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	157986	50.0000	48.16(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	97956	50.0000	42.24
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	654387	50.0000	50.09
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	21538	50.0000	50.40
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	176318	50.0000	49.94
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	365847	50.0000	50.07

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D Page 2
Report Date: 17-Dec-2019 15:49

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	219949	50.0000	50.09
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	158603	50.0000	48.00
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	622573	50.0000	49.67
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	390532	50.0000	49.46
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	258566	50.0000	48.40
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	397119	50.0000	49.50
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	222536	50.0000	44.73
24	2-Butanone	43	3.573	3.573	(0.854)	113733	100.000	98.39
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	494541	50.0000	49.93
52	2-Hexanone	43	7.090	7.090	(0.924)	198068	100.000	95.79
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	587907	50.0000	48.97
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	659268	50.0000	48.94
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	292286	100.000	99.11
10	Acetone	43	1.976	1.976	(0.473)	89050	100.000	90.98
37	Benzene	78	4.512	4.512	(0.908)	636233	50.0000	50.28
74	Bromobenzene	156	8.809	8.809	(0.911)	238156	50.0000	49.77
29	Bromochloromethane	128	3.795	3.795	(0.908)	105278	50.0000	51.59
39	Bromodichloromethane	83	5.729	5.729	(1.153)	227694	50.0000	49.74
66	Bromoform	173	8.416	8.416	(1.097)	145648	50.0000	48.62
6	Bromomethane	94	1.338	1.338	(0.320)	196870	50.0000	52.68
19	Carbon Disulfide	76	2.069	2.069	(0.495)	902488	100.000	103.91
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	232079	50.0000	47.48
59	Chlorobenzene	112	7.699	7.699	(1.004)	476851	50.0000	48.52
7	Chloroethane	64	1.403	1.403	(0.336)	109119	50.0000	46.00
28	Chloroform	83	3.910	3.910	(0.935)	304219	50.0000	49.86
3	Chloromethane	50	1.073	1.073	(0.257)	152665	50.0000	37.36
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	188575	50.0000	52.78
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	262562	50.0000	48.67
55	Dibromochloromethane	129	7.176	7.176	(0.936)	191072	50.0000	49.99
44	Dibromomethane	93	5.557	5.557	(1.118)	117029	50.0000	50.05
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	133036	50.0000	38.95
61	Ethylbenzene	106	7.799	7.799	(1.017)	247594	50.0000	48.76
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	82032	50.0000	37.07
67	Isopropylbenzene	105	8.566	8.566	(1.117)	734203	50.0000	48.82
62	m,p-Xylenes	106	7.907	7.907	(1.031)	597838	100.000	97.58
17	Methylene Chloride	84	2.305	2.305	(0.551)	172693	50.0000	50.70
87	n-Butylbenzene	91	9.999	9.999	(1.034)	559837	50.0000	49.94
73	n-Propylbenzene	91	8.917	8.917	(0.922)	843670	50.0000	49.58
92	Naphthalene	128	11.546	11.546	(1.194)	125744	50.0000	42.27
63	o-Xylene	106	8.244	8.244	(1.075)	294541	50.0000	48.71
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	734236	50.0000	49.67
64	Styrene	104	8.258	8.258	(1.077)	522777	50.0000	49.72
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	533817	50.0000	49.74
56	Tetrachloroethene	164	6.933	6.933	(0.904)	166051	50.0000	46.95
50	Toluene	91	6.446	6.446	(0.840)	696966	50.0000	48.83
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	162132	50.0000	52.31
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	238644	50.0000	48.54
38	Trichloroethene	130	5.206	5.206	(1.048)	192679	50.0000	49.81
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	286751	50.0000	49.07
5	Vinyl Chloride	62	1.138	1.138	(0.272)	167204	50.0000	43.55

QC Flag Legend

M - Compound response manually integrated.



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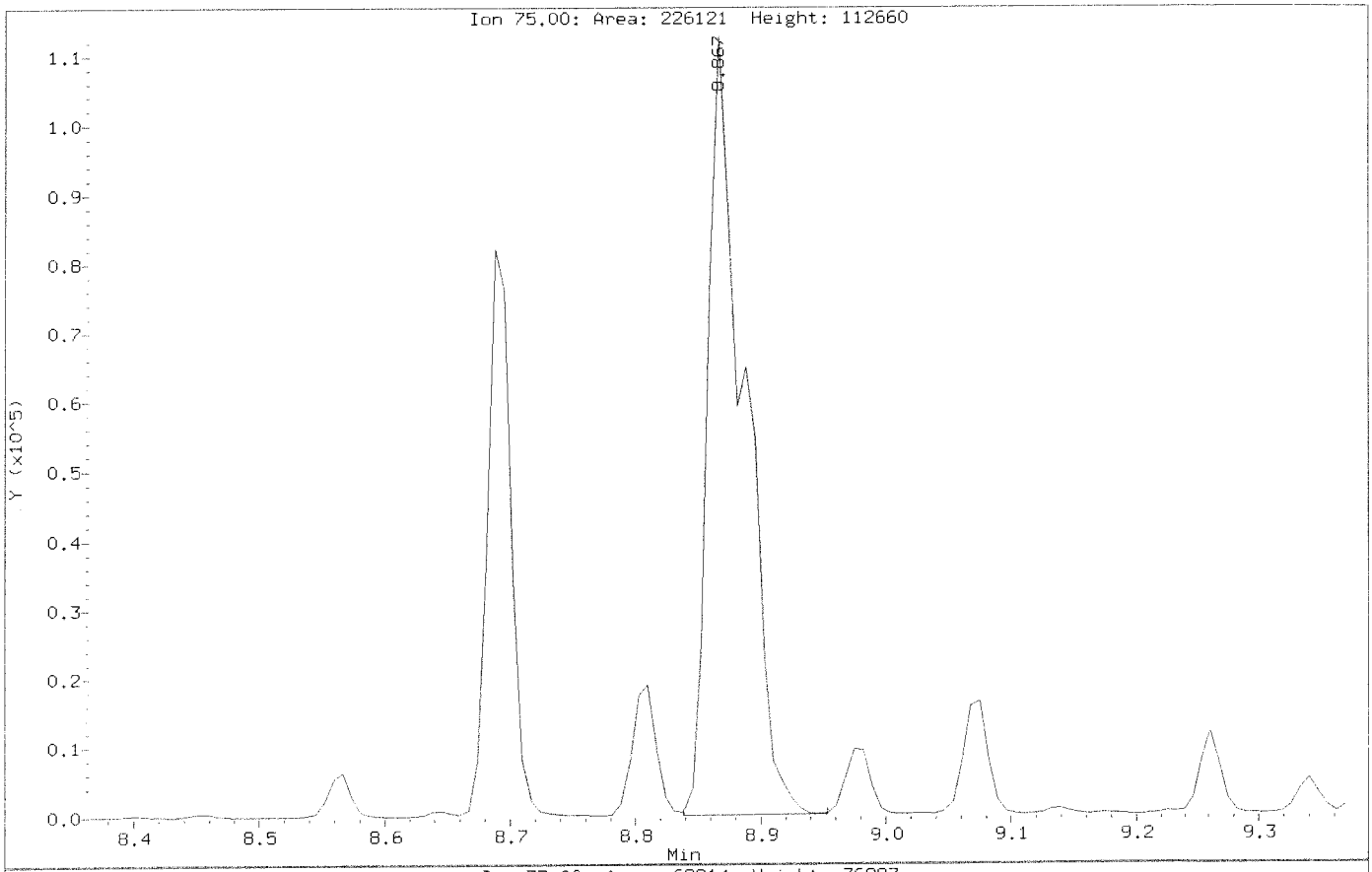
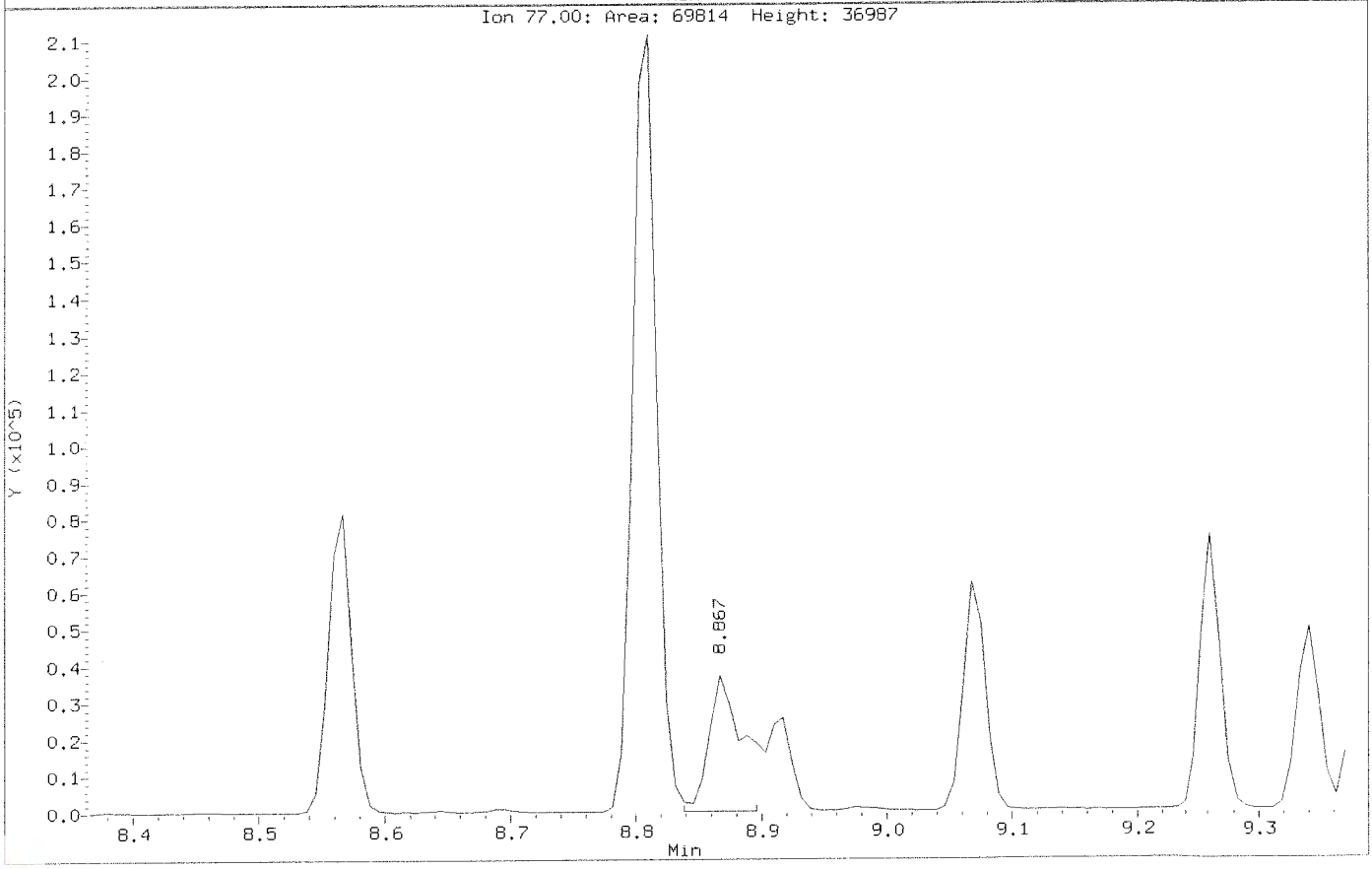
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112427.D
Injection Date: 24-NOV-2019 22:37
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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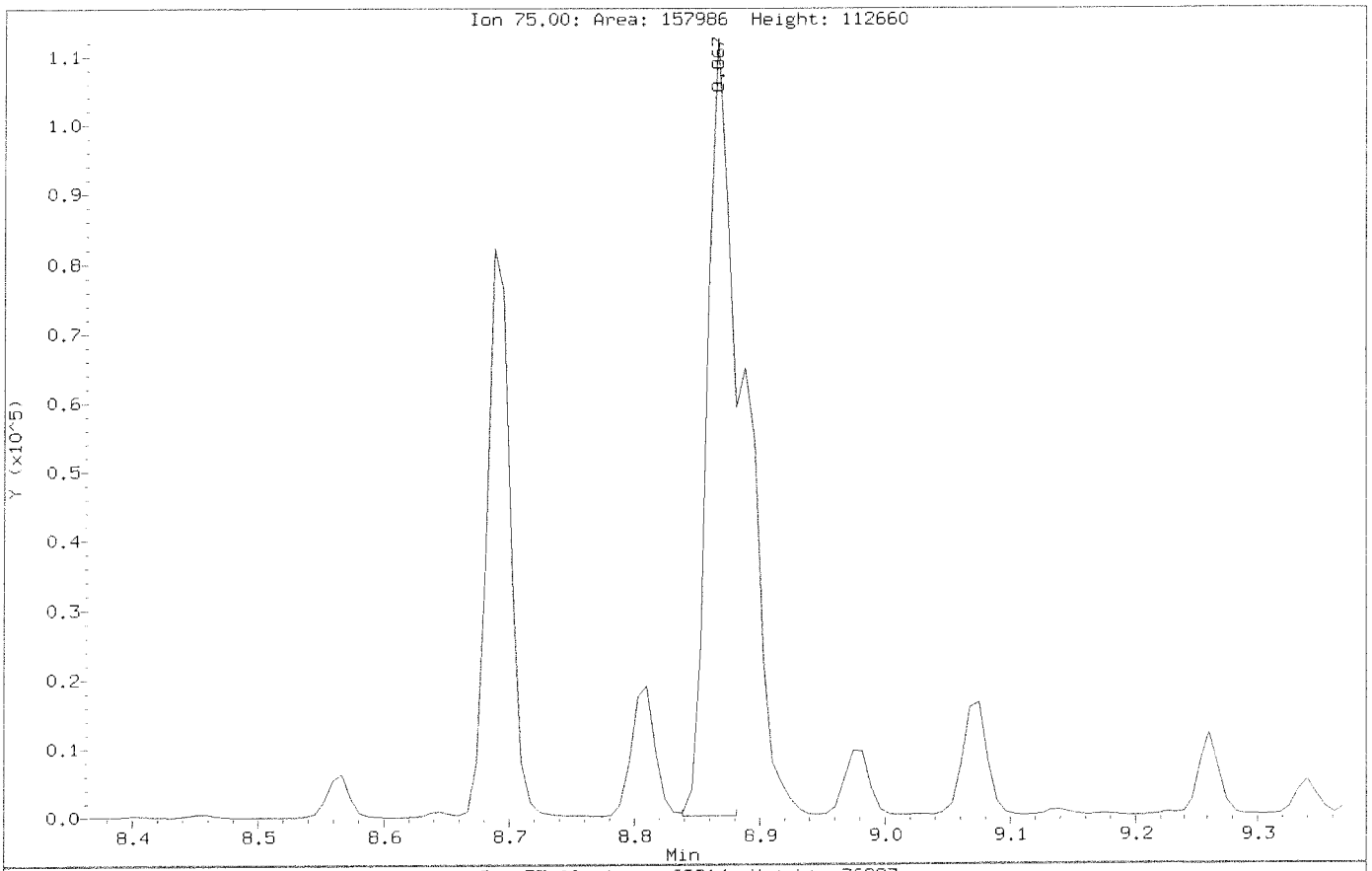
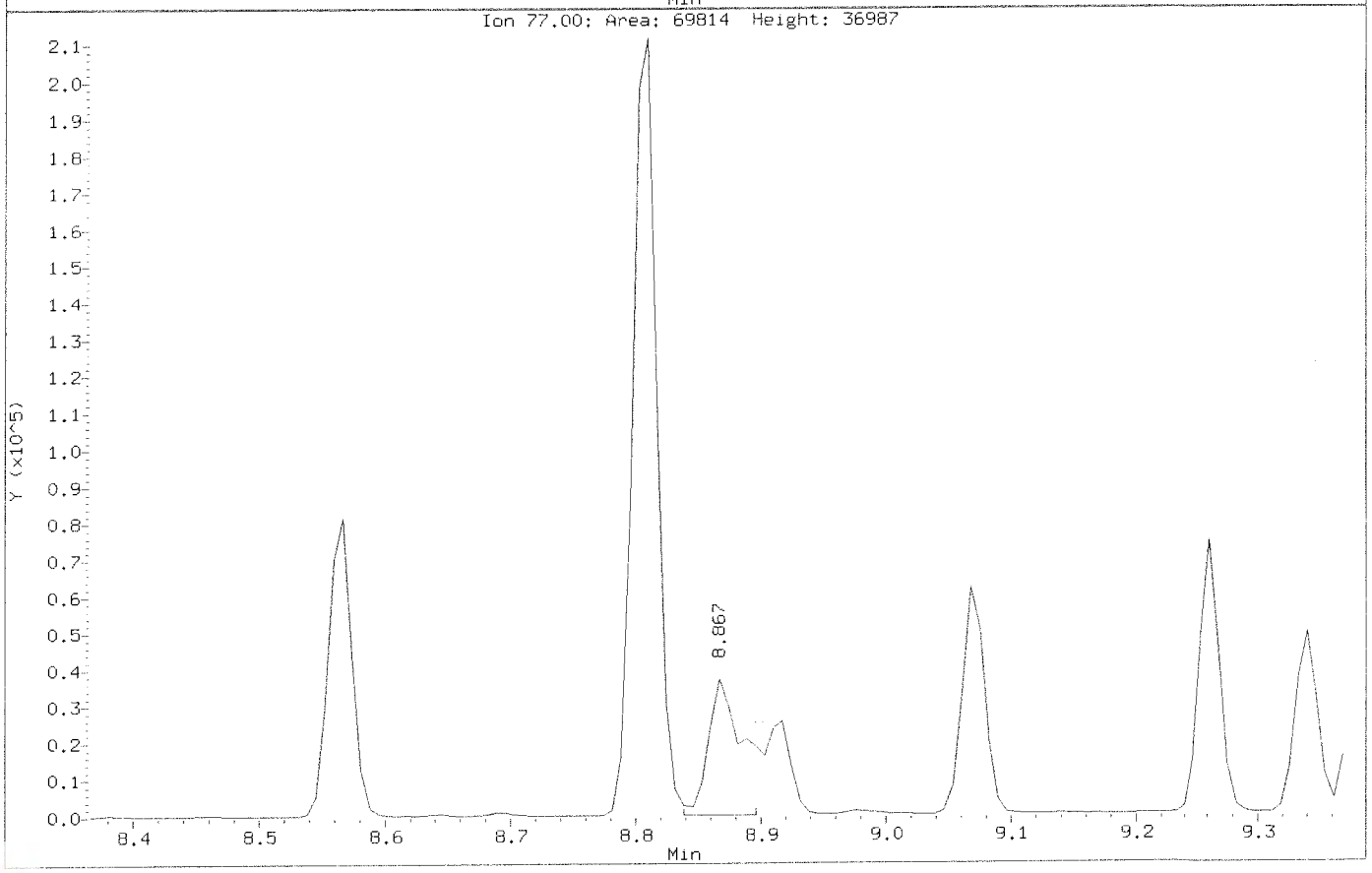
Injection Date: 24-NOV-2019 22:37
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





HS19111153 Wet Chem Raw Data

ALS WO# HS19111153

Sequence: 112119
Last Update Operator: alshs.nouser

HS19111153

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	ng	me	Status	Inject Time
	STD1	2970209205	Calibration	GA1	1.0000	1	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 2:08:06 PM -05:00
	STD2		Calibration	GA2	1.0000	2	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 2:24:42 PM -05:00
	STD3		Calibration	GA3	1.0000	3	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 2:41:19 PM -05:00
	STD4		Calibration	GA4	1.0000	4	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 2:57:54 PM -05:00
	STD5		Calibration	GA5	1.0000	5	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 3:14:30 PM -05:00
	STD6	F, NO2 MAX 10PPM	Calibration	GB8	1.0000	6	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 6:37:32 PM -05:00
	ICV	2970209123	Unknown	GA7	1.0000		Anions Pro	Anions Pr	5.0	Finished	8/12/2019 6:54:07 PM -05:00
	ICB		Unknown	GB8	1.0000		Anions Pro	Anions Pr	5.0	Finished	8/12/2019 7:29:52 PM -05:00
	CCV1		Unknown	BA7	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 12:05:48 PM -06:00
	CCB		Unknown	BA8	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 12:22:24 PM -06:00
	WBLKW1-112219		Unknown	RC6	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 1:35:35 PM -06:00
	WLCSW1-112219		Unknown	RC7	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 1:52:13 PM -06:00
	WLCSDW1-112219		Unknown	RC8	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 2:08:48 PM -06:00
	HS19111104-01		Unknown	RD1	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 2:25:26 PM -06:00
	HS19111104-01MS		Unknown	RD2	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 2:42:01 PM -06:00
	HS19111104-01MSD		Unknown	RD3	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 2:58:38 PM -06:00
	HS19111104-02		Unknown	RD4	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 3:15:12 PM -06:00
	HS19111104-03		Unknown	RD5	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 3:31:47 PM -06:00
	HS19111104-04		Unknown	RD6	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 3:48:22 PM -06:00
	HS19111104-05		Unknown	RD7	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 4:04:59 PM -06:00
	CCV		Unknown	BA5	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 4:21:39 PM -06:00
	CCB		Unknown	BA6	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 4:38:14 PM -06:00
	HS19111104-06		Unknown	RD8	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 4:54:54 PM -06:00
	CCV1		Unknown	BA7	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 7:41:11 PM -06:00
	CCB		Unknown	BA8	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 7:57:47 PM -06:00
	HS19111190-01DF2		Unknown	BD2	2.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 9:54:19 PM -06:00
	HS19111190-01DF5		Unknown	BD3	5.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 10:10:55 PM -06:00
	HS19111190-01DF50		Unknown	BD4	50.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 10:27:30 PM -06:00
	HS19111153-03		Unknown	GA4	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 10:44:08 PM -06:00
	CCV		Unknown	BA5	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 11:00:46 PM -06:00
	CCB		Unknown	BA6	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 11:17:21 PM -06:00
	HS19111153-04		Unknown	GA5	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 11:33:57 PM -06:00
	HS19111153-05		Unknown	GA6	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/22/2019 11:50:35 PM -06:00
	HS19111153-06		Unknown	GA7	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/23/2019 12:07:11 AM -06:00
	CCV1		Unknown	BA7	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/23/2019 12:56:59 AM -06:00
	CCB		Unknown	BA8	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/23/2019 1:13:35 AM -06:00

Sequence: 112119
Injection #6: STD6

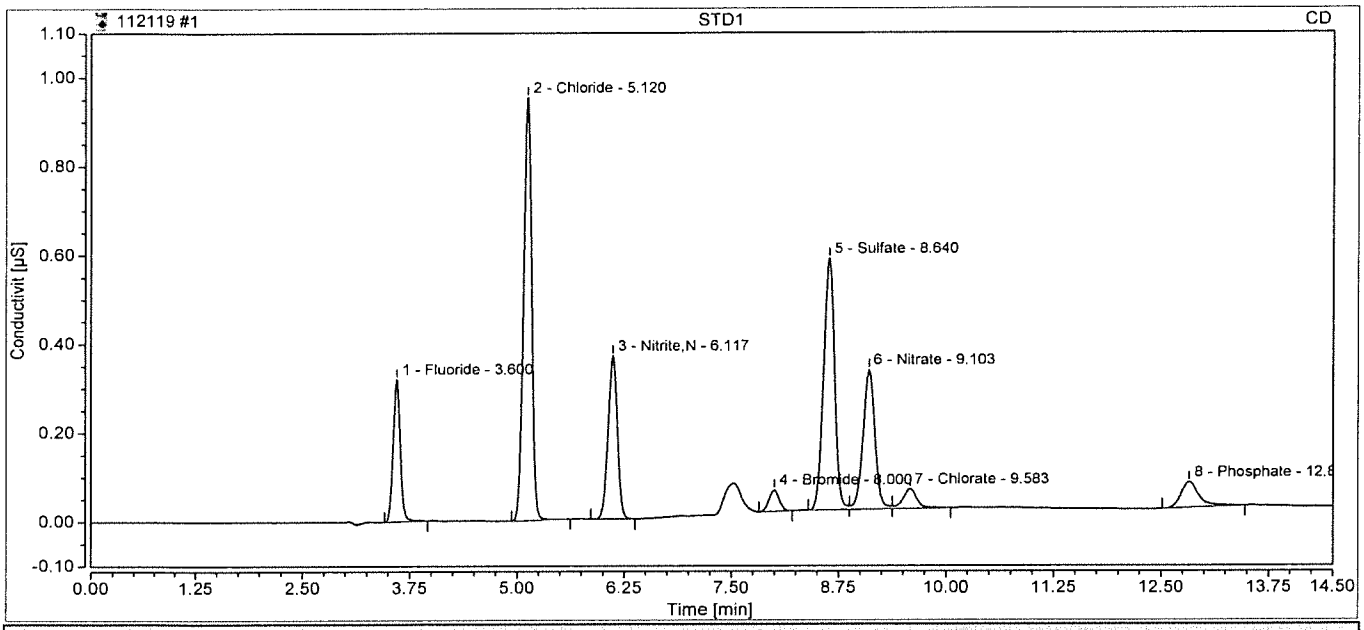
Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*Fluoride*	*Lin, WithOffset, 1/*	*Area*	*5*	*10.1532*	*0.99927*	*-0.0056*	*0.3716*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	0.2804	1.00000	-0.0135	0.2355	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	5	15.1147	0.99824	0.0003	0.5120	0.0000
4	Bromide	Lin, WithOffset, 1/	Area	6	14.0217	0.99919	-0.0052	0.1009	0.0000
5	Sulfate	Lin, WithOffset, 1/	Area	6	1.1258	0.99999	-0.0022	0.1717	0.0000
6	Nitrate	Lin, WithOffset, 1/	Area	6	2.2249	0.99998	-0.0102	0.5876	0.0000
7	Chlorate	Lin, WithOffset, 1/	Area	6	10.0265	0.99953	-0.0024	0.0944	0.0000
8	Phosphate	Lin, WithOffset, 1/	Area	6	6.6198	0.99981	-0.0110	0.2321	0.0000
Maximum					**15.1147**	1.00000			
Minimum					0.2804	**0.99824**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 14:08**	*Sample Weight:*	**1.0000**

Run Time:



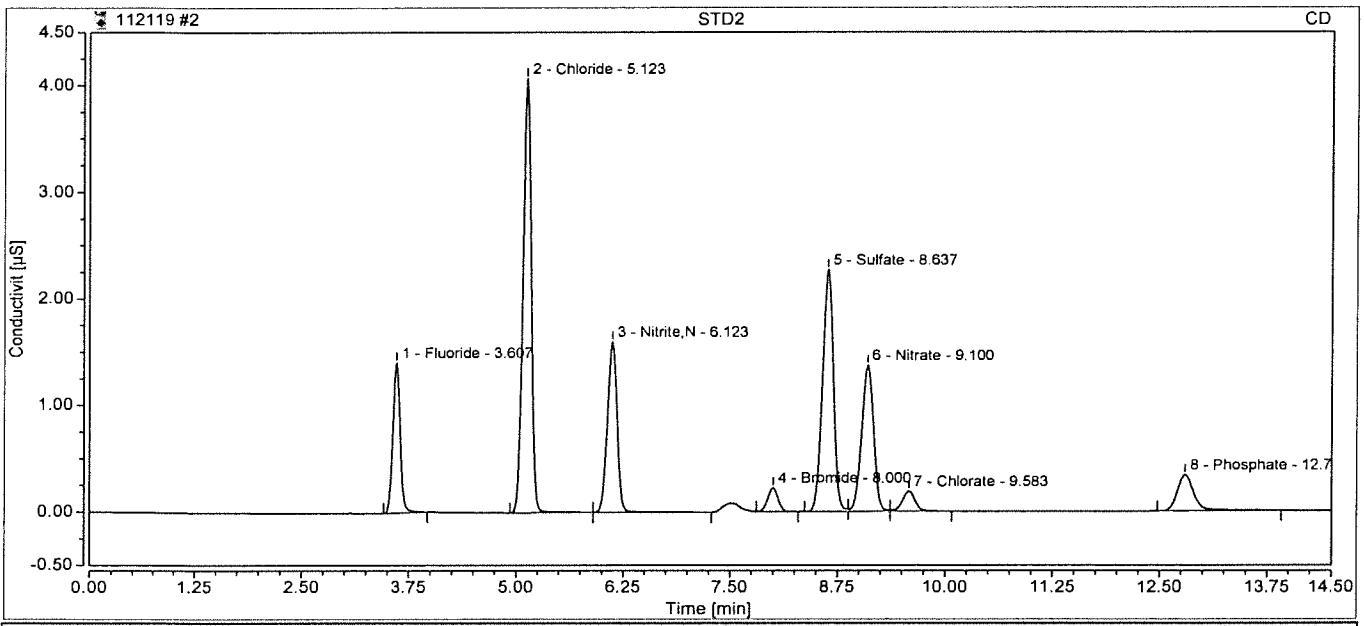
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.031	0.0973	0.0973	1.0000
2	5.12	Chloride	BMB	0.105	0.5026	0.5026	1.0000
3	6.12	Nitrite,N	BMB	0.046	0.0893	0.0893	1.0000
4	8.00	Bromide	BMB	0.007	0.1192	0.1192	1.0000
5	8.64	Sulfate	BM	0.084	0.5042	0.5042	1.0000
6	9.10	Nitrate	M	0.051	0.1034	0.1034	1.0000
7	9.58	Chlorate	MB	0.008	0.1143	0.1143	1.0000
8	12.83	Phosphate	BMB	0.014	0.1085	0.1085	1.0000
Total:			**0.000**	**0.346**		**1.64**	

2 *STD2*

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 14:24**	*Sample Weight:*	**1.0000**

Run Time:



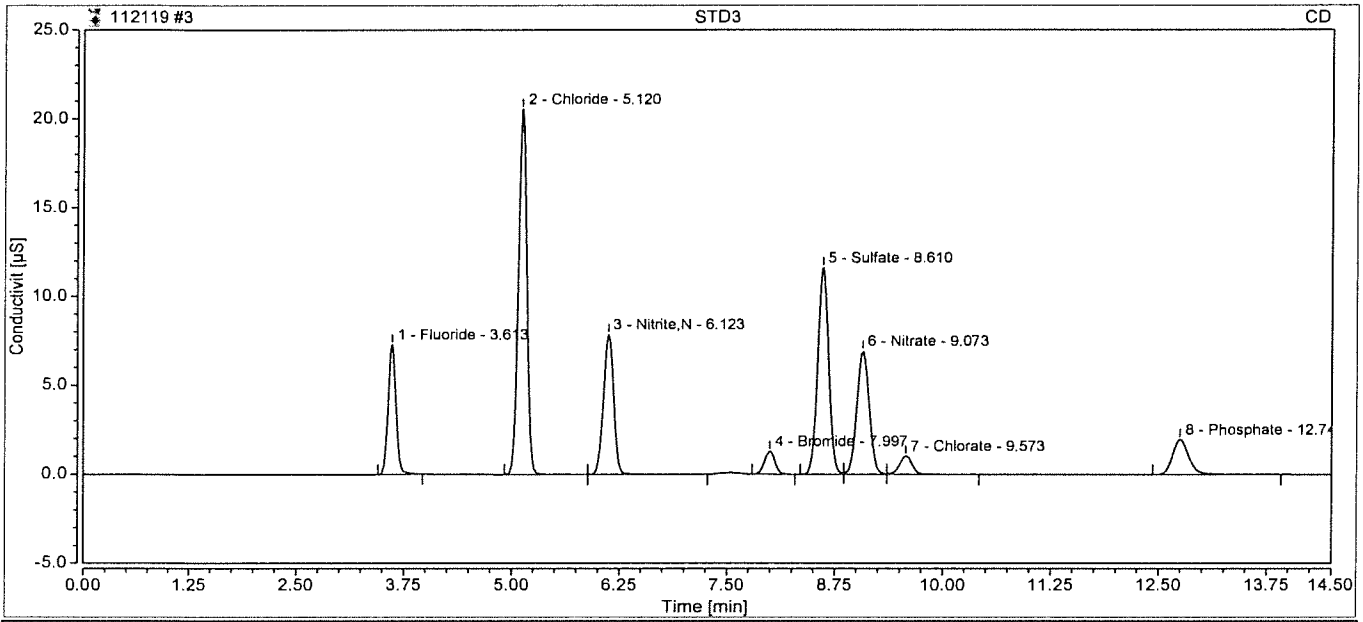
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.140	0.3929	0.3929	1.0000
2	5.12	Chloride	BMB	0.456	1.9918	1.9918	1.0000
3	6.12	Nitrite,N	BMB	0.211	0.4119	0.4119	1.0000
4	8.00	Bromide	BMB	0.031	0.3593	0.3593	1.0000
5	8.64	Sulfate	BM	0.337	1.9733	1.9733	1.0000
6	9.10	Nitrate	M	0.220	0.3917	0.3917	1.0000
7	9.58	Chlorate	MB	0.033	0.3704	0.3704	1.0000
8	12.80	Phosphate	BMB	0.078	0.3841	0.3841	1.0000
Total:			**0.000**	**1.506**		**6.28**	

3 STD3

Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 14:41**	*Sample Weight:*	**1.0000**

Run Time:



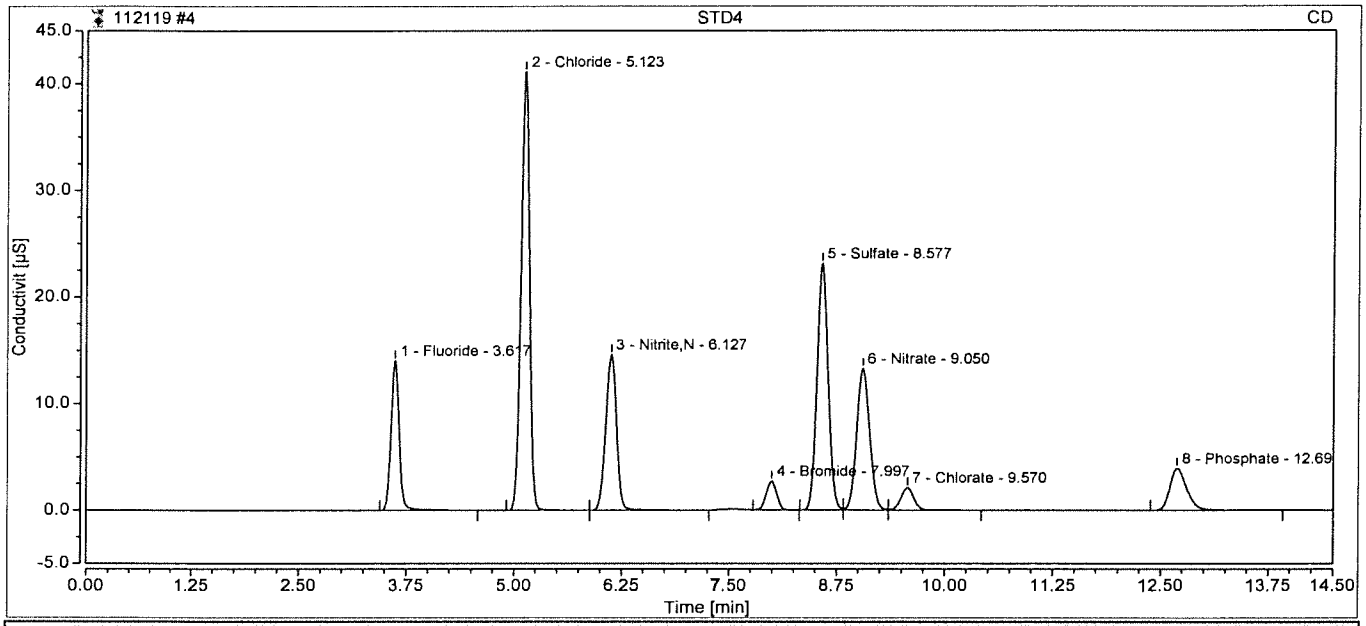
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.758	2.0551	2.0551	1.0000
2	5.12	Chloride	BMB	2.339	9.9888	9.9888	1.0000
3	6.12	Nitrite,N	BMB	1.091	2.1305	2.1305	1.0000
4	8.00	Bromide	BMB	0.182	1.8590	1.8590	1.0000
5	8.61	Sulfate	BM	1.715	10.0007	10.0007	1.0000
6	9.07	Nitrate	M	1.153	1.9792	1.9792	1.0000
7	9.57	Chlorate	MB	0.176	1.8940	1.8940	1.0000
8	12.75	Phosphate	BMB	0.436	1.9269	1.9269	1.0000
Total:			**0.000**	**7.851**		**31.83**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 14:57**	*Sample Weight:*	**1.0000**

Run Time:



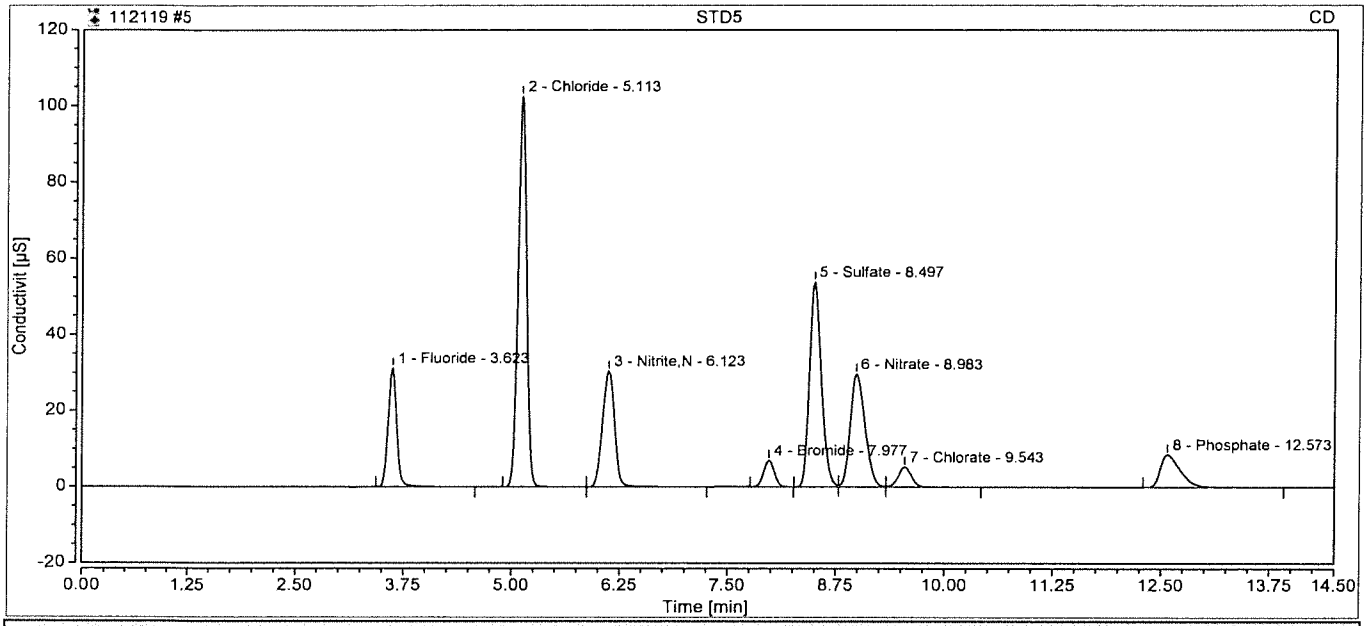
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.535	4.1457	4.1457	1.0000
2	5.12	Chloride	BMB	4.695	19.9948	19.9948	1.0000
3	6.13	Nitrite,N	BMB	2.133	4.1659	4.1659	1.0000
4	8.00	Bromide	BMB	0.385	3.8642	3.8642	1.0000
5	8.58	Sulfate	BM	3.451	20.1082	20.1082	1.0000
6	9.05	Nitrate	M	2.330	3.9823	3.9823	1.0000
7	9.57	Chlorate	MB	0.365	3.8956	3.8956	1.0000
8	12.69	Phosphate	BMB	0.903	3.9395	3.9395	1.0000
Total:			**0.000**	**15.798**		**64.10**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 15:14**	*Sample Weight:*	**1.0000**

Run Time:



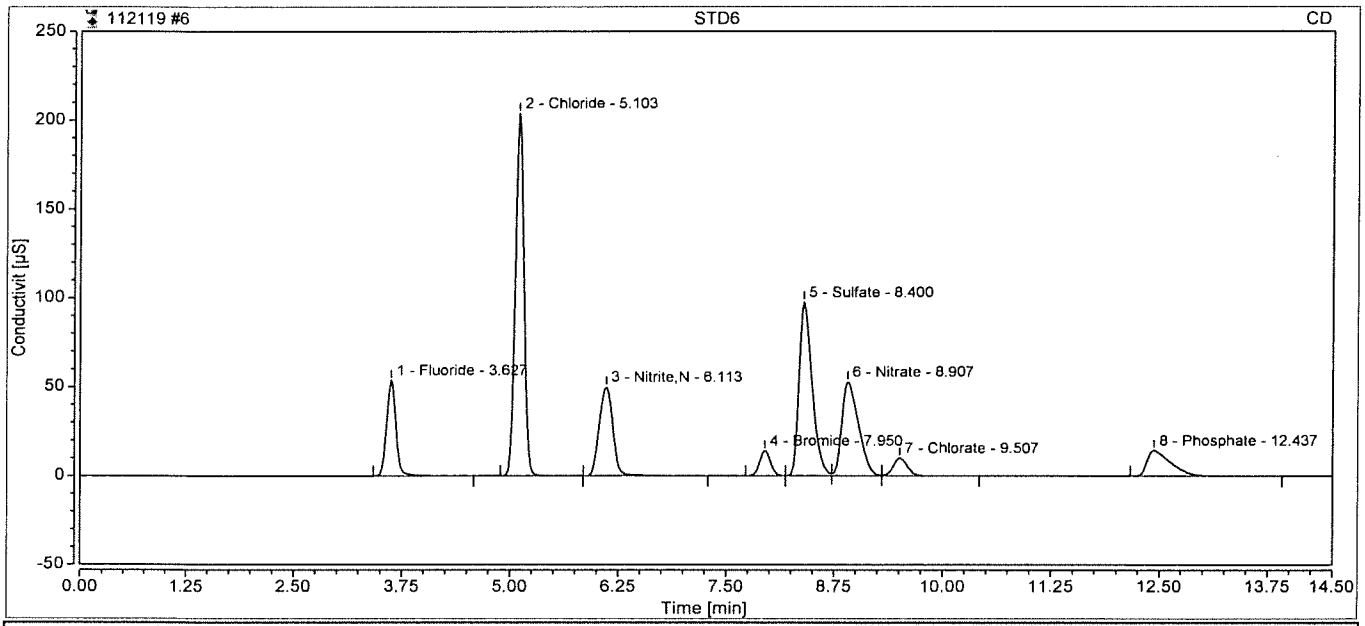
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.639	9.8090	9.8090	1.0000
2	5.11	Chloride	BMB	11.762	49.9996	49.9996	1.0000
3	6.12	Nitrite,N	BMB	4.968	9.7023	9.7023	1.0000
4	7.98	Bromide	BMB	1.001	9.9786	9.9786	1.0000
5	8.50	Sulfate	BM	8.590	50.0271	50.0271	1.0000
6	8.98	Nitrate	M	5.854	9.9805	9.9805	1.0000
7	9.54	Chlorate	MB	0.939	9.9670	9.9670	1.0000
8	12.57	Phosphate	BMB	2.305	9.9803	9.9803	1.0000
Total:			**0.000**	**39.057**		**159.44**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**GB8**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 18:37**	*Sample Weight:*	**1.0000**

Run Time:



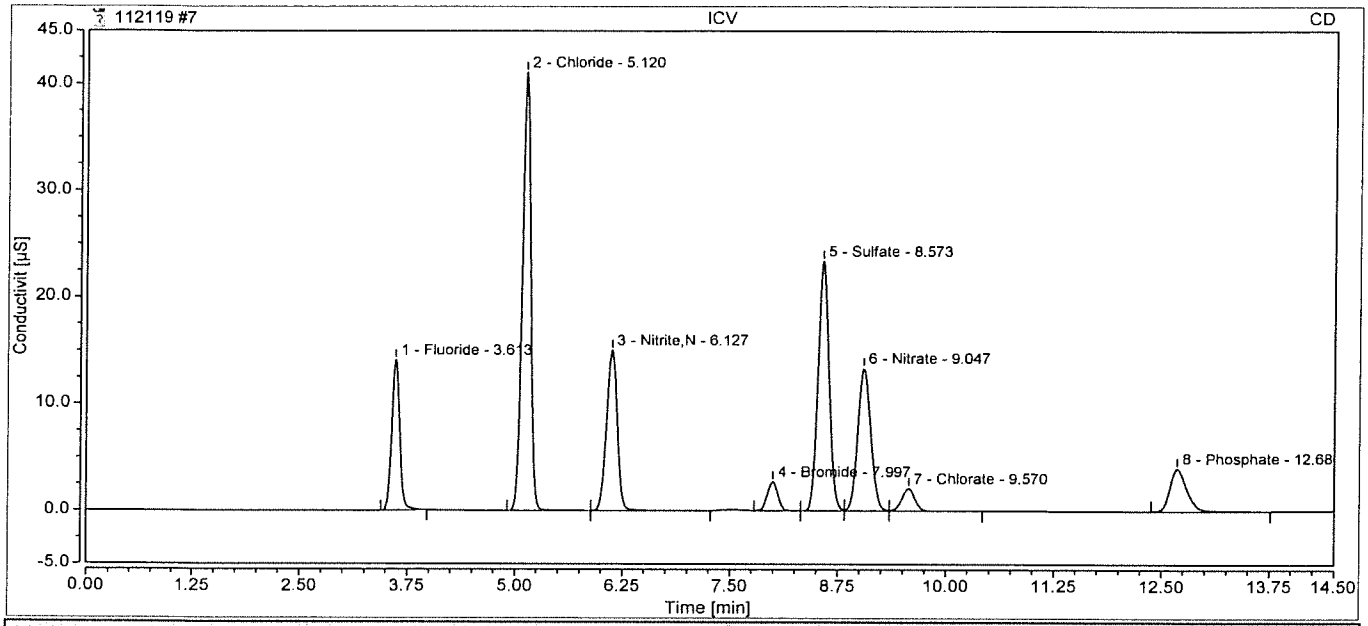
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.63	Fluoride	BMB	6.773	18.2418	18.2418	1.0000
2	5.10	Chloride	BMB	23.542	100.0224	100.0224	1.0000
3	6.11	Nitrite,N	BMB	9.157	17.8850	17.8850	1.0000
4	7.95	Bromide	BM	2.045	20.3197	20.3197	1.0000
5	8.40	Sulfate	M	17.153	99.8863	99.8863	1.0000
6	8.91	Nitrate	M	11.778	20.0629	20.0629	1.0000
7	9.51	Chlorate	MB	1.910	20.2586	20.2586	1.0000
8	12.44	Phosphate	BMB	4.668	20.1606	20.1606	1.0000
Total:			**0.000**	**77.025**		**316.84**	

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 18:54**	*Sample Weight:*	**1.0000**

Run Time:



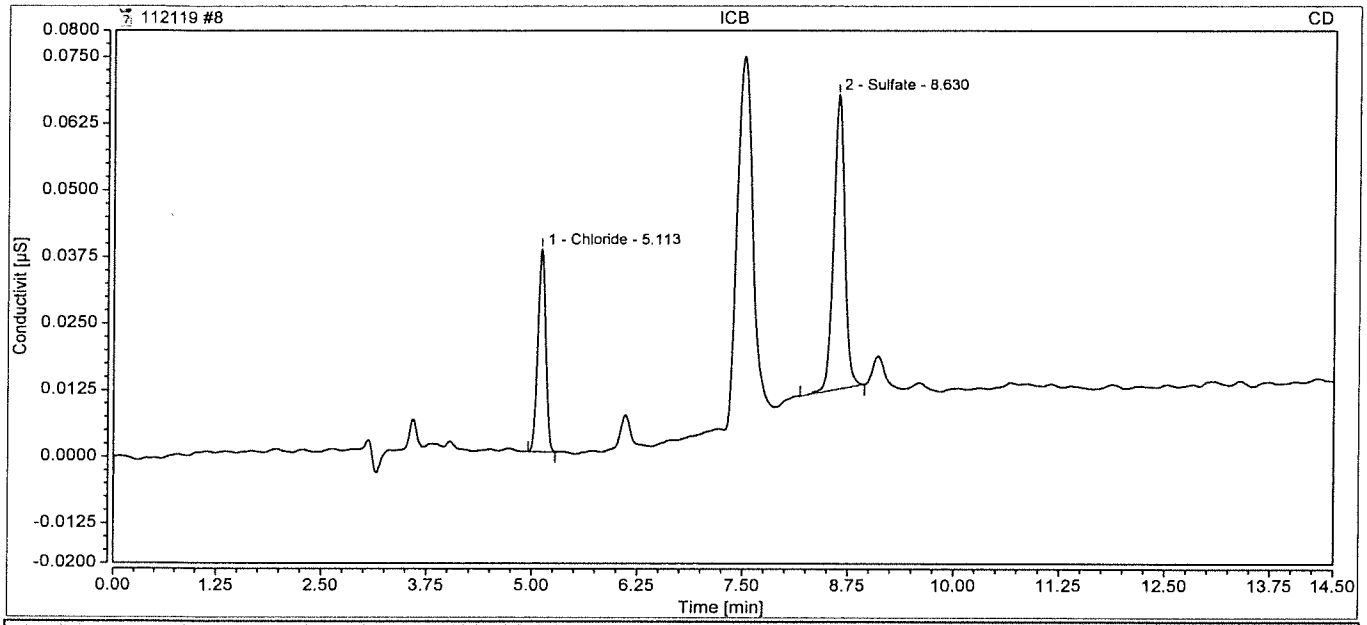
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	1.495	4.0374	4.0374	1.0000
2	5.12	Chloride	BMB	4.681	19.9333	19.9333	1.0000
3	6.13	Nitrite,N	BMB	2.195	4.2858	4.2858	1.0000
4	8.00	Bromide	BMB	0.384	3.8585	3.8585	1.0000
5	8.57	Sulfate	BM	3.469	20.2132	20.2132	1.0000
6	9.05	Nitrate	M	2.340	3.9993	3.9993	1.0000
7	9.57	Chlorate	MB	0.367	3.9104	3.9104	1.0000
8	12.68	Phosphate	BMB	0.911	3.9732	3.9732	1.0000
Total:			**0.000**	**15.841**		**64.21**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**GB8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 19:29**	*Sample Weight:*	**1.0000**

Run Time:



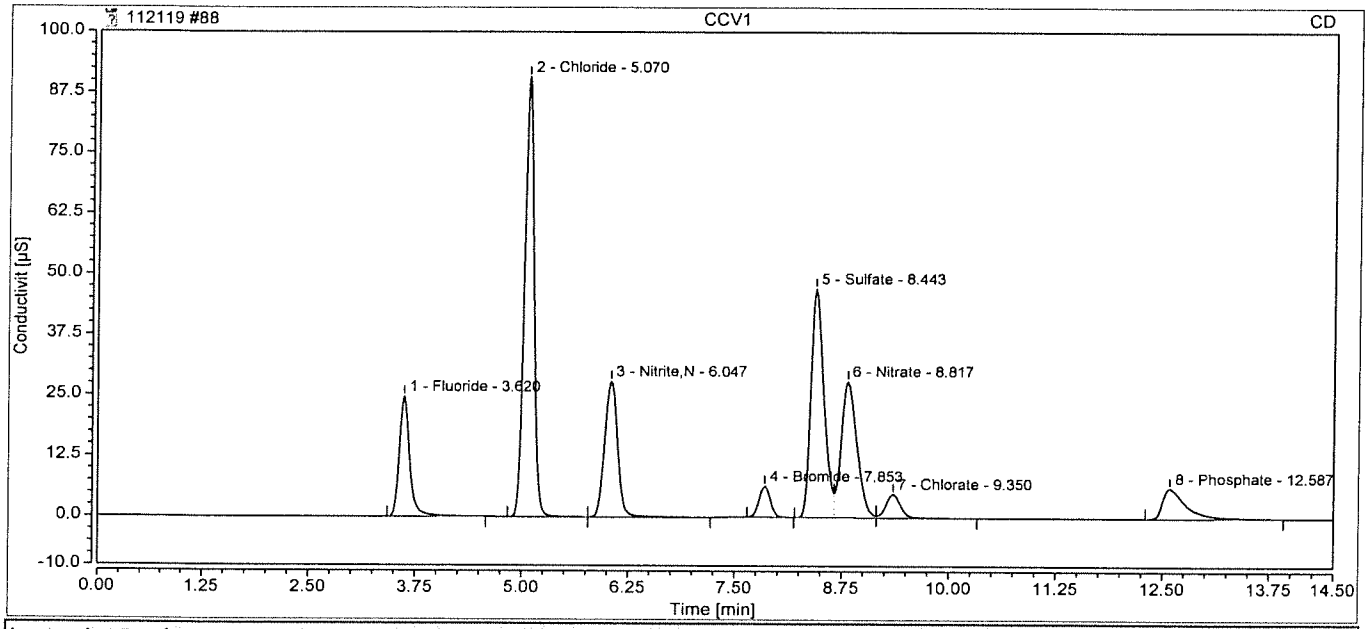
Integration Results

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	5.11	Chloride	BMB	0.004	0.0748	0.0748	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	8.63	Sulfate	BMB	0.008	0.0618	0.0618	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.013**		**0.14**	

88 CCV1

Sample Name:	CCV1	Injection Volume:	5.00
Vial Number:	BA7	Channel:	CD
Sample Type:	Unknown	Wavelength:	210
Control Program:	Anions Program 08092019	Bandwidth:	n.a.
Quantif. Method:	Anions Processing Method	Dilution Factor:	1.0000
Recording Time:	11/22/2019 12:05	Sample Weight:	1.0000

Run Time:



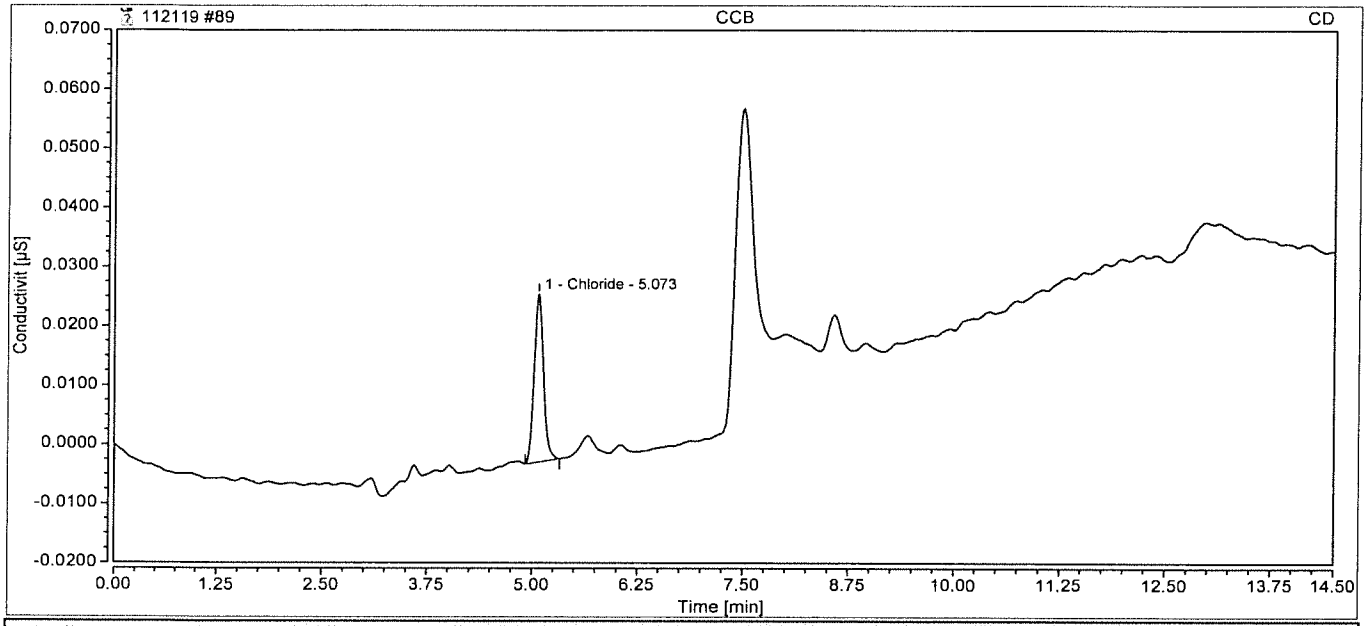
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.548	9.5639	9.5639	1.0000
2	5.07	Chloride	BMB	11.667	49.6000	49.6000	1.0000
3	6.05	Nitrite,N	BMB	4.944	9.6547	9.6547	1.0000
4	7.85	Bromide	BMB	0.976	9.7250	9.7250	1.0000
5	8.44	Sulfate	BM	8.334	48.5365	48.5365	1.0000
6	8.82	Nitrate	M	5.978	10.1921	10.1921	1.0000
7	9.35	Chlorate	MB	0.967	10.2637	10.2637	1.0000
8	12.59	Phosphate	BMB	2.061	8.9276	8.9276	1.0000
Total:			**0.000**	**38.474**		**156.46**	

89 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 12:22**	*Sample Weight:*	**1.0000**

Run Time:



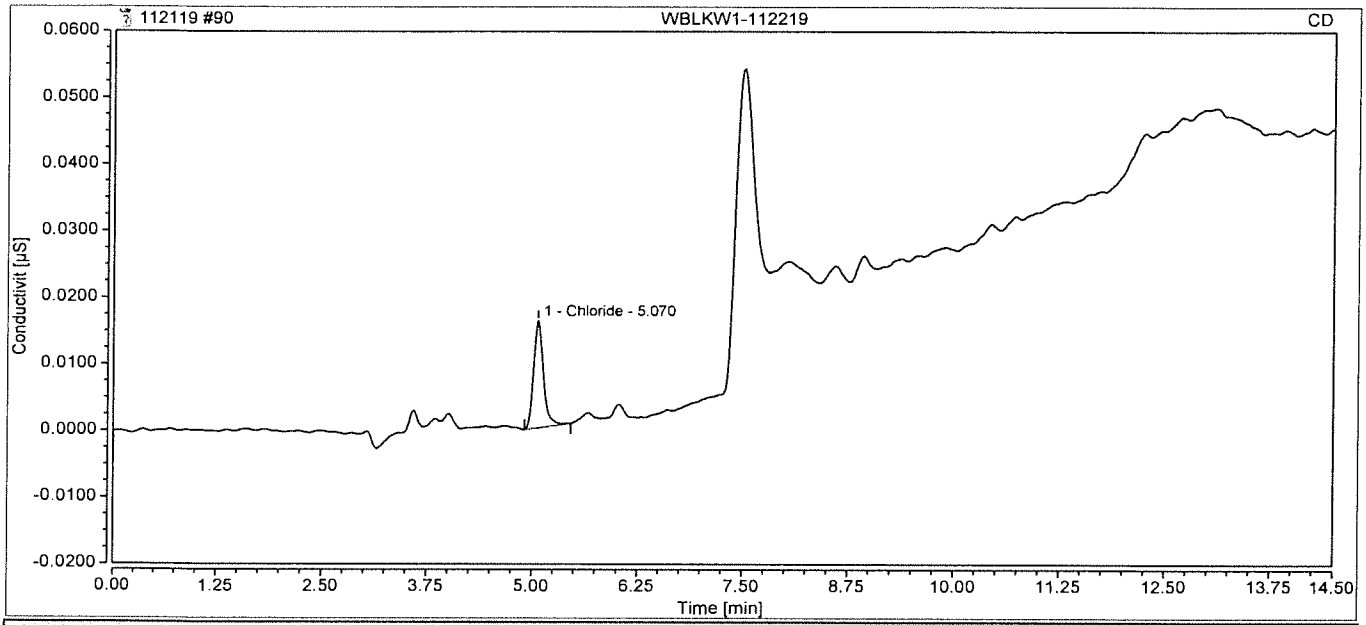
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.004	0.0727	0.0727	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.004**		**0.07**	

90 WBLKW1-112219

Sample Name:	**WBLKW1-112219**	*Injection Volume:*	**5.00**
Vial Number:	**RC6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 13:35**	*Sample Weight:*	**1.0000**

Run Time:



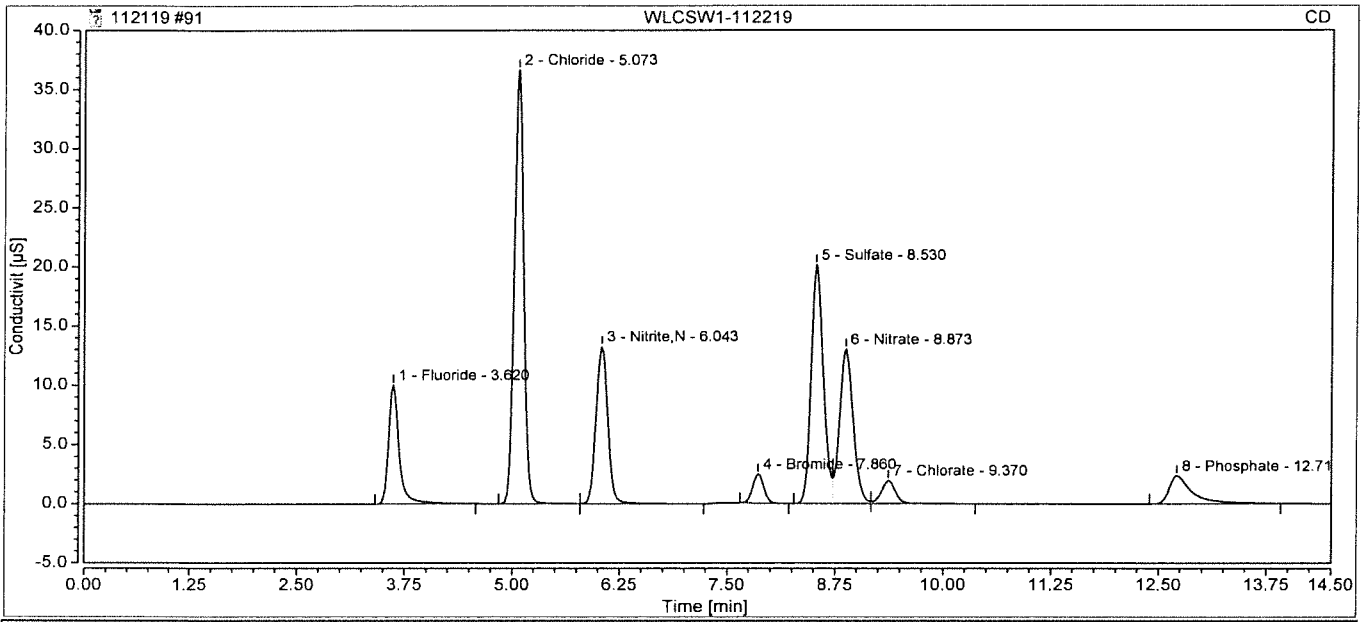
Integration Results

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
1	5.07	Chloride	BMB	0.002	0.0665	0.0665	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.002**		**0.07**	

91 WLCSW1-112219

Sample Name:	**WLCSW1-112219**	*Injection Volume:*	**5.00**
Vial Number:	**RC7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 13:52**	*Sample Weight:*	**1.0000**

Run Time:



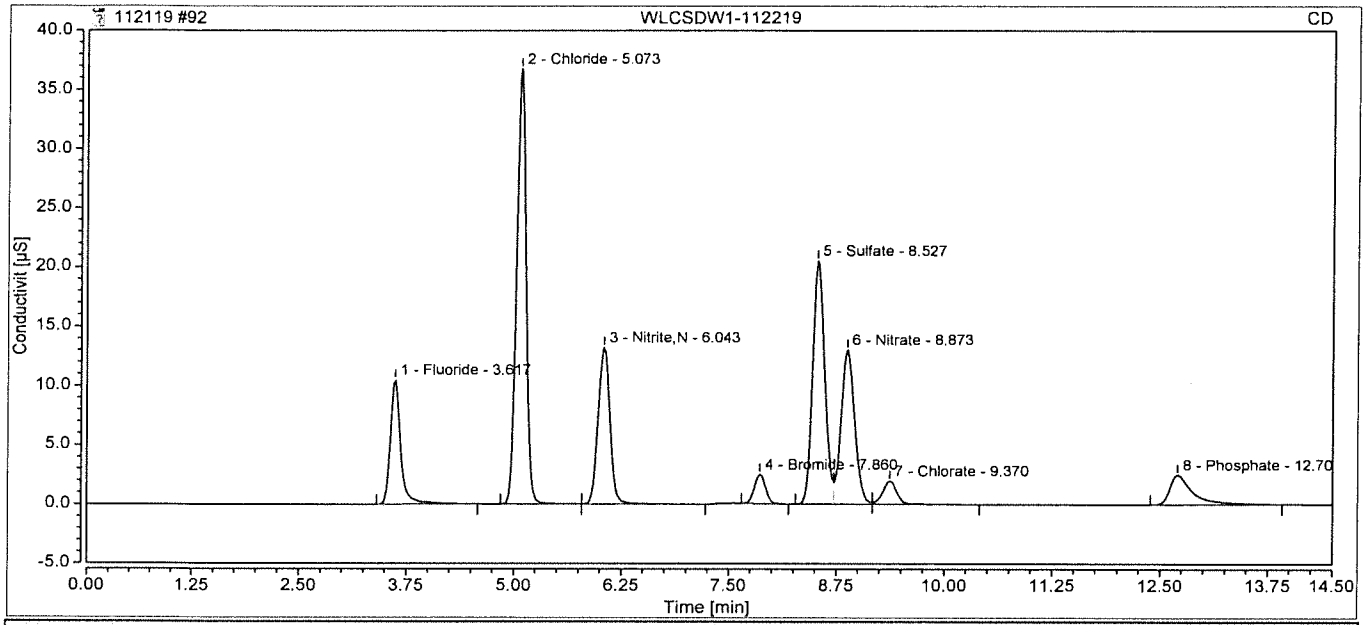
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.456	3.9331	3.9331	1.0000
2	5.07	Chloride	BMB	4.681	19.9354	19.9354	1.0000
3	6.04	Nitrite,N	BMB	2.117	4.1332	4.1332	1.0000
4	7.86	Bromide	BMB	0.369	3.7063	3.7063	1.0000
5	8.53	Sulfate	BM	3.313	19.3011	19.3011	1.0000
6	8.87	Nitrate	M	2.389	4.0828	4.0828	1.0000
7	9.37	Chlorate	MB	0.379	4.0446	4.0446	1.0000
8	12.71	Phosphate	BMB	0.753	3.2942	3.2942	1.0000
Total:			**0.000**	**15.457**		**62.43**	

92 *WLCSDW1-112219*

Sample Name:	**WLCSDW1-112219**	*Injection Volume:*	**5.00**
Vial Number:	**RC8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 14:08**	*Sample Weight:*	**1.0000**

Run Time:



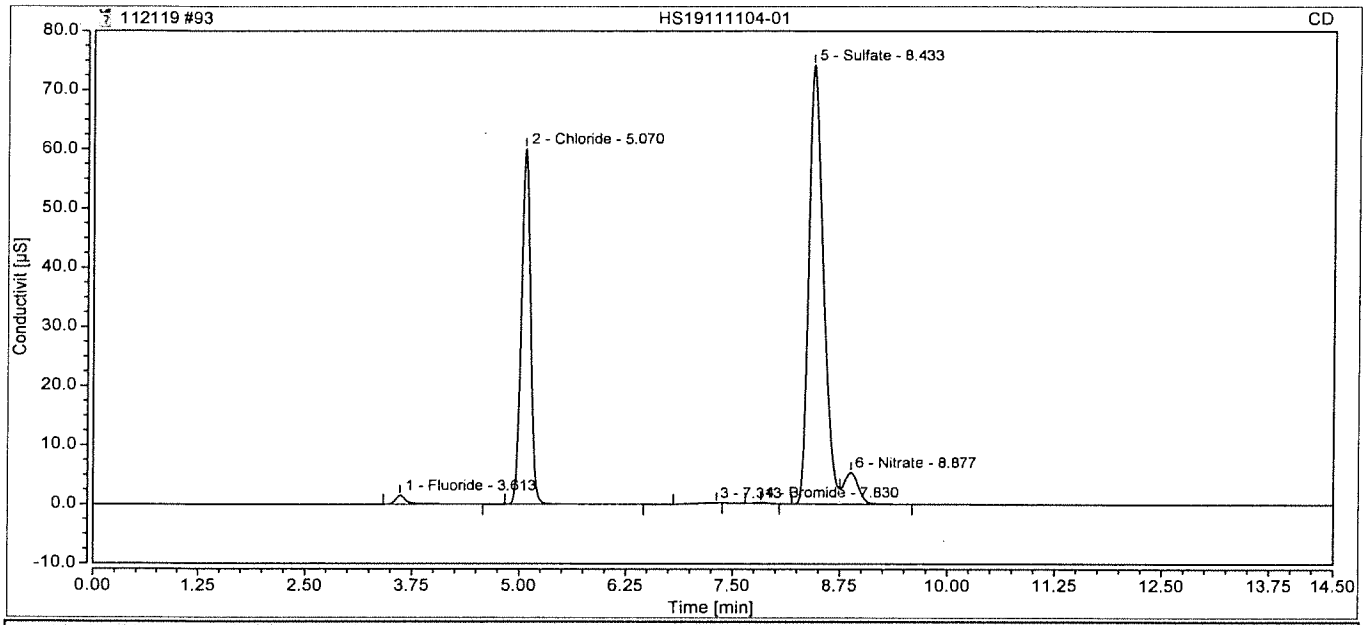
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.469	3.9680	3.9680	1.0000
2	5.07	Chloride	BMB	4.689	19.9680	19.9680	1.0000
3	6.04	Nitrite,N	BMB	2.120	4.1405	4.1405	1.0000
4	7.86	Bromide	BMB	0.370	3.7187	3.7187	1.0000
5	8.53	Sulfate	BM	3.354	19.5396	19.5396	1.0000
6	8.87	Nitrate	M	2.379	4.0663	4.0663	1.0000
7	9.37	Chlorate	MB	0.380	4.0493	4.0493	1.0000
8	12.70	Phosphate	BMB	0.787	3.4389	3.4389	1.0000
Total:			**0.000**	**15.548**		**62.89**	

93 HS19111104-01

Sample Name:	**HS19111104-01**	*Injection Volume:*	**5.00**
Vial Number:	**RD1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 14:25**	*Sample Weight:*	**1.0000**

Run Time:



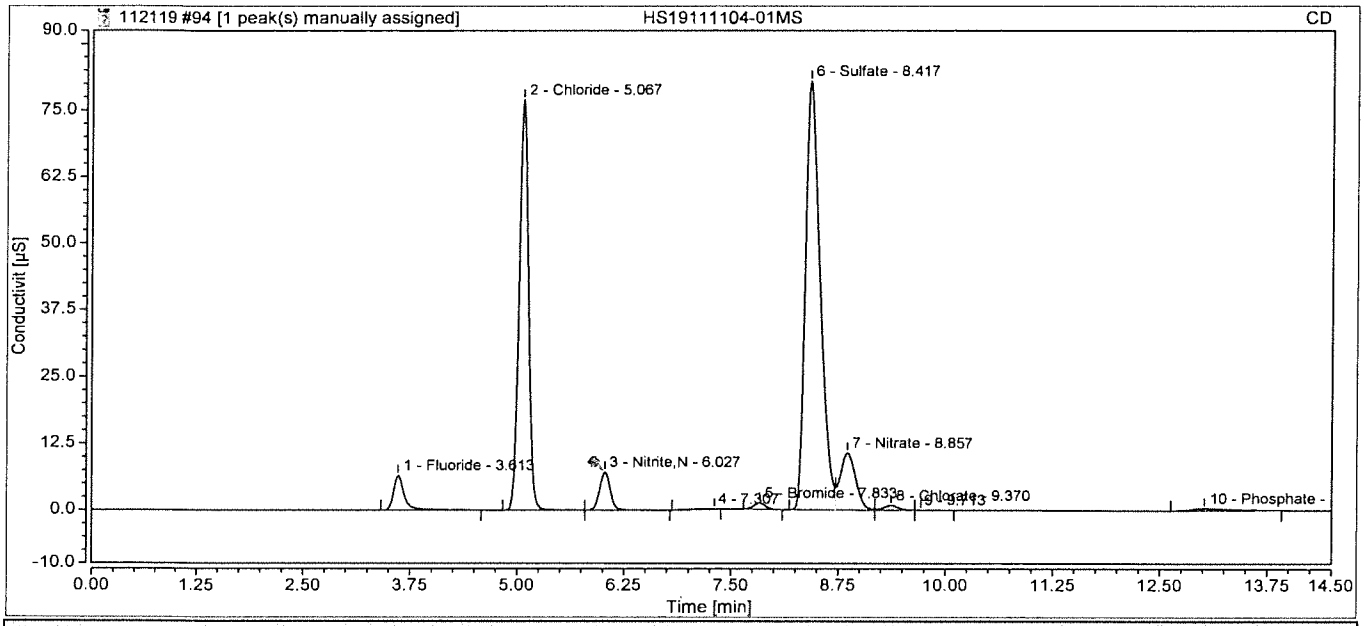
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.242	0.6652	0.6652	1.0000
2	5.07	Chloride	BMB	7.582	32.2514	32.2514	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	7.83	Bromide	BMB	0.030	0.3511	0.3511	1.0000
5	8.43	Sulfate	BM	14.646	85.2885	85.2885	1.0000
6	8.88	Nitrate	MB	1.077	1.8500	1.8500	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**23.576**		**120.41**	

94 HS19111104-01MS

Sample Name:	**HS19111104-01MS**	*Injection Volume:*	**5.00**
Vial Number:	**RD2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 14:42**	*Sample Weight:*	**1.0000**

Run Time:



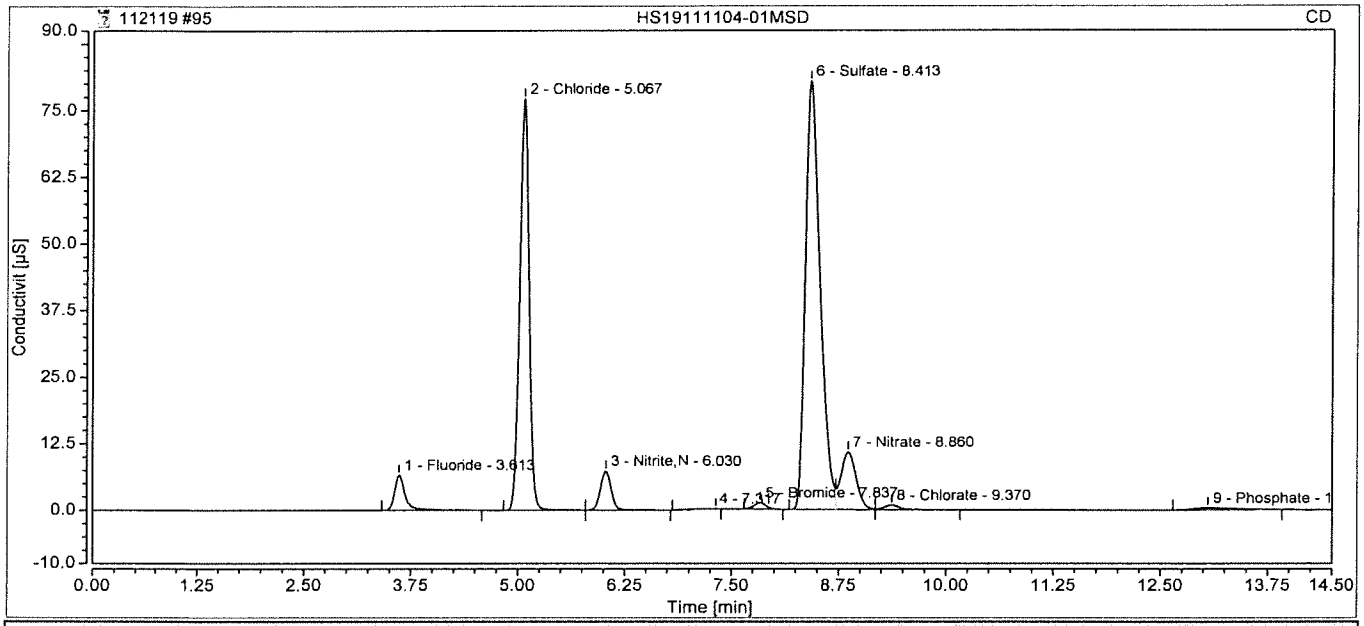
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.951	2.5741	2.5741	1.0000
2	5.07	Chloride	BMB	9.728	41.3662	41.3662	1.0000
3	6.03	Nitrite,N	BMB^	1.037	2.0248	2.0248	1.0000
5	7.83	Bromide	BMB	0.191	1.9432	1.9432	1.0000
6	8.42	Sulfate	BM	16.098	93.7454	93.7454	1.0000
7	8.86	Nitrate	M	2.218	3.7927	3.7927	1.0000
8	9.37	Chlorate	M	0.171	1.8411	1.8411	1.0000
10	13.02	Phosphate	BMB	0.216	0.9761	0.9761	1.0000
Total:			**0.000**	**30.610**		**148.26**	

95 HS19111104-01MSD

Sample Name:	**HS19111104-01MSD**	*Injection Volume:*	**5.00**
Vial Number:	**RD3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 14:58**	*Sample Weight:*	**1.0000**

Run Time:



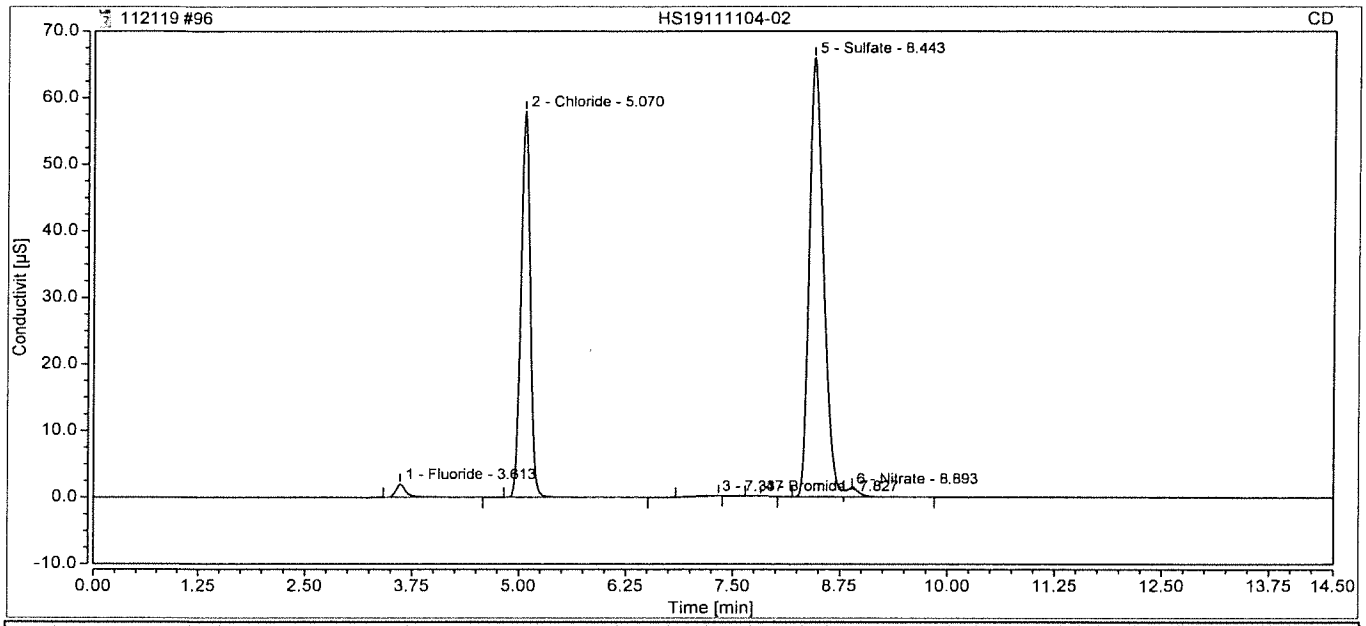
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.965	2.6119	2.6119	1.0000
2	5.07	Chloride	BMB	9.772	41.5511	41.5511	1.0000
3	6.03	Nitrite,N	BMB	1.064	2.0778	2.0778	1.0000
5	7.84	Bromide	BMB	0.196	1.9955	1.9955	1.0000
6	8.41	Sulfate	BM	16.041	93.4142	93.4142	1.0000
7	8.86	Nitrate	M	2.244	3.8374	3.8374	1.0000
8	9.37	Chlorate	MB	0.180	1.9346	1.9346	1.0000
9	13.05	Phosphate	BMB	0.207	0.9408	0.9408	1.0000
Total:			**0.000**	**30.670**		**148.36**	

96 HS19111104-02

Sample Name:	**HS19111104-02**	*Injection Volume:*	**5.00**
Vial Number:	**RD4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 15:15**	*Sample Weight:*	**1.0000**

Run Time:



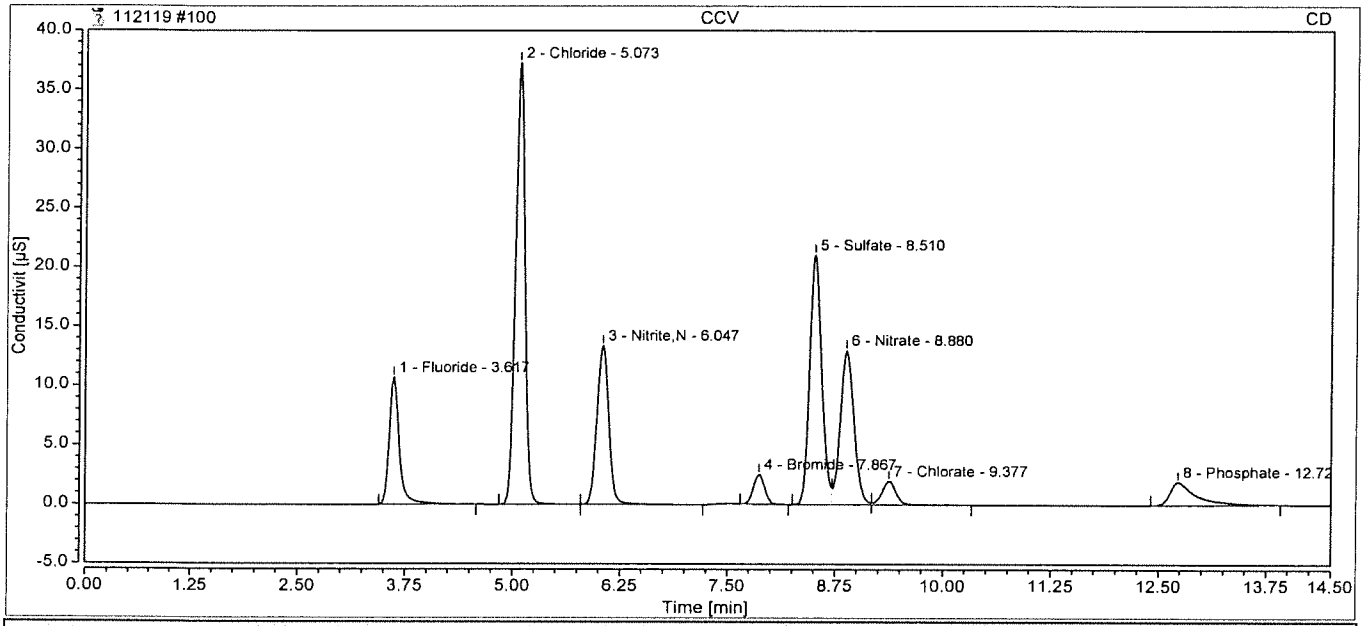
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.308	0.8441	0.8441	1.0000
2	5.07	Chloride	BMB	7.367	31.3401	31.3401	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	7.83	Bromide	BMB	0.010	0.1537	0.1537	1.0000
5	8.44	Sulfate	BM	12.773	74.3841	74.3841	1.0000
6	8.89	Nitrate	MB	0.248	0.4392	0.4392	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**20.706**		**107.16**	

100 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 16:21**	*Sample Weight:*	**1.0000**

Run Time:



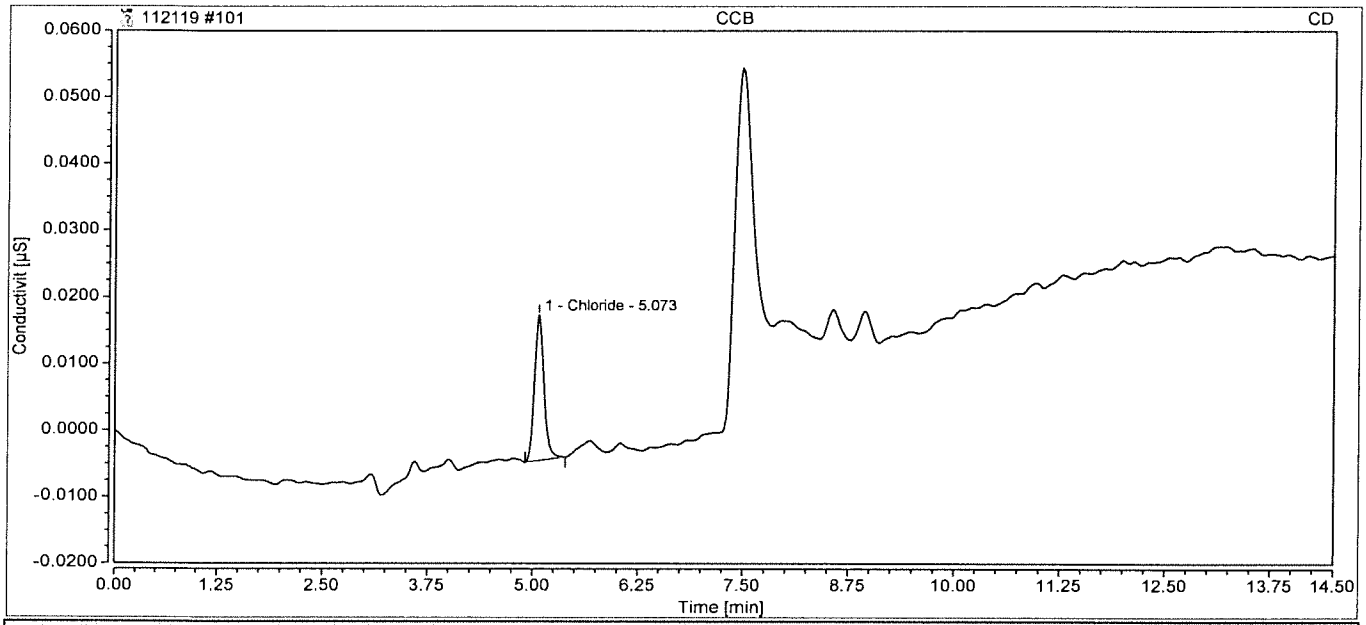
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.483	4.0068	4.0068	1.0000
2	5.07	Chloride	BMB	4.765	20.2925	20.2925	1.0000
3	6.05	Nitrite,N	BMB	2.154	4.2056	4.2056	1.0000
4	7.87	Bromide	BMB	0.378	3.7967	3.7967	1.0000
5	8.51	Sulfate	BM	3.414	19.8886	19.8886	1.0000
6	8.88	Nitrate	M	2.405	4.1103	4.1103	1.0000
7	9.38	Chlorate	MB	0.386	4.1189	4.1189	1.0000
8	12.73	Phosphate	BMB	0.719	3.1437	3.1437	1.0000
Total:			**0.000**	**15.703**		**63.56**	

101 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 16:38**	*Sample Weight:*	**1.0000**

Run Time:



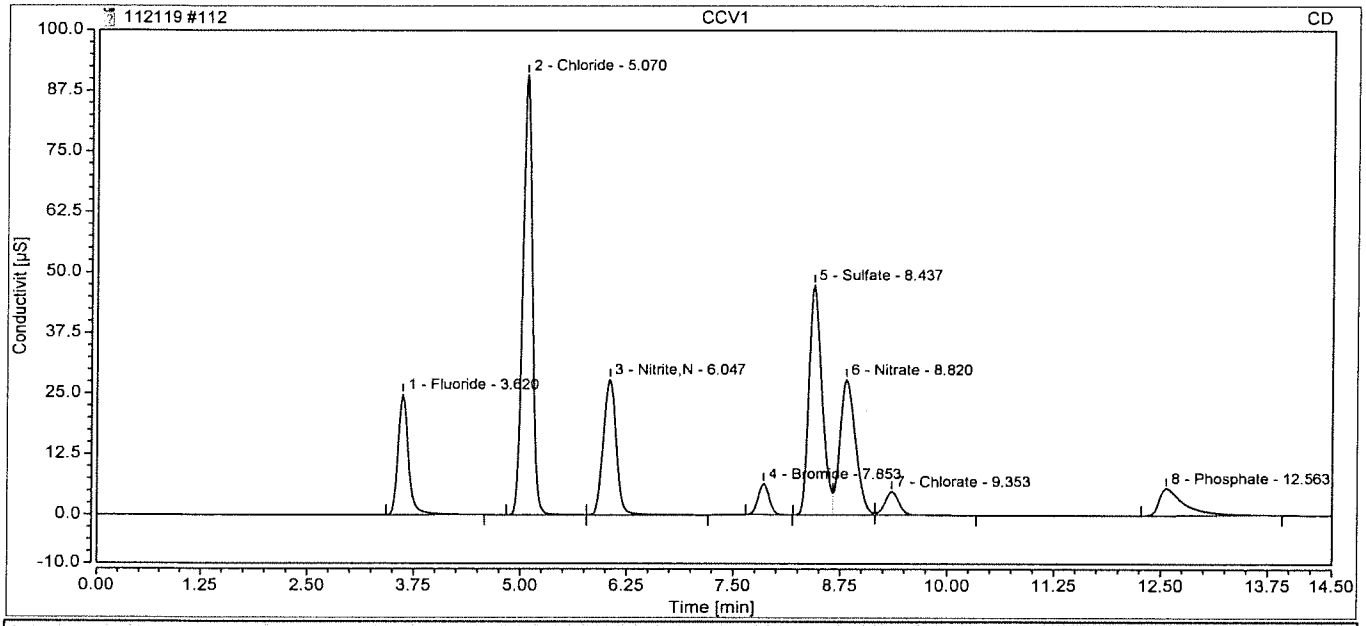
Integration Results

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
1	5.07	Chloride	BMB	0.003	0.0694	0.0694	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.003**		**0.07**	

112 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 19:41**	*Sample Weight:*	**1.0000**

Run Time:



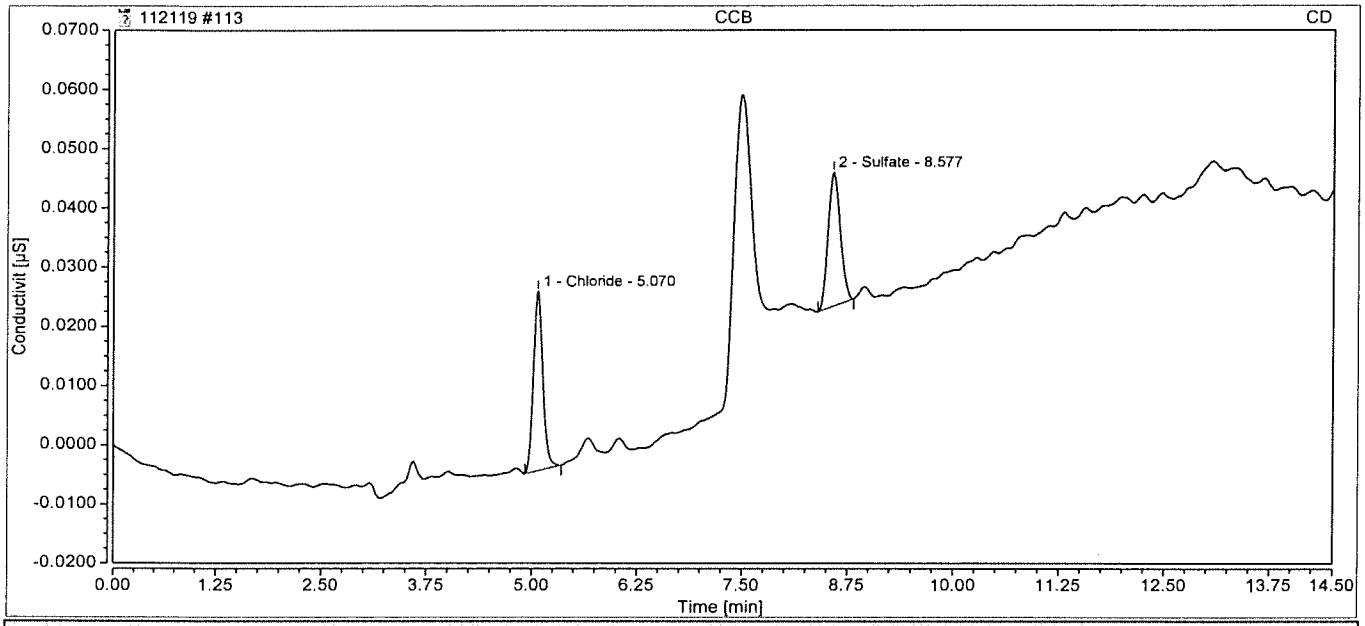
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.563	9.6035	9.6035	1.0000
2	5.07	Chloride	BMB	11.668	49.6018	49.6018	1.0000
3	6.05	Nitrite,N	BMB	4.942	9.6511	9.6511	1.0000
4	7.85	Bromide	BMB	0.976	9.7220	9.7220	1.0000
5	8.44	Sulfate	BM	8.400	48.9243	48.9243	1.0000
6	8.82	Nitrate	M	5.948	10.1400	10.1400	1.0000
7	9.35	Chlorate	MB	0.955	10.1372	10.1372	1.0000
8	12.56	Phosphate	BMB	2.005	8.6865	8.6865	1.0000
Total:			**0.000**	**38.455**		**156.47**	

113 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 19:57**	*Sample Weight:*	**1.0000**

Run Time:



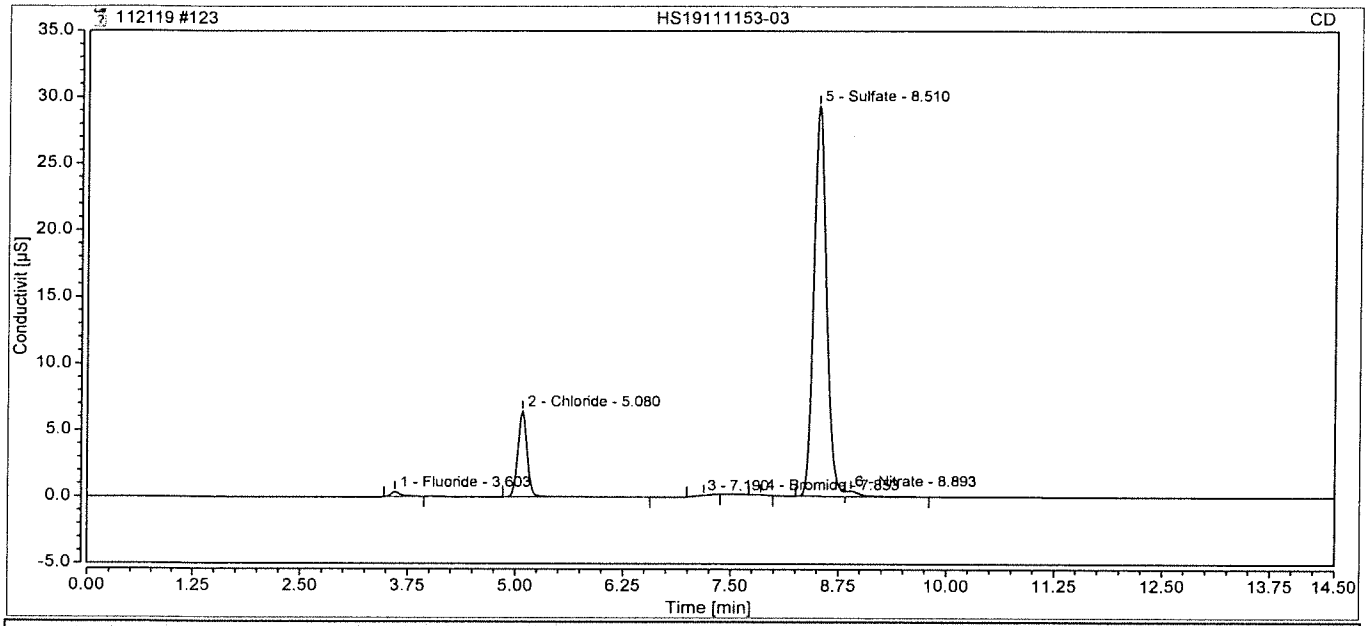
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.004	0.0739	0.0739	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	8.58	Sulfate	BMB	0.004	0.0348	0.0348	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.008**		**0.11**	

123 HS19111153-03

Sample Name:	**HS19111153-03**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 22:44**	*Sample Weight:*	**1.0000**

Run Time:



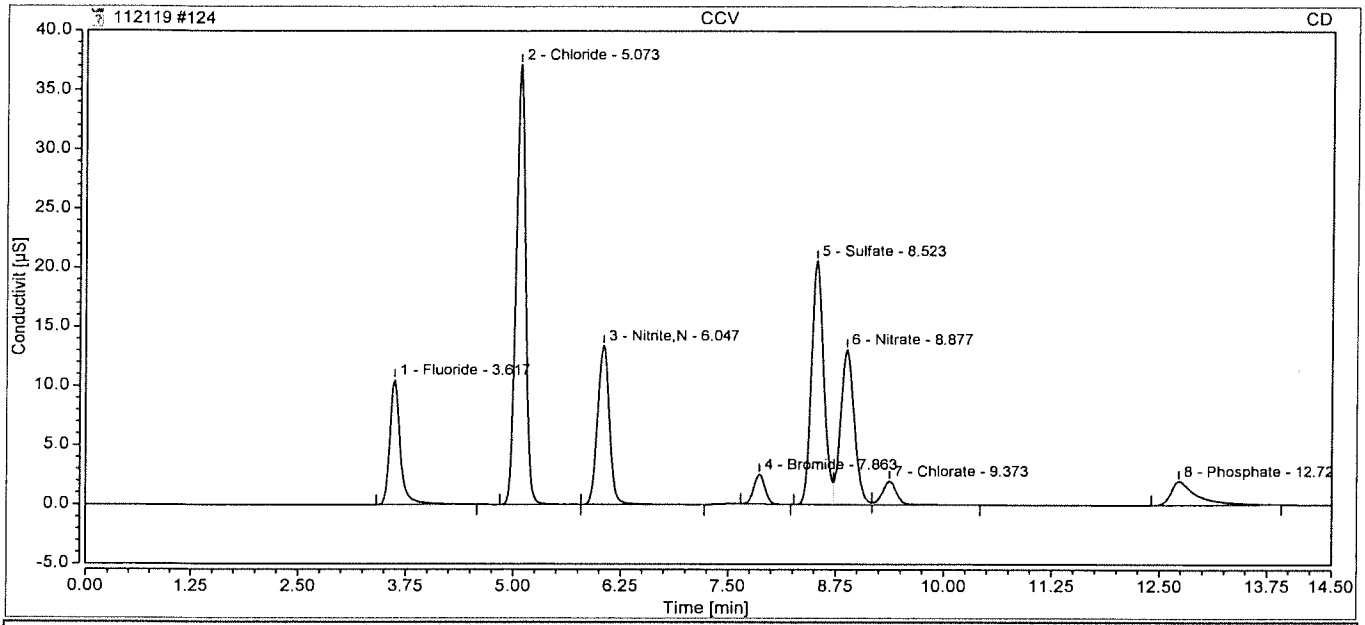
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.050	0.1499	0.1499	1.0000
2	5.08	Chloride	BMB	0.812	3.5071	3.5071	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	7.85	Bromide	BMB	0.002	0.0754	0.0754	1.0000
5	8.51	Sulfate	BM	4.967	28.9338	28.9338	1.0000
6	8.89	Nitrate	MB	0.075	0.1452	0.1452	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**5.907**		**32.81**	

124 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 23:00**	*Sample Weight:*	**1.0000**

Run Time:

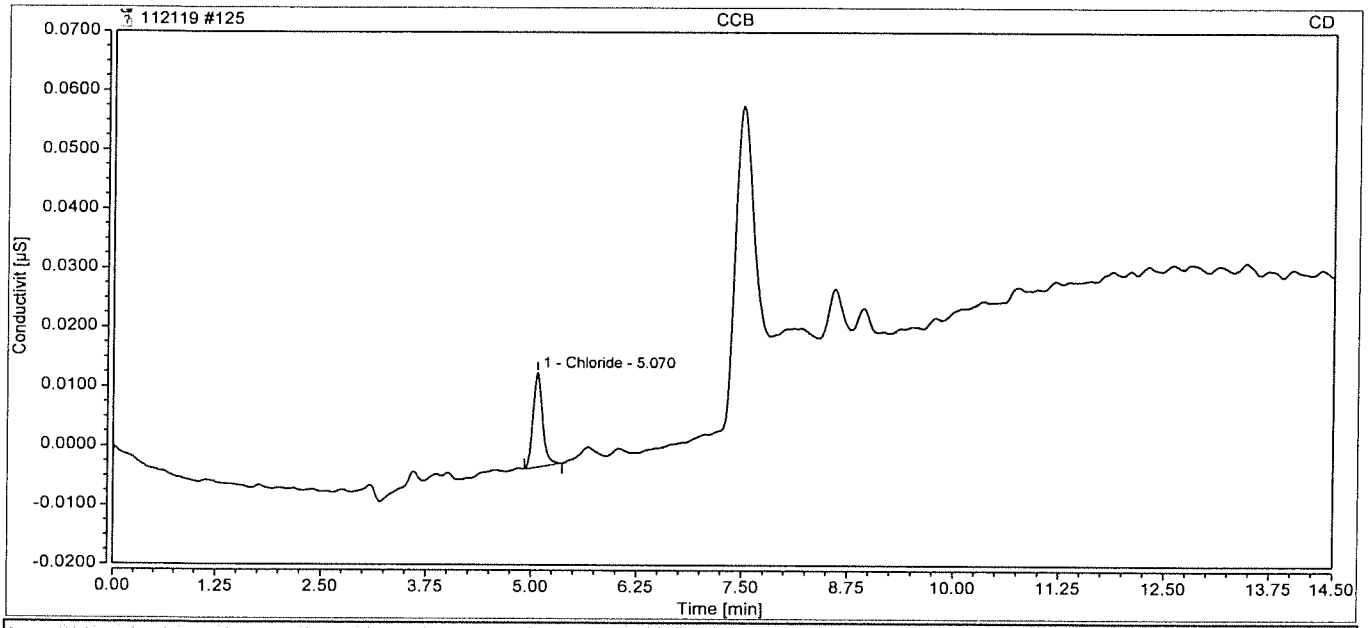


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.489	4.0233	4.0233	1.0000
2	5.07	Chloride	BMB	4.760	20.2682	20.2682	1.0000
3	6.05	Nitrite,N	BMB	2.155	4.2078	4.2078	1.0000
4	7.86	Bromide	BMB	0.375	3.7680	3.7680	1.0000
5	8.52	Sulfate	BM	3.398	19.7964	19.7964	1.0000
6	8.88	Nitrate	M	2.420	4.1359	4.1359	1.0000
7	9.37	Chlorate	MB	0.388	4.1394	4.1394	1.0000
8	12.73	Phosphate	BMB	0.721	3.1546	3.1546	1.0000
Total:			**0.000**	**15.706**		**63.49**	

125 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 23:17**	*Sample Weight:*	**1.0000**
Run Time:			



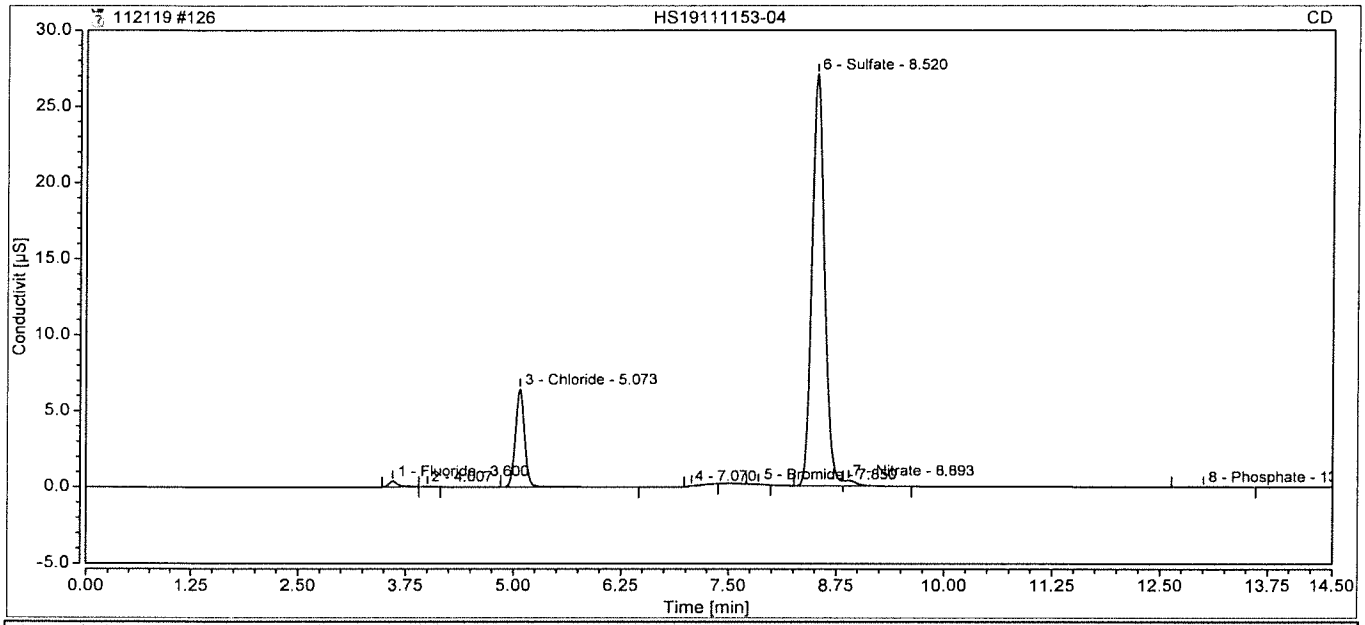
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.002	0.0661	0.0661	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.002**		**0.07**	

126 HS19111153-04

Sample Name:	**HS19111153-04**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 23:33**	*Sample Weight:*	**1.0000**

Run Time:



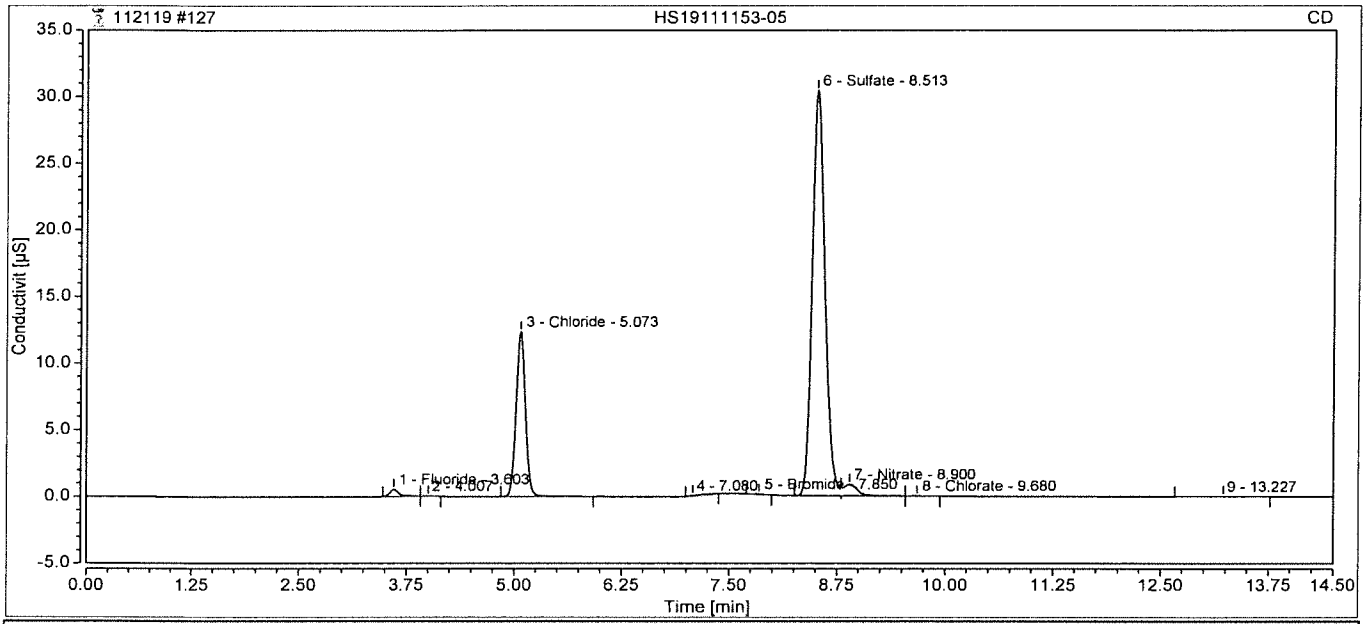
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.050	0.1498	0.1498	1.0000
3	5.07	Chloride	BMB	0.807	3.4851	3.4851	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	7.85	Bromide	BMB	0.002	0.0757	0.0757	1.0000
6	8.52	Sulfate	BM	4.557	26.5449	26.5449	1.0000
7	8.89	Nitrate	MB	0.068	0.1325	0.1325	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
8	13.00	Phosphate	BMB	0.003	0.0622	0.0622	1.0000
Total:			**0.000**	**5.488**		**30.45**	

127 HS19111153-05

Sample Name:	**HS19111153-05**	*Injection Volume:*	**5.00**
Vial Number:	**GA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/22/2019 23:50**	*Sample Weight:*	**1.0000**

Run Time:



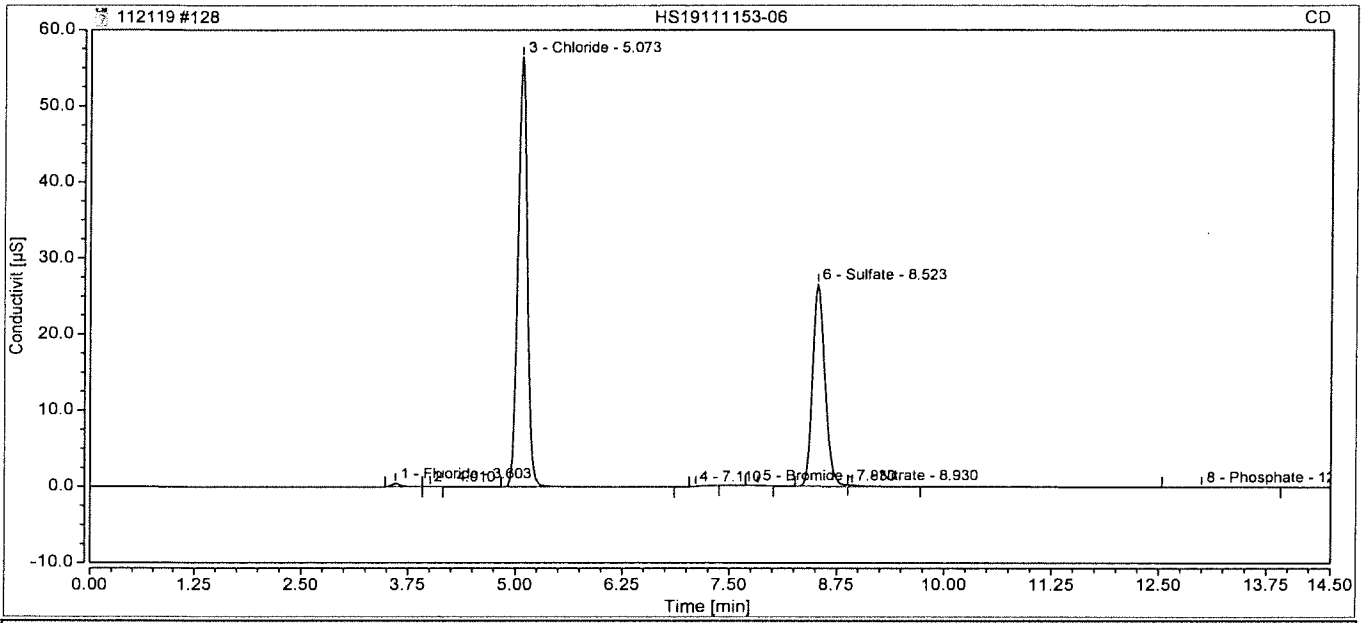
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.068	0.1992	0.1992	1.0000
3	5.07	Chloride	BMB	1.554	6.6552	6.6552	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	7.85	Bromide	BMB	0.003	0.0802	0.0802	1.0000
6	8.51	Sulfate	BM	5.175	30.1462	30.1462	1.0000
7	8.90	Nitrate	M	0.167	0.3008	0.3008	1.0000
8	9.68	Chlorate	MB	0.003	0.0586	0.0586	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**6.970**		**37.44**	

128 HS19111153-06

Sample Name:	**HS19111153-06**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/23/2019 00:07**	*Sample Weight:*	**1.0000**

Run Time:



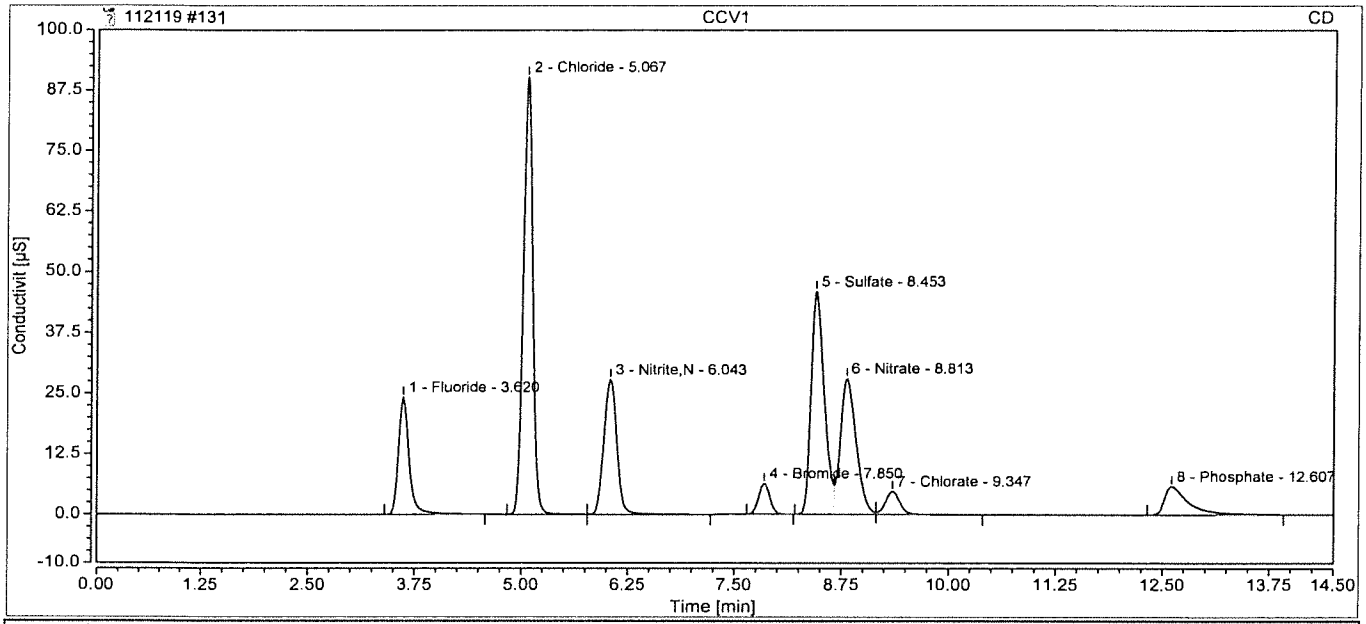
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.058	0.1712	0.1712	1.0000
3	5.07	Chloride	BMB	7.185	30.5648	30.5648	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	7.83	Bromide	BMB	0.006	0.1117	0.1117	1.0000
6	8.52	Sulfate	BM	4.461	25.9875	25.9875	1.0000
7	8.93	Nitrate	MB	0.033	0.0743	0.0743	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
8	13.00	Phosphate	BMB	0.010	0.0893	0.0893	1.0000
Total:			**0.000**	**11.753**		**57.00**	

131 CCV1

Sample Name:	CCV1	Injection Volume:	5.00
Vial Number:	BA7	Channel:	CD
Sample Type:	Unknown	Wavelength:	210
Control Program:	Anions Program 08092019	Bandwidth:	n.a.
Quantif. Method:	Anions Processing Method	Dilution Factor:	1.0000
Recording Time:	11/23/2019 00:56	Sample Weight:	1.0000

Run Time:



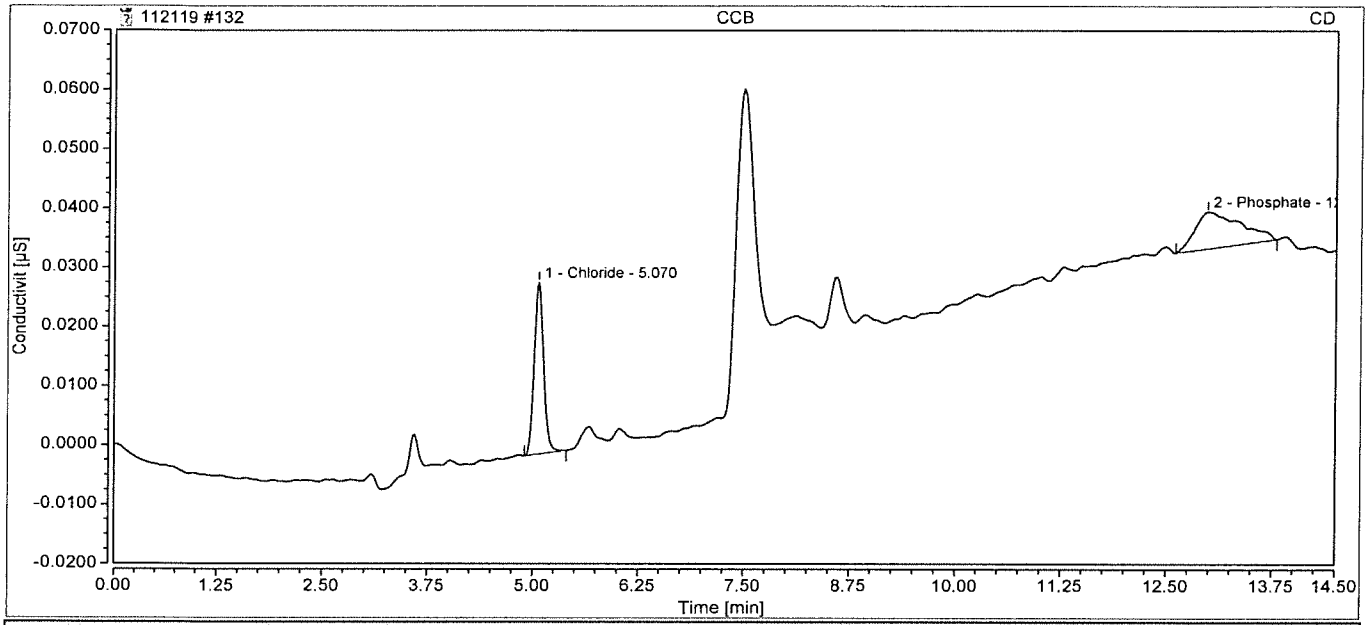
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.541	9.5435	9.5435	1.0000
2	5.07	Chloride	BMB	11.619	49.3958	49.3958	1.0000
3	6.04	Nitrite,N	BMB	4.931	9.6304	9.6304	1.0000
4	7.85	Bromide	BMB	0.969	9.6592	9.6592	1.0000
5	8.45	Sulfate	BM	8.240	47.9888	47.9888	1.0000
6	8.81	Nitrate	M	6.005	10.2371	10.2371	1.0000
7	9.35	Chlorate	MB	0.956	10.1482	10.1482	1.0000
8	12.61	Phosphate	BMB	1.977	8.5645	8.5645	1.0000
Total:			**0.000**	**38.237**		**155.17**	

132 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/23/2019 01:13**	*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	5.07	Chloride	BMB	0.004	0.0731	0.0731	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
2	12.98	Phosphate	BMB	0.004	0.0642	0.0642	1.0000
Total:			**0.000**	**0.008**		**0.14**	

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

WorkOrder: HS19111239

Longhorn Army Ammunition Plant LHAAP-37

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

18-Dec-2019

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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HS19111239 Longhorn Army Ammunition Plant LHAAP37 Final

ALS WO# HS19111239

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

November 25, 2019

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

Work Order: **HS19111239**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP-37**

Dear Susan,

ALS Environmental received 7 sample(s) on Nov 23, 2019 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
Work Order: HS19111239

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19111239-01	35BWW25-191122	Groundwater		22-Nov-2019 08:05	23-Nov-2019 09:20	☐
HS19111239-02	35BWW25-191122-FD	Groundwater		22-Nov-2019 08:05	23-Nov-2019 09:20	☐
HS19111239-03	35BWW15-191122	Groundwater		22-Nov-2019 08:55	23-Nov-2019 09:20	☐
HS19111239-04	35BWW15-191122-FD	Groundwater		22-Nov-2019 08:55	23-Nov-2019 09:20	☐
HS19111239-05	LHSMW58-191122	Groundwater		22-Nov-2019 09:45	23-Nov-2019 09:20	☐
HS19111239-06	35BMW20-191122	Groundwater		22-Nov-2019 10:30	23-Nov-2019 09:20	☐
HS19111239-07	Trip Blank	Groundwater	CG 101419 -07	22-Nov-2019 00:00	23-Nov-2019 09:20	☐

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
Work Order: HS19111239

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R351197

Sample ID: CCV

- Acetone exceeded %D limits for CCV. Samples are ND for this compound.

Sample ID: LHSMW58-191122 (HS19111239-05MSD)

- The RPD between the MS and MSD was outside of the control limit. 1,2,3-Trichlorobenzene

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
Sample ID: 35BWW25-191122
Collection Date: 22-Nov-2019 08:05

ANALYTICAL REPORT
WorkOrder:HS19111239
Lab ID:HS19111239-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 20:37
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 20:37
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 20:37
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 20:37
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 20:37
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-37 WorkOrder:HS19111239
Sample ID: 35BWW25-191122 Lab ID:HS19111239-01
Collection Date: 22-Nov-2019 08:05 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 20:37
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 20:37
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 20:37
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Trichloroethene	**13**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 20:37
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 20:37
Surr: 1,2-Dichloroethane-d4	*93.7*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 20:37*
Surr: 4-Bromofluorobenzene	*93.2*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 20:37*
Surr: Dibromofluoromethane	*97.1*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 20:37*
Surr: Toluene-d8	*96.8*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 20:37*

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
Sample ID: 35BWW25-191122-FD
Collection Date: 22-Nov-2019 08:05

ANALYTICAL REPORT
WorkOrder:HS19111239
Lab ID:HS19111239-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:01
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 21:01
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 21:01
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:01
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 21:01
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-37 WorkOrder:HS19111239
Sample ID: 35BWW25-191122-FD Lab ID:HS19111239-02
Collection Date: 22-Nov-2019 08:05 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:01
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:01
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:01
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Trichloroethene	**13**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 21:01
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:01
Surr: 1,2-Dichloroethane-d4	*93.2*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 21:01*
Surr: 4-Bromofluorobenzene	*93.5*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 21:01*
Surr: Dibromofluoromethane	*96.0*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 21:01*
Surr: Toluene-d8	*97.0*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 21:01*

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-37 WorkOrder:HS19111239
Sample ID: 35BWW15-191122 Lab ID:HS19111239-03
Collection Date: 22-Nov-2019 08:55 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1,2-Trichlor-1,2,2-trifluoroethane	**3.0**		**0.50**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 21:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,1-Dichloroethene	**1.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 21:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 21:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 21:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 21:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
Sample ID: 35BWW15-191122
Collection Date: 22-Nov-2019 08:55

ANALYTICAL REPORT
WorkOrder:HS19111239
Lab ID:HS19111239-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Tetrachloroethene	**11**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 21:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Trichloroethene	**7.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 21:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:25
Surr: 1,2-Dichloroethane-d4	*93.9*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 21:25*
Surr: 4-Bromofluorobenzene	*93.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 21:25*
Surr: Dibromofluoromethane	*97.4*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 21:25*
Surr: Toluene-d8	*97.3*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 21:25*

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-37 WorkOrder:HS19111239
Sample ID: 35BWW15-191122-FD Lab ID:HS19111239-04
Collection Date: 22-Nov-2019 08:55 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1,2-Trichlor-1,2,2-trifluoroethane	**2.9**		**0.50**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 21:49
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,1-Dichloroethene	**1.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 21:49
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:49
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 21:49
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 21:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 21:49
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-37 WorkOrder:HS19111239
Sample ID: 35BWW15-191122-FD Lab ID:HS19111239-04
Collection Date: 22-Nov-2019 08:55 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 21:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 21:49
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 21:49
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Tetrachloroethene	**11**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 21:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Trichloroethene	**7.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 21:49
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 21:49
Surr: 1,2-Dichloroethane-d4	*91.3*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 21:49*
Surr: 4-Bromofluorobenzene	*94.5*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 21:49*
Surr: Dibromofluoromethane	*95.2*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 21:49*
Surr: Toluene-d8	*96.4*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 21:49*

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-37 WorkOrder:HS19111239
Sample ID: LHSMW58-191122 Lab ID:HS19111239-05
Collection Date: 22-Nov-2019 09:45 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:48
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 15:48
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 15:48
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:48
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 15:48
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-37 WorkOrder:HS19111239
Sample ID: LHSMW58-191122 Lab ID:HS19111239-05
Collection Date: 22-Nov-2019 09:45 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:48
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:48
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:48
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Tetrachloroethene	**4.2**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 15:48
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:48
Surr: 1,2-Dichloroethane-d4	*93.3*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 15:48*
Surr: 4-Bromofluorobenzene	*92.4*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 15:48*
Surr: Dibromofluoromethane	*97.2*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 15:48*
Surr: Toluene-d8	*99.1*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 15:48*

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-37 WorkOrder:HS19111239
Sample ID: 35BMW20-191122 Lab ID:HS19111239-06
Collection Date: 22-Nov-2019 10:30 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1,2-Trichlor-1,2,2-trifluoroethane	**2.2**		**0.50**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 22:13
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 22:13
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 22:13
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 22:13
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 22:13
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 22:13
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-37 WorkOrder:HS19111239
Sample ID: 35BMW20-191122 Lab ID:HS19111239-06
Collection Date: 22-Nov-2019 10:30 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 22:13
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 22:13
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 22:13
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Tetrachloroethene	**15**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 22:13
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Trichloroethene	**3.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2019 22:13
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 22:13
Surr: 1,2-Dichloroethane-d4	*95.1*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 22:13*
Surr: 4-Bromofluorobenzene	*94.0*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 22:13*
Surr: Dibromofluoromethane	*97.0*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 22:13*
Surr: Toluene-d8	*99.3*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 22:13*

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
Sample ID: Trip Blank
Collection Date: 22-Nov-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19111239
Lab ID:HS19111239-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:24
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	24-Nov-2019 15:24
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	24-Nov-2019 15:24
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:24
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Nov-2019 15:24
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-37 WorkOrder:HS19111239
Sample ID: Trip Blank Lab ID:HS19111239-07
Collection Date: 22-Nov-2019 00:00 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2019 15:24
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2019 15:24
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	24-Nov-2019 15:24
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2019 15:24
Surr: 1,2-Dichloroethane-d4	*92.4*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2019 15:24*
Surr: 4-Bromofluorobenzene	*93.6*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2019 15:24*
Surr: Dibromofluoromethane	*96.4*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2019 15:24*
Surr: Toluene-d8	*97.2*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2019 15:24*

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

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R351197 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19111239-01	35BWW25-191122	22 Nov 2019 08:05			24 Nov 2019 20:37	1
HS19111239-02	35BWW25-191122-FD	22 Nov 2019 08:05			24 Nov 2019 21:01	1
HS19111239-03	35BWW15-191122	22 Nov 2019 08:55			24 Nov 2019 21:25	1
HS19111239-04	35BWW15-191122-FD	22 Nov 2019 08:55			24 Nov 2019 21:49	1
HS19111239-05	LHSMW58-191122	22 Nov 2019 09:45			24 Nov 2019 15:48	1
HS19111239-06	35BMW20-191122	22 Nov 2019 10:30			24 Nov 2019 22:13	1
HS19111239-07	Trip Blank	22 Nov 2019 00:00			24 Nov 2019 15:24	1

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 14:36**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359047** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 14:36**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359047** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	0.50	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	0.50	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.83*	*1.0*	*50*	*0*	*91.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*45.55*	*1.0*	*50*	*0*	*91.1*	*85 - 114*				
Surr: Dibromofluoromethane	*47.85*	*1.0*	*50*	*0*	*95.7*	*80 - 119*				

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 14:36**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359047** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*48.8*	*1.0*	*50*	*0*	*97.6*	*89 - 112*				

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 13:48**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359046** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.62	1.0	20	0	103	78 - 124				
1,1,1-Trichloroethane	20.64	1.0	20	0	103	74 - 131				
1,1,2,2-Tetrachloroethane	20.35	1.0	20	0	102	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	19.89	1.0	20	0	99.5	70 - 136				
1,1,2-Trichloroethane	20.38	1.0	20	0	102	80 - 119				
1,1-Dichloroethane	20.55	1.0	20	0	103	77 - 125				
1,1-Dichloroethene	19.43	1.0	20	0	97.1	71 - 131				
1,1-Dichloropropene	20.19	1.0	20	0	101	78 - 125				
1,2,3-Trichlorobenzene	21.94	1.0	20	0	110	69 - 129				
1,2,3-Trichloropropane	19.97	1.0	20	0	99.9	73 - 122				
1,2,4-Trichlorobenzene	21.34	1.0	20	0	107	69 - 130				
1,2,4-Trimethylbenzene	20.39	1.0	20	0	102	76 - 124				
1,2-Dibromo-3-chloropropane	20.16	1.0	20	0	101	62 - 128				
1,2-Dibromoethane	20.05	1.0	20	0	100	77 - 121				
1,2-Dichlorobenzene	20.48	1.0	20	0	102	80 - 119				
1,2-Dichloroethane	20.29	1.0	20	0	101	73 - 128				
1,2-Dichloropropane	20.26	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	20.66	1.0	20	0	103	75 - 124				
1,3-Dichlorobenzene	20.59	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	19.68	1.0	20	0	98.4	80 - 119				
1,4-Dichlorobenzene	20.5	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	20.47	1.0	20	0	102	60 - 139				
2-Butanone	39.49	2.0	40	0	98.7	56 - 143				
2-Chlorotoluene	21.32	1.0	20	0	107	79 - 122				
2-Hexanone	39.78	2.0	40	0	99.5	57 - 139				
4-Chlorotoluene	20.52	1.0	20	0	103	78 - 122				
4-Isopropyltoluene	20.47	1.0	20	0	102	77 - 127				
4-Methyl-2-pentanone	38.77	2.0	40	0	96.9	67 - 130				
Acetone	43.21	2.0	40	0	108	39 - 160				
Benzene	20.71	1.0	20	0	104	79 - 120				
Bromobenzene	20.96	1.0	20	0	105	80 - 120				
Bromochloromethane	20.43	1.0	20	0	102	78 - 123				
Bromodichloromethane	20.51	1.0	20	0	103	79 - 125				
Bromoform	20.06	1.0	20	0	100	66 - 130				

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 13:48**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359046** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	21.53	1.0	20	0	108	53 - 141				
Carbon disulfide	41.92	2.0	40	0	105	64 - 133				
Carbon tetrachloride	19.98	1.0	20	0	99.9	72 - 136				
Chlorobenzene	19.9	1.0	20	0	99.5	82 - 118				
Chloroethane	18.17	1.0	20	0	90.9	60 - 138				
Chloroform	20.14	1.0	20	0	101	79 - 124				
Chloromethane	15.24	1.0	20	0	76.2	50 - 139				
cis-1,2-Dichloroethene	21.32	1.0	20	0	107	78 - 123				
cis-1,3-Dichloropropene	20.55	1.0	20	0	103	75 - 124				
Dibromochloromethane	20.29	1.0	20	0	101	74 - 126				
Dibromomethane	20.7	1.0	20	0	103	79 - 123				
Dichlorodifluoromethane	15.73	1.0	20	0	78.7	32 - 152				
Ethylbenzene	20.21	1.0	20	0	101	79 - 121				
Hexachlorobutadiene	20.68	1.0	20	0	103	66 - 134				
Isopropylbenzene	20.02	1.0	20	0	100	72 - 131				
m,p-Xylene	40.31	2.0	40	0	101	80 - 121				
Methylene chloride	19.82	2.0	20	0	99.1	74 - 124				
Naphthalene	18.54	1.0	20	0	92.7	61 - 128				
n-Butylbenzene	20.99	1.0	20	0	105	75 - 128				
n-Propylbenzene	21.12	1.0	20	0	106	76 - 126				
o-Xylene	20.1	1.0	20	0	100	78 - 122				
sec-Butylbenzene	20.93	1.0	20	0	105	77 - 126				
Styrene	20.09	1.0	20	0	100	78 - 123				
tert-Butylbenzene	20.85	1.0	20	0	104	78 - 124				
Tetrachloroethene	19.88	1.0	20	0	99.4	74 - 129				
Toluene	20.27	1.0	20	0	101	80 - 121				
trans-1,2-Dichloroethene	20.72	1.0	20	0	104	75 - 124				
trans-1,3-Dichloropropene	20.09	1.0	20	0	100	73 - 127				
Trichloroethene	20.68	1.0	20	0	103	79 - 123				
Trichlorofluoromethane	19.6	1.0	20	0	98.0	65 - 141				
Vinyl chloride	16.98	1.0	20	0	84.9	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.3*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.99*	*1.0*	*50*	*0*	*94.0*	*85 - 114*				
Surr: Dibromofluoromethane	*50.21*	*1.0*	*50*	*0*	*100*	*80 - 119*				

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191124** Units: **UG/L** Analysis Date: **24-Nov-2019 13:48**
Client ID: Run ID: **VOA6_351197** SeqNo: **5359046** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*46.49*	*1.0*	*50*	*0*	*93.0*	*89 - 112*				

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111239-05MS** Units: **UG/L** Analysis Date: **24-Nov-2019 16:13**
Client ID: **LHSMW58-191122** Run ID: **VOA6_351197** SeqNo: **5359051** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.24	1.0	20	0	91.2	78 - 124				
1,1,1-Trichloroethane	18.88	1.0	20	0	94.4	74 - 131				
1,1,2,2-Tetrachloroethane	18.01	1.0	20	0	90.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	18.99	1.0	20	0	95.0	70 - 136				
1,1,2-Trichloroethane	18.24	1.0	20	0	91.2	80 - 119				
1,1-Dichloroethane	18.35	1.0	20	0	91.7	77 - 125				
1,1-Dichloroethene	18.12	1.0	20	0	90.6	71 - 131				
1,1-Dichloropropene	19.12	1.0	20	0	95.6	78 - 125				
1,2,3-Trichlorobenzene	14.41	1.0	20	0	72.1	69 - 129				
1,2,3-Trichloropropane	17.24	1.0	20	0	86.2	73 - 122				
1,2,4-Trichlorobenzene	15.26	1.0	20	0	76.3	69 - 130				
1,2,4-Trimethylbenzene	19.07	1.0	20	0	95.3	76 - 124				
1,2-Dibromo-3-chloropropane	16.49	1.0	20	0	82.5	62 - 128				
1,2-Dibromoethane	17.78	1.0	20	0	88.9	77 - 121				
1,2-Dichlorobenzene	18.64	1.0	20	0	93.2	80 - 119				
1,2-Dichloroethane	18.26	1.0	20	0	91.3	73 - 128				
1,2-Dichloropropane	18.08	1.0	20	0	90.4	78 - 122				
1,3,5-Trimethylbenzene	19.64	1.0	20	0	98.2	75 - 124				
1,3-Dichlorobenzene	19.23	1.0	20	0	96.2	80 - 119				
1,3-Dichloropropane	17.67	1.0	20	0	88.4	80 - 119				
1,4-Dichlorobenzene	18.82	1.0	20	0	94.1	79 - 118				
2,2-Dichloropropane	18.17	1.0	20	0	90.9	60 - 139				
2-Butanone	30.13	2.0	40	0	75.3	56 - 143				
2-Chlorotoluene	19.75	1.0	20	0	98.7	79 - 122				
2-Hexanone	31.85	2.0	40	0	79.6	57 - 139				
4-Chlorotoluene	18.99	1.0	20	0	94.9	78 - 122				
4-Isopropyltoluene	19.48	1.0	20	0	97.4	77 - 127				
4-Methyl-2-pentanone	32.34	2.0	40	0	80.8	67 - 130				
Acetone	25.48	2.0	40	0	63.7	39 - 160				
Benzene	19.17	1.0	20	0	95.9	79 - 120				
Bromobenzene	19.09	1.0	20	0	95.5	80 - 120				
Bromochloromethane	17.63	1.0	20	0	88.1	78 - 123				
Bromodichloromethane	18.27	1.0	20	0	91.3	79 - 125				
Bromoform	17.79	1.0	20	0	89.0	66 - 130				

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111239-05MS** Units: **UG/L** Analysis Date: **24-Nov-2019 16:13**
Client ID: **LHSMW58-191122** Run ID: **VOA6_351197** SeqNo: **5359051** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	19.73	1.0	20	0	98.6	53 - 141				
Carbon disulfide	39.23	2.0	40	0	98.1	64 - 133				
Carbon tetrachloride	19.24	1.0	20	0	96.2	72 - 136				
Chlorobenzene	18.32	1.0	20	0	91.6	82 - 118				
Chloroethane	17.02	1.0	20	0	85.1	60 - 138				
Chloroform	17.4	1.0	20	0	87.0	79 - 124				
Chloromethane	14.84	1.0	20	0	74.2	50 - 139				
cis-1,2-Dichloroethene	18.73	1.0	20	0	93.6	78 - 123				
cis-1,3-Dichloropropene	18.4	1.0	20	0	92.0	75 - 124				
Dibromochloromethane	18.2	1.0	20	0	91.0	74 - 126				
Dibromomethane	18.14	1.0	20	0	90.7	79 - 123				
Dichlorodifluoromethane	18.37	1.0	20	0	91.8	32 - 152				
Ethylbenzene	18.84	1.0	20	0	94.2	79 - 121				
Hexachlorobutadiene	15.65	1.0	20	0	78.3	66 - 134				
Isopropylbenzene	19.15	1.0	20	0	95.8	72 - 131				
m,p-Xylene	37.63	2.0	40	0	94.1	80 - 121				
Methylene chloride	17.19	2.0	20	0	86.0	74 - 124				
Naphthalene	13.75	1.0	20	0	68.8	61 - 128				
n-Butylbenzene	19.96	1.0	20	0	99.8	75 - 128				
n-Propylbenzene	20.13	1.0	20	0	101	76 - 126				
o-Xylene	18.35	1.0	20	0	91.8	78 - 122				
sec-Butylbenzene	20.02	1.0	20	0	100	77 - 126				
Styrene	18.54	1.0	20	0	92.7	78 - 123				
tert-Butylbenzene	19.89	1.0	20	0	99.5	78 - 124				
Tetrachloroethene	22.84	1.0	20	4.209	93.2	74 - 129				
Toluene	18.9	1.0	20	0	94.5	80 - 121				
trans-1,2-Dichloroethene	18.85	1.0	20	0	94.3	75 - 124				
trans-1,3-Dichloropropene	17.61	1.0	20	0	88.1	73 - 127				
Trichloroethene	19.67	1.0	20	0	98.4	79 - 123				
Trichlorofluoromethane	19.15	1.0	20	0	95.7	65 - 141				
Vinyl chloride	17.07	1.0	20	0	85.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.74*	*1.0*	*50*	*0*	*93.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.36*	*1.0*	*50*	*0*	*94.7*	*85 - 114*				
Surr: Dibromofluoromethane	*48.71*	*1.0*	*50*	*0*	*97.4*	*80 - 119*				

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111239-05MS** Units: **UG/L** Analysis Date: **24-Nov-2019 16:13**
Client ID: **LHSMW58-191122** Run ID: **VOA6_351197** SeqNo: **5359051** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*47.72*	*1.0*	*50*	*0*	*95.4*	*89 - 112*				

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111239-05MSD** Units: **UG/L** Analysis Date: **24-Nov-2019 16:37**
Client ID: **LHSMW58-191122** Run ID: **VOA6_351197** SeqNo: **5359052** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.12	1.0	20	0	90.6	78 - 124	18.24	0.661	20	
1,1,1-Trichloroethane	18.11	1.0	20	0	90.6	74 - 131	18.88	4.16	20	
1,1,2,2-Tetrachloroethane	17.59	1.0	20	0	87.9	71 - 121	18.01	2.36	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	17.46	1.0	20	0	87.3	70 - 136	18.99	8.39	20	
1,1,2-Trichloroethane	18.04	1.0	20	0	90.2	80 - 119	18.24	1.12	20	
1,1-Dichloroethane	17.57	1.0	20	0	87.8	77 - 125	18.35	4.35	20	
1,1-Dichloroethene	17.36	1.0	20	0	86.8	71 - 131	18.12	4.26	20	
1,1-Dichloropropene	17.8	1.0	20	0	89.0	78 - 125	19.12	7.16	20	
1,2,3-Trichlorobenzene	18.23	1.0	20	0	91.1	69 - 129	14.41	23.4	20	R
1,2,3-Trichloropropane	17.01	1.0	20	0	85.0	73 - 122	17.24	1.38	20	
1,2,4-Trichlorobenzene	17.59	1.0	20	0	87.9	69 - 130	15.26	14.2	20	
1,2,4-Trimethylbenzene	18.33	1.0	20	0	91.6	76 - 124	19.07	3.96	20	
1,2-Dibromo-3-chloropropane	16.61	1.0	20	0	83.1	62 - 128	16.49	0.724	20	
1,2-Dibromoethane	17.93	1.0	20	0	89.7	77 - 121	17.78	0.846	20	
1,2-Dichlorobenzene	18.01	1.0	20	0	90.1	80 - 119	18.64	3.43	20	
1,2-Dichloroethane	17.68	1.0	20	0	88.4	73 - 128	18.26	3.23	20	
1,2-Dichloropropane	17.55	1.0	20	0	87.8	78 - 122	18.08	2.99	20	
1,3,5-Trimethylbenzene	18.76	1.0	20	0	93.8	75 - 124	19.64	4.54	20	
1,3-Dichlorobenzene	18.48	1.0	20	0	92.4	80 - 119	19.23	3.98	20	
1,3-Dichloropropane	17.53	1.0	20	0	87.6	80 - 119	17.67	0.82	20	
1,4-Dichlorobenzene	18.44	1.0	20	0	92.2	79 - 118	18.82	2.06	20	
2,2-Dichloropropane	17.45	1.0	20	0	87.2	60 - 139	18.17	4.07	20	
2-Butanone	30.35	2.0	40	0	75.9	56 - 143	30.13	0.72	20	
2-Chlorotoluene	18.87	1.0	20	0	94.3	79 - 122	19.75	4.57	20	
2-Hexanone	32.59	2.0	40	0	81.5	57 - 139	31.85	2.3	20	
4-Chlorotoluene	18.2	1.0	20	0	91.0	78 - 122	18.99	4.21	20	
4-Isopropyltoluene	18.83	1.0	20	0	94.1	77 - 127	19.48	3.4	20	
4-Methyl-2-pentanone	33.16	2.0	40	0	82.9	67 - 130	32.34	2.53	20	
Acetone	26.02	2.0	40	0	65.1	39 - 160	25.48	2.1	20	
Benzene	18.31	1.0	20	0	91.5	79 - 120	19.17	4.61	20	
Bromobenzene	18.45	1.0	20	0	92.2	80 - 120	19.09	3.45	20	
Bromochloromethane	17.29	1.0	20	0	86.5	78 - 123	17.63	1.92	20	
Bromodichloromethane	18.04	1.0	20	0	90.2	79 - 125	18.27	1.29	20	
Bromoform	17.89	1.0	20	0	89.4	66 - 130	17.79	0.53	20	

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111239-05MSD** Units: **UG/L** Analysis Date: **24-Nov-2019 16:37**
Client ID: **LHSMW58-191122** Run ID: **VOA6_351197** SeqNo: **5359052** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	18.39	1.0	20	0	92.0	53 - 141	19.73	6.98	20	
Carbon disulfide	36.94	2.0	40	0	92.4	64 - 133	39.23	6.02	20	
Carbon tetrachloride	18.2	1.0	20	0	91.0	72 - 136	19.24	5.56	20	
Chlorobenzene	17.8	1.0	20	0	89.0	82 - 118	18.32	2.89	20	
Chloroethane	16.57	1.0	20	0	82.9	60 - 138	17.02	2.63	20	
Chloroform	16.85	1.0	20	0	84.2	79 - 124	17.4	3.23	20	
Chloromethane	14.12	1.0	20	0	70.6	50 - 139	14.84	4.94	20	
cis-1,2-Dichloroethene	18.13	1.0	20	0	90.6	78 - 123	18.73	3.23	20	
cis-1,3-Dichloropropene	18.02	1.0	20	0	90.1	75 - 124	18.4	2.09	20	
Dibromochloromethane	17.96	1.0	20	0	89.8	74 - 126	18.2	1.3	20	
Dibromomethane	17.8	1.0	20	0	89.0	79 - 123	18.14	1.87	20	
Dichlorodifluoromethane	17.31	1.0	20	0	86.5	32 - 152	18.37	5.94	20	
Ethylbenzene	18.45	1.0	20	0	92.2	79 - 121	18.84	2.13	20	
Hexachlorobutadiene	17.06	1.0	20	0	85.3	66 - 134	15.65	8.61	20	
Isopropylbenzene	18.42	1.0	20	0	92.1	72 - 131	19.15	3.87	20	
m,p-Xylene	36.59	2.0	40	0	91.5	80 - 121	37.63	2.78	20	
Methylene chloride	16.77	2.0	20	0	83.8	74 - 124	17.19	2.51	20	
Naphthalene	16.13	1.0	20	0	80.6	61 - 128	13.75	15.9	20	
n-Butylbenzene	19.32	1.0	20	0	96.6	75 - 128	19.96	3.28	20	
n-Propylbenzene	19.27	1.0	20	0	96.4	76 - 126	20.13	4.34	20	
o-Xylene	18.08	1.0	20	0	90.4	78 - 122	18.35	1.51	20	
sec-Butylbenzene	19.25	1.0	20	0	96.2	77 - 126	20.02	3.91	20	
Styrene	17.88	1.0	20	0	89.4	78 - 123	18.54	3.6	20	
tert-Butylbenzene	19.11	1.0	20	0	95.6	78 - 124	19.89	3.99	20	
Tetrachloroethene	22.2	1.0	20	4.209	90.0	74 - 129	22.84	2.83	20	
Toluene	18.32	1.0	20	0	91.6	80 - 121	18.9	3.12	20	
trans-1,2-Dichloroethene	17.92	1.0	20	0	89.6	75 - 124	18.85	5.04	20	
trans-1,3-Dichloropropene	17.29	1.0	20	0	86.5	73 - 127	17.61	1.81	20	
Trichloroethene	18.77	1.0	20	0	93.8	79 - 123	19.67	4.7	20	
Trichlorofluoromethane	17.92	1.0	20	0	89.6	65 - 141	19.15	6.64	20	
Vinyl chloride	16.23	1.0	20	0	81.2	58 - 137	17.07	5.03	20	
Surr: 1,2-Dichloroethane-d4	*46.43*	*1.0*	*50*	*0*	*92.9*	*81 - 118*	*46.74*	*0.658*	*20*	
Surr: 4-Bromofluorobenzene	*48.06*	*1.0*	*50*	*0*	*96.1*	*85 - 114*	*47.36*	*1.46*	*20*	
Surr: Dibromofluoromethane	*48.44*	*1.0*	*50*	*0*	*96.9*	*80 - 119*	*48.71*	*0.556*	*20*	

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: HS19111239

QC BATCH REPORT

Batch ID: R351197 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111239-05MSD** Units: **UG/L** Analysis Date: **24-Nov-2019 16:37**
Client ID: **LHSMW58-191122** Run ID: **VOA6_351197** SeqNo: **5359052** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*47.65*	*1.0*	*50*	*0*	*95.3*	*89 - 112*	*47.72*	*0.151*	*20*	

The following samples were analyzed in this batch: HS19111239-01 HS19111239-02 HS19111239-03 HS19111239-04 HS19111239-05 HS19111239-06 HS19111239-07

ALS Houston, US Date: 25-Nov-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-37
WorkOrder: **HS19111239**

QUALIFIERS, ACRONYMS, UNITS

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

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical 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	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 25-Nov-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19111239
Date/Time Received: **23-Nov-2019 09:20**
Received by: **JRM**

Checklist completed by: *Jared R. Makan* eSignature 23-Nov-2019 Date
Reviewed by: *RJ Modashia* eSignature 25-Nov-2019 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.6°C / 1.6°C UC/C	IR25
Cooler(s)/Kit(s):	24211	
Date/Time sample(s) sent to storage:	11/23/2019 15:00	

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

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

Page 1 of

COC ID: 37NOV2019-1911 -ALS

TURNAROUND TIME:

RUSH:

PROJECT/CLIENT INFO

Facility Name	Longhorn AAP
Project Number	501032
	LHAAP-37
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 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.	ANALYSIS: Sample Container and Preservatives	3-40 ml VOA/HCL: VOCs by 8260B	3-40 ml VOA/HCL: MEE by RSK175	3-40 ml VOA/Cool to 6 deg C: CO2 by RSK175	2-40ml Amber/H2SO4: TOC by SM5310C	1-250ml/Cool to 6 deg C: Anions (chloride/sulfate/nitrate) by 9056
35BMW25-191122	LHAAP 37				WG	11/22/19	0805	3		X				
35BMW25-191122-FD	LHAAP 37				WG	11/22/19	0805	3		X				
35BMW15-191122	LHAAP 37				WG	11/22/19	0855	3		X				
35BMW15-191122-FD	LHAAP 37				WG	11/22/19	0855	3		X				
LHSMW58-191122	LHAAP 37				WG	11/22/19	0945	3		X				
LHSMW58-191122-MS	LHAAP 37				WG	11/22/19	0945	3		X				
LHSMW58-191122-MSD	LHAAP 37				WG	11/22/19	0945	3		X				
35BMW20-191122	LHAAP 37				WG	11/22/19	1030	3		X				
TRIP BLANK	LHAAP 37				W	11/22/19		2		X				

HS19111239

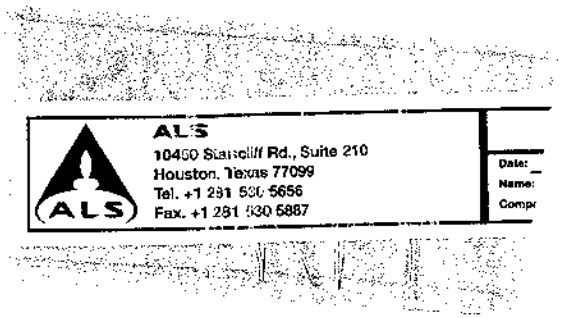
Aptim Environmental & Infrastucture, Inc.

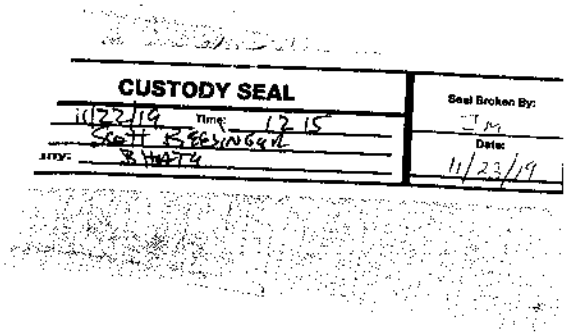
Longhorn Army Ammunition Plant LHAAP-37

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Sarah Bussey/BHATE	11/22/19 1215	AC /ALS	11/25/19 09:20

VIC IC IR#35 Cooler 3421

FedEx
TRK# 0221 4809 7833 1339
SATURDAY 12:00P
PRIORITY OVERNIGHT
77099
TX-US
IAH
X0 SGRA


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


CUSTODY SEAL
Time:
Seal Broken By:
Date:
11/23/19

HS19111239 8260 Raw Data

ALS WO# HS19111239

MSVOA06 -Logbook

Batch: 38366 **Analyst:** Presenta Cabascango

Date: 11-18-2019 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	11-18-2019 01:23 pm	1.00	50 mL	50 mL	X111801.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	11-18-2019 01:47 pm	1.00	50 mL	50 mL	X111802.D	Liquid	Y	NA
	0.10 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	11-18-2019 02:35 pm	1.00	50 mL	50 mL	X111803.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	11-18-2019 02:59 pm	1.00	50 mL	50 mL	X111804.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	11-18-2019 03:23 pm	1.00	50 mL	50 mL	X111805.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	11-18-2019 03:47 pm	1.00	50 mL	50 mL	X111806.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	11-18-2019 04:11 pm	1.00	50 mL	50 mL	X111807.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	11-18-2019 04:35 pm	1.00	50 mL	50 mL	X111808.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	11-18-2019 04:59 pm	1.00	50 mL	50 mL	X111809.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	11-18-2019 05:22 pm	1.00	50 mL	50 mL	X111810.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	11-18-2019 05:46 pm	1.00	50 mL	50 mL	X111811.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	11-18-2019 06:10 pm	1.00	50 mL	50 mL	X111812.D	Liquid	Y	NA
13	BLANK	SAMP	11-18-2019 06:34 pm	1.00	50 mL	50 mL	X111813.D	Liquid	Y	NA
14	CCV	ICCV	11-18-2019 06:58 pm	1.00	50 mL	50 mL	X111814.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
15	BLANK	SAMP	11-18-2019 07:22 pm	1.00	50 mL	50 mL	X111815.D	Liquid	Y	NA
16	BFB	TUNE	11-18-2019 07:47 pm	1.00	50 mL	50 mL	Y111801.D	Liquid	Y	NA
	Auto find/ purged									
17	CCV	CCV	11-18-2019 08:10 pm	1.00	50 mL	50 mL	Y111802a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI/ not used									
18	CCV	CCV	11-18-2019 08:34 pm	1.00	50 mL	50 mL	Y111803.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
19	CCB	SAMP	11-18-2019 08:58 pm	1.00	50 mL	50 mL	Y111804.D	Liquid	Y	NA
20	VLCSW-191118	LCS	11-18-2019 09:22 pm	1.00	50 mL	50 mL	Y111805.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
21	BLK	SAMP	11-18-2019 09:46 pm	1.00	50 mL	50 mL	Y111806.D	Liquid	Y	NA
22	VBLKW-191118	MBLK	11-18-2019 10:10 pm	1.00	50 mL	50 mL	Y111807.D	Liquid	Y	NA
23	HS19110861-01	SAMP	11-18-2019 10:34 pm	1.00	50 mL	50 mL	Y111808.D	Liquid	Y	NA
24	HS19110861-02	SAMP	11-18-2019 10:59 pm	1.00	50 mL	50 mL	Y111809.D	Liquid	Y	NA
25	HS19110861-03	SAMP	11-18-2019 11:23 pm	1.00	50 mL	50 mL	Y111810.D	Liquid	Y	NA
26	HS19110861-04	SAMP	11-18-2019 11:47 pm	1.00	50 mL	50 mL	Y111811.D	Liquid	Y	NA
27	HS19110861-05	SAMP	11-19-2019 12:11 am	1.00	50 mL	50 mL	Y111812.D	Liquid	Y	NA
28	HS19110861-06	SAMP	11-19-2019 12:35 am	1.00	50 mL	50 mL	Y111813.D	Liquid	Y	NA
29	HS19110829-13	SAMP	11-19-2019 12:59 am	1.00	50 mL	50 mL	Y111814.D	Liquid	Y	NA
30	HS19110829-11	SAMP	11-19-2019 01:23 am	1.00	50 mL	50 mL	Y111815.D	Liquid	Y	NA
31	HS19110829-01	SAMP	11-19-2019 01:47 am	1.00	50 mL	50 mL	Y111816.D	Liquid	Y	NA
32	HS19110829-01MS	MS	11-19-2019 02:11 am	1.00	50 mL	50 mL	Y111817.D	Liquid	Y	NA
	3.50 uL cal std/40 mL samp									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
33	HS19110829-01MSD	MSD	11-19-2019 02:35 am	1.00	50 mL	50 mL	Y111818.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
34	HS19110829-02	SAMP	11-19-2019 02:59 am	1.00	50 mL	50 mL	Y111819.D	Liquid	Y	NA
35	HS19110829-03	SAMP	11-19-2019 03:23 am	1.00	50 mL	50 mL	Y111820.D	Liquid	Y	NA
36	HS19110829-04	SAMP	11-19-2019 03:47 am	1.00	50 mL	50 mL	Y111821.D	Liquid	Y	NA
37	HS19110829-05	SAMP	11-19-2019 04:11 am	1.00	50 mL	50 mL	Y111822.D	Liquid	Y	NA
38	HS19110829-06	SAMP	11-19-2019 04:35 am	1.00	50 mL	50 mL	Y111823.D	Liquid	Y	NA
39	HS19110829-07	SAMP	11-19-2019 04:59 am	1.00	50 mL	50 mL	Y111824.D	Liquid	Y	NA
40	HS19110829-08	SAMP	11-19-2019 05:23 am	1.00	50 mL	50 mL	Y111825.D	Liquid	Y	NA
41	HS19110829-09	SAMP	11-19-2019 05:47 am	1.00	50 mL	50 mL	Y111826.D	Liquid	Y	NA
42	HS19110829-10	SAMP	11-19-2019 06:11 am	1.00	50 mL	50 mL	Y111827.D	Liquid	Y	NA
43	HS19110829-12	SAMP	11-19-2019 06:36 am	1.00	50 mL	50 mL	Y111828.D	Liquid	Y	NA
44	HS19110716-06	SAMP	11-19-2019 07:00 am	1.00	50 mL	50 mL	Y111829.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
ICV STD ID	30603-92-01
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	52.07	104	80-120
trans-1,3-Dichloroprope	50.00	51.83	104	80-120
1,3-Dichlorobenzene	50.00	50.58	101	80-120
2,2-Dichloropropane	50.00	52.35	105	80-120
1,1-Dichloropropene	50.00	49.88	100	80-120
Dibromomethane	50.00	50.50	101	80-120
1,2-Dibromoethane	50.00	50.00	100	80-120
trans-1,2-Dichloroethen	50.00	52.31	105	80-120
1,1,1,2-Tetrachloroetha	50.00	51.37	103	80-120
1,1,1-Trichloroethane	50.00	52.74	105	80-120
1,1,2,2-Tetrachloroetha	50.00	49.68	99	80-120
Toluene	50.00	49.55	99	80-120
1,1,2-Trichloroethane	50.00	49.22	98	80-120
1,1-Dichloroethane	50.00	51.46	103	80-120
1,1-Dichloroethene	50.00	53.02	106	80-120
Trichlorofluoromethane	50.00	55.57	111	80-120
1,2,3-Trichlorobenzene	50.00	58.28	116	80-120
Tetrachloroethene	50.00	49.33	99	80-120
1,2,4-Trichlorobenzene	50.00	55.34	111	80-120
1,2,4-Trimethylbenzene	50.00	50.40	101	80-120
tert-Butylbenzene	50.00	51.37	103	80-120
Trichloroethene	50.00	51.78	104	80-120
1,2-Dichlorobenzene	50.00	49.42	99	80-120
1,2-Dichloroethane	50.00	51.38	103	80-120
1,2-Dichloropropane	50.00	49.50	99	80-120
1,3,5-Trimethylbenzene	50.00	52.04	104	80-120
1,3-Dichloropropane	50.00	49.18	98	80-120
1,4-Dichlorobenzene	50.00	49.63	99	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Butanone	100.00	105.25	105	80-120
2-Chlorotoluene	50.00	50.41	101	80-120
2-Hexanone	100.00	96.09	96	80-120
4-Chlorotoluene	50.00	50.58	101	80-120
Styrene	50.00	50.35	101	80-120
4-Methyl-2-Pentanone	100.00	97.68	98	80-120
Acetone	100.00	111.37	111	80-120
Benzene	50.00	50.85	102	80-120
Bromobenzene	50.00	51.16	102	80-120
Bromochloromethane	50.00	51.34	103	80-120
Bromodichloromethane	50.00	51.00	102	80-120
Bromoform	50.00	49.08	98	80-120
Bromomethane	50.00	57.73	115	80-120
Carbon Disulfide	100.00	109.76	110	80-120
Carbon Tetrachloride	50.00	51.07	102	80-120
Chlorobenzene	50.00	49.20	98	80-120
Chloroethane	50.00	51.64	103	80-120
Chloroform	50.00	49.36	99	80-120
Chloromethane	50.00	50.43	101	80-120
cis-1,2-Dichloroethene	50.00	53.16	106	80-120
Dibromochloromethane	50.00	49.93	100	80-120
Dichlorodifluoromethane	50.00	52.99	106	80-120
Ethylbenzene	50.00	50.22	100	80-120
Hexachlorobutadiene	50.00	61.69	123*	80-120
Isopropylbenzene	50.00	50.14	100	80-120
m,p-Xylenes	100.00	101.69	102	80-120
Methylene Chloride	50.00	49.65	99	80-120
n-Butylbenzene	50.00	52.07	104	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
n-Propylbenzene	50.00	51.90	104	80-120
Naphthalene	50.00	51.04	102	80-120
o-Xylene	50.00	49.72	99	80-120
sec-Butylbenzene	50.00	51.77	104	80-120
Vinyl Chloride	50.00	51.98	104	80-120
1,2,3-Trichloropropane	50.00	49.40	99	80-120
p-Isopropyltoluene	50.00	51.77	104	80-120
1,2-Dibromo-3-Chloropro	50.00	51.39	103	80-120
Freon TF	50.00	55.79	112	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

Lab File ID: X111801 BFB Injection Date: 11/18/19

Instrument ID: VOA6 BFB Injection Time: 1323

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.9
75	30.0 - 60.0% of mass 95	54.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	65.0
175	5.0 - 9.0% of mass 174	5.8 (8.9)1
176	95.0 - 101.0% of mass 174	62.0 (95.4)1
177	5.0 - 9.0% of mass 176	5.1 (8.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X111802	11/18/19	1347
02	VSTD000.5	VSTD000.5	X111803	11/18/19	1435
03	VSTD001	VSTD001	X111804	11/18/19	1459
04	VSTD002	VSTD002	X111805	11/18/19	1523
05	VSTD005	VSTD005	X111806	11/18/19	1547
06	VSTD020	VSTD020	X111807	11/18/19	1611
07	VSTD050	VSTD050	X111808	11/18/19	1635
08	VSTD100	VSTD100	X111809	11/18/19	1659
09	VSTD150	VSTD150	X111810	11/18/19	1722
10	VSTD200	VSTD200	X111811	11/18/19	1746
11	ICV	ICV	X111814	11/18/19	1858
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		0.326	0.553	0.497	0.554	0.476
trans-1,3-Dichloropropene		0.304	0.464	0.458	0.504	0.445
1,3-Dichlorobenzene		1.036	1.601	1.542	1.622	1.411
2,2-Dichloropropane		0.547	0.815	0.674	0.705	0.610
1,1-Dichloropropene		0.332	0.476	0.441	0.432	0.372
Dibromomethane		0.139	0.244	0.233	0.245	0.207
1,2-Dibromoethane		0.245	0.385	0.380	0.402	0.348
trans-1,2-Dichloroethene		0.285	0.489	0.436	0.440	0.386
1,1,1,2-Tetrachloroethane		0.248	0.403	0.375	0.406	0.356
1,1,1-Trichloroethane		0.492	0.775	0.723	0.717	0.640
1,1,2,2-Tetrachloroethane		0.602	0.844	0.735	0.800	0.680
Toluene		1.077	1.582	1.498	1.570	1.359
1,1,2-Trichloroethane		0.180	0.311	0.285	0.294	0.253
1,1-Dichloroethane		0.569	0.830	0.781	0.786	0.690
1,1-Dichloroethene		0.349	0.423	0.469	0.464	0.390
Trichlorofluoromethane		0.511	0.831	0.818	0.813	0.707
1,2,3-Trichlorobenzene		421	1182	2753	6553	21856
Tetrachloroethene		0.266	0.412	0.394	0.398	0.333
1,2,4-Trichlorobenzene		0.325	0.435	0.465	0.518	0.418
1,2,4-Trimethylbenzene		1.739	2.619	2.442	2.563	2.286
tert-Butylbenzene		1.338	2.168	2.060	2.126	1.865
Trichloroethene		0.226	0.390	0.387	0.396	0.344
1,2-Dichlorobenzene		0.916	1.484	1.429	1.497	1.292
1,2-Dichloroethane		0.277	0.470	0.408	0.432	0.391
1,2-Dichloropropane		0.294	0.294	0.312	0.339	0.284
1,3,5-Trimethylbenzene		1.606	2.354	2.372	2.481	2.215
1,3-Dichloropropane		0.431	0.613	0.570	0.583	0.512
1,4-Dichlorobenzene		1.108	1.632	1.581	1.609	1.417
2-Butanone		0.167	0.156	0.152	0.164	0.146
2-Chlorotoluene		1.263	1.990	1.903	2.032	1.735
2-Hexanone		0.180	0.237	0.204	0.235	0.191
4-Chlorotoluene		1.550	2.500	2.222	2.378	2.079
Styrene		0.702	1.134	1.076	1.148	1.004
4-Methyl-2-Pentanone		0.220	0.321	0.313	0.331	0.281
Acetone		4579	5956	7954	15992	43200
Benzene		0.788	1.327	1.220	1.289	1.109
Bromobenzene		0.584	1.003	0.940	0.994	0.873
Bromochloromethane		0.229	0.323	0.309	0.284	0.255
Bromodichloromethane		0.298	0.490	0.424	0.473	0.395
Bromoform		887	3197	5989	16084	56416
Bromomethane		2741	6334	12041	28671	93456
Carbon Disulfide		0.747	1.257	1.216	1.254	1.101
Carbon Tetrachloride		0.340	0.503	0.483	0.478	0.403
Chlorobenzene		0.738	1.108	1.028	1.090	0.934

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911123

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		0.279	0.361	0.345	0.323	0.283
Chloroform		0.775	0.990	0.890	0.850	0.736
Chloromethane		2201	6118	10461	24949	85402
cis-1,2-Dichloroethene		0.327	0.540	0.493	0.541	0.454
Dibromochloromethane		0.253	0.433	0.392	0.429	0.370
Dichlorodifluoromethane		1269	3829	7335	18346	63810
Ethylbenzene		0.353	0.562	0.515	0.576	0.493
Hexachlorobutadiene		1376	2468	4522	11525	37789
Isopropylbenzene		1.054	1.627	1.570	1.602	1.425
m,p-Xylenes		0.393	0.653	0.644	0.678	0.591
Methylene Chloride		0.422	0.556	0.483	0.491	0.406
n-Butylbenzene		1.620	2.055	2.004	2.069	1.888
n-Propylbenzene		2.290	3.358	3.192	3.345	2.976
Naphthalene		0.510	0.569	0.604	0.614	0.512
o-Xylene		0.390	0.677	0.656	0.658	0.582
sec-Butylbenzene		1.995	2.859	2.859	2.813	2.501
Vinyl Chloride		0.490	0.545	0.546	0.504	0.454
1,2,3-Trichloropropane		0.455	0.730	0.701	0.662	0.580
p-Isopropyltoluene		1.839	2.630	2.538	2.573	2.307
1,2-Dibromo-3-Chloropropane		125	464	859	2641	8805
Freon TF		0.296	0.488	0.452	0.457	0.380
4-Bromofluorobenzene		3844	5731	10468	25804	94194
Dibromofluoromethane		2303	3882	8127	20237	75094
Toluene-d8		1.628	1.327	1.357	1.369	1.263
1,2-Dichloroethane-d4		2522	4458	8034	20921	75813

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911123

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	0.499	0.494	0.497	0.493
trans-1,3-Dichloropropene	0.452	0.455	0.456	0.461
1,3-Dichlorobenzene	1.457	1.422	1.398	1.417
2,2-Dichloropropane	0.644	0.644	0.646	0.658
1,1-Dichloropropene	0.402	0.392	0.391	0.392
Dibromomethane	0.211	0.206	0.208	0.208
1,2-Dibromoethane	0.348	0.347	0.350	0.351
trans-1,2-Dichloroethene	0.410	0.413	0.416	0.427
1,1,1,2-Tetrachloroethane	0.368	0.369	0.369	0.370
1,1,1-Trichloroethane	0.673	0.676	0.678	0.697
1,1,2,2-Tetrachloroethane	0.672	0.670	0.662	0.661
Toluene	1.411	1.408	1.420	1.435
1,1,2-Trichloroethane	0.256	0.258	0.256	0.259
1,1-Dichloroethane	0.710	0.716	0.728	0.737
1,1-Dichloroethene	0.430	0.429	0.426	0.434
Trichlorofluoromethane	0.823	0.824	0.813	0.840
1,2,3-Trichlorobenzene	52554	102660	156391	210414
Tetrachloroethene	0.352	0.340	0.332	0.334
1,2,4-Trichlorobenzene	0.421	0.402	0.400	0.406
1,2,4-Trimethylbenzene	2.419	2.440	2.397	2.446
tert-Butylbenzene	2.012	2.011	1.967	1.996
Trichloroethene	0.359	0.350	0.348	0.348
1,2-Dichlorobenzene	1.330	1.327	1.324	1.344
1,2-Dichloroethane	0.401	0.397	0.397	0.398
1,2-Dichloropropane	0.295	0.290	0.290	0.290
1,3,5-Trimethylbenzene	2.368	2.377	2.339	2.377
1,3-Dichloropropane	0.516	0.521	0.514	0.516
1,4-Dichlorobenzene	1.465	1.445	1.412	1.445
2-Butanone	0.146	0.147	0.153	0.148
2-Chlorotoluene	1.853	1.827	1.787	1.800
2-Hexanone	0.192	0.201	0.204	0.204
4-Chlorotoluene	2.208	2.230	2.205	2.250
Styrene	1.056	1.073	1.093	1.113
4-Methyl-2-Pentanone	0.283	0.291	0.298	0.298
Acetone	103091	202207	284604	372223
Benzene	1.164	1.135	1.133	1.128
Bromobenzene	0.878	0.857	0.837	0.854
Bromochloromethane	0.263	0.261	0.260	0.255
Bromodichloromethane	0.412	0.408	0.412	0.412
Bromoform	143798	293256	447981	602595
Bromomethane	215480	396733	529714	
Carbon Disulfide	1.192	1.188	1.192	1.228
Carbon Tetrachloride	0.452	0.442	0.435	0.440
Chlorobenzene	0.965	0.966	0.974	0.982

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911123

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
Chloroethane	0.311	0.311	0.310	0.311
Chloroform	0.751	0.754	0.761	0.780
Chloromethane	215753	420936	613254	811388
cis-1,2-Dichloroethene	0.470	0.475	0.478	0.488
Dibromochloromethane	0.381	0.386	0.386	0.387
Dichlorodifluoromethane	186161	359790	504807	695305
Ethylbenzene	0.512	0.509	0.506	0.512
Hexachlorobutadiene	99881	192455		
Isopropylbenzene	1.523	1.544	1.538	1.560
m,p-Xylenes	0.623	0.628	0.627	0.639
Methylene Chloride	0.421	0.425	0.428	0.436
n-Butylbenzene	2.162	2.176	2.153	2.197
n-Propylbenzene	3.234	3.176	3.089	3.155
Naphthalene	0.521	0.505	0.514	0.512
o-Xylene	0.600	0.608	0.611	0.623
sec-Butylbenzene	2.823	2.798	2.726	2.790
Vinyl Chloride	0.505	0.510	0.510	0.523
1,2,3-Trichloropropane	0.577	0.564	0.549	0.543
p-Isopropyltoluene	2.571	2.546	2.480	2.534
1,2-Dibromo-3-Chloropropane	21800	42468	65470	86827
Freon TF	0.459	0.462	0.452	0.472
4-Bromofluorobenzene	222328	465570	688600	933083
Dibromofluoromethane	173990	354918	514854	681300
Toluene-d8	1.212	1.246	1.223	1.231
1,2-Dichloroethane-d4	178006	364646	532181	713282

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911123

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	AVRG		0.48761342		13.630	15.000
trans-1,3-Dichloropropene	AVRG		0.44441818		12.432	15.000
1,3-Dichlorobenzene	AVRG		1.43390401		11.978	15.000
2,2-Dichloropropane	AVRG		0.66029305		11.040	15.000
1,1-Dichloropropene	AVRG		0.40332539		10.380	15.000
Dibromomethane	AVRG		0.21136309		14.886	15.000
1,2-Dibromoethane	AVRG		0.35067597		12.763	15.000
trans-1,2-Dichloroethene	AVRG		0.41138839		13.381	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.36274186		12.717	15.000
1,1,1-Trichloroethane	AVRG		0.67453438		11.648	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.70308768		10.825	15.000
Toluene	AVRG		1.41788930		10.479	15.000
1,1,2-Trichloroethane	AVRG		0.26137158		14.102	15.000
1,1-Dichloroethane	AVRG		0.72750643		10.197	15.000
1,1-Dichloroethene	AVRG		0.42373367		8.607	15.000
Trichlorofluoromethane	AVRG		0.77561874		13.736	15.000
1,2,3-Trichlorobenzene	2ORDR	-1.73e-002	5.50264123	-0.1707432	0.9998373	0.9900000
Tetrachloroethene	AVRG		0.35131312		12.801	15.000
1,2,4-Trichlorobenzene	AVRG		0.42118311		12.391	15.000
1,2,4-Trimethylbenzene	AVRG		2.37245105		10.778	15.000
tert-Butylbenzene	AVRG		1.94917789		12.586	15.000
Trichloroethene	AVRG		0.34966887		14.517	15.000
1,2-Dichlorobenzene	AVRG		1.32701574		12.905	15.000
1,2-Dichloroethane	AVRG		0.39691390		12.978	15.000
1,2-Dichloropropane	AVRG		0.29867989		5.660	15.000
1,3,5-Trimethylbenzene	AVRG		2.27648393		11.444	15.000
1,3-Dichloropropane	AVRG		0.53064503		9.928	15.000
1,4-Dichlorobenzene	AVRG		1.45709302		10.715	15.000
2-Butanone	AVRG		0.15342086		5.109	15.000
2-Chlorotoluene	AVRG		1.79889065		12.374	15.000
2-Hexanone	AVRG		0.20539492		9.225	15.000
4-Chlorotoluene	AVRG		2.18043218		12.121	15.000
Styrene	AVRG		1.04451403		12.966	15.000
4-Methyl-2-Pentanone	AVRG		0.29296235		10.958	15.000
Acetone	LINR	-7.72e-002	8.02348321		0.9999004	0.9900000
Benzene	AVRG		1.14377224		13.444	15.000
Bromobenzene	AVRG		0.86897432		14.186	15.000
Bromochloromethane	AVRG		0.27086566		10.835	15.000
Bromodichloromethane	AVRG		0.41377448		13.021	15.000
Bromoform	LINR	1.997e-002	3.29171060		0.9995506	0.9900000
Bromomethane	LINR	-4.72e-002	2.10632186		0.9967362	0.9900000
Carbon Disulfide	AVRG		1.15275096		13.789	15.000
Carbon Tetrachloride	AVRG		0.44181701		10.990	15.000
Chlorobenzene	AVRG		0.97614522		10.975	15.000

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911123

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroethane	AVRG		0.31480657		8.302	15.000
Chloroform	AVRG		0.80974969		10.425	15.000
Chloromethane	LINR	3.748e-003	1.83460007		0.9998260	0.9900000
cis-1,2-Dichloroethene	AVRG		0.47416954		13.204	15.000
Dibromochloromethane	AVRG		0.37970849		13.683	15.000
Dichlorodifluoromethane	LINR	1.763e-002	2.15619239		0.9988587	0.9900000
Ethylbenzene	AVRG		0.50436028		12.486	15.000
Hexachlorobutadiene	LINR	-1.03e-002	2.88504774		0.9991601	0.9900000
Isopropylbenzene	AVRG		1.49389834		11.672	15.000
m,p-Xylenes	AVRG		0.60861655		13.850	15.000
Methylene Chloride	AVRG		0.45210476		10.732	15.000
n-Butylbenzene	AVRG		2.03598696		9.063	15.000
n-Propylbenzene	AVRG		3.09059969		10.434	15.000
Naphthalene	AVRG		0.54020307		8.055	15.000
o-Xylene	AVRG		0.60066696		14.145	15.000
sec-Butylbenzene	AVRG		2.68486077		10.468	15.000
Vinyl Chloride	AVRG		0.50958661		5.494	15.000
1,2,3-Trichloropropane	AVRG		0.59573805		14.502	15.000
p-Isopropyltoluene	AVRG		2.44651692		10.015	15.000
1,2-Dibromo-3-Chloropropane	LINR	-6.81e-003	12.9714748		0.9998714	0.9900000
Freon TF	AVRG		0.43530320		13.846	15.000
4-Bromofluorobenzene	LINR	8.357e-003	2.13170980		0.9997055	0.9900000
Dibromofluoromethane	LINR	7.36e-003	2.18334297		0.9997712	0.9900000
Toluene-d8	AVRG		1.31739803		9.895	15.000
1,2-Dichloroethane-d4	LINR	1.473e-002	2.09453233		0.9994184	0.9900000

FORM VI VOA

Page 1

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

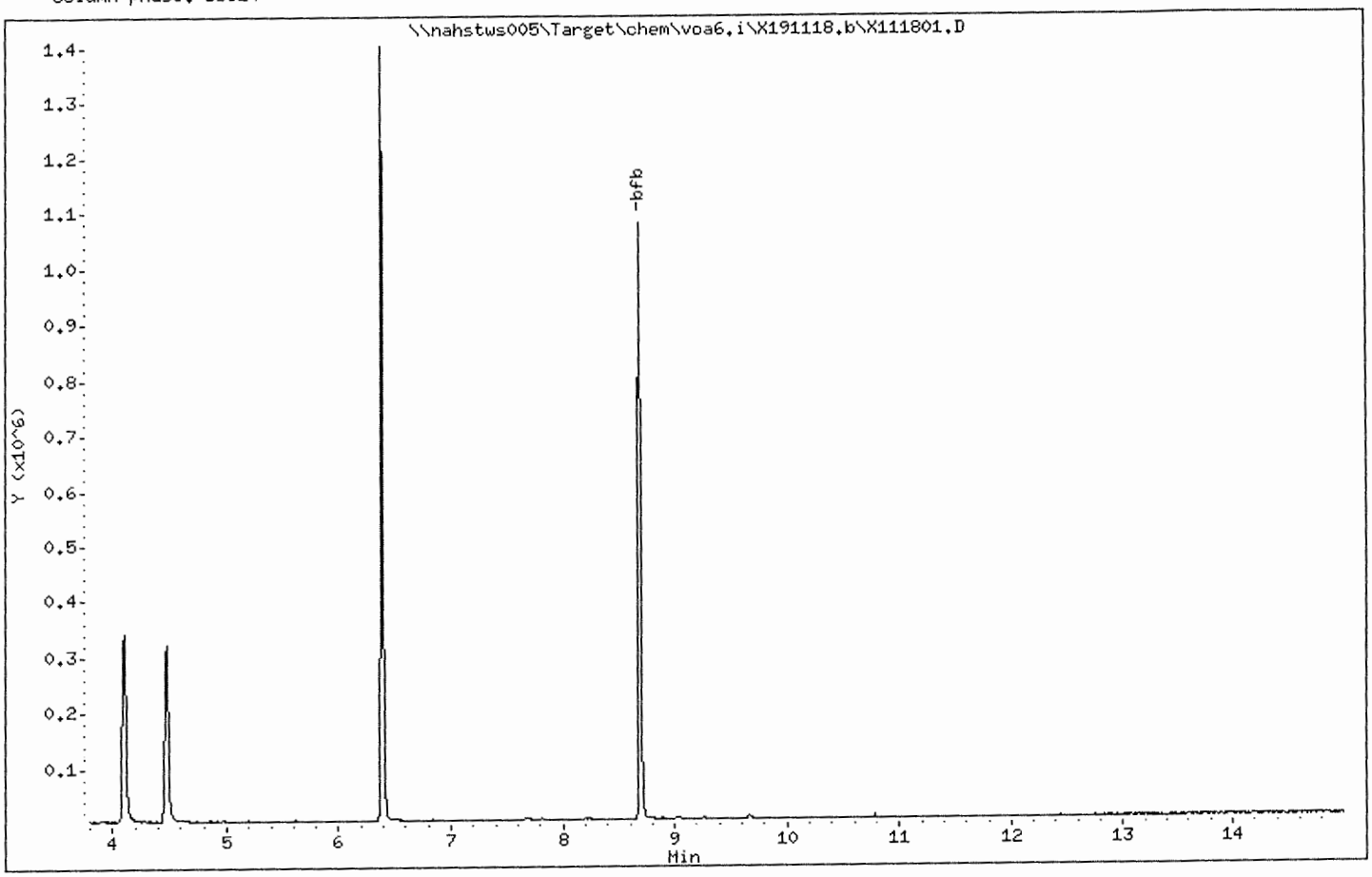
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D Page 2

Date : 18-NOV-2019 13:23

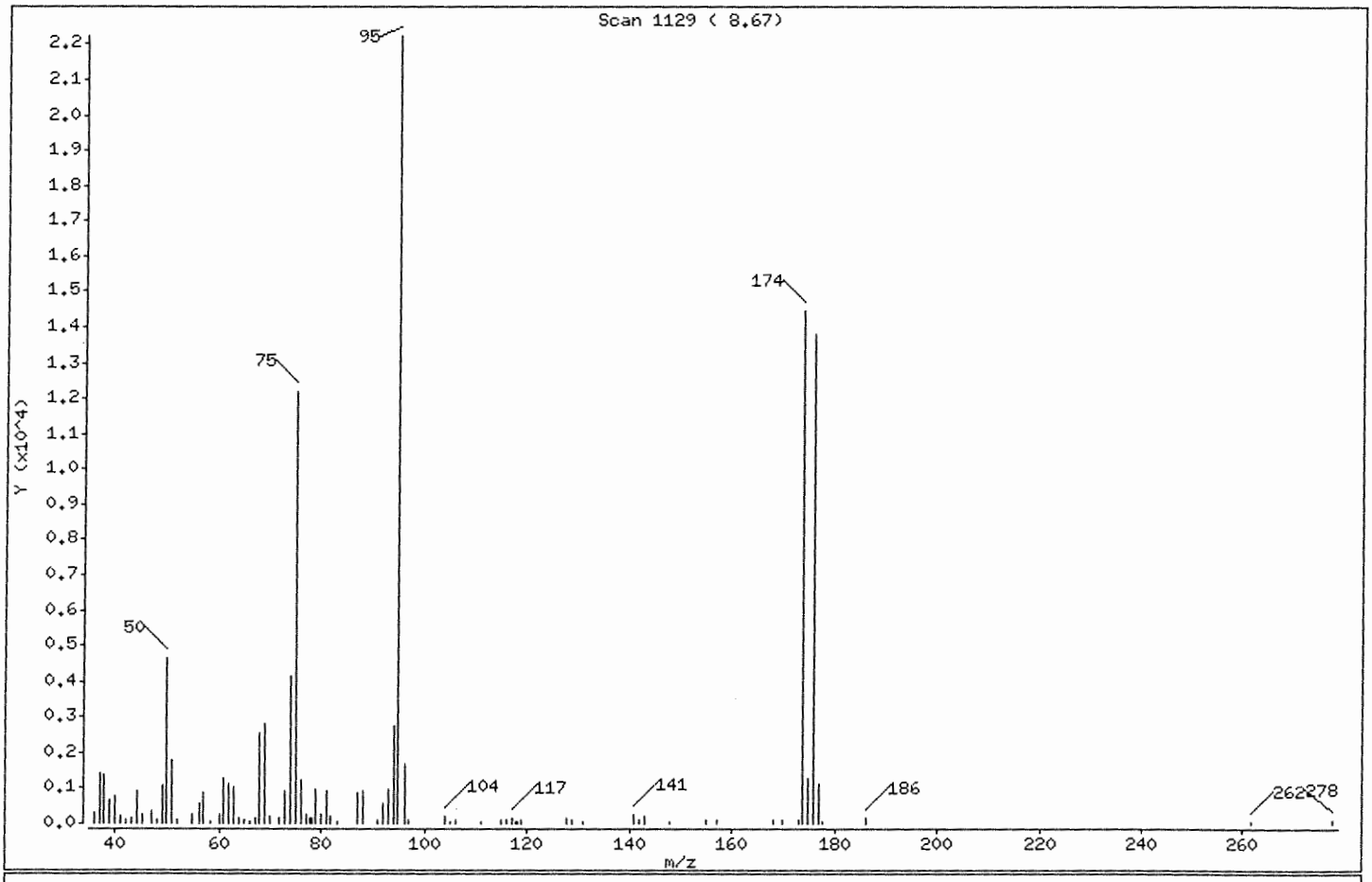
Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.86
75	30.00 - 60.00% of mass 95	54.86
96	5.00 - 9.00% of mass 95	7.62
173	Less than 2.00% of mass 174	0.43 (0.66)
174	Greater than 50.00% of mass 95	65.03
175	5.00 - 9.00% of mass 174	5.82 (8.95)
176	95.00 - 101.00% of mass 174	62.04 (95.41)
177	5.00 - 9.00% of mass 176	5.11 (8.24)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X111801.D
Spectrum: Scan 1129 (8.67)
Location of Maximum: 95.00
Number of points: 83

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	329	61.00	1259	81.80	217	127.90	153
37.00	1409	62.00	1149	83.00	50	128.90	116
38.00	1370	62.90	1001	86.90	880	130.90	70
39.00	662	64.00	138	88.00	941	141.00	249
40.00	775	65.10	110	91.10	116	141.90	94
41.00	191	66.00	72	92.10	565	142.90	216
42.00	77	67.10	153	93.00	990	148.10	62
43.00	166	68.00	2578	94.00	2783	155.00	87
44.10	928	69.00	2816	95.00	22224	157.00	77
45.10	261	69.90	217	96.10	1694	168.00	85
47.00	367	71.90	143	97.00	111	170.00	86
48.10	104	73.00	931	103.90	180	172.90	96
49.00	1057	74.00	4135	105.10	52	173.90	14452
50.00	4636	75.00	12193	106.00	100	174.90	1293
51.00	1802	76.00	1227	111.10	63	175.90	13788
52.10	85	77.10	248	115.10	93	176.90	1136
55.00	269	77.80	150	116.00	100	177.80	71
56.10	539	78.10	174	117.00	158	186.00	161
56.90	843	78.90	948	117.70	74	261.90	57
58.20	60	79.90	265	118.10	74	277.90	85
60.00	231	80.90	936	119.00	127		

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 18-NOV-2019 13:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

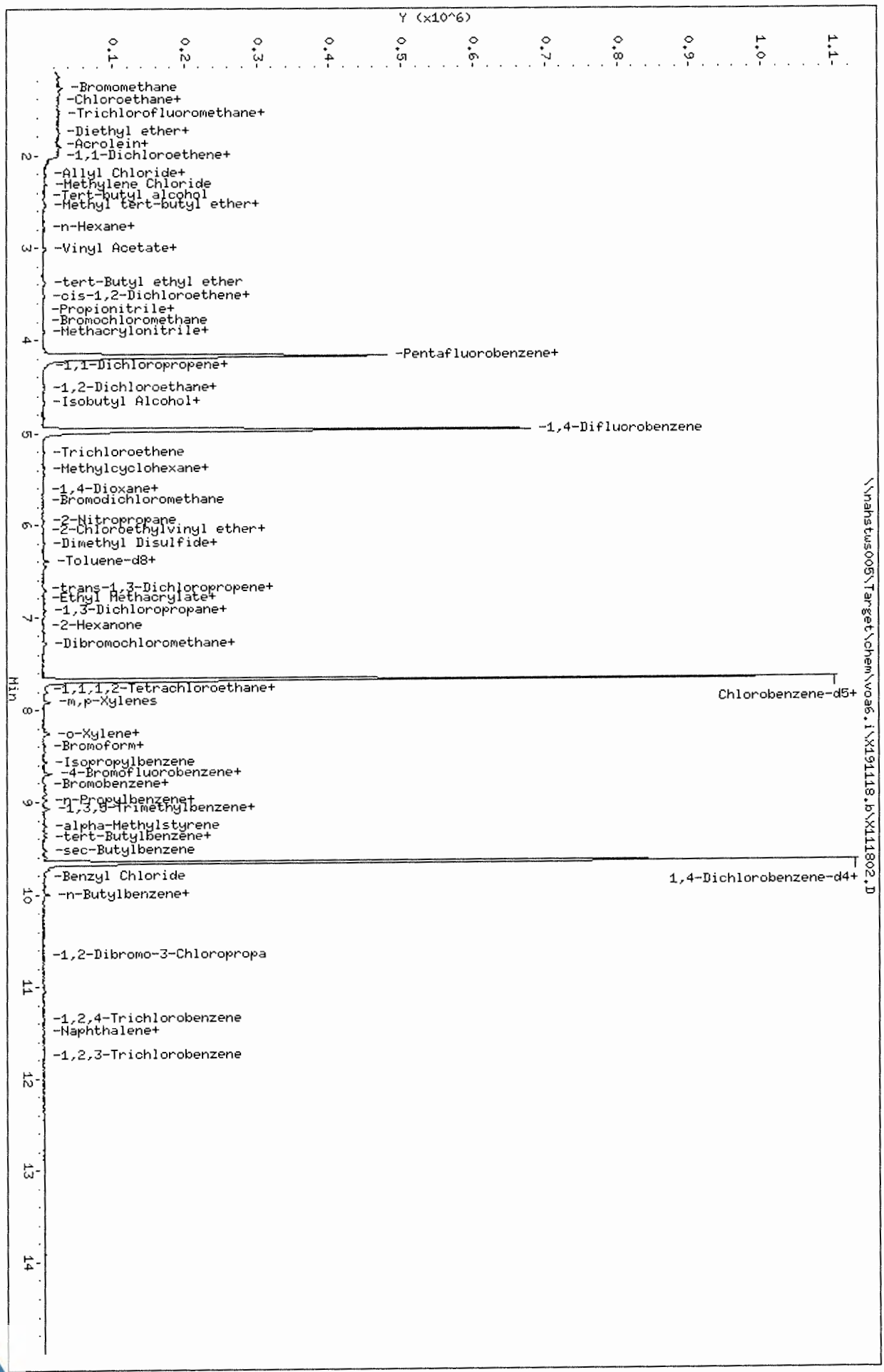
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

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)	431958	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	586737	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	529029	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	277425	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	1323	0.25000	1.05(Ta)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3260	0.25000	1.07(a)
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	1295	0.25000	0.69(a)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	5247	0.25000	0.37(Ta)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	814	0.25000	0.21(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	1177	0.25000	0.20(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	861	0.25000	0.22(aM)
138 Freon TF	101	1.912	1.912	(0.457)	755	0.25000	0.20(aM)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	656	0.25000	0.23(aM)
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	1571	0.25000	0.24(aM)
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	909	0.25000	0.24(a)
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	1579	0.25000	0.33(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	224	0.25000	(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	702	0.25000	0.21(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	320	0.25000	0.13(aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	2742	0.25000	0.20(a)
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	103	0.25000	(aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	708	0.25000	0.19(a)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	1523	0.25000	0.20(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	938	0.25000	0.20(aM)
42	1,2-Dichloropropane	63	5.450	5.450	(1.097)	858	0.25000	0.24(aM)
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	2444	0.25000	0.19(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	1534	0.25000	0.19(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1126	0.25000	0.20(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	1760	0.25000	0.21(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	1234	0.25000	0.21(aM)
24	2-Butanone	43	3.588	3.588	(0.858)	827	0.50000	0.62(aM)
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	2277	0.25000	0.22(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	809	0.50000	0.37(Ta)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	2873	0.25000	0.23(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2596	0.25000	0.19(a)
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	1190	0.50000	0.38(aM)
10	Acetone	43	1.969	1.969	(0.471)	3213	0.50000	(aM)
37	Benzene	78	4.519	4.519	(0.909)	3088	0.25000	0.23(a)
74	Bromobenzene	156	8.817	8.817	(0.913)	940	0.25000	0.19(a)
29	Bromochloromethane	128	3.795	3.795	(0.908)	660	0.25000	0.28(aM)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1101	0.25000	0.22(aM)
66	Bromoform	173	8.416	8.416	(1.097)	495	0.25000	1.15(aM)
6	Bromomethane	94	1.339	1.339	(0.320)	1552	0.25000	(aM)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	3999	0.50000	0.40(a)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	1084	0.25000	0.20(aM)
59	Chlorobenzene	112	7.692	7.692	(1.003)	2603	0.25000	0.25(a)
7	Chloroethane	64	1.403	1.403	(0.336)	672	0.25000	0.24(aM)
28	Chloroform	83	3.910	3.910	(0.935)	2414	0.25000	0.34(aM)
3	Chloromethane	50	1.074	1.074	(0.257)	1640	0.25000	0.53(aM)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1103	0.25000	0.26(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1351	0.25000	0.23(aM)
55	Dibromochloromethane	129	7.184	7.184	(0.937)	883	0.25000	0.21(a)
44	Dibromomethane	93	5.558	5.558	(1.118)	573	0.25000	0.23(aM)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	642	0.25000	1.04(aM)
61	Ethylbenzene	106	7.800	7.800	(1.017)	1072	0.25000	0.20(a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	367	0.25000	(aM)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	2992	0.25000	0.18(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	2521	0.50000	0.39(a)
17	Methylene Chloride	84	2.306	2.306	(0.551)	1174	0.25000	0.30(a)
87	n-Butylbenzene	91	9.999	9.999	(1.035)	2169	0.25000	0.19(a)
73	n-Propylbenzene	91	8.917	8.917	(0.923)	3456	0.25000	0.20(a)
92	Naphthalene	128	11.553	11.553	(1.196)	764	0.25000	0.25(a)
63	o-Xylene	106	8.244	8.244	(1.075)	1221	0.25000	0.19(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	3012	0.25000	0.20(a)
64	Styrene	104	8.265	8.265	(1.078)	2388	0.25000	0.21(a)
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	2350	0.25000	0.21(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	914	0.25000	0.24(a)
50	Toluene	91	6.453	6.453	(0.841)	3631	0.25000	0.24(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	826	0.25000	0.23(aM)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	996	0.25000	0.19(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	945	0.25000	0.23(a)
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	1233	0.25000	0.18(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	1052	0.25000	0.23(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Client ID: 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

\\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
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Inj Date : 18-NOV-2019 14:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 13:47 Cal File: X111802.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

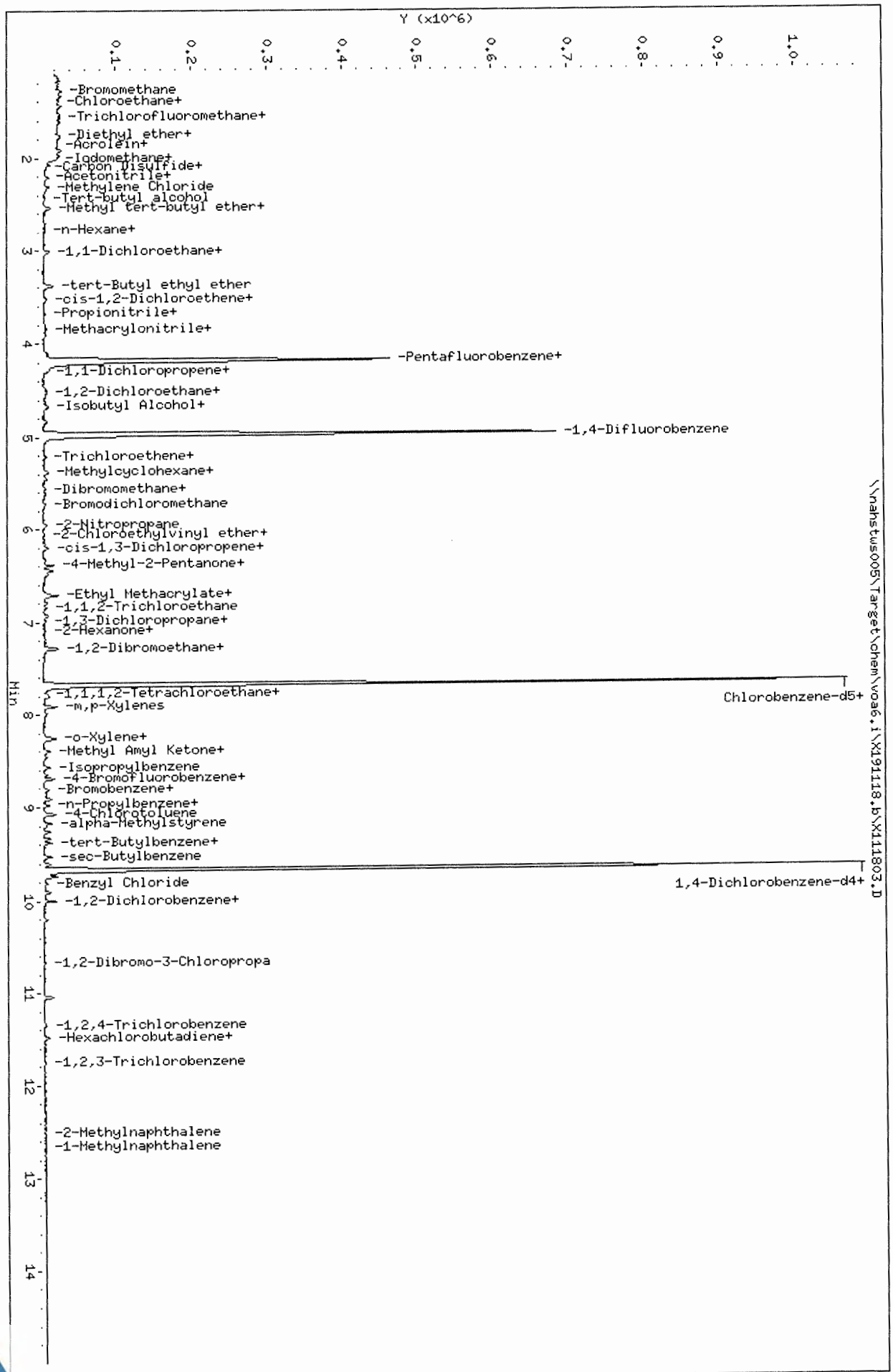
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	417797	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	575000	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	520290	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	274172	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	2522	0.50000	1.36(Ta)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3844	0.50000	1.20(a)
$	30 Dibromofluoromethane	113	4.110	4.110	(0.983)	2303	0.50000	0.96(a)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	8468	0.50000	0.61(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1290	0.50000	0.34(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	2055	0.50000	0.36(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1652	0.50000	0.42(aM)
	138 Freon TF	101	1.911	1.911	(0.457)	1235	0.50000	0.33(a)
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	936	0.50000	0.34(a)
	22 1,1-Dichloroethane	63	2.928	2.928	(0.700)	2376	0.50000	0.39(Ta)
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1458	0.50000	0.41(aM)
	32 1,1-Dichloropropene	75	4.289	4.289	(0.863)	1907	0.50000	0.41(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	421	0.50000	(aM)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	1248	0.50000	0.38(aM)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	892	0.50000	0.38(aM)
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	4769	0.50000	0.36(aM)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	125	0.50000	(aM)
	57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	1273	0.50000	0.34(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	2511	0.50000	0.34 (a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	1591	0.50000	0.34 (aM)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	1693	0.50000	0.49 (aM)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	4403	0.50000	0.35 (a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	2841	0.50000	0.36 (a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	2241	0.50000	0.40 (a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	3038	0.50000	0.38 (a)
26	2,2-Dichloropropane	77	3.523	3.523	(0.842)	2284	0.50000	0.41 (aM)
24	2-Butanone	43	3.595	3.595	(0.860)	1395	1.00000	1.08 (aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	3464	0.50000	0.35 (a)
52	2-Hexanone	43	7.090	7.090	(0.924)	1875	1.00000	0.87 (a)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	4251	0.50000	0.35 (a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	5043	0.50000	0.37 (a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	2291	1.00000	0.75 (a)
10	Acetone	43	1.976	1.976	(0.473)	4579	1.00000	0.53 (aM)
37	Benzene	78	4.519	4.519	(0.909)	4530	0.50000	0.34 (a)
74	Bromobenzene	156	8.809	8.809	(0.911)	1601	0.50000	0.33 (a)
29	Bromochloromethane	128	3.802	3.802	(0.909)	956	0.50000	0.42 (a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1712	0.50000	0.35 (aM)
66	Bromoform	173	8.415	8.415	(1.097)	887	0.50000	1.27 (aM)
6	Bromomethane	94	1.338	1.338	(0.320)	2741	0.50000	(a)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	6243	1.00000	0.64 (aM)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	1955	0.50000	0.38 (aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	3839	0.50000	0.37 (a)
7	Chloroethane	64	1.403	1.403	(0.336)	1164	0.50000	0.44 (aM)
28	Chloroform	83	3.917	3.917	(0.937)	3238	0.50000	0.47 (a)
3	Chloromethane	50	1.073	1.073	(0.257)	2201	0.50000	0.67 (a)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1368	0.50000	0.34 (a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1873	0.50000	0.33 (a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	1318	0.50000	0.33 (a)
44	Dibromomethane	93	5.564	5.564	(1.120)	802	0.50000	0.32 (a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	1269	0.50000	1.20 (aM)
61	Ethylbenzene	106	7.807	7.807	(1.018)	1838	0.50000	0.35 (a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	1376	0.50000	0.21 (a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	5484	0.50000	0.35 (a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	4089	1.00000	0.64 (a)
17	Methylene Chloride	84	2.305	2.305	(0.551)	1764	0.50000	0.46 (aM)
87	n-Butylbenzene	91	9.998	9.998	(1.034)	4442	0.50000	0.39 (aM)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	6280	0.50000	0.37 (a)
92	Naphthalene	128	11.560	11.560	(1.196)	1399	0.50000	0.47 (a)
63	o-Xylene	106	8.243	8.243	(1.075)	2028	0.50000	0.32 (a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	5469	0.50000	0.37 (a)
64	Styrene	104	8.265	8.265	(1.078)	3653	0.50000	0.33 (a)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	3670	0.50000	0.34 (a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	1382	0.50000	0.37 (a)
50	Toluene	91	6.453	6.453	(0.841)	5603	0.50000	0.37 (a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	1192	0.50000	0.34 (a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	1749	0.50000	0.34 (a)
38	Trichloroethene	130	5.206	5.206	(1.048)	1298	0.50000	0.32 (a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	2137	0.50000	0.32 (a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	2046	0.50000	0.48 (aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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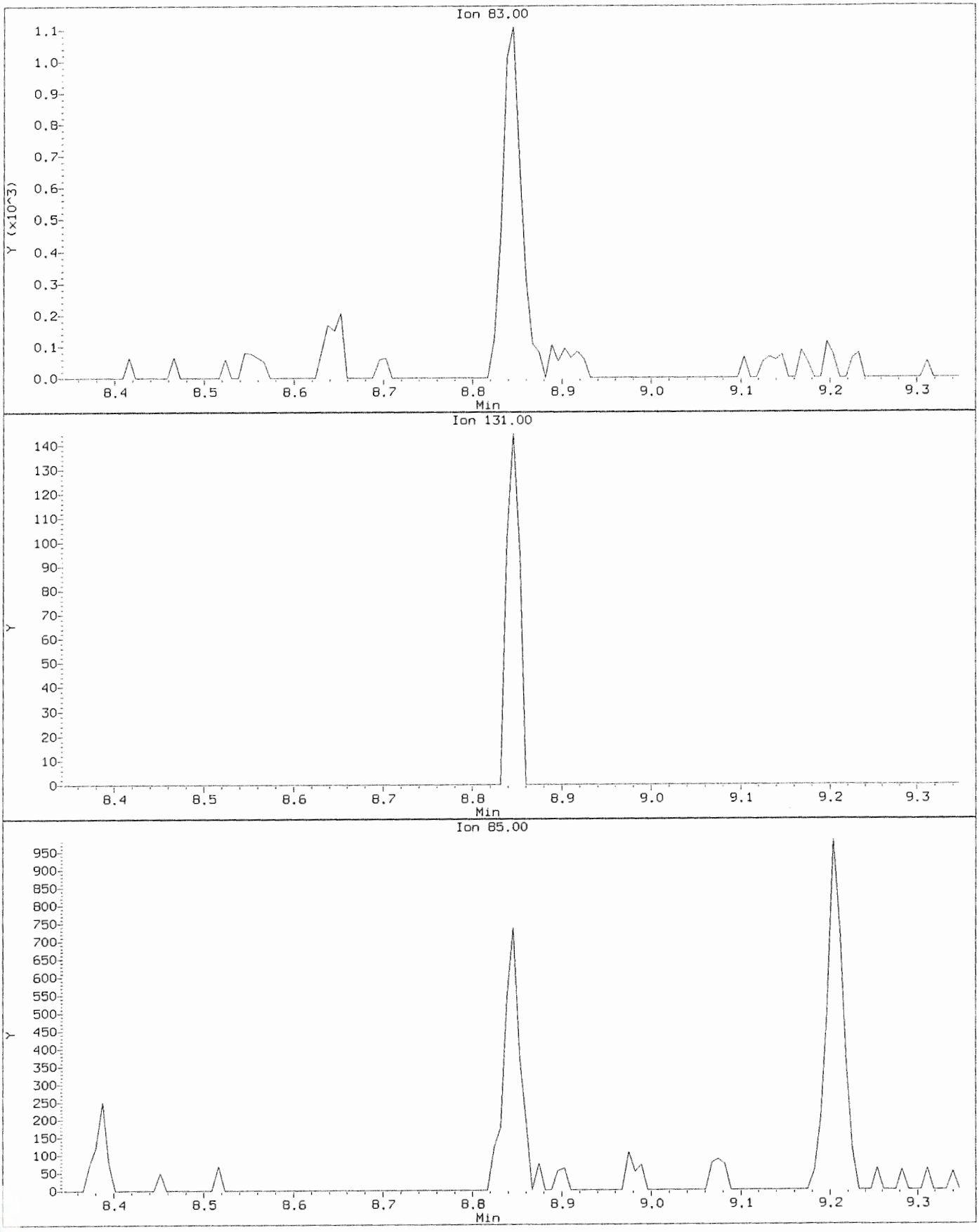
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624

\\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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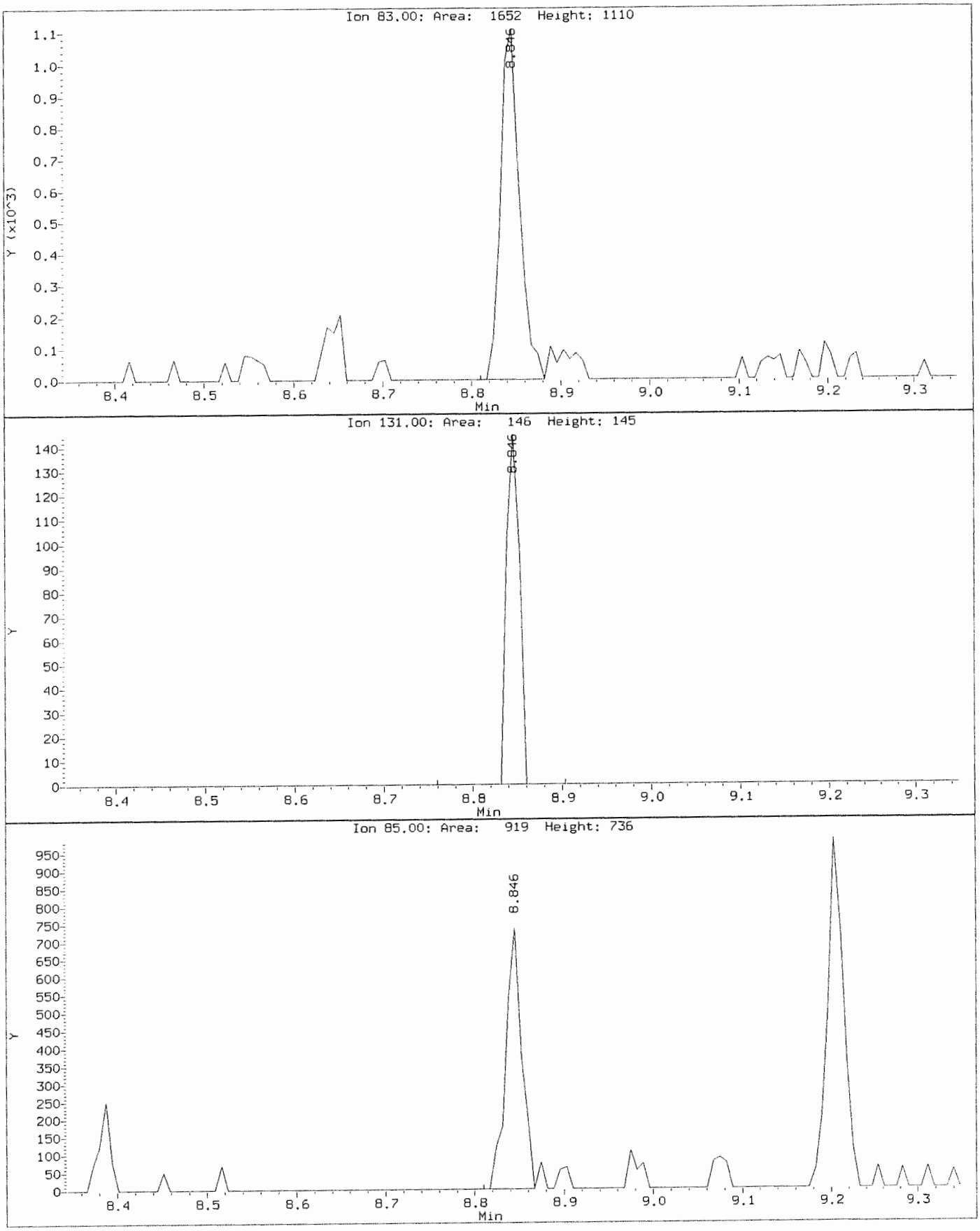
Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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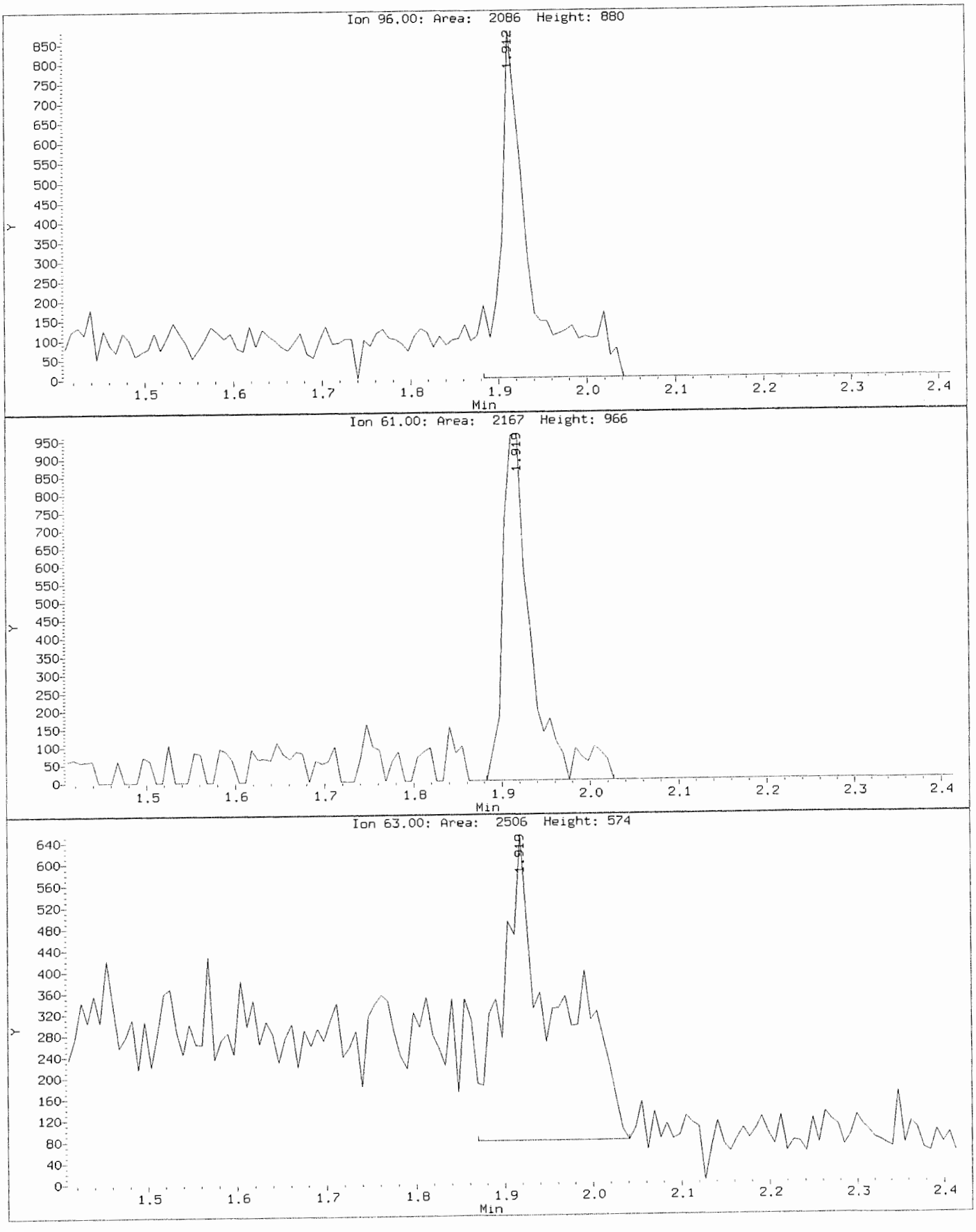
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



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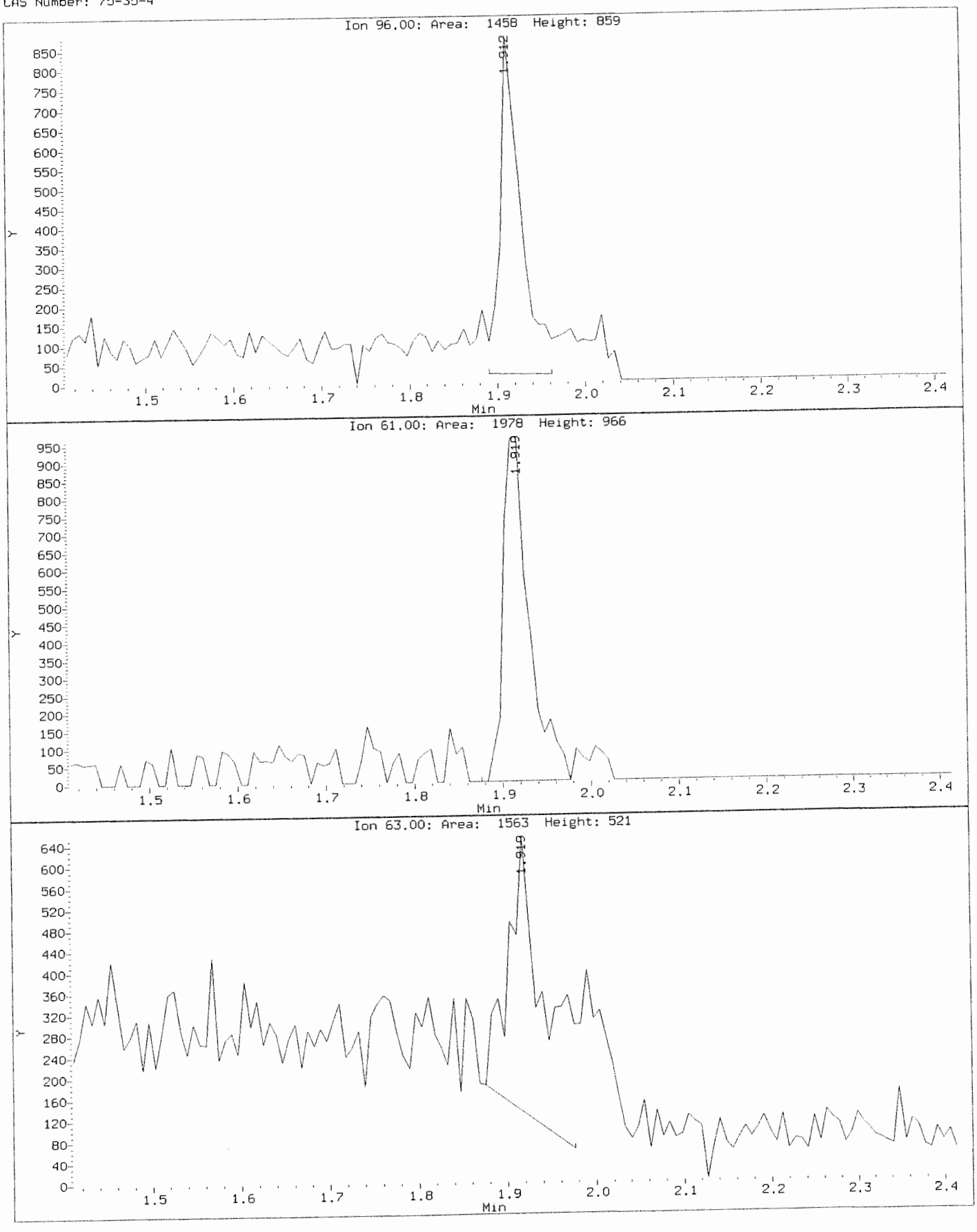
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



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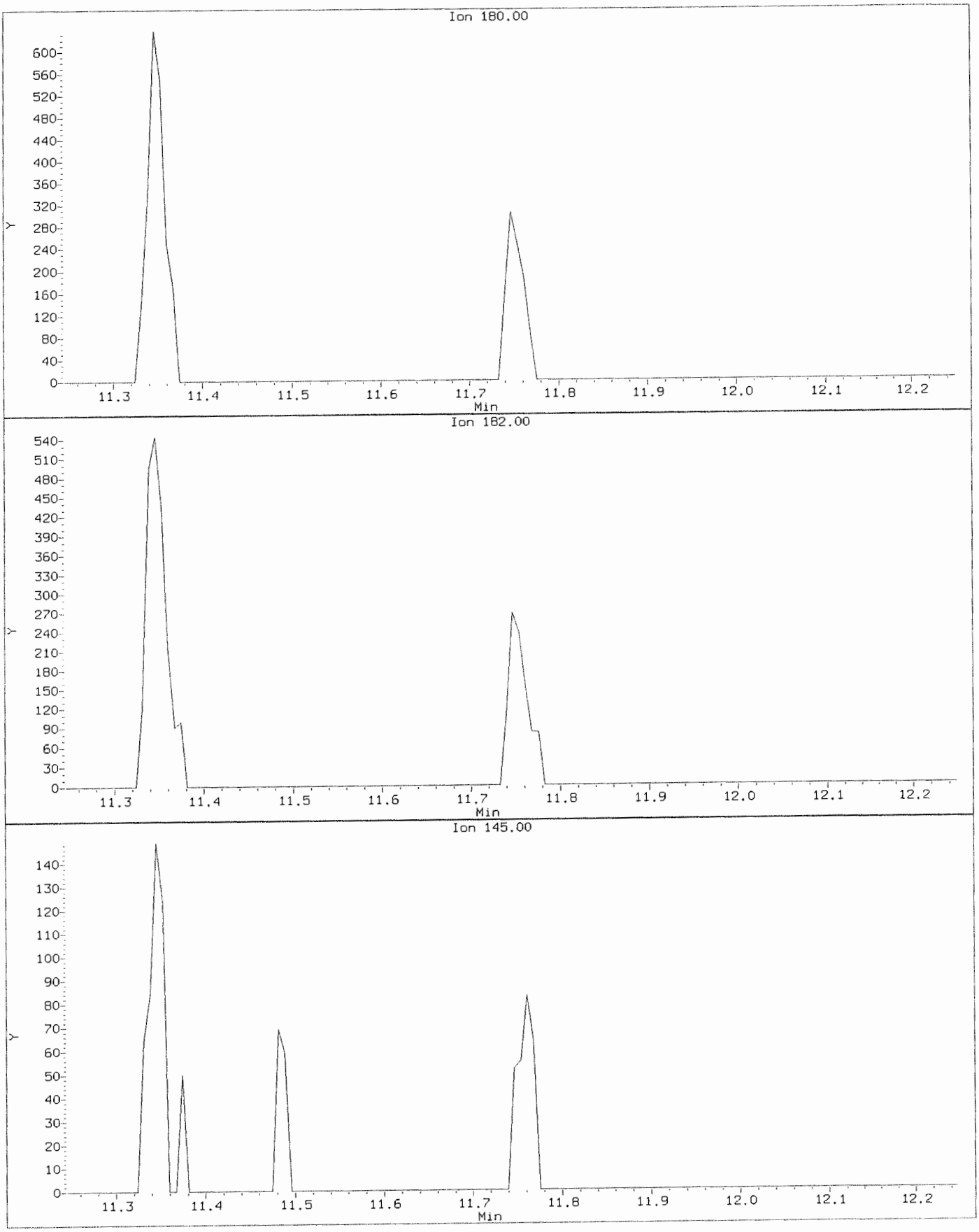
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



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Injection Date: 18-NOV-2019 14:35
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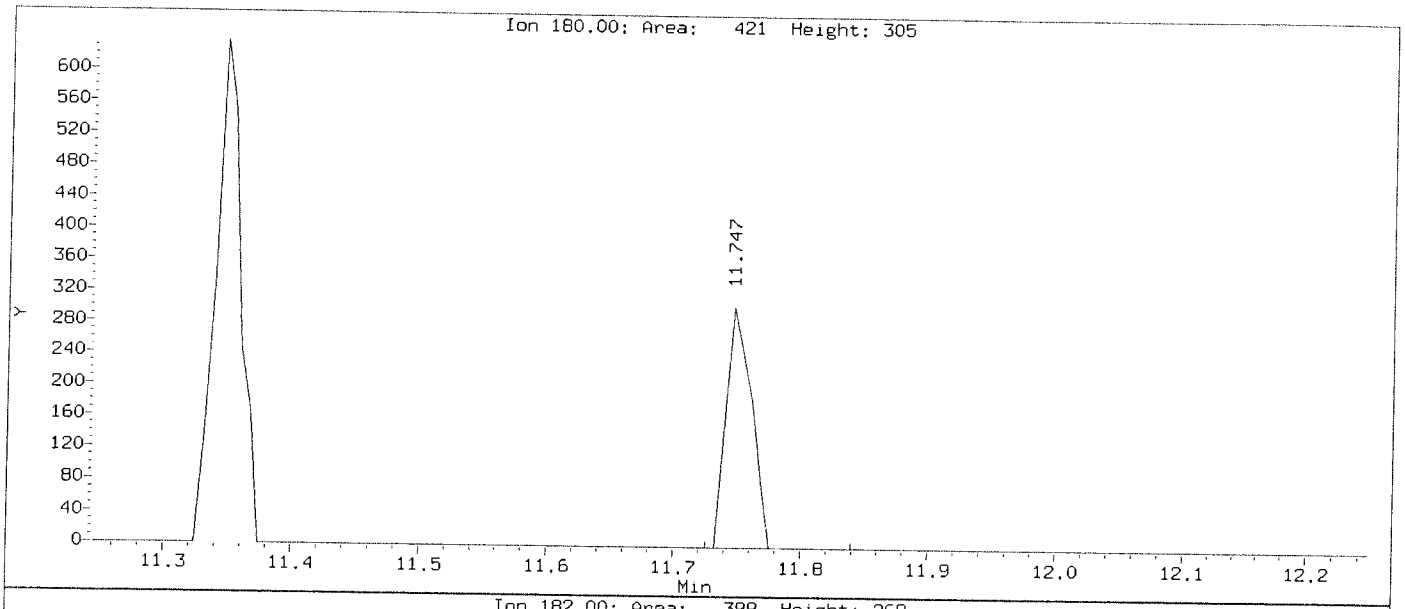
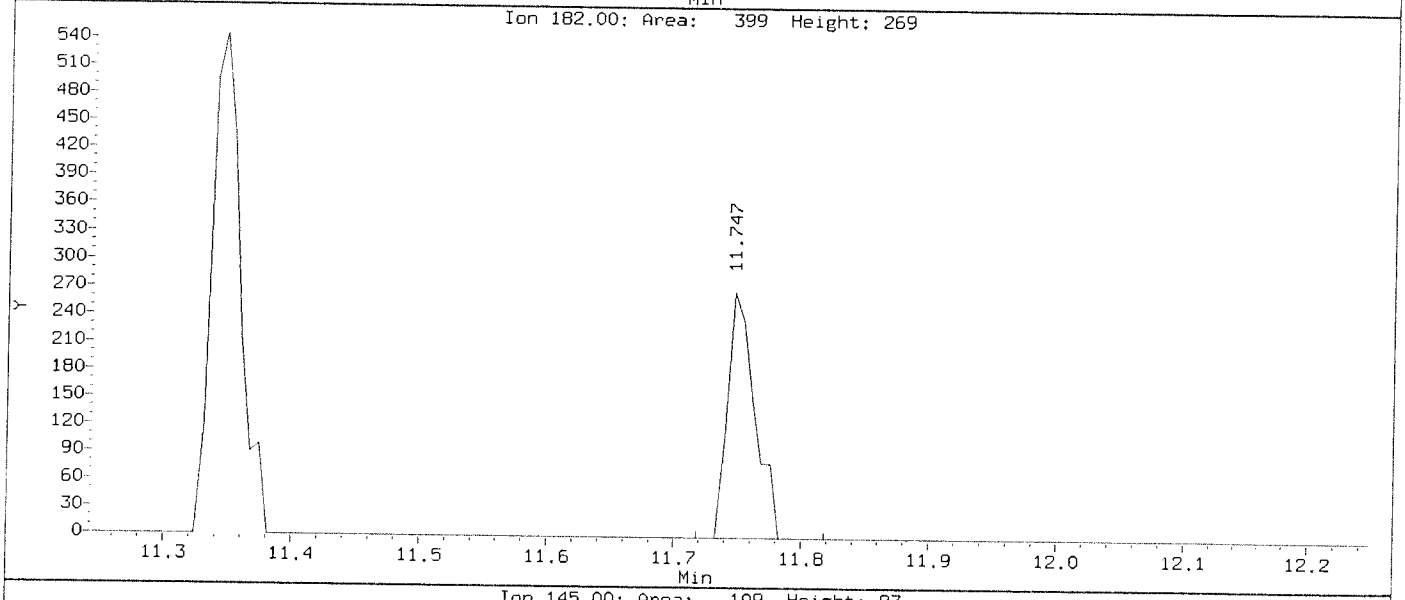
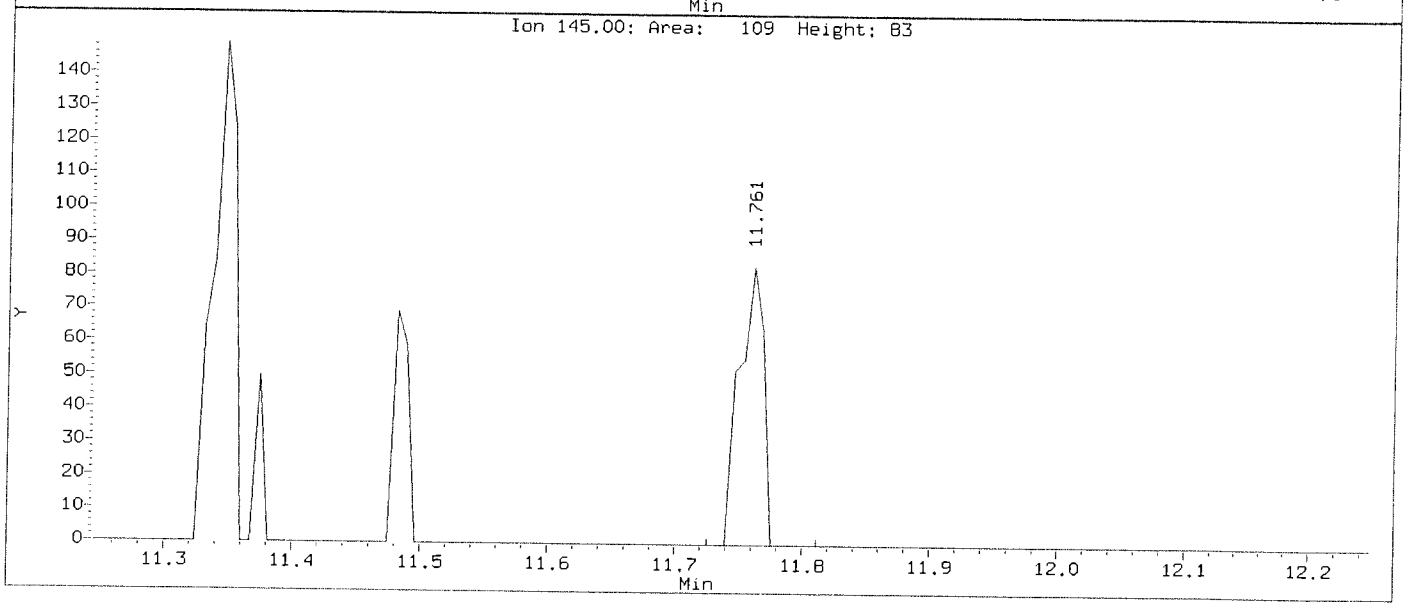
Compound: 1.2,3-Trichlorobenzene
CAS Number: 87-61-6







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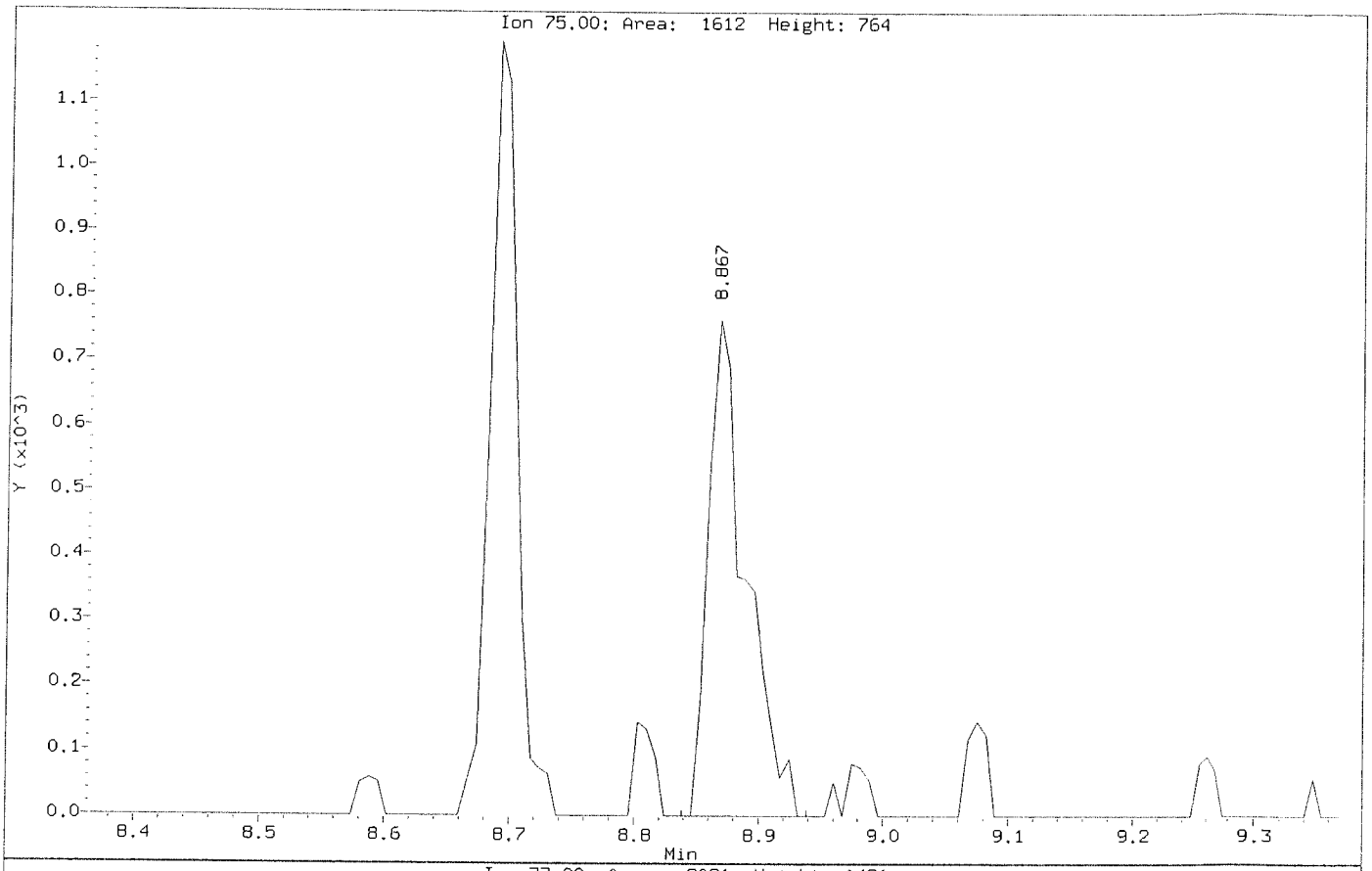
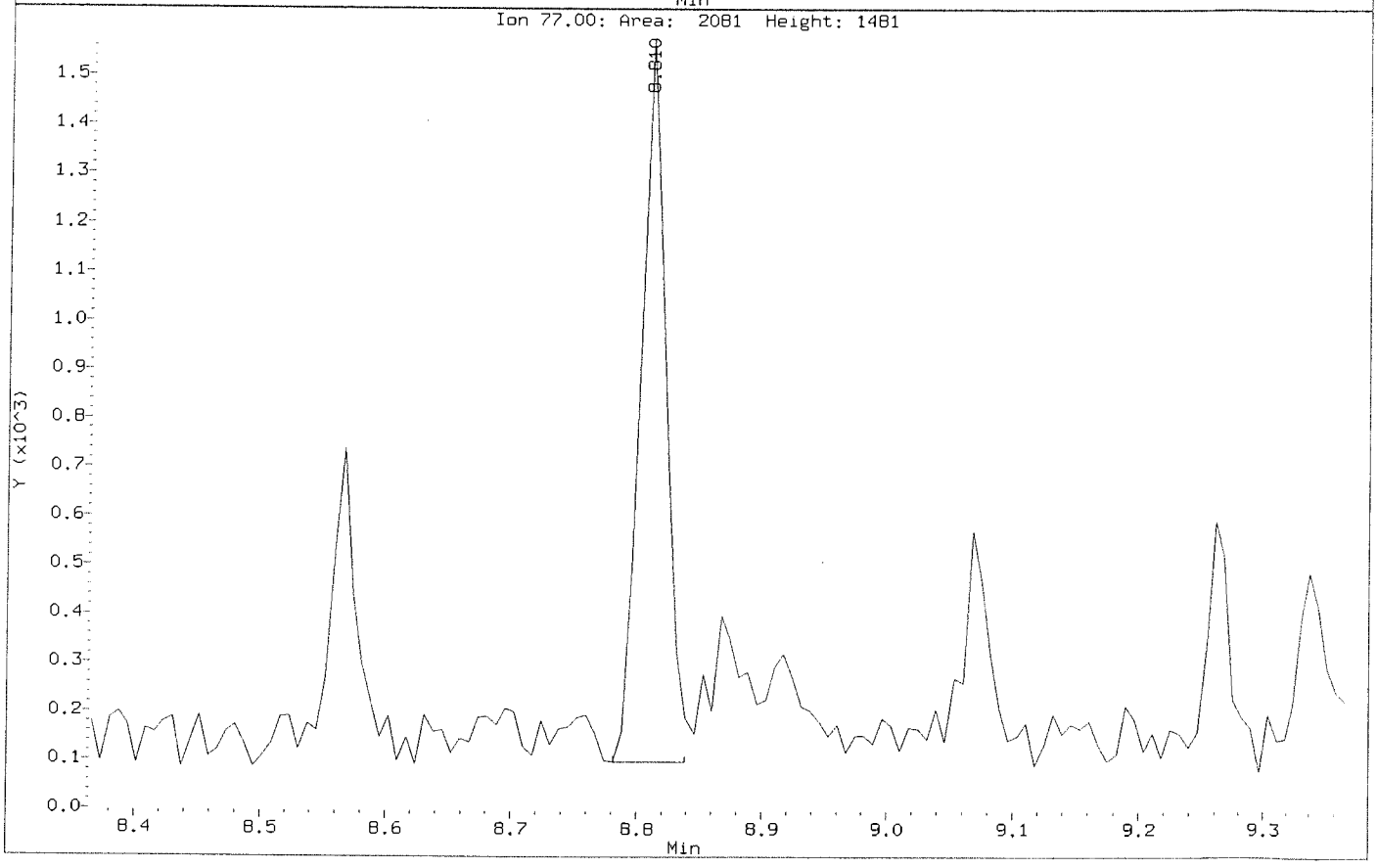
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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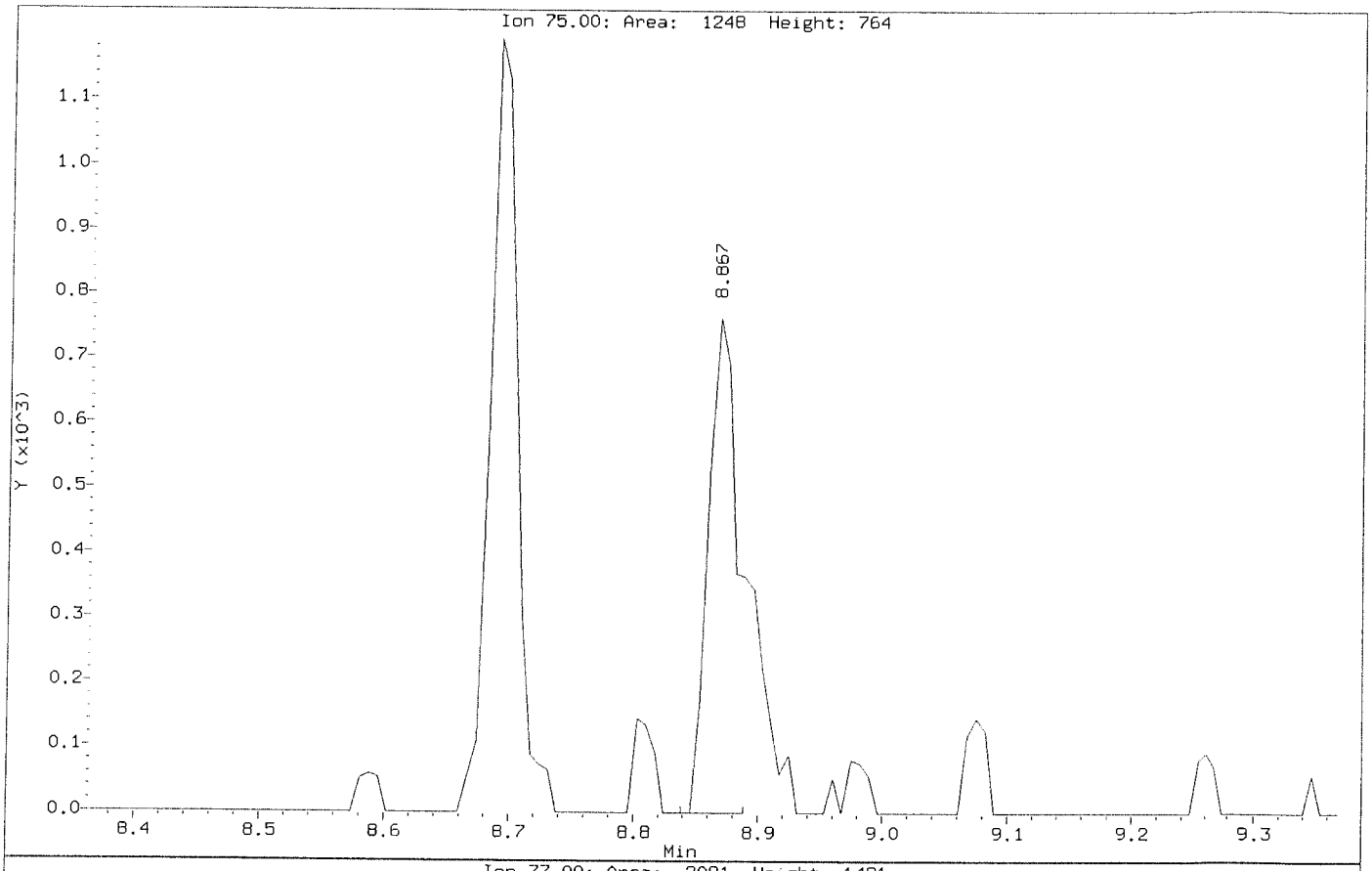
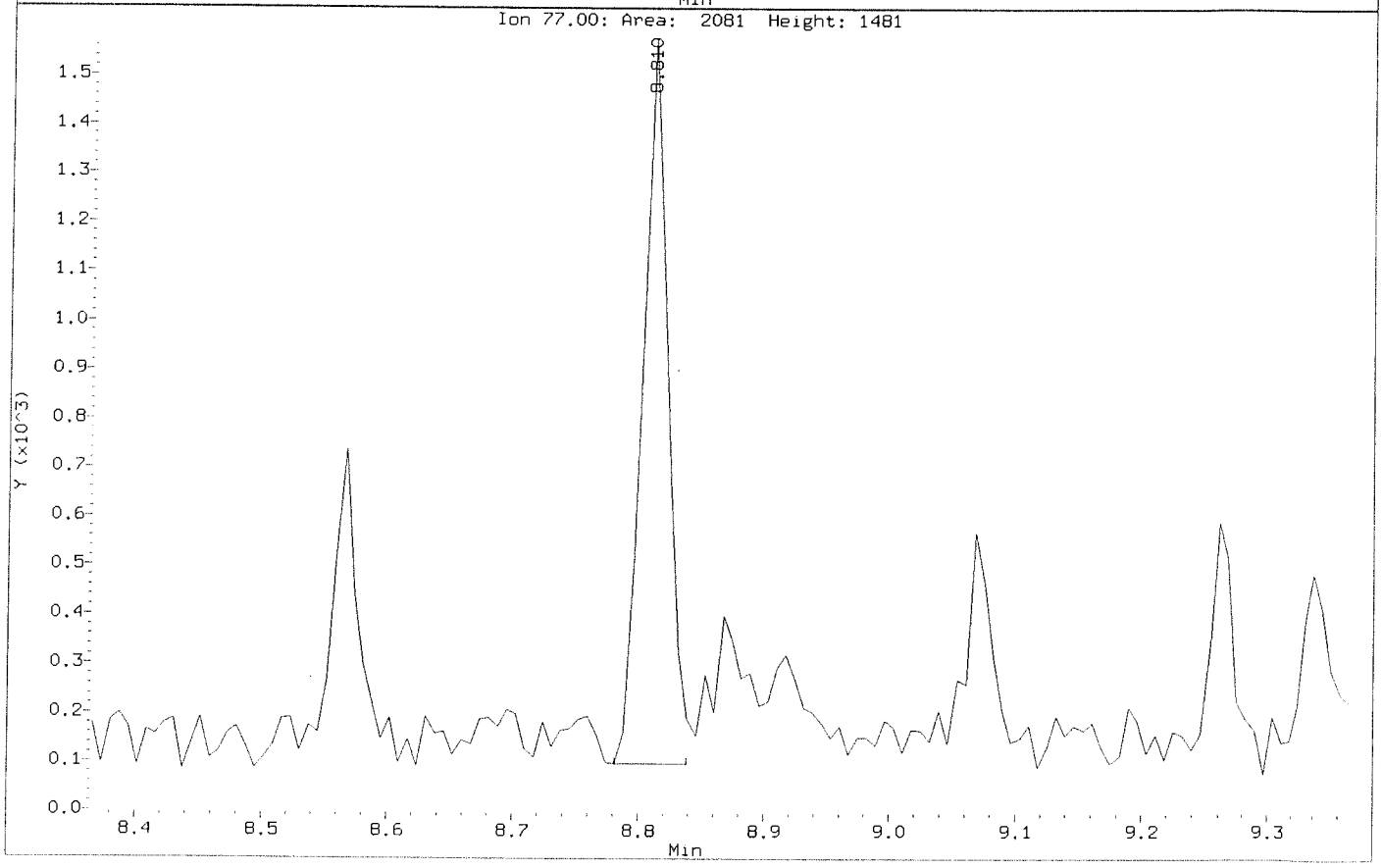
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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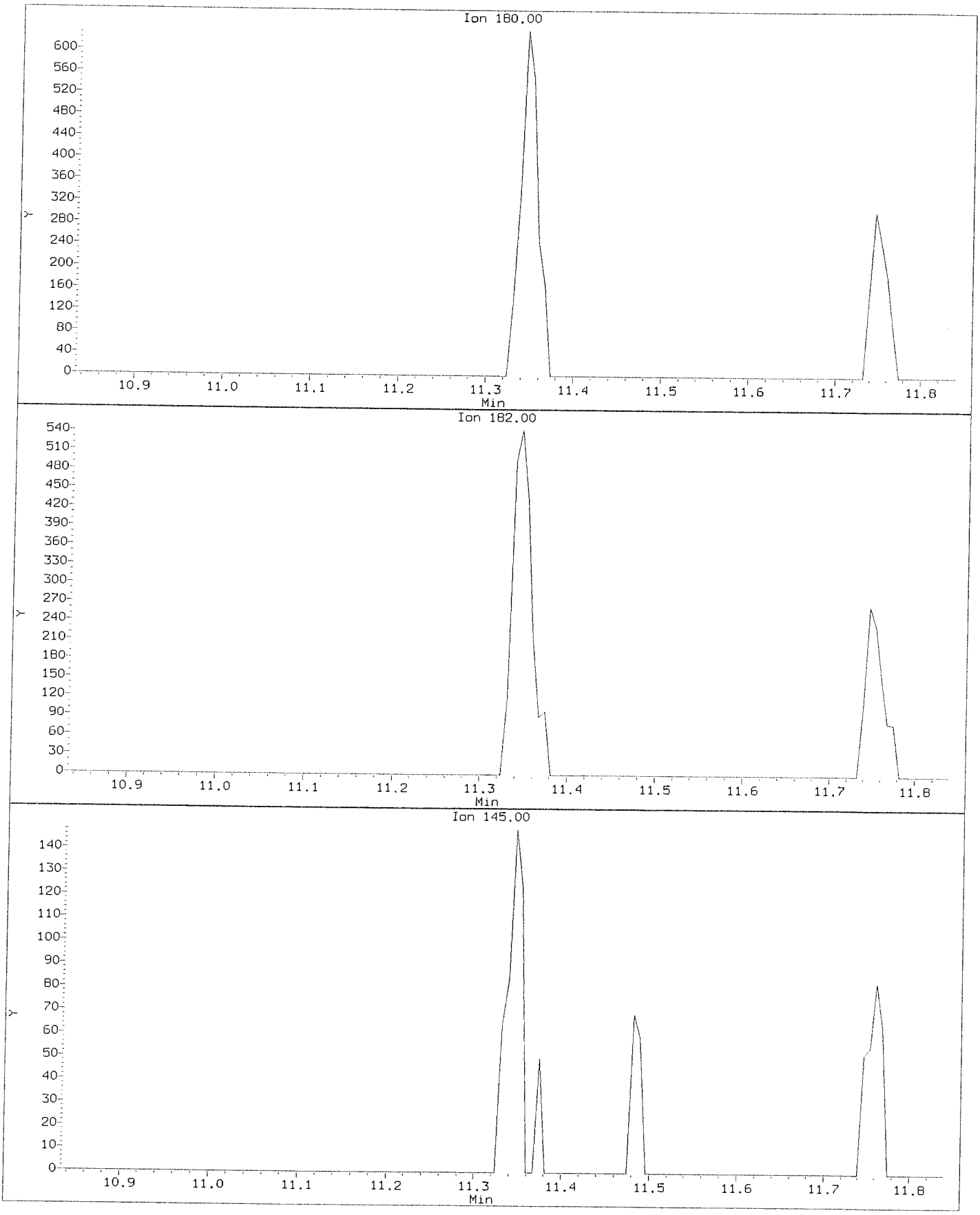
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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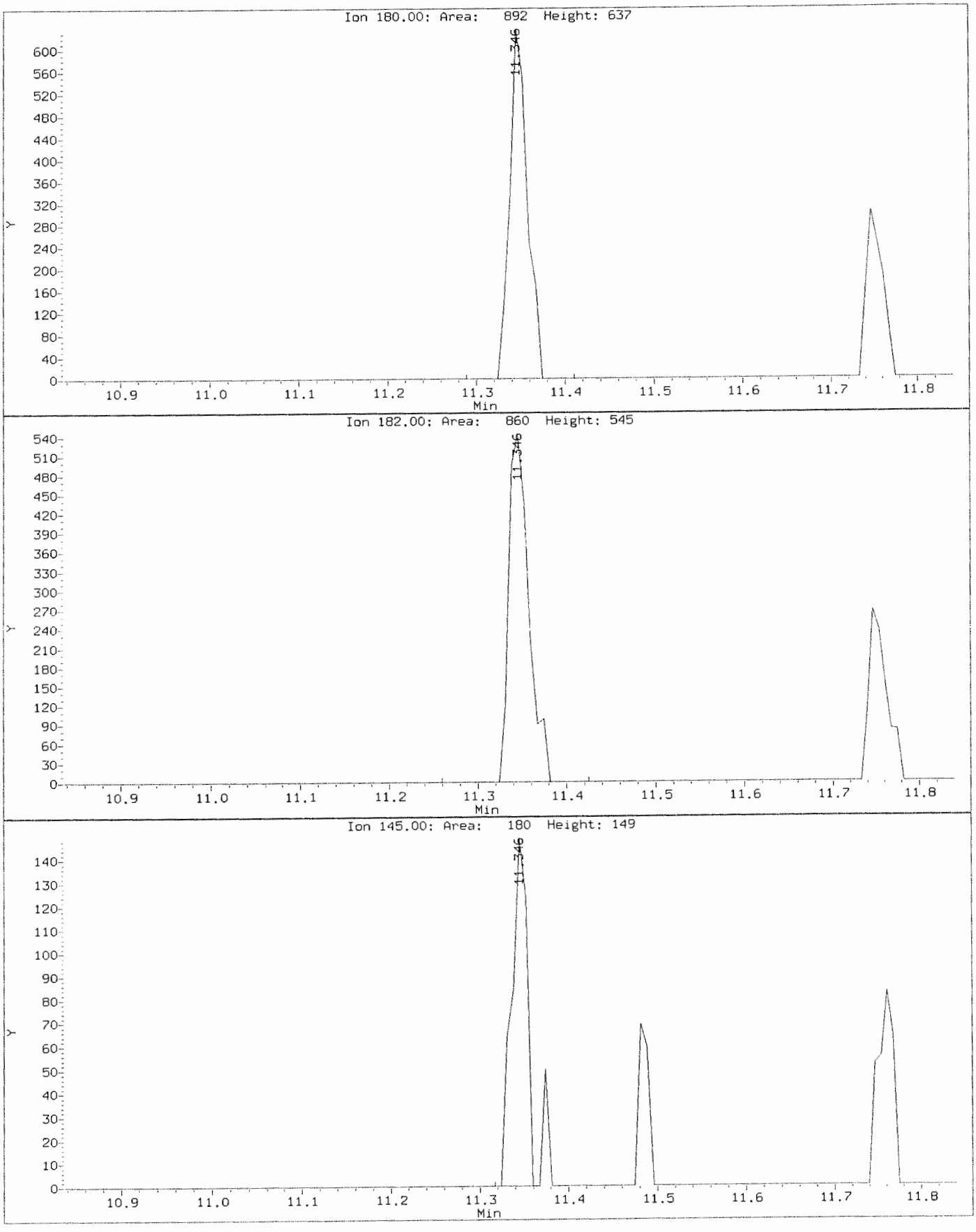
Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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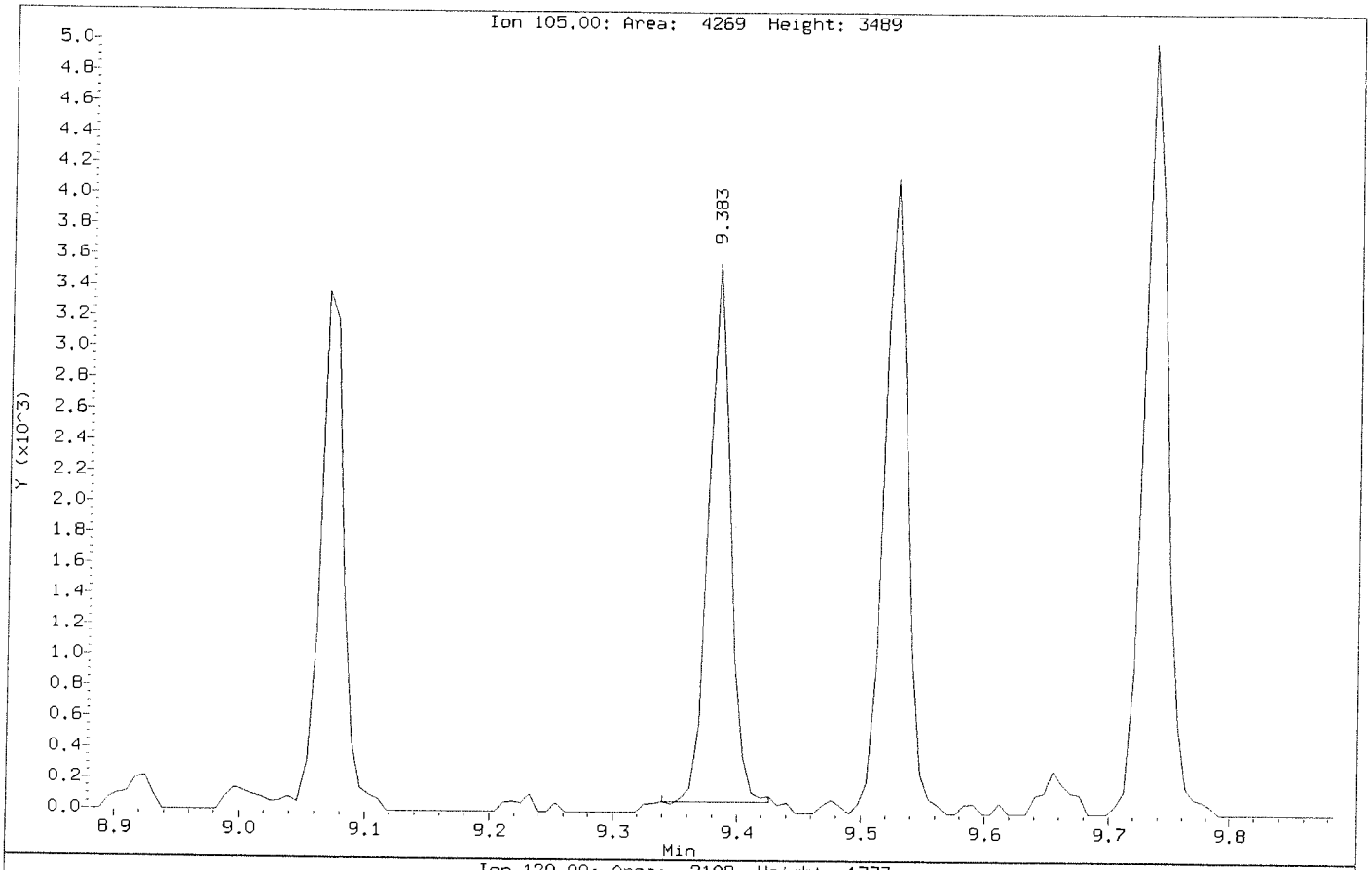
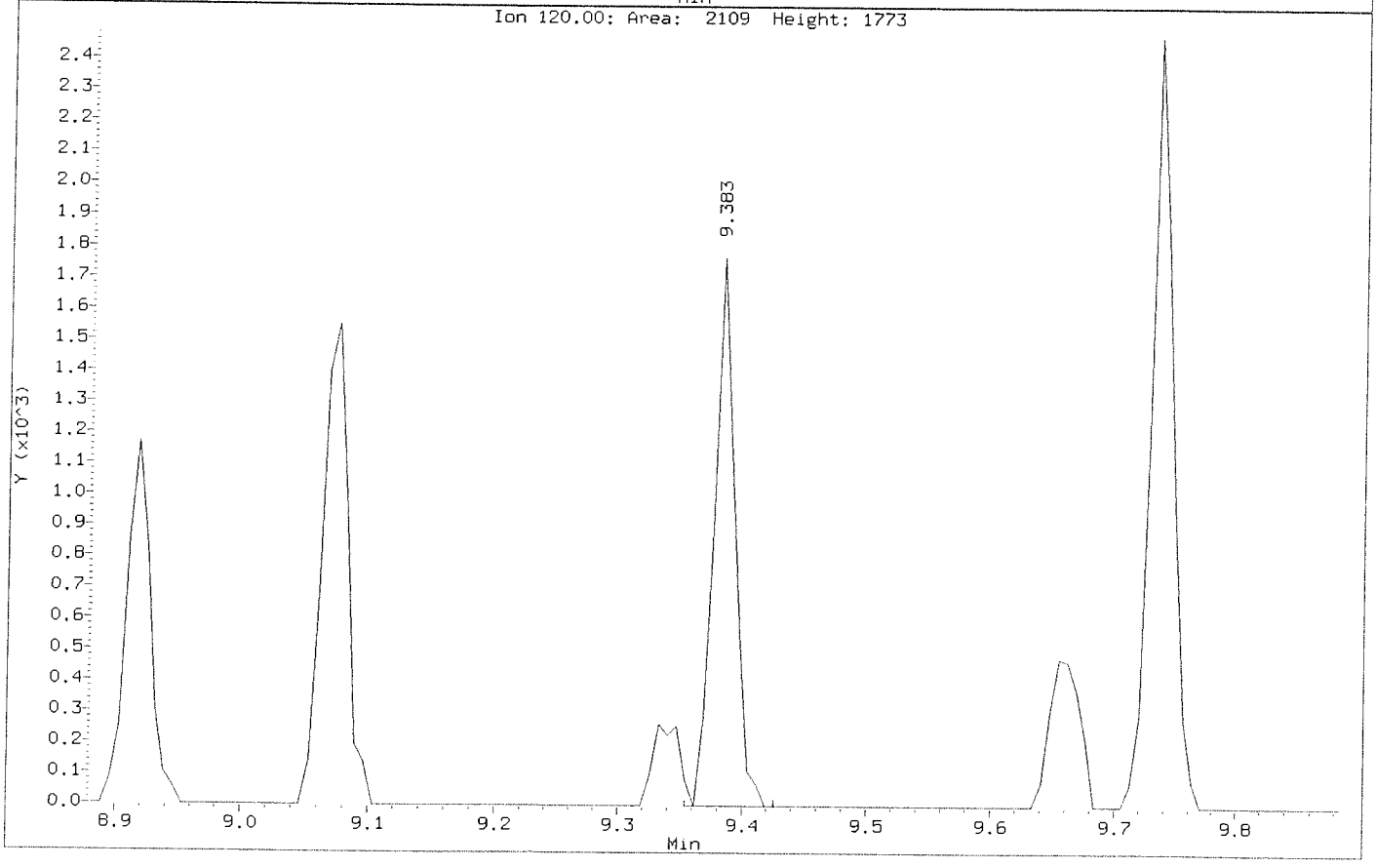
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6





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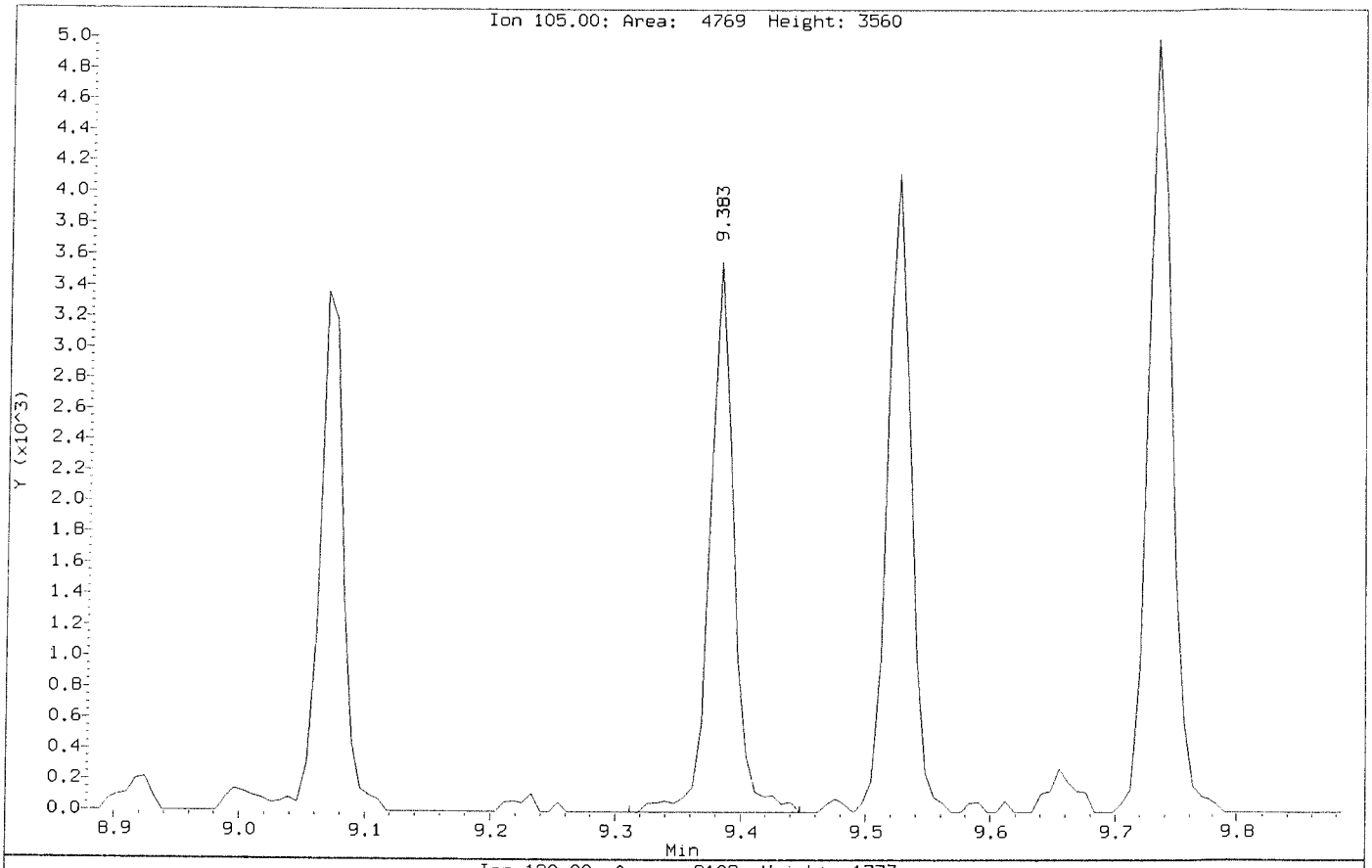
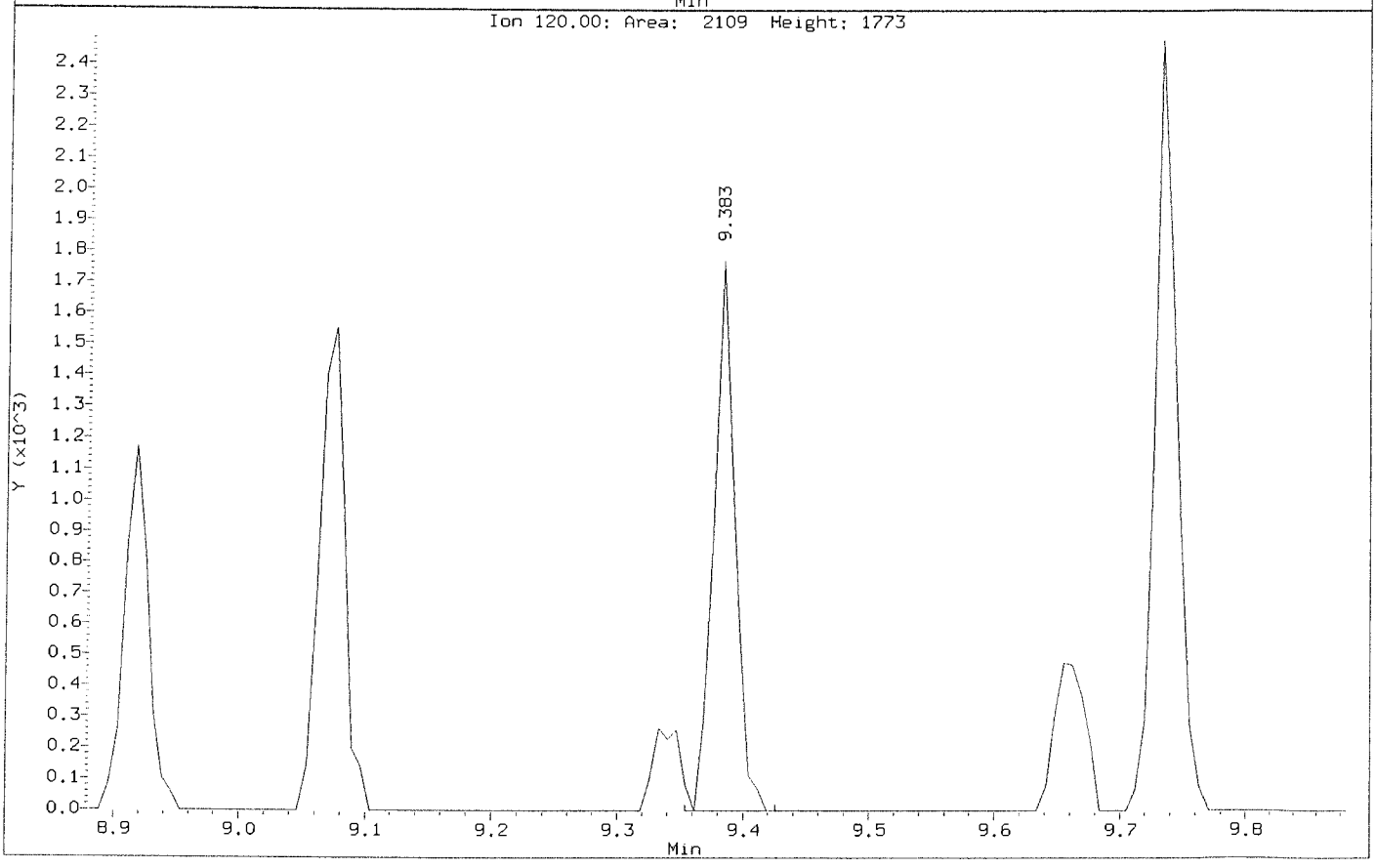
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6





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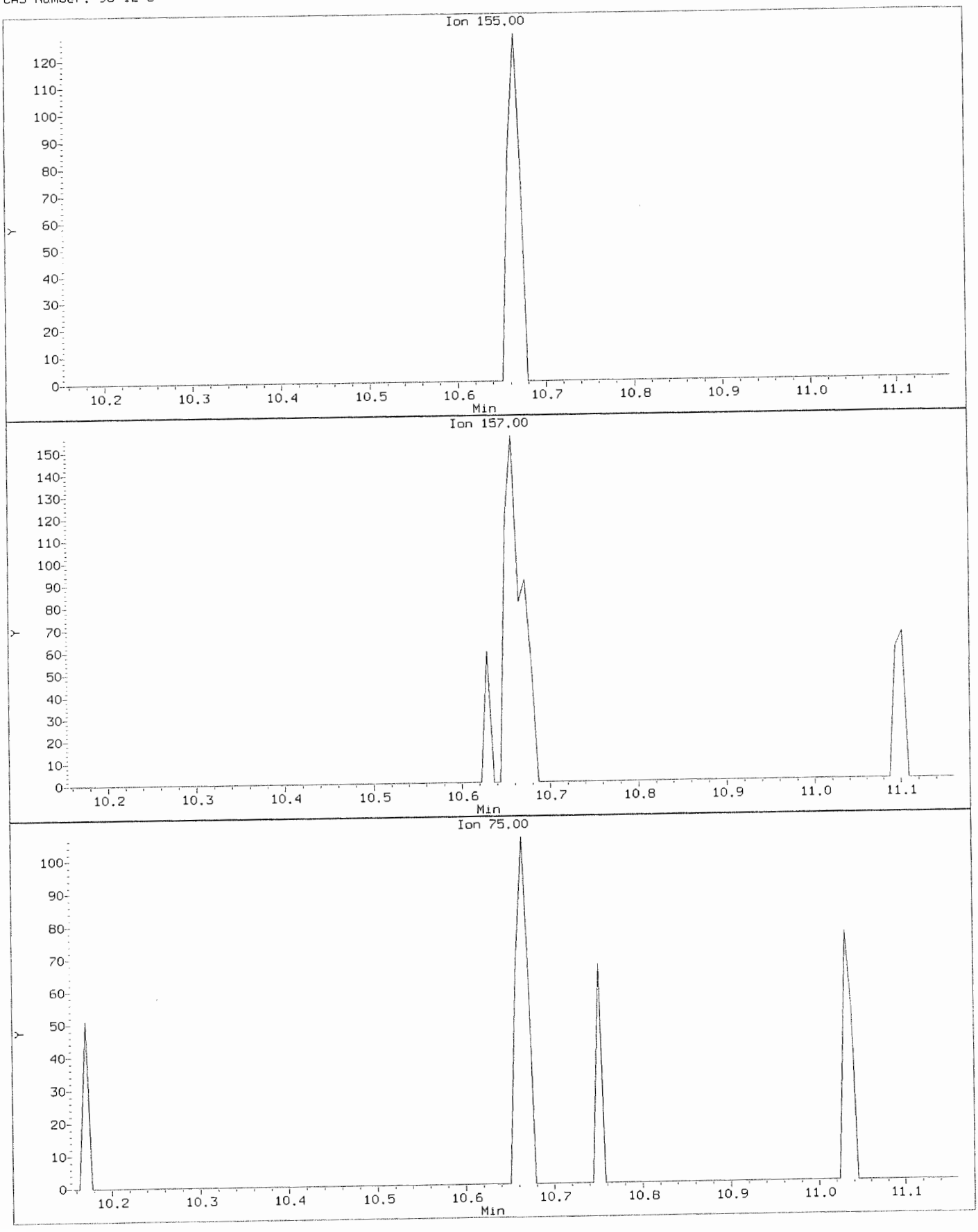
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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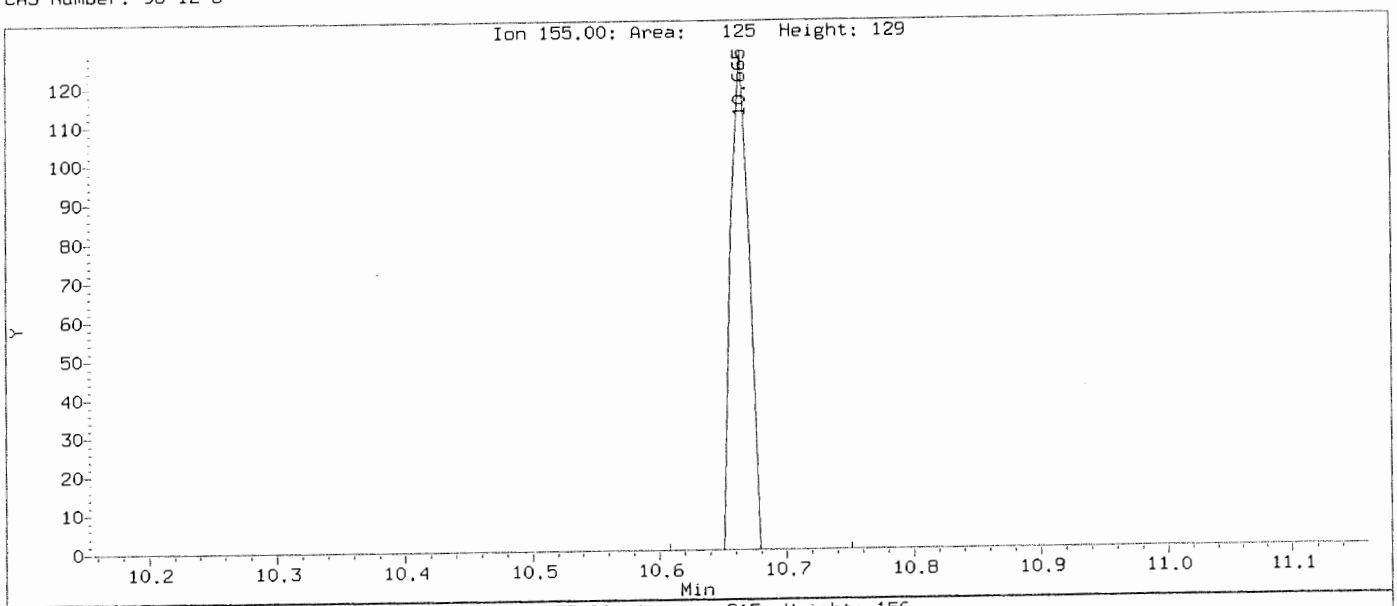
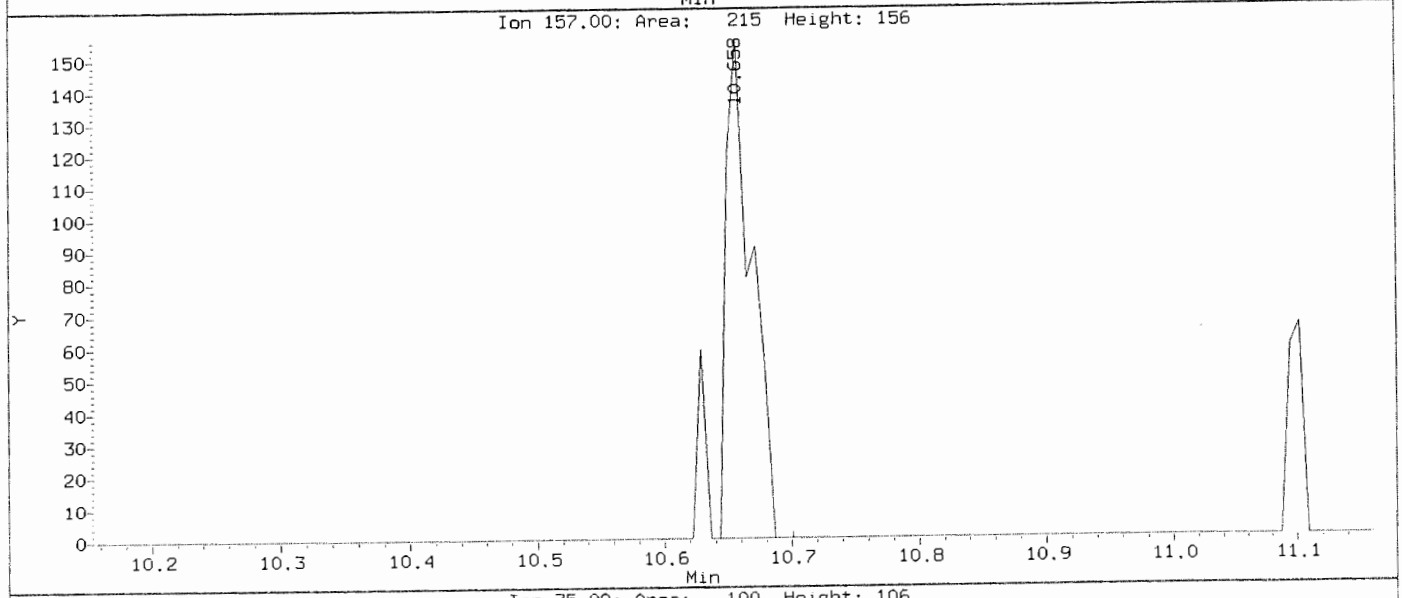
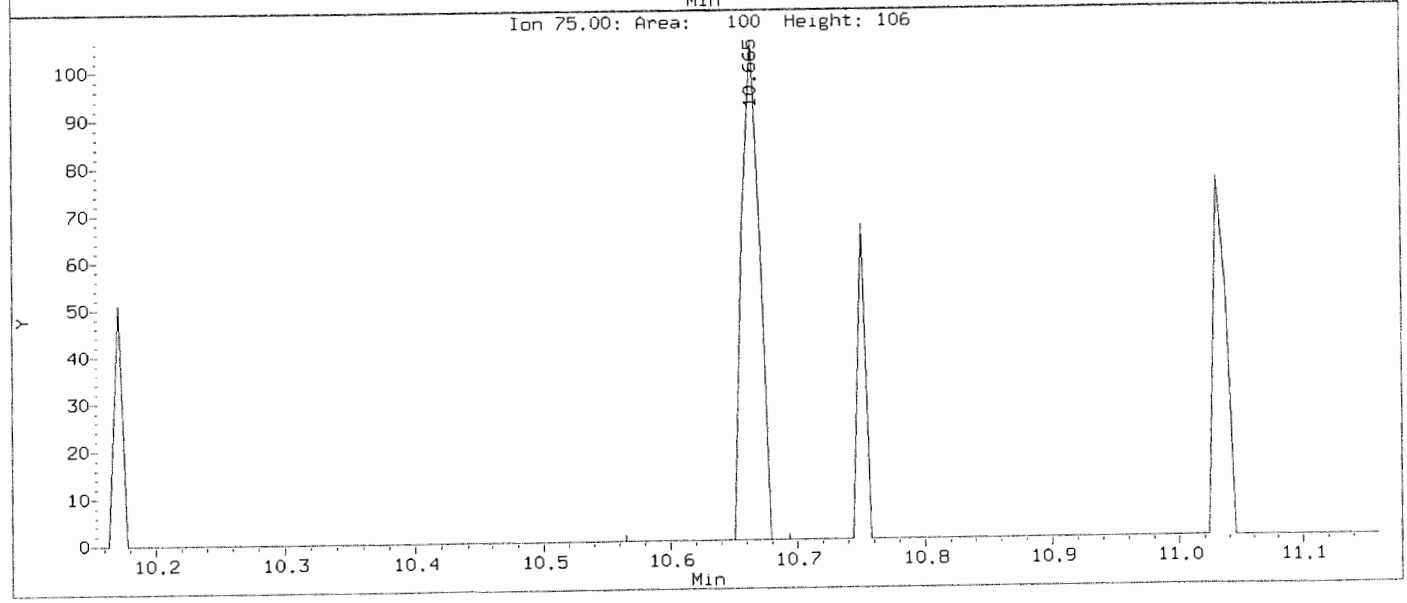
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

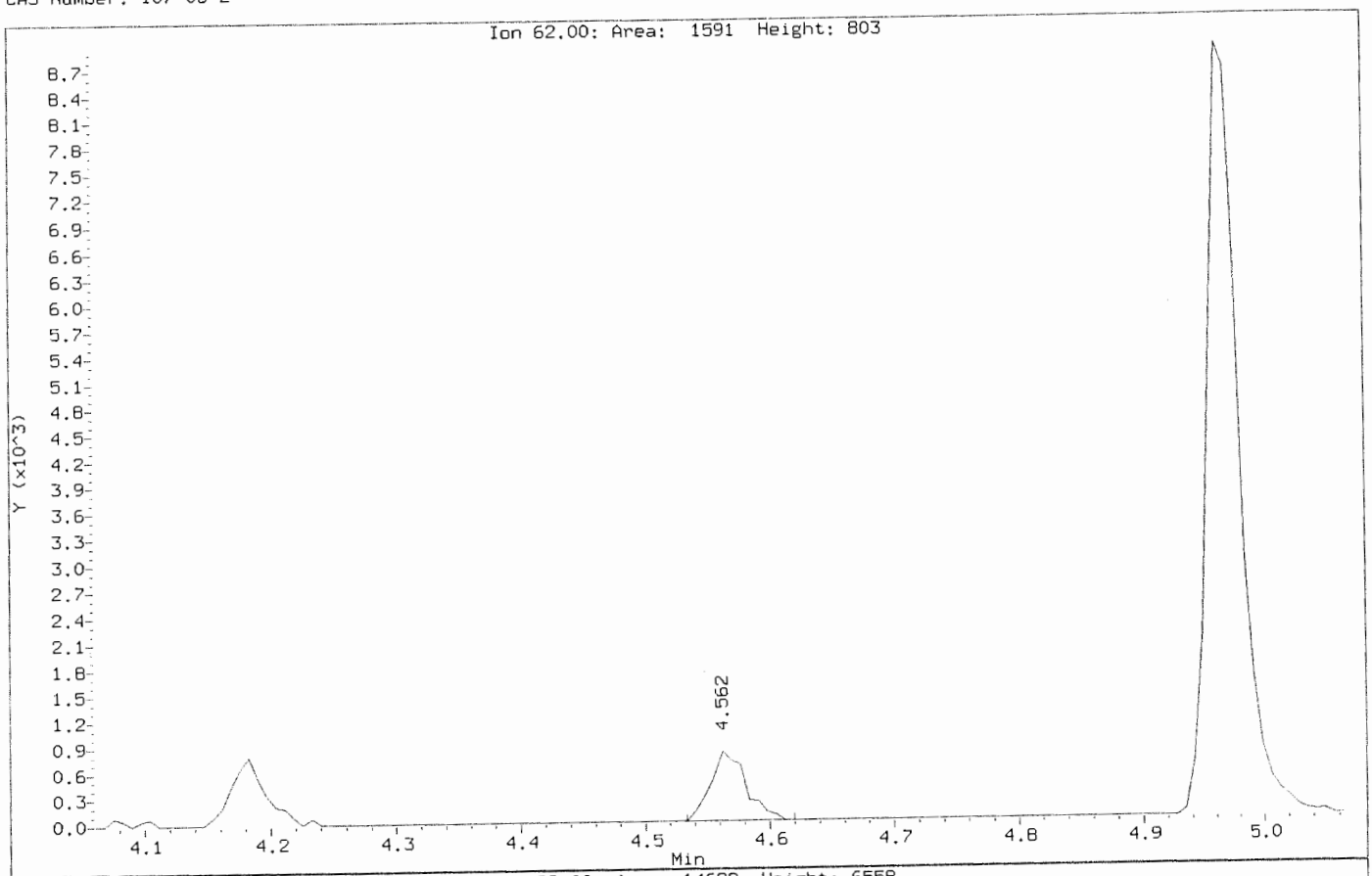


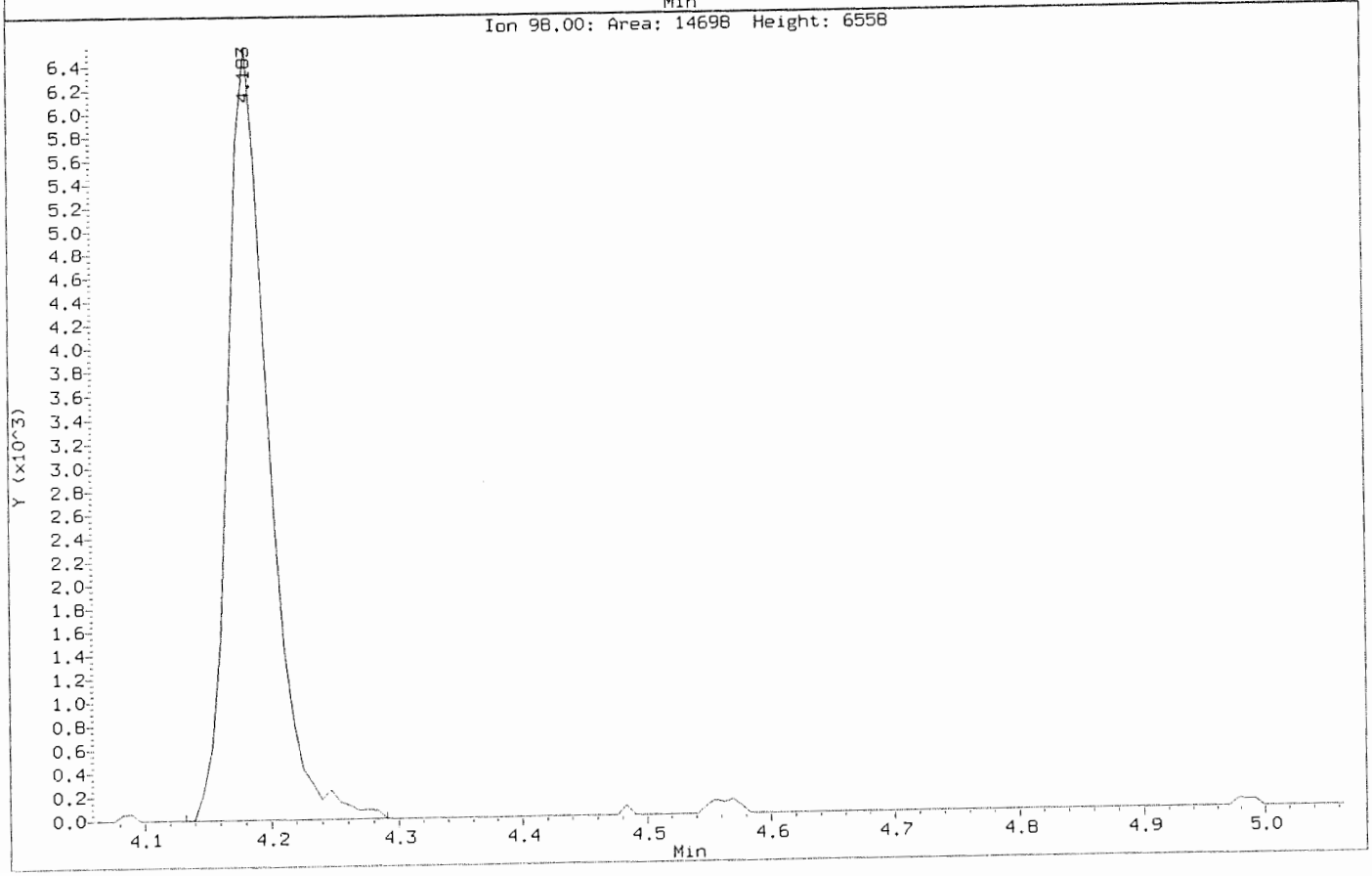




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111B03.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

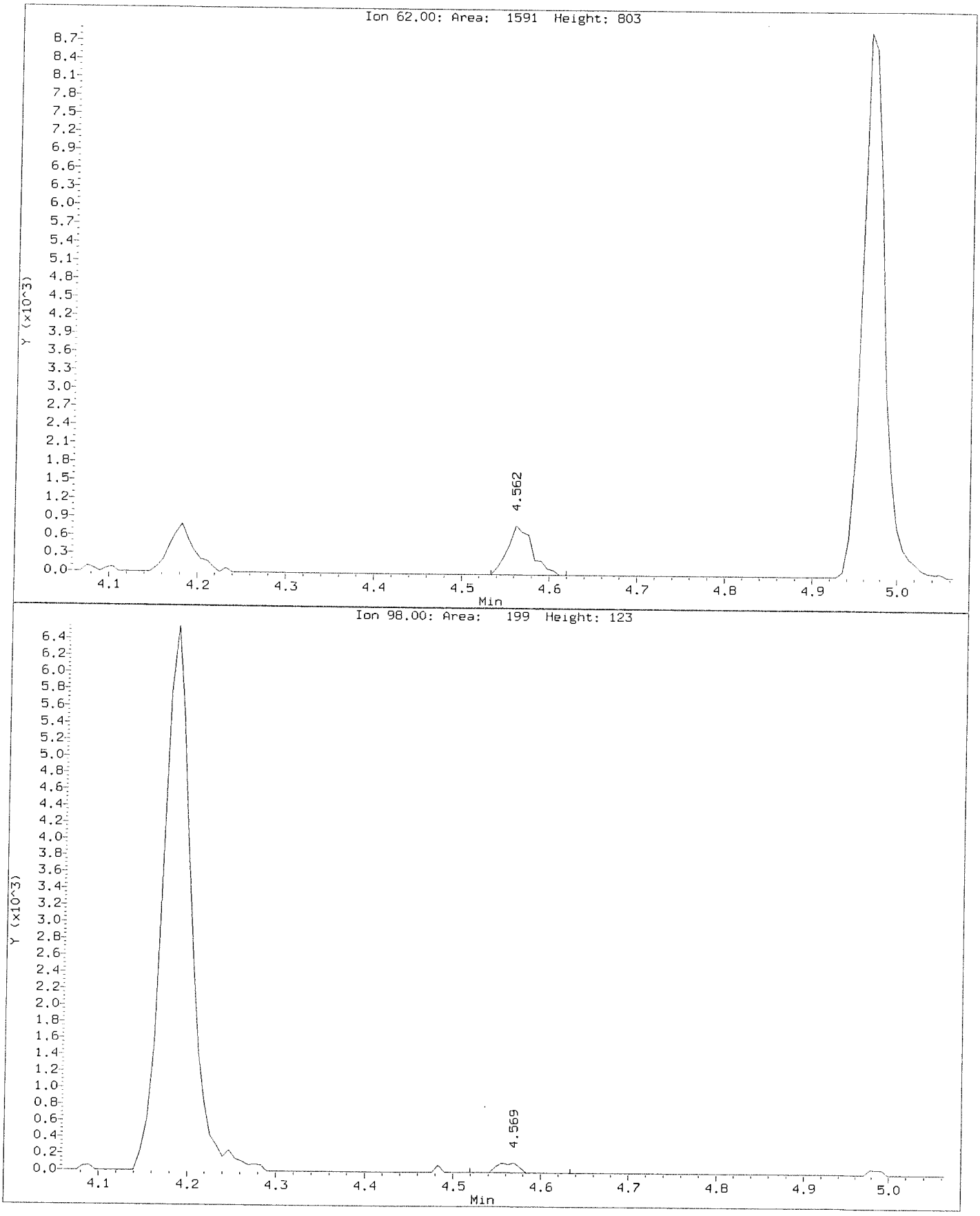
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



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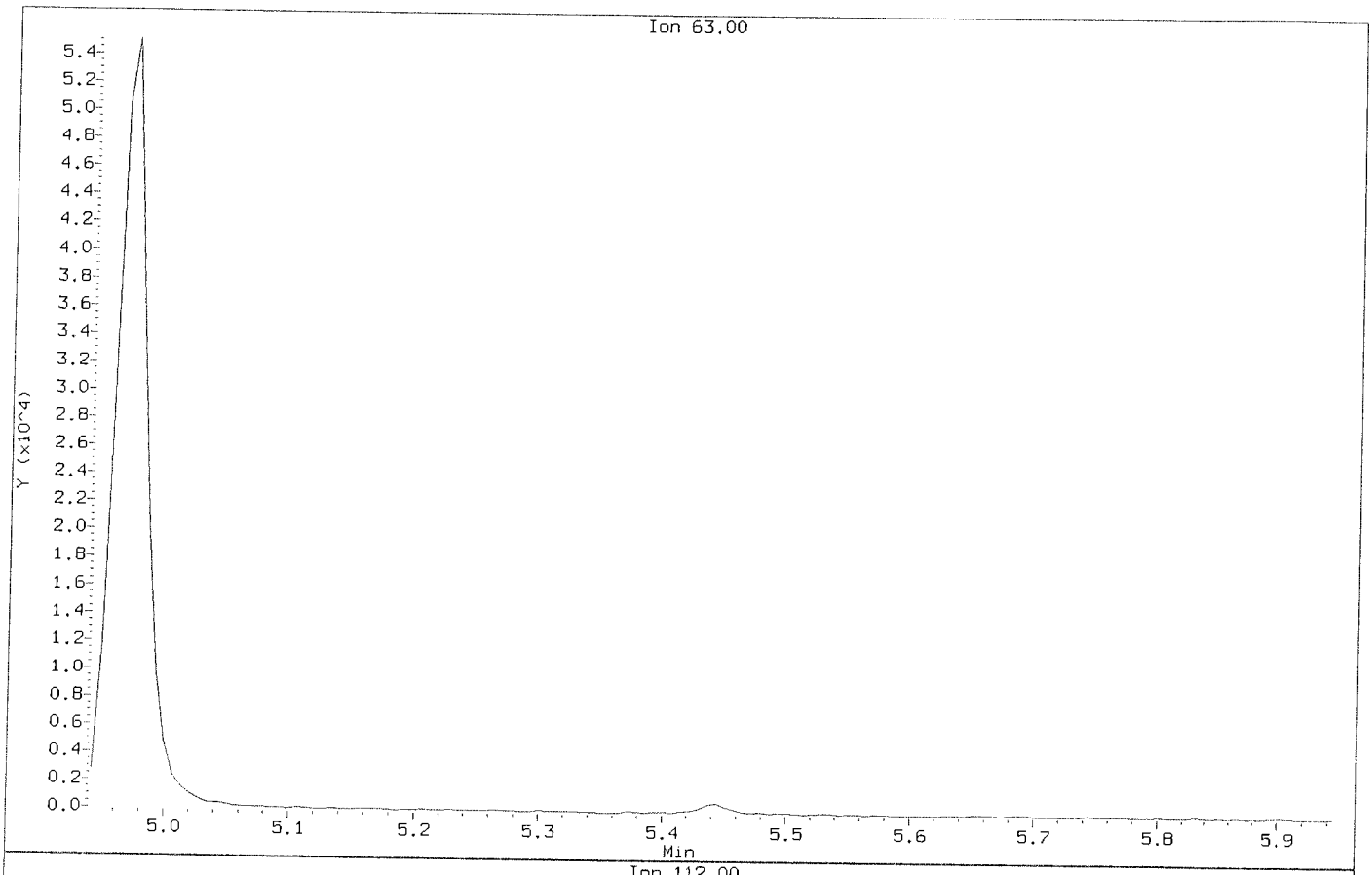
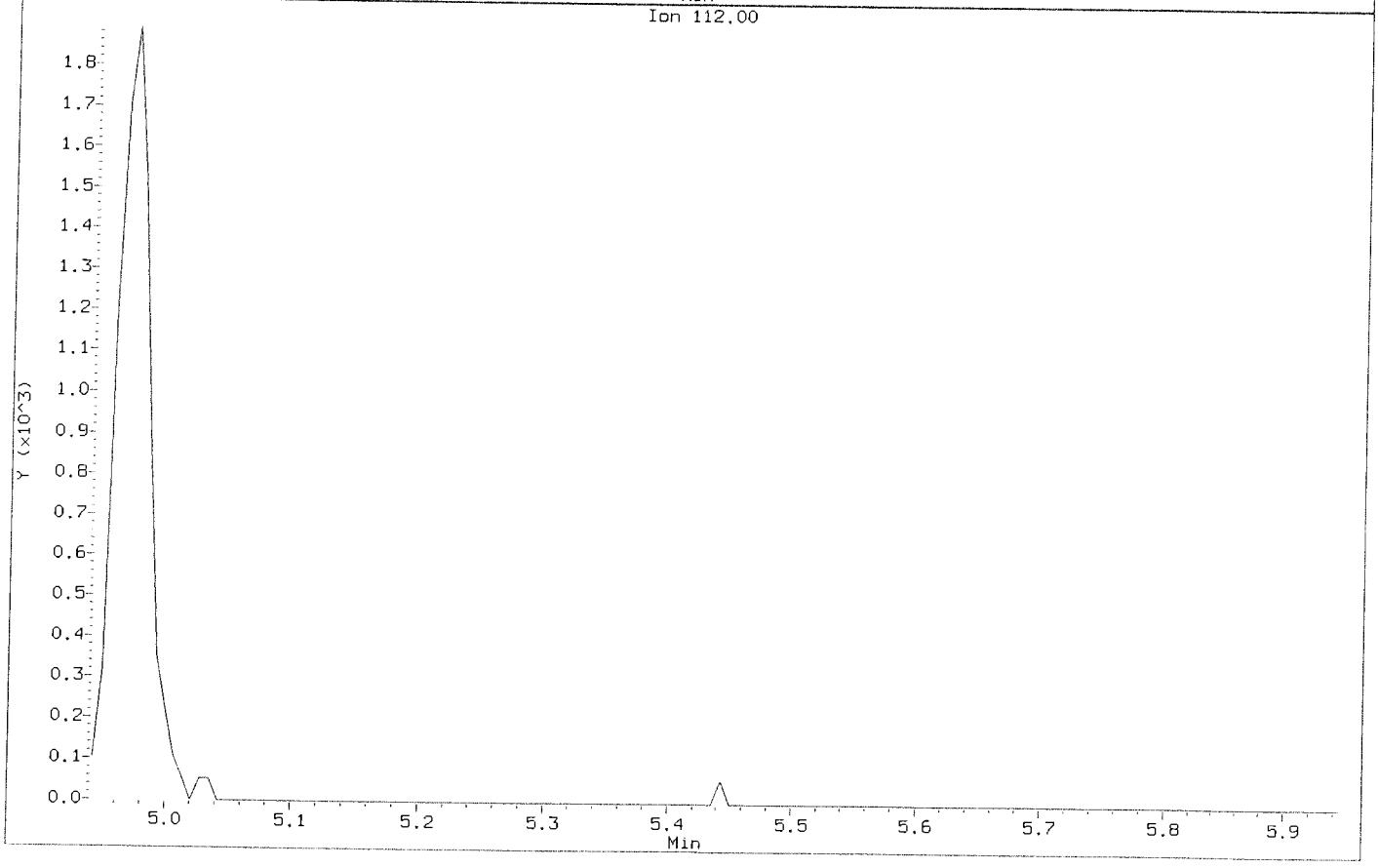
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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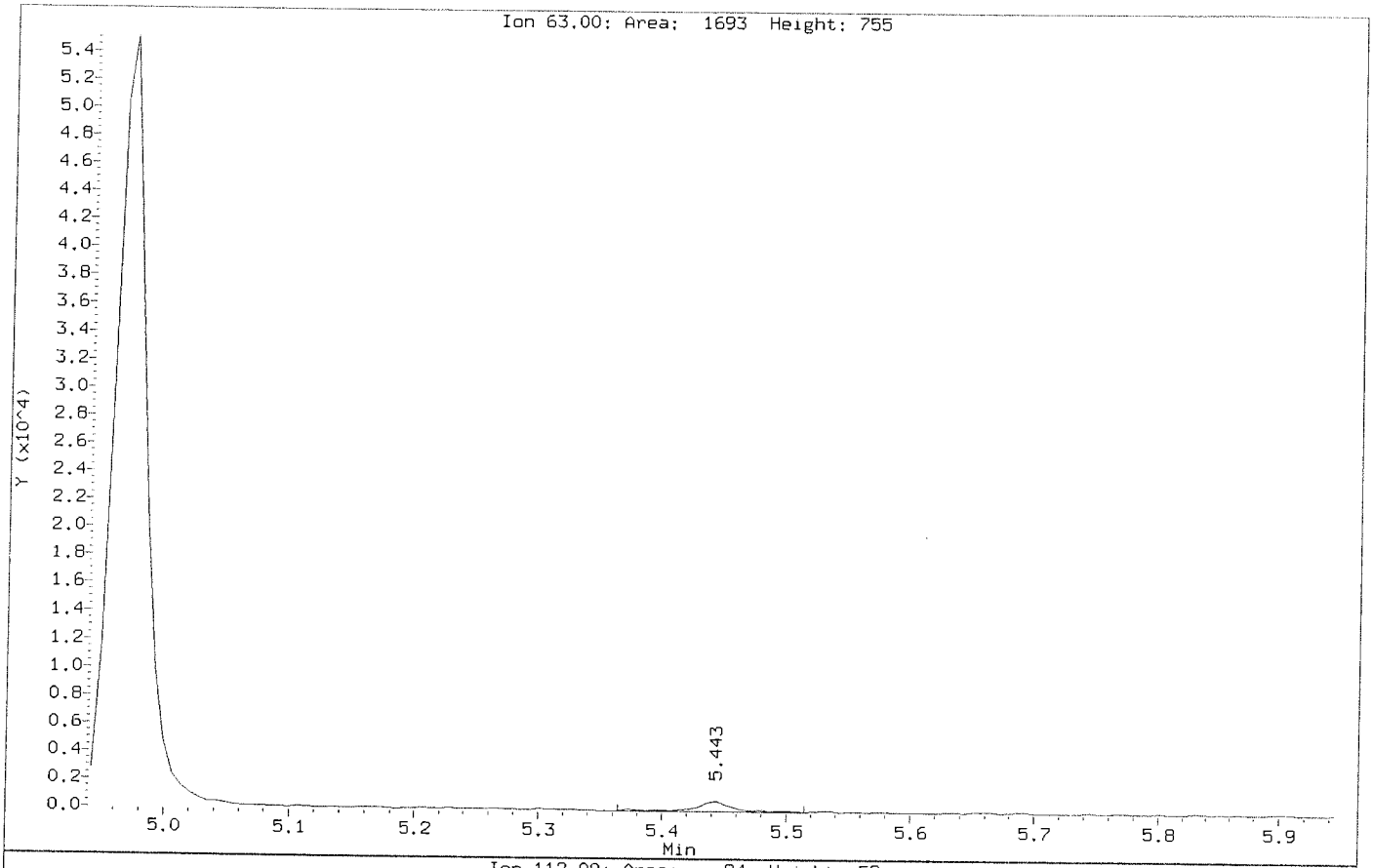
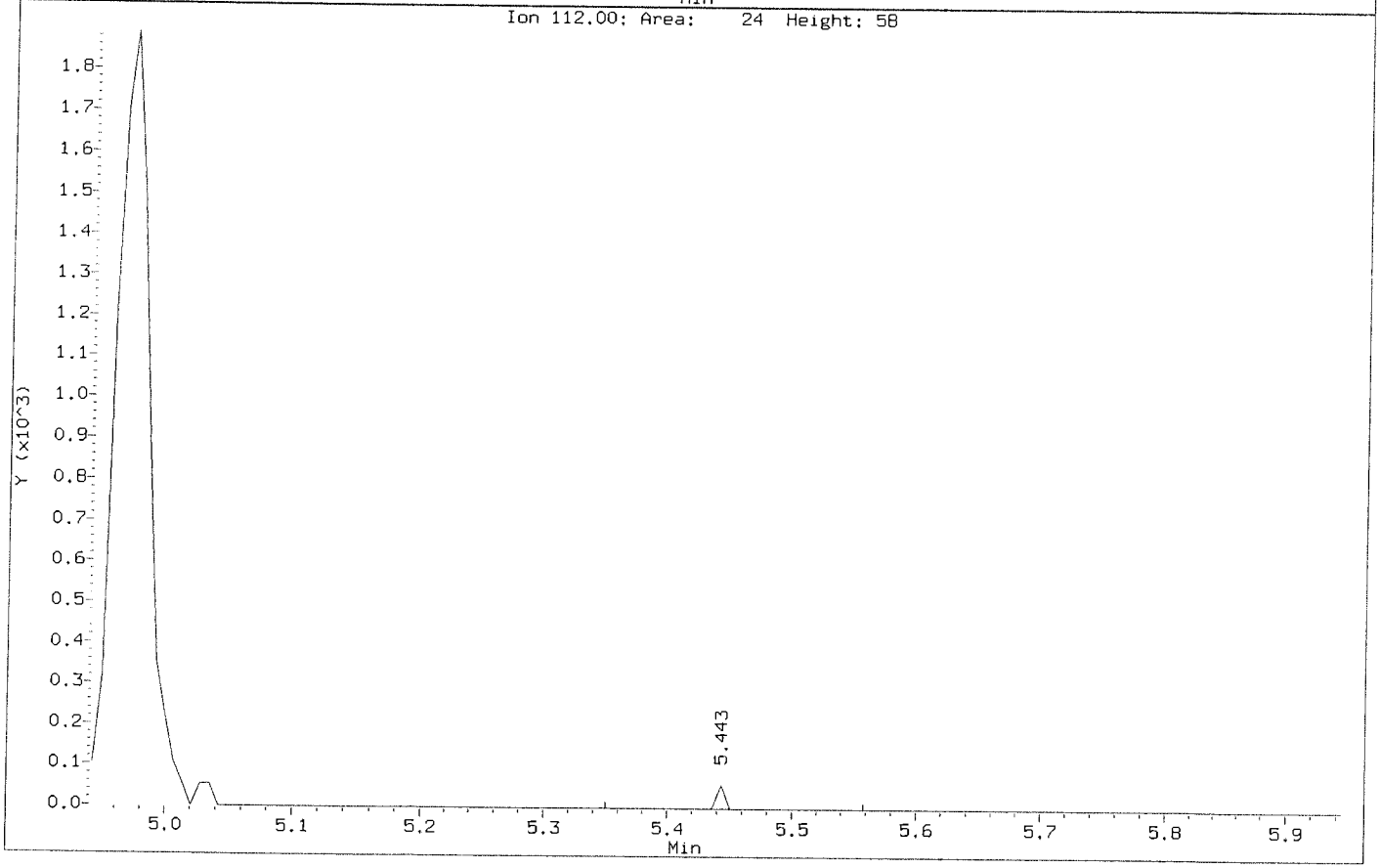
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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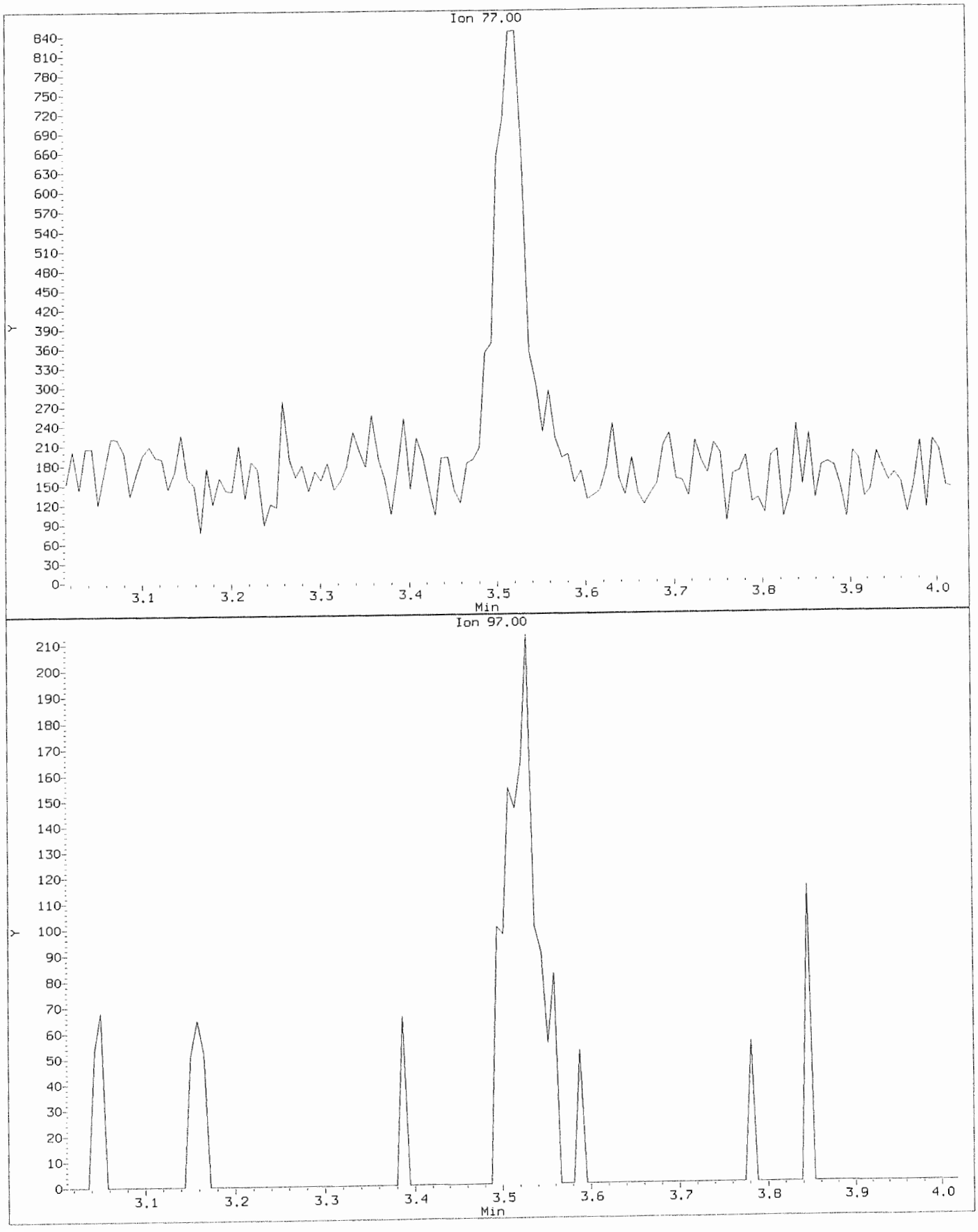
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



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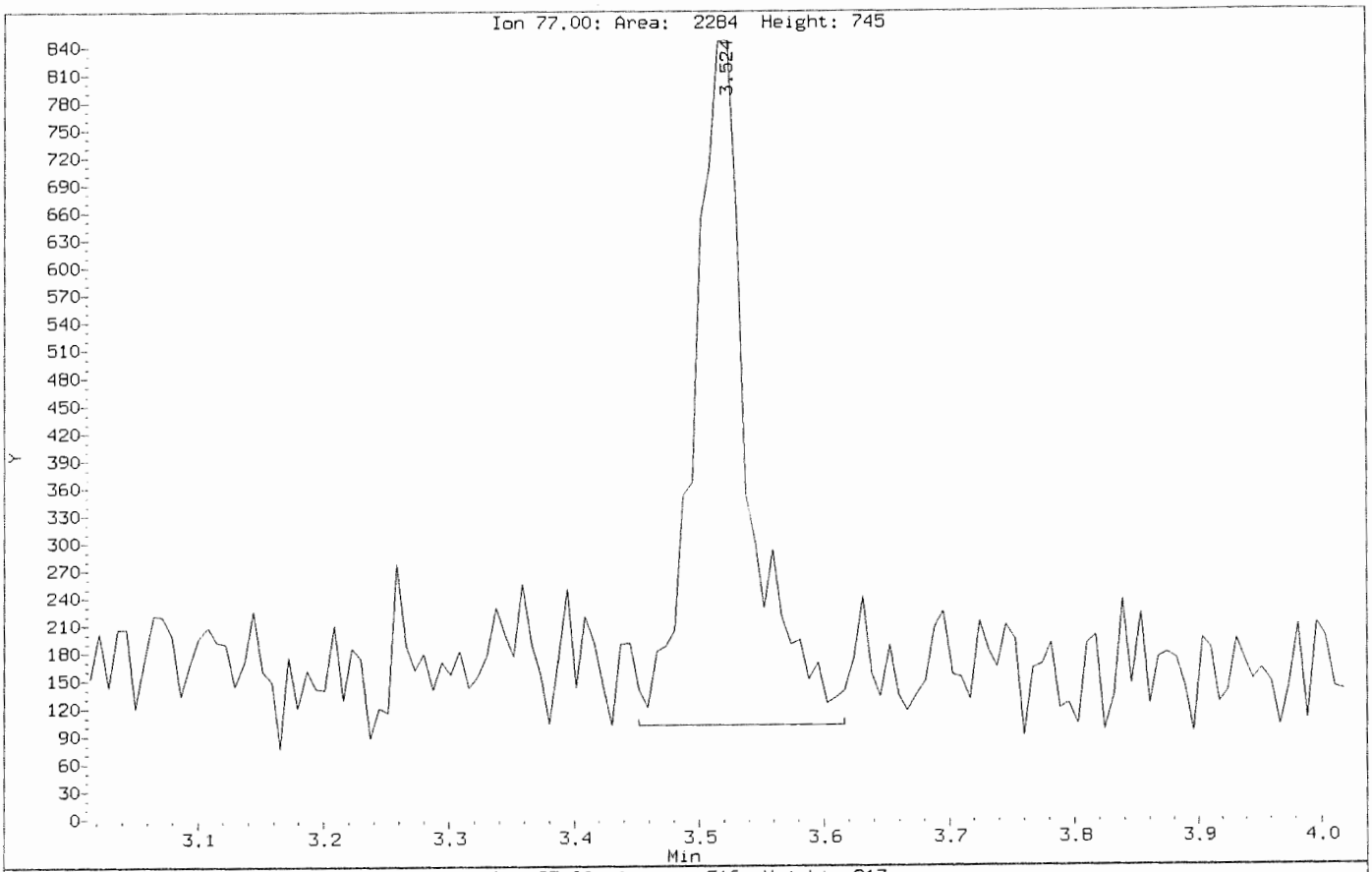
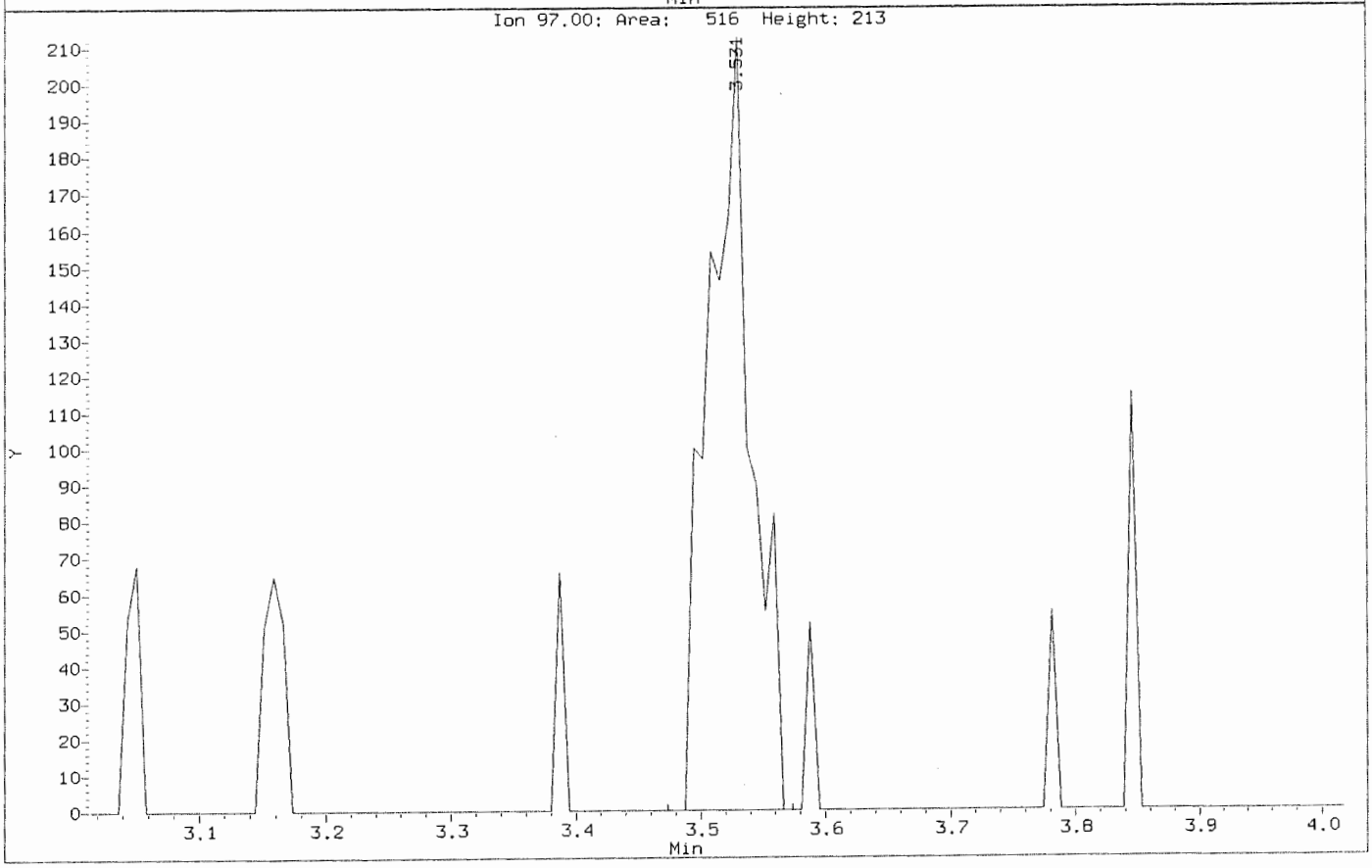
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

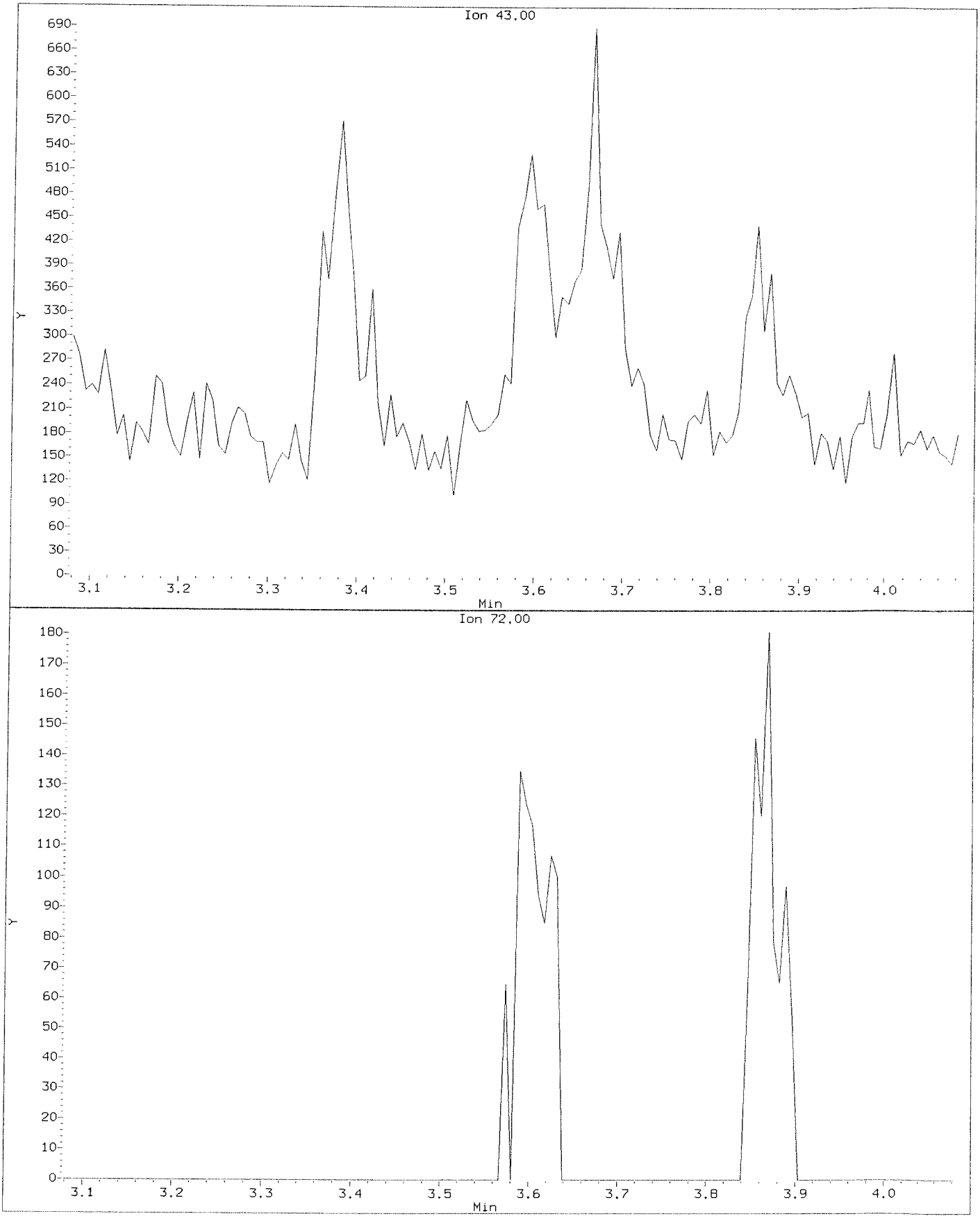
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





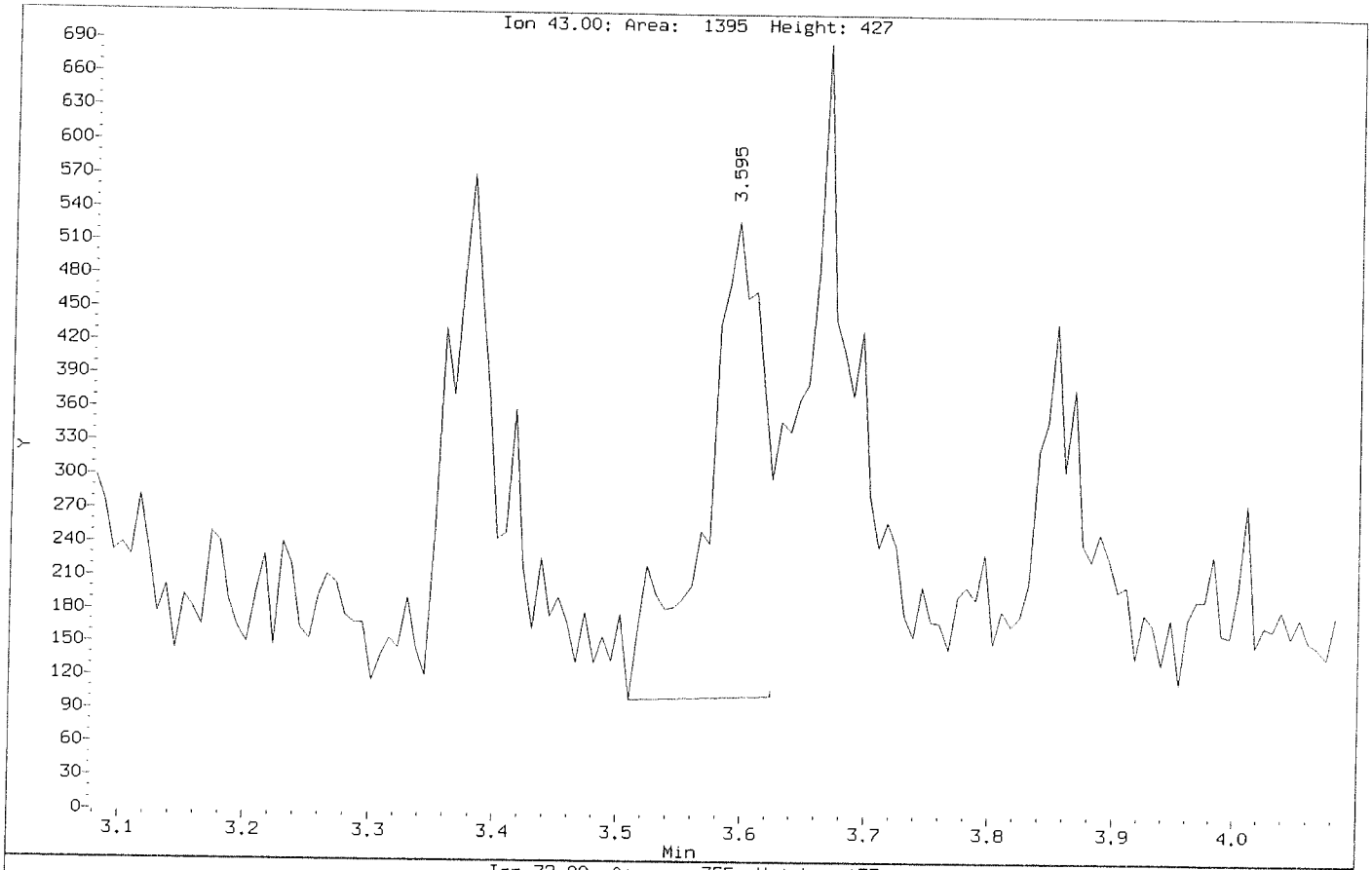
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

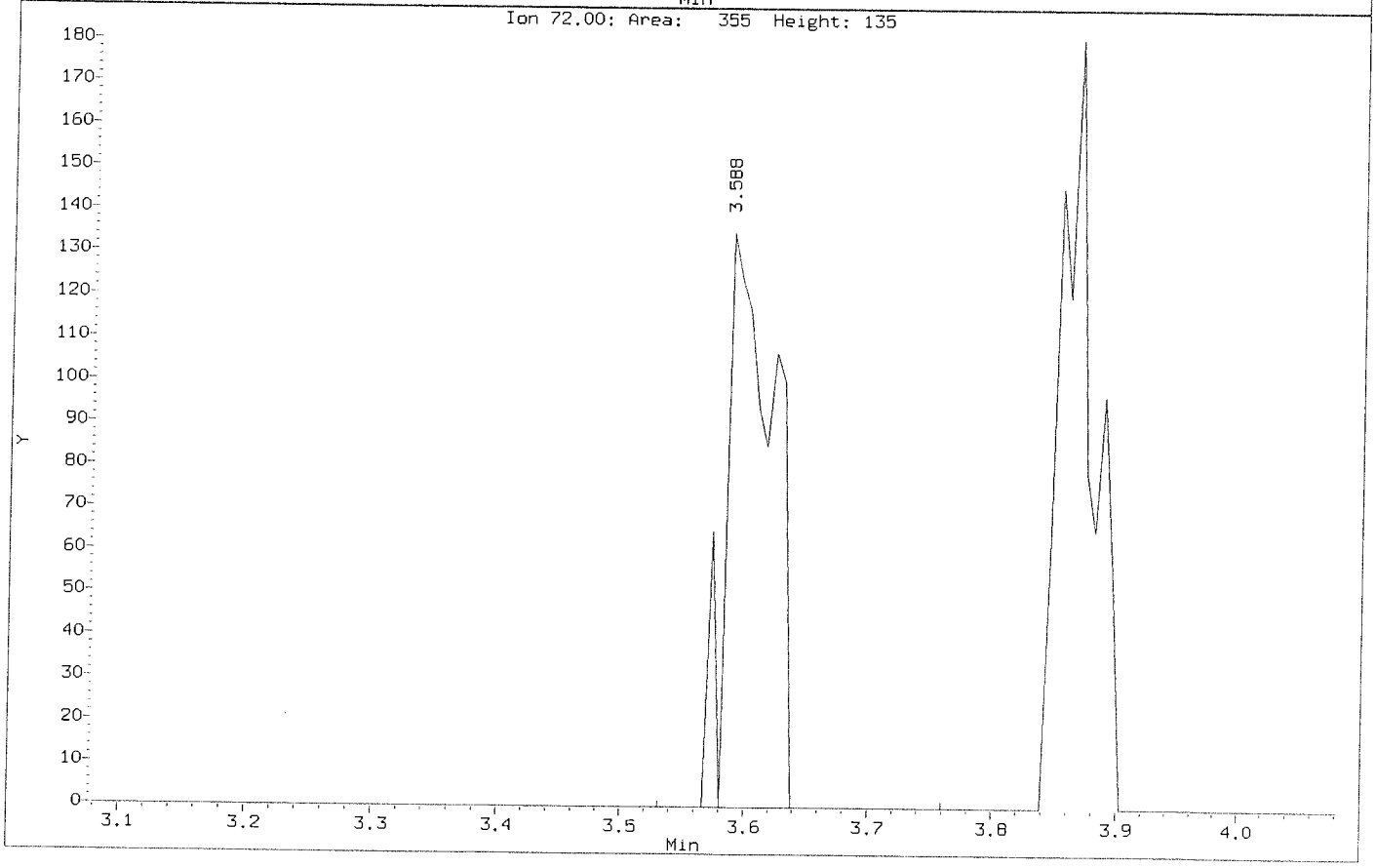
Compound: 2-Butanone
CAS Number: 78-93-3



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3





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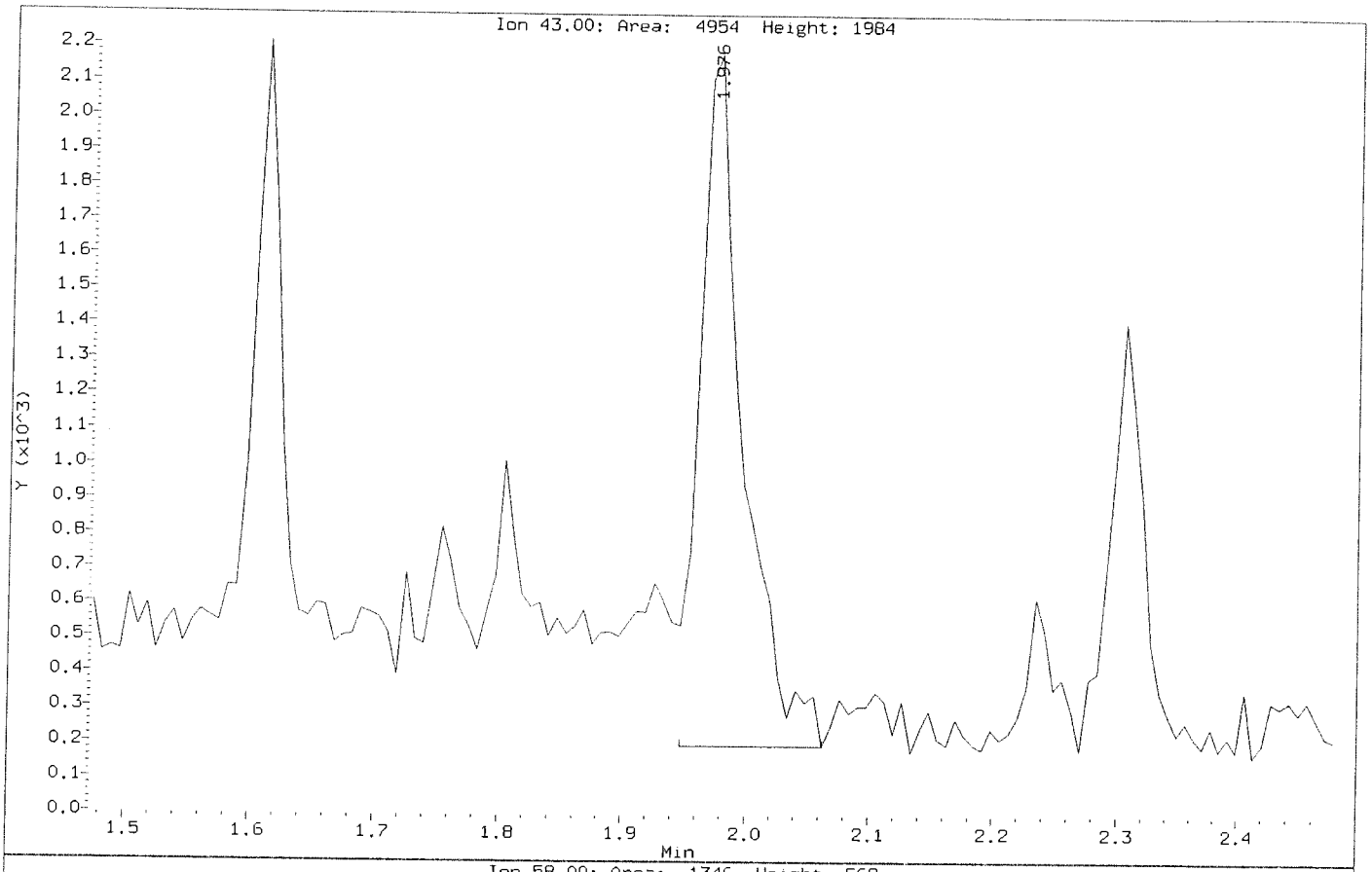
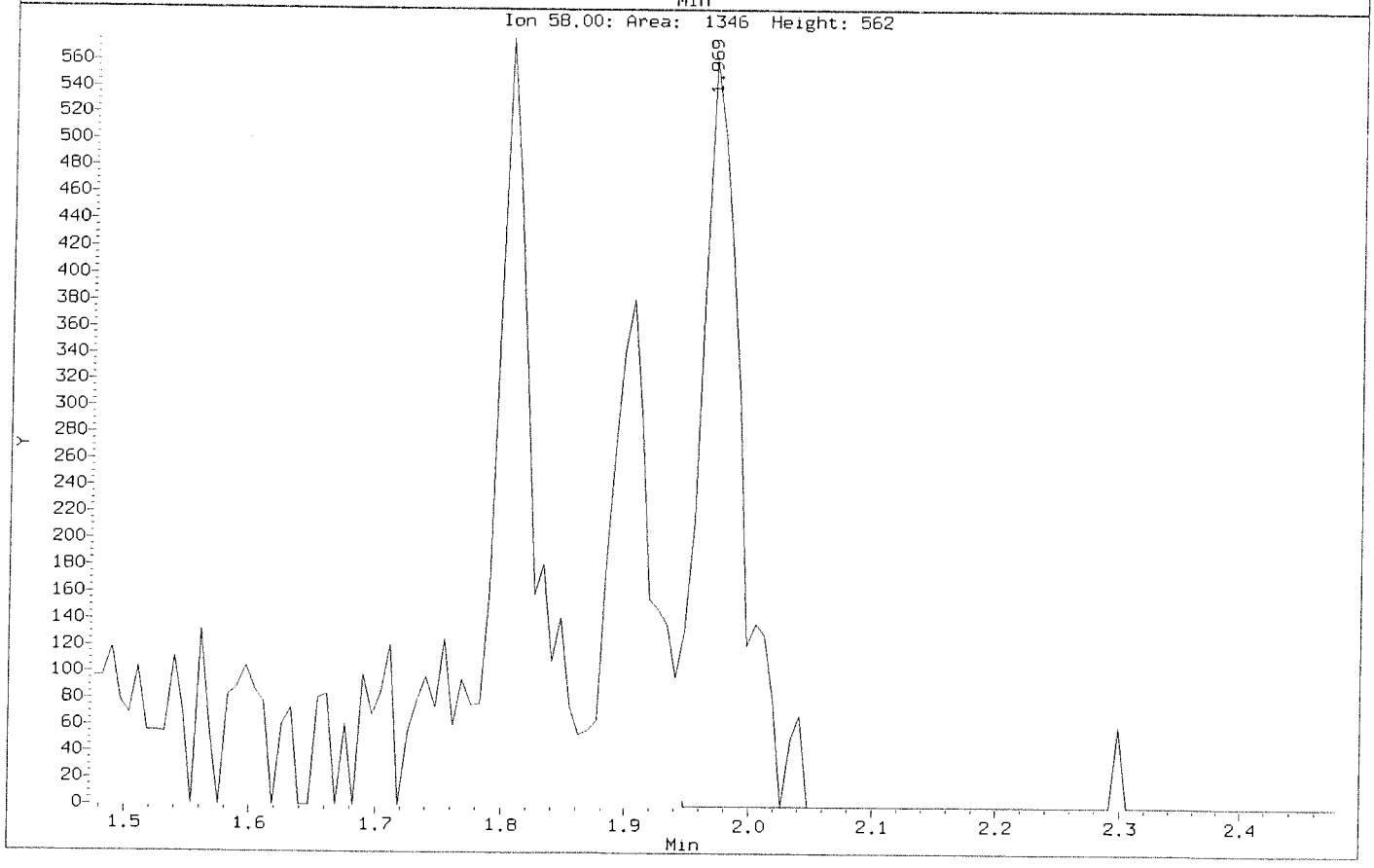
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Acetone
CAS Number: 67-64-1





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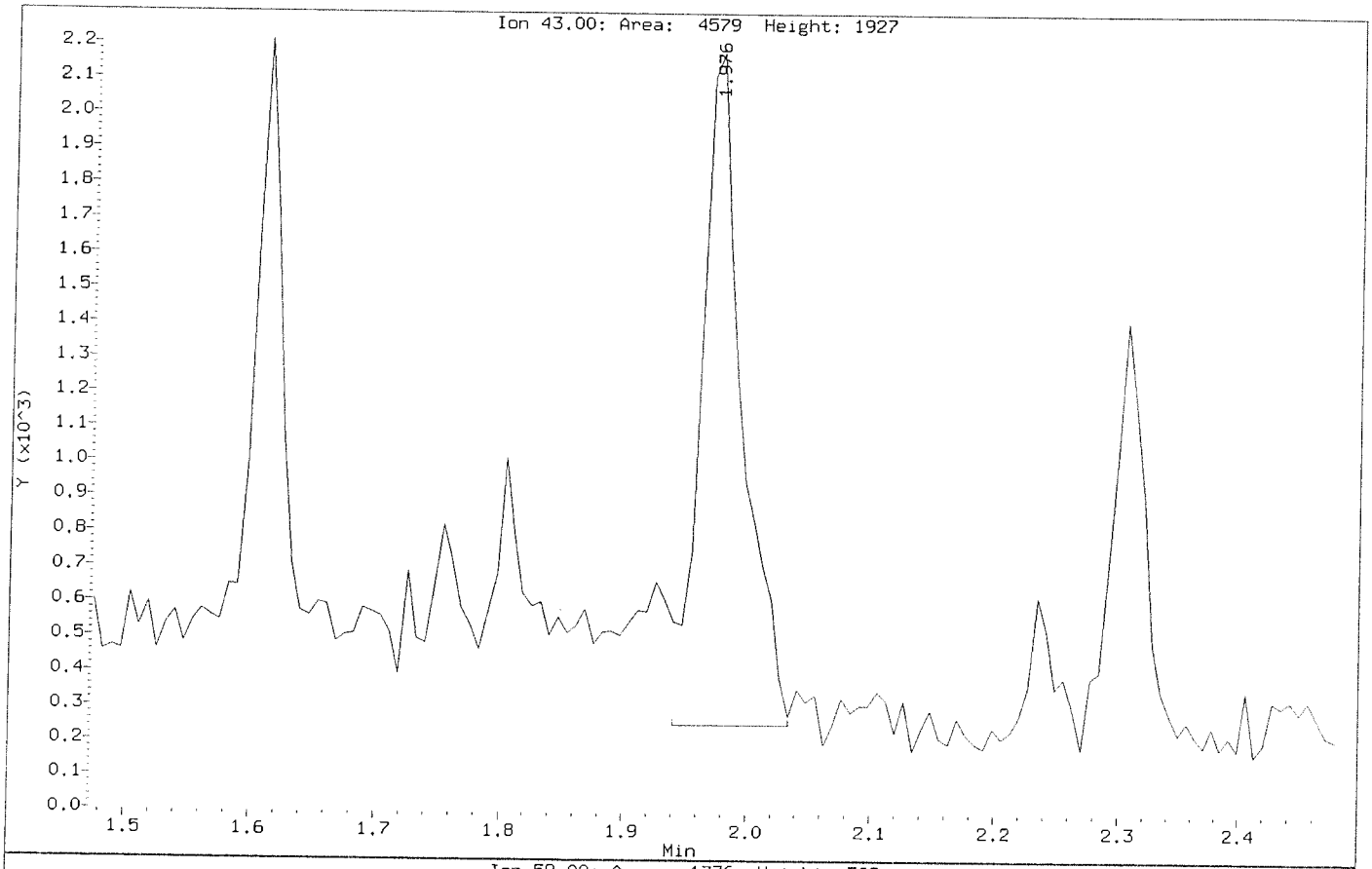
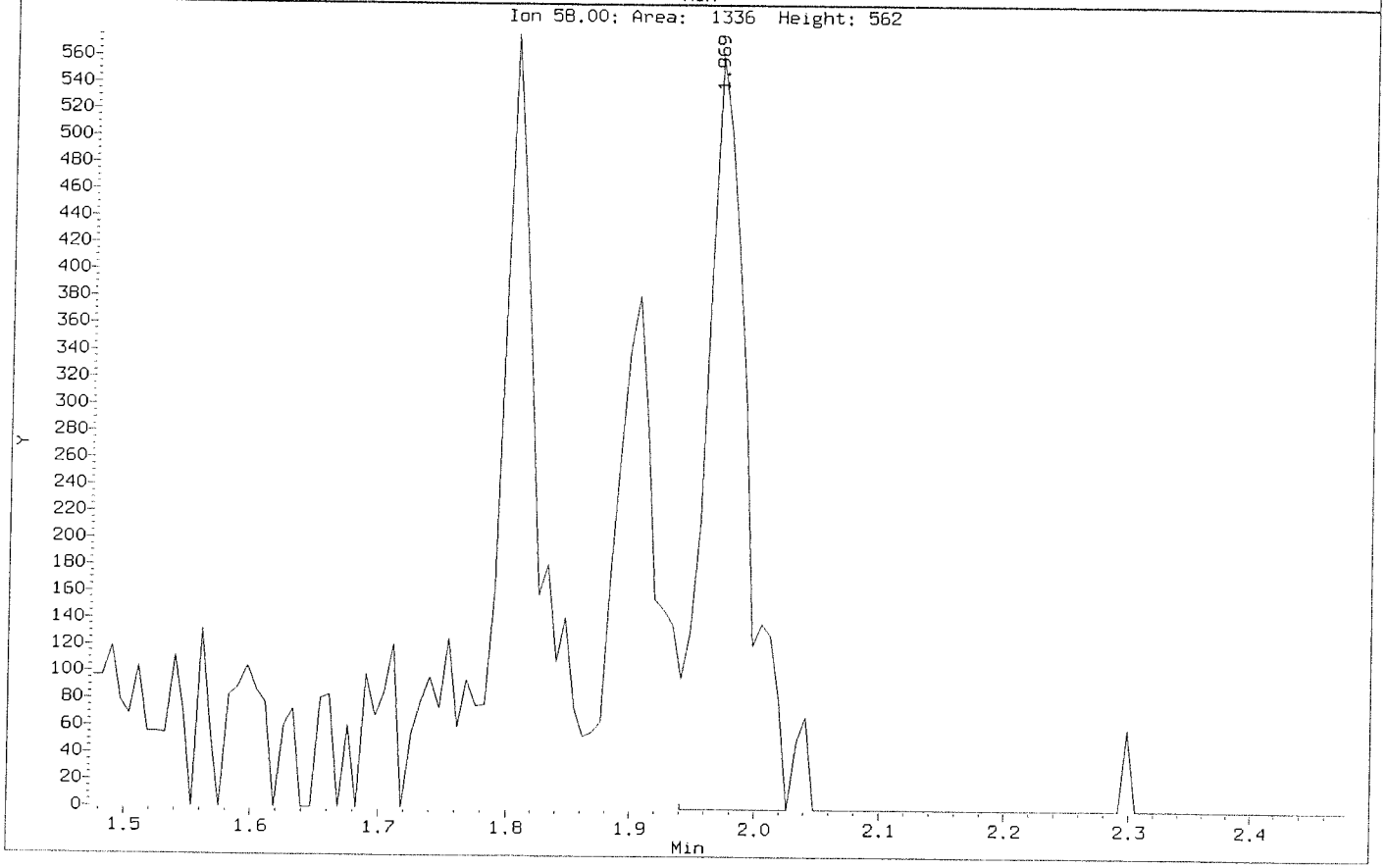
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Acetone
CAS Number: 67-64-1





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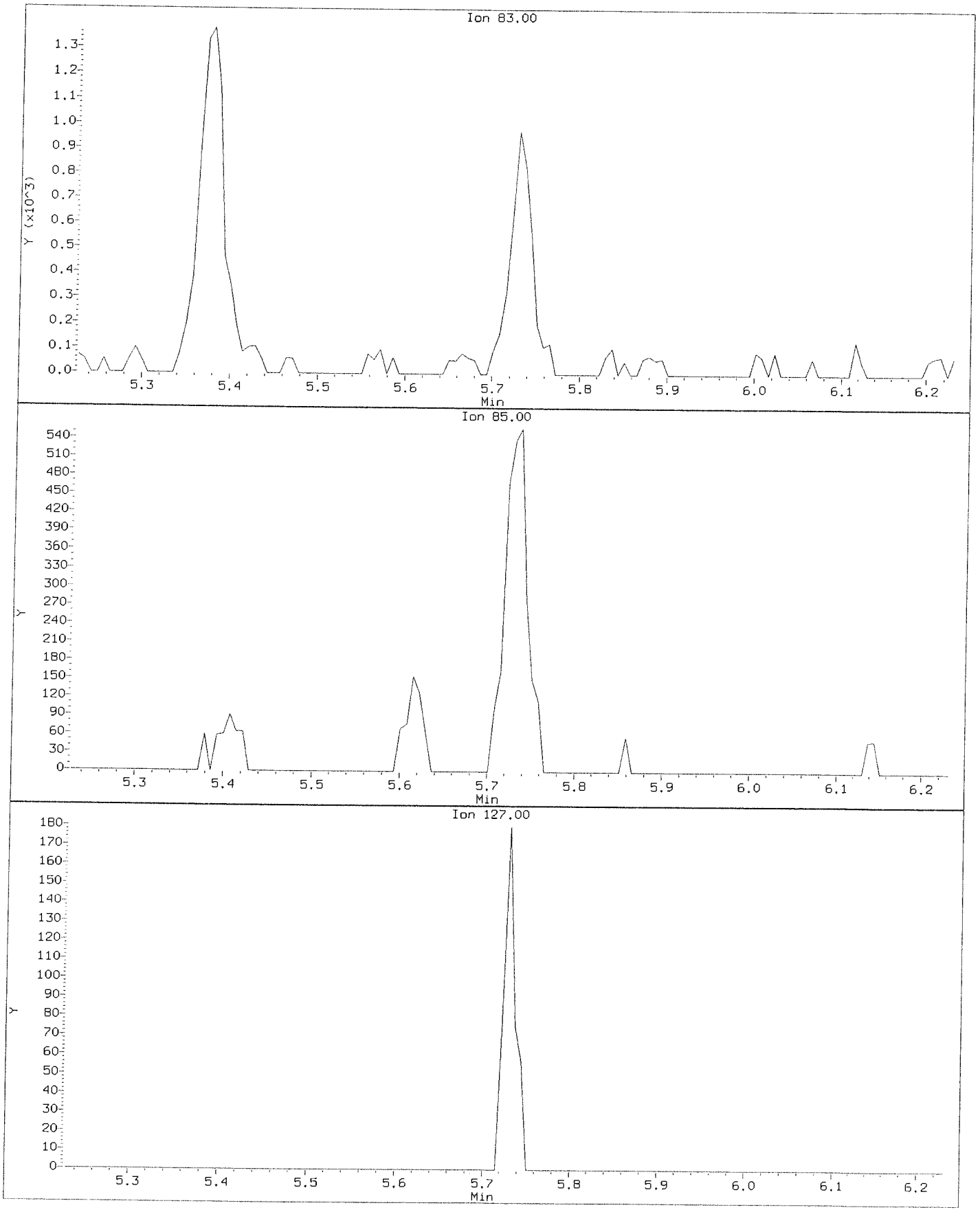
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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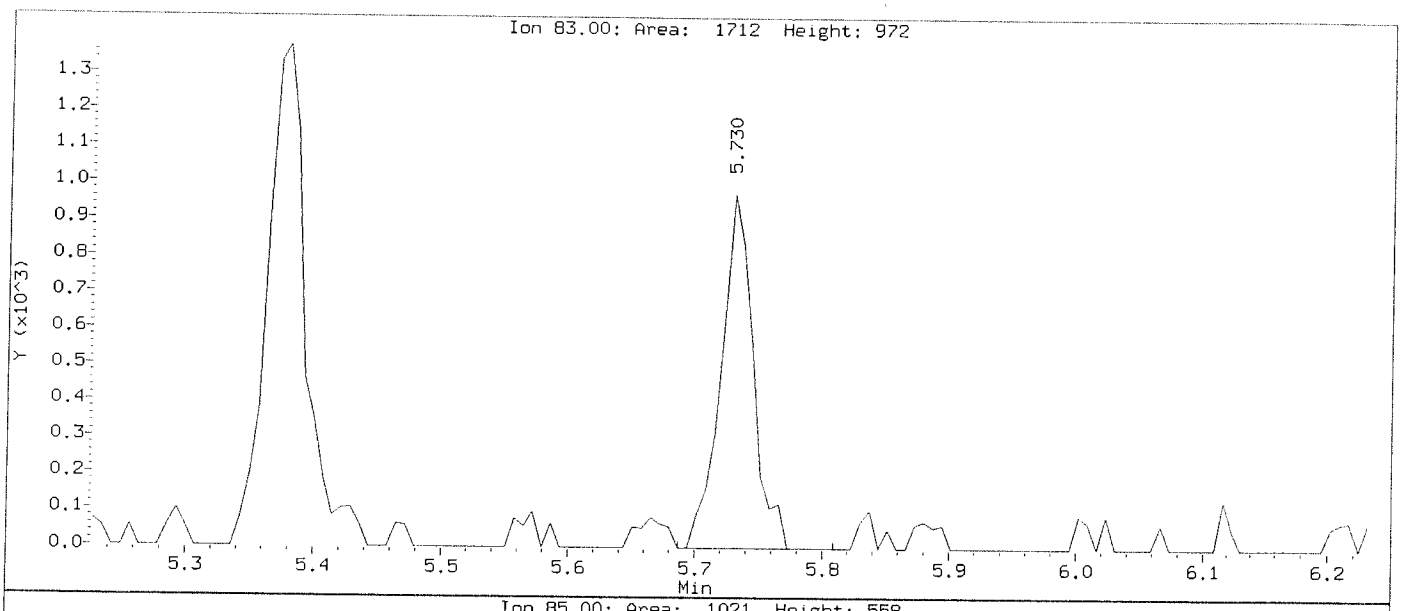
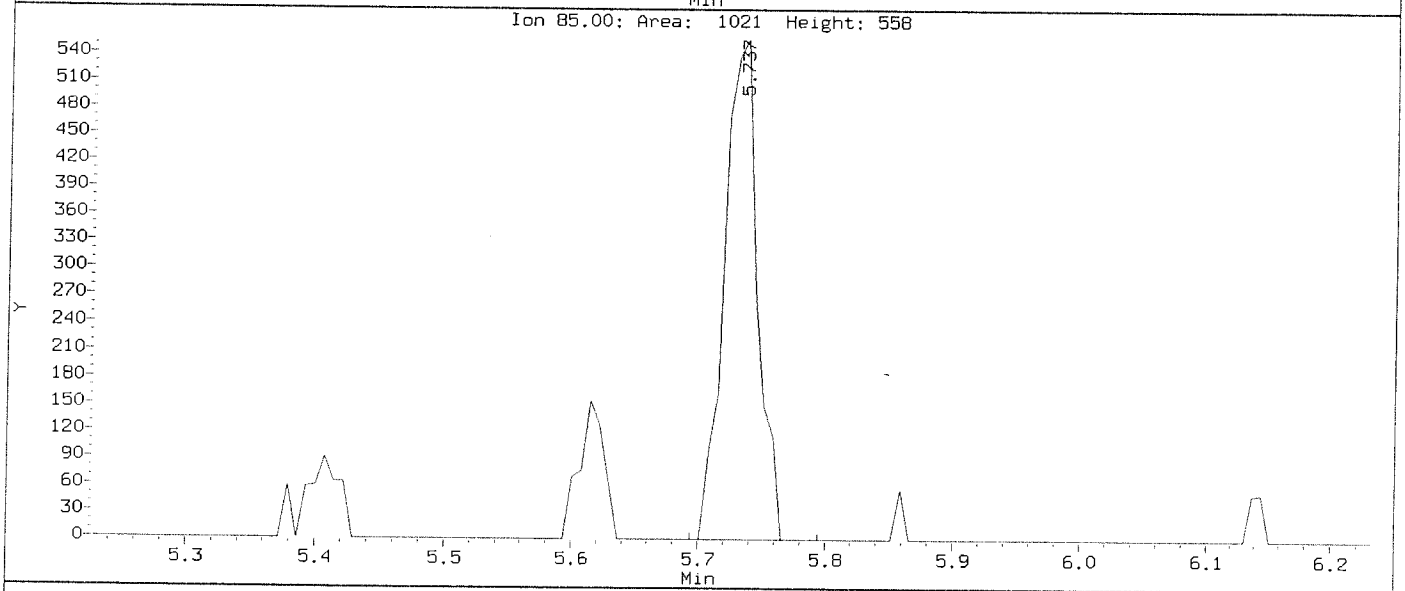
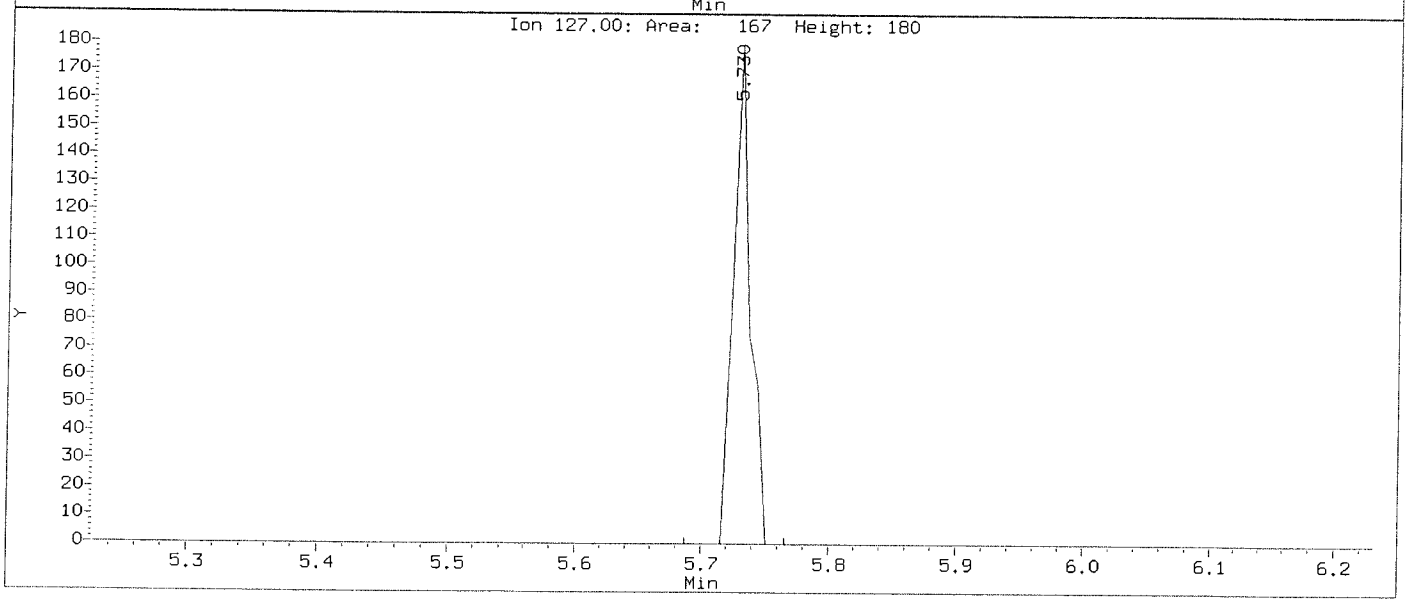
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4

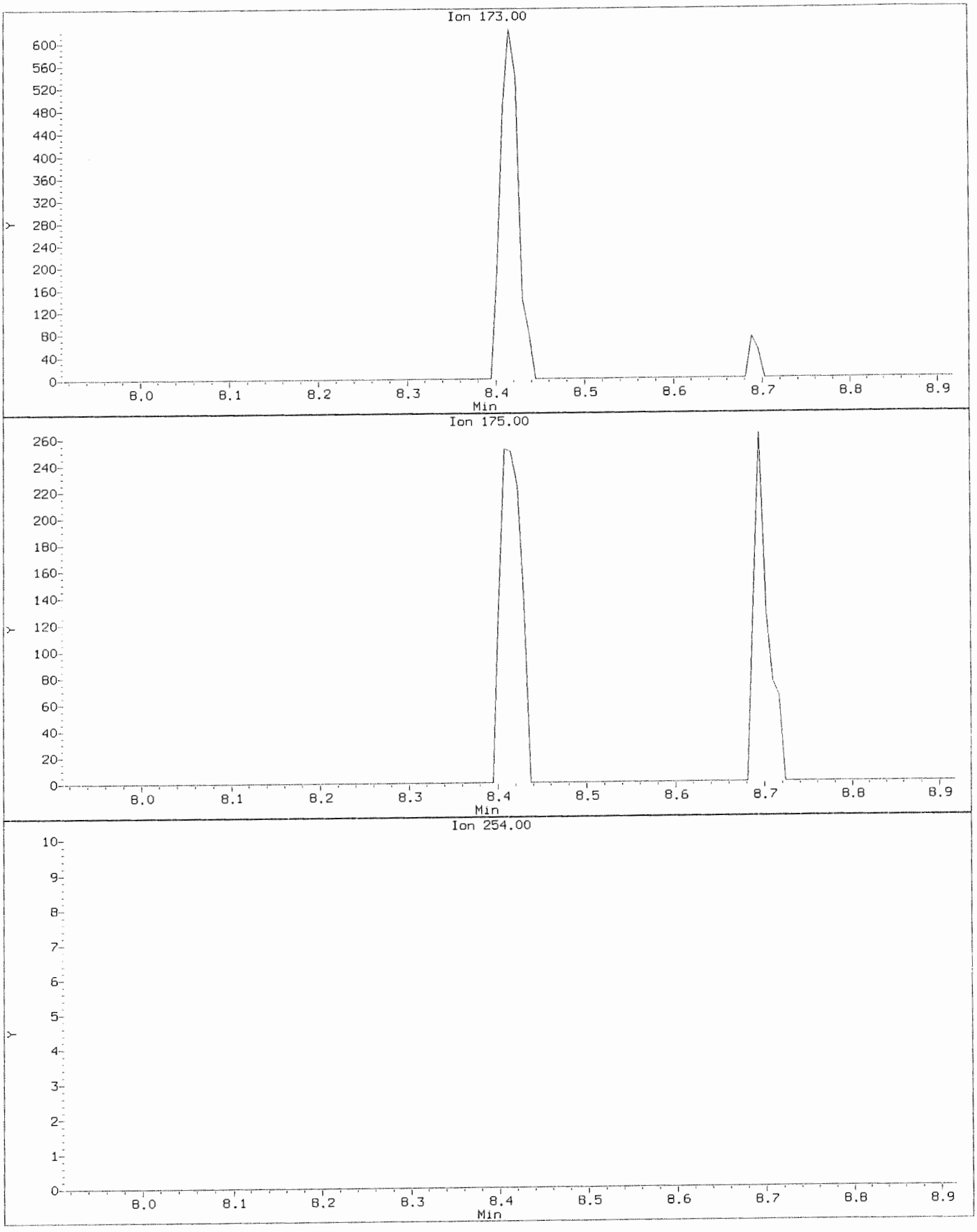






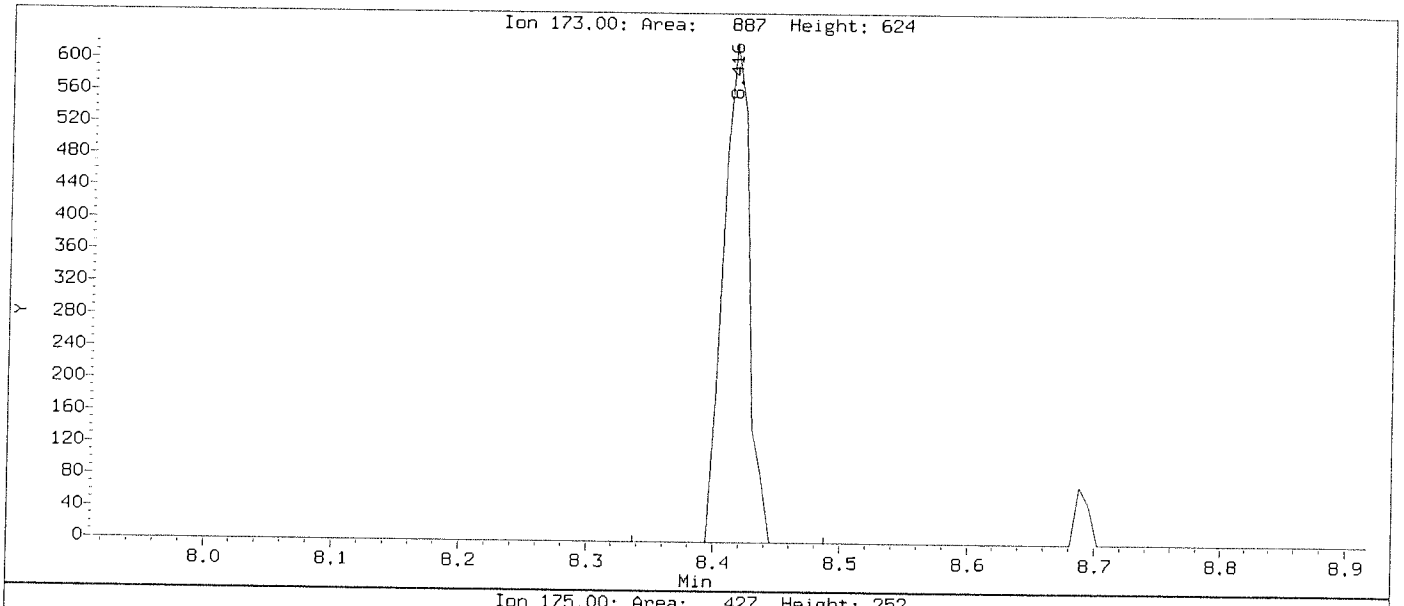
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

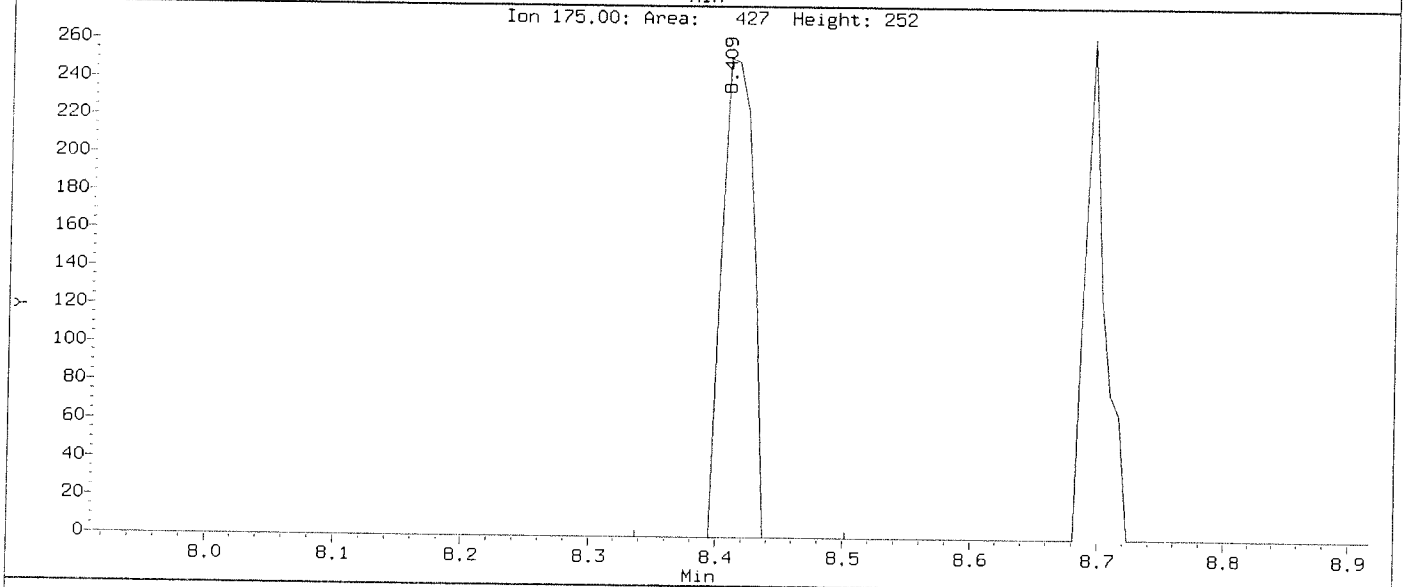
Compound: Bromoform
CAS Number: 75-25-2

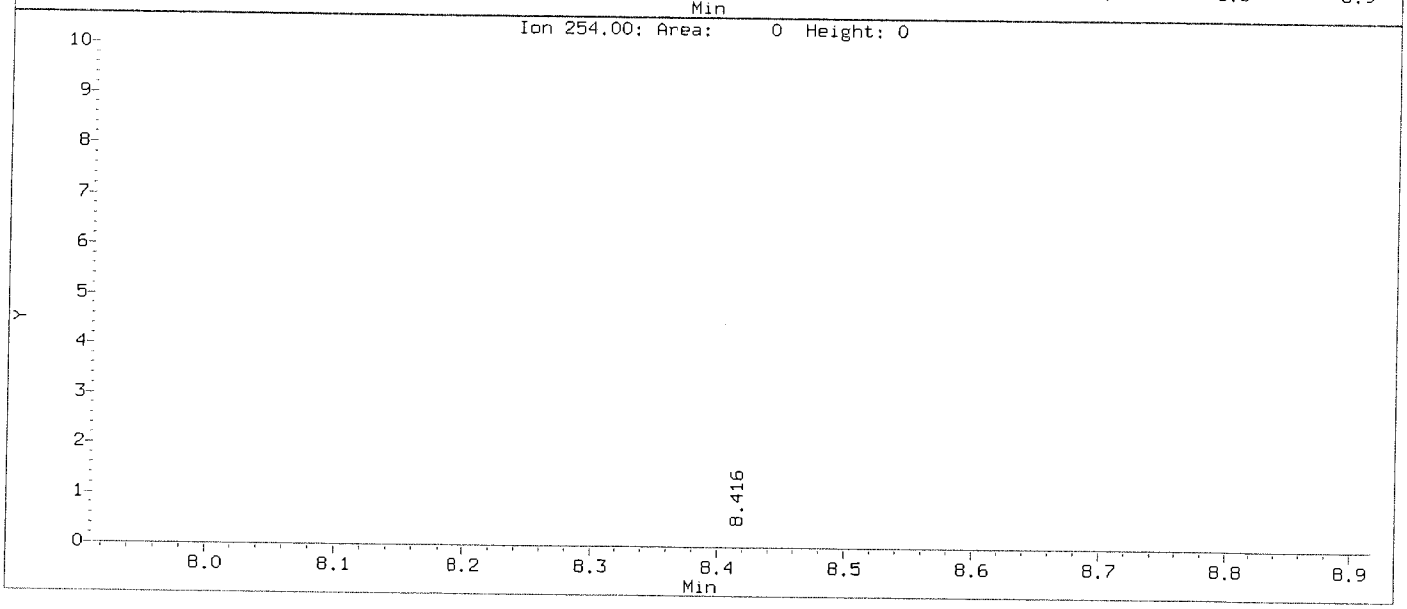


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2







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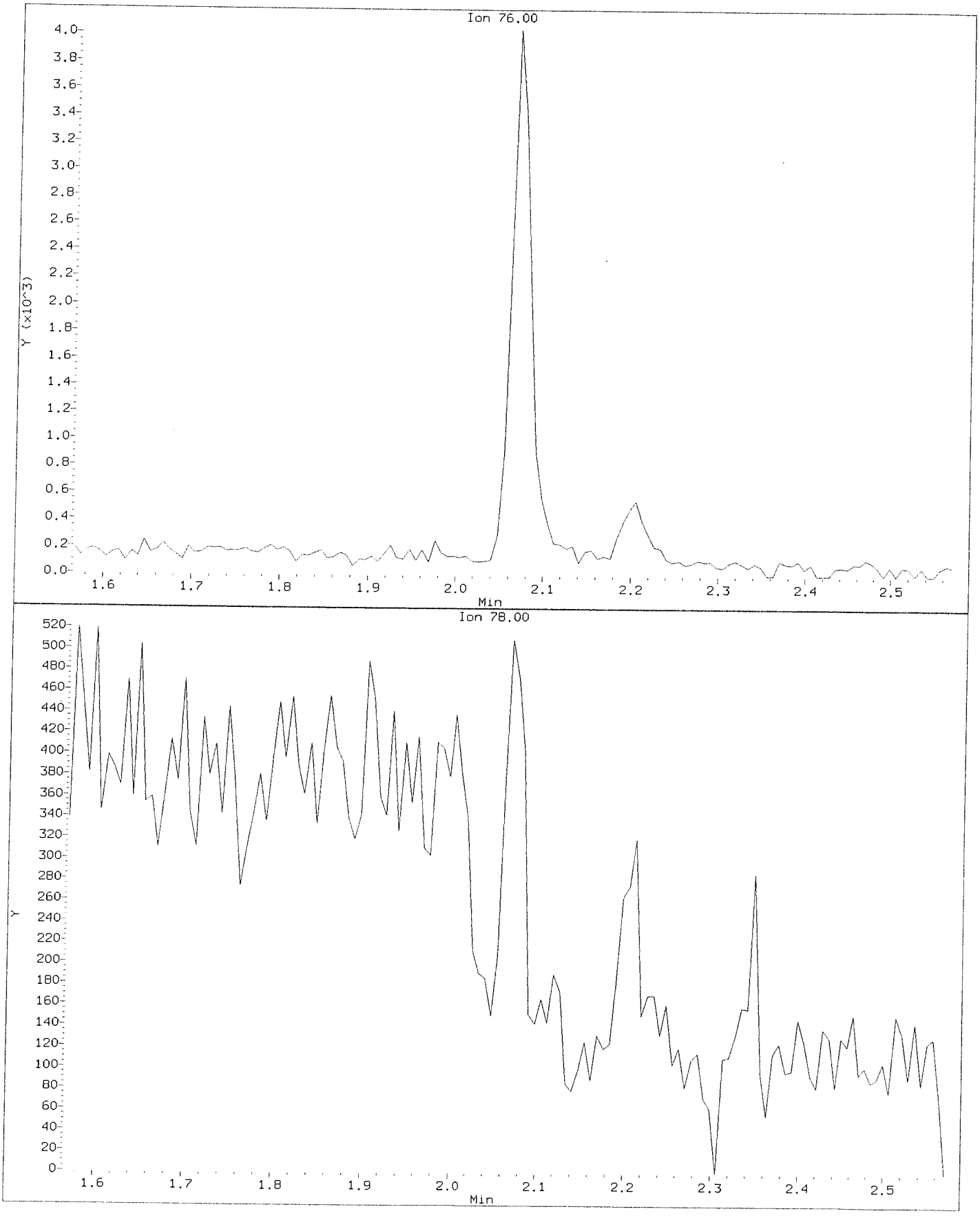
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



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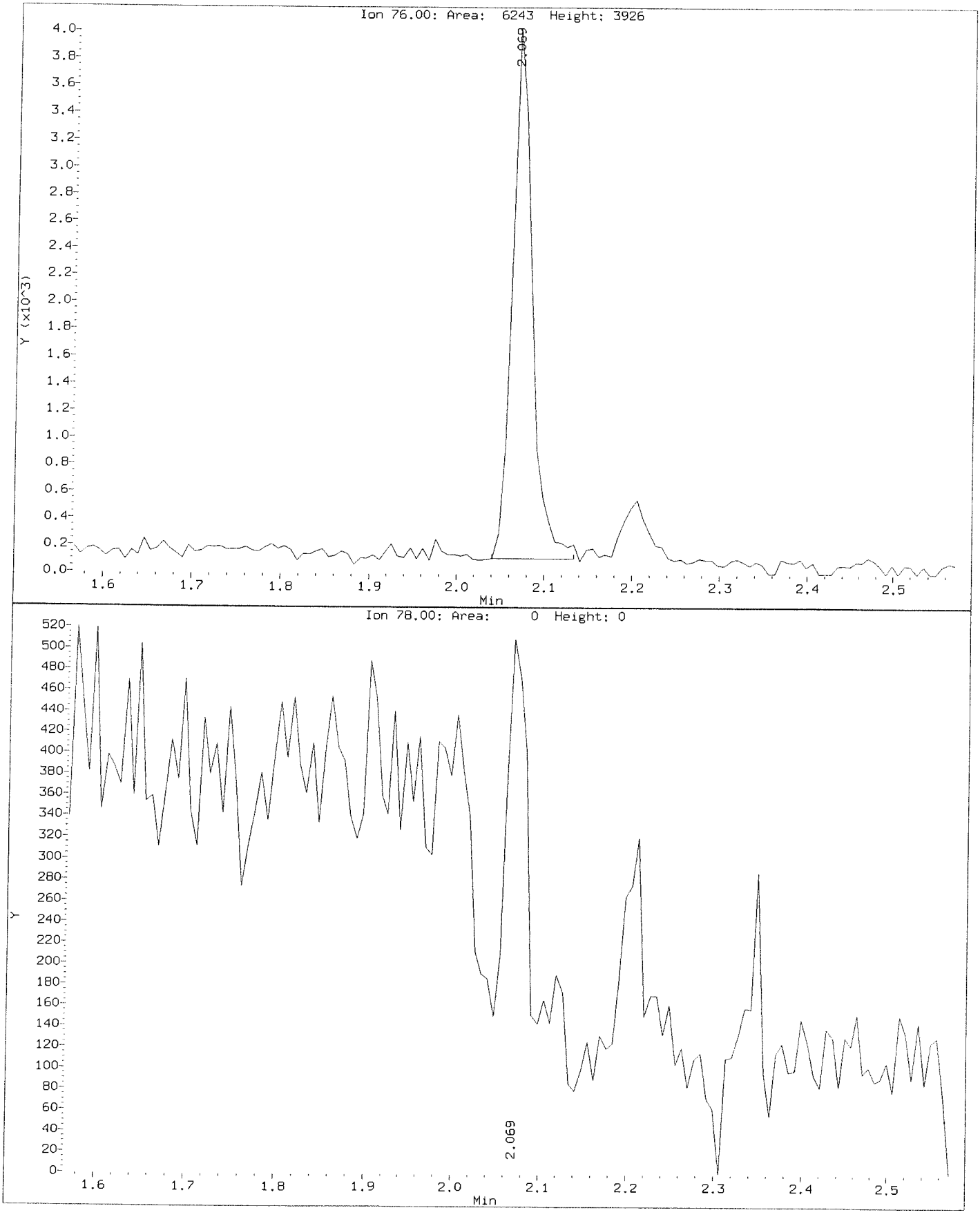
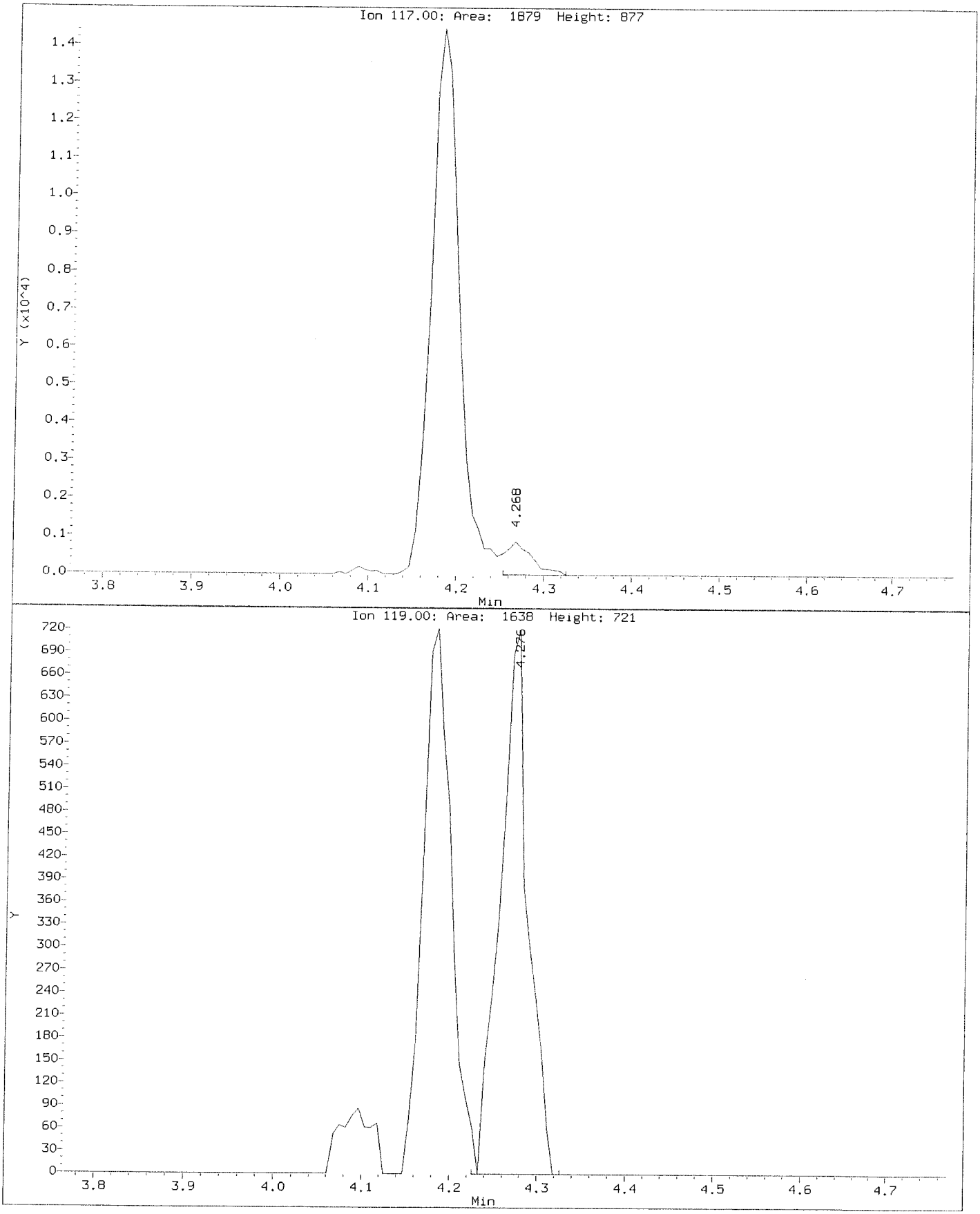
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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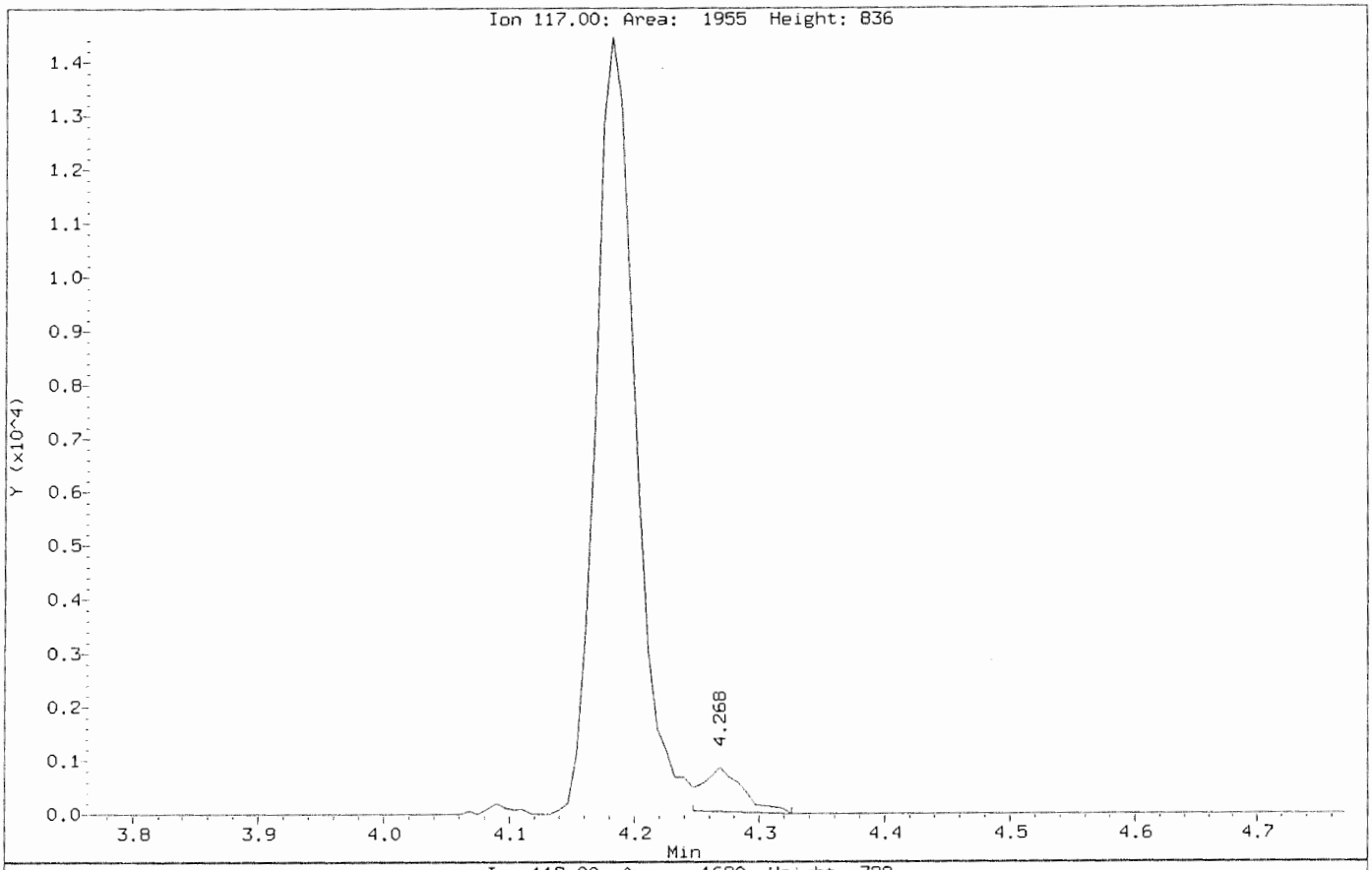
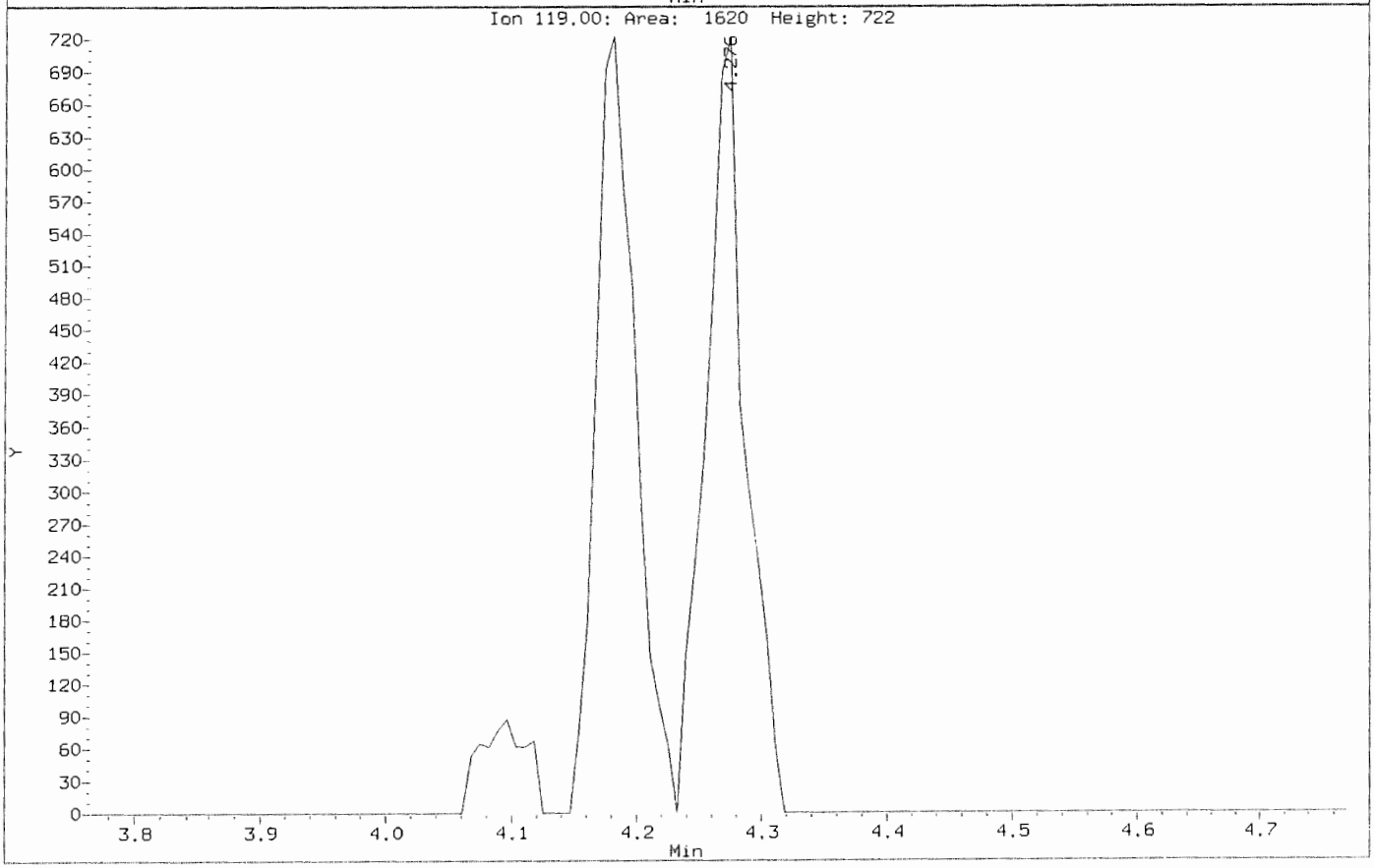
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

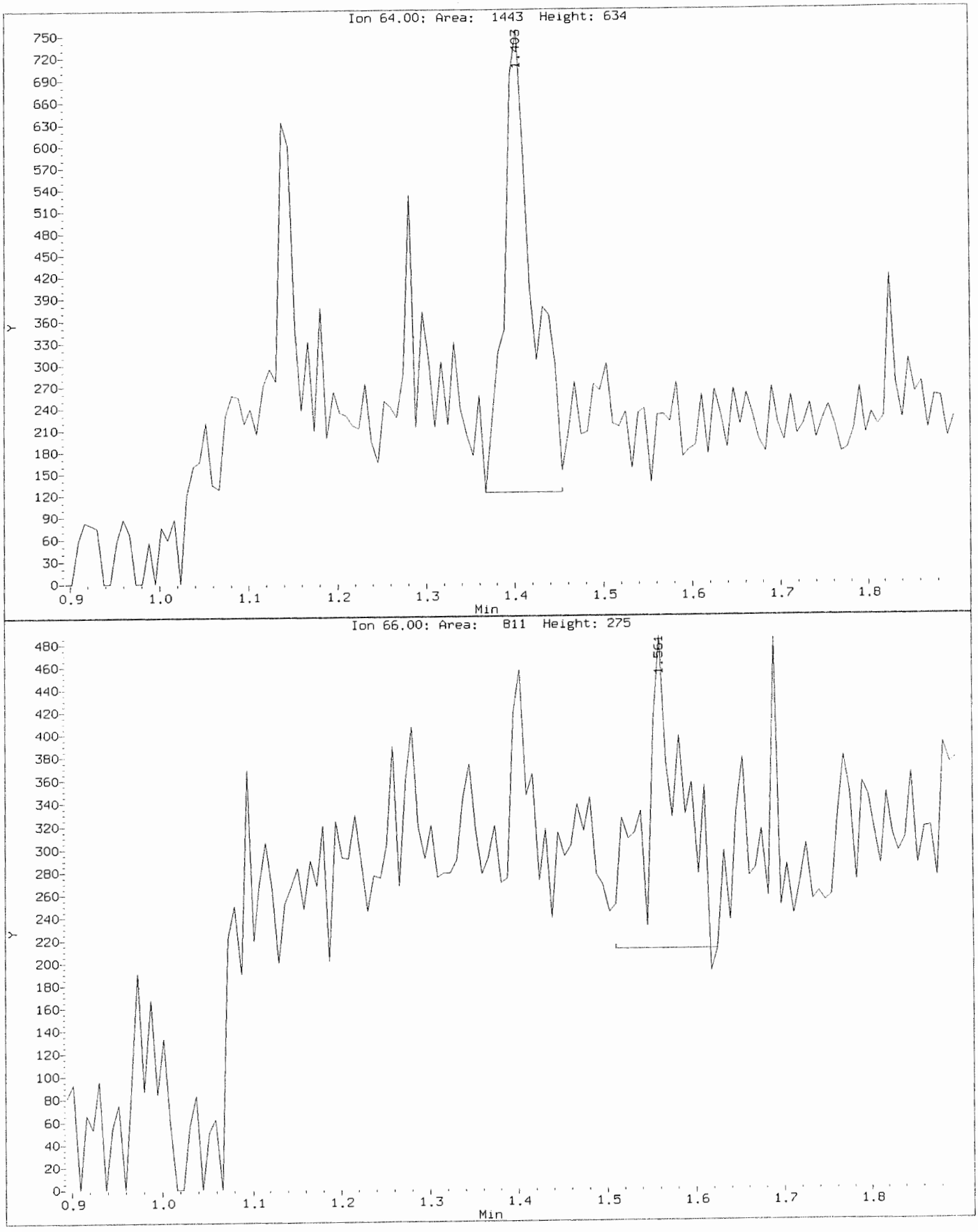
Compound: Carbon Tetrachloride
CAS Number: 56-23-5





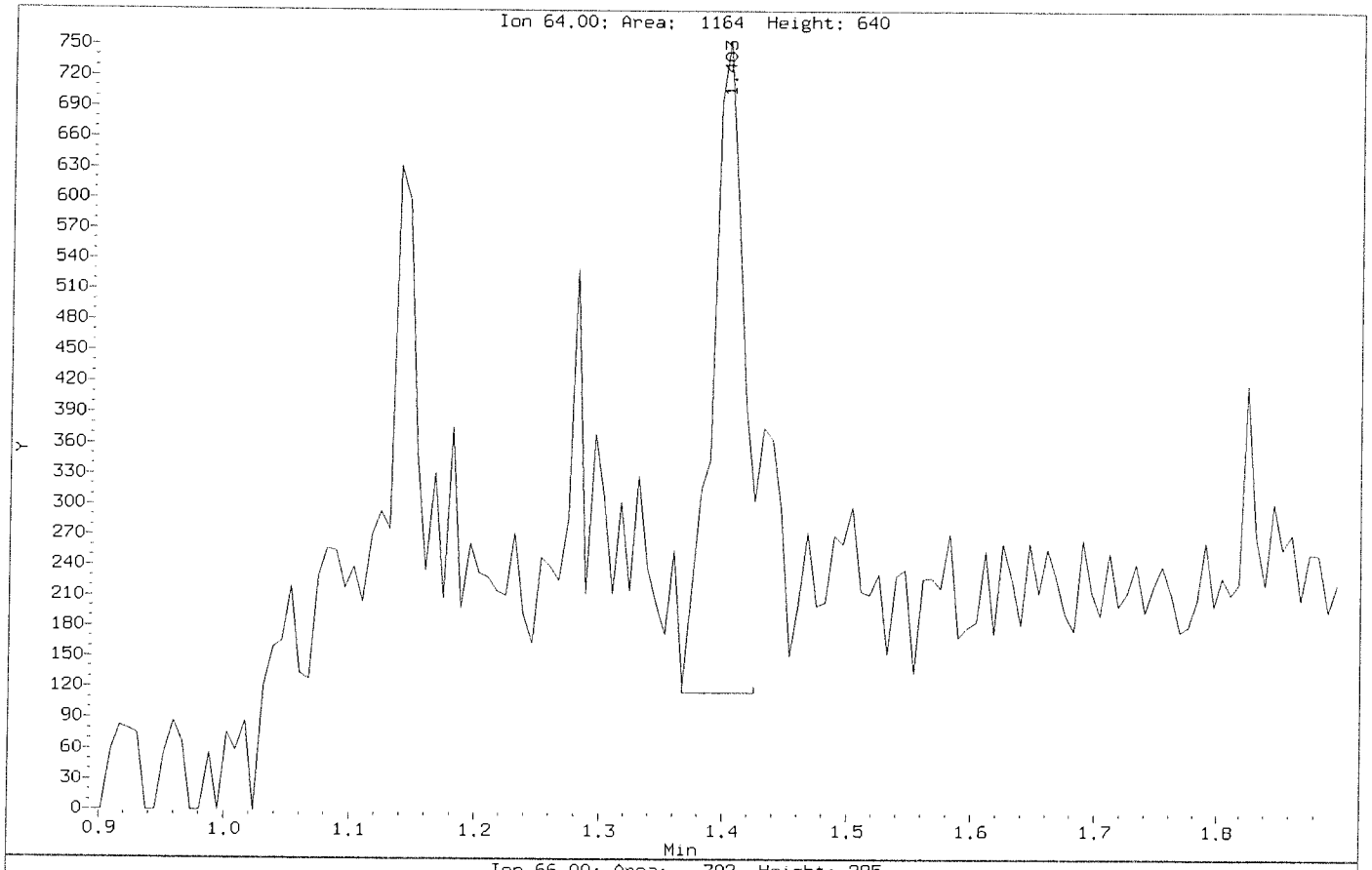
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

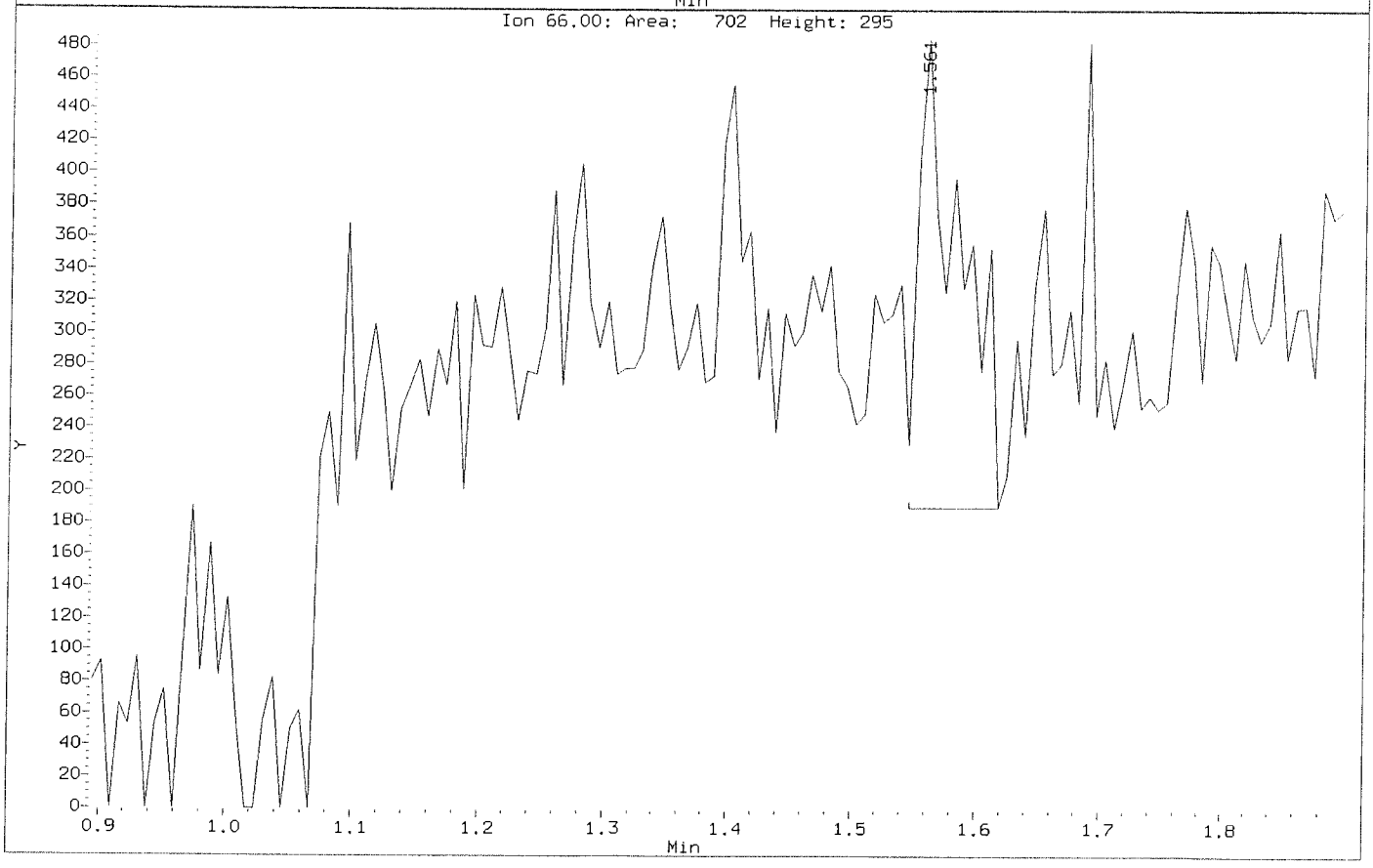
Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

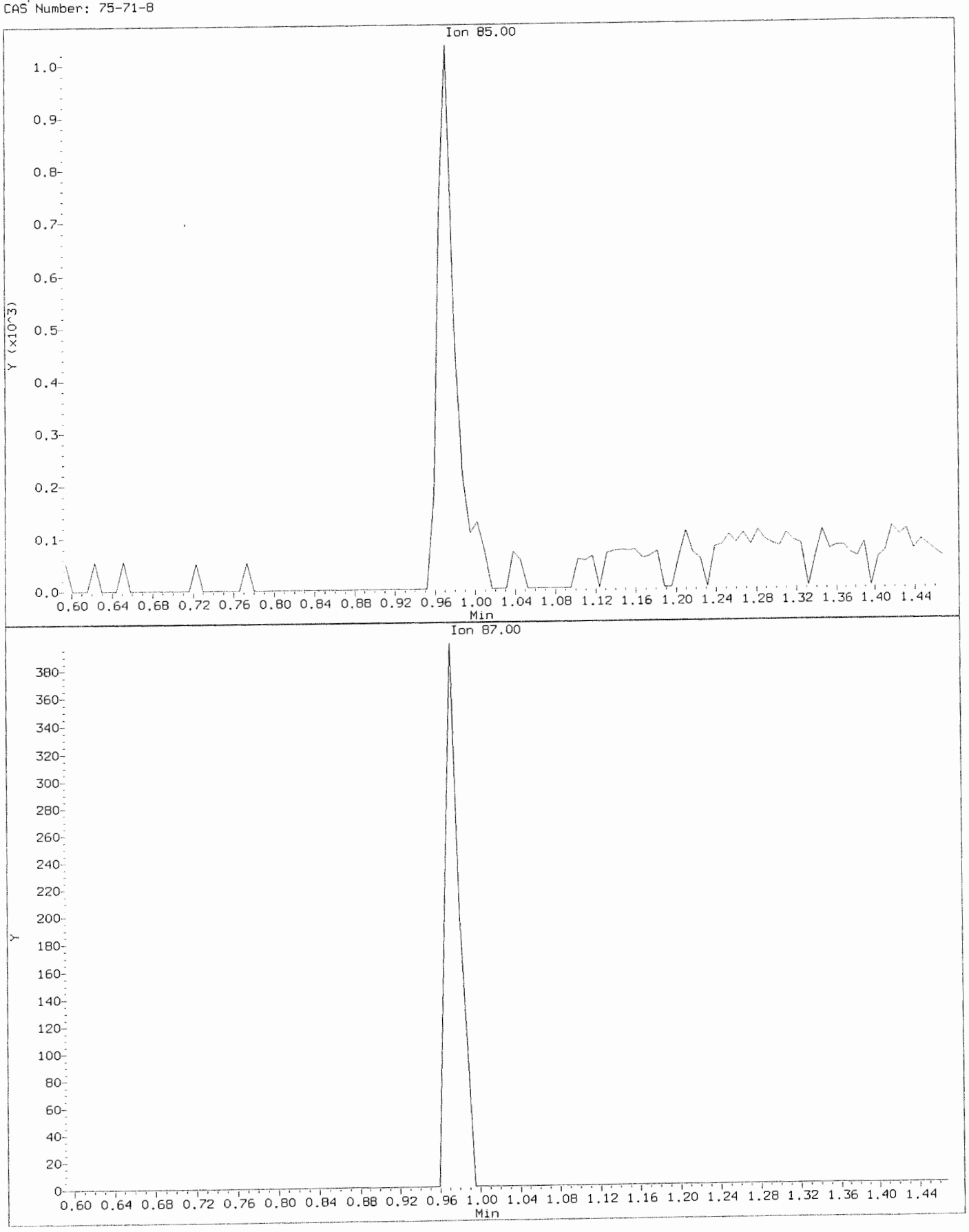
Compound: Chloroethane
CAS Number: 75-00-3





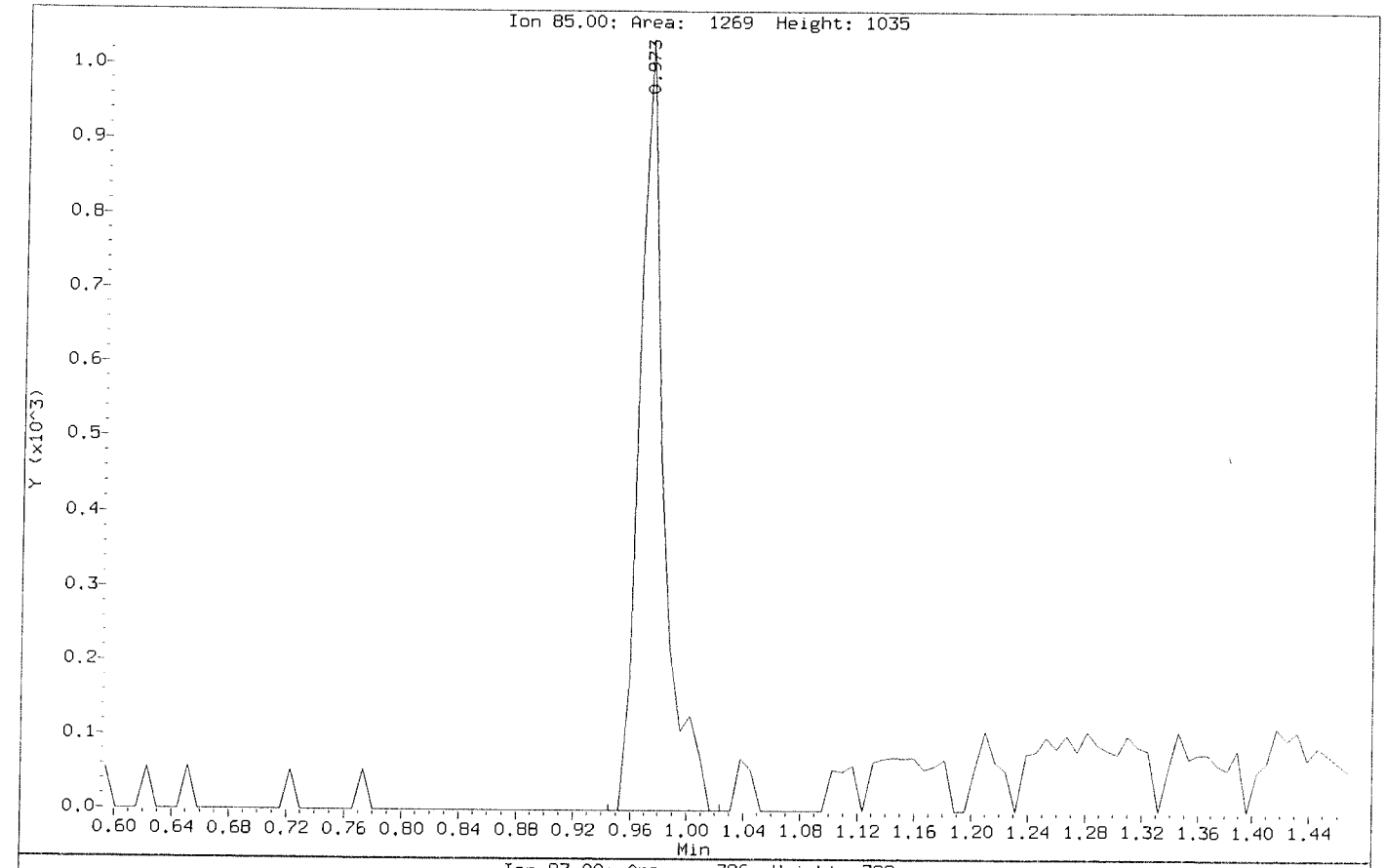
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

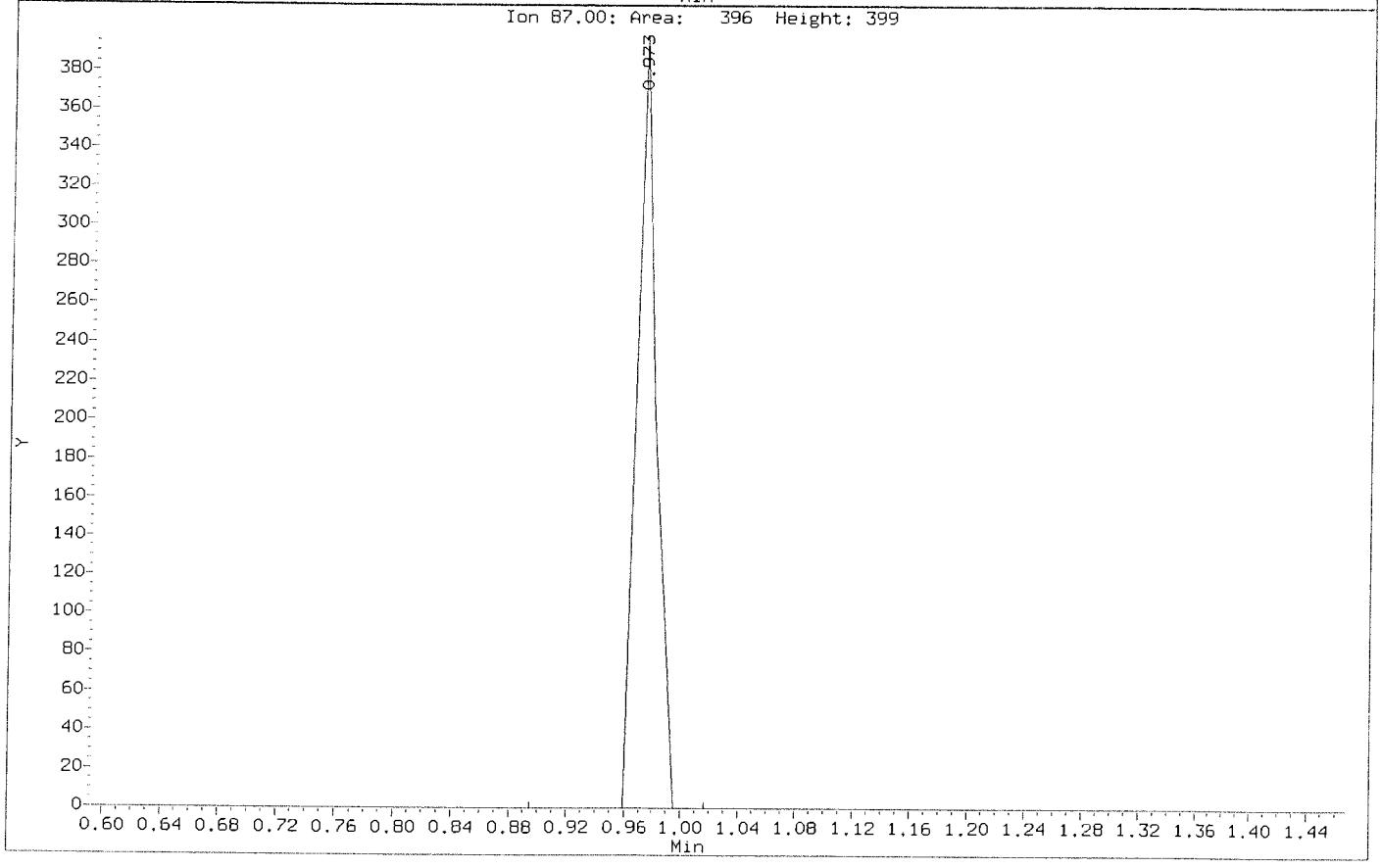
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

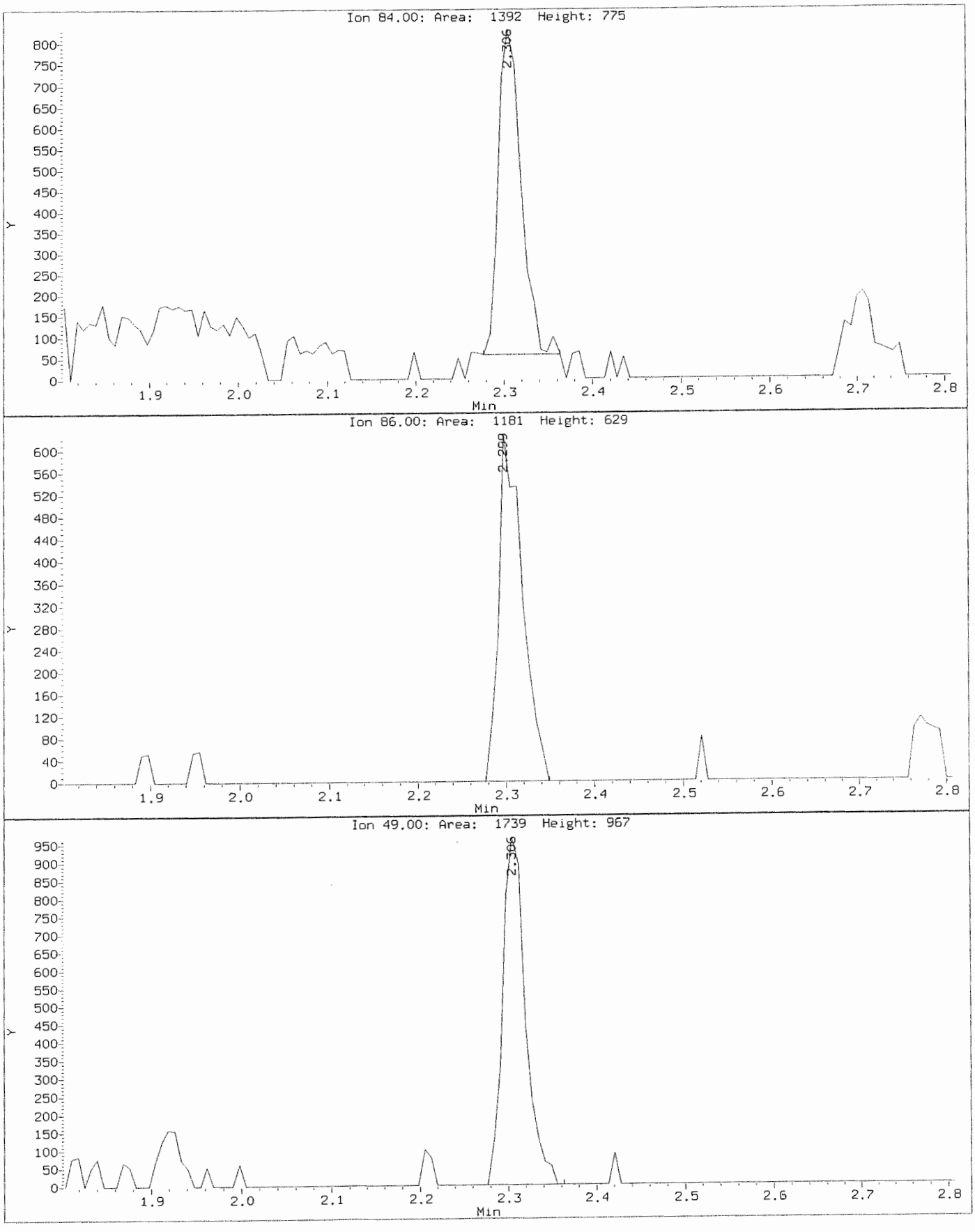
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





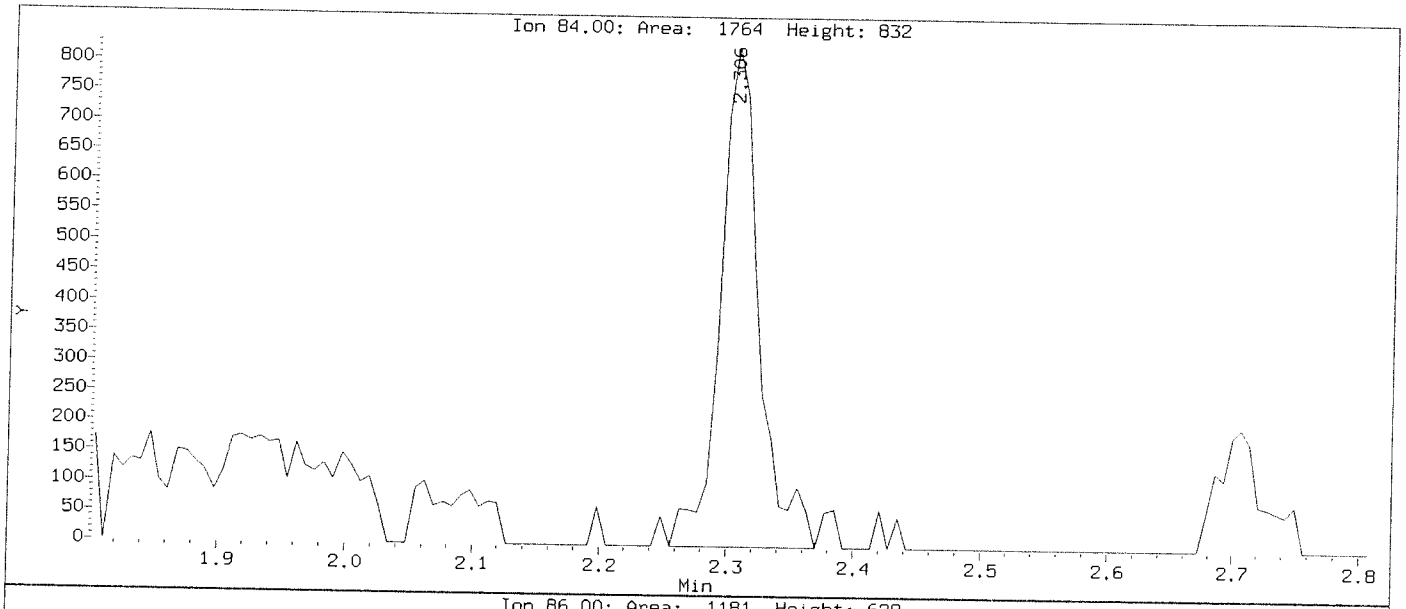
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

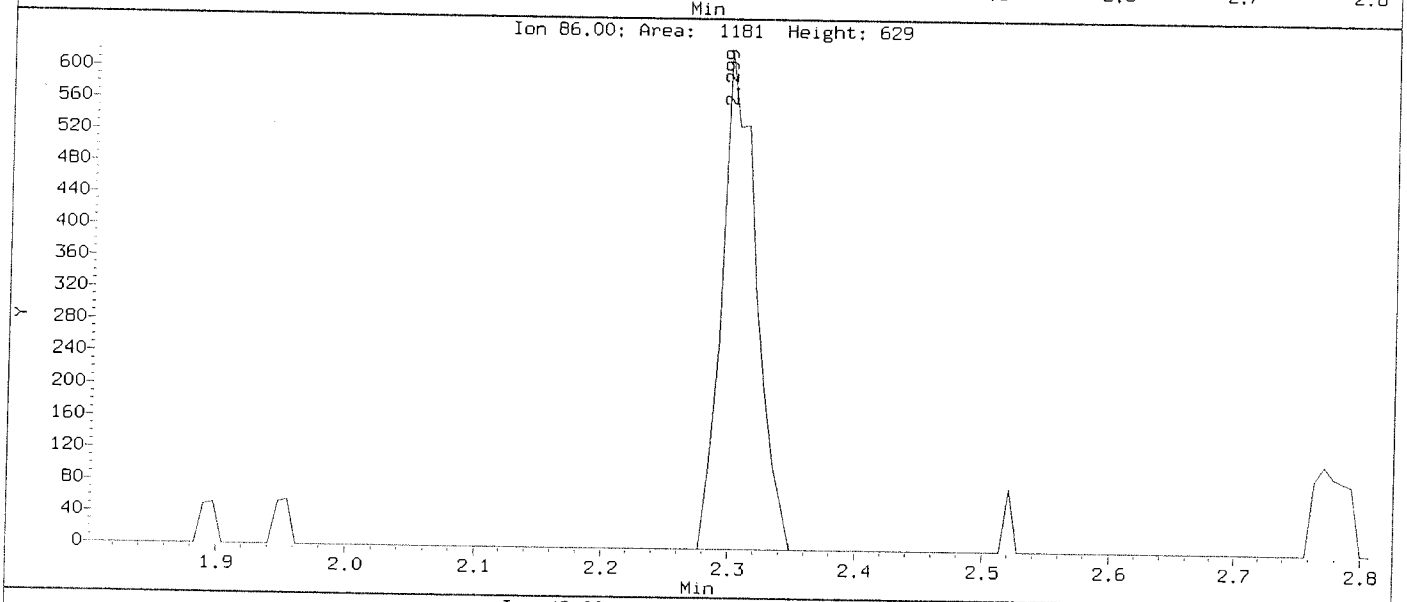
Compound: Methylene Chloride
CAS Number: 75-09-2

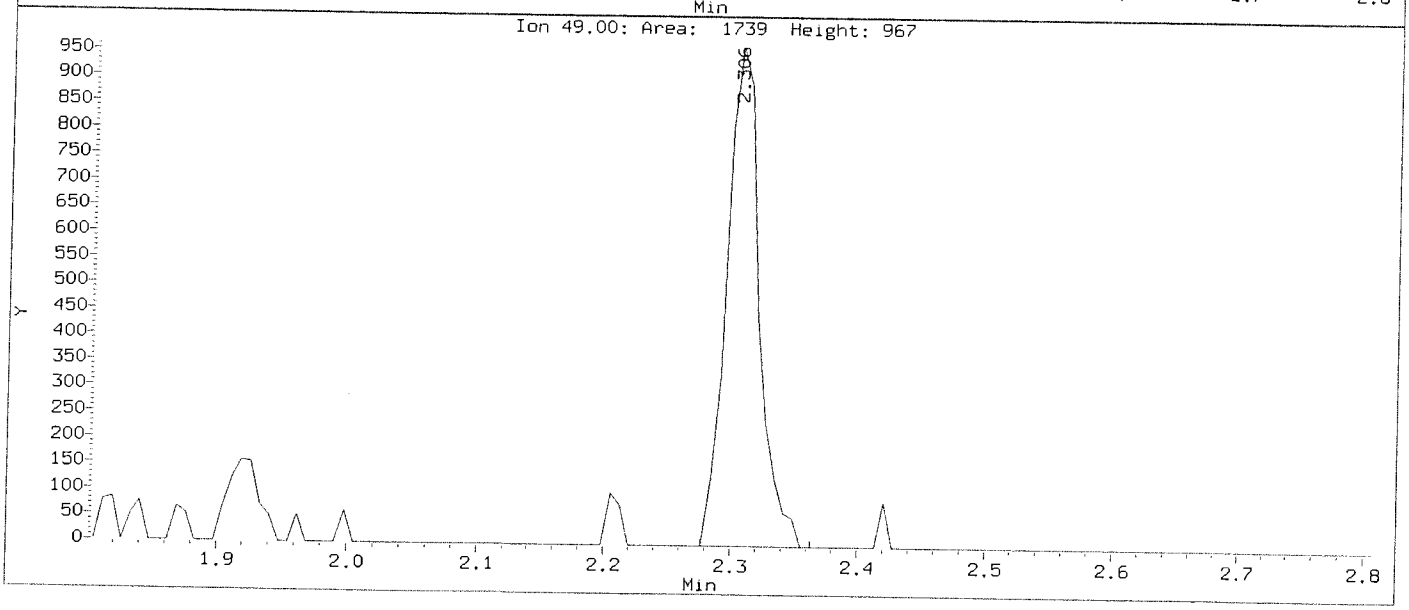


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2







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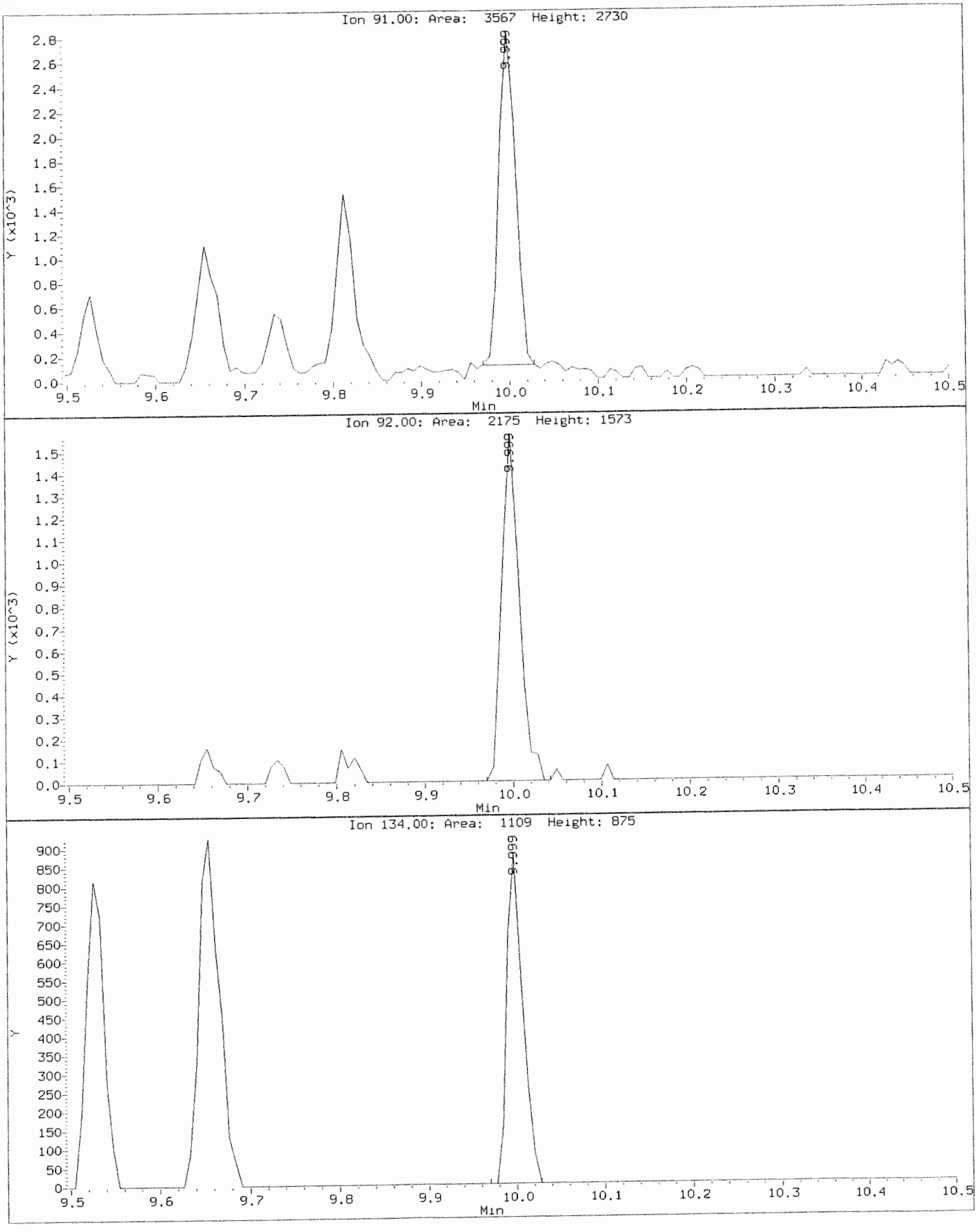
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8



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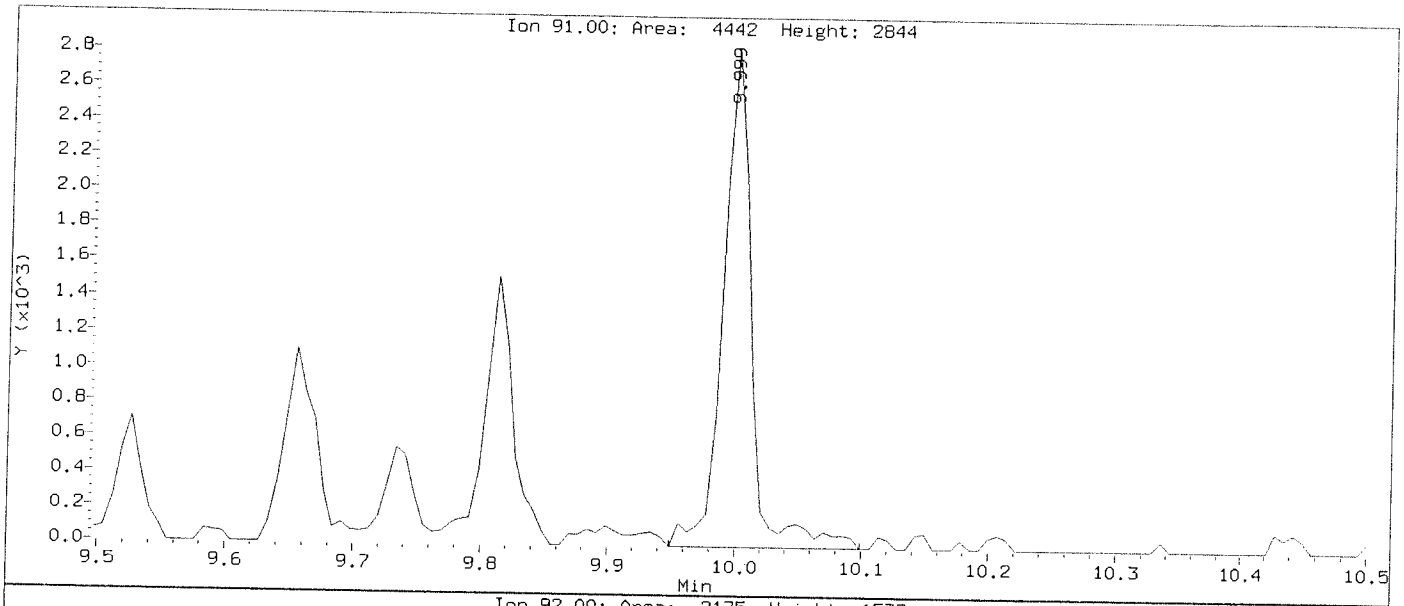
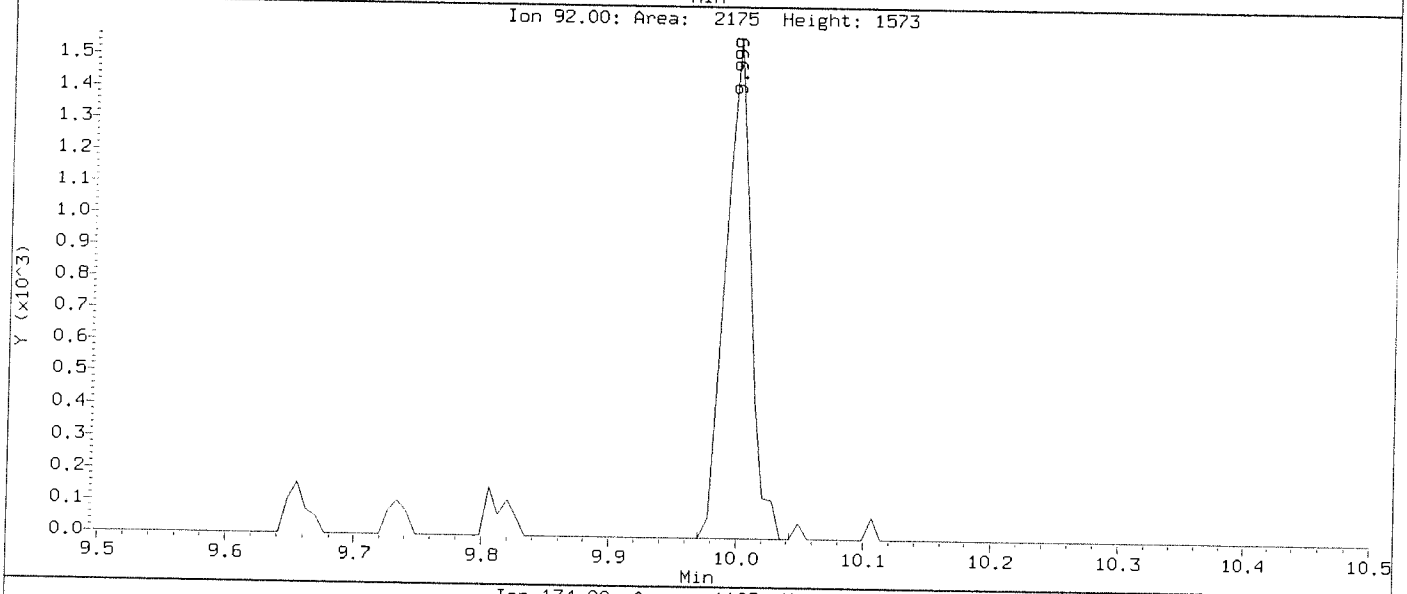
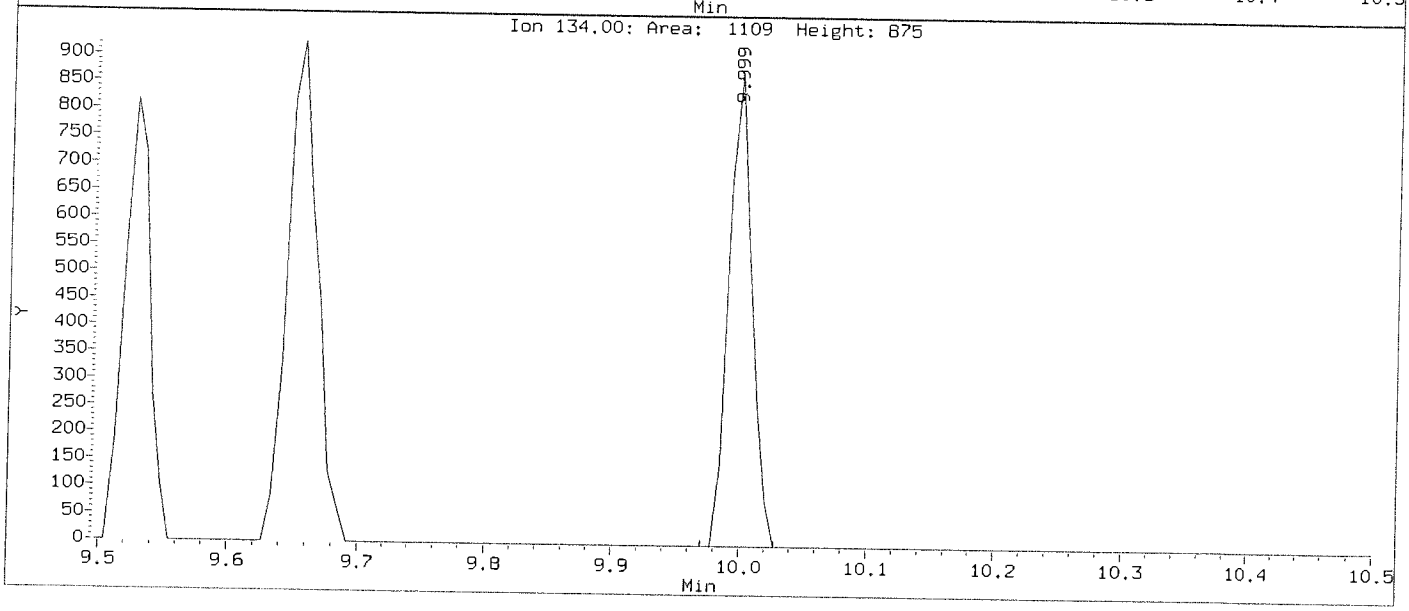
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8







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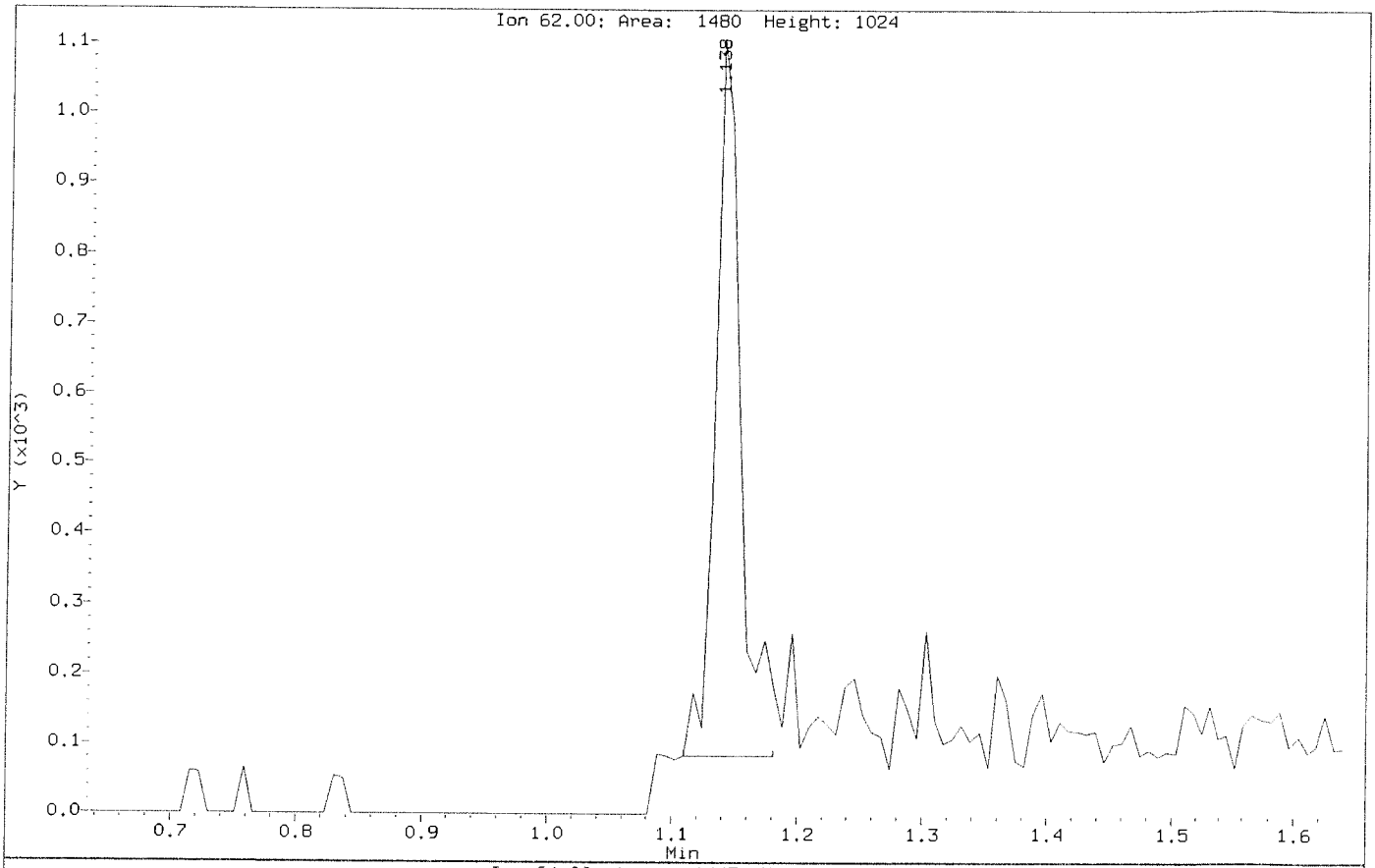
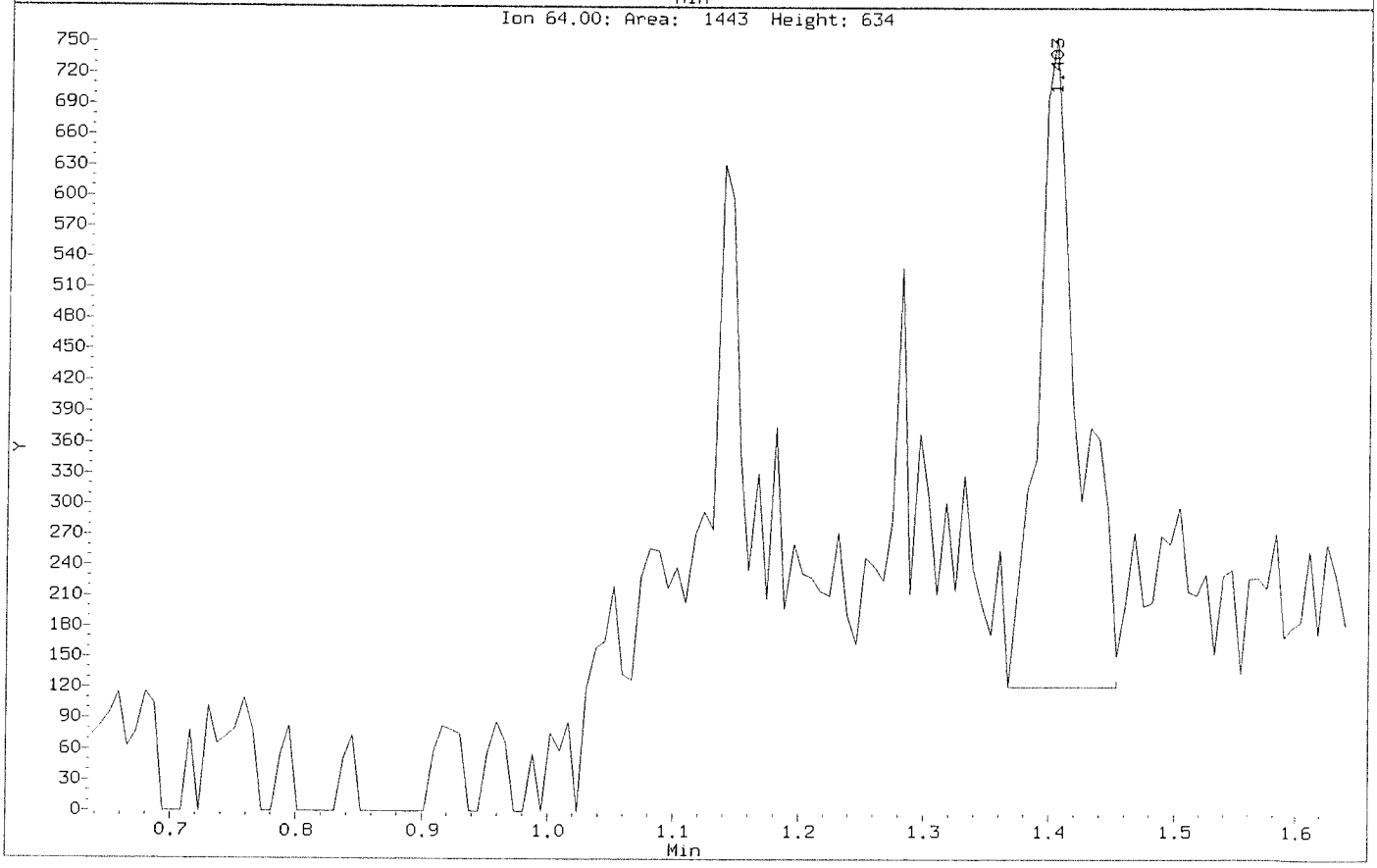
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4





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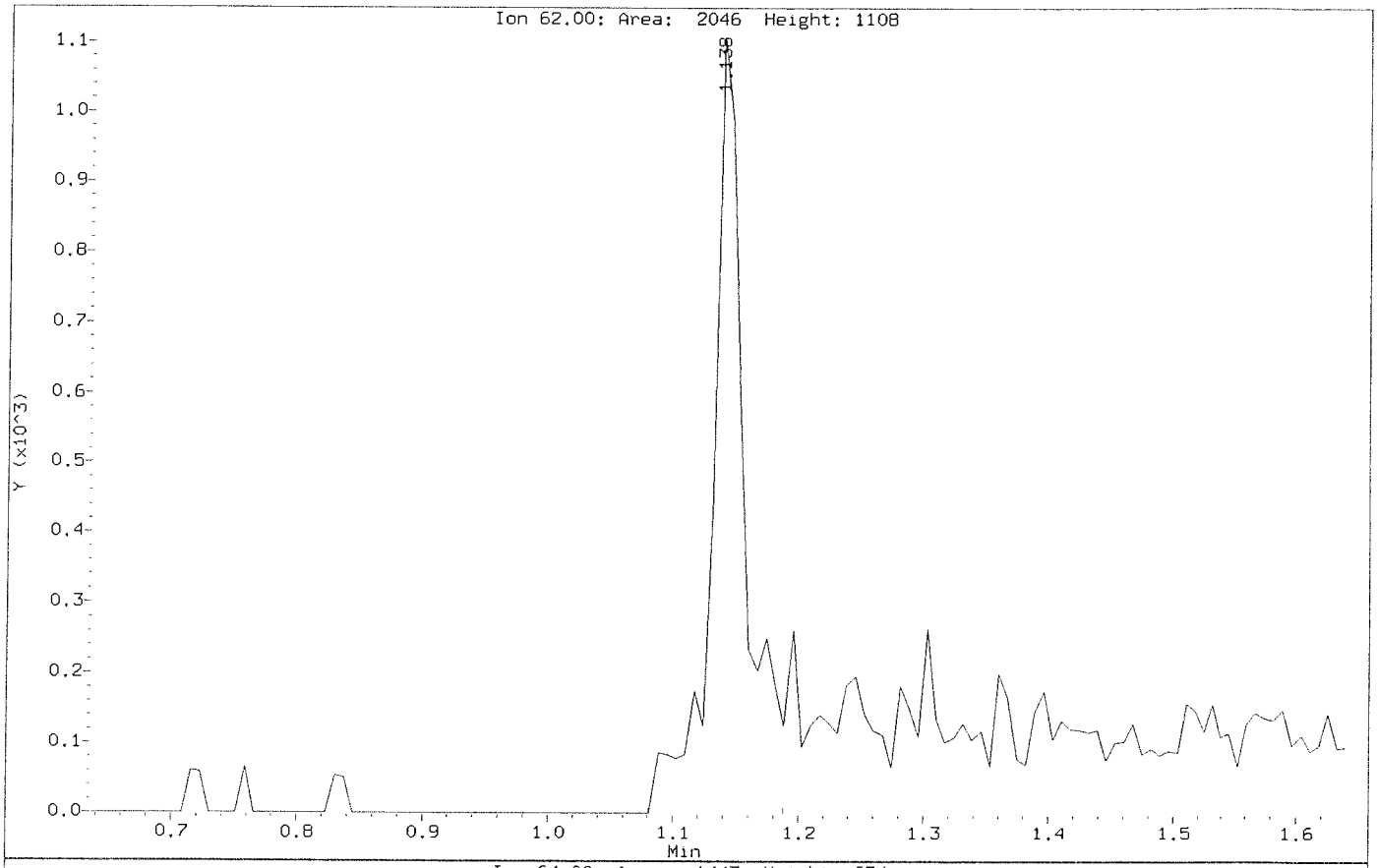
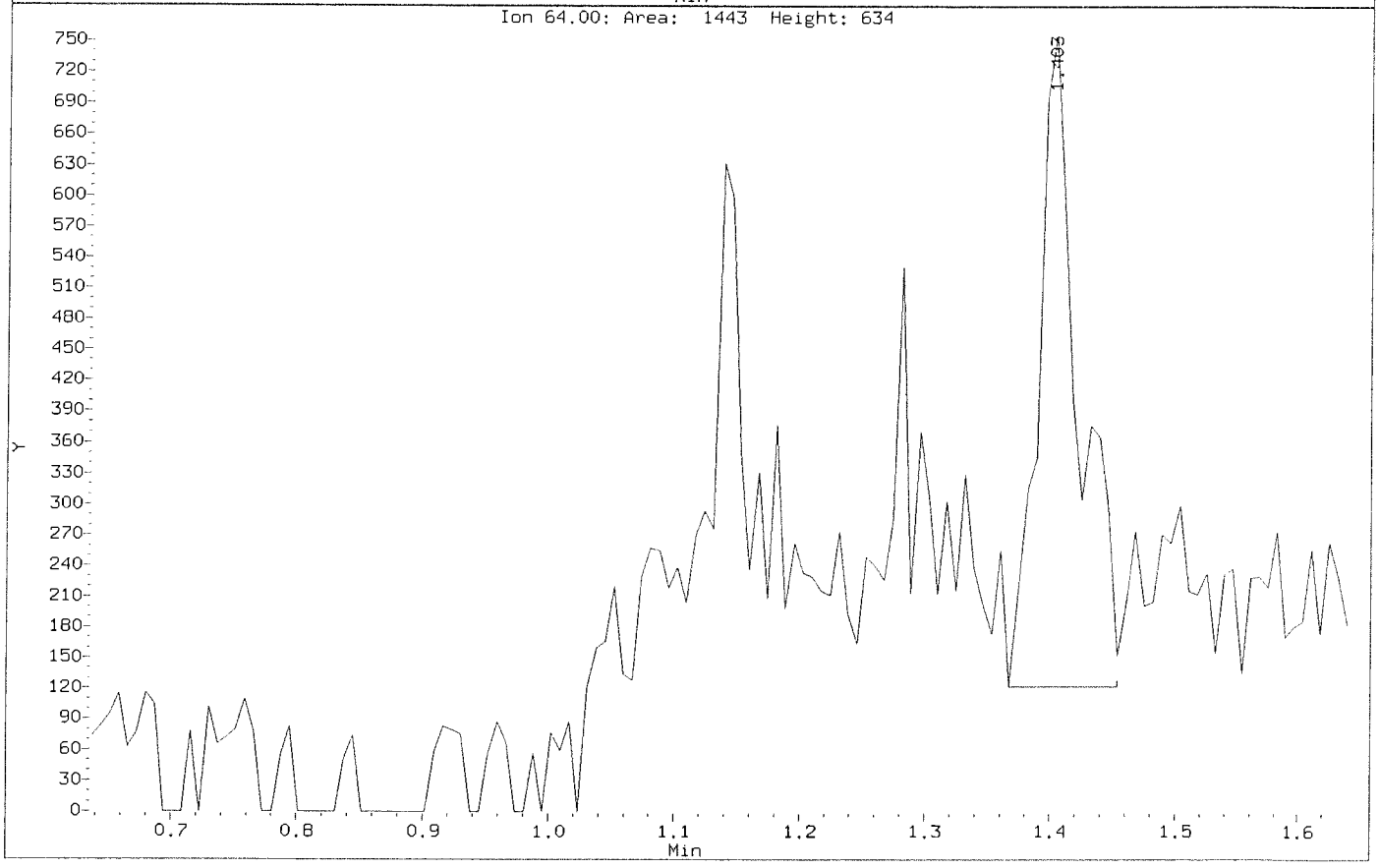
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 18-NOV-2019 14:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 14:35 Cal File: X111803.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

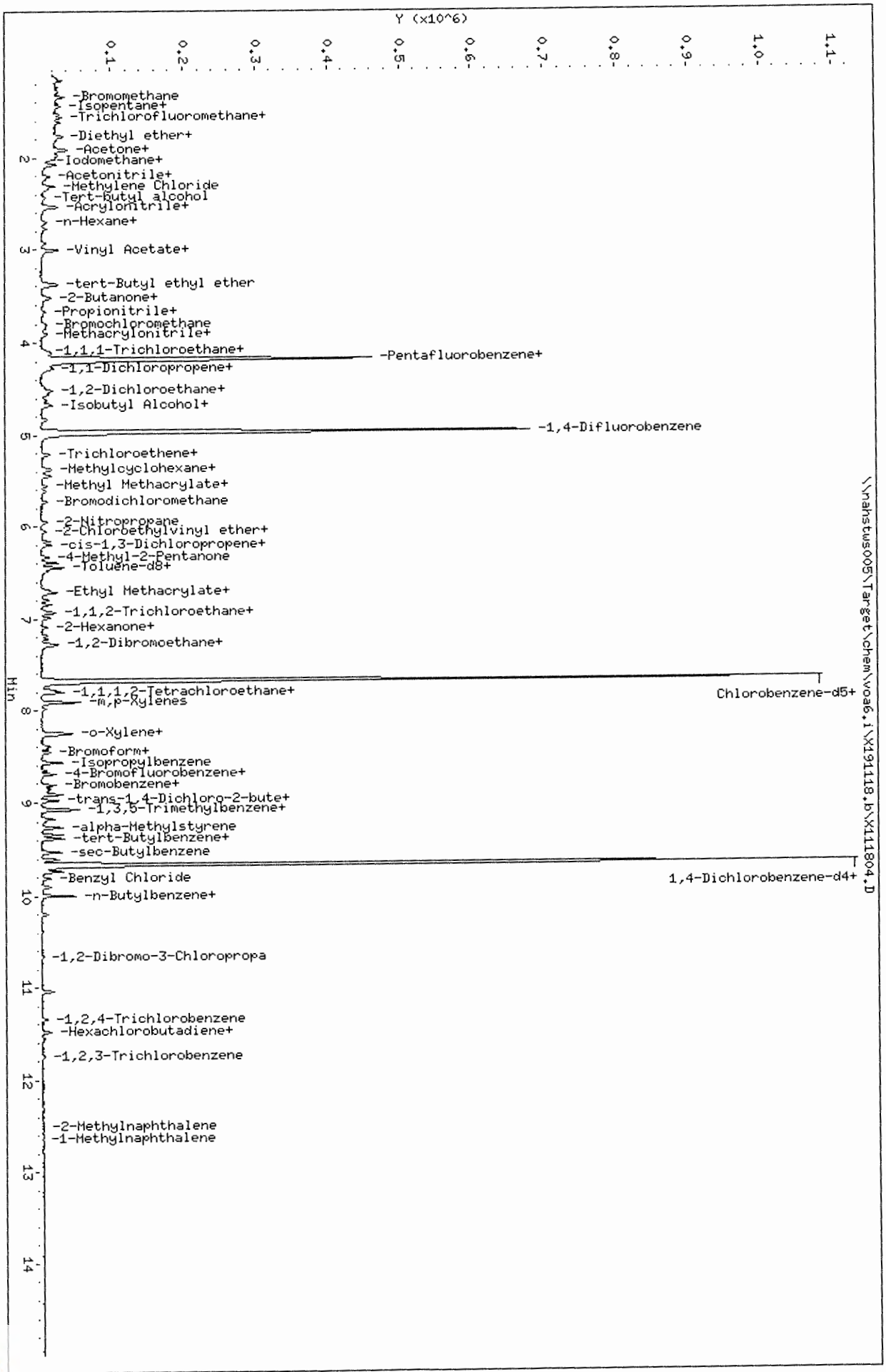
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	416007	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	570122	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	516622	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	279609	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4458	1.00000	1.85(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	5731	1.00000	1.60(a)
$	30 Dibromofluoromethane	113	4.104	4.104	(0.981)	3882	1.00000	1.38(a)
$	48 Toluene-d8	98	6.389	6.389	(0.833)	13715	1.00000	1.00(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	4166	1.00000	1.11(a)
	31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	6451	1.00000	1.14(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	4719	1.00000	1.20(aM)
	138 Freon TF	101	1.919	1.919	(0.459)	4065	1.00000	1.12(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	3216	1.00000	1.19(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	6907	1.00000	1.14(a)
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	3522	1.00000	0.99(a)
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	5427	1.00000	1.18(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	1182	1.00000	0.29(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	4081	1.00000	1.22(aM)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	2432	1.00000	1.03(aM)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	14648	1.00000	1.10(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	464	1.00000	0.73(aM)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	3982	1.00000	1.09(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	8297	1.00000	1.11(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	5359	1.00000	1.18(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	3352	1.00000	0.98(aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	13162	1.00000	1.03(a)
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	8955	1.00000	1.11(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	6334	1.00000	1.15(a)
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	9129	1.00000	1.12(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	6785	1.00000	1.23(a)
24 2-Butanone	43	3.588	3.588	(0.858)	2602	2.00000	2.03(a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	11127	1.00000	1.10(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	4893	2.00000	2.30(a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	13982	1.00000	1.14(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	14705	1.00000	1.07(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	6643	2.00000	2.19(a)
10 Acetone	43	1.969	1.969	(0.471)	5956	2.00000	1.88(a)
37 Benzene	78	4.519	4.519	(0.909)	15129	1.00000	1.16(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	5611	1.00000	1.15(a)
29 Bromochloromethane	128	3.803	3.803	(0.909)	2687	1.00000	1.19(a)
39 Bromodichloromethane	83	5.730	5.730	(1.153)	5583	1.00000	1.18(aM)
66 Bromoform	173	8.416	8.416	(1.097)	3197	1.00000	2.01(Ta)
6 Bromomethane	94	1.339	1.339	(0.320)	6334	1.00000	(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	20920	2.00000	2.18(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	5740	1.00000	1.13(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	11449	1.00000	1.13(a)
7 Chloroethane	64	1.403	1.403	(0.336)	3001	1.00000	1.14(aM)
28 Chloroform	83	3.910	3.910	(0.935)	8234	1.00000	1.22(a)
3 Chloromethane	50	1.074	1.074	(0.257)	6118	1.00000	1.53(aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	4494	1.00000	1.13(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	6302	1.00000	1.13(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	4470	1.00000	1.13(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	2789	1.00000	1.15(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	3829	1.00000	1.87(aM)
61 Ethylbenzene	106	7.800	7.800	(1.017)	5813	1.00000	1.11(a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	2468	1.00000	0.76(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	16809	1.00000	1.08(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	13495	2.00000	2.14(a)
17 Methylene Chloride	84	2.306	2.306	(0.551)	4626	1.00000	1.22(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	11491	1.00000	1.00(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	18779	1.00000	1.08(a)
92 Naphthalene	128	11.553	11.553	(1.195)	3182	1.00000	1.05(a)
63 o-Xylene	106	8.244	8.244	(1.075)	6995	1.00000	1.12(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	15987	1.00000	1.06(a)
64 Styrene	104	8.265	8.265	(1.078)	11719	1.00000	1.08(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	12122	1.00000	1.11(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	4263	1.00000	1.17(a)
50 Toluene	91	6.453	6.453	(0.841)	16346	1.00000	1.11(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	4068	1.00000	1.18(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	5295	1.00000	1.04(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	4445	1.00000	1.11(a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	6912	1.00000	1.07(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	4533	1.00000	1.06(aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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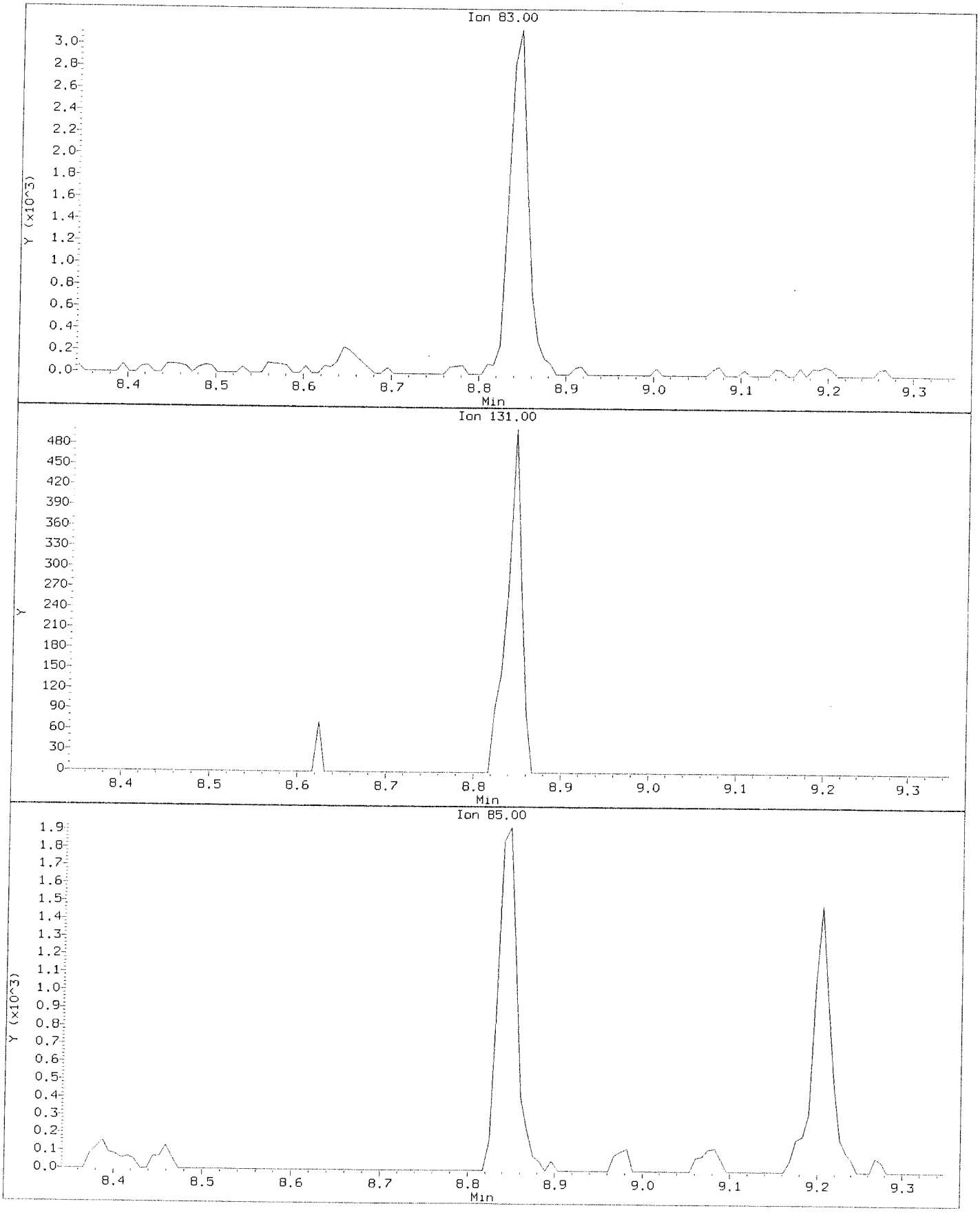
Date : 18-NOV-2019 14:59
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111804.D
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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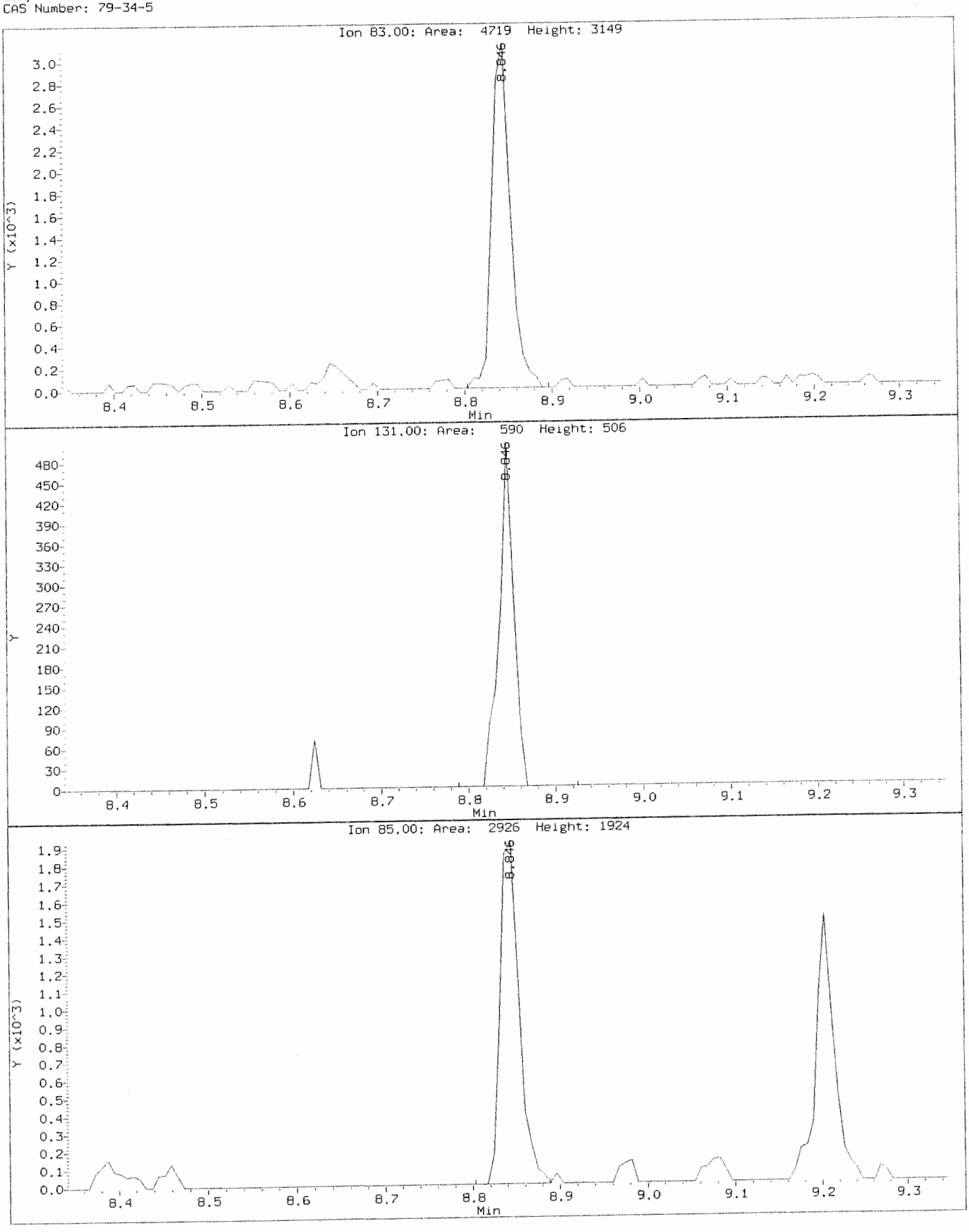
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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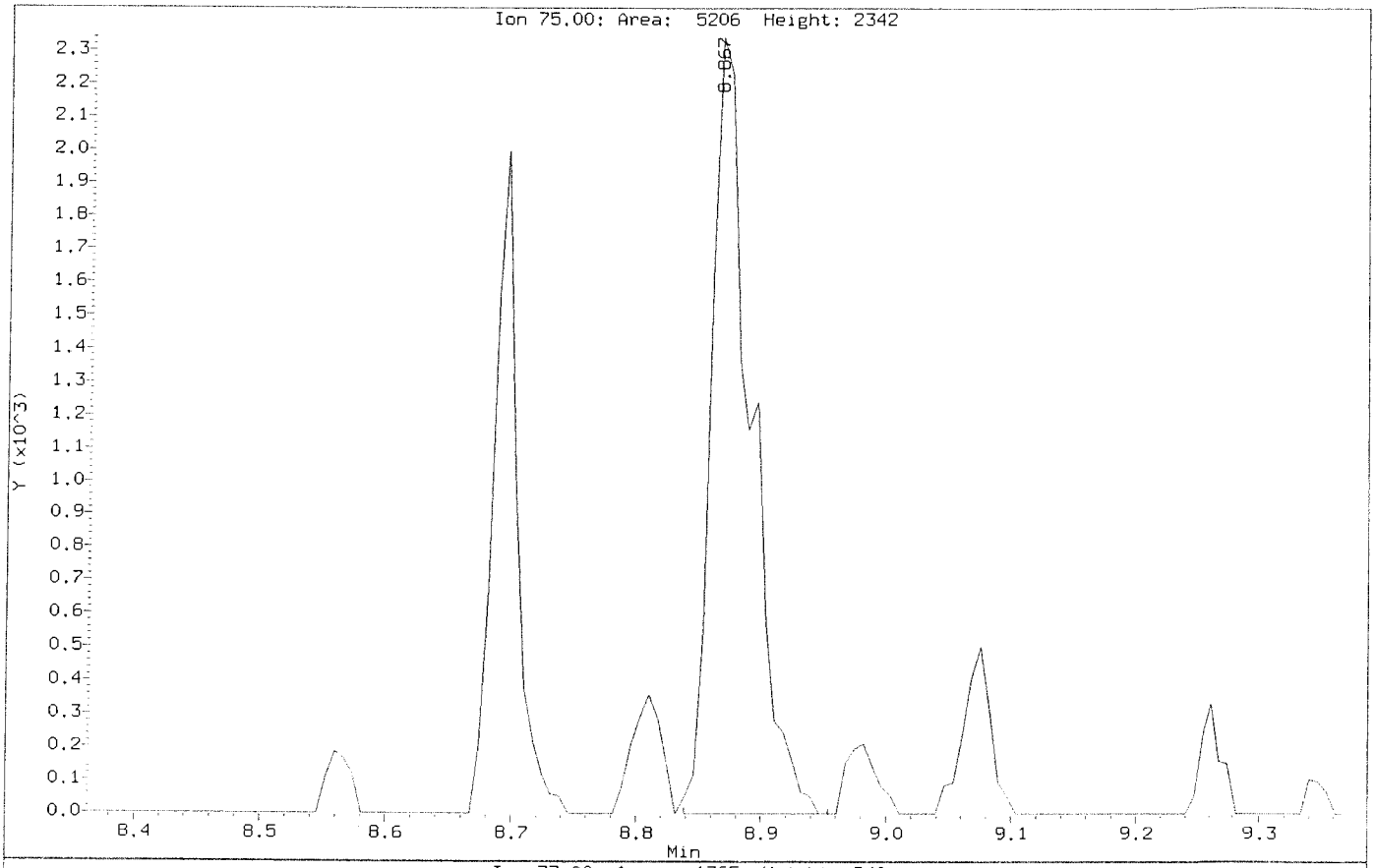
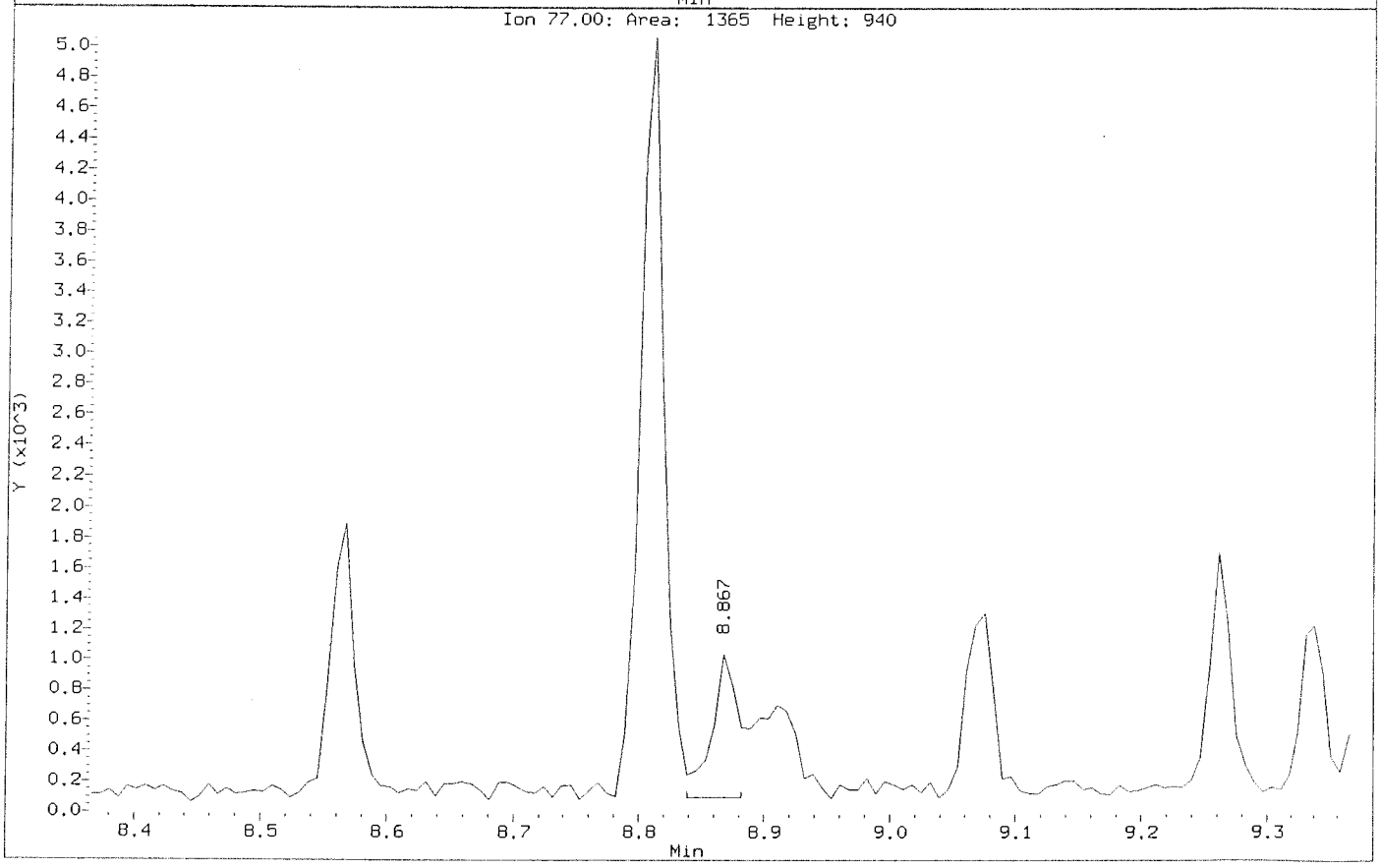
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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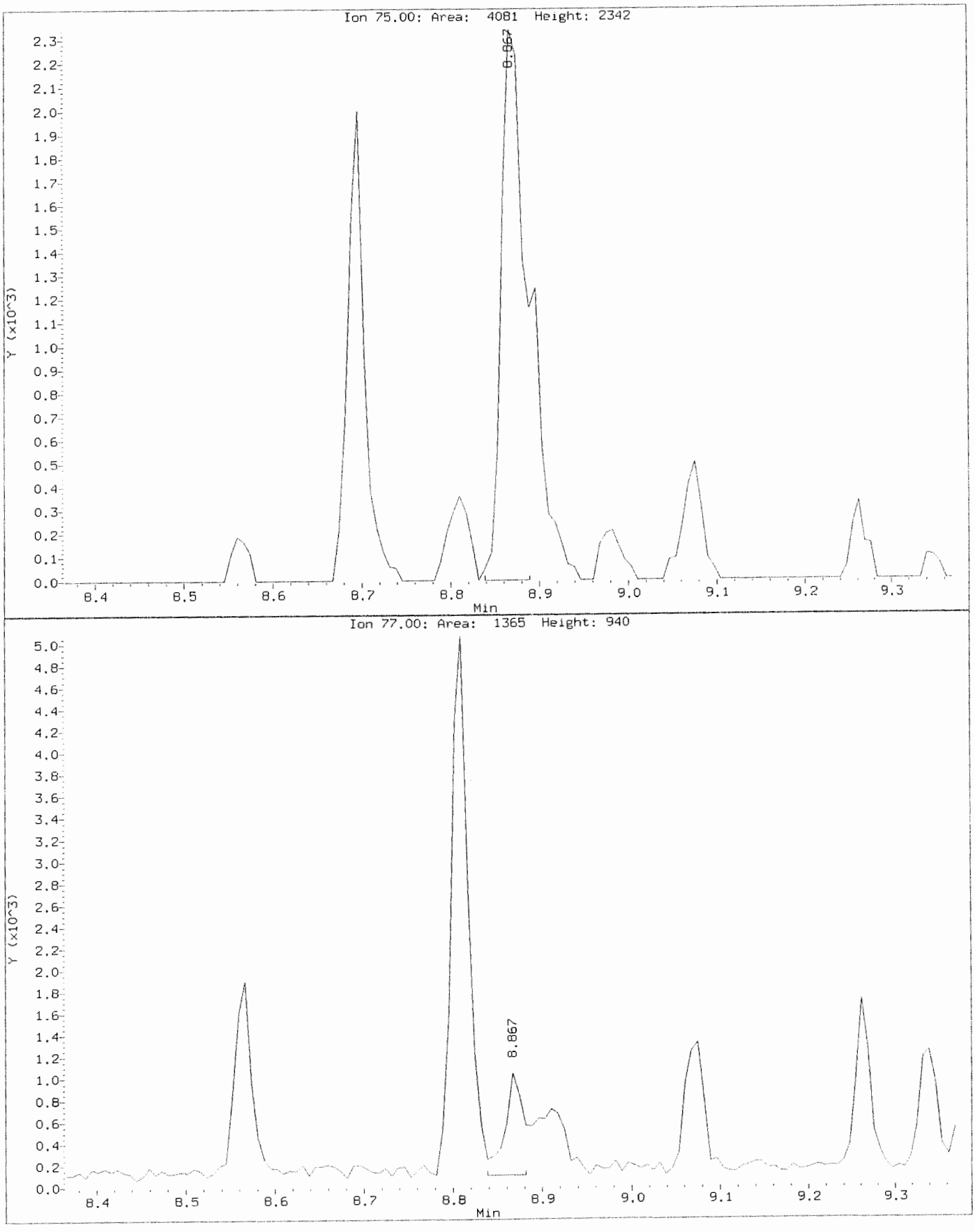
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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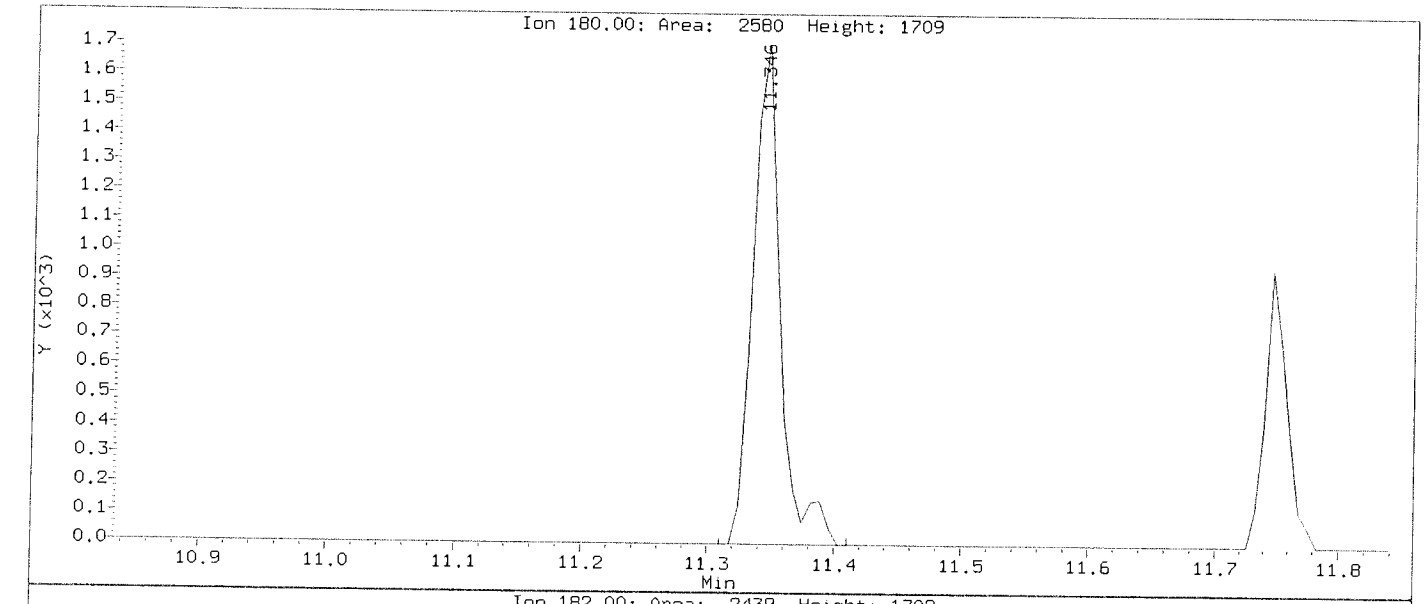
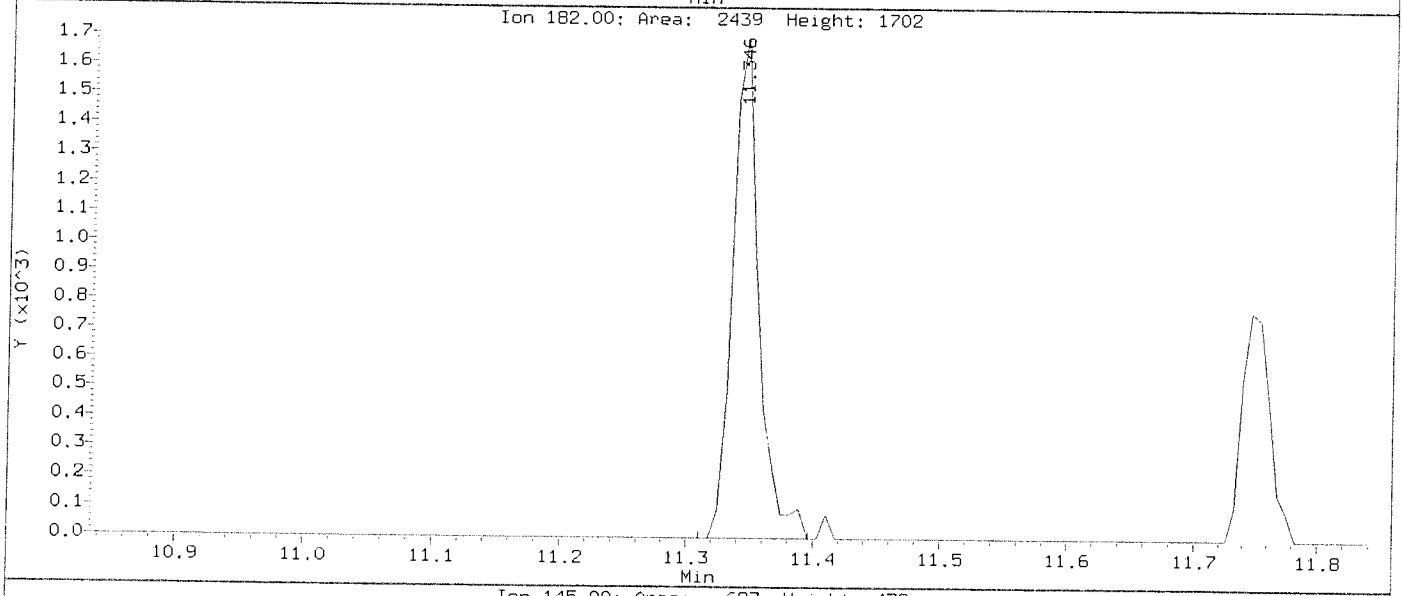
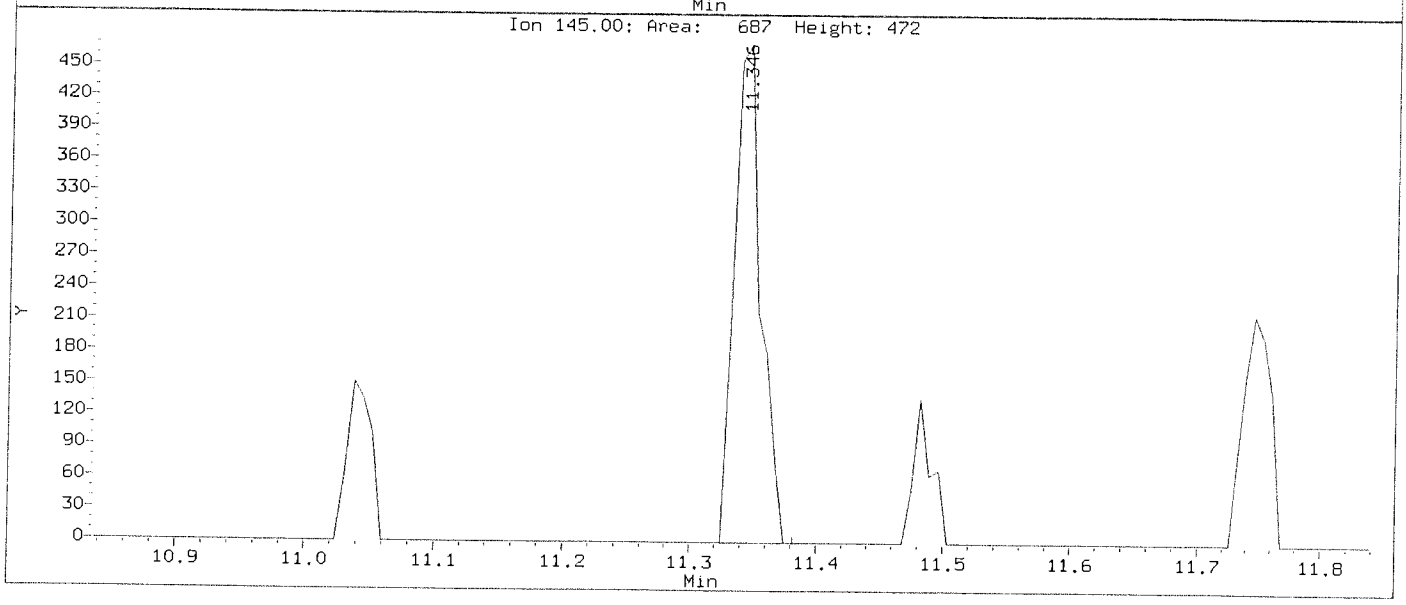
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1







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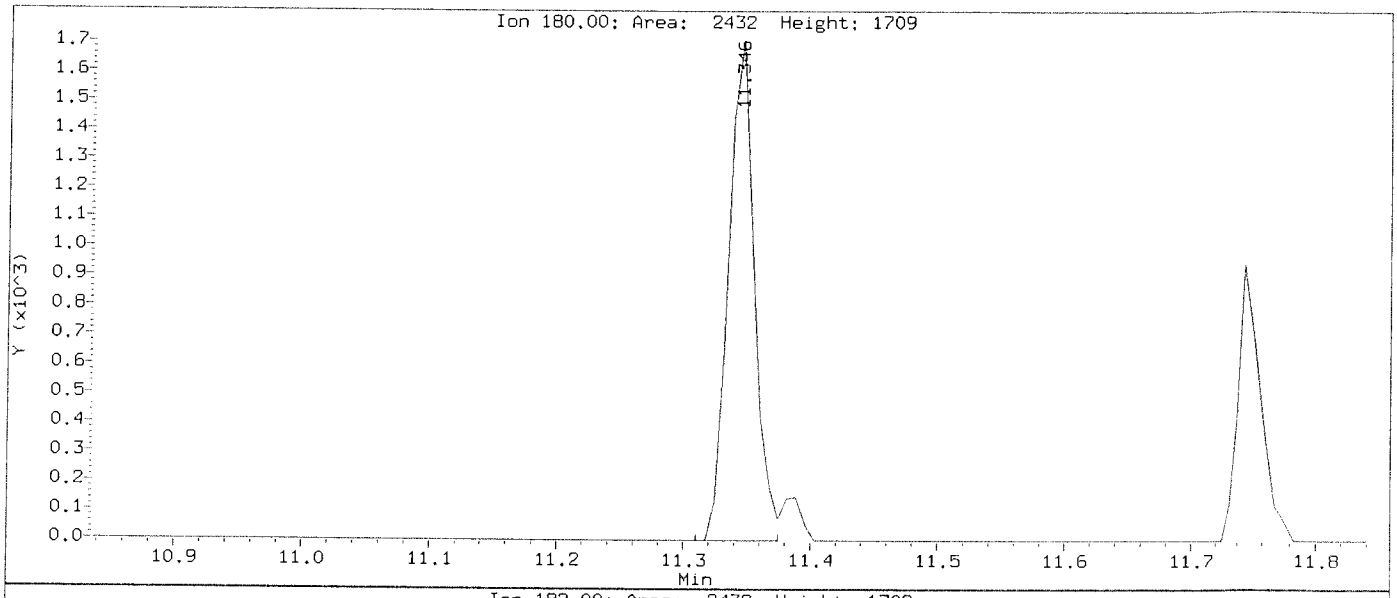
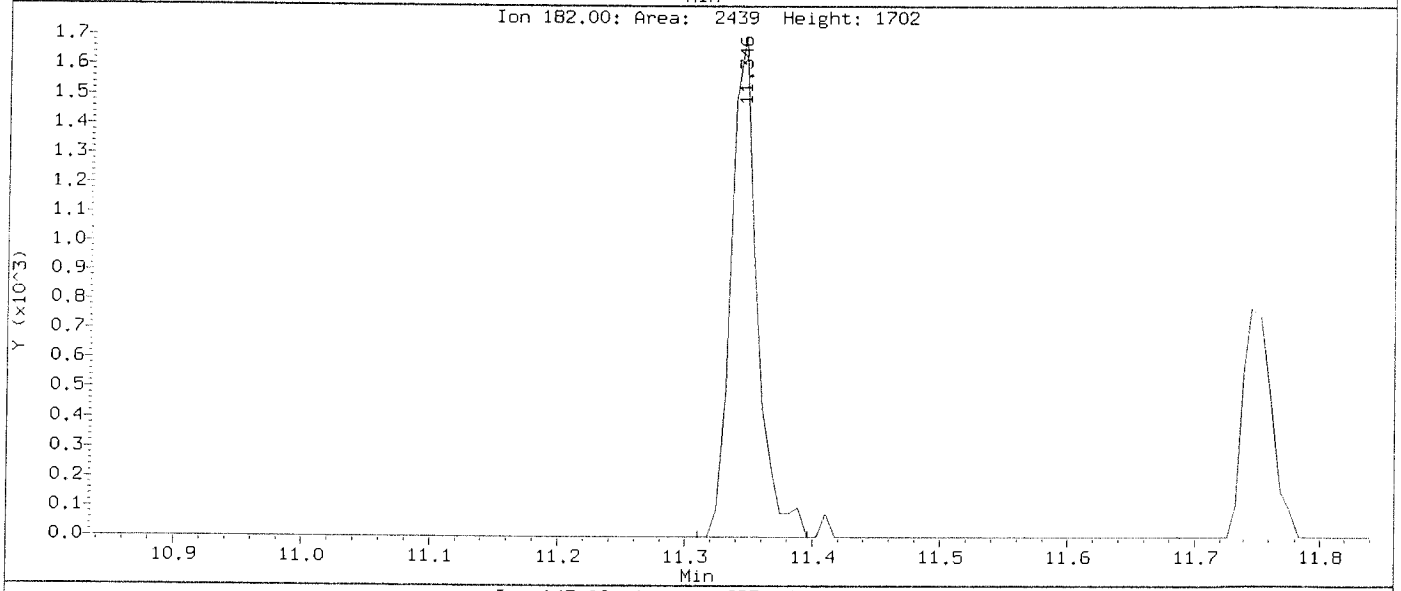
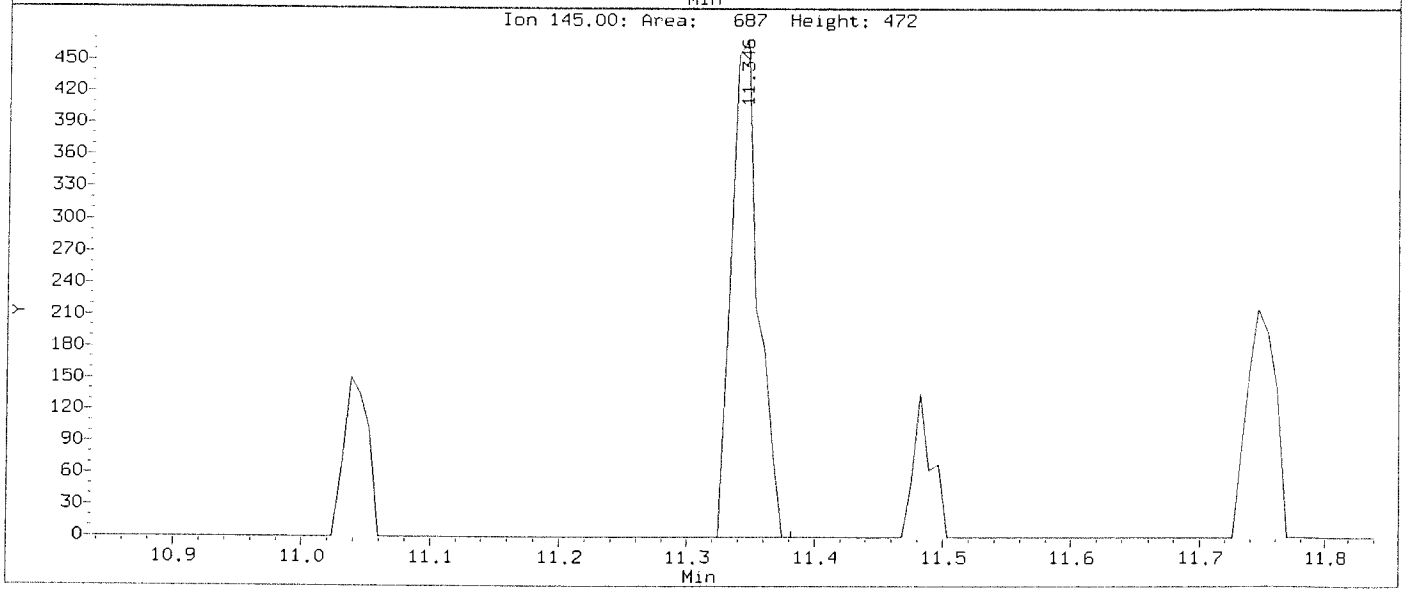
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1







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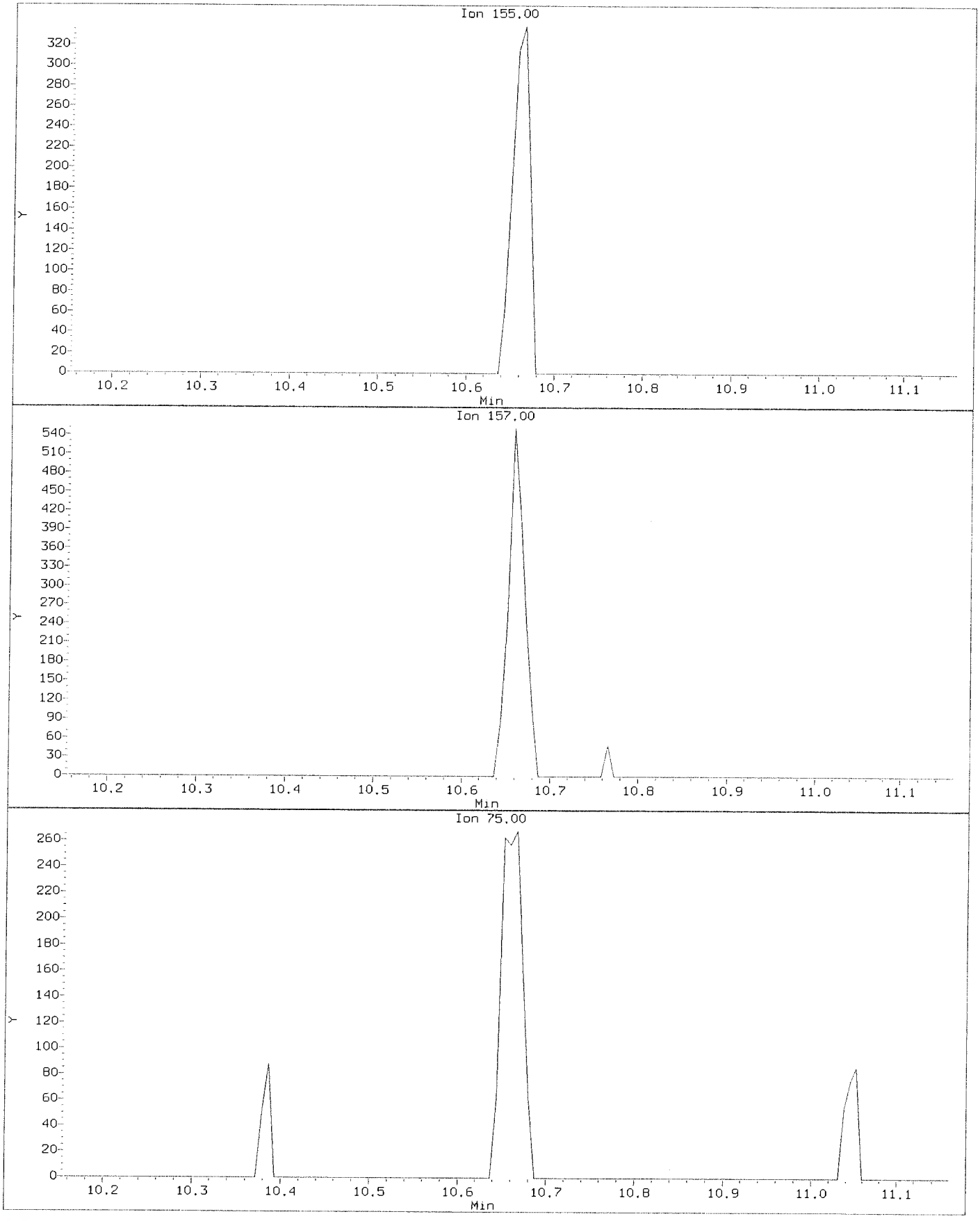
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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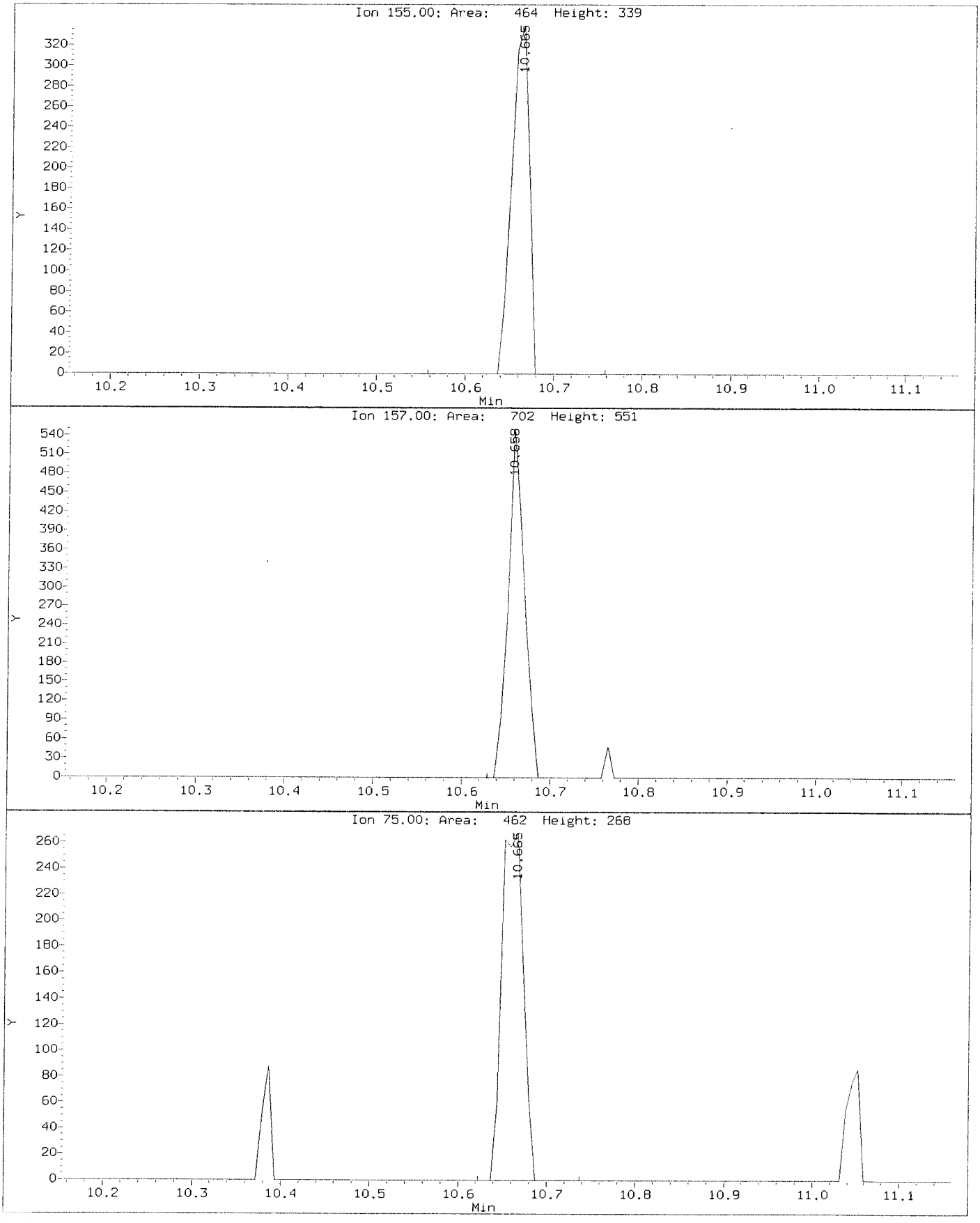
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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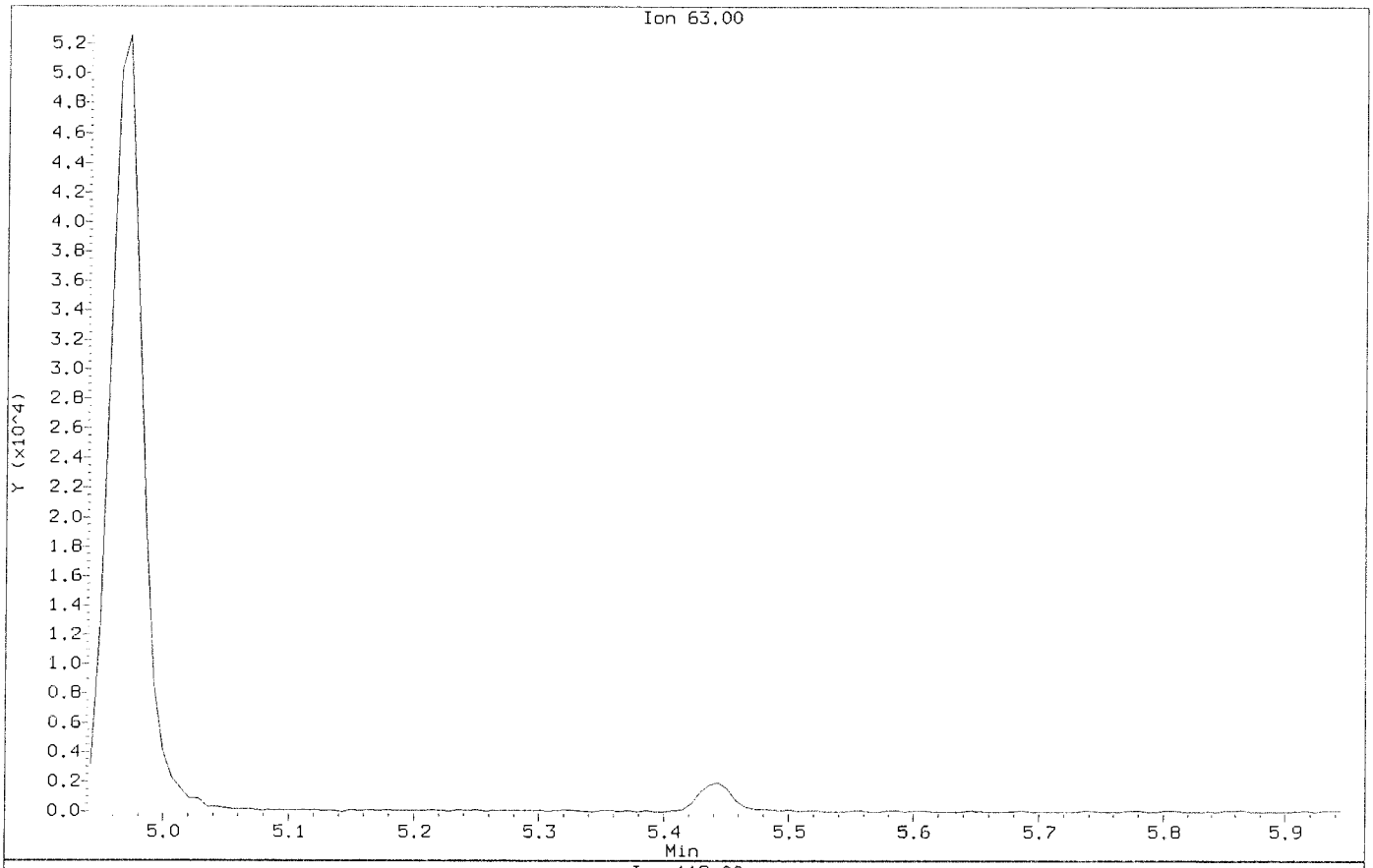
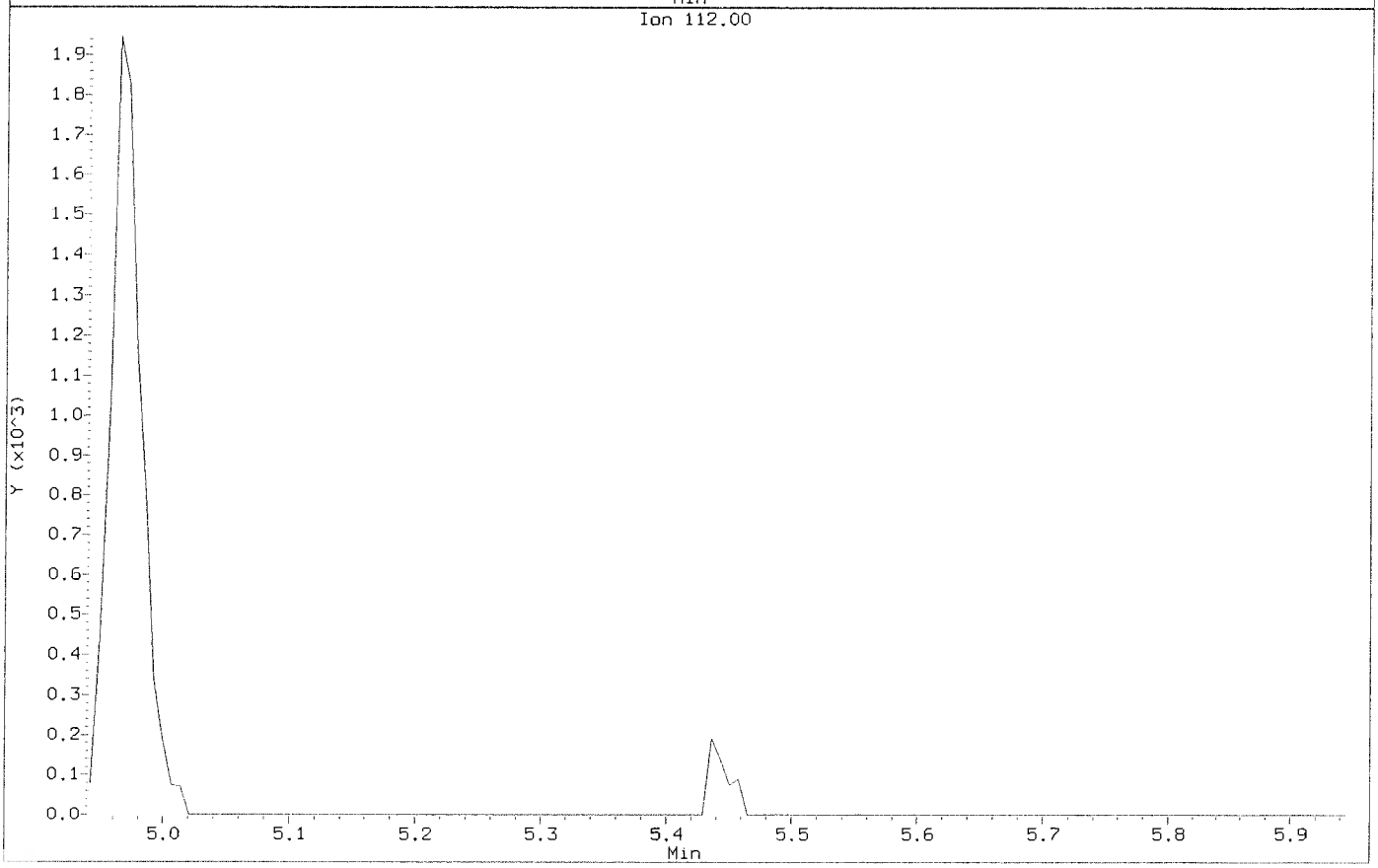
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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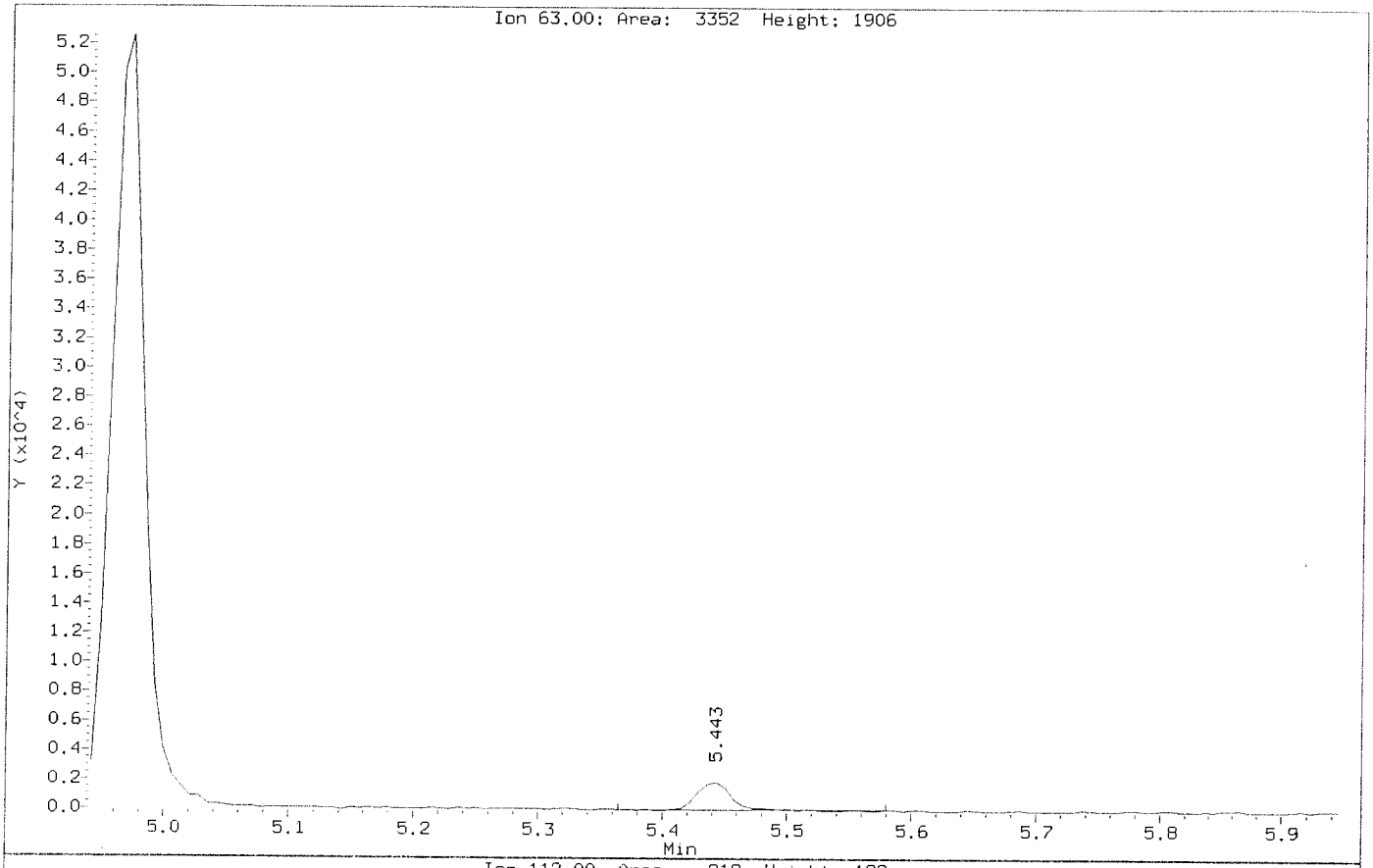
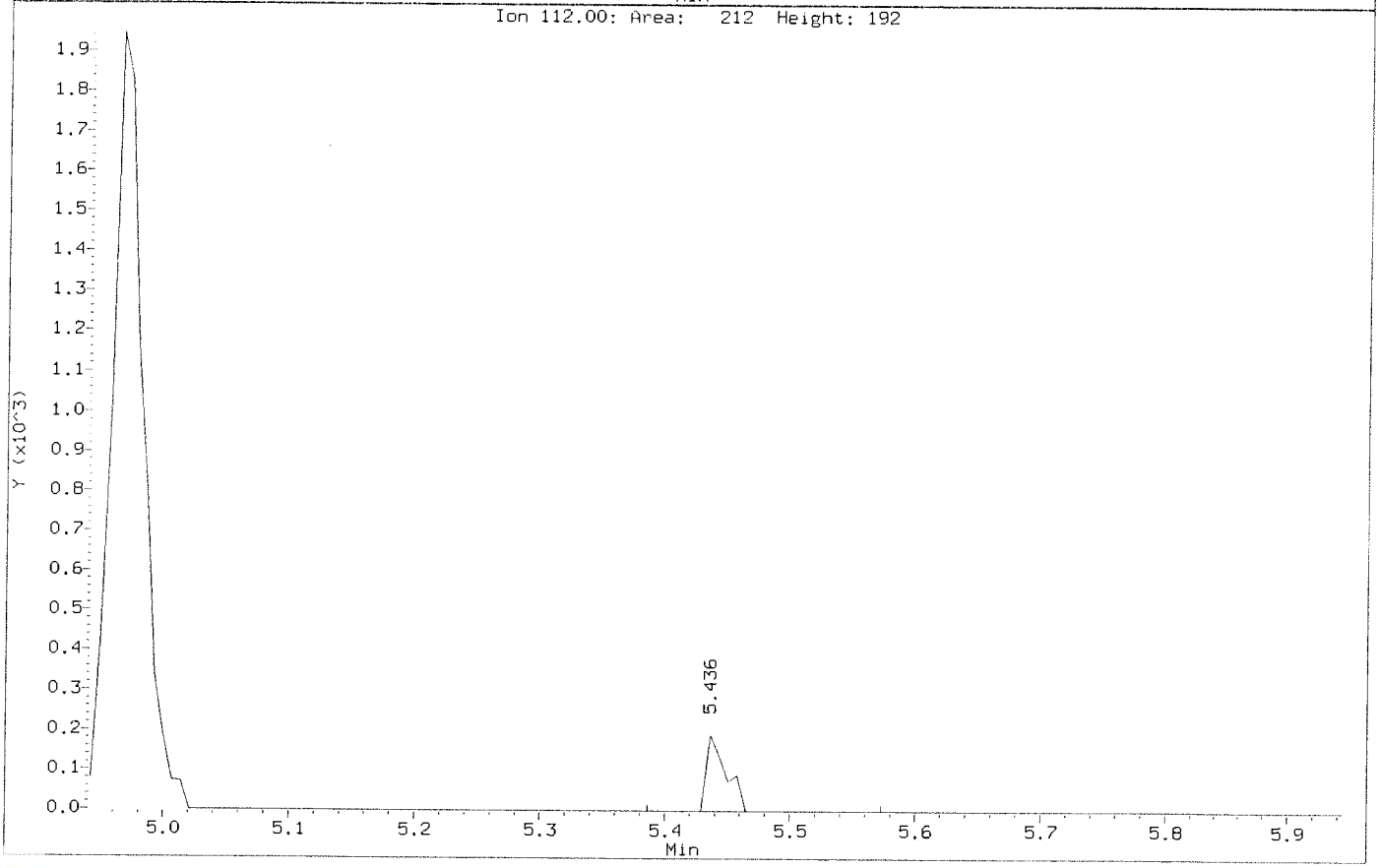
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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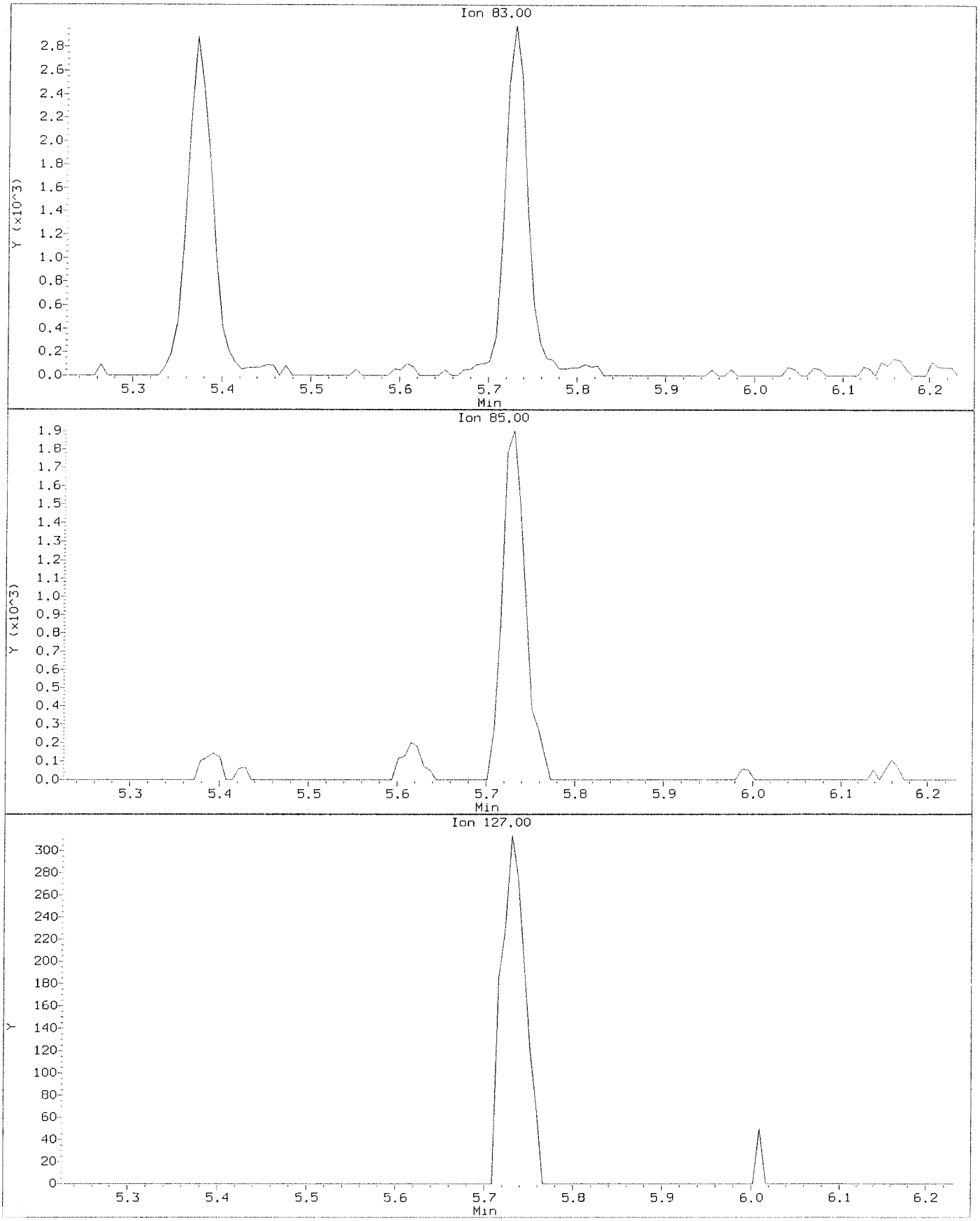
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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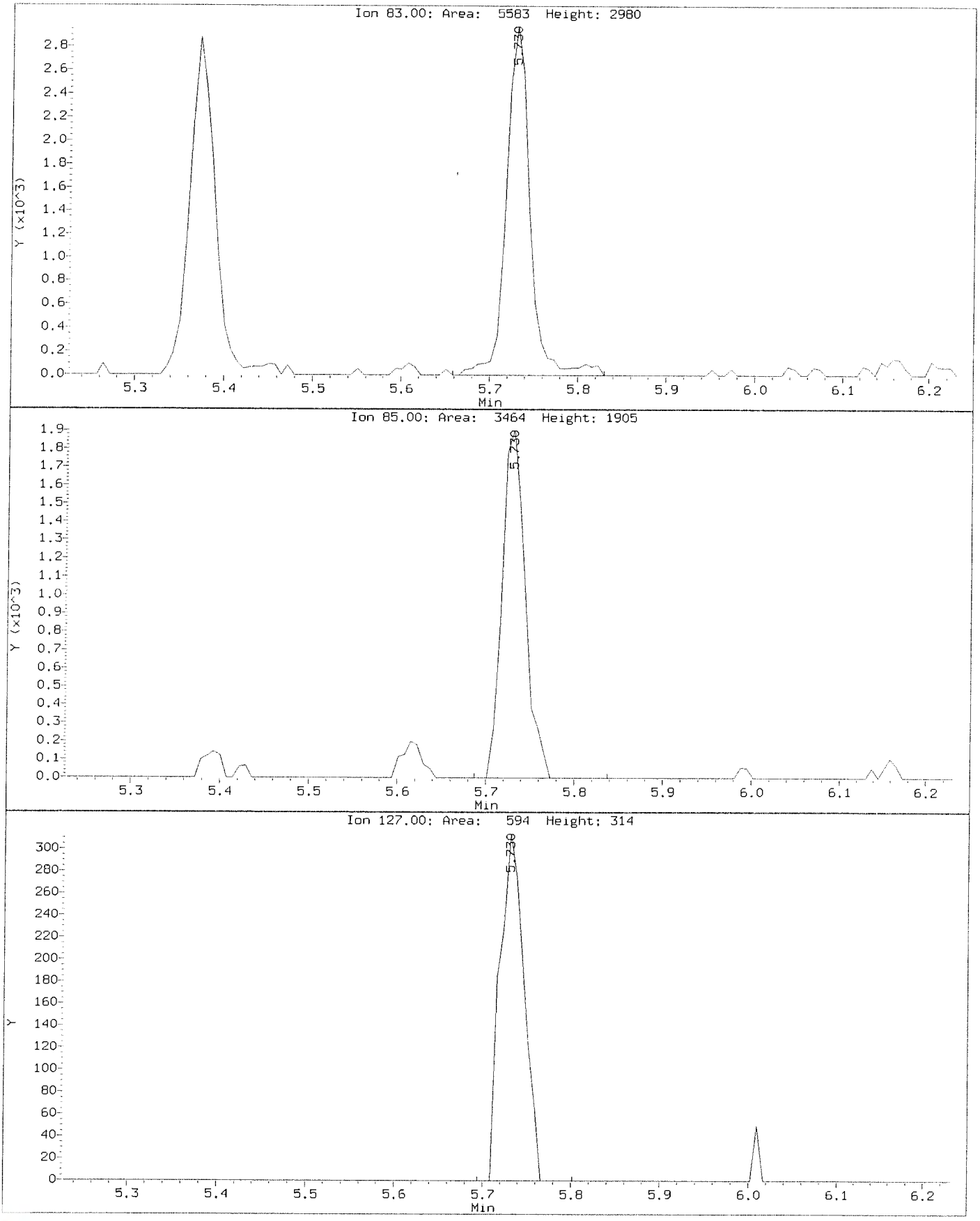
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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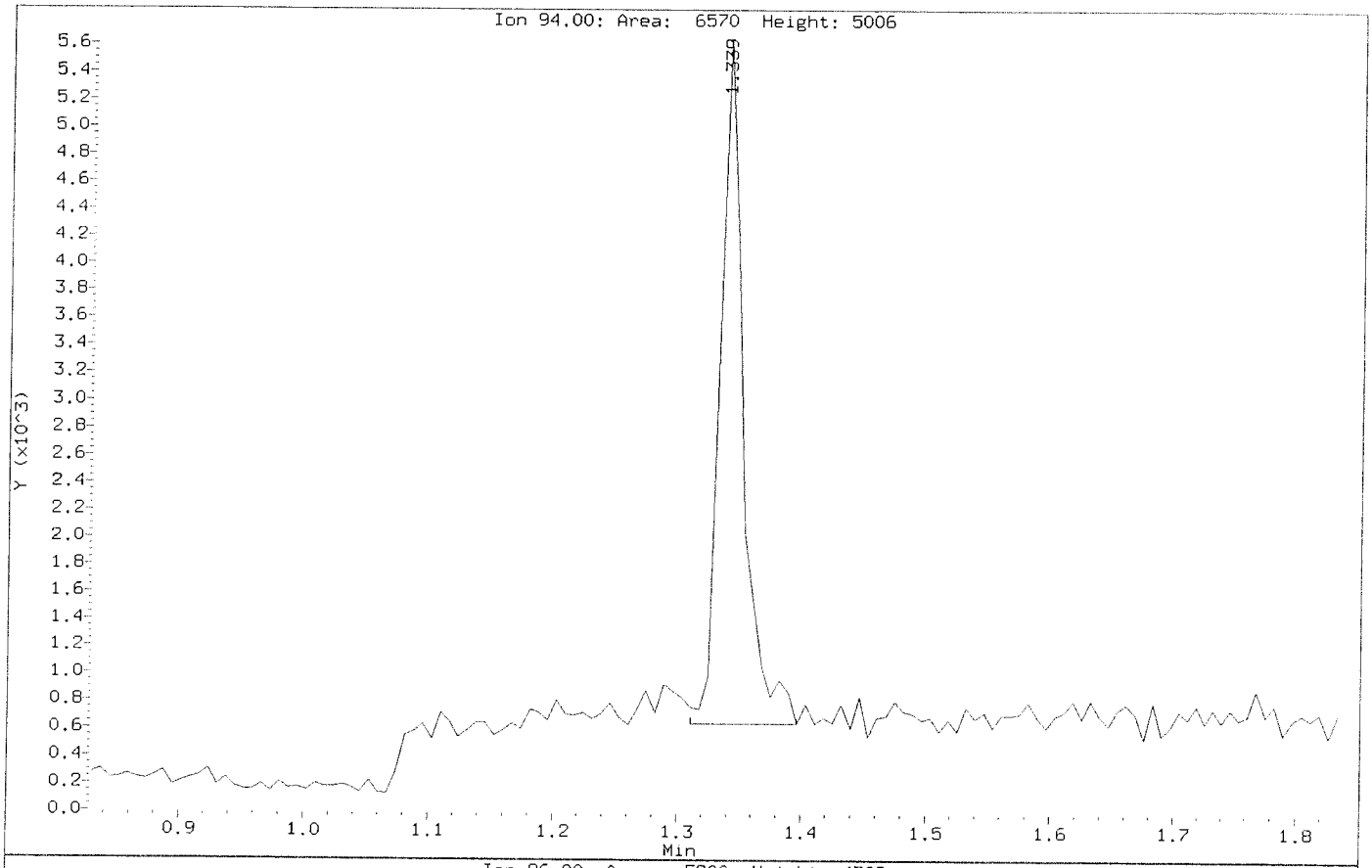
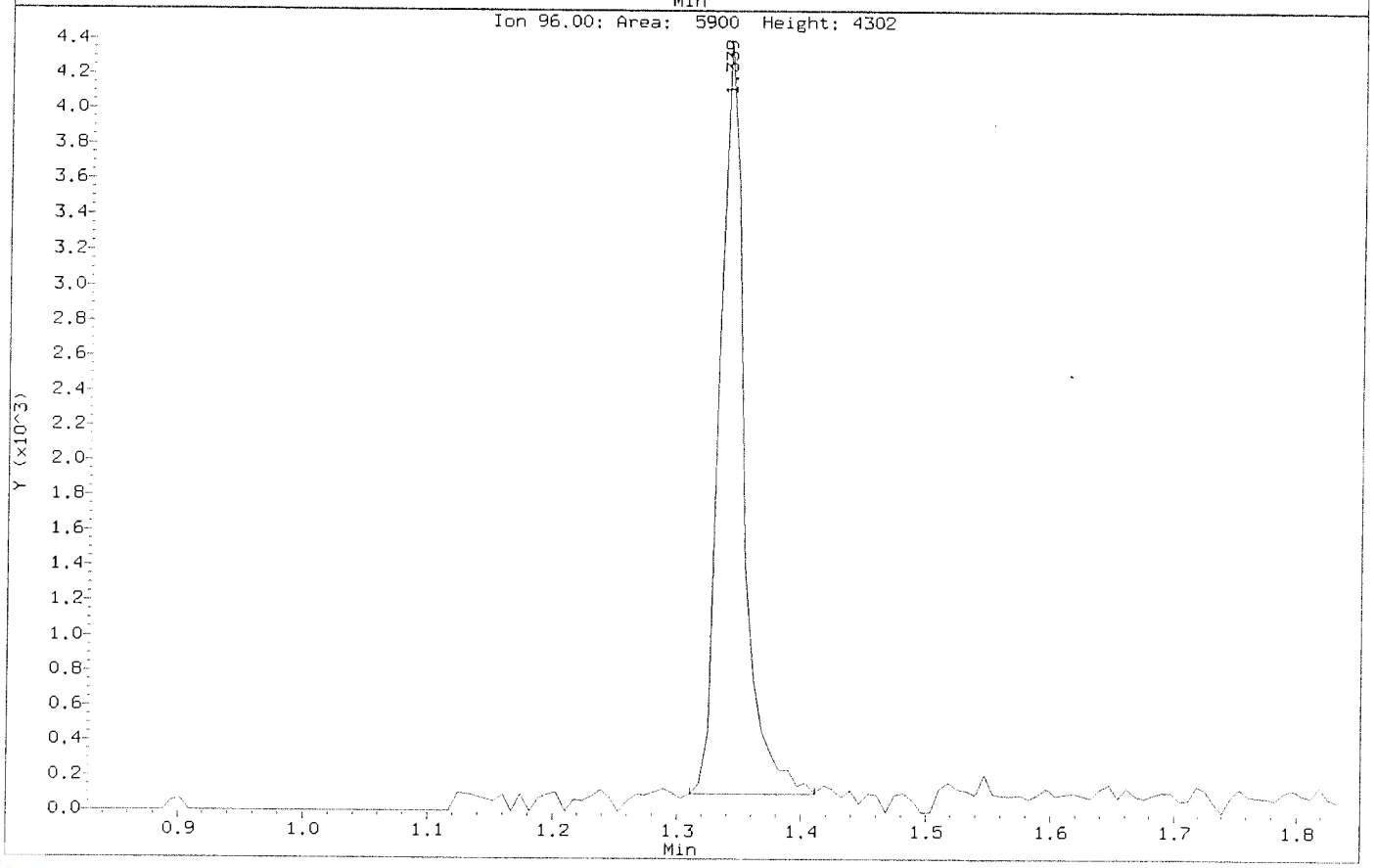
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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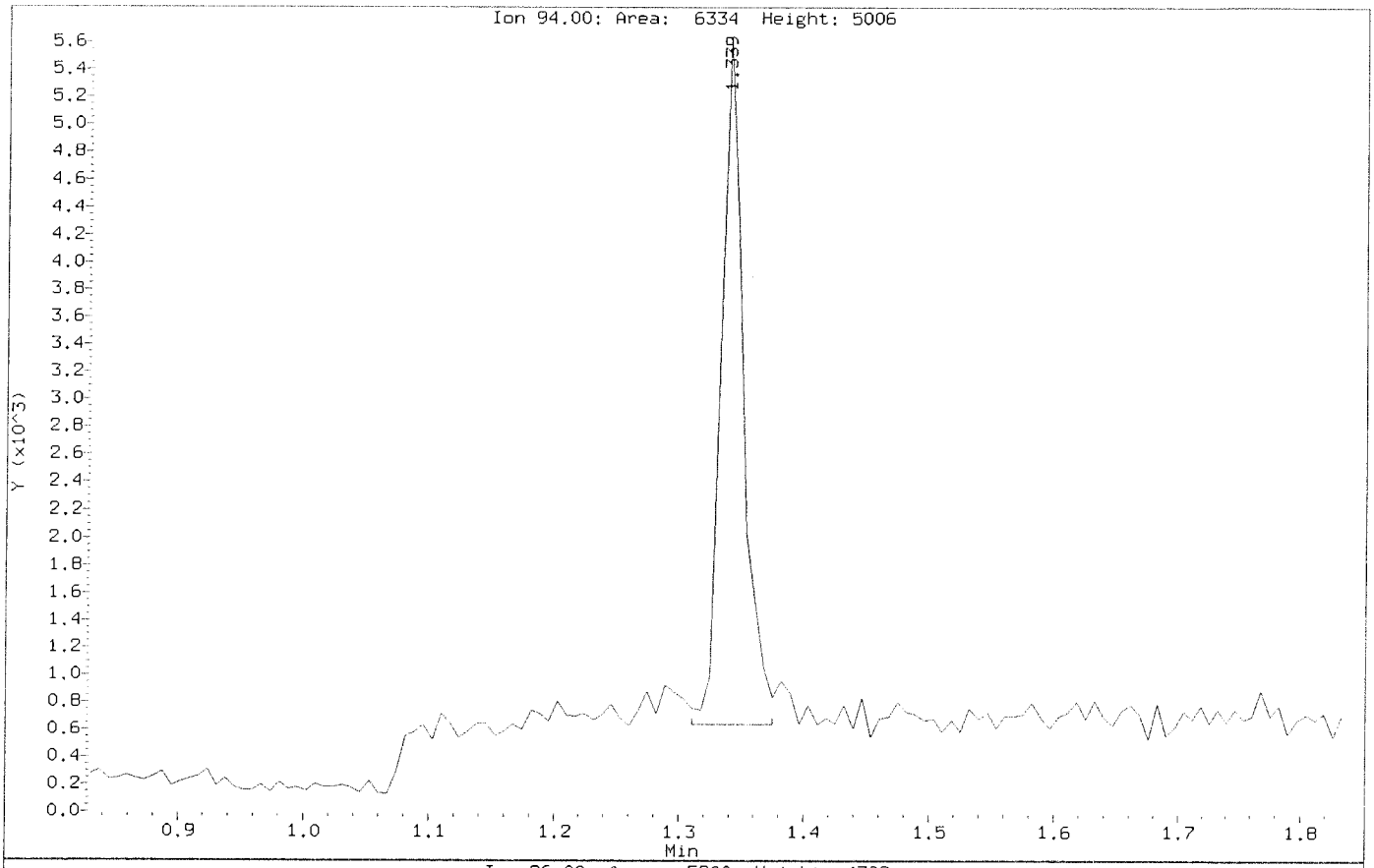
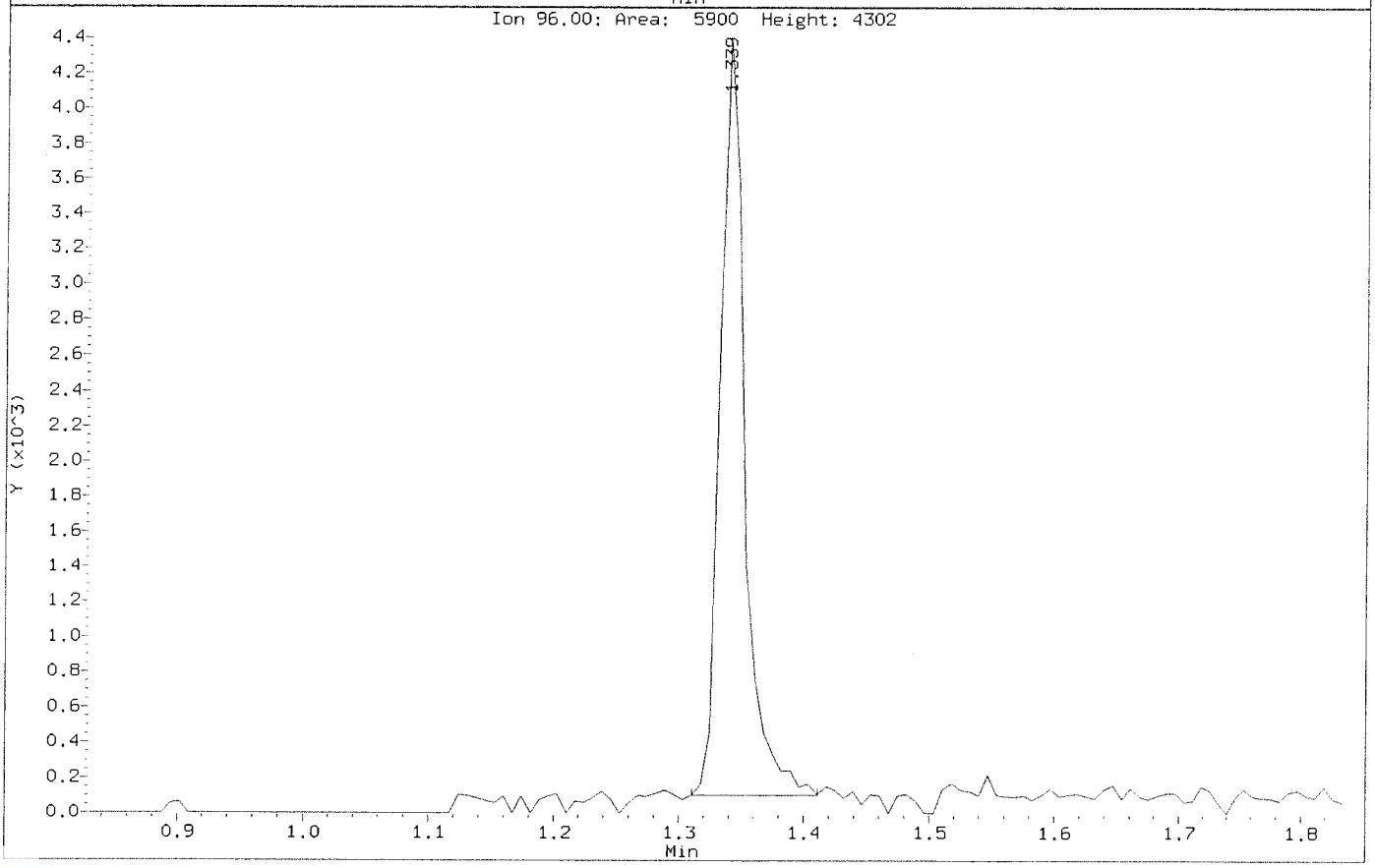
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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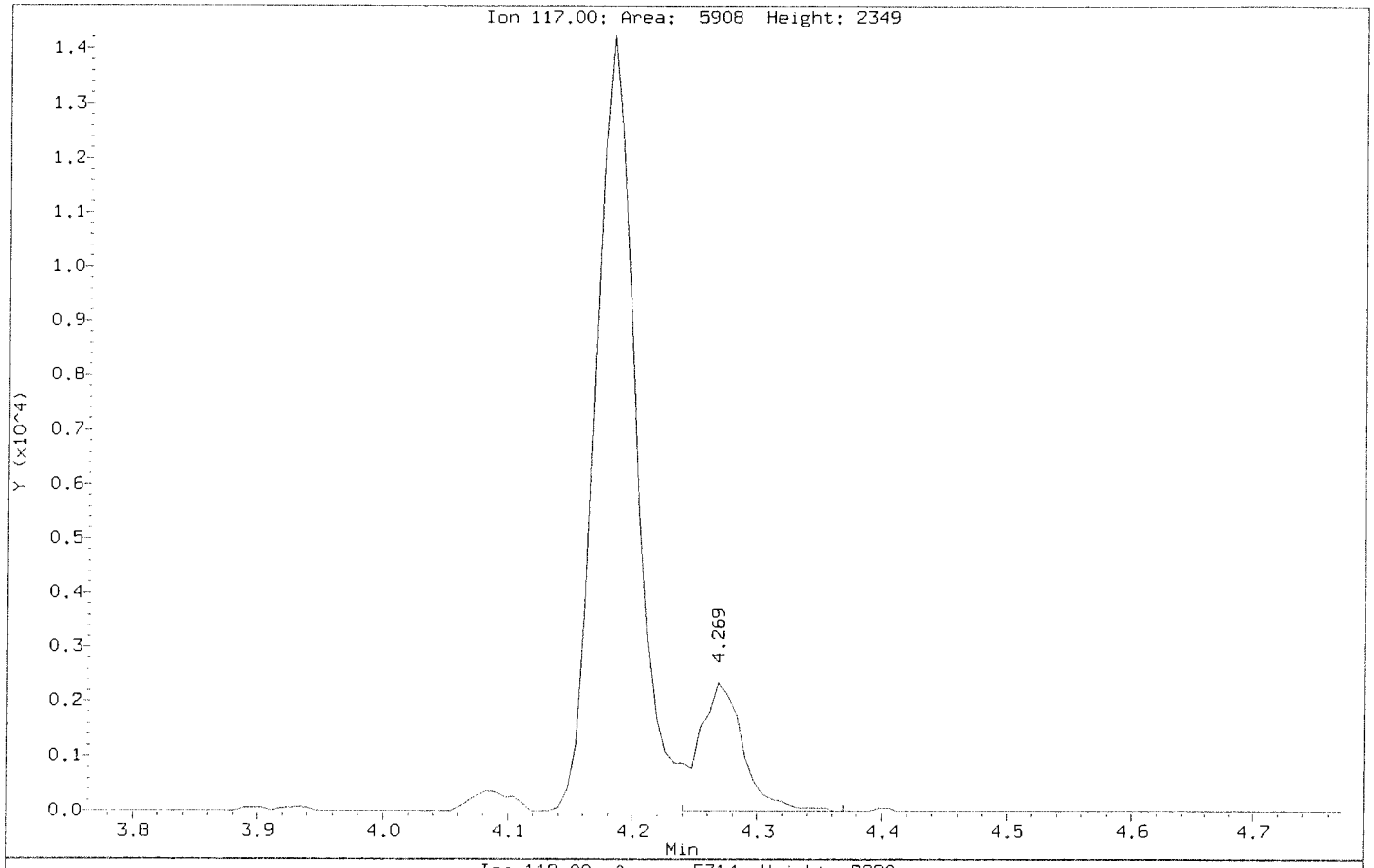
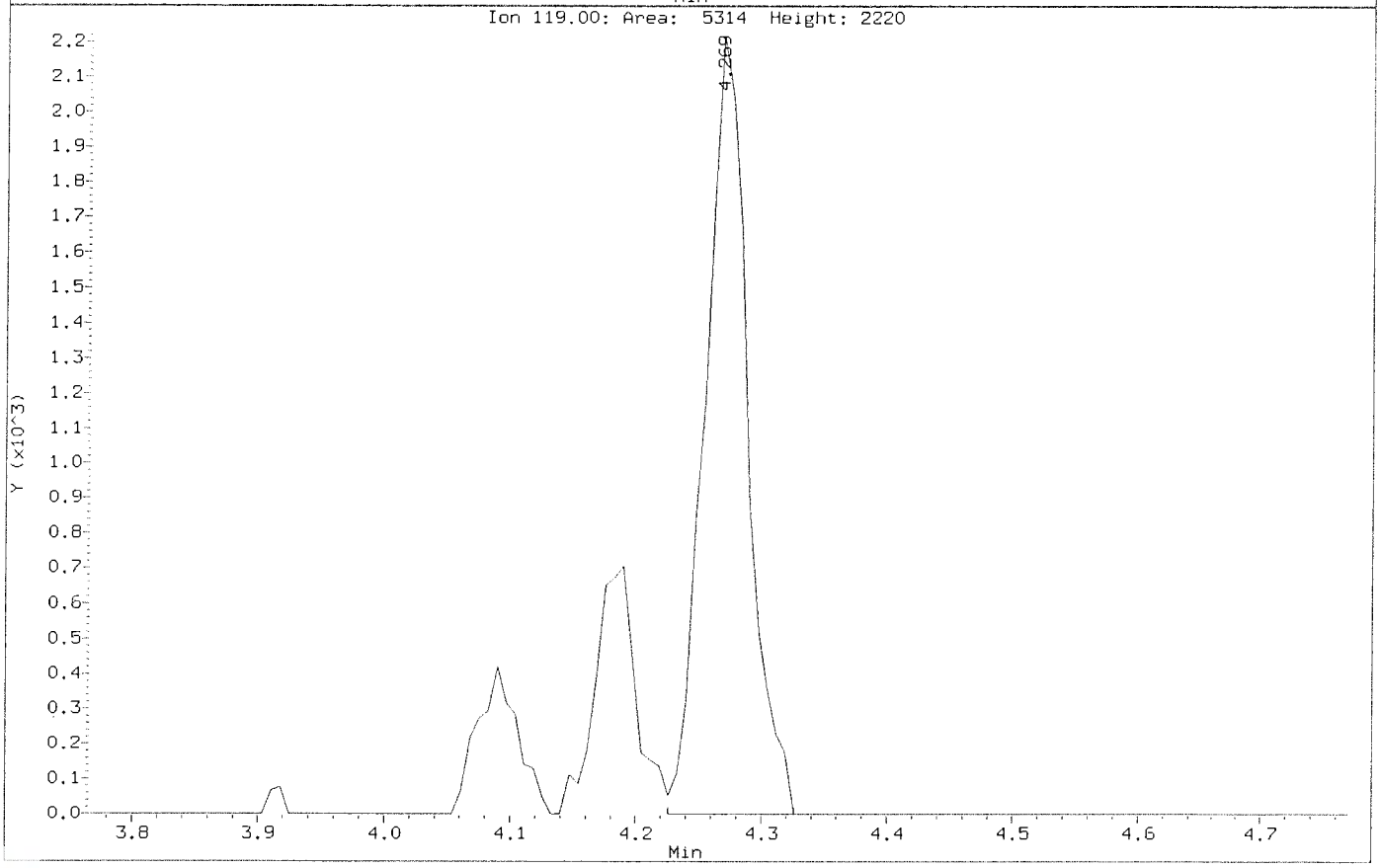
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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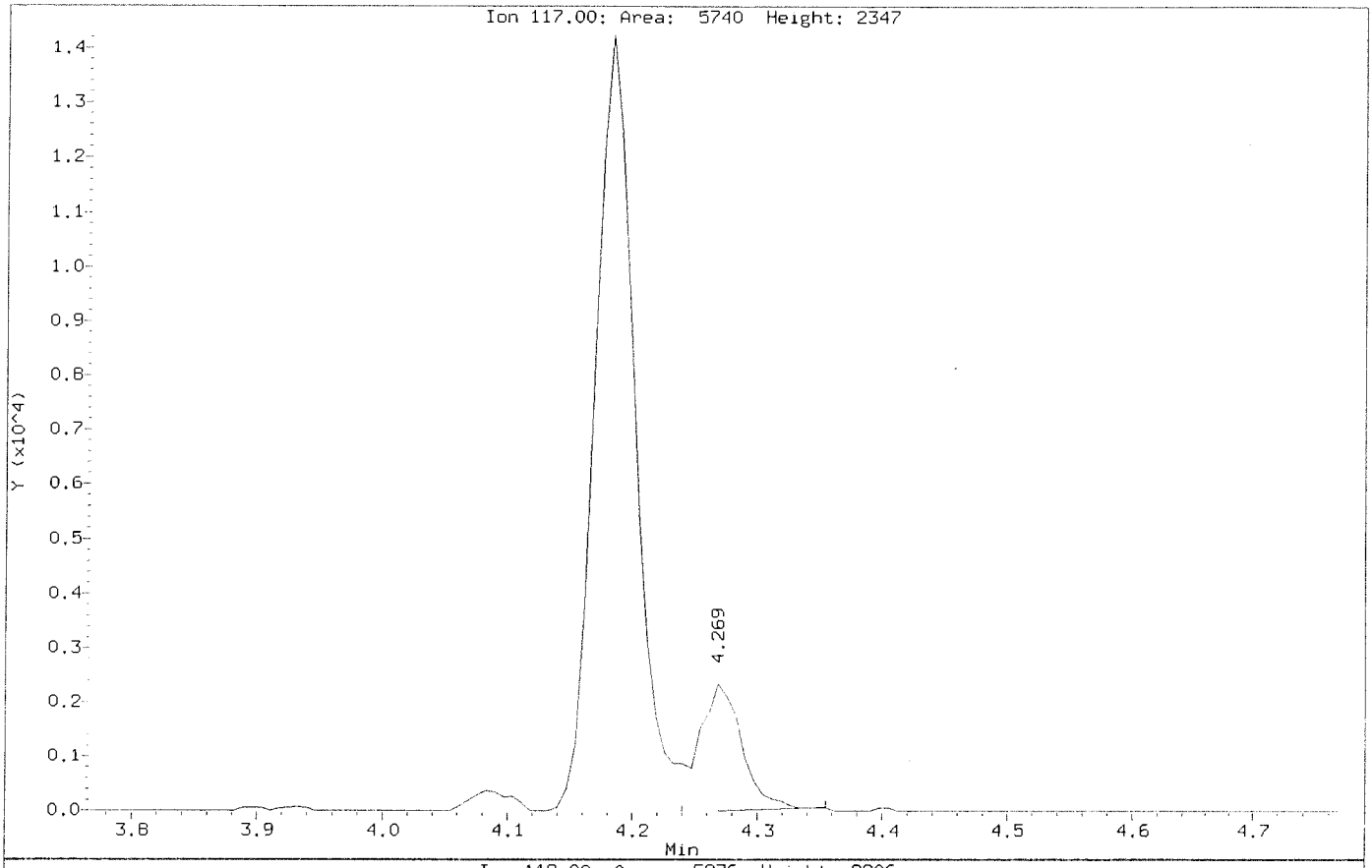
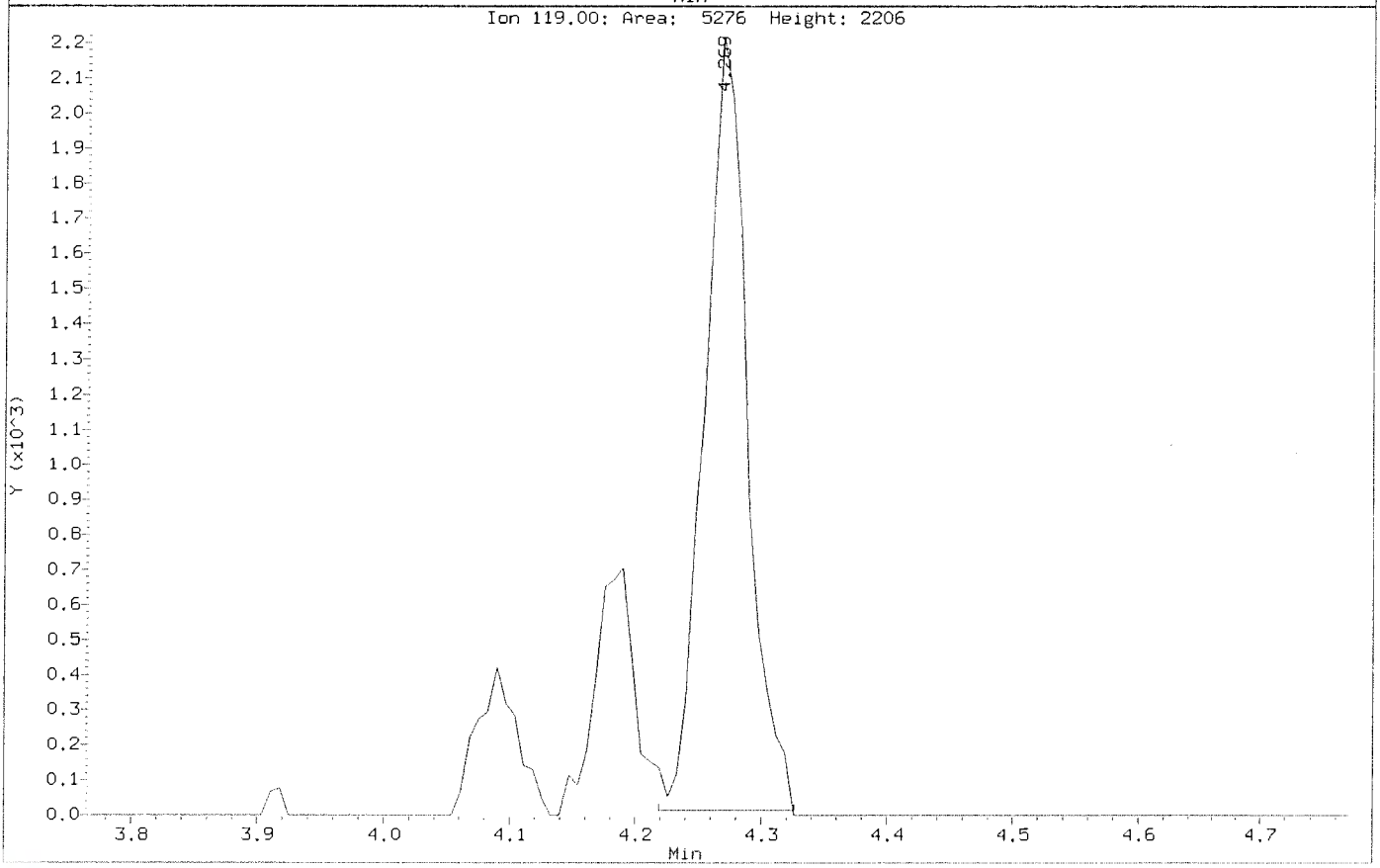
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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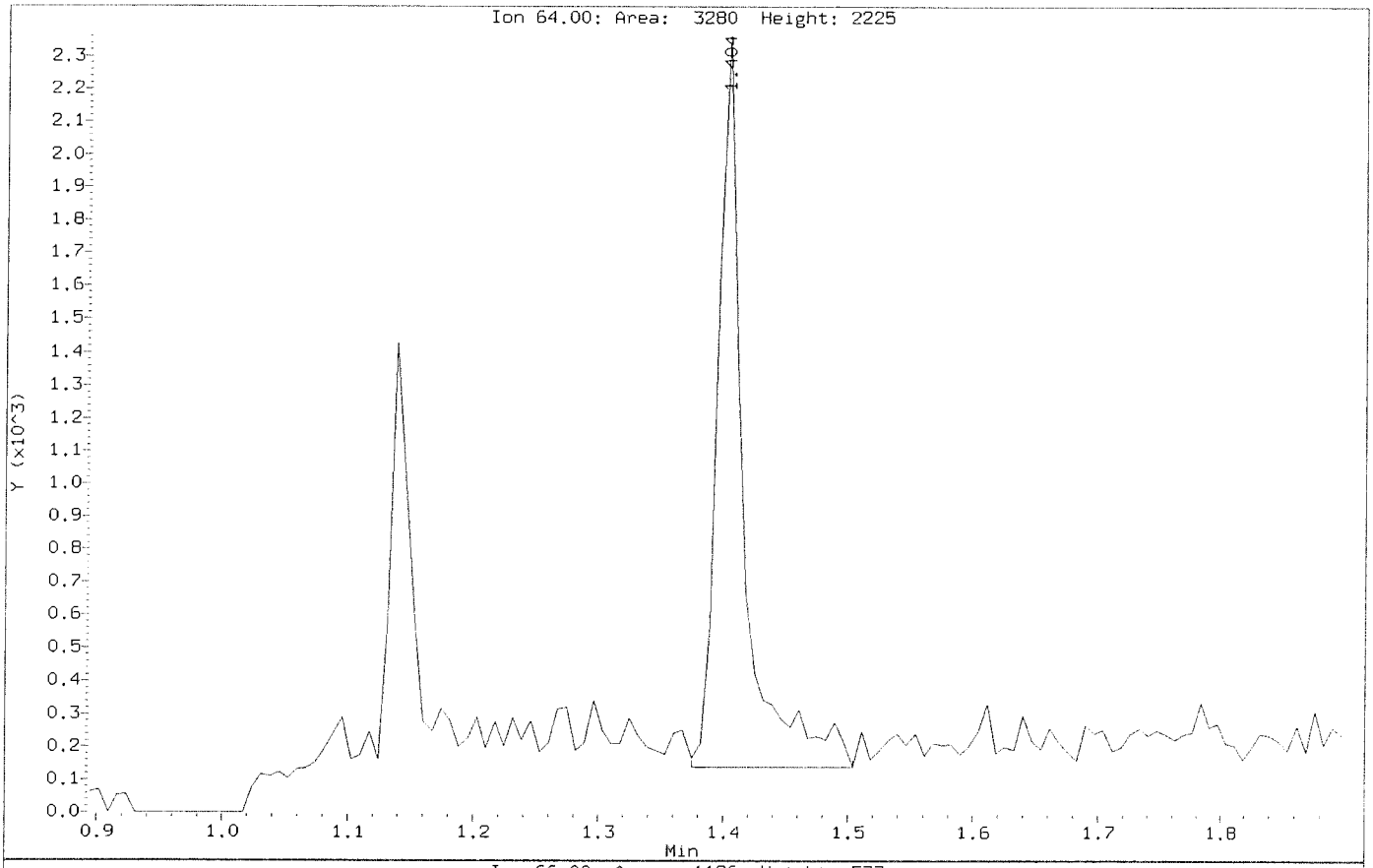
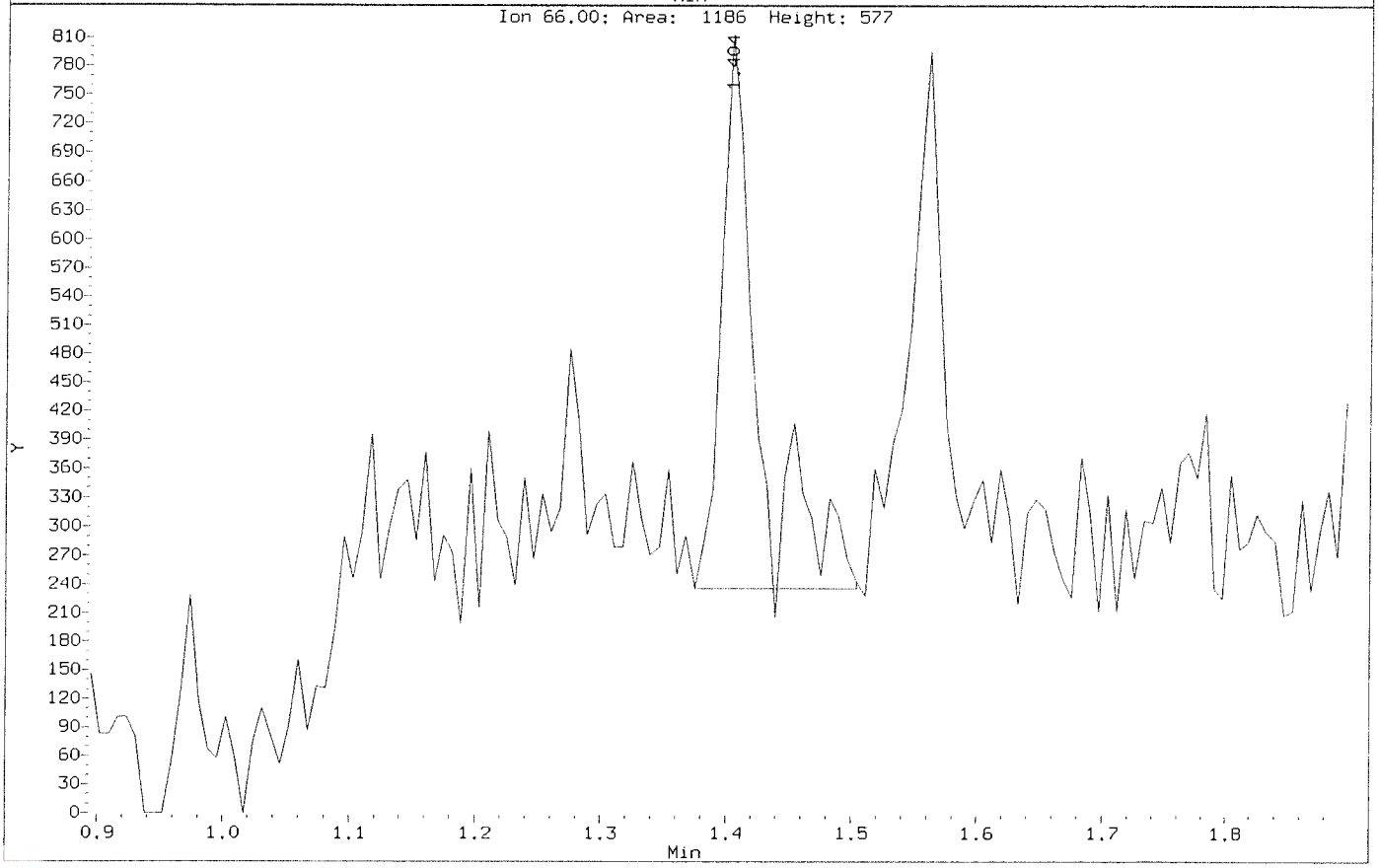
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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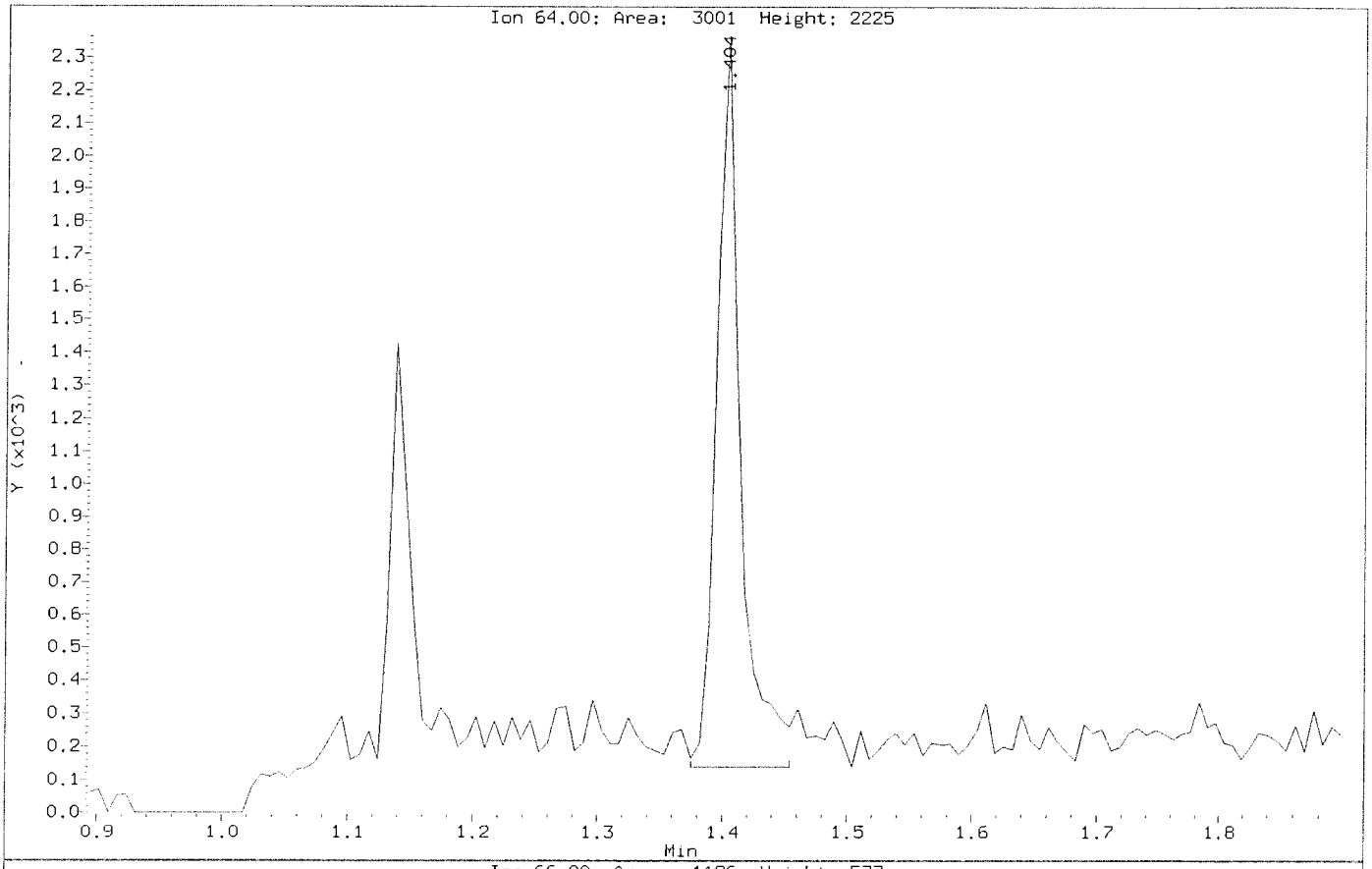
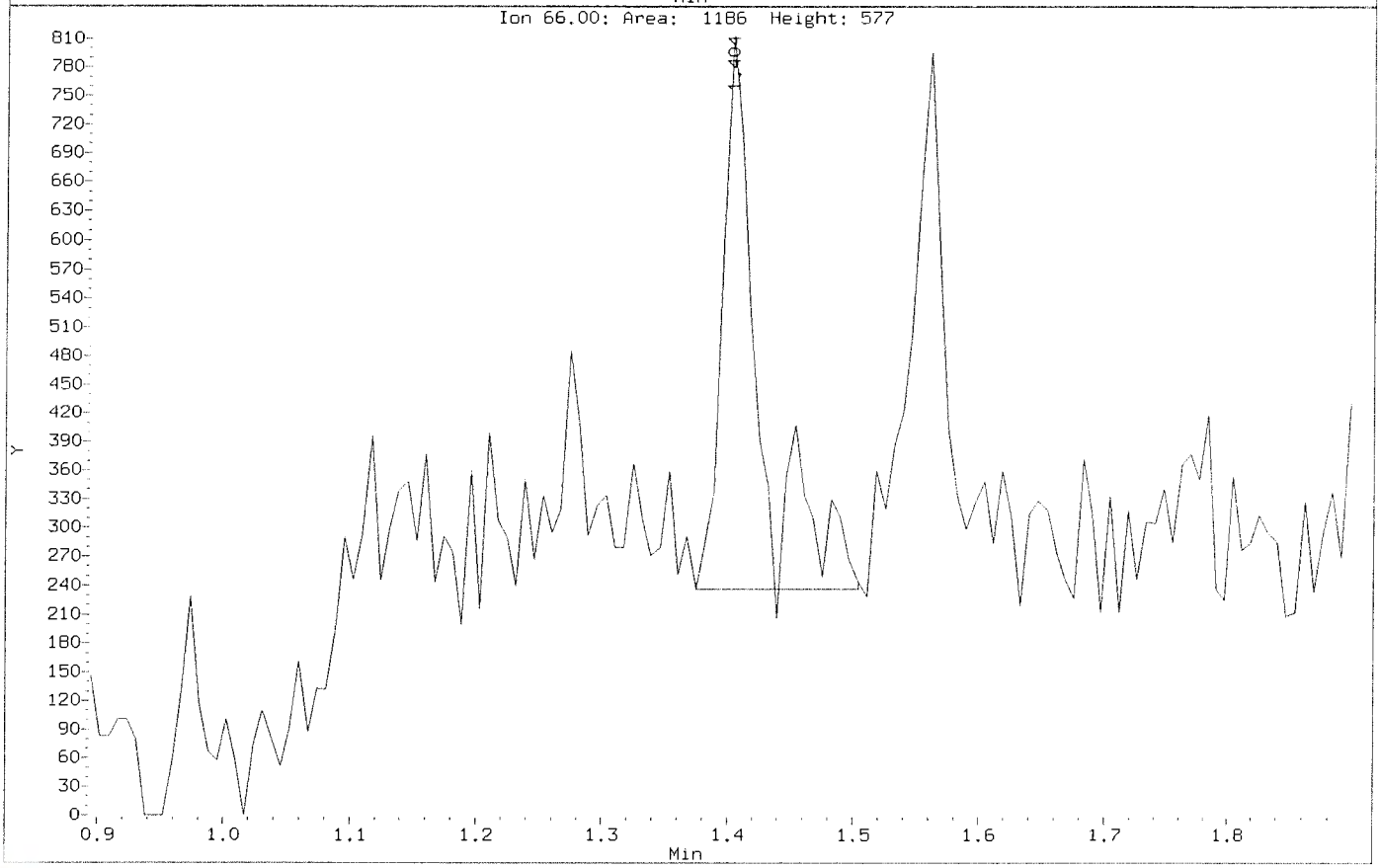
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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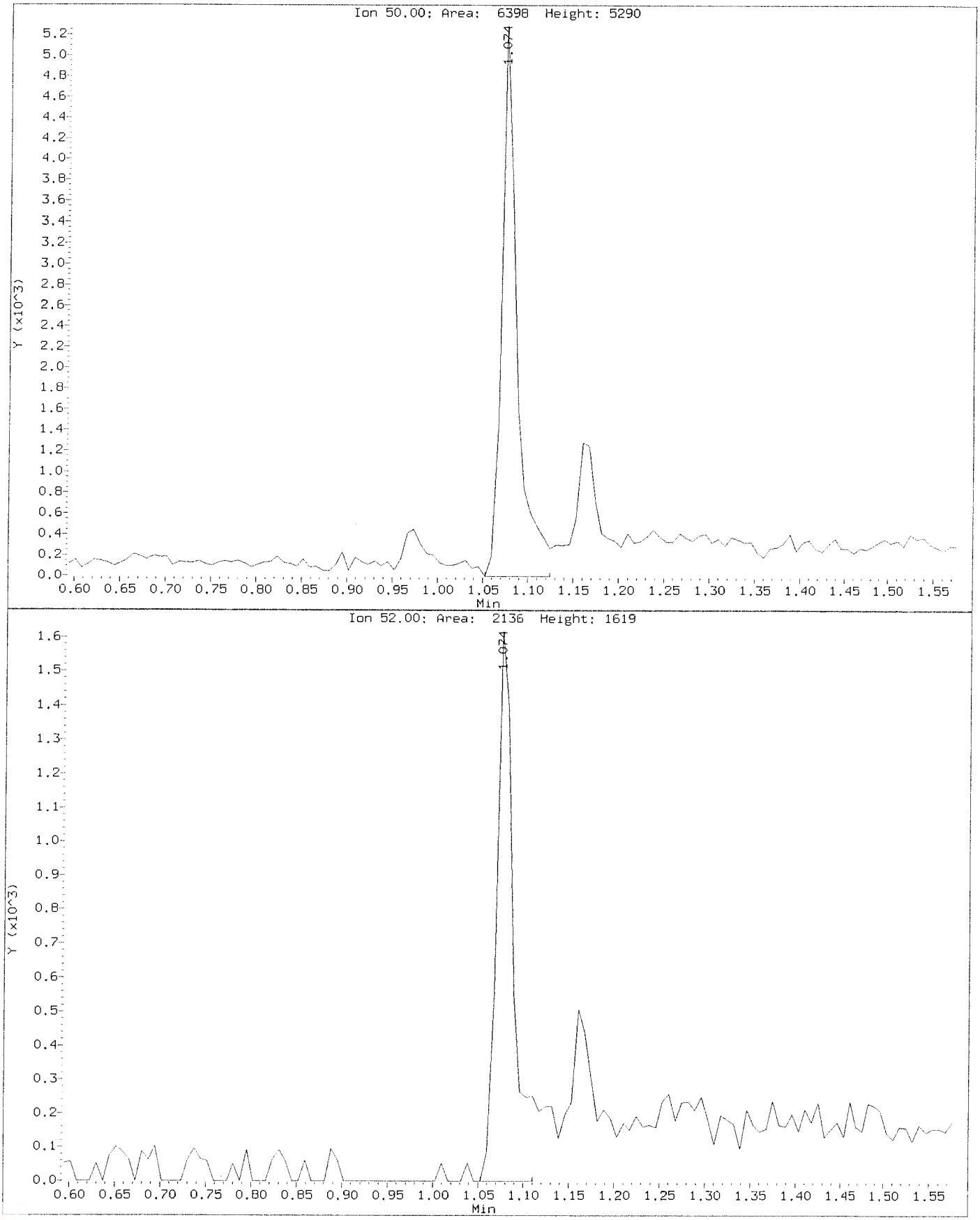
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



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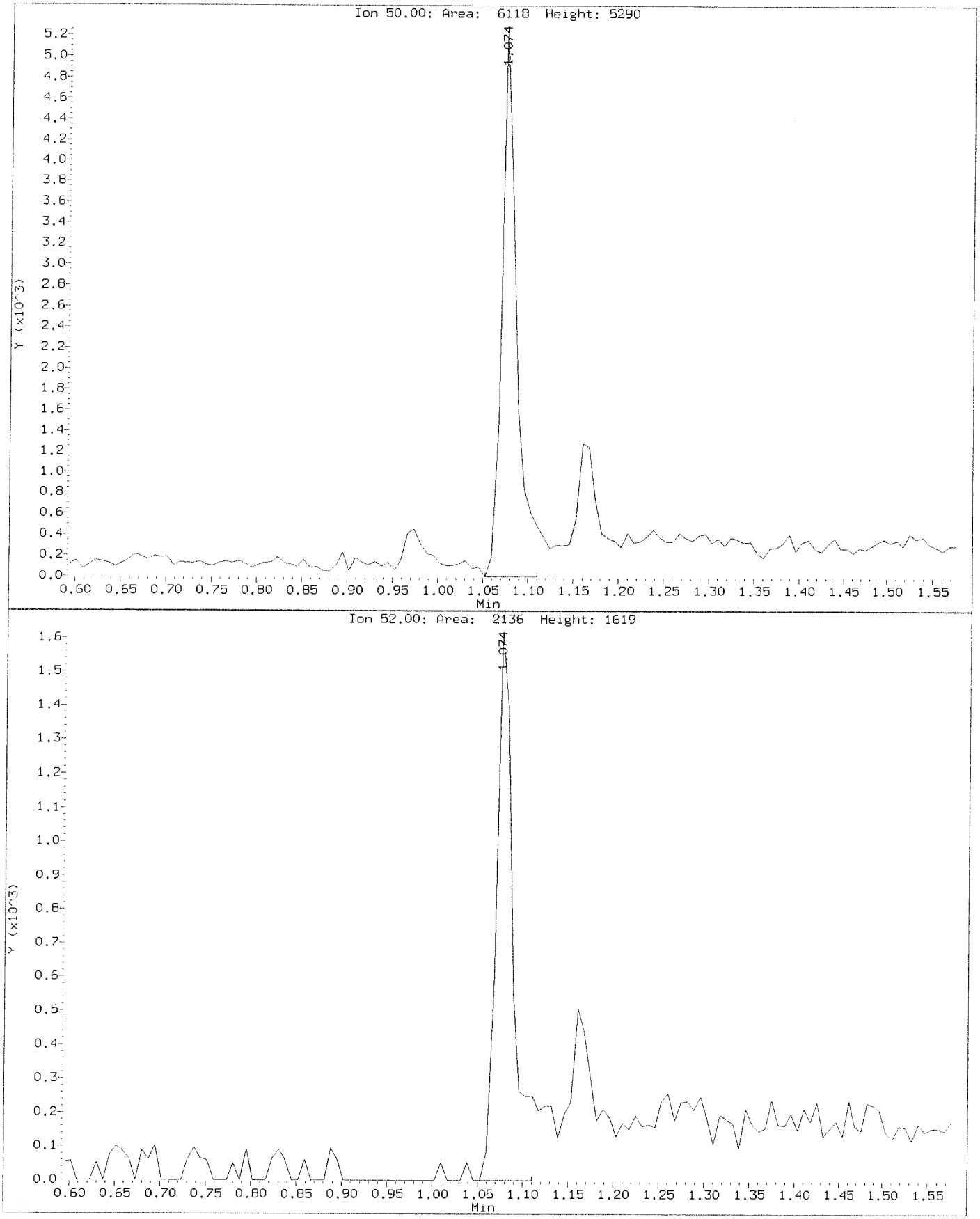
Compound: Chloromethane
CAS Number: 74-87-3



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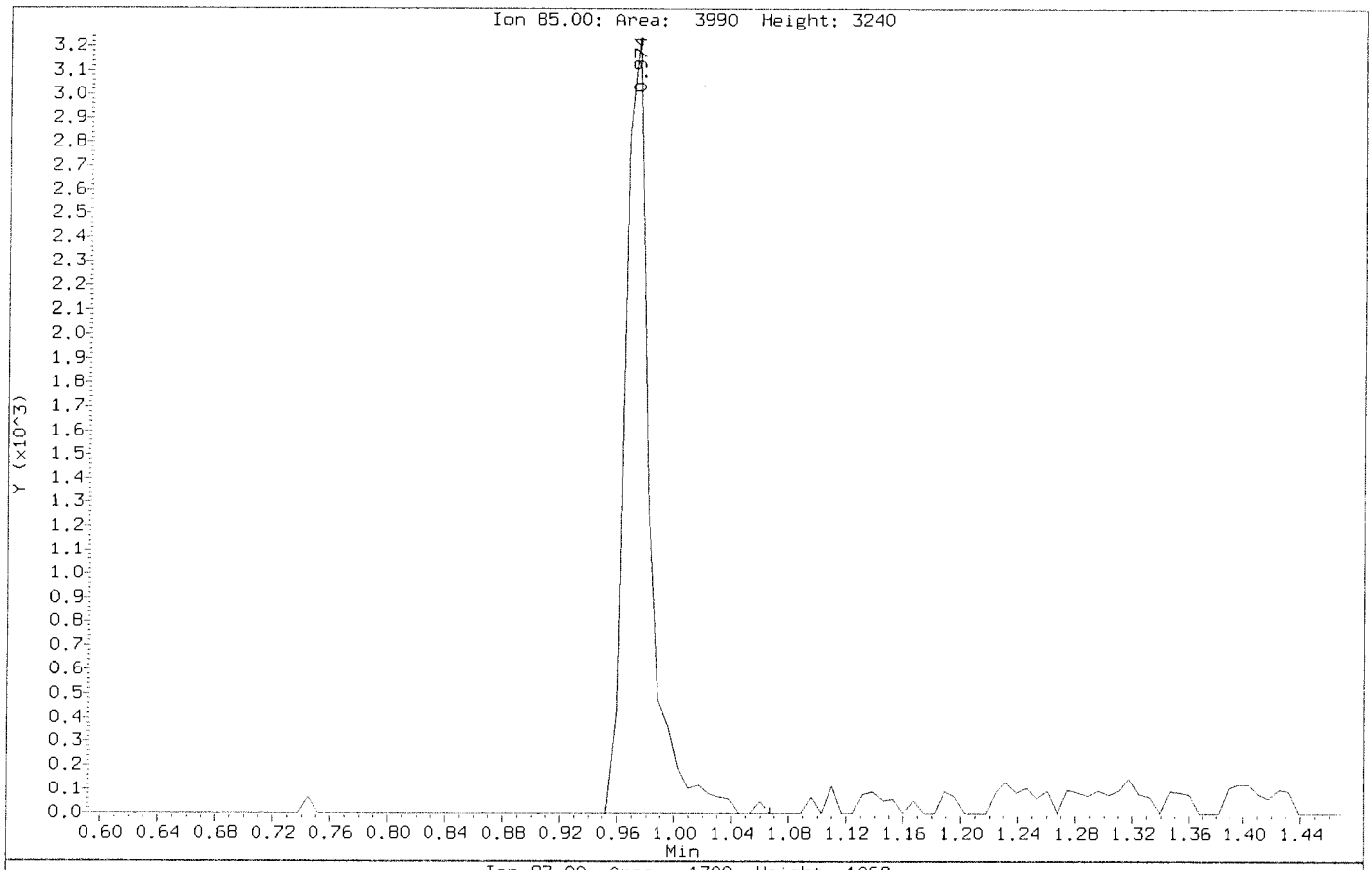
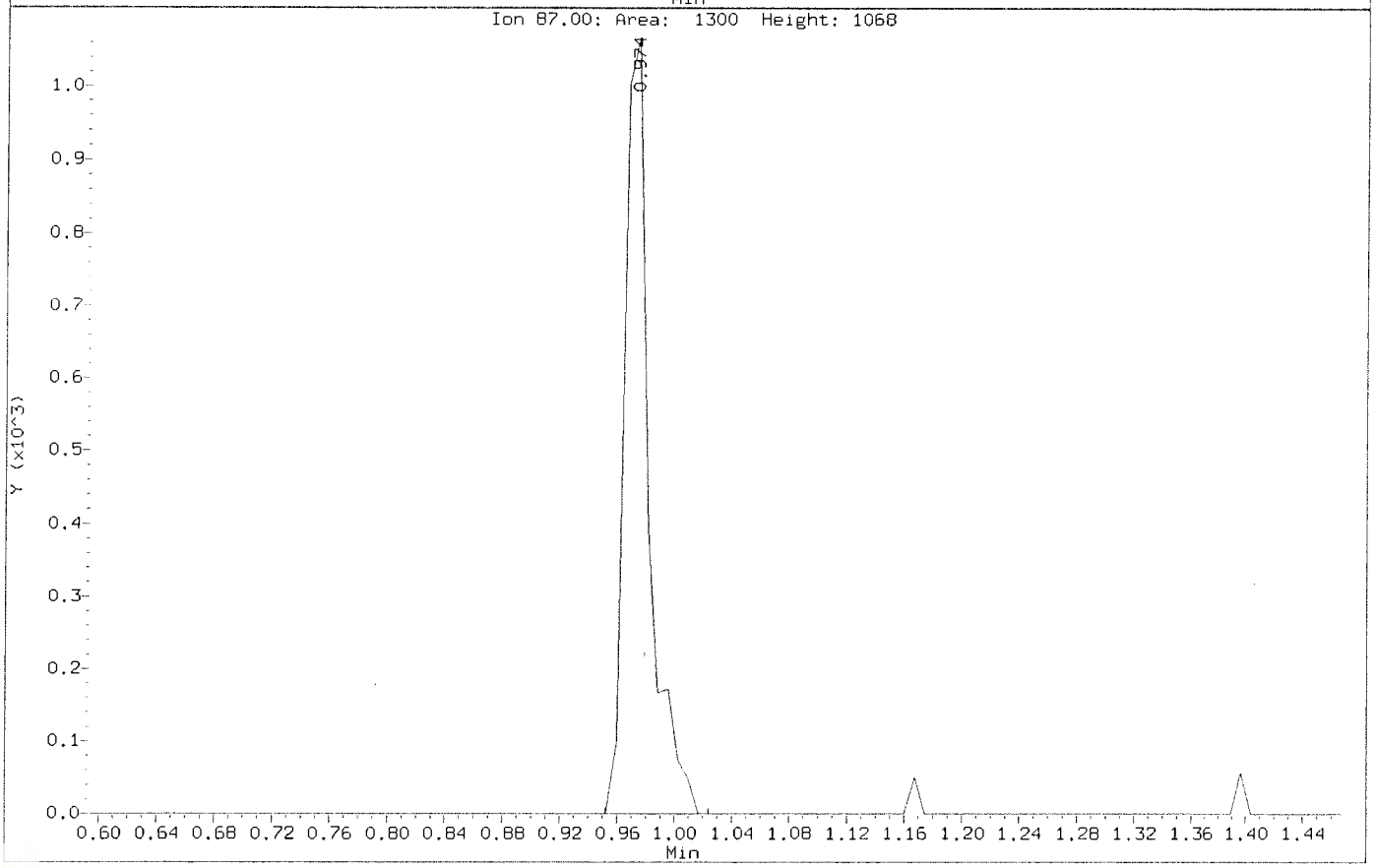
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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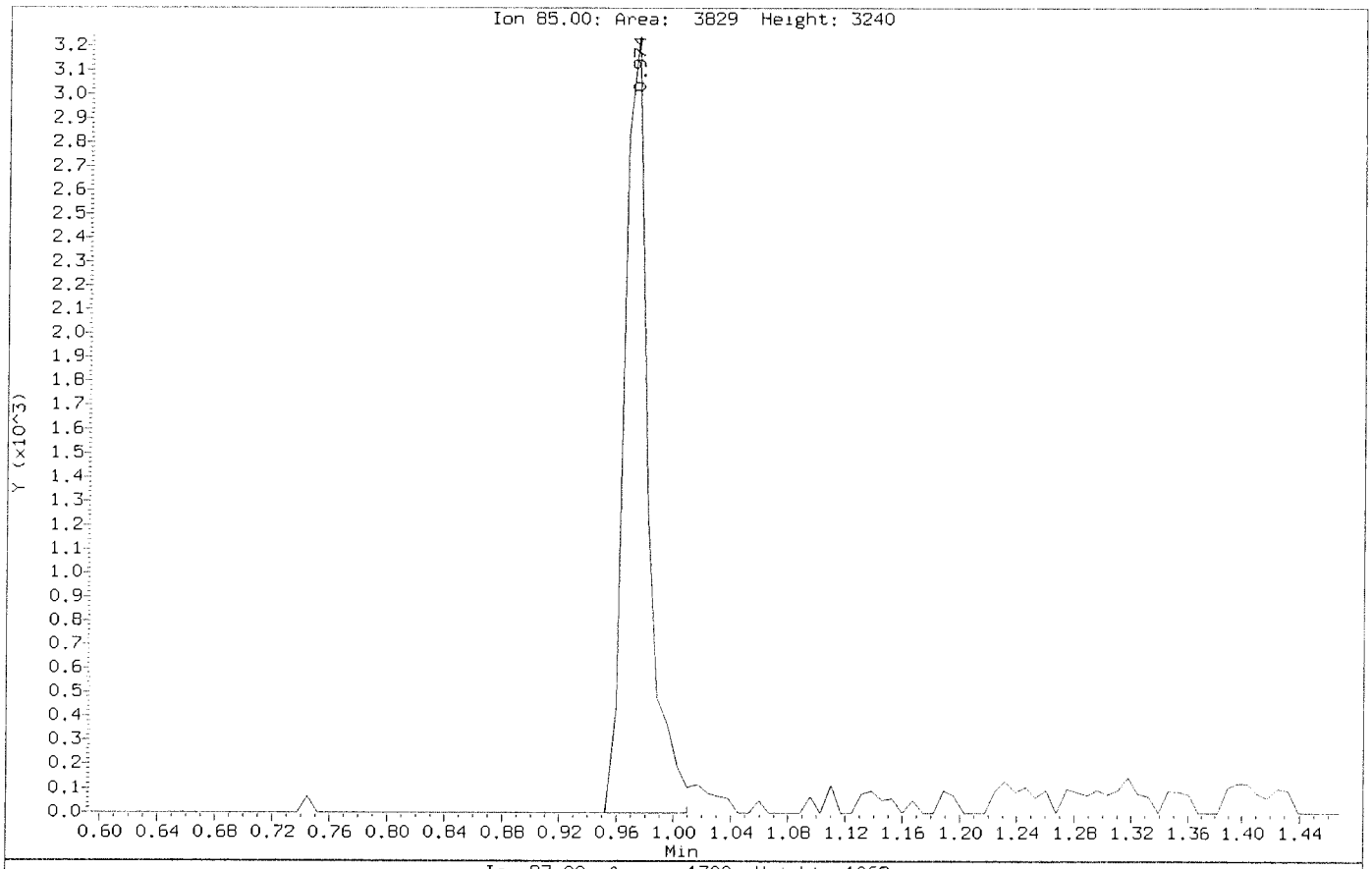
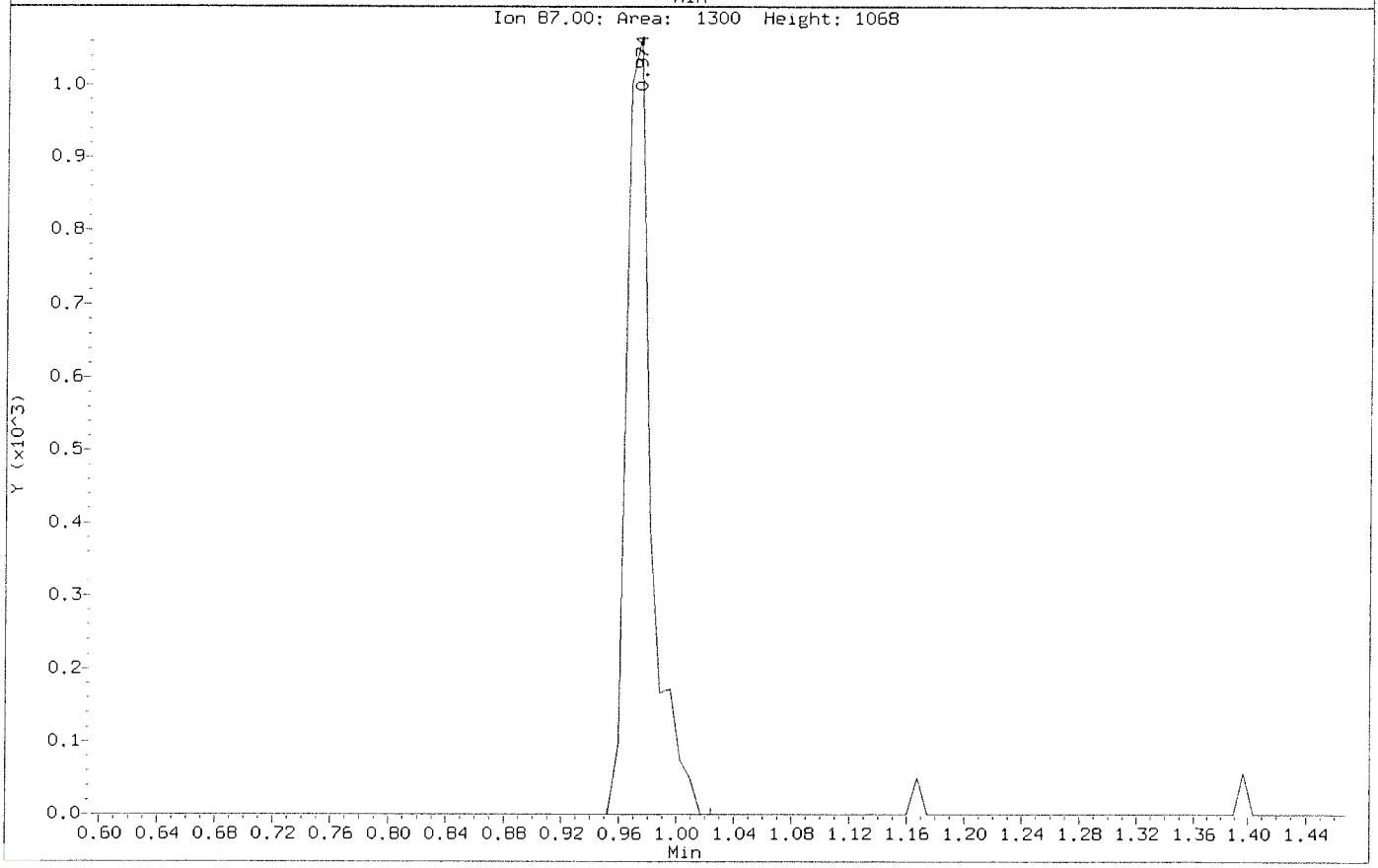
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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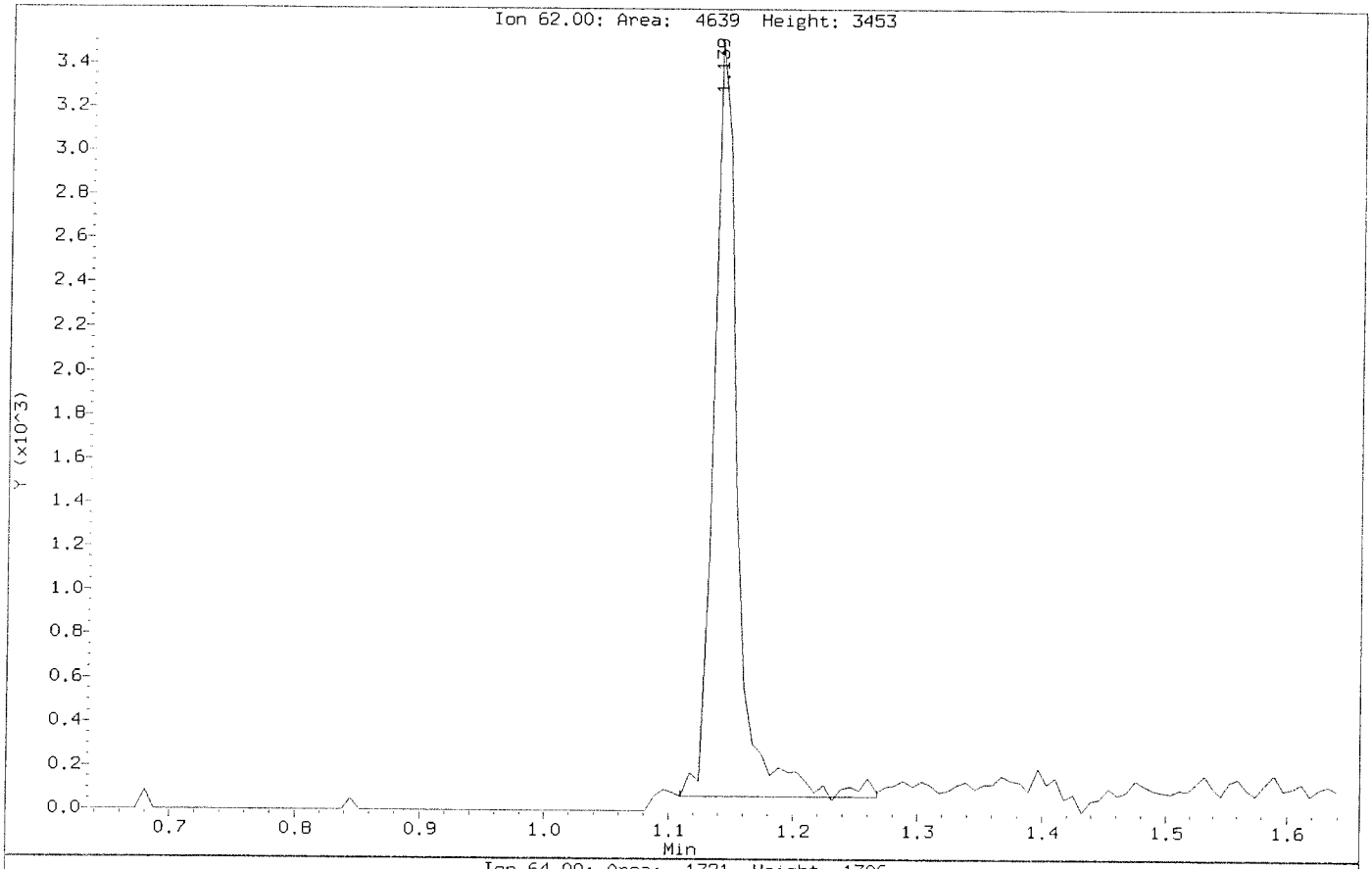
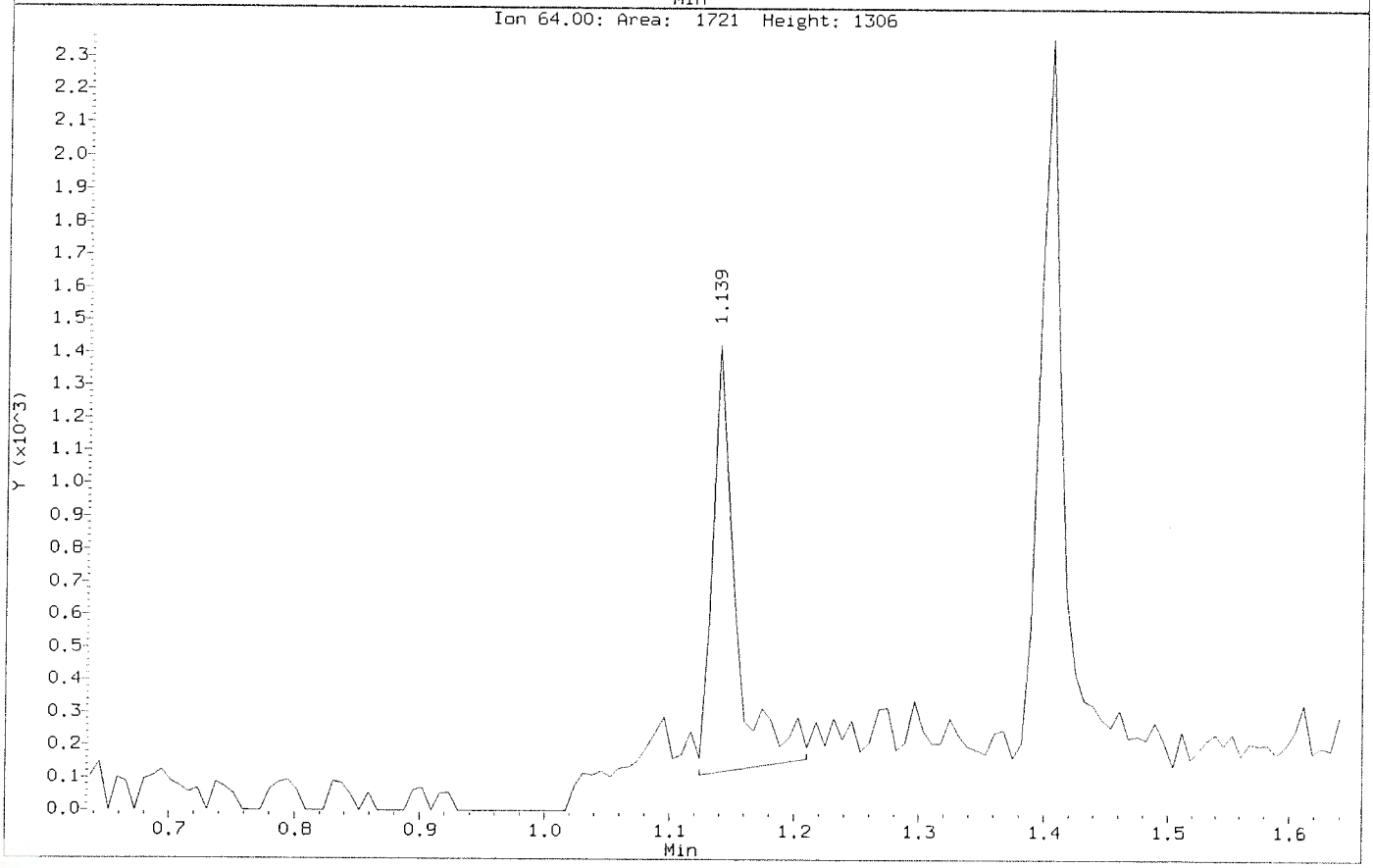
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4





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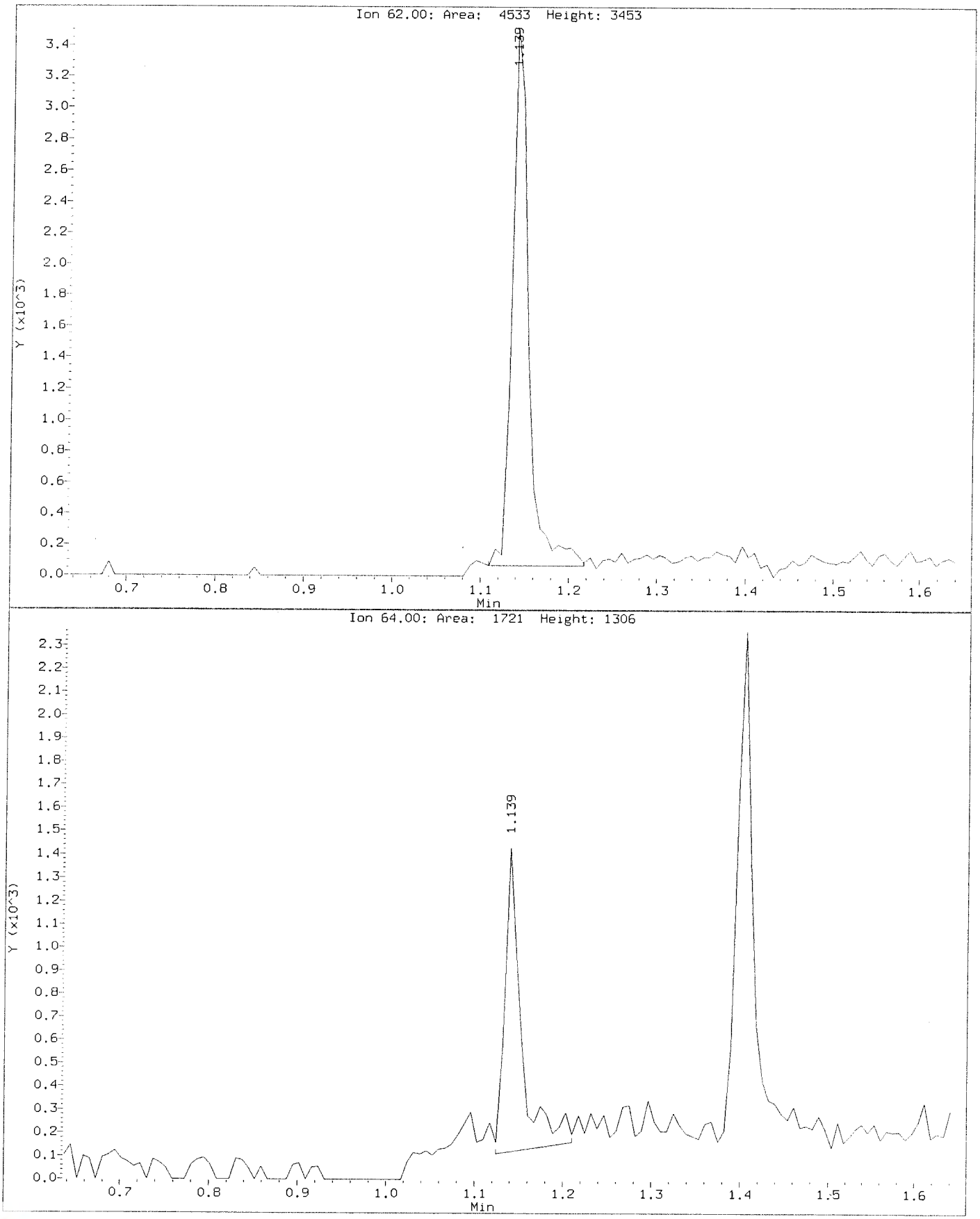
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 18-NOV-2019 15:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 14:59 Cal File: X111804.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

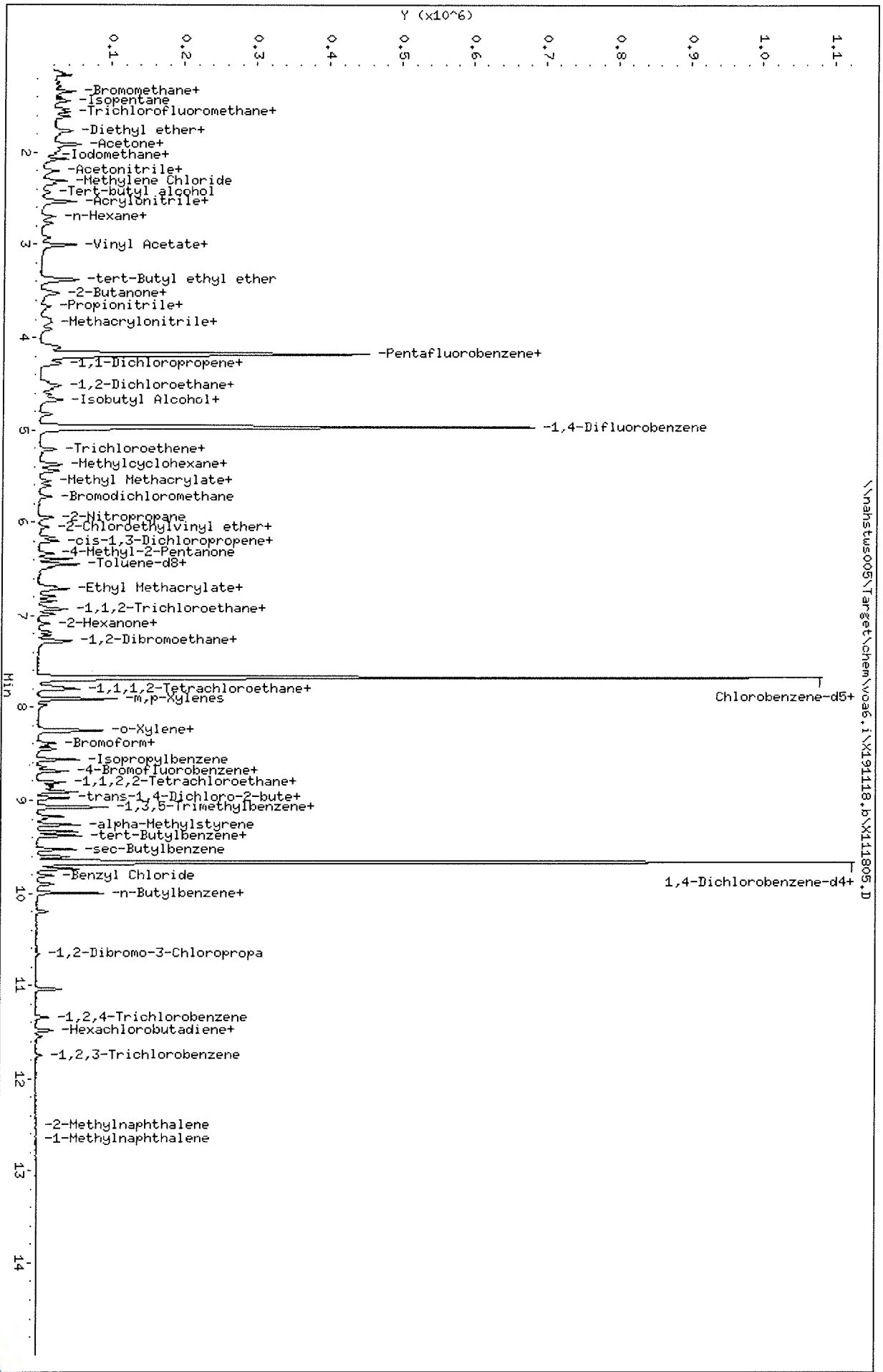
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	415277	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	574320	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	519547	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278615	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	8034	2.00000	2.76(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	10468	2.00000	2.56(a)
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	8127	2.00000	2.50(a)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	28201	2.00000	2.06(a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	7788	2.00000	2.06(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	12006	2.00000	2.14(a)
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	8194	2.00000	2.09(a)
138 Freon TF	101	1.911	1.911	(0.457)	7504	2.00000	2.07(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	5924	2.00000	2.18(a)
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	12973	2.00000	2.14(a)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	7795	2.00000	2.21(a)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	10135	2.00000	2.18(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	2753	2.00000	1.85(a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	7810	2.00000	2.35(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	5184	2.00000	2.20(a)
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	27218	2.00000	2.05(a)
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	859	2.00000	1.65(a)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	7900	2.00000	2.16(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	15931	2.00000	2.15(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	9378	2.00000	2.05(a)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	7169	2.00000	2.08(aM)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	26432	2.00000	2.08(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	17183	2.00000	2.15(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	11850	2.00000	2.14(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	17620	2.00000	2.17(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	11201	2.00000	2.04(a)
24	2-Butanone	43	3.588	3.588	(0.858)	5067	4.00000	3.97(a)
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	21210	2.00000	2.11(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	8468	4.00000	3.96(a)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	24759	2.00000	2.03(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	28289	2.00000	2.07(a)
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	13007	4.00000	4.27(a)
10	Acetone	43	1.976	1.976	(0.473)	7954	4.00000	3.82(a)
37	Benzene	78	4.519	4.519	(0.909)	28031	2.00000	2.13(a)
74	Bromobenzene	156	8.809	8.809	(0.911)	10482	2.00000	2.16(a)
29	Bromochloromethane	128	3.795	3.795	(0.908)	5128	2.00000	2.27(a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	9742	2.00000	2.04(a)
66	Bromoform	173	8.415	8.415	(1.097)	5989	2.00000	2.89(a)
6	Bromomethane	94	1.338	1.338	(0.320)	12041	2.00000	0.69(a)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	40384	4.00000	4.21(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	11097	2.00000	2.18(aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	21369	2.00000	2.10(a)
7	Chloroethane	64	1.403	1.403	(0.336)	5731	2.00000	2.19(a)
28	Chloroform	83	3.910	3.910	(0.935)	14792	2.00000	2.19(a)
3	Chloromethane	50	1.073	1.073	(0.257)	10461	2.00000	2.49(a)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	8197	2.00000	2.08(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	11415	2.00000	2.03(a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	8154	2.00000	2.06(a)
44	Dibromomethane	93	5.557	5.557	(1.118)	5355	2.00000	2.20(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	7335	2.00000	2.78(a)
61	Ethylbenzene	106	7.799	7.799	(1.017)	10700	2.00000	2.04(a)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	4522	2.00000	1.82(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	32629	2.00000	2.10(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	26786	4.00000	4.23(a)
17	Methylene Chloride	84	2.305	2.305	(0.551)	8025	2.00000	2.13(a)
87	n-Butylbenzene	91	9.998	9.998	(1.034)	22333	2.00000	1.96(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	35573	2.00000	2.06(a)
92	Naphthalene	128	11.553	11.553	(1.195)	6733	2.00000	2.23(a)
63	o-Xylene	106	8.244	8.244	(1.075)	13637	2.00000	2.18(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	31860	2.00000	2.12(a)
64	Styrene	104	8.265	8.265	(1.078)	22366	2.00000	2.06(a)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	22956	2.00000	2.11(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	8185	2.00000	2.24(a)
50	Toluene	91	6.453	6.453	(0.841)	31139	2.00000	2.11(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	7239	2.00000	2.11(a)
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	10523	2.00000	2.06(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	8894	2.00000	2.21(a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	13581	2.00000	2.10(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	9073	2.00000	2.14(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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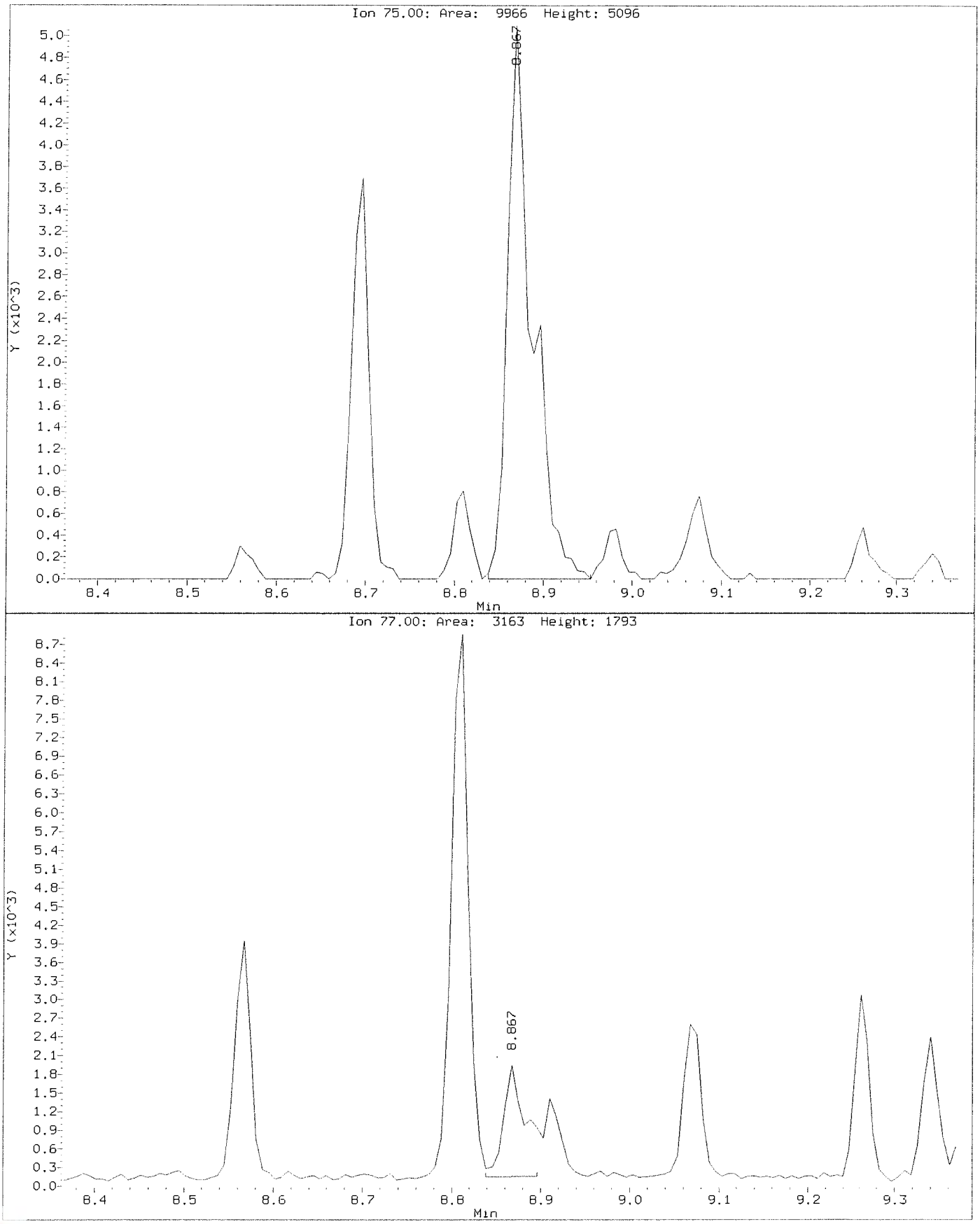
Client ID: VSTD002
Sample Info: VSTD002;VSTD002:1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111805.D
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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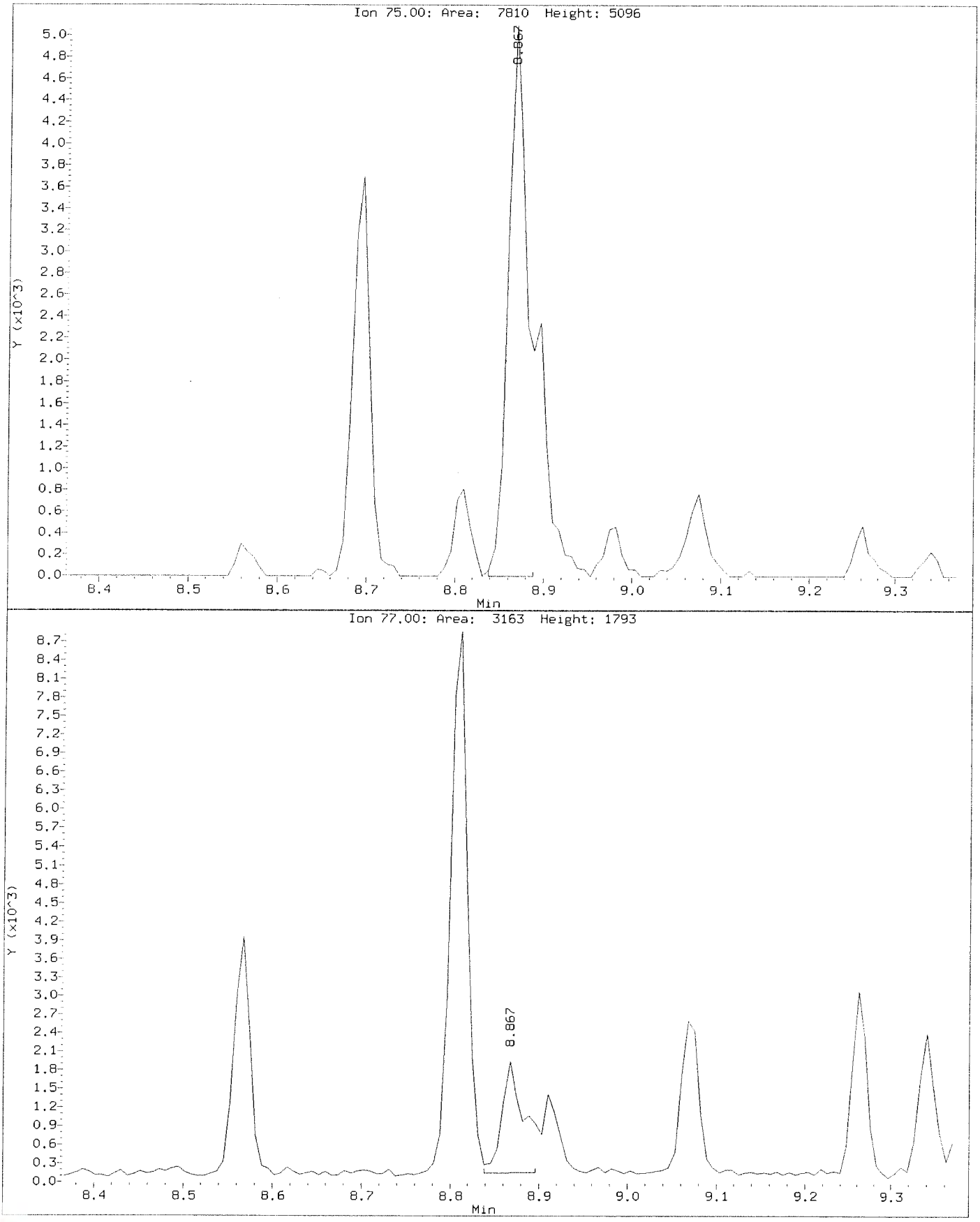
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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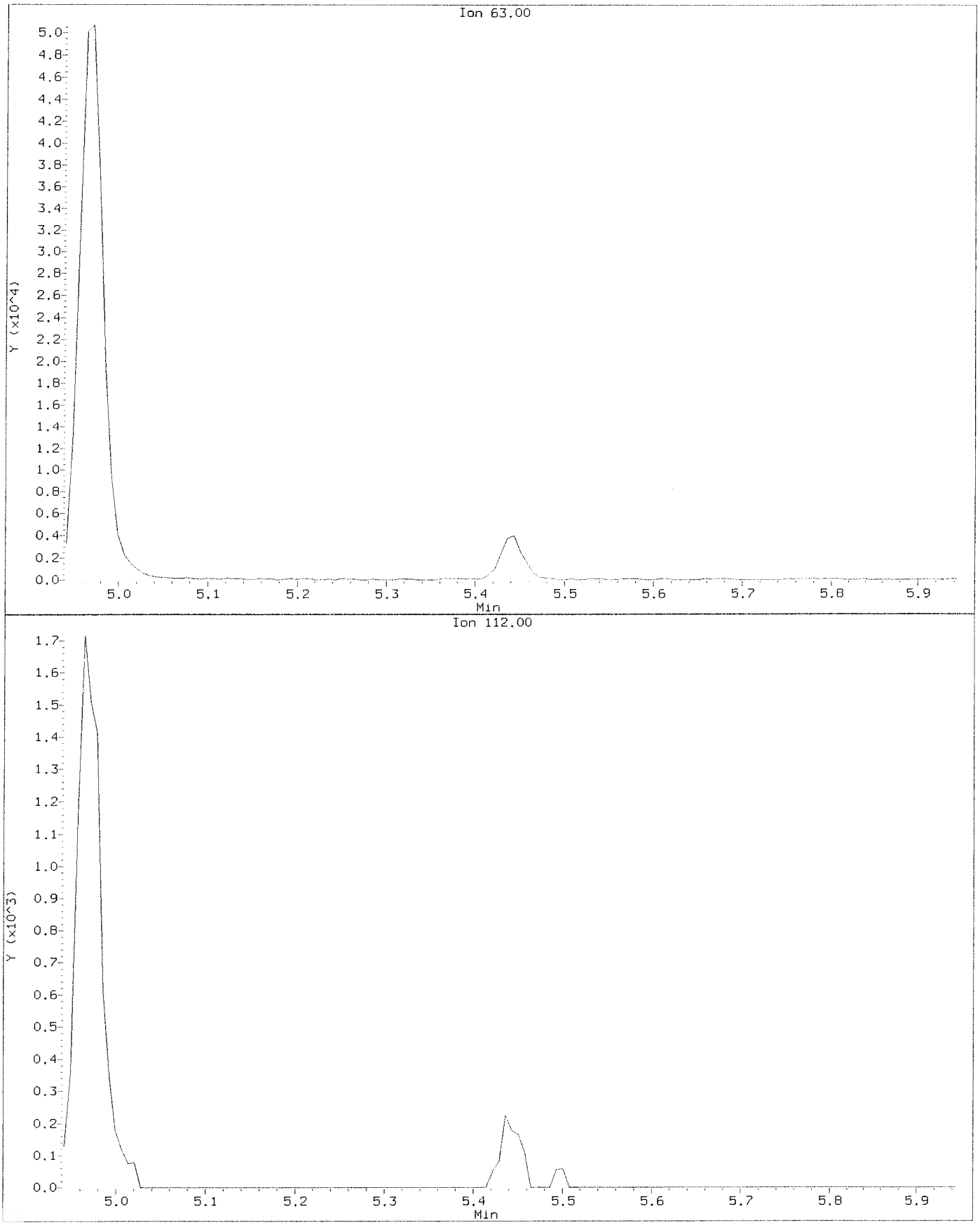
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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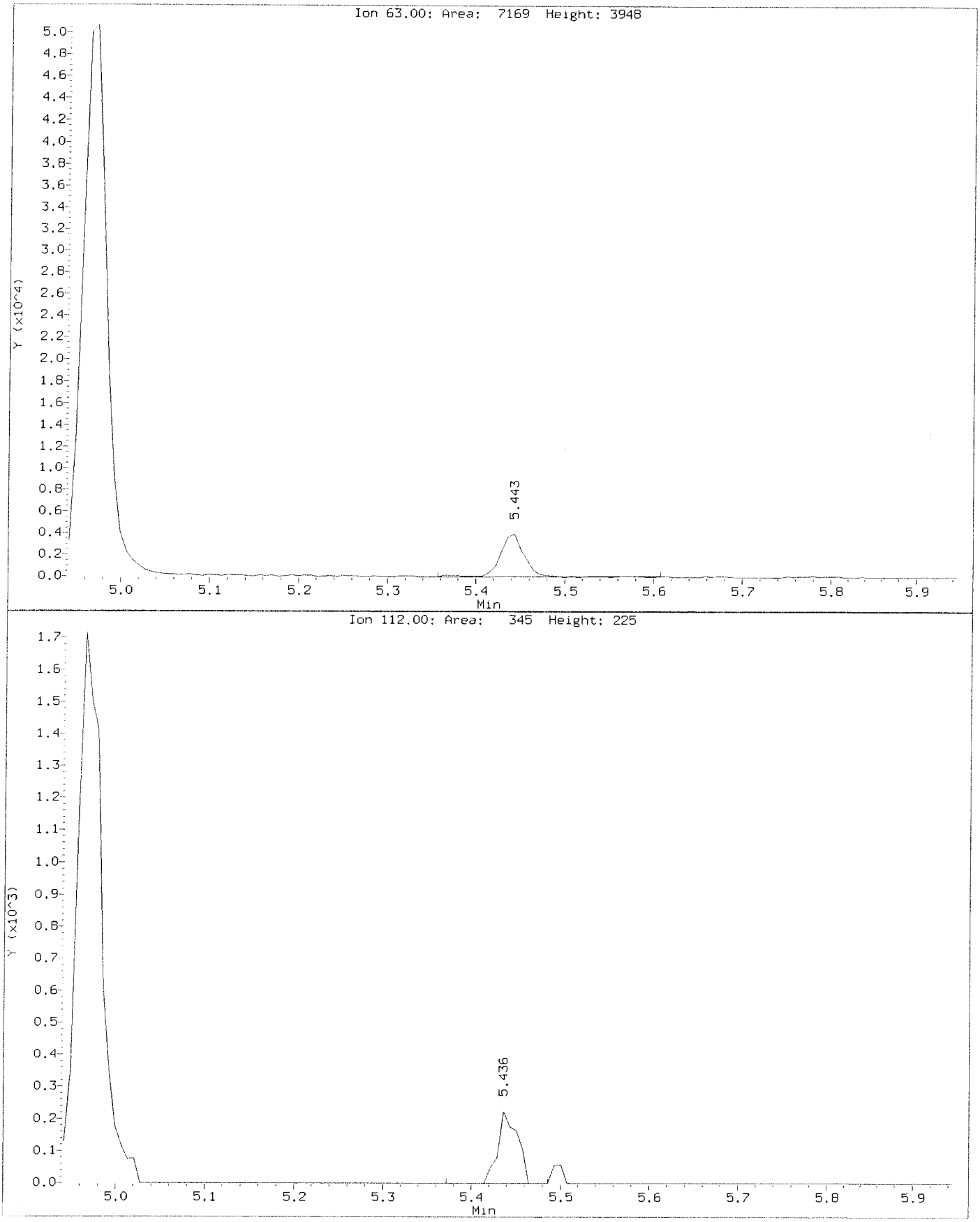
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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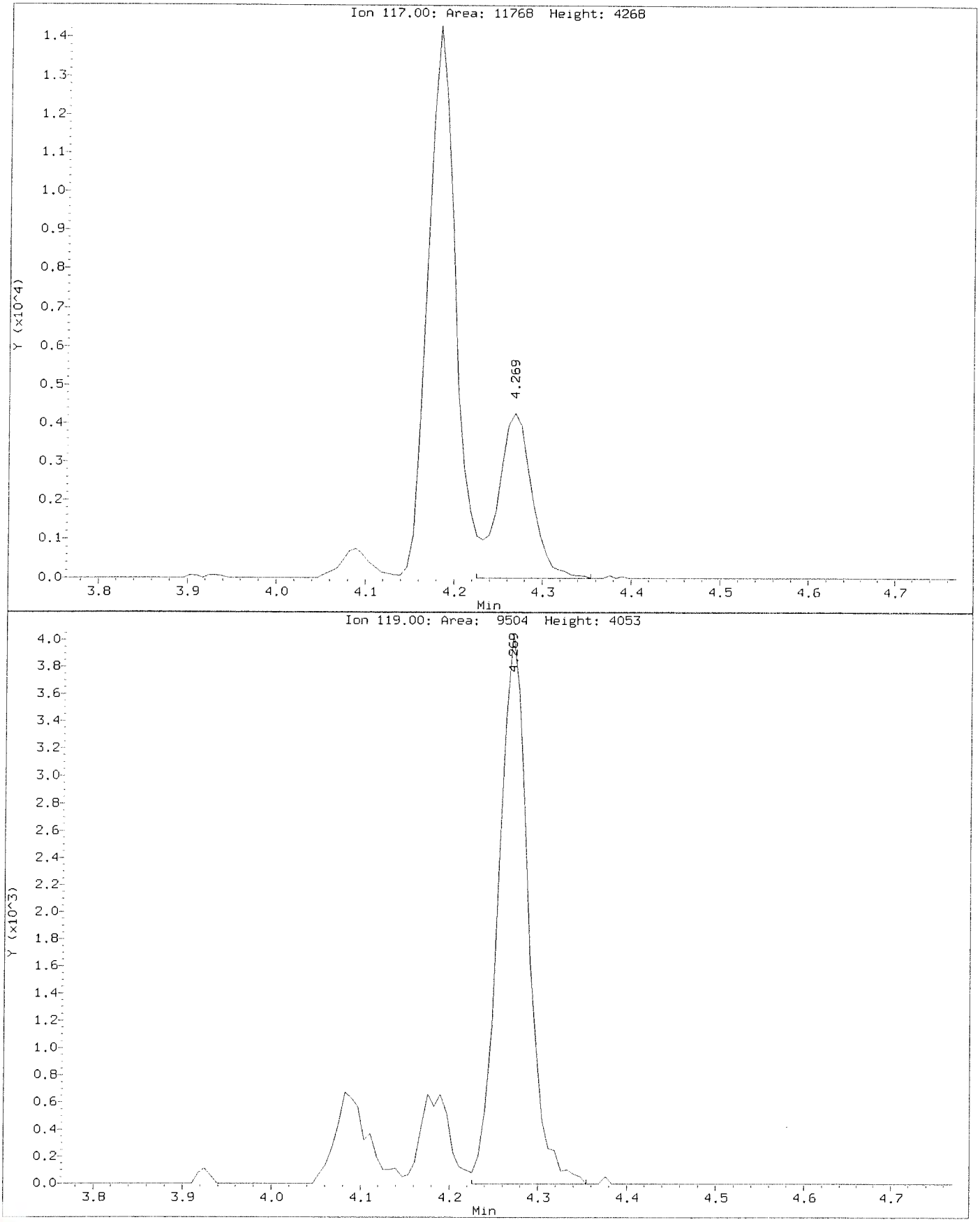
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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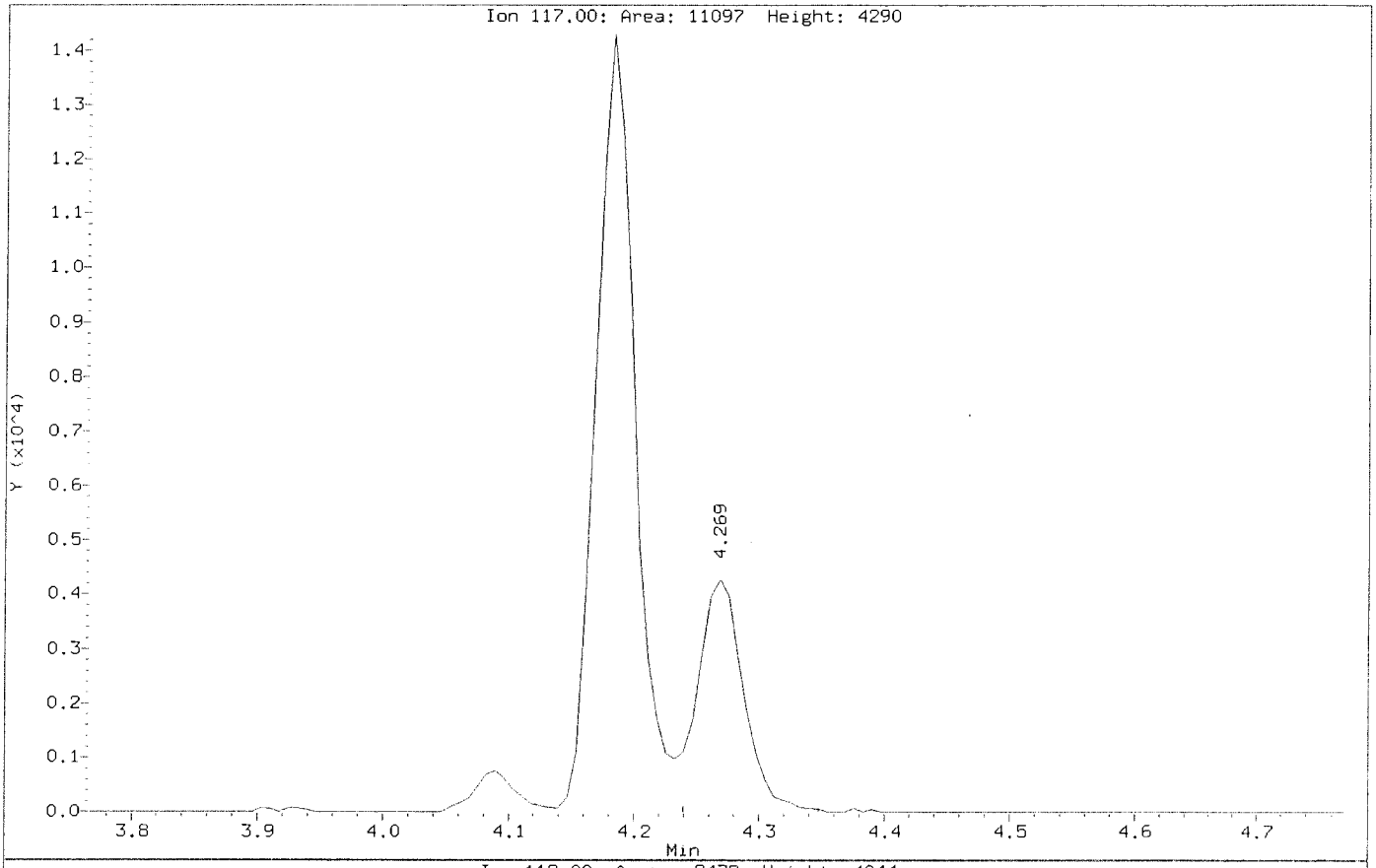
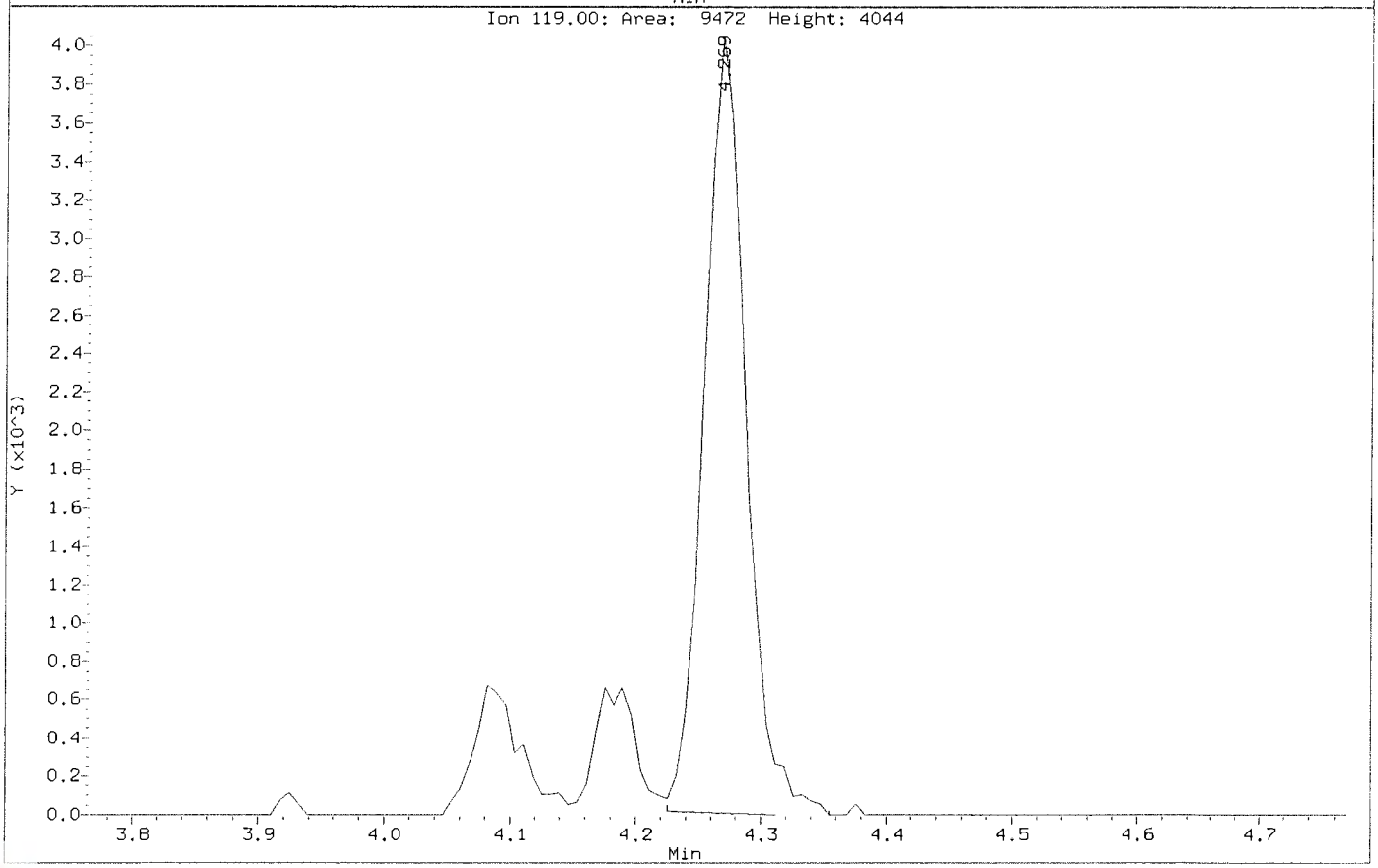
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 18-NOV-2019 15:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 15:23 Cal File: X111805.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

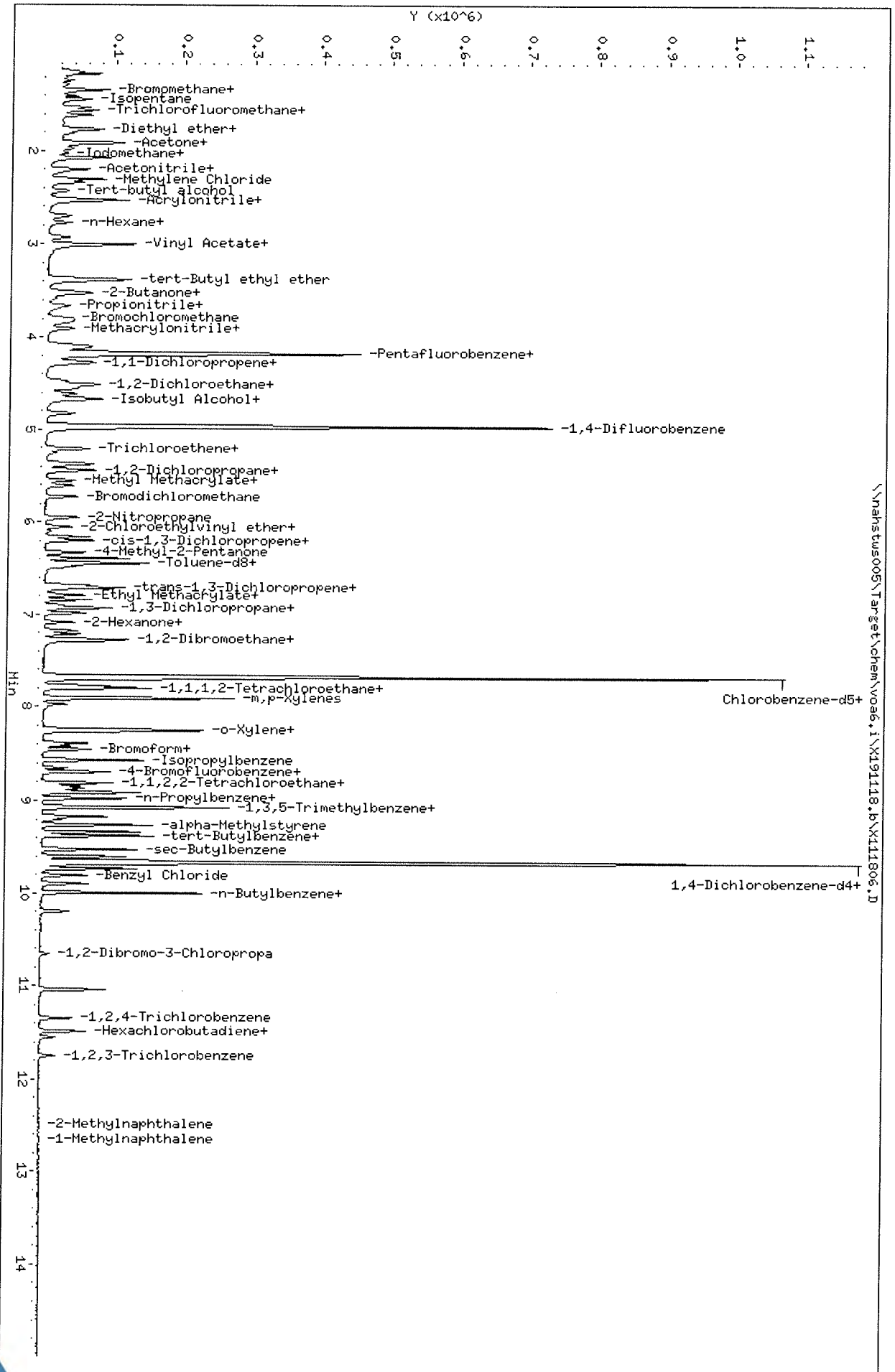
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	410845	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563063	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	510927	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	277846	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	20921	5.00000	6.06
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	25804	5.00000	5.80
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	20237	5.00000	5.74
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	69936	5.00000	5.19
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	20728	5.00000	5.59
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	29459	5.00000	5.31
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	22230	5.00000	5.68
138 Freon TF	101	1.919	1.919	(0.459)	18786	5.00000	5.25
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	15003	5.00000	5.61
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	32313	5.00000	5.40
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	19077	5.00000	5.47
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	24310	5.00000	5.35
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	6553	5.00000	5.62
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	18403	5.00000	5.55(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	14399	5.00000	6.15
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	71210	5.00000	5.40
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	2641	5.00000	5.82
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	20565	5.00000	5.73

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	41602	5.00000	5.64
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	24346	5.00000	5.44
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	19076	5.00000	5.67
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	68944	5.00000	5.45
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	45064	5.00000	5.65
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	29776	5.00000	5.49
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	44703	5.00000	5.52
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	28965	5.00000	5.33
24 2-Butanone	43	3.581	3.581	(0.856)	13522	10.0000	10.72
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	56464	5.00000	5.64
52 2-Hexanone	43	7.090	7.090	(0.924)	23980	10.0000	11.42
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	66074	5.00000	5.45
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	71485	5.00000	5.25
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	33803	10.0000	11.29
10 Acetone	43	1.969	1.969	(0.471)	15992	10.0000	11.75
37 Benzene	78	4.512	4.512	(0.908)	72584	5.00000	5.63
74 Bromobenzene	156	8.810	8.810	(0.911)	27619	5.00000	5.71
29 Bromochloromethane	128	3.795	3.795	(0.908)	11669	5.00000	5.24
39 Bromodichloromethane	83	5.729	5.729	(1.153)	26638	5.00000	5.71
66 Bromoform	173	8.416	8.416	(1.097)	16084	5.00000	6.17
6 Bromomethane	94	1.338	1.338	(0.320)	28671	5.00000	4.99(a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	103008	10.0000	10.87
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	26931	5.00000	5.41(M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	55668	5.00000	5.58
7 Chloroethane	64	1.403	1.403	(0.336)	13261	5.00000	5.12
28 Chloroform	83	3.910	3.910	(0.935)	34944	5.00000	5.25
3 Chloromethane	50	1.073	1.073	(0.257)	24949	5.00000	5.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	22227	5.00000	5.70
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	31191	5.00000	5.68
55 Dibromochloromethane	129	7.176	7.176	(0.936)	21920	5.00000	5.64
44 Dibromomethane	93	5.558	5.558	(1.118)	13775	5.00000	5.78
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	18346	5.00000	5.69
61 Ethylbenzene	106	7.800	7.800	(1.017)	29424	5.00000	5.70
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	11525	5.00000	5.47
67 Isopropylbenzene	105	8.566	8.566	(1.117)	81869	5.00000	5.36
62 m,p-Xylenes	106	7.907	7.907	(1.031)	69325	10.0000	11.14
17 Methylene Chloride	84	2.306	2.306	(0.551)	20180	5.00000	5.43
87 n-Butylbenzene	91	9.999	9.999	(1.034)	57498	5.00000	5.08
73 n-Propylbenzene	91	8.917	8.917	(0.922)	92937	5.00000	5.41
92 Naphthalene	128	11.546	11.546	(1.194)	17063	5.00000	5.68
63 o-Xylene	106	8.244	8.244	(1.075)	33646	5.00000	5.48
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	78149	5.00000	5.23
64 Styrene	104	8.258	8.258	(1.077)	58650	5.00000	5.49
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	59074	5.00000	5.45
56 Tetrachloroethene	164	6.933	6.933	(0.904)	20334	5.00000	5.66
50 Toluene	91	6.446	6.446	(0.840)	80201	5.00000	5.53
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	18086	5.00000	5.35
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	28395	5.00000	5.67
38 Trichloroethene	130	5.207	5.207	(1.048)	22280	5.00000	5.65
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	33411	5.00000	5.24
5 Vinyl Chloride	62	1.138	1.138	(0.272)	20691	5.00000	4.94(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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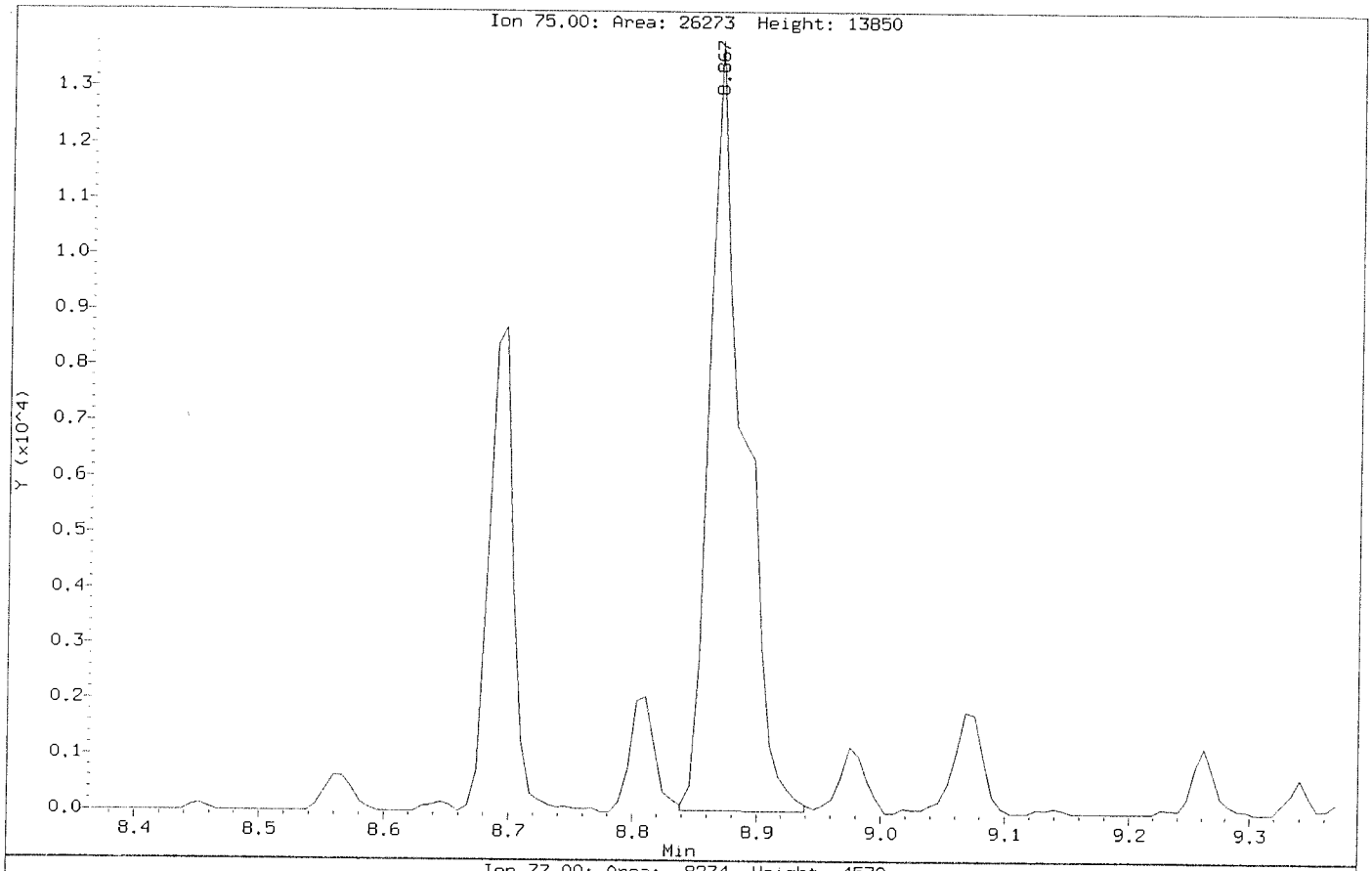
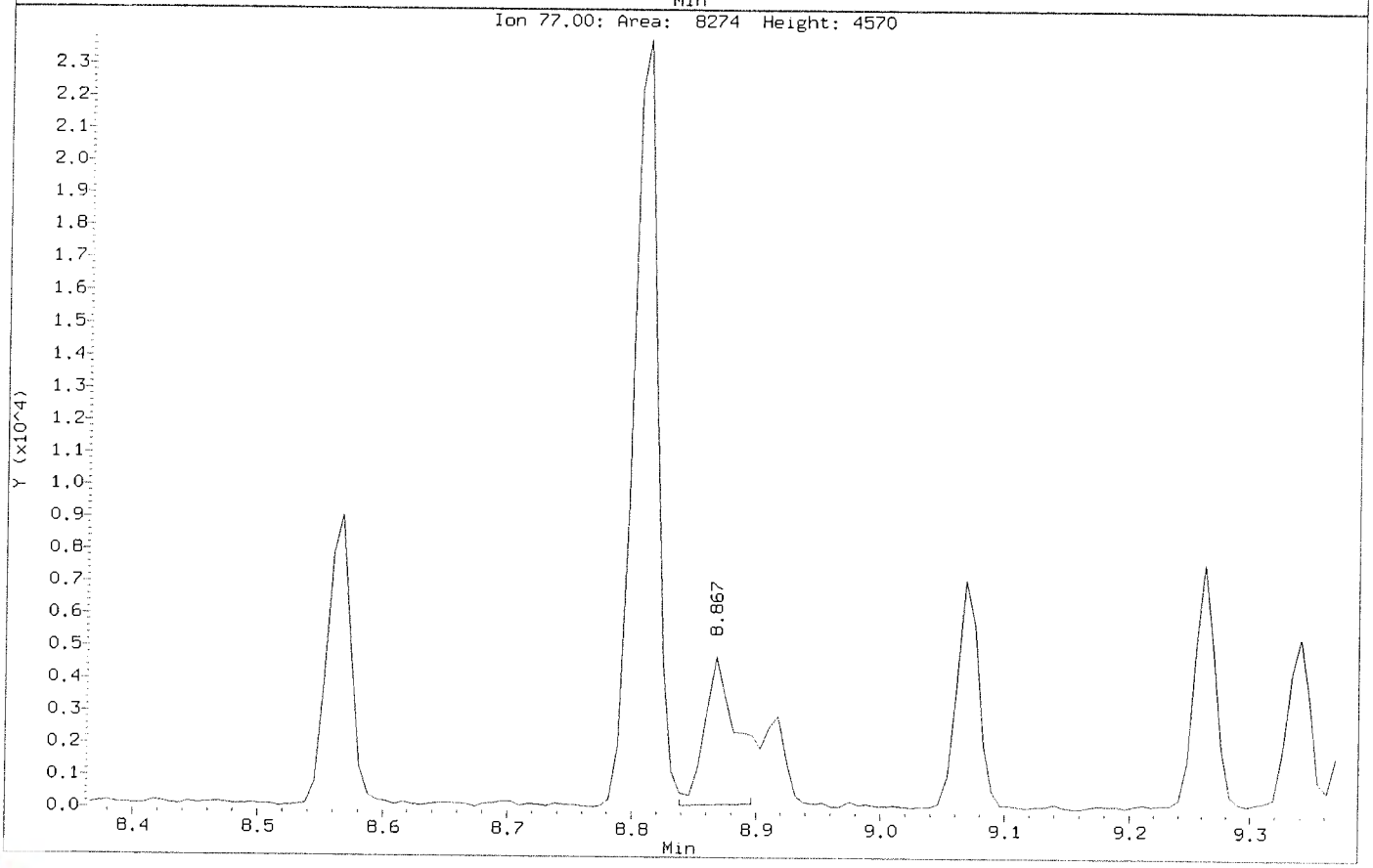
Date : 18-NOV-2019 15:47
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111806.D
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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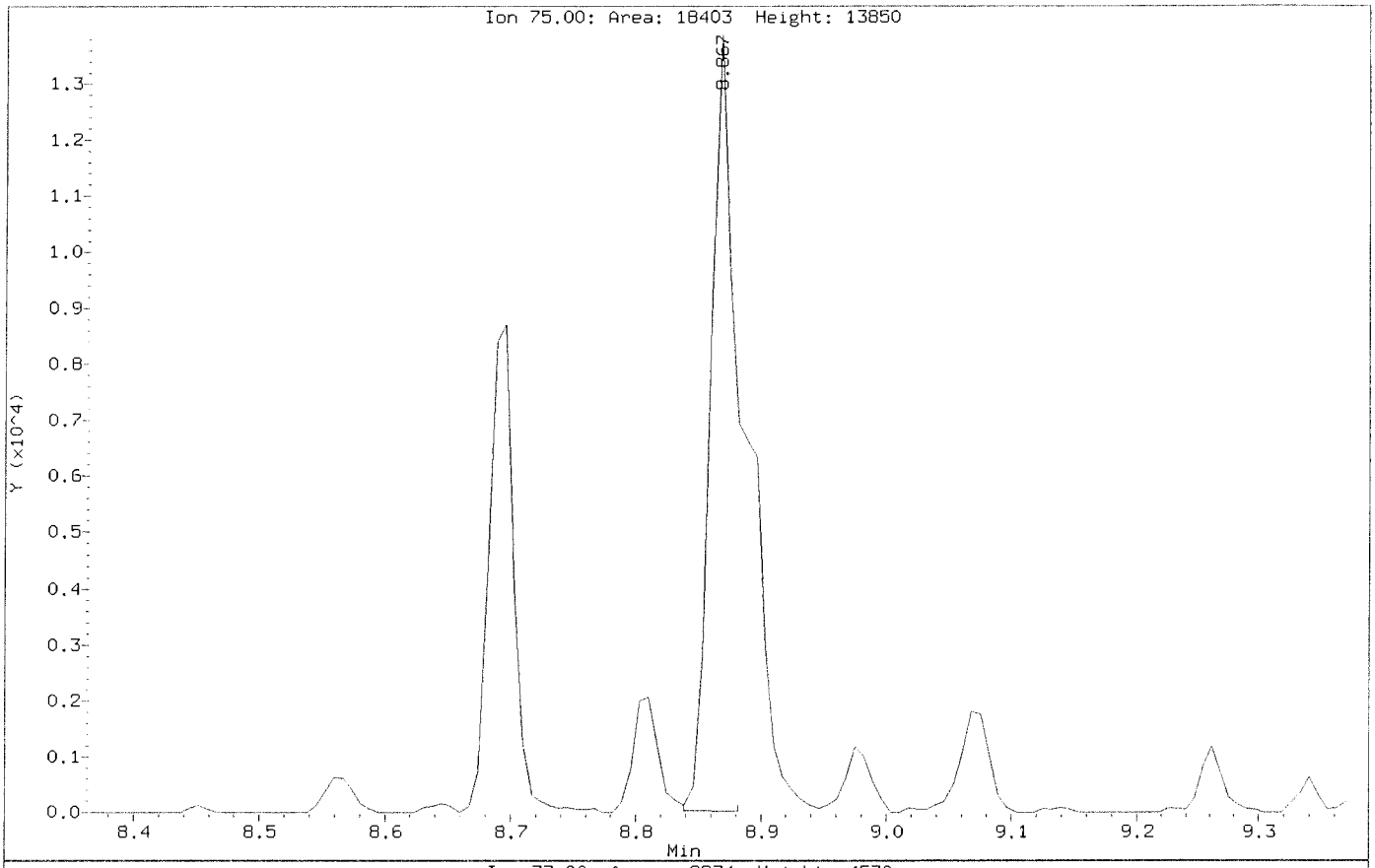
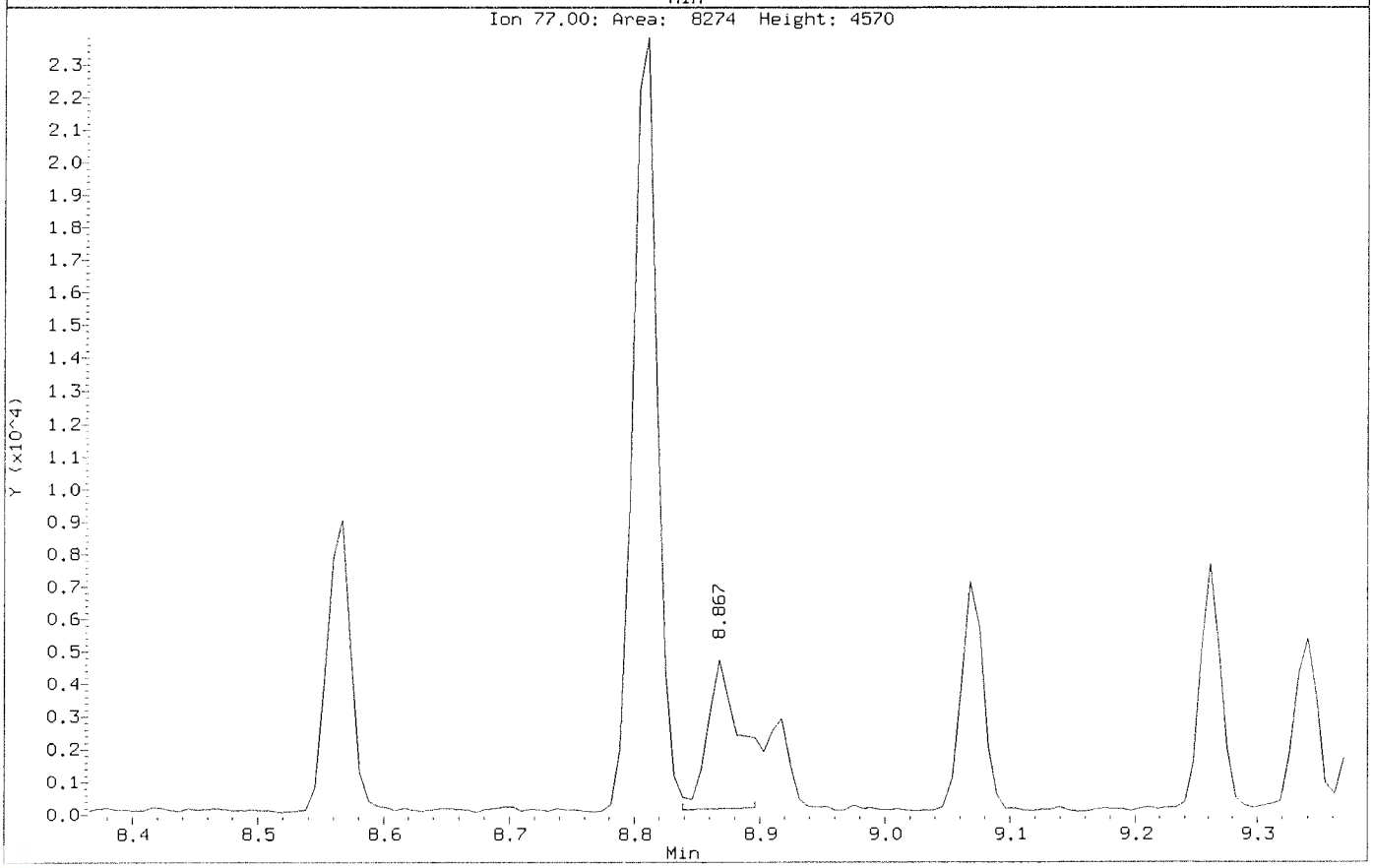
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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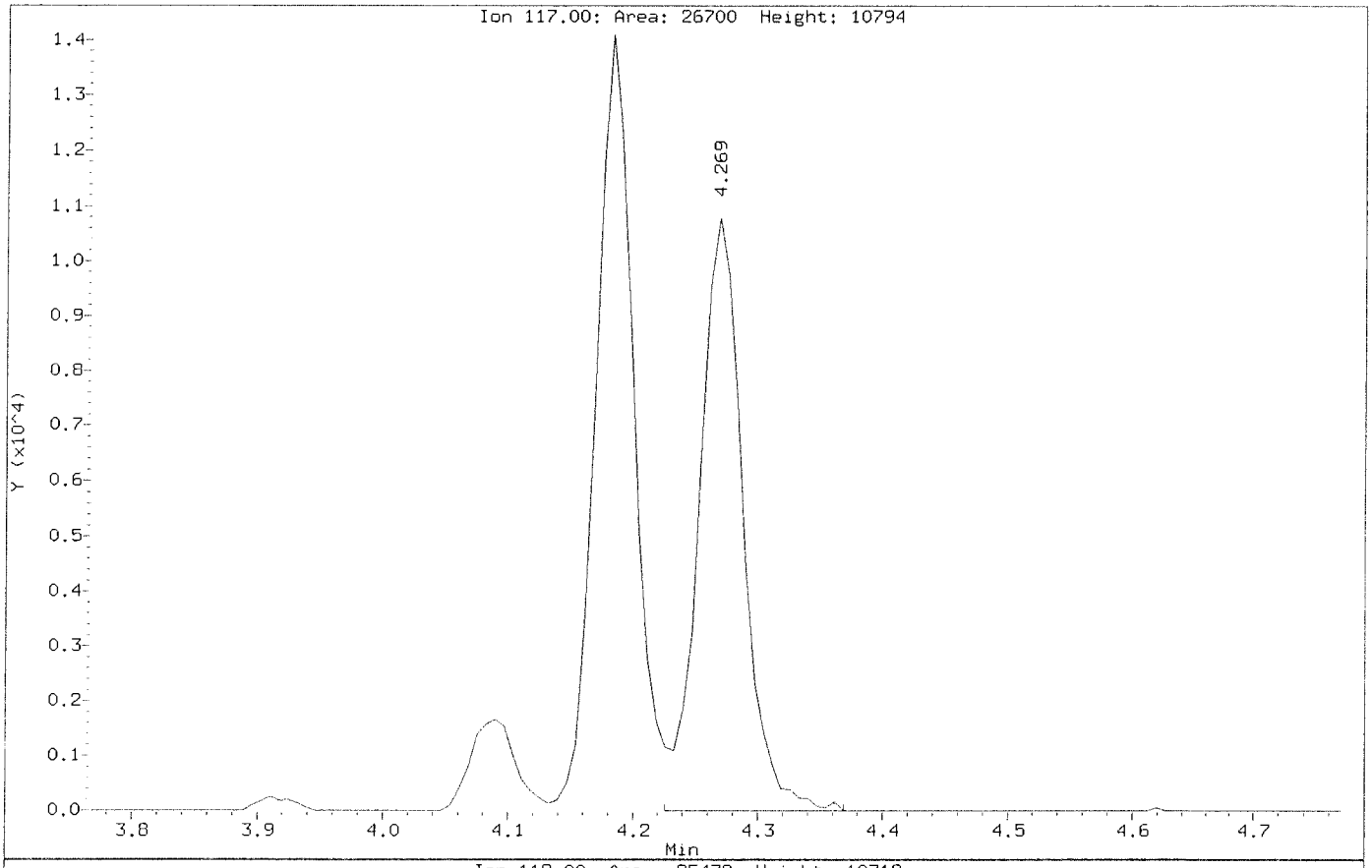
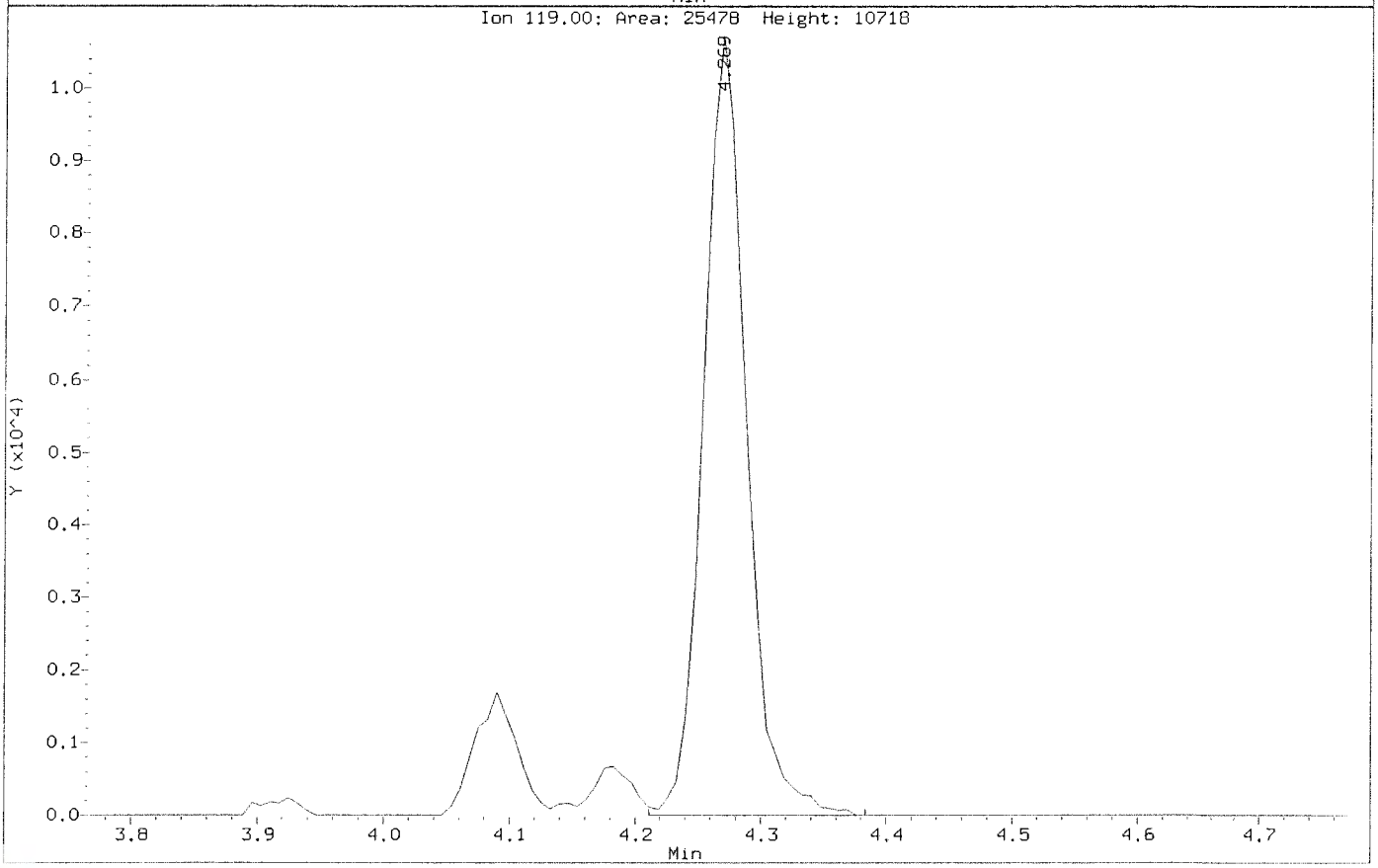
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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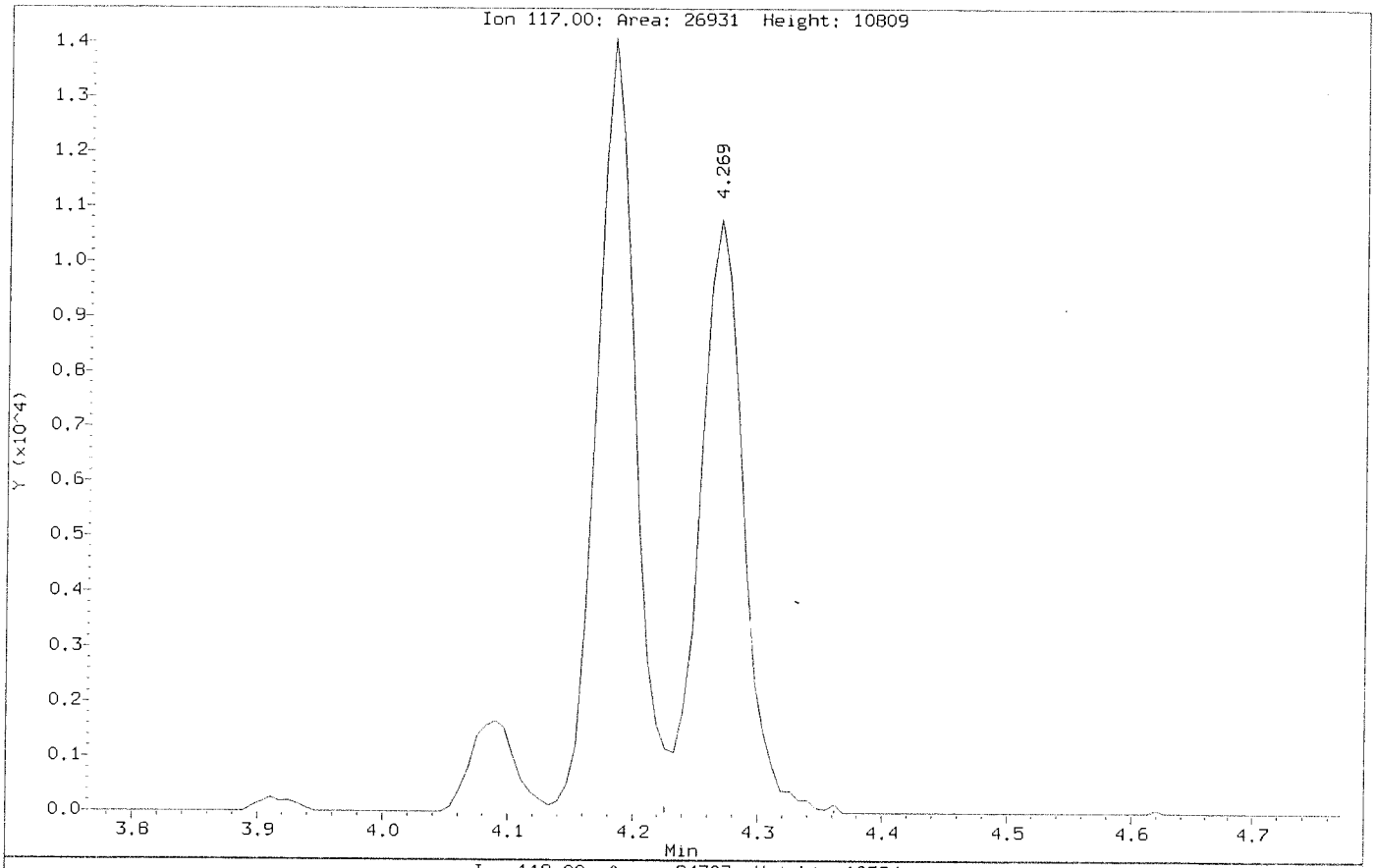
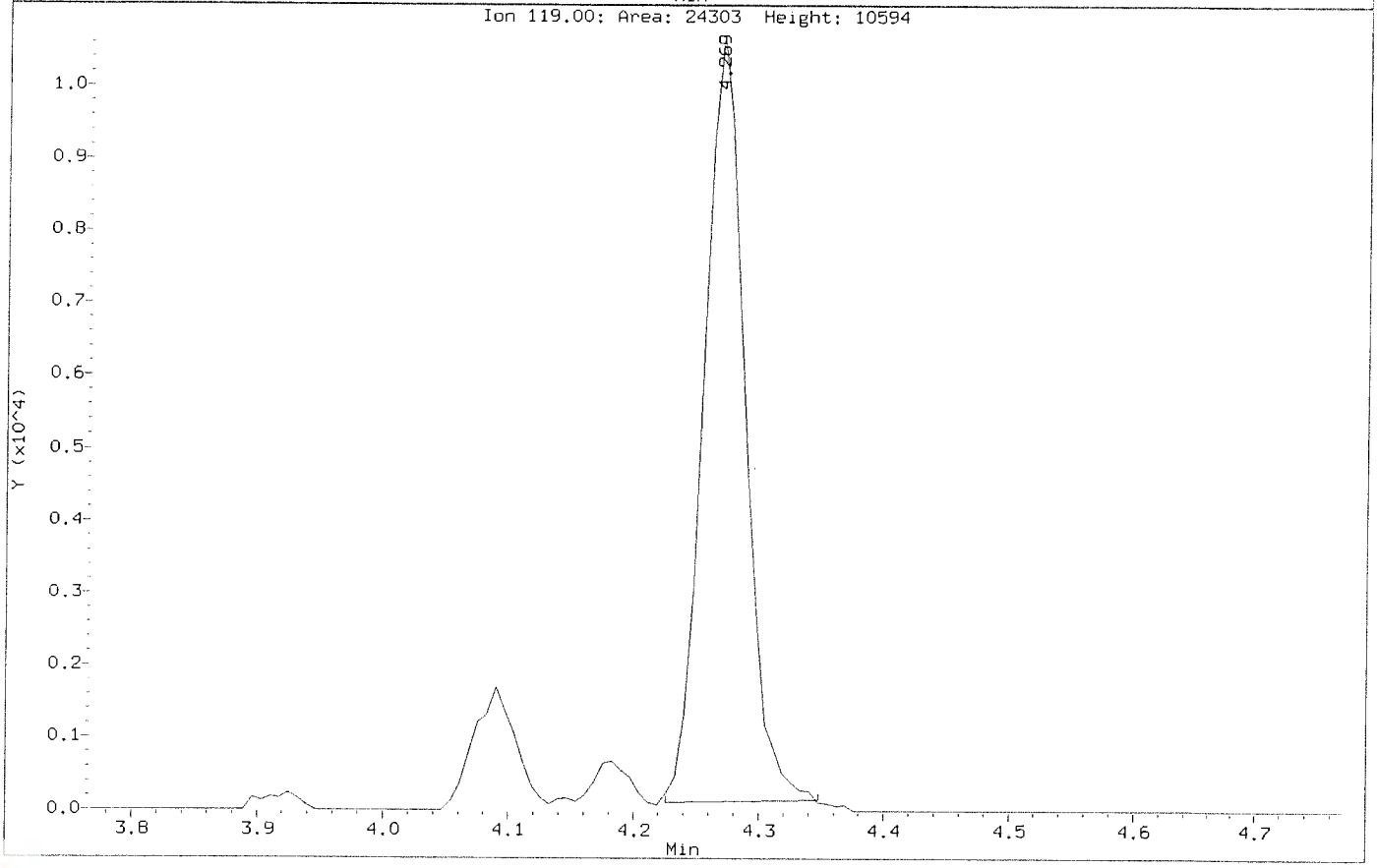
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 1
Report Date: 06-Dec-2019 19:56

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Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 18-NOV-2019 16:11
Operator : PC Inst ID: voa6.i
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Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 15:47 Cal File: X111806.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

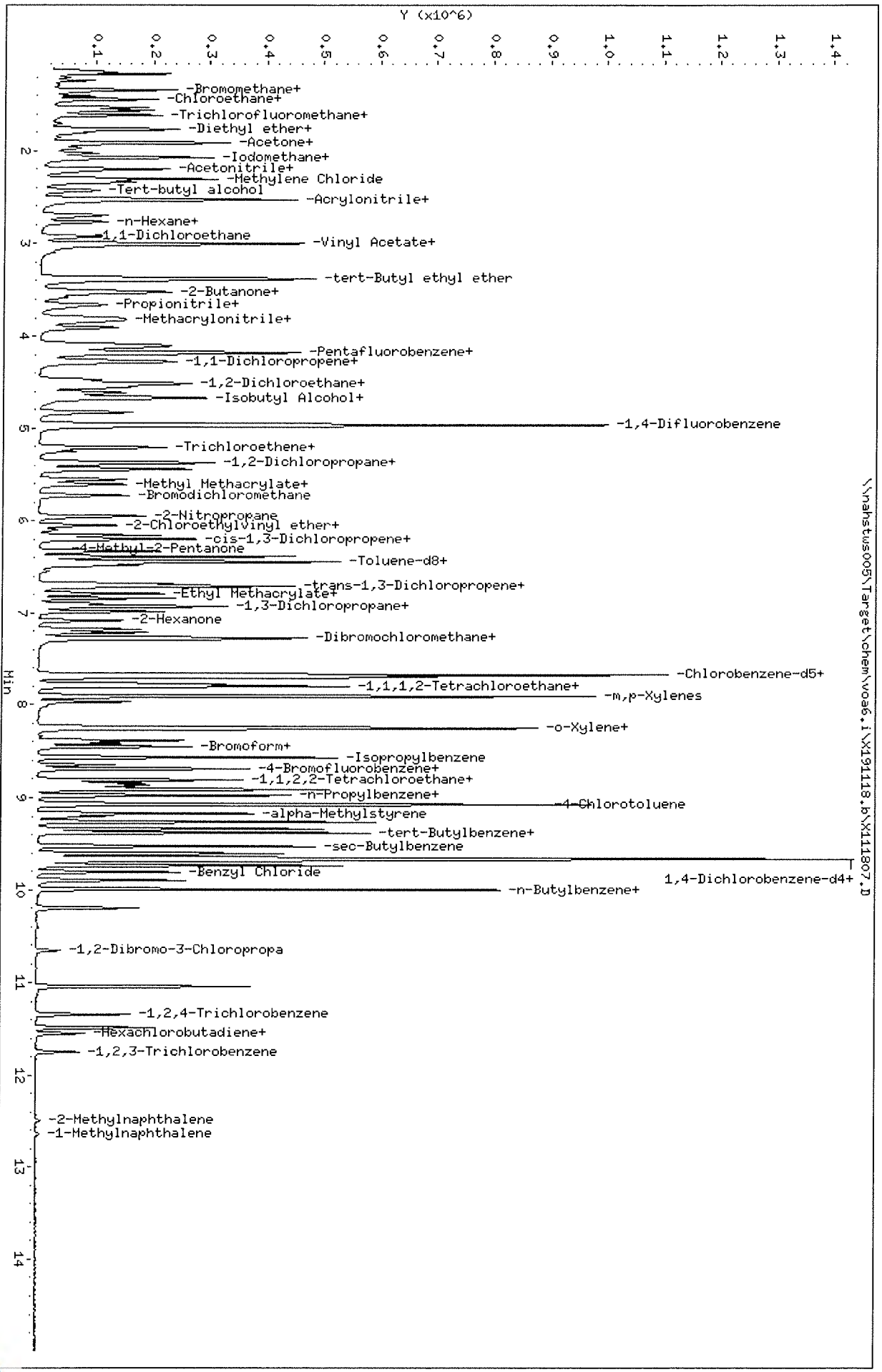
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	411693	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563792	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	515046	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	278890	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	75813	20.0000	20.02
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	94194	20.0000	19.91
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	75094	20.0000	20.28
$	48 Toluene-d8	98	6.388	6.388	(0.833)	260273	20.0000	19.17
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	73347	20.0000	19.62
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	105363	20.0000	18.97
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	75821	20.0000	19.33
	138 Freon TF	101	1.919	1.919	(0.459)	62543	20.0000	17.44
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	52184	20.0000	19.38
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	113669	20.0000	18.97
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	64160	20.0000	18.38
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	84000	20.0000	18.47
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21856	20.0000	20.64
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64689	20.0000	19.46(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	46623	20.0000	19.84
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	254992	20.0000	19.26
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	8805	20.0000	20.13
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	71738	20.0000	19.85

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.035)	144121	20.0000	19.47
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	88277	20.0000	19.72
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	64004	20.0000	19.00
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	247054	20.0000	19.45
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	157428	20.0000	19.68
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	105400	20.0000	19.28
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	158049	20.0000	19.44
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	100376	20.0000	18.46
24	2-Butanone	43	3.580	3.580	(0.856)	48098	40.0000	38.07
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	193547	20.0000	19.28
52	2-Hexanone	43	7.083	7.083	(0.923)	78795	40.0000	37.24
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	231980	20.0000	19.07
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	257377	20.0000	18.86
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	115695	40.0000	38.33
10	Acetone	43	1.976	1.976	(0.473)	43200	40.0000	38.23
37	Benzene	78	4.512	4.512	(0.908)	250181	20.0000	19.39
74	Bromobenzene	156	8.809	8.809	(0.912)	97394	20.0000	20.09
29	Bromochloromethane	128	3.795	3.795	(0.908)	41933	20.0000	18.80
39	Bromodichloromethane	83	5.729	5.729	(1.153)	89170	20.0000	19.11
66	Bromoform	173	8.415	8.415	(1.097)	56416	20.0000	19.02
6	Bromomethane	94	1.338	1.338	(0.320)	93456	20.0000	21.54
19	Carbon Disulfide	76	2.069	2.069	(0.495)	362755	40.0000	38.21
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	90839	20.0000	18.23(M)
59	Chlorobenzene	112	7.699	7.699	(1.004)	192384	20.0000	19.13
7	Chloroethane	64	1.403	1.403	(0.336)	46616	20.0000	17.98
28	Chloroform	83	3.910	3.910	(0.935)	121141	20.0000	18.16
3	Chloromethane	50	1.073	1.073	(0.257)	85402	20.0000	19.21
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	74754	20.0000	19.14
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	107408	20.0000	19.53
55	Dibromochloromethane	129	7.176	7.176	(0.936)	76215	20.0000	19.48
44	Dibromomethane	93	5.557	5.557	(1.118)	46676	20.0000	19.58
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	63810	20.0000	17.59
61	Ethylbenzene	106	7.799	7.799	(1.017)	101554	20.0000	19.54
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	37789	20.0000	19.03
67	Isopropylbenzene	105	8.566	8.566	(1.117)	293670	20.0000	19.08
62	m,p-Xylenes	106	7.907	7.907	(1.031)	243460	40.0000	38.83
17	Methylene Chloride	84	2.305	2.305	(0.551)	66846	20.0000	17.95
87	n-Butylbenzene	91	9.998	9.998	(1.035)	210608	20.0000	18.54
73	n-Propylbenzene	91	8.917	8.917	(0.923)	331965	20.0000	19.25
92	Naphthalene	128	11.546	11.546	(1.195)	57138	20.0000	18.96
63	o-Xylene	106	8.244	8.244	(1.075)	119876	20.0000	19.37
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	278964	20.0000	18.62
64	Styrene	104	8.258	8.258	(1.077)	206802	20.0000	19.22
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	208031	20.0000	19.13
56	Tetrachloroethene	164	6.933	6.933	(0.904)	68625	20.0000	18.96
50	Toluene	91	6.446	6.446	(0.840)	280019	20.0000	19.17
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	63600	20.0000	18.77
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100272	20.0000	20.00
38	Trichloroethene	130	5.206	5.206	(1.048)	77608	20.0000	19.68
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	116474	20.0000	18.23
5	Vinyl Chloride	62	1.138	1.138	(0.272)	74818	20.0000	17.83

QC Flag Legend

M - Compound response manually integrated.



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Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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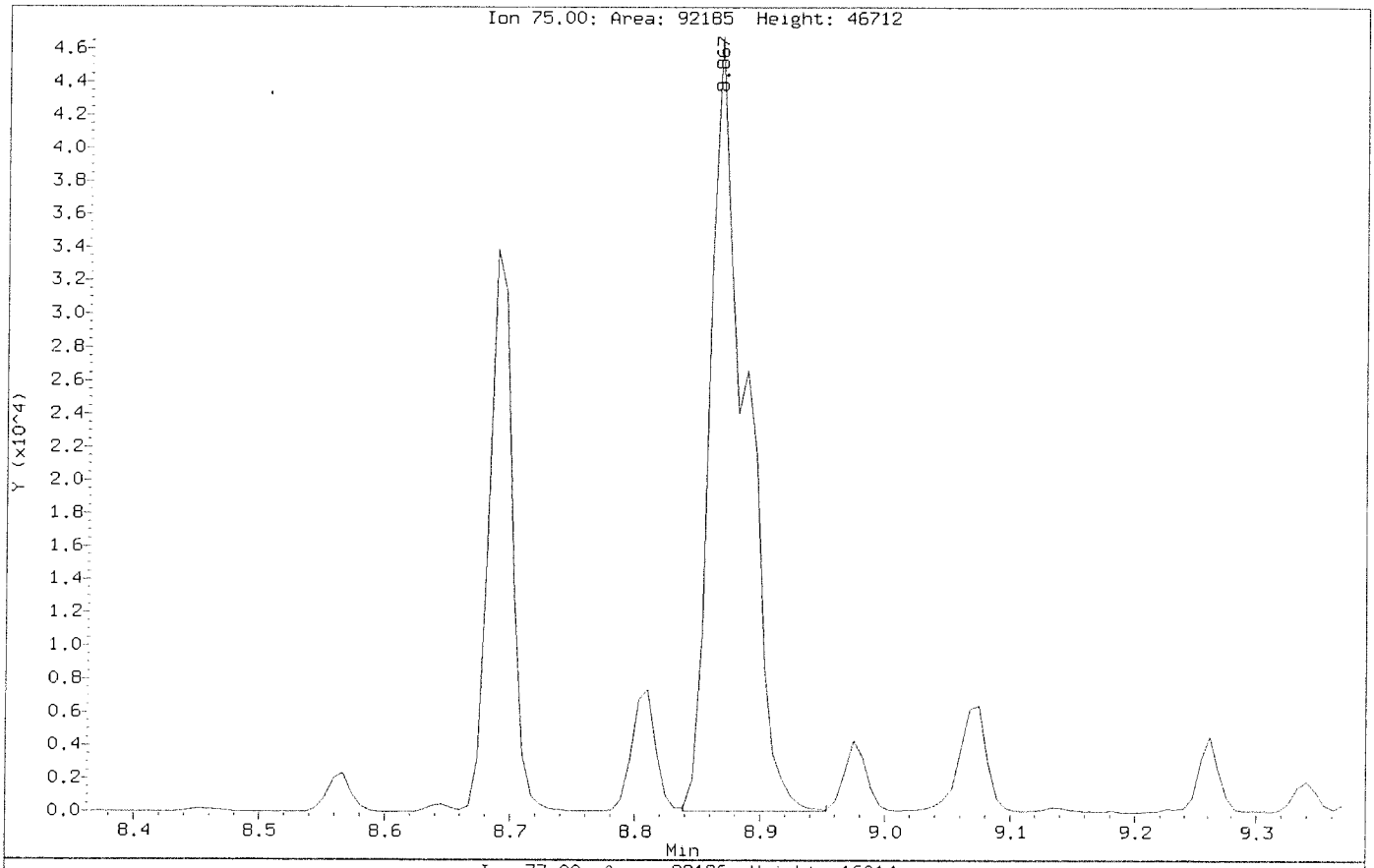
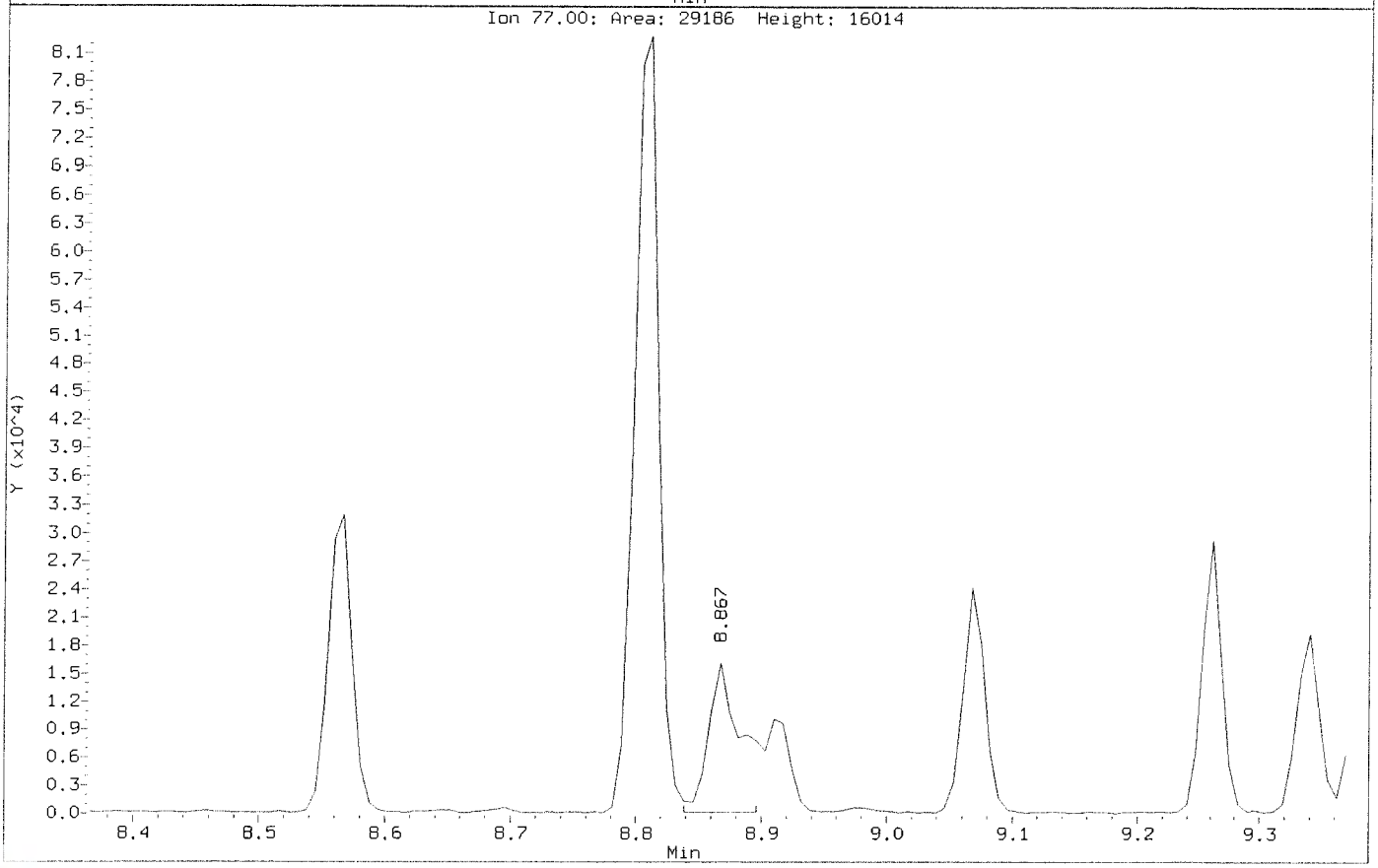
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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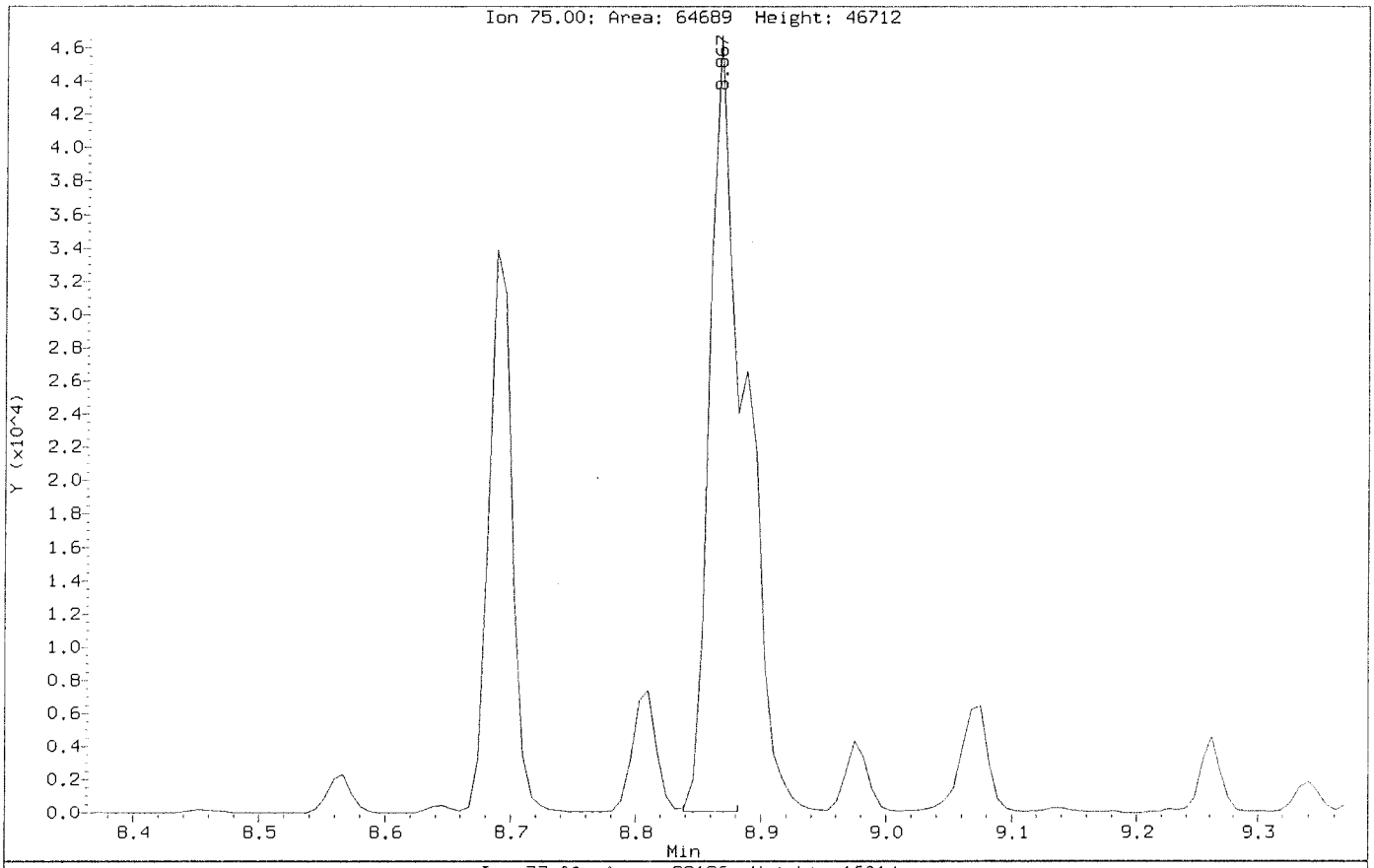
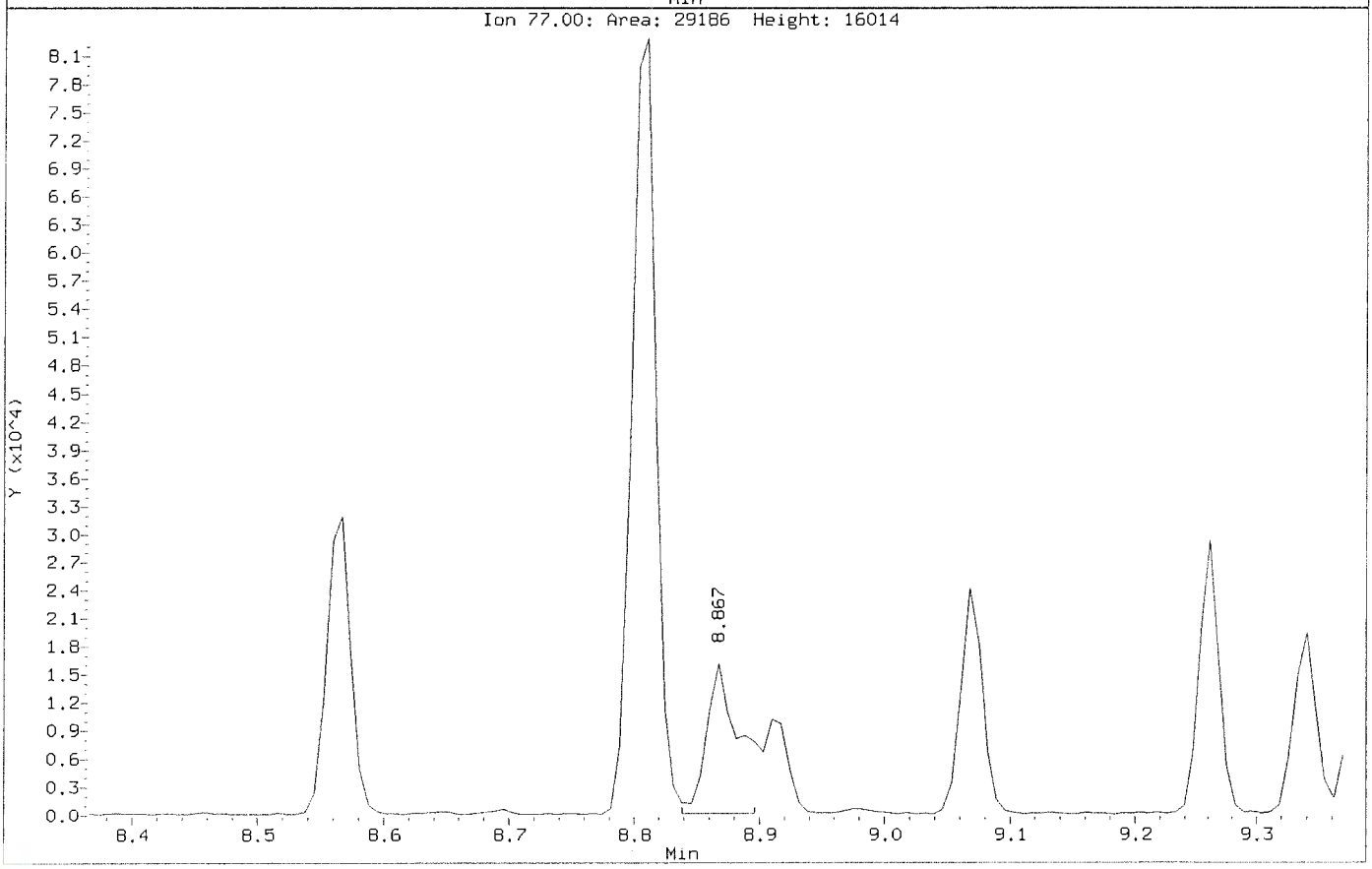
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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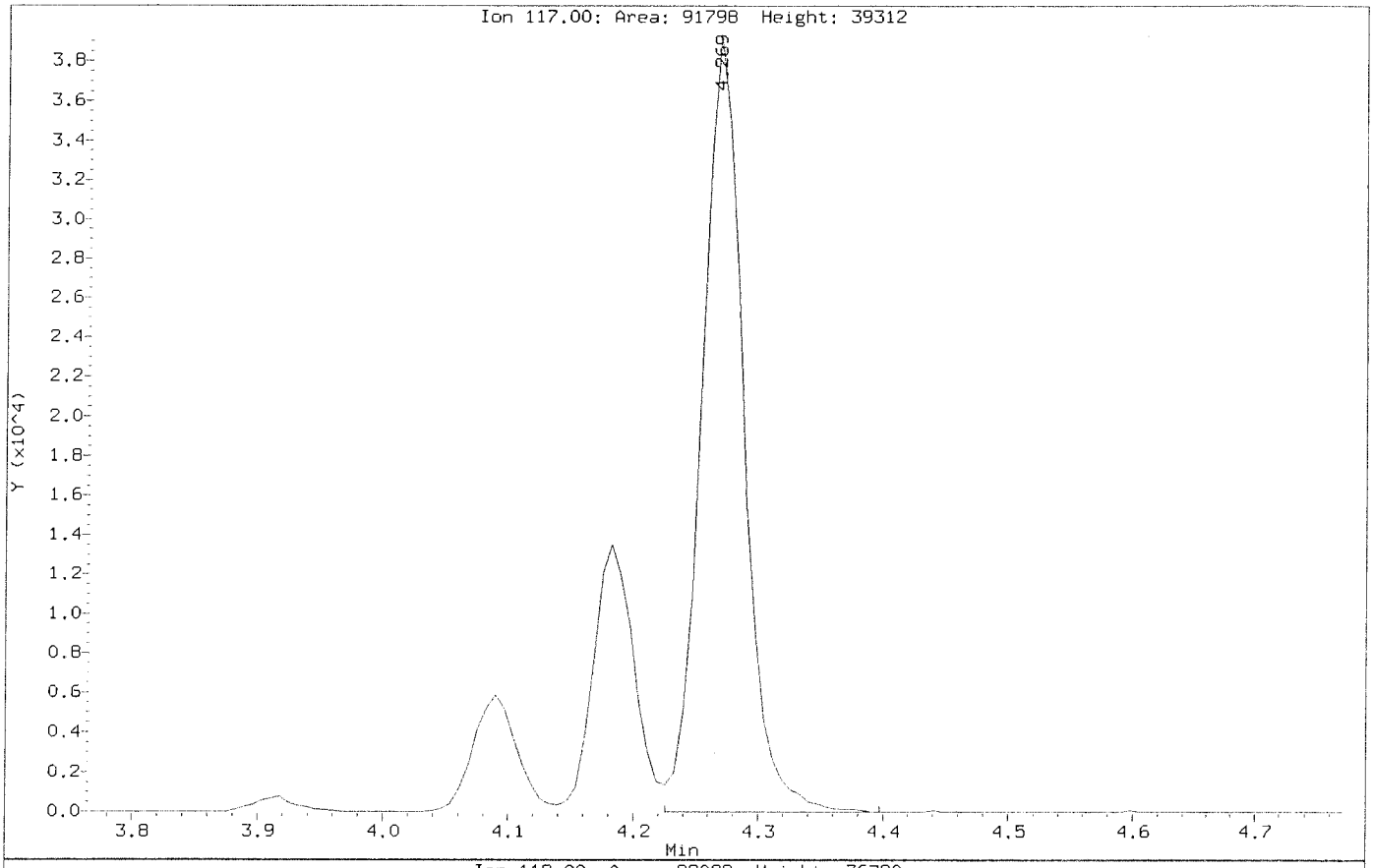
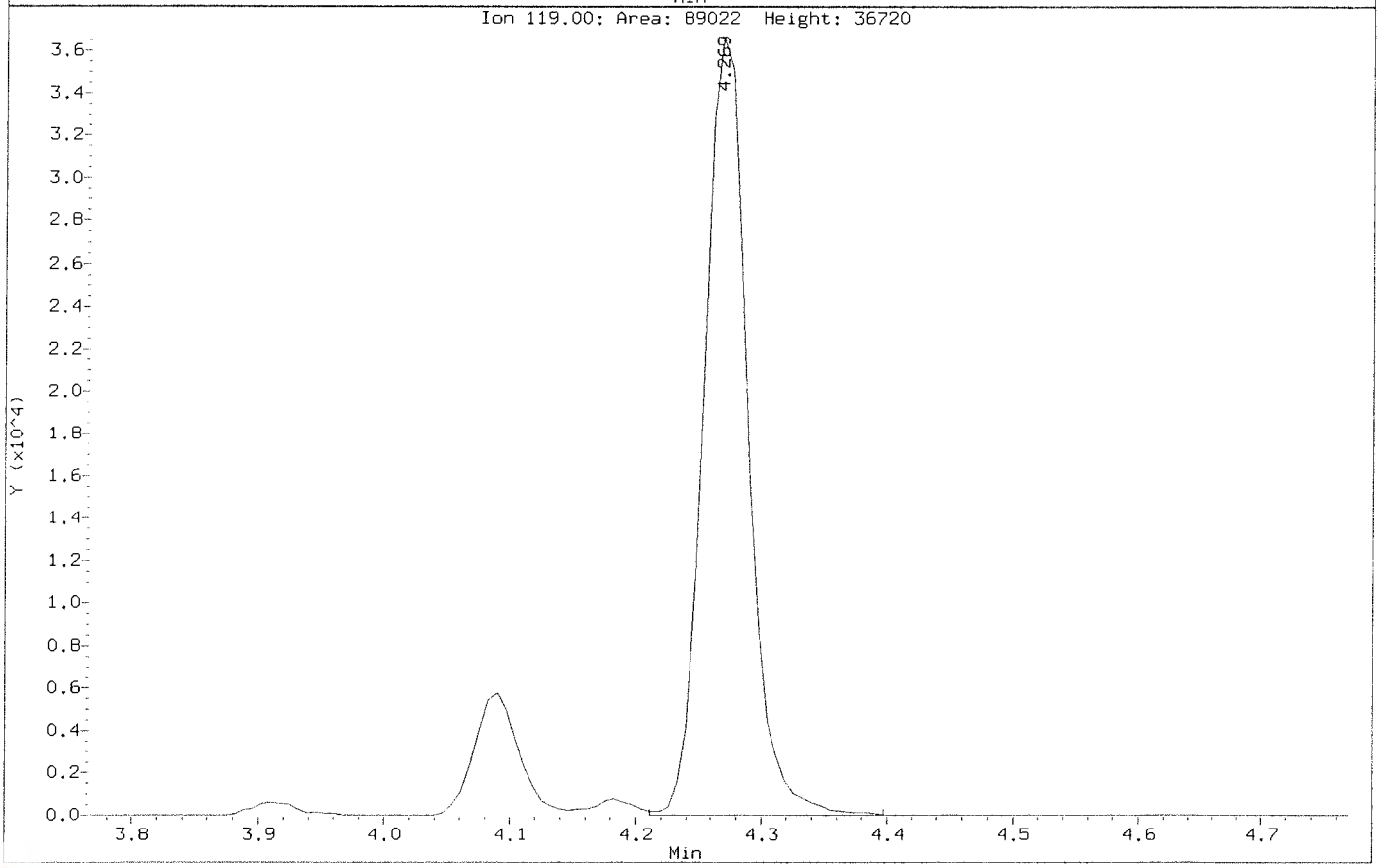
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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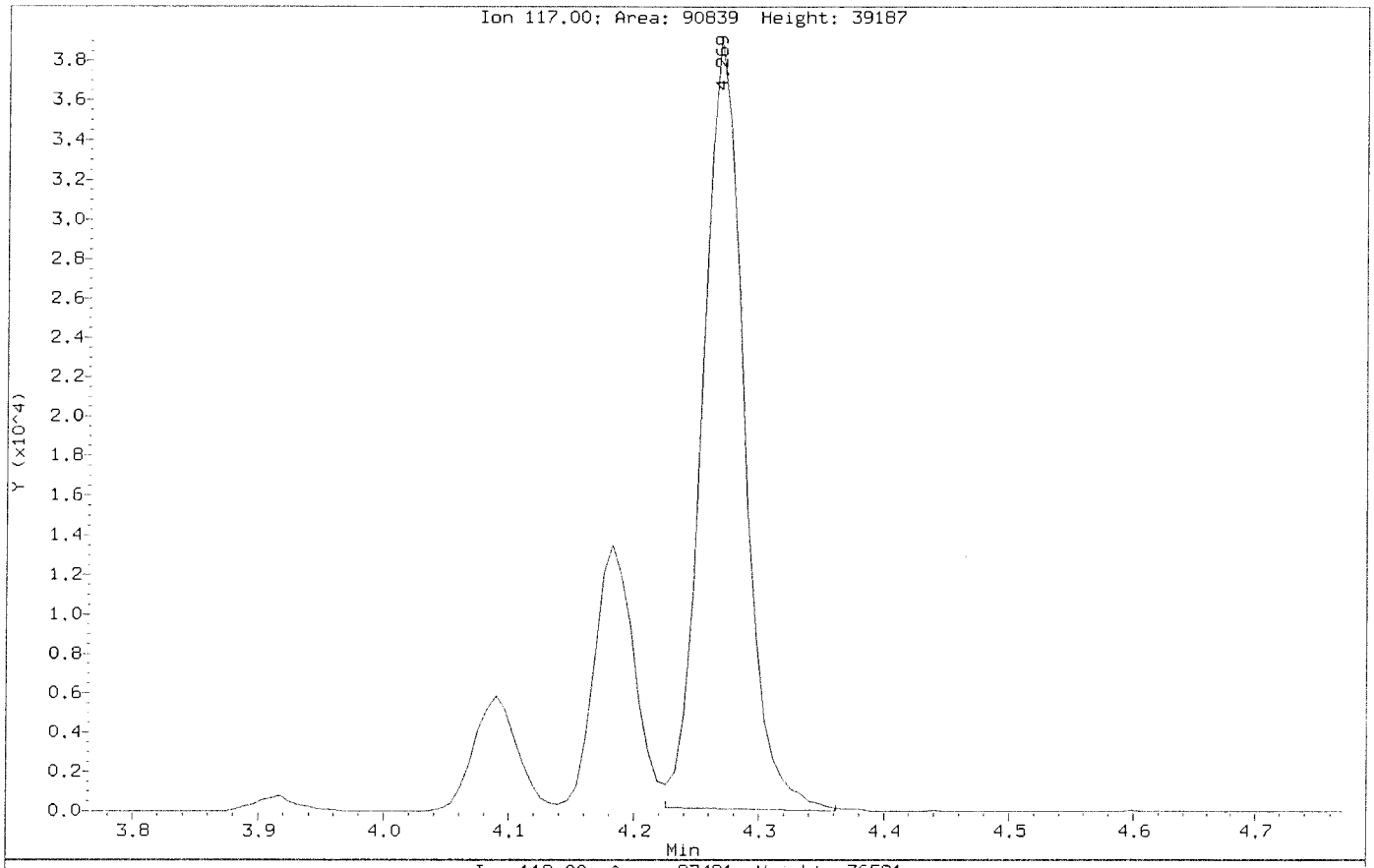
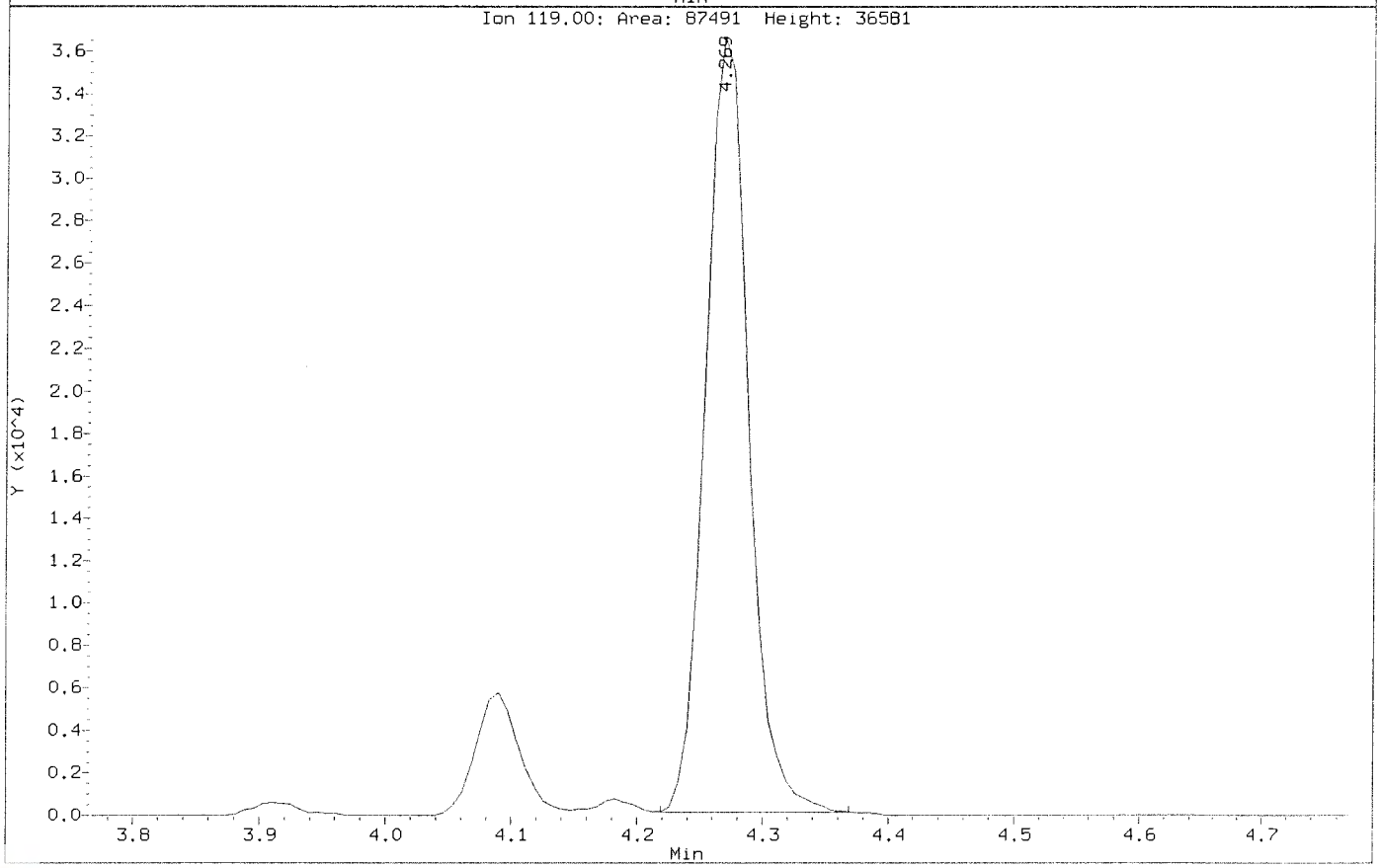
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
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Inj Date : 18-NOV-2019 16:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS18090001;WATER;0;1;
Comment :
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Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:11 Cal File: X111807.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

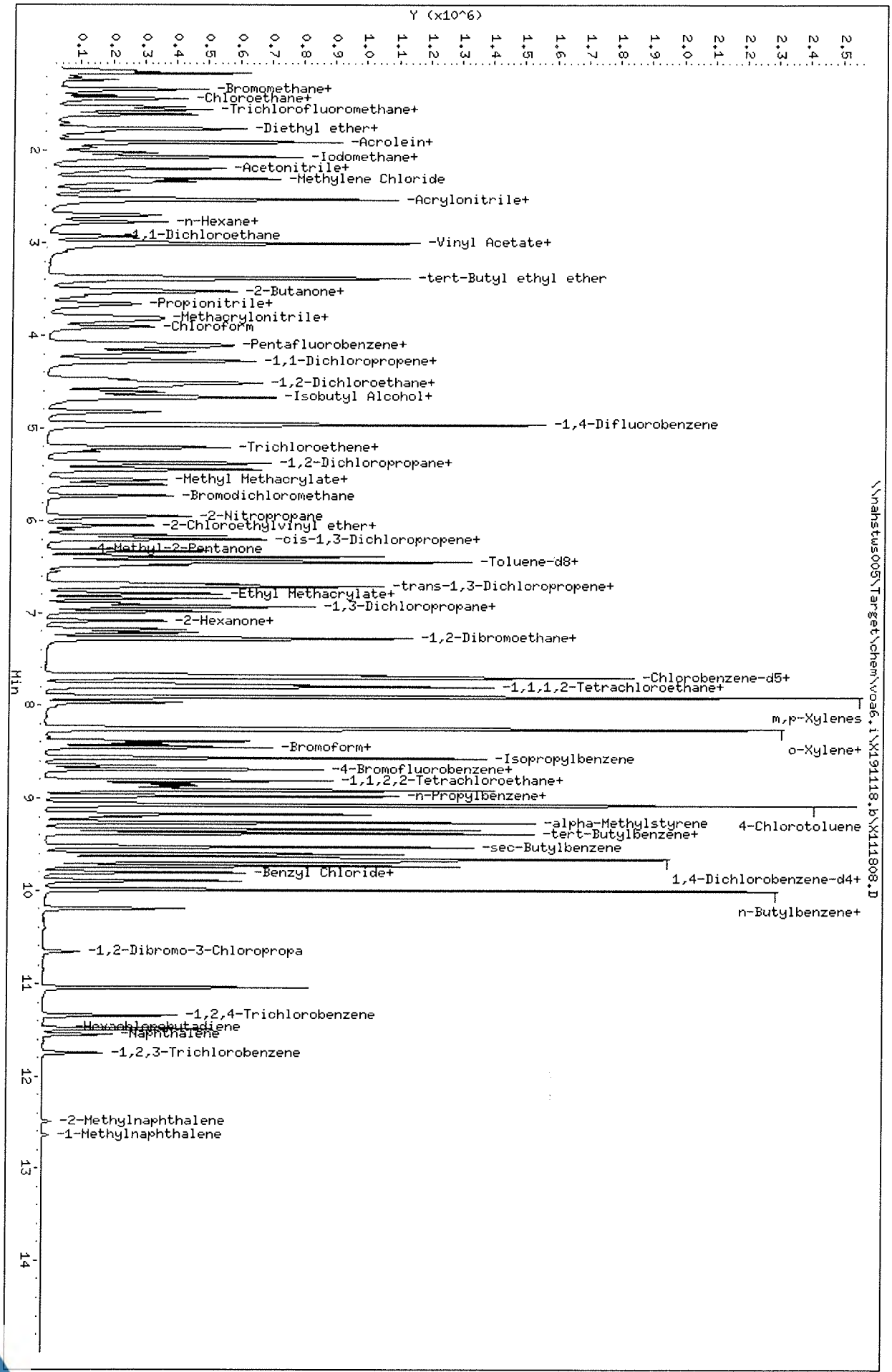
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	399282	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	548073	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502523	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	273444	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	178006	50.0000	47.42
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	222328	50.0000	47.57
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	173990	50.0000	47.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	608955	50.0000	45.99
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	184913	50.0000	50.72
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	268813	50.0000	49.90
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183844	50.0000	47.81
138 Freon TF	101	1.911	1.911	(0.457)	183115	50.0000	52.67
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	128481	50.0000	48.90
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	283343	50.0000	48.77
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	171500	50.0000	50.68
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	220463	50.0000	49.86
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	52554	50.0000	51.69
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	157820	50.0000	48.44(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	115181	50.0000	50.00
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	661580	50.0000	50.99
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	21800	50.0000	51.36
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	174730	50.0000	49.57

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	363670	50.0000	50.11
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	219760	50.0000	50.51
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	161607	50.0000	49.36
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	647527	50.0000	52.01
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	398343	50.0000	50.79
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	259218	50.0000	48.60
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	400593	50.0000	50.27
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	257082	50.0000	48.75
24	2-Butanone	43	3.573	3.573	(0.854)	116745	100.000	95.28
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	506692	50.0000	51.50
52	2-Hexanone	43	7.090	7.090	(0.924)	193251	100.000	93.61
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	603806	50.0000	50.63
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	703086	50.0000	52.54
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	284508	100.000	96.62
10	Acetone	43	1.976	1.976	(0.473)	103091	100.000	99.72
37	Benzene	78	4.512	4.512	(0.908)	637799	50.0000	50.87
74	Bromobenzene	156	8.809	8.809	(0.911)	240153	50.0000	50.53
29	Bromochloromethane	128	3.795	3.795	(0.908)	105150	50.0000	48.61
39	Bromodichloromethane	83	5.729	5.729	(1.153)	226127	50.0000	49.85
66	Bromoform	173	8.416	8.416	(1.097)	143798	50.0000	48.09
6	Bromomethane	94	1.338	1.338	(0.320)	215480	50.0000	54.47
19	Carbon Disulfide	76	2.069	2.069	(0.495)	951783	100.000	103.39
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	247524	50.0000	51.11(M)
59	Chlorobenzene	112	7.699	7.699	(1.004)	485055	50.0000	49.44
7	Chloroethane	64	1.403	1.403	(0.336)	124291	50.0000	49.44
28	Chloroform	83	3.910	3.910	(0.935)	300015	50.0000	46.39
3	Chloromethane	50	1.073	1.073	(0.257)	215753	50.0000	49.75
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	187629	50.0000	49.55
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	273432	50.0000	51.15
55	Dibromochloromethane	129	7.176	7.176	(0.936)	191497	50.0000	50.17
44	Dibromomethane	93	5.557	5.557	(1.118)	115707	50.0000	49.94
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	186161	50.0000	51.14
61	Ethylbenzene	106	7.799	7.799	(1.017)	257283	50.0000	50.75
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	99881	50.0000	52.17
67	Isopropylbenzene	105	8.566	8.566	(1.117)	765390	50.0000	50.97
62	m,p-Xylenes	106	7.907	7.907	(1.031)	625932	100.000	102.32
17	Methylene Chloride	84	2.305	2.305	(0.551)	168044	50.0000	46.54
87	n-Butylbenzene	91	9.999	9.999	(1.034)	591076	50.0000	53.08
73	n-Propylbenzene	91	8.917	8.917	(0.922)	884464	50.0000	52.32
92	Naphthalene	128	11.546	11.546	(1.194)	142473	50.0000	48.22
63	o-Xylene	106	8.244	8.244	(1.075)	301622	50.0000	49.96
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	772064	50.0000	52.58
64	Styrene	104	8.258	8.258	(1.077)	530825	50.0000	50.56
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	550071	50.0000	51.60
56	Tetrachloroethene	164	6.933	6.933	(0.904)	176674	50.0000	50.03
50	Toluene	91	6.446	6.446	(0.840)	709296	50.0000	49.77
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	163591	50.0000	49.79
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	247921	50.0000	50.89
38	Trichloroethene	130	5.206	5.206	(1.048)	196625	50.0000	51.29
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	328789	50.0000	53.08
5	Vinyl Chloride	62	1.138	1.138	(0.272)	201503	50.0000	49.51

QC Flag Legend

M - Compound response manually integrated.

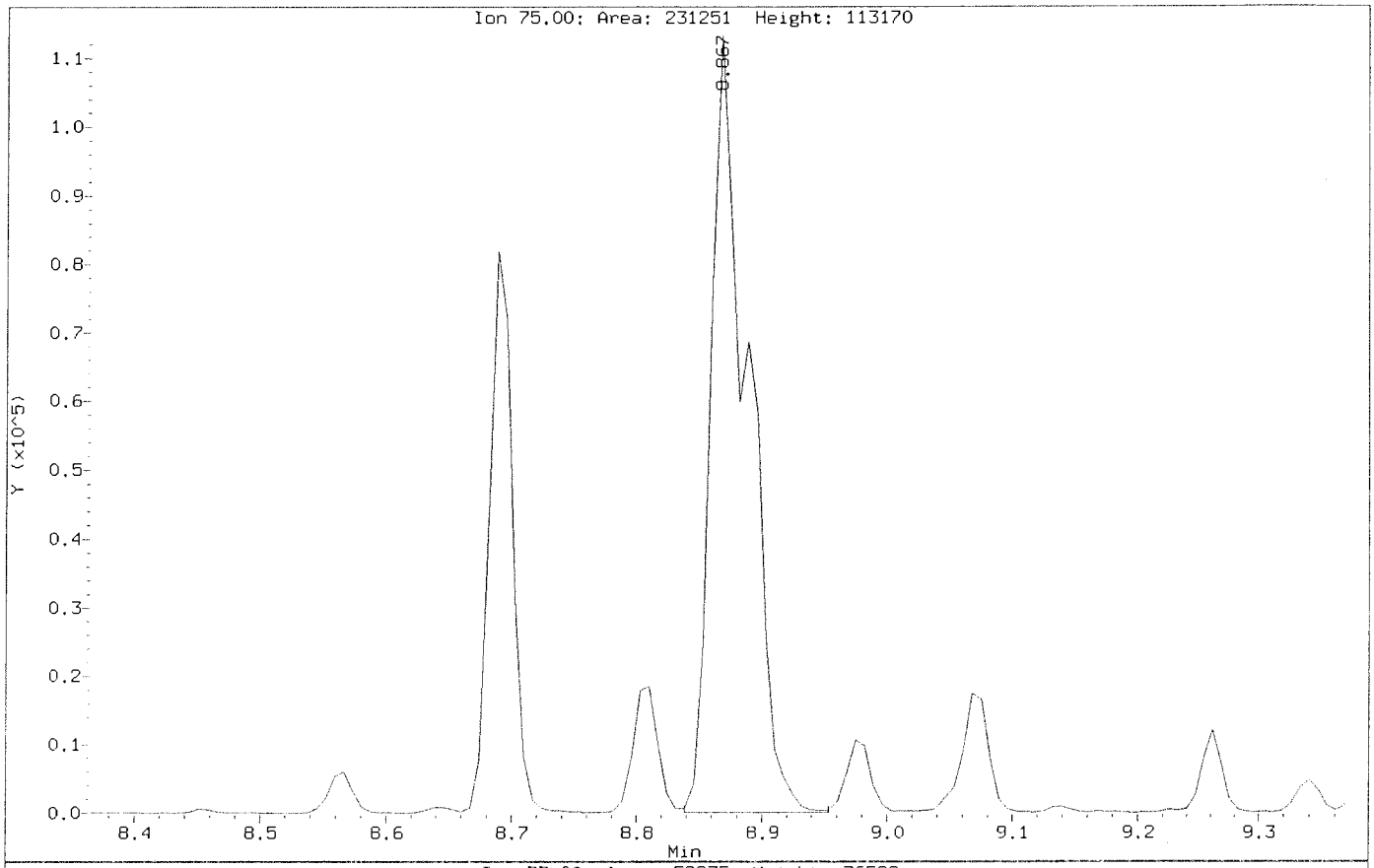


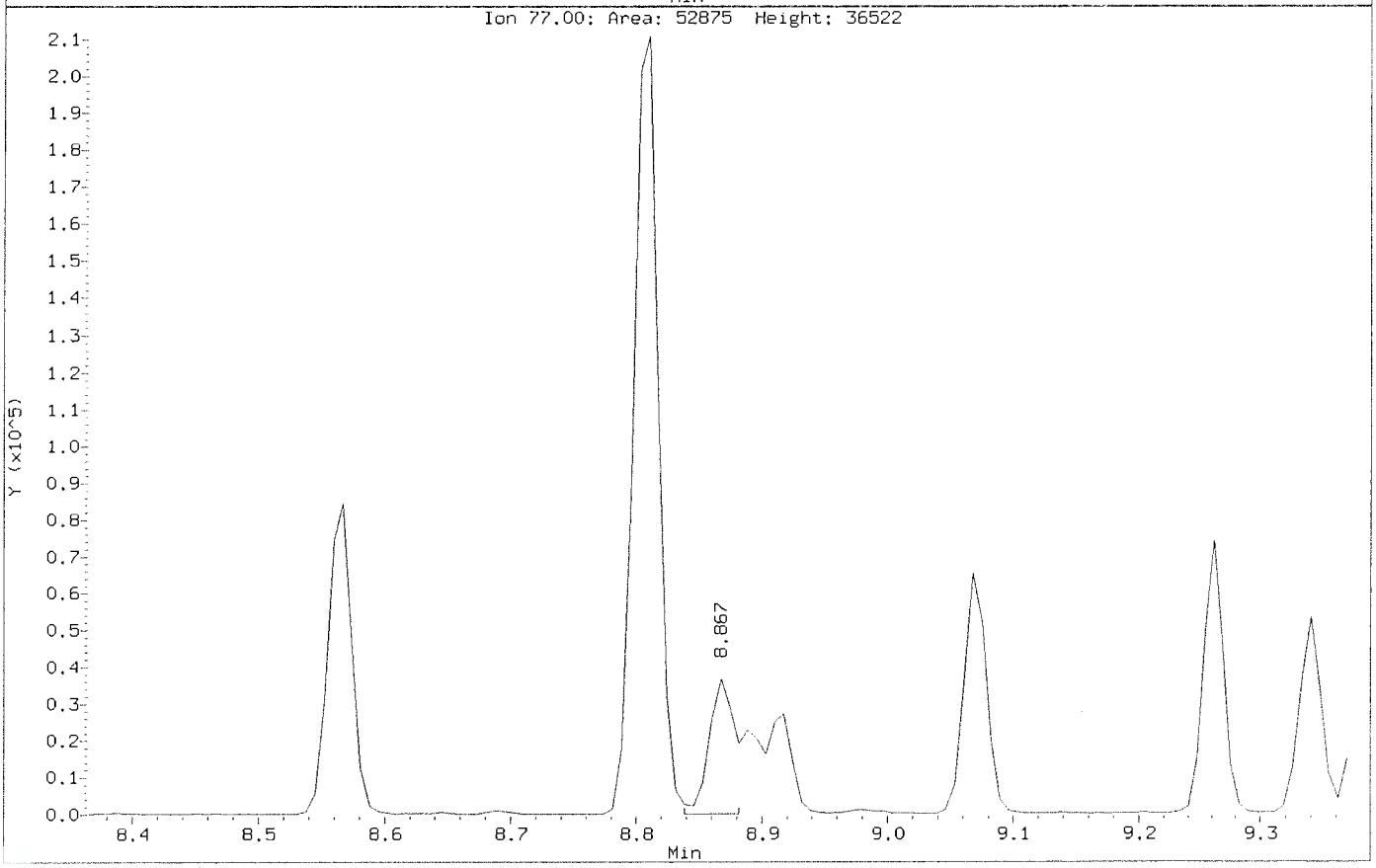
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
Date : 18-NOV-2019 16:35
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111808.D
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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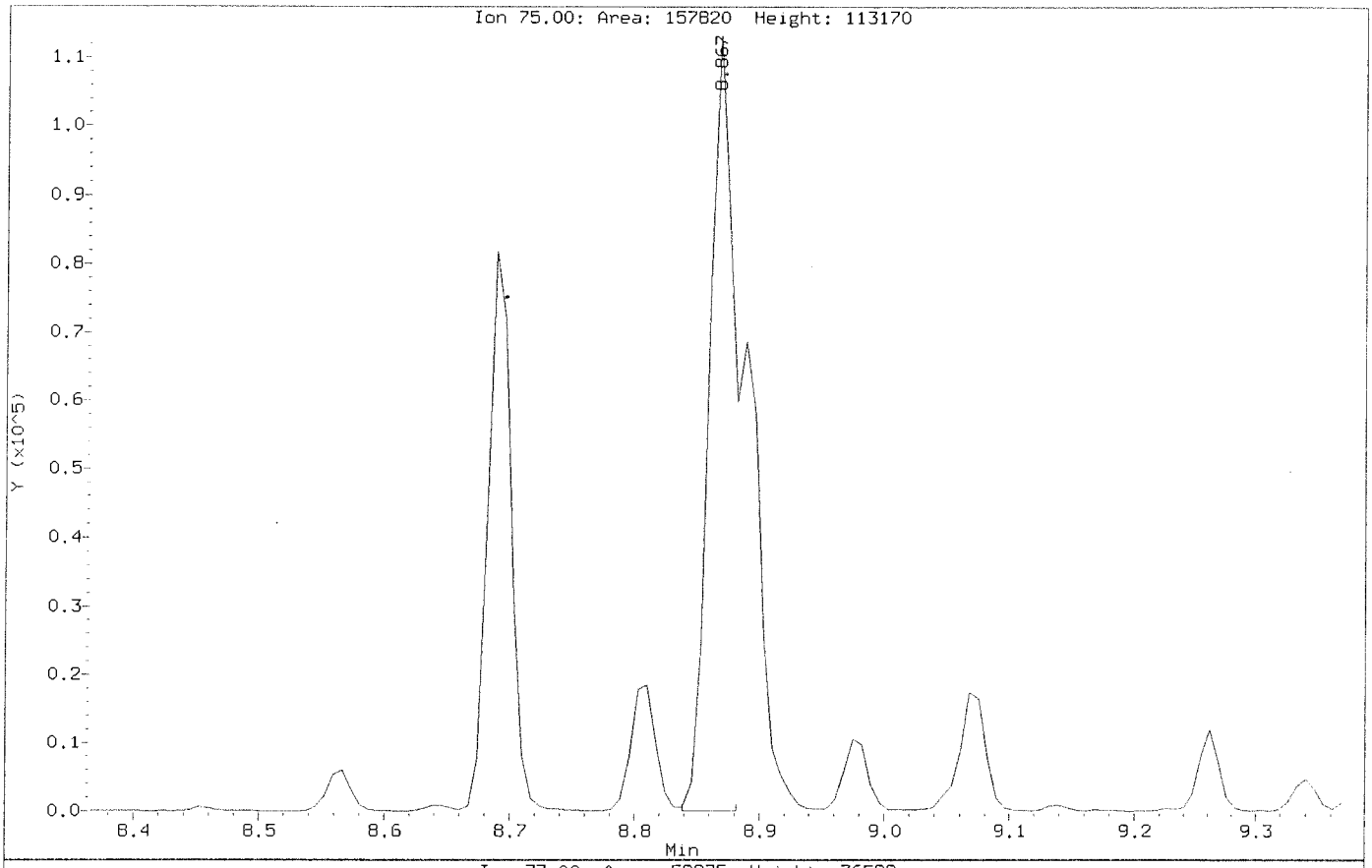
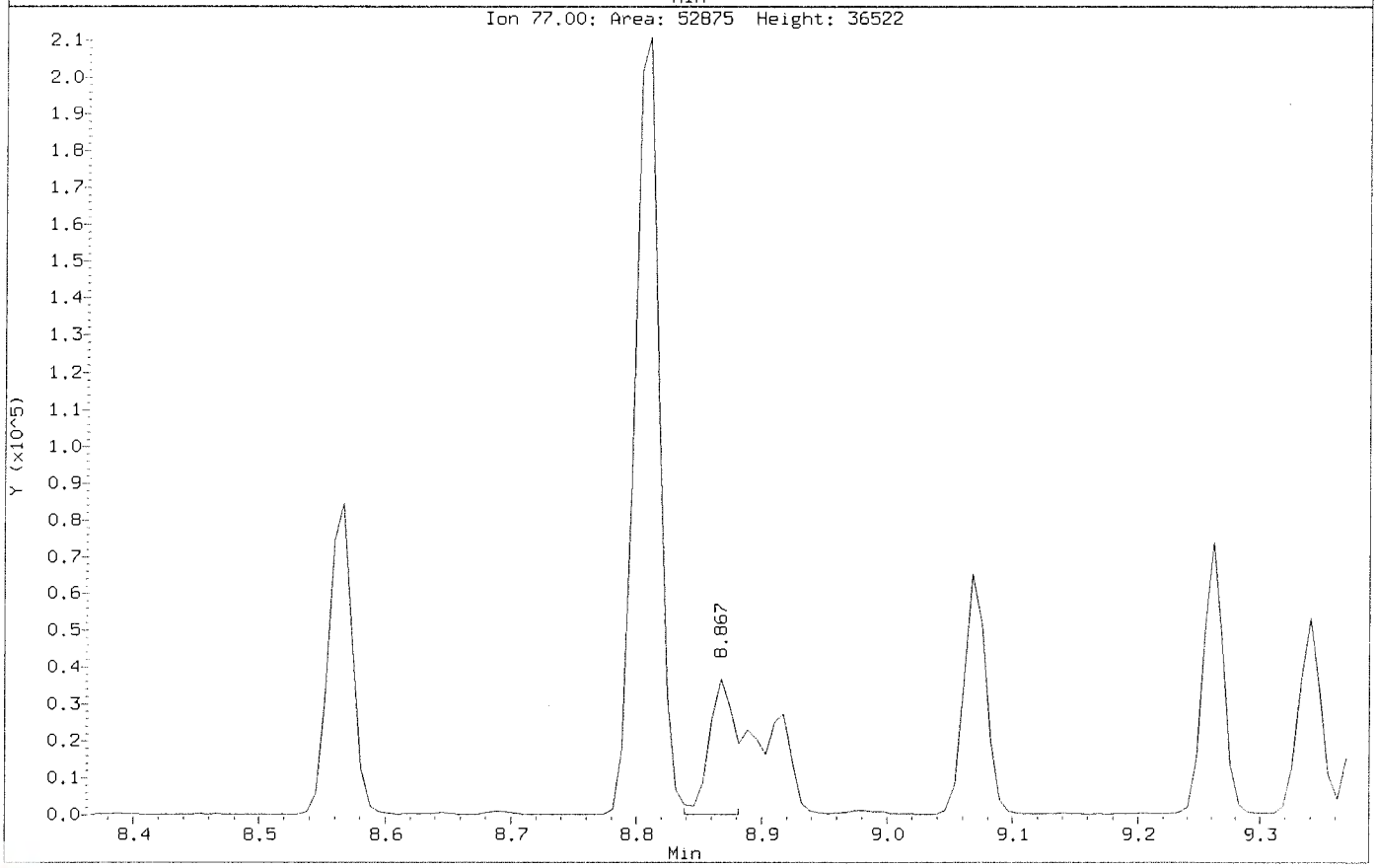
Instrument: voa6.i
Client Sample ID: VSTD050

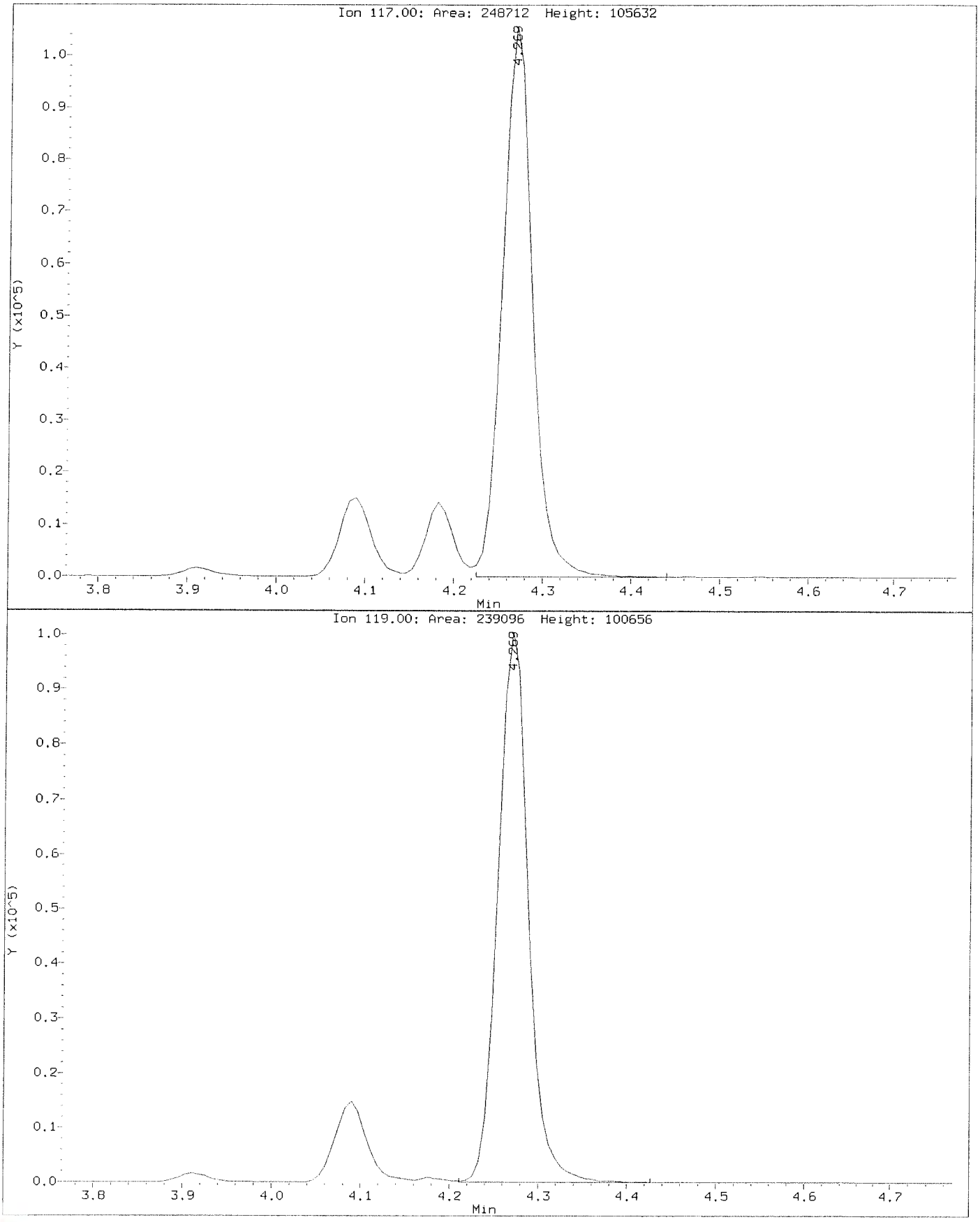
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111808.D
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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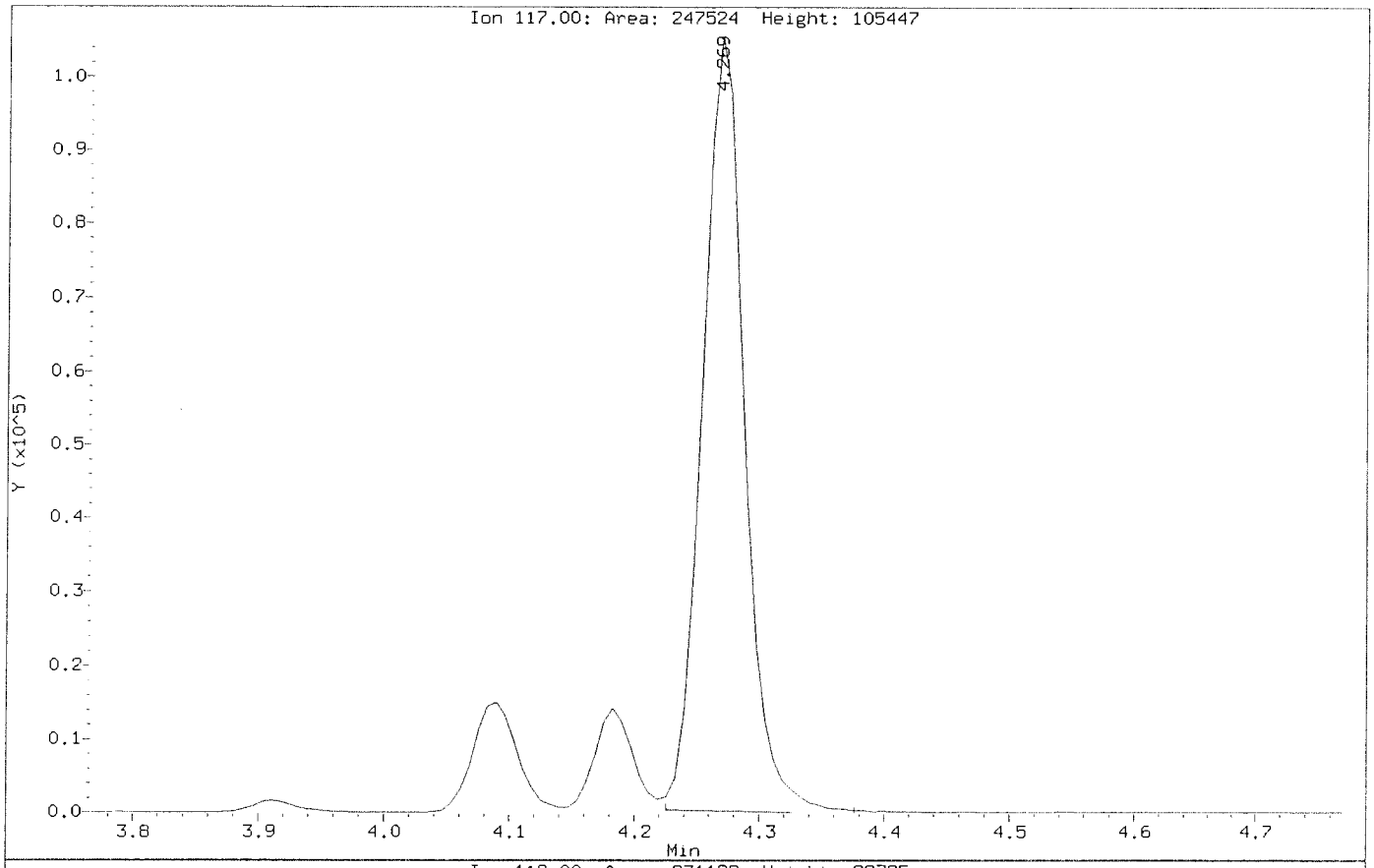
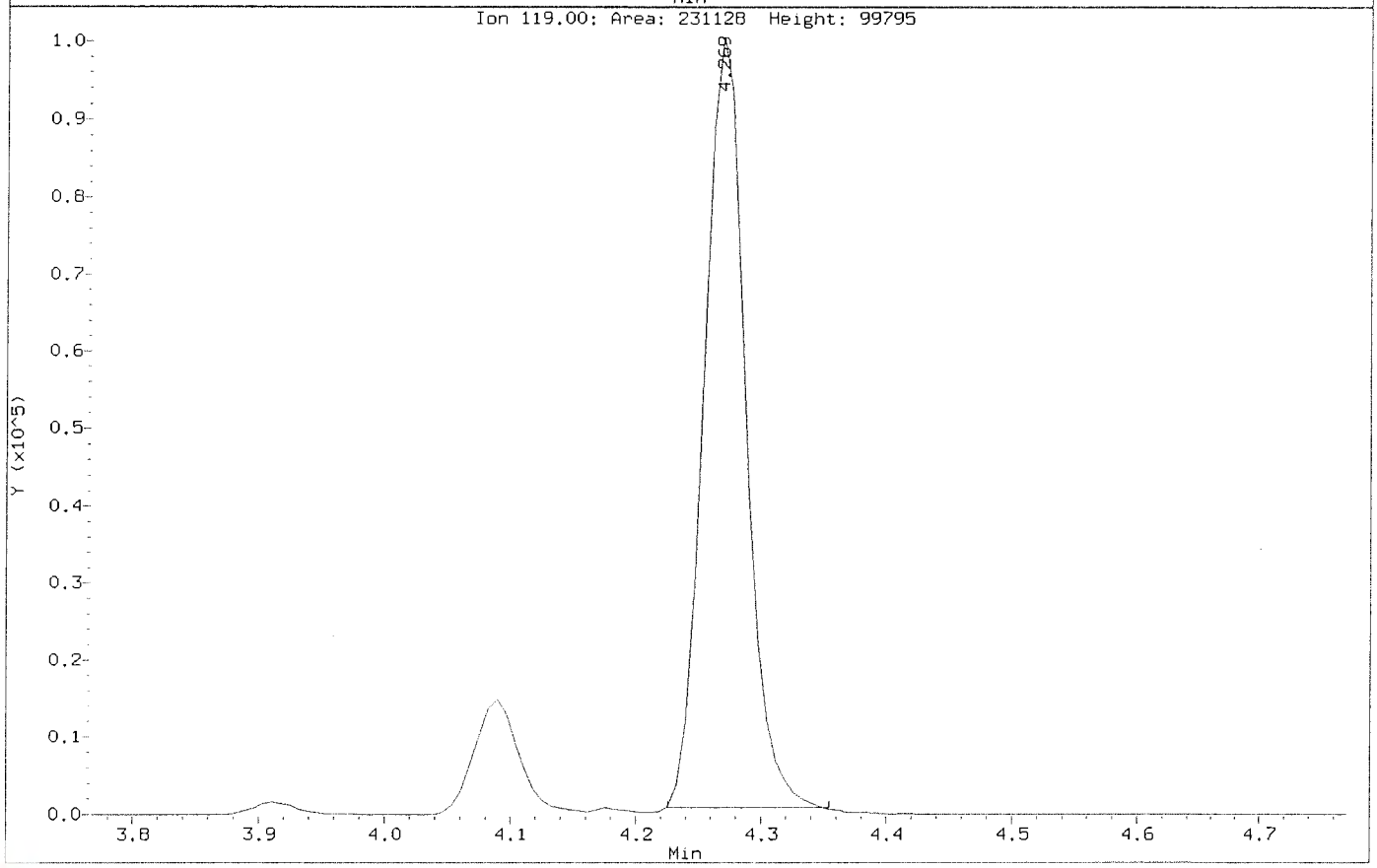
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 18-NOV-2019 16:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

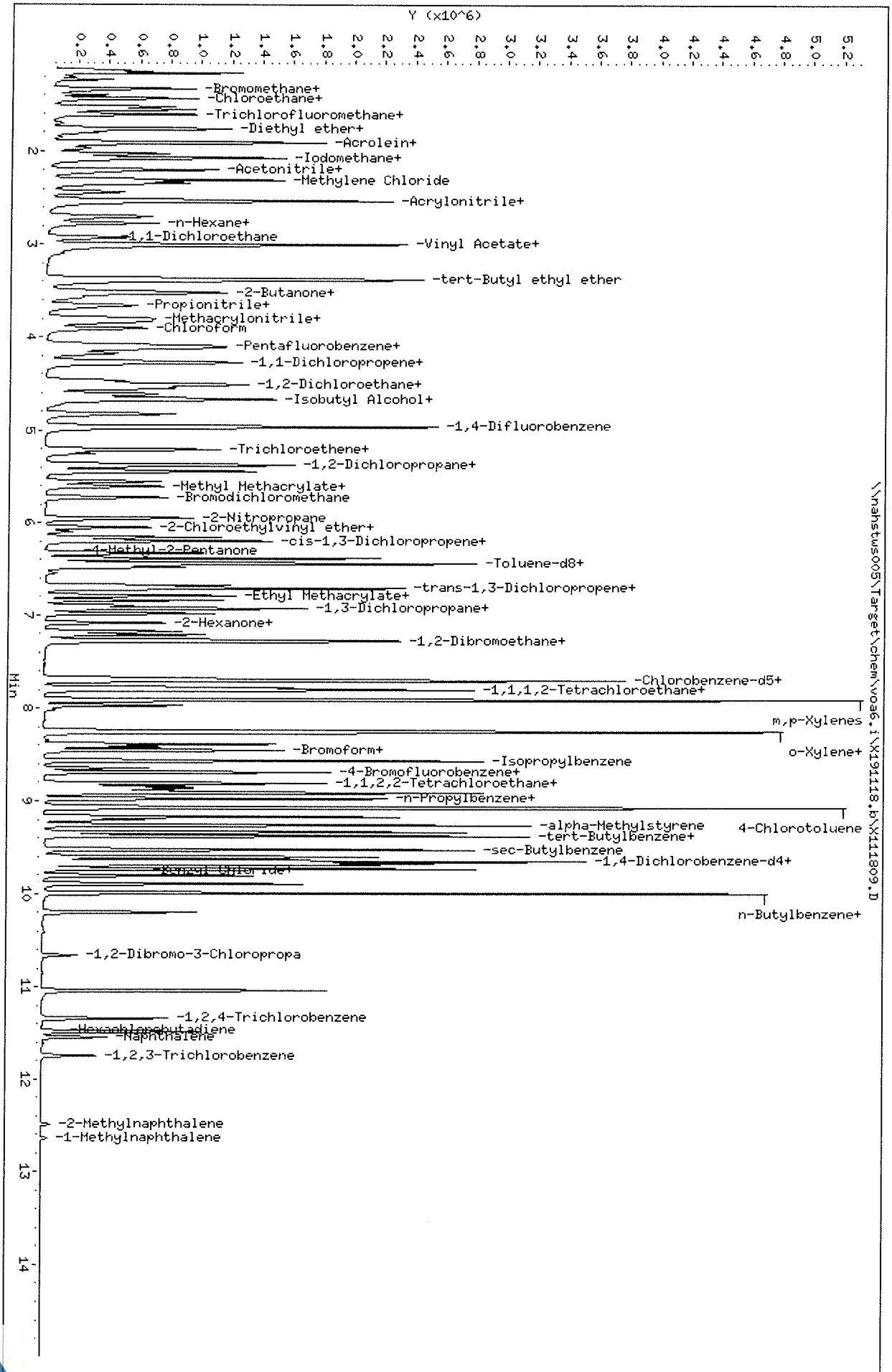
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	392699	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	554744	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502006	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278931	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	364646	100.000	97.98
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	465570	100.000	99.26
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	354918	100.000	99.03
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1251601	100.000	94.62
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	370675	100.000	101.77
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	531073	100.000	100.24
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	374065	100.000	95.36
138 Freon TF	101	1.911	1.911	(0.457)	363001	100.000	106.17
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	259169	100.000	98.76
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	562516	100.000	98.44
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	336639	100.000	101.15
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	435155	100.000	97.24
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	102660	100.000	99.24
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	314678	100.000	94.68(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	224252	100.000	95.44
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	1360930	100.000	102.82
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	42468	100.000	98.40
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	348356	100.000	98.94

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	740257	100.000	99.99
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	440676	100.000	100.06
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	322033	100.000	97.17
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1326043	100.000	104.41
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	793024	100.000	99.13
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	523367	100.000	98.23
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	805891	100.000	99.14
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	505741	100.000	97.52
24	2-Butanone	43	3.580	3.580	(0.856)	231090	200.000	191.78
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	1019206	100.000	101.56
52	2-Hexanone	43	7.090	7.090	(0.924)	404339	200.000	196.07
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	1244013	100.000	102.27
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1420650	100.000	104.09
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	584699	200.000	198.78
10	Acetone	43	1.976	1.976	(0.473)	202207	200.000	202.71(A)
37	Benzene	78	4.519	4.519	(0.909)	1259183	100.000	99.22
74	Bromobenzene	156	8.809	8.809	(0.911)	477901	100.000	98.58
29	Bromochloromethane	128	3.795	3.795	(0.908)	204995	100.000	96.36
39	Bromodichloromethane	83	5.729	5.729	(1.153)	453036	100.000	98.68
66	Bromoform	173	8.415	8.415	(1.097)	293256	100.000	97.14
6	Bromomethane	94	1.331	1.331	(0.318)	396733	100.000	104.04
19	Carbon Disulfide	76	2.069	2.069	(0.495)	1866170	200.000	206.12(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	490954	100.000	100.15(H)
59	Chlorobenzene	112	7.699	7.699	(1.004)	969904	100.000	98.96
7	Chloroethane	64	1.396	1.396	(0.334)	244234	100.000	98.78
28	Chloroform	83	3.910	3.910	(0.935)	592217	100.000	93.11
3	Chloromethane	50	1.073	1.073	(0.257)	420936	100.000	98.51
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	373378	100.000	100.25
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	548280	100.000	101.34
55	Dibromochloromethane	129	7.176	7.176	(0.936)	387071	100.000	101.53
44	Dibromomethane	93	5.557	5.557	(1.118)	228649	100.000	97.50
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	359790	100.000	99.65
61	Ethylbenzene	106	7.799	7.799	(1.017)	511284	100.000	100.96
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	192455	100.000	99.01
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1550450	100.000	103.37
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1262031	200.000	206.53(A)
17	Methylene Chloride	84	2.305	2.305	(0.551)	333987	100.000	94.05
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1214189	100.000	106.90
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1771664	100.000	102.75
92	Naphthalene	128	11.546	11.546	(1.194)	281768	100.000	93.49
63	o-Xylene	106	8.244	8.244	(1.075)	610719	100.000	101.26
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	1561099	100.000	104.22
64	Styrene	104	8.258	8.258	(1.077)	1077784	100.000	102.77
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1121644	100.000	103.15
56	Tetrachloroethene	164	6.933	6.933	(0.904)	341567	100.000	96.83
50	Toluene	91	6.446	6.446	(0.840)	1413996	100.000	99.32
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	324394	100.000	100.39
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	504686	100.000	102.35
38	Trichloroethene	130	5.206	5.206	(1.048)	388311	100.000	100.09
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	647137	100.000	106.23
5	Vinyl Chloride	62	1.138	1.138	(0.272)	400884	100.000	100.16

QC Flag Legend

A - Target compound detected but, quantitated amount
exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

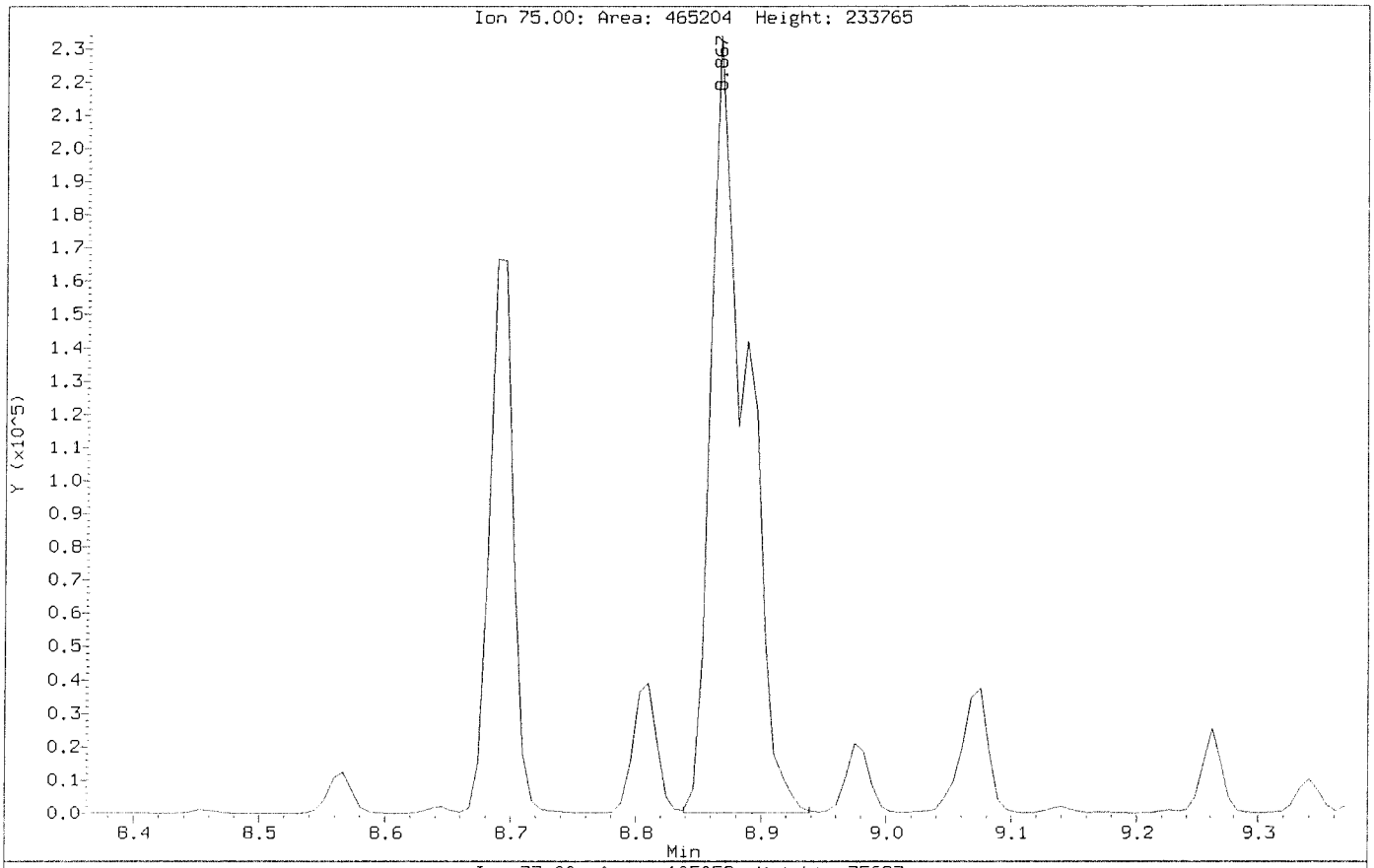


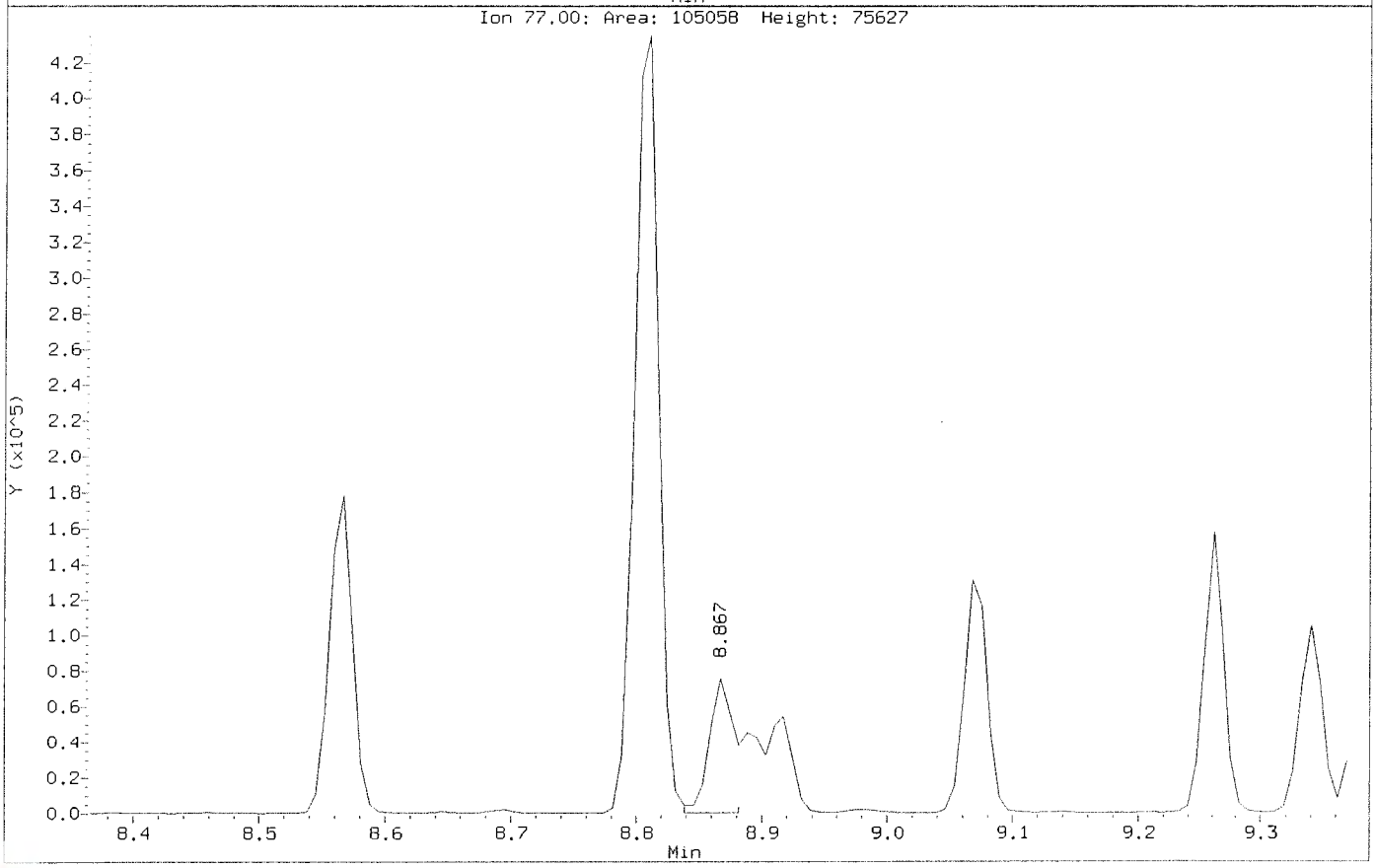
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D
Date : 18-NOV-2019 16:59
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

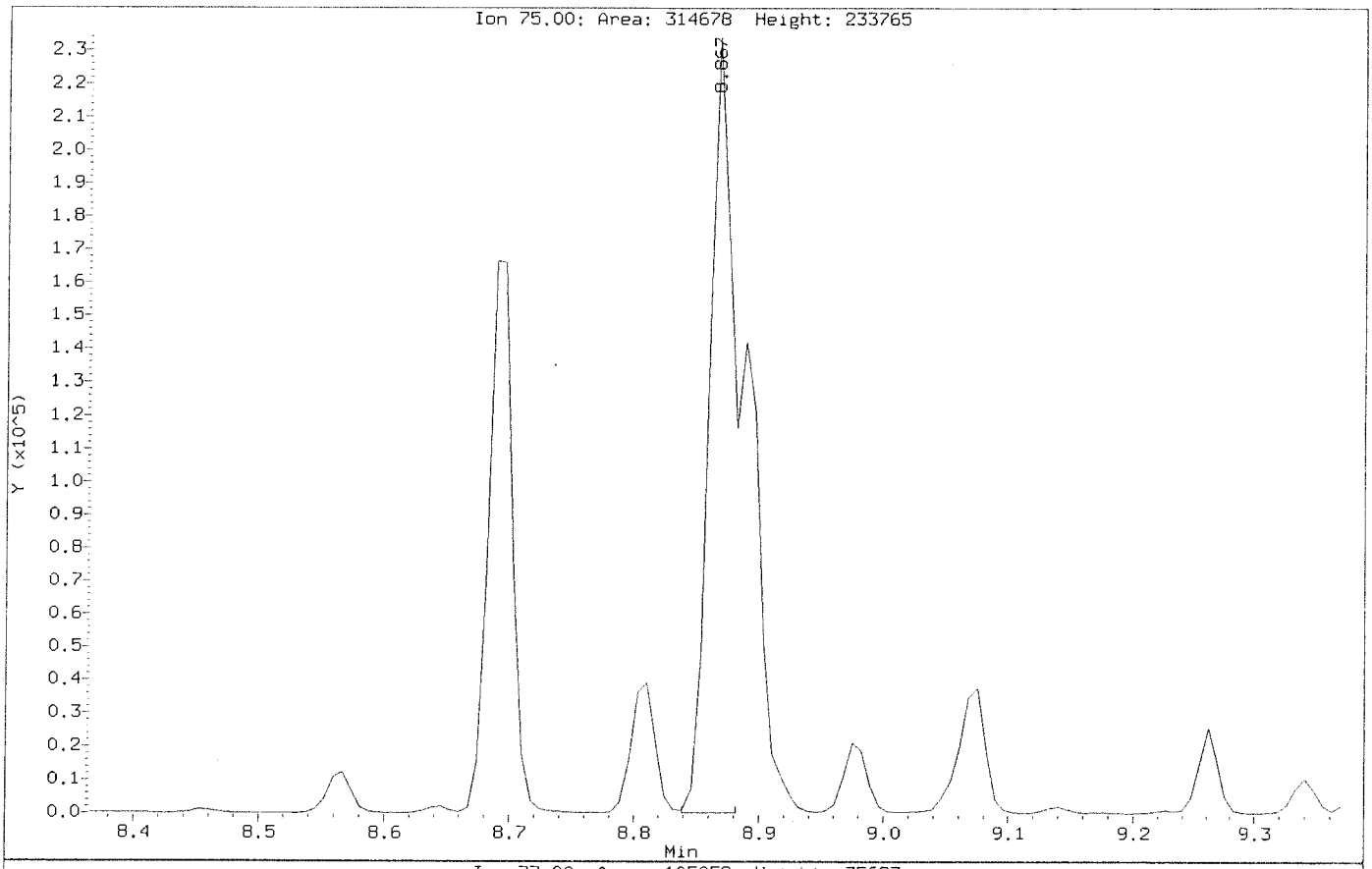
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

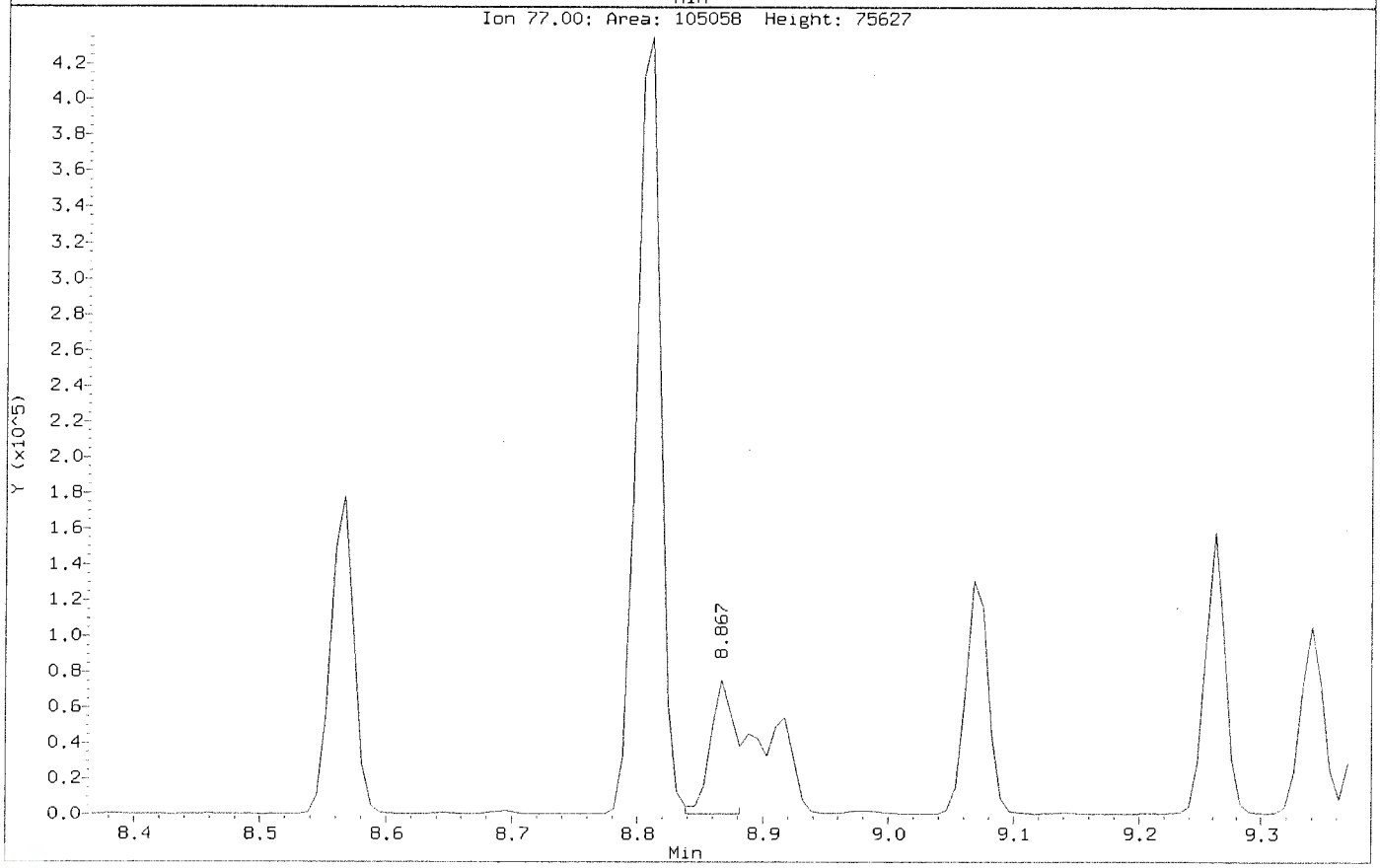




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

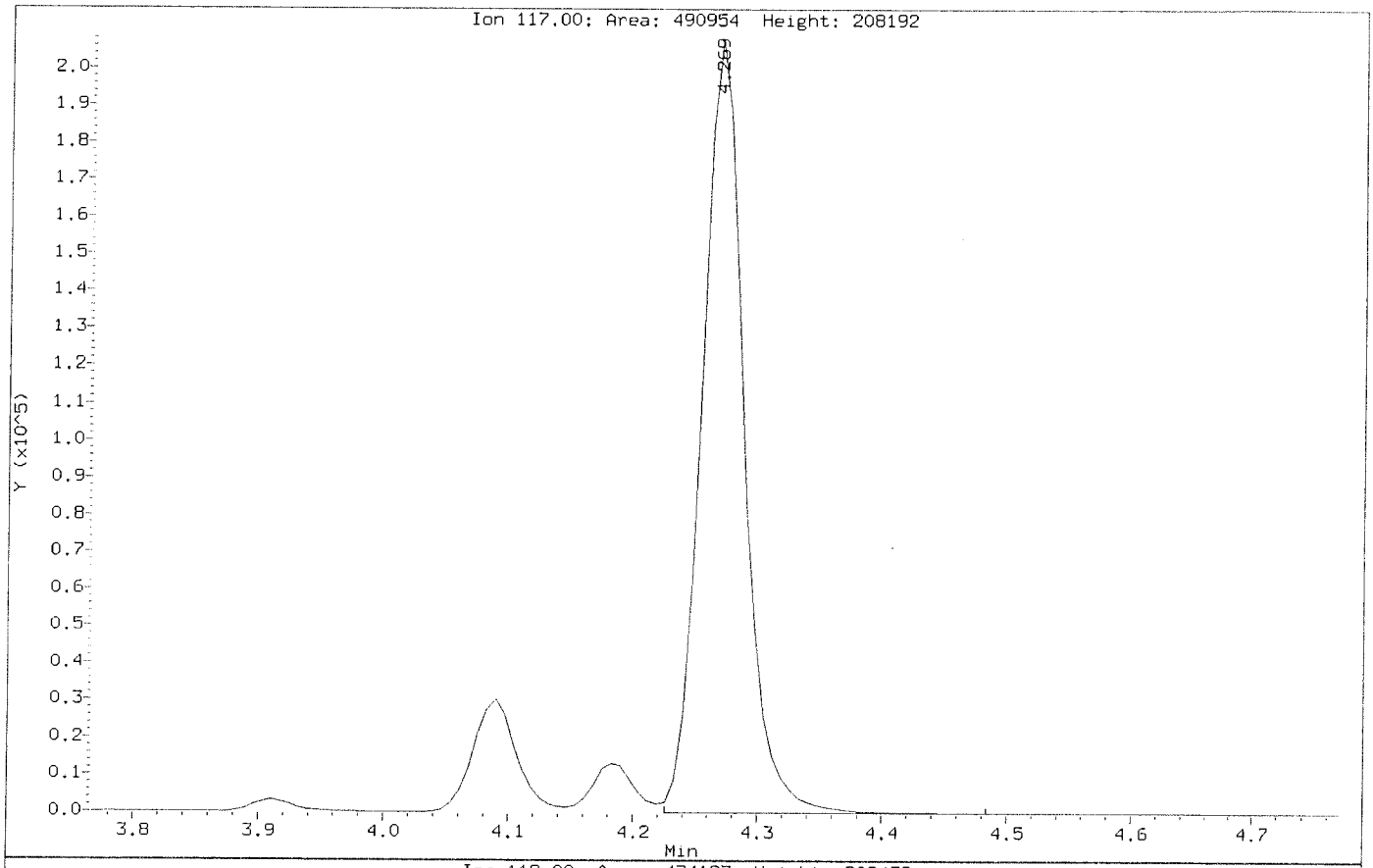
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

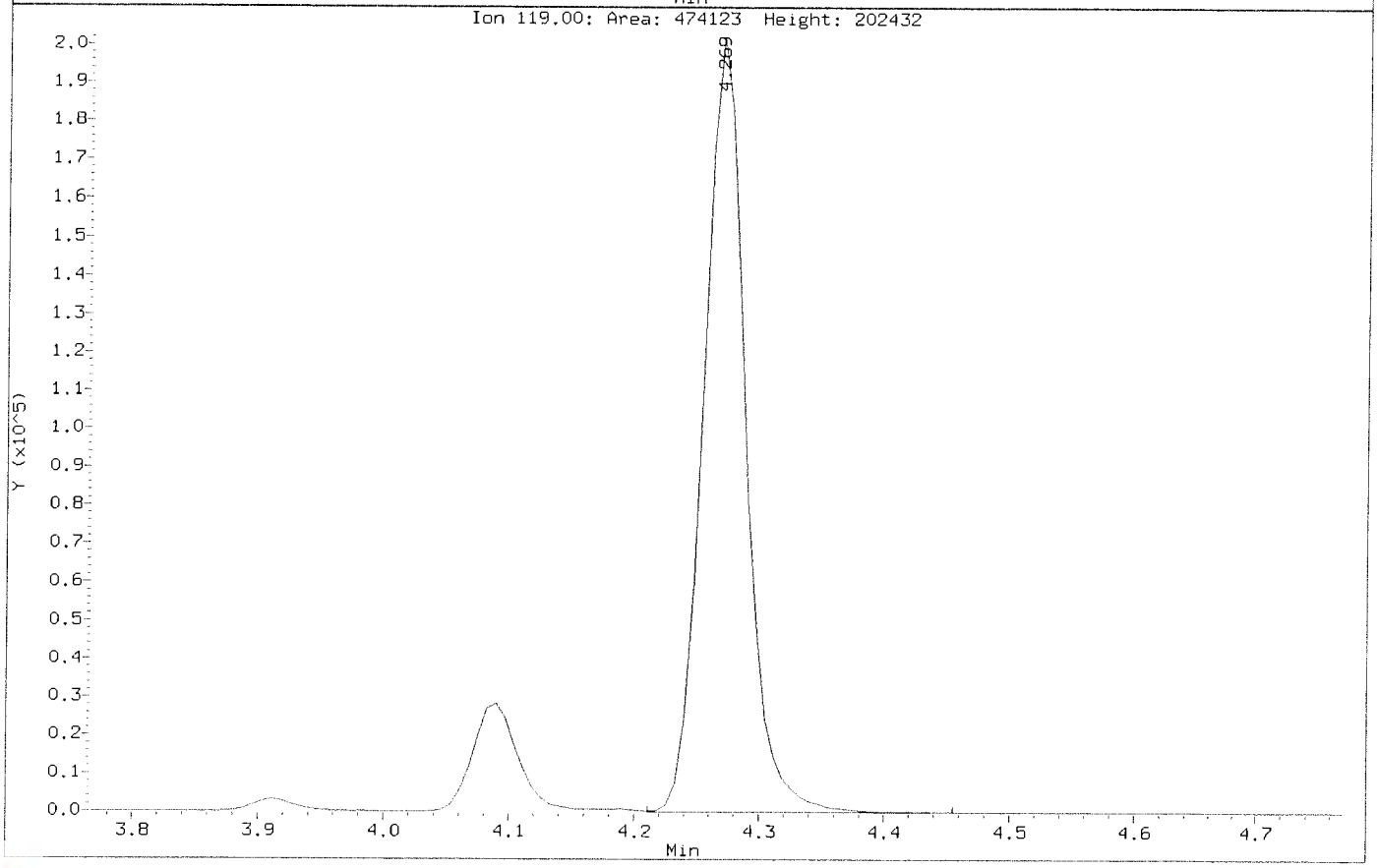




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

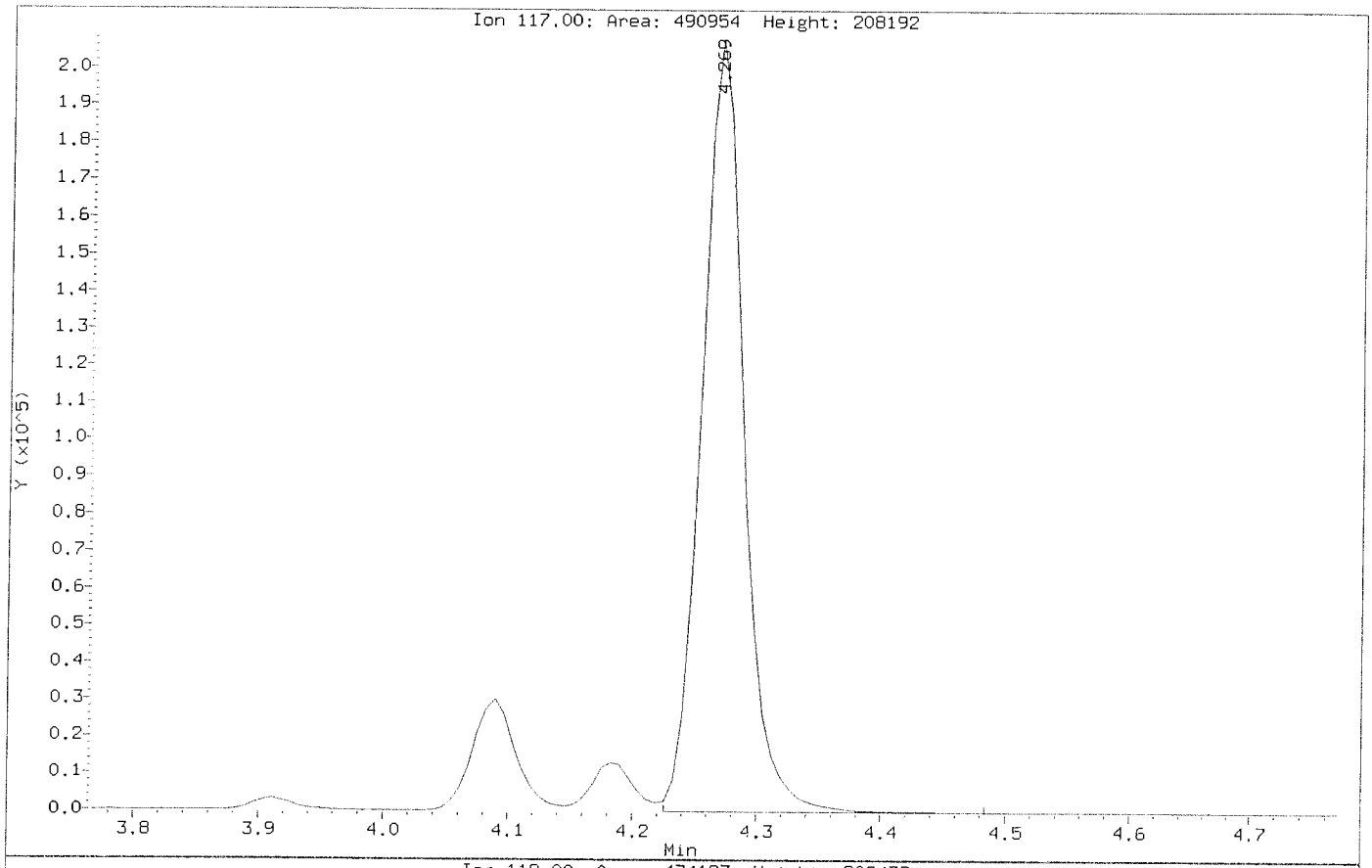
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

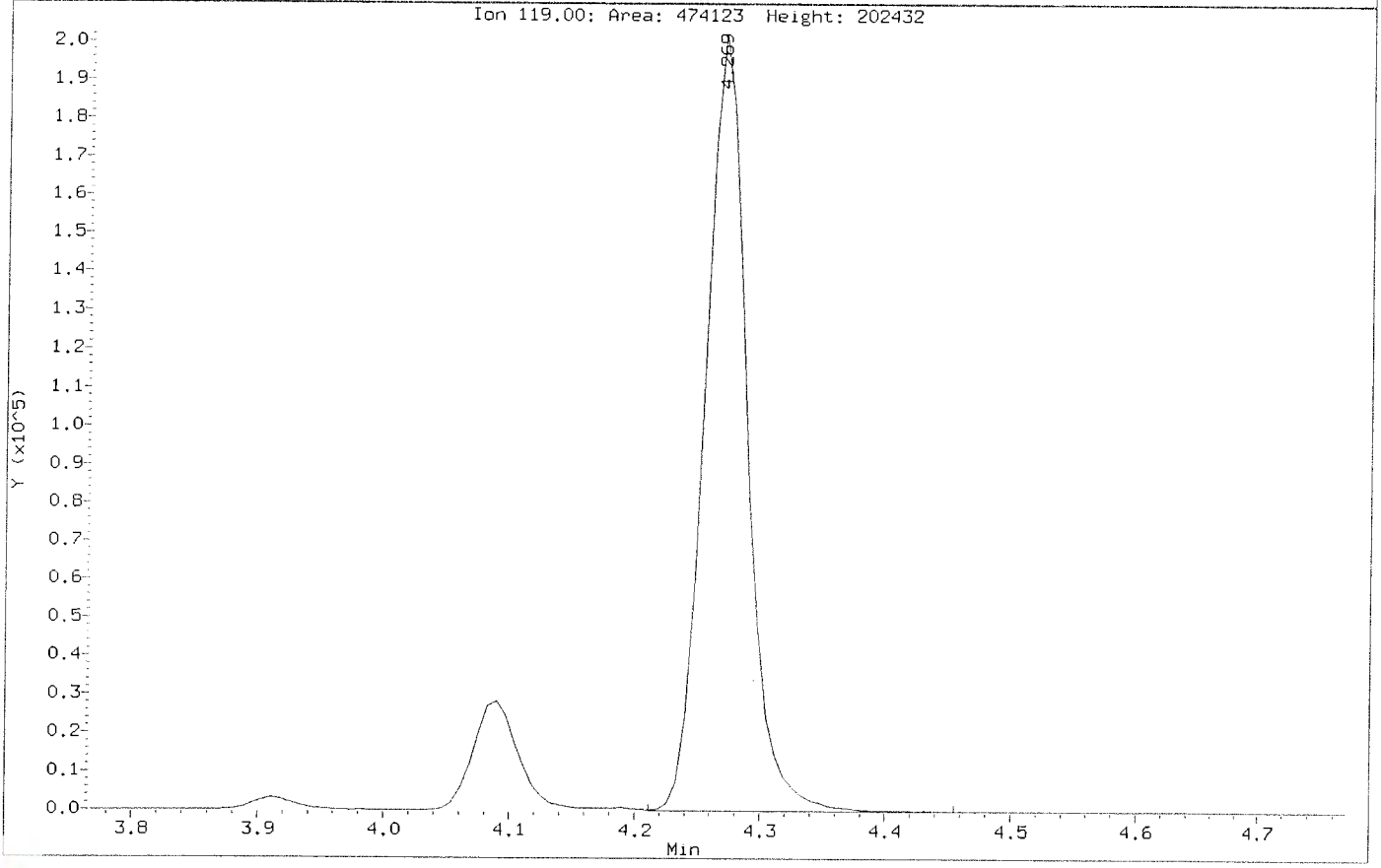




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 18-NOV-2019 17:22
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:59 Cal File: X111809.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

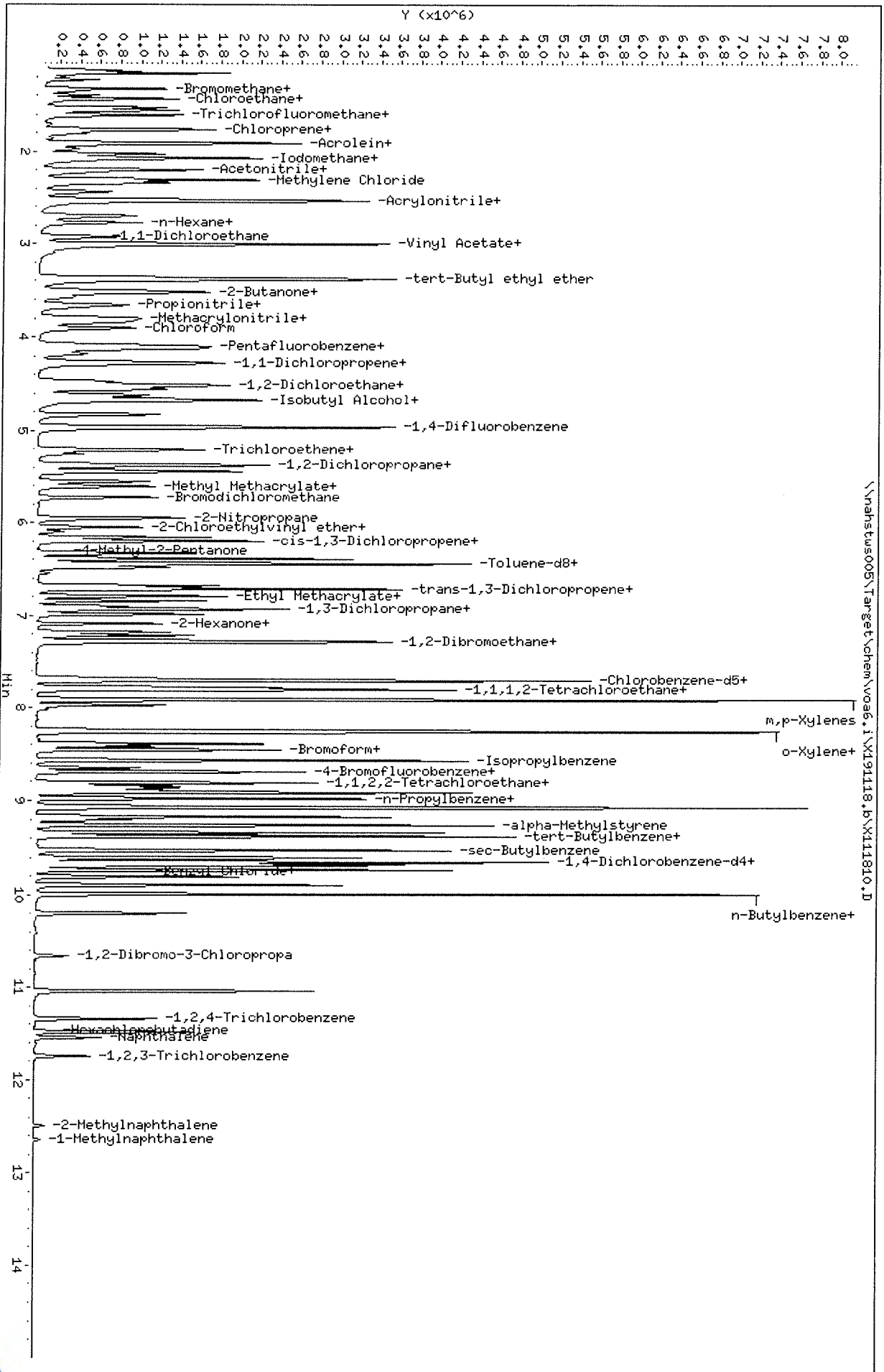
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	378157	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542191	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	494760	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	282310	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	532181	150.000	148.11
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	688600	150.000	148.76
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	514854	150.000	148.99
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	1815269	150.000	139.25
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	548257	150.000	152.74
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	768782	150.000	150.69
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	560927	150.000	141.29
138 Freon TF	101	1.912	1.912	(0.457)	513260	150.000	155.89
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	380298	150.000	147.04
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	825788	150.000	150.08
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	483391	150.000	150.83
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	635821	150.000	145.37
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	156391	150.000	148.93
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	465353	150.000	138.34(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	338737	150.000	142.44
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	2030171	150.000	151.55
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	65470	150.000	150.06
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	518766	150.000	149.49

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1121580	150.000	149.69
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	645436	150.000	149.95
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	471959	150.000	145.71
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1980658	150.000	154.09
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1183710	150.000	146.20
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	763789	150.000	145.46
84	1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	1195790	150.000	145.34
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	732900	150.000	146.75
24	2-Butanone	43	3.573	3.573	(0.854)	346972	300.000	299.02(A)
76	2-Chlorotoluene	91	8.982	8.982	(0.929)	1513395	150.000	149.00
52	2-Hexanone	43	7.090	7.090	(0.924)	606144	300.000	298.23(A)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	1867848	150.000	151.71
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2100293	150.000	152.04
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	884349	300.000	305.06(A)
10	Acetone	43	1.976	1.976	(0.473)	284604	300.000	298.06(A)
37	Benzene	78	4.512	4.512	(0.908)	1843665	150.000	148.64
74	Bromobenzene	156	8.810	8.810	(0.911)	709083	150.000	144.52
29	Bromochloromethane	128	3.795	3.795	(0.908)	294445	150.000	143.73
39	Bromodichloromethane	83	5.730	5.730	(1.153)	669356	150.000	149.18
66	Bromoform	173	8.416	8.416	(1.097)	447981	150.000	150.02
6	Bromomethane	94	1.331	1.331	(0.318)	529714	150.000	145.16
19	Carbon Disulfide	76	2.069	2.069	(0.495)	2705391	300.000	310.30(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	707541	150.000	147.68(H)
59	Chlorobenzene	112	7.699	7.699	(1.004)	1445648	150.000	149.66
7	Chloroethane	64	1.396	1.396	(0.334)	351927	150.000	147.81
28	Chloroform	83	3.910	3.910	(0.935)	863467	150.000	140.99
3	Chloromethane	50	1.074	1.074	(0.257)	613254	150.000	148.94
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	542390	150.000	151.24
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	808388	150.000	152.88
55	Dibromochloromethane	129	7.176	7.176	(0.936)	573494	150.000	152.63
44	Dibromomethane	93	5.558	5.558	(1.118)	338759	150.000	147.80
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	504807	150.000	144.79
61	Ethylbenzene	106	7.800	7.800	(1.017)	751250	150.000	150.52
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	279881	150.000	142.49
67	Isopropylbenzene	105	8.566	8.566	(1.117)	2283588	150.000	154.47
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1861660	300.000	309.12(A)
17	Methylene Chloride	84	2.306	2.306	(0.551)	485622	150.000	142.02
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1823176	150.000	158.59
73	n-Propylbenzene	91	8.917	8.917	(0.922)	2616190	150.000	149.92
92	Naphthalene	128	11.546	11.546	(1.194)	435593	150.000	142.81
63	o-Xylene	106	8.244	8.244	(1.075)	906786	150.000	152.56
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	2308597	150.000	152.28
64	Styrene	104	8.258	8.258	(1.077)	1622659	150.000	156.99
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1665732	150.000	151.35
56	Tetrachloroethene	164	6.933	6.933	(0.904)	493485	150.000	141.95
50	Toluene	91	6.446	6.446	(0.840)	2107838	150.000	150.23
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	472385	150.000	151.82
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	741568	150.000	153.87
38	Trichloroethene	130	5.207	5.207	(1.048)	566006	150.000	149.27
8	Trichlorofluoromethane	101	1.553	1.553	(0.372)	922117	150.000	157.19
5	Vinyl Chloride	62	1.138	1.138	(0.272)	578026	150.000	149.97

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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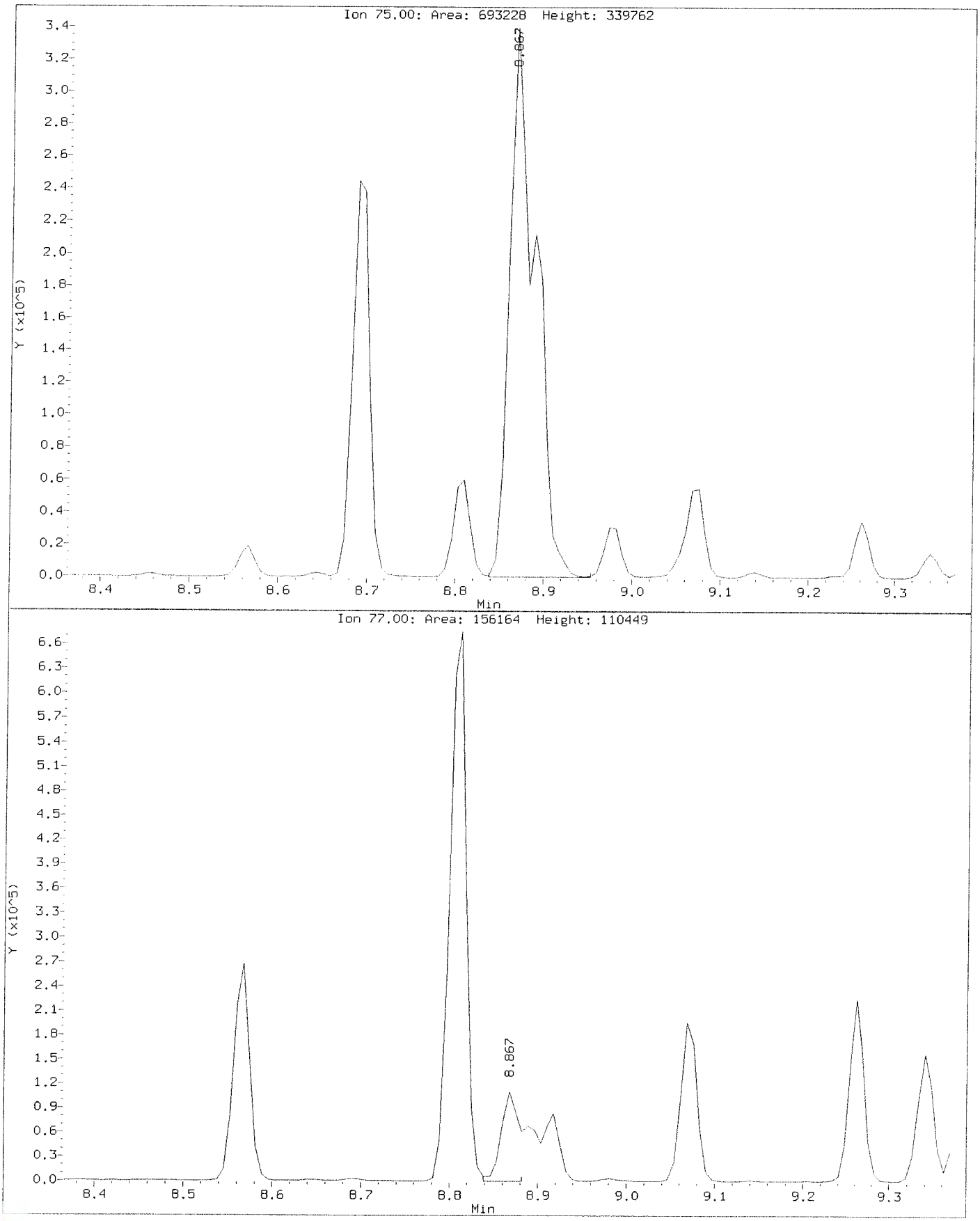
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111810.D
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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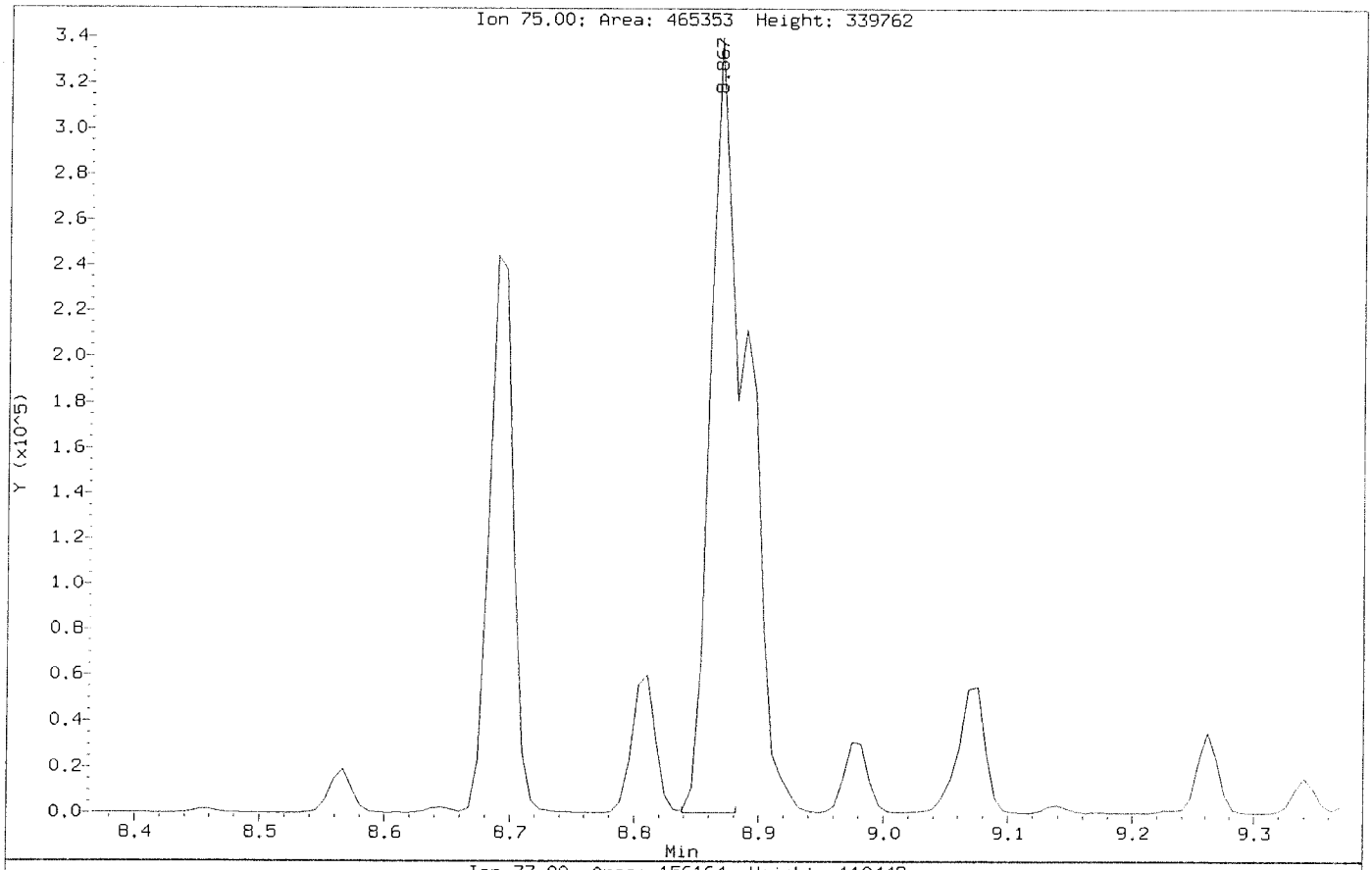
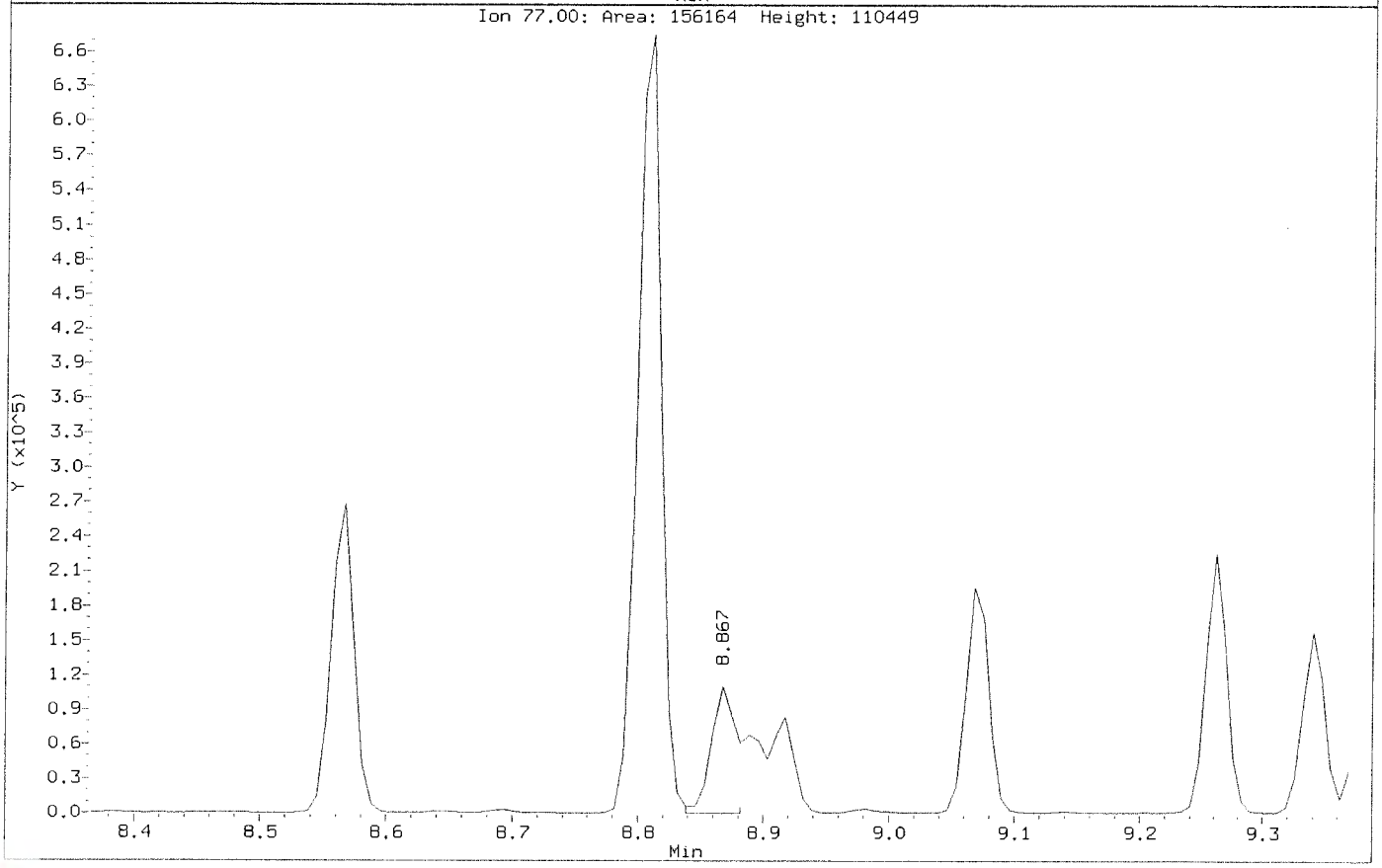
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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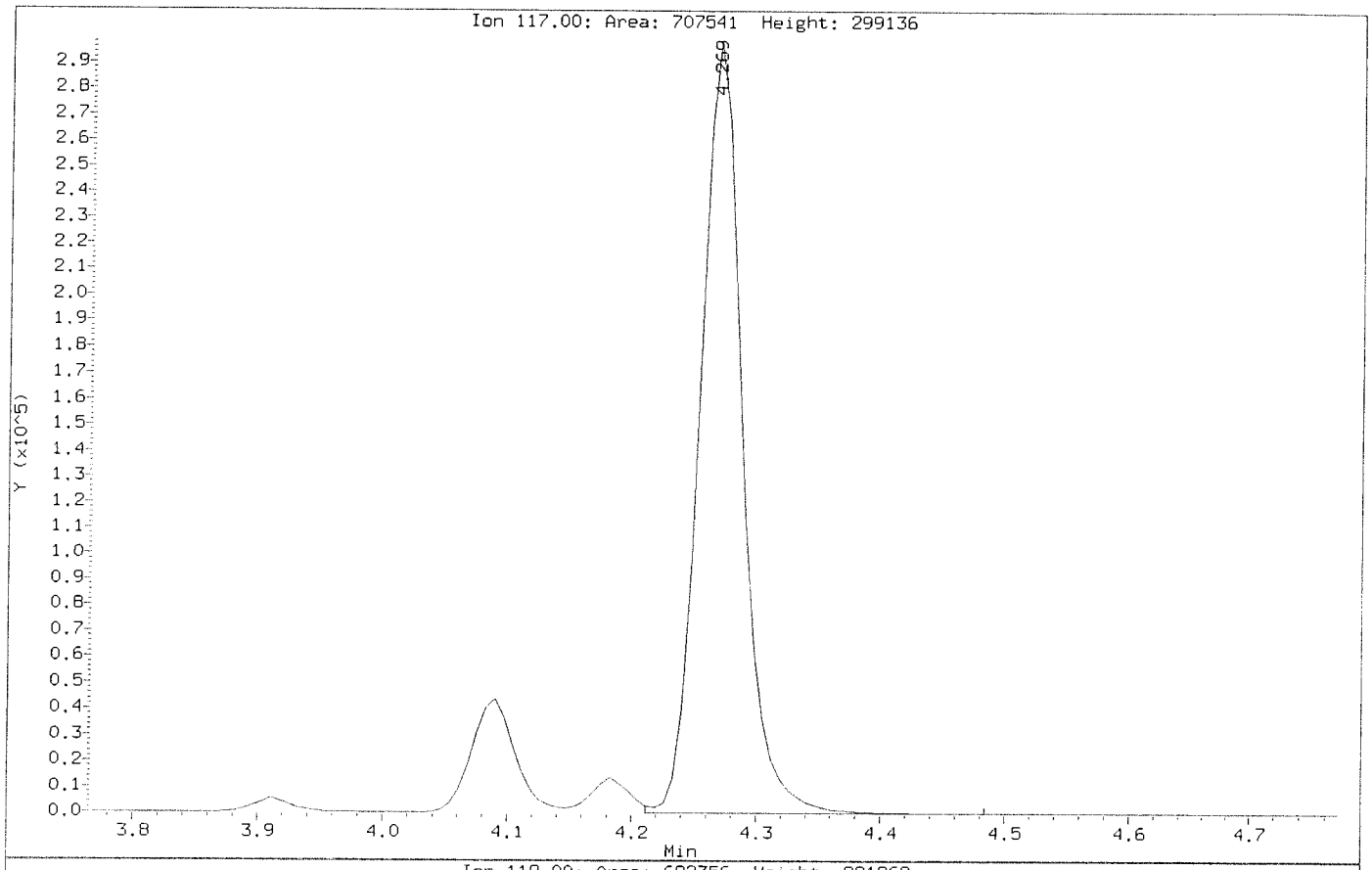
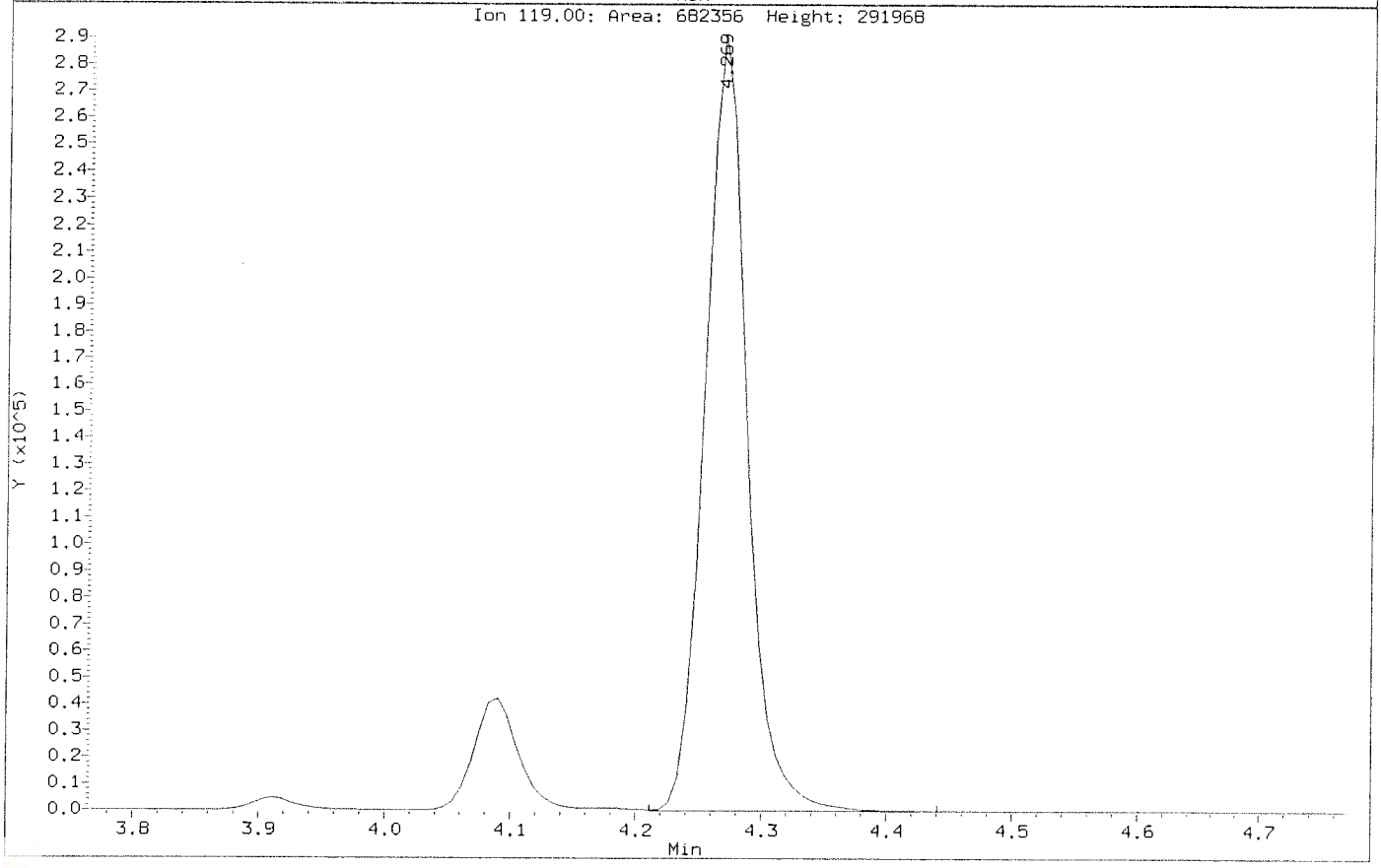
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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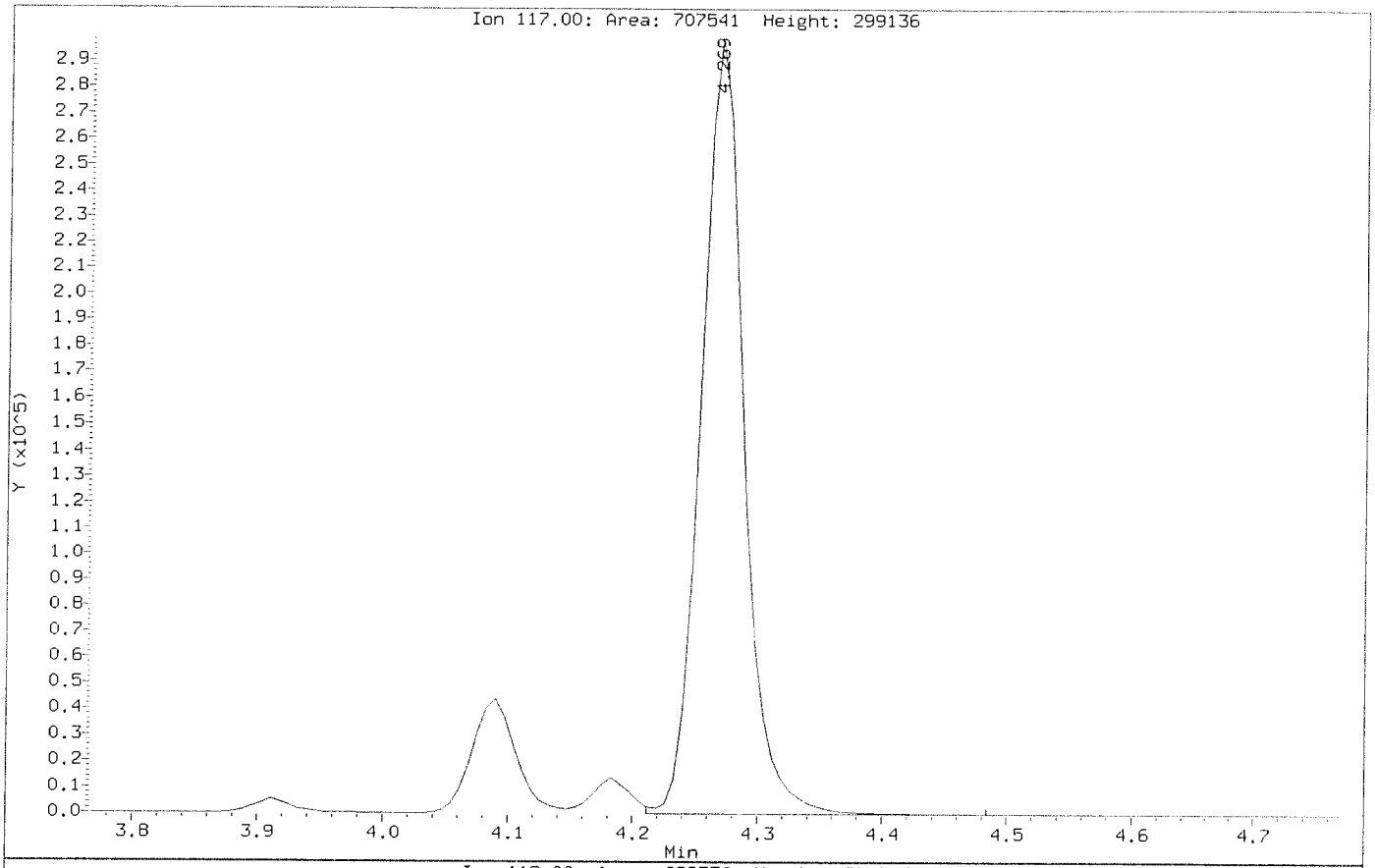
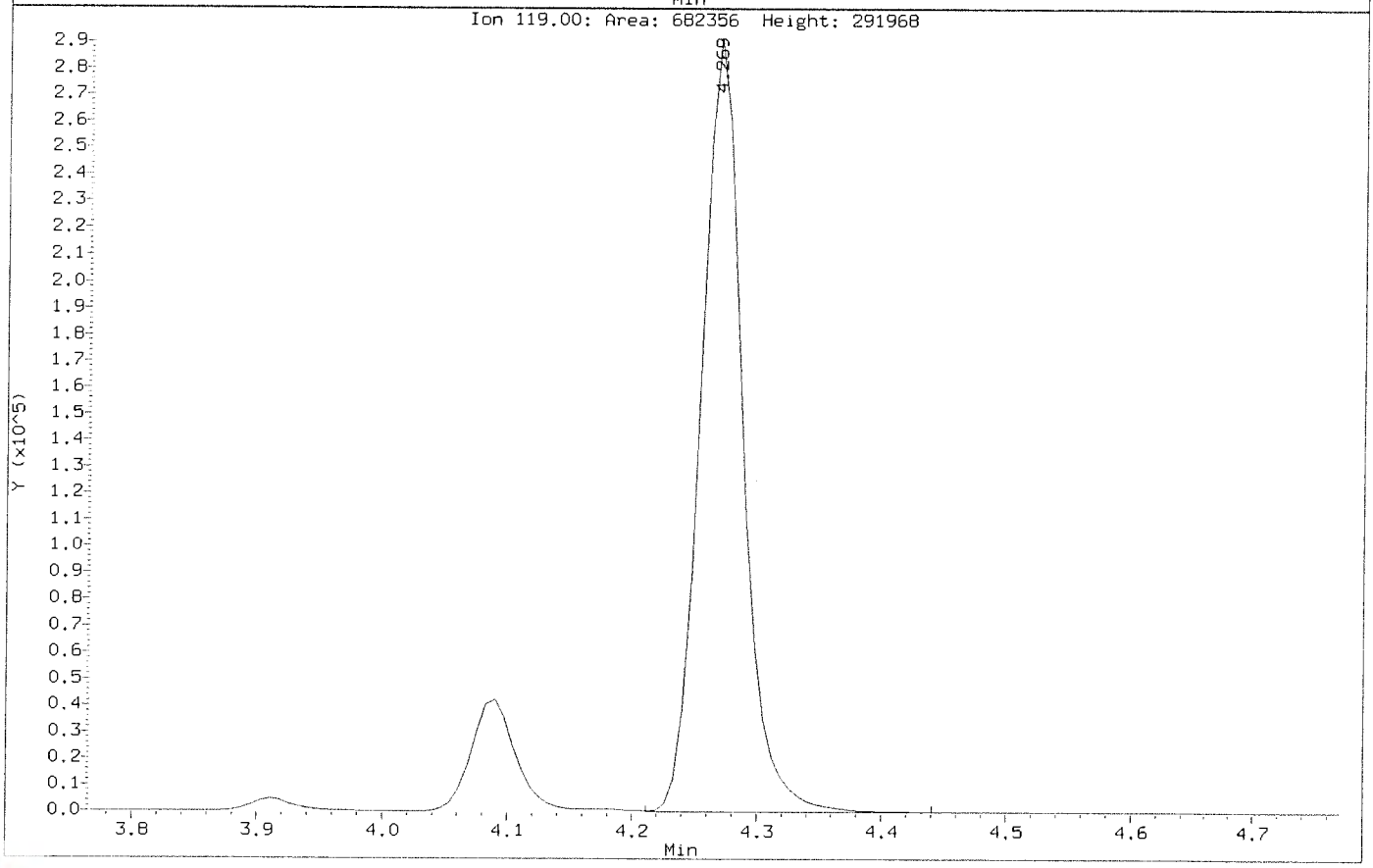
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 18-NOV-2019 17:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:22 Cal File: X111810.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

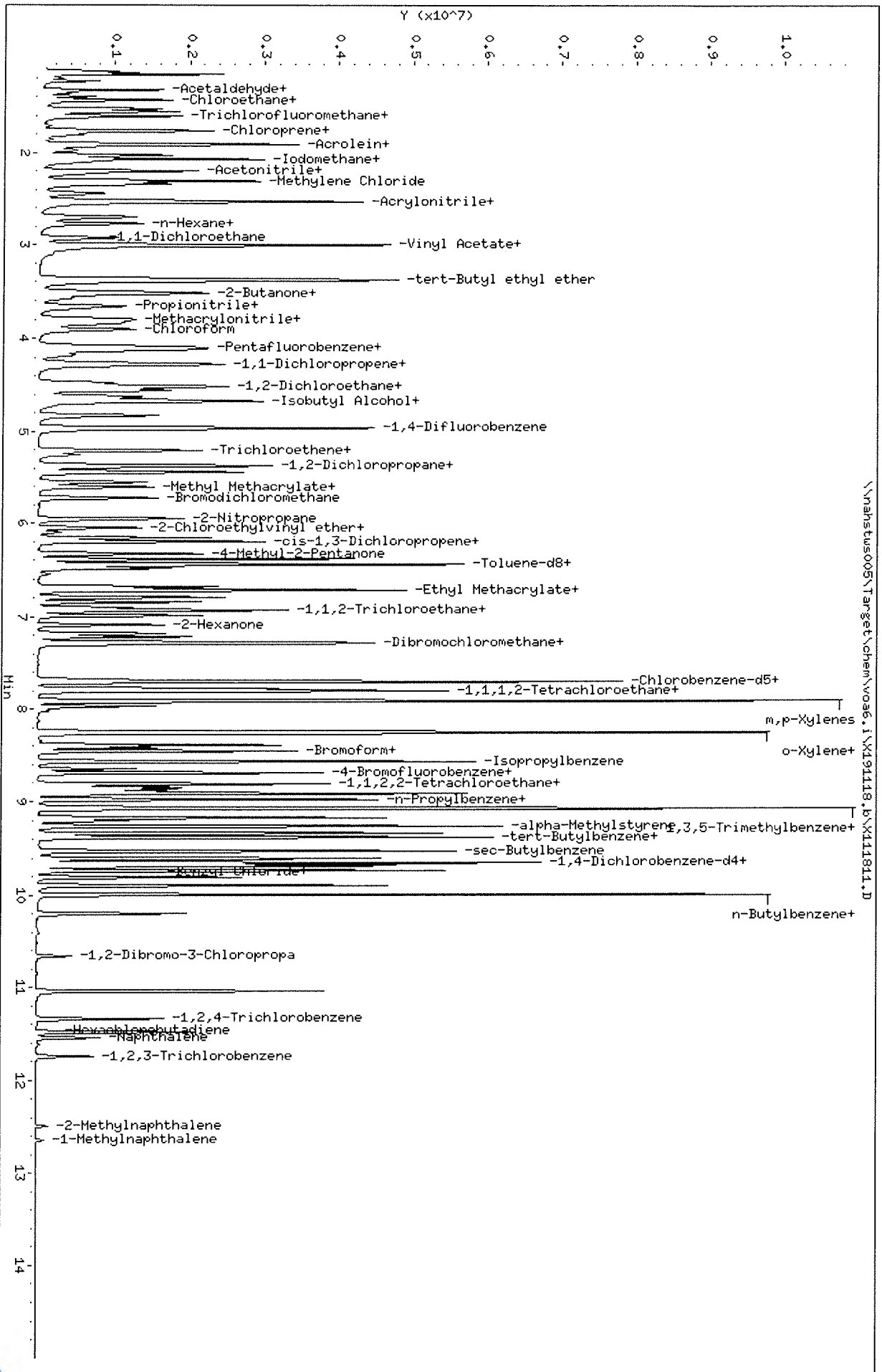
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	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)	369517	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542684	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	493817	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	280605	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	713282	200.000	202.89(A)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	933083	200.000	201.81(A)
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	681300	200.000	201.64(A)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	2431773	200.000	186.90
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	731912	200.000	204.29(A)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	1030058	200.000	206.62(A)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	742176	200.000	188.09
	138 Freon TF	101	1.911	1.911	(0.457)	696977	200.000	216.65(A)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	511936	200.000	198.31
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	1089650	200.000	202.66(A)
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	641291	200.000	204.78(A)
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	849992	200.000	194.17
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	210414	200.000	200.64(A)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	609450	200.000	182.28(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	455609	200.000	192.75
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	2745695	200.000	206.21(A)
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	86827	200.000	200.34(A)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	693307	200.000	200.18(A)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	1508205	200.000	202.51(A)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	865099	200.000	200.81(A)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	629023	200.000	194.03
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	2668415	200.000	208.86(A)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1590132	200.000	197.60
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1018788	200.000	194.39
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1621999	200.000	198.35
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	972273	200.000	199.24
24	2-Butanone	43	3.580	3.580	(0.856)	437867	400.000	386.18(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	2019887	200.000	200.07(A)
52	2-Hexanone	43	7.090	7.090	(0.924)	806375	400.000	397.51(A)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	2525879	200.000	206.41(A)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2843849	200.000	207.12(A)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1178590	400.000	407.33(A)
10	Acetone	43	1.976	1.976	(0.473)	372223	400.000	400.25(A)
37	Benzene	78	4.512	4.512	(0.908)	2449808	200.000	197.34
74	Bromobenzene	156	8.809	8.809	(0.911)	958177	200.000	196.47
29	Bromochloromethane	128	3.795	3.795	(0.908)	376537	200.000	188.10
39	Bromodichloromethane	83	5.729	5.729	(1.153)	893499	200.000	198.95
66	Bromoform	173	8.415	8.415	(1.097)	602595	200.000	201.83(A)
6	Bromomethane	94	1.331	1.331	(0.318)	631015	200.000	177.48(M)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	3628864	400.000	425.96(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	954439	200.000	199.03(H)
59	Chlorobenzene	112	7.699	7.699	(1.004)	1940751	200.000	201.30(A)
7	Chloroethane	64	1.396	1.396	(0.334)	459143	200.000	197.35
28	Chloroform	83	3.910	3.910	(0.935)	1152726	200.000	192.62
3	Chloromethane	50	1.073	1.073	(0.257)	811388	200.000	201.60(A)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	721487	200.000	205.88(A)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1069987	200.000	202.17(A)
55	Dibromochloromethane	129	7.183	7.183	(0.937)	764698	200.000	203.91(A)
44	Dibromomethane	93	5.557	5.557	(1.118)	451528	200.000	196.82
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	695305	200.000	203.74(A)
61	Ethylbenzene	106	7.807	7.807	(1.018)	1011964	200.000	203.15(A)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	373475	200.000	191.48
67	Isopropylbenzene	105	8.566	8.566	(1.117)	3082382	200.000	208.91(A)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	2525960	400.000	420.22(A)
17	Methylene Chloride	84	2.305	2.305	(0.551)	644942	200.000	193.02
87	n-Butylbenzene	91	9.998	9.998	(1.034)	2465783	200.000	215.80(A)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	3540988	200.000	204.15(A)
92	Naphthalene	128	11.546	11.546	(1.194)	574298	200.000	189.43
63	o-Xylene	106	8.244	8.244	(1.075)	1231007	200.000	207.50(A)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	3131997	200.000	207.86(A)
64	Styrene	104	8.265	8.265	(1.078)	2199171	200.000	213.18(A)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	2240944	200.000	204.85(A)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	660581	200.000	190.38
50	Toluene	91	6.453	6.453	(0.841)	2834294	200.000	202.39(A)
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	630988	200.000	207.54(A)
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1000892	200.000	207.50(A)
38	Trichloroethene	130	5.206	5.206	(1.048)	754871	200.000	198.90
8	Trichlorofluoromethane	101	1.553	1.553	(0.371)	1241567	200.000	216.59(A)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	773023	200.000	205.26(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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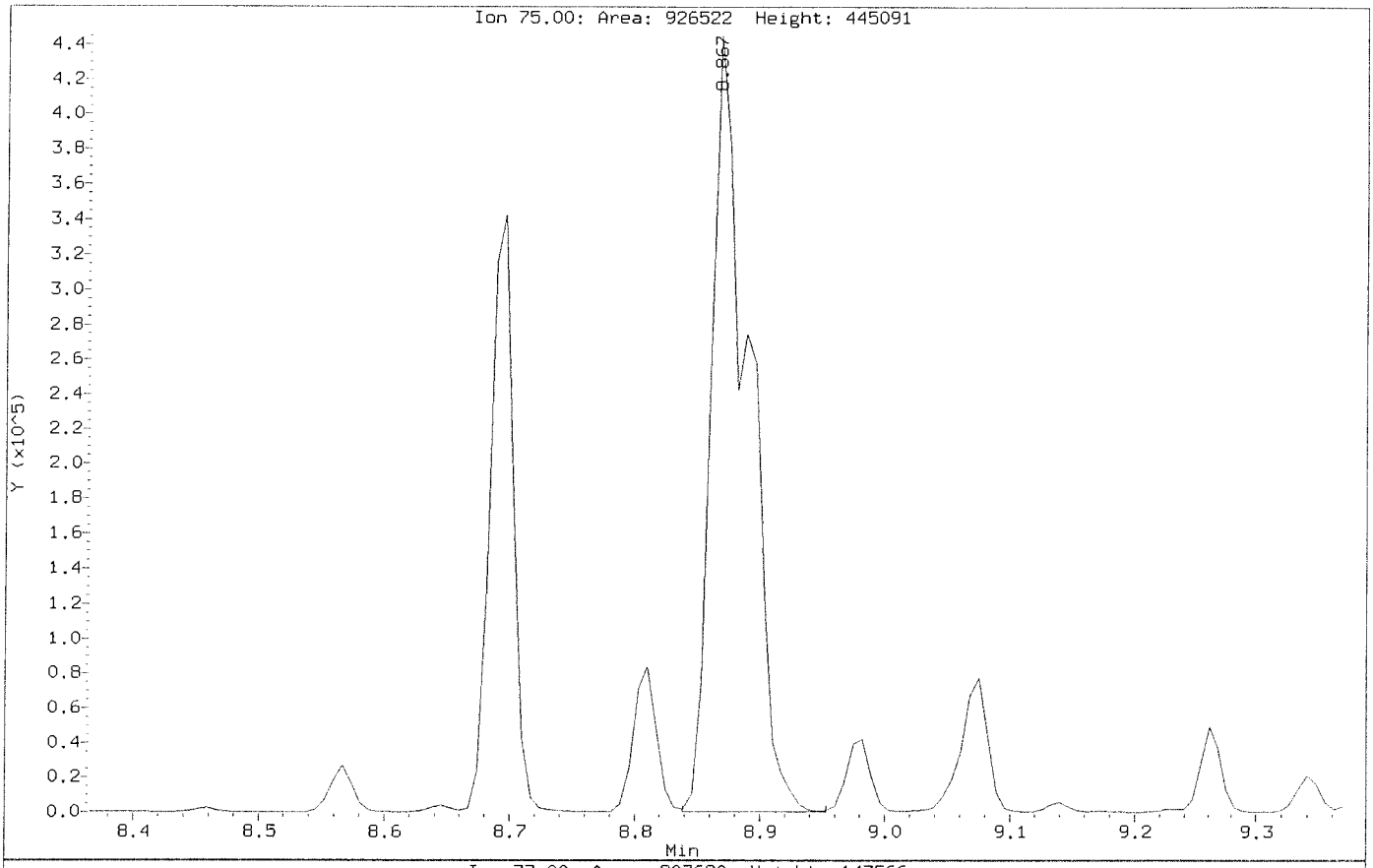
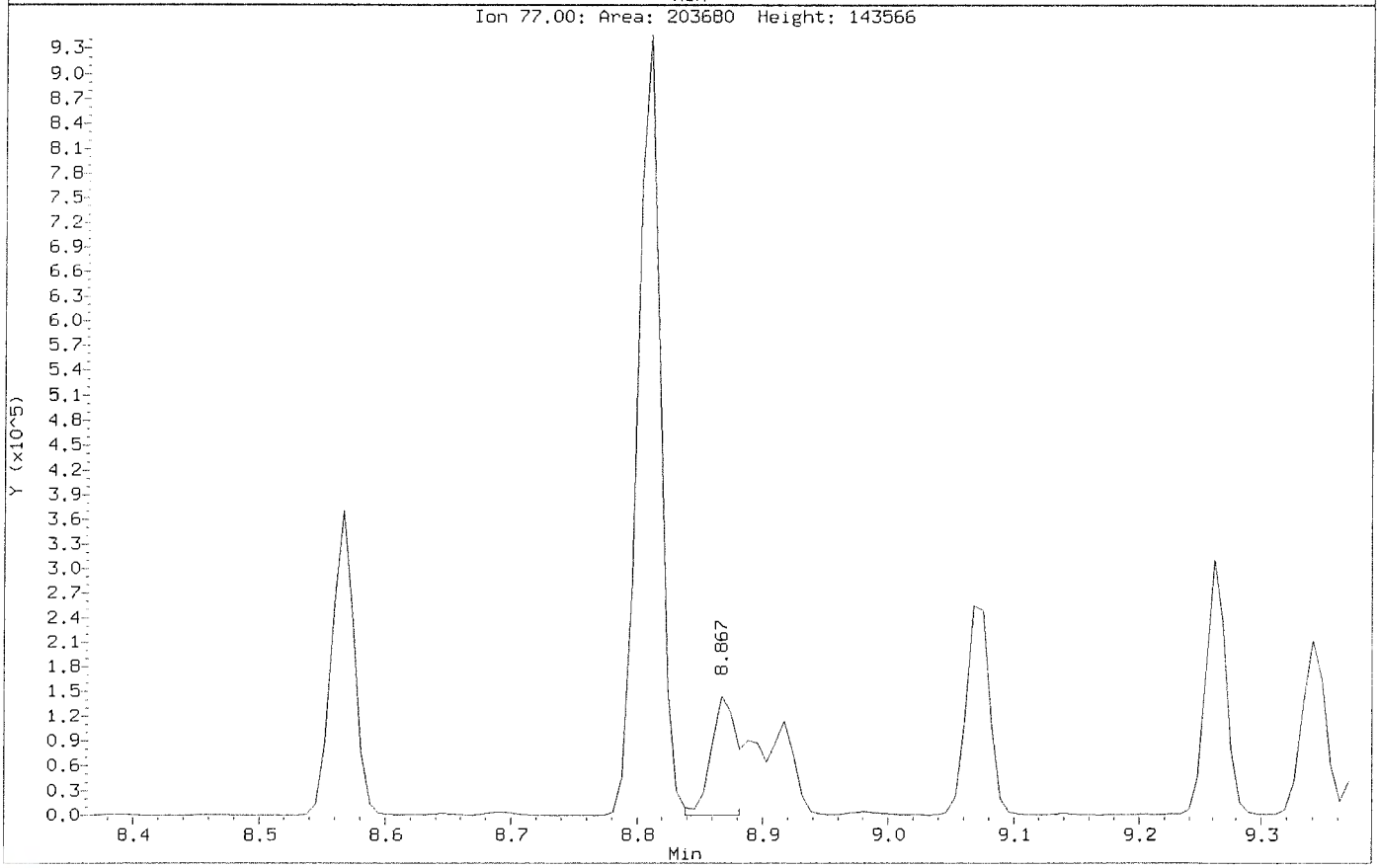
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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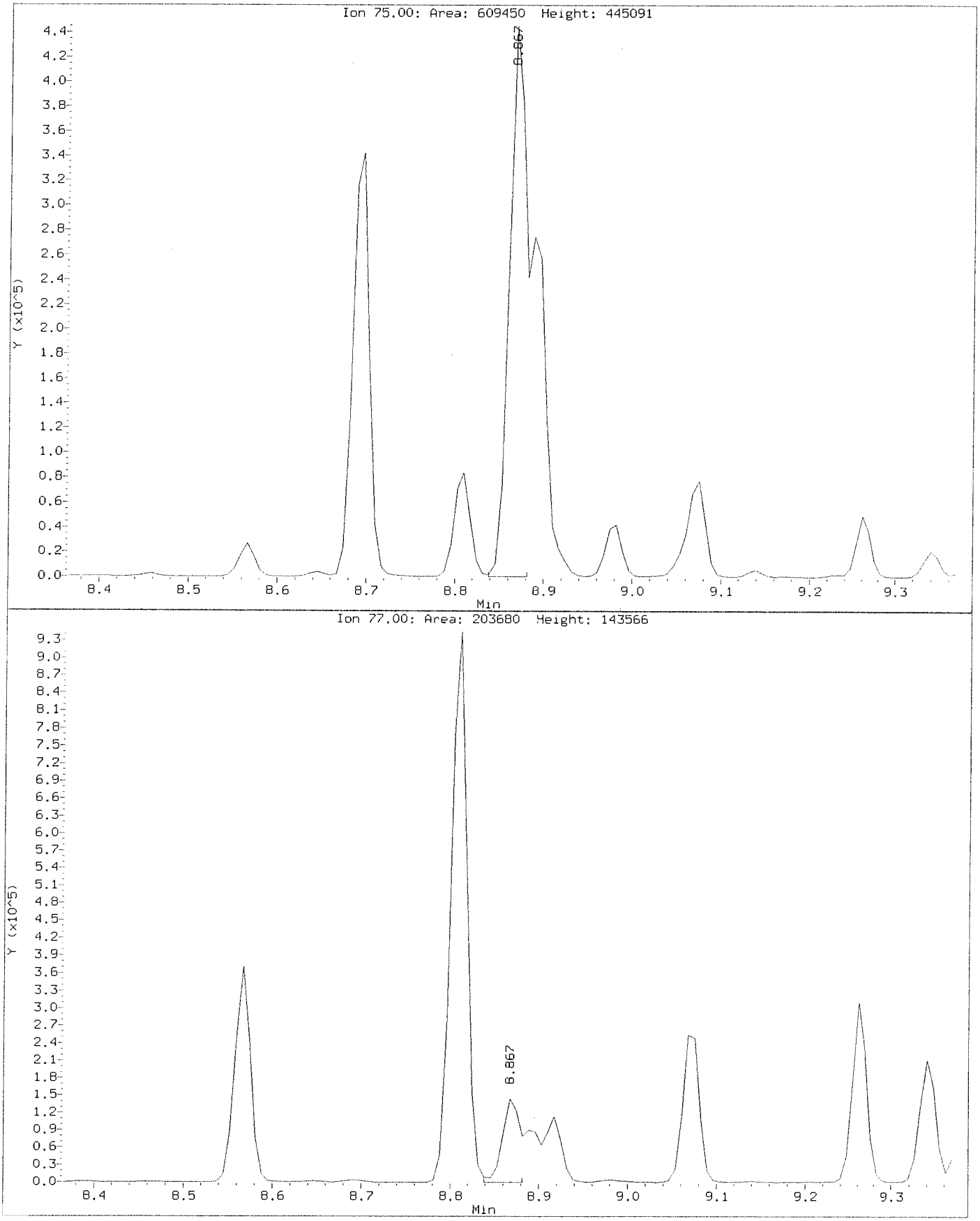
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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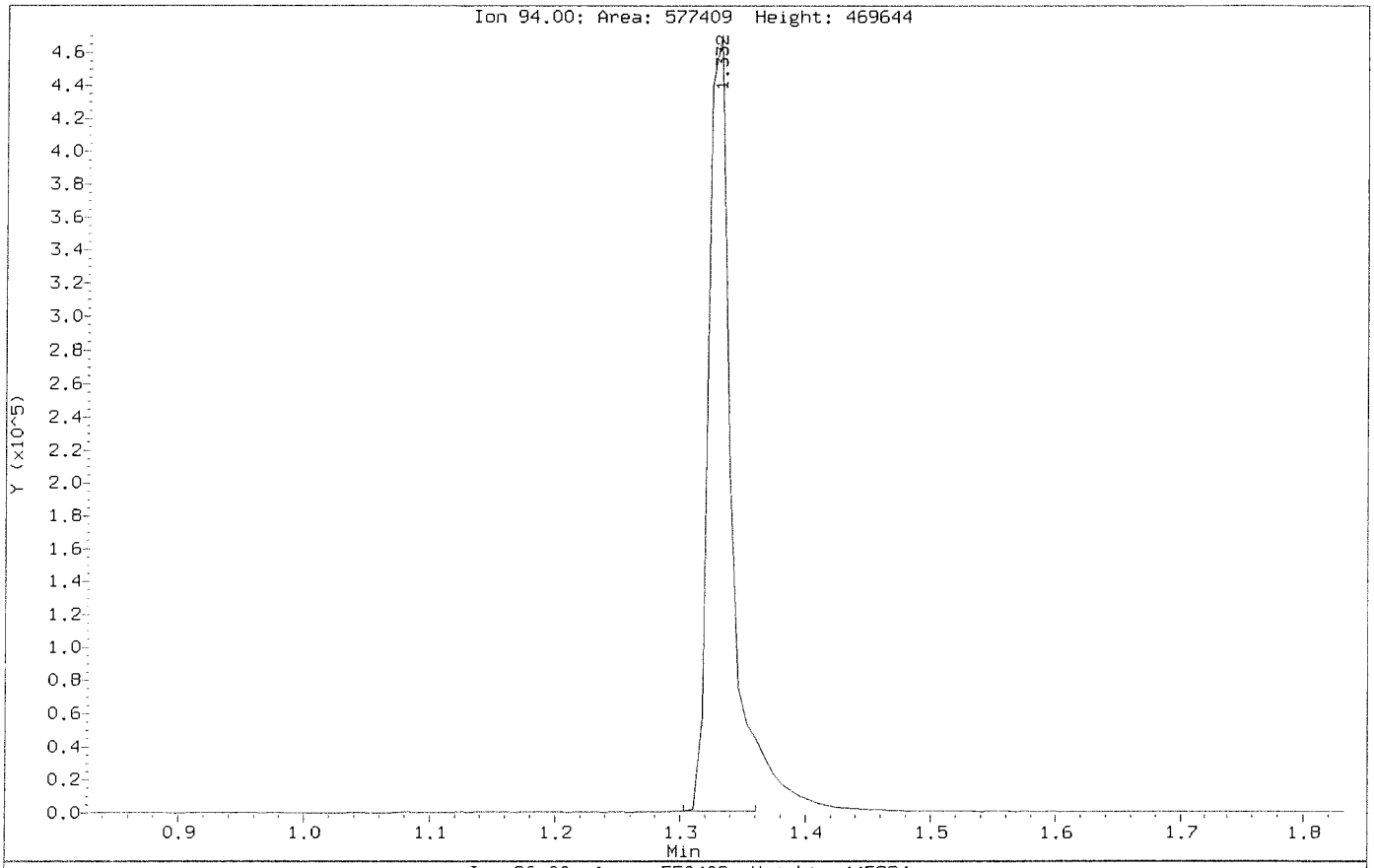
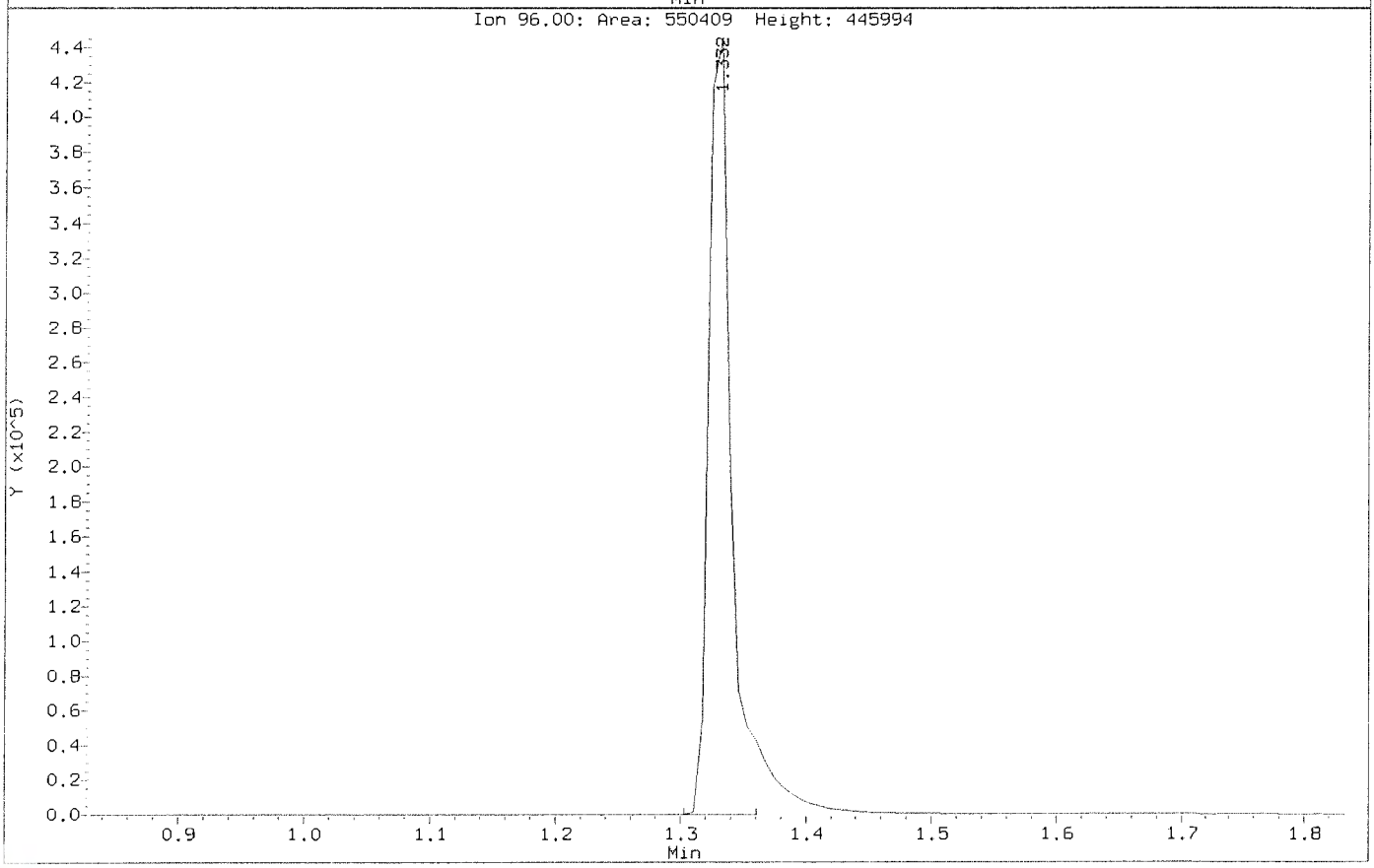
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

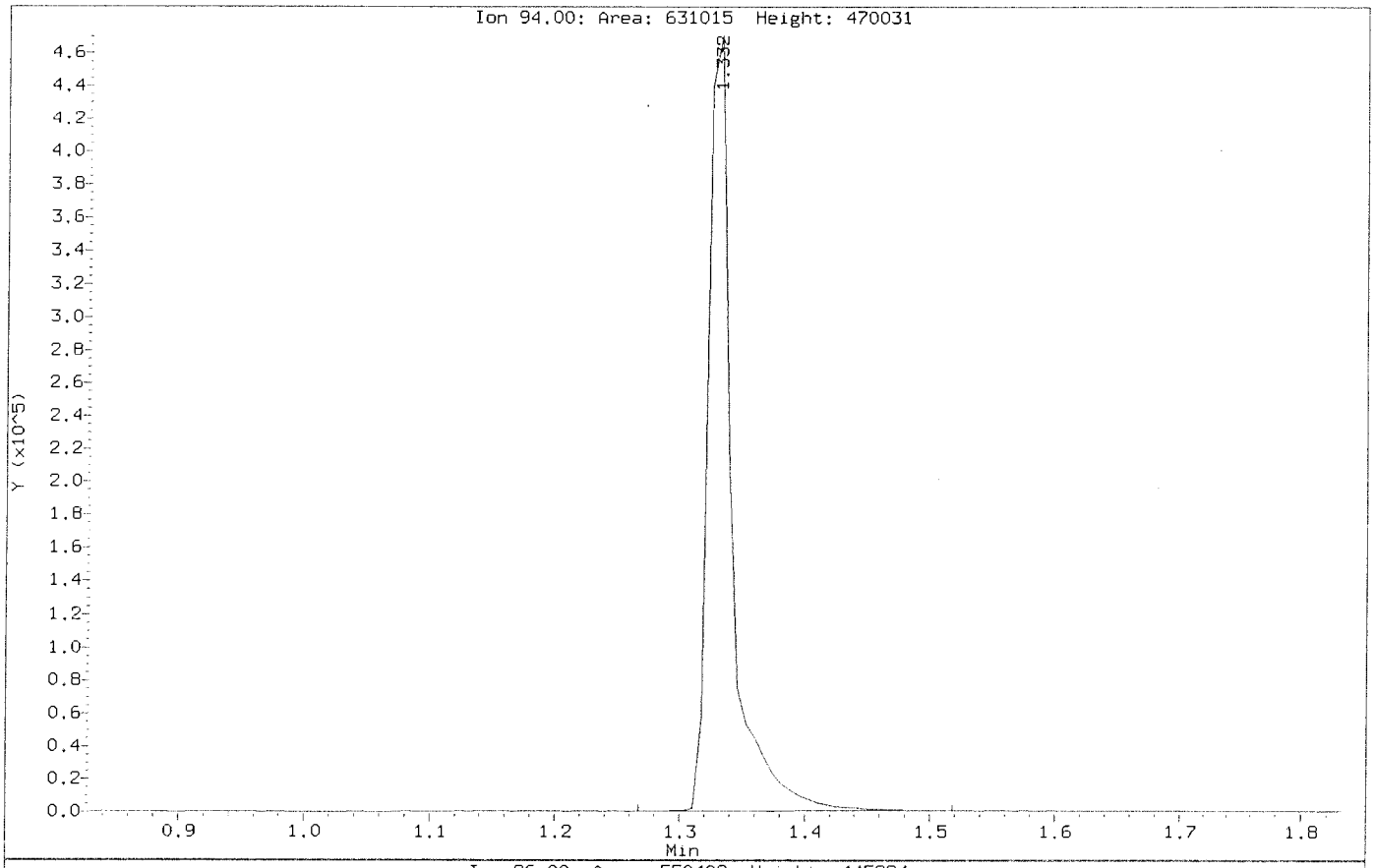
Compound: Bromomethane
CAS Number: 74-83-9

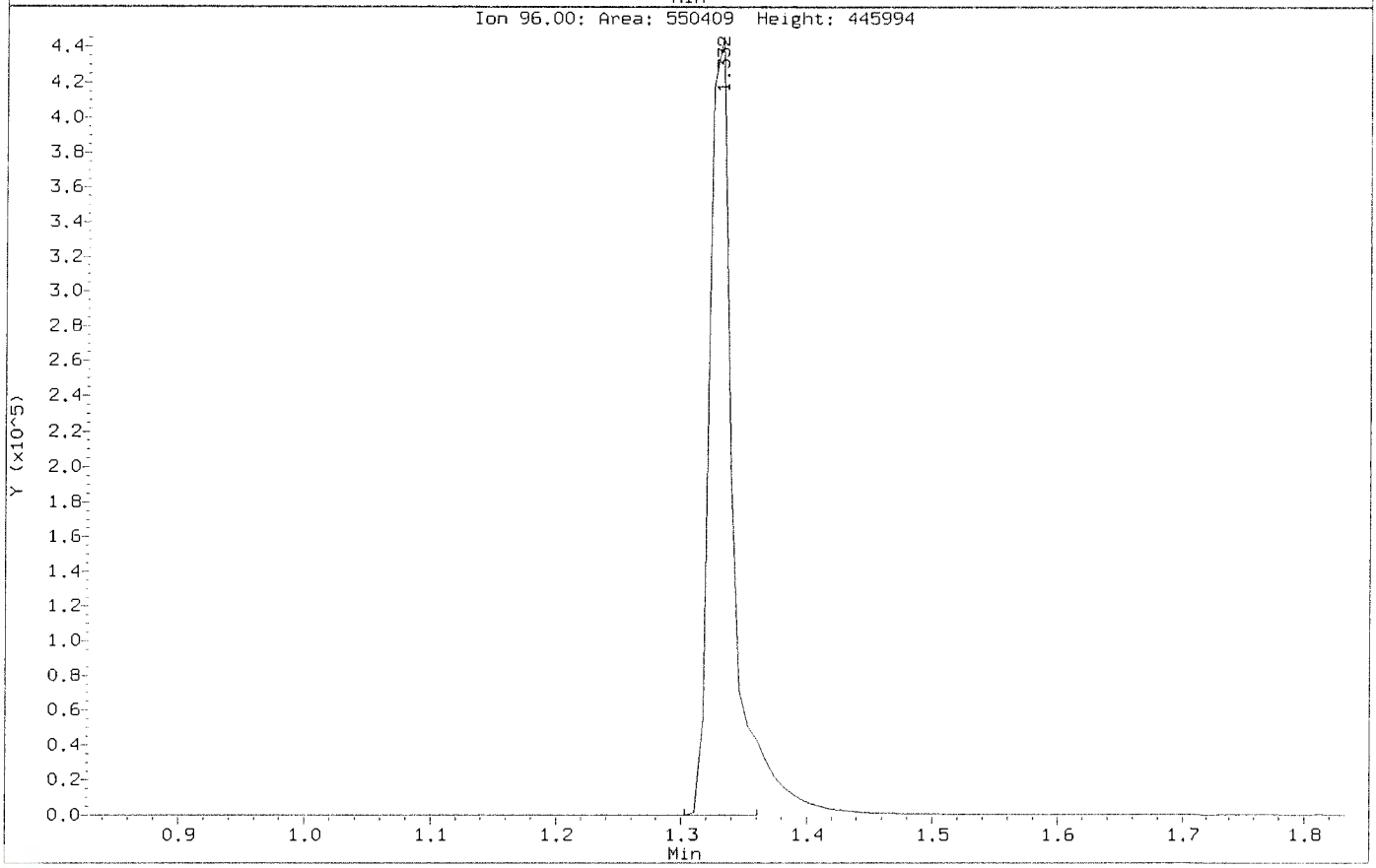




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9





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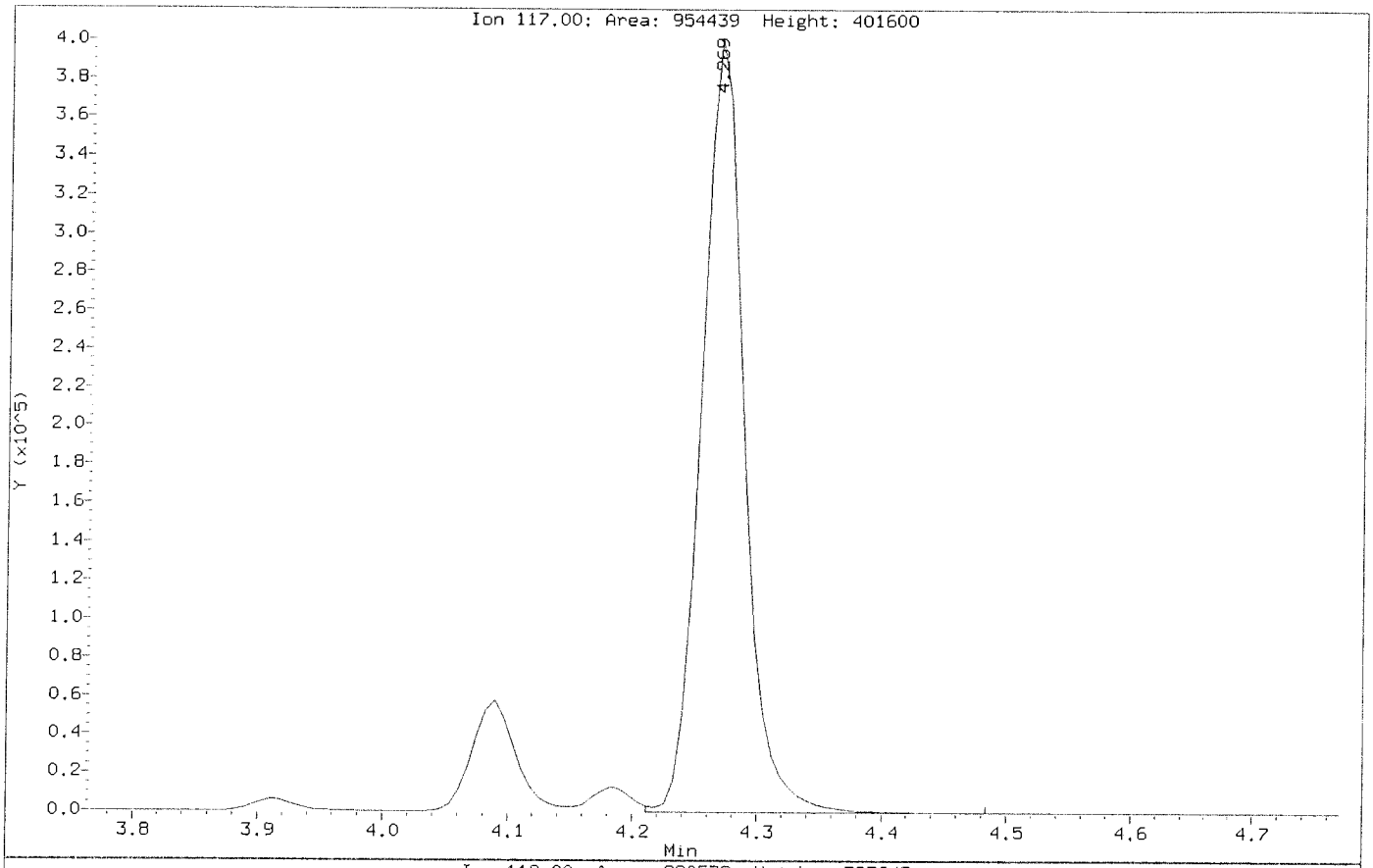
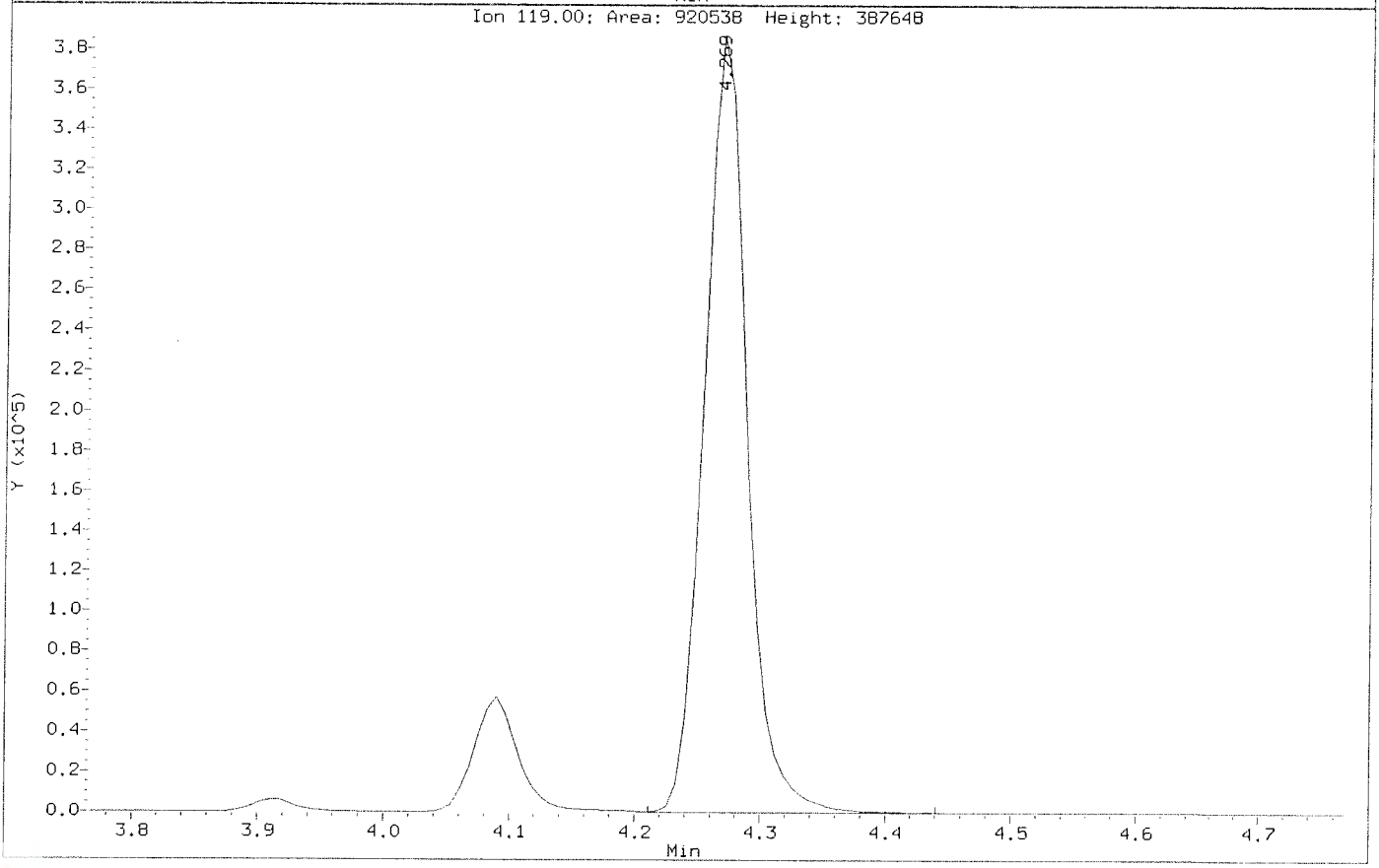
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

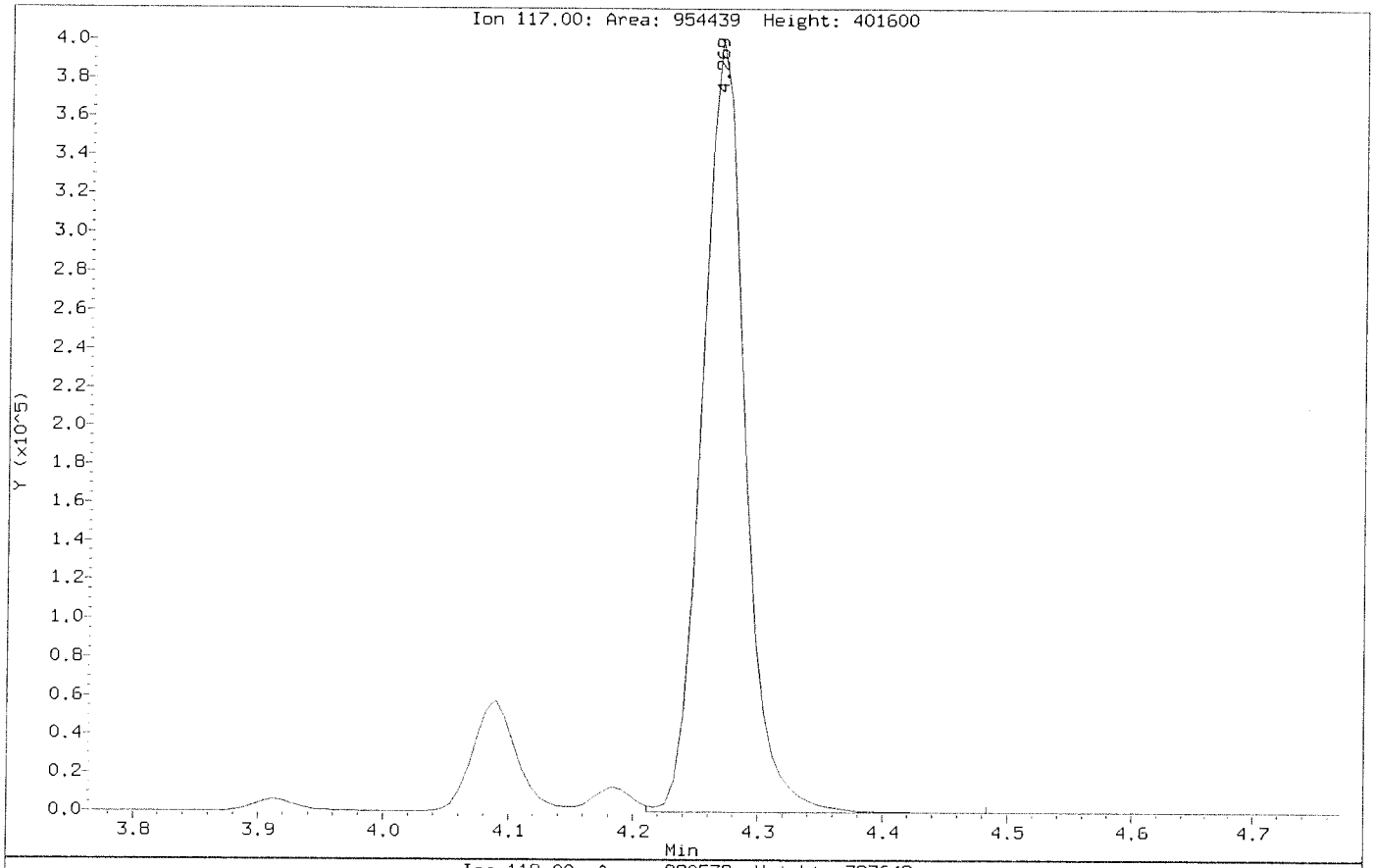
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

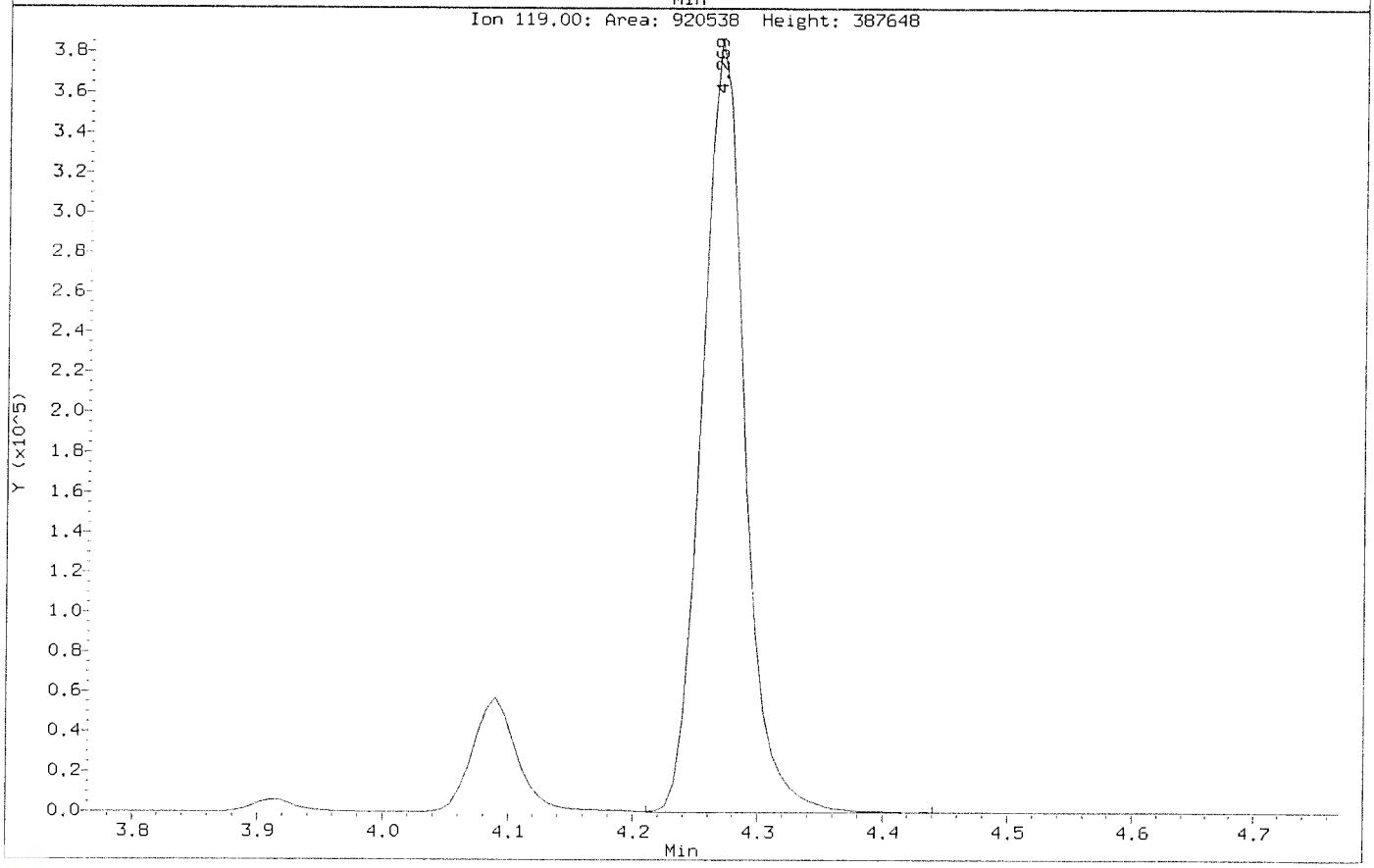




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 18-NOV-2019 18:58
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

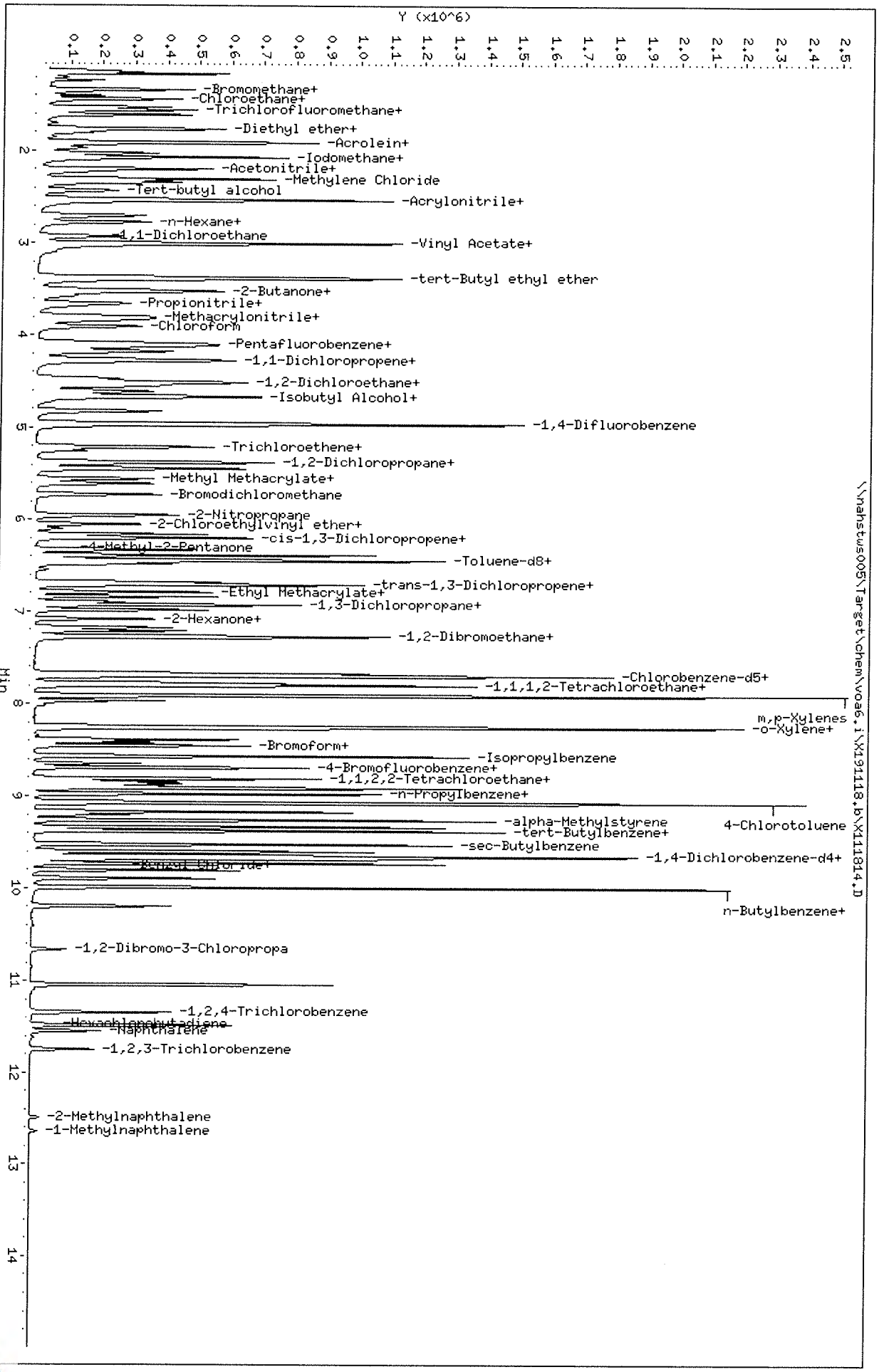
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365284	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	526230	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	487659	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	262170	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	177715	51.6875	51.68
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	217553	47.9674	47.96
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	172534	51.9307	51.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	603087	46.9372	46.93
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181751	51.3728	51.37
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	259914	52.7430	52.74
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183157	49.6822	49.68
138 Freon TF	101	1.919	1.911	(0.459)	177448	55.7980	55.79
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	125473	49.2205	49.22
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	273555	51.4692	51.46
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	164159	53.0287	53.02
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	211745	49.8829	49.88
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	56746	58.2884	58.28
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	154338	49.4088	49.40(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	122229	55.3465	55.34
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	627033	50.4058	50.40
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	20914	51.3981	51.39
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	171012	50.0005	50.00

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	343886	49.4226	49.42
33	1,2-Dichloroethane	62	4.555	4.562	(0.916)	214666	51.3880	51.38
42	1,2-Dichloropropane	63	5.436	5.443	(1.094)	155619	49.5052	49.50
75	1,3,5-Trimethylbenzene	105	9.067	9.074	(0.938)	621241	52.0454	52.04
83	1,3-Dichlorobenzene	146	9.604	9.612	(0.993)	380305	50.5823	50.58
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	254579	49.1895	49.18
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	379206	49.6335	49.63
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	252567	52.3575	52.35
24	2-Butanone	43	3.573	3.580	(0.854)	117980	105.260	105.25
76	2-Chlorotoluene	91	8.974	8.981	(0.928)	475545	50.4166	50.41
52	2-Hexanone	43	7.090	7.090	(0.924)	192493	96.0902	96.09
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	578291	50.5814	50.58
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	664137	51.7722	51.77
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	279109	97.6823	97.68
10	Acetone	43	1.969	1.976	(0.471)	104925	111.376	111.37
37	Benzene	78	4.512	4.512	(0.908)	612198	50.8565	50.85
74	Bromobenzene	156	8.809	8.809	(0.911)	233126	51.1647	51.16
29	Bromochloromethane	128	3.795	3.795	(0.908)	101596	51.3407	51.34
39	Bromodichloromethane	83	5.729	5.729	(1.153)	222106	51.0024	51.00
66	Bromoform	173	8.415	8.415	(1.097)	142491	49.0895	49.08
6	Bromomethane	94	1.338	1.331	(0.320)	208417	57.7314	57.73
19	Carbon Disulfide	76	2.069	2.069	(0.495)	924383	109.763	109.76
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	237498	51.0754	51.07
59	Chlorobenzene	112	7.699	7.699	(1.004)	468418	49.2009	49.20
7	Chloroethane	64	1.403	1.396	(0.336)	118785	51.6484	51.64
28	Chloroform	83	3.910	3.910	(0.935)	292027	49.3641	49.36
3	Chloromethane	50	1.073	1.073	(0.257)	200113	50.4397	50.43
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	184183	53.1686	53.16
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	267228	52.0716	52.07
55	Dibromochloromethane	129	7.176	7.183	(0.936)	184910	49.9303	49.93
44	Dibromomethane	93	5.557	5.557	(1.118)	112351	50.5059	50.50
2	Dichlorodifluoromethane	85	0.973	0.966	(0.233)	176572	52.9949	52.99
61	Ethylbenzene	106	7.799	7.807	(1.017)	247055	50.2234	50.22
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	113053	61.6918	61.69(R)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	730633	50.1455	50.14
62	m,p-Xylenes	106	7.907	7.907	(1.031)	603641	101.692	101.69
17	Methylene Chloride	84	2.305	2.305	(0.551)	164000	49.6528	49.65
87	n-Butylbenzene	91	9.998	9.998	(1.034)	555875	52.0702	52.07
73	n-Propylbenzene	91	8.917	8.917	(0.922)	841108	51.9034	51.90
92	Naphthalene	128	11.546	11.546	(1.194)	144573	51.0408	51.04
63	o-Xylene	106	8.243	8.244	(1.075)	291303	49.7239	49.72
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	728868	51.7743	51.77
64	Styrene	104	8.258	8.265	(1.077)	512981	50.3548	50.35
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	525095	51.3776	51.37
56	Tetrachloroethene	164	6.933	6.933	(0.904)	169030	49.3314	49.33
50	Toluene	91	6.446	6.453	(0.840)	685240	49.5512	49.55
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	157233	52.3156	52.31
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	242451	51.8354	51.83
38	Trichloroethene	130	5.206	5.206	(1.048)	190582	51.7868	51.78
8	Trichlorofluoromethane	101	1.560	1.553	(0.373)	314898	55.5726	55.57
5	Vinyl Chloride	62	1.138	1.138	(0.272)	193522	51.9818	51.98

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.



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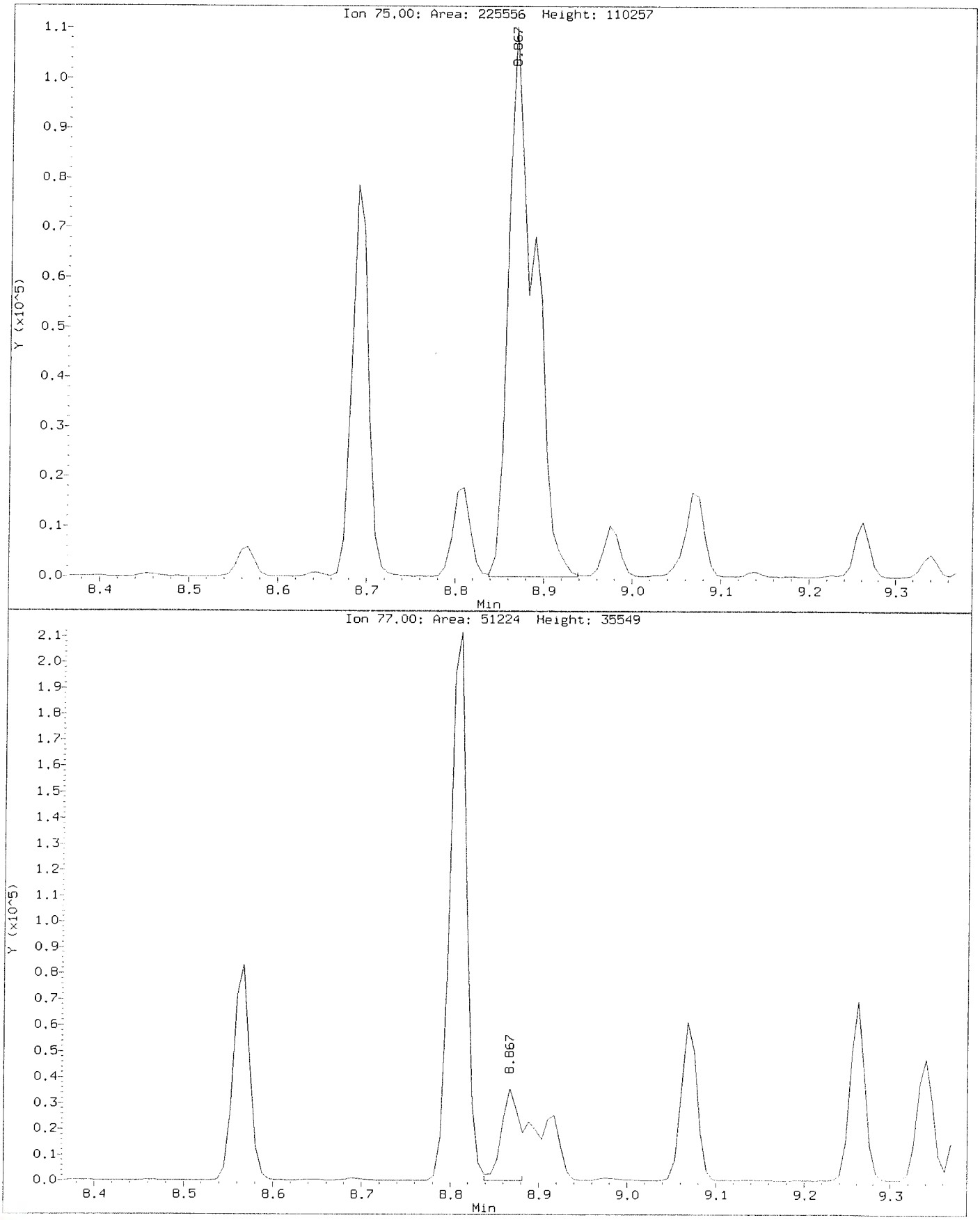
Date : 18-NOV-2019 18:58
Client ID: ICV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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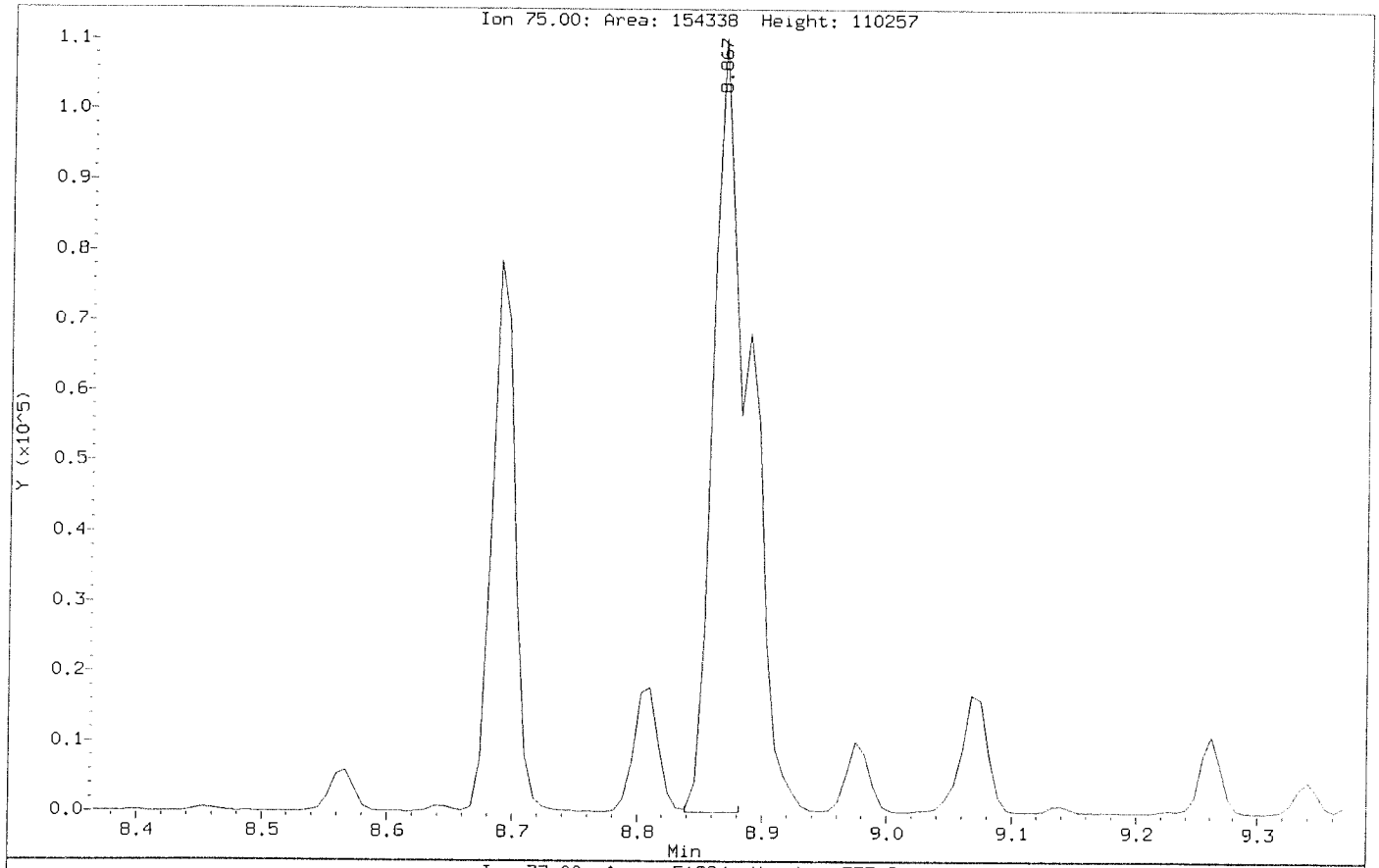
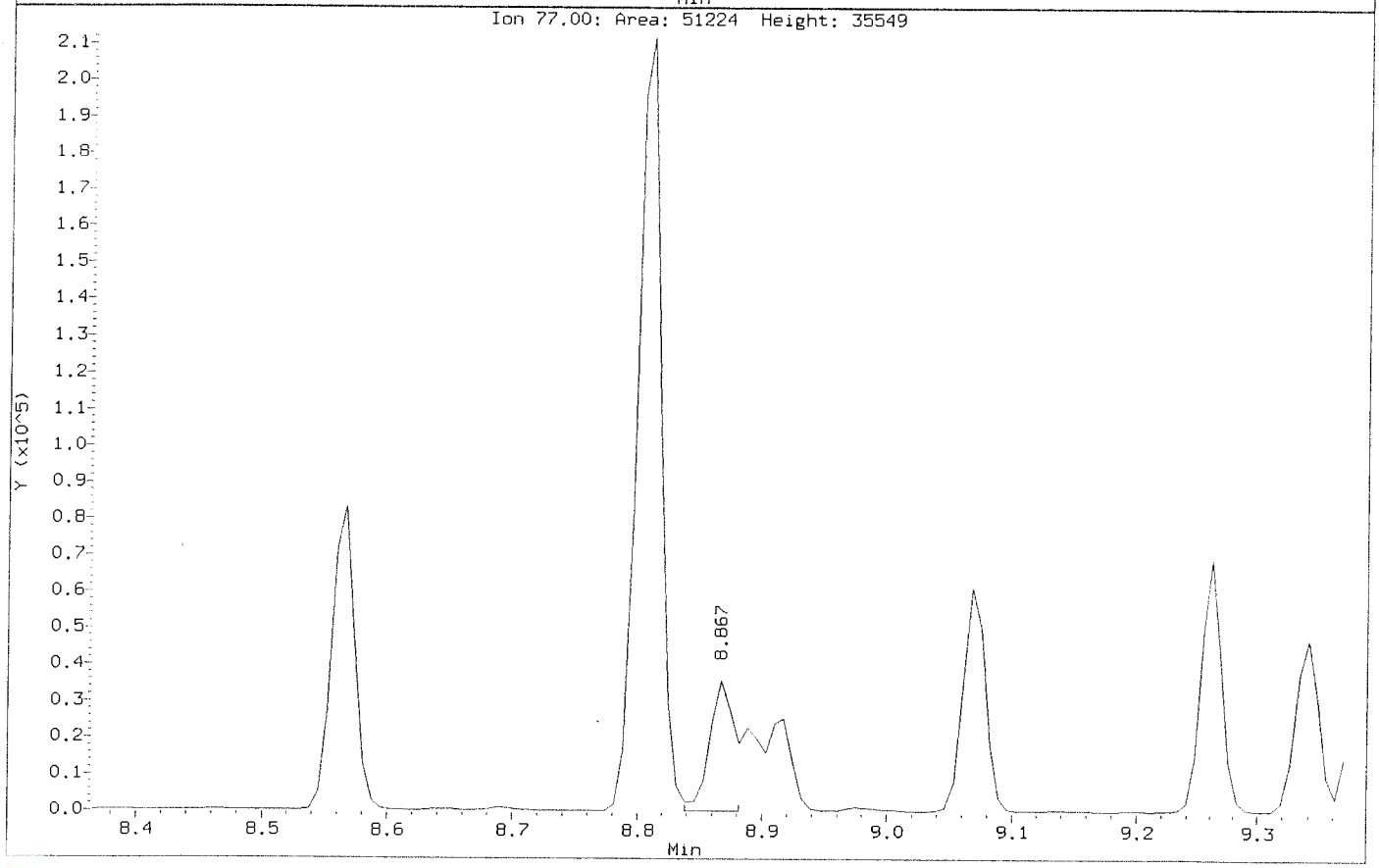
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





MSVOA06 -Logbook

Batch: 38384 **Analyst:** Presenta Cabascango

Date: 11-24-2019 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	11-24-2019 12:12 pm	1.00	50 mL	50 mL	X112401.D	Liquid	Y	na
	Auto find/ purged									
2	CCV	CCV	11-24-2019 12:36 pm	1.00	50 mL	50 mL	X112402a.D	Liquid	Y	na
	10 uL cal std/50 mL DI/not used									
3	CCV	CCV	11-24-2019 01:00 pm	1.00	50 mL	50 mL	X112403.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
4	CCB	SAMP	11-24-2019 01:24 pm	1.00	50 mL	50 mL	X112404.D	Liquid	Y	na
5	VLCSW-191124	LCS	11-24-2019 01:48 pm	1.00	50 mL	50 mL	X112405.D	Liquid	Y	na
	4.0 uL cal std/50 mL DI									
6	BLK	SAMP	11-24-2019 02:12 pm	1.00	50 mL	50 mL	X112406.D	Liquid	Y	na
7	VBLKW-191124	MBLK	11-24-2019 02:36 pm	1.00	50 mL	50 mL	X112407.D	Liquid	Y	na
8	HS19111153-09	SAMP	11-24-2019 03:00 pm	1.00	50 mL	50 mL	X112408.D	Liquid	Y	>2
9	HS19111239-07	SAMP	11-24-2019 03:24 pm	1.00	50 mL	50 mL	X112409.D	Liquid	Y	>2
10	HS19111239-05	SAMP	11-24-2019 03:48 pm	1.00	50 mL	50 mL	X112410.D	Liquid	Y	>2
11	HS19111239-05MS	MS	11-24-2019 04:13 pm	1.00	50 mL	50 mL	X112411.D	Liquid	Y	>2
	3.5 uL cal std/40 mL samp									
12	HS19111239-05MSD	MSD	11-24-2019 04:37 pm	1.00	50 mL	50 mL	X112412.D	Liquid	Y	>2
	3.5 uL cal std/40 mL samp									
13	HS19111040-15	SAMP	11-24-2019 05:01 pm	1.00	50 mL	50 mL	X112413.D	Liquid	Y	>2
14	HS19111153-01	SAMP	11-24-2019 05:25 pm	1.00	50 mL	50 mL	X112414.D	Liquid	Y	>2
15	HS19111153-02	SAMP	11-24-2019 05:49 pm	1.00	50 mL	50 mL	X112415.D	Liquid	Y	>2
16	HS19111153-03	SAMP	11-24-2019 06:13 pm	1.00	50 mL	50 mL	X112416.D	Liquid	Y	>2
17	HS19111153-04	SAMP	11-24-2019 06:37 pm	1.00	50 mL	50 mL	X112417.D	Liquid	Y	>2
18	HS19111153-05	SAMP	11-24-2019 07:01 pm	1.00	50 mL	50 mL	X112418.D	Liquid	Y	>2
19	HS19111153-06	SAMP	11-24-2019 07:25 pm	1.00	50 mL	50 mL	X112419.D	Liquid	Y	>2
20	HS19111153-07	SAMP	11-24-2019 07:49 pm	1.00	50 mL	50 mL	X112420.D	Liquid	Y	>2
21	HS19111153-08	SAMP	11-24-2019 08:13 pm	1.00	50 mL	50 mL	X112421.D	Liquid	Y	>2
22	HS19111239-01	SAMP	11-24-2019 08:37 pm	1.00	50 mL	50 mL	X112422.D	Liquid	Y	>2
23	HS19111239-02	SAMP	11-24-2019 09:01 pm	1.00	50 mL	50 mL	X112423.D	Liquid	Y	>2
24	HS19111239-03	SAMP	11-24-2019 09:25 pm	1.00	50 mL	50 mL	X112424.D	Liquid	Y	>2
25	HS19111239-04	SAMP	11-24-2019 09:49 pm	1.00	50 mL	50 mL	X112425.D	Liquid	Y	>2
26	HS19111239-06	SAMP	11-24-2019 10:13 pm	1.00	50 mL	50 mL	X112426.D	Liquid	Y	>2
27	CCV-END	CCV	11-24-2019 10:37 pm	1.00	50 mL	50 mL	X112427.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
28	HS19111042-15	SAMP	11-24-2019 11:01 pm	1.00	50 mL	50 mL	X112428.D	Liquid	Y	>2
29	HS19111193-01	SAMP	11-24-2019 11:25 pm	1.00	50 mL	50 mL	X112429.D	Liquid	Y	>2
30	HS19111193-04	SAMP	11-24-2019 11:50 pm	1.00	50 mL	50 mL	X112430.D	Liquid	Y	>2
31	BFB	TUNE	11-25-2019 12:13 am	1.00	50 mL	50 mL	Y112401.D	Liquid	Y	na
	Auto find/ purged									
32	CCV	CCV	11-25-2019 12:37 am	1.00	50 mL	50 mL	Y112402a.D	Liquid	Y	na
	10 uL cal std/50 mL DI/not used									
33	CCV	CCV	11-25-2019 01:01 am	1.00	50 mL	50 mL	Y112403.D	Liquid	Y	na
	10 uL cal std/50 mL DI									
34	CCB	SAMP	11-25-2019 01:25 am	1.00	50 mL	50 mL	Y112404.D	Liquid	Y	na
35	VLCSW-191124	LCS	11-25-2019 01:49 am	1.00	50 mL	50 mL	Y112405.D	Liquid	Y	na
	4.0 uL cal std/50 mL DI									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	BLK	SAMP	11-25-2019 02:13 am	1.00	50 mL	50 mL	Y112406.D	Liquid	Y	na
37	VBLKW-191124	MBLK	11-25-2019 02:37 am	1.00	50 mL	50 mL	Y112407.D	Liquid	Y	na
38	HS19111226-01	SAMP	11-25-2019 03:01 am	1.00	50 mL	50 mL	Y112408.D	Liquid	Y	>2
39	HS19111226-01MS	MS	11-25-2019 03:25 am	1.00	50 mL	50 mL	Y112409.D	Liquid	Y	>2
	3.5 uL cal std/40 mL samp									
40	HS19111226-01MSD	MSD	11-25-2019 03:50 am	1.00	50 mL	50 mL	Y112410.D	Liquid	Y	>2
	3.5 uL cal std/40 mL samp									
41	HS19110933-03	SAMP	11-25-2019 04:16 am	5.00	10 mL	50 mL	Y112411.D	Liquid	Y	>2
42	HS19110933-12	SAMP	11-25-2019 04:43 am	5.00	10 mL	50 mL	Y112412.D	Liquid	Y	>2
43	HS19111140-02	SAMP	11-25-2019 05:07 am	1.00	50 mL	50 mL	Y112413.D	Liquid	Y	>2
44	HS19111194-14	SAMP	11-25-2019 05:31 am	1.00	50 mL	50 mL	Y112414.D	Liquid	Y	>2
45	HS19111194-20	SAMP	11-25-2019 05:55 am	1.00	50 mL	50 mL	Y112415.D	Liquid	Y	>2
46	HS19111194-21	SAMP	11-25-2019 06:19 am	1.00	50 mL	50 mL	Y112416.D	Liquid	Y	>2
47	HS19111194-22	SAMP	11-25-2019 06:43 am	1.00	50 mL	50 mL	Y112417.D	Liquid	Y	>2
48	HS19111194-23	SAMP	11-25-2019 07:07 am	1.00	50 mL	50 mL	Y112418.D	Liquid	Y	>2
49	HS19111229-07	SAMP	11-25-2019 07:31 am	1.00	50 mL	50 mL	Y112419.D	Liquid	Y	>2
50	HS19111229-08	SAMP	11-25-2019 07:55 am	1.00	50 mL	50 mL	Y112420.D	Liquid	Y	>2
51	HS19111228-05	SAMP	11-25-2019 08:19 am	1.00	50 mL	50 mL	Y112421.D	Liquid	Y	>2
52	HS19111228-06	SAMP	11-25-2019 08:43 am	1.00	50 mL	50 mL	Y112422.D	Liquid	Y	>2
53	HS19111233-11	SAMP	11-25-2019 09:07 am	1.00	50 mL	50 mL	Y112423.D	Liquid	Y	>2
54	HS19111237-25	SAMP	11-25-2019 09:31 am	1.00	50 mL	50 mL	Y112424.D	Liquid	Y	>2
55	HS19111238-17	SAMP	11-25-2019 09:55 am	1.00	50 mL	50 mL	Y112425.D	Liquid	Y	>2
56	MBLK-147908	MBLK	11-25-2019 10:20 am	20.00	2.5 mL	50 mL	Y112426.D	Liquid	Y	na
57	HS19111086-01	SAMP	11-25-2019 10:44 am	20.00	2.5 mL	50 mL	Y112427.D	Liquid	Y	na
58	HS19111092-01	SAMP	11-25-2019 11:08 am	20.00	2.5 mL	50 mL	Y112428.D	Liquid	Y	na
59	HS19111124-01	SAMP	11-25-2019 11:32 am	20.00	2.5 mL	50 mL	Y112429.D	Liquid	Y	na
60	HS19111145-01	SAMP	11-25-2019 11:56 am	20.00	2.5 mL	50 mL	Y112430.D	Liquid	Y	na

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL) #	OTHER (DCE) #	TOT OUT
01	VLCSW-19124	94	100	93	101	0
02	VBLKW-191124	91	96	98	92	0
03	HS19111239-07	94	96	97	92	0
04	HS19111239-05	92	97	99	93	0
05	HS19111239-05	95	97	95	93	0
06	HS19111239-05	96	97	95	93	0
07	HS19111239-01	93	97	97	94	0
08	HS19111239-02	93	96	97	93	0
09	HS19111239-03	94	97	97	94	0
10	HS19111239-04	94	95	96	91	0
11	HS19111239-06	94	97	99	95	0
12						
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27						
28						

		QC LIMITS
SMC1	= 4-Bromofluorobenzene	(70-130)
SMC2	= Dibromofluoromethane	(70-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER(DCE)	= 1,2-Dichloroethane-d4	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-191124

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

Lab File ID: X112407 Lab Sample ID: VBLKW-191124

Date Analyzed: 11/24/19 Time Analyzed: 1436

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-19124	VLCSW-191124	X112405	1348
02	HS19111239-0	HS19111239-07	X112409	1524
03	HS19111239-0	HS19111239-05	X112410	1548
04	HS19111239-0	HS19111239-05M	X112411	1613
05	HS19111239-0	HS19111239-05M	X112412	1637
06	HS19111239-0	HS19111239-01	X112422	2037
07	HS19111239-0	HS19111239-02	X112423	2101
08	HS19111239-0	HS19111239-03	X112424	2125
09	HS19111239-0	HS19111239-04	X112425	2149
10	HS19111239-0	HS19111239-06	X112426	2213
11				
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26				
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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.: HS19111239

Lab File ID: X112401 BFB Injection Date: 11/24/19

Instrument ID: VOA6 BFB Injection Time: 1212

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.0
75	30.0 - 60.0% of mass 95	52.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.7 (0.9)1
174	Greater than 50.0% of mass 95	78.4
175	5.0 - 9.0% of mass 174	6.2 (7.9)1
176	95.0 - 101.0% of mass 174	75.4 (96.2)1
177	5.0 - 9.0% of mass 176	5.7 (7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X112403	11/24/19	1300
02	VLCSW-19124	VLCSW-191124	X112405	11/24/19	1348
03	VBLKW-191124	VBLKW-191124	X112407	11/24/19	1436
04	HS19111239-0	HS19111239-07	X112409	11/24/19	1524
05	HS19111239-0	HS19111239-05	X112410	11/24/19	1548
06	HS19111239-0	HS19111239-05M	X112411	11/24/19	1613
07	HS19111239-0	HS19111239-05M	X112412	11/24/19	1637
08	HS19111239-0	HS19111239-01	X112422	11/24/19	2037
09	HS19111239-0	HS19111239-02	X112423	11/24/19	2101
10	HS19111239-0	HS19111239-03	X112424	11/24/19	2125
11	HS19111239-0	HS19111239-04	X112425	11/24/19	2149
12	HS19111239-0	HS19111239-06	X112426	11/24/19	2213
13	CCV-END	CCV-END	X112427	11/24/19	2237
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

Instrument ID: VOA6 Calibration Date: 11/24/19 Time: 1300

Lab File ID: X112403 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
cis-1,3-Dichloropropene	0.4880000	0.5368675	0.5368675	0.2	-10.01	20.00	AVRG	
trans-1,3-Dichloropropene	0.4440000	0.4928203	0.4928203	0.1	-11.00	20.00	AVRG	
1,3-Dichlorobenzene	1.4340000	1.5498848	1.5498848	0.6	-8.08	20.00	AVRG	
2,2-Dichloropropane	0.6600000	0.7359097	0.7359097	0.1	-11.50	20.00	AVRG	
1,1-Dichloropropene	0.4030000	0.4275042	0.4275042	0.1	-6.08	20.00	AVRG	
Dibromomethane	0.2110000	0.2311425	0.2311425	0.1	-9.55	20.00	AVRG	
1,2-Dibromoethane	0.3510000	0.3802645	0.3802645	0.1	-8.34	20.00	AVRG	
trans-1,2-Dichloroethene	0.4110000	0.4705113	0.4705113	0.1	-14.48	20.00	AVRG	
1,1,1,2-Tetrachloroethane	0.3630000	0.3931101	0.3931101	0.1	-8.29	20.00	AVRG	
1,1,1-Trichloroethane	0.6740000	0.7622326	0.7622326	0.1	-13.09	20.00	AVRG	
1,1,2,2-Tetrachloroethane	0.7030000	0.7508510	0.7508510	0.3	-6.81	20.00	AVRG	
Toluene	1.4180000	1.5200719	1.5200719	0.4	-7.20	20.00	AVRG	
1,1,2-Trichloroethane	0.2610000	0.2799293	0.2799293	0.1	-7.25	20.00	AVRG	
1,1-Dichloroethane	0.7270000	0.8097068	0.8097068	0.2	-11.38	20.00	AVRG	
1,1-Dichloroethene	0.4240000	0.4610694	0.4610694	0.1	-8.74	20.00	AVRG	
Trichlorofluoromethane	0.7760000	0.8757357	0.8757357	0.1	-12.85	20.00	AVRG	
1,2,3-Trichlorobenzene	59.869410	50.000000	0.2222731	0.1	-19.74	20.00	2RDR	
Tetrachloroethene	0.3510000	0.3606409	0.3606409	0.2	-2.75	20.00	AVRG	
1,2,4-Trichlorobenzene	0.4210000	0.4528376	0.4528376	0.2	-7.56	20.00	AVRG	
1,2,4-Trimethylbenzene	2.3720000	2.6388075	2.6388075	0.1	-11.25	20.00	AVRG	
tert-Butylbenzene	1.9490000	2.1474166	2.1474166	0.1	-10.18	20.00	AVRG	
Trichloroethene	0.3500000	0.3847539	0.3847539	0.2	-9.93	20.00	AVRG	
1,2-Dichlorobenzene	1.3270000	1.4427857	1.4427857	0.4	-8.72	20.00	AVRG	
1,2-Dichloroethane	0.3970000	0.4237764	0.4237764	0.1	-6.74	20.00	AVRG	
1,2-Dichloropropane	0.2990000	0.3163490	0.3163490	0.1	-5.80	20.00	AVRG	
1,3,5-Trimethylbenzene	2.2760000	2.5219796	2.5219796	0.1	-10.81	20.00	AVRG	
1,3-Dichloropropane	0.5310000	0.5564504	0.5564504	0.1	-4.79	20.00	AVRG	
1,4-Dichlorobenzene	1.4570000	1.5941882	1.5941882	0.4	-9.42	20.00	AVRG	
2-Butanone	0.1530000	0.1750049	0.1750049	0.1	-14.38	20.00	AVRG	
2-Chlorotoluene	1.7990000	1.9918861	1.9918861	0.1	-10.72	20.00	AVRG	
2-Hexanone	0.2050000	0.2180471	0.2180471	0.1	-6.36	20.00	AVRG	
4-Chlorotoluene	2.1800000	2.3894810	2.3894810	0.1	-9.61	20.00	AVRG	
Styrene	1.0440000	1.1795658	1.1795658	0.3	-12.98	20.00	AVRG	
4-Methyl-2-Pentanone	0.2930000	0.3074384	0.3074384	0.1	-4.93	20.00	AVRG	
Acetone	125.85768	100.00000	0.1616705	0.1	-25.86	20.00	LINR	<-
Benzene	1.1440000	1.2581264	1.2581264	0.5	-9.98	20.00	AVRG	
Bromobenzene	0.8690000	0.9114216	0.9114216	0.1	-4.88	20.00	AVRG	
Bromochloromethane	0.2710000	0.2983961	0.2983961	0.1	-10.11	20.00	AVRG	
Bromodichloromethane	0.4140000	0.4531664	0.4531664	0.2	-9.46	20.00	AVRG	
Bromoform	54.348504	50.000000	0.3241467	0.1	-8.70	20.00	LINR	
Bromomethane	56.851028	50.000000	0.5622019	0.1	-13.70	20.00	LINR	
Carbon Disulfide	1.1530000	1.3274079	1.3274079	0.1	-15.13	20.00	AVRG	

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911123

Instrument ID: VOA6 Calibration Date: 11/24/19 Time: 1300

Lab File ID: X112403 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4420000	0.4671428	0.4671428	0.1	-5.69	20.00	AVRG
Chlorobenzene	0.9760000	1.0379305	1.0379305	0.5	-6.34	20.00	AVRG
Chloroethane	0.3150000	0.3259909	0.3259909	0.1	-3.49	20.00	AVRG
Chloroform	0.8100000	0.8785306	0.8785306	0.2	-8.46	20.00	AVRG
Chloromethane	40.392158	50.000000	0.4382946	0.1	19.22	20.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5473069	0.5473069	0.1	-15.46	20.00	AVRG
Dibromochloromethane	0.3800000	0.4126384	0.4126384	0.1	-8.59	20.00	AVRG
Dichlorodifluoromethane	42.746658	50.000000	0.3883239	0.1	14.51	20.00	LINR
Ethylbenzene	0.5040000	0.5465037	0.5465037	0.1	-8.43	20.00	AVRG
Hexachlorobutadiene	0.4020000	0.3683374	0.3683374	0.1	8.37	20.00	AVRG
Isopropylbenzene	1.4940000	1.6641173	1.6641173	0.1	-11.39	20.00	AVRG
m,p-Xylenes	0.6080000	0.6690744	0.6690744	0.1	-10.04	20.00	AVRG
Methylene Chloride	0.4520000	0.4842822	0.4842822	0.1	-7.14	20.00	AVRG
n-Butylbenzene	2.0360000	2.3328364	2.3328364	0.5	-14.58	20.00	AVRG
n-Propylbenzene	3.0900000	3.4157713	3.4157713	0.1	-10.54	20.00	AVRG
Naphthalene	0.5400000	0.5863405	0.5863405	0.2	-8.58	20.00	AVRG
o-Xylene	0.6000000	0.6481880	0.6481880	0.3	-8.03	20.00	AVRG
sec-Butylbenzene	2.6850000	2.9950522	2.9950522	0.1	-11.55	20.00	AVRG
Vinyl Chloride	0.5100000	0.4975844	0.4975844	0.1	2.43	20.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.6191795	0.6191795	0.1	-3.89	20.00	AVRG
p-Isopropyltoluene	2.4460000	2.6809955	2.6809955	0.1	-9.61	20.00	AVRG
1,2-Dibromo-3-Chloropropane	55.230831	50.000000	8.57e-002	0.05	-10.46	20.00	LINR
Freon TF	0.4350000	0.4941619	0.4941619	0.1	-13.60	20.00	AVRG
4-Bromofluorobenzene	51.614238	50.000000	0.4803318	0.1	-3.23	20.00	LINR
Dibromofluoromethane	53.906503	50.000000	0.4904270	0.1	-7.81	20.00	LINR
Toluene-d8	1.3170000	1.2341904	1.2341904	0.1	6.29	20.00	AVRG
1,2-Dichloroethane-d4	53.432466	50.000000	0.5031742	0.1	-6.86	20.00	LINR

FORM VII VOA

FORM VII

VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

Instrument ID: VOA6 Calibration Date: 11/24/19 Time: 2237

Lab File ID: X112427 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	0.4880000	0.4747030	0.4747030	0.2	2.72	50.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.4314600	0.4314600	0.1	2.82	50.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.4186410	1.4186410	0.6	1.07	50.00	AVRG
2,2-Dichloropropane	0.6600000	0.5907701	0.5907701	0.1	10.49	50.00	AVRG
1,1-Dichloropropene	0.4030000	0.3824624	0.3824624	0.1	5.10	50.00	AVRG
Dibromomethane	0.2110000	0.2115844	0.2115844	0.1	-0.28	50.00	AVRG
1,2-Dibromoethane	0.3510000	0.3503197	0.3503197	0.1	0.19	50.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4304146	0.4304146	0.1	-4.72	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3612077	0.3612077	0.1	0.49	50.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.6966269	0.6966269	0.1	-3.36	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.6885276	0.6885276	0.3	2.06	50.00	AVRG
Toluene	1.4180000	1.3847759	1.3847759	0.4	2.34	50.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2617036	0.2617036	0.1	-0.27	50.00	AVRG
1,1-Dichloroethane	0.7270000	0.7466630	0.7466630	0.2	-2.70	50.00	AVRG
1,1-Dichloroethene	0.4240000	0.4110590	0.4110590	0.1	3.05	50.00	AVRG
Trichlorofluoromethane	0.7760000	0.7612427	0.7612427	0.1	1.90	50.00	AVRG
1,2,3-Trichlorobenzene	42.666437	50.000000	0.1589983	0.1	14.67	50.00	2RDR
Tetrachloroethene	0.3510000	0.3299206	0.3299206	0.2	6.00	50.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.3558336	0.3558336	0.2	15.48	50.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.3771169	2.3771169	0.1	-0.22	50.00	AVRG
tert-Butylbenzene	1.9490000	1.9391360	1.9391360	0.1	0.51	50.00	AVRG
Trichloroethene	0.3500000	0.3483569	0.3483569	0.2	0.47	50.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.3289706	1.3289706	0.4	-0.15	50.00	AVRG
1,2-Dichloroethane	0.3970000	0.3976601	0.3976601	0.1	-0.17	50.00	AVRG
1,2-Dichloropropane	0.2990000	0.2867487	0.2867487	0.1	4.10	50.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.2615498	2.2615498	0.1	0.63	50.00	AVRG
1,3-Dichloropropane	0.5310000	0.5137352	0.5137352	0.1	3.25	50.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.4425688	1.4425688	0.4	0.99	50.00	AVRG
2-Butanone	0.1530000	0.1509645	0.1509645	0.1	1.33	50.00	AVRG
2-Chlorotoluene	1.7990000	1.7964626	1.7964626	0.1	0.14	50.00	AVRG
2-Hexanone	0.2050000	0.1967670	0.1967670	0.1	4.02	50.00	AVRG
4-Chlorotoluene	2.1800000	2.1356226	2.1356226	0.1	2.04	50.00	AVRG
Styrene	1.0440000	1.0386862	1.0386862	0.3	0.51	50.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.2903661	0.2903661	0.1	0.90	50.00	AVRG
Acetone	90.980196	100.00000	0.1182013	0.1	9.02	50.00	LINR
Benzene	1.1440000	1.1502871	1.1502871	0.5	-0.55	50.00	AVRG
Bromobenzene	0.8690000	0.8651221	0.8651221	0.1	0.45	50.00	AVRG
Bromochloromethane	0.2710000	0.2794833	0.2794833	0.1	-3.13	50.00	AVRG
Bromodichloromethane	0.4140000	0.4116628	0.4116628	0.2	0.56	50.00	AVRG
Bromoform	48.626831	50.000000	0.2893826	0.1	2.75	50.00	LINR
Bromomethane	52.683904	50.000000	0.5226341	0.1	-5.37	50.00	LINR
Carbon Disulfide	1.1530000	1.1979251	1.1979251	0.1	-3.90	50.00	AVRG

FORM VII VOA

FORM VII

VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911123

Instrument ID: VOA6 Calibration Date: 11/24/19 Time: 2237

Lab File ID: X112427 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4420000	0.4195907	0.4195907	0.1	5.07	50.00	AVRG
Chlorobenzene	0.9760000	0.9474375	0.9474375	0.5	2.93	50.00	AVRG
Chloroethane	0.3150000	0.2896801	0.2896801	0.1	8.04	50.00	AVRG
Chloroform	0.8100000	0.8076153	0.8076153	0.2	0.29	50.00	AVRG
Chloromethane	37.363944	50.000000	0.4052824	0.1	25.27	50.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5006132	0.5006132	0.1	-5.61	50.00	AVRG
Dibromochloromethane	0.3800000	0.3796339	0.3796339	0.1	0.10	50.00	AVRG
Dichlorodifluoromethane	38.957044	50.000000	0.3531729	0.1	22.08	50.00	LINR
Ethylbenzene	0.5040000	0.4919353	0.4919353	0.1	2.39	50.00	AVRG
Hexachlorobutadiene	0.4020000	0.2979883	0.2979883	0.1	25.87	50.00	AVRG
Isopropylbenzene	1.4940000	1.4587607	1.4587607	0.1	2.36	50.00	AVRG
m,p-Xylenes	0.6080000	0.5939111	0.5939111	0.1	2.32	50.00	AVRG
Methylene Chloride	0.4520000	0.4584510	0.4584510	0.1	-1.43	50.00	AVRG
n-Butylbenzene	2.0360000	2.0336559	2.0336559	0.5	0.12	50.00	AVRG
n-Propylbenzene	3.0900000	3.0647036	3.0647036	0.1	0.82	50.00	AVRG
Naphthalene	0.5400000	0.4567759	0.4567759	0.2	15.41	50.00	AVRG
o-Xylene	0.6000000	0.5852126	0.5852126	0.3	2.46	50.00	AVRG
sec-Butylbenzene	2.6850000	2.6671752	2.6671752	0.1	0.66	50.00	AVRG
Vinyl Chloride	0.5100000	0.4438793	0.4438793	0.1	12.96	50.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.5738977	0.5738977	0.1	3.71	50.00	AVRG
p-Isopropyltoluene	2.4460000	2.3948475	2.3948475	0.1	2.09	50.00	AVRG
1,2-Dibromo-3-Chloropropane	50.403168	50.000000	7.82e-002	0.05	-0.81	50.00	LINR
Freon TF	0.4350000	0.4217177	0.4217177	0.1	3.05	50.00	AVRG
4-Bromofluorobenzene	47.970747	50.000000	0.4461481	0.1	4.06	50.00	LINR
Dibromofluoromethane	52.345892	50.000000	0.4761314	0.1	-4.69	50.00	LINR
Toluene-d8	1.3170000	1.2115552	1.2115552	0.1	8.01	50.00	AVRG
1,2-Dichloroethane-d4	52.170618	50.000000	0.4911253	0.1	-4.34	50.00	LINR

FORM VII VOA

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

Lab File ID (Standard): X112403 Date Analyzed: 11/24/19

Instrument ID: VOA6 Time Analyzed: 1300

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DFB) AREA #	RT #
	12 HOUR STD	281739	9.67	492928	7.67	527389	4.97
	UPPER LIMIT	563478	10.17	985856	8.17	1054778	5.47
	LOWER LIMIT	140870	9.17	246464	7.17	263695	4.47
	CLIENT SAMPLE NO.						
01	VLCSW-19124	266132	9.67	504151	7.67	550313	4.97
02	VBLKW-191124	275898	9.66	581309	7.67	666006	4.97
03	HS19111239-07	306724	9.67	593776	7.67	667661	4.97
04	HS19111239-05	285003	9.67	570706	7.67	653443	4.97
05	HS19111239-05	312391	9.66	592999	7.67	653867	4.97
06	HS19111239-05	313244	9.66	584590	7.67	652154	4.97
07	HS19111239-01	301449	9.67	589708	7.67	668436	4.97
08	HS19111239-02	310086	9.67	594030	7.67	669563	4.97
09	HS19111239-03	299978	9.66	575306	7.67	657006	4.97
10	HS19111239-04	312234	9.67	598822	7.67	676996	4.97
11	HS19111239-06	286381	9.67	573709	7.67	657307	4.97
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111239

Lab File ID (Standard): X112403 Date Analyzed: 11/24/19

Instrument ID: VOA6 Time Analyzed: 1300

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	358510	4.18				
	UPPER LIMIT	717020	4.68				
	LOWER LIMIT	179255	3.68				
	CLIENT SAMPLE NO.						
01	VLCSW-19124	388055	4.18				
02	VBLKW-191124	484385	4.18				
03	HS19111239-07	488010	4.18				
04	HS19111239-05	479706	4.18				
05	HS19111239-05	477258	4.18				
06	HS19111239-05	472494	4.18				
07	HS19111239-01	485092	4.18				
08	HS19111239-02	487374	4.18				
09	HS19111239-03	479193	4.18				
10	HS19111239-04	493478	4.18				
11	HS19111239-06	479903	4.18				
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Date : 24-NOV-2019 12:12

Client ID: BFB

Instrument: voa6.i

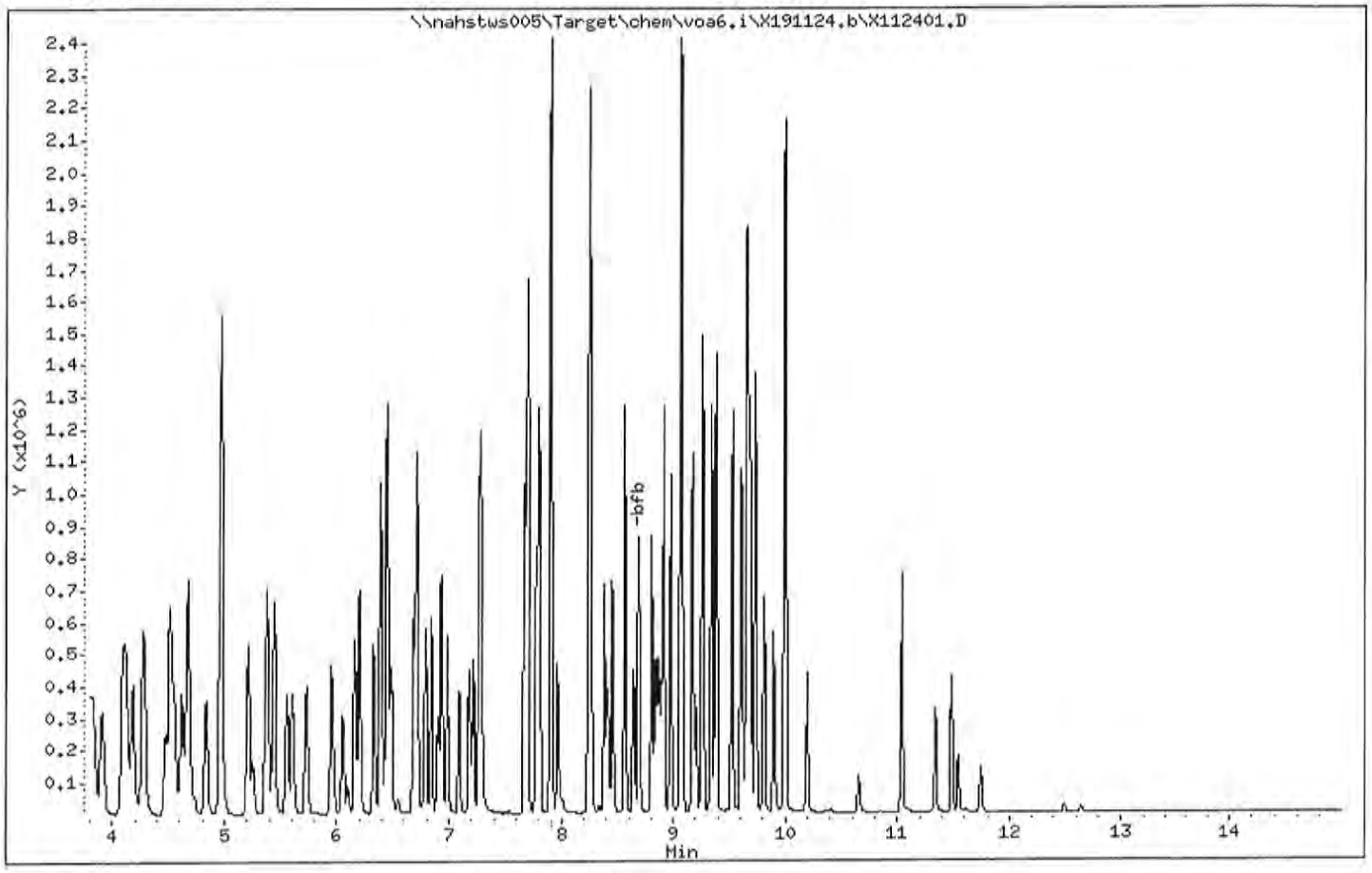
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Date : 24-NOV-2019 12:12

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

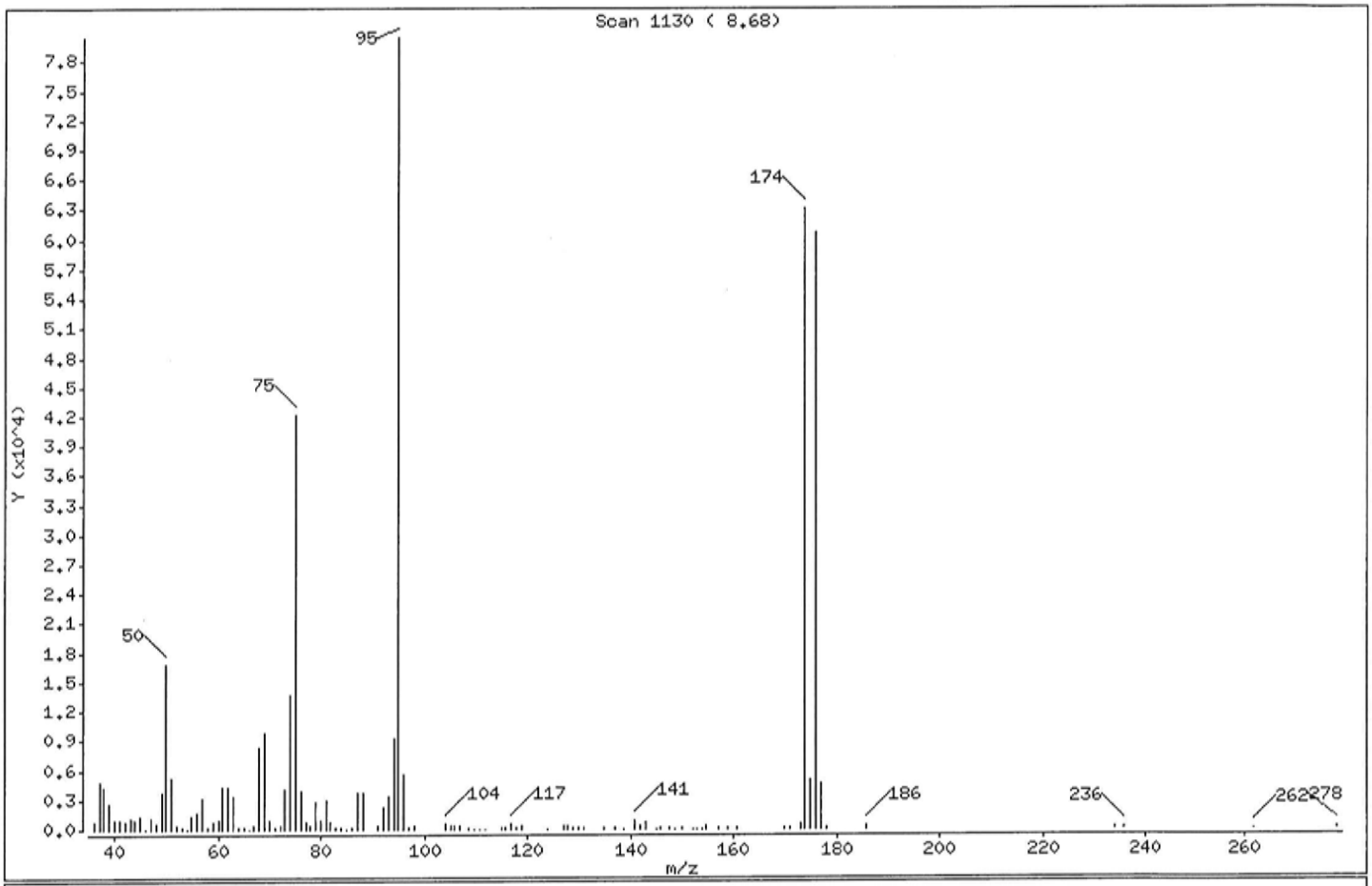
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.97
75	30.00 - 60.00% of mass 95	52.51
96	5.00 - 9.00% of mass 95	6.88
173	Less than 2.00% of mass 174	0.67 (0.86)
174	Greater than 50.00% of mass 95	78.38
175	5.00 - 9.00% of mass 174	6.20 (7.91)
176	95.00 - 101.00% of mass 174	75.42 (96.23)
177	5.00 - 9.00% of mass 176	5.67 (7.52)

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112401.D

Date : 24-NOV-2019 12:12

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X112401.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 111

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	727	64.00	274	94.00	9304	142.00	305
37.00	4823	65.00	114	95.00	80464	142.90	730
38.00	4282	66.10	68	96.00	5535	145.00	54
39.00	2641	67.00	293	96.90	213	145.80	152
40.00	855	68.00	8379	98.00	391	147.70	180
41.10	1012	69.00	9736	103.90	472	148.80	88
42.00	810	69.90	887	105.00	285	149.90	102
43.00	1161	71.10	105	105.90	384	152.30	71
44.00	968	72.00	439	106.90	448	152.90	74
45.00	1211	73.00	4066	108.80	267	153.80	63
46.00	83	74.00	13658	109.80	70	154.80	328
47.00	1039	75.00	42248	110.90	86	157.00	172
48.00	500	76.00	3862	111.80	60	158.80	120
49.00	3688	77.00	733	115.00	160	160.80	98
50.00	16872	77.90	413	115.80	224	170.00	107
51.00	5102	78.90	2744	116.90	619	170.90	180
52.00	284	79.90	858	117.90	248	172.90	541
53.00	134	80.90	3029	118.80	360	173.90	63064
54.00	59	81.90	708	123.90	59	174.90	4987
55.00	1350	82.90	200	126.90	429	175.90	60688
56.00	1754	84.00	161	127.80	407	176.90	4562
57.00	3126	84.90	69	128.80	154	177.90	137
58.00	250	85.90	105	129.90	237	185.90	417
59.10	788	86.90	3767	130.80	123	233.90	100
60.00	843	88.00	3694	134.80	162	235.70	104
61.00	4184	90.80	438	136.80	110	261.90	58
62.00	4180	92.00	2304	138.80	84	277.90	117
63.00	3319	93.00	3386	140.90	840		

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D Page 1
Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 24-NOV-2019 13:00
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

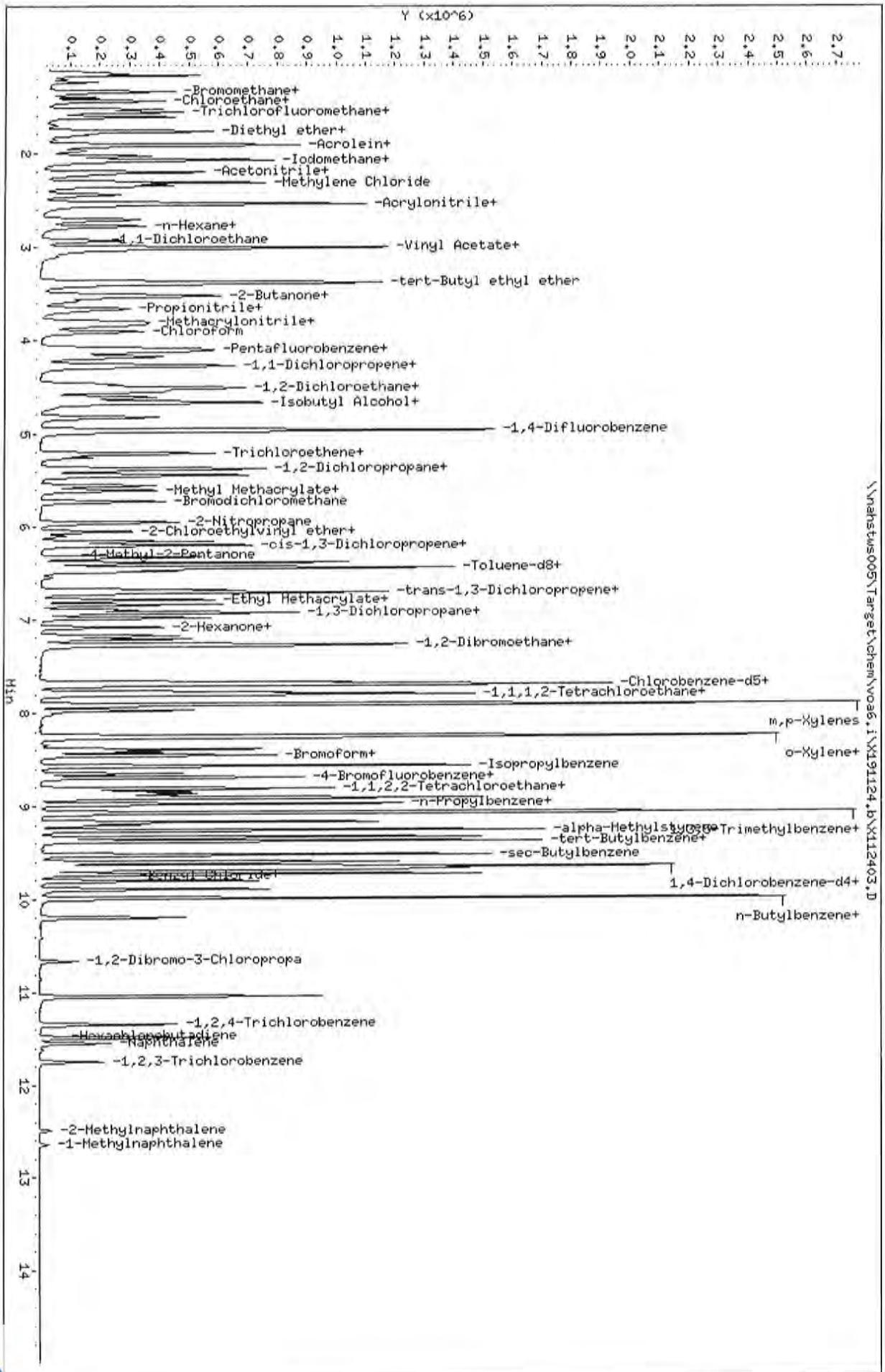
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	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)	358510	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	527389	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	492928	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	281739	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	180393	50.0000	53.43
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	236769	50.0000	51.61
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	175823	50.0000	53.90
$	48 Toluene-d8	98	6.388	6.388	(0.833)	608367	50.0000	46.84
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	193775	50.0000	54.18
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	273268	50.0000	56.50
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	211544	50.0000	53.39
	138 Freon TF	101	1.919	1.919	(0.459)	177162	50.0000	56.76
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	137985	50.0000	53.55
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	290288	50.0000	55.64
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	165298	50.0000	54.40
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	225461	50.0000	52.99
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	62623	50.0000	59.86
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	174447	50.0000	51.96(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	127582	50.0000	53.75
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	743455	50.0000	55.61
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	24140	50.0000	55.23
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	187443	50.0000	54.21
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	406489	50.0000	54.36

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	223495	50.0000	53.38
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	166839	50.0000	52.95
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	710540	50.0000	55.39
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	436663	50.0000	54.04
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	274290	50.0000	52.43
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	449145	50.0000	54.70
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	263831	50.0000	55.72
24	2-Butanone	43	3.560	3.573	(0.856)	125482	100.000	114.06
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	561192	50.0000	55.36
52	2-Hexanone	43	7.090	7.090	(0.924)	214963	100.000	106.15
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	673210	50.0000	54.79
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	755341	50.0000	54.79
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	303090	100.000	104.94
10	Acetone	43	1.976	1.976	(0.473)	115921	100.000	125.85
37	Benzene	78	4.512	4.512	(0.908)	663522	50.0000	54.99
74	Bromobenzene	156	8.809	8.809	(0.911)	256783	50.0000	52.44
29	Bromochloromethane	128	3.795	3.795	(0.908)	106978	50.0000	55.08
39	Bromodichloromethane	83	5.729	5.729	(1.153)	238995	50.0000	54.76
66	Bromoform	173	8.415	8.416	(1.097)	159781	50.0000	54.34
6	Bromomethane	94	1.338	1.338	(0.320)	201555	50.0000	56.85
19	Carbon Disulfide	76	2.069	2.069	(0.495)	951778	100.000	115.15
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	246366	50.0000	52.86
59	Chlorobenzene	112	7.699	7.699	(1.004)	511625	50.0000	53.16
7	Chloroethane	64	1.403	1.403	(0.336)	116871	50.0000	51.77
28	Chloroform	83	3.910	3.910	(0.935)	314962	50.0000	54.24
3	Chloromethane	50	1.073	1.073	(0.257)	157133	50.0000	40.39(M)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	196215	50.0000	57.71
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	283138	50.0000	55.05
55	Dibromochloromethane	129	7.176	7.176	(0.936)	203401	50.0000	54.33
44	Dibromomethane	93	5.557	5.557	(1.118)	121902	50.0000	54.67
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	139218	50.0000	42.74
61	Ethylbenzene	106	7.799	7.799	(1.017)	269387	50.0000	54.17
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	103775	50.0000	45.83
67	Isopropylbenzene	105	8.566	8.566	(1.117)	820290	50.0000	55.69
62	m,p-Xylenes	106	7.907	7.907	(1.031)	659611	100.000	109.93
17	Methylene Chloride	84	2.305	2.305	(0.551)	173620	50.0000	53.55
87	n-Butylbenzene	91	9.998	9.999	(1.034)	657251	50.0000	57.29
73	n-Propylbenzene	91	8.917	8.917	(0.922)	962356	50.0000	55.26
92	Naphthalene	128	11.546	11.546	(1.194)	165195	50.0000	54.27
63	o-Xylene	106	8.244	8.244	(1.075)	319510	50.0000	53.95
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	843823	50.0000	55.77
64	Styrene	104	8.258	8.258	(1.077)	581441	50.0000	56.46
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	605011	50.0000	55.08
56	Tetrachloroethene	164	6.933	6.933	(0.904)	177770	50.0000	51.32
50	Toluene	91	6.446	6.446	(0.840)	749286	50.0000	53.60
20	trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	168683	50.0000	57.18
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	259908	50.0000	55.44
38	Trichloroethene	130	5.206	5.206	(1.048)	202915	50.0000	55.01
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	313960	50.0000	56.45
5	Vinyl Chloride	62	1.138	1.138	(0.272)	178389	50.0000	48.82

QC Flag Legend

M - Compound response manually integrated.



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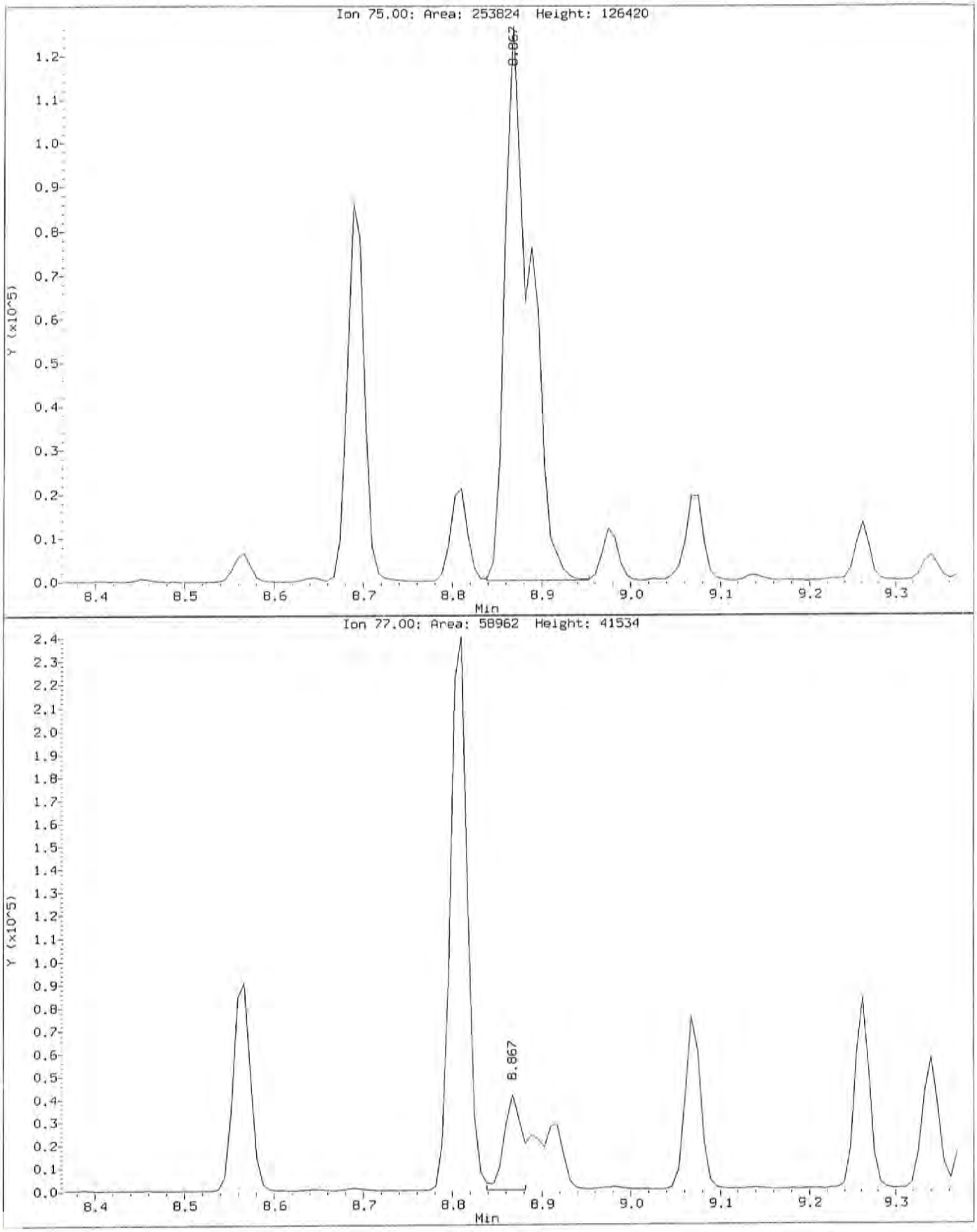
Date : 24-NOV-2019 13:00
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

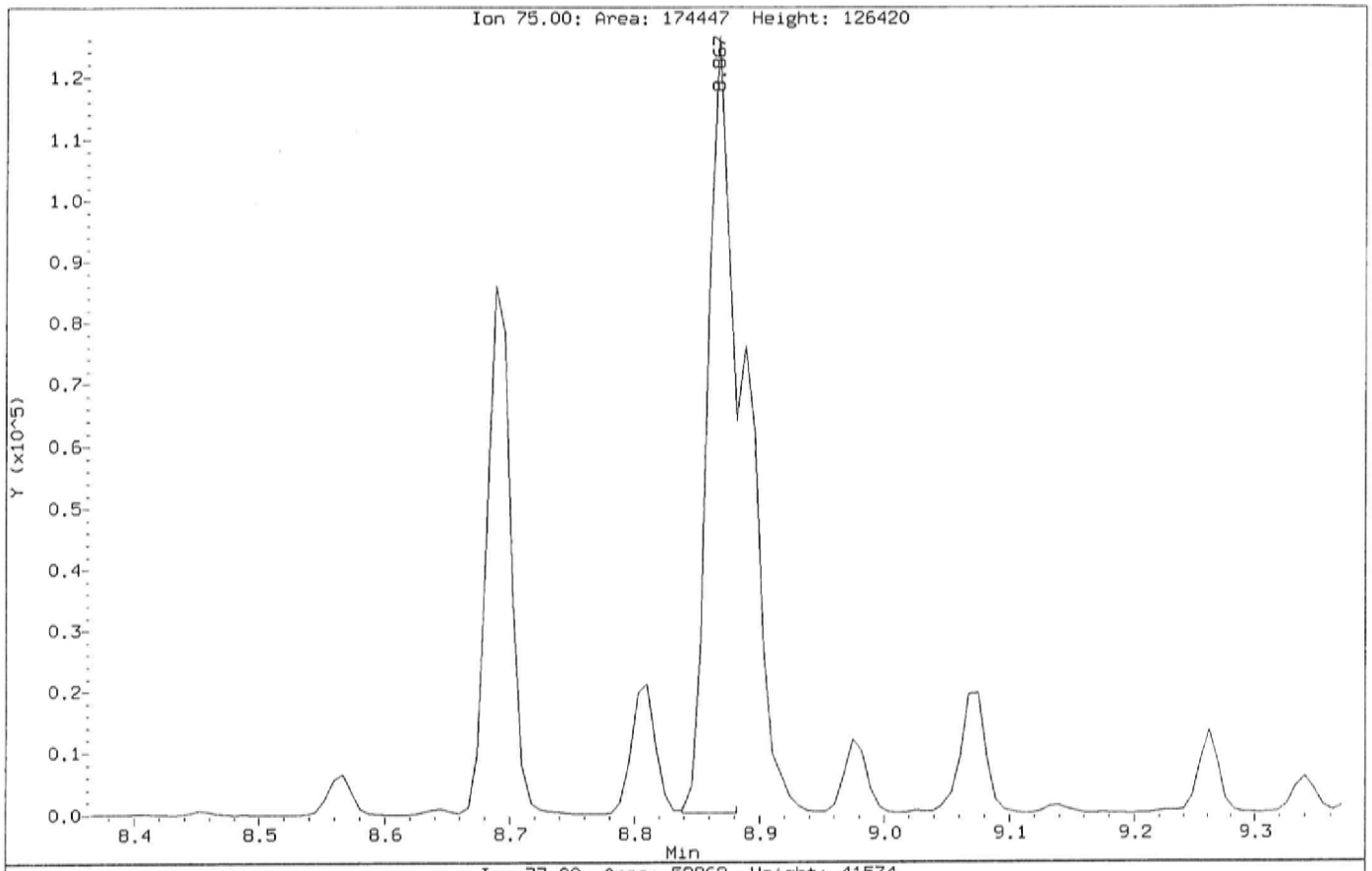
Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112403.D
Injection Date: 24-NOV-2019 13:00
Instrument: voa6.i
Client Sample ID: CCV

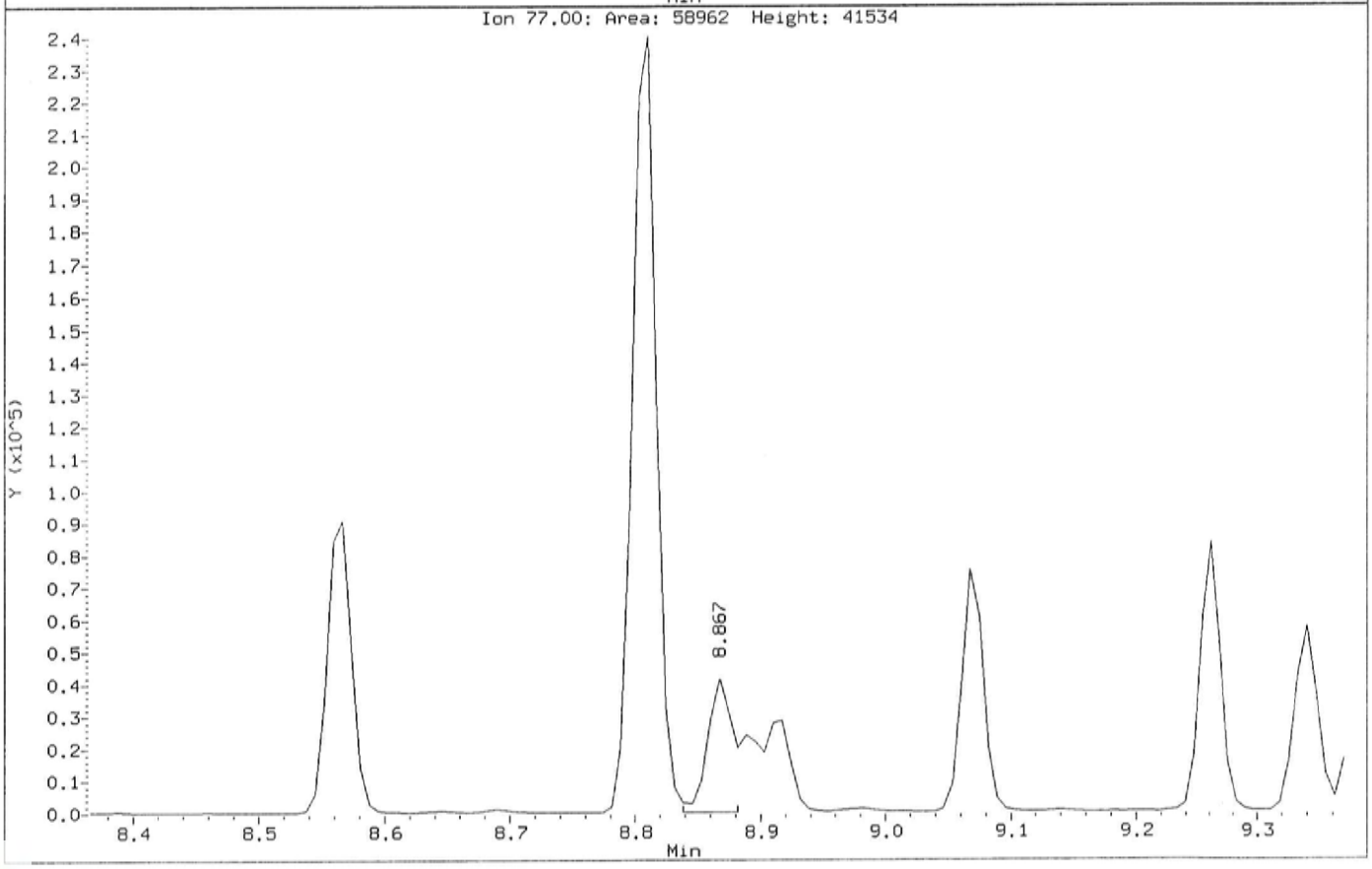
Compound: 1.2.3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112403.D
Injection Date: 24-NOV-2019 13:00
Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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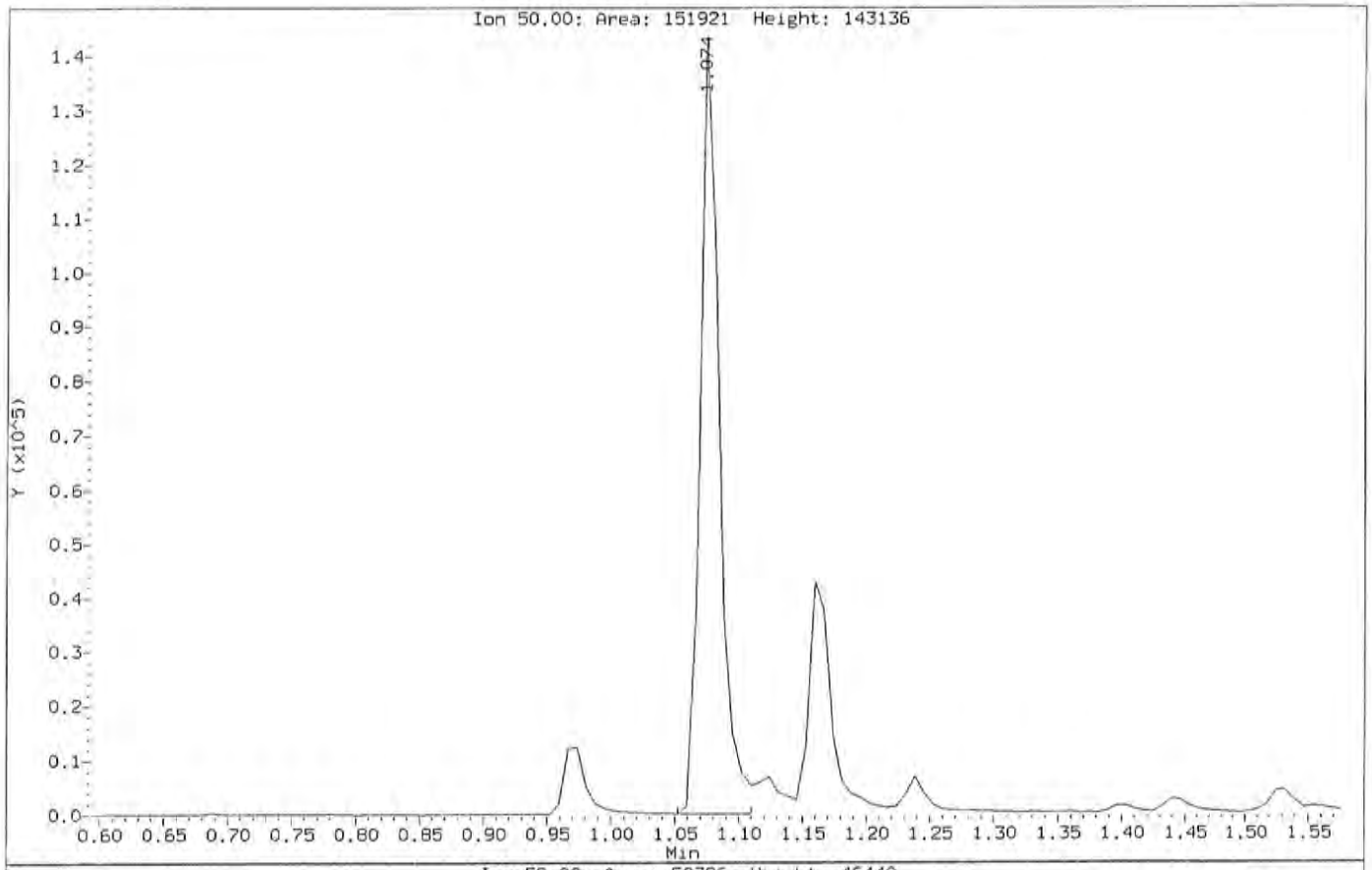
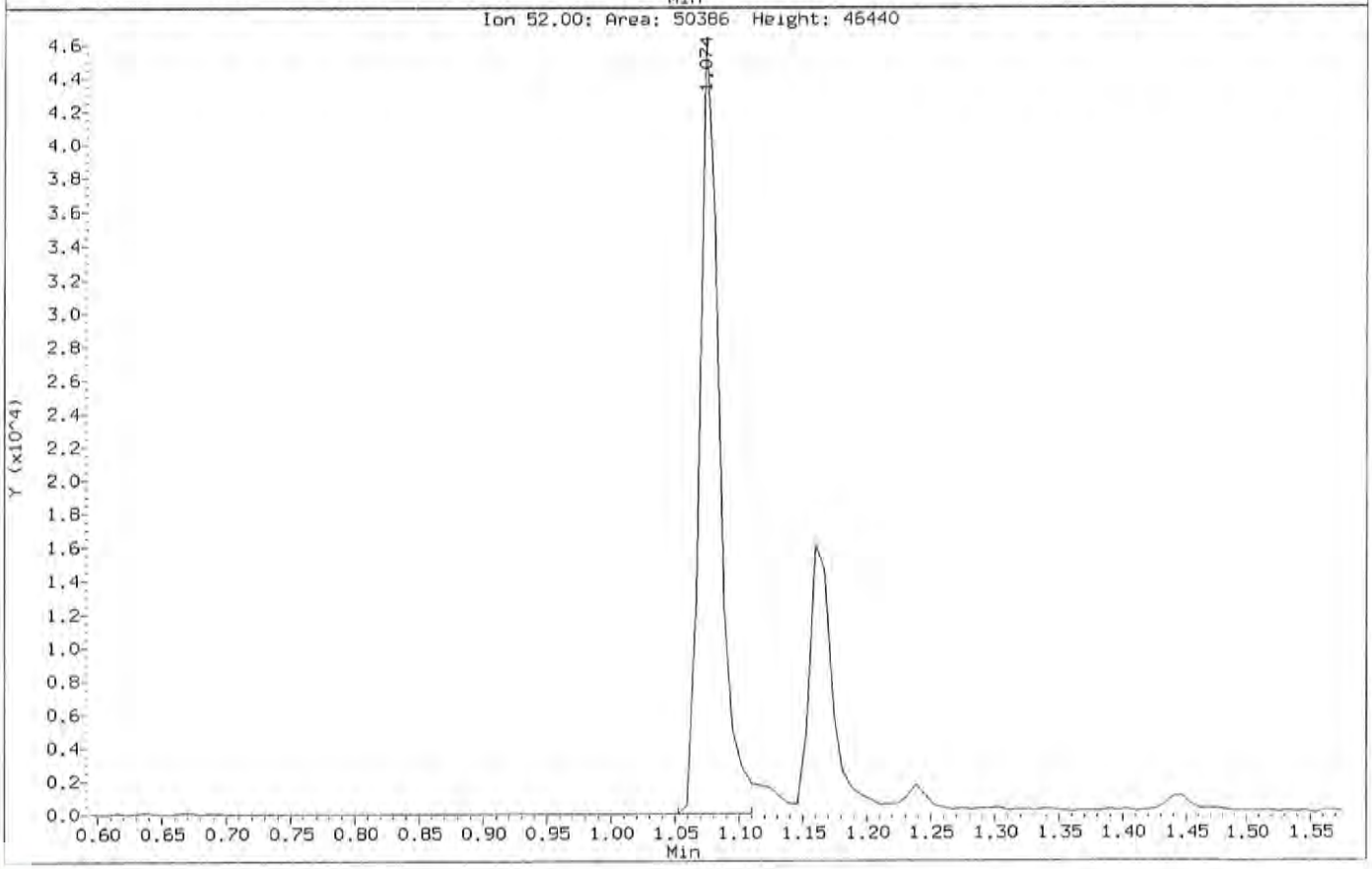
Injection Date: 24-NOV-2019 13:00
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3





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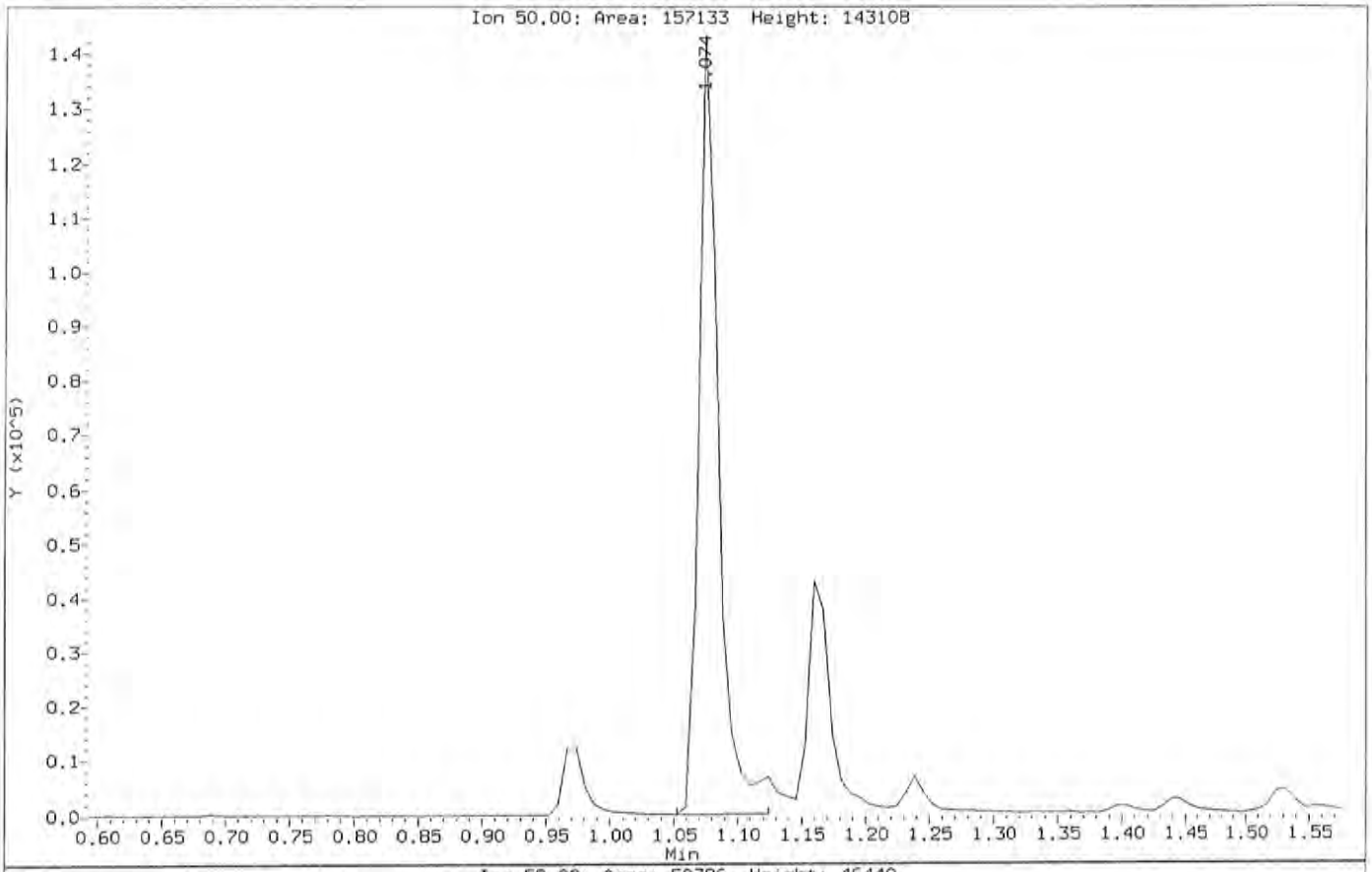
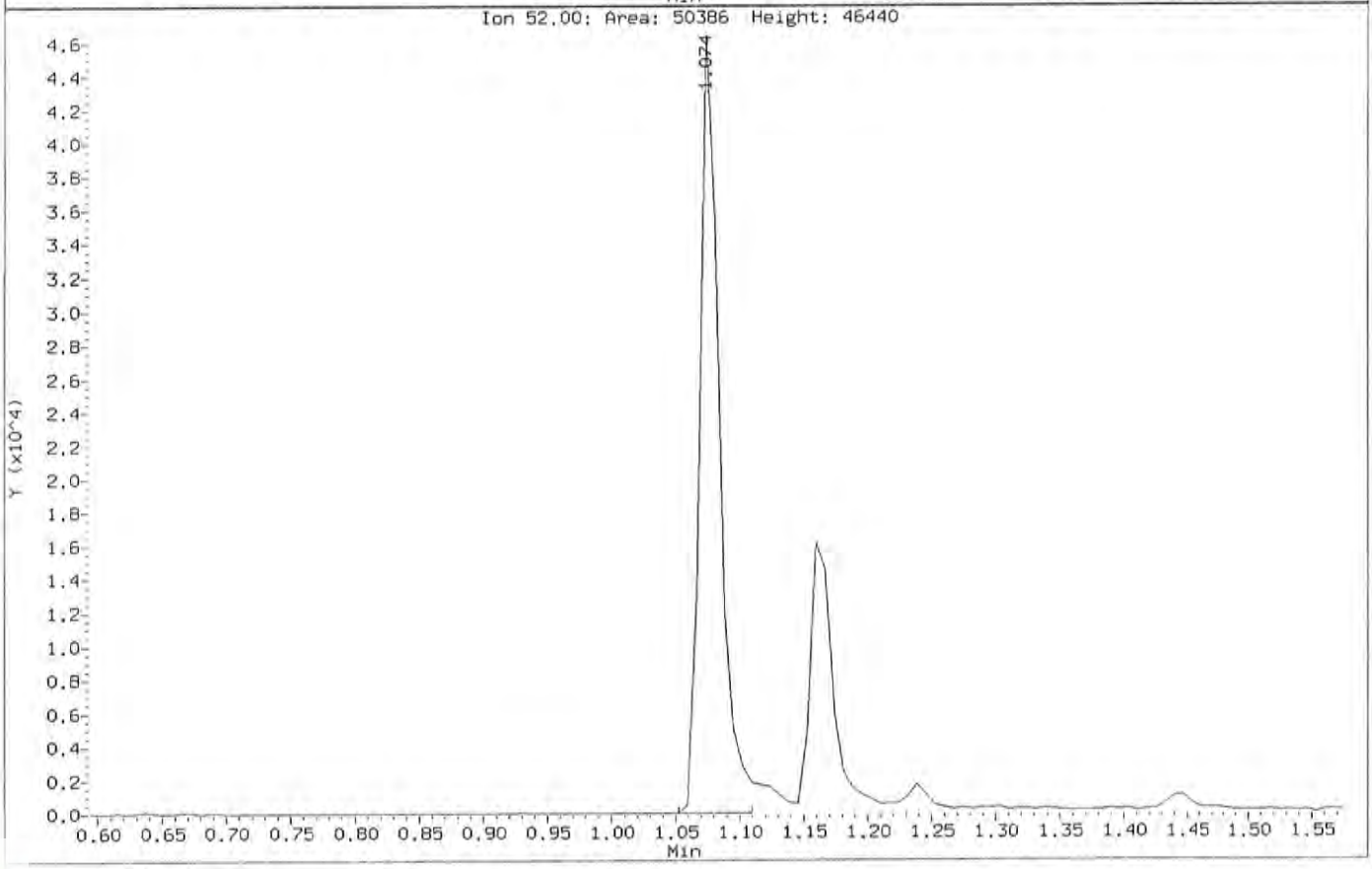
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3





Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D Page 1
Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D
Lab Smp Id: VLCSW-191124 Client Smp ID: VLCSW-19124
Inj Date : 24-NOV-2019 13:48
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-191124;VLCSW-19124;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

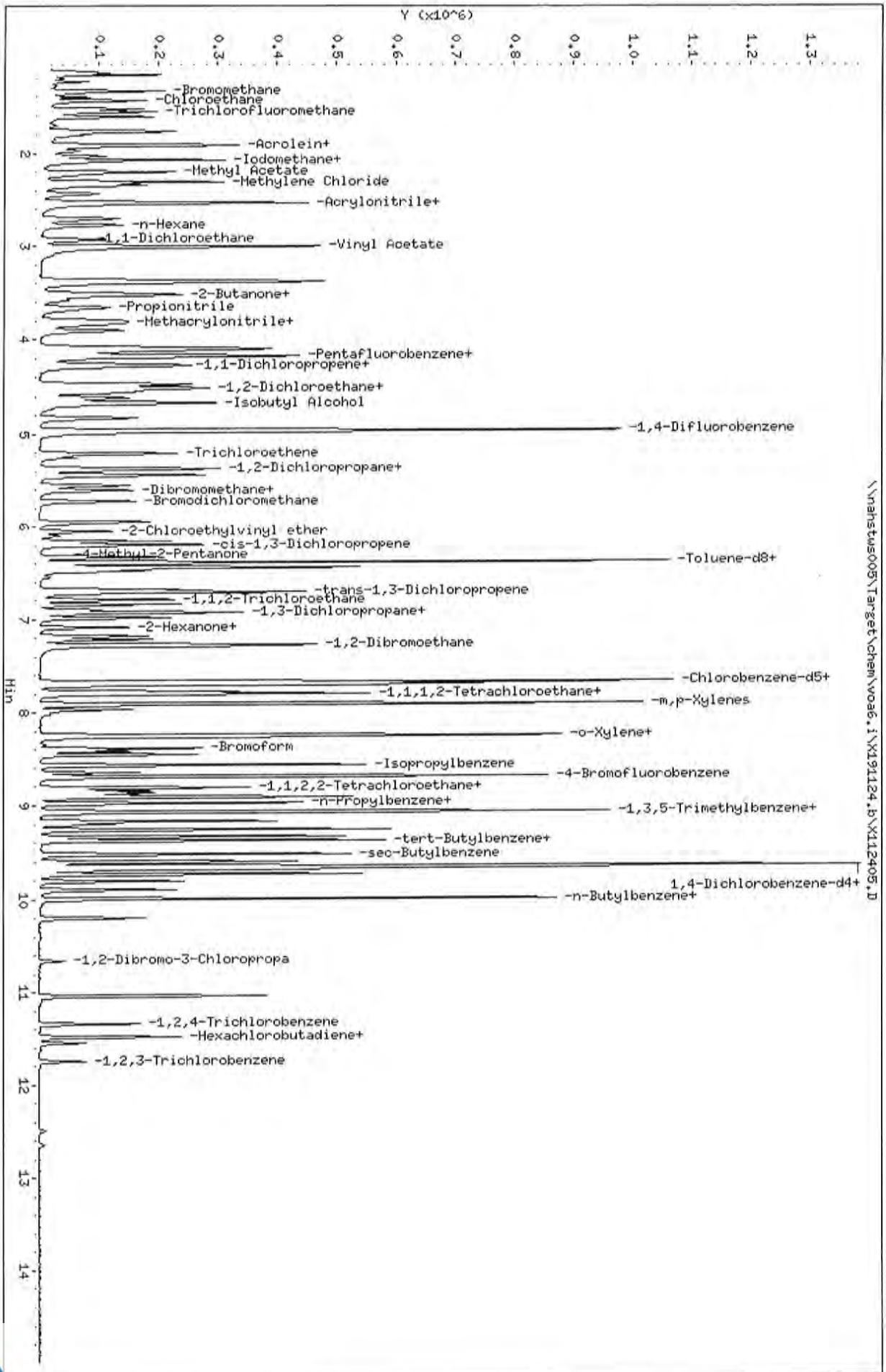
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	388055	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	550313	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	504151	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	266132	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	183657	50.3013	50.30
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	220276	46.9877	46.98
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	177170	50.2092	50.20
$	48 Toluene-d8	98	6.388	6.388	(0.833)	617598	46.4941	46.49
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	75422	20.6210	20.62
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	108042	20.6379	20.63
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	76156	20.3501	20.35
	138 Freon TF	101	1.919	1.919	(0.459)	67205	19.8924	19.89
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	53715	20.3820	20.38
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	116042	20.5520	20.55
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	63884	19.4257	19.42
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	89644	20.1942	20.19
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	22116	21.9417	21.94
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	63337	19.9745	19.97(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	47850	21.3444	21.34
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	257494	20.3912	20.39
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	8410	20.1551	20.15
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	70877	20.0451	20.04
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	144657	20.4803	20.48

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112405.D Page 2
Report Date: 17-Dec-2019 15:49

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	88620	20.2860	20.28
42	1,2-Dichloropropane	63	5.443	5.436	(1.095)	66609	20.2622	20.26
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	250392	20.6647	20.66
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	157151	20.5906	20.59
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	105292	19.6789	19.67
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	158993	20.5005	20.50
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	104881	20.4662	20.46
24	2-Butanone	43	3.580	3.573	(0.856)	47024	39.4922	39.49
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	204142	21.3207	21.32
52	2-Hexanone	43	7.083	7.090	(0.923)	82392	39.7837	39.78
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	238168	20.5217	20.52
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	266591	20.4725	20.47
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	114520	38.7685	38.76
10	Acetone	43	1.976	1.976	(0.473)	45525	43.2057	43.20
37	Benzene	78	4.512	4.512	(0.908)	260754	20.7134	20.71
74	Bromobenzene	156	8.809	8.809	(0.911)	96965	20.9643	20.96
29	Bromochloromethane	128	3.802	3.795	(0.909)	42939	20.4256	20.42
39	Bromodichloromethane	83	5.729	5.729	(1.153)	93422	20.5138	20.51
66	Bromoform	173	8.415	8.416	(1.097)	58399	20.0636	20.06
6	Bromomethane	94	1.338	1.338	(0.320)	88012	21.5281	21.52
19	Carbon Disulfide	76	2.069	2.069	(0.495)	375038	41.9195	41.91
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	97153	19.9790	19.97
59	Chlorobenzene	112	7.699	7.699	(1.004)	195902	19.9037	19.90
7	Chloroethane	64	1.403	1.403	(0.336)	44399	18.1721	18.17
28	Chloroform	83	3.910	3.910	(0.935)	126568	20.1396	20.13
3	Chloromethane	50	1.073	1.073	(0.257)	63669	15.2377	15.23
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	78451	21.3178	21.31
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	110281	20.5487	20.54
55	Dibromochloromethane	129	7.176	7.176	(0.936)	77681	20.2896	20.28
44	Dibromomethane	93	5.557	5.557	(1.118)	48147	20.6967	20.69
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	53453	15.7319	15.73
61	Ethylbenzene	106	7.799	7.799	(1.017)	102753	20.2052	20.20
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	44230	20.6802	20.68
67	Isopropylbenzene	105	8.566	8.566	(1.117)	301546	20.0190	20.01
62	m,p-Xylenes	106	7.907	7.907	(1.031)	247364	40.3090	40.30
17	Methylene Chloride	84	2.305	2.305	(0.551)	69553	19.8223	19.82
87	n-Butylbenzene	91	9.998	9.999	(1.034)	227429	20.9867	20.98
73	n-Propylbenzene	91	8.917	8.917	(0.922)	347351	21.1154	21.11
92	Naphthalene	128	11.546	11.546	(1.194)	53313	18.5417	18.54
63	o-Xylene	106	8.244	8.244	(1.075)	121724	20.0980	20.09
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	299048	20.9263	20.92
64	Styrene	104	8.258	8.258	(1.077)	211547	20.0864	20.08
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	216302	20.8488	20.84
56	Tetrachloroethene	164	6.933	6.933	(0.904)	70420	19.8798	19.87
50	Toluene	91	6.446	6.446	(0.840)	289815	20.2716	20.27
20	trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	66159	20.7211	20.72
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	98261	20.0886	20.08
38	Trichloroethene	130	5.206	5.206	(1.048)	79569	20.6751	20.67
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	117968	19.5971	19.59
5	Vinyl Chloride	62	1.138	1.138	(0.272)	67139	16.9759	16.97

QC Flag Legend

M - Compound response manually integrated.



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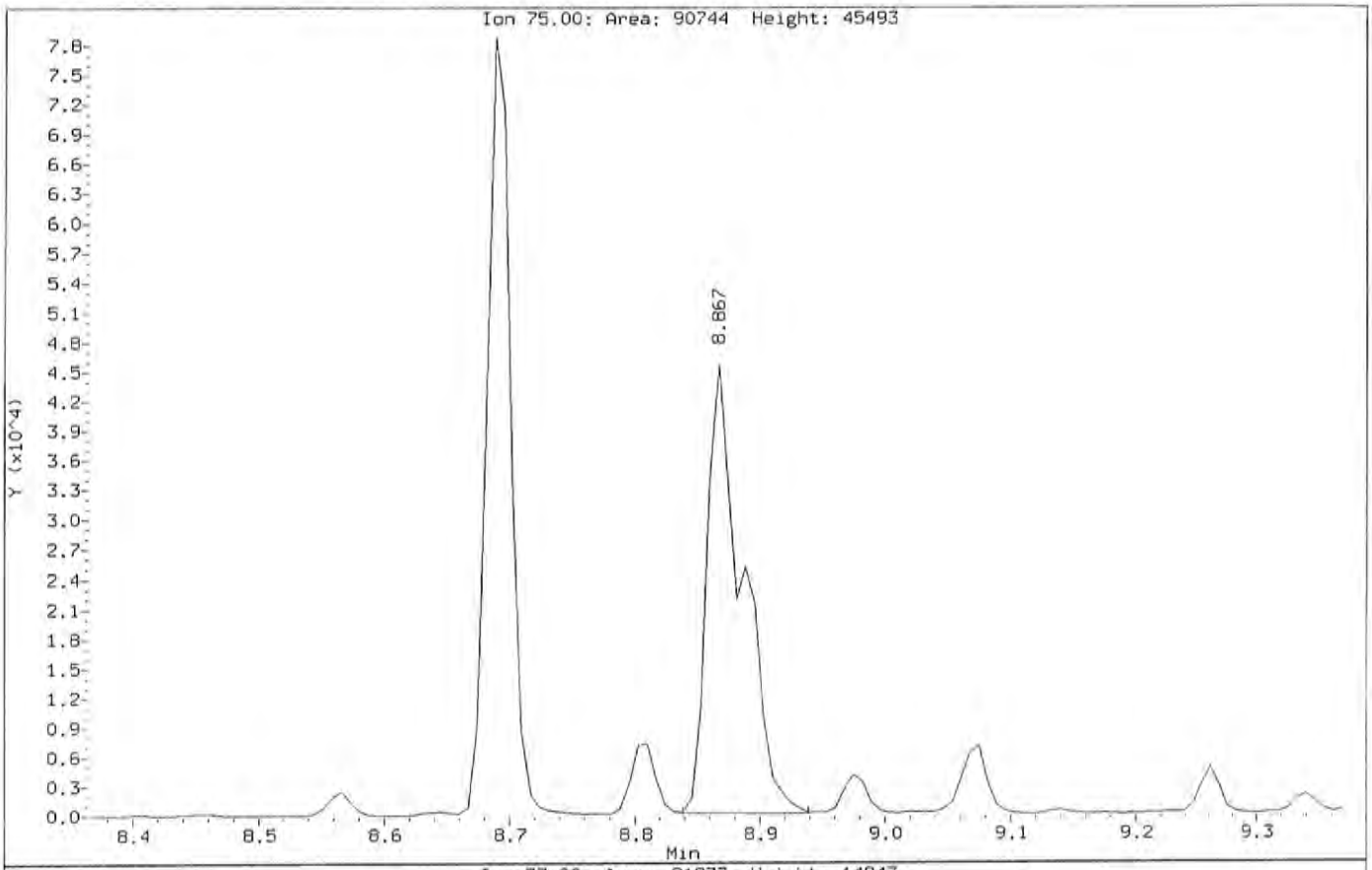
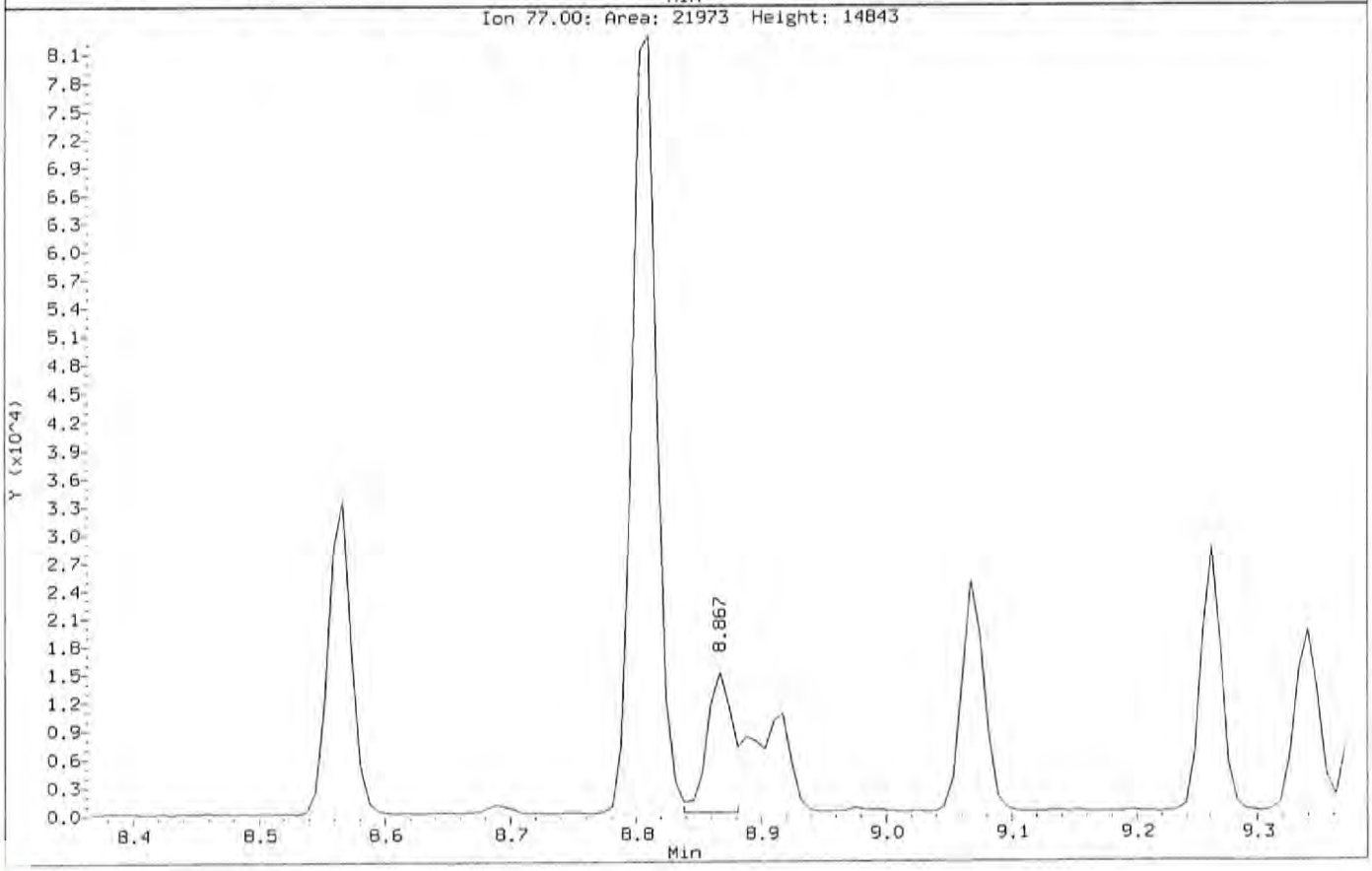
Client ID: VLCSW-19124
Sample Info: VLCSW-19124;VLCSW-19124;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112405.D
Injection Date: 24-NOV-2019 13:48
Instrument: voa6.i
Client Sample ID: VLCSW-19124

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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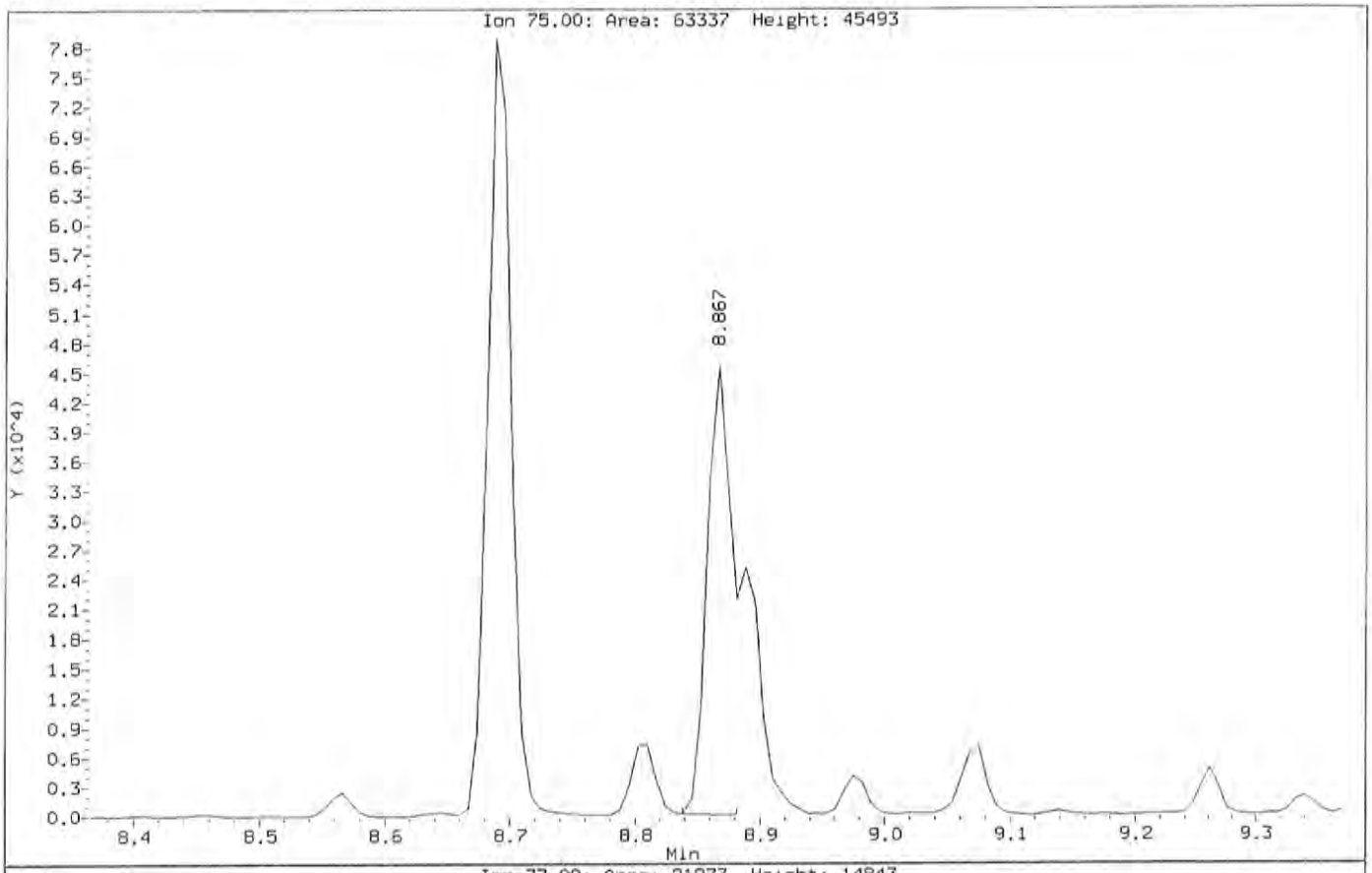
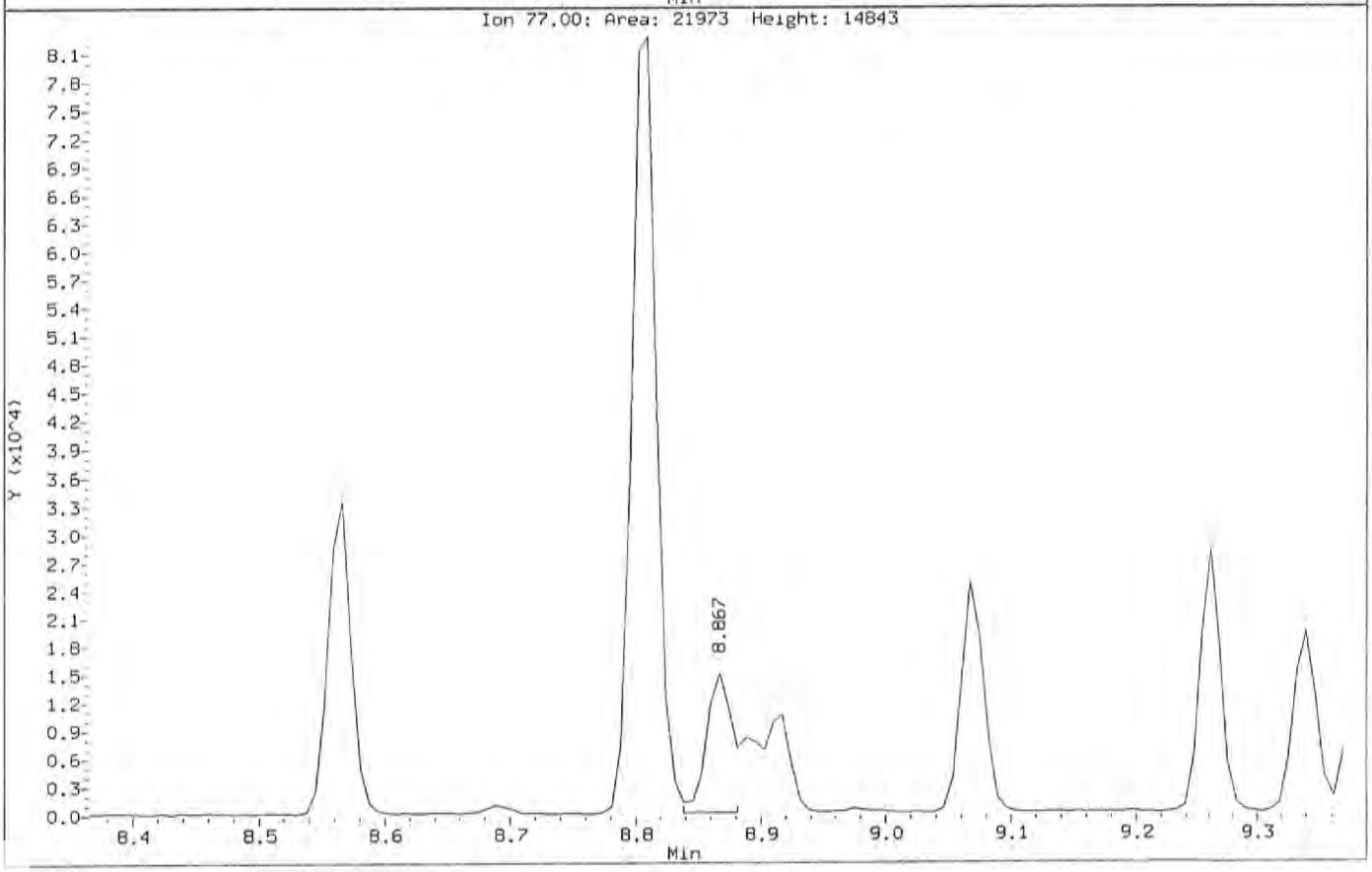
Injection Date: 24-NOV-2019 13:48
Instrument: voa6.i
Client Sample ID: VLCSW-19124

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112407.D Page 1
Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112407.D
Lab Smp Id: VBLKW-191124 Client Smp ID: VBLKW-191124
Inj Date : 24-NOV-2019 14:36
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-191124;VBLKW-191124;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

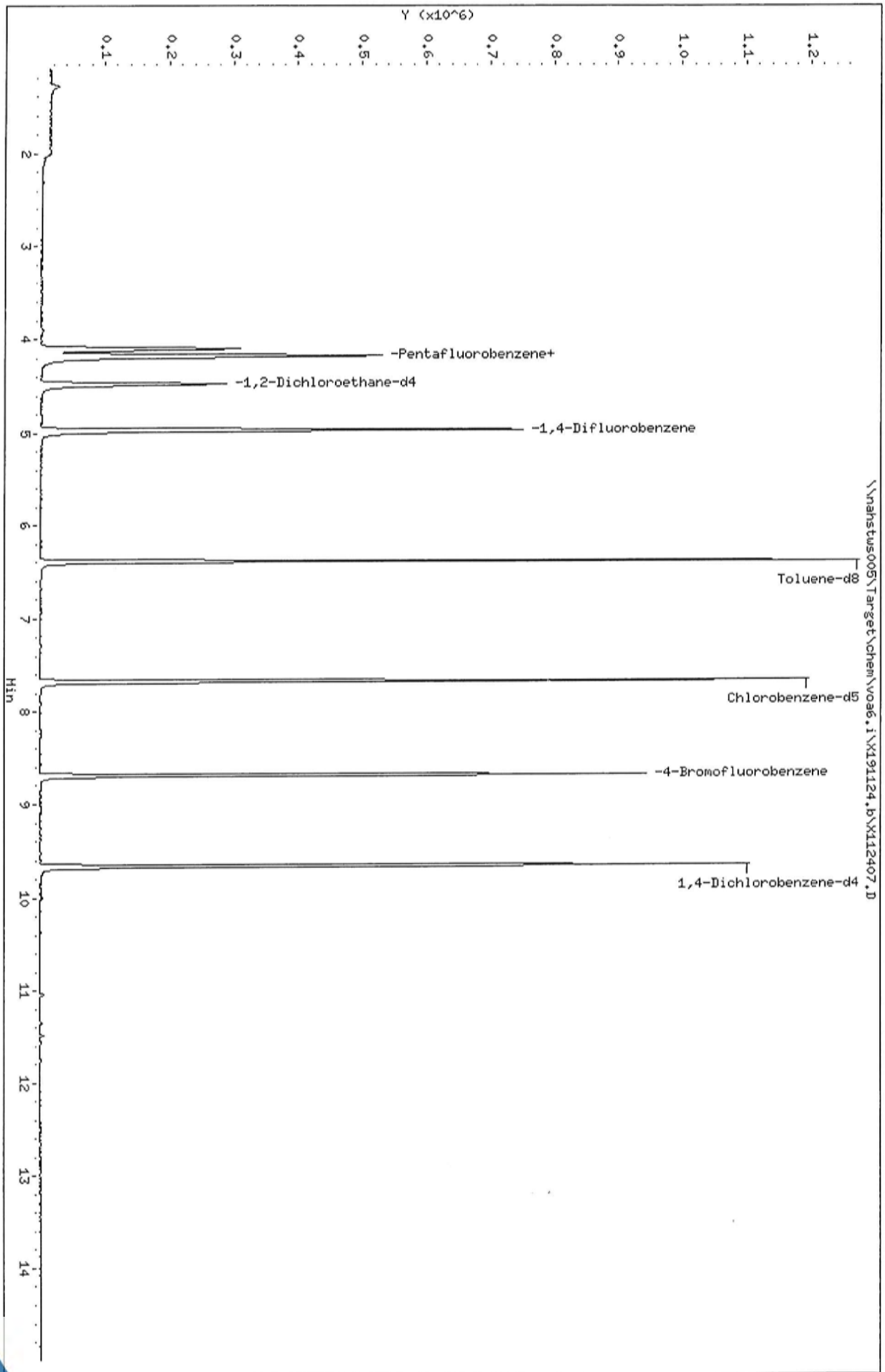
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	484385	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	666006	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	581309	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	275898	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	208585	45.8339	45.83
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	246158	45.5520	45.55
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	210671	47.8475	47.84
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	747496	48.8039	48.80

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112407.D
Date : 24-NOV-2019 14:36
Client ID: VBLKW-191124
Sample Info: VBLKW-191124;VBLKW-191124;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112409.D Page 1
Report Date: 17-Dec-2019 15:56

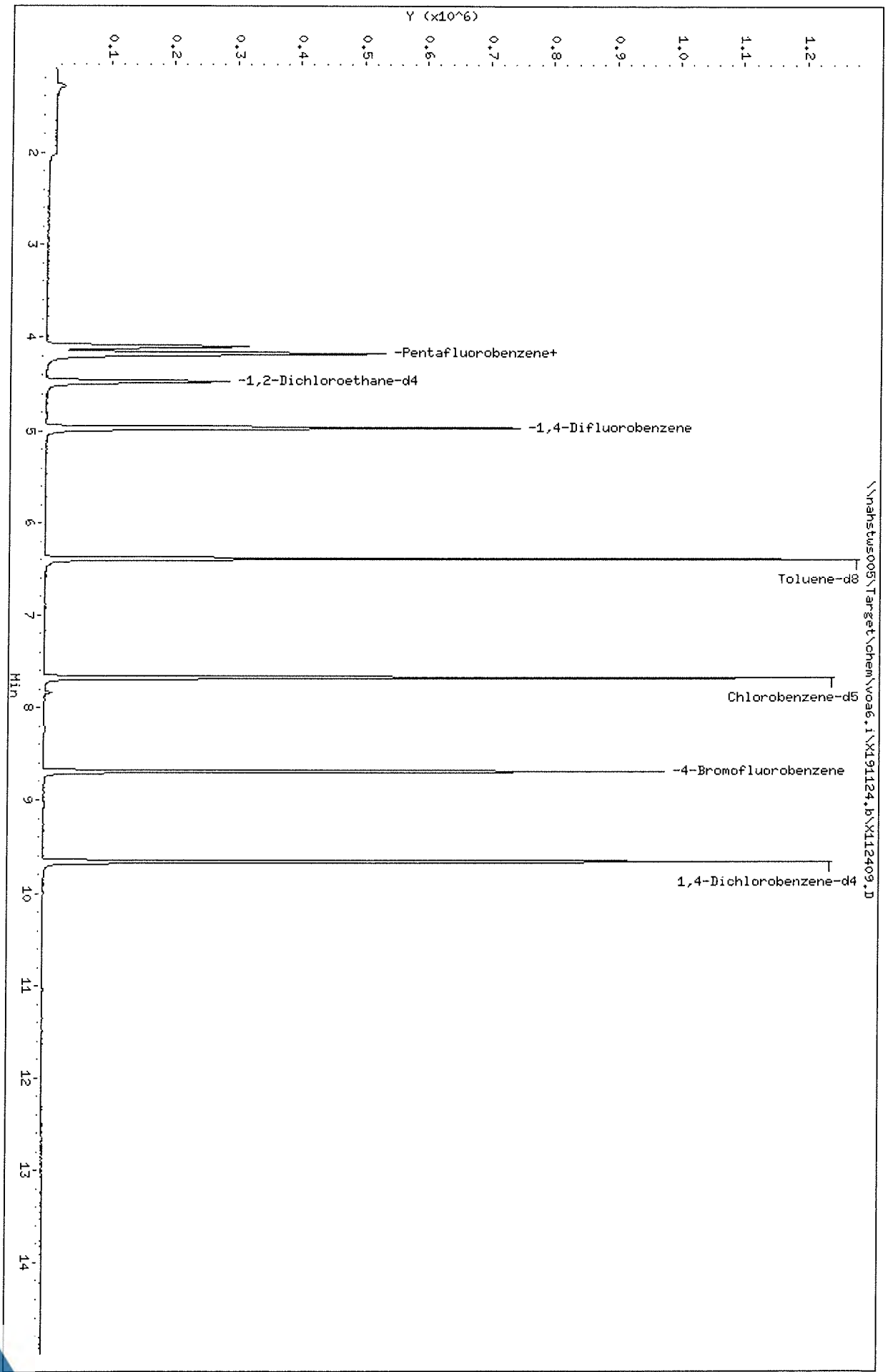
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112409.D
Lab Smp Id: HS19111239-07 Client Smp ID: HS19111239-07
Inj Date : 24-NOV-2019 15:24
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-07;HS19111239-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	488010	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	667661	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	593776	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	306724	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	211827	46.1947	46.19
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	258347	46.7923	46.79
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	213767	48.1874	48.18
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	760065	48.5826	48.58



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112409.D
Date : 24-NOV-2019 15:24
Client ID: HS191111239-07
Sample Info: HS191111239-07;HS191111239-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112410.D Page 1
Report Date: 17-Dec-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112410.D
Lab Smp Id: HS19111239-05 Client Smp ID: HS19111239-05
Inj Date : 24-NOV-2019 15:48
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-05;HS19111239-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

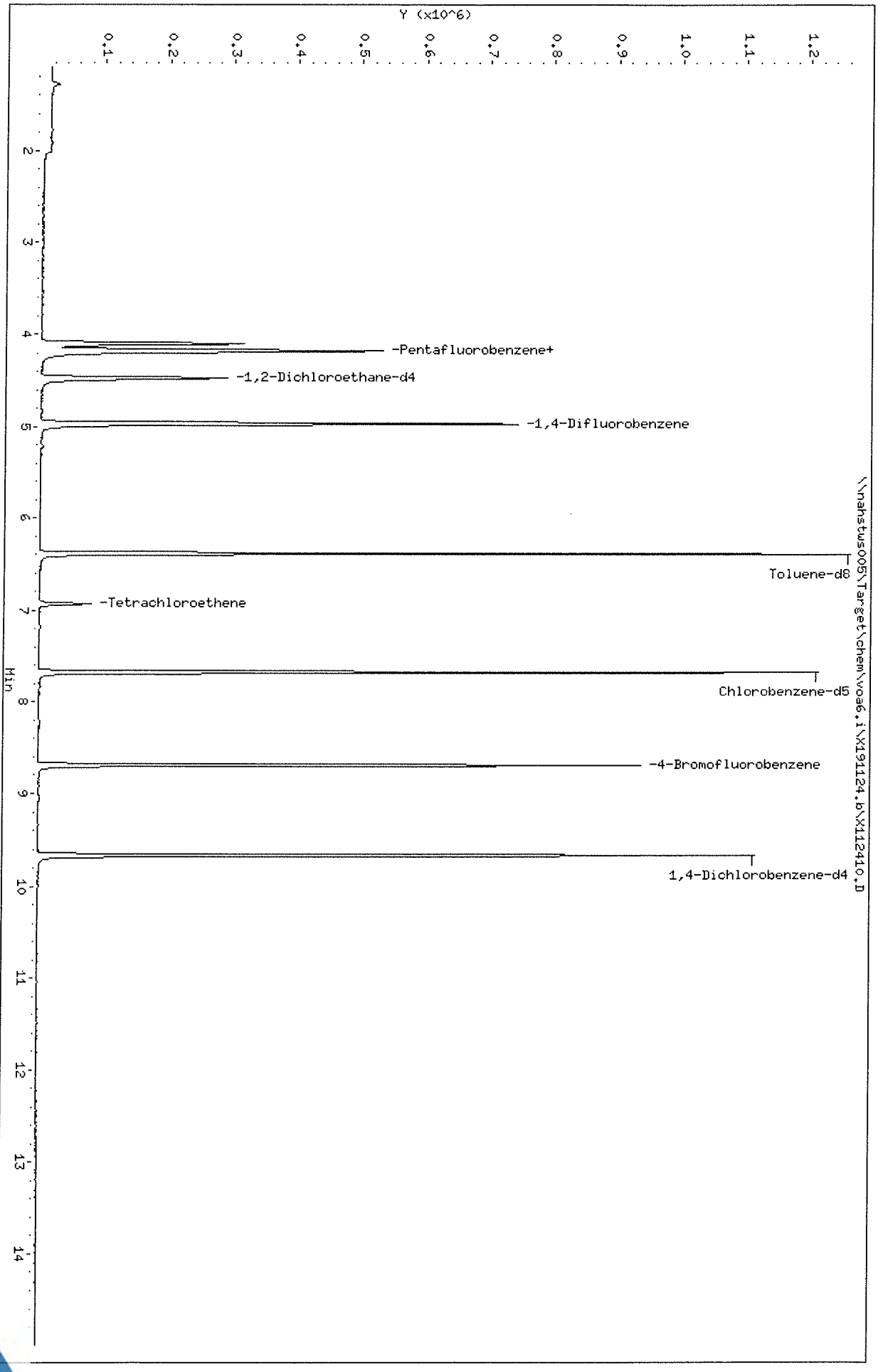
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	479706	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	653443	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	570706	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	285003	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	210396	46.6692	46.66
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	245221	46.2155	46.21
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	211921	48.5950	48.59
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	744995	49.5443	49.54
56 Tetrachloroethene	164	6.933	6.933	(0.904)	16879	4.20930	4.20(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112410.D
Date : 24-NOV-2019 15:48
Client ID: HS191111239-05
Sample Info: HS191111239-05;HS191111239-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112410.D

Date : 24-NOV-2019 15:48

Client ID: HS19111239-05

Instrument: voa6.i

Sample Info: HS19111239-05;HS19111239-05;;;

Purge Volume: 5.0

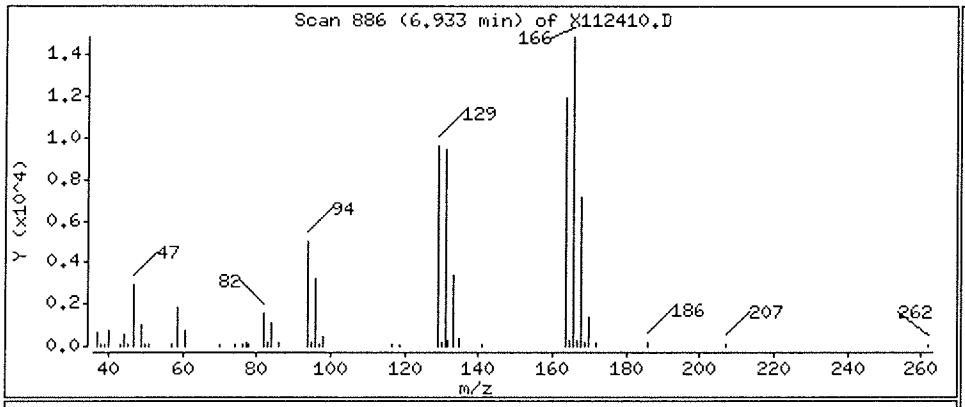
Operator: PC

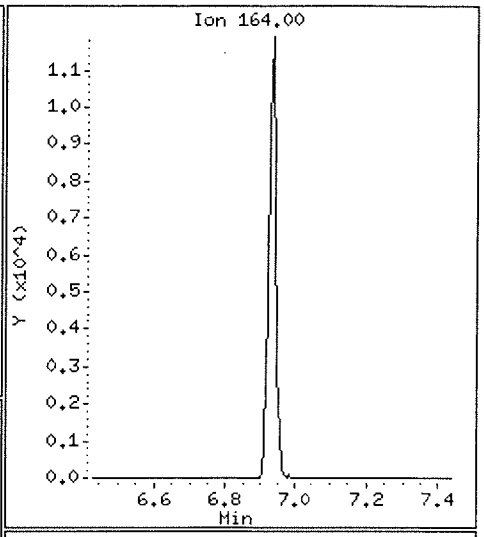
Column phase: DB624

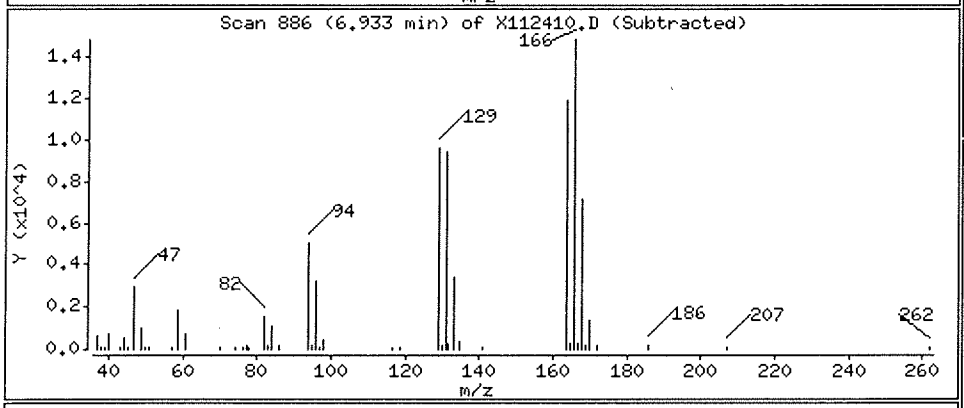
Column diameter: 0.18

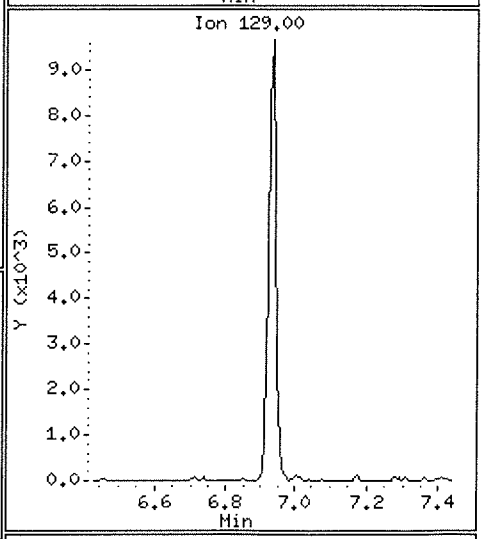
56 Tetrachloroethene

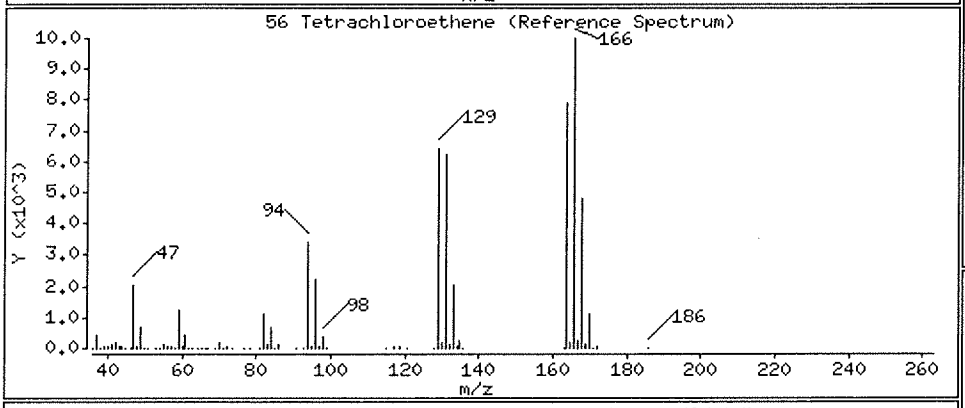
Concentration: 4.20 ug/l

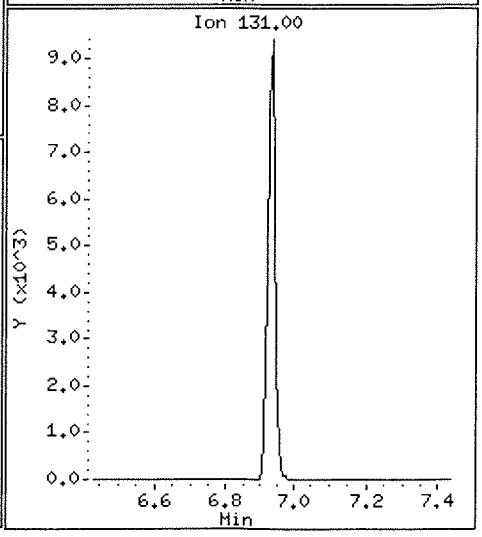


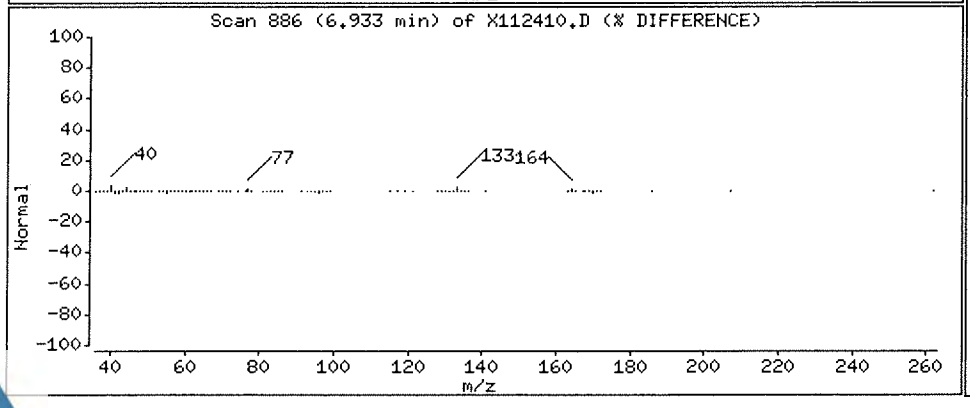












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D Page 1
Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D
Lab Smp Id: HS19111239-05MS Client Smp ID: HS19111239-05MS
Inj Date : 24-NOV-2019 16:13
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-05MS;HS19111239-05MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 11 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

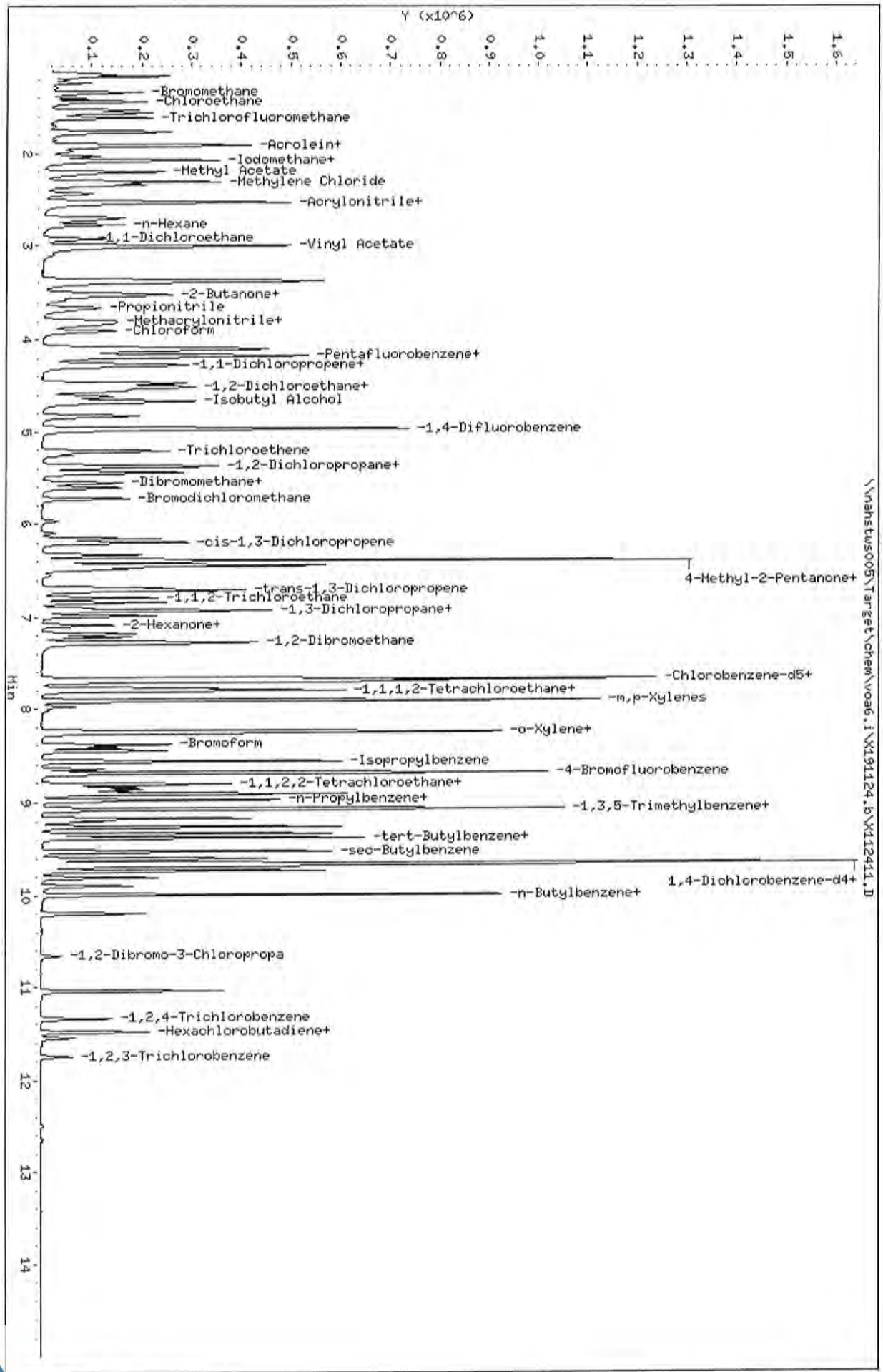
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	477258	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	653867	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	592999	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	312391	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	209623	46.7351	46.73
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	261165	47.3596	47.35
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	211339	48.7093	48.70
$	48 Toluene-d8	98	6.388	6.388	(0.833)	745667	47.7248	47.72
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	78468	18.2394	18.23
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	121582	18.8835	18.88
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.838	(0.915)	79097	18.0062	18.00
	138 Freon TF	101	1.912	1.919	(0.457)	78919	18.9936	18.99
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	56552	18.2434	18.24
	22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	127407	18.3473	18.34
	11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	73287	18.1197	18.11
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	100844	19.1194	19.11
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	17373	14.4113	14.41
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64183	17.2439	17.24(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	40144	15.2553	15.25
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	282667	19.0699	19.06
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	8108	16.4932	16.49
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	73944	17.7792	17.77
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	154553	18.6412	18.64

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112411.D Page 2
Report Date: 17-Dec-2019 15:49

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	94771	18.2583	18.25
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	70628	18.0822	18.08
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	279278	19.6356	19.63
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	172281	19.2304	19.23
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	111206	17.6701	17.67
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	171321	18.8189	18.81
26	2,2-Dichloropropane	77	3.509	3.516	(0.839)	114522	18.1706	18.17
24	2-Butanone	43	3.581	3.573	(0.856)	44128	30.1333	30.13
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	221959	19.7487	19.74
52	2-Hexanone	43	7.090	7.090	(0.924)	77587	31.8504	31.85
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	258653	18.9866	18.98
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	297755	19.4797	19.47
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	112354	32.3365	32.33
10	Acetone	43	1.976	1.976	(0.473)	34905	25.4821	25.48
37	Benzene	78	4.512	4.512	(0.908)	286765	19.1720	19.17
74	Bromobenzene	156	8.810	8.809	(0.912)	103662	19.0934	19.09
29	Bromochloromethane	128	3.795	3.795	(0.908)	45574	17.6271	17.62
39	Bromodichloromethane	83	5.729	5.729	(1.153)	98855	18.2690	18.26
66	Bromoform	173	8.416	8.416	(1.097)	60507	17.7922	17.79
6	Bromomethane	94	1.338	1.338	(0.320)	100077	19.7260	19.72
19	Carbon Disulfide	76	2.069	2.069	(0.495)	431683	39.2325	39.23
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	111172	19.2413	19.24
59	Chlorobenzene	112	7.699	7.699	(1.004)	212140	18.3242	18.32
7	Chloroethane	64	1.403	1.403	(0.336)	51130	17.0157	17.01
28	Chloroform	83	3.910	3.910	(0.935)	134484	17.3995	17.39
3	Chloromethane	50	1.073	1.073	(0.257)	76212	14.8355	14.83
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	84750	18.7250	18.72
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	117301	18.3953	18.39
55	Dibromochloromethane	129	7.176	7.176	(0.936)	81954	18.1985	18.19
44	Dibromomethane	93	5.558	5.557	(1.118)	50135	18.1381	18.13
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	77408	18.3676	18.36
61	Ethylbenzene	106	7.800	7.799	(1.017)	112709	18.8423	18.84
91	Hexachlorobutadiene	225	11.489	11.488	(1.189)	39301	15.6545	15.65
67	Isopropylbenzene	105	8.566	8.566	(1.117)	339340	19.1527	19.15
62	m,p-Xylenes	106	7.907	7.907	(1.031)	271586	37.6253	37.62
17	Methylene Chloride	84	2.305	2.305	(0.551)	74200	17.1942	17.19
87	n-Butylbenzene	91	9.999	9.999	(1.035)	253912	19.9609	19.96
73	n-Propylbenzene	91	8.917	8.917	(0.923)	388610	20.1253	20.12
92	Naphthalene	128	11.546	11.546	(1.195)	46422	13.7543	13.75
63	o-Xylene	106	8.244	8.244	(1.075)	130735	18.3516	18.35
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	335752	20.0156	20.01
64	Styrene	104	8.258	8.258	(1.077)	229668	18.5397	18.53
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	242255	19.8927	19.89
56	Tetrachloroethene	164	6.933	6.933	(0.904)	95174	22.8423	22.84
50	Toluene	91	6.446	6.446	(0.840)	317877	18.9031	18.90
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	74024	18.8511	18.85
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	102349	17.6105	17.61
38	Trichloroethene	130	5.207	5.206	(1.048)	89959	19.6729	19.67
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	141771	19.1494	19.14
5	Vinyl Chloride	62	1.138	1.138	(0.272)	83033	17.0706	17.07

QC Flag Legend

M - Compound response manually integrated.



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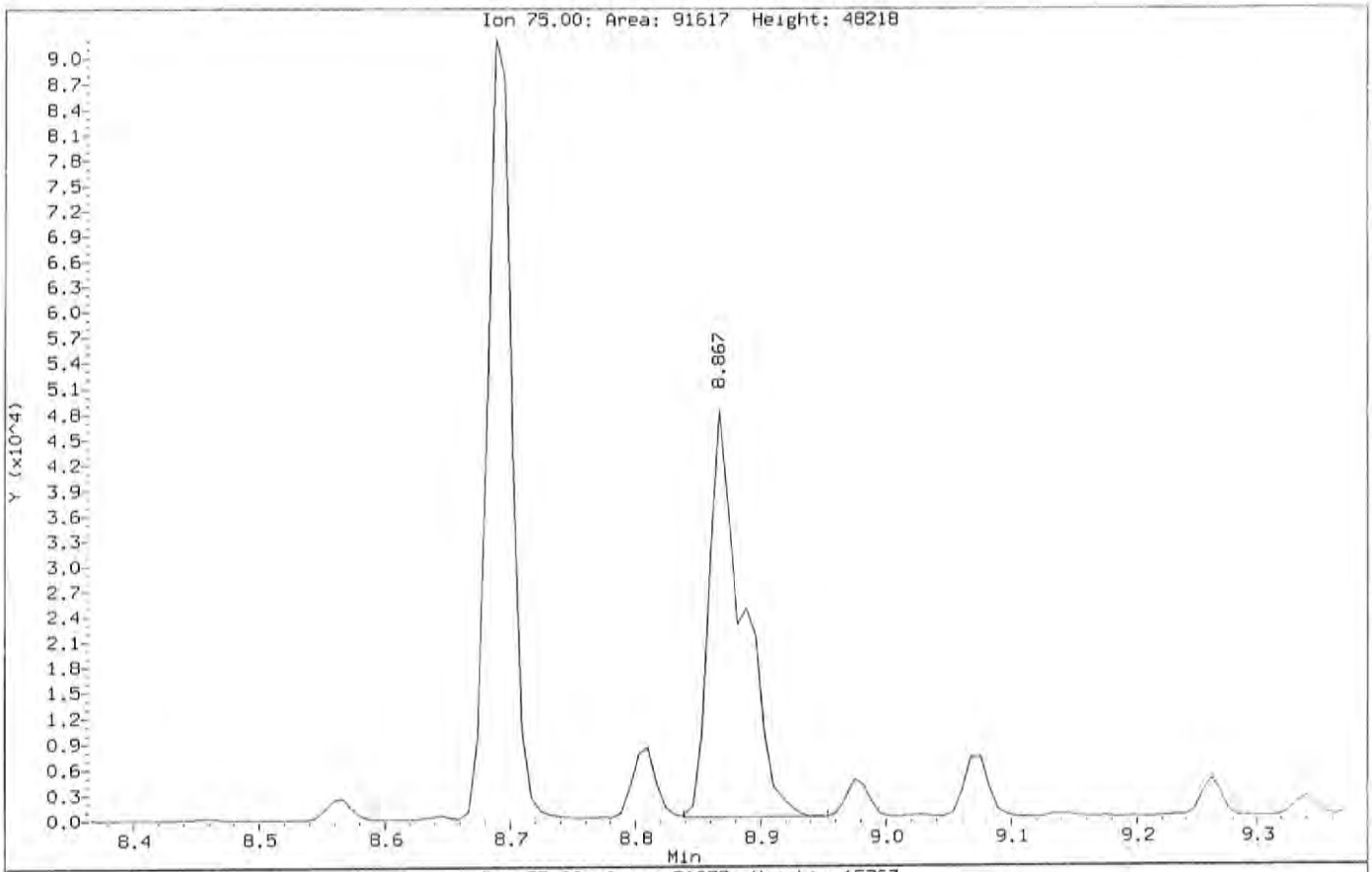
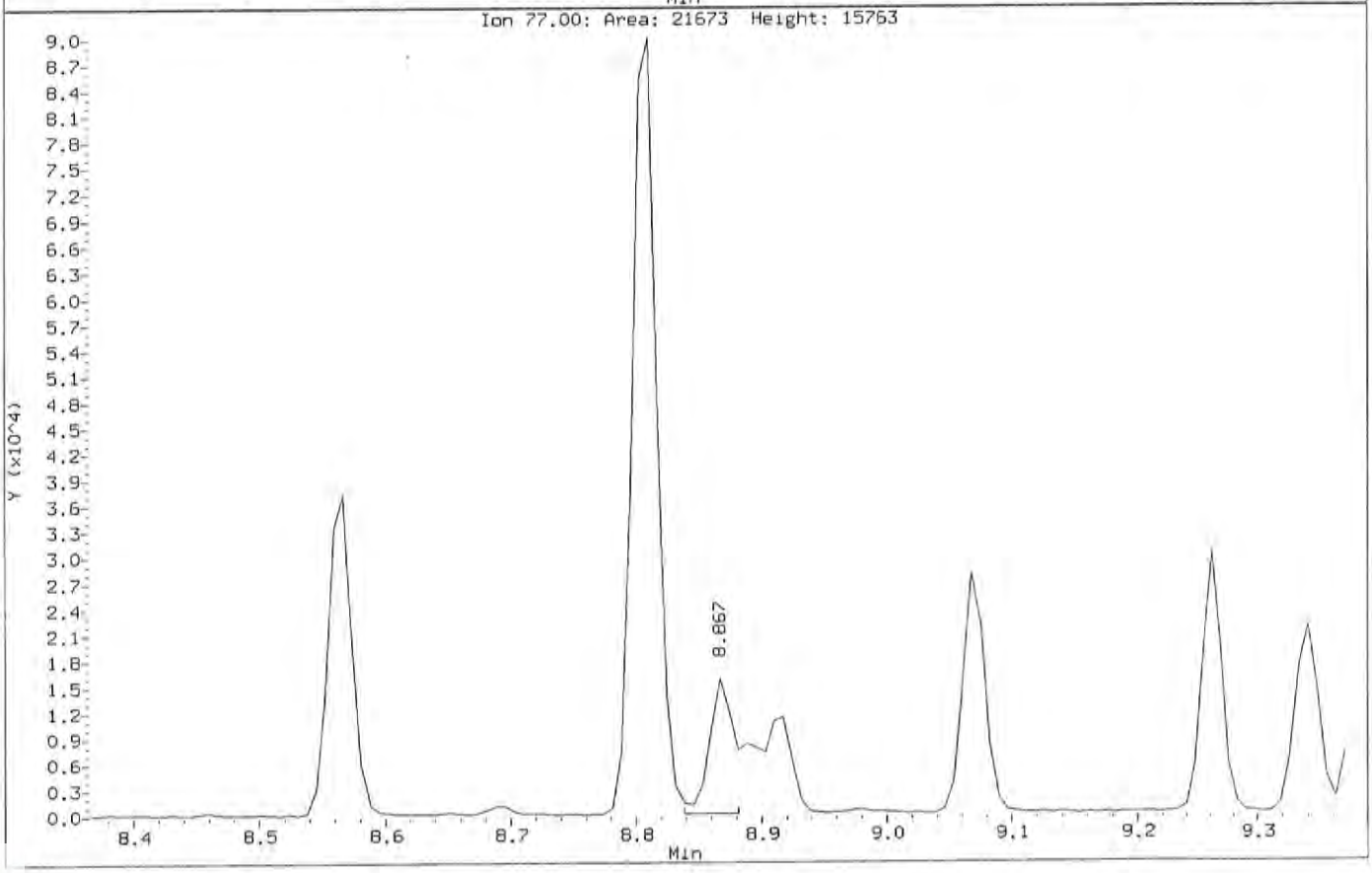
Date : 24-NOV-2019 16:13
Client ID: HS191111239-05MS
Sample Info: HS191111239-05MS;HS191111239-05MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112411.D
Injection Date: 24-NOV-2019 16:13
Instrument: voa6.i
Client Sample ID: HS19111239-05MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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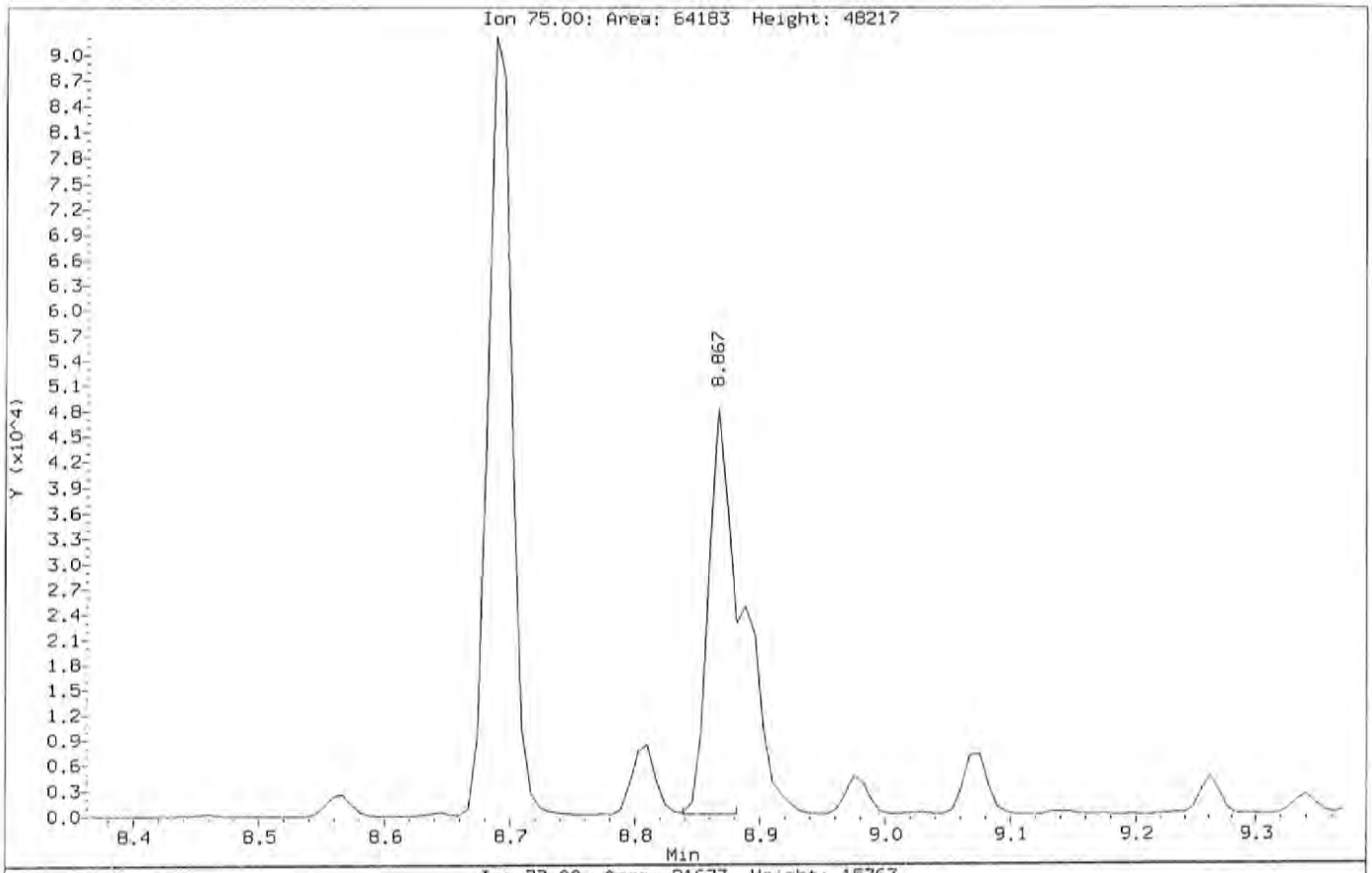
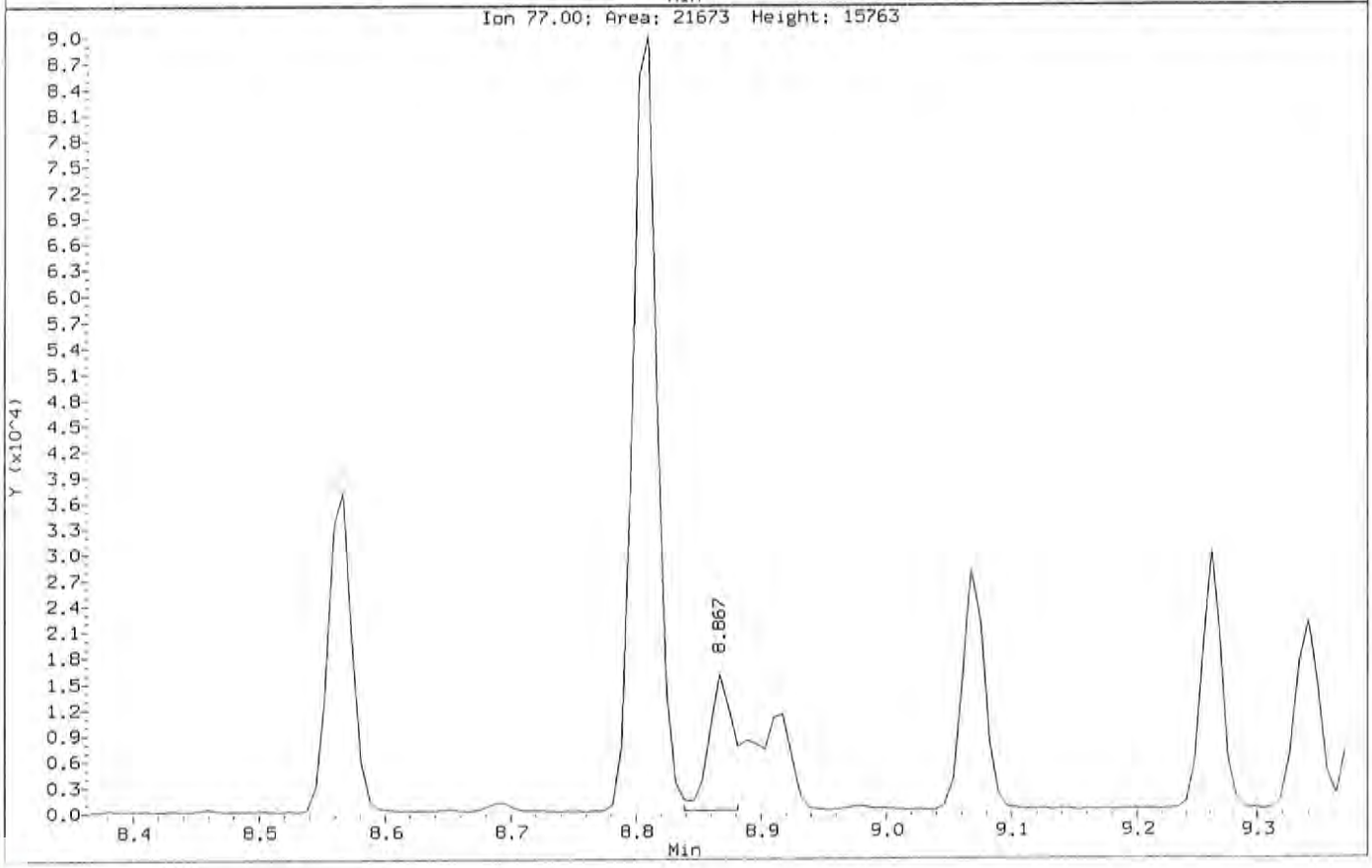
Injection Date: 24-NOV-2019 16:13
Instrument: voa6.i
Client Sample ID: HS19111239-05MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D Page 1
Report Date: 17-Dec-2019 15:49

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D
Lab Smp Id: HS19111239-05MSD Client Smp ID: HS19111239-05MSD
Inj Date : 24-NOV-2019 16:37
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-05MSD;HS19111239-05MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 11 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

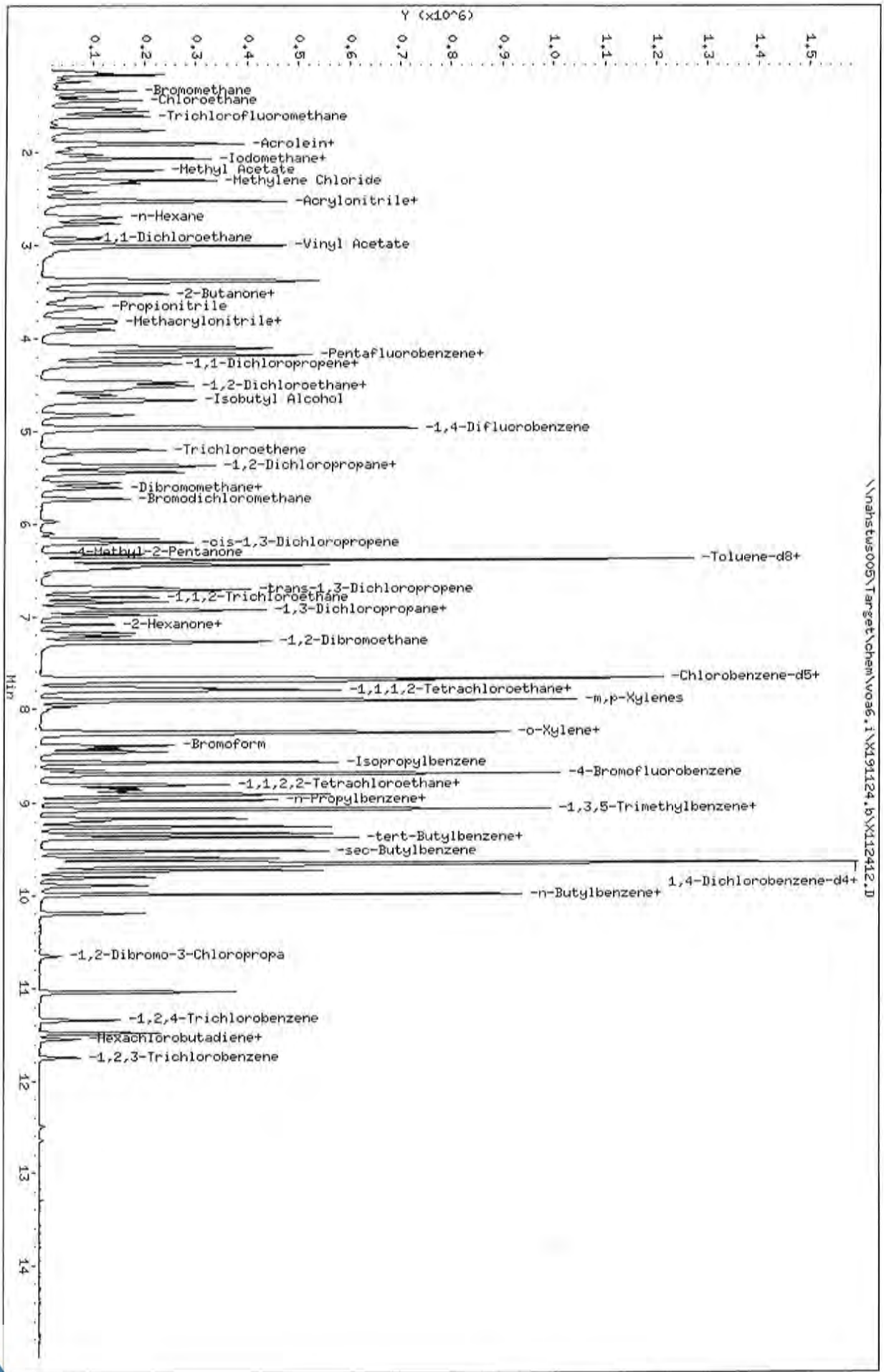
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	472494	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	652154	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	584590	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	313244	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	206148	46.4287	46.42
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	261285	48.0567	48.05
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	208060	48.4391	48.43
$	48 Toluene-d8	98	6.388	6.388	(0.833)	733983	47.6527	47.65
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	76846	18.1193	18.11
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	115462	18.1138	18.11
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	77463	17.5862	17.58
	138 Freon TF	101	1.911	1.919	(0.457)	71843	17.4649	17.46
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	55130	18.0405	18.04
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	120770	17.5669	17.56
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	69527	17.3634	17.36
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	93629	17.7981	17.79
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21781	18.2264	18.22
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	63475	17.0073	17.00(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	46412	17.5892	17.58
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.971)	272441	18.3300	18.33
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.103)	8188	16.6130	16.61
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	73515	17.9303	17.93
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.035)	149754	18.0131	18.01

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D Page 2
Report Date: 17-Dec-2019 15:49

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	91522	17.6786	17.67
42	1,2-Dichloropropane	63	5.443	5.436	(1.095)	68371	17.5504	17.55
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	267622	18.7648	18.76
83	1,3-Dichlorobenzene	146	9.604	9.612	(0.994)	166009	18.4799	18.47
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	108734	17.5259	17.52
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	168293	18.4360	18.43
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	108858	17.4461	17.44
24	2-Butanone	43	3.580	3.573	(0.856)	44003	30.3509	30.35
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	212615	18.8659	18.86
52	2-Hexanone	43	7.090	7.090	(0.924)	78263	32.5901	32.59
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	248653	18.2028	18.20
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	288597	18.8292	18.82
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	113597	33.1645	33.16
10	Acetone	43	1.976	1.976	(0.473)	35194	26.0233	26.02
37	Benzene	78	4.512	4.512	(0.908)	273116	18.3074	18.30
74	Bromobenzene	156	8.809	8.809	(0.912)	100415	18.4450	18.44
29	Bromochloromethane	128	3.795	3.795	(0.908)	44263	17.2926	17.29
39	Bromodichloromethane	83	5.729	5.729	(1.153)	97334	18.0352	18.03
66	Bromoform	173	8.415	8.416	(1.097)	59985	17.8868	17.88
6	Bromomethane	94	1.338	1.338	(0.320)	93106	18.3949	18.39
19	Carbon Disulfide	76	2.069	2.069	(0.495)	402402	36.9401	36.94
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	104884	18.2006	18.20
59	Chlorobenzene	112	7.699	7.699	(1.004)	203181	17.8028	17.80
7	Chloroethane	64	1.403	1.403	(0.336)	49308	16.5748	16.57
28	Chloroform	83	3.910	3.910	(0.935)	128904	16.8457	16.84
3	Chloromethane	50	1.073	1.073	(0.257)	71770	14.1208	14.12
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	81236	18.1296	18.12
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	114576	18.0151	18.01
55	Dibromochloromethane	129	7.176	7.176	(0.936)	79747	17.9632	17.96
44	Dibromomethane	93	5.557	5.557	(1.118)	49076	17.8016	17.80
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	71993	17.3084	17.30
61	Ethylbenzene	106	7.799	7.799	(1.017)	108768	18.4450	18.44
91	Hexachlorobutadiene	225	11.481	11.488	(1.188)	42952	17.0622	17.06
67	Isopropylbenzene	105	8.566	8.566	(1.117)	321812	18.4247	18.42
62	m,p-Xylenes	106	7.907	7.907	(1.031)	260394	36.5937	36.59
17	Methylene Chloride	84	2.305	2.305	(0.551)	71635	16.7672	16.76
87	n-Butylbenzene	91	9.998	9.999	(1.035)	246391	19.3169	19.31
73	n-Propylbenzene	91	8.917	8.917	(0.923)	373119	19.2704	19.27
92	Naphthalene	128	11.546	11.546	(1.195)	54573	16.1253	16.12
63	o-Xylene	106	8.243	8.244	(1.075)	126953	18.0771	18.07
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	323762	19.2483	19.24
64	Styrene	104	8.258	8.258	(1.077)	218409	17.8844	17.88
78	tert-Butylbenzene	119	9.339	9.340	(0.967)	233410	19.1142	19.11
56	Tetrachloroethene	164	6.933	6.933	(0.904)	91203	22.2041	22.20
50	Toluene	91	6.446	6.446	(0.840)	303731	18.3217	18.32
20	trans-1,2-Dichloroethene	96	2.527	2.528	(0.604)	69681	17.9240	17.92
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100251	17.2948	17.29
38	Trichloroethene	130	5.206	5.206	(1.048)	85604	18.7697	18.76
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	131338	17.9191	17.91
5	Vinyl Chloride	62	1.138	1.138	(0.272)	78167	16.2323	16.23

QC Flag Legend

M - Compound response manually integrated.

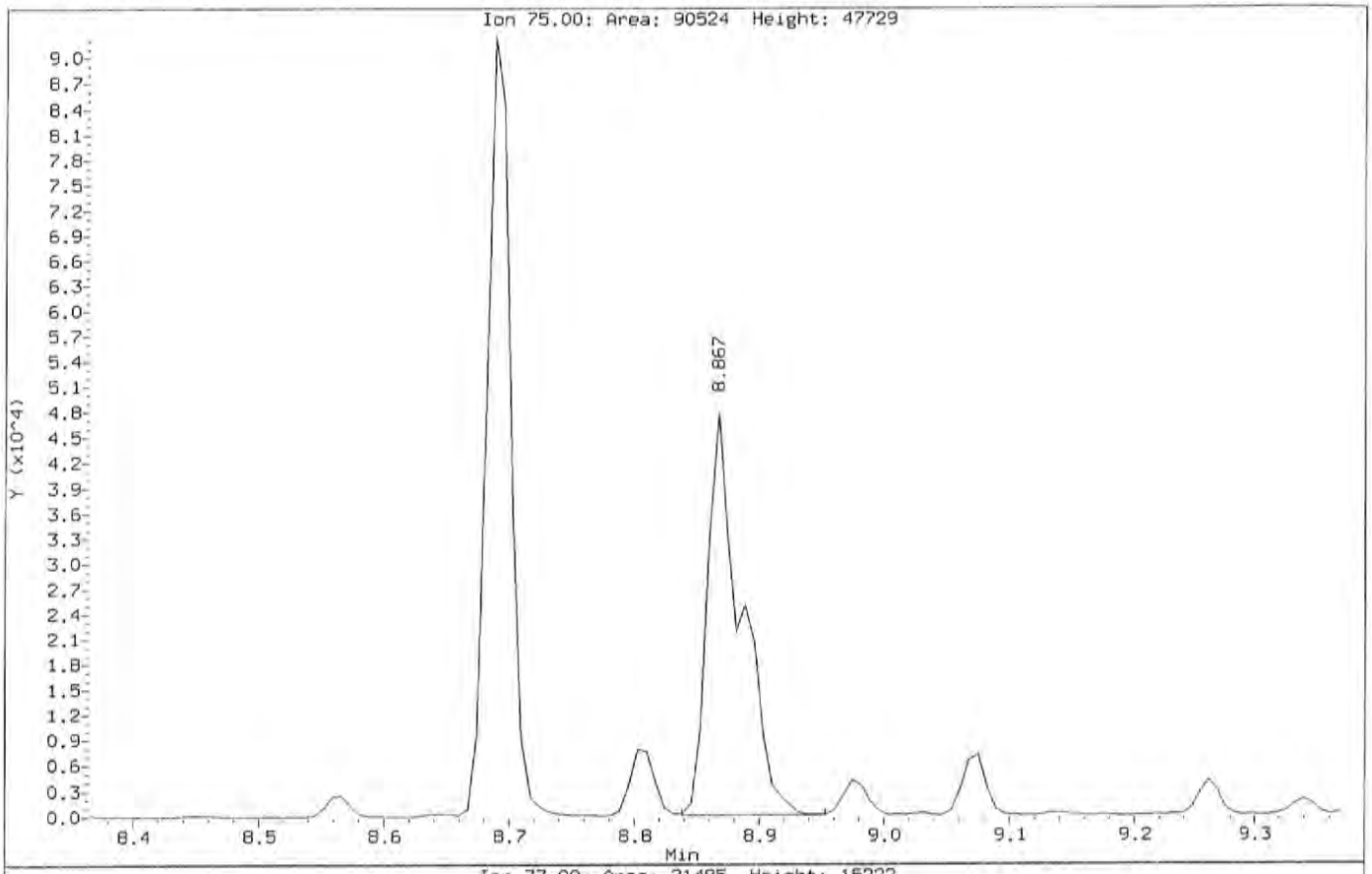


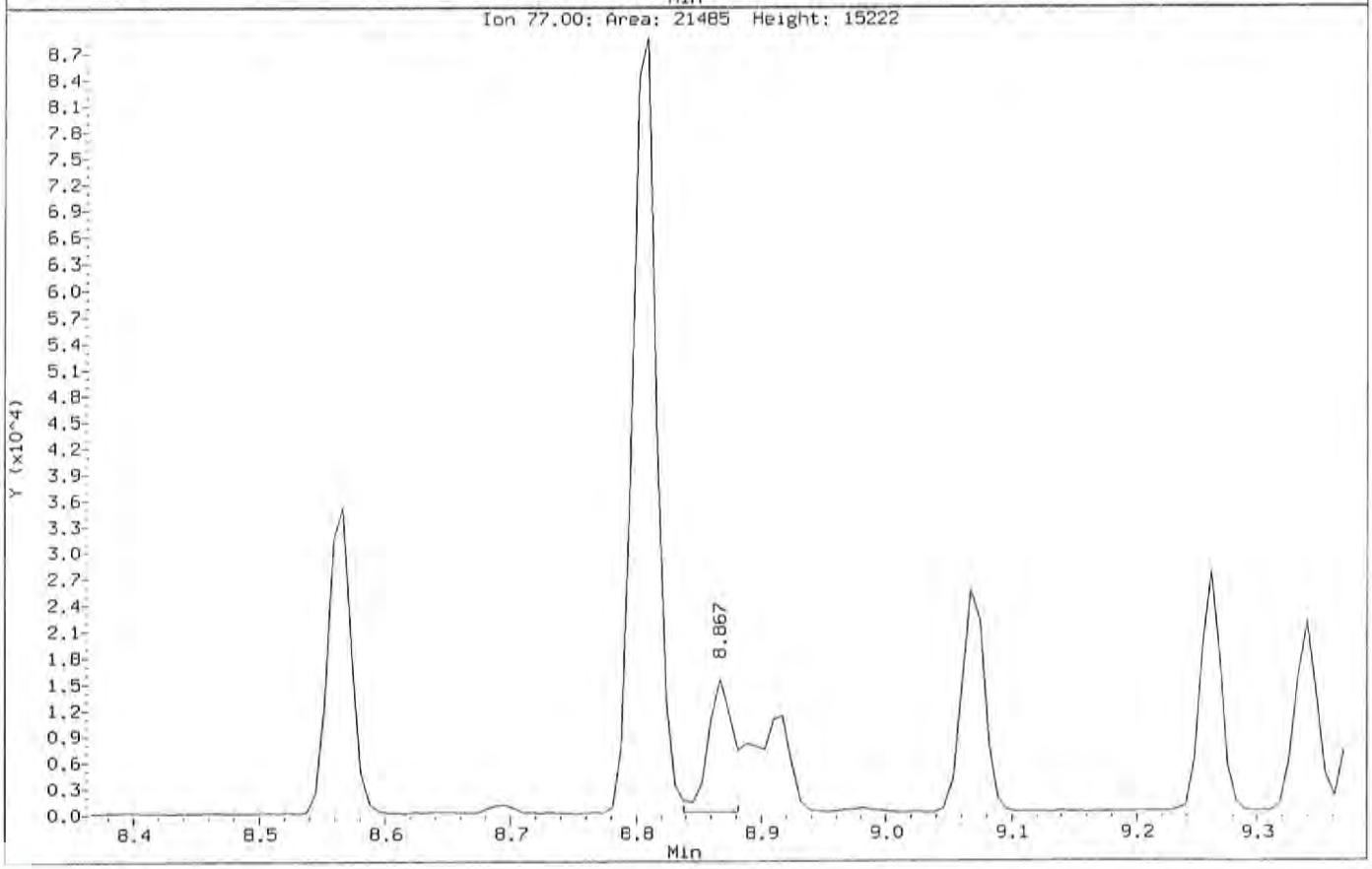
Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112412.D
Date : 24-NOV-2019 16:37
Client ID: HS191111239-05HSD
Sample Info: HS191111239-05HSD;HS191111239-05HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112412.D
Injection Date: 24-NOV-2019 16:37
Instrument: voa6.i
Client Sample ID: HS19111239-05MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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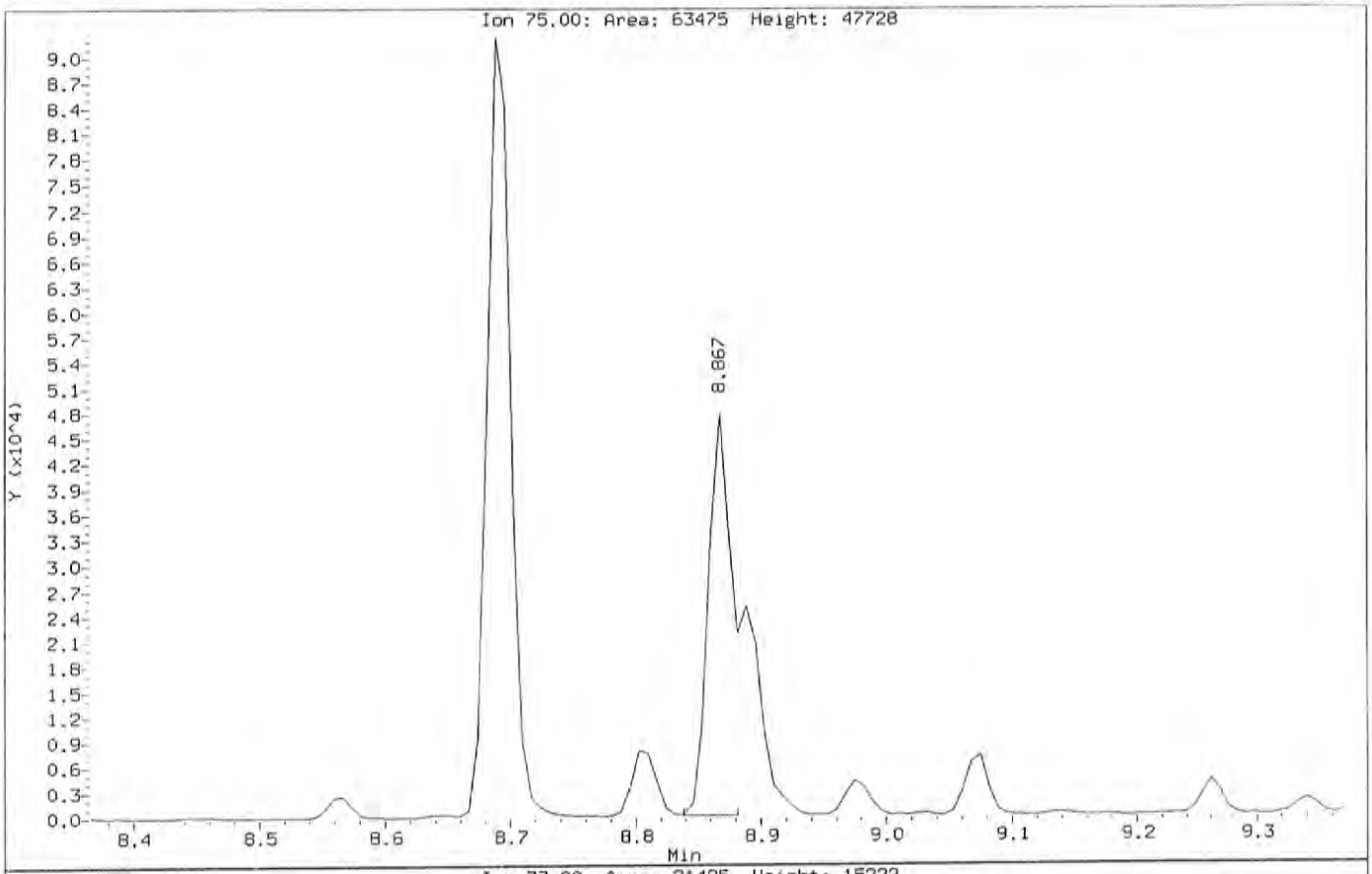
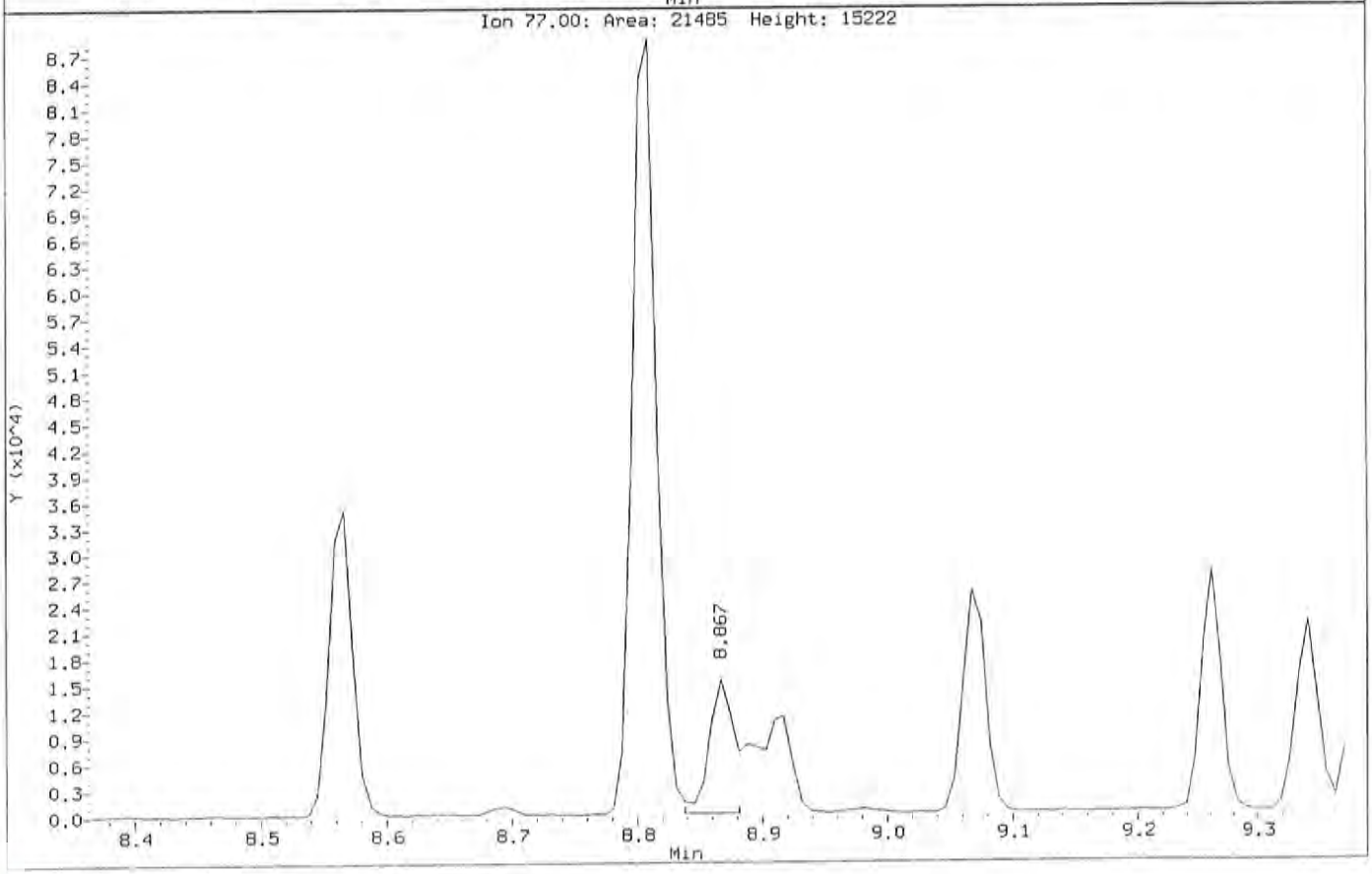
Injection Date: 24-NOV-2019 16:37
Instrument: voa6.i
Client Sample ID: HS19111239-05MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D Page 1
Report Date: 17-Dec-2019 15:49

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Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112427.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 24-NOV-2019 22:37
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:49 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 26 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

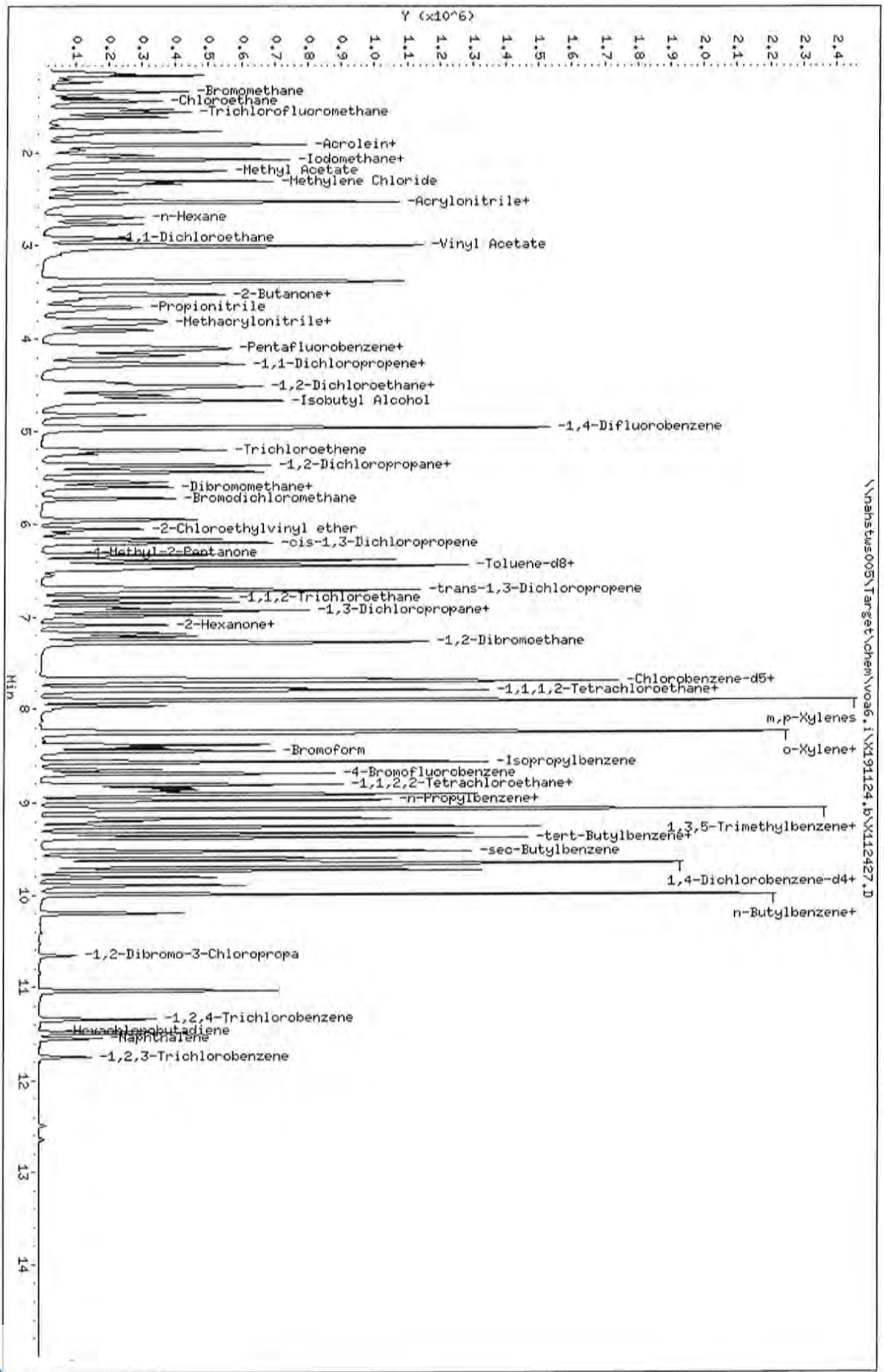
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	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)	376688	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	553108	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	503306	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	275286	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	185001	50.0000	52.17
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	224549	50.0000	47.97
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	179353	50.0000	52.34
$	48 Toluene-d8	98	6.388	6.388	(0.833)	609783	50.0000	45.98
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181798	50.0000	49.78
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	262411	50.0000	51.63
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	189542	50.0000	48.96
	138 Freon TF	101	1.919	1.919	(0.459)	158856	50.0000	48.43
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	131717	50.0000	50.06
	22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	281259	50.0000	51.31
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	154841	50.0000	48.50
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	211543	50.0000	47.41
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	43770	50.0000	42.66
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	157986	50.0000	48.16(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	97956	50.0000	42.24
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	654387	50.0000	50.09
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	21538	50.0000	50.40
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	176318	50.0000	49.94
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	365847	50.0000	50.07

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	219949	50.0000	50.09
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	158603	50.0000	48.00
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	622573	50.0000	49.67
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	390532	50.0000	49.46
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	258566	50.0000	48.40
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	397119	50.0000	49.50
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	222536	50.0000	44.73
24	2-Butanone	43	3.573	3.573	(0.854)	113733	100.000	98.39
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	494541	50.0000	49.93
52	2-Hexanone	43	7.090	7.090	(0.924)	198068	100.000	95.79
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	587907	50.0000	48.97
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	659268	50.0000	48.94
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	292286	100.000	99.11
10	Acetone	43	1.976	1.976	(0.473)	89050	100.000	90.98
37	Benzene	78	4.512	4.512	(0.908)	636233	50.0000	50.28
74	Bromobenzene	156	8.809	8.809	(0.911)	238156	50.0000	49.77
29	Bromochloromethane	128	3.795	3.795	(0.908)	105278	50.0000	51.59
39	Bromodichloromethane	83	5.729	5.729	(1.153)	227694	50.0000	49.74
66	Bromoform	173	8.416	8.416	(1.097)	145648	50.0000	48.62
6	Bromomethane	94	1.338	1.338	(0.320)	196870	50.0000	52.68
19	Carbon Disulfide	76	2.069	2.069	(0.495)	902488	100.000	103.91
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	232079	50.0000	47.48
59	Chlorobenzene	112	7.699	7.699	(1.004)	476851	50.0000	48.52
7	Chloroethane	64	1.403	1.403	(0.336)	109119	50.0000	46.00
28	Chloroform	83	3.910	3.910	(0.935)	304219	50.0000	49.86
3	Chloromethane	50	1.073	1.073	(0.257)	152665	50.0000	37.36
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	188575	50.0000	52.78
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	262562	50.0000	48.67
55	Dibromochloromethane	129	7.176	7.176	(0.936)	191072	50.0000	49.99
44	Dibromomethane	93	5.557	5.557	(1.118)	117029	50.0000	50.05
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	133036	50.0000	38.95
61	Ethylbenzene	106	7.799	7.799	(1.017)	247594	50.0000	48.76
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	82032	50.0000	37.07
67	Isopropylbenzene	105	8.566	8.566	(1.117)	734203	50.0000	48.82
62	m,p-Xylenes	106	7.907	7.907	(1.031)	597838	100.000	97.58
17	Methylene Chloride	84	2.305	2.305	(0.551)	172693	50.0000	50.70
87	n-Butylbenzene	91	9.999	9.999	(1.034)	559837	50.0000	49.94
73	n-Propylbenzene	91	8.917	8.917	(0.922)	843670	50.0000	49.58
92	Naphthalene	128	11.546	11.546	(1.194)	125744	50.0000	42.27
63	o-Xylene	106	8.244	8.244	(1.075)	294541	50.0000	48.71
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	734236	50.0000	49.67
64	Styrene	104	8.258	8.258	(1.077)	522777	50.0000	49.72
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	533817	50.0000	49.74
56	Tetrachloroethene	164	6.933	6.933	(0.904)	166051	50.0000	46.95
50	Toluene	91	6.446	6.446	(0.840)	696966	50.0000	48.83
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	162132	50.0000	52.31
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	238644	50.0000	48.54
38	Trichloroethene	130	5.206	5.206	(1.048)	192679	50.0000	49.81
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	286751	50.0000	49.07
5	Vinyl Chloride	62	1.138	1.138	(0.272)	167204	50.0000	43.55

QC Flag Legend

M - Compound response manually integrated.



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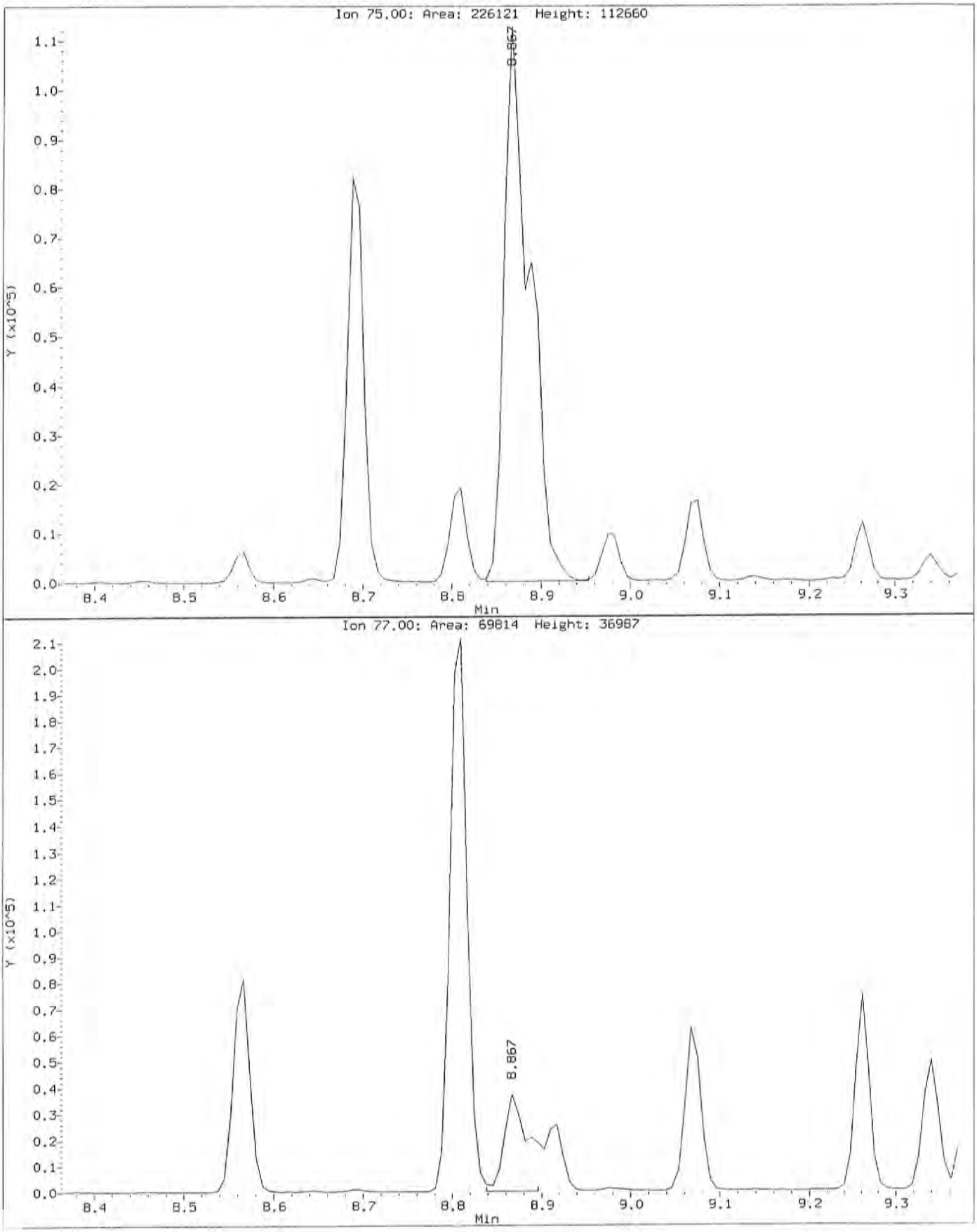
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\BEFORE\X112427.D
Injection Date: 24-NOV-2019 22:37
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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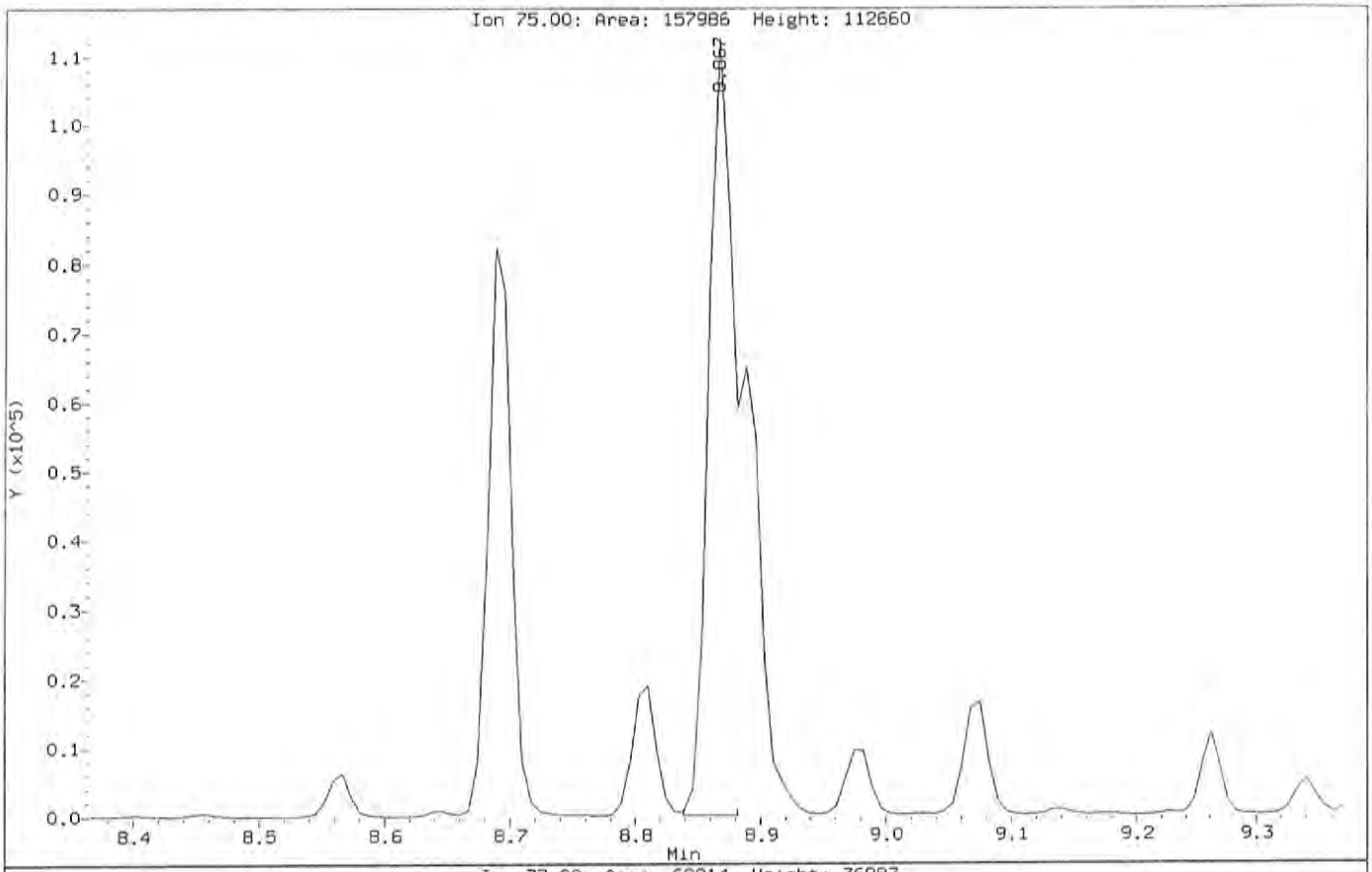
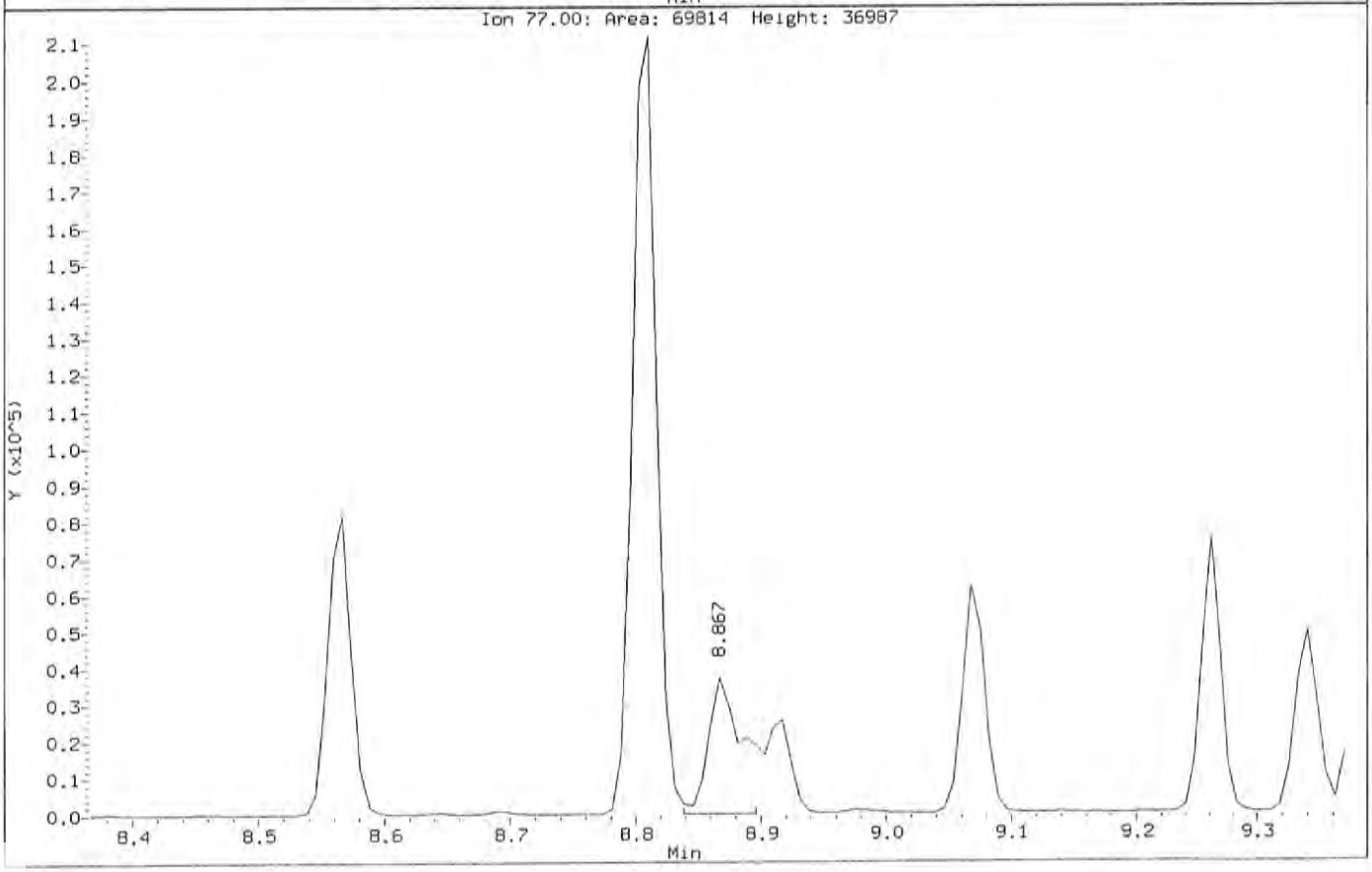
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112422.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112422.D
Lab Smp Id: HS19111239-01 Client Smp ID: HS19111239-01
Inj Date : 24-NOV-2019 20:37
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-01;HS19111239-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

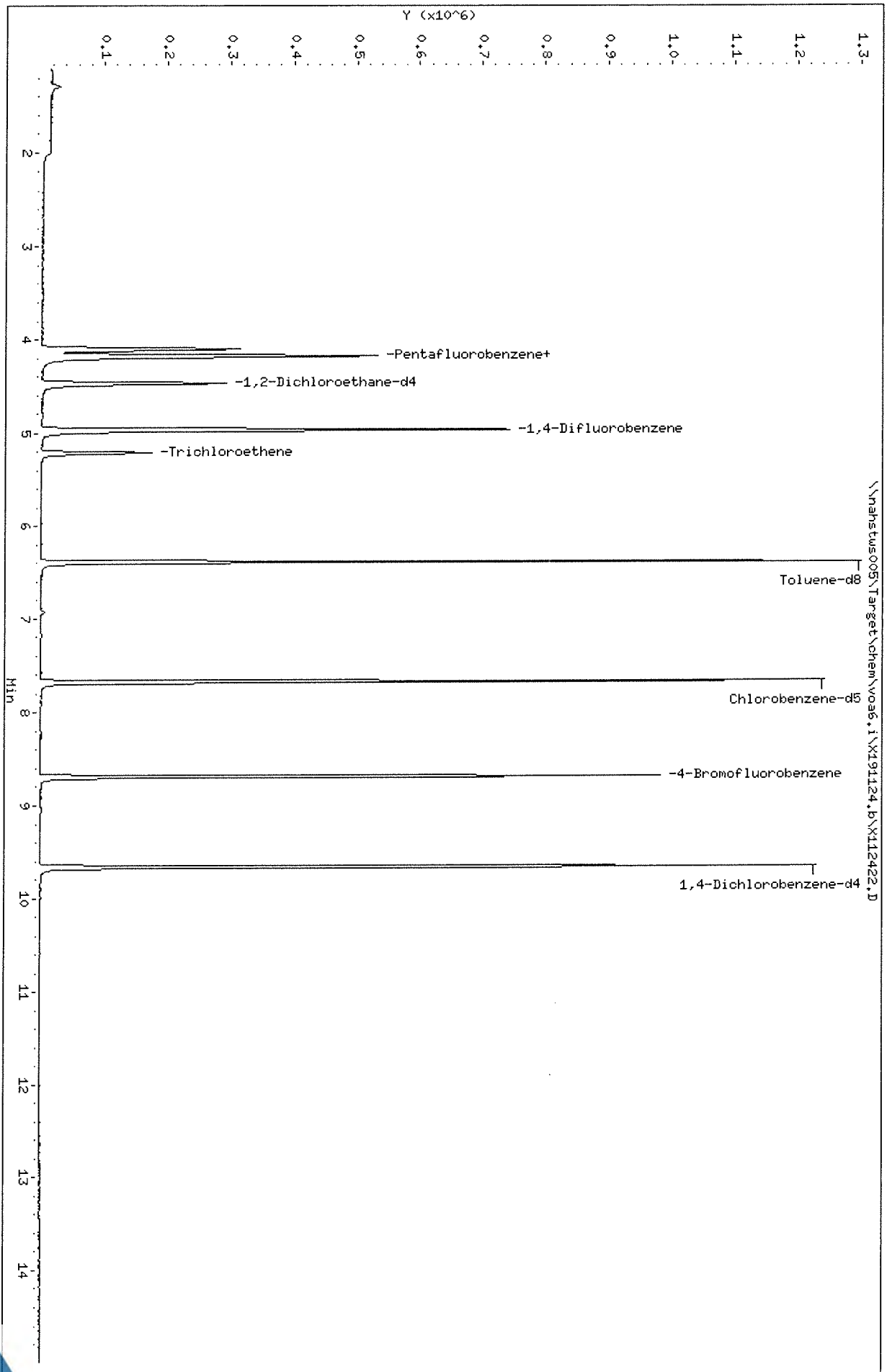
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	485092	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	668436	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	589708	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	301449	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	213703	46.8731	46.87
$	69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	255556	46.6077	46.60
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	214062	48.5414	48.54
$	48 Toluene-d8	98	6.388	6.388	(0.833)	752166	48.4094	48.40
	38 Trichloroethene	130	5.207	5.206	(1.048)	60391	12.9189	12.91

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112422.D
Date : 24-NOV-2019 20:37
Client ID: HS191111239-01
Sample Info: HS191111239-01;HS191111239-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



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Date : 24-NOV-2019 20:37

Client ID: HS19111239-01

Instrument: voa6.i

Sample Info: HS19111239-01;HS19111239-01;;;

Purge Volume: 5.0

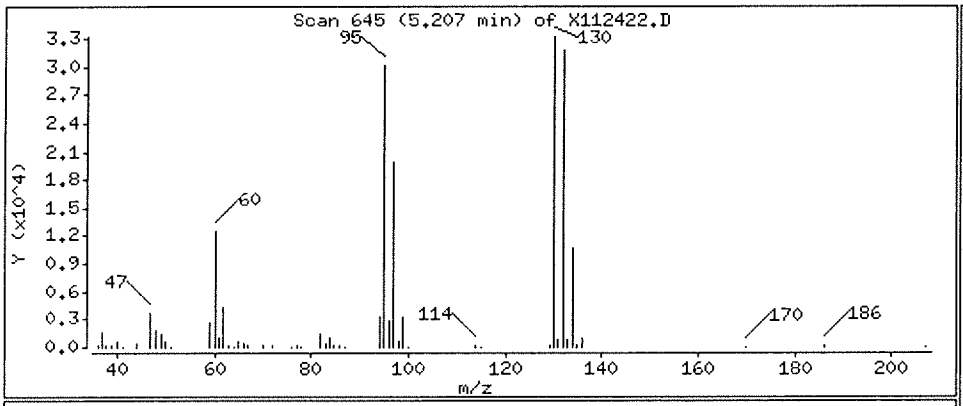
Operator: PC

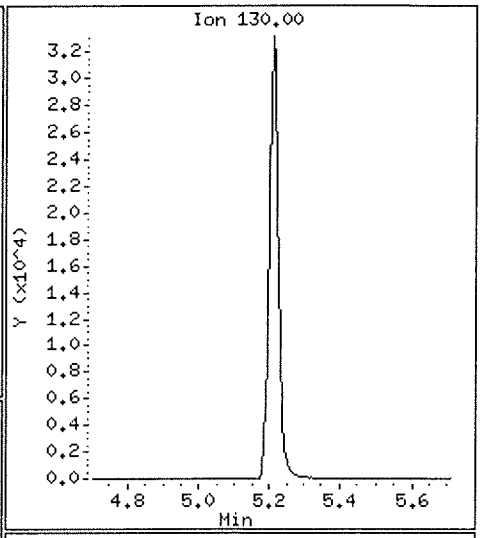
Column phase: DB624

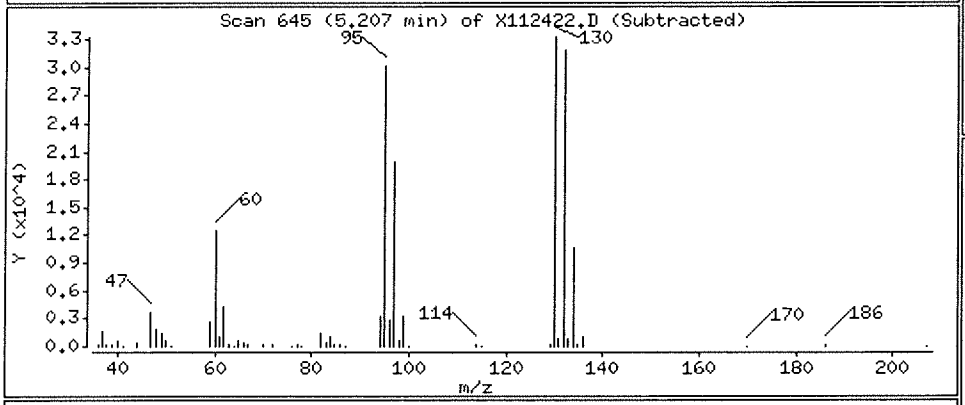
Column diameter: 0.18

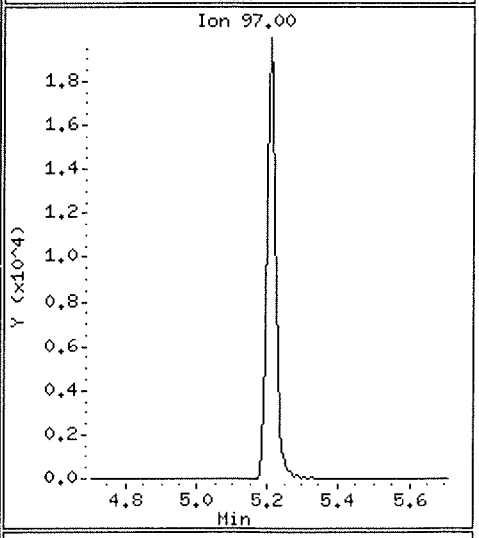
38 Trichloroethene

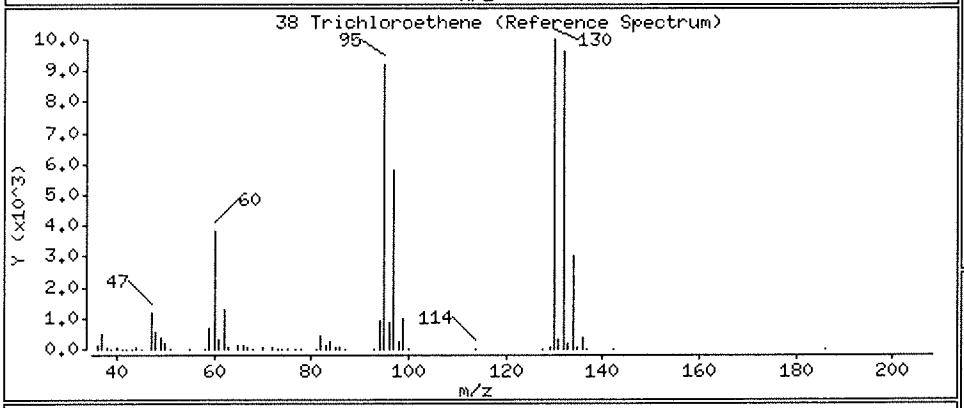
Concentration: 12.91 ug/l

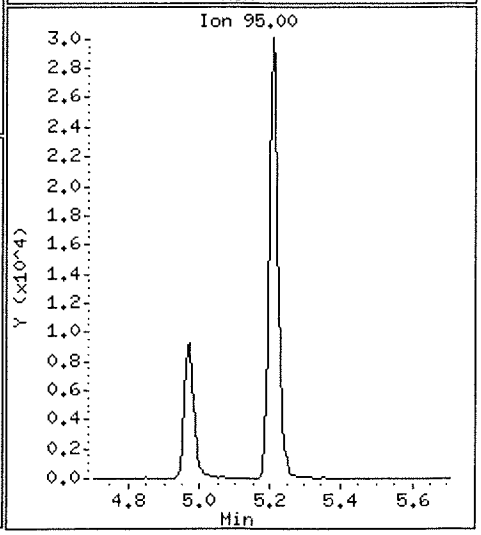


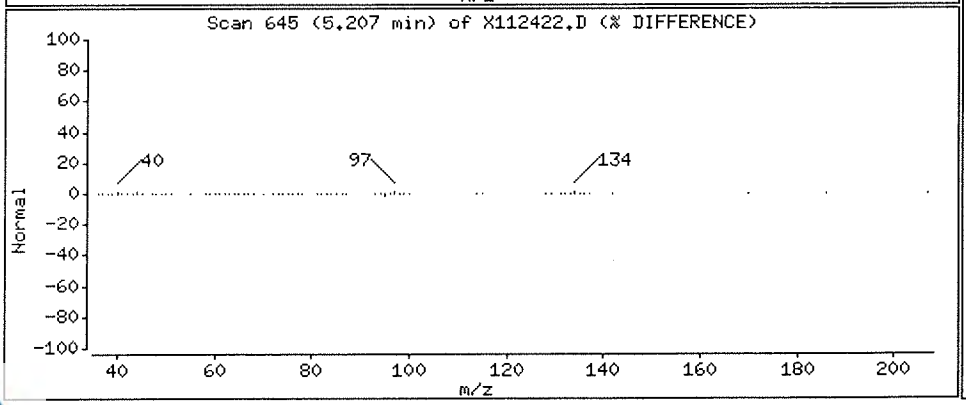












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112423.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112423.D
Lab Smp Id: HS19111239-02 Client Smp ID: HS19111239-02
Inj Date : 24-NOV-2019 21:01
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-02;HS19111239-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 22
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

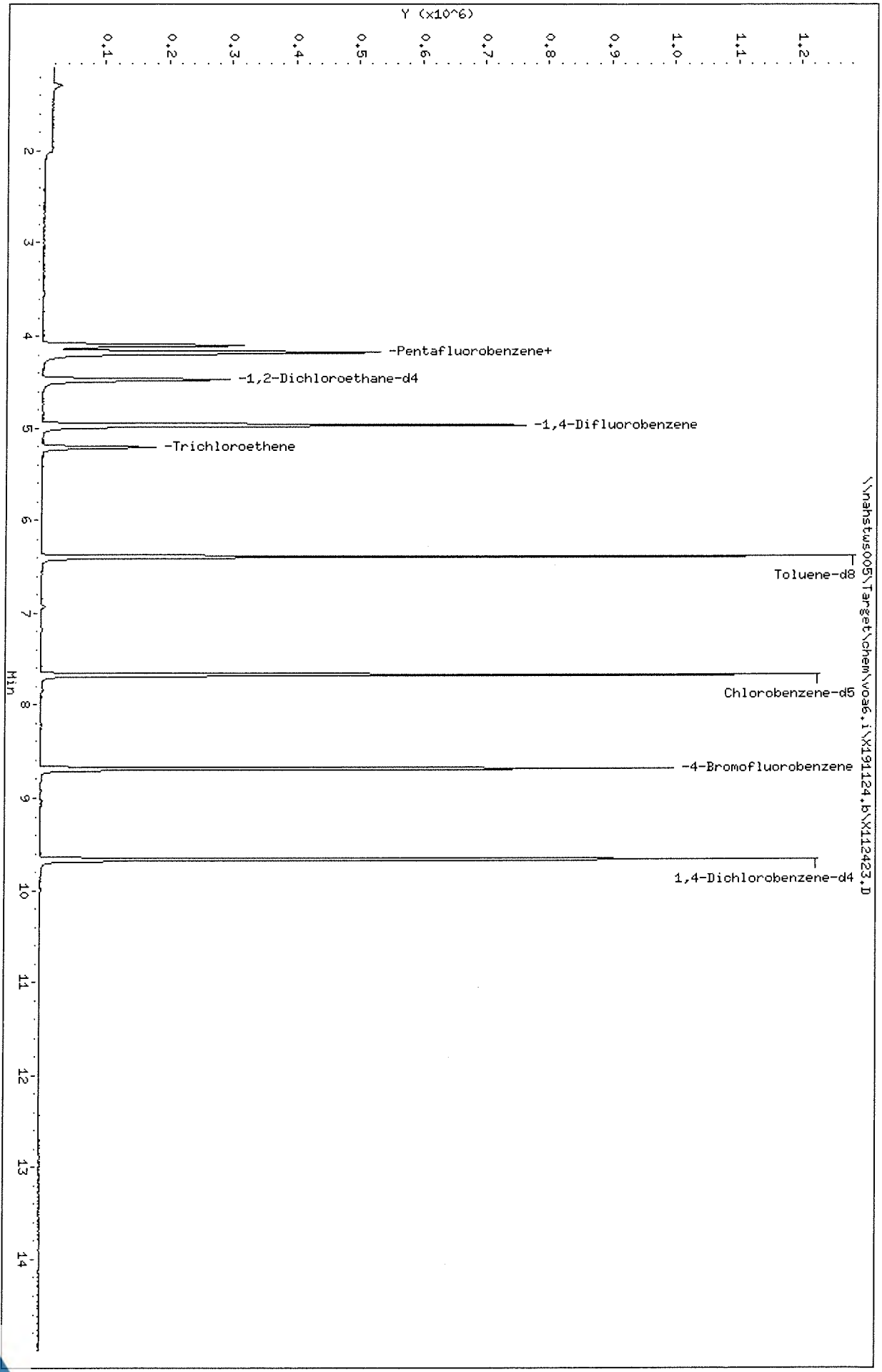
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	487374	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	669563	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	594030	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	310086	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	213330	46.5769	46.57
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	258126	46.7328	46.73
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	212650	47.9996	47.99
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	758750	48.4778	48.47
38 Trichloroethene	130	5.206	5.206	(1.048)	61172	13.0639	13.06

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112423.D
Date : 24-NOV-2019 21:01
Client ID: HS19111239-02
Sample Info: HS19111239-02;HS19111239-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112423.D Page 3

Date : 24-NOV-2019 21:01

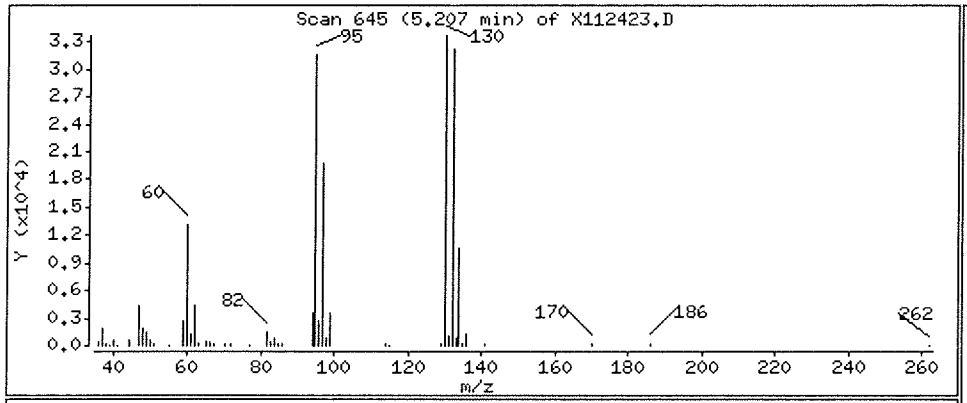
Client ID: HS19111239-02 Instrument: voa6.i

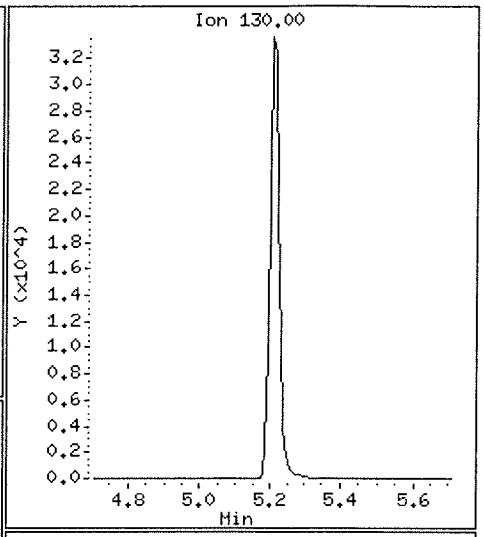
Sample Info: HS19111239-02;HS19111239-02;;;

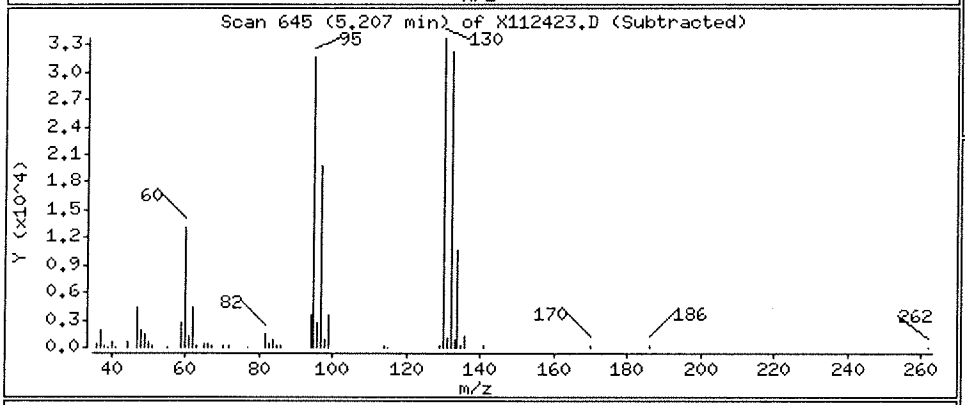
Purge Volume: 5.0 Operator: PC

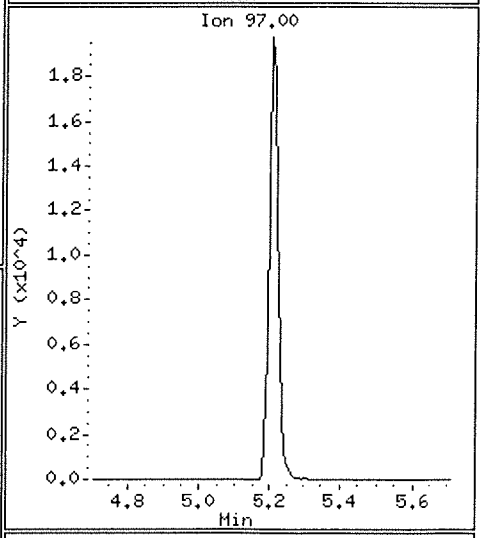
Column phase: DB624 Column diameter: 0.18

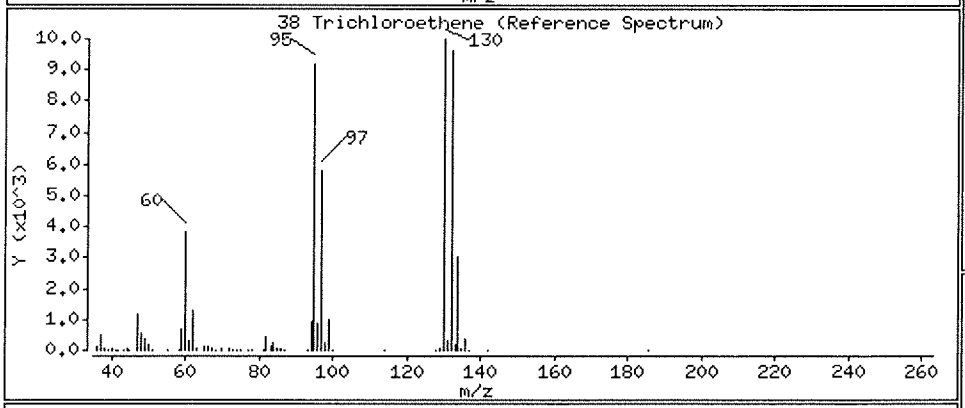
38 Trichloroethene Concentration: 13.06 ug/l

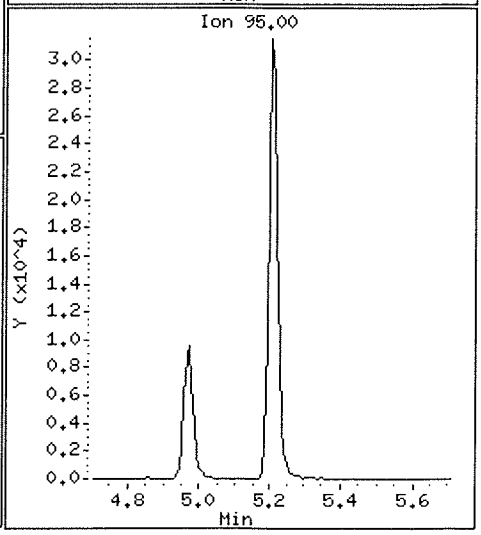


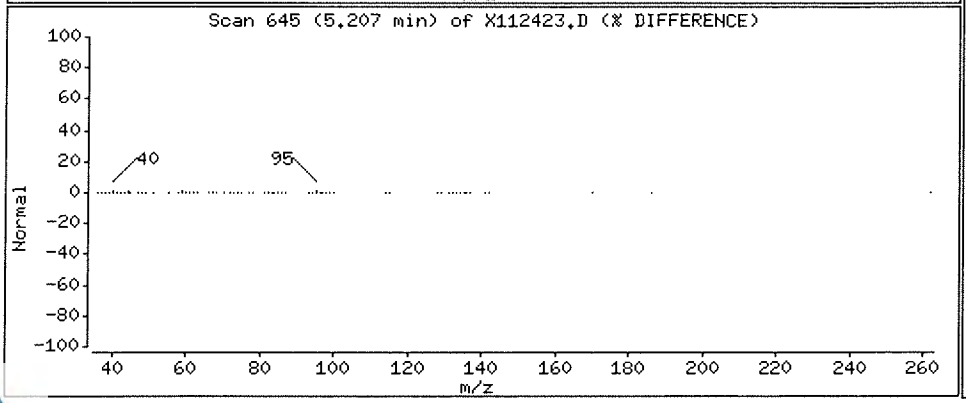












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D
Lab Smp Id: HS19111239-03 Client Smp ID: HS19111239-03
Inj Date : 24-NOV-2019 21:25
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-03;HS19111239-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

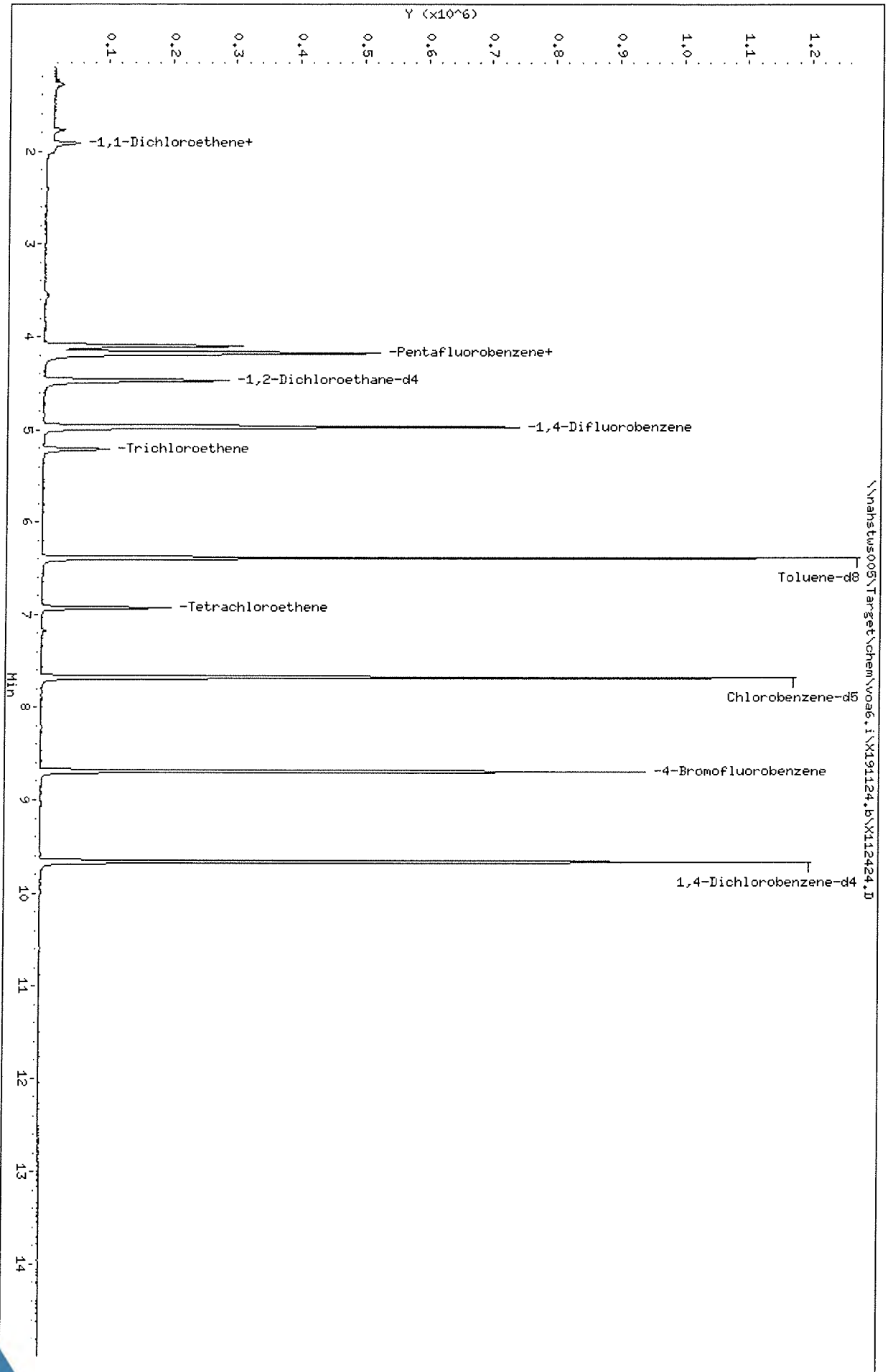
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	479193	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	657006	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	575306	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	299978	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	211563	46.9734	46.97
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	251136	46.9452	46.94
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	212260	48.7239	48.72
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	737385	48.6461	48.64
138 Freon TF	101	1.911	1.919	(0.457)	12455	2.98546	2.98(a)
11 1,1-Dichloroethene	96	1.919	1.911	(0.459)	4944	1.21743	1.21(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	43509	10.7636	10.76
38 Trichloroethene	130	5.214	5.206	(1.049)	35753	7.78137	7.78

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



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Date : 24-NOV-2019 21:25
Client ID: HS19111239-03
Sample Info: HS19111239-03;HS19111239-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D Page 3

Date : 24-NOV-2019 21:25

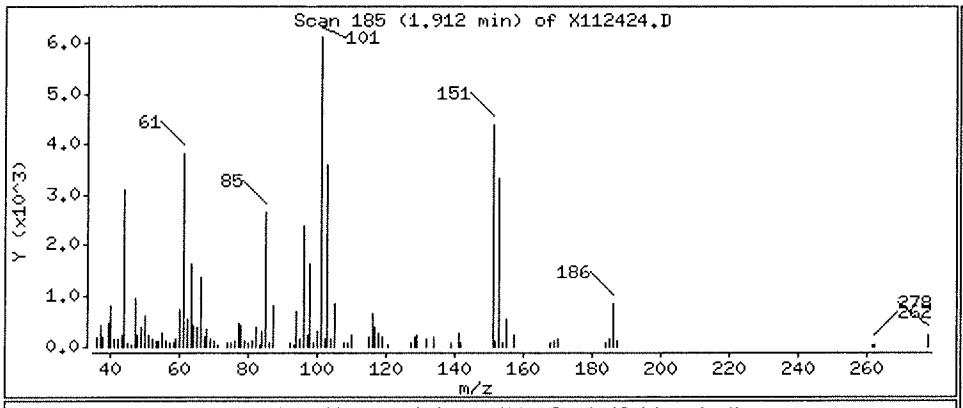
Client ID: HS19111239-03 Instrument: voa6.i

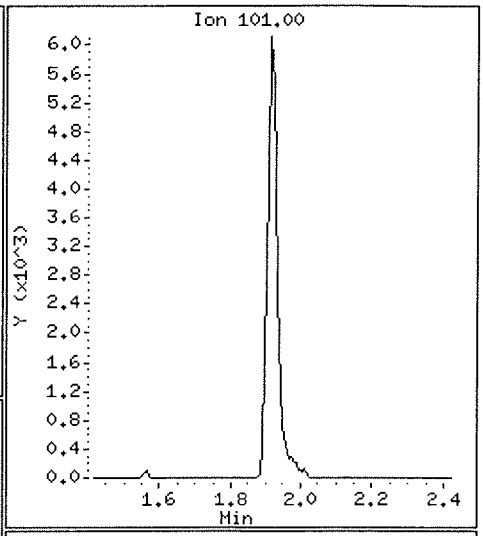
Sample Info: HS19111239-03;HS19111239-03;;;

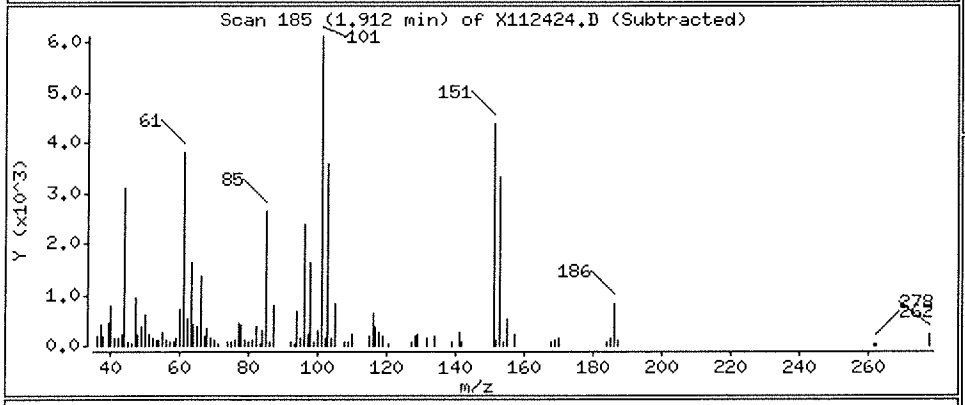
Purge Volume: 5.0 Operator: PC

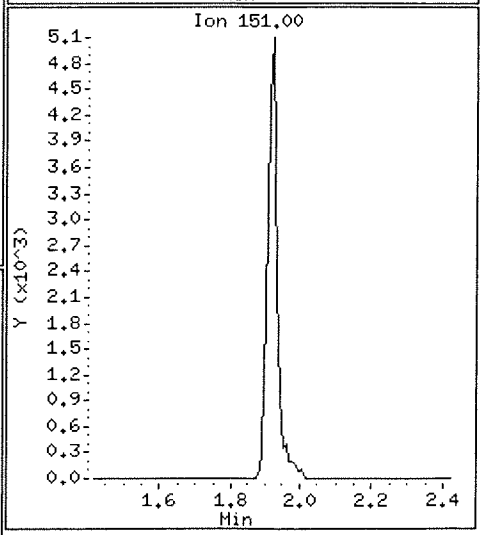
Column phase: DB624 Column diameter: 0.18

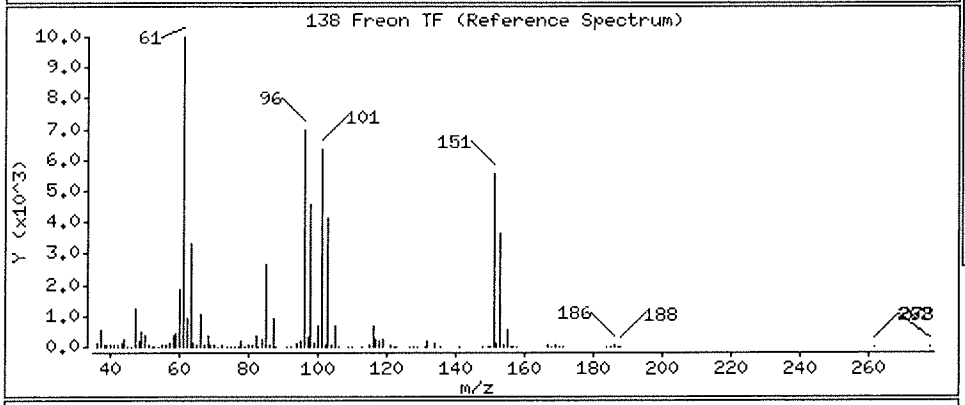
138 Freon TF Concentration: 2.98 ug/l

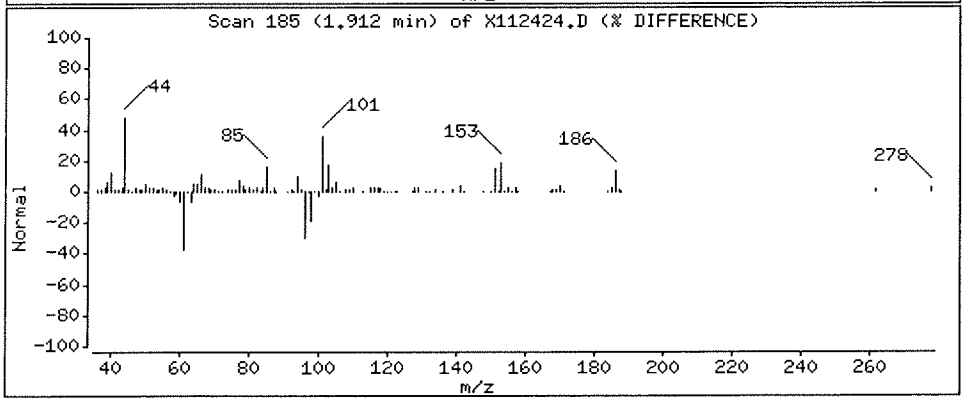












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D Page 4

Date : 24-NOV-2019 21:25

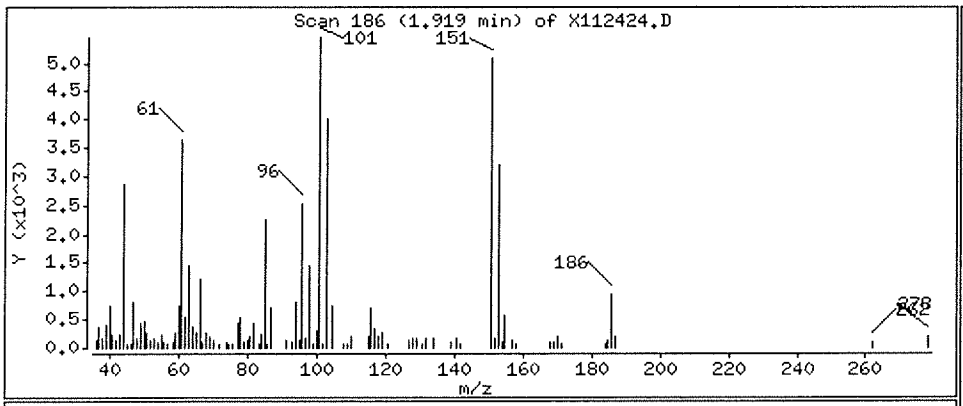
Client ID: HS19111239-03 Instrument: voa6.i

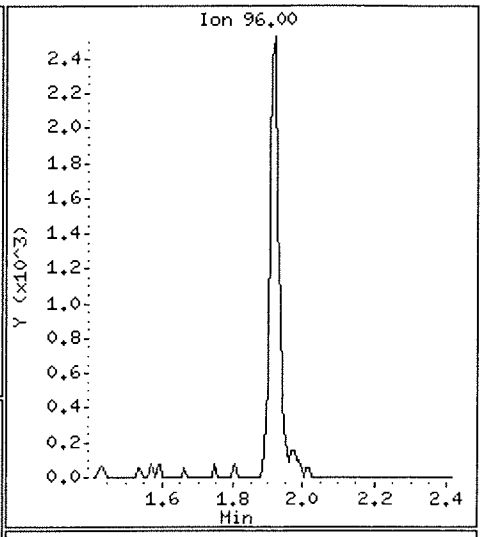
Sample Info: HS19111239-03;HS19111239-03;;;

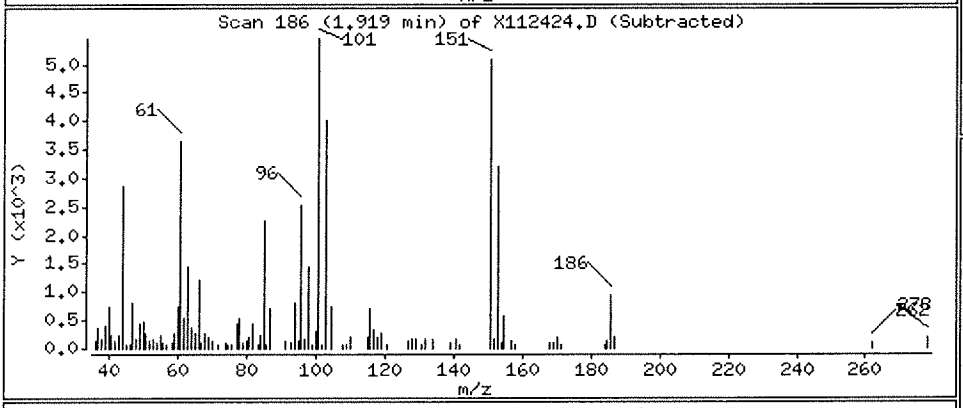
Purge Volume: 5.0 Operator: PC

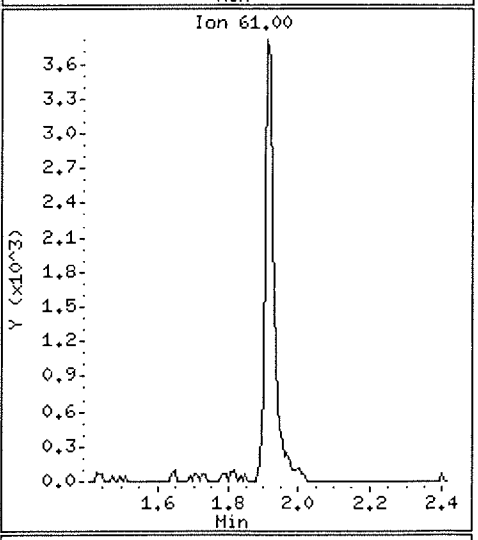
Column phase: DB624 Column diameter: 0.18

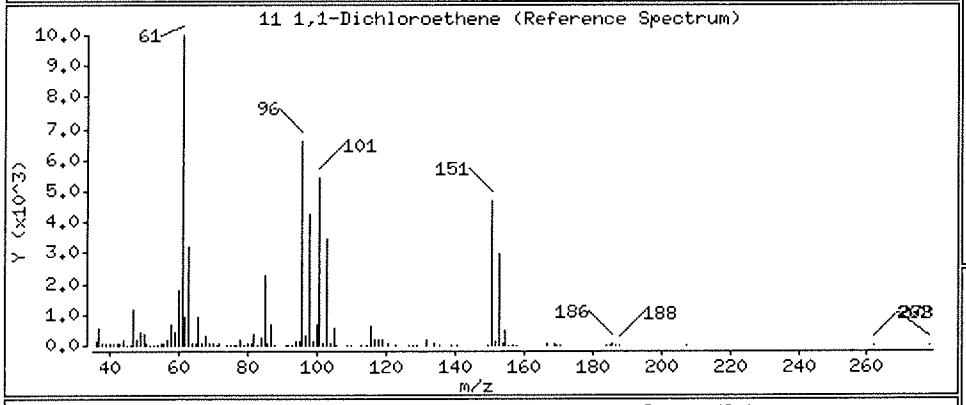
11 1,1-Dichloroethene Concentration: 1.21 ug/l

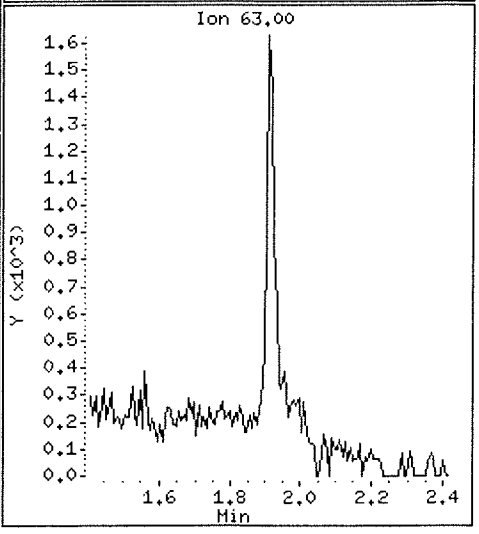


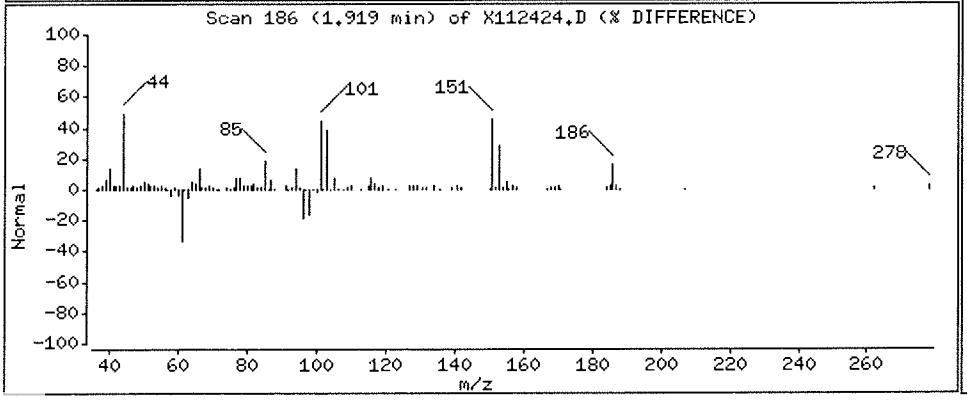












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D

Date : 24-NOV-2019 21:25

Client ID: HS19111239-03

Instrument: voa6.i

Sample Info: HS19111239-03;HS19111239-03;;;

Purge Volume: 5.0

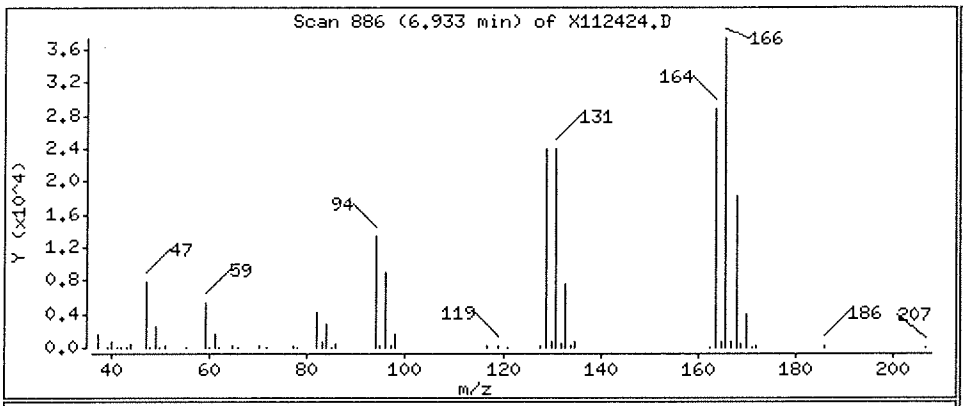
Operator: PC

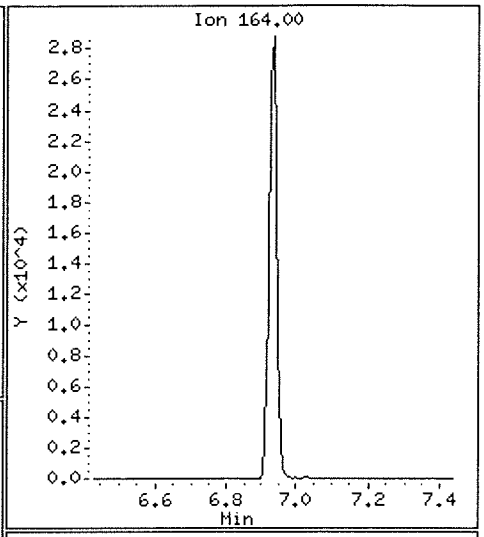
Column phase: DB624

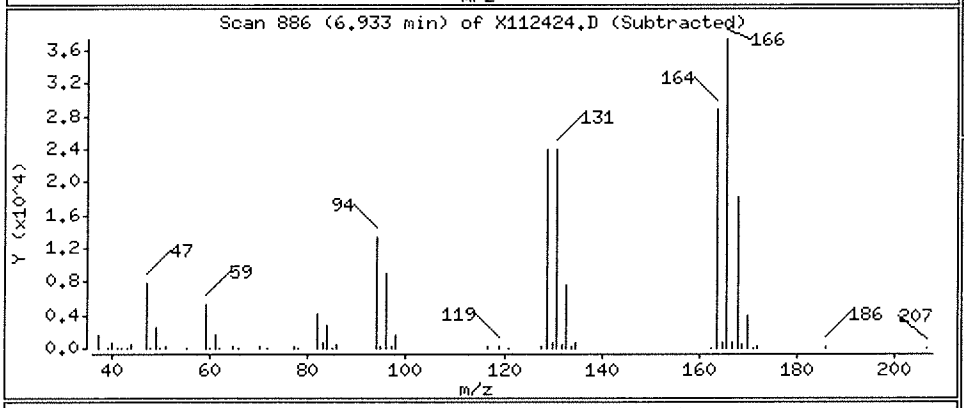
Column diameter: 0.18

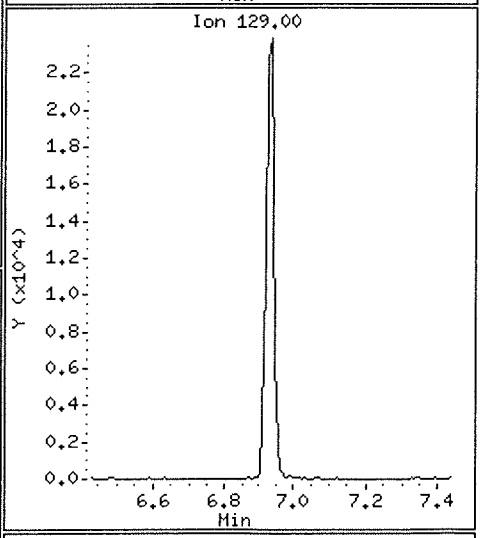
56 Tetrachloroethene

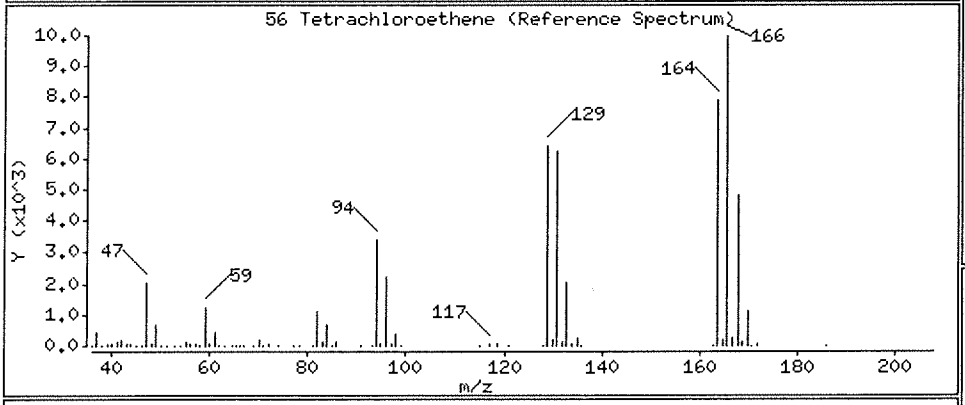
Concentration: 10.76 ug/l

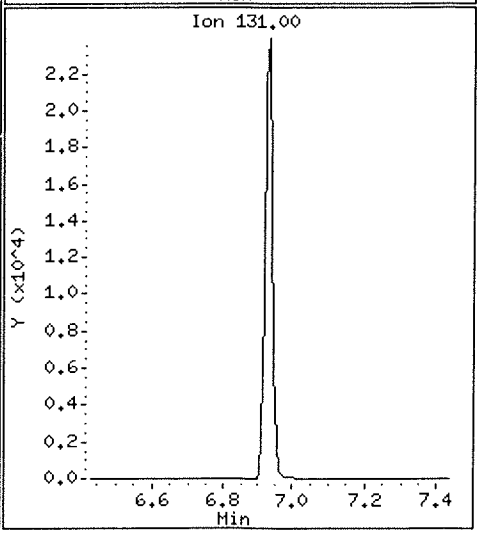


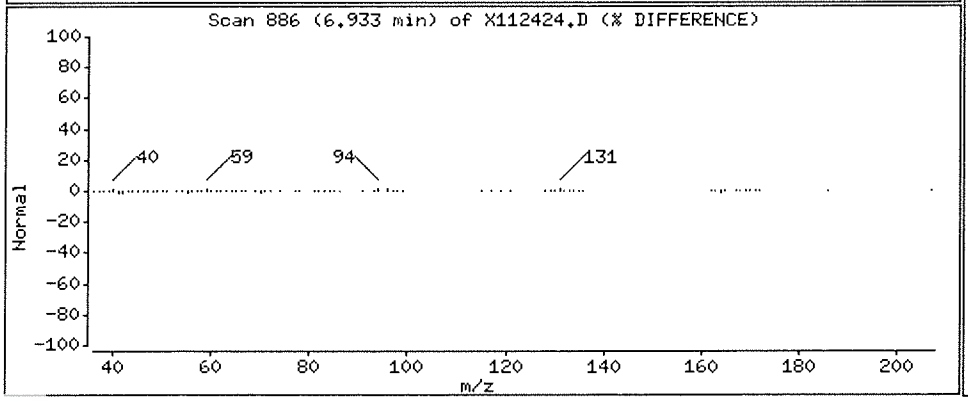












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112424.D Page 6

Date : 24-NOV-2019 21:25

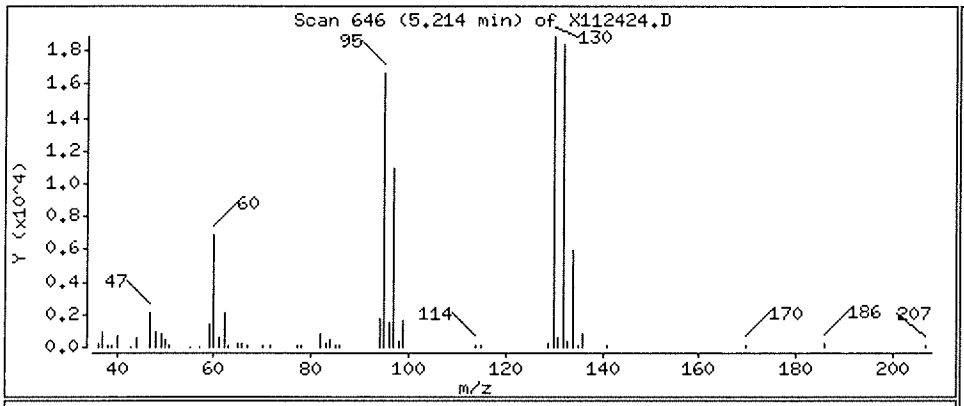
Client ID: HS19111239-03 Instrument: voa6.i

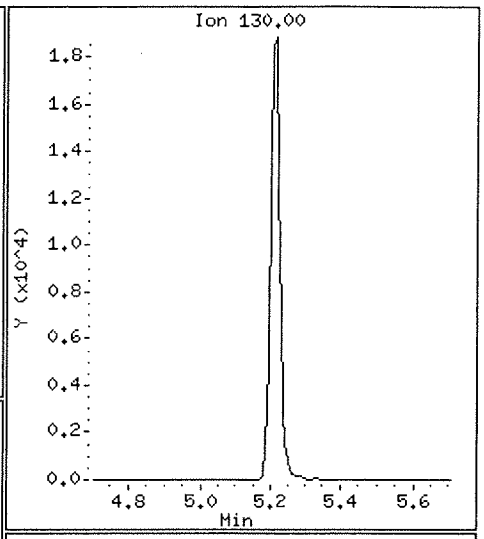
Sample Info: HS19111239-03;HS19111239-03;;;

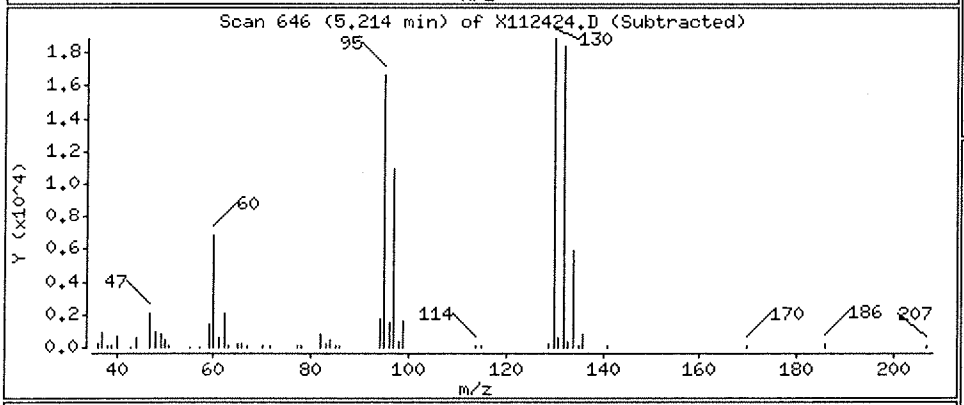
Purge Volume: 5.0 Operator: PC

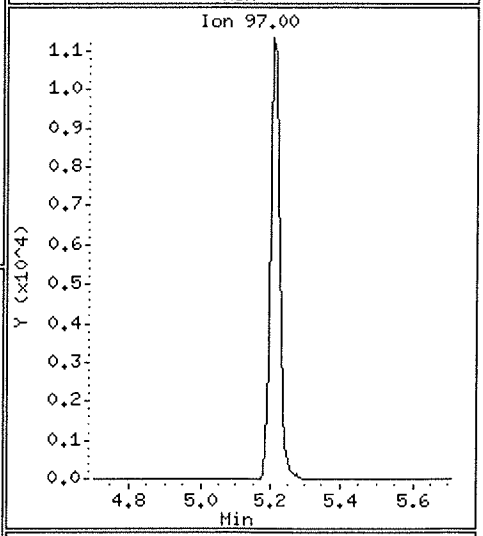
Column phase: DB624 Column diameter: 0.18

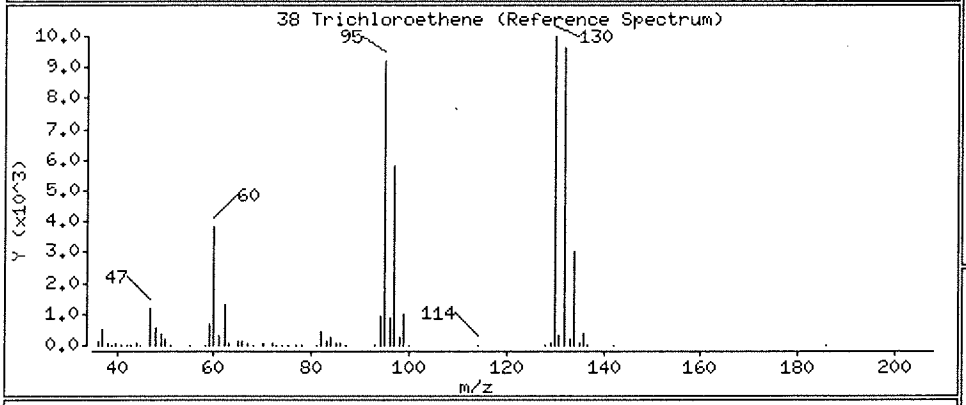
38 Trichloroethene Concentration: 7.78 ug/l

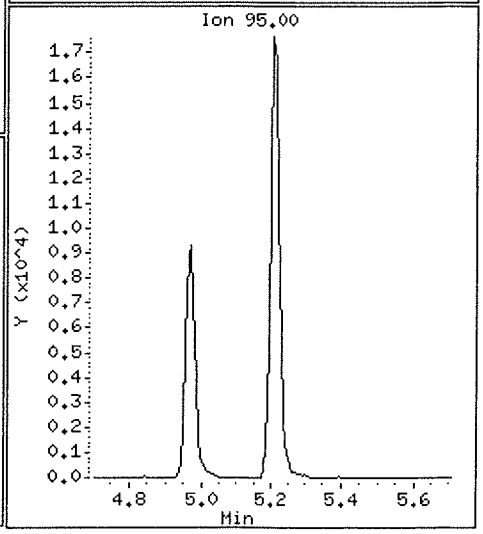


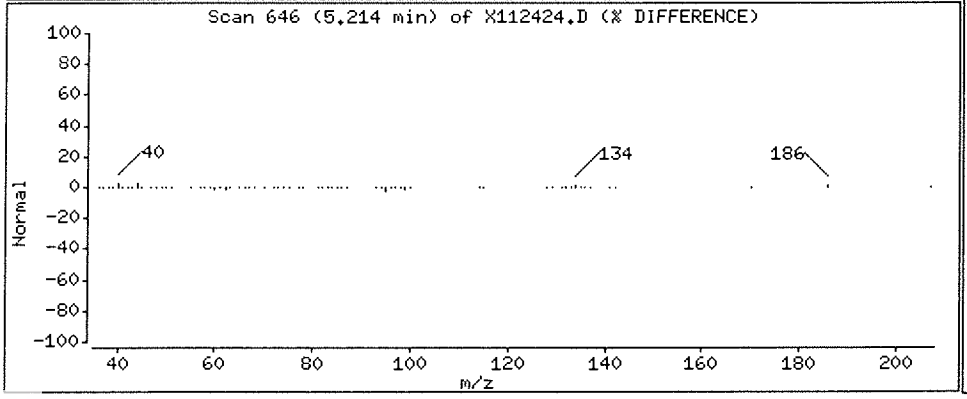












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112425.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112425.D
Lab Smp Id: HS19111239-04 Client Smp ID: HS19111239-04
Inj Date : 24-NOV-2019 21:49
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-04;HS19111239-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

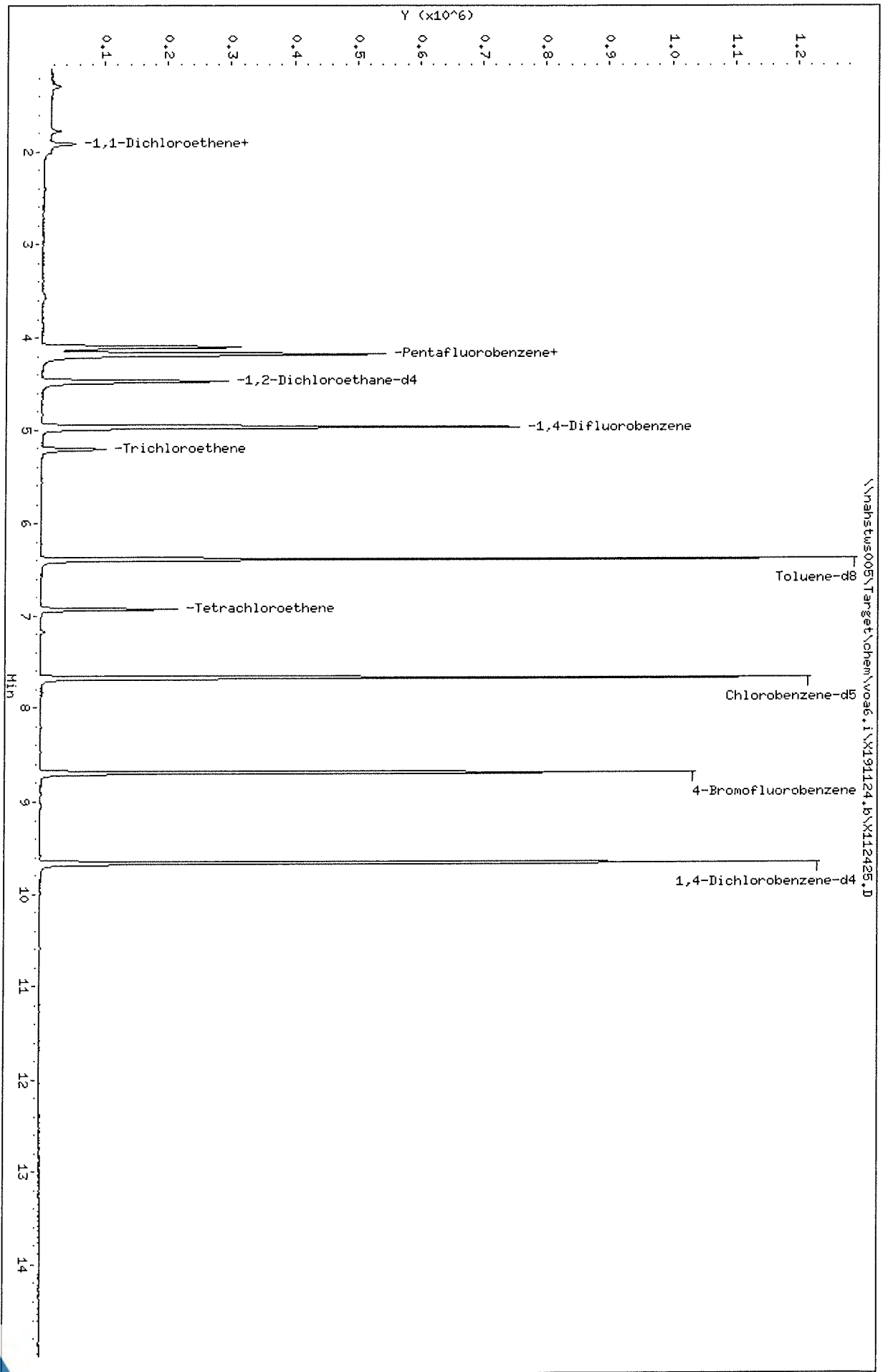
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	493478	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	676996	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	598822	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	312234	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	211633	45.6498	45.64
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	263128	47.2525	47.25
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	213516	47.6020	47.60
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	760468	48.1988	48.19
138 Freon TF	101	1.911	1.919	(0.457)	12570	2.92581	2.92(a)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	4652	1.11237	1.11(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	44616	10.6040	10.60
38 Trichloroethene	130	5.206	5.206	(1.048)	36210	7.64813	7.64

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112425.D
Date : 24-NOV-2019 21:49
Client ID: HS191111239-04
Sample Info: HS191111239-04;HS191111239-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112425.D

Date : 24-NOV-2019 21:49

Client ID: HS19111239-04

Instrument: voa6.i

Sample Info: HS19111239-04;HS19111239-04;;;

Purge Volume: 5.0

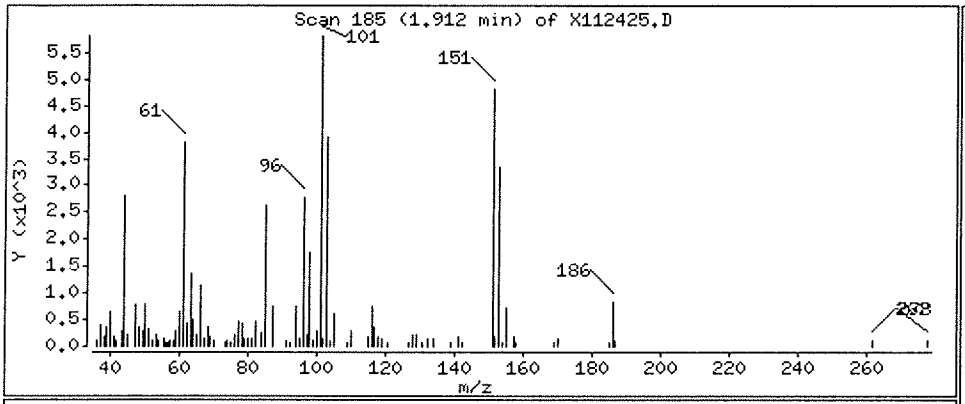
Operator: PC

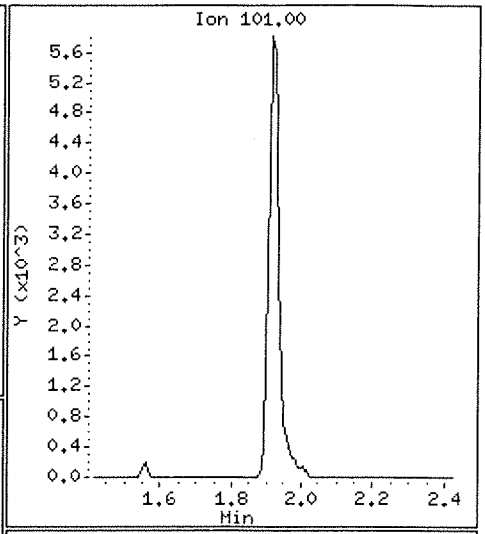
Column phase: DB624

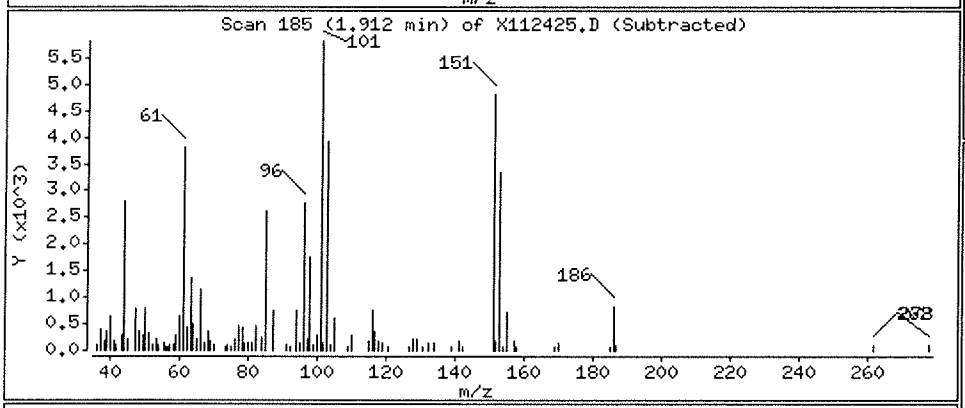
Column diameter: 0.18

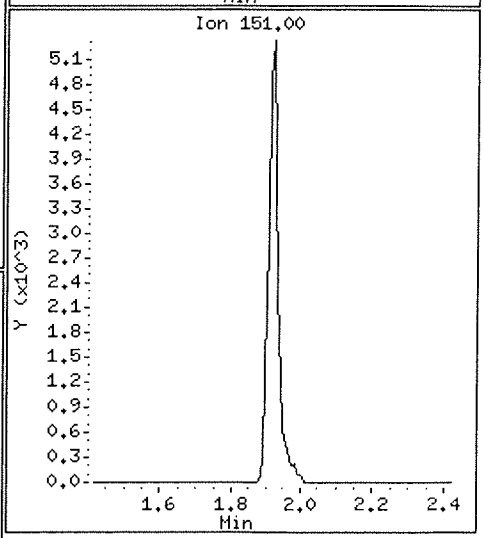
138 Freon TF

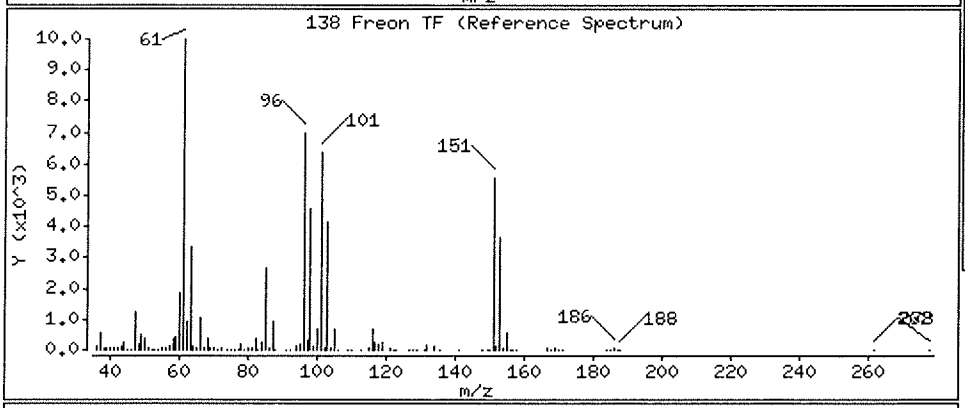
Concentration: 2.92 ug/l

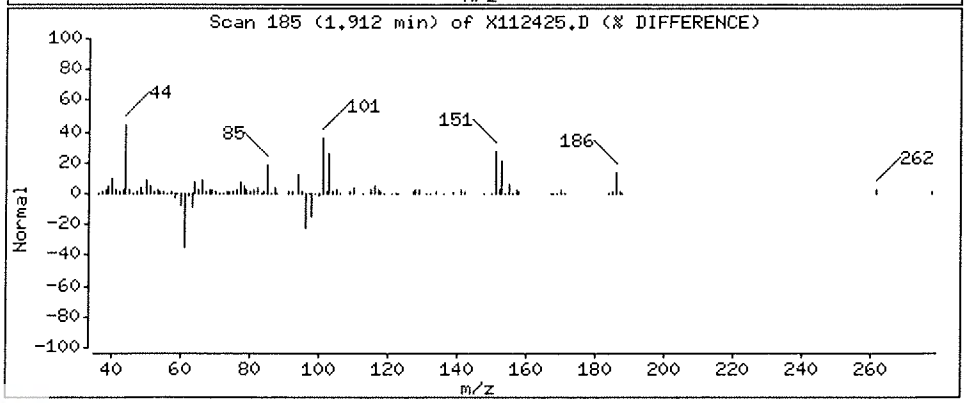












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112425.D

Date : 24-NOV-2019 21:49

Client ID: HS19111239-04

Instrument: voa6.i

Sample Info: HS19111239-04;HS19111239-04;;;

Purge Volume: 5.0

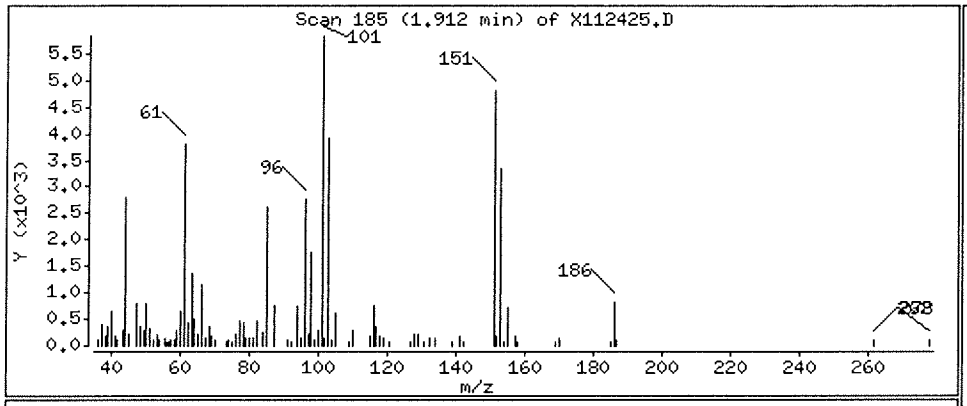
Operator: PC

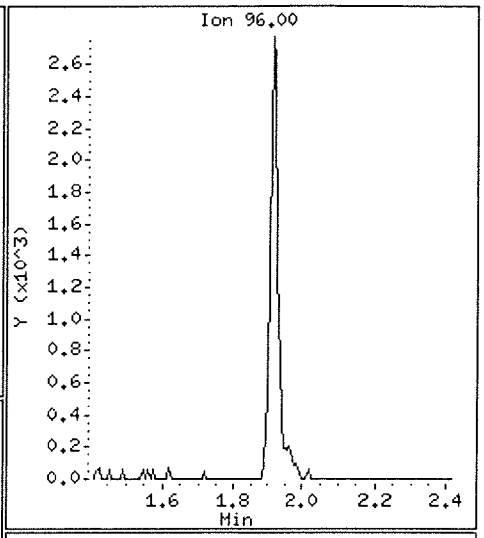
Column phase: DB624

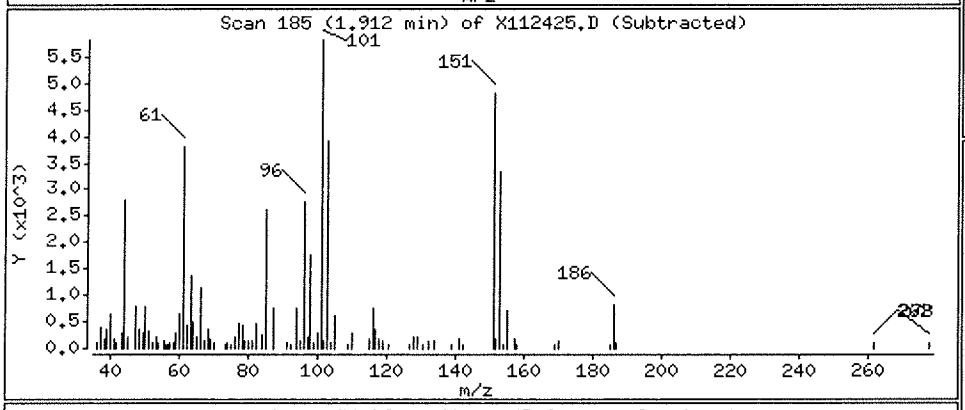
Column diameter: 0.18

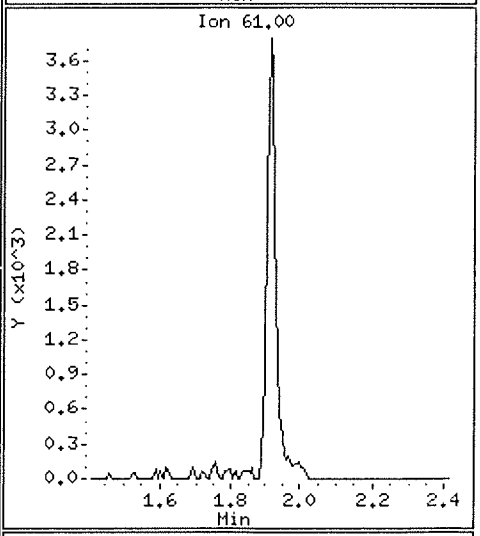
11 1,1-Dichloroethene

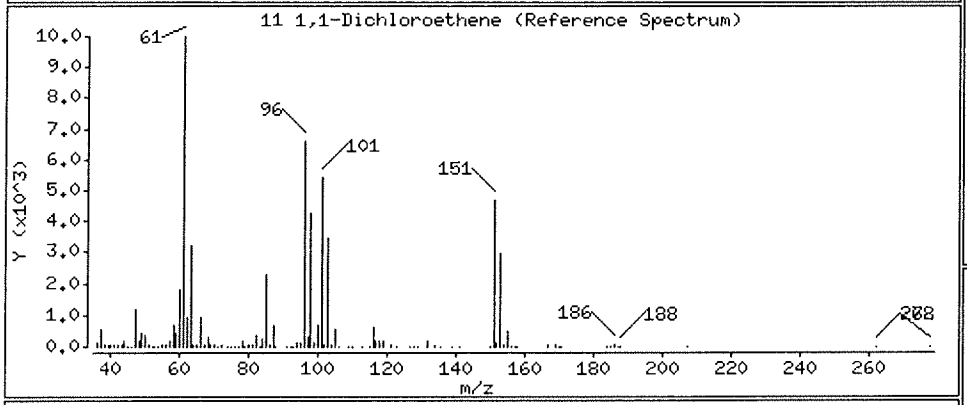
Concentration: 1.11 ug/l

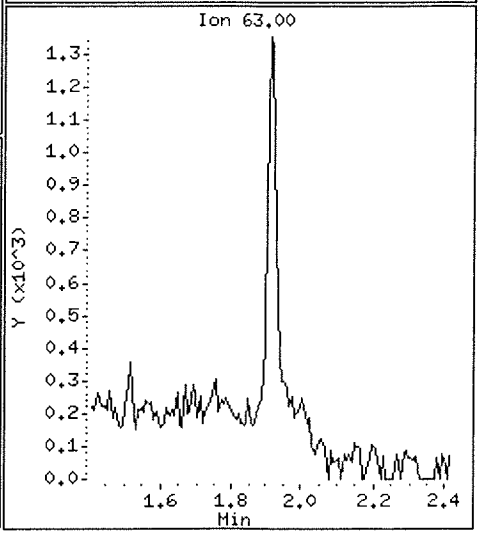


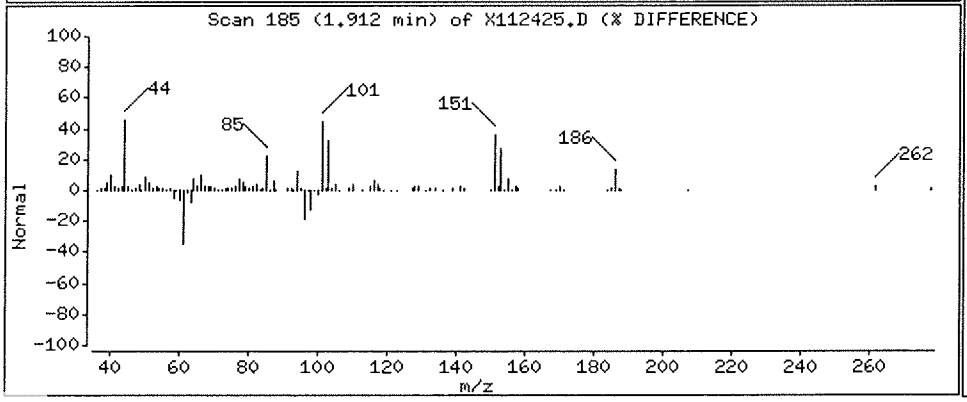












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112425.D Page 5

Date : 24-NOV-2019 21:49

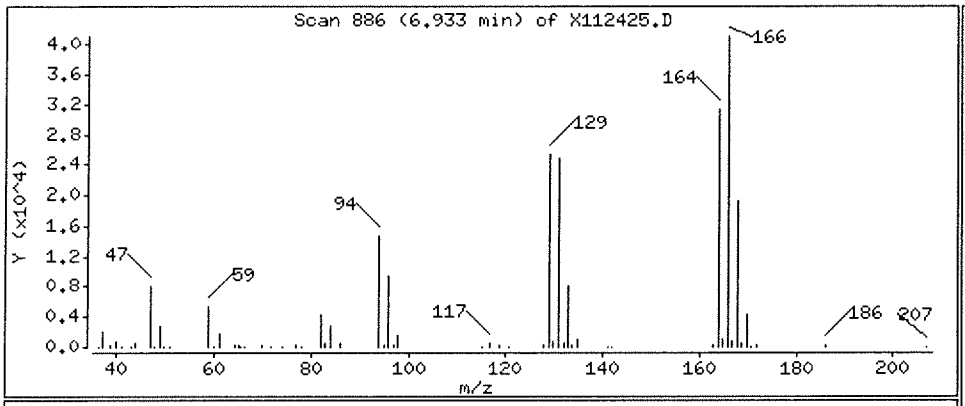
Client ID: HS19111239-04 Instrument: voa6.i

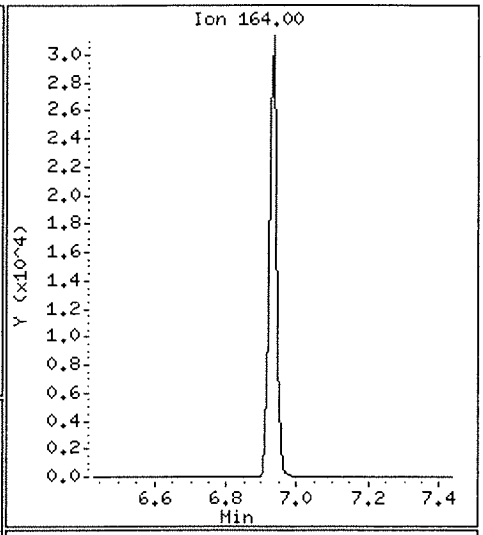
Sample Info: HS19111239-04;HS19111239-04;;;

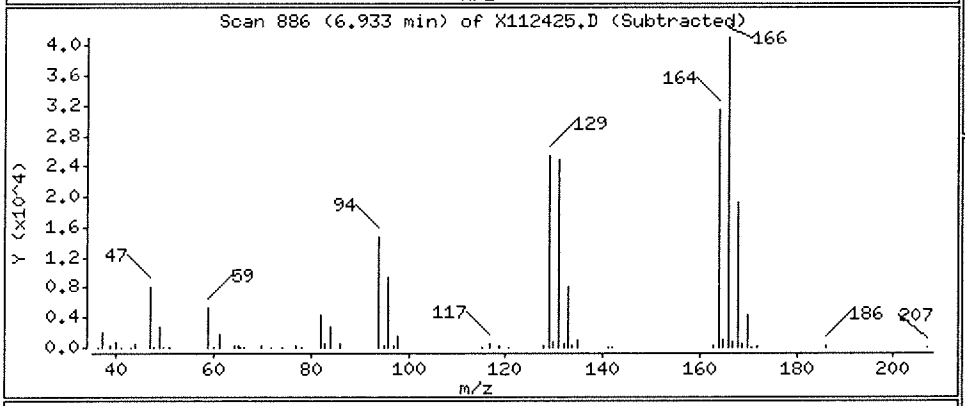
Purge Volume: 5.0 Operator: PC

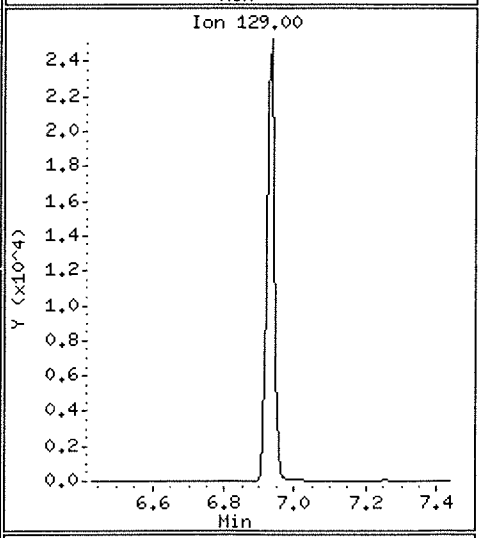
Column phase: DB624 Column diameter: 0.18

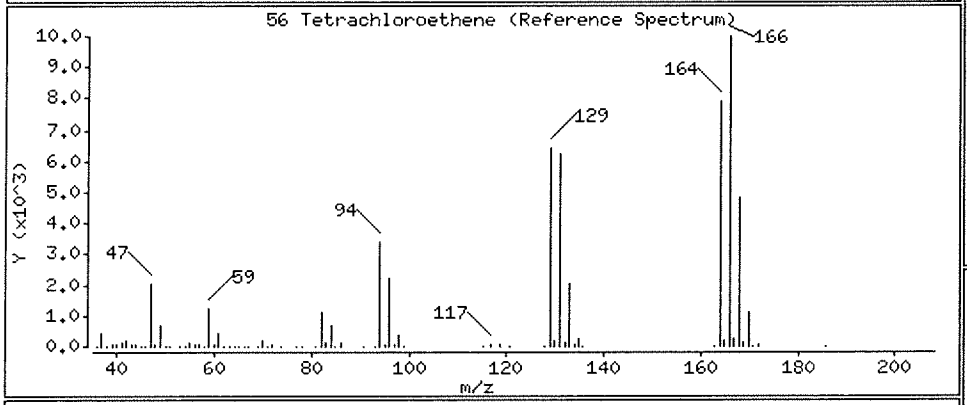
56 Tetrachloroethene Concentration: 10.60 ug/l

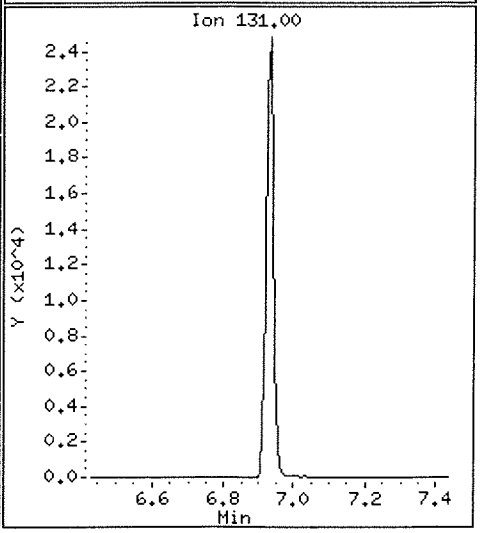


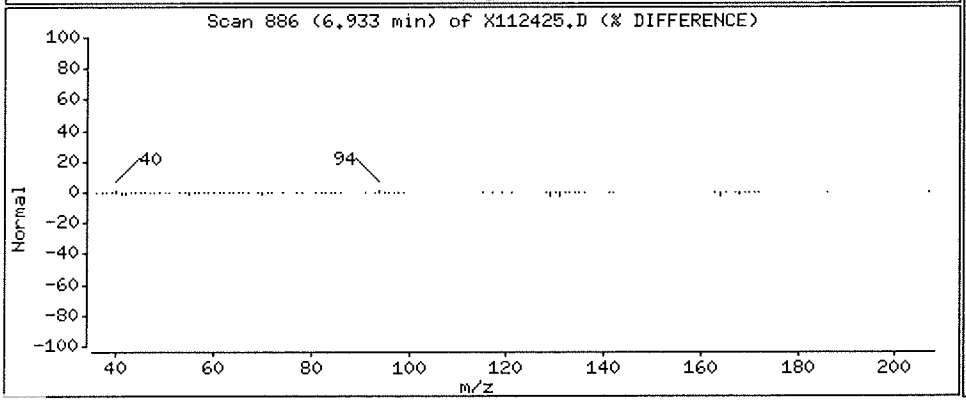












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112425.D Page 6

Date : 24-NOV-2019 21:49

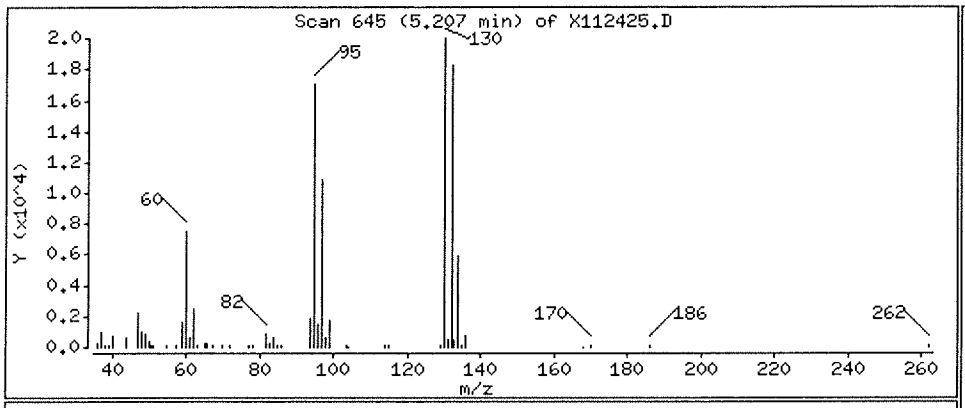
Client ID: HS19111239-04 Instrument: voa6.i

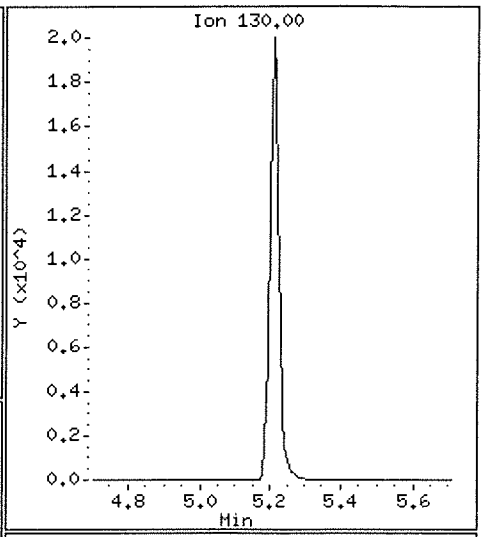
Sample Info: HS19111239-04;HS19111239-04;;;

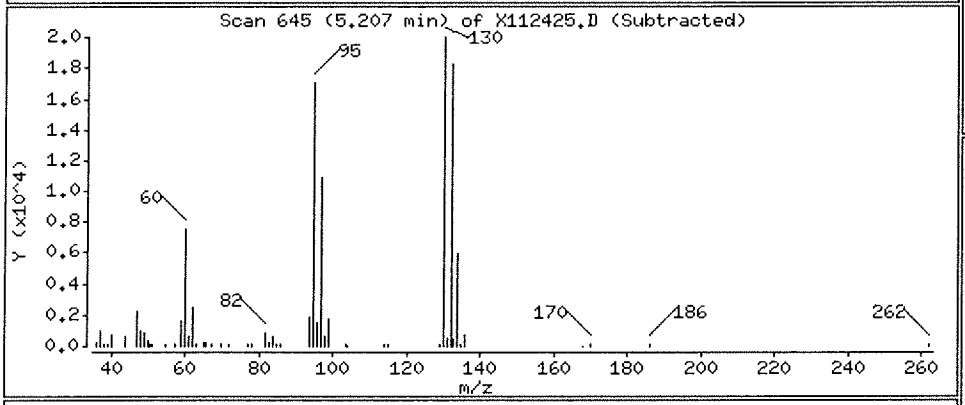
Purge Volume: 5.0 Operator: PC

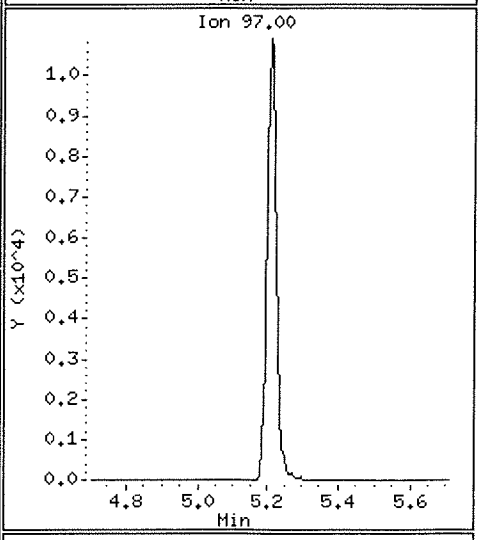
Column phase: DB624 Column diameter: 0.18

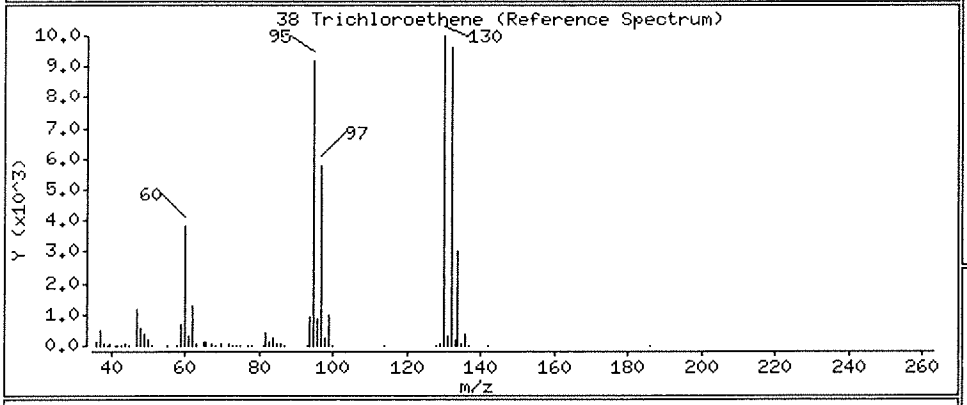
38 Trichloroethene Concentration: 7.64 ug/l

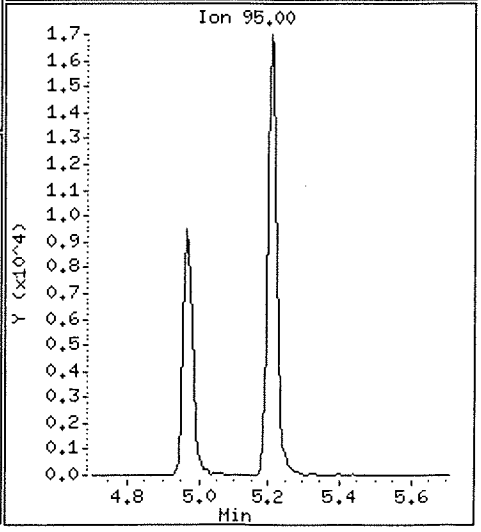


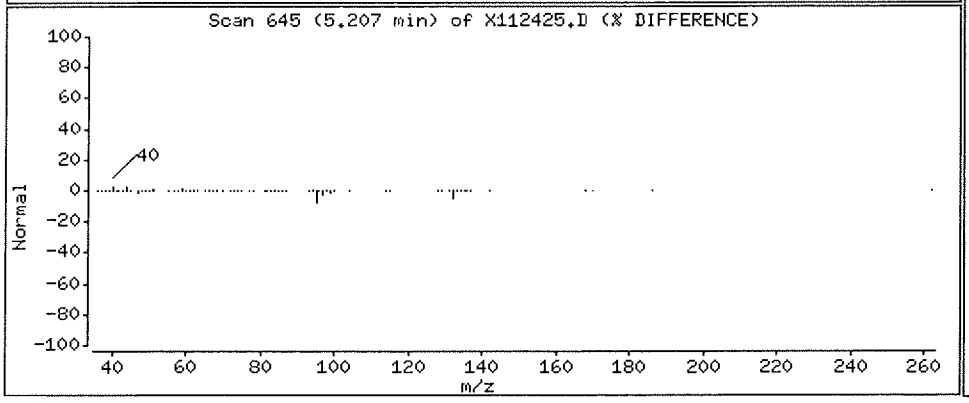












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112426.D Page 1
Report Date: 17-Dec-2019 15:57

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191124.b\X112426.D
Lab Smp Id: HS19111239-06 Client Smp ID: HS19111239-06
Inj Date : 24-NOV-2019 22:13
Operator : PC Inst ID: voa6.i
Smp Info : HS19111239-06;HS19111239-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191124.b\8260W.m
Meth Date : 17-Dec-2019 15:56 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

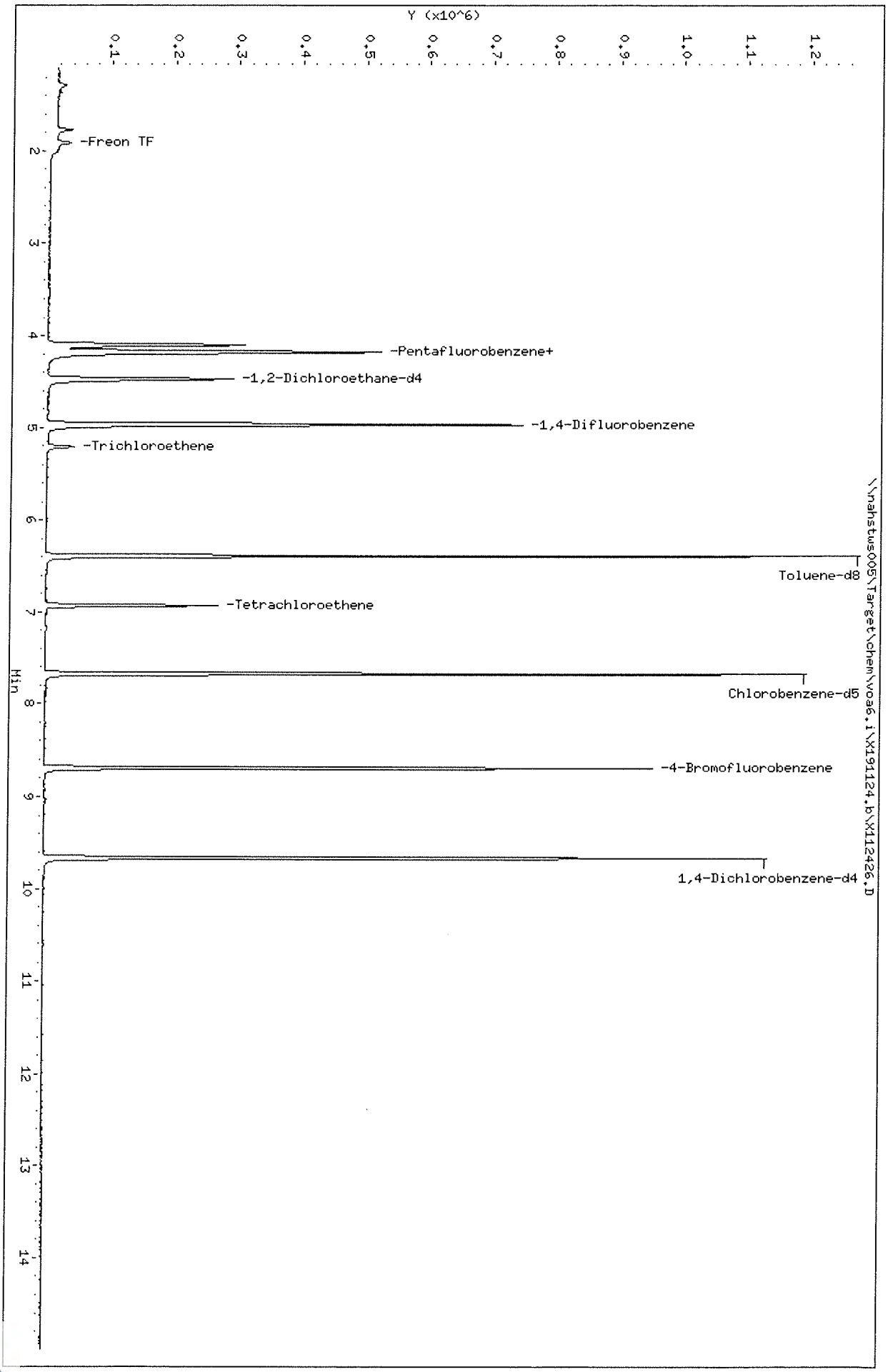
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	479903	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	657307	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	573709	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	286381	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	214496	47.5450	47.54
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	250628	46.9803	46.98
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	211487	48.4765	48.47
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	750444	49.6455	49.64
138 Freon TF	101	1.911	1.919	(0.457)	9331	2.23333	2.23(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	59458	14.7501	14.75
38 Trichloroethene	130	5.206	5.206	(1.048)	14345	3.12065	3.12(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



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Date : 24-NOV-2019 22:13
Client ID: HS191111239-06
Sample Info: HS191111239-06;HS191111239-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112426.D

Date : 24-NOV-2019 22:13

Client ID: HS19111239-06

Instrument: voa6.i

Sample Info: HS19111239-06;HS19111239-06;;;

Purge Volume: 5.0

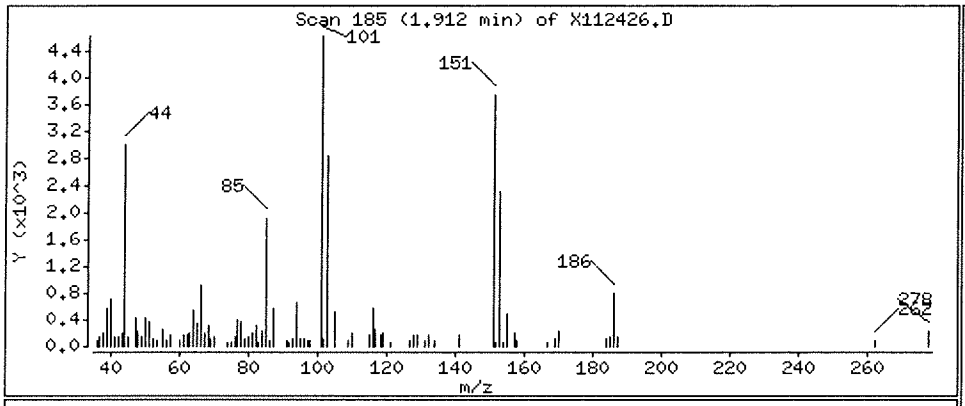
Operator: PC

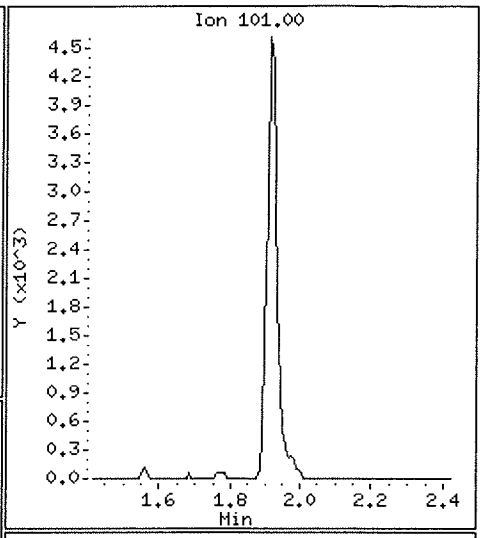
Column phase: DB624

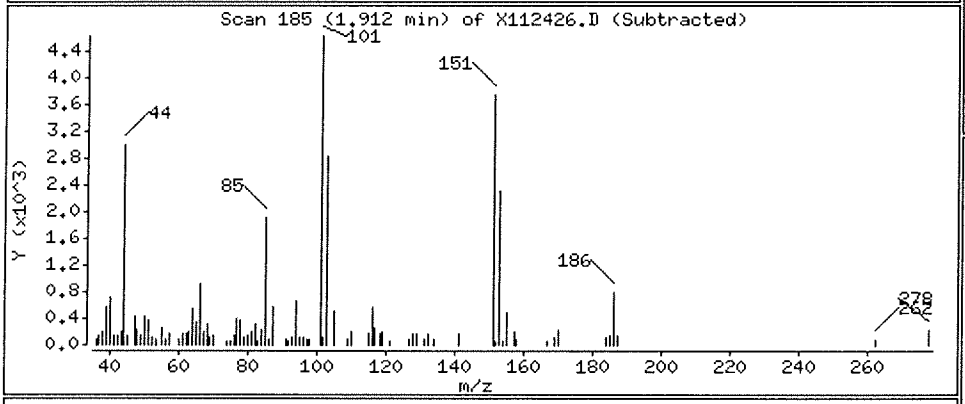
Column diameter: 0.18

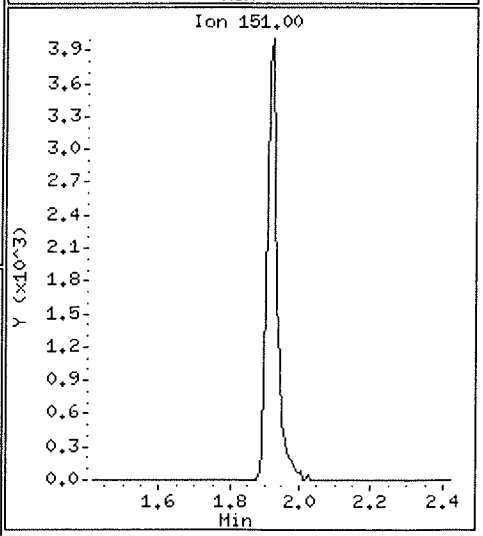
138 Freon TF

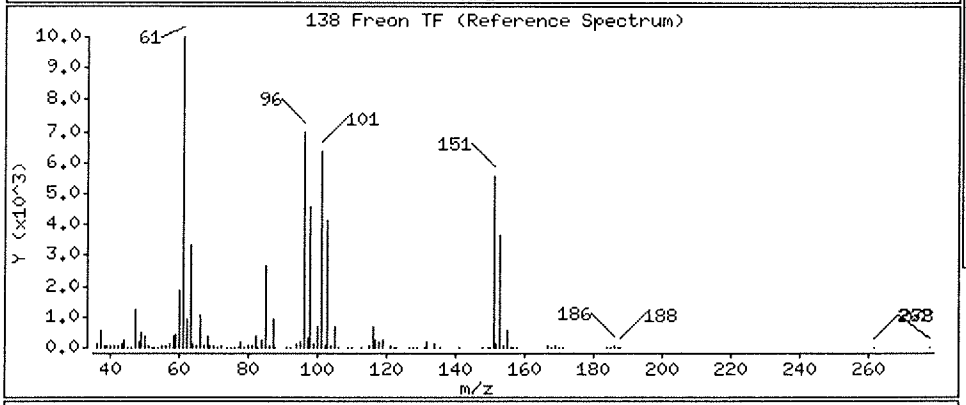
Concentration: 2.23 ug/l

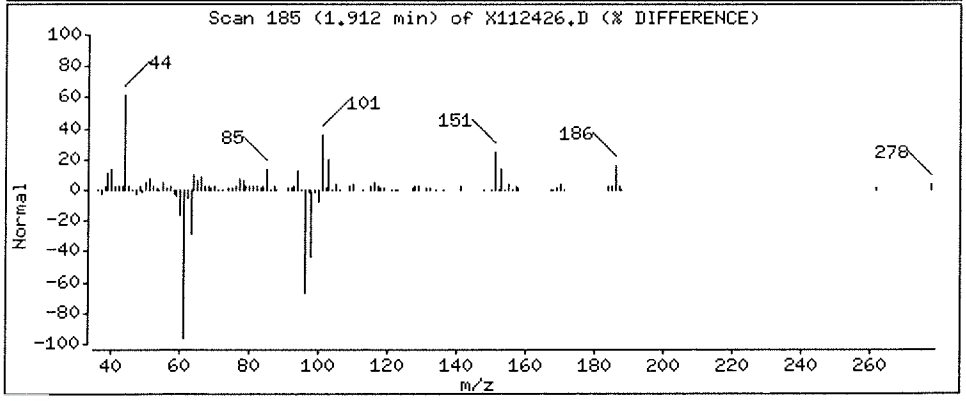












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112426.D Page 4

Date : 24-NOV-2019 22:13

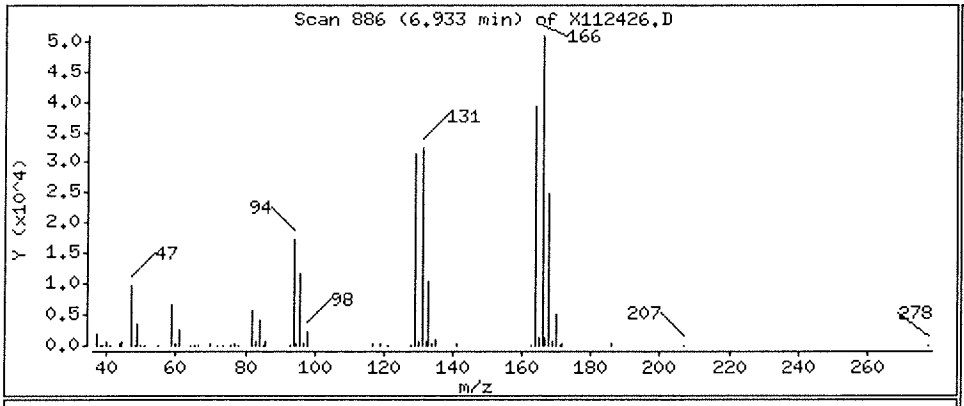
Client ID: HS19111239-06 Instrument: voa6.i

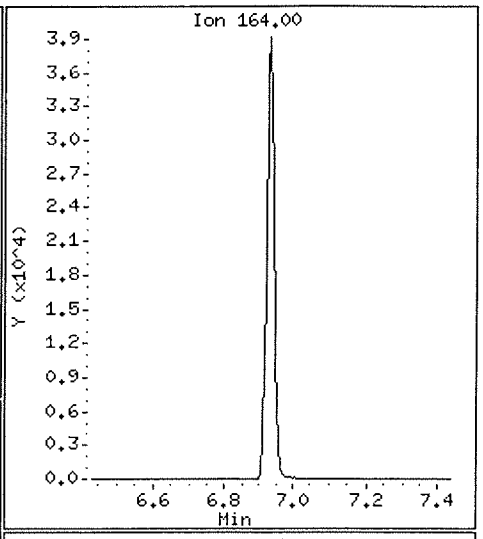
Sample Info: HS19111239-06;HS19111239-06;;;

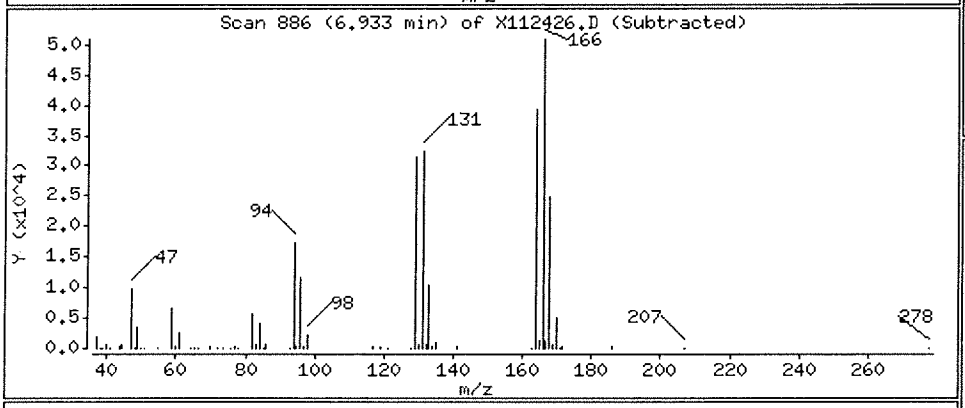
Purge Volume: 5.0 Operator: PC

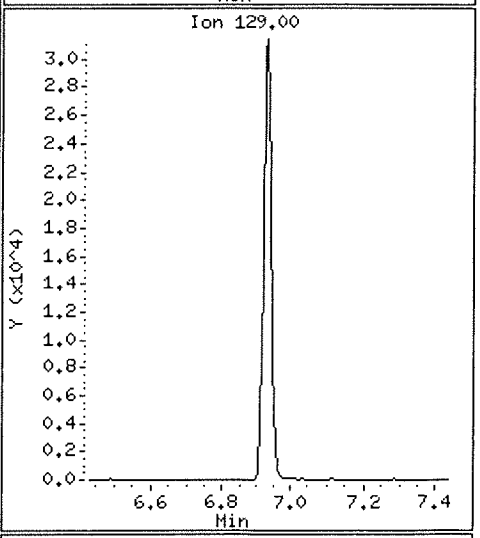
Column phase: DB624 Column diameter: 0.18

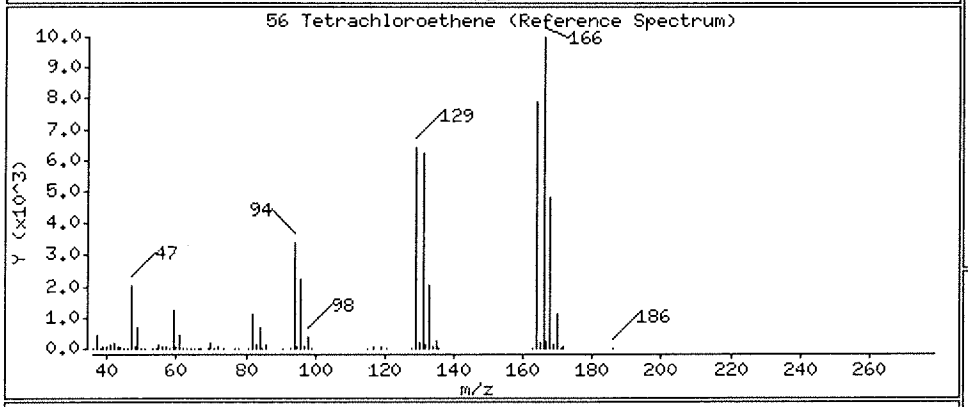
56 Tetrachloroethene Concentration: 14.75 ug/l

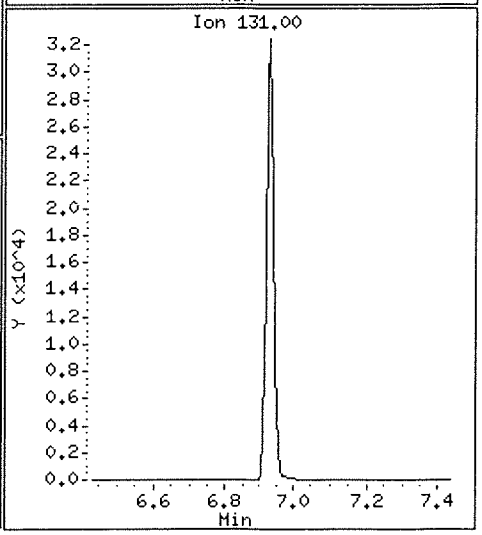


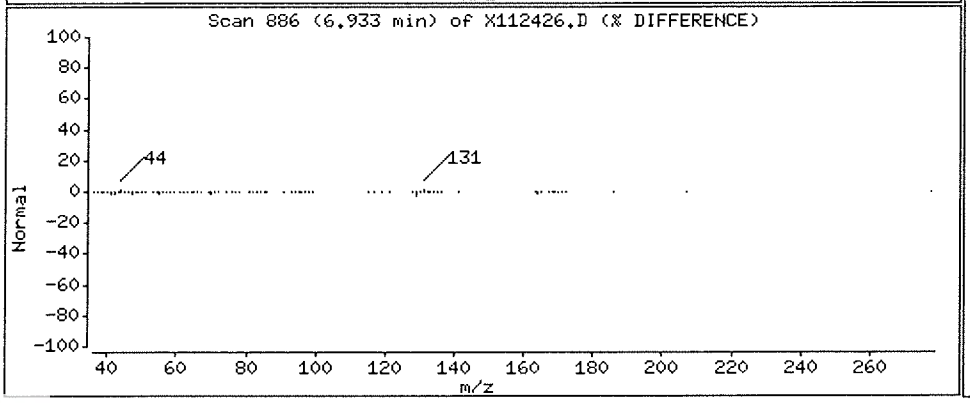












Data File: \\nahstws005\Target\chem\voa6.i\X191124.b\X112426.D Page 5

Date : 24-NOV-2019 22:13

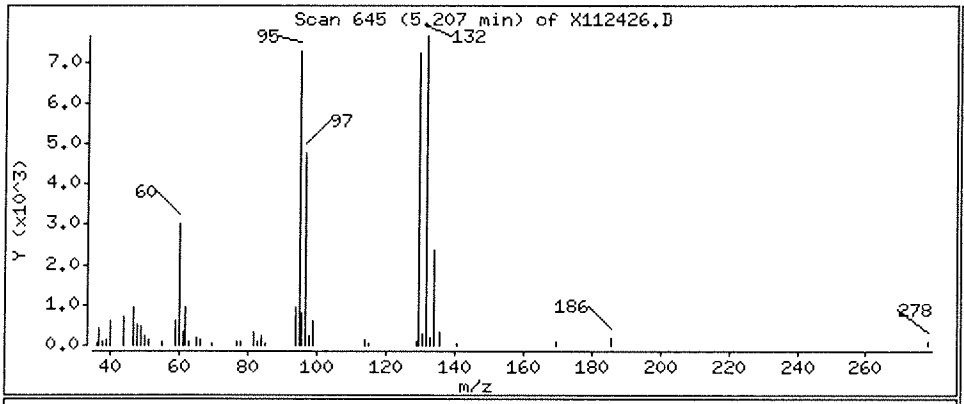
Client ID: HS19111239-06 Instrument: voa6.i

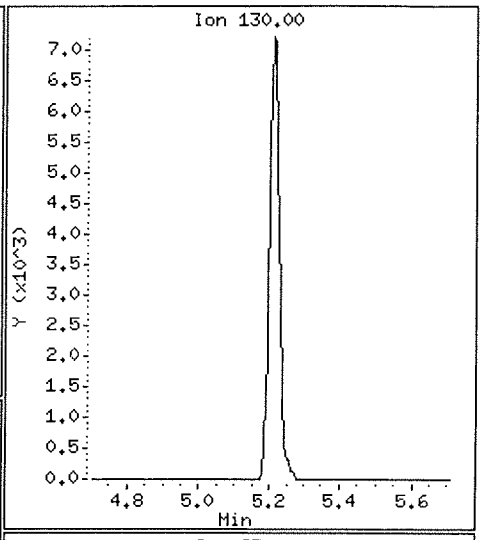
Sample Info: HS19111239-06;HS19111239-06;;;

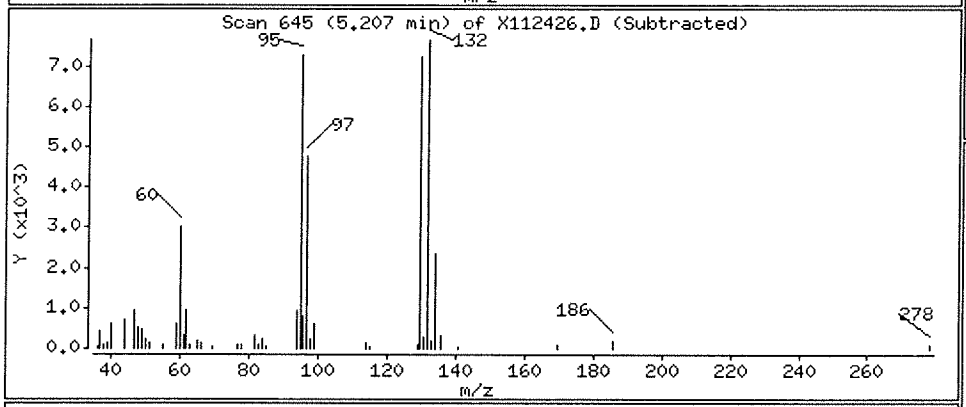
Purge Volume: 5.0 Operator: PC

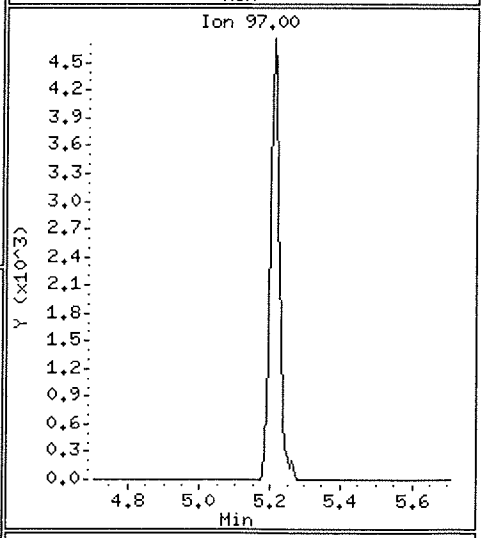
Column phase: DB624 Column diameter: 0.18

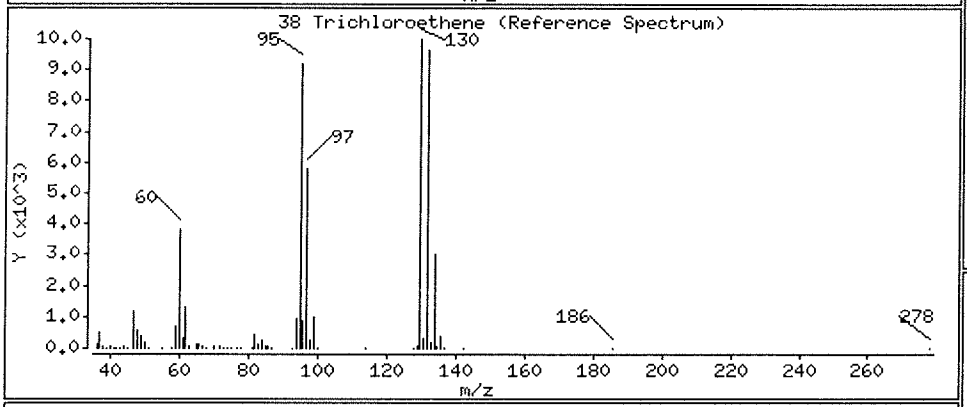
38 Trichloroethene Concentration: 3.12 ug/l

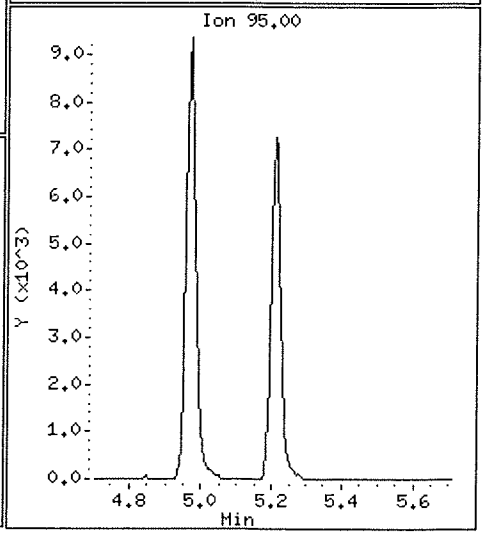


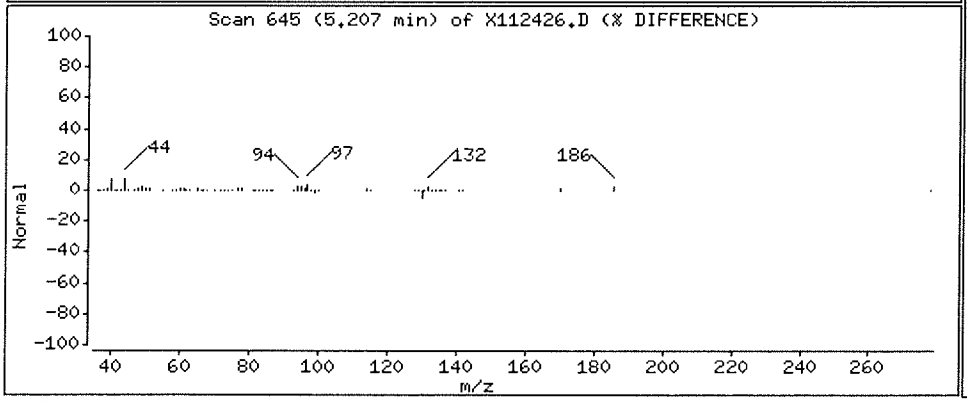












10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

WorkOrder: HS19111343

Longhorn Army Ammunition Plant LHAAP 37

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

16-Dec-2019

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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HS19111343 Longhorn Army Ammunition Plant
LHAAP 37 Final

ALS WO# HS19111343

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

December 13, 2019

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

Work Order: **HS19111343**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP 37**

Dear Susan,

ALS Environmental received 8 sample(s) on Nov 26, 2019 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
Work Order: HS19111343

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19111343-01	35BWW07-191125	Groundwater		25-Nov-2019 08:35	26-Nov-2019 08:40	☐
HS19111343-02	35BWW13-191125	Groundwater		25-Nov-2019 09:20	26-Nov-2019 08:40	☐
HS19111343-03	35BWW14-191125	Groundwater		25-Nov-2019 10:05	26-Nov-2019 08:40	☐
HS19111343-04	35BWW23-191125	Groundwater		25-Nov-2019 10:55	26-Nov-2019 08:40	☐
HS19111343-05	35BWW24-191125	Groundwater		25-Nov-2019 11:45	26-Nov-2019 08:40	☐
HS19111343-06	35BWW12-191125	Groundwater		25-Nov-2019 12:35	26-Nov-2019 08:40	☐
HS19111343-07	35BWW05-191125	Groundwater		25-Nov-2019 13:35	26-Nov-2019 08:40	☐
HS19111343-08	Trip Blank	Groundwater		25-Nov-2019 00:00	26-Nov-2019 08:40	☐

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
Work Order: HS19111343

CASE NARRATIVE

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R351642

Sample ID: CCV

- 1,2,3_Trichlorobenzene exceeded %D limits for CCV. Samples are ND for this compound.

Sample ID: VLCSW-191202

- 1,2,3_Trichlorobenzene is also high for LCS. Samples are ND for this compound

WetChemistry by Method SW9056

Batch ID: R351465

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW07-191125 Lab ID:HS19111343-01
Collection Date: 25-Nov-2019 08:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 14:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 14:18
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 14:18
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 14:18
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 14:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW07-191125 Lab ID:HS19111343-01
Collection Date: 25-Nov-2019 08:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 14:18
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 14:18
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:18
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:18
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*1*	*02-Dec-2019 14:18*
Surr: 4-Bromofluorobenzene	*96.2*			**0**	*85-114*	*%REC*	*1*	*02-Dec-2019 14:18*
Surr: Dibromofluoromethane	*98.8*			**0**	*80-119*	*%REC*	*1*	*02-Dec-2019 14:18*
Surr: Toluene-d8	*95.7*			**0**	*89-112*	*%REC*	*1*	*02-Dec-2019 14:18*

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW13-191125 Lab ID:HS19111343-02
Collection Date: 25-Nov-2019 09:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 14:42
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 14:42
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 14:42
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 14:42
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 14:42
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW13-191125 Lab ID:HS19111343-02
Collection Date: 25-Nov-2019 09:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 14:42
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 14:42
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 14:42
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 14:42
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*02-Dec-2019 14:42*
Surr: 4-Bromofluorobenzene	*95.3*			**0**	*85-114*	*%REC*	*1*	*02-Dec-2019 14:42*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*1*	*02-Dec-2019 14:42*
Surr: Toluene-d8	*97.1*			**0**	*89-112*	*%REC*	*1*	*02-Dec-2019 14:42*

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW14-191125 Lab ID:HS19111343-03
Collection Date: 25-Nov-2019 10:05 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1,2-Trichlor-1,2,2-trifluoroethane	**25**		**0.50**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 15:06
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,1-Dichloroethane	**0.83**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 15:06
1,1-Dichloroethene	**4.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 15:06
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:06
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 15:06
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 15:06
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:06
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 15:06
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW14-191125 Lab ID:HS19111343-03
Collection Date: 25-Nov-2019 10:05 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
cis-1,2-Dichloroethene	**1.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 15:06
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:06
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:06
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:06
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Tetrachloroethene	**38**		**0.30**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 15:06
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Trichloroethene	**16**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 15:06
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:06
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*02-Dec-2019 15:06*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*1*	*02-Dec-2019 15:06*
Surr: Dibromofluoromethane	*100*			**0**	*80-119*	*%REC*	*1*	*02-Dec-2019 15:06*
Surr: Toluene-d8	*96.9*			**0**	*89-112*	*%REC*	*1*	*02-Dec-2019 15:06*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**16.9**		**0.200**	**0.500**	**0.500**	**mg/L**	1	26-Nov-2019 20:18
Nitrogen, Nitrate (As N)	**0.394**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	26-Nov-2019 20:18
Sulfate	**72.7**		**0.200**	**0.500**	**0.500**	**mg/L**	1	26-Nov-2019 20:18
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	13-Dec-2019 15:18

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
Sample ID: 35BWW14-191125
Collection Date: 25-Nov-2019 10:05

ANALYTICAL REPORT
WorkOrder:HS19111343
Lab ID:HS19111343-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	06-Dec-2019 10:03

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW23-191125 Lab ID:HS19111343-04
Collection Date: 25-Nov-2019 10:55 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:30
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 15:30
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 15:30
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:30
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 15:30
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW23-191125 Lab ID:HS19111343-04
Collection Date: 25-Nov-2019 10:55 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:30
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:30
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:30
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:30
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*02-Dec-2019 15:30*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*1*	*02-Dec-2019 15:30*
Surr: Dibromofluoromethane	*99.0*			**0**	*80-119*	*%REC*	*1*	*02-Dec-2019 15:30*
Surr: Toluene-d8	*96.3*			**0**	*89-112*	*%REC*	*1*	*02-Dec-2019 15:30*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**28.1**		**0.200**	**0.500**	**0.500**	**mg/L**	1	26-Nov-2019 20:35
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	26-Nov-2019 20:35
Sulfate	**85.9**		**0.200**	**0.500**	**0.500**	**mg/L**	1	26-Nov-2019 20:35
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	13-Dec-2019 15:18
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	06-Dec-2019 10:03

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW24-191125 Lab ID:HS19111343-05
Collection Date: 25-Nov-2019 11:45 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1,2-Trichlor-1,2,2-trifluoroethane	**7.2**		**0.50**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 15:54
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:54
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 15:54
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 15:54
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:54
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 15:54
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW24-191125 Lab ID:HS19111343-05
Collection Date: 25-Nov-2019 11:45 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 15:54
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 15:54
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 15:54
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Trichloroethene	**1.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 15:54
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 15:54
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*1*	*02-Dec-2019 15:54*
Surr: 4-Bromofluorobenzene	*95.3*			**0**	*85-114*	*%REC*	*1*	*02-Dec-2019 15:54*
Surr: Dibromofluoromethane	*99.6*			**0**	*80-119*	*%REC*	*1*	*02-Dec-2019 15:54*
Surr: Toluene-d8	*98.5*			**0**	*89-112*	*%REC*	*1*	*02-Dec-2019 15:54*

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
Sample ID: 35BWW12-191125
Collection Date: 25-Nov-2019 12:35

ANALYTICAL REPORT
WorkOrder:HS19111343
Lab ID:HS19111343-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 13:54
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 13:54
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 13:54
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 13:54
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 13:54
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW12-191125 Lab ID:HS19111343-06
Collection Date: 25-Nov-2019 12:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 13:54
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 13:54
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:54
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Tetrachloroethene	**5.8**		**0.30**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 13:54
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Trichloroethene	**0.55**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 13:54
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:54
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*02-Dec-2019 13:54*
Surr: 4-Bromofluorobenzene	*96.1*			**0**	*85-114*	*%REC*	*1*	*02-Dec-2019 13:54*
Surr: Dibromofluoromethane	*99.4*			**0**	*80-119*	*%REC*	*1*	*02-Dec-2019 13:54*
Surr: Toluene-d8	*94.8*			**0**	*89-112*	*%REC*	*1*	*02-Dec-2019 13:54*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**7.05**		**0.200**	**0.500**	**0.500**	**mg/L**	1	26-Nov-2019 20:51
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	26-Nov-2019 20:51
Sulfate	**37.1**		**0.200**	**0.500**	**0.500**	**mg/L**	1	26-Nov-2019 20:51
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	13-Dec-2019 15:18
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	06-Dec-2019 10:03

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW05-191125 Lab ID:HS19111343-07
Collection Date: 25-Nov-2019 13:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 16:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 16:18
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 16:18
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 16:18
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 16:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: 35BWW05-191125 Lab ID:HS19111343-07
Collection Date: 25-Nov-2019 13:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 16:18
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 16:18
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 16:18
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Tetrachloroethene	**1.4**		**0.30**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 16:18
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Trichloroethene	**6.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	02-Dec-2019 16:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 16:18
Surr: 1,2-Dichloroethane-d4	*100*			**0**	*81-118*	*%REC*	*1*	*02-Dec-2019 16:18*
Surr: 4-Bromofluorobenzene	*96.6*			**0**	*85-114*	*%REC*	*1*	*02-Dec-2019 16:18*
Surr: Dibromofluoromethane	*99.9*			**0**	*80-119*	*%REC*	*1*	*02-Dec-2019 16:18*
Surr: Toluene-d8	*95.7*			**0**	*89-112*	*%REC*	*1*	*02-Dec-2019 16:18*

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: Trip Blank Lab ID:HS19111343-08
Collection Date: 25-Nov-2019 00:00 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 13:30
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	02-Dec-2019 13:30
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	02-Dec-2019 13:30
Acetone	**5.1**		**0.40**	**1.0**	**2.0**	**UG/L**	1	02-Dec-2019 13:30
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	02-Dec-2019 13:30
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP 37 WorkOrder:HS19111343
Sample ID: Trip Blank Lab ID:HS19111343-08
Collection Date: 25-Nov-2019 00:00 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	02-Dec-2019 13:30
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	02-Dec-2019 13:30
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	02-Dec-2019 13:30
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	02-Dec-2019 13:30
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*02-Dec-2019 13:30*
Surr: 4-Bromofluorobenzene	*96.0*			**0**	*85-114*	*%REC*	*1*	*02-Dec-2019 13:30*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*1*	*02-Dec-2019 13:30*
Surr: Toluene-d8	*96.1*			**0**	*89-112*	*%REC*	*1*	*02-Dec-2019 13:30*

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

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R351465 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS19111343-03	35BWW14-191125	25 Nov 2019 10:05			26 Nov 2019 20:18	1
HS19111343-04	35BWW23-191125	25 Nov 2019 10:55			26 Nov 2019 20:35	1
HS19111343-06	35BWW12-191125	25 Nov 2019 12:35			26 Nov 2019 20:51	1
Batch ID: R351642 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19111343-01	35BWW07-191125	25 Nov 2019 08:35			02 Dec 2019 14:18	1
HS19111343-02	35BWW13-191125	25 Nov 2019 09:20			02 Dec 2019 14:42	1
HS19111343-03	35BWW14-191125	25 Nov 2019 10:05			02 Dec 2019 15:06	1
HS19111343-04	35BWW23-191125	25 Nov 2019 10:55			02 Dec 2019 15:30	1
HS19111343-05	35BWW24-191125	25 Nov 2019 11:45			02 Dec 2019 15:54	1
HS19111343-06	35BWW12-191125	25 Nov 2019 12:35			02 Dec 2019 13:54	1
HS19111343-07	35BWW05-191125	25 Nov 2019 13:35			02 Dec 2019 16:18	1
HS19111343-08	Trip Blank	25 Nov 2019 00:00			02 Dec 2019 13:30	1
Batch ID: R351908 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS19111343-03	35BWW14-191125	25 Nov 2019 10:05			06 Dec 2019 10:03	1
HS19111343-04	35BWW23-191125	25 Nov 2019 10:55			06 Dec 2019 10:03	1
HS19111343-06	35BWW12-191125	25 Nov 2019 12:35			06 Dec 2019 10:03	1
Batch ID: R352477 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS19111343-03	35BWW14-191125	25 Nov 2019 10:05			13 Dec 2019 15:18	1
HS19111343-04	35BWW23-191125	25 Nov 2019 10:55			13 Dec 2019 15:18	1
HS19111343-06	35BWW12-191125	25 Nov 2019 12:35			13 Dec 2019 15:18	1

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191202** Units: **UG/L** Analysis Date: **02-Dec-2019 13:06**
Client ID: Run ID: **VOA6_351642** SeqNo: **5368692** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191202** Units: **UG/L** Analysis Date: **02-Dec-2019 13:06**
Client ID: Run ID: **VOA6_351642** SeqNo: **5368692** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	0.50	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	0.50	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*50.44*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.35*	*1.0*	*50*	*0*	*94.7*	*85 - 114*				
Surr: Dibromofluoromethane	*49.77*	*1.0*	*50*	*0*	*99.5*	*80 - 119*				

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191202** Units: **UG/L** Analysis Date: **02-Dec-2019 13:06**
Client ID: Run ID: **VOA6_351642** SeqNo: **5368692** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*48.75*	*1.0*	*50*	*0*	*97.5*	*89 - 112*				

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191202** Units: **UG/L** Analysis Date: **02-Dec-2019 12:18**
Client ID: Run ID: **VOA6_351642** SeqNo: **5368691** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.13	1.0	20	0	106	78 - 124				
1,1,1-Trichloroethane	21.53	1.0	20	0	108	74 - 131				
1,1,2,2-Tetrachloroethane	21.29	1.0	20	0	106	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	18.46	1.0	20	0	92.3	70 - 136				
1,1,2-Trichloroethane	21.81	1.0	20	0	109	80 - 119				
1,1-Dichloroethane	21.41	1.0	20	0	107	77 - 125				
1,1-Dichloroethene	19.59	1.0	20	0	98.0	71 - 131				
1,1-Dichloropropene	20.36	1.0	20	0	102	78 - 125				
1,2,3-Trichlorobenzene	26.03	1.0	20	0	130	69 - 129				S
1,2,3-Trichloropropane	21.95	1.0	20	0	110	73 - 122				
1,2,4-Trichlorobenzene	23.73	1.0	20	0	119	69 - 130				
1,2,4-Trimethylbenzene	20.88	1.0	20	0	104	76 - 124				
1,2-Dibromo-3-chloropropane	22.5	1.0	20	0	113	62 - 128				
1,2-Dibromoethane	21.85	1.0	20	0	109	77 - 121				
1,2-Dichlorobenzene	21.23	1.0	20	0	106	80 - 119				
1,2-Dichloroethane	22.42	1.0	20	0	112	73 - 128				
1,2-Dichloropropane	20.75	1.0	20	0	104	78 - 122				
1,3,5-Trimethylbenzene	20.96	1.0	20	0	105	75 - 124				
1,3-Dichlorobenzene	21.01	1.0	20	0	105	80 - 119				
1,3-Dichloropropane	21.07	1.0	20	0	105	80 - 119				
1,4-Dichlorobenzene	21.06	1.0	20	0	105	79 - 118				
2,2-Dichloropropane	21.26	1.0	20	0	106	60 - 139				
2-Butanone	46.16	2.0	40	0	115	56 - 143				
2-Chlorotoluene	21.76	1.0	20	0	109	79 - 122				
2-Hexanone	43.24	2.0	40	0	108	57 - 139				
4-Chlorotoluene	21.23	1.0	20	0	106	78 - 122				
4-Isopropyltoluene	20.21	1.0	20	0	101	77 - 127				
4-Methyl-2-pentanone	42.89	2.0	40	0	107	67 - 130				
Acetone	41.99	2.0	40	0	105	39 - 160				
Benzene	21.68	1.0	20	0	108	79 - 120				
Bromobenzene	21.29	1.0	20	0	106	80 - 120				
Bromochloromethane	21.78	1.0	20	0	109	78 - 123				
Bromodichloromethane	21.69	1.0	20	0	108	79 - 125				
Bromoform	21.22	1.0	20	0	106	66 - 130				

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191202** Units: **UG/L** Analysis Date: **02-Dec-2019 12:18**
Client ID: Run ID: **VOA6_351642** SeqNo: **5368691** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	21.45	1.0	20	0	107	53 - 141				
Carbon disulfide	43.13	2.0	40	0	108	64 - 133				
Carbon tetrachloride	19.58	1.0	20	0	97.9	72 - 136				
Chlorobenzene	20.74	1.0	20	0	104	82 - 118				
Chloroethane	23.69	1.0	20	0	118	60 - 138				
Chloroform	21.31	1.0	20	0	107	79 - 124				
Chloromethane	15.03	1.0	20	0	75.2	50 - 139				
cis-1,2-Dichloroethene	22.65	1.0	20	0	113	78 - 123				
cis-1,3-Dichloropropene	21.43	1.0	20	0	107	75 - 124				
Dibromochloromethane	21.54	1.0	20	0	108	74 - 126				
Dibromomethane	22.07	1.0	20	0	110	79 - 123				
Dichlorodifluoromethane	21.97	1.0	20	0	110	32 - 152				
Ethylbenzene	20.76	1.0	20	0	104	79 - 121				
Hexachlorobutadiene	20.52	1.0	20	0	103	66 - 134				
Isopropylbenzene	20.55	1.0	20	0	103	72 - 131				
m,p-Xylene	41.58	2.0	40	0	104	80 - 121				
Methylene chloride	21.16	2.0	20	0	106	74 - 124				
Naphthalene	23	1.0	20	0	115	61 - 128				
n-Butylbenzene	20.94	1.0	20	0	105	75 - 128				
n-Propylbenzene	20.78	1.0	20	0	104	76 - 126				
o-Xylene	20.75	1.0	20	0	104	78 - 122				
sec-Butylbenzene	20.14	1.0	20	0	101	77 - 126				
Styrene	21.33	1.0	20	0	107	78 - 123				
tert-Butylbenzene	20.54	1.0	20	0	103	78 - 124				
Tetrachloroethene	19.73	1.0	20	0	98.7	74 - 129				
Toluene	20.96	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	21.6	1.0	20	0	108	75 - 124				
trans-1,3-Dichloropropene	21.44	1.0	20	0	107	73 - 127				
Trichloroethene	21.26	1.0	20	0	106	79 - 123				
Trichlorofluoromethane	20.04	1.0	20	0	100	65 - 141				
Vinyl chloride	18.65	1.0	20	0	93.3	58 - 137				
Surr: 1,2-Dichloroethane-d4	*53.55*	*1.0*	*50*	*0*	*107*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.52*	*1.0*	*50*	*0*	*99.0*	*85 - 114*				
Surr: Dibromofluoromethane	*51.23*	*1.0*	*50*	*0*	*102*	*80 - 119*				

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191202** Units: **UG/L** Analysis Date: **02-Dec-2019 12:18**
Client ID: Run ID: **VOA6_351642** SeqNo: **5368691** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*46.38*	*1.0*	*50*	*0*	*92.8*	*89 - 112*				

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111343-06MS** Units: **UG/L** Analysis Date: **02-Dec-2019 17:06**
Client ID: **35BWW12-191125** Run ID: **VOA6_351642** SeqNo: **5368701** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.28	1.0	20	0	96.4	78 - 124				
1,1,1-Trichloroethane	20.71	1.0	20	0	104	74 - 131				
1,1,2,2-Tetrachloroethane	19.2	1.0	20	0	96.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	18.91	1.0	20	0	94.6	70 - 136				
1,1,2-Trichloroethane	19.33	1.0	20	0	96.7	80 - 119				
1,1-Dichloroethane	20.01	1.0	20	0	100	77 - 125				
1,1-Dichloroethene	18.49	1.0	20	0	92.5	71 - 131				
1,1-Dichloropropene	19.91	1.0	20	0	99.5	78 - 125				
1,2,3-Trichlorobenzene	19.49	1.0	20	0	97.5	69 - 129				
1,2,3-Trichloropropane	19.29	1.0	20	0	96.5	73 - 122				
1,2,4-Trichlorobenzene	18.95	1.0	20	0	94.7	69 - 130				
1,2,4-Trimethylbenzene	20.13	1.0	20	0	101	76 - 124				
1,2-Dibromo-3-chloropropane	19.68	1.0	20	0	98.4	62 - 128				
1,2-Dibromoethane	19.75	1.0	20	0	98.8	77 - 121				
1,2-Dichlorobenzene	19.76	1.0	20	0	98.8	80 - 119				
1,2-Dichloroethane	20.41	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	19.3	1.0	20	0	96.5	78 - 122				
1,3,5-Trimethylbenzene	20.52	1.0	20	0	103	75 - 124				
1,3-Dichlorobenzene	19.85	1.0	20	0	99.2	80 - 119				
1,3-Dichloropropane	19.02	1.0	20	0	95.1	80 - 119				
1,4-Dichlorobenzene	19.61	1.0	20	0	98.1	79 - 118				
2,2-Dichloropropane	18.97	1.0	20	0	94.8	60 - 139				
2-Butanone	38.05	2.0	40	0	95.1	56 - 143				
2-Chlorotoluene	21	1.0	20	0	105	79 - 122				
2-Hexanone	37.95	2.0	40	0	94.9	57 - 139				
4-Chlorotoluene	20.25	1.0	20	0	101	78 - 122				
4-Isopropyltoluene	20.32	1.0	20	0	102	77 - 127				
4-Methyl-2-pentanone	38.25	2.0	40	0	95.6	67 - 130				
Acetone	30.42	2.0	40	0	76.0	39 - 160				
Benzene	20.51	1.0	20	0	103	79 - 120				
Bromobenzene	19.76	1.0	20	0	98.8	80 - 120				
Bromochloromethane	19.15	1.0	20	0	95.8	78 - 123				
Bromodichloromethane	19.82	1.0	20	0	99.1	79 - 125				
Bromoform	18.84	1.0	20	0	94.2	66 - 130				

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111343-06MS** Units: **UG/L** Analysis Date: **02-Dec-2019 17:06**
Client ID: **35BWW12-191125** Run ID: **VOA6_351642** SeqNo: **5368701** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	17.01	1.0	20	0	85.0	53 - 141				
Carbon disulfide	41.67	2.0	40	0	104	64 - 133				
Carbon tetrachloride	19.93	1.0	20	0	99.7	72 - 136				
Chlorobenzene	19.13	1.0	20	0	95.6	82 - 118				
Chloroethane	17.3	1.0	20	0	86.5	60 - 138				
Chloroform	19.21	1.0	20	0	96.1	79 - 124				
Chloromethane	12.81	1.0	20	0	64.1	50 - 139				
cis-1,2-Dichloroethene	20.25	1.0	20	0	101	78 - 123				
cis-1,3-Dichloropropene	19.14	1.0	20	0	95.7	75 - 124				
Dibromochloromethane	19.32	1.0	20	0	96.6	74 - 126				
Dibromomethane	19.64	1.0	20	0	98.2	79 - 123				
Dichlorodifluoromethane	16.32	1.0	20	0	81.6	32 - 152				
Ethylbenzene	20.2	1.0	20	0	101	79 - 121				
Hexachlorobutadiene	16.84	1.0	20	0	84.2	66 - 134				
Isopropylbenzene	19.96	1.0	20	0	99.8	72 - 131				
m,p-Xylene	39.44	2.0	40	0	98.6	80 - 121				
Methylene chloride	18.79	2.0	20	0	94.0	74 - 124				
Naphthalene	20.56	1.0	20	0	103	61 - 128				
n-Butylbenzene	20.69	1.0	20	0	103	75 - 128				
n-Propylbenzene	20.87	1.0	20	0	104	76 - 126				
o-Xylene	19.38	1.0	20	0	96.9	78 - 122				
sec-Butylbenzene	20.75	1.0	20	0	104	77 - 126				
Styrene	19.48	1.0	20	0	97.4	78 - 123				
tert-Butylbenzene	20.62	1.0	20	0	103	78 - 124				
Tetrachloroethene	24.8	1.0	20	5.776	95.1	74 - 129				
Toluene	19.78	1.0	20	0	98.9	80 - 121				
trans-1,2-Dichloroethene	20.34	1.0	20	0	102	75 - 124				
trans-1,3-Dichloropropene	18.8	1.0	20	0	94.0	73 - 127				
Trichloroethene	20.37	1.0	20	0.5528	99.1	79 - 123				
Trichlorofluoromethane	19.5	1.0	20	0	97.5	65 - 141				
Vinyl chloride	16.91	1.0	20	0	84.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.23*	*1.0*	*50*	*0*	*100*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.94*	*1.0*	*50*	*0*	*99.9*	*85 - 114*				
Surr: Dibromofluoromethane	*49.51*	*1.0*	*50*	*0*	*99.0*	*80 - 119*				

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111343-06MS** Units: **UG/L** Analysis Date: **02-Dec-2019 17:06**
Client ID: **35BWW12-191125** Run ID: **VOA6_351642** SeqNo: **5368701** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*47.5*	*1.0*	*50*	*0*	*95.0*	*89 - 112*				

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111343-06MSD** Units: **UG/L** Analysis Date: **02-Dec-2019 17:30**
Client ID: **35BWW12-191125** Run ID: **VOA6_351642** SeqNo: **5368702** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.54	1.0	20	0	97.7	78 - 124	19.28	1.33	20	
1,1,1-Trichloroethane	20.19	1.0	20	0	101	74 - 131	20.71	2.51	20	
1,1,2,2-Tetrachloroethane	19.66	1.0	20	0	98.3	71 - 121	19.2	2.37	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	18.81	1.0	20	0	94.1	70 - 136	18.91	0.542	20	
1,1,2-Trichloroethane	19.87	1.0	20	0	99.3	80 - 119	19.33	2.72	20	
1,1-Dichloroethane	19.46	1.0	20	0	97.3	77 - 125	20.01	2.79	20	
1,1-Dichloroethene	18.09	1.0	20	0	90.5	71 - 131	18.49	2.19	20	
1,1-Dichloropropene	19.45	1.0	20	0	97.3	78 - 125	19.91	2.32	20	
1,2,3-Trichlorobenzene	22.48	1.0	20	0	112	69 - 129	19.49	14.2	20	
1,2,3-Trichloropropane	19.78	1.0	20	0	98.9	73 - 122	19.29	2.51	20	
1,2,4-Trichlorobenzene	20.51	1.0	20	0	103	69 - 130	18.95	7.89	20	
1,2,4-Trimethylbenzene	20.38	1.0	20	0	102	76 - 124	20.13	1.21	20	
1,2-Dibromo-3-chloropropane	18.85	1.0	20	0	94.2	62 - 128	19.68	4.33	20	
1,2-Dibromoethane	19.72	1.0	20	0	98.6	77 - 121	19.75	0.172	20	
1,2-Dichlorobenzene	20.12	1.0	20	0	101	80 - 119	19.76	1.82	20	
1,2-Dichloroethane	20.01	1.0	20	0	100	73 - 128	20.41	1.98	20	
1,2-Dichloropropane	18.86	1.0	20	0	94.3	78 - 122	19.3	2.31	20	
1,3,5-Trimethylbenzene	20.56	1.0	20	0	103	75 - 124	20.52	0.175	20	
1,3-Dichlorobenzene	19.97	1.0	20	0	99.9	80 - 119	19.85	0.635	20	
1,3-Dichloropropane	19.33	1.0	20	0	96.6	80 - 119	19.02	1.62	20	
1,4-Dichlorobenzene	20.04	1.0	20	0	100	79 - 118	19.61	2.14	20	
2,2-Dichloropropane	18.39	1.0	20	0	91.9	60 - 139	18.97	3.11	20	
2-Butanone	37.85	2.0	40	0	94.6	56 - 143	38.05	0.534	20	
2-Chlorotoluene	20.85	1.0	20	0	104	79 - 122	21	0.681	20	
2-Hexanone	38.74	2.0	40	0	96.8	57 - 139	37.95	2.06	20	
4-Chlorotoluene	20.39	1.0	20	0	102	78 - 122	20.25	0.718	20	
4-Isopropyltoluene	20.67	1.0	20	0	103	77 - 127	20.32	1.71	20	
4-Methyl-2-pentanone	38.82	2.0	40	0	97.1	67 - 130	38.25	1.49	20	
Acetone	30.46	2.0	40	0	76.2	39 - 160	30.42	0.152	20	
Benzene	19.74	1.0	20	0	98.7	79 - 120	20.51	3.78	20	
Bromobenzene	19.85	1.0	20	0	99.2	80 - 120	19.76	0.412	20	
Bromochloromethane	19.31	1.0	20	0	96.5	78 - 123	19.15	0.815	20	
Bromodichloromethane	19.5	1.0	20	0	97.5	79 - 125	19.82	1.61	20	
Bromoform	19.21	1.0	20	0	96.1	66 - 130	18.84	1.95	20	

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111343-06MSD** Units: **UG/L** Analysis Date: **02-Dec-2019 17:30**
Client ID: **35BWW12-191125** Run ID: **VOA6_351642** SeqNo: **5368702** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	17.31	1.0	20	0	86.6	53 - 141	17.01	1.75	20	
Carbon disulfide	40.3	2.0	40	0	101	64 - 133	41.67	3.35	20	
Carbon tetrachloride	19.24	1.0	20	0	96.2	72 - 136	19.93	3.54	20	
Chlorobenzene	19.16	1.0	20	0	95.8	82 - 118	19.13	0.144	20	
Chloroethane	17.07	1.0	20	0	85.4	60 - 138	17.3	1.32	20	
Chloroform	18.8	1.0	20	0	94.0	79 - 124	19.21	2.2	20	
Chloromethane	12.1	1.0	20	0	60.5	50 - 139	12.81	5.76	20	
cis-1,2-Dichloroethene	19.91	1.0	20	0	99.6	78 - 123	20.25	1.68	20	
cis-1,3-Dichloropropene	18.8	1.0	20	0	94.0	75 - 124	19.14	1.82	20	
Dibromochloromethane	19.68	1.0	20	0	98.4	74 - 126	19.32	1.83	20	
Dibromomethane	19.65	1.0	20	0	98.2	79 - 123	19.64	0.0345	20	
Dichlorodifluoromethane	15.81	1.0	20	0	79.1	32 - 152	16.32	3.17	20	
Ethylbenzene	19.39	1.0	20	0	96.9	79 - 121	20.2	4.08	20	
Hexachlorobutadiene	17.51	1.0	20	0	87.6	66 - 134	16.84	3.89	20	
Isopropylbenzene	20.02	1.0	20	0	100	72 - 131	19.96	0.349	20	
m,p-Xylene	39.15	2.0	40	0	97.9	80 - 121	39.44	0.733	20	
Methylene chloride	18.43	2.0	20	0	92.1	74 - 124	18.79	1.96	20	
Naphthalene	20.29	1.0	20	0	101	61 - 128	20.56	1.31	20	
n-Butylbenzene	21.02	1.0	20	0	105	75 - 128	20.69	1.58	20	
n-Propylbenzene	20.68	1.0	20	0	103	76 - 126	20.87	0.919	20	
o-Xylene	19.17	1.0	20	0	95.9	78 - 122	19.38	1.06	20	
sec-Butylbenzene	20.89	1.0	20	0	104	77 - 126	20.75	0.678	20	
Styrene	19.54	1.0	20	0	97.7	78 - 123	19.48	0.336	20	
tert-Butylbenzene	20.91	1.0	20	0	105	78 - 124	20.62	1.43	20	
Tetrachloroethene	24.62	1.0	20	5.776	94.2	74 - 129	24.8	0.736	20	
Toluene	19.6	1.0	20	0	98.0	80 - 121	19.78	0.934	20	
trans-1,2-Dichloroethene	19.31	1.0	20	0	96.5	75 - 124	20.34	5.2	20	
trans-1,3-Dichloropropene	18.96	1.0	20	0	94.8	73 - 127	18.8	0.865	20	
Trichloroethene	20.09	1.0	20	0.5528	97.7	79 - 123	20.37	1.34	20	
Trichlorofluoromethane	19.26	1.0	20	0	96.3	65 - 141	19.5	1.21	20	
Vinyl chloride	16.29	1.0	20	0	81.5	58 - 137	16.91	3.74	20	
Surr: 1,2-Dichloroethane-d4	*50.82*	*1.0*	*50*	*0*	*102*	*81 - 118*	*50.23*	*1.17*	*20*	
Surr: 4-Bromofluorobenzene	*49.68*	*1.0*	*50*	*0*	*99.4*	*85 - 114*	*49.94*	*0.526*	*20*	
Surr: Dibromofluoromethane	*49.82*	*1.0*	*50*	*0*	*99.6*	*80 - 119*	*49.51*	*0.619*	*20*	

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351642 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111343-06MSD** Units: **UG/L** Analysis Date: **02-Dec-2019 17:30**
Client ID: **35BWW12-191125** Run ID: **VOA6_351642** SeqNo: **5368702** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*48.34*	*1.0*	*50*	*0*	*96.7*	*89 - 112*	*47.5*	*1.76*	*20*	

The following samples were analyzed in this batch: HS19111343-01, HS19111343-02, HS19111343-03, HS19111343-04, HS19111343-05, HS19111343-06, HS19111343-07, HS19111343-08

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351465 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-112619** Units: **mg/L** Analysis Date: **26-Nov-2019 18:46**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365056** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW1-112619** Units: **mg/L** Analysis Date: **26-Nov-2019 19:02**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365057** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.65	0.500	20	0	98.2	80 - 120				
Nitrogen, Nitrate (As N)	4.016	0.100	4	0	100	80 - 120				
Sulfate	19.3	0.500	20	0	96.5	80 - 120				

LCSD Sample ID: **WLCSDW1-112619** Units: **mg/L** Analysis Date: **26-Nov-2019 19:19**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365058** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.6	0.500	20	0	98.0	80 - 120	19.65	0.275	20	
Nitrogen, Nitrate (As N)	4.004	0.100	4	0	100	80 - 120	4.016	0.302	20	
Sulfate	19.24	0.500	20	0	96.2	80 - 120	19.3	0.31	20	

MS Sample ID: **HS19111343-06MS** Units: **mg/L** Analysis Date: **26-Nov-2019 21:08**
Client ID: **35BWW12-191125** Run ID: **ICS-Integrion_351465** SeqNo: **5365062** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	16.62	0.500	10	7.049	95.7	80 - 120				
Nitrogen, Nitrate (As N)	2.024	0.100	2	0	101	80 - 120				
Sulfate	45.49	0.500	10	37.09	84.0	80 - 120				

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: HS19111343

QC BATCH REPORT

Batch ID: R351465 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MS Sample ID: **HS19111189-03MS** Units: **mg/L** Analysis Date: **26-Nov-2019 22:48**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365068** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	17.81	0.500	10	8.326	94.8	80 - 120				
Nitrogen, Nitrate (As N)	1.935	0.100	2	0.0229	95.6	80 - 120				
Sulfate	9.474	0.500	10	0.1582	93.2	80 - 120				

MSD Sample ID: **HS19111343-06MSD** Units: **mg/L** Analysis Date: **26-Nov-2019 21:25**
Client ID: **35BWW12-191125** Run ID: **ICS-Integrion_351465** SeqNo: **5365063** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	16.67	0.500	10	7.049	96.2	80 - 120	16.62	0.294	20	
Nitrogen, Nitrate (As N)	2.036	0.100	2	0	102	80 - 120	2.024	0.591	20	
Sulfate	45.88	0.500	10	37.09	87.8	80 - 120	45.49	0.842	20	

MSD Sample ID: **HS19111189-03MSD** Units: **mg/L** Analysis Date: **26-Nov-2019 23:04**
Client ID: Run ID: **ICS-Integrion_351465** SeqNo: **5365069** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.13	0.500	10	8.326	98.0	80 - 120	17.81	1.78	20	
Nitrogen, Nitrate (As N)	1.988	0.100	2	0.0229	98.3	80 - 120	1.935	2.71	20	
Sulfate	9.812	0.500	10	0.1582	96.5	80 - 120	9.474	3.51	20	

The following samples were analyzed in this batch: HS19111343-03 HS19111343-04 HS19111343-06

ALS Houston, US Date: 13-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP 37
WorkOrder: **HS19111343**

QUALIFIERS, ACRONYMS, UNITS

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

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical 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	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 13-Dec-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19111343

Date/Time Received: **26-Nov-2019 08:40**
Received by: **NDR**

Checklist completed by: *Jared R. Makan* eSignature 26-Nov-2019 Date

Reviewed by: *RJ Modashia* eSignature 26-Nov-2019 Date

Matrices: **Water**

Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:N/A
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.3°C / 1.3°C UC/C	IR11	
Cooler(s)/Kit(s):	24403		
Date/Time sample(s) sent to storage:	11/26/2019 14:31		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

Page 1 of

COC ID: 37NOV2019-1911__-ALS

TURNAROUND TIME:

RUSH:

PROJECT/CLIENT INFO				LABORATORY				OTHER INFO			
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories			Email Invoice To	FcoInvoices@aptim.com		
Project Number	501032			Lab Contact	RJ Modashia						
	LHAAP-37			Email	RJ.Modashia@alsglobal.com			Email Report To	Susan.Huang@aptim.com		
Address	1203-B East Grand Avenue			Address	10450 Stancliff 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

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	3-40 ml VOA/Cool to 6 deg C	2-40ml Amber/H2SO4	1-250ml/Cool to 6 deg C	
									ANALYSIS	Vocs by 8260B	MEE by RSK175	CO2 by RSK175	TOC by SM5310C	Anions (chloride/sulfate/nitrate) by 9056	
35BWW07-191125	LHAAP37				WG	11/25/19	0835	3		X					
35BWW13-191125	LHAAP37				WG	11/25/19	0920	3		X					
35BWW14-191125	LHAAP37				WG	11/25/19	1005	12		X	X	X	X	X	
35BWW23-191125	LHAAP37				WG	11/25/19	1055	12		X	X	X	X	X	
35BWW24-191125	LHAAP37				WG	11/25/19	1145	3		X					
35BWW12-191125	LHAAP37				WG	11/25/19	1235	12		X	X	X	X	X	
35BWW12-191125-MS	LHAAP37				WG	11/25/19	1235	12		X	X	X	X	X	
35BWW12-191125-MSD	LHAAP37				WG	11/25/19	1235	12		X	X	X	X	X	
35BWW05-191125	LHAAP37				WG	11/25/19	1335	3		X					
TRIP BLANK	LHAAP37				W	11/25/19		2		X					

HS19111343

Aptim Environmental & Infrastructure, Inc.

Longhorn Army Ammunition Plant LHAAP 37

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	[signature] BHATA	11/25/19 1445	NA /ALS	11/26/19 08.40

24403 w/c - 1.3

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

24403

CUSTODY SEAL

Date: 11/25/19 Time: 1415
Name: Scott Beesinger
Company: EHHAS

Seal Broken By:
Date: 11/26/19

24403

Must Deliver Next Business Day
Time and Tempature Sensitive!

24403

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIRONMENTAL & INFASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 01NOV19
ACTWGT: 1.00 LB MAN
CAD: 3001307CAFE3211
DIMS: 19x16x13 IN

TO **CLIENT SERVICES**
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5868
REF: LHAAP 37 - RJ

RMA:

FedEx Express

FedEx
1251 0291 2504

TUE - 26 NOV 10:30A
PRIORITY OVERNIGHT

77099
TX-US
IAH

AB SGRA

FTD 162705 25NOV19 GGEA 56A01/F330/05A2

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

December 06, 2019 **Analytical Report for Service Request No:** K1911169

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

RE: HS19111343

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 27, 2019
For your reference, these analyses have been assigned our service request number **K1911169.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

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

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

ALS Environmental

Client: ALS Environmental - US
Project: HS19111343
Sample Matrix: Ground Water

Service Request: K1911169
Date Received: 11/27/2019

CASE NARRATIVE

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

Sample Receipt:

Three ground water samples were received for analysis at ALS Environmental on 11/27/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 12/06/2019

Chain of Custody

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

K1911169

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

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **12737**

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19111343
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19111343-03**	**35BWW14-191125**	**Groundwater**	**25 Nov 2019 10:05**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			06 Dec 2019
2.	**HS19111343-04**	**35BWW23-191125**	**Groundwater**	**25 Nov 2019 10:55**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			06 Dec 2019
3.	**HS19111343-06**	**35BWW12-191125**	**Groundwater**	**25 Nov 2019 12:35**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			06 Dec 2019

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

HS19111343-06 MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: NA Date/Time: 11/26/19 18:00

Received By: [signature] Date/Time: 11/27/19 0920

Cooler ID(s): Temperature(s):

ALS

PC KL

Cooler Receipt and Preservation Form

Client AIS Houston Service Request K19 11169

Received: 11/27/19 Opened: 11/27/19 By: MP Unloaded: 11/27/19 By: MP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.6	-0.4	0.3	0.5	0.2	401		1251 0292 3074	
						12737		
						12738		

4. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

RUSH

Notes, Discrepancies, & Resolutions: _____

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:**	K1911169
Project:	HS19111343	**Date Collected:**	11/25/19
Sample Matrix:	Ground Water	**Date Received:**	11/27/19
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
35BWW14-191125	K1911169-001	**0.54**	0.50	0.20	0.07	1	11/30/19 16:37	
35BWW23-191125	K1911169-002	**0.47 J**	0.50	0.20	0.07	1	11/30/19 17:05	
35BWW12-191125	K1911169-003	**0.41 J**	0.50	0.20	0.07	1	11/30/19 17:33	
Method Blank	K1911169-MB	ND U	0.50	0.20	0.07	1	11/30/19 14:57	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911169
Project	HS19111343	**Date Collected:**	11/25/19
Sample Matrix:	Ground Water	**Date Received:**	11/27/19
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
Batch QC	K1911109-001DUP	0.50	0.20	0.07	8.47	8.42	8.45	<1	10	12/01/19
Batch QC	K1911109-002DUP	0.50	0.20	0.07	8.97	9.01	8.99	<1	10	12/01/19
Batch QC	K1911133-001DUP	0.50	0.20	0.07	2.30	2.34	2.32	2	10	11/30/19
Batch QC	K1911133-002DUP	0.50	0.20	0.07	2.28	2.27	2.28	<1	10	11/30/19
Batch QC	K1911133-003DUP	0.50	0.20	0.07	2.10	2.13	2.11	2	10	11/30/19
Batch QC	K1911133-004DUP	0.50	0.20	0.07	1.10	1.00	1.05	10	10	11/30/19
Batch QC	K1911133-005DUP	0.50	0.20	0.07	1.68	1.70	1.69	1	10	11/30/19
Batch QC	K1911133-006DUP	0.50	0.20	0.07	0.14 J	0.15 J	0.147	5	10	11/30/19
Batch QC	K1911133-007DUP	0.50	0.20	0.07	0.08 J	ND U	NC	NC	10	11/30/19
Batch QC	K1911135-001DUP	0.50	0.20	0.07	10.4	10.4	10.4	<1	10	11/30/19
Batch QC	K1911135-002DUP	0.50	0.20	0.07	0.49 J	0.42 J	0.452	15 #	10	11/30/19
35BWW14-191125	K1911169-001DUP	0.50	0.20	0.07	0.54	0.44 J	0.486	20 #	10	11/30/19
35BWW23-191125	K1911169-002DUP	0.50	0.20	0.07	0.47 J	0.46 J	0.463	3	10	11/30/19
35BWW12-191125	K1911169-003DUP	0.50	0.20	0.07	0.41 J	0.41 J	0.410	1	10	11/30/19
Batch QC	K1911171-001DUP	0.50	0.20	0.07	14.4	14.4	14.4	<1	10	11/30/19

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911169
Project:	HS19111343	**Date Collected:**	11/25/19
Sample Matrix:	Ground Water	**Date Received:**	11/27/19
		Date Analyzed:	11/30/19
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	35BWW12-191125	**Units:**	mg/L
Lab Code:	K1911169-003	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K1911169-003MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	0.41 J	25.7	25.0	101	83-117

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911169
Project:	HS19111343	**Date Analyzed:**	11/30/19
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:	661627

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1911169-LCS	24.8	25.0	99	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1911169
Project: HS19111343

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	661627	KQ1917723-01	11/30/19 14:28	25.0	24.5	98	90-110
CCV2	661627	KQ1917723-02	11/30/19 18:30	25.0	23.9	95	90-110
CCV3	661627	KQ1917723-03	11/30/19 23:41	25.0	23.9	96	90-110
CCV4	661627	KQ1917723-04	12/01/19 02:48	25.0	23.5	94	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1911169
Project: HS19111343

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C **Units:**mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	661627	KQ1917723-05	11/30/19 14:42	0.50	0.20	0.07	ND	U
CCB2	661627	KQ1917723-06	11/30/19 18:45	0.50	0.20	0.07	ND	U
CCB3	661627	KQ1917723-07	11/30/19 23:55	0.50	0.20	0.07	ND	U
CCB4	661627	KQ1917723-08	12/01/19 03:03	0.50	0.20	0.07	ND	U

Raw Data

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

General Chemistry

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

Work Request # Original ( ) K1911109, 1133, 1135, 1155, 1169, 1171, 1129

Tier: II II II I IV II III

Date Analyzed: 11/30/19 TOC: 661627

Analyst: BCP Run # DOC: 661628

Analysis: TOC/DOC

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS:

10. K11169 - 1/1 d RPD = 20% } Sample conc. < 5 times MRL
K11135 - 2/2 d RPD = 15%

Final Approved by: _____ Date: 12/05/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 661627 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1911109-001	Carbon, Total Organic	N/A		Water	8.47 mg/L	10 mL	8.47 mg/L	1	0.07	0.50			12/1/19 00:40:00	N	II
K1911109-002	Carbon, Total Organic	N/A		Water	8.97 mg/L	10 mL	8.97 mg/L	1	0.07	0.50			12/1/19 01:08:00	N	II
K1911133-001	Carbon, Total Organic	N/A		Water	2.30 mg/L	10 mL	2.30 mg/L	1	0.07	0.50			11/30/19 19:00:00	N	II
K1911133-002	Carbon, Total Organic	N/A		Water	2.28 mg/L	10 mL	2.28 mg/L	1	0.07	0.50			11/30/19 19:28:00	N	II
K1911133-003	Carbon, Total Organic	N/A		Water	2.10 mg/L	10 mL	2.10 mg/L	1	0.07	0.50			11/30/19 19:56:00	N	II
K1911133-004	Carbon, Total Organic	N/A		Water	1.10 mg/L	10 mL	1.10 mg/L	1	0.07	0.50			11/30/19 20:24:00	N	II
K1911133-005	Carbon, Total Organic	N/A		Water	1.68 mg/L	10 mL	1.68 mg/L	1	0.07	0.50			11/30/19 20:52:00	N	II
K1911133-006	Carbon, Total Organic	N/A		Water	0.14 mg/L	10 mL	0.14 mg/L J	1	0.07	0.50			11/30/19 21:20:00	N	II
K1911133-007	Carbon, Total Organic	N/A		Water	0.08 mg/L	10 mL	0.08 mg/L J	1	0.07	0.50			11/30/19 21:48:00	N	II
K1911135-001	Carbon, Total Organic	N/A		Water	10.35 mg/L	10 mL	10.4 mg/L	1	0.07	0.50			11/30/19 22:17:00	N	II
K1911135-002	Carbon, Total Organic	N/A		Water	0.49 mg/L	10 mL	0.49 mg/L J	1	0.07	0.50			11/30/19 22:45:00	N	II
K1911155-003	Carbon, Total Organic	N/A		Drinking Water	0.95 mg/L	10 mL	0.95 mg/L	1	0.07	0.50			11/30/19 15:41:00	N	I
K1911155-005	Carbon, Total Organic	N/A		Drinking Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50			11/30/19 16:09:00	N	I
K1911169-001	Carbon, Total Organic	N/A		Ground Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50			11/30/19 16:37:00	N	IV
K1911169-002	Carbon, Total Organic	N/A		Ground Water	0.47 mg/L	10 mL	0.47 mg/L J	1	0.07	0.50			11/30/19 17:05:00	N	IV
K1911169-003	Carbon, Total Organic	N/A		Ground Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50			11/30/19 17:33:00	Y	IV
K1911171-001	Carbon, Total Organic	N/A		Water	14.38 mg/L	10 mL	14.4 mg/L	1	0.07	0.50			11/30/19 23:13:00	N	II
KQ1917723-01	Carbon, Total Organic	CCV		Drinking Water	24.53 mg/L	10 mL	24.5 mg/L	1					11/30/19 14:28:00	N	I
KQ1917723-01	Carbon, Total Organic	CCV		Drinking Water	24.53 mg/L	10 mL	24.5 mg/L	1					11/30/19 14:28:00	N	I
KQ1917723-02	Carbon, Total Organic	CCV		Drinking Water	23.86 mg/L	10 mL	23.9 mg/L	1					11/30/19 18:30:00	N	I
KQ1917723-02	Carbon, Total Organic	CCV		Drinking Water	23.86 mg/L	10 mL	23.9 mg/L	1					11/30/19 18:30:00	N	I
KQ1917723-03	Carbon, Total Organic	CCV		Drinking Water	23.89 mg/L	10 mL	23.9 mg/L	1					11/30/19 23:41:00	N	I
KQ1917723-03	Carbon, Total Organic	CCV		Drinking Water	23.89 mg/L	10 mL	23.9 mg/L	1					11/30/19 23:41:00	N	I
KQ1917723-04	Carbon, Total Organic	CCV		Drinking Water	23.52 mg/L	10 mL	23.5 mg/L	1					12/1/19 02:48:00	N	I
KQ1917723-04	Carbon, Total Organic	CCV		Drinking Water	23.52 mg/L	10 mL	23.5 mg/L	1					12/1/19 02:48:00	N	I
KQ1917723-05	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 14:42:00	N	I
KQ1917723-05	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 14:42:00	N	I
KQ1917723-06	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 18:45:00	N	I
KQ1917723-06	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 18:45:00	N	I

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

12/05/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 661627 **Method/Testcode:** 415.1/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1917723-07	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 23:55:00	N	I
KQ1917723-07	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 23:55:00	N	I
KQ1917723-08	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			12/1/19 03:03:00	N	I
KQ1917723-08	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			12/1/19 03:03:00	N	I
KQ1917723-09	Carbon, Total Organic	MB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 14:57:00	N	I
KQ1917723-09	Carbon, Total Organic	MB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 14:57:00	N	I
KQ1917723-10	Carbon, Total Organic	LCS		Drinking Water	24.77 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		11/30/19 15:12:00	N	I
KQ1917723-10	Carbon, Total Organic	LCS		Drinking Water	24.77 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		11/30/19 15:12:00	N	I
KQ1917723-11	Carbon, Total Organic	MS	K1911169-003	Ground Water	25.70 mg/L	10 mL	25.7 mg/L	1	0.07	0.50	101		11/30/19 18:01:00	N	IV
KQ1917723-12	Carbon, Total Organic	DUP	K1911169-001	Ground Water	0.44 mg/L	10 mL	0.44 mg/L J	1	0.07	0.50		20*	11/30/19 16:37:00	N	IV
KQ1917723-13	Carbon, Total Organic	DUP	K1911169-002	Ground Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50		3	11/30/19 17:05:00	N	IV
KQ1917723-14	Carbon, Total Organic	DUP	K1911169-003	Ground Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50		1	11/30/19 17:33:00	N	IV
KQ1917723-15	Carbon, Total Organic	DUP	K1911171-001	Water	14.39 mg/L	10 mL	14.4 mg/L	1	0.07	0.50		<1	11/30/19 23:13:00	N	II
KQ1917723-16	Carbon, Total Organic	DUP	K1911109-001	Water	8.42 mg/L	10 mL	8.42 mg/L	1	0.07	0.50		<1	12/1/19 00:40:00	N	II
KQ1917723-17	Carbon, Total Organic	DUP	K1911109-002	Water	9.01 mg/L	10 mL	9.01 mg/L	1	0.07	0.50		<1	12/1/19 01:08:00	N	II
KQ1917723-18	Carbon, Total Organic	DUP	K1911133-001	Water	2.34 mg/L	10 mL	2.34 mg/L	1	0.07	0.50		2	11/30/19 19:00:00	N	II
KQ1917723-19	Carbon, Total Organic	DUP	K1911133-002	Water	2.27 mg/L	10 mL	2.27 mg/L	1	0.07	0.50		<1	11/30/19 19:28:00	N	II
KQ1917723-20	Carbon, Total Organic	DUP	K1911133-003	Water	2.13 mg/L	10 mL	2.13 mg/L	1	0.07	0.50		2	11/30/19 19:56:00	N	II
KQ1917723-21	Carbon, Total Organic	DUP	K1911133-004	Water	1.00 mg/L	10 mL	1.00 mg/L	1	0.07	0.50		10	11/30/19 20:24:00	N	II
KQ1917723-22	Carbon, Total Organic	DUP	K1911133-005	Water	1.70 mg/L	10 mL	1.70 mg/L	1	0.07	0.50		1	11/30/19 20:52:00	N	II
KQ1917723-23	Carbon, Total Organic	DUP	K1911133-006	Water	0.15 mg/L	10 mL	0.15 mg/L J	1	0.07	0.50		5	11/30/19 21:20:00	N	II
KQ1917723-24	Carbon, Total Organic	DUP	K1911133-007	Water	0.07 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	11/30/19 21:48:00	N	II
KQ1917723-25	Carbon, Total Organic	DUP	K1911135-001	Water	10.42 mg/L	10 mL	10.4 mg/L	1	0.07	0.50		<1	11/30/19 22:17:00	N	II
KQ1917723-26	Carbon, Total Organic	DUP	K1911135-002	Water	0.42 mg/L	10 mL	0.42 mg/L J	1	0.07	0.50		15*	11/30/19 22:45:00	N	II
KQ1917723-27	Carbon, Total Organic	DUP	K1911155-003	Drinking Water	0.97 mg/L	10 mL	0.97 mg/L	1	0.07	0.50		2	11/30/19 15:41:00	N	I
KQ1917723-28	Carbon, Total Organic	DUP	K1911155-005	Drinking Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50		7	11/30/19 16:09:00	N	I
KQ1917723-29	Carbon, Total Organic	N/A		Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50			12/1/19 17:33:00	N	II
KQ1917723-30	Carbon, Total Organic	MS	KQ1917723-29	Water	25.70 mg/L	10 mL	25.7 mg/L	1	0.07	0.50	101		12/1/19 18:01:00	N	II
KQ1917723-31	Carbon, Total Organic	DUP	KQ1917723-29	Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50		1	12/1/19 17:33:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 661628 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1911129-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	9.41 mg/L	10 mL	9.41 mg/L	1	0.07	0.50			12/1/19 01:51:00	N	III
KQ1917724-01	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.89 mg/L	10 mL	23.9 mg/L	1					11/30/19 23:41:00	N	III
KQ1917724-02	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.52 mg/L	10 mL	23.5 mg/L	1					12/1/19 02:48:00	N	III
KQ1917724-03	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			11/30/19 23:55:00	N	III
KQ1917724-04	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			12/1/19 03:03:00	N	III
KQ1917724-05	Carbon, Dissolved Organic (DOC)	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			12/1/19 00:10:00	N	III
KQ1917724-06	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	24.36 mg/L	10 mL	24.4 mg/L	1	0.07	0.50	97		12/1/19 00:25:00	N	III
KQ1917724-07	Carbon, Dissolved Organic (DOC)	MS	K1911129-001	Surface Water	33.77 mg/L	10 mL	33.8 mg/L	1	0.07	0.50	97		12/1/19 02:19:00	N	III
KQ1917724-08	Carbon, Dissolved Organic (DOC)	DUP	K1911129-001	Surface Water	9.38 mg/L	10 mL	9.38 mg/L	1	0.07	0.50		<1	12/1/19 01:51:00	N	III

12/05/19

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TOC: 661627
DOC: 661628

Schedule: 11302019

Version: 2
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/11/30 12:34 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1911155-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1911155-005.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1911169-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1911169-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1911169-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1911169-003.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
9	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1911133-001.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1911133-002.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1911133-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1911133-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1911133-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1911133-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1911133-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1911135-001.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1911135-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1911171-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1911109-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1911109-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	FB 11/30/2019	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
24	Sample	K1911129-001.14 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1911129-001.14 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
26	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

12/05/19

Fusion Report - 11302019
Saturday, November 30, 2019 12:34 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/12/03 14:33 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	11302019	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)		
Comment:			

12/05/19

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/11/30 12:34

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	15.83	19.70	3.88	49.77	05:22
2	TC Clean	17.08	20.66	3.58	50.17	04:01
3	TC Clean	3.04	6.79	3.75	50.22	03:49
4	TC Clean	2.15	5.67	3.53	50.23	03:49

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/11/30 12:56

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.11	4.57	3.46	49.66	05:11
2	TC Clean	5.78	9.44	3.67	50.19	04:03
3	TC Clean	1.99	5.49	3.50	50.15	03:47
4	TC Clean	1.77	5.41	3.63	50.13	03:43

Sample Type: Clean From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/11/30 13:18

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.77	4.47	3.69	49.87	05:12
2	TC Clean	5.18	8.91	3.73	50.21	04:03
3	TC Clean	2.45	6.10	3.64	50.22	03:47
4	TC Clean	2.35	6.05	3.70	50.22	03:53

Sample Type: Blank (Creating v1325) From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2019/11/30 13:39

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.12	4.64	3.52	49.77	05:20
2	TC Clean	5.76	9.40	3.64	50.21	04:04
3	TC Clean	2.72	6.41	3.69	50.10	03:45
4	TC Clean	2.99	6.75	3.76	50.24	03:48
5	Reagent Blank	4.87	8.70	3.83	50.17	05:04
6	Acid Blank	0.98	4.71	3.73	49.73	05:29

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.7886 ppm	0.0000 ppm	0.0000%	2019/11/30 14:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7886	7.8860	14.19	18.08	3.89	50.32	10:35

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5312 ppm (PASS)	0.0000 ppm	0%	2019/11/30 14:28

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5312	245.3123	175.98	179.86	3.88	50.30	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/30 14:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.74	11.63	3.88	50.32	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/30 14:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.00	10.63	3.63	50.33	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.7705 ppm (PASS)	0.0000 ppm	0%	2019/11/30 15:12

Pos	Base Analysis	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

	Type									
C	TOC	25.0 ppm	1	24.7705	247.7047	177.60	181.33	3.73	50.30	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.0822 ppm	0.0000 ppm	0.0000%	2019/11/30 15:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0822	0.8220	9.40	12.91	3.51	50.33	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1911155-003.04	0.9614 ppm	0.0142 ppm	1.4700%	2019/11/30 15:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9514	9.5139	15.30	19.06	3.76	50.30	10:27
2	TOC	0.9714	9.7142	15.44	19.13	3.69	50.41	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1911155-005.04	0.5660 ppm	0.0273 ppm	4.8200%	2019/11/30 16:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5853	5.8530	12.81	16.60	3.78	50.33	10:26
2	TOC	0.5467	5.4670	12.55	16.21	3.66	50.39	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K1911169-001.01	0.4857 ppm	0.0698 ppm	14.3700%	2019/11/30 16:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5351	5.3506	12.47	16.19	3.72	50.37	10:27
2	TOC	0.4364	4.3636	11.80	15.64	3.84	50.33	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC)	CAS_salt_010711	CAS_salt_010711

(v1325) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1911169-002.01	0.4630 ppm	0.0090 ppm	1.9300%	2019/11/30 17:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4694	4.6936	12.03	15.85	3.83	50.37	10:26
2	TOC	0.4567	4.5669	11.94	15.65	3.71	50.32	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1911169-003.01	0.4100 ppm	0.0035 ppm	0.8600%	2019/11/30 17:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4075	4.0748	11.61	15.33	3.72	50.39	10:28
2	TOC	0.4125	4.1249	11.64	15.29	3.65	50.32	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1911169-003.01 ms	25.6972 ppm	0.0000 ppm	0.0000%	2019/11/30 18:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.6972	256.9718	183.27	187.02	3.75	50.42	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/11/30 18:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.52	10.31	3.79	50.33	10:35

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.8566 ppm	0.0000 ppm	0%	2019/11/30 18:30

							(PASS)			

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.8566	238.5665	171.40	175.09	3.69	50.44	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/30 18:45

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.57	10.22	3.65	50.39	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	10	TOC	K1911133-001.01 2x	2.3173 ppm	0.0311 ppm	1.3400%	2019/11/30 19:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2952	22.9524	24.42	28.12	3.70	50.47	10:26
2	TOC	2.3393	23.3929	24.72	28.24	3.52	50.47	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K1911133-002.01 2x	2.2765 ppm	0.0085 ppm	0.3800%	2019/11/30 19:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2826	22.8257	24.34	27.99	3.65	50.42	10:26
2	TOC	2.2705	22.7049	24.25	27.91	3.65	50.51	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis	Sample ID	Result (ppmC)	Std. Dev.	RSD	Start Time

		Type			(ppmC)		
◆	12	TOC	K1911133-003.01	2.1139 ppm	0.0227 ppm	1.0700%	2019/11/30 19:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0978	20.9783	23.08	26.69	3.61	50.46	10:32
2	TOC	2.1299	21.2995	23.30	26.89	3.59	50.53	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K1911133-004.01	1.0496 ppm	0.0766 ppm	7.2900%	2019/11/30 20:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1037	11.0372	16.33	19.83	3.50	50.46	10:28
2	TOC	0.9954	9.9544	15.60	19.12	3.52	50.52	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K1911133-005.01	1.6929 ppm	0.0159 ppm	0.9400%	2019/11/30 20:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6817	16.8165	20.26	23.94	3.69	50.48	10:29
2	TOC	1.7042	17.0419	20.41	24.20	3.79	50.57	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	K1911133-006.01	0.1466 ppm	0.0048 ppm	3.2700%	2019/11/30 21:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1432	1.4319	9.81	13.34	3.53	50.48	10:30
2	TOC	0.1500	1.4997	9.86	13.68	3.82	50.48	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	16	TOC	K1911133-007.01	0.0728 ppm	0.0057 ppm	7.8700%	2019/11/30 21:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0769	0.7690	9.36	13.14	3.77	50.49	10:27
2	TOC	0.0688	0.6879	9.31	13.04	3.73	50.46	10:25

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1911135-001.01 2x	10.3855 ppm	0.0483 ppm	0.4700%	2019/11/30 22:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.3513	103.5129	79.10	82.50	3.40	50.51	10:26
2	TOC	10.4196	104.1965	79.57	83.33	3.76	50.47	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1911135-002.01	0.4517 ppm	0.0488 ppm	10.7900%	2019/11/30 22:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4862	4.8615	12.14	15.78	3.64	50.49	10:29
2	TOC	0.4172	4.1720	11.67	15.47	3.80	50.46	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1911171-001.04	14.3854 ppm	0.0061 ppm	0.0400%	2019/11/30 23:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.3811	143.8109	106.46	110.10	3.65	50.50	10:28
2	TOC	14.3898	143.8978	106.52	110.29	3.78	50.47	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.8907 ppm (PASS)	0.0000 ppm	0%	2019/11/30 23:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.8907	238.9068	171.63	175.26	3.63	50.51	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	50 ppmC

met.	(v4)	(v30)

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/11/30 23:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.62	9.52	3.90	50.45	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/01 00:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.28	8.97	3.69	50.51	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.3602 ppm (PASS)	0.0000 ppm	0%	2019/12/01 00:25

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.3602	243.6019	174.82	178.64	3.83	50.45	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◆	21	TOC	K1911109-001.01 100x	8.4459 ppm	0.0398 ppm	0.4700%	2019/12/01 00:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.4740	84.7399	66.36	70.17	3.81	50.47	10:29
2	TOC	8.4177	84.1772	65.98	69.47	3.49	50.45	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	22	TOC	K1911109-002.01 100x	8.9941 ppm	0.0289 ppm	0.3200%	2019/12/01 01:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.9737	89.7370	69.75	73.68	3.93	50.45	10:27
2	TOC	9.0145	90.1451	70.03	73.73	3.69	50.41	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	23	TOC	FB 11/30/2019	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/01 01:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.36	11.14	3.78	50.38	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	24	TOC	K1911129-001.14 doc	9.3973 ppm	0.0236 ppm	0.2500%	2019/12/01 01:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.4140	94.1404	72.74	76.41	3.67	50.40	10:31
2	TOC	9.3806	93.8060	72.52	76.31	3.79	50.34	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	25	TOC	K1911129-001.14 ms doc	33.7702 ppm	0.0000 ppm	0.0000%	2019/12/01 02:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	33.7702	337.7018	238.07	241.53	3.46	50.39	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC)	CAS_salt_010711	CAS_salt_010711

(v1325) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	26	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/01 02:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.33	10.23	3.90	50.32	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8410 (IC) (v1325)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.5243 ppm (PASS)	0.0000 ppm	0%	2019/12/01 02:48

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.5243	235.2429	169.14	172.79	3.65	50.42	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/12/01 03:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.32	9.14	3.82	50.35	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	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
v1324	1.3317	1.3300	0.0000	0.0000	0.0000	2019/11/26 12:29	Fusion1 (Fusion1)
v1325	1.6240	0.9840	0.0000	0.0000	0.0000	2019/11/30 14:13	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version: v30

Ver Creation: 2019/03/05 17:42

Comment:

Operator: Fusion1 (Fusion1)

Basic Analysis Type: TOC

Calibration curve formula: TOC: y = 6.788x + 9.463

r^2 value: TOC: r^2 = 0.99963

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

Name: CAS_salt_010711 (TOC)

Version: v4

Ver Creation: 2019/02/21 17:57

Comment:

Operator: Fusion1 (Fusion1)

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	2019/12/01 03:18

ALS Environmental

StarLIMS Run: 661627, 661628

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-83D

21 % H3PO4: 11-GEN-05-83E

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By: FCD	Date Analyzed: 11/30/19
Reviewed By:	Date Reviewed: 12/05/19

LABORATORY REPORT

December 13, 2019

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

RE: HS19111343

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on November 27, 2019. For your reference, these analyses have been assigned our service request number P1907270.

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

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

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 12:12 pm, Dec 13, 2019

For Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P1907270
Project: HS19111343

CASE NARRATIVE

The samples were received intact under chain of custody on November 27, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

The recoveries for the matrix spike and its duplicate were outside of the DoD control limits due to matrix interference. However all quality control parameters were met with the laboratory control sample and duplicate; therefore, the data has not been significantly affected.

Methane, Ethene and Ethane Analysis

The samples were analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

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

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

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

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

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

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS19111343

Service Request: P1907270

Date Received: 11/27/2019
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35BWW14-191125	P1907270-001	Water	11/25/2019	10:05	X	X
35BWW23-191125	P1907270-002	Water	11/25/2019	10:55	X	X
35BWW12-191125	P1907270-003	Water	11/25/2019	12:35	X	X

P1907270

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

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **12736**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19111343
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19111343-03**	**35BWW14-191125**	**Groundwater**	**25 Nov 2019 10:05**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			06 Dec 2019
2.	**HS19111343-04**	**35BWW23-191125**	**Groundwater**	**25 Nov 2019 10:55**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			06 Dec 2019
3.	**HS19111343-06**	**35BWW12-191125**	**Groundwater**	**25 Nov 2019 12:35**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			06 Dec 2019

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

HS19111343-06 MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: NR Date/Time: 11/26/19 18:00

Received By: Date/Time: 11/27/19 0930

Cooler ID(s): Temperature(s): 2° not to

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1907270
Project: HS19111343
Sample(s) received on: 11/27/19 Date opened: 11/27/19 by: ADAVID

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

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: 2° C Blank Temperature: ° C Thermometer ID T-111 Wet Ic			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1907270-001.01	40mL VOA NP		6		A	LD 12/04/2019
P1907270-001.02	40mL VOA NP				A	
P1907270-001.03	40mL VOA NP				A	
P1907270-001.04	40ml VOA HCL		2		A	LD 12/05/2019
P1907270-001.05	40ml VOA HCL				A	
P1907270-001.06	40ml VOA HCL				A	
P1907270-002.01	40mL VOA NP		6		A	LD 12/04/2019
P1907270-002.02	40mL VOA NP				A	
P1907270-002.03	40mL VOA NP				A	
P1907270-002.04	40ml VOA HCL		2		A	LD 12/05/2019
P1907270-002.05	40ml VOA HCL				A	
P1907270-002.06	40ml VOA HCL				A	
P1907270-003.01	40mL VOA NP		6		A	LD 12/04/2019
P1907270-003.02	40mL VOA NP				A	
P1907270-003.03	40mL VOA NP				A	

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

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

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1907270

Project: HS19111343

Sample(s) received on: 11/27/19 Date opened: 11/27/19 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1907270-003.04	40ml VOA HCL		2		A	LD 12/05/2019
P1907270-003.05	40ml VOA HCL		2		A	LD 12/05/2019
P1907270-003.06	40ml VOA HCL		2		A	LD 12/05/2019
P1907270-003.07	40mL VOA NP				A	
P1907270-003.08	40mL VOA NP				A	
P1907270-003.09	40mL VOA NP				A	
P1907270-003.10	40mL VOA NP				A	
P1907270-003.11	40mL VOA NP		6		A	LD 12/04/2019
P1907270-003.12	40mL VOA NP		6		A	LD 12/04/2019
P1907270-003.13	40ml VOA HCL				A	
P1907270-003.14	40ml VOA HCL				A	
P1907270-003.15	40ml VOA HCL				A	
P1907270-003.16	40ml VOA HCL				A	
P1907270-003.17	40ml VOA HCL				A	
P1907270-003.18	40ml VOA HCL				A	

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS19111343** ALS Project ID: P1907270

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD Date(s) Collected: 11/25/19
Analyst: Li Donghao Date Received: 11/27/19
Matrix: Water Date Analyzed: 12/04/19
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L
35BWW14-191125	P1907270-001	0.10	**31,000**	1,000	860	370
35BWW23-191125	P1907270-002	0.10	**69,000**	1,000	860	370
35BWW12-191125	P1907270-003	0.10	**73,000**	1,000	860	370
Method Control Sample	P191204-MB	0.10	860	1,000	860	370

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced met

Data Qualifier
U

:hod.

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW12-191125**
Client Project ID: **HS19111343**

ALS Project ID: P1907270
ALS Sample ID: P1907270-003MS
P1907270-003DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 11/25/19
Date Received: 11/27/19
Date Analyzed: 12/04/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount MS / DMS ug/L	Sample Amount ug/L	Result MS ug/L	Result DMS ug/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	72,900	111,000	111,000	**166**	**166**	80-122	0	30	**N**

N = The matrix spike sample recovery is not within control limits. See case narrative.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1907270
Client Project ID: **HS19111343** ALS Sample ID: P191204-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Li Donghao Date Analyzed: 12/04/19
Matrix: Water Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	20,200	20,000	**88**	**87**	80-122	1	12	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW14-191125**
Client Project ID: **HS19111343**

ALS Project ID: P1907270
ALS Sample ID: P1907270-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 11/25/19
Date Received: 11/27/19
Date Analyzed: 12/05/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW23-191125**
Client Project ID: **HS19111343**

ALS Project ID: P1907270
ALS Sample ID: P1907270-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 11/25/19
Date Received: 11/27/19
Date Analyzed: 12/05/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW12-191125**
Client Project ID: **HS19111343**

ALS Project ID: P1907270
ALS Sample ID: P1907270-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 11/25/19
Date Received: 11/27/19
Date Analyzed: 12/05/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS19111343**

ALS Project ID: P1907270
ALS Sample ID: P191205-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/05/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW12-191125**
Client Project ID: **HS19111343**

ALS Project ID: P1907270
ALS Sample ID: P1907270-003MS
P1907270-003DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 11/25/19
Date Received: 11/27/19
Date Analyzed: 12/5/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount MS / DMS µg/L	Sample Amount µg/L	Result MS µg/L	Result DMS µg/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	0.385	3.05	3.01	**106**	**104**	73-125	2	30	
74-85-1	Ethene	4.40	ND	4.58	4.53	**104**	**103**	72-133	1	30	
74-84-0	Ethane	4.72	ND	4.49	4.49	**95**	**95**	74-131	0	30	

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS19111343**

ALS Project ID: P1907270
ALS Sample ID: P191205-LCS
P191205-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/05/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.62	2.43	**104**	**96**	73-125	8	26	
74-85-1	Ethene	4.40	4.68	4.71	**106**	**107**	72-133	0.9	11	
74-84-0	Ethane	4.72	4.78	4.79	**101**	**101**	74-131	0	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:53:58
Operator : LD
Sample : P1907270-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:31:14 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

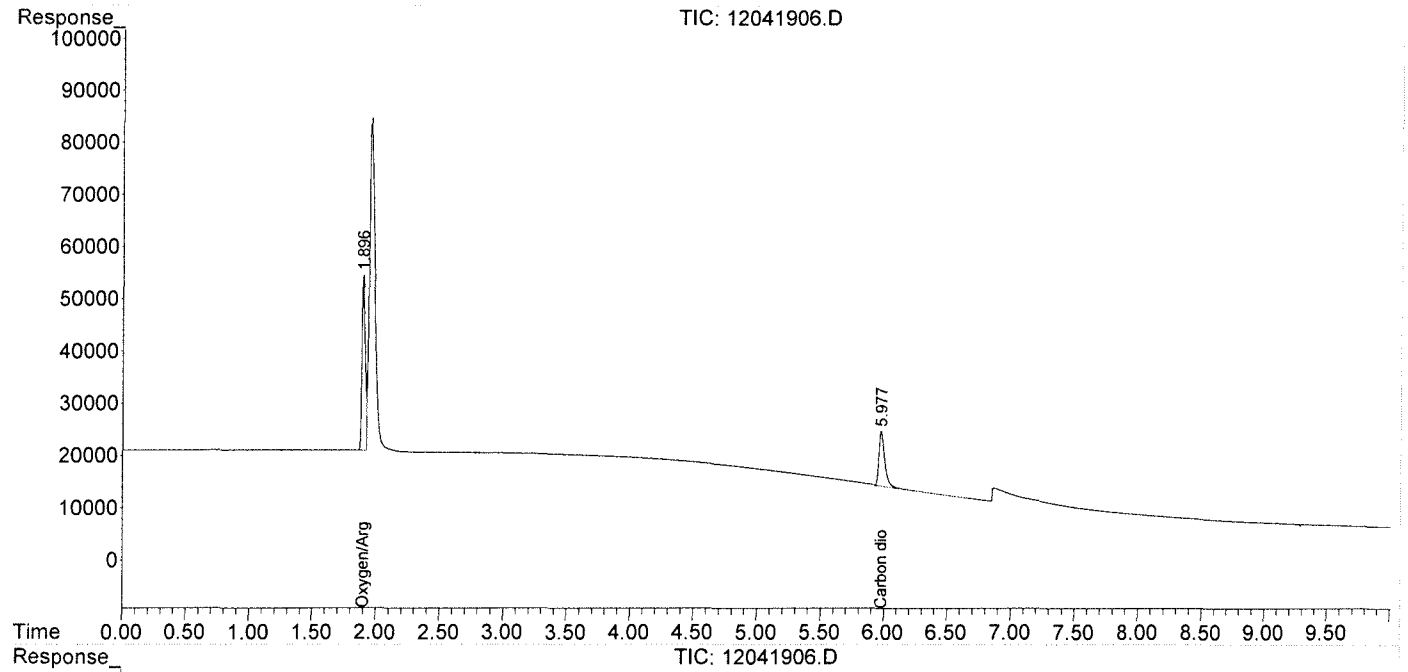
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.896	577259	0.121	ppm
2)	Carbon monoxide	1.896	577259	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.978	331311	1411.462	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

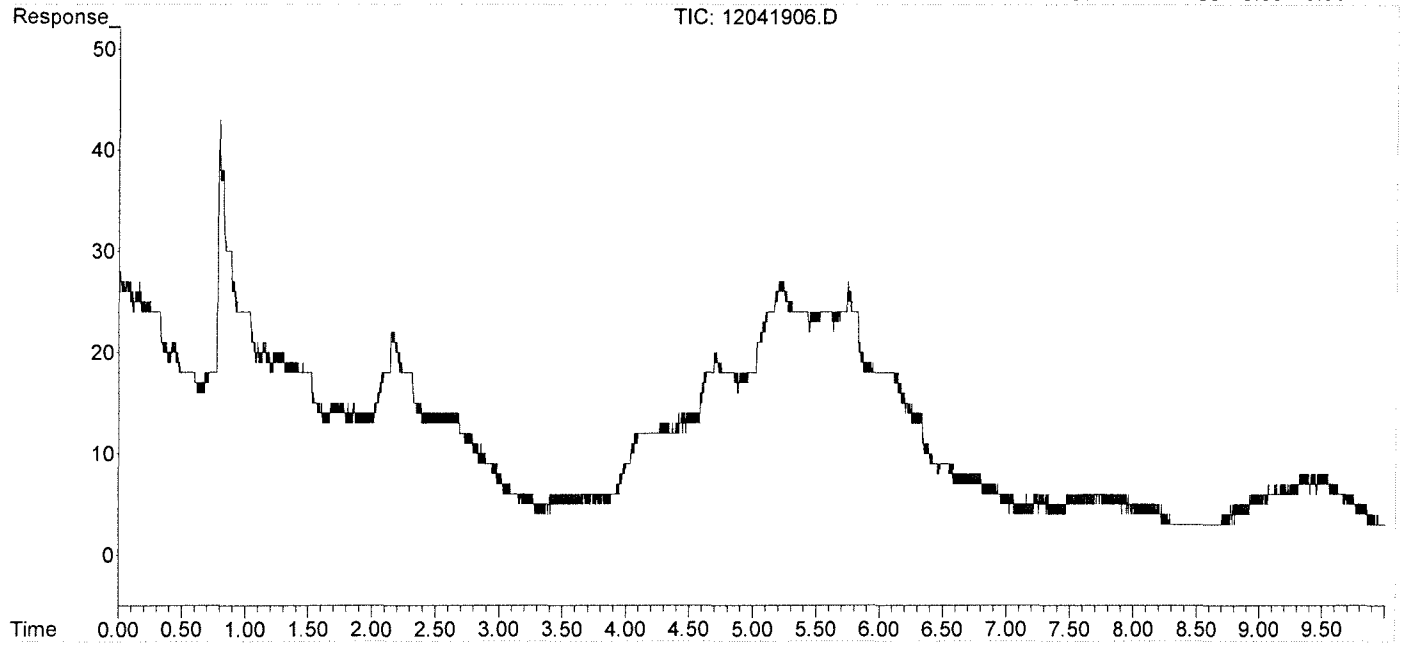
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:53:58
Operator : LD
Sample : P1907270-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:31:14 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:10:45
Operator : LD
Sample : P1907270-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:31:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

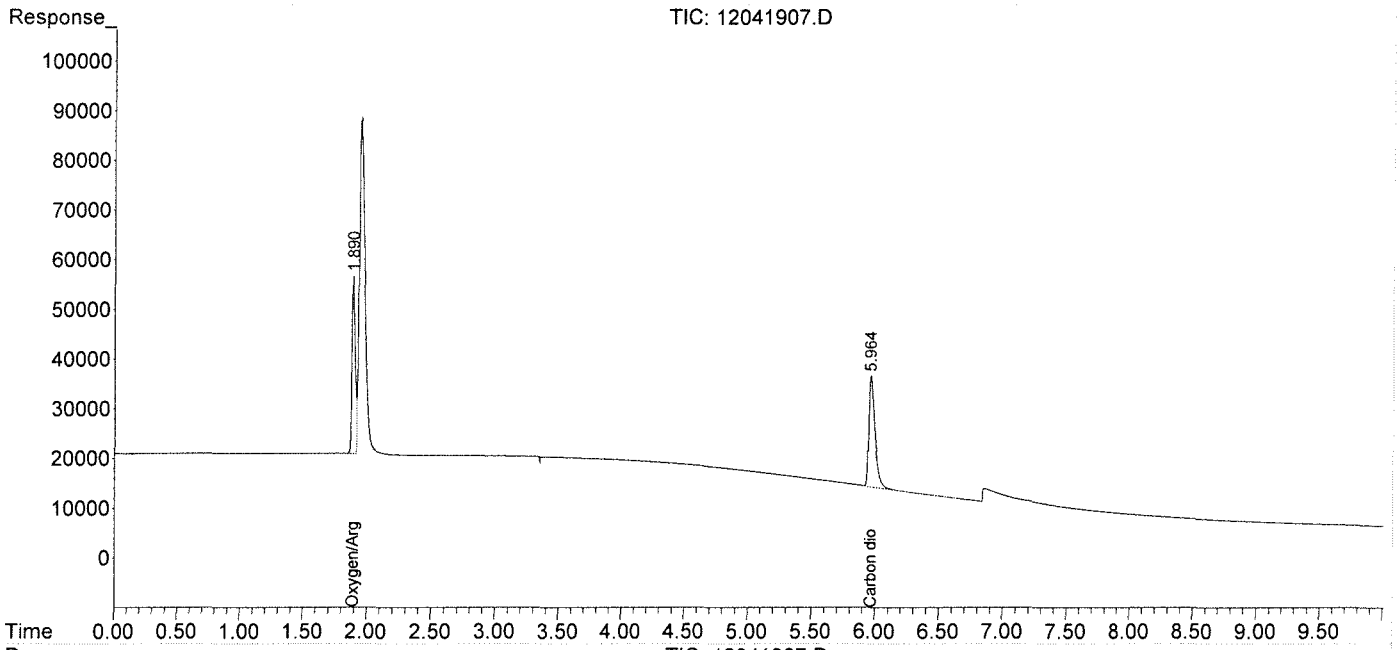
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.891	609002	0.128	ppm
2)	Carbon monoxide	1.891	609002	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.965	742865	3164.775	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

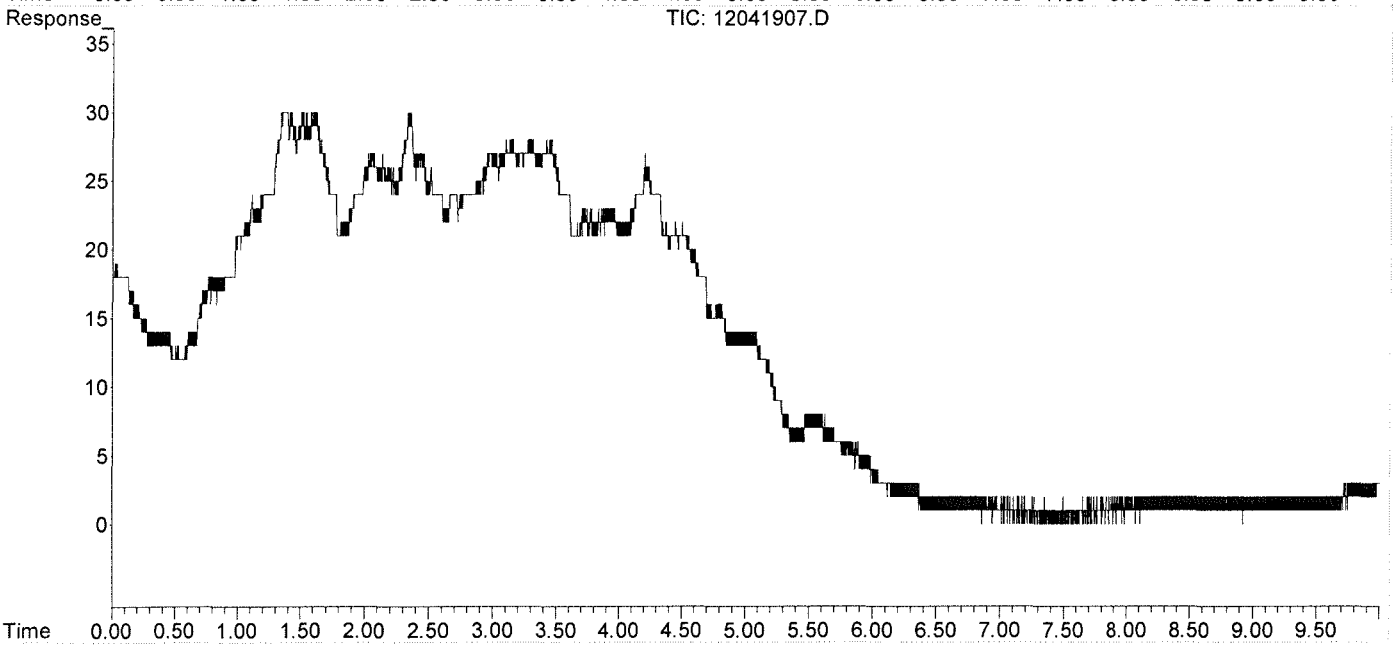
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:10:45
Operator : LD
Sample : P1907270-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:31:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:24:18
Operator : LD
Sample : P1907270-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 12:50:50 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

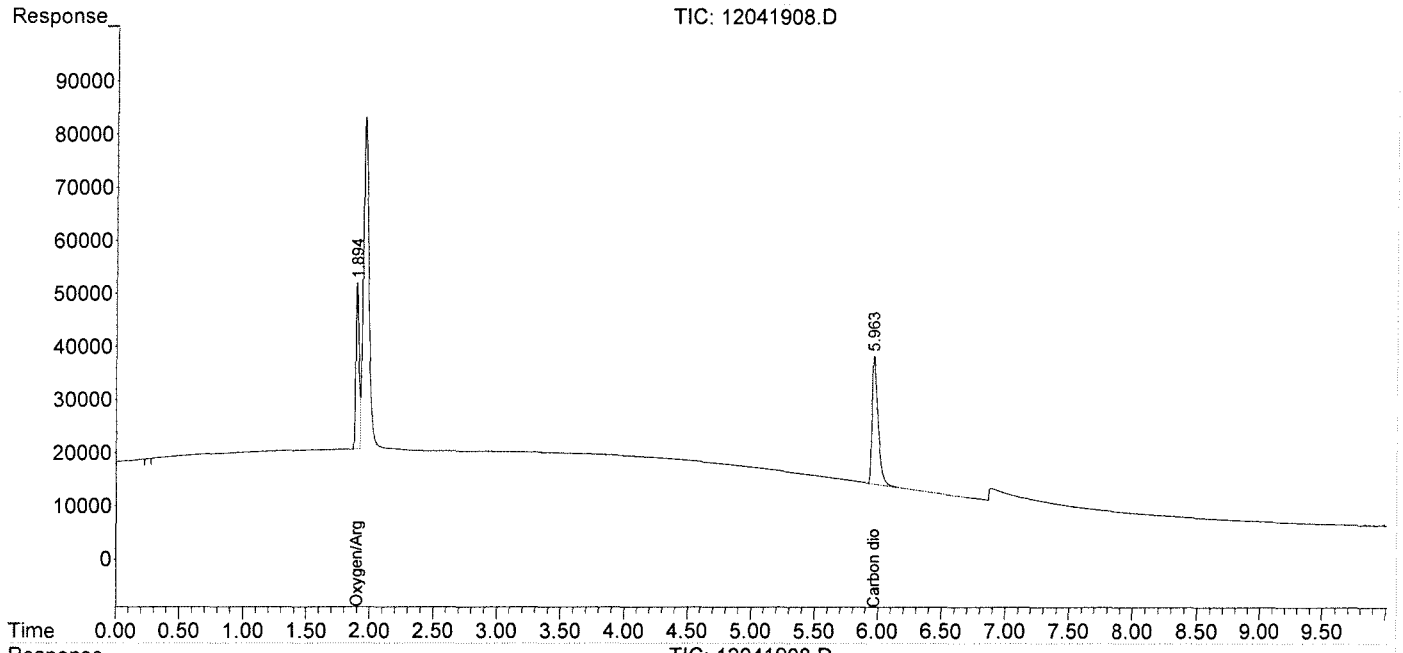
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.895	535237	0.112	ppm
2)	Carbon monoxide	1.895	535237	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.963	783659	3338.567	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

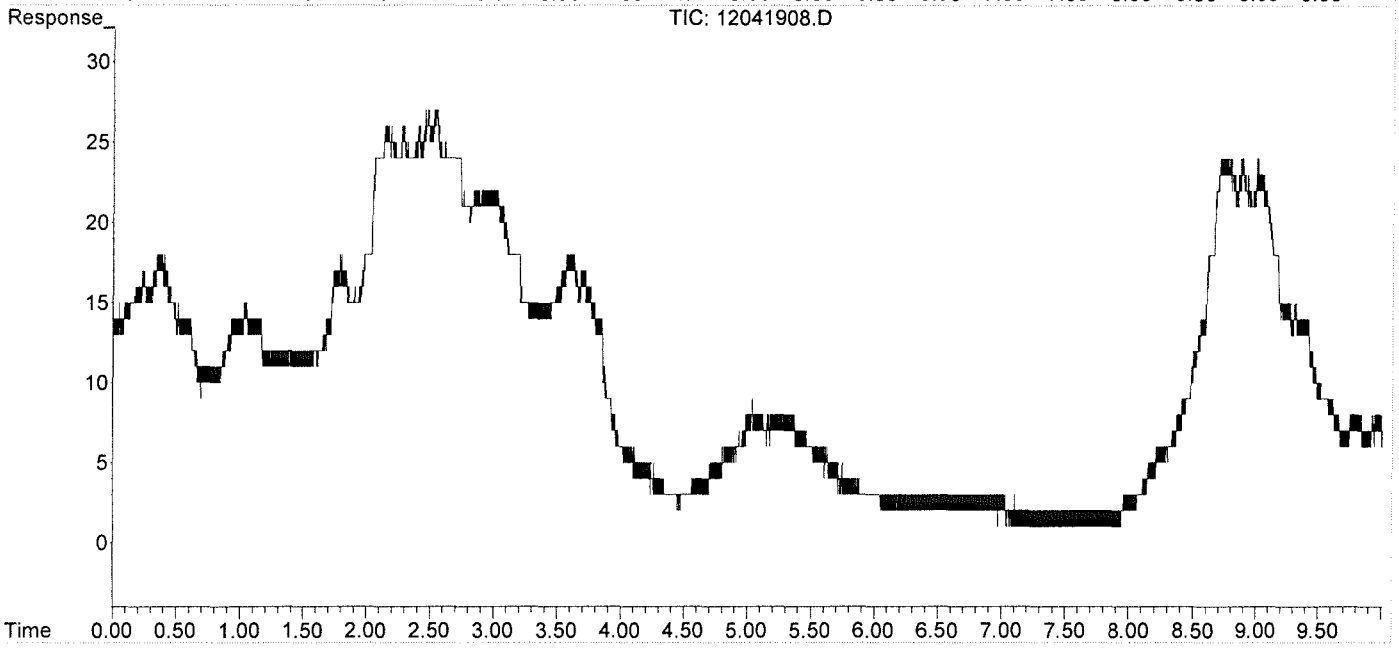
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:24:18
Operator : LD
Sample : P1907270-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 12:50:50 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:10:34
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:51:53 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

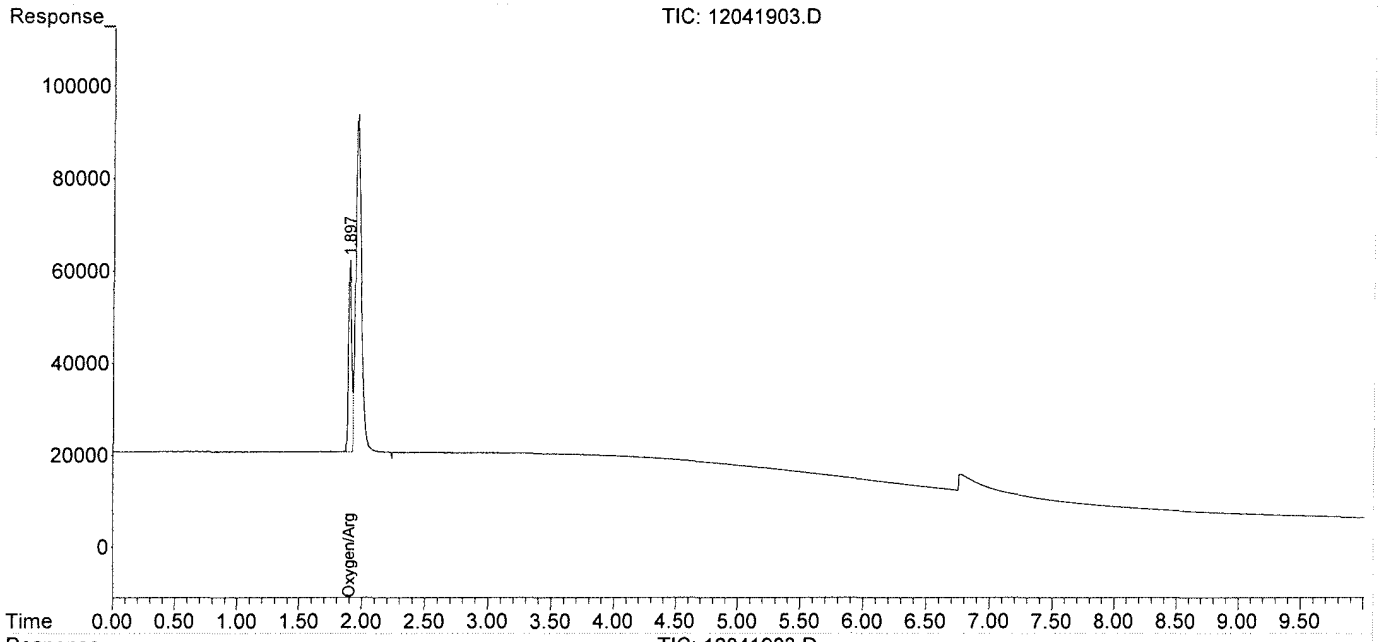
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.898	719973	0.151	ppm
2)	Carbon monoxide	1.898	719973	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

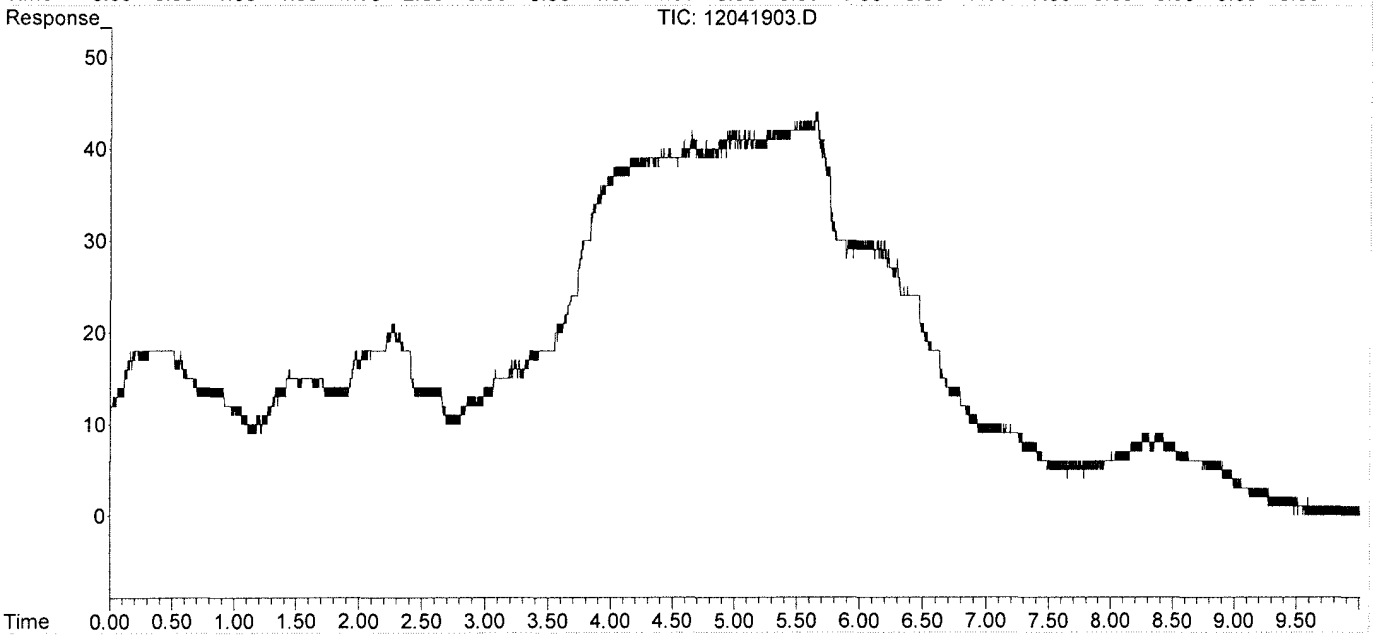
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:10:34
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:51:53 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:37:18
Operator : LD
Sample : P1907270-003 MS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 12:48:13 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

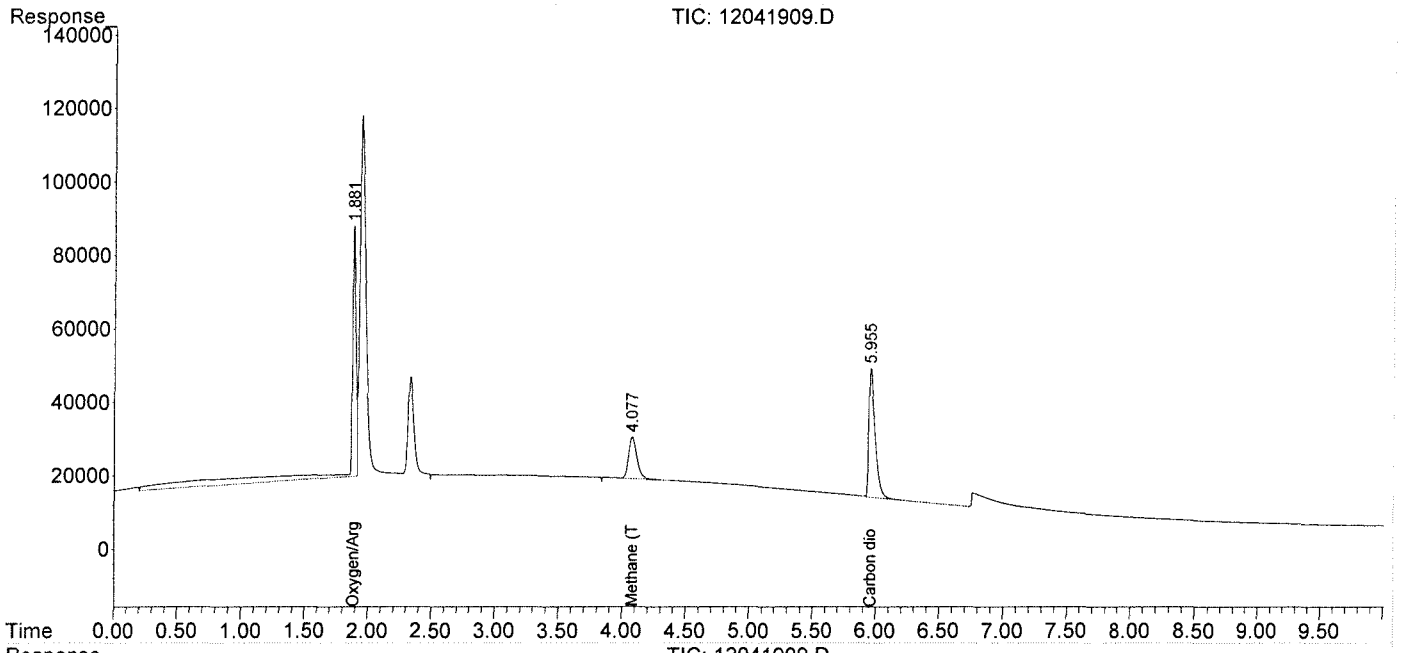
	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	1.882	2468750	0.519	ppm
2)	Carbon monoxide	1.882	2468750	N.D.	ppm
3)	Methane (TCD)	4.078f	515842	54544.048	ppm
4)	Carbon dioxide	5.957	1193756	5085.675	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

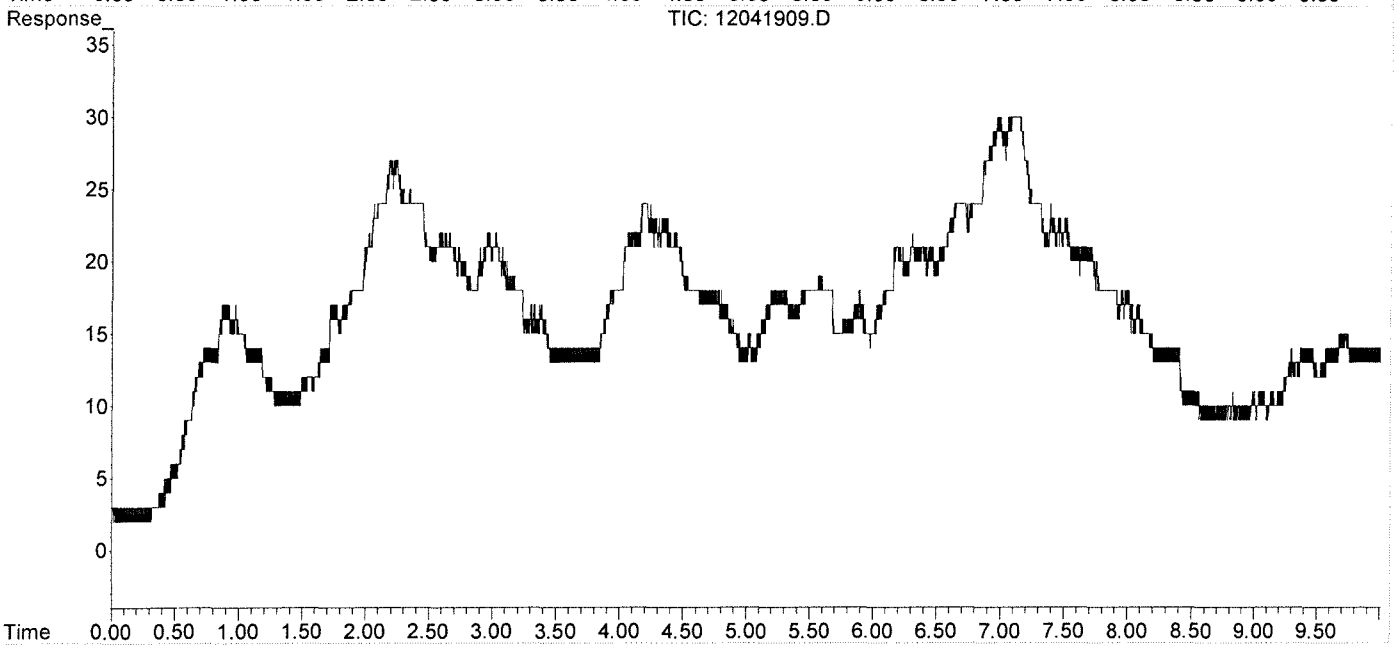
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:37:18
Operator : LD
Sample : P1907270-003 MS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 12:48:13 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:52:16
Operator : LD
Sample : P1907270-003 MSD ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:02:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

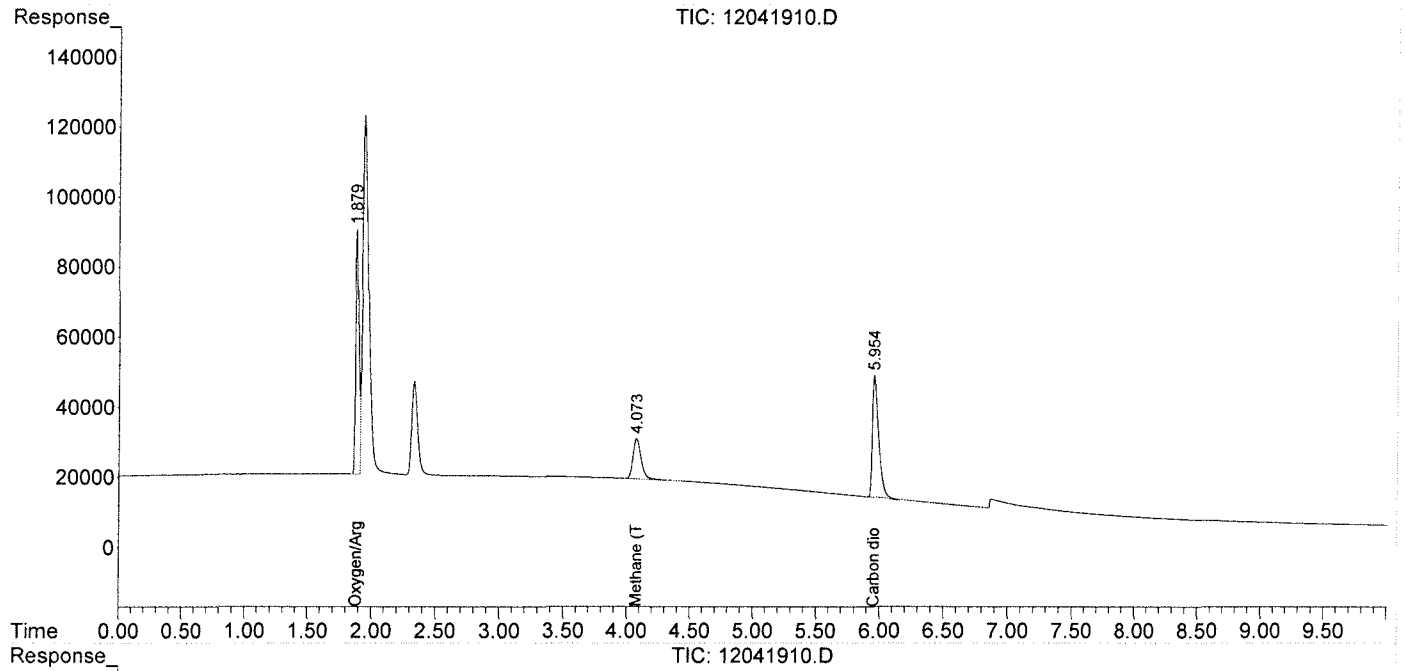
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	1212521	0.255	ppm
2)	Carbon monoxide	1.879	1212521	N.D.	ppm
3)	Methane (TCD)	4.073f	533632	56425.130	ppm
4)	Carbon dioxide	5.955	1194087	5087.082	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

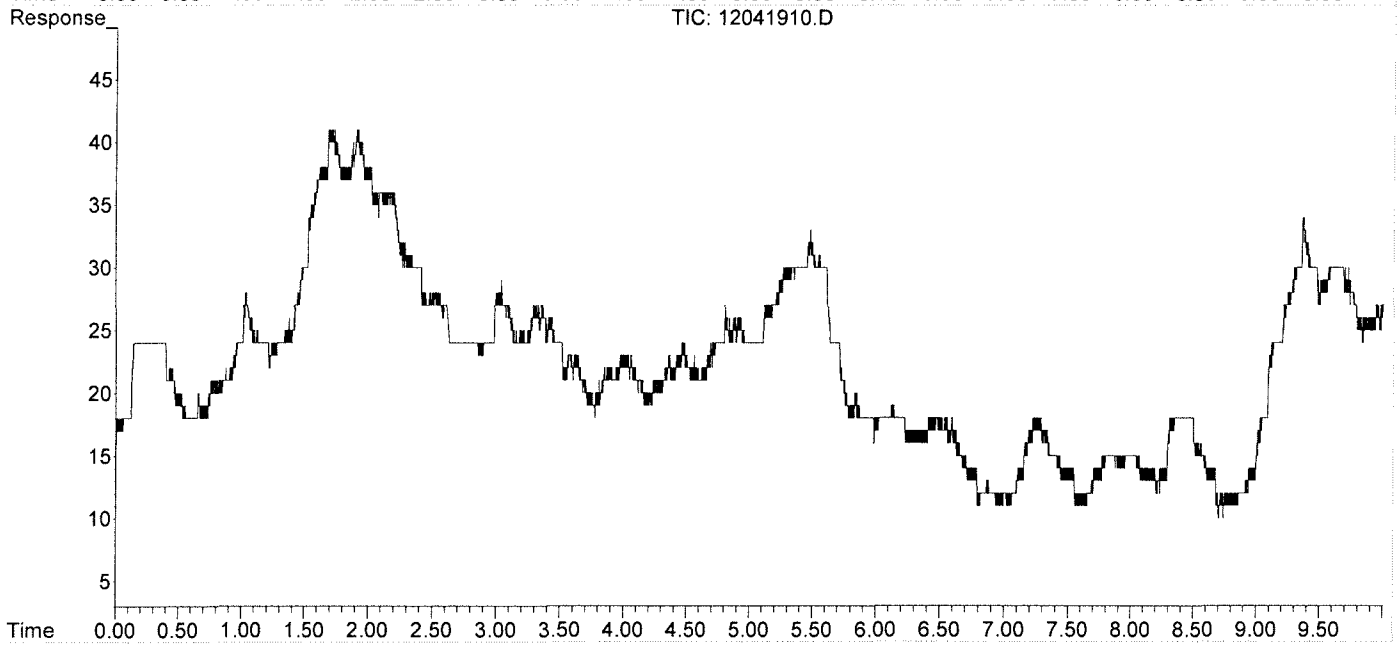
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 12:52:16
Operator : LD
Sample : P1907270-003 MSD ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:02:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:24:26
Operator : LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:02 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

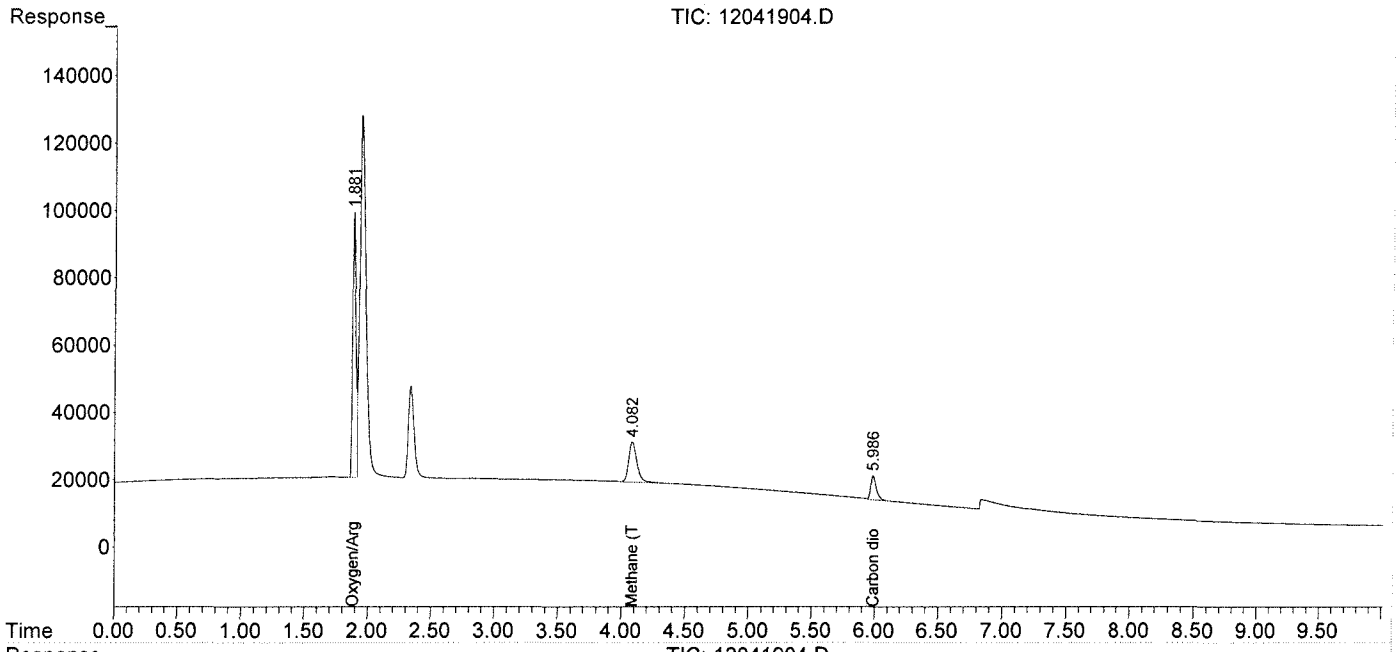
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.882	1396443	0.293	ppm	
2)	Carbon monoxide	1.882	1396443	N.D.	ppm	
3)	Methane (TCD)	4.083f	549817	58136.484	ppm	
4)	Carbon dioxide	5.986	217604	927.044	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

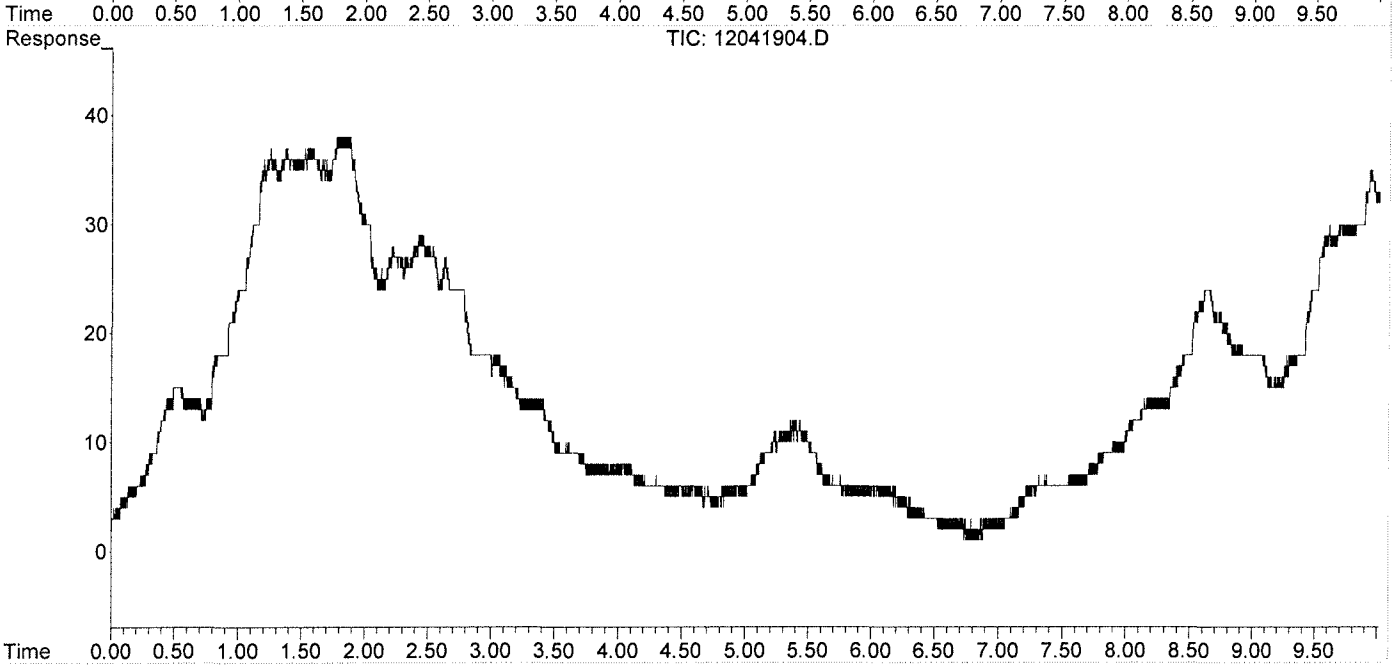
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:24:26
Operator : LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:02 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

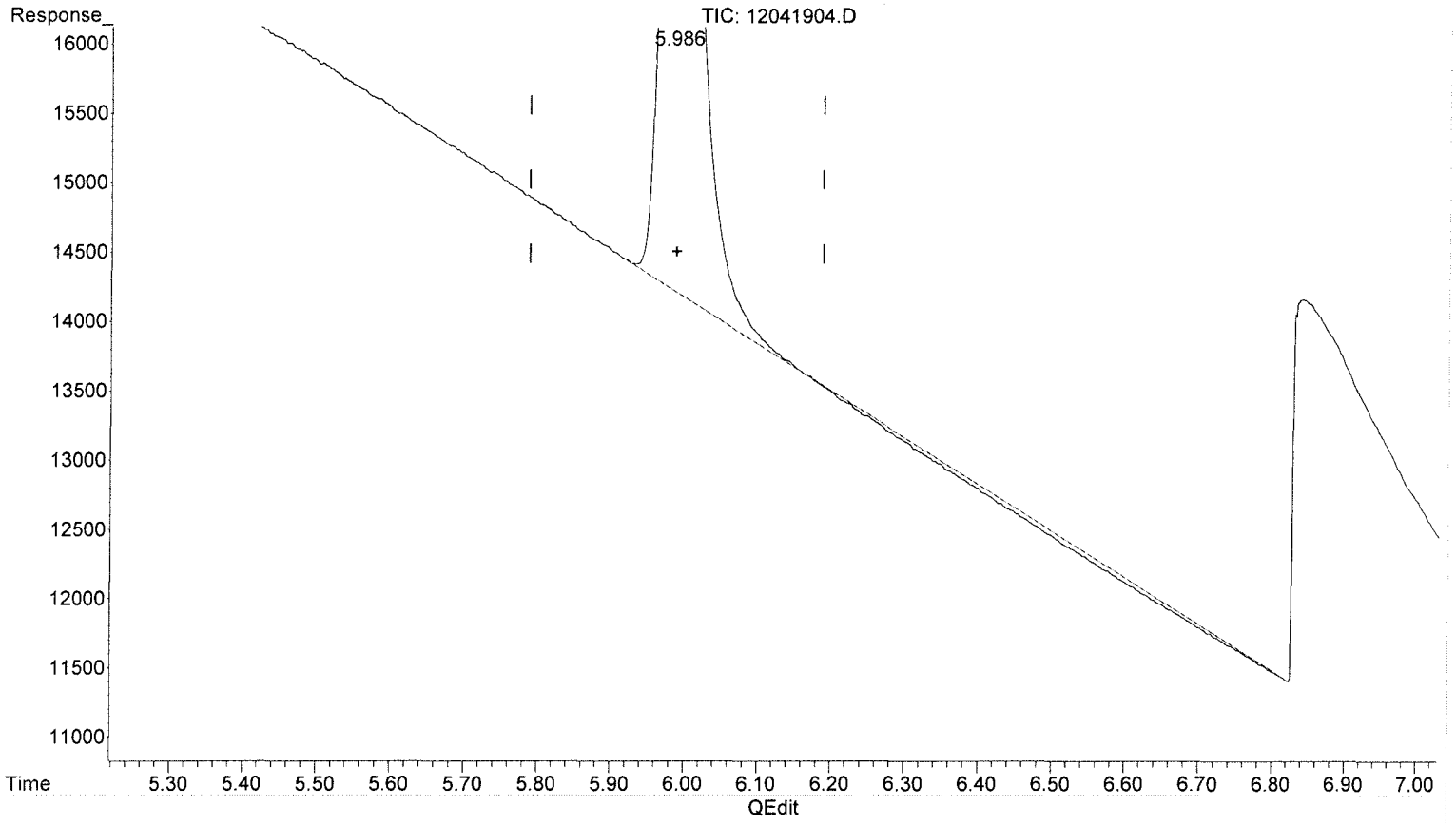




Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:24:26
Operator : LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:02 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.986min 889.944 ppm

response 208896

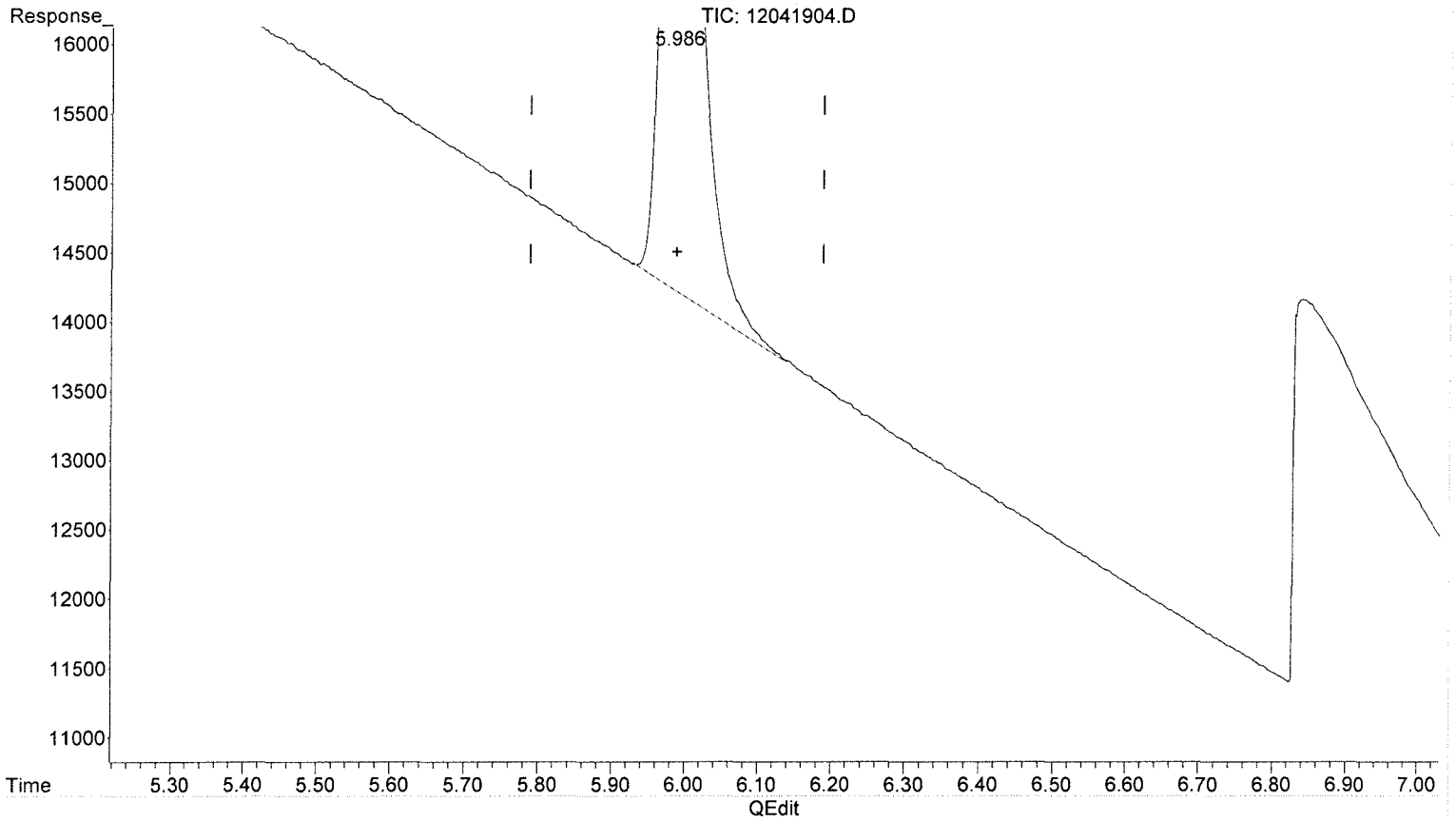
(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:24:26
Operator : LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:02 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LP
BLC
12/04

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.986min 927.044 ppm m

response 217604

12/11/19

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:37:21
Operator : LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

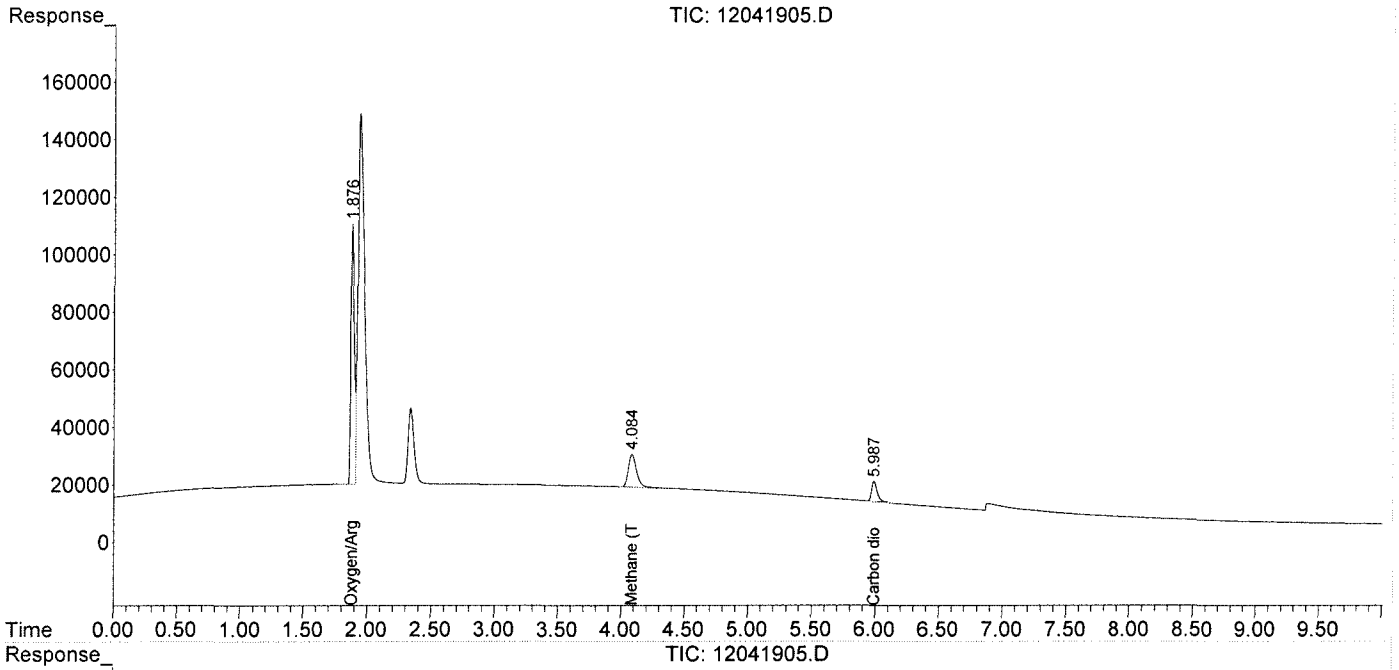
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.877	1583116	0.333	ppm	
2)	Carbon monoxide	1.877	1583116	N.D.	ppm	
3)	Methane (TCD)	4.084f	530004	56041.505	ppm	
4)	Carbon dioxide	5.987	214802	915.106	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

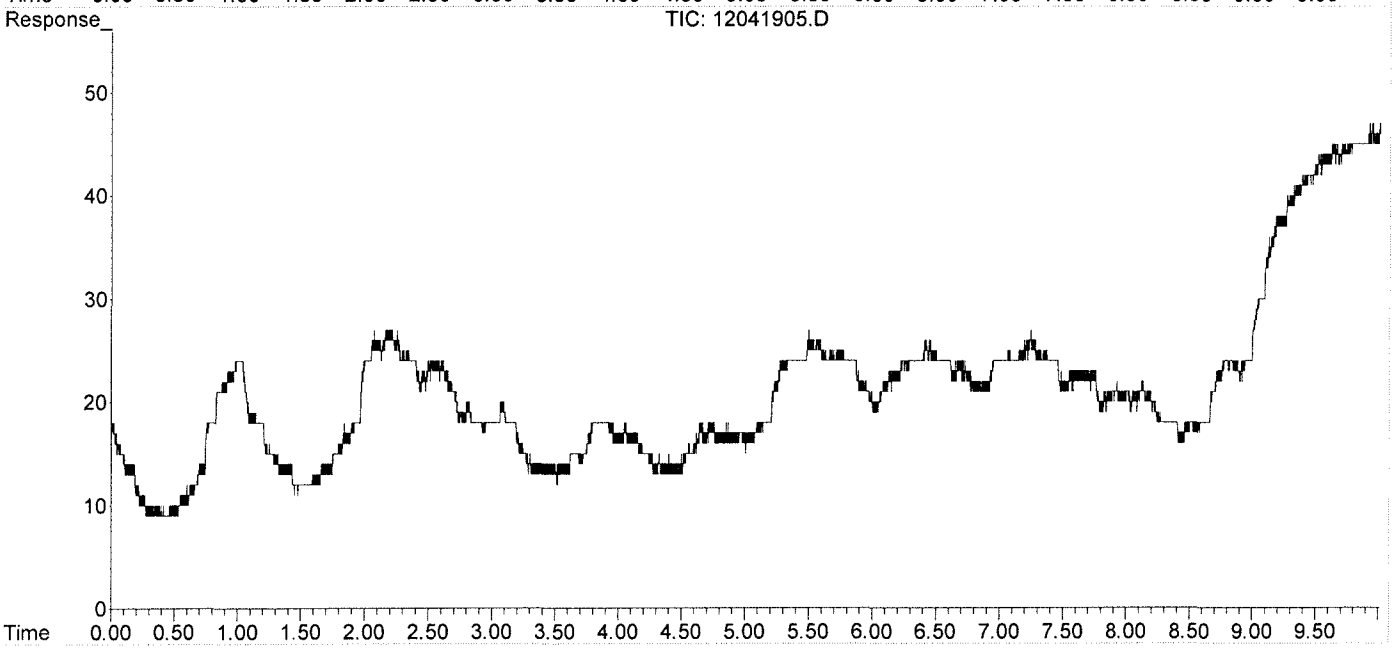
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:37:21
Operator : LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

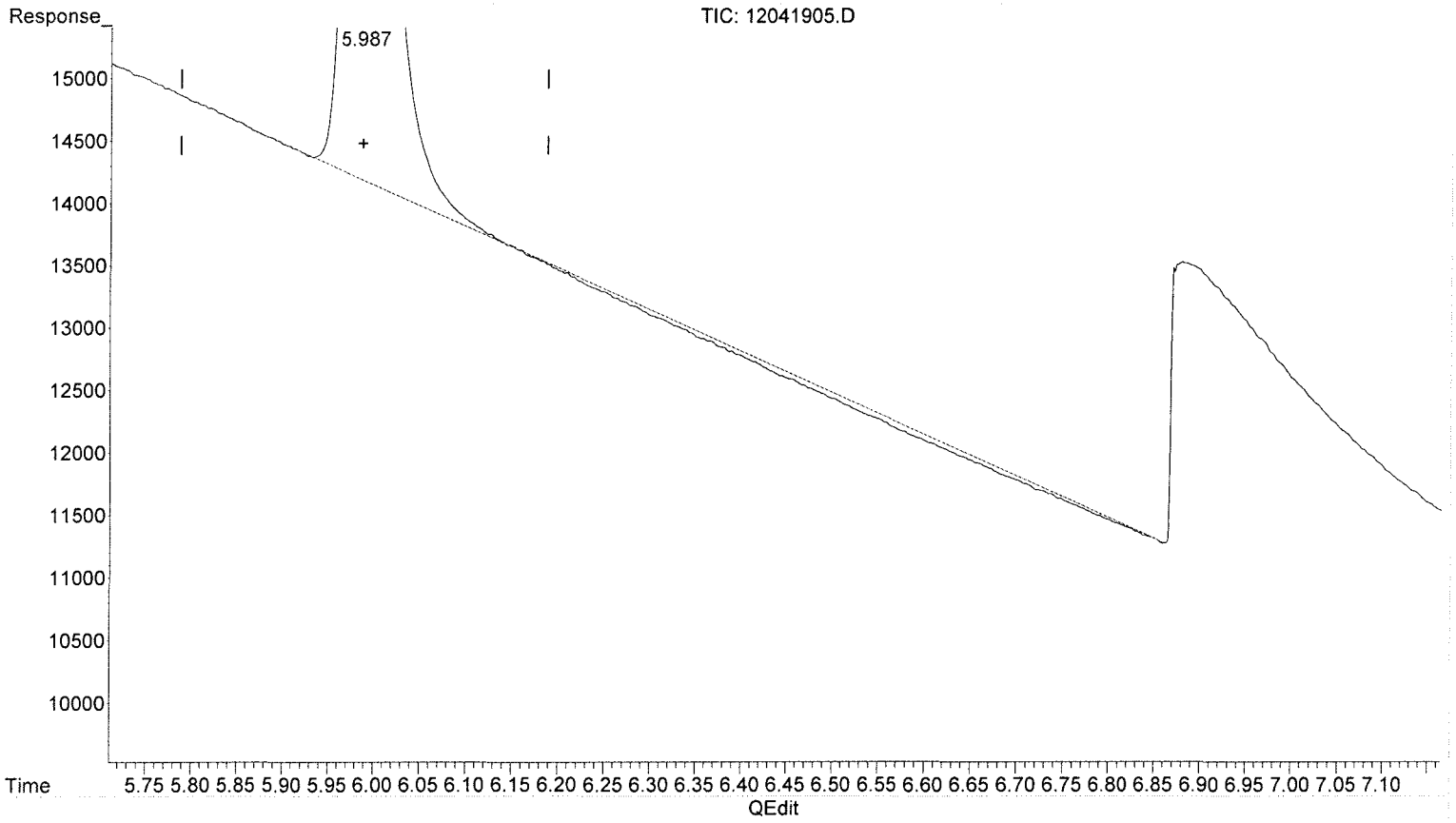




Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:37:21
Operator : LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.988min 855.525 ppm

response 200817

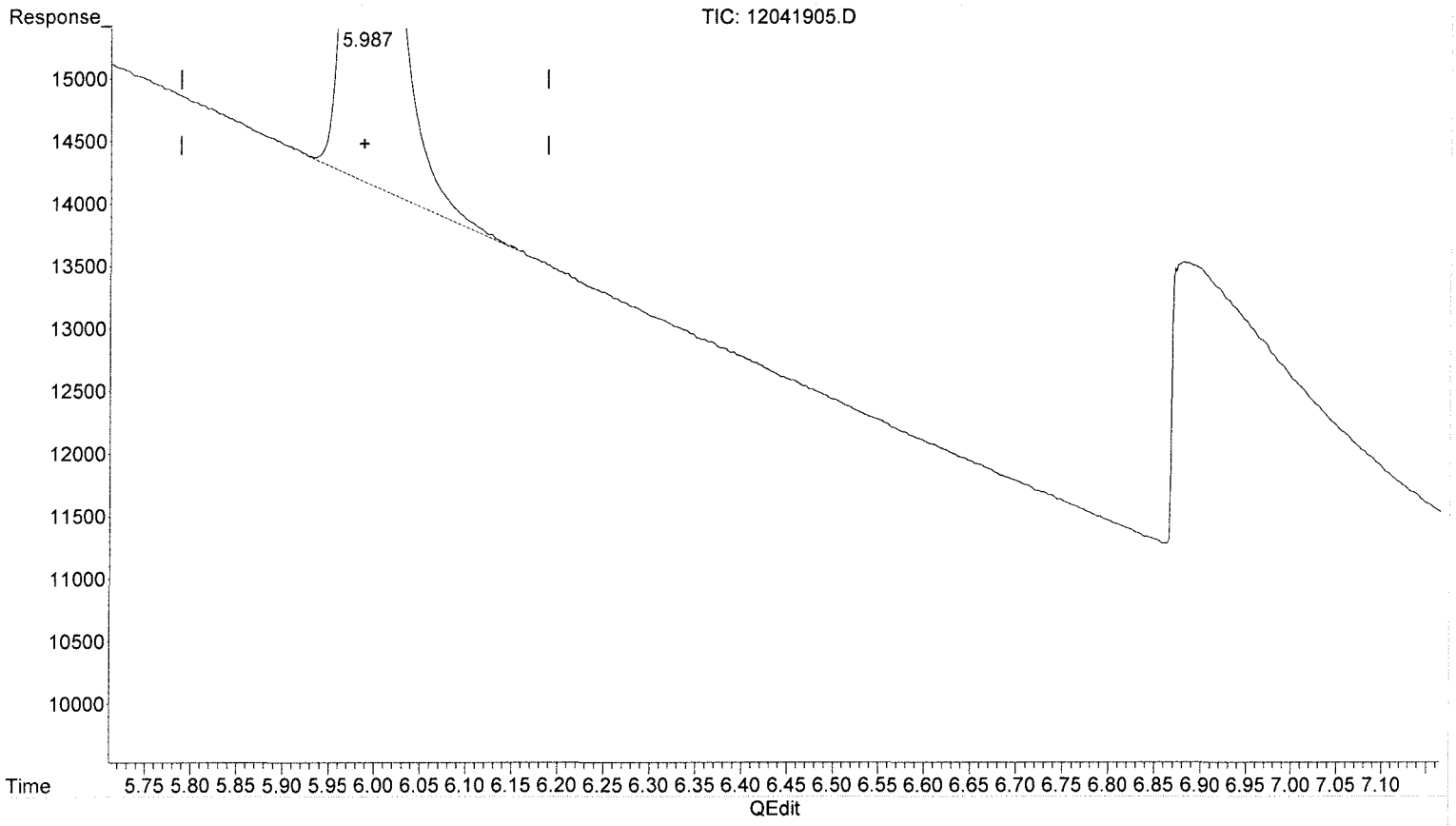
(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 11:37:21
Operator : LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 11:52:20 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
BLC
12/04

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :



(4) Carbon dioxide

5.987min 915.106 ppm m

response 214802

Wed 12/4/19

(+) = Expected Retention Time

RS082817_CO2.M Wed Dec 04 13:31:05 2019 Page: 1

Response Factor Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	4.760						4.760	E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657	E6	170.12
3)	Methane (TCD)							9.457		0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347	E2	7.99

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945	E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684	E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723	E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449	E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655	E4	7.75
11)	Isobutylene							0.000		-1.00
12)	Isobutane							0.000		-1.00
13)	n-Butane							0.000		-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

dit Compounds -- Compound #4 -- Carbon dioxide

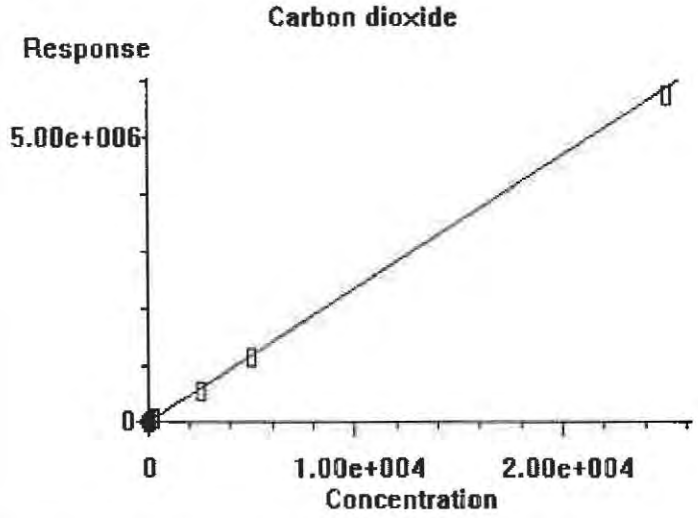
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

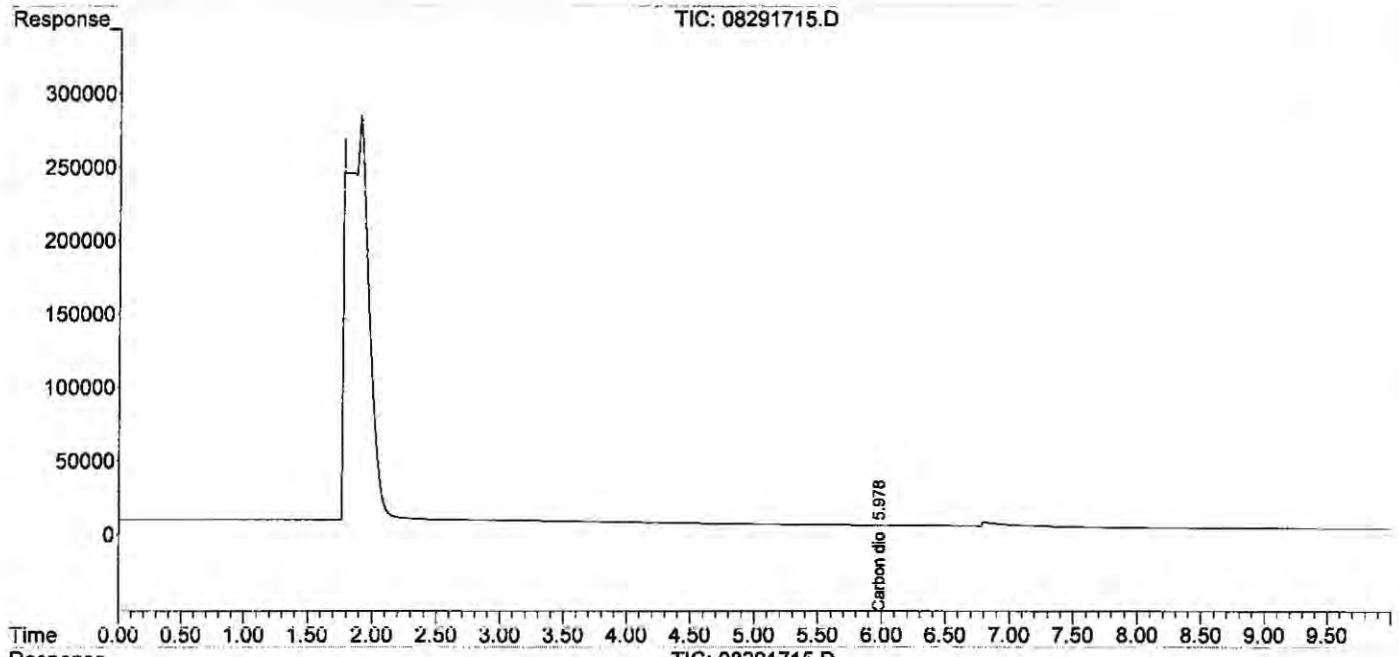
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

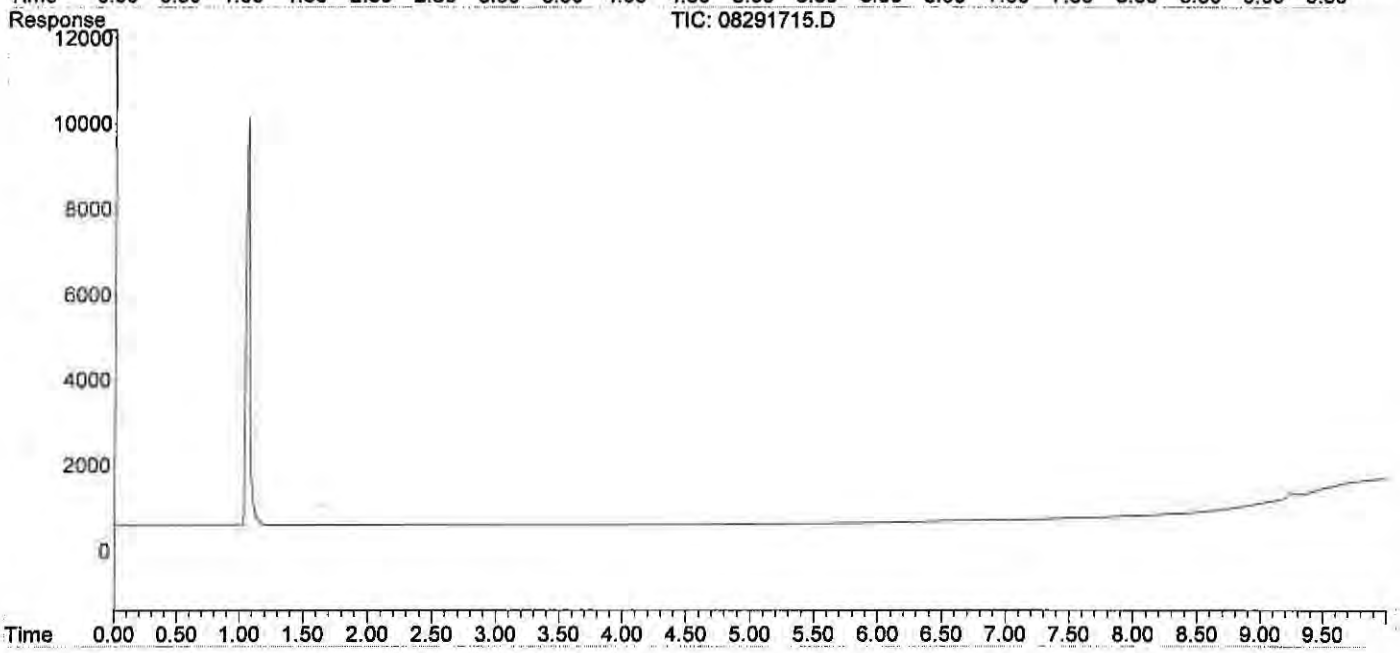
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

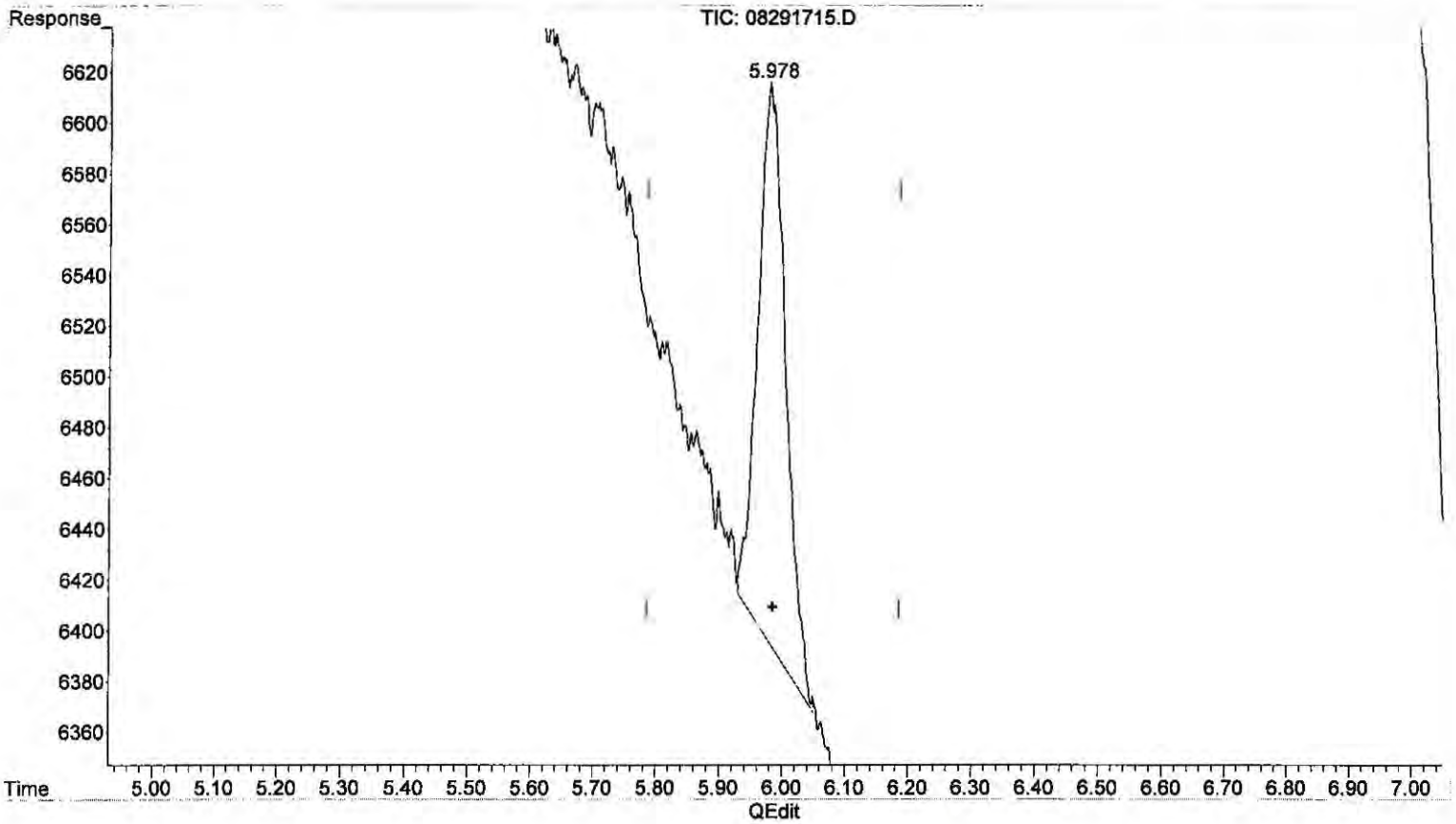




Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

8/30/17 BW M. prcvw

8/4/17

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:17:47 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

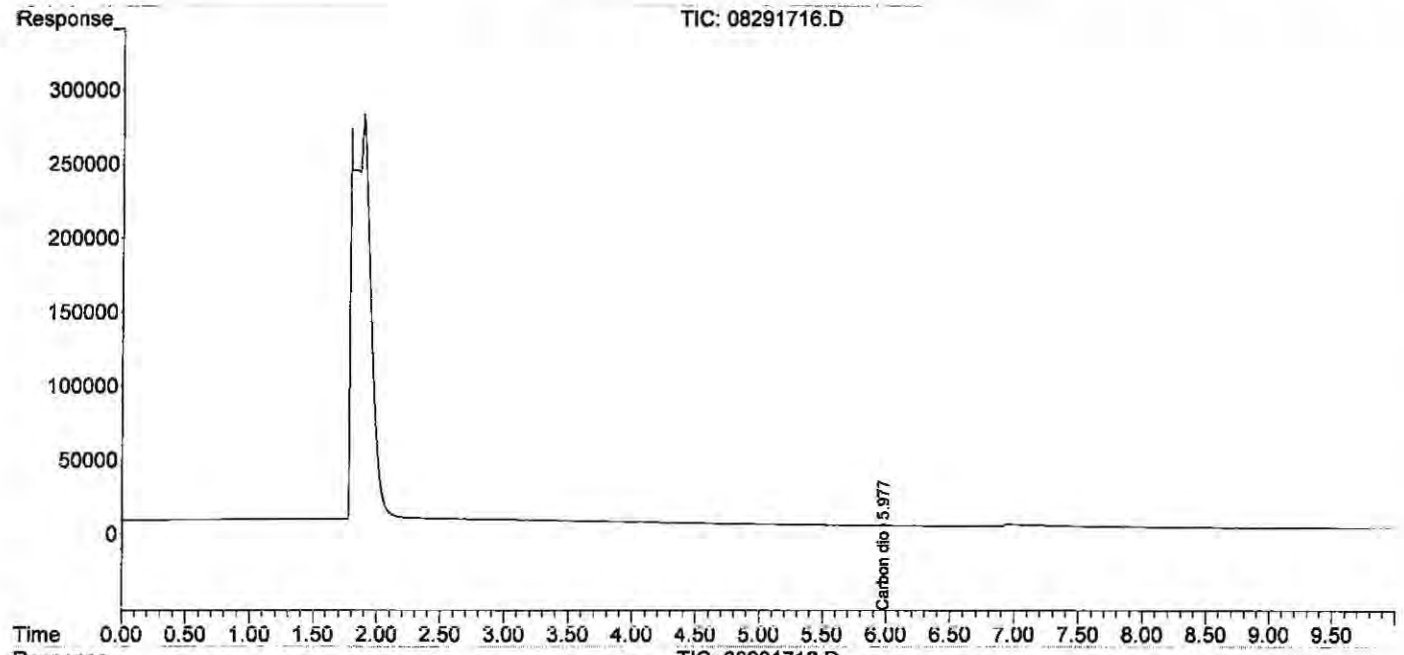
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.790	-598962	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	21932	87.858	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

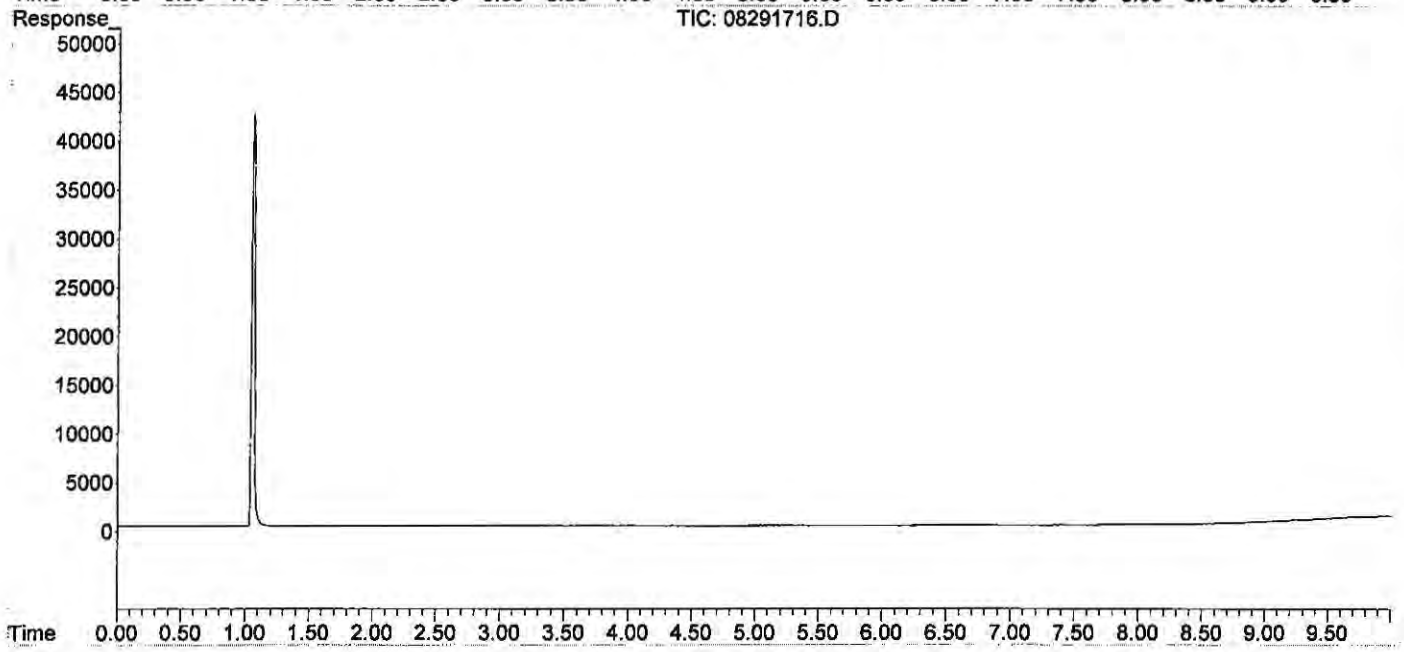
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

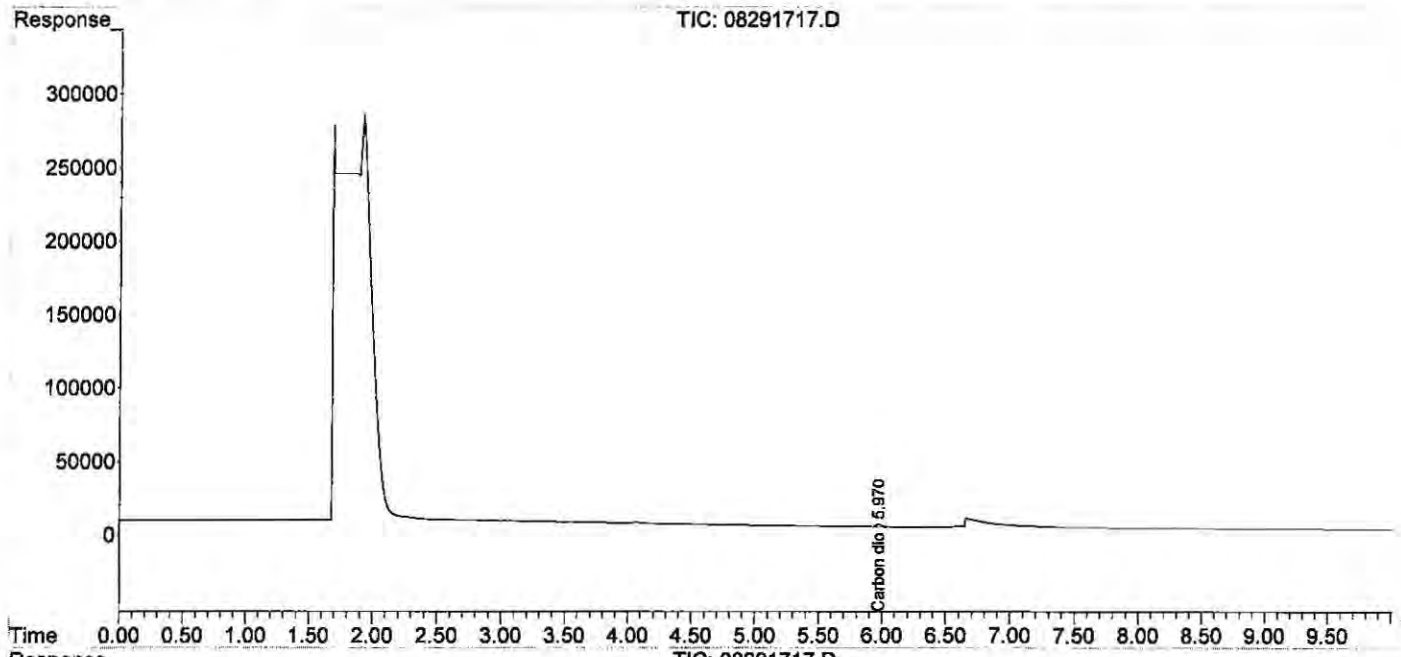
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

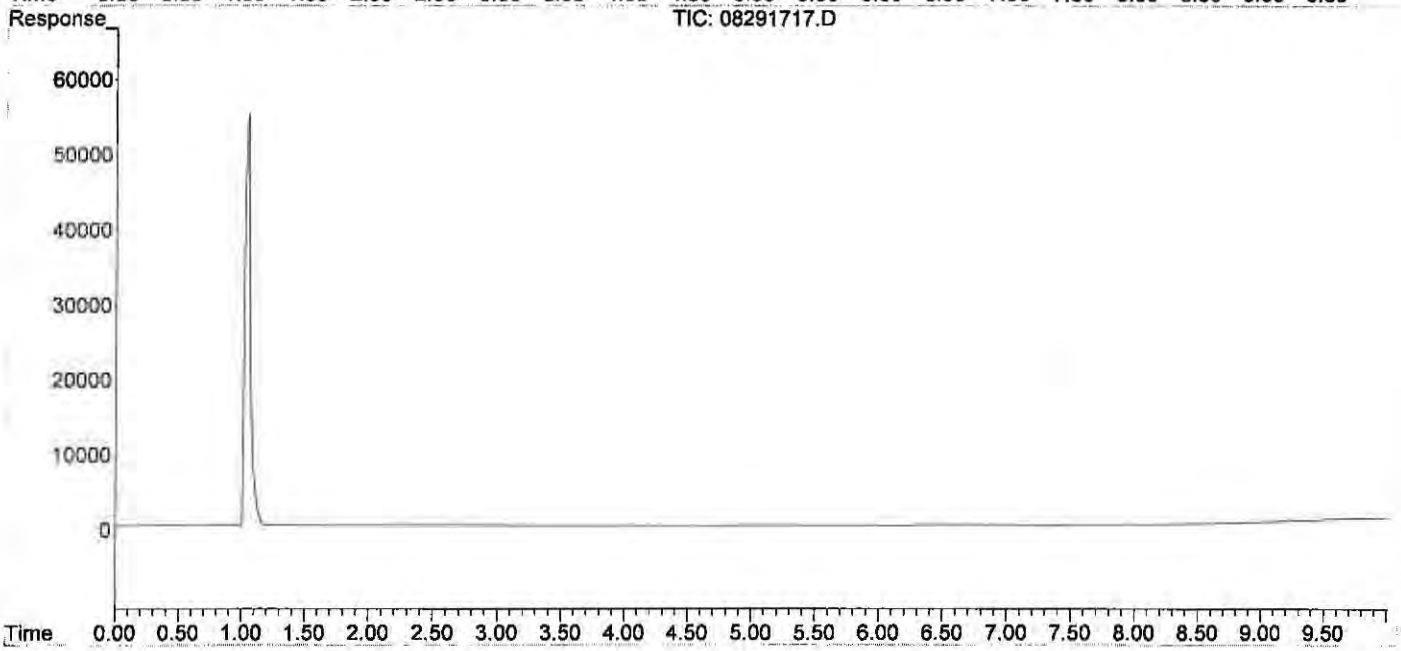
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

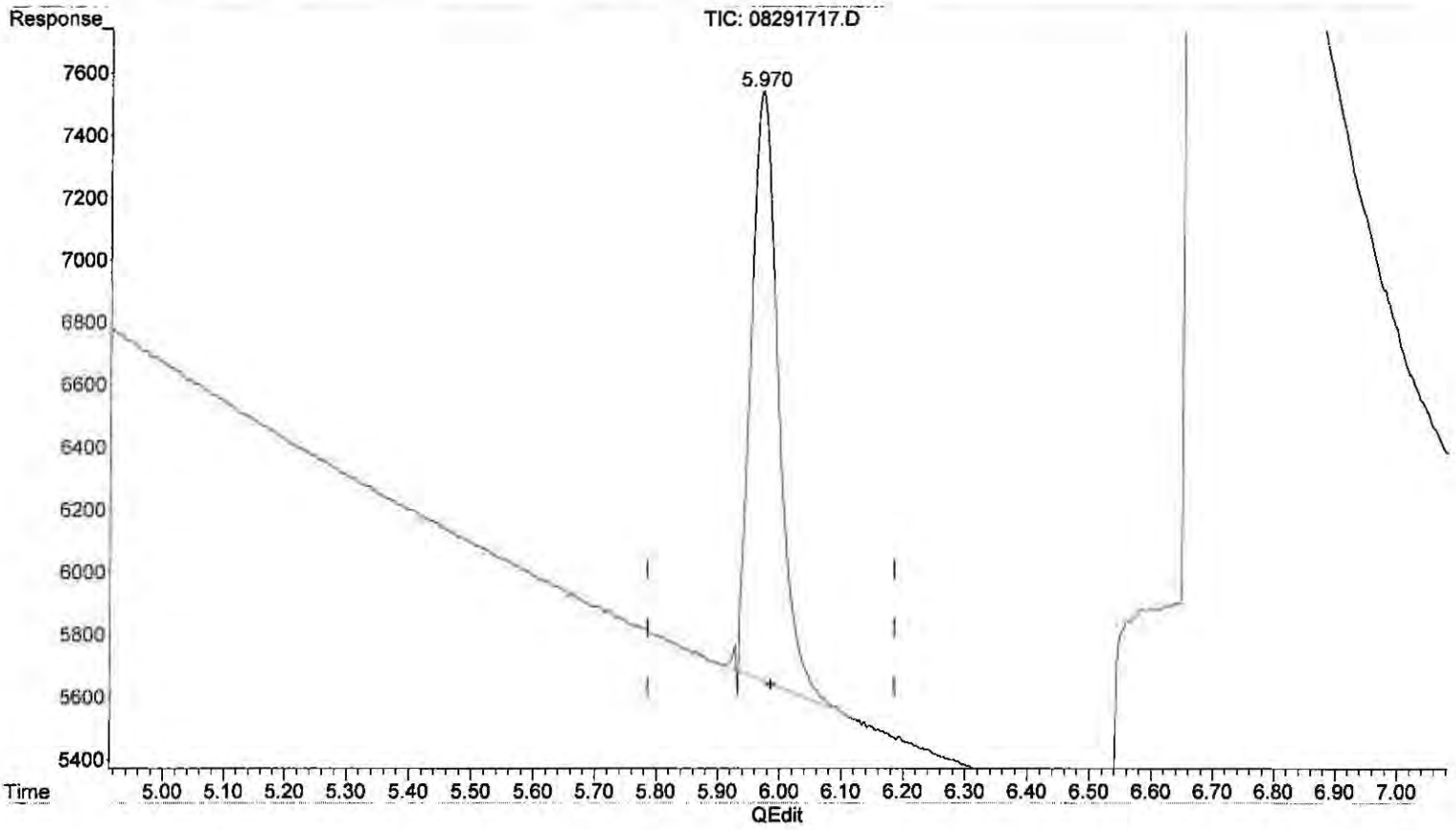




Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
5.970min 240.204 ppm m
response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

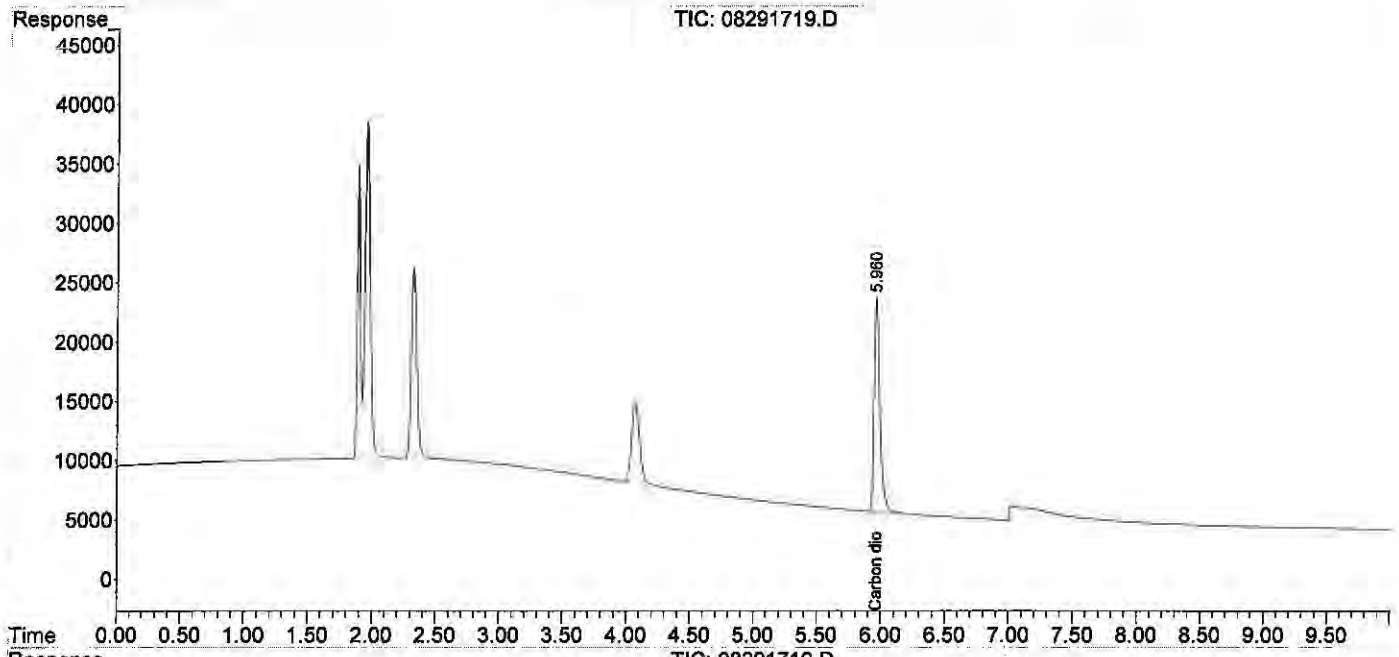
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.891	425113	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.962	568043	2369.673	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

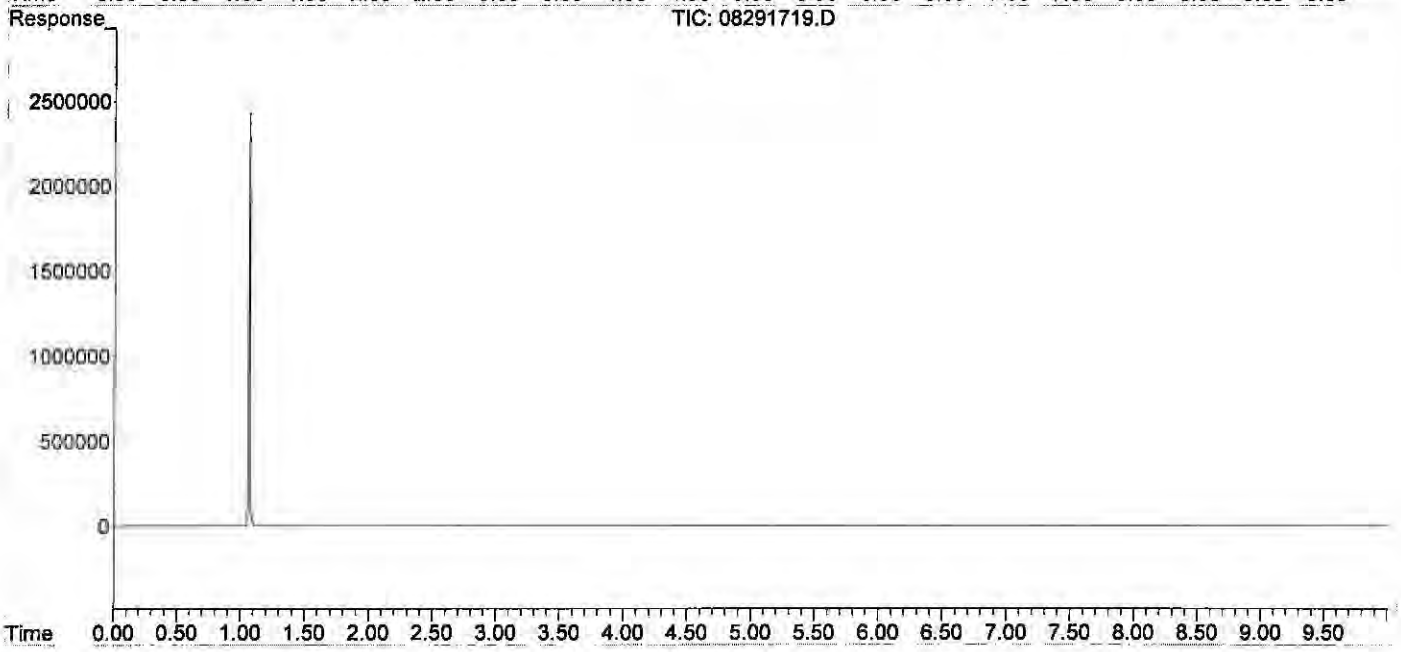
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

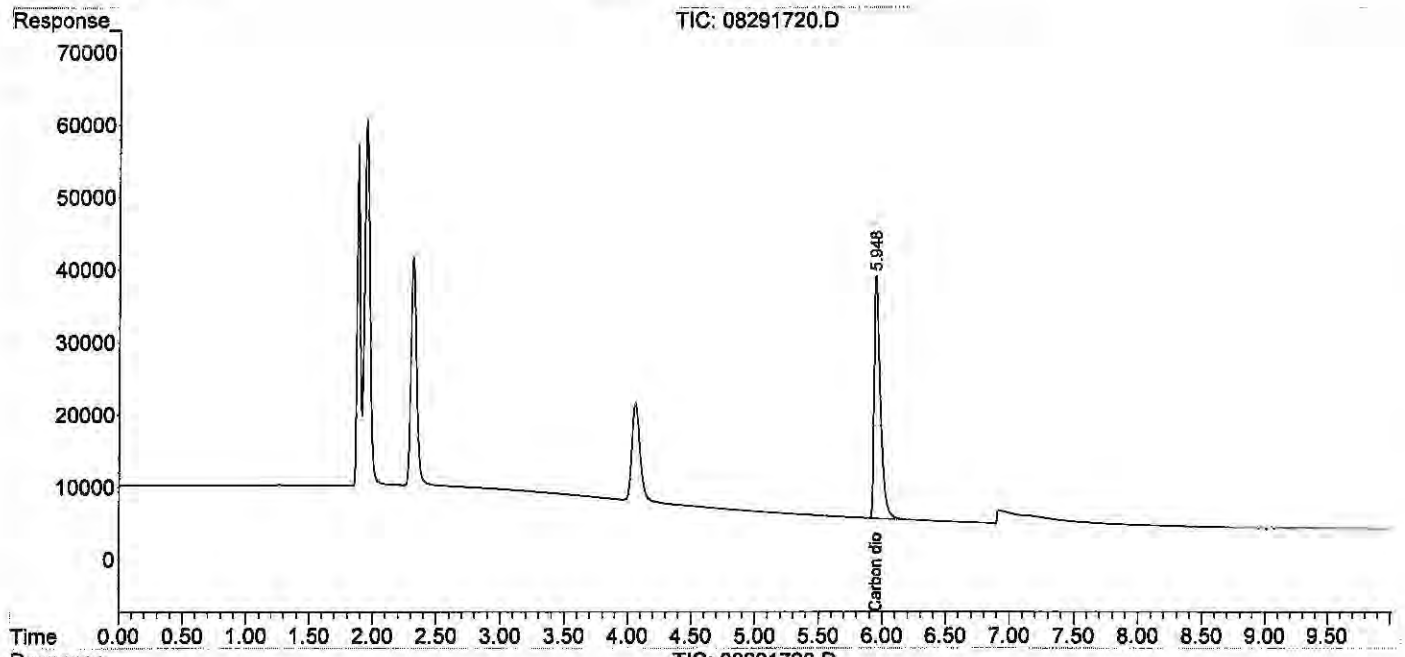
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

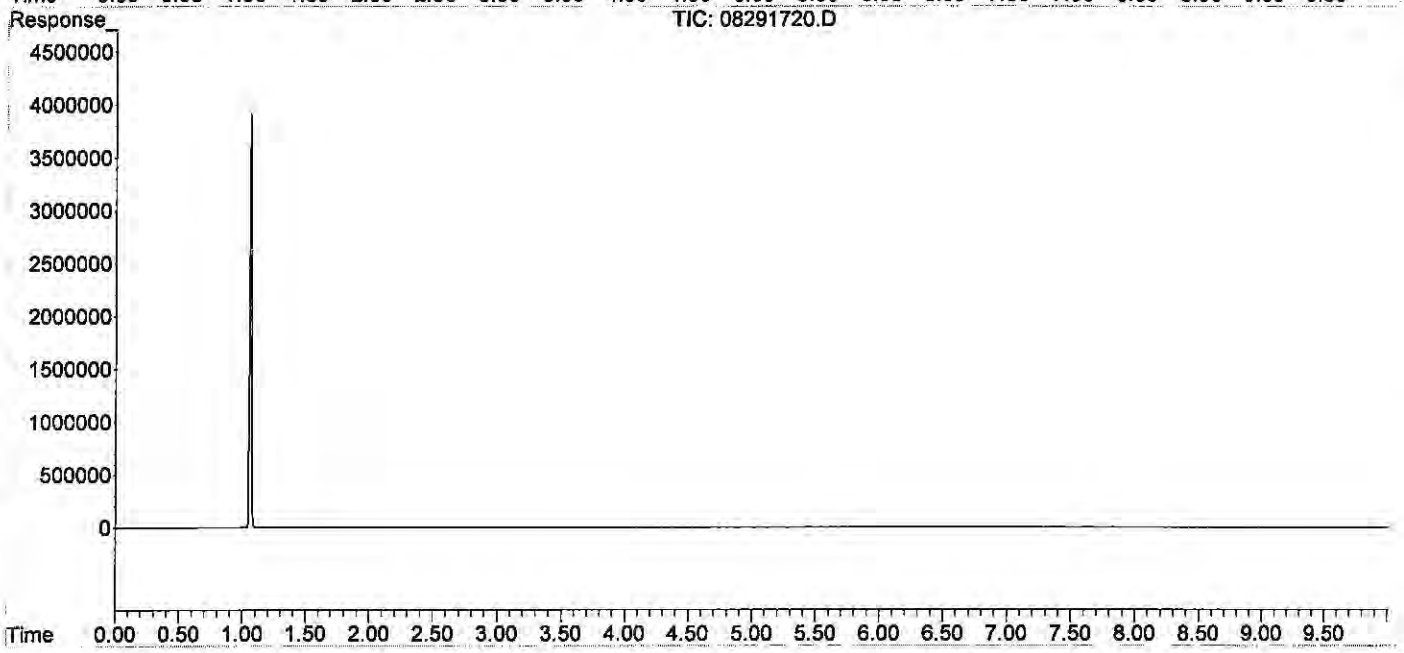
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

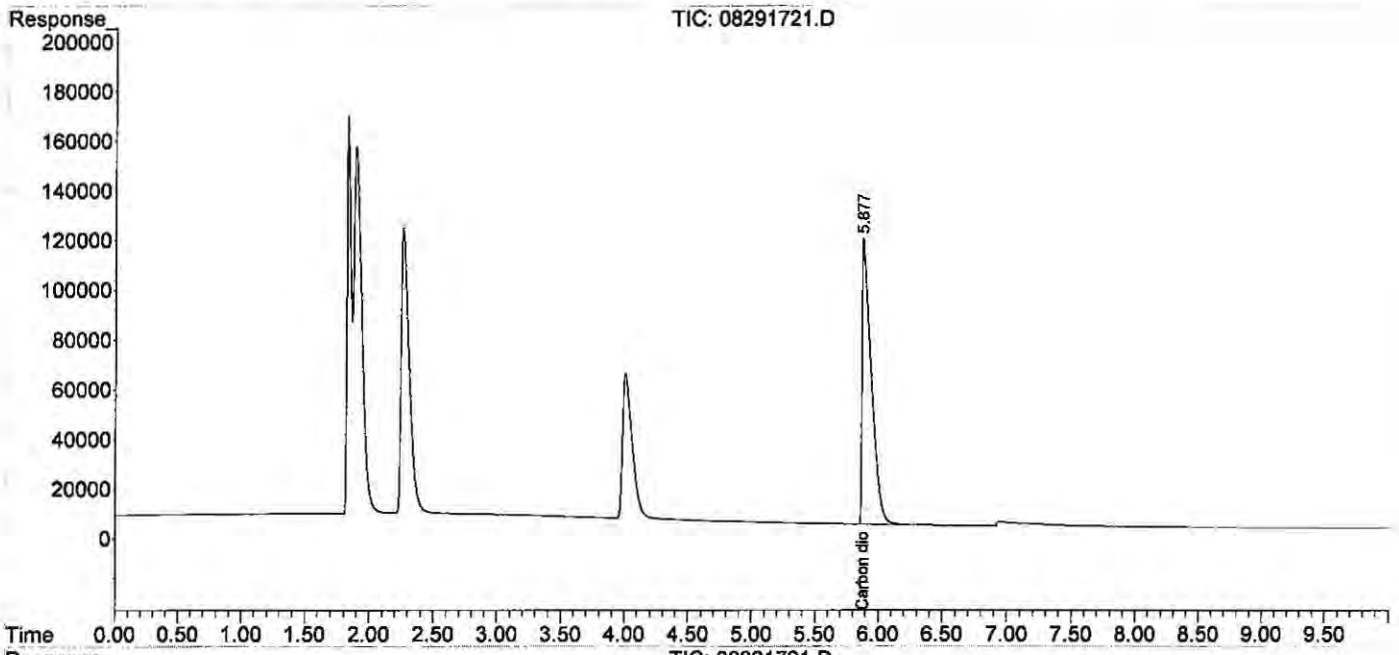
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

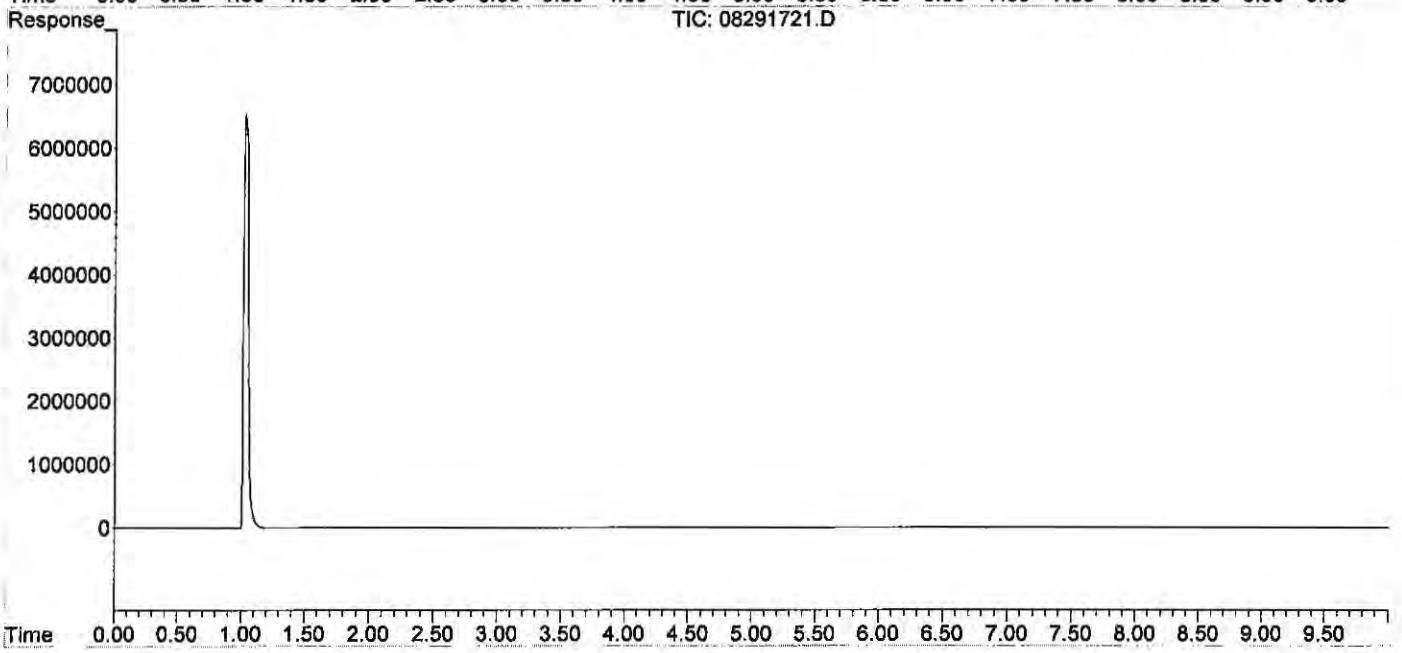
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.886	536422	0.113	ppm
2)	Carbon monoxide	1.886	536422	N.D.	ppm
3)	Methane (TCD)	4.059f	626500	66244.710	ppm
4)	Carbon dioxide	5.947	1163775	4957.948	ppm
6)	Methane (FID)	1.062	37290742	3947.023	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

Actual %D
5000 99.16

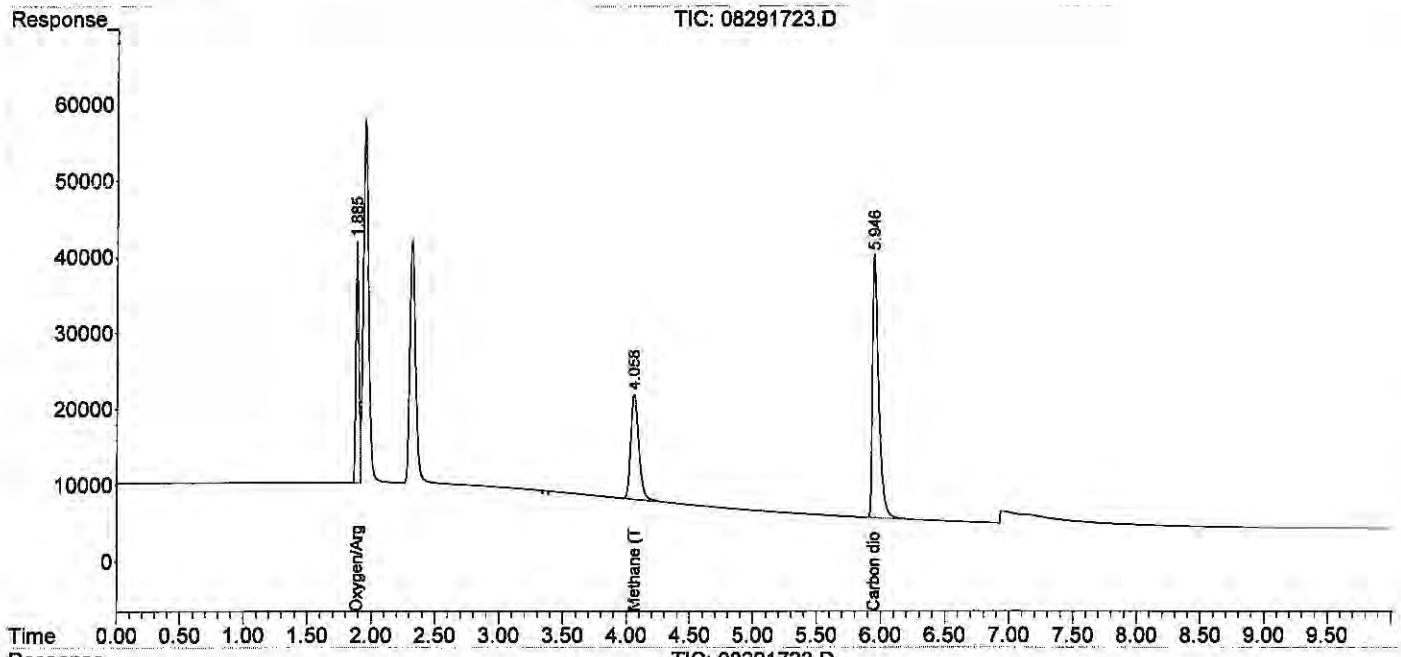
(f)=RT Delta > 1/2 Window (m)=manual int.

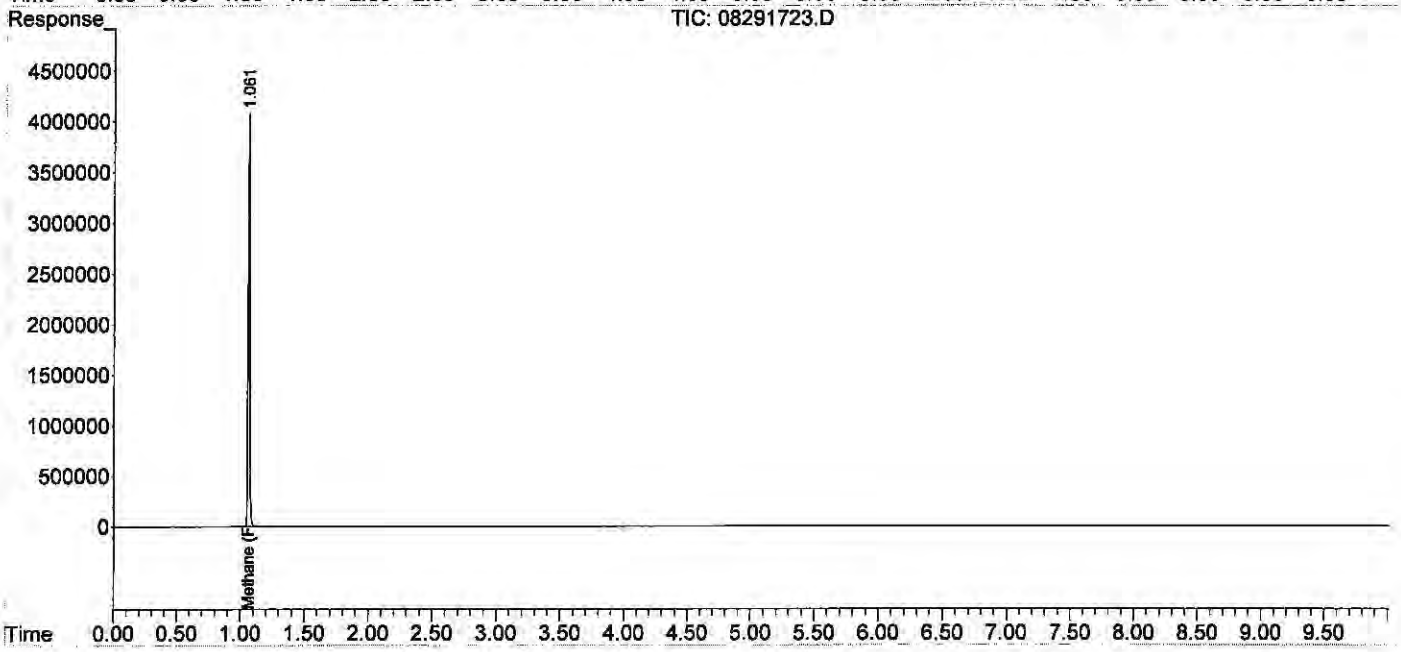
W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Dissolved Gases by RSK175

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1907270
Sample Vol. (ml) : 32.00 ml
Analyst : LD
Date Analysis : 12/04/19
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
STD S32-10291901	0.100	4915.540
ACTUAL		5000.00
%Difference		1.7%
MCS 0.1ml	0.100	0.000
RB 0.1ml	0.100	0.000
LCS S32-08141901	0.100	927.044
LCSD S32-08141901	0.100	915.106
P1907270-001 0.1ml	0.100	1411.462
P1907270-002 0.1ml	0.100	3164.775
P1907270-003 0.1ml	0.100	3338.567
P1907270-003 MS 0.1ml	0.100	5085.675
P1907270-003 MSD ml	0.100	5087.082
STD S32-10291901		4971.865
ACTUAL		5000.00
%Difference		0.6%

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
MCS 0.1ml	0.000
LCS S32-08141901	9270.440
LCSD S32-08141901	9151.060
P1907270-001 0.1ml	14114.620
P1907270-002 0.1ml	31647.750
P1907270-003 0.1ml	33385.670
P1907270-003 MS 0.1ml	50856.750
P1907270-003 MSD ml	50870.820

LD
12/04

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 09:01:48
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 09:16:31 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
12/04

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

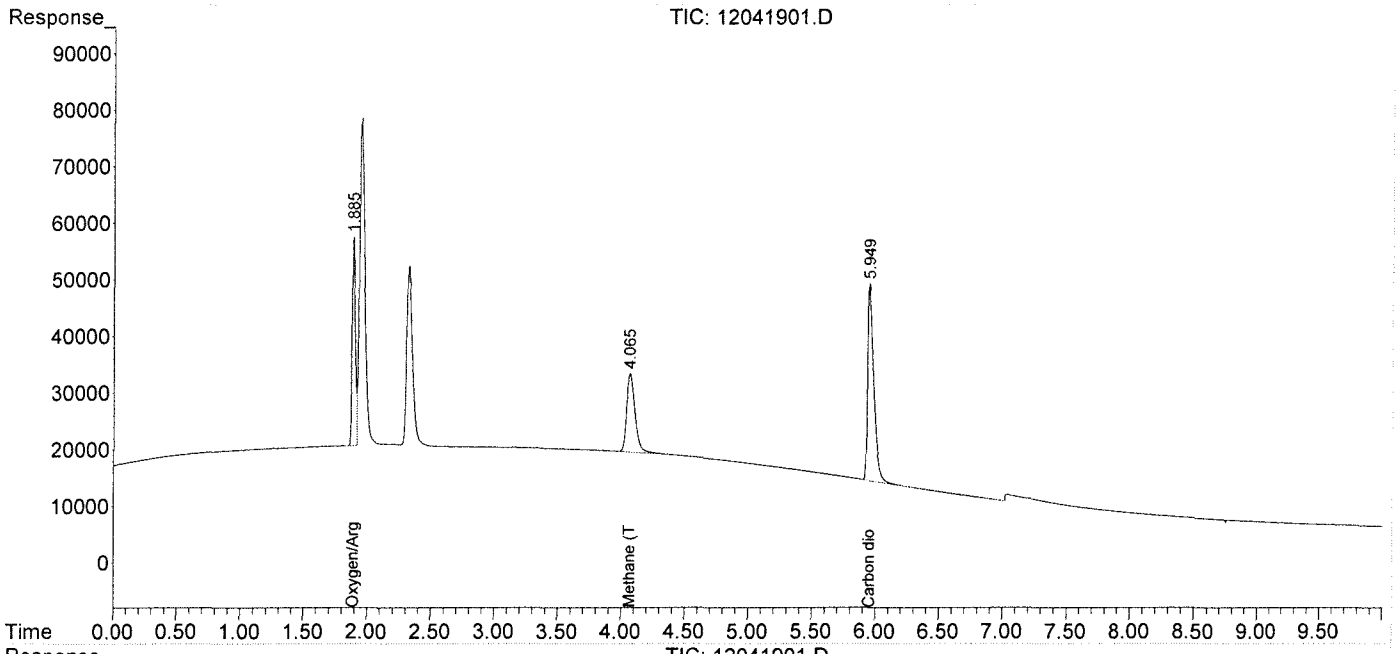
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.886	630289	0.132	ppm
2)	Carbon monoxide	1.886	630289	N.D.	ppm
3)	Methane (TCD)	4.066f	636861	67340.272	ppm
4)	Carbon dioxide	5.950	1153821	4915.540	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

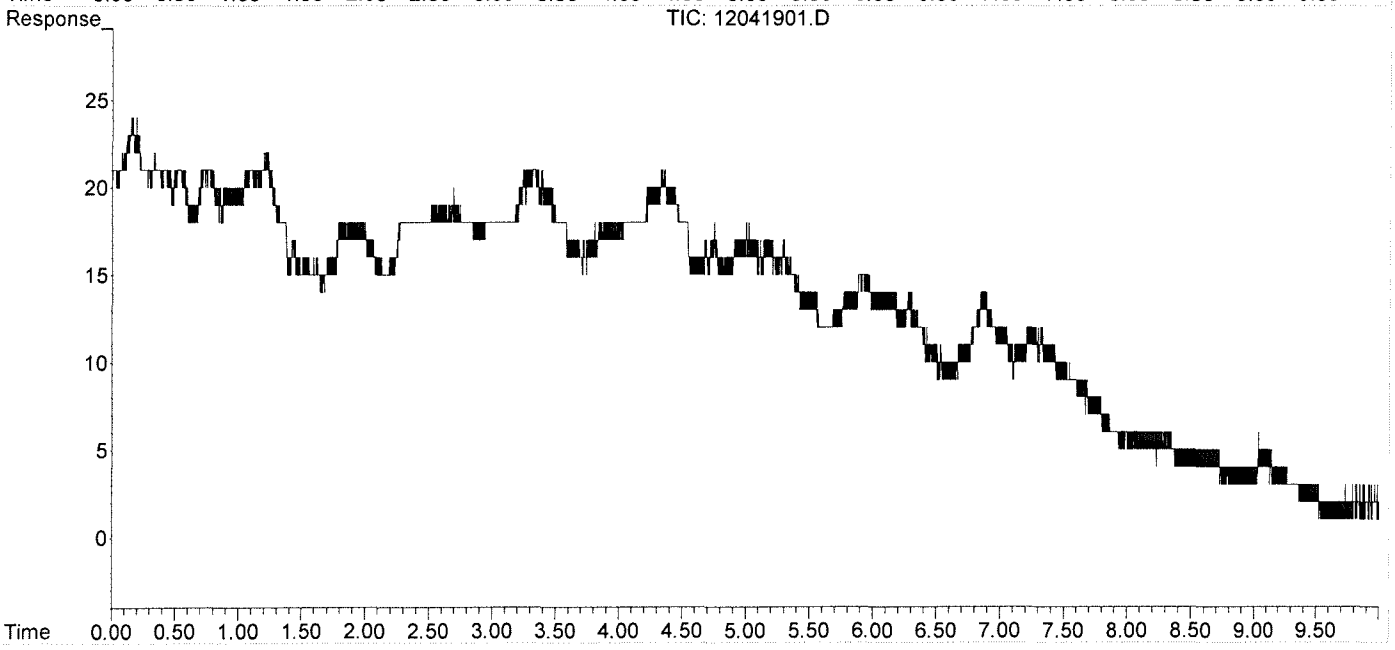
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 09:01:48
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 09:16:31 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 13:14:08
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:27:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

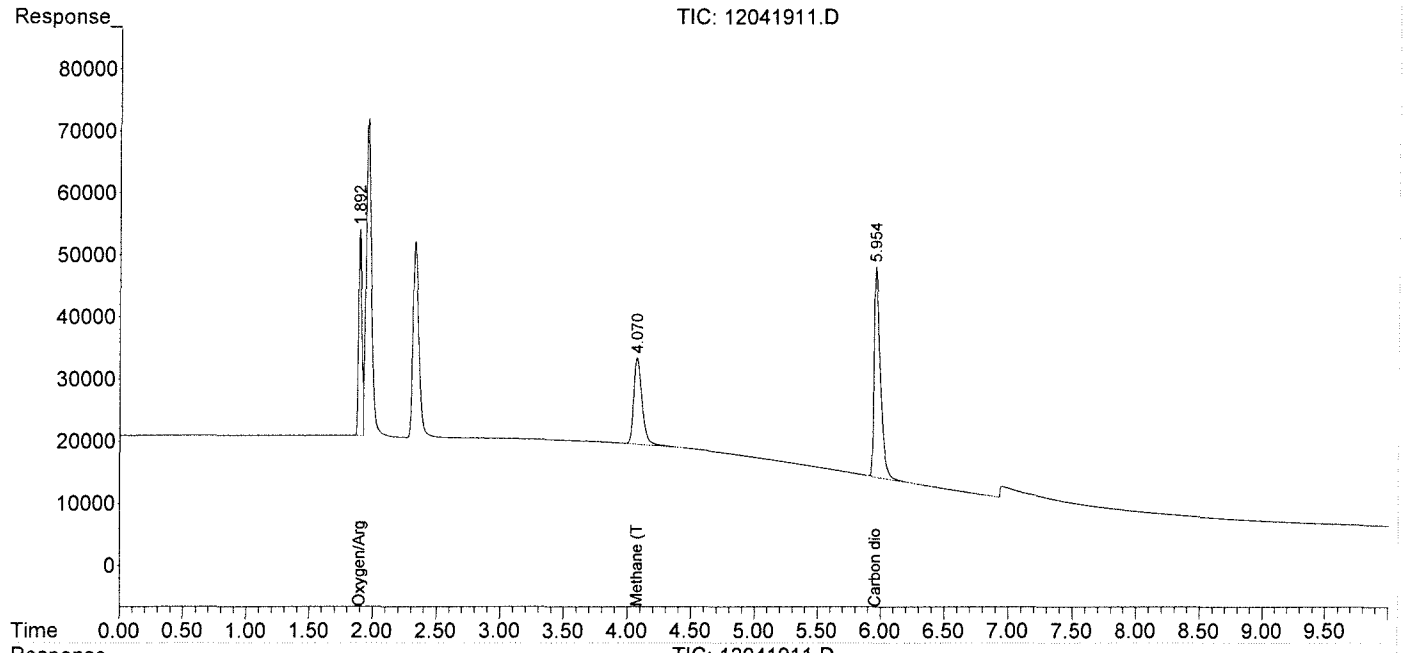
	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	1.893	577112	0.121	ppm
2)	Carbon monoxide	1.893	577112	N.D.	ppm
3)	Methane (TCD)	4.071f	644430	68140.603	ppm
4)	Carbon dioxide	5.956	1167042	4971.865	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

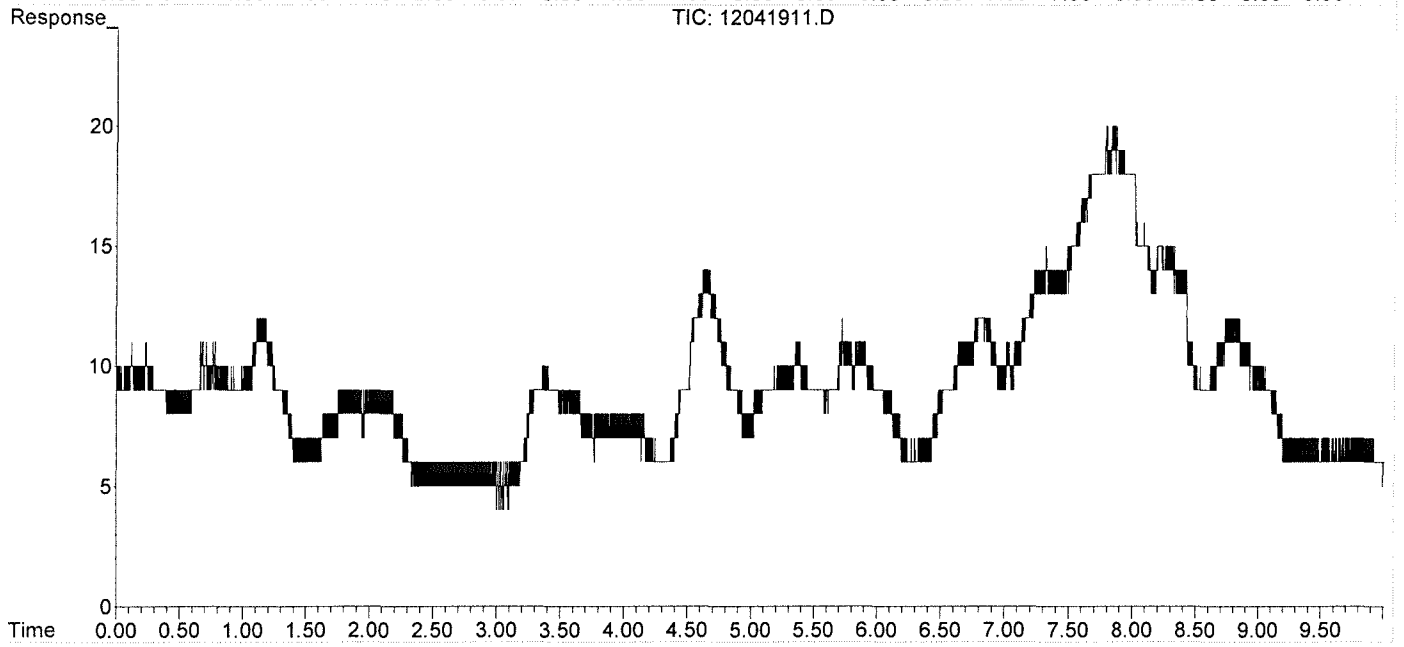
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_TCD\2019_12\04\
Data File : 12041911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 04-Dec-2019, 13:14:08
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 04 13:27:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	29-Aug-17, 07:58:00	08291701.D	std s30-06161601		MC	RSKBOTH.M	Pass
2	29-Aug-17, 08:11:02	08291702.D	mb 0.5ml		MC	RSKBOTH.M	Pass
3	29-Aug-17, 08:24:13	08291703.D	4089-001 0.5ml		MC	RSKBOTH.M	
4	29-Aug-17, 08:39:29	08291704.D	4089-002 0.5ml		MC	RSKBOTH.M	
5	29-Aug-17, 08:53:38	08291705.D	4089-003 0.5ml		MC	RSKBOTH.M	
6	29-Aug-17, 09:33:52	08291706.D	4089-004 0.5ml		MC	RSKBOTH.M	
7	29-Aug-17, 09:50:51	08291707.D	4089-005 0.5ml		MC	RSKBOTH.M	
8	29-Aug-17, 10:07:54	08291708.D	4089-006 0.5ml		MC	RSKBOTH.M	
9	29-Aug-17, 10:42:34	08291709.D	4089-007 0.5ml		MC	RSKBOTH.M	
10	29-Aug-17, 11:06:01	08291710.D	4089-008 0.5ml		MC	RSKBOTH.M	
11	29-Aug-17, 11:23:53	08291711.D	4089-009 0.5ml		MC	RSKBOTH.M	
12	29-Aug-17, 11:37:17	08291712.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
13	29-Aug-17, 11:50:31	08291713.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
14	29-Aug-17, 12:29:45	08291714.D	std s30-06161601		MC	RSKBOTH.M	Pass
15	29-Aug-17, 14:07:01	08291715.D	25ppm s32-08291701 0.25ml		MC	RSKBOTH.M	Curve
16	29-Aug-17, 14:22:12	08291716.D	100ppm s32-08291702 0.2ml		MC	RSKBOTH.M	Curve
17	29-Aug-17, 14:53:00	08291717.D	250ppm s32-08291702 0.5ml		MC	RSKBOTH.M	Curve
18	29-Aug-17, 15:07:43	08291718.D	mls inject		MC	RSKBOTH.M	
19	29-Aug-17, 15:23:21	08291719.D	2500ppm s32-08231701 50ul		MC	RSKBOTH.M	Curve
20	29-Aug-17, 15:44:54	08291720.D	5000ppm s32-08231701 0.1ml		MC	RSKBOTH.M	Curve
21	29-Aug-17, 16:00:09	08291721.D	25000ppm s32-08231701 0.5ml		MC	RSKBOTH.M	Curve
22	29-Aug-17, 16:15:43	08291722.D	mb 0.1ml		MC	RSKBOTH.M	Pass
23	29-Aug-17, 16:35:37	08291723.D	lcv s30-07071701		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2019_12\04\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	04-Dec-19, 09:01:48	12041901.D	STD S32-10291901		LD	RSKBOTH.M	pass
2	04-Dec-19, 09:19:42	12041902.D	RB 0.1ml		LD	RSKBOTH.M	pass
3	04-Dec-19, 11:10:34	12041903.D	MCS 0.1ml		LD	RSKBOTH.M	pass
4	04-Dec-19, 11:24:26	12041904.D	LCS S32-08141901		LD	RSKBOTH.M	pass
5	04-Dec-19, 11:37:21	12041905.D	LCSD S32-08141901		LD	RSKBOTH.M	pass
6	04-Dec-19, 11:53:58	12041906.D	P1907270-001 0.1ml		LD	RSKBOTH.M	
7	04-Dec-19, 12:10:45	12041907.D	P1907270-002 0.1ml		LD	RSKBOTH.M	
8	04-Dec-19, 12:24:18	12041908.D	P1907270-003 0.1ml		LD	RSKBOTH.M	
9	04-Dec-19, 12:37:18	12041909.D	P1907270-003 MS 0.1ml		LD	RSKBOTH.M	
10	04-Dec-19, 12:52:16	12041910.D	P1907270-003 MSD ml		LD	RSKBOTH.M	
11	04-Dec-19, 13:14:08	12041911.D	STD S32-10291901		LD	RSKBOTH.M	pass

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:31:10
Operator : LD
Sample : P1907270-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:58:51 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

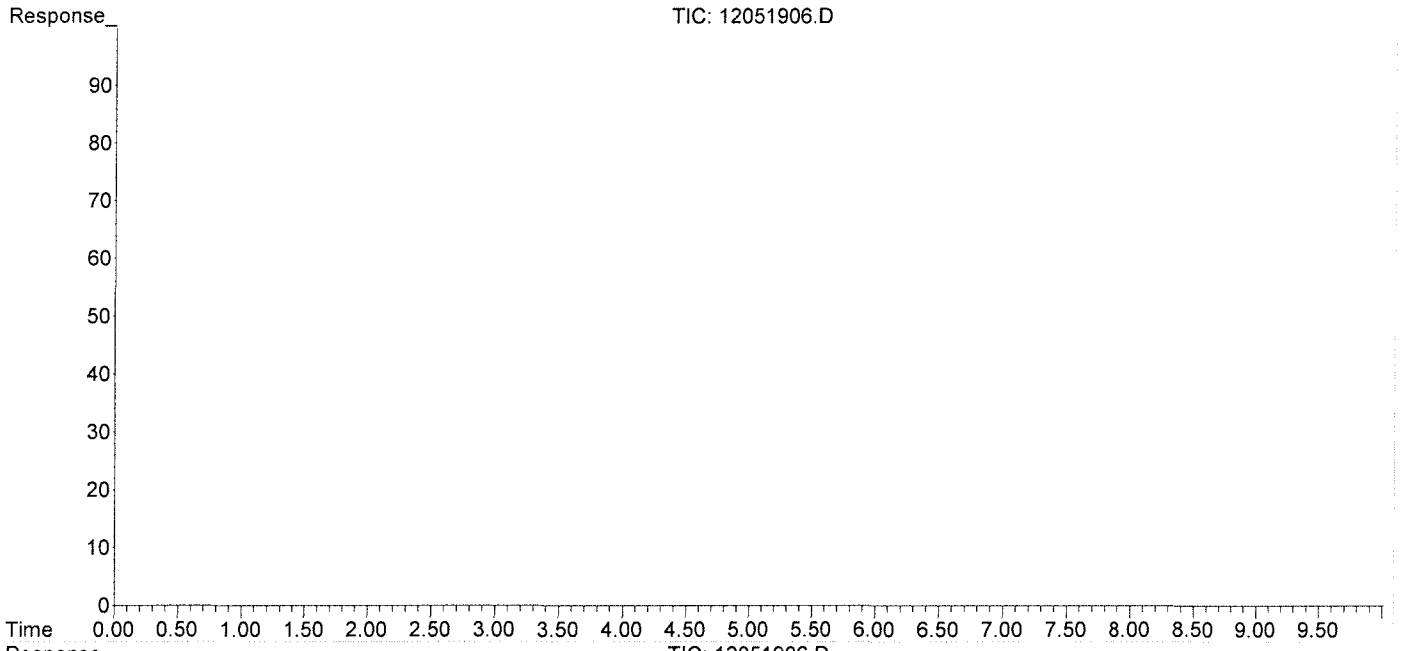
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

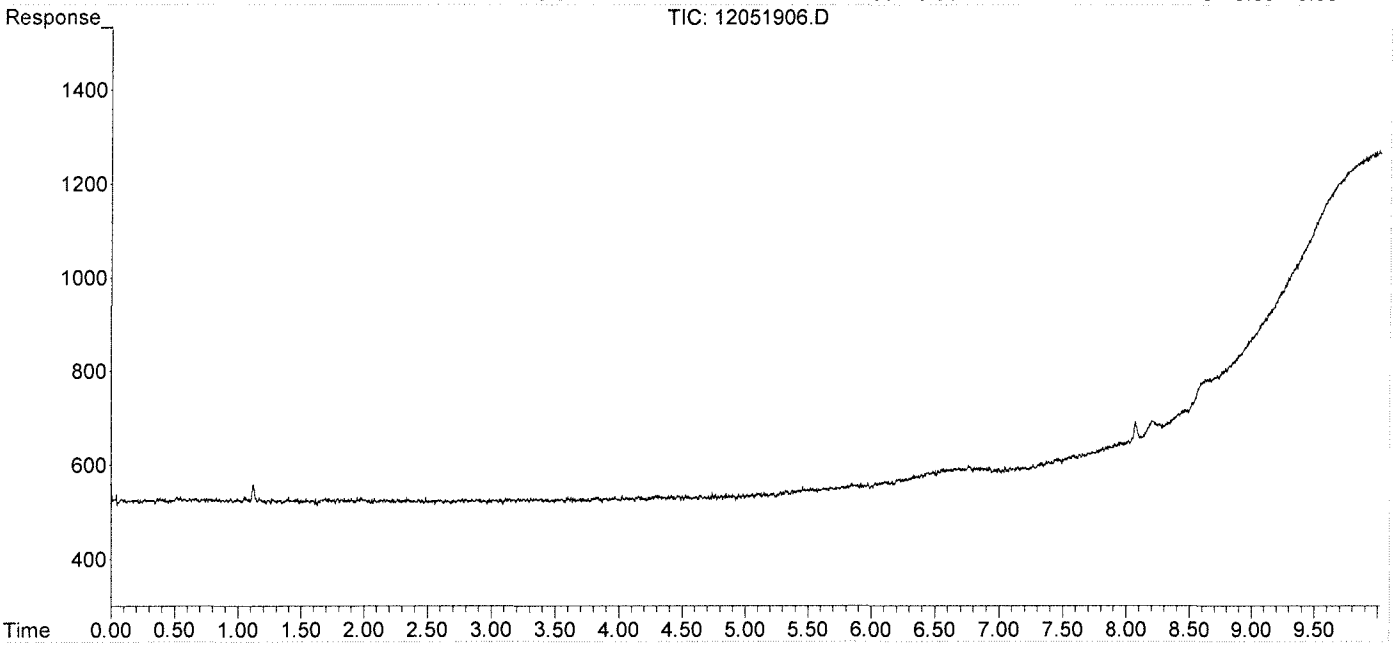
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:31:10
Operator : LD
Sample : P1907270-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:58:51 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:44:26
Operator : LD
Sample : P1907270-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:59:02 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

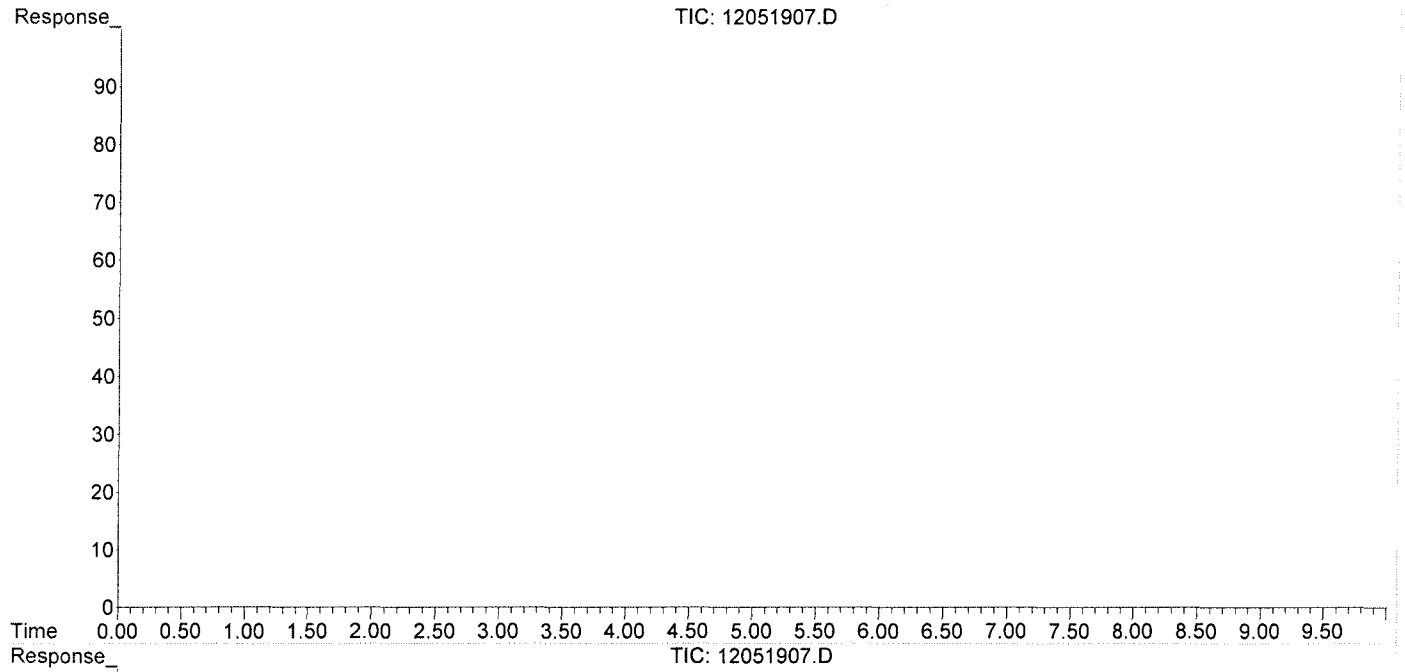
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

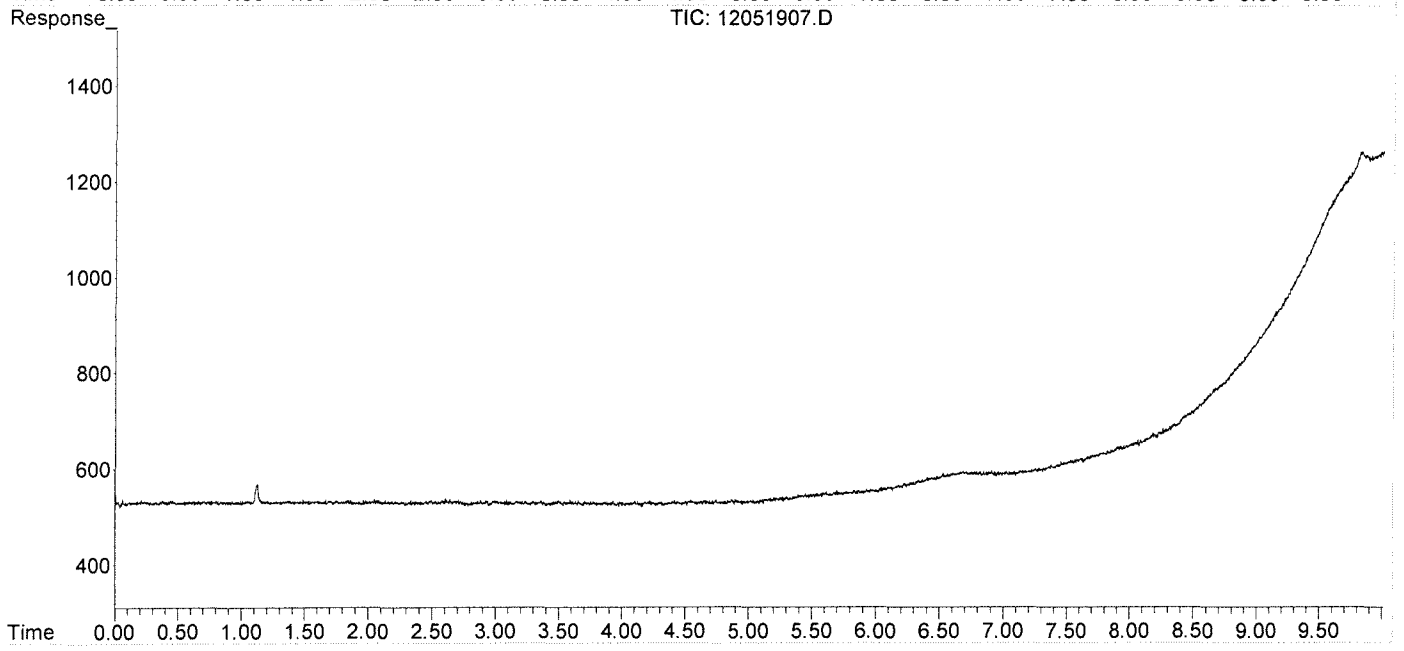
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:44:26
Operator : LD
Sample : P1907270-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:59:02 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 11:01:43
Operator : LD
Sample : P1907270-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:59:10 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

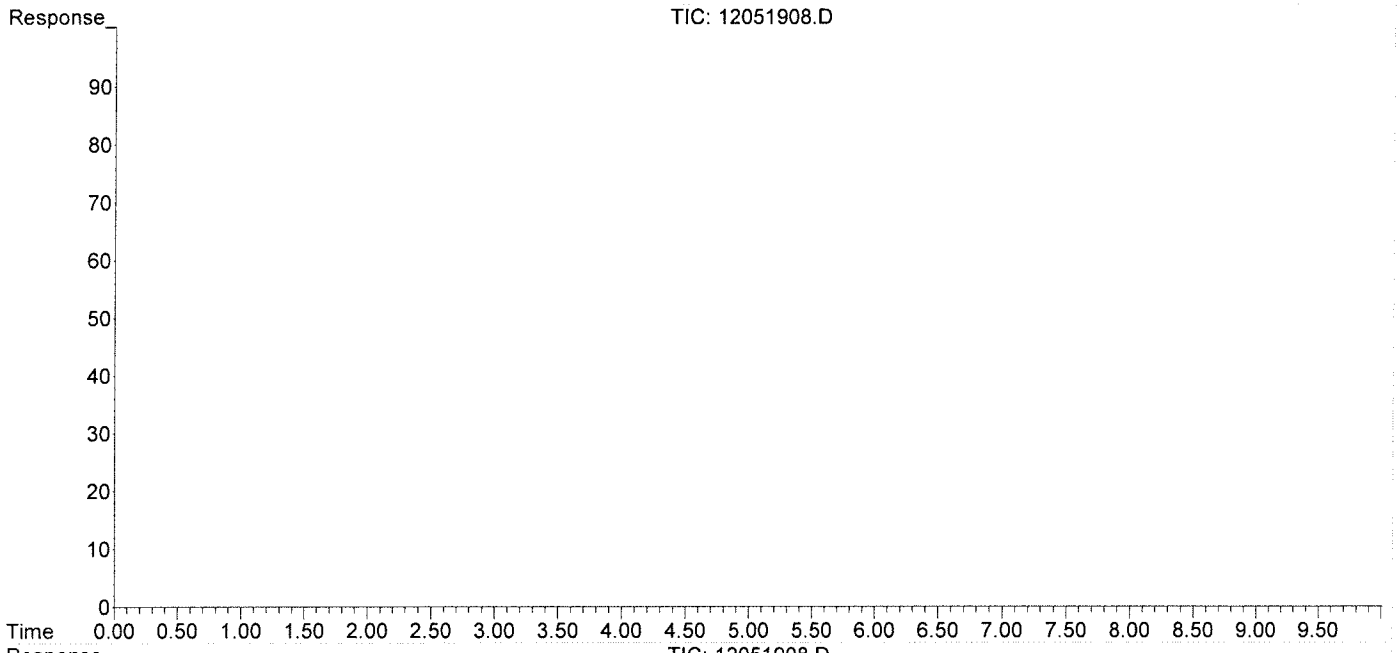
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.117	1832	0.202	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

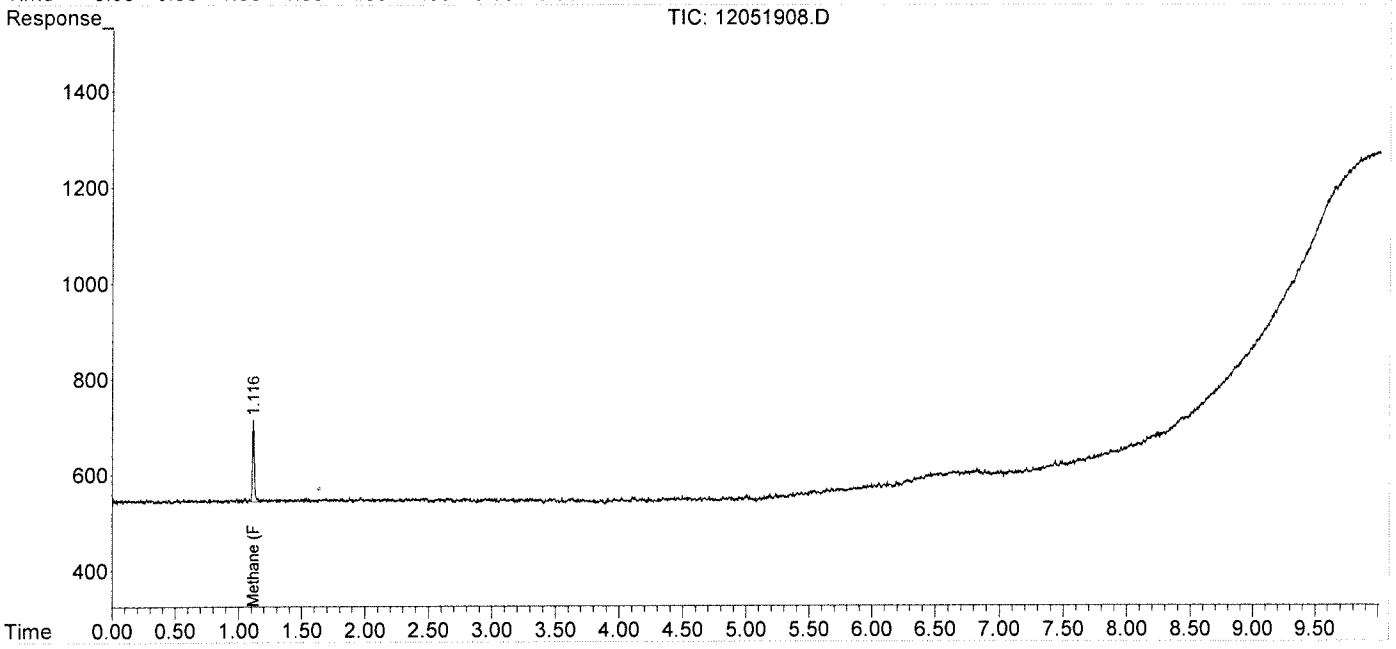
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 11:01:43
Operator : LD
Sample : P1907270-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 11:59:10 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 09:19:57
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:26:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

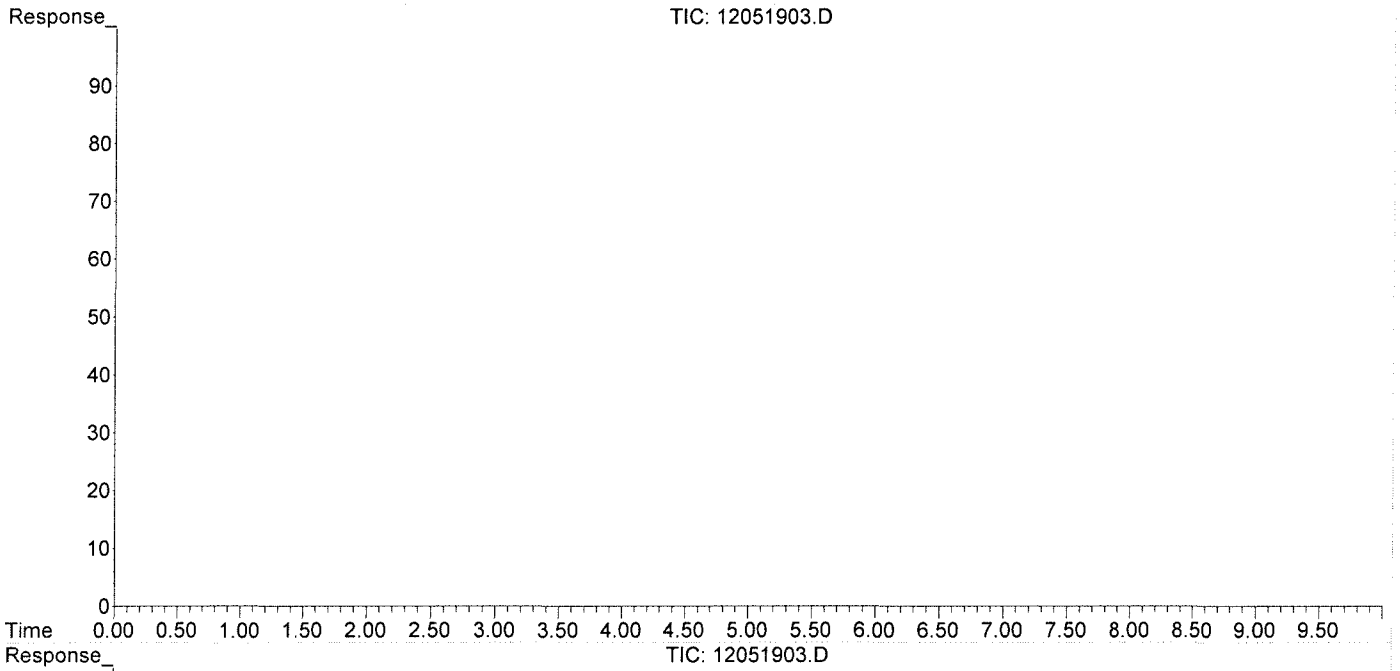
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.114	1304	0.144	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

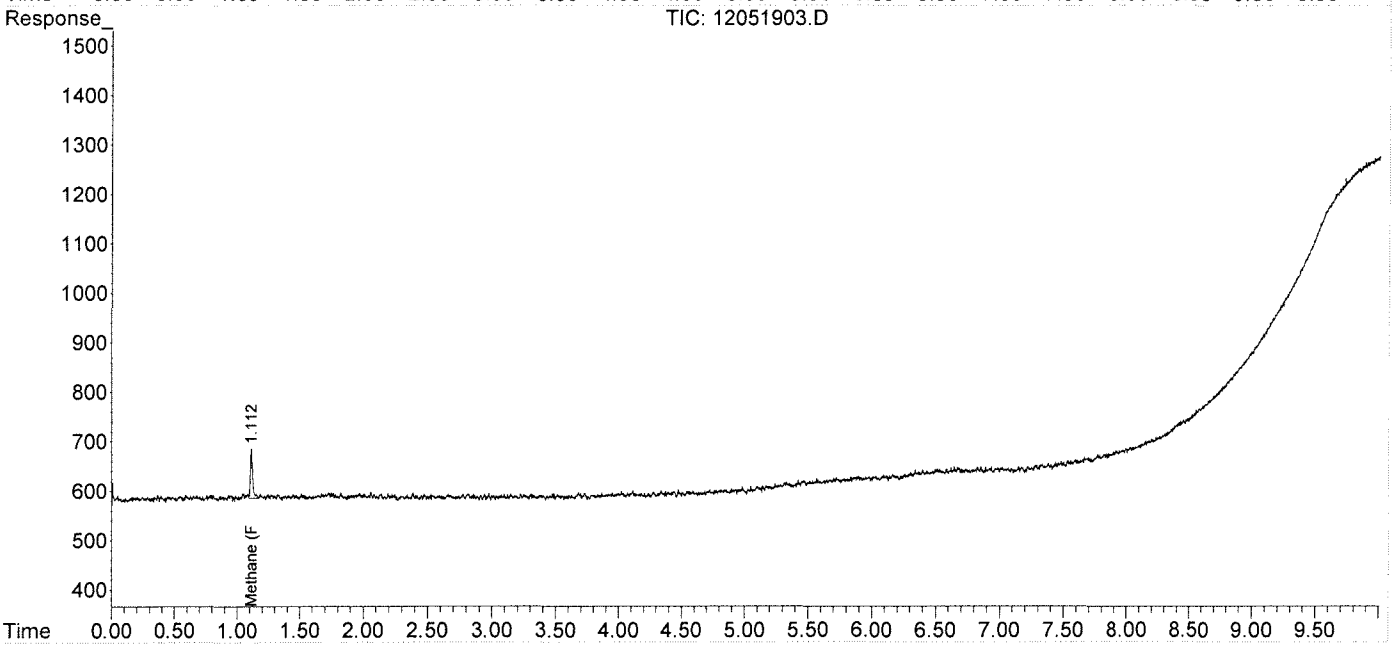
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 09:19:57
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:26:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:05:43
Operator : LD
Sample : P1907270-003 MS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 12:30:09 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

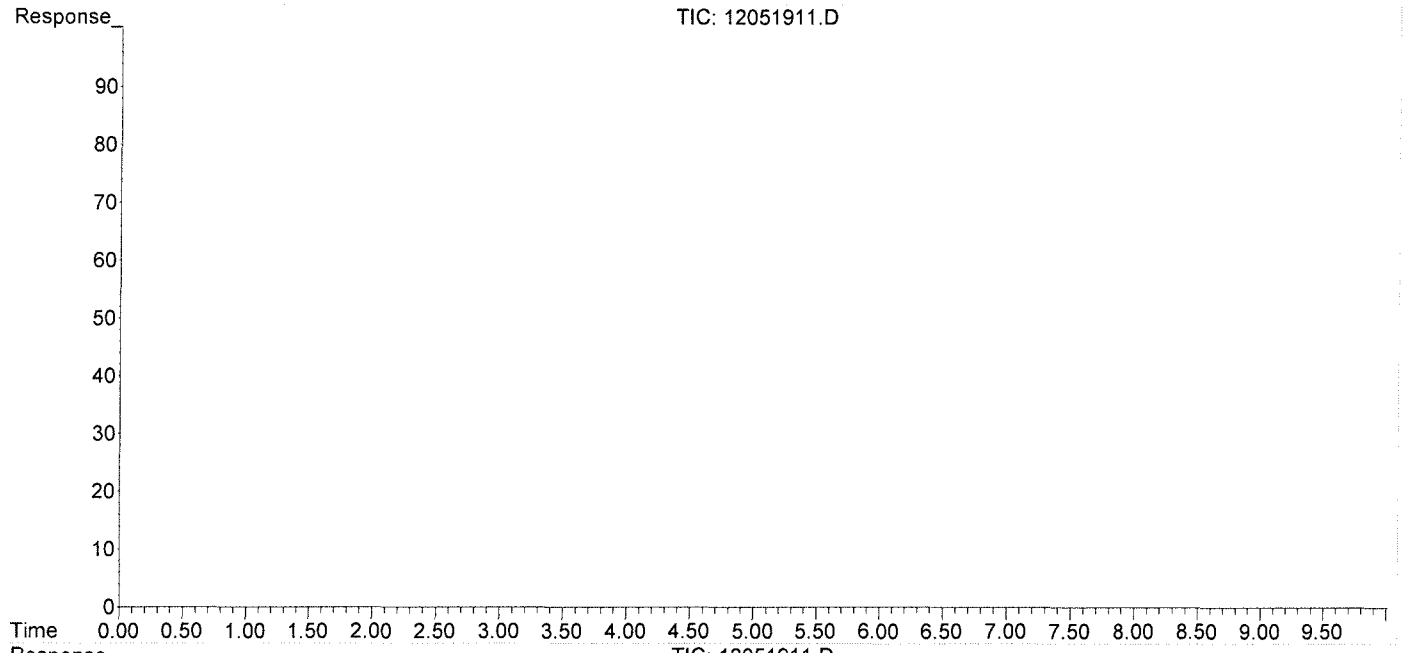
	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.111	14512	1.600	ppm
7)	Ethylene	1.683	17245	1.031	ppm
8)	Ethane	1.950	20226	1.193	ppm
9)	Propylene	4.328	23739	1.013	ppm
10)	Propane	4.450	30776	1.237	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.649	41097	1.544	ppm
13)	n-Butane	6.649	41097	1.544	ppm

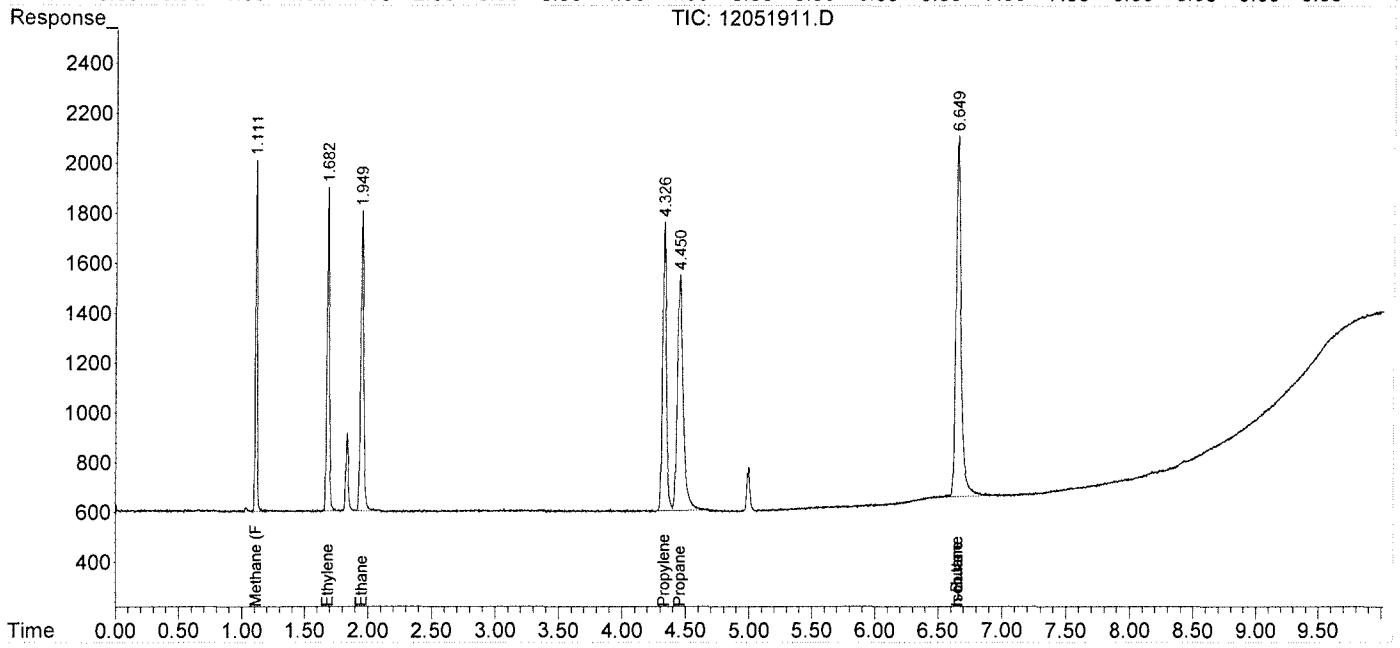
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:05:43
Operator : LD
Sample : P1907270-003 MS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 12:30:09 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:18:26
Operator : LD
Sample : P1907270-003 MSD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 12:30:55 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

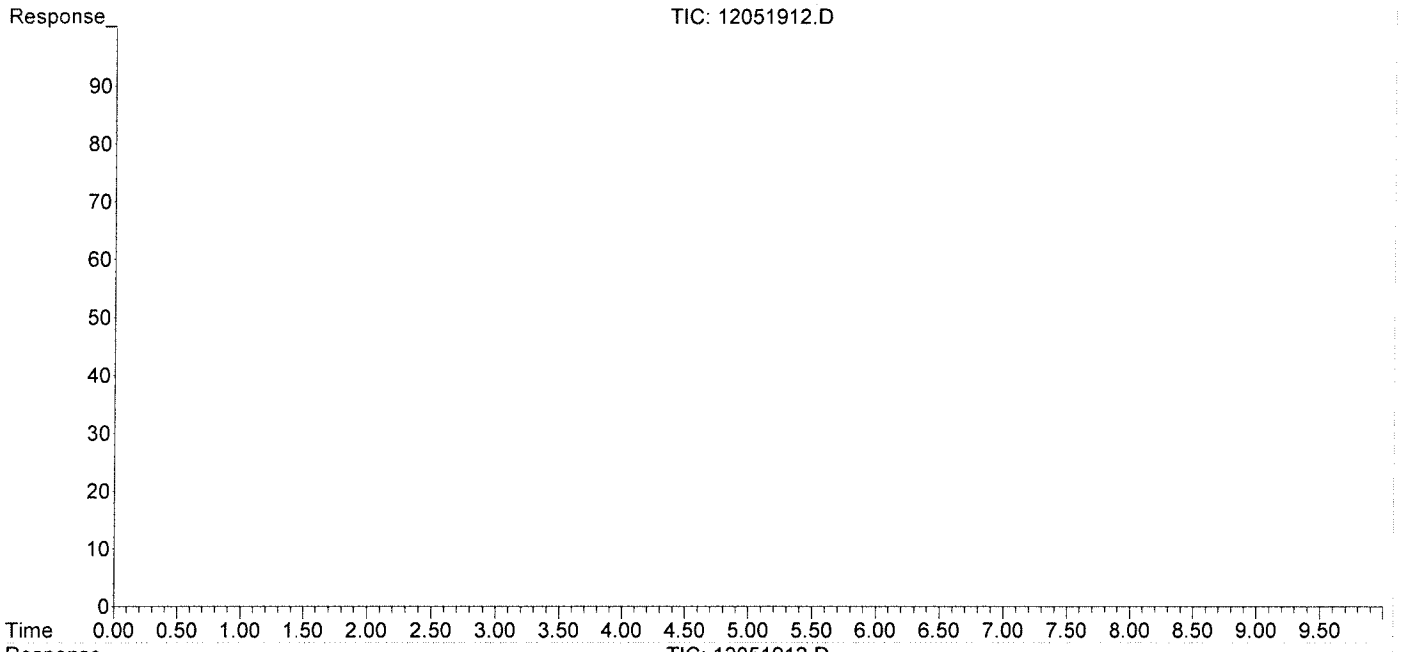
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.108	14320	1.579	ppm
7)	Ethylene	1.672	17066	1.020	ppm
8)	Ethane	1.937	20225	1.193	ppm
9)	Propylene	4.326	23699	1.011	ppm
10)	Propane	4.449	30666	1.233	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.653	40102	1.507	ppm
13)	n-Butane	6.653	40102	1.507	ppm

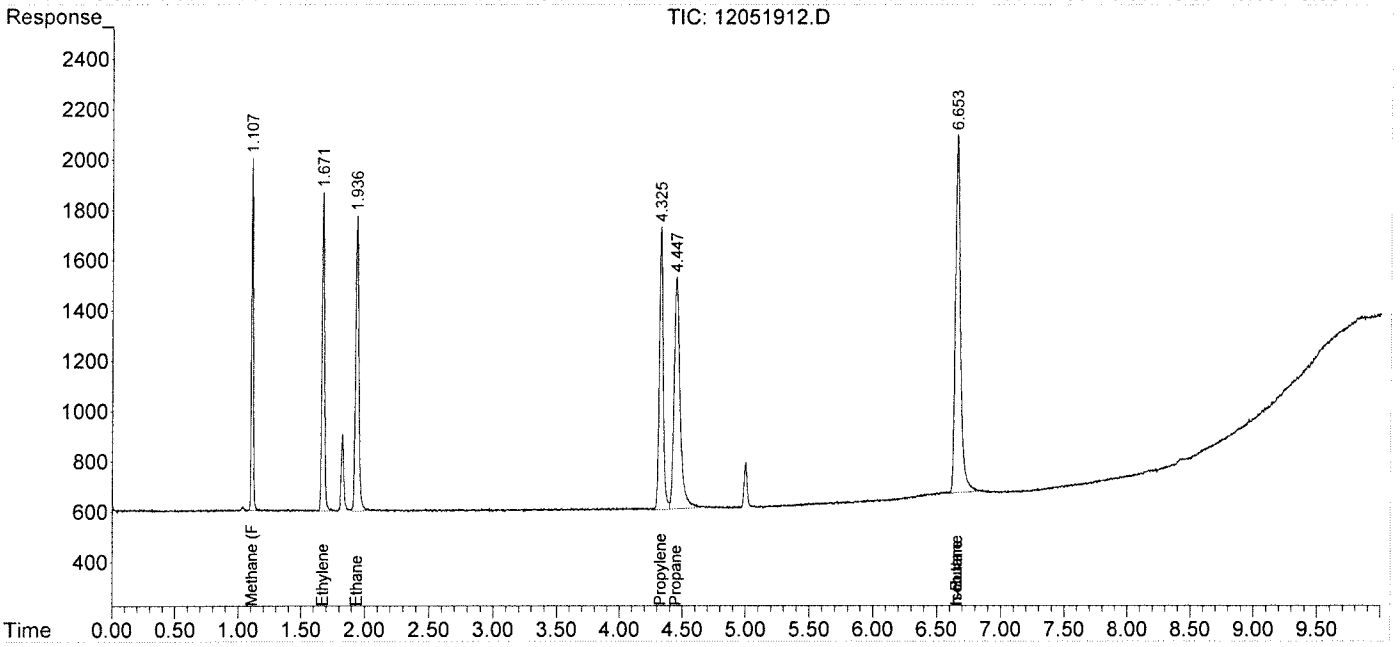
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:18:26
Operator : LD
Sample : P1907270-003 MSD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 12:30:55 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 09:56:31
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:26:36 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

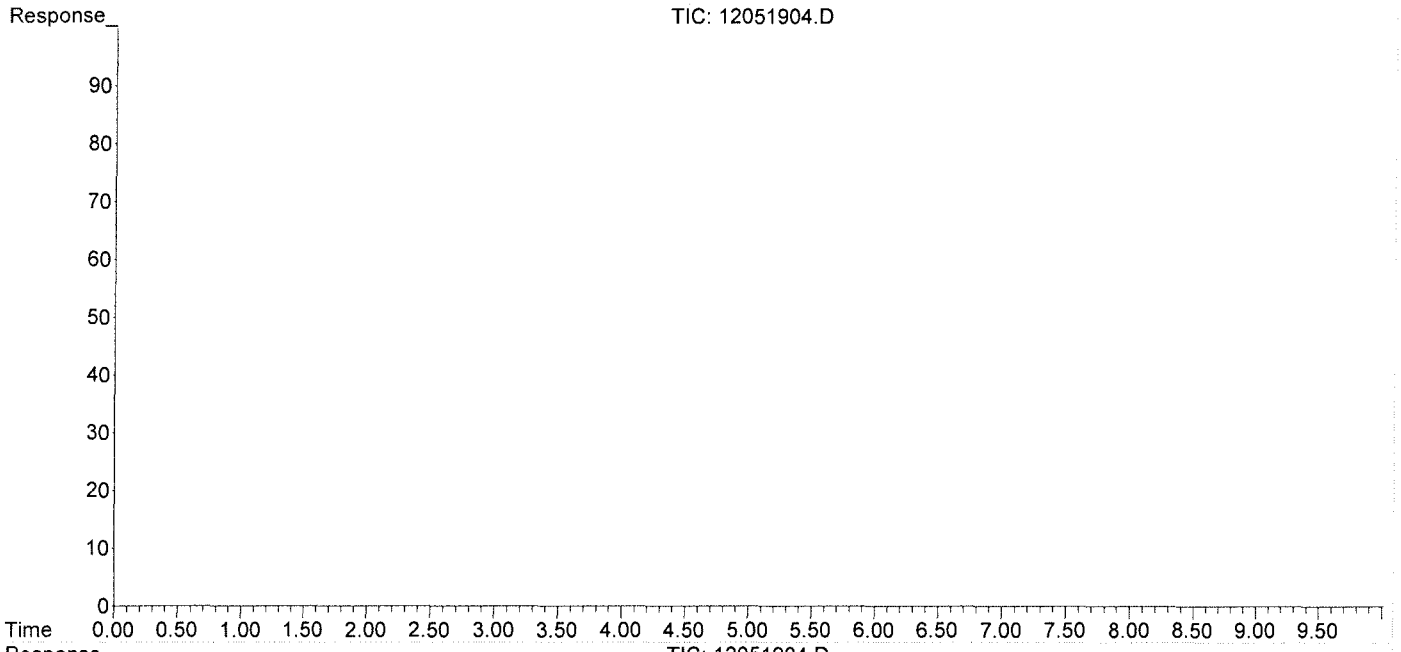
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.114	13777	1.519	ppm
7)	Ethylene	1.688	17630	1.054	ppm
8)	Ethane	1.955	21547	1.271	ppm
9)	Propylene	4.333	23787	1.015	ppm
10)	Propane	4.455	32563	1.309	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.657	43353	1.629	ppm
13)	n-Butane	6.657	43353	1.629	ppm

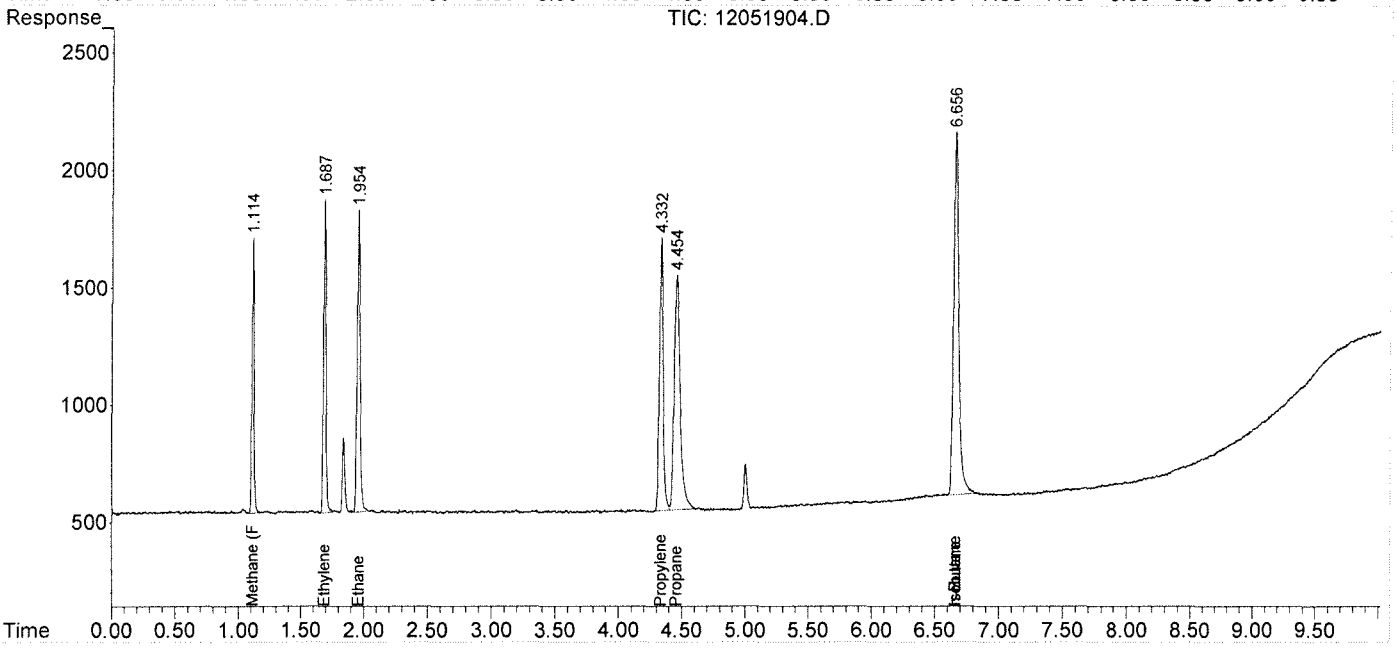
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 09:56:31
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:26:36 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:09:58
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:28:25 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

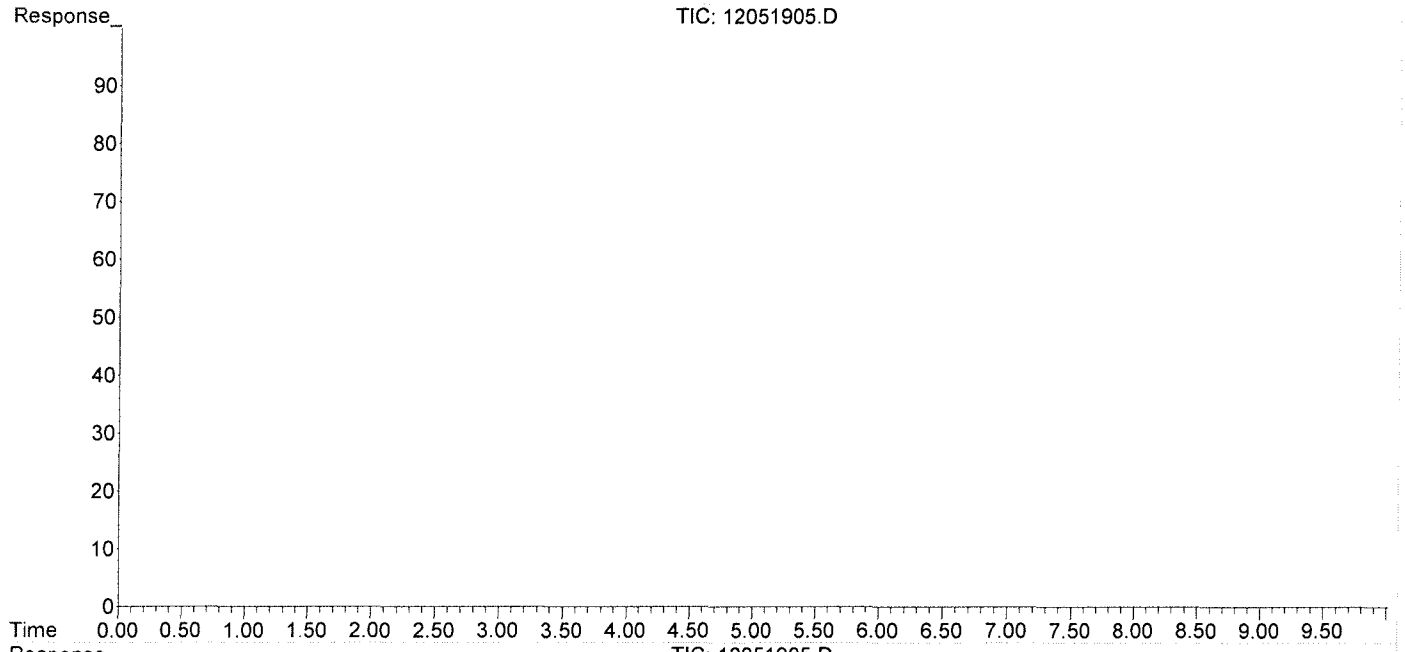
	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.111	12909	1.423	ppm
7)	Ethylene	1.684	17735	1.060	ppm
8)	Ethane	1.952	21591	1.274	ppm
9)	Propylene	4.336	24243	1.035	ppm
10)	Propane	4.458	33003	1.326	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.659	44022	1.654	ppm
13)	n-Butane	6.659	44022	1.654	ppm

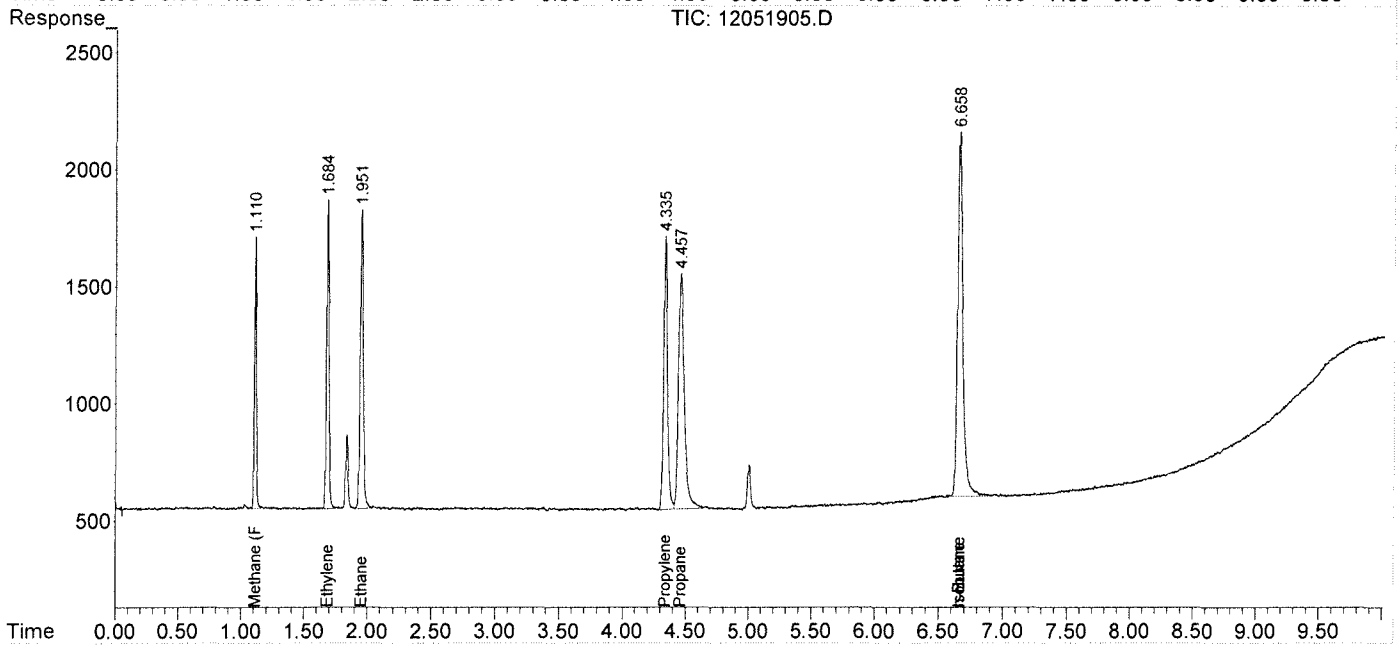
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 10:09:58
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 10:28:25 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

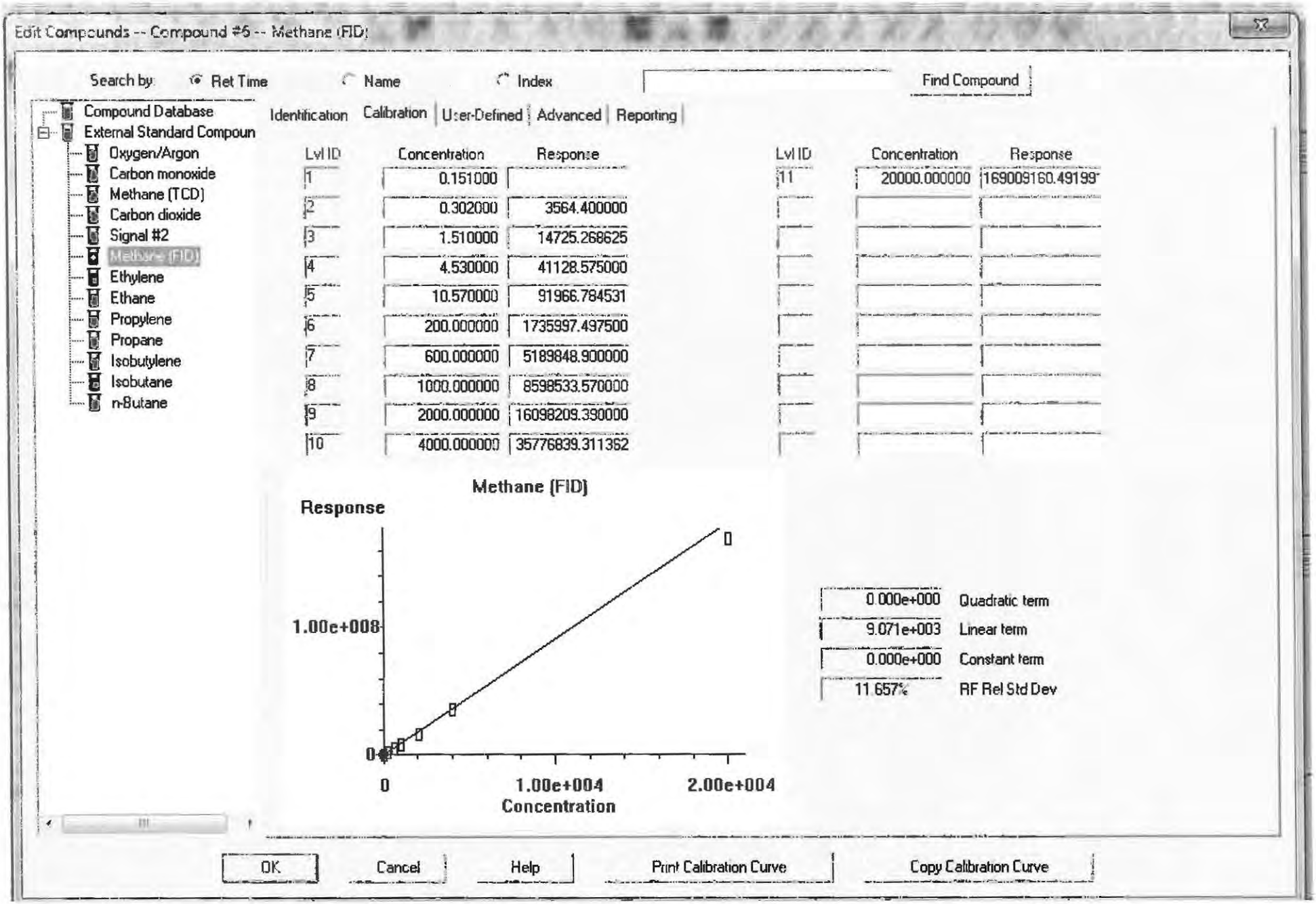
	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017


Edit Compounds -- Compound #6 -- Methane (FID)
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compoun
Oxygen/Argon
Carbon monoxide
Methane (TCD)
Carbon dioxide
Signal #2
Methane (FID)
Ethylene
Ethane
Propylene
Propane
Isobutylene
Isobutane
n-Butane
Identification Calibration User-Defined Advanced Reporting
Lvl ID Concentration Response
1 0.151000
2 0.302000 3564.400000
3 1.510000 14725.268625
4 4.530000 41128.575000
5 10.570000 91966.784531
6 200.000000 1735997.497500
7 600.000000 5189848.900000
8 1000.000000 8598533.570000
9 2000.000000 16098209.390000
10 4000.000000 35776839.311362
Lvl ID Concentration Response
11 20000.000000 169009160.49199
Methane (FID)
Response
1.00e+008
0
0
1.00e+004
2.00e+004
Concentration
0.000e+000 Quadratic term
9.071e+003 Linear term
0.000e+000 Constant term
11.657% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

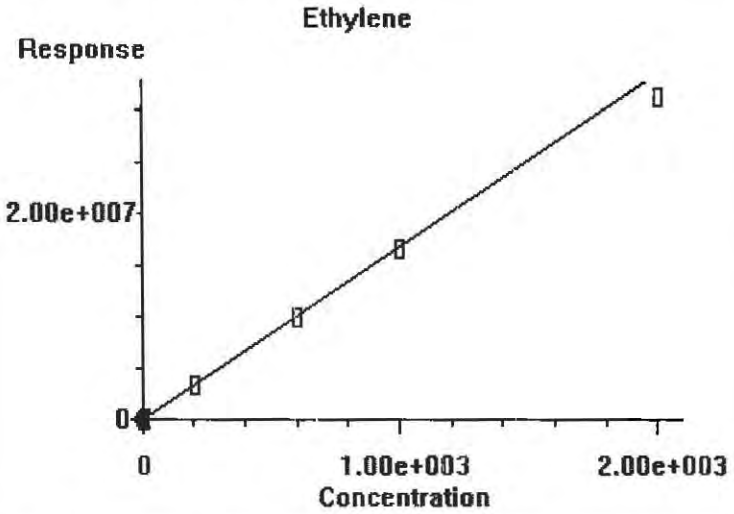
Search by: Ret Time | Name | Index | Find Compound

Compound Database
External Standard Compoun
- Oxygen/Argon
- Carbon monoxide
- Methane (TCD)
- Carbon dioxide
- Signal #2
- Methane (FID)
- Ethylene
- Ethane
- Propylene
- Propane
- Isobutylene
- Isobutane
- n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #8 -- Ethane

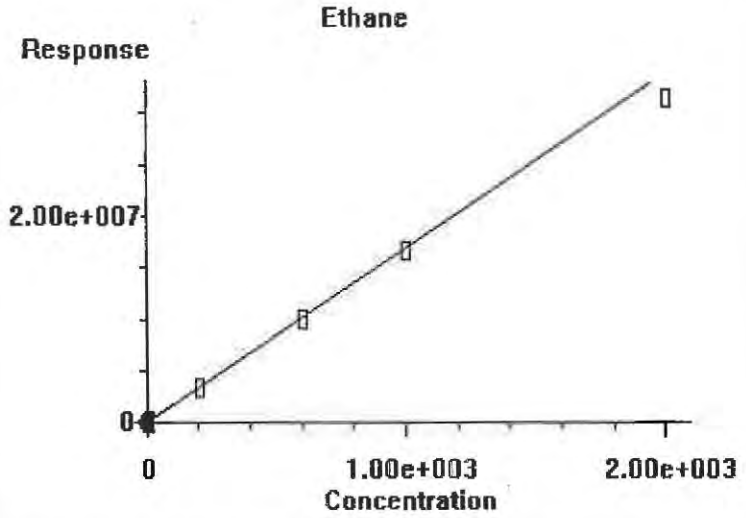
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #9 -- Propylene

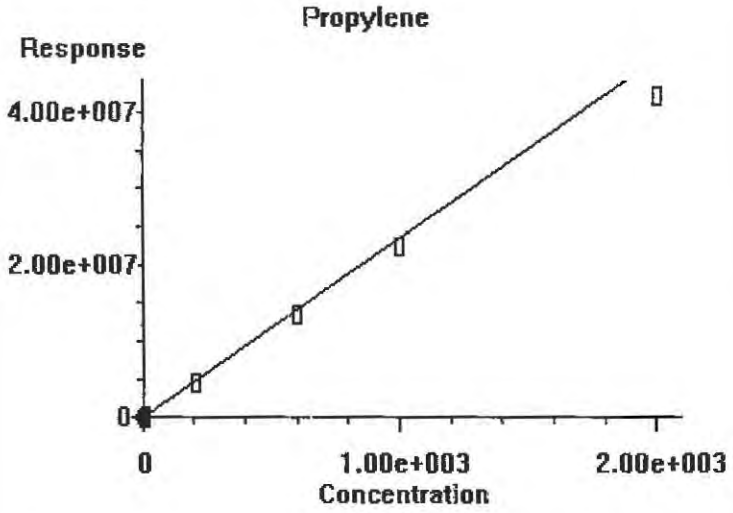
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #10 -- Propane

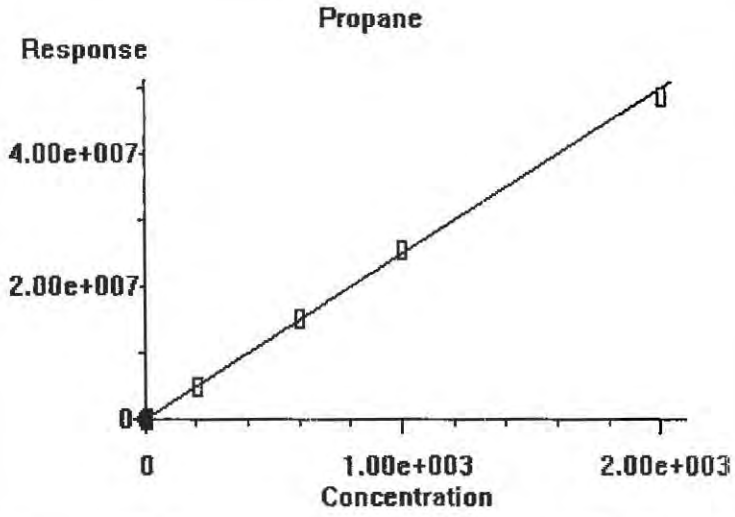
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663316
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

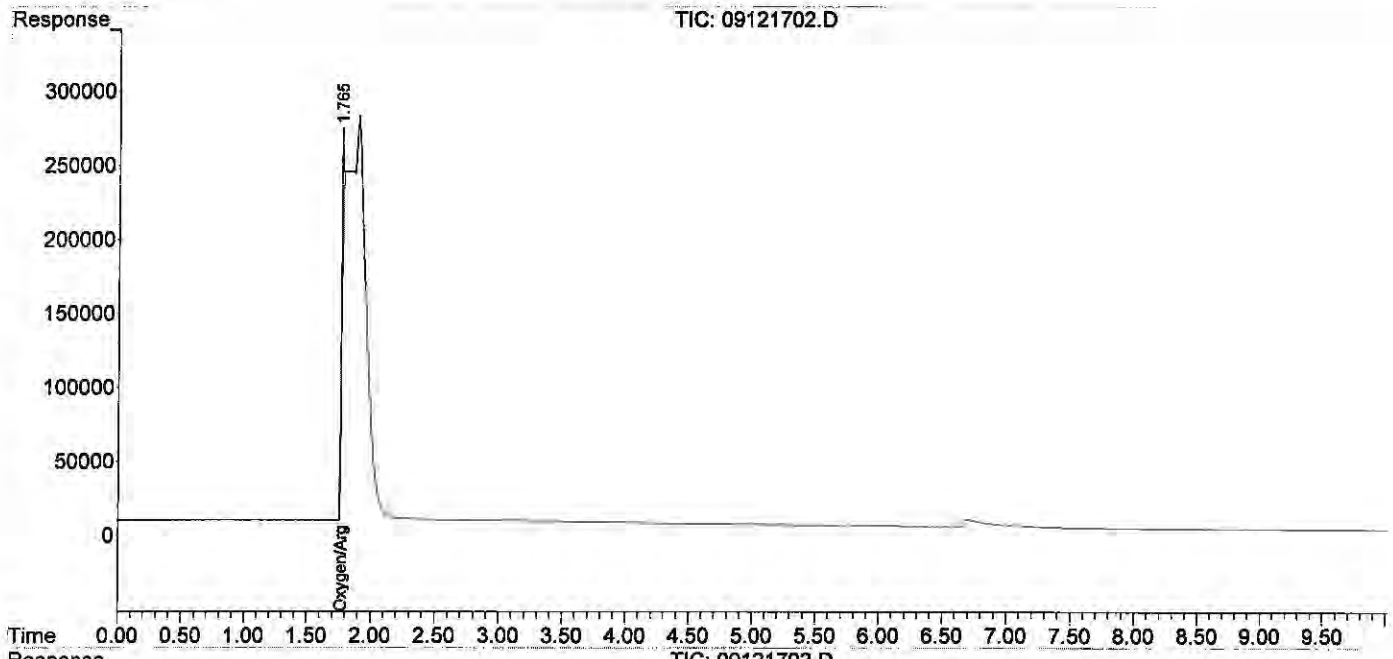
9/13/2

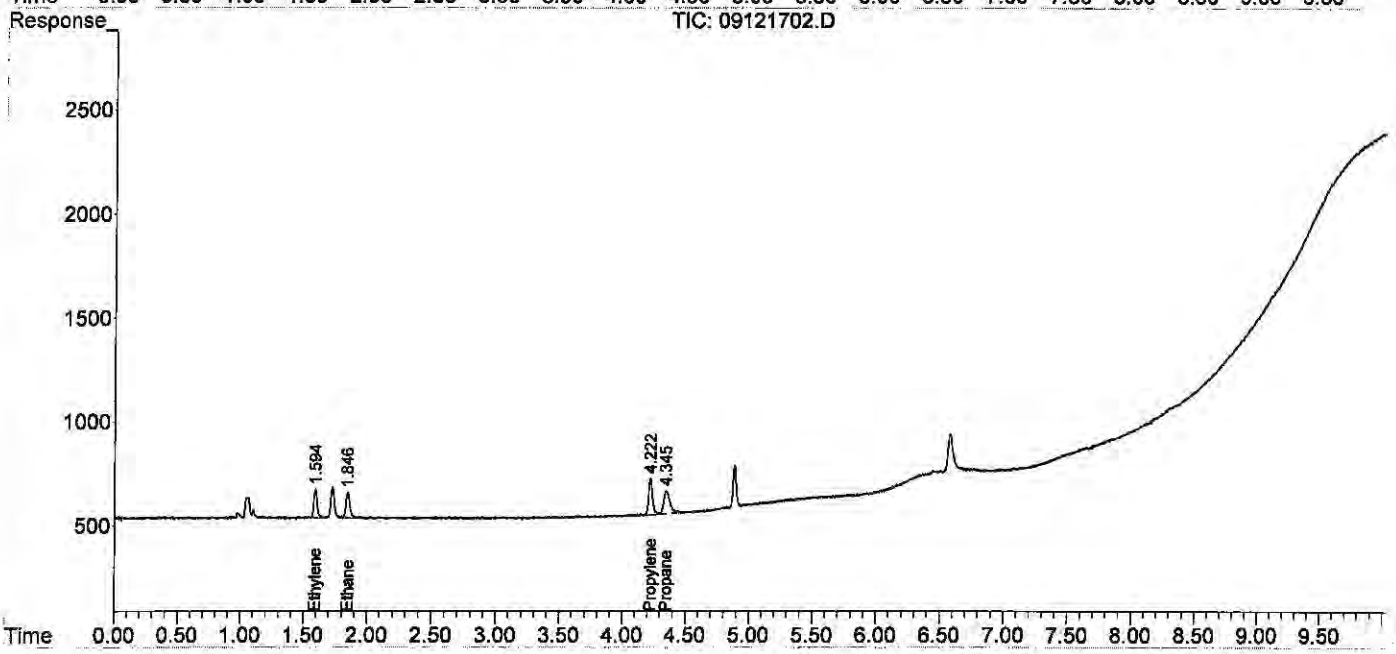
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





RS091217_R.M Wed Sep 13 14:58:18 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

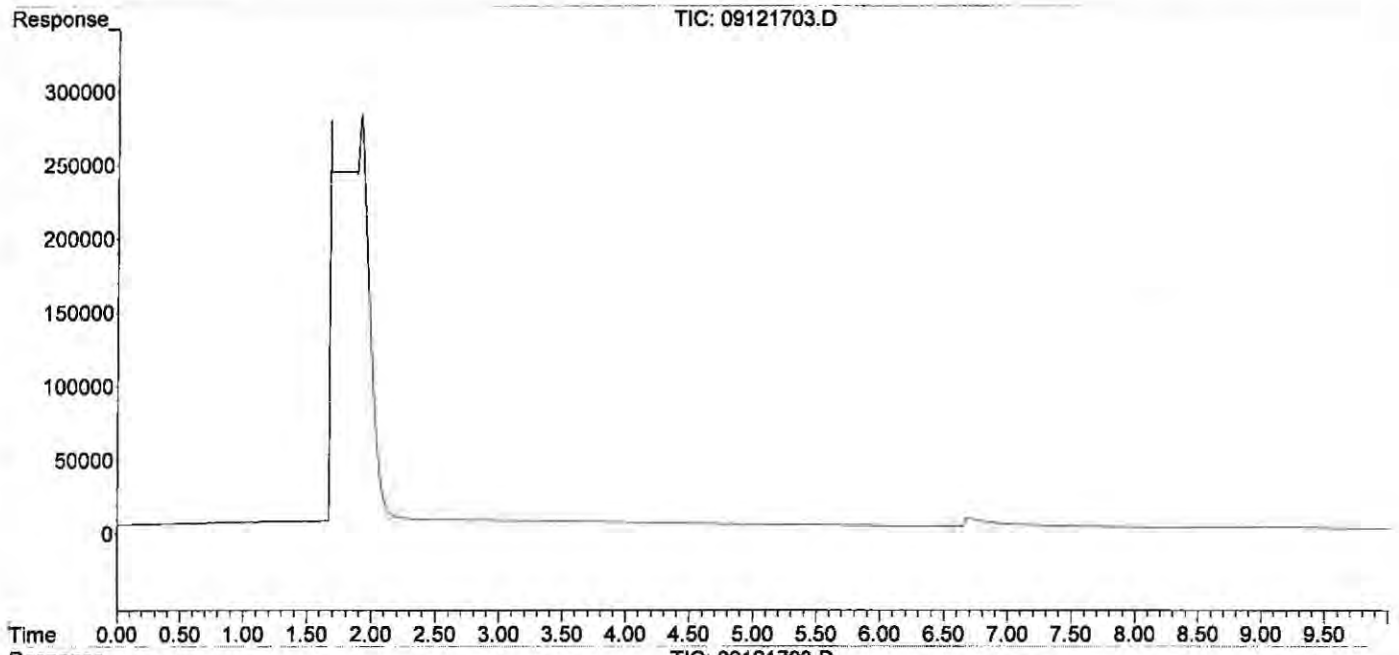
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

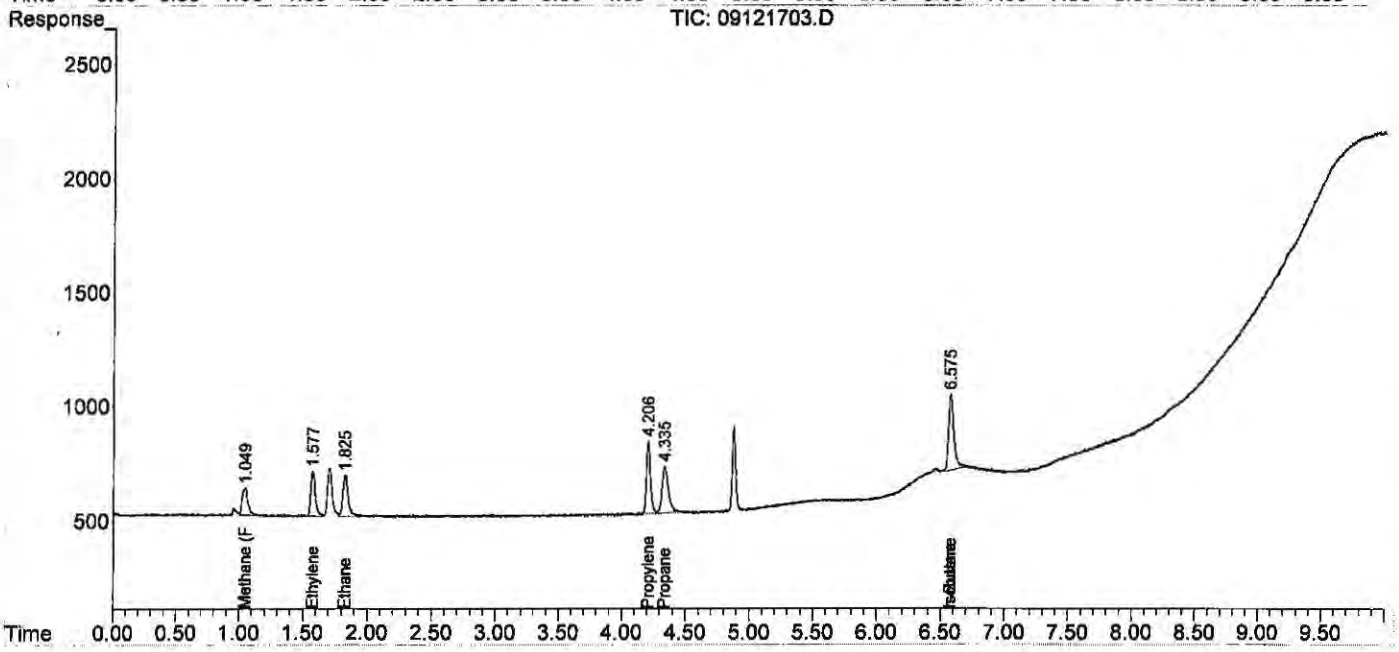
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



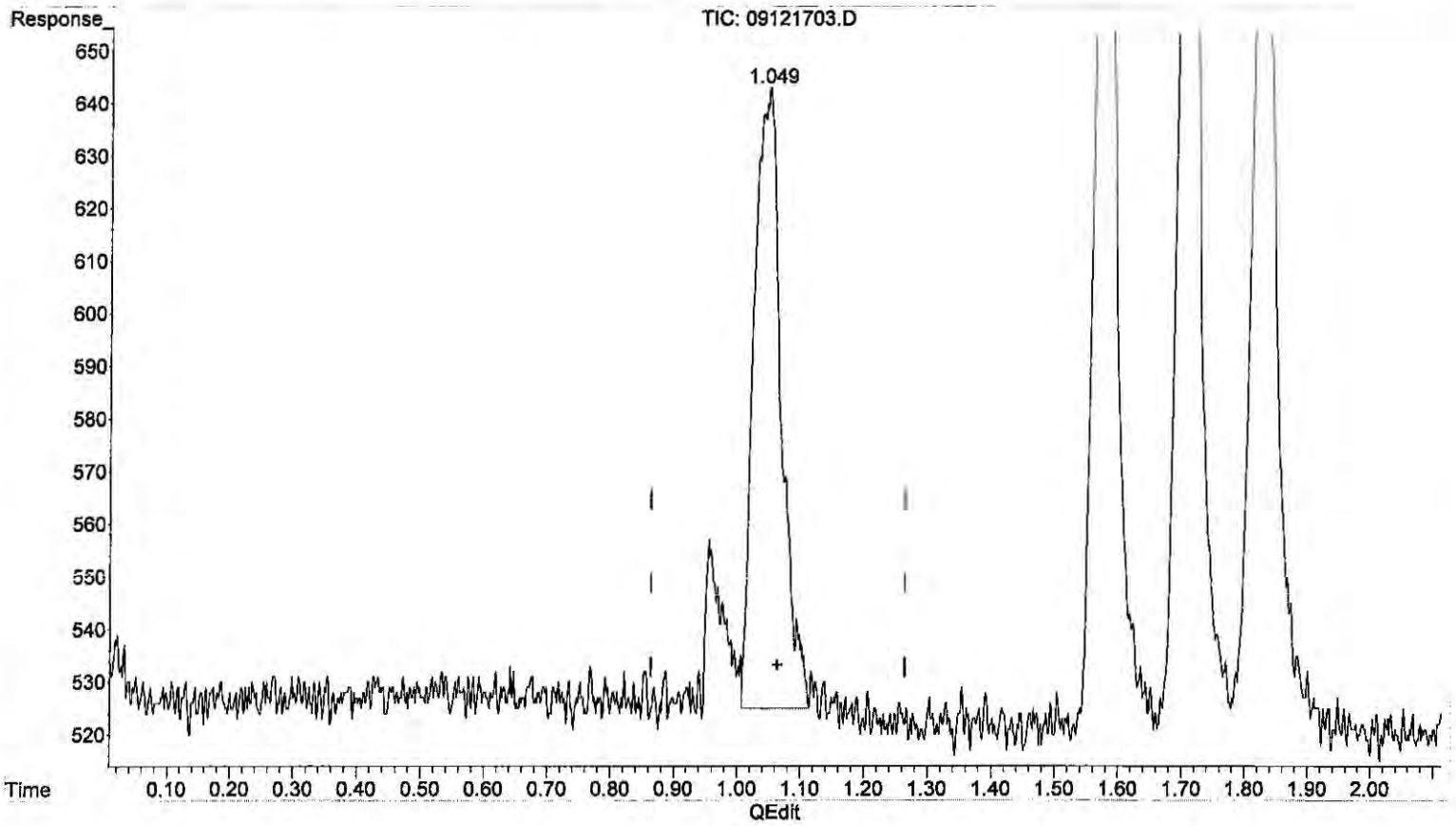


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

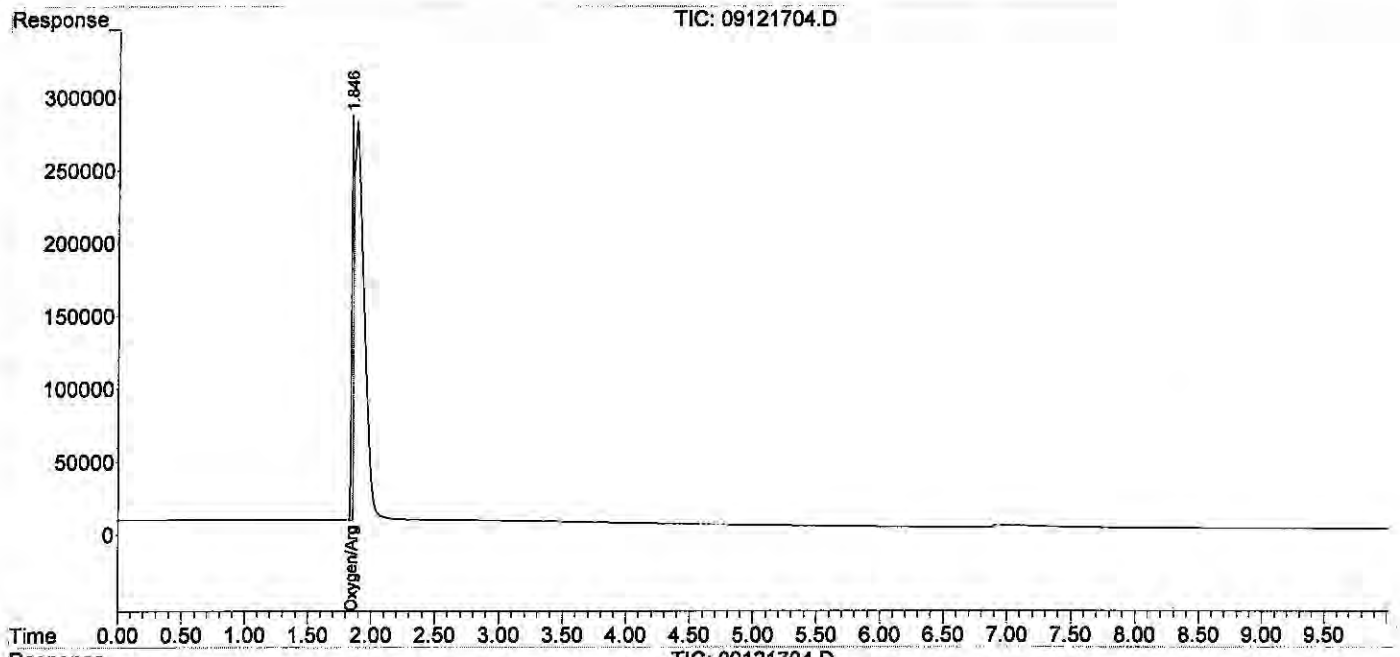
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

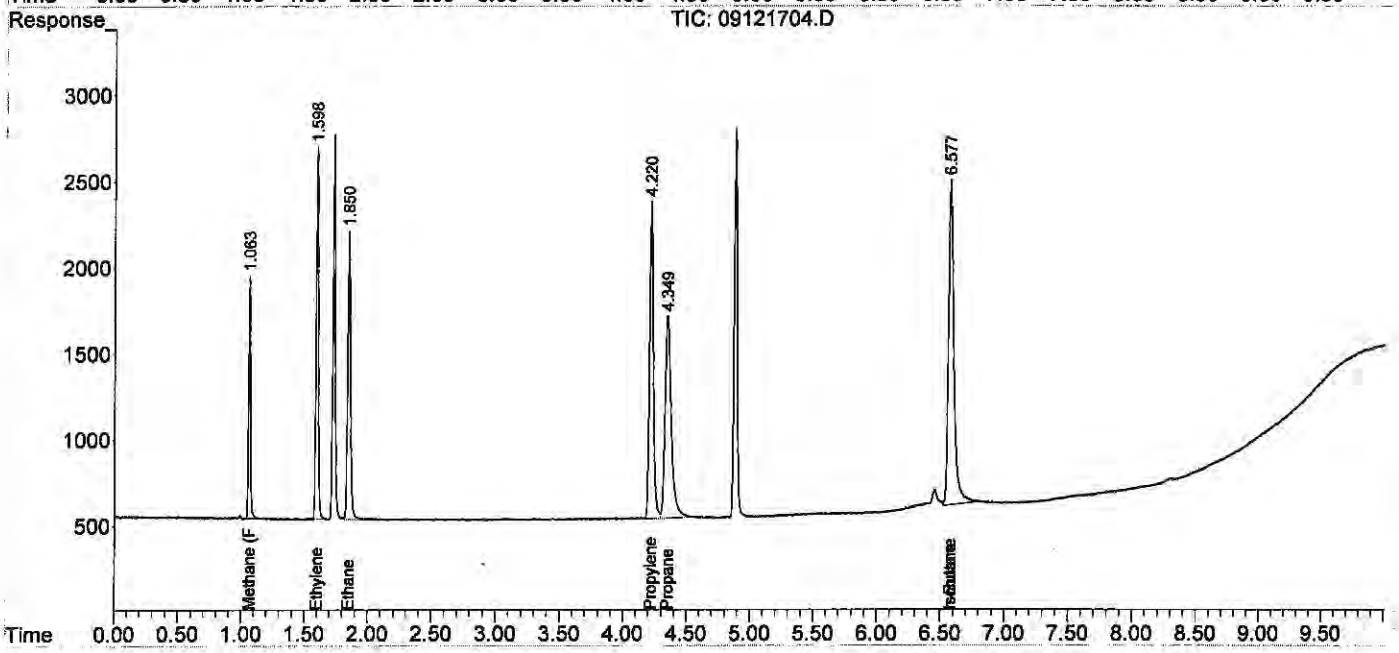
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

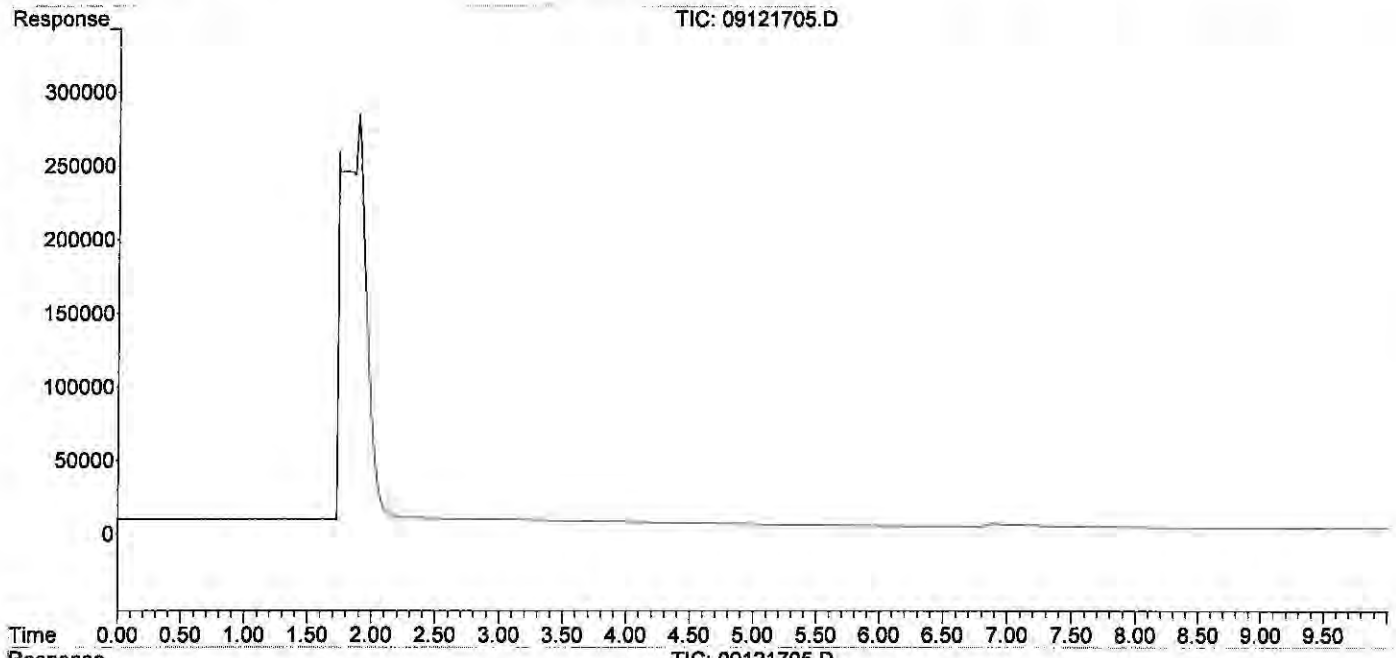
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

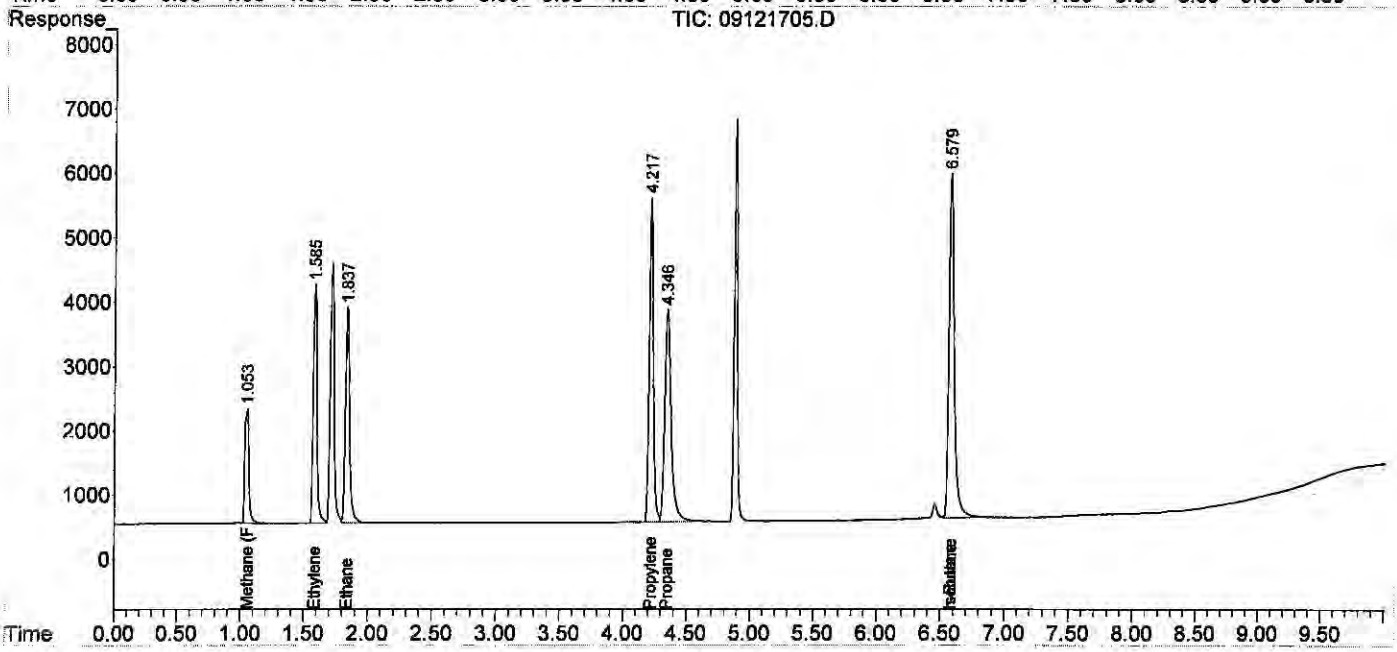
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

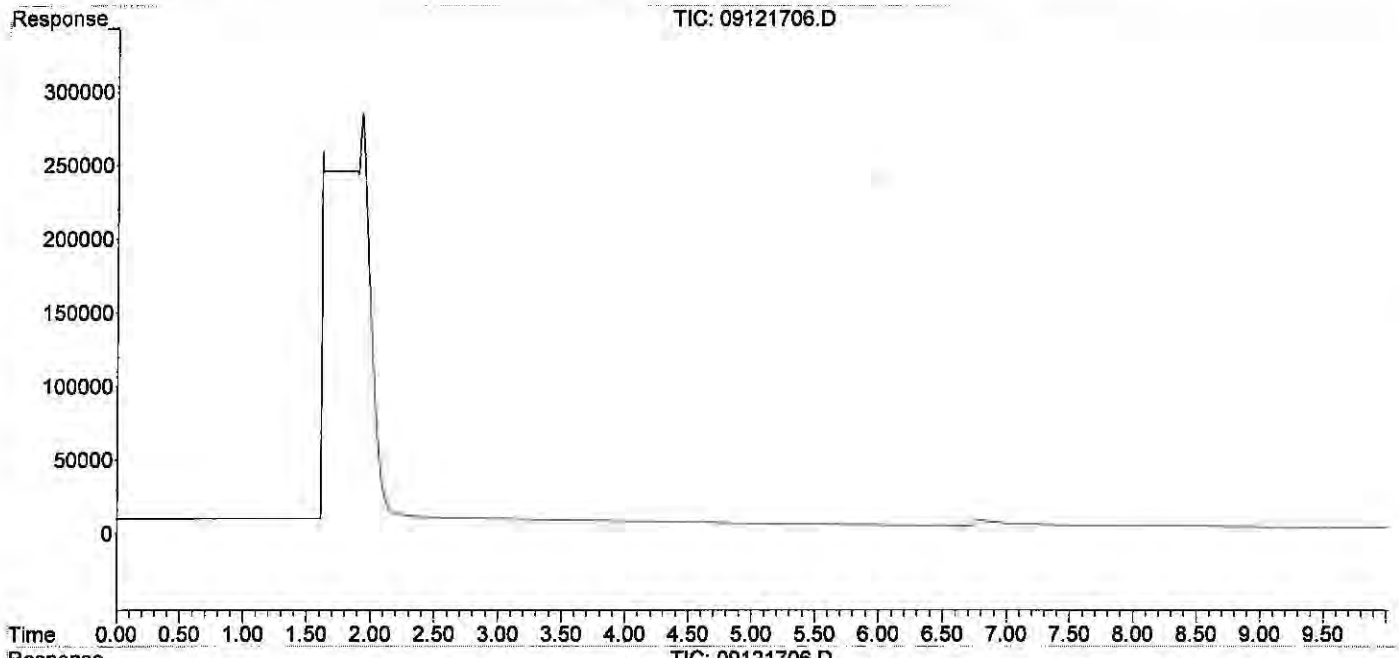
(f)=RT Delta > 1/2 Window (m)=manual int.

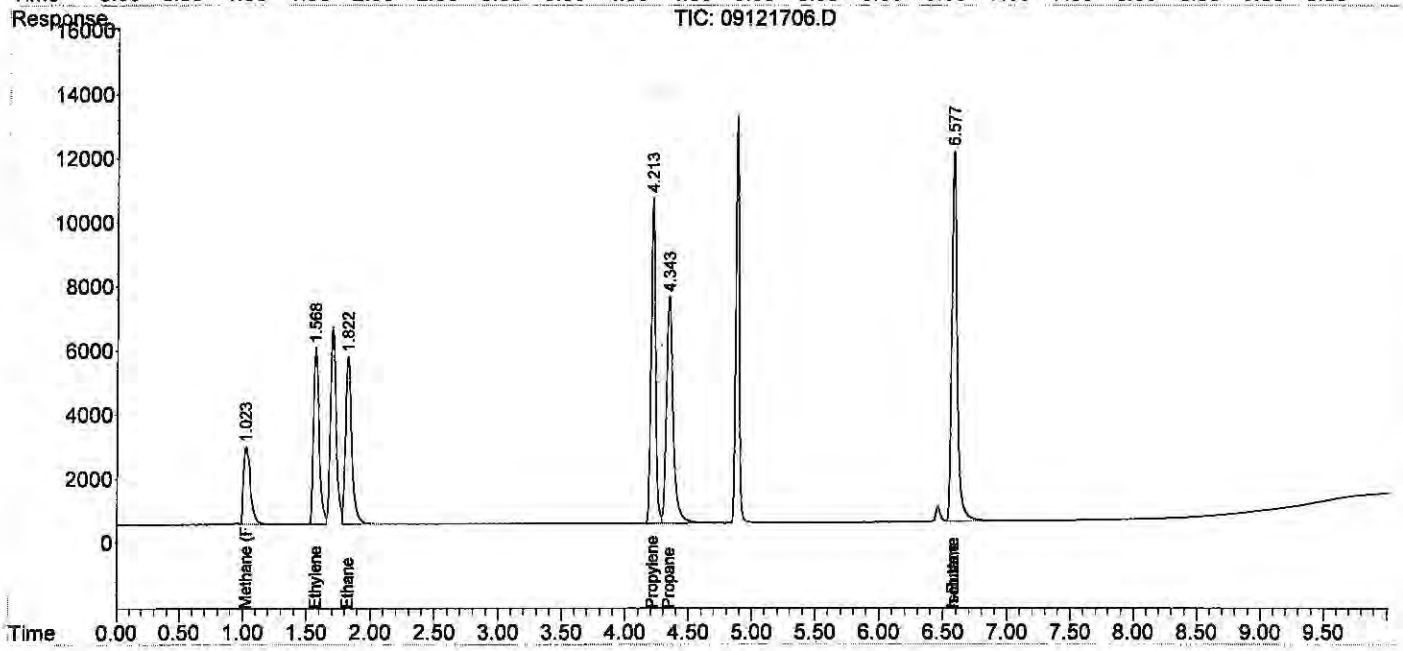
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

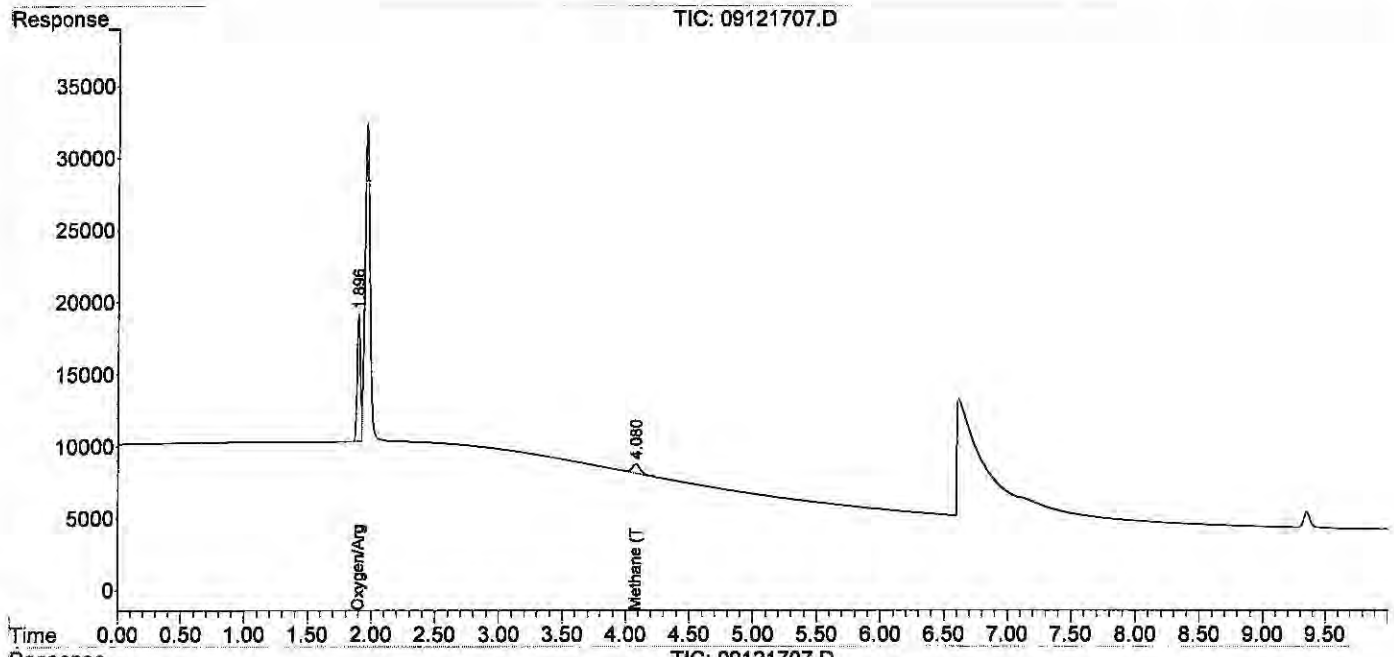
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

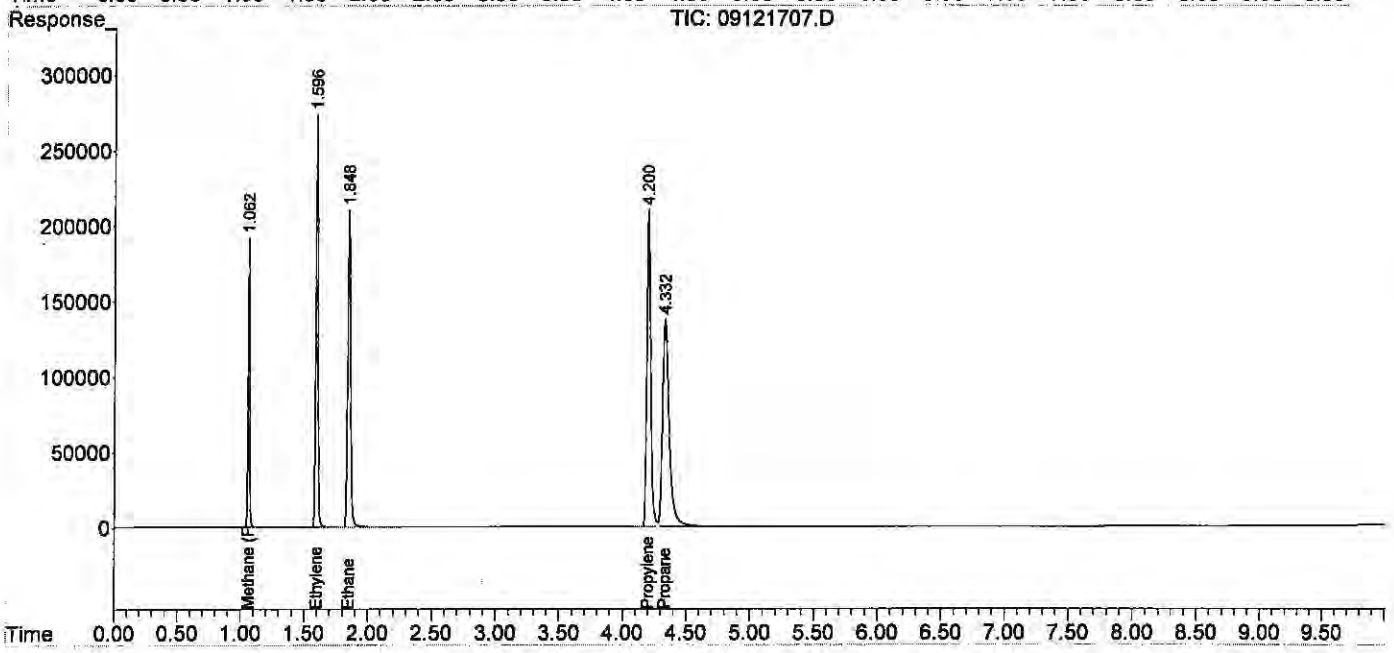
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

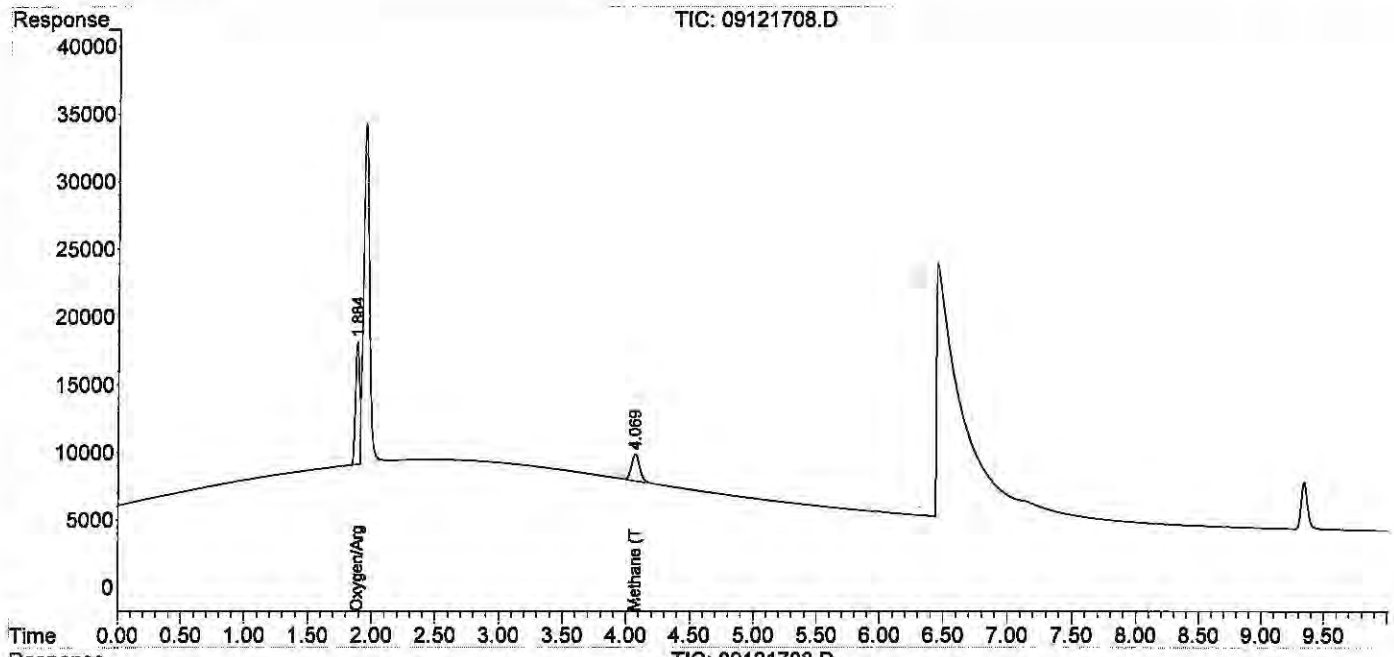
(f)=RT Delta > 1/2 Window (m)=manual int.

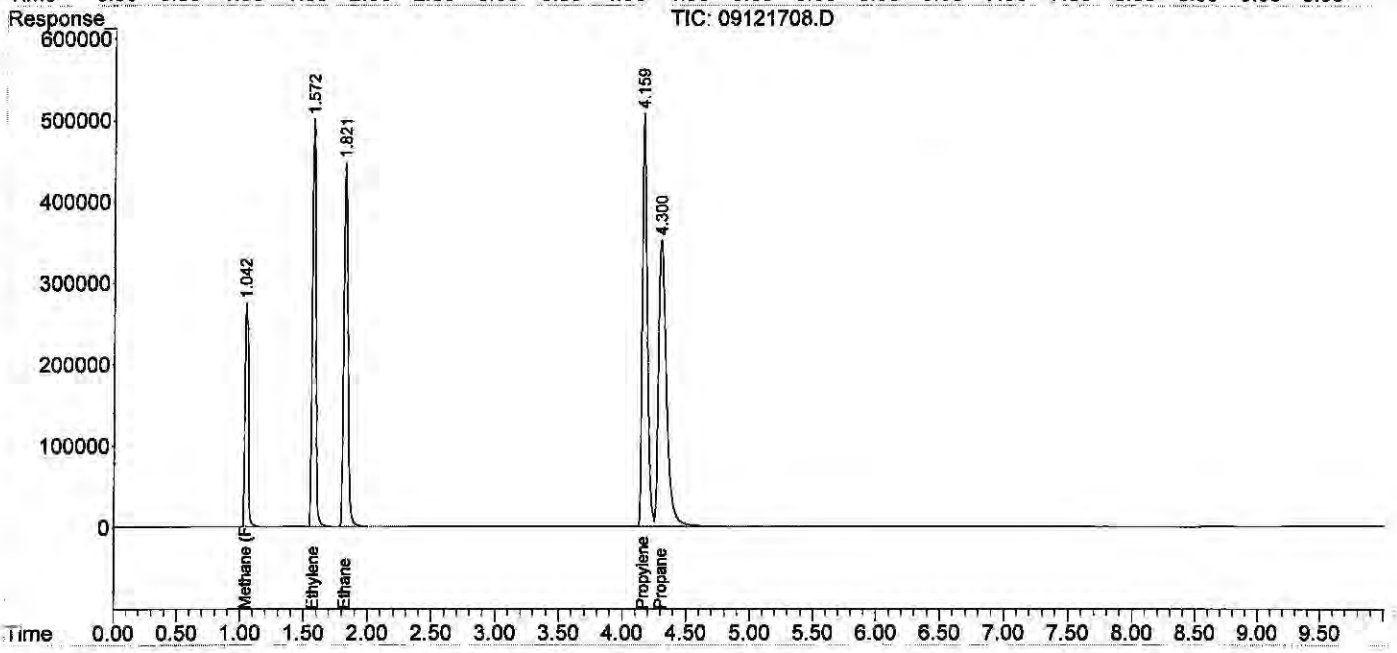
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

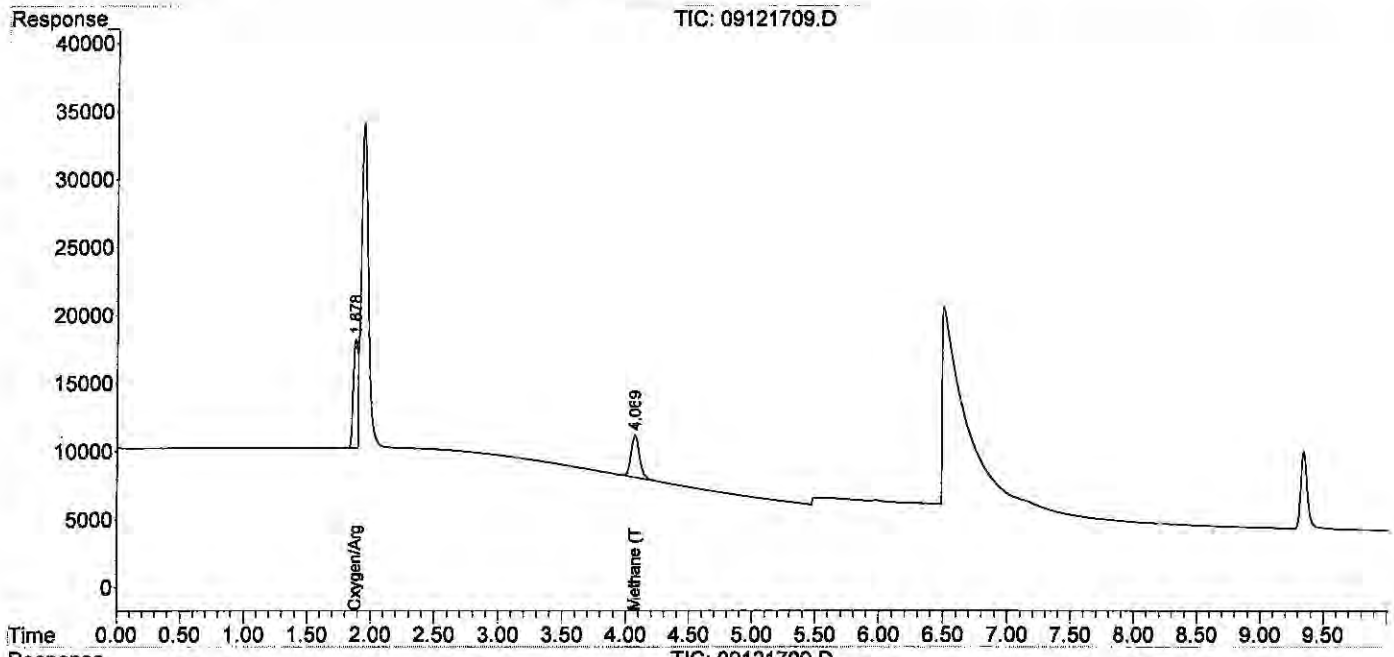
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

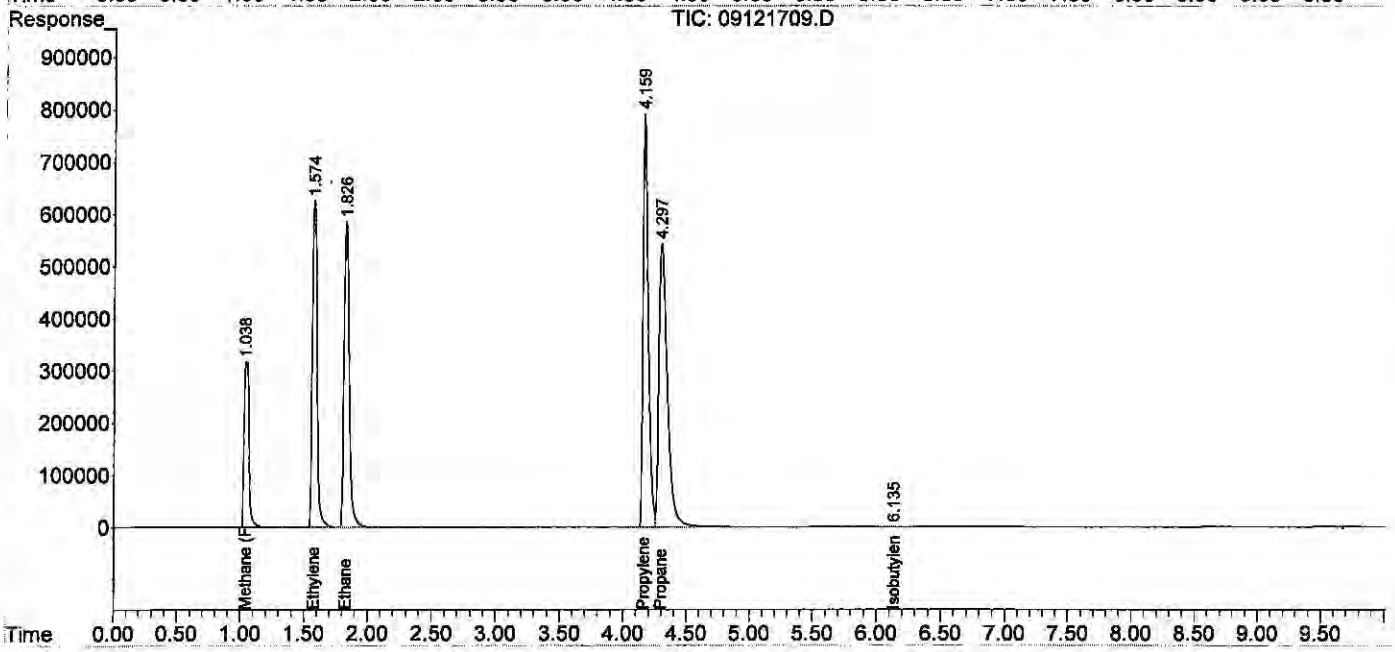
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

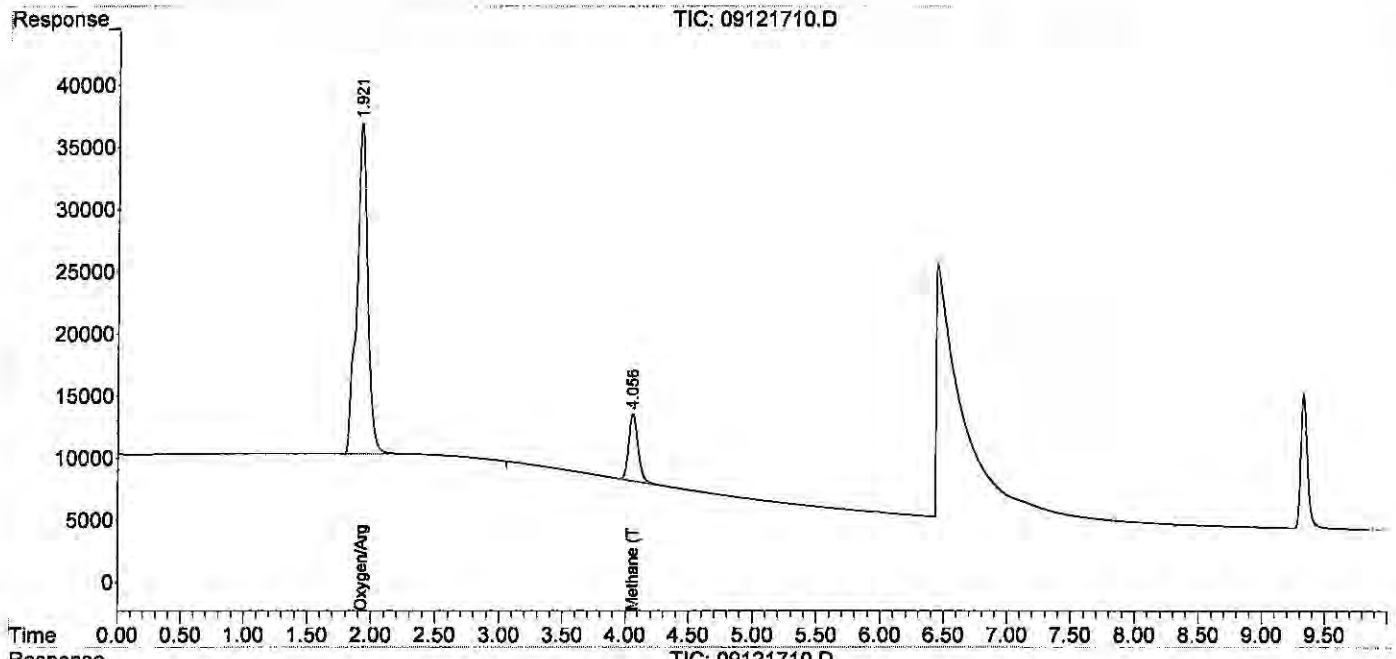
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

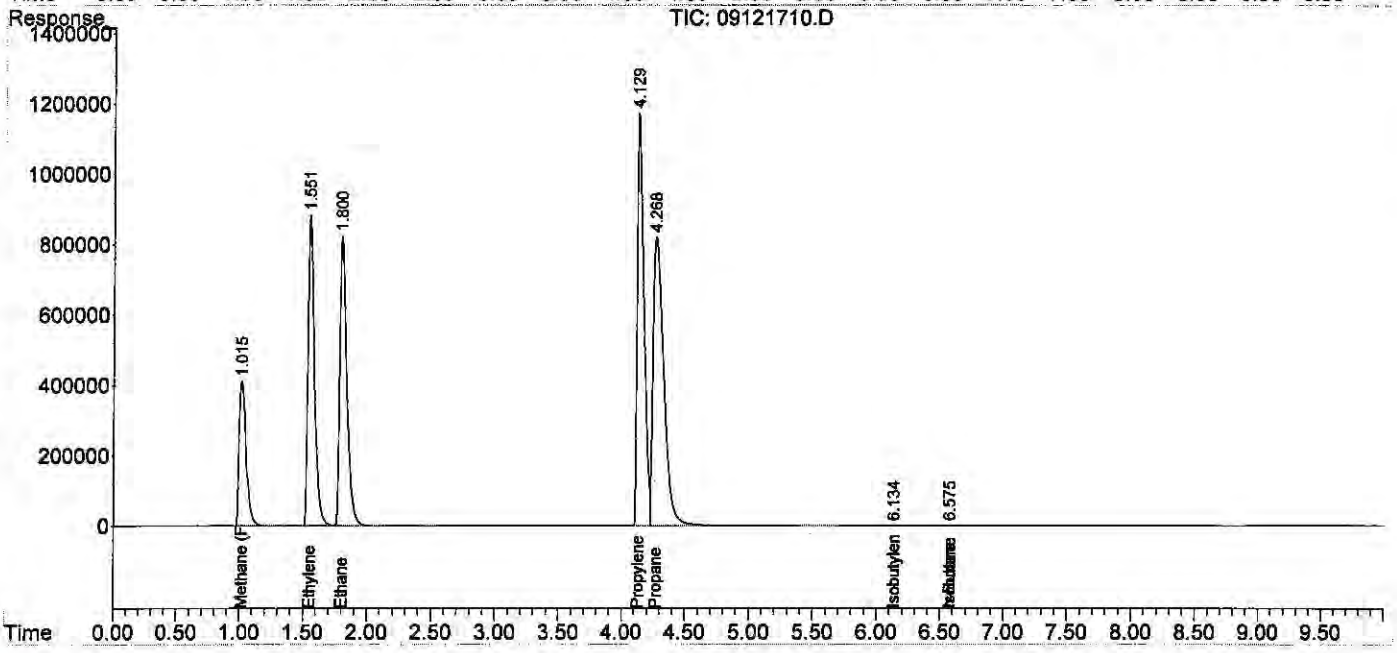
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



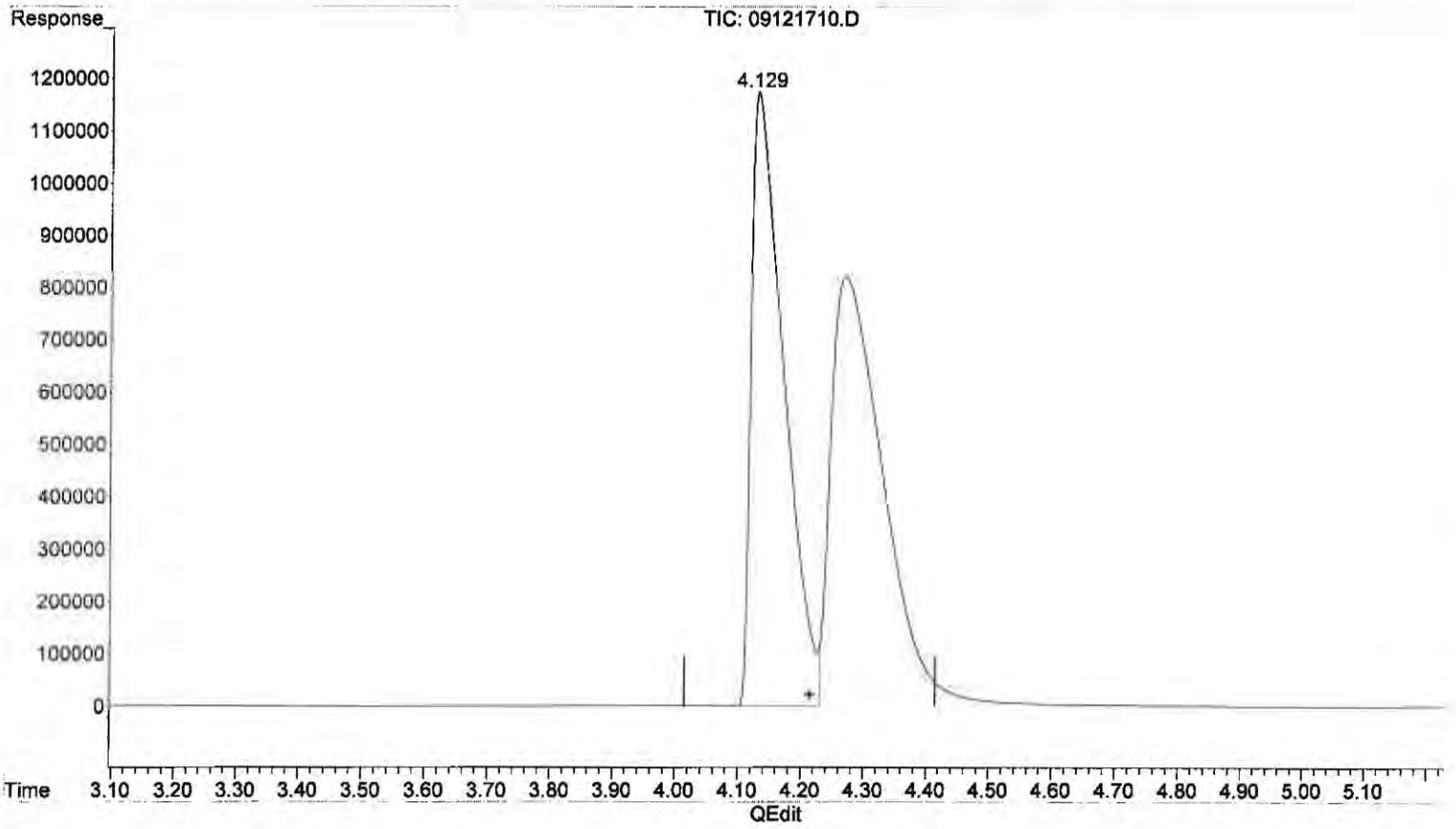


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(9) Propylene
4.129min 1775.341 ppm m
response 42124690

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

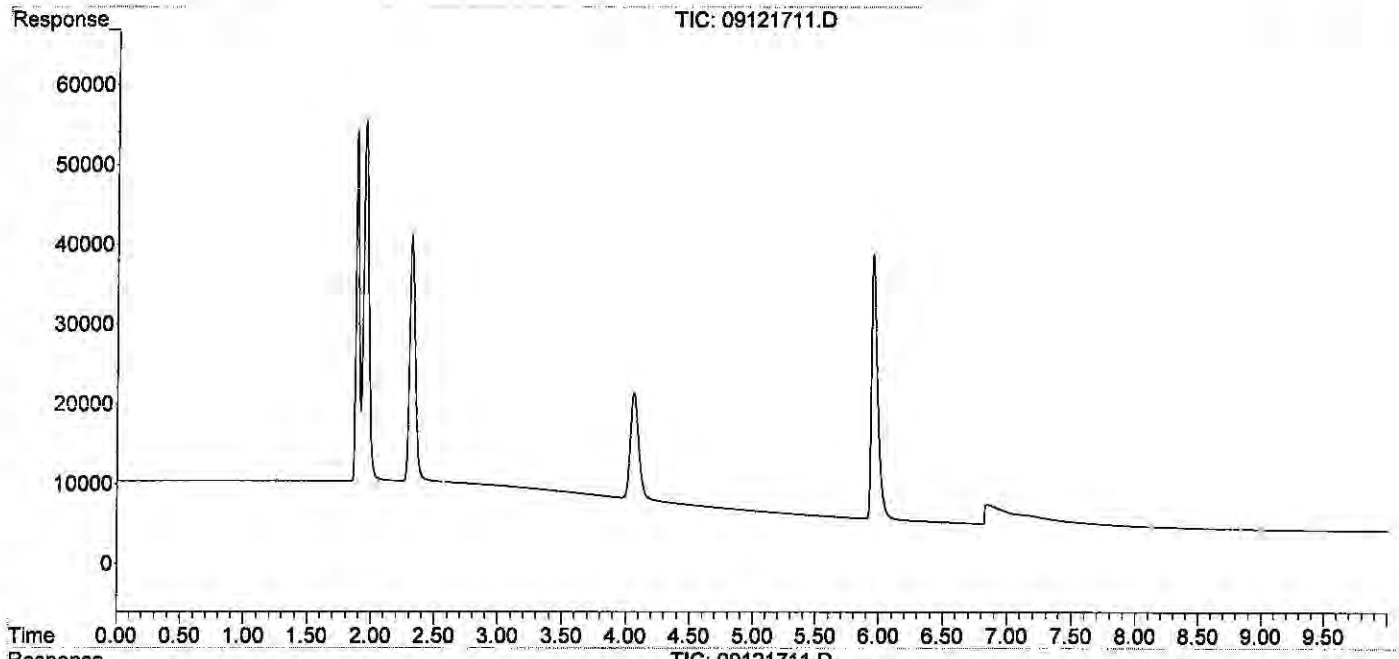
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

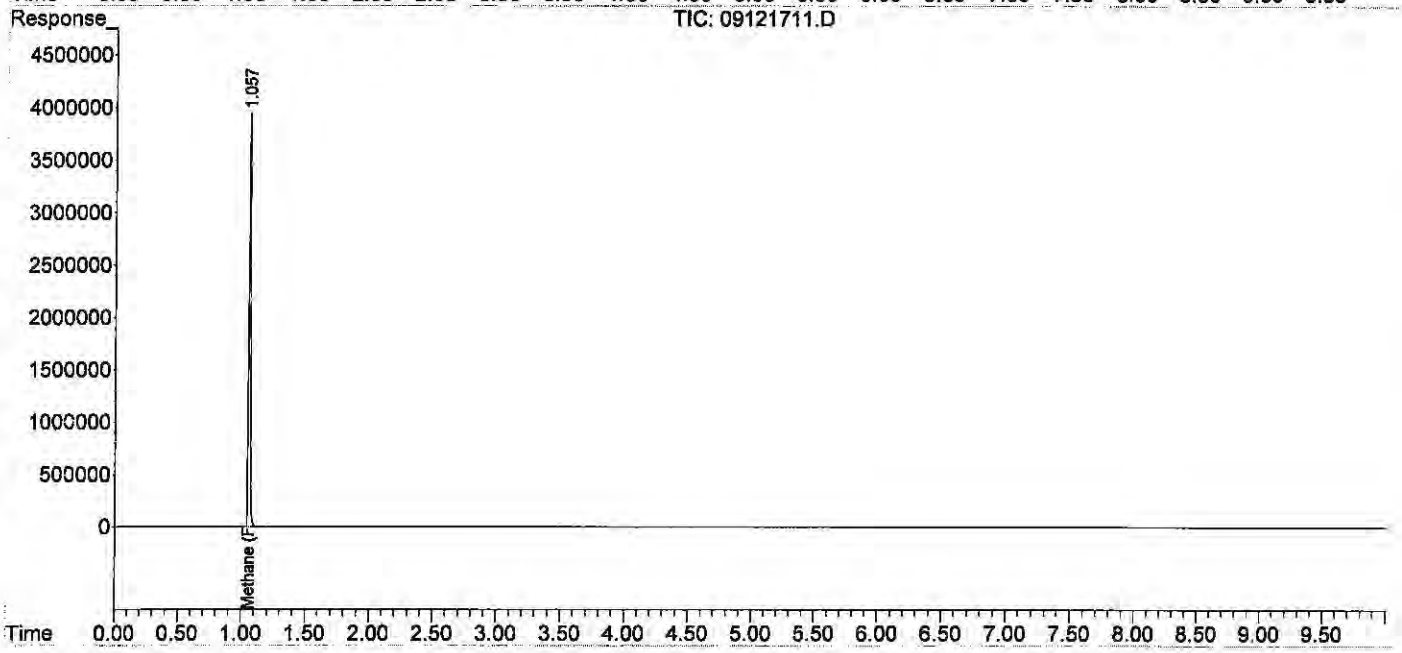
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

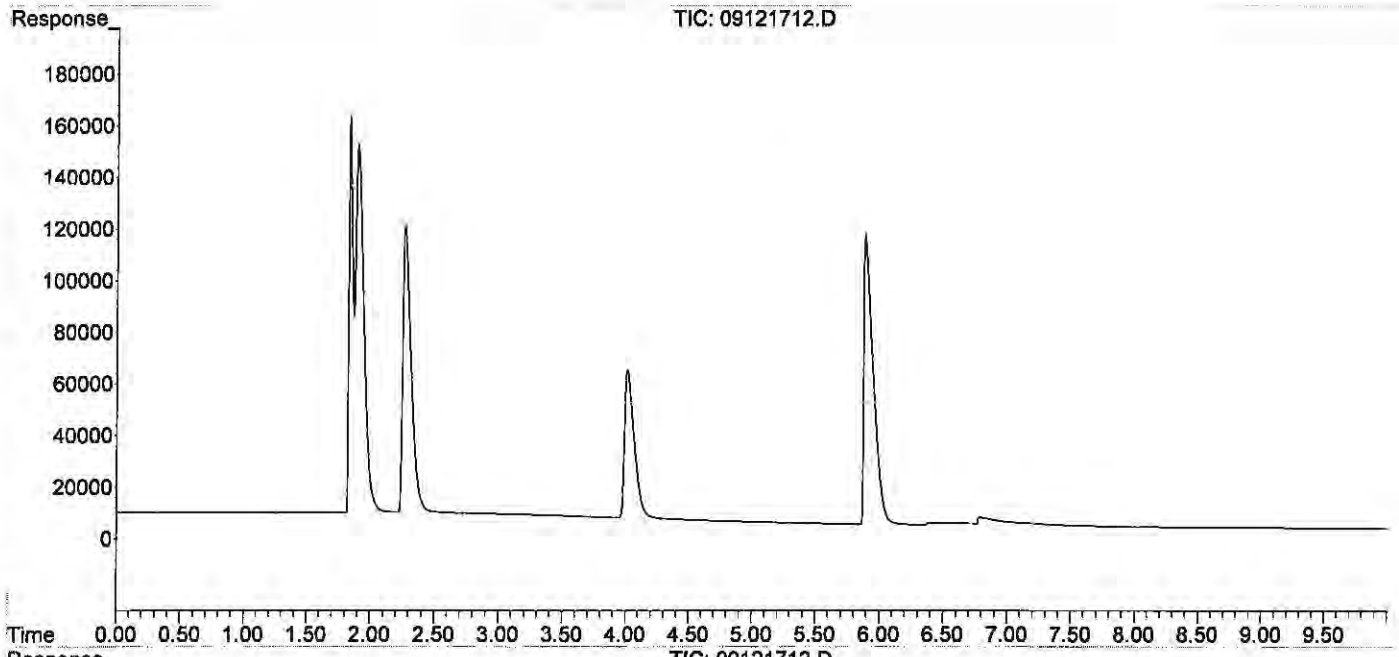
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

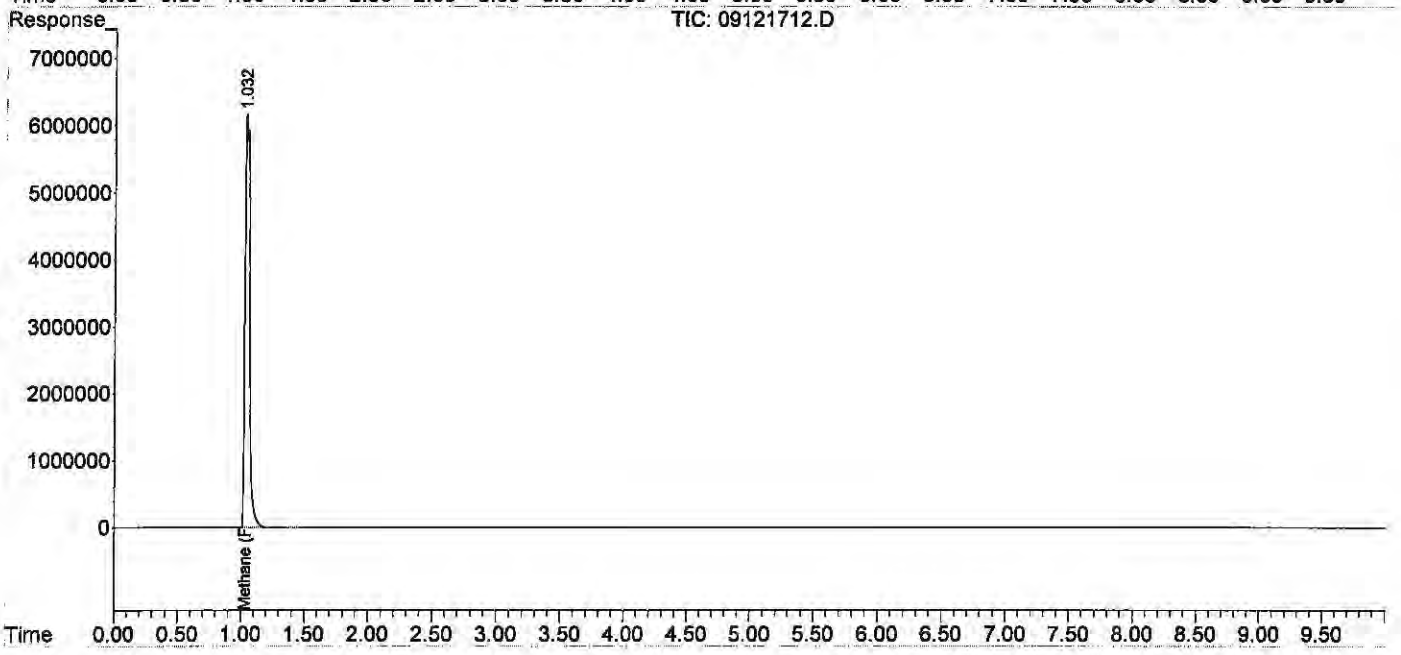
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

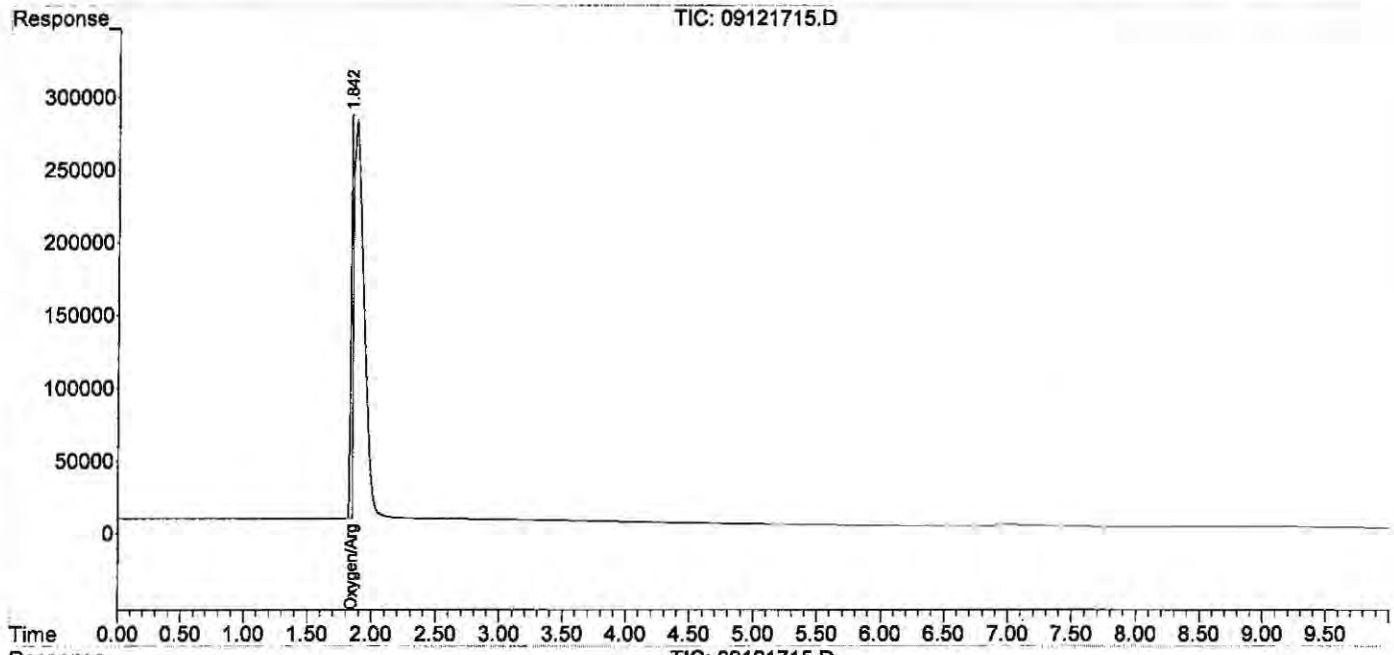
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	~~1STD~~ 1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	~~1STD~~ 1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	~~1STD~~ 1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	~~1STD~~ 1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	1STD 1.01 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/14/17
13)	n-Butane	6.579f	48019	1.804	ppm	

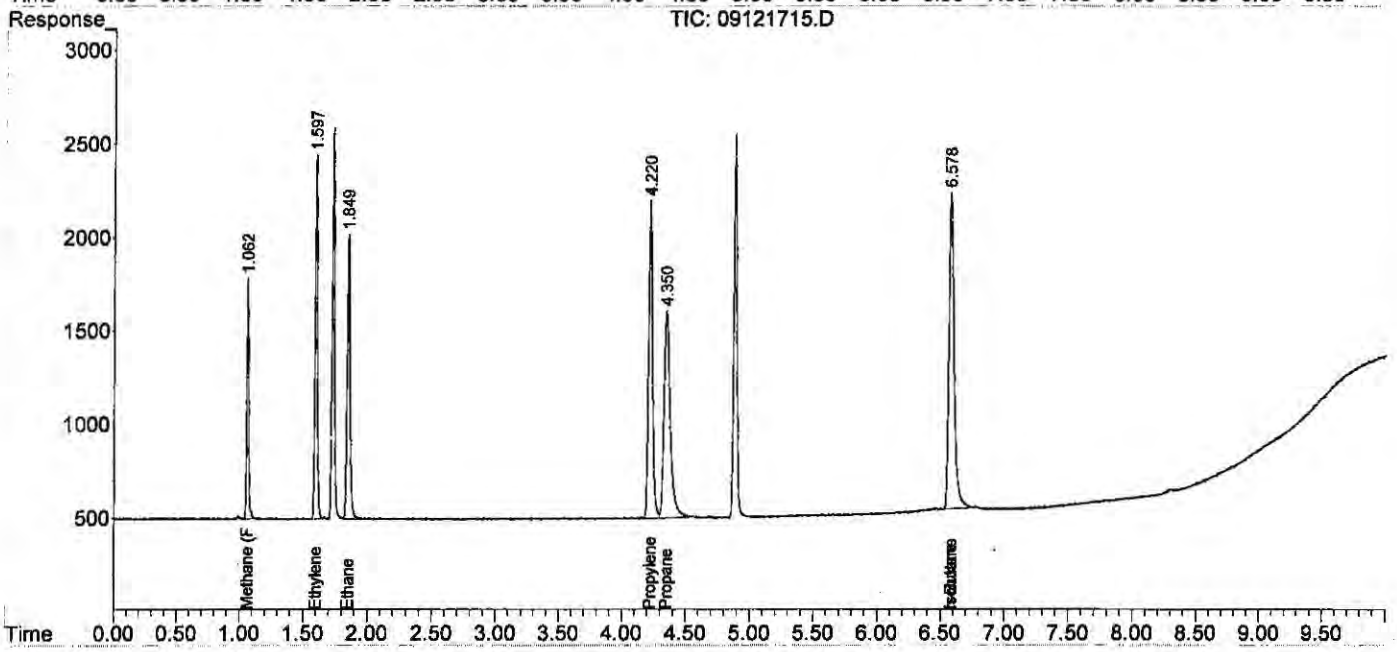
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1907270
Sample Vol. (ml) : 32.00 ml
Analyst : LD
Date Analysis : 12/05/19
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
STD S32-05221901	0.100	96.039	102.285	101.494
ACTUAL		101.50	100.90	101.40
%Difference		5.4%	1.4%	0.1%
MCS 0.1ml	0.100	0.144	0.000	0.000
RB 0.1ml	0.100	0.000	0.000	0.000
LCS FID 0.1ml	0.100	1.519	1.054	1.271
LCSD FID 0.1ml	0.100	1.423	1.060	1.274
P1907270-001 0.1ml	0.100	0.000	0.000	0.000
P1907270-002 0.1ml	0.100	0.000	0.000	0.000
P1907270-003 0.1ml	0.100	0.202	0.000	0.000
P1907270-003 MS 0.1ml	0.100	1.600	1.031	1.193
P1907270-003 MSD 0.1m	0.100	1.579	1.020	1.193
STD S32-05221901		91.079	96.551	95.764
ACTUAL		101.50	100.90	101.40
%Difference		10.3%	4.3%	5.6%

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
MCS 0.1ml	1.440	0.000	0.000
LCS FID 0.1ml	15.190	10.540	12.710
LCSD FID 0.1ml	14.230	10.600	12.740
P1907270-001 0.1ml	0.000	0.000	0.000
P1907270-002 0.1ml	0.000	0.000	0.000
P1907270-003 0.1ml	2.020	0.000	0.000
P1907270-003 MS 0.1ml	16.000	10.310	11.930
P1907270-003 MSD 0.1ml	15.790	10.200	11.930

LD
12/05

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 08:25:06
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 08:38:23 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
12/05

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

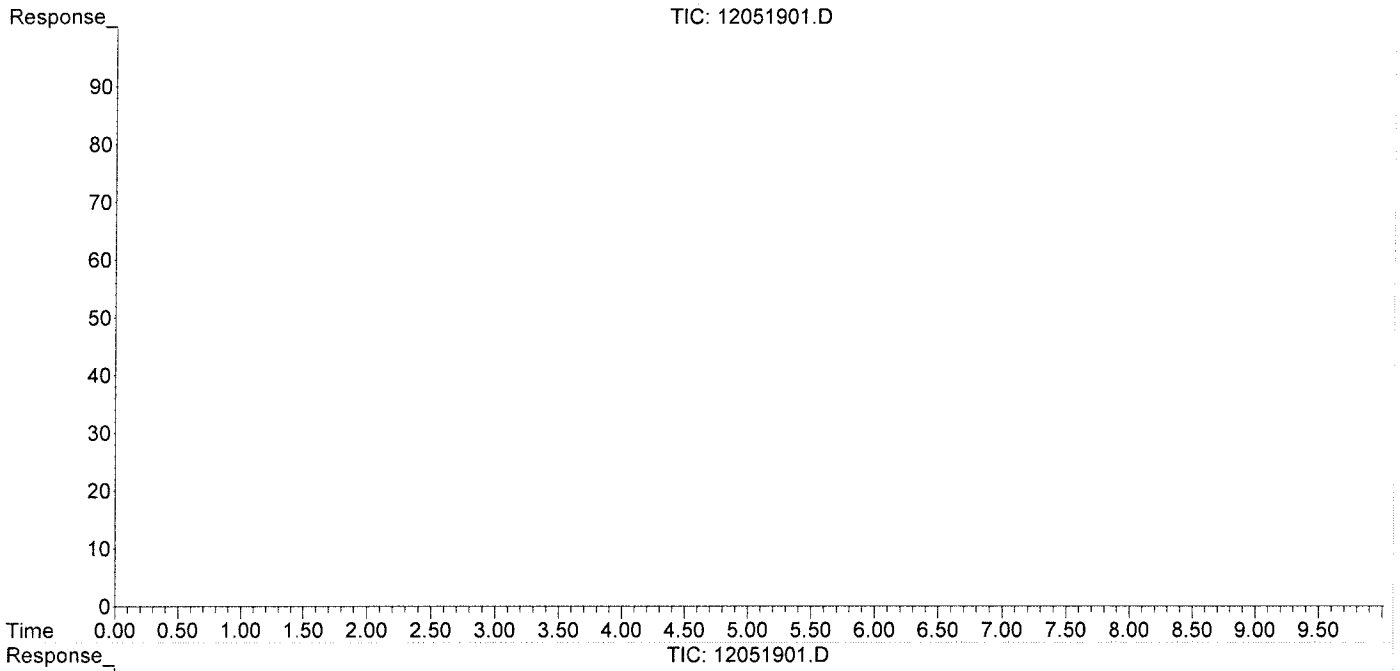
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.106	871133	96.039	ppm
7)	Ethylene	1.676	1711668	102.285	ppm
8)	Ethane	1.942	1720336	101.494	ppm
9)	Propylene	4.318	2528244	107.899	ppm
10)	Propane	4.441	2589307	104.071	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

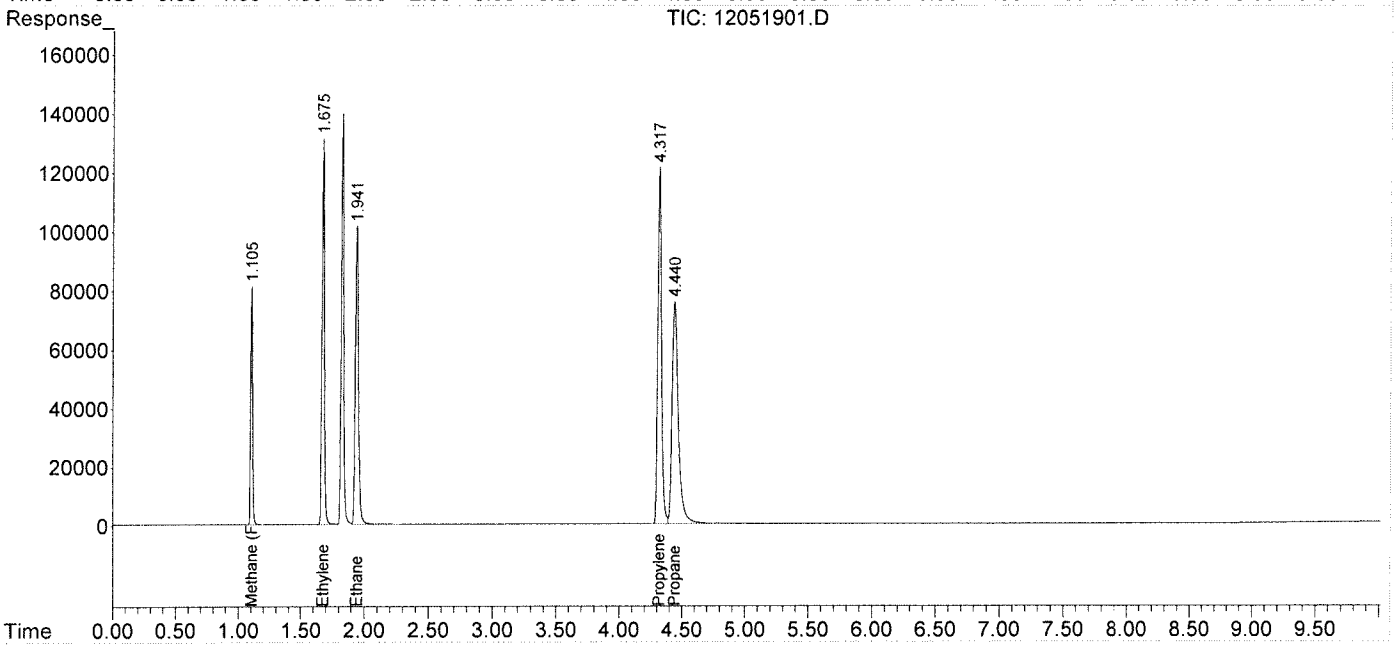
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 08:25:06
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 08:38:23 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:44:40
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 13:00:08 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.114	826145	91.079	ppm
7)	Ethylene	1.683	1615709	96.551	ppm
8)	Ethane	1.948	1623212	95.764	ppm
9)	Propylene	4.317	2359349	100.691	ppm
10)	Propane	4.440	2419845	97.260	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

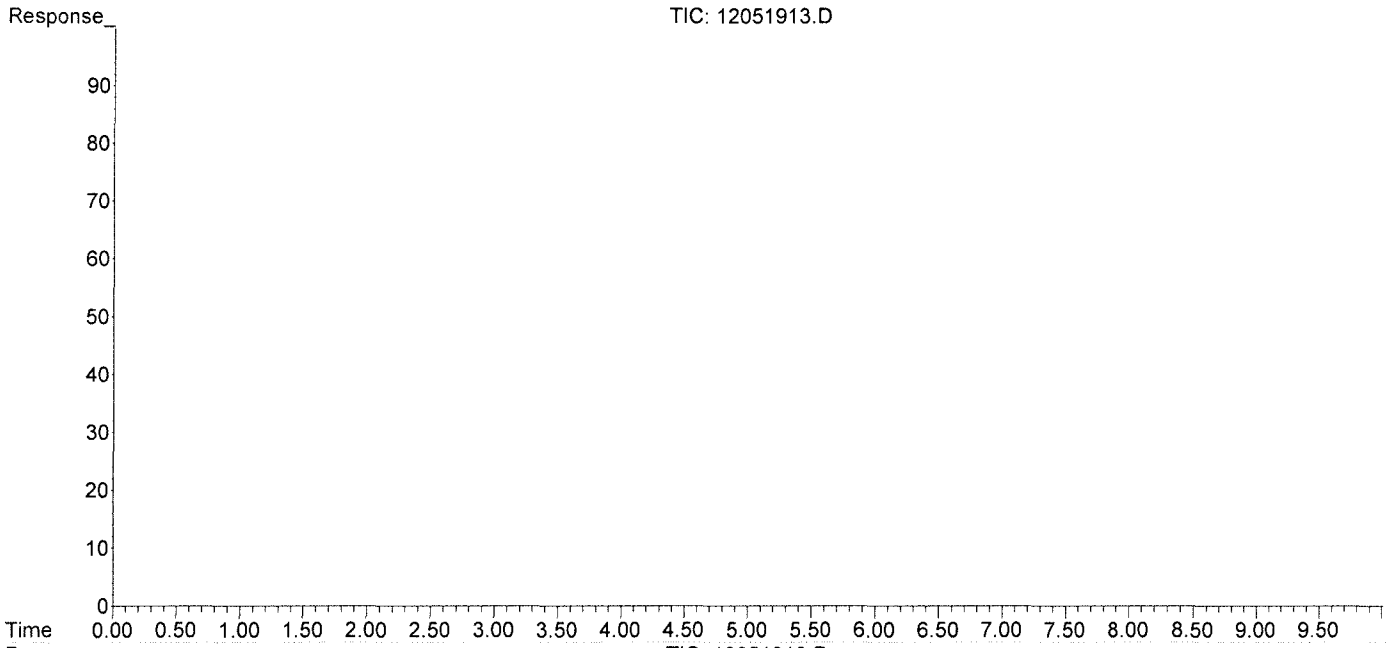
(f)=RT Delta > 1/2 Window (m)=manual int.

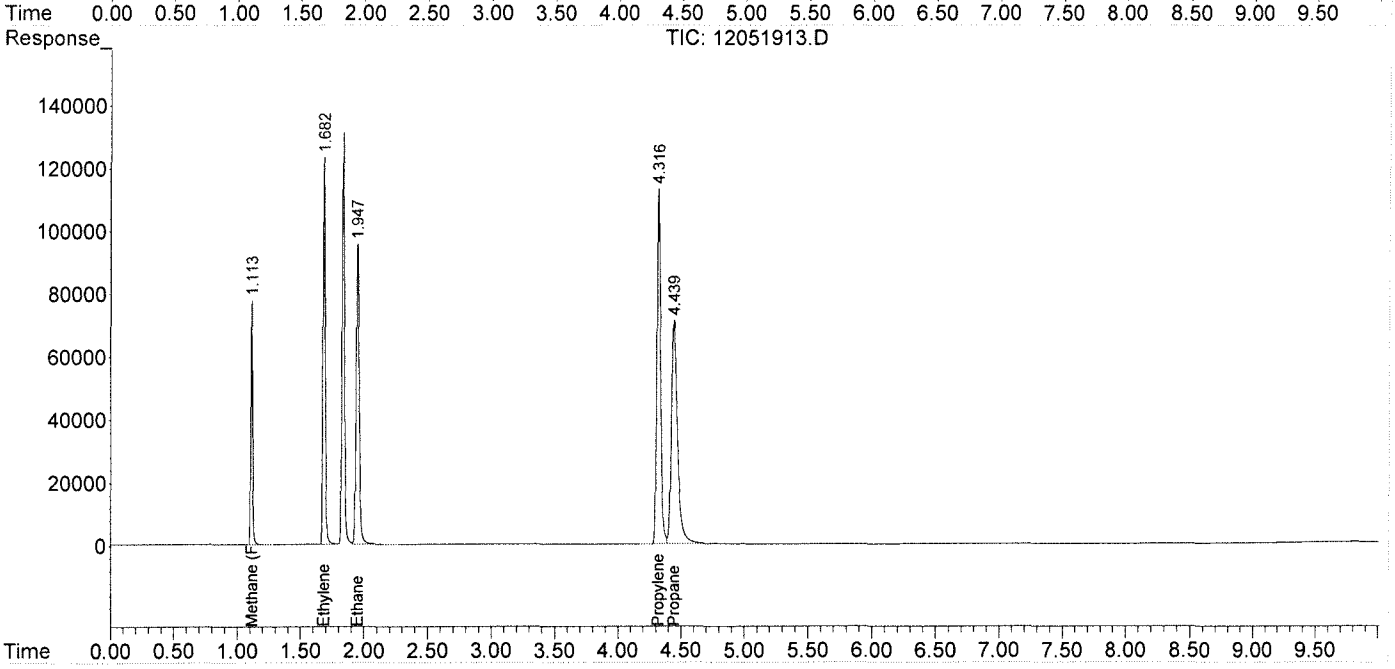
Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2019_12\05\
Data File : 12051913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 05-Dec-2019, 12:44:40
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 05 13:00:08 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2019_12\05\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	05-Dec-19, 08:25:06	12051901.D	STD S32-05221901		LD	RSKBOTH.M	PASS
2	05-Dec-19, 08:39:56	12051902.D	RB 0.1ml		LD	RSKBOTH.M	PASS
3	05-Dec-19, 09:19:57	12051903.D	MCS 0.1ml		LD	RSKBOTH.M	PASS
4	05-Dec-19, 09:56:31	12051904.D	LCS FID 0.1ml		LD	RSKBOTH.M	PASS
5	05-Dec-19, 10:09:58	12051905.D	LCSD FID 0.1ml		LD	RSKBOTH.M	PASS
6	05-Dec-19, 10:31:10	12051906.D	P1907270-001 0.1ml		LD	RSKBOTH.M	
7	05-Dec-19, 10:44:26	12051907.D	P1907270-002 0.1ml		LD	RSKBOTH.M	
8	05-Dec-19, 11:01:43	12051908.D	P1907270-003 0.1ml		LD	RSKBOTH.M	
9	05-Dec-19, 11:15:42	12051909.D	P1907299-001 0.1ml		LD	RSKBOTH.M	
10	05-Dec-19, 11:51:44	12051910.D	P1907299-002 0.1ml		LD	RSKBOTH.M	
11	05-Dec-19, 12:05:43	12051911.D	P1907270-003 MS 0.1ml		LD	RSKBOTH.M	
12	05-Dec-19, 12:18:26	12051912.D	P1907270-003 MSD 0.1ml		LD	RSKBOTH.M	
13	05-Dec-19, 12:44:40	12051913.D	STD S32-05221901		LD	RSKBOTH.M	PASS

HS19111343 8260 Raw Data

ALS WO# HS19111343

MSVOA06 -Logbook

Batch: 38366 **Analyst:** Presenta Cabascango

Date: 11-18-2019 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	11-18-2019 01:23 pm	1.00	50 mL	50 mL	X111801.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	11-18-2019 01:47 pm	1.00	50 mL	50 mL	X111802.D	Liquid	Y	NA
	0.10 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	11-18-2019 02:35 pm	1.00	50 mL	50 mL	X111803.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	11-18-2019 02:59 pm	1.00	50 mL	50 mL	X111804.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	11-18-2019 03:23 pm	1.00	50 mL	50 mL	X111805.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	11-18-2019 03:47 pm	1.00	50 mL	50 mL	X111806.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	11-18-2019 04:11 pm	1.00	50 mL	50 mL	X111807.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	11-18-2019 04:35 pm	1.00	50 mL	50 mL	X111808.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	11-18-2019 04:59 pm	1.00	50 mL	50 mL	X111809.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	11-18-2019 05:22 pm	1.00	50 mL	50 mL	X111810.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	11-18-2019 05:46 pm	1.00	50 mL	50 mL	X111811.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	11-18-2019 06:10 pm	1.00	50 mL	50 mL	X111812.D	Liquid	Y	NA
13	BLANK	SAMP	11-18-2019 06:34 pm	1.00	50 mL	50 mL	X111813.D	Liquid	Y	NA
14	CCV	ICCV	11-18-2019 06:58 pm	1.00	50 mL	50 mL	X111814.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
15	BLANK	SAMP	11-18-2019 07:22 pm	1.00	50 mL	50 mL	X111815.D	Liquid	Y	NA
16	BFB	TUNE	11-18-2019 07:47 pm	1.00	50 mL	50 mL	Y111801.D	Liquid	Y	NA
	Auto find/ purged									
17	CCV	CCV	11-18-2019 08:10 pm	1.00	50 mL	50 mL	Y111802a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI/ not used									
18	CCV	CCV	11-18-2019 08:34 pm	1.00	50 mL	50 mL	Y111803.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
19	CCB	SAMP	11-18-2019 08:58 pm	1.00	50 mL	50 mL	Y111804.D	Liquid	Y	NA
20	VLCSW-191118	LCS	11-18-2019 09:22 pm	1.00	50 mL	50 mL	Y111805.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
21	BLK	SAMP	11-18-2019 09:46 pm	1.00	50 mL	50 mL	Y111806.D	Liquid	Y	NA
22	VBLKW-191118	MBLK	11-18-2019 10:10 pm	1.00	50 mL	50 mL	Y111807.D	Liquid	Y	NA
23	HS19110861-01	SAMP	11-18-2019 10:34 pm	1.00	50 mL	50 mL	Y111808.D	Liquid	Y	NA
24	HS19110861-02	SAMP	11-18-2019 10:59 pm	1.00	50 mL	50 mL	Y111809.D	Liquid	Y	NA
25	HS19110861-03	SAMP	11-18-2019 11:23 pm	1.00	50 mL	50 mL	Y111810.D	Liquid	Y	NA
26	HS19110861-04	SAMP	11-18-2019 11:47 pm	1.00	50 mL	50 mL	Y111811.D	Liquid	Y	NA
27	HS19110861-05	SAMP	11-19-2019 12:11 am	1.00	50 mL	50 mL	Y111812.D	Liquid	Y	NA
28	HS19110861-06	SAMP	11-19-2019 12:35 am	1.00	50 mL	50 mL	Y111813.D	Liquid	Y	NA
29	HS19110829-13	SAMP	11-19-2019 12:59 am	1.00	50 mL	50 mL	Y111814.D	Liquid	Y	NA
30	HS19110829-11	SAMP	11-19-2019 01:23 am	1.00	50 mL	50 mL	Y111815.D	Liquid	Y	NA
31	HS19110829-01	SAMP	11-19-2019 01:47 am	1.00	50 mL	50 mL	Y111816.D	Liquid	Y	NA
32	HS19110829-01MS	MS	11-19-2019 02:11 am	1.00	50 mL	50 mL	Y111817.D	Liquid	Y	NA
	3.50 uL cal std/40 mL samp									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
33	HS19110829-01MSD	MSD	11-19-2019 02:35 am	1.00	50 mL	50 mL	Y111818.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
34	HS19110829-02	SAMP	11-19-2019 02:59 am	1.00	50 mL	50 mL	Y111819.D	Liquid	Y	NA
35	HS19110829-03	SAMP	11-19-2019 03:23 am	1.00	50 mL	50 mL	Y111820.D	Liquid	Y	NA
36	HS19110829-04	SAMP	11-19-2019 03:47 am	1.00	50 mL	50 mL	Y111821.D	Liquid	Y	NA
37	HS19110829-05	SAMP	11-19-2019 04:11 am	1.00	50 mL	50 mL	Y111822.D	Liquid	Y	NA
38	HS19110829-06	SAMP	11-19-2019 04:35 am	1.00	50 mL	50 mL	Y111823.D	Liquid	Y	NA
39	HS19110829-07	SAMP	11-19-2019 04:59 am	1.00	50 mL	50 mL	Y111824.D	Liquid	Y	NA
40	HS19110829-08	SAMP	11-19-2019 05:23 am	1.00	50 mL	50 mL	Y111825.D	Liquid	Y	NA
41	HS19110829-09	SAMP	11-19-2019 05:47 am	1.00	50 mL	50 mL	Y111826.D	Liquid	Y	NA
42	HS19110829-10	SAMP	11-19-2019 06:11 am	1.00	50 mL	50 mL	Y111827.D	Liquid	Y	NA
43	HS19110829-12	SAMP	11-19-2019 06:36 am	1.00	50 mL	50 mL	Y111828.D	Liquid	Y	NA
44	HS19110716-06	SAMP	11-19-2019 07:00 am	1.00	50 mL	50 mL	Y111829.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
ICV STD ID	30603-92-01
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	52.07	104	80-120
trans-1,3-Dichloroprope	50.00	51.83	104	80-120
1,3-Dichlorobenzene	50.00	50.58	101	80-120
2,2-Dichloropropane	50.00	52.35	105	80-120
1,1-Dichloropropene	50.00	49.88	100	80-120
Dibromomethane	50.00	50.50	101	80-120
1,2-Dibromoethane	50.00	50.00	100	80-120
trans-1,2-Dichloroethen	50.00	52.31	105	80-120
1,1,1,2-Tetrachloroetha	50.00	51.37	103	80-120
1,1,1-Trichloroethane	50.00	52.74	105	80-120
1,1,2,2-Tetrachloroetha	50.00	49.68	99	80-120
Toluene	50.00	49.55	99	80-120
1,1,2-Trichloroethane	50.00	49.22	98	80-120
1,1-Dichloroethane	50.00	51.46	103	80-120
1,1-Dichloroethene	50.00	53.02	106	80-120
Trichlorofluoromethane	50.00	55.57	111	80-120
1,2,3-Trichlorobenzene	50.00	58.28	116	80-120
Tetrachloroethene	50.00	49.33	99	80-120
1,2,4-Trichlorobenzene	50.00	55.34	111	80-120
1,2,4-Trimethylbenzene	50.00	50.40	101	80-120
tert-Butylbenzene	50.00	51.37	103	80-120
Trichloroethene	50.00	51.78	104	80-120
1,2-Dichlorobenzene	50.00	49.42	99	80-120
1,2-Dichloroethane	50.00	51.38	103	80-120
1,2-Dichloropropane	50.00	49.50	99	80-120
1,3,5-Trimethylbenzene	50.00	52.04	104	80-120
1,3-Dichloropropane	50.00	49.18	98	80-120
1,4-Dichlorobenzene	50.00	49.63	99	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Butanone	100.00	105.25	105	80-120
2-Chlorotoluene	50.00	50.41	101	80-120
2-Hexanone	100.00	96.09	96	80-120
4-Chlorotoluene	50.00	50.58	101	80-120
Styrene	50.00	50.35	101	80-120
4-Methyl-2-Pentanone	100.00	97.68	98	80-120
Acetone	100.00	111.37	111	80-120
Benzene	50.00	50.85	102	80-120
Bromobenzene	50.00	51.16	102	80-120
Bromochloromethane	50.00	51.34	103	80-120
Bromodichloromethane	50.00	51.00	102	80-120
Bromoform	50.00	49.08	98	80-120
Bromomethane	50.00	57.73	115	80-120
Carbon Disulfide	100.00	109.76	110	80-120
Carbon Tetrachloride	50.00	51.07	102	80-120
Chlorobenzene	50.00	49.20	98	80-120
Chloroethane	50.00	51.64	103	80-120
Chloroform	50.00	49.36	99	80-120
Chloromethane	50.00	50.43	101	80-120
cis-1,2-Dichloroethene	50.00	53.16	106	80-120
Dibromochloromethane	50.00	49.93	100	80-120
Dichlorodifluoromethane	50.00	52.99	106	80-120
Ethylbenzene	50.00	50.22	100	80-120
Hexachlorobutadiene	50.00	61.69	123*	80-120
Isopropylbenzene	50.00	50.14	100	80-120
m,p-Xylenes	100.00	101.69	102	80-120
Methylene Chloride	50.00	49.65	99	80-120
n-Butylbenzene	50.00	52.07	104	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
n-Propylbenzene	50.00	51.90	104	80-120
Naphthalene	50.00	51.04	102	80-120
o-Xylene	50.00	49.72	99	80-120
sec-Butylbenzene	50.00	51.77	104	80-120
Vinyl Chloride	50.00	51.98	104	80-120
1,2,3-Trichloropropane	50.00	49.40	99	80-120
p-Isopropyltoluene	50.00	51.77	104	80-120
1,2-Dibromo-3-Chloropro	50.00	51.39	103	80-120
Freon TF	50.00	55.79	112	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Lab File ID: X111801 BFB Injection Date: 11/18/19

Instrument ID: VOA6 BFB Injection Time: 1323

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.9
75	30.0 - 60.0% of mass 95	54.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	65.0
175	5.0 - 9.0% of mass 174	5.8 (8.9)1
176	95.0 - 101.0% of mass 174	62.0 (95.4)1
177	5.0 - 9.0% of mass 176	5.1 (8.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X111802	11/18/19	1347
02	VSTD000.5	VSTD000.5	X111803	11/18/19	1435
03	VSTD001	VSTD001	X111804	11/18/19	1459
04	VSTD002	VSTD002	X111805	11/18/19	1523
05	VSTD005	VSTD005	X111806	11/18/19	1547
06	VSTD020	VSTD020	X111807	11/18/19	1611
07	VSTD050	VSTD050	X111808	11/18/19	1635
08	VSTD100	VSTD100	X111809	11/18/19	1659
09	VSTD150	VSTD150	X111810	11/18/19	1722
10	VSTD200	VSTD200	X111811	11/18/19	1746
11	ICV	ICV	X111814	11/18/19	1858
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		0.326	0.553	0.497	0.554	0.476
trans-1,3-Dichloropropene		0.304	0.464	0.458	0.504	0.445
1,3-Dichlorobenzene		1.036	1.601	1.542	1.622	1.411
2,2-Dichloropropane		0.547	0.815	0.674	0.705	0.610
1,1-Dichloropropene		0.332	0.476	0.441	0.432	0.372
Dibromomethane		0.139	0.244	0.233	0.245	0.207
1,2-Dibromoethane		0.245	0.385	0.380	0.402	0.348
trans-1,2-Dichloroethene		0.285	0.489	0.436	0.440	0.386
1,1,1,2-Tetrachloroethane		0.248	0.403	0.375	0.406	0.356
1,1,1-Trichloroethane		0.492	0.775	0.723	0.717	0.640
1,1,2,2-Tetrachloroethane		0.602	0.844	0.735	0.800	0.680
Toluene		1.077	1.582	1.498	1.570	1.359
1,1,2-Trichloroethane		0.180	0.311	0.285	0.294	0.253
1,1-Dichloroethane		0.569	0.830	0.781	0.786	0.690
1,1-Dichloroethene		0.349	0.423	0.469	0.464	0.390
Trichlorofluoromethane		0.511	0.831	0.818	0.813	0.707
1,2,3-Trichlorobenzene		421	1182	2753	6553	21856
Tetrachloroethene		0.266	0.412	0.394	0.398	0.333
1,2,4-Trichlorobenzene		0.325	0.435	0.465	0.518	0.418
1,2,4-Trimethylbenzene		1.739	2.619	2.442	2.563	2.286
tert-Butylbenzene		1.338	2.168	2.060	2.126	1.865
Trichloroethene		0.226	0.390	0.387	0.396	0.344
1,2-Dichlorobenzene		0.916	1.484	1.429	1.497	1.292
1,2-Dichloroethane		0.277	0.470	0.408	0.432	0.391
1,2-Dichloropropane		0.294	0.294	0.312	0.339	0.284
1,3,5-Trimethylbenzene		1.606	2.354	2.372	2.481	2.215
1,3-Dichloropropane		0.431	0.613	0.570	0.583	0.512
1,4-Dichlorobenzene		1.108	1.632	1.581	1.609	1.417
2-Butanone		0.167	0.156	0.152	0.164	0.146
2-Chlorotoluene		1.263	1.990	1.903	2.032	1.735
2-Hexanone		0.180	0.237	0.204	0.235	0.191
4-Chlorotoluene		1.550	2.500	2.222	2.378	2.079
Styrene		0.702	1.134	1.076	1.148	1.004
4-Methyl-2-Pentanone		0.220	0.321	0.313	0.331	0.281
Acetone		4579	5956	7954	15992	43200
Benzene		0.788	1.327	1.220	1.289	1.109
Bromobenzene		0.584	1.003	0.940	0.994	0.873
Bromochloromethane		0.229	0.323	0.309	0.284	0.255
Bromodichloromethane		0.298	0.490	0.424	0.473	0.395
Bromoform		887	3197	5989	16084	56416
Bromomethane		2741	6334	12041	28671	93456
Carbon Disulfide		0.747	1.257	1.216	1.254	1.101
Carbon Tetrachloride		0.340	0.503	0.483	0.478	0.403
Chlorobenzene		0.738	1.108	1.028	1.090	0.934

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911134

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		0.279	0.361	0.345	0.323	0.283
Chloroform		0.775	0.990	0.890	0.850	0.736
Chloromethane		2201	6118	10461	24949	85402
cis-1,2-Dichloroethene		0.327	0.540	0.493	0.541	0.454
Dibromochloromethane		0.253	0.433	0.392	0.429	0.370
Dichlorodifluoromethane		1269	3829	7335	18346	63810
Ethylbenzene		0.353	0.562	0.515	0.576	0.493
Hexachlorobutadiene		1376	2468	4522	11525	37789
Isopropylbenzene		1.054	1.627	1.570	1.602	1.425
m,p-Xylenes		0.393	0.653	0.644	0.678	0.591
Methylene Chloride		0.422	0.556	0.483	0.491	0.406
n-Butylbenzene		1.620	2.055	2.004	2.069	1.888
n-Propylbenzene		2.290	3.358	3.192	3.345	2.976
Naphthalene		0.510	0.569	0.604	0.614	0.512
o-Xylene		0.390	0.677	0.656	0.658	0.582
sec-Butylbenzene		1.995	2.859	2.859	2.813	2.501
Vinyl Chloride		0.490	0.545	0.546	0.504	0.454
1,2,3-Trichloropropane		0.455	0.730	0.701	0.662	0.580
p-Isopropyltoluene		1.839	2.630	2.538	2.573	2.307
1,2-Dibromo-3-Chloropropane		125	464	859	2641	8805
Freon TF		0.296	0.488	0.452	0.457	0.380
4-Bromofluorobenzene		3844	5731	10468	25804	94194
Dibromofluoromethane		2303	3882	8127	20237	75094
Toluene-d8		1.628	1.327	1.357	1.369	1.263
1,2-Dichloroethane-d4		2522	4458	8034	20921	75813

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911134

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	0.499	0.494	0.497	0.493
trans-1,3-Dichloropropene	0.452	0.455	0.456	0.461
1,3-Dichlorobenzene	1.457	1.422	1.398	1.417
2,2-Dichloropropane	0.644	0.644	0.646	0.658
1,1-Dichloropropene	0.402	0.392	0.391	0.392
Dibromomethane	0.211	0.206	0.208	0.208
1,2-Dibromoethane	0.348	0.347	0.350	0.351
trans-1,2-Dichloroethene	0.410	0.413	0.416	0.427
1,1,1,2-Tetrachloroethane	0.368	0.369	0.369	0.370
1,1,1-Trichloroethane	0.673	0.676	0.678	0.697
1,1,2,2-Tetrachloroethane	0.672	0.670	0.662	0.661
Toluene	1.411	1.408	1.420	1.435
1,1,2-Trichloroethane	0.256	0.258	0.256	0.259
1,1-Dichloroethane	0.710	0.716	0.728	0.737
1,1-Dichloroethene	0.430	0.429	0.426	0.434
Trichlorofluoromethane	0.823	0.824	0.813	0.840
1,2,3-Trichlorobenzene	52554	102660	156391	210414
Tetrachloroethene	0.352	0.340	0.332	0.334
1,2,4-Trichlorobenzene	0.421	0.402	0.400	0.406
1,2,4-Trimethylbenzene	2.419	2.440	2.397	2.446
tert-Butylbenzene	2.012	2.011	1.967	1.996
Trichloroethene	0.359	0.350	0.348	0.348
1,2-Dichlorobenzene	1.330	1.327	1.324	1.344
1,2-Dichloroethane	0.401	0.397	0.397	0.398
1,2-Dichloropropane	0.295	0.290	0.290	0.290
1,3,5-Trimethylbenzene	2.368	2.377	2.339	2.377
1,3-Dichloropropane	0.516	0.521	0.514	0.516
1,4-Dichlorobenzene	1.465	1.445	1.412	1.445
2-Butanone	0.146	0.147	0.153	0.148
2-Chlorotoluene	1.853	1.827	1.787	1.800
2-Hexanone	0.192	0.201	0.204	0.204
4-Chlorotoluene	2.208	2.230	2.205	2.250
Styrene	1.056	1.073	1.093	1.113
4-Methyl-2-Pentanone	0.283	0.291	0.298	0.298
Acetone	103091	202207	284604	372223
Benzene	1.164	1.135	1.133	1.128
Bromobenzene	0.878	0.857	0.837	0.854
Bromochloromethane	0.263	0.261	0.260	0.255
Bromodichloromethane	0.412	0.408	0.412	0.412
Bromoform	143798	293256	447981	602595
Bromomethane	215480	396733	529714	
Carbon Disulfide	1.192	1.188	1.192	1.228
Carbon Tetrachloride	0.452	0.442	0.435	0.440
Chlorobenzene	0.965	0.966	0.974	0.982

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911134

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
Chloroethane	0.311	0.311	0.310	0.311
Chloroform	0.751	0.754	0.761	0.780
Chloromethane	215753	420936	613254	811388
cis-1,2-Dichloroethene	0.470	0.475	0.478	0.488
Dibromochloromethane	0.381	0.386	0.386	0.387
Dichlorodifluoromethane	186161	359790	504807	695305
Ethylbenzene	0.512	0.509	0.506	0.512
Hexachlorobutadiene	99881	192455		
Isopropylbenzene	1.523	1.544	1.538	1.560
m,p-Xylenes	0.623	0.628	0.627	0.639
Methylene Chloride	0.421	0.425	0.428	0.436
n-Butylbenzene	2.162	2.176	2.153	2.197
n-Propylbenzene	3.234	3.176	3.089	3.155
Naphthalene	0.521	0.505	0.514	0.512
o-Xylene	0.600	0.608	0.611	0.623
sec-Butylbenzene	2.823	2.798	2.726	2.790
Vinyl Chloride	0.505	0.510	0.510	0.523
1,2,3-Trichloropropane	0.577	0.564	0.549	0.543
p-Isopropyltoluene	2.571	2.546	2.480	2.534
1,2-Dibromo-3-Chloropropane	21800	42468	65470	86827
Freon TF	0.459	0.462	0.452	0.472
4-Bromofluorobenzene	222328	465570	688600	933083
Dibromofluoromethane	173990	354918	514854	681300
Toluene-d8	1.212	1.246	1.223	1.231
1,2-Dichloroethane-d4	178006	364646	532181	713282

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911134

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	AVRG		0.48761342		13.630	15.000
trans-1,3-Dichloropropene	AVRG		0.44441818		12.432	15.000
1,3-Dichlorobenzene	AVRG		1.43390401		11.978	15.000
2,2-Dichloropropane	AVRG		0.66029305		11.040	15.000
1,1-Dichloropropene	AVRG		0.40332539		10.380	15.000
Dibromomethane	AVRG		0.21136309		14.886	15.000
1,2-Dibromoethane	AVRG		0.35067597		12.763	15.000
trans-1,2-Dichloroethene	AVRG		0.41138839		13.381	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.36274186		12.717	15.000
1,1,1-Trichloroethane	AVRG		0.67453438		11.648	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.70308768		10.825	15.000
Toluene	AVRG		1.41788930		10.479	15.000
1,1,2-Trichloroethane	AVRG		0.26137158		14.102	15.000
1,1-Dichloroethane	AVRG		0.72750643		10.197	15.000
1,1-Dichloroethene	AVRG		0.42373367		8.607	15.000
Trichlorofluoromethane	AVRG		0.77561874		13.736	15.000
1,2,3-Trichlorobenzene	2ORDR	-1.73e-002	5.50264123	-0.1707432	0.9998373	0.9900000
Tetrachloroethene	AVRG		0.35131312		12.801	15.000
1,2,4-Trichlorobenzene	AVRG		0.42118311		12.391	15.000
1,2,4-Trimethylbenzene	AVRG		2.37245105		10.778	15.000
tert-Butylbenzene	AVRG		1.94917789		12.586	15.000
Trichloroethene	AVRG		0.34966887		14.517	15.000
1,2-Dichlorobenzene	AVRG		1.32701574		12.905	15.000
1,2-Dichloroethane	AVRG		0.39691390		12.978	15.000
1,2-Dichloropropane	AVRG		0.29867989		5.660	15.000
1,3,5-Trimethylbenzene	AVRG		2.27648393		11.444	15.000
1,3-Dichloropropane	AVRG		0.53064503		9.928	15.000
1,4-Dichlorobenzene	AVRG		1.45709302		10.715	15.000
2-Butanone	AVRG		0.15342086		5.109	15.000
2-Chlorotoluene	AVRG		1.79889065		12.374	15.000
2-Hexanone	AVRG		0.20539492		9.225	15.000
4-Chlorotoluene	AVRG		2.18043218		12.121	15.000
Styrene	AVRG		1.04451403		12.966	15.000
4-Methyl-2-Pentanone	AVRG		0.29296235		10.958	15.000
Acetone	LINR	-7.72e-002	8.02348321		0.9999004	0.9900000
Benzene	AVRG		1.14377224		13.444	15.000
Bromobenzene	AVRG		0.86897432		14.186	15.000
Bromochloromethane	AVRG		0.27086566		10.835	15.000
Bromodichloromethane	AVRG		0.41377448		13.021	15.000
Bromoform	LINR	1.997e-002	3.29171060		0.9995506	0.9900000
Bromomethane	LINR	-4.72e-002	2.10632186		0.9967362	0.9900000
Carbon Disulfide	AVRG		1.15275096		13.789	15.000
Carbon Tetrachloride	AVRG		0.44181701		10.990	15.000
Chlorobenzene	AVRG		0.97614522		10.975	15.000

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911134

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	COEFFICENTS A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroethane	AVRG		0.31480657		8.302	15.000
Chloroform	AVRG		0.80974969		10.425	15.000
Chloromethane	LINR	3.748e-003	1.83460007		0.9998260	0.9900000
cis-1,2-Dichloroethene	AVRG		0.47416954		13.204	15.000
Dibromochloromethane	AVRG		0.37970849		13.683	15.000
Dichlorodifluoromethane	LINR	1.763e-002	2.15619239		0.9988587	0.9900000
Ethylbenzene	AVRG		0.50436028		12.486	15.000
Hexachlorobutadiene	LINR	-1.03e-002	2.88504774		0.9991601	0.9900000
Isopropylbenzene	AVRG		1.49389834		11.672	15.000
m,p-Xylenes	AVRG		0.60861655		13.850	15.000
Methylene Chloride	AVRG		0.45210476		10.732	15.000
n-Butylbenzene	AVRG		2.03598696		9.063	15.000
n-Propylbenzene	AVRG		3.09059969		10.434	15.000
Naphthalene	AVRG		0.54020307		8.055	15.000
o-Xylene	AVRG		0.60066696		14.145	15.000
sec-Butylbenzene	AVRG		2.68486077		10.468	15.000
Vinyl Chloride	AVRG		0.50958661		5.494	15.000
1,2,3-Trichloropropane	AVRG		0.59573805		14.502	15.000
p-Isopropyltoluene	AVRG		2.44651692		10.015	15.000
1,2-Dibromo-3-Chloropropane	LINR	-6.81e-003	12.9714748		0.9998714	0.9900000
Freon TF	AVRG		0.43530320		13.846	15.000
4-Bromofluorobenzene	LINR	8.357e-003	2.13170980		0.9997055	0.9900000
Dibromofluoromethane	LINR	7.36e-003	2.18334297		0.9997712	0.9900000
Toluene-d8	AVRG		1.31739803		9.895	15.000
1,2-Dichloroethane-d4	LINR	1.473e-002	2.09453233		0.9994184	0.9900000

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

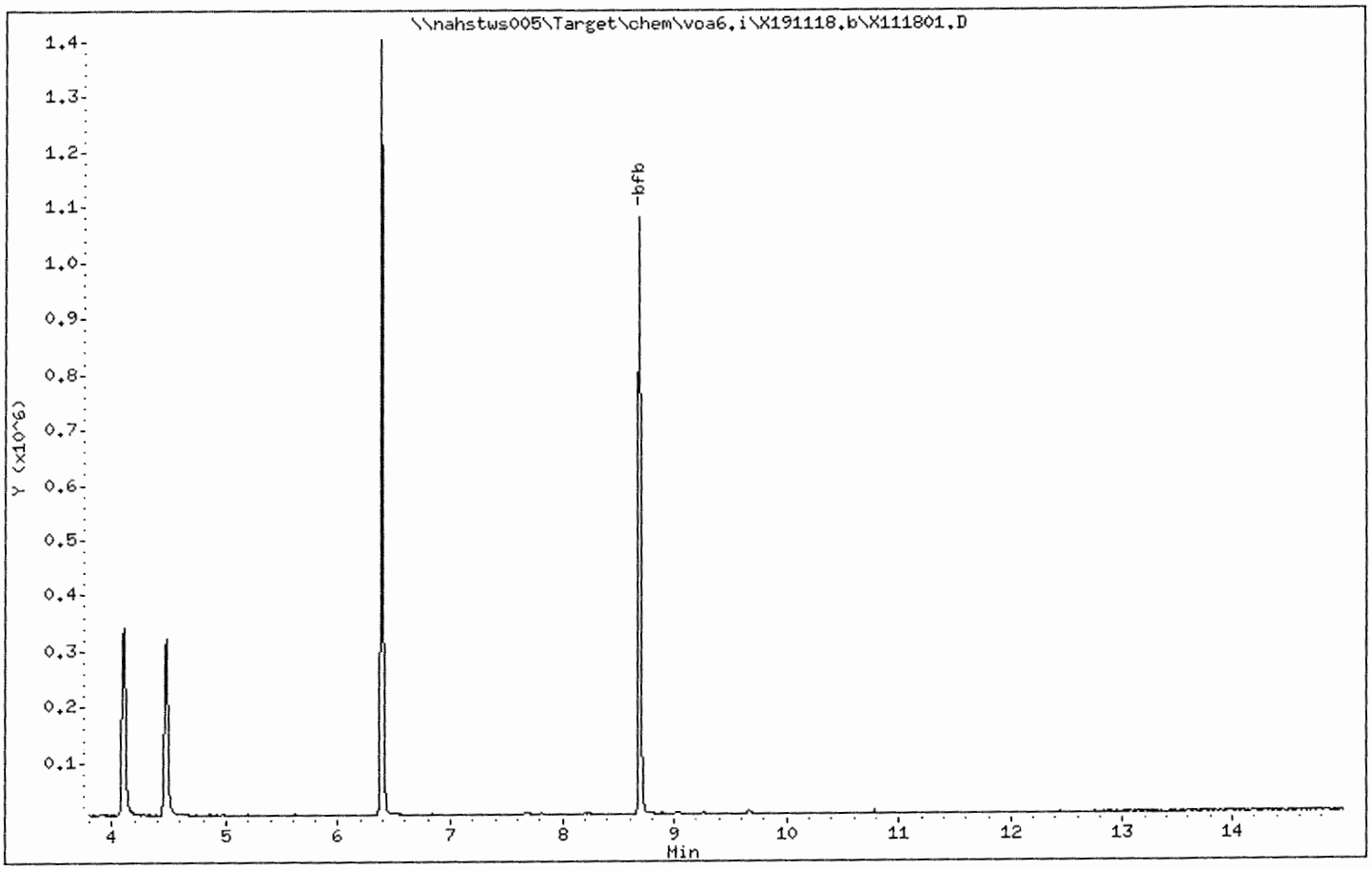
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

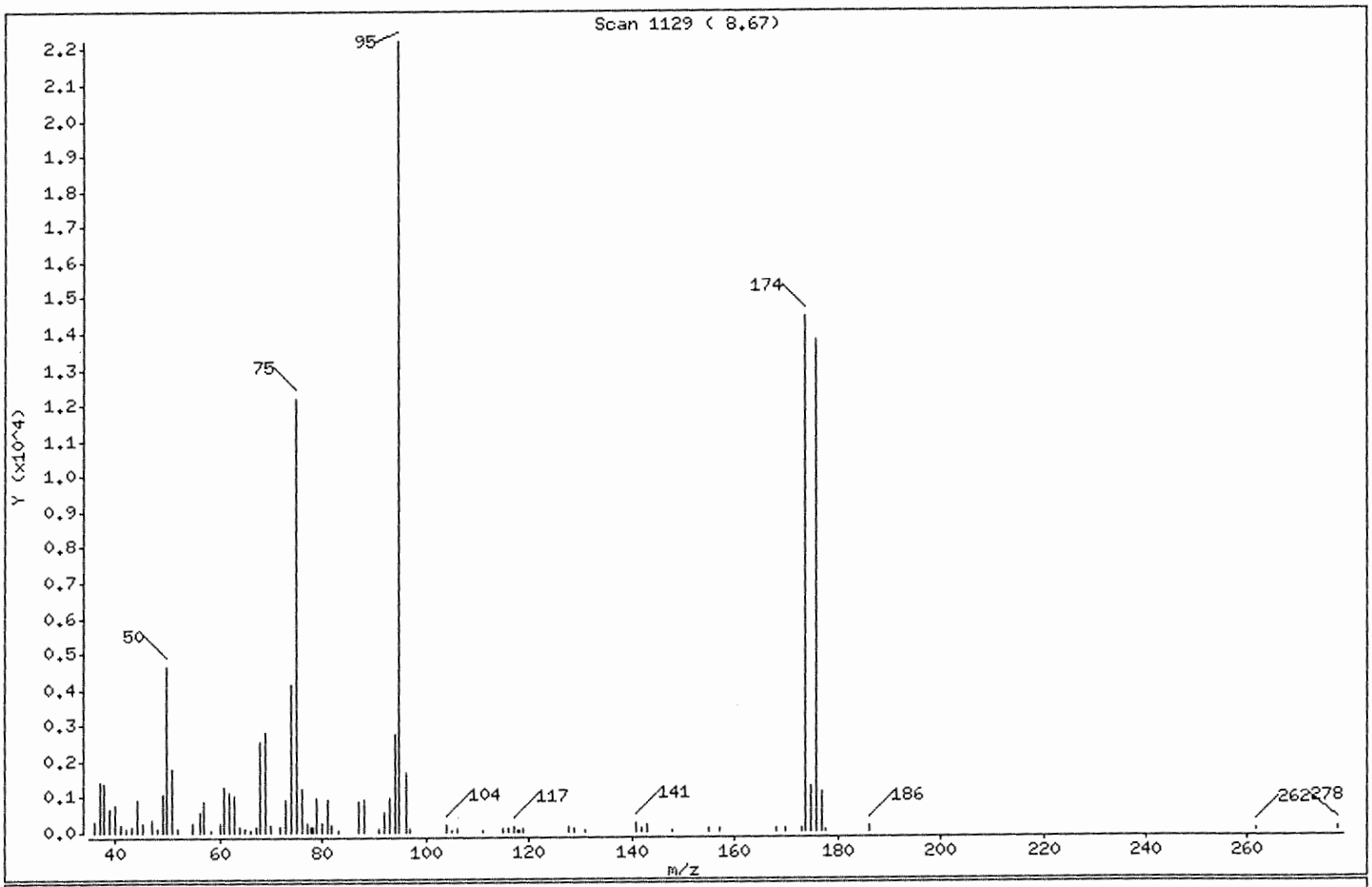
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.86
75	30.00 - 60.00% of mass 95	54.86
96	5.00 - 9.00% of mass 95	7.62
173	Less than 2.00% of mass 174	0.43 (0.66)
174	Greater than 50.00% of mass 95	65.03
175	5.00 - 9.00% of mass 174	5.82 (8.95)
176	95.00 - 101.00% of mass 174	62.04 (95.41)
177	5.00 - 9.00% of mass 176	5.11 (8.24)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X111801.D
Spectrum: Scan 1129 (8.67)
Location of Maximum: 95.00
Number of points: 83

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	329	61.00	1259	81.80	217	127.90	153
37.00	1409	62.00	1149	83.00	50	128.90	116
38.00	1370	62.90	1001	86.90	880	130.90	70
39.00	662	64.00	138	88.00	941	141.00	249
40.00	775	65.10	110	91.10	116	141.90	94
41.00	191	66.00	72	92.10	565	142.90	216
42.00	77	67.10	153	93.00	990	148.10	62
43.00	166	68.00	2578	94.00	2783	155.00	87
44.10	928	69.00	2816	95.00	22224	157.00	77
45.10	261	69.90	217	96.10	1694	168.00	85
47.00	367	71.90	143	97.00	111	170.00	86
48.10	104	73.00	931	103.90	180	172.90	96
49.00	1057	74.00	4135	105.10	52	173.90	14452
50.00	4636	75.00	12193	106.00	100	174.90	1293
51.00	1802	76.00	1227	111.10	63	175.90	13788
52.10	85	77.10	248	115.10	93	176.90	1136
55.00	269	77.80	150	116.00	100	177.80	71
56.10	539	78.10	174	117.00	158	186.00	161
56.90	843	78.90	948	117.70	74	261.90	57
58.20	60	79.90	265	118.10	74	277.90	85
60.00	231	80.90	936	119.00	127		

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 18-NOV-2019 13:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

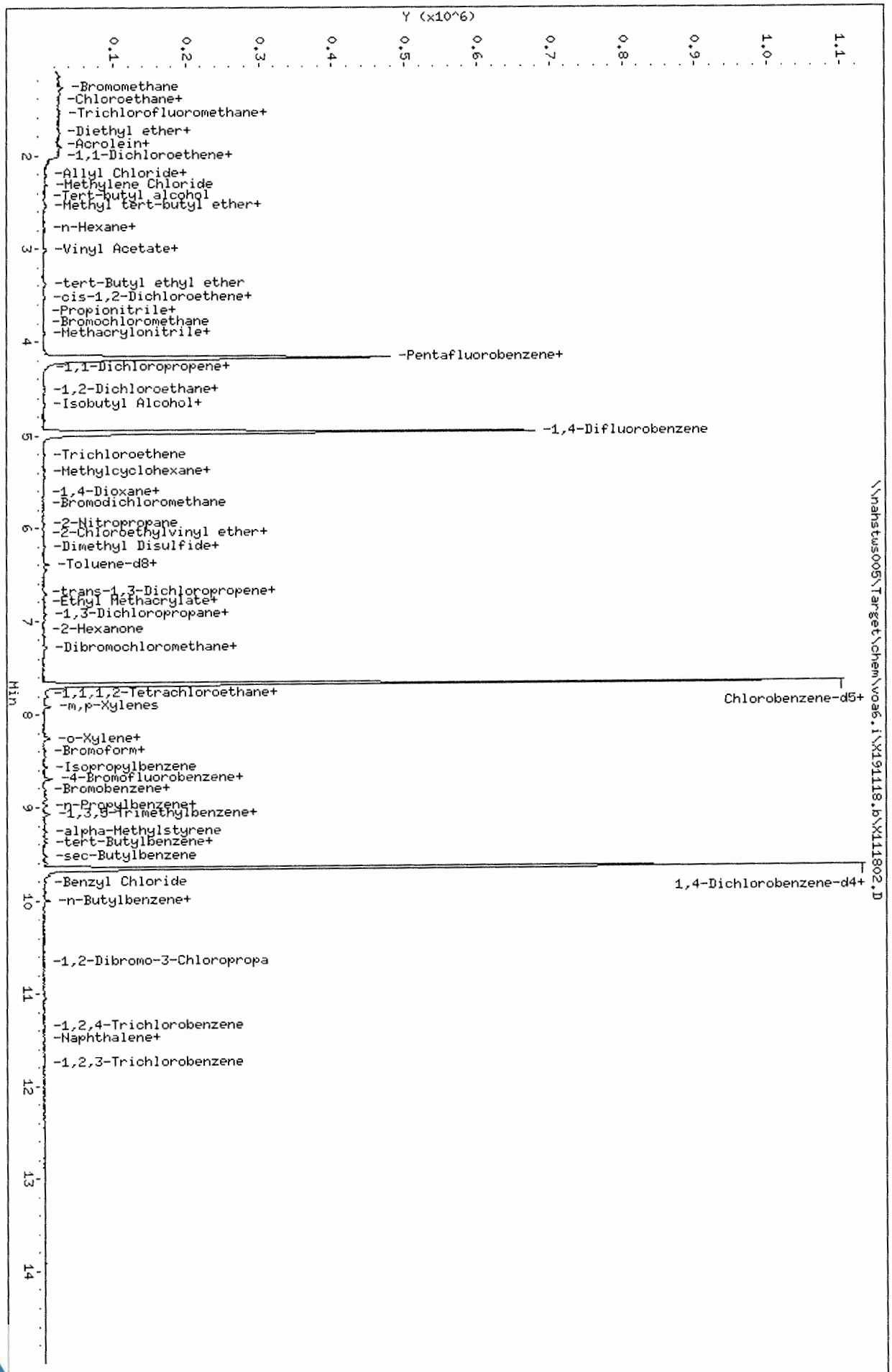
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	431958	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	586737	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	529029	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	277425	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	1323	0.25000	1.05(Ta)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3260	0.25000	1.07(a)
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	1295	0.25000	0.69(a)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	5247	0.25000	0.37(Ta)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	814	0.25000	0.21(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	1177	0.25000	0.20(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	861	0.25000	0.22(aM)
	138 Freon TF	101	1.912	1.912	(0.457)	755	0.25000	0.20(aM)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	656	0.25000	0.23(aM)
	22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	1571	0.25000	0.24(aM)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	909	0.25000	0.24(a)
	32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	1579	0.25000	0.33(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	224	0.25000	(aM)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	702	0.25000	0.21(aM)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	320	0.25000	0.13(aM)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	2742	0.25000	0.20(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	103	0.25000	(aM)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	708	0.25000	0.19(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	1523	0.25000	0.20(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	938	0.25000	0.20(aM)
42	1,2-Dichloropropane	63	5.450	5.450	(1.097)	858	0.25000	0.24(aM)
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	2444	0.25000	0.19(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	1534	0.25000	0.19(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1126	0.25000	0.20(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	1760	0.25000	0.21(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	1234	0.25000	0.21(aM)
24	2-Butanone	43	3.588	3.588	(0.858)	827	0.50000	0.62(aM)
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	2277	0.25000	0.22(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	809	0.50000	0.37(Ta)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	2873	0.25000	0.23(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2596	0.25000	0.19(a)
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	1190	0.50000	0.38(aM)
10	Acetone	43	1.969	1.969	(0.471)	3213	0.50000	(aM)
37	Benzene	78	4.519	4.519	(0.909)	3088	0.25000	0.23(a)
74	Bromobenzene	156	8.817	8.817	(0.913)	940	0.25000	0.19(a)
29	Bromochloromethane	128	3.795	3.795	(0.908)	660	0.25000	0.28(aM)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1101	0.25000	0.22(aM)
66	Bromoform	173	8.416	8.416	(1.097)	495	0.25000	1.15(aM)
6	Bromomethane	94	1.339	1.339	(0.320)	1552	0.25000	(aM)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	3999	0.50000	0.40(a)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	1084	0.25000	0.20(aM)
59	Chlorobenzene	112	7.692	7.692	(1.003)	2603	0.25000	0.25(a)
7	Chloroethane	64	1.403	1.403	(0.336)	672	0.25000	0.24(aM)
28	Chloroform	83	3.910	3.910	(0.935)	2414	0.25000	0.34(aM)
3	Chloromethane	50	1.074	1.074	(0.257)	1640	0.25000	0.53(aM)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1103	0.25000	0.26(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1351	0.25000	0.23(aM)
55	Dibromochloromethane	129	7.184	7.184	(0.937)	883	0.25000	0.21(a)
44	Dibromomethane	93	5.558	5.558	(1.118)	573	0.25000	0.23(aM)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	642	0.25000	1.04(aM)
61	Ethylbenzene	106	7.800	7.800	(1.017)	1072	0.25000	0.20(a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	367	0.25000	(aM)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	2992	0.25000	0.18(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	2521	0.50000	0.39(a)
17	Methylene Chloride	84	2.306	2.306	(0.551)	1174	0.25000	0.30(a)
87	n-Butylbenzene	91	9.999	9.999	(1.035)	2169	0.25000	0.19(a)
73	n-Propylbenzene	91	8.917	8.917	(0.923)	3456	0.25000	0.20(a)
92	Naphthalene	128	11.553	11.553	(1.196)	764	0.25000	0.25(a)
63	o-Xylene	106	8.244	8.244	(1.075)	1221	0.25000	0.19(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	3012	0.25000	0.20(a)
64	Styrene	104	8.265	8.265	(1.078)	2388	0.25000	0.21(a)
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	2350	0.25000	0.21(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	914	0.25000	0.24(a)
50	Toluene	91	6.453	6.453	(0.841)	3631	0.25000	0.24(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	826	0.25000	0.23(aM)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	996	0.25000	0.19(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	945	0.25000	0.23(a)
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	1233	0.25000	0.18(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	1052	0.25000	0.23(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 18-NOV-2019 14:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 13:47 Cal File: X111802.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

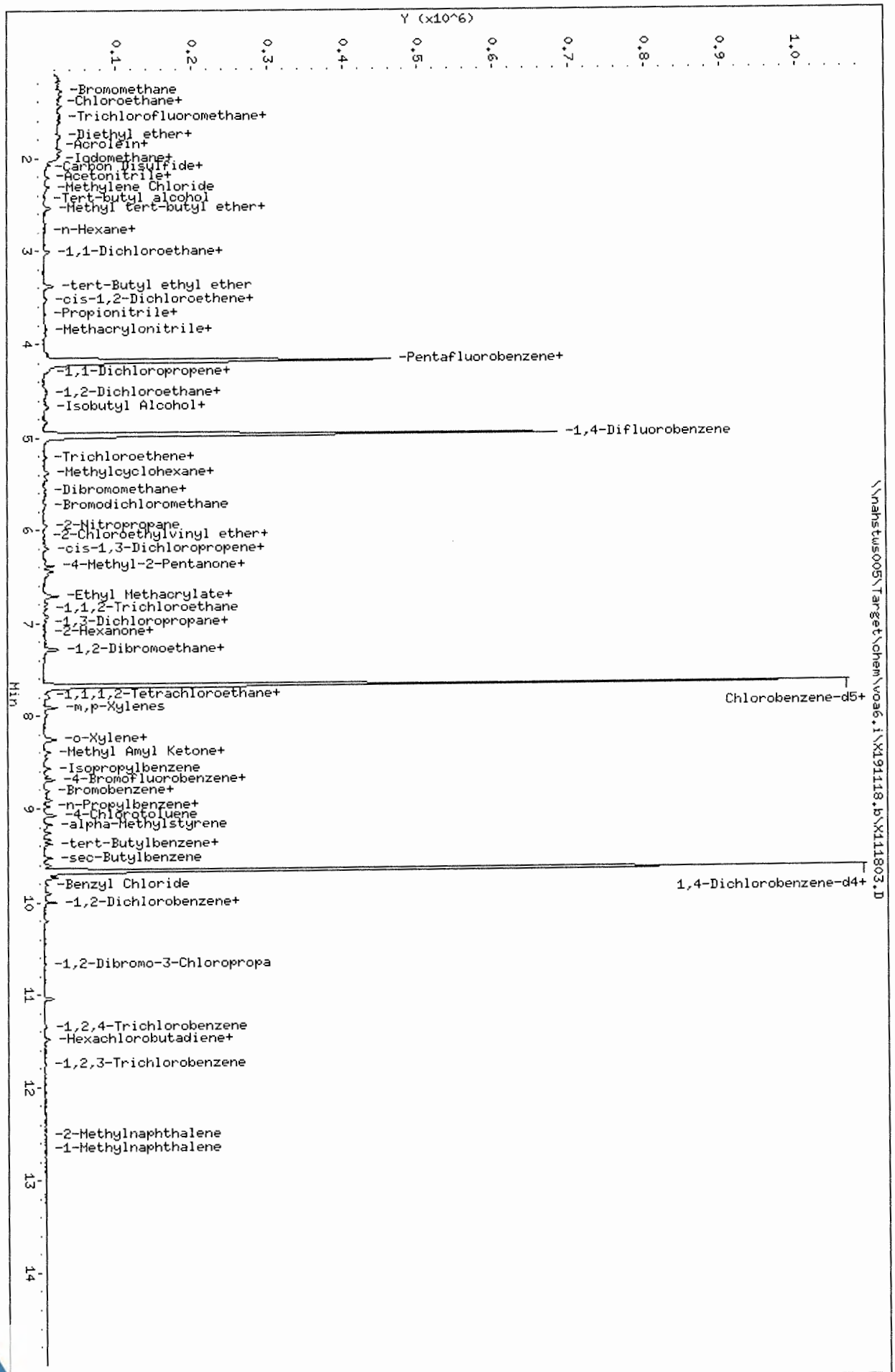
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	417797	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	575000	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	520290	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	274172	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	2522	0.50000	1.36(Ta)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3844	0.50000	1.20(a)
$	30 Dibromofluoromethane	113	4.110	4.110	(0.983)	2303	0.50000	0.96(a)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	8468	0.50000	0.61(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1290	0.50000	0.34(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	2055	0.50000	0.36(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1652	0.50000	0.42(aM)
	138 Freon TF	101	1.911	1.911	(0.457)	1235	0.50000	0.33(a)
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	936	0.50000	0.34(a)
	22 1,1-Dichloroethane	63	2.928	2.928	(0.700)	2376	0.50000	0.39(Ta)
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1458	0.50000	0.41(aM)
	32 1,1-Dichloropropene	75	4.289	4.289	(0.863)	1907	0.50000	0.41(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	421	0.50000	(aM)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	1248	0.50000	0.38(aM)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	892	0.50000	0.38(aM)
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	4769	0.50000	0.36(aM)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	125	0.50000	(aM)
	57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	1273	0.50000	0.34(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	2511	0.50000	0.34 (a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	1591	0.50000	0.34 (aM)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	1693	0.50000	0.49 (aM)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	4403	0.50000	0.35 (a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	2841	0.50000	0.36 (a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	2241	0.50000	0.40 (a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	3038	0.50000	0.38 (a)
26	2,2-Dichloropropane	77	3.523	3.523	(0.842)	2284	0.50000	0.41 (aM)
24	2-Butanone	43	3.595	3.595	(0.860)	1395	1.00000	1.08 (aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	3464	0.50000	0.35 (a)
52	2-Hexanone	43	7.090	7.090	(0.924)	1875	1.00000	0.87 (a)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	4251	0.50000	0.35 (a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	5043	0.50000	0.37 (a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	2291	1.00000	0.75 (a)
10	Acetone	43	1.976	1.976	(0.473)	4579	1.00000	0.53 (aM)
37	Benzene	78	4.519	4.519	(0.909)	4530	0.50000	0.34 (a)
74	Bromobenzene	156	8.809	8.809	(0.911)	1601	0.50000	0.33 (a)
29	Bromochloromethane	128	3.802	3.802	(0.909)	956	0.50000	0.42 (a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1712	0.50000	0.35 (aM)
66	Bromoform	173	8.415	8.415	(1.097)	887	0.50000	1.27 (aM)
6	Bromomethane	94	1.338	1.338	(0.320)	2741	0.50000	(a)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	6243	1.00000	0.64 (aM)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	1955	0.50000	0.38 (aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	3839	0.50000	0.37 (a)
7	Chloroethane	64	1.403	1.403	(0.336)	1164	0.50000	0.44 (aM)
28	Chloroform	83	3.917	3.917	(0.937)	3238	0.50000	0.47 (a)
3	Chloromethane	50	1.073	1.073	(0.257)	2201	0.50000	0.67 (a)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1368	0.50000	0.34 (a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1873	0.50000	0.33 (a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	1318	0.50000	0.33 (a)
44	Dibromomethane	93	5.564	5.564	(1.120)	802	0.50000	0.32 (a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	1269	0.50000	1.20 (aM)
61	Ethylbenzene	106	7.807	7.807	(1.018)	1838	0.50000	0.35 (a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	1376	0.50000	0.21 (a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	5484	0.50000	0.35 (a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	4089	1.00000	0.64 (a)
17	Methylene Chloride	84	2.305	2.305	(0.551)	1764	0.50000	0.46 (aM)
87	n-Butylbenzene	91	9.998	9.998	(1.034)	4442	0.50000	0.39 (aM)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	6280	0.50000	0.37 (a)
92	Naphthalene	128	11.560	11.560	(1.196)	1399	0.50000	0.47 (a)
63	o-Xylene	106	8.243	8.243	(1.075)	2028	0.50000	0.32 (a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	5469	0.50000	0.37 (a)
64	Styrene	104	8.265	8.265	(1.078)	3653	0.50000	0.33 (a)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	3670	0.50000	0.34 (a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	1382	0.50000	0.37 (a)
50	Toluene	91	6.453	6.453	(0.841)	5603	0.50000	0.37 (a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	1192	0.50000	0.34 (a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	1749	0.50000	0.34 (a)
38	Trichloroethene	130	5.206	5.206	(1.048)	1298	0.50000	0.32 (a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	2137	0.50000	0.32 (a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	2046	0.50000	0.48 (aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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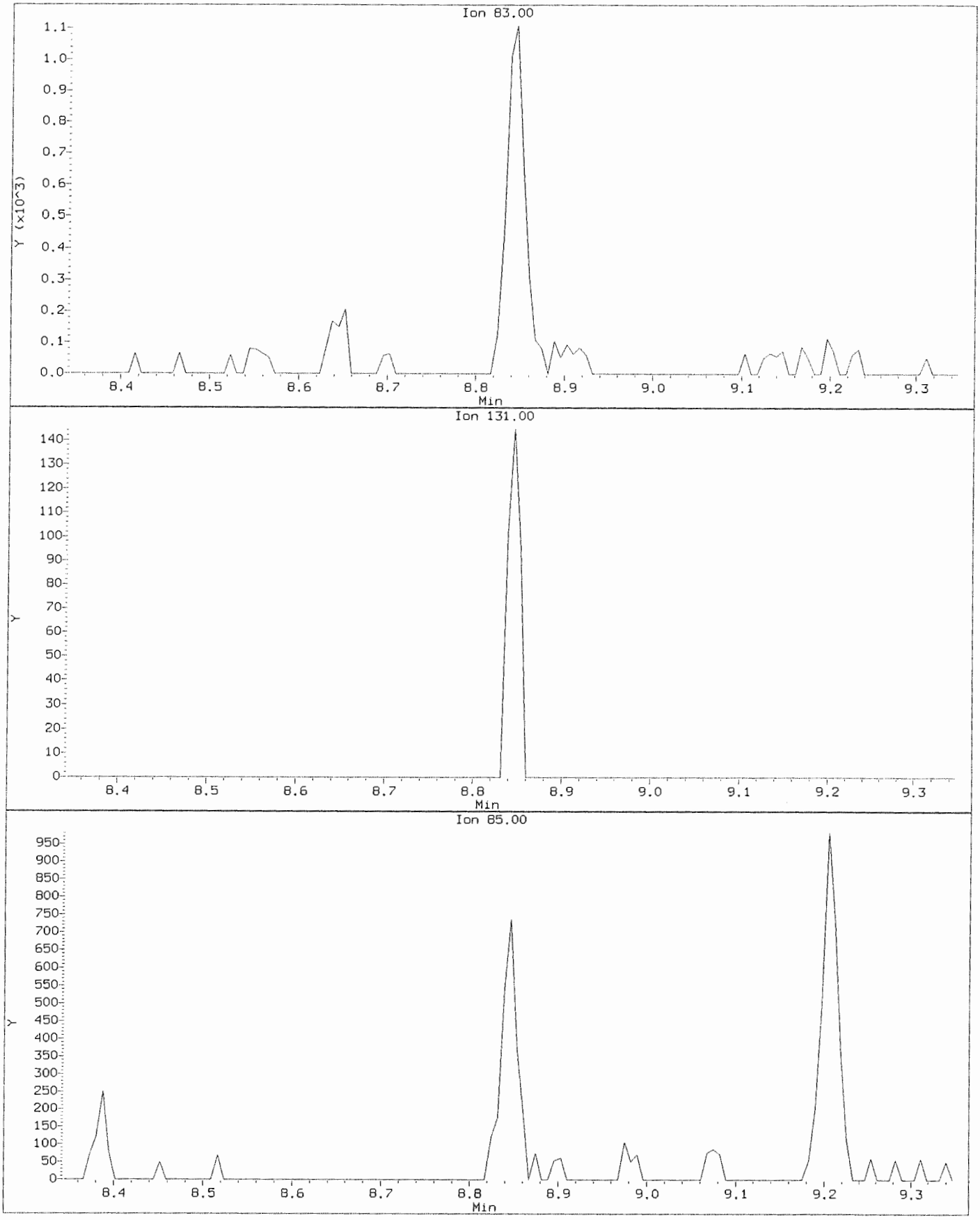
Sample Info: WSTD000.5;WSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624

\\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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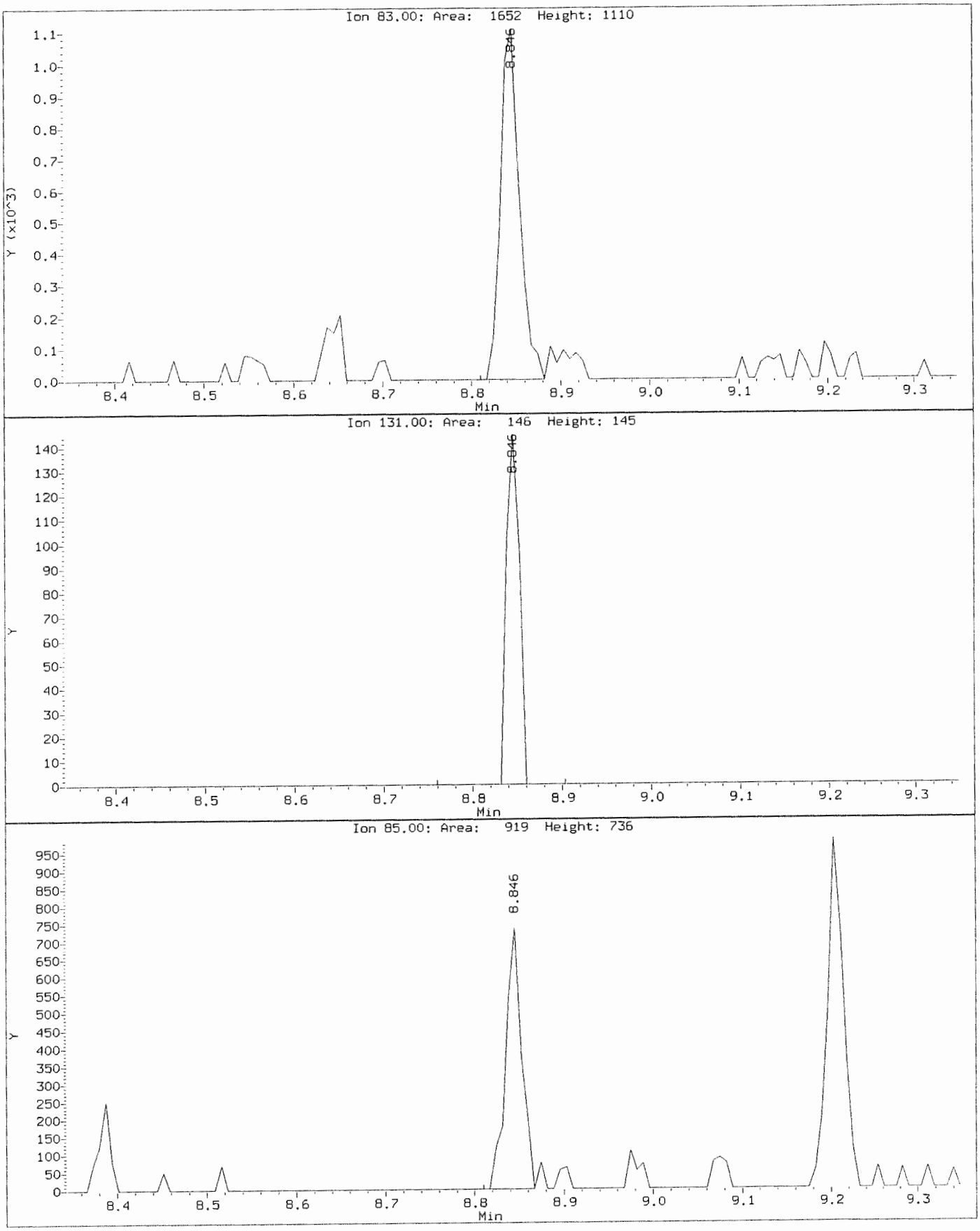
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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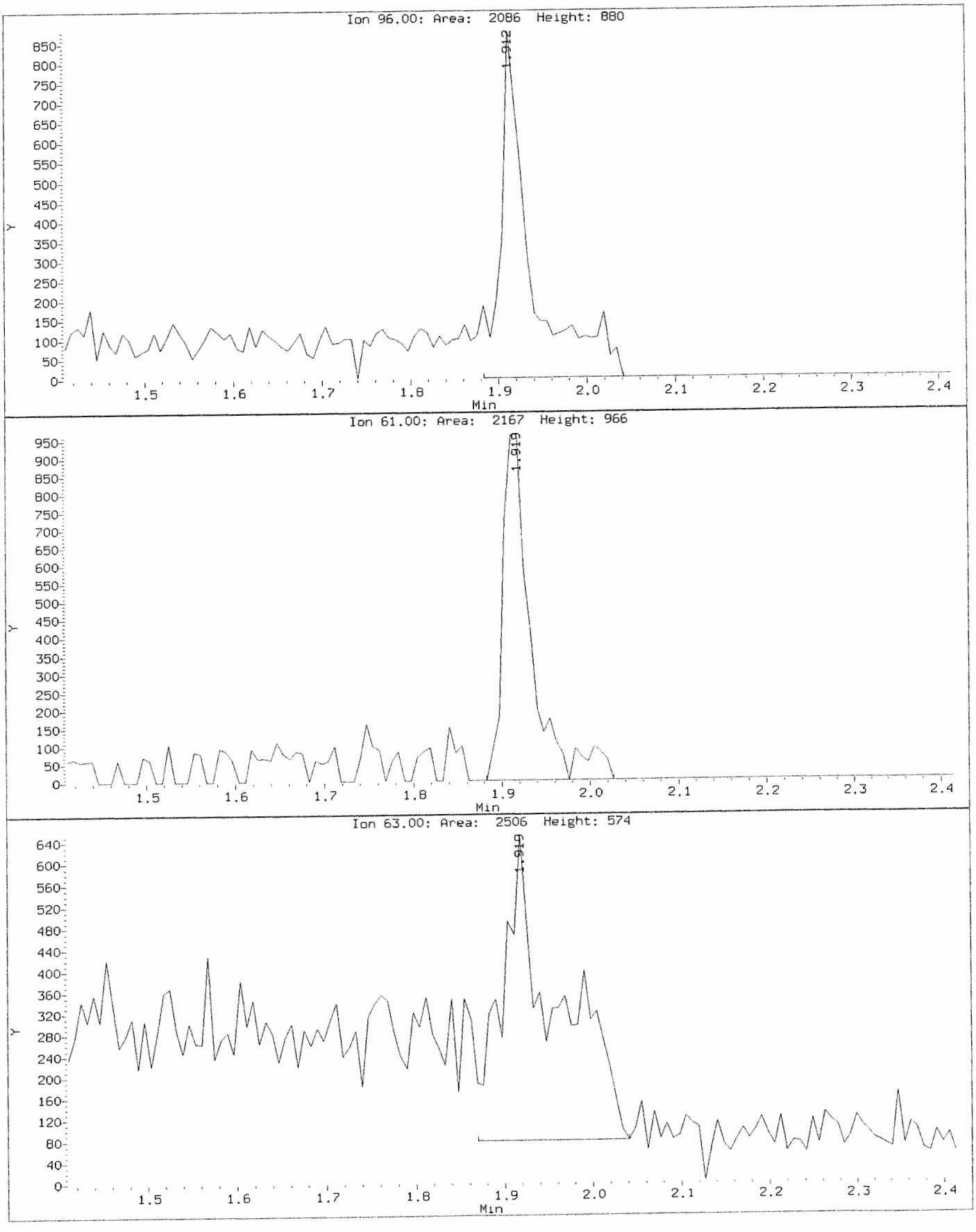
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



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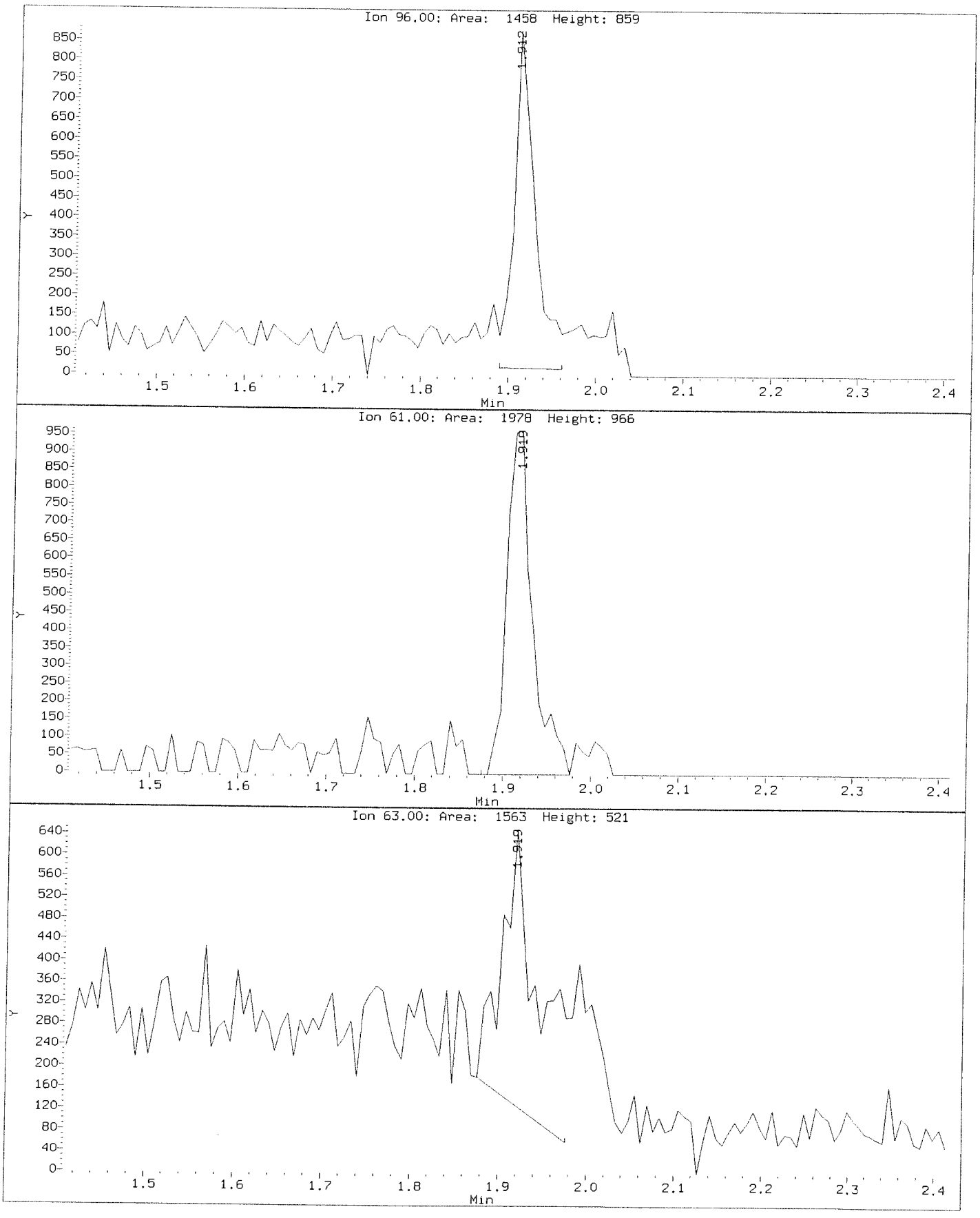
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



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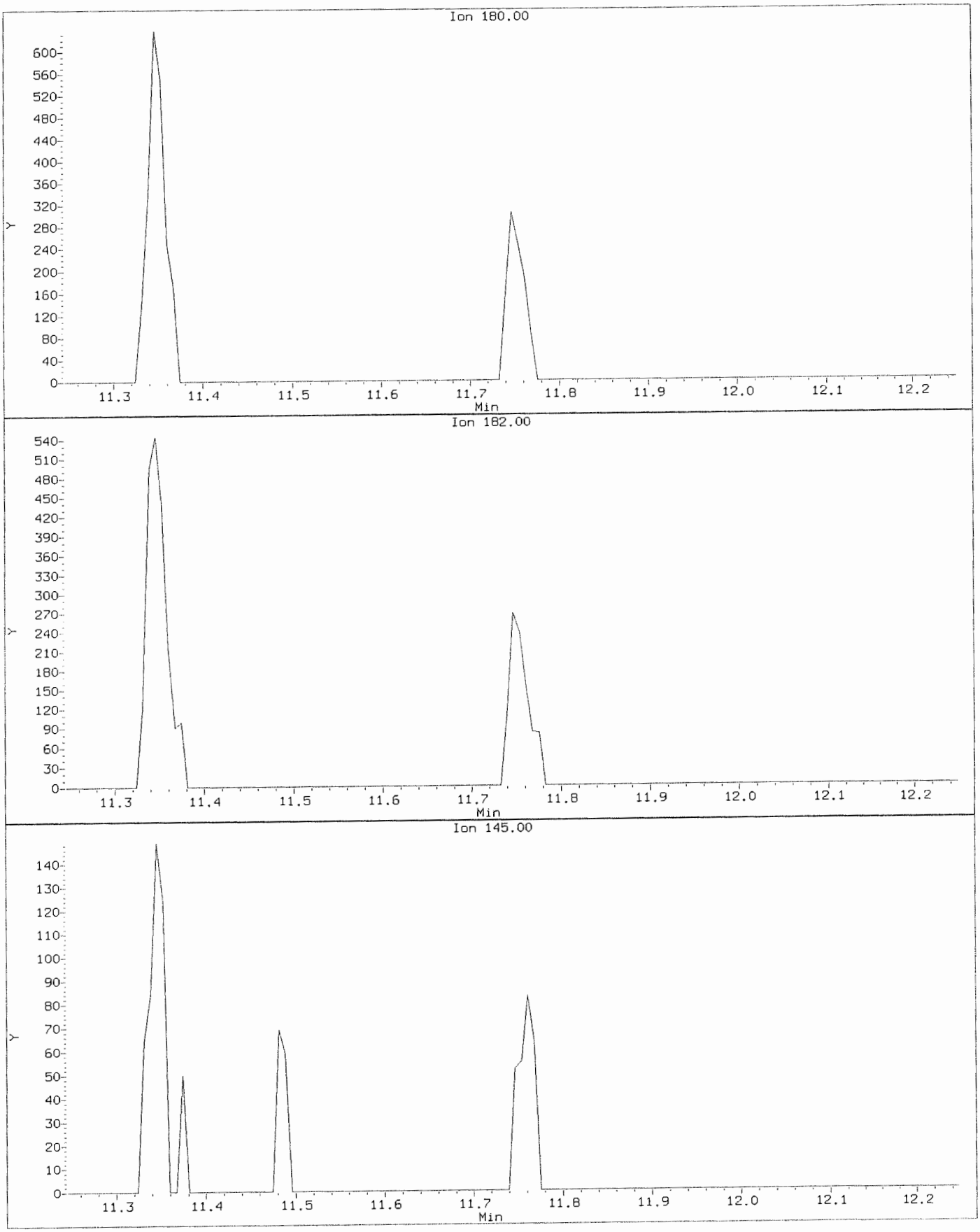
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



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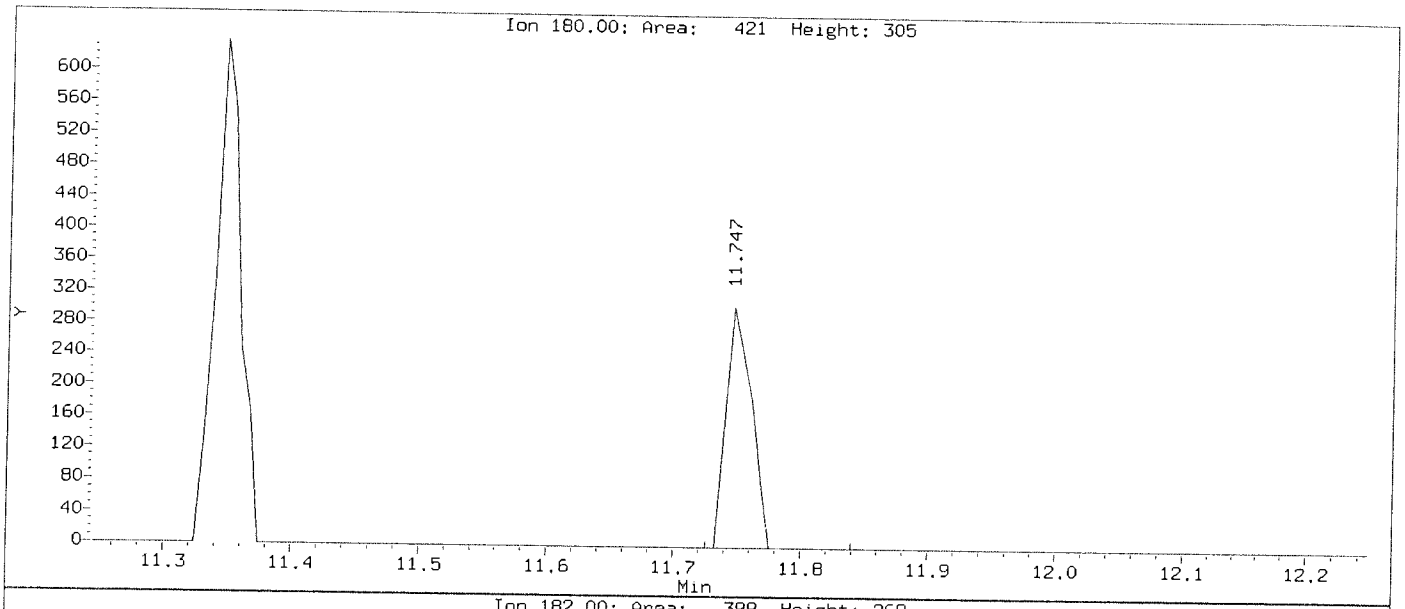
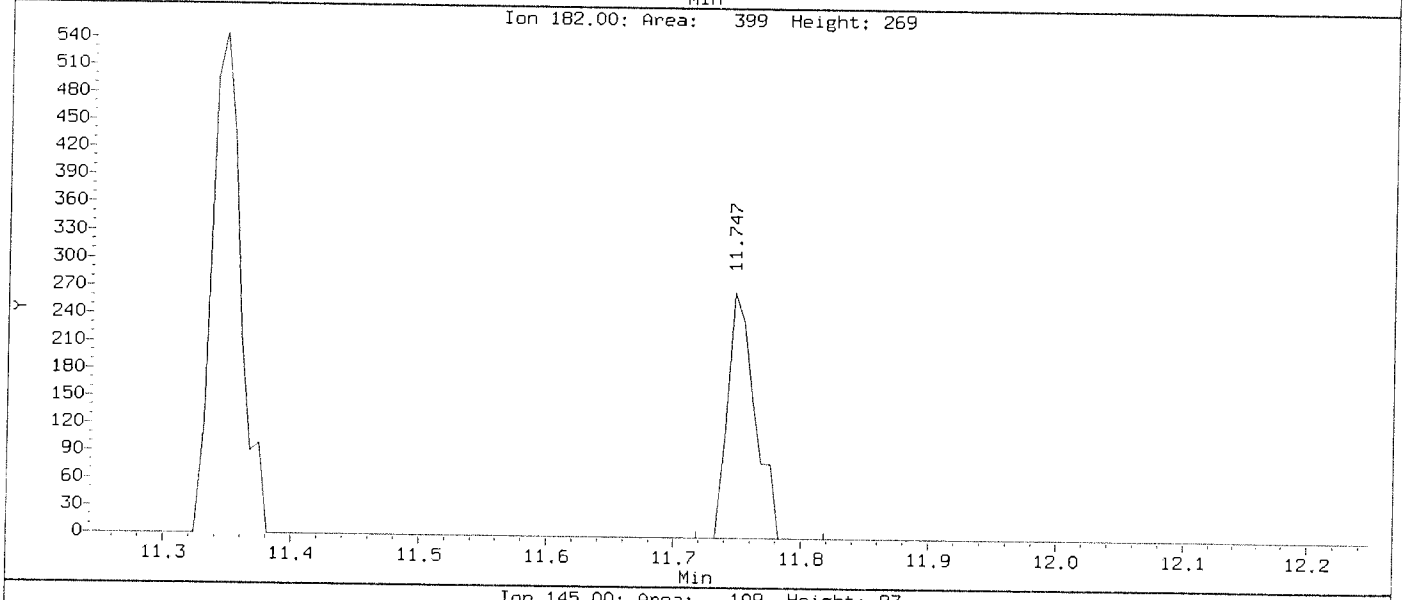
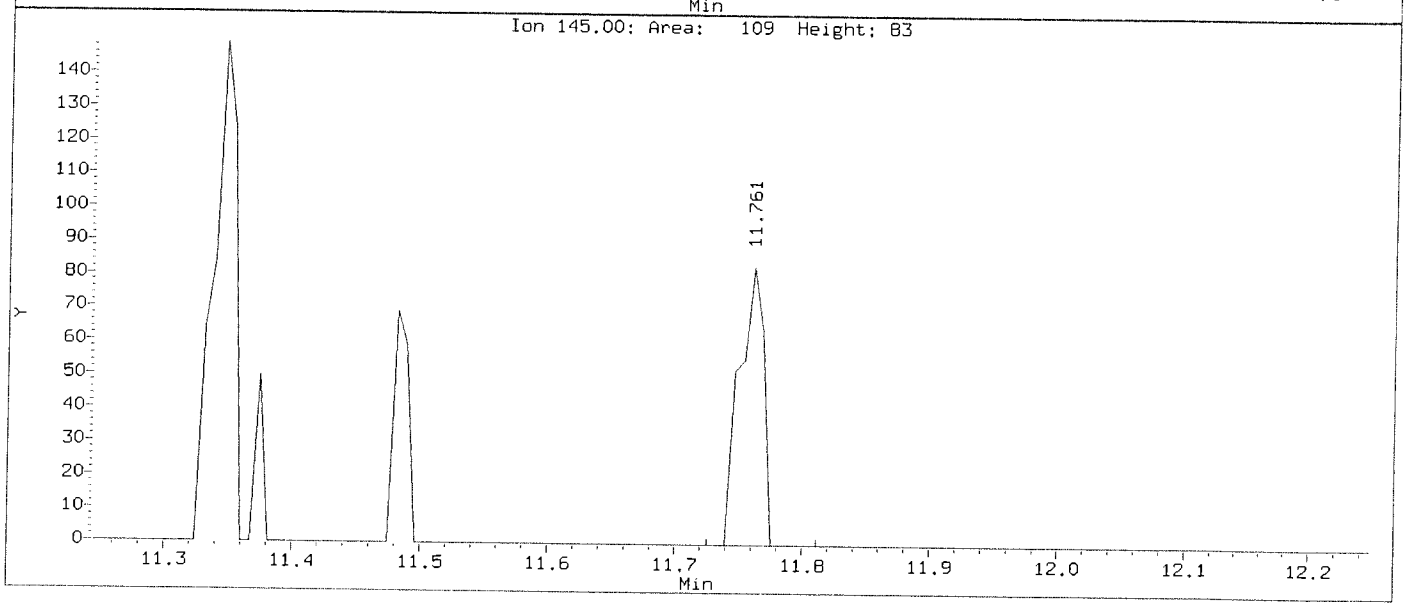
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1.2,3-Trichlorobenzene
CAS Number: 87-61-6







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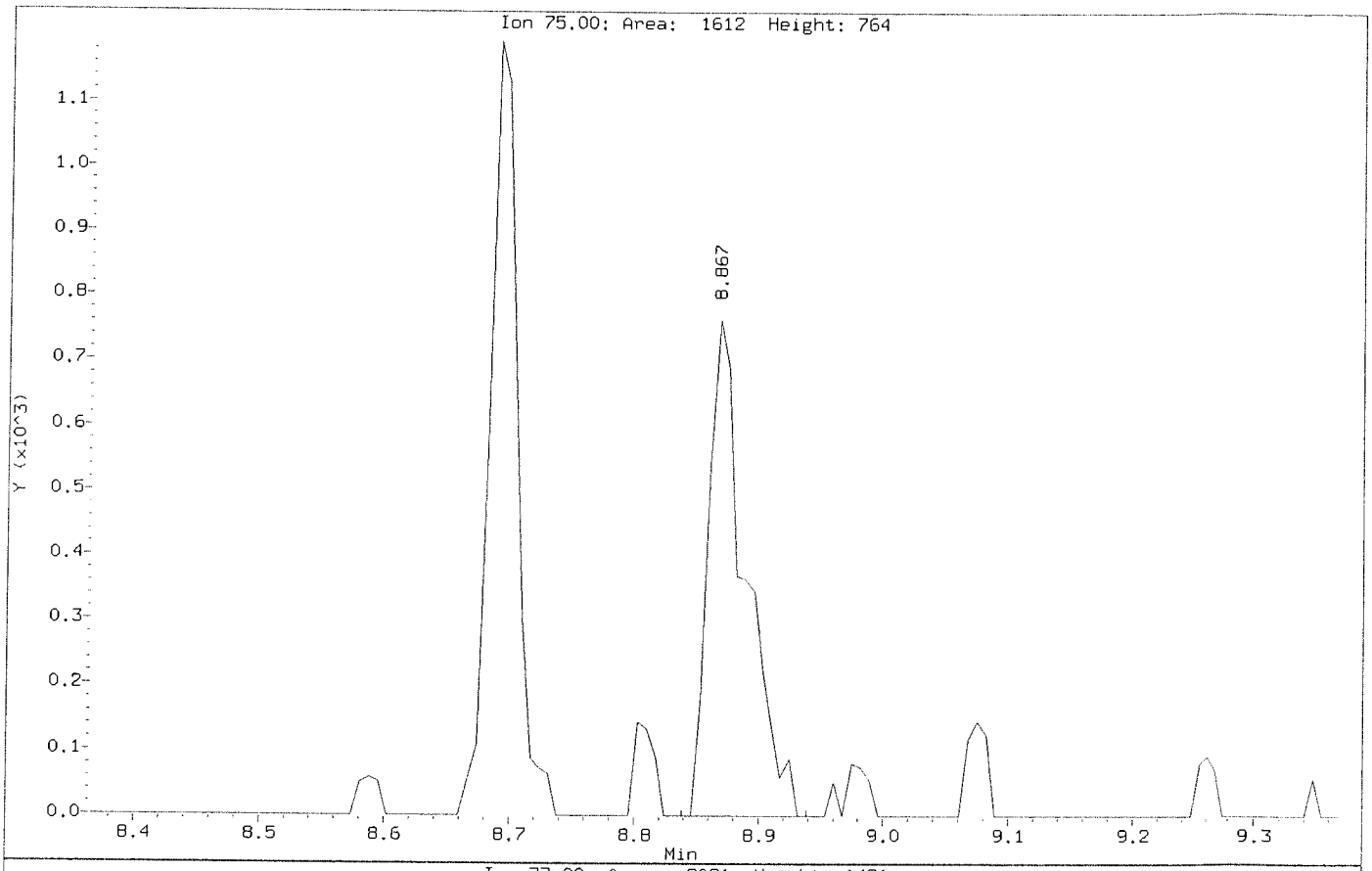
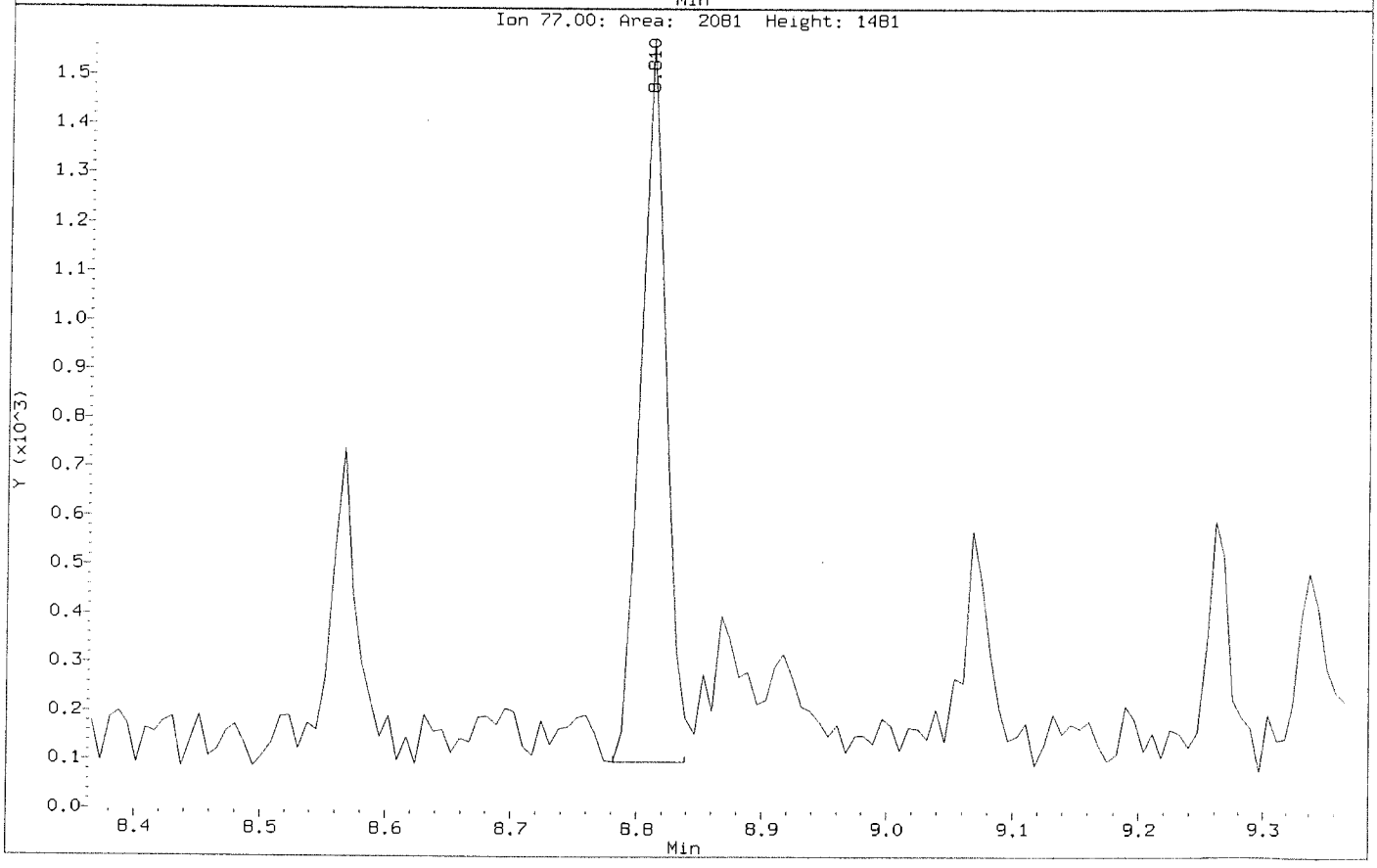
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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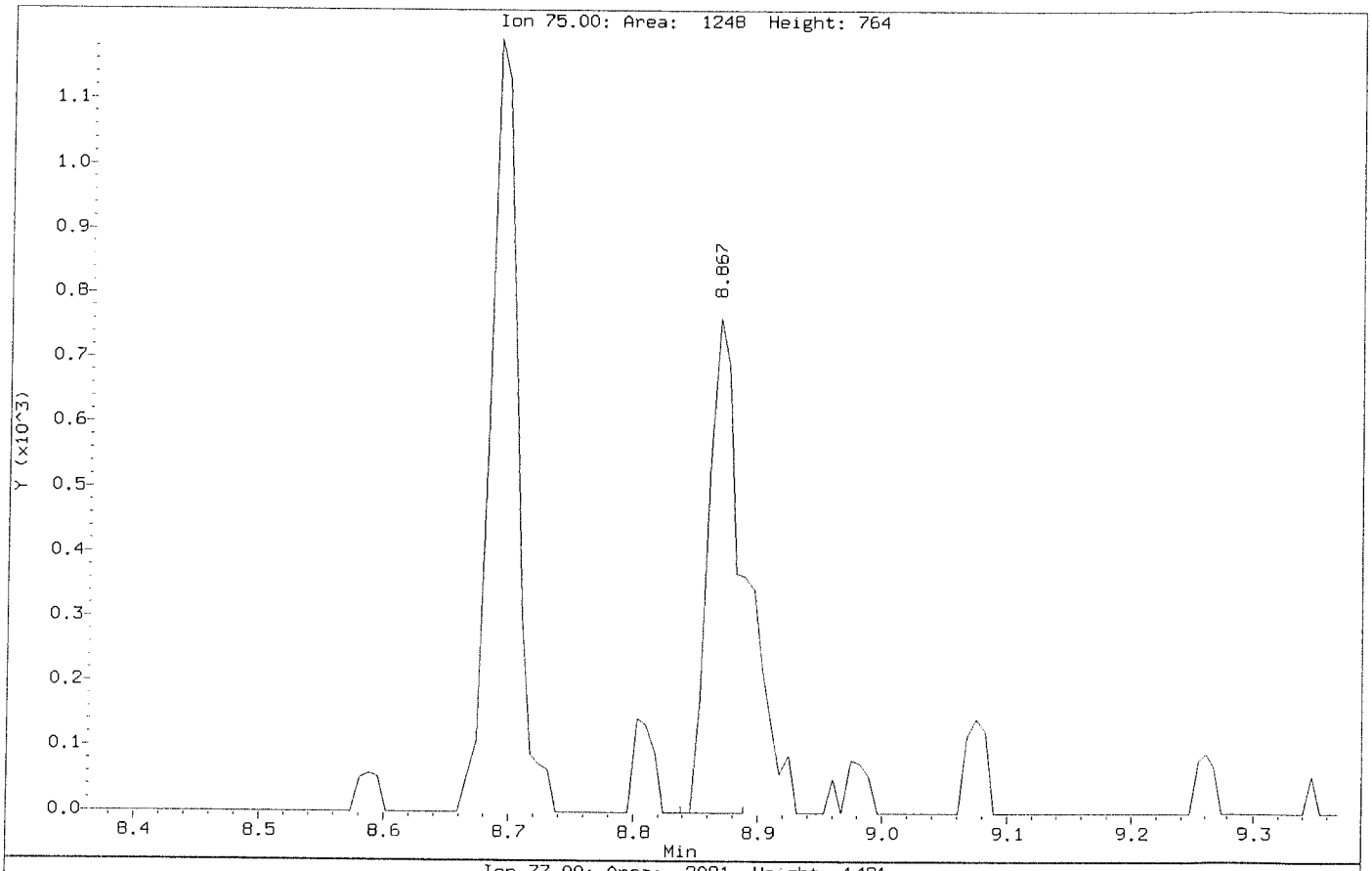
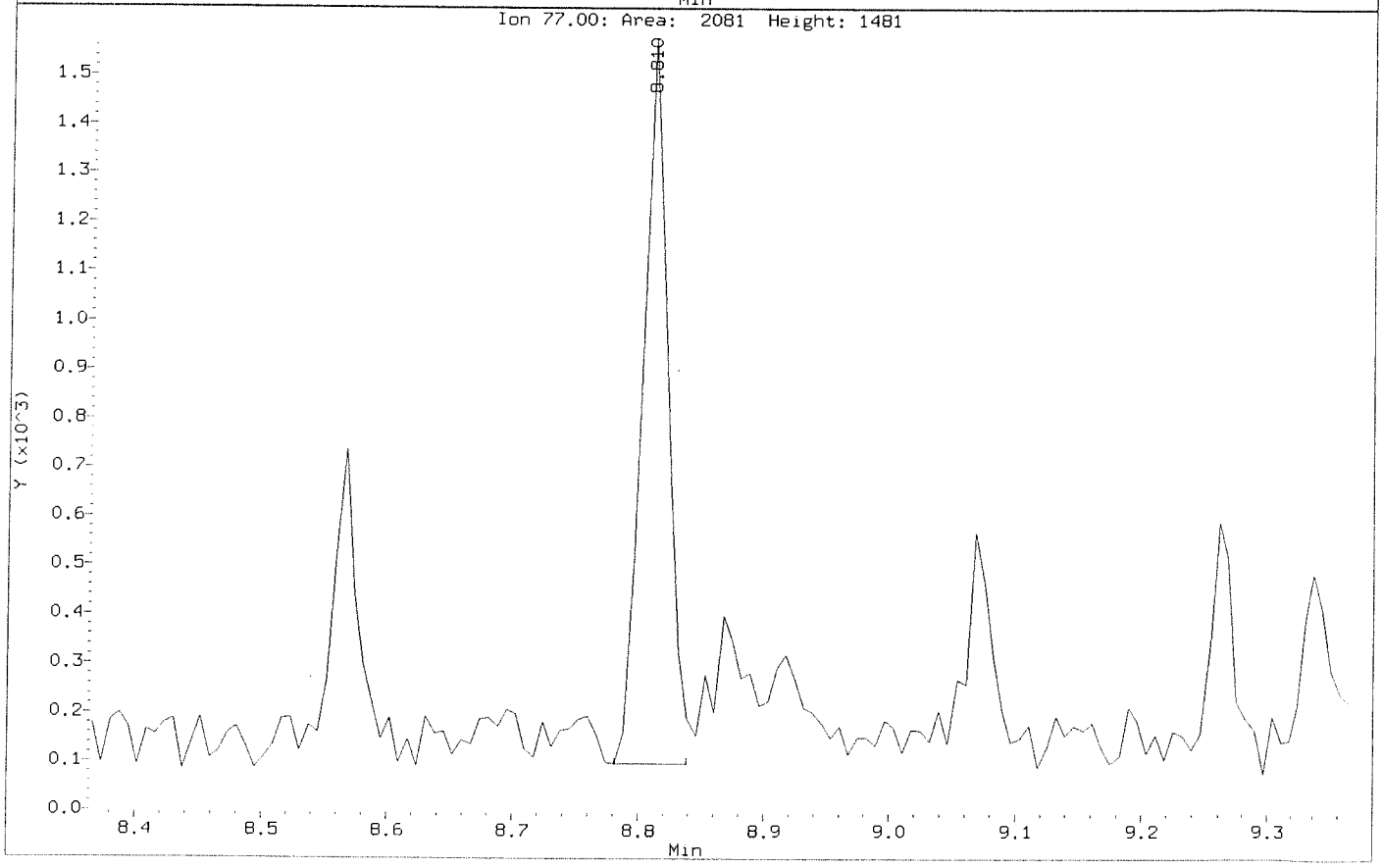
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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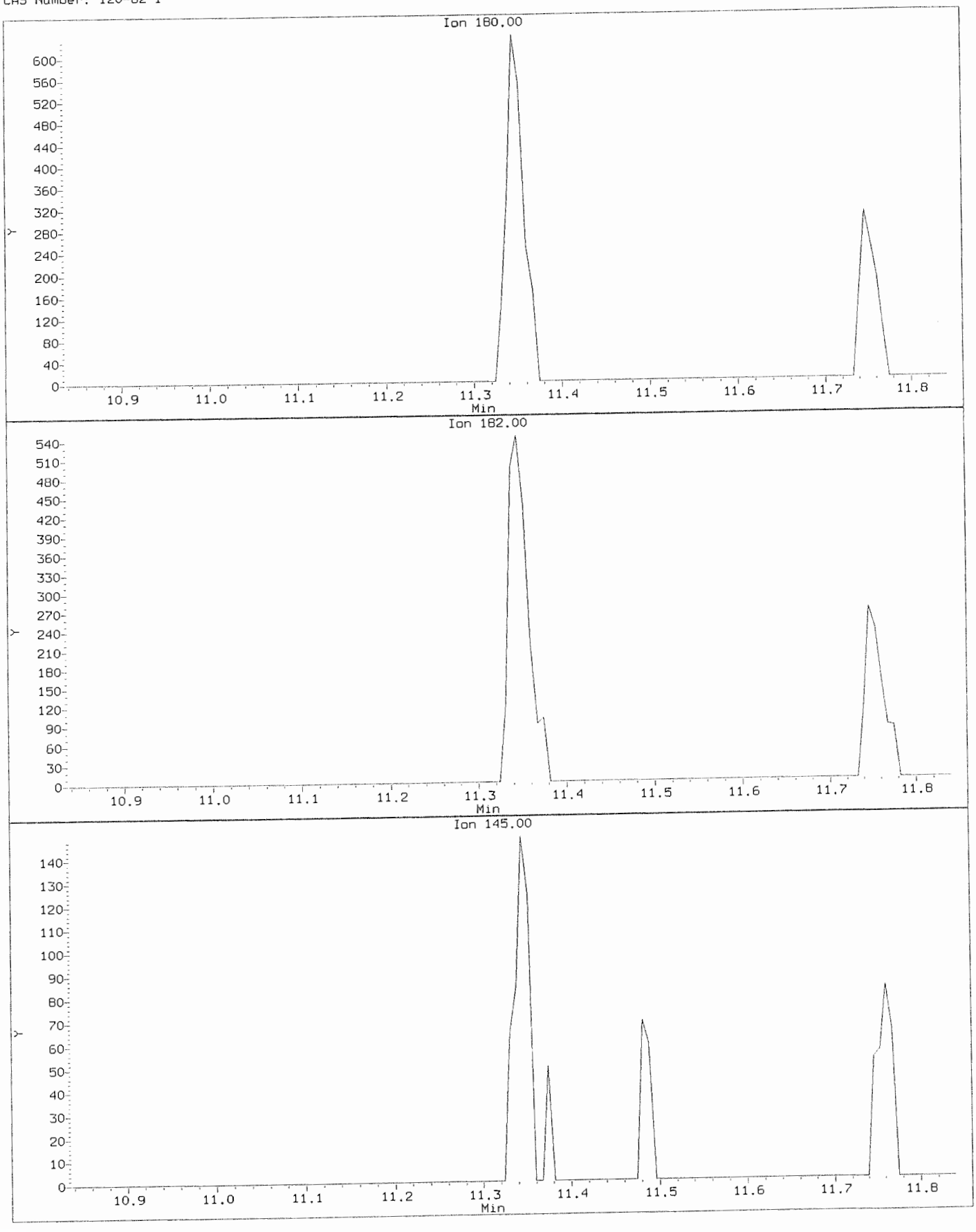
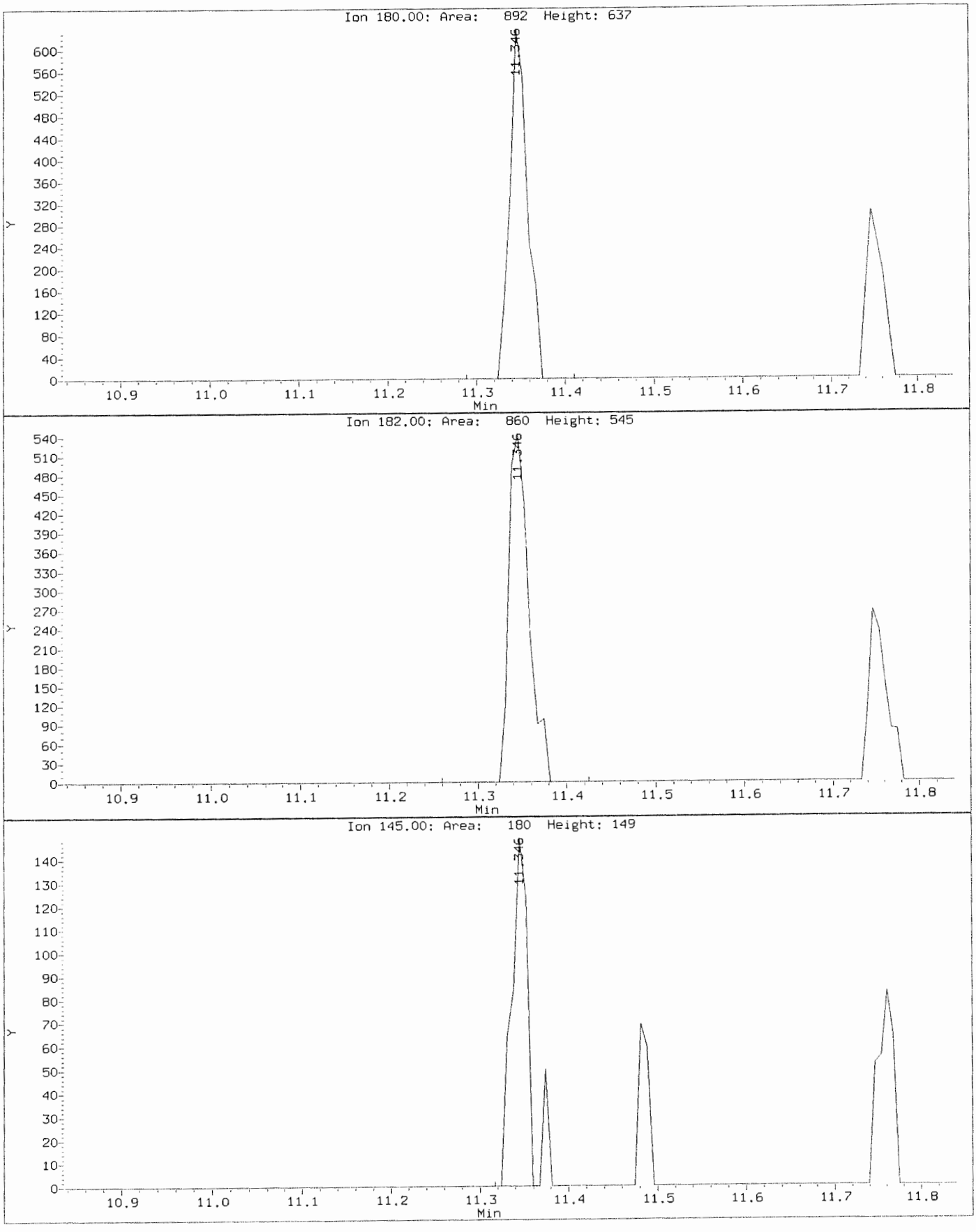
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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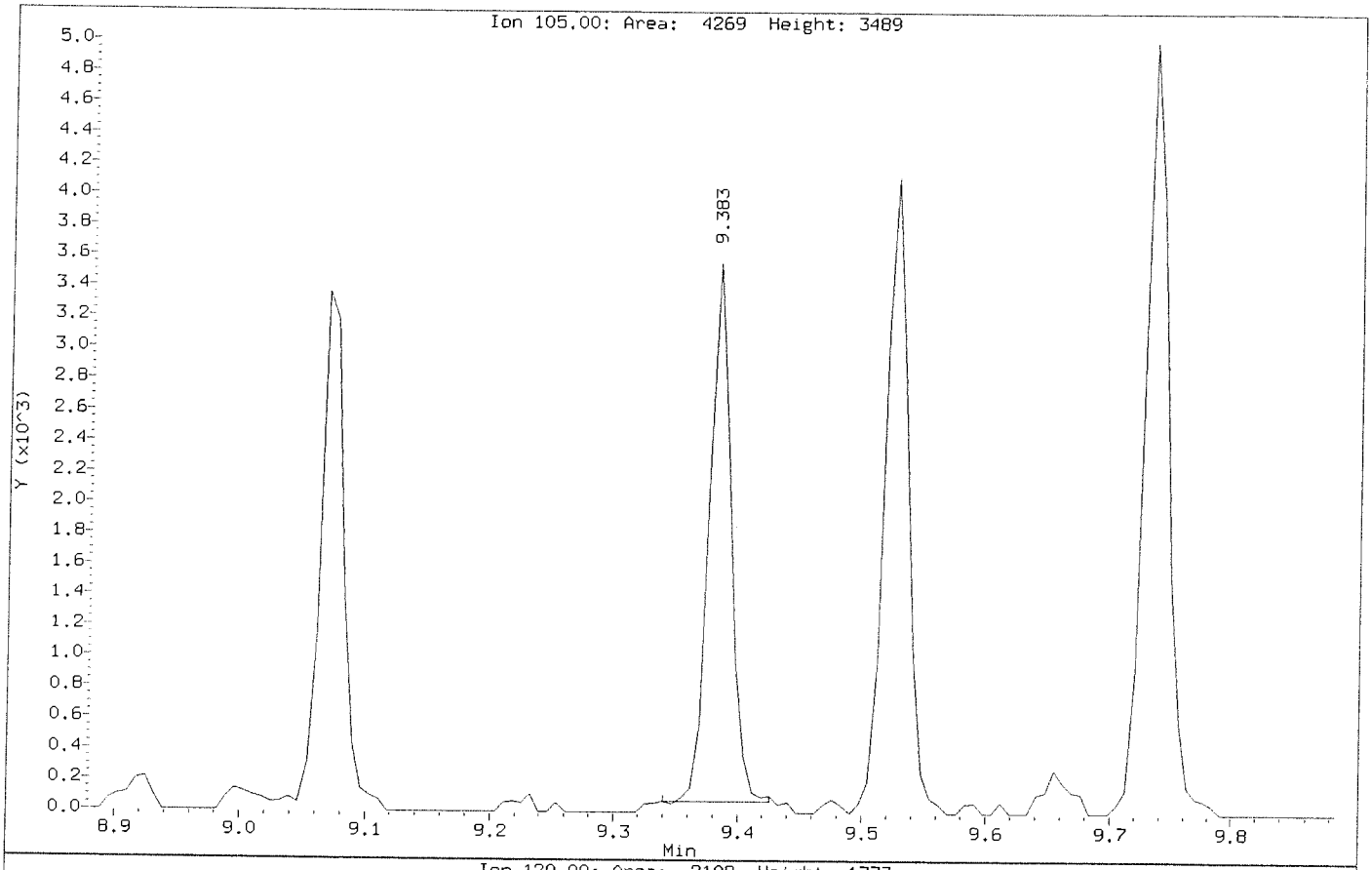
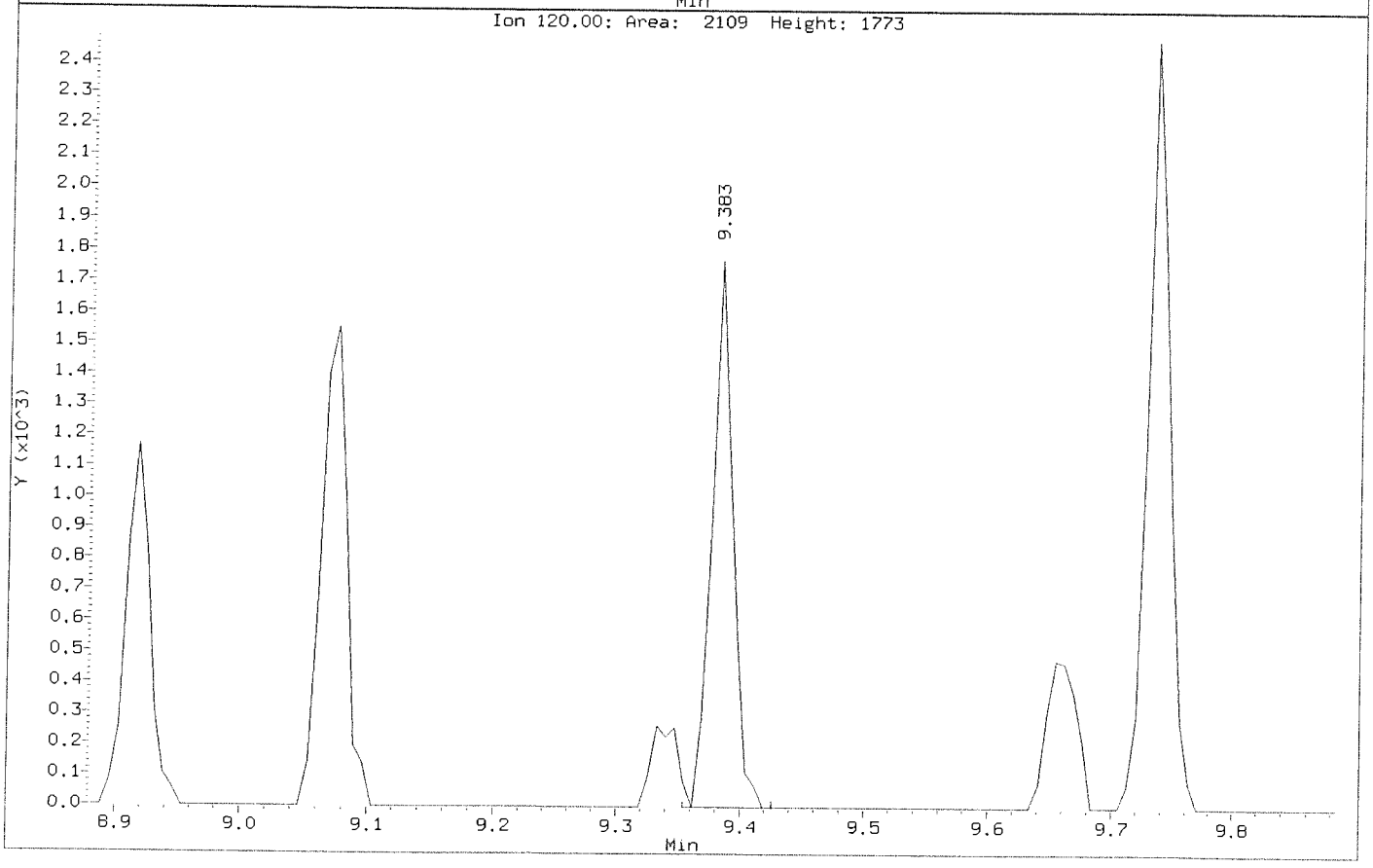
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

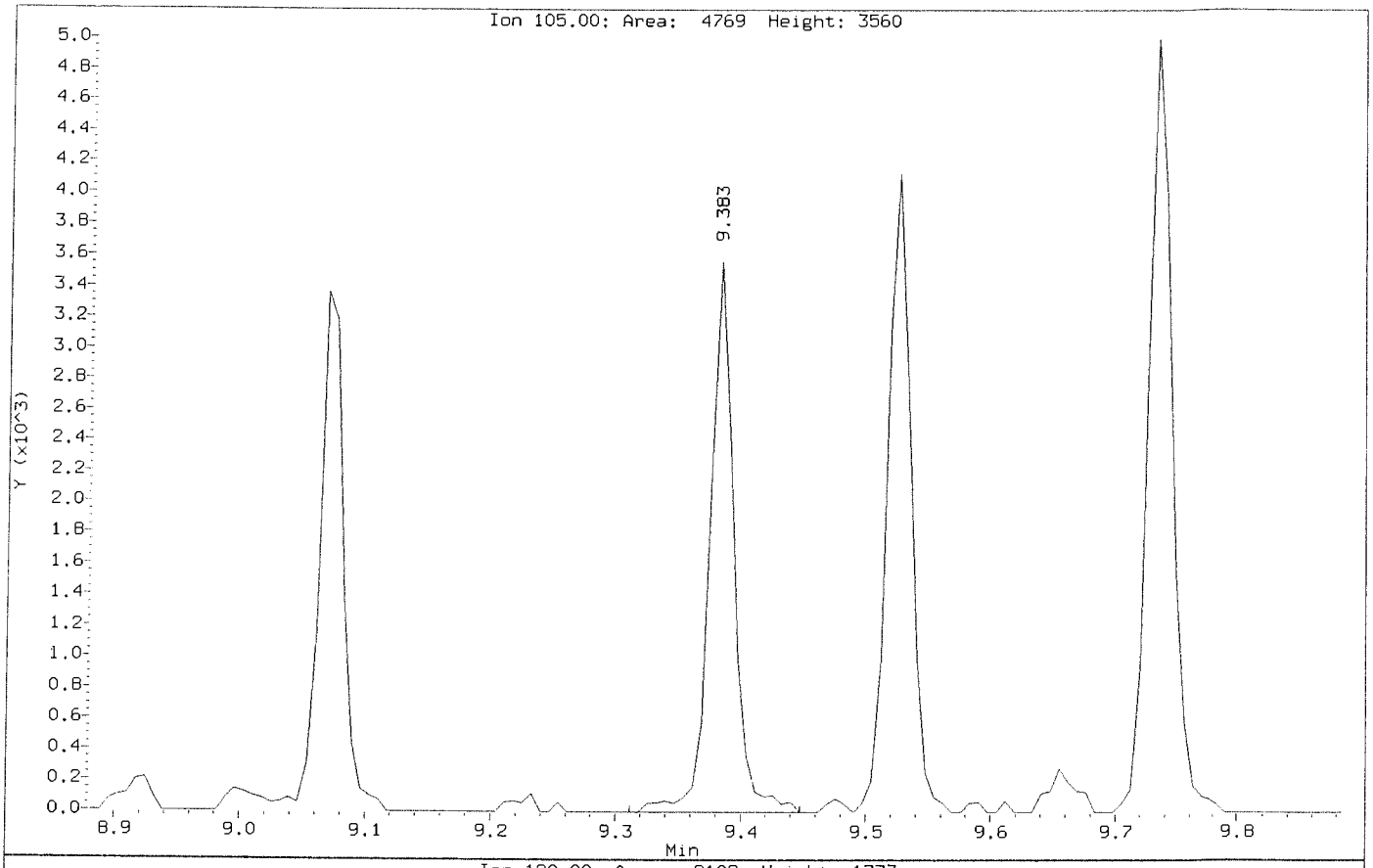
Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6

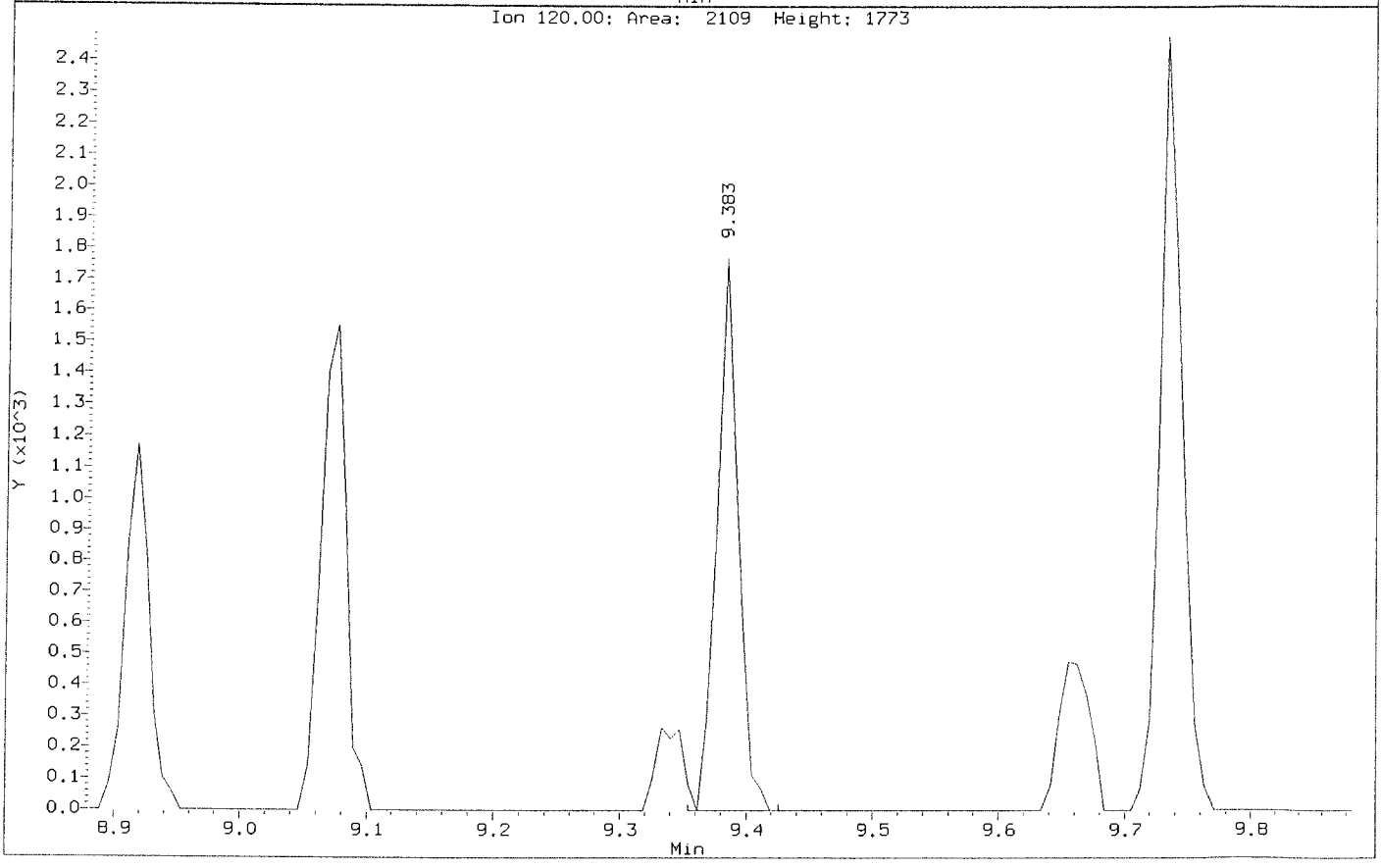




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6





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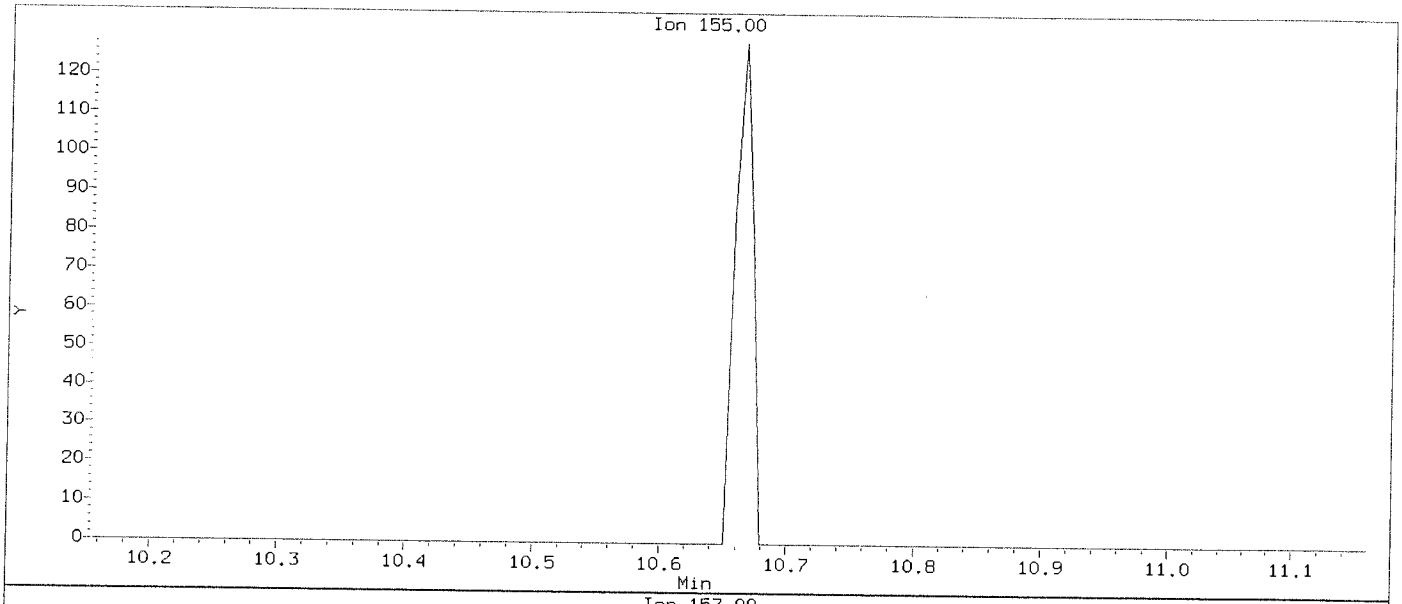
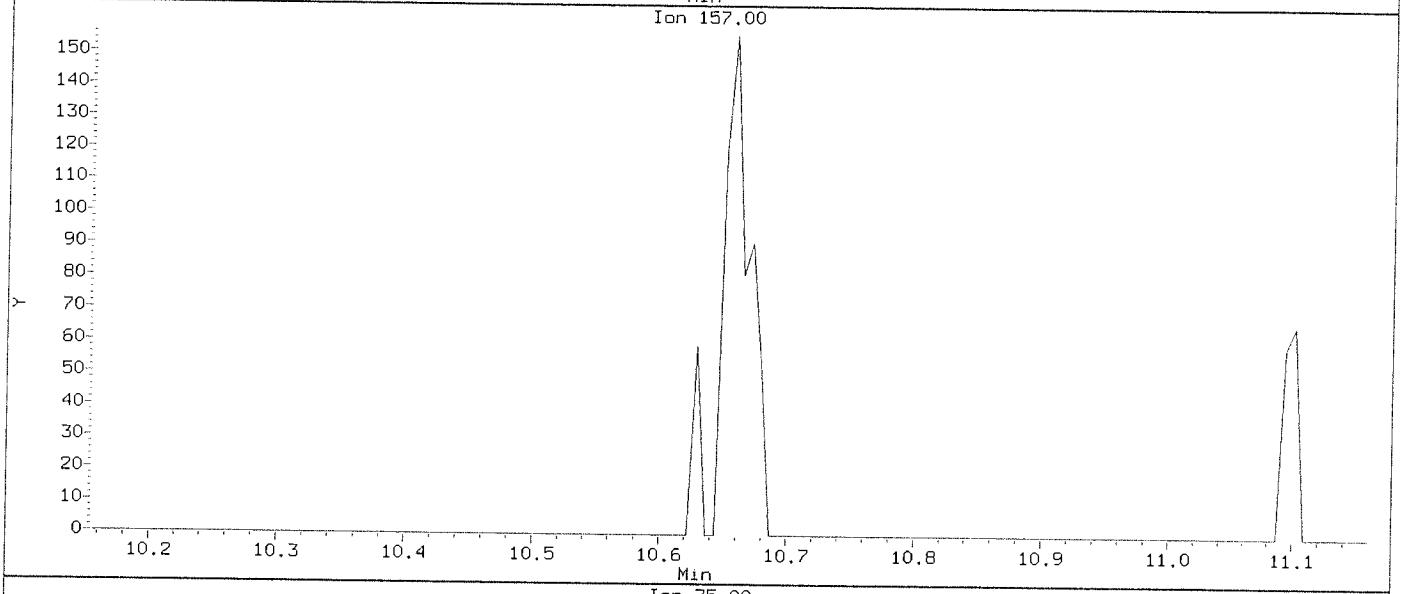
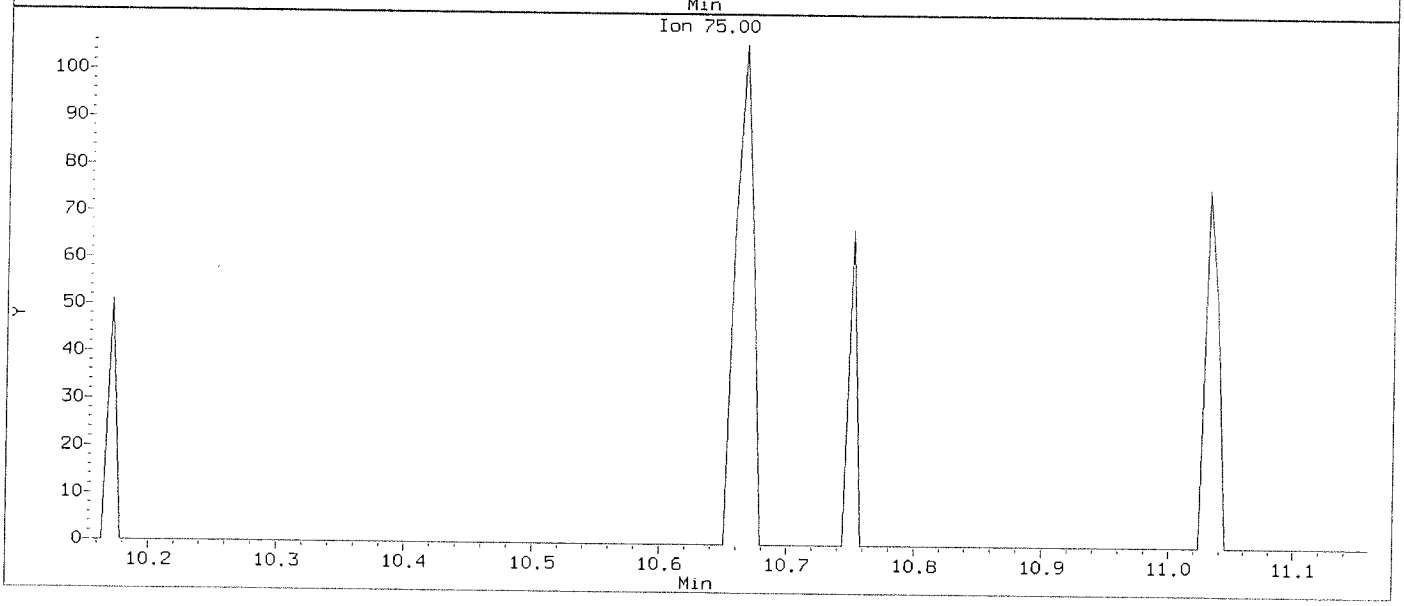
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

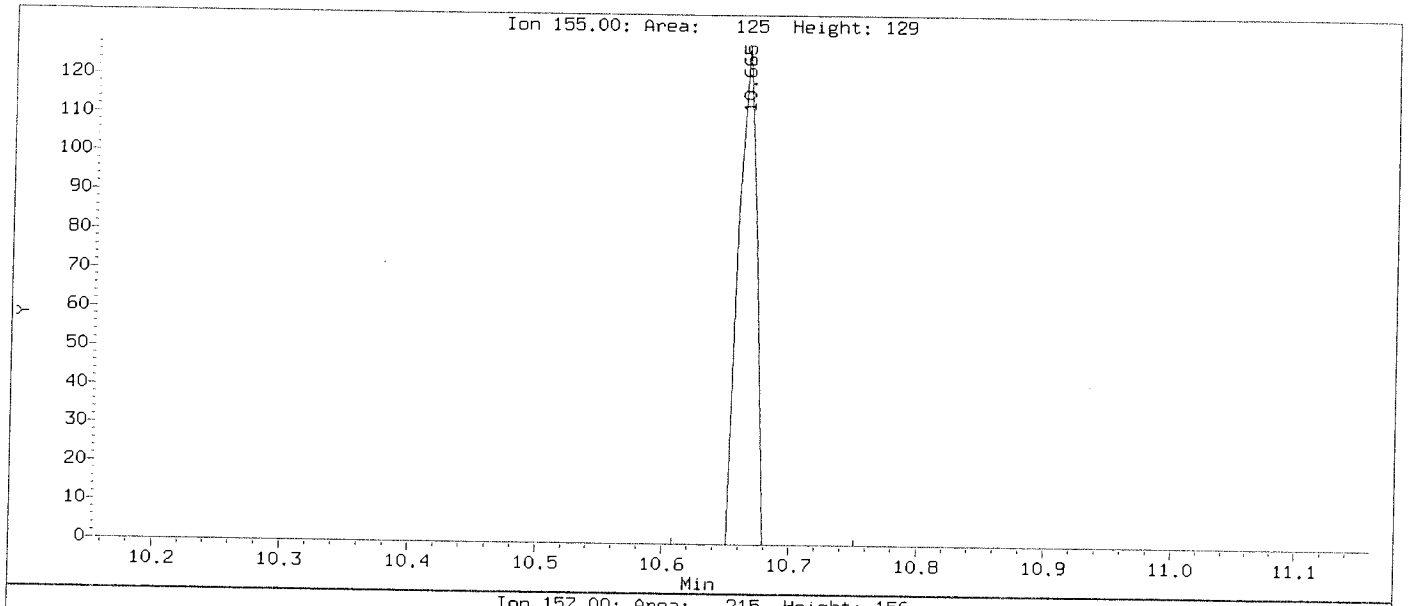


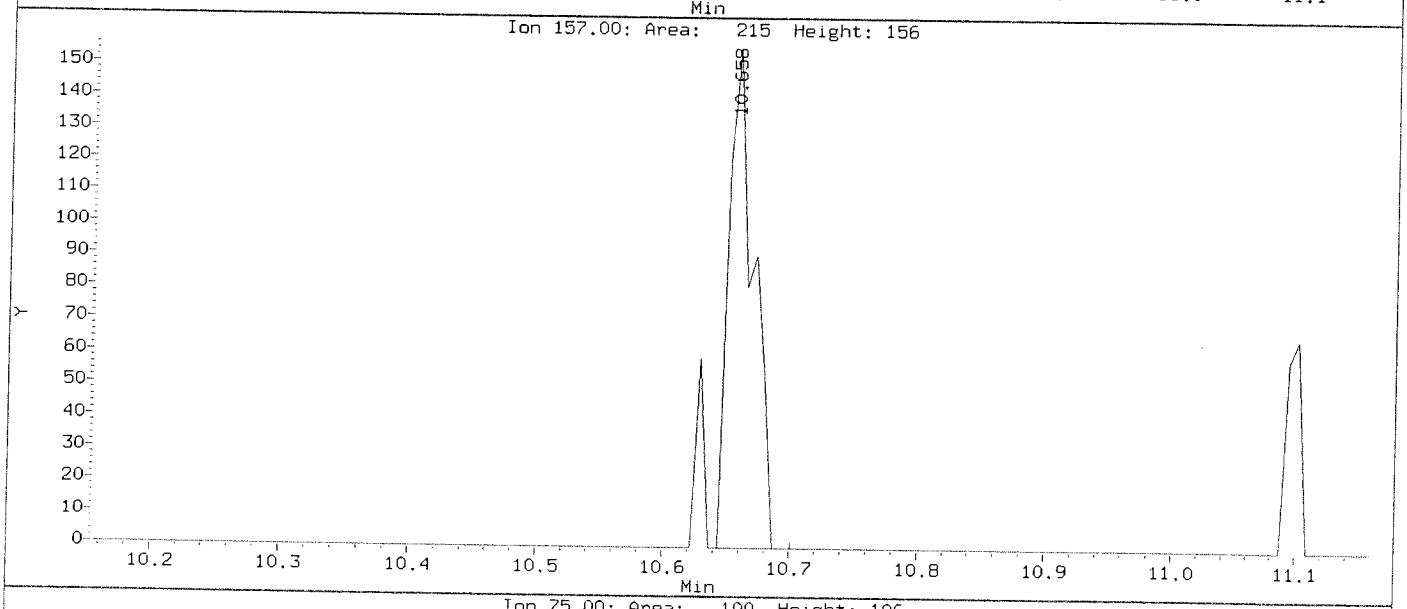


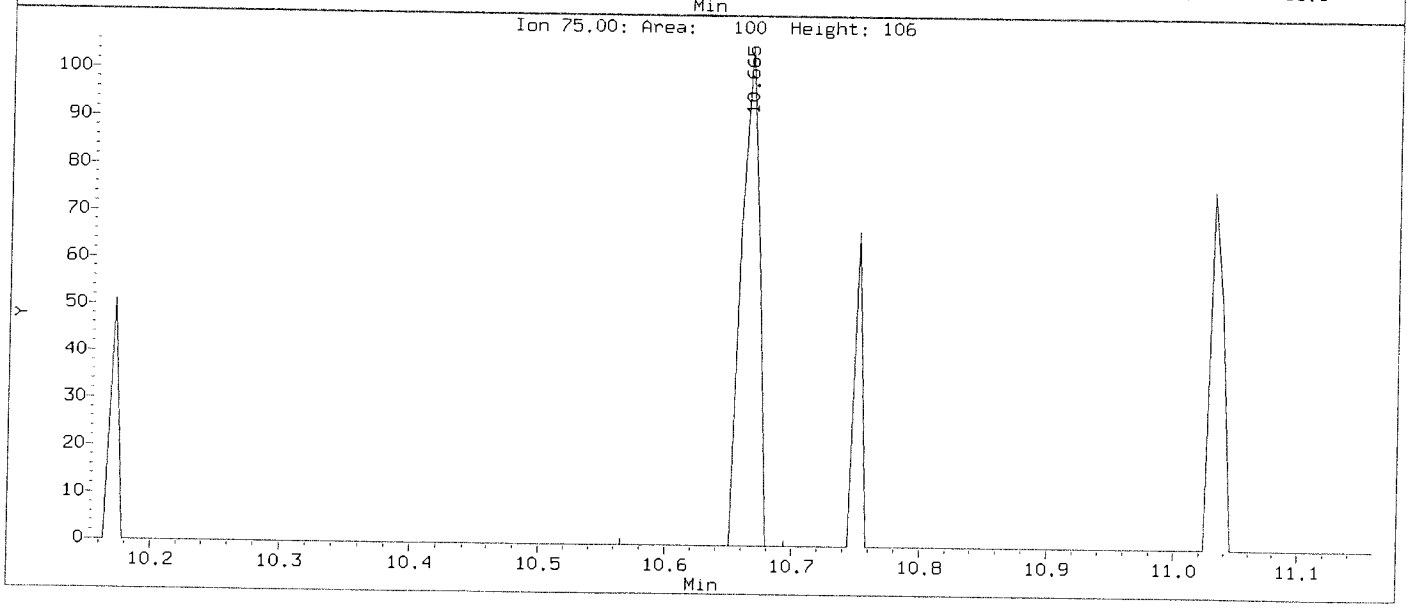


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

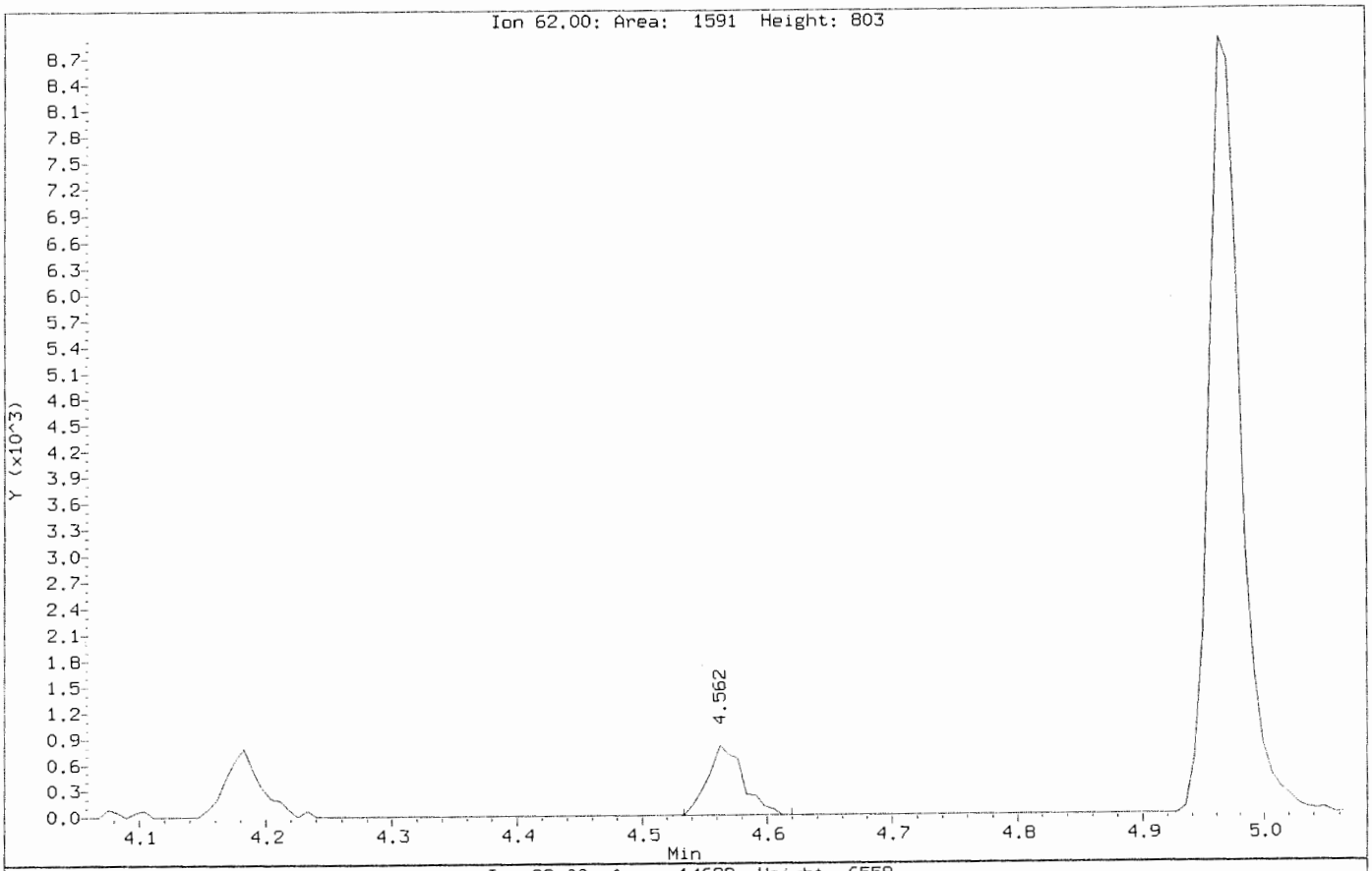


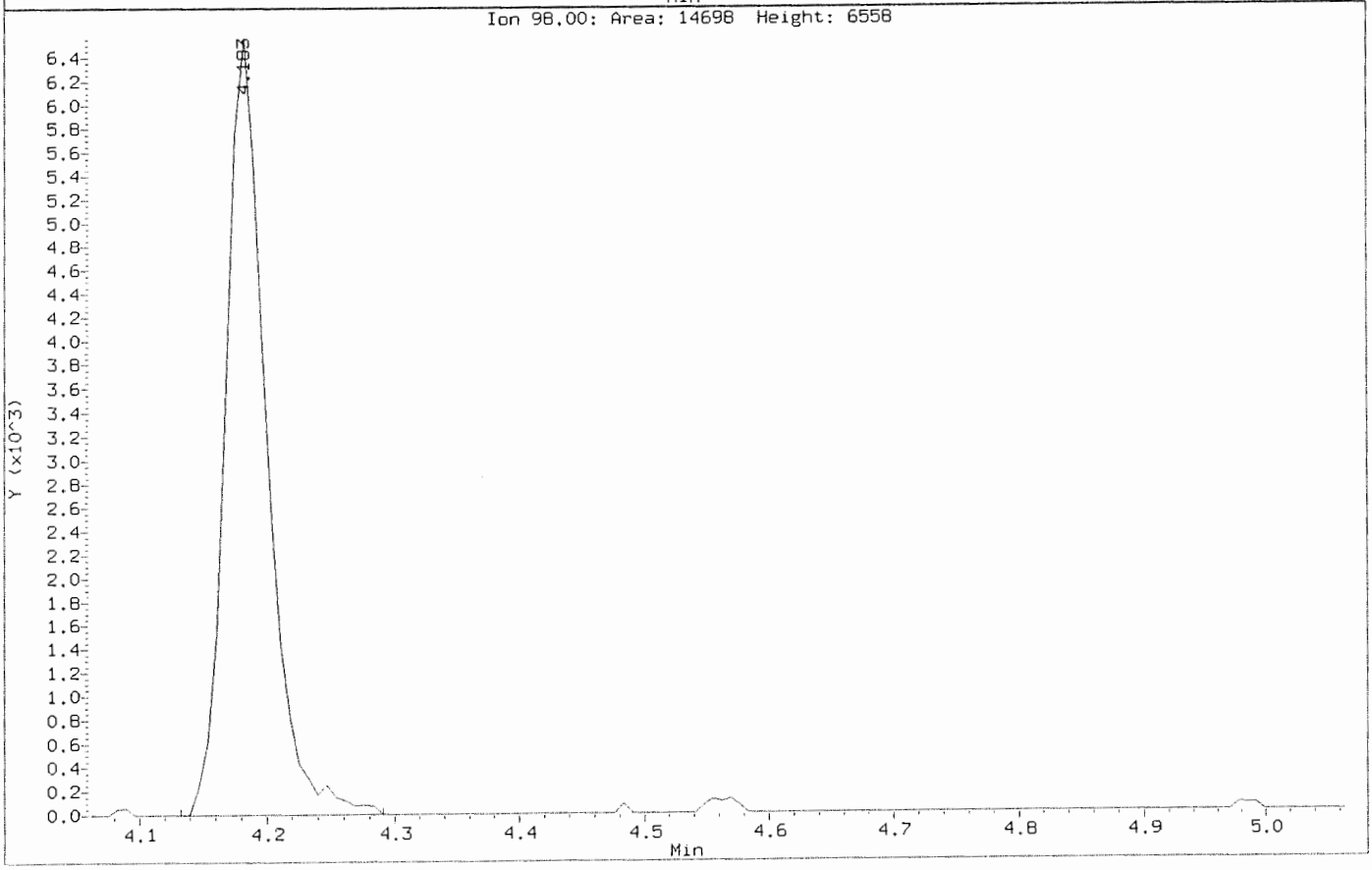




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

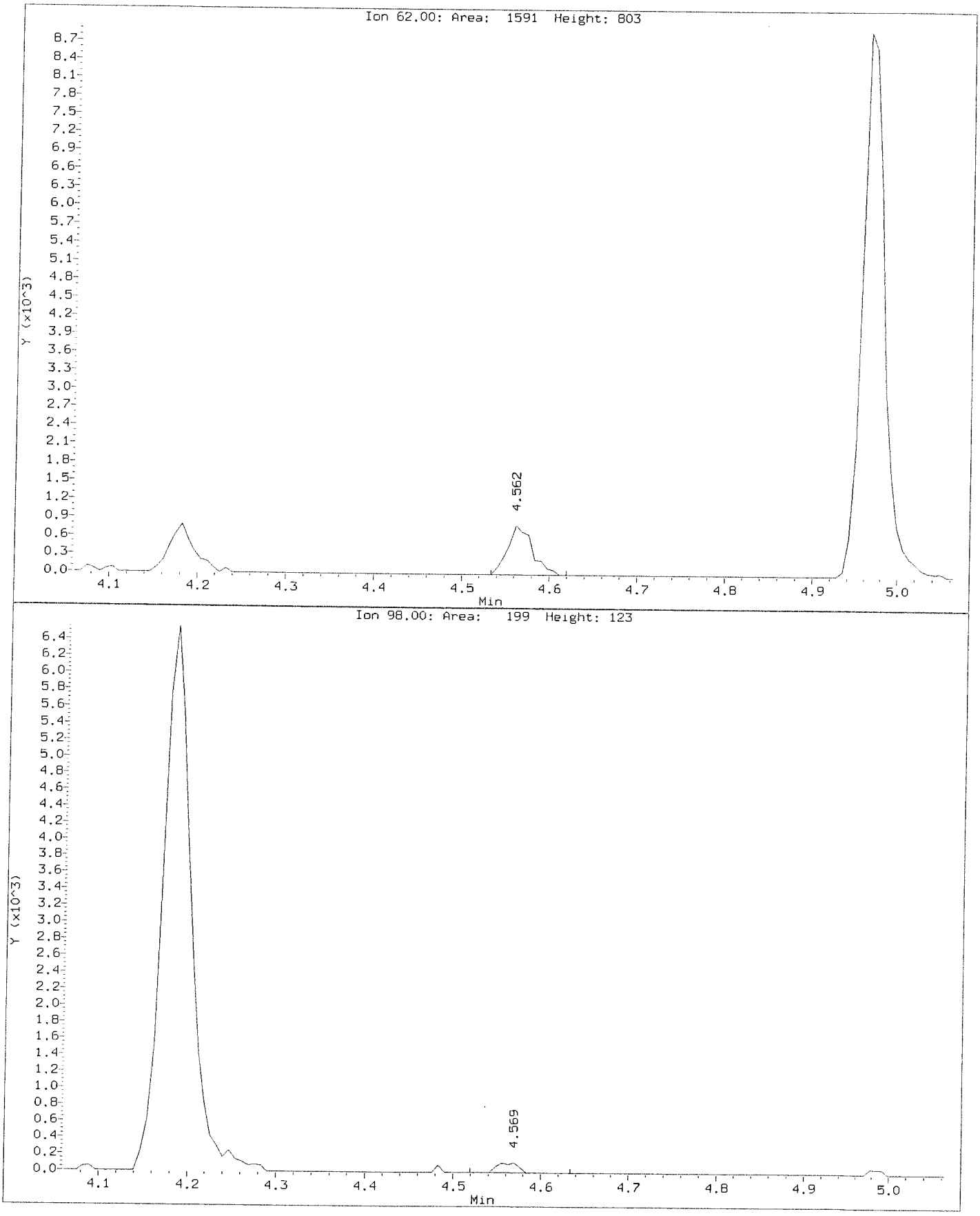
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



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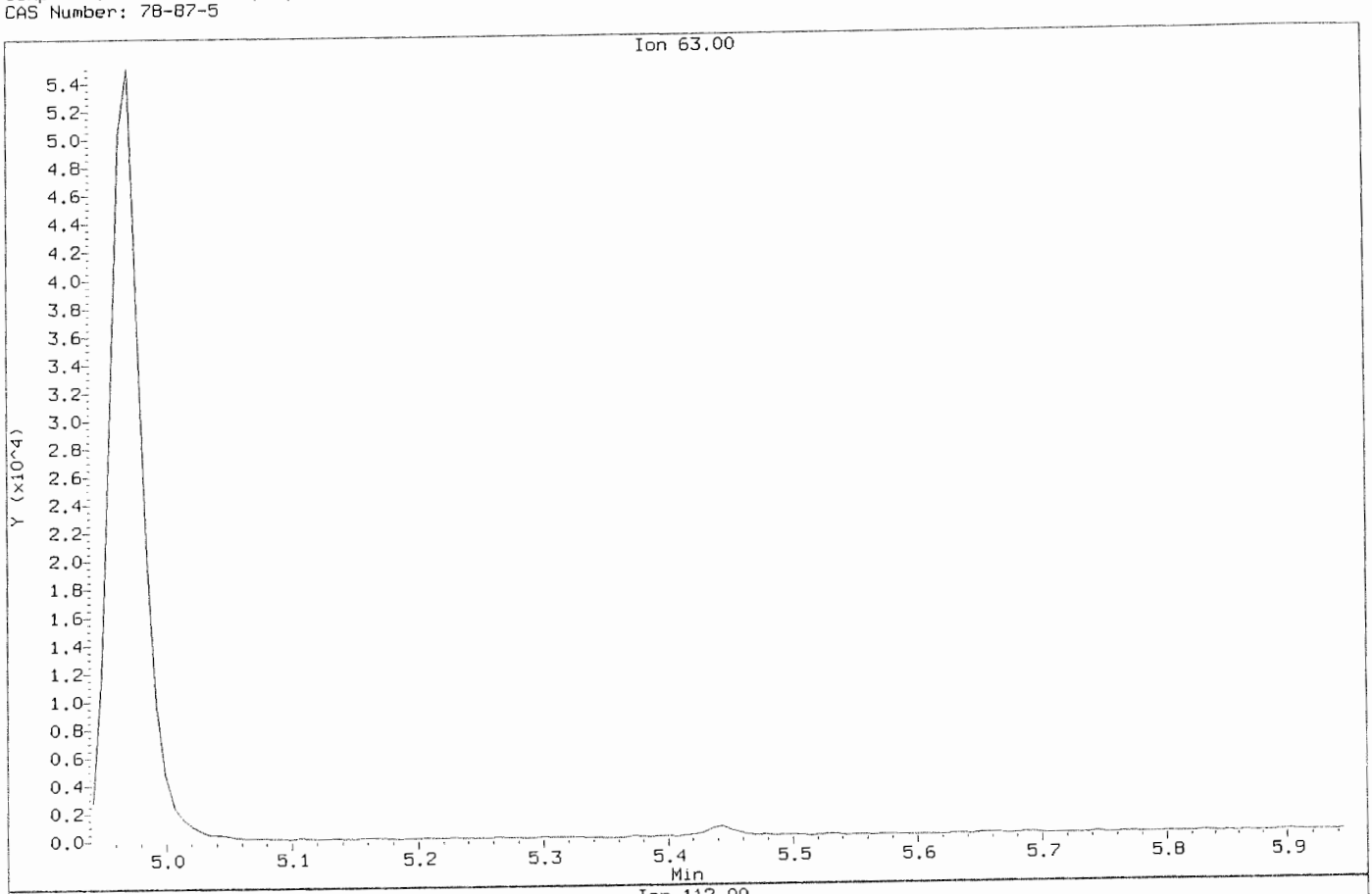
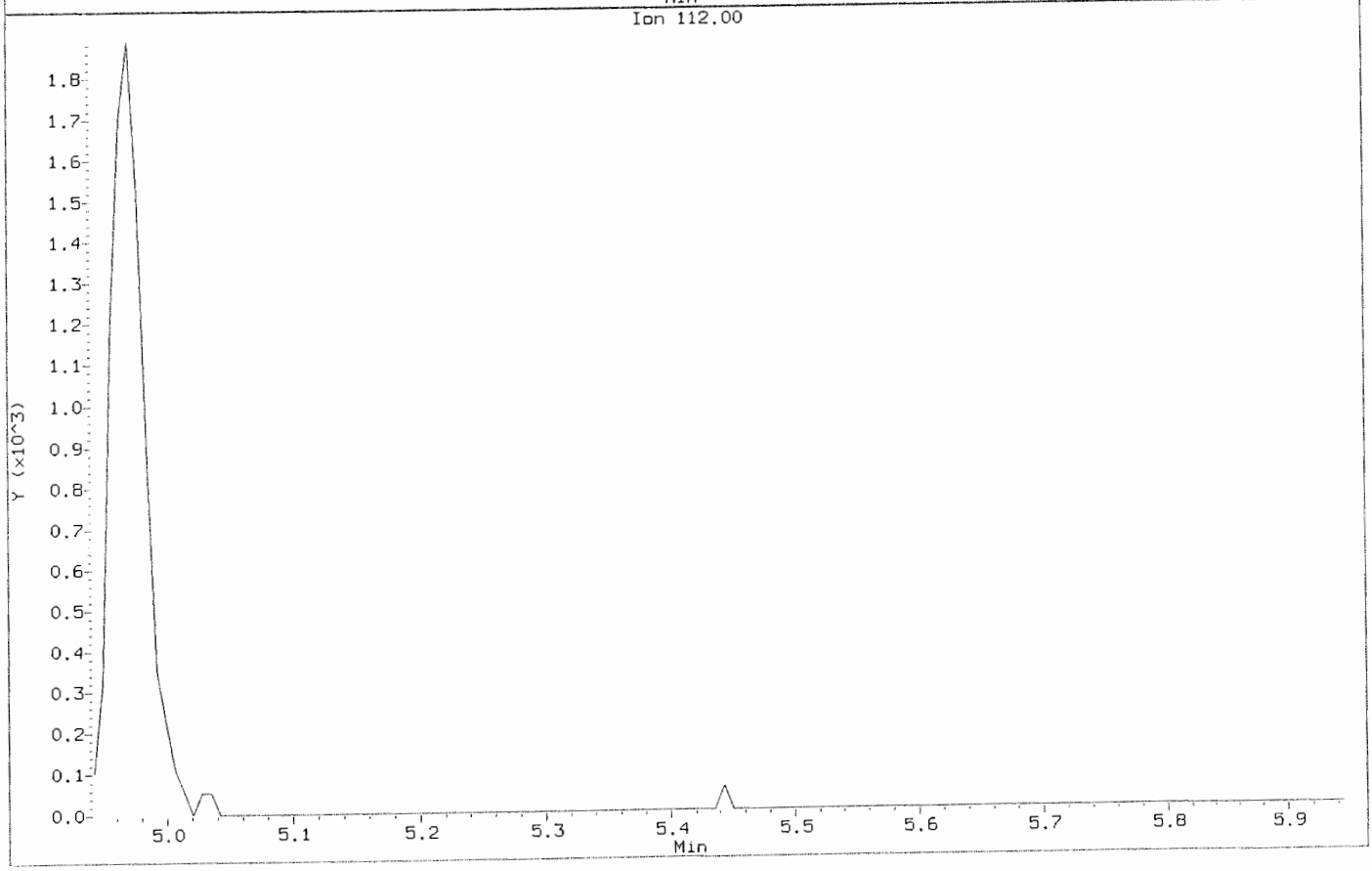
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

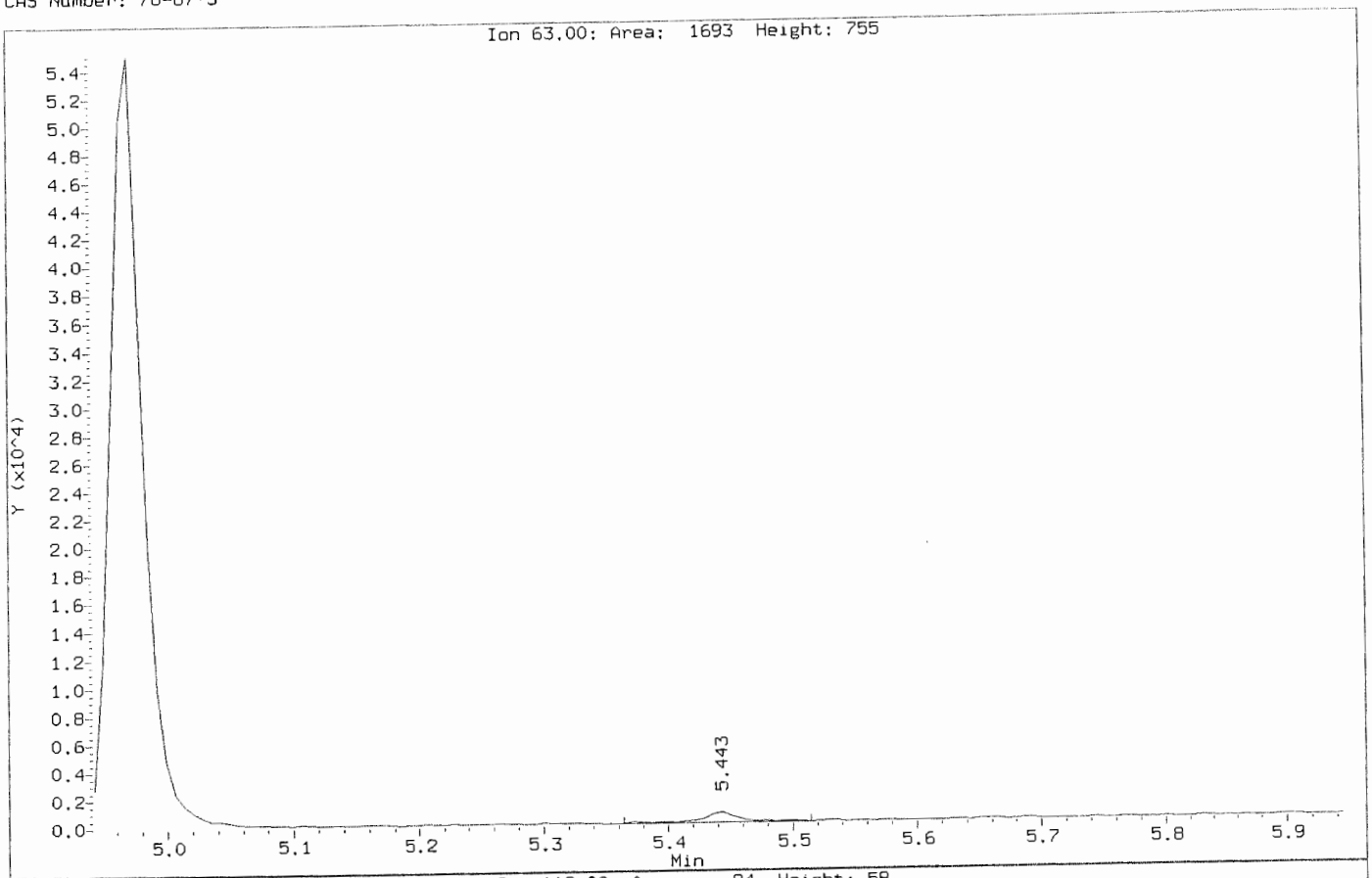
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

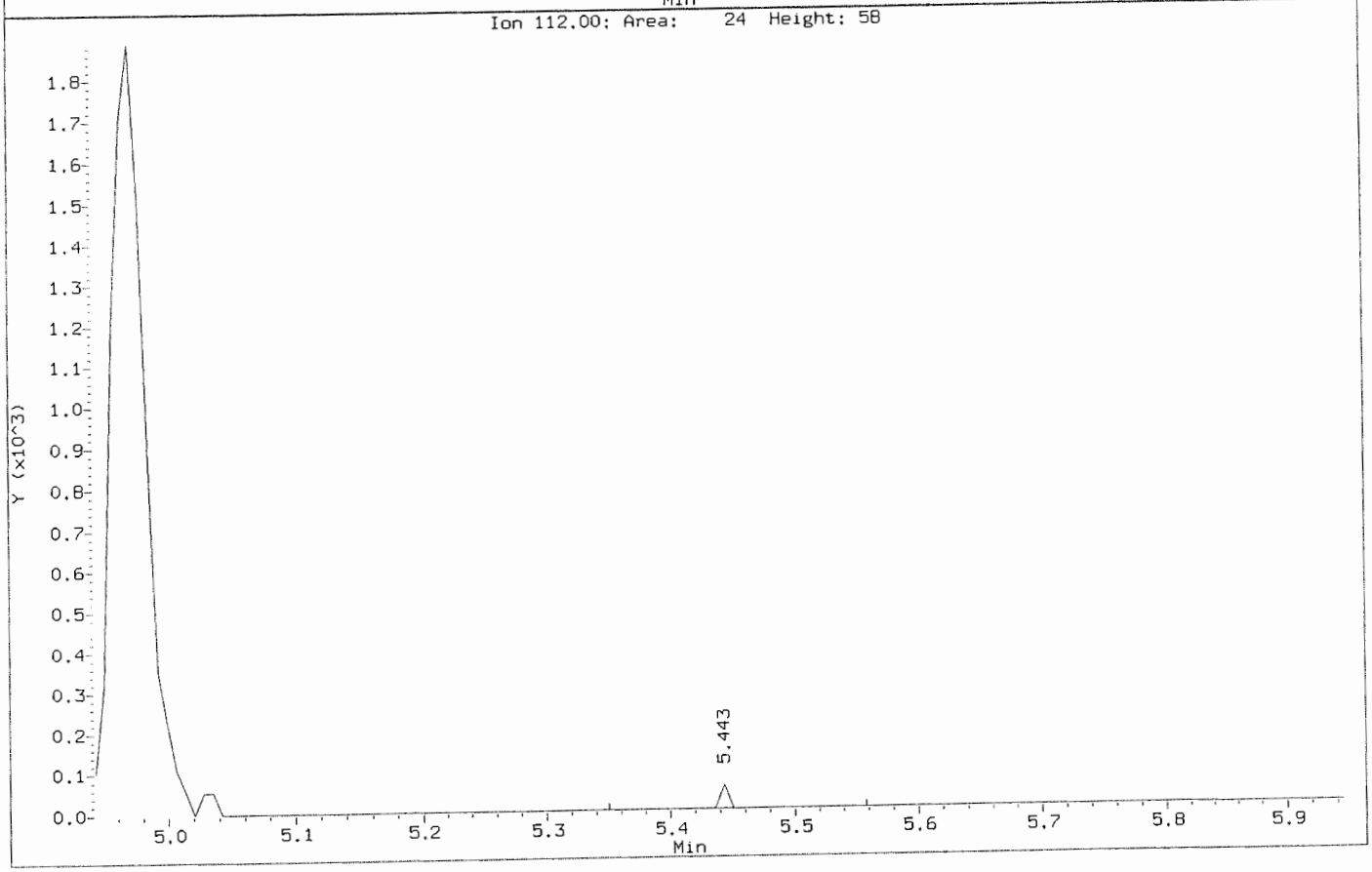




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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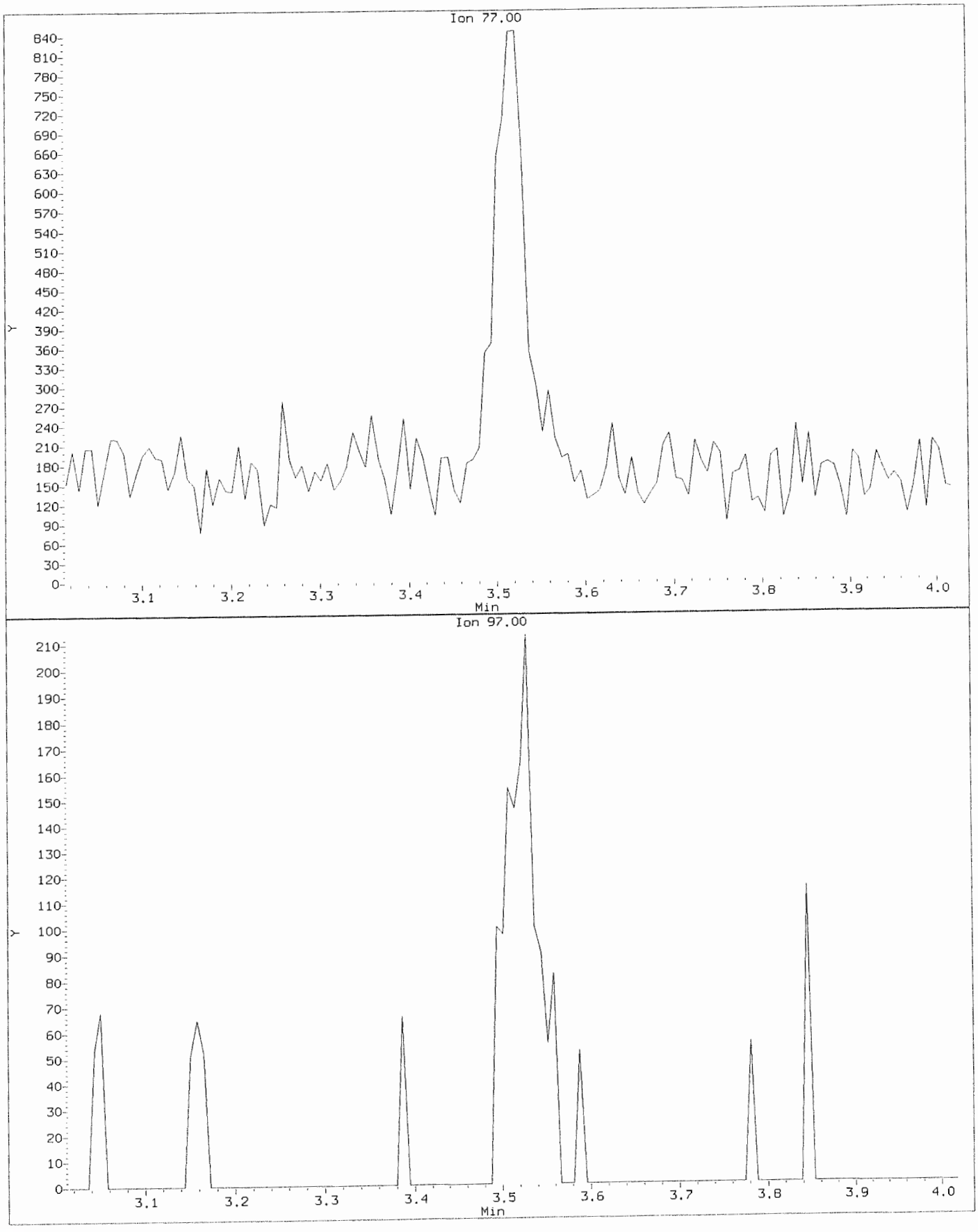
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



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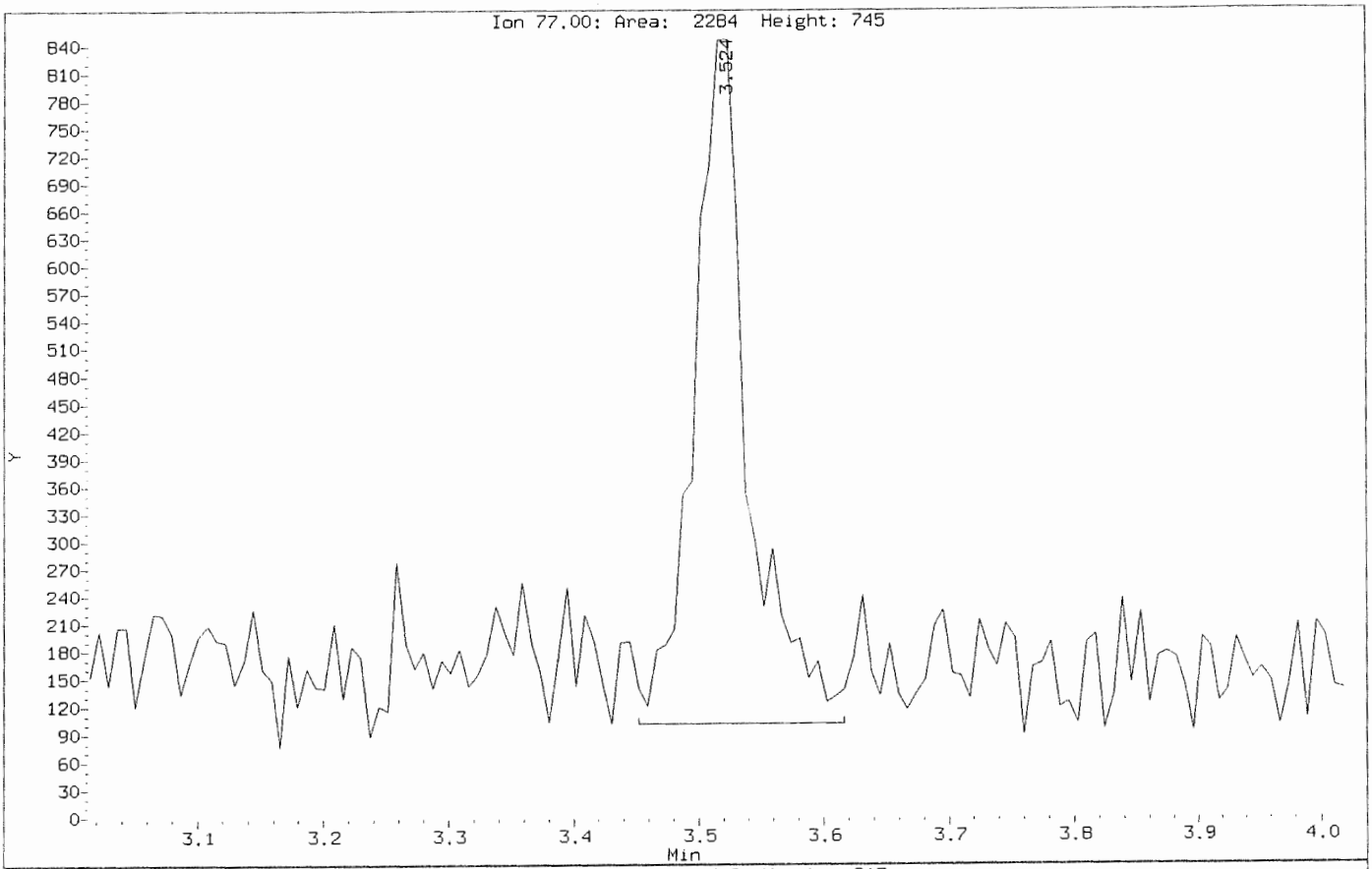
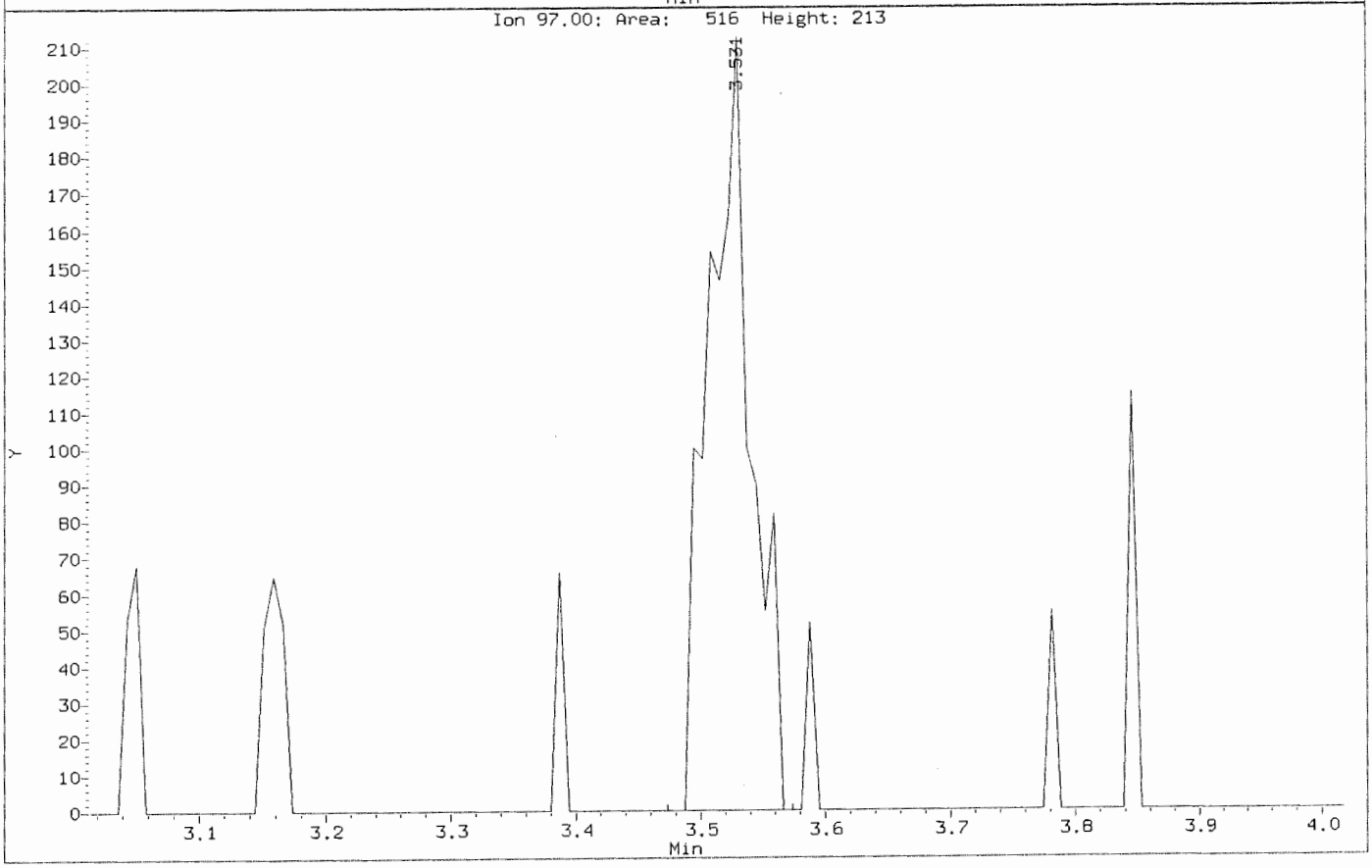
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





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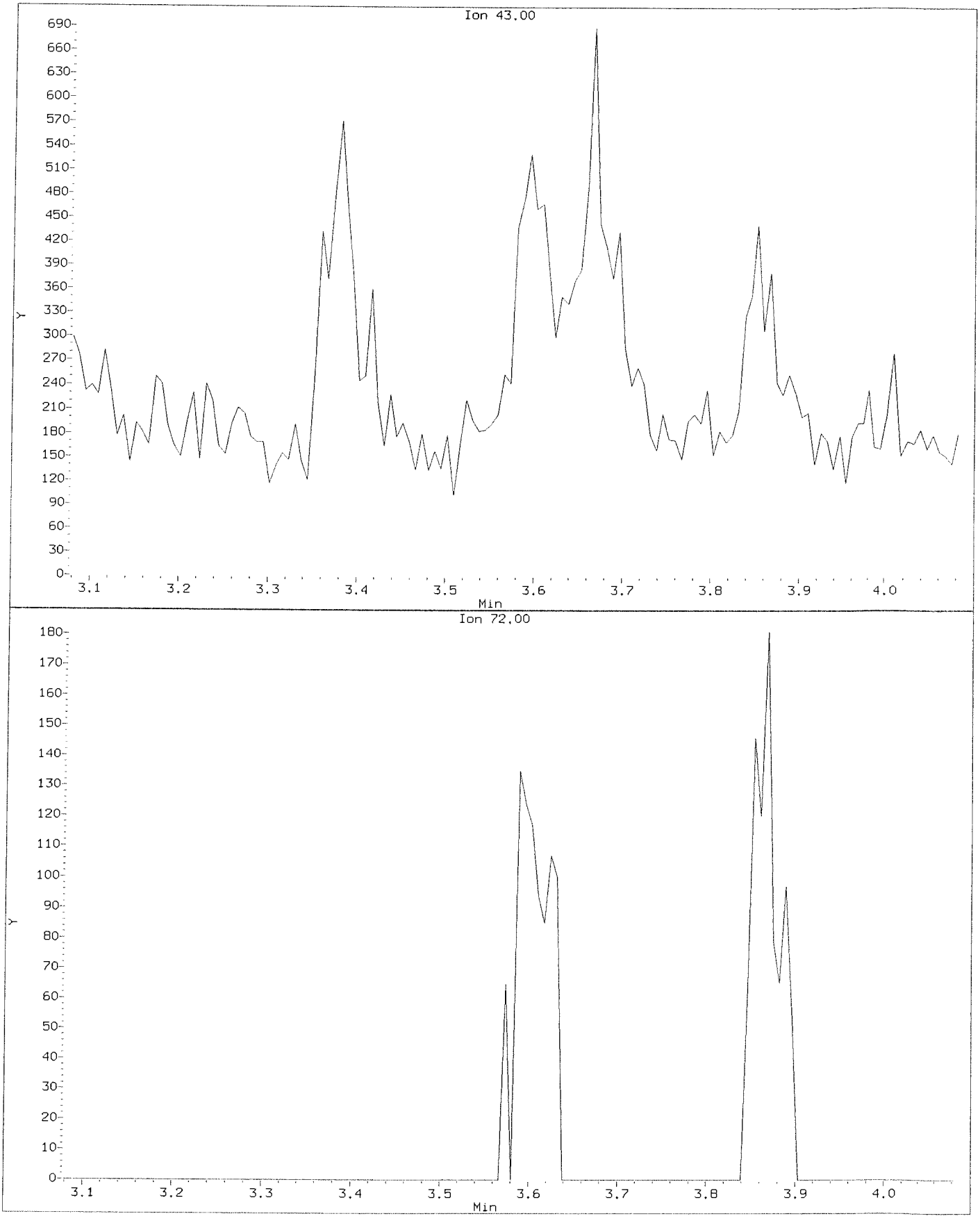
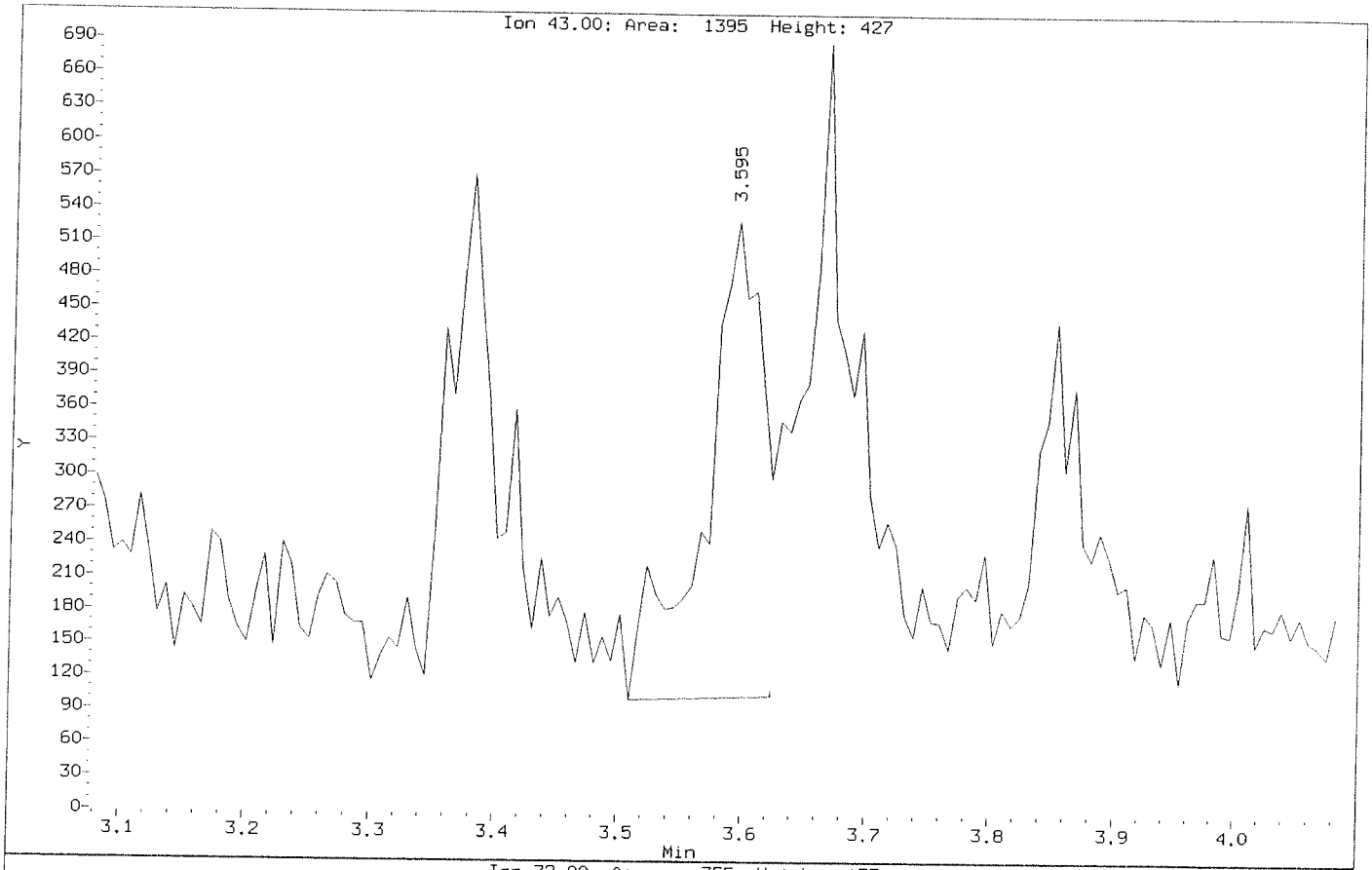
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

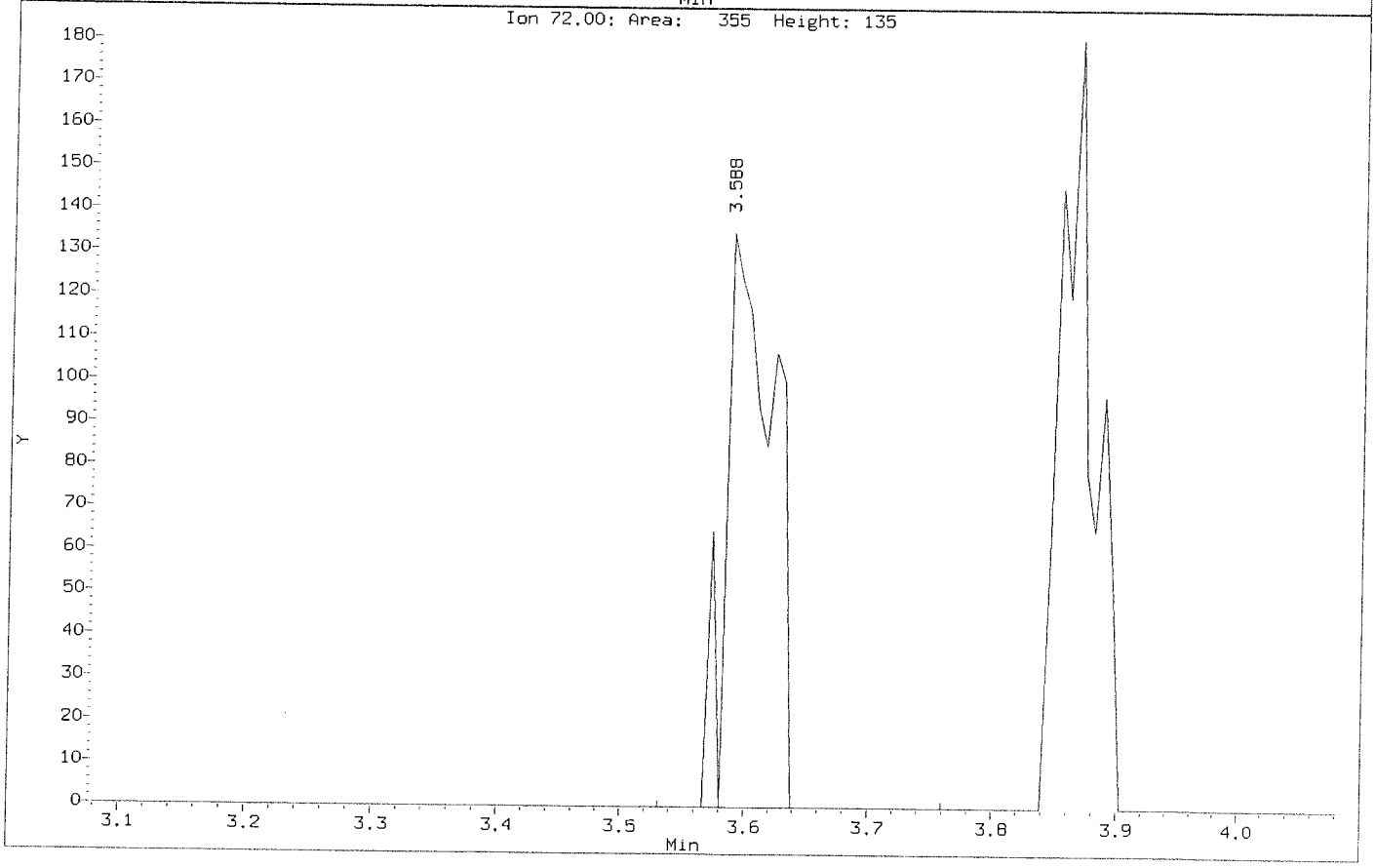
Compound: 2-Butanone
CAS Number: 78-93-3



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2-Butanone
CAS Number: 78-93-3





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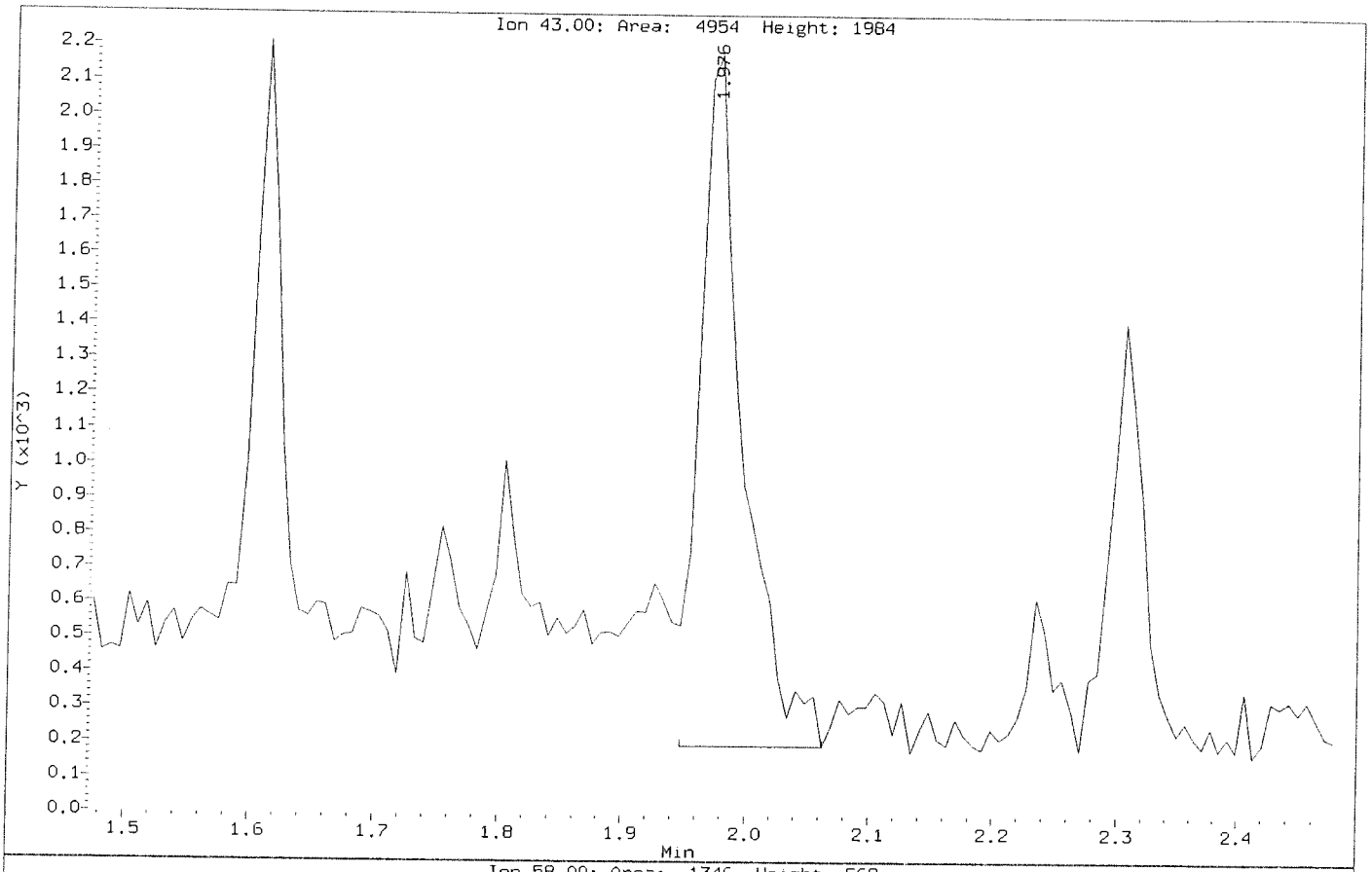
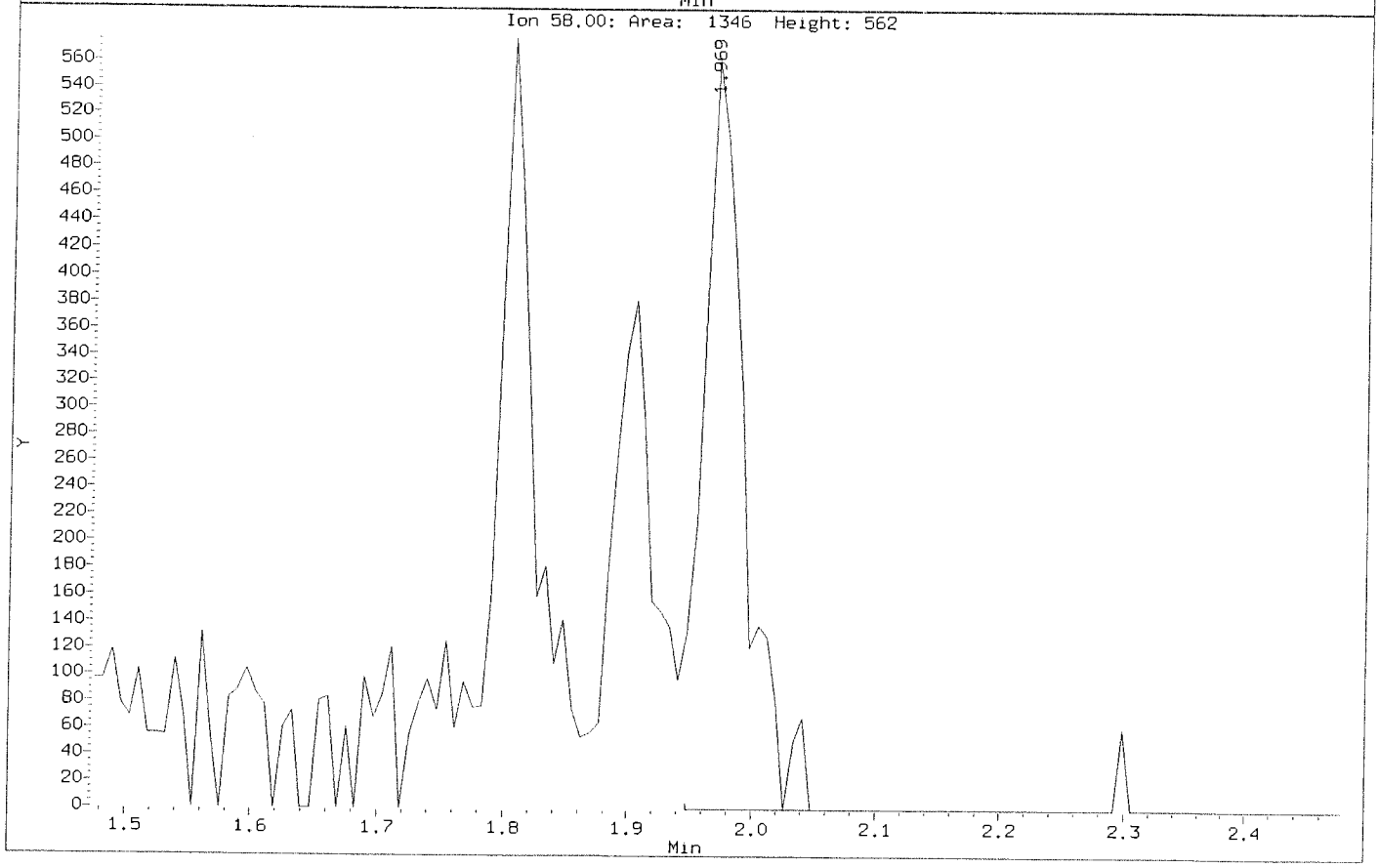
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

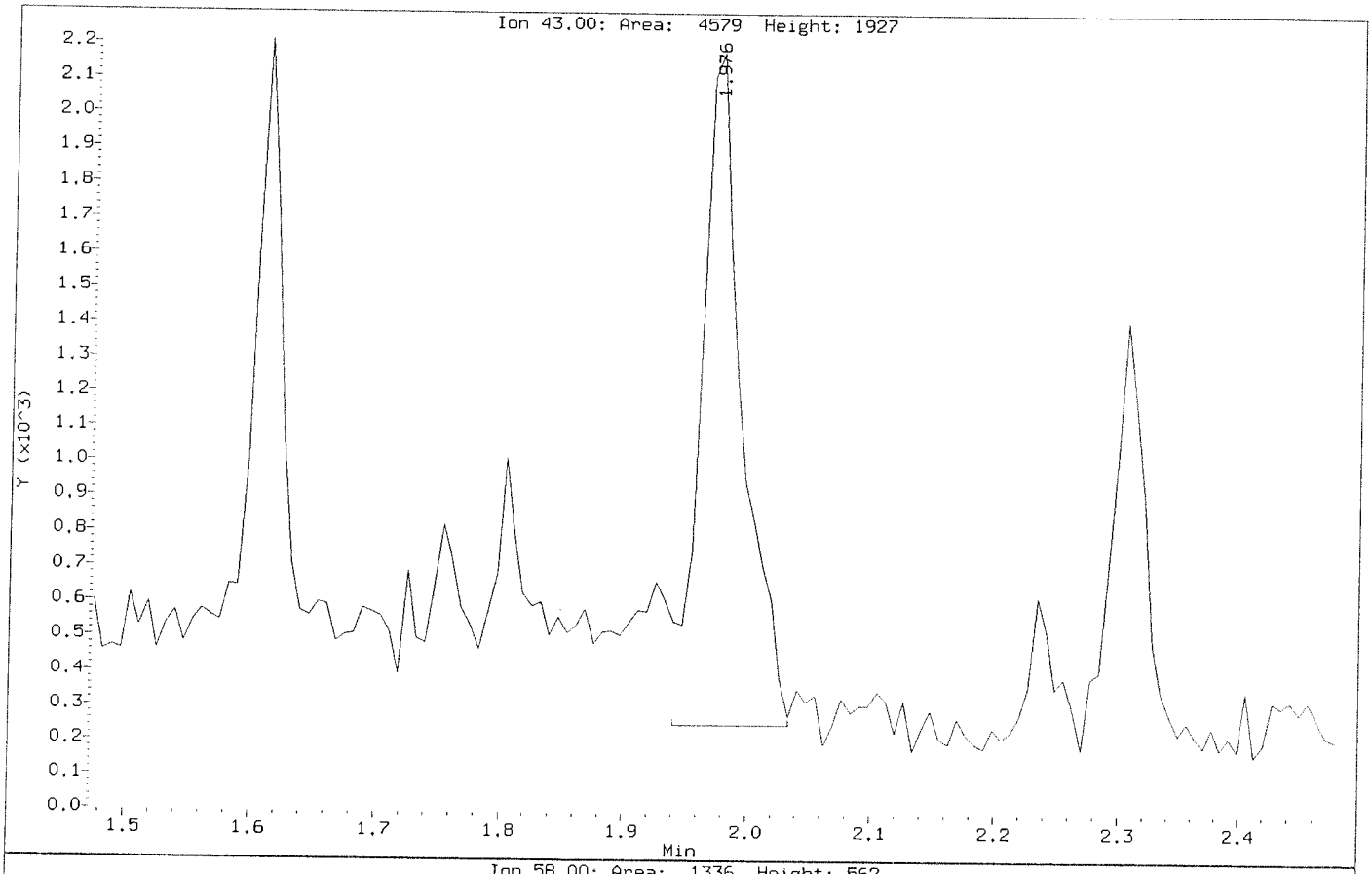
Compound: Acetone
CAS Number: 67-64-1

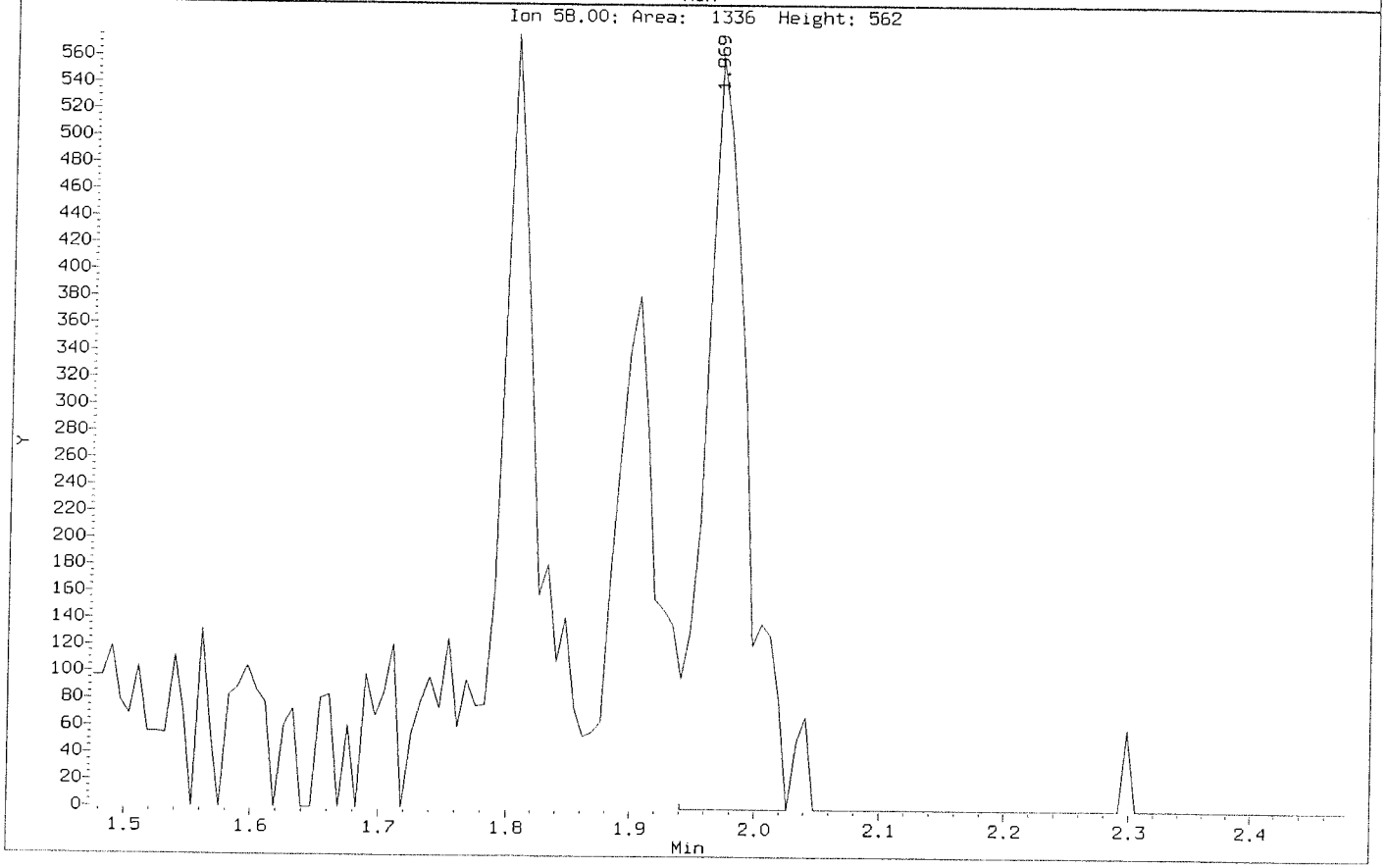




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

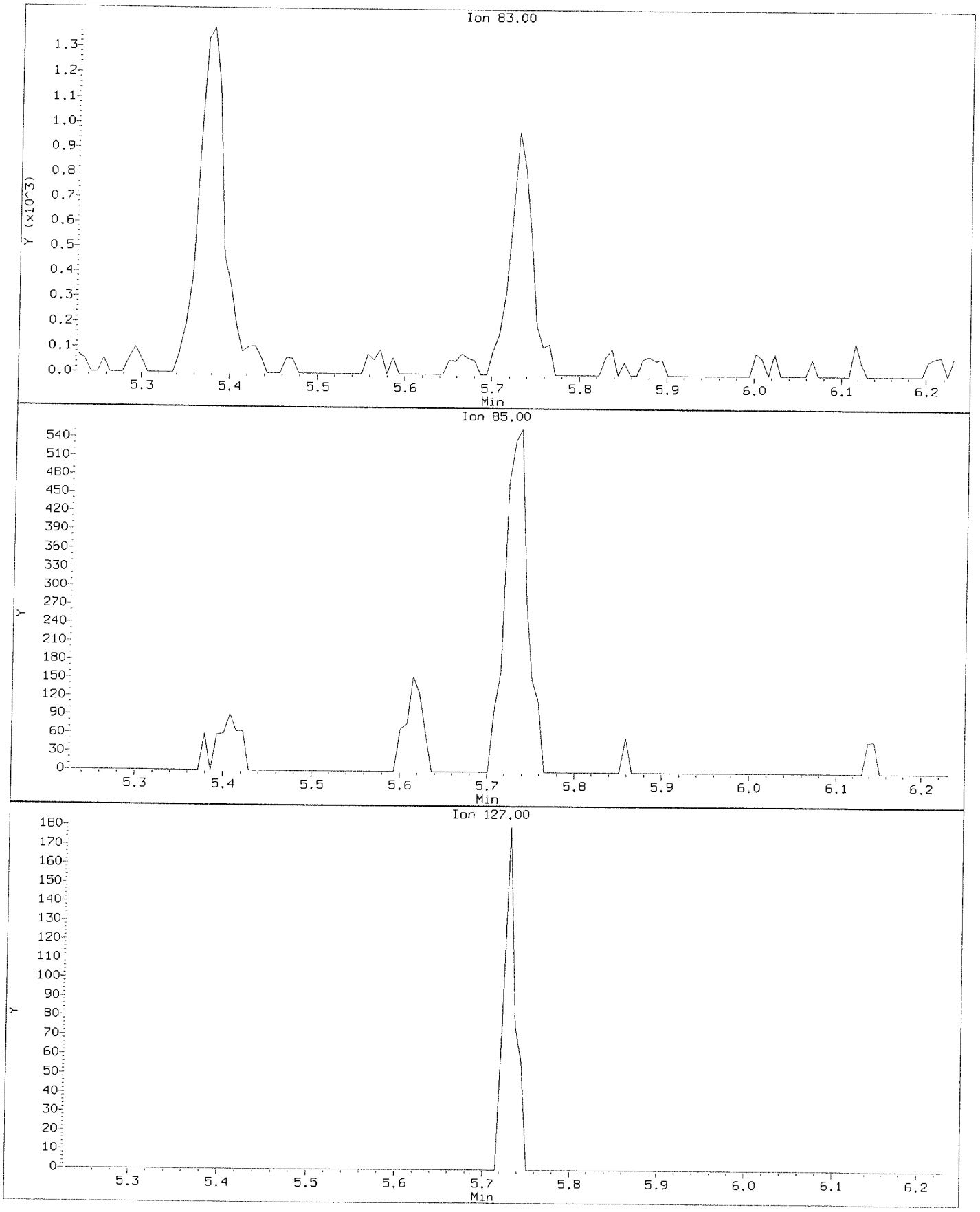
Compound: Acetone
CAS Number: 67-64-1





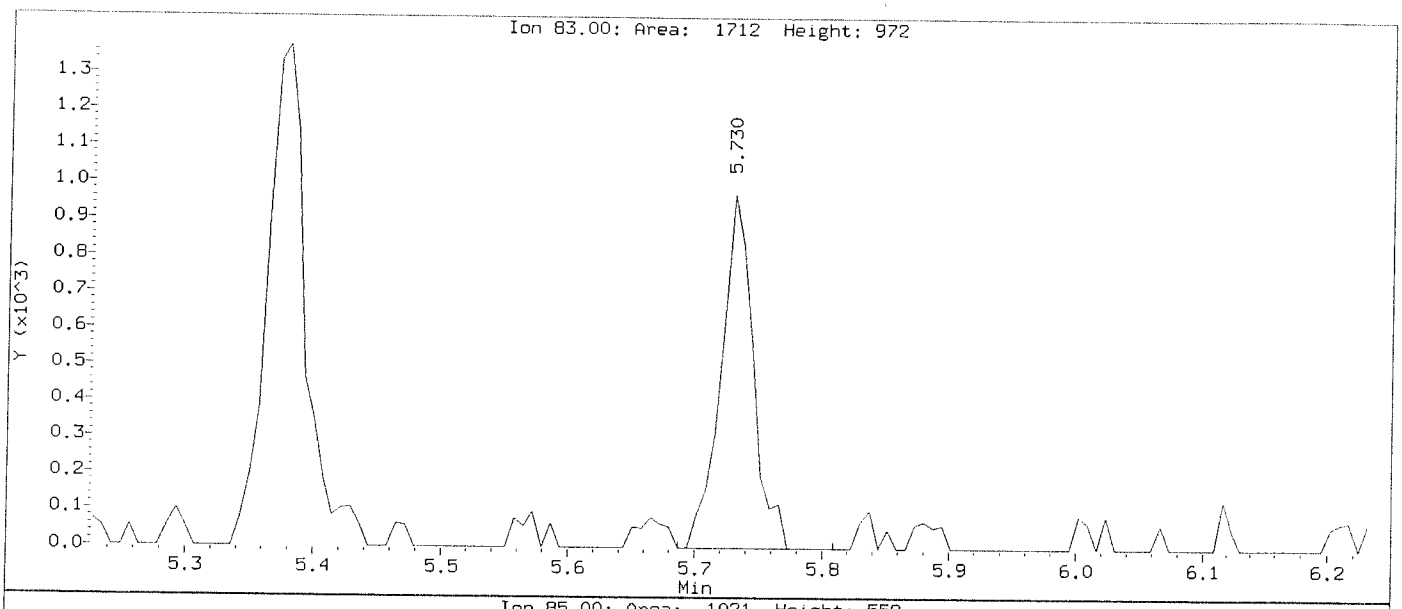
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

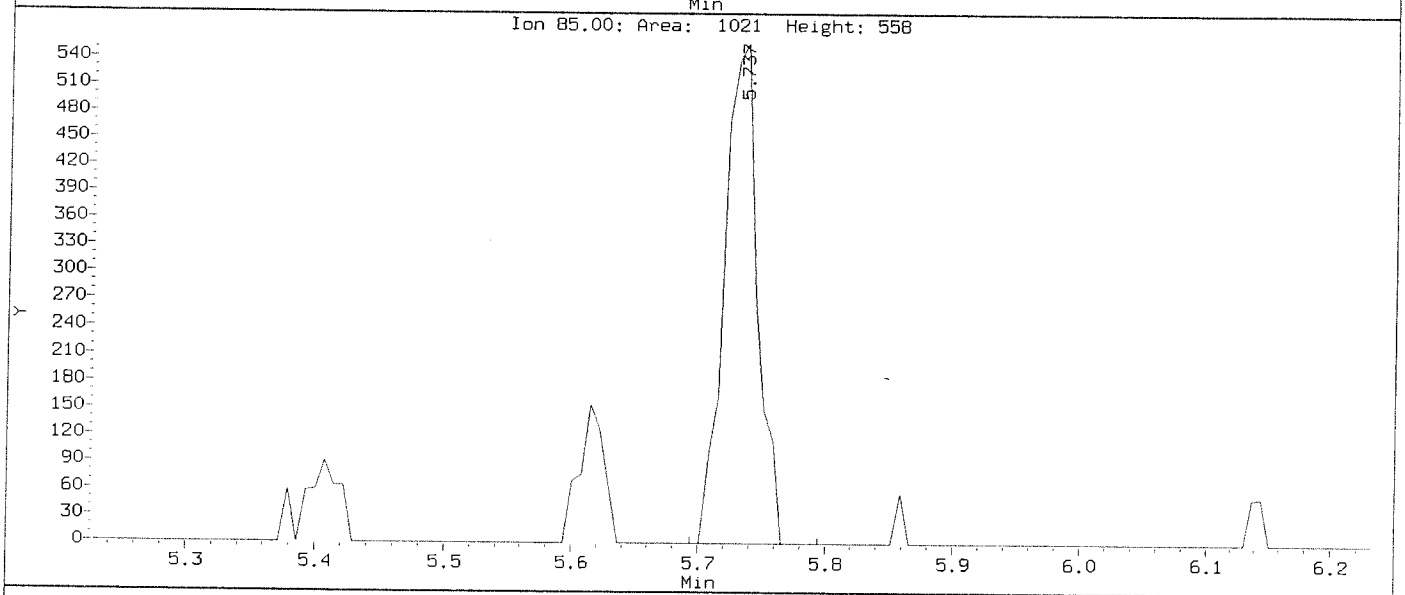
Compound: Bromodichloromethane
CAS Number: 75-27-4

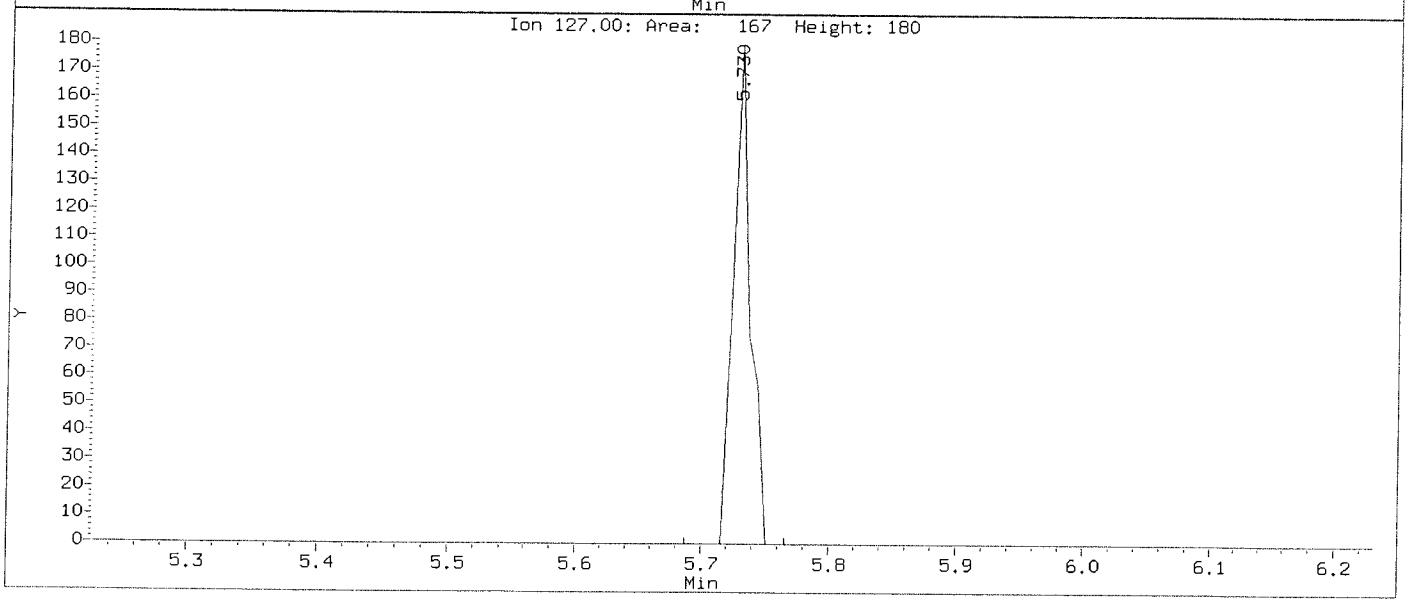


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4

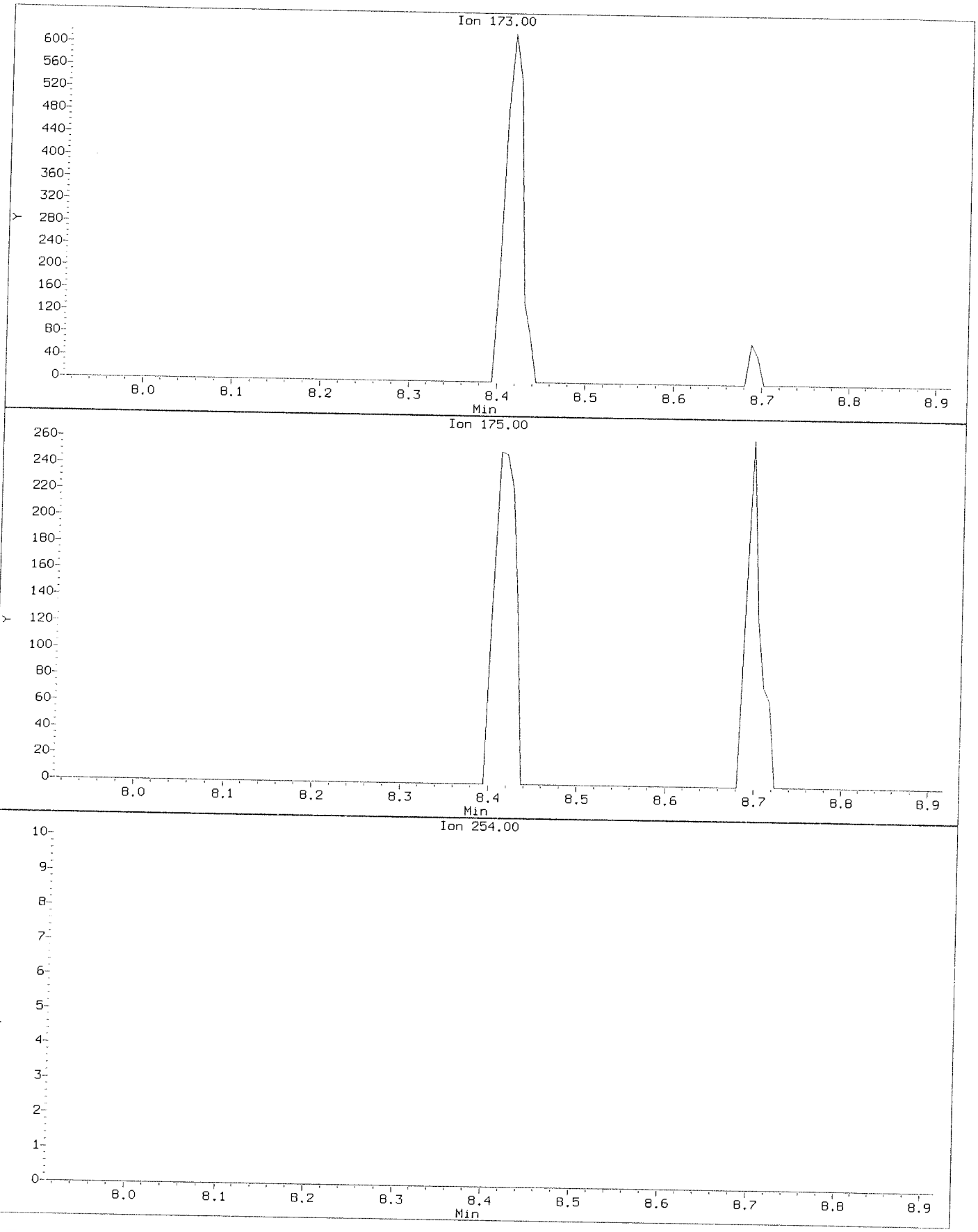






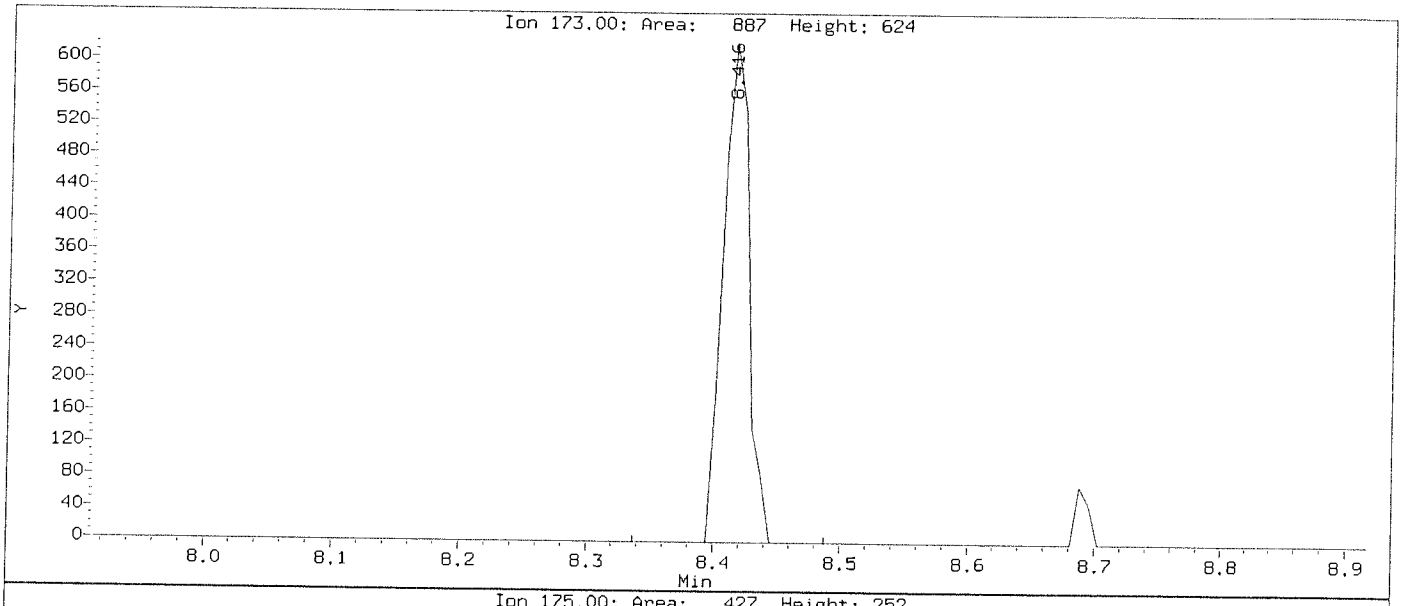
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

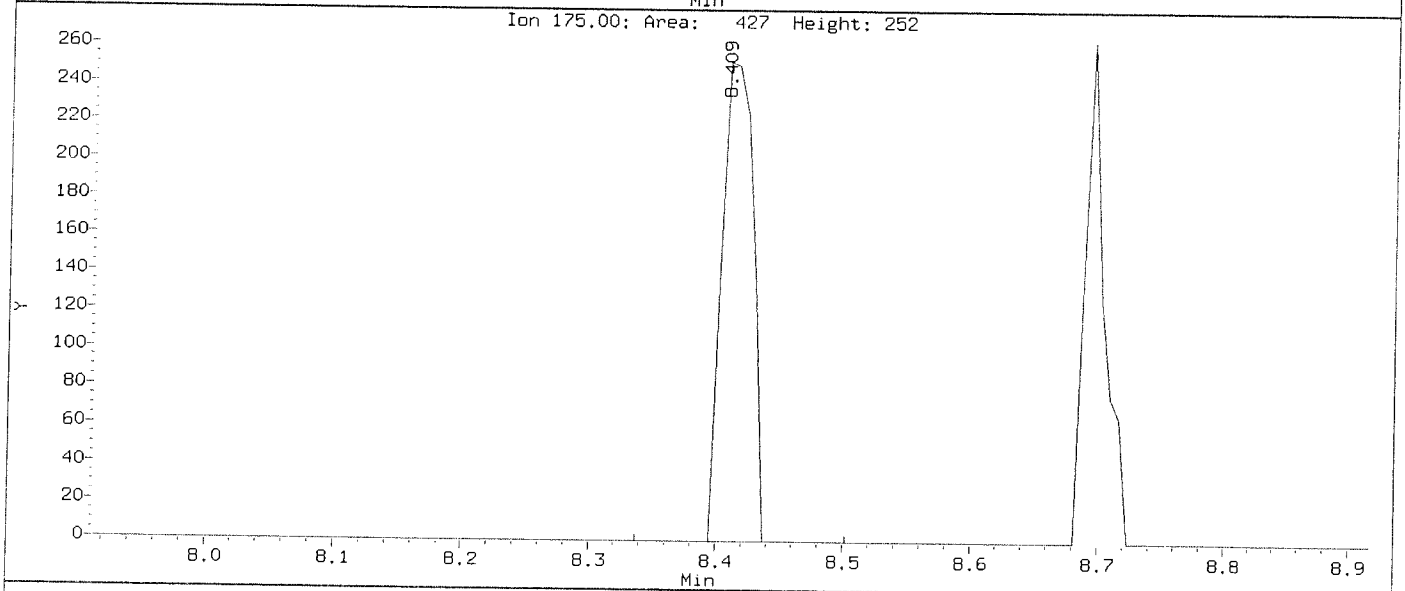
Compound: Bromoform
CAS Number: 75-25-2

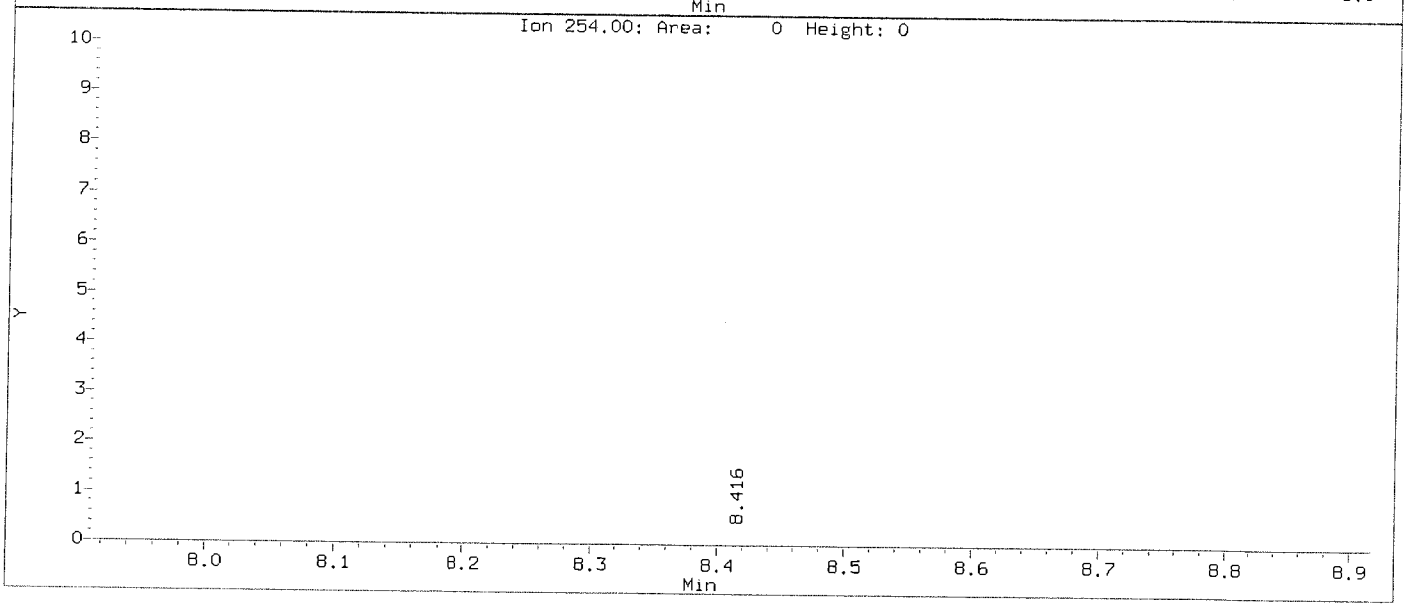


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2

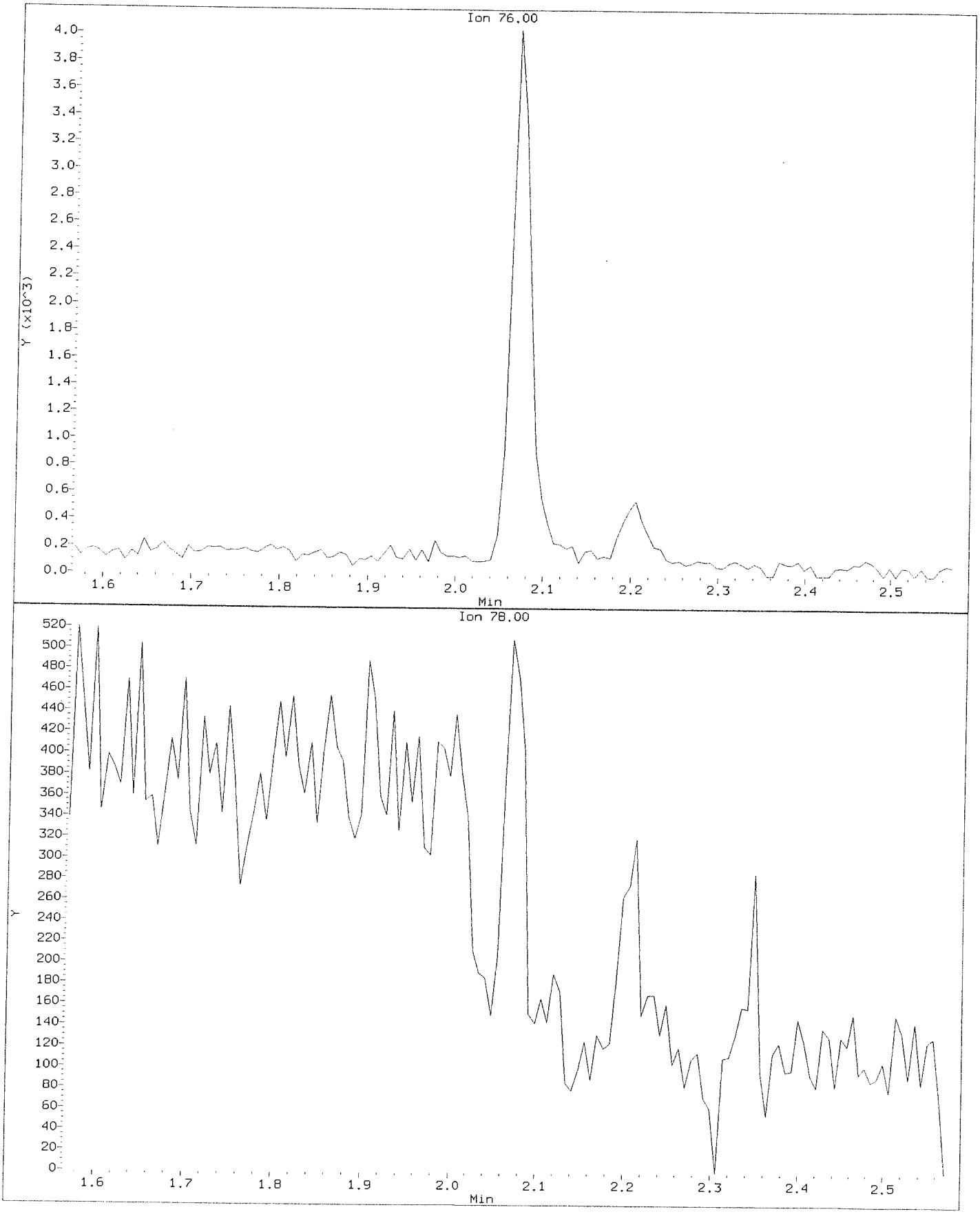






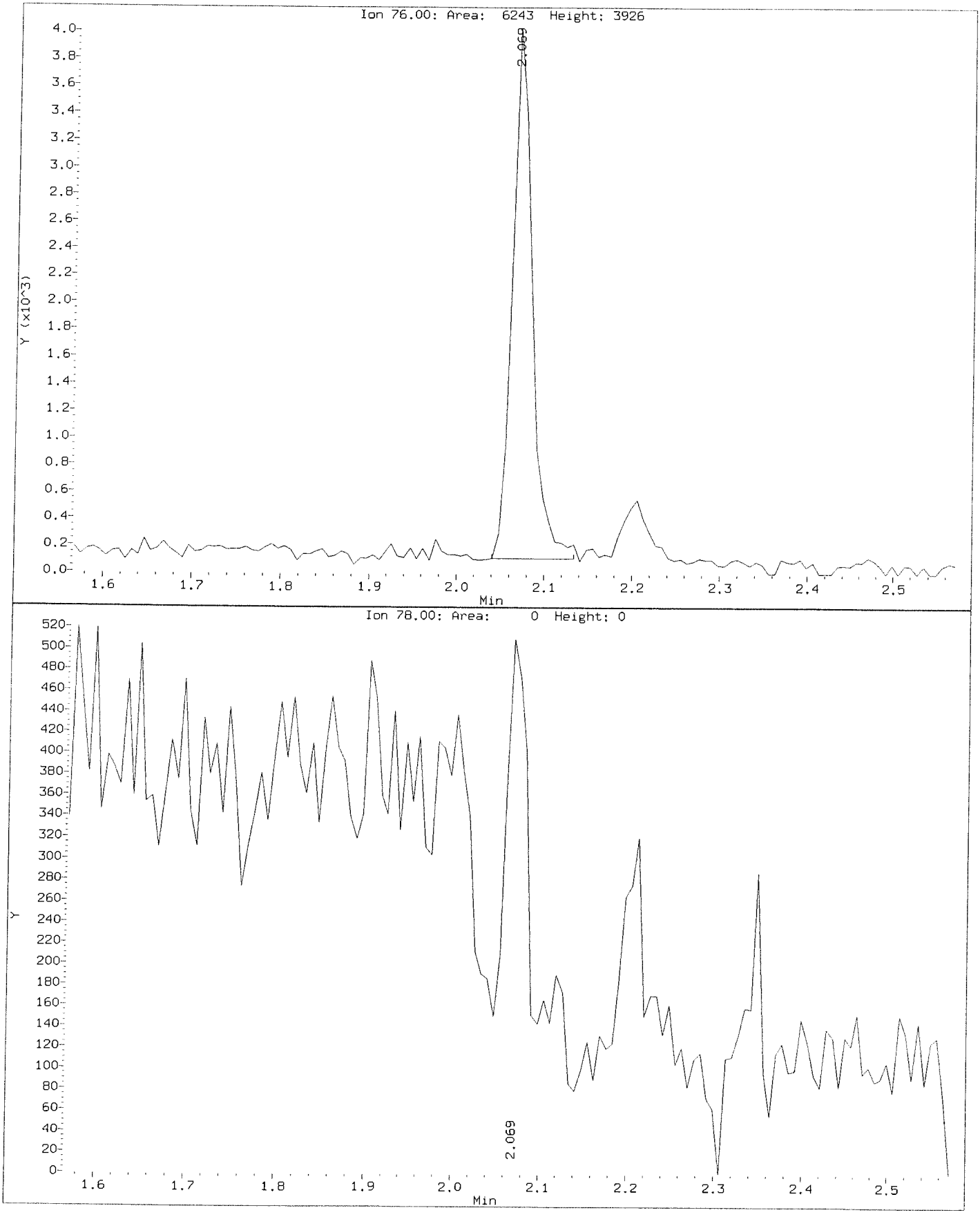
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



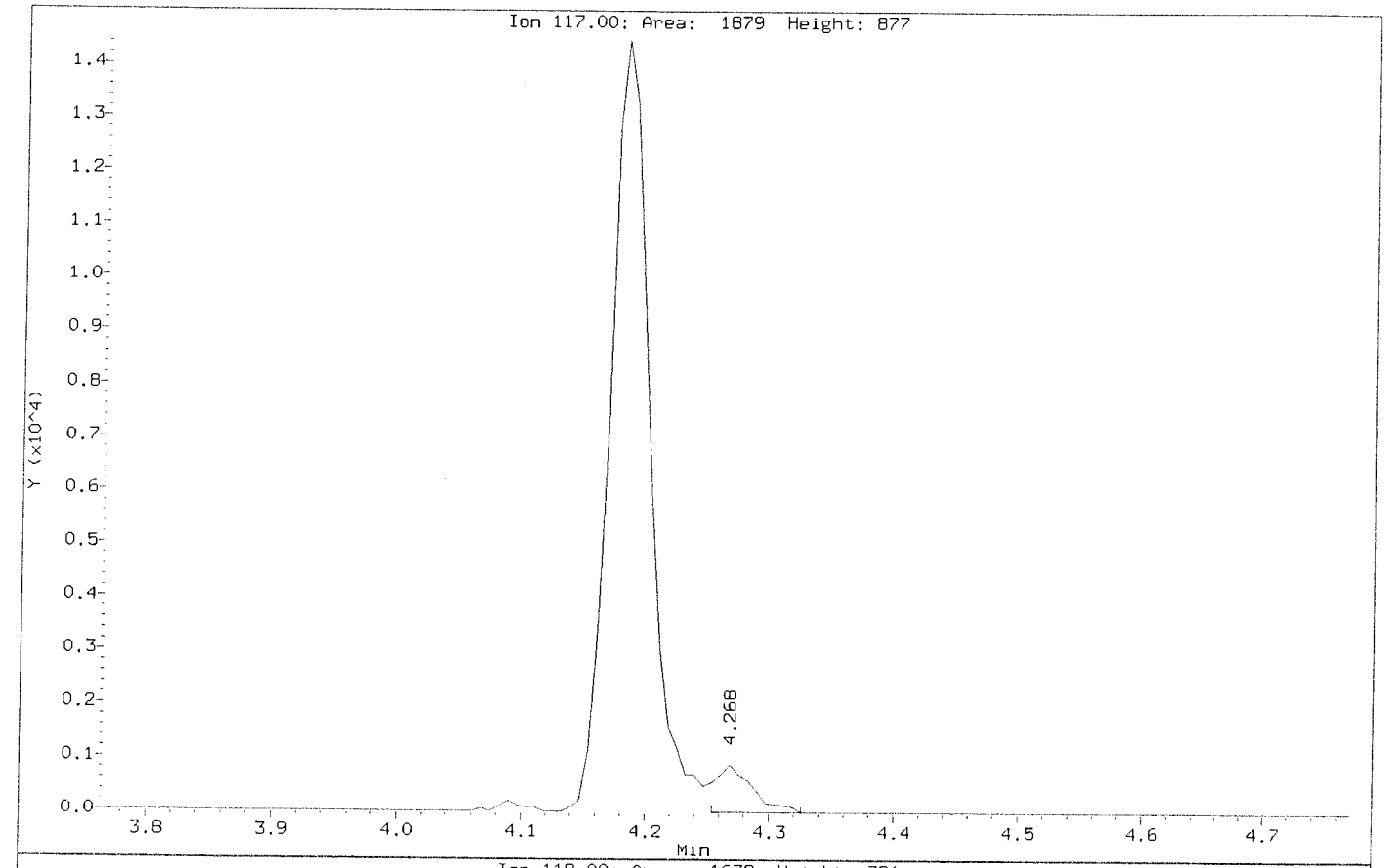
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

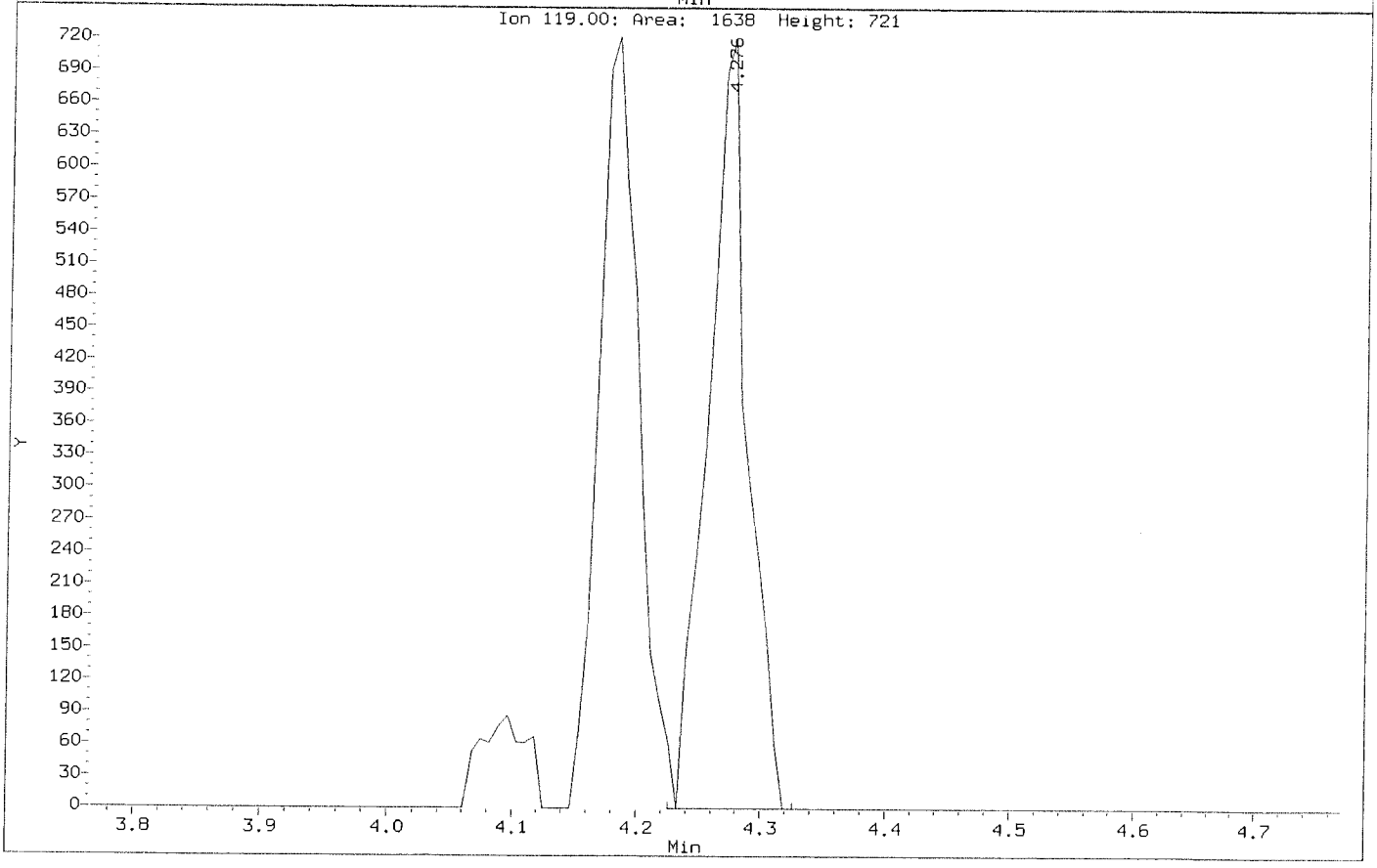
Compound: Carbon Disulfide
CAS Number: 75-15-0



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

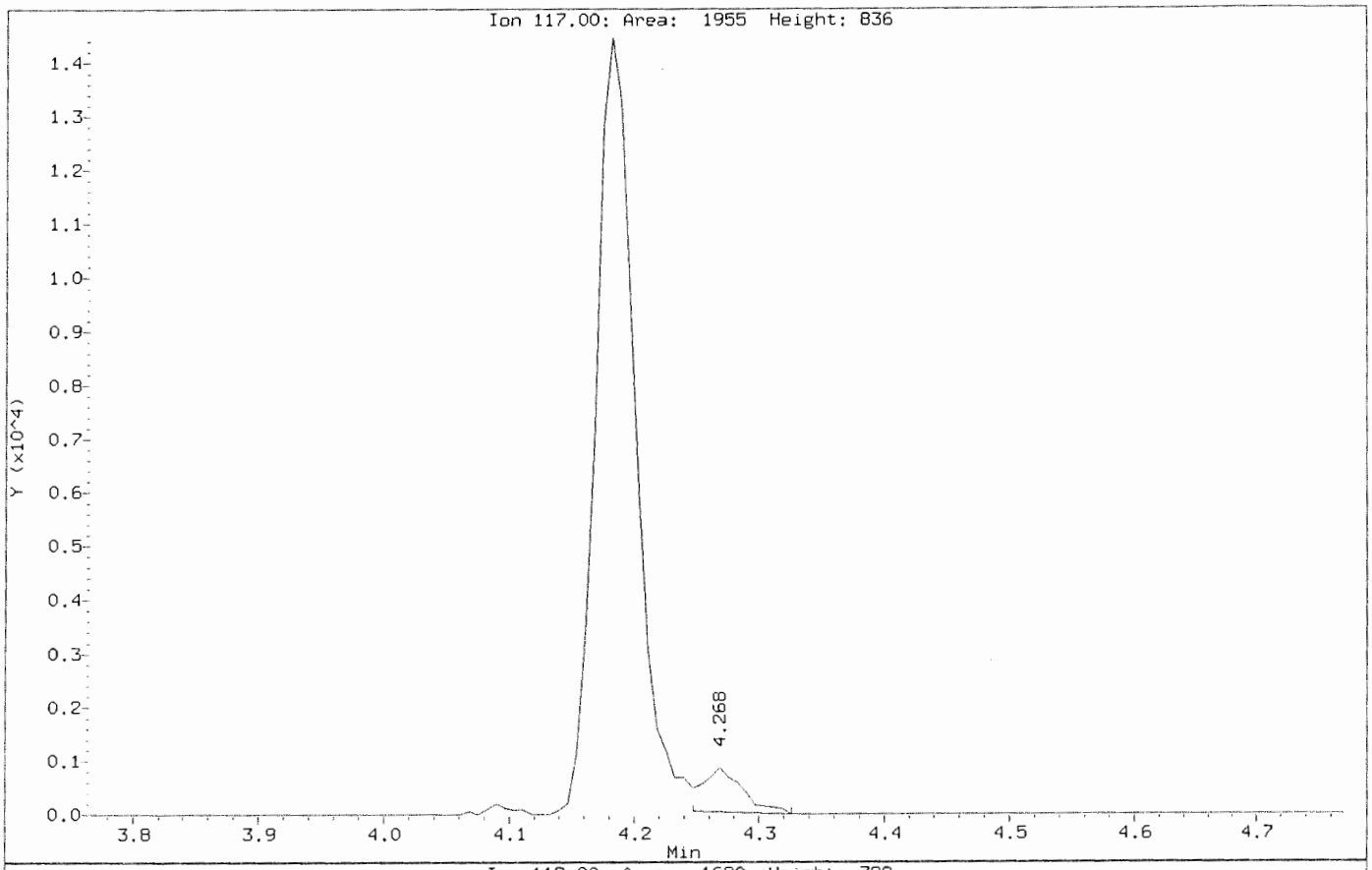
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

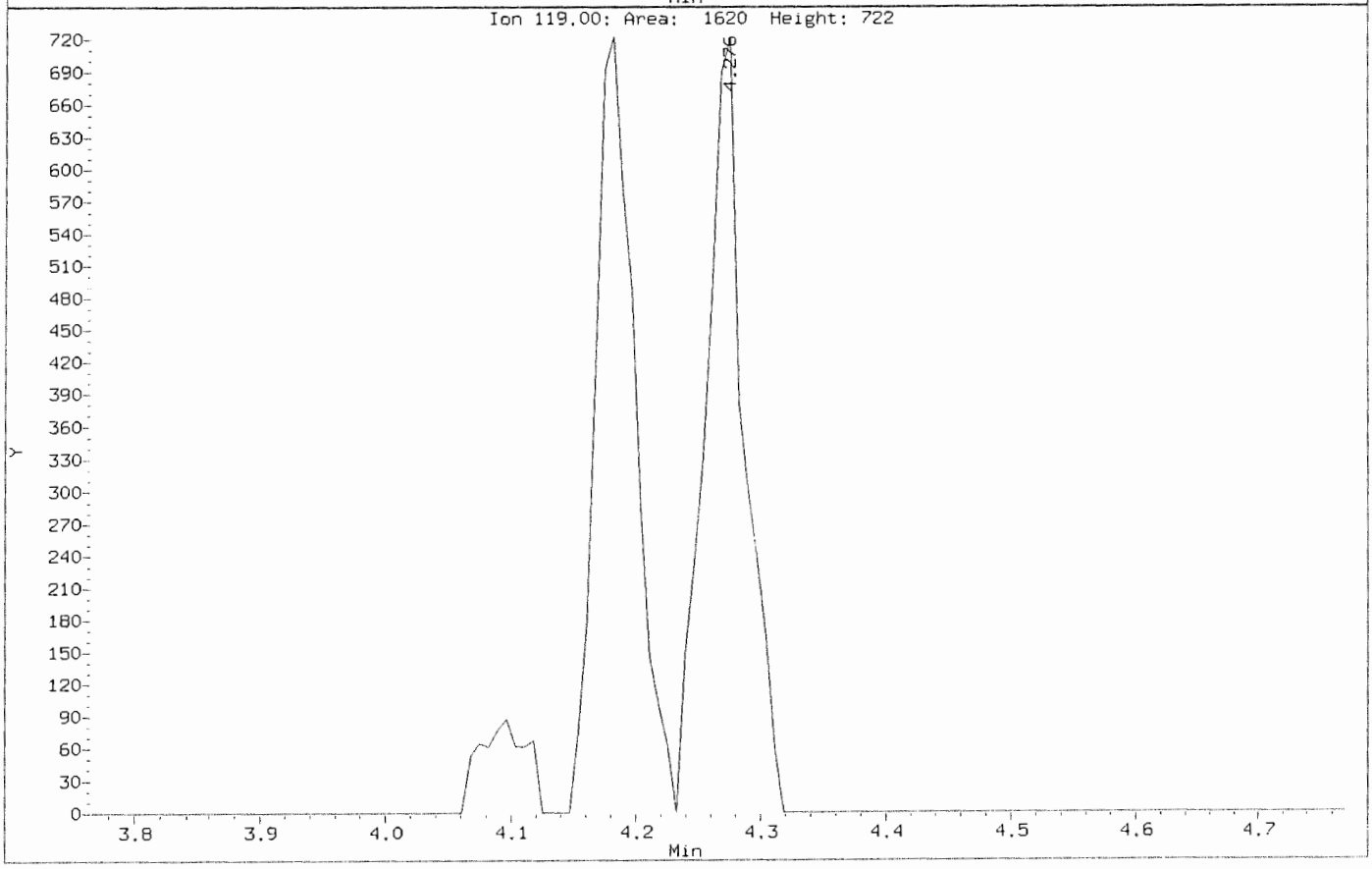




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

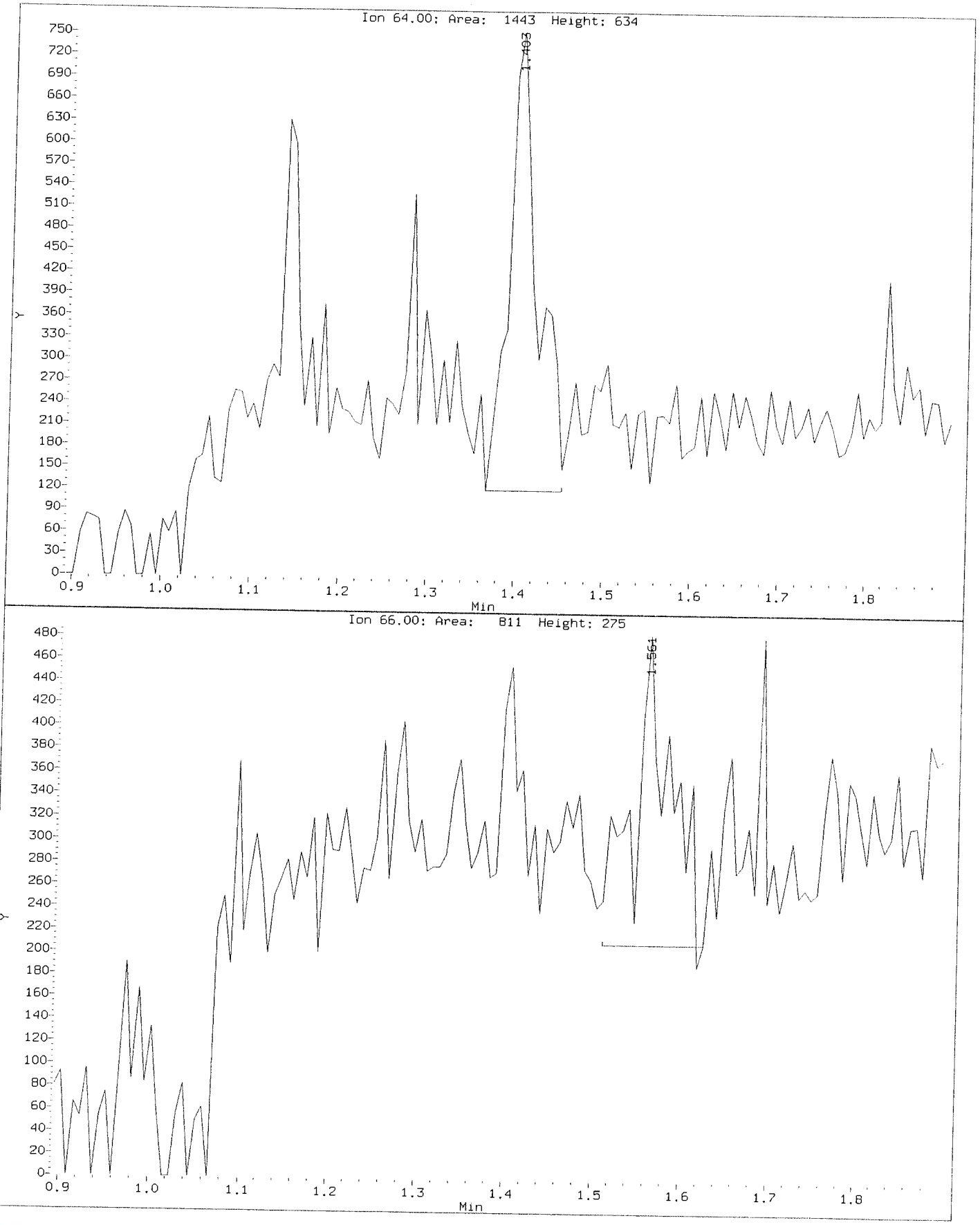
Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3



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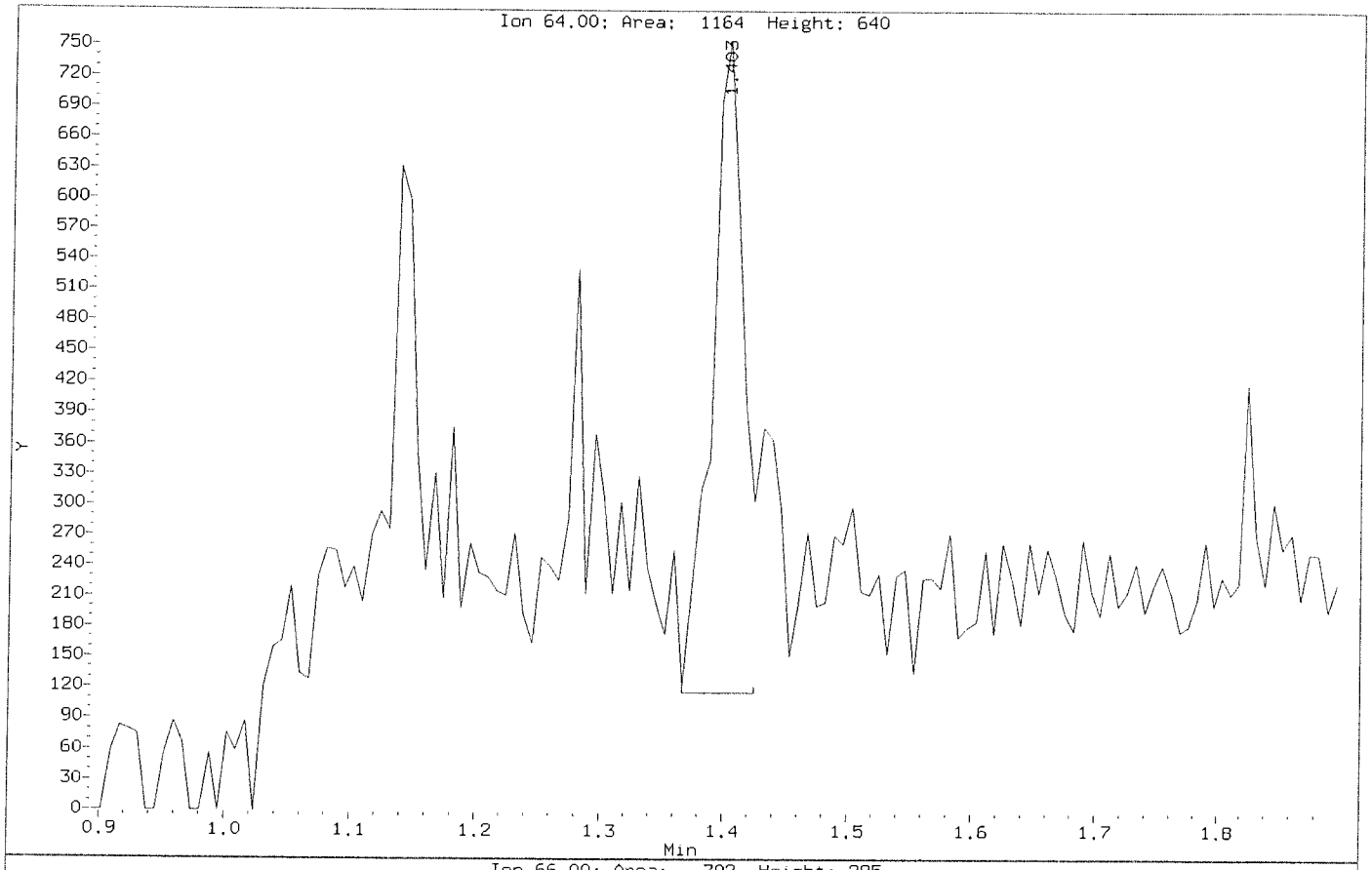
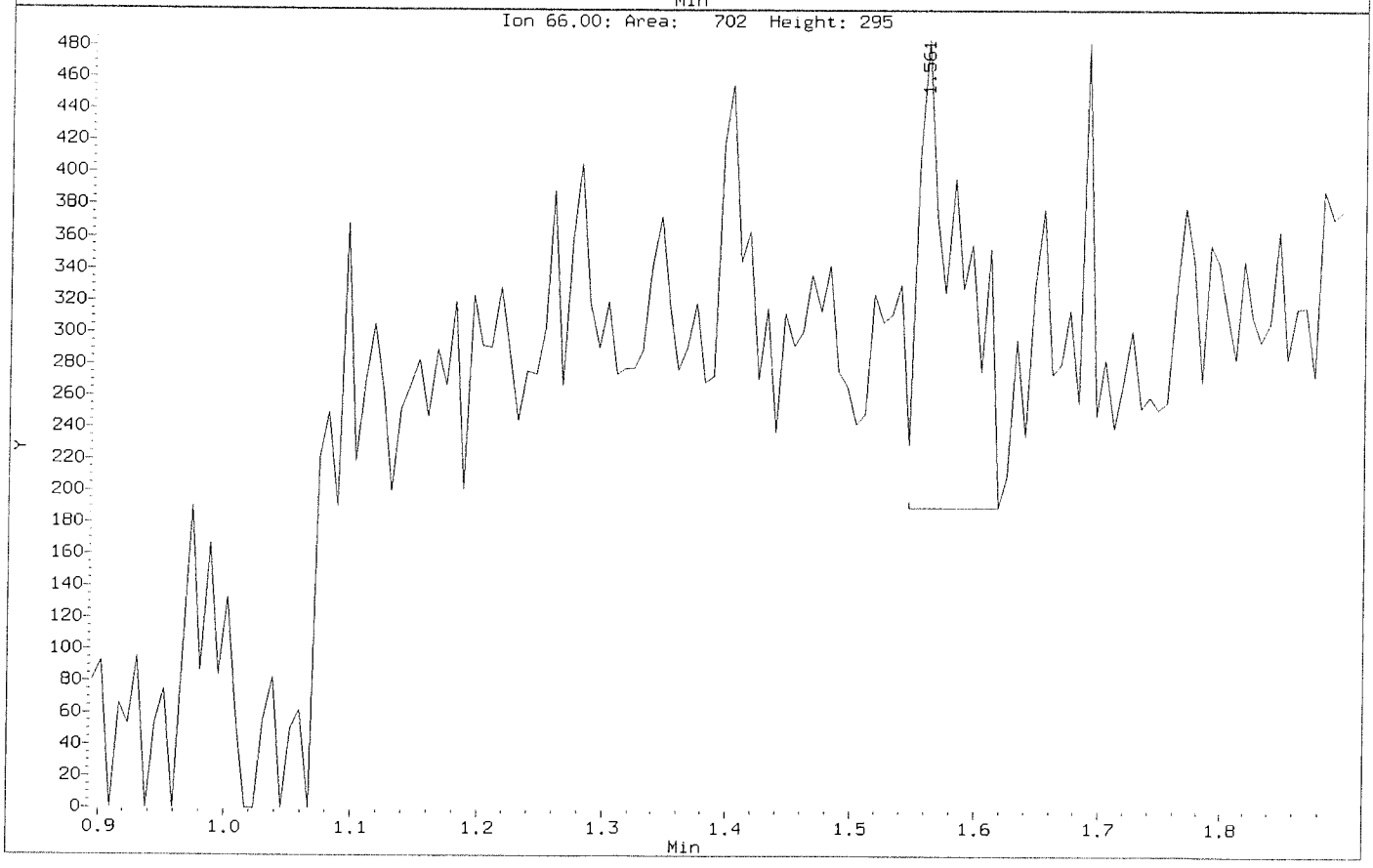
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Chloroethane
CAS Number: 75-00-3





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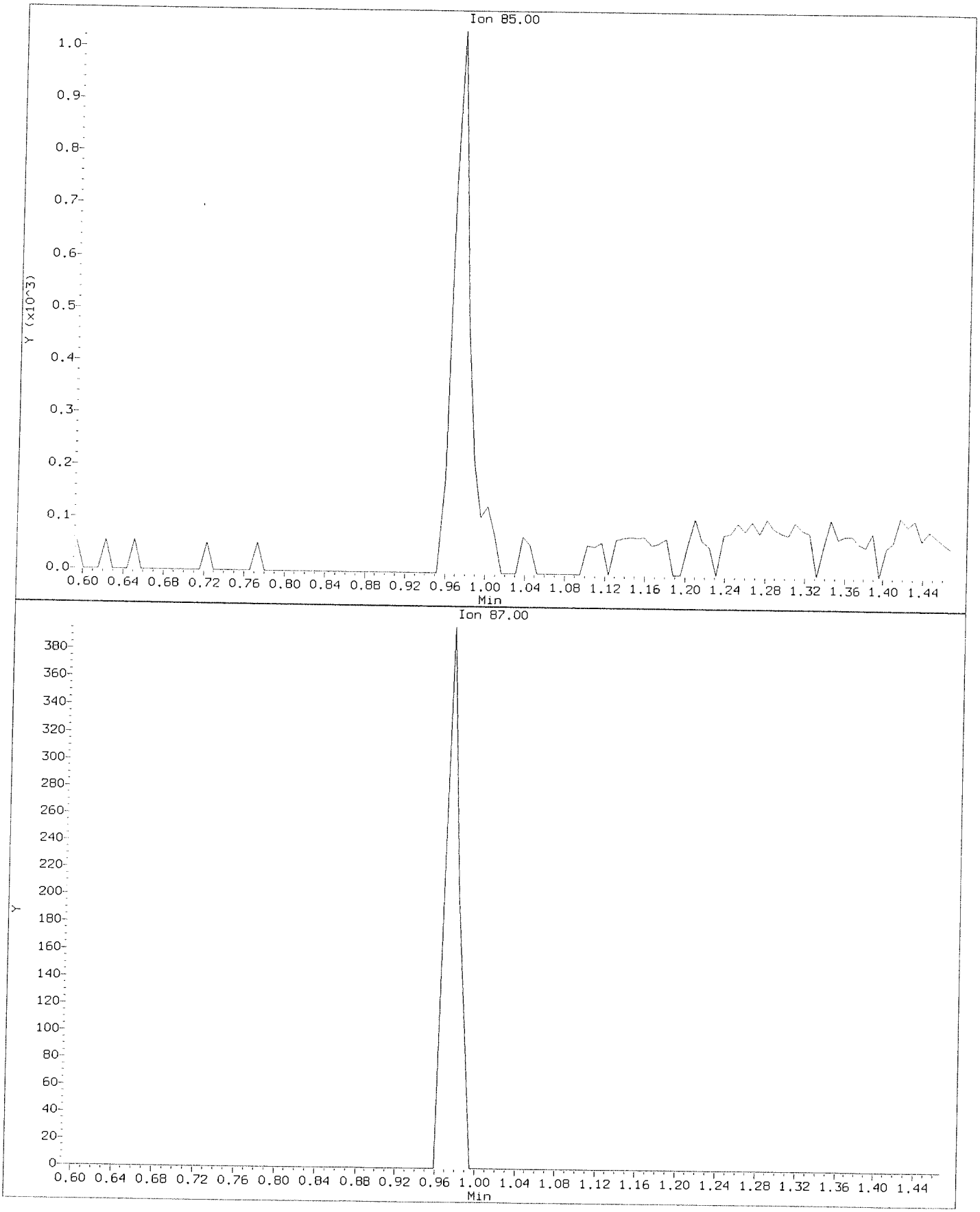
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



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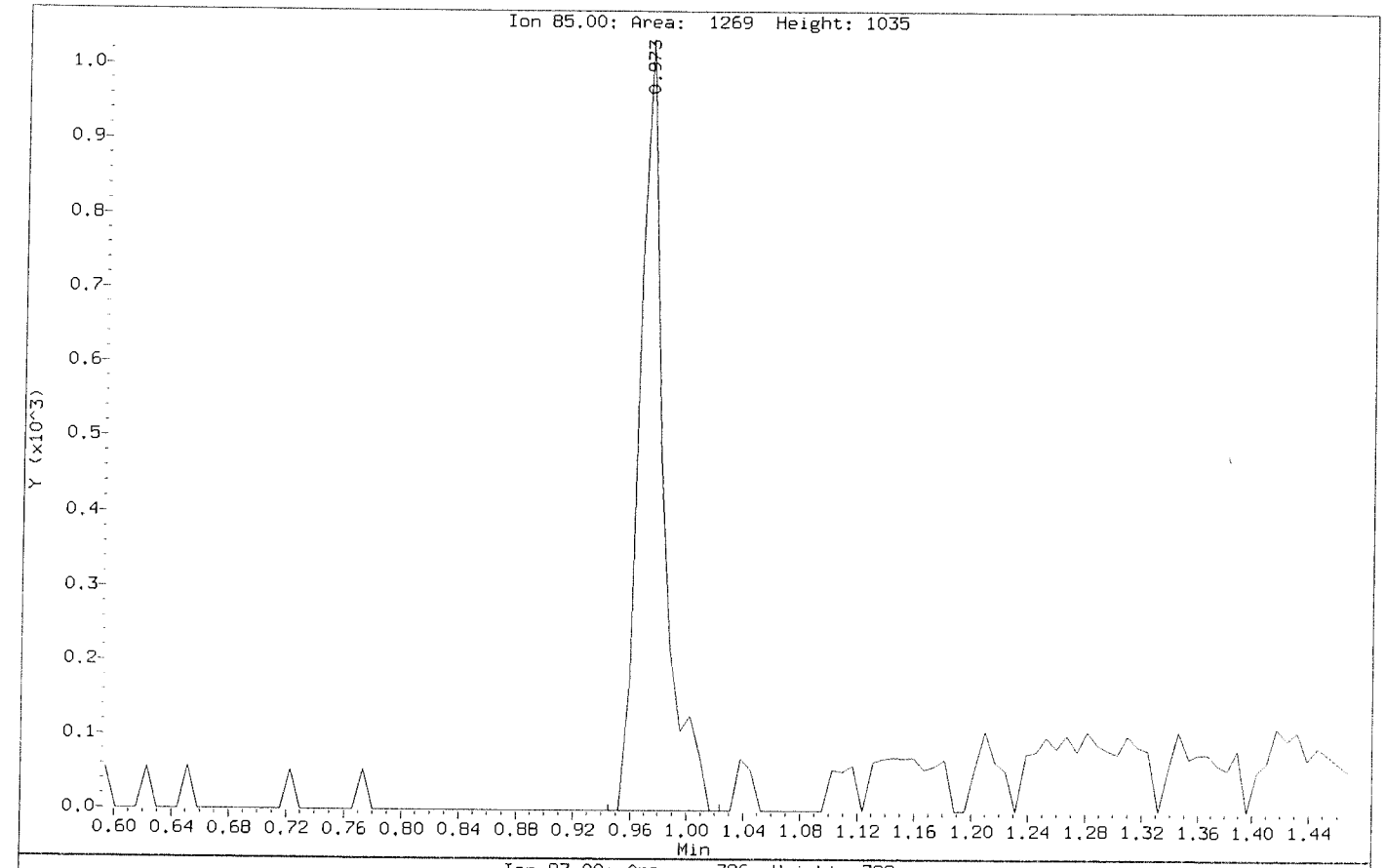
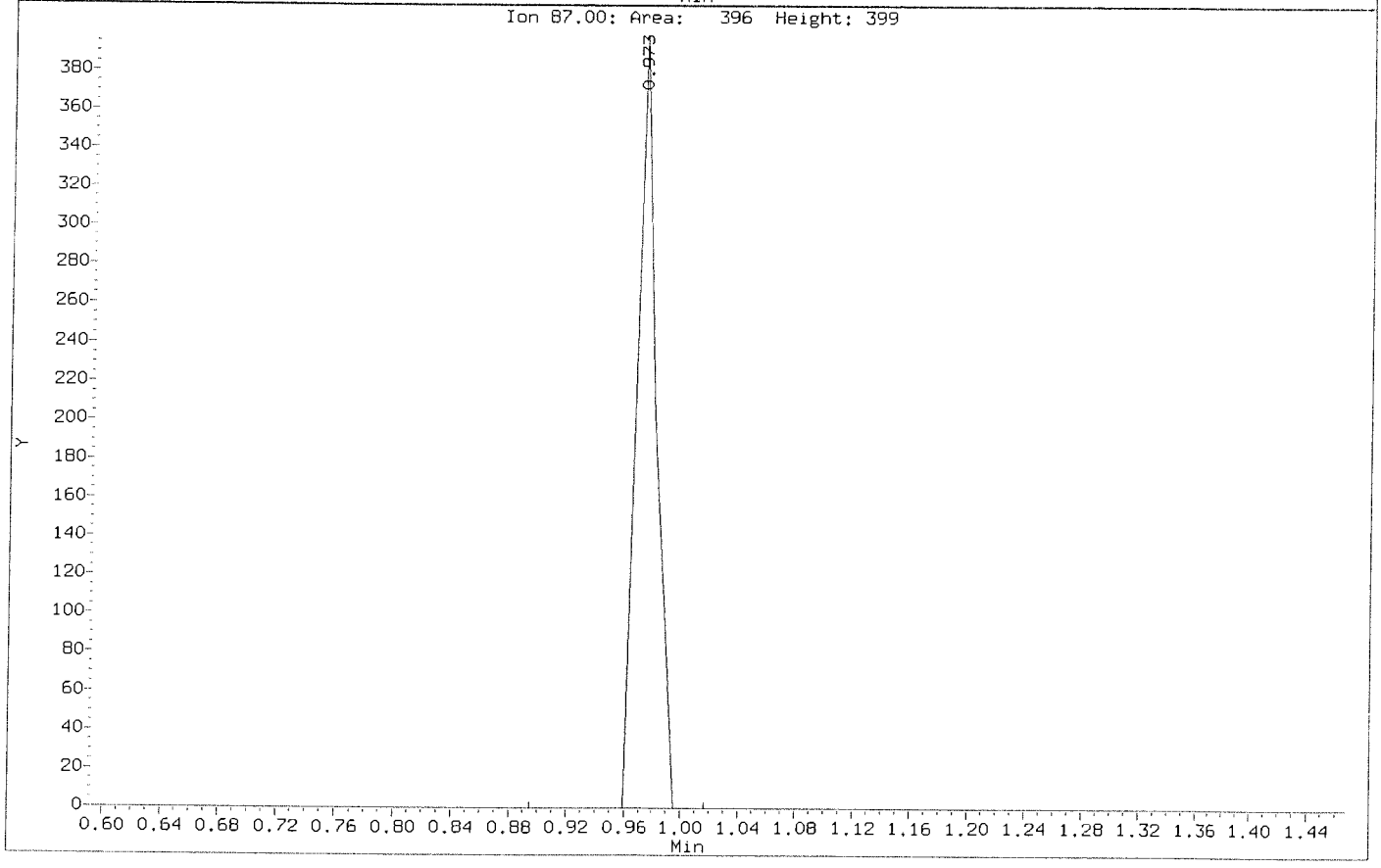
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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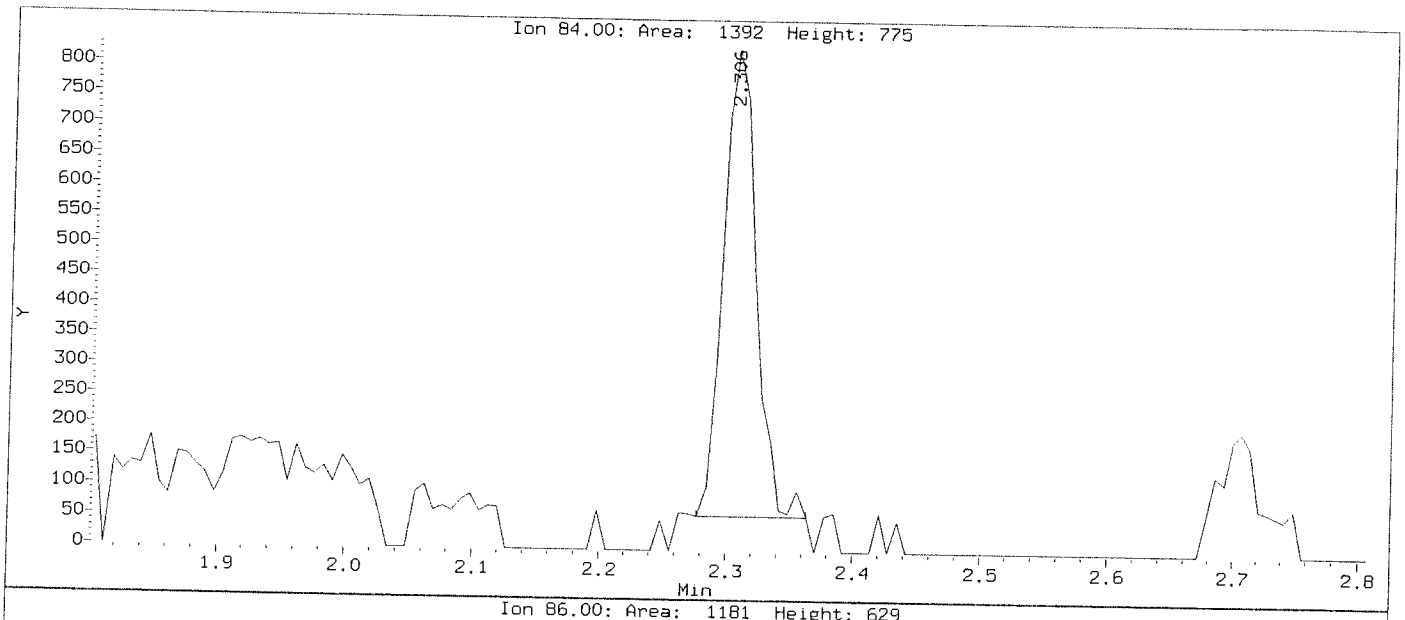
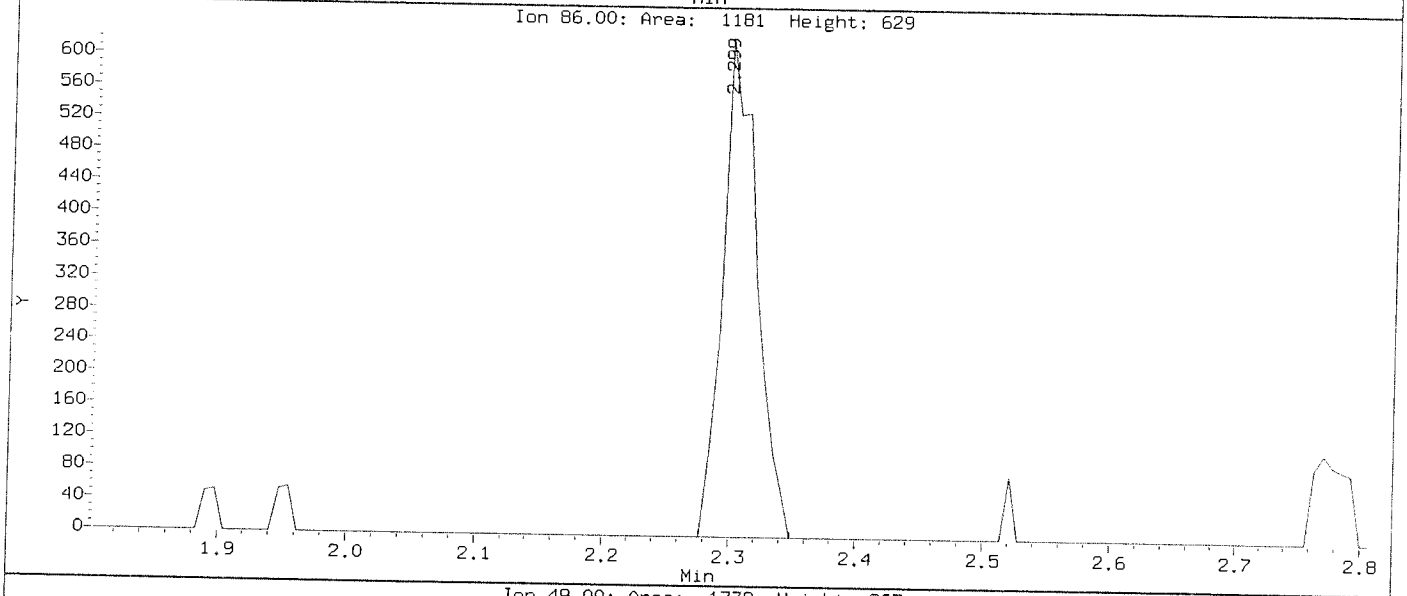
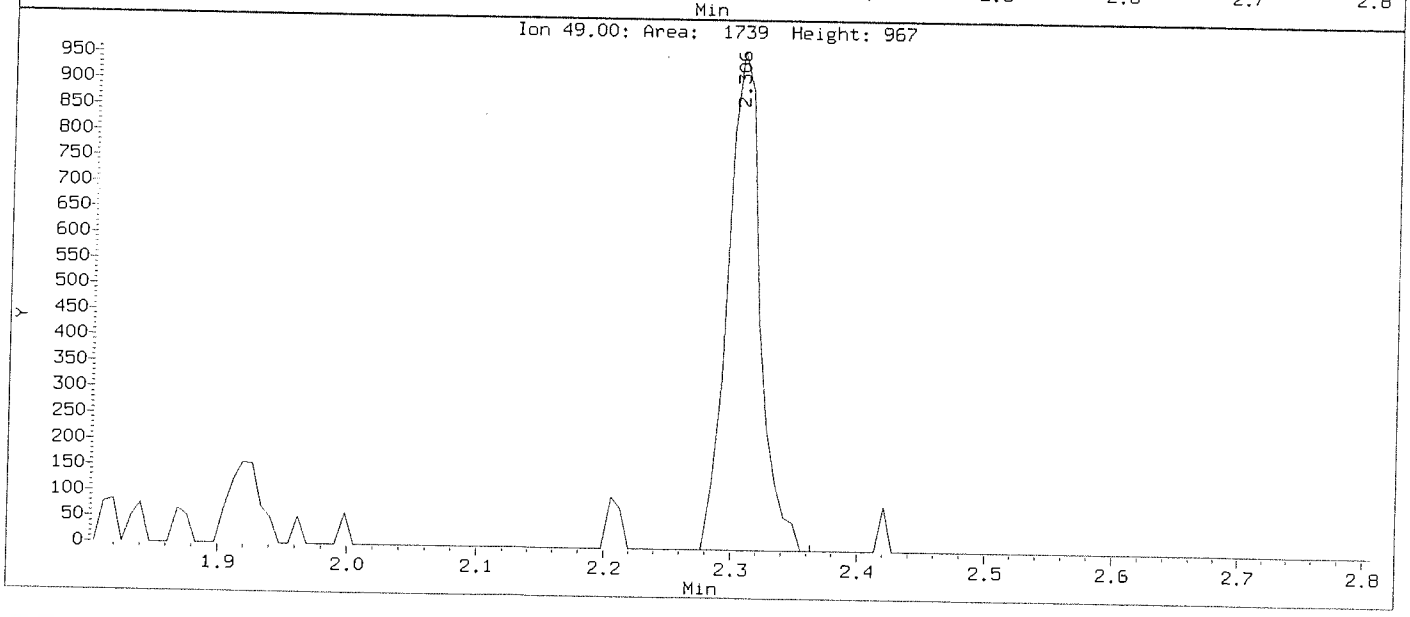
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2







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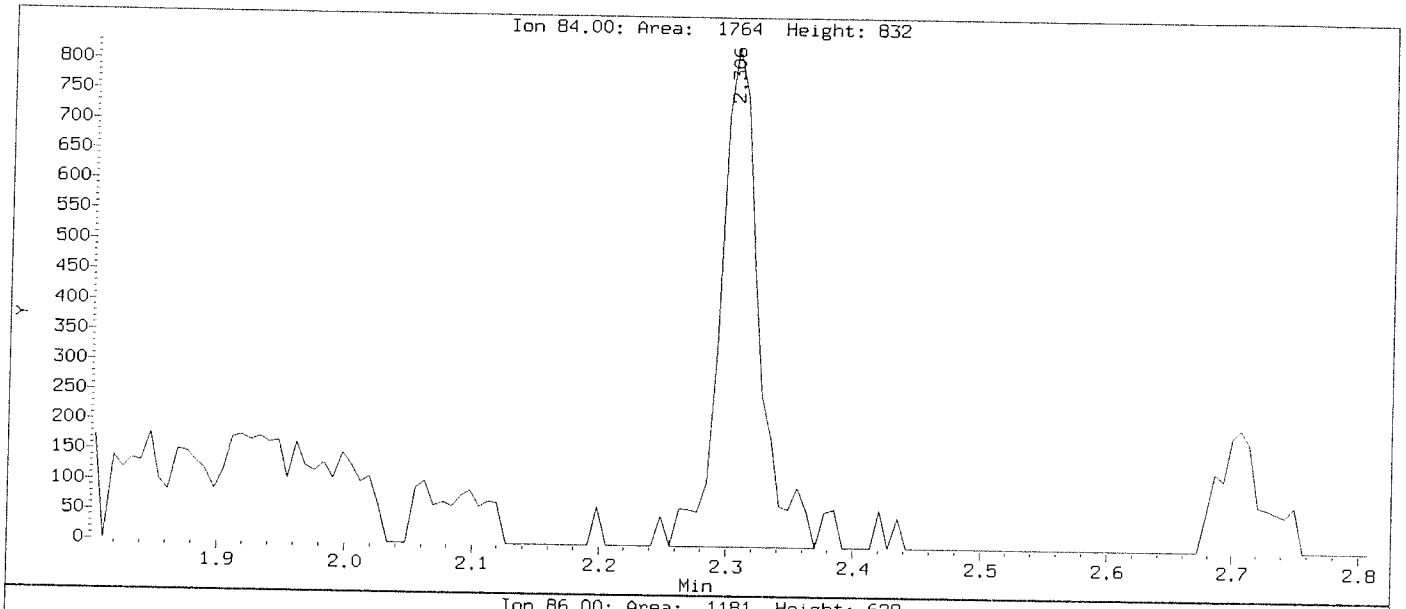
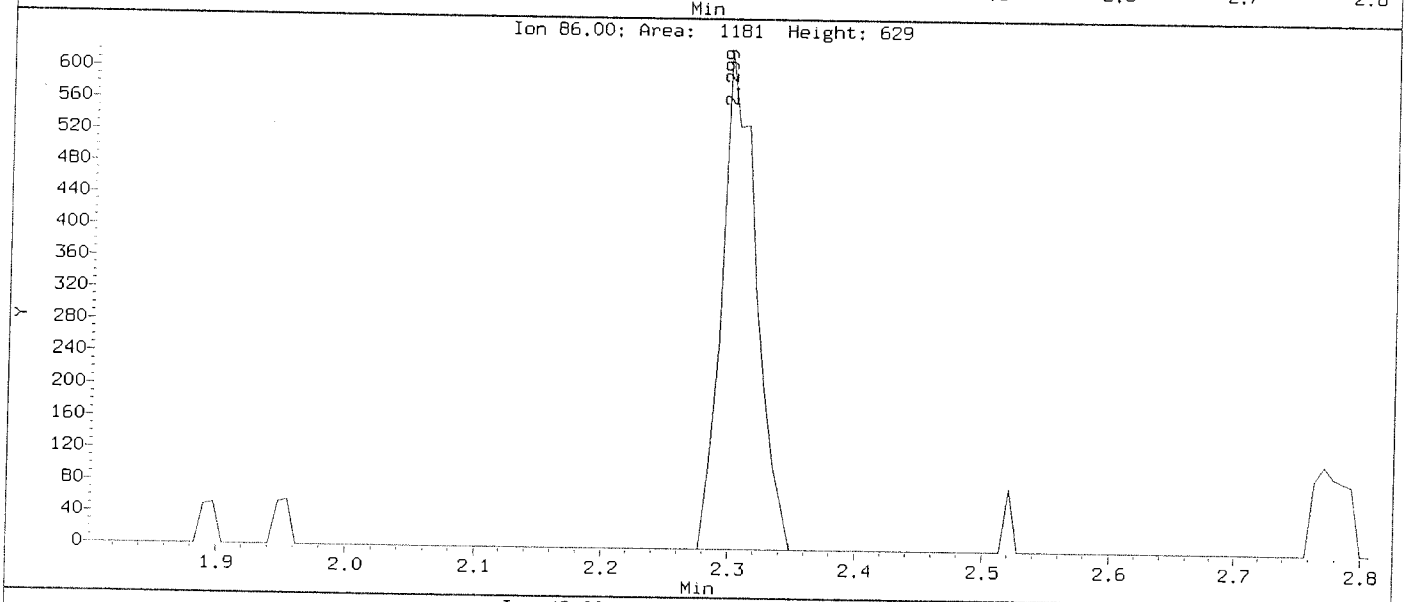
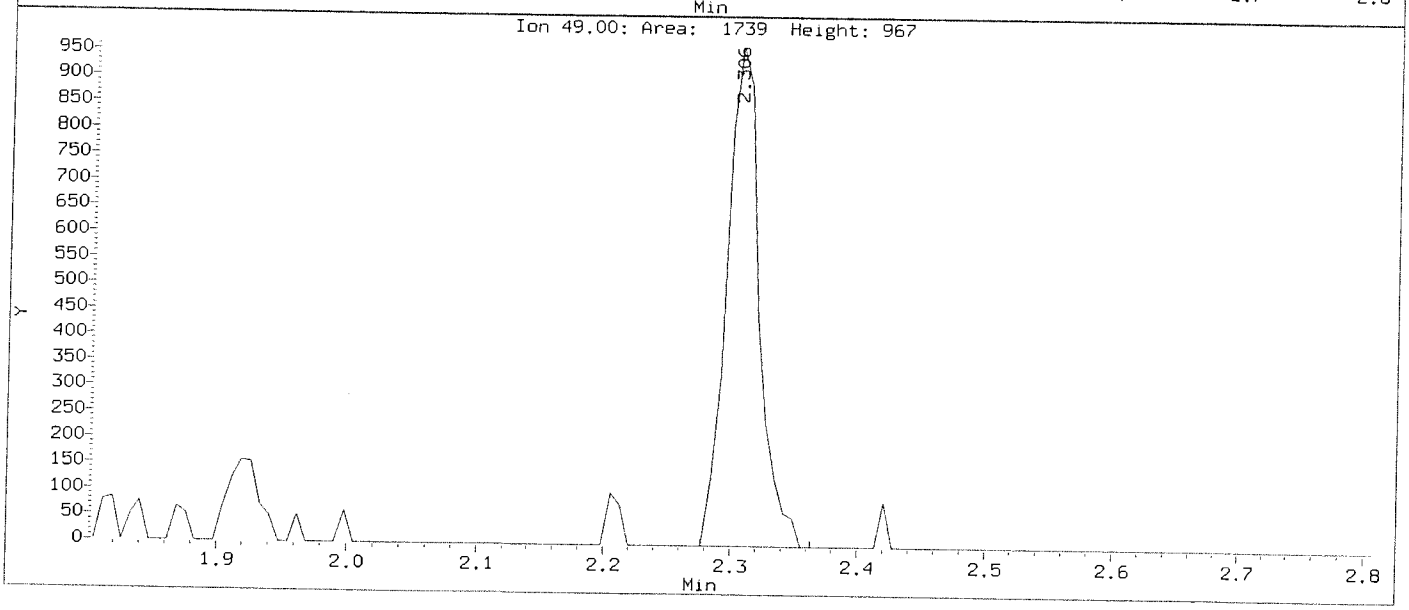
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2







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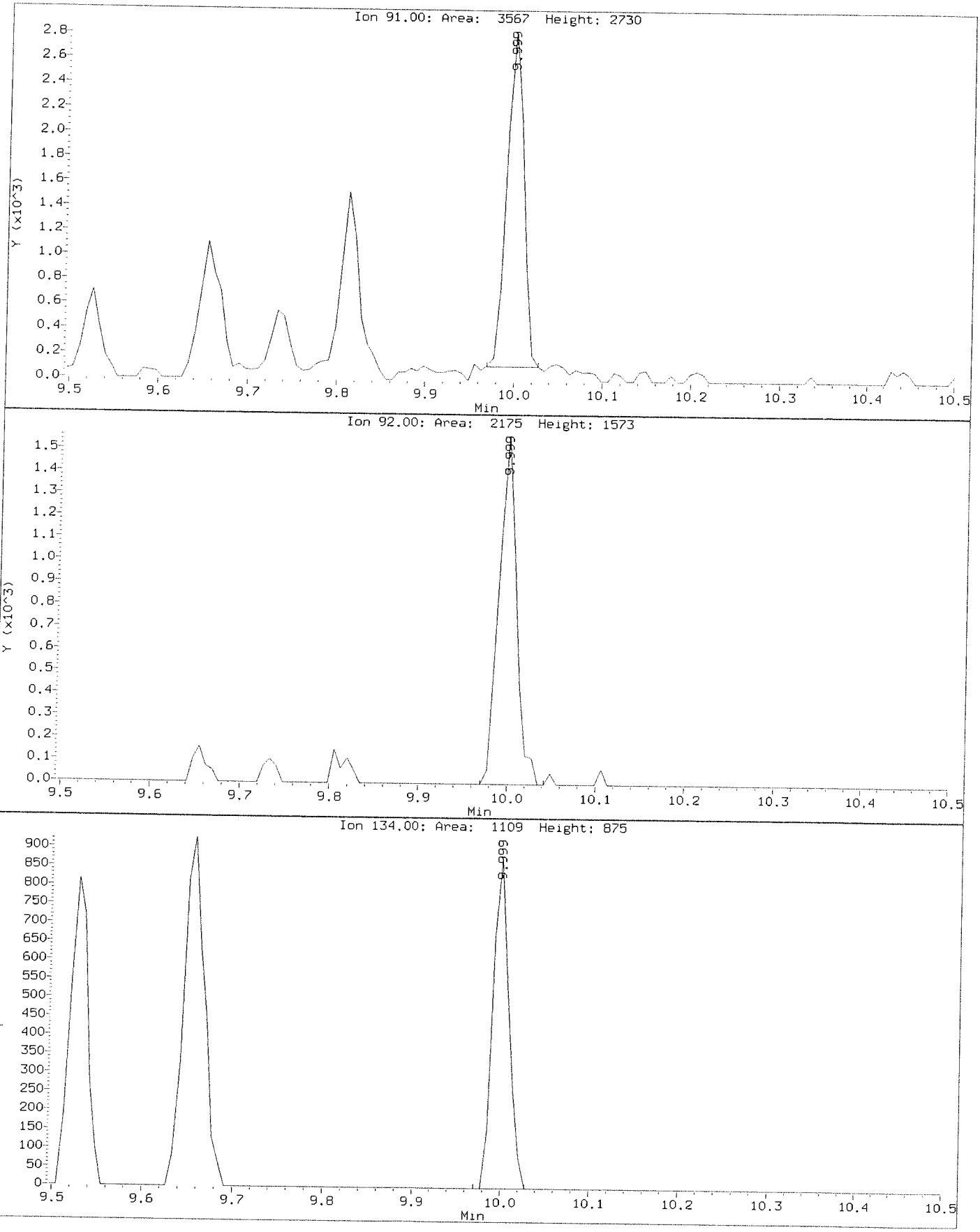
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8



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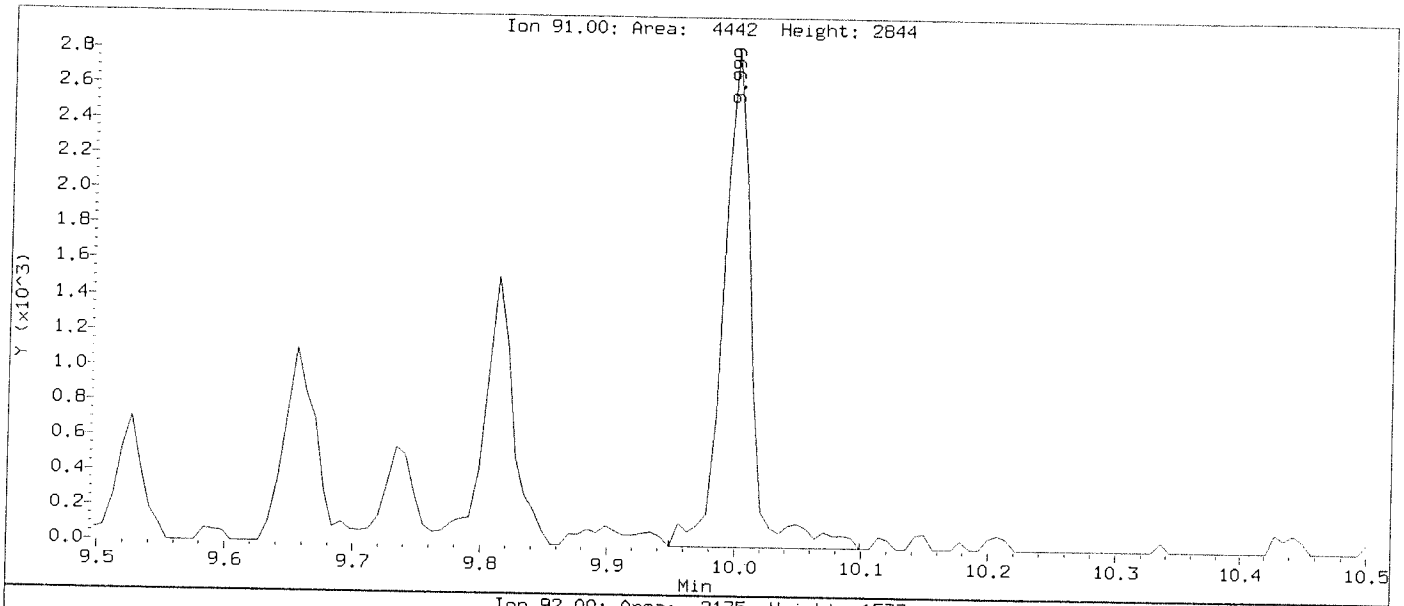
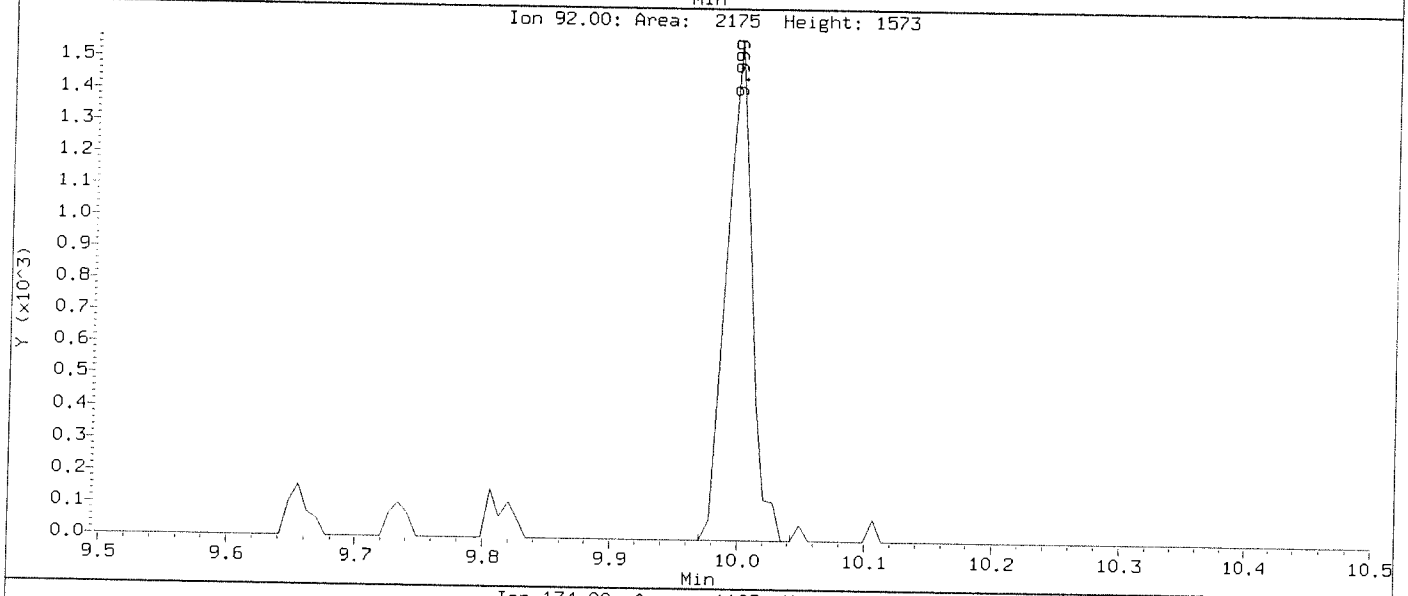
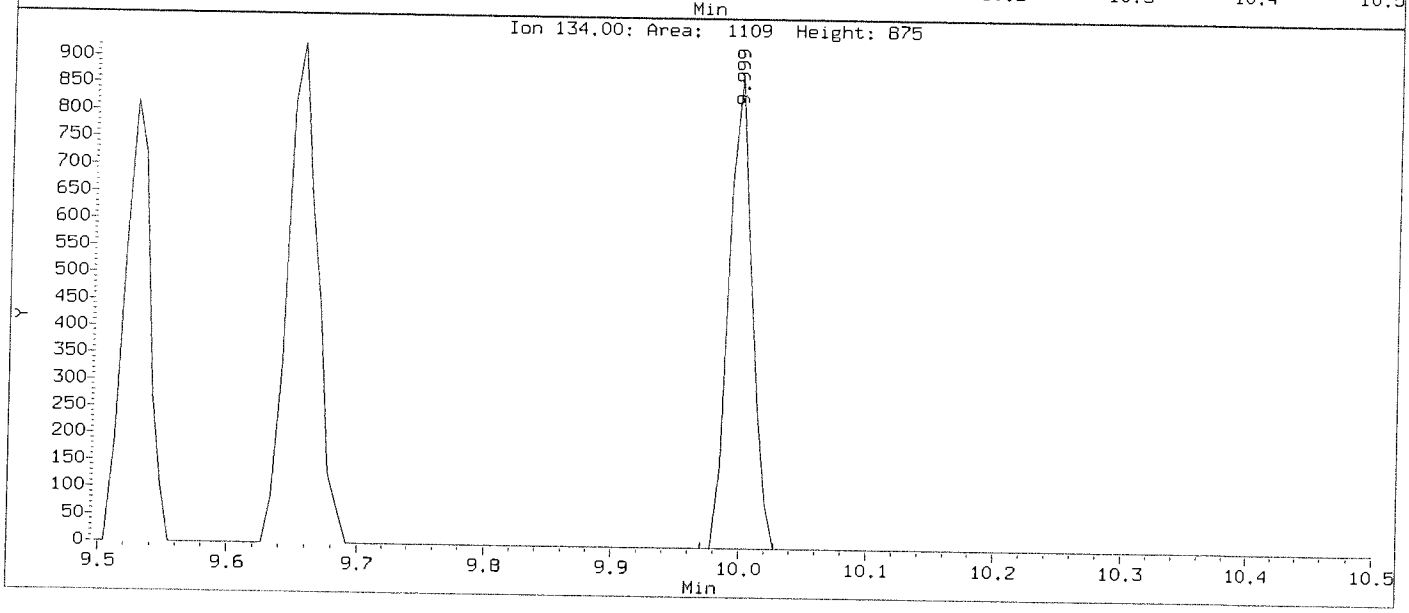
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8







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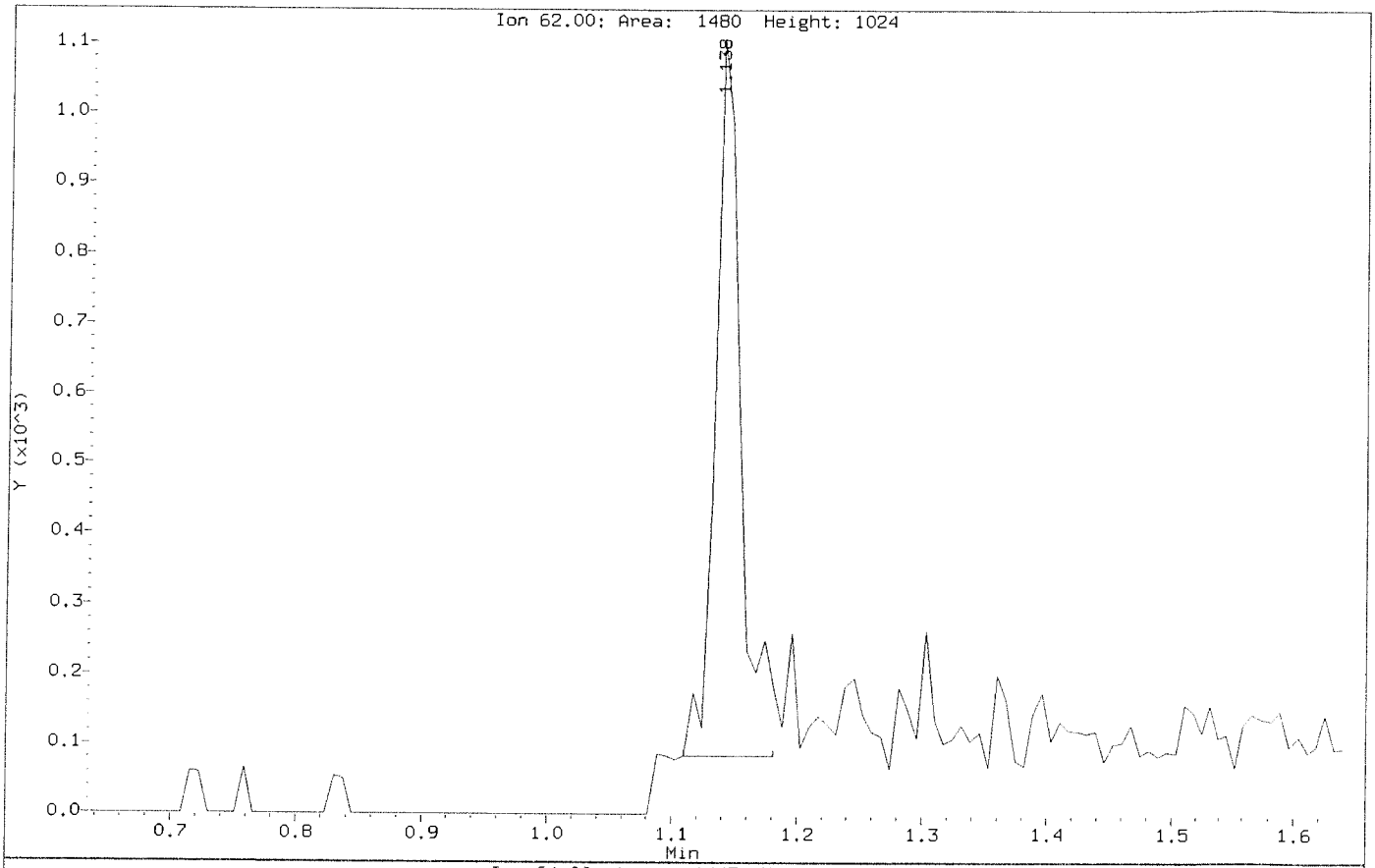
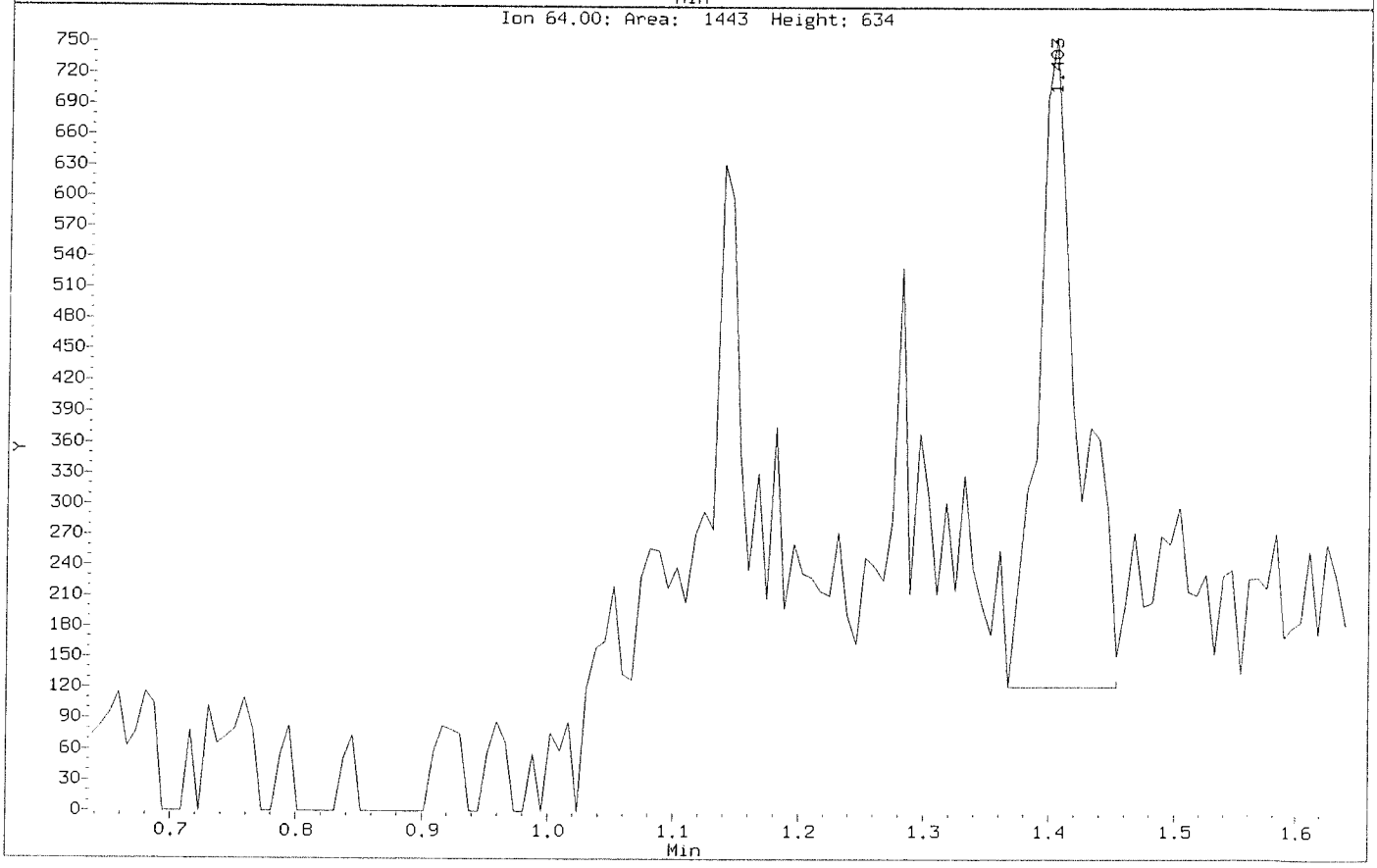
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4





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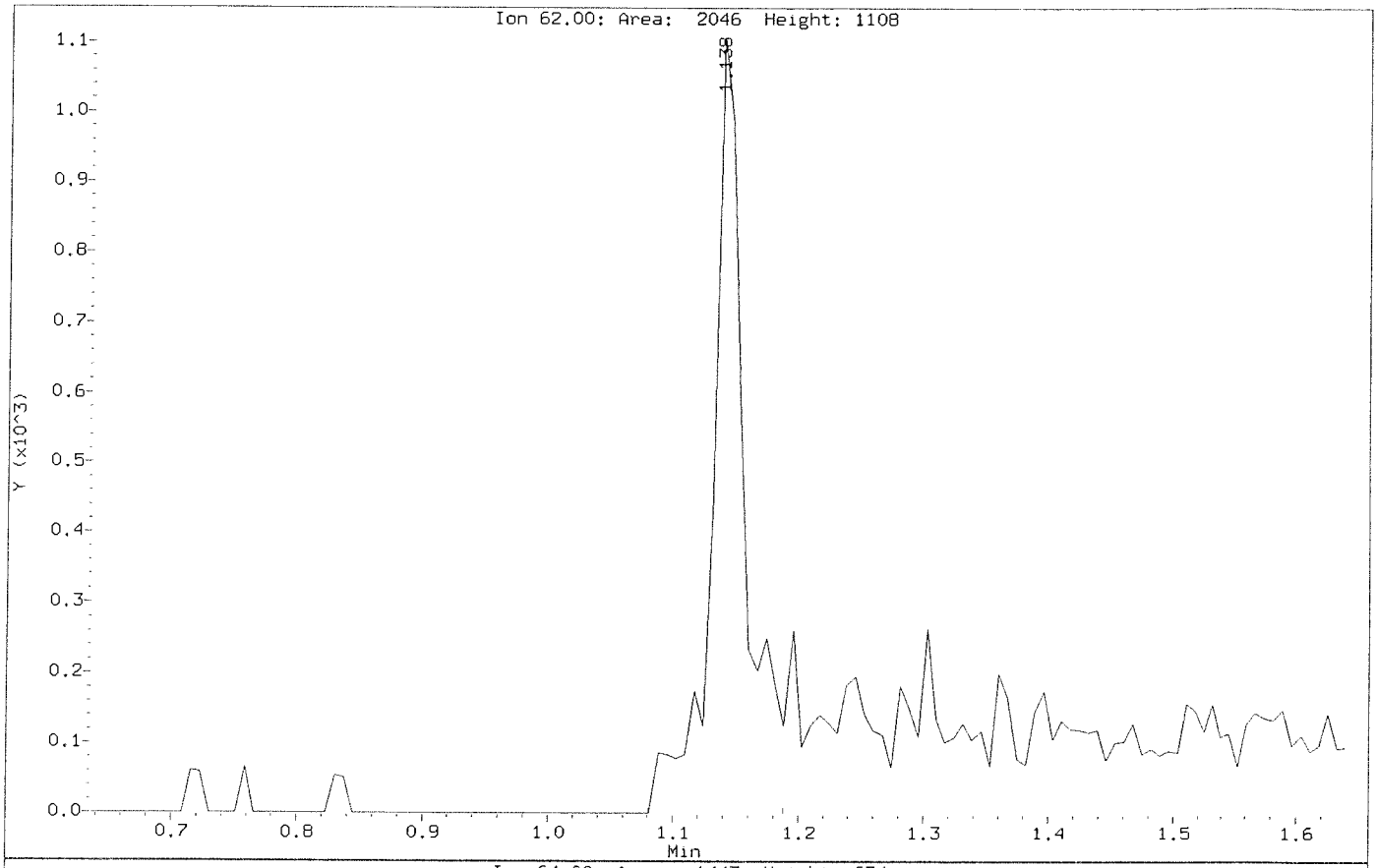
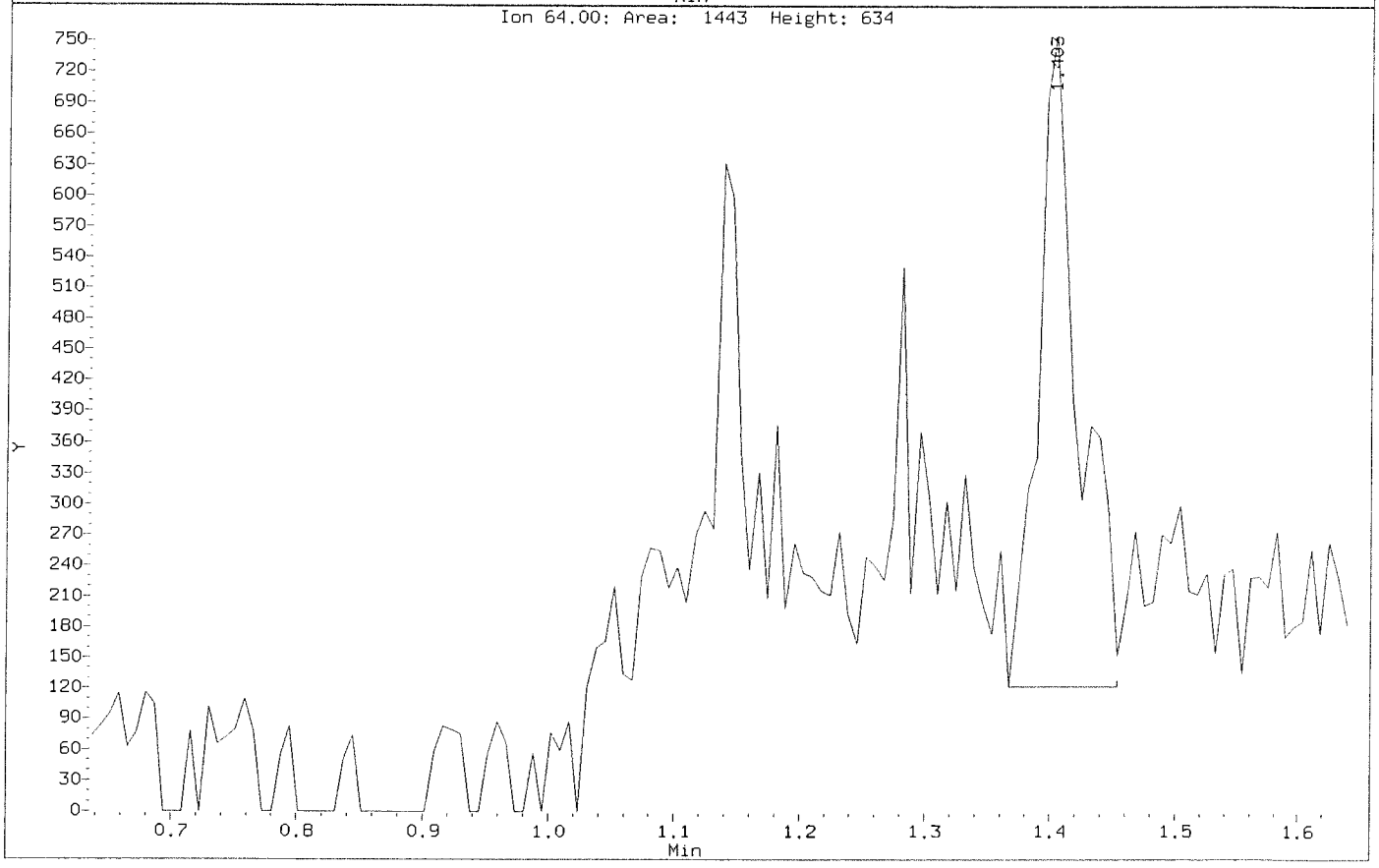
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 18-NOV-2019 14:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 14:35 Cal File: X111803.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

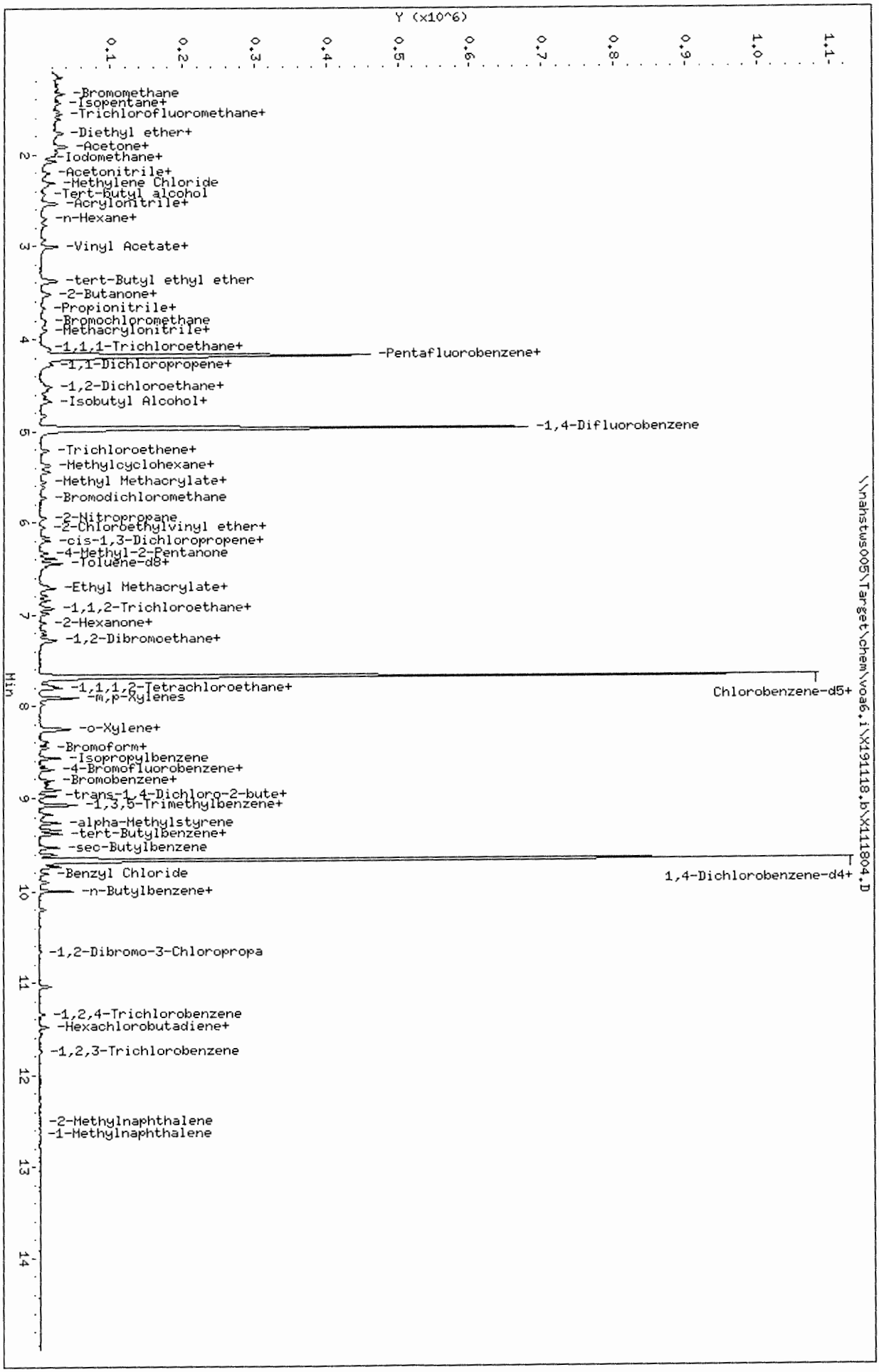
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	416007	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	570122	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	516622	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	279609	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4458	1.00000	1.85(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	5731	1.00000	1.60(a)
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	3882	1.00000	1.38(a)
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	13715	1.00000	1.00(a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	4166	1.00000	1.11(a)
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	6451	1.00000	1.14(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	4719	1.00000	1.20(aM)
138 Freon TF	101	1.919	1.919	(0.459)	4065	1.00000	1.12(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	3216	1.00000	1.19(a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	6907	1.00000	1.14(a)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	3522	1.00000	0.99(a)
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	5427	1.00000	1.18(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	1182	1.00000	0.29(a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	4081	1.00000	1.22(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	2432	1.00000	1.03(aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	14648	1.00000	1.10(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	464	1.00000	0.73(aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	3982	1.00000	1.09(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	8297	1.00000	1.11(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	5359	1.00000	1.18(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	3352	1.00000	0.98(aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	13162	1.00000	1.03(a)
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	8955	1.00000	1.11(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	6334	1.00000	1.15(a)
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	9129	1.00000	1.12(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	6785	1.00000	1.23(a)
24 2-Butanone	43	3.588	3.588	(0.858)	2602	2.00000	2.03(a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	11127	1.00000	1.10(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	4893	2.00000	2.30(a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	13982	1.00000	1.14(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	14705	1.00000	1.07(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	6643	2.00000	2.19(a)
10 Acetone	43	1.969	1.969	(0.471)	5956	2.00000	1.88(a)
37 Benzene	78	4.519	4.519	(0.909)	15129	1.00000	1.16(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	5611	1.00000	1.15(a)
29 Bromochloromethane	128	3.803	3.803	(0.909)	2687	1.00000	1.19(a)
39 Bromodichloromethane	83	5.730	5.730	(1.153)	5583	1.00000	1.18(aM)
66 Bromoform	173	8.416	8.416	(1.097)	3197	1.00000	2.01(Ta)
6 Bromomethane	94	1.339	1.339	(0.320)	6334	1.00000	(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	20920	2.00000	2.18(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	5740	1.00000	1.13(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	11449	1.00000	1.13(a)
7 Chloroethane	64	1.403	1.403	(0.336)	3001	1.00000	1.14(aM)
28 Chloroform	83	3.910	3.910	(0.935)	8234	1.00000	1.22(a)
3 Chloromethane	50	1.074	1.074	(0.257)	6118	1.00000	1.53(aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	4494	1.00000	1.13(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	6302	1.00000	1.13(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	4470	1.00000	1.13(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	2789	1.00000	1.15(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	3829	1.00000	1.87(aM)
61 Ethylbenzene	106	7.800	7.800	(1.017)	5813	1.00000	1.11(a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	2468	1.00000	0.76(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	16809	1.00000	1.08(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	13495	2.00000	2.14(a)
17 Methylene Chloride	84	2.306	2.306	(0.551)	4626	1.00000	1.22(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	11491	1.00000	1.00(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	18779	1.00000	1.08(a)
92 Naphthalene	128	11.553	11.553	(1.195)	3182	1.00000	1.05(a)
63 o-Xylene	106	8.244	8.244	(1.075)	6995	1.00000	1.12(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	15987	1.00000	1.06(a)
64 Styrene	104	8.265	8.265	(1.078)	11719	1.00000	1.08(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	12122	1.00000	1.11(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	4263	1.00000	1.17(a)
50 Toluene	91	6.453	6.453	(0.841)	16346	1.00000	1.11(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	4068	1.00000	1.18(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	5295	1.00000	1.04(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	4445	1.00000	1.11(a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	6912	1.00000	1.07(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	4533	1.00000	1.06(aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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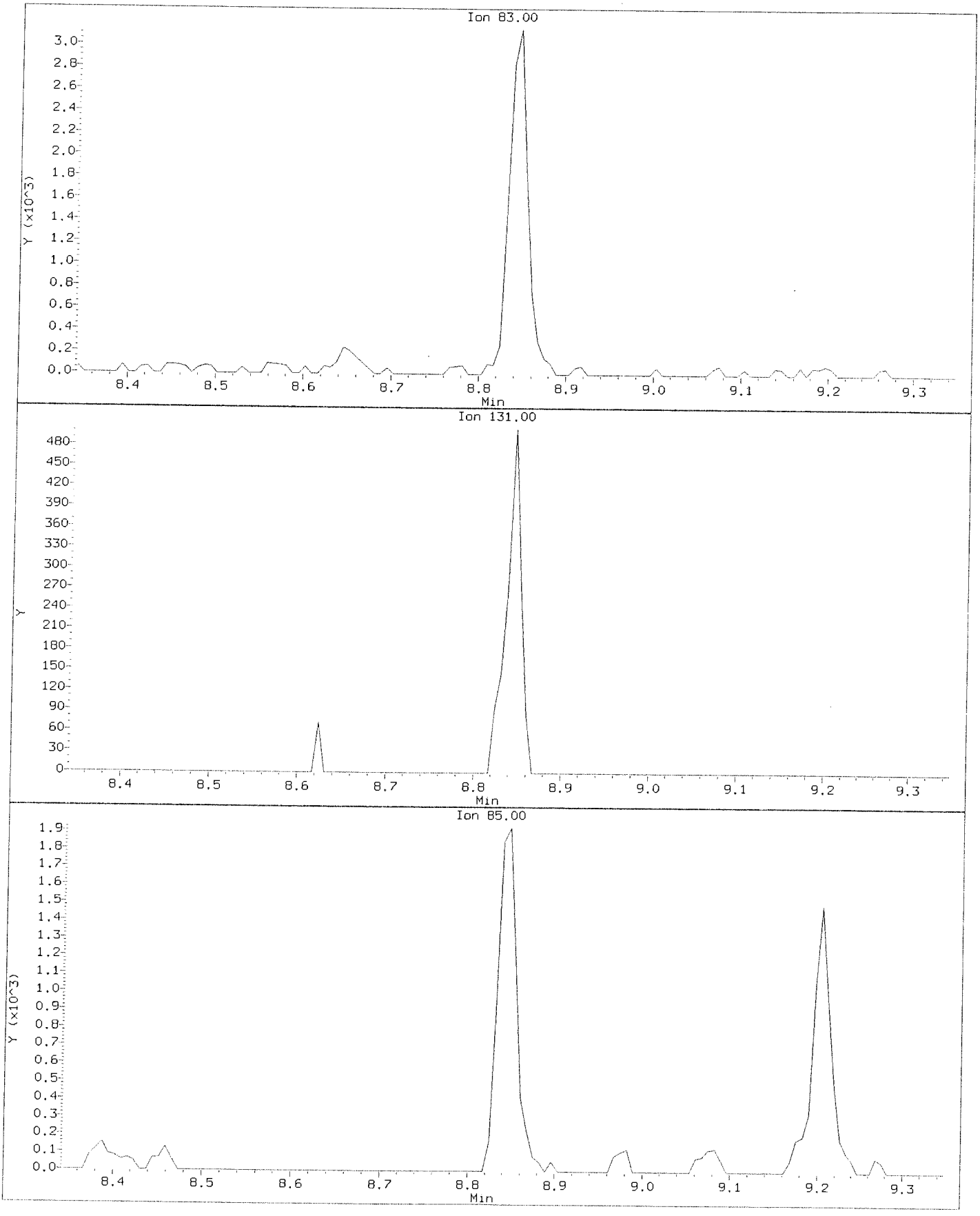
Date : 18-NOV-2019 14:59
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111804.D
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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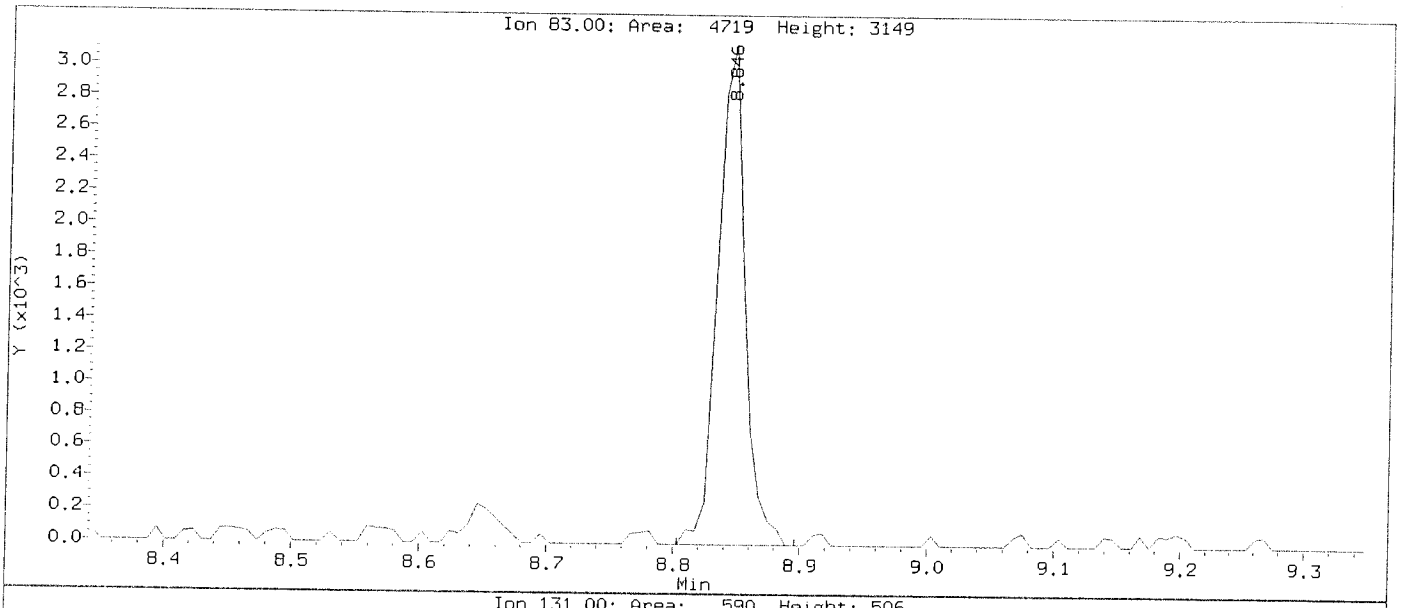
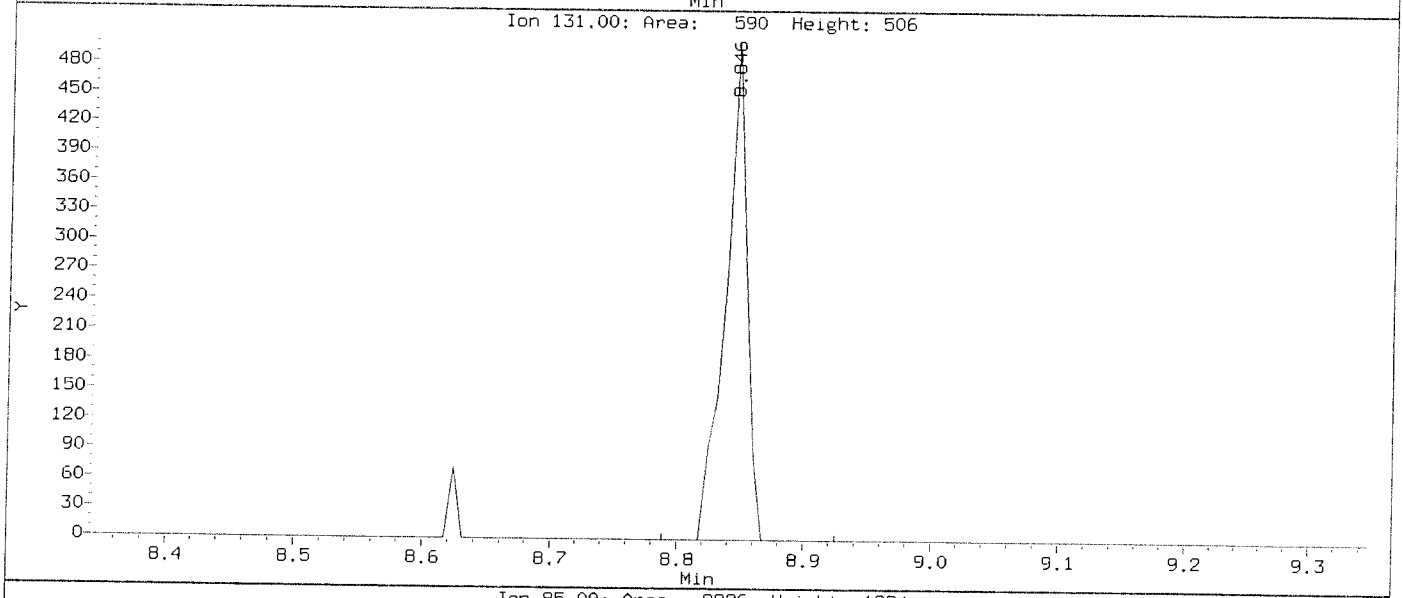
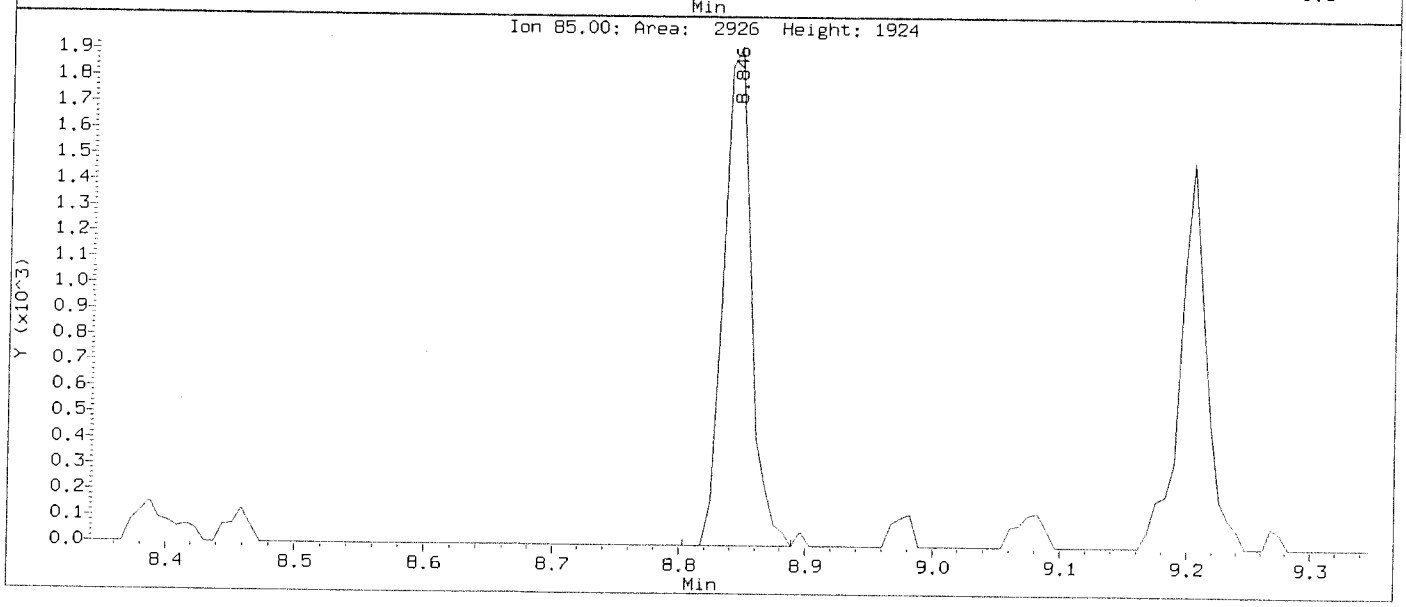
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5

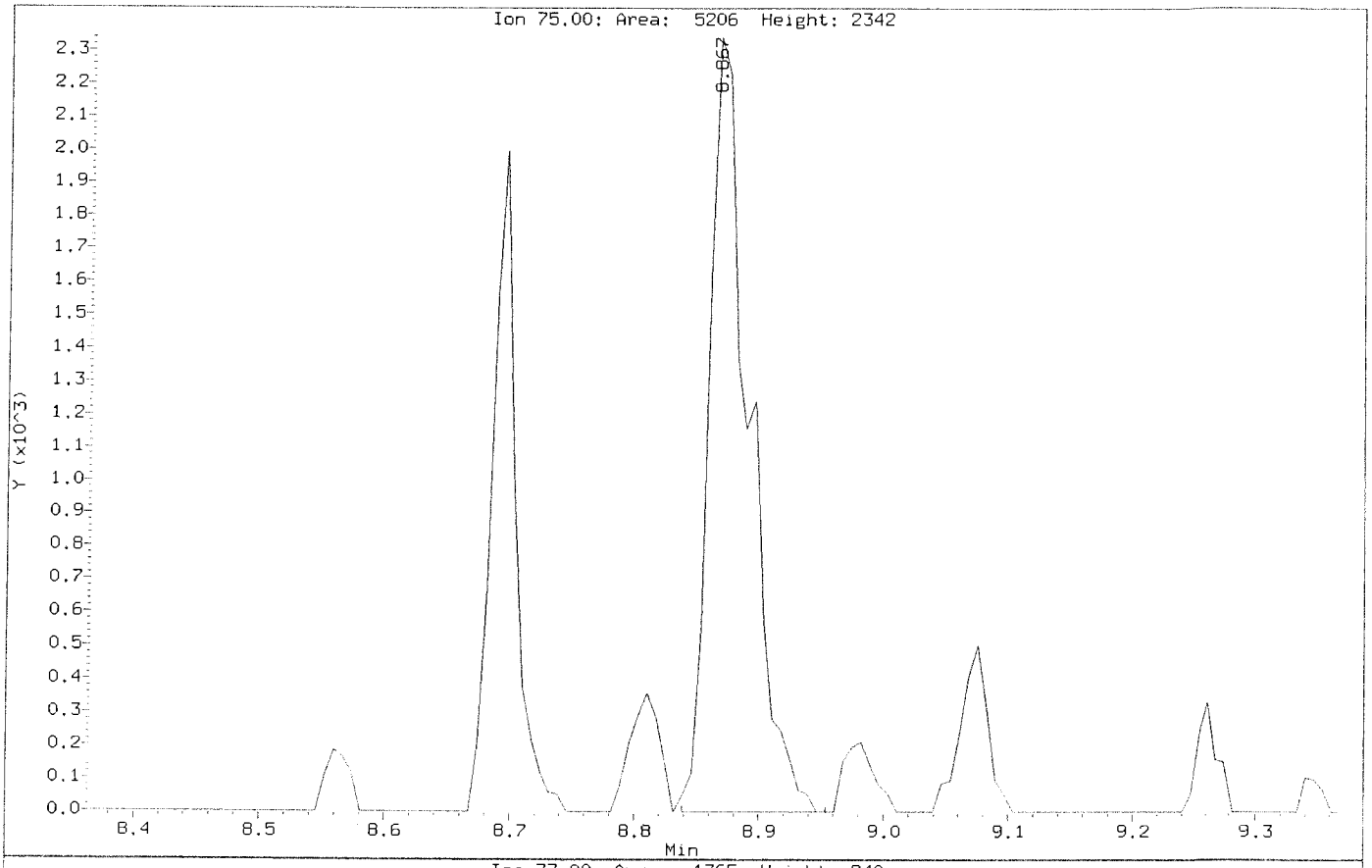


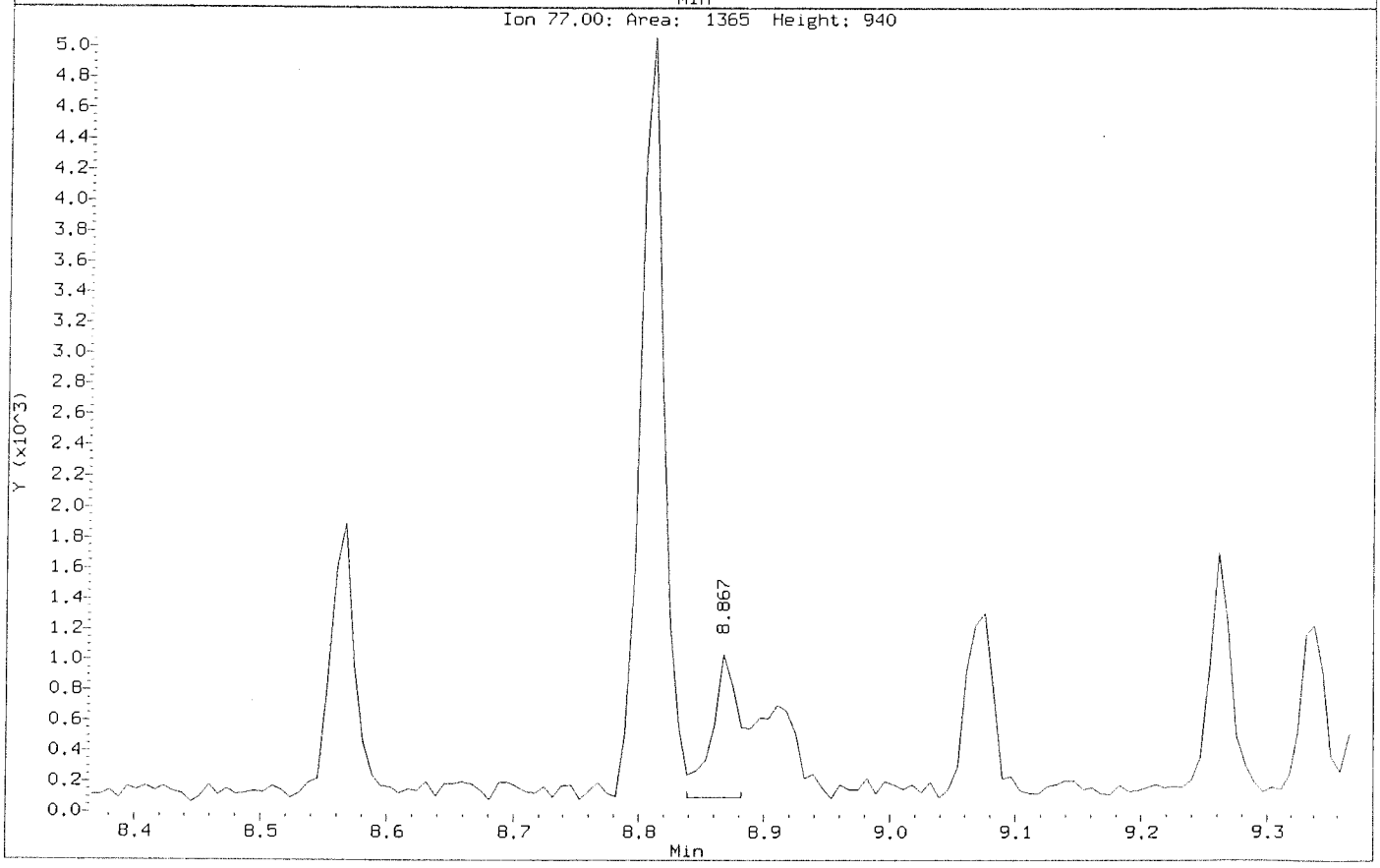




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111804.D
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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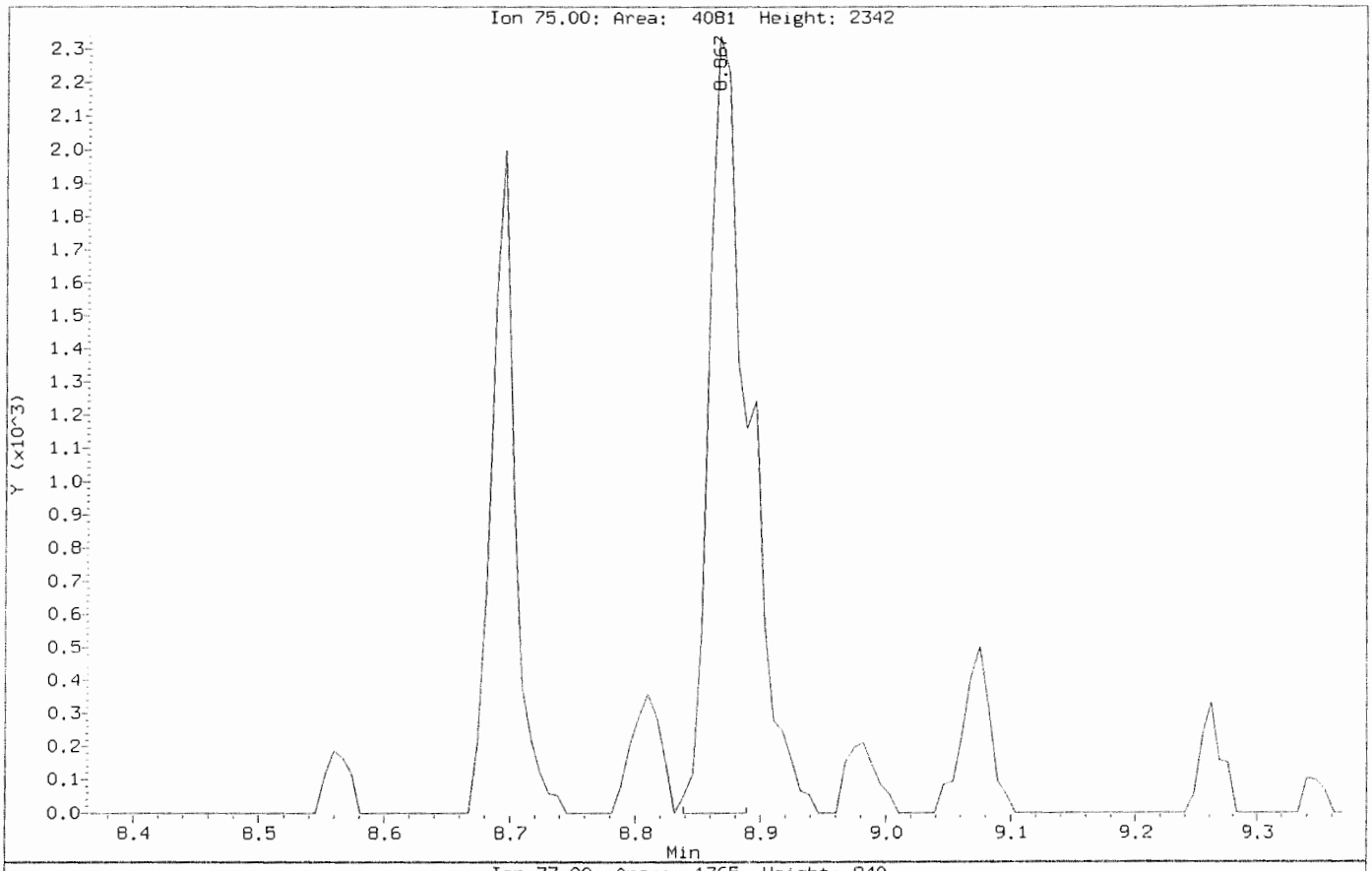
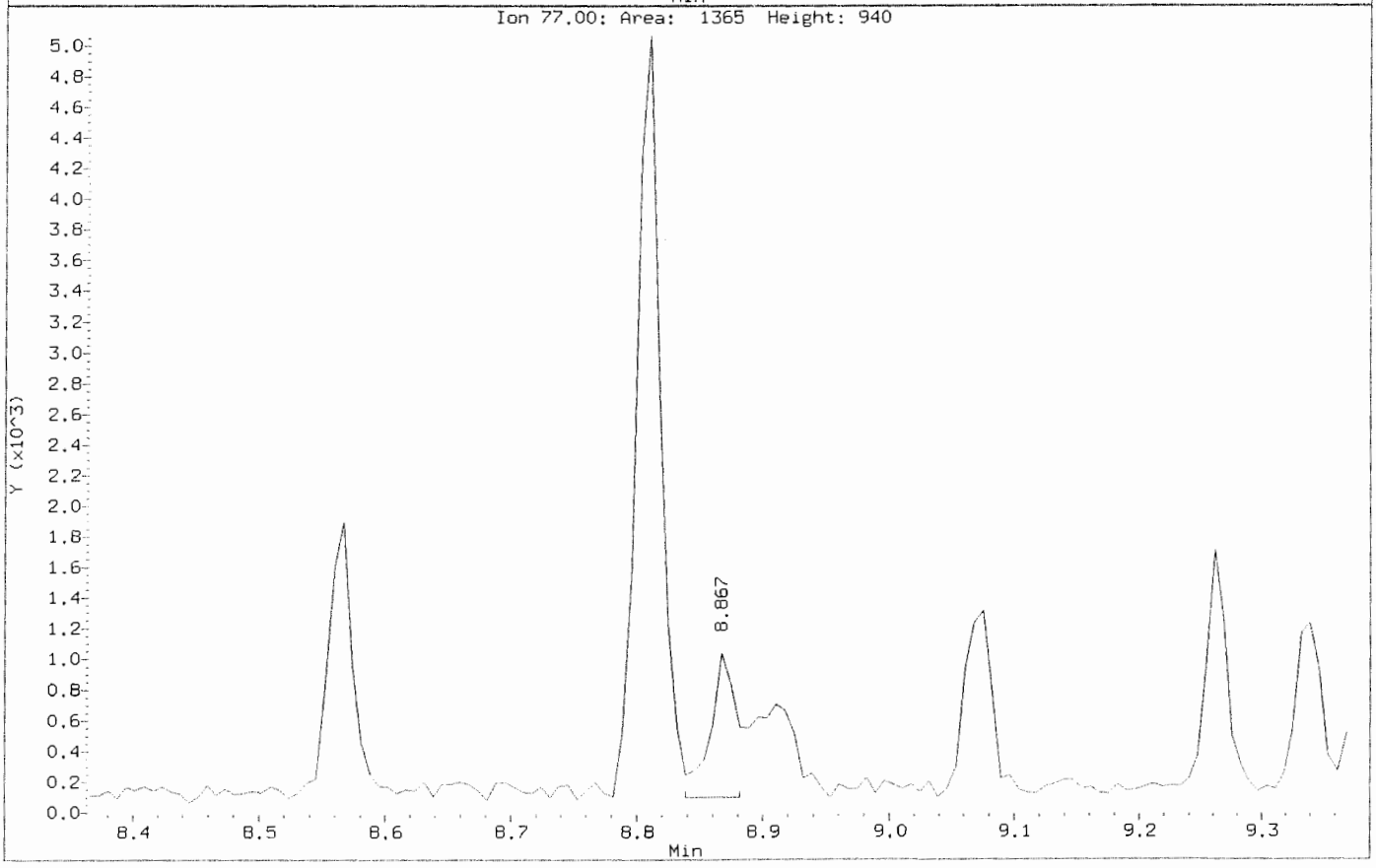
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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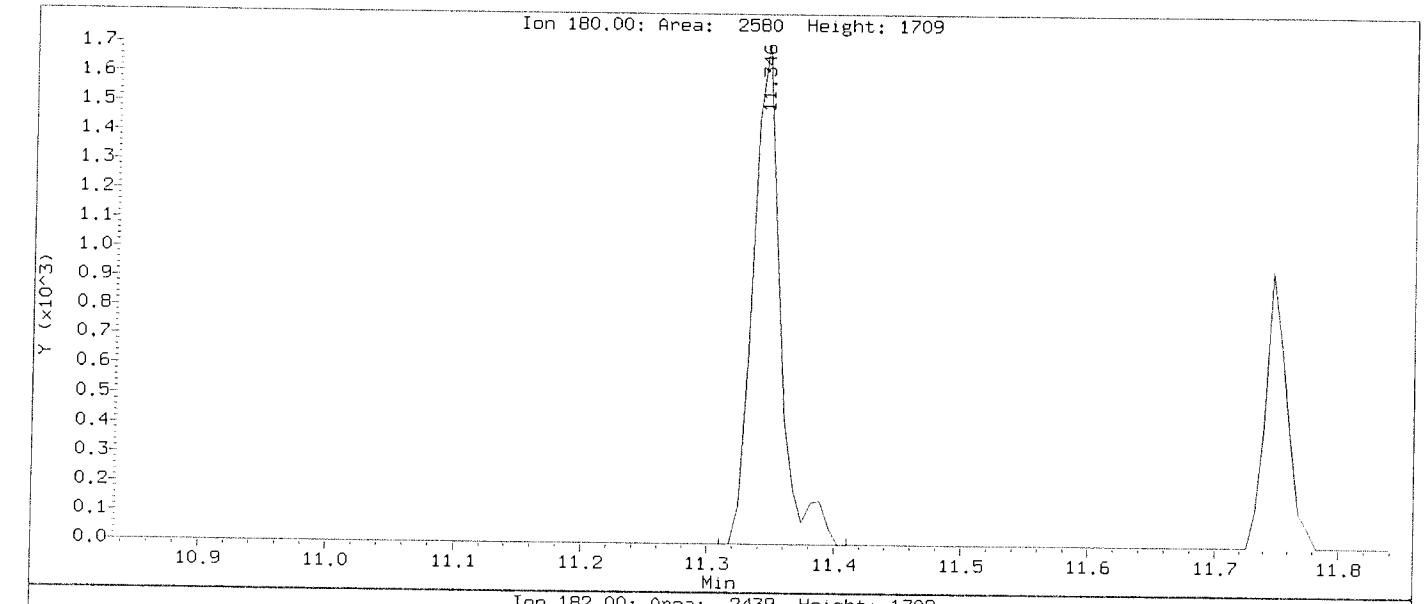
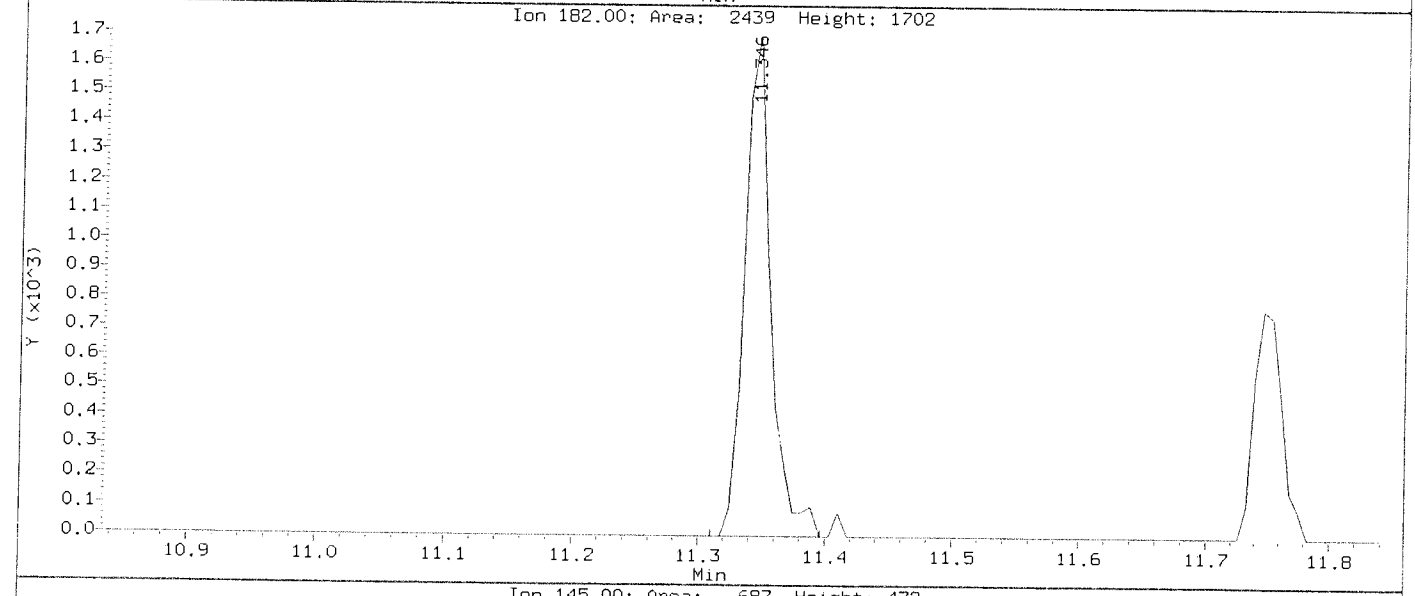
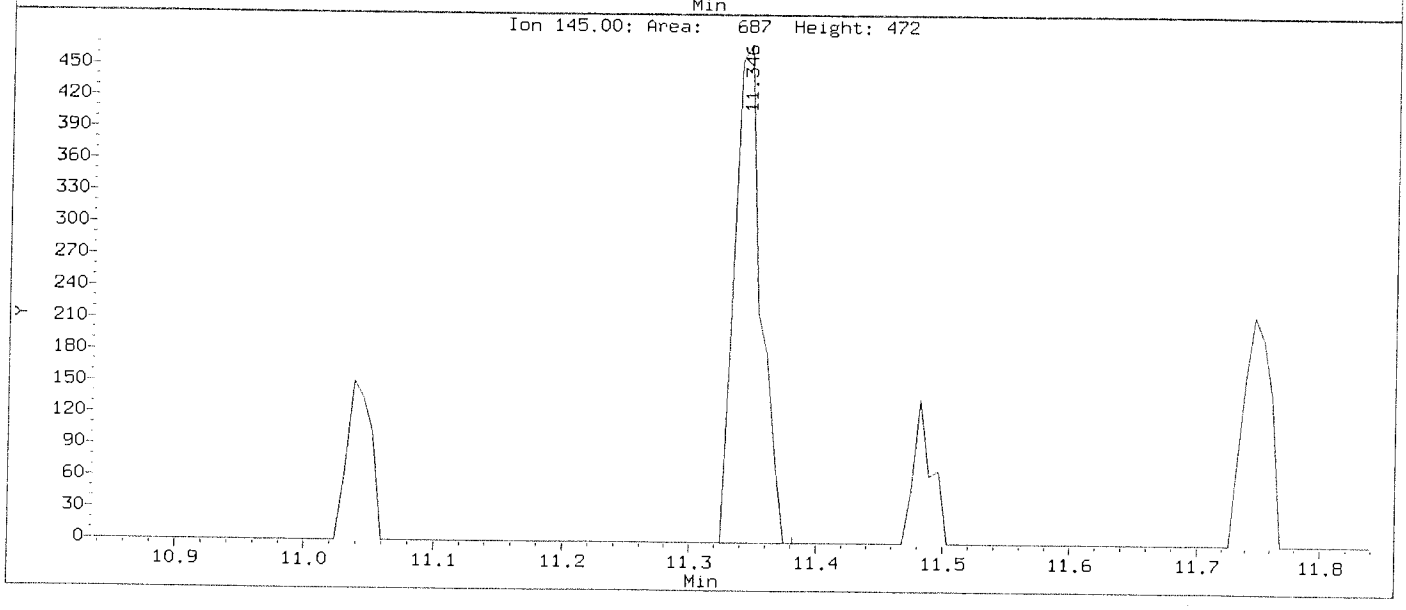
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1







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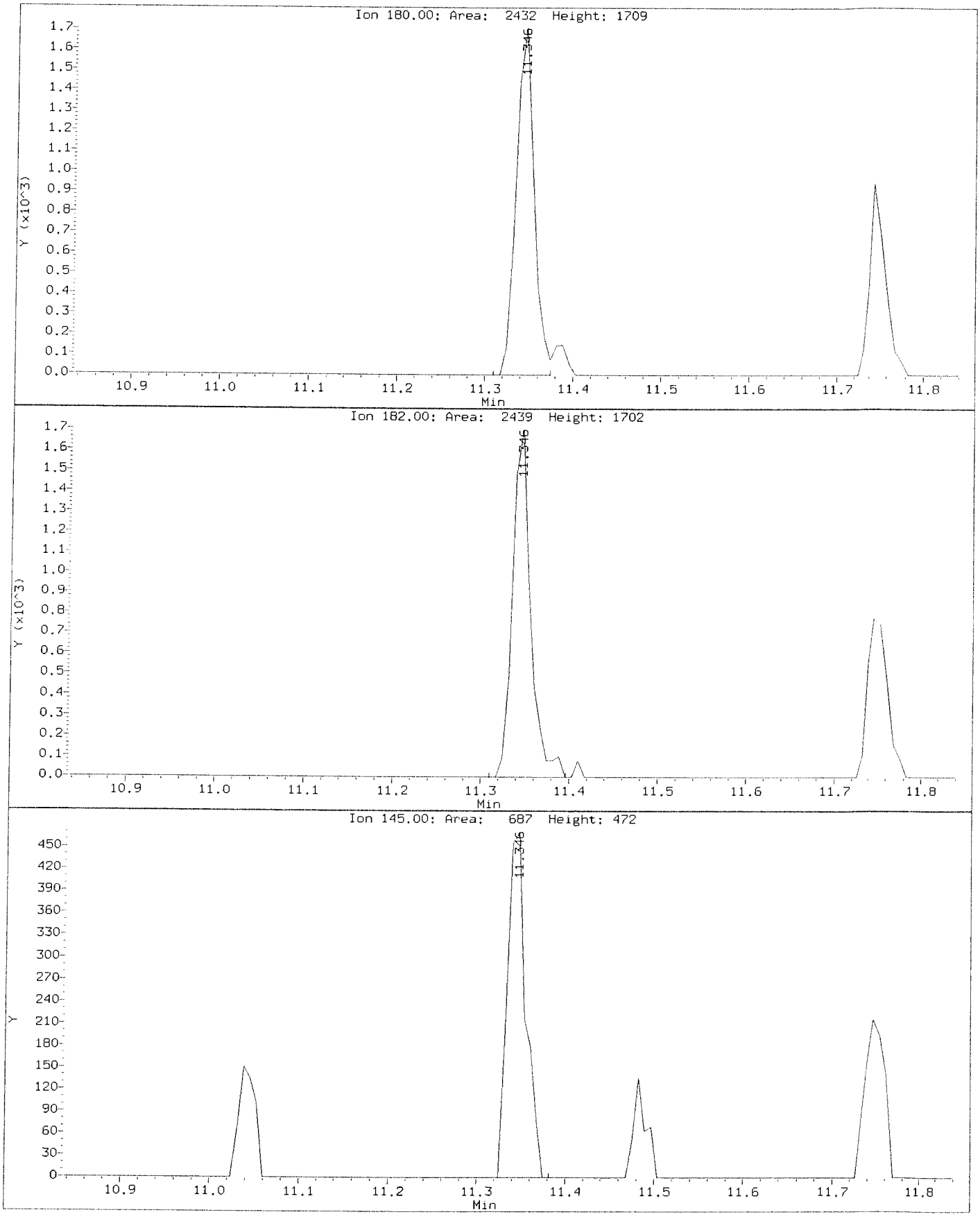
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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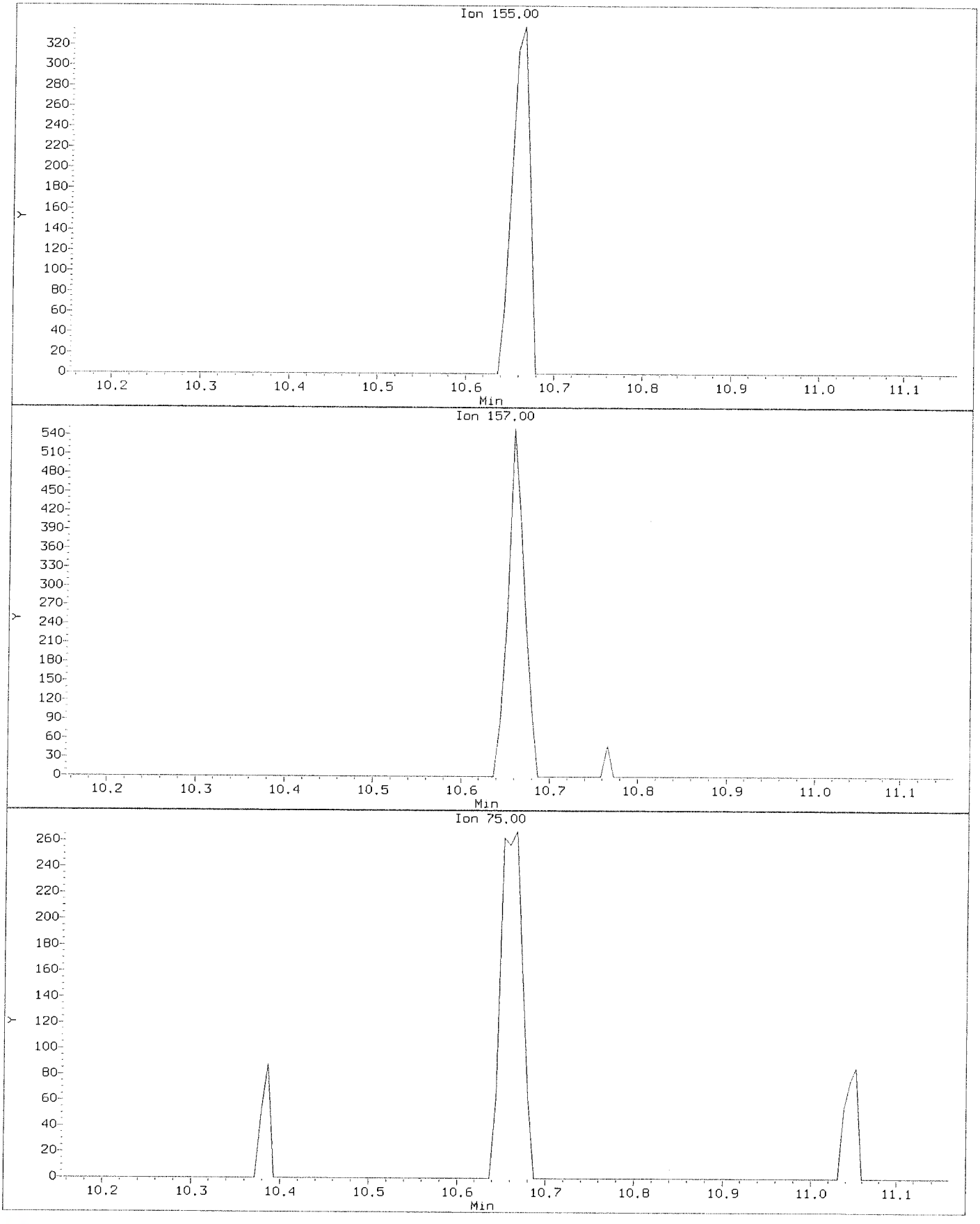
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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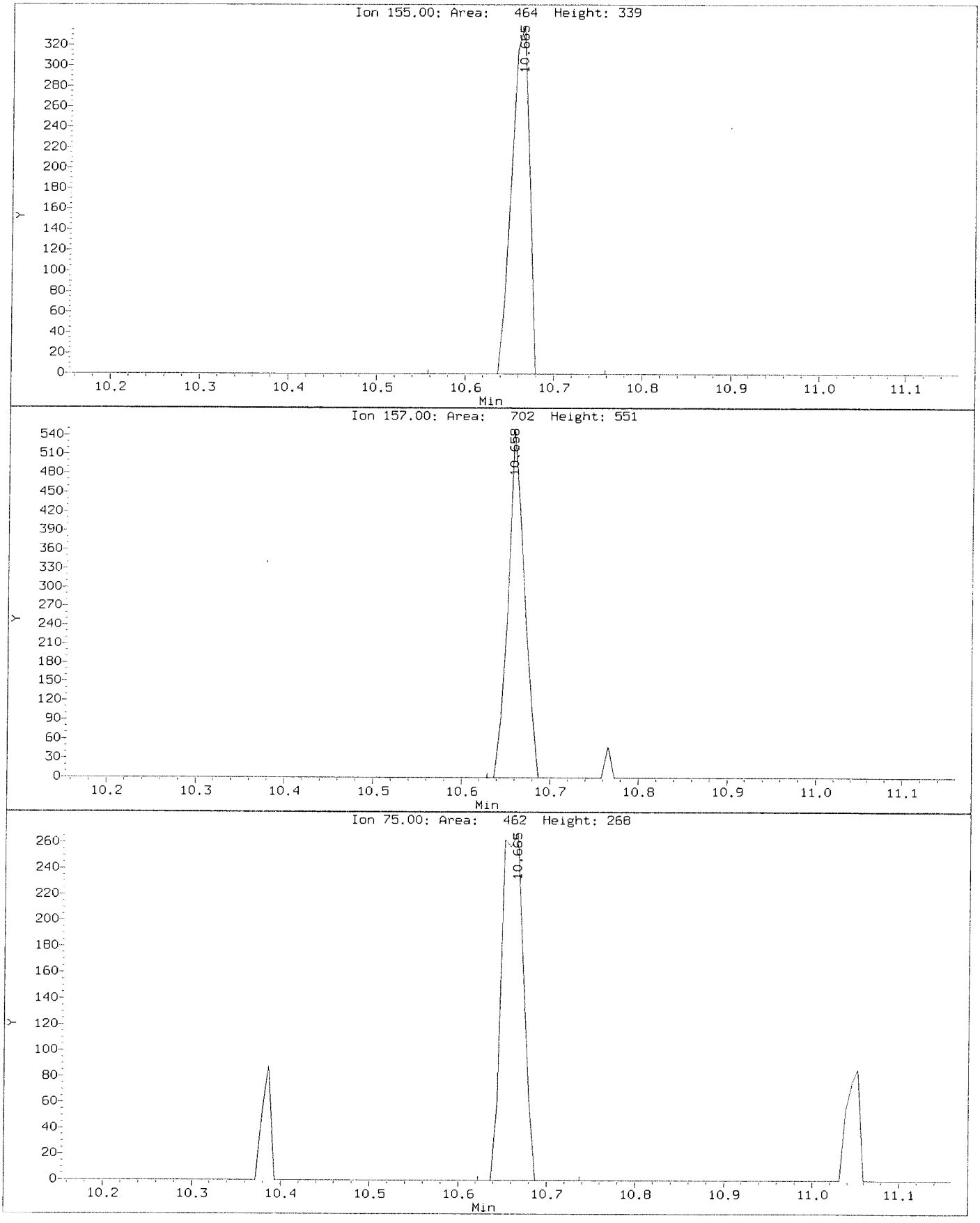
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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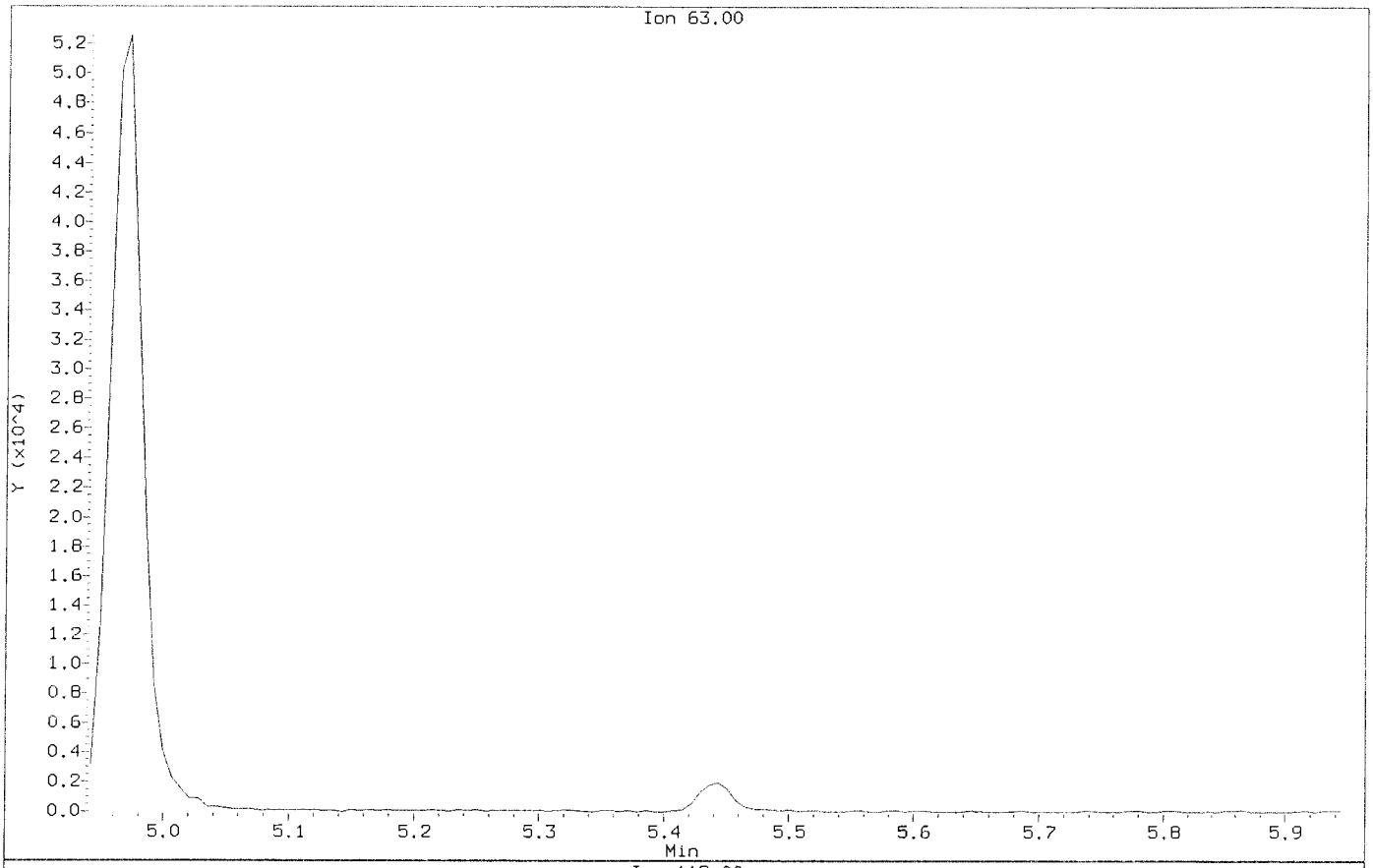
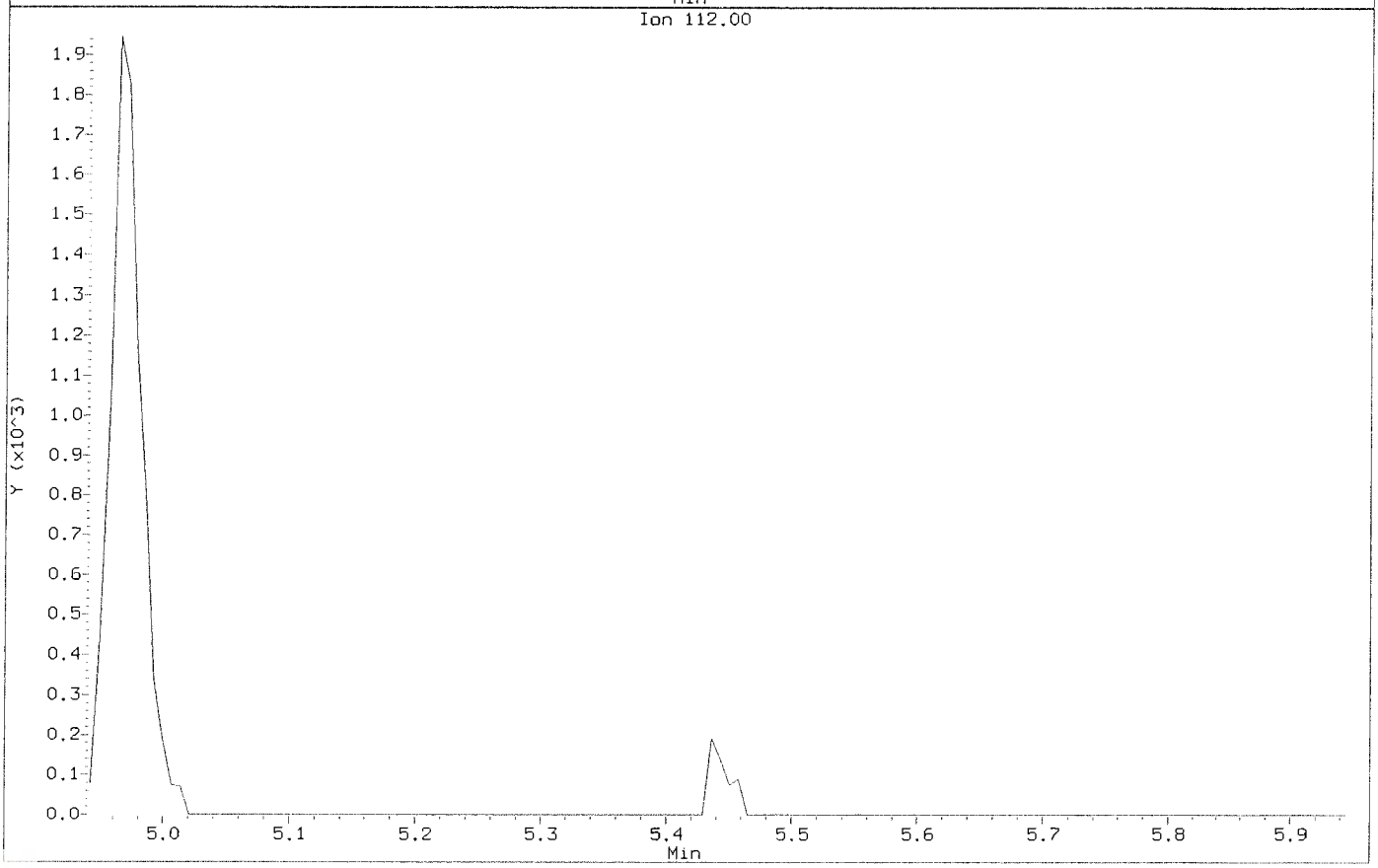
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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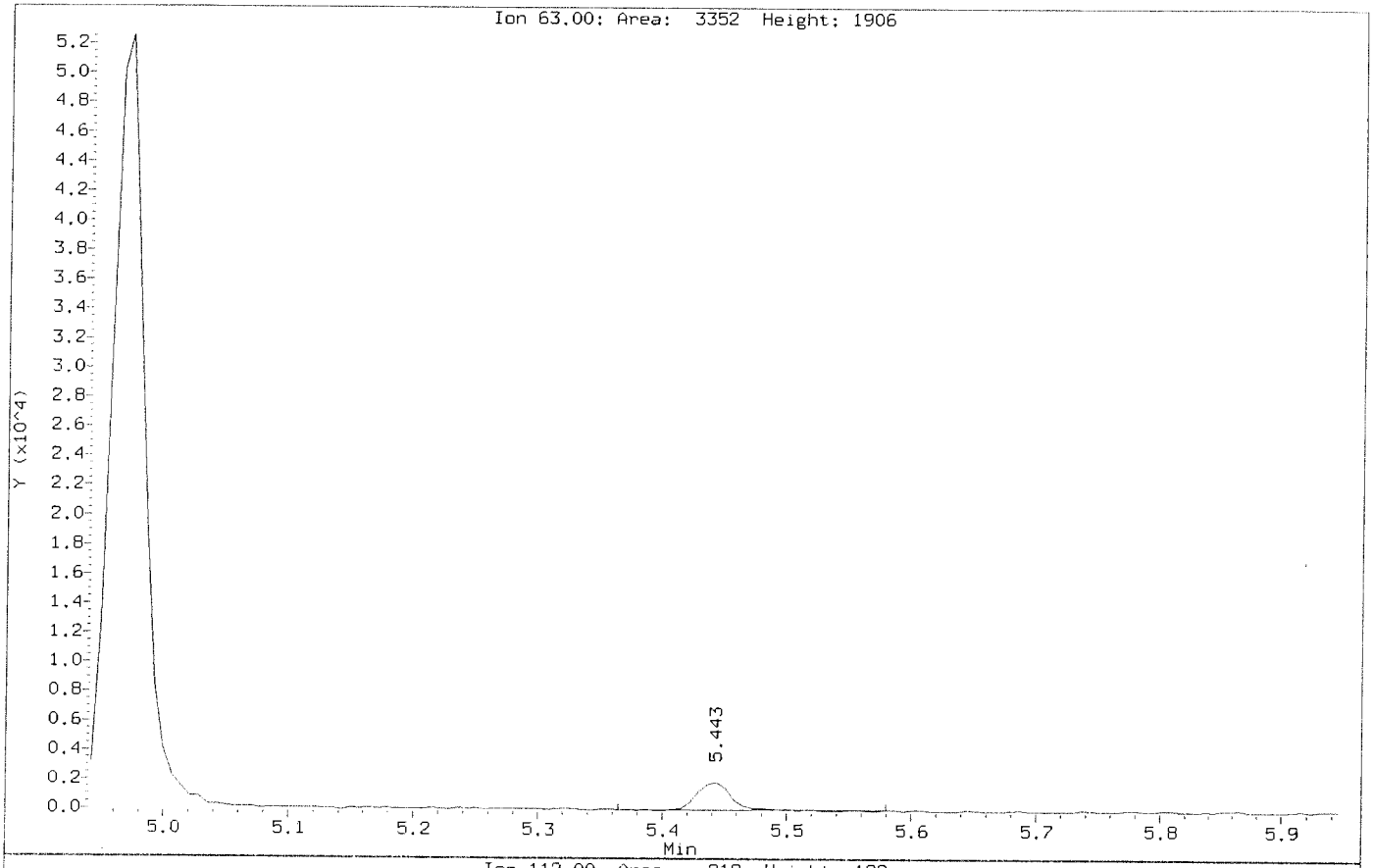
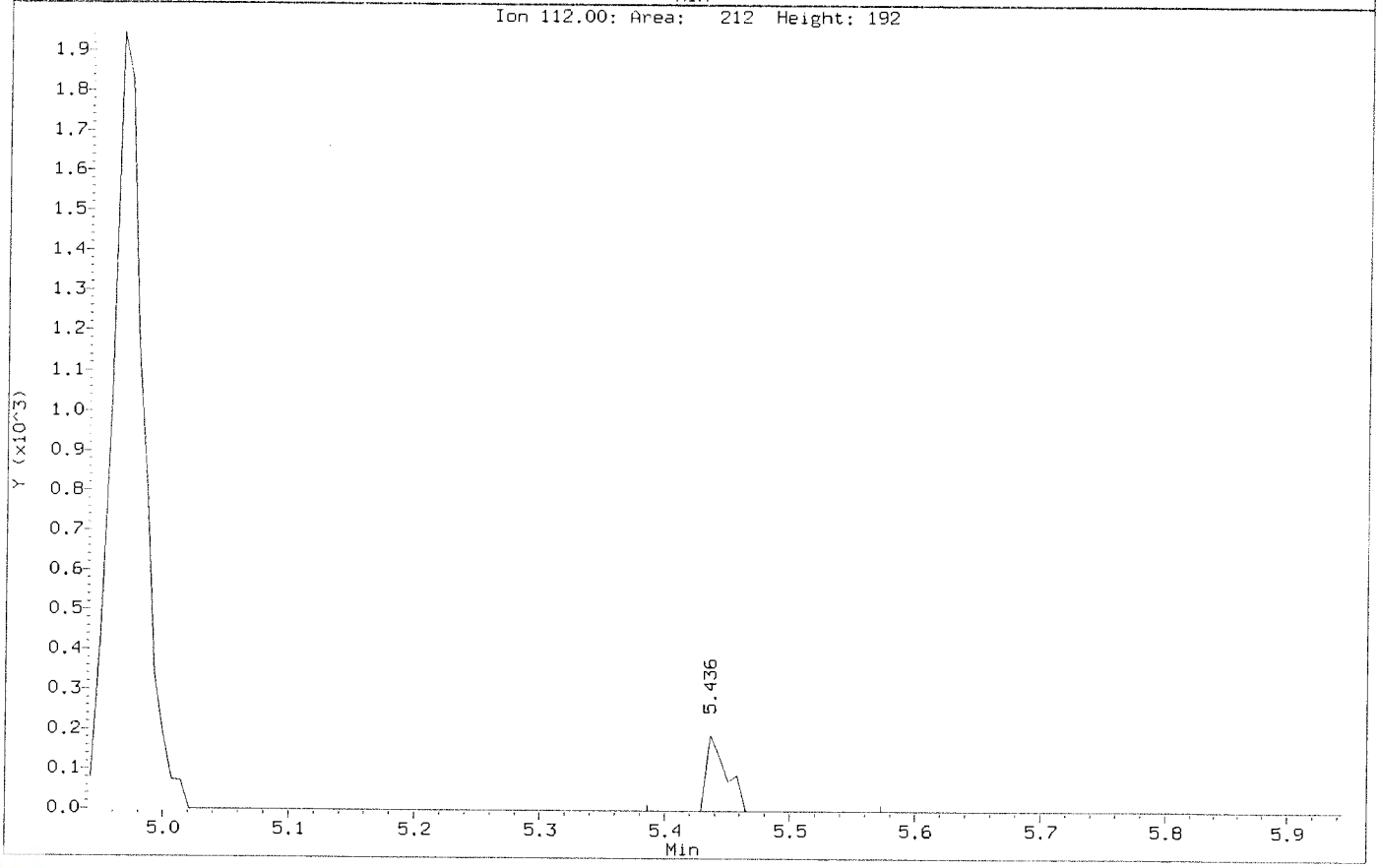
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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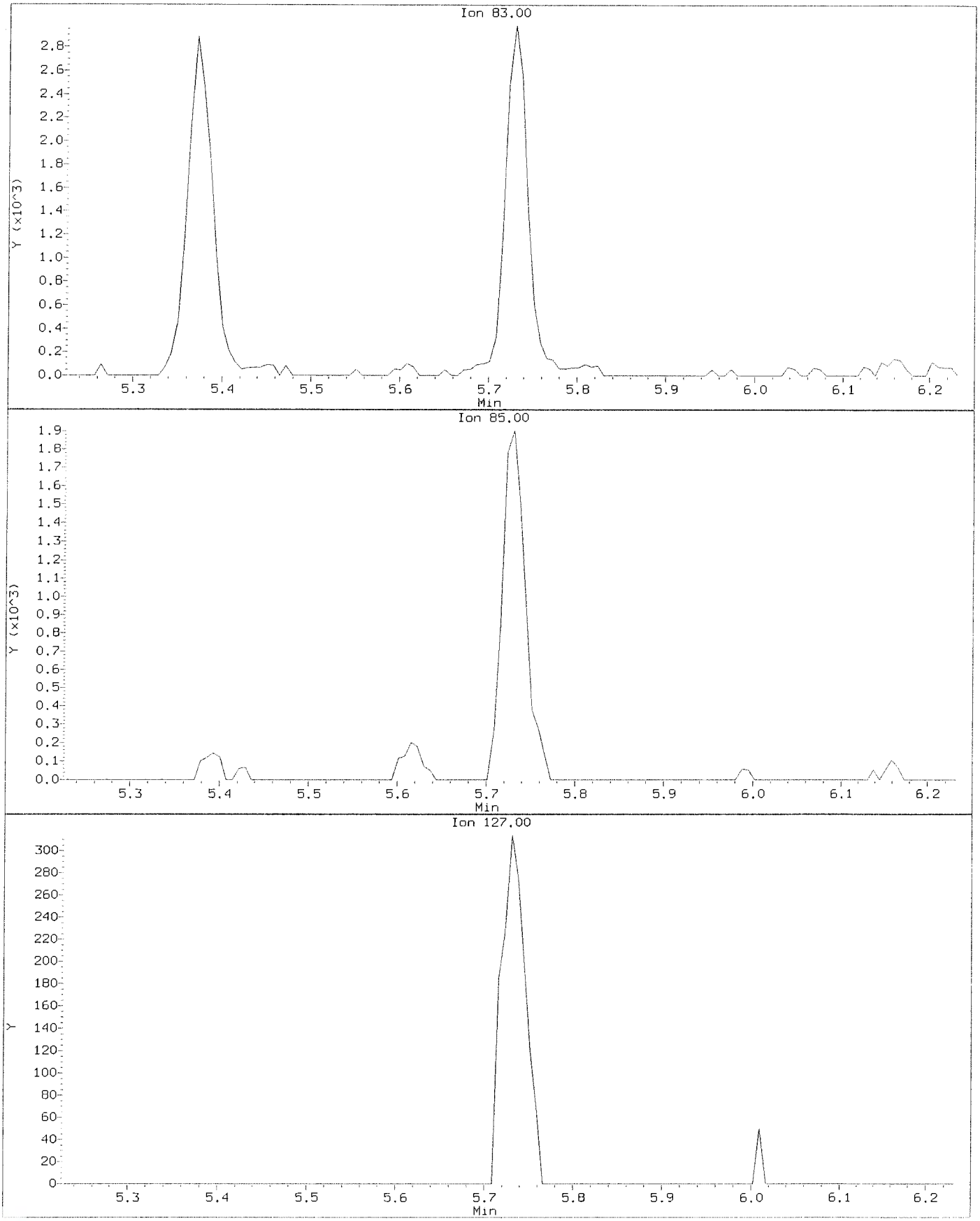
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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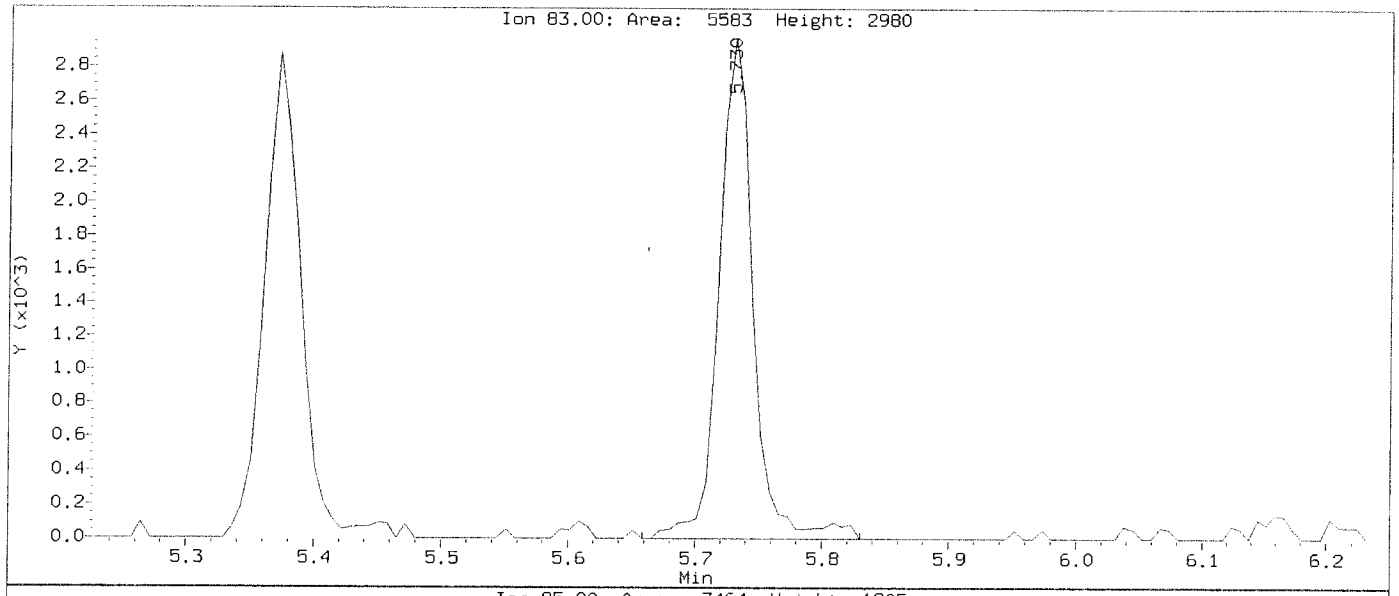
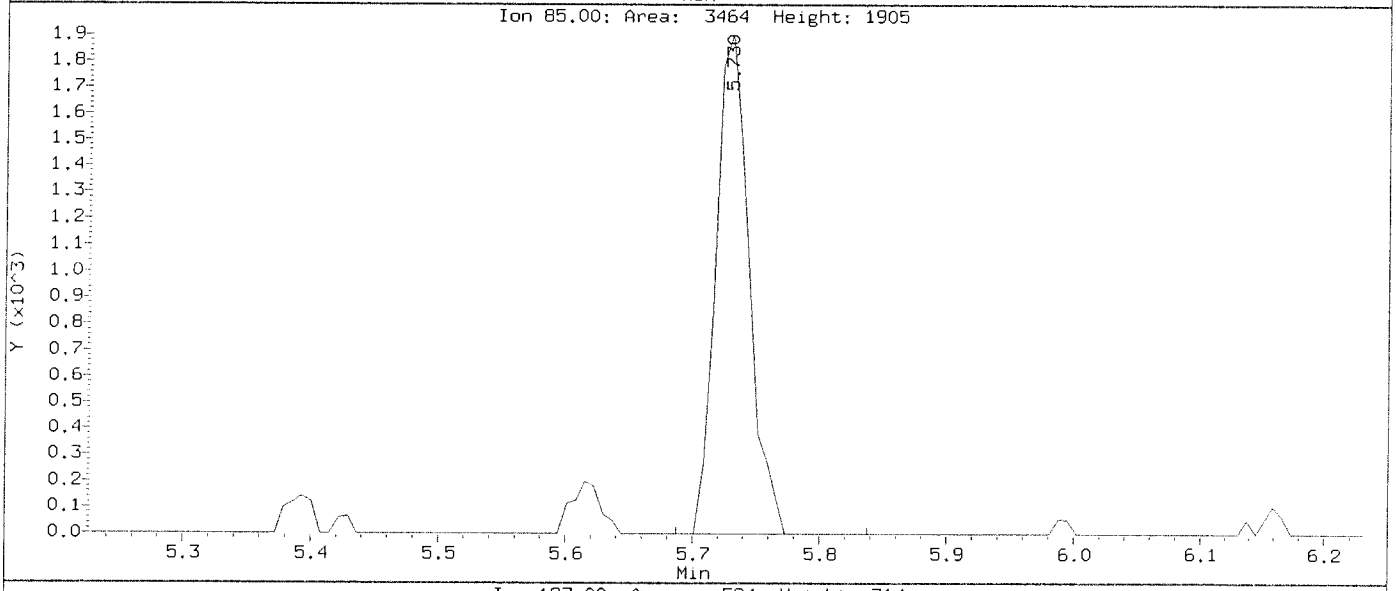
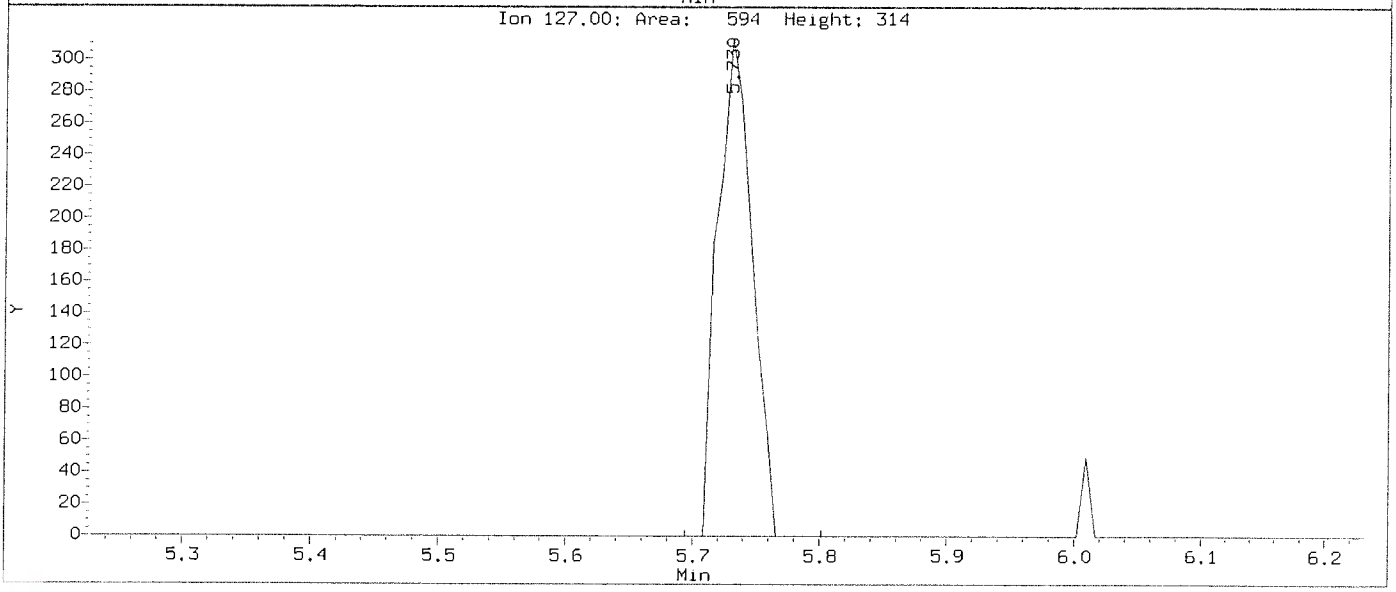
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4







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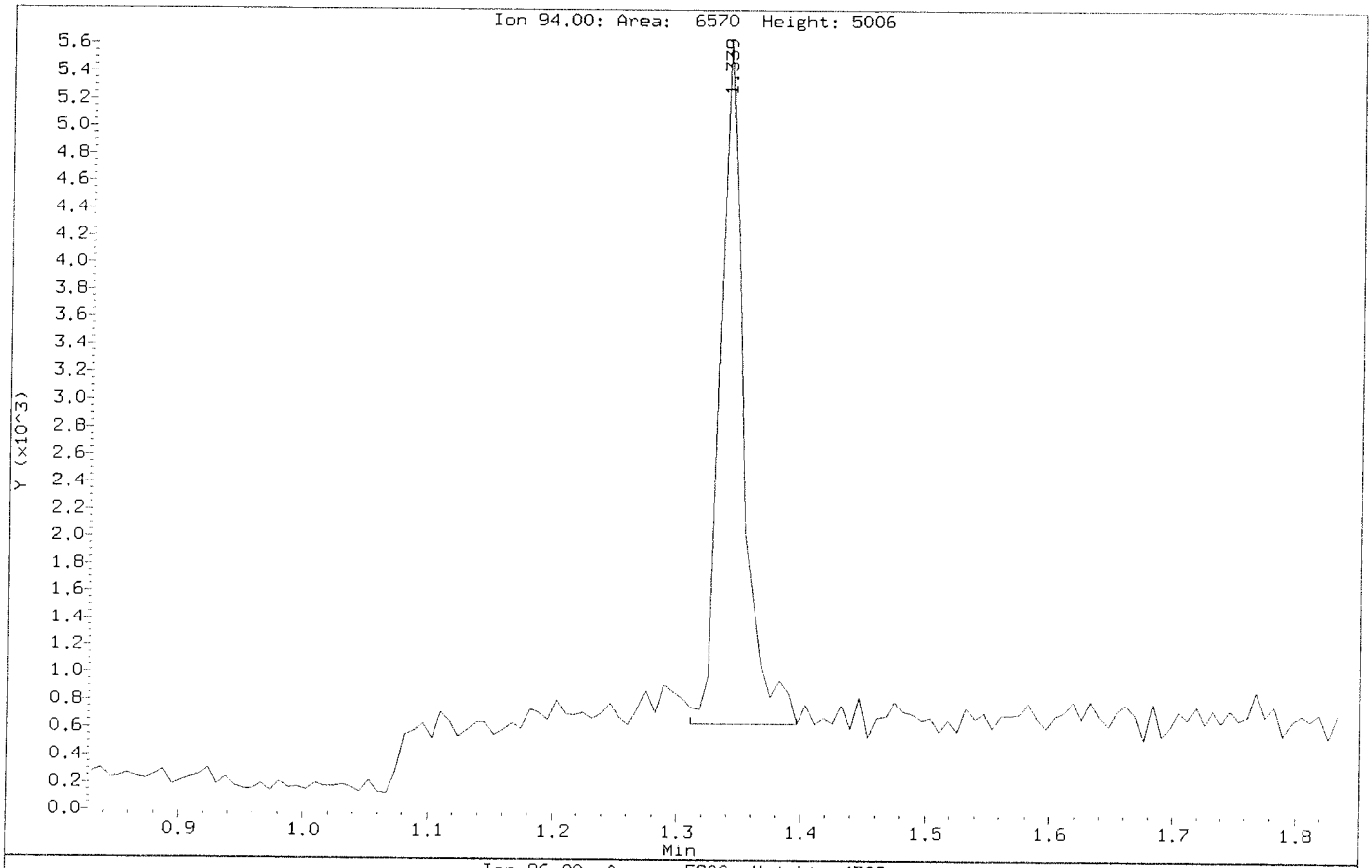
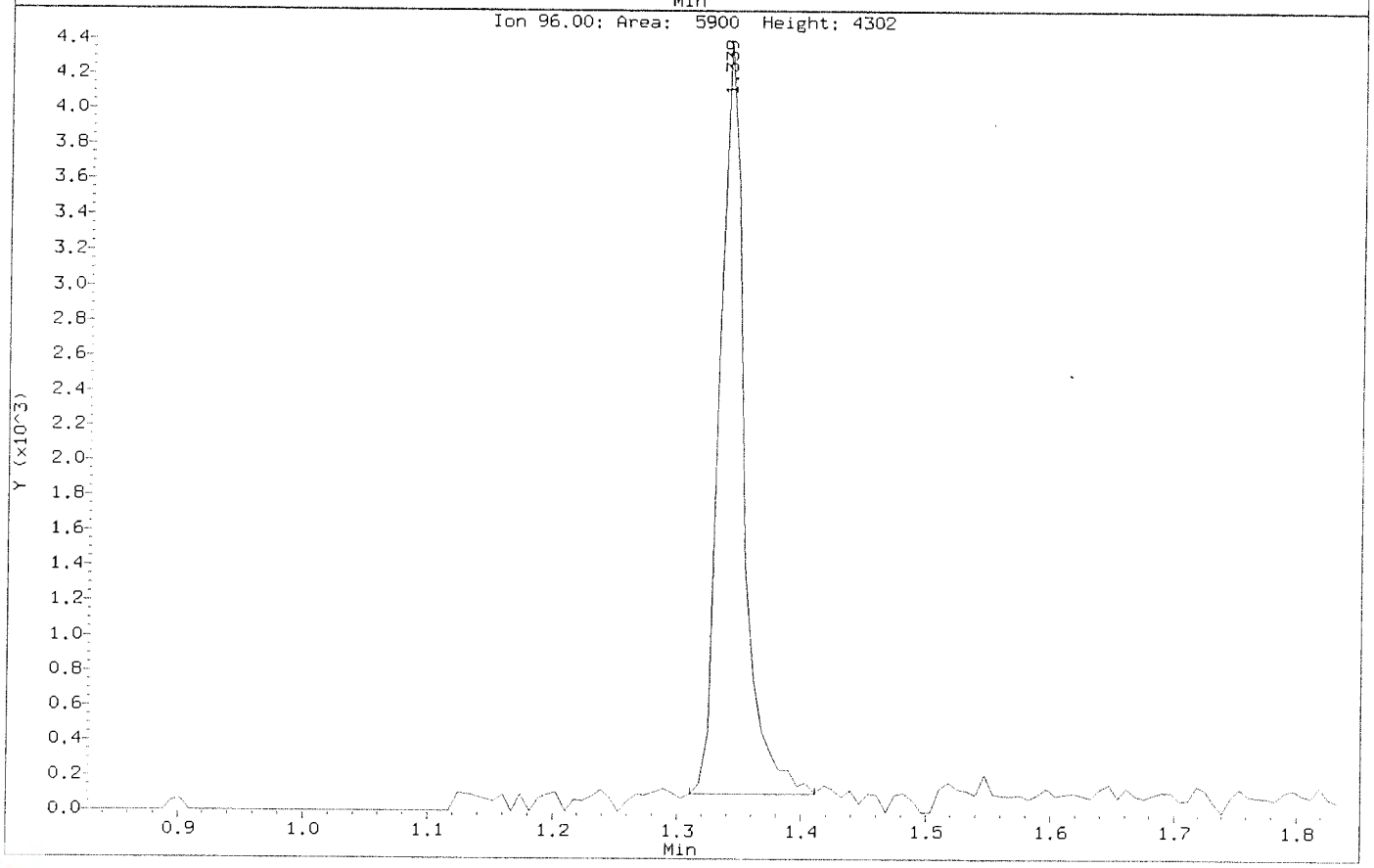
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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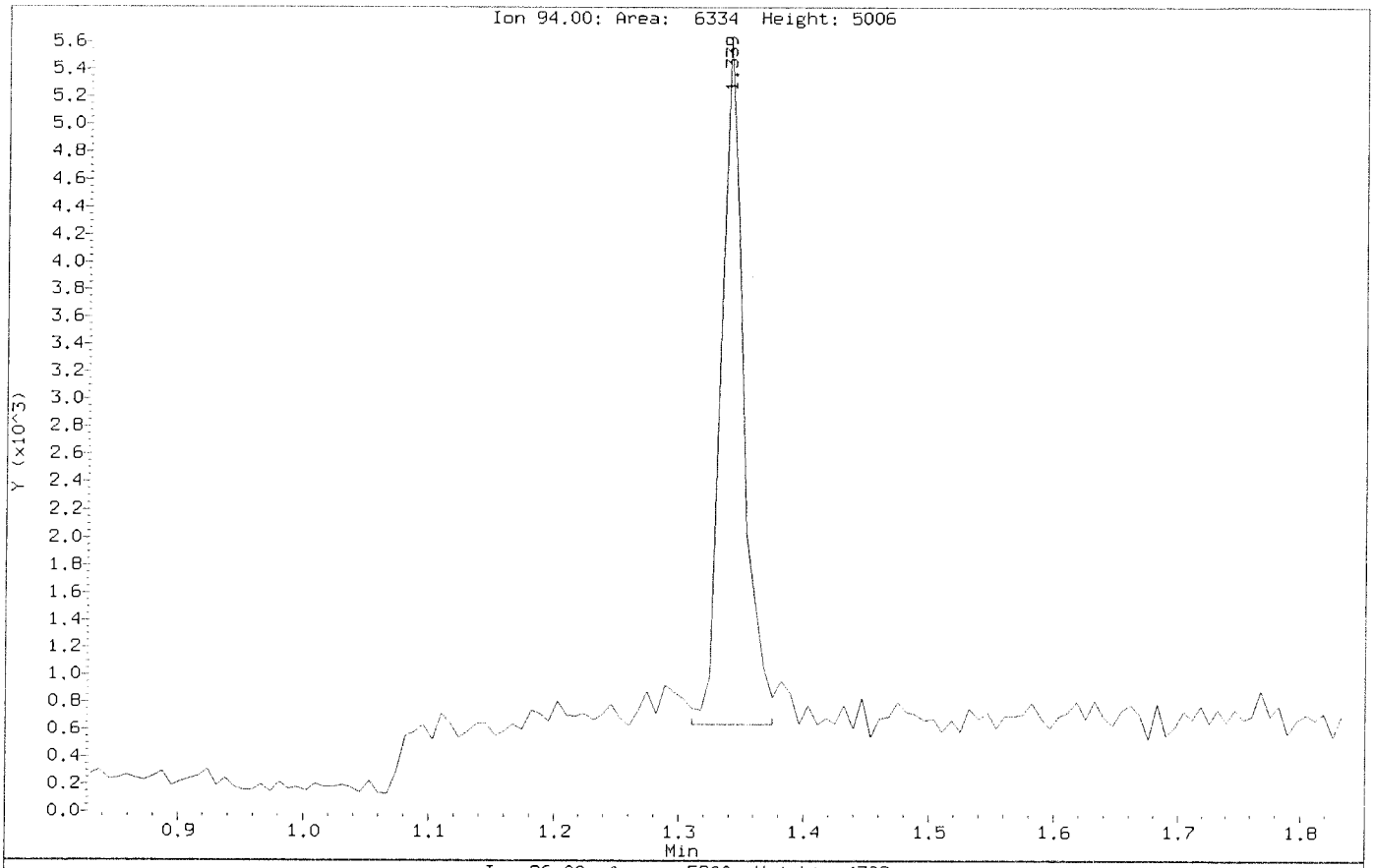
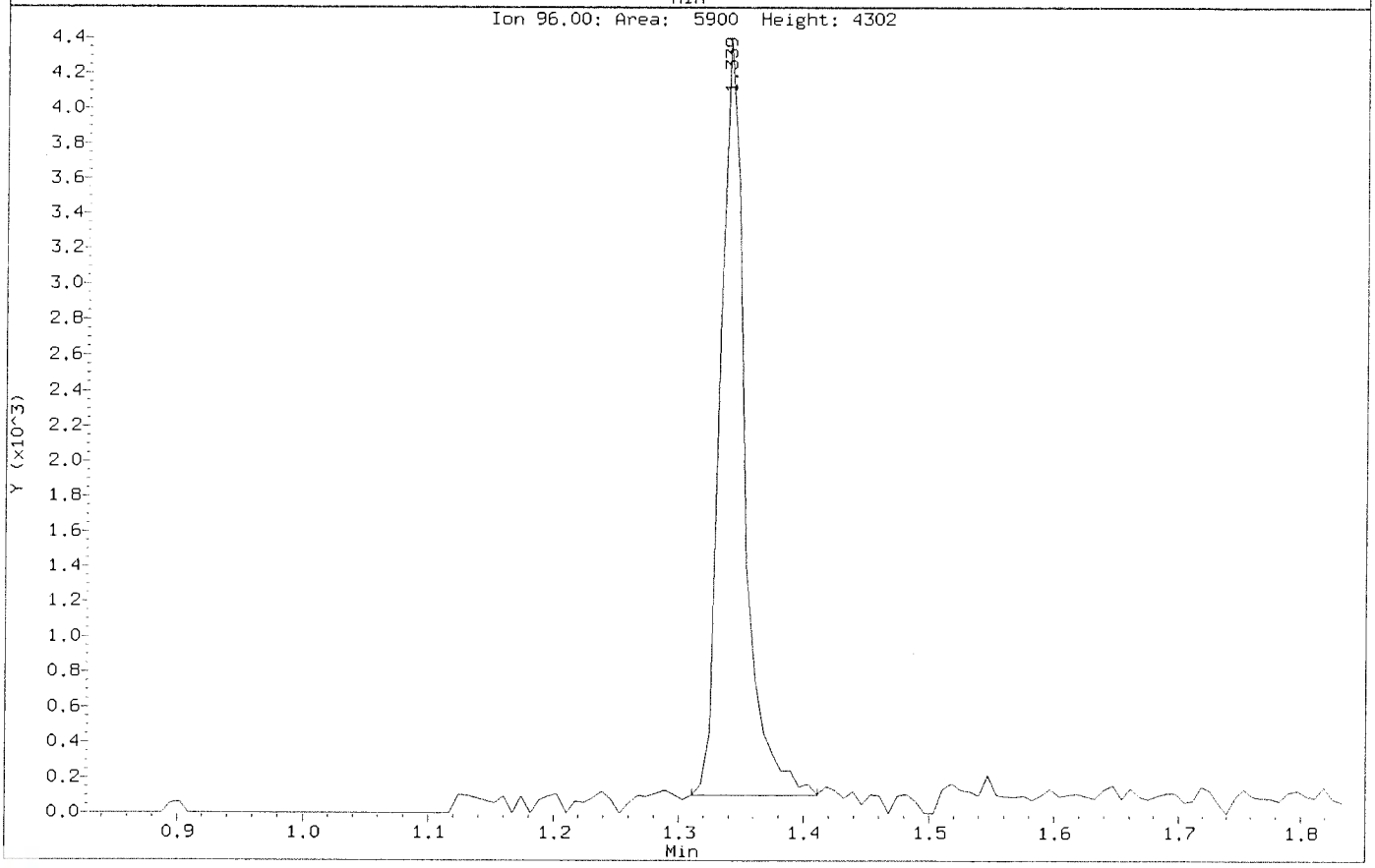
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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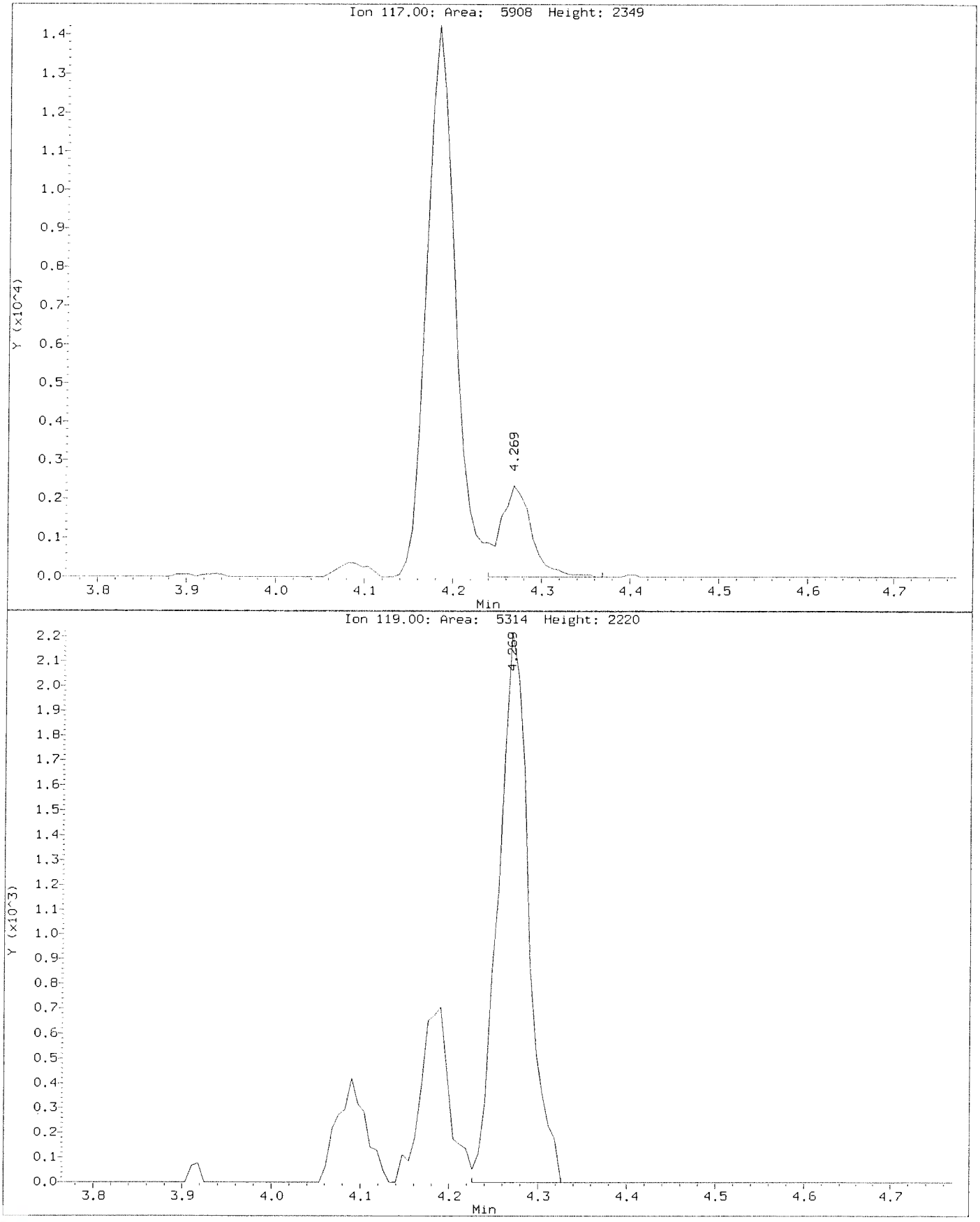
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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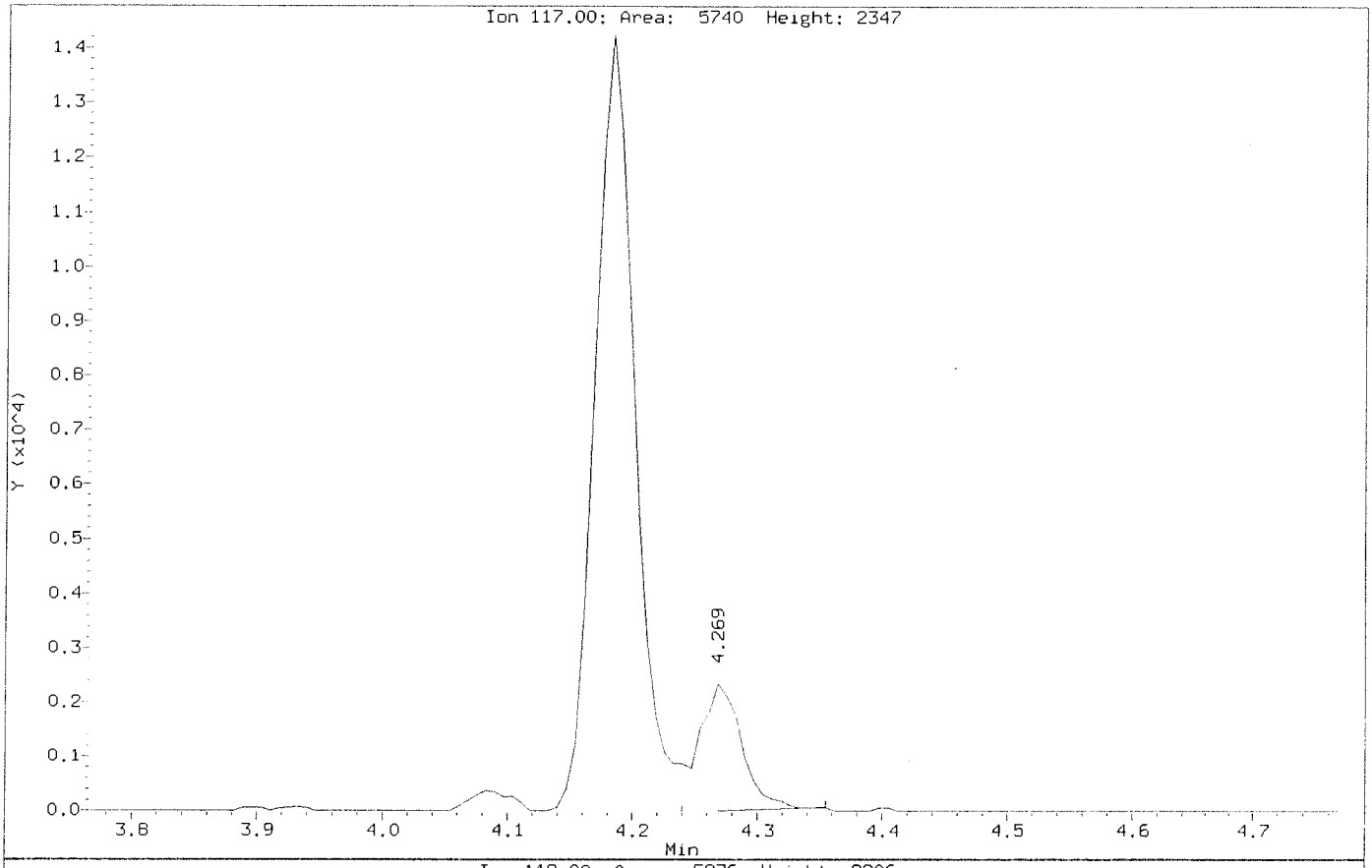
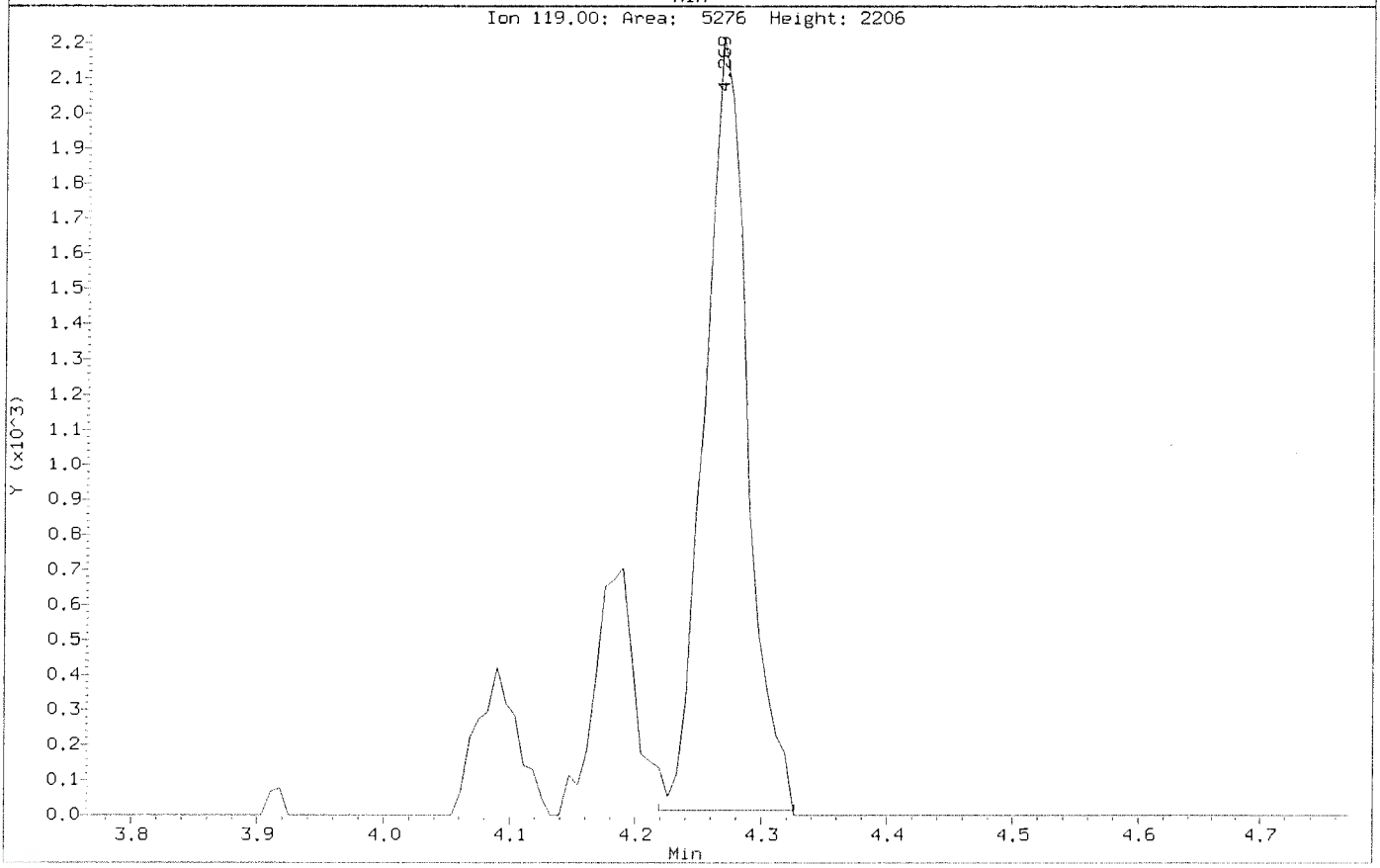
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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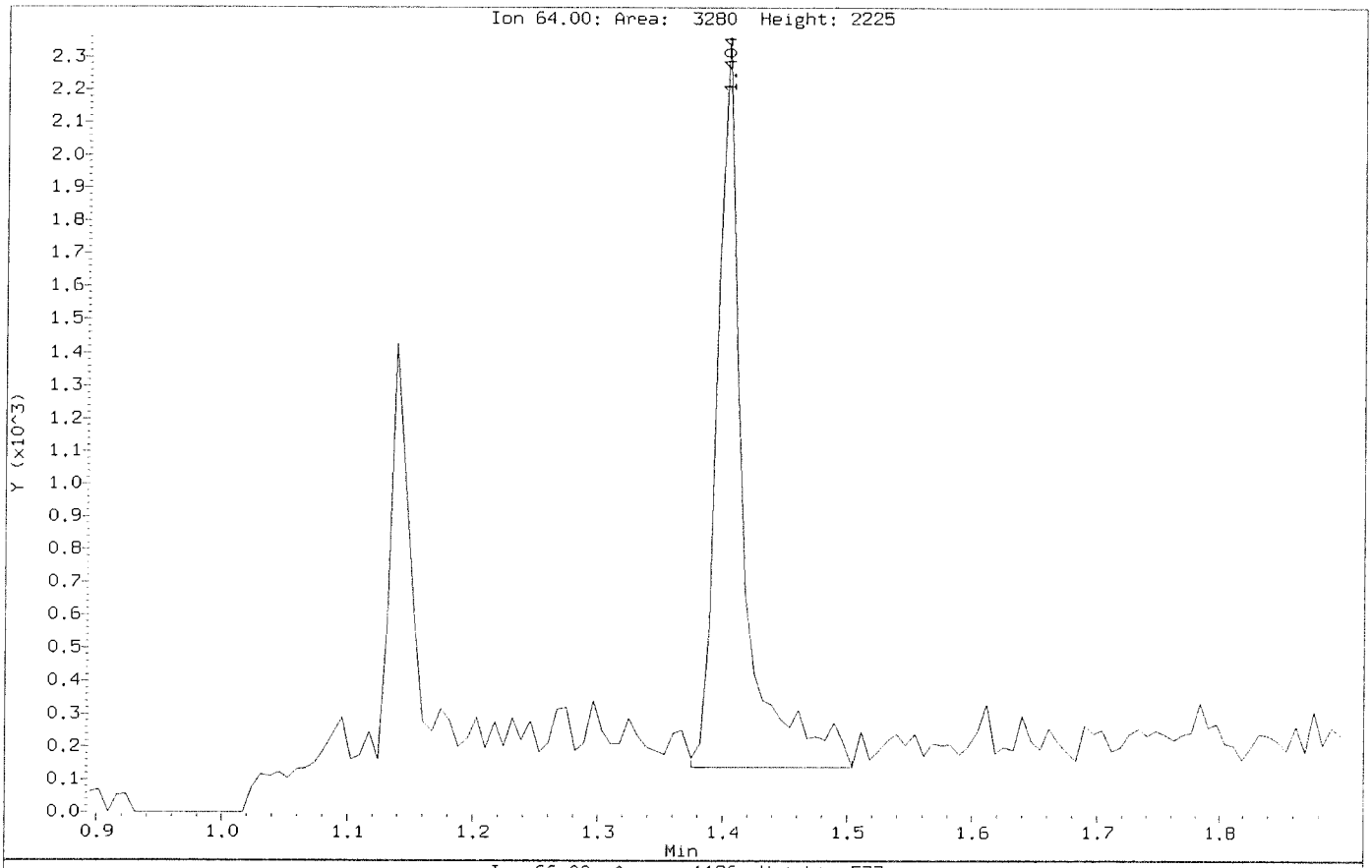
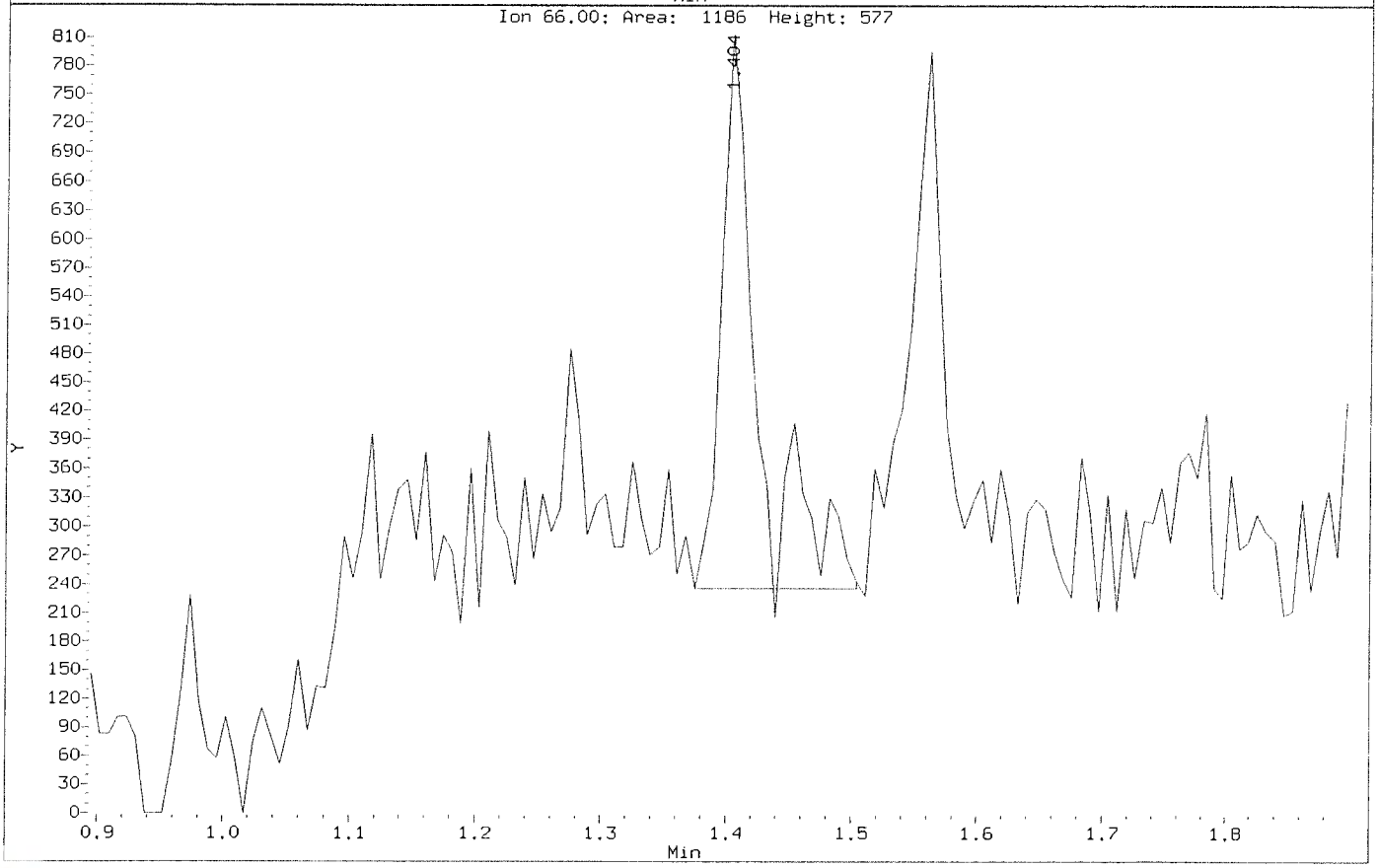
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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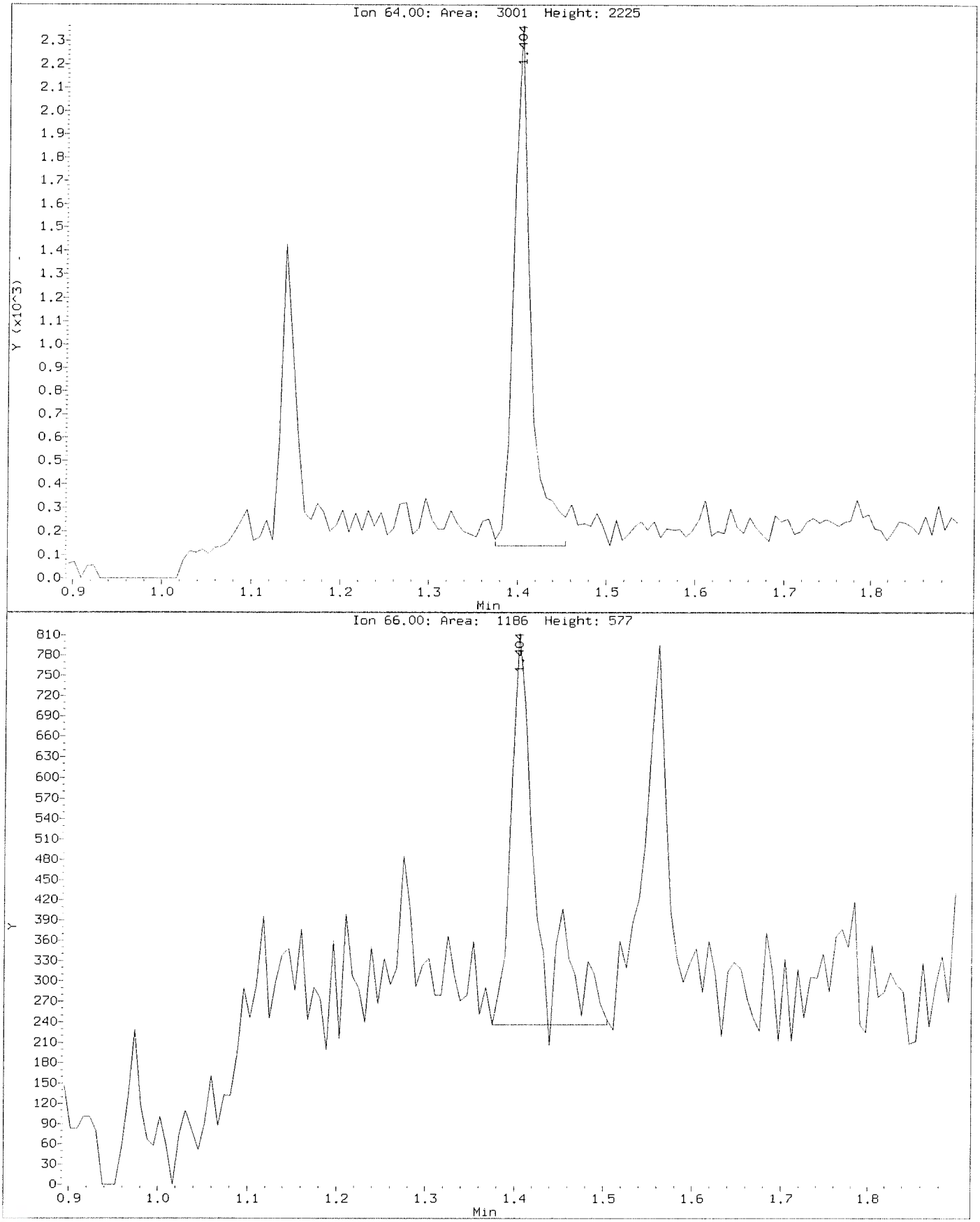
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



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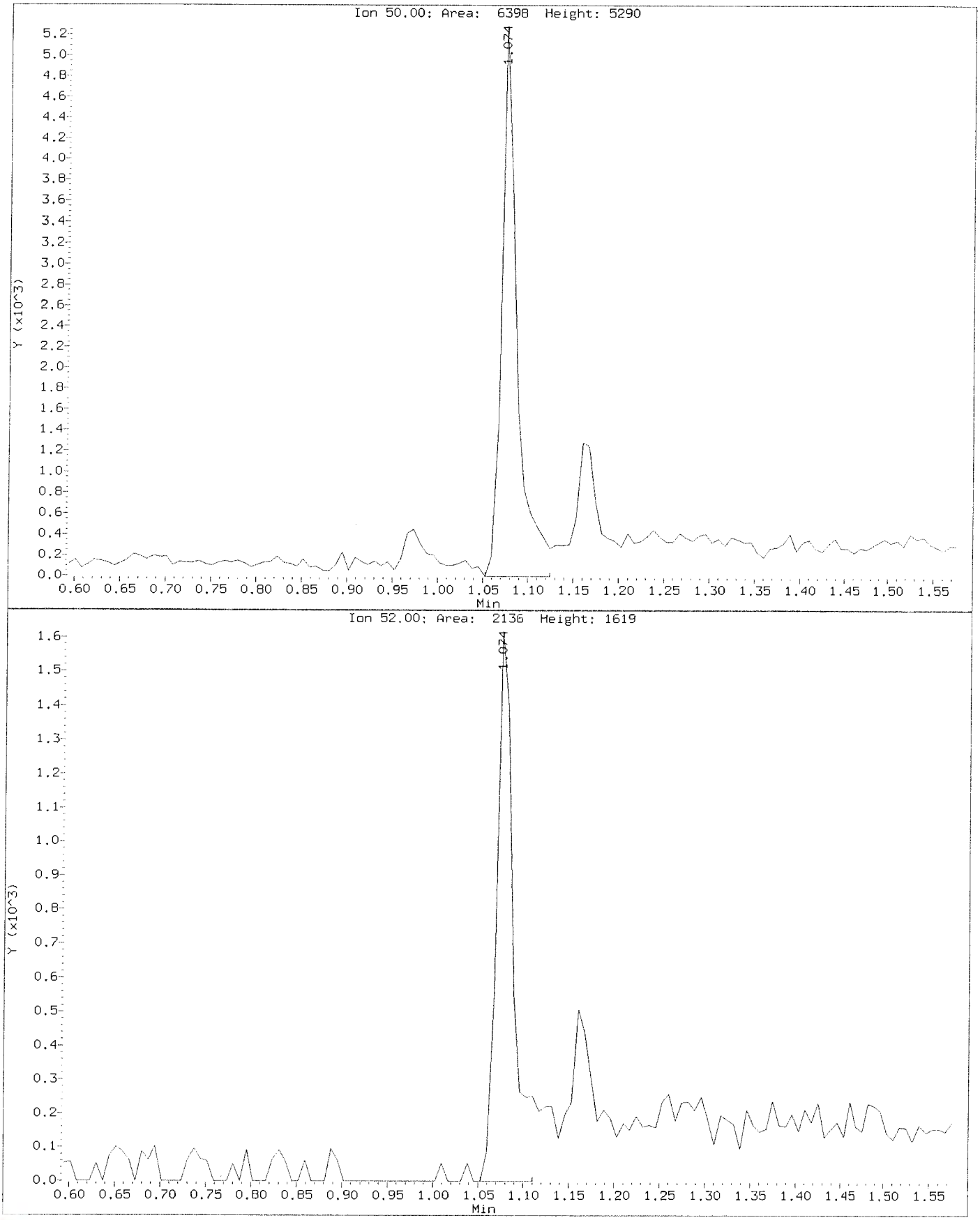
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



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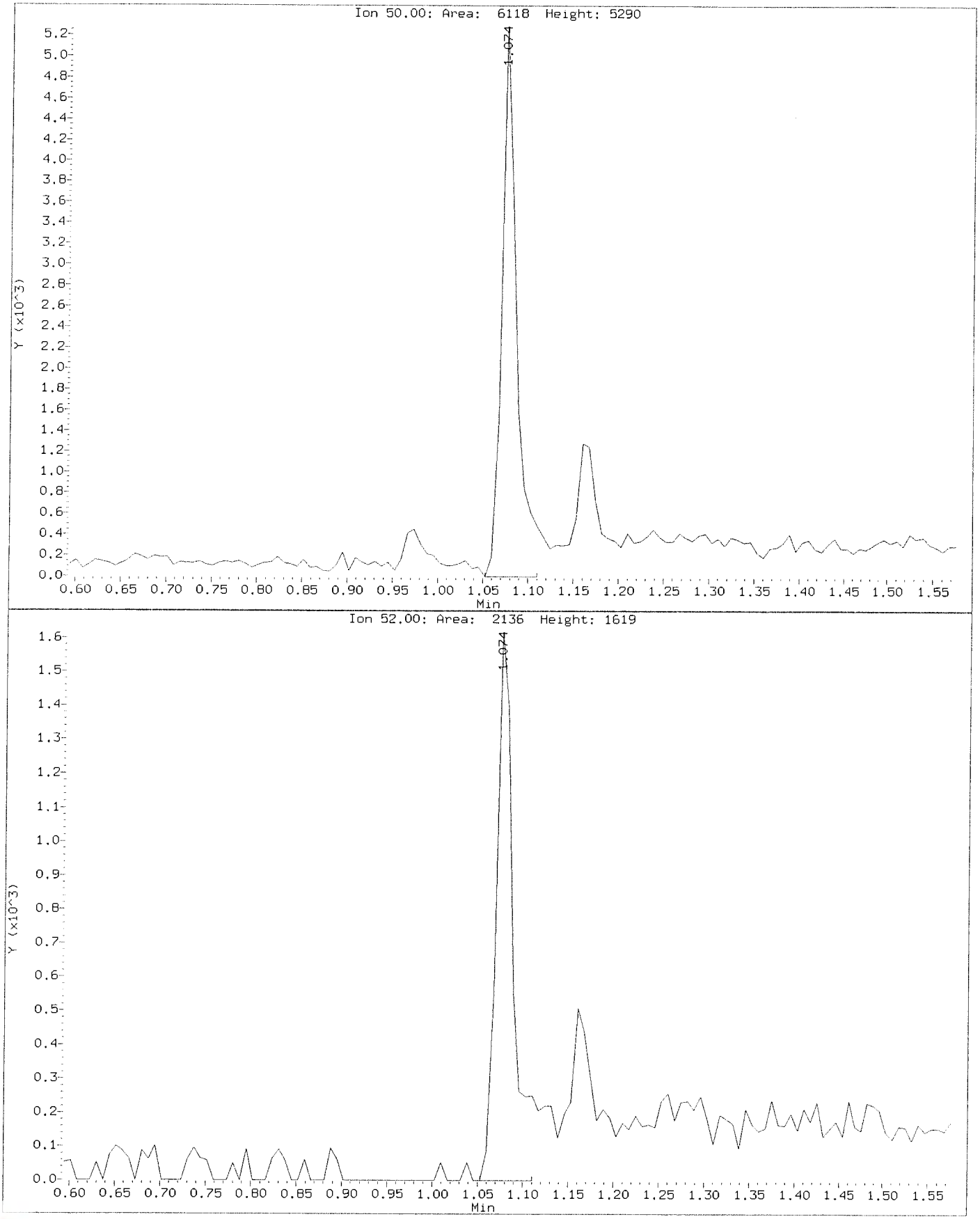
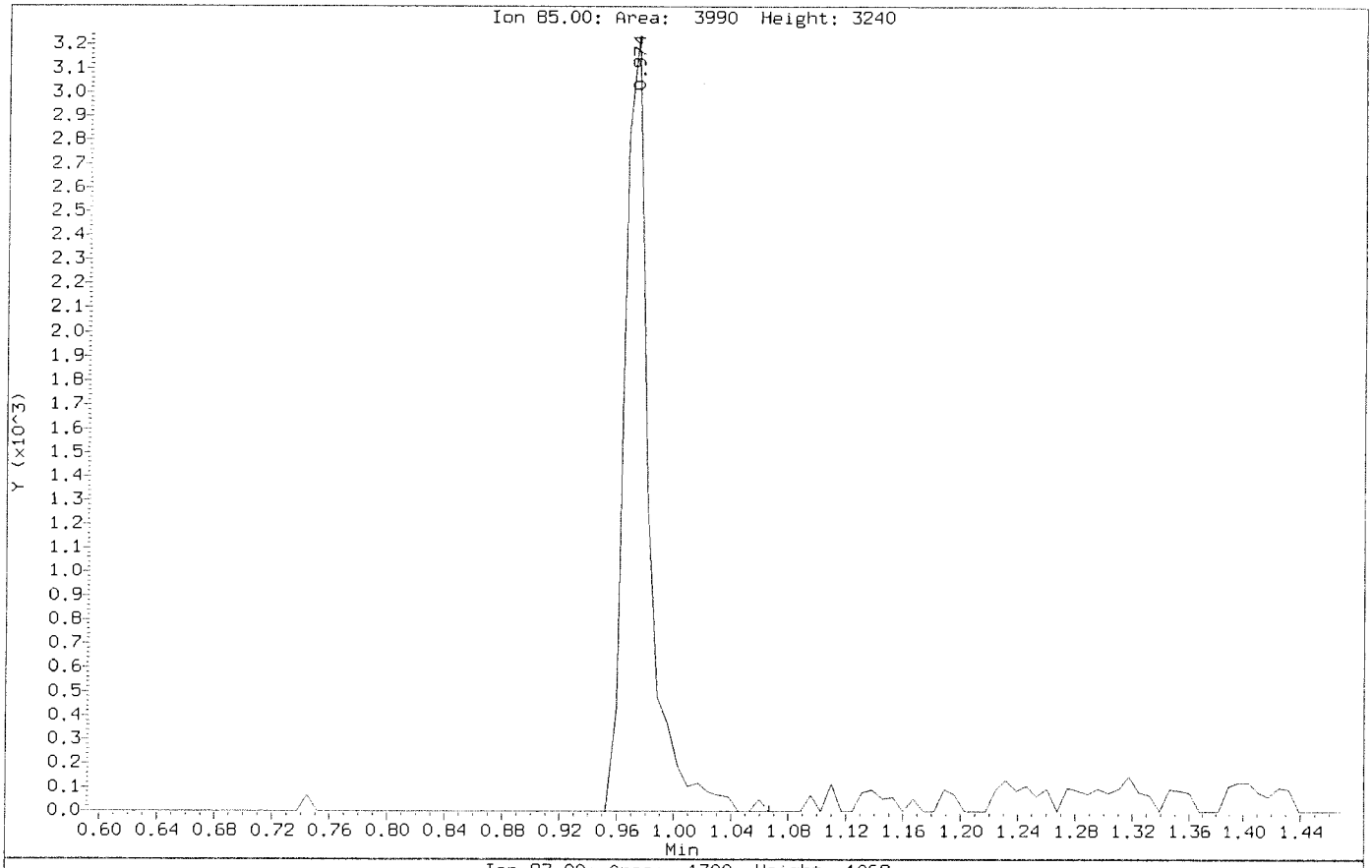
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

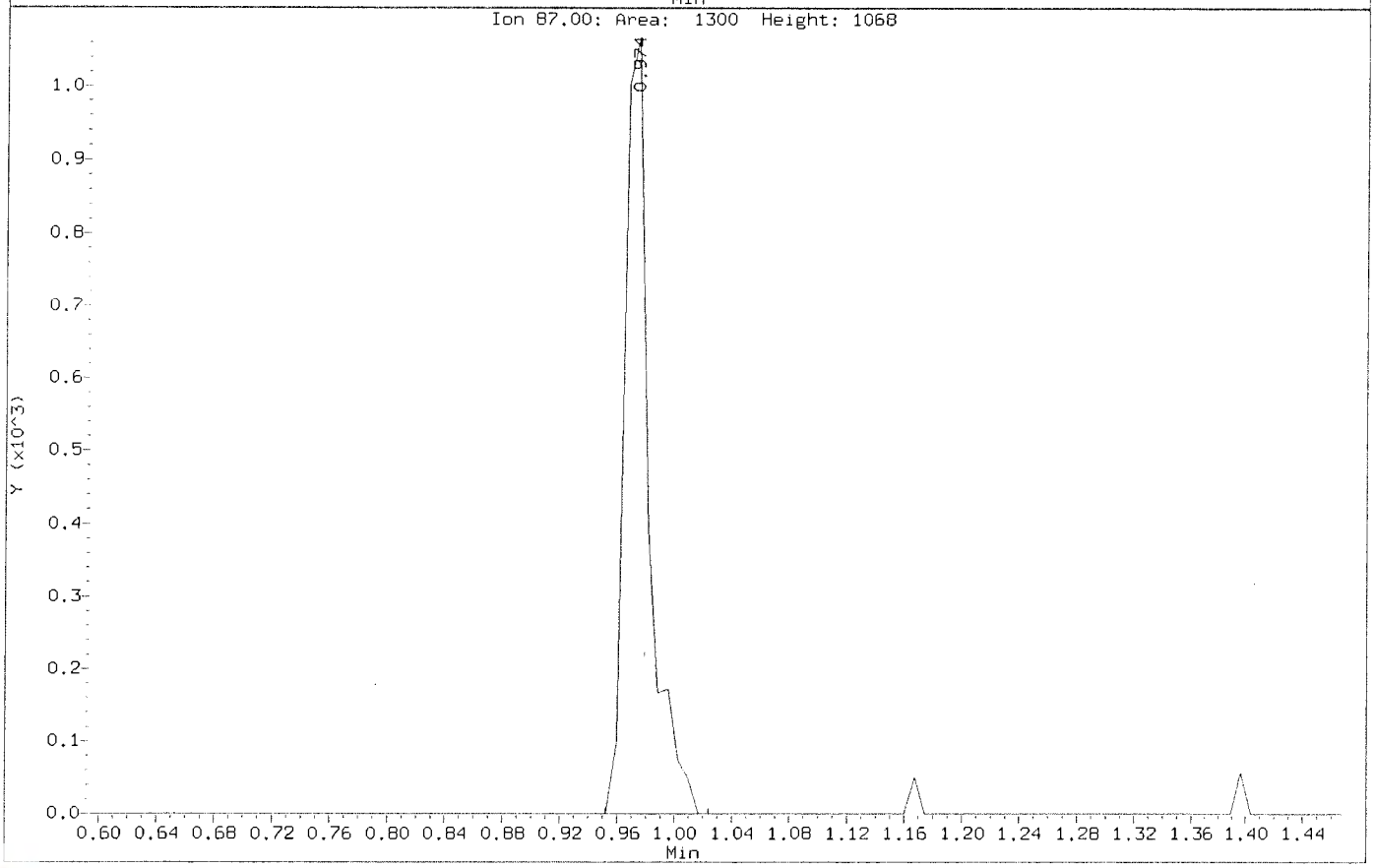
Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111804.D
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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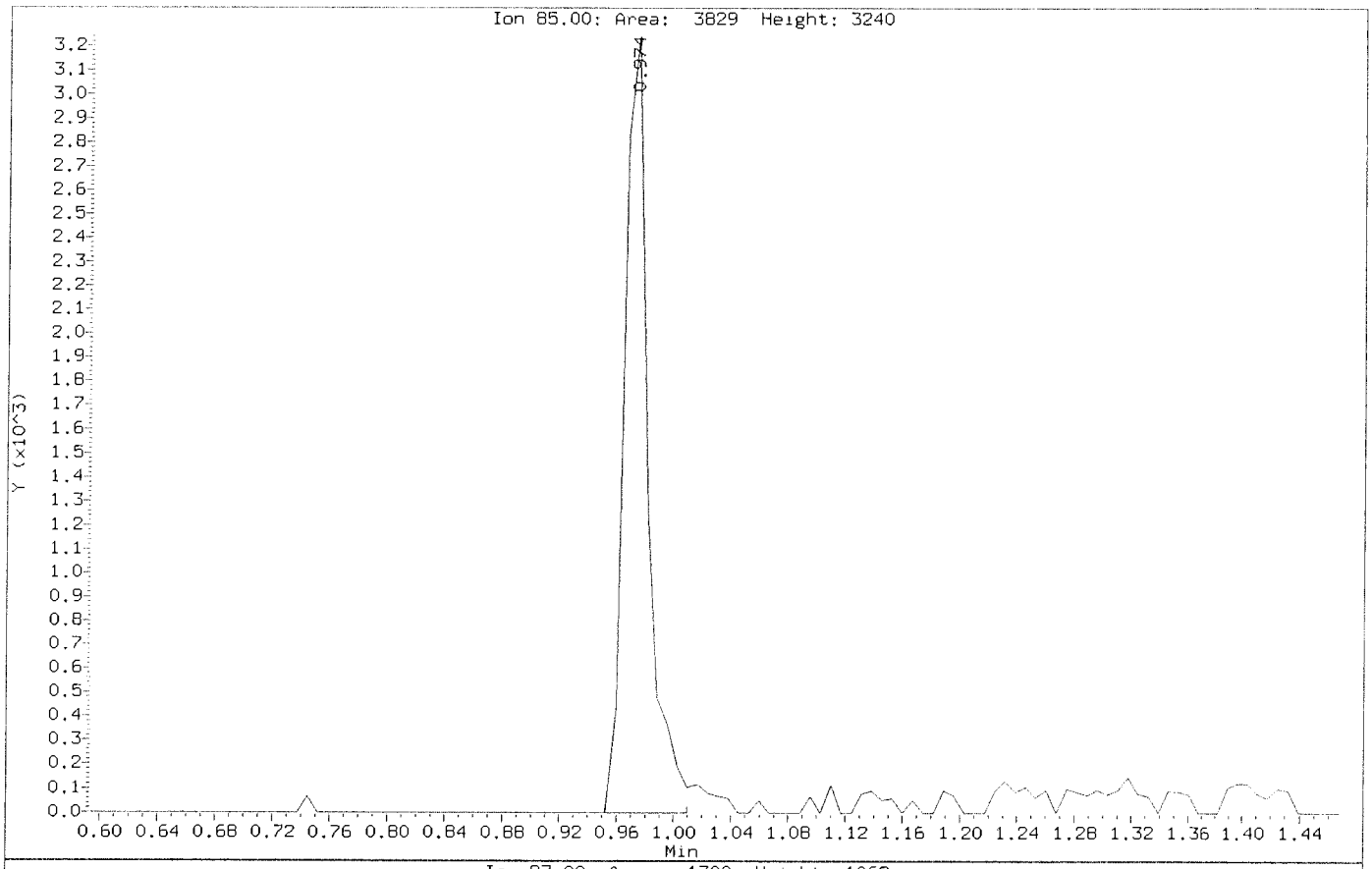
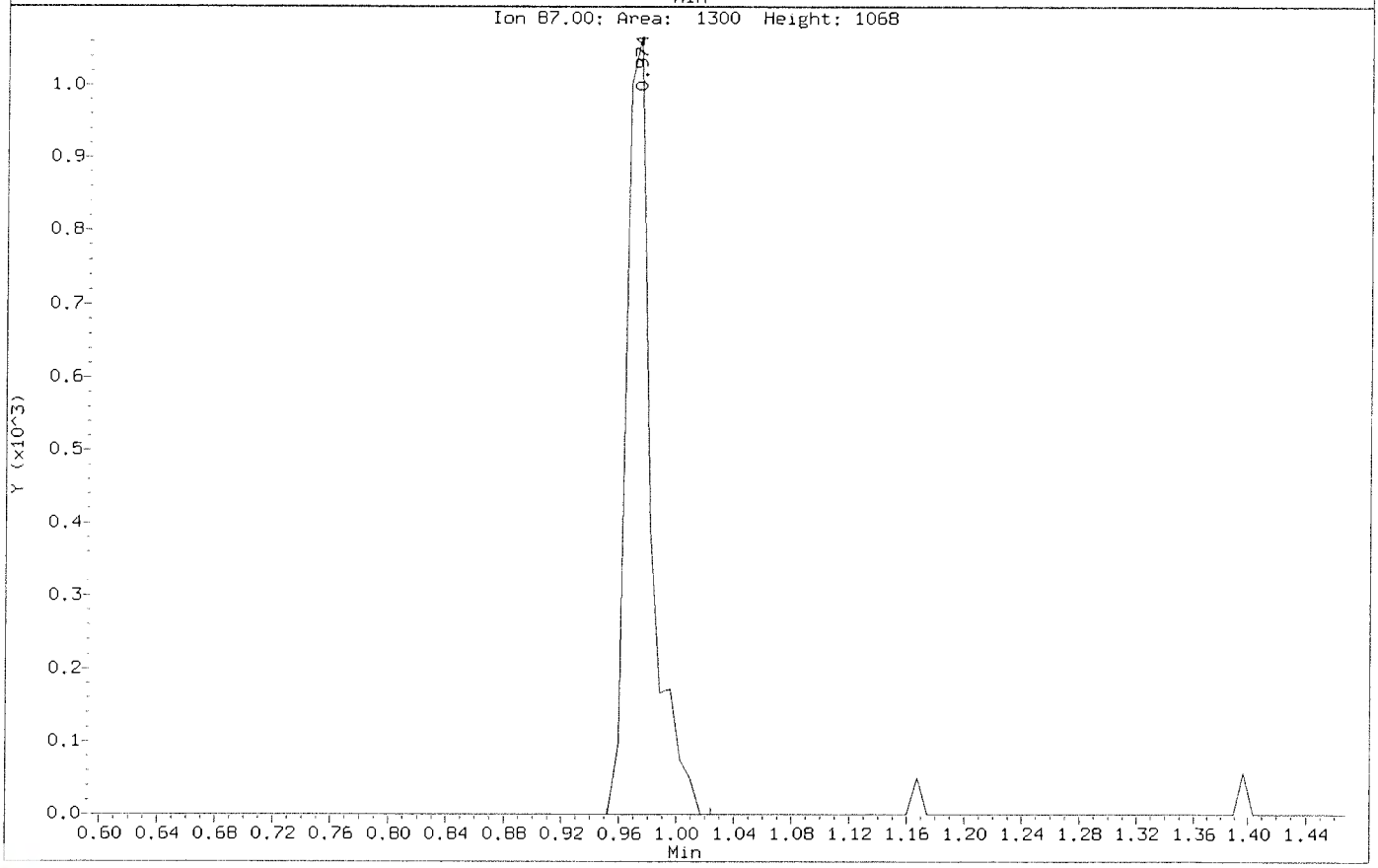
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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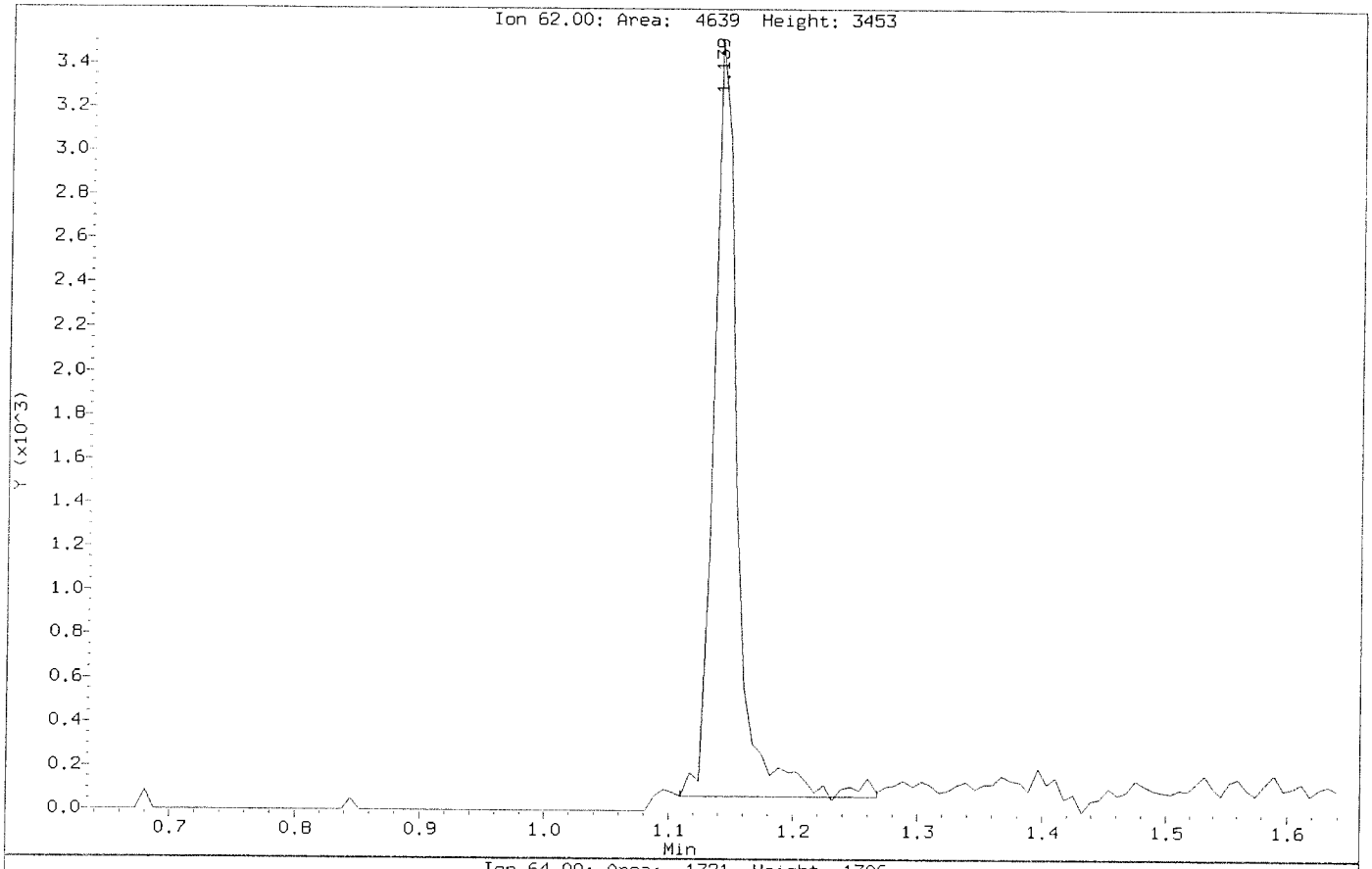
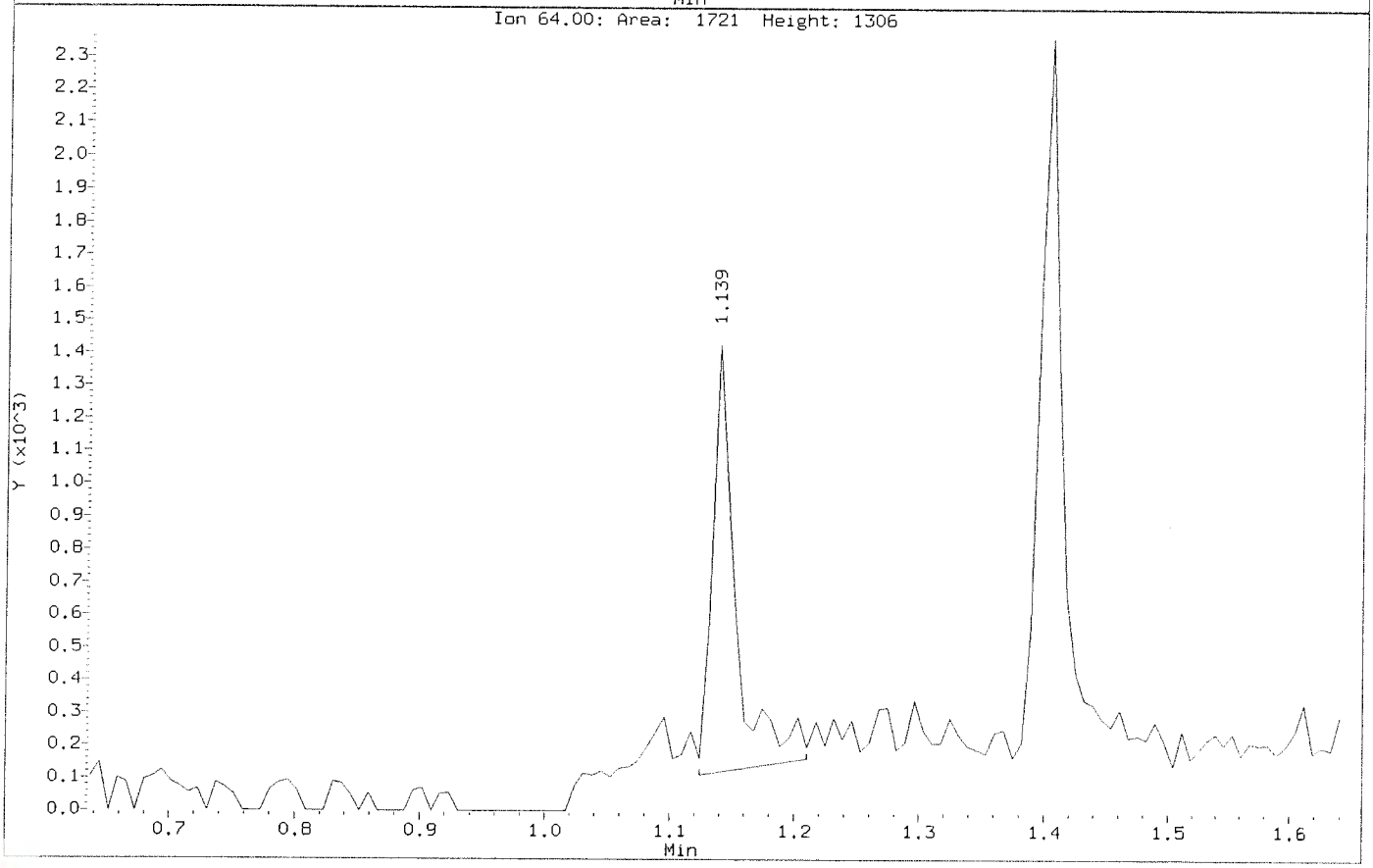
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

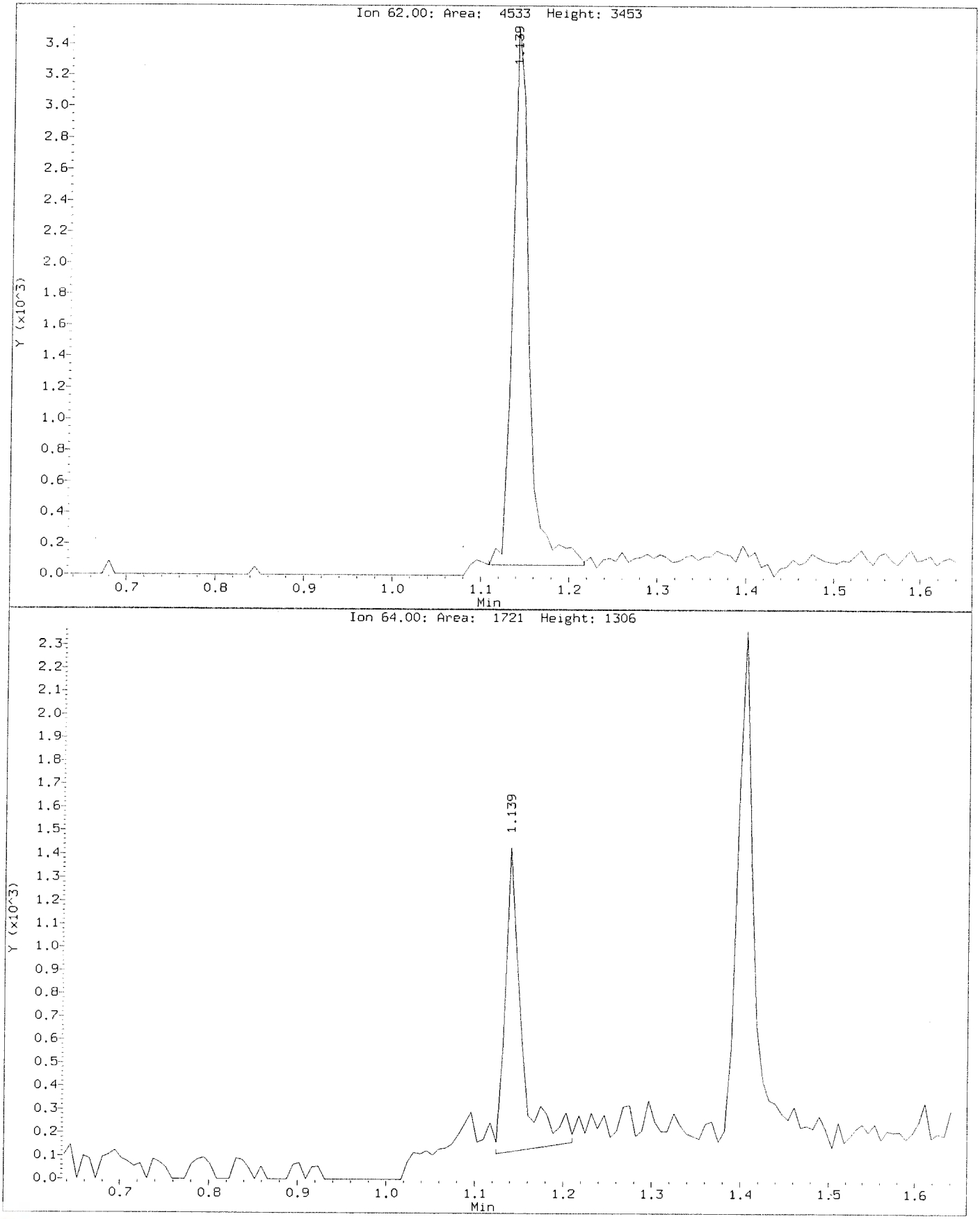
Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 18-NOV-2019 15:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 14:59 Cal File: X111804.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

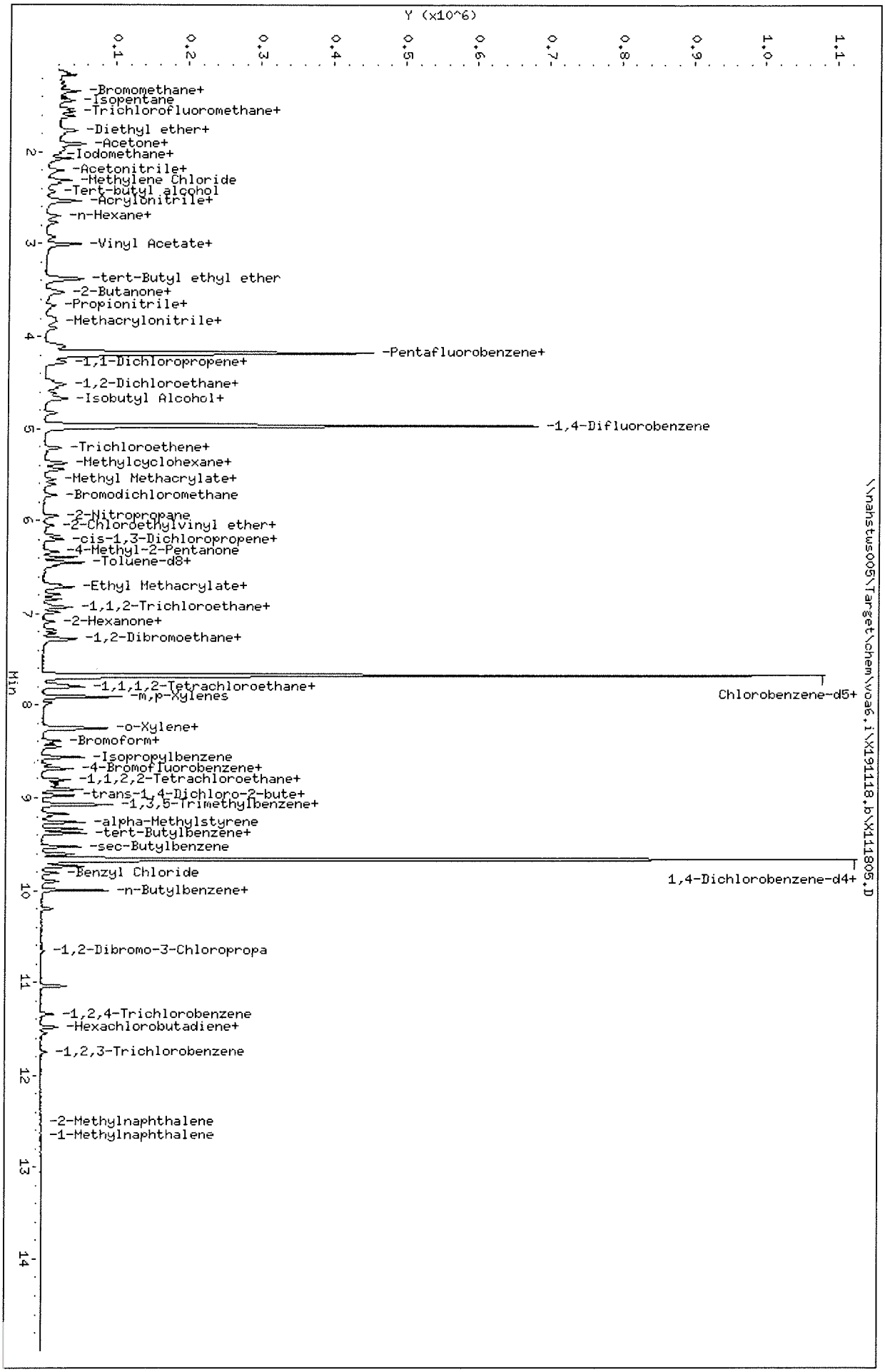
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	415277	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	574320	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	519547	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278615	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	8034	2.00000	2.76(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	10468	2.00000	2.56(a)
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	8127	2.00000	2.50(a)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	28201	2.00000	2.06(a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	7788	2.00000	2.06(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	12006	2.00000	2.14(a)
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	8194	2.00000	2.09(a)
138 Freon TF	101	1.911	1.911	(0.457)	7504	2.00000	2.07(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	5924	2.00000	2.18(a)
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	12973	2.00000	2.14(a)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	7795	2.00000	2.21(a)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	10135	2.00000	2.18(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	2753	2.00000	1.85(a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	7810	2.00000	2.35(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	5184	2.00000	2.20(a)
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	27218	2.00000	2.05(a)
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	859	2.00000	1.65(a)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	7900	2.00000	2.16(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	15931	2.00000	2.15(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	9378	2.00000	2.05(a)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	7169	2.00000	2.08(aM)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	26432	2.00000	2.08(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	17183	2.00000	2.15(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	11850	2.00000	2.14(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	17620	2.00000	2.17(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	11201	2.00000	2.04(a)
24	2-Butanone	43	3.588	3.588	(0.858)	5067	4.00000	3.97(a)
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	21210	2.00000	2.11(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	8468	4.00000	3.96(a)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	24759	2.00000	2.03(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	28289	2.00000	2.07(a)
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	13007	4.00000	4.27(a)
10	Acetone	43	1.976	1.976	(0.473)	7954	4.00000	3.82(a)
37	Benzene	78	4.519	4.519	(0.909)	28031	2.00000	2.13(a)
74	Bromobenzene	156	8.809	8.809	(0.911)	10482	2.00000	2.16(a)
29	Bromochloromethane	128	3.795	3.795	(0.908)	5128	2.00000	2.27(a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	9742	2.00000	2.04(a)
66	Bromoform	173	8.415	8.415	(1.097)	5989	2.00000	2.89(a)
6	Bromomethane	94	1.338	1.338	(0.320)	12041	2.00000	0.69(a)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	40384	4.00000	4.21(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	11097	2.00000	2.18(aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	21369	2.00000	2.10(a)
7	Chloroethane	64	1.403	1.403	(0.336)	5731	2.00000	2.19(a)
28	Chloroform	83	3.910	3.910	(0.935)	14792	2.00000	2.19(a)
3	Chloromethane	50	1.073	1.073	(0.257)	10461	2.00000	2.49(a)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	8197	2.00000	2.08(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	11415	2.00000	2.03(a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	8154	2.00000	2.06(a)
44	Dibromomethane	93	5.557	5.557	(1.118)	5355	2.00000	2.20(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	7335	2.00000	2.78(a)
61	Ethylbenzene	106	7.799	7.799	(1.017)	10700	2.00000	2.04(a)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	4522	2.00000	1.82(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	32629	2.00000	2.10(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	26786	4.00000	4.23(a)
17	Methylene Chloride	84	2.305	2.305	(0.551)	8025	2.00000	2.13(a)
87	n-Butylbenzene	91	9.998	9.998	(1.034)	22333	2.00000	1.96(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	35573	2.00000	2.06(a)
92	Naphthalene	128	11.553	11.553	(1.195)	6733	2.00000	2.23(a)
63	o-Xylene	106	8.244	8.244	(1.075)	13637	2.00000	2.18(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	31860	2.00000	2.12(a)
64	Styrene	104	8.265	8.265	(1.078)	22366	2.00000	2.06(a)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	22956	2.00000	2.11(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	8185	2.00000	2.24(a)
50	Toluene	91	6.453	6.453	(0.841)	31139	2.00000	2.11(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	7239	2.00000	2.11(a)
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	10523	2.00000	2.06(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	8894	2.00000	2.21(a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	13581	2.00000	2.10(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	9073	2.00000	2.14(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

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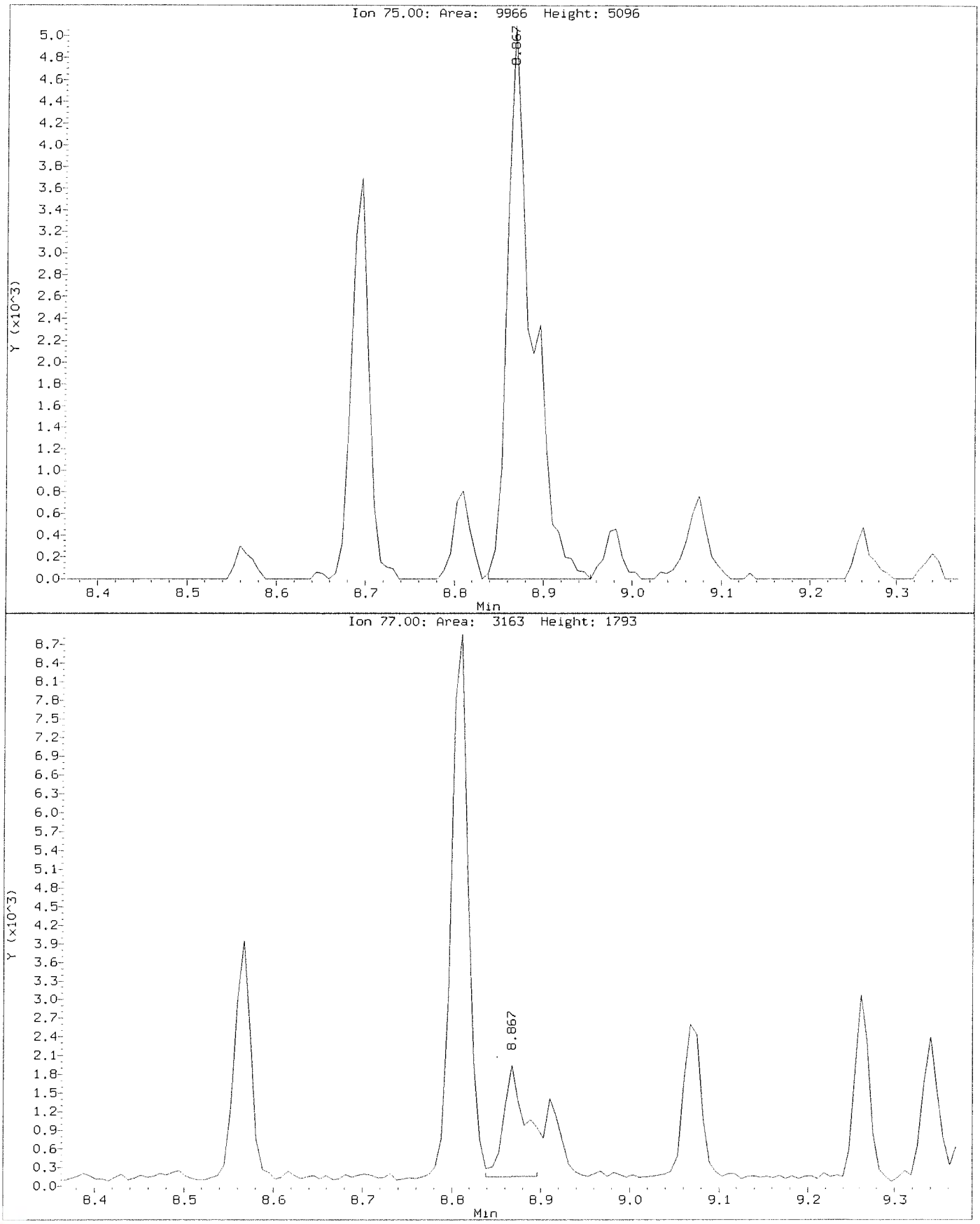
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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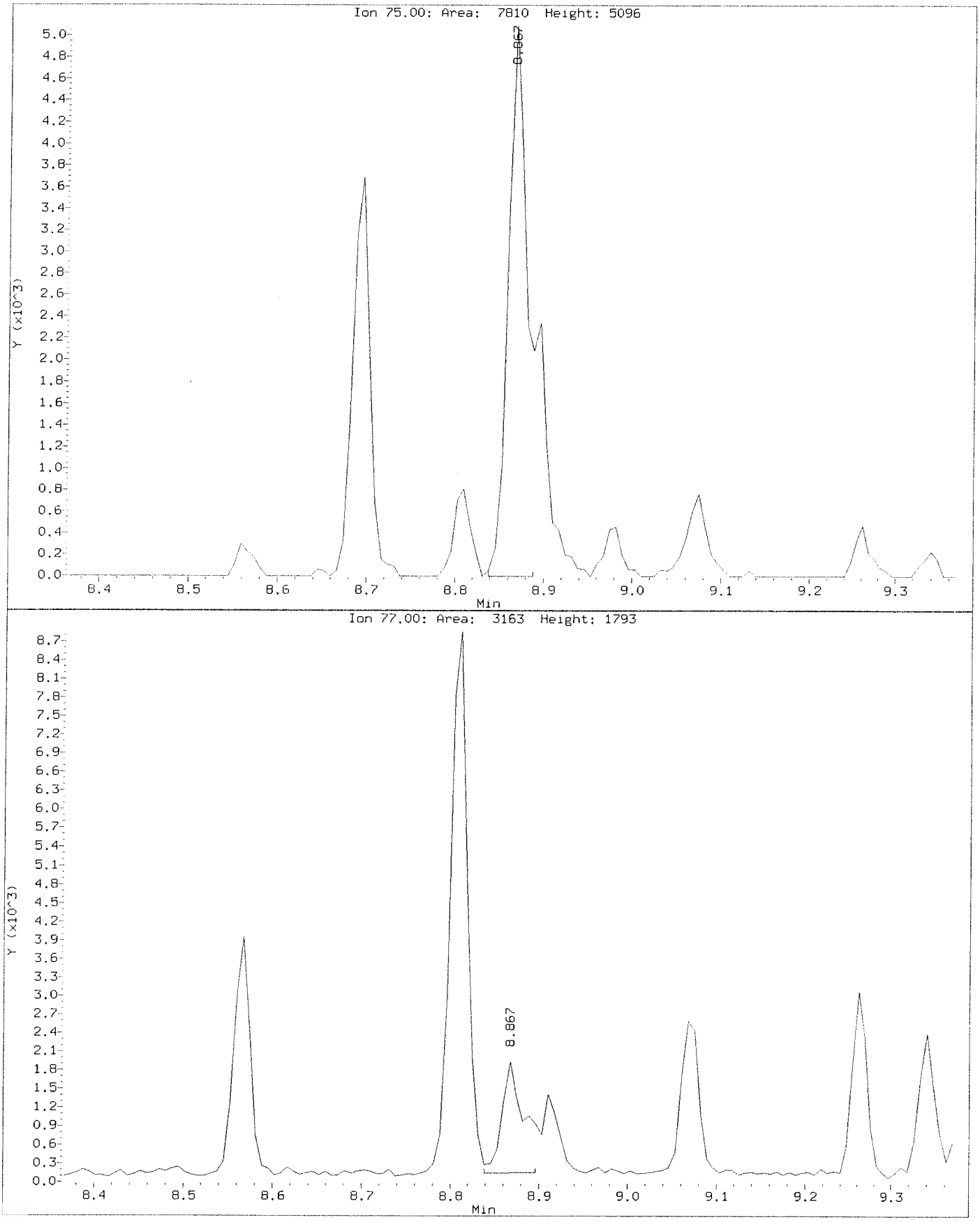
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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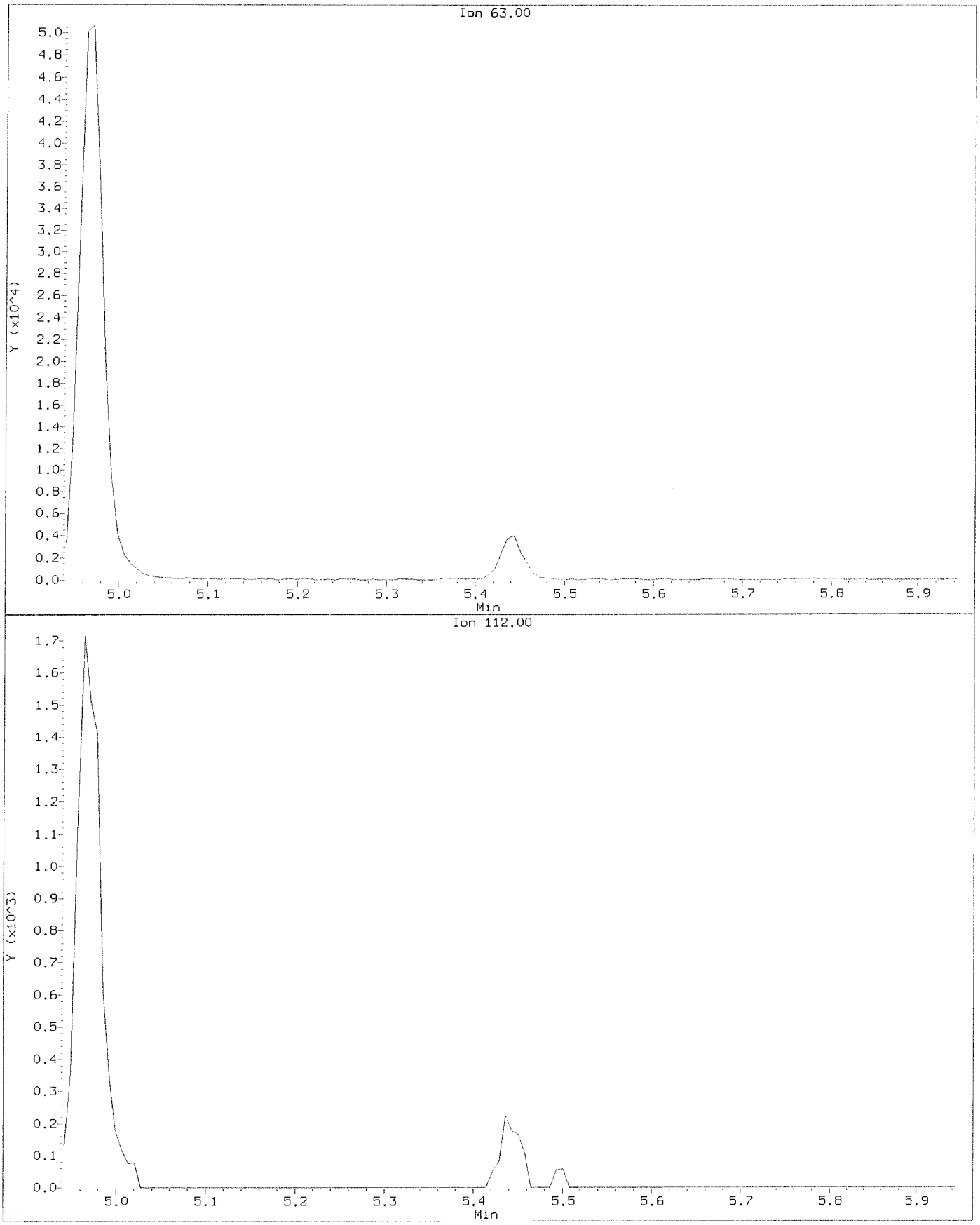
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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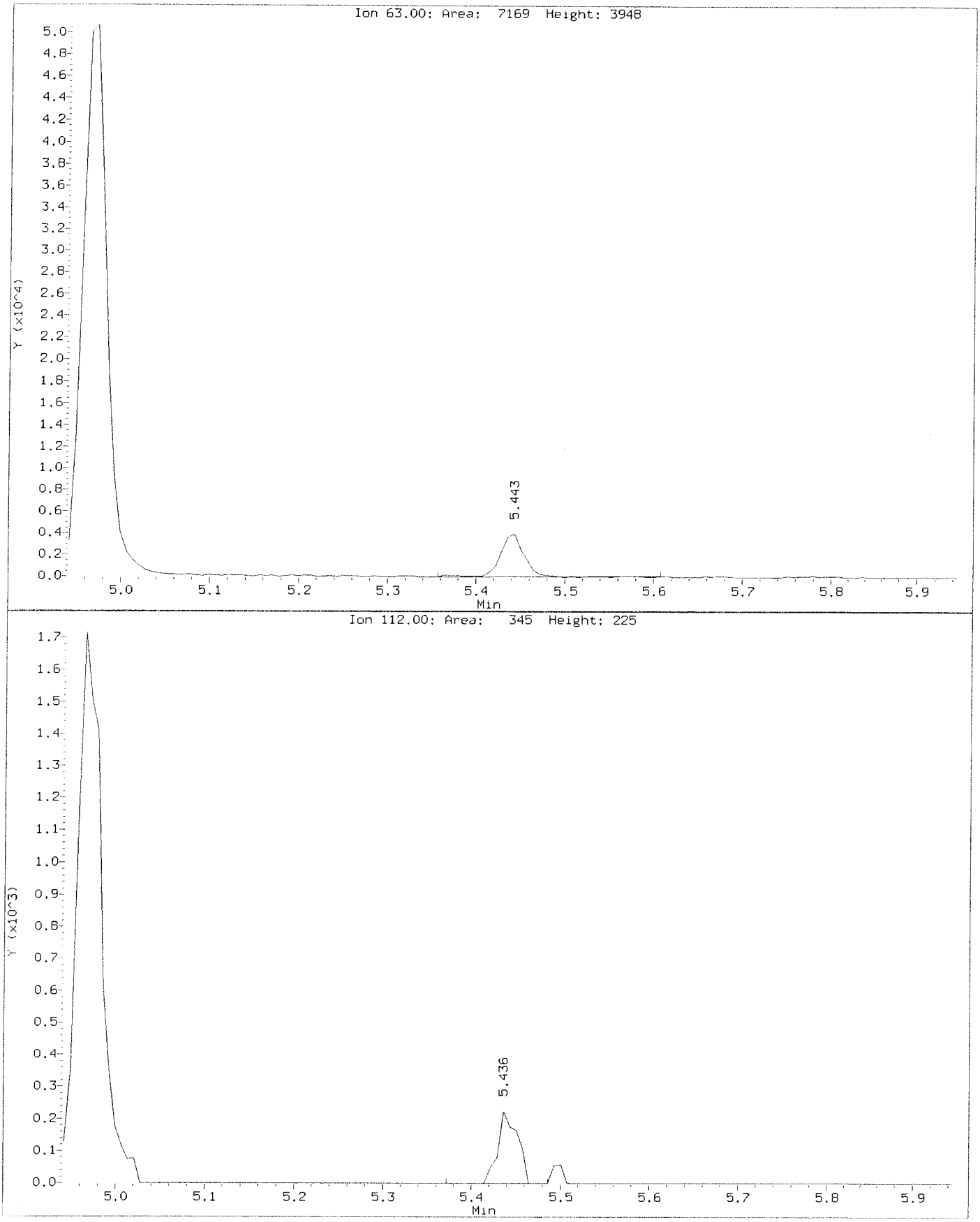
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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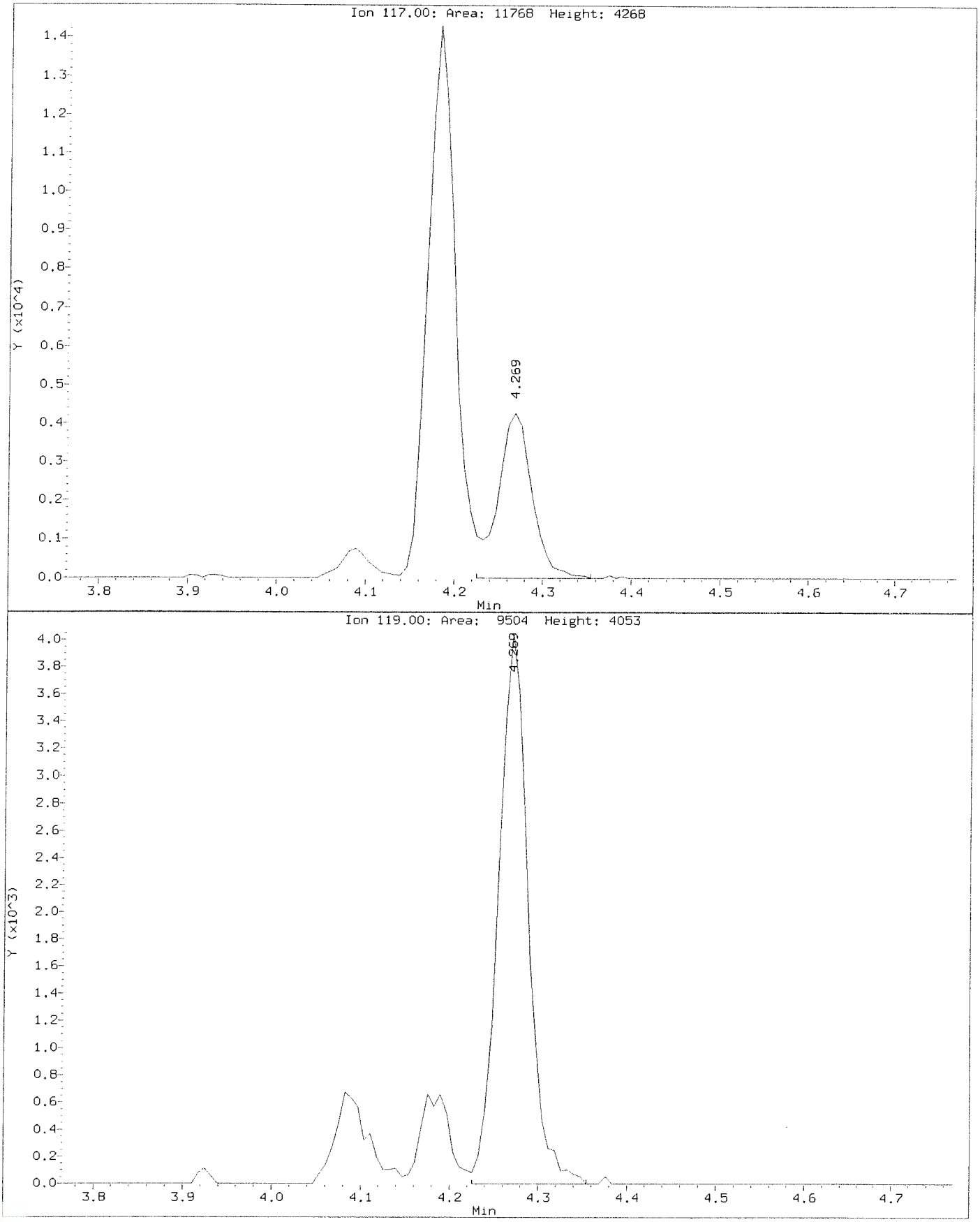
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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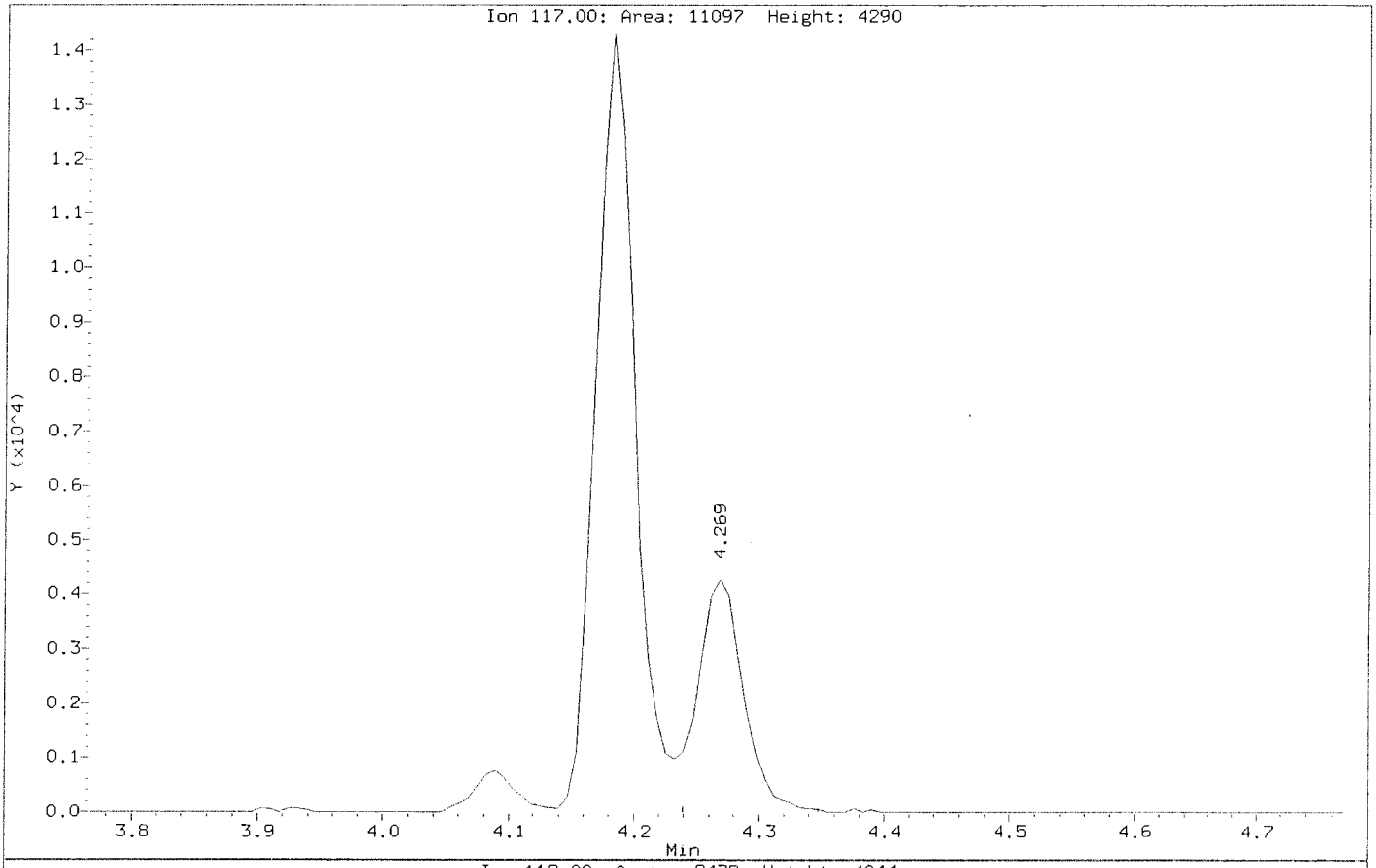
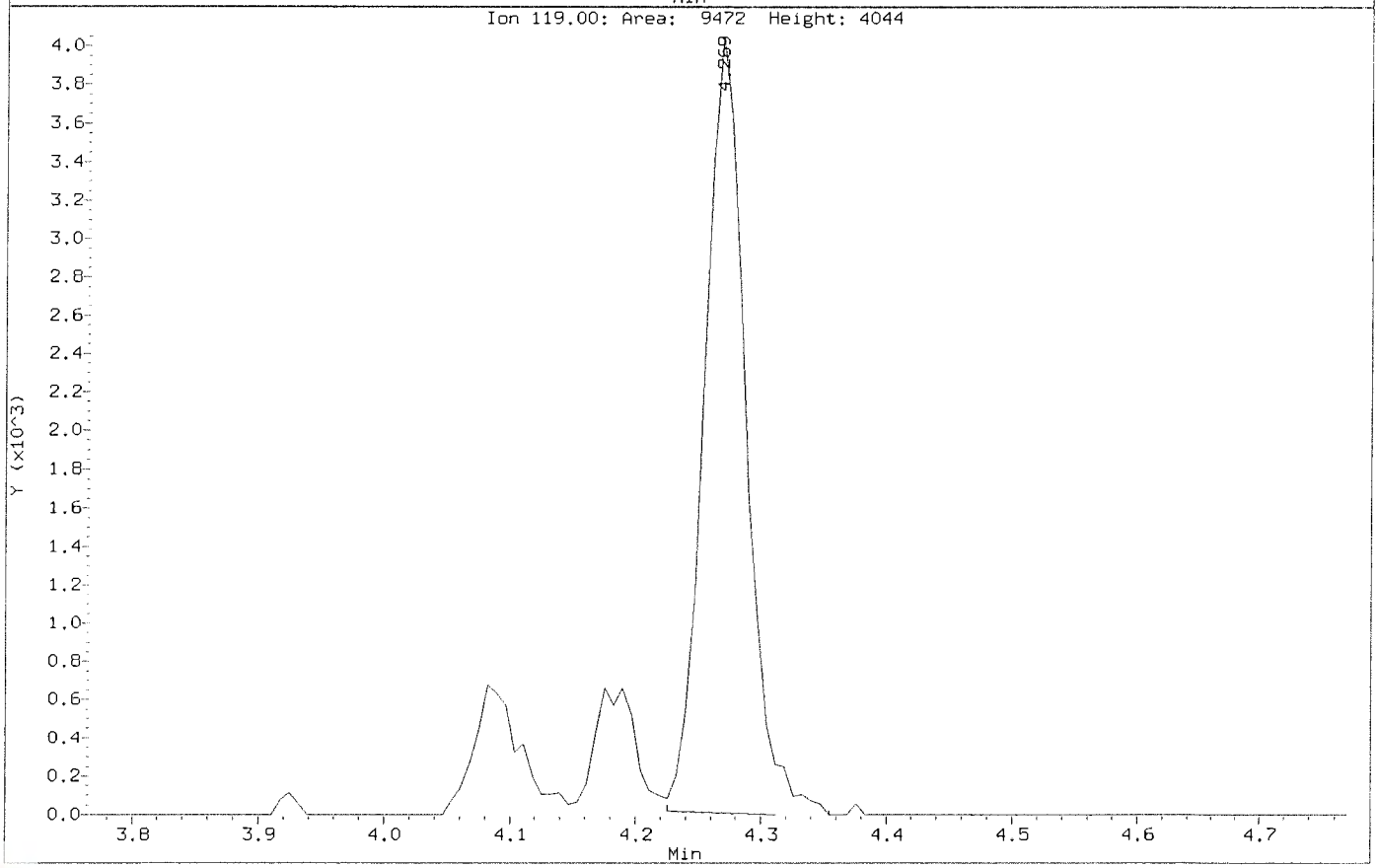
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 18-NOV-2019 15:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 15:23 Cal File: X111805.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

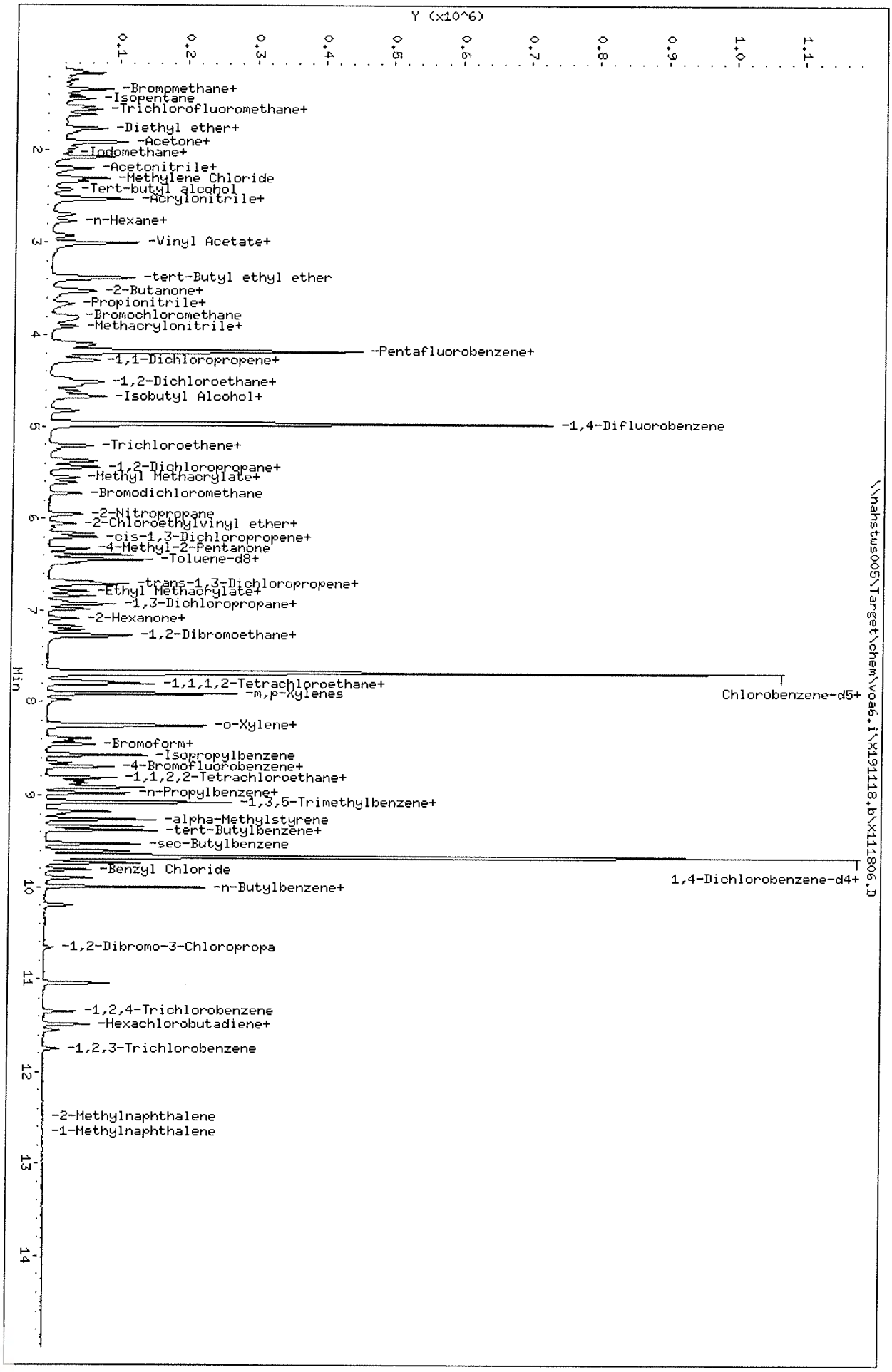
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	410845	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563063	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	510927	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	277846	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	20921	5.00000	6.06
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	25804	5.00000	5.80
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	20237	5.00000	5.74
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	69936	5.00000	5.19
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	20728	5.00000	5.59
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	29459	5.00000	5.31
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	22230	5.00000	5.68
138 Freon TF	101	1.919	1.919	(0.459)	18786	5.00000	5.25
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	15003	5.00000	5.61
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	32313	5.00000	5.40
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	19077	5.00000	5.47
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	24310	5.00000	5.35
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	6553	5.00000	5.62
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	18403	5.00000	5.55(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	14399	5.00000	6.15
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	71210	5.00000	5.40
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	2641	5.00000	5.82
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	20565	5.00000	5.73

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	41602	5.00000	5.64
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	24346	5.00000	5.44
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	19076	5.00000	5.67
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	68944	5.00000	5.45
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	45064	5.00000	5.65
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	29776	5.00000	5.49
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	44703	5.00000	5.52
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	28965	5.00000	5.33
24	2-Butanone	43	3.581	3.581	(0.856)	13522	10.0000	10.72
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	56464	5.00000	5.64
52	2-Hexanone	43	7.090	7.090	(0.924)	23980	10.0000	11.42
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	66074	5.00000	5.45
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	71485	5.00000	5.25
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	33803	10.0000	11.29
10	Acetone	43	1.969	1.969	(0.471)	15992	10.0000	11.75
37	Benzene	78	4.512	4.512	(0.908)	72584	5.00000	5.63
74	Bromobenzene	156	8.810	8.810	(0.911)	27619	5.00000	5.71
29	Bromochloromethane	128	3.795	3.795	(0.908)	11669	5.00000	5.24
39	Bromodichloromethane	83	5.729	5.729	(1.153)	26638	5.00000	5.71
66	Bromoform	173	8.416	8.416	(1.097)	16084	5.00000	6.17
6	Bromomethane	94	1.338	1.338	(0.320)	28671	5.00000	4.99(a)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	103008	10.0000	10.87
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	26931	5.00000	5.41(M)
59	Chlorobenzene	112	7.699	7.699	(1.004)	55668	5.00000	5.58
7	Chloroethane	64	1.403	1.403	(0.336)	13261	5.00000	5.12
28	Chloroform	83	3.910	3.910	(0.935)	34944	5.00000	5.25
3	Chloromethane	50	1.073	1.073	(0.257)	24949	5.00000	5.75
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	22227	5.00000	5.70
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	31191	5.00000	5.68
55	Dibromochloromethane	129	7.176	7.176	(0.936)	21920	5.00000	5.64
44	Dibromomethane	93	5.558	5.558	(1.118)	13775	5.00000	5.78
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	18346	5.00000	5.69
61	Ethylbenzene	106	7.800	7.800	(1.017)	29424	5.00000	5.70
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	11525	5.00000	5.47
67	Isopropylbenzene	105	8.566	8.566	(1.117)	81869	5.00000	5.36
62	m,p-Xylenes	106	7.907	7.907	(1.031)	69325	10.0000	11.14
17	Methylene Chloride	84	2.306	2.306	(0.551)	20180	5.00000	5.43
87	n-Butylbenzene	91	9.999	9.999	(1.034)	57498	5.00000	5.08
73	n-Propylbenzene	91	8.917	8.917	(0.922)	92937	5.00000	5.41
92	Naphthalene	128	11.546	11.546	(1.194)	17063	5.00000	5.68
63	o-Xylene	106	8.244	8.244	(1.075)	33646	5.00000	5.48
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	78149	5.00000	5.23
64	Styrene	104	8.258	8.258	(1.077)	58650	5.00000	5.49
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	59074	5.00000	5.45
56	Tetrachloroethene	164	6.933	6.933	(0.904)	20334	5.00000	5.66
50	Toluene	91	6.446	6.446	(0.840)	80201	5.00000	5.53
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	18086	5.00000	5.35
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	28395	5.00000	5.67
38	Trichloroethene	130	5.207	5.207	(1.048)	22280	5.00000	5.65
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	33411	5.00000	5.24
5	Vinyl Chloride	62	1.138	1.138	(0.272)	20691	5.00000	4.94(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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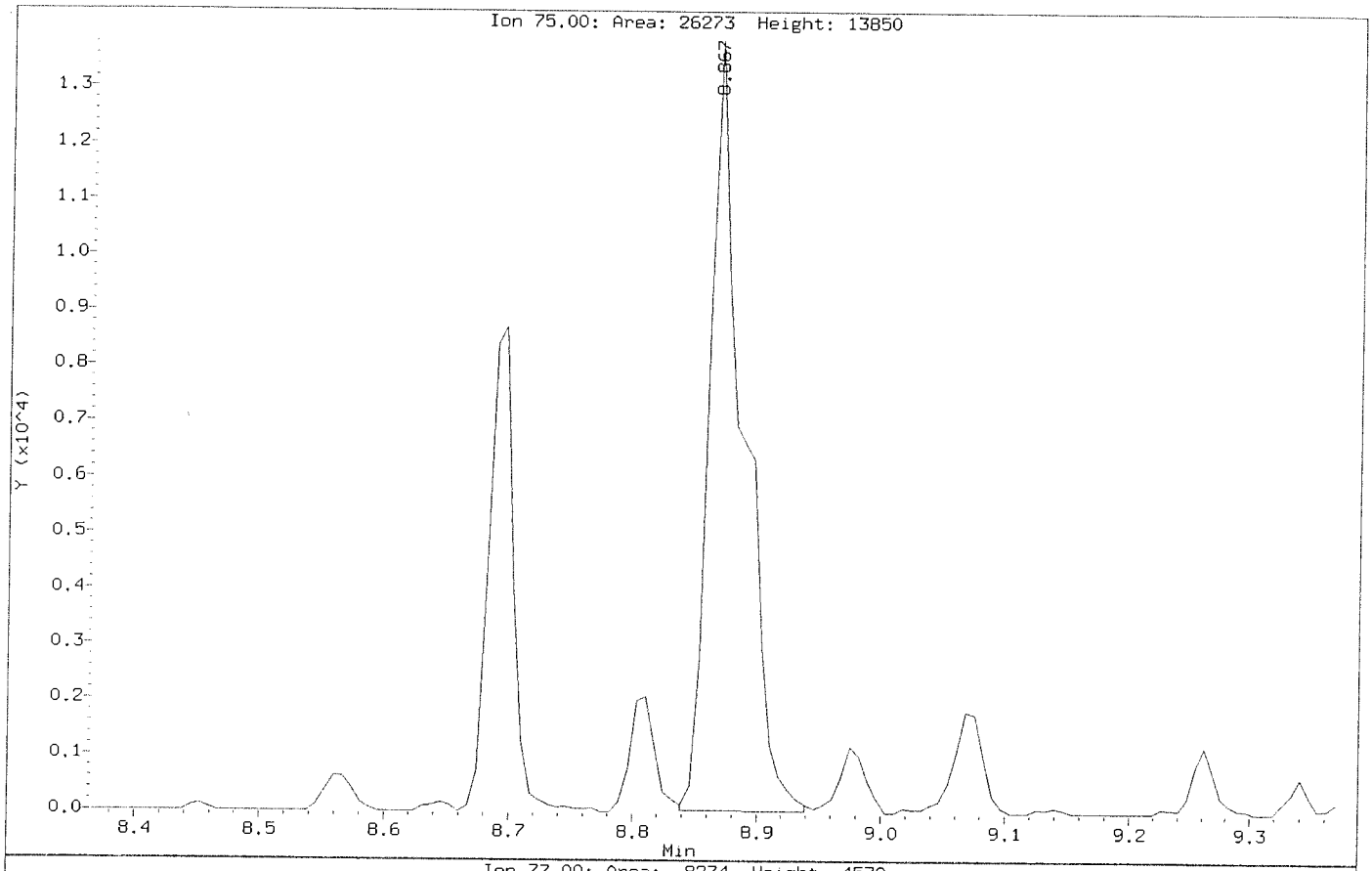
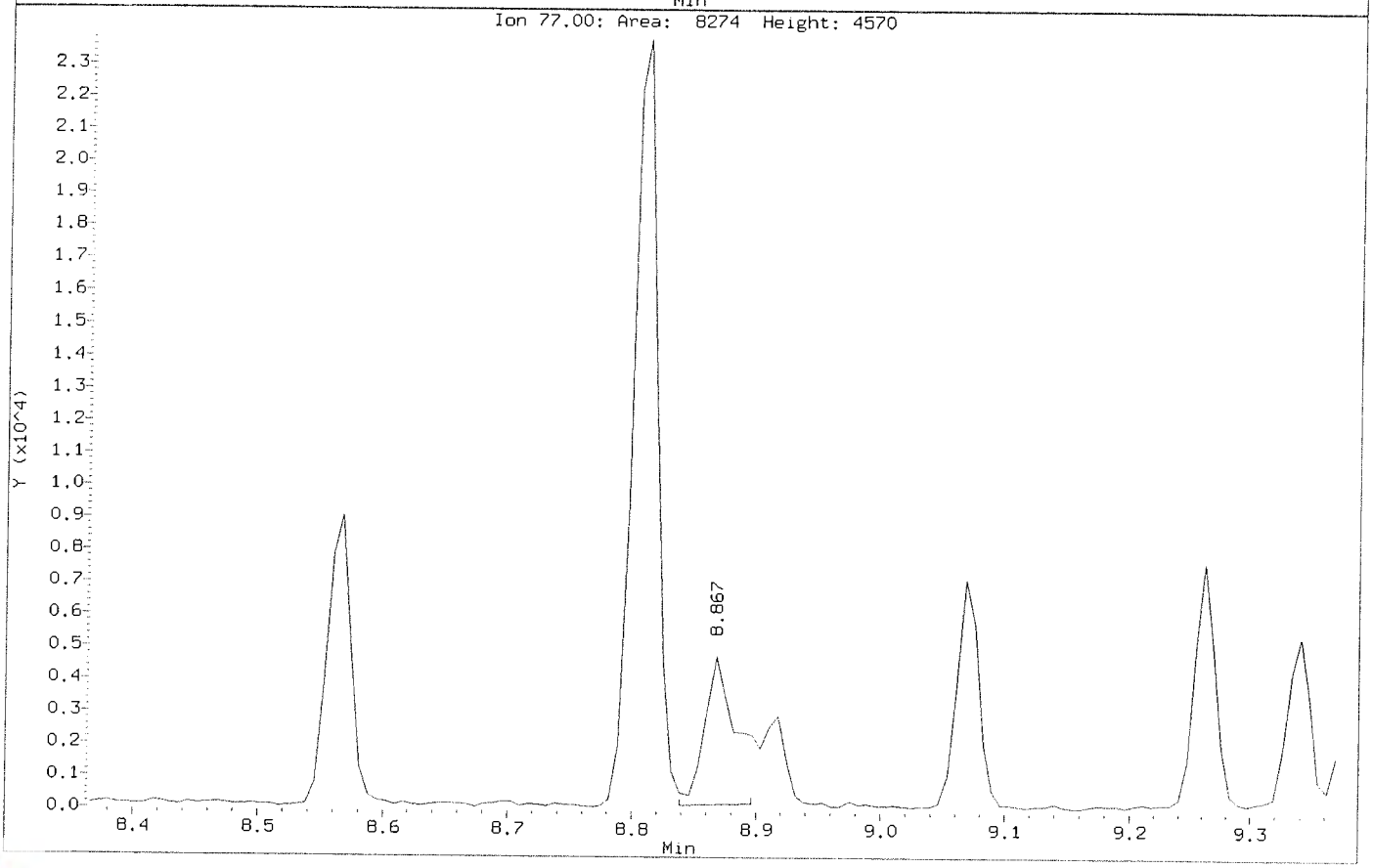
Date : 18-NOV-2019 15:47
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111806.D
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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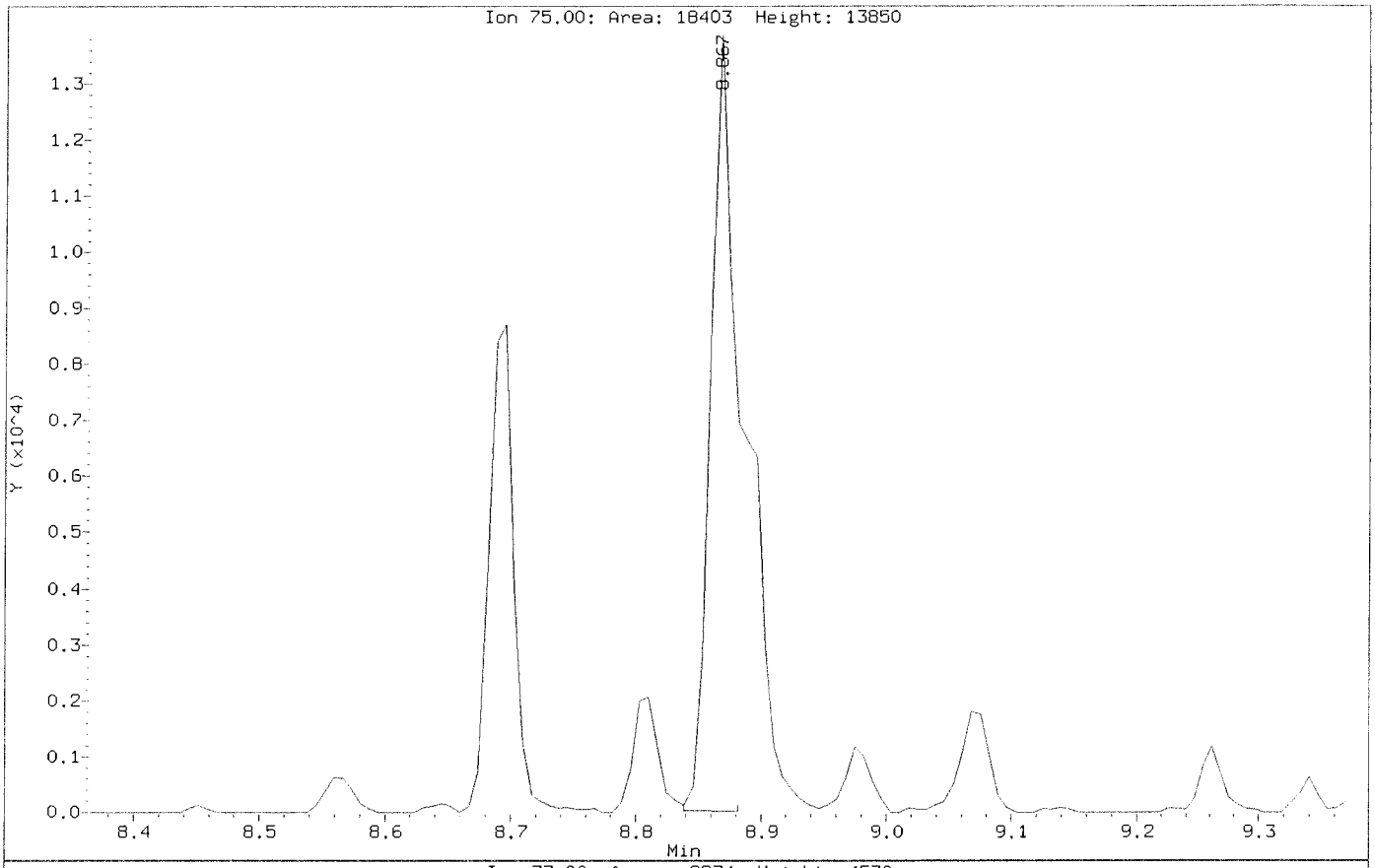
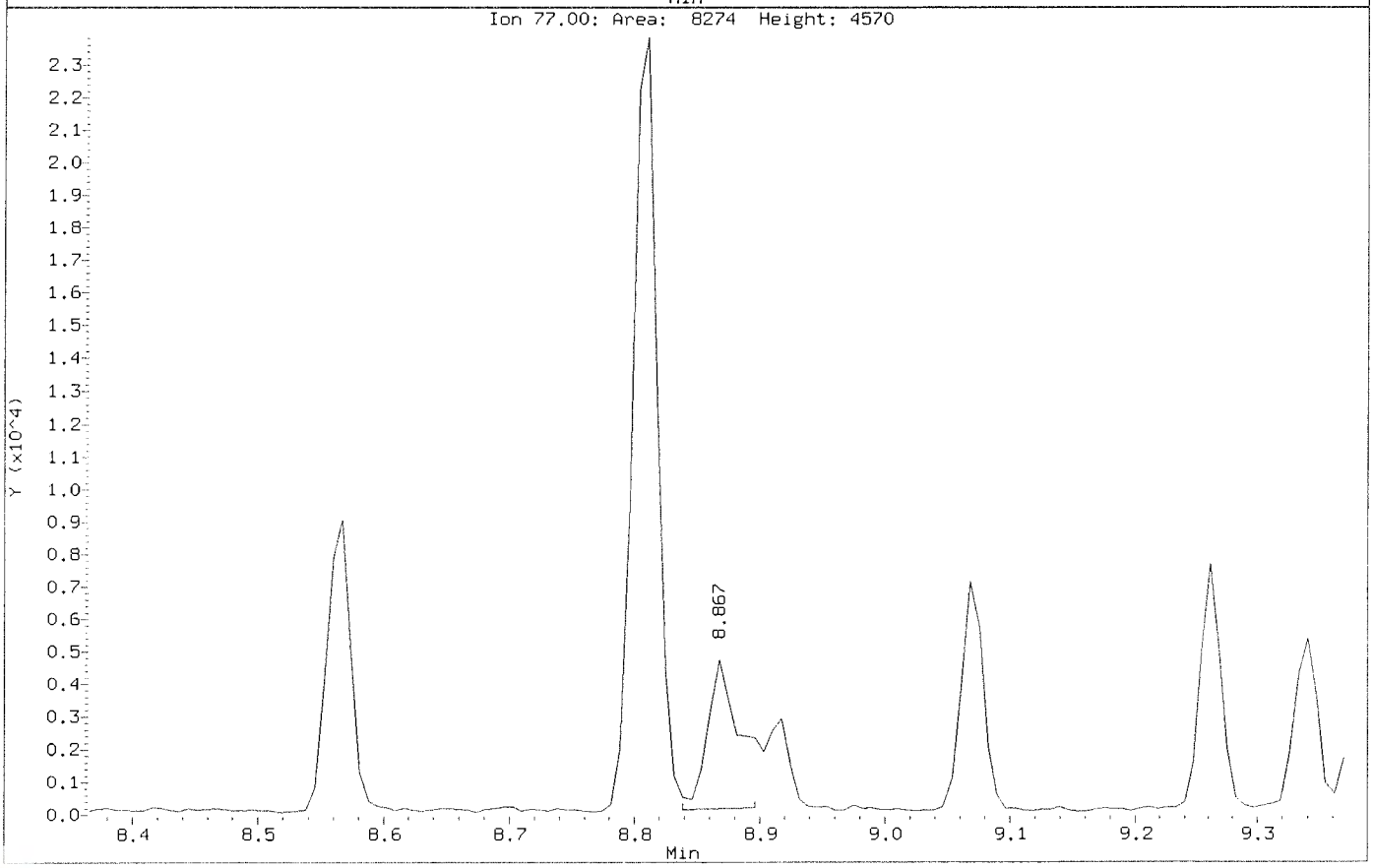
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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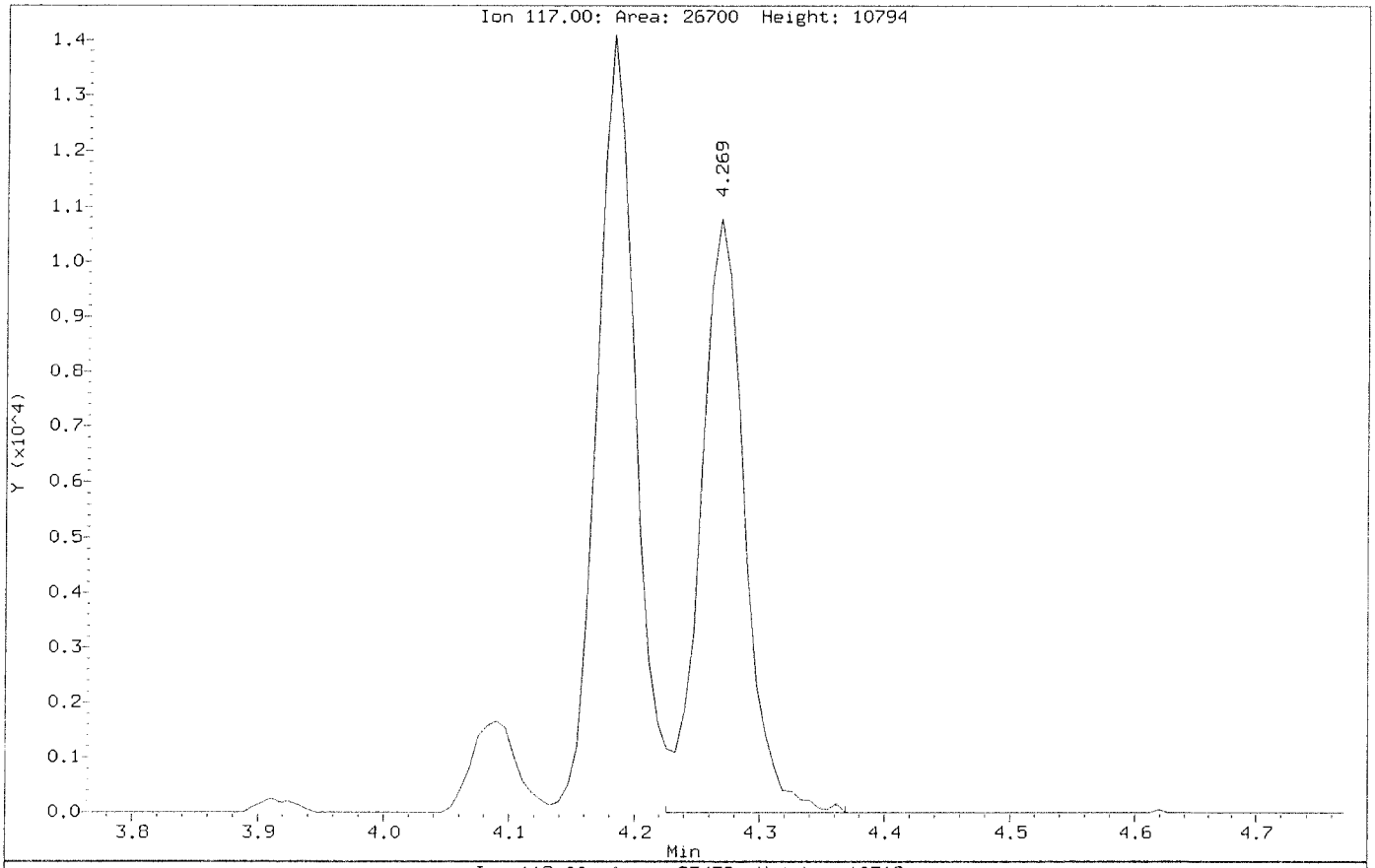
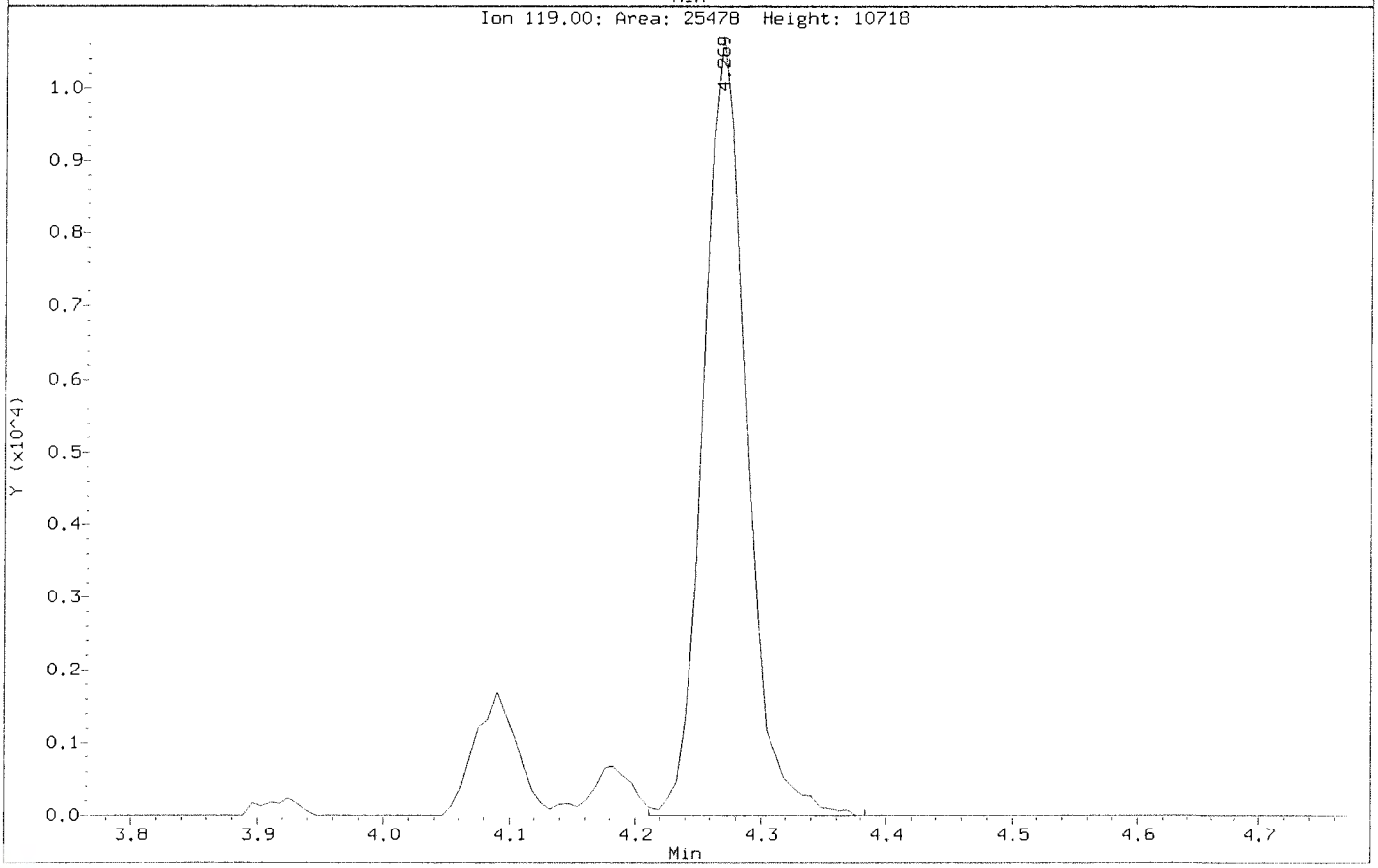
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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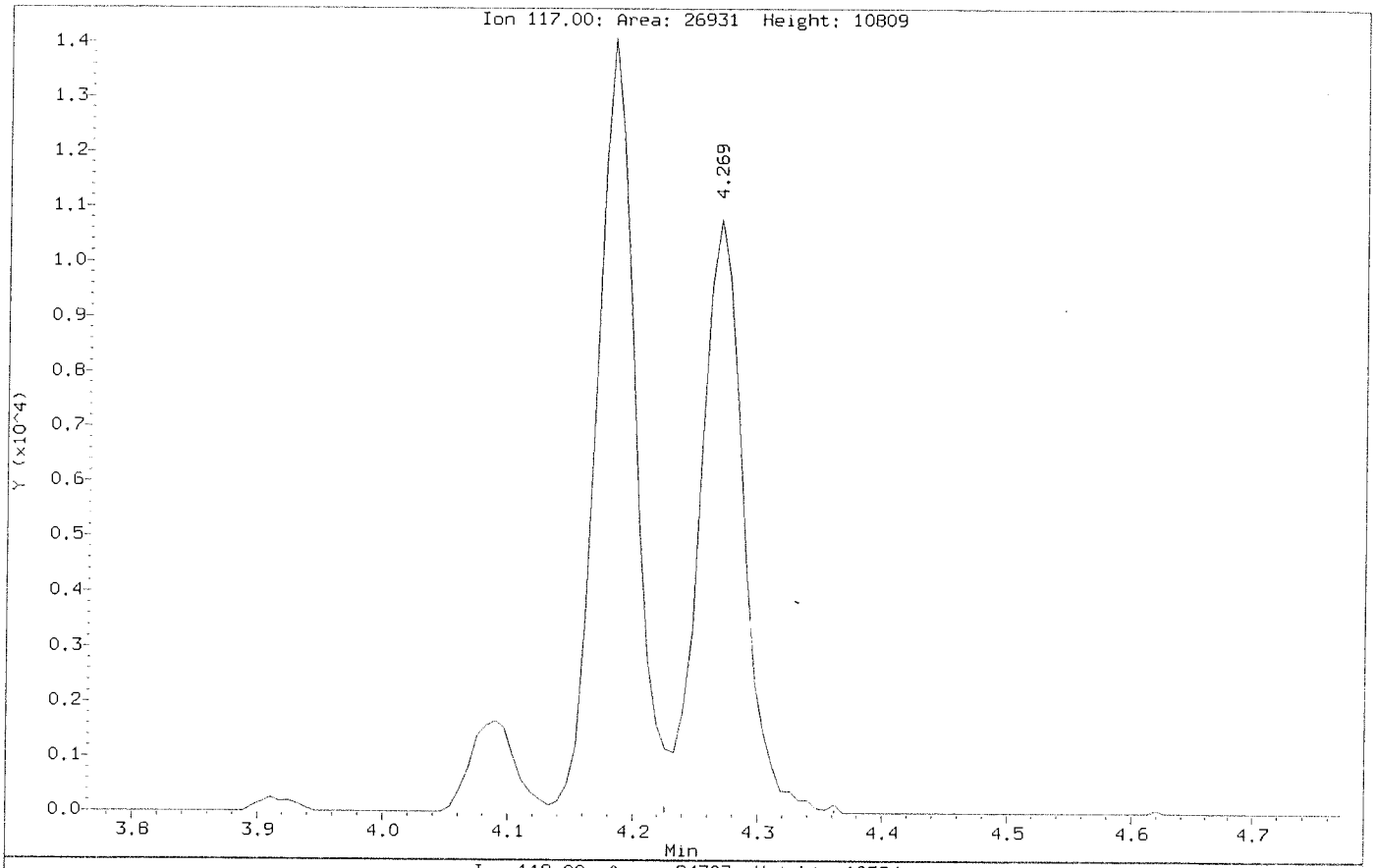
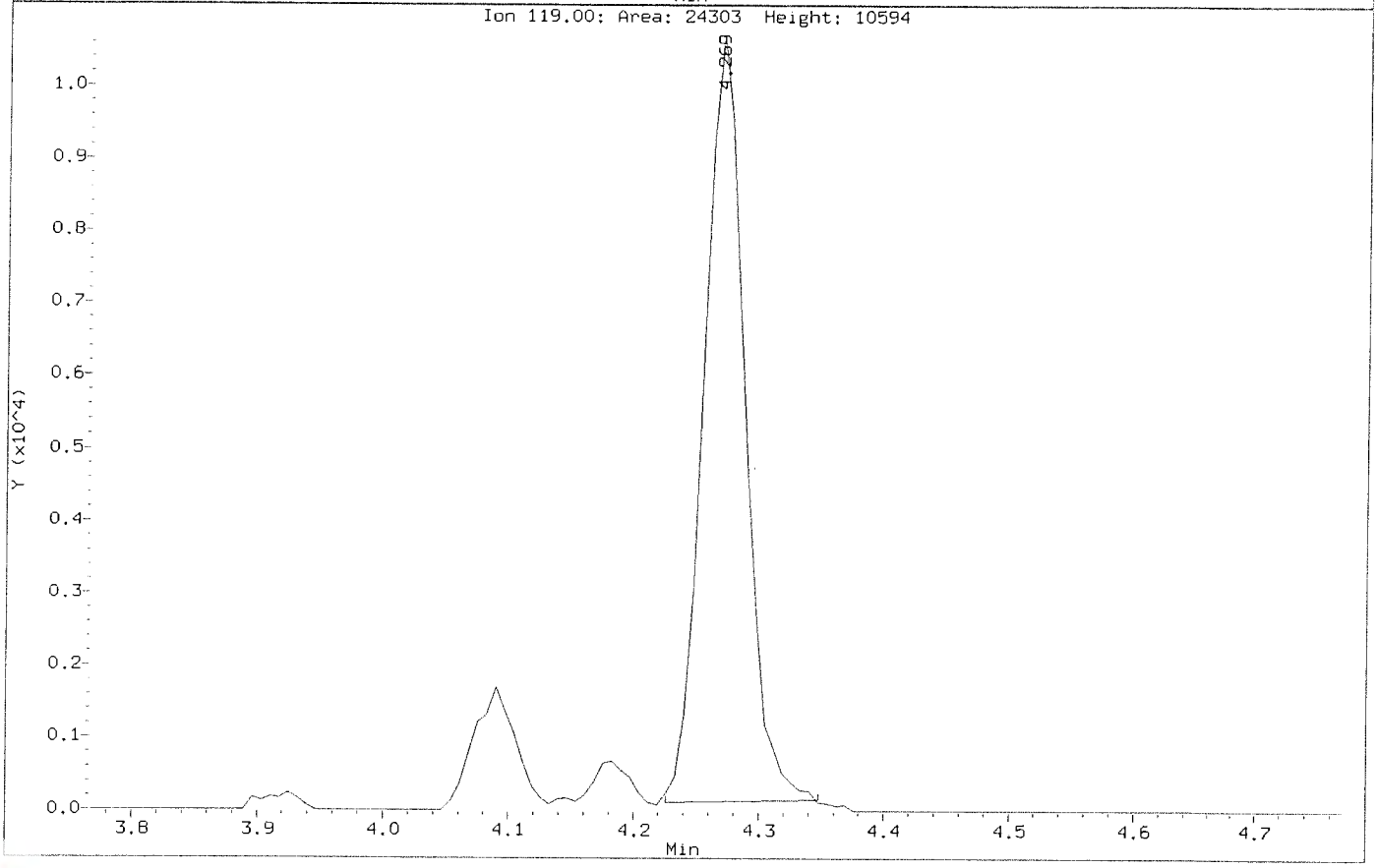
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 18-NOV-2019 16:11
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 15:47 Cal File: X111806.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

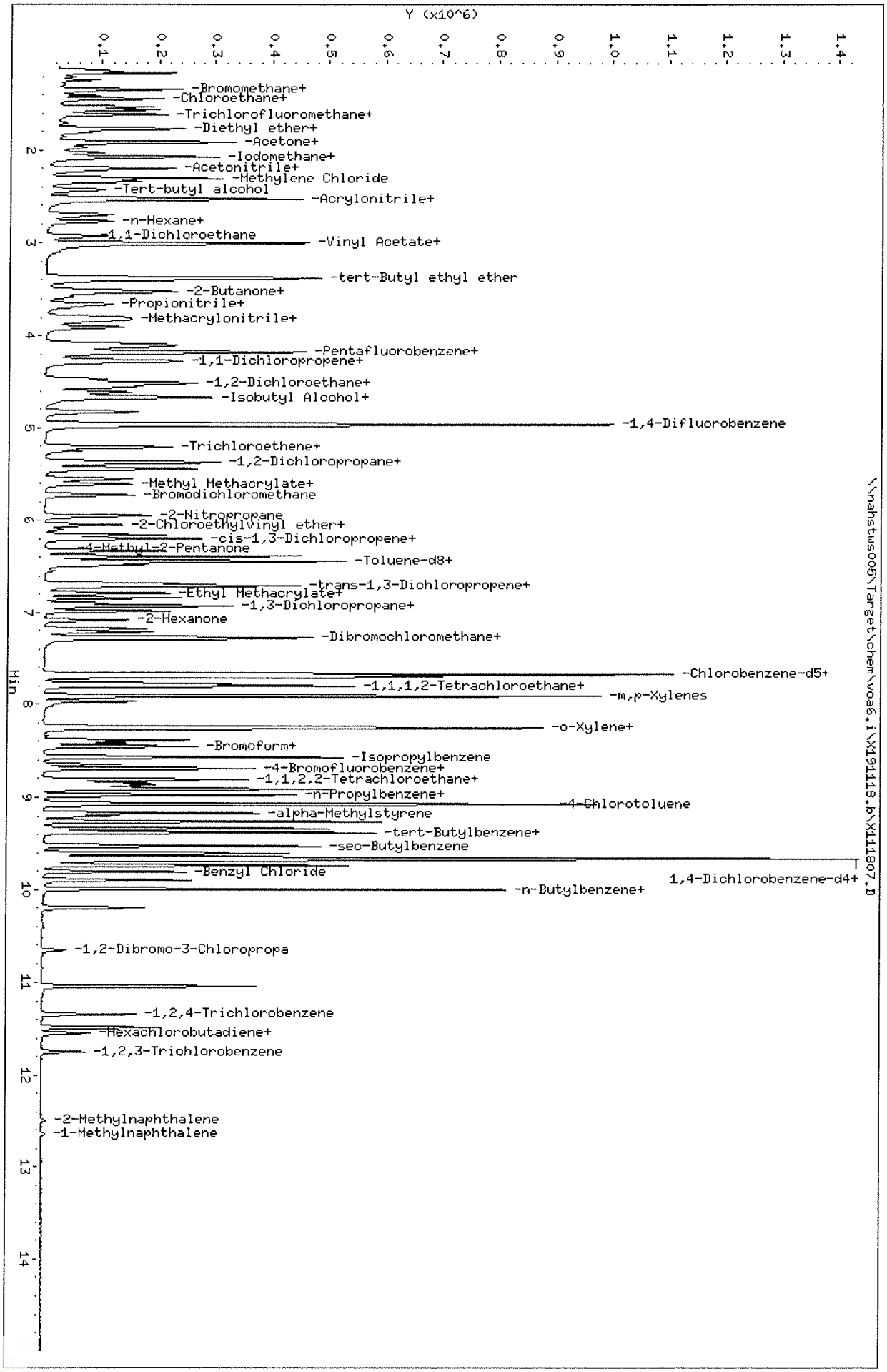
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	411693	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563792	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	515046	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	278890	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	75813	20.0000	20.02
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	94194	20.0000	19.91
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	75094	20.0000	20.28
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	260273	20.0000	19.17
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	73347	20.0000	19.62
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	105363	20.0000	18.97
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	75821	20.0000	19.33
138 Freon TF	101	1.919	1.919	(0.459)	62543	20.0000	17.44
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	52184	20.0000	19.38
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	113669	20.0000	18.97
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	64160	20.0000	18.38
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	84000	20.0000	18.47
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21856	20.0000	20.64
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64689	20.0000	19.46(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	46623	20.0000	19.84
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	254992	20.0000	19.26
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	8805	20.0000	20.13
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	71738	20.0000	19.85

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.035)	144121	20.0000	19.47
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	88277	20.0000	19.72
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	64004	20.0000	19.00
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	247054	20.0000	19.45
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	157428	20.0000	19.68
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	105400	20.0000	19.28
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	158049	20.0000	19.44
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	100376	20.0000	18.46
24	2-Butanone	43	3.580	3.580	(0.856)	48098	40.0000	38.07
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	193547	20.0000	19.28
52	2-Hexanone	43	7.083	7.083	(0.923)	78795	40.0000	37.24
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	231980	20.0000	19.07
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	257377	20.0000	18.86
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	115695	40.0000	38.33
10	Acetone	43	1.976	1.976	(0.473)	43200	40.0000	38.23
37	Benzene	78	4.512	4.512	(0.908)	250181	20.0000	19.39
74	Bromobenzene	156	8.809	8.809	(0.912)	97394	20.0000	20.09
29	Bromochloromethane	128	3.795	3.795	(0.908)	41933	20.0000	18.80
39	Bromodichloromethane	83	5.729	5.729	(1.153)	89170	20.0000	19.11
66	Bromoform	173	8.415	8.415	(1.097)	56416	20.0000	19.02
6	Bromomethane	94	1.338	1.338	(0.320)	93456	20.0000	21.54
19	Carbon Disulfide	76	2.069	2.069	(0.495)	362755	40.0000	38.21
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	90839	20.0000	18.23(M)
59	Chlorobenzene	112	7.699	7.699	(1.004)	192384	20.0000	19.13
7	Chloroethane	64	1.403	1.403	(0.336)	46616	20.0000	17.98
28	Chloroform	83	3.910	3.910	(0.935)	121141	20.0000	18.16
3	Chloromethane	50	1.073	1.073	(0.257)	85402	20.0000	19.21
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	74754	20.0000	19.14
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	107408	20.0000	19.53
55	Dibromochloromethane	129	7.176	7.176	(0.936)	76215	20.0000	19.48
44	Dibromomethane	93	5.557	5.557	(1.118)	46676	20.0000	19.58
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	63810	20.0000	17.59
61	Ethylbenzene	106	7.799	7.799	(1.017)	101554	20.0000	19.54
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	37789	20.0000	19.03
67	Isopropylbenzene	105	8.566	8.566	(1.117)	293670	20.0000	19.08
62	m,p-Xylenes	106	7.907	7.907	(1.031)	243460	40.0000	38.83
17	Methylene Chloride	84	2.305	2.305	(0.551)	66846	20.0000	17.95
87	n-Butylbenzene	91	9.998	9.998	(1.035)	210608	20.0000	18.54
73	n-Propylbenzene	91	8.917	8.917	(0.923)	331965	20.0000	19.25
92	Naphthalene	128	11.546	11.546	(1.195)	57138	20.0000	18.96
63	o-Xylene	106	8.244	8.244	(1.075)	119876	20.0000	19.37
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	278964	20.0000	18.62
64	Styrene	104	8.258	8.258	(1.077)	206802	20.0000	19.22
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	208031	20.0000	19.13
56	Tetrachloroethene	164	6.933	6.933	(0.904)	68625	20.0000	18.96
50	Toluene	91	6.446	6.446	(0.840)	280019	20.0000	19.17
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	63600	20.0000	18.77
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100272	20.0000	20.00
38	Trichloroethene	130	5.206	5.206	(1.048)	77608	20.0000	19.68
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	116474	20.0000	18.23
5	Vinyl Chloride	62	1.138	1.138	(0.272)	74818	20.0000	17.83

QC Flag Legend

M - Compound response manually integrated.



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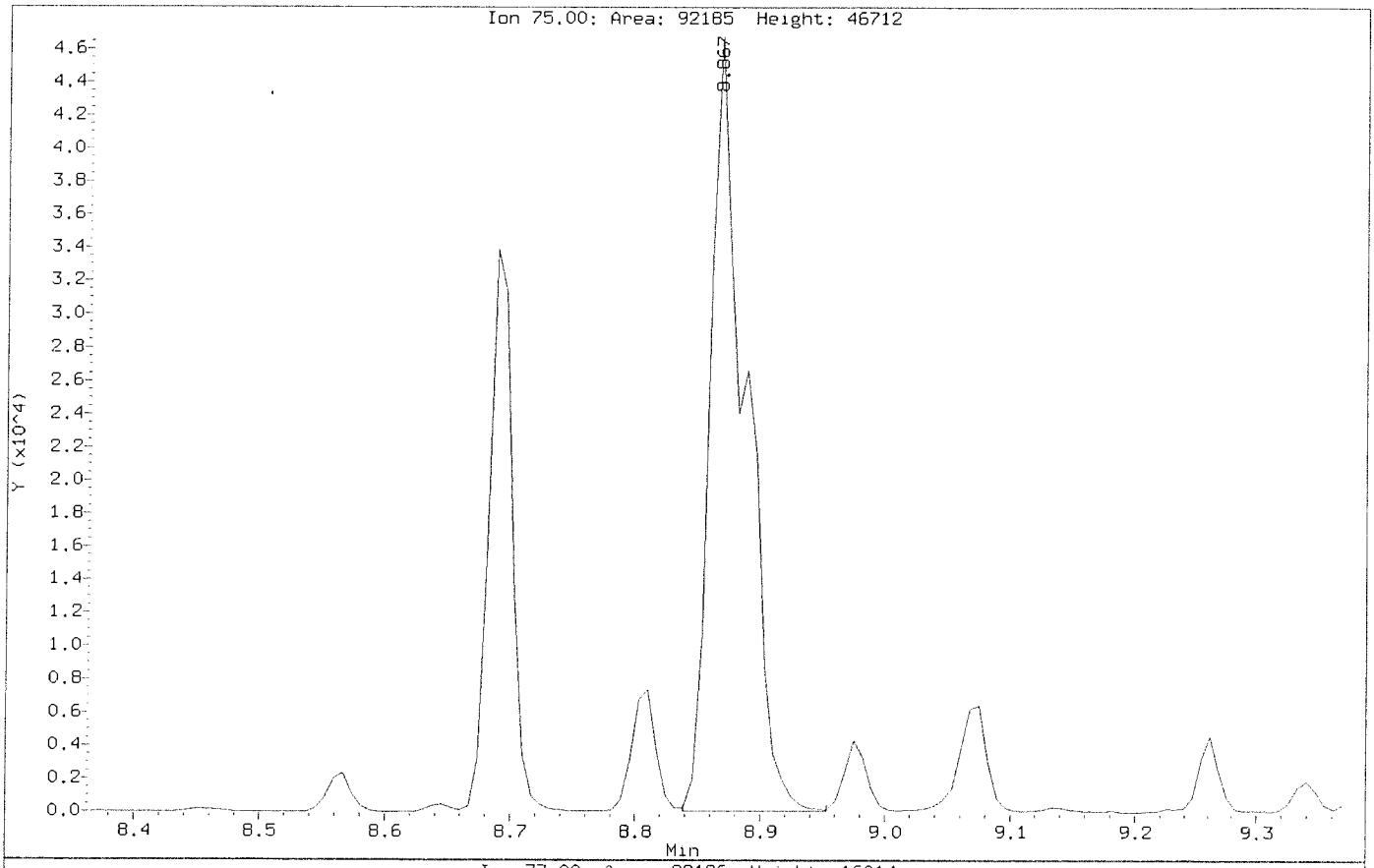
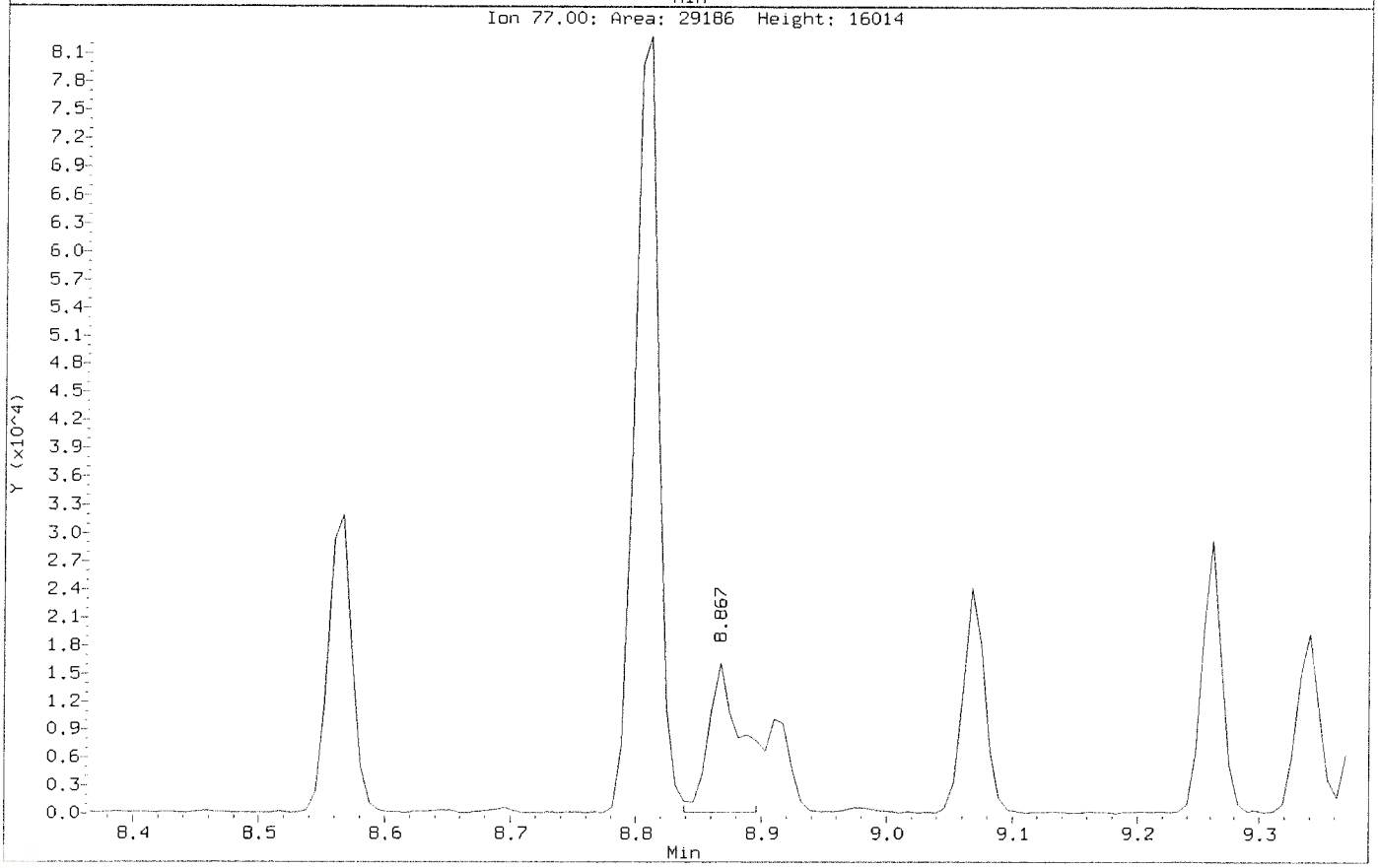
Date : 18-NOV-2019 16:11
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111807.D
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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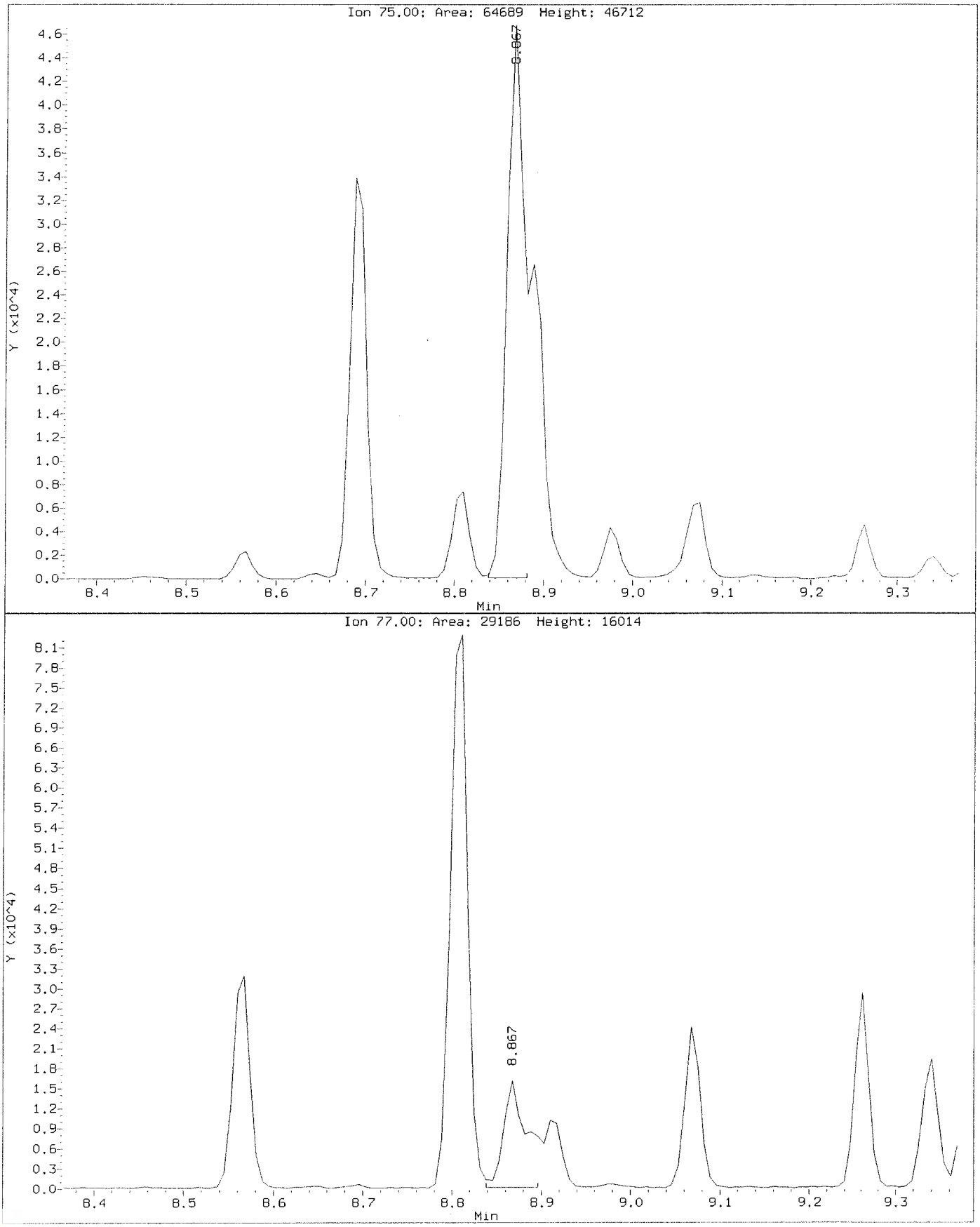
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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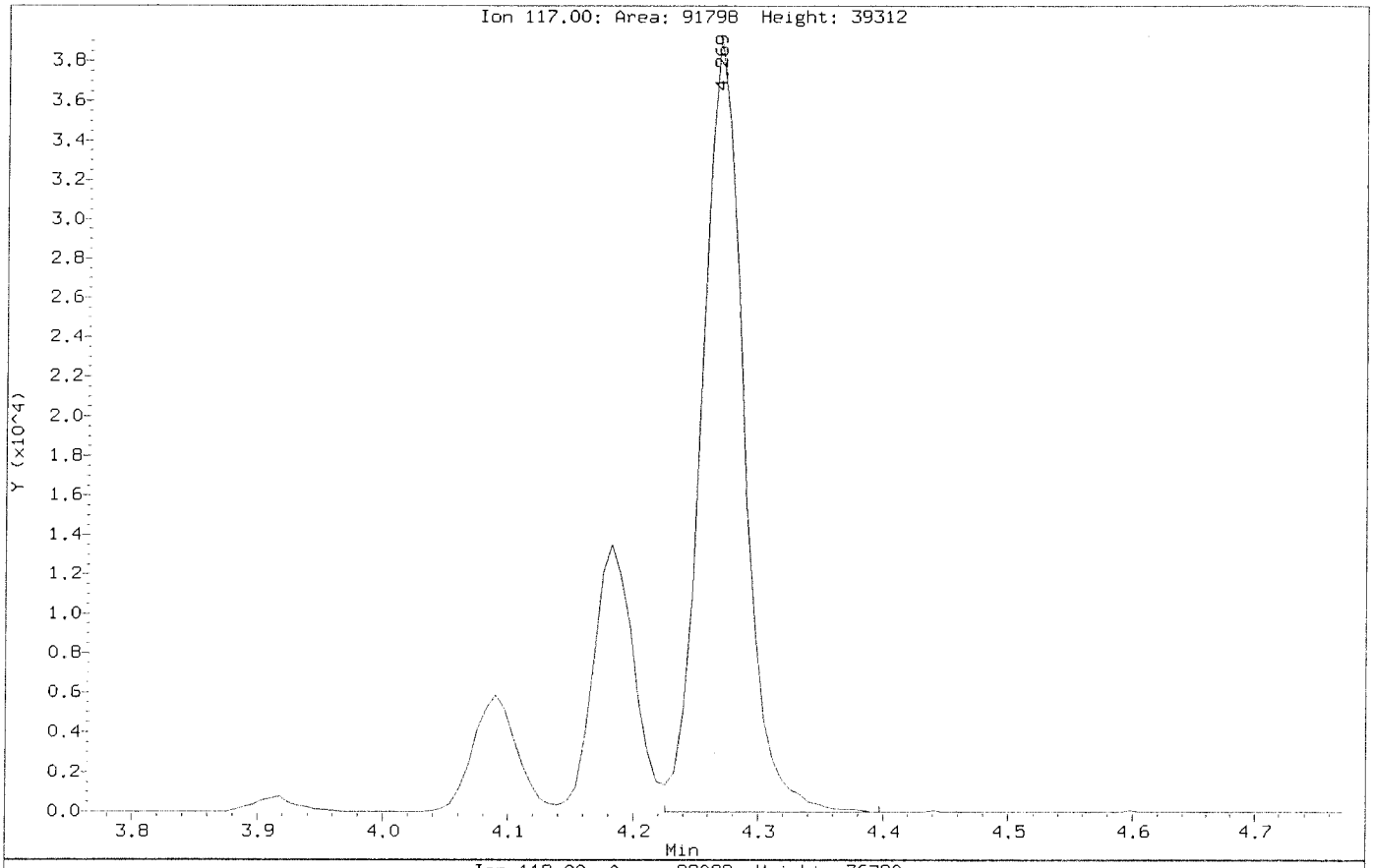
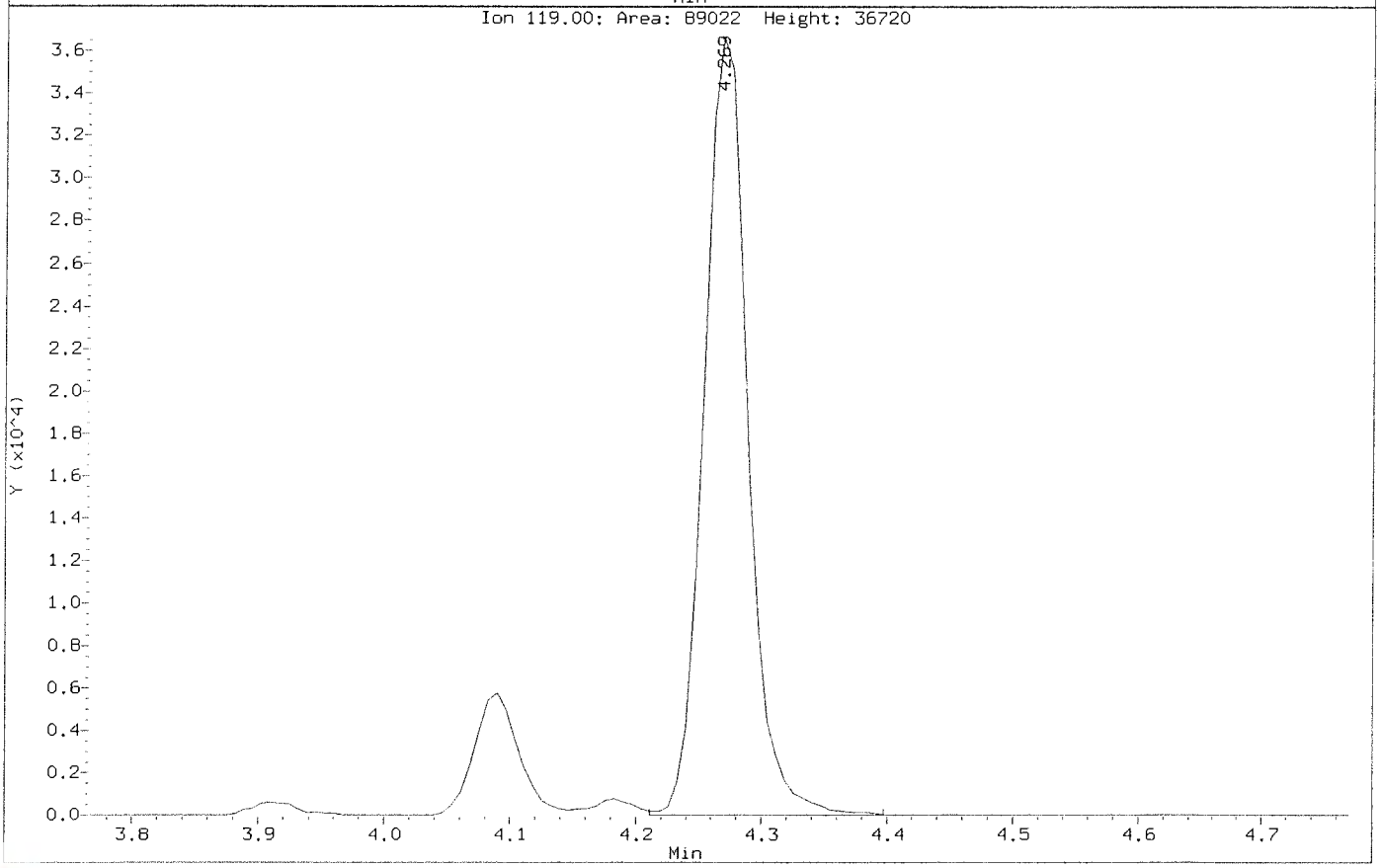
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

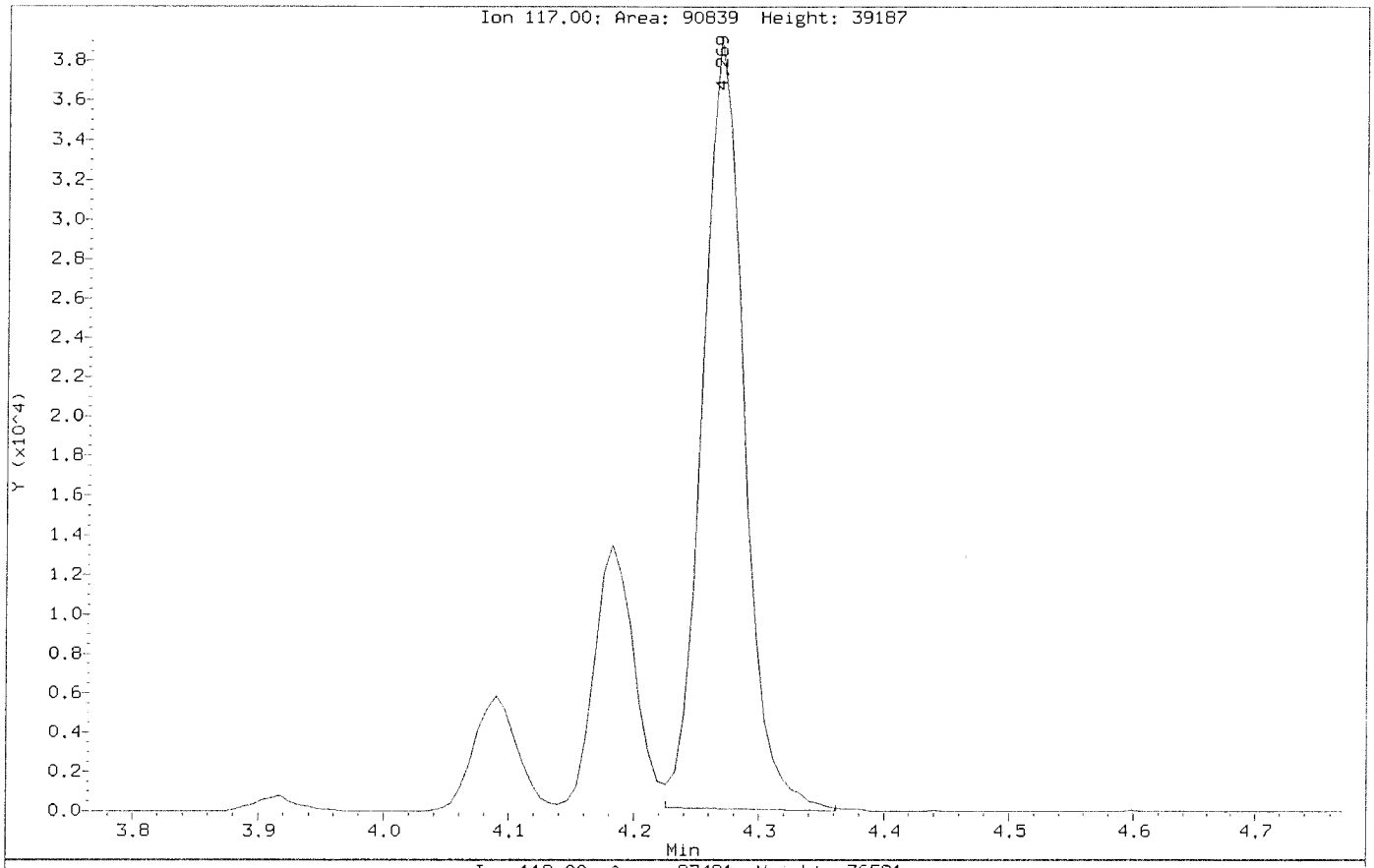
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

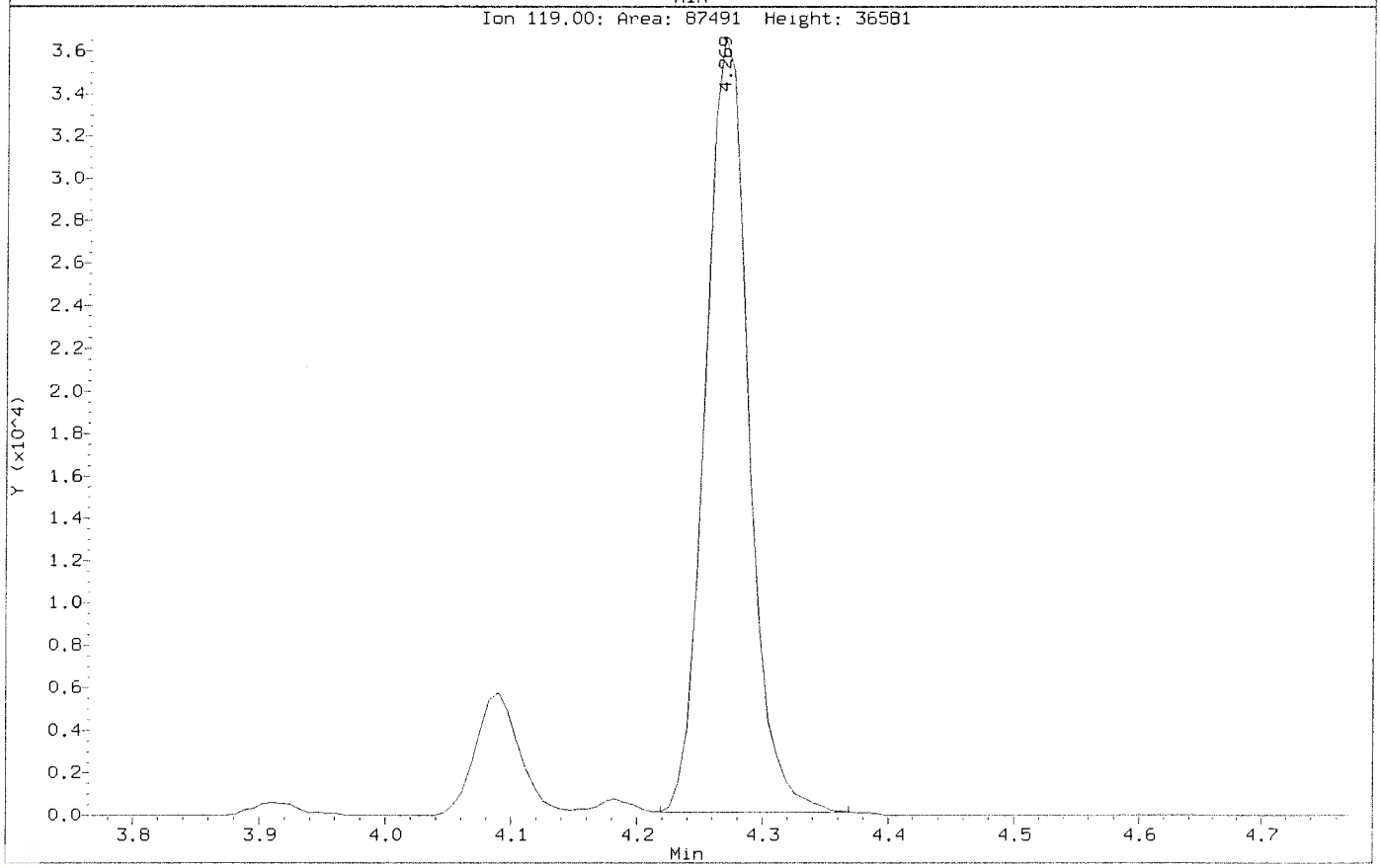




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 18-NOV-2019 16:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:11 Cal File: X111807.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

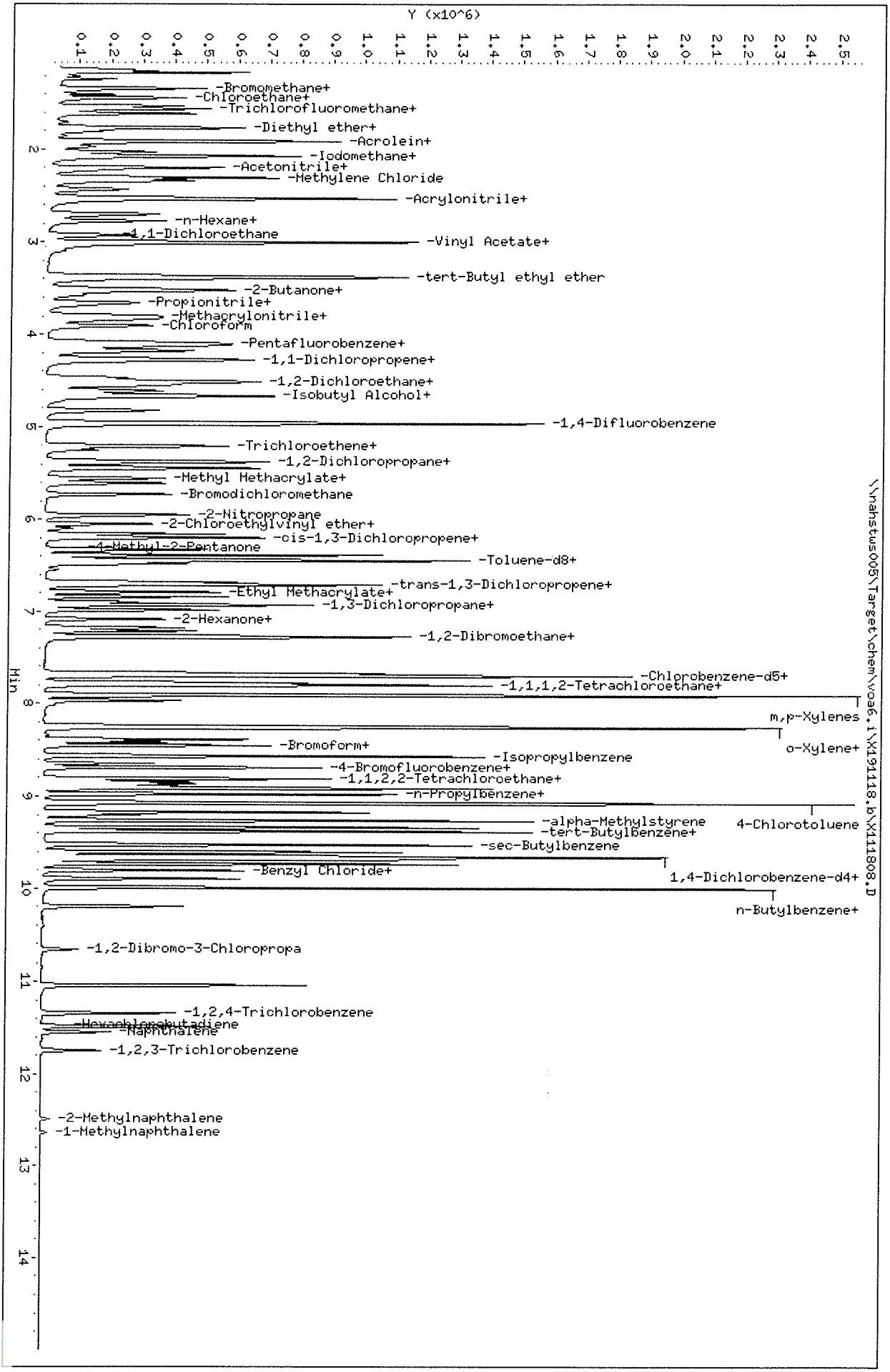
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	399282	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	548073	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502523	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	273444	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	178006	50.0000	47.42
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	222328	50.0000	47.57
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	173990	50.0000	47.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	608955	50.0000	45.99
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	184913	50.0000	50.72
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	268813	50.0000	49.90
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183844	50.0000	47.81
138 Freon TF	101	1.911	1.911	(0.457)	183115	50.0000	52.67
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	128481	50.0000	48.90
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	283343	50.0000	48.77
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	171500	50.0000	50.68
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	220463	50.0000	49.86
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	52554	50.0000	51.69
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	157820	50.0000	48.44(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	115181	50.0000	50.00
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	661580	50.0000	50.99
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	21800	50.0000	51.36
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	174730	50.0000	49.57

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	363670	50.0000	50.11
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	219760	50.0000	50.51
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	161607	50.0000	49.36
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	647527	50.0000	52.01
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	398343	50.0000	50.79
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	259218	50.0000	48.60
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	400593	50.0000	50.27
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	257082	50.0000	48.75
24	2-Butanone	43	3.573	3.573	(0.854)	116745	100.000	95.28
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	506692	50.0000	51.50
52	2-Hexanone	43	7.090	7.090	(0.924)	193251	100.000	93.61
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	603806	50.0000	50.63
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	703086	50.0000	52.54
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	284508	100.000	96.62
10	Acetone	43	1.976	1.976	(0.473)	103091	100.000	99.72
37	Benzene	78	4.512	4.512	(0.908)	637799	50.0000	50.87
74	Bromobenzene	156	8.809	8.809	(0.911)	240153	50.0000	50.53
29	Bromochloromethane	128	3.795	3.795	(0.908)	105150	50.0000	48.61
39	Bromodichloromethane	83	5.729	5.729	(1.153)	226127	50.0000	49.85
66	Bromoform	173	8.416	8.416	(1.097)	143798	50.0000	48.09
6	Bromomethane	94	1.338	1.338	(0.320)	215480	50.0000	54.47
19	Carbon Disulfide	76	2.069	2.069	(0.495)	951783	100.000	103.39
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	247524	50.0000	51.11(M)
59	Chlorobenzene	112	7.699	7.699	(1.004)	485055	50.0000	49.44
7	Chloroethane	64	1.403	1.403	(0.336)	124291	50.0000	49.44
28	Chloroform	83	3.910	3.910	(0.935)	300015	50.0000	46.39
3	Chloromethane	50	1.073	1.073	(0.257)	215753	50.0000	49.75
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	187629	50.0000	49.55
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	273432	50.0000	51.15
55	Dibromochloromethane	129	7.176	7.176	(0.936)	191497	50.0000	50.17
44	Dibromomethane	93	5.557	5.557	(1.118)	115707	50.0000	49.94
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	186161	50.0000	51.14
61	Ethylbenzene	106	7.799	7.799	(1.017)	257283	50.0000	50.75
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	99881	50.0000	52.17
67	Isopropylbenzene	105	8.566	8.566	(1.117)	765390	50.0000	50.97
62	m,p-Xylenes	106	7.907	7.907	(1.031)	625932	100.000	102.32
17	Methylene Chloride	84	2.305	2.305	(0.551)	168044	50.0000	46.54
87	n-Butylbenzene	91	9.999	9.999	(1.034)	591076	50.0000	53.08
73	n-Propylbenzene	91	8.917	8.917	(0.922)	884464	50.0000	52.32
92	Naphthalene	128	11.546	11.546	(1.194)	142473	50.0000	48.22
63	o-Xylene	106	8.244	8.244	(1.075)	301622	50.0000	49.96
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	772064	50.0000	52.58
64	Styrene	104	8.258	8.258	(1.077)	530825	50.0000	50.56
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	550071	50.0000	51.60
56	Tetrachloroethene	164	6.933	6.933	(0.904)	176674	50.0000	50.03
50	Toluene	91	6.446	6.446	(0.840)	709296	50.0000	49.77
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	163591	50.0000	49.79
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	247921	50.0000	50.89
38	Trichloroethene	130	5.206	5.206	(1.048)	196625	50.0000	51.29
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	328789	50.0000	53.08
5	Vinyl Chloride	62	1.138	1.138	(0.272)	201503	50.0000	49.51

QC Flag Legend

M - Compound response manually integrated.



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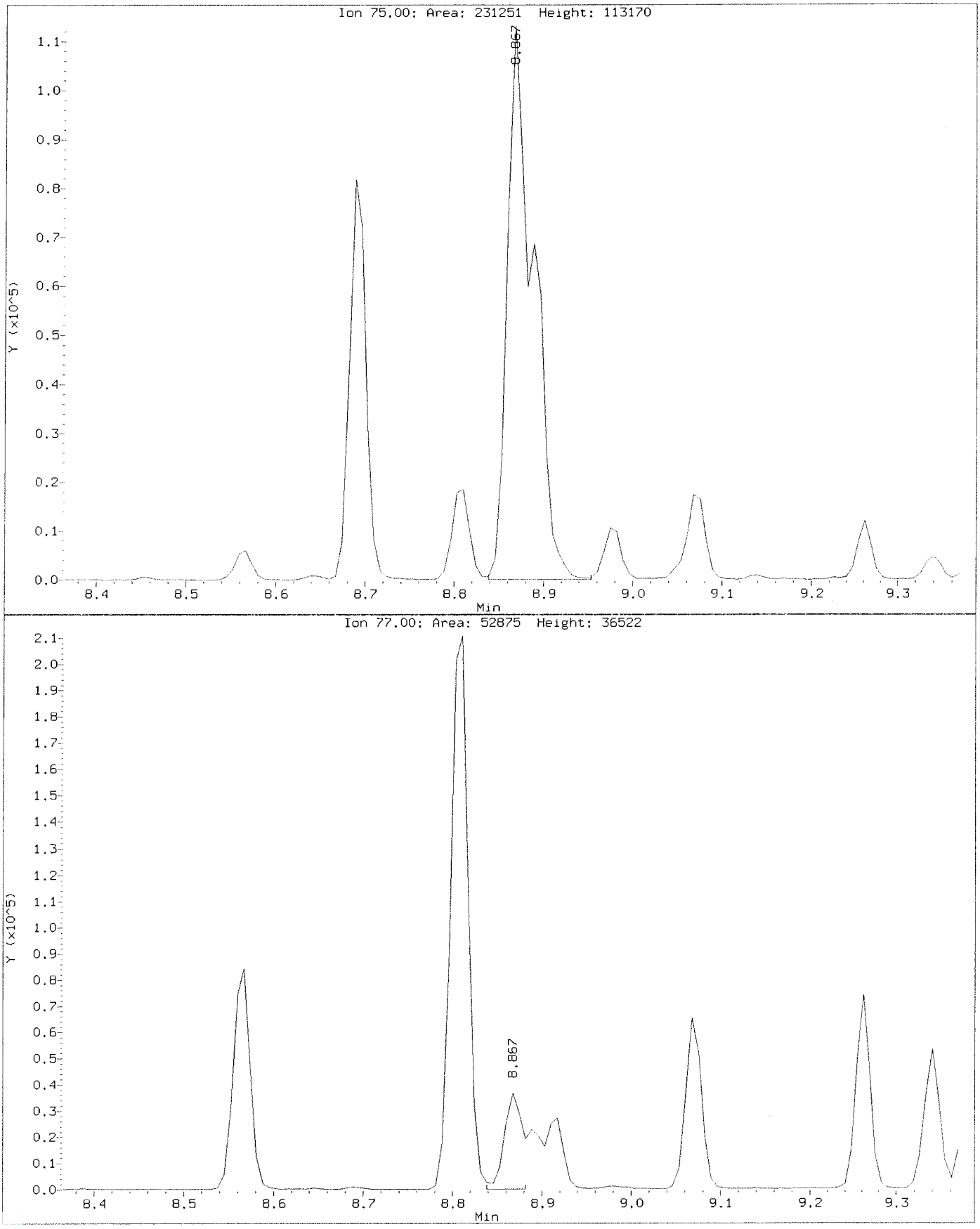
Date : 18-NOV-2019 16:35
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111808.D
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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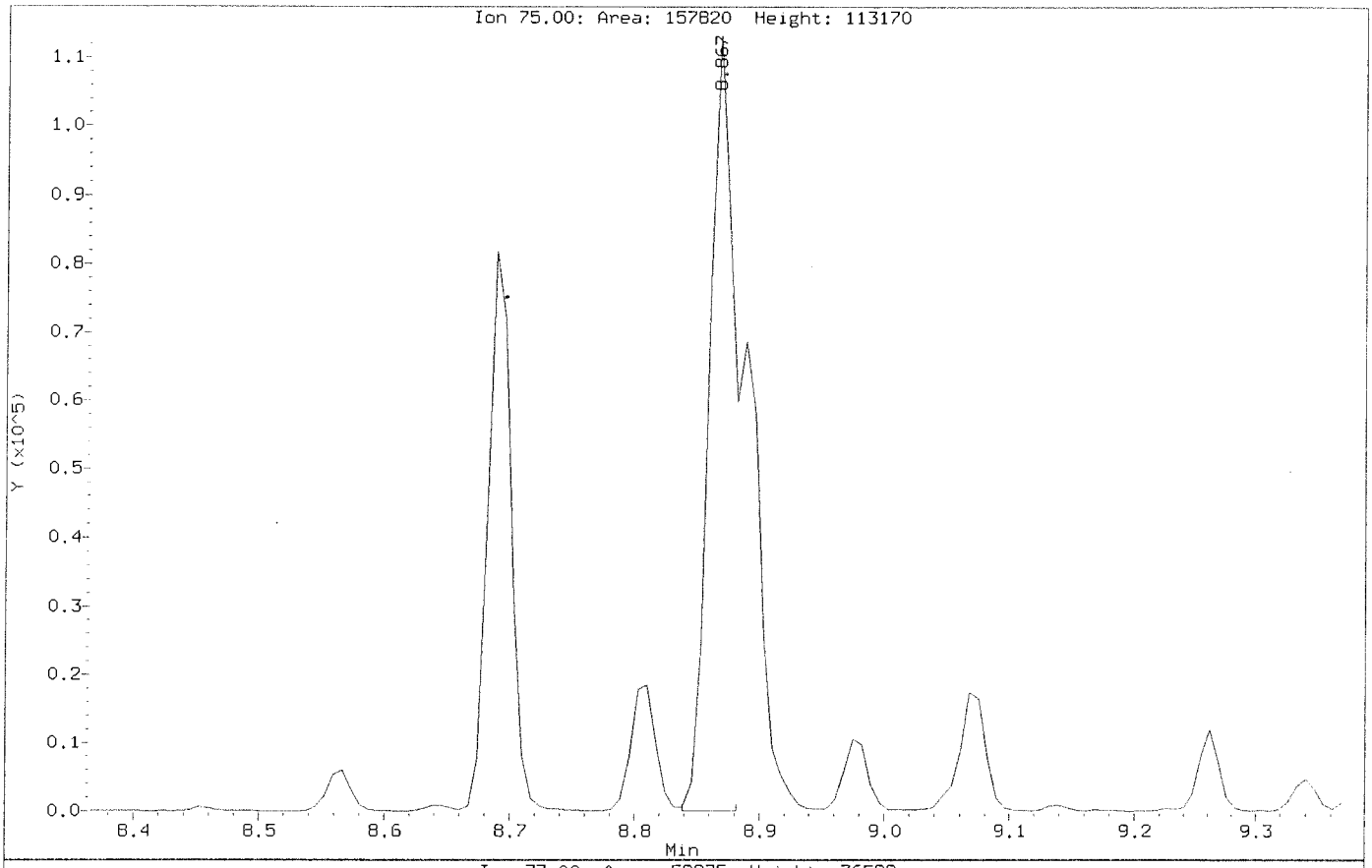
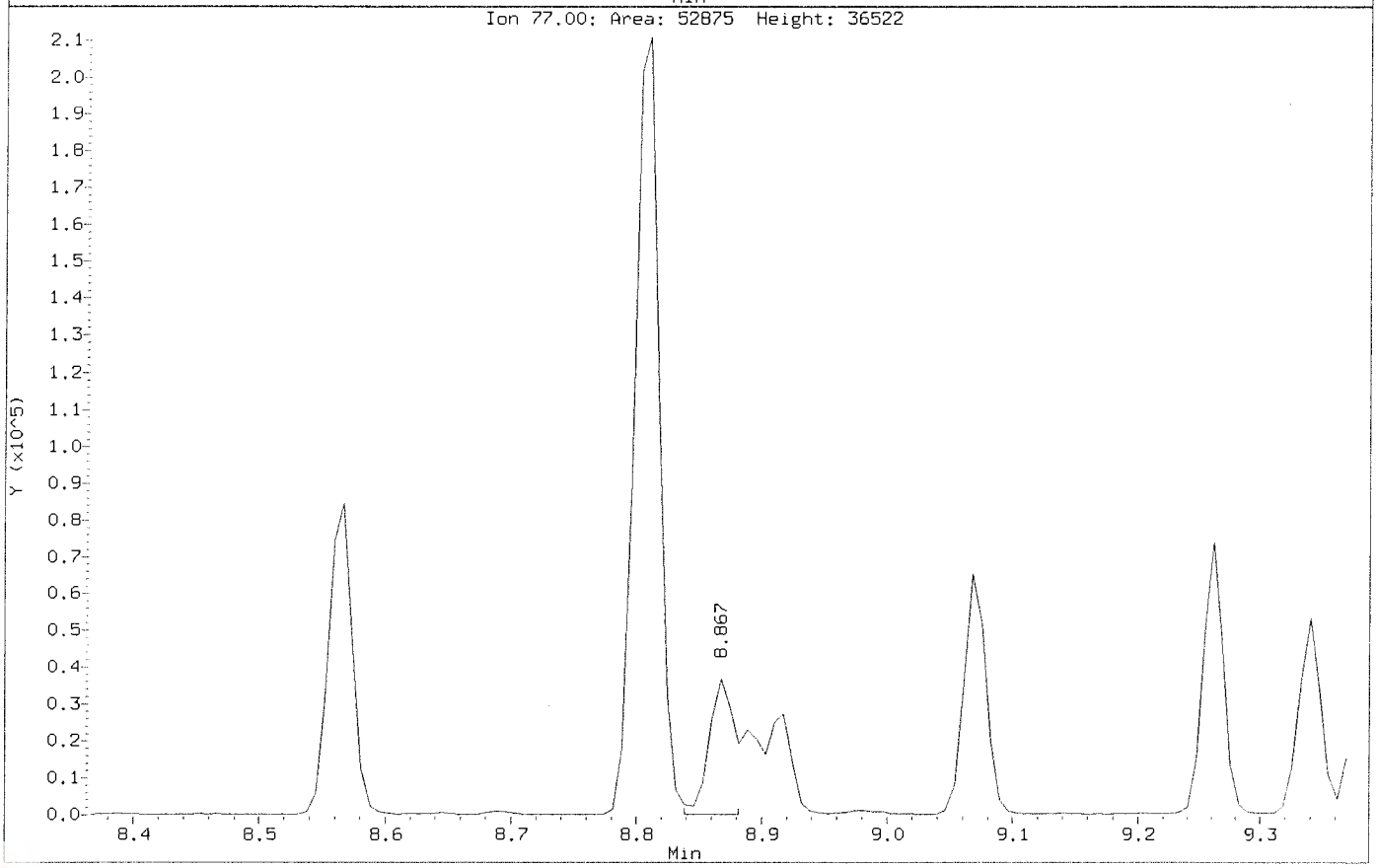
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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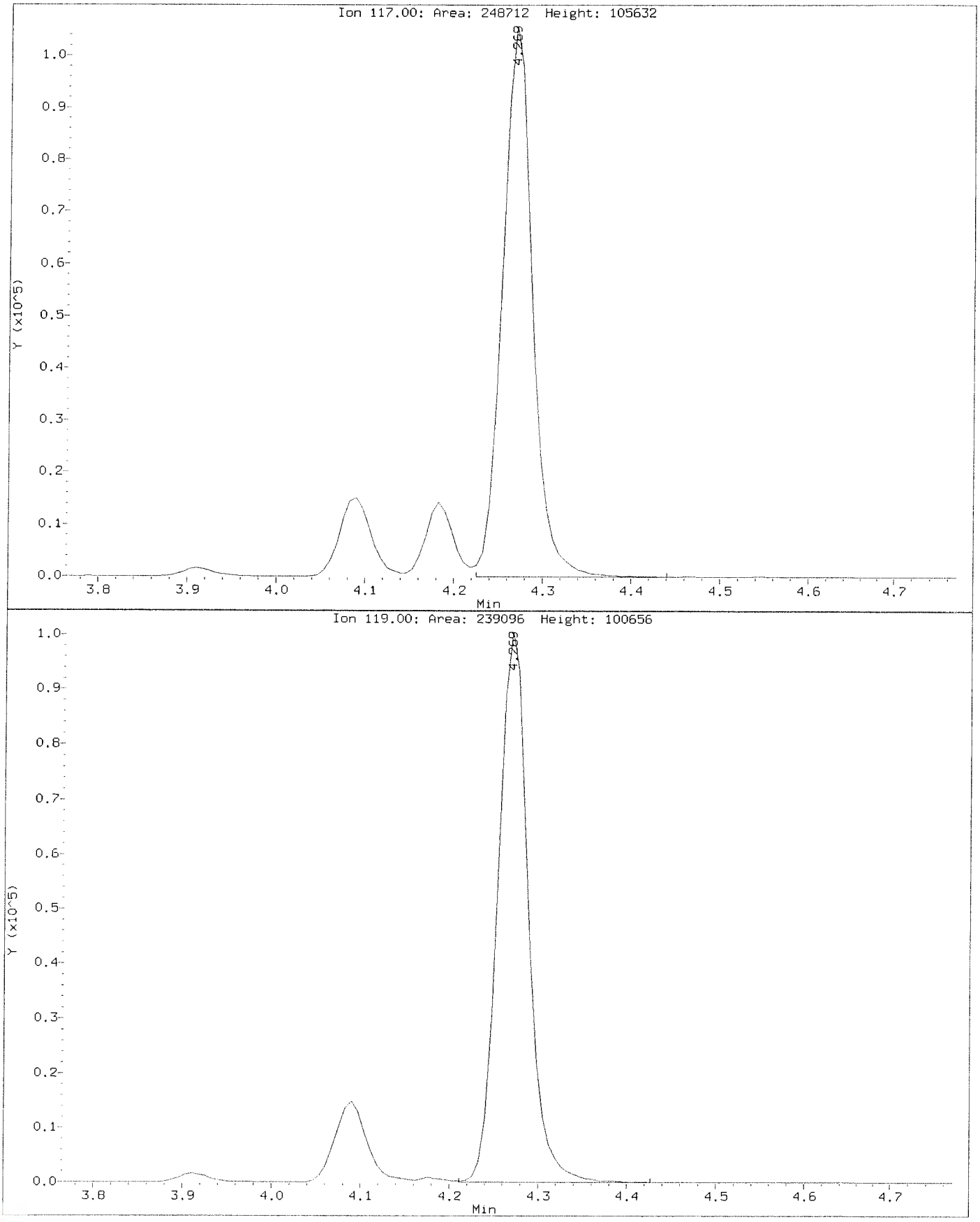
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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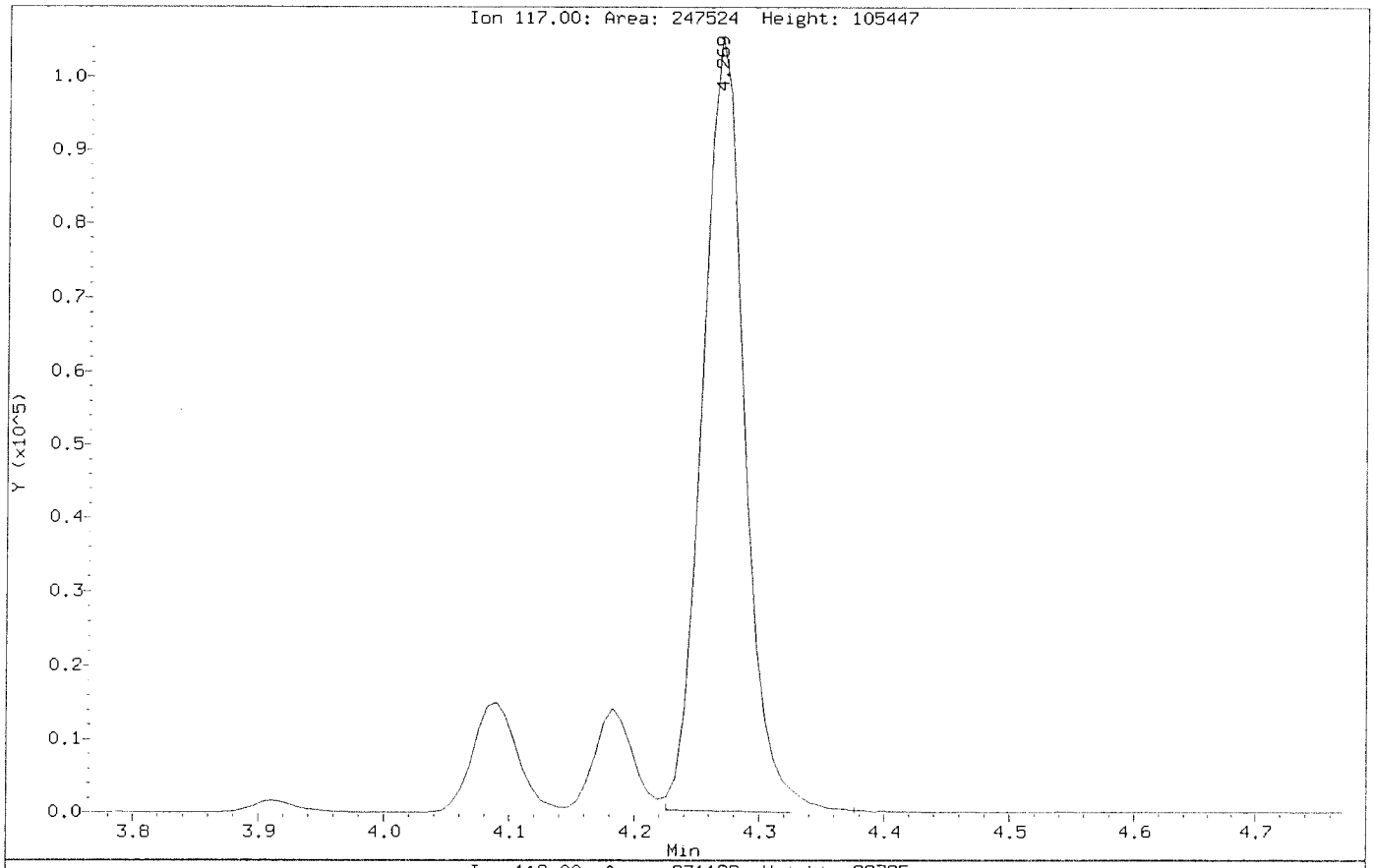
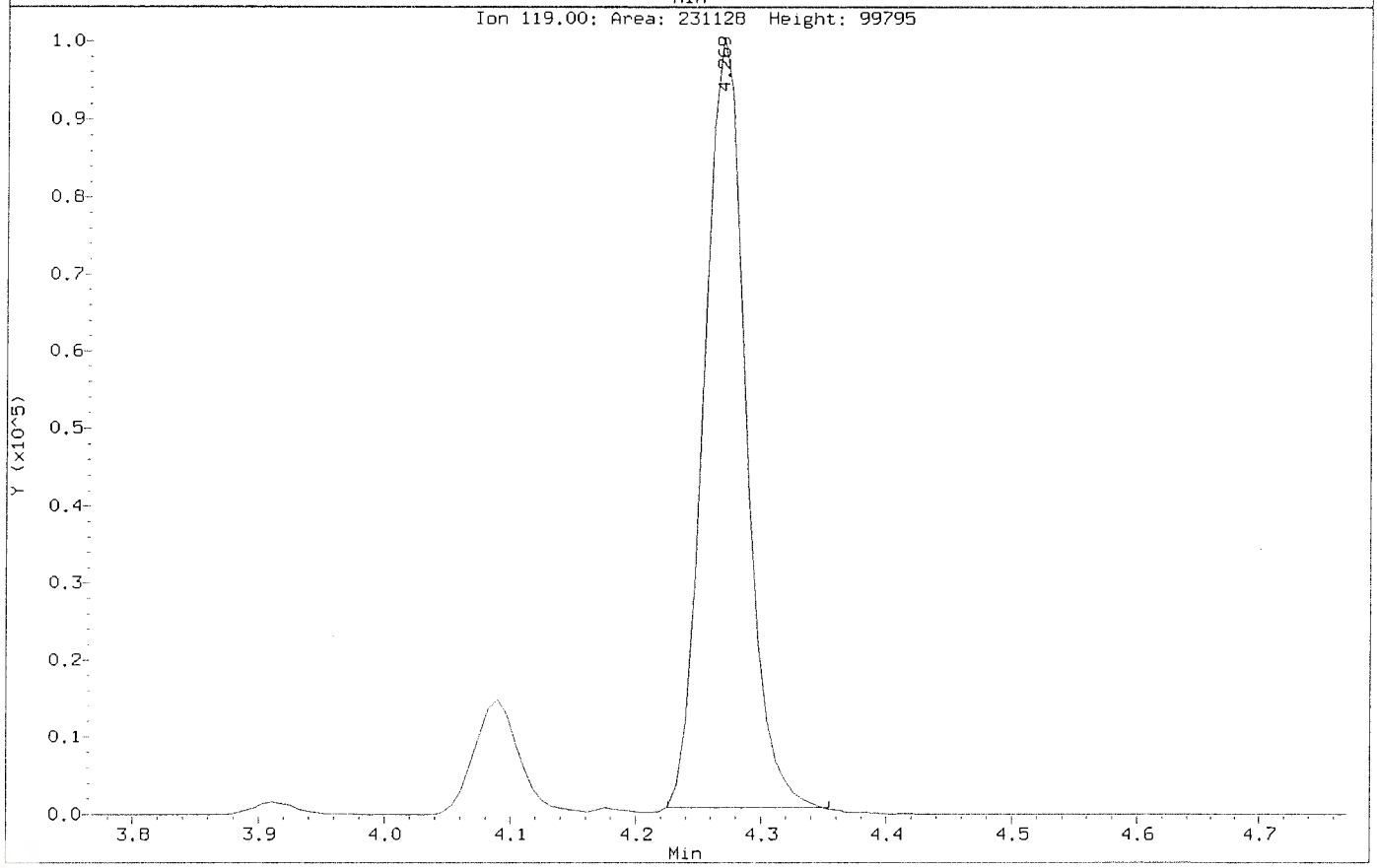
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 18-NOV-2019 16:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

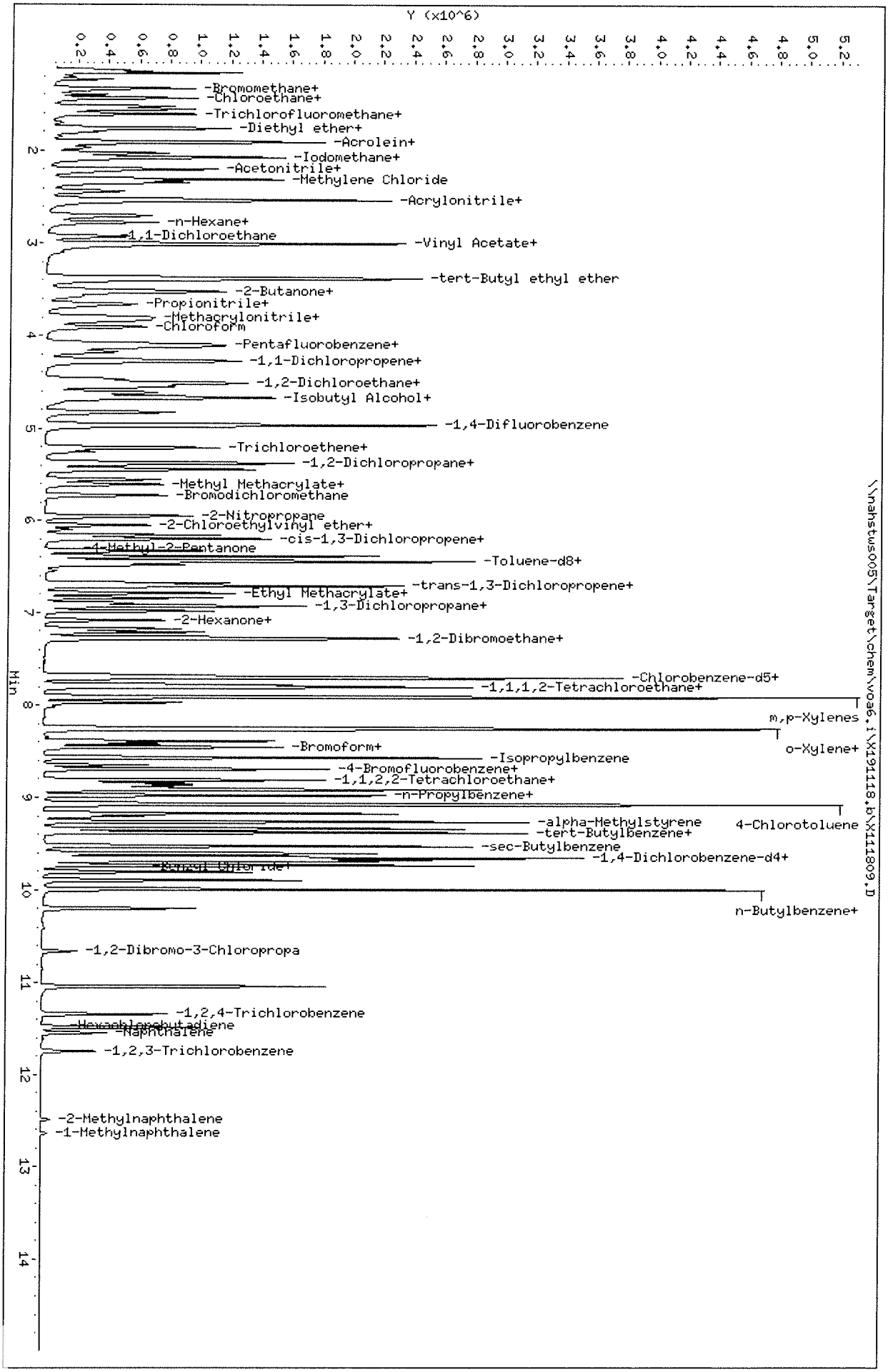
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	392699	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	554744	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502006	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278931	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	364646	100.000	97.98
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	465570	100.000	99.26
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	354918	100.000	99.03
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1251601	100.000	94.62
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	370675	100.000	101.77
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	531073	100.000	100.24
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	374065	100.000	95.36
138 Freon TF	101	1.911	1.911	(0.457)	363001	100.000	106.17
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	259169	100.000	98.76
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	562516	100.000	98.44
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	336639	100.000	101.15
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	435155	100.000	97.24
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	102660	100.000	99.24
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	314678	100.000	94.68(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	224252	100.000	95.44
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	1360930	100.000	102.82
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	42468	100.000	98.40
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	348356	100.000	98.94

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	740257	100.000	99.99
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	440676	100.000	100.06
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	322033	100.000	97.17
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1326043	100.000	104.41
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	793024	100.000	99.13
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	523367	100.000	98.23
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	805891	100.000	99.14
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	505741	100.000	97.52
24 2-Butanone	43	3.580	3.580	(0.856)	231090	200.000	191.78
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	1019206	100.000	101.56
52 2-Hexanone	43	7.090	7.090	(0.924)	404339	200.000	196.07
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	1244013	100.000	102.27
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	1420650	100.000	104.09
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	584699	200.000	198.78
10 Acetone	43	1.976	1.976	(0.473)	202207	200.000	202.71(A)
37 Benzene	78	4.519	4.519	(0.909)	1259183	100.000	99.22
74 Bromobenzene	156	8.809	8.809	(0.911)	477901	100.000	98.58
29 Bromochloromethane	128	3.795	3.795	(0.908)	204995	100.000	96.36
39 Bromodichloromethane	83	5.729	5.729	(1.153)	453036	100.000	98.68
66 Bromoform	173	8.415	8.415	(1.097)	293256	100.000	97.14
6 Bromomethane	94	1.331	1.331	(0.318)	396733	100.000	104.04
19 Carbon Disulfide	76	2.069	2.069	(0.495)	1866170	200.000	206.12(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	490954	100.000	100.15(H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	969904	100.000	98.96
7 Chloroethane	64	1.396	1.396	(0.334)	244234	100.000	98.78
28 Chloroform	83	3.910	3.910	(0.935)	592217	100.000	93.11
3 Chloromethane	50	1.073	1.073	(0.257)	420936	100.000	98.51
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	373378	100.000	100.25
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	548280	100.000	101.34
55 Dibromochloromethane	129	7.176	7.176	(0.936)	387071	100.000	101.53
44 Dibromomethane	93	5.557	5.557	(1.118)	228649	100.000	97.50
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	359790	100.000	99.65
61 Ethylbenzene	106	7.799	7.799	(1.017)	511284	100.000	100.96
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	192455	100.000	99.01
67 Isopropylbenzene	105	8.566	8.566	(1.117)	1550450	100.000	103.37
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1262031	200.000	206.53(A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	333987	100.000	94.05
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1214189	100.000	106.90
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1771664	100.000	102.75
92 Naphthalene	128	11.546	11.546	(1.194)	281768	100.000	93.49
63 o-Xylene	106	8.244	8.244	(1.075)	610719	100.000	101.26
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	1561099	100.000	104.22
64 Styrene	104	8.258	8.258	(1.077)	1077784	100.000	102.77
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1121644	100.000	103.15
56 Tetrachloroethene	164	6.933	6.933	(0.904)	341567	100.000	96.83
50 Toluene	91	6.446	6.446	(0.840)	1413996	100.000	99.32
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	324394	100.000	100.39
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	504686	100.000	102.35
38 Trichloroethene	130	5.206	5.206	(1.048)	388311	100.000	100.09
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	647137	100.000	106.23
5 Vinyl Chloride	62	1.138	1.138	(0.272)	400884	100.000	100.16

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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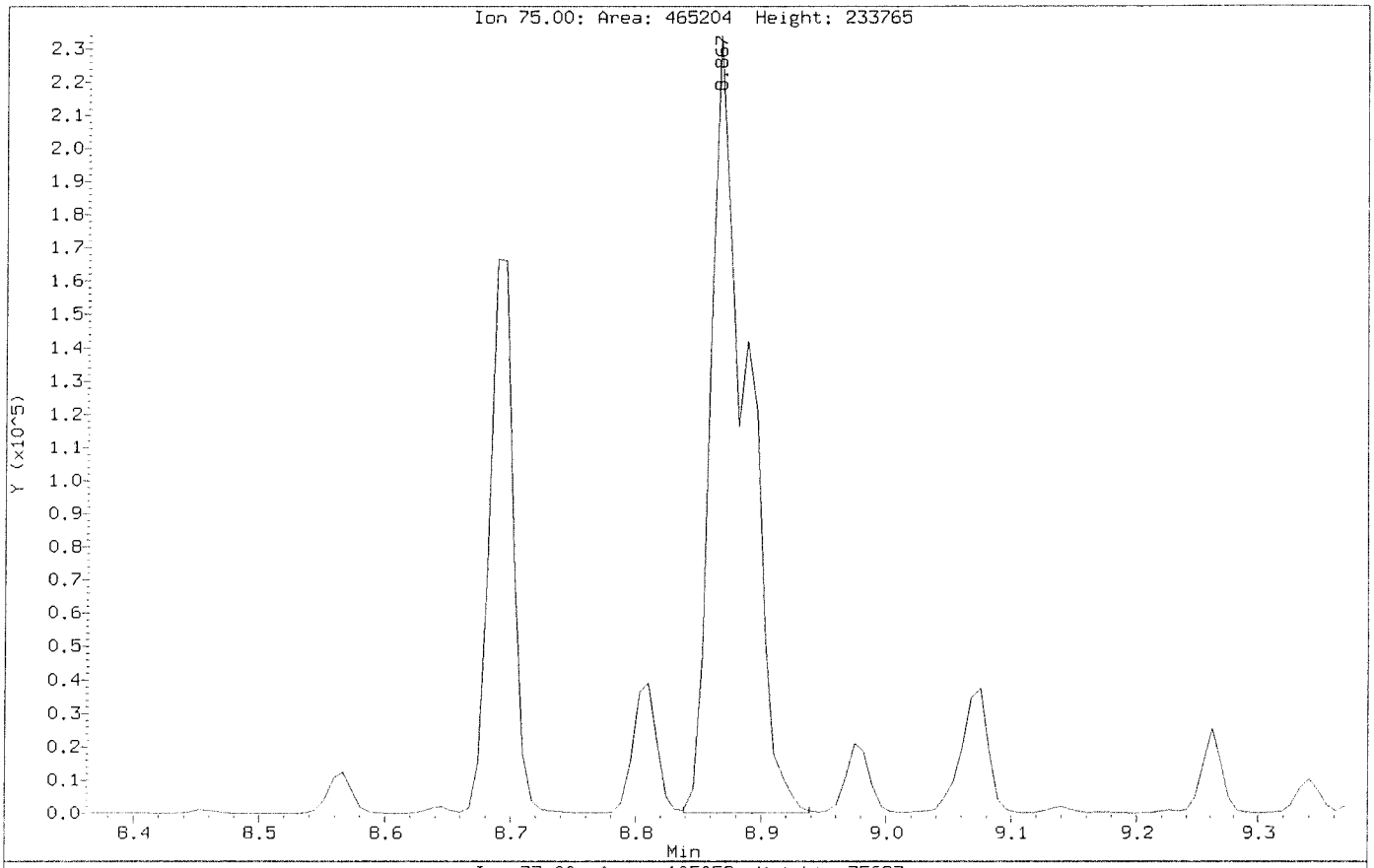
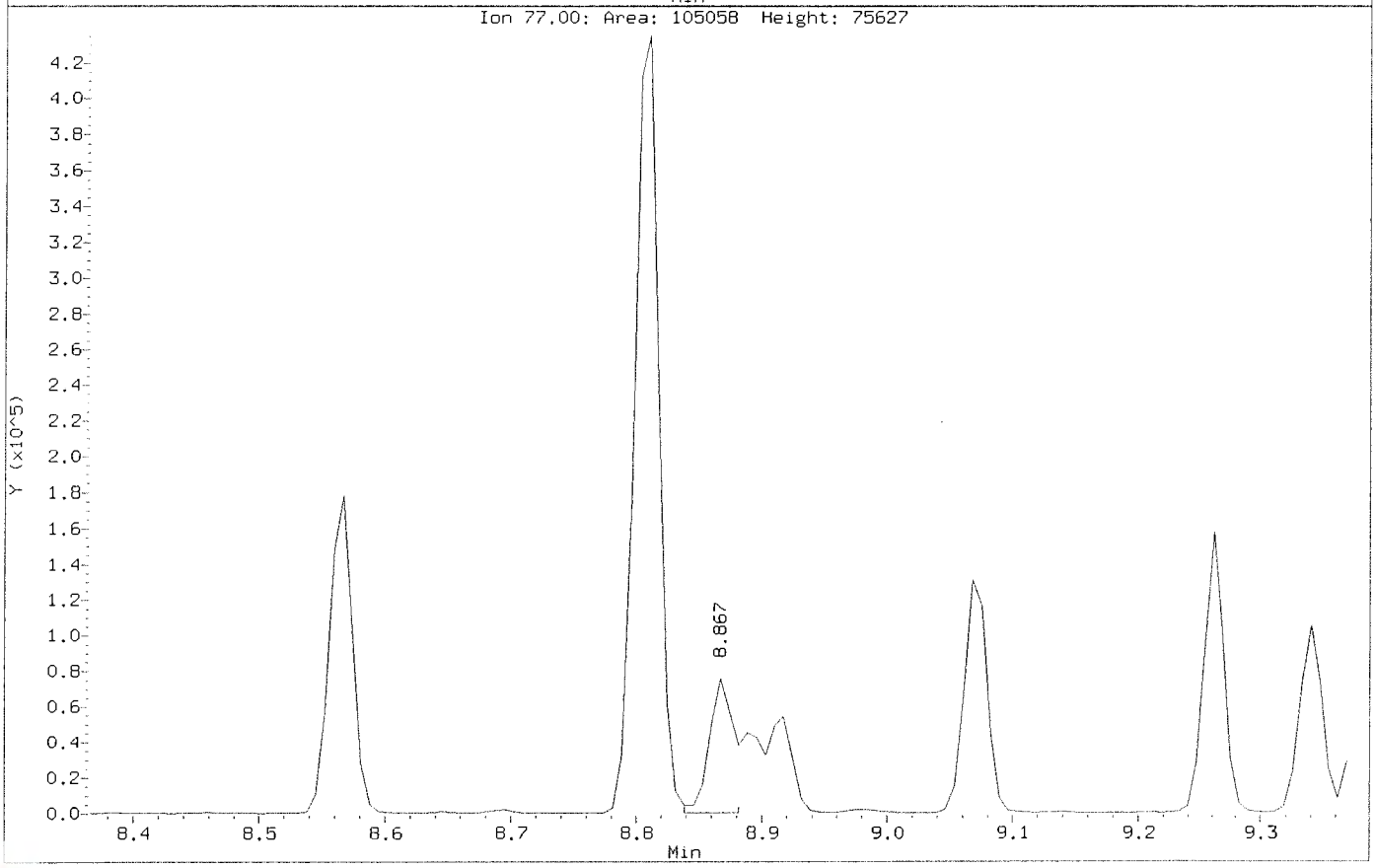
Date : 18-NOV-2019 16:59
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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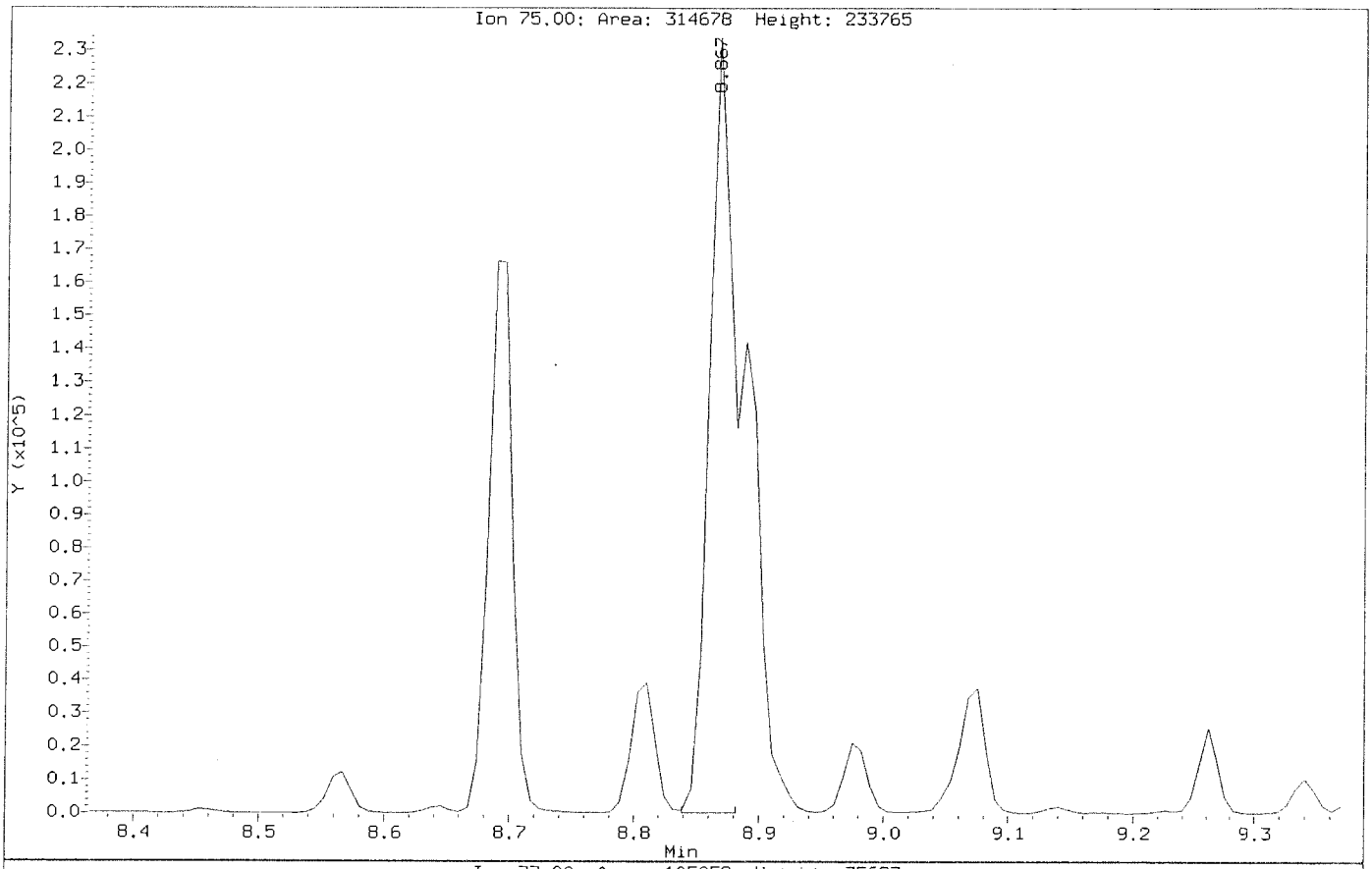
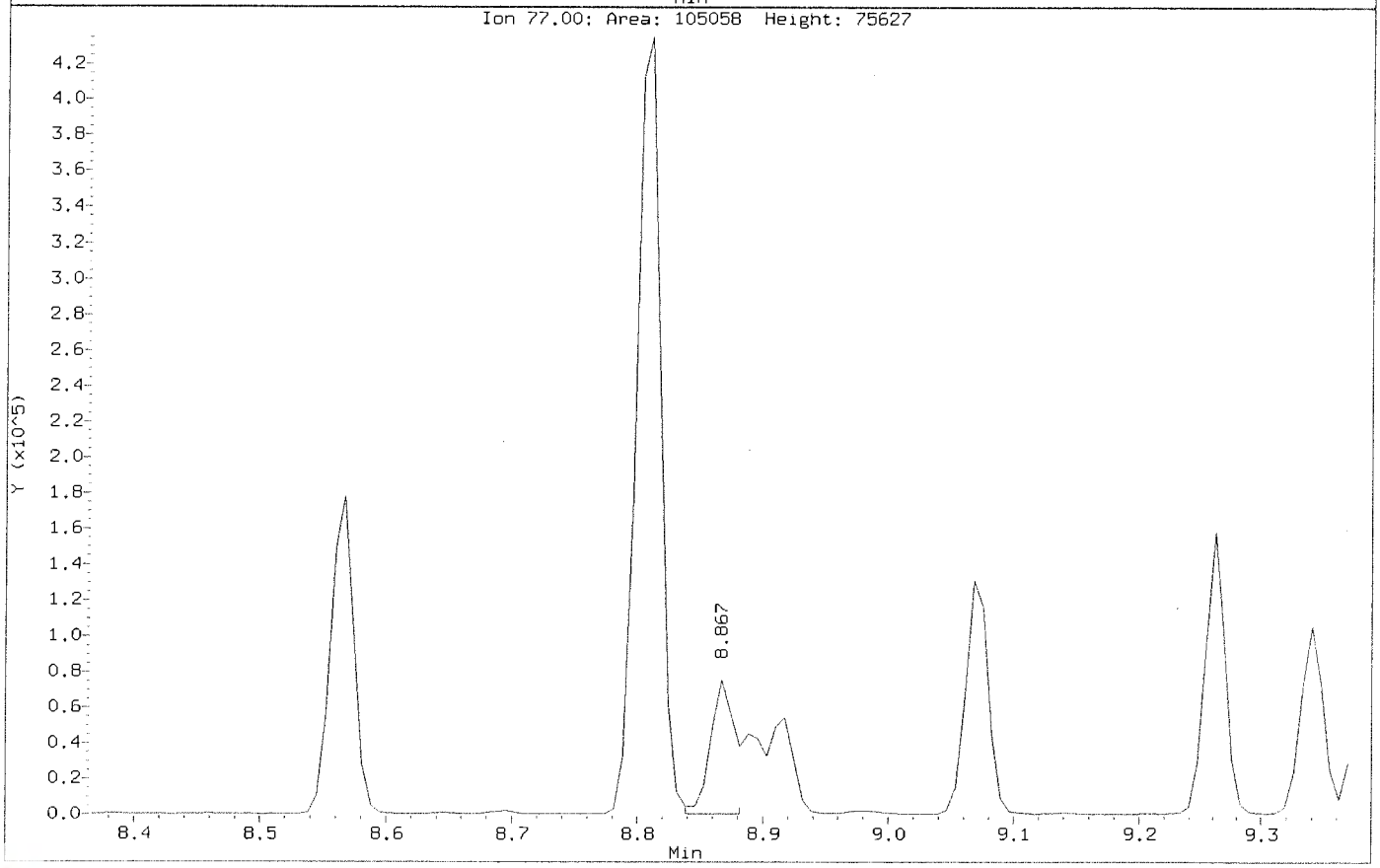
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

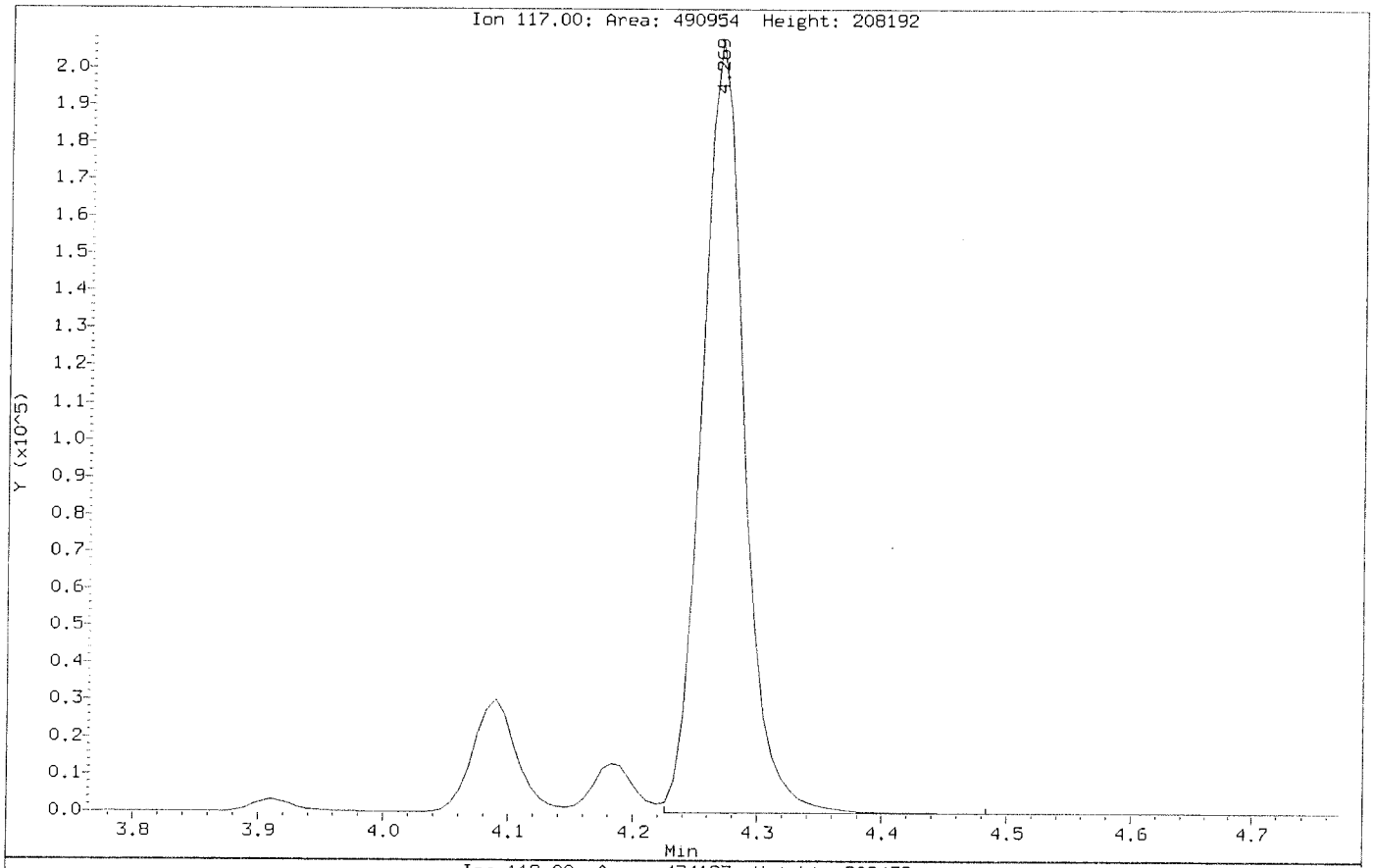
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

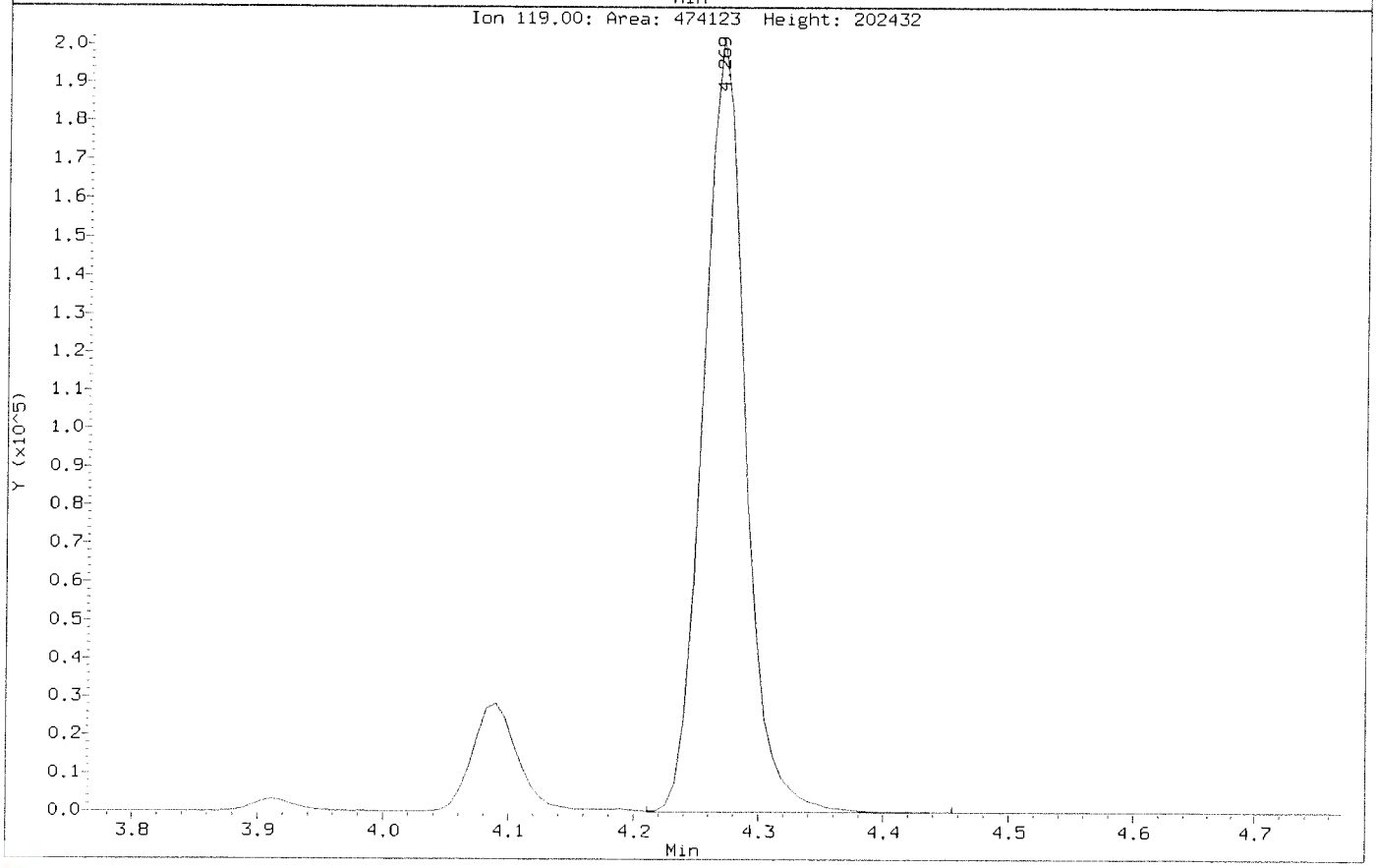




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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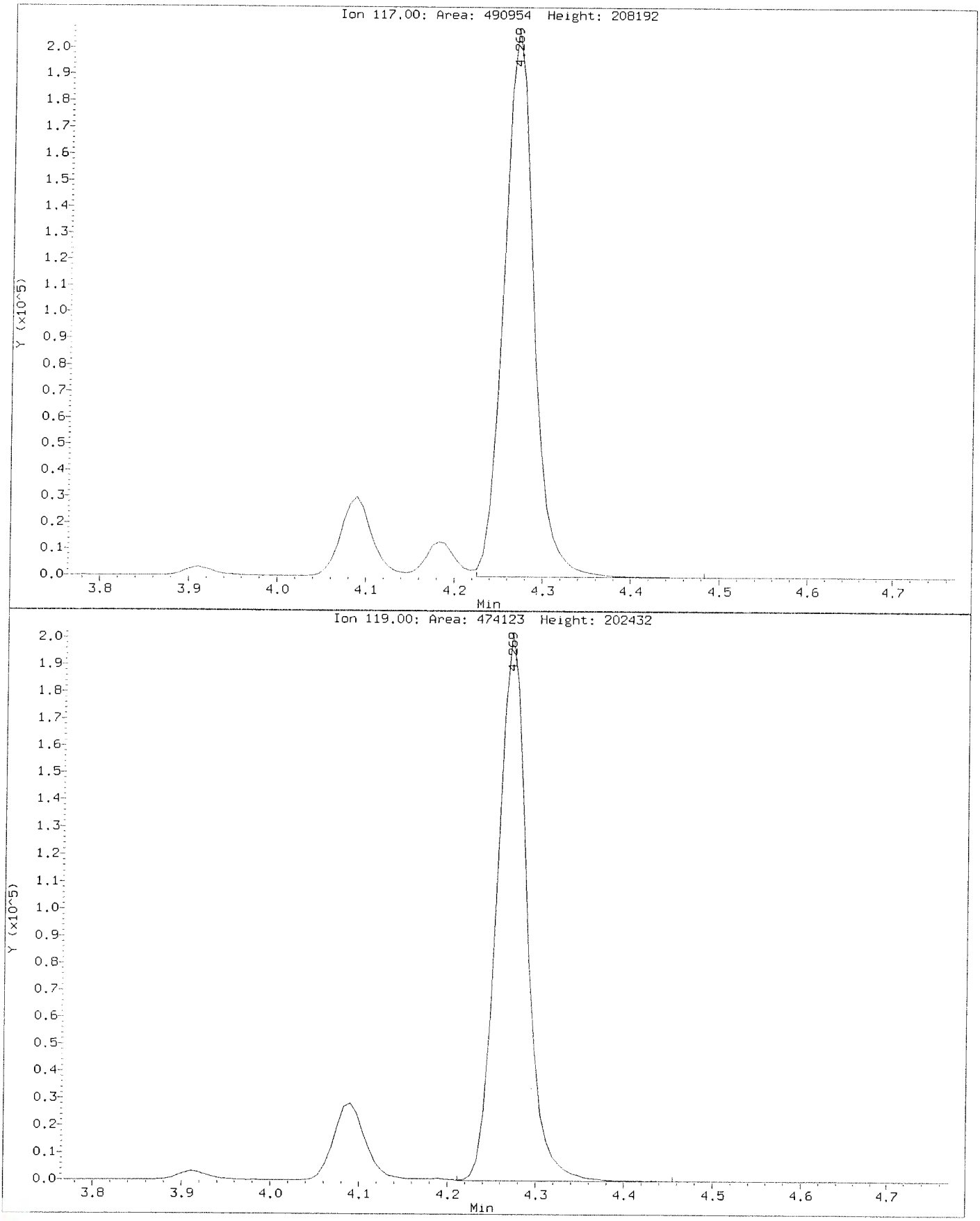
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 18-NOV-2019 17:22
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:59 Cal File: X111809.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

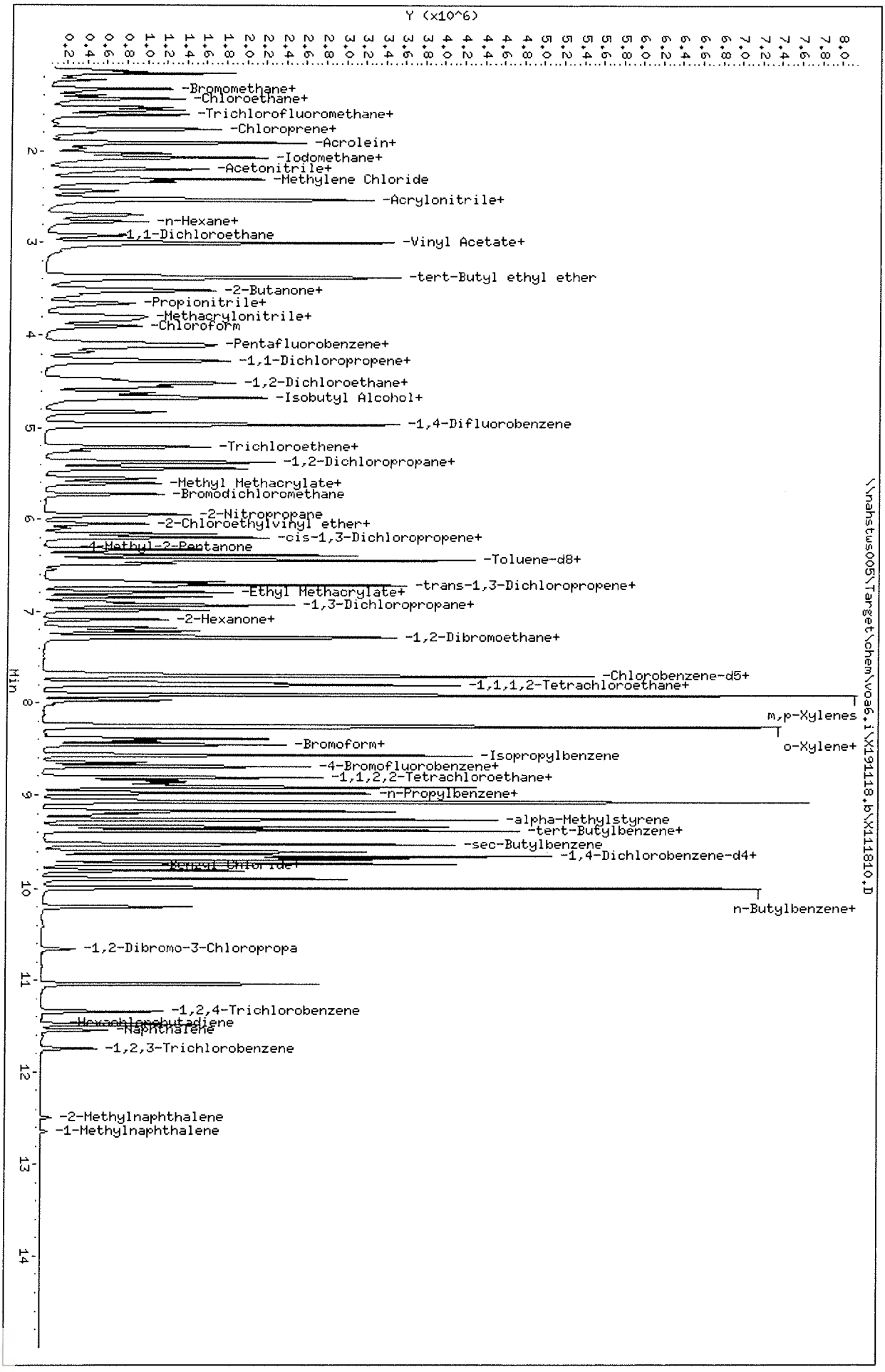
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	378157	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542191	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	494760	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	282310	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	532181	150.000	148.11
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	688600	150.000	148.76
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	514854	150.000	148.99
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	1815269	150.000	139.25
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	548257	150.000	152.74
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	768782	150.000	150.69
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	560927	150.000	141.29
138 Freon TF	101	1.912	1.912	(0.457)	513260	150.000	155.89
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	380298	150.000	147.04
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	825788	150.000	150.08
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	483391	150.000	150.83
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	635821	150.000	145.37
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	156391	150.000	148.93
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	465353	150.000	138.34(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	338737	150.000	142.44
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	2030171	150.000	151.55
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	65470	150.000	150.06
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	518766	150.000	149.49

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1121580	150.000	149.69
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	645436	150.000	149.95
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	471959	150.000	145.71
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1980658	150.000	154.09
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1183710	150.000	146.20
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	763789	150.000	145.46
84	1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	1195790	150.000	145.34
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	732900	150.000	146.75
24	2-Butanone	43	3.573	3.573	(0.854)	346972	300.000	299.02(A)
76	2-Chlorotoluene	91	8.982	8.982	(0.929)	1513395	150.000	149.00
52	2-Hexanone	43	7.090	7.090	(0.924)	606144	300.000	298.23(A)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	1867848	150.000	151.71
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2100293	150.000	152.04
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	884349	300.000	305.06(A)
10	Acetone	43	1.976	1.976	(0.473)	284604	300.000	298.06(A)
37	Benzene	78	4.512	4.512	(0.908)	1843665	150.000	148.64
74	Bromobenzene	156	8.810	8.810	(0.911)	709083	150.000	144.52
29	Bromochloromethane	128	3.795	3.795	(0.908)	294445	150.000	143.73
39	Bromodichloromethane	83	5.730	5.730	(1.153)	669356	150.000	149.18
66	Bromoform	173	8.416	8.416	(1.097)	447981	150.000	150.02
6	Bromomethane	94	1.331	1.331	(0.318)	529714	150.000	145.16
19	Carbon Disulfide	76	2.069	2.069	(0.495)	2705391	300.000	310.30(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	707541	150.000	147.68(H)
59	Chlorobenzene	112	7.699	7.699	(1.004)	1445648	150.000	149.66
7	Chloroethane	64	1.396	1.396	(0.334)	351927	150.000	147.81
28	Chloroform	83	3.910	3.910	(0.935)	863467	150.000	140.99
3	Chloromethane	50	1.074	1.074	(0.257)	613254	150.000	148.94
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	542390	150.000	151.24
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	808388	150.000	152.88
55	Dibromochloromethane	129	7.176	7.176	(0.936)	573494	150.000	152.63
44	Dibromomethane	93	5.558	5.558	(1.118)	338759	150.000	147.80
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	504807	150.000	144.79
61	Ethylbenzene	106	7.800	7.800	(1.017)	751250	150.000	150.52
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	279881	150.000	142.49
67	Isopropylbenzene	105	8.566	8.566	(1.117)	2283588	150.000	154.47
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1861660	300.000	309.12(A)
17	Methylene Chloride	84	2.306	2.306	(0.551)	485622	150.000	142.02
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1823176	150.000	158.59
73	n-Propylbenzene	91	8.917	8.917	(0.922)	2616190	150.000	149.92
92	Naphthalene	128	11.546	11.546	(1.194)	435593	150.000	142.81
63	o-Xylene	106	8.244	8.244	(1.075)	906786	150.000	152.56
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	2308597	150.000	152.28
64	Styrene	104	8.258	8.258	(1.077)	1622659	150.000	156.99
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1665732	150.000	151.35
56	Tetrachloroethene	164	6.933	6.933	(0.904)	493485	150.000	141.95
50	Toluene	91	6.446	6.446	(0.840)	2107838	150.000	150.23
20	trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	472385	150.000	151.82
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	741568	150.000	153.87
38	Trichloroethene	130	5.207	5.207	(1.048)	566006	150.000	149.27
8	Trichlorofluoromethane	101	1.553	1.553	(0.372)	922117	150.000	157.19
5	Vinyl Chloride	62	1.138	1.138	(0.272)	578026	150.000	149.97

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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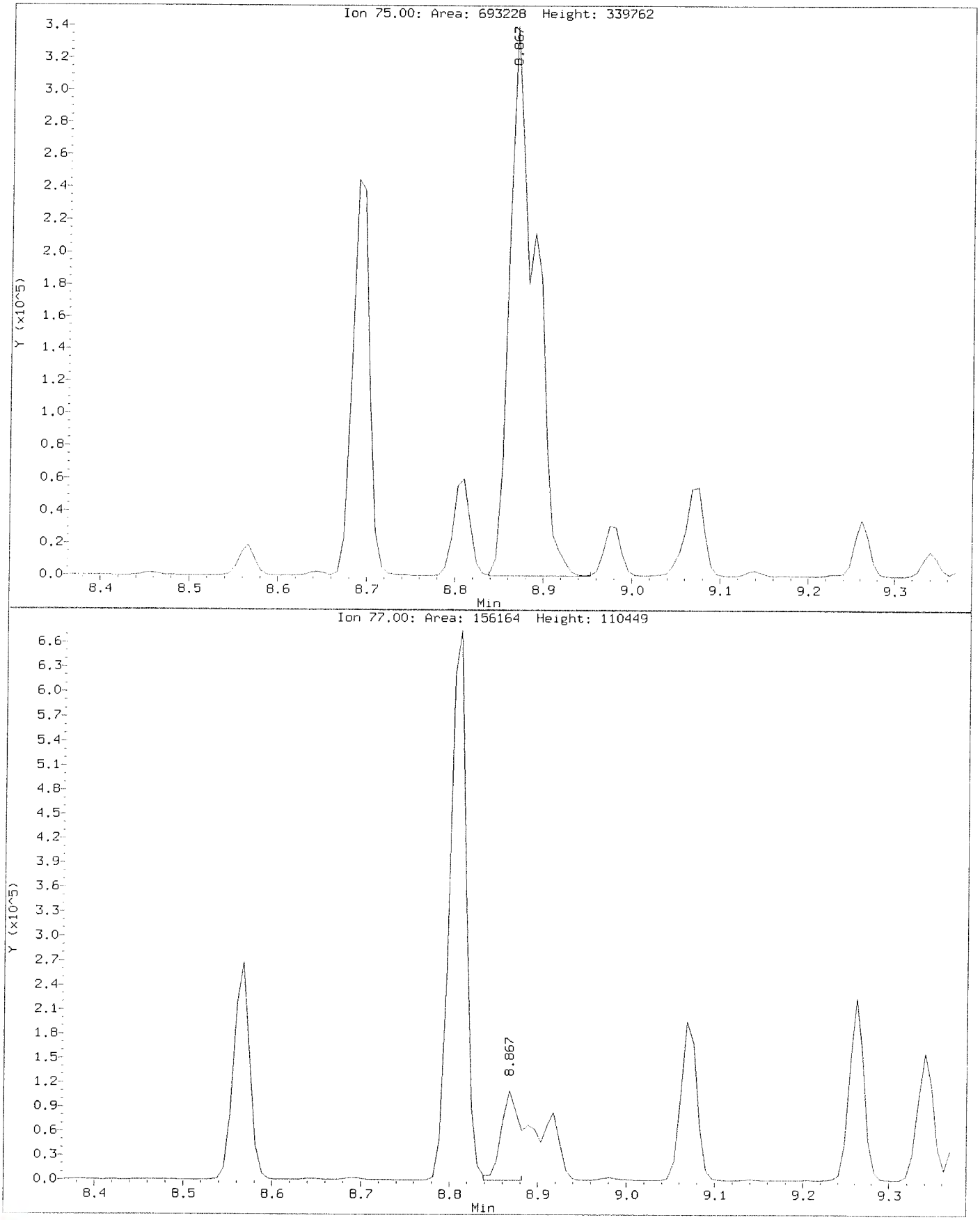
Date : 18-NOV-2019 17:22
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111810.D
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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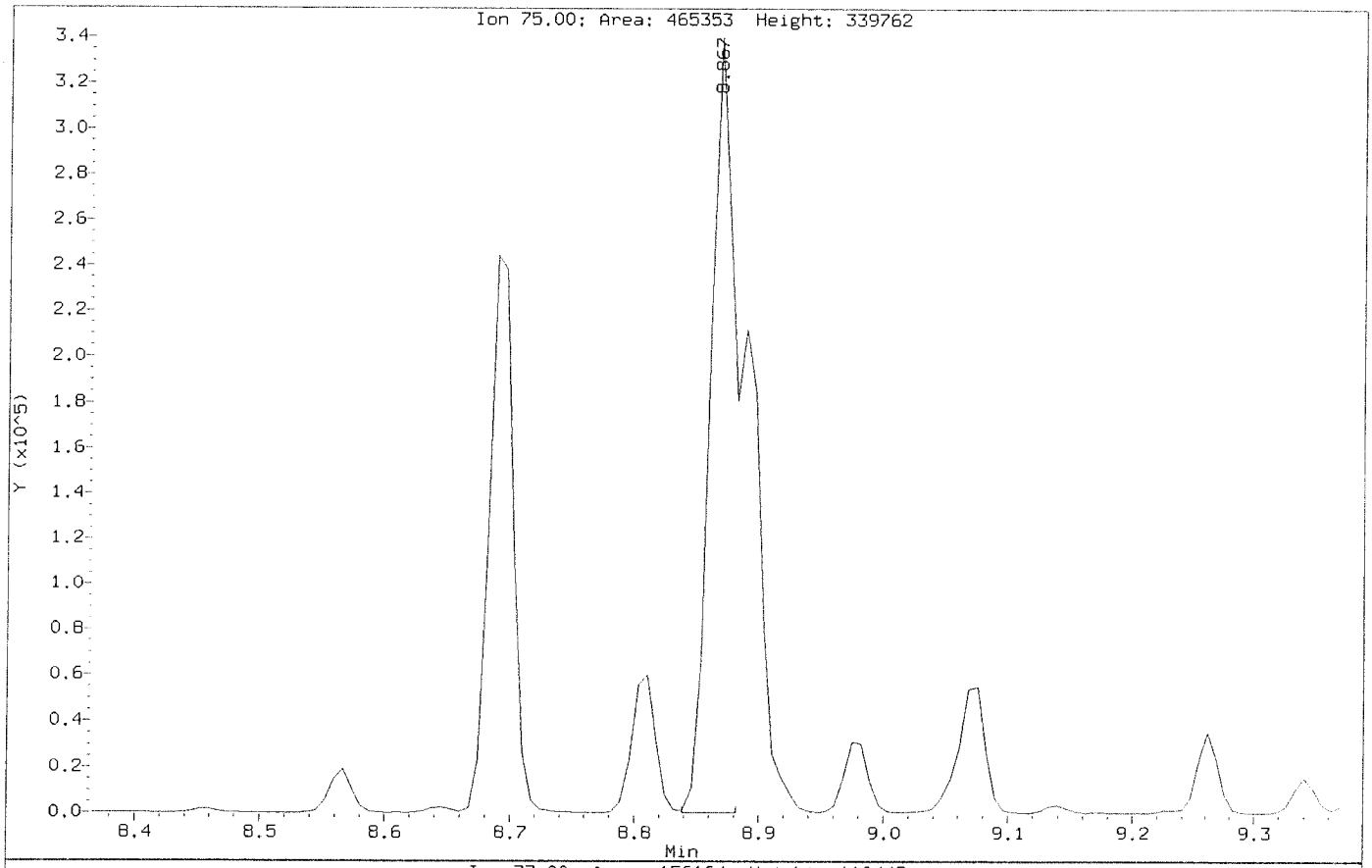
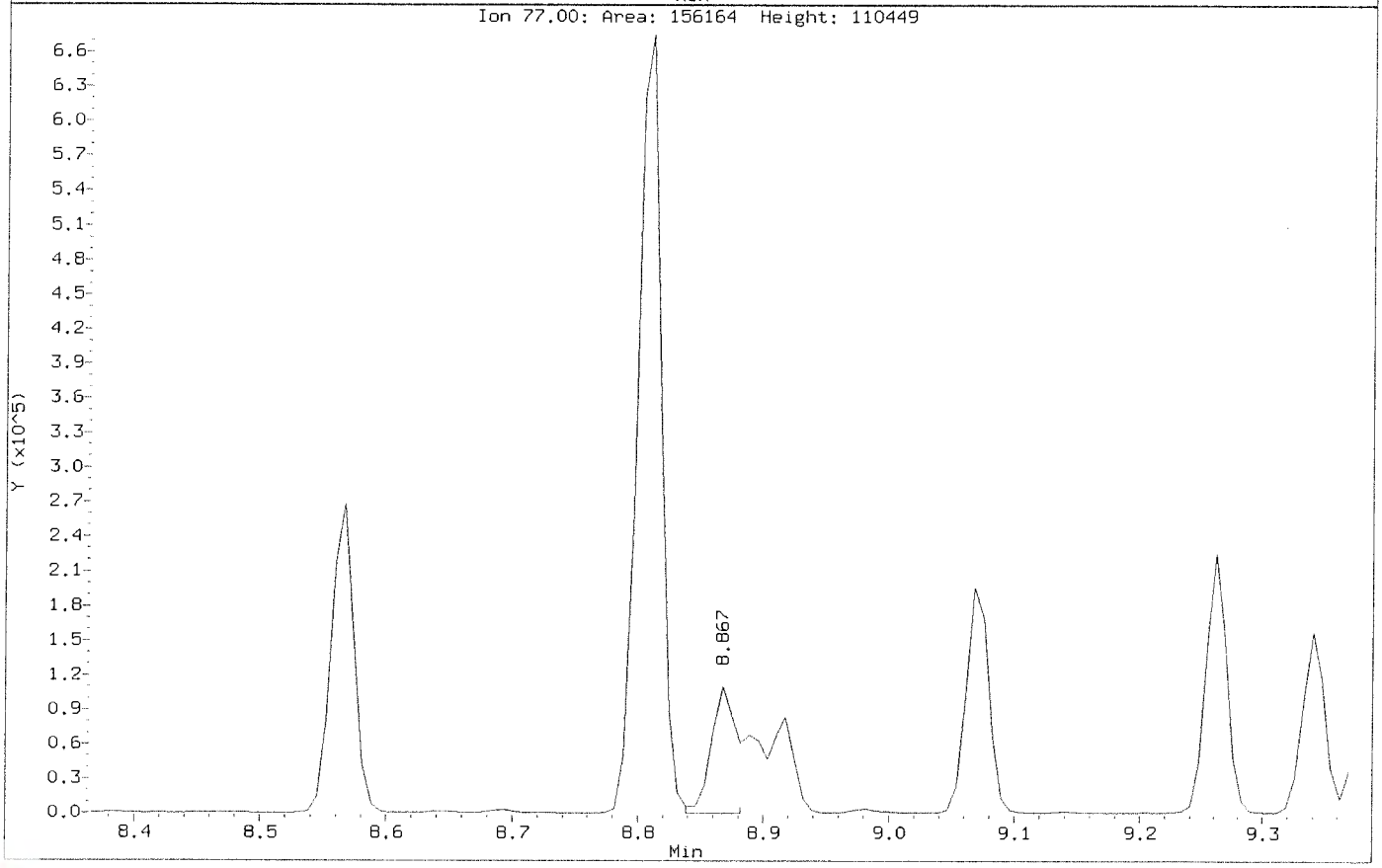
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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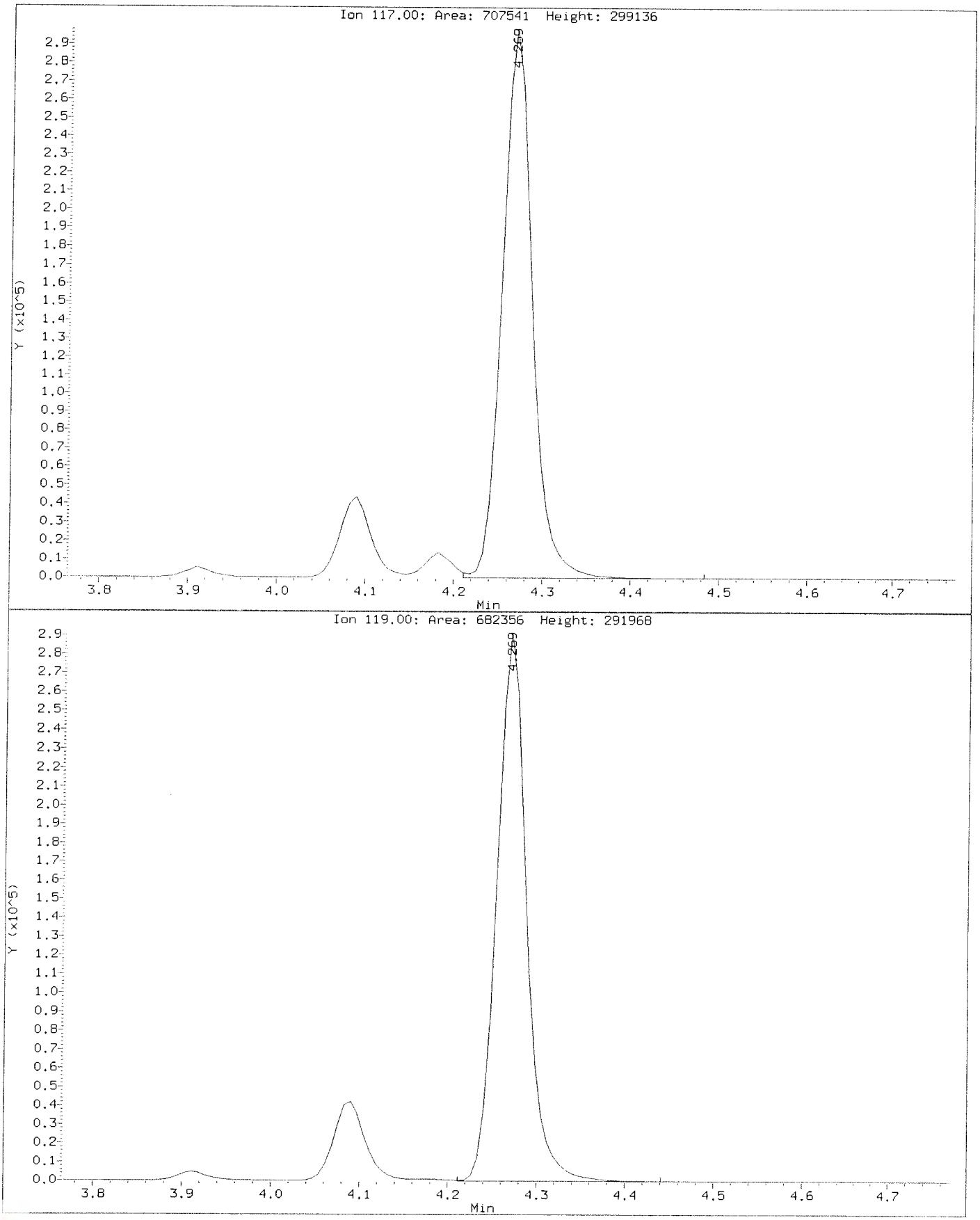
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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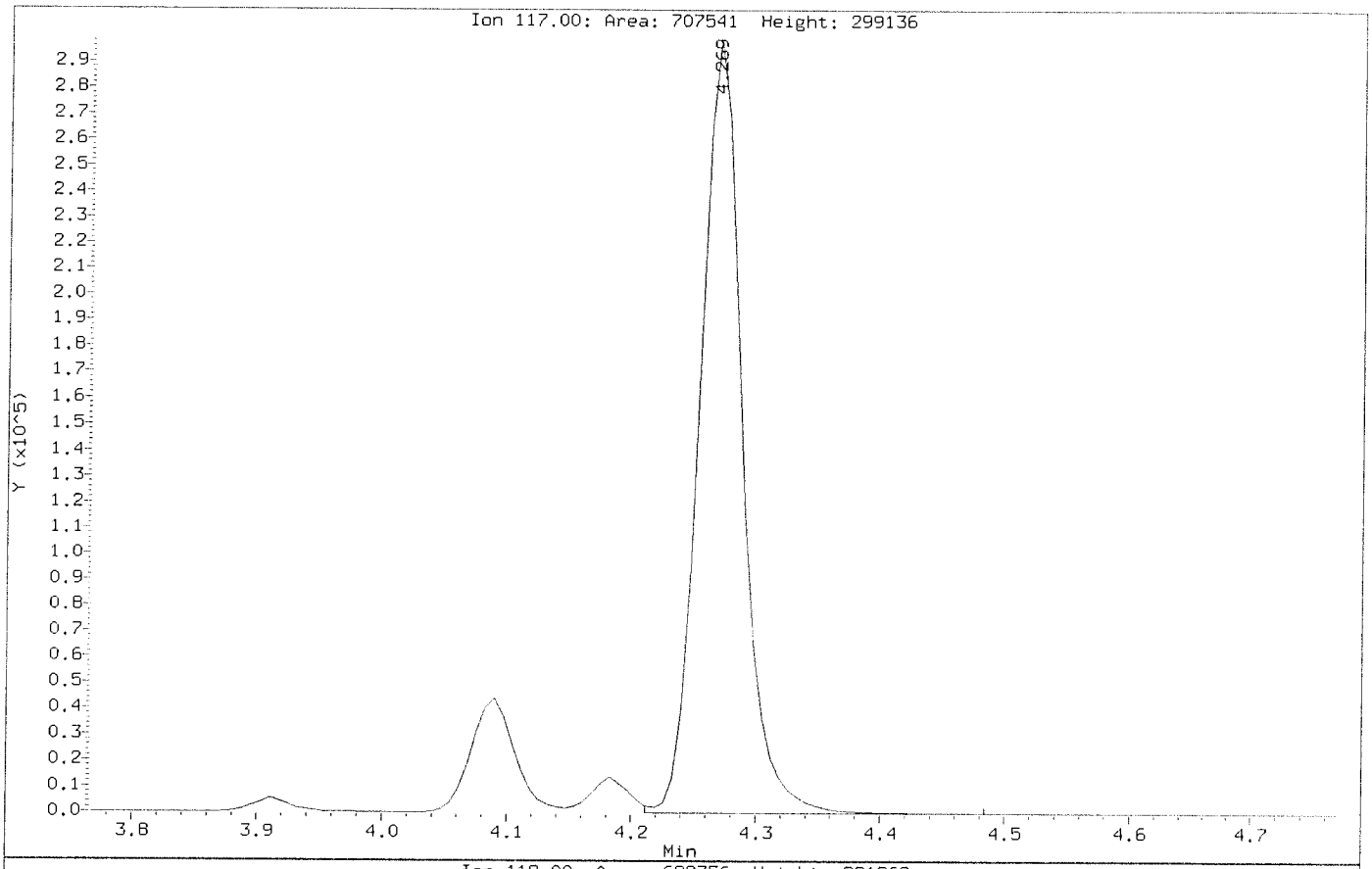
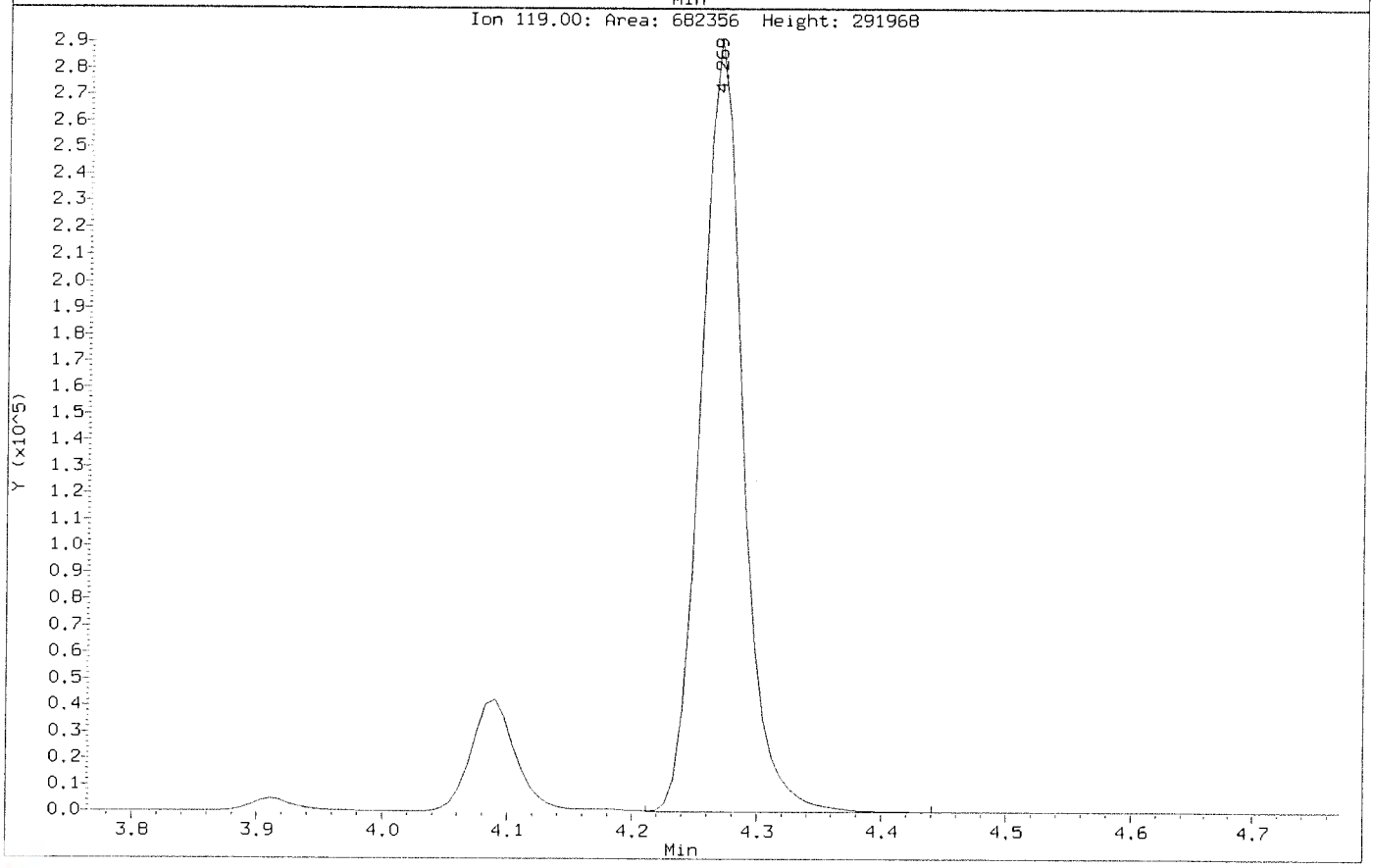
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 18-NOV-2019 17:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:22 Cal File: X111810.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

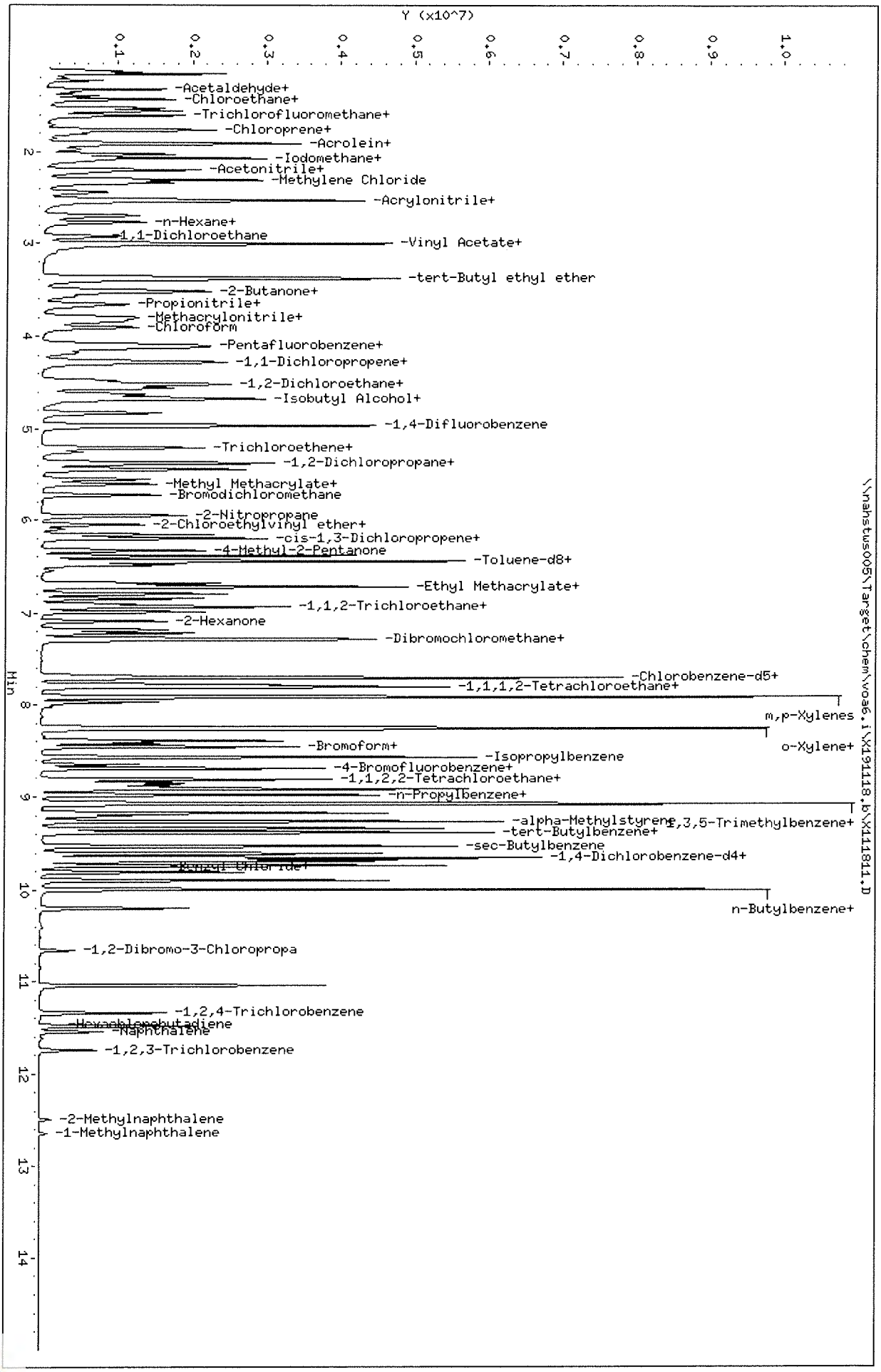
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	369517	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542684	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	493817	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	280605	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	713282	200.000	202.89(A)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	933083	200.000	201.81(A)
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	681300	200.000	201.64(A)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	2431773	200.000	186.90
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	731912	200.000	204.29(A)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	1030058	200.000	206.62(A)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	742176	200.000	188.09
138 Freon TF	101	1.911	1.911	(0.457)	696977	200.000	216.65(A)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	511936	200.000	198.31
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	1089650	200.000	202.66(A)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	641291	200.000	204.78(A)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	849992	200.000	194.17
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	210414	200.000	200.64(A)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	609450	200.000	182.28(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	455609	200.000	192.75
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	2745695	200.000	206.21(A)
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	86827	200.000	200.34(A)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	693307	200.000	200.18(A)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	1508205	200.000	202.51(A)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	865099	200.000	200.81(A)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	629023	200.000	194.03
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	2668415	200.000	208.86(A)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1590132	200.000	197.60
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1018788	200.000	194.39
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1621999	200.000	198.35
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	972273	200.000	199.24
24	2-Butanone	43	3.580	3.580	(0.856)	437867	400.000	386.18(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	2019887	200.000	200.07(A)
52	2-Hexanone	43	7.090	7.090	(0.924)	806375	400.000	397.51(A)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	2525879	200.000	206.41(A)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2843849	200.000	207.12(A)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1178590	400.000	407.33(A)
10	Acetone	43	1.976	1.976	(0.473)	372223	400.000	400.25(A)
37	Benzene	78	4.512	4.512	(0.908)	2449808	200.000	197.34
74	Bromobenzene	156	8.809	8.809	(0.911)	958177	200.000	196.47
29	Bromochloromethane	128	3.795	3.795	(0.908)	376537	200.000	188.10
39	Bromodichloromethane	83	5.729	5.729	(1.153)	893499	200.000	198.95
66	Bromoform	173	8.415	8.415	(1.097)	602595	200.000	201.83(A)
6	Bromomethane	94	1.331	1.331	(0.318)	631015	200.000	177.48(M)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	3628864	400.000	425.96(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	954439	200.000	199.03(H)
59	Chlorobenzene	112	7.699	7.699	(1.004)	1940751	200.000	201.30(A)
7	Chloroethane	64	1.396	1.396	(0.334)	459143	200.000	197.35
28	Chloroform	83	3.910	3.910	(0.935)	1152726	200.000	192.62
3	Chloromethane	50	1.073	1.073	(0.257)	811388	200.000	201.60(A)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	721487	200.000	205.88(A)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1069987	200.000	202.17(A)
55	Dibromochloromethane	129	7.183	7.183	(0.937)	764698	200.000	203.91(A)
44	Dibromomethane	93	5.557	5.557	(1.118)	451528	200.000	196.82
2	Dichlorodifluoromethane	85	0.966	0.966	(0.231)	695305	200.000	203.74(A)
61	Ethylbenzene	106	7.807	7.807	(1.018)	1011964	200.000	203.15(A)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	373475	200.000	191.48
67	Isopropylbenzene	105	8.566	8.566	(1.117)	3082382	200.000	208.91(A)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	2525960	400.000	420.22(A)
17	Methylene Chloride	84	2.305	2.305	(0.551)	644942	200.000	193.02
87	n-Butylbenzene	91	9.998	9.998	(1.034)	2465783	200.000	215.80(A)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	3540988	200.000	204.15(A)
92	Naphthalene	128	11.546	11.546	(1.194)	574298	200.000	189.43
63	o-Xylene	106	8.244	8.244	(1.075)	1231007	200.000	207.50(A)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	3131997	200.000	207.86(A)
64	Styrene	104	8.265	8.265	(1.078)	2199171	200.000	213.18(A)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	2240944	200.000	204.85(A)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	660581	200.000	190.38
50	Toluene	91	6.453	6.453	(0.841)	2834294	200.000	202.39(A)
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	630988	200.000	207.54(A)
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1000892	200.000	207.50(A)
38	Trichloroethene	130	5.206	5.206	(1.048)	754871	200.000	198.90
8	Trichlorofluoromethane	101	1.553	1.553	(0.371)	1241567	200.000	216.59(A)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	773023	200.000	205.26(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

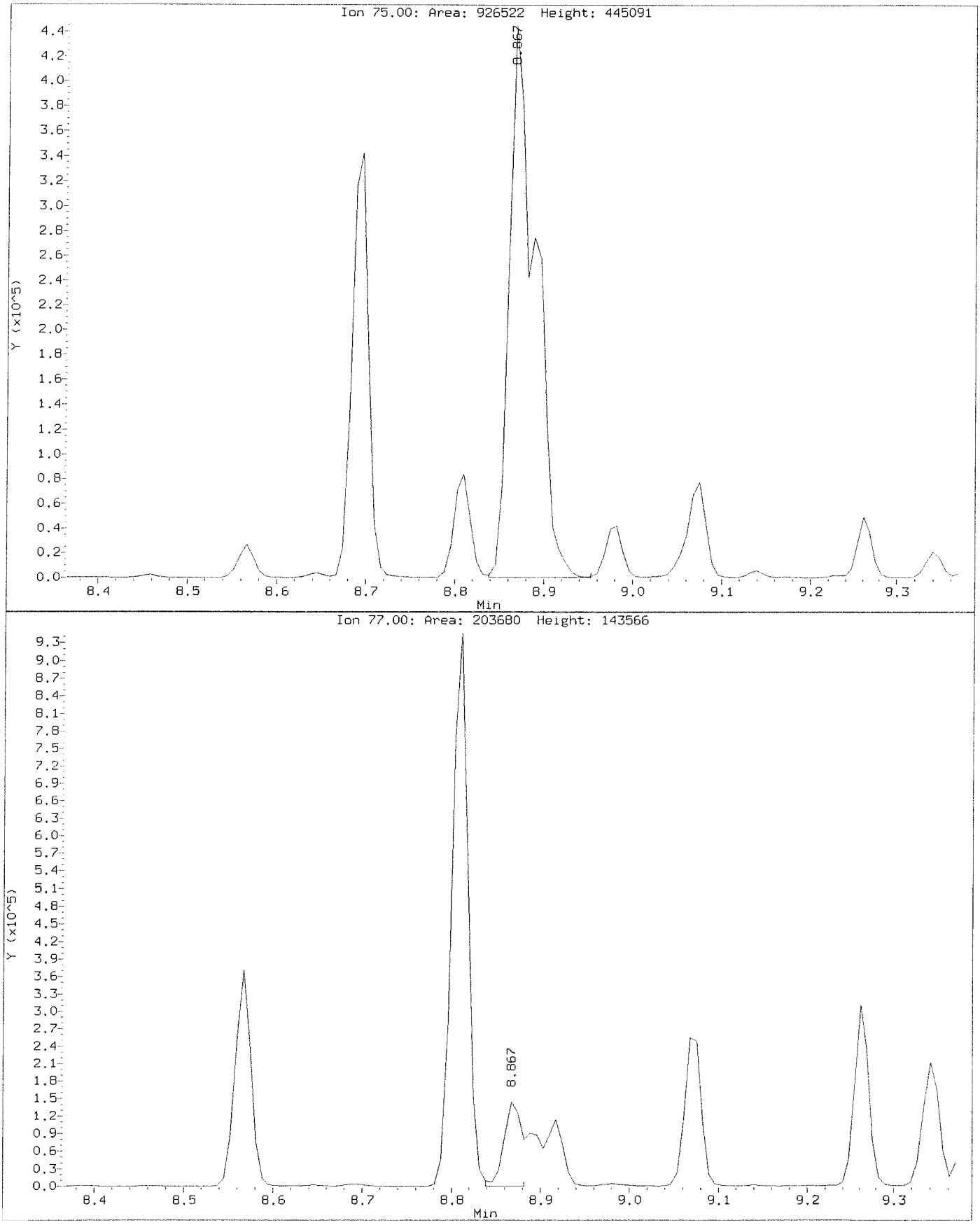


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
Date : 18-NOV-2019 17:46
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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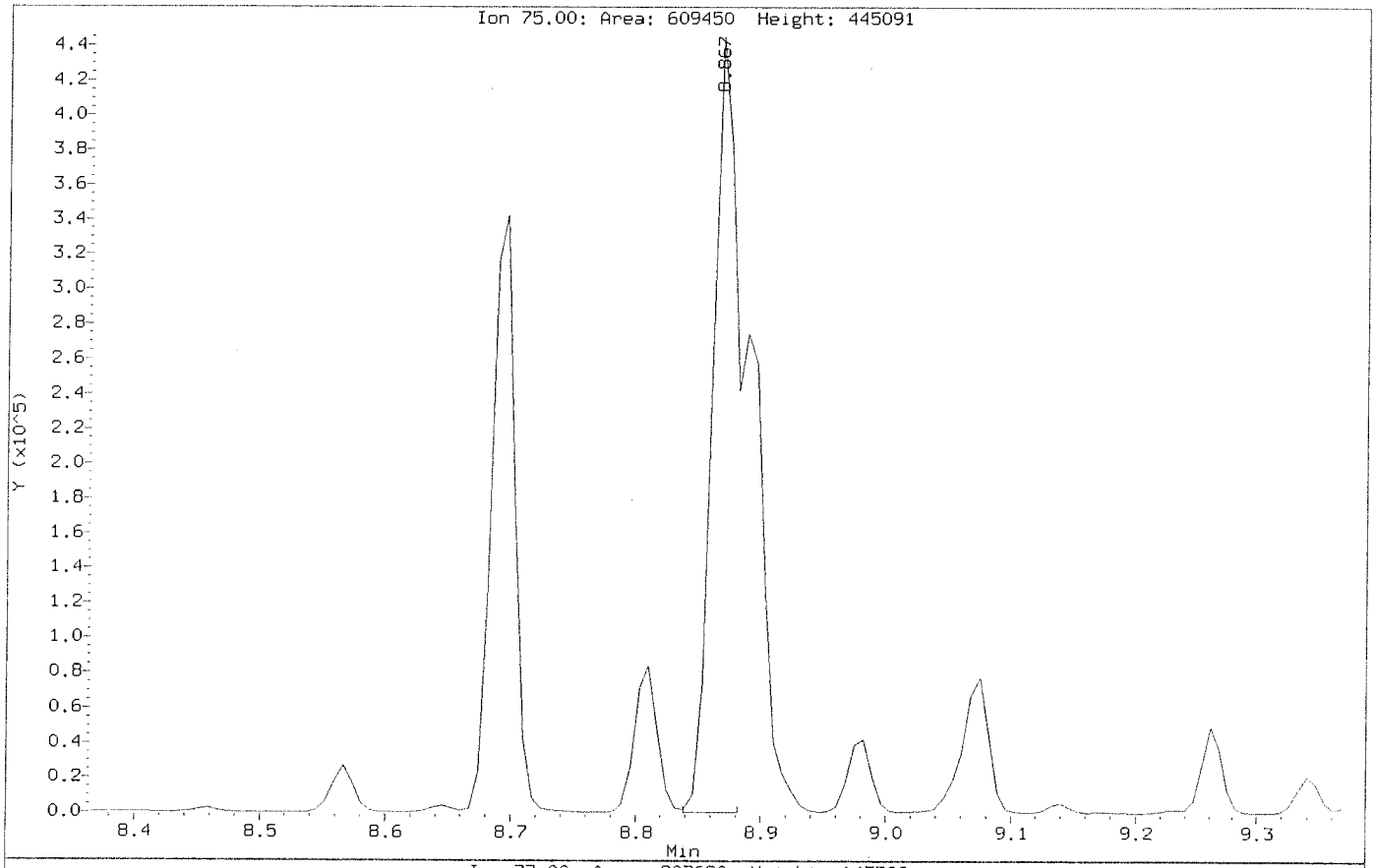
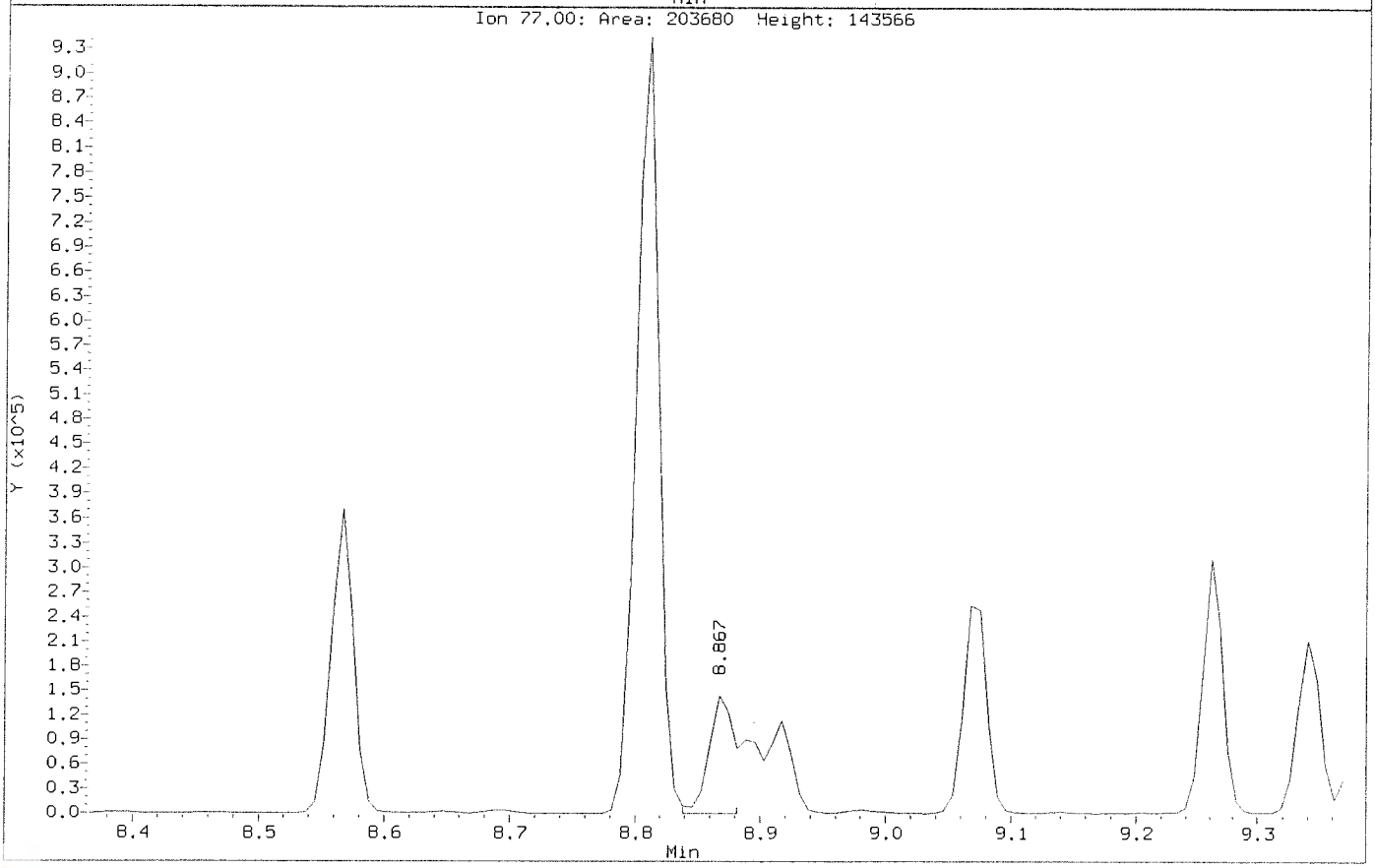
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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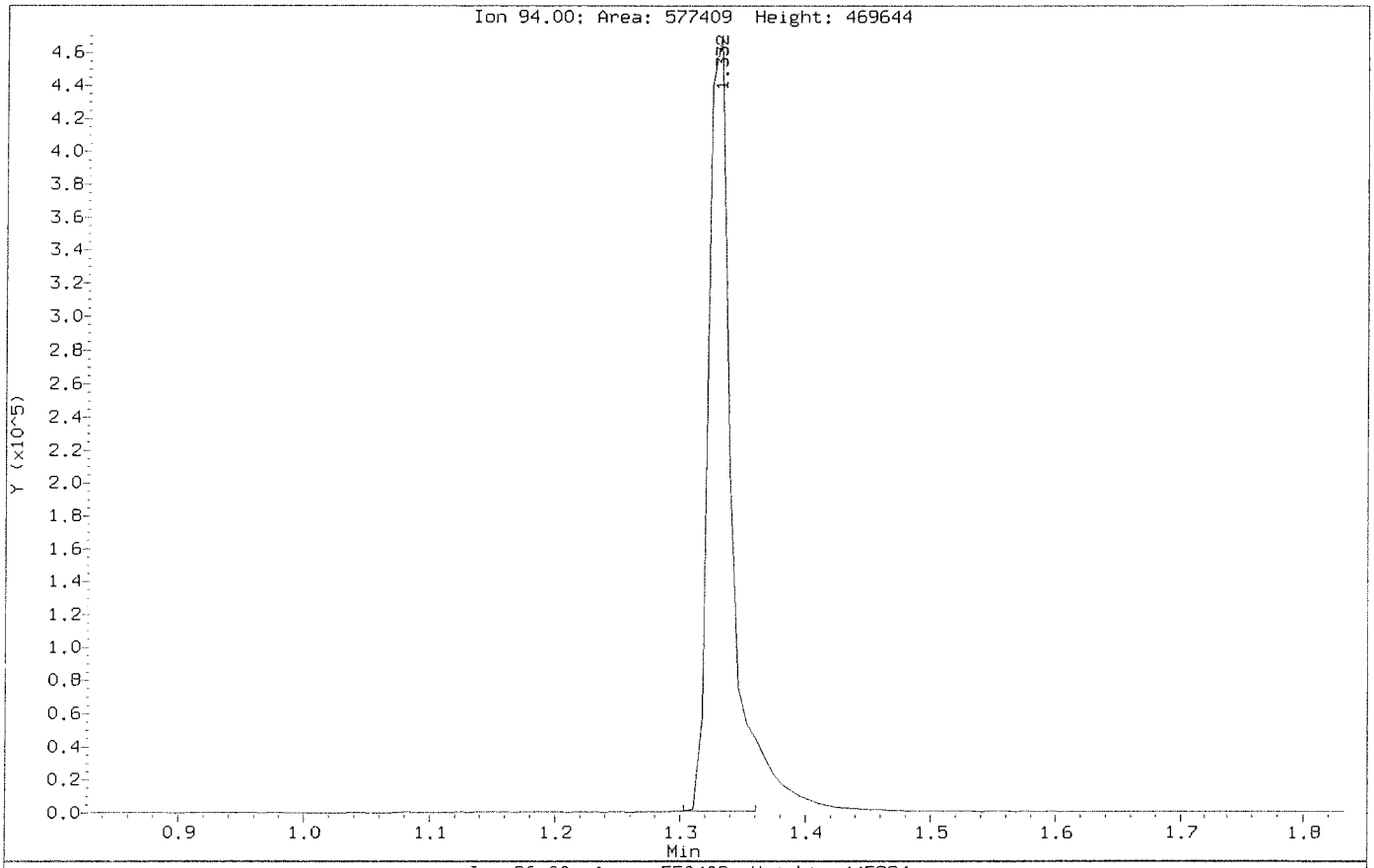
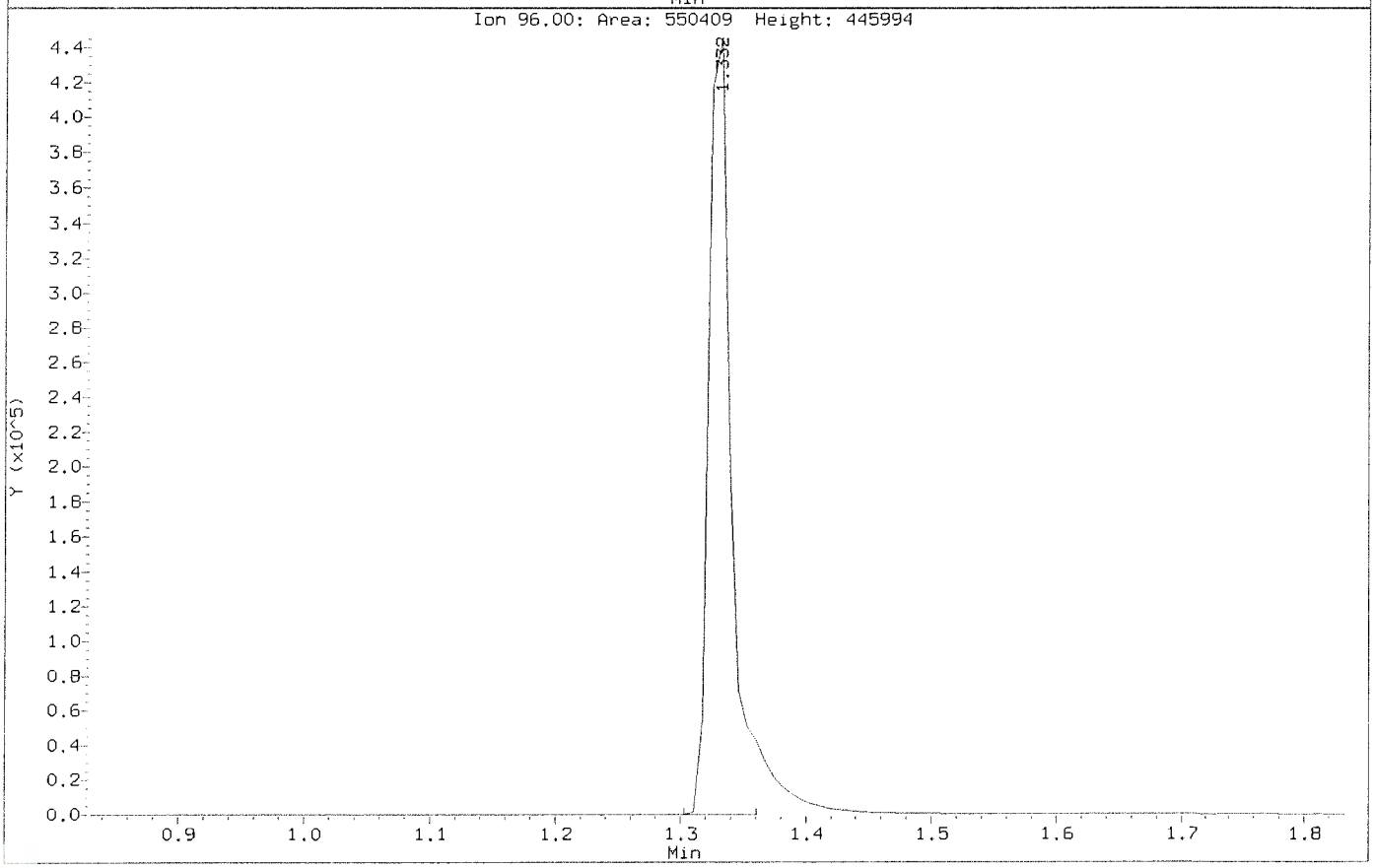
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9





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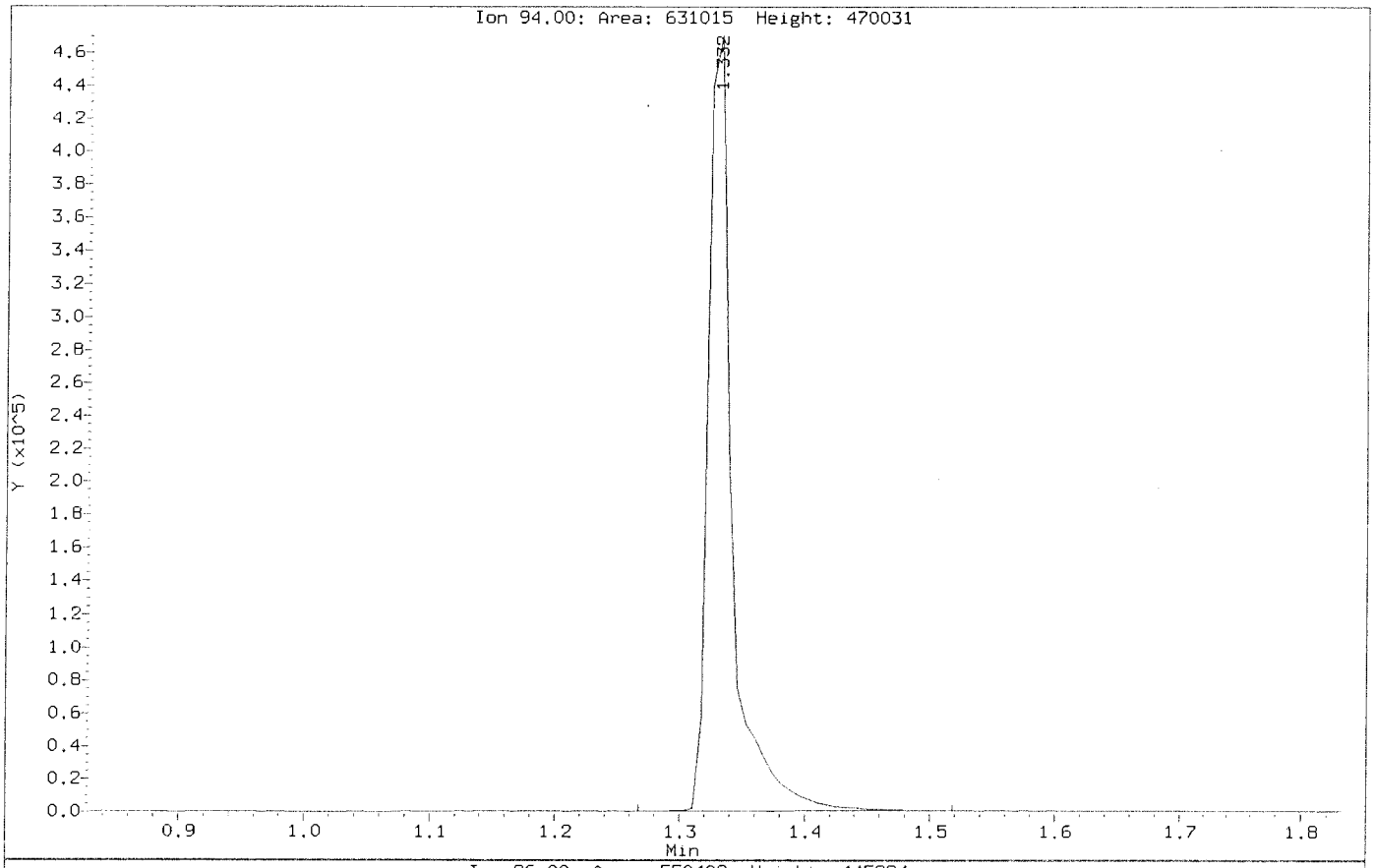
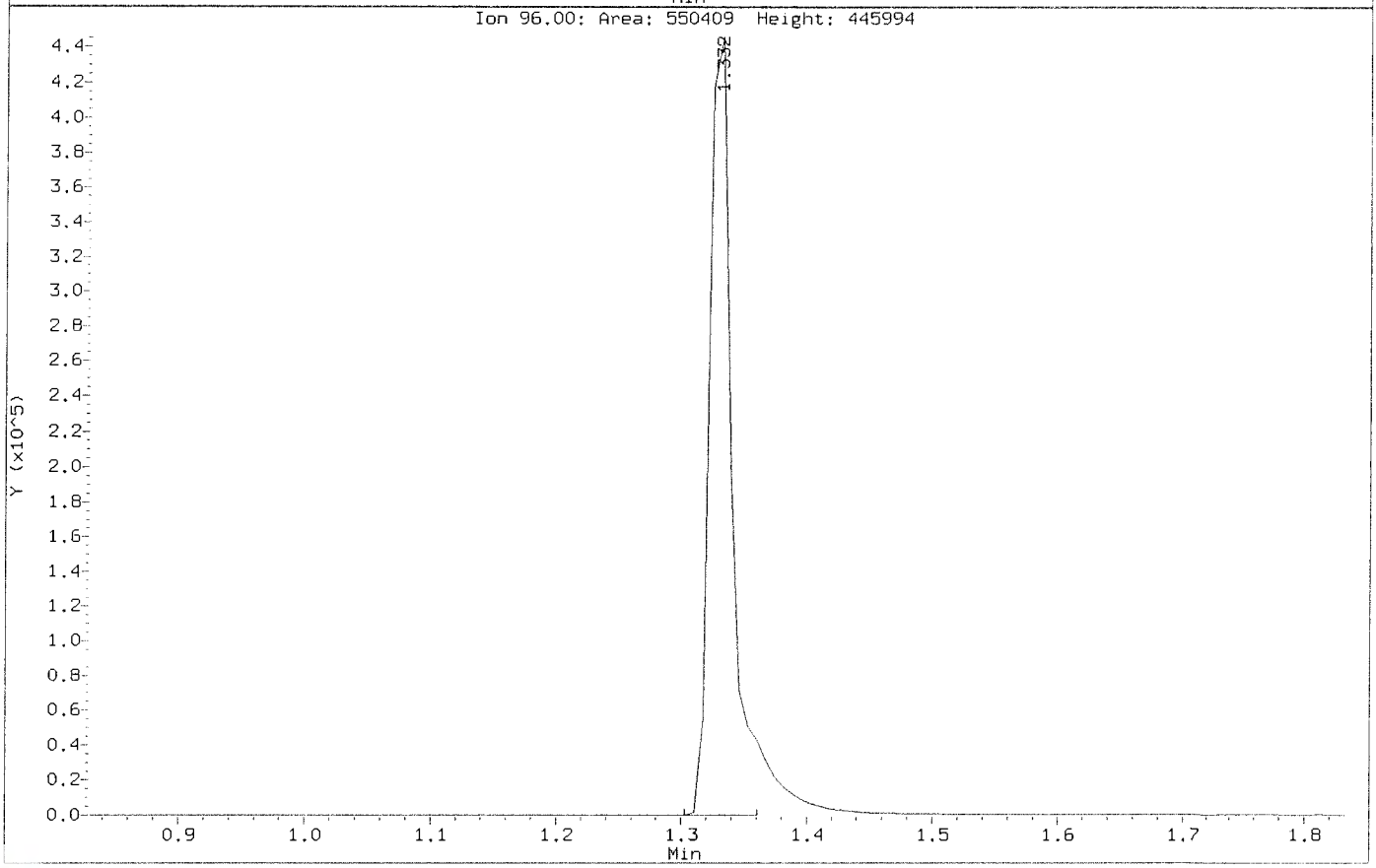
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9





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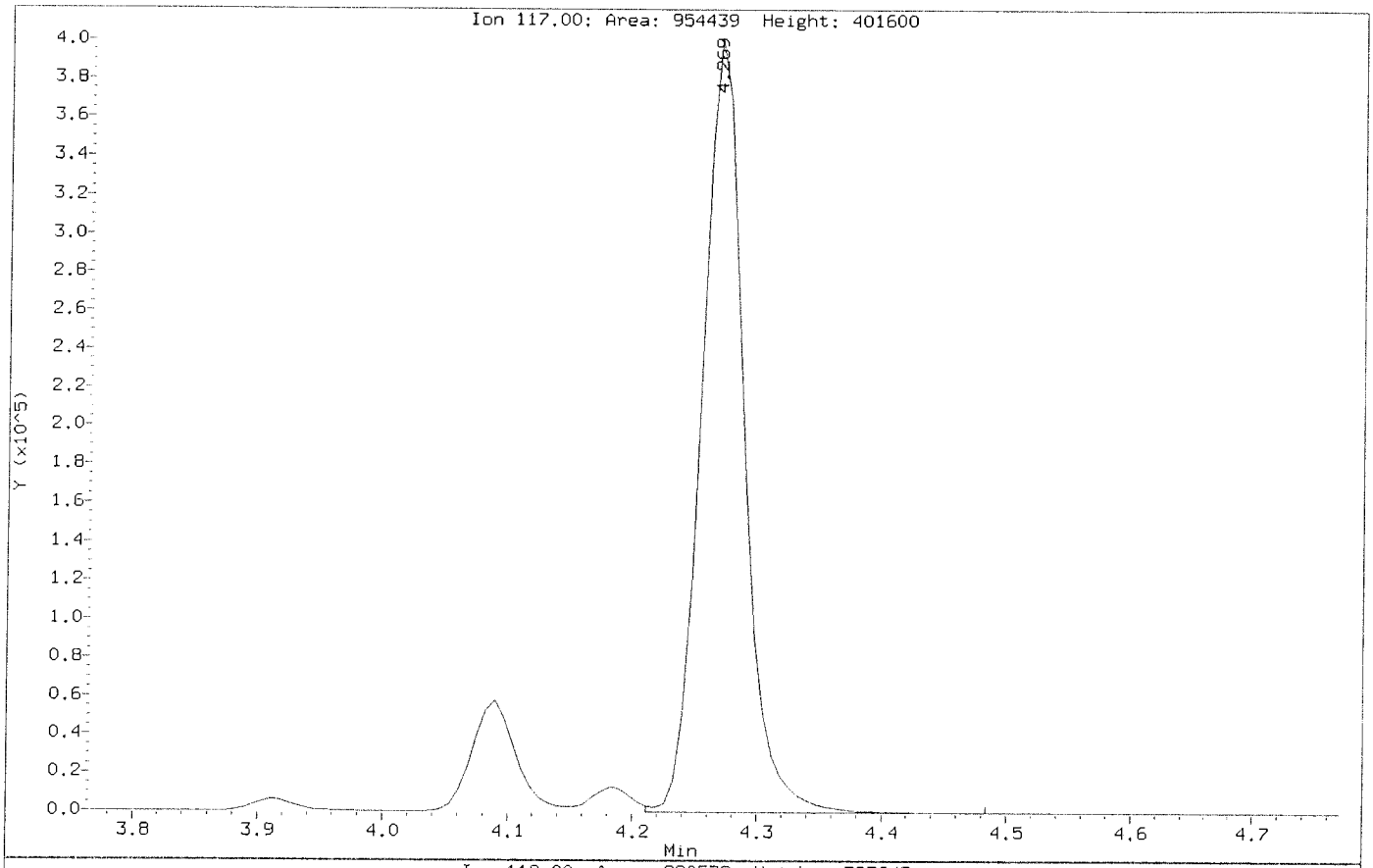
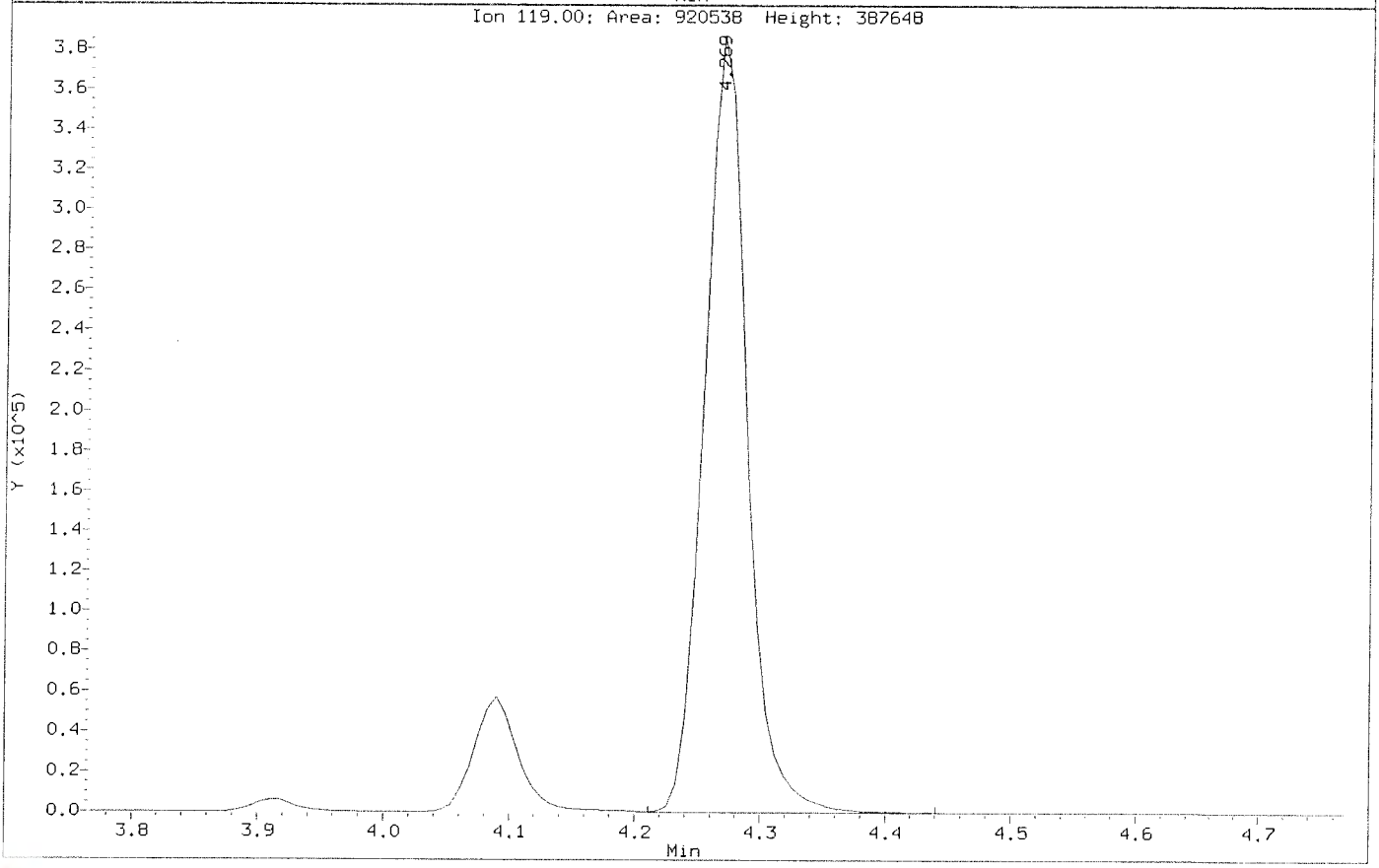
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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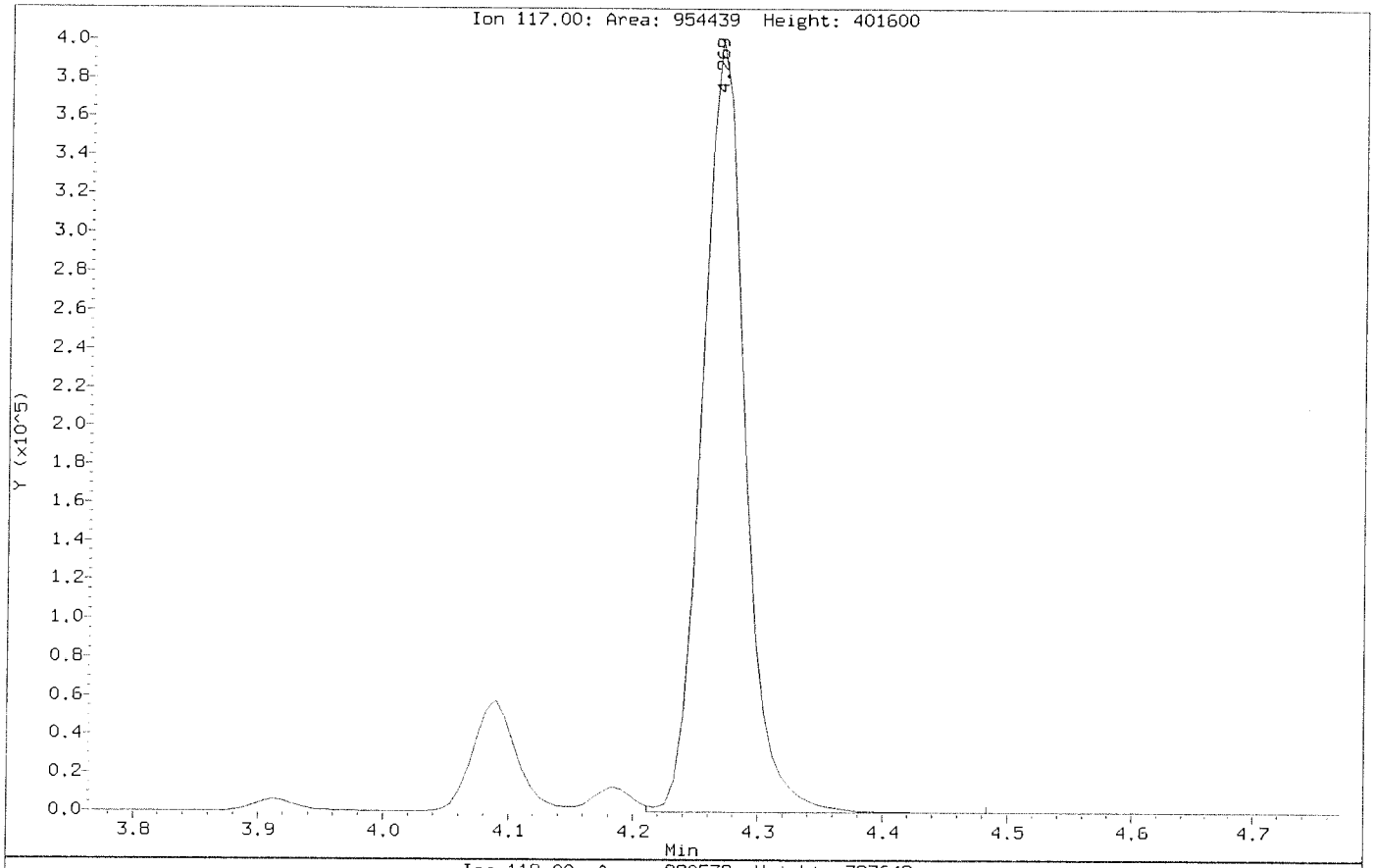
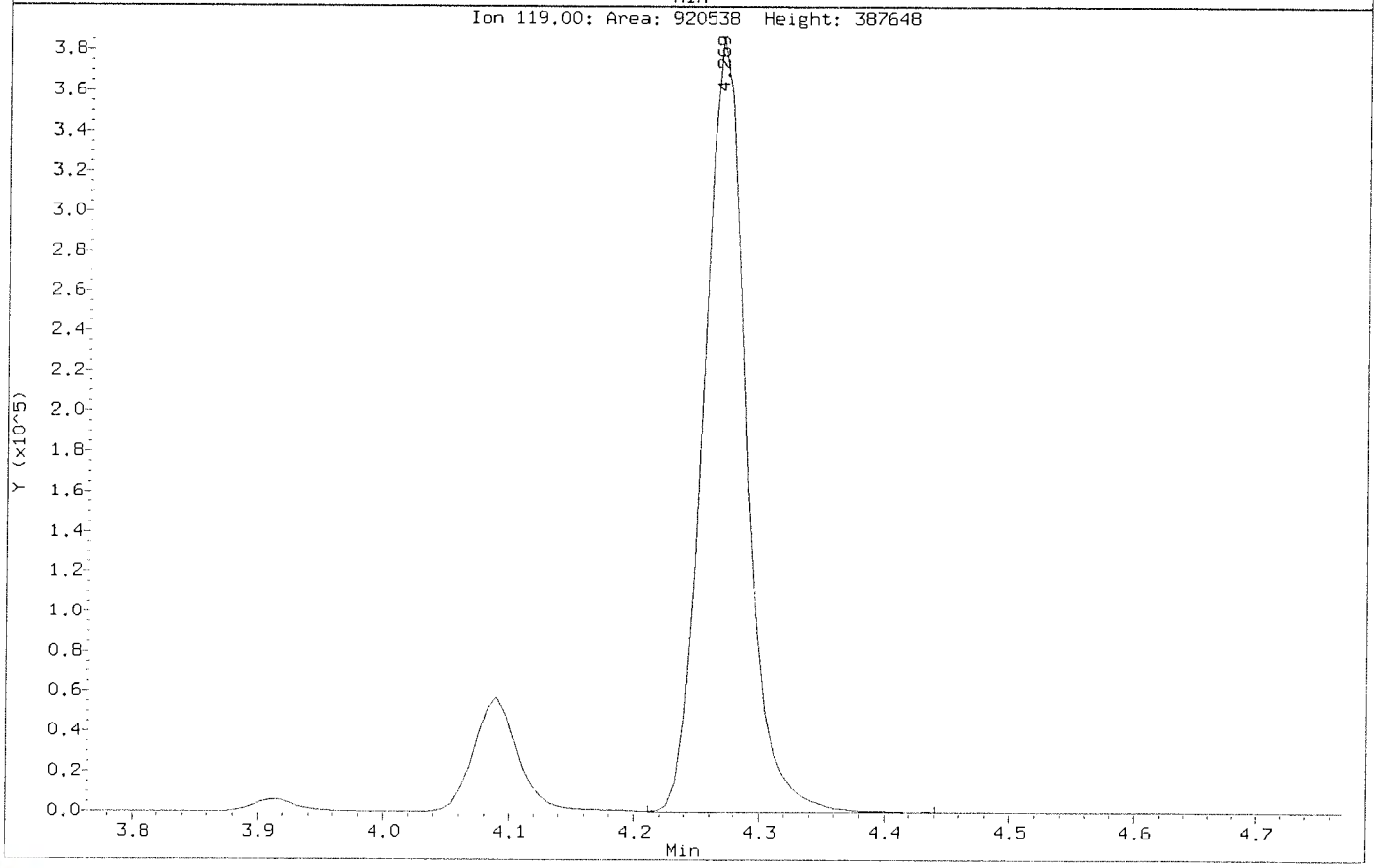
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 18-NOV-2019 18:58
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

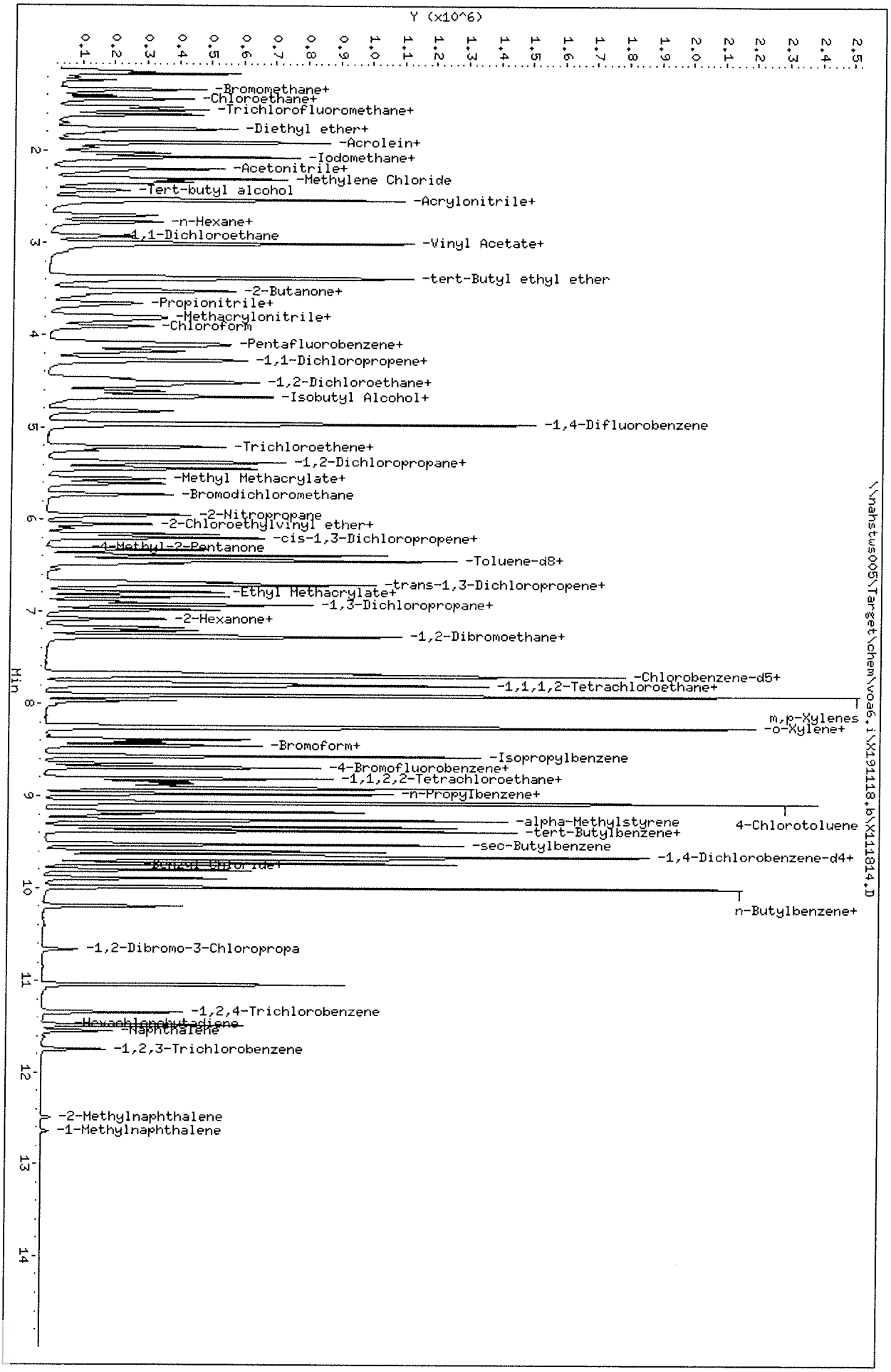
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365284	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	526230	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	487659	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	262170	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	177715	51.6875	51.68
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	217553	47.9674	47.96
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	172534	51.9307	51.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	603087	46.9372	46.93
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181751	51.3728	51.37
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	259914	52.7430	52.74
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183157	49.6822	49.68
138 Freon TF	101	1.919	1.911	(0.459)	177448	55.7980	55.79
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	125473	49.2205	49.22
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	273555	51.4692	51.46
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	164159	53.0287	53.02
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	211745	49.8829	49.88
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	56746	58.2884	58.28
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	154338	49.4088	49.40(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	122229	55.3465	55.34
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	627033	50.4058	50.40
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	20914	51.3981	51.39
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	171012	50.0005	50.00

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	343886	49.4226	49.42
33 1,2-Dichloroethane	62	4.555	4.562	(0.916)	214666	51.3880	51.38
42 1,2-Dichloropropane	63	5.436	5.443	(1.094)	155619	49.5052	49.50
75 1,3,5-Trimethylbenzene	105	9.067	9.074	(0.938)	621241	52.0454	52.04
83 1,3-Dichlorobenzene	146	9.604	9.612	(0.993)	380305	50.5823	50.58
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	254579	49.1895	49.18
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	379206	49.6335	49.63
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	252567	52.3575	52.35
24 2-Butanone	43	3.573	3.580	(0.854)	117980	105.260	105.25
76 2-Chlorotoluene	91	8.974	8.981	(0.928)	475545	50.4166	50.41
52 2-Hexanone	43	7.090	7.090	(0.924)	192493	96.0902	96.09
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	578291	50.5814	50.58
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	664137	51.7722	51.77
45 4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	279109	97.6823	97.68
10 Acetone	43	1.969	1.976	(0.471)	104925	111.376	111.37
37 Benzene	78	4.512	4.512	(0.908)	612198	50.8565	50.85
74 Bromobenzene	156	8.809	8.809	(0.911)	233126	51.1647	51.16
29 Bromochloromethane	128	3.795	3.795	(0.908)	101596	51.3407	51.34
39 Bromodichloromethane	83	5.729	5.729	(1.153)	222106	51.0024	51.00
66 Bromoform	173	8.415	8.415	(1.097)	142491	49.0895	49.08
6 Bromomethane	94	1.338	1.331	(0.320)	208417	57.7314	57.73
19 Carbon Disulfide	76	2.069	2.069	(0.495)	924383	109.763	109.76
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	237498	51.0754	51.07
59 Chlorobenzene	112	7.699	7.699	(1.004)	468418	49.2009	49.20
7 Chloroethane	64	1.403	1.396	(0.336)	118785	51.6484	51.64
28 Chloroform	83	3.910	3.910	(0.935)	292027	49.3641	49.36
3 Chloromethane	50	1.073	1.073	(0.257)	200113	50.4397	50.43
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	184183	53.1686	53.16
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	267228	52.0716	52.07
55 Dibromochloromethane	129	7.176	7.183	(0.936)	184910	49.9303	49.93
44 Dibromomethane	93	5.557	5.557	(1.118)	112351	50.5059	50.50
2 Dichlorodifluoromethane	85	0.973	0.966	(0.233)	176572	52.9949	52.99
61 Ethylbenzene	106	7.799	7.807	(1.017)	247055	50.2234	50.22
91 Hexachlorobutadiene	225	11.481	11.488	(1.187)	113053	61.6918	61.69(R)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	730633	50.1455	50.14
62 m,p-Xylenes	106	7.907	7.907	(1.031)	603641	101.692	101.69
17 Methylene Chloride	84	2.305	2.305	(0.551)	164000	49.6528	49.65
87 n-Butylbenzene	91	9.998	9.998	(1.034)	555875	52.0702	52.07
73 n-Propylbenzene	91	8.917	8.917	(0.922)	841108	51.9034	51.90
92 Naphthalene	128	11.546	11.546	(1.194)	144573	51.0408	51.04
63 o-Xylene	106	8.243	8.244	(1.075)	291303	49.7239	49.72
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	728868	51.7743	51.77
64 Styrene	104	8.258	8.265	(1.077)	512981	50.3548	50.35
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	525095	51.3776	51.37
56 Tetrachloroethene	164	6.933	6.933	(0.904)	169030	49.3314	49.33
50 Toluene	91	6.446	6.453	(0.840)	685240	49.5512	49.55
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	157233	52.3156	52.31
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	242451	51.8354	51.83
38 Trichloroethene	130	5.206	5.206	(1.048)	190582	51.7868	51.78
8 Trichlorofluoromethane	101	1.560	1.553	(0.373)	314898	55.5726	55.57
5 Vinyl Chloride	62	1.138	1.138	(0.272)	193522	51.9818	51.98

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.

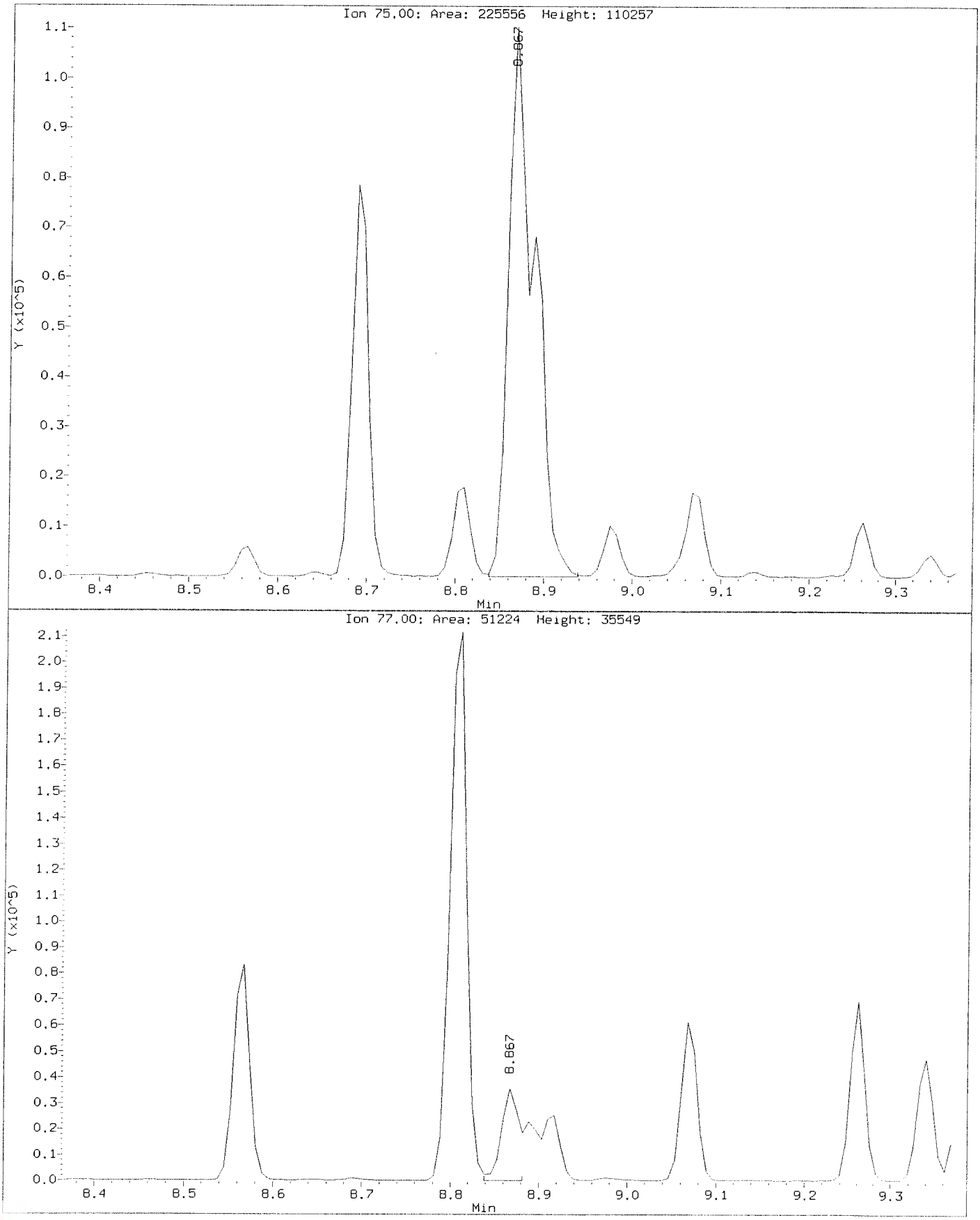


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D
Date : 18-NOV-2019 18:58
Client ID: ICV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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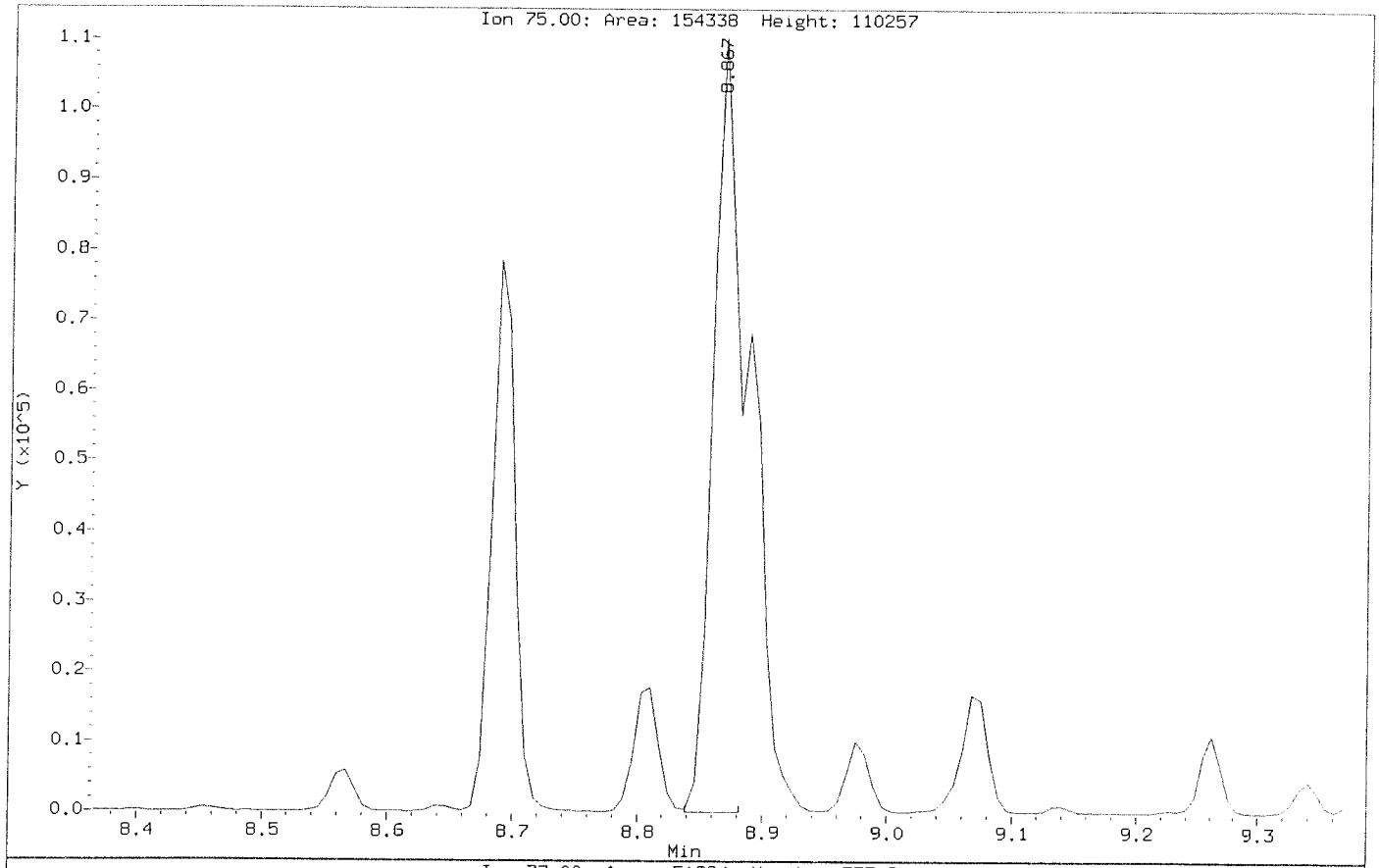
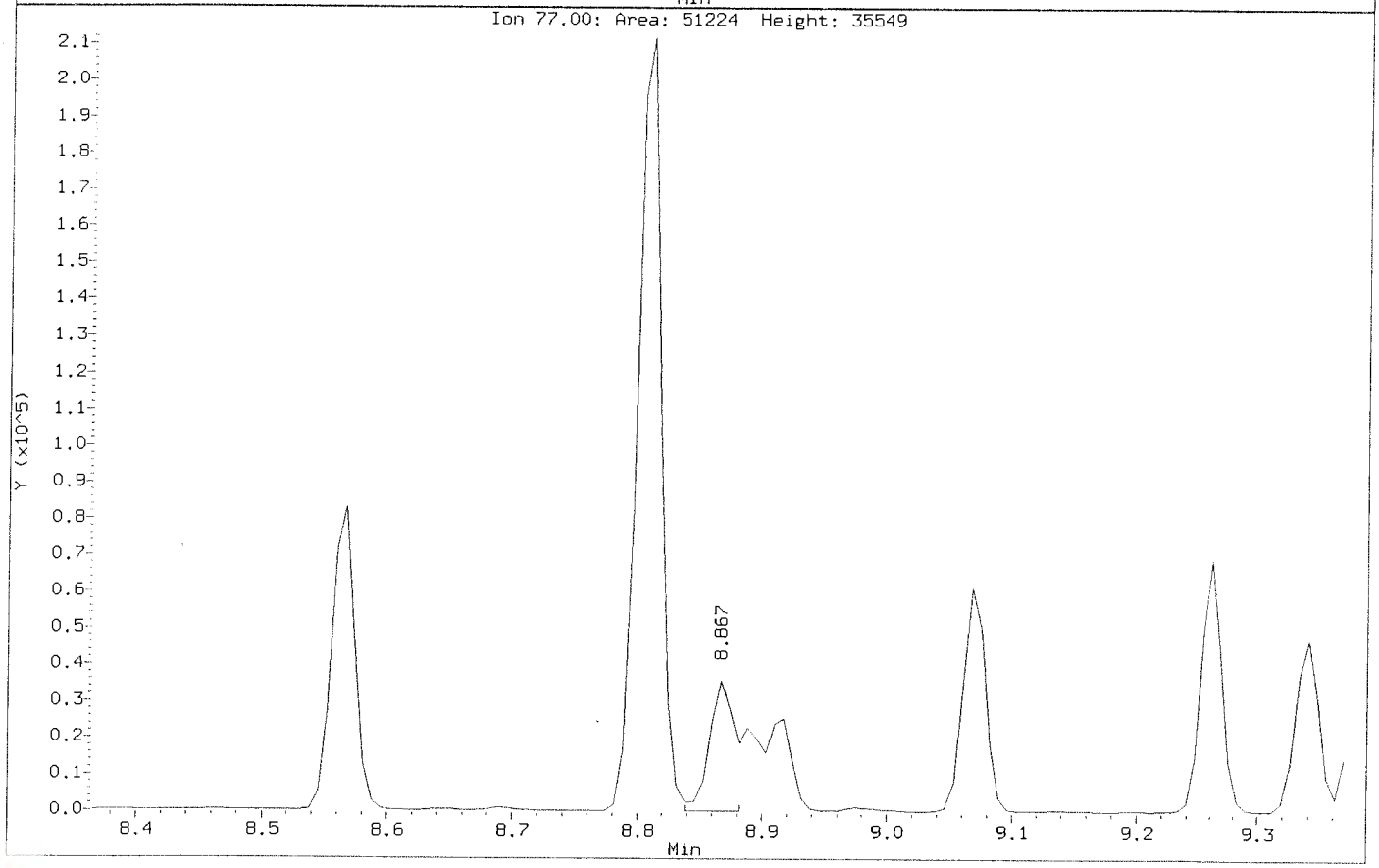
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





MSVOA06 -Logbook

Batch: 38419 **Analyst:** Devak Giga

Date: 12-02-2019 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	VSTD050	ICAL7	11-18-2019 04:35 pm	1.00	5.00 mL	0.00 mL	X111808.D	Liquid	Y	NA
2	BFB	TUNE	12-02-2019 10:42 am	1.00	0.00 mL	0.00 mL	X120201.D	Liquid	Y	NA
	Auto find/ purged									
3	CCV	CCV	12-02-2019 11:06 am	1.00	5.00 mL	0.00 mL	X120202.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
4	BLANK	SAMP	12-02-2019 11:30 am	1.00	5.00 mL	0.00 mL	X120203.D	Liquid	Y	NA
5	CCB	SAMP	12-02-2019 11:54 am	1.00	5.00 mL	0.00 mL	X120204.D	Liquid	Y	NA
	CCB									
6	VLCSW-191202	LCS	12-02-2019 12:18 pm	1.00	5.00 mL	0.00 mL	X120205.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
7	BLK	SAMP	12-02-2019 12:42 pm	1.00	5.00 mL	0.00 mL	X120206.D	Liquid	Y	NA
8	VBLKW-191202	MBLK	12-02-2019 01:06 pm	1.00	5.00 mL	0.00 mL	X120207.D	Liquid	Y	NA
9	HS19111343-08	SAMP	12-02-2019 01:30 pm	1.00	5.00 mL	0.00 mL	X120208.D	Liquid	Y	NA
10	HS19111343-06	SAMP	12-02-2019 01:54 pm	1.00	5.00 mL	0.00 mL	X120209.D	Liquid	Y	NA
11	HS19111343-01	SAMP	12-02-2019 02:18 pm	1.00	5.00 mL	0.00 mL	X120210.D	Liquid	Y	NA
12	HS19111343-02	SAMP	12-02-2019 02:42 pm	1.00	5.00 mL	0.00 mL	X120211.D	Liquid	Y	NA
13	HS19111343-03	SAMP	12-02-2019 03:06 pm	1.00	5.00 mL	0.00 mL	X120212.D	Liquid	Y	NA
14	HS19111343-04	SAMP	12-02-2019 03:30 pm	1.00	5.00 mL	0.00 mL	X120213.D	Liquid	Y	NA
15	HS19111343-05	SAMP	12-02-2019 03:54 pm	1.00	5.00 mL	0.00 mL	X120214.D	Liquid	Y	NA
16	HS19111343-07	SAMP	12-02-2019 04:18 pm	1.00	5.00 mL	0.00 mL	X120215.D	Liquid	Y	NA
17	HS19111195-02	SAMP	12-02-2019 04:42 pm	10.00	5.00 mL	0.00 mL	X120216.D	Liquid	Y	NA
18	HS19111343-06MS	MS	12-02-2019 05:06 pm	1.00	5.00 mL	0.00 mL	X120217.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
19	HS19111343-06MSD	MSD	12-02-2019 05:30 pm	1.00	5.00 mL	0.00 mL	X120218.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
20	CCV-END	CCV	12-02-2019 05:54 pm	1.00	5.00 mL	0.00 mL	X120219.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
21	HS19111195-02	SAMP	12-02-2019 06:18 pm	100.0(	5.00 mL	0.00 mL	X120220.D	Liquid	Y	NA
22	HS19120021-01	SAMP	12-02-2019 06:42 pm	1.00	5.00 mL	0.00 mL	X120221.D	Liquid	Y	NA
23	HS19120021-02	SAMP	12-02-2019 07:06 pm	1.00	5.00 mL	0.00 mL	X120222.D	Liquid	Y	NA
24	HS19120021-03	SAMP	12-02-2019 07:30 pm	1.00	5.00 mL	0.00 mL	X120223.D	Liquid	Y	NA
25	HS19120021-04	SAMP	12-02-2019 07:54 pm	1.00	5.00 mL	0.00 mL	X120224.D	Liquid	Y	NA
26	HS19120021-05	SAMP	12-02-2019 08:19 pm	1.00	5.00 mL	0.00 mL	X120225.D	Liquid	Y	NA
27	HS19120021-06	SAMP	12-02-2019 08:43 pm	1.00	5.00 mL	0.00 mL	X120226.D	Liquid	Y	NA
28	HS19120021-07	SAMP	12-02-2019 09:07 pm	1.00	5.00 mL	0.00 mL	X120227.D	Liquid	Y	NA
29	HS19120021-08	SAMP	12-02-2019 09:31 pm	1.00	5.00 mL	0.00 mL	X120228.D	Liquid	Y	NA
30	HS19120021-09	SAMP	12-02-2019 09:55 pm	1.00	5.00 mL	0.00 mL	X120229.D	Liquid	Y	NA
31	HS19120021-10	SAMP	12-02-2019 10:19 pm	1.00	5.00 mL	0.00 mL	X120230.D	Liquid	Y	NA
32	BFB	TUNE	12-02-2019 10:43 pm	1.00	0.00 mL	0.00 mL	Y120201.D	Liquid	Y	NA
	Auto find/ purged									
33	CCV	CCV	12-02-2019 11:07 pm	1.00	5.00 mL	0.00 mL	Y120202a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
34	CCV	CCV	12-02-2019 11:31 pm	1.00	5.00 mL	0.00 mL	Y120203.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
35	CCB	SAMP	12-02-2019 11:55 pm	1.00	5.00 mL	0.00 mL	Y120204.D	Liquid	Y	NA
	CCB									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	VLCSW-191202	LCS	12-03-2019 12:19 am	1.00	5.00 mL	0.00 mL	Y120205.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
37	BLK	SAMP	12-03-2019 12:43 am	1.00	5.00 mL	0.00 mL	Y120206.D	Liquid	Y	NA
38	VBLKW-191202	MBLK	12-03-2019 01:07 am	1.00	5.00 mL	0.00 mL	Y120207.D	Liquid	Y	NA
39	HS19111432-01	SAMP	12-03-2019 01:31 am	1.00	5.00 mL	0.00 mL	Y120208.D	Liquid	Y	NA
40	HS19111391-05	SAMP	12-03-2019 01:55 am	100.0(	5.00 mL	0.00 mL	Y120209.D	Liquid	Y	NA
41	HS19111192-04	SAMP	12-03-2019 02:19 am	500.0(	5.00 mL	0.00 mL	Y120210.D	Liquid	Y	NA
42	HS19111391-01	SAMP	12-03-2019 02:43 am	500.0(	5.00 mL	0.00 mL	Y120211.D	Liquid	Y	NA
43	HS19111432-01MS	MS	12-03-2019 03:07 am	1.00	5.00 mL	0.00 mL	Y120212.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
44	HS19111432-01MSD	MSD	12-03-2019 03:31 am	1.00	5.00 mL	0.00 mL	Y120213.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
45	HS19120016-01	SAMP	12-03-2019 03:55 am	1.00	5.00 mL	0.00 mL	Y120214.D	Liquid	Y	NA
46	HS19120016-02	SAMP	12-03-2019 04:19 am	1.00	5.00 mL	0.00 mL	Y120215.D	Liquid	Y	NA
47	HS19111404-01	SAMP	12-03-2019 04:43 am	1.00	5.00 mL	0.00 mL	Y120216.D	Liquid	Y	NA
48	HS19111412-01	SAMP	12-03-2019 05:07 am	1.00	5.00 mL	0.00 mL	Y120217.D	Liquid	Y	NA
49	HS19111305-04	SAMP	12-03-2019 05:31 am	1.00	5.00 mL	0.00 mL	Y120218.D	Liquid	Y	NA
50	MBLK-147985	MBLK	12-03-2019 05:55 am	20.00	5.00 mL	0.00 mL	Y120219.D	Liquid	Y	NA
51	HS19111220-01	SAMP	12-03-2019 06:20 am	20.00	5.00 mL	0.00 mL	Y120220.D	Liquid	Y	NA
52	HS19111334-01	SAMP	12-03-2019 06:44 am	50.00	5.00 mL	0.00 mL	Y120221.D	Liquid	Y	NA
53	HS19111195-05	SAMP	12-03-2019 07:08 am	10.00	5.00 mL	0.00 mL	Y120222.D	Liquid	Y	NA
54	HS19111446-04	SAMP	12-03-2019 07:32 am	1.00	5.00 mL	0.00 mL	Y120223.D	Liquid	Y	NA
55	HS19111455-03	SAMP	12-03-2019 07:56 am	1.00	5.00 mL	0.00 mL	Y120224.D	Liquid	Y	NA
56	HS19111359-01	SAMP	12-03-2019 08:20 am	1.00	5.00 mL	0.00 mL	Y120225.D	Liquid	Y	NA
57	HS19111397-34	SAMP	12-03-2019 08:44 am	1.00	5.00 mL	0.00 mL	Y120226.D	Liquid	Y	NA
58	HS19111397-35	SAMP	12-03-2019 09:08 am	1.00	5.00 mL	0.00 mL	Y120227.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-06-03
IS ID	31106-06-04
LCS/MS ID	30603-94-01
CAL STD ID	31106-06-01/02
BFB ID	31106-06-03
pH Paper	634-64-11

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL) #	OTHER (DCE) #	TOT OUT
01	VLCSW-19202	99	102	93	107	0
02	VBLKW-191202	95	100	97	101	0
03	HS19111343-08	96	101	96	102	0
04	HS19111343-06	96	99	95	100	0
05	HS19111343-01	96	99	96	101	0
06	HS19111343-02	95	101	97	102	0
07	HS19111343-03	97	100	97	102	0
08	HS19111343-04	96	99	96	100	0
09	HS19111343-05	95	100	98	102	0
10	HS19111343-07	96	100	96	100	0
11	HS19111343-06	100	99	95	100	0
12	HS19111343-06	99	100	97	102	0
13						
14						
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27						
28						

		QC LIMITS
SMC1	= 4-Bromofluorobenzene	(70-130)
SMC2	= Dibromofluoromethane	(70-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER(DCE)	= 1,2-Dichloroethane-d4	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.
VBLKW-191202

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Lab File ID: X120207 Lab Sample ID: VBLKW-191202

Date Analyzed: 12/02/19 Time Analyzed: 1306

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-19202	VLCSW-191202	X120205	1218
02	HS19111343-0	HS19111343-08	X120208	1330
03	HS19111343-0	HS19111343-06	X120209	1354
04	HS19111343-0	HS19111343-01	X120210	1418
05	HS19111343-0	HS19111343-02	X120211	1442
06	HS19111343-0	HS19111343-03	X120212	1506
07	HS19111343-0	HS19111343-04	X120213	1530
08	HS19111343-0	HS19111343-05	X120214	1554
09	HS19111343-0	HS19111343-07	X120215	1618
10	HS19111343-0	HS19111343-06M	X120217	1706
11	HS19111343-0	HS19111343-06M	X120218	1730
12				
13				
14				
15				
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26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Lab File ID: X120101 BFB Injection Date: 12/01/19

Instrument ID: VOA6 BFB Injection Time: 1100

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.2
75	30.0 - 60.0% of mass 95	48.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.7 (0.8)1
174	Greater than 50.0% of mass 95	92.6
175	5.0 - 9.0% of mass 174	6.9 (7.4)1
176	95.0 - 101.0% of mass 174	89.7 (96.9)1
177	5.0 - 9.0% of mass 176	6.3 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X120202	12/02/19	1106
02	VLCSW-19202	VLCSW-191202	X120205	12/02/19	1218
03	VBLKW-191202	VBLKW-191202	X120207	12/02/19	1306
04	HS19111343-0	HS19111343-08	X120208	12/02/19	1330
05	HS19111343-0	HS19111343-06	X120209	12/02/19	1354
06	HS19111343-0	HS19111343-01	X120210	12/02/19	1418
07	HS19111343-0	HS19111343-02	X120211	12/02/19	1442
08	HS19111343-0	HS19111343-03	X120212	12/02/19	1506
09	HS19111343-0	HS19111343-04	X120213	12/02/19	1530
10	HS19111343-0	HS19111343-05	X120214	12/02/19	1554
11	HS19111343-0	HS19111343-07	X120215	12/02/19	1618
12	HS19111343-0	HS19111343-06M	X120217	12/02/19	1706
13	HS19111343-0	HS19111343-06M	X120218	12/02/19	1730
14	CCV-END	CCV-END	X120219	12/02/19	1754
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Instrument ID: VOA6 Calibration Date: 12/02/19 Time: 1106

Lab File ID: X120202 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE	
cis-1,3-Dichloropropene	0.4880000	0.5266441	0.5266441	0.2	-7.92	20.00	AVRG	
trans-1,3-Dichloropropene	0.4440000	0.4932142	0.4932142	0.1	-11.08	20.00	AVRG	
1,3-Dichlorobenzene	1.4340000	1.5609381	1.5609381	0.6	-8.85	20.00	AVRG	
2,2-Dichloropropane	0.6600000	0.7020050	0.7020050	0.1	-6.36	20.00	AVRG	
1,1-Dichloropropene	0.4030000	0.4172279	0.4172279	0.1	-3.53	20.00	AVRG	
Dibromomethane	0.2110000	0.2322683	0.2322683	0.1	-10.08	20.00	AVRG	
1,2-Dibromoethane	0.3510000	0.3852920	0.3852920	0.1	-9.77	20.00	AVRG	
trans-1,2-Dichloroethene	0.4110000	0.4749108	0.4749108	0.1	-15.55	20.00	AVRG	
1,1,1,2-Tetrachloroethane	0.3630000	0.3927961	0.3927961	0.1	-8.21	20.00	AVRG	
1,1,1-Trichloroethane	0.6740000	0.7856848	0.7856848	0.1	-16.57	20.00	AVRG	
1,1,2,2-Tetrachloroethane	0.7030000	0.7431577	0.7431577	0.3	-5.71	20.00	AVRG	
Toluene	1.4180000	1.5187592	1.5187592	0.4	-7.10	20.00	AVRG	
1,1,2-Trichloroethane	0.2610000	0.2846376	0.2846376	0.1	-9.06	20.00	AVRG	
1,1-Dichloroethane	0.7270000	0.8306231	0.8306231	0.2	-14.25	20.00	AVRG	
1,1-Dichloroethene	0.4240000	0.4467752	0.4467752	0.1	-5.37	20.00	AVRG	
Trichlorofluoromethane	0.7760000	0.8623505	0.8623505	0.1	-11.13	20.00	AVRG	
1,2,3-Trichlorobenzene	62.568255	50.000000	0.1988089	0.1	-25.14	20.00	2RDR	<-
Tetrachloroethene	0.3510000	0.3504397	0.3504397	0.2	0.16	20.00	AVRG	
1,2,4-Trichlorobenzene	0.4210000	0.4120742	0.4120742	0.2	2.12	20.00	AVRG	
1,2,4-Trimethylbenzene	2.3720000	2.6025347	2.6025347	0.1	-9.72	20.00	AVRG	
tert-Butylbenzene	1.9490000	2.1389547	2.1389547	0.1	-9.75	20.00	AVRG	
Trichloroethene	0.3500000	0.3729307	0.3729307	0.2	-6.55	20.00	AVRG	
1,2-Dichlorobenzene	1.3270000	1.4300163	1.4300163	0.4	-7.76	20.00	AVRG	
1,2-Dichloroethane	0.3970000	0.4509777	0.4509777	0.1	-13.60	20.00	AVRG	
1,2-Dichloropropane	0.2990000	0.3136413	0.3136413	0.1	-4.90	20.00	AVRG	
1,3,5-Trimethylbenzene	2.2760000	2.4922048	2.4922048	0.1	-9.50	20.00	AVRG	
1,3-Dichloropropane	0.5310000	0.5676613	0.5676613	0.1	-6.90	20.00	AVRG	
1,4-Dichlorobenzene	1.4570000	1.5713225	1.5713225	0.4	-7.85	20.00	AVRG	
2-Butanone	0.1530000	0.1744571	0.1744571	0.1	-14.02	20.00	AVRG	
2-Chlorotoluene	1.7990000	2.0604508	2.0604508	0.1	-14.53	20.00	AVRG	
2-Hexanone	0.2050000	0.2132386	0.2132386	0.1	-4.02	20.00	AVRG	
4-Chlorotoluene	2.1800000	2.4071213	2.4071213	0.1	-10.42	20.00	AVRG	
Styrene	1.0440000	1.1515729	1.1515729	0.3	-10.30	20.00	AVRG	
4-Methyl-2-Pentanone	0.2930000	0.3059011	0.3059011	0.1	-4.40	20.00	AVRG	
Acetone	99.554097	100.00000	0.1256468	0.1	0.44	20.00	LINR	
Benzene	1.1440000	1.2444552	1.2444552	0.5	-8.78	20.00	AVRG	
Bromobenzene	0.8690000	0.9476410	0.9476410	0.1	-9.05	20.00	AVRG	
Bromochloromethane	0.2710000	0.3098719	0.3098719	0.1	-14.34	20.00	AVRG	
Bromodichloromethane	0.4140000	0.4626043	0.4626043	0.2	-11.74	20.00	AVRG	
Bromoform	54.302429	50.000000	0.3203697	0.1	-8.60	20.00	LINR	
Bromomethane	51.636101	50.000000	0.5413069	0.1	-3.27	20.00	LINR	
Carbon Disulfide	1.1530000	1.3088906	1.3088906	0.1	-13.52	20.00	AVRG	

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911134

Instrument ID: VOA6 Calibration Date: 12/02/19 Time: 1106

Lab File ID: X120202 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4420000	0.4577165	0.4577165	0.1	-3.56	20.00	AVRG
Chlorobenzene	0.9760000	1.0405355	1.0405355	0.5	-6.61	20.00	AVRG
Chloroethane	0.3150000	0.3286236	0.3286236	0.1	-4.32	20.00	AVRG
Chloroform	0.8100000	0.9110883	0.9110883	0.2	-12.48	20.00	AVRG
Chloromethane	40.042393	50.000000	0.4412918	0.1	19.92	20.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5589952	0.5589952	0.1	-17.93	20.00	AVRG
Dibromochloromethane	0.3800000	0.4135296	0.4135296	0.1	-8.82	20.00	AVRG
Dichlorodifluoromethane	58.678441	50.000000	0.5397133	0.1	-17.36	20.00	LINR
Ethylbenzene	0.5040000	0.5451989	0.5451989	0.1	-8.17	20.00	AVRG
Hexachlorobutadiene	0.4020000	0.3304314	0.3304314	0.1	17.80	20.00	AVRG
Isopropylbenzene	1.4940000	1.6363079	1.6363079	0.1	-9.52	20.00	AVRG
m,p-Xylenes	0.6080000	0.6636724	0.6636724	0.1	-9.16	20.00	AVRG
Methylene Chloride	0.4520000	0.4954037	0.4954037	0.1	-9.60	20.00	AVRG
n-Butylbenzene	2.0360000	2.1623213	2.1623213	0.5	-6.20	20.00	AVRG
n-Propylbenzene	3.0900000	3.4071040	3.4071040	0.1	-10.26	20.00	AVRG
Naphthalene	0.5400000	0.5373773	0.5373773	0.2	0.48	20.00	AVRG
o-Xylene	0.6000000	0.6435896	0.6435896	0.3	-7.26	20.00	AVRG
sec-Butylbenzene	2.6850000	2.9105880	2.9105880	0.1	-8.40	20.00	AVRG
Vinyl Chloride	0.5100000	0.5235612	0.5235612	0.1	-2.66	20.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.6381171	0.6381171	0.1	-7.07	20.00	AVRG
p-Isopropyltoluene	2.4460000	2.6140013	2.6140013	0.1	-6.87	20.00	AVRG
1,2-Dibromo-3-Chloropropane	56.621716	50.000000	8.43e-002	0.05	-13.24	20.00	LINR
Freon TF	0.4350000	0.4354613	0.4354613	0.1	-0.11	20.00	AVRG
4-Bromofluorobenzene	53.166091	50.000000	0.4835198	0.1	-6.33	20.00	LINR
Dibromofluoromethane	53.677458	50.000000	0.4864652	0.1	-7.35	20.00	LINR
Toluene-d8	1.3170000	1.2158857	1.2158857	0.1	7.68	20.00	AVRG
1,2-Dichloroethane-d4	55.383871	50.000000	0.5350964	0.1	-10.77	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Instrument ID: VOA6 Calibration Date: 12/02/19 Time: 1754

Lab File ID: X120219 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	0.4880000	0.5266441	0.5266441	0.2	-7.92	50.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.4932142	0.4932142	0.1	-11.08	50.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.5609381	1.5609381	0.6	-8.85	50.00	AVRG
2,2-Dichloropropane	0.6600000	0.7020050	0.7020050	0.1	-6.36	50.00	AVRG
1,1-Dichloropropene	0.4030000	0.4172279	0.4172279	0.1	-3.53	50.00	AVRG
Dibromomethane	0.2110000	0.2322683	0.2322683	0.1	-10.08	50.00	AVRG
1,2-Dibromoethane	0.3510000	0.3852920	0.3852920	0.1	-9.77	50.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4749108	0.4749108	0.1	-15.55	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3927961	0.3927961	0.1	-8.21	50.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.7856848	0.7856848	0.1	-16.57	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.7431577	0.7431577	0.3	-5.71	50.00	AVRG
Toluene	1.4180000	1.5187592	1.5187592	0.4	-7.10	50.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2846376	0.2846376	0.1	-9.06	50.00	AVRG
1,1-Dichloroethane	0.7270000	0.8306231	0.8306231	0.2	-14.25	50.00	AVRG
1,1-Dichloroethene	0.4240000	0.4467752	0.4467752	0.1	-5.37	50.00	AVRG
Trichlorofluoromethane	0.7760000	0.8623505	0.8623505	0.1	-11.13	50.00	AVRG
1,2,3-Trichlorobenzene	53.498021	50.000000	0.1988089	0.1	-7.00	50.00	2RDR
Tetrachloroethene	0.3510000	0.3504397	0.3504397	0.2	0.16	50.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.4120742	0.4120742	0.2	2.12	50.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.6025347	2.6025347	0.1	-9.72	50.00	AVRG
tert-Butylbenzene	1.9490000	2.1389547	2.1389547	0.1	-9.75	50.00	AVRG
Trichloroethene	0.3500000	0.3729307	0.3729307	0.2	-6.55	50.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.4300163	1.4300163	0.4	-7.76	50.00	AVRG
1,2-Dichloroethane	0.3970000	0.4509777	0.4509777	0.1	-13.60	50.00	AVRG
1,2-Dichloropropane	0.2990000	0.3136413	0.3136413	0.1	-4.90	50.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.4922048	2.4922048	0.1	-9.50	50.00	AVRG
1,3-Dichloropropane	0.5310000	0.5676613	0.5676613	0.1	-6.90	50.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.5713225	1.5713225	0.4	-7.85	50.00	AVRG
2-Butanone	0.1530000	0.1744571	0.1744571	0.1	-14.02	50.00	AVRG
2-Chlorotoluene	1.7990000	2.0604508	2.0604508	0.1	-14.53	50.00	AVRG
2-Hexanone	0.2050000	0.2132386	0.2132386	0.1	-4.02	50.00	AVRG
4-Chlorotoluene	2.1800000	2.4071213	2.4071213	0.1	-10.42	50.00	AVRG
Styrene	1.0440000	1.1515729	1.1515729	0.3	-10.30	50.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.3059011	0.3059011	0.1	-4.40	50.00	AVRG
Acetone	96.954110	100.00000	0.1256468	0.1	3.04	50.00	LINR
Benzene	1.1440000	1.2444552	1.2444552	0.5	-8.78	50.00	AVRG
Bromobenzene	0.8690000	0.9476410	0.9476410	0.1	-9.05	50.00	AVRG
Bromochloromethane	0.2710000	0.3098719	0.3098719	0.1	-14.34	50.00	AVRG
Bromodichloromethane	0.4140000	0.4626043	0.4626043	0.2	-11.74	50.00	AVRG
Bromoform	53.726859	50.000000	0.3203697	0.1	-7.45	50.00	LINR
Bromomethane	54.650446	50.000000	0.5413069	0.1	-9.30	50.00	LINR
Carbon Disulfide	1.1530000	1.3088906	1.3088906	0.1	-13.52	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911134

Instrument ID: VOA6 Calibration Date: 12/02/19 Time: 1754

Lab File ID: X120219 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4420000	0.4577165	0.4577165	0.1	-3.56	50.00	AVRG
Chlorobenzene	0.9760000	1.0405355	1.0405355	0.5	-6.61	50.00	AVRG
Chloroethane	0.3150000	0.3286236	0.3286236	0.1	-4.32	50.00	AVRG
Chloroform	0.8100000	0.9110883	0.9110883	0.2	-12.48	50.00	AVRG
Chloromethane	40.667094	50.000000	0.4412918	0.1	18.66	50.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5589952	0.5589952	0.1	-17.93	50.00	AVRG
Dibromochloromethane	0.3800000	0.4135296	0.4135296	0.1	-8.82	50.00	AVRG
Dichlorodifluoromethane	59.067887	50.000000	0.5397133	0.1	-18.14	50.00	LINR
Ethylbenzene	0.5040000	0.5451989	0.5451989	0.1	-8.17	50.00	AVRG
Hexachlorobutadiene	0.4020000	0.3304314	0.3304314	0.1	17.80	50.00	AVRG
Isopropylbenzene	1.4940000	1.6363079	1.6363079	0.1	-9.52	50.00	AVRG
m,p-Xylenes	0.6080000	0.6636724	0.6636724	0.1	-9.16	50.00	AVRG
Methylene Chloride	0.4520000	0.4954037	0.4954037	0.1	-9.60	50.00	AVRG
n-Butylbenzene	2.0360000	2.1623213	2.1623213	0.5	-6.20	50.00	AVRG
n-Propylbenzene	3.0900000	3.4071040	3.4071040	0.1	-10.26	50.00	AVRG
Naphthalene	0.5400000	0.5373773	0.5373773	0.2	0.48	50.00	AVRG
o-Xylene	0.6000000	0.6435896	0.6435896	0.3	-7.26	50.00	AVRG
sec-Butylbenzene	2.6850000	2.9105880	2.9105880	0.1	-8.40	50.00	AVRG
Vinyl Chloride	0.5100000	0.5235612	0.5235612	0.1	-2.66	50.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.6381171	0.6381171	0.1	-7.07	50.00	AVRG
p-Isopropyltoluene	2.4460000	2.6140013	2.6140013	0.1	-6.87	50.00	AVRG
1,2-Dibromo-3-Chloropropane	54.349882	50.000000	8.43e-002	0.05	-8.70	50.00	LINR
Freon TF	0.4350000	0.4354613	0.4354613	0.1	-0.11	50.00	AVRG
4-Bromofluorobenzene	51.954028	50.000000	0.4835198	0.1	-3.91	50.00	LINR
Dibromofluoromethane	53.474001	50.000000	0.4864652	0.1	-6.95	50.00	LINR
Toluene-d8	1.3170000	1.2158857	1.2158857	0.1	7.68	50.00	AVRG
1,2-Dichloroethane-d4	56.775567	50.000000	0.5350964	0.1	-13.55	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Lab File ID (Standard): X120202 Date Analyzed: 12/02/19

Instrument ID: VOA6 Time Analyzed: 1106

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DFB) AREA #	RT #
	12 HOUR STD	286109	9.67	499267	7.67	536440	4.97
	UPPER LIMIT	572218	10.17	998534	8.17	1072880	5.47
	LOWER LIMIT	143055	9.17	249634	7.17	268220	4.47
	CLIENT SAMPLE NO.						
01	VLCSW-19202	277141	9.66	507072	7.67	553059	4.97
02	VBLKW-191202	311979	9.67	618475	7.67	699689	4.97
03	HS19111343-08	319641	9.67	624344	7.67	695673	4.97
04	HS19111343-06	323984	9.66	627604	7.67	702804	4.97
05	HS19111343-01	314415	9.66	623120	7.67	696531	4.97
06	HS19111343-02	309345	9.67	615358	7.67	696898	4.97
07	HS19111343-03	318734	9.67	619699	7.67	696256	4.97
08	HS19111343-04	317004	9.66	635397	7.67	710678	4.97
09	HS19111343-05	303256	9.66	605264	7.67	694092	4.97
10	HS19111343-07	331713	9.67	637028	7.67	709563	4.97
11	HS19111343-06	327412	9.67	611250	7.67	671021	4.97
12	HS19111343-06	320825	9.67	599711	7.67	669718	4.97
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111343

Lab File ID (Standard): X120202 Date Analyzed: 12/02/19

Instrument ID: VOA6 Time Analyzed: 1106

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	365905	4.18				
	UPPER LIMIT	731810	4.68				
	LOWER LIMIT	182953	3.68				
	CLIENT SAMPLE NO.						
01	VLCSW-19202	385029	4.18				
02	VBLKW-191202	496456	4.18				
03	HS19111343-08	495332	4.18				
04	HS19111343-06	497325	4.18				
05	HS19111343-01	498367	4.18				
06	HS19111343-02	493789	4.18				
07	HS19111343-03	489713	4.18				
08	HS19111343-04	504096	4.18				
09	HS19111343-05	494828	4.18				
10	HS19111343-07	502231	4.18				
11	HS19111343-06	476412	4.18				
12	HS19111343-06	474380	4.18				
13							
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120201.D

Date : 02-DEC-2019 10:42

Client ID: BFB

Instrument: voa6.i

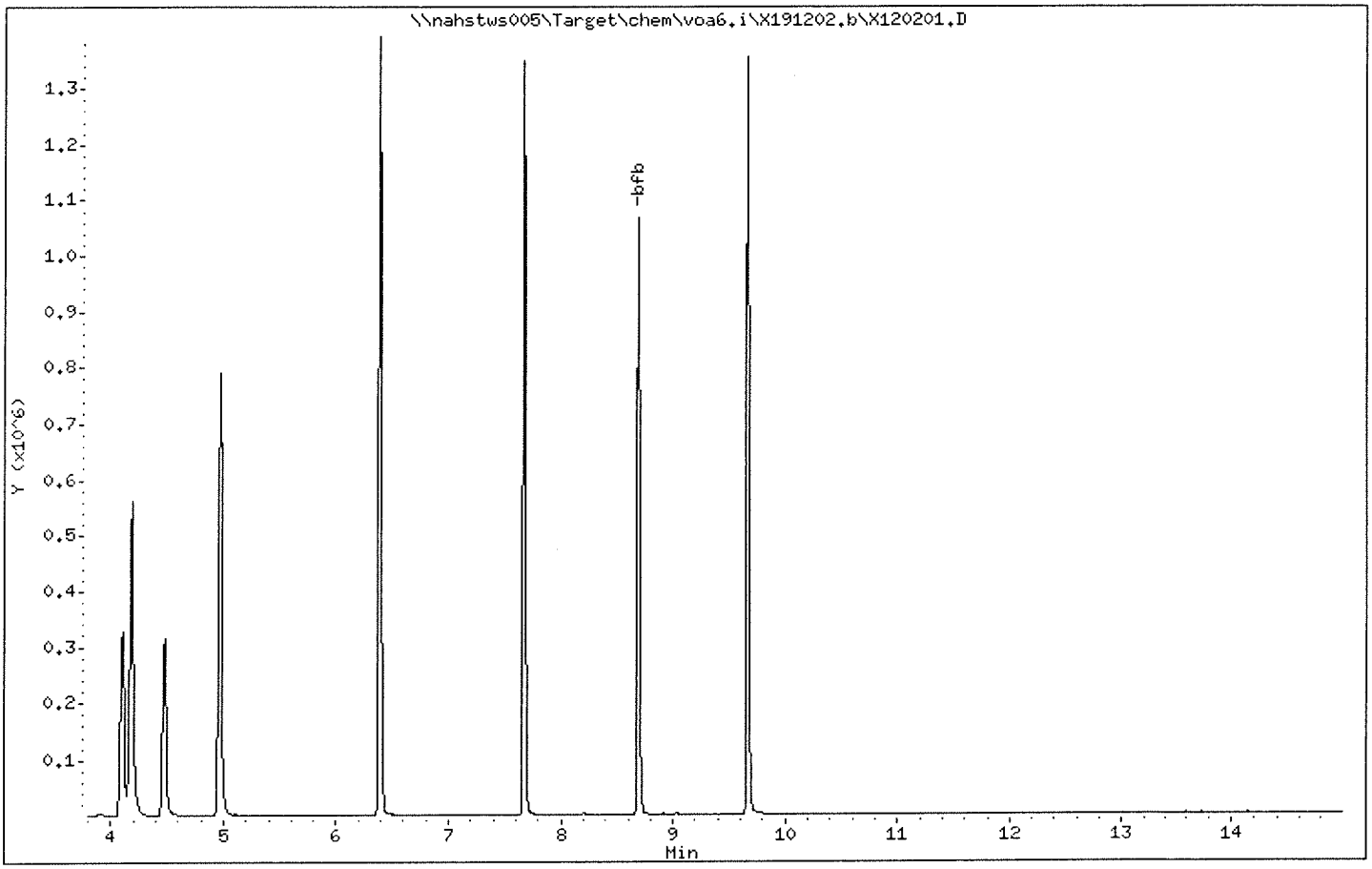
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120201.D

Date : 02-DEC-2019 10:42

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

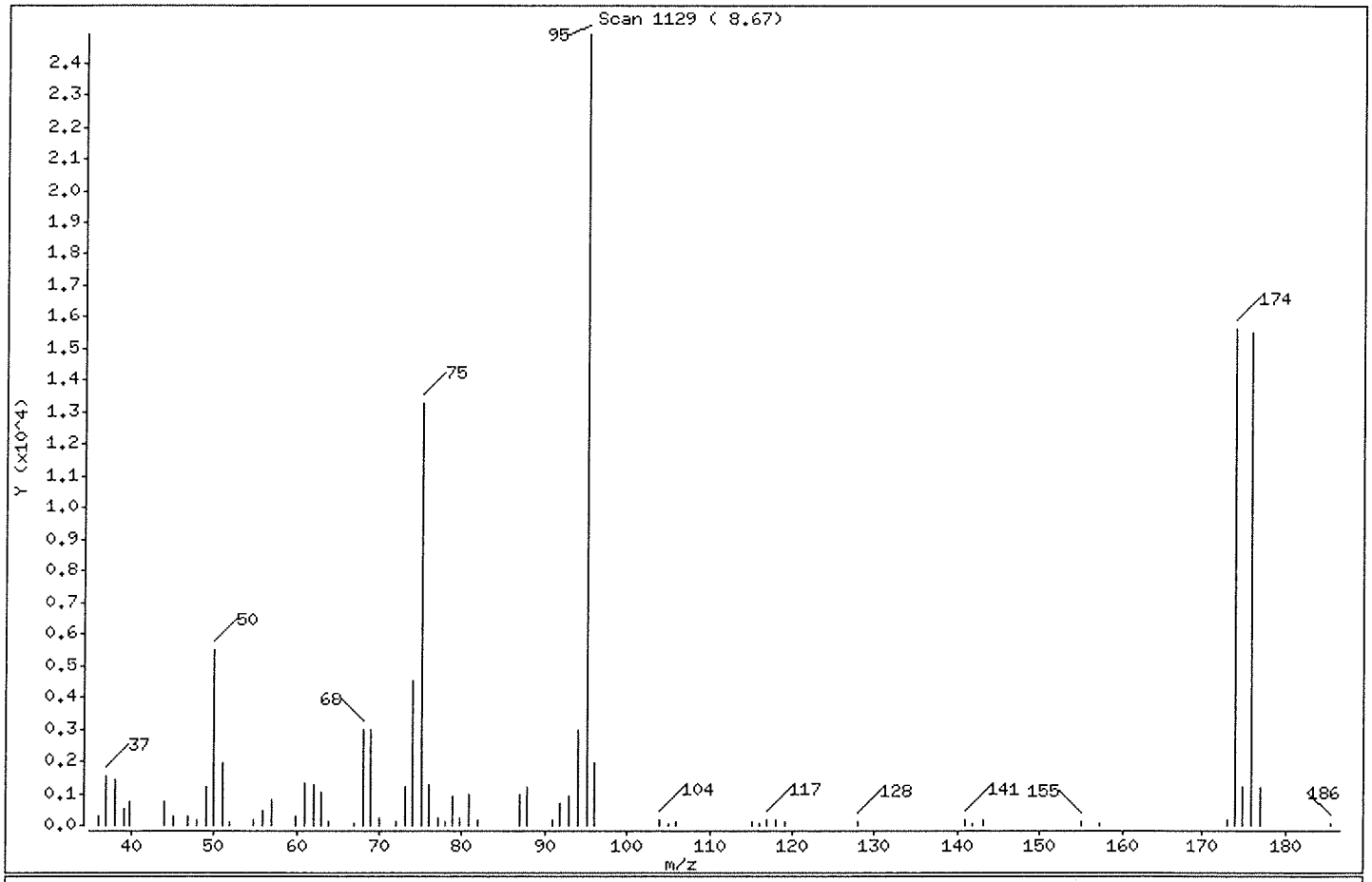
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	21.98
75	30.00 - 60.00% of mass 95	53.41
96	5.00 - 9.00% of mass 95	7.71
173	Less than 2.00% of mass 174	0.80 (1.28)
174	Greater than 50.00% of mass 95	62.77
175	5.00 - 9.00% of mass 174	4.73 (7.54)
176	95.00 - 101.00% of mass 174	62.27 (99.20)
177	5.00 - 9.00% of mass 176	4.81 (7.73)

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120201.D

Date : 02-DEC-2019 10:42

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

Data File: X120201.D
Spectrum: Scan 1129 (8.67)
Location of Maximum: 95.00
Number of points: 65

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	295	61.00	1295	80.90	977	119.00	131
37.00	1547	62.00	1269	82.00	188	127.90	98
38.00	1446	62.90	1056	86.90	958	140.80	159
39.10	529	63.90	141	87.90	1184	141.00	165
39.90	722	66.90	62	90.90	162	141.70	56
44.00	744	68.00	3001	91.90	713	143.00	150
45.10	294	69.00	2971	93.00	891	154.90	98
46.80	263	70.00	205	94.00	2966	157.10	68
48.00	199	72.00	114	95.00	24896	173.00	200
49.00	1200	73.00	1224	96.00	1920	173.90	15627
50.00	5472	74.00	4533	103.90	174	174.90	1178
51.00	1923	75.00	13296	105.00	51	175.90	15502
51.90	129	76.00	1241	105.90	112	177.00	1198
54.90	180	77.00	247	115.10	89	185.70	53
56.00	486	77.90	121	116.00	76		
57.10	828	78.90	901	116.80	183		
59.90	285	79.80	214	117.90	146		

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120202.D Page 1
Report Date: 07-Dec-2019 09:41

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120202.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 02-DEC-2019 11:06
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

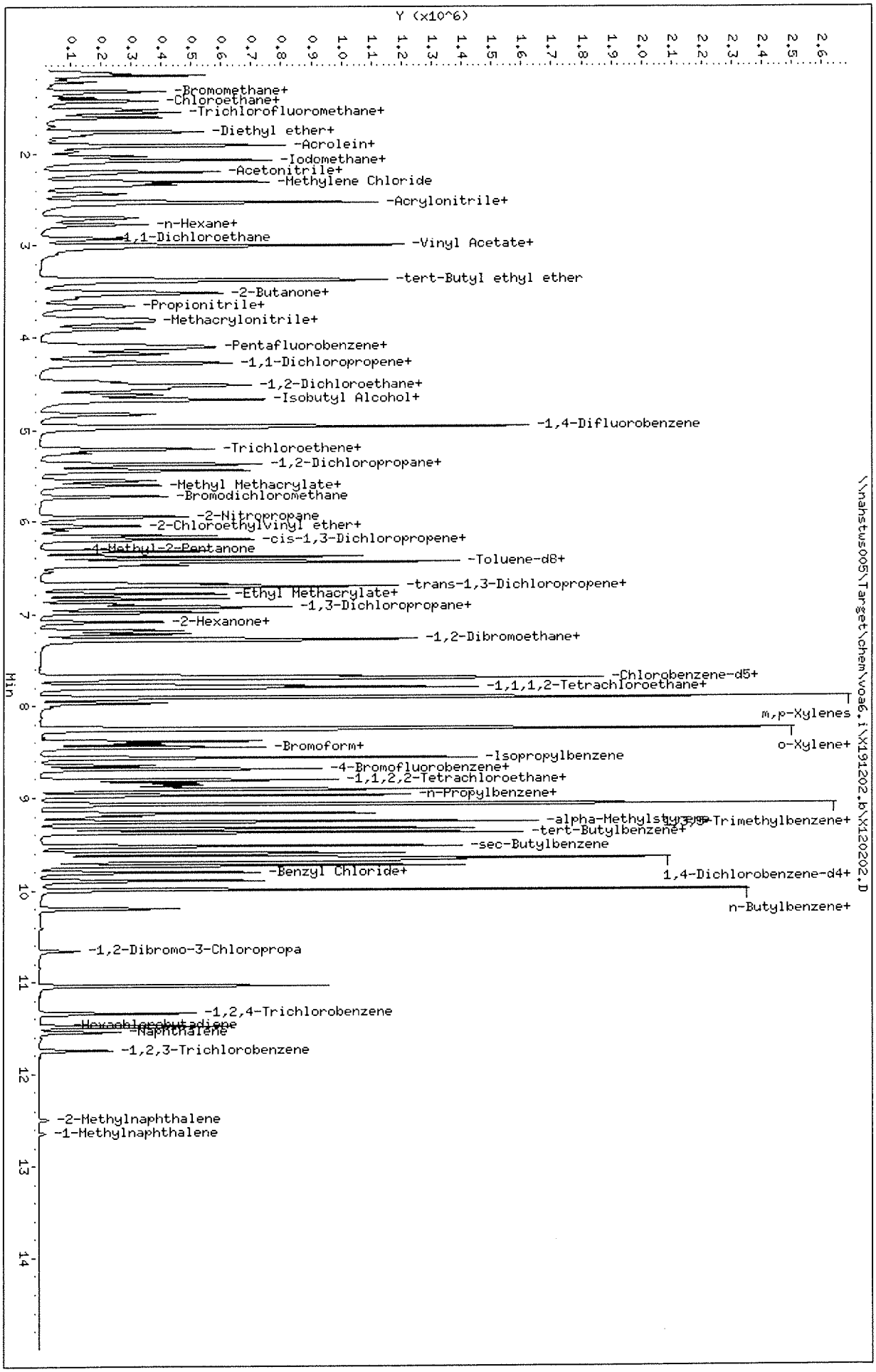
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365905	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	536440	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	499267	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	286109	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	190932	50.0000	55.38
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	247083	50.0000	53.16
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	178682	50.0000	53.67
$	48 Toluene-d8	98	6.388	6.388	(0.833)	616851	50.0000	46.89
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	190275	50.0000	52.53
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	269220	50.0000	54.53
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.914)	212357	50.0000	52.78
	138 Freon TF	101	1.912	1.919	(0.457)	161300	50.0000	50.63
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	138373	50.0000	53.01
	22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	293985	50.0000	55.21
	11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	156699	50.0000	50.53
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	219875	50.0000	50.81
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	66441	50.0000	62.56
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	179994	50.0000	52.80(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	139830	50.0000	58.01
	79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	718895	50.0000	52.95
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.102)	25128	50.0000	56.62
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	189942	50.0000	54.24
	88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	404951	50.0000	53.32

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120202.D Page 2
Report Date: 07-Dec-2019 09:41

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.555	4.562	(0.916)	240837	50.0000	56.55
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	165366	50.0000	51.60
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	679362	50.0000	52.15
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	428215	50.0000	52.18
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	275985	50.0000	52.08
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	438539	50.0000	52.59
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	263955	50.0000	54.62
24	2-Butanone	43	3.581	3.573	(0.856)	124250	100.000	110.66
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	549193	50.0000	53.35
52	2-Hexanone	43	7.083	7.090	(0.923)	213375	100.000	104.03
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	659929	50.0000	52.89
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	724488	50.0000	51.75
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	309792	100.000	105.89
10	Acetone	43	1.976	1.969	(0.473)	94321	100.000	99.55
37	Benzene	78	4.512	4.512	(0.908)	654923	50.0000	53.37
74	Bromobenzene	156	8.810	8.809	(0.911)	257783	50.0000	51.84
29	Bromochloromethane	128	3.795	3.795	(0.908)	108524	50.0000	54.74
39	Bromodichloromethane	83	5.729	5.729	(1.153)	242323	50.0000	54.58
66	Bromoform	173	8.416	8.415	(1.097)	161696	50.0000	54.30
6	Bromomethane	94	1.338	1.338	(0.320)	187594	50.0000	51.63
19	Carbon Disulfide	76	2.069	2.069	(0.495)	935635	100.000	110.91
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	236334	50.0000	49.85
59	Chlorobenzene	112	7.692	7.699	(1.003)	507170	50.0000	52.03
7	Chloroethane	64	1.403	1.403	(0.336)	119658	50.0000	51.93
28	Chloroform	83	3.910	3.910	(0.935)	317570	50.0000	53.59
3	Chloromethane	50	1.073	1.073	(0.257)	158979	50.0000	40.04(M)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	195271	50.0000	56.27
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	283146	50.0000	54.12
55	Dibromochloromethane	129	7.176	7.176	(0.936)	203965	50.0000	53.79
44	Dibromomethane	93	5.558	5.557	(1.118)	122953	50.0000	54.21
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	196162	50.0000	58.67
61	Ethylbenzene	106	7.800	7.799	(1.017)	262346	50.0000	52.09
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	111587	50.0000	48.53
67	Isopropylbenzene	105	8.566	8.566	(1.117)	800696	50.0000	53.67
62	m,p-Xylenes	106	7.907	7.907	(1.031)	644225	100.000	106.00
17	Methylene Chloride	84	2.305	2.305	(0.551)	176113	50.0000	53.22
87	n-Butylbenzene	91	9.999	9.998	(1.034)	628541	50.0000	53.95
73	n-Propylbenzene	91	8.917	8.917	(0.922)	920366	50.0000	52.04
92	Naphthalene	128	11.546	11.546	(1.194)	172324	50.0000	55.74
63	o-Xylene	106	8.244	8.243	(1.075)	315354	50.0000	52.57
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	801689	50.0000	52.18
64	Styrene	104	8.258	8.258	(1.077)	576717	50.0000	55.29
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	585557	50.0000	52.49
56	Tetrachloroethene	164	6.933	6.933	(0.904)	172236	50.0000	49.09
50	Toluene	91	6.446	6.446	(0.840)	734324	50.0000	51.86
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	166891	50.0000	55.43
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	259367	50.0000	54.39
38	Trichloroethene	130	5.207	5.206	(1.048)	198663	50.0000	52.95
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	308682	50.0000	54.38
5	Vinyl Chloride	62	1.138	1.138	(0.272)	181227	50.0000	48.59

QC Flag Legend

M - Compound response manually integrated.



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Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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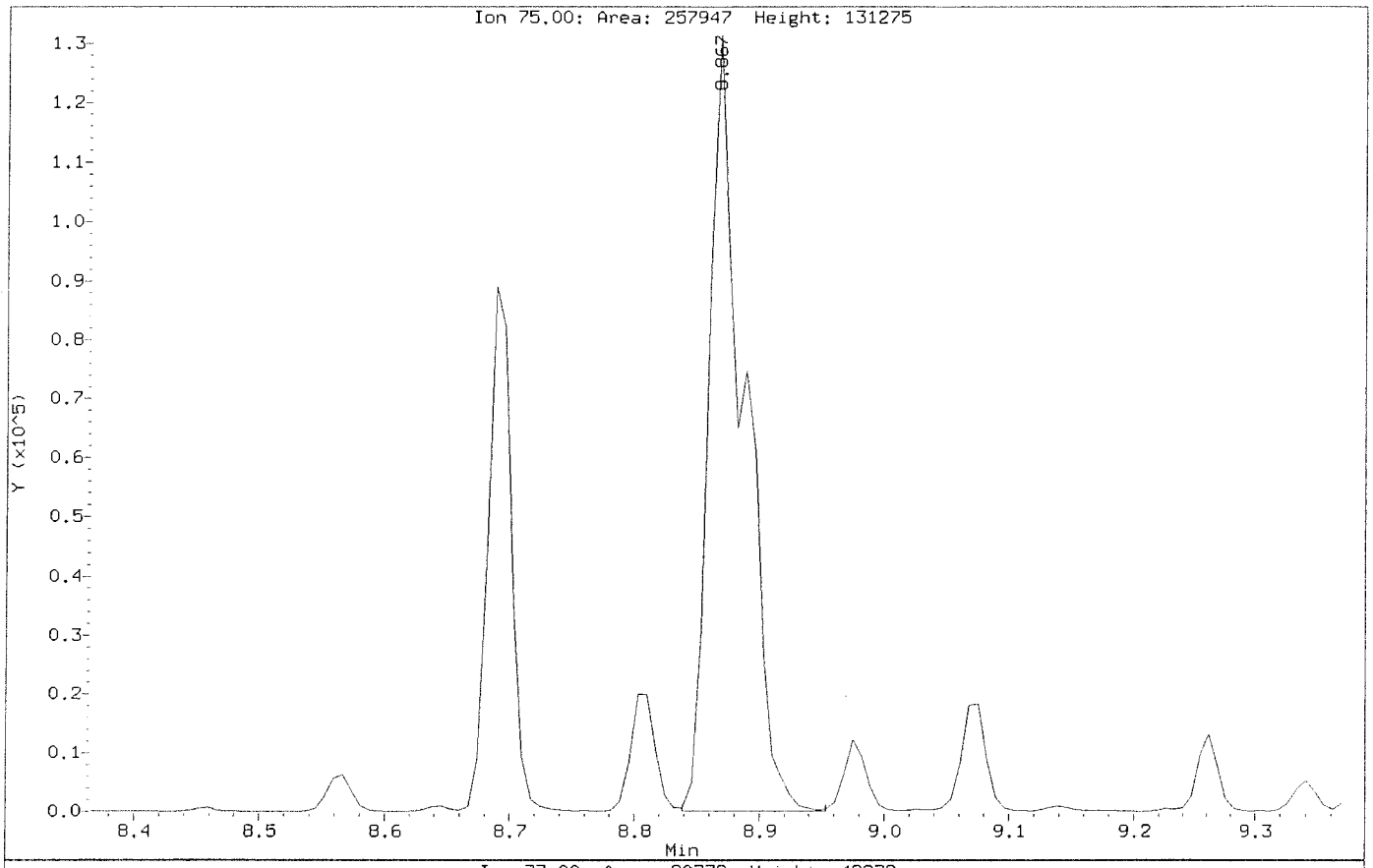
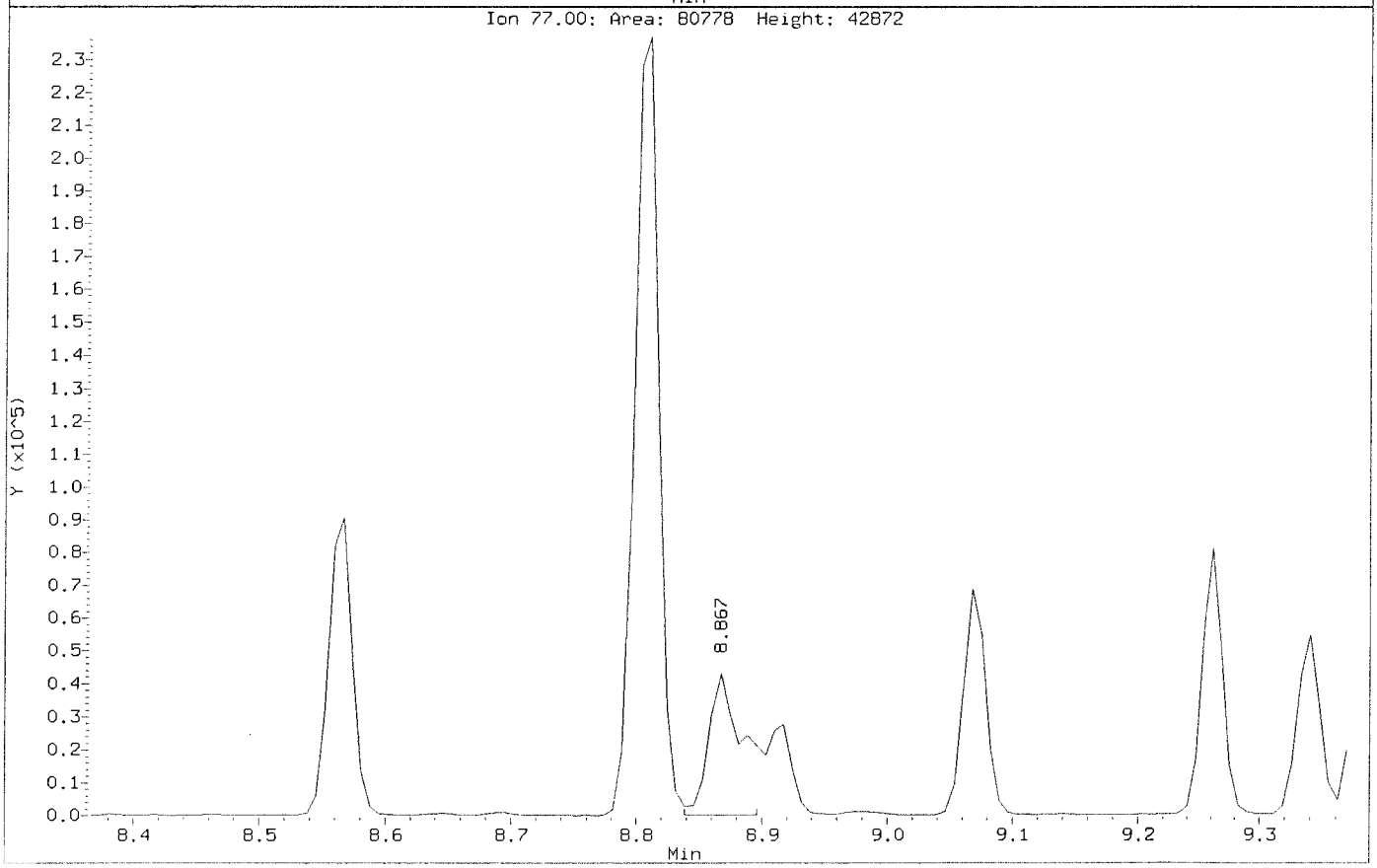
Injection Date: 02-DEC-2019 11:06
Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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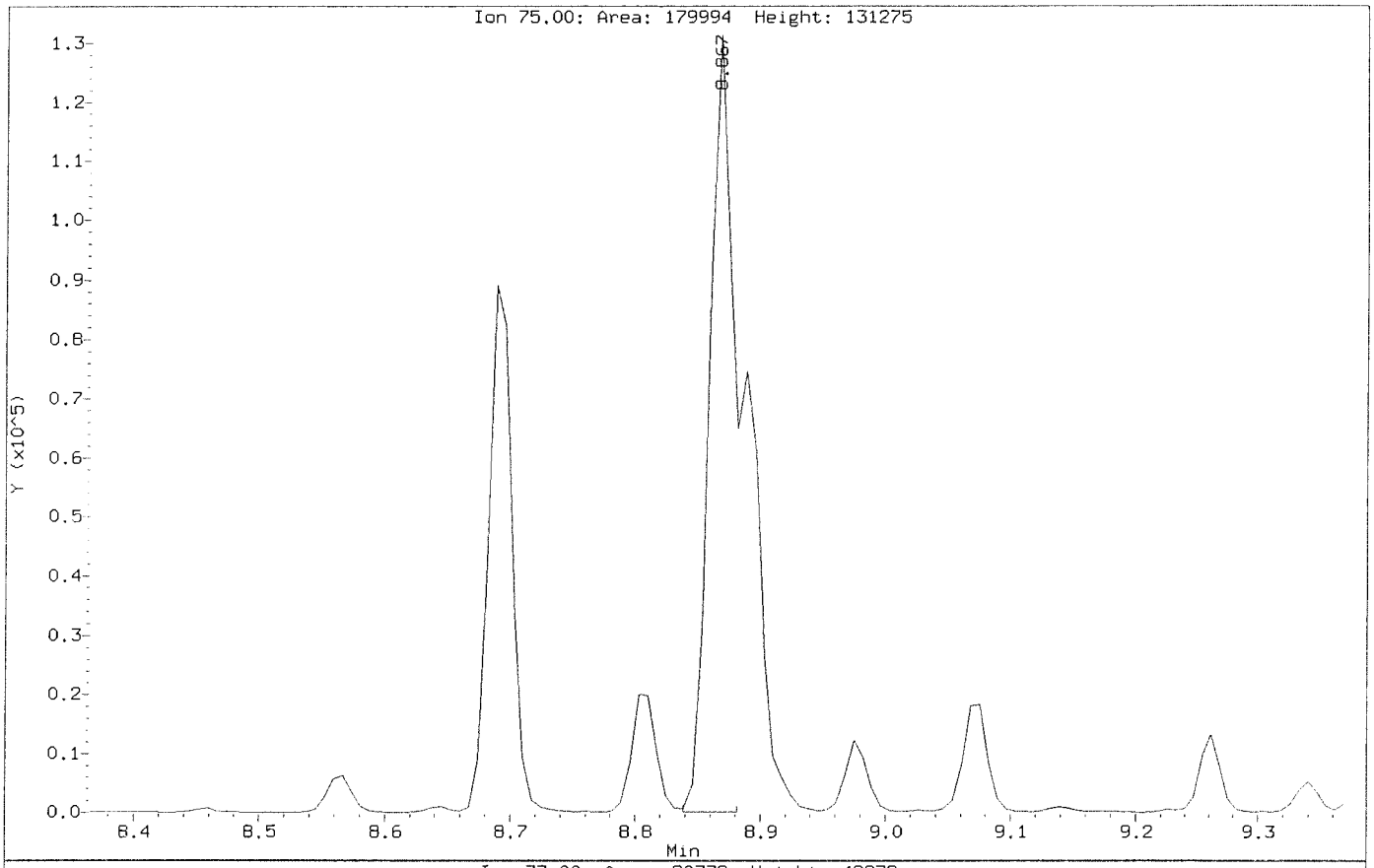
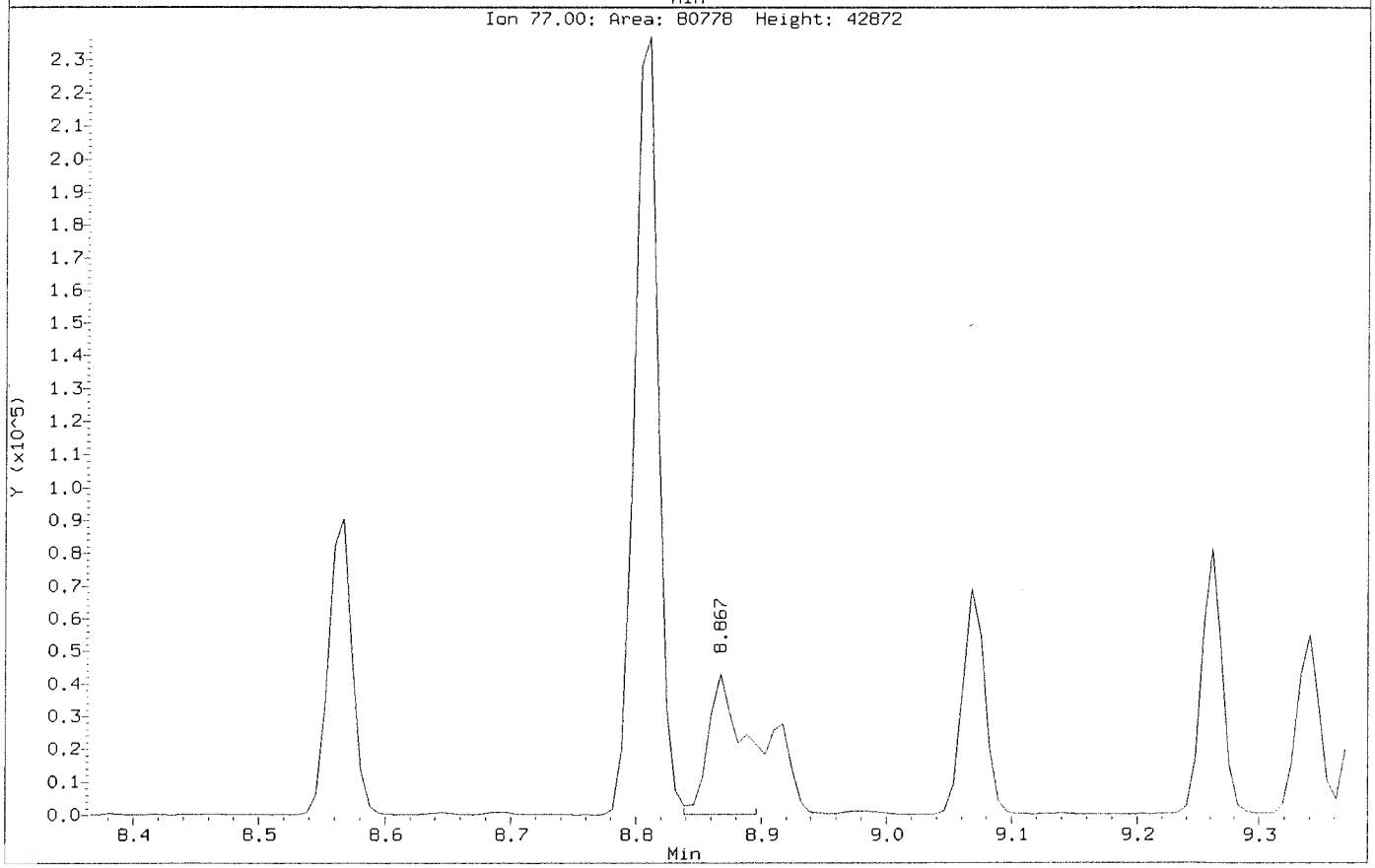
Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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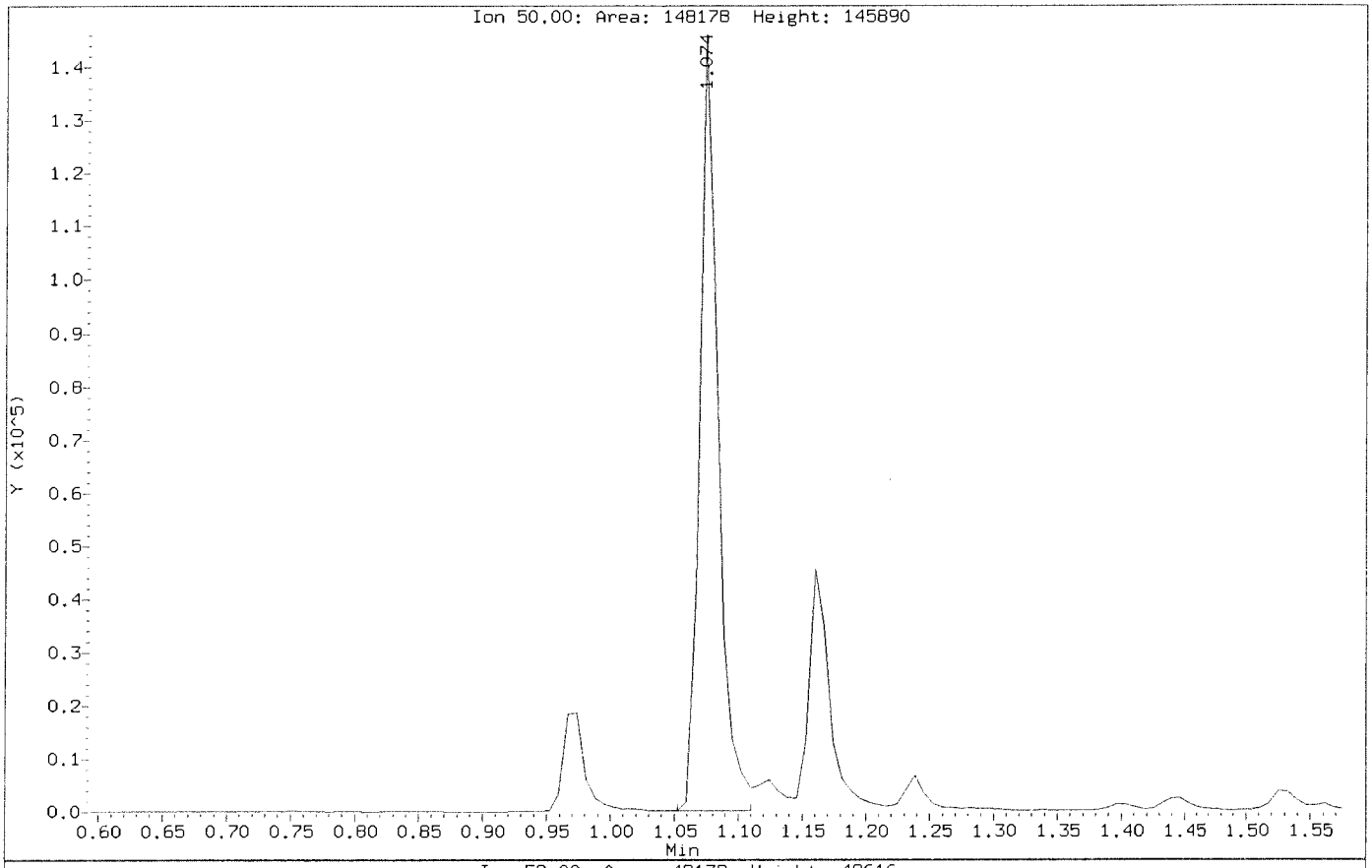
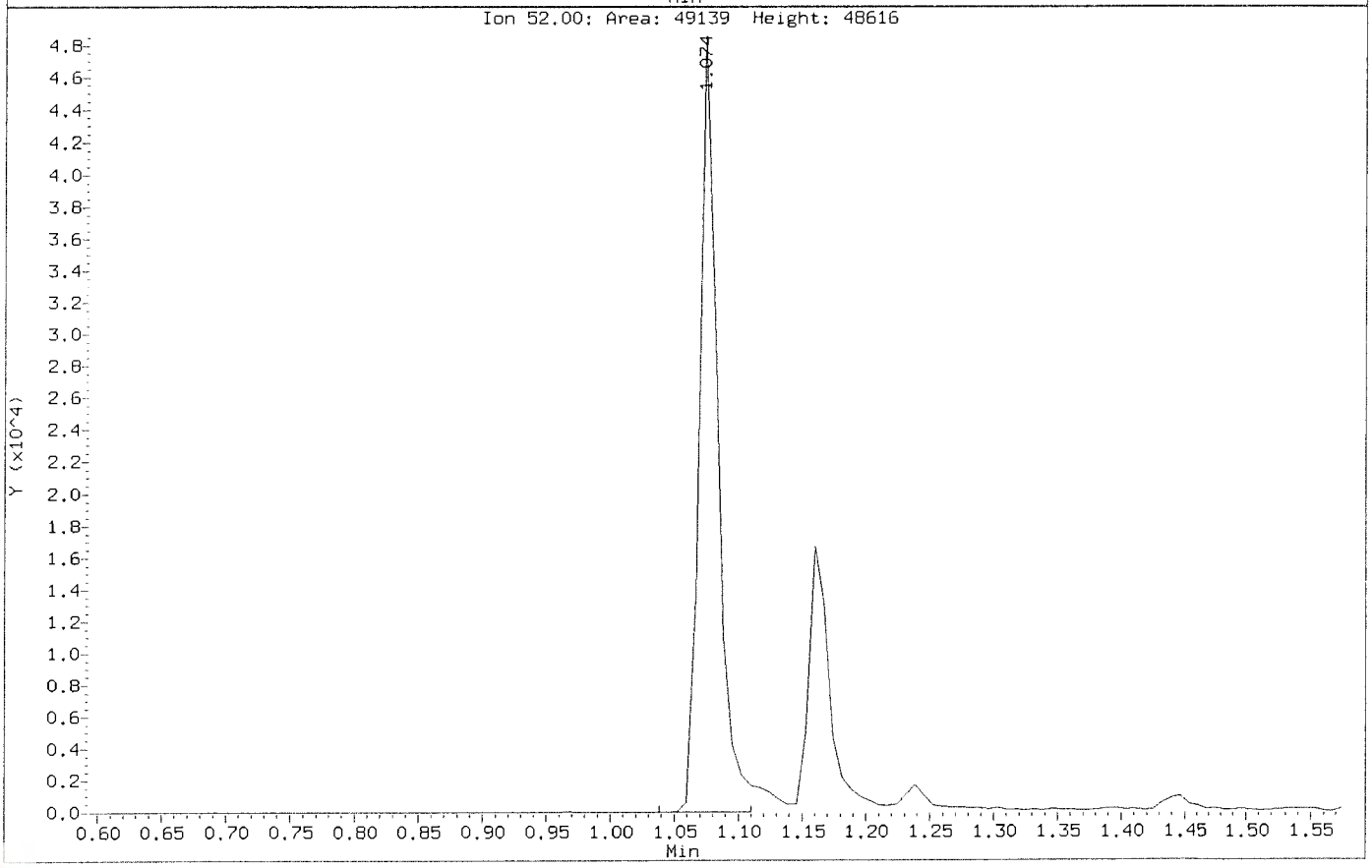
Injection Date: 02-DEC-2019 11:06
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3





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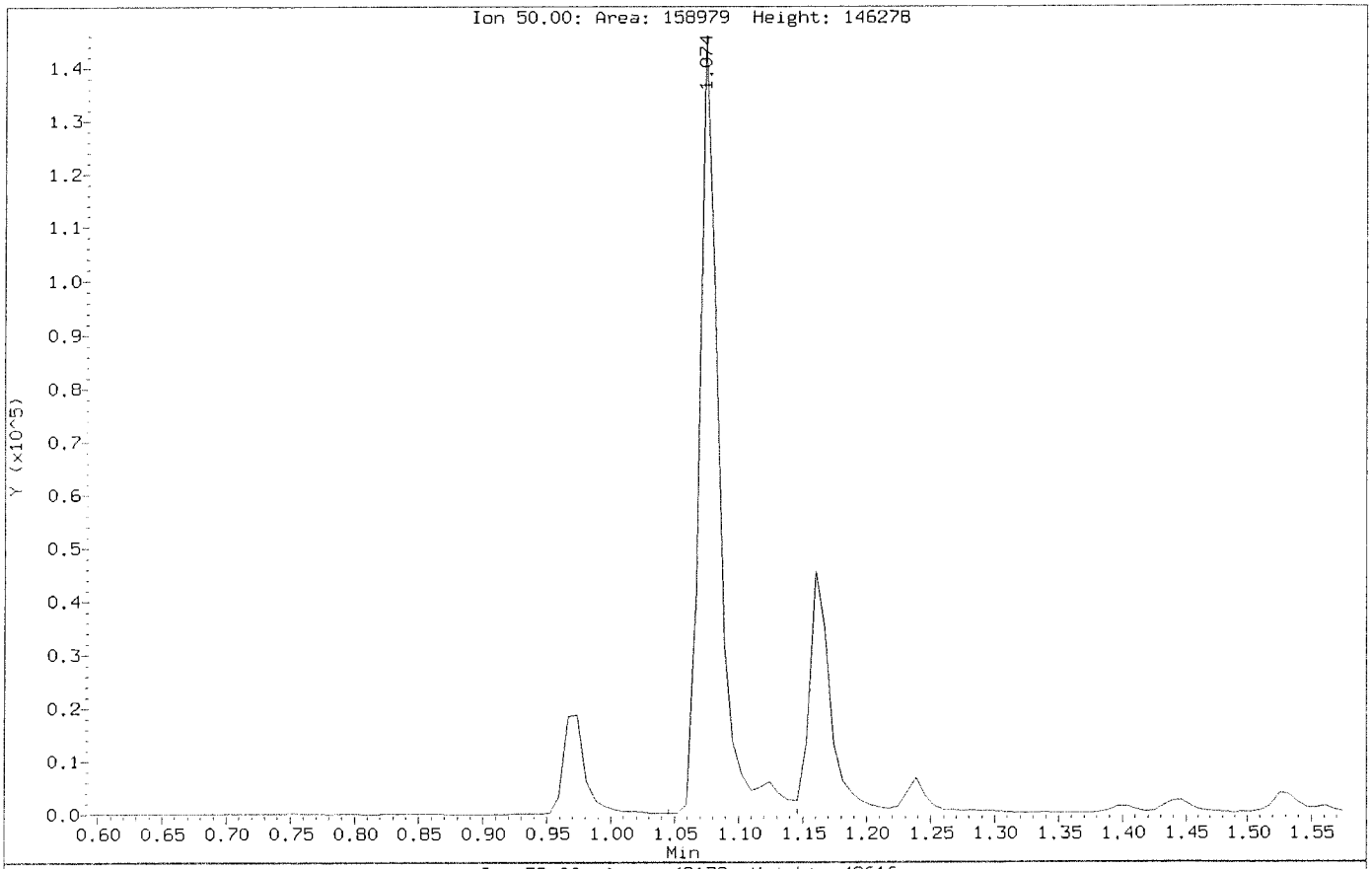
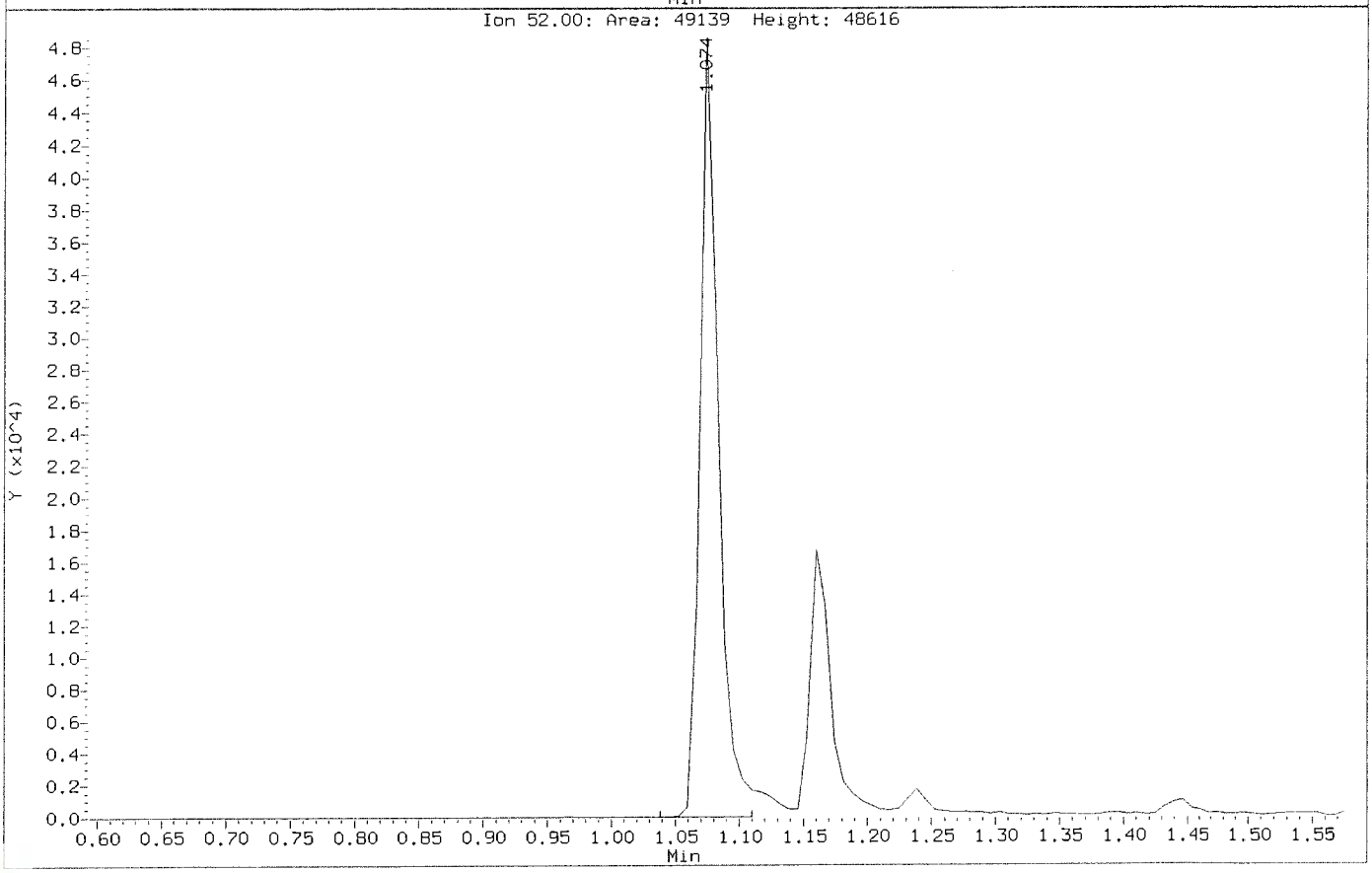
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3





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Report Date: 07-Dec-2019 09:41

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Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120205.D
Lab Smp Id: VLCSW-191202 Client Smp ID: VLCSW-19202
Inj Date : 02-DEC-2019 12:18
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-191202;VLCSW-19202;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

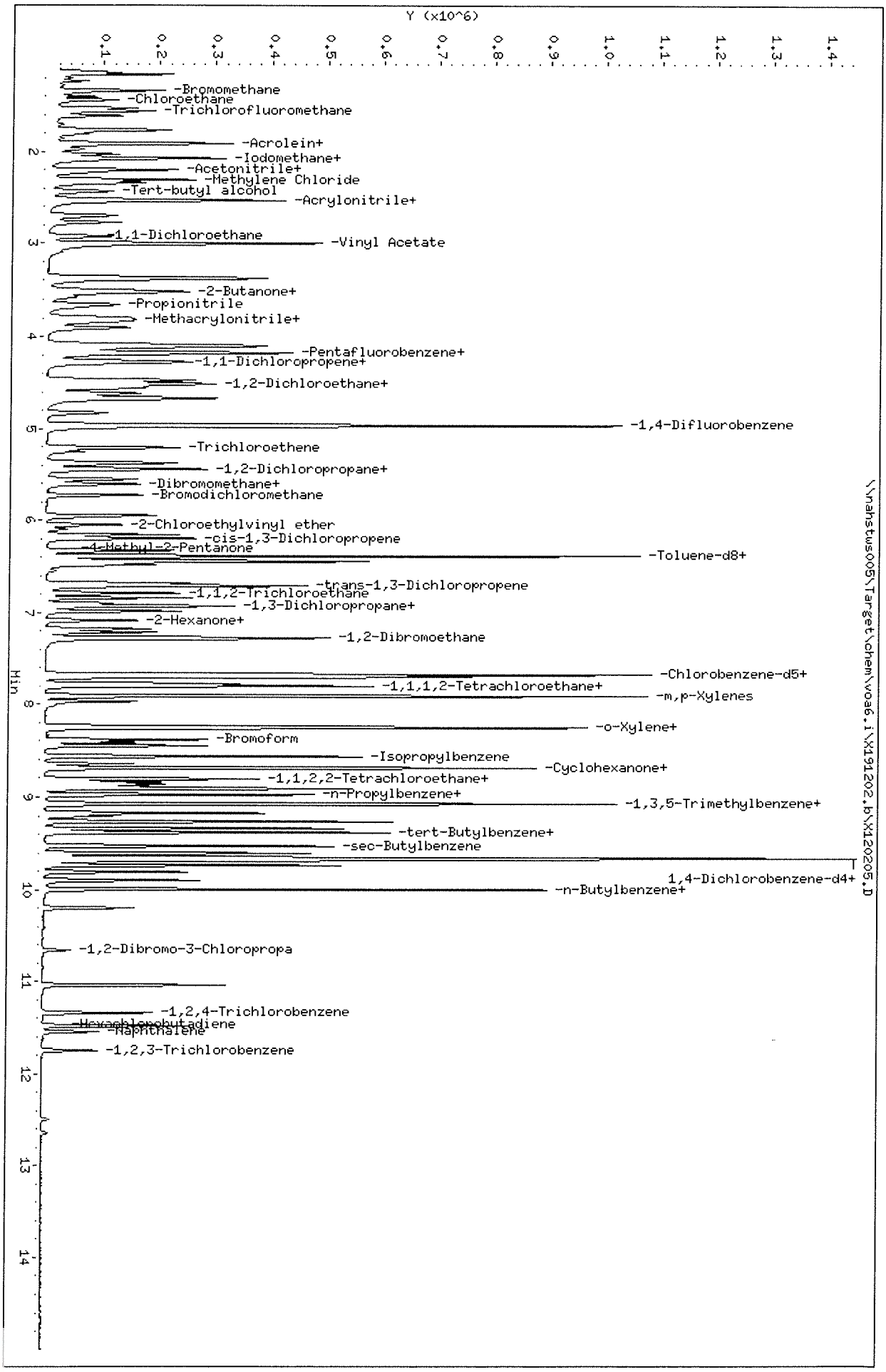
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	385029	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	553059	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	507072	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	277141	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	194165	53.5490	53.54
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	233589	49.5178	49.51
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	179386	51.2292	51.22
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	619663	46.3809	46.38
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	77735	21.1310	21.13
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	111826	21.5286	21.52
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	82975	21.2915	21.29
138 Freon TF	101	1.911	1.919	(0.457)	61869	18.4569	18.45
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	57824	21.8147	21.81
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	119920	21.4058	21.40
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	63924	19.5906	19.59
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	90851	20.3645	20.36
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	27174	26.0317	26.03
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	72490	21.9529	21.95(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	55393	23.7276	23.72
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.971)	274585	20.8809	20.88
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.103)	9760	22.5003	22.50
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	77694	21.8465	21.84
88 1,2-Dichlorobenzene	146	9.991	9.998	(1.034)	156154	21.2298	21.22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.555	4.562	(0.916)	98426	22.4188	22.41
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	68546	20.7479	20.74
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	264497	20.9616	20.96
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	166950	21.0056	21.00
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	113368	21.0662	21.06
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	170076	21.0584	21.05
26	2,2-Dichloropropane	77	3.509	3.516	(0.839)	108105	21.2611	21.26
24	2-Butanone	43	3.580	3.573	(0.856)	54531	46.1568	46.15
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	216985	21.7618	21.76
52	2-Hexanone	43	7.083	7.090	(0.923)	90060	43.2357	43.23
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	256538	21.2265	21.22
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	274119	20.2144	20.21
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	127415	42.8854	42.88
10	Acetone	43	1.976	1.969	(0.473)	43999	41.9856	41.98
37	Benzene	78	4.512	4.512	(0.908)	274339	21.6844	21.68
74	Bromobenzene	156	8.809	8.809	(0.912)	102549	21.2909	21.29
29	Bromochloromethane	128	3.795	3.795	(0.908)	45430	21.7804	21.78
39	Bromodichloromethane	83	5.729	5.729	(1.153)	99290	21.6940	21.69
66	Bromoform	173	8.416	8.415	(1.097)	62292	21.2174	21.21
6	Bromomethane	94	1.338	1.338	(0.320)	87030	21.4472	21.44
19	Carbon Disulfide	76	2.069	2.069	(0.495)	382825	43.1262	43.12
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	95701	19.5827	19.58
59	Chlorobenzene	112	7.692	7.699	(1.003)	205305	20.7389	20.73
7	Chloroethane	64	1.403	1.403	(0.336)	57427	23.6891	23.68
28	Chloroform	83	3.910	3.910	(0.935)	132899	21.3131	21.31
3	Chloromethane	50	1.073	1.073	(0.257)	62303	15.0306	15.03
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	82695	22.6476	22.64
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	115561	21.4257	21.42
55	Dibromochloromethane	129	7.176	7.176	(0.936)	82934	21.5369	21.53
44	Dibromomethane	93	5.557	5.557	(1.118)	51597	22.0696	22.06
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	75300	21.9659	21.96
61	Ethylbenzene	106	7.799	7.799	(1.017)	106203	20.7633	20.76
91	Hexachlorobutadiene	225	11.481	11.488	(1.188)	45693	20.5156	20.51
67	Isopropylbenzene	105	8.566	8.566	(1.117)	311329	20.5494	20.54
62	m,p-Xylenes	106	7.907	7.907	(1.031)	256630	41.5780	41.57
17	Methylene Chloride	84	2.305	2.305	(0.551)	73672	21.1612	21.16
87	n-Butylbenzene	91	9.999	9.998	(1.035)	236345	20.9431	20.94
73	n-Propylbenzene	91	8.917	8.917	(0.923)	356035	20.7835	20.78
92	Naphthalene	128	11.546	11.546	(1.195)	68881	23.0044	23.00
63	o-Xylene	106	8.244	8.243	(1.075)	126409	20.7513	20.75
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	299765	20.1432	20.14
64	Styrene	104	8.258	8.258	(1.077)	225903	21.3259	21.32
78	tert-Butylbenzene	119	9.340	9.339	(0.967)	221940	20.5425	20.54
56	Tetrachloroethene	164	6.933	6.933	(0.904)	70310	19.7344	19.73
50	Toluene	91	6.446	6.446	(0.840)	301421	20.9619	20.96
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	68435	21.6024	21.60
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	105402	21.4415	21.44
38	Trichloroethene	130	5.206	5.206	(1.048)	82241	21.2633	21.26
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	119676	20.0371	20.03
5	Vinyl Chloride	62	1.138	1.138	(0.272)	73185	18.6501	18.65

QC Flag Legend

M - Compound response manually integrated.



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Sample Info: VLCSW-191202;VLCSW-19202;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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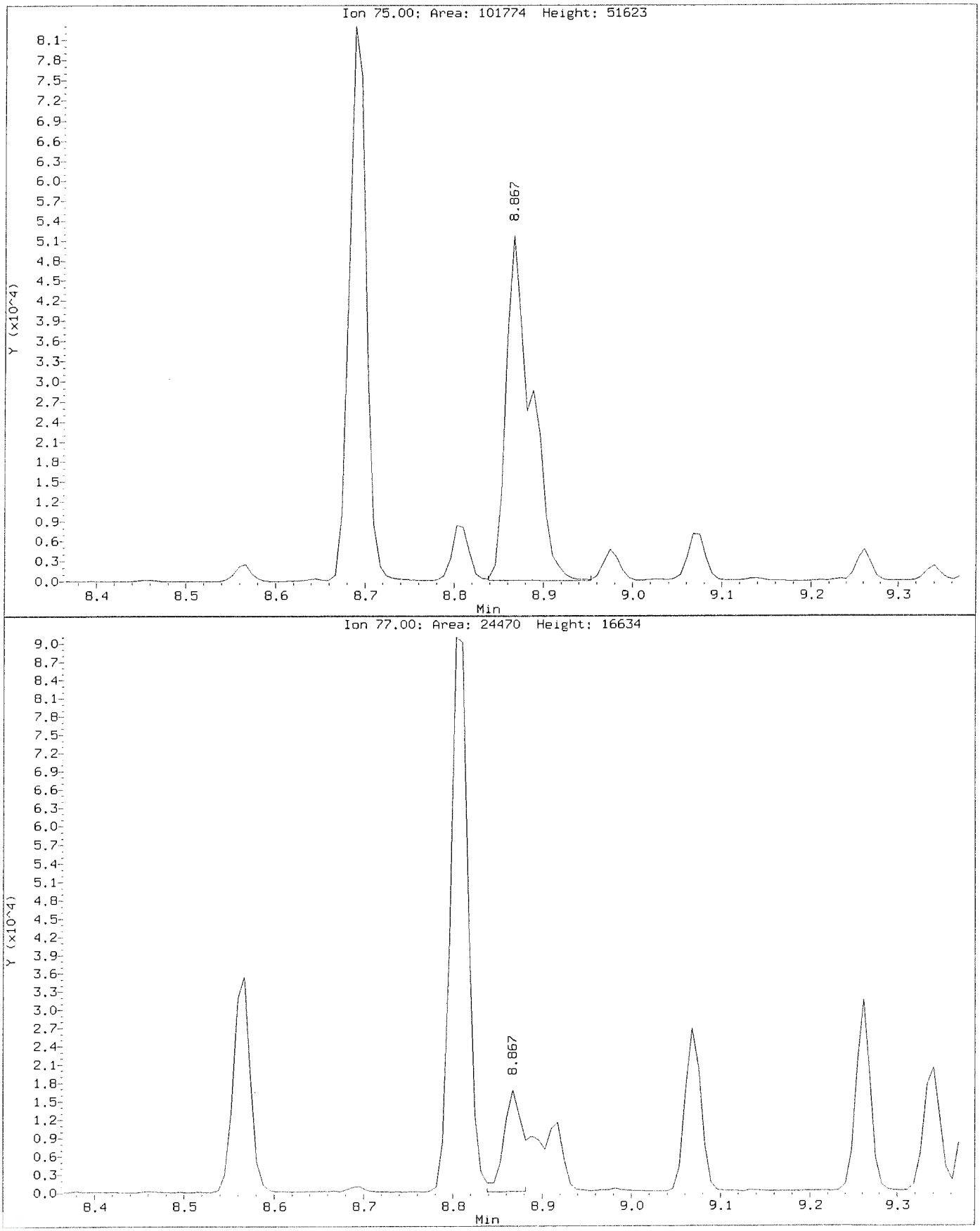
Injection Date: 02-DEC-2019 12:18
Instrument: voa6.i
Client Sample ID: VLCSW-19202

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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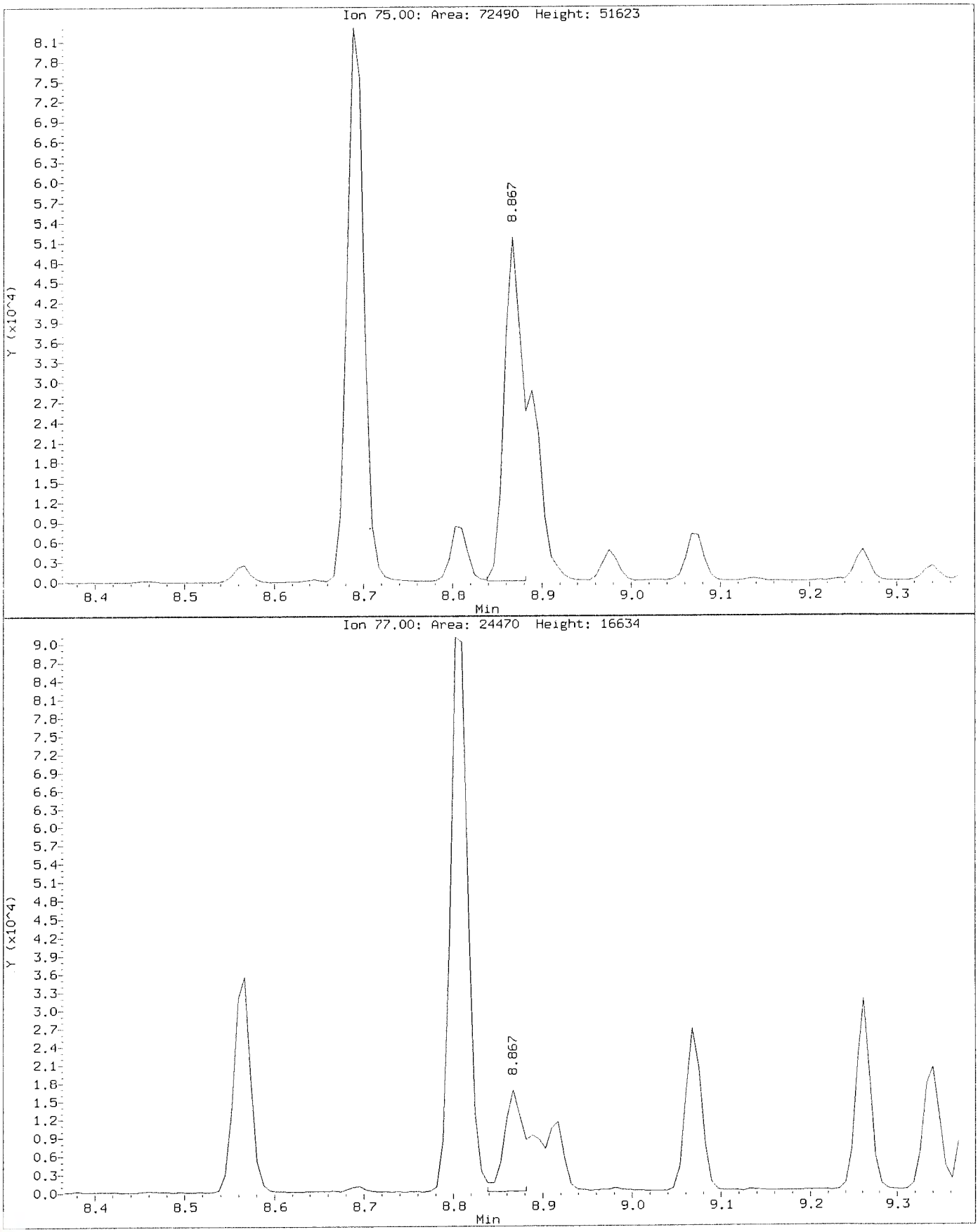
Instrument: voa6.i
Client Sample ID: VLCSW-19202

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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Report Date: 07-Dec-2019 09:41

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Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120207.D
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Inj Date : 02-DEC-2019 13:06
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-191202;VBLKW-191202;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	496456	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	699689	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	618475	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	311979	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	235602	50.4366	50.43
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	272334	47.3508	47.35
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	224682	49.7740	49.77
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	794353	48.7466	48.74

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120207.D
Date : 02-DEC-2019 13:06
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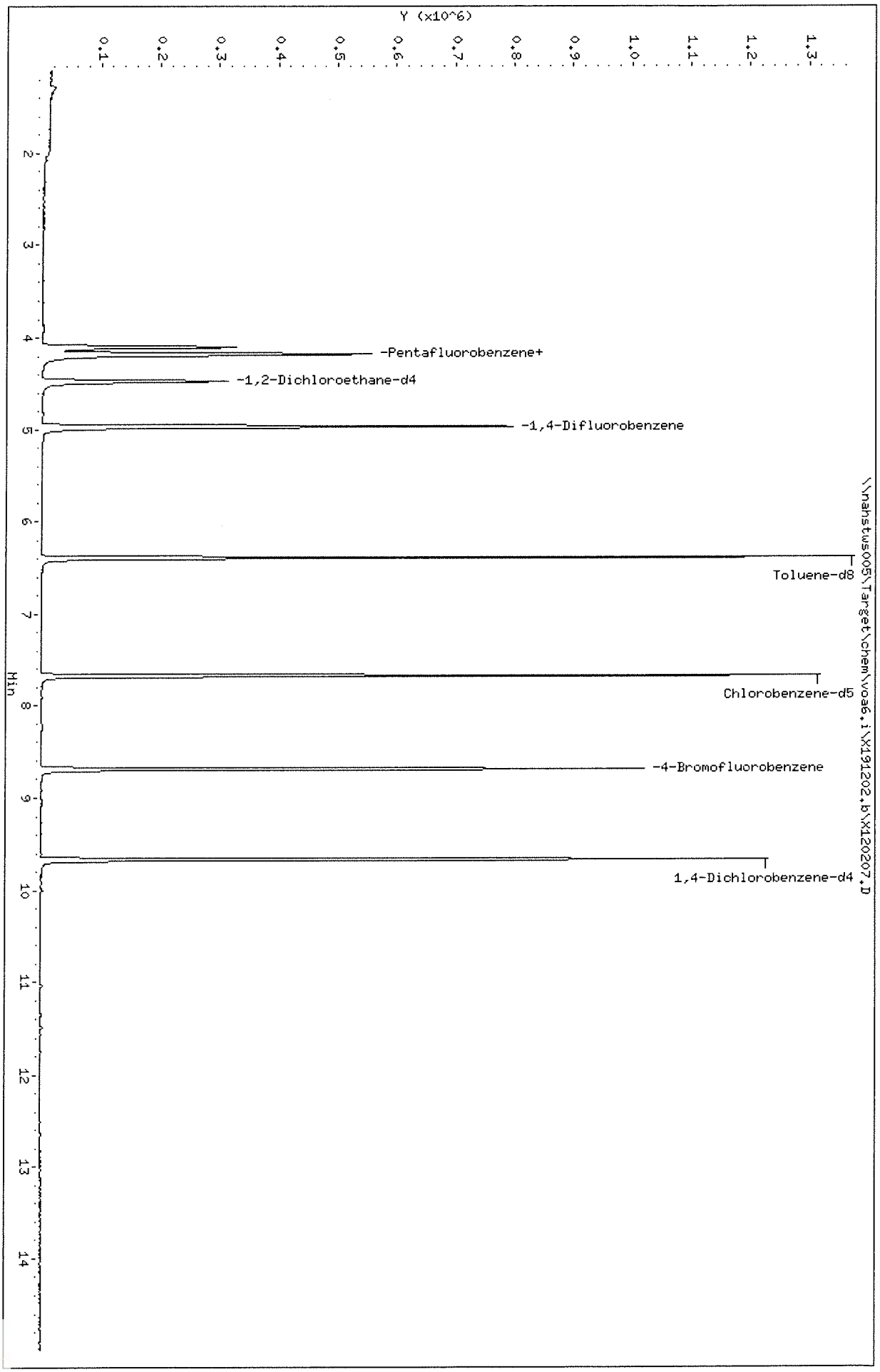
Sample Info: VBLKW-191202;VBLKW-191202;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



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Report Date: 07-Dec-2019 09:43

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Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120208.D
Lab Smp Id: HS19111343-08 Client Smp ID: HS19111343-08
Inj Date : 02-DEC-2019 13:30
Operator : PC Inst ID: voa6.i
Smp Info : HS19111343-08;HS19111343-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

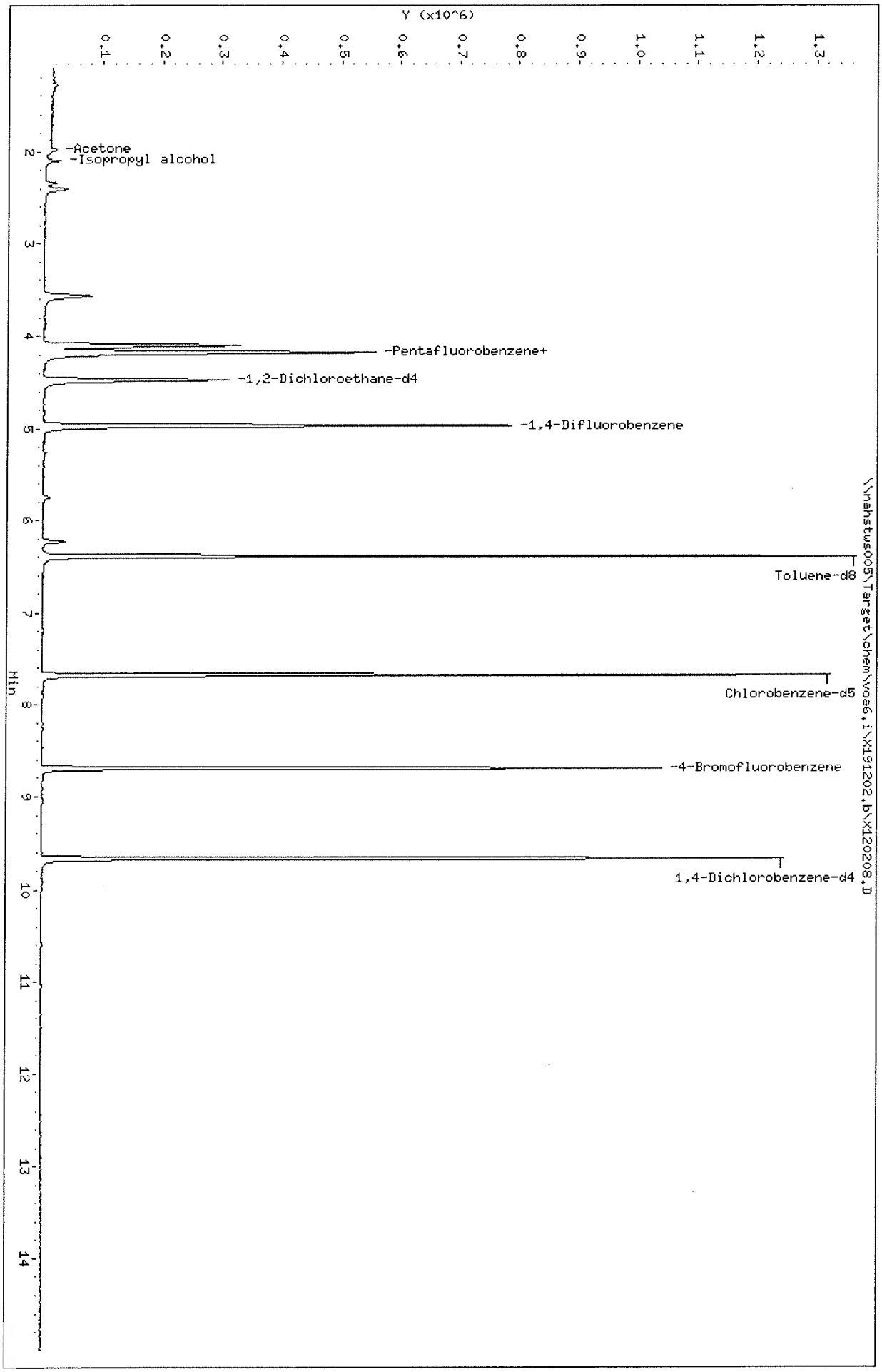
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

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)	495332	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	695673	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	624344	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	319641	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	236781	50.7987	50.79
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	278773	48.0088	48.00
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	226915	50.3782	50.37
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	790168	48.0340	48.03
10 Acetone	43	1.976	1.969	(0.473)	11058	5.09759	5.09

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120208.D
Date : 02-DEC-2019 13:30
Client ID: HS19111343-08
Sample Info: HS19111343-08;HS19111343-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120208.D

Date : 02-DEC-2019 13:30

Client ID: HS19111343-08

Instrument: voa6.i

Sample Info: HS19111343-08;HS19111343-08;;;

Purge Volume: 5.0

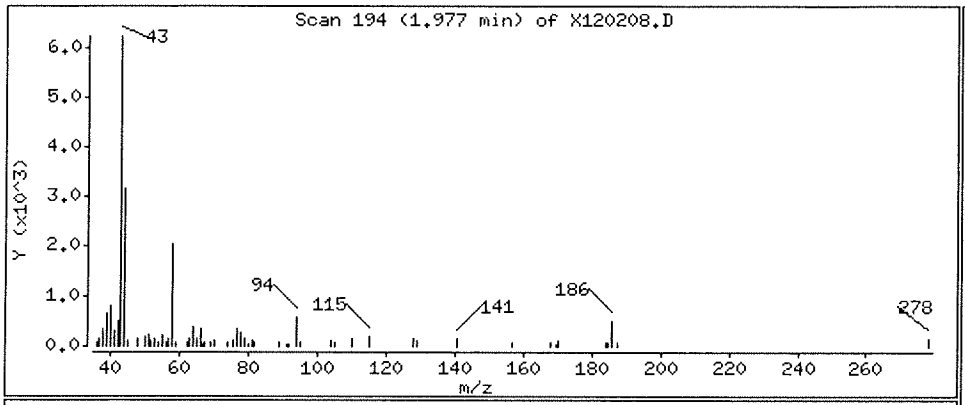
Operator: PC

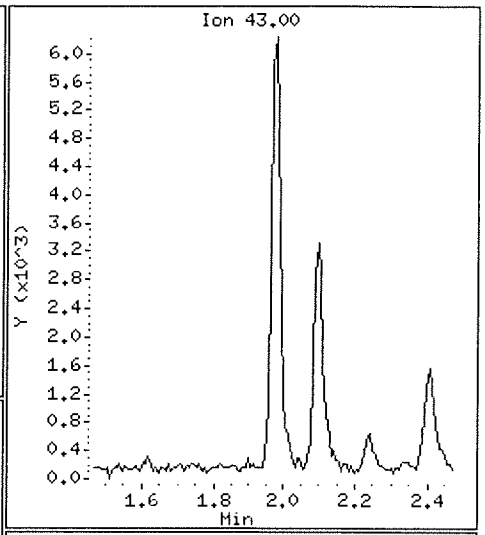
Column phase: DB624

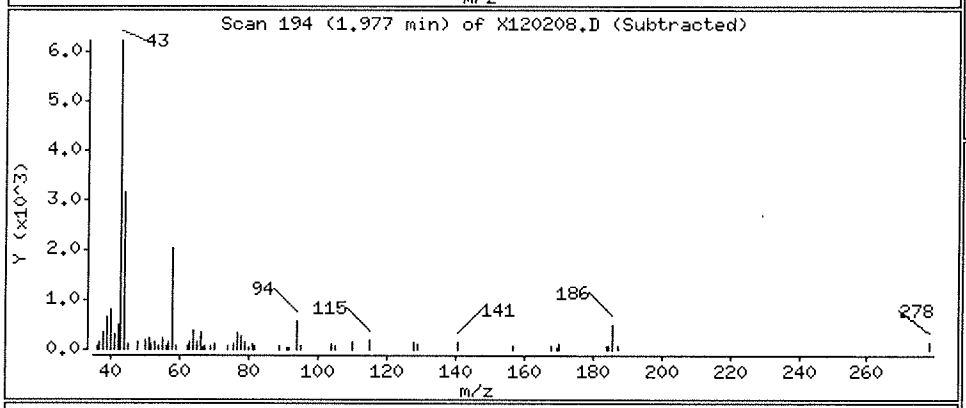
Column diameter: 0.18

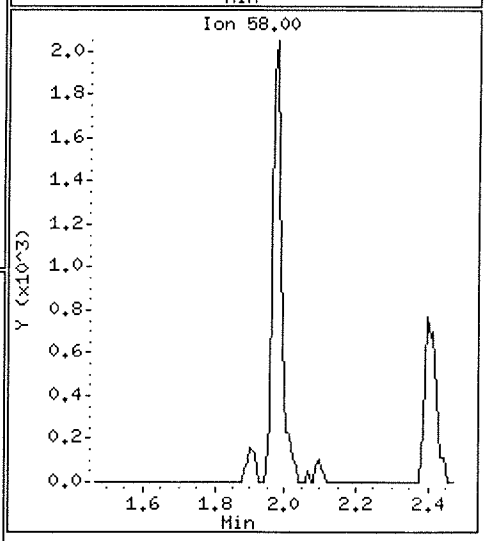
10 Acetone

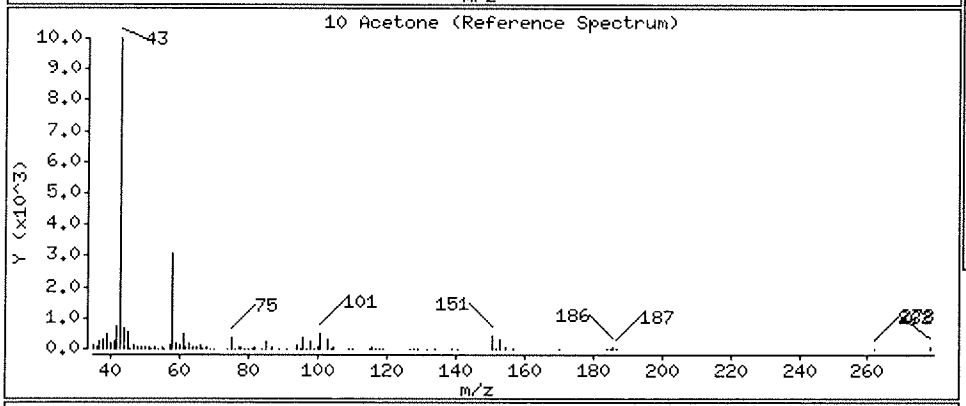
Concentration: 5.09 ug/l

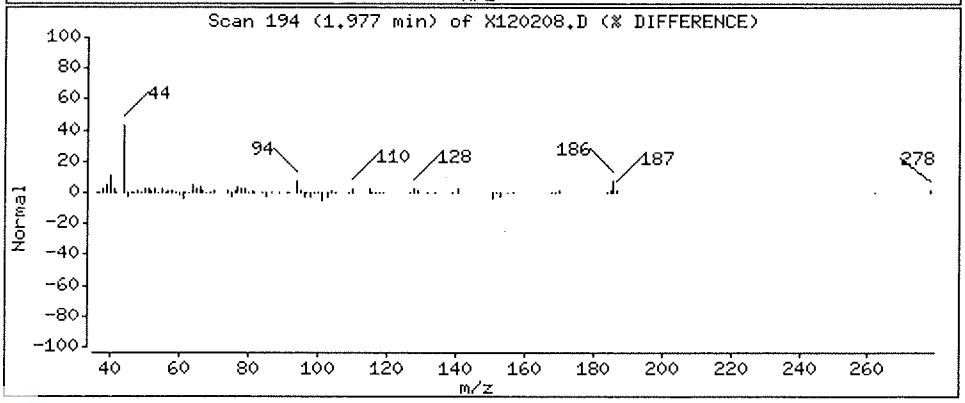












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120209.D Page 1
Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120209.D
Lab Smp Id: HS19111343-06 Client Smp ID: HS19111343-06
Inj Date : 02-DEC-2019 13:54
Operator : PC Inst ID: voa6.i
Smp Info : HS19111343-06;HS19111343-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

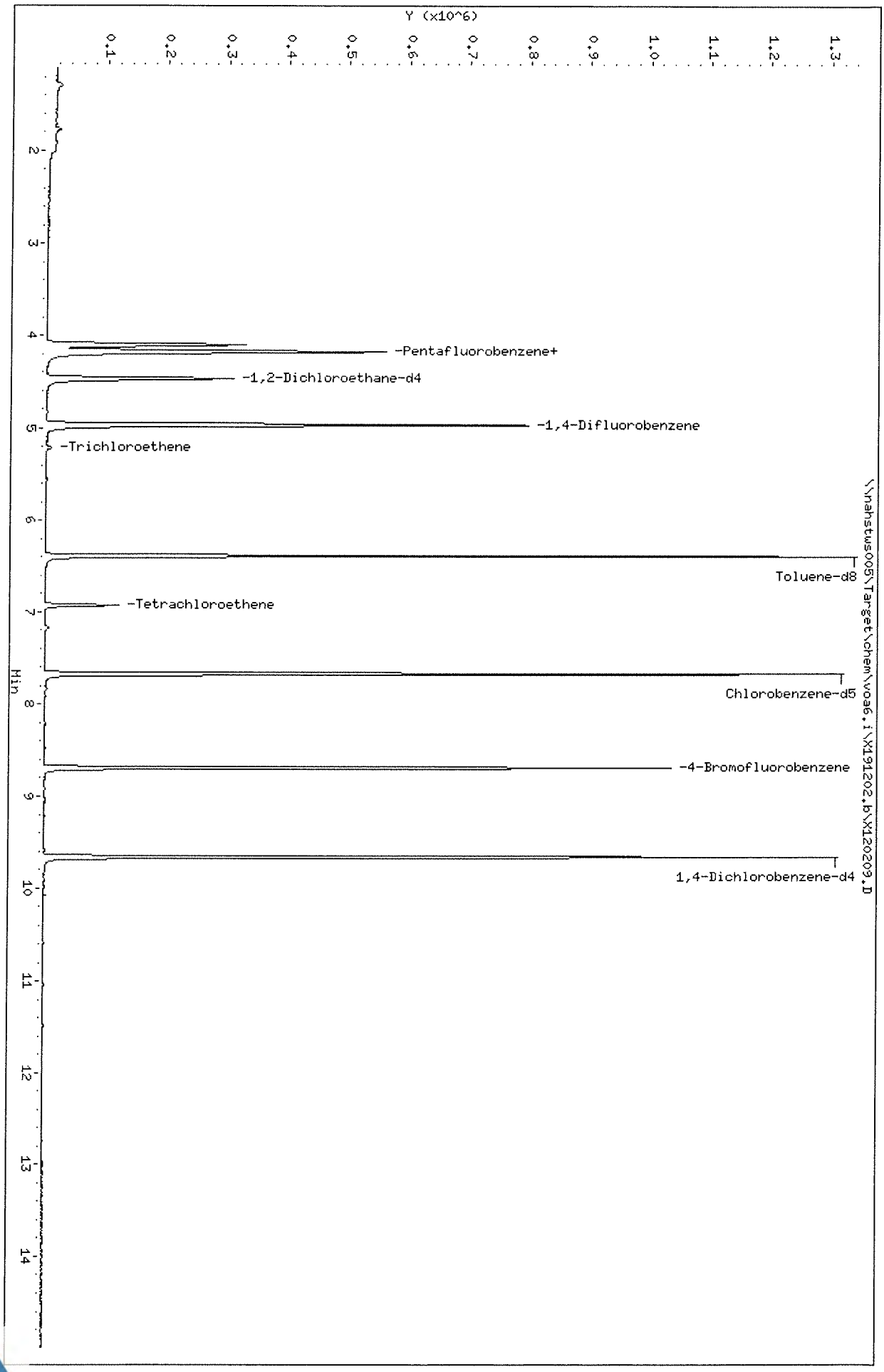
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	497325	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	702804	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	627604	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	323984	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	234621	50.1432	50.14
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	280470	48.0498	48.04
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	224671	49.6852	49.68
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	784065	47.4154	47.41
56 Tetrachloroethene	164	6.933	6.933	(0.904)	25470	5.77589	5.77
38 Trichloroethene	130	5.214	5.206	(1.049)	2717	0.55280	0.55(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120209.D
Date : 02-DEC-2019 13:54
Client ID: HS19111343-06
Sample Info: HS19111343-06;HS19111343-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120209.D

Date : 02-DEC-2019 13:54

Client ID: HS19111343-06

Instrument: voa6.i

Sample Info: HS19111343-06;HS19111343-06;;;

Purge Volume: 5.0

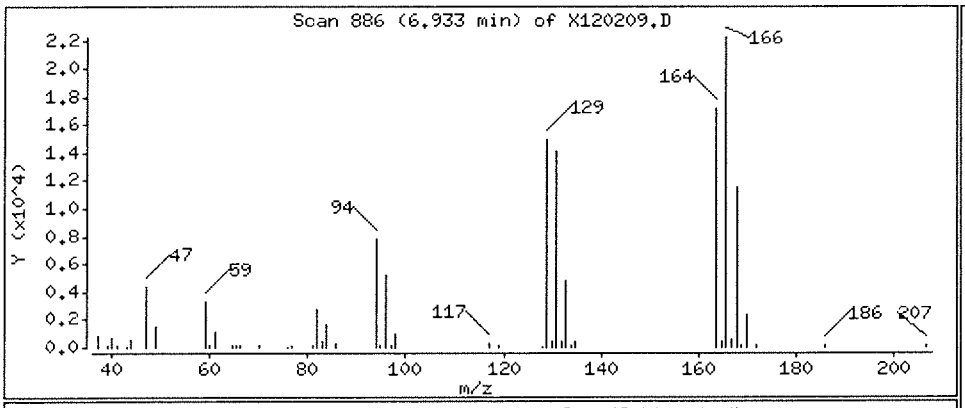
Operator: PC

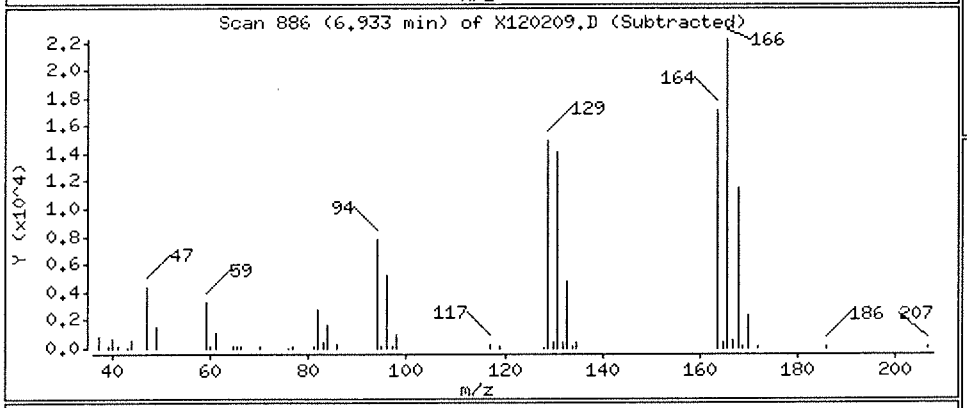
Column phase: DB624

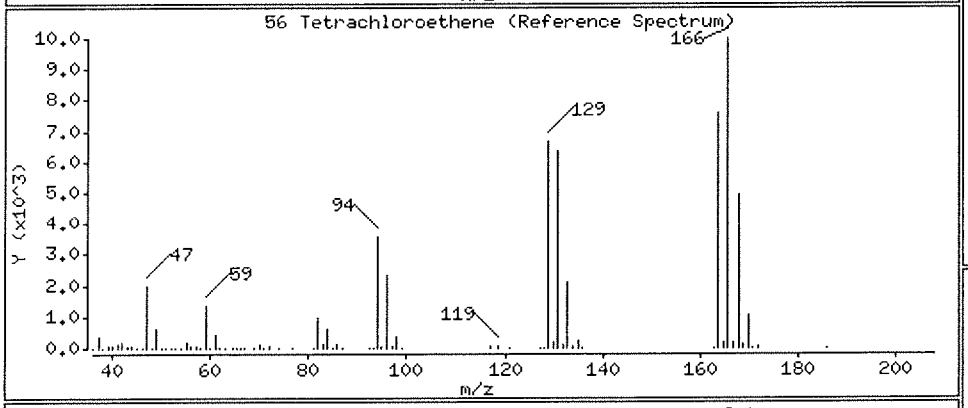
Column diameter: 0.18

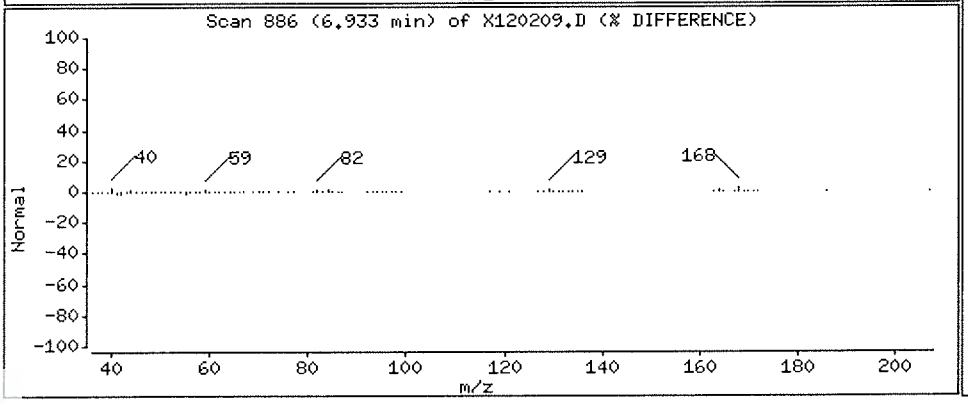
56 Tetrachloroethene

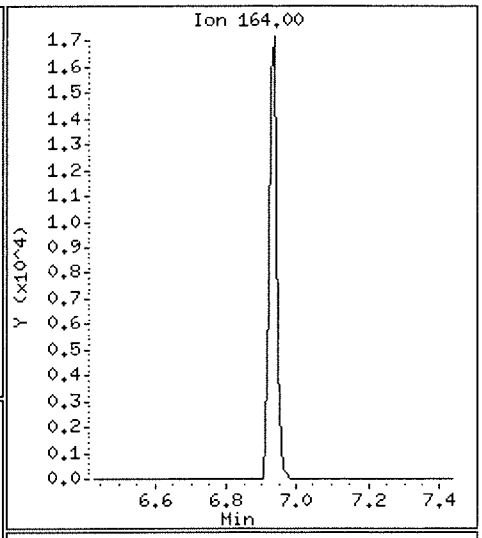
Concentration: 5.77 ug/l

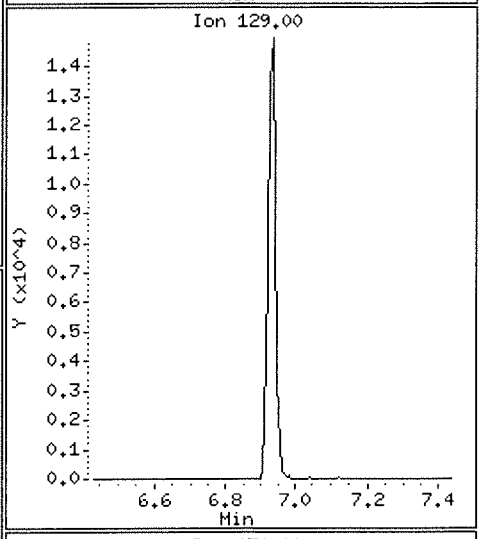


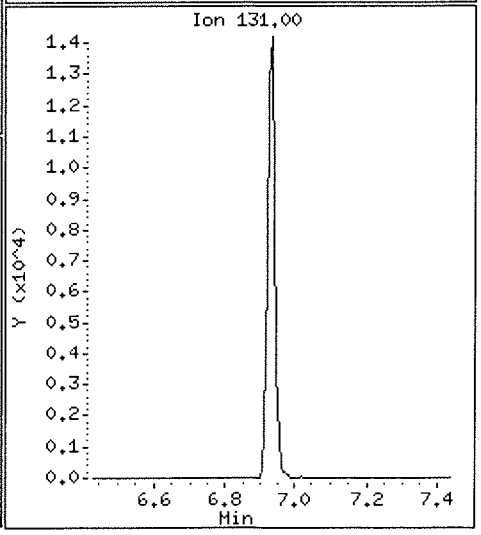












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120209.D Page 4

Date : 02-DEC-2019 13:54

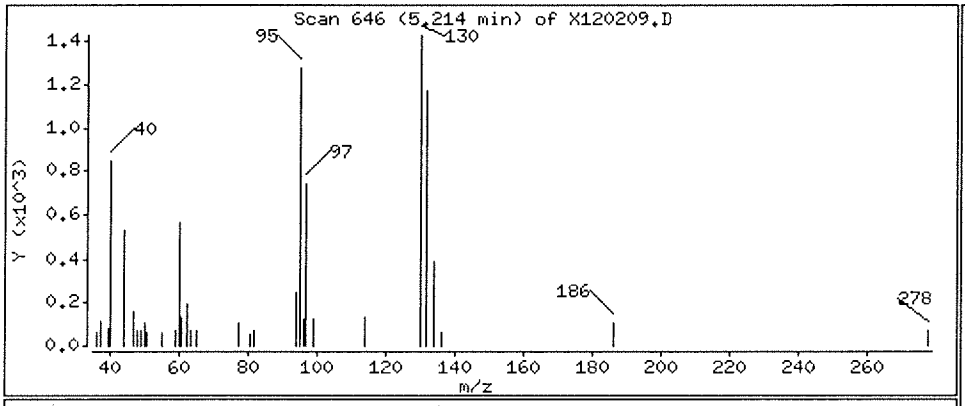
Client ID: HS19111343-06 Instrument: voa6.i

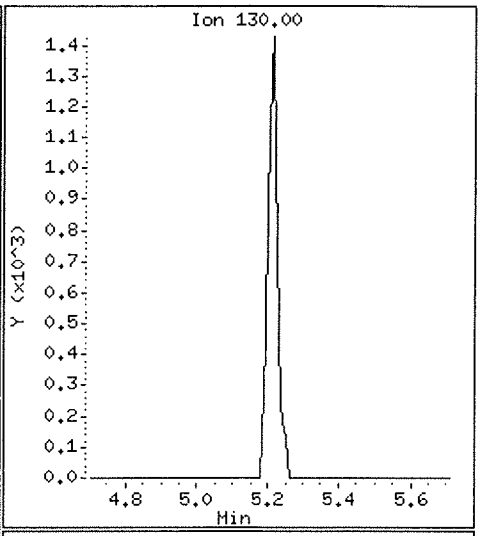
Sample Info: HS19111343-06;HS19111343-06;;;

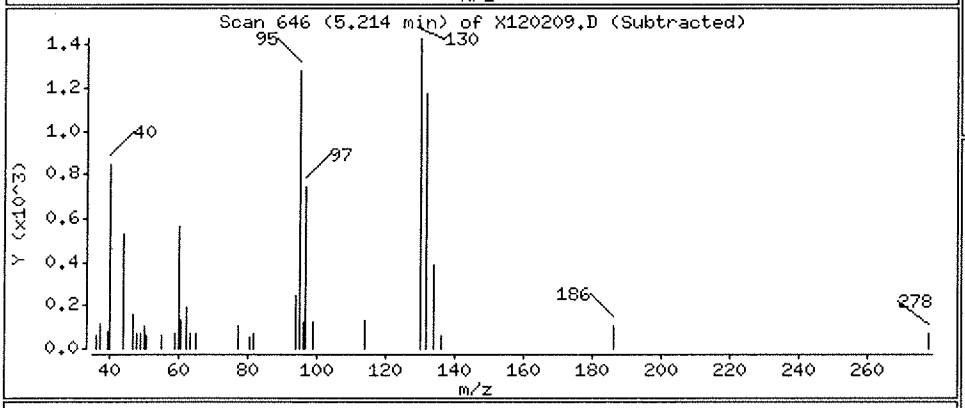
Purge Volume: 5.0 Operator: PC

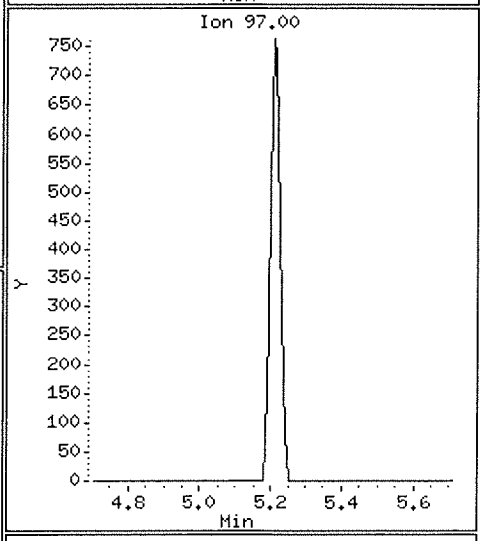
Column phase: DB624 Column diameter: 0.18

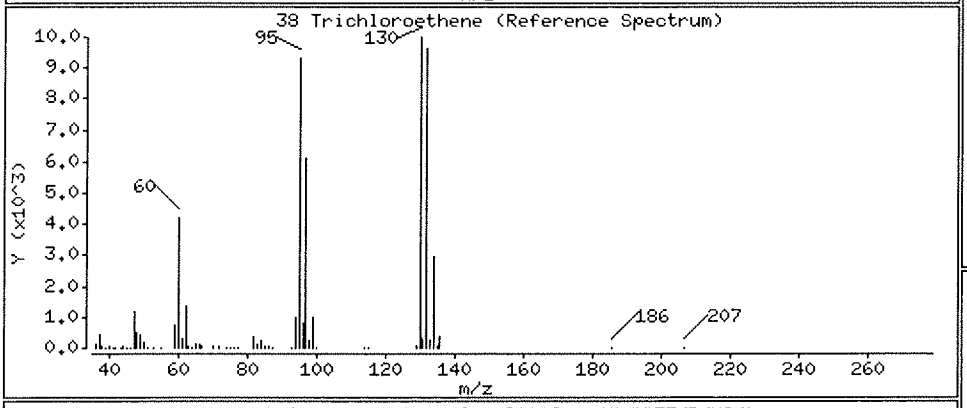
38 Trichloroethene Concentration: 0.55 ug/l

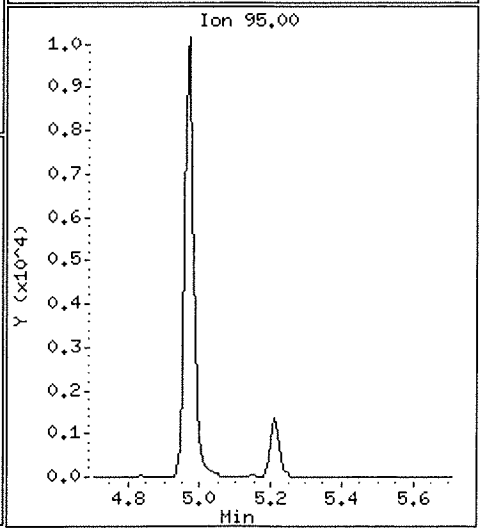


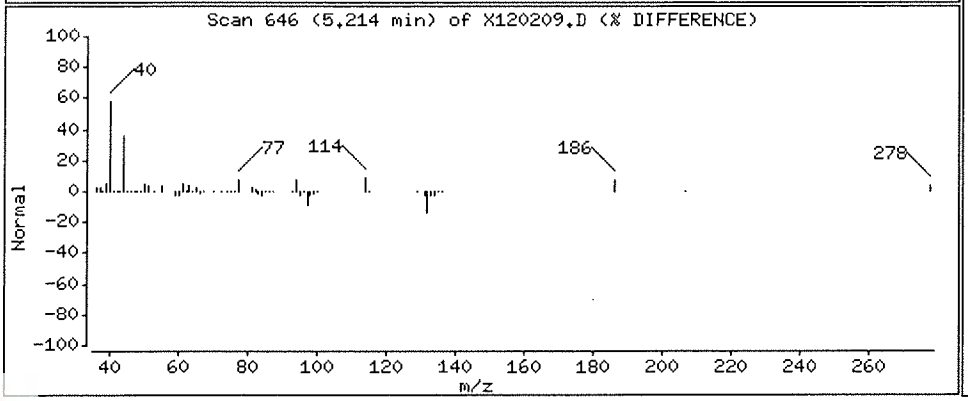












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120210.D Page 1
Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120210.D
Lab Smp Id: HS19111343-01 Client Smp ID: HS19111343-01
Inj Date : 02-DEC-2019 14:18
Operator : PC Inst ID: voa6.i
Smp Info : HS19111343-01;HS19111343-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

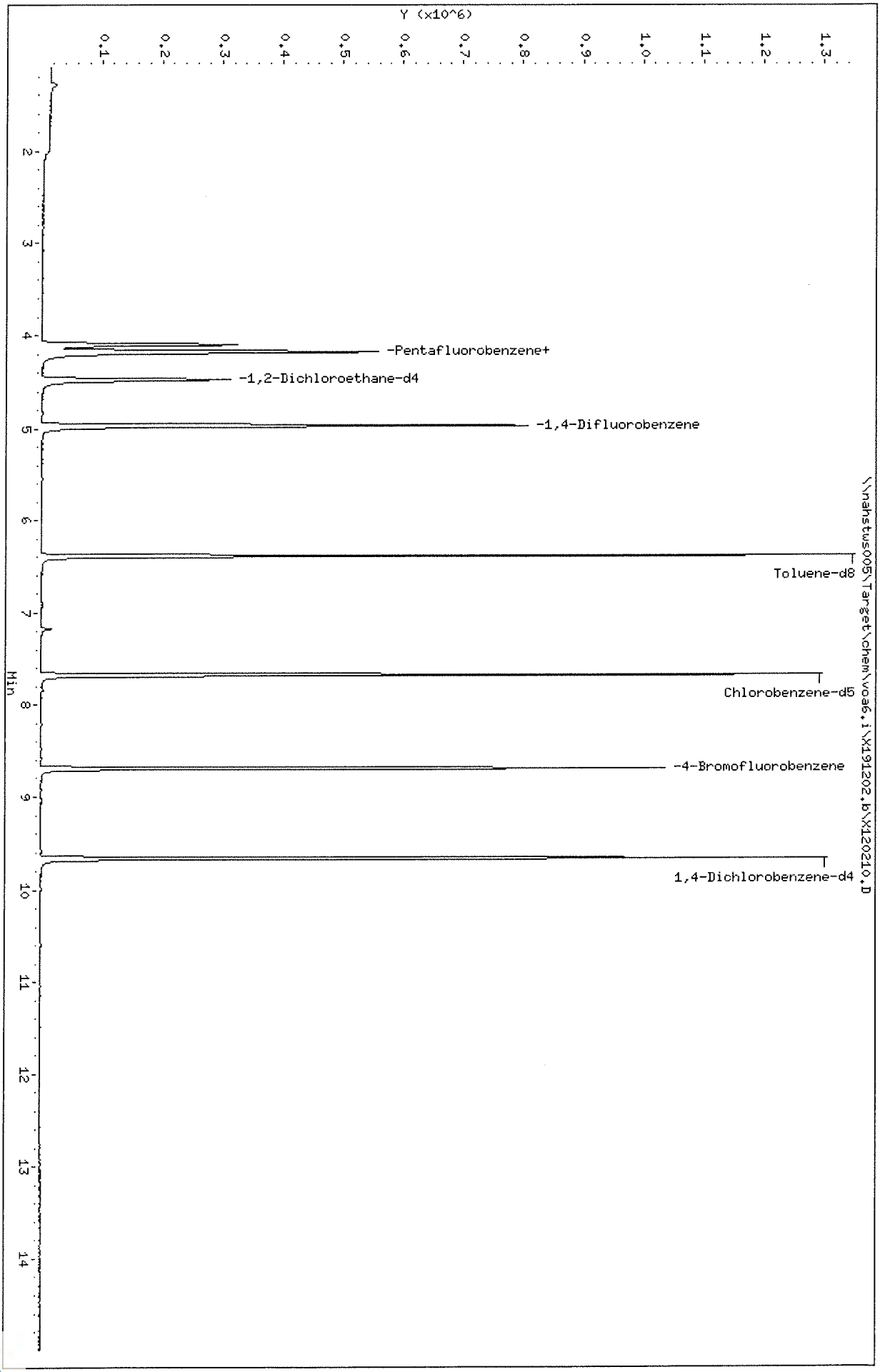
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	498367	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	696531	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	623120	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	314415	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	236797	50.4971	50.49
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	278843	48.1143	48.11
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	223737	49.3775	49.37
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	785415	47.8388	47.83

Data File: \\nahstus005\Target\chem\voa6.i\X191202.b\X120210.D
Date : 02-DEC-2019 14:18
Client ID: HS19111343-01
Sample Info: HS19111343-01,HS19111343-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120211.D Page 1
Report Date: 07-Dec-2019 09:43

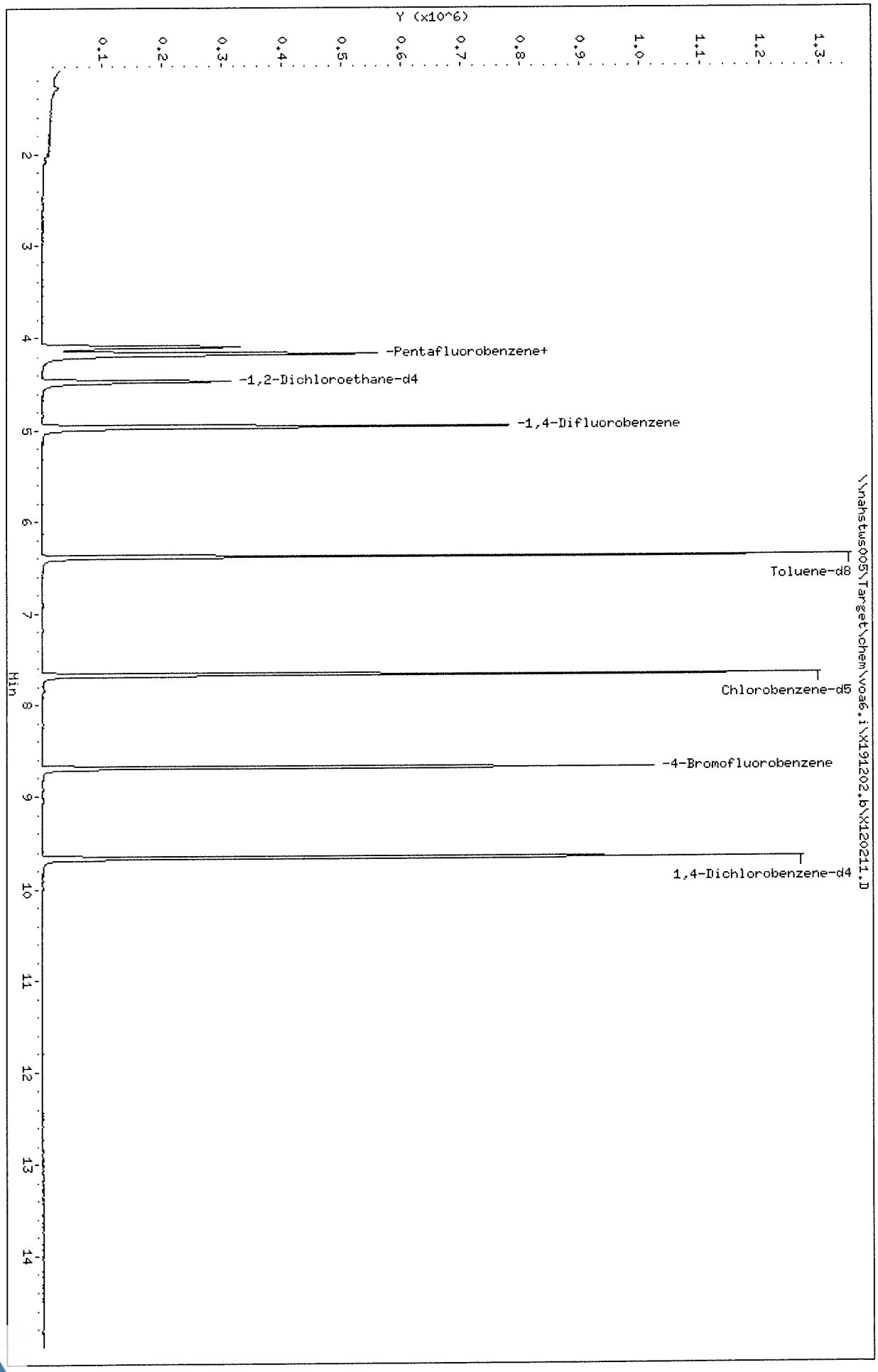
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120211.D
Lab Smp Id: HS19111343-02 Client Smp ID: HS19111343-02
Inj Date : 02-DEC-2019 14:42
Operator : PC Inst ID: voa6.i
Smp Info : HS19111343-02;HS19111343-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	493789	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	696898	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	615358	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	309345	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	237706	51.1513	51.15
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	272737	47.6583	47.65
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	226715	50.4903	50.49
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	787188	48.5516	48.55



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120211.D
Date : 02-DEC-2019 14:42
Client ID: HS19111343-02
Sample Info: HS19111343-02;HS19111343-02;;;
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\X191202.b\X120212.D
Lab Smp Id: HS19111343-03 Client Smp ID: HS19111343-03
Inj Date : 02-DEC-2019 15:06
Operator : PC Inst ID: voa6.i
Smp Info : HS19111343-03;HS19111343-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

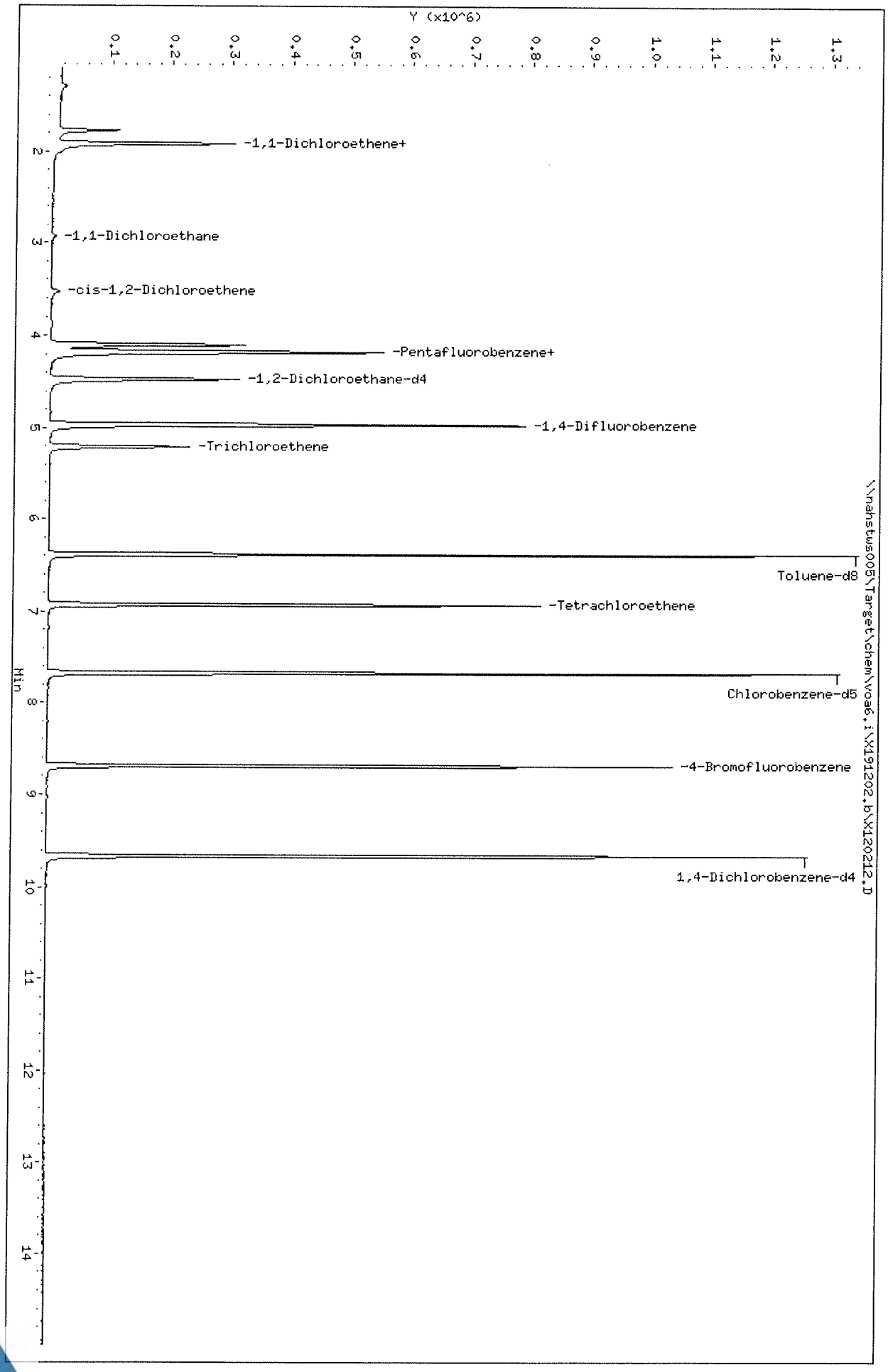
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	489713	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	696256	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	619699	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	318734	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	234091	50.7978	50.79
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	279596	48.5071	48.50
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	223223	50.1290	50.12
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	791448	48.4724	48.47
138 Freon TF	101	1.919	1.919	(0.459)	107517	25.2182	25.21
22 1,1-Dichloroethane	63	2.929	2.921	(0.700)	5900	0.82803	0.82(a)
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	18958	4.56802	4.56(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	6999	1.50706	1.50(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	166006	38.1258	38.12
38 Trichloroethene	130	5.207	5.206	(1.048)	79386	16.3038	16.30

QC Flag Legend

a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D
Date : 02-DEC-2019 15:06
Client ID: HS19111343-03
Sample Info: HS19111343-03;HS19111343-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

\\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D

Page 2

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D

Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;;

Purge Volume: 5.0

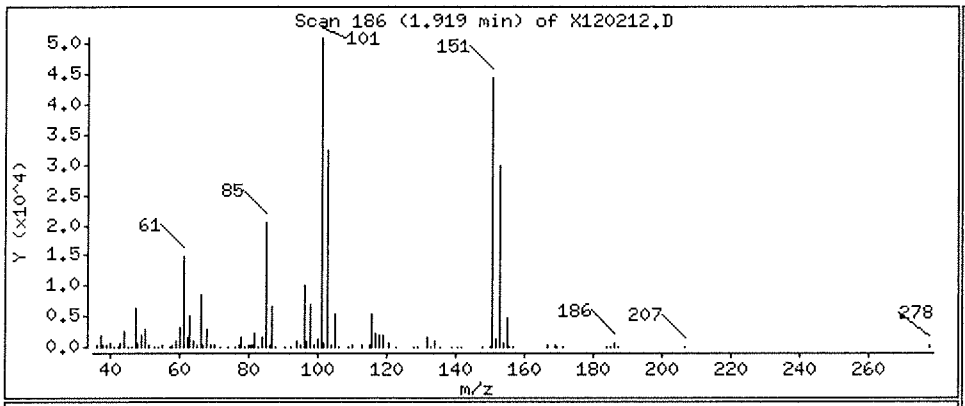
Operator: PC

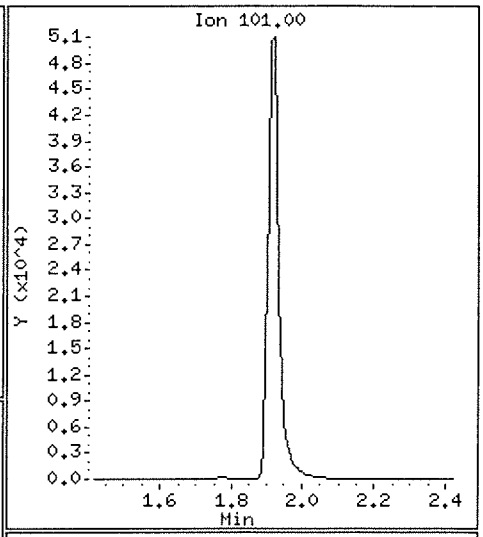
Column phase: DB624

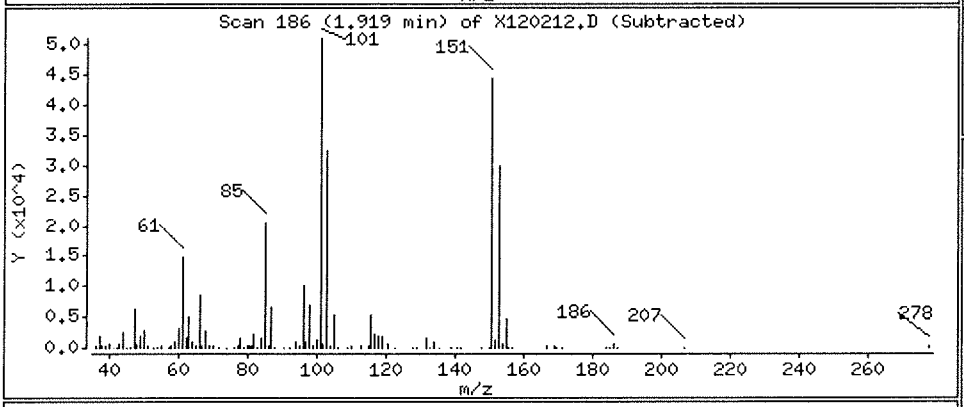
Column diameter: 0.18

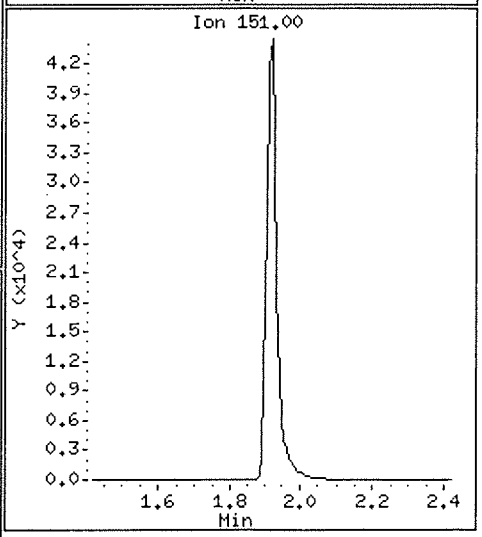
138 Freon TF

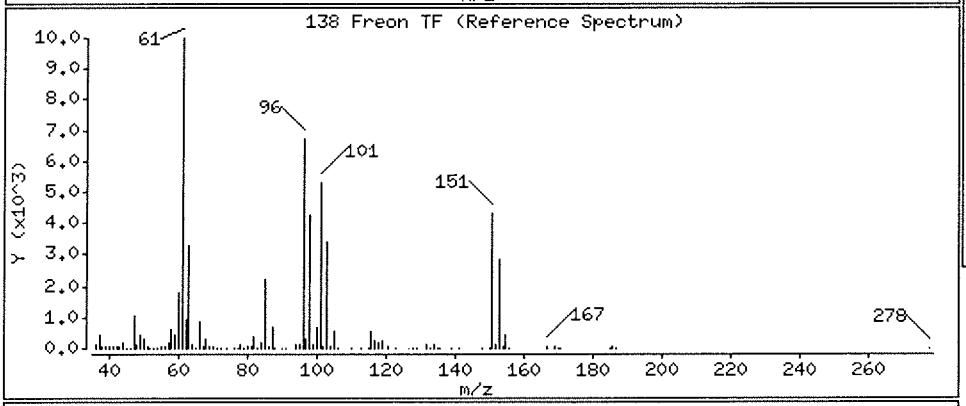
Concentration: 25.21 ug/l

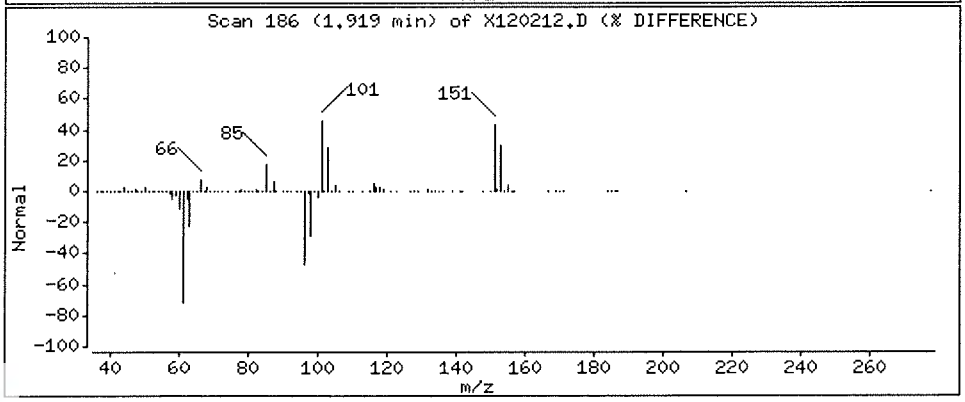












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D

Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;;

Purge Volume: 5.0

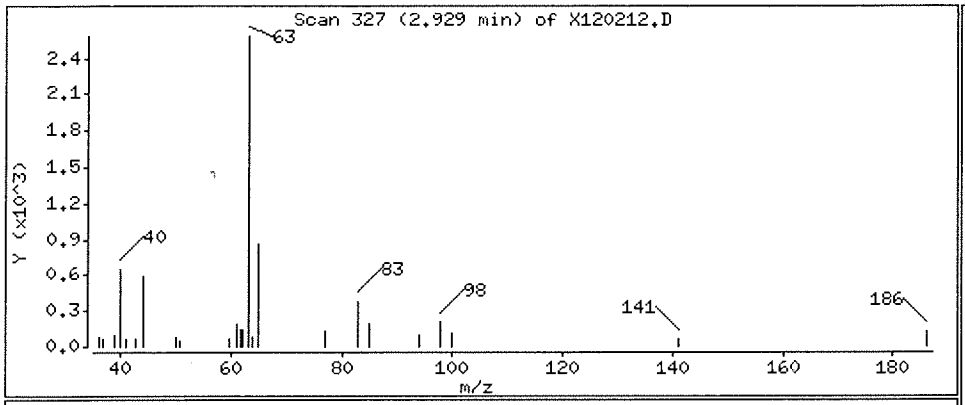
Operator: PC

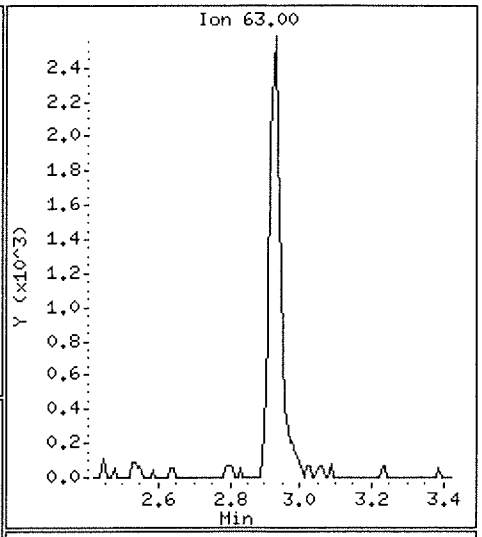
Column phase: DB624

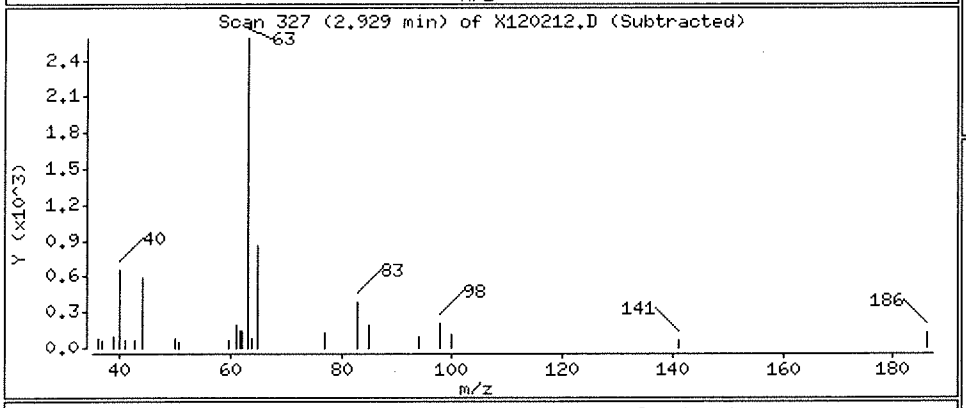
Column diameter: 0.18

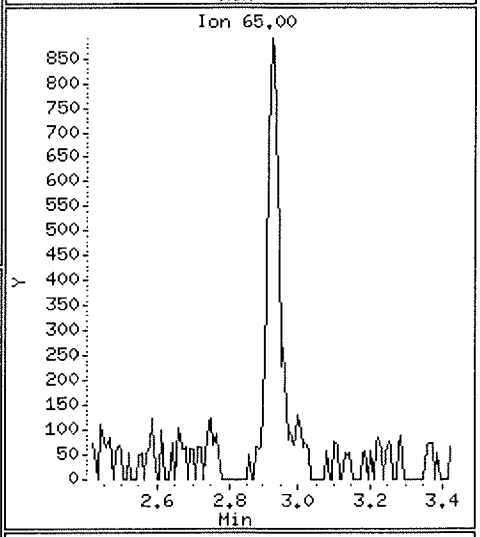
22 1,1-Dichloroethane

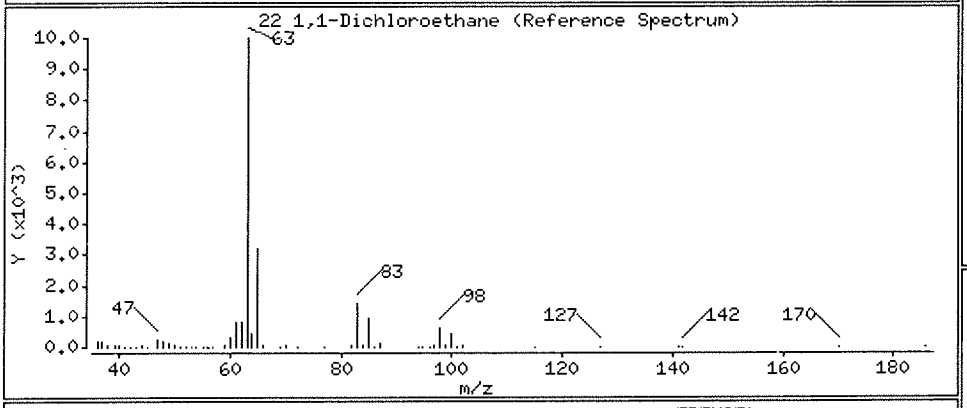
Concentration: 0.82 ug/l

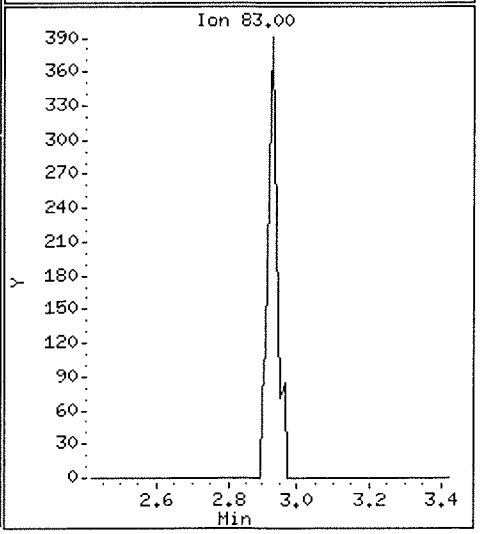


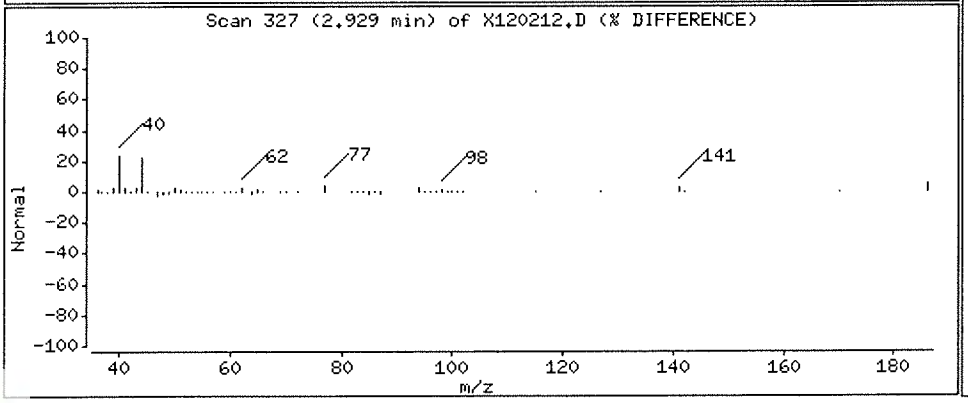












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D Page 5

Date : 02-DEC-2019 15:06

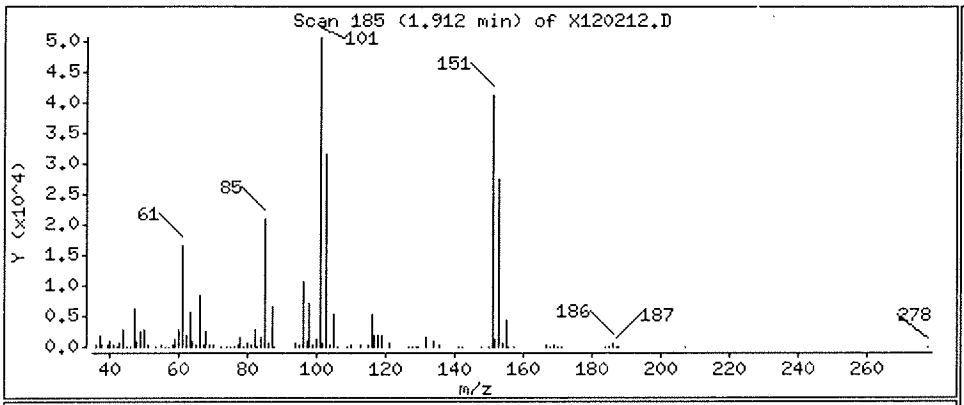
Client ID: HS19111343-03 Instrument: voa6.i

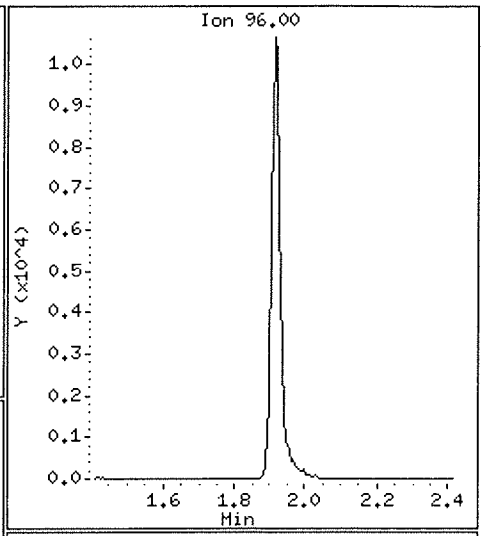
Sample Info: HS19111343-03;HS19111343-03;;;

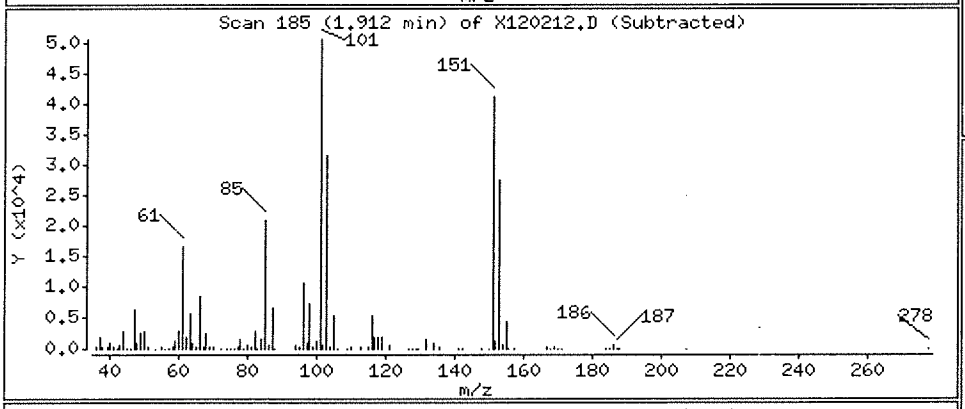
Purge Volume: 5.0 Operator: PC

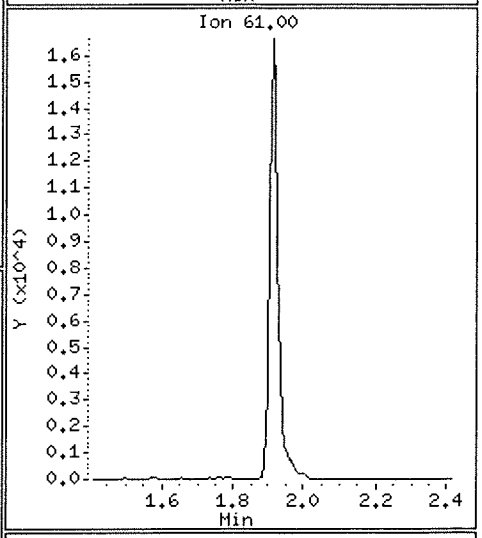
Column phase: DB624 Column diameter: 0.18

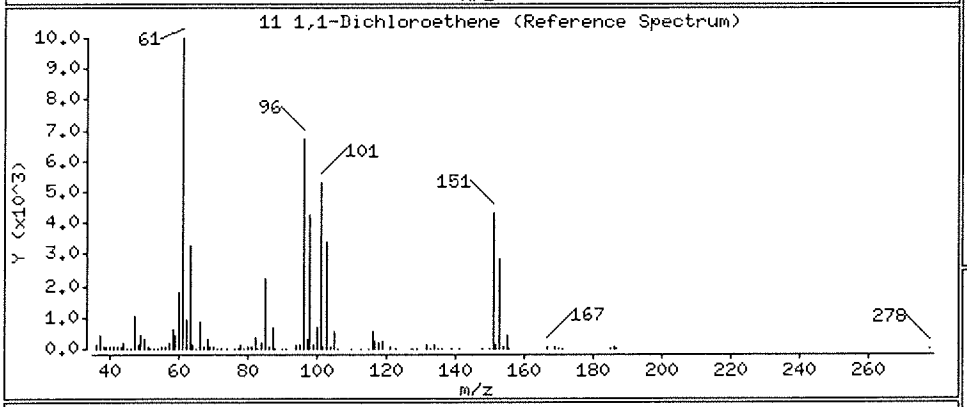
11 1,1-Dichloroethene Concentration: 4.56 ug/l

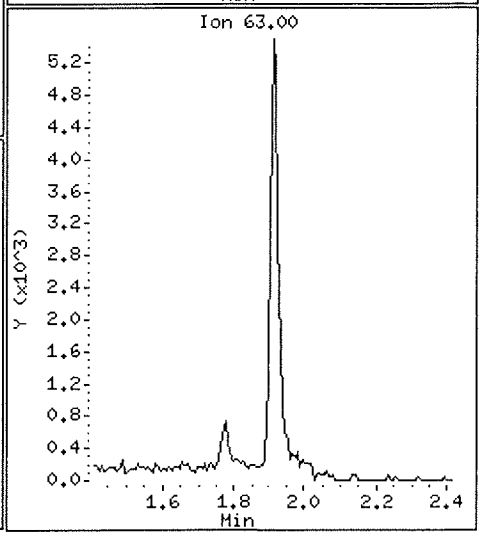


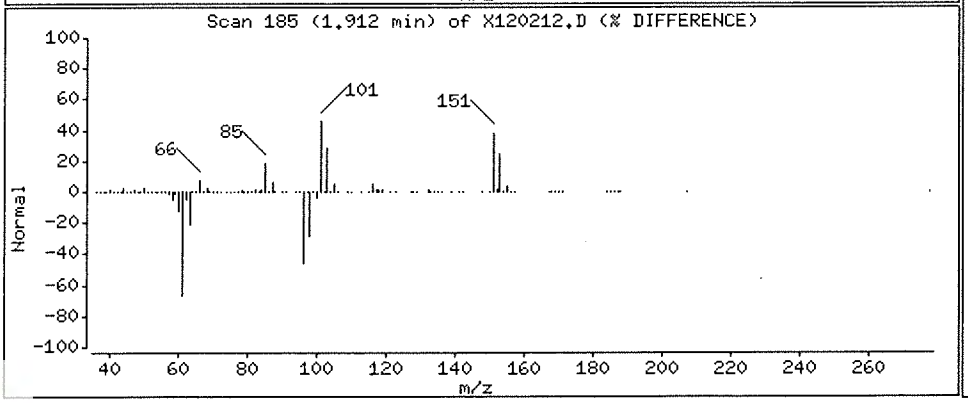












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D

Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;;

Purge Volume: 5.0

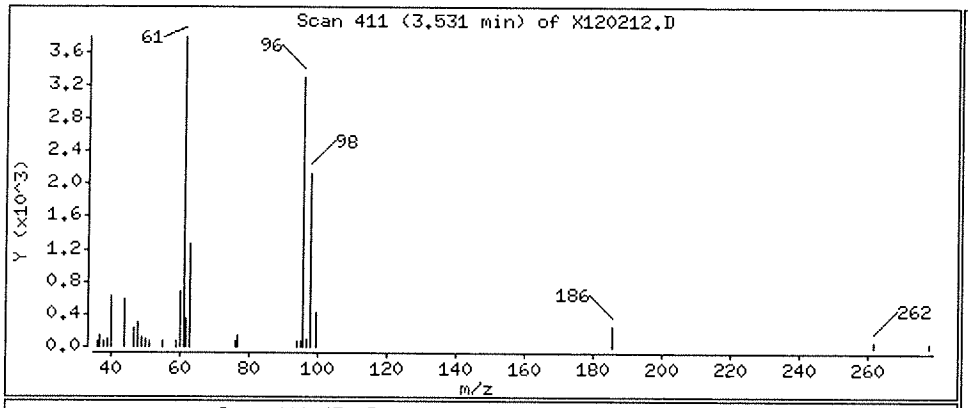
Operator: PC

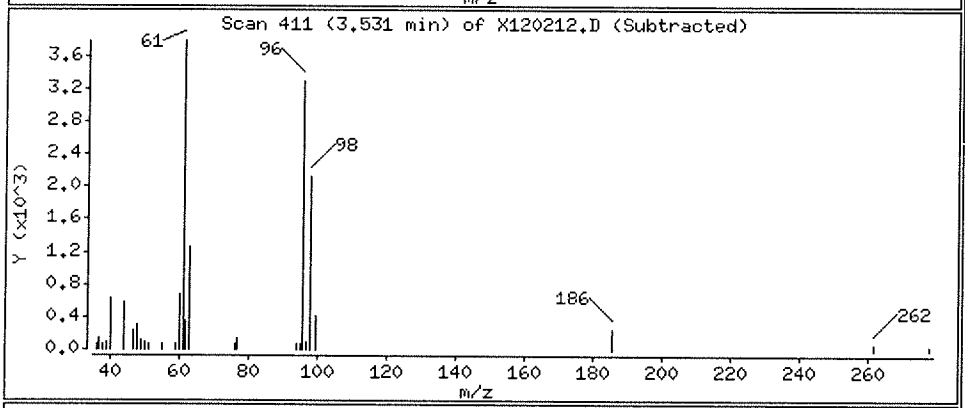
Column phase: DB624

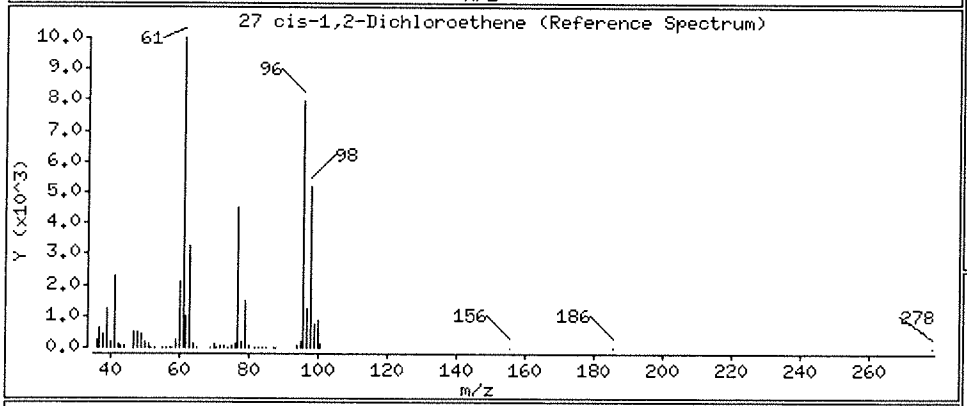
Column diameter: 0.18

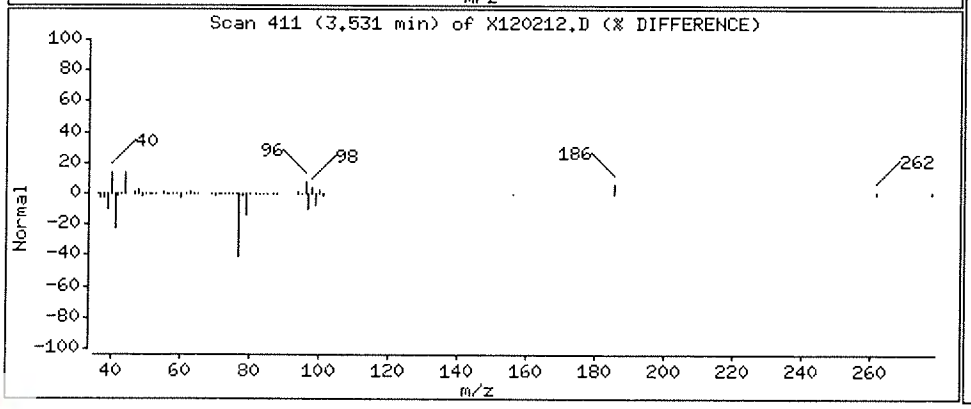
27 cis-1,2-Dichloroethene

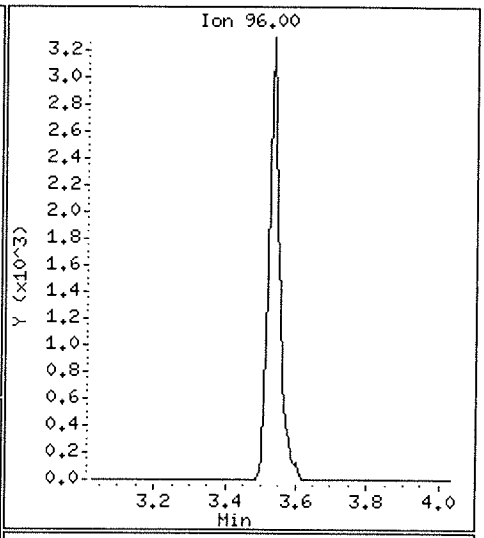
Concentration: 1.50 ug/l

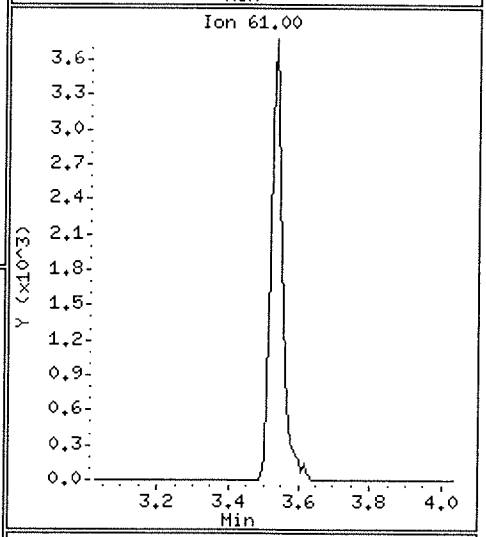


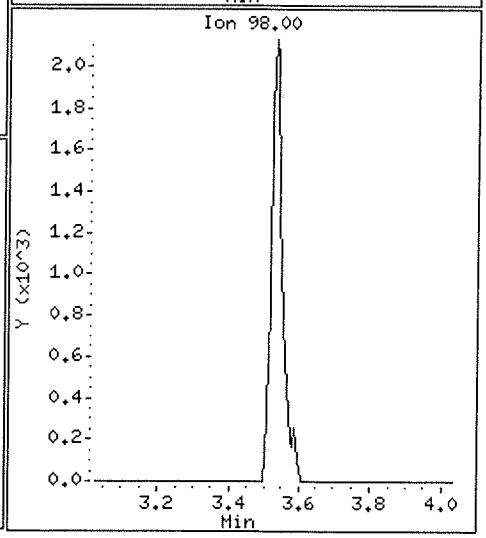












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120212.D

Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;;

Purge Volume: 5.0

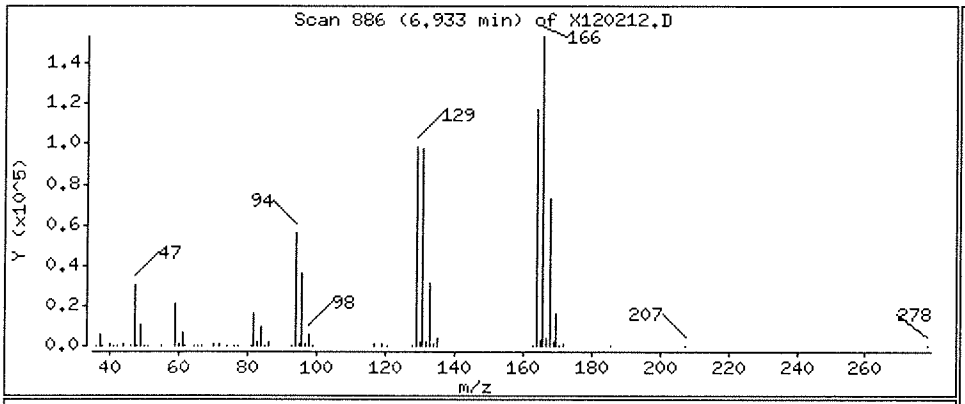
Operator: PC

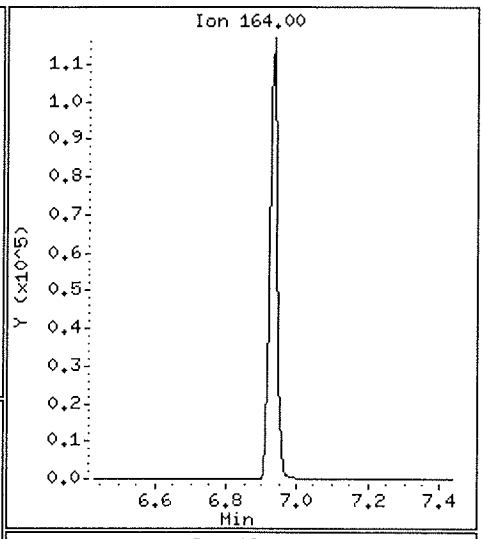
Column phase: DB624

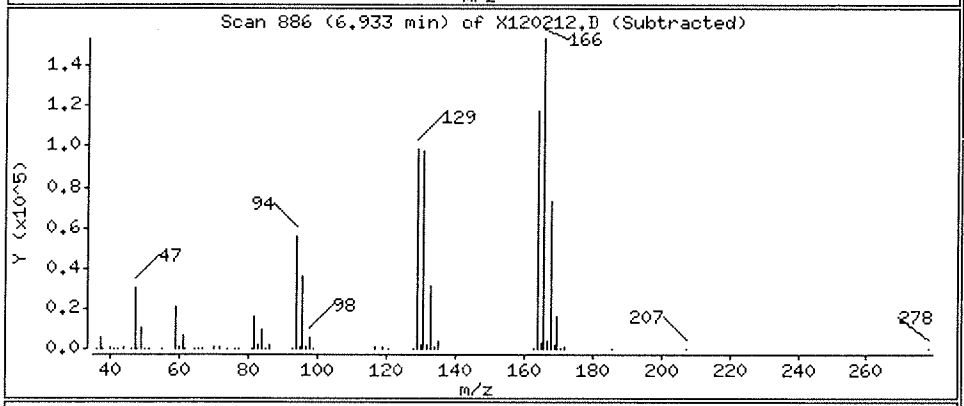
Column diameter: 0.18

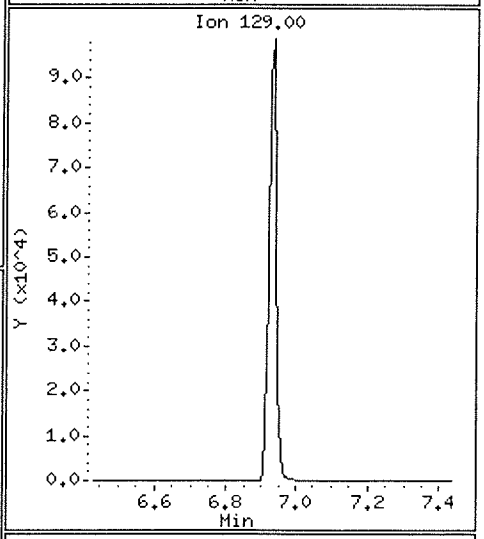
56 Tetrachloroethene

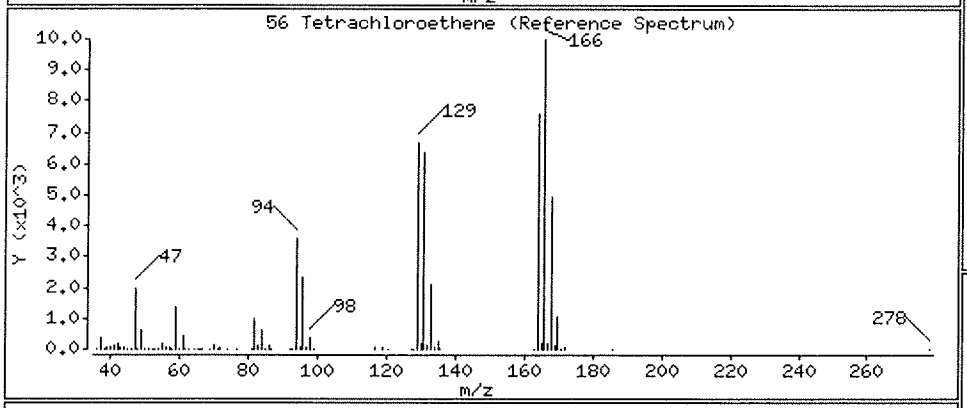
Concentration: 38.12 ug/l

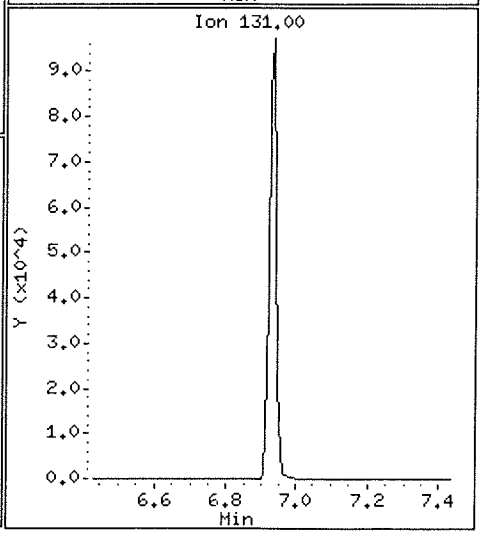


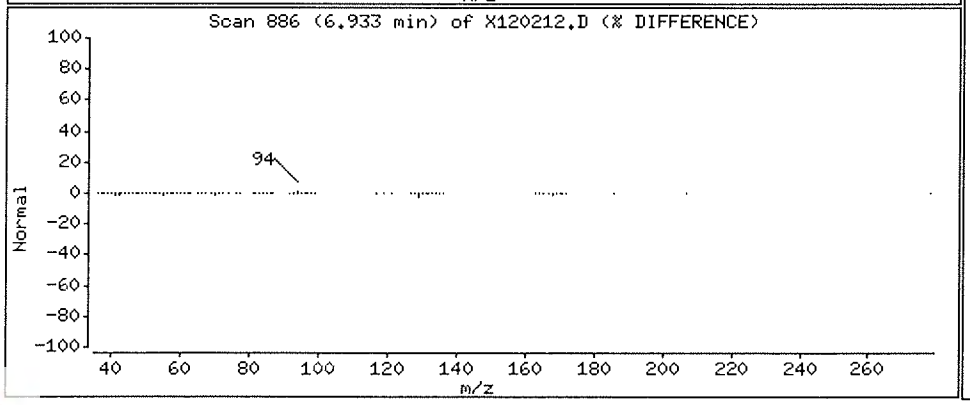












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Date : 02-DEC-2019 15:06

Client ID: HS19111343-03

Instrument: voa6.i

Sample Info: HS19111343-03;HS19111343-03;;;

Purge Volume: 5.0

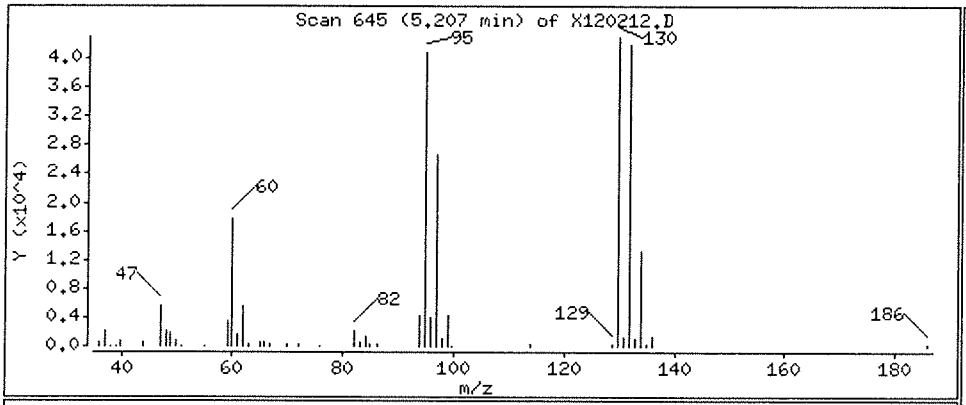
Operator: PC

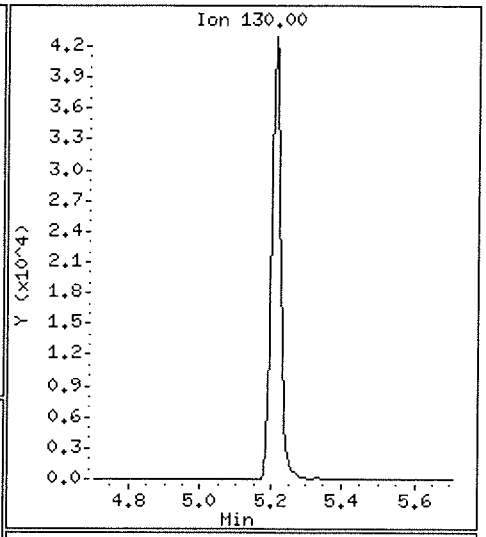
Column phase: DB624

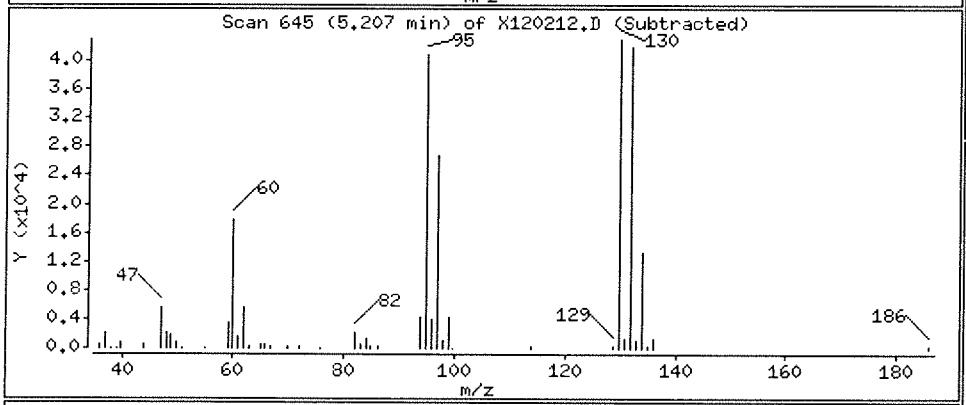
Column diameter: 0.18

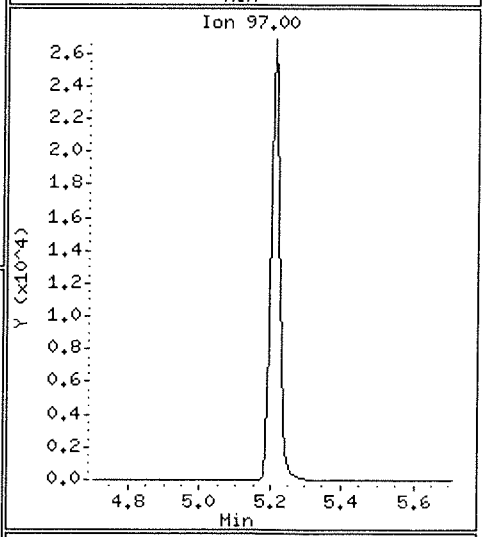
38 Trichloroethene

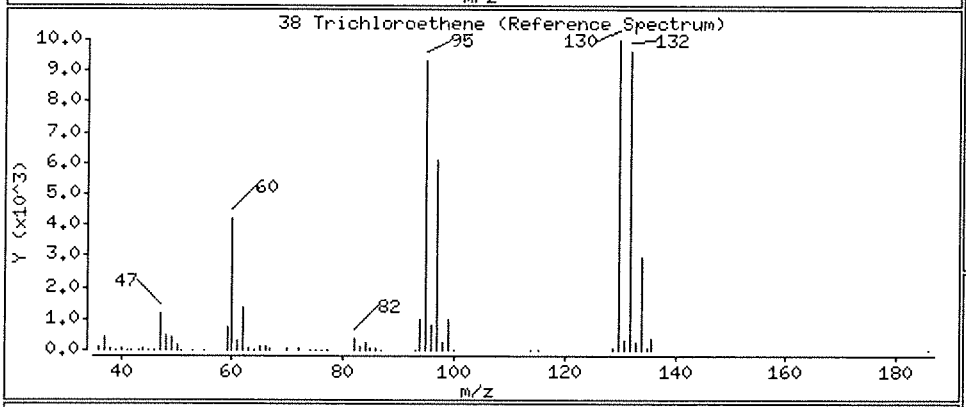
Concentration: 16.30 ug/l

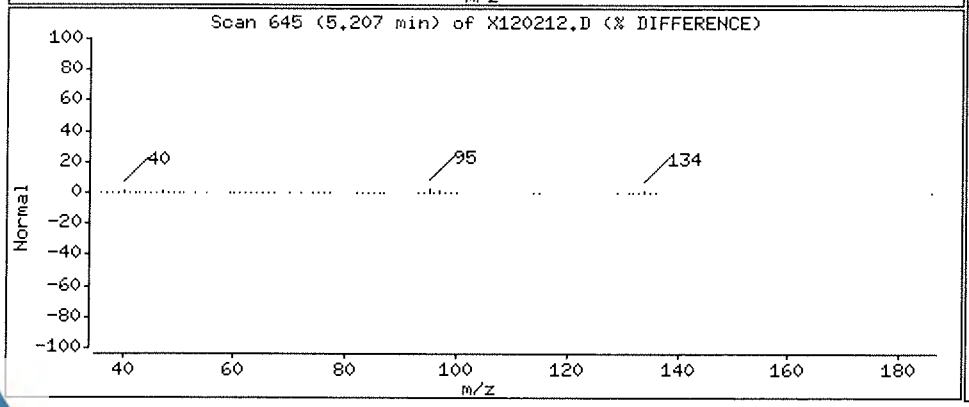


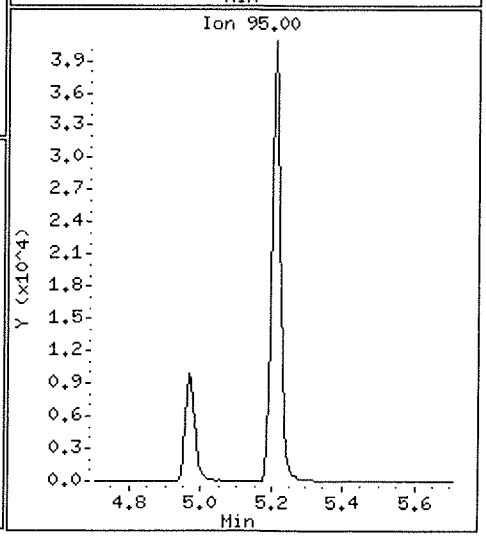












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120213.D Page 1
Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120213.D
Lab Smp Id: HS19111343-04 Client Smp ID: HS19111343-04
Inj Date : 02-DEC-2019 15:30
Operator : PC Inst ID: voa6.i
Smp Info : HS19111343-04;HS19111343-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

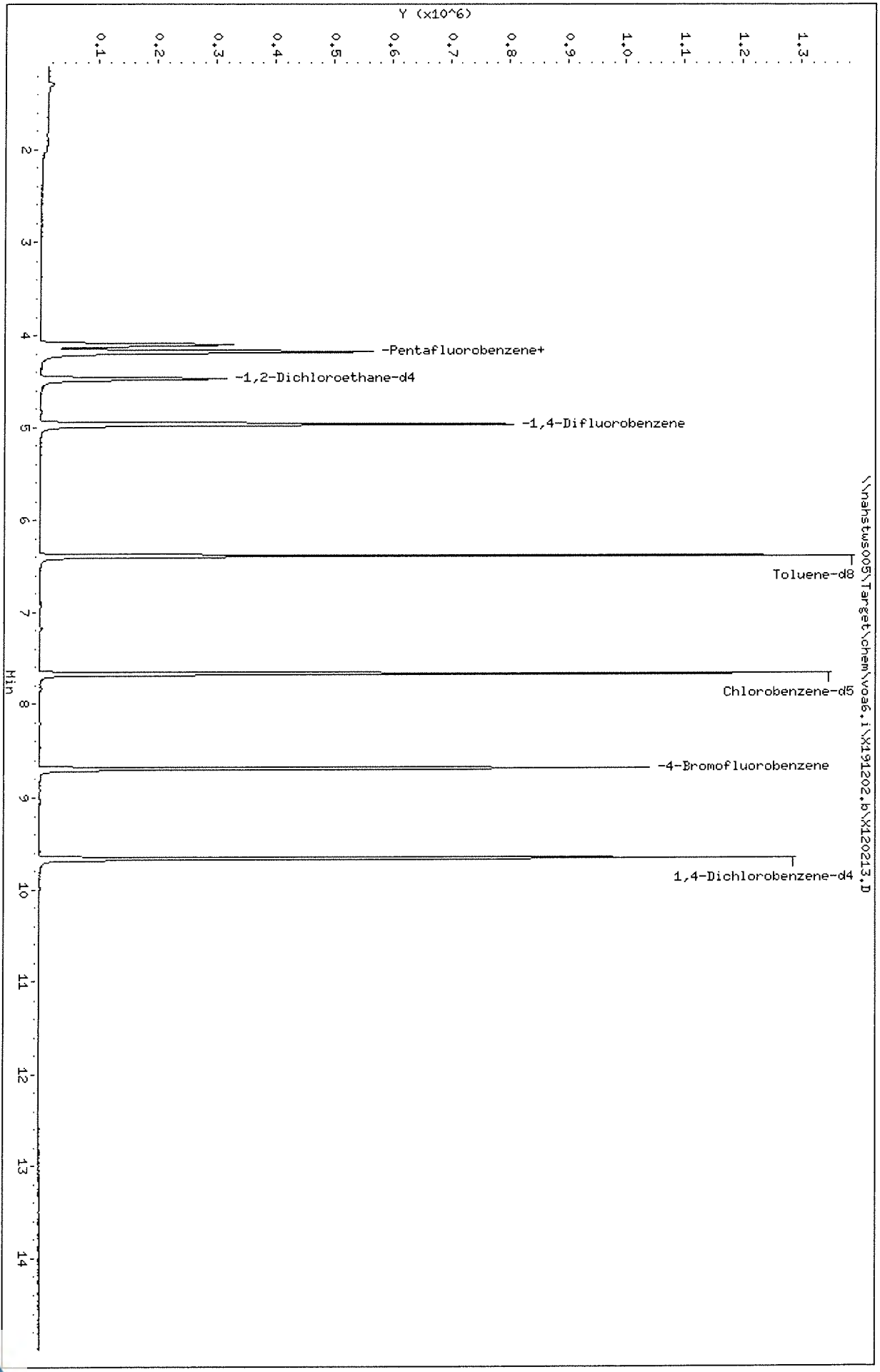
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	504096	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	710678	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	635397	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	317004	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	238103	50.2029	50.20
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	284413	48.1271	48.12
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	226976	49.5220	49.52
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	806256	48.1594	48.15

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120213.D
Date : 02-DEC-2019 15:30
Client ID: HS19111343-04
Sample Info: HS19111343-04;HS19111343-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120214.D Page 1
Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120214.D
Lab Smp Id: HS19111343-05 Client Smp ID: HS19111343-05
Inj Date : 02-DEC-2019 15:54
Operator : PC Inst ID: voa6.i
Smp Info : HS19111343-05;HS19111343-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

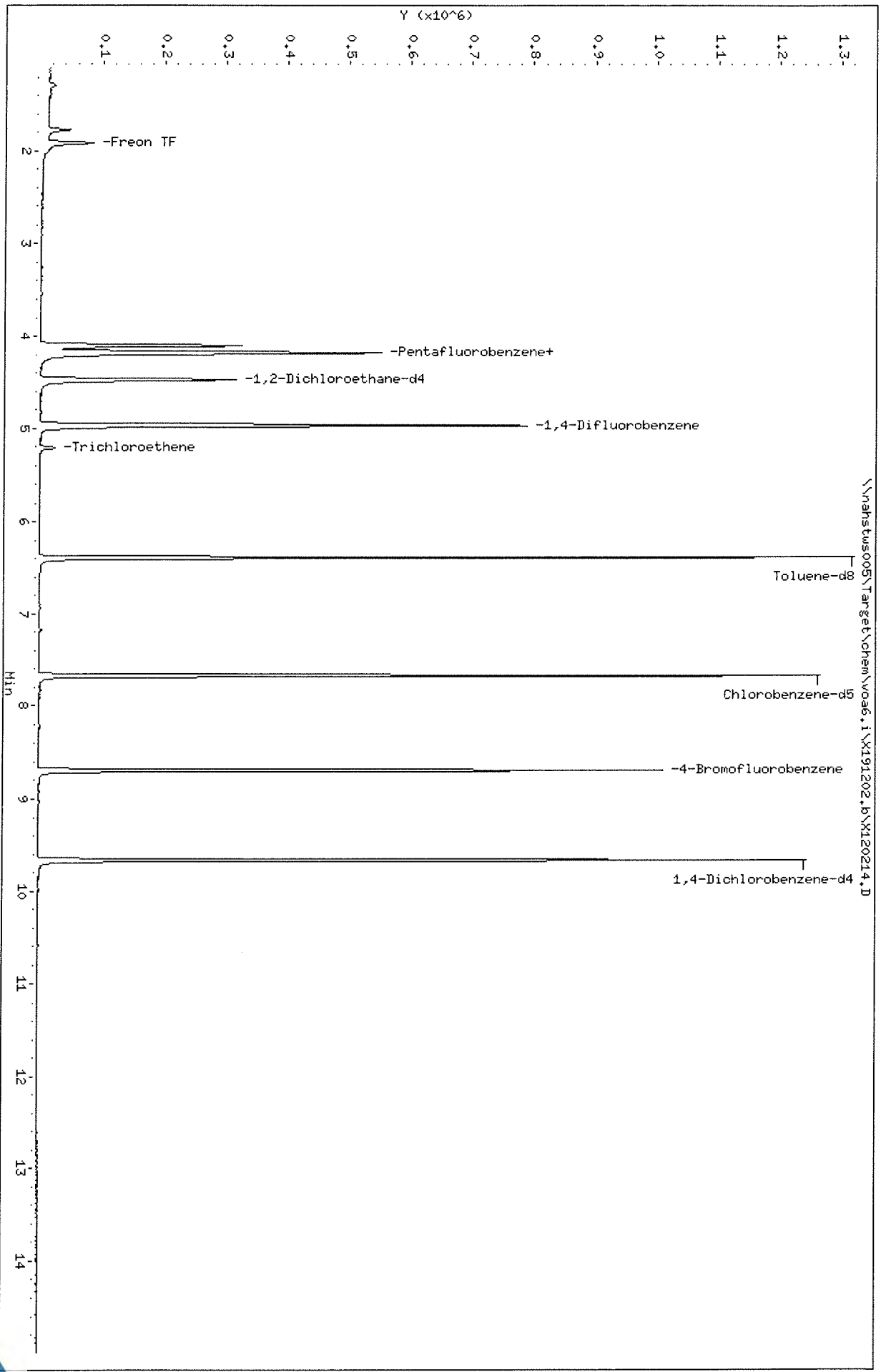
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	494828	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	694092	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	605264	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	303256	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	238817	51.2805	51.28
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	268250	47.6560	47.65
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	223950	49.7750	49.77
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	785601	49.2618	49.26
138 Freon TF	101	1.919	1.919	(0.459)	31037	7.20450	7.20
38 Trichloroethene	130	5.206	5.206	(1.048)	8877	1.82878	1.82(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120214.D
Date : 02-DEC-2019 15:54
Client ID: HS19111343-05
Sample Info: HS19111343-05;HS19111343-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120214.D

Date : 02-DEC-2019 15:54

Client ID: HS19111343-05

Instrument: voa6.i

Sample Info: HS19111343-05;HS19111343-05;;;

Purge Volume: 5.0

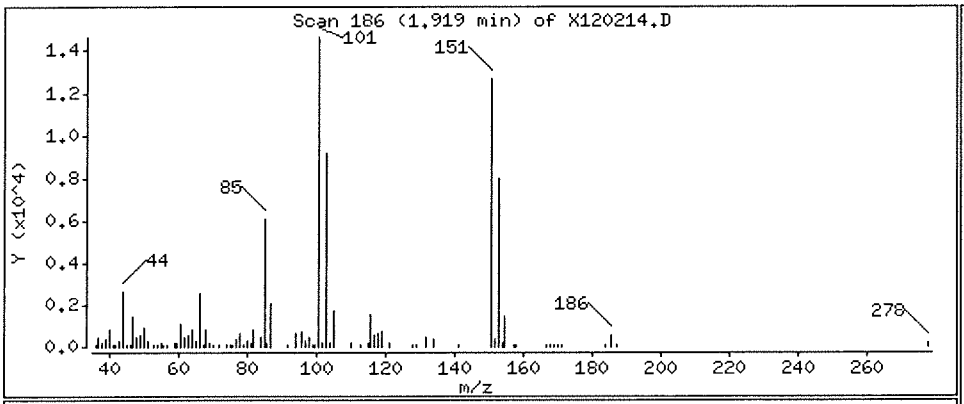
Operator: PC

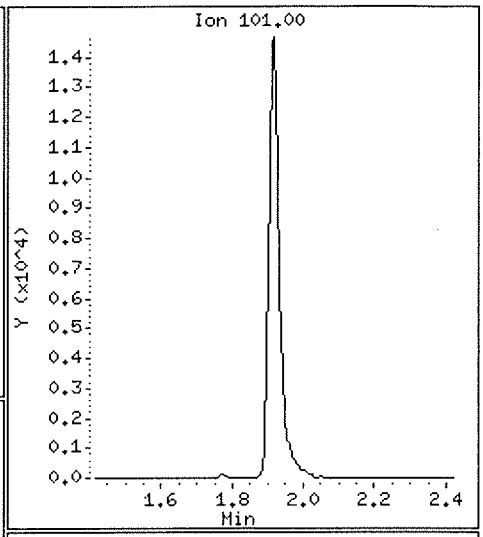
Column phase: DB624

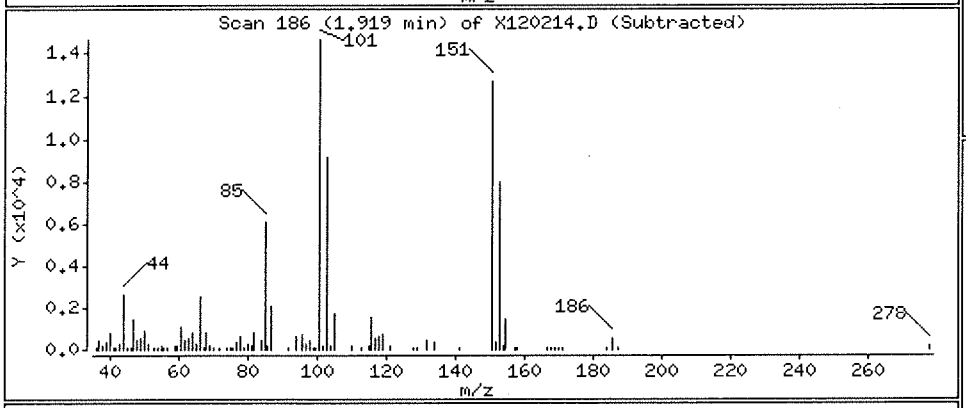
Column diameter: 0.18

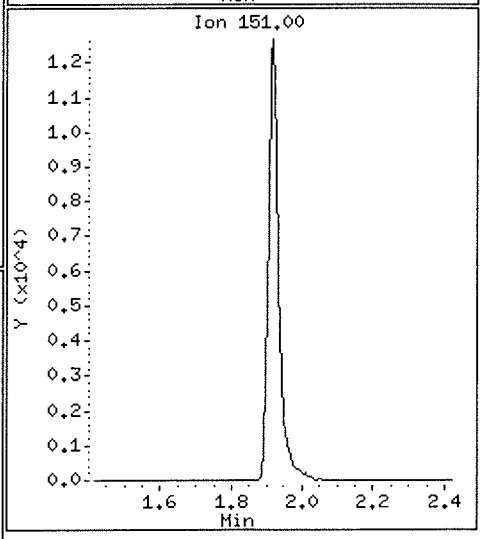
138 Freon TF

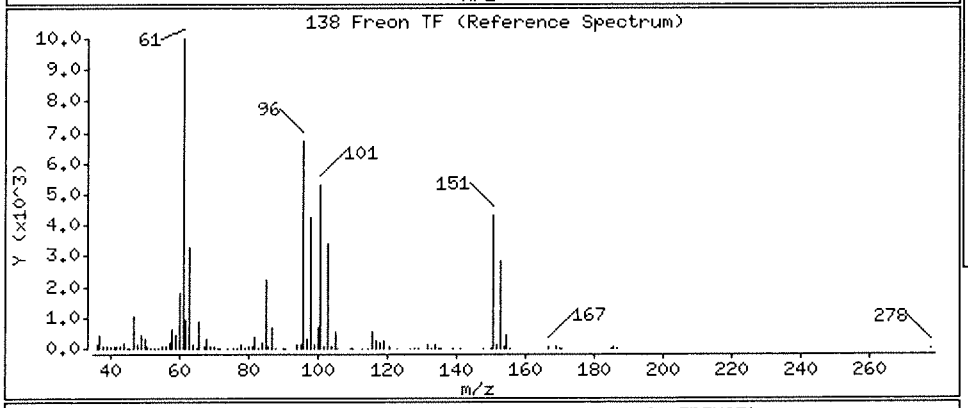
Concentration: 7.20 ug/l

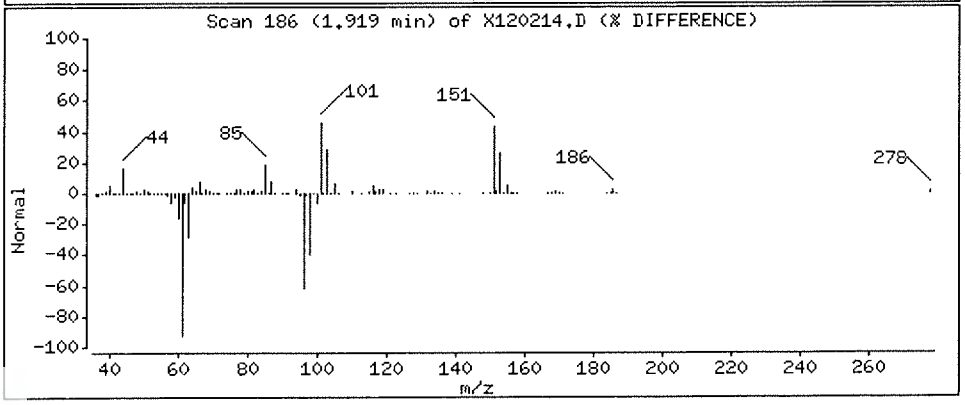












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120214.D Page 4

Date : 02-DEC-2019 15:54

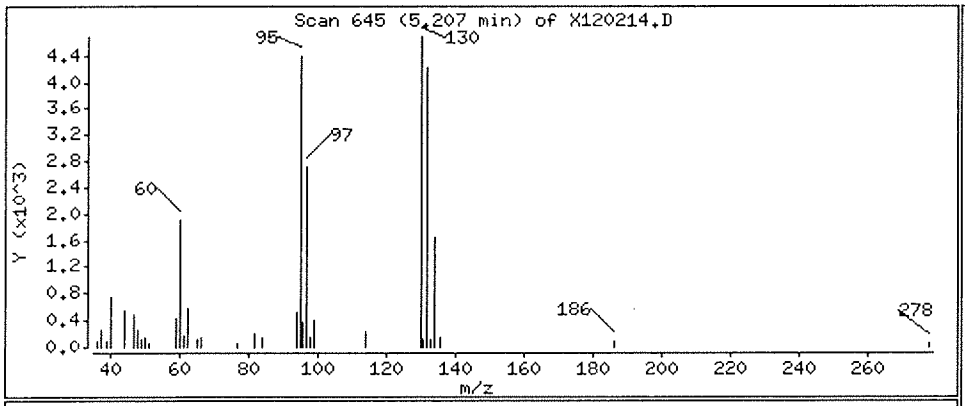
Client ID: HS19111343-05 Instrument: voa6.i

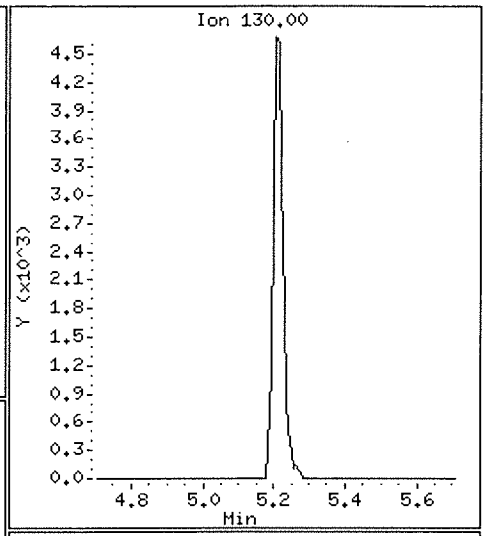
Sample Info: HS19111343-05;HS19111343-05;;;

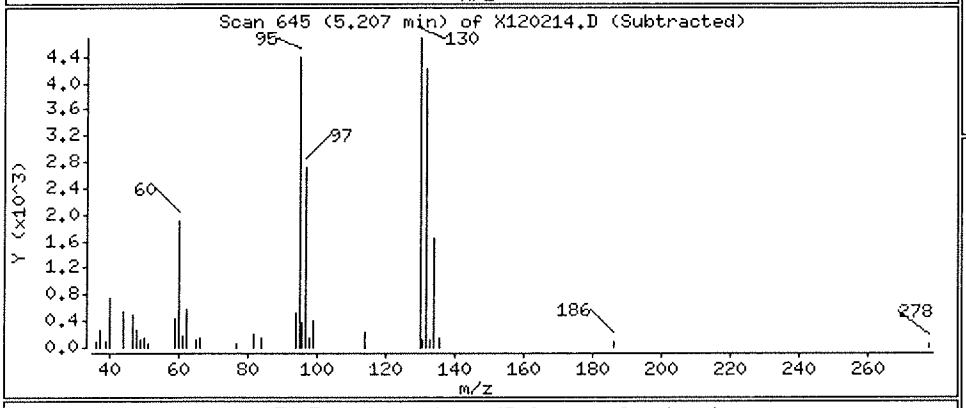
Purge Volume: 5.0 Operator: PC

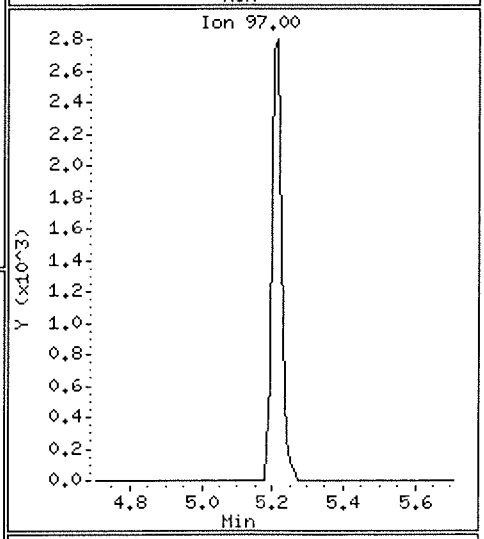
Column phase: DB624 Column diameter: 0.18

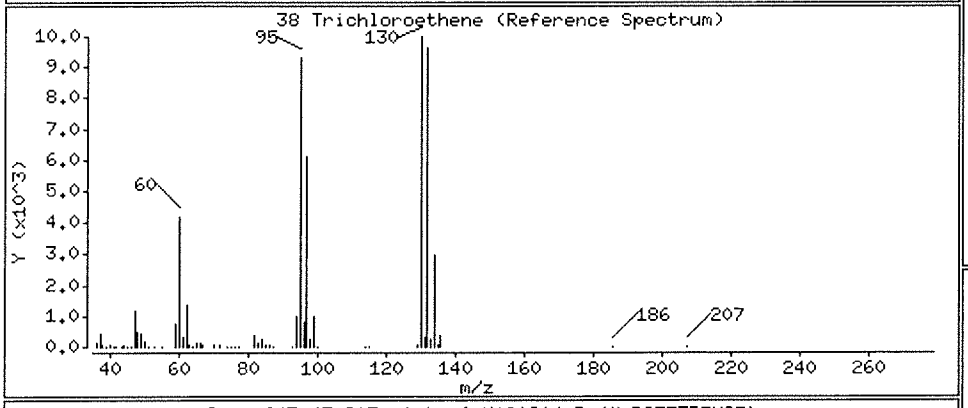
38 Trichloroethene Concentration: 1.82 ug/l

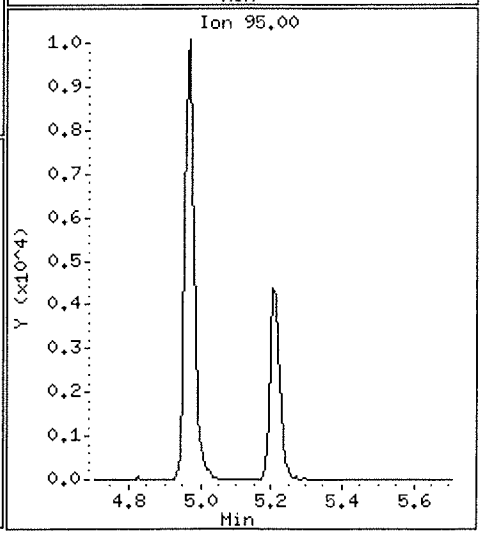


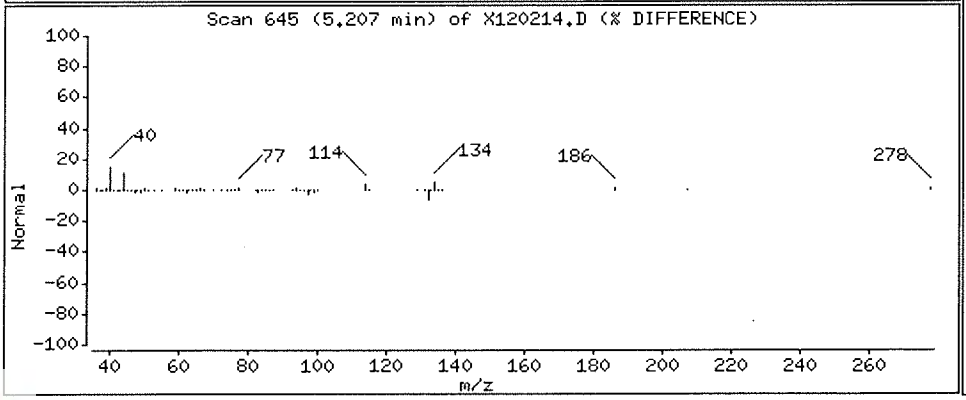












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120215.D Page 1
Report Date: 07-Dec-2019 09:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120215.D
Lab Smp Id: HS19111343-07 Client Smp ID: HS19111343-07
Inj Date : 02-DEC-2019 16:18
Operator : PC Inst ID: voa6.i
Smp Info : HS19111343-07;HS19111343-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

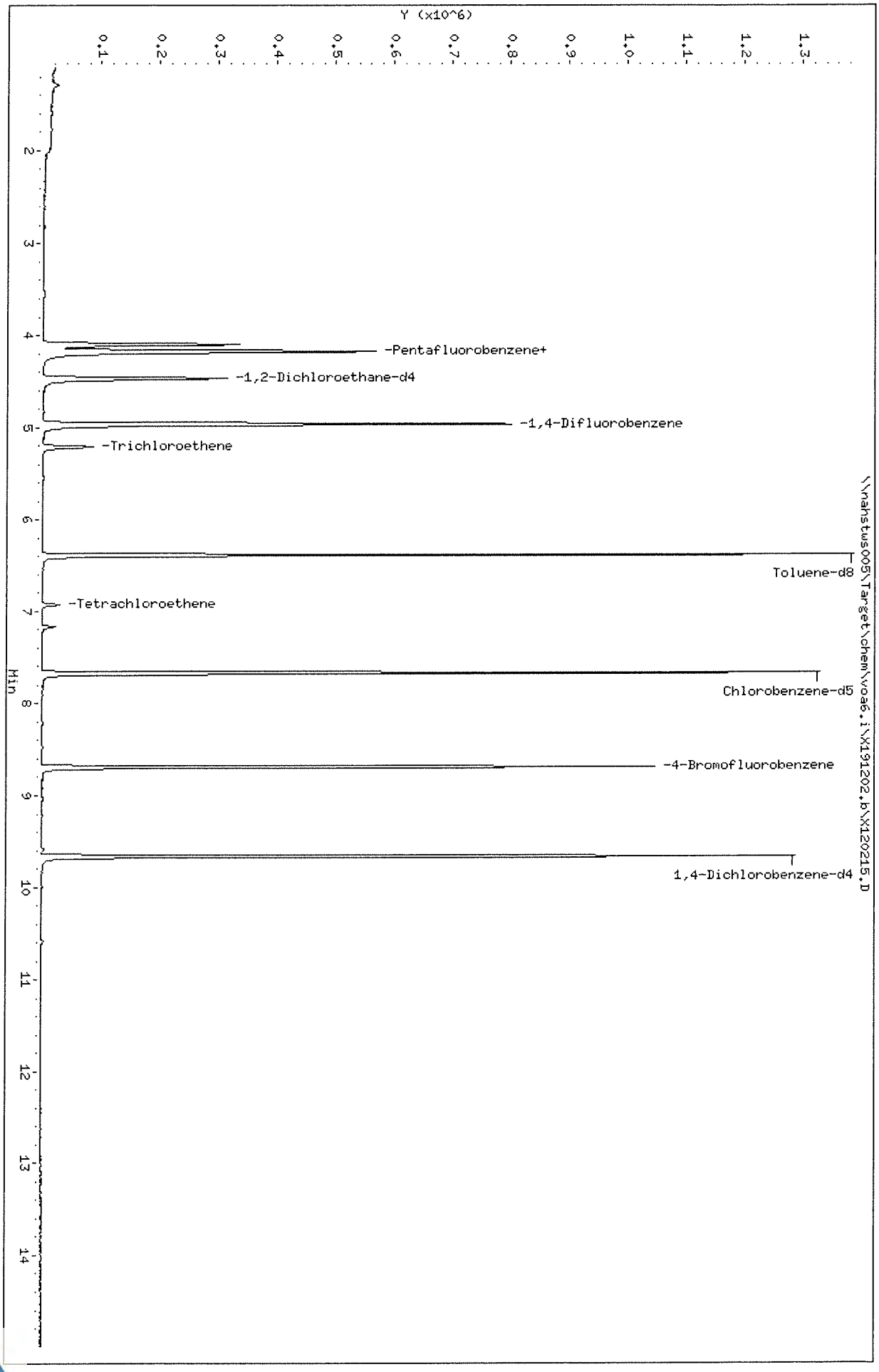
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	502231	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	709563	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	637028	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	331713	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	236568	50.0666	50.06
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	286120	48.2905	48.29
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	228037	49.9351	49.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	803042	47.8446	47.84
56 Tetrachloroethene	164	6.933	6.933	(0.904)	6481	1.44797	1.44(a)
38 Trichloroethene	130	5.206	5.206	(1.048)	29814	6.00817	6.00

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120215.D
Date : 02-DEC-2019 16:18
Client ID: HS19111343-07
Sample Info: HS19111343-07;HS19111343-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120215.D

Date : 02-DEC-2019 16:18

Client ID: HS19111343-07

Instrument: voa6.i

Sample Info: HS19111343-07;HS19111343-07;;;

Purge Volume: 5.0

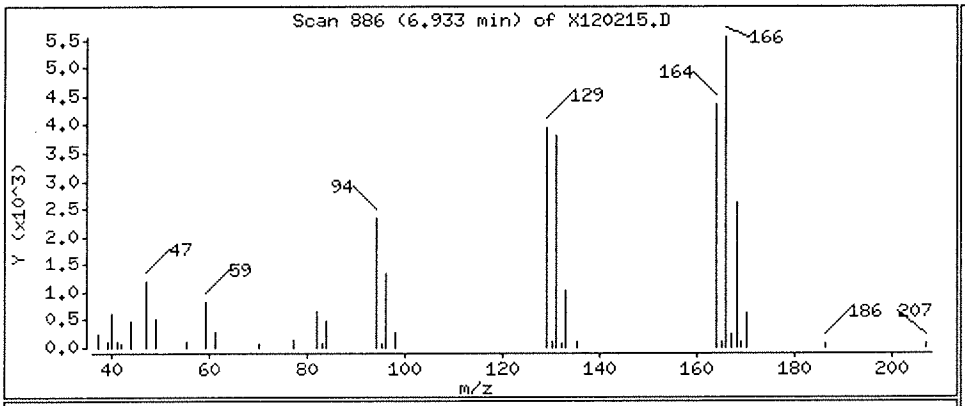
Operator: PC

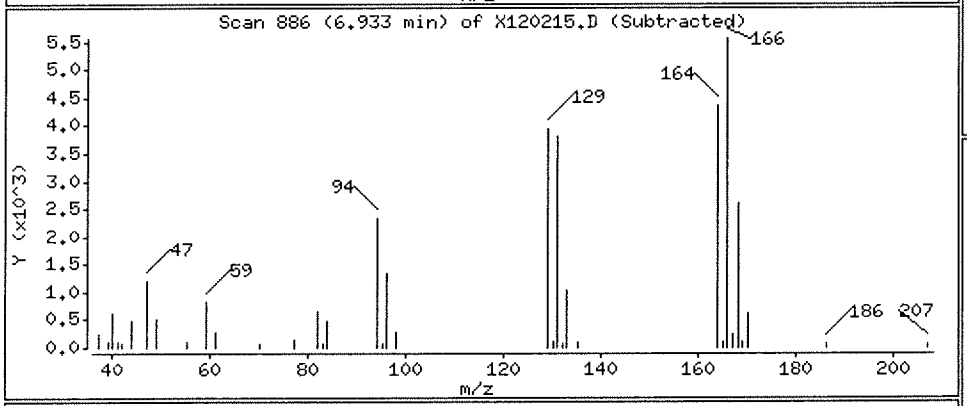
Column phase: DB624

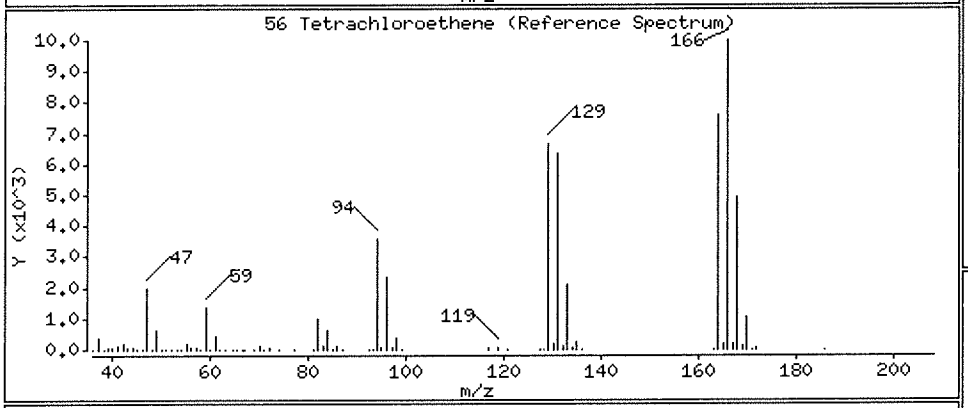
Column diameter: 0.18

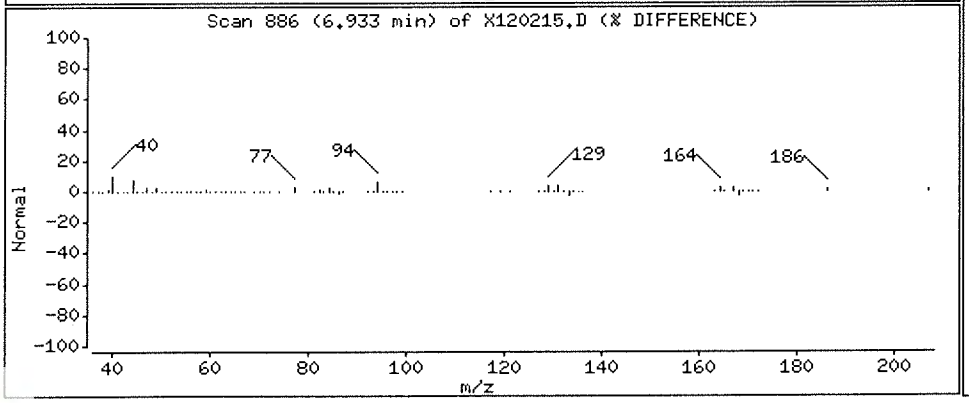
56 Tetrachloroethene

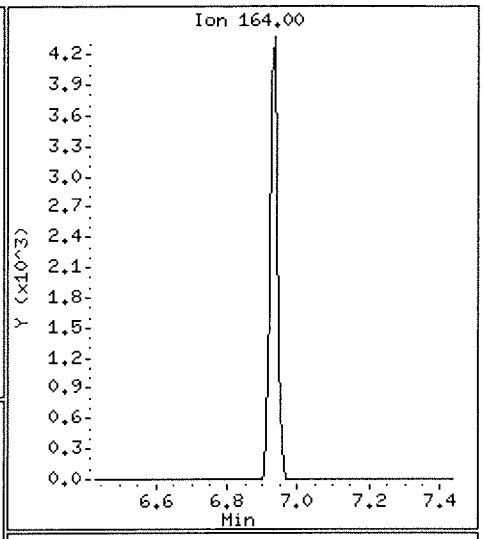
Concentration: 1.44 ug/l

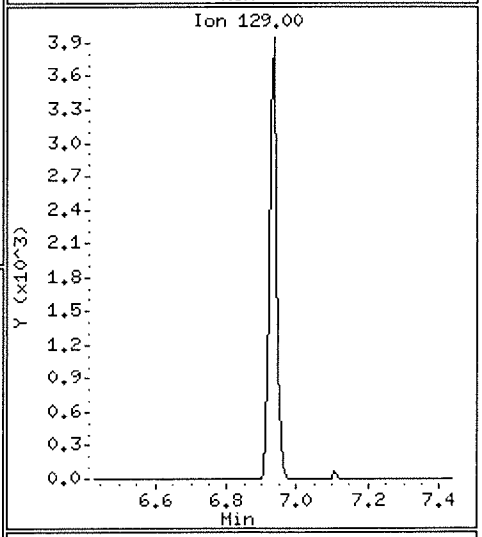


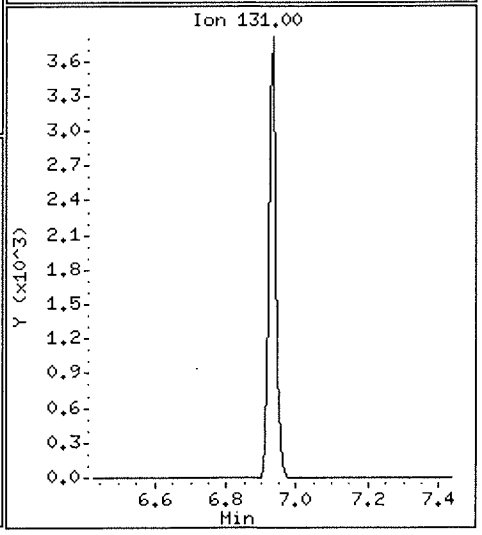












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120215.D

Date : 02-DEC-2019 16:18

Client ID: HS19111343-07

Instrument: voa6.i

Sample Info: HS19111343-07;HS19111343-07;;;

Purge Volume: 5.0

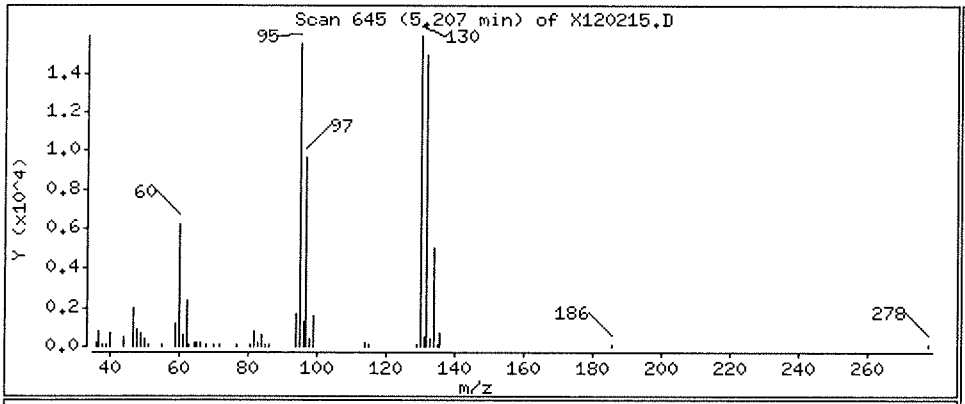
Operator: PC

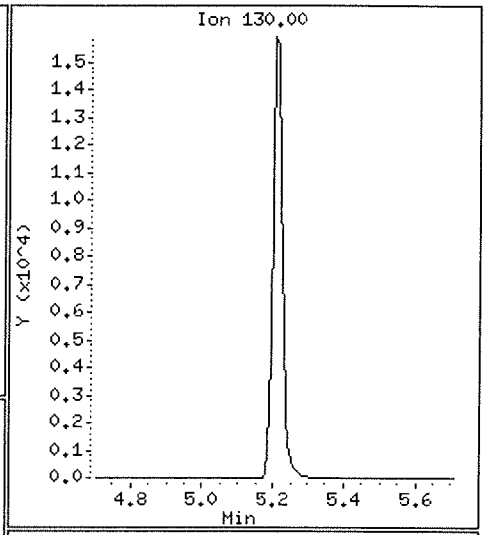
Column phase: DB624

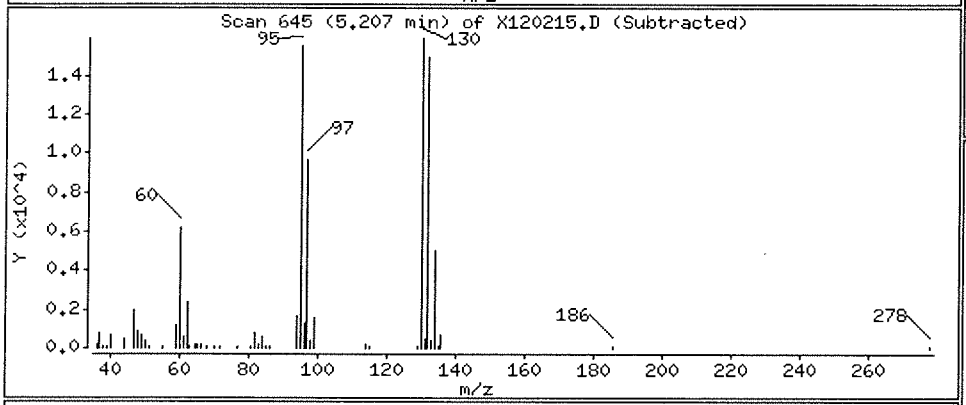
Column diameter: 0.18

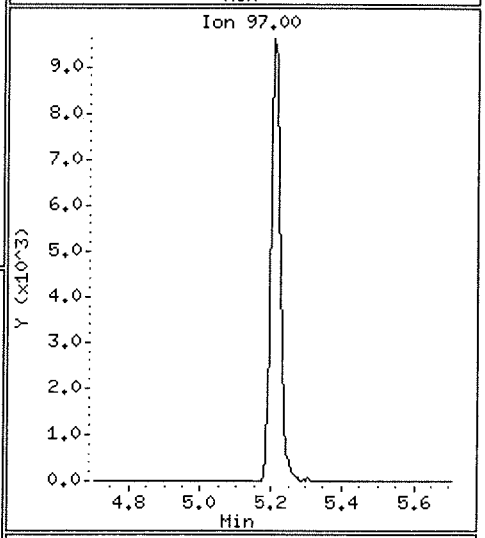
38 Trichloroethene

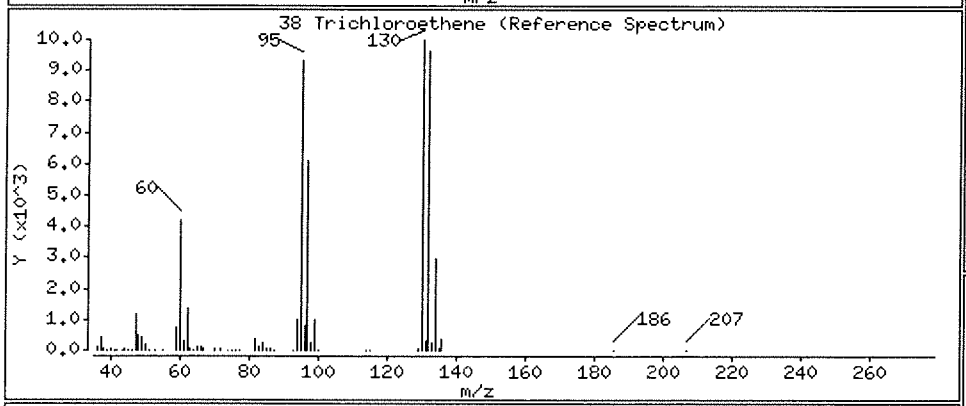
Concentration: 6.00 ug/l

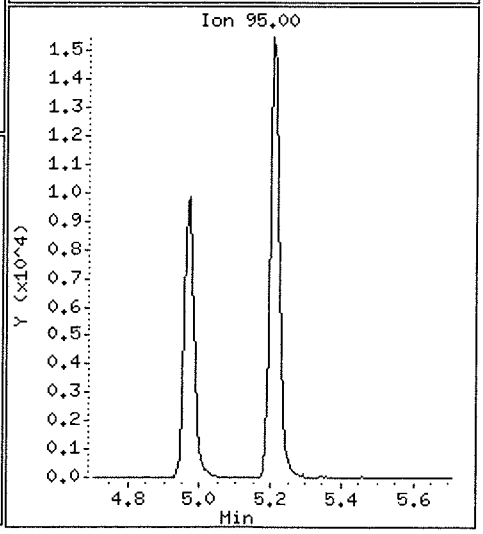


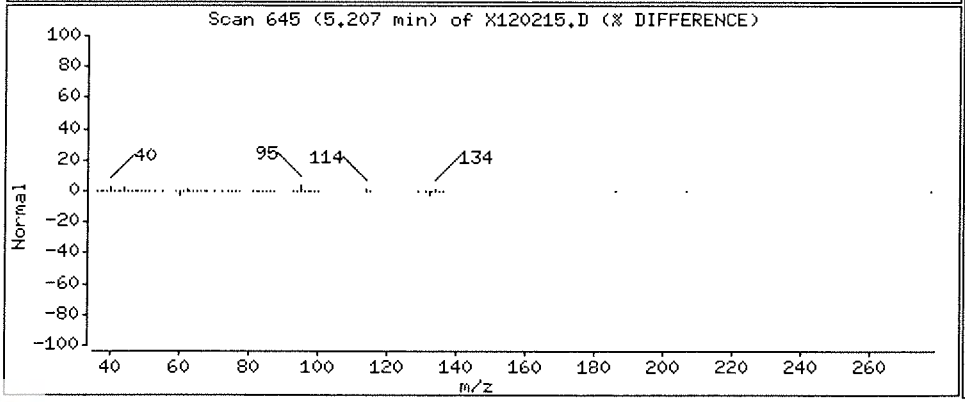












Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120217.D Page 1
Report Date: 07-Dec-2019 09:42

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120217.D
Lab Smp Id: HS19111343-06MS Client Smp ID: HS19111343-06MS
Inj Date : 02-DEC-2019 17:06
Operator : PC Inst ID: voa6.i
Smp Info : HS19111343-06MS;HS19111343-06MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 17 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

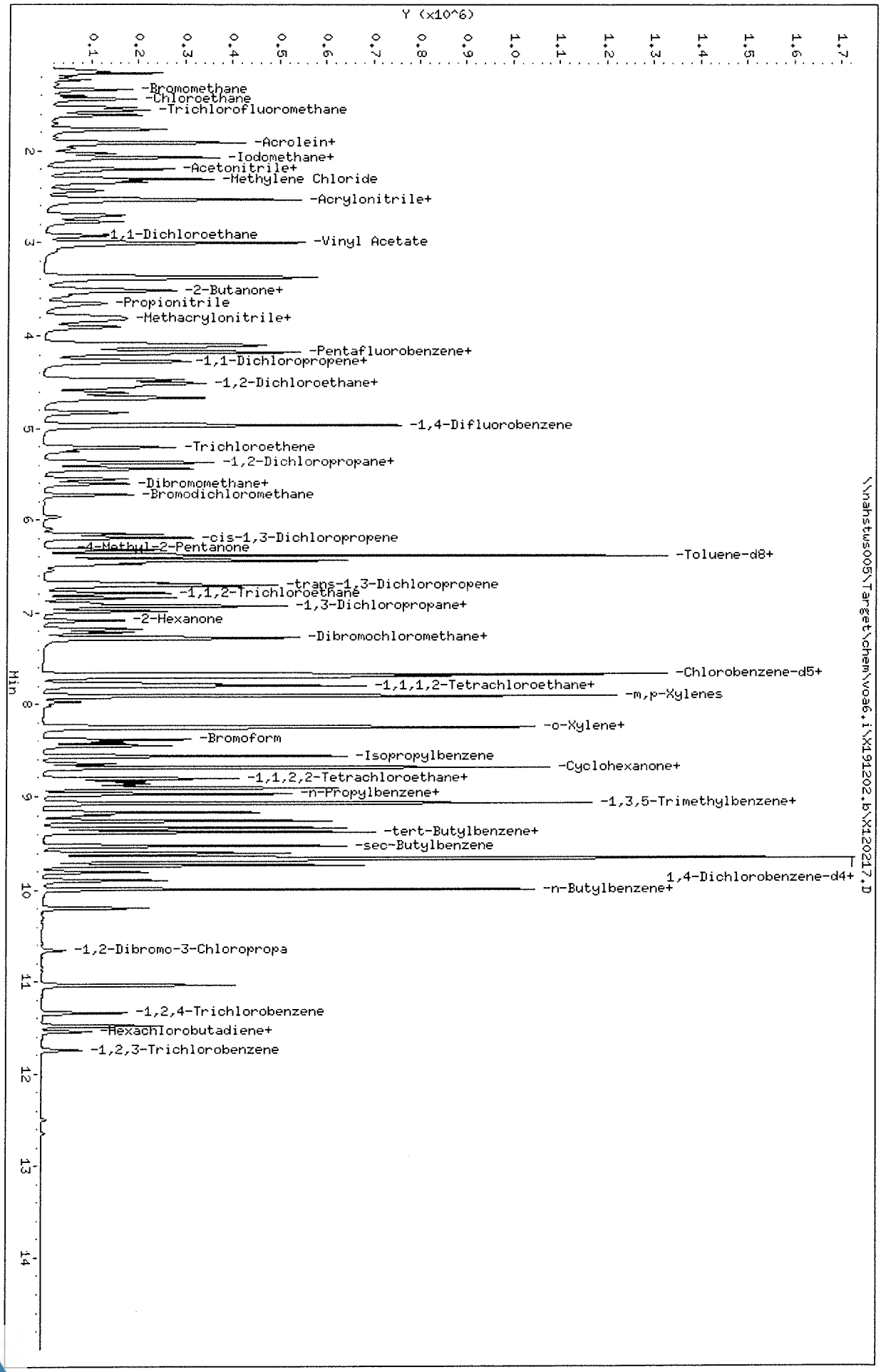
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	476412	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	671021	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	611250	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	327412	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	225156	50.2313	50.23
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	283995	49.9389	49.93
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	214455	49.5091	49.50
$	48 Toluene-d8	98	6.388	6.388	(0.833)	764918	47.4951	47.49
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	85493	19.2790	19.27
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	133080	20.7060	20.70
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.914)	88383	19.1971	19.19
	138 Freon TF	101	1.919	1.919	(0.459)	78450	18.9142	18.91
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	61776	19.3336	19.33
	22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	138702	20.0094	20.00
	11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	74660	18.4919	18.49
	32 1,1-Dichloropropene	75	4.283	4.282	(0.862)	107753	19.9071	19.90
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	24280	19.4928	19.49
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	75255	19.2910	19.29(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	52263	18.9495	18.94
	79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	312798	20.1346	20.13
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.102)	10108	19.6827	19.68
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	84670	19.7503	19.75
	88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	171678	19.7567	19.75

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120217.D Page 2
Report Date: 07-Dec-2019 09:42

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
33	1,2-Dichloroethane	62	4.555	4.562	(0.916)	108719	20.4100	20.41
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	77369	19.3017	19.30
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	305892	20.5201	20.52
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	186340	19.8455	19.84
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	123360	19.0161	19.01
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	187117	19.6111	19.61
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	119343	18.9691	18.96
24	2-Butanone	43	3.581	3.573	(0.856)	55628	38.0537	38.05
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	247341	20.9975	20.99
52	2-Hexanone	43	7.083	7.090	(0.923)	95289	37.9493	37.94
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	289061	20.2452	20.24
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	325525	20.3194	20.31
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	136990	38.2497	38.24
10	Acetone	43	1.976	1.969	(0.473)	40704	30.4174	30.41
37	Benzene	78	4.512	4.512	(0.908)	314760	20.5057	20.50
74	Bromobenzene	156	8.810	8.809	(0.911)	112462	19.7640	19.76
29	Bromochloromethane	128	3.795	3.795	(0.908)	49425	19.1505	19.15
39	Bromodichloromethane	83	5.729	5.729	(1.153)	110053	19.8186	19.81
66	Bromoform	173	8.416	8.415	(1.097)	66270	18.8425	18.84
6	Bromomethane	94	1.338	1.338	(0.320)	87612	17.0097	17.00
19	Carbon Disulfide	76	2.069	2.069	(0.495)	457691	41.6701	41.67
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	118182	19.9316	19.93
59	Chlorobenzene	112	7.692	7.699	(1.003)	228281	19.1296	19.12
7	Chloroethane	64	1.403	1.403	(0.336)	51886	17.2979	17.29
28	Chloroform	83	3.910	3.910	(0.935)	148241	19.2134	19.21
3	Chloromethane	50	1.073	1.073	(0.257)	65581	12.8146	12.81
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	91488	20.2497	20.24
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	125264	19.1419	19.14
55	Dibromochloromethane	129	7.176	7.176	(0.936)	89684	19.3204	19.32
44	Dibromomethane	93	5.558	5.557	(1.118)	55719	19.6430	19.64
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	68233	16.3224	16.32
61	Ethylbenzene	106	7.800	7.799	(1.017)	124522	20.1956	20.19
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	44321	16.8442	16.84
67	Isopropylbenzene	105	8.566	8.566	(1.117)	364437	19.9550	19.95
62	m,p-Xylenes	106	7.907	7.907	(1.031)	293416	39.4358	39.43
17	Methylene Chloride	84	2.306	2.305	(0.551)	80956	18.7931	18.79
87	n-Butylbenzene	91	9.999	9.998	(1.034)	275811	20.6877	20.68
73	n-Propylbenzene	91	8.917	8.917	(0.922)	422439	20.8736	20.87
92	Naphthalene	128	11.546	11.546	(1.194)	72724	20.5587	20.55
63	o-Xylene	106	8.244	8.243	(1.075)	142285	19.3766	19.37
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	364807	20.7499	20.74
64	Styrene	104	8.258	8.258	(1.077)	248689	19.4757	19.47
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	263160	20.6179	20.61
56	Tetrachloroethene	164	6.933	6.933	(0.904)	106520	24.8021	24.80
50	Toluene	91	6.446	6.446	(0.840)	342916	19.7832	19.78
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	79714	20.3362	20.33
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	112104	18.7959	18.79
38	Trichloroethene	130	5.207	5.206	(1.048)	95569	20.3654	20.36
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	144088	19.4970	19.49
5	Vinyl Chloride	62	1.138	1.138	(0.272)	82120	16.9129	16.91

QC Flag Legend

M - Compound response manually integrated.

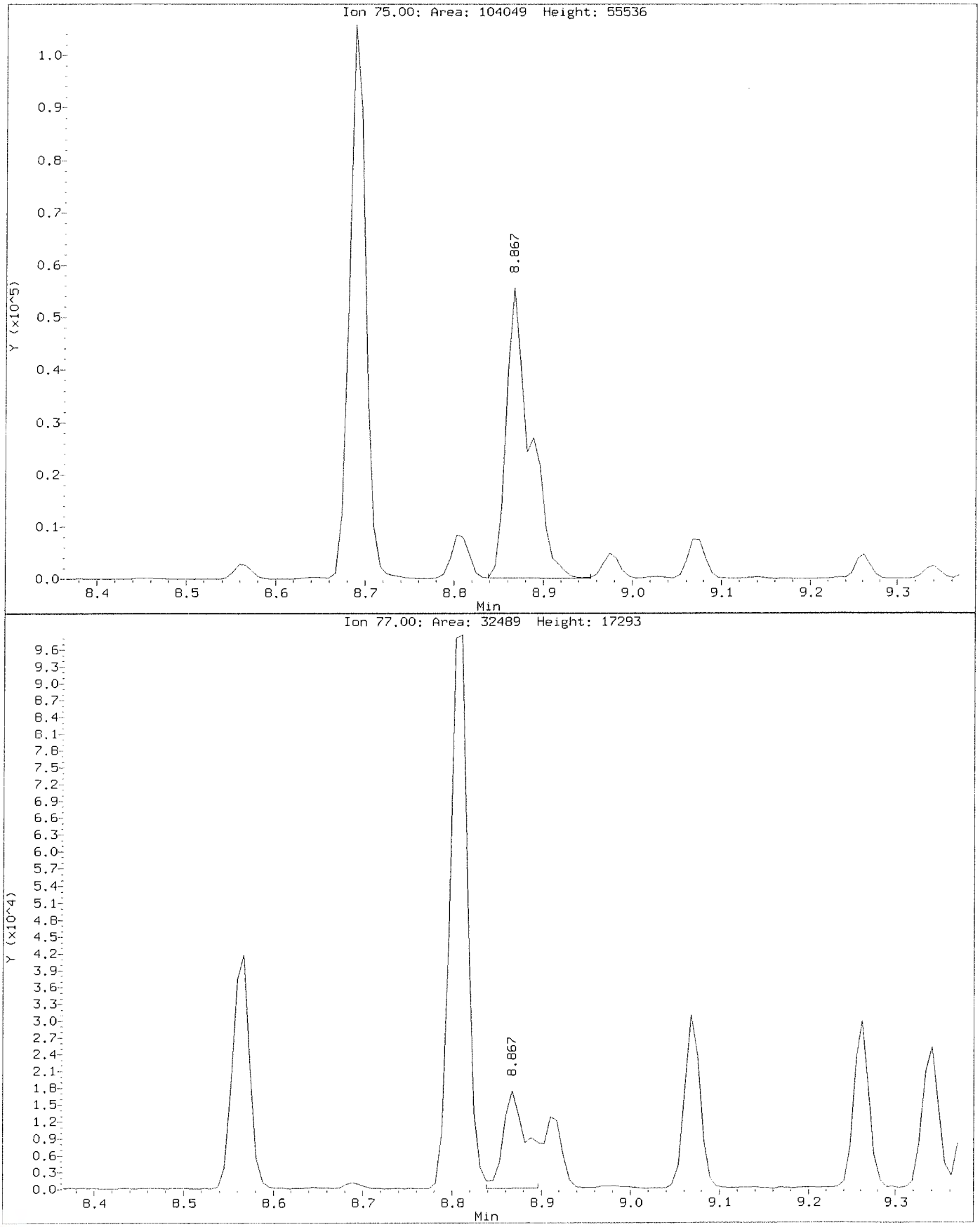


Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120217.D
Date : 02-DEC-2019 17:06
Client ID: HS19111343-06MS
Sample Info: HS19111343-06MS;HS19111343-06MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\BEFORE\X120217.D
Injection Date: 02-DEC-2019 17:06
Instrument: voa6.i
Client Sample ID: HS19111343-06MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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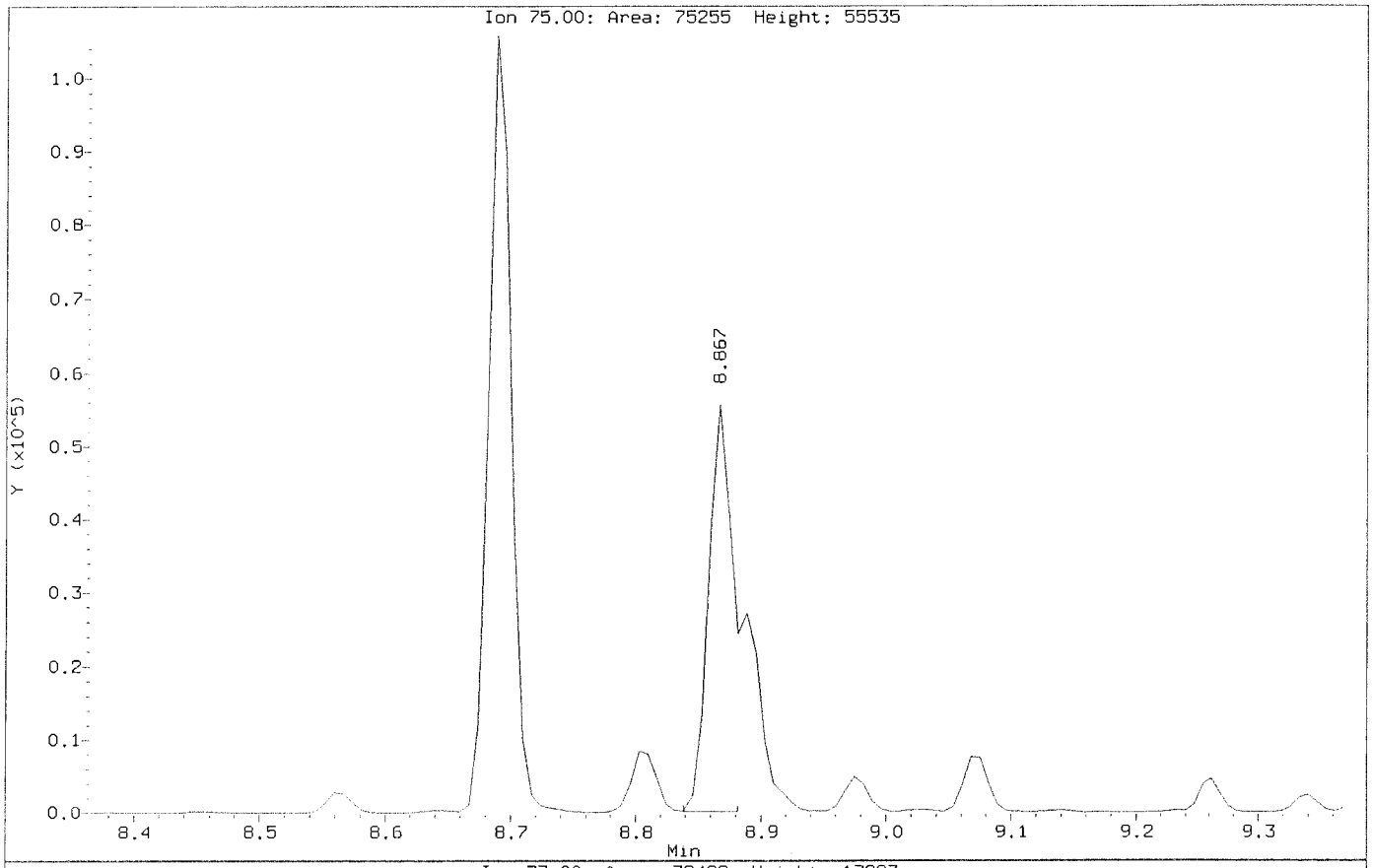
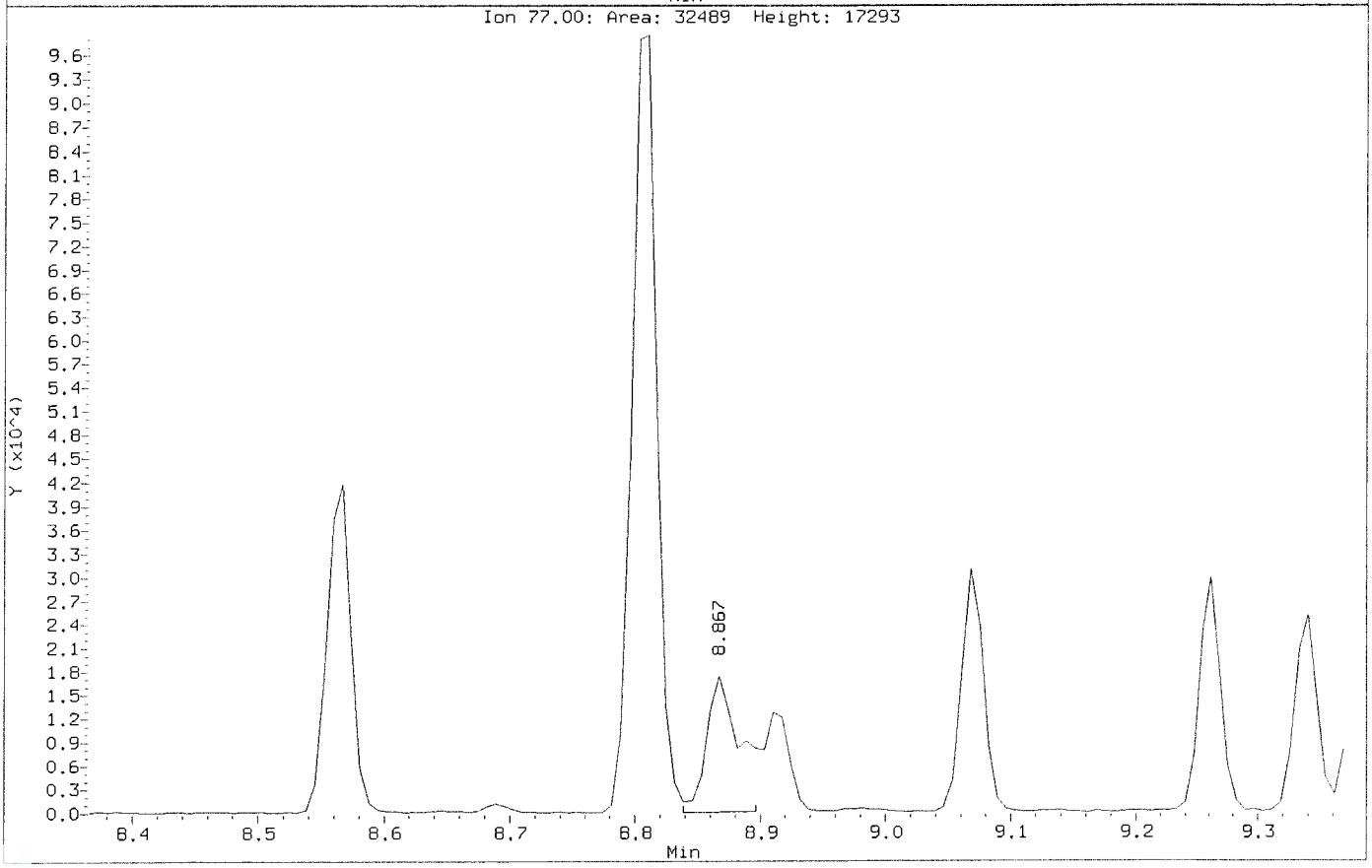
Injection Date: 02-DEC-2019 17:06
Instrument: voa6.i
Client Sample ID: HS19111343-06MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120218.D Page 1
Report Date: 07-Dec-2019 09:42

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Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120218.D
Lab Smp Id: HS19111343-06MSD Client Smp ID: HS19111343-06MSD
Inj Date : 02-DEC-2019 17:30
Operator : PC Inst ID: voa6.i
Smp Info : HS19111343-06MSD;HS19111343-06MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 17 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

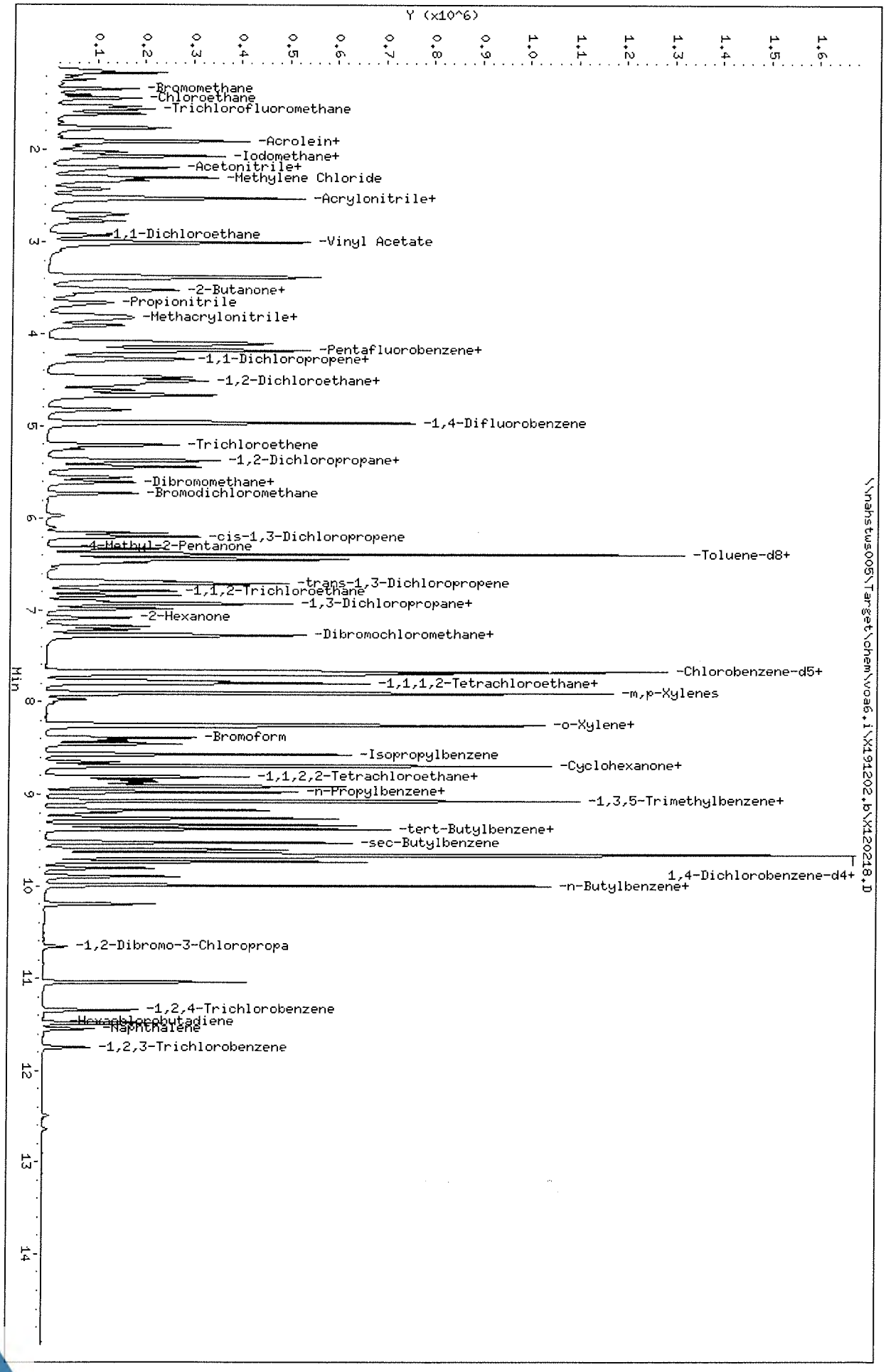
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	474380	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	669718	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	599711	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	320825	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	226881	50.8242	50.82
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	277161	49.6771	49.67
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	214877	49.8168	49.81
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	763786	48.3373	48.33
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	85001	19.5368	19.53
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	129226	20.1925	20.19
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	88678	19.6566	19.65
138 Freon TF	101	1.912	1.919	(0.457)	77693	18.8119	18.81
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	62284	19.8676	19.86
22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	134314	19.4593	19.45
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	72732	18.0916	18.09
32 1,1-Dichloropropene	75	4.283	4.282	(0.862)	105075	19.4501	19.45
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	27289	22.4774	22.47
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	75618	19.7821	19.78(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	55419	20.5064	20.50
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	310251	20.3806	20.38
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.102)	9492	18.8485	18.84
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	82929	19.7164	19.71
88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	171321	20.1204	20.12

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120218.D Page 2
Report Date: 07-Dec-2019 09:42

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.555	4.562	(0.916)	106380	20.0098	20.00
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	75458	18.8615	18.86
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	300262	20.5560	20.55
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.993)	183754	19.9719	19.97
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	123009	19.3268	19.32
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	187319	20.0353	20.03
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	115193	18.3879	18.38
24	2-Butanone	43	3.581	3.573	(0.856)	55096	37.8512	37.85
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	240719	20.8549	20.85
52	2-Hexanone	43	7.083	7.090	(0.923)	95435	38.7388	38.73
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	285286	20.3911	20.39
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	324464	20.6690	20.66
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	136421	38.8237	38.82
10	Acetone	43	1.976	1.969	(0.473)	40585	30.4636	30.46
37	Benzene	78	4.512	4.512	(0.908)	302491	19.7447	19.74
74	Bromobenzene	156	8.810	8.809	(0.911)	110654	19.8455	19.84
29	Bromochloromethane	128	3.795	3.795	(0.908)	49617	19.3072	19.30
39	Bromodichloromethane	83	5.729	5.729	(1.153)	108088	19.5026	19.50
66	Bromoform	173	8.416	8.415	(1.097)	66373	19.2141	19.21
6	Bromomethane	94	1.339	1.338	(0.320)	88591	17.3100	17.31
19	Carbon Disulfide	76	2.069	2.069	(0.495)	440709	40.2958	40.29
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	113849	19.2382	19.23
59	Chlorobenzene	112	7.699	7.699	(1.004)	224294	19.1572	19.15
7	Chloroethane	64	1.403	1.403	(0.336)	50988	17.0713	17.07
28	Chloroform	83	3.910	3.910	(0.935)	144398	18.7955	18.79
3	Chloromethane	50	1.073	1.073	(0.257)	61592	12.0973	12.09
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	89584	19.9132	19.91
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	122770	18.7973	18.79
55	Dibromochloromethane	129	7.176	7.176	(0.936)	89613	19.6765	19.67
44	Dibromomethane	93	5.558	5.557	(1.118)	55630	19.6498	19.64
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	65700	15.8129	15.81
61	Ethylbenzene	106	7.800	7.799	(1.017)	117288	19.3883	19.38
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	45152	17.5123	17.51
67	Isopropylbenzene	105	8.566	8.566	(1.117)	358807	20.0248	20.02
62	m,p-Xylenes	106	7.907	7.907	(1.031)	285775	39.1479	39.14
17	Methylene Chloride	84	2.306	2.305	(0.551)	79046	18.4283	18.42
87	n-Butylbenzene	91	9.999	9.998	(1.034)	274560	21.0167	21.01
73	n-Propylbenzene	91	8.917	8.917	(0.922)	410155	20.6827	20.68
92	Naphthalene	128	11.546	11.546	(1.194)	70332	20.2907	20.29
63	o-Xylene	106	8.244	8.243	(1.075)	138129	19.1725	19.17
81	sec-Butylbenzene	105	9.526	9.525	(0.985)	359898	20.8910	20.89
64	Styrene	104	8.258	8.258	(1.077)	244815	19.5412	19.54
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	261570	20.9141	20.91
56	Tetrachloroethene	164	6.933	6.933	(0.904)	103743	24.6202	24.62
50	Toluene	91	6.446	6.446	(0.840)	333316	19.5994	19.59
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	75354	19.3062	19.30
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	112858	18.9591	18.95
38	Trichloroethene	130	5.207	5.206	(1.048)	94111	20.0938	20.09
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	141750	19.2628	19.26
5	Vinyl Chloride	62	1.138	1.138	(0.272)	78768	16.2920	16.29

QC Flag Legend

M - Compound response manually integrated.



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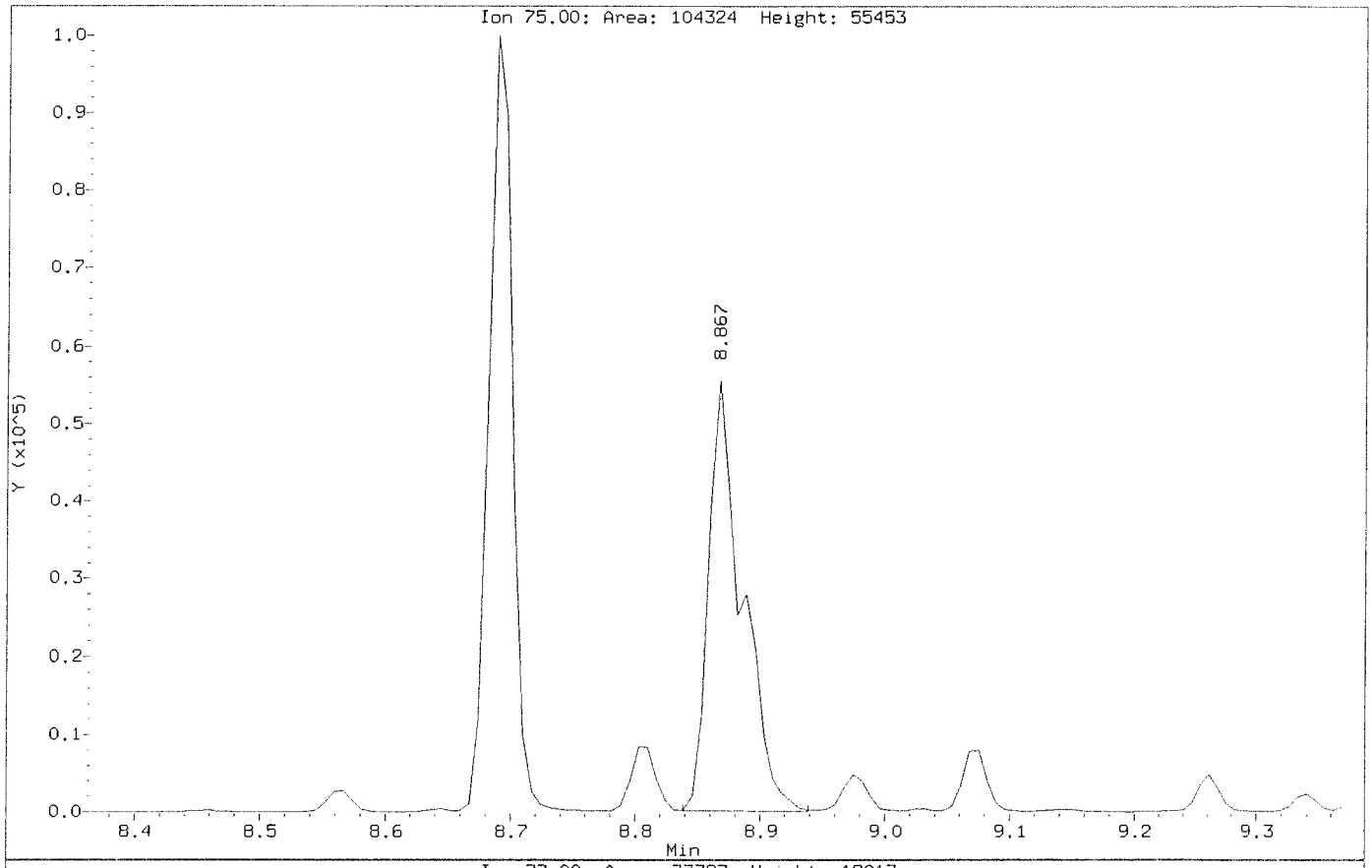
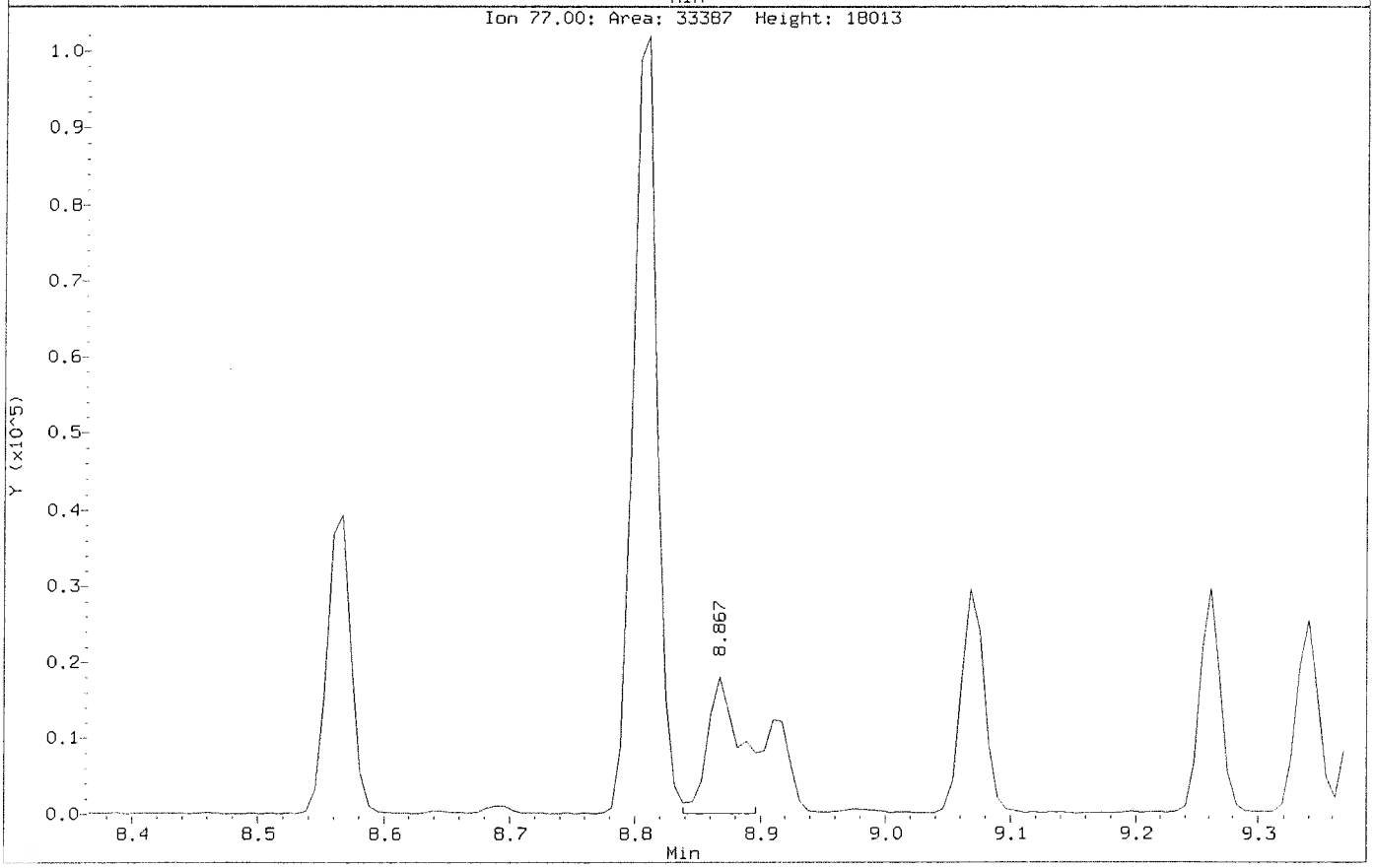
Date : 02-DEC-2019 17:30
Client ID: HS19111343-06MSD
Sample Info: HS19111343-06MSD;HS19111343-06MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\BEFORE\X120218.D
Injection Date: 02-DEC-2019 17:30
Instrument: voa6.i
Client Sample ID: HS19111343-06MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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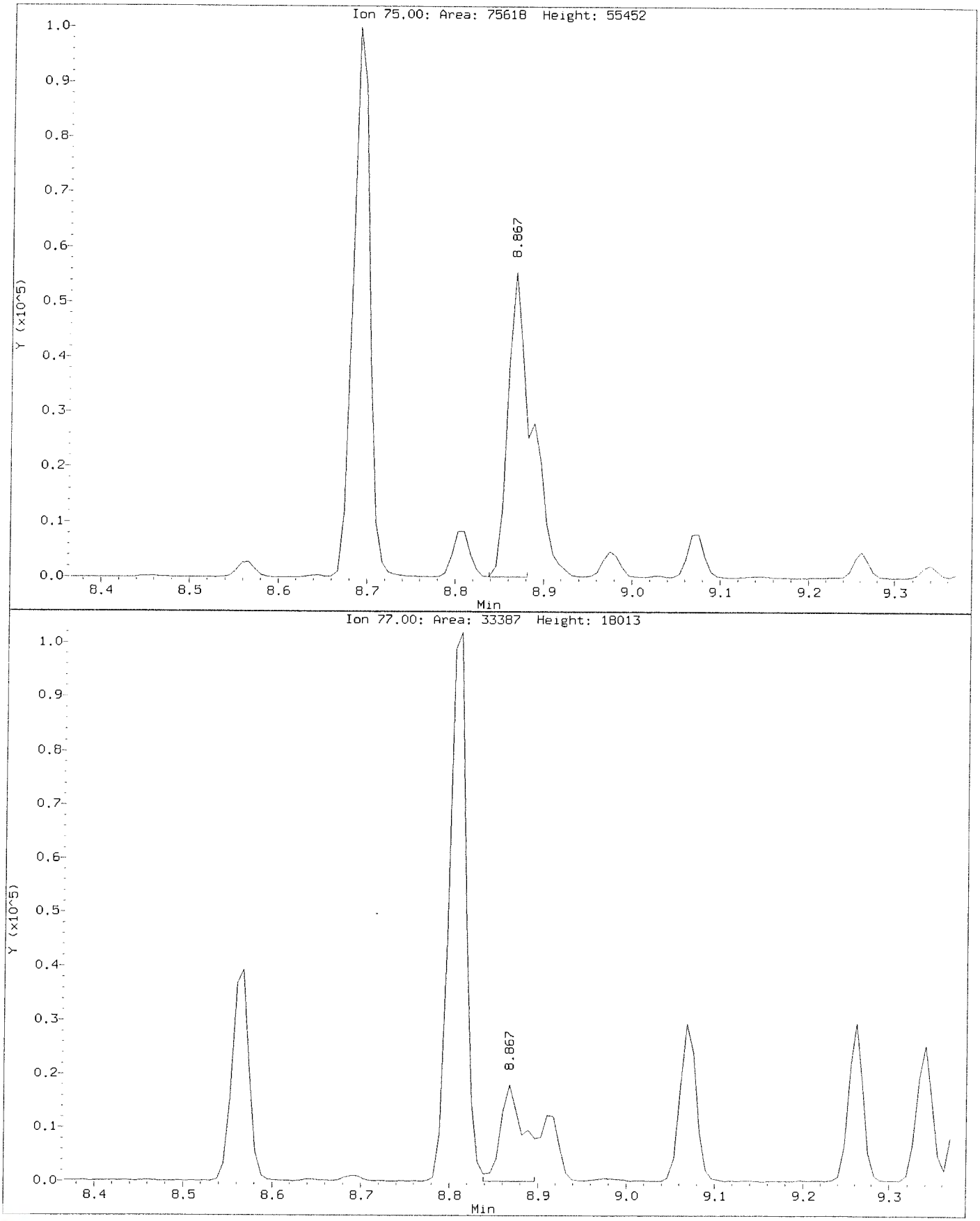
Injection Date: 02-DEC-2019 17:30
Instrument: voa6.i
Client Sample ID: HS19111343-06MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191202.b\X120219.D Page 1
Report Date: 07-Dec-2019 09:42

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Data file : \\nahstws005\Target\chem\voa6.i\X191202.b\X120219.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 02-DEC-2019 17:54
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191202.b\8260W.m
Meth Date : 07-Dec-2019 09:41 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 18 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

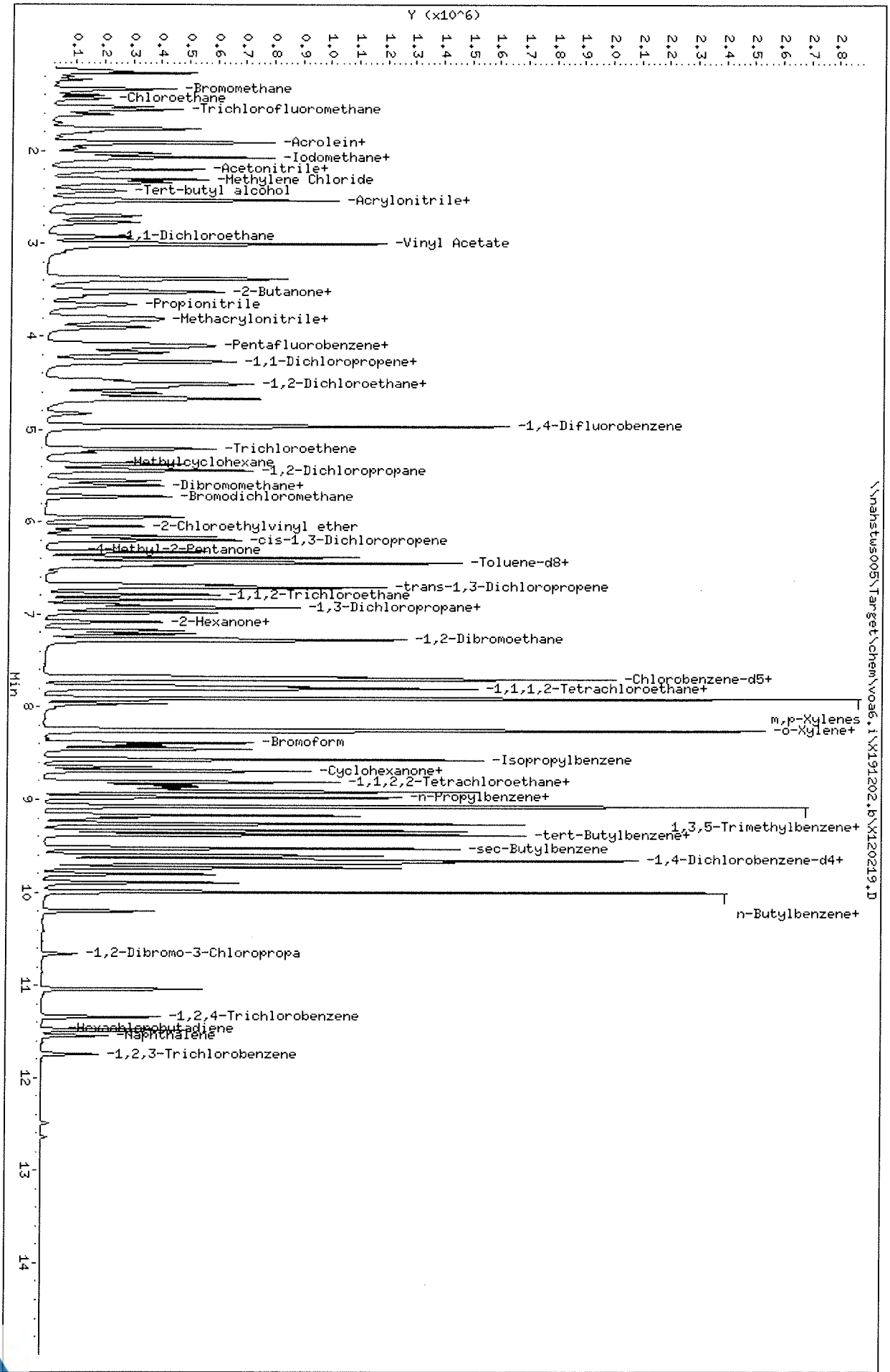
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

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)	365835	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	553218	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	521716	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	288317	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	195757	50.0000	56.77
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	252260	50.0000	51.95
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	177966	50.0000	53.47
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	634347	50.0000	46.14
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	204928	50.0000	54.14
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	287431	50.0000	58.23
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	214265	50.0000	52.84
138 Freon TF	101	1.919	1.919	(0.459)	159307	50.0000	50.01
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	148500	50.0000	54.45
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	303871	50.0000	57.08
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	163446	50.0000	52.71
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	230818	50.0000	51.72
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	57320	50.0000	53.49
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	183980	50.0000	53.55(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	118808	50.0000	48.91
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	750355	50.0000	54.84
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	24312	50.0000	54.34
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	201013	50.0000	54.93
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	412298	50.0000	53.88

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	249489	50.0000	56.81
42 1,2-Dichloropropane	63	5.436	5.436	(1.094)	173512	50.0000	52.50
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	718545	50.0000	54.73
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	450045	50.0000	54.42
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	296158	50.0000	53.48
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	453039	50.0000	53.91
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	256818	50.0000	53.15
24 2-Butanone	43	3.573	3.573	(0.854)	127645	100.000	113.71
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	594063	50.0000	57.27
52 2-Hexanone	43	7.090	7.090	(0.924)	222500	100.000	103.81
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	694014	50.0000	55.19
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	753661	50.0000	53.42
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	319187	100.000	104.41
10 Acetone	43	1.969	1.969	(0.471)	91932	100.000	96.95
37 Benzene	78	4.512	4.512	(0.908)	688455	50.0000	54.40
74 Bromobenzene	156	8.809	8.809	(0.911)	273221	50.0000	54.52
29 Bromochloromethane	128	3.795	3.795	(0.908)	113362	50.0000	57.20
39 Bromodichloromethane	83	5.729	5.729	(1.153)	255921	50.0000	55.90
66 Bromoform	173	8.415	8.415	(1.097)	167142	50.0000	53.72
6 Bromomethane	94	1.338	1.338	(0.320)	198029	50.0000	54.65
19 Carbon Disulfide	76	2.069	2.069	(0.495)	957676	100.000	113.54
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	253217	50.0000	51.79
59 Chlorobenzene	112	7.699	7.699	(1.004)	542864	50.0000	53.29
7 Chloroethane	64	1.403	1.403	(0.336)	120222	50.0000	52.19
28 Chloroform	83	3.910	3.910	(0.935)	333308	50.0000	56.25
3 Chloromethane	50	1.073	1.073	(0.257)	161440	50.0000	40.66
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	204500	50.0000	58.94
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	291349	50.0000	54.00
55 Dibromochloromethane	129	7.176	7.176	(0.936)	215745	50.0000	54.45
44 Dibromomethane	93	5.557	5.557	(1.118)	128495	50.0000	54.94
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	197446	50.0000	59.06
61 Ethylbenzene	106	7.799	7.799	(1.017)	284439	50.0000	54.04
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	95269	50.0000	41.11
67 Isopropylbenzene	105	8.566	8.566	(1.117)	853688	50.0000	54.76
62 m,p-Xylenes	106	7.907	7.907	(1.031)	692497	100.000	109.04
17 Methylene Chloride	84	2.305	2.305	(0.551)	181236	50.0000	54.78
87 n-Butylbenzene	91	9.998	9.998	(1.034)	623434	50.0000	53.10
73 n-Propylbenzene	91	8.917	8.917	(0.922)	982326	50.0000	55.12
92 Naphthalene	128	11.546	11.546	(1.194)	154935	50.0000	49.73
63 o-Xylene	106	8.243	8.243	(1.075)	335771	50.0000	53.57
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	839172	50.0000	54.20
64 Styrene	104	8.258	8.258	(1.077)	600794	50.0000	55.12
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	616697	50.0000	54.86
56 Tetrachloroethene	164	6.933	6.933	(0.904)	182830	50.0000	49.87
50 Toluene	91	6.446	6.446	(0.840)	792361	50.0000	53.55
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	173739	50.0000	57.72
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	272855	50.0000	55.48
38 Trichloroethene	130	5.206	5.206	(1.048)	206312	50.0000	53.32
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	315478	50.0000	55.59
5 Vinyl Chloride	62	1.138	1.138	(0.272)	191537	50.0000	51.37

QC Flag Legend

M - Compound response manually integrated.



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Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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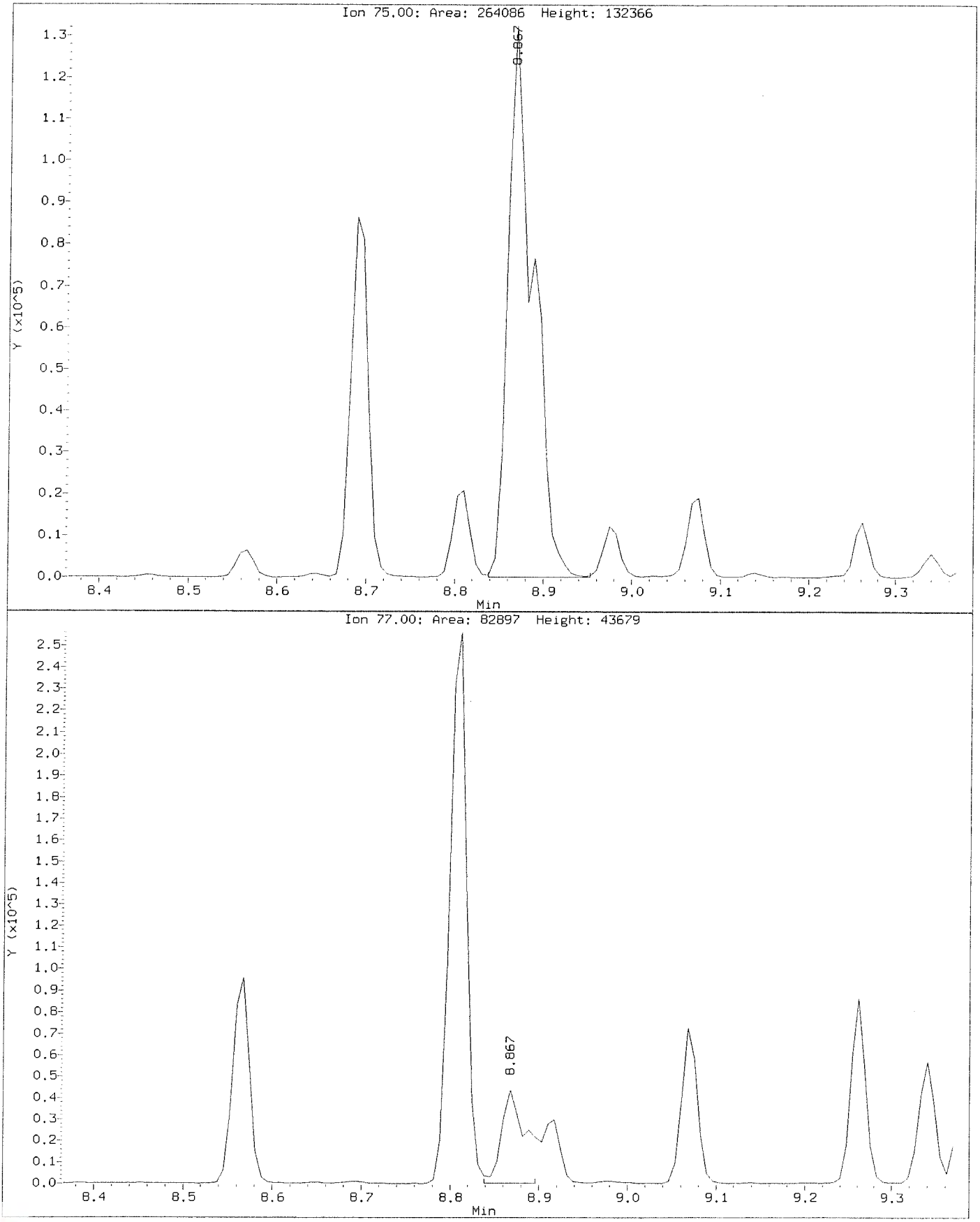
Injection Date: 02-DEC-2019 17:54
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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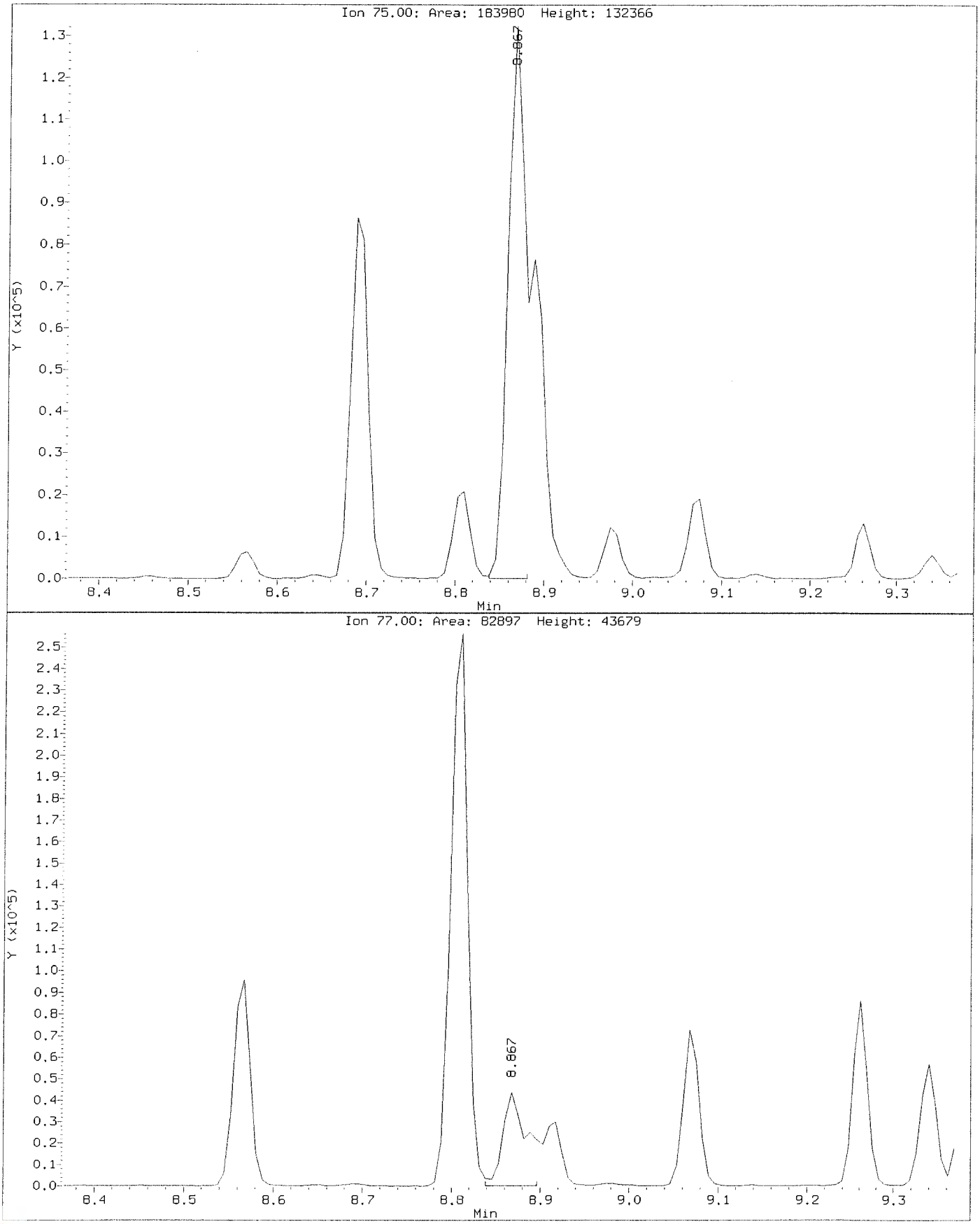
Injection Date: 02-DEC-2019 17:54
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



HS19111343 Wet Chem Raw Data

ALS WO# HS19111343

Sequence: 112619
Last Update Operator: alshs.nouser

HS19111343

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	ng	me	Status	Inject Time
	STD1	2970209205	Calibration	GA1	1.0000	1	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 2:08:06 PM -05:00
	STD2		Calibration	GA2	1.0000	2	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 2:24:42 PM -05:00
	STD3		Calibration	GA3	1.0000	3	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 2:41:19 PM -05:00
	STD4		Calibration	GA4	1.0000	4	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 2:57:54 PM -05:00
	STD5		Calibration	GA5	1.0000	5	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 3:14:30 PM -05:00
	STD6	F, NO2 MAX 10PPM	Calibration	GB8	1.0000	6	Anions Pro	Anions Pr	5.0	Finished	8/12/2019 6:37:32 PM -05:00
	ICV	2970209123	Unknown	GA7	1.0000		Anions Pro	Anions Pr	5.0	Finished	8/12/2019 6:54:07 PM -05:00
	ICB		Unknown	GB8	1.0000		Anions Pro	Anions Pr	5.0	Finished	8/12/2019 7:29:52 PM -05:00
	CCV		Unknown	BA5	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 6:13:03 PM -06:00
	CCB		Unknown	BA6	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 6:29:40 PM -06:00
	WBLKW1-112619		Unknown	GA1	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 6:46:21 PM -06:00
	WLCSW1-112619		Unknown	GA2	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 7:02:58 PM -06:00
	WLCSDW1-112619		Unknown	GA3	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 7:19:33 PM -06:00
	HS19111330-01		Unknown	GA4	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 7:45:30 PM -06:00
	HS19111332-01		Unknown	GA5	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 8:02:06 PM -06:00
	HS19111343-03	9056_W	Unknown	GA7	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 8:18:45 PM -06:00
	HS19111343-04		Unknown	GA8	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 8:35:21 PM -06:00
	HS19111343-06		Unknown	GB1	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 8:51:57 PM -06:00
	HS19111343-06MS		Unknown	GB2	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 9:08:32 PM -06:00
	HS19111343-06MSD		Unknown	GB3	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 9:25:08 PM -06:00
	CCV1		Unknown	BA7	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 9:41:50 PM -06:00
	CCB		Unknown	BA8	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 9:58:25 PM -06:00
	HS19110320-07DF20	9056_W	Unknown	GA6	20.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 10:15:02 PM -06:00
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	HS19111189-03MS		Unknown	GB5	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 10:48:14 PM -06:00
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	HS19111189-04		Unknown	GB7	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 11:21:24 PM -06:00
	HS19111190-01		Unknown	BB1	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 11:37:59 PM -06:00
	HS19111357-01		Unknown	BB2	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/26/2019 11:54:37 PM -06:00
	HS19111357-02		Unknown	BB3	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 12:11:12 AM -06:00
	HS19111357-03		Unknown	BB4	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 12:27:47 AM -06:00
	HS19111357-04		Unknown	BB5	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 12:44:22 AM -06:00
	CCV		Unknown	BA5	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 1:00:59 AM -06:00
	CCB		Unknown	BA6	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 1:17:35 AM -06:00
	HS19111357-05		Unknown	BB6	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 1:34:10 AM -06:00
	HS19111324-01DF5		Unknown	BB7	5.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 1:50:46 AM -06:00
	HS19111324-02DF5		Unknown	BB8	5.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 2:07:23 AM -06:00
	HS19111324-03DF5		Unknown	BC1	5.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 2:23:58 AM -06:00
	CCV1		Unknown	BA7	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 2:57:10 AM -06:00

Sequence: 112619
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	ng	me	Status	Inject Time
	CCB		Unknown	BA8	1.0000		Anions Pro	Anions Pr	5.0	Finished	11/27/2019 3:13:48 AM -06:00

Sequence: 112619
Injection #6: STD6

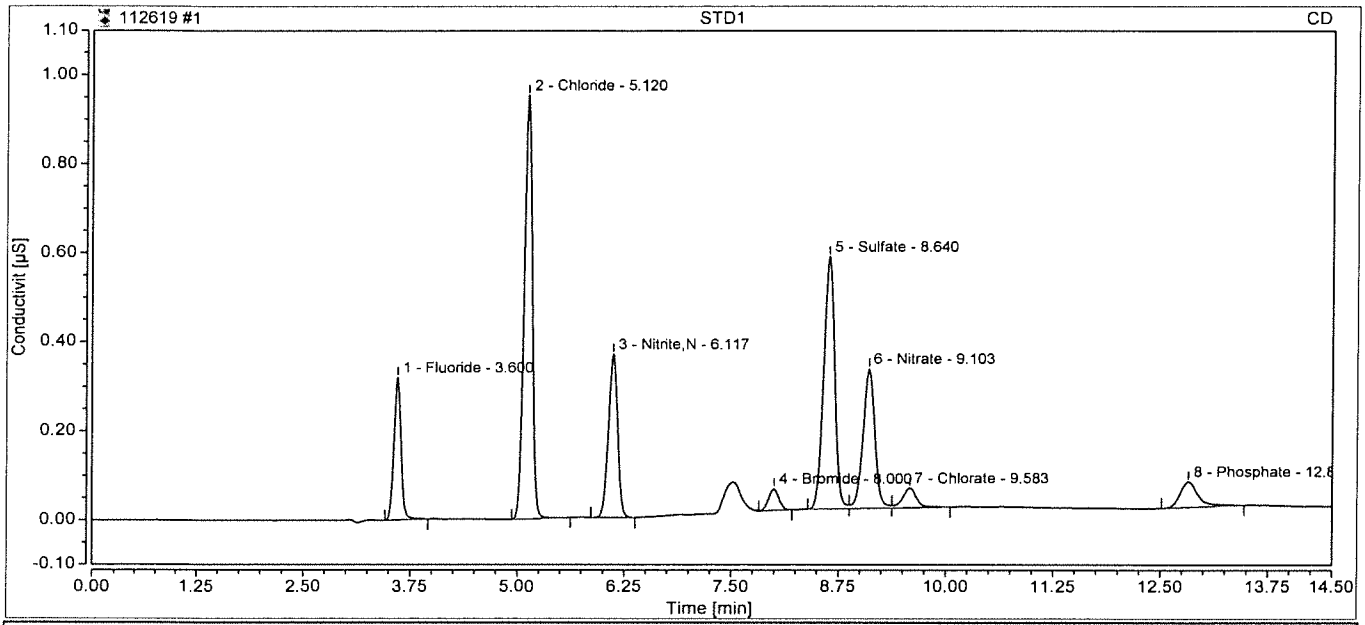
Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*Fluoride*	*Lin, WithOffset, 1/x*	*Area*	*5*	*10.1532*	*0.99927*	*-0.0056*	*0.3716*	*0.0000*
2	Chloride	Lin, WithOffset, 1/x	Area	6	0.2804	1.00000	-0.0135	0.2355	0.0000
3	Nitrite,N	Lin, WithOffset, 1/x	Area	5	15.1147	0.99824	0.0003	0.5120	0.0000
4	Bromide	Lin, WithOffset, 1/x	Area	6	14.0217	0.99919	-0.0052	0.1009	0.0000
5	Sulfate	Lin, WithOffset, 1/x	Area	6	1.1258	0.99999	-0.0022	0.1717	0.0000
6	Nitrate	Lin, WithOffset, 1/x	Area	6	2.2249	0.99998	-0.0102	0.5876	0.0000
7	Chlorate	Lin, WithOffset, 1/x	Area	6	10.0265	0.99953	-0.0024	0.0944	0.0000
8	Phosphate	Lin, WithOffset, 1/x	Area	6	6.6198	0.99981	-0.0110	0.2321	0.0000
Maximum					15.1147	1.00000			
Minimum					0.2804	0.99824			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 14:08**	*Sample Weight:*	**1.0000**

Run Time:



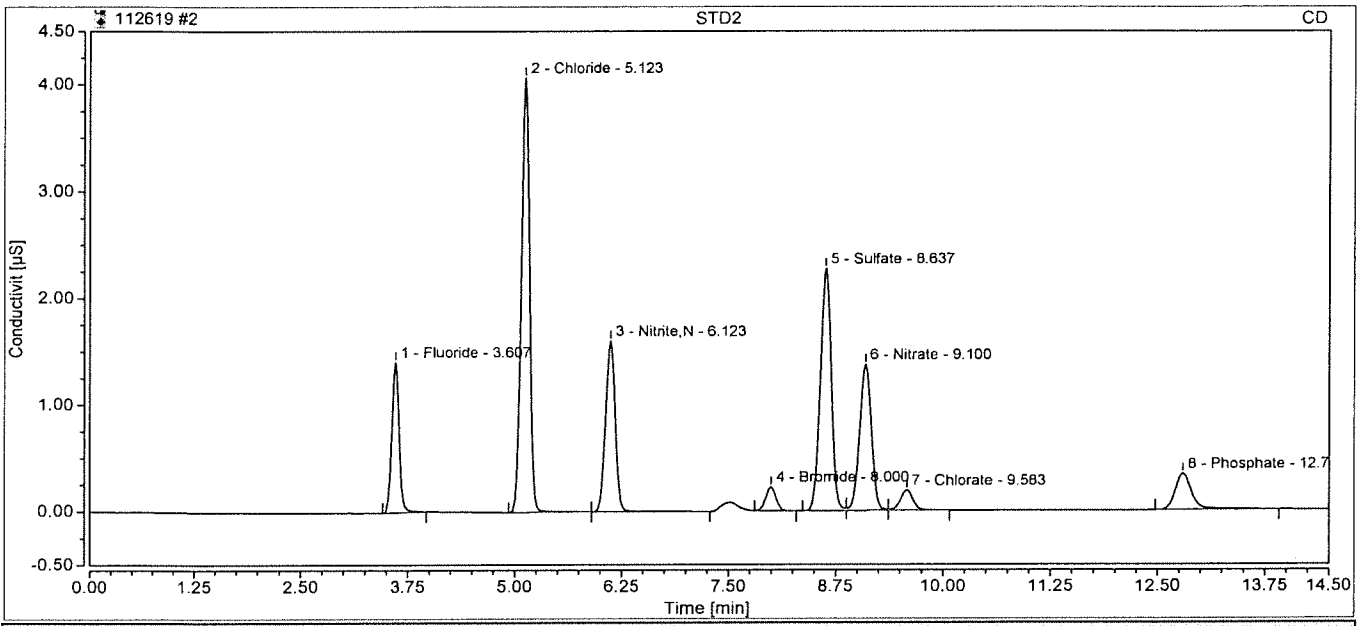
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.031	0.0973	0.0973	1.0000
2	5.12	Chloride	BMB	0.105	0.5026	0.5026	1.0000
3	6.12	Nitrite,N	BMB	0.046	0.0893	0.0893	1.0000
4	8.00	Bromide	BMB	0.007	0.1192	0.1192	1.0000
5	8.64	Sulfate	BM	0.084	0.5042	0.5042	1.0000
6	9.10	Nitrate	M	0.051	0.1034	0.1034	1.0000
7	9.58	Chlorate	MB	0.008	0.1143	0.1143	1.0000
8	12.83	Phosphate	BMB	0.014	0.1085	0.1085	1.0000
Total:			**0.000**	**0.346**		**1.64**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 14:24**	*Sample Weight:*	**1.0000**

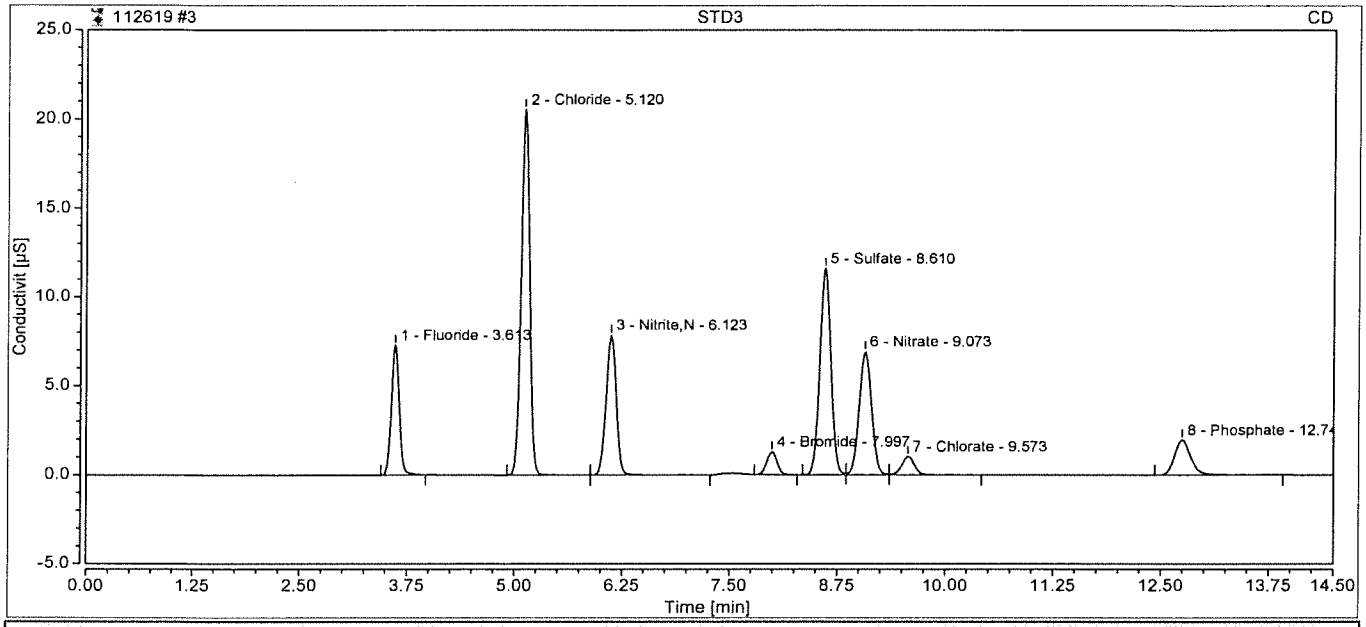
Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.140	0.3929	0.3929	1.0000
2	5.12	Chloride	BMB	0.456	1.9918	1.9918	1.0000
3	6.12	Nitrite,N	BMB	0.211	0.4119	0.4119	1.0000
4	8.00	Bromide	BMB	0.031	0.3593	0.3593	1.0000
5	8.64	Sulfate	BM	0.337	1.9733	1.9733	1.0000
6	9.10	Nitrate	M	0.220	0.3917	0.3917	1.0000
7	9.58	Chlorate	MB	0.033	0.3704	0.3704	1.0000
8	12.80	Phosphate	BMB	0.078	0.3841	0.3841	1.0000
Total:			**0.000**	**1.506**		**6.28**	

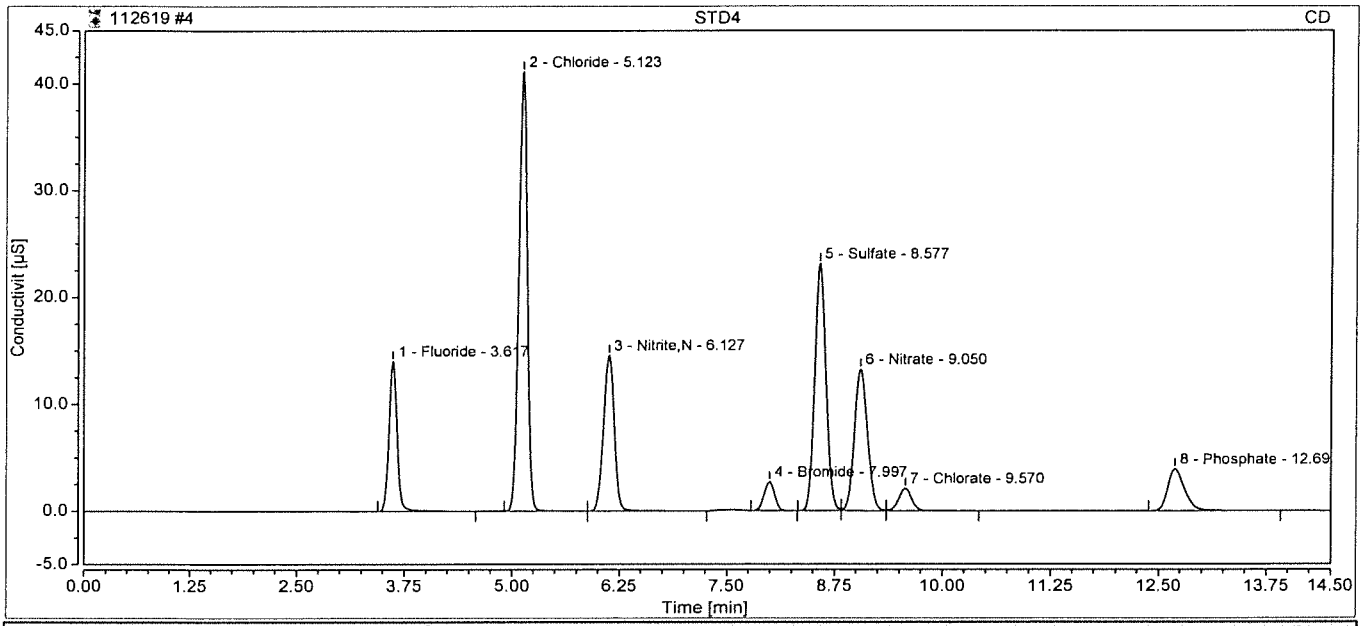
3 STD3			
Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 14:41**	*Sample Weight:*	**1.0000**
Run Time:			



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.758	2.0551	2.0551	1.0000
2	5.12	Chloride	BMB	2.339	9.9888	9.9888	1.0000
3	6.12	Nitrite,N	BMB	1.091	2.1305	2.1305	1.0000
4	8.00	Bromide	BMB	0.182	1.8590	1.8590	1.0000
5	8.61	Sulfate	BM	1.715	10.0007	10.0007	1.0000
6	9.07	Nitrate	M	1.153	1.9792	1.9792	1.0000
7	9.57	Chlorate	MB	0.176	1.8940	1.8940	1.0000
8	12.75	Phosphate	BMB	0.436	1.9269	1.9269	1.0000
Total:			**0.000**	**7.851**		**31.83**	

4 STD4			
Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 14:57**	*Sample Weight:*	**1.0000**
Run Time:			



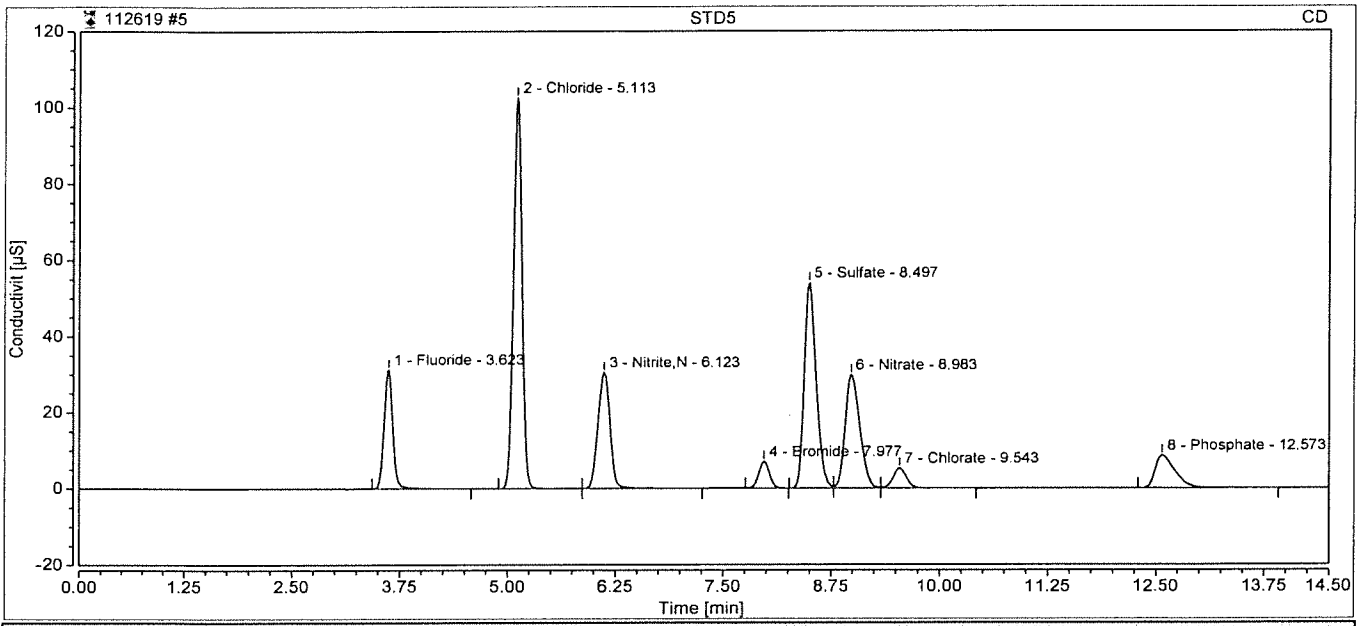
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.535	4.1457	4.1457	1.0000
2	5.12	Chloride	BMB	4.695	19.9948	19.9948	1.0000
3	6.13	Nitrite,N	BMB	2.133	4.1659	4.1659	1.0000
4	8.00	Bromide	BMB	0.385	3.8642	3.8642	1.0000
5	8.58	Sulfate	BM	3.451	20.1082	20.1082	1.0000
6	9.05	Nitrate	M	2.330	3.9823	3.9823	1.0000
7	9.57	Chlorate	MB	0.365	3.8956	3.8956	1.0000
8	12.69	Phosphate	BMB	0.903	3.9395	3.9395	1.0000
Total:			**0.000**	**15.798**		**64.10**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 15:14**	*Sample Weight:*	**1.0000**

Run Time:



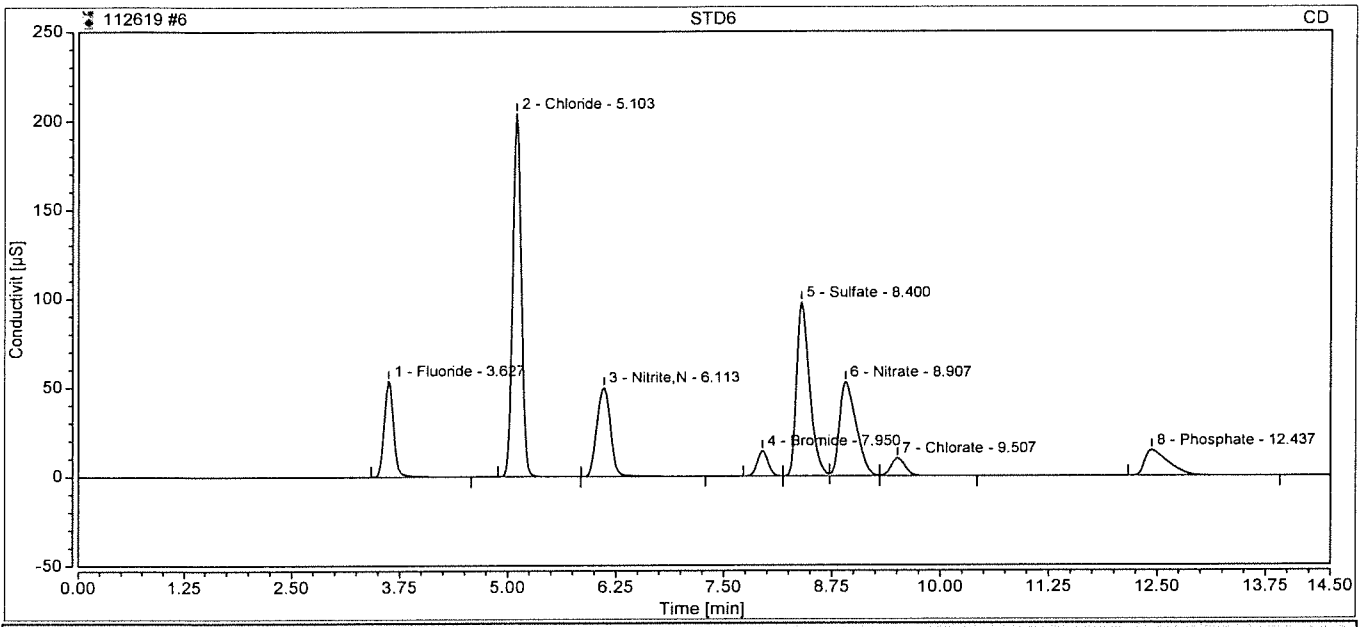
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.639	9.8090	9.8090	1.0000
2	5.11	Chloride	BMB	11.762	49.9996	49.9996	1.0000
3	6.12	Nitrite,N	BMB	4.968	9.7023	9.7023	1.0000
4	7.98	Bromide	BMB	1.001	9.9786	9.9786	1.0000
5	8.50	Sulfate	BM	8.590	50.0271	50.0271	1.0000
6	8.98	Nitrate	M	5.854	9.9805	9.9805	1.0000
7	9.54	Chlorate	MB	0.939	9.9670	9.9670	1.0000
8	12.57	Phosphate	BMB	2.305	9.9803	9.9803	1.0000
Total:			**0.000**	**39.057**		**159.44**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**GB8**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 18:37**	*Sample Weight:*	**1.0000**

Run Time:



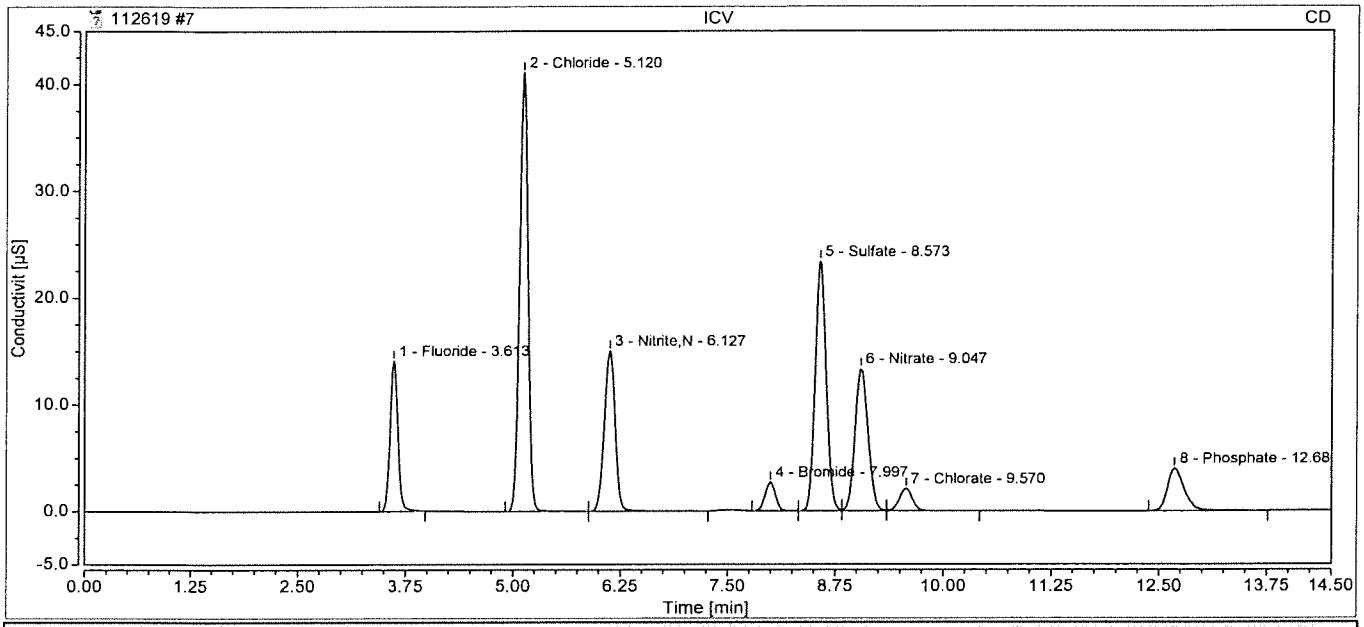
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.63	Fluoride	BMB	6.773	18.2418	18.2418	1.0000
2	5.10	Chloride	BMB	23.542	100.0224	100.0224	1.0000
3	6.11	Nitrite,N	BMB	9.157	17.8850	17.8850	1.0000
4	7.95	Bromide	BM	2.045	20.3197	20.3197	1.0000
5	8.40	Sulfate	M	17.153	99.8863	99.8863	1.0000
6	8.91	Nitrate	M	11.778	20.0629	20.0629	1.0000
7	9.51	Chlorate	MB	1.910	20.2586	20.2586	1.0000
8	12.44	Phosphate	BMB	4.668	20.1606	20.1606	1.0000
Total:			**0.000**	**77.025**		**316.84**	

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 18:54**	*Sample Weight:*	**1.0000**

Run Time:



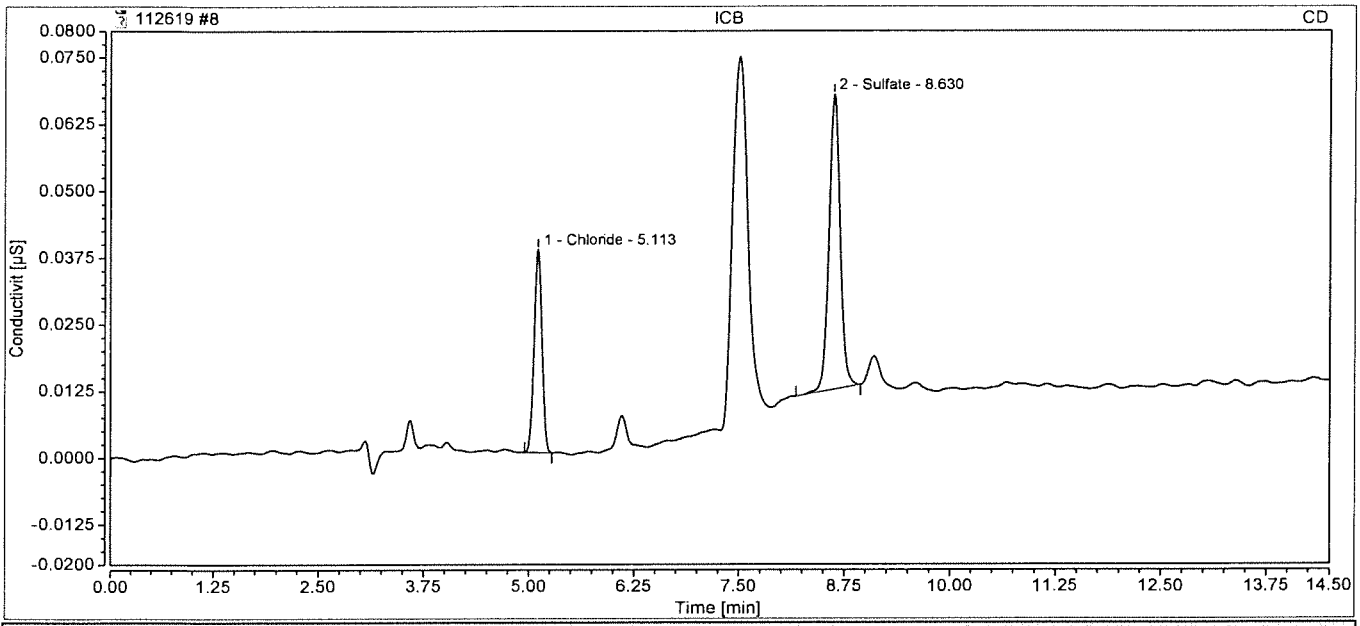
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	1.495	4.0374	4.0374	1.0000
2	5.12	Chloride	BMB	4.681	19.9333	19.9333	1.0000
3	6.13	Nitrite,N	BMB	2.195	4.2858	4.2858	1.0000
4	8.00	Bromide	BMB	0.384	3.8585	3.8585	1.0000
5	8.57	Sulfate	BM	3.469	20.2132	20.2132	1.0000
6	9.05	Nitrate	M	2.340	3.9993	3.9993	1.0000
7	9.57	Chlorate	MB	0.367	3.9104	3.9104	1.0000
8	12.68	Phosphate	BMB	0.911	3.9732	3.9732	1.0000
Total:			**0.000**	**15.841**		**64.21**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**GB8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/12/2019 19:29**	*Sample Weight:*	**1.0000**

Run Time:



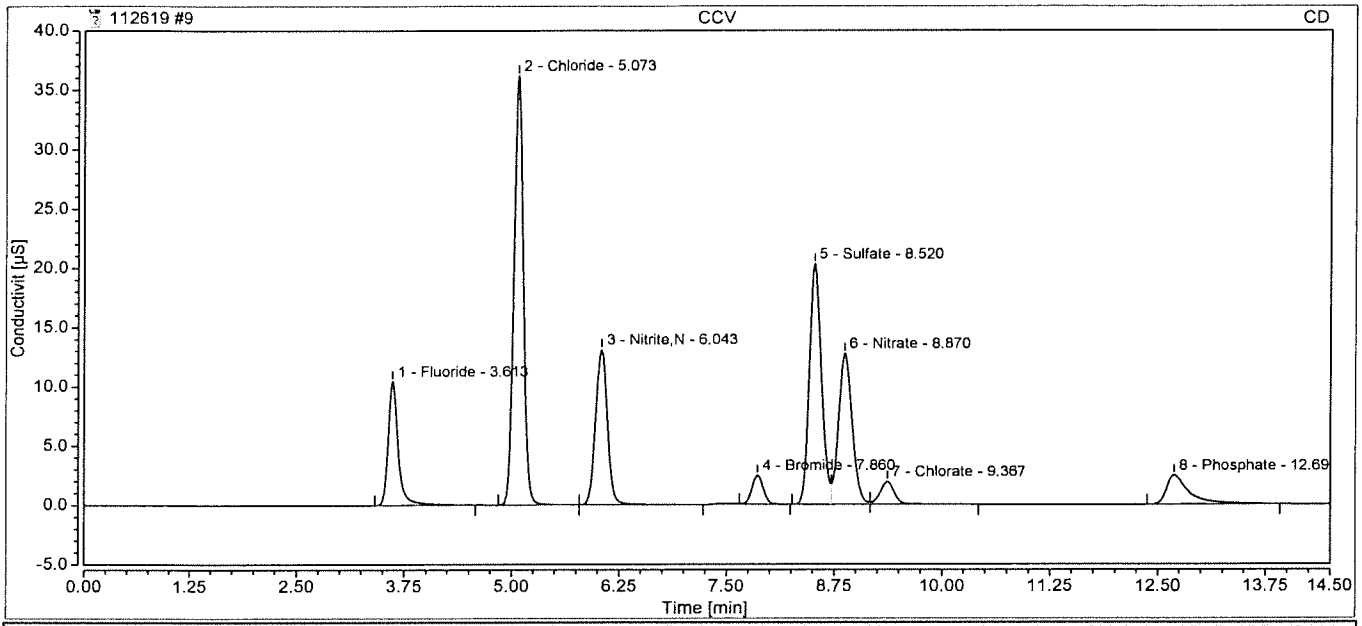
Integration Results

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	5.11	Chloride	BMB	0.004	0.0748	0.0748	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	8.63	Sulfate	BMB	0.008	0.0618	0.0618	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.013**		**0.14**	

9 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 18:13**	*Sample Weight:*	**1.0000**

Run Time:



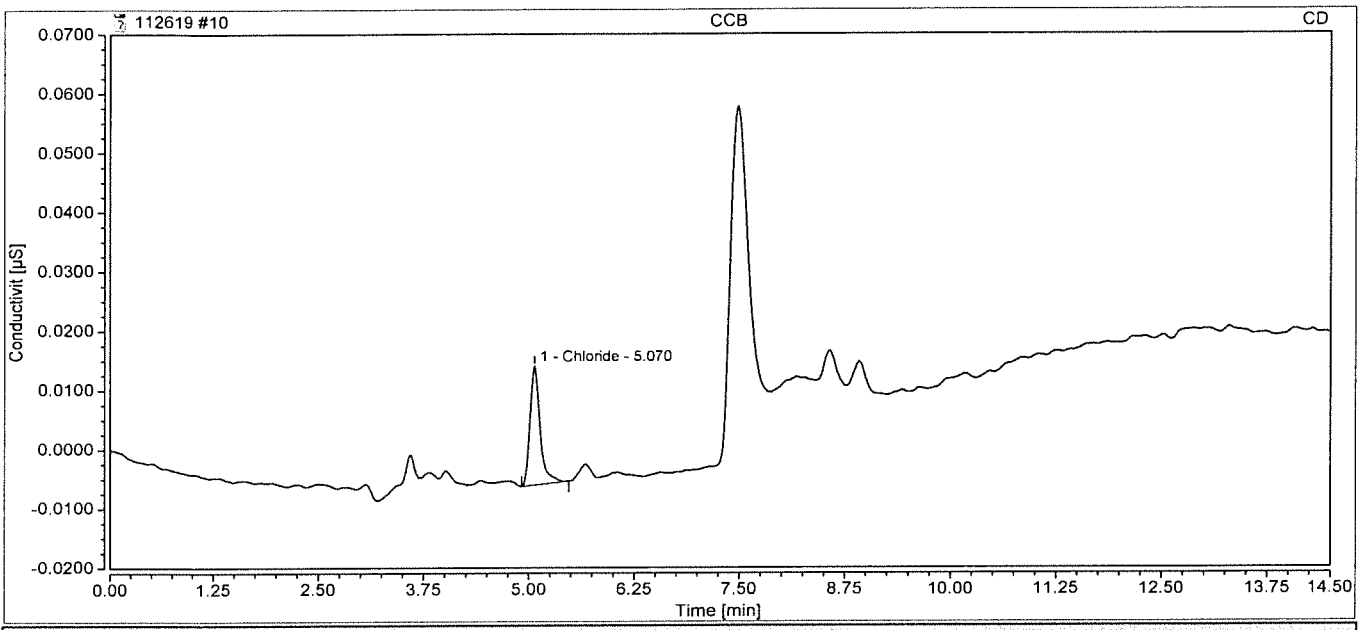
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	1.442	3.8969	3.8969	1.0000
2	5.07	Chloride	BMB	4.617	19.6606	19.6606	1.0000
3	6.04	Nitrite,N	BMB	2.097	4.0956	4.0956	1.0000
4	7.86	Bromide	BMB	0.365	3.6689	3.6689	1.0000
5	8.52	Sulfate	BM	3.309	19.2818	19.2818	1.0000
6	8.87	Nitrate	M	2.348	4.0139	4.0139	1.0000
7	9.37	Chlorate	MB	0.375	3.9966	3.9966	1.0000
8	12.69	Phosphate	BMB	0.765	3.3434	3.3434	1.0000
Total:			**0.000**	**15.319**		**61.96**	

10 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 18:29**	*Sample Weight:*	**1.0000**

Run Time:



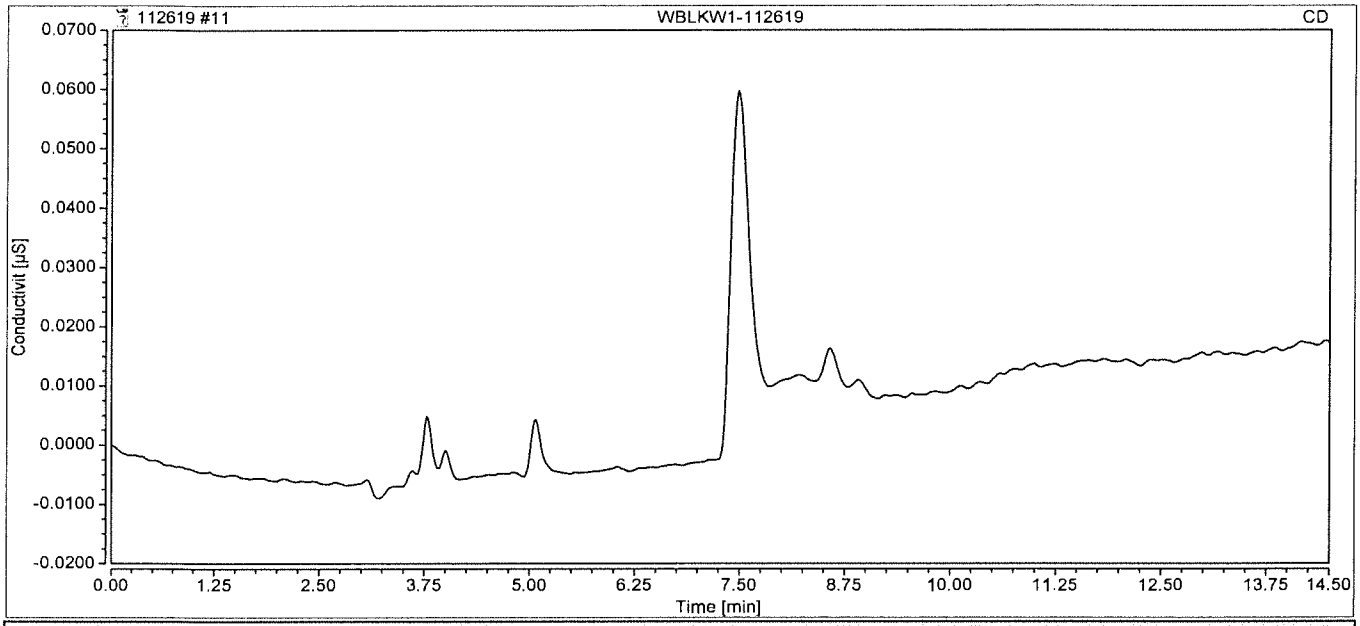
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.003	0.0691	0.0691	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.003**		**0.07**	

11 WBLKW1-112619

Sample Name:	**WBLKW1-112619**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 18:46**	*Sample Weight:*	**1.0000**

Run Time:



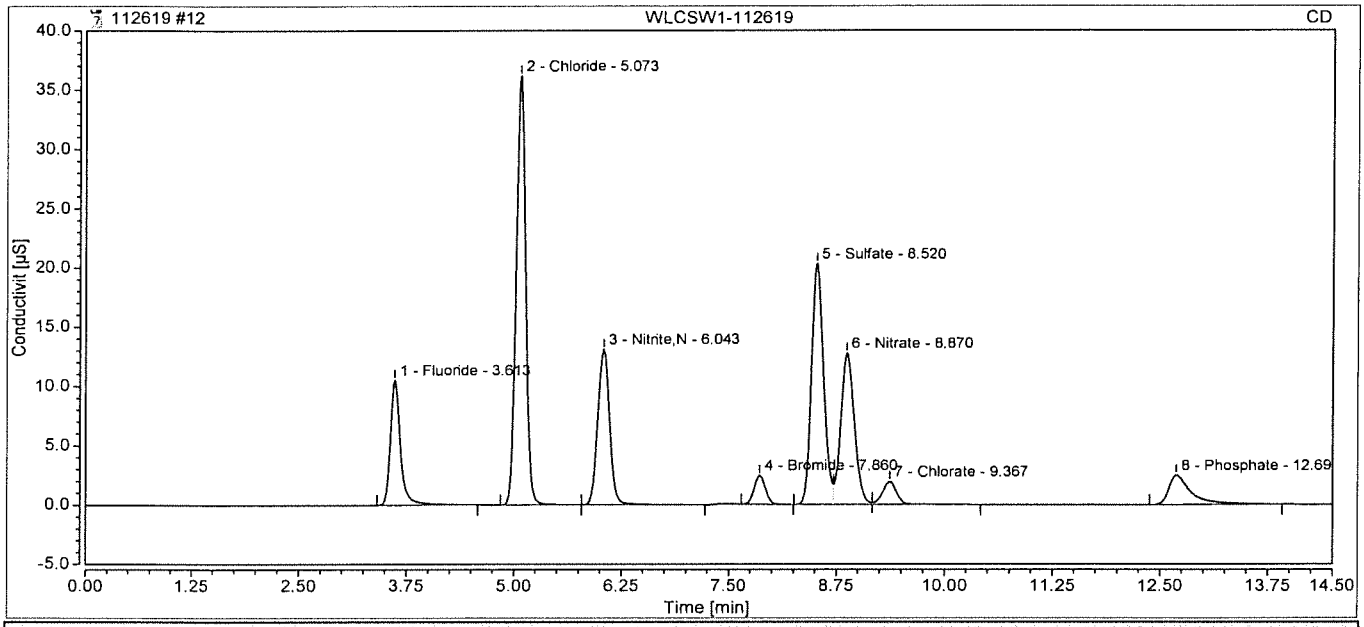
Integration Results

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**	

12 WLCSW1-112619

Sample Name:	**WLCSW1-112619**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 19:02**	*Sample Weight:*	**1.0000**

Run Time:



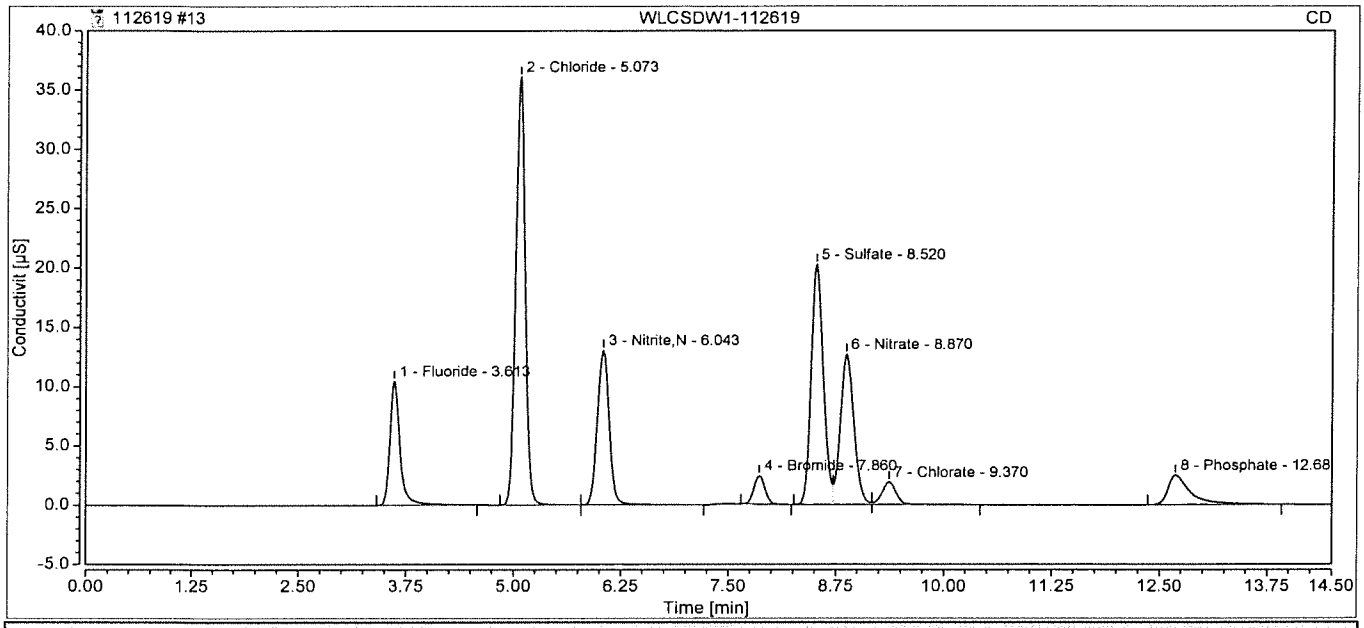
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	1.449	3.9149	3.9149	1.0000
2	5.07	Chloride	BMB	4.614	19.6496	19.6496	1.0000
3	6.04	Nitrite,N	BMB	2.098	4.0977	4.0977	1.0000
4	7.86	Bromide	BMB	0.366	3.6787	3.6787	1.0000
5	8.52	Sulfate	BM	3.313	19.3047	19.3047	1.0000
6	8.87	Nitrate	M	2.349	4.0157	4.0157	1.0000
7	9.37	Chlorate	MB	0.376	4.0035	4.0035	1.0000
8	12.69	Phosphate	BMB	0.766	3.3483	3.3483	1.0000
Total:			**0.000**	**15.331**		**62.01**	

13 WLCSDW1-112619

Sample Name:	**WLCSDW1-112619**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 19:19**	*Sample Weight:*	**1.0000**

Run Time:



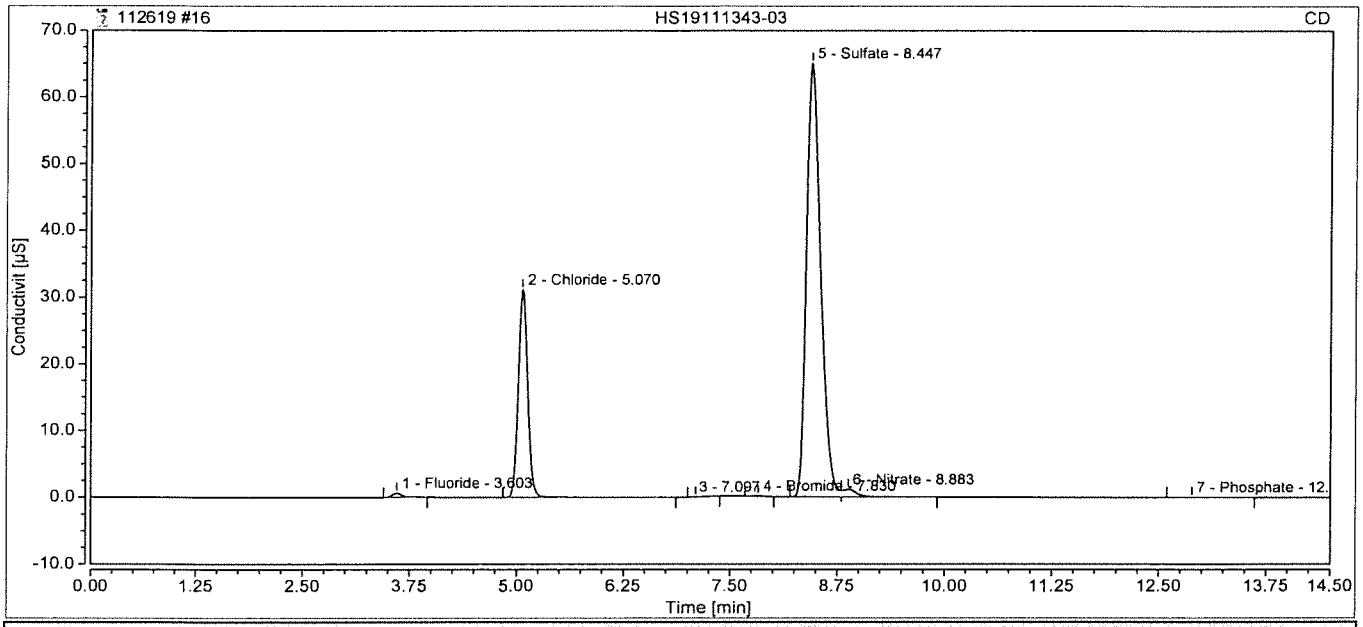
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	1.439	3.8890	3.8890	1.0000
2	5.07	Chloride	BMB	4.601	19.5959	19.5959	1.0000
3	6.04	Nitrite,N	BMB	2.091	4.0840	4.0840	1.0000
4	7.86	Bromide	BMB	0.362	3.6377	3.6377	1.0000
5	8.52	Sulfate	BM	3.303	19.2449	19.2449	1.0000
6	8.87	Nitrate	M	2.342	4.0036	4.0036	1.0000
7	9.37	Chlorate	MB	0.373	3.9765	3.9765	1.0000
8	12.69	Phosphate	BMB	0.772	3.3727	3.3727	1.0000
Total:			**0.000**	**15.284**		**61.80**	

16 HS19111343-03

Sample Name:	**HS19111343-03**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 20:18**	*Sample Weight:*	**1.0000**

Run Time:



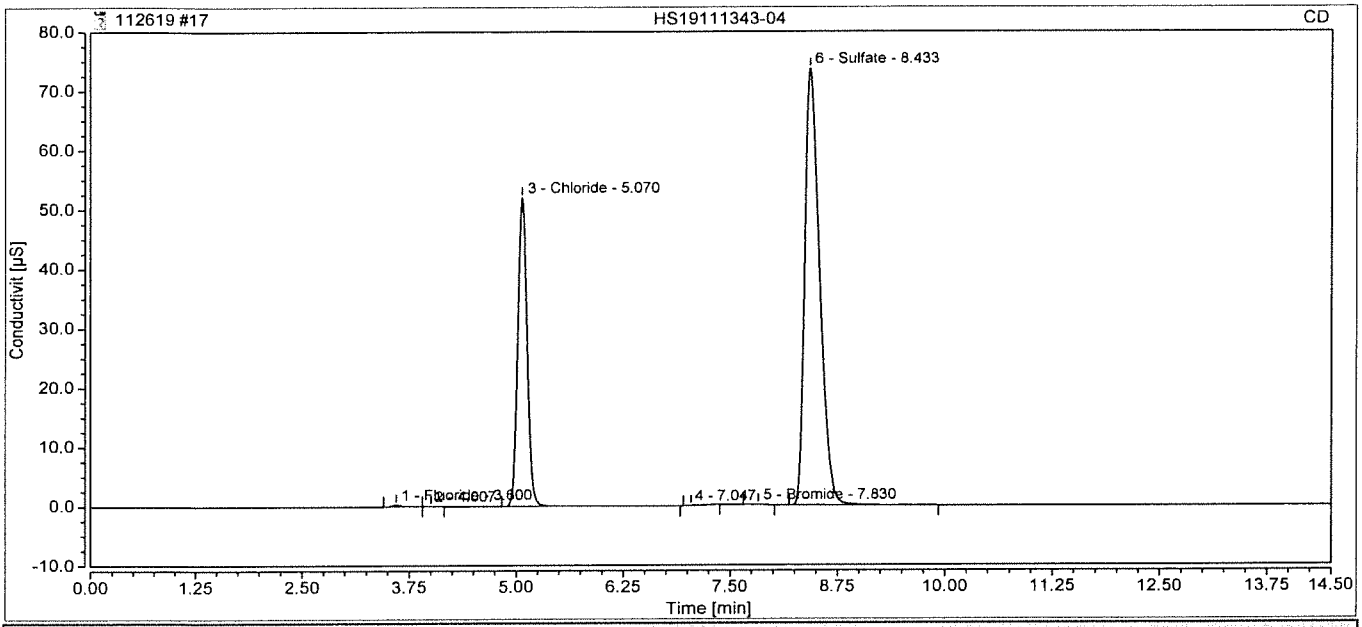
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.088	0.2512	0.2512	1.0000
2	5.07	Chloride	BMB	3.961	16.8777	16.8777	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	7.83	Bromide	BMB	0.009	0.1397	0.1397	1.0000
5	8.45	Sulfate	BM	12.481	72.6859	72.6859	1.0000
6	8.88	Nitrate	MB	0.221	0.3939	0.3939	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
7	12.88	Phosphate	BMB	0.003	0.0604	0.0604	1.0000
Total:			**0.000**	**16.763**		**90.41**	

17 HS19111343-04

Sample Name:	**HS19111343-04**	*Injection Volume:*	**5.00**
Vial Number:	**GA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 20:35**	*Sample Weight:*	**1.0000**

Run Time:



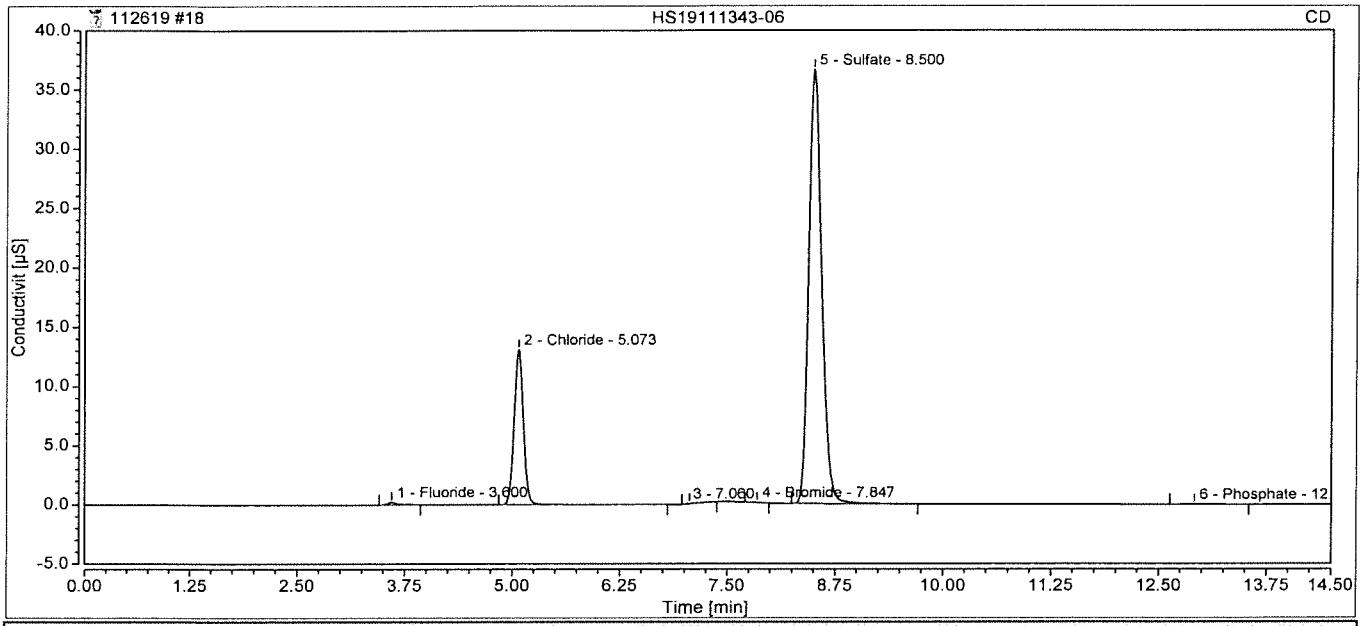
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.039	0.1210	0.1210	1.0000
3	5.07	Chloride	BMB	6.610	28.1255	28.1255	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	7.83	Bromide	BMB	0.011	0.1571	0.1571	1.0000
6	8.43	Sulfate	BMB	14.746	85.8727	85.8727	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**21.406**		**114.28**	

18 HS19111343-06

Sample Name:	**HS19111343-06**	*Injection Volume:*	**5.00**
Vial Number:	**GB1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 20:51**	*Sample Weight:*	**1.0000**

Run Time:



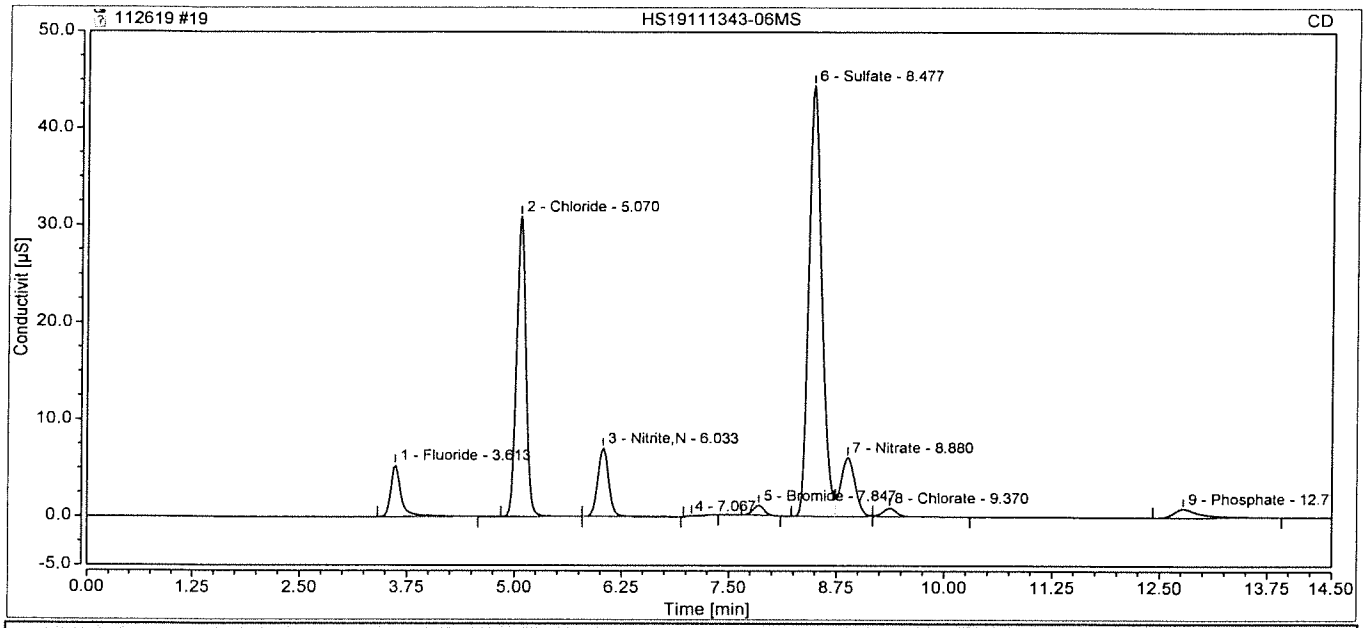
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.60	Fluoride	BMB	0.029	0.0941	0.0941	1.0000
2	5.07	Chloride	BMB	1.647	7.0488	7.0488	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	7.85	Bromide	BMB	0.002	0.0740	0.0740	1.0000
5	8.50	Sulfate	BMB	6.368	37.0928	37.0928	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
6	12.92	Phosphate	BMB	0.002	0.0576	0.0576	1.0000
Total:			**0.000**	**8.049**		**44.37**	

19 HS19111343-06MS

Sample Name:	**HS19111343-06MS**	*Injection Volume:*	**5.00**
Vial Number:	**GB2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 21:08**	*Sample Weight:*	**1.0000**

Run Time:



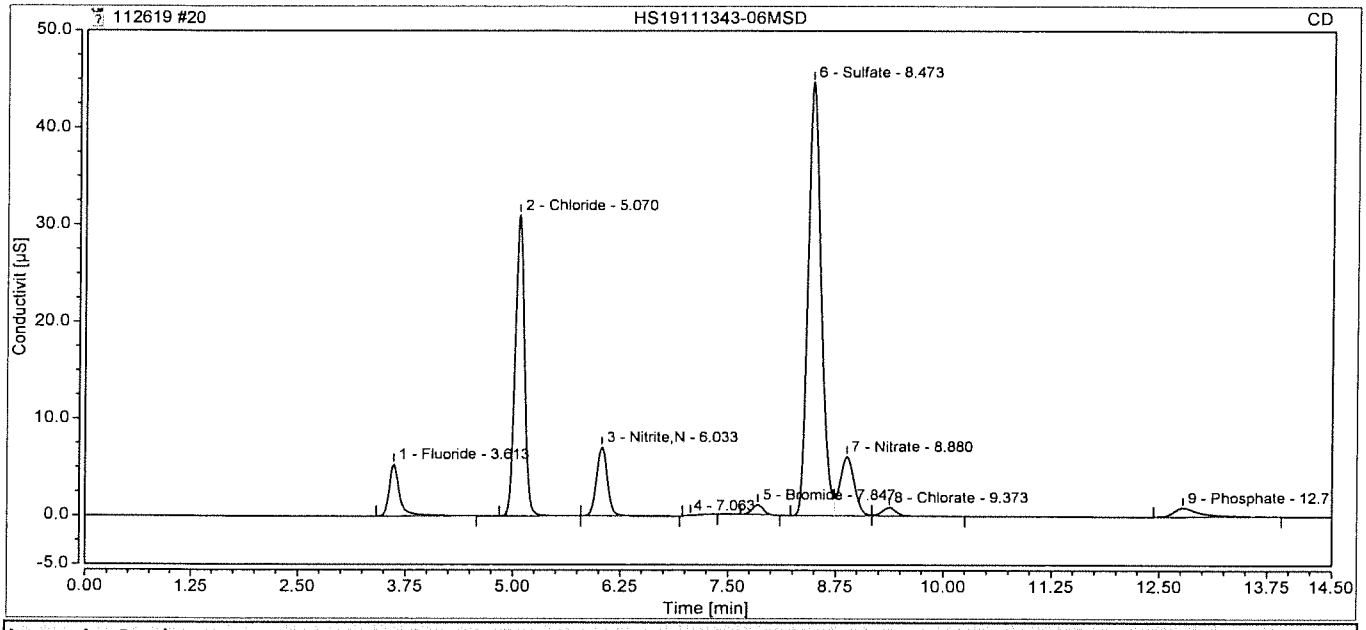
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.747	2.0259	2.0259	1.0000
2	5.07	Chloride	BMB	3.901	16.6200	16.6200	1.0000
3	6.03	Nitrite,N	BMB	1.045	2.0406	2.0406	1.0000
5	7.85	Bromide	BMB	0.155	1.5903	1.5903	1.0000
6	8.48	Sulfate	BM	7.811	45.4926	45.4926	1.0000
7	8.88	Nitrate	M	1.179	2.0243	2.0243	1.0000
8	9.37	Chlorate	MB	0.171	1.8416	1.8416	1.0000
9	12.77	Phosphate	BMB	0.325	1.4471	1.4471	1.0000
Total:			**0.000**	**15.334**		**73.08**	

20 HS19111343-06MSD

Sample Name:	**HS19111343-06MSD**	*Injection Volume:*	**5.00**
Vial Number:	**GB3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 21:25**	*Sample Weight:*	**1.0000**

Run Time:



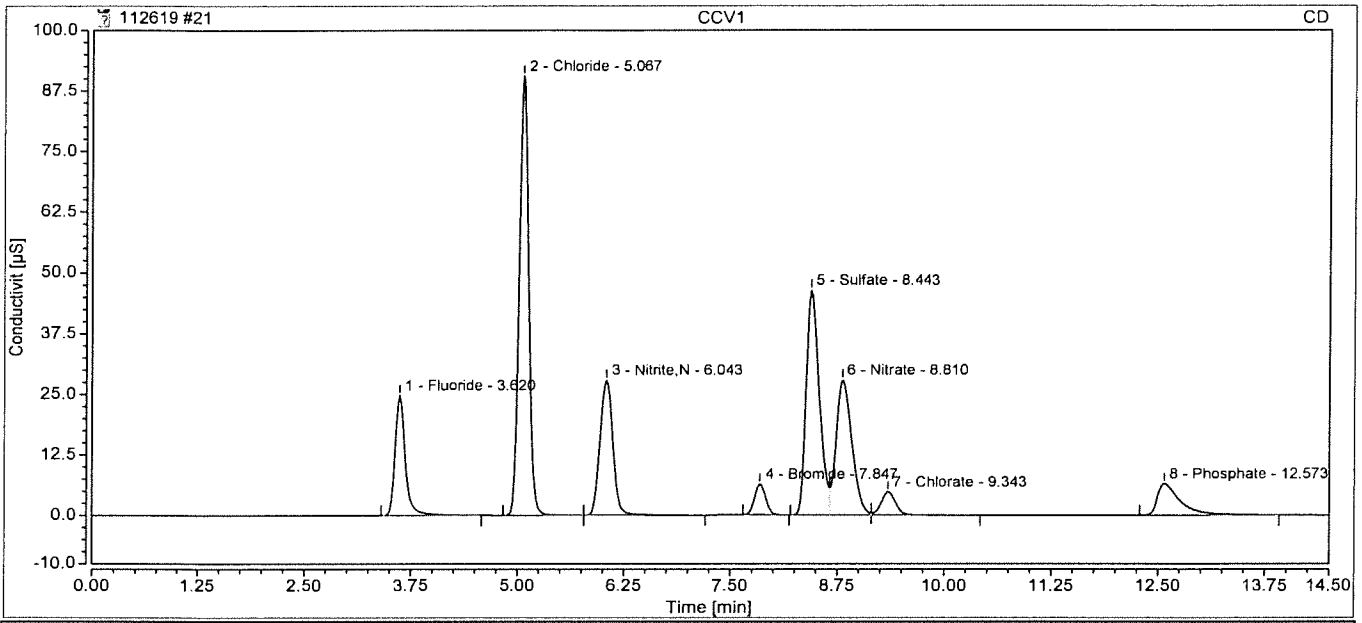
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.753	2.0418	2.0418	1.0000
2	5.07	Chloride	BMB	3.912	16.6691	16.6691	1.0000
3	6.03	Nitrite,N	BMB	1.052	2.0541	2.0541	1.0000
5	7.85	Bromide	BMB	0.156	1.6031	1.6031	1.0000
6	8.47	Sulfate	BM	7.877	45.8774	45.8774	1.0000
7	8.88	Nitrate	M	1.186	2.0363	2.0363	1.0000
8	9.37	Chlorate	MB	0.172	1.8524	1.8524	1.0000
9	12.77	Phosphate	BMB	0.337	1.4982	1.4982	1.0000
Total:			**0.000**	**15.446**		**73.63**	

21 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 21:41**	*Sample Weight:*	**1.0000**

Run Time:



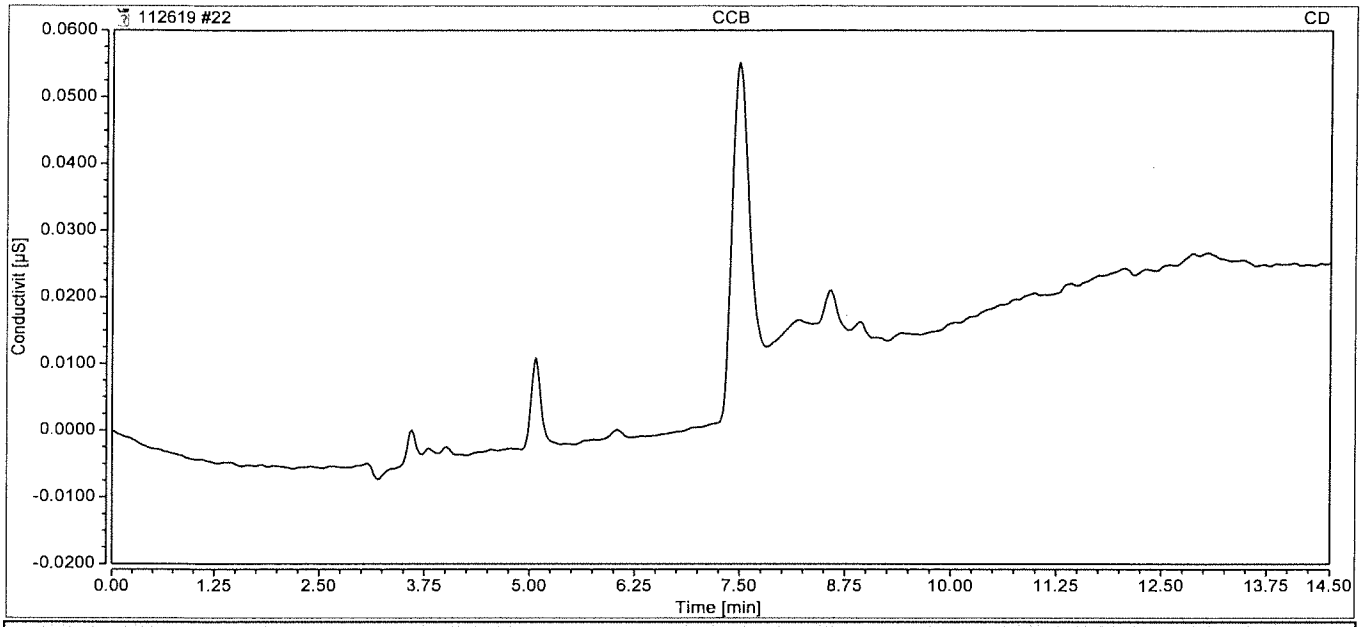
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.545	9.5551	9.5551	1.0000
2	5.07	Chloride	BMB	11.650	49.5262	49.5262	1.0000
3	6.04	Nitrite,N	BMB	4.931	9.6294	9.6294	1.0000
4	7.85	Bromide	BMB	0.969	9.6579	9.6579	1.0000
5	8.44	Sulfate	BM	8.297	48.3227	48.3227	1.0000
6	8.81	Nitrate	M	5.979	10.1934	10.1934	1.0000
7	9.34	Chlorate	MB	0.953	10.1178	10.1178	1.0000
8	12.57	Phosphate	BMB	2.082	9.0205	9.0205	1.0000
Total:			**0.000**	**38.406**		**156.02**	

22 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 21:58**	*Sample Weight:*	**1.0000**

Run Time:



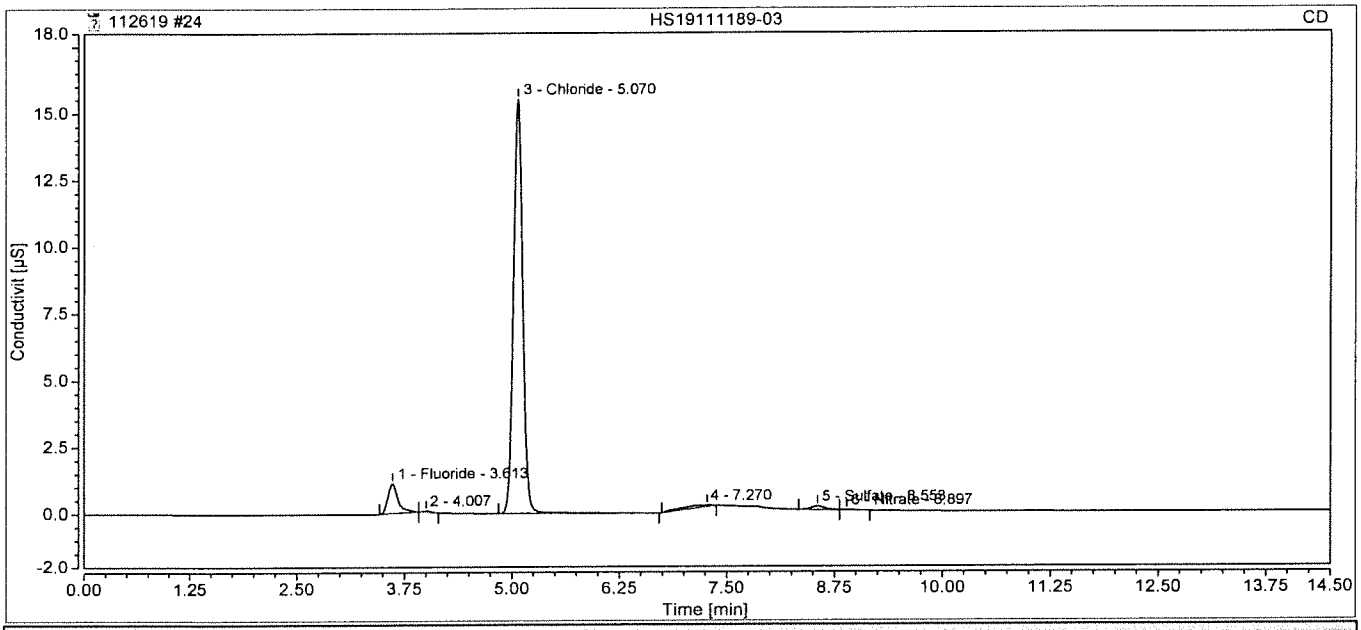
Integration Results

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
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

24 HS19111189-03

Sample Name:	**HS19111189-03**	*Injection Volume:*	**5.00**
Vial Number:	**GB4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 22:31**	*Sample Weight:*	**1.0000**

Run Time:



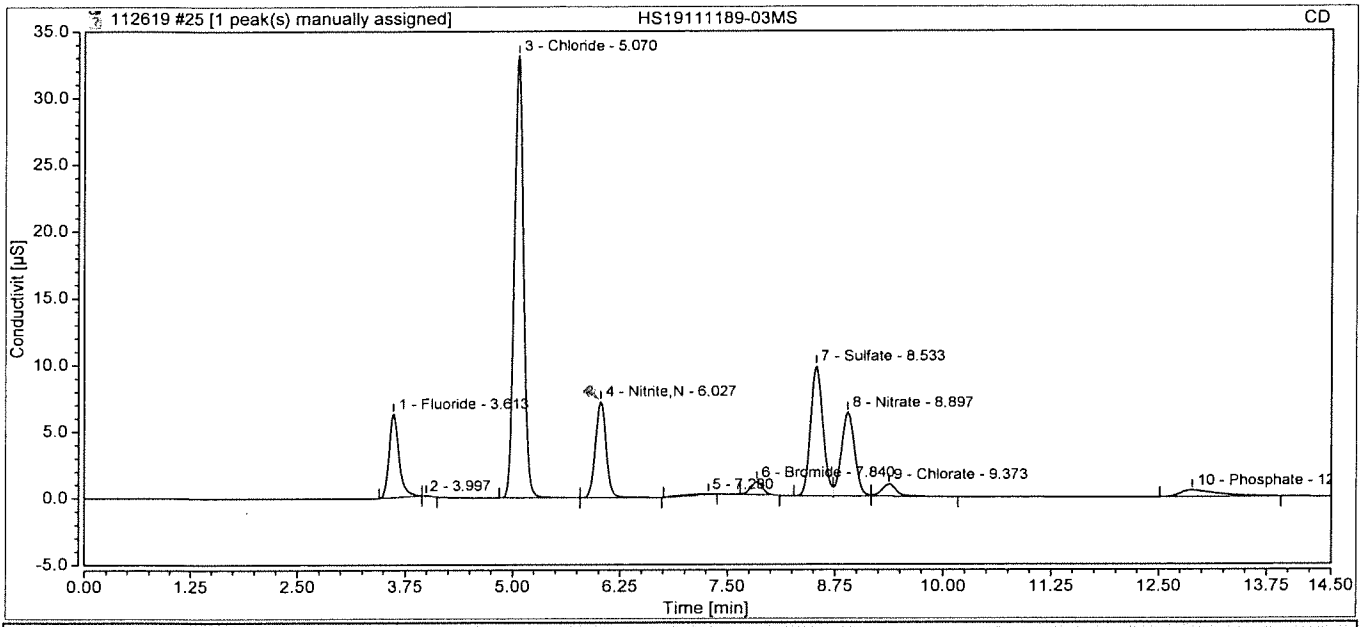
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.152	0.4251	0.4251	1.0000
3	5.07	Chloride	BMB	1.947	8.3264	8.3264	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.55	Sulfate	BM	0.025	0.1582	0.1582	1.0000
6	8.90	Nitrate	MB	0.003	0.0229	0.0229	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**2.128**		**8.93**	

25 HS19111189-03MS

Sample Name:	**HS19111189-03MS**	*Injection Volume:*	**5.00**
Vial Number:	**GB5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 22:48**	*Sample Weight:*	**1.0000**

Run Time:



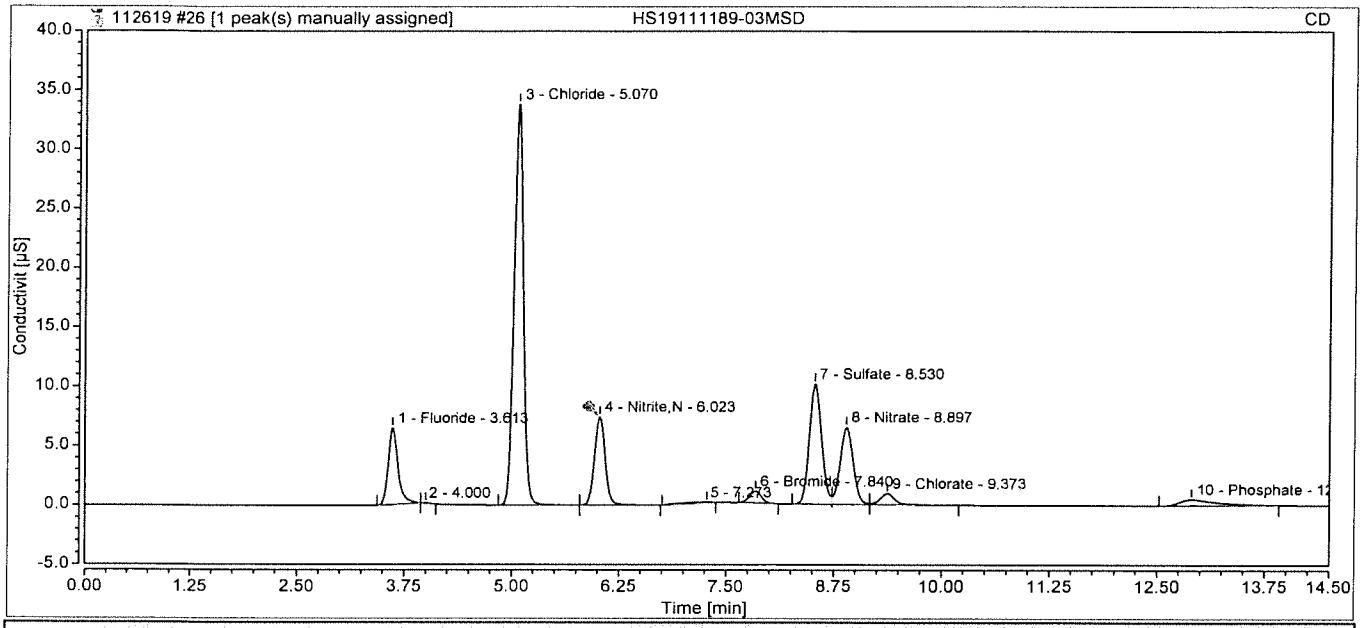
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.826	2.2378	2.2378	1.0000
3	5.07	Chloride	BMB	4.180	17.8083	17.8083	1.0000
4	6.03	Nitrite,N	BMB^	1.043	2.0356	2.0356	1.0000
6	7.84	Bromide	BMB	0.155	1.5853	1.5853	1.0000
7	8.53	Sulfate	BM	1.625	9.4739	9.4739	1.0000
8	8.90	Nitrate	M	1.127	1.9350	1.9350	1.0000
9	9.37	Chlorate	MB	0.189	2.0246	2.0246	1.0000
10	12.89	Phosphate	BMB	0.256	1.1512	1.1512	1.0000
Total:			**0.000**	**9.400**		**38.25**	

26 *HS19111189-03MSD*

Sample Name:	**HS19111189-03MSD**	*Injection Volume:*	**5.00**
Vial Number:	**GB6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/26/2019 23:04**	*Sample Weight:*	**1.0000**

Run Time:



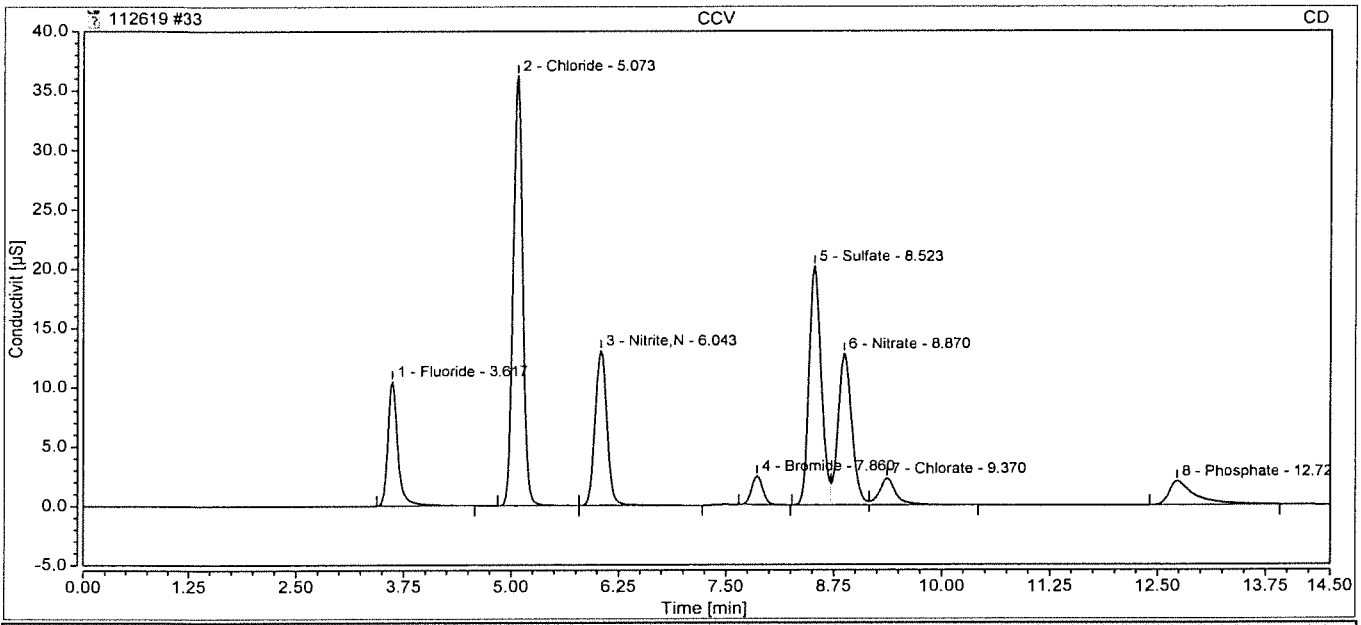
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.61	Fluoride	BMB	0.847	2.2955	2.2955	1.0000
3	5.07	Chloride	BMB	4.256	18.1279	18.1279	1.0000
4	6.02	Nitrite,N	BMB^	1.071	2.0902	2.0902	1.0000
6	7.84	Bromide	BMB	0.160	1.6343	1.6343	1.0000
7	8.53	Sulfate	BM	1.683	9.8122	9.8122	1.0000
8	8.90	Nitrate	M	1.158	1.9881	1.9881	1.0000
9	9.37	Chlorate	MB	0.193	2.0713	2.0713	1.0000
10	12.90	Phosphate	BMB	0.265	1.1900	1.1900	1.0000
Total:			**0.000**	**9.632**		**39.21**	

33 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/27/2019 01:00**	*Sample Weight:*	**1.0000**

Run Time:



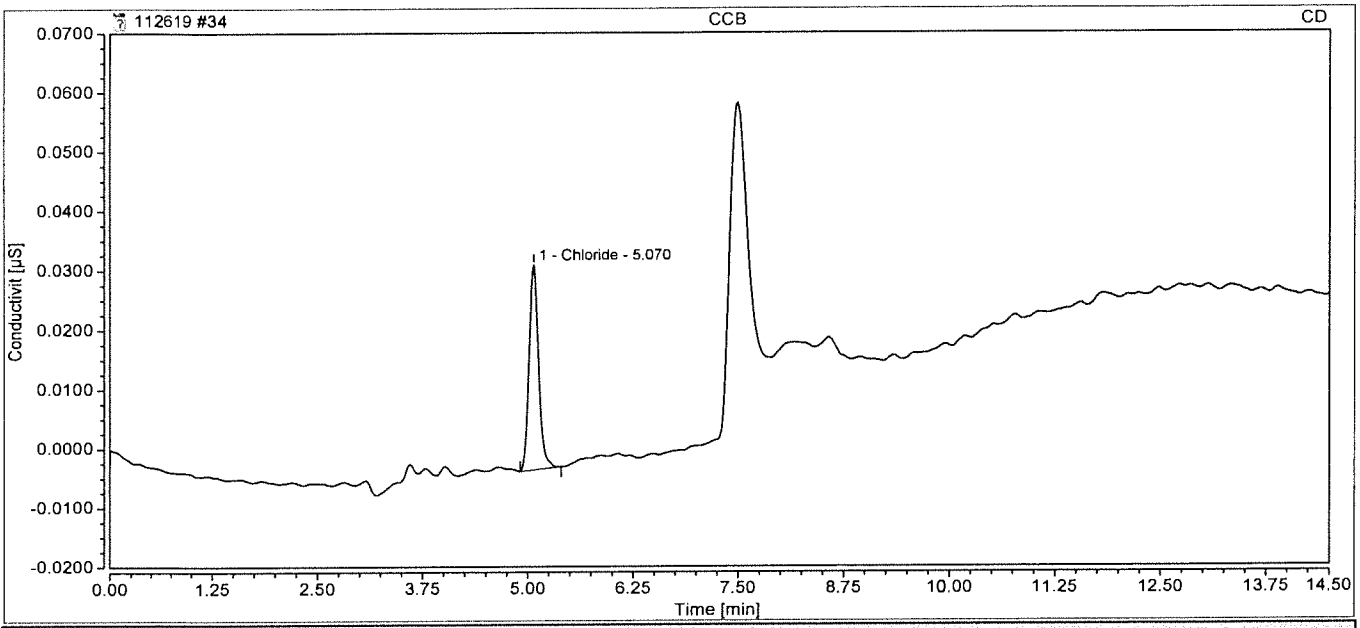
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	1.440	3.8916	3.8916	1.0000
2	5.07	Chloride	BMB	4.626	19.6986	19.6986	1.0000
3	6.04	Nitrite,N	BMB	2.094	4.0891	4.0891	1.0000
4	7.86	Bromide	BMB	0.364	3.6557	3.6557	1.0000
5	8.52	Sulfate	BM	3.295	19.1989	19.1989	1.0000
6	8.87	Nitrate	M	2.371	4.0531	4.0531	1.0000
7	9.37	Chlorate	MB	0.512	5.4495	5.4495	1.0000
8	12.73	Phosphate	BMB	0.709	3.1041	3.1041	1.0000
Total:			**0.000**	**15.411**		**63.14**	

34 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/27/2019 01:17**	*Sample Weight:*	**1.0000**

Run Time:



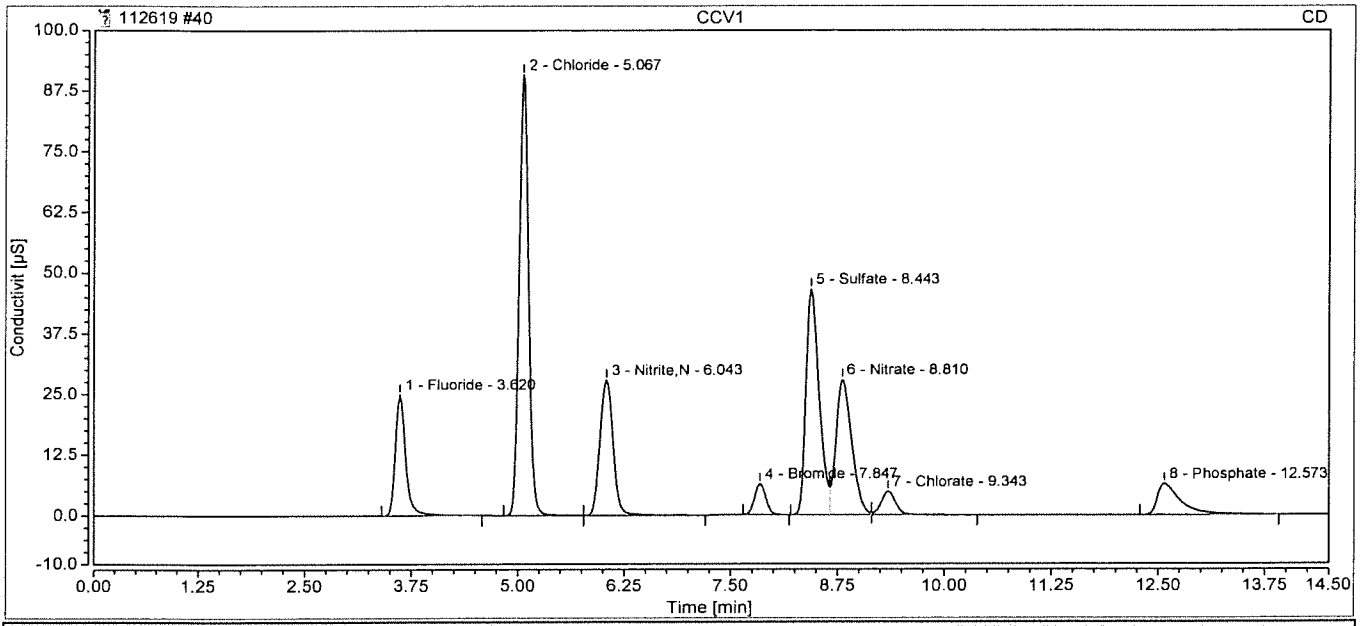
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.07	Chloride	BMB	0.004	0.0763	0.0763	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.004**		**0.08**	

40 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/27/2019 02:57**	*Sample Weight:*	**1.0000**

Run Time:



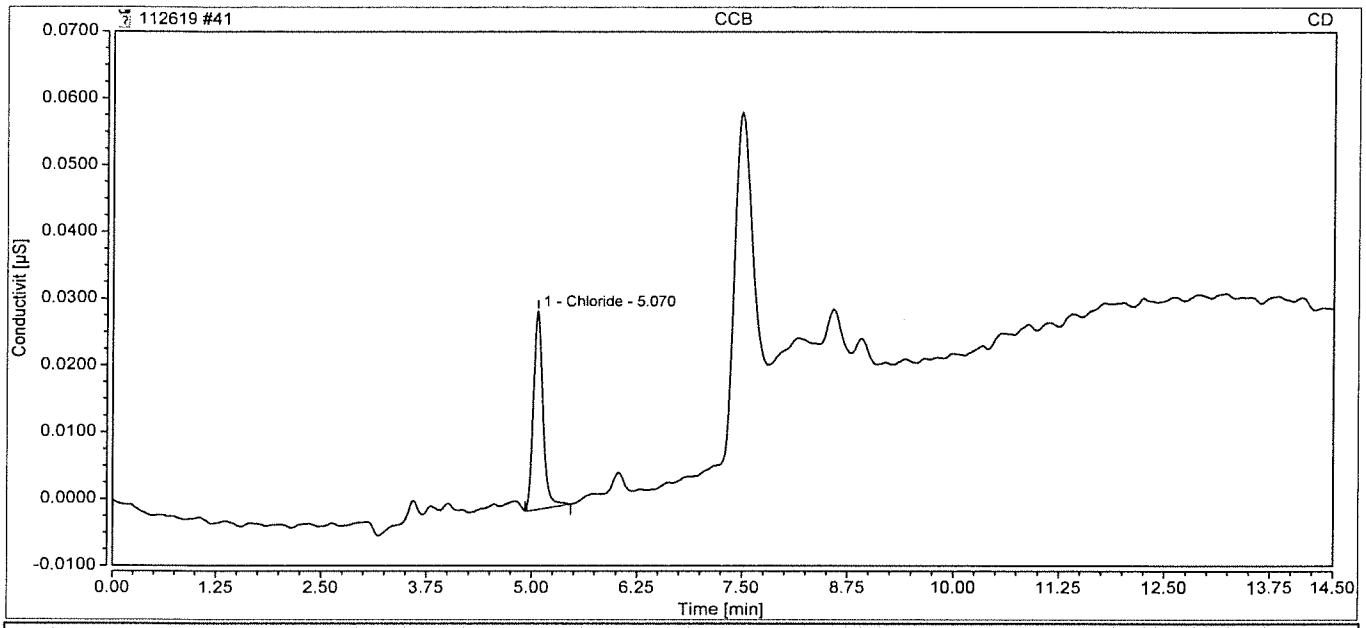
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.62	Fluoride	BMB	3.563	9.6024	9.6024	1.0000
2	5.07	Chloride	BMB	11.704	49.7556	49.7556	1.0000
3	6.04	Nitrite,N	BMB	4.945	9.6583	9.6583	1.0000
4	7.85	Bromide	BMB	0.973	9.6989	9.6989	1.0000
5	8.44	Sulfate	BM	8.337	48.5550	48.5550	1.0000
6	8.81	Nitrate	M	5.997	10.2245	10.2245	1.0000
7	9.34	Chlorate	MB	0.956	10.1572	10.1572	1.0000
8	12.57	Phosphate	BMB	2.076	8.9921	8.9921	1.0000
Total:			**0.000**	**38.552**		**156.64**	

41 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 08092019**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**11/27/2019 03:13**	*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	5.07	Chloride	BMB	0.004	0.0739	0.0739	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.004**		**0.07**	

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

WorkOrder: HS19111443

Longhorn Army Ammunition Plant -37

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

09-Dec-2019

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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HS19111443 Longhorn Army Ammunition Plant
37 Final

ALS WO# HS19111443

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

December 04, 2019

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

Work Order: **HS19111443**

Laboratory Results for: **Longhorn Army Ammunition Plant -37**

Dear Susan,

ALS Environmental received 5 sample(s) on Nov 27, 2019 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Work Order: HS19111443

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19111443-01	35BWW10-191126	Groundwater		26-Nov-2019 07:35	27-Nov-2019 10:00	☐
HS19111443-02	35BWW19-191126	Groundwater		26-Nov-2019 08:20	27-Nov-2019 10:00	☐
HS19111443-03	35BWW09-191126	Groundwater		26-Nov-2019 09:45	27-Nov-2019 10:00	☐
HS19111443-04	35BWW18-191126	Groundwater		26-Nov-2019 12:40	27-Nov-2019 10:00	☐
HS19111443-05	Trip Blank	Water		26-Nov-2019 00:00	27-Nov-2019 10:00	☐

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Work Order: HS19111443

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R351682

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Sample ID: 35BWW10-191126
Collection Date: 26-Nov-2019 07:35

ANALYTICAL REPORT
WorkOrder:HS19111443
Lab ID:HS19111443-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:05
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Dec-2019 16:05
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Dec-2019 16:05
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:05
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Dec-2019 16:05
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Sample ID: 35BWW10-191126
Collection Date: 26-Nov-2019 07:35

ANALYTICAL REPORT
WorkOrder:HS19111443
Lab ID:HS19111443-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:05
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:05
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:05
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Tetrachloroethene	**0.84**	J	**0.30**	**0.50**	**1.0**	**UG/L**	1	03-Dec-2019 16:05
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Trichloroethene	**0.90**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	03-Dec-2019 16:05
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:05
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*1*	*03-Dec-2019 16:05*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*1*	*03-Dec-2019 16:05*
Surr: Dibromofluoromethane	*98.9*			**0**	*80-119*	*%REC*	*1*	*03-Dec-2019 16:05*
Surr: Toluene-d8	*96.4*			**0**	*89-112*	*%REC*	*1*	*03-Dec-2019 16:05*

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Sample ID: 35BWW19-191126
Collection Date: 26-Nov-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19111443
Lab ID:HS19111443-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:29
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Dec-2019 16:29
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Dec-2019 16:29
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:29
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Dec-2019 16:29
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Sample ID: 35BWW19-191126
Collection Date: 26-Nov-2019 08:20

ANALYTICAL REPORT
WorkOrder:HS19111443
Lab ID:HS19111443-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:29
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:29
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:29
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:29
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*1*	*03-Dec-2019 16:29*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*1*	*03-Dec-2019 16:29*
Surr: Dibromofluoromethane	*100*			**0**	*80-119*	*%REC*	*1*	*03-Dec-2019 16:29*
Surr: Toluene-d8	*95.1*			**0**	*89-112*	*%REC*	*1*	*03-Dec-2019 16:29*

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Sample ID: 35BWW09-191126
Collection Date: 26-Nov-2019 09:45

ANALYTICAL REPORT
WorkOrder:HS19111443
Lab ID:HS19111443-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:54
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Dec-2019 16:54
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Dec-2019 16:54
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:54
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Dec-2019 16:54
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Sample ID: 35BWW09-191126
Collection Date: 26-Nov-2019 09:45

ANALYTICAL REPORT
WorkOrder:HS19111443
Lab ID:HS19111443-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 16:54
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 16:54
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 16:54
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Trichloroethene	**47**		**0.20**	**0.50**	**1.0**	**UG/L**	1	03-Dec-2019 16:54
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 16:54
Surr: 1,2-Dichloroethane-d4	*101*			**0**	*81-118*	*%REC*	*1*	*03-Dec-2019 16:54*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*1*	*03-Dec-2019 16:54*
Surr: Dibromofluoromethane	*98.7*			**0**	*80-119*	*%REC*	*1*	*03-Dec-2019 16:54*
Surr: Toluene-d8	*97.2*			**0**	*89-112*	*%REC*	*1*	*03-Dec-2019 16:54*

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Sample ID: 35BWW18-191126
Collection Date: 26-Nov-2019 12:40

ANALYTICAL REPORT
WorkOrder:HS19111443
Lab ID:HS19111443-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 17:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Dec-2019 17:18
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Dec-2019 17:18
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 17:18
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Dec-2019 17:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Sample ID: 35BWW18-191126
Collection Date: 26-Nov-2019 12:40

ANALYTICAL REPORT
WorkOrder:HS19111443
Lab ID:HS19111443-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 17:18
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 17:18
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 17:18
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 17:18
Surr: 1,2-Dichloroethane-d4	*103*			**0**	*81-118*	*%REC*	*1*	*03-Dec-2019 17:18*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*1*	*03-Dec-2019 17:18*
Surr: Dibromofluoromethane	*99.3*			**0**	*80-119*	*%REC*	*1*	*03-Dec-2019 17:18*
Surr: Toluene-d8	*97.5*			**0**	*89-112*	*%REC*	*1*	*03-Dec-2019 17:18*

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
Sample ID: Trip Blank
Collection Date: 26-Nov-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19111443
Lab ID:HS19111443-05
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 15:41
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 15:41
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	03-Dec-2019 15:41
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 15:41
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	03-Dec-2019 15:41
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 15:41
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	03-Dec-2019 15:41
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant -37 WorkOrder:HS19111443
Sample ID: Trip Blank Lab ID:HS19111443-05
Collection Date: 26-Nov-2019 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Hexachlorobutadiene	0.50	U	1.0	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	03-Dec-2019 15:41
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	03-Dec-2019 15:41
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	03-Dec-2019 15:41
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	03-Dec-2019 15:41
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*03-Dec-2019 15:41*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*03-Dec-2019 15:41*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*1*	*03-Dec-2019 15:41*
Surr: Toluene-d8	*97.1*			**0**	*89-112*	*%REC*	*1*	*03-Dec-2019 15:41*

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

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R351682 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19111443-05	Trip Blank	26 Nov 2019 00:00			03 Dec 2019 15:41	1
Batch ID: R351682 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19111443-01	35BWW10-191126	26 Nov 2019 07:35			03 Dec 2019 16:05	1
HS19111443-02	35BWW19-191126	26 Nov 2019 08:20			03 Dec 2019 16:29	1
HS19111443-03	35BWW09-191126	26 Nov 2019 09:45			03 Dec 2019 16:54	1
HS19111443-04	35BWW18-191126	26 Nov 2019 12:40			03 Dec 2019 17:18	1

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191203** Units: **UG/L** Analysis Date: **03-Dec-2019 12:29**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371674** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191203** Units: **UG/L** Analysis Date: **03-Dec-2019 12:29**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371674** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	0.50	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	0.50	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*50.74*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.48*	*1.0*	*50*	*0*	*97.0*	*85 - 114*				
Surr: Dibromofluoromethane	*49.42*	*1.0*	*50*	*0*	*98.8*	*80 - 119*				

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-191203** Units: **UG/L** Analysis Date: **03-Dec-2019 12:29**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371674** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*48.06*	*1.0*	*50*	*0*	*96.1*	*89 - 112*				

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191203** Units: **UG/L** Analysis Date: **03-Dec-2019 12:53**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371675** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.28	1.0	20	0	101	78 - 124				
1,1,1-Trichloroethane	22.29	1.0	20	0	111	74 - 131				
1,1,2,2-Tetrachloroethane	20.07	1.0	20	0	100	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	19.93	1.0	20	0	99.7	70 - 136				
1,1,2-Trichloroethane	20.7	1.0	20	0	103	80 - 119				
1,1-Dichloroethane	22.41	1.0	20	0	112	77 - 125				
1,1-Dichloroethene	19.99	1.0	20	0	100.0	71 - 131				
1,1-Dichloropropene	19.89	1.0	20	0	99.5	78 - 125				
1,2,3-Trichlorobenzene	14.16	1.0	20	0	70.8	69 - 129				
1,2,3-Trichloropropane	20.62	1.0	20	0	103	73 - 122				
1,2,4-Trichlorobenzene	15.43	1.0	20	0	77.2	69 - 130				
1,2,4-Trimethylbenzene	20.88	1.0	20	0	104	76 - 124				
1,2-Dibromo-3-chloropropane	19.24	1.0	20	0	96.2	62 - 128				
1,2-Dibromoethane	20.7	1.0	20	0	103	77 - 121				
1,2-Dichlorobenzene	20.41	1.0	20	0	102	80 - 119				
1,2-Dichloroethane	22.41	1.0	20	0	112	73 - 128				
1,2-Dichloropropane	20.25	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	20.84	1.0	20	0	104	75 - 124				
1,3-Dichlorobenzene	20.59	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	20.38	1.0	20	0	102	80 - 119				
1,4-Dichlorobenzene	20.62	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	22.01	1.0	20	0	110	60 - 139				
2-Butanone	46.9	2.0	40	0	117	56 - 143				
2-Chlorotoluene	21.56	1.0	20	0	108	79 - 122				
2-Hexanone	41.58	2.0	40	0	104	57 - 139				
4-Chlorotoluene	20.89	1.0	20	0	104	78 - 122				
4-Isopropyltoluene	20.3	1.0	20	0	101	77 - 127				
4-Methyl-2-pentanone	40.34	2.0	40	0	101	67 - 130				
Acetone	45.36	2.0	40	0	113	39 - 160				
Benzene	20.96	1.0	20	0	105	79 - 120				
Bromobenzene	20.49	1.0	20	0	102	80 - 120				
Bromochloromethane	22.73	1.0	20	0	114	78 - 123				
Bromodichloromethane	21.31	1.0	20	0	107	79 - 125				
Bromoform	20.36	1.0	20	0	102	66 - 130				

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191203** Units: **UG/L** Analysis Date: **03-Dec-2019 12:53**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371675** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	23.03	1.0	20	0	115	53 - 141				
Carbon disulfide	43.73	2.0	40	0	109	64 - 133				
Carbon tetrachloride	19.57	1.0	20	0	97.9	72 - 136				
Chlorobenzene	20.01	1.0	20	0	100	82 - 118				
Chloroethane	20.87	1.0	20	0	104	60 - 138				
Chloroform	22.36	1.0	20	0	112	79 - 124				
Chloromethane	16.32	1.0	20	0	81.6	50 - 139				
cis-1,2-Dichloroethene	22.98	1.0	20	0	115	78 - 123				
cis-1,3-Dichloropropene	21.18	1.0	20	0	106	75 - 124				
Dibromochloromethane	20.42	1.0	20	0	102	74 - 126				
Dibromomethane	21.53	1.0	20	0	108	79 - 123				
Dichlorodifluoromethane	23.81	1.0	20	0	119	32 - 152				
Ethylbenzene	20.34	1.0	20	0	102	79 - 121				
Hexachlorobutadiene	14.19	1.0	20	0	70.9	66 - 134				
Isopropylbenzene	20.48	1.0	20	0	102	72 - 131				
m,p-Xylene	40.95	2.0	40	0	102	80 - 121				
Methylene chloride	21.83	2.0	20	0	109	74 - 124				
Naphthalene	14.85	1.0	20	0	74.2	61 - 128				
n-Butylbenzene	20.18	1.0	20	0	101	75 - 128				
n-Propylbenzene	20.76	1.0	20	0	104	76 - 126				
o-Xylene	20.02	1.0	20	0	100	78 - 122				
sec-Butylbenzene	20.5	1.0	20	0	103	77 - 126				
Styrene	20.19	1.0	20	0	101	78 - 123				
tert-Butylbenzene	20.63	1.0	20	0	103	78 - 124				
Tetrachloroethene	19.07	1.0	20	0	95.4	74 - 129				
Toluene	20.02	1.0	20	0	100	80 - 121				
trans-1,2-Dichloroethene	22.42	1.0	20	0	112	75 - 124				
trans-1,3-Dichloropropene	21.23	1.0	20	0	106	73 - 127				
Trichloroethene	20.6	1.0	20	0	103	79 - 123				
Trichlorofluoromethane	21.49	1.0	20	0	107	65 - 141				
Vinyl chloride	19.69	1.0	20	0	98.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*57.21*	*1.0*	*50*	*0*	*114*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.17*	*1.0*	*50*	*0*	*96.3*	*85 - 114*				
Surr: Dibromofluoromethane	*52.27*	*1.0*	*50*	*0*	*105*	*80 - 119*				

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-191203** Units: **UG/L** Analysis Date: **03-Dec-2019 12:53**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371675** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*44.84*	*1.0*	*50*	*0*	*89.7*	*89 - 112*				

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111401-01MS** Units: **UG/L** Analysis Date: **03-Dec-2019 14:29**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371829** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.33	1.0	20	0	91.7	78 - 124				
1,1,1-Trichloroethane	19.53	1.0	20	0	97.7	74 - 131				
1,1,2,2-Tetrachloroethane	18.42	1.0	20	0	92.1	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	17.68	1.0	20	0	88.4	70 - 136				
1,1,2-Trichloroethane	18.23	1.0	20	0	91.2	80 - 119				
1,1-Dichloroethane	18.89	1.0	20	0	94.4	77 - 125				
1,1-Dichloroethene	18.05	1.0	20	0	90.3	71 - 131				
1,1-Dichloropropene	19.23	1.0	20	0	96.1	78 - 125				
1,2,3-Trichlorobenzene	15.42	1.0	20	0	77.1	69 - 129				
1,2,3-Trichloropropane	18.46	1.0	20	0	92.3	73 - 122				
1,2,4-Trichlorobenzene	15.65	1.0	20	0	78.3	69 - 130				
1,2,4-Trimethylbenzene	19.68	1.0	20	0	98.4	76 - 124				
1,2-Dibromo-3-chloropropane	18.31	1.0	20	0	91.6	62 - 128				
1,2-Dibromoethane	18.38	1.0	20	0	91.9	77 - 121				
1,2-Dichlorobenzene	18.95	1.0	20	0	94.7	80 - 119				
1,2-Dichloroethane	21	1.0	20	1.722	96.4	73 - 128				
1,2-Dichloropropane	17.74	1.0	20	0	88.7	78 - 122				
1,3,5-Trimethylbenzene	19.97	1.0	20	0	99.9	75 - 124				
1,3-Dichlorobenzene	19.37	1.0	20	0	96.8	80 - 119				
1,3-Dichloropropane	18.11	1.0	20	0	90.6	80 - 119				
1,4-Dichlorobenzene	19.08	1.0	20	0	95.4	79 - 118				
2,2-Dichloropropane	19.3	1.0	20	0	96.5	60 - 139				
2-Butanone	34.63	2.0	40	0	86.6	56 - 143				
2-Chlorotoluene	20.31	1.0	20	0	102	79 - 122				
2-Hexanone	35.61	2.0	40	0	89.0	57 - 139				
4-Chlorotoluene	19.72	1.0	20	0	98.6	78 - 122				
4-Isopropyltoluene	19.77	1.0	20	0	98.9	77 - 127				
4-Methyl-2-pentanone	35.45	2.0	40	0	88.6	67 - 130				
Acetone	27.39	2.0	40	0	68.5	39 - 160				
Benzene	18.82	1.0	20	0	94.1	79 - 120				
Bromobenzene	18.95	1.0	20	0	94.8	80 - 120				
Bromochloromethane	18.16	1.0	20	0	90.8	78 - 123				
Bromodichloromethane	18.77	1.0	20	0	93.9	79 - 125				
Bromoform	18.15	1.0	20	0	90.8	66 - 130				

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111401-01MS** Units: **UG/L** Analysis Date: **03-Dec-2019 14:29**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371829** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	16.5	1.0	20	0	82.5	53 - 141				
Carbon disulfide	39.29	2.0	40	0	98.2	64 - 133				
Carbon tetrachloride	19.17	1.0	20	0	95.8	72 - 136				
Chlorobenzene	18.17	1.0	20	0	90.9	82 - 118				
Chloroethane	16.51	1.0	20	0	82.6	60 - 138				
Chloroform	18.15	1.0	20	0	90.8	79 - 124				
Chloromethane	12.09	1.0	20	0	60.4	50 - 139				
cis-1,2-Dichloroethene	80.86	1.0	20	62.51	91.7	78 - 123				
cis-1,3-Dichloropropene	18.52	1.0	20	0	92.6	75 - 124				
Dibromochloromethane	18.21	1.0	20	0	91.1	74 - 126				
Dibromomethane	18.41	1.0	20	0	92.1	79 - 123				
Dichlorodifluoromethane	15.15	1.0	20	0	75.7	32 - 152				
Ethylbenzene	18.96	1.0	20	0	94.8	79 - 121				
Hexachlorobutadiene	14.42	1.0	20	0	72.1	66 - 134				
Isopropylbenzene	19.44	1.0	20	0	97.2	72 - 131				
m,p-Xylene	37.97	2.0	40	0	94.9	80 - 121				
Methylene chloride	23.34	2.0	20	6.029	86.5	74 - 124				
Naphthalene	15.19	1.0	20	0	76.0	61 - 128				
n-Butylbenzene	20.24	1.0	20	0	101	75 - 128				
n-Propylbenzene	20.15	1.0	20	0	101	76 - 126				
o-Xylene	18.53	1.0	20	0	92.7	78 - 122				
sec-Butylbenzene	20.44	1.0	20	0	102	77 - 126				
Styrene	18.76	1.0	20	0	93.8	78 - 123				
tert-Butylbenzene	20.37	1.0	20	0	102	78 - 124				
Tetrachloroethene	18.47	1.0	20	0	92.3	74 - 129				
Toluene	18.9	1.0	20	0	94.5	80 - 121				
trans-1,2-Dichloroethene	19.15	1.0	20	0	95.7	75 - 124				
trans-1,3-Dichloropropene	18.49	1.0	20	0	92.5	73 - 127				
Trichloroethene	30.69	1.0	20	11.54	95.7	79 - 123				
Trichlorofluoromethane	18.82	1.0	20	0	94.1	65 - 141				
Vinyl chloride	16.77	1.0	20	0.6565	80.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.39*	*1.0*	*50*	*0*	*103*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.46*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*49.88*	*1.0*	*50*	*0*	*99.8*	*80 - 119*				

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19111401-01MS** Units: **UG/L** Analysis Date: **03-Dec-2019 14:29**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371829** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*47.56*	*1.0*	*50*	*0*	*95.1*	*89 - 112*				

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111401-01MSD** Units: **UG/L** Analysis Date: **03-Dec-2019 14:53**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371830** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.59	1.0	20	0	88.0	78 - 124	18.33	4.12	20	
1,1,1-Trichloroethane	19.42	1.0	20	0	97.1	74 - 131	19.53	0.555	20	
1,1,2,2-Tetrachloroethane	18.32	1.0	20	0	91.6	71 - 121	18.42	0.547	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	16.86	1.0	20	0	84.3	70 - 136	17.68	4.74	20	
1,1,2-Trichloroethane	17.75	1.0	20	0	88.7	80 - 119	18.23	2.71	20	
1,1-Dichloroethane	18.54	1.0	20	0	92.7	77 - 125	18.89	1.83	20	
1,1-Dichloroethene	17.24	1.0	20	0	86.2	71 - 131	18.05	4.58	20	
1,1-Dichloropropene	18.49	1.0	20	0	92.4	78 - 125	19.23	3.9	20	
1,2,3-Trichlorobenzene	17.59	1.0	20	0	88.0	69 - 129	15.42	13.1	20	
1,2,3-Trichloropropane	18.5	1.0	20	0	92.5	73 - 122	18.46	0.24	20	
1,2,4-Trichlorobenzene	16.5	1.0	20	0	82.5	69 - 130	15.65	5.3	20	
1,2,4-Trimethylbenzene	18.95	1.0	20	0	94.7	76 - 124	19.68	3.81	20	
1,2-Dibromo-3-chloropropane	17.49	1.0	20	0	87.4	62 - 128	18.31	4.61	20	
1,2-Dibromoethane	17.57	1.0	20	0	87.9	77 - 121	18.38	4.49	20	
1,2-Dichlorobenzene	18.46	1.0	20	0	92.3	80 - 119	18.95	2.62	20	
1,2-Dichloroethane	20.93	1.0	20	1.722	96.1	73 - 128	21	0.321	20	
1,2-Dichloropropane	17.75	1.0	20	0	88.8	78 - 122	17.74	0.0586	20	
1,3,5-Trimethylbenzene	19.23	1.0	20	0	96.2	75 - 124	19.97	3.78	20	
1,3-Dichlorobenzene	18.76	1.0	20	0	93.8	80 - 119	19.37	3.18	20	
1,3-Dichloropropane	17.61	1.0	20	0	88.1	80 - 119	18.11	2.81	20	
1,4-Dichlorobenzene	18.56	1.0	20	0	92.8	79 - 118	19.08	2.74	20	
2,2-Dichloropropane	19.14	1.0	20	0	95.7	60 - 139	19.3	0.851	20	
2-Butanone	35.18	2.0	40	0	87.9	56 - 143	34.63	1.56	20	
2-Chlorotoluene	19.8	1.0	20	0	99.0	79 - 122	20.31	2.54	20	
2-Hexanone	34.9	2.0	40	0	87.3	57 - 139	35.61	1.99	20	
4-Chlorotoluene	19.29	1.0	20	0	96.4	78 - 122	19.72	2.2	20	
4-Isopropyltoluene	18.87	1.0	20	0	94.3	77 - 127	19.77	4.67	20	
4-Methyl-2-pentanone	34.5	2.0	40	0	86.2	67 - 130	35.45	2.71	20	
Acetone	27.8	2.0	40	0	69.5	39 - 160	27.39	1.51	20	
Benzene	18.42	1.0	20	0	92.1	79 - 120	18.82	2.18	20	
Bromobenzene	18.59	1.0	20	0	92.9	80 - 120	18.95	1.93	20	
Bromochloromethane	18.38	1.0	20	0	91.9	78 - 123	18.16	1.18	20	
Bromodichloromethane	18.71	1.0	20	0	93.5	79 - 125	18.77	0.348	20	
Bromoform	17.65	1.0	20	0	88.2	66 - 130	18.15	2.81	20	

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111401-01MSD** Units: **UG/L** Analysis Date: **03-Dec-2019 14:53**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371830** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	16.54	1.0	20	0	82.7	53 - 141	16.5	0.283	20	
Carbon disulfide	38.31	2.0	40	0	95.8	64 - 133	39.29	2.54	20	
Carbon tetrachloride	18.57	1.0	20	0	92.8	72 - 136	19.17	3.18	20	
Chlorobenzene	17.83	1.0	20	0	89.1	82 - 118	18.17	1.9	20	
Chloroethane	17.41	1.0	20	0	87.1	60 - 138	16.51	5.3	20	
Chloroform	18.01	1.0	20	0	90.1	79 - 124	18.15	0.759	20	
Chloromethane	11.76	1.0	20	0	58.8	50 - 139	12.09	2.78	20	
cis-1,2-Dichloroethene	80.04	1.0	20	62.51	87.6	78 - 123	80.86	1.01	20	
cis-1,3-Dichloropropene	18.04	1.0	20	0	90.2	75 - 124	18.52	2.67	20	
Dibromochloromethane	17.81	1.0	20	0	89.1	74 - 126	18.21	2.23	20	
Dibromomethane	18.59	1.0	20	0	93.0	79 - 123	18.41	0.991	20	
Dichlorodifluoromethane	14.33	1.0	20	0	71.7	32 - 152	15.15	5.51	20	
Ethylbenzene	18.23	1.0	20	0	91.1	79 - 121	18.96	3.97	20	
Hexachlorobutadiene	14.51	1.0	20	0	72.5	66 - 134	14.42	0.616	20	
Isopropylbenzene	18.57	1.0	20	0	92.8	72 - 131	19.44	4.62	20	
m,p-Xylene	36.62	2.0	40	0	91.6	80 - 121	37.97	3.62	20	
Methylene chloride	22.94	2.0	20	6.029	84.6	74 - 124	23.34	1.7	20	
Naphthalene	17.05	1.0	20	0	85.3	61 - 128	15.19	11.6	20	
n-Butylbenzene	18.99	1.0	20	0	95.0	75 - 128	20.24	6.37	20	
n-Propylbenzene	19.41	1.0	20	0	97.1	76 - 126	20.15	3.7	20	
o-Xylene	17.95	1.0	20	0	89.7	78 - 122	18.53	3.22	20	
sec-Butylbenzene	19.2	1.0	20	0	96.0	77 - 126	20.44	6.26	20	
Styrene	18.16	1.0	20	0	90.8	78 - 123	18.76	3.25	20	
tert-Butylbenzene	19.21	1.0	20	0	96.0	78 - 124	20.37	5.86	20	
Tetrachloroethene	17.85	1.0	20	0	89.3	74 - 129	18.47	3.38	20	
Toluene	18.07	1.0	20	0	90.4	80 - 121	18.9	4.46	20	
trans-1,2-Dichloroethene	18.83	1.0	20	0	94.1	75 - 124	19.15	1.67	20	
trans-1,3-Dichloropropene	18.32	1.0	20	0	91.6	73 - 127	18.49	0.909	20	
Trichloroethene	30.03	1.0	20	11.54	92.4	79 - 123	30.69	2.18	20	
Trichlorofluoromethane	18.06	1.0	20	0	90.3	65 - 141	18.82	4.11	20	
Vinyl chloride	15.94	1.0	20	0.6565	76.4	58 - 137	16.77	5.1	20	
Surr: 1,2-Dichloroethane-d4	*50.53*	*1.0*	*50*	*0*	*101*	*81 - 118*	*51.39*	*1.69*	*20*	
Surr: 4-Bromofluorobenzene	*50.37*	*1.0*	*50*	*0*	*101*	*85 - 114*	*50.46*	*0.183*	*20*	
Surr: Dibromofluoromethane	*50.26*	*1.0*	*50*	*0*	*101*	*80 - 119*	*49.88*	*0.747*	*20*	

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: HS19111443

QC BATCH REPORT

Batch ID: R351682 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19111401-01MSD** Units: **UG/L** Analysis Date: **03-Dec-2019 14:53**
Client ID: Run ID: **VOA6_351682** SeqNo: **5371830** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*46.82*	*1.0*	*50*	*0*	*93.6*	*89 - 112*	*47.56*	*1.57*	*20*	

The following samples were analyzed in this batch: HS19111443-01 HS19111443-02 HS19111443-03 HS19111443-04 HS19111443-05

ALS Houston, US Date: 04-Dec-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant -37
WorkOrder: **HS19111443**

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	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 04-Dec-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19111443
Date/Time Received: **27-Nov-2019 10:00**
Received by: **JRM**

Checklist completed by: *Nilesh D. Ranchod* eSignature 27-Nov-2019 Date
Reviewed by: *RJ Modashia* eSignature 30-Nov-2019 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs: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):	1.1C UC/C	IR # 11
Cooler(s)/Kit(s):	45133	
Date/Time sample(s) sent to storage:	11/27/2019 18:00	

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

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

COC ID: 37NOV2019-1911_-ALS

TURNAROUND TIME:

Page 1 of

RUSH:

PROJECT/CLIENT INFO

Facility Name	Longhorn AAP
Project Number	501032
	LHAAP-37
Address	1203-B East Grand Avenue
	PMB 202
City	Marshall
State	TX
Postal Code	75670
Country	USA
Phone Number	713.213.7264
Project Manager	Praveen Srivastav

LABORATORY

Lab Name	ALS Laboratories
Lab Contact	RJ Modashia
Email	RJ.Modashia@alsglobal.com
Address	10450 Stancliff 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	ANALYSIS	3-40 ml VOA/HCL	3-40 ml VOA/HCL	3-40 ml VOA/Cool to 6 deg C	2-40ml Amber/H2SO4	1-250ml/Cool to 6 deg C
											Vocs by 8260B	MEE by RSK175	CO2 by RSK175	TOC by SM5310C	Anions (chloride/sulfate/nitrate) by 9056
35BWW10-191126	LHAAP 37				W6	11/26/19	0735	3			X				
35BWW19-191126	LHAAP 37				W6	11/26/19	0820	3			X				
35BWW09-191126	LHAAP 37				W6	11/26/19	0945	3			X				
35BWW18-191126	LHAAP 37				W6	11/26/19	1240	3			X				
TRIP BLANK	LHAAP 37				W	11/26/19		2			X				

HS1911443

Aptim Environmental & Infrastructure, Inc.
Longhorn Army Ammunition Plant -37

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS

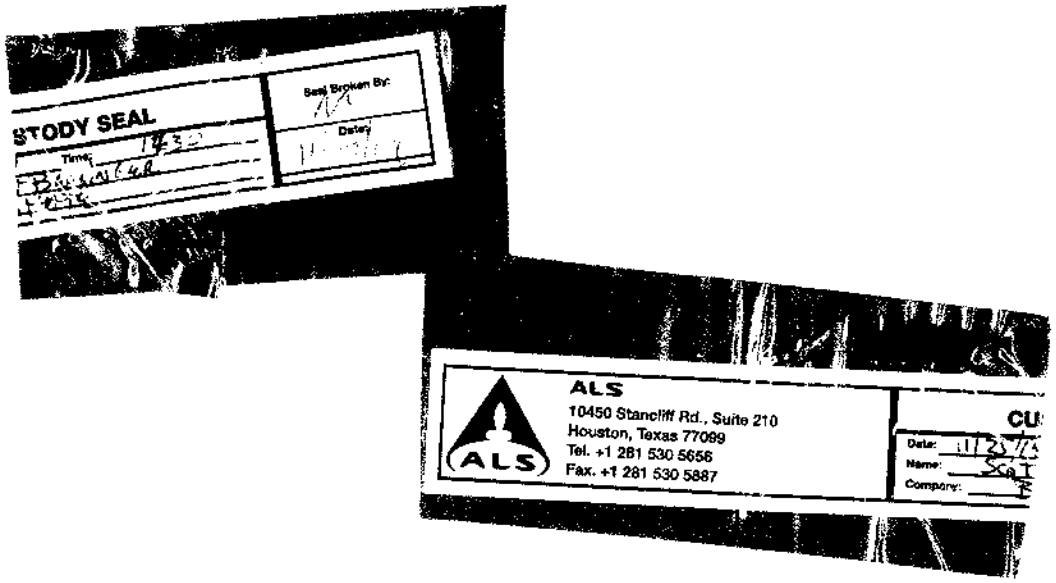
RELINQUISHED BY/AFFILIATION: Scott Bussey / BHATE

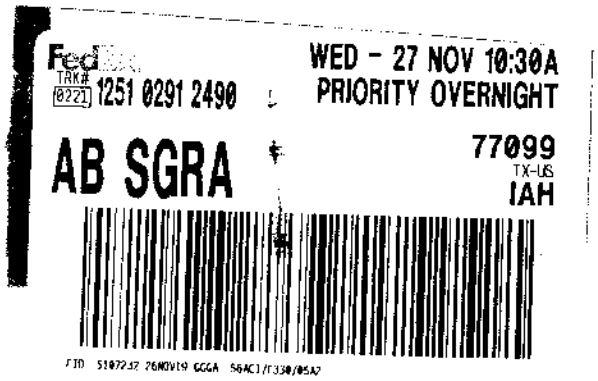
DATE/TIME: 11/26/19 1930

ACCEPTED BY/AFFILIATION:

DATE/TIME: 11/27/19 10:00

Cooler 45133
Temp 1.1
IR 11 CF 00


STODY SEAL
Seal Broken By:
Date:
ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
Date:
Name:
Company:


FedEx
TRK# 0221 1251 0291 2490
WED - 27 NOV 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH

HS19111443 8260 Raw Data

ALS WO# HS19111443

MSVOA06 -Logbook

Batch: 38366 **Analyst:** Presenta Cabascango

Date: 11-18-2019 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	11-18-2019 01:23 pm	1.00	50 mL	50 mL	X111801.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	11-18-2019 01:47 pm	1.00	50 mL	50 mL	X111802.D	Liquid	Y	NA
	0.10 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	11-18-2019 02:35 pm	1.00	50 mL	50 mL	X111803.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	11-18-2019 02:59 pm	1.00	50 mL	50 mL	X111804.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	11-18-2019 03:23 pm	1.00	50 mL	50 mL	X111805.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	11-18-2019 03:47 pm	1.00	50 mL	50 mL	X111806.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	11-18-2019 04:11 pm	1.00	50 mL	50 mL	X111807.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	11-18-2019 04:35 pm	1.00	50 mL	50 mL	X111808.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	11-18-2019 04:59 pm	1.00	50 mL	50 mL	X111809.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	11-18-2019 05:22 pm	1.00	50 mL	50 mL	X111810.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	11-18-2019 05:46 pm	1.00	50 mL	50 mL	X111811.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	11-18-2019 06:10 pm	1.00	50 mL	50 mL	X111812.D	Liquid	Y	NA
13	BLANK	SAMP	11-18-2019 06:34 pm	1.00	50 mL	50 mL	X111813.D	Liquid	Y	NA
14	CCV	ICCV	11-18-2019 06:58 pm	1.00	50 mL	50 mL	X111814.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
15	BLANK	SAMP	11-18-2019 07:22 pm	1.00	50 mL	50 mL	X111815.D	Liquid	Y	NA
16	BFB	TUNE	11-18-2019 07:47 pm	1.00	50 mL	50 mL	Y111801.D	Liquid	Y	NA
	Auto find/ purged									
17	CCV	CCV	11-18-2019 08:10 pm	1.00	50 mL	50 mL	Y111802a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI/ not used									
18	CCV	CCV	11-18-2019 08:34 pm	1.00	50 mL	50 mL	Y111803.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
19	CCB	SAMP	11-18-2019 08:58 pm	1.00	50 mL	50 mL	Y111804.D	Liquid	Y	NA
20	VLCSW-191118	LCS	11-18-2019 09:22 pm	1.00	50 mL	50 mL	Y111805.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
21	BLK	SAMP	11-18-2019 09:46 pm	1.00	50 mL	50 mL	Y111806.D	Liquid	Y	NA
22	VBLKW-191118	MBLK	11-18-2019 10:10 pm	1.00	50 mL	50 mL	Y111807.D	Liquid	Y	NA
23	HS19110861-01	SAMP	11-18-2019 10:34 pm	1.00	50 mL	50 mL	Y111808.D	Liquid	Y	NA
24	HS19110861-02	SAMP	11-18-2019 10:59 pm	1.00	50 mL	50 mL	Y111809.D	Liquid	Y	NA
25	HS19110861-03	SAMP	11-18-2019 11:23 pm	1.00	50 mL	50 mL	Y111810.D	Liquid	Y	NA
26	HS19110861-04	SAMP	11-18-2019 11:47 pm	1.00	50 mL	50 mL	Y111811.D	Liquid	Y	NA
27	HS19110861-05	SAMP	11-19-2019 12:11 am	1.00	50 mL	50 mL	Y111812.D	Liquid	Y	NA
28	HS19110861-06	SAMP	11-19-2019 12:35 am	1.00	50 mL	50 mL	Y111813.D	Liquid	Y	NA
29	HS19110829-13	SAMP	11-19-2019 12:59 am	1.00	50 mL	50 mL	Y111814.D	Liquid	Y	NA
30	HS19110829-11	SAMP	11-19-2019 01:23 am	1.00	50 mL	50 mL	Y111815.D	Liquid	Y	NA
31	HS19110829-01	SAMP	11-19-2019 01:47 am	1.00	50 mL	50 mL	Y111816.D	Liquid	Y	NA
32	HS19110829-01MS	MS	11-19-2019 02:11 am	1.00	50 mL	50 mL	Y111817.D	Liquid	Y	NA
	3.50 uL cal std/40 mL samp									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
33	HS19110829-01MSD	MSD	11-19-2019 02:35 am	1.00	50 mL	50 mL	Y111818.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
34	HS19110829-02	SAMP	11-19-2019 02:59 am	1.00	50 mL	50 mL	Y111819.D	Liquid	Y	NA
35	HS19110829-03	SAMP	11-19-2019 03:23 am	1.00	50 mL	50 mL	Y111820.D	Liquid	Y	NA
36	HS19110829-04	SAMP	11-19-2019 03:47 am	1.00	50 mL	50 mL	Y111821.D	Liquid	Y	NA
37	HS19110829-05	SAMP	11-19-2019 04:11 am	1.00	50 mL	50 mL	Y111822.D	Liquid	Y	NA
38	HS19110829-06	SAMP	11-19-2019 04:35 am	1.00	50 mL	50 mL	Y111823.D	Liquid	Y	NA
39	HS19110829-07	SAMP	11-19-2019 04:59 am	1.00	50 mL	50 mL	Y111824.D	Liquid	Y	NA
40	HS19110829-08	SAMP	11-19-2019 05:23 am	1.00	50 mL	50 mL	Y111825.D	Liquid	Y	NA
41	HS19110829-09	SAMP	11-19-2019 05:47 am	1.00	50 mL	50 mL	Y111826.D	Liquid	Y	NA
42	HS19110829-10	SAMP	11-19-2019 06:11 am	1.00	50 mL	50 mL	Y111827.D	Liquid	Y	NA
43	HS19110829-12	SAMP	11-19-2019 06:36 am	1.00	50 mL	50 mL	Y111828.D	Liquid	Y	NA
44	HS19110716-06	SAMP	11-19-2019 07:00 am	1.00	50 mL	50 mL	Y111829.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-04-03
IS ID	31106-04-04
ICV STD ID	30603-92-01
LCS/MS ID	30603-92-01
CAL STD ID	31106-04-01/02
BFB ID	31106-04-03
pH Paper	634-64-11

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111443

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	52.07	104	80-120
trans-1,3-Dichloroprope	50.00	51.83	104	80-120
1,3-Dichlorobenzene	50.00	50.58	101	80-120
2,2-Dichloropropane	50.00	52.35	105	80-120
1,1-Dichloropropene	50.00	49.88	100	80-120
Dibromomethane	50.00	50.50	101	80-120
1,2-Dibromoethane	50.00	50.00	100	80-120
trans-1,2-Dichloroethen	50.00	52.31	105	80-120
1,1,1,2-Tetrachloroetha	50.00	51.37	103	80-120
1,1,1-Trichloroethane	50.00	52.74	105	80-120
1,1,2,2-Tetrachloroetha	50.00	49.68	99	80-120
Toluene	50.00	49.55	99	80-120
1,1,2-Trichloroethane	50.00	49.22	98	80-120
1,1-Dichloroethane	50.00	51.46	103	80-120
1,1-Dichloroethene	50.00	53.02	106	80-120
Trichlorofluoromethane	50.00	55.57	111	80-120
1,2,3-Trichlorobenzene	50.00	58.28	116	80-120
Tetrachloroethene	50.00	49.33	99	80-120
1,2,4-Trichlorobenzene	50.00	55.34	111	80-120
1,2,4-Trimethylbenzene	50.00	50.40	101	80-120
tert-Butylbenzene	50.00	51.37	103	80-120
Trichloroethene	50.00	51.78	104	80-120
1,2-Dichlorobenzene	50.00	49.42	99	80-120
1,2-Dichloroethane	50.00	51.38	103	80-120
1,2-Dichloropropane	50.00	49.50	99	80-120
1,3,5-Trimethylbenzene	50.00	52.04	104	80-120
1,3-Dichloropropane	50.00	49.18	98	80-120
1,4-Dichlorobenzene	50.00	49.63	99	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111443

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Butanone	100.00	105.25	105	80-120
2-Chlorotoluene	50.00	50.41	101	80-120
2-Hexanone	100.00	96.09	96	80-120
4-Chlorotoluene	50.00	50.58	101	80-120
Styrene	50.00	50.35	101	80-120
4-Methyl-2-Pentanone	100.00	97.68	98	80-120
Acetone	100.00	111.37	111	80-120
Benzene	50.00	50.85	102	80-120
Bromobenzene	50.00	51.16	102	80-120
Bromochloromethane	50.00	51.34	103	80-120
Bromodichloromethane	50.00	51.00	102	80-120
Bromoform	50.00	49.08	98	80-120
Bromomethane	50.00	57.73	115	80-120
Carbon Disulfide	100.00	109.76	110	80-120
Carbon Tetrachloride	50.00	51.07	102	80-120
Chlorobenzene	50.00	49.20	98	80-120
Chloroethane	50.00	51.64	103	80-120
Chloroform	50.00	49.36	99	80-120
Chloromethane	50.00	50.43	101	80-120
cis-1,2-Dichloroethene	50.00	53.16	106	80-120
Dibromochloromethane	50.00	49.93	100	80-120
Dichlorodifluoromethane	50.00	52.99	106	80-120
Ethylbenzene	50.00	50.22	100	80-120
Hexachlorobutadiene	50.00	61.69	123*	80-120
Isopropylbenzene	50.00	50.14	100	80-120
m,p-Xylenes	100.00	101.69	102	80-120
Methylene Chloride	50.00	49.65	99	80-120
n-Butylbenzene	50.00	52.07	104	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111443

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
n-Propylbenzene	50.00	51.90	104	80-120
Naphthalene	50.00	51.04	102	80-120
o-Xylene	50.00	49.72	99	80-120
sec-Butylbenzene	50.00	51.77	104	80-120
Vinyl Chloride	50.00	51.98	104	80-120
1,2,3-Trichloropropane	50.00	49.40	99	80-120
p-Isopropyltoluene	50.00	51.77	104	80-120
1,2-Dibromo-3-Chloropro	50.00	51.39	103	80-120
Freon TF	50.00	55.79	112	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111443

Lab File ID: X111801 BFB Injection Date: 11/18/19

Instrument ID: VOA6 BFB Injection Time: 1323

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.9
75	30.0 - 60.0% of mass 95	54.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.4 (0.7)1
174	Greater than 50.0% of mass 95	65.0
175	5.0 - 9.0% of mass 174	5.8 (8.9)1
176	95.0 - 101.0% of mass 174	62.0 (95.4)1
177	5.0 - 9.0% of mass 176	5.1 (8.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X111802	11/18/19	1347
02	VSTD000.5	VSTD000.5	X111803	11/18/19	1435
03	VSTD001	VSTD001	X111804	11/18/19	1459
04	VSTD002	VSTD002	X111805	11/18/19	1523
05	VSTD005	VSTD005	X111806	11/18/19	1547
06	VSTD020	VSTD020	X111807	11/18/19	1611
07	VSTD050	VSTD050	X111808	11/18/19	1635
08	VSTD100	VSTD100	X111809	11/18/19	1659
09	VSTD150	VSTD150	X111810	11/18/19	1722
10	VSTD200	VSTD200	X111811	11/18/19	1746
11	ICV	ICV	X111814	11/18/19	1858
12					
13					
14					
15					
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19					
20					
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FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111443

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		0.326	0.553	0.497	0.554	0.476
trans-1,3-Dichloropropene		0.304	0.464	0.458	0.504	0.445
1,3-Dichlorobenzene		1.036	1.601	1.542	1.622	1.411
2,2-Dichloropropane		0.547	0.815	0.674	0.705	0.610
1,1-Dichloropropene		0.332	0.476	0.441	0.432	0.372
Dibromomethane		0.139	0.244	0.233	0.245	0.207
1,2-Dibromoethane		0.245	0.385	0.380	0.402	0.348
trans-1,2-Dichloroethene		0.285	0.489	0.436	0.440	0.386
1,1,1,2-Tetrachloroethane		0.248	0.403	0.375	0.406	0.356
1,1,1-Trichloroethane		0.492	0.775	0.723	0.717	0.640
1,1,2,2-Tetrachloroethane		0.602	0.844	0.735	0.800	0.680
Toluene		1.077	1.582	1.498	1.570	1.359
1,1,2-Trichloroethane		0.180	0.311	0.285	0.294	0.253
1,1-Dichloroethane		0.569	0.830	0.781	0.786	0.690
1,1-Dichloroethene		0.349	0.423	0.469	0.464	0.390
Trichlorofluoromethane		0.511	0.831	0.818	0.813	0.707
1,2,3-Trichlorobenzene		421	1182	2753	6553	21856
Tetrachloroethene		0.266	0.412	0.394	0.398	0.333
1,2,4-Trichlorobenzene		0.325	0.435	0.465	0.518	0.418
1,2,4-Trimethylbenzene		1.739	2.619	2.442	2.563	2.286
tert-Butylbenzene		1.338	2.168	2.060	2.126	1.865
Trichloroethene		0.226	0.390	0.387	0.396	0.344
1,2-Dichlorobenzene		0.916	1.484	1.429	1.497	1.292
1,2-Dichloroethane		0.277	0.470	0.408	0.432	0.391
1,2-Dichloropropane		0.294	0.294	0.312	0.339	0.284
1,3,5-Trimethylbenzene		1.606	2.354	2.372	2.481	2.215
1,3-Dichloropropane		0.431	0.613	0.570	0.583	0.512
1,4-Dichlorobenzene		1.108	1.632	1.581	1.609	1.417
2-Butanone		0.167	0.156	0.152	0.164	0.146
2-Chlorotoluene		1.263	1.990	1.903	2.032	1.735
2-Hexanone		0.180	0.237	0.204	0.235	0.191
4-Chlorotoluene		1.550	2.500	2.222	2.378	2.079
Styrene		0.702	1.134	1.076	1.148	1.004
4-Methyl-2-Pentanone		0.220	0.321	0.313	0.331	0.281
Acetone		4579	5956	7954	15992	43200
Benzene		0.788	1.327	1.220	1.289	1.109
Bromobenzene		0.584	1.003	0.940	0.994	0.873
Bromochloromethane		0.229	0.323	0.309	0.284	0.255
Bromodichloromethane		0.298	0.490	0.424	0.473	0.395
Bromoform		887	3197	5989	16084	56416
Bromomethane		2741	6334	12041	28671	93456
Carbon Disulfide		0.747	1.257	1.216	1.254	1.101
Carbon Tetrachloride		0.340	0.503	0.483	0.478	0.403
Chlorobenzene		0.738	1.108	1.028	1.090	0.934

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911144

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF0.25: X111802 RF0.5: X111803 RF1: X111804
RF2: X111805 RF5: X111806 RF20: X111807

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		0.279	0.361	0.345	0.323	0.283
Chloroform		0.775	0.990	0.890	0.850	0.736
Chloromethane		2201	6118	10461	24949	85402
cis-1,2-Dichloroethene		0.327	0.540	0.493	0.541	0.454
Dibromochloromethane		0.253	0.433	0.392	0.429	0.370
Dichlorodifluoromethane		1269	3829	7335	18346	63810
Ethylbenzene		0.353	0.562	0.515	0.576	0.493
Hexachlorobutadiene		1376	2468	4522	11525	37789
Isopropylbenzene		1.054	1.627	1.570	1.602	1.425
m,p-Xylenes		0.393	0.653	0.644	0.678	0.591
Methylene Chloride		0.422	0.556	0.483	0.491	0.406
n-Butylbenzene		1.620	2.055	2.004	2.069	1.888
n-Propylbenzene		2.290	3.358	3.192	3.345	2.976
Naphthalene		0.510	0.569	0.604	0.614	0.512
o-Xylene		0.390	0.677	0.656	0.658	0.582
sec-Butylbenzene		1.995	2.859	2.859	2.813	2.501
Vinyl Chloride		0.490	0.545	0.546	0.504	0.454
1,2,3-Trichloropropane		0.455	0.730	0.701	0.662	0.580
p-Isopropyltoluene		1.839	2.630	2.538	2.573	2.307
1,2-Dibromo-3-Chloropropane		125	464	859	2641	8805
Freon TF		0.296	0.488	0.452	0.457	0.380
4-Bromofluorobenzene		3844	5731	10468	25804	94194
Dibromofluoromethane		2303	3882	8127	20237	75094
Toluene-d8		1.628	1.327	1.357	1.369	1.263
1,2-Dichloroethane-d4		2522	4458	8034	20921	75813

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911144

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	0.499	0.494	0.497	0.493
trans-1,3-Dichloropropene	0.452	0.455	0.456	0.461
1,3-Dichlorobenzene	1.457	1.422	1.398	1.417
2,2-Dichloropropane	0.644	0.644	0.646	0.658
1,1-Dichloropropene	0.402	0.392	0.391	0.392
Dibromomethane	0.211	0.206	0.208	0.208
1,2-Dibromoethane	0.348	0.347	0.350	0.351
trans-1,2-Dichloroethene	0.410	0.413	0.416	0.427
1,1,1,2-Tetrachloroethane	0.368	0.369	0.369	0.370
1,1,1-Trichloroethane	0.673	0.676	0.678	0.697
1,1,2,2-Tetrachloroethane	0.672	0.670	0.662	0.661
Toluene	1.411	1.408	1.420	1.435
1,1,2-Trichloroethane	0.256	0.258	0.256	0.259
1,1-Dichloroethane	0.710	0.716	0.728	0.737
1,1-Dichloroethene	0.430	0.429	0.426	0.434
Trichlorofluoromethane	0.823	0.824	0.813	0.840
1,2,3-Trichlorobenzene	52554	102660	156391	210414
Tetrachloroethene	0.352	0.340	0.332	0.334
1,2,4-Trichlorobenzene	0.421	0.402	0.400	0.406
1,2,4-Trimethylbenzene	2.419	2.440	2.397	2.446
tert-Butylbenzene	2.012	2.011	1.967	1.996
Trichloroethene	0.359	0.350	0.348	0.348
1,2-Dichlorobenzene	1.330	1.327	1.324	1.344
1,2-Dichloroethane	0.401	0.397	0.397	0.398
1,2-Dichloropropane	0.295	0.290	0.290	0.290
1,3,5-Trimethylbenzene	2.368	2.377	2.339	2.377
1,3-Dichloropropane	0.516	0.521	0.514	0.516
1,4-Dichlorobenzene	1.465	1.445	1.412	1.445
2-Butanone	0.146	0.147	0.153	0.148
2-Chlorotoluene	1.853	1.827	1.787	1.800
2-Hexanone	0.192	0.201	0.204	0.204
4-Chlorotoluene	2.208	2.230	2.205	2.250
Styrene	1.056	1.073	1.093	1.113
4-Methyl-2-Pentanone	0.283	0.291	0.298	0.298
Acetone	103091	202207	284604	372223
Benzene	1.164	1.135	1.133	1.128
Bromobenzene	0.878	0.857	0.837	0.854
Bromochloromethane	0.263	0.261	0.260	0.255
Bromodichloromethane	0.412	0.408	0.412	0.412
Bromoform	143798	293256	447981	602595
Bromomethane	215480	396733	529714	
Carbon Disulfide	1.192	1.188	1.192	1.228
Carbon Tetrachloride	0.452	0.442	0.435	0.440
Chlorobenzene	0.965	0.966	0.974	0.982

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911144

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

LAB FILE ID: RF50: X111808 RF100: X111809 RF150: X111810
RF200: X111811

COMPOUND	RF50	RF100	RF150	RF200
Chloroethane	0.311	0.311	0.310	0.311
Chloroform	0.751	0.754	0.761	0.780
Chloromethane	215753	420936	613254	811388
cis-1,2-Dichloroethene	0.470	0.475	0.478	0.488
Dibromochloromethane	0.381	0.386	0.386	0.387
Dichlorodifluoromethane	186161	359790	504807	695305
Ethylbenzene	0.512	0.509	0.506	0.512
Hexachlorobutadiene	99881	192455		
Isopropylbenzene	1.523	1.544	1.538	1.560
m,p-Xylenes	0.623	0.628	0.627	0.639
Methylene Chloride	0.421	0.425	0.428	0.436
n-Butylbenzene	2.162	2.176	2.153	2.197
n-Propylbenzene	3.234	3.176	3.089	3.155
Naphthalene	0.521	0.505	0.514	0.512
o-Xylene	0.600	0.608	0.611	0.623
sec-Butylbenzene	2.823	2.798	2.726	2.790
Vinyl Chloride	0.505	0.510	0.510	0.523
1,2,3-Trichloropropane	0.577	0.564	0.549	0.543
p-Isopropyltoluene	2.571	2.546	2.480	2.534
1,2-Dibromo-3-Chloropropane	21800	42468	65470	86827
Freon TF	0.459	0.462	0.452	0.472
4-Bromofluorobenzene	222328	465570	688600	933083
Dibromofluoromethane	173990	354918	514854	681300
Toluene-d8	1.212	1.246	1.223	1.231
1,2-Dichloroethane-d4	178006	364646	532181	713282

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911144

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	AVRG		0.48761342		13.630	15.000
trans-1,3-Dichloropropene	AVRG		0.44441818		12.432	15.000
1,3-Dichlorobenzene	AVRG		1.43390401		11.978	15.000
2,2-Dichloropropane	AVRG		0.66029305		11.040	15.000
1,1-Dichloropropene	AVRG		0.40332539		10.380	15.000
Dibromomethane	AVRG		0.21136309		14.886	15.000
1,2-Dibromoethane	AVRG		0.35067597		12.763	15.000
trans-1,2-Dichloroethene	AVRG		0.41138839		13.381	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.36274186		12.717	15.000
1,1,1-Trichloroethane	AVRG		0.67453438		11.648	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.70308768		10.825	15.000
Toluene	AVRG		1.41788930		10.479	15.000
1,1,2-Trichloroethane	AVRG		0.26137158		14.102	15.000
1,1-Dichloroethane	AVRG		0.72750643		10.197	15.000
1,1-Dichloroethene	AVRG		0.42373367		8.607	15.000
Trichlorofluoromethane	AVRG		0.77561874		13.736	15.000
1,2,3-Trichlorobenzene	2ORDR	-1.73e-002	5.50264123	-0.1707432	0.9998373	0.9900000
Tetrachloroethene	AVRG		0.35131312		12.801	15.000
1,2,4-Trichlorobenzene	AVRG		0.42118311		12.391	15.000
1,2,4-Trimethylbenzene	AVRG		2.37245105		10.778	15.000
tert-Butylbenzene	AVRG		1.94917789		12.586	15.000
Trichloroethene	AVRG		0.34966887		14.517	15.000
1,2-Dichlorobenzene	AVRG		1.32701574		12.905	15.000
1,2-Dichloroethane	AVRG		0.39691390		12.978	15.000
1,2-Dichloropropane	AVRG		0.29867989		5.660	15.000
1,3,5-Trimethylbenzene	AVRG		2.27648393		11.444	15.000
1,3-Dichloropropane	AVRG		0.53064503		9.928	15.000
1,4-Dichlorobenzene	AVRG		1.45709302		10.715	15.000
2-Butanone	AVRG		0.15342086		5.109	15.000
2-Chlorotoluene	AVRG		1.79889065		12.374	15.000
2-Hexanone	AVRG		0.20539492		9.225	15.000
4-Chlorotoluene	AVRG		2.18043218		12.121	15.000
Styrene	AVRG		1.04451403		12.966	15.000
4-Methyl-2-Pentanone	AVRG		0.29296235		10.958	15.000
Acetone	LINR	-7.72e-002	8.02348321		0.9999004	0.9900000
Benzene	AVRG		1.14377224		13.444	15.000
Bromobenzene	AVRG		0.86897432		14.186	15.000
Bromochloromethane	AVRG		0.27086566		10.835	15.000
Bromodichloromethane	AVRG		0.41377448		13.021	15.000
Bromoform	LINR	1.997e-002	3.29171060		0.9995506	0.9900000
Bromomethane	LINR	-4.72e-002	2.10632186		0.9967362	0.9900000
Carbon Disulfide	AVRG		1.15275096		13.789	15.000
Carbon Tetrachloride	AVRG		0.44181701		10.990	15.000
Chlorobenzene	AVRG		0.97614522		10.975	15.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911144

Instrument ID: VOA6 Calibration Date(s): 11/18/19 11/18/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1347 1746

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroethane	AVRG		0.31480657		8.302	15.000
Chloroform	AVRG		0.80974969		10.425	15.000
Chloromethane	LINR	3.748e-003	1.83460007		0.9998260	0.9900000
cis-1,2-Dichloroethene	AVRG		0.47416954		13.204	15.000
Dibromochloromethane	AVRG		0.37970849		13.683	15.000
Dichlorodifluoromethane	LINR	1.763e-002	2.15619239		0.9988587	0.9900000
Ethylbenzene	AVRG		0.50436028		12.486	15.000
Hexachlorobutadiene	LINR	-1.03e-002	2.88504774		0.9991601	0.9900000
Isopropylbenzene	AVRG		1.49389834		11.672	15.000
m,p-Xylenes	AVRG		0.60861655		13.850	15.000
Methylene Chloride	AVRG		0.45210476		10.732	15.000
n-Butylbenzene	AVRG		2.03598696		9.063	15.000
n-Propylbenzene	AVRG		3.09059969		10.434	15.000
Naphthalene	AVRG		0.54020307		8.055	15.000
o-Xylene	AVRG		0.60066696		14.145	15.000
sec-Butylbenzene	AVRG		2.68486077		10.468	15.000
Vinyl Chloride	AVRG		0.50958661		5.494	15.000
1,2,3-Trichloropropane	AVRG		0.59573805		14.502	15.000
p-Isopropyltoluene	AVRG		2.44651692		10.015	15.000
1,2-Dibromo-3-Chloropropane	LINR	-6.81e-003	12.9714748		0.9998714	0.9900000
Freon TF	AVRG		0.43530320		13.846	15.000
4-Bromofluorobenzene	LINR	8.357e-003	2.13170980		0.9997055	0.9900000
Dibromofluoromethane	LINR	7.36e-003	2.18334297		0.9997712	0.9900000
Toluene-d8	AVRG		1.31739803		9.895	15.000
1,2-Dichloroethane-d4	LINR	1.473e-002	2.09453233		0.9994184	0.9900000

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

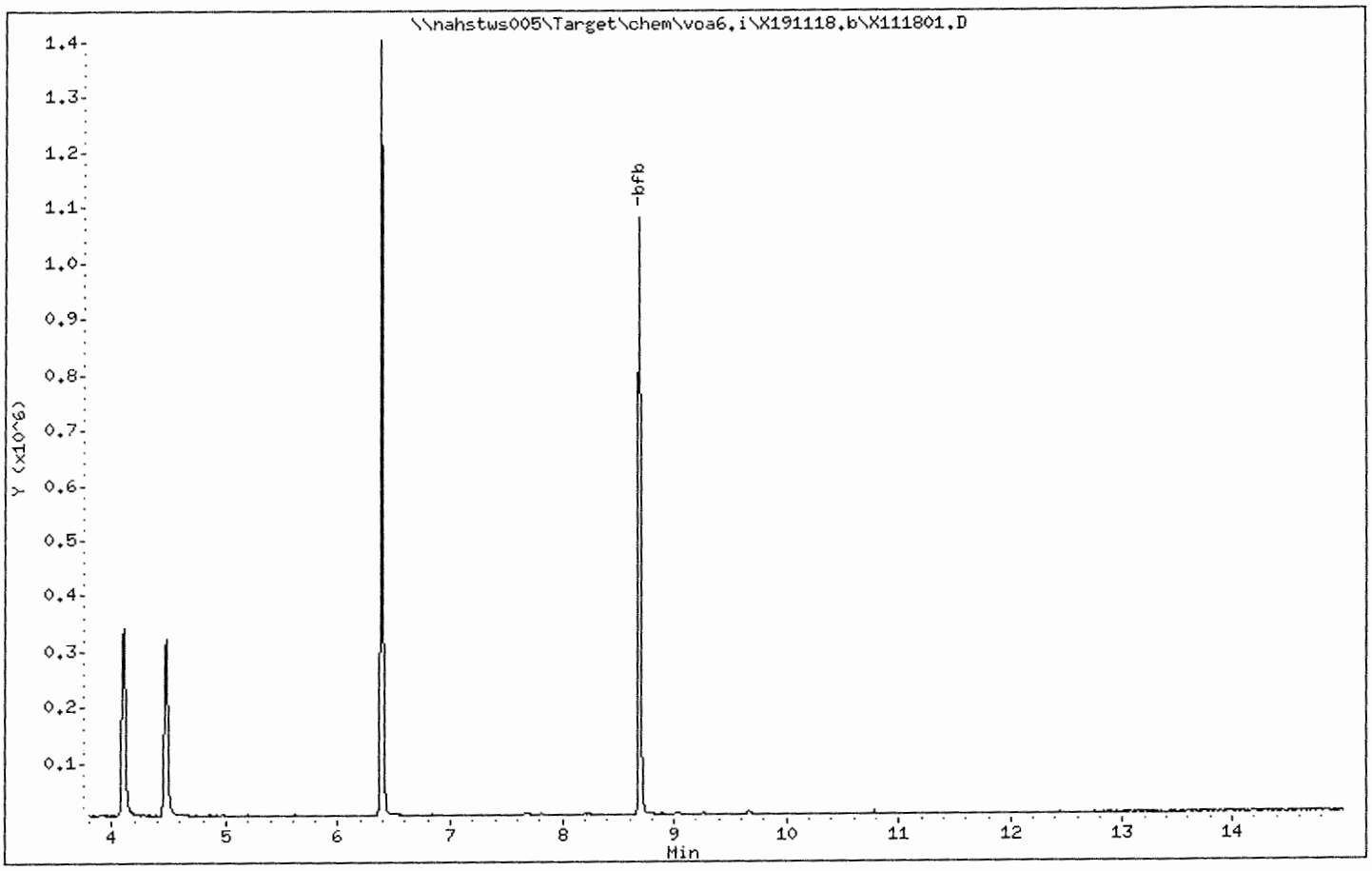
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

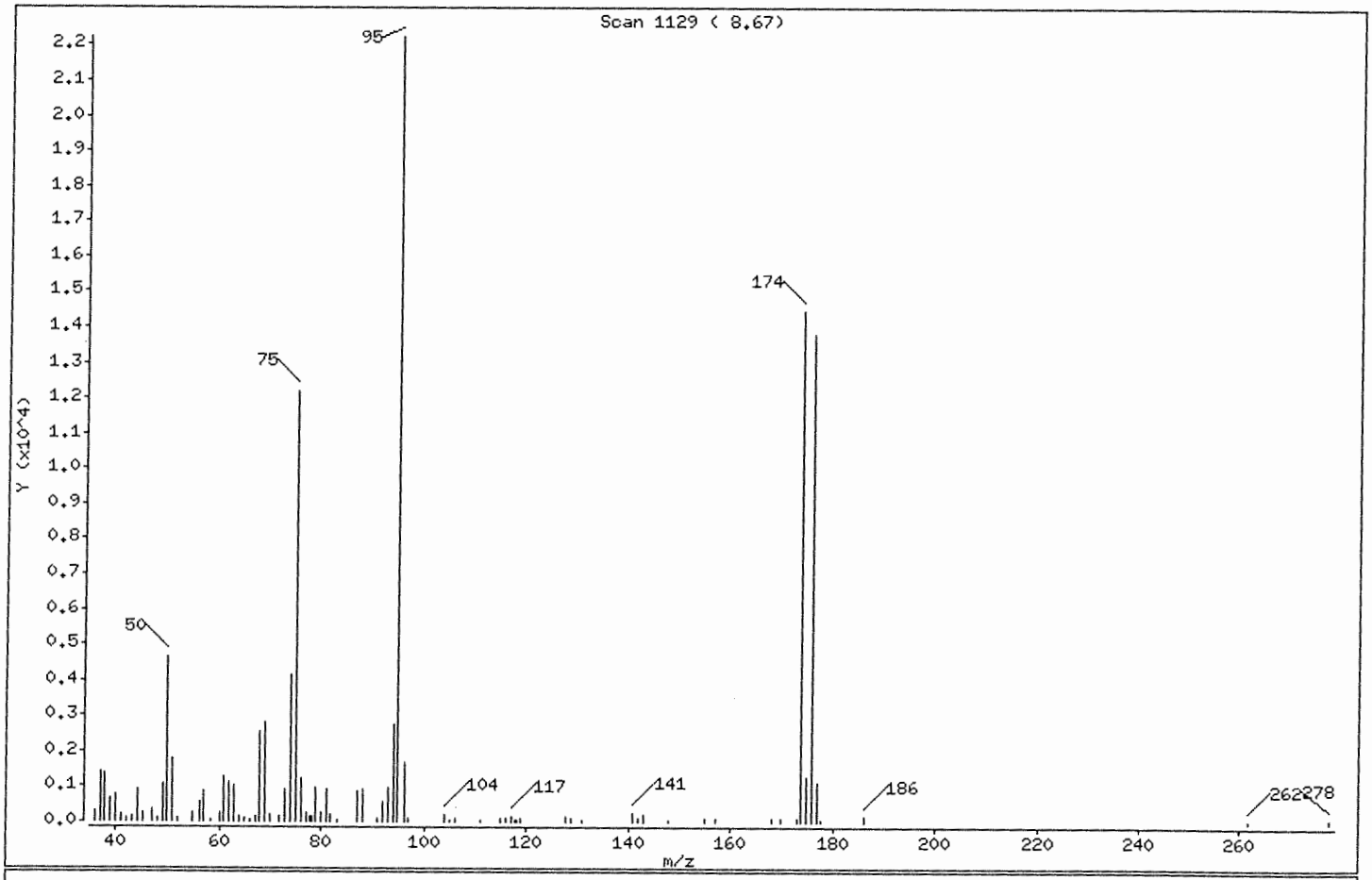
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.86
75	30.00 - 60.00% of mass 95	54.86
96	5.00 - 9.00% of mass 95	7.62
173	Less than 2.00% of mass 174	0.43 (0.66)
174	Greater than 50.00% of mass 95	65.03
175	5.00 - 9.00% of mass 174	5.82 (8.95)
176	95.00 - 101.00% of mass 174	62.04 (95.41)
177	5.00 - 9.00% of mass 176	5.11 (8.24)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111801.D

Date : 18-NOV-2019 13:23

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X111801.D
Spectrum: Scan 1129 (8.67)
Location of Maximum: 95.00
Number of points: 83

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	329	61.00	1259	81.80	217	127.90	153
37.00	1409	62.00	1149	83.00	50	128.90	116
38.00	1370	62.90	1001	86.90	880	130.90	70
39.00	662	64.00	138	88.00	941	141.00	249
40.00	775	65.10	110	91.10	116	141.90	94
41.00	191	66.00	72	92.10	565	142.90	216
42.00	77	67.10	153	93.00	990	148.10	62
43.00	166	68.00	2578	94.00	2783	155.00	87
44.10	928	69.00	2816	95.00	22224	157.00	77
45.10	261	69.90	217	96.10	1694	168.00	85
47.00	367	71.90	143	97.00	111	170.00	86
48.10	104	73.00	931	103.90	180	172.90	96
49.00	1057	74.00	4135	105.10	52	173.90	14452
50.00	4636	75.00	12193	106.00	100	174.90	1293
51.00	1802	76.00	1227	111.10	63	175.90	13788
52.10	85	77.10	248	115.10	93	176.90	1136
55.00	269	77.80	150	116.00	100	177.80	71
56.10	539	78.10	174	117.00	158	186.00	161
56.90	843	78.90	948	117.70	74	261.90	57
58.20	60	79.90	265	118.10	74	277.90	85
60.00	231	80.90	936	119.00	127		

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 18-NOV-2019 13:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

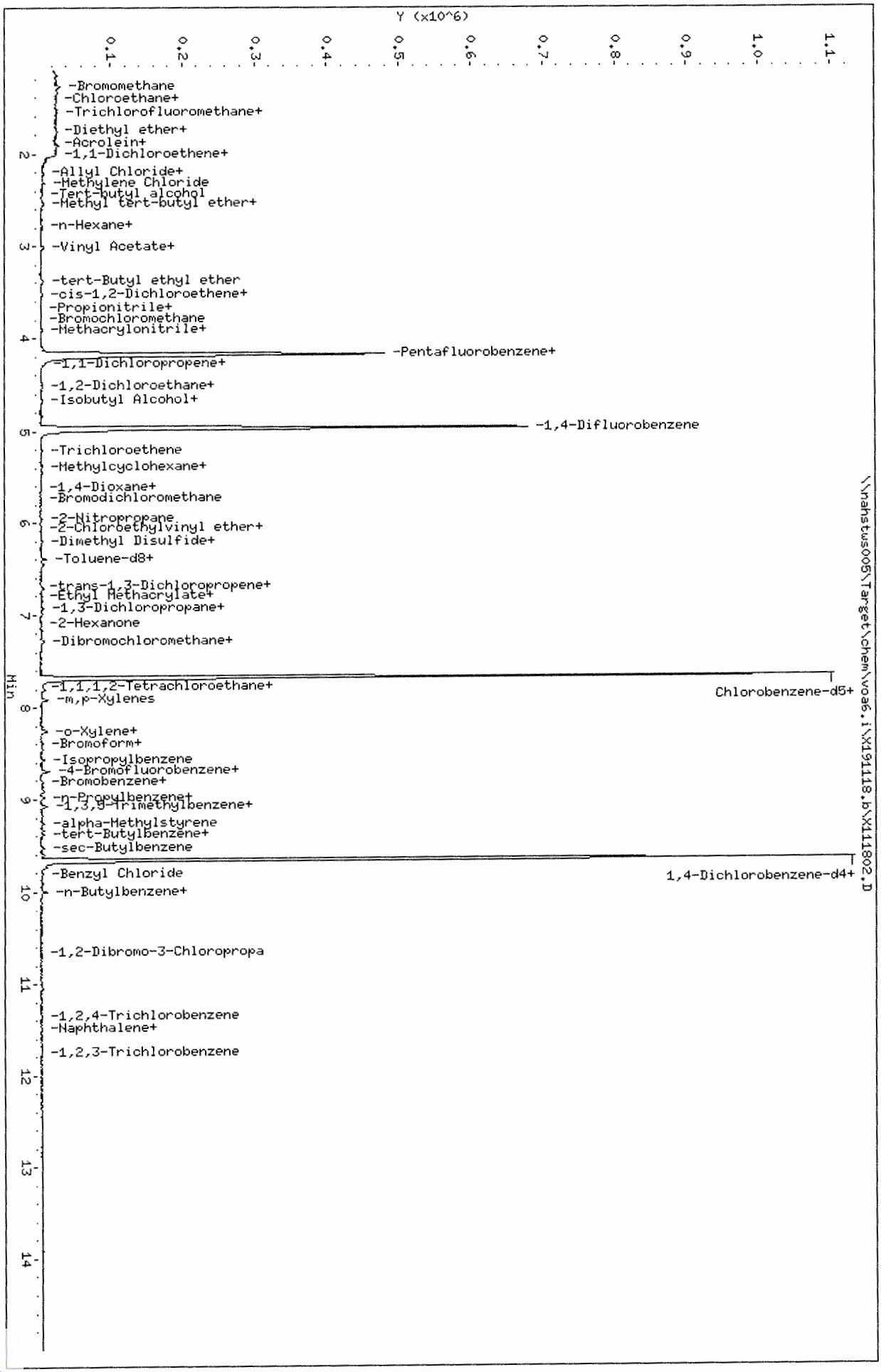
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	431958	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	586737	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	529029	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	277425	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	1323	0.25000	1.05(Ta)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3260	0.25000	1.07(a)
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	1295	0.25000	0.69(a)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	5247	0.25000	0.37(Ta)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	814	0.25000	0.21(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	1177	0.25000	0.20(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	861	0.25000	0.22(aM)
138 Freon TF	101	1.912	1.912	(0.457)	755	0.25000	0.20(aM)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	656	0.25000	0.23(aM)
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	1571	0.25000	0.24(aM)
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	909	0.25000	0.24(a)
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	1579	0.25000	0.33(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	224	0.25000	(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	702	0.25000	0.21(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	320	0.25000	0.13(aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	2742	0.25000	0.20(a)
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	103	0.25000	(aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	708	0.25000	0.19(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	1523	0.25000	0.20(a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	938	0.25000	0.20(aM)
42	1,2-Dichloropropane	63	5.450	5.450	(1.097)	858	0.25000	0.24(aM)
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	2444	0.25000	0.19(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	1534	0.25000	0.19(a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1126	0.25000	0.20(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	1760	0.25000	0.21(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	1234	0.25000	0.21(aM)
24	2-Butanone	43	3.588	3.588	(0.858)	827	0.50000	0.62(aM)
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	2277	0.25000	0.22(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	809	0.50000	0.37(Ta)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	2873	0.25000	0.23(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2596	0.25000	0.19(a)
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	1190	0.50000	0.38(aM)
10	Acetone	43	1.969	1.969	(0.471)	3213	0.50000	(aM)
37	Benzene	78	4.519	4.519	(0.909)	3088	0.25000	0.23(a)
74	Bromobenzene	156	8.817	8.817	(0.913)	940	0.25000	0.19(a)
29	Bromochloromethane	128	3.795	3.795	(0.908)	660	0.25000	0.28(aM)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1101	0.25000	0.22(aM)
66	Bromoform	173	8.416	8.416	(1.097)	495	0.25000	1.15(aM)
6	Bromomethane	94	1.339	1.339	(0.320)	1552	0.25000	(aM)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	3999	0.50000	0.40(a)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	1084	0.25000	0.20(aM)
59	Chlorobenzene	112	7.692	7.692	(1.003)	2603	0.25000	0.25(a)
7	Chloroethane	64	1.403	1.403	(0.336)	672	0.25000	0.24(aM)
28	Chloroform	83	3.910	3.910	(0.935)	2414	0.25000	0.34(aM)
3	Chloromethane	50	1.074	1.074	(0.257)	1640	0.25000	0.53(aM)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1103	0.25000	0.26(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1351	0.25000	0.23(aM)
55	Dibromochloromethane	129	7.184	7.184	(0.937)	883	0.25000	0.21(a)
44	Dibromomethane	93	5.558	5.558	(1.118)	573	0.25000	0.23(aM)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	642	0.25000	1.04(aM)
61	Ethylbenzene	106	7.800	7.800	(1.017)	1072	0.25000	0.20(a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	367	0.25000	(aM)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	2992	0.25000	0.18(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	2521	0.50000	0.39(a)
17	Methylene Chloride	84	2.306	2.306	(0.551)	1174	0.25000	0.30(a)
87	n-Butylbenzene	91	9.999	9.999	(1.035)	2169	0.25000	0.19(a)
73	n-Propylbenzene	91	8.917	8.917	(0.923)	3456	0.25000	0.20(a)
92	Naphthalene	128	11.553	11.553	(1.196)	764	0.25000	0.25(a)
63	o-Xylene	106	8.244	8.244	(1.075)	1221	0.25000	0.19(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	3012	0.25000	0.20(a)
64	Styrene	104	8.265	8.265	(1.078)	2388	0.25000	0.21(a)
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	2350	0.25000	0.21(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	914	0.25000	0.24(a)
50	Toluene	91	6.453	6.453	(0.841)	3631	0.25000	0.24(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	826	0.25000	0.23(aM)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	996	0.25000	0.19(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	945	0.25000	0.23(a)
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	1233	0.25000	0.18(a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	1052	0.25000	0.23(a)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111802.D
Date : 18-NOV-2019 13:47
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\X191118.b\X111803.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 18-NOV-2019 14:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 13:47 Cal File: X111802.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

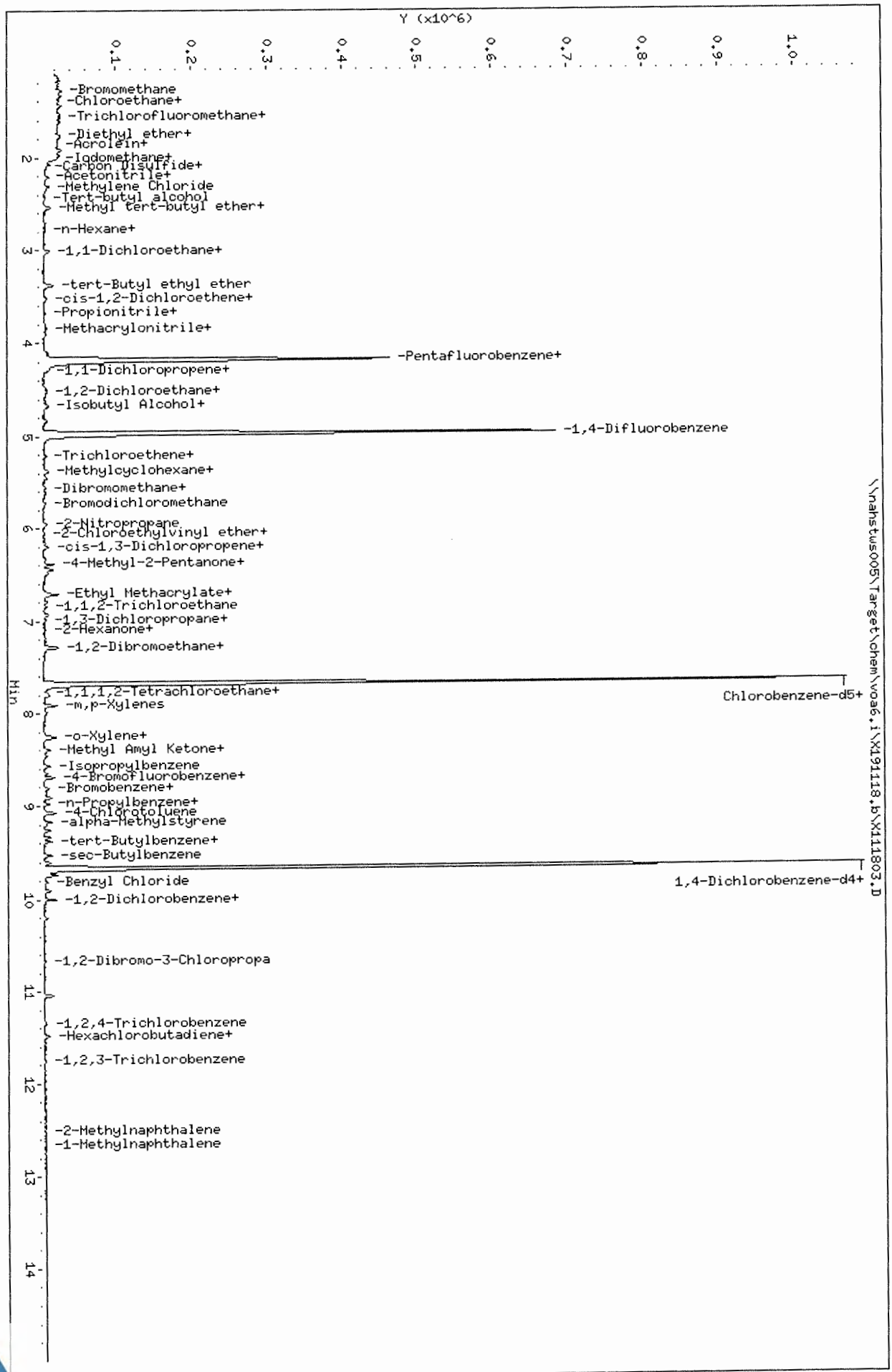
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	417797	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	575000	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	520290	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	274172	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	2522	0.50000	1.36(Ta)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3844	0.50000	1.20(a)
$ 30 Dibromofluoromethane	113	4.110	4.110	(0.983)	2303	0.50000	0.96(a)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	8468	0.50000	0.61(a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1290	0.50000	0.34(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	2055	0.50000	0.36(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1652	0.50000	0.42(aM)
138 Freon TF	101	1.911	1.911	(0.457)	1235	0.50000	0.33(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	936	0.50000	0.34(a)
22 1,1-Dichloroethane	63	2.928	2.928	(0.700)	2376	0.50000	0.39(Ta)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1458	0.50000	0.41(aM)
32 1,1-Dichloropropene	75	4.289	4.289	(0.863)	1907	0.50000	0.41(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	421	0.50000	(aM)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	1248	0.50000	0.38(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	892	0.50000	0.38(aM)
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	4769	0.50000	0.36(aM)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	125	0.50000	(aM)
57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	1273	0.50000	0.34(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	2511	0.50000	0.34 (a)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	1591	0.50000	0.34 (aM)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	1693	0.50000	0.49 (aM)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	4403	0.50000	0.35 (a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	2841	0.50000	0.36 (a)
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	2241	0.50000	0.40 (a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	3038	0.50000	0.38 (a)
26	2,2-Dichloropropane	77	3.523	3.523	(0.842)	2284	0.50000	0.41 (aM)
24	2-Butanone	43	3.595	3.595	(0.860)	1395	1.00000	1.08 (aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	3464	0.50000	0.35 (a)
52	2-Hexanone	43	7.090	7.090	(0.924)	1875	1.00000	0.87 (a)
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	4251	0.50000	0.35 (a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	5043	0.50000	0.37 (a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	2291	1.00000	0.75 (a)
10	Acetone	43	1.976	1.976	(0.473)	4579	1.00000	0.53 (aM)
37	Benzene	78	4.519	4.519	(0.909)	4530	0.50000	0.34 (a)
74	Bromobenzene	156	8.809	8.809	(0.911)	1601	0.50000	0.33 (a)
29	Bromochloromethane	128	3.802	3.802	(0.909)	956	0.50000	0.42 (a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1712	0.50000	0.35 (aM)
66	Bromoform	173	8.415	8.415	(1.097)	887	0.50000	1.27 (aM)
6	Bromomethane	94	1.338	1.338	(0.320)	2741	0.50000	(a)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	6243	1.00000	0.64 (aM)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	1955	0.50000	0.38 (aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	3839	0.50000	0.37 (a)
7	Chloroethane	64	1.403	1.403	(0.336)	1164	0.50000	0.44 (aM)
28	Chloroform	83	3.917	3.917	(0.937)	3238	0.50000	0.47 (a)
3	Chloromethane	50	1.073	1.073	(0.257)	2201	0.50000	0.67 (a)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	1368	0.50000	0.34 (a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1873	0.50000	0.33 (a)
55	Dibromochloromethane	129	7.176	7.176	(0.936)	1318	0.50000	0.33 (a)
44	Dibromomethane	93	5.564	5.564	(1.120)	802	0.50000	0.32 (a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	1269	0.50000	1.20 (aM)
61	Ethylbenzene	106	7.807	7.807	(1.018)	1838	0.50000	0.35 (a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	1376	0.50000	0.21 (a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	5484	0.50000	0.35 (a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	4089	1.00000	0.64 (a)
17	Methylene Chloride	84	2.305	2.305	(0.551)	1764	0.50000	0.46 (aM)
87	n-Butylbenzene	91	9.998	9.998	(1.034)	4442	0.50000	0.39 (aM)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	6280	0.50000	0.37 (a)
92	Naphthalene	128	11.560	11.560	(1.196)	1399	0.50000	0.47 (a)
63	o-Xylene	106	8.243	8.243	(1.075)	2028	0.50000	0.32 (a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	5469	0.50000	0.37 (a)
64	Styrene	104	8.265	8.265	(1.078)	3653	0.50000	0.33 (a)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	3670	0.50000	0.34 (a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	1382	0.50000	0.37 (a)
50	Toluene	91	6.453	6.453	(0.841)	5603	0.50000	0.37 (a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	1192	0.50000	0.34 (a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	1749	0.50000	0.34 (a)
38	Trichloroethene	130	5.206	5.206	(1.048)	1298	0.50000	0.32 (a)
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	2137	0.50000	0.32 (a)
5	Vinyl Chloride	62	1.138	1.138	(0.272)	2046	0.50000	0.48 (aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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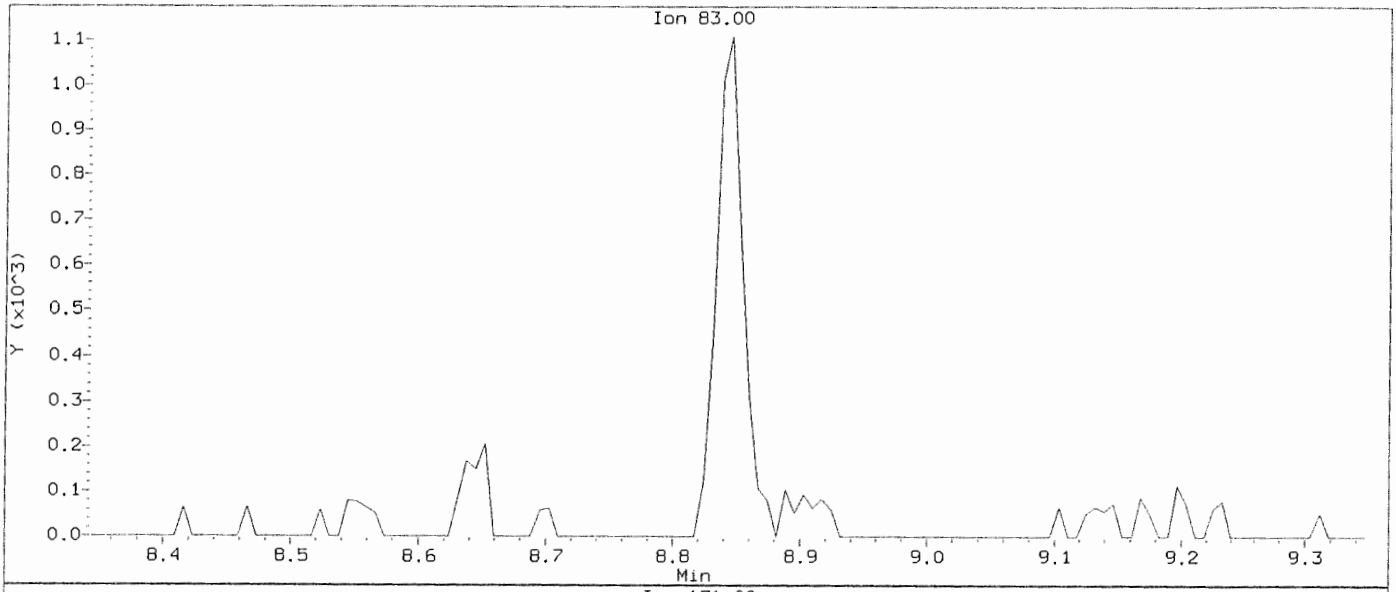
Date : 18-NOV-2019 14:35
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624

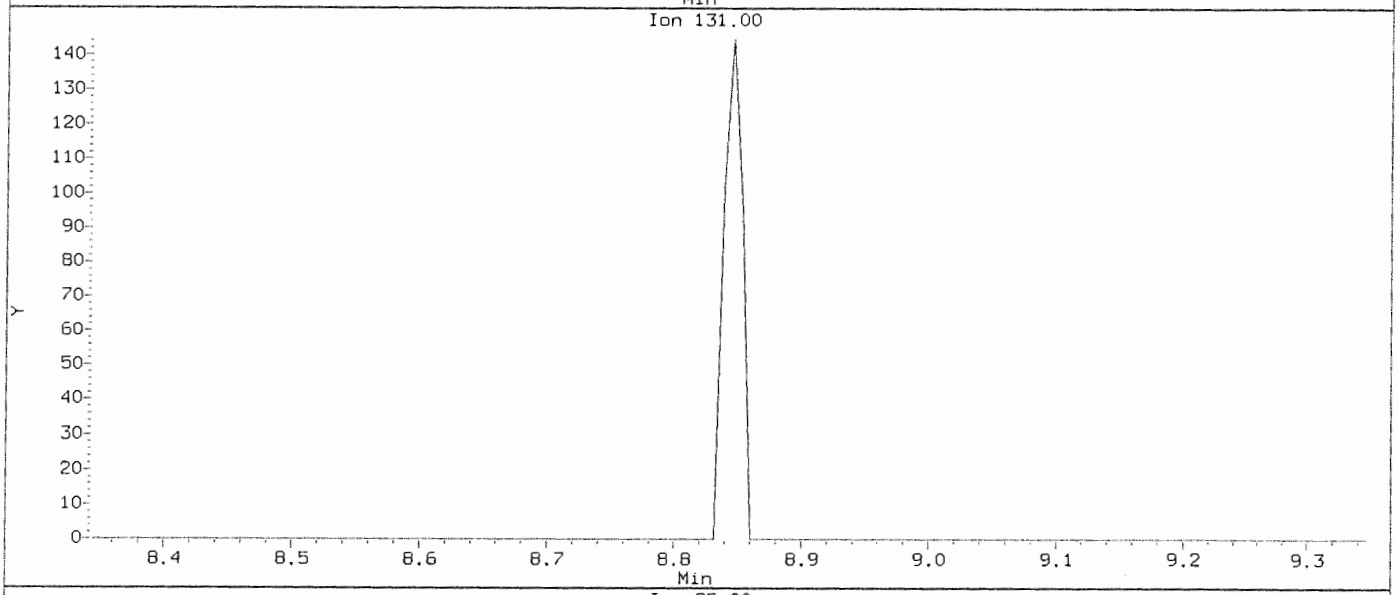
\\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D

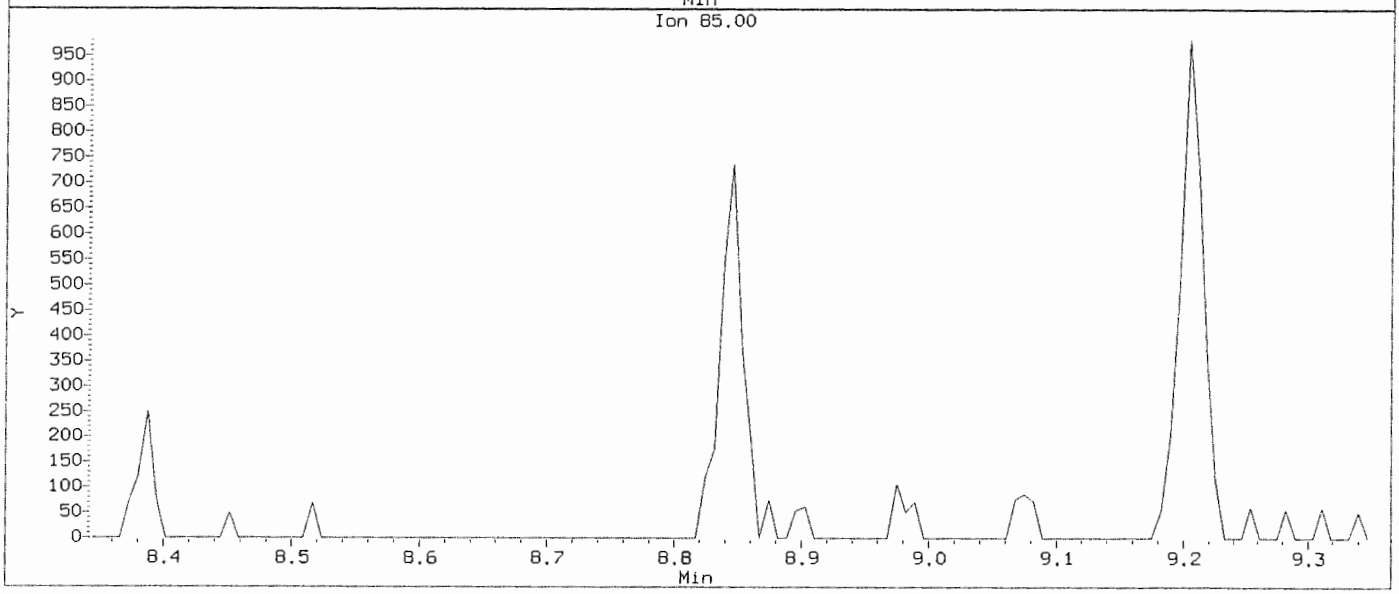
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5







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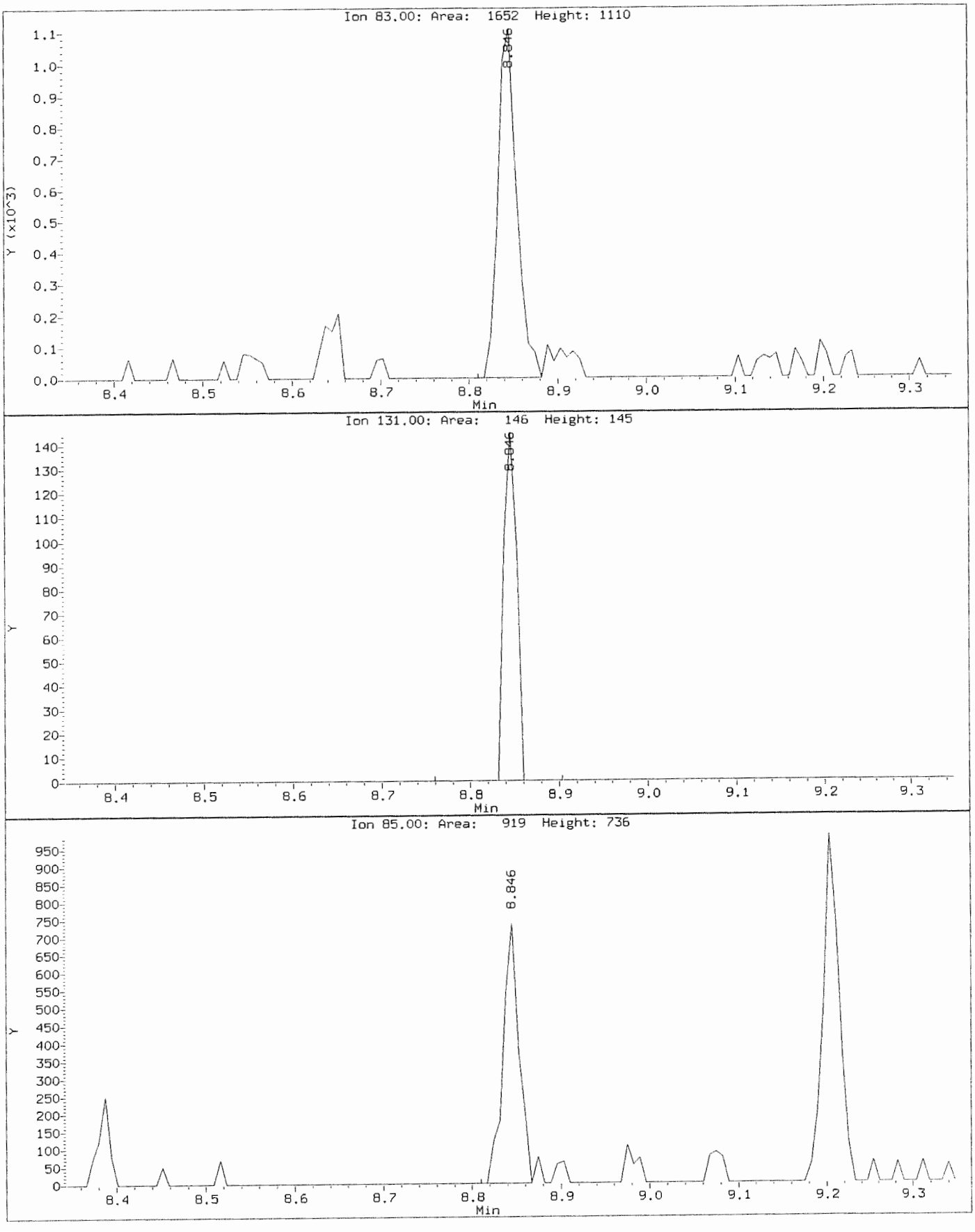
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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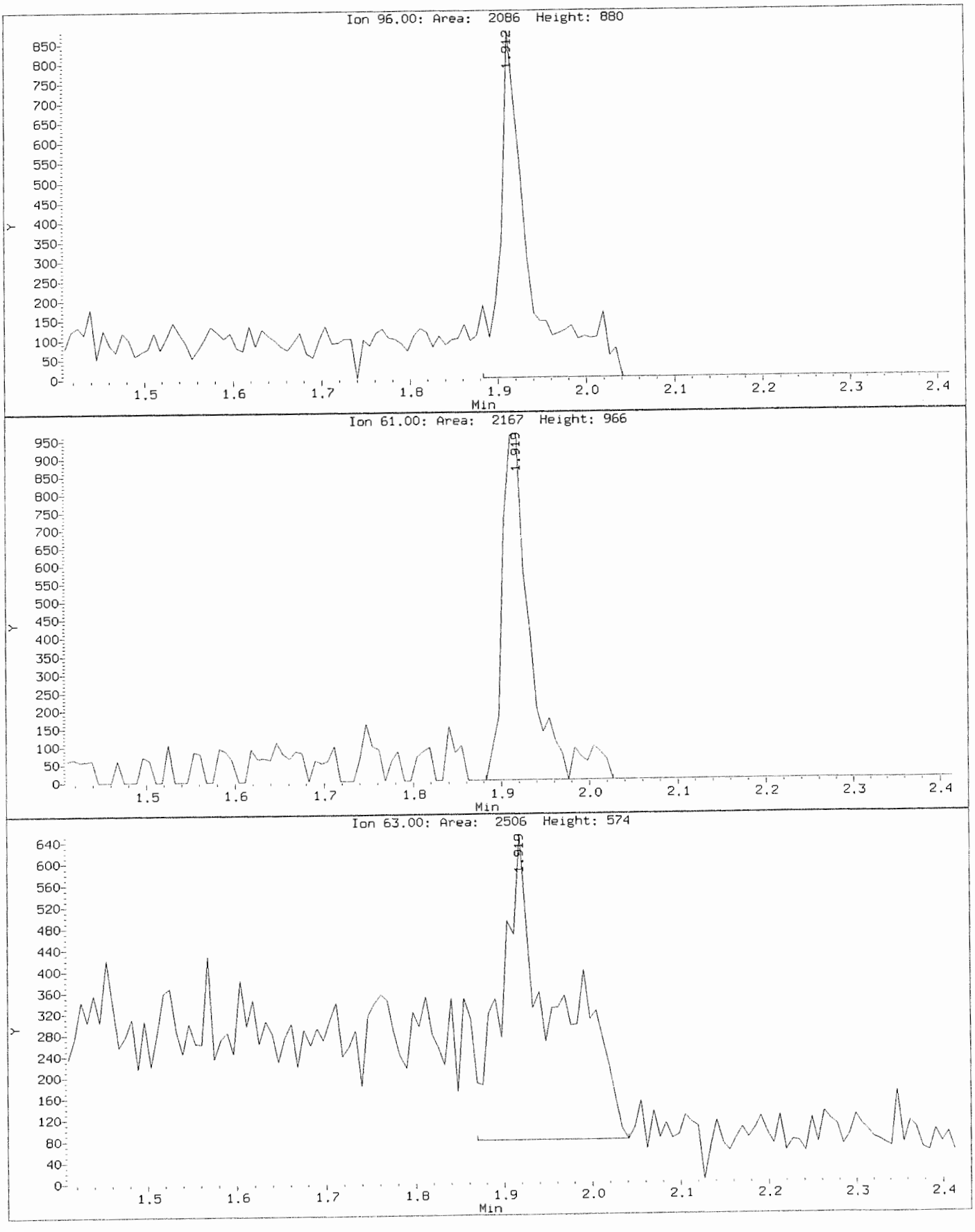
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



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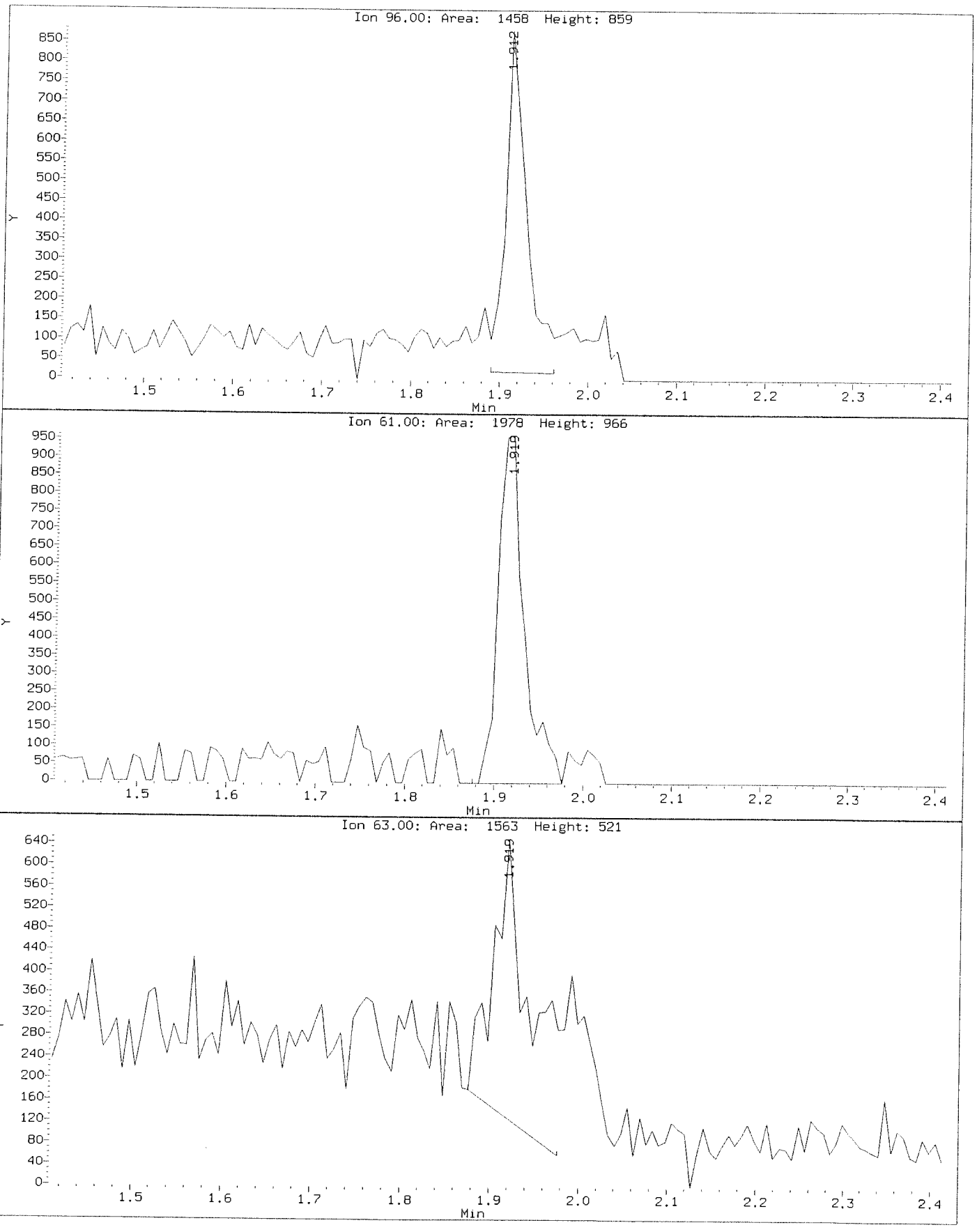
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



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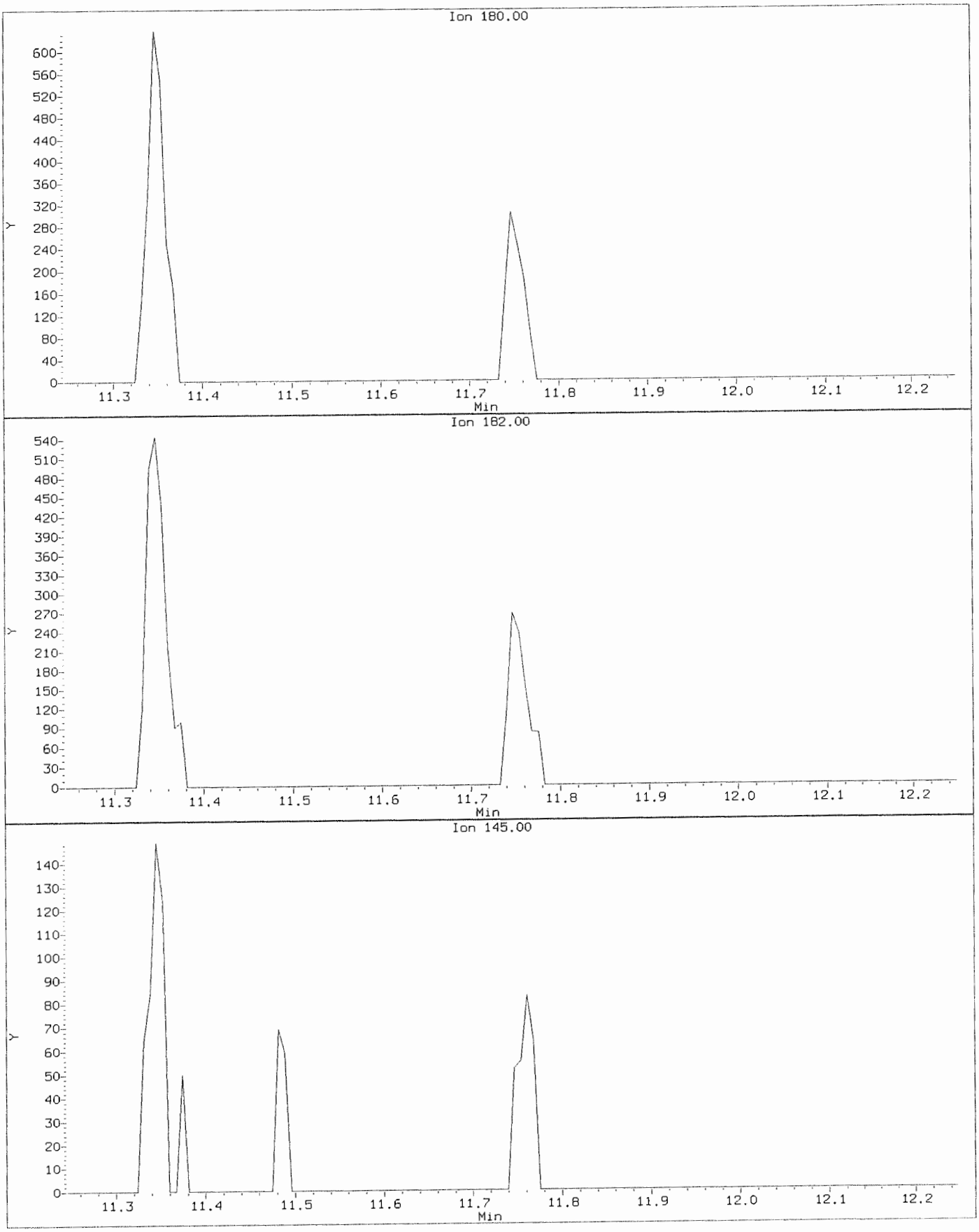
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



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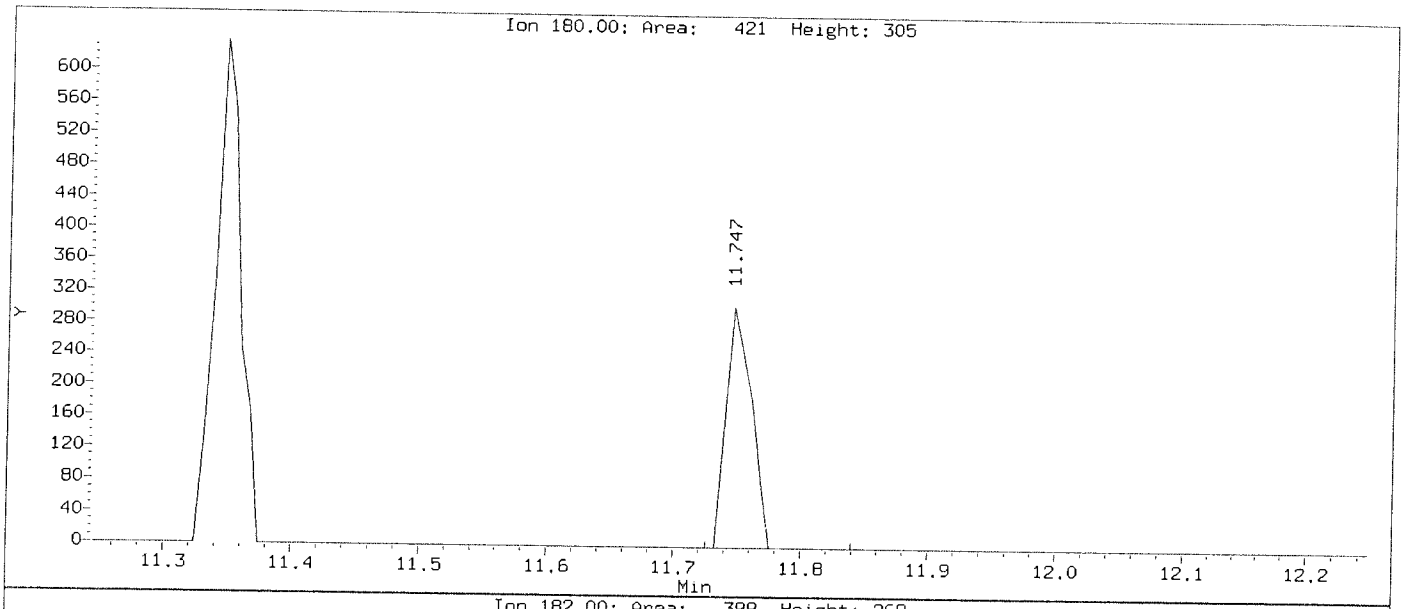
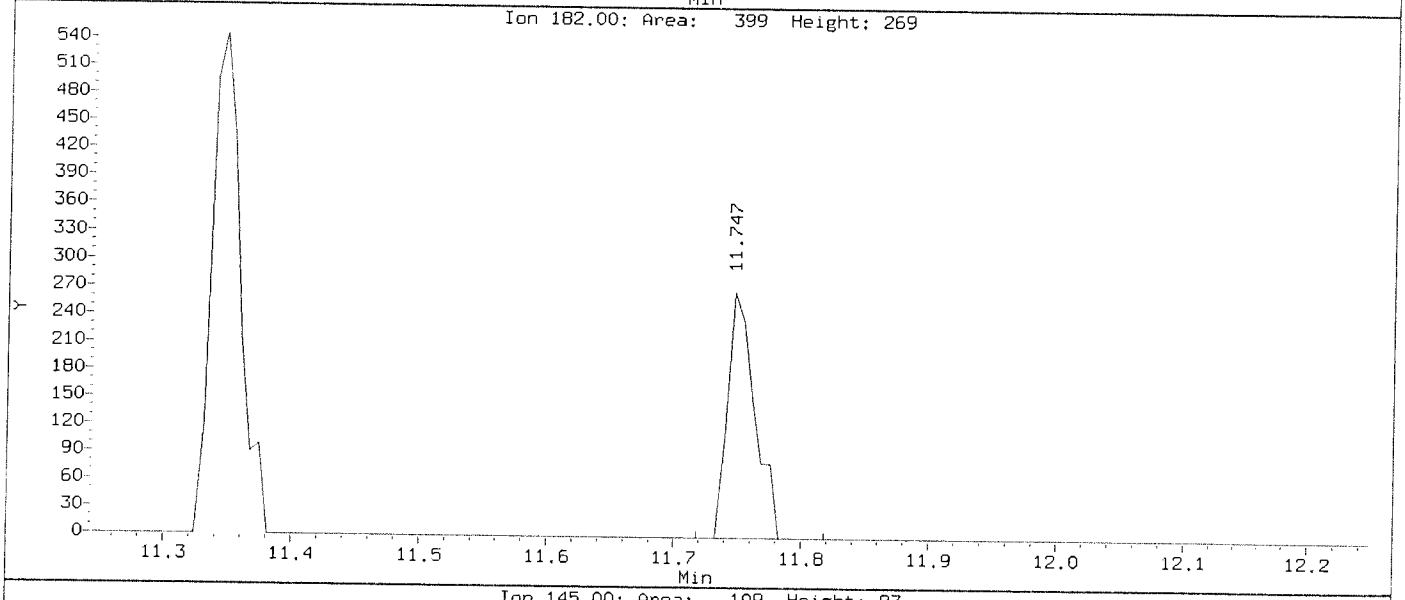
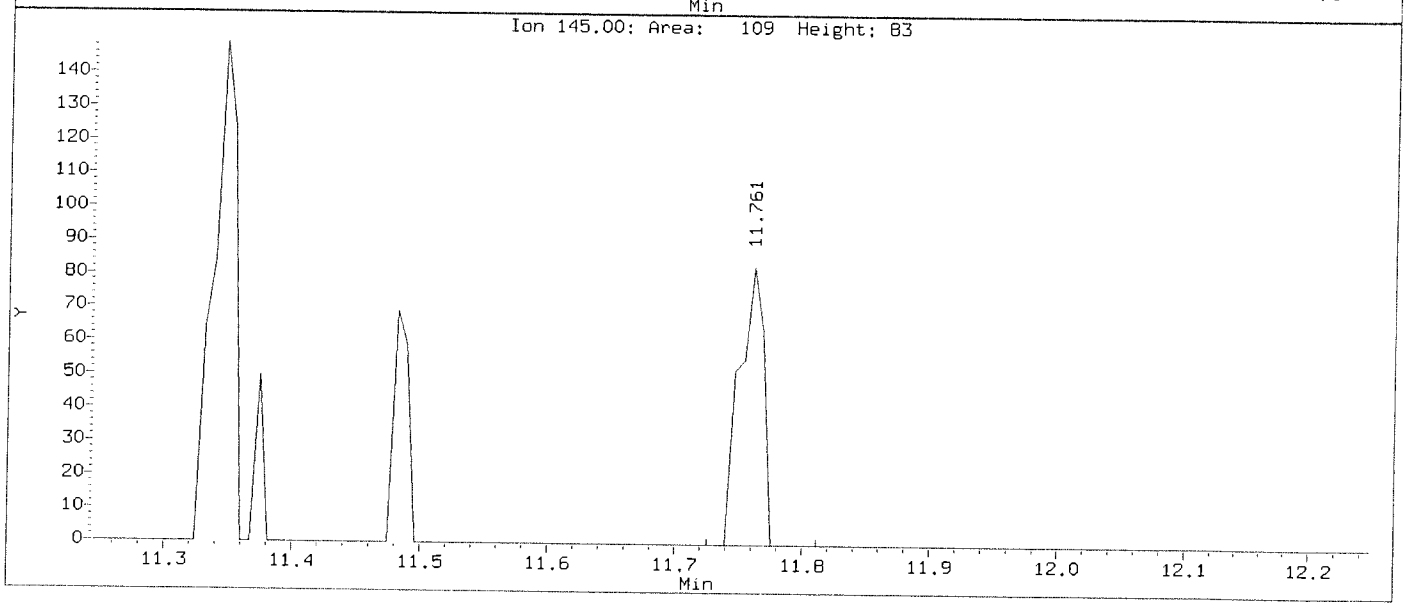
Compound: 1.2,3-Trichlorobenzene
CAS Number: 87-61-6







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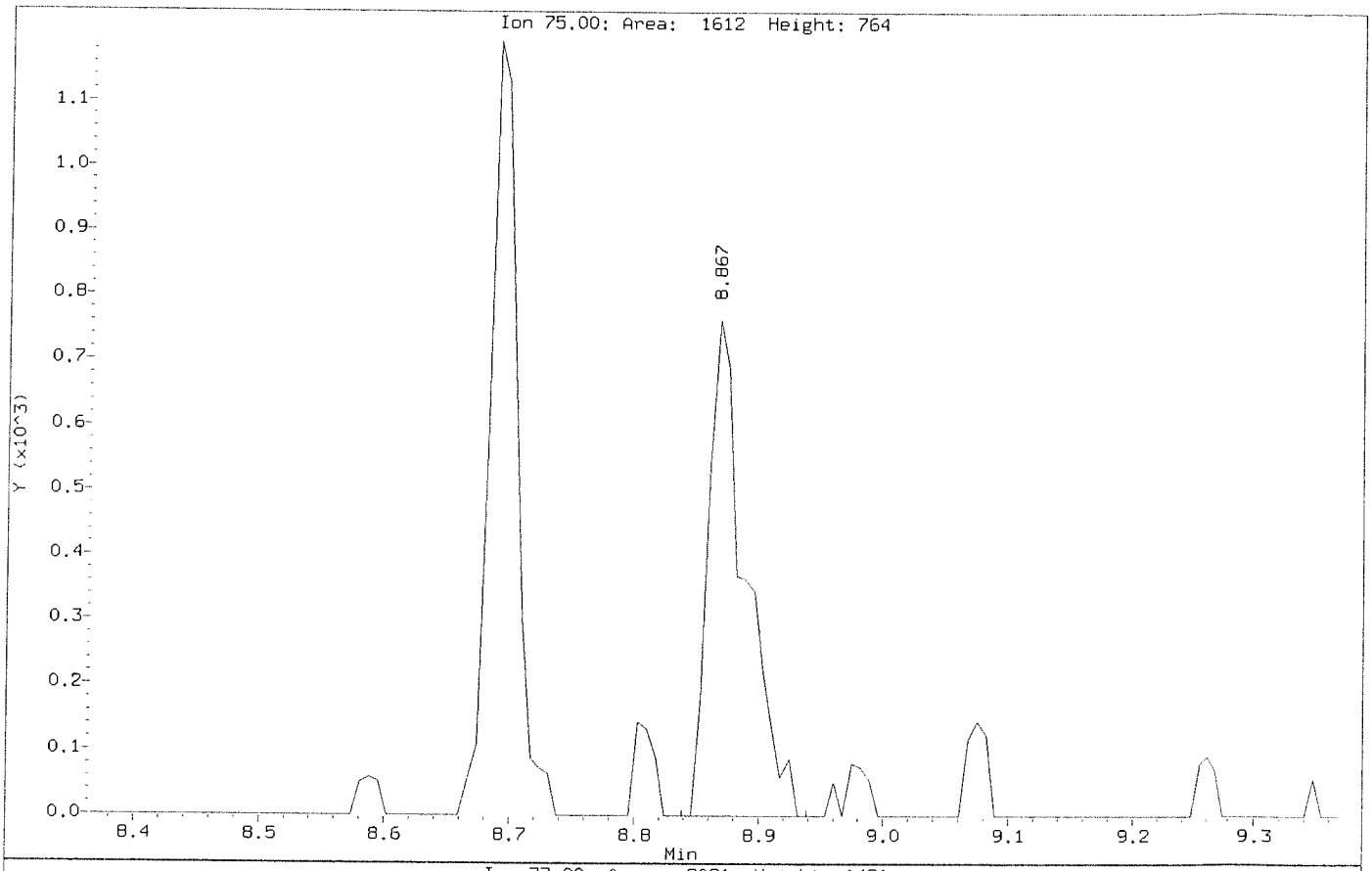
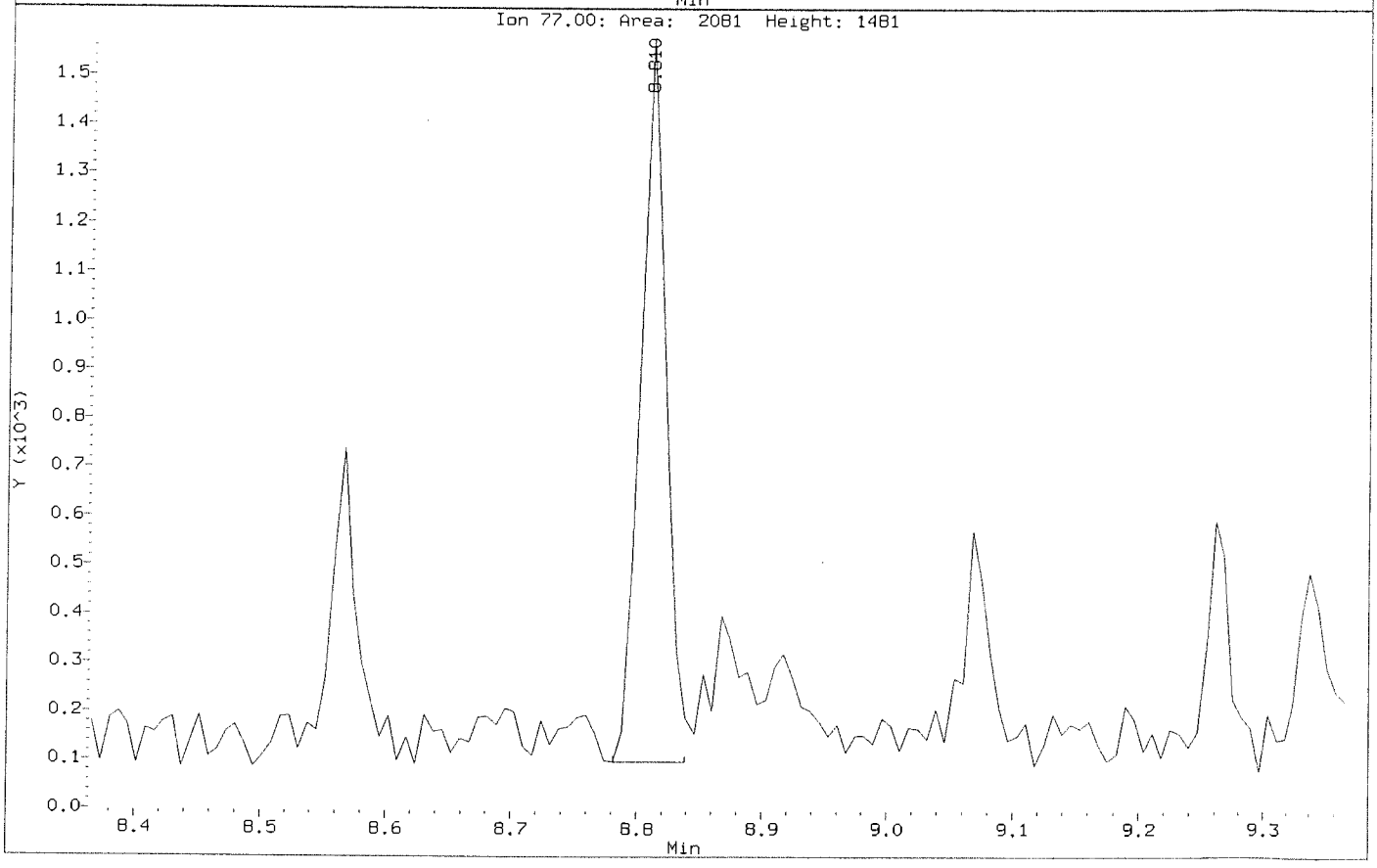
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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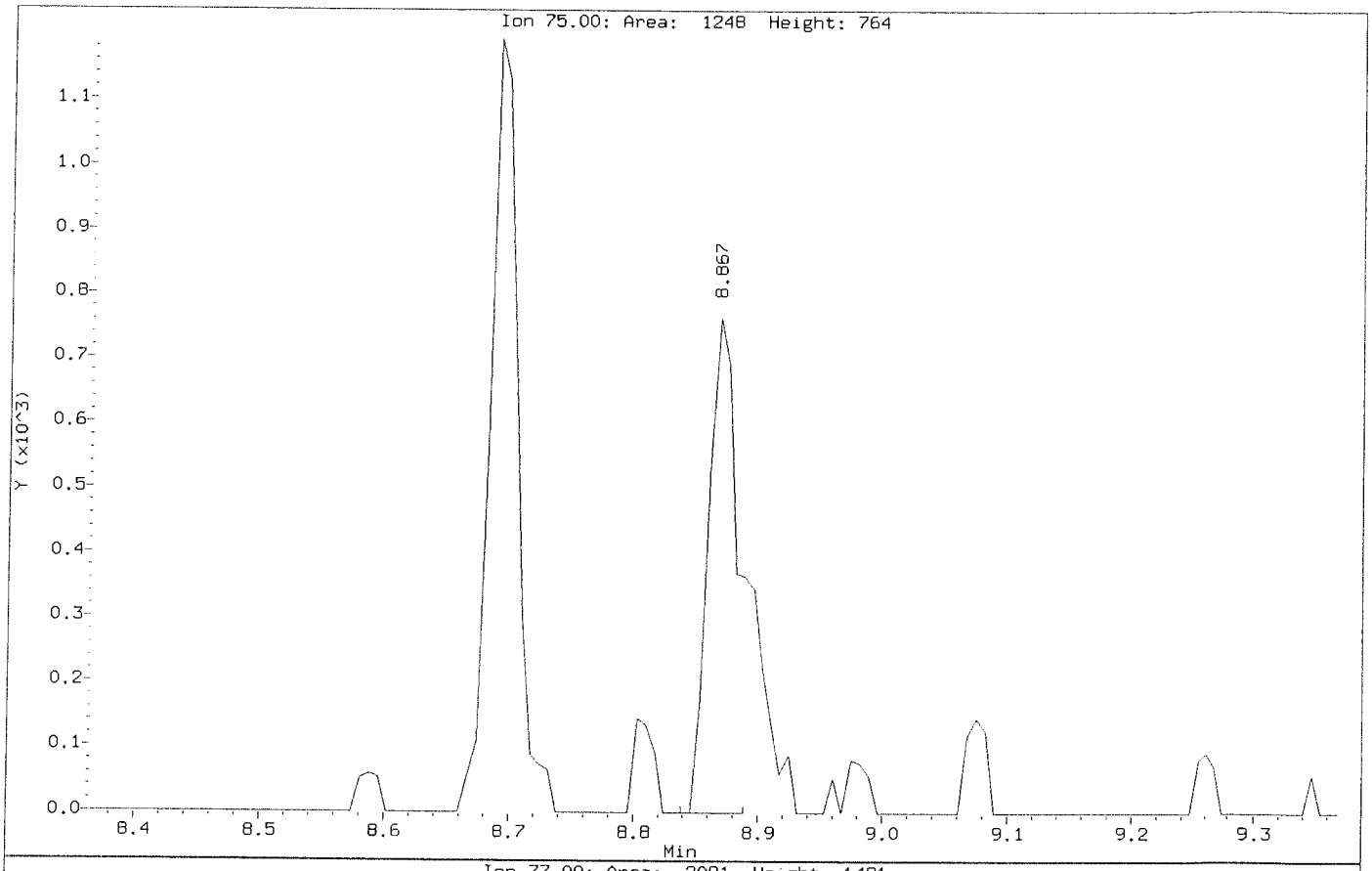
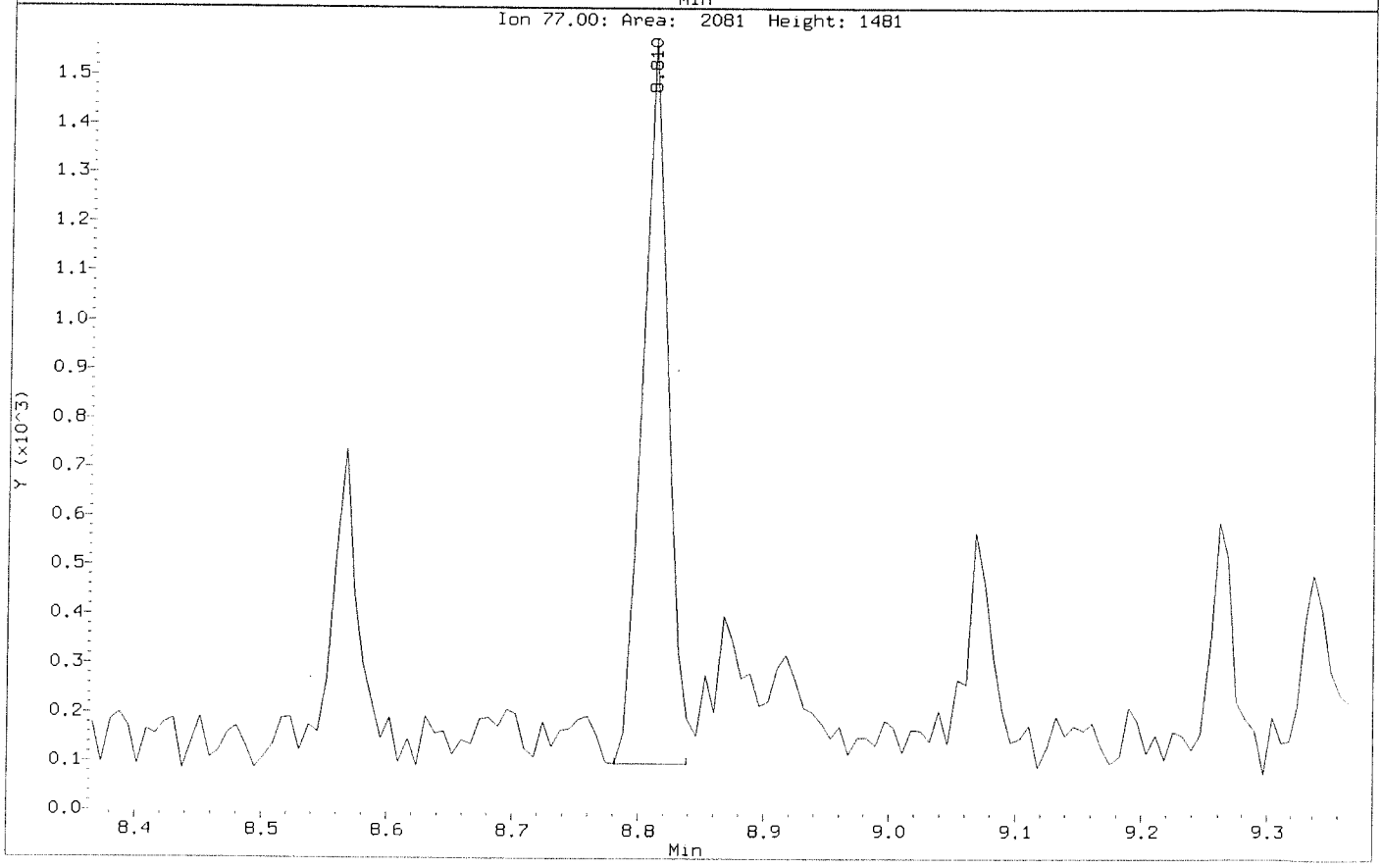
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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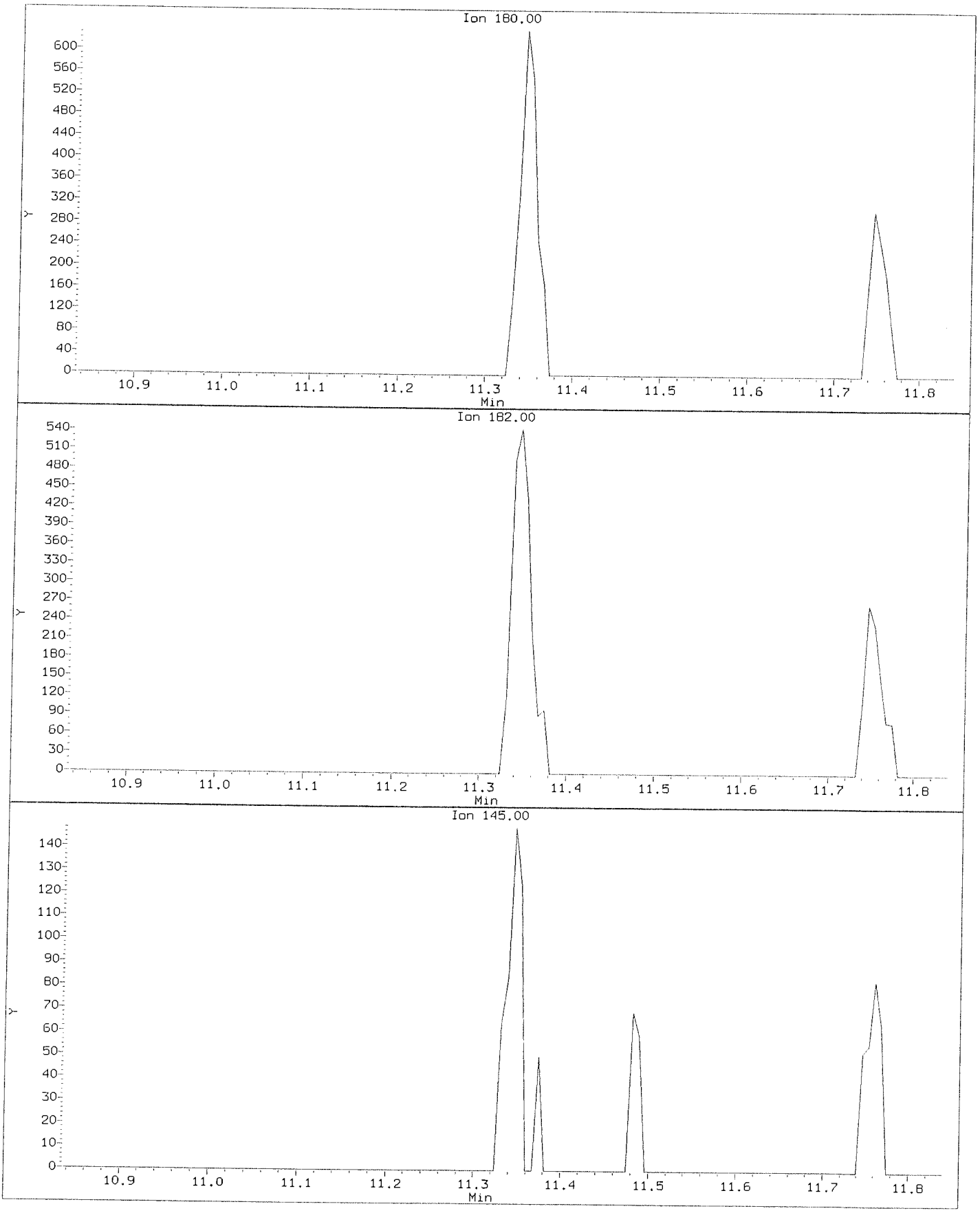
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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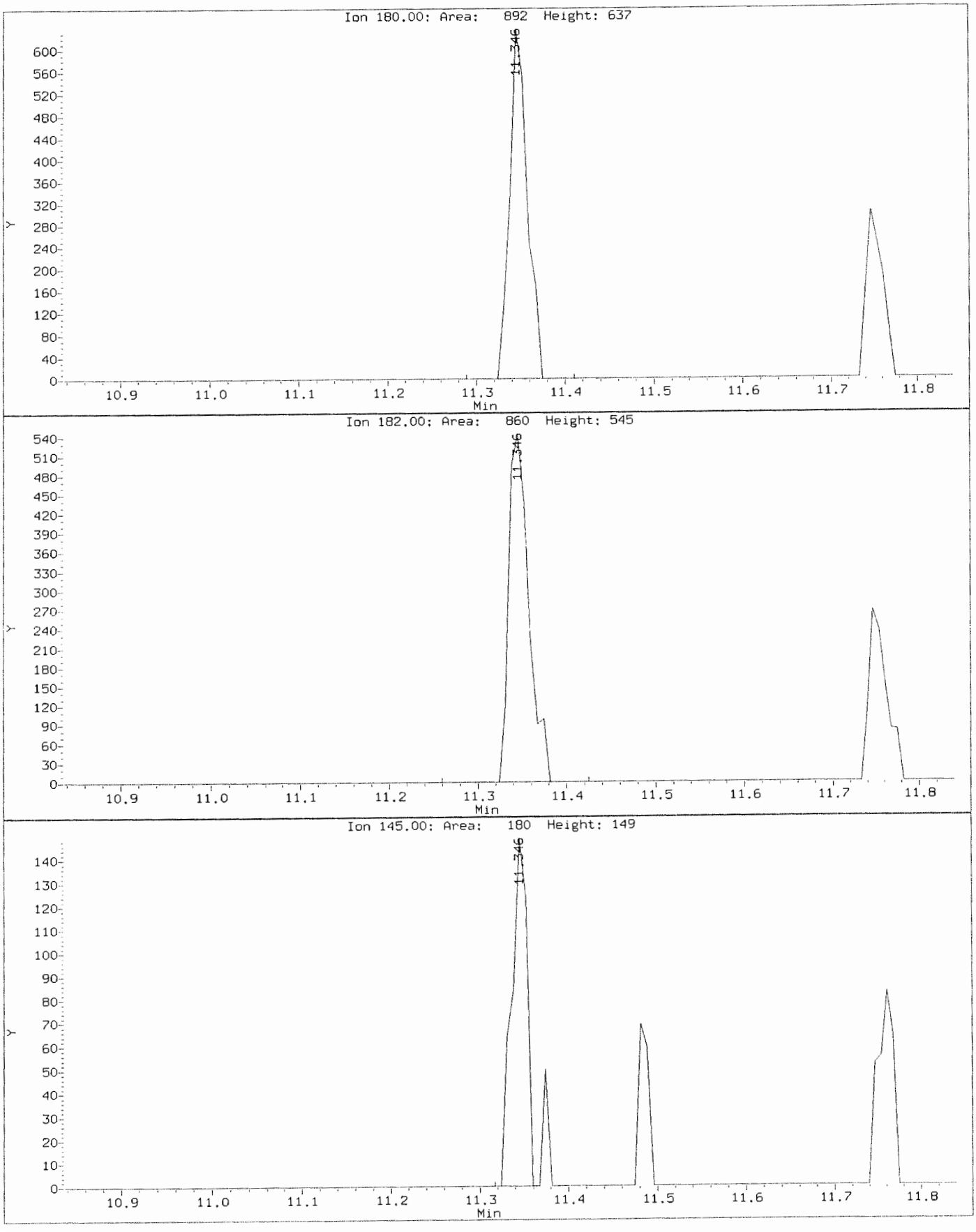
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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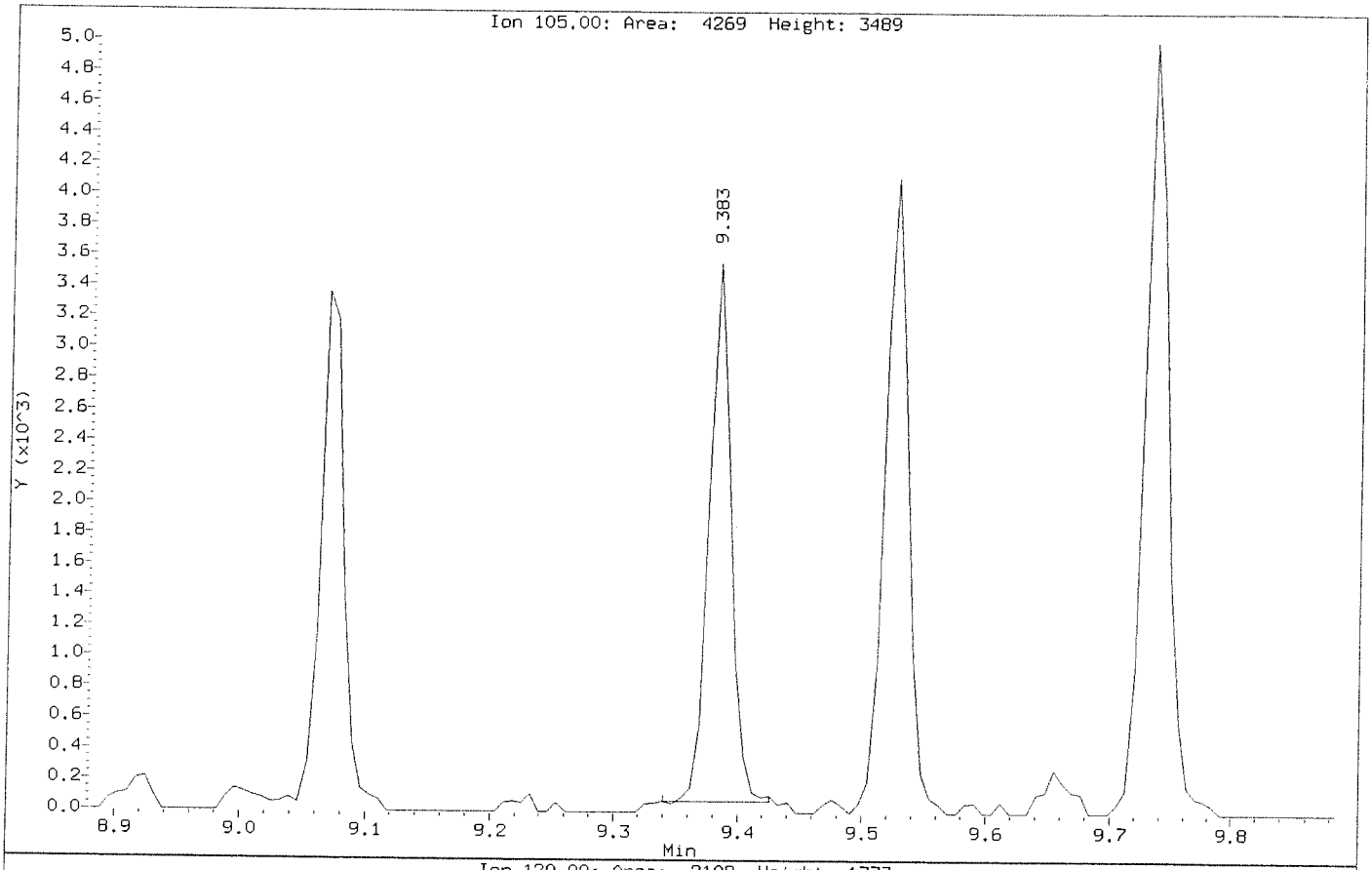
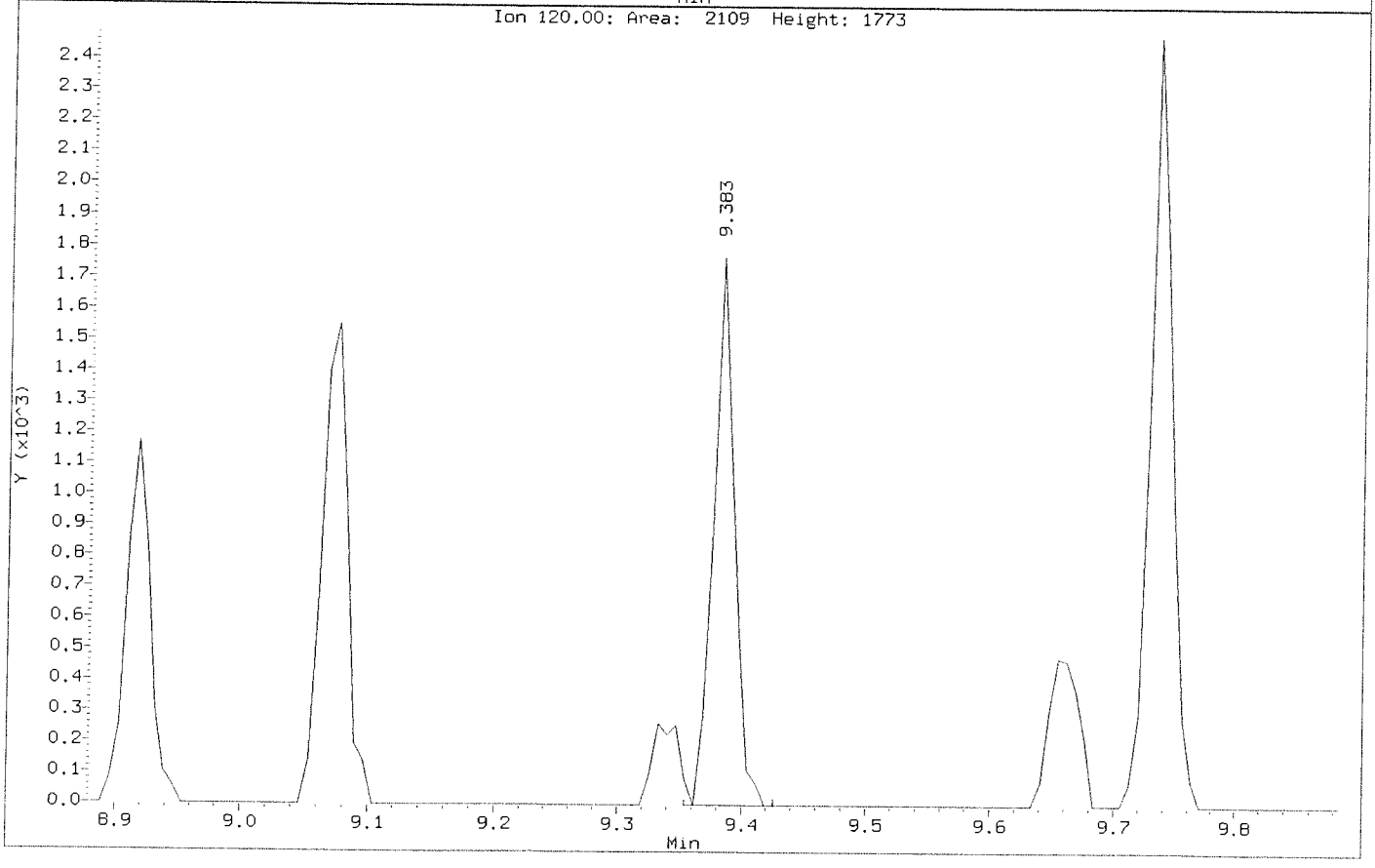
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6





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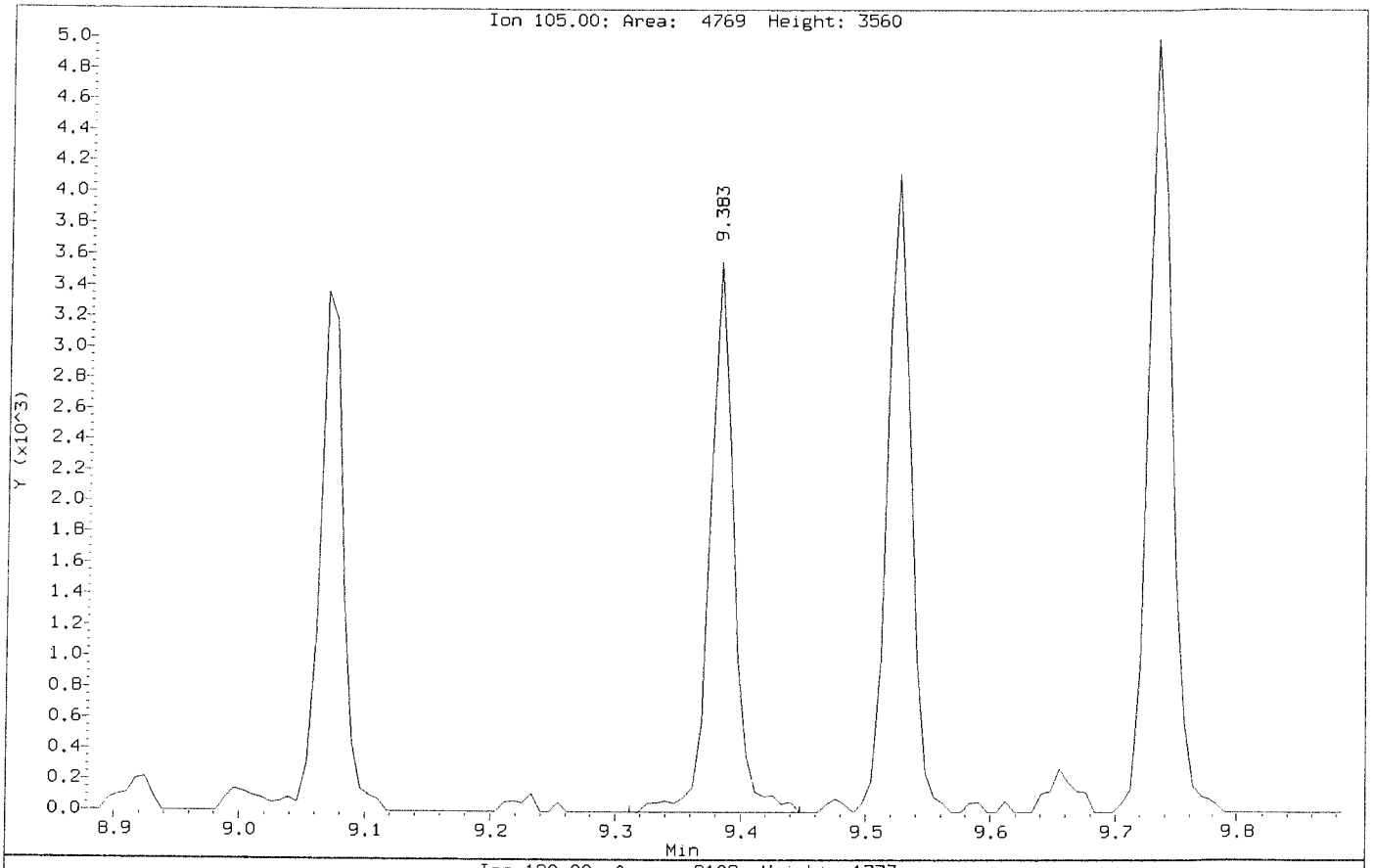
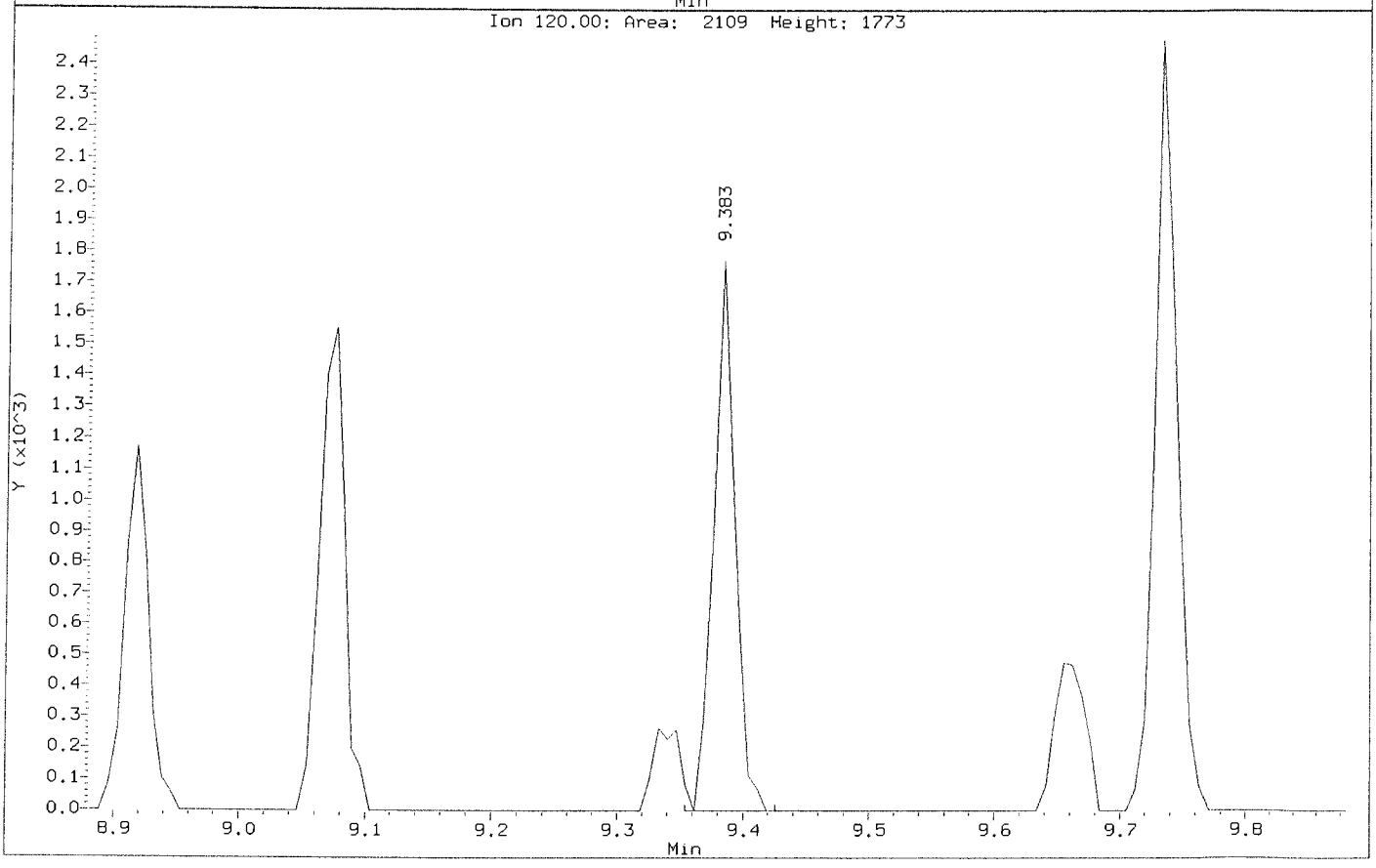
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trimethylbenzene
CAS Number: 95-63-6





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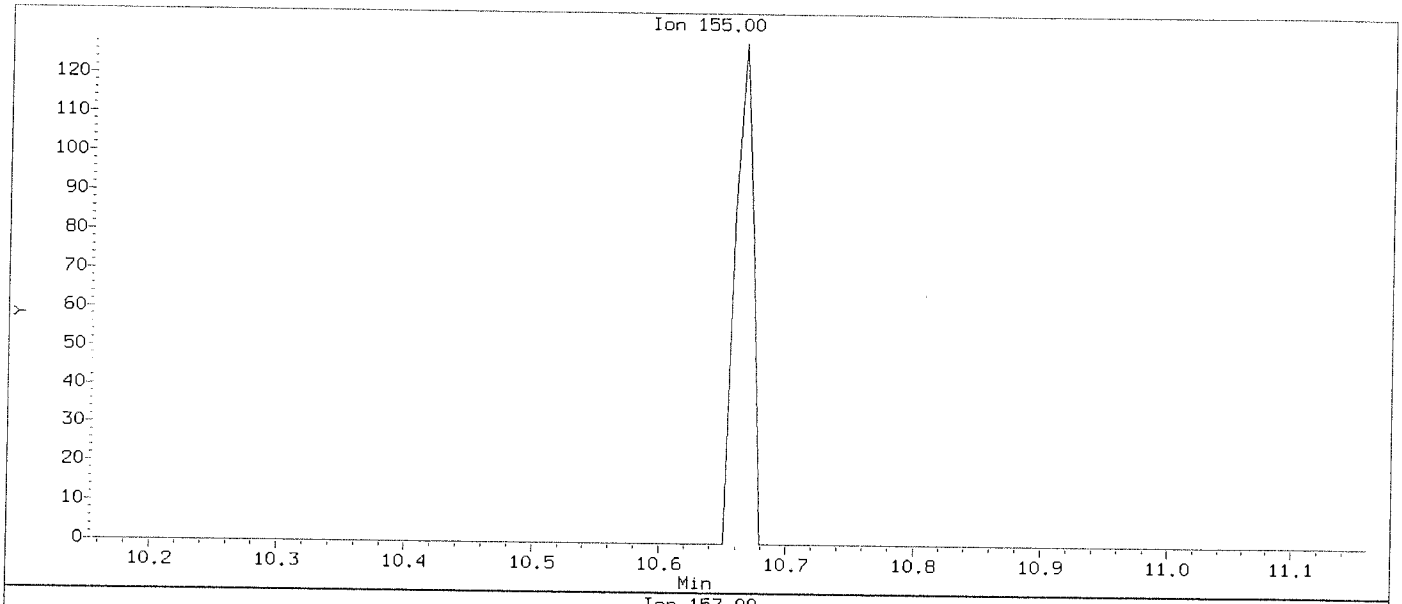
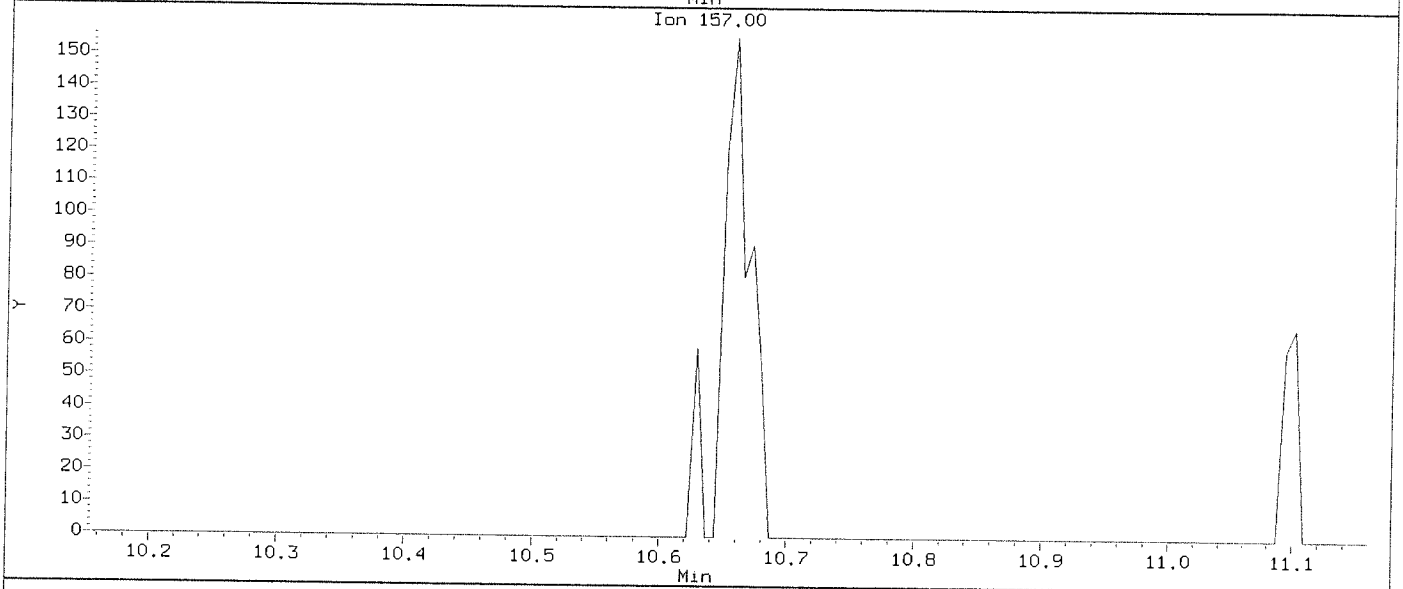
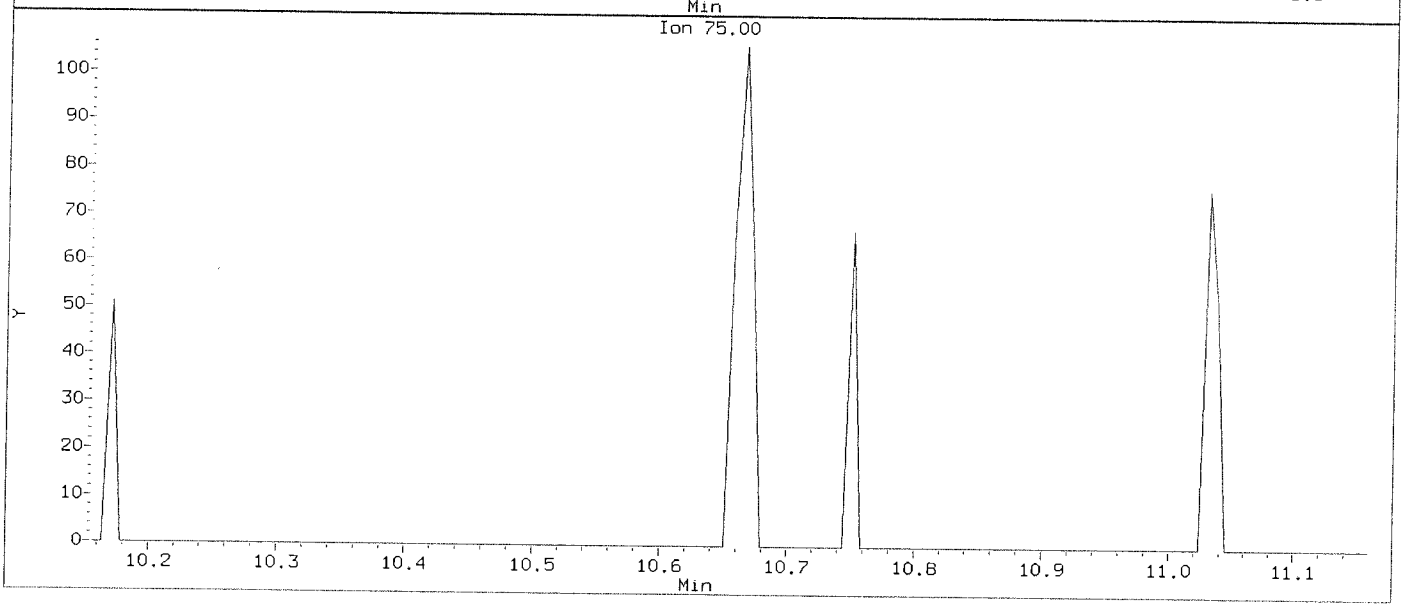
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8







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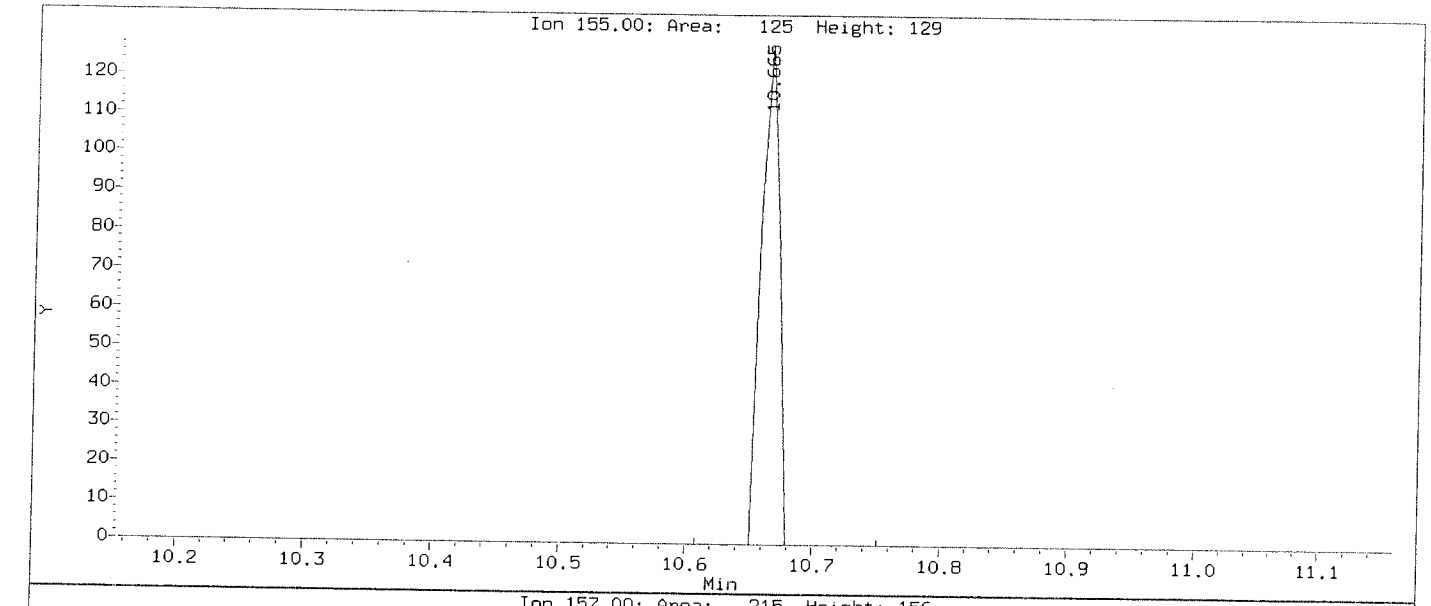
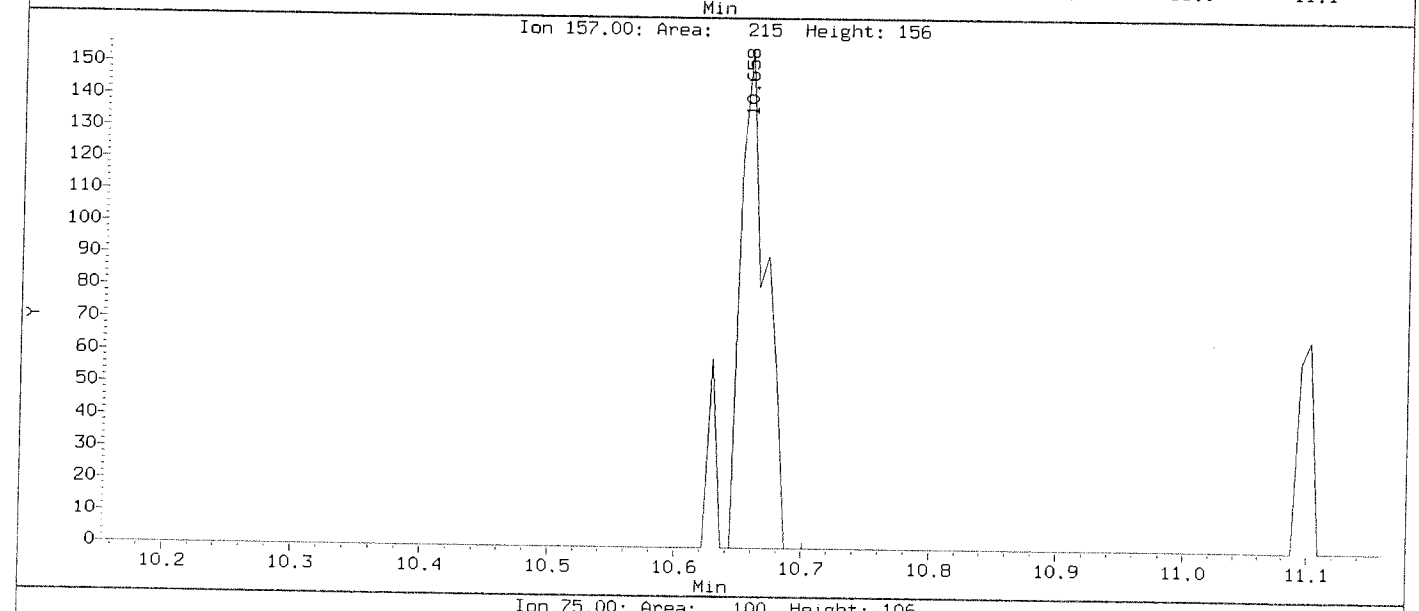
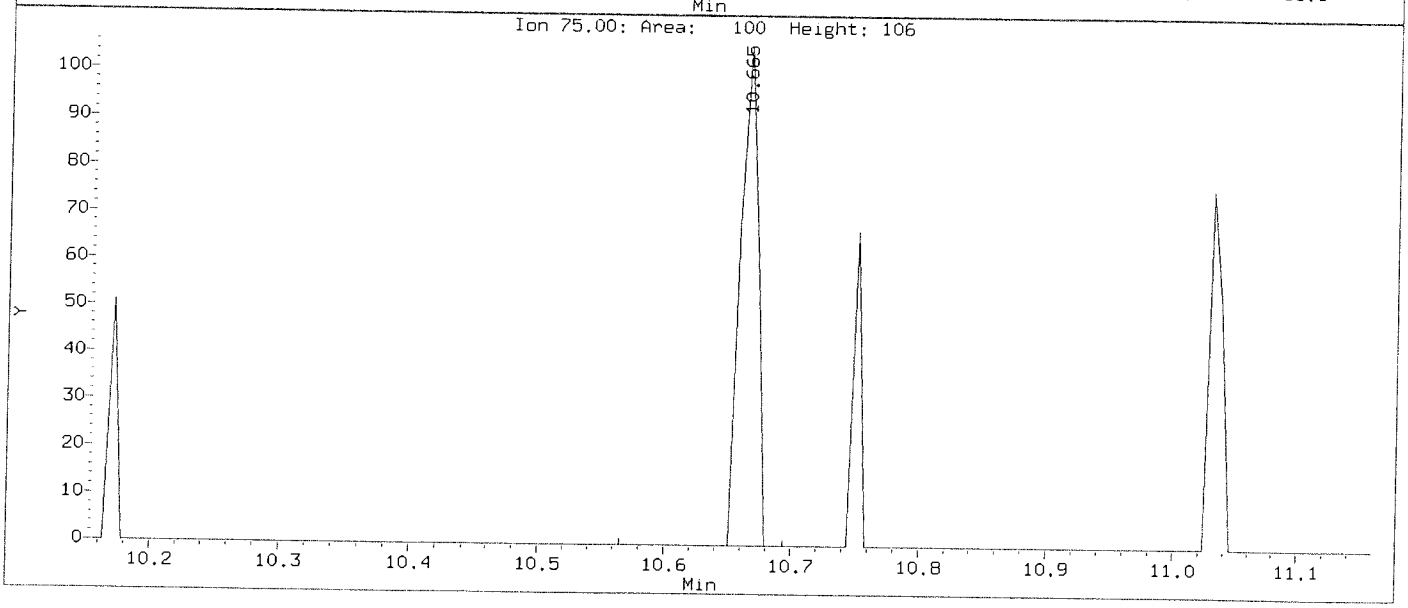
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8







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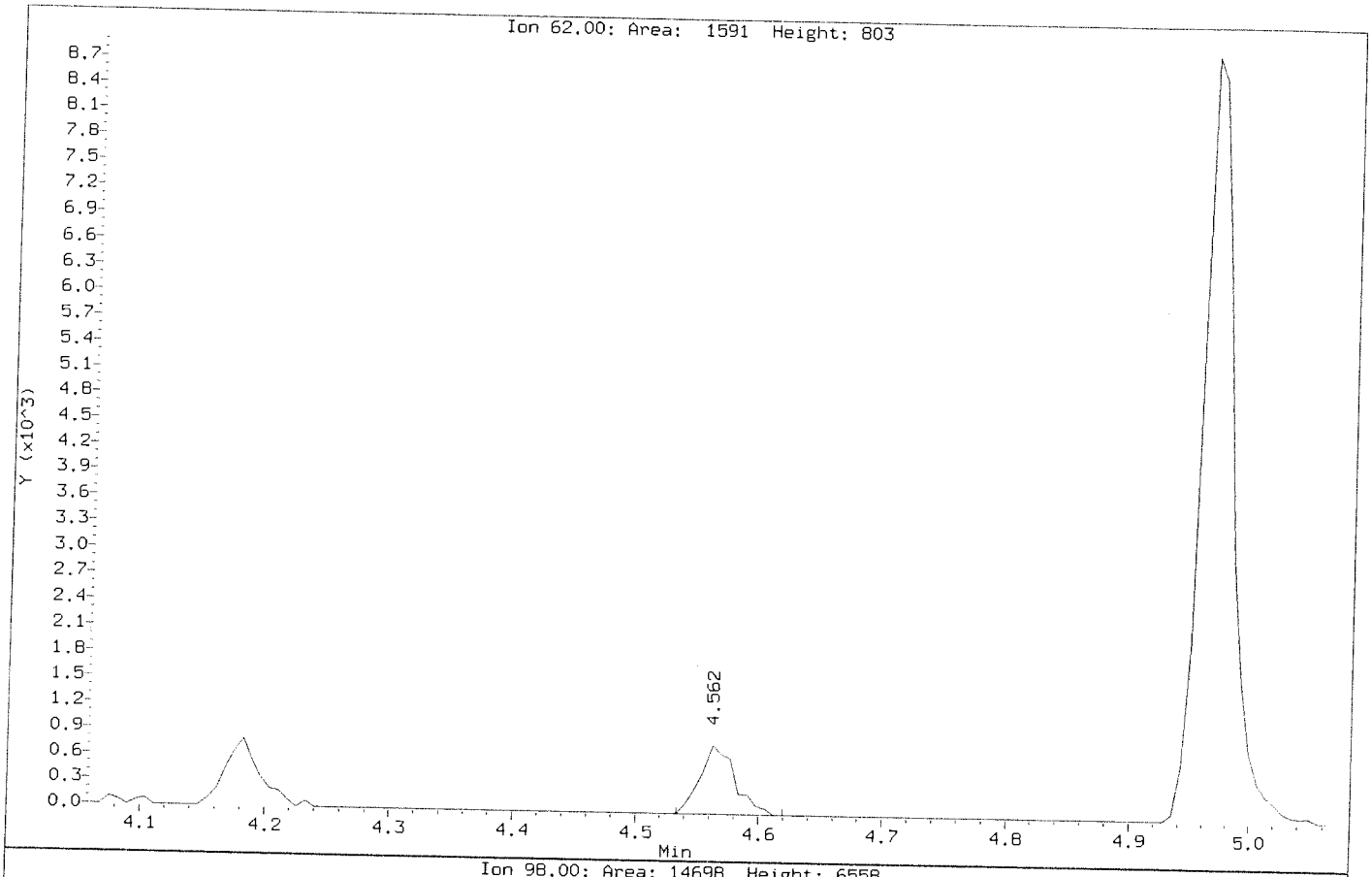
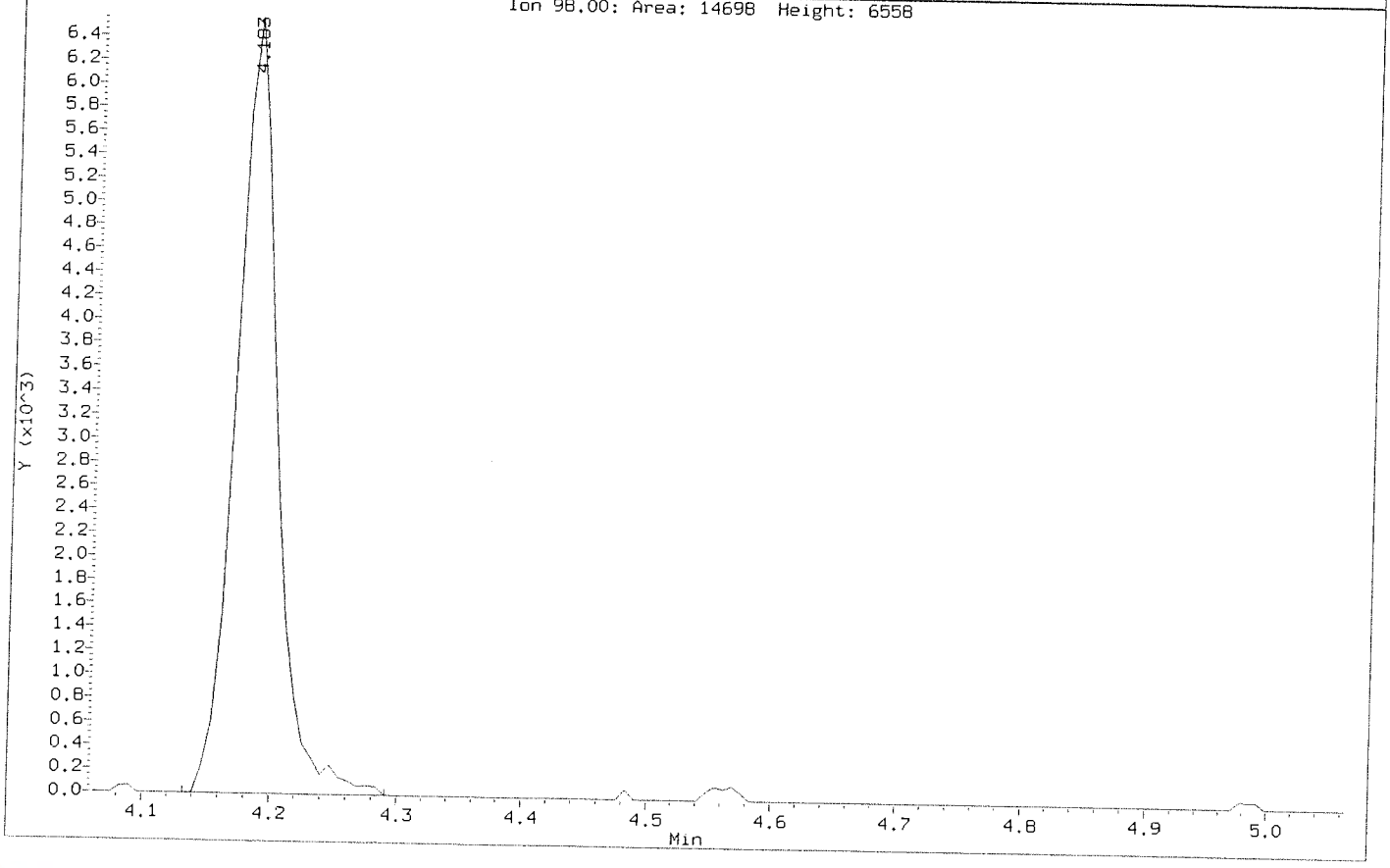
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





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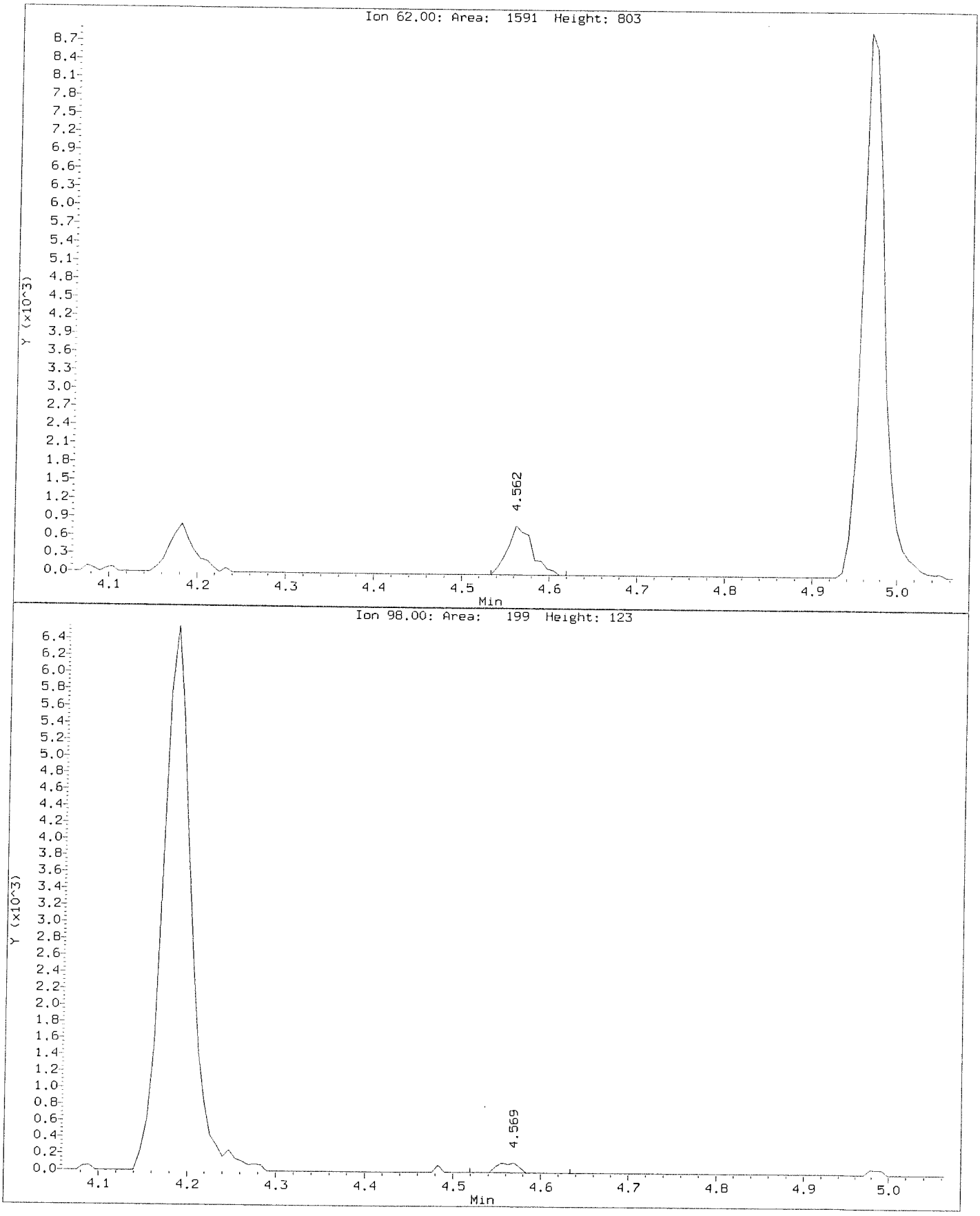
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



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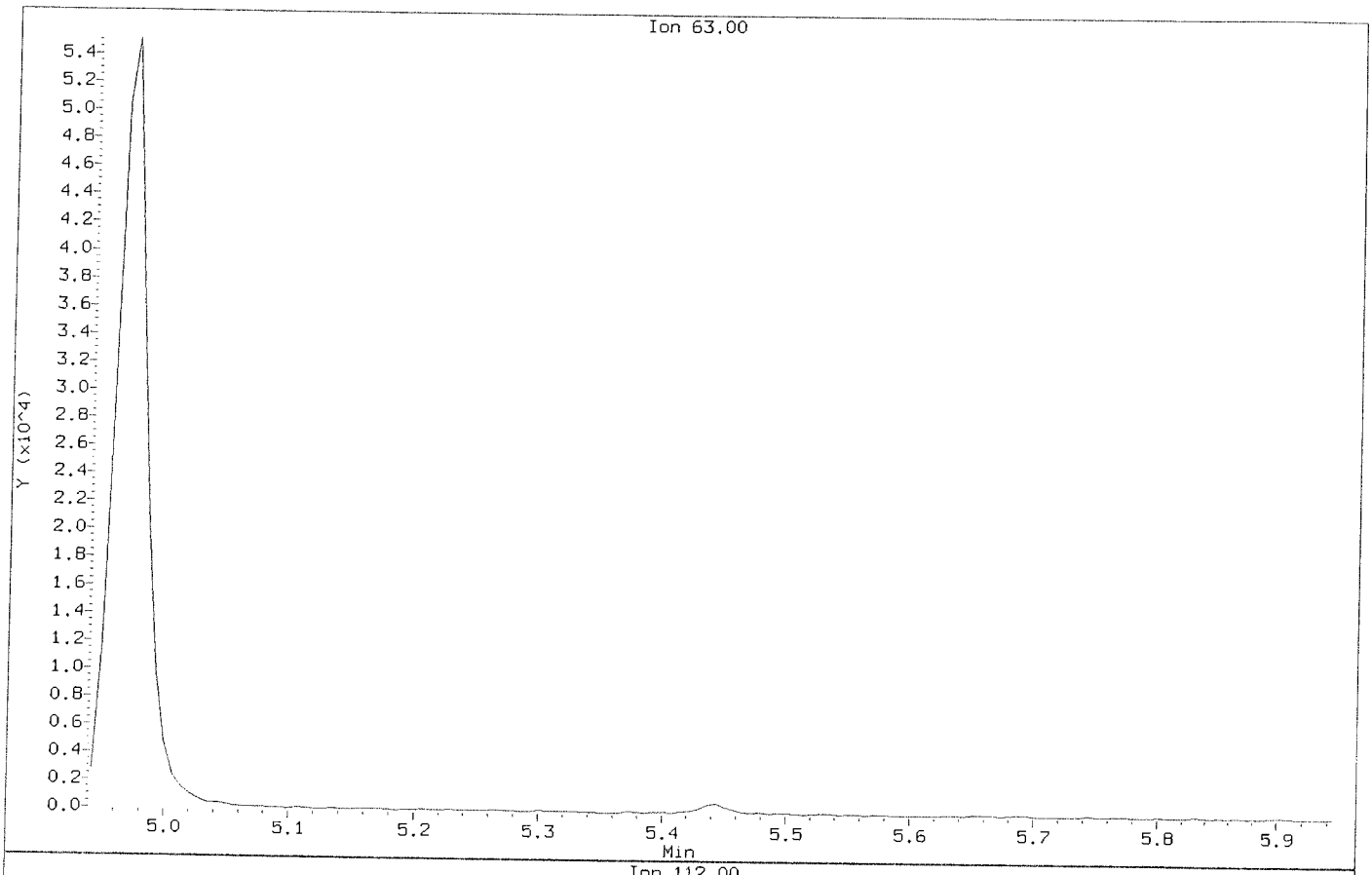
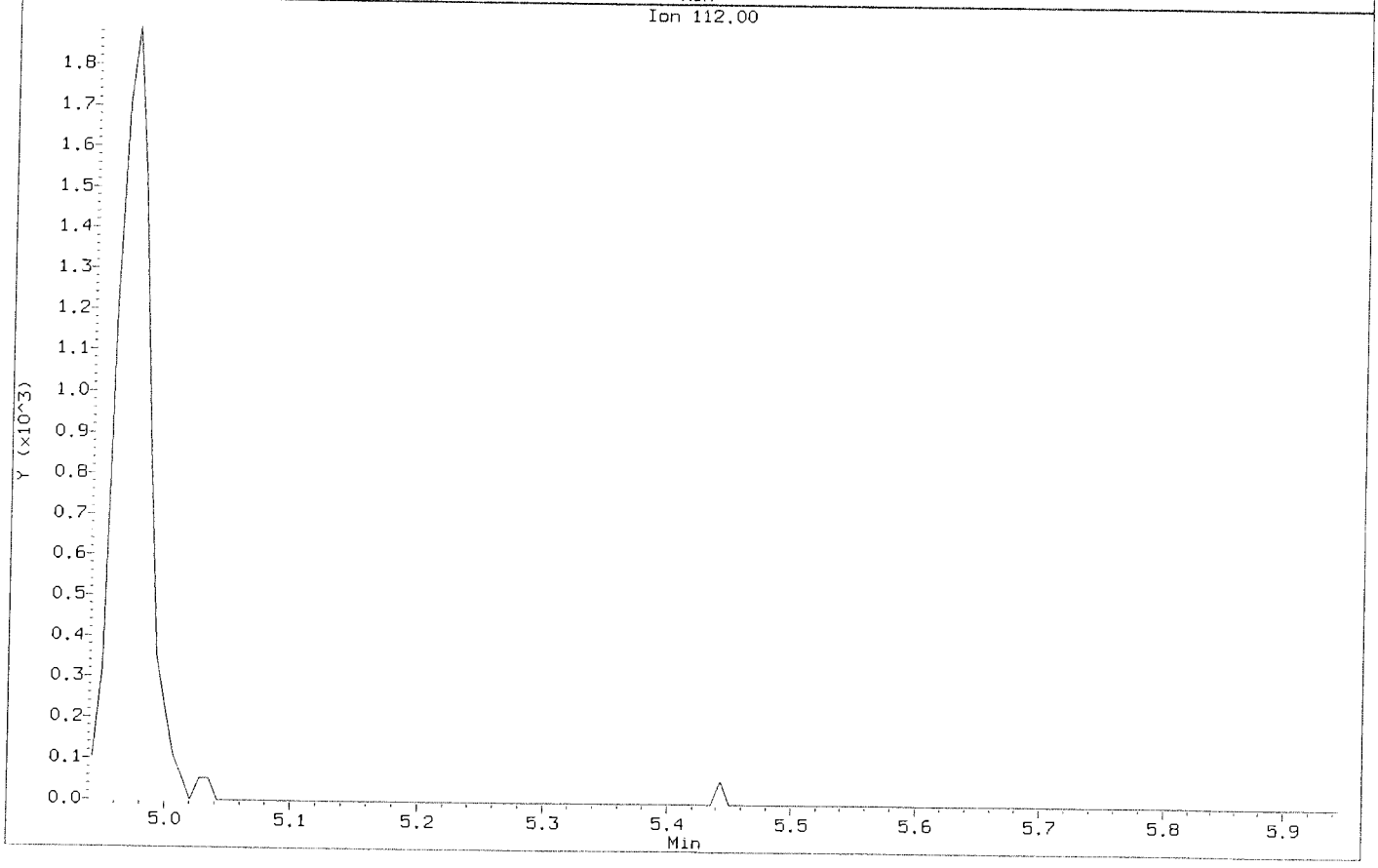
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

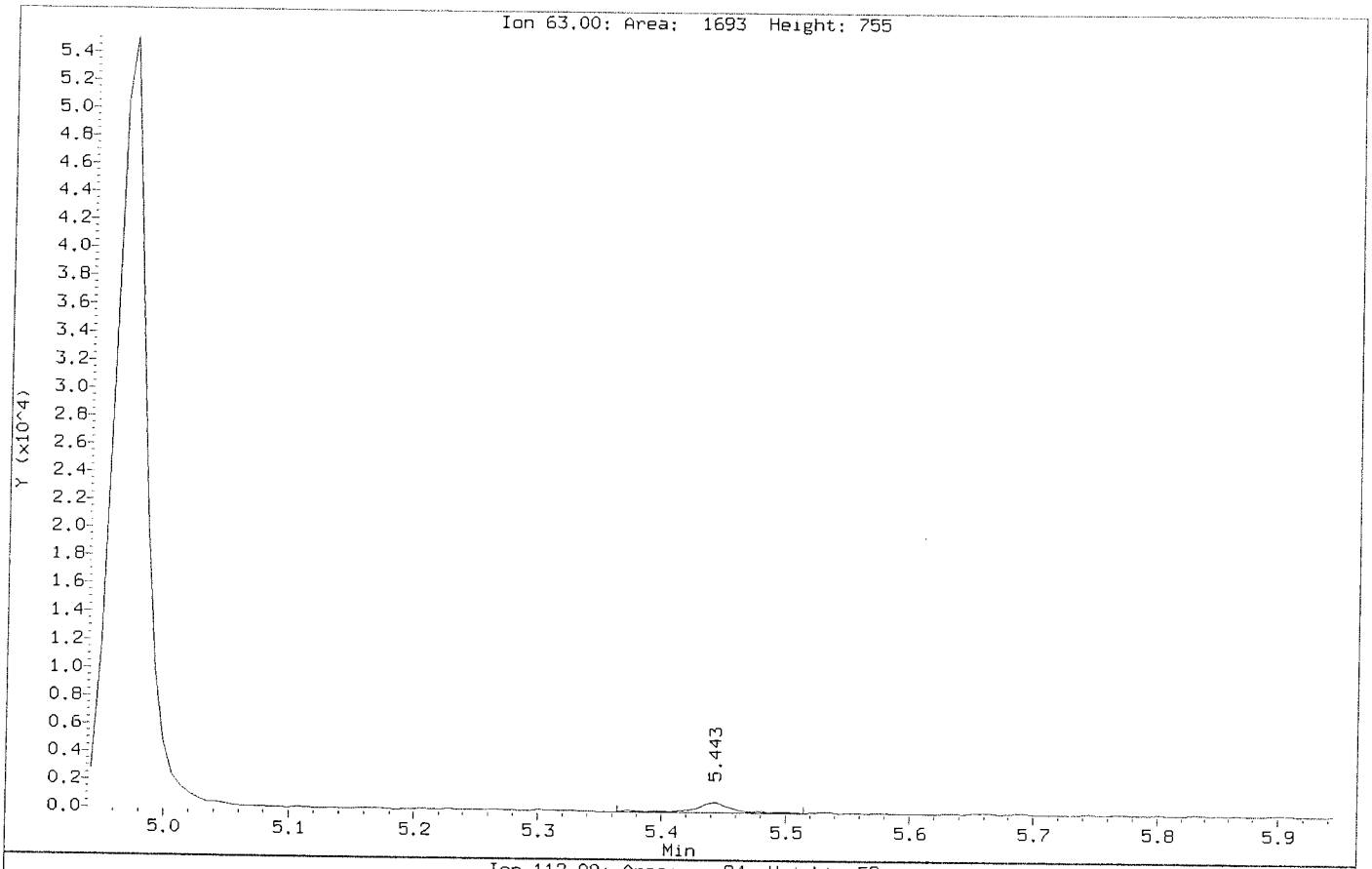
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

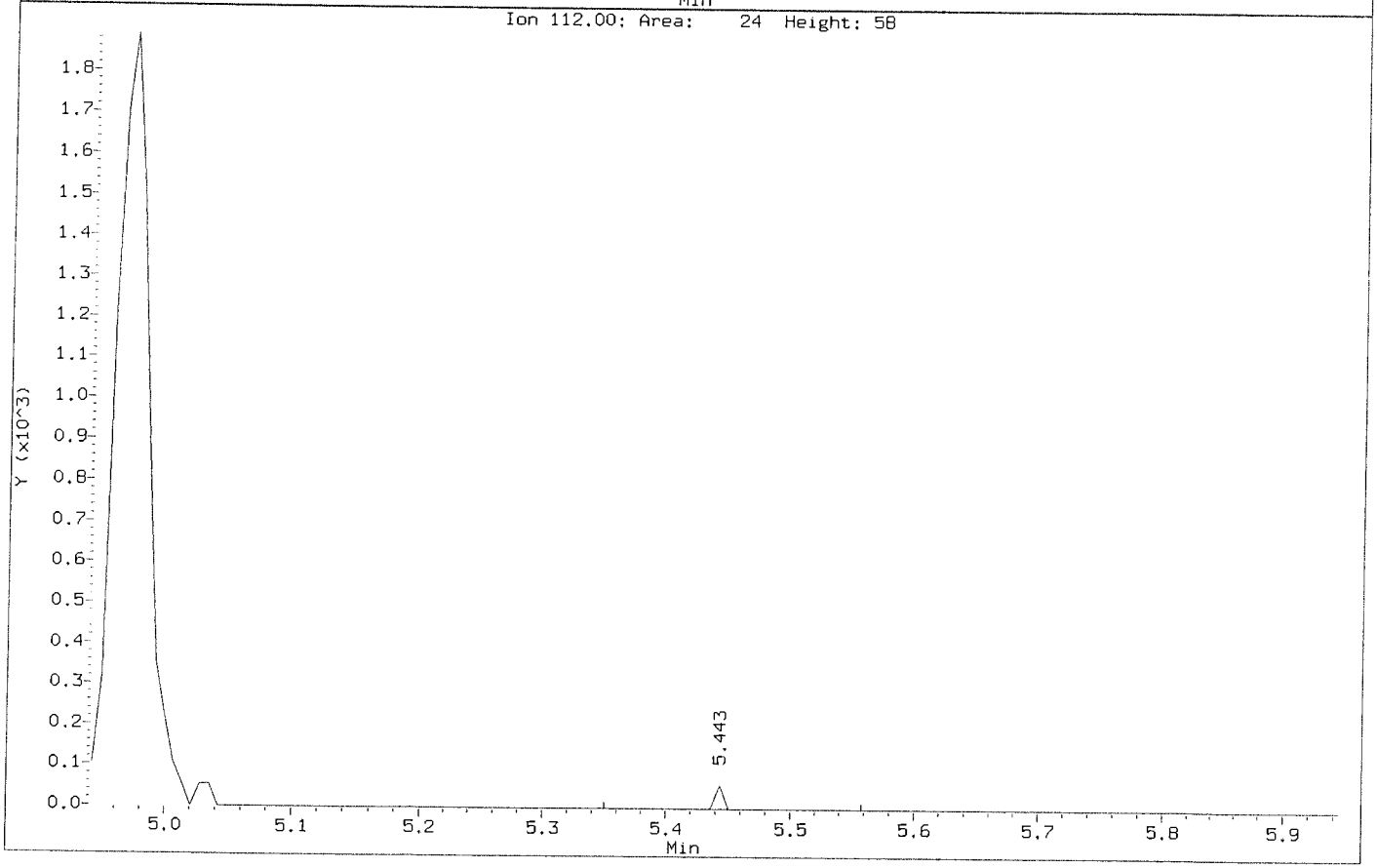




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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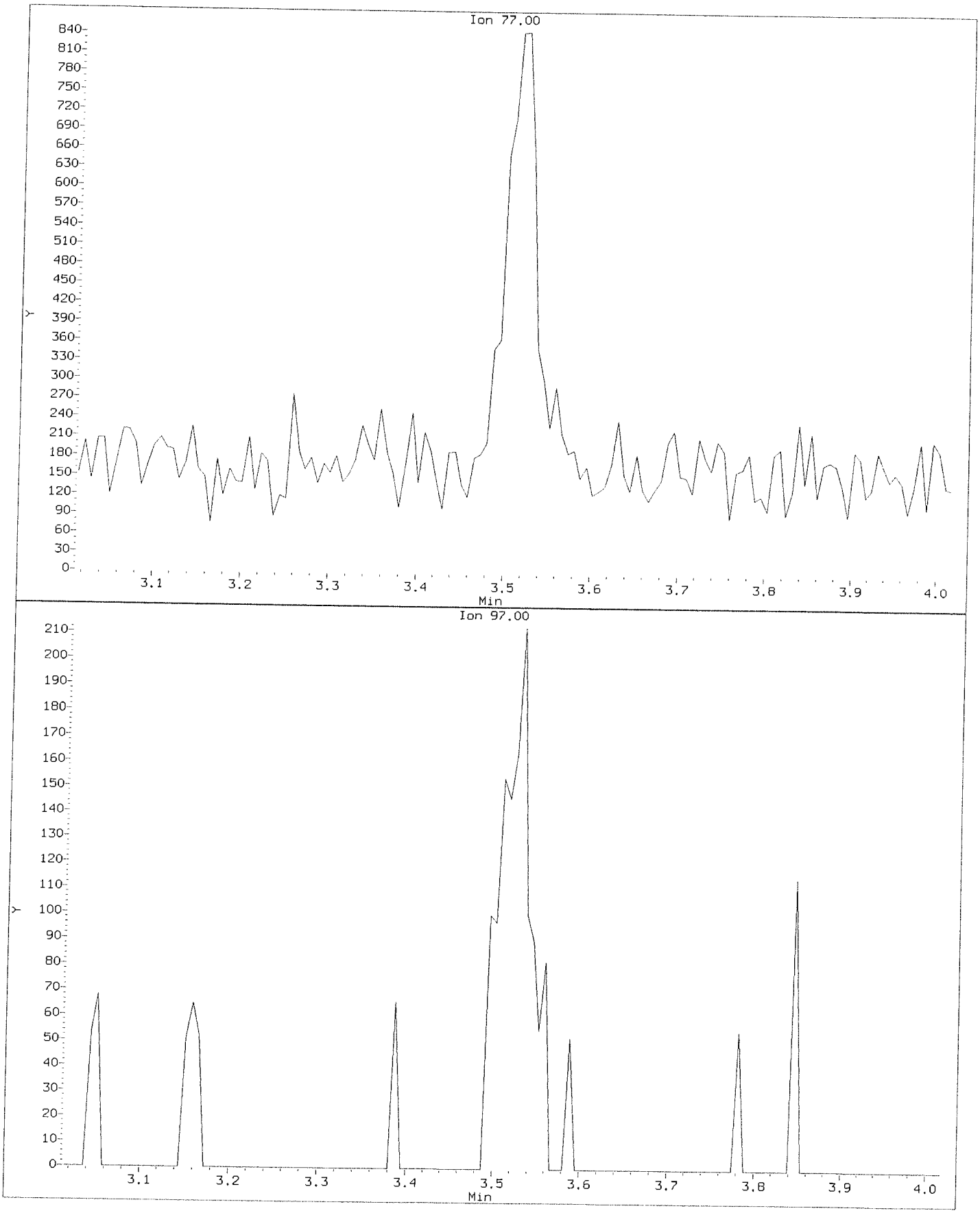
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



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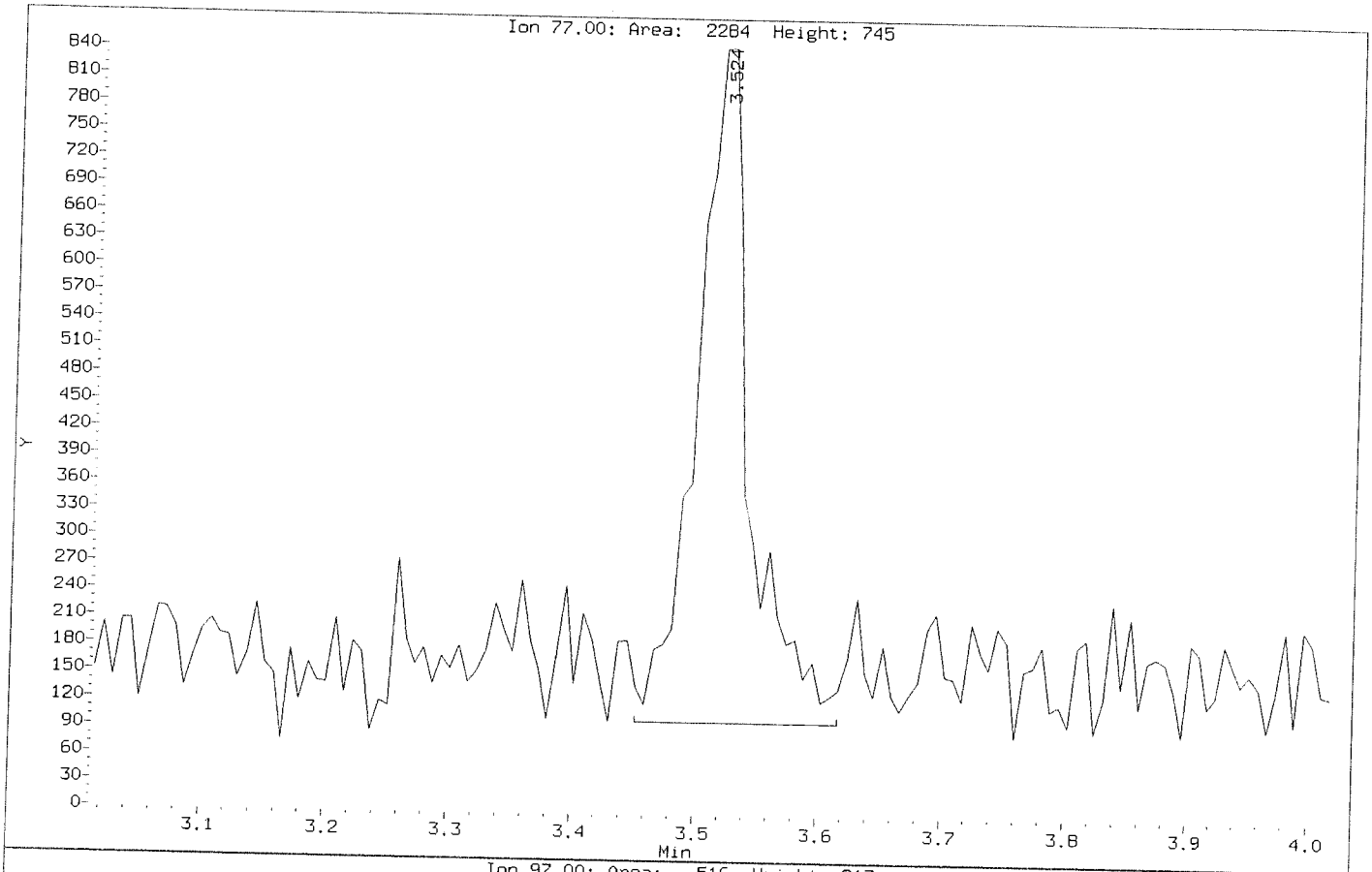
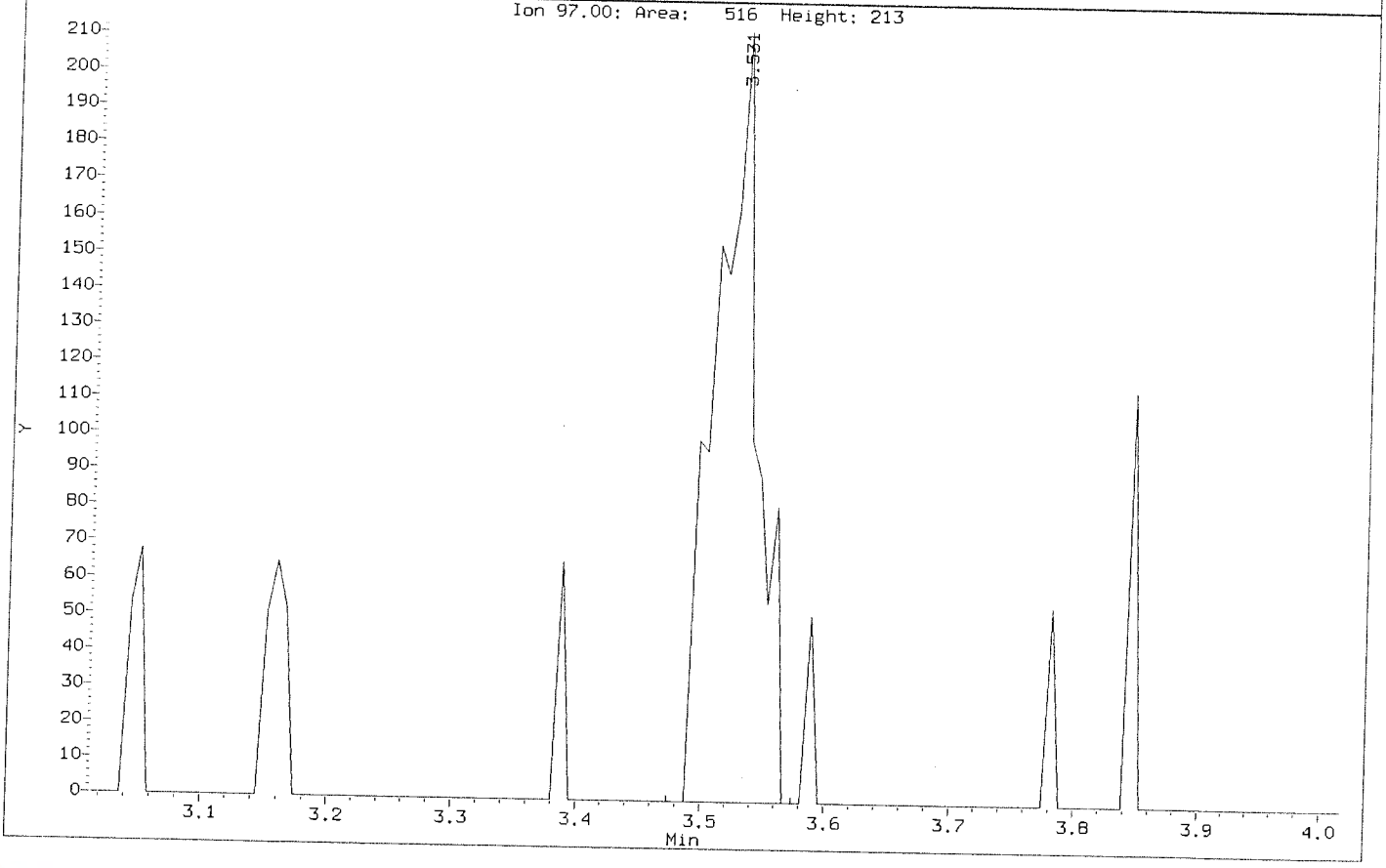
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

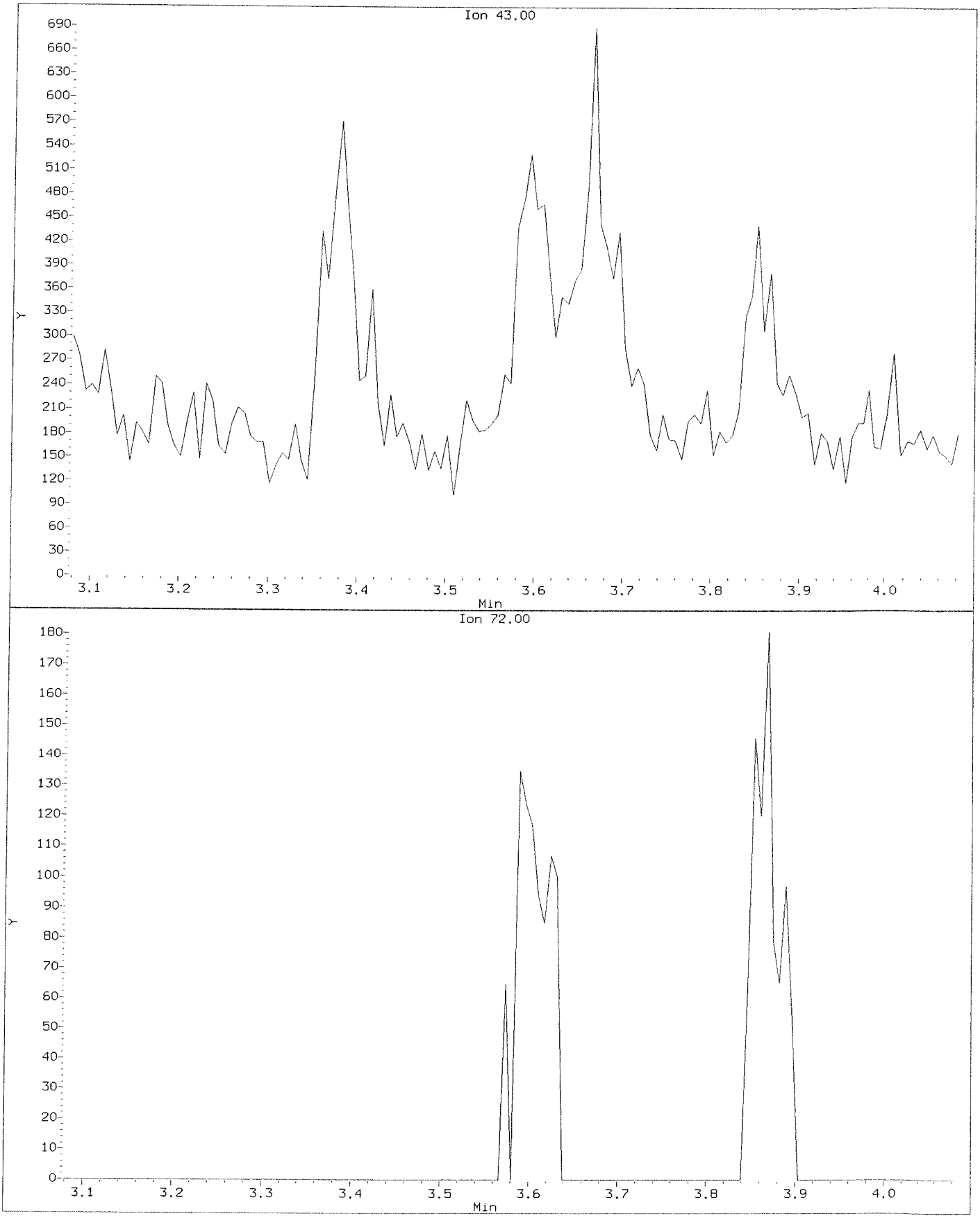
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





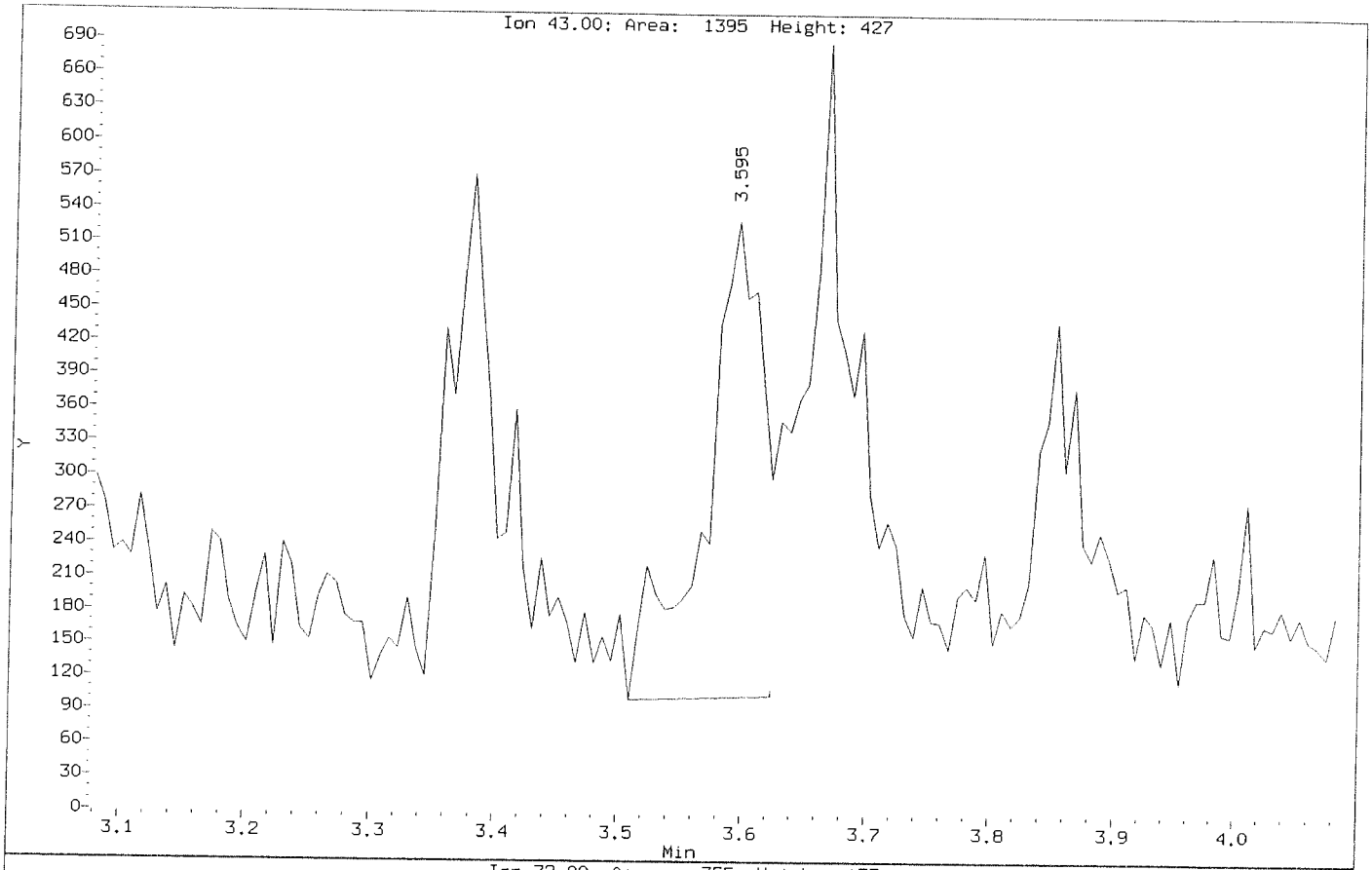
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

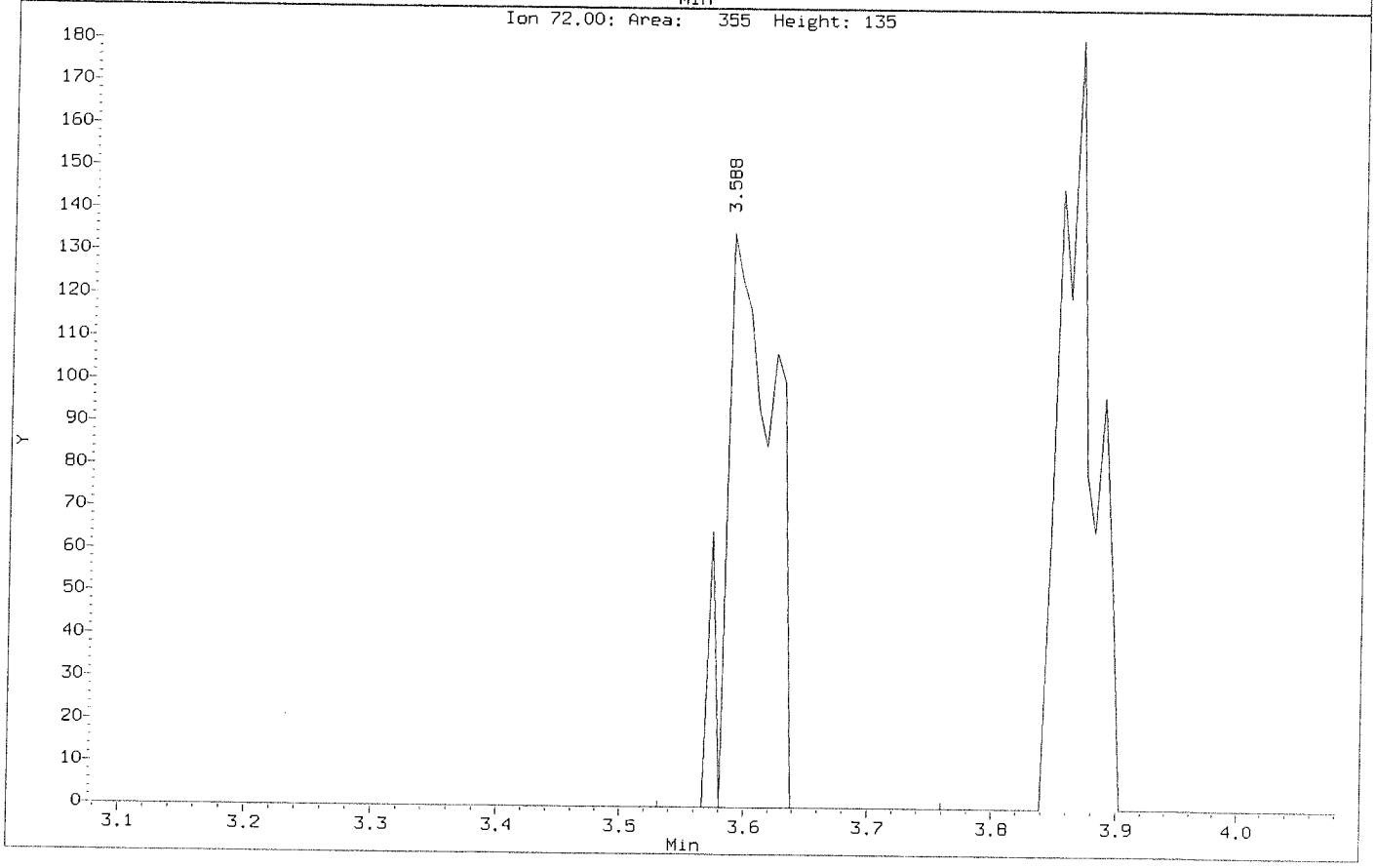
Compound: 2-Butanone
CAS Number: 78-93-3



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

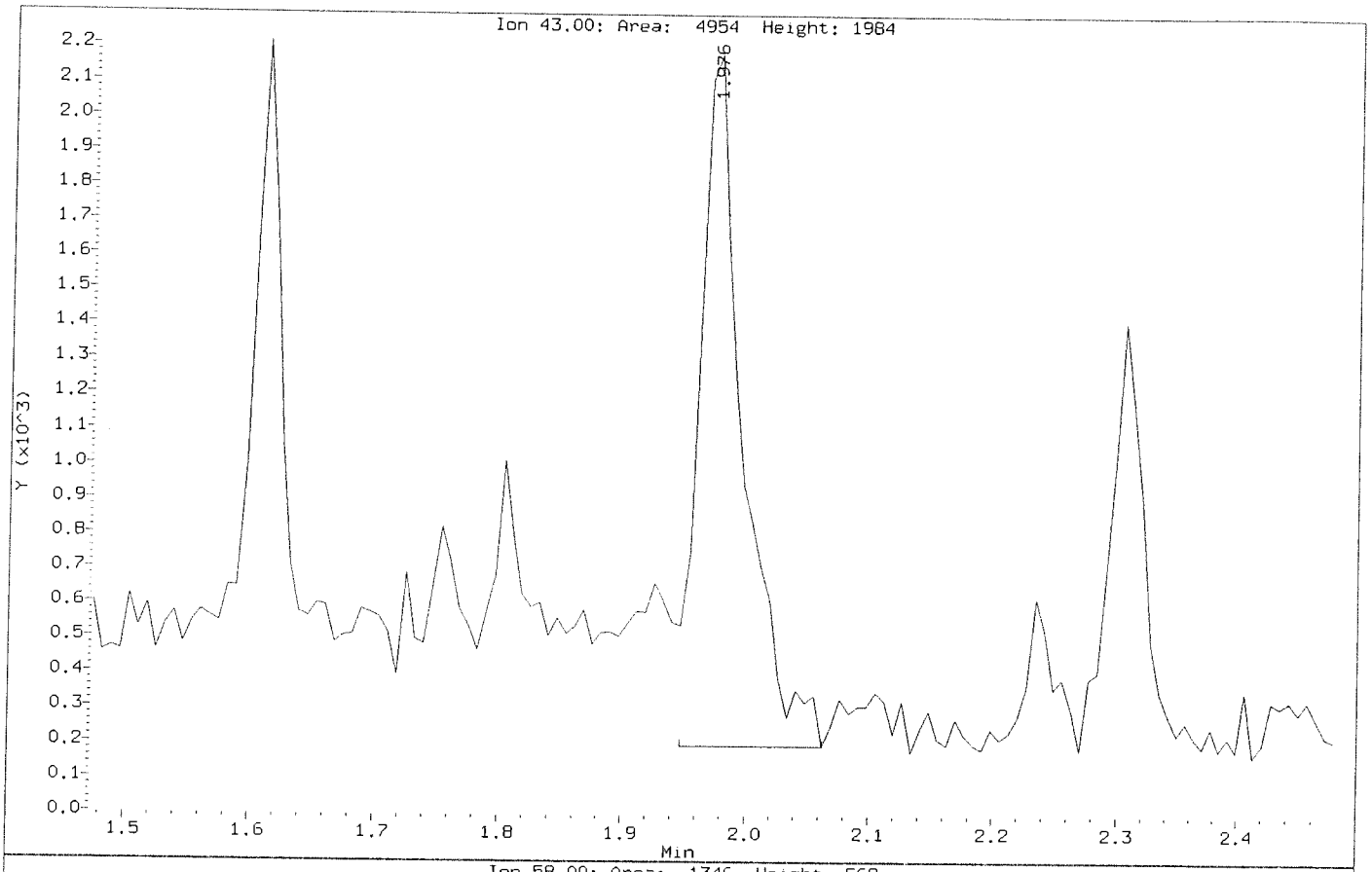
Compound: 2-Butanone
CAS Number: 78-93-3

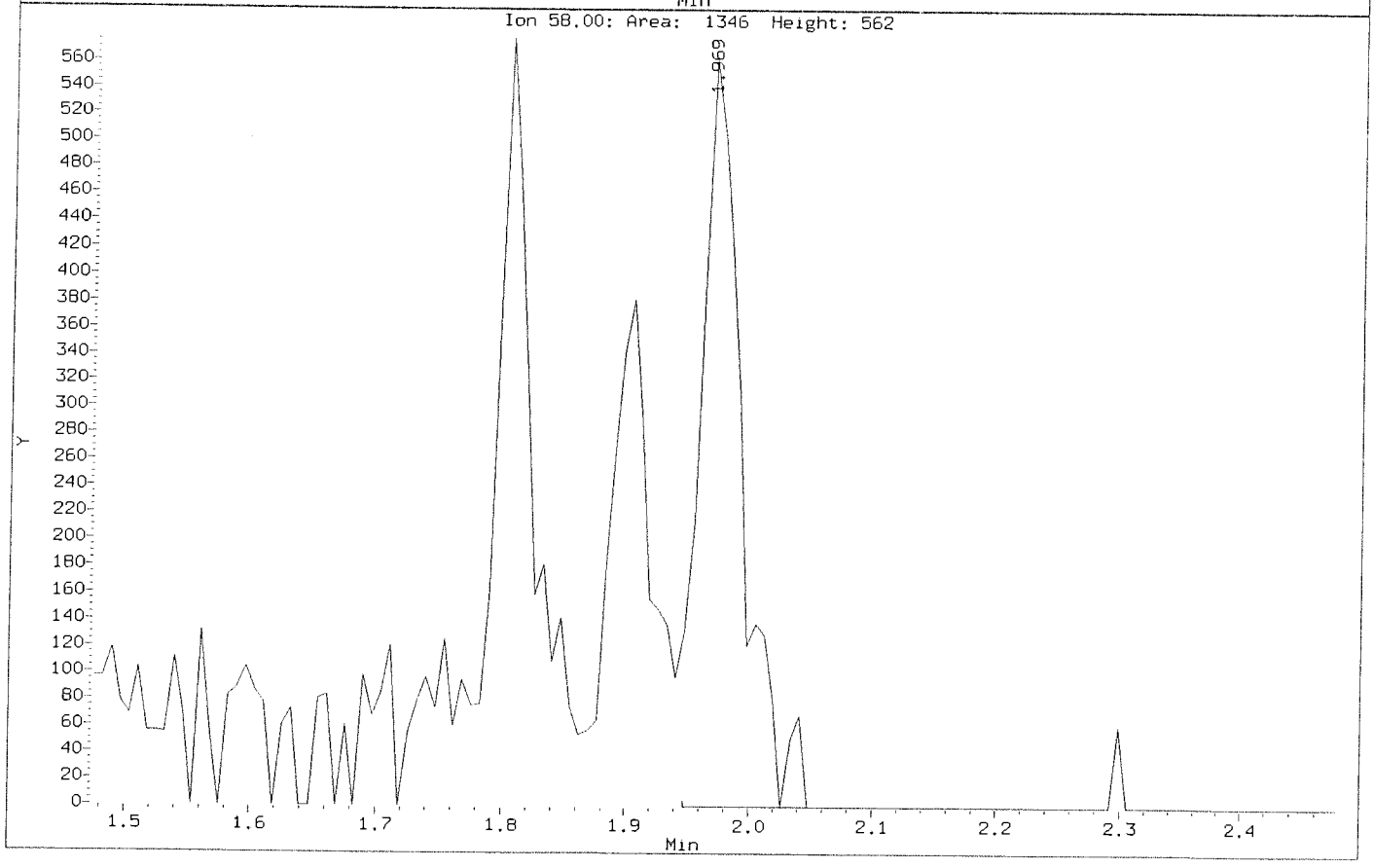




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

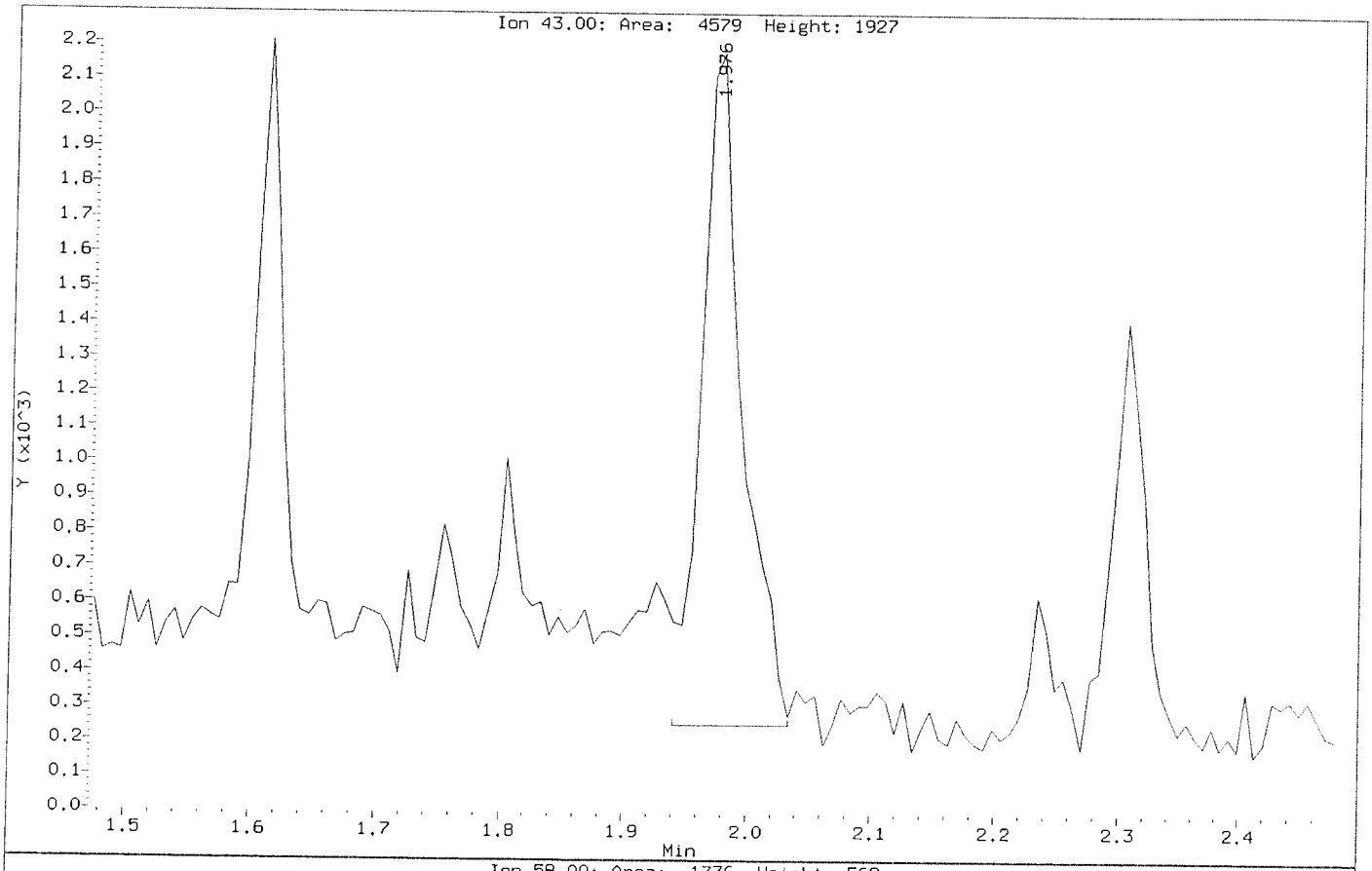
Compound: Acetone
CAS Number: 67-64-1

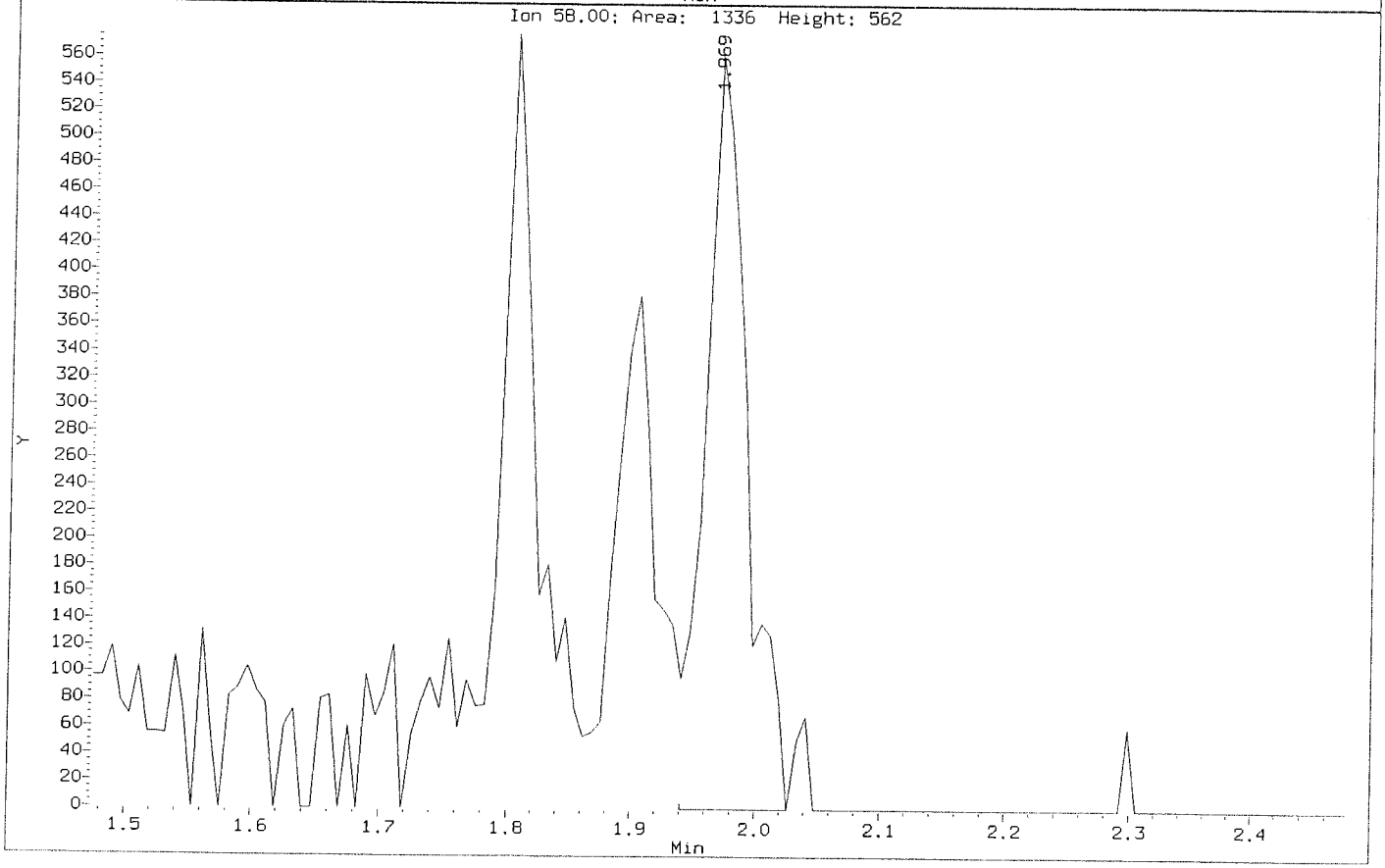




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

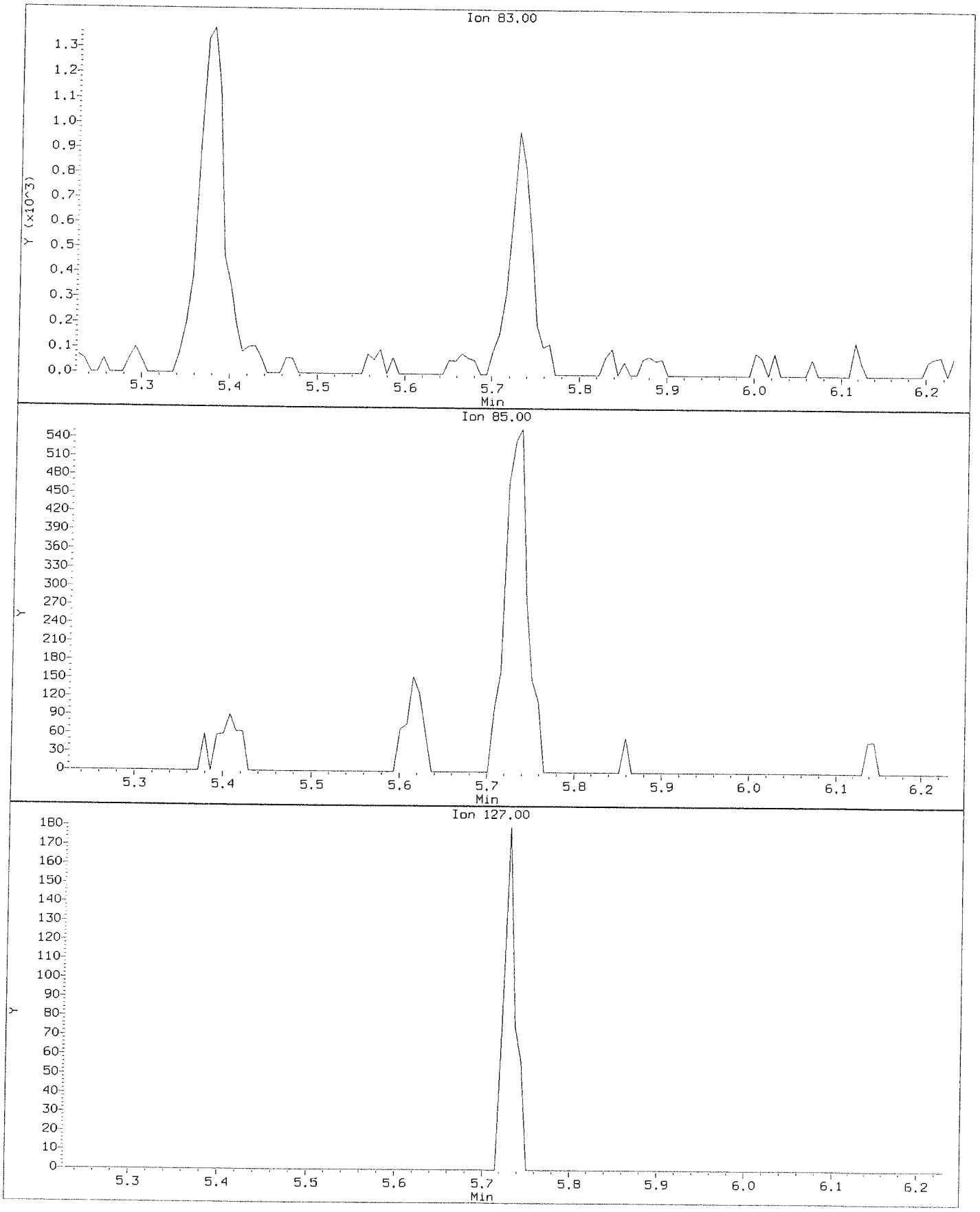
Compound: Acetone
CAS Number: 67-64-1





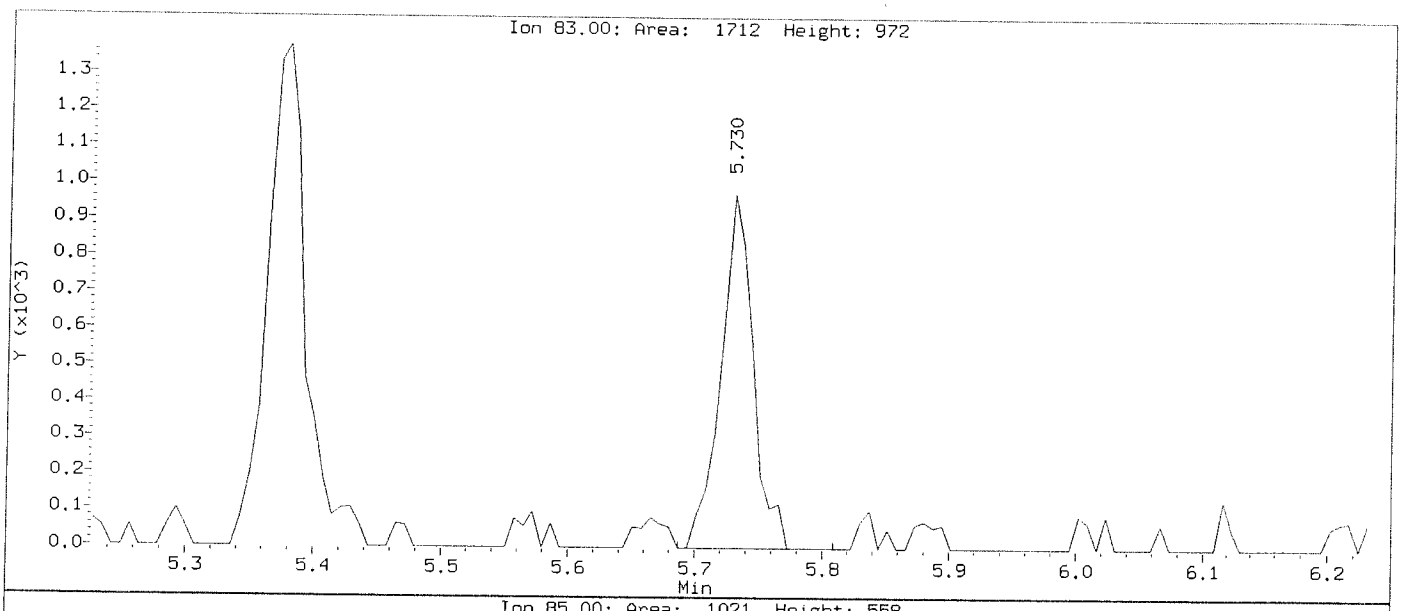
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

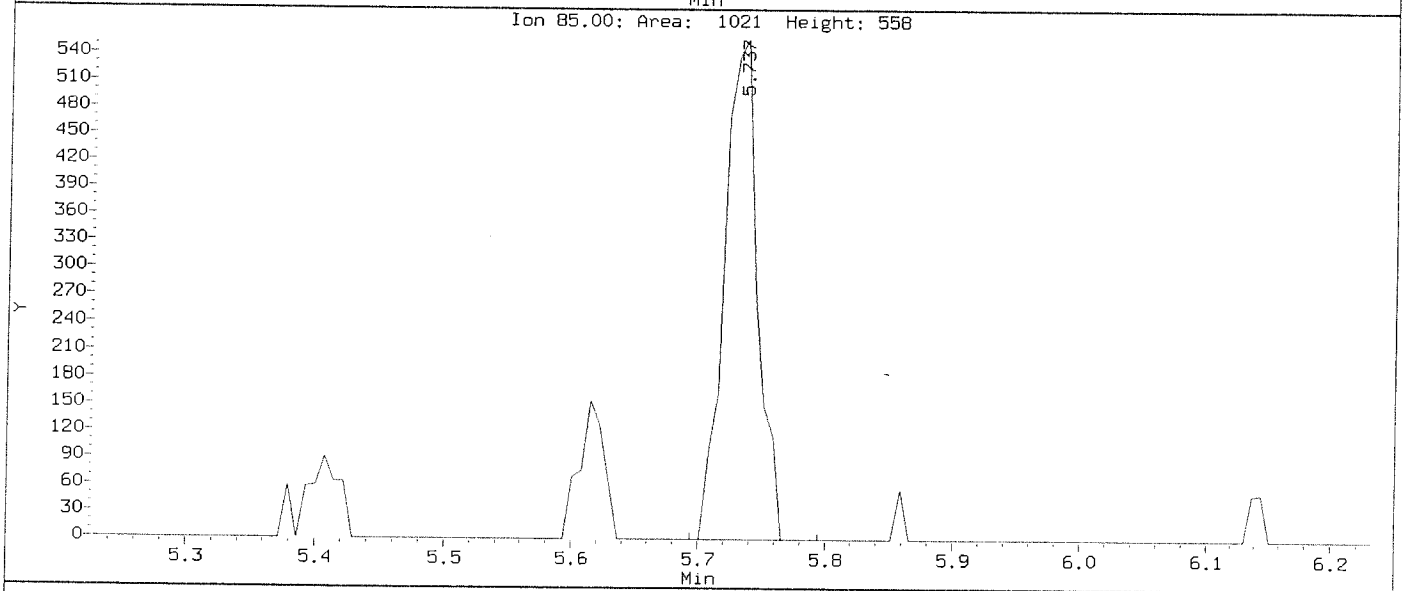
Compound: Bromodichloromethane
CAS Number: 75-27-4

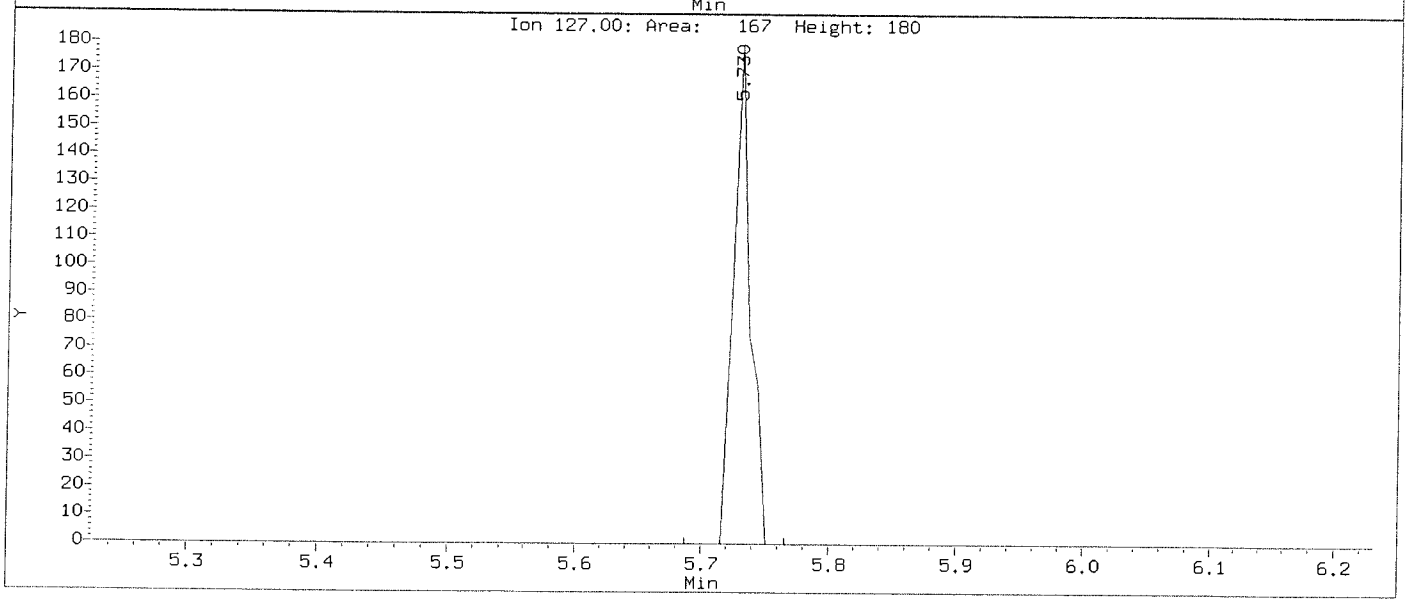


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4

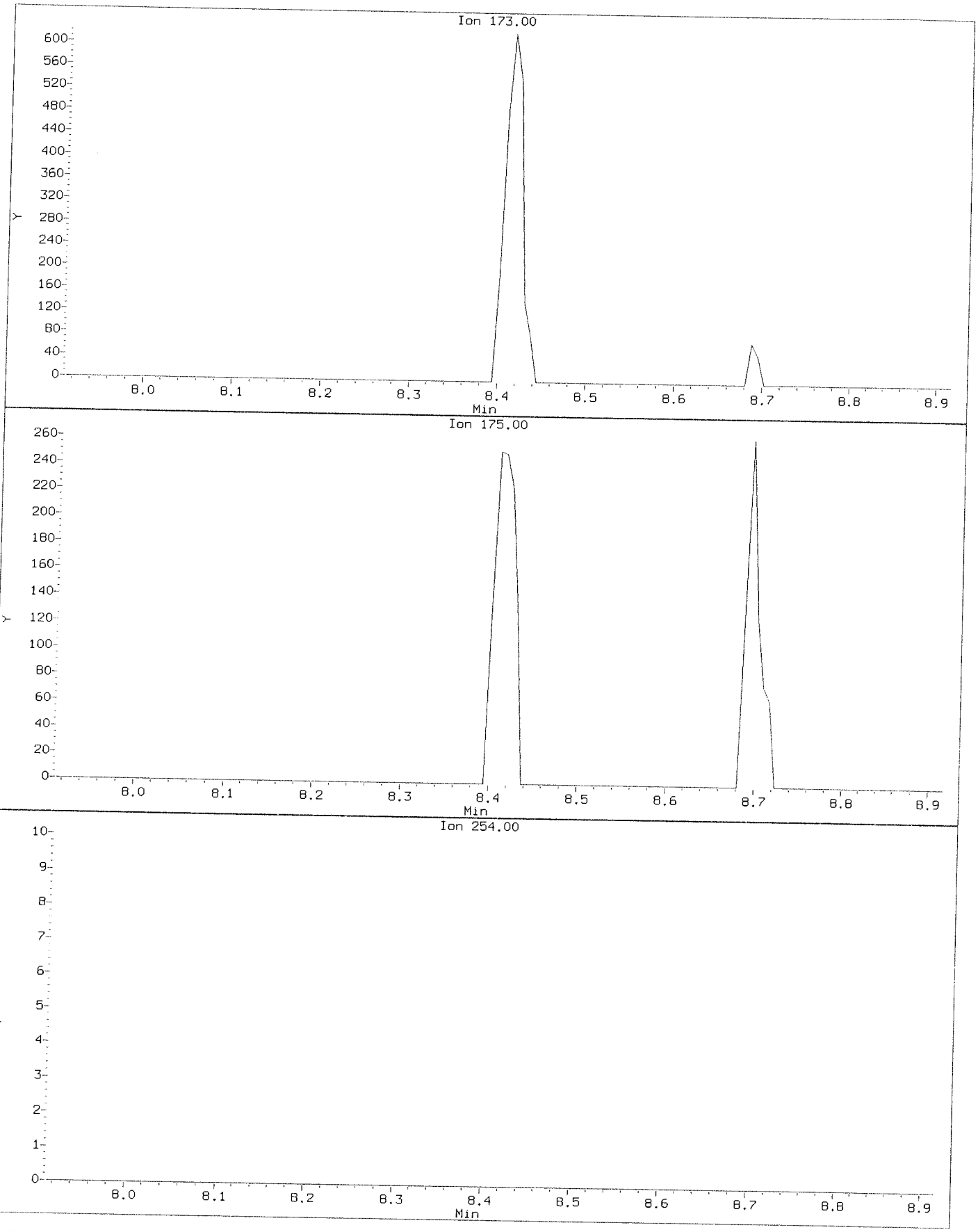






Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2



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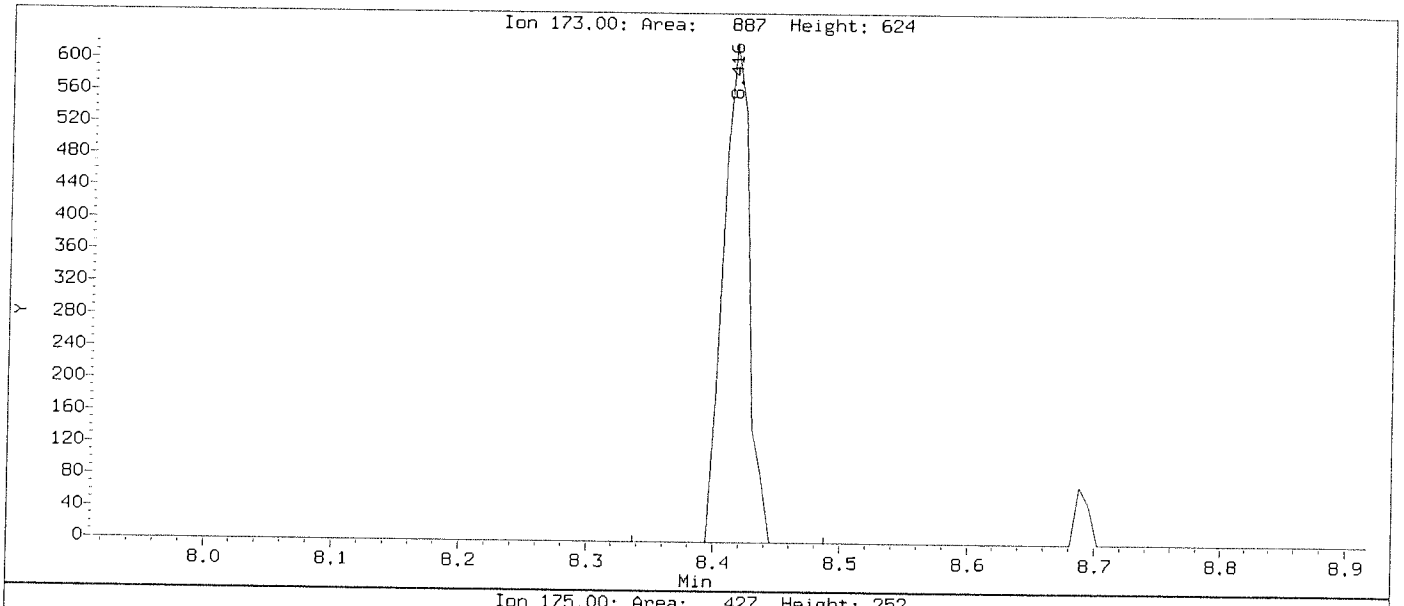
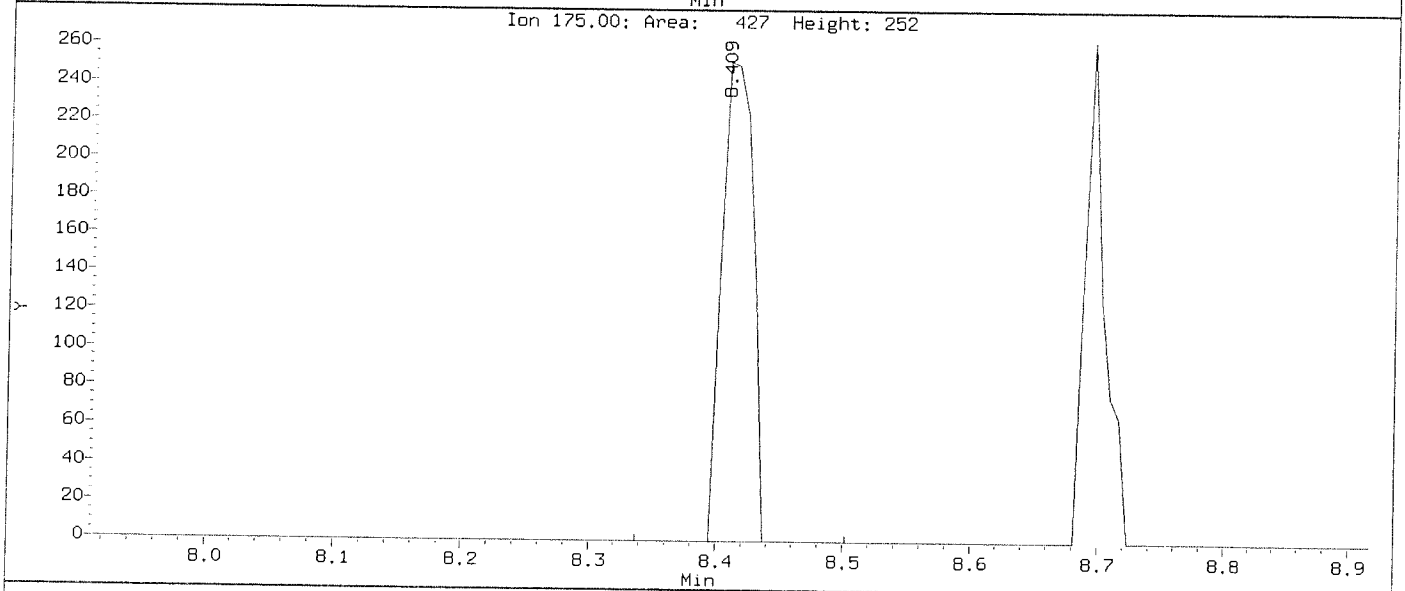
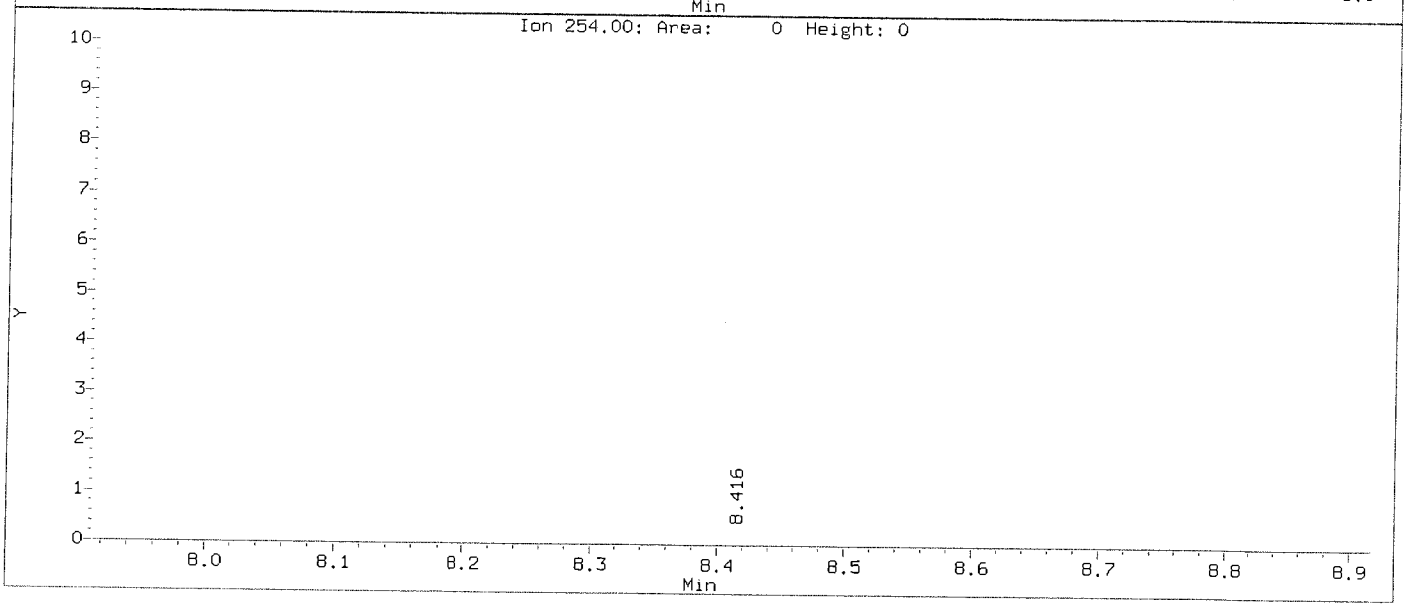
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromoform
CAS Number: 75-25-2

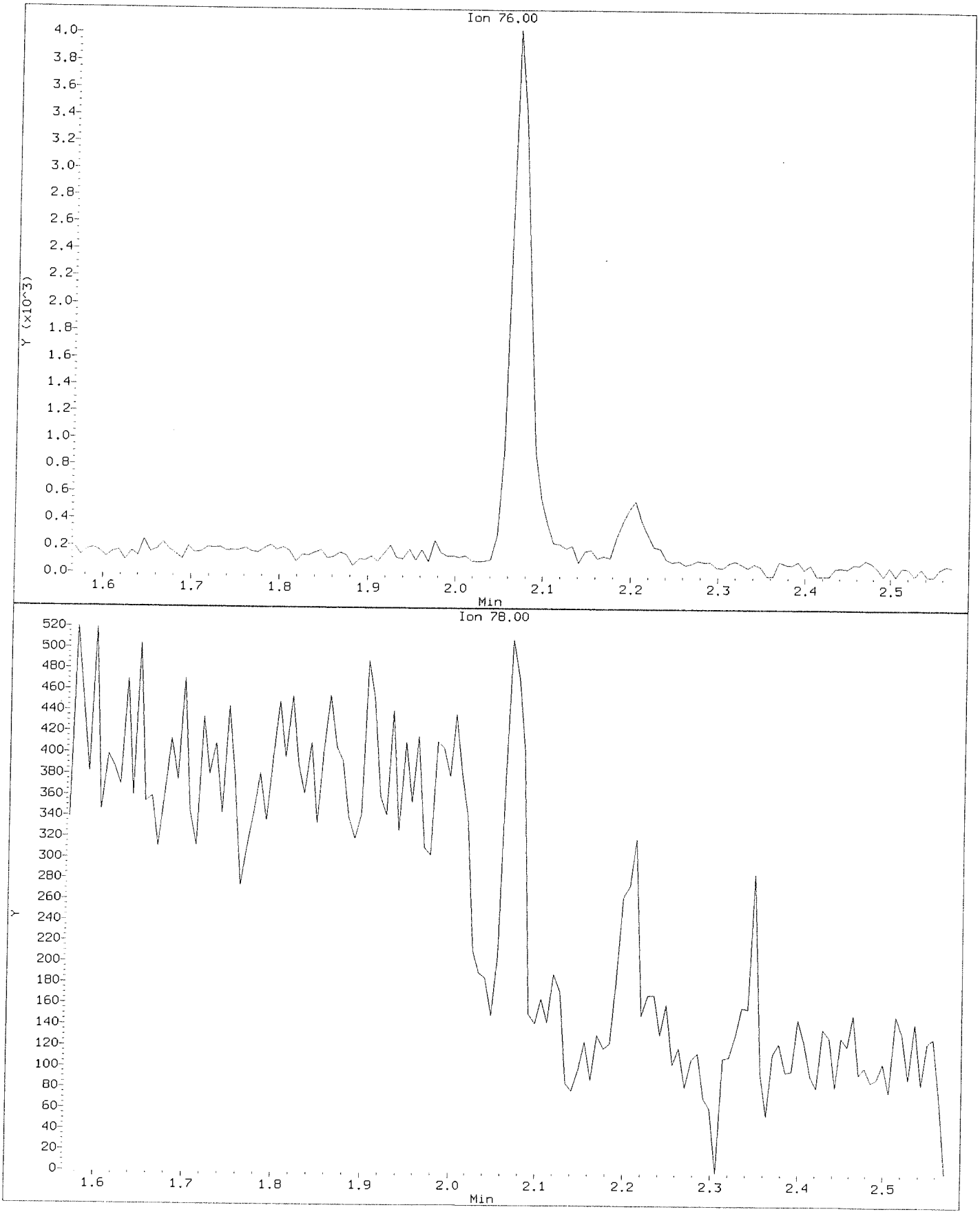






Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



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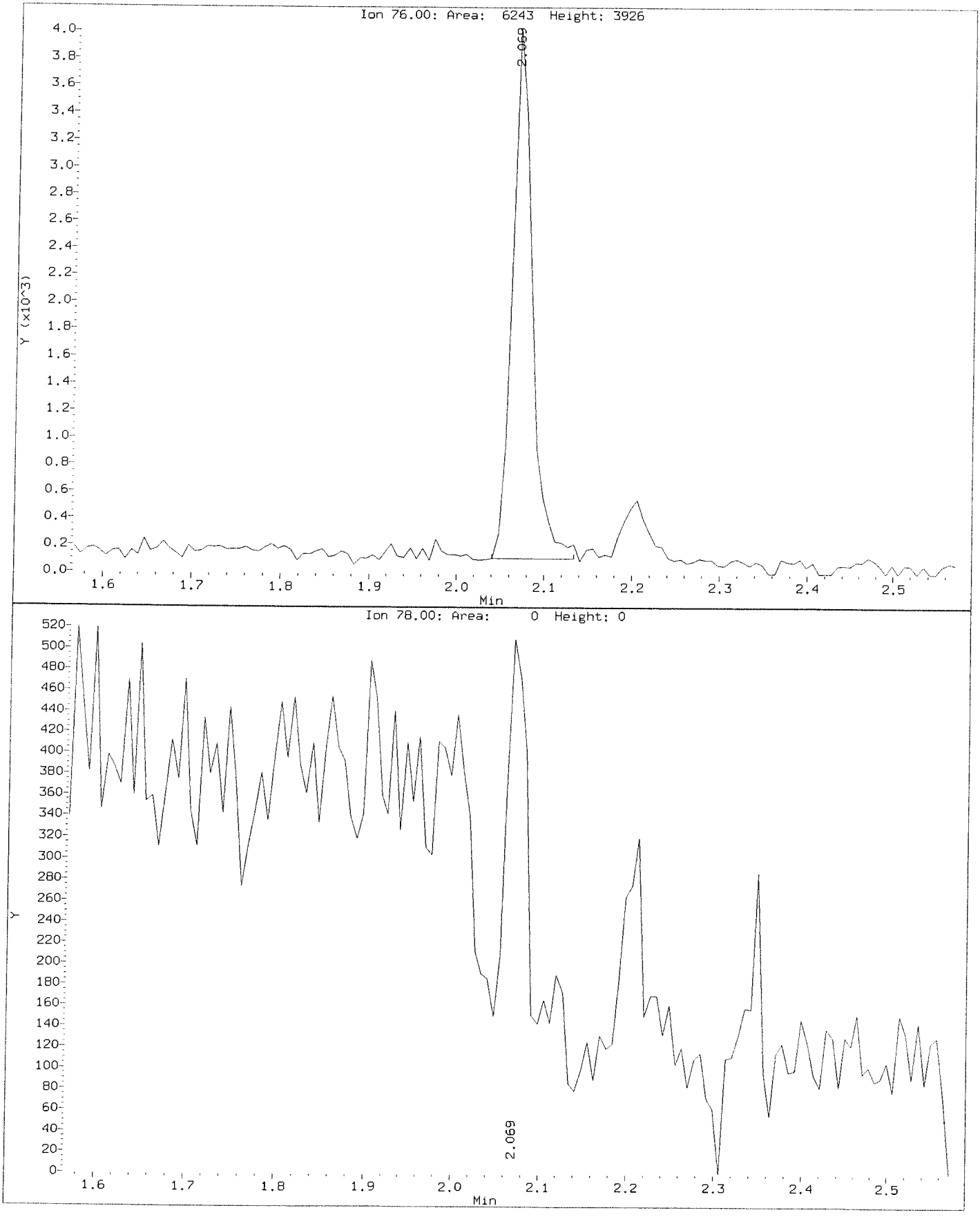
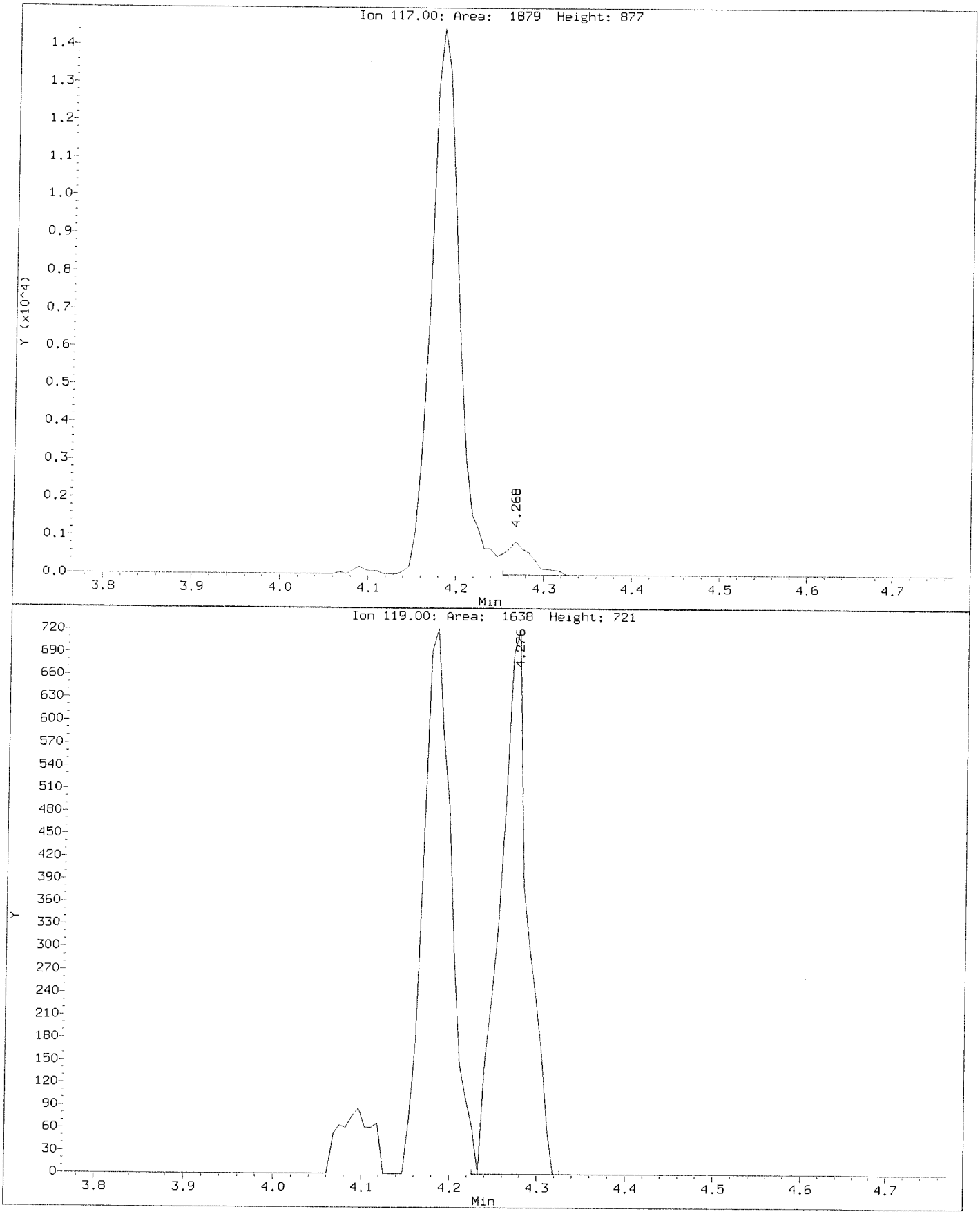
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Carbon Disulfide
CAS Number: 75-15-0



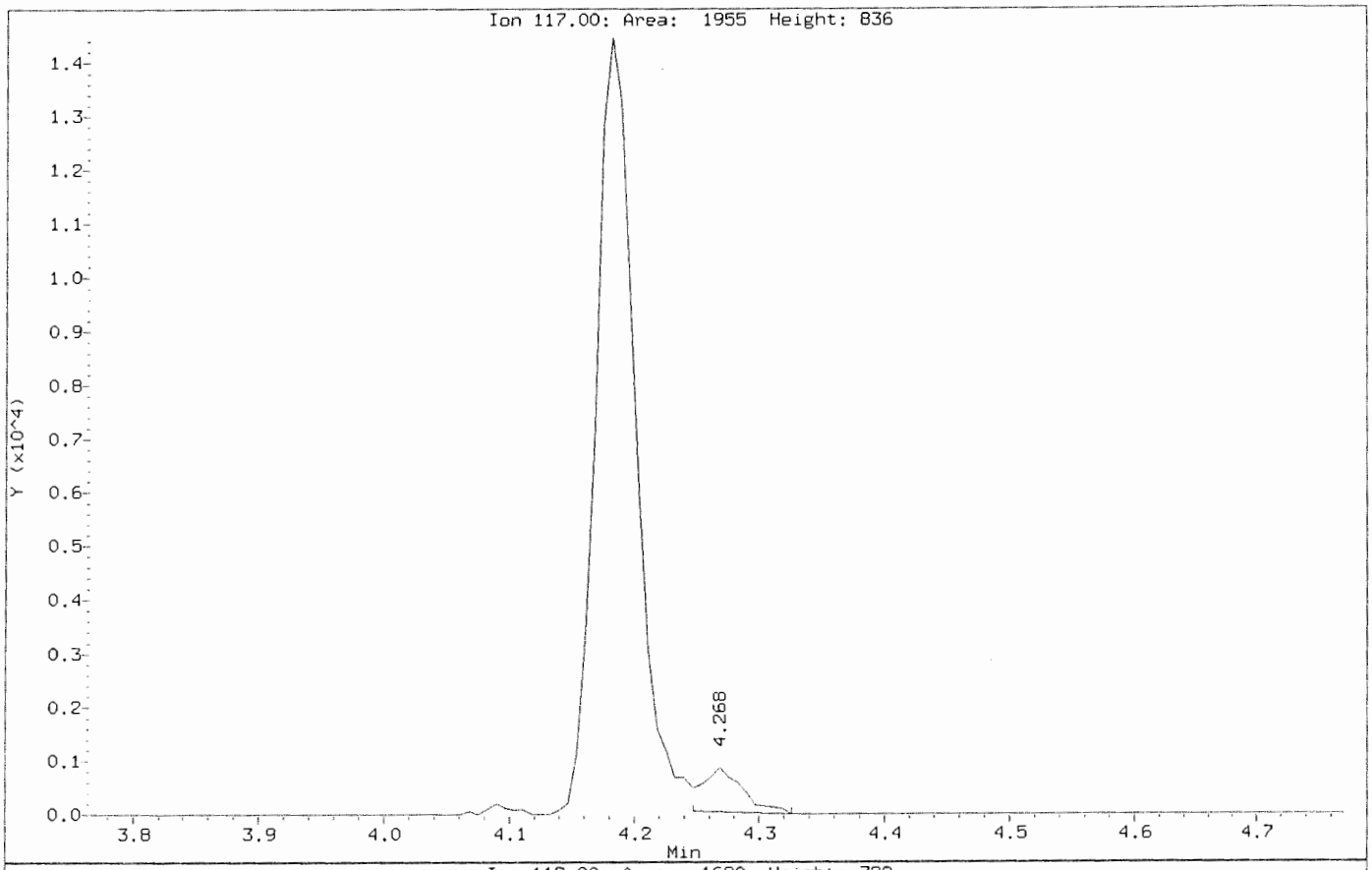
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

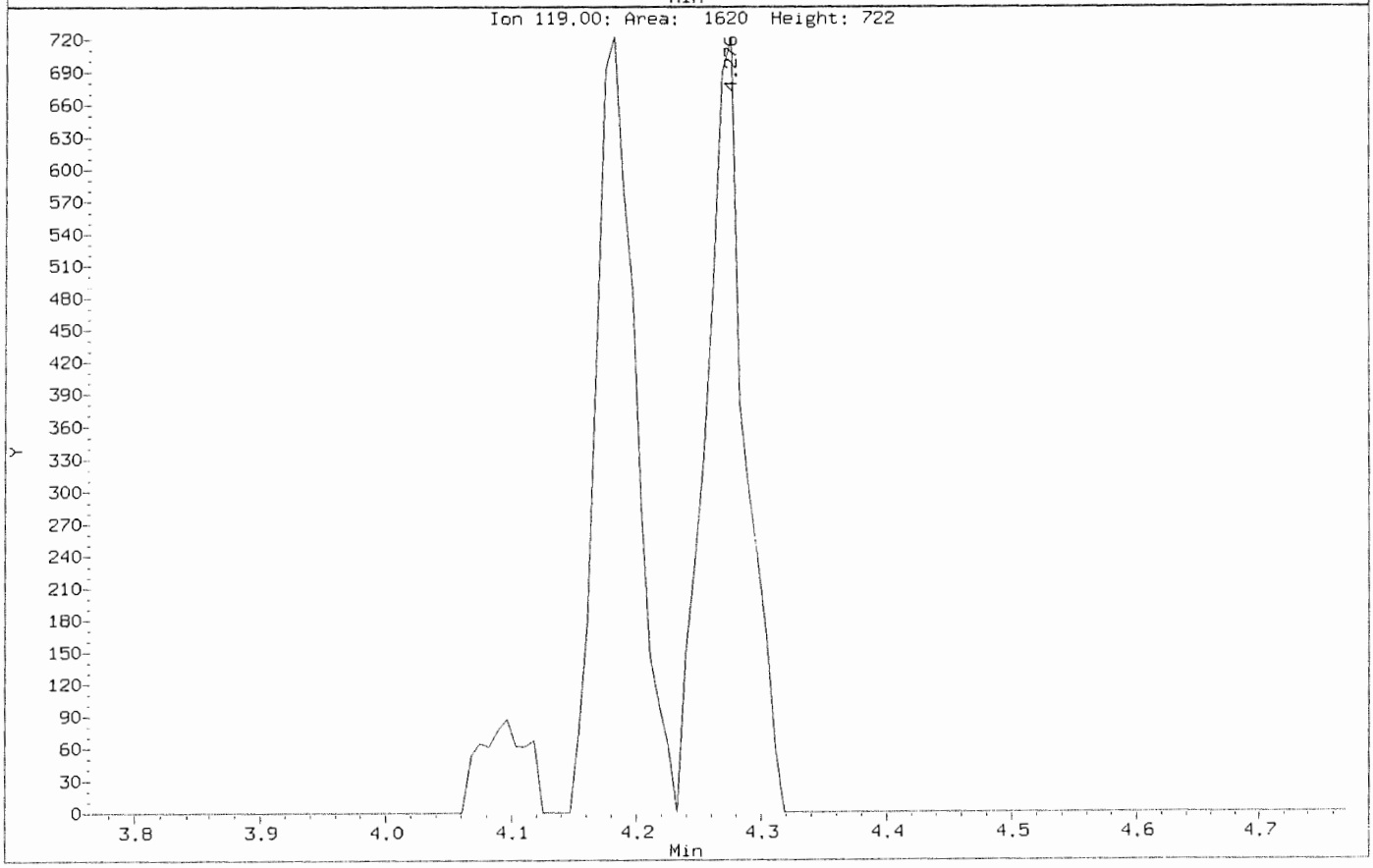
Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

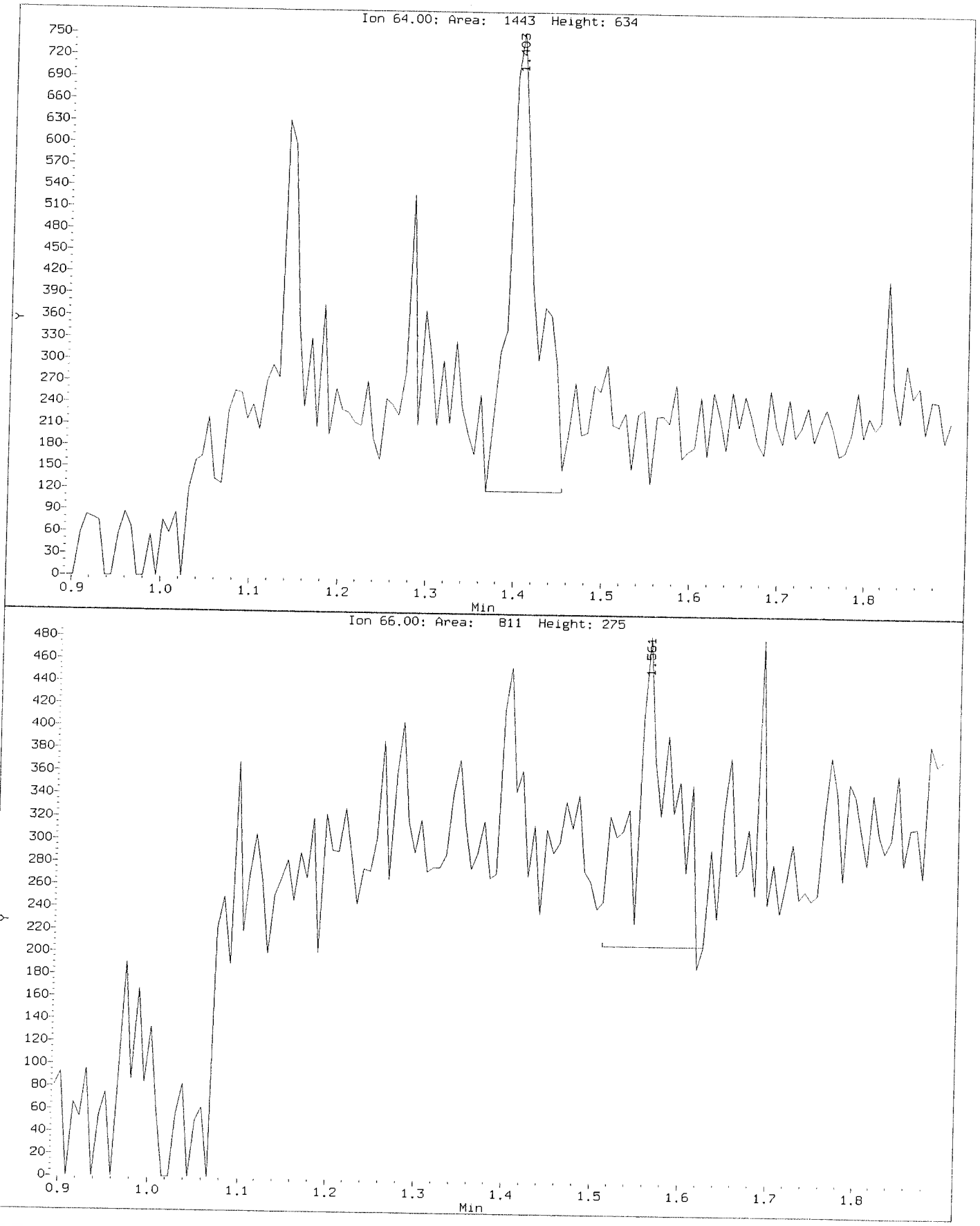
Compound: Carbon Tetrachloride
CAS Number: 56-23-5





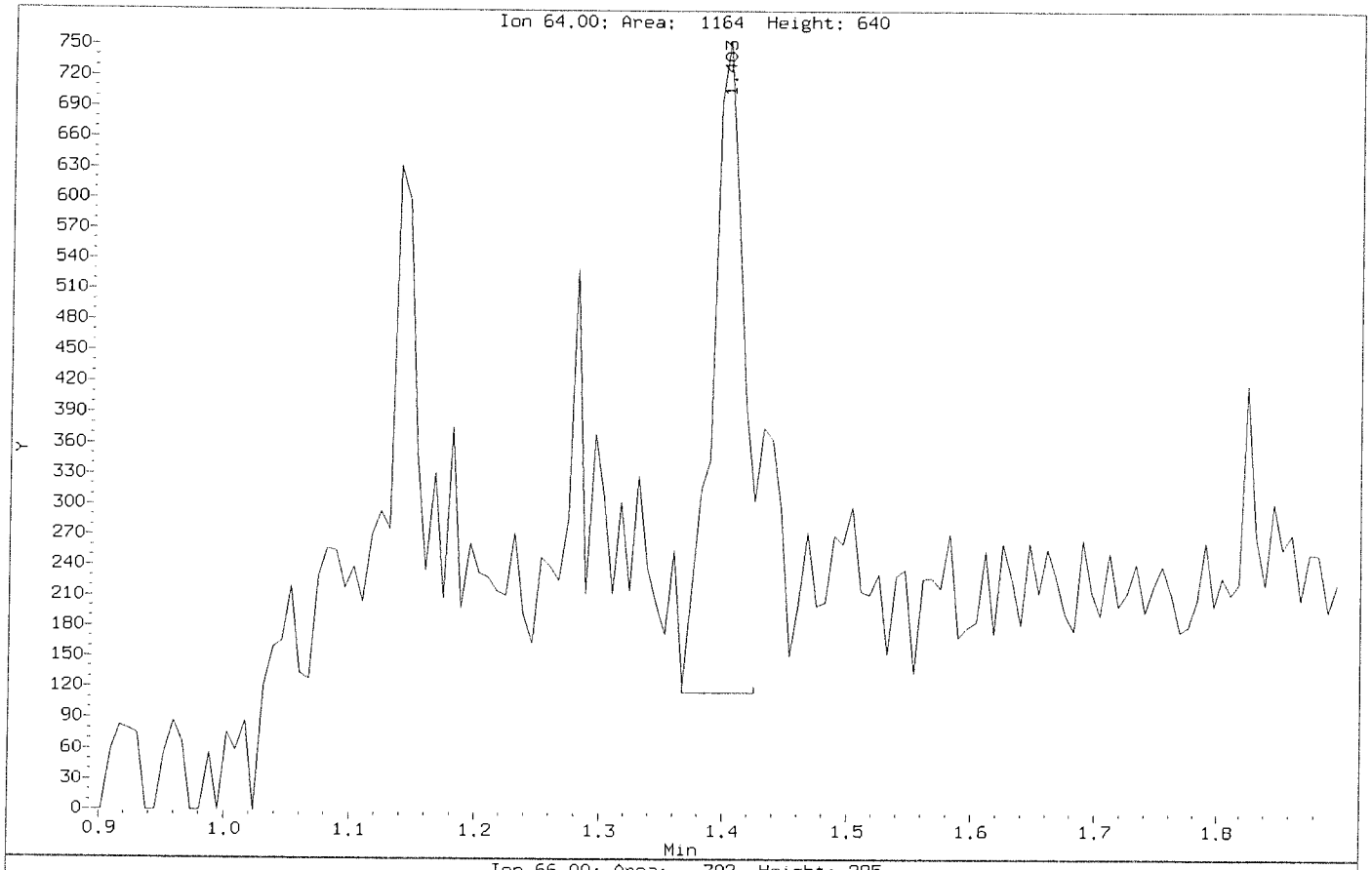
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

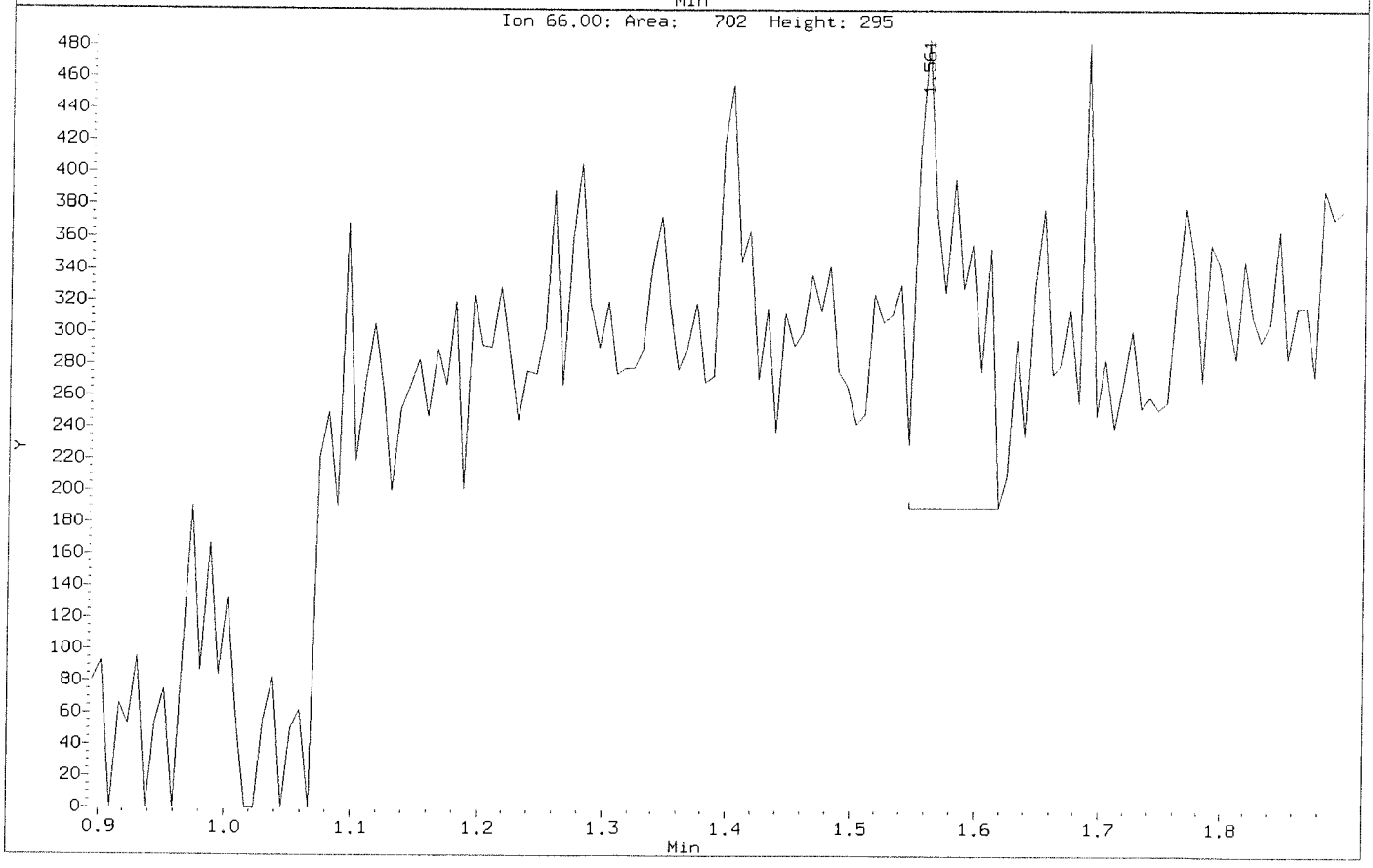
Compound: Chloroethane
CAS Number: 75-00-3



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

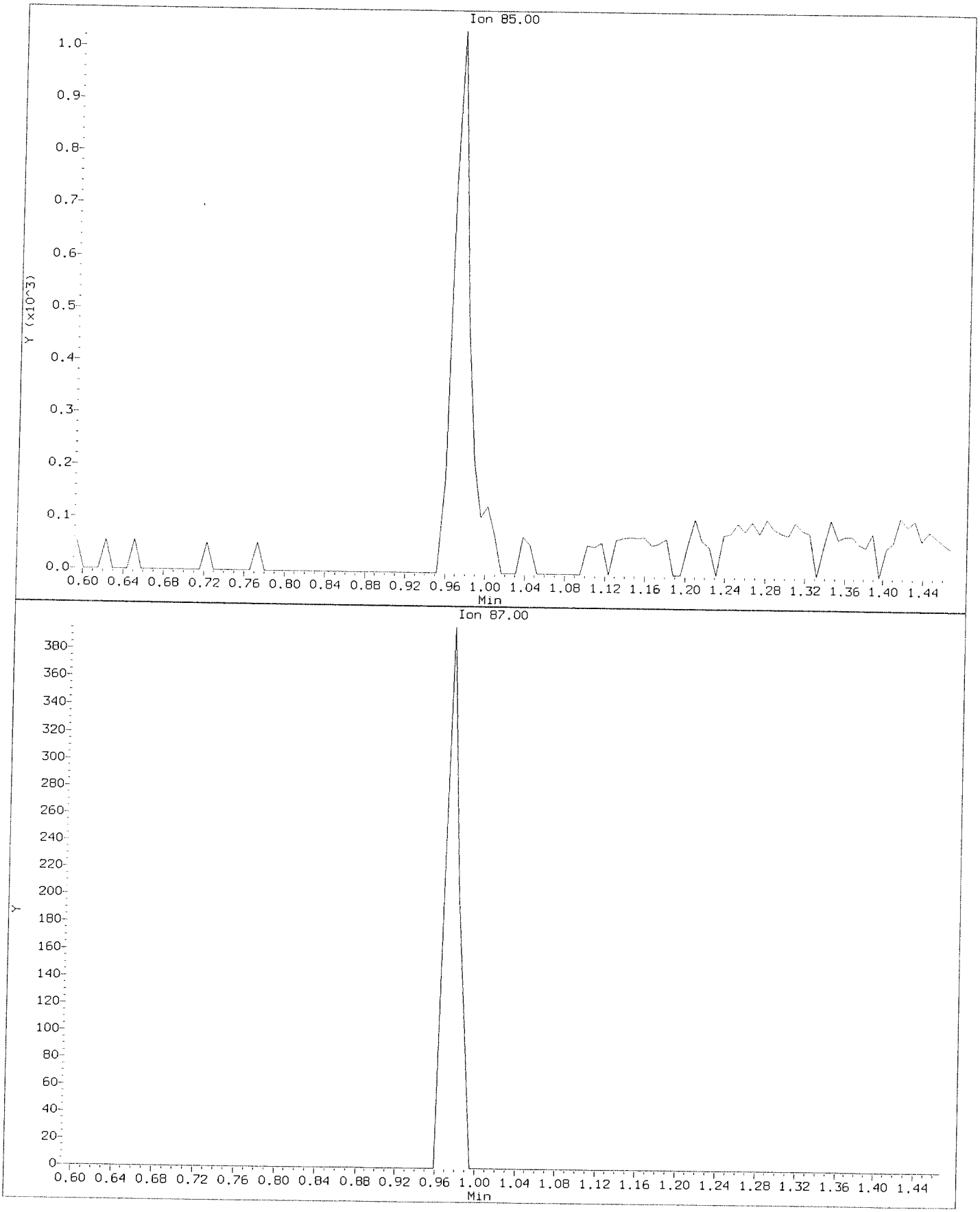
Compound: Chloroethane
CAS Number: 75-00-3





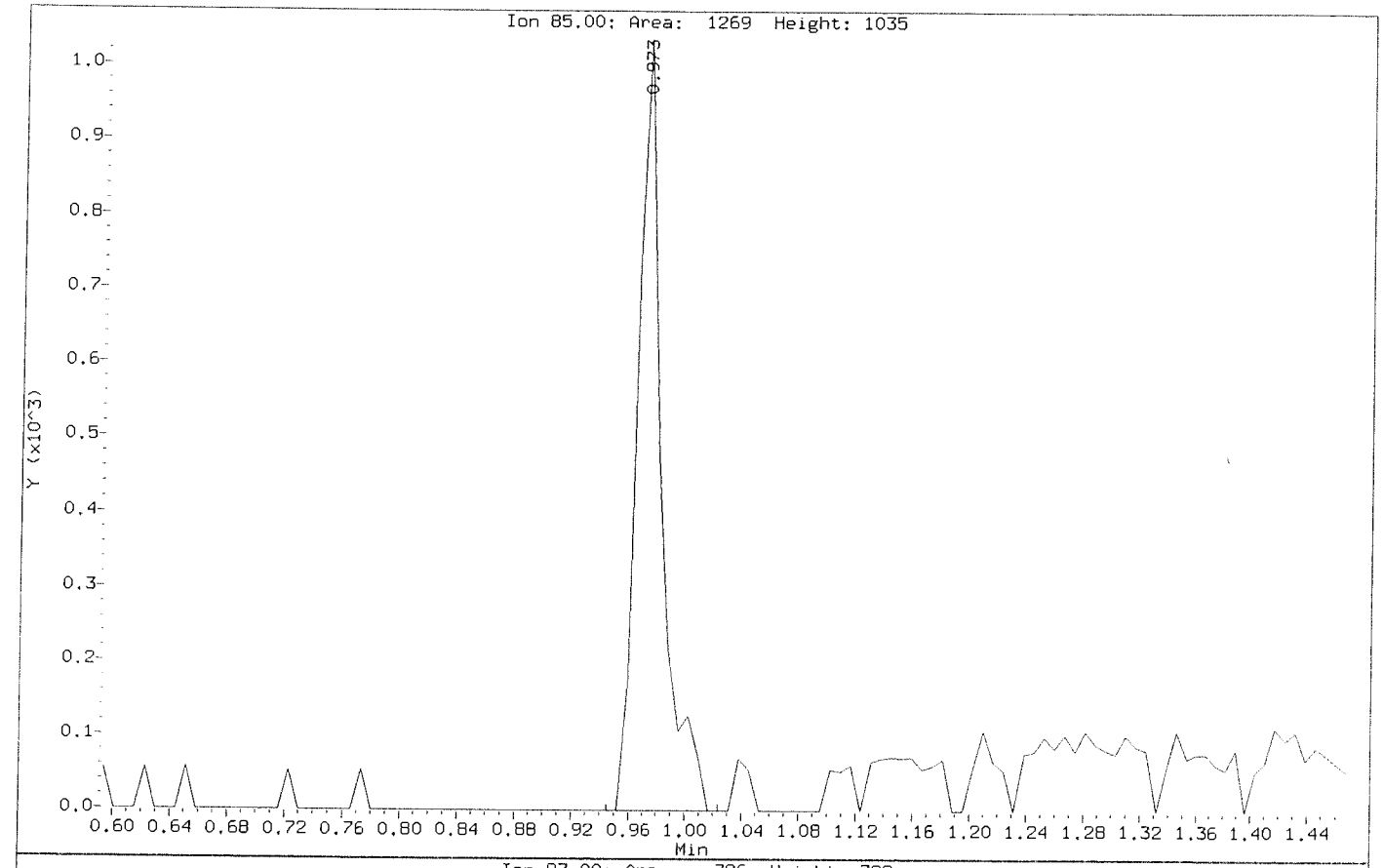
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

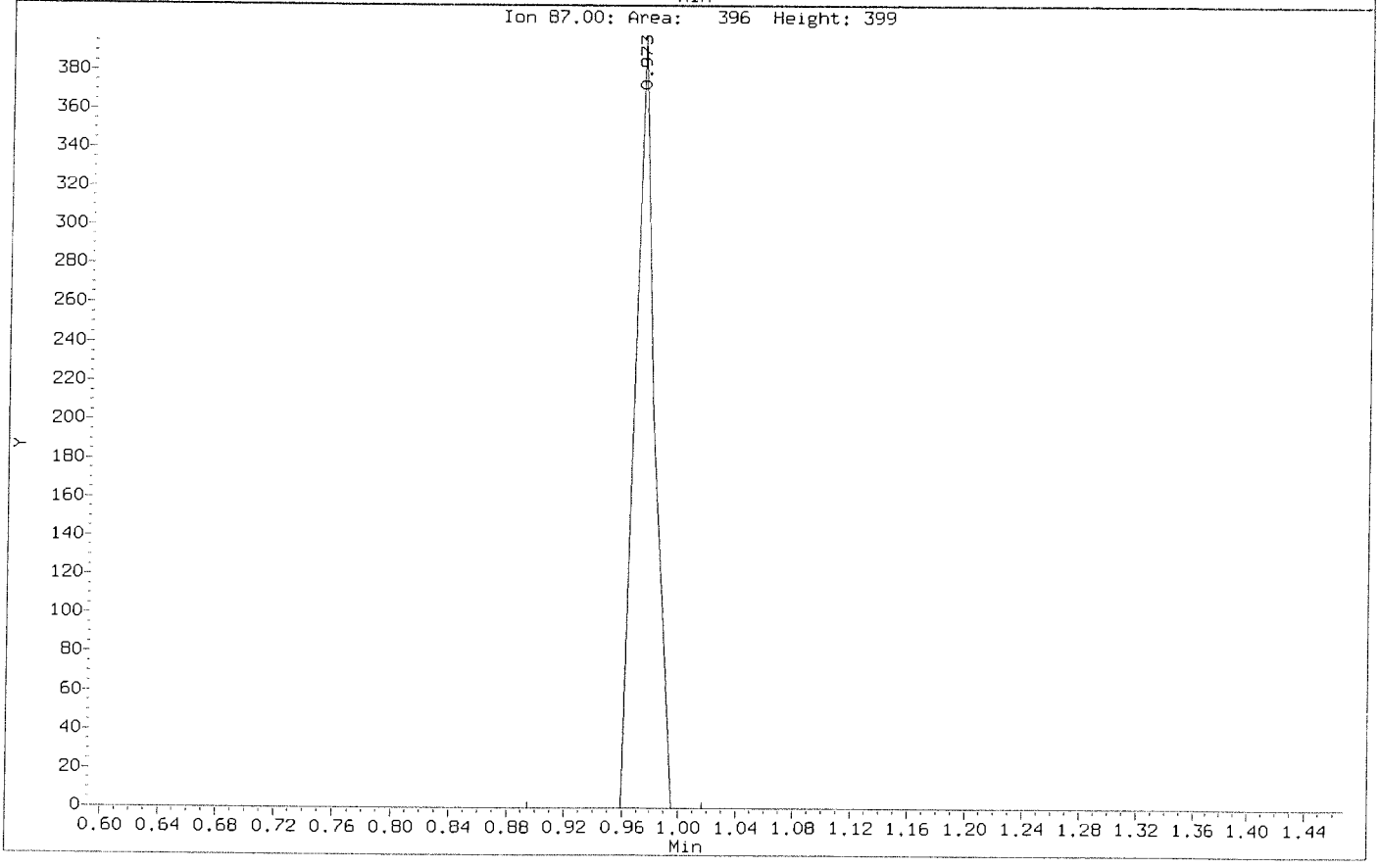
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

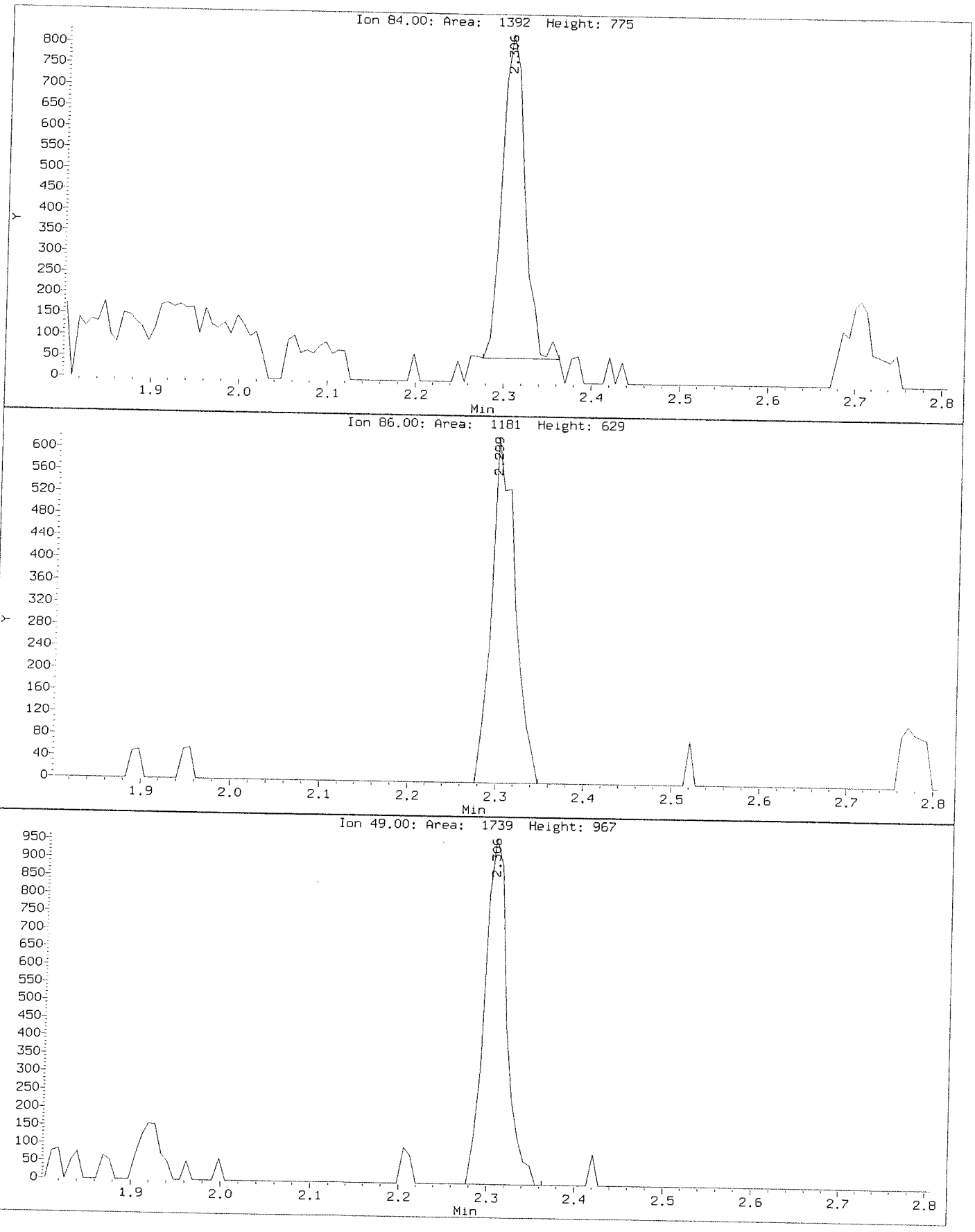
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





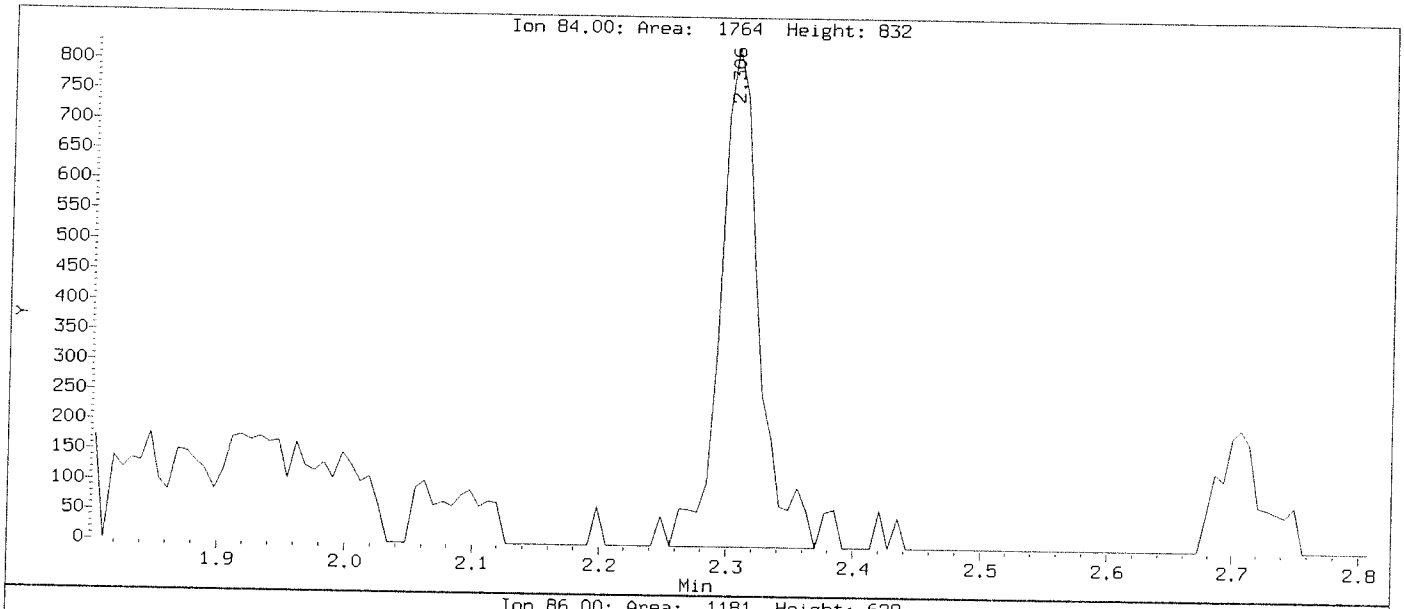
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

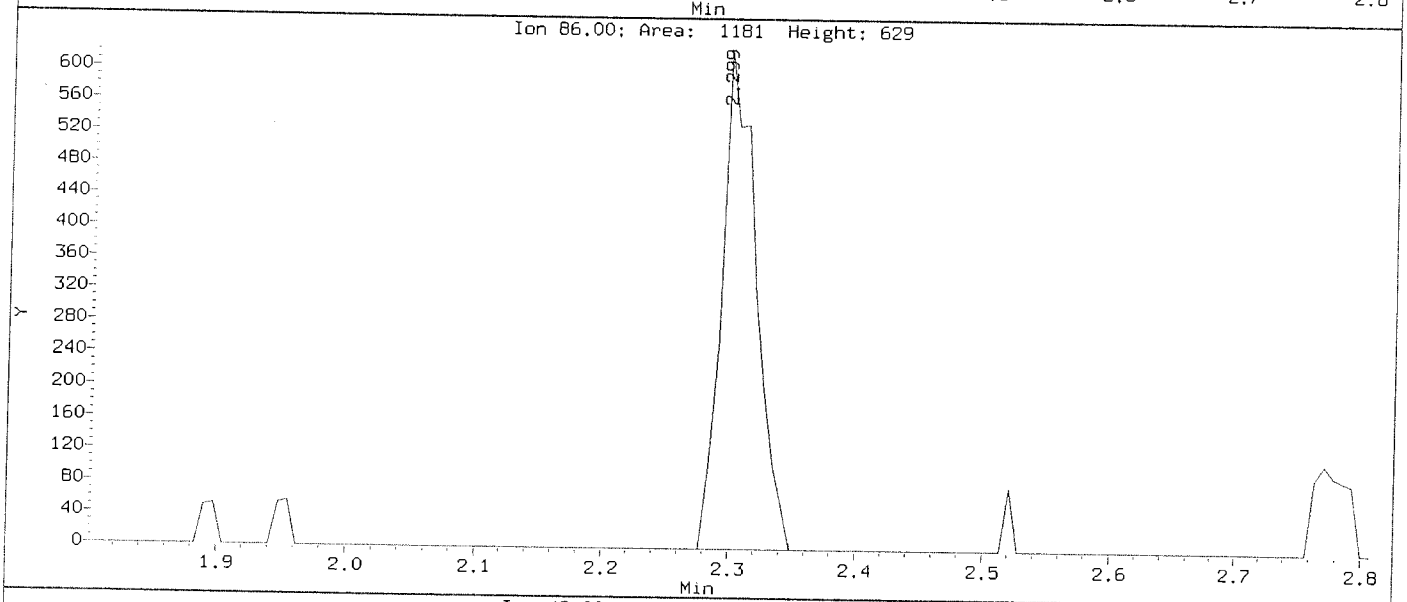
Compound: Methylene Chloride
CAS Number: 75-09-2

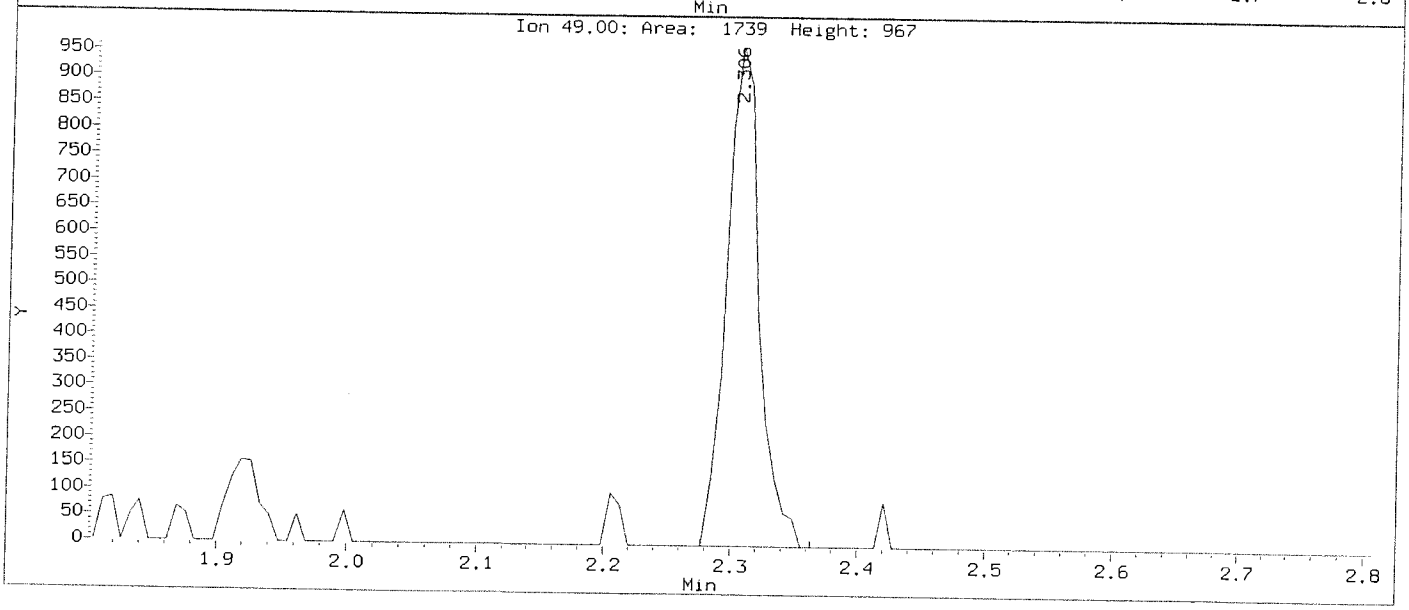


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Methylene Chloride
CAS Number: 75-09-2

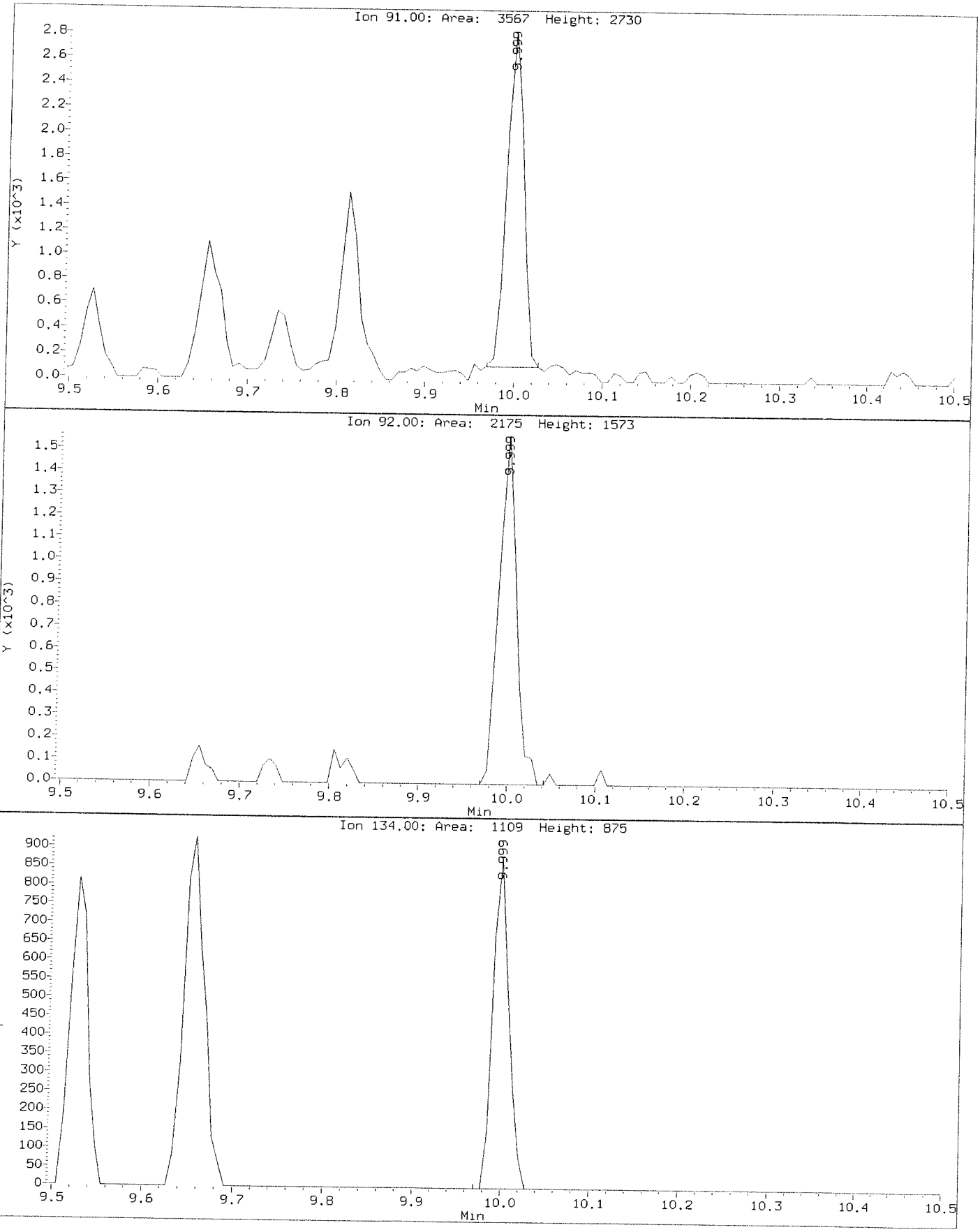






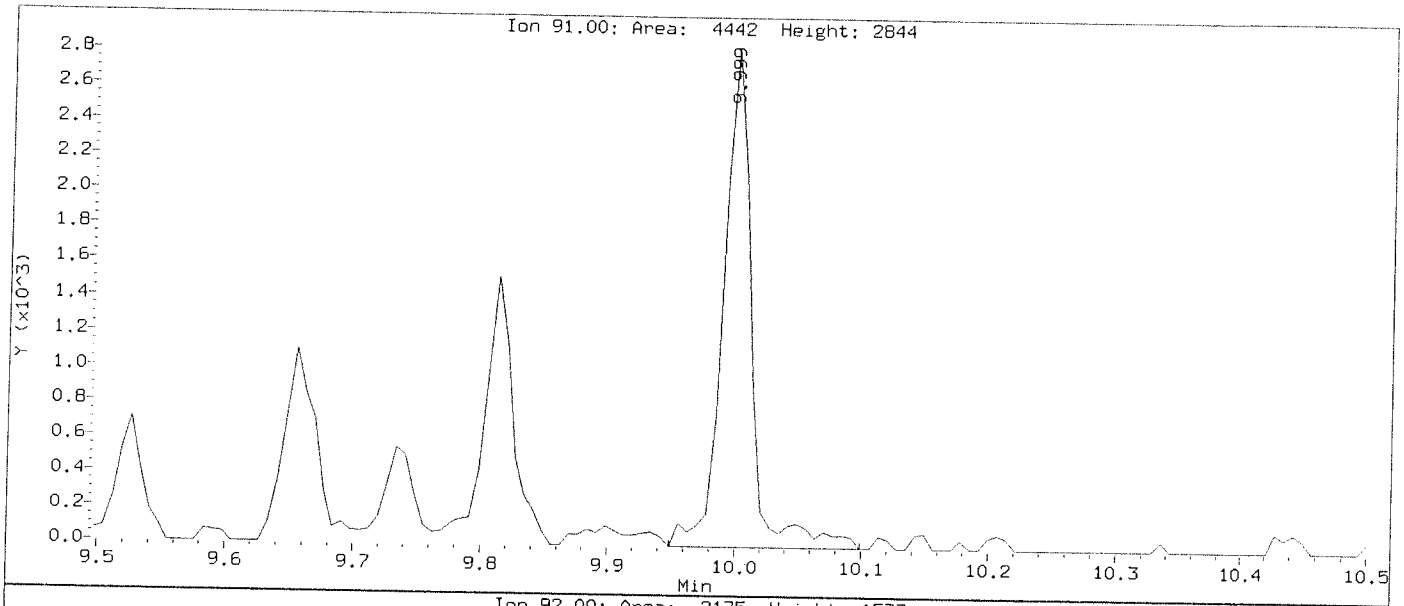
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

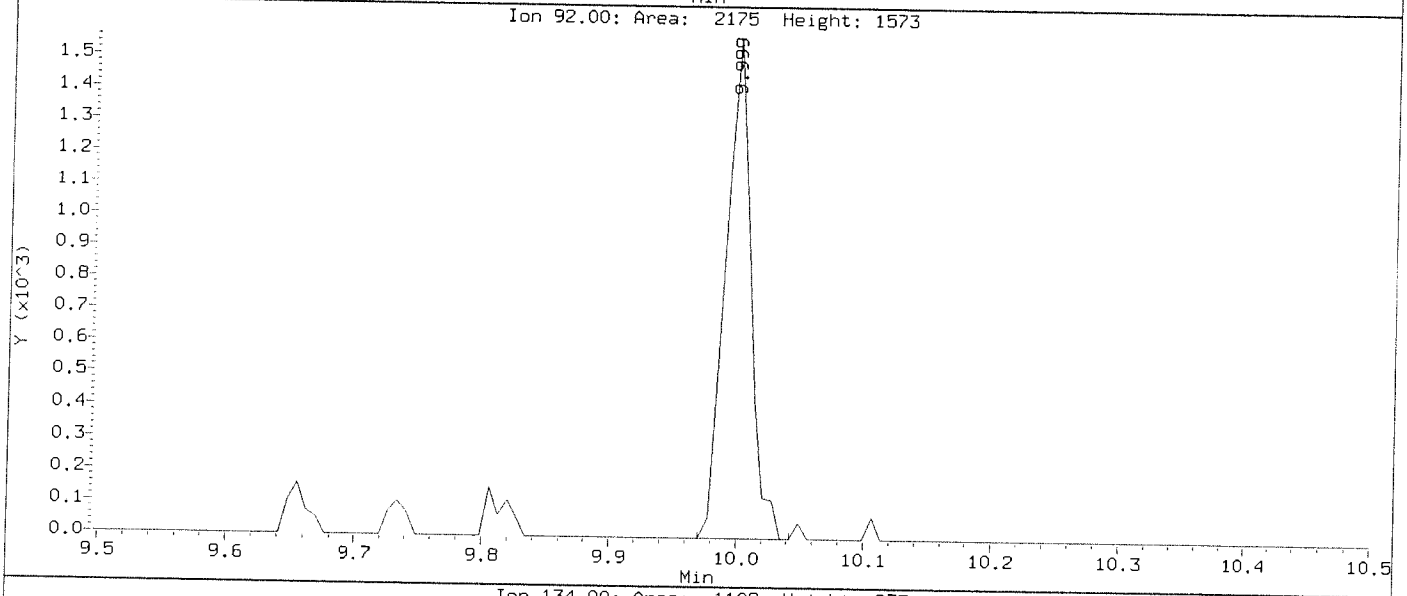
Compound: n-Butylbenzene
CAS Number: 104-51-8

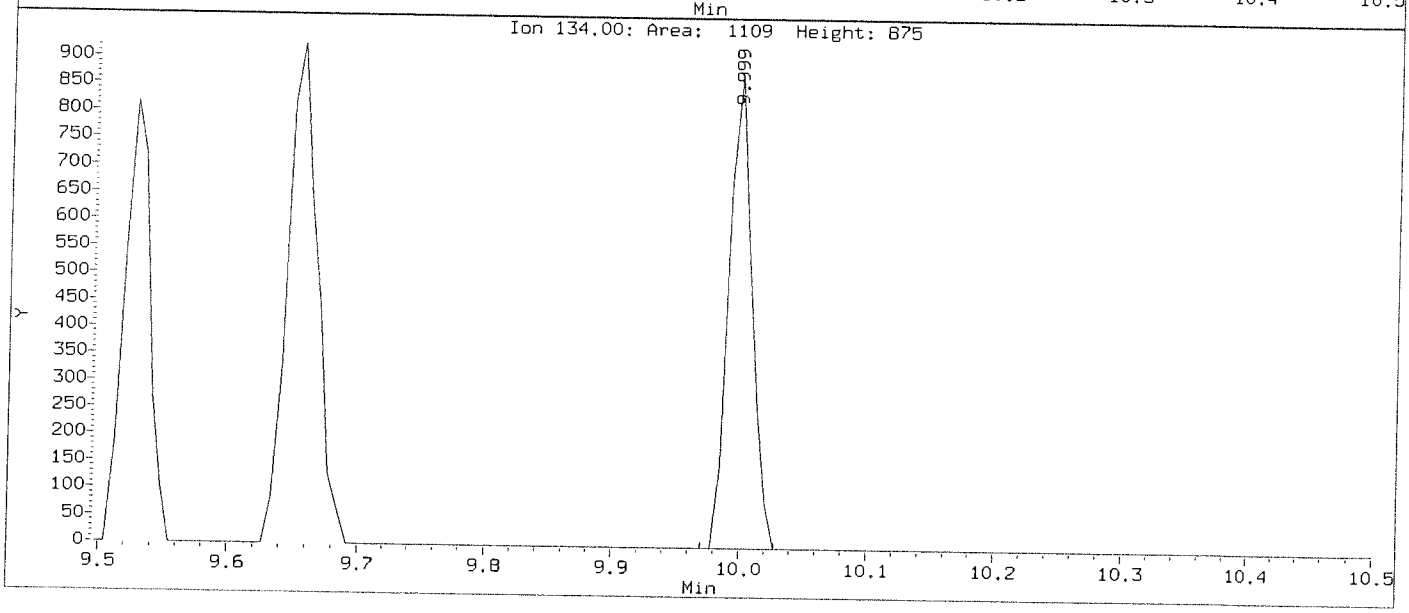


Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111803.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: n-Butylbenzene
CAS Number: 104-51-8

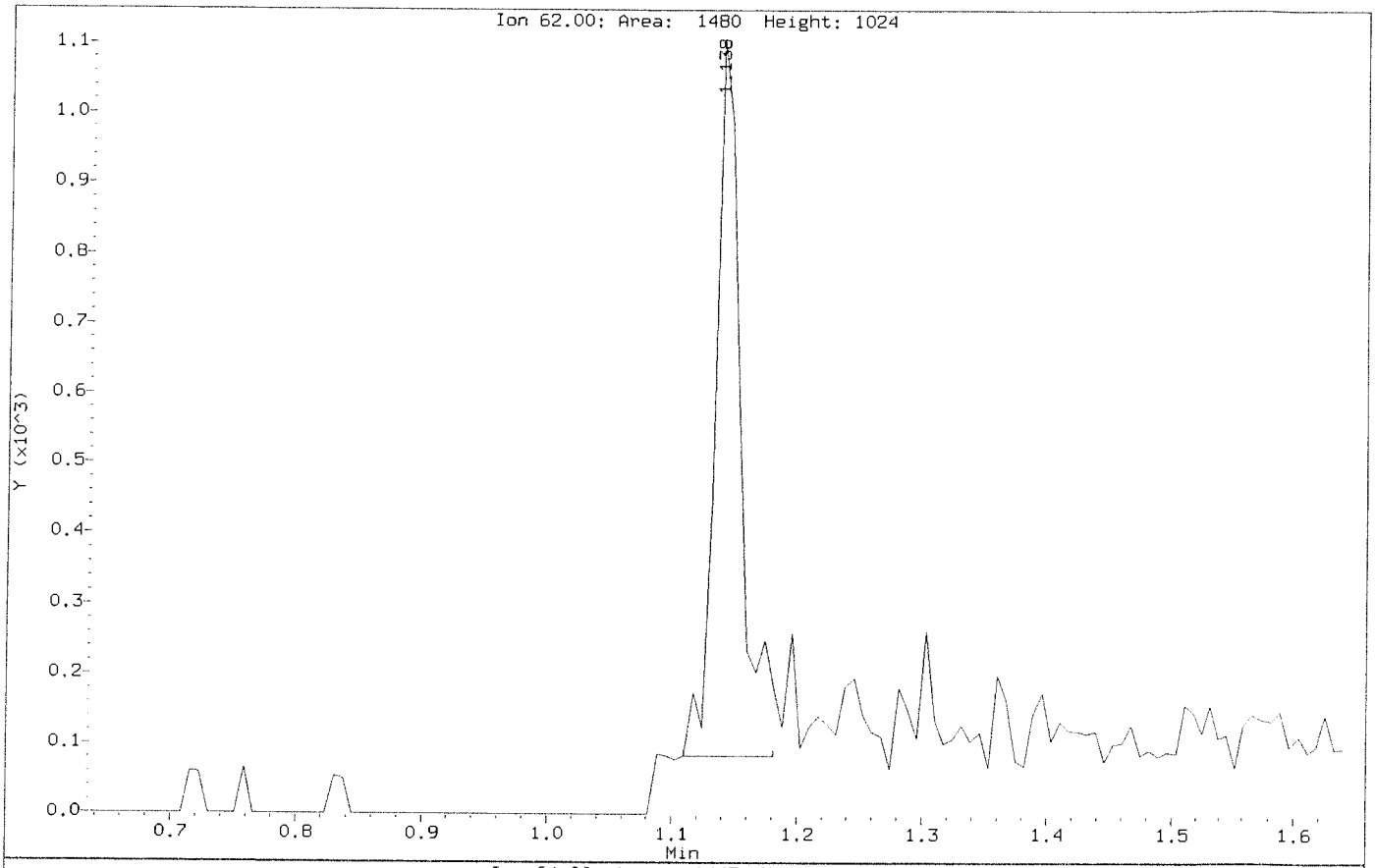


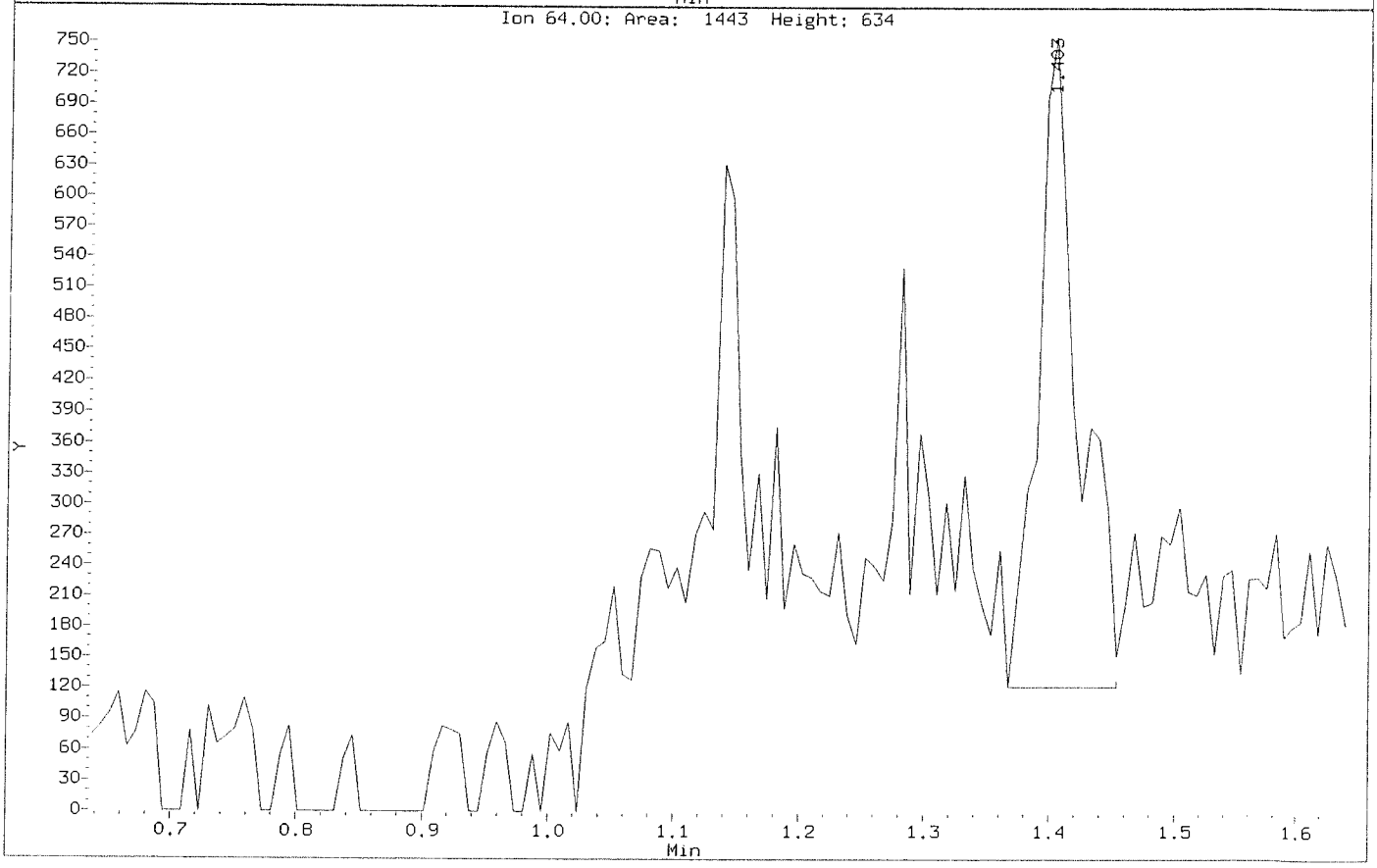




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111B03.D
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4





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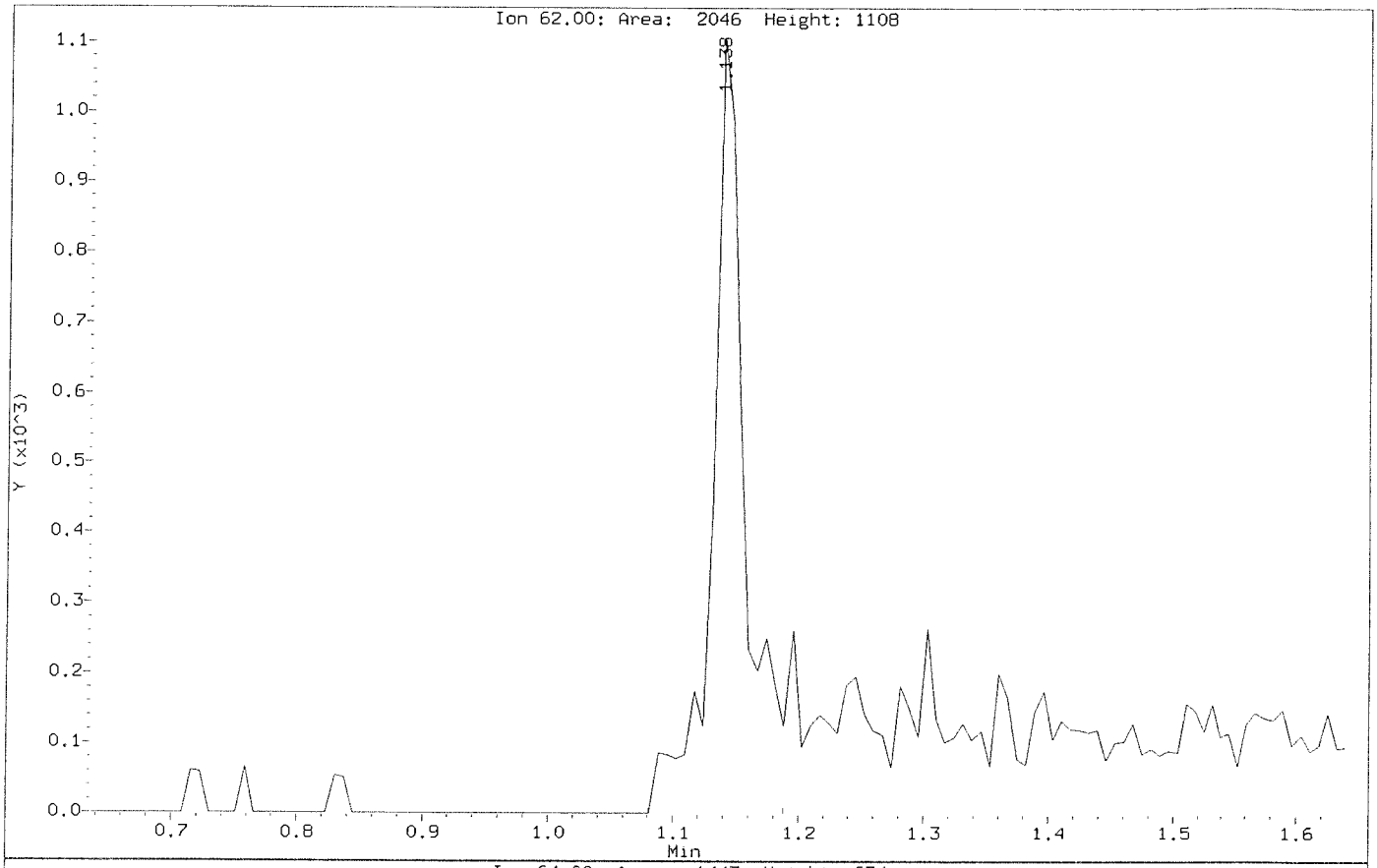
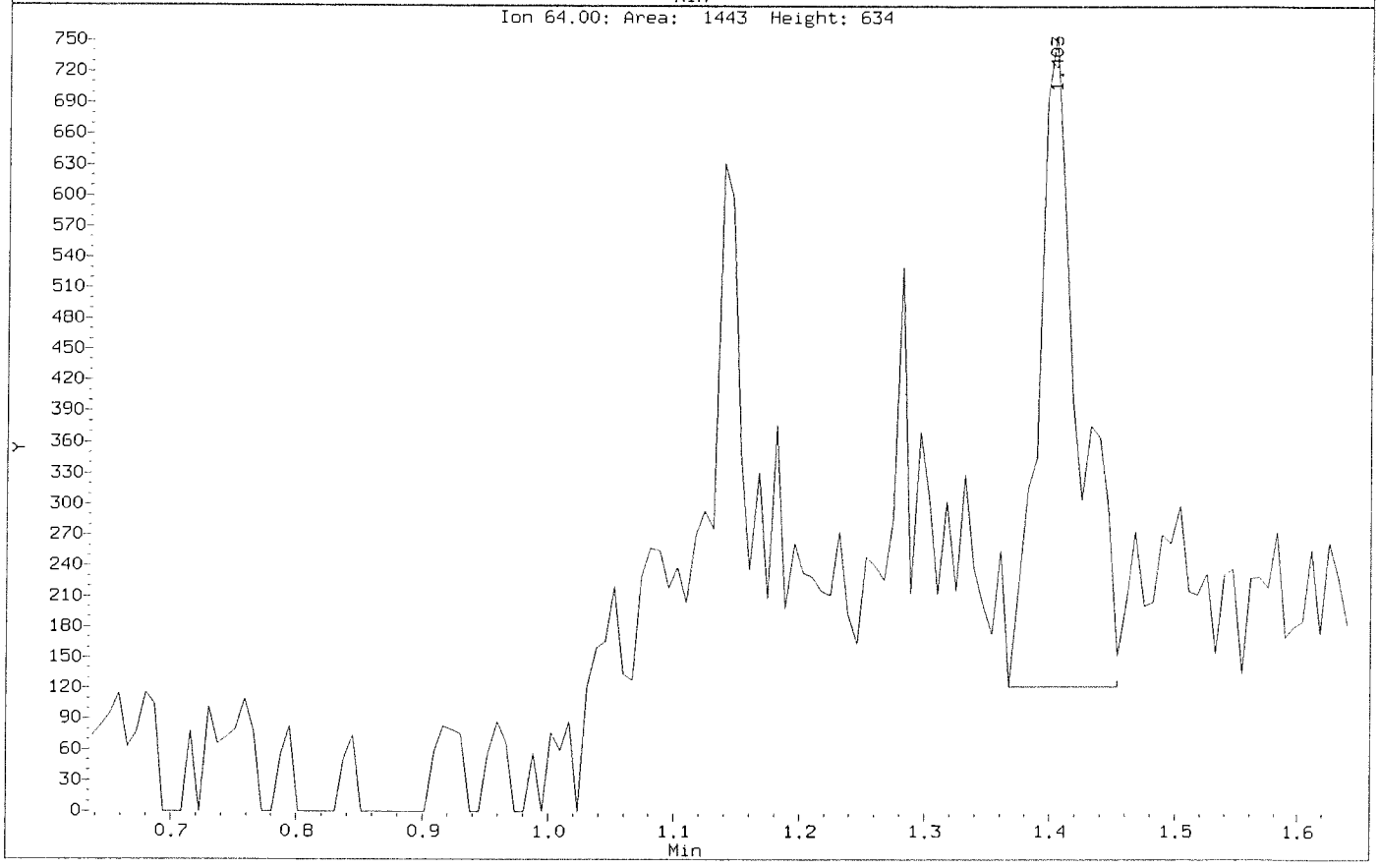
Injection Date: 18-NOV-2019 14:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 18-NOV-2019 14:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 14:35 Cal File: X111803.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

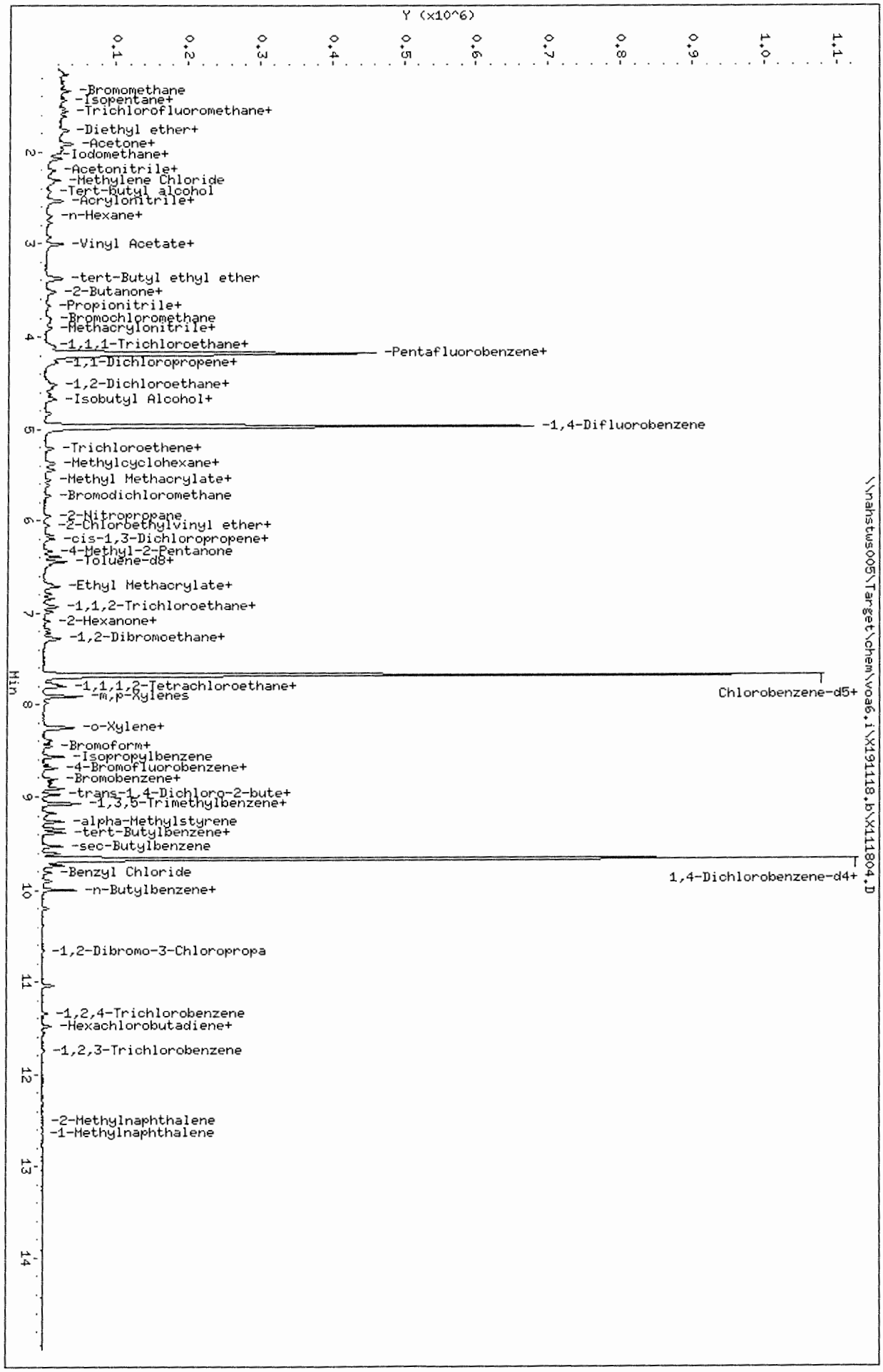
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	416007	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	570122	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	516622	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	279609	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4458	1.00000	1.85(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	5731	1.00000	1.60(a)
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	3882	1.00000	1.38(a)
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	13715	1.00000	1.00(a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	4166	1.00000	1.11(a)
31 1,1,1-Trichloroethane	97	4.082	4.082	(0.976)	6451	1.00000	1.14(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	4719	1.00000	1.20(aM)
138 Freon TF	101	1.919	1.919	(0.459)	4065	1.00000	1.12(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	3216	1.00000	1.19(a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.700)	6907	1.00000	1.14(a)
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	3522	1.00000	0.99(a)
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	5427	1.00000	1.18(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	1182	1.00000	0.29(a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	4081	1.00000	1.22(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	2432	1.00000	1.03(aM)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	14648	1.00000	1.10(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	464	1.00000	0.73(aM)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	3982	1.00000	1.09(a)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	8297	1.00000	1.11(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	5359	1.00000	1.18(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	3352	1.00000	0.98(aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	13162	1.00000	1.03(a)
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	8955	1.00000	1.11(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	6334	1.00000	1.15(a)
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	9129	1.00000	1.12(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	6785	1.00000	1.23(a)
24 2-Butanone	43	3.588	3.588	(0.858)	2602	2.00000	2.03(a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	11127	1.00000	1.10(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	4893	2.00000	2.30(a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	13982	1.00000	1.14(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	14705	1.00000	1.07(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	6643	2.00000	2.19(a)
10 Acetone	43	1.969	1.969	(0.471)	5956	2.00000	1.88(a)
37 Benzene	78	4.519	4.519	(0.909)	15129	1.00000	1.16(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	5611	1.00000	1.15(a)
29 Bromochloromethane	128	3.803	3.803	(0.909)	2687	1.00000	1.19(a)
39 Bromodichloromethane	83	5.730	5.730	(1.153)	5583	1.00000	1.18(aM)
66 Bromoform	173	8.416	8.416	(1.097)	3197	1.00000	2.01(Ta)
6 Bromomethane	94	1.339	1.339	(0.320)	6334	1.00000	(aM)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	20920	2.00000	2.18(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	5740	1.00000	1.13(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	11449	1.00000	1.13(a)
7 Chloroethane	64	1.403	1.403	(0.336)	3001	1.00000	1.14(aM)
28 Chloroform	83	3.910	3.910	(0.935)	8234	1.00000	1.22(a)
3 Chloromethane	50	1.074	1.074	(0.257)	6118	1.00000	1.53(aM)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	4494	1.00000	1.13(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	6302	1.00000	1.13(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	4470	1.00000	1.13(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	2789	1.00000	1.15(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	3829	1.00000	1.87(aM)
61 Ethylbenzene	106	7.800	7.800	(1.017)	5813	1.00000	1.11(a)
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	2468	1.00000	0.76(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	16809	1.00000	1.08(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	13495	2.00000	2.14(a)
17 Methylene Chloride	84	2.306	2.306	(0.551)	4626	1.00000	1.22(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	11491	1.00000	1.00(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	18779	1.00000	1.08(a)
92 Naphthalene	128	11.553	11.553	(1.195)	3182	1.00000	1.05(a)
63 o-Xylene	106	8.244	8.244	(1.075)	6995	1.00000	1.12(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	15987	1.00000	1.06(a)
64 Styrene	104	8.265	8.265	(1.078)	11719	1.00000	1.08(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	12122	1.00000	1.11(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	4263	1.00000	1.17(a)
50 Toluene	91	6.453	6.453	(0.841)	16346	1.00000	1.11(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	4068	1.00000	1.18(a)
51 trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	5295	1.00000	1.04(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	4445	1.00000	1.11(a)
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	6912	1.00000	1.07(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	4533	1.00000	1.06(aM)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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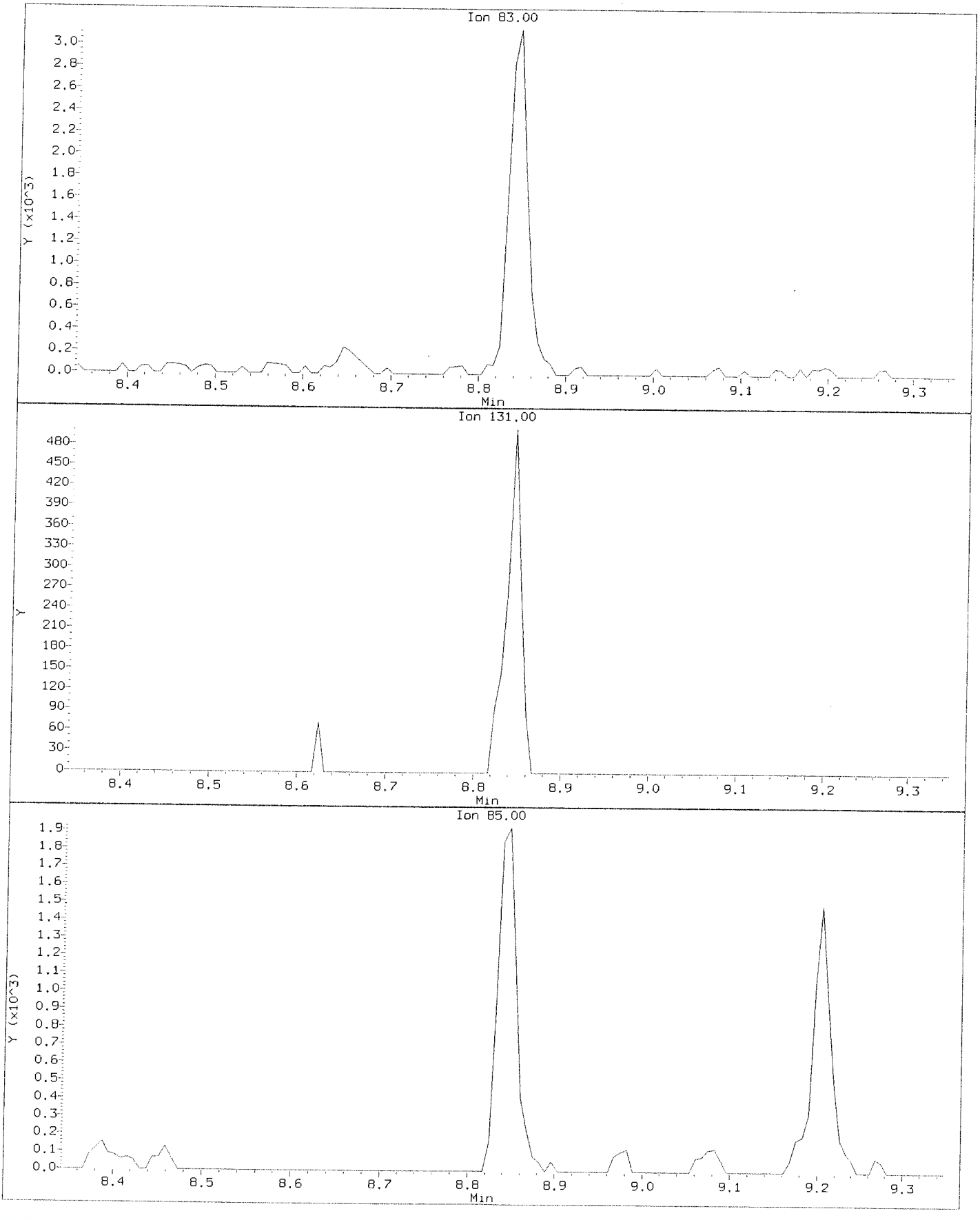
Date : 18-NOV-2019 14:59
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

\\nahstws005\Target\chem\voa6.i\X191118.b\X111804.D

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111804.D
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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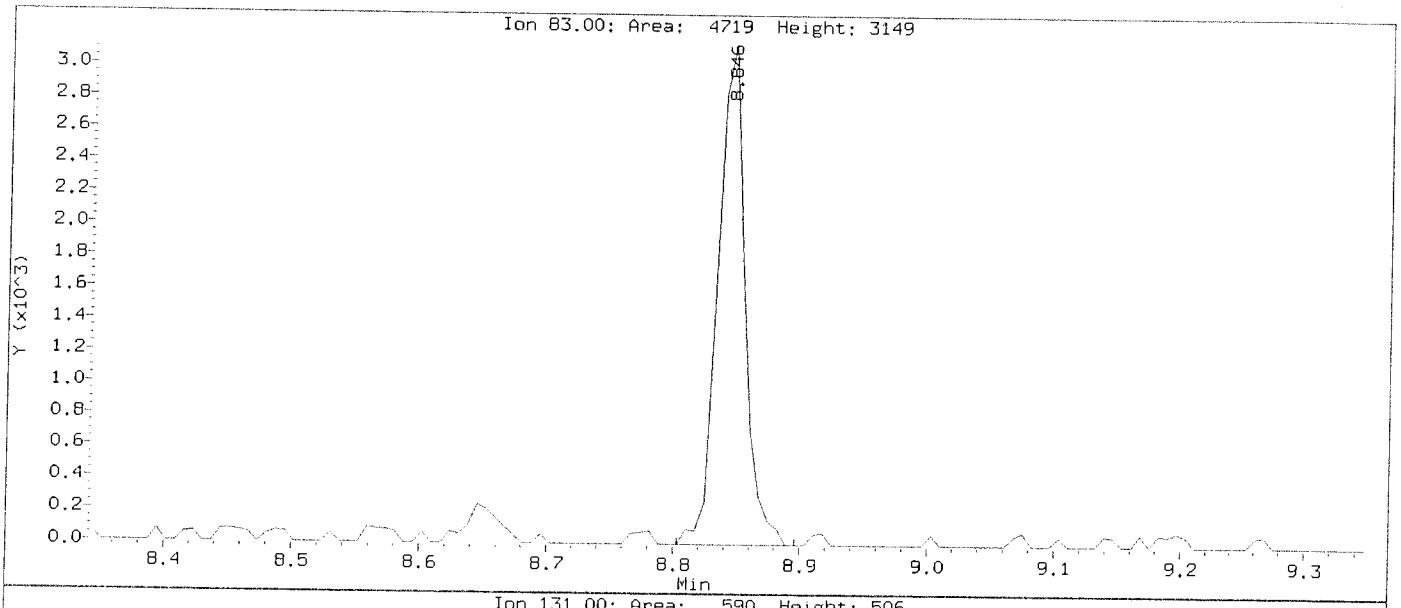
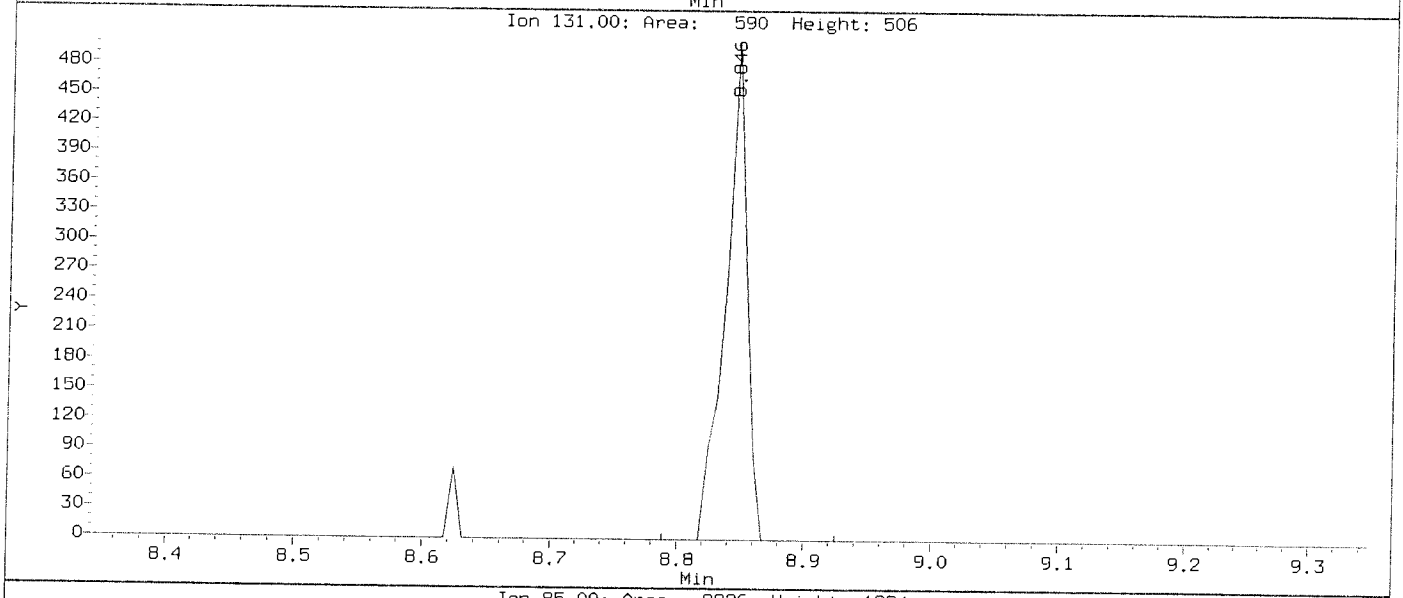
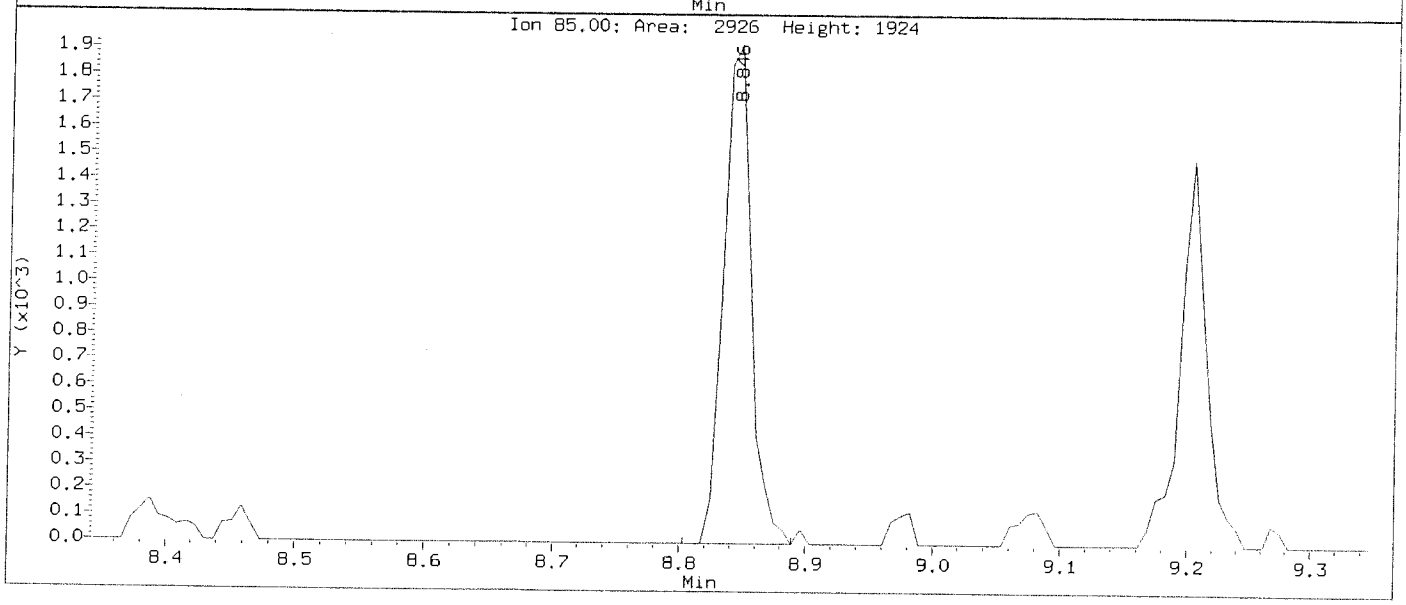
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5







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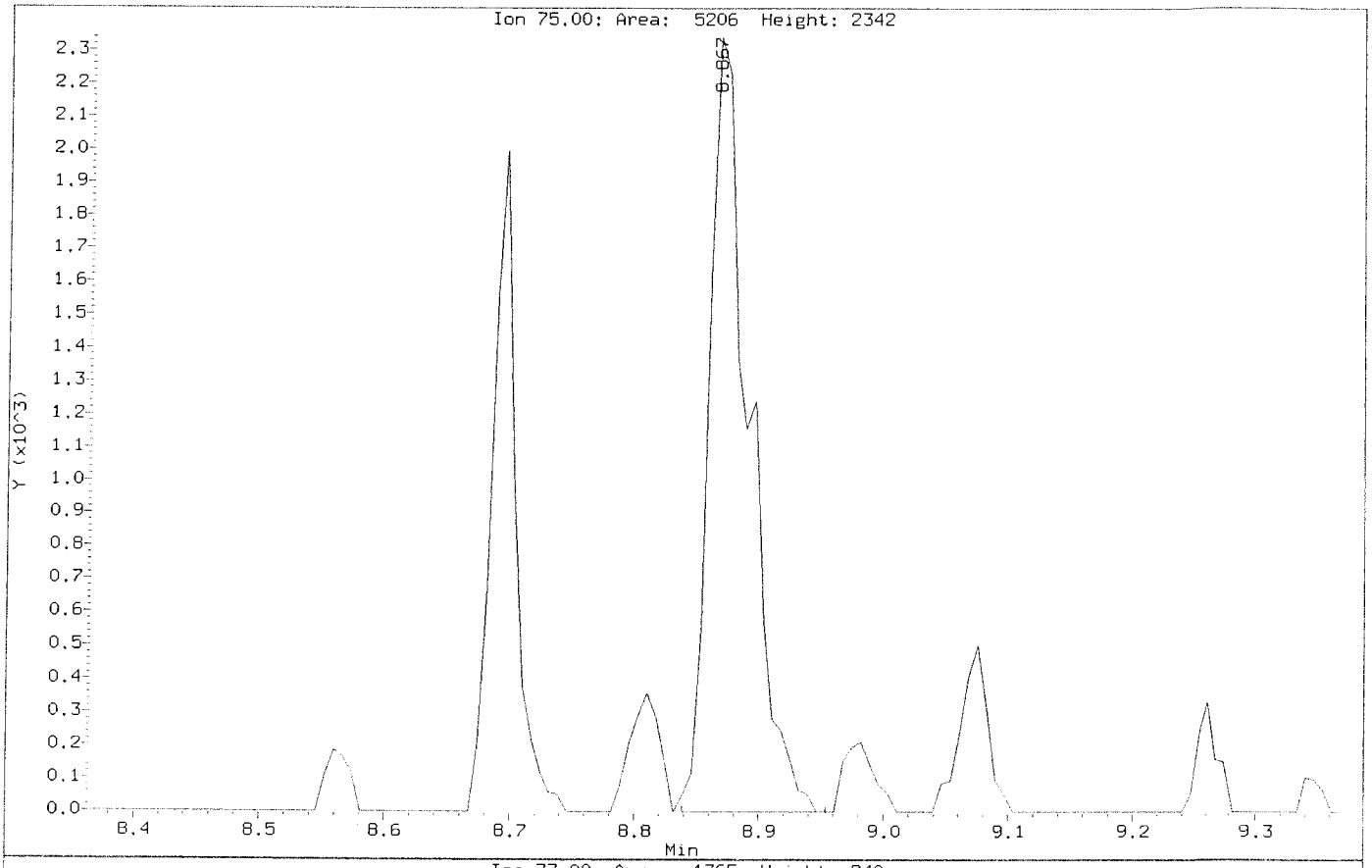
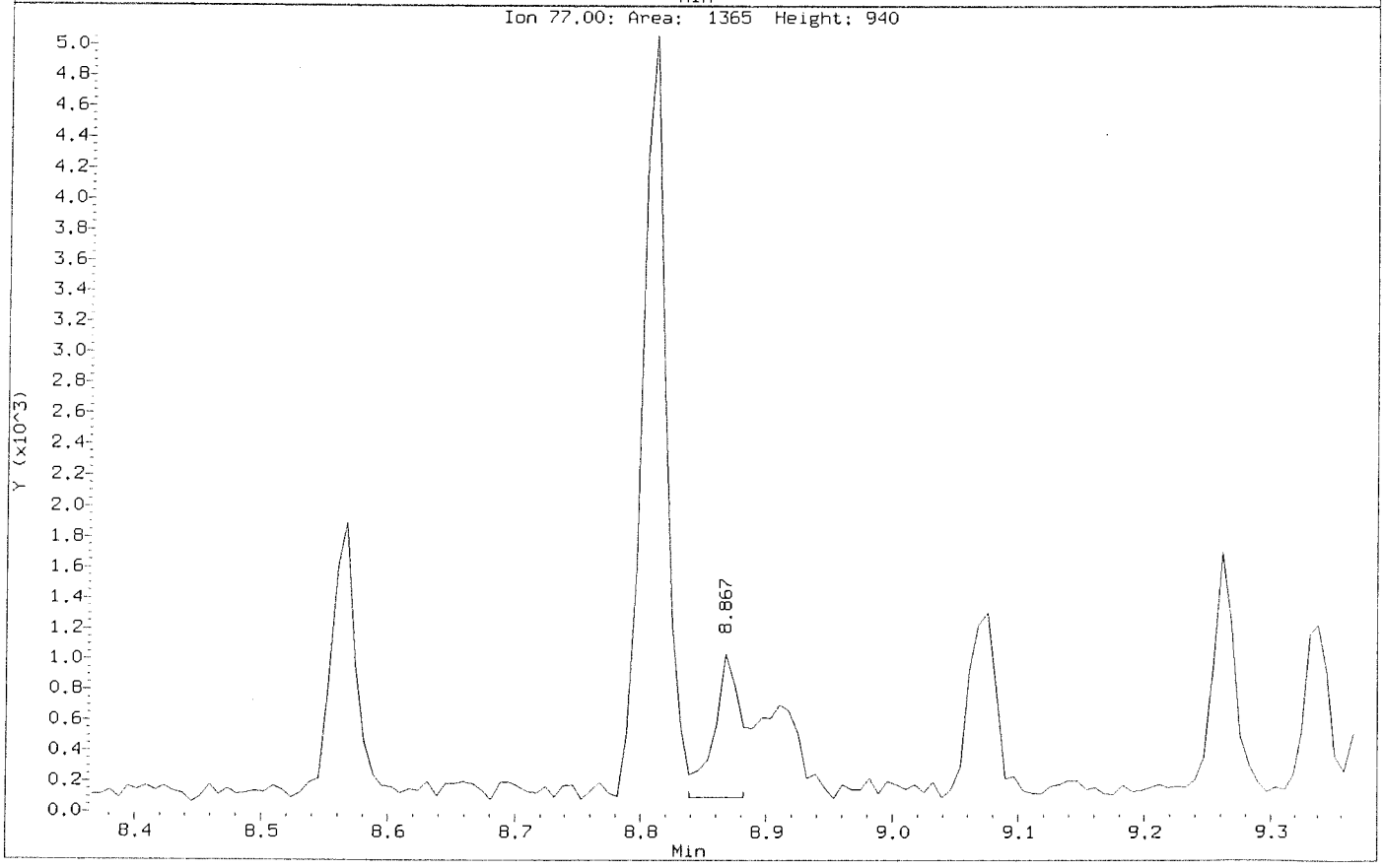
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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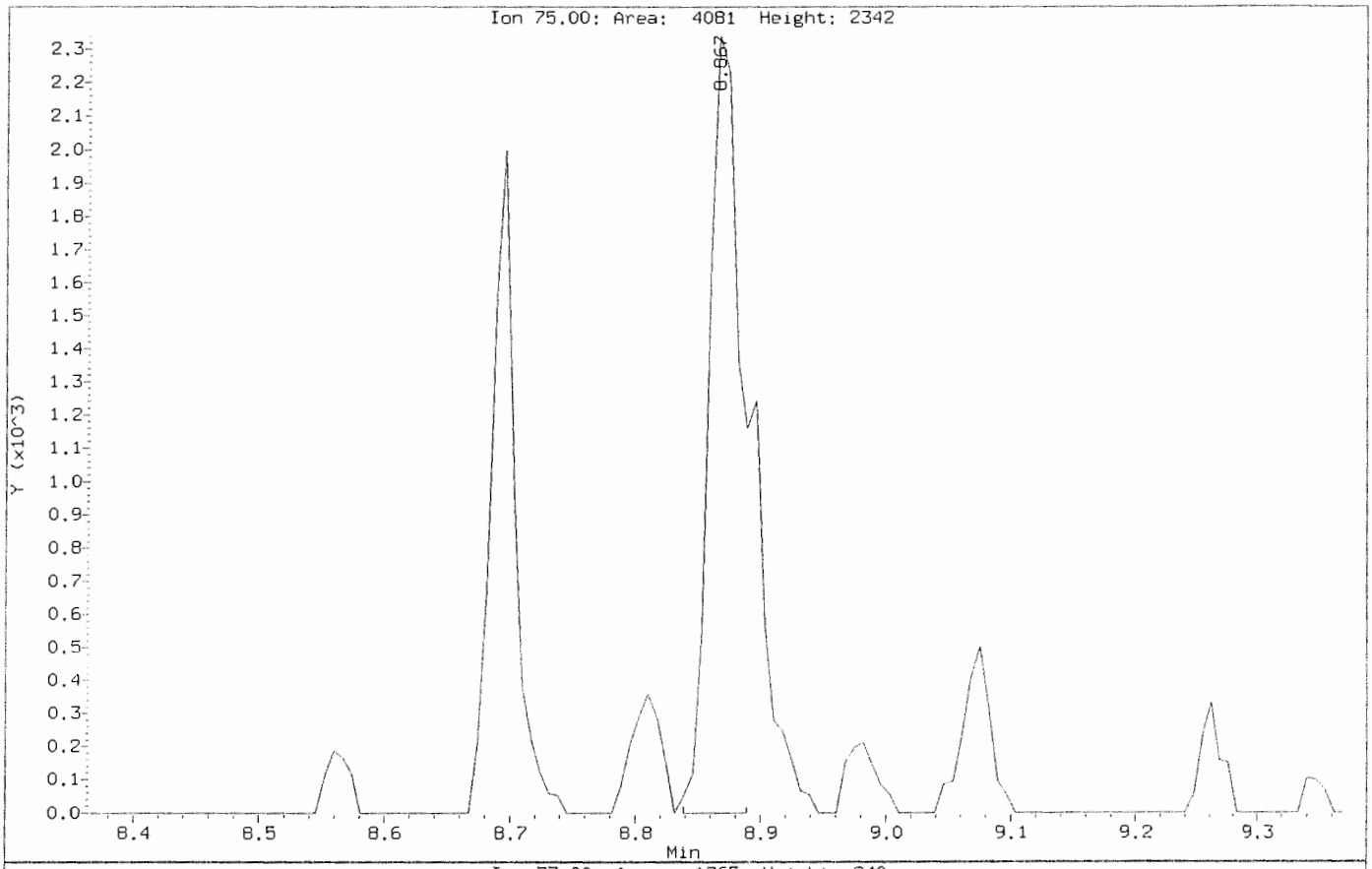
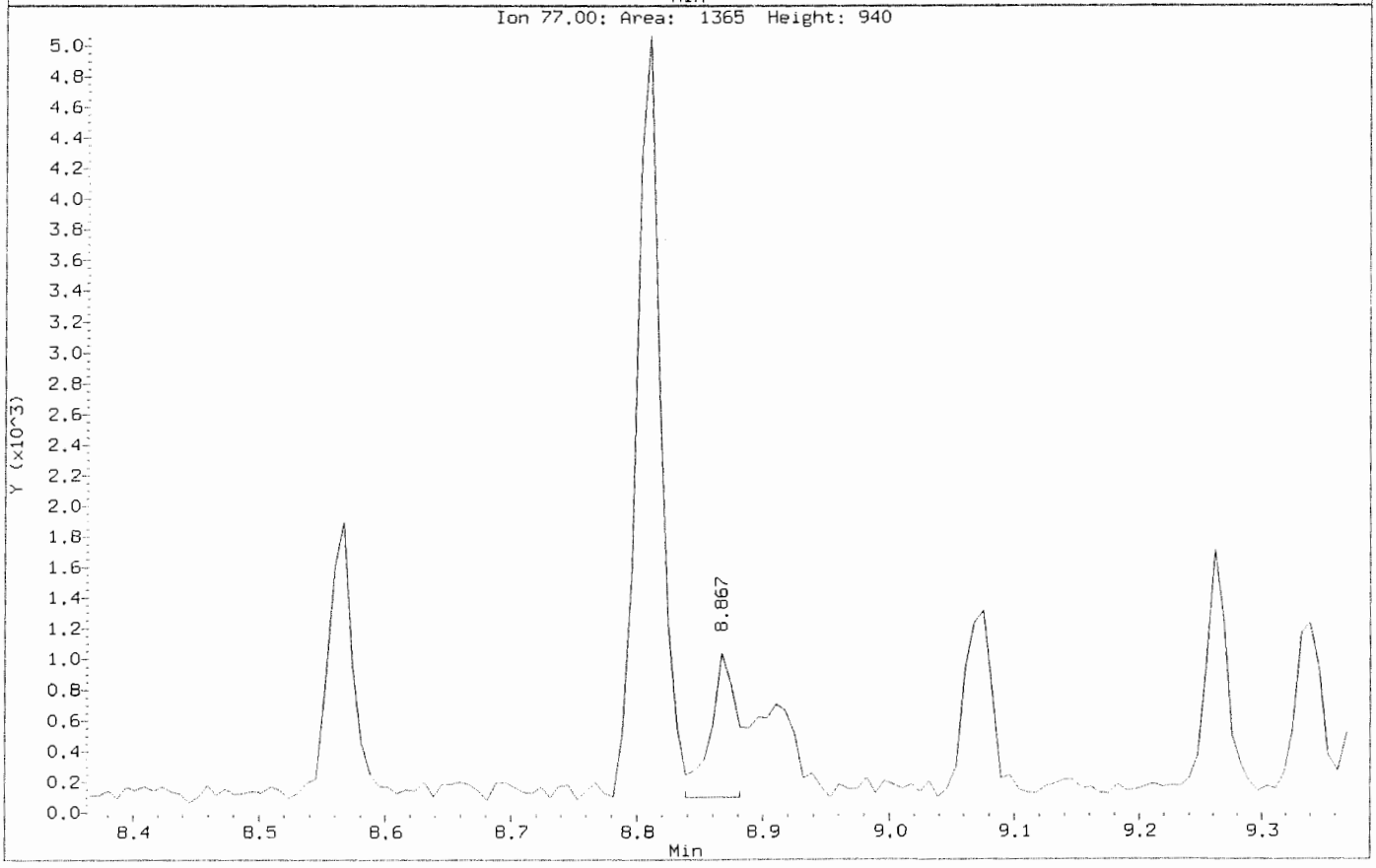
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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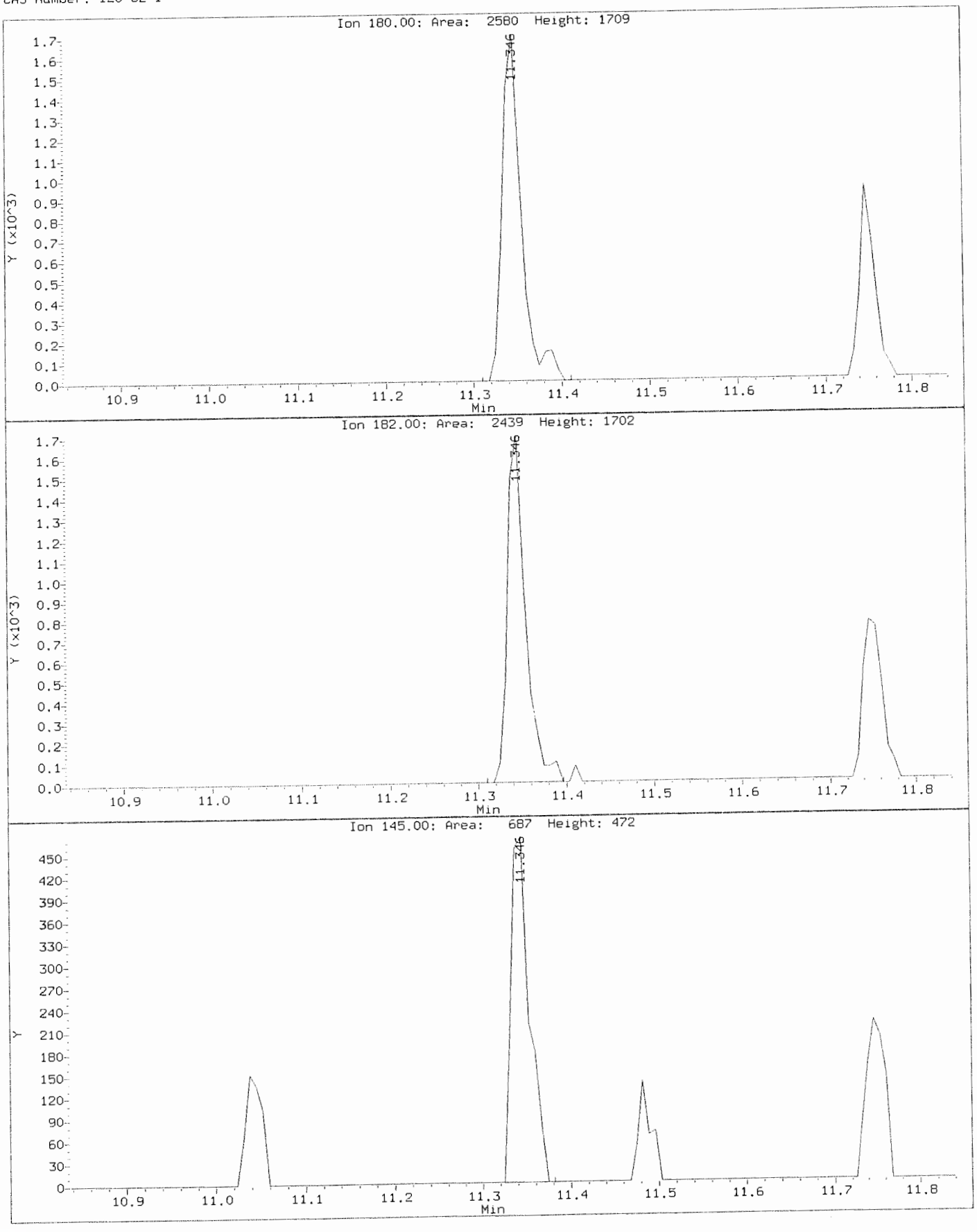
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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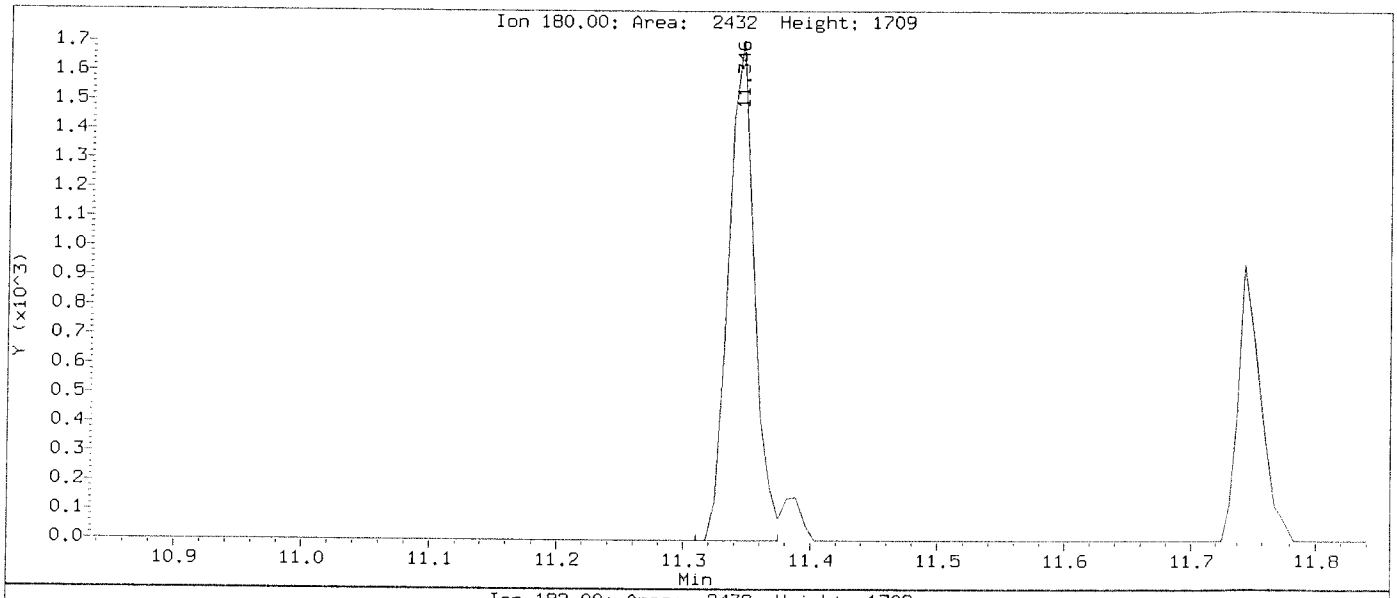
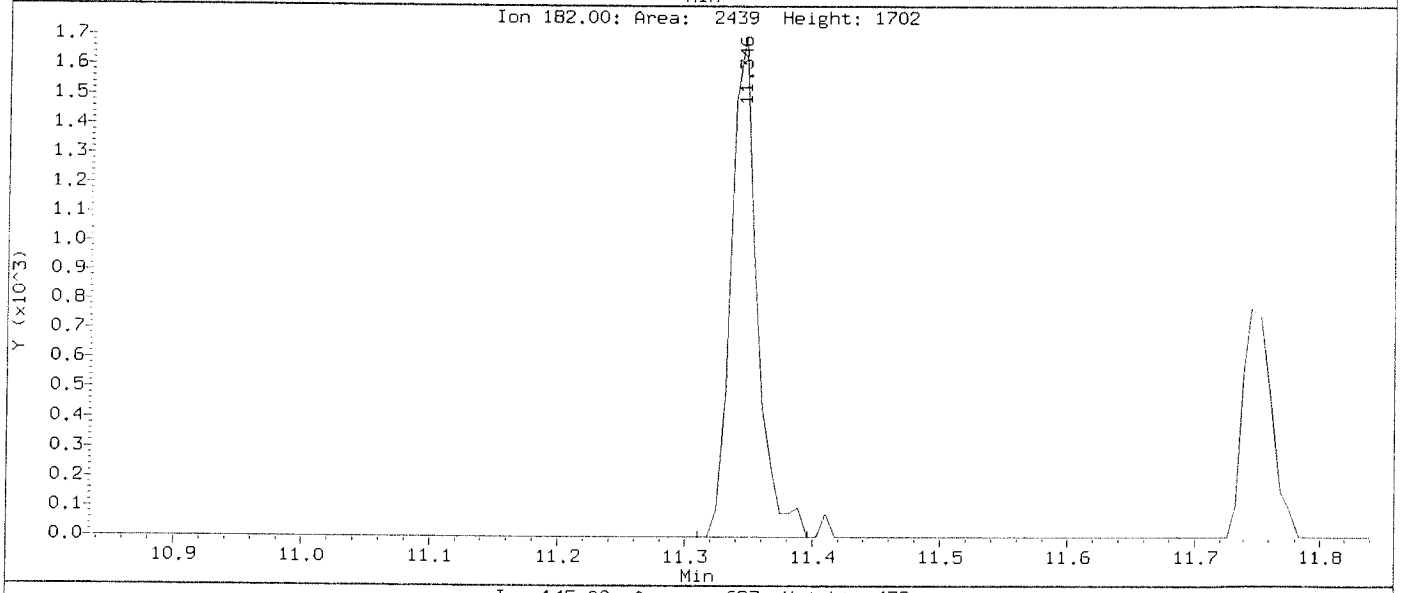
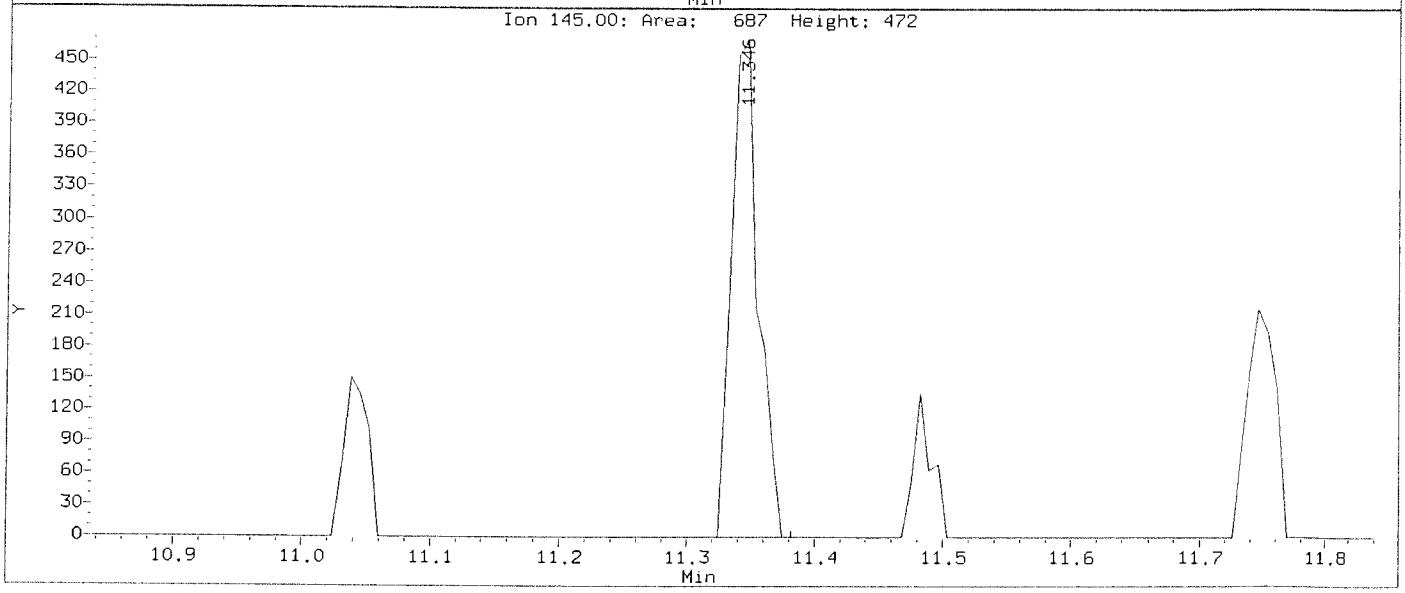
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1







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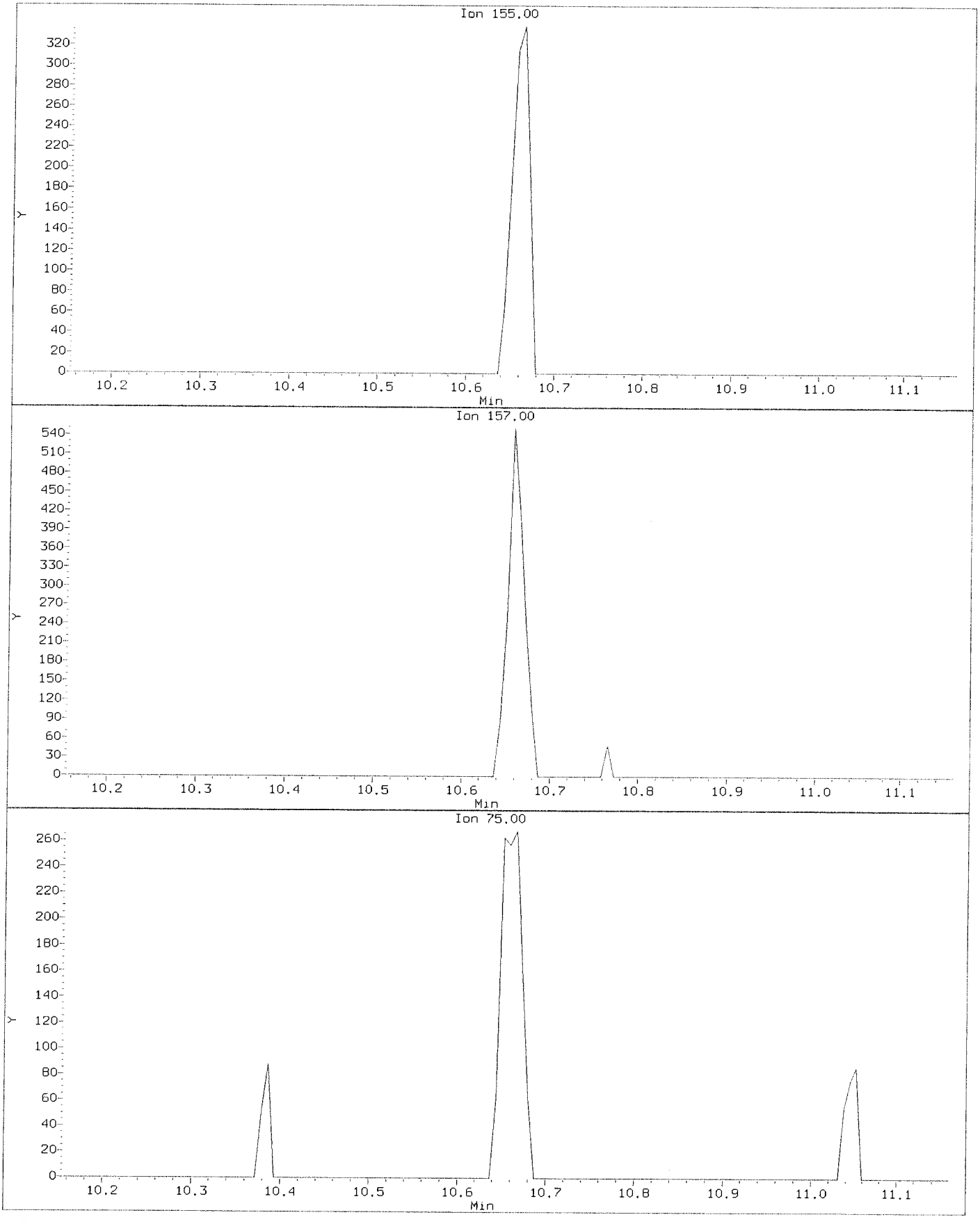
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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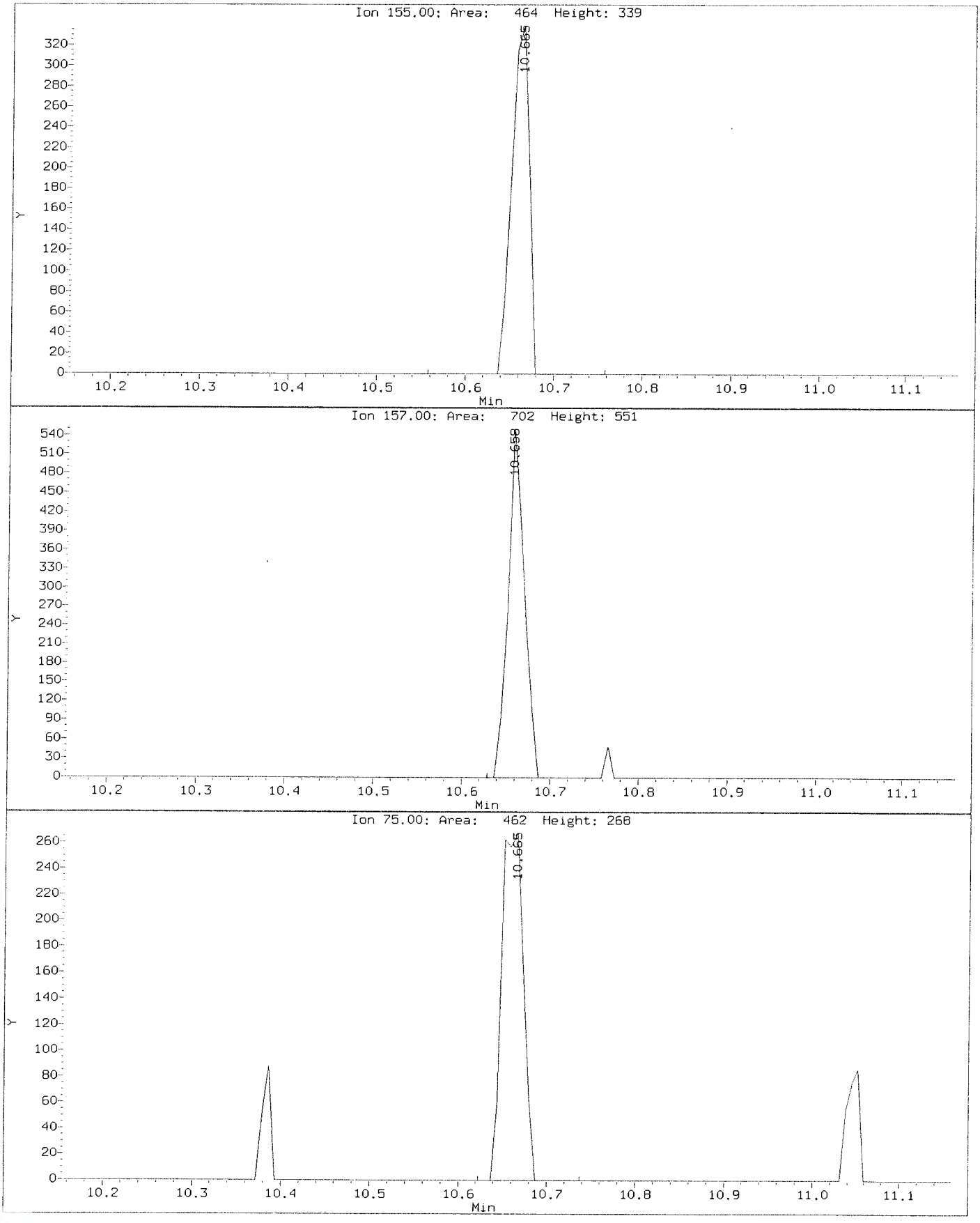
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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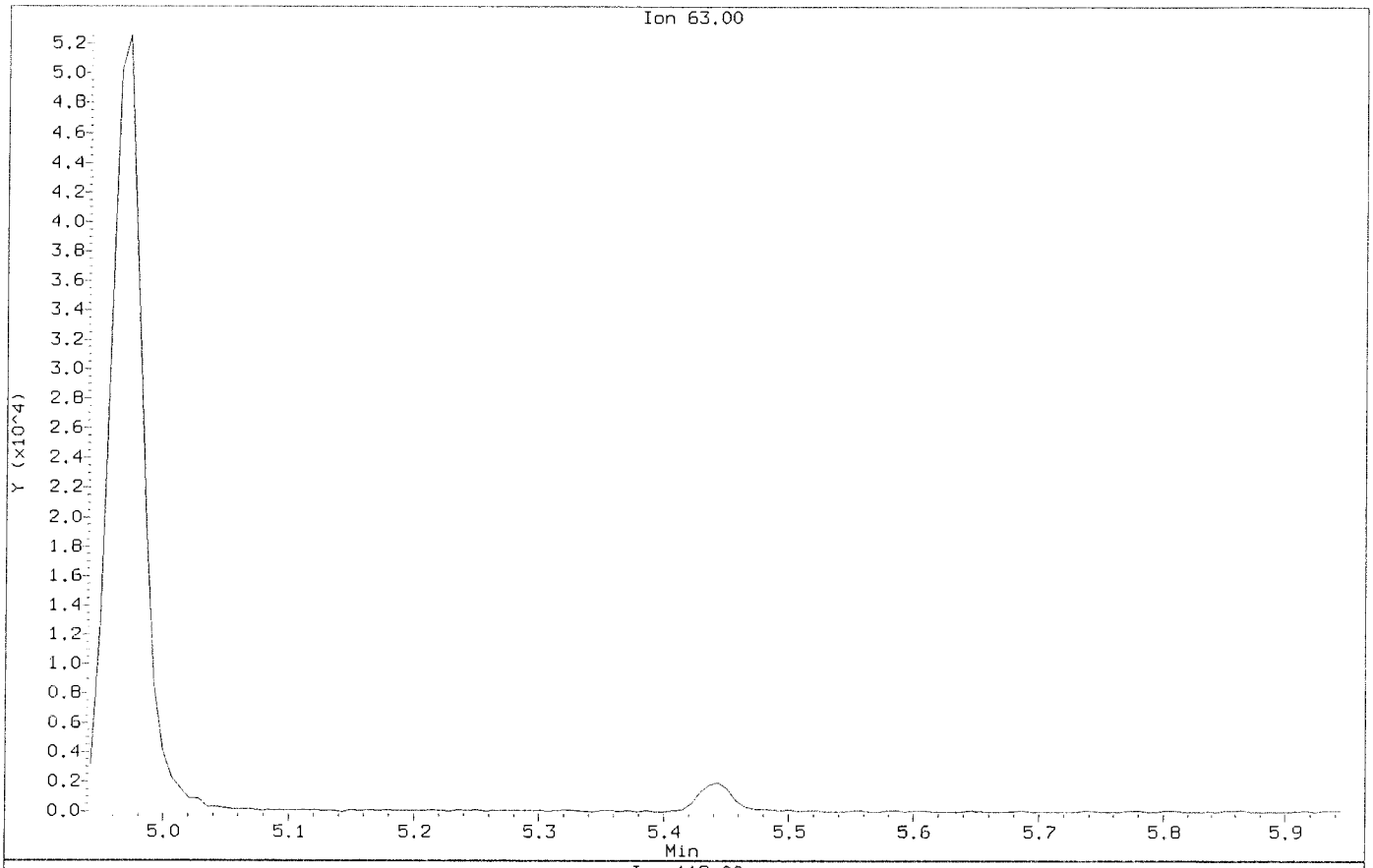
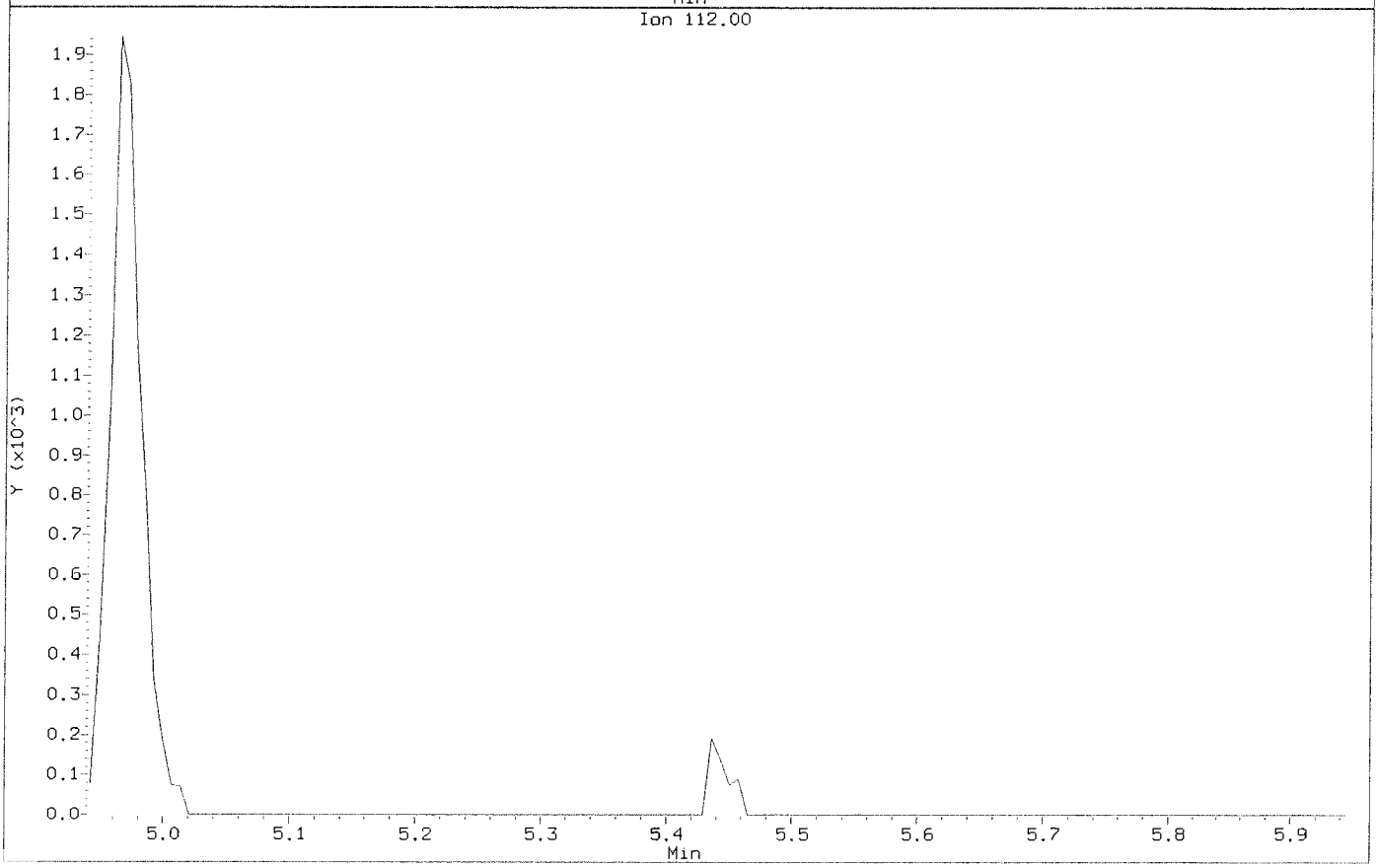
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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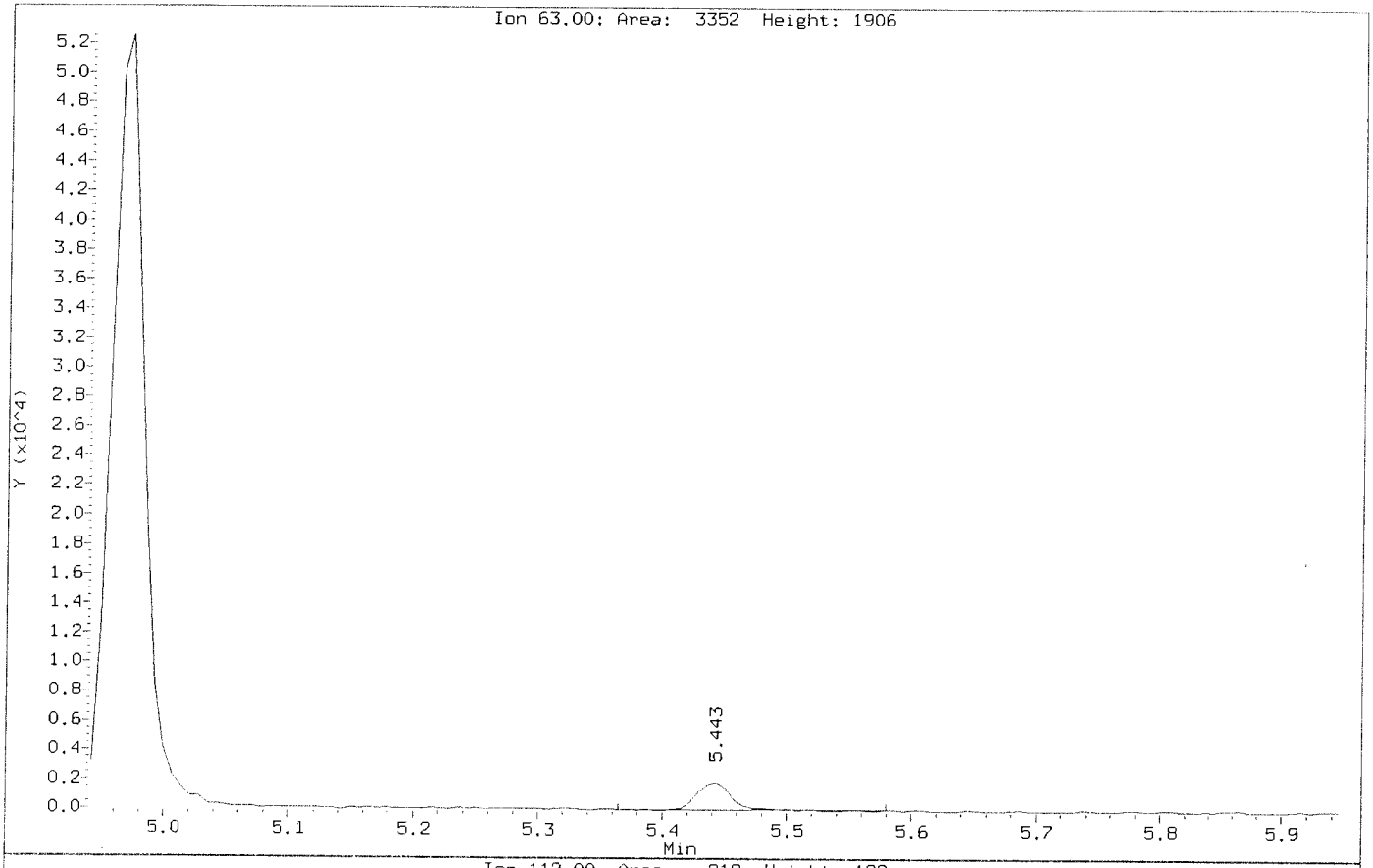
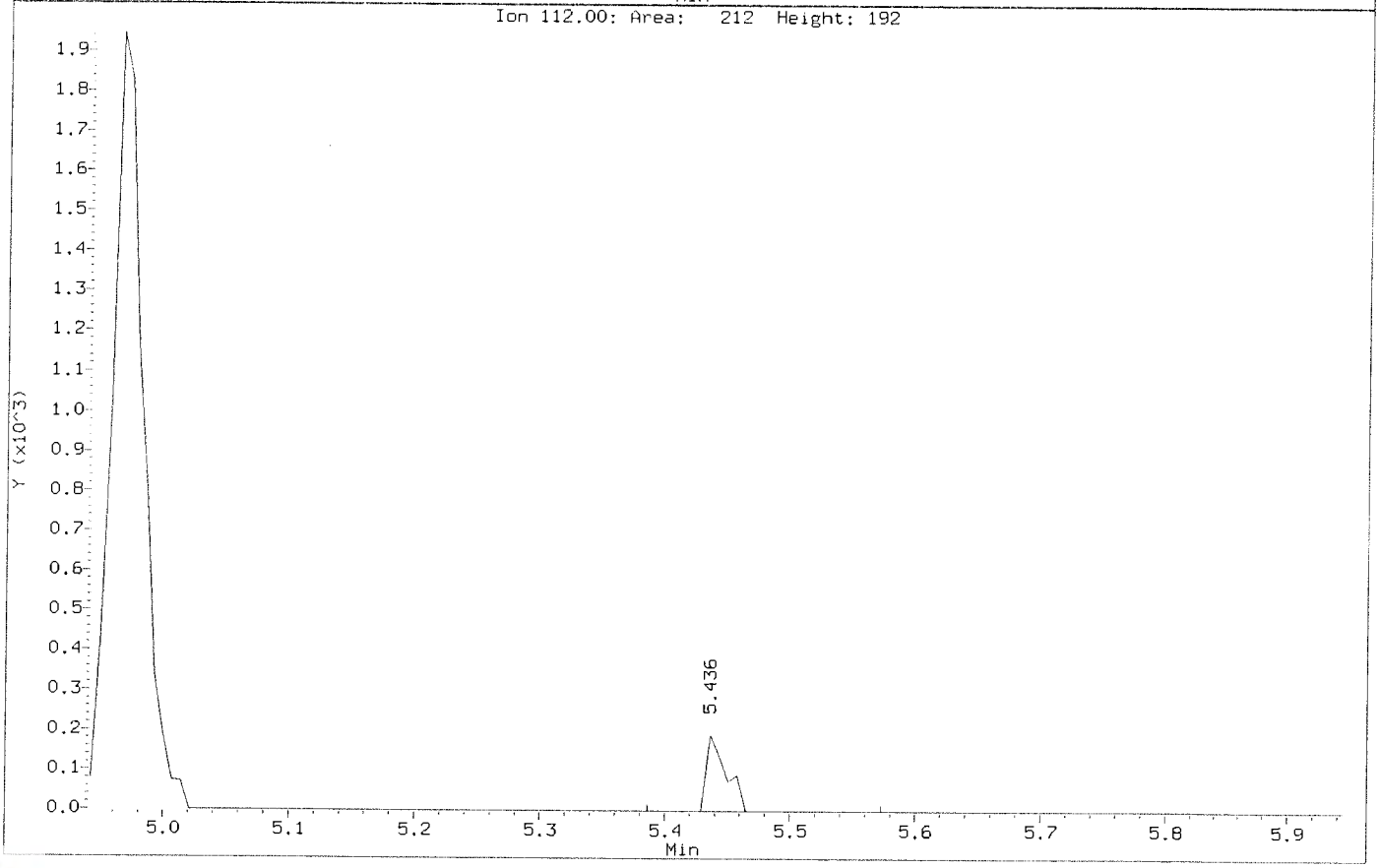
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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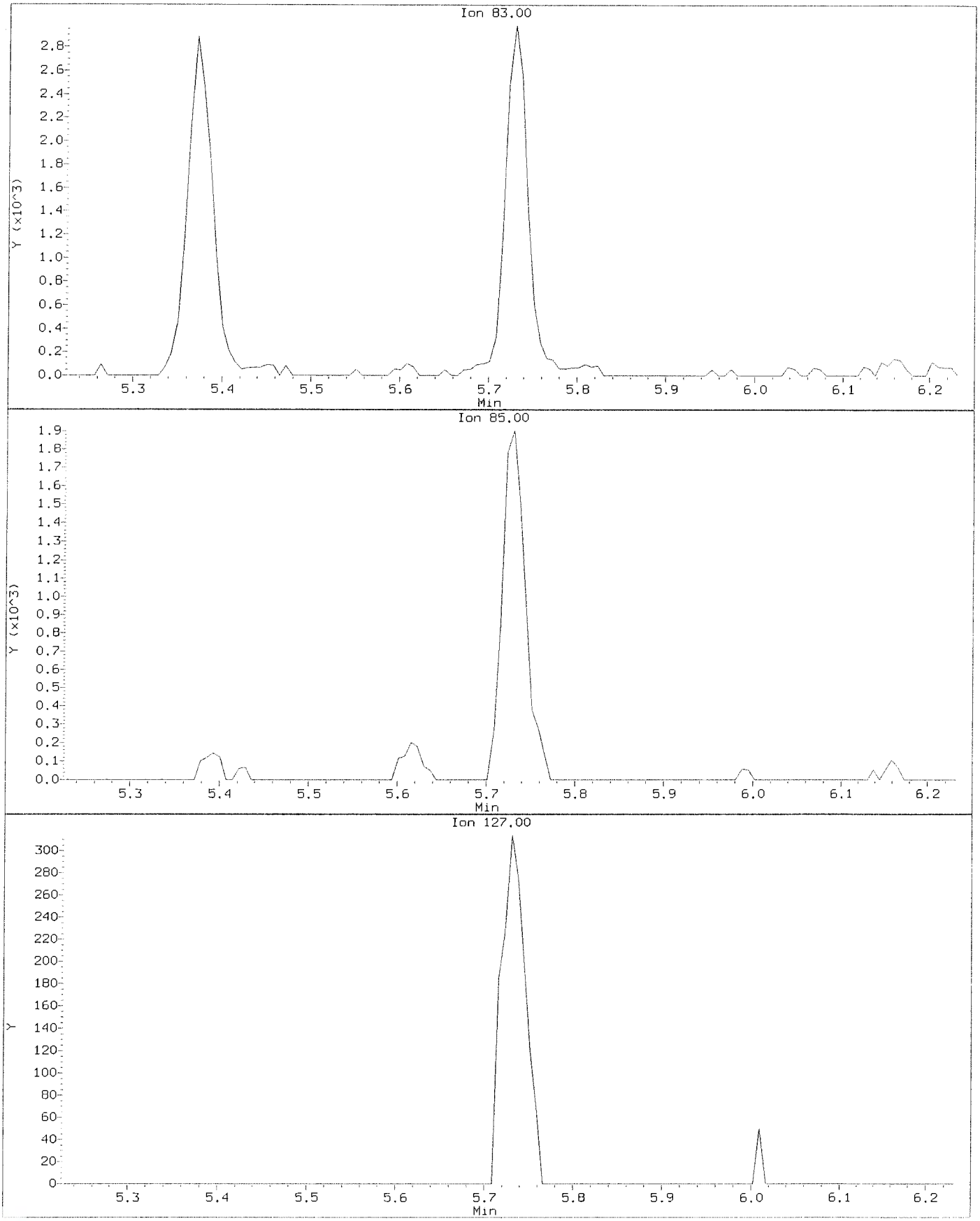
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



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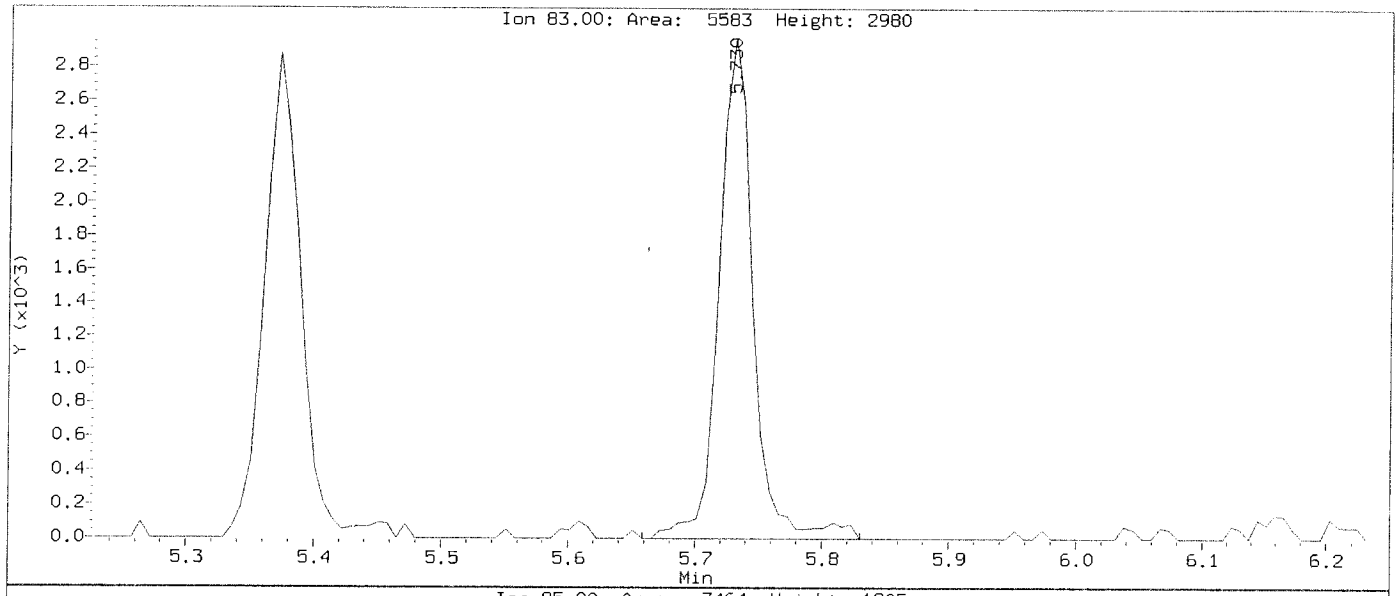
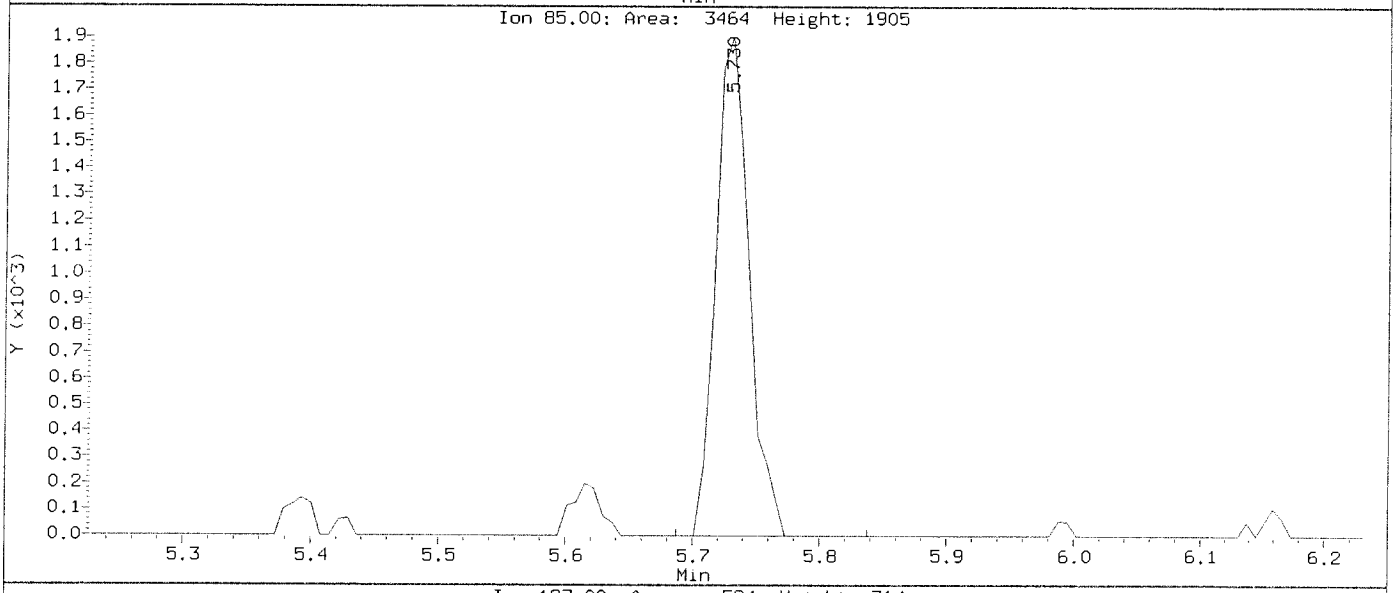
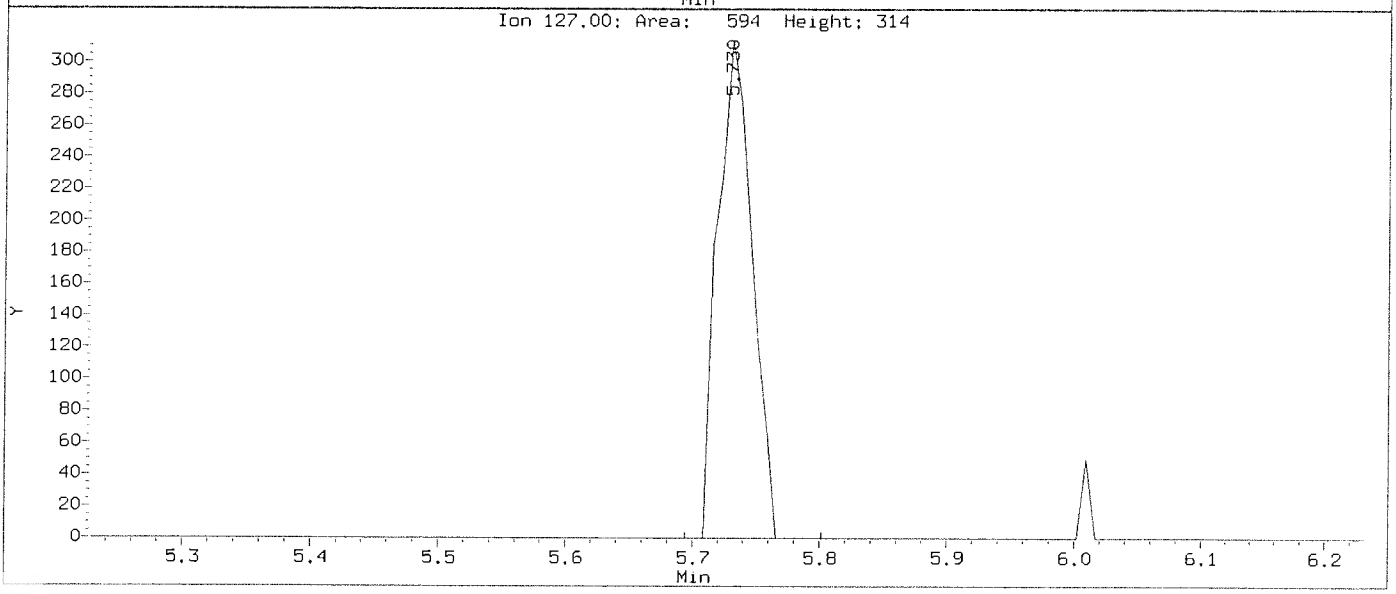
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4







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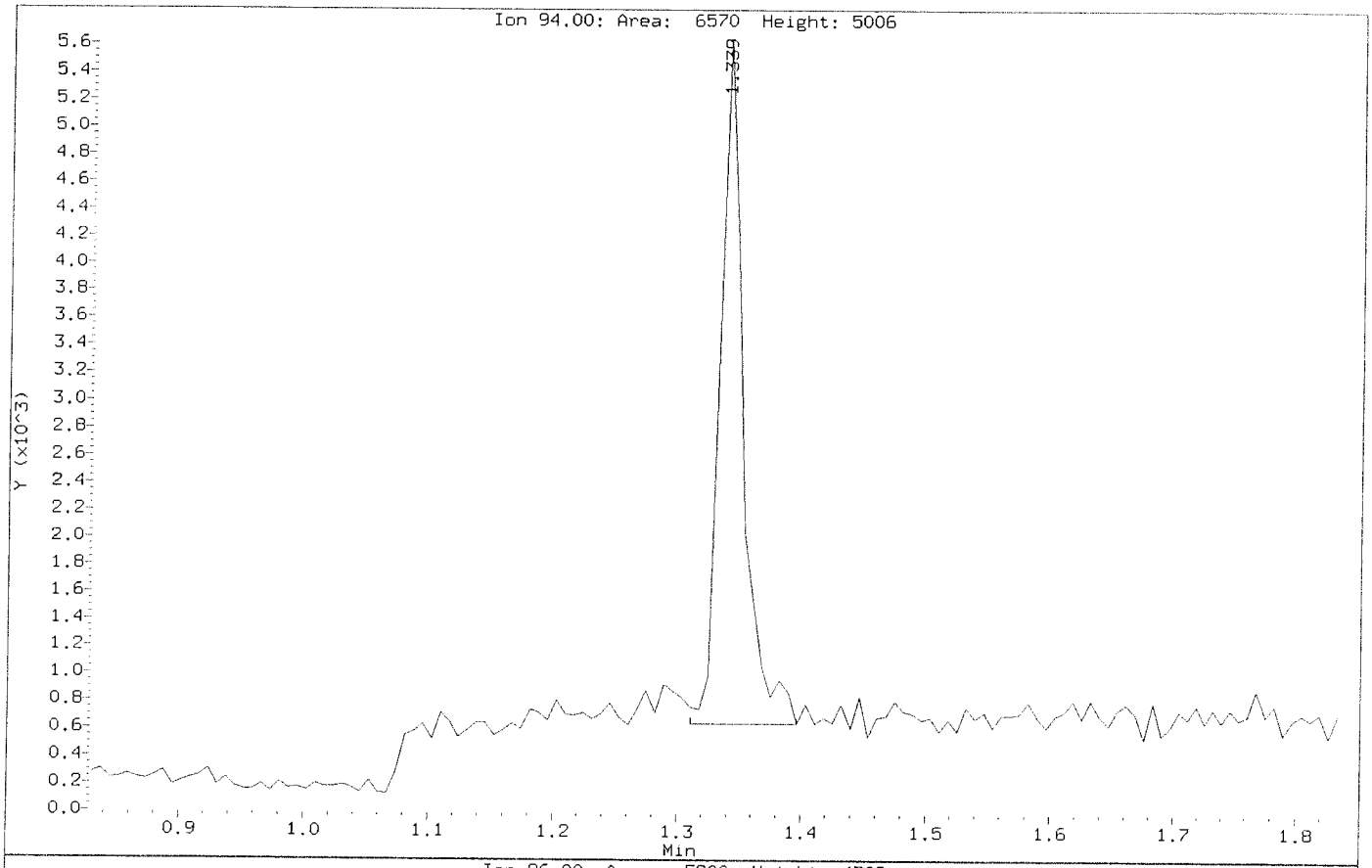
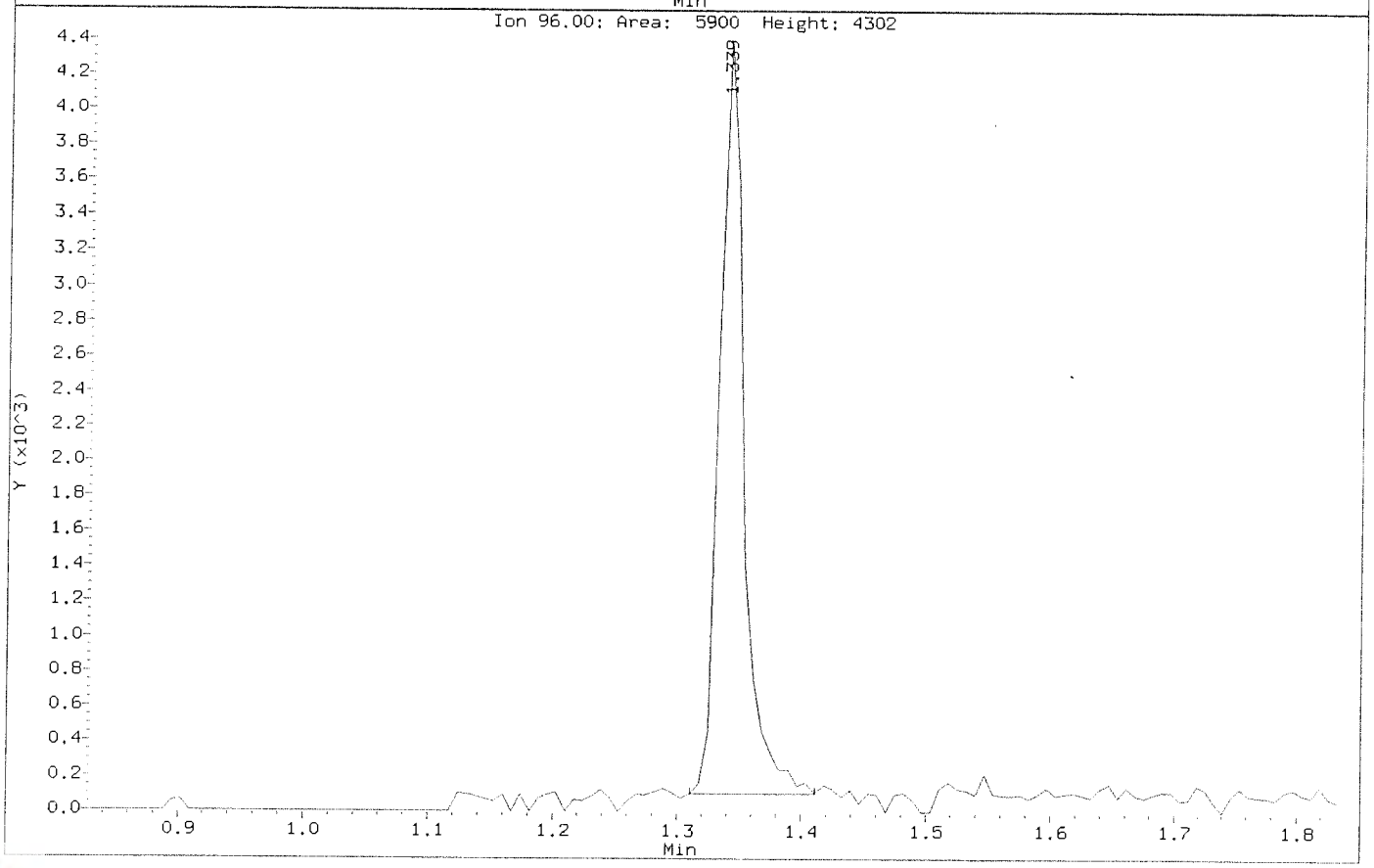
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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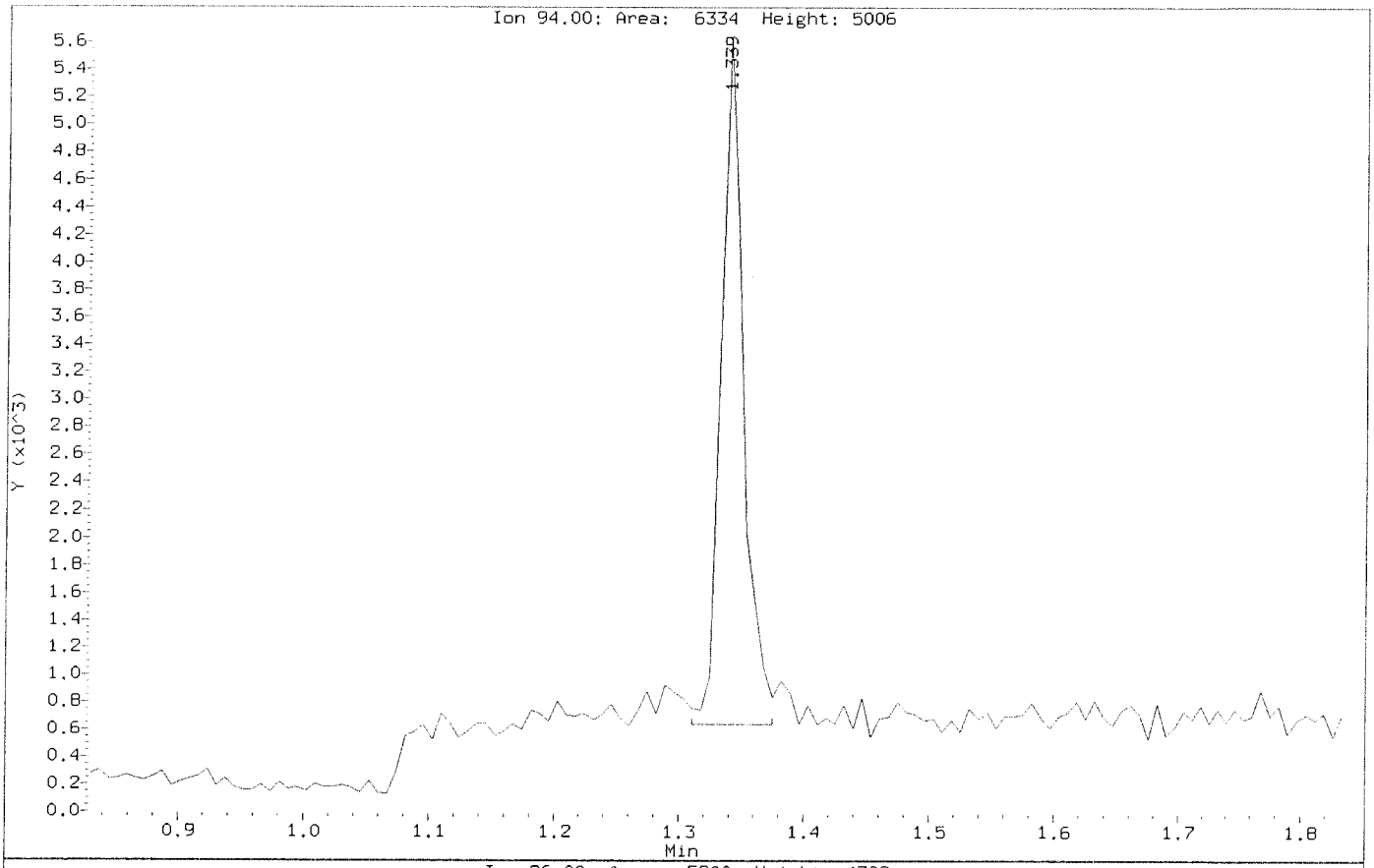
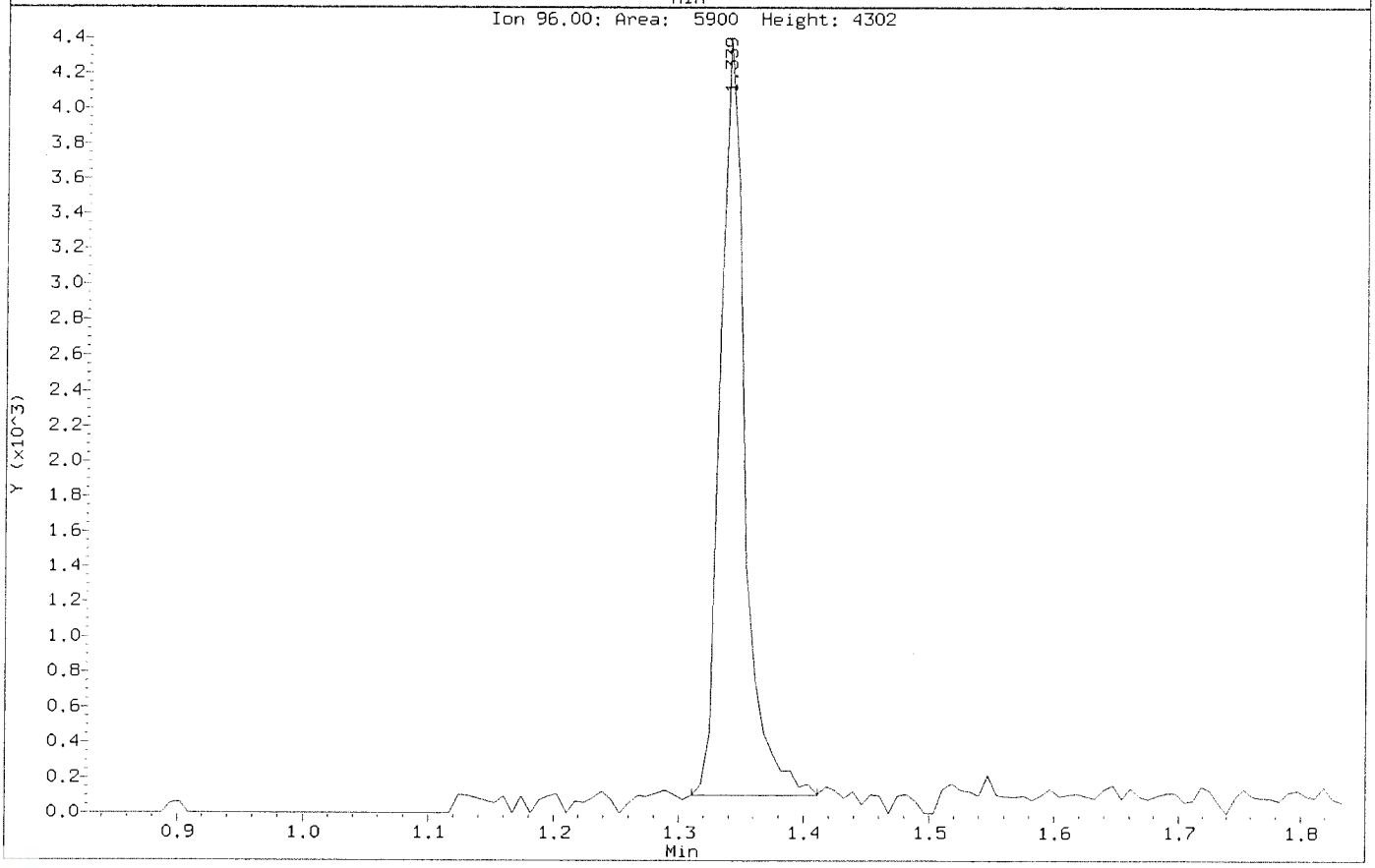
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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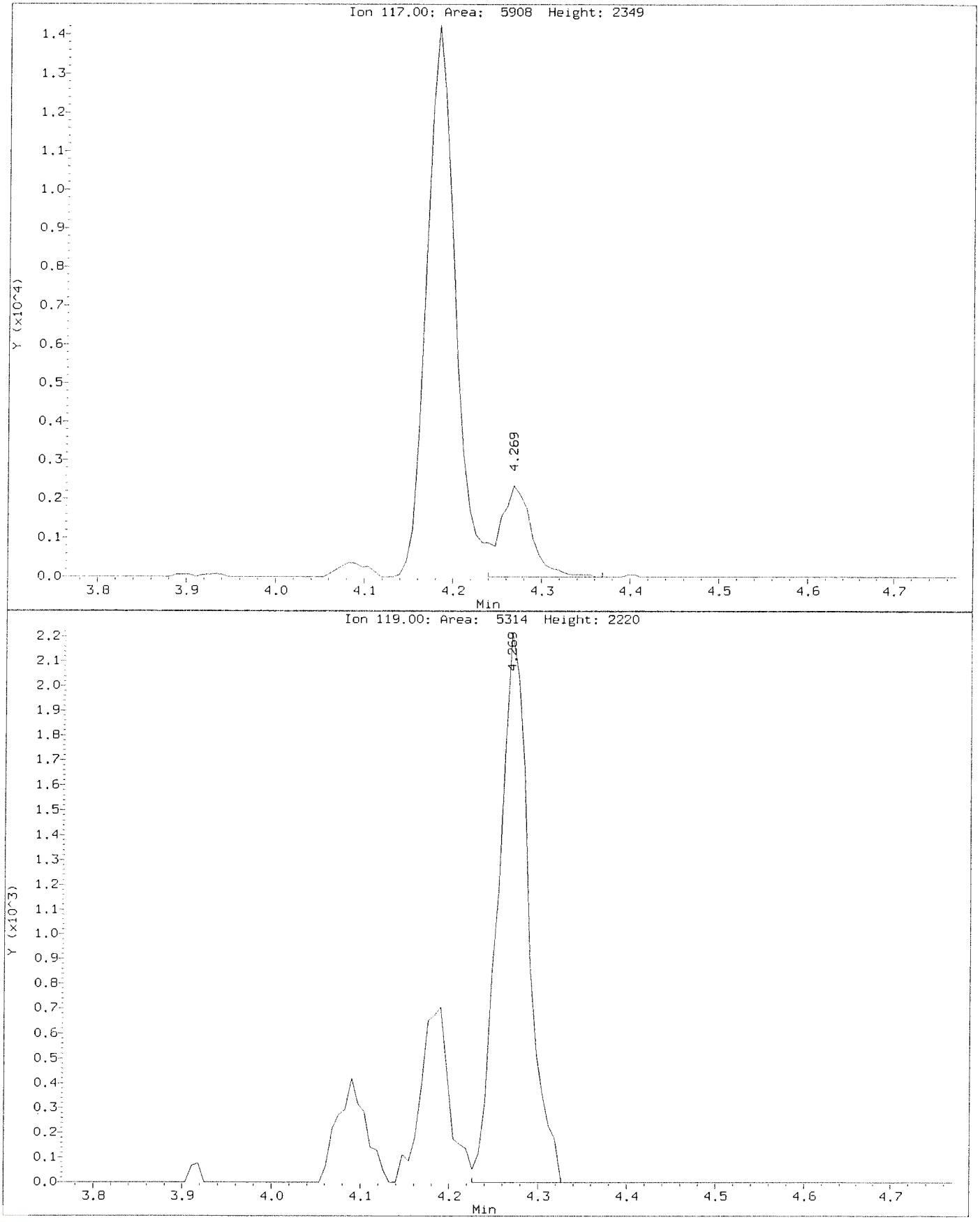
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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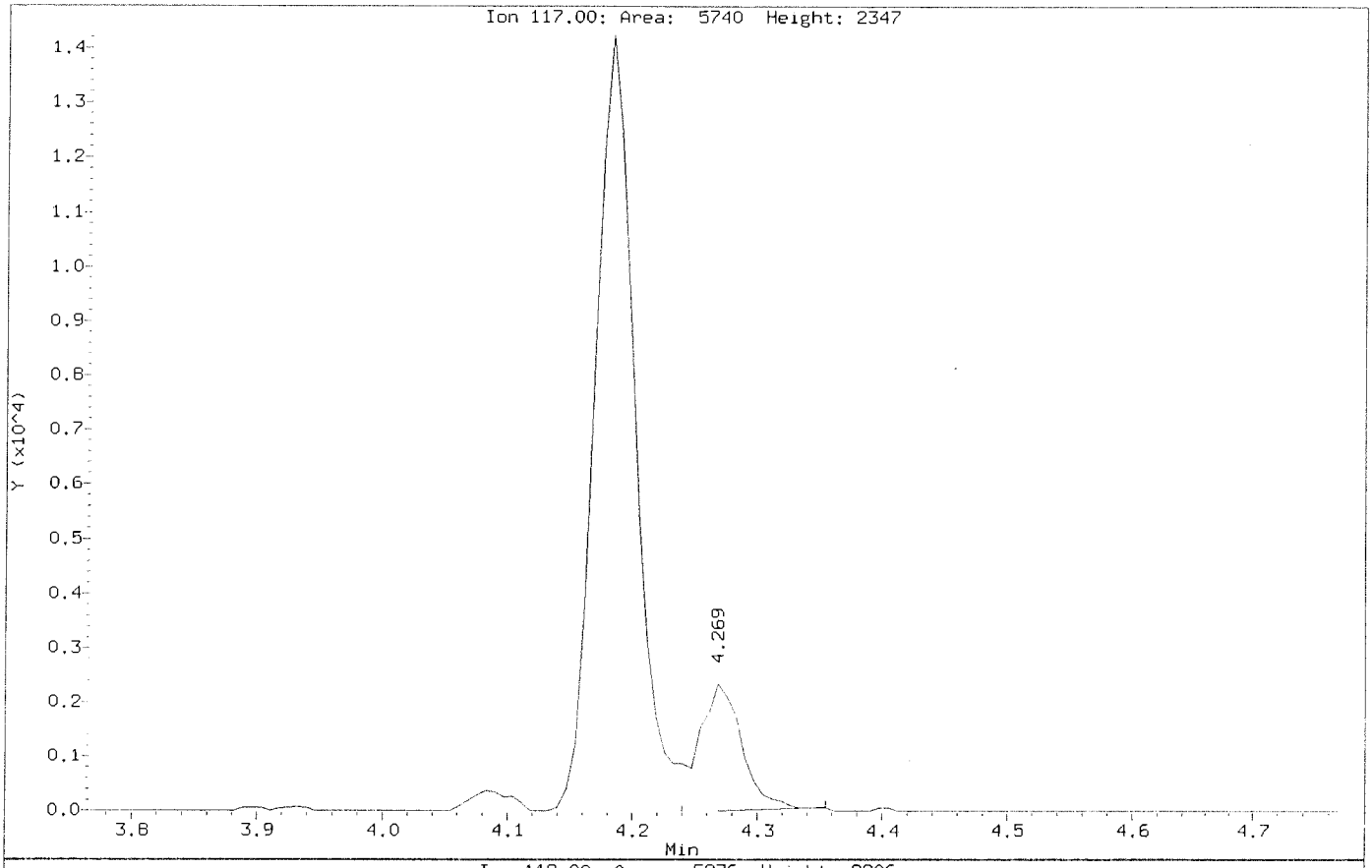
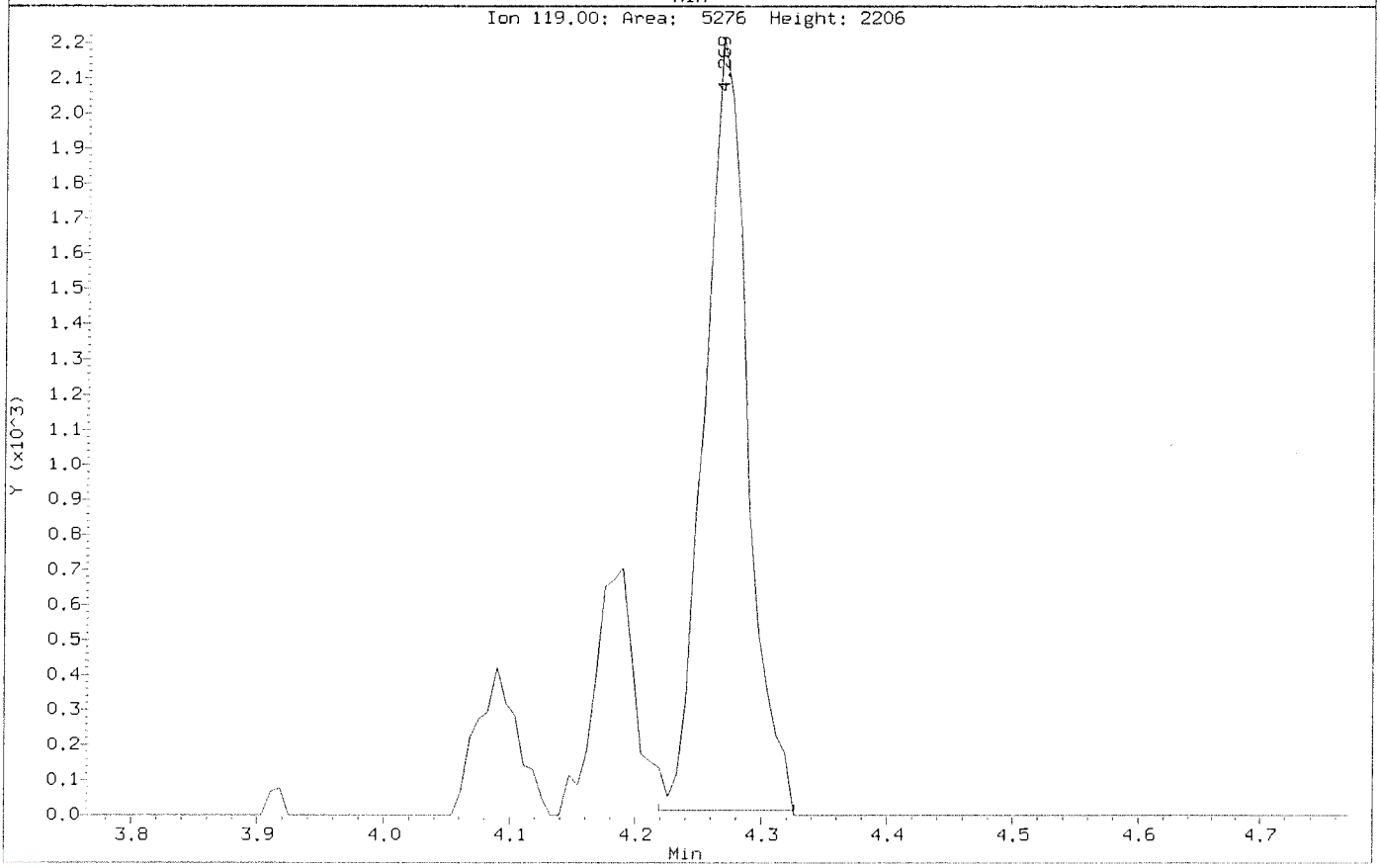
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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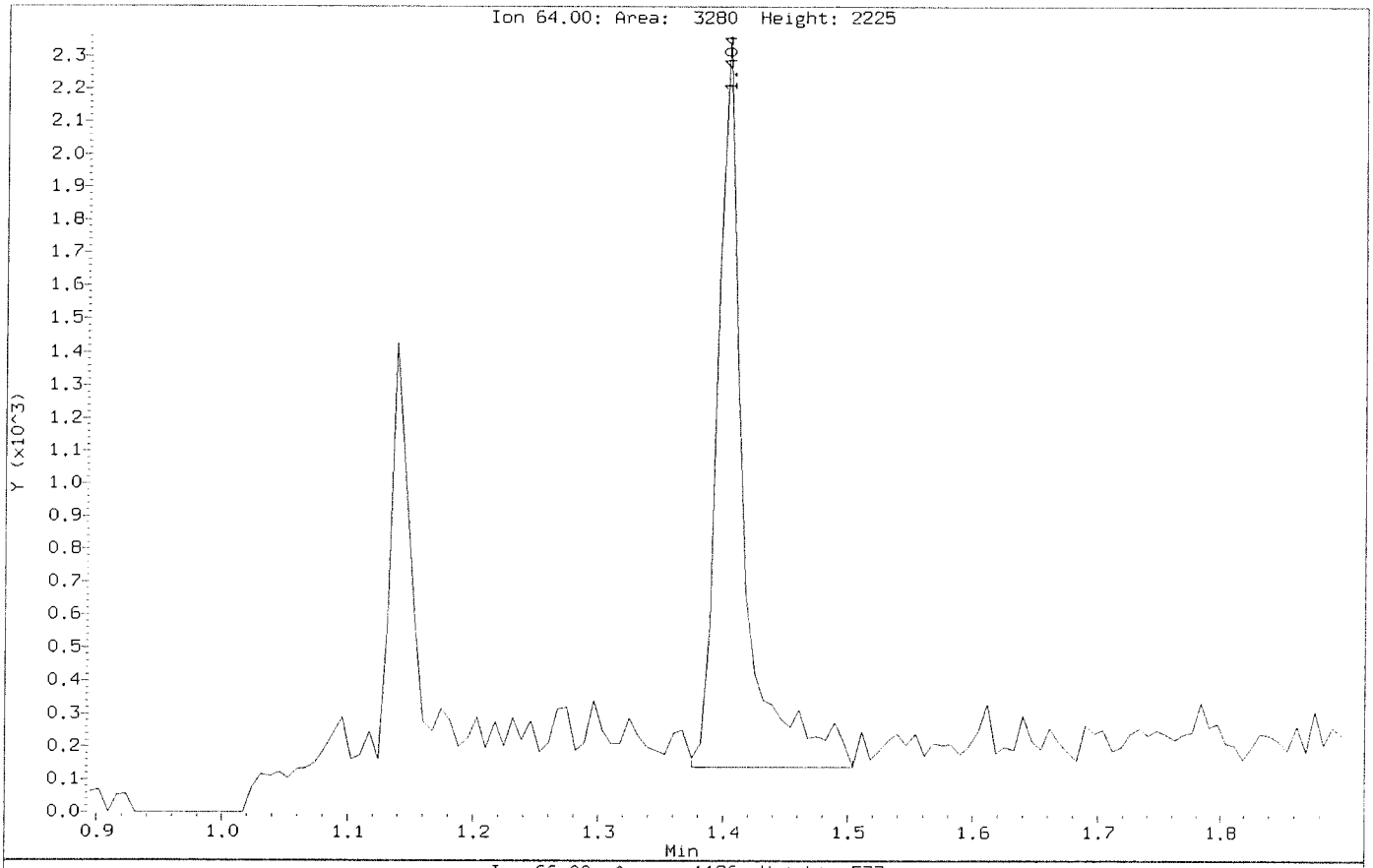
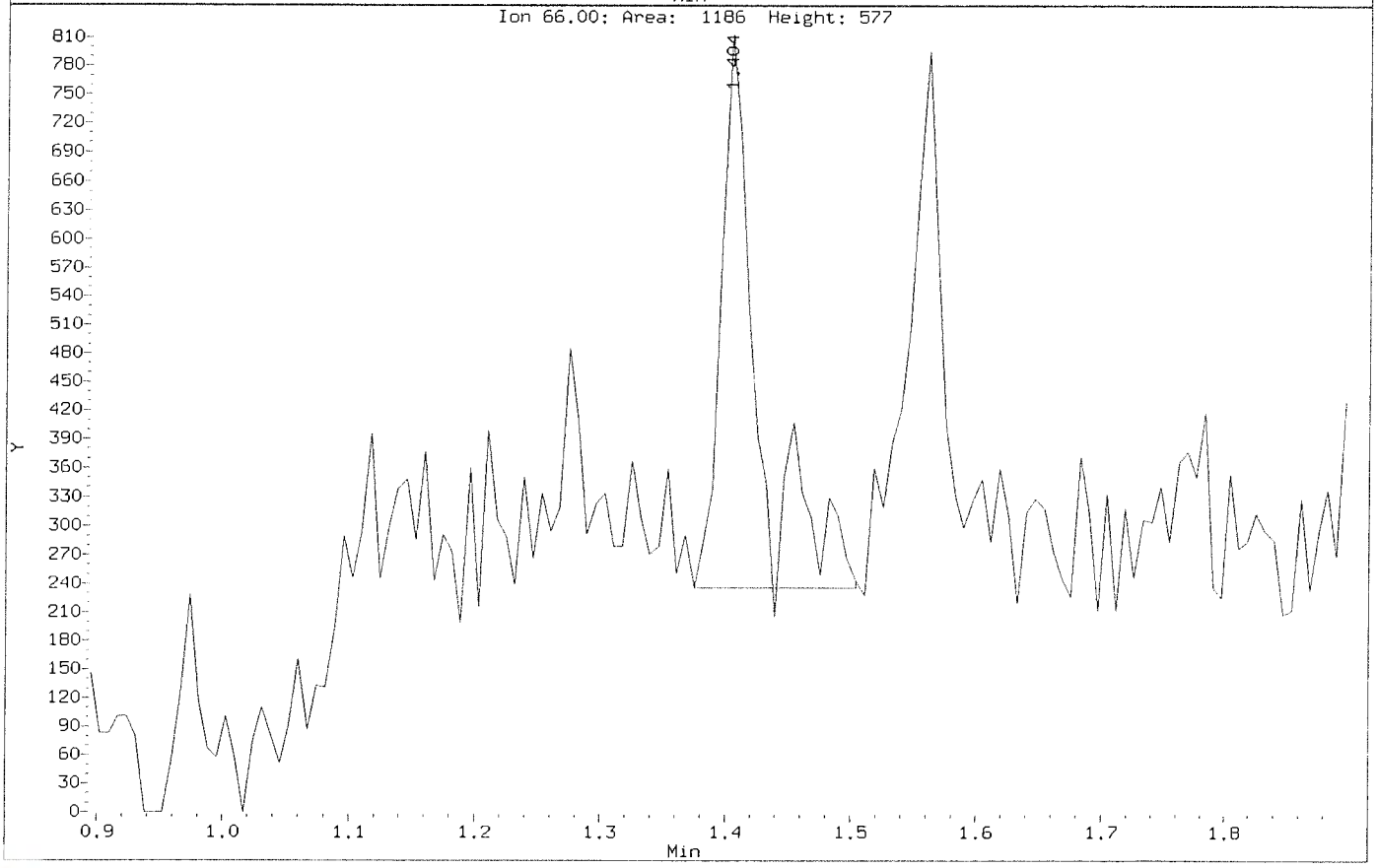
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3





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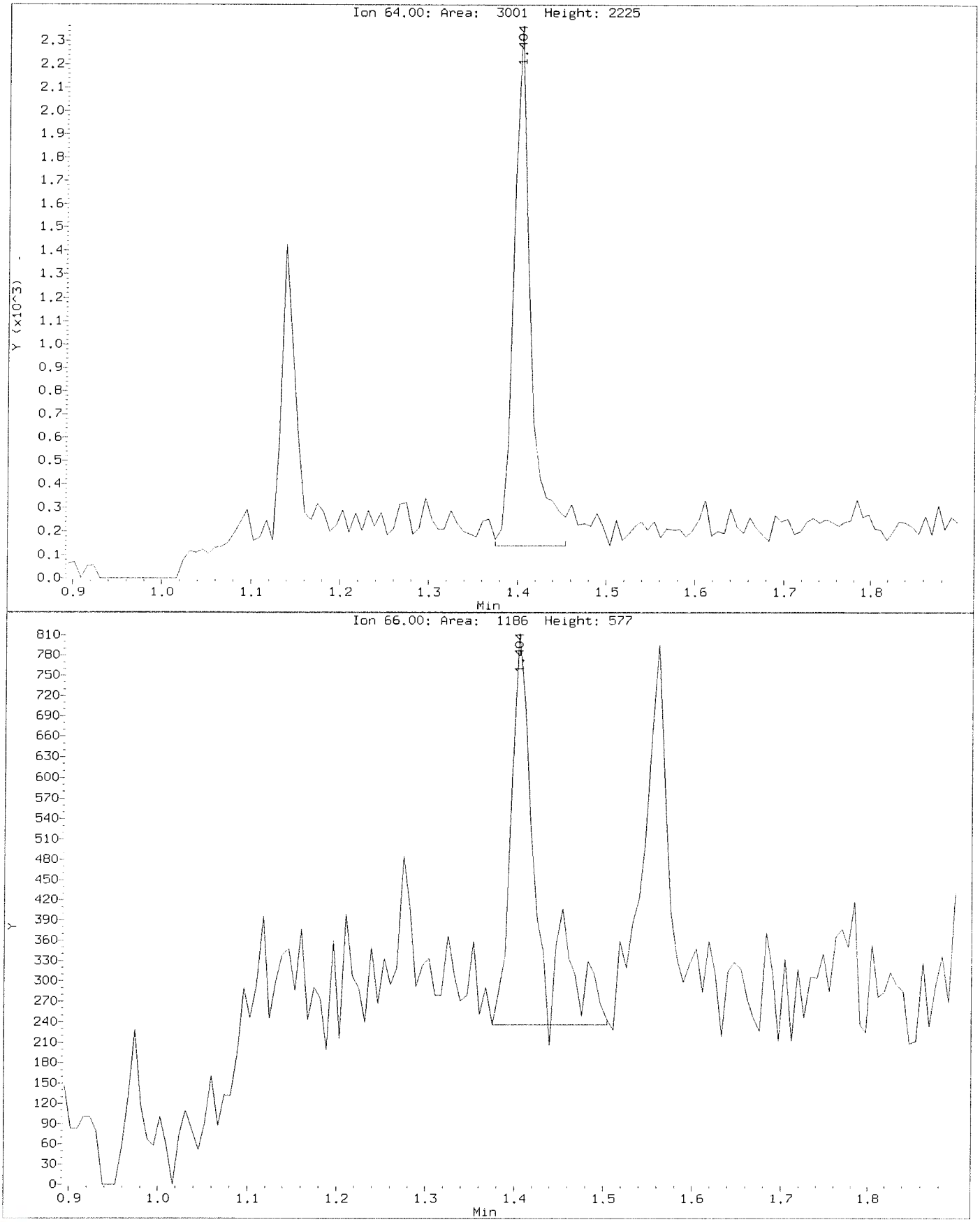
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloroethane
CAS Number: 75-00-3



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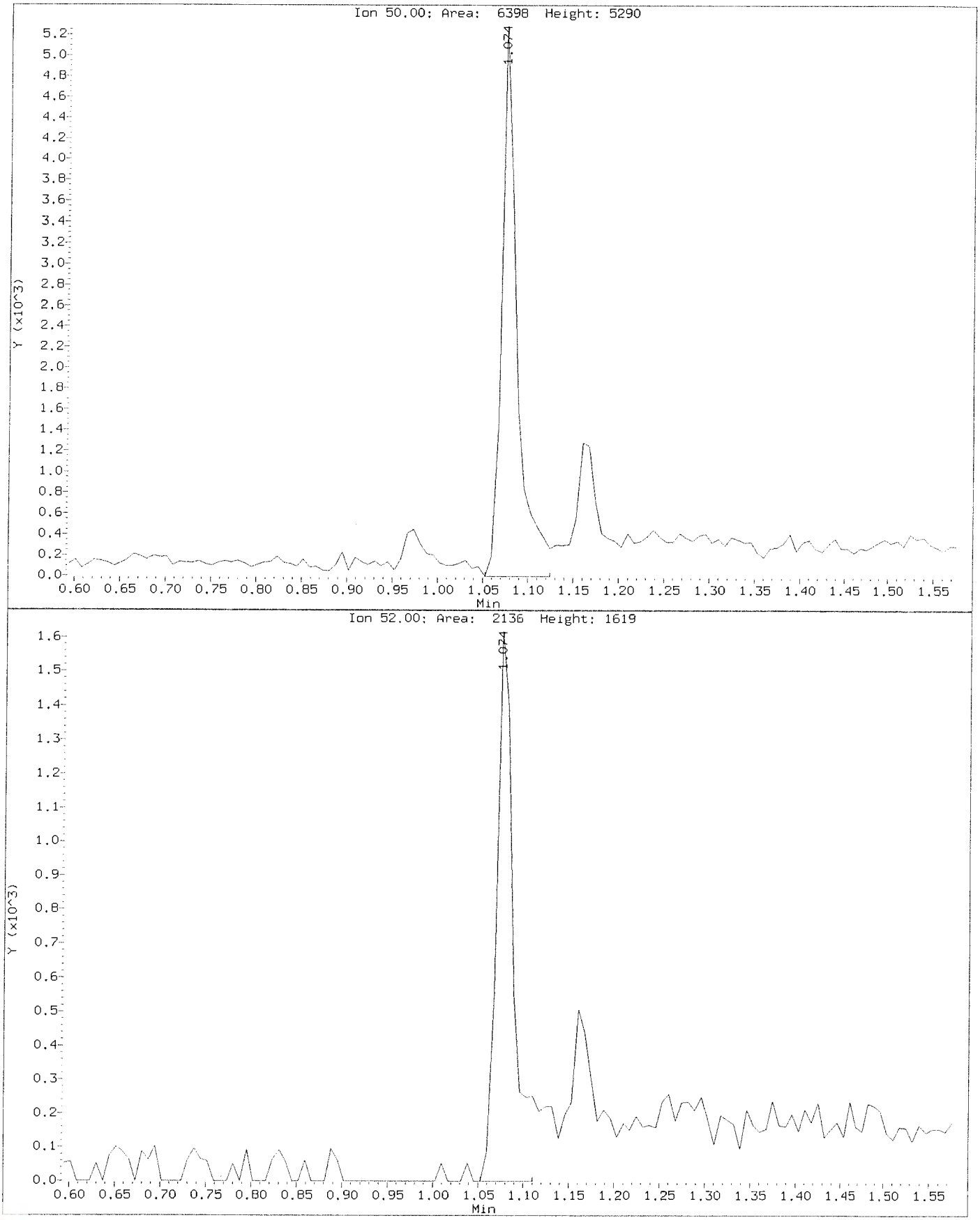
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



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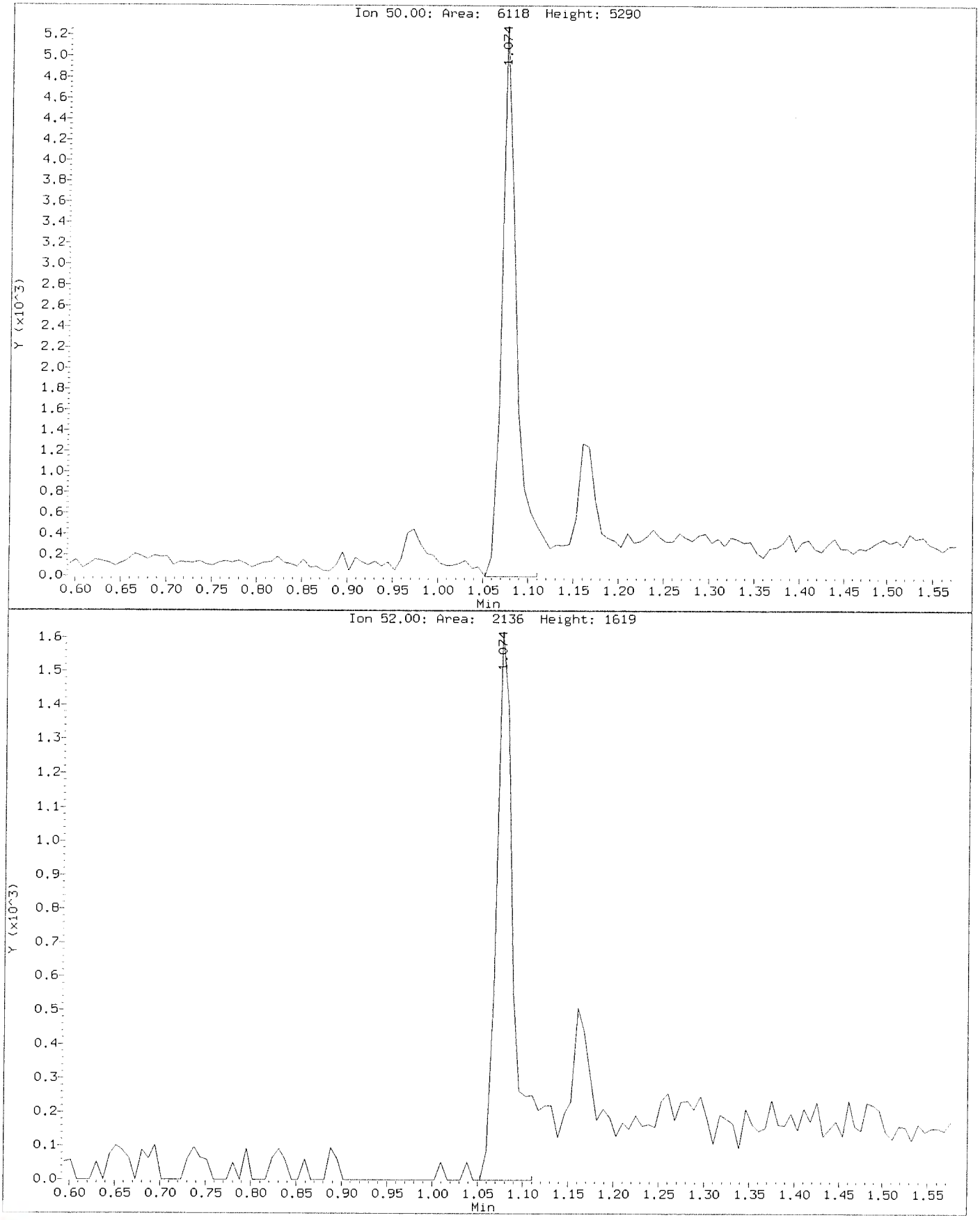
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Chloromethane
CAS Number: 74-87-3



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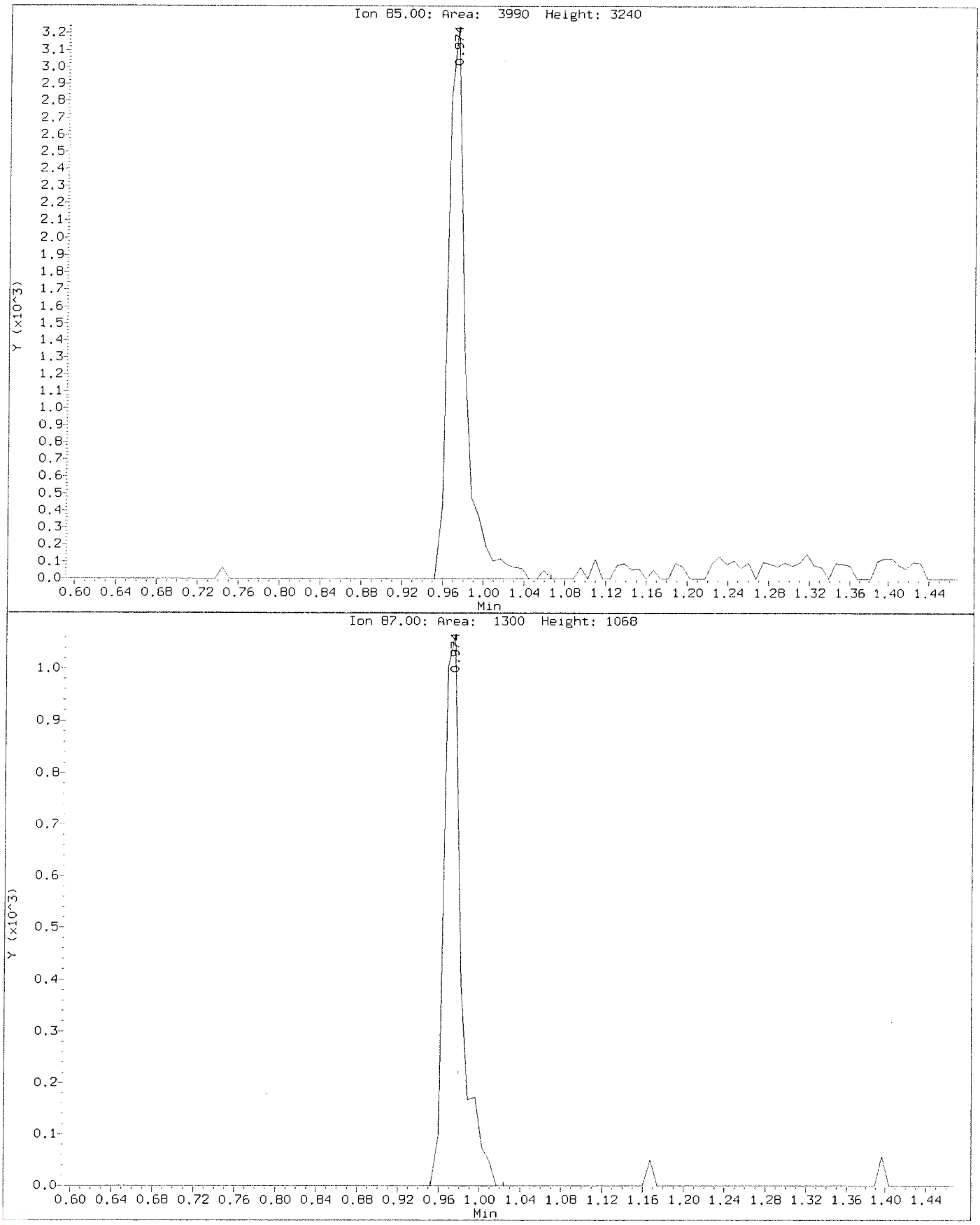
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8



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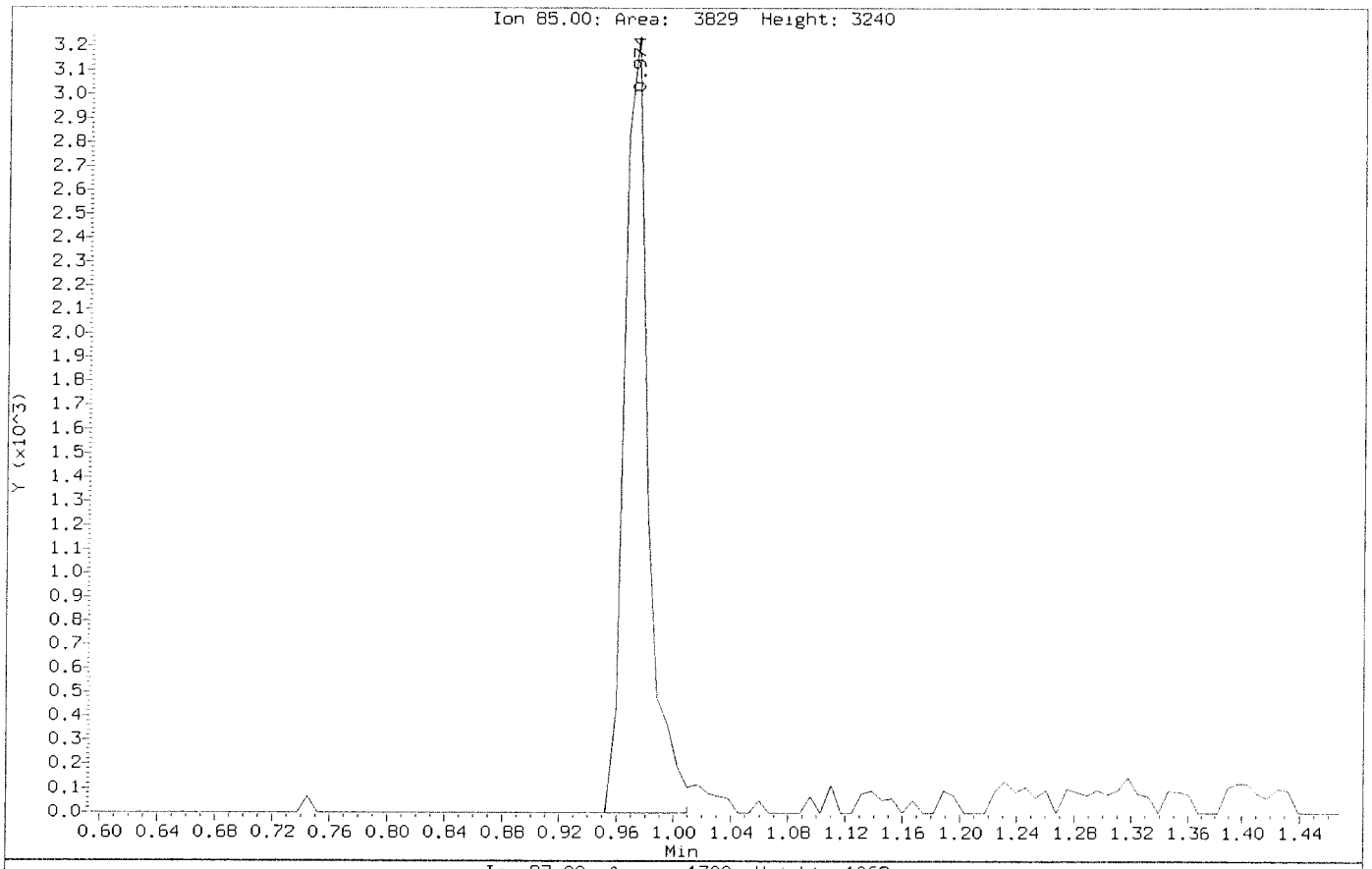
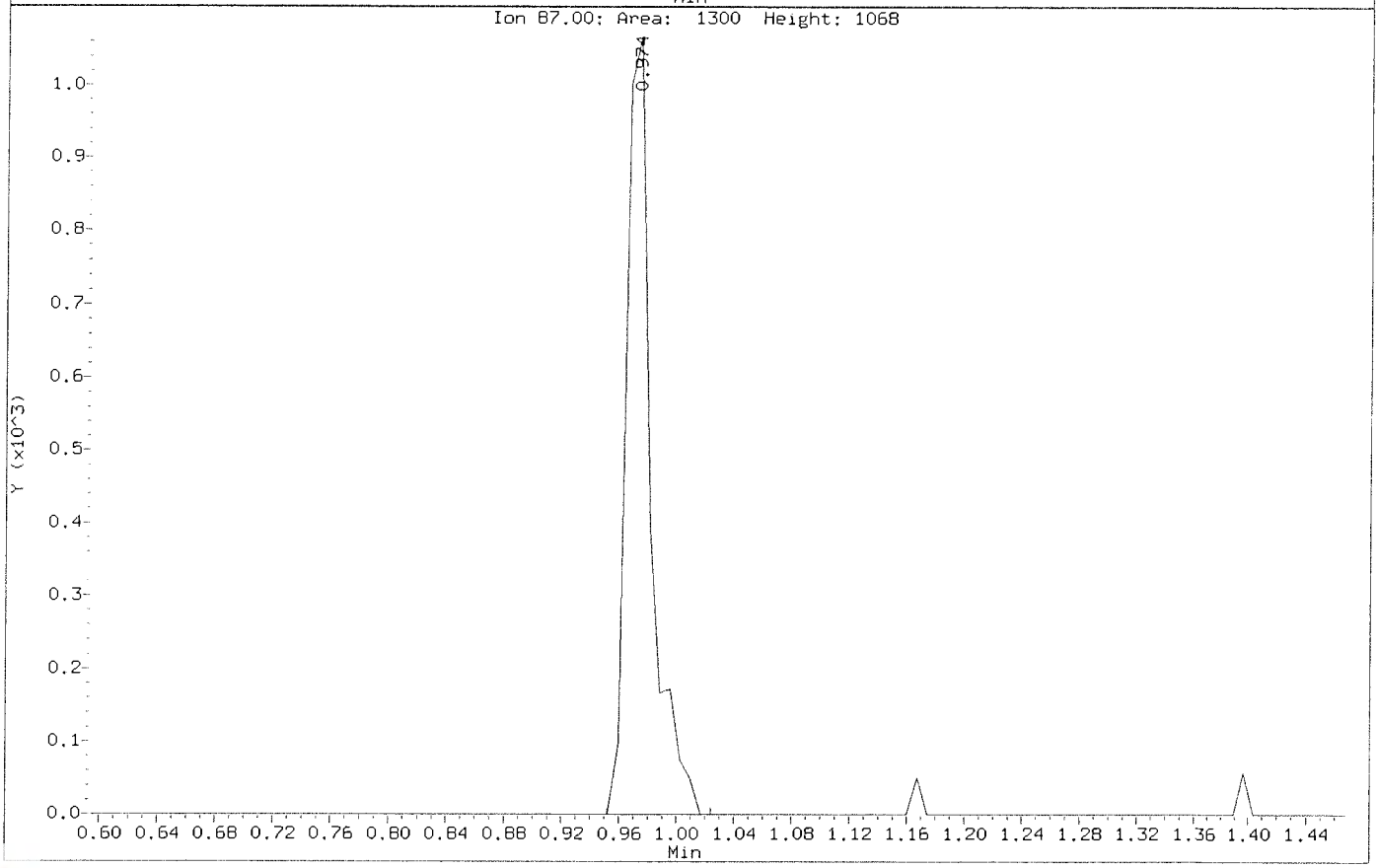
Client Sample ID: VSTD001

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





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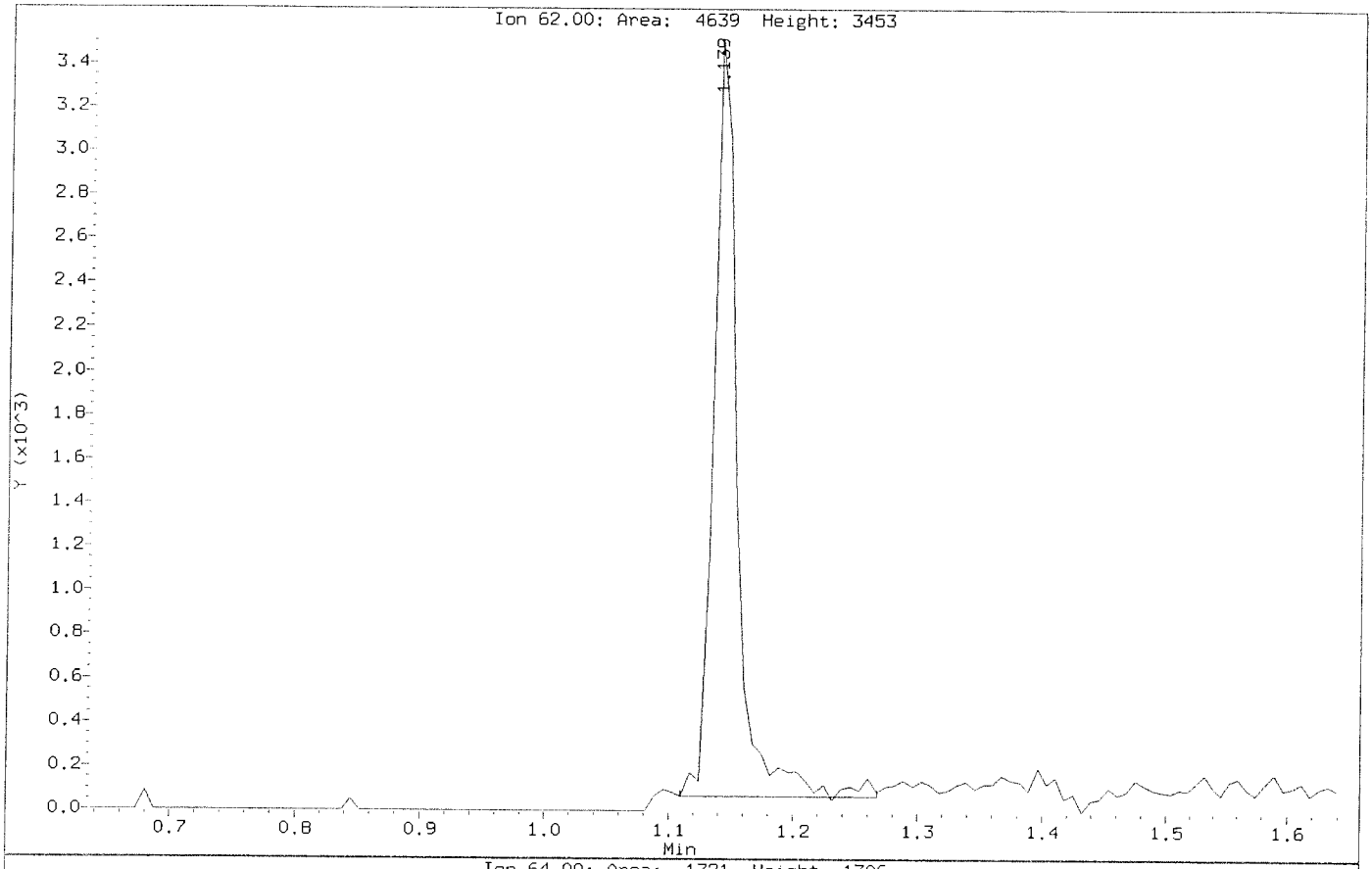
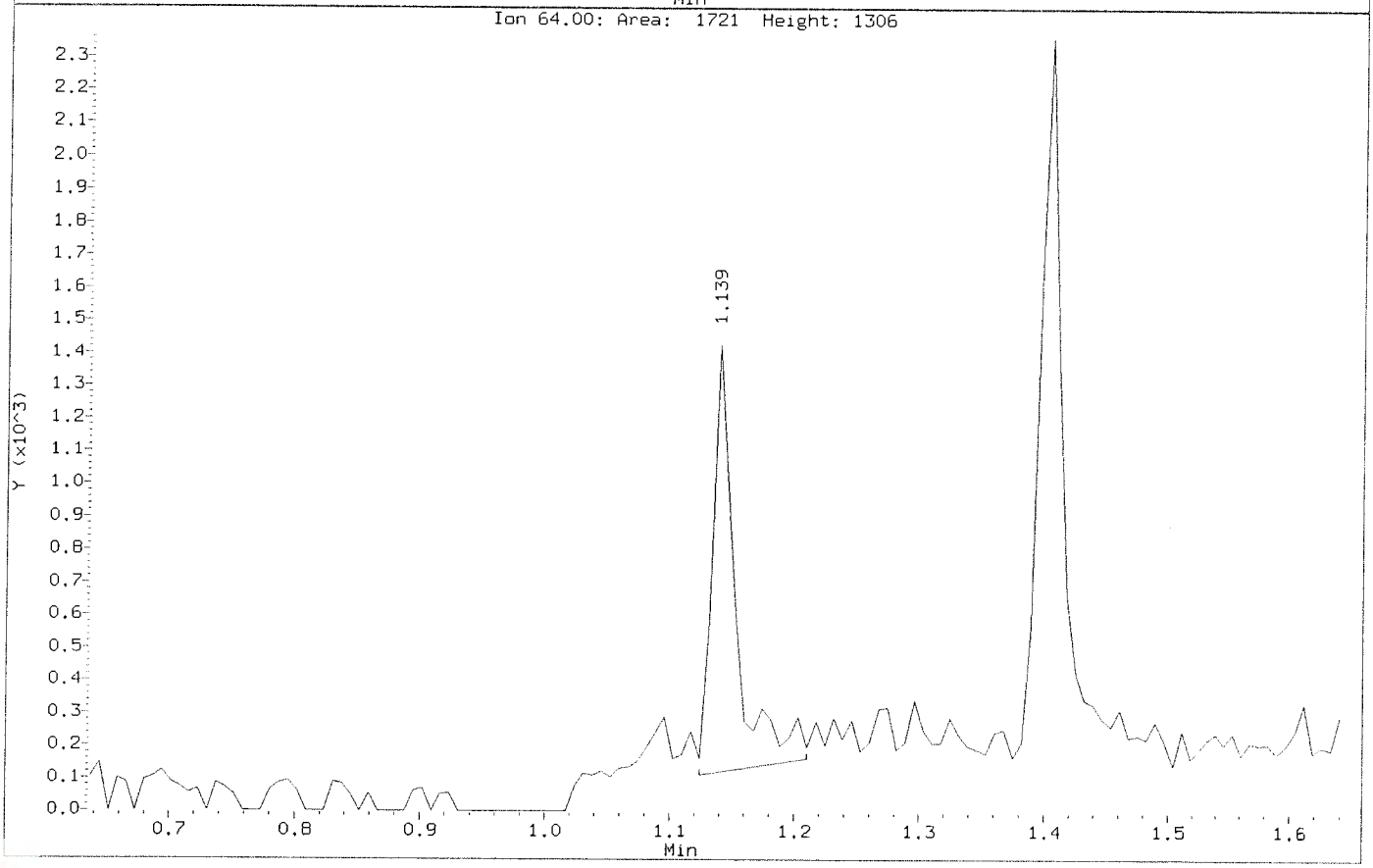
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4





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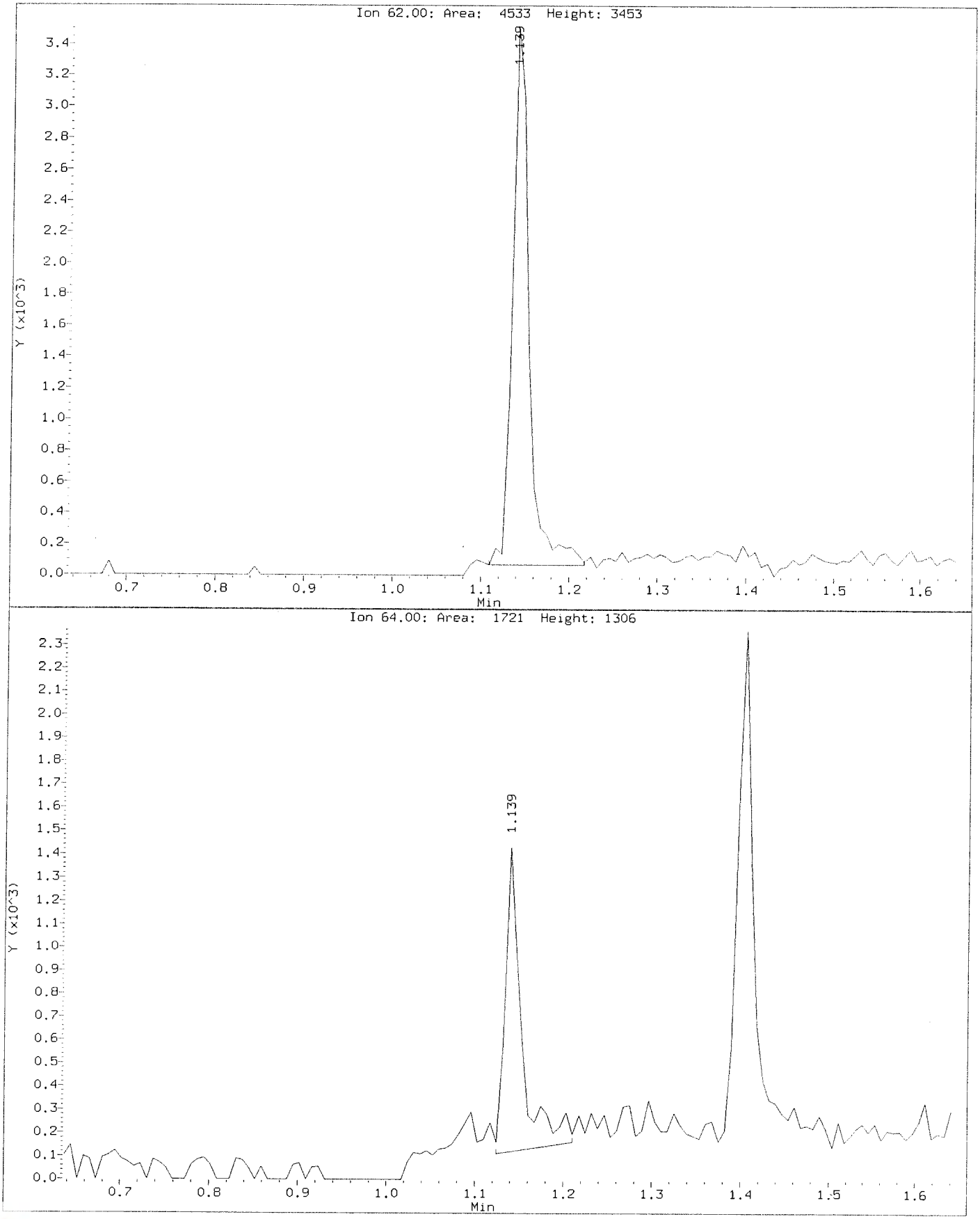
Injection Date: 18-NOV-2019 14:59
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111805.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 18-NOV-2019 15:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 14:59 Cal File: X111804.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

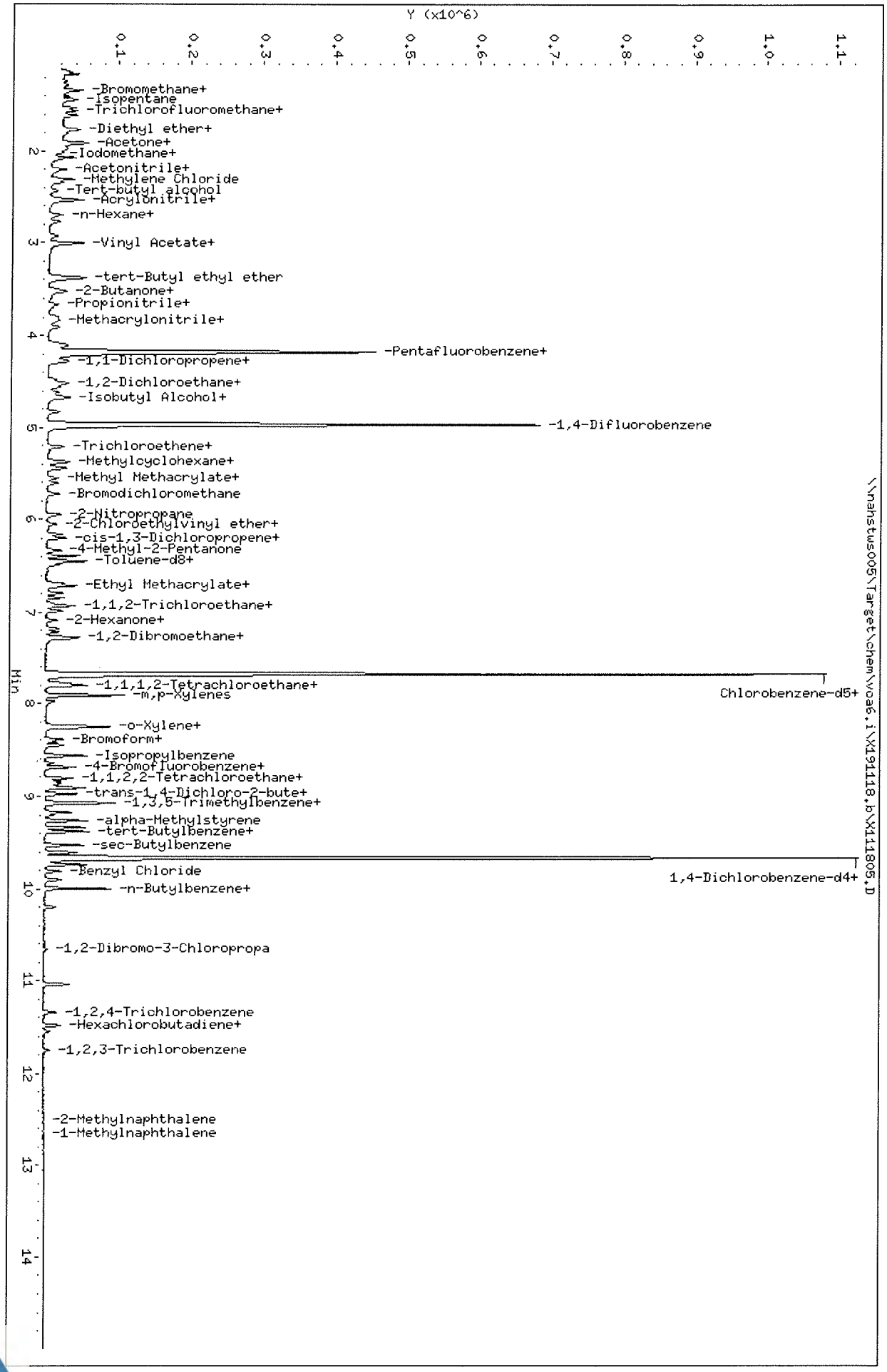
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	415277	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	574320	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	519547	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278615	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	8034	2.00000	2.76(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	10468	2.00000	2.56(a)
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	8127	2.00000	2.50(a)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	28201	2.00000	2.06(a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	7788	2.00000	2.06(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	12006	2.00000	2.14(a)
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	8194	2.00000	2.09(a)
138 Freon TF	101	1.911	1.911	(0.457)	7504	2.00000	2.07(a)
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	5924	2.00000	2.18(a)
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	12973	2.00000	2.14(a)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	7795	2.00000	2.21(a)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	10135	2.00000	2.18(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	2753	2.00000	1.85(a)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	7810	2.00000	2.35(aM)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	5184	2.00000	2.20(a)
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	27218	2.00000	2.05(a)
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	859	2.00000	1.65(a)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	7900	2.00000	2.16(a)

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	15931	2.00000	2.15(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	9378	2.00000	2.05(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	7169	2.00000	2.08(aM)
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	26432	2.00000	2.08(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	17183	2.00000	2.15(a)
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	11850	2.00000	2.14(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	17620	2.00000	2.17(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	11201	2.00000	2.04(a)
24 2-Butanone	43	3.588	3.588	(0.858)	5067	4.00000	3.97(a)
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	21210	2.00000	2.11(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	8468	4.00000	3.96(a)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	24759	2.00000	2.03(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	28289	2.00000	2.07(a)
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	13007	4.00000	4.27(a)
10 Acetone	43	1.976	1.976	(0.473)	7954	4.00000	3.82(a)
37 Benzene	78	4.519	4.519	(0.909)	28031	2.00000	2.13(a)
74 Bromobenzene	156	8.809	8.809	(0.911)	10482	2.00000	2.16(a)
29 Bromochloromethane	128	3.795	3.795	(0.908)	5128	2.00000	2.27(a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	9742	2.00000	2.04(a)
66 Bromoform	173	8.415	8.415	(1.097)	5989	2.00000	2.89(a)
6 Bromomethane	94	1.338	1.338	(0.320)	12041	2.00000	0.69(a)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	40384	4.00000	4.21(a)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	11097	2.00000	2.18(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	21369	2.00000	2.10(a)
7 Chloroethane	64	1.403	1.403	(0.336)	5731	2.00000	2.19(a)
28 Chloroform	83	3.910	3.910	(0.935)	14792	2.00000	2.19(a)
3 Chloromethane	50	1.073	1.073	(0.257)	10461	2.00000	2.49(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	8197	2.00000	2.08(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	11415	2.00000	2.03(a)
55 Dibromochloromethane	129	7.176	7.176	(0.936)	8154	2.00000	2.06(a)
44 Dibromomethane	93	5.557	5.557	(1.118)	5355	2.00000	2.20(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	7335	2.00000	2.78(a)
61 Ethylbenzene	106	7.799	7.799	(1.017)	10700	2.00000	2.04(a)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	4522	2.00000	1.82(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	32629	2.00000	2.10(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	26786	4.00000	4.23(a)
17 Methylene Chloride	84	2.305	2.305	(0.551)	8025	2.00000	2.13(a)
87 n-Butylbenzene	91	9.998	9.998	(1.034)	22333	2.00000	1.96(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	35573	2.00000	2.06(a)
92 Naphthalene	128	11.553	11.553	(1.195)	6733	2.00000	2.23(a)
63 o-Xylene	106	8.244	8.244	(1.075)	13637	2.00000	2.18(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	31860	2.00000	2.12(a)
64 Styrene	104	8.265	8.265	(1.078)	22366	2.00000	2.06(a)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	22956	2.00000	2.11(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	8185	2.00000	2.24(a)
50 Toluene	91	6.453	6.453	(0.841)	31139	2.00000	2.11(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	7239	2.00000	2.11(a)
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	10523	2.00000	2.06(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	8894	2.00000	2.21(a)
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	13581	2.00000	2.10(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	9073	2.00000	2.14(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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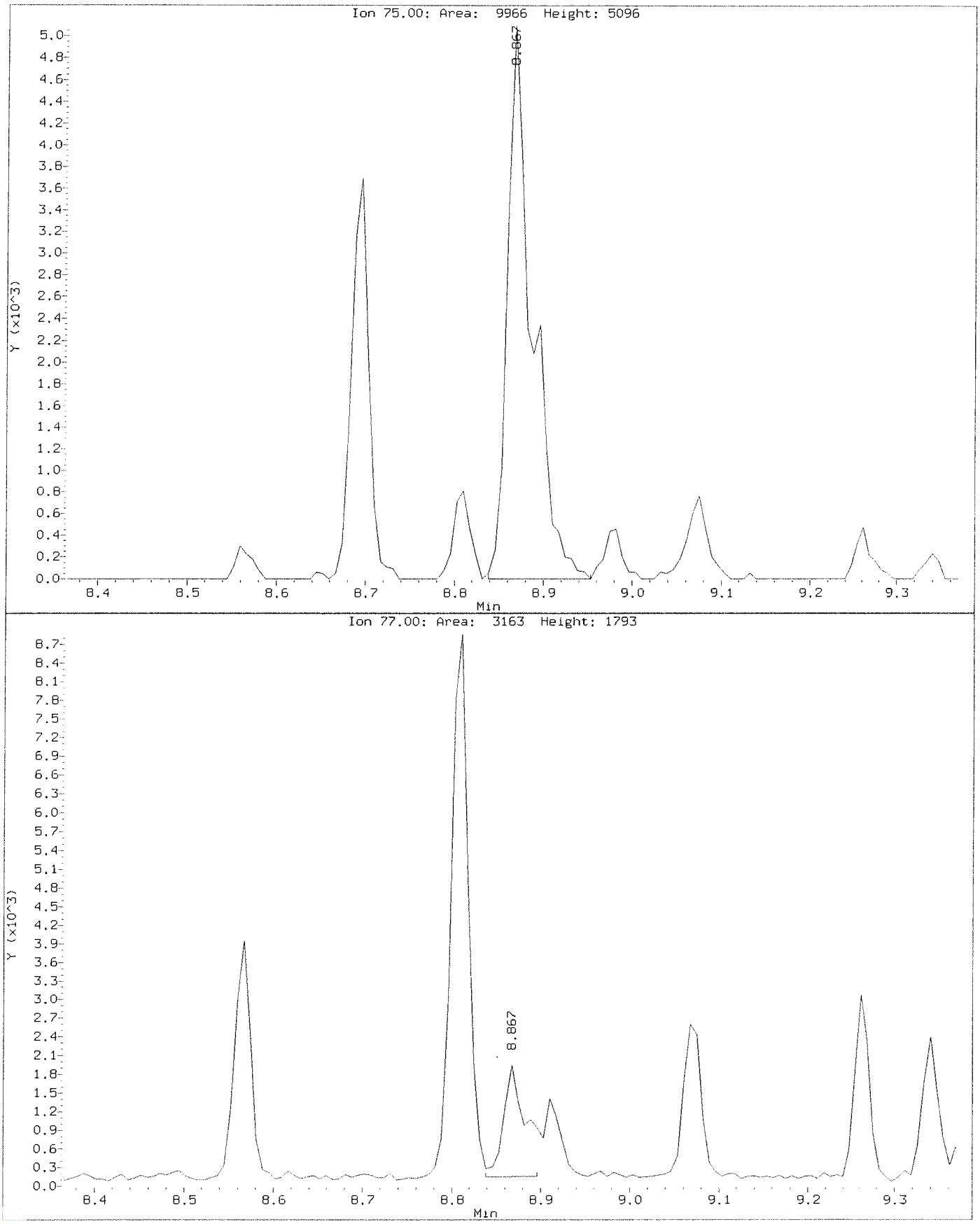
Date : 18-NOV-2019 15:23
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111805.D
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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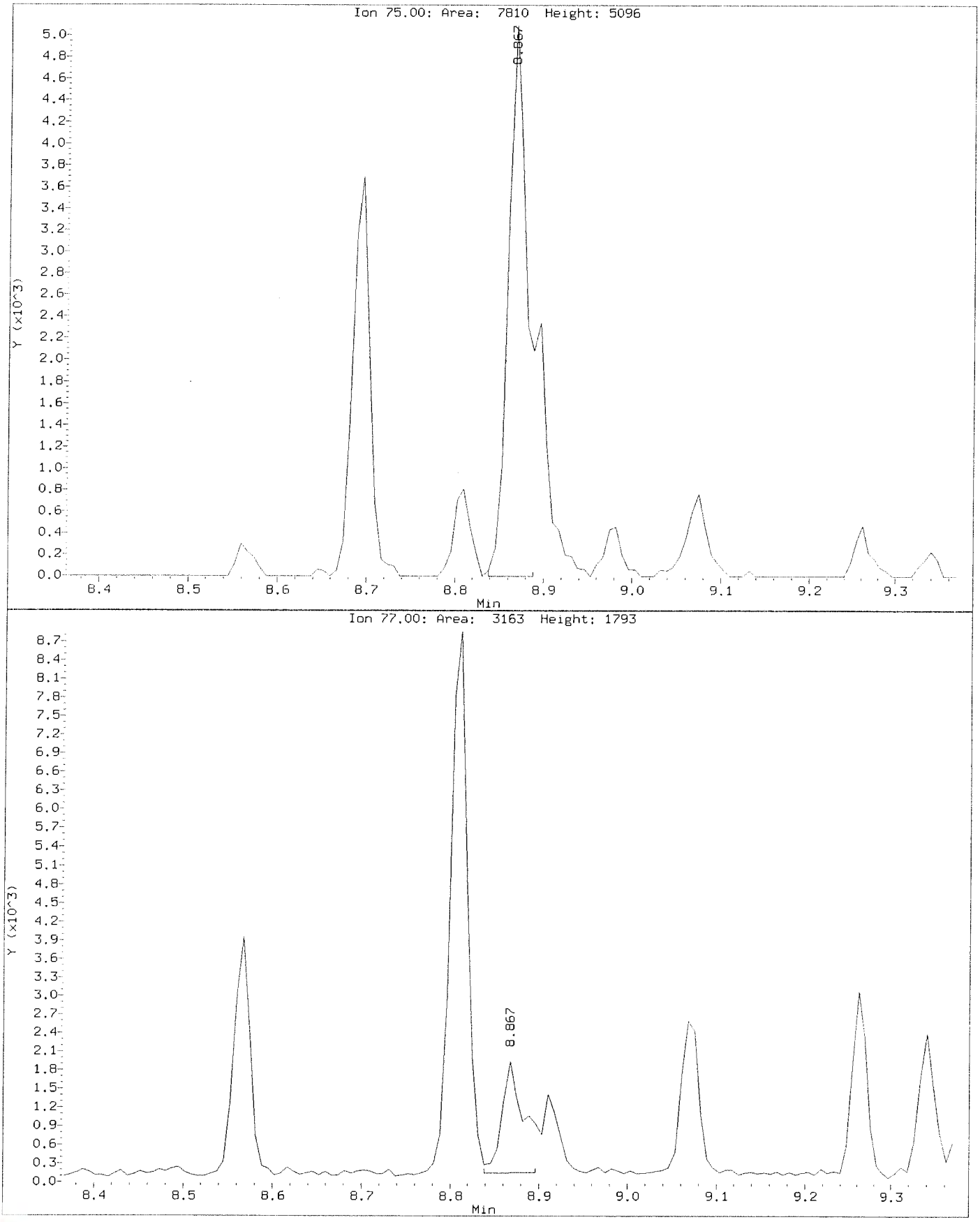
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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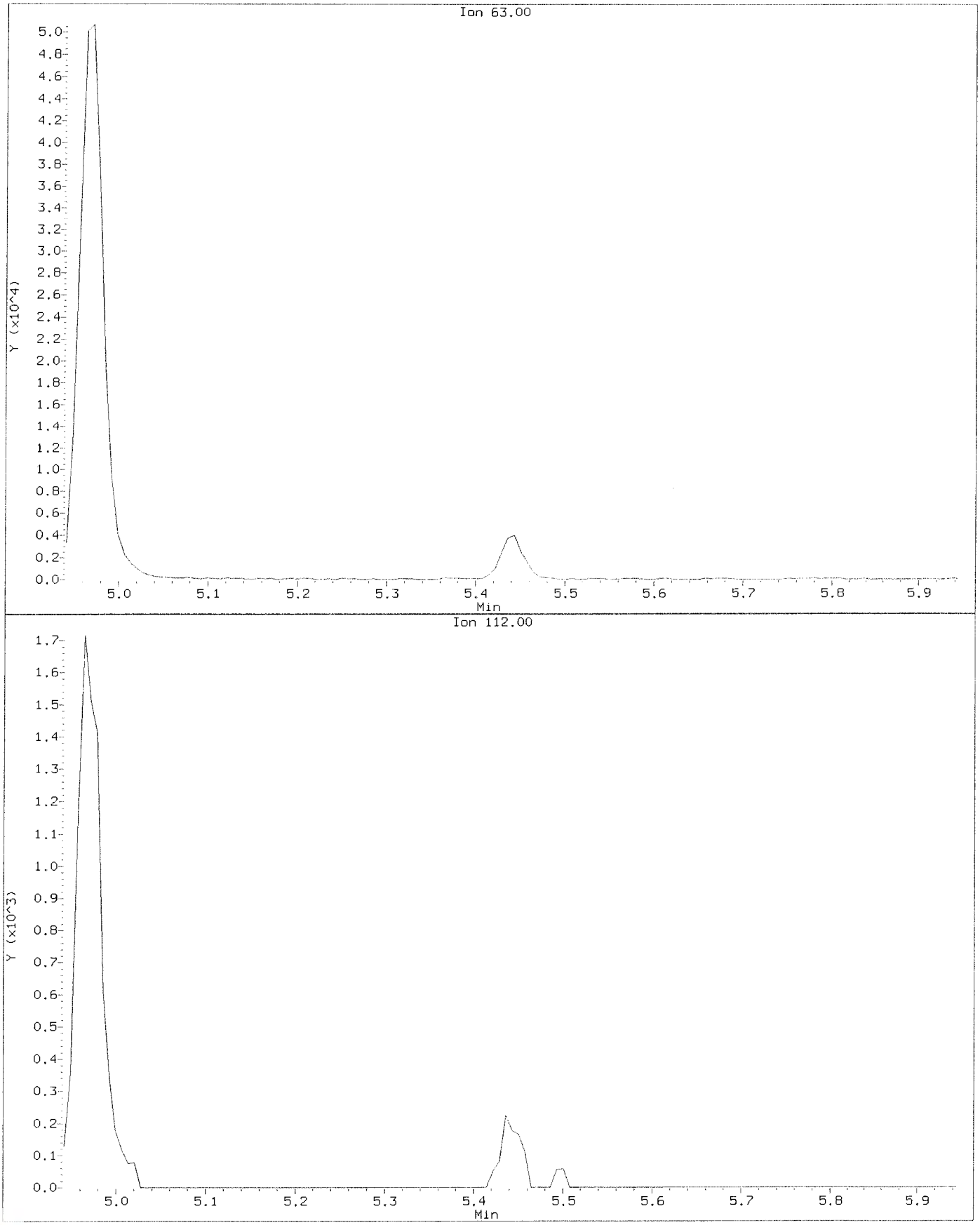
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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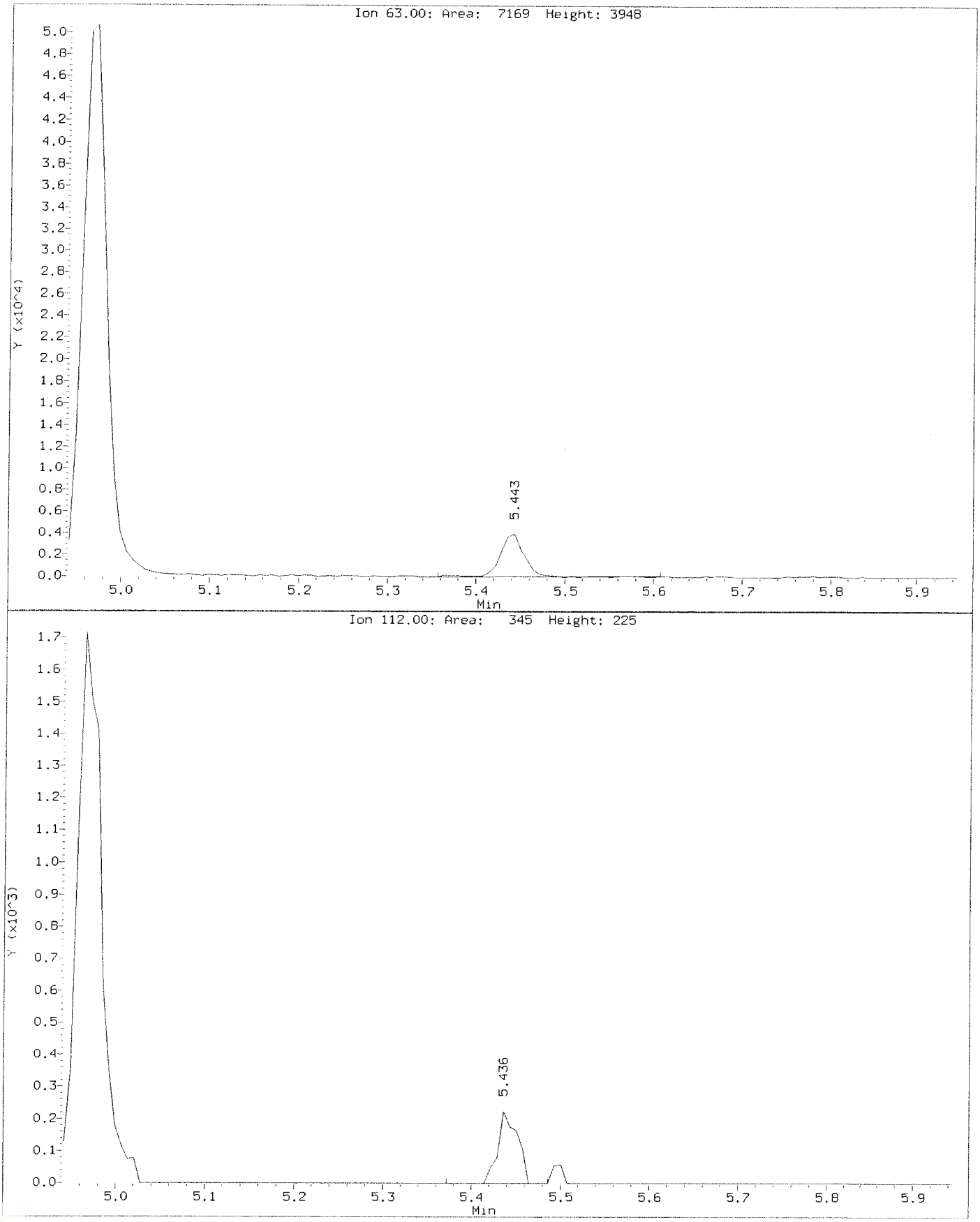
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



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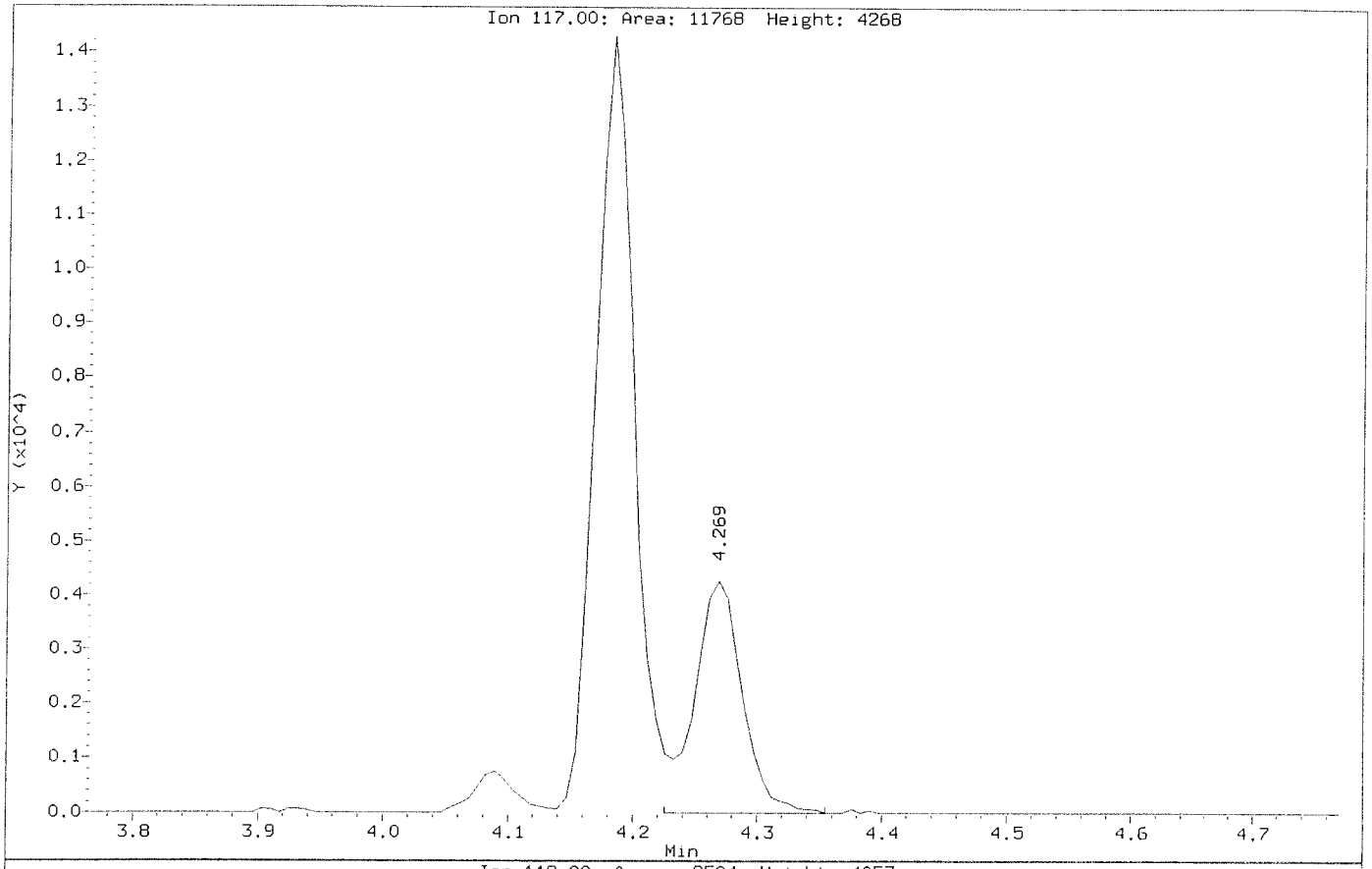
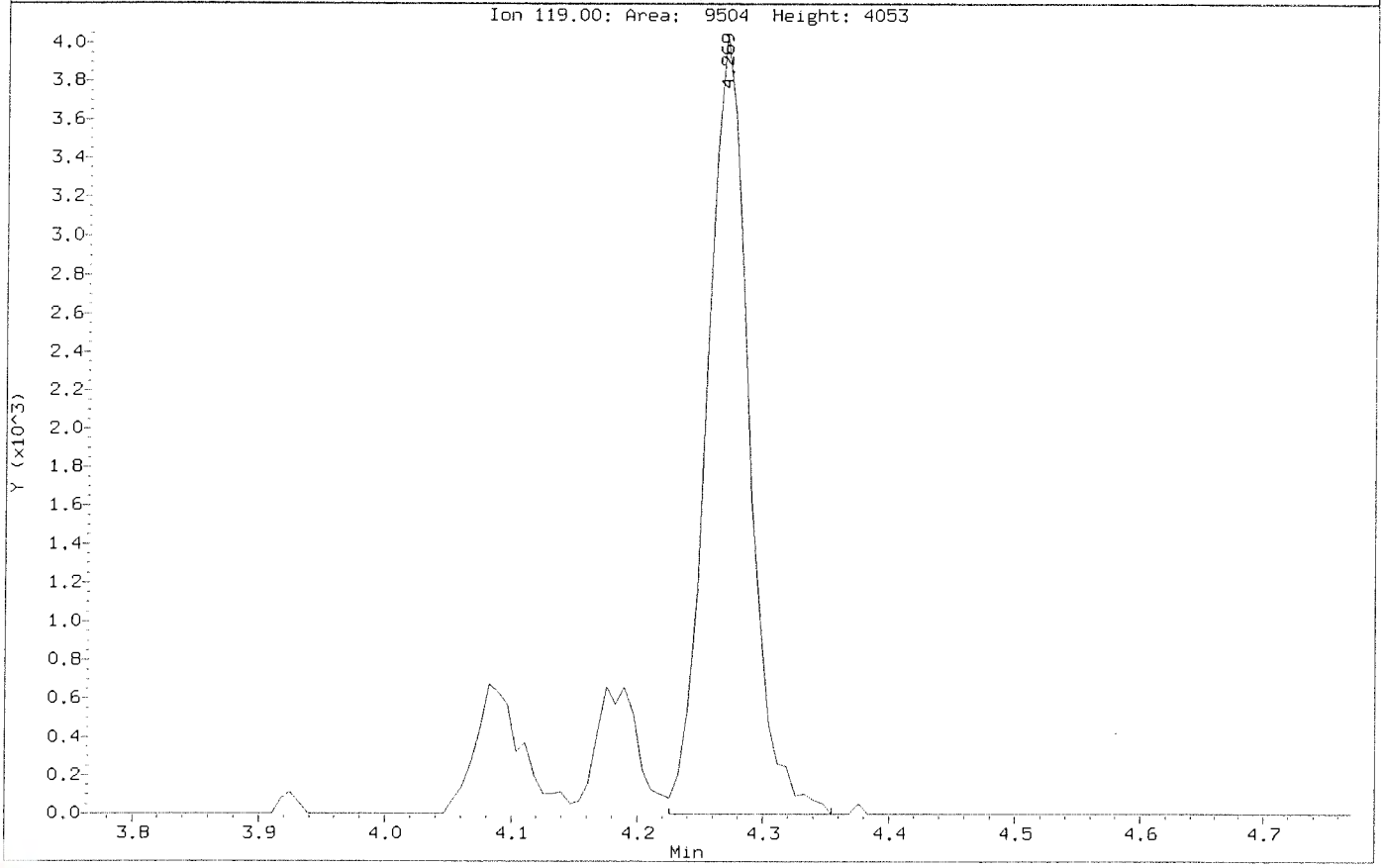
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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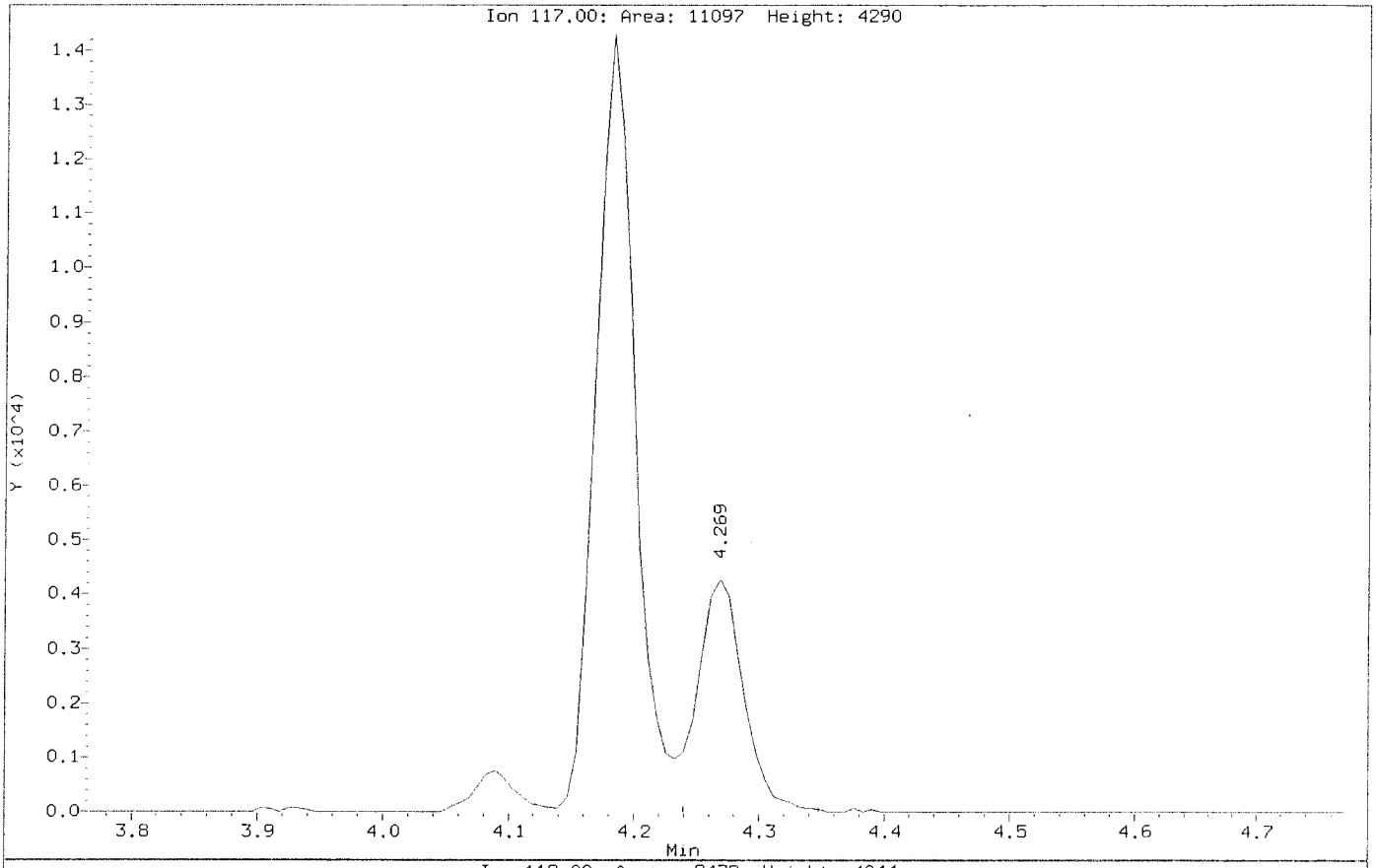
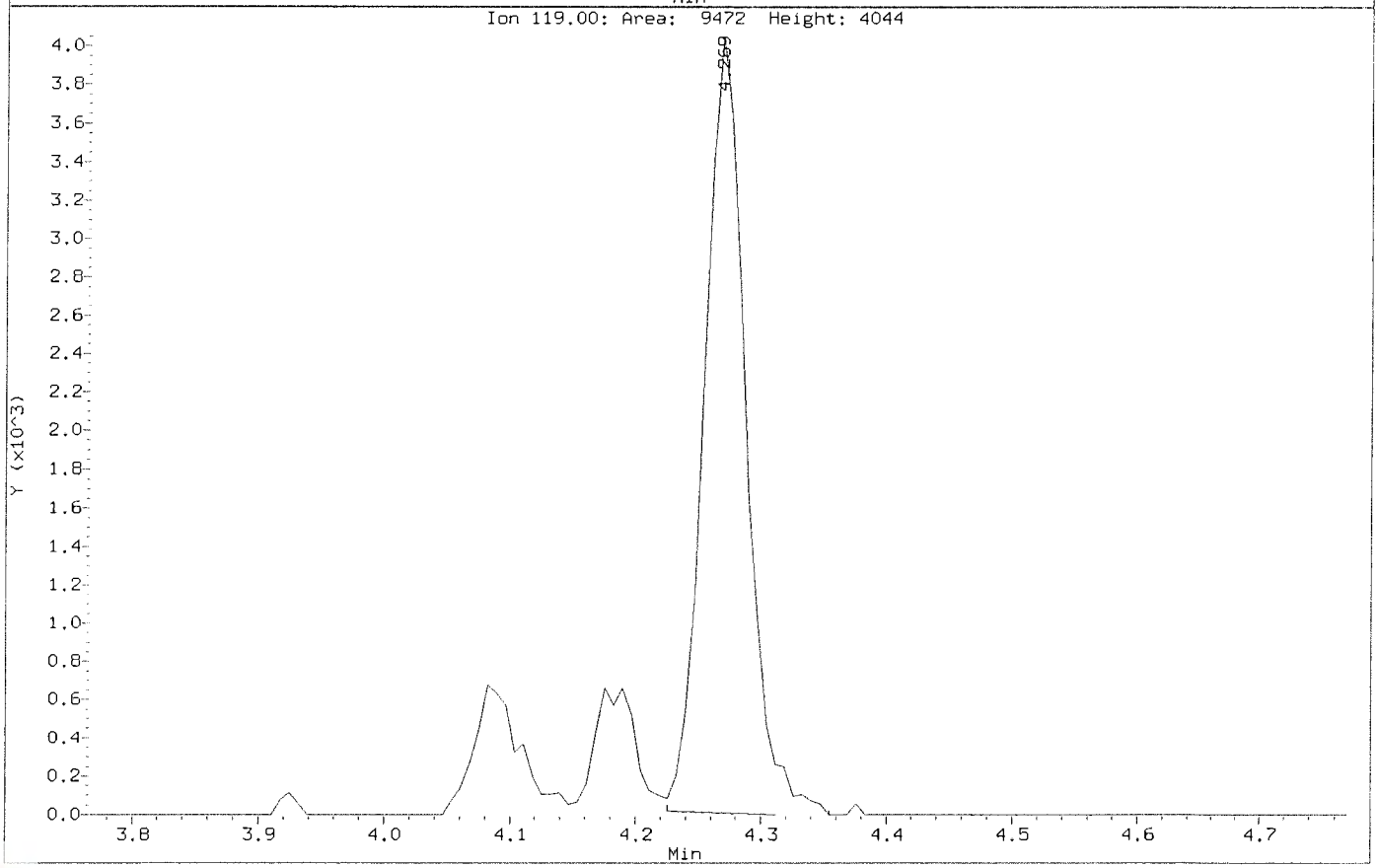
Injection Date: 18-NOV-2019 15:23
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 18-NOV-2019 15:47
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 15:23 Cal File: X111805.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

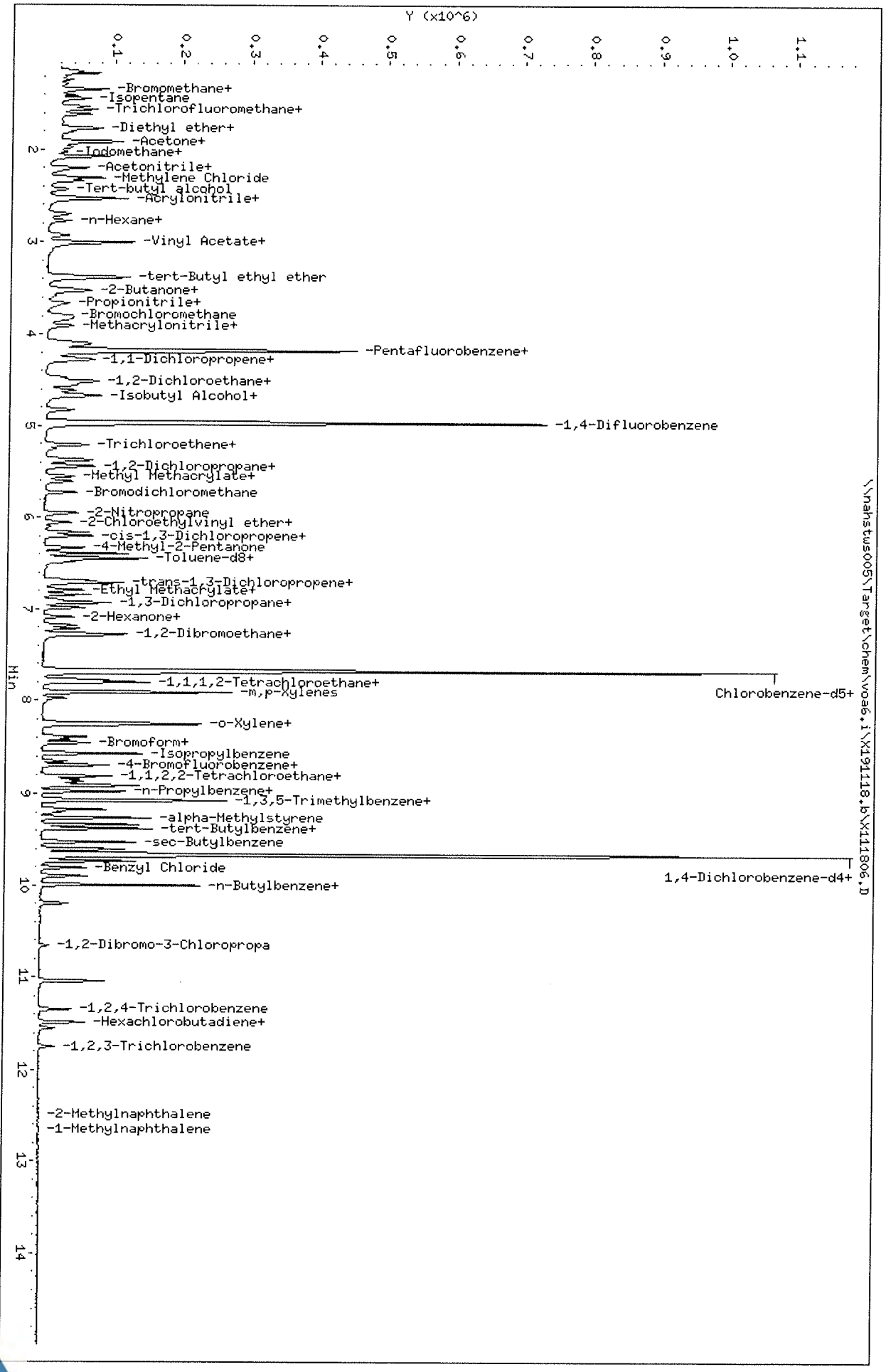
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	410845	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563063	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	510927	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	277846	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	20921	5.00000	6.06
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	25804	5.00000	5.80
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	20237	5.00000	5.74
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	69936	5.00000	5.19
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	20728	5.00000	5.59
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	29459	5.00000	5.31
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	22230	5.00000	5.68
138 Freon TF	101	1.919	1.919	(0.459)	18786	5.00000	5.25
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	15003	5.00000	5.61
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	32313	5.00000	5.40
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	19077	5.00000	5.47
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	24310	5.00000	5.35
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	6553	5.00000	5.62
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	18403	5.00000	5.55(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	14399	5.00000	6.15
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	71210	5.00000	5.40
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	2641	5.00000	5.82
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	20565	5.00000	5.73

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111806.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	41602	5.00000	5.64
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	24346	5.00000	5.44
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	19076	5.00000	5.67
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	68944	5.00000	5.45
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	45064	5.00000	5.65
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	29776	5.00000	5.49
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	44703	5.00000	5.52
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	28965	5.00000	5.33
24	2-Butanone	43	3.581	3.581	(0.856)	13522	10.0000	10.72
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	56464	5.00000	5.64
52	2-Hexanone	43	7.090	7.090	(0.924)	23980	10.0000	11.42
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	66074	5.00000	5.45
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	71485	5.00000	5.25
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	33803	10.0000	11.29
10	Acetone	43	1.969	1.969	(0.471)	15992	10.0000	11.75
37	Benzene	78	4.512	4.512	(0.908)	72584	5.00000	5.63
74	Bromobenzene	156	8.810	8.810	(0.911)	27619	5.00000	5.71
29	Bromochloromethane	128	3.795	3.795	(0.908)	11669	5.00000	5.24
39	Bromodichloromethane	83	5.729	5.729	(1.153)	26638	5.00000	5.71
66	Bromoform	173	8.416	8.416	(1.097)	16084	5.00000	6.17
6	Bromomethane	94	1.338	1.338	(0.320)	28671	5.00000	4.99(a)
19	Carbon Disulfide	76	2.069	2.069	(0.495)	103008	10.0000	10.87
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	26931	5.00000	5.41(M)
59	Chlorobenzene	112	7.699	7.699	(1.004)	55668	5.00000	5.58
7	Chloroethane	64	1.403	1.403	(0.336)	13261	5.00000	5.12
28	Chloroform	83	3.910	3.910	(0.935)	34944	5.00000	5.25
3	Chloromethane	50	1.073	1.073	(0.257)	24949	5.00000	5.75
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	22227	5.00000	5.70
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	31191	5.00000	5.68
55	Dibromochloromethane	129	7.176	7.176	(0.936)	21920	5.00000	5.64
44	Dibromomethane	93	5.558	5.558	(1.118)	13775	5.00000	5.78
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	18346	5.00000	5.69
61	Ethylbenzene	106	7.800	7.800	(1.017)	29424	5.00000	5.70
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	11525	5.00000	5.47
67	Isopropylbenzene	105	8.566	8.566	(1.117)	81869	5.00000	5.36
62	m,p-Xylenes	106	7.907	7.907	(1.031)	69325	10.0000	11.14
17	Methylene Chloride	84	2.306	2.306	(0.551)	20180	5.00000	5.43
87	n-Butylbenzene	91	9.999	9.999	(1.034)	57498	5.00000	5.08
73	n-Propylbenzene	91	8.917	8.917	(0.922)	92937	5.00000	5.41
92	Naphthalene	128	11.546	11.546	(1.194)	17063	5.00000	5.68
63	o-Xylene	106	8.244	8.244	(1.075)	33646	5.00000	5.48
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	78149	5.00000	5.23
64	Styrene	104	8.258	8.258	(1.077)	58650	5.00000	5.49
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	59074	5.00000	5.45
56	Tetrachloroethene	164	6.933	6.933	(0.904)	20334	5.00000	5.66
50	Toluene	91	6.446	6.446	(0.840)	80201	5.00000	5.53
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	18086	5.00000	5.35
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	28395	5.00000	5.67
38	Trichloroethene	130	5.207	5.207	(1.048)	22280	5.00000	5.65
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	33411	5.00000	5.24
5	Vinyl Chloride	62	1.138	1.138	(0.272)	20691	5.00000	4.94(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



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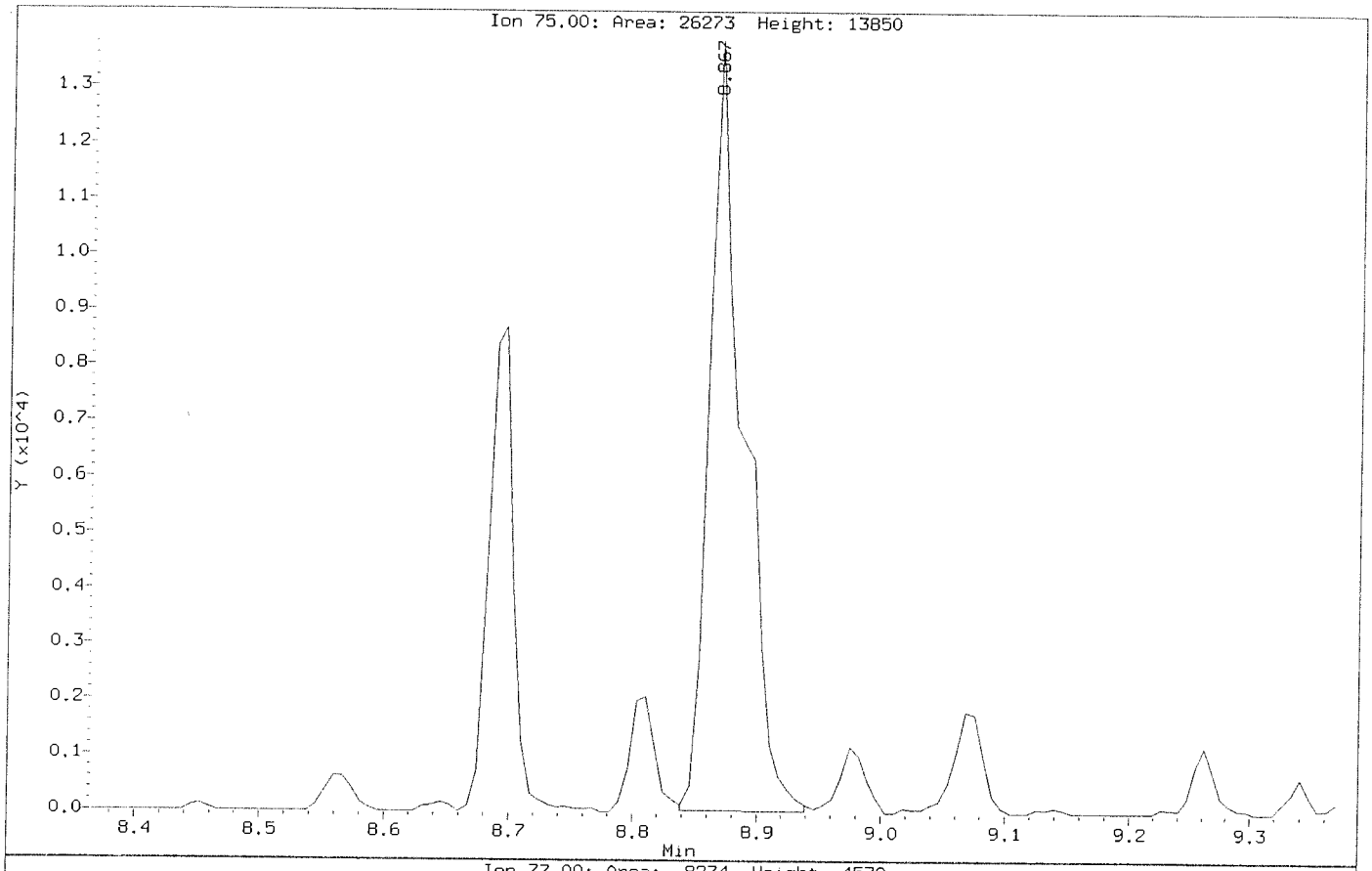
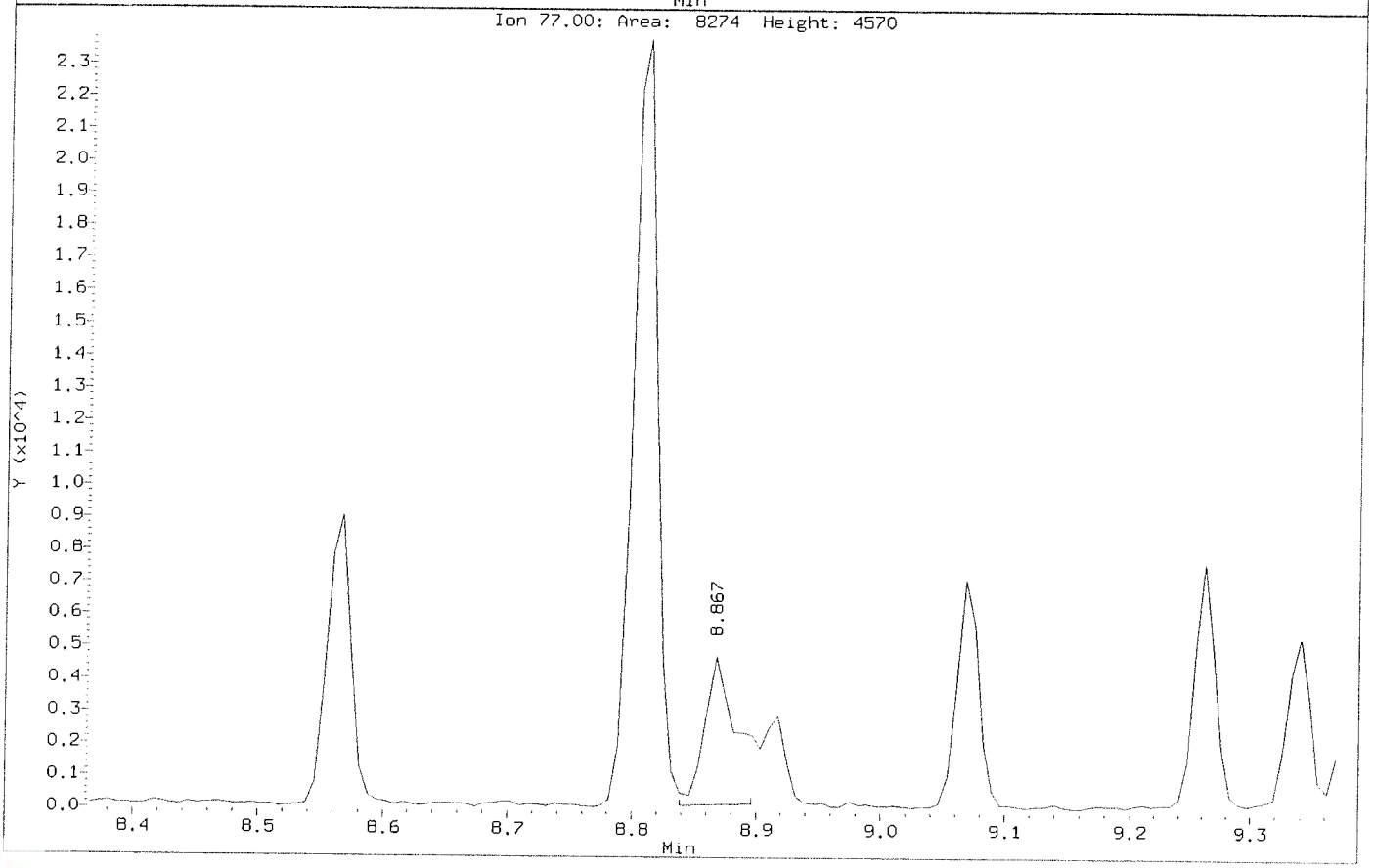
Date : 18-NOV-2019 15:47
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111806.D
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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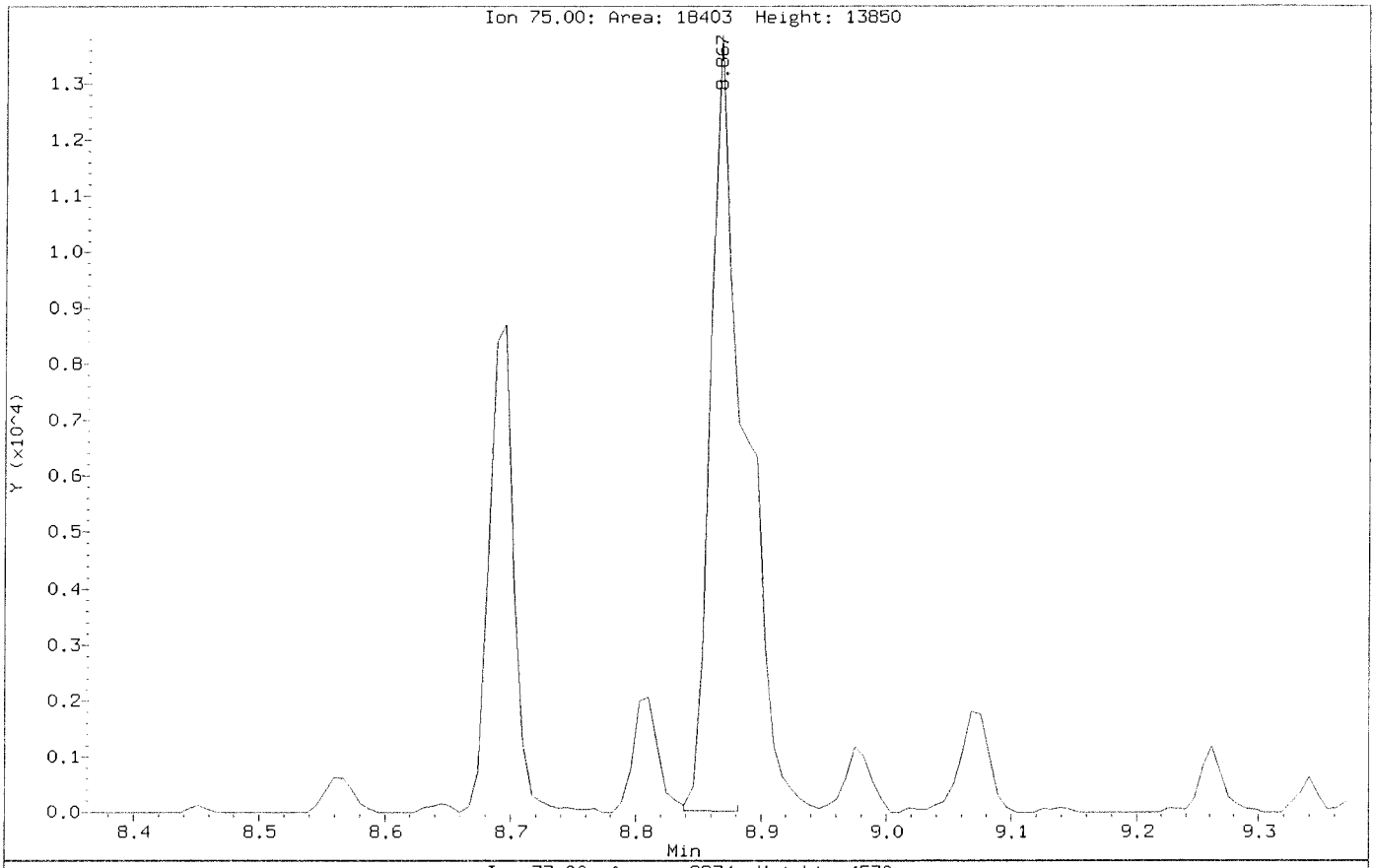
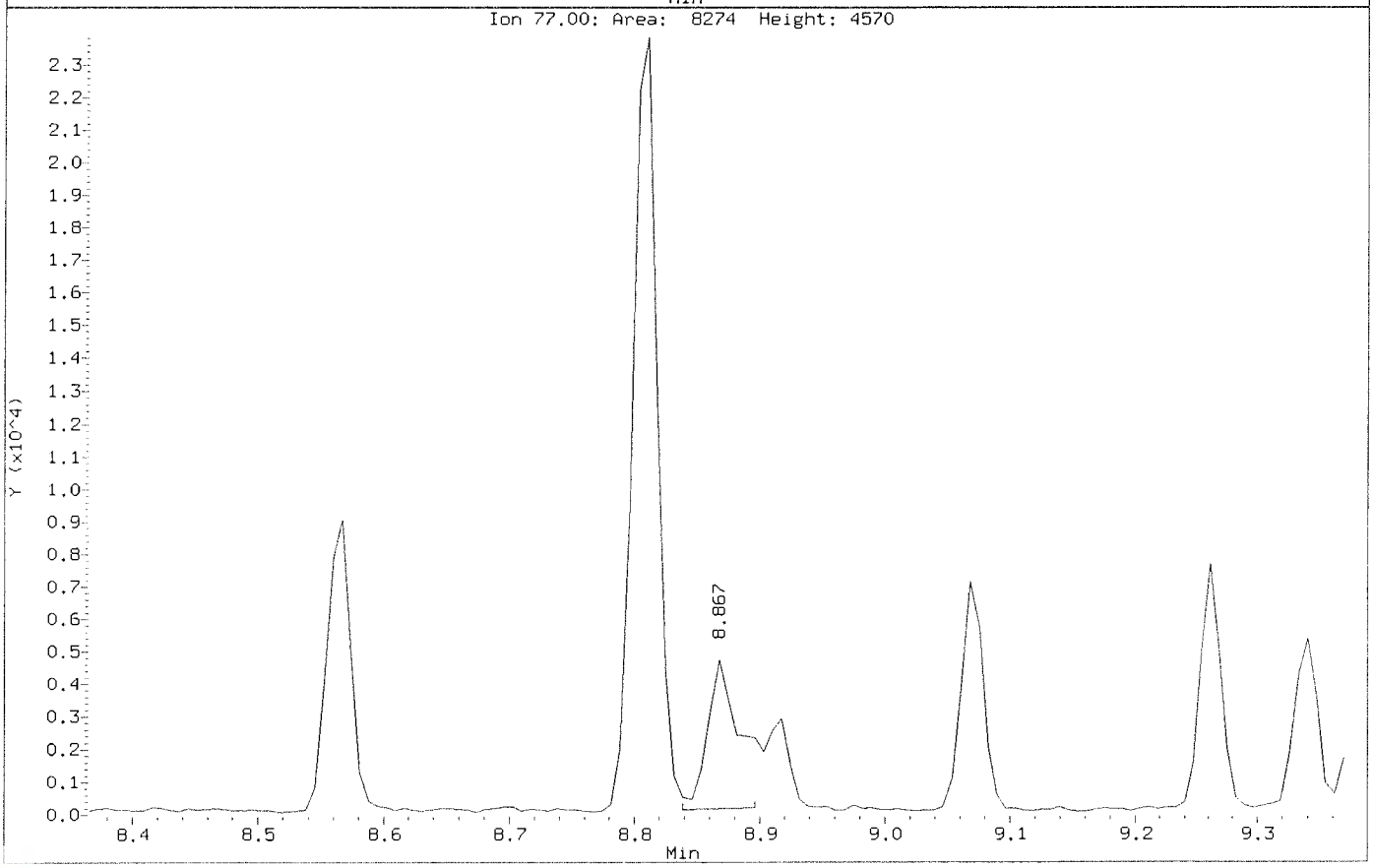
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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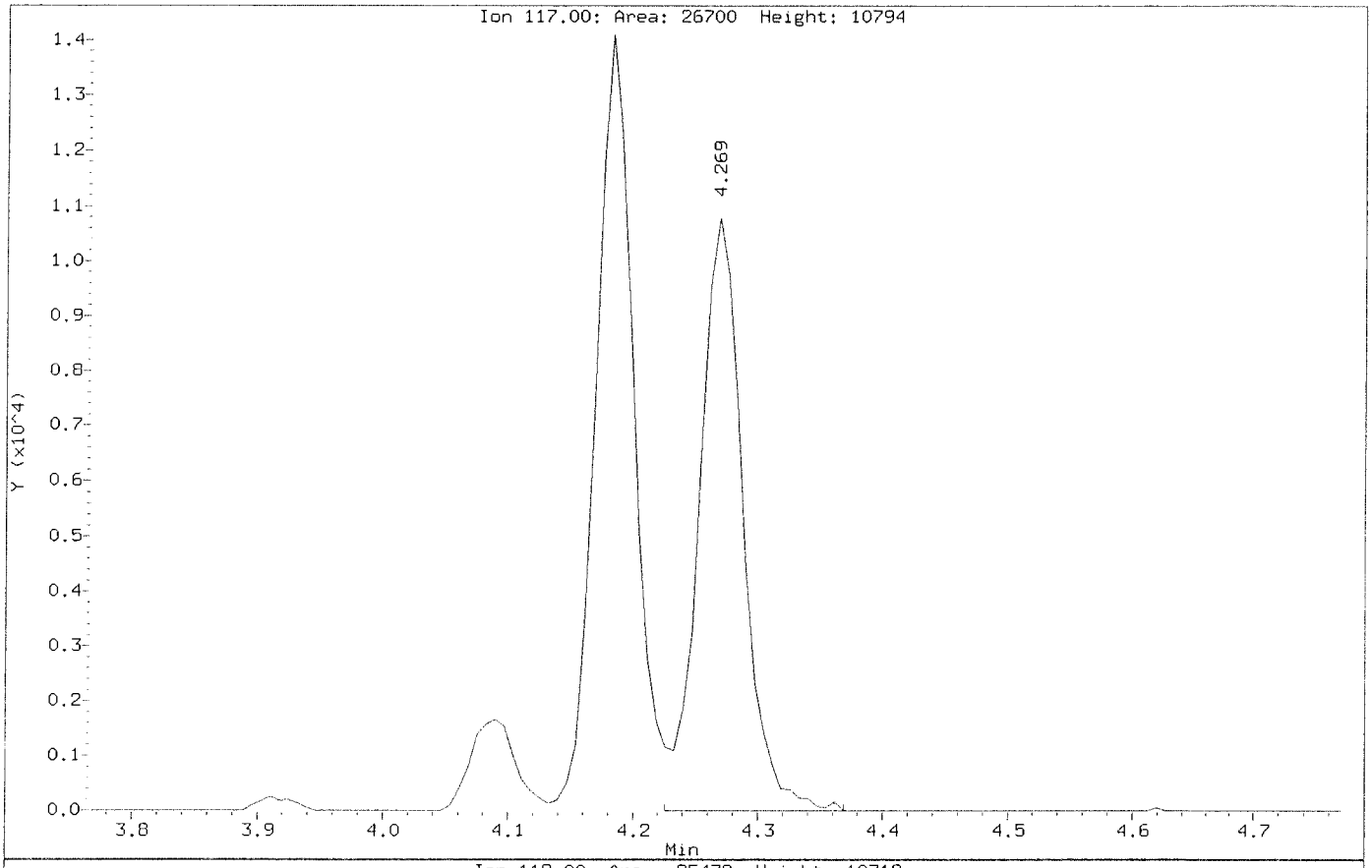
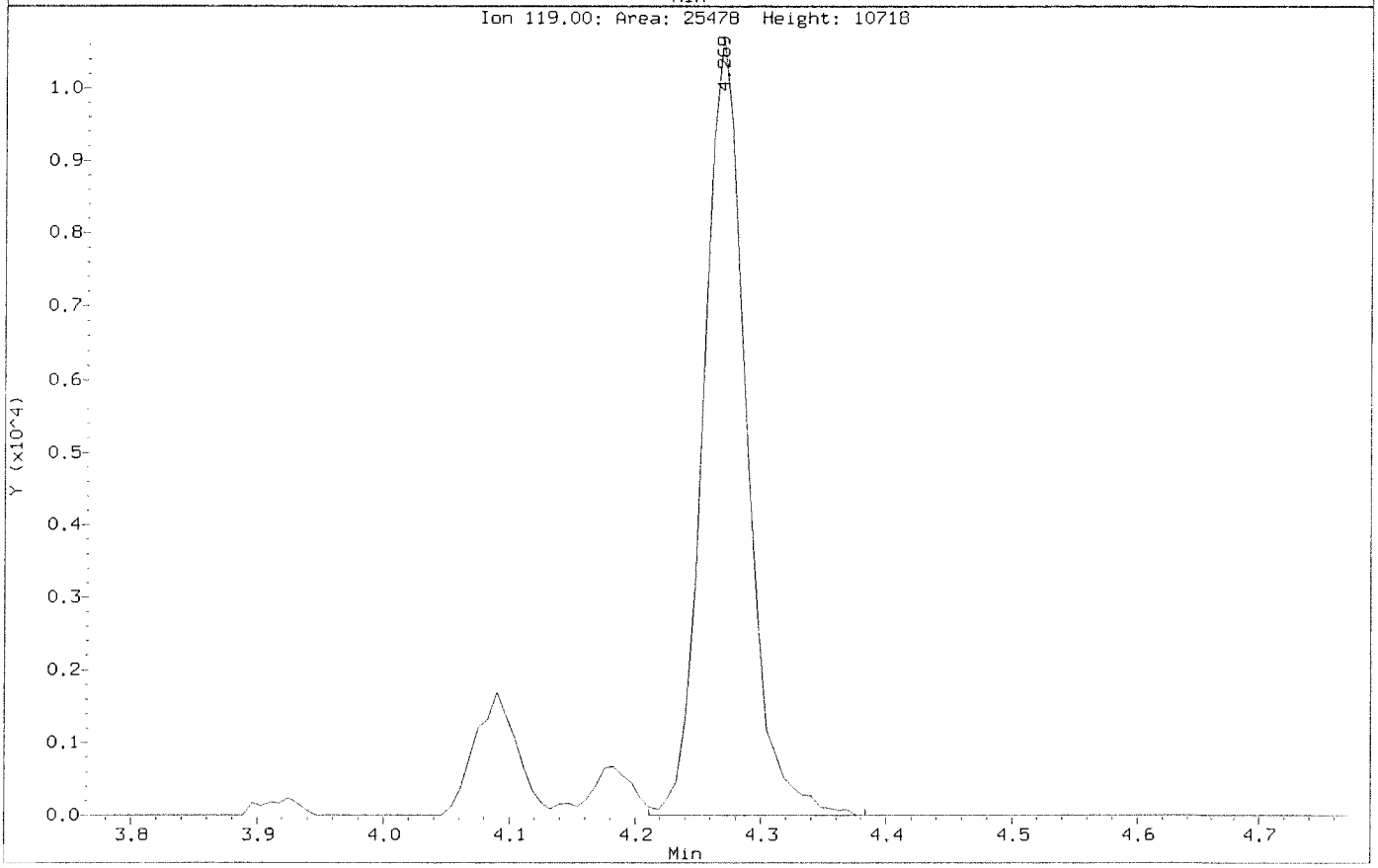
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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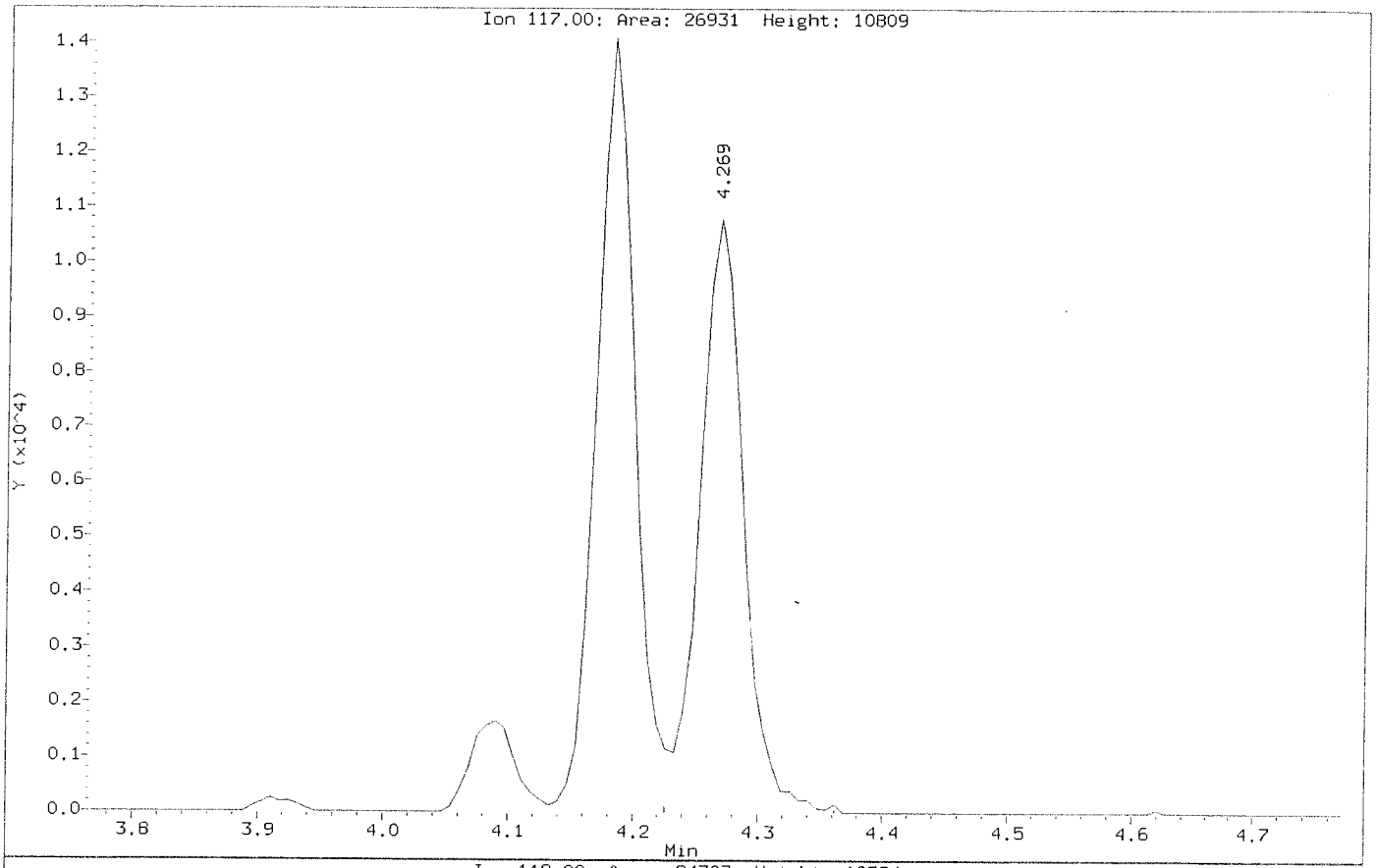
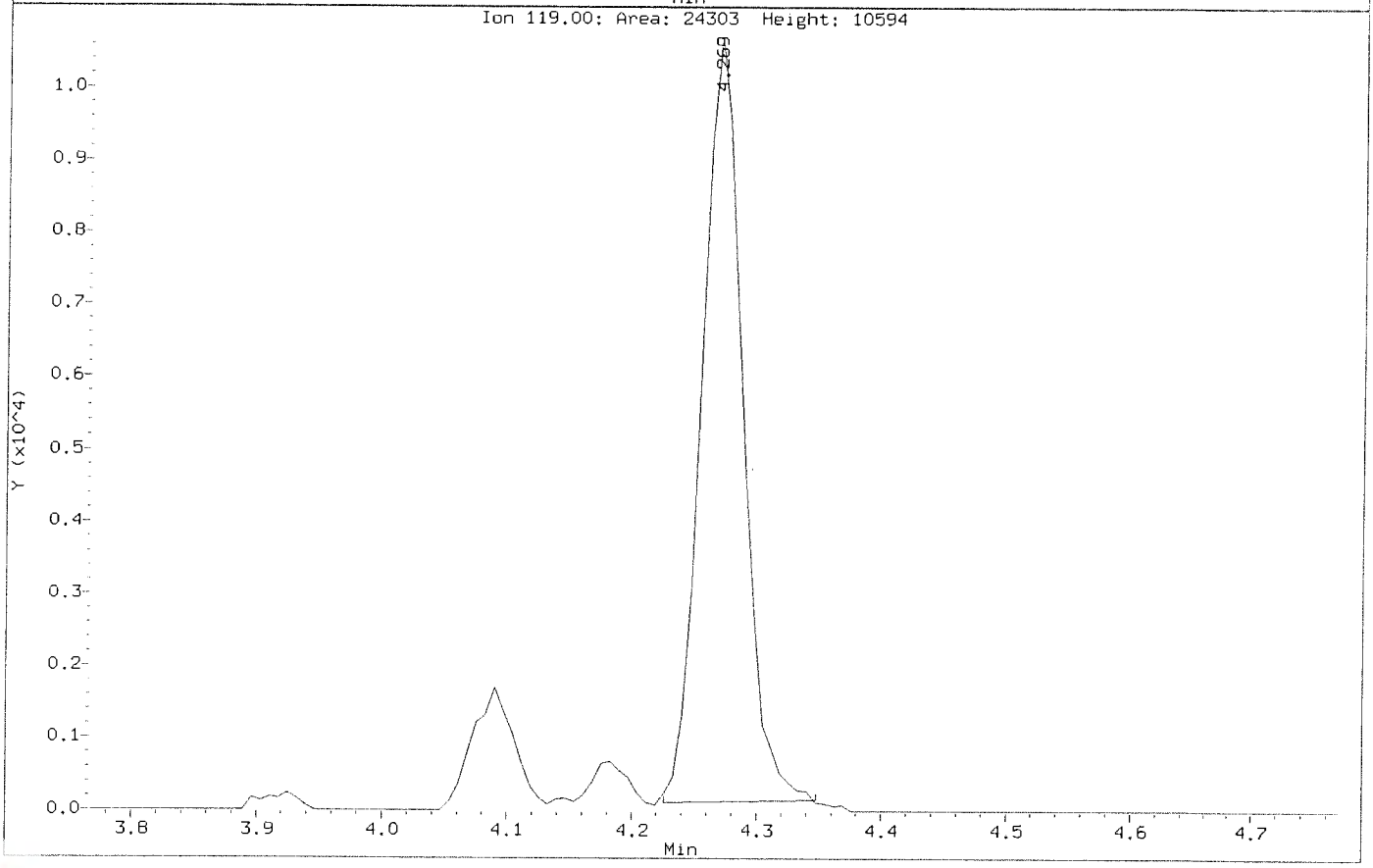
Injection Date: 18-NOV-2019 15:47
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D Page 1
Report Date: 06-Dec-2019 19:56

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Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111807.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 18-NOV-2019 16:11
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 15:47 Cal File: X111806.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

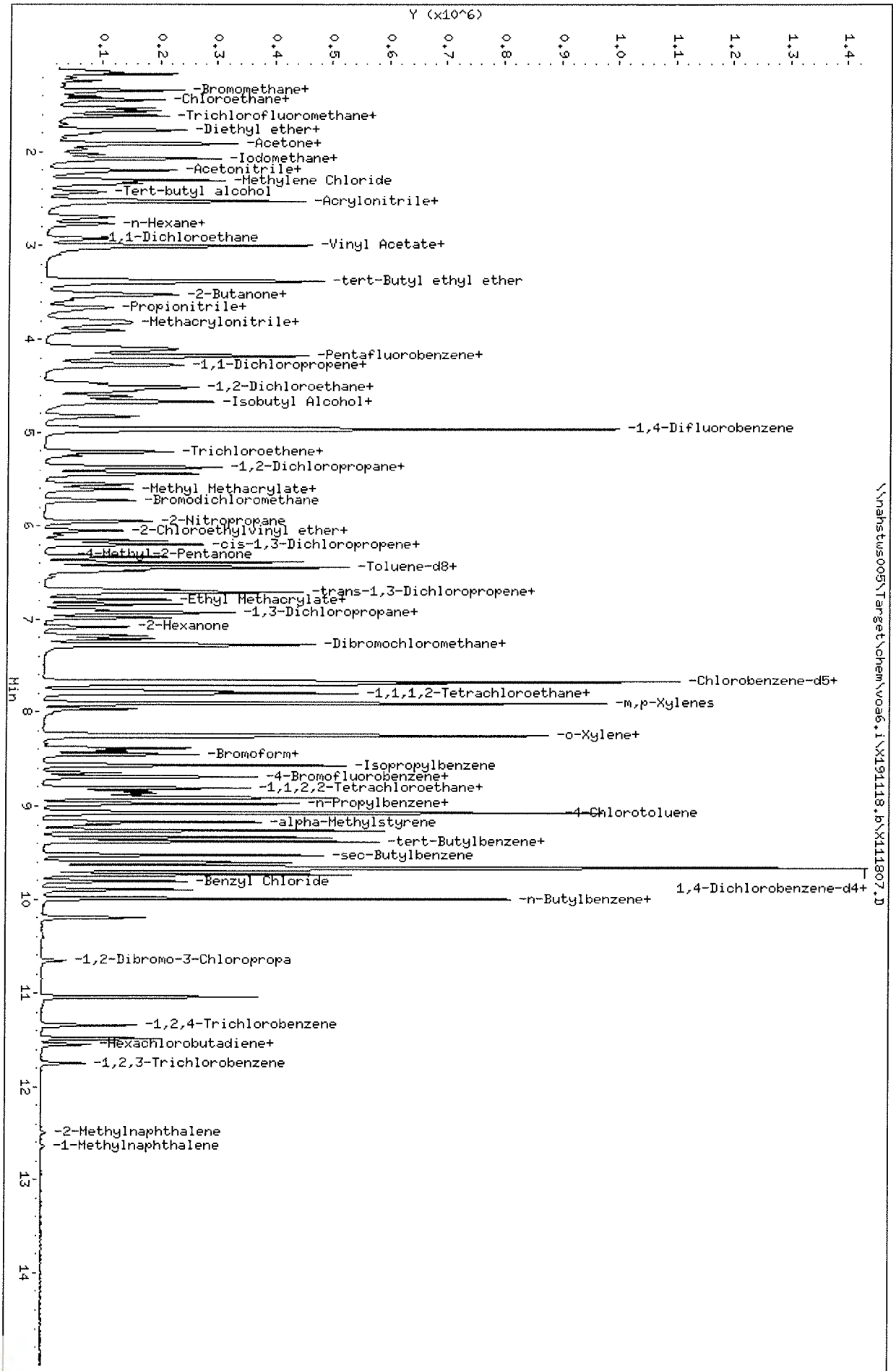
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG 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)	411693	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	563792	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	515046	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	278890	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	75813	20.0000	20.02
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	94194	20.0000	19.91
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	75094	20.0000	20.28
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	260273	20.0000	19.17
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	73347	20.0000	19.62
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	105363	20.0000	18.97
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	75821	20.0000	19.33
138 Freon TF	101	1.919	1.919	(0.459)	62543	20.0000	17.44
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	52184	20.0000	19.38
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	113669	20.0000	18.97
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	64160	20.0000	18.38
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	84000	20.0000	18.47
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	21856	20.0000	20.64
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	64689	20.0000	19.46(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	46623	20.0000	19.84
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	254992	20.0000	19.26
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	8805	20.0000	20.13
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	71738	20.0000	19.85

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.035)	144121	20.0000	19.47
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	88277	20.0000	19.72
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	64004	20.0000	19.00
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	247054	20.0000	19.45
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	157428	20.0000	19.68
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	105400	20.0000	19.28
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	158049	20.0000	19.44
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	100376	20.0000	18.46
24	2-Butanone	43	3.580	3.580	(0.856)	48098	40.0000	38.07
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	193547	20.0000	19.28
52	2-Hexanone	43	7.083	7.083	(0.923)	78795	40.0000	37.24
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	231980	20.0000	19.07
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	257377	20.0000	18.86
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	115695	40.0000	38.33
10	Acetone	43	1.976	1.976	(0.473)	43200	40.0000	38.23
37	Benzene	78	4.512	4.512	(0.908)	250181	20.0000	19.39
74	Bromobenzene	156	8.809	8.809	(0.912)	97394	20.0000	20.09
29	Bromochloromethane	128	3.795	3.795	(0.908)	41933	20.0000	18.80
39	Bromodichloromethane	83	5.729	5.729	(1.153)	89170	20.0000	19.11
66	Bromoform	173	8.415	8.415	(1.097)	56416	20.0000	19.02
6	Bromomethane	94	1.338	1.338	(0.320)	93456	20.0000	21.54
19	Carbon Disulfide	76	2.069	2.069	(0.495)	362755	40.0000	38.21
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	90839	20.0000	18.23(M)
59	Chlorobenzene	112	7.699	7.699	(1.004)	192384	20.0000	19.13
7	Chloroethane	64	1.403	1.403	(0.336)	46616	20.0000	17.98
28	Chloroform	83	3.910	3.910	(0.935)	121141	20.0000	18.16
3	Chloromethane	50	1.073	1.073	(0.257)	85402	20.0000	19.21
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	74754	20.0000	19.14
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	107408	20.0000	19.53
55	Dibromochloromethane	129	7.176	7.176	(0.936)	76215	20.0000	19.48
44	Dibromomethane	93	5.557	5.557	(1.118)	46676	20.0000	19.58
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	63810	20.0000	17.59
61	Ethylbenzene	106	7.799	7.799	(1.017)	101554	20.0000	19.54
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	37789	20.0000	19.03
67	Isopropylbenzene	105	8.566	8.566	(1.117)	293670	20.0000	19.08
62	m,p-Xylenes	106	7.907	7.907	(1.031)	243460	40.0000	38.83
17	Methylene Chloride	84	2.305	2.305	(0.551)	66846	20.0000	17.95
87	n-Butylbenzene	91	9.998	9.998	(1.035)	210608	20.0000	18.54
73	n-Propylbenzene	91	8.917	8.917	(0.923)	331965	20.0000	19.25
92	Naphthalene	128	11.546	11.546	(1.195)	57138	20.0000	18.96
63	o-Xylene	106	8.244	8.244	(1.075)	119876	20.0000	19.37
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	278964	20.0000	18.62
64	Styrene	104	8.258	8.258	(1.077)	206802	20.0000	19.22
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	208031	20.0000	19.13
56	Tetrachloroethene	164	6.933	6.933	(0.904)	68625	20.0000	18.96
50	Toluene	91	6.446	6.446	(0.840)	280019	20.0000	19.17
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.606)	63600	20.0000	18.77
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	100272	20.0000	20.00
38	Trichloroethene	130	5.206	5.206	(1.048)	77608	20.0000	19.68
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	116474	20.0000	18.23
5	Vinyl Chloride	62	1.138	1.138	(0.272)	74818	20.0000	17.83

QC Flag Legend

M - Compound response manually integrated.



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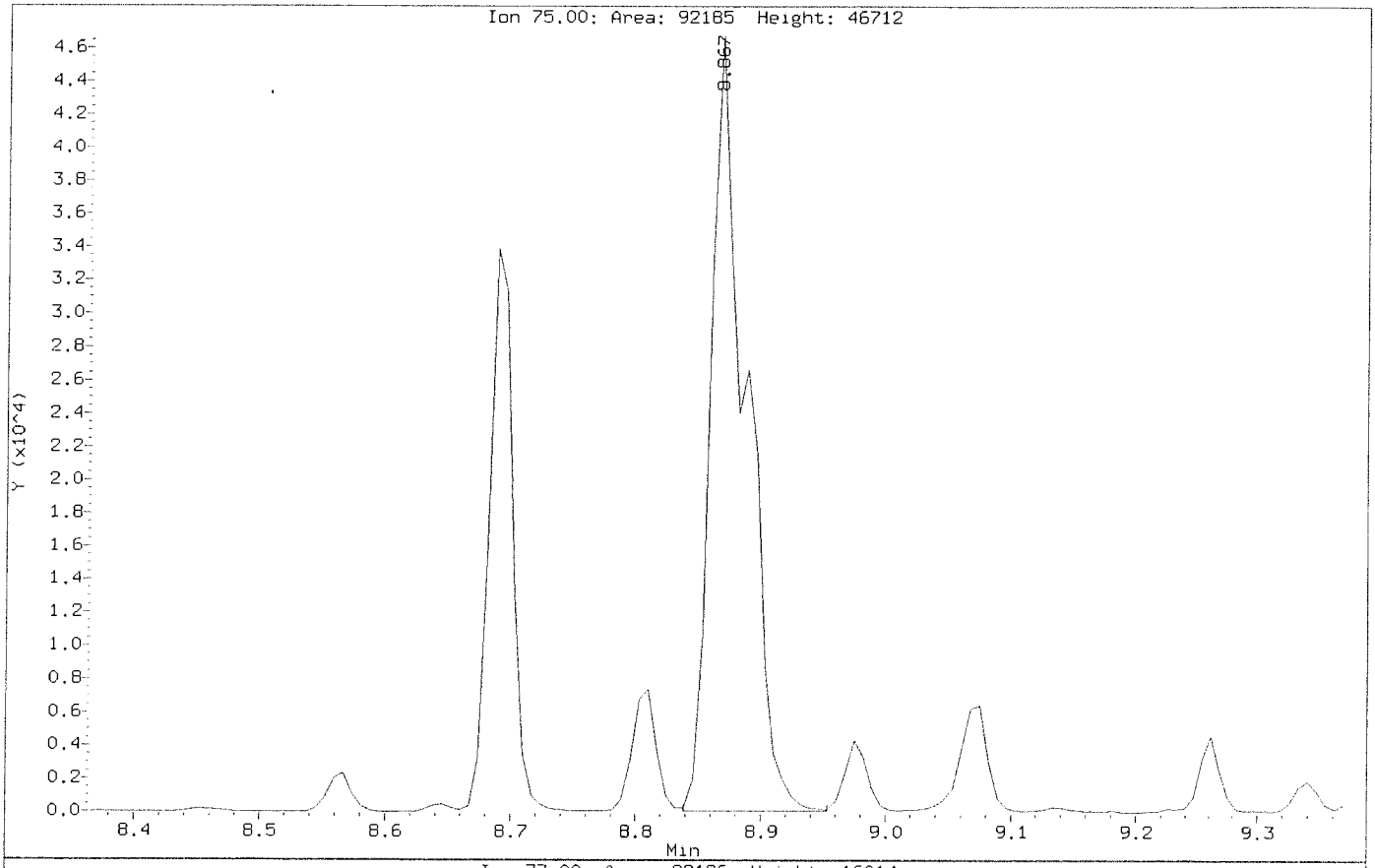
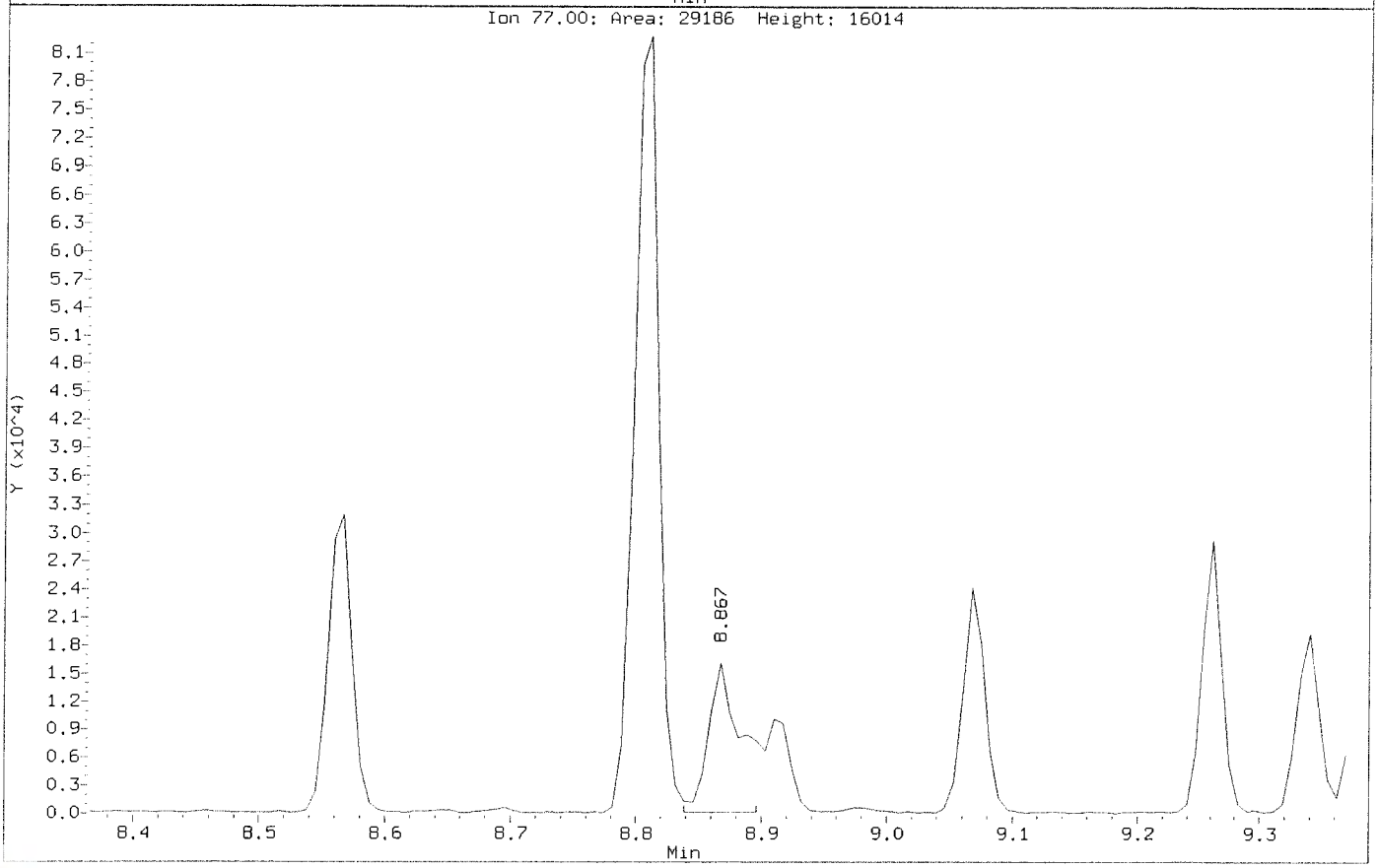
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111807.D
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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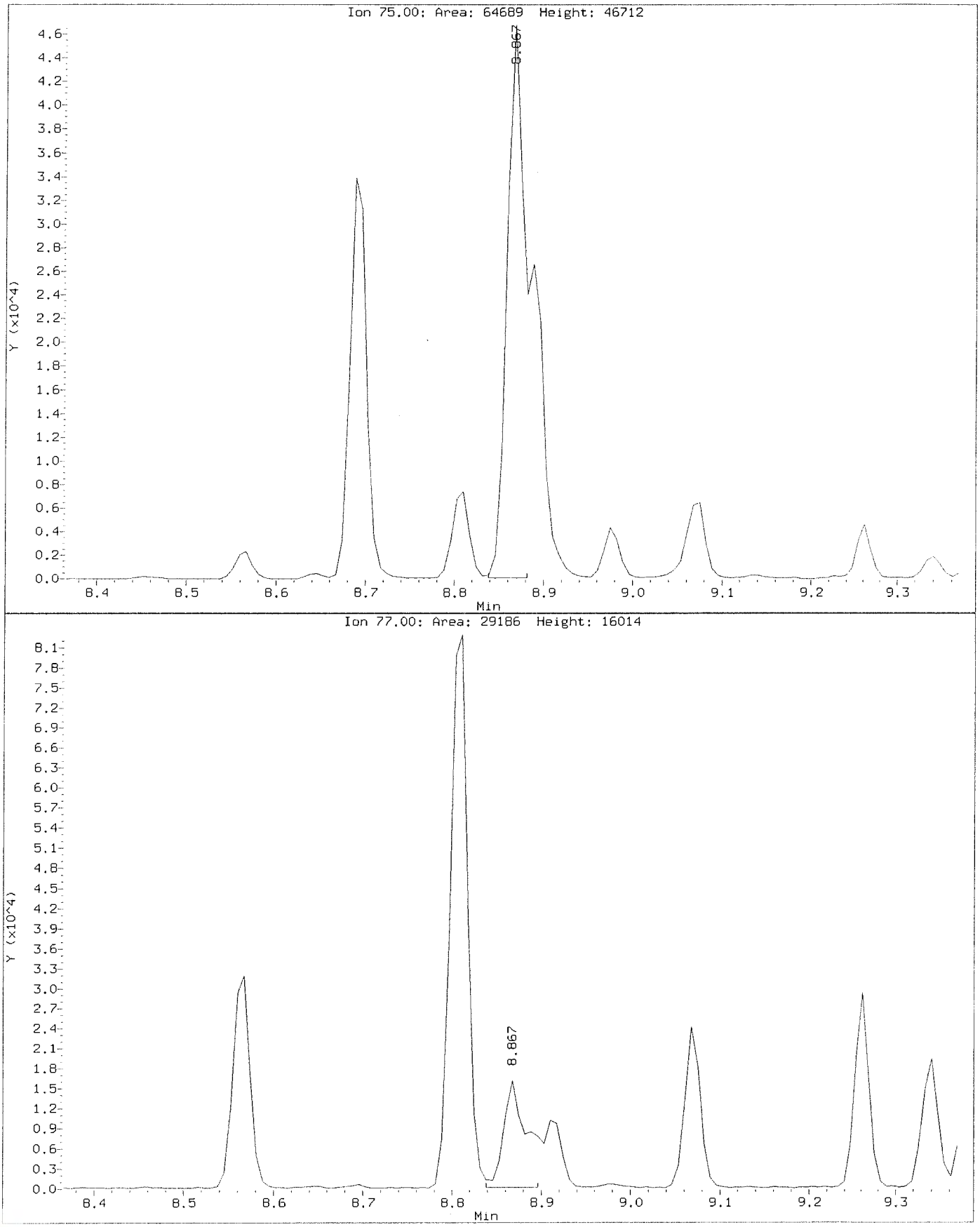
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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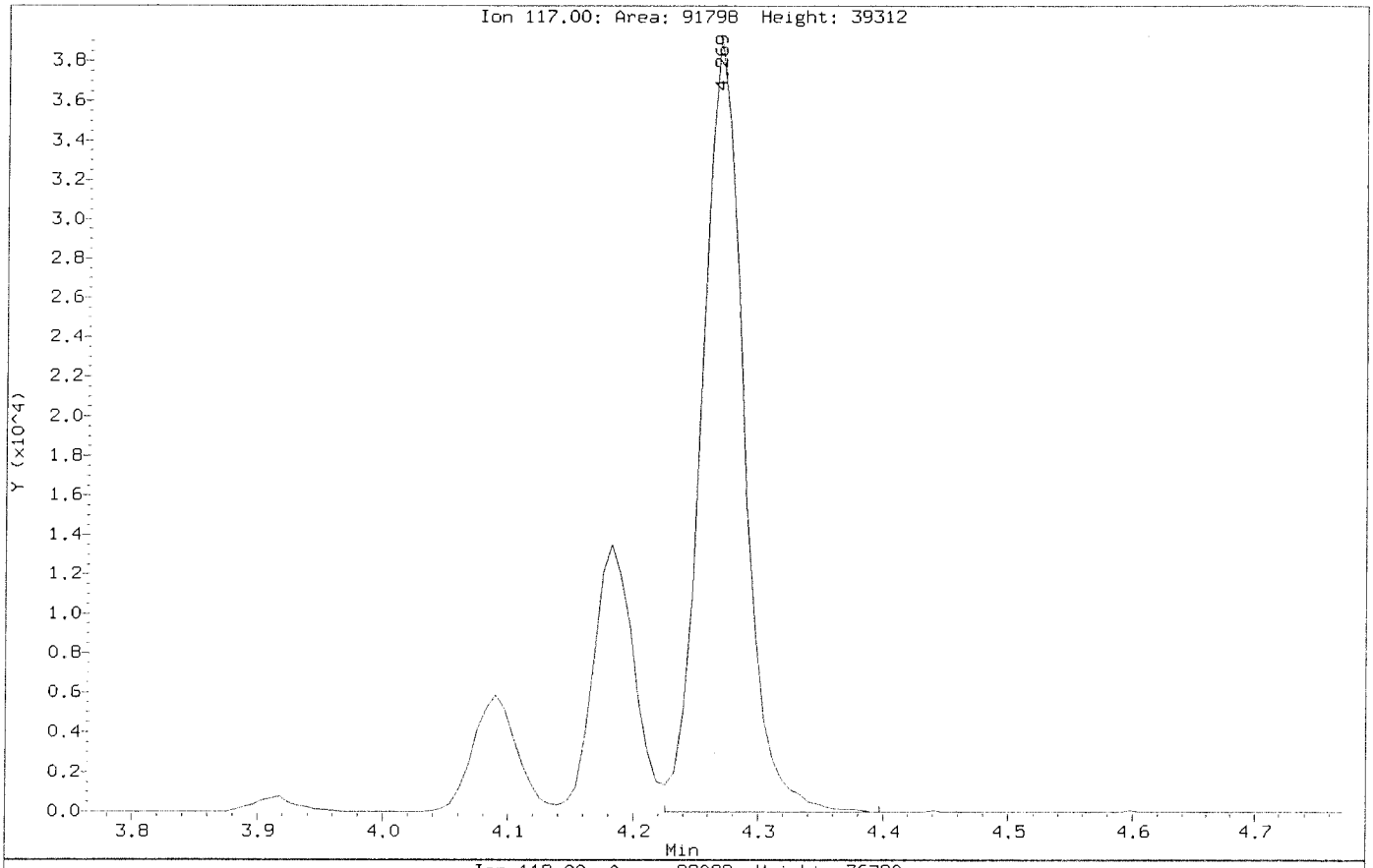
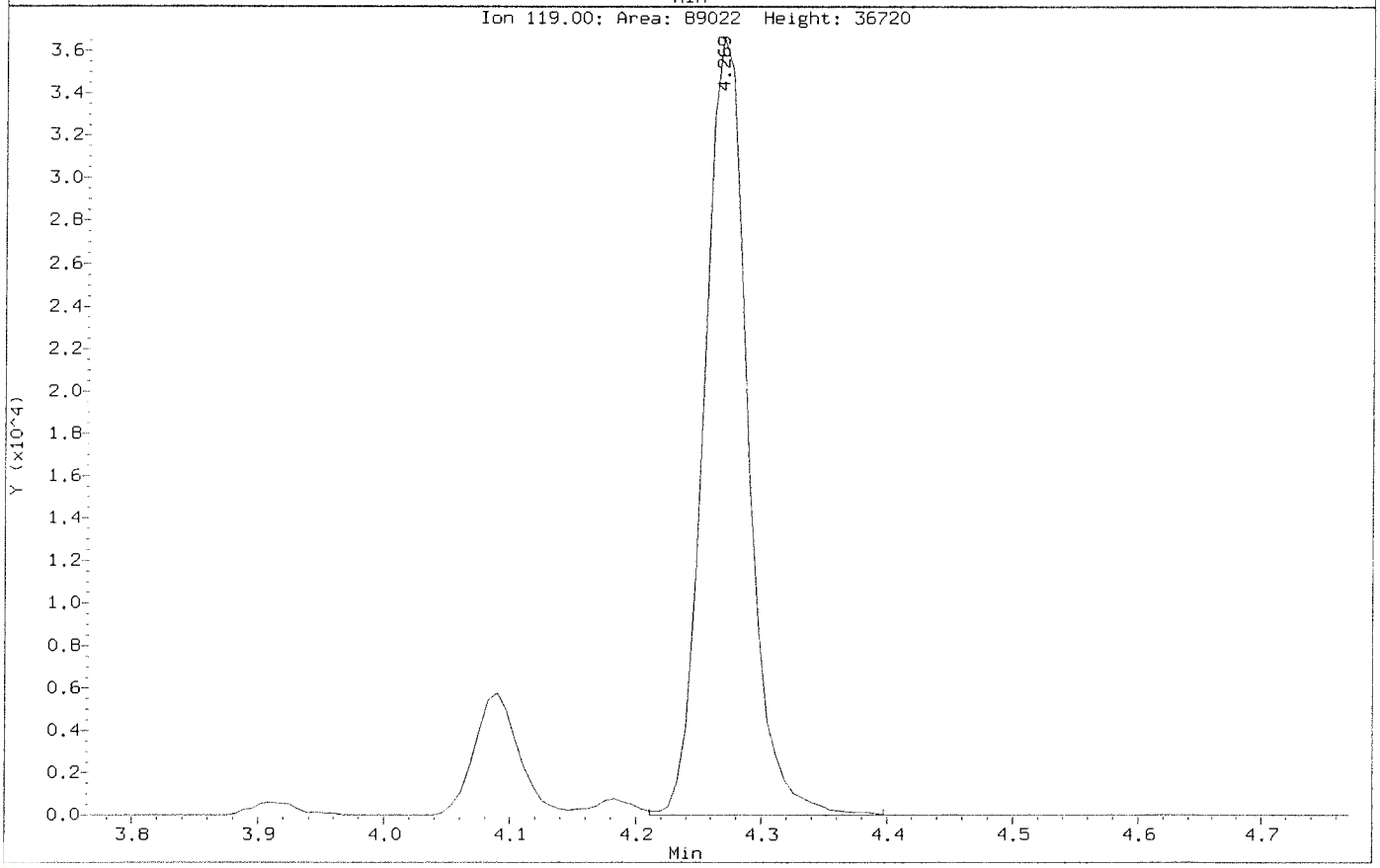
Injection Date: 18-NOV-2019 16:11
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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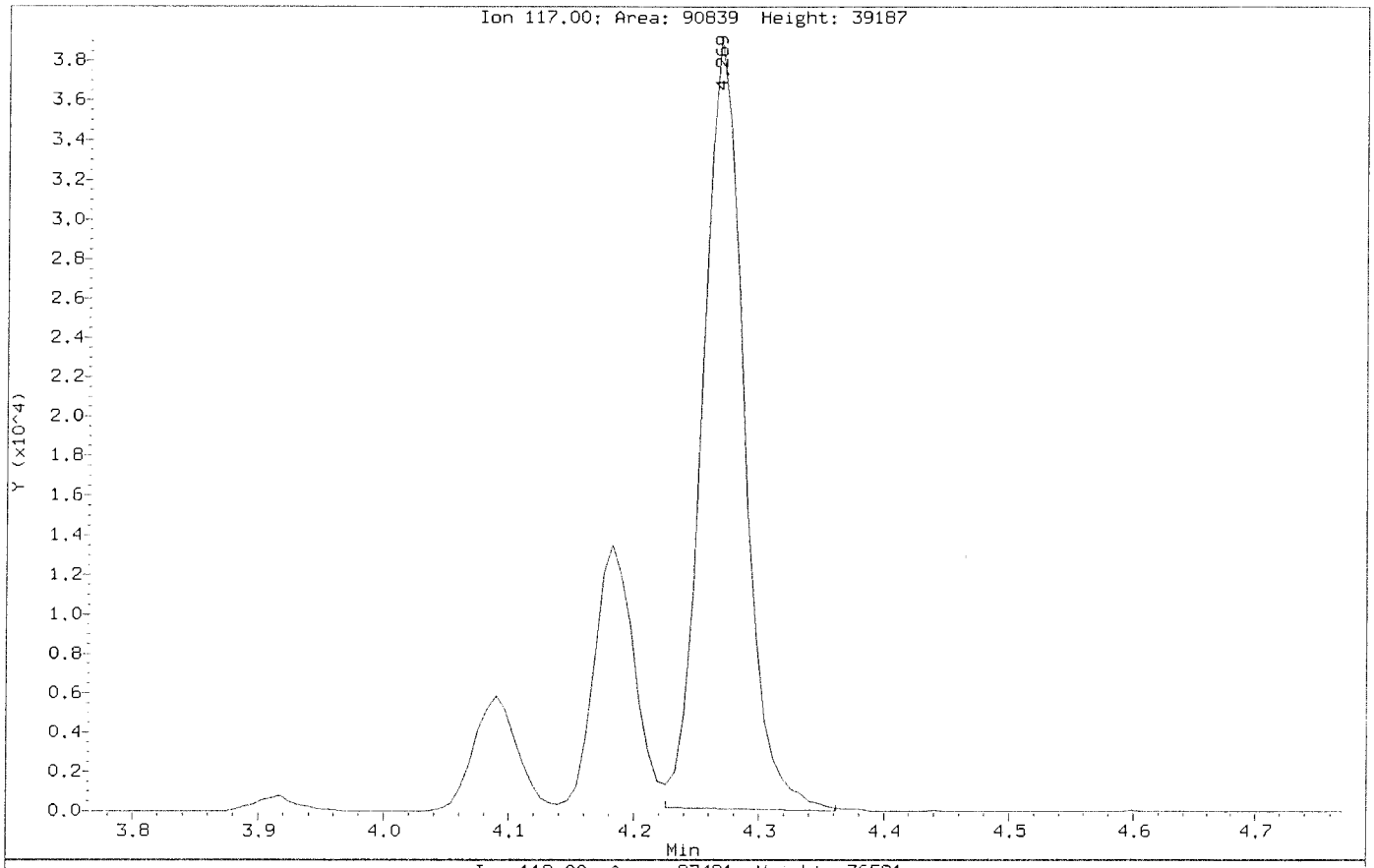
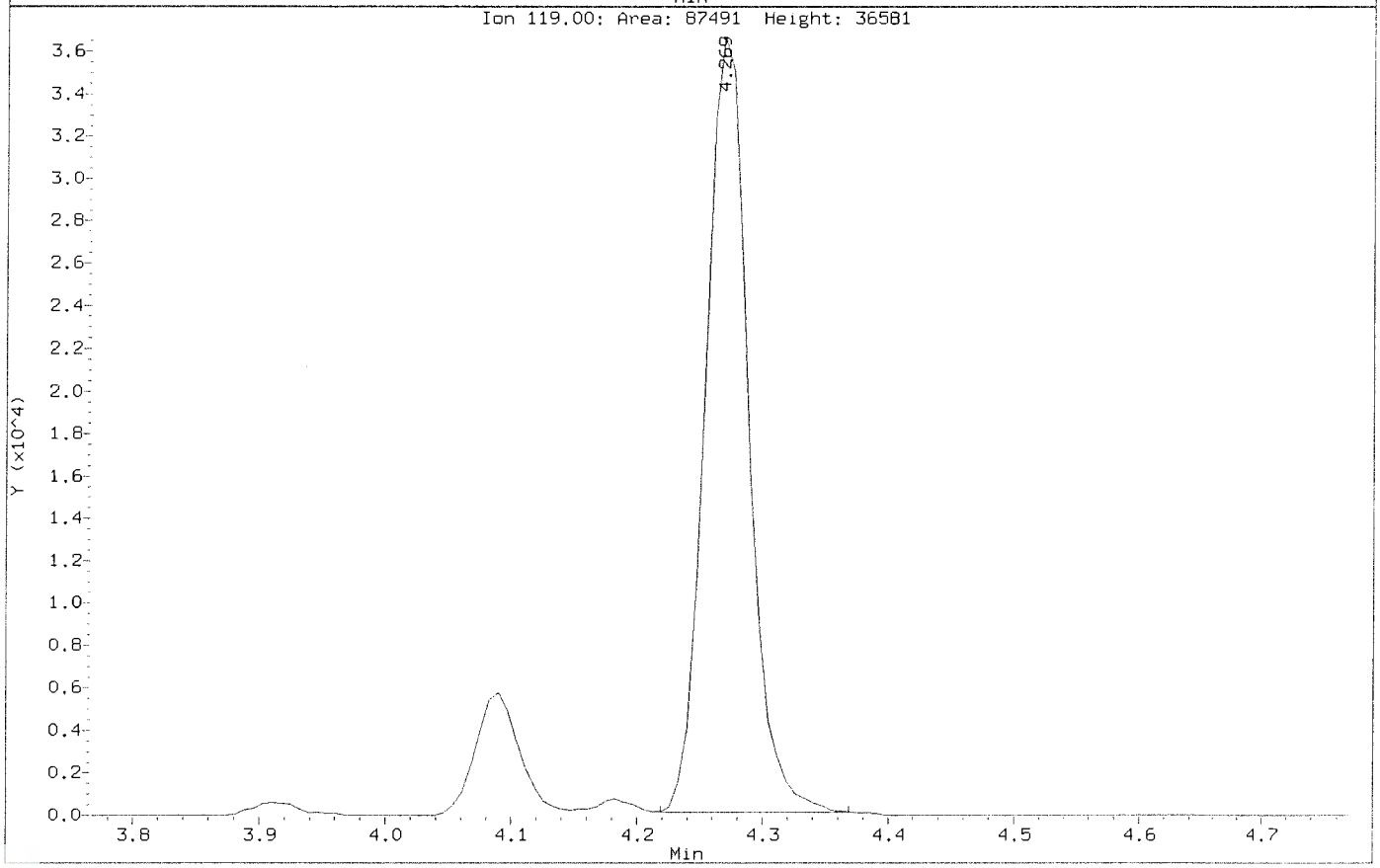
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 18-NOV-2019 16:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:11 Cal File: X111807.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

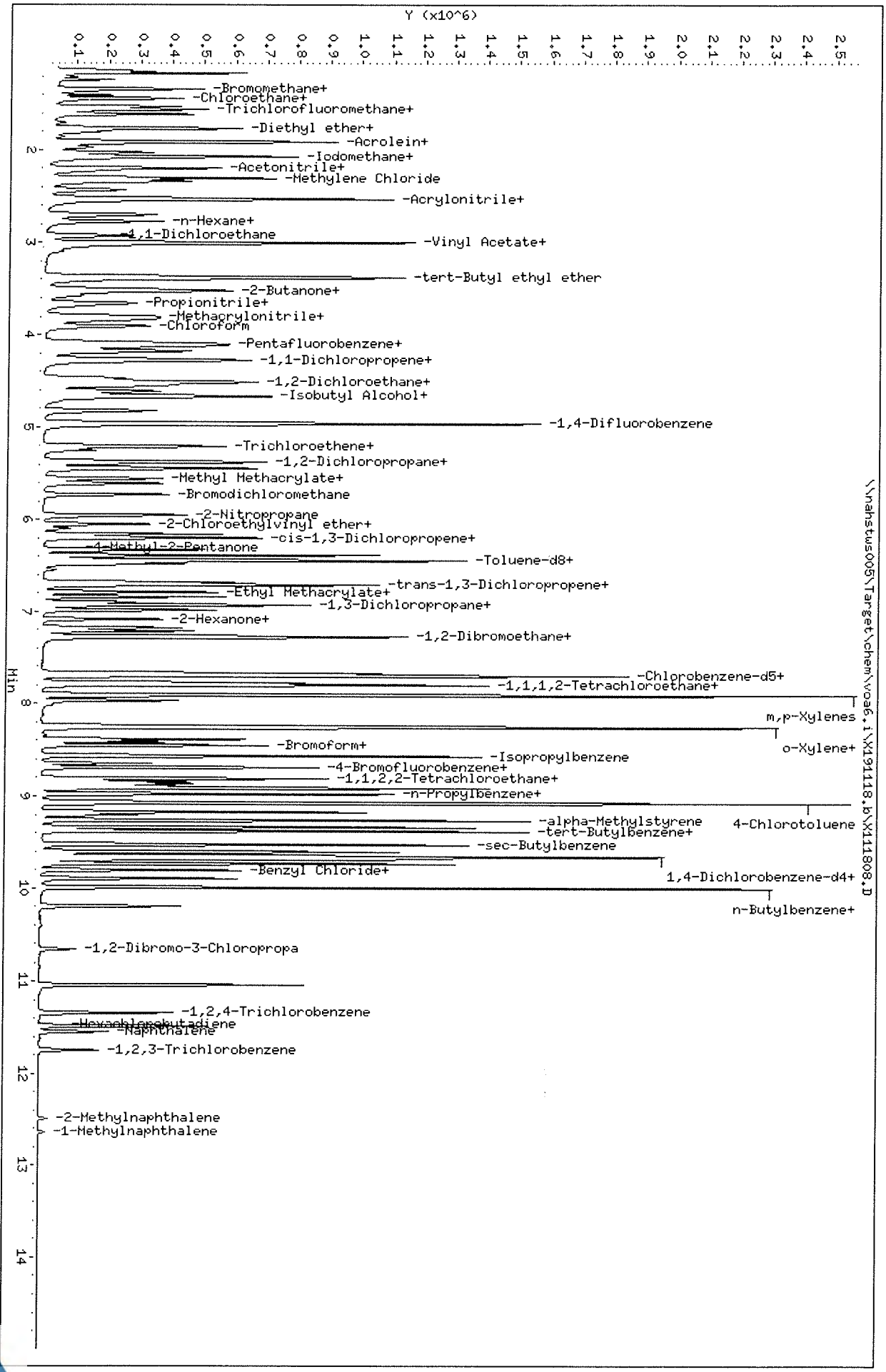
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	399282	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	548073	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502523	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	273444	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	178006	50.0000	47.42
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	222328	50.0000	47.57
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	173990	50.0000	47.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	608955	50.0000	45.99
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	184913	50.0000	50.72
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	268813	50.0000	49.90
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183844	50.0000	47.81
138 Freon TF	101	1.911	1.911	(0.457)	183115	50.0000	52.67
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	128481	50.0000	48.90
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	283343	50.0000	48.77
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	171500	50.0000	50.68
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	220463	50.0000	49.86
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	52554	50.0000	51.69
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	157820	50.0000	48.44(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	115181	50.0000	50.00
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	661580	50.0000	50.99
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	21800	50.0000	51.36
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	174730	50.0000	49.57

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111808.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	363670	50.0000	50.11
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	219760	50.0000	50.51
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	161607	50.0000	49.36
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	647527	50.0000	52.01
83 1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	398343	50.0000	50.79
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	259218	50.0000	48.60
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	400593	50.0000	50.27
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	257082	50.0000	48.75
24 2-Butanone	43	3.573	3.573	(0.854)	116745	100.000	95.28
76 2-Chlorotoluene	91	8.974	8.974	(0.928)	506692	50.0000	51.50
52 2-Hexanone	43	7.090	7.090	(0.924)	193251	100.000	93.61
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	603806	50.0000	50.63
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	703086	50.0000	52.54
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	284508	100.000	96.62
10 Acetone	43	1.976	1.976	(0.473)	103091	100.000	99.72
37 Benzene	78	4.512	4.512	(0.908)	637799	50.0000	50.87
74 Bromobenzene	156	8.809	8.809	(0.911)	240153	50.0000	50.53
29 Bromochloromethane	128	3.795	3.795	(0.908)	105150	50.0000	48.61
39 Bromodichloromethane	83	5.729	5.729	(1.153)	226127	50.0000	49.85
66 Bromoform	173	8.416	8.416	(1.097)	143798	50.0000	48.09
6 Bromomethane	94	1.338	1.338	(0.320)	215480	50.0000	54.47
19 Carbon Disulfide	76	2.069	2.069	(0.495)	951783	100.000	103.39
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	247524	50.0000	51.11(M)
59 Chlorobenzene	112	7.699	7.699	(1.004)	485055	50.0000	49.44
7 Chloroethane	64	1.403	1.403	(0.336)	124291	50.0000	49.44
28 Chloroform	83	3.910	3.910	(0.935)	300015	50.0000	46.39
3 Chloromethane	50	1.073	1.073	(0.257)	215753	50.0000	49.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	187629	50.0000	49.55
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	273432	50.0000	51.15
55 Dibromochloromethane	129	7.176	7.176	(0.936)	191497	50.0000	50.17
44 Dibromomethane	93	5.557	5.557	(1.118)	115707	50.0000	49.94
2 Dichlorodifluoromethane	85	0.973	0.973	(0.233)	186161	50.0000	51.14
61 Ethylbenzene	106	7.799	7.799	(1.017)	257283	50.0000	50.75
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	99881	50.0000	52.17
67 Isopropylbenzene	105	8.566	8.566	(1.117)	765390	50.0000	50.97
62 m,p-Xylenes	106	7.907	7.907	(1.031)	625932	100.000	102.32
17 Methylene Chloride	84	2.305	2.305	(0.551)	168044	50.0000	46.54
87 n-Butylbenzene	91	9.999	9.999	(1.034)	591076	50.0000	53.08
73 n-Propylbenzene	91	8.917	8.917	(0.922)	884464	50.0000	52.32
92 Naphthalene	128	11.546	11.546	(1.194)	142473	50.0000	48.22
63 o-Xylene	106	8.244	8.244	(1.075)	301622	50.0000	49.96
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	772064	50.0000	52.58
64 Styrene	104	8.258	8.258	(1.077)	530825	50.0000	50.56
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	550071	50.0000	51.60
56 Tetrachloroethene	164	6.933	6.933	(0.904)	176674	50.0000	50.03
50 Toluene	91	6.446	6.446	(0.840)	709296	50.0000	49.77
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	163591	50.0000	49.79
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	247921	50.0000	50.89
38 Trichloroethene	130	5.206	5.206	(1.048)	196625	50.0000	51.29
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	328789	50.0000	53.08
5 Vinyl Chloride	62	1.138	1.138	(0.272)	201503	50.0000	49.51

QC Flag Legend

M - Compound response manually integrated.



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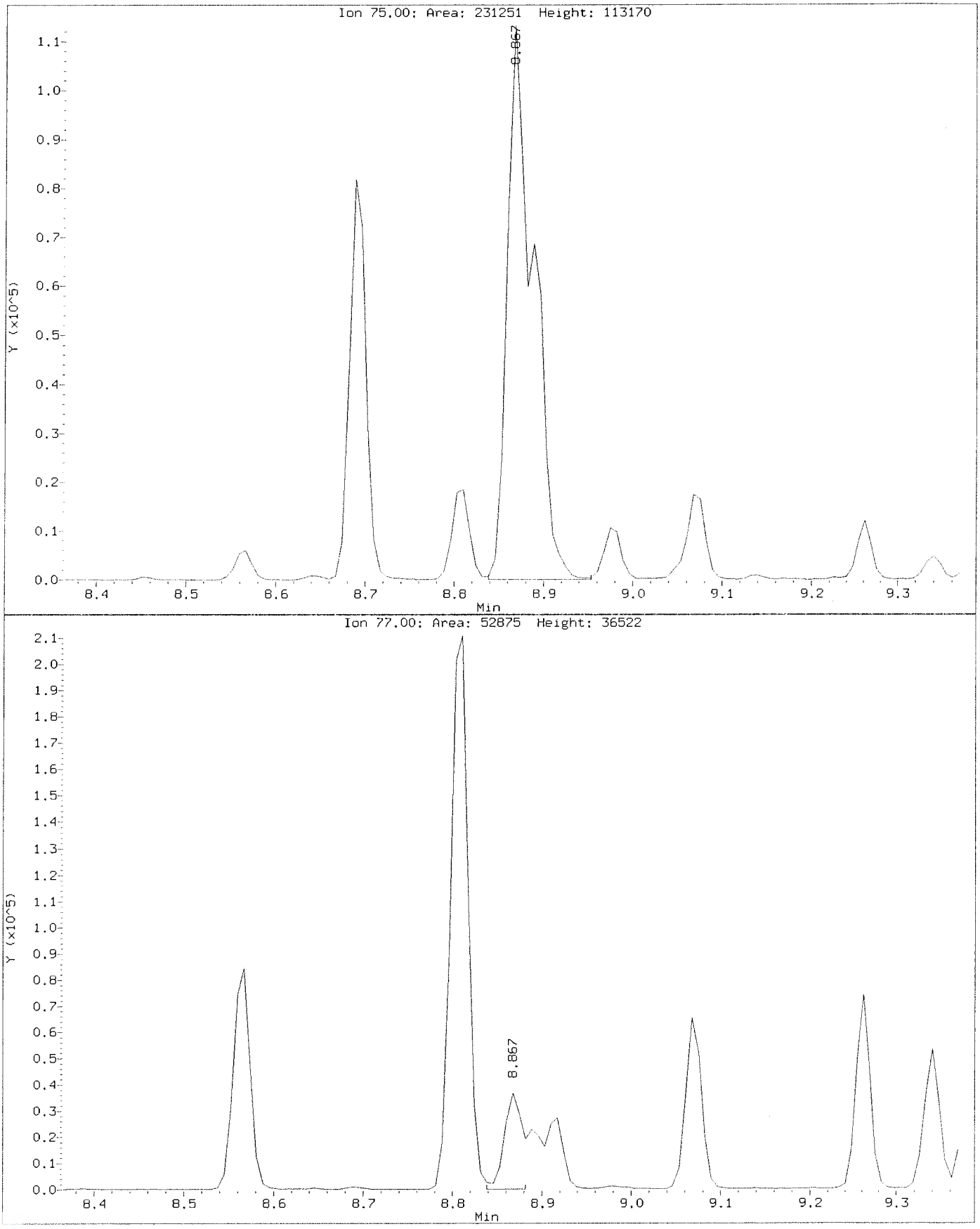
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111808.D
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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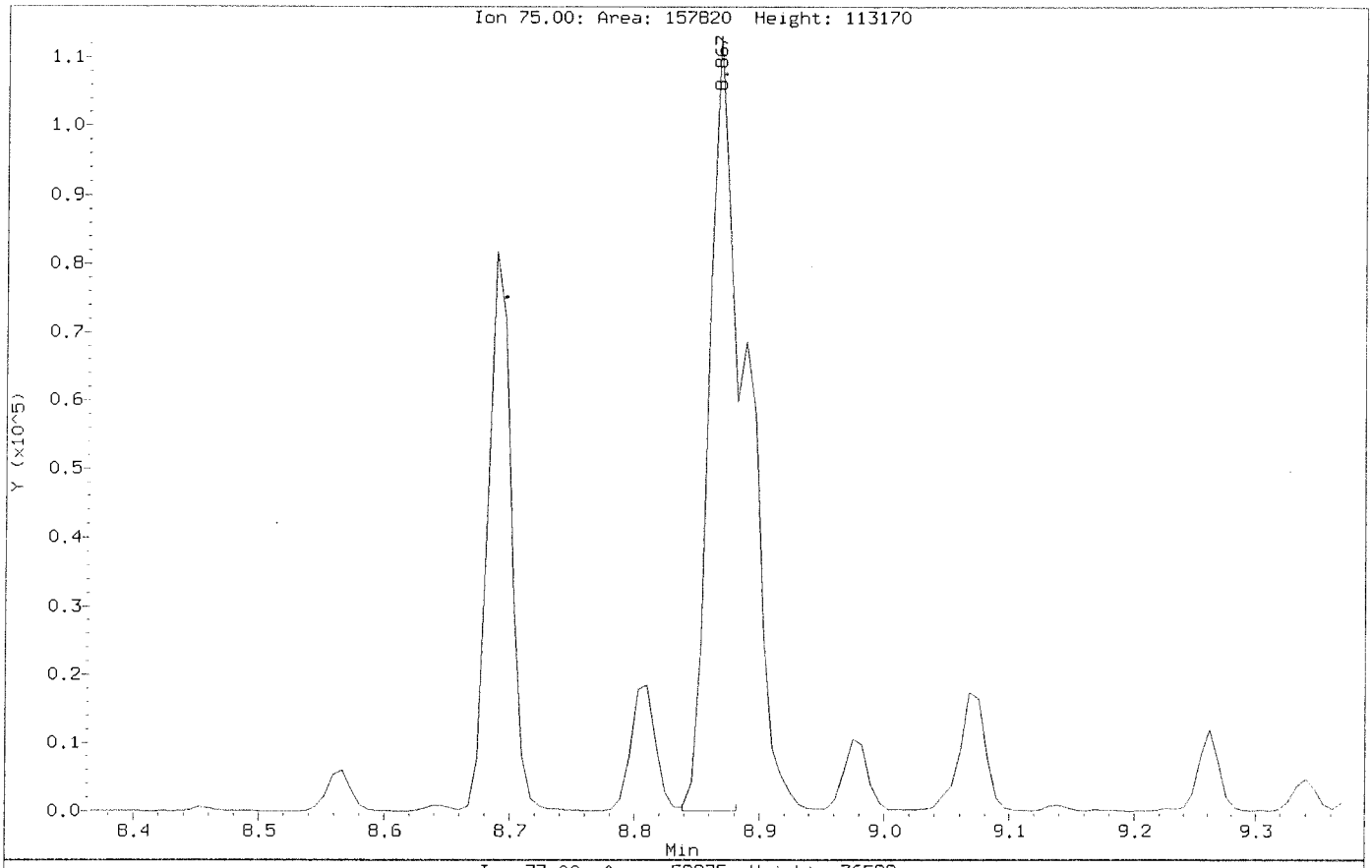
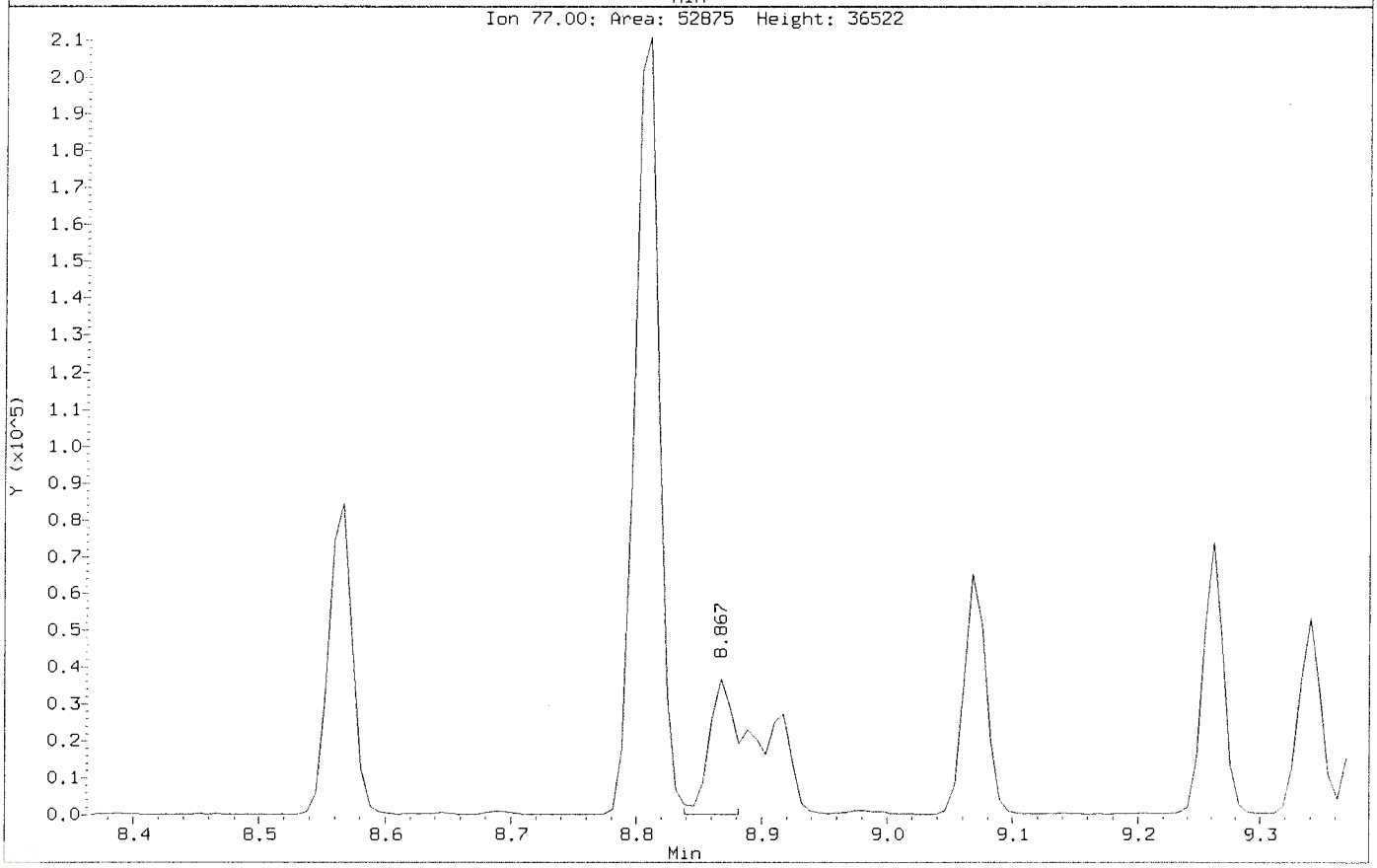
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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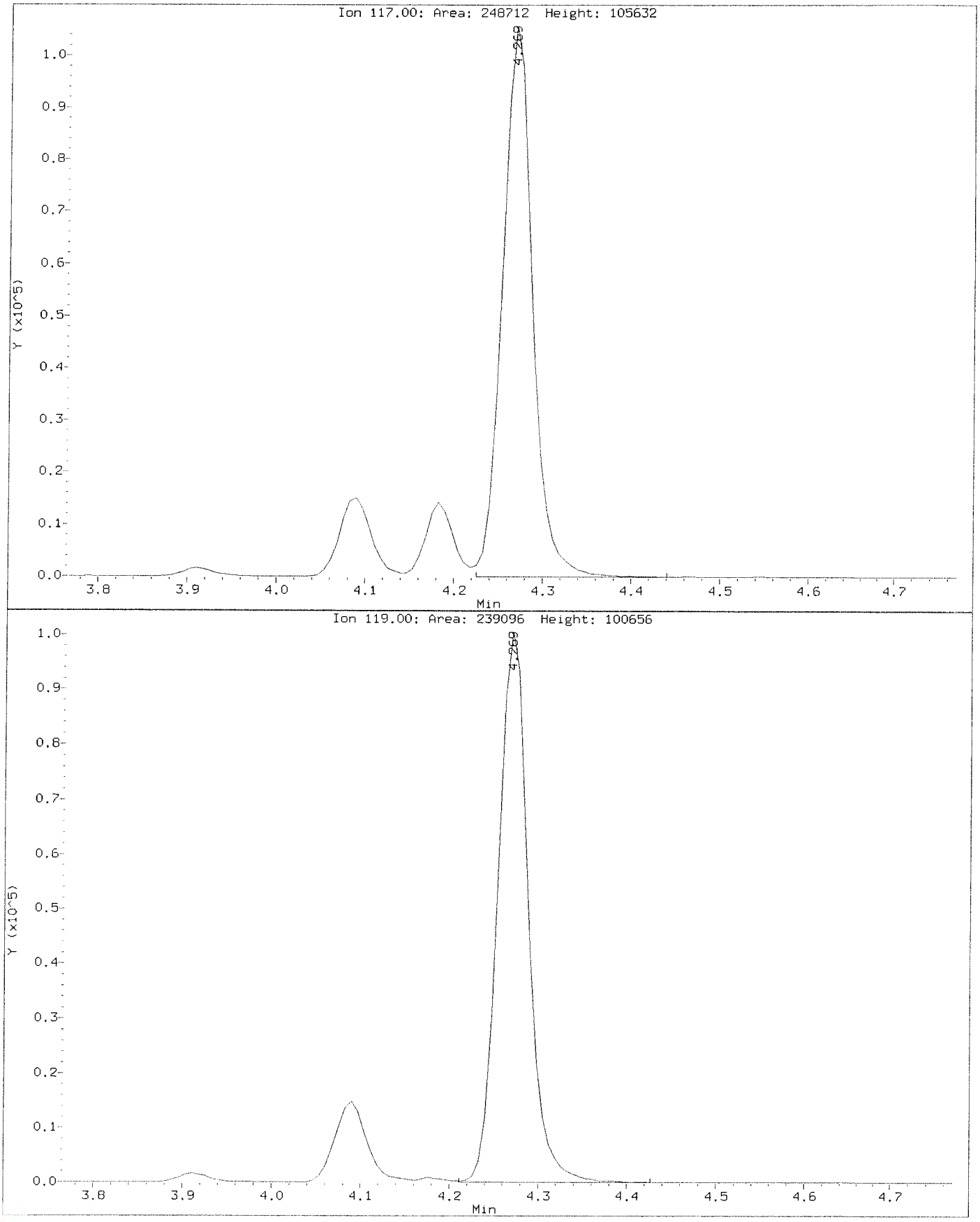
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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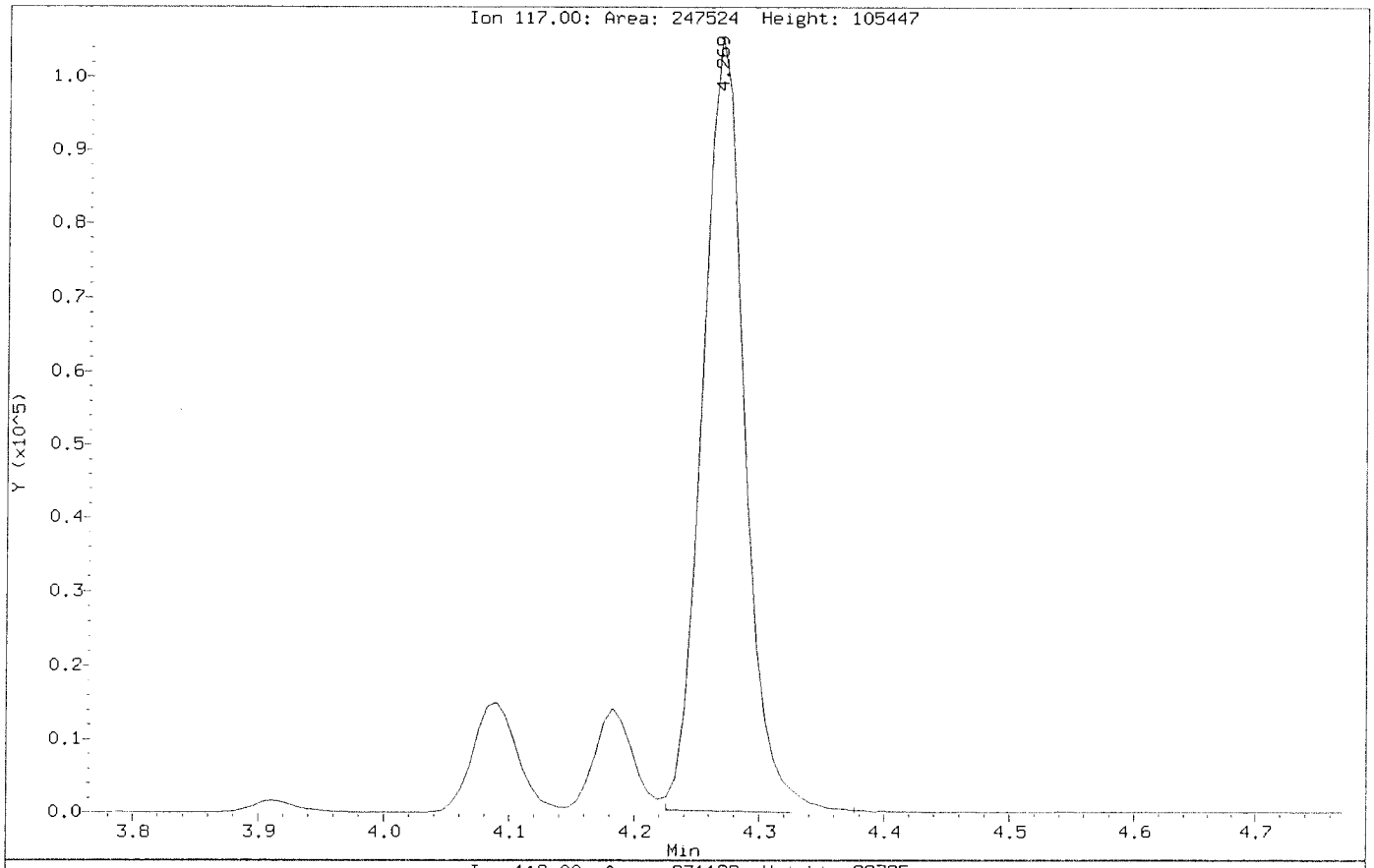
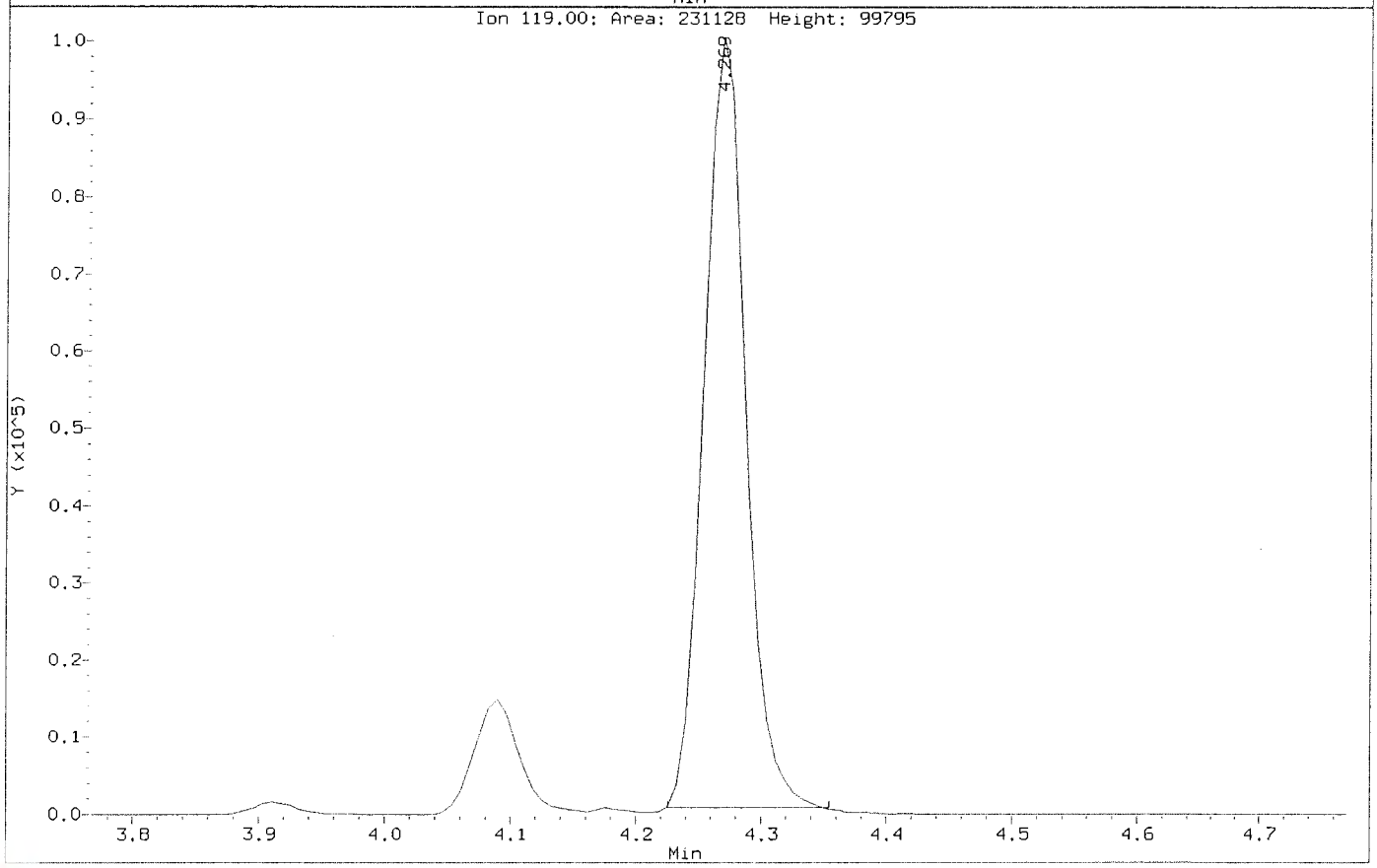
Injection Date: 18-NOV-2019 16:35
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 18-NOV-2019 16:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

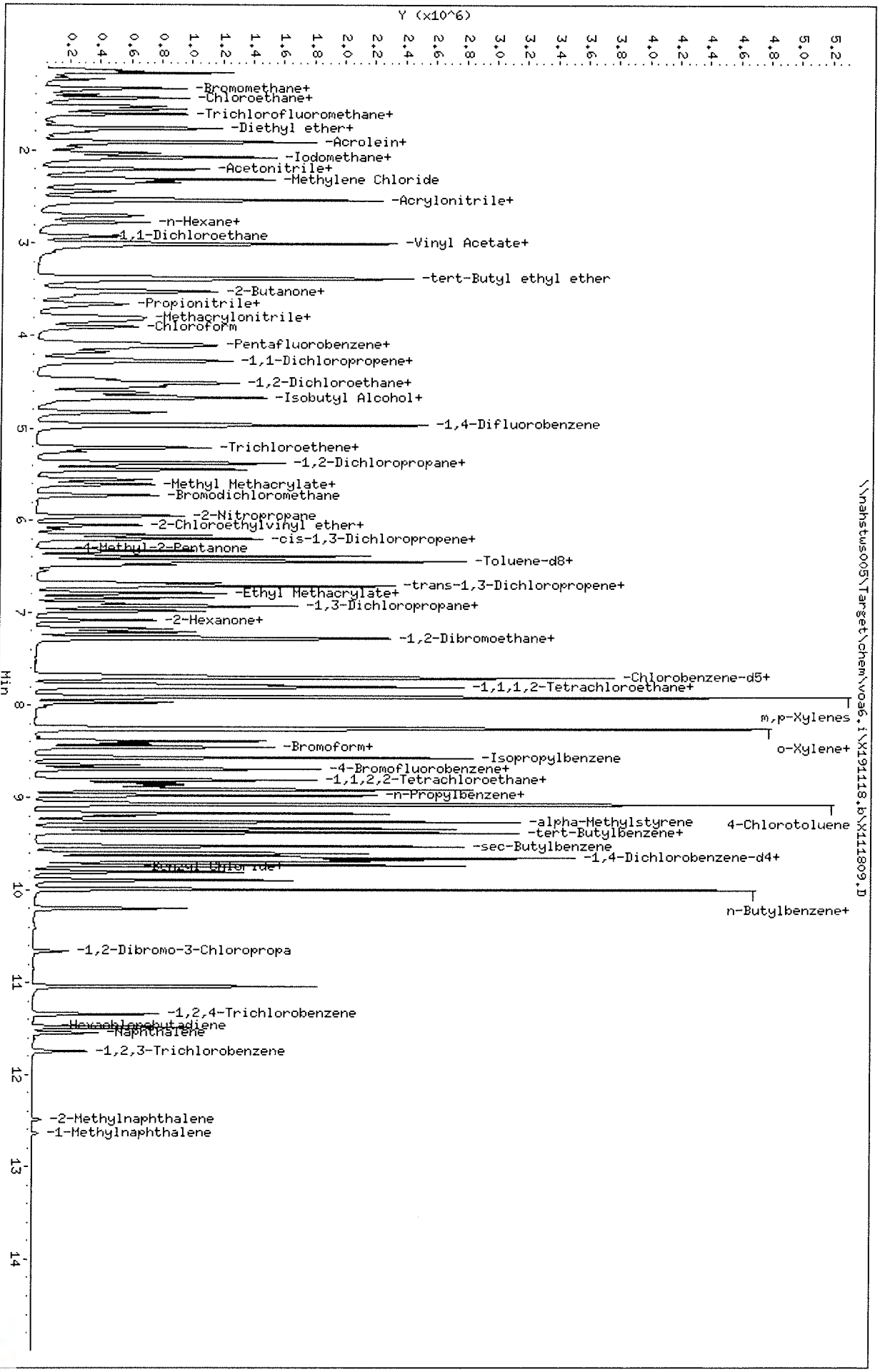
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	392699	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	554744	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	502006	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278931	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	364646	100.000	97.98
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	465570	100.000	99.26
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	354918	100.000	99.03
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1251601	100.000	94.62
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	370675	100.000	101.77
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	531073	100.000	100.24
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	374065	100.000	95.36
138 Freon TF	101	1.911	1.911	(0.457)	363001	100.000	106.17
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	259169	100.000	98.76
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	562516	100.000	98.44
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	336639	100.000	101.15
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	435155	100.000	97.24
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	102660	100.000	99.24
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	314678	100.000	94.68(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	224252	100.000	95.44
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	1360930	100.000	102.82
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	42468	100.000	98.40
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	348356	100.000	98.94

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111809.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88	1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	740257	100.000	99.99
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	440676	100.000	100.06
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	322033	100.000	97.17
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1326043	100.000	104.41
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	793024	100.000	99.13
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	523367	100.000	98.23
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	805891	100.000	99.14
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	505741	100.000	97.52
24	2-Butanone	43	3.580	3.580	(0.856)	231090	200.000	191.78
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	1019206	100.000	101.56
52	2-Hexanone	43	7.090	7.090	(0.924)	404339	200.000	196.07
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	1244013	100.000	102.27
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1420650	100.000	104.09
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	584699	200.000	198.78
10	Acetone	43	1.976	1.976	(0.473)	202207	200.000	202.71(A)
37	Benzene	78	4.519	4.519	(0.909)	1259183	100.000	99.22
74	Bromobenzene	156	8.809	8.809	(0.911)	477901	100.000	98.58
29	Bromochloromethane	128	3.795	3.795	(0.908)	204995	100.000	96.36
39	Bromodichloromethane	83	5.729	5.729	(1.153)	453036	100.000	98.68
66	Bromoform	173	8.415	8.415	(1.097)	293256	100.000	97.14
6	Bromomethane	94	1.331	1.331	(0.318)	396733	100.000	104.04
19	Carbon Disulfide	76	2.069	2.069	(0.495)	1866170	200.000	206.12(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	490954	100.000	100.15(H)
59	Chlorobenzene	112	7.699	7.699	(1.004)	969904	100.000	98.96
7	Chloroethane	64	1.396	1.396	(0.334)	244234	100.000	98.78
28	Chloroform	83	3.910	3.910	(0.935)	592217	100.000	93.11
3	Chloromethane	50	1.073	1.073	(0.257)	420936	100.000	98.51
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	373378	100.000	100.25
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	548280	100.000	101.34
55	Dibromochloromethane	129	7.176	7.176	(0.936)	387071	100.000	101.53
44	Dibromomethane	93	5.557	5.557	(1.118)	228649	100.000	97.50
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	359790	100.000	99.65
61	Ethylbenzene	106	7.799	7.799	(1.017)	511284	100.000	100.96
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	192455	100.000	99.01
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1550450	100.000	103.37
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1262031	200.000	206.53(A)
17	Methylene Chloride	84	2.305	2.305	(0.551)	333987	100.000	94.05
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1214189	100.000	106.90
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1771664	100.000	102.75
92	Naphthalene	128	11.546	11.546	(1.194)	281768	100.000	93.49
63	o-Xylene	106	8.244	8.244	(1.075)	610719	100.000	101.26
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	1561099	100.000	104.22
64	Styrene	104	8.258	8.258	(1.077)	1077784	100.000	102.77
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1121644	100.000	103.15
56	Tetrachloroethene	164	6.933	6.933	(0.904)	341567	100.000	96.83
50	Toluene	91	6.446	6.446	(0.840)	1413996	100.000	99.32
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	324394	100.000	100.39
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	504686	100.000	102.35
38	Trichloroethene	130	5.206	5.206	(1.048)	388311	100.000	100.09
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	647137	100.000	106.23
5	Vinyl Chloride	62	1.138	1.138	(0.272)	400884	100.000	100.16

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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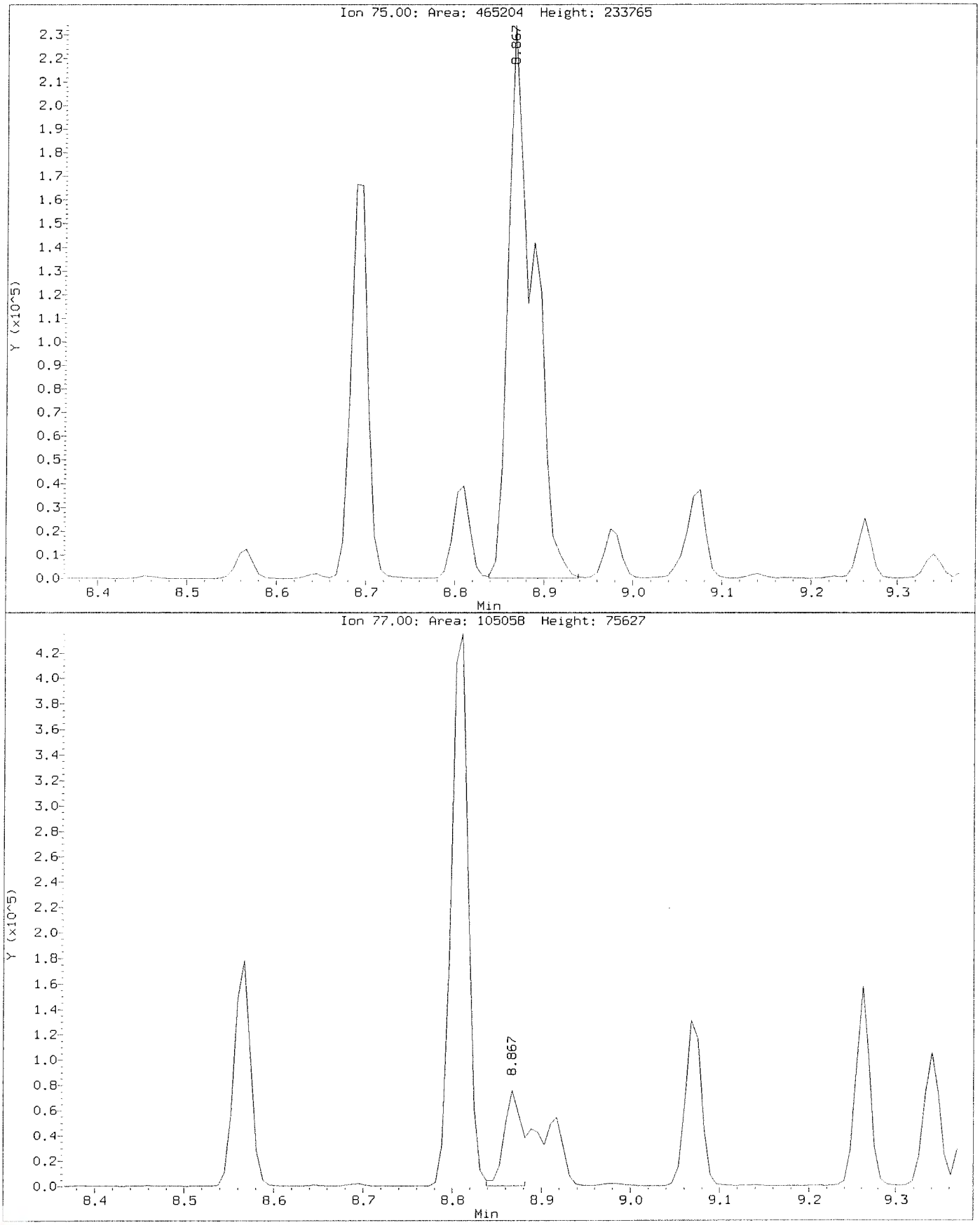
Date : 18-NOV-2019 16:59
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111809.D
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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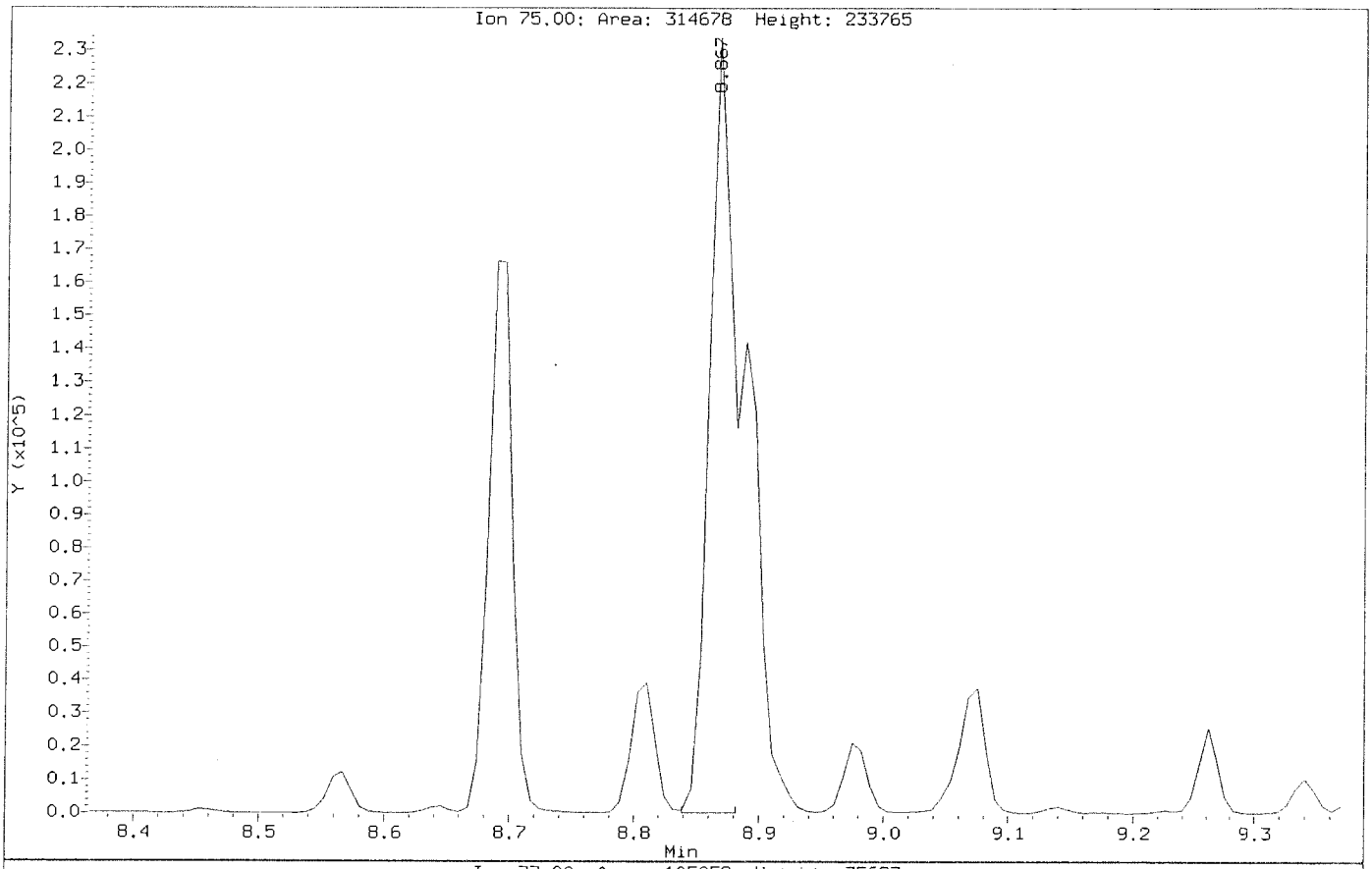
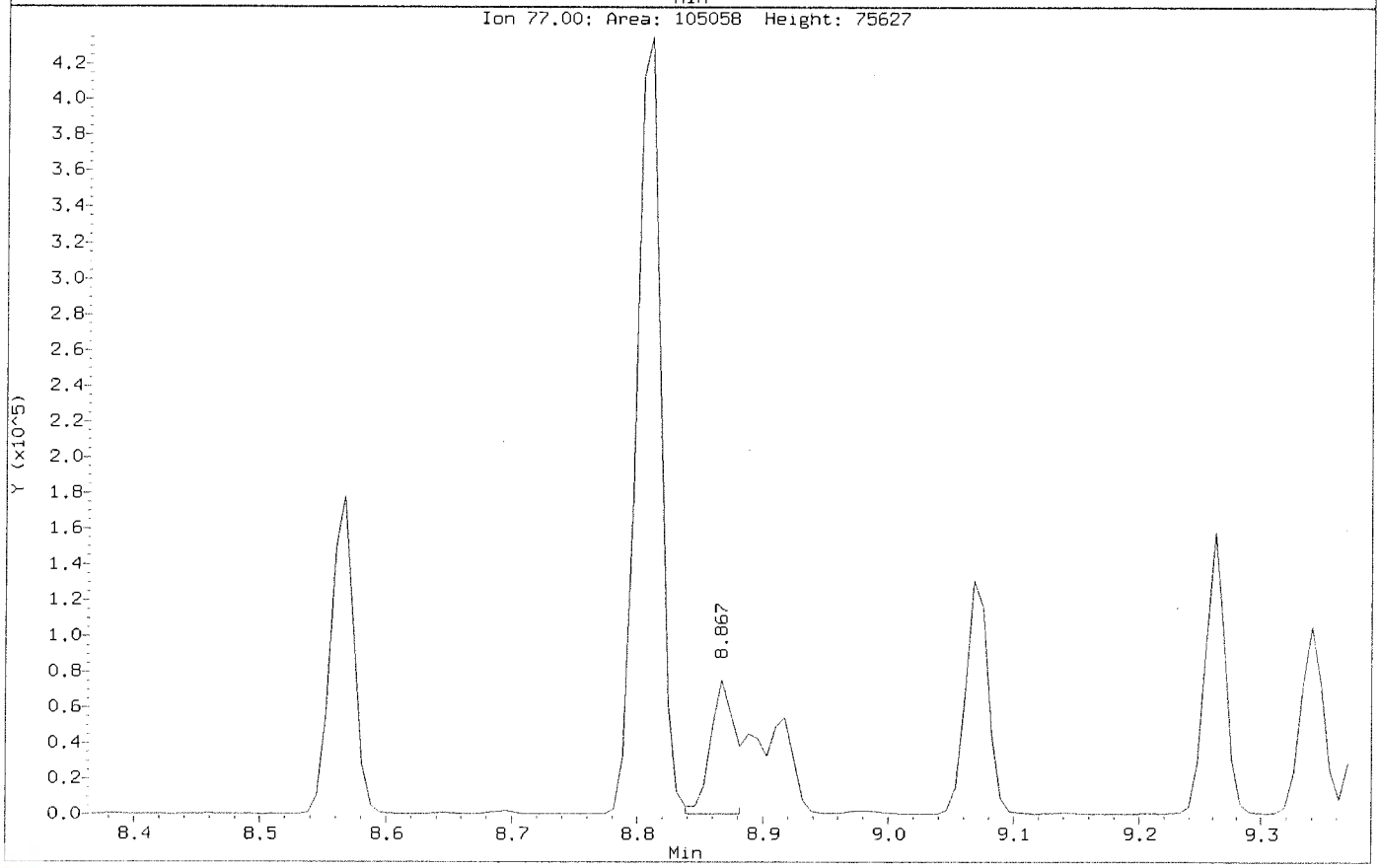
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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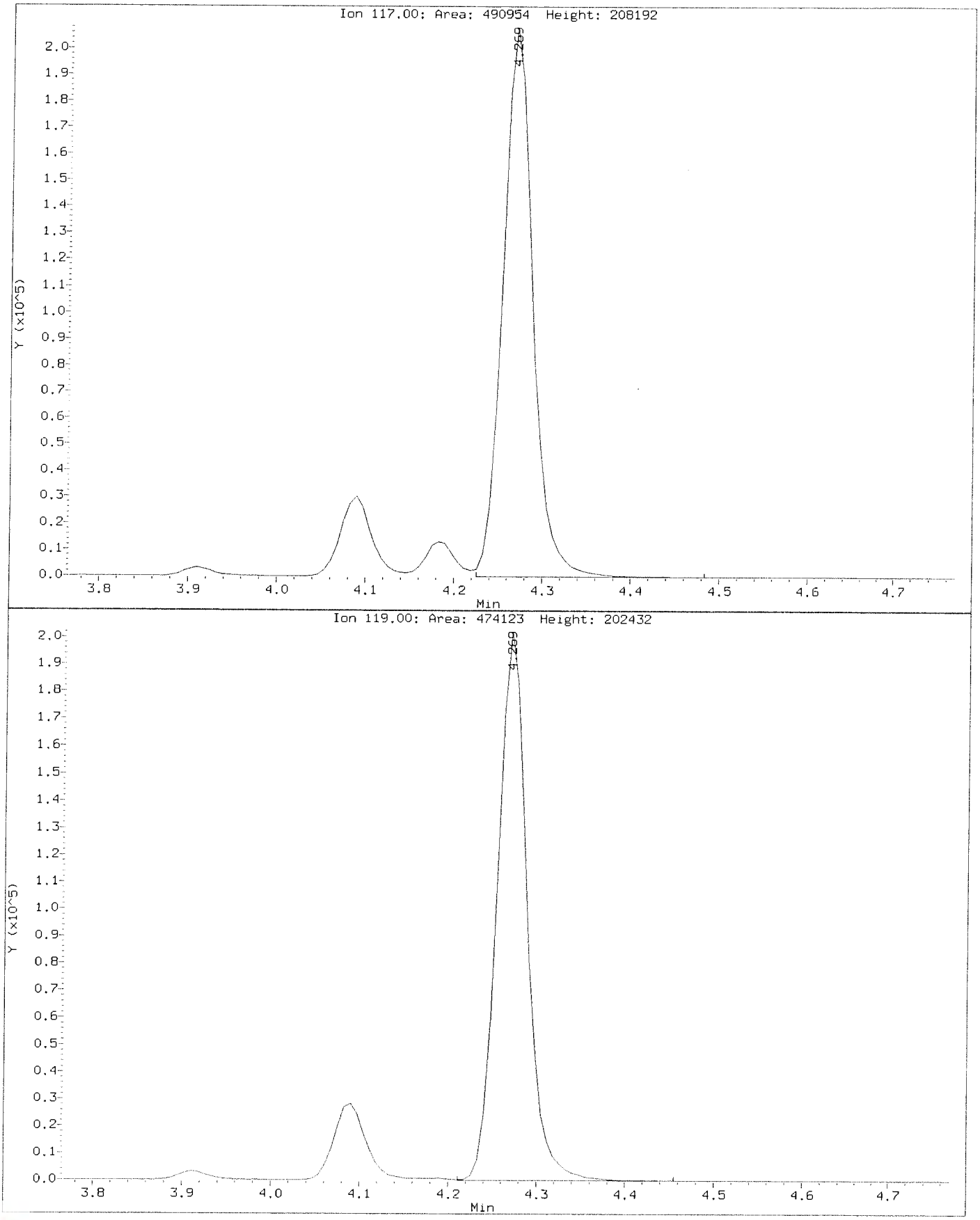
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5



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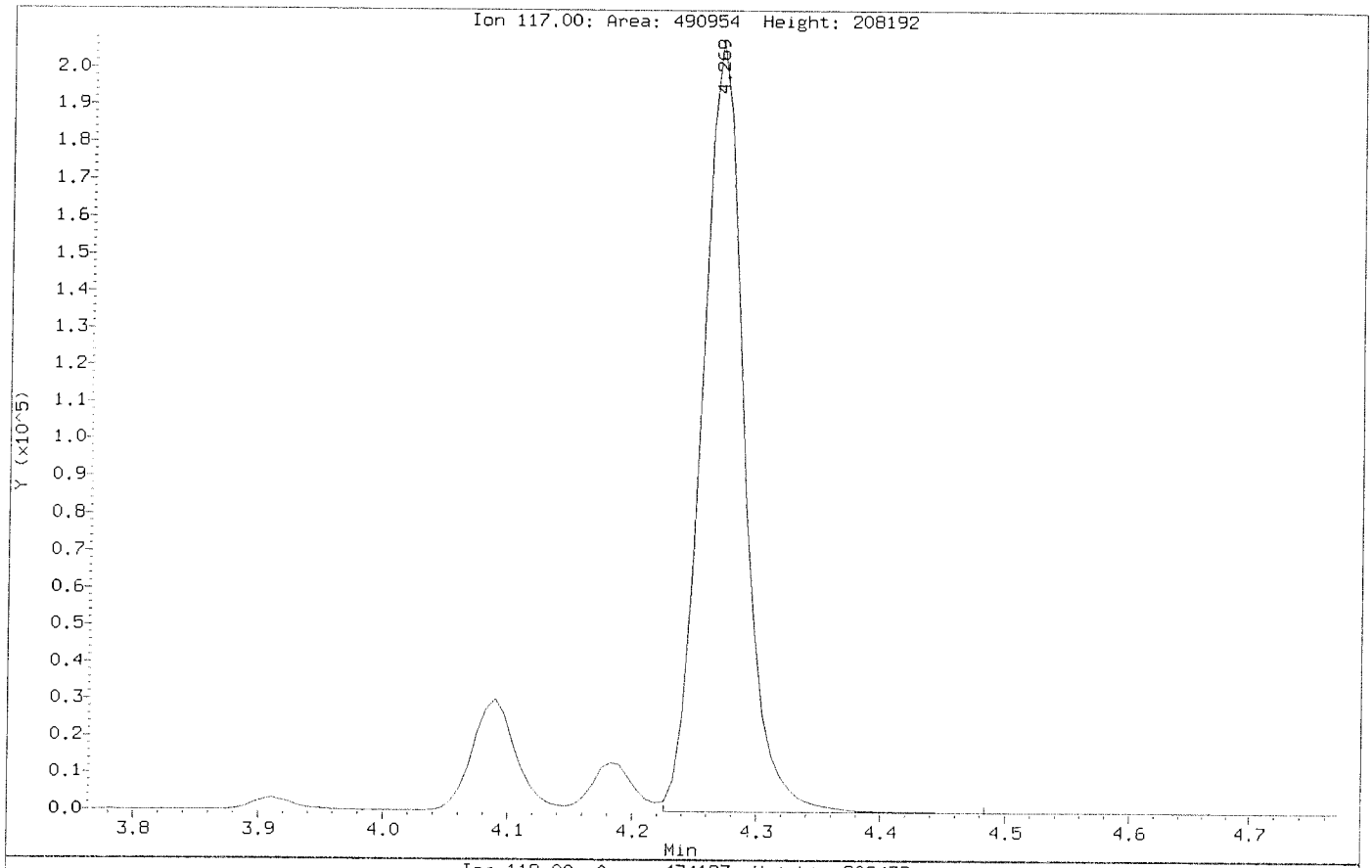
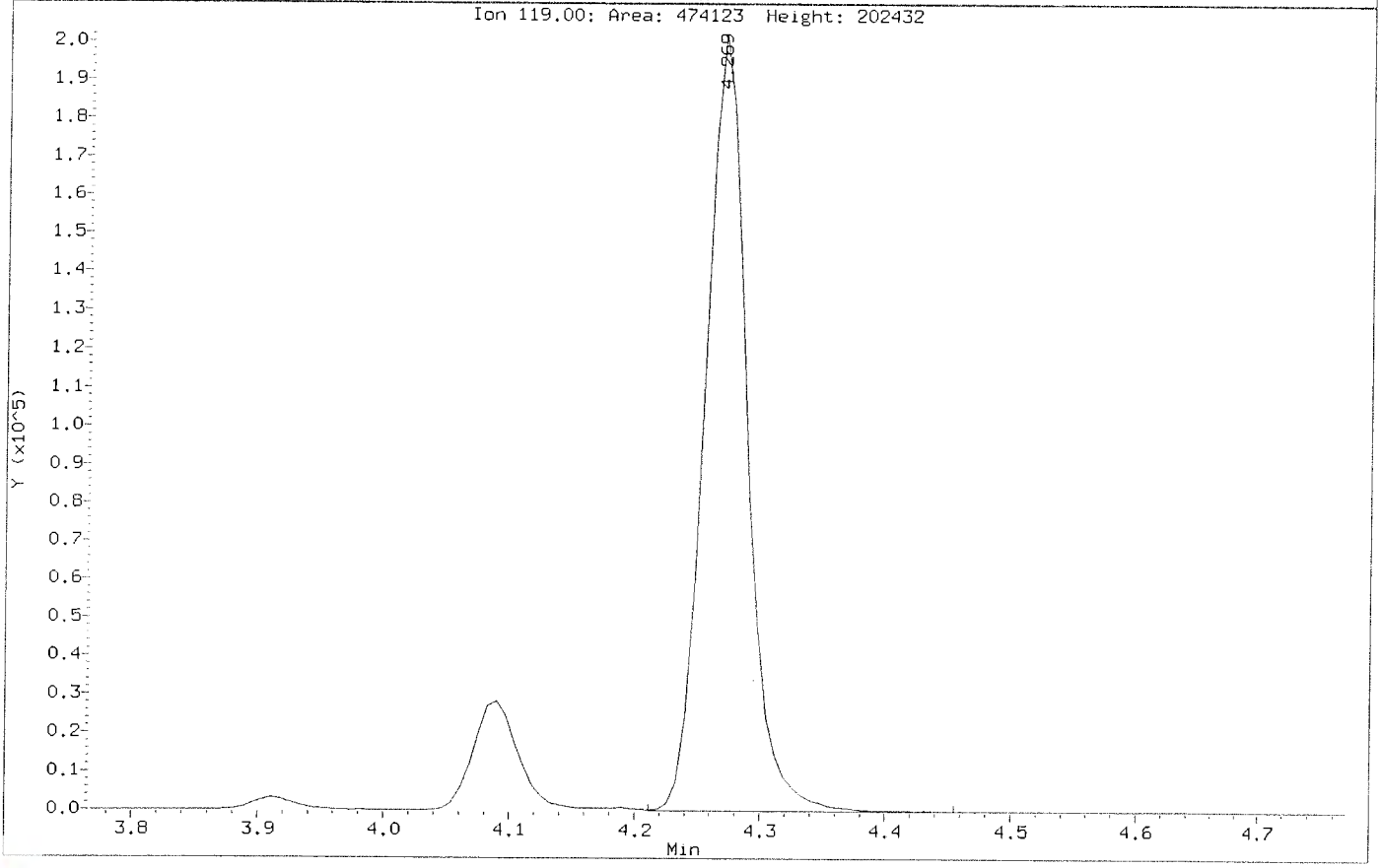
Injection Date: 18-NOV-2019 16:59
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 18-NOV-2019 17:22
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 16:59 Cal File: X111809.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

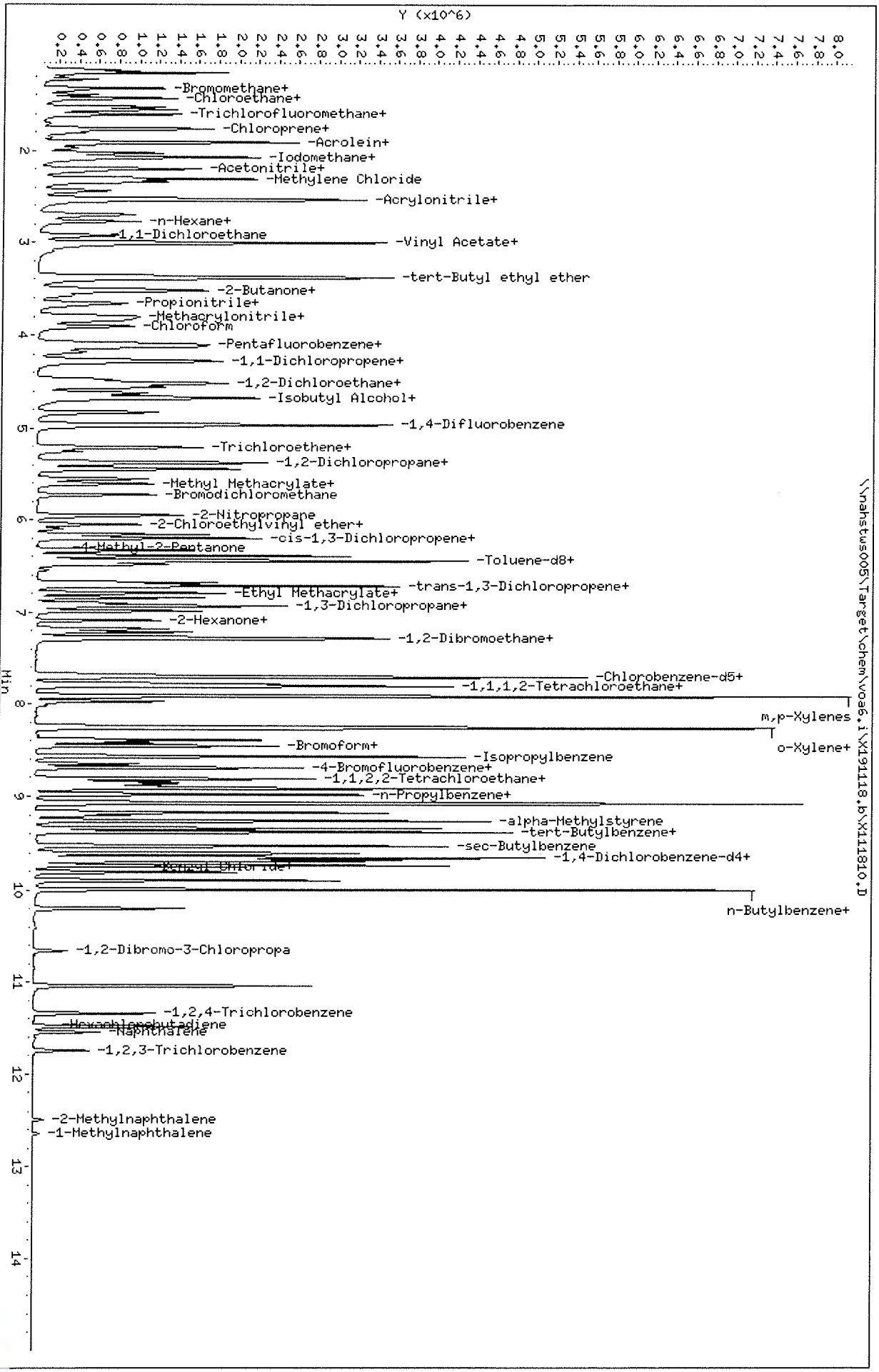
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	378157	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542191	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	494760	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	282310	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	532181	150.000	148.11
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	688600	150.000	148.76
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.981)	514854	150.000	148.99
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	1815269	150.000	139.25
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	548257	150.000	152.74
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	768782	150.000	150.69
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	560927	150.000	141.29
138 Freon TF	101	1.912	1.912	(0.457)	513260	150.000	155.89
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	380298	150.000	147.04
22 1,1-Dichloroethane	63	2.922	2.922	(0.699)	825788	150.000	150.08
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	483391	150.000	150.83
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	635821	150.000	145.37
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	156391	150.000	148.93
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	465353	150.000	138.34(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	338737	150.000	142.44
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	2030171	150.000	151.55
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	65470	150.000	150.06
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	518766	150.000	149.49

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1121580	150.000	149.69
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	645436	150.000	149.95
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	471959	150.000	145.71
75 1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1980658	150.000	154.09
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1183710	150.000	146.20
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	763789	150.000	145.46
84 1,4-Dichlorobenzene	146	9.684	9.684	(1.001)	1195790	150.000	145.34
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	732900	150.000	146.75
24 2-Butanone	43	3.573	3.573	(0.854)	346972	300.000	299.02(A)
76 2-Chlorotoluene	91	8.982	8.982	(0.929)	1513395	150.000	149.00
52 2-Hexanone	43	7.090	7.090	(0.924)	606144	300.000	298.23(A)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	1867848	150.000	151.71
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2100293	150.000	152.04
45 4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	884349	300.000	305.06(A)
10 Acetone	43	1.976	1.976	(0.473)	284604	300.000	298.06(A)
37 Benzene	78	4.512	4.512	(0.908)	1843665	150.000	148.64
74 Bromobenzene	156	8.810	8.810	(0.911)	709083	150.000	144.52
29 Bromochloromethane	128	3.795	3.795	(0.908)	294445	150.000	143.73
39 Bromodichloromethane	83	5.730	5.730	(1.153)	669356	150.000	149.18
66 Bromoform	173	8.416	8.416	(1.097)	447981	150.000	150.02
6 Bromomethane	94	1.331	1.331	(0.318)	529714	150.000	145.16
19 Carbon Disulfide	76	2.069	2.069	(0.495)	2705391	300.000	310.30(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	707541	150.000	147.68(H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	1445648	150.000	149.66
7 Chloroethane	64	1.396	1.396	(0.334)	351927	150.000	147.81
28 Chloroform	83	3.910	3.910	(0.935)	863467	150.000	140.99
3 Chloromethane	50	1.074	1.074	(0.257)	613254	150.000	148.94
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	542390	150.000	151.24
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	808388	150.000	152.88
55 Dibromochloromethane	129	7.176	7.176	(0.936)	573494	150.000	152.63
44 Dibromomethane	93	5.558	5.558	(1.118)	338759	150.000	147.80
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	504807	150.000	144.79
61 Ethylbenzene	106	7.800	7.800	(1.017)	751250	150.000	150.52
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	279881	150.000	142.49
67 Isopropylbenzene	105	8.566	8.566	(1.117)	2283588	150.000	154.47
62 m,p-Xylenes	106	7.907	7.907	(1.031)	1861660	300.000	309.12(A)
17 Methylene Chloride	84	2.306	2.306	(0.551)	485622	150.000	142.02
87 n-Butylbenzene	91	9.999	9.999	(1.034)	1823176	150.000	158.59
73 n-Propylbenzene	91	8.917	8.917	(0.922)	2616190	150.000	149.92
92 Naphthalene	128	11.546	11.546	(1.194)	435593	150.000	142.81
63 o-Xylene	106	8.244	8.244	(1.075)	906786	150.000	152.56
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	2308597	150.000	152.28
64 Styrene	104	8.258	8.258	(1.077)	1622659	150.000	156.99
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	1665732	150.000	151.35
56 Tetrachloroethene	164	6.933	6.933	(0.904)	493485	150.000	141.95
50 Toluene	91	6.446	6.446	(0.840)	2107838	150.000	150.23
20 trans-1,2-Dichloroethene	96	2.528	2.528	(0.604)	472385	150.000	151.82
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	741568	150.000	153.87
38 Trichloroethene	130	5.207	5.207	(1.048)	566006	150.000	149.27
8 Trichlorofluoromethane	101	1.553	1.553	(0.372)	922117	150.000	157.19
5 Vinyl Chloride	62	1.138	1.138	(0.272)	578026	150.000	149.97

QC Flag Legend

A - Target compound detected but, quantitated amount
exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



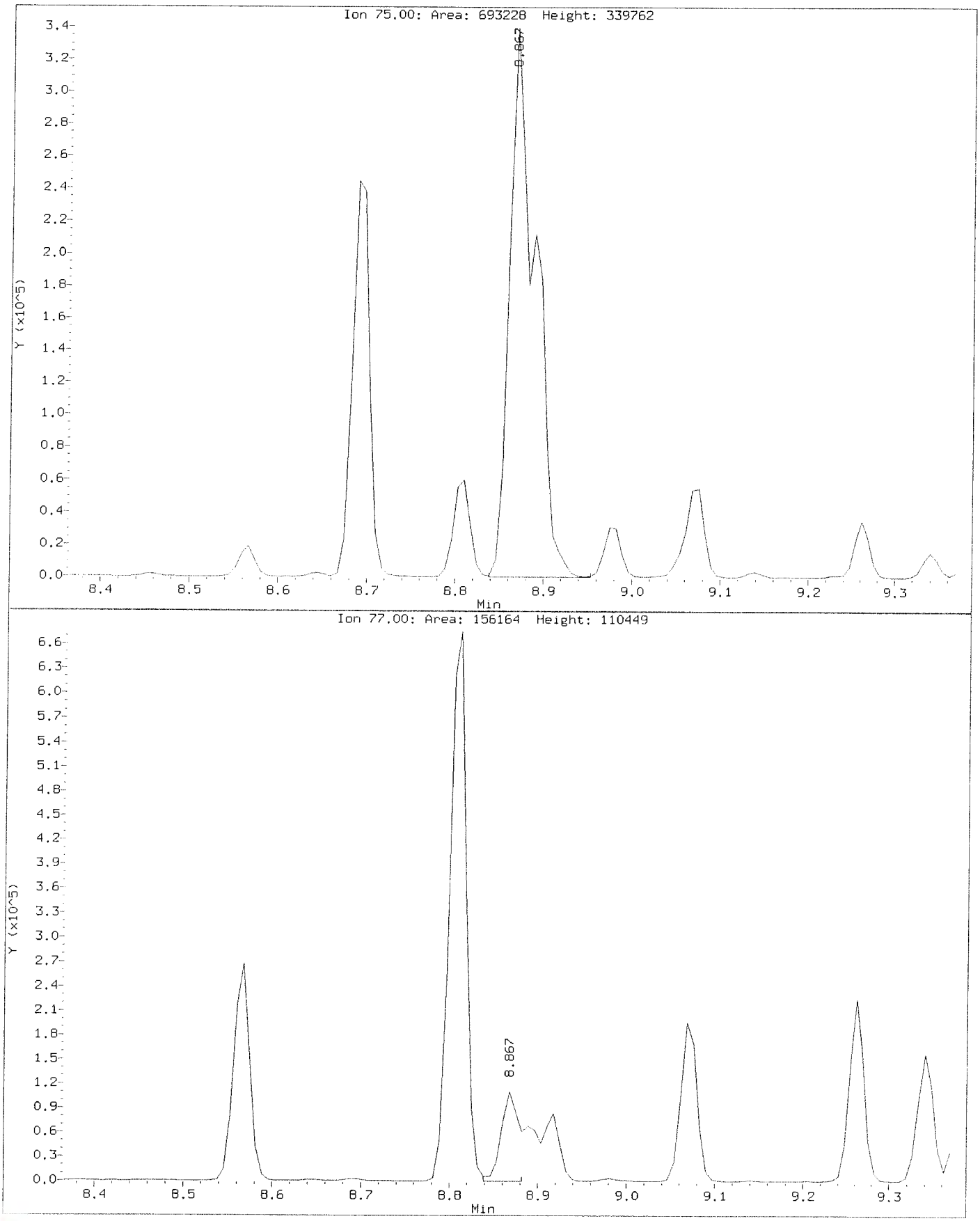
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D
Date : 18-NOV-2019 17:22
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

\\nahstws005\Target\chem\voa6.i\X191118.b\X111810.D

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111810.D
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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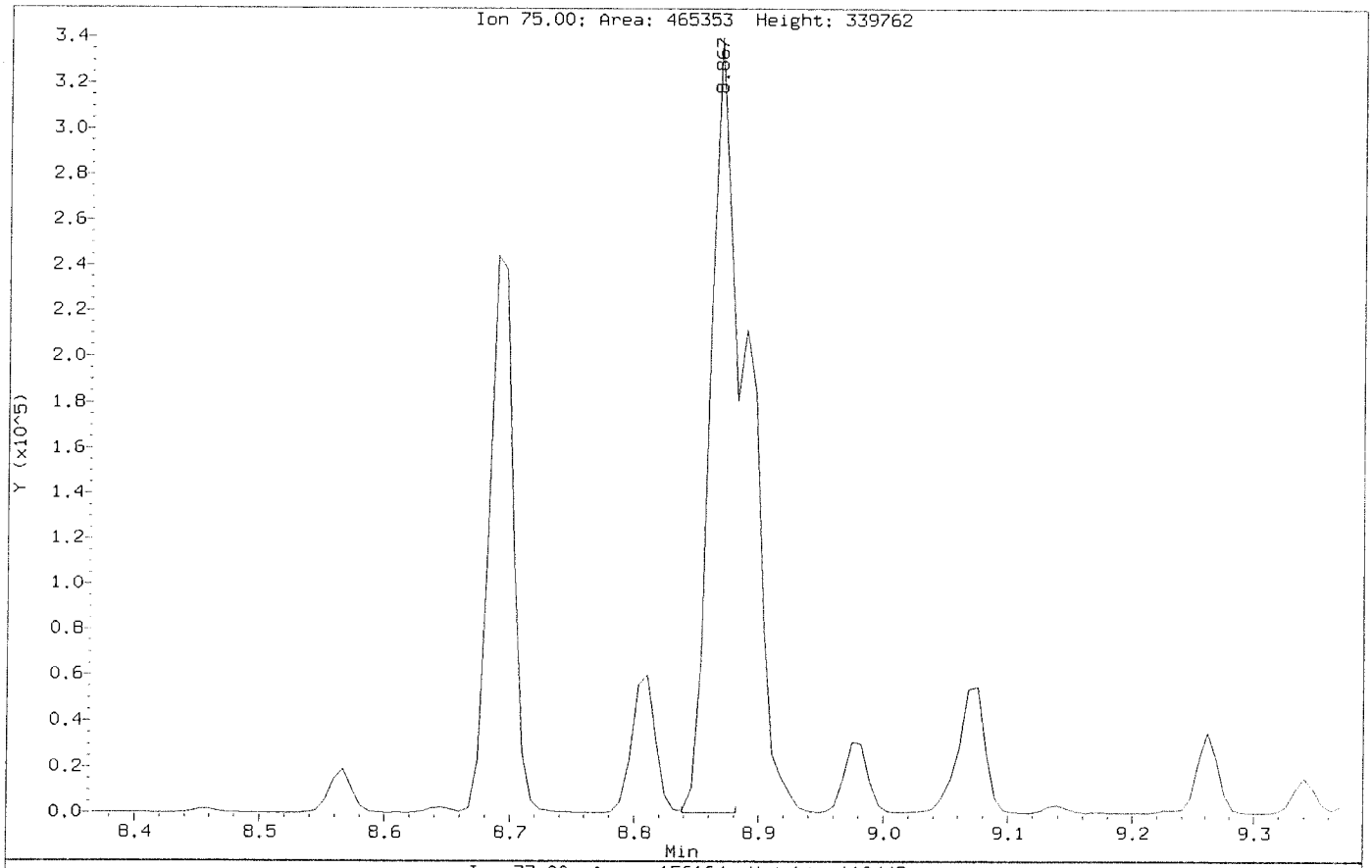
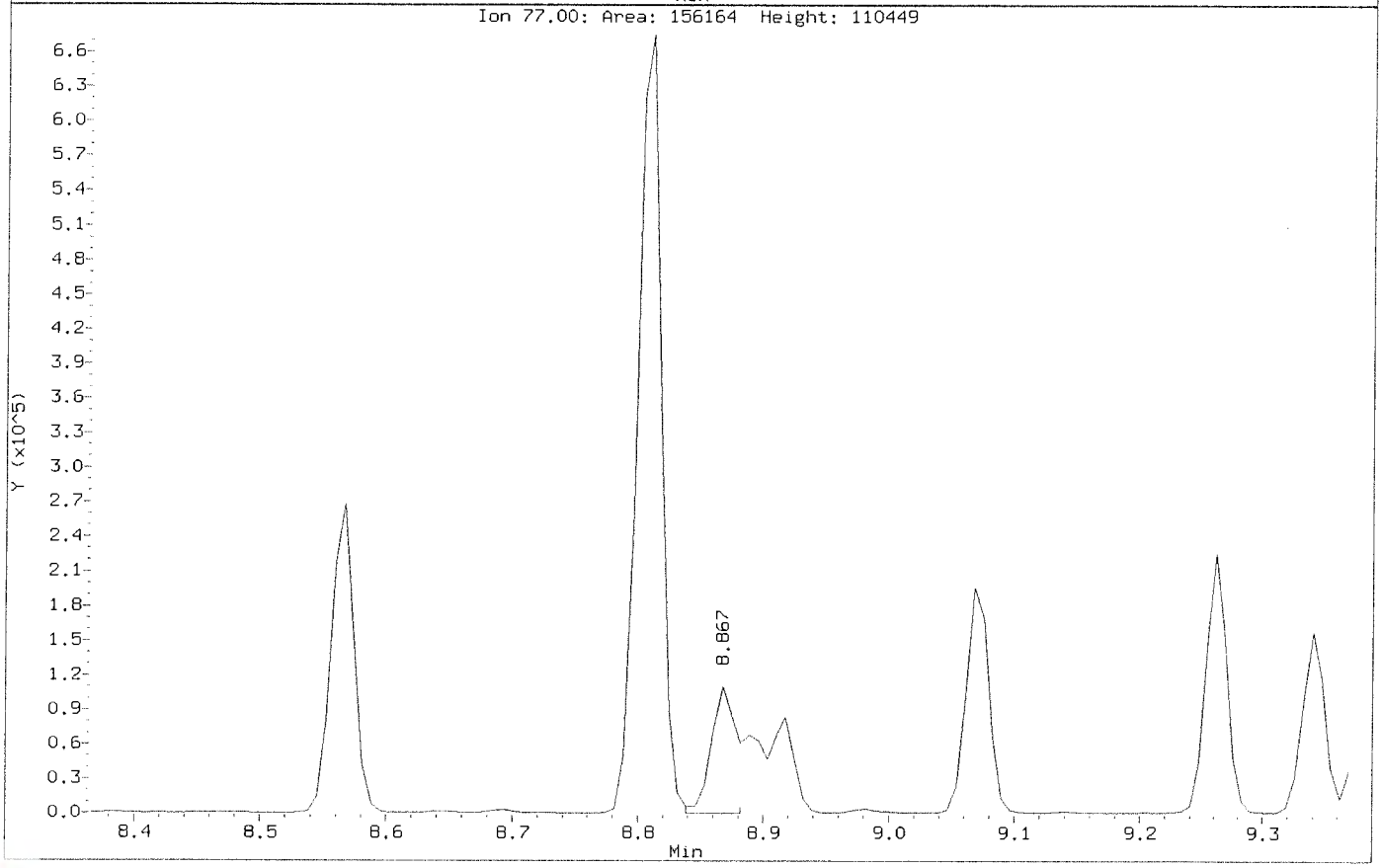
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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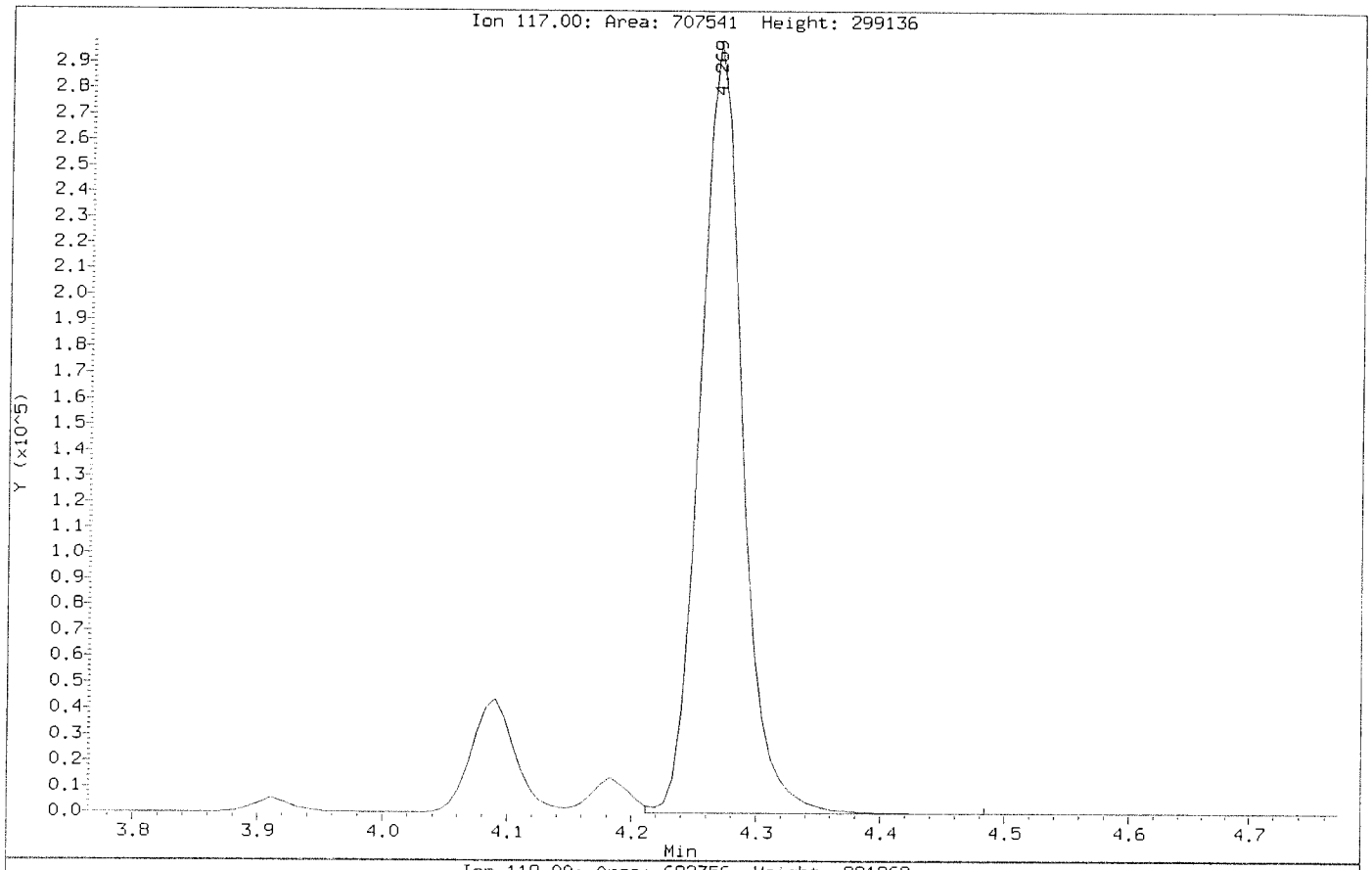
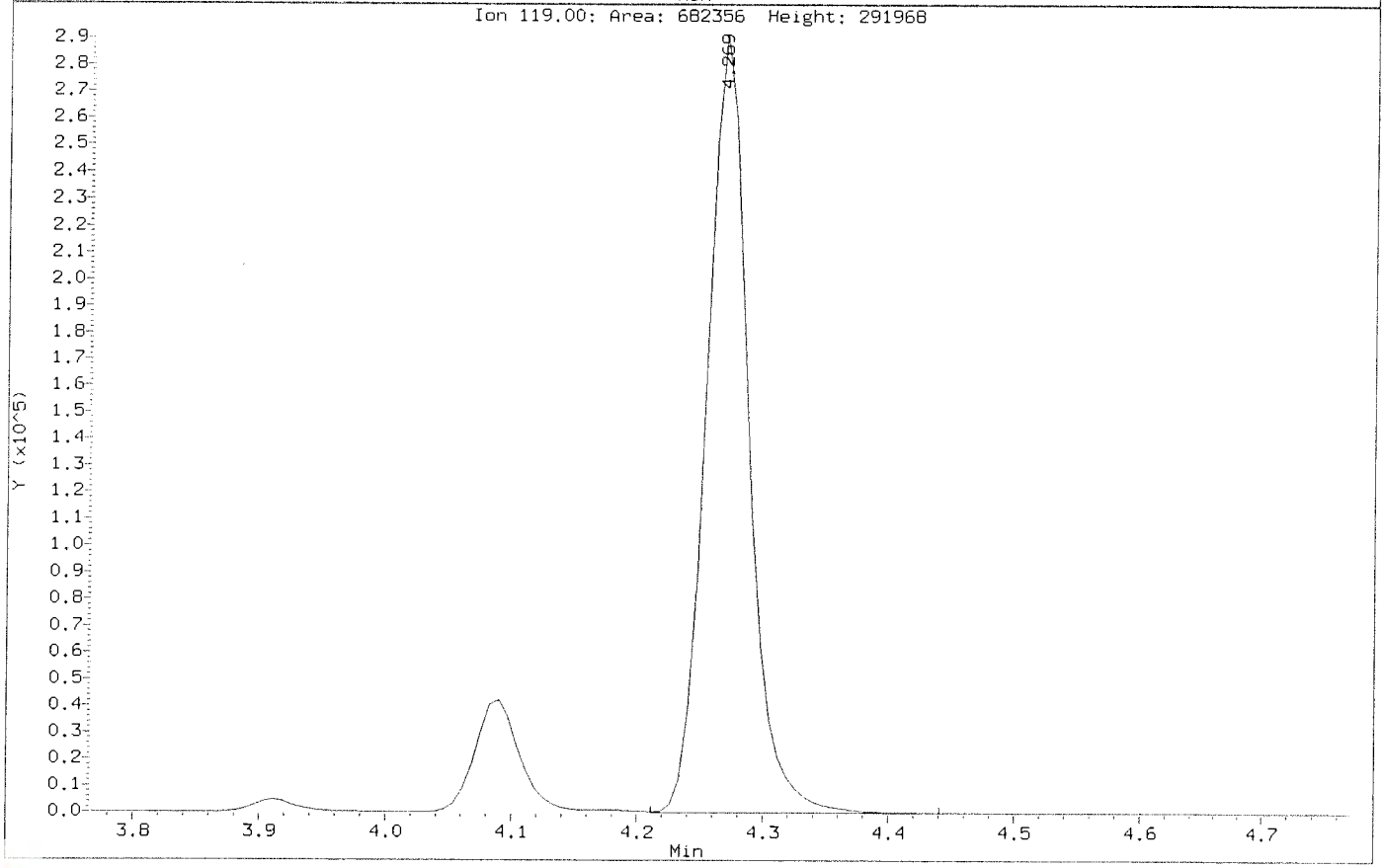
Injection Date: 18-NOV-2019 17:22
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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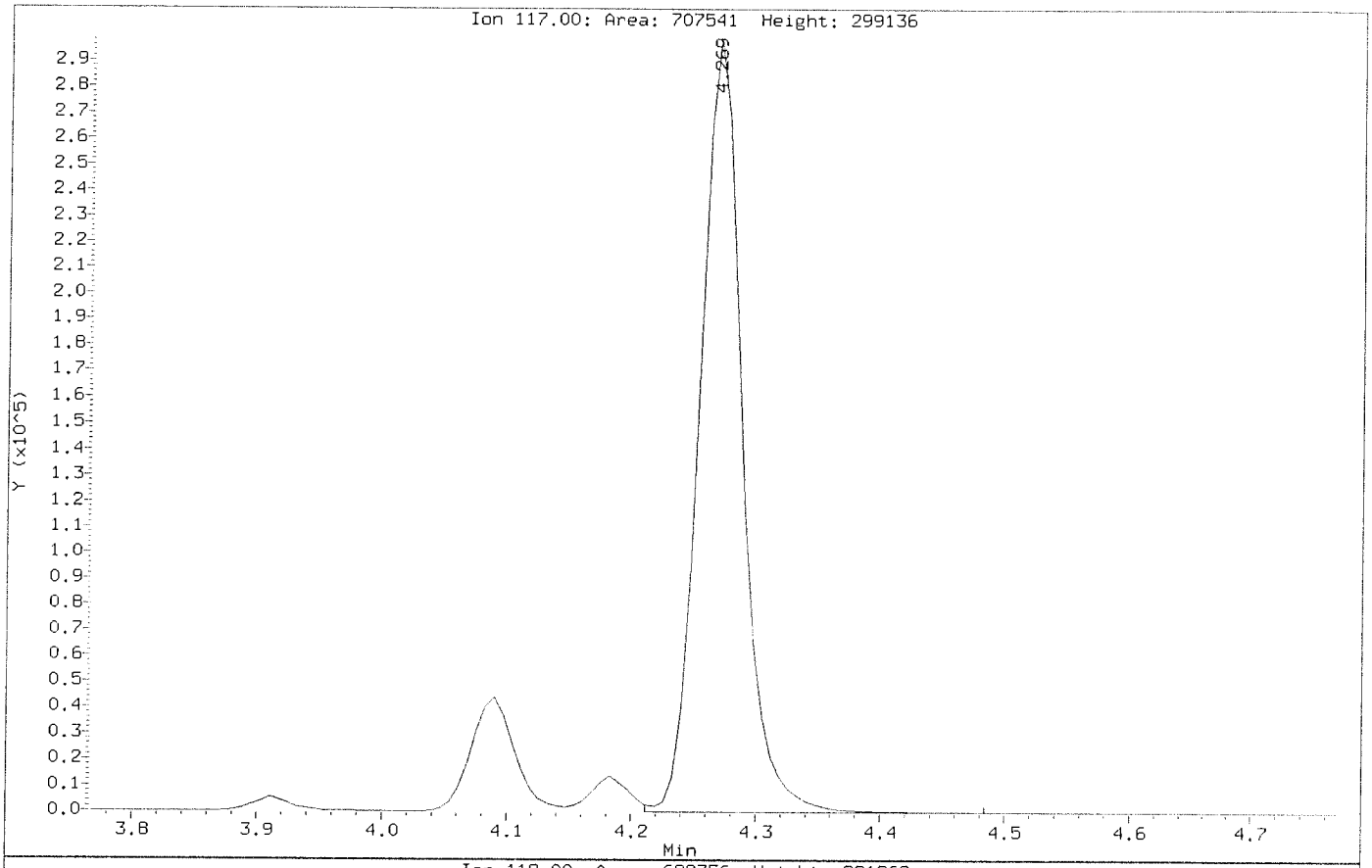
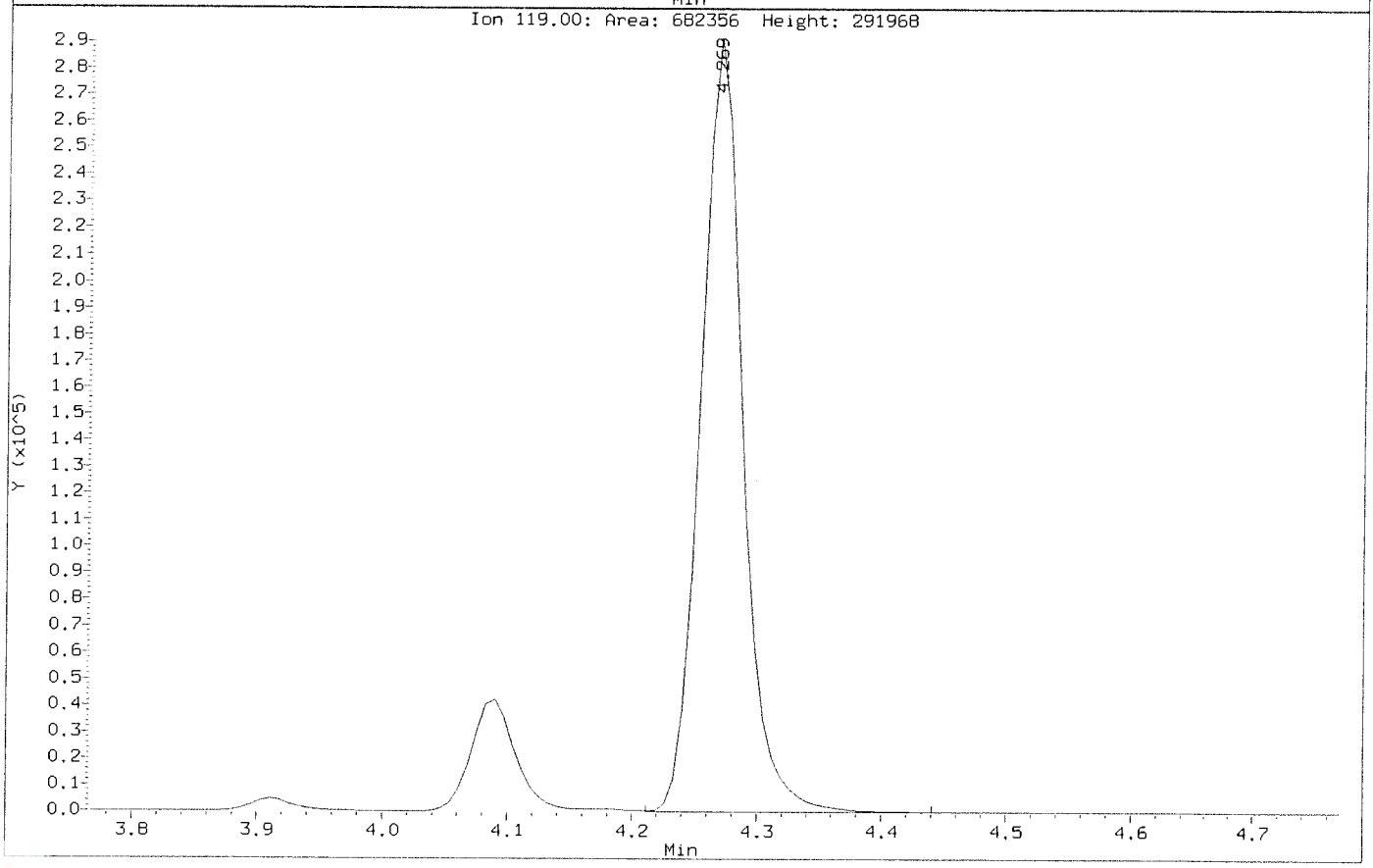
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 18-NOV-2019 17:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:22 Cal File: X111810.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

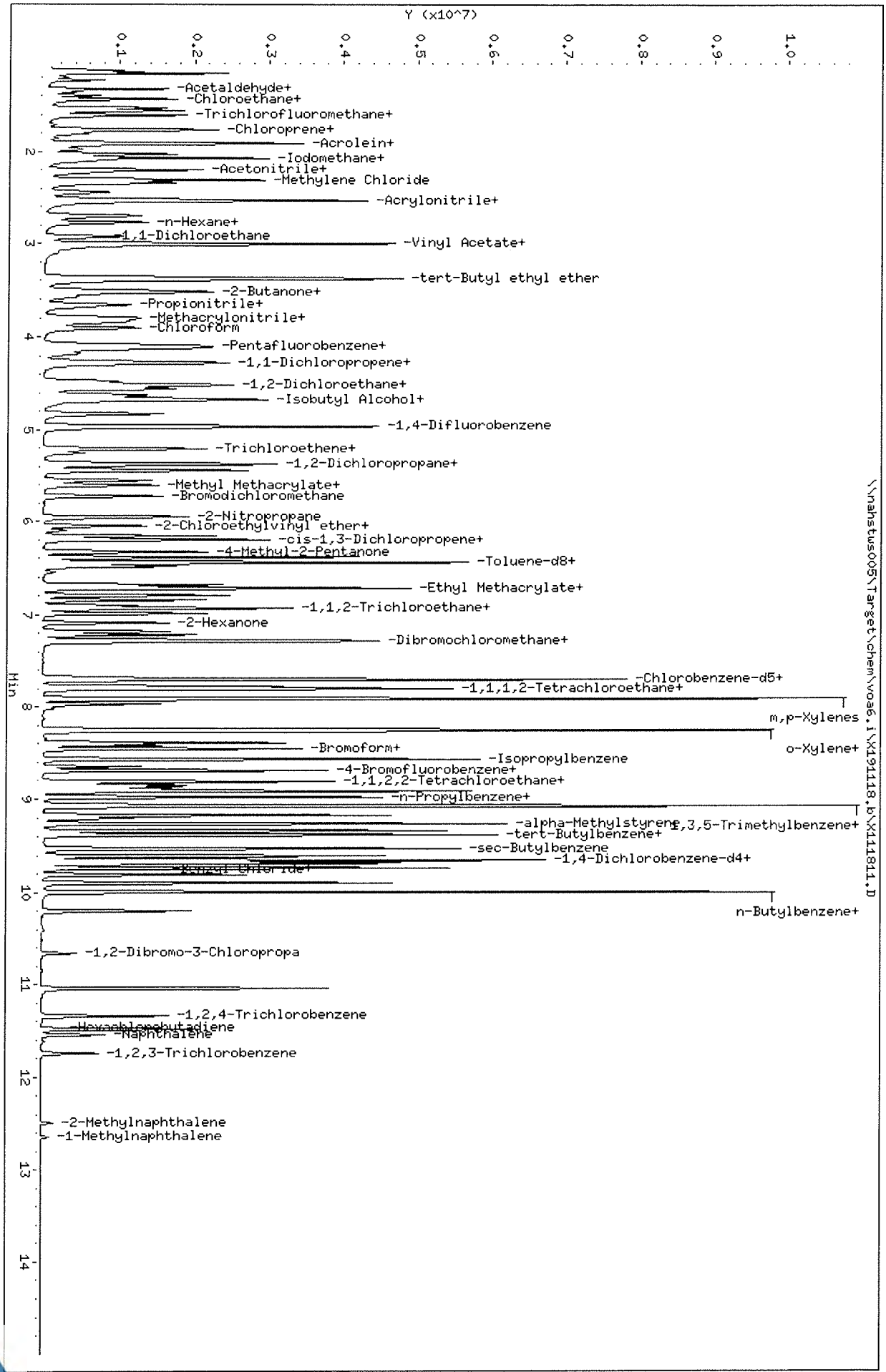
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	369517	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	542684	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	493817	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	280605	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	713282	200.000	202.89(A)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	933083	200.000	201.81(A)
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	681300	200.000	201.64(A)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	2431773	200.000	186.90
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	731912	200.000	204.29(A)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	1030058	200.000	206.62(A)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	742176	200.000	188.09
138 Freon TF	101	1.911	1.911	(0.457)	696977	200.000	216.65(A)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	511936	200.000	198.31
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	1089650	200.000	202.66(A)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	641291	200.000	204.78(A)
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	849992	200.000	194.17
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	210414	200.000	200.64(A)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	609450	200.000	182.28(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	455609	200.000	192.75
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	2745695	200.000	206.21(A)
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	86827	200.000	200.34(A)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	693307	200.000	200.18(A)

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D Page 2
Report Date: 06-Dec-2019 19:56

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	1508205	200.000	202.51(A)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	865099	200.000	200.81(A)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	629023	200.000	194.03
75 1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	2668415	200.000	208.86(A)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1590132	200.000	197.60
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	1018788	200.000	194.39
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1621999	200.000	198.35
26 2,2-Dichloropropane	77	3.516	3.516	(0.841)	972273	200.000	199.24
24 2-Butanone	43	3.580	3.580	(0.856)	437867	400.000	386.18(A)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	2019887	200.000	200.07(A)
52 2-Hexanone	43	7.090	7.090	(0.924)	806375	400.000	397.51(A)
77 4-Chlorotoluene	91	9.074	9.074	(0.939)	2525879	200.000	206.41(A)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	2843849	200.000	207.12(A)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1178590	400.000	407.33(A)
10 Acetone	43	1.976	1.976	(0.473)	372223	400.000	400.25(A)
37 Benzene	78	4.512	4.512	(0.908)	2449808	200.000	197.34
74 Bromobenzene	156	8.809	8.809	(0.911)	958177	200.000	196.47
29 Bromochloromethane	128	3.795	3.795	(0.908)	376537	200.000	188.10
39 Bromodichloromethane	83	5.729	5.729	(1.153)	893499	200.000	198.95
66 Bromoform	173	8.415	8.415	(1.097)	602595	200.000	201.83(A)
6 Bromomethane	94	1.331	1.331	(0.318)	631015	200.000	177.48(M)
19 Carbon Disulfide	76	2.069	2.069	(0.495)	3628864	400.000	425.96(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	954439	200.000	199.03(H)
59 Chlorobenzene	112	7.699	7.699	(1.004)	1940751	200.000	201.30(A)
7 Chloroethane	64	1.396	1.396	(0.334)	459143	200.000	197.35
28 Chloroform	83	3.910	3.910	(0.935)	1152726	200.000	192.62
3 Chloromethane	50	1.073	1.073	(0.257)	811388	200.000	201.60(A)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	721487	200.000	205.88(A)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1069987	200.000	202.17(A)
55 Dibromochloromethane	129	7.183	7.183	(0.937)	764698	200.000	203.91(A)
44 Dibromomethane	93	5.557	5.557	(1.118)	451528	200.000	196.82
2 Dichlorodifluoromethane	85	0.966	0.966	(0.231)	695305	200.000	203.74(A)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1011964	200.000	203.15(A)
91 Hexachlorobutadiene	225	11.488	11.488	(1.188)	373475	200.000	191.48
67 Isopropylbenzene	105	8.566	8.566	(1.117)	3082382	200.000	208.91(A)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	2525960	400.000	420.22(A)
17 Methylene Chloride	84	2.305	2.305	(0.551)	644942	200.000	193.02
87 n-Butylbenzene	91	9.998	9.998	(1.034)	2465783	200.000	215.80(A)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	3540988	200.000	204.15(A)
92 Naphthalene	128	11.546	11.546	(1.194)	574298	200.000	189.43
63 o-Xylene	106	8.244	8.244	(1.075)	1231007	200.000	207.50(A)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	3131997	200.000	207.86(A)
64 Styrene	104	8.265	8.265	(1.078)	2199171	200.000	213.18(A)
78 tert-Butylbenzene	119	9.339	9.339	(0.966)	2240944	200.000	204.85(A)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	660581	200.000	190.38
50 Toluene	91	6.453	6.453	(0.841)	2834294	200.000	202.39(A)
20 trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	630988	200.000	207.54(A)
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1000892	200.000	207.50(A)
38 Trichloroethene	130	5.206	5.206	(1.048)	754871	200.000	198.90
8 Trichlorofluoromethane	101	1.553	1.553	(0.371)	1241567	200.000	216.59(A)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	773023	200.000	205.26(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



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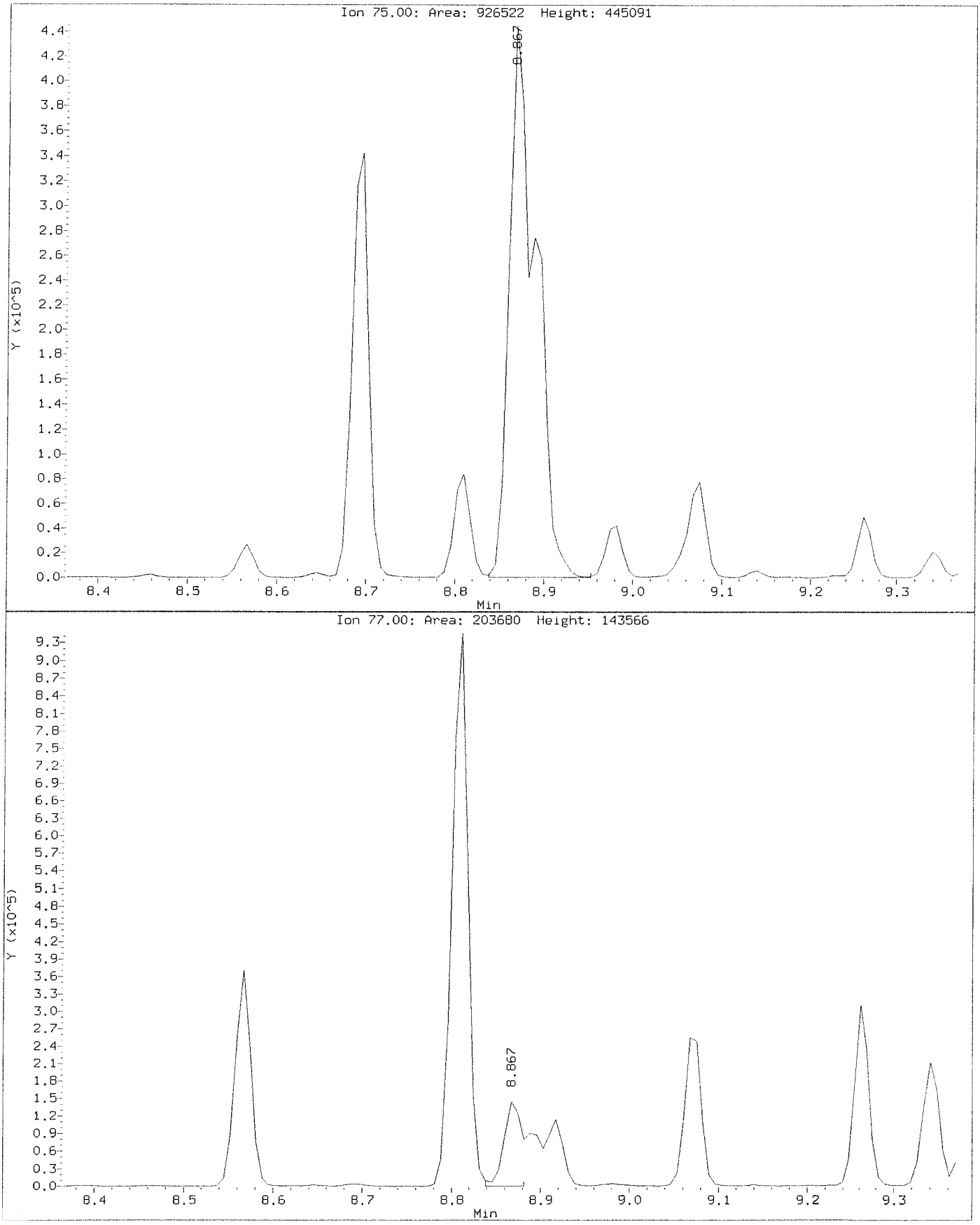
Date : 18-NOV-2019 17:46
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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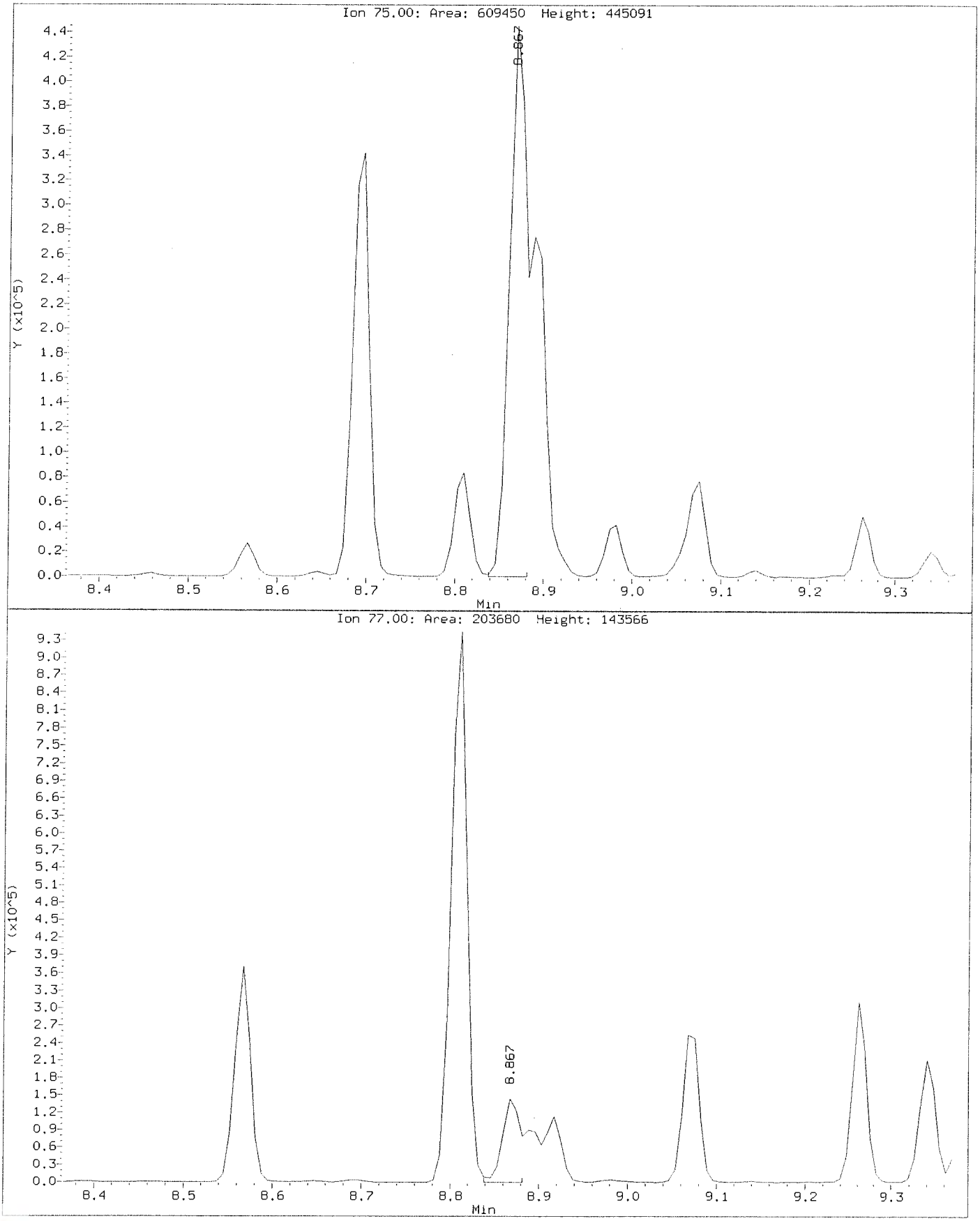
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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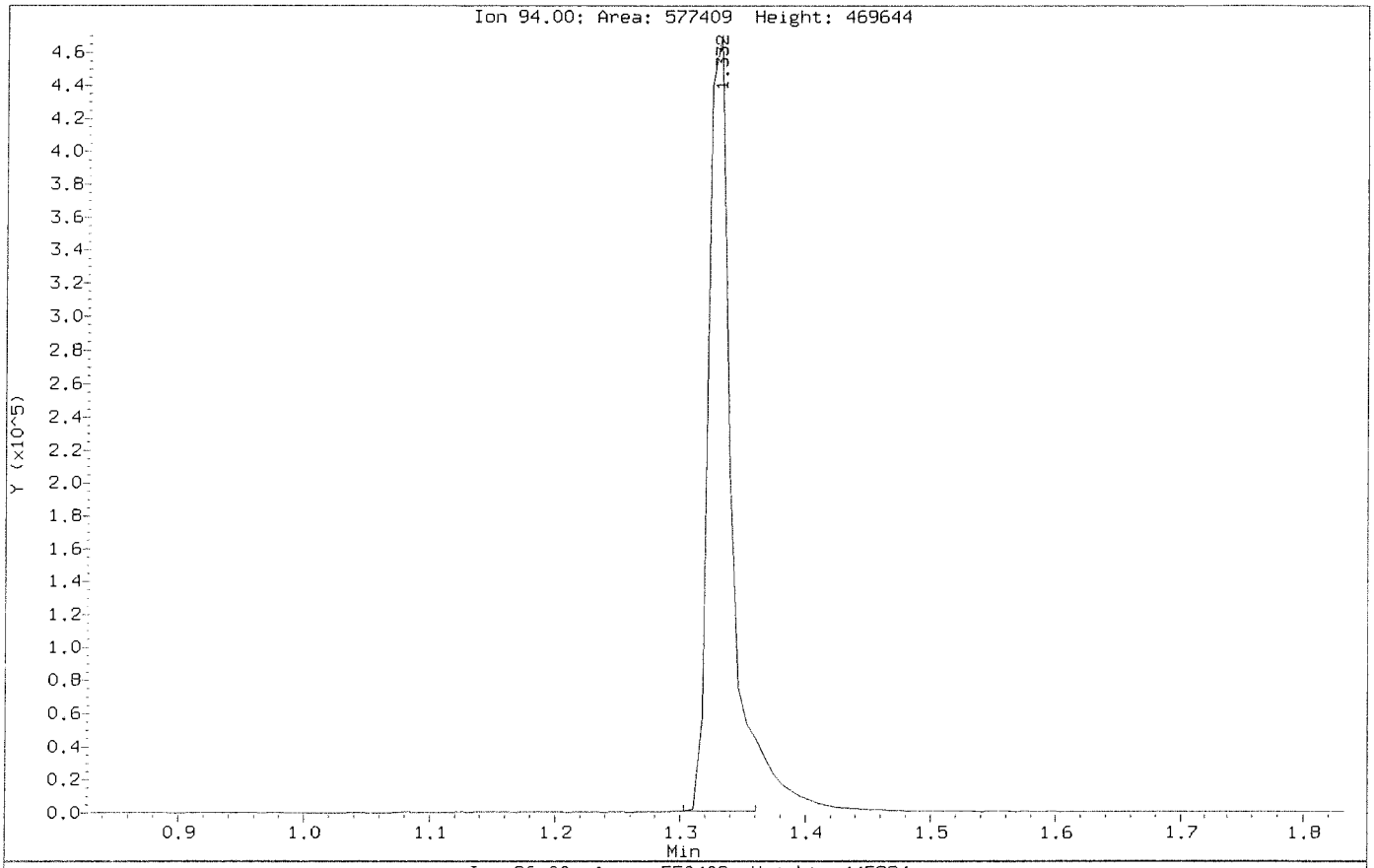
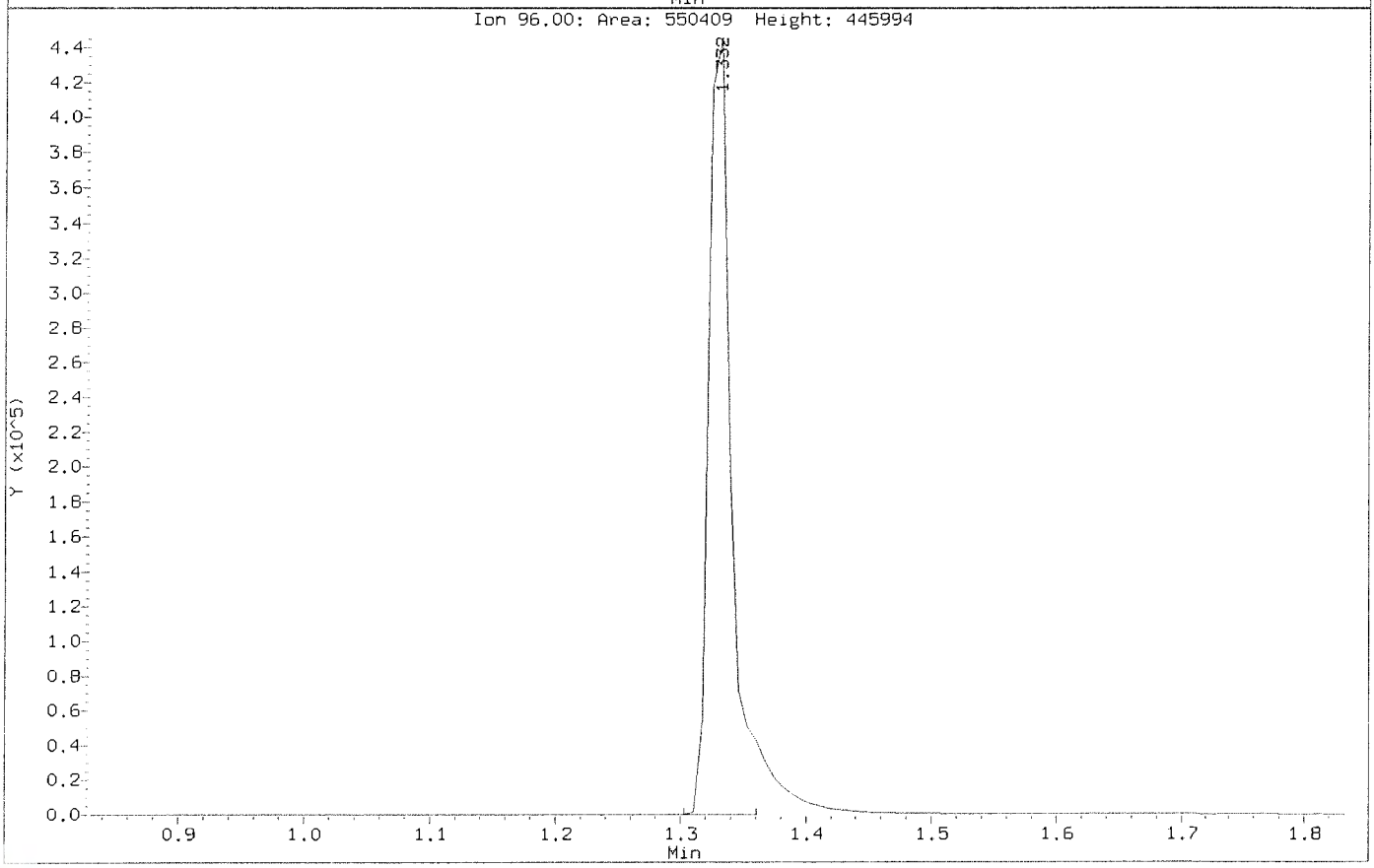
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Bromomethane
CAS Number: 74-83-9





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111811.D
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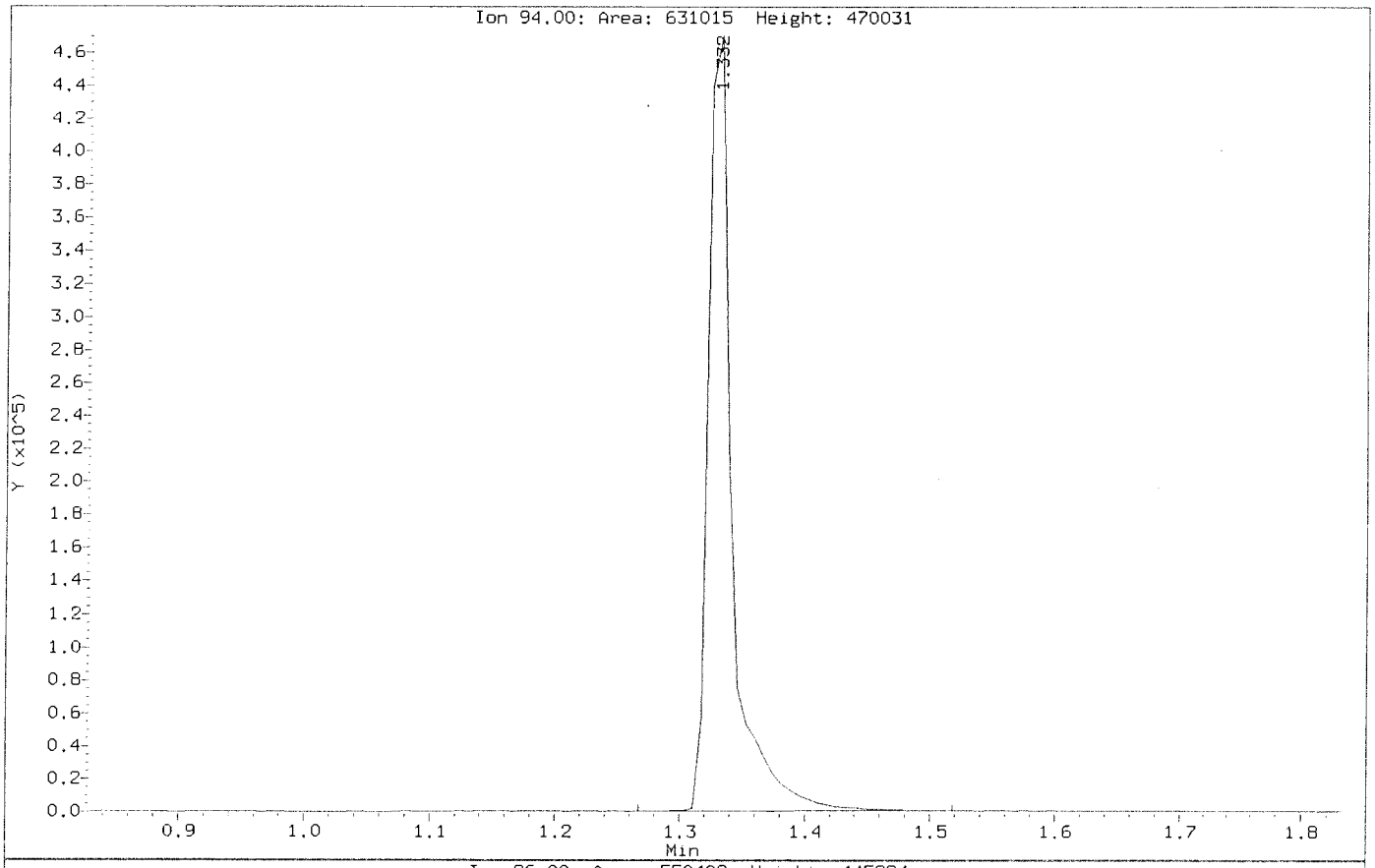
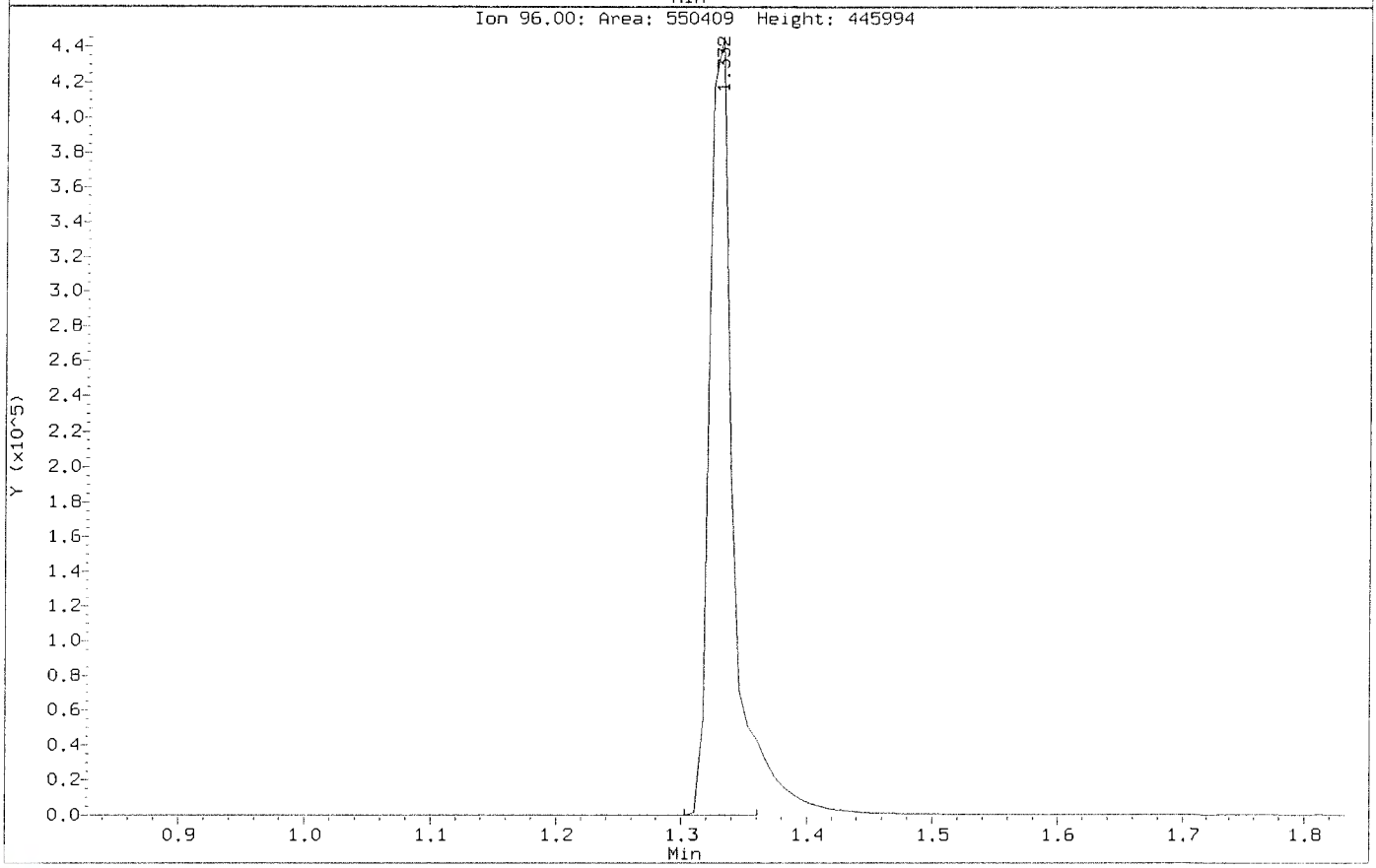
Instrument: voa6.i
Client Sample ID: VSTD200

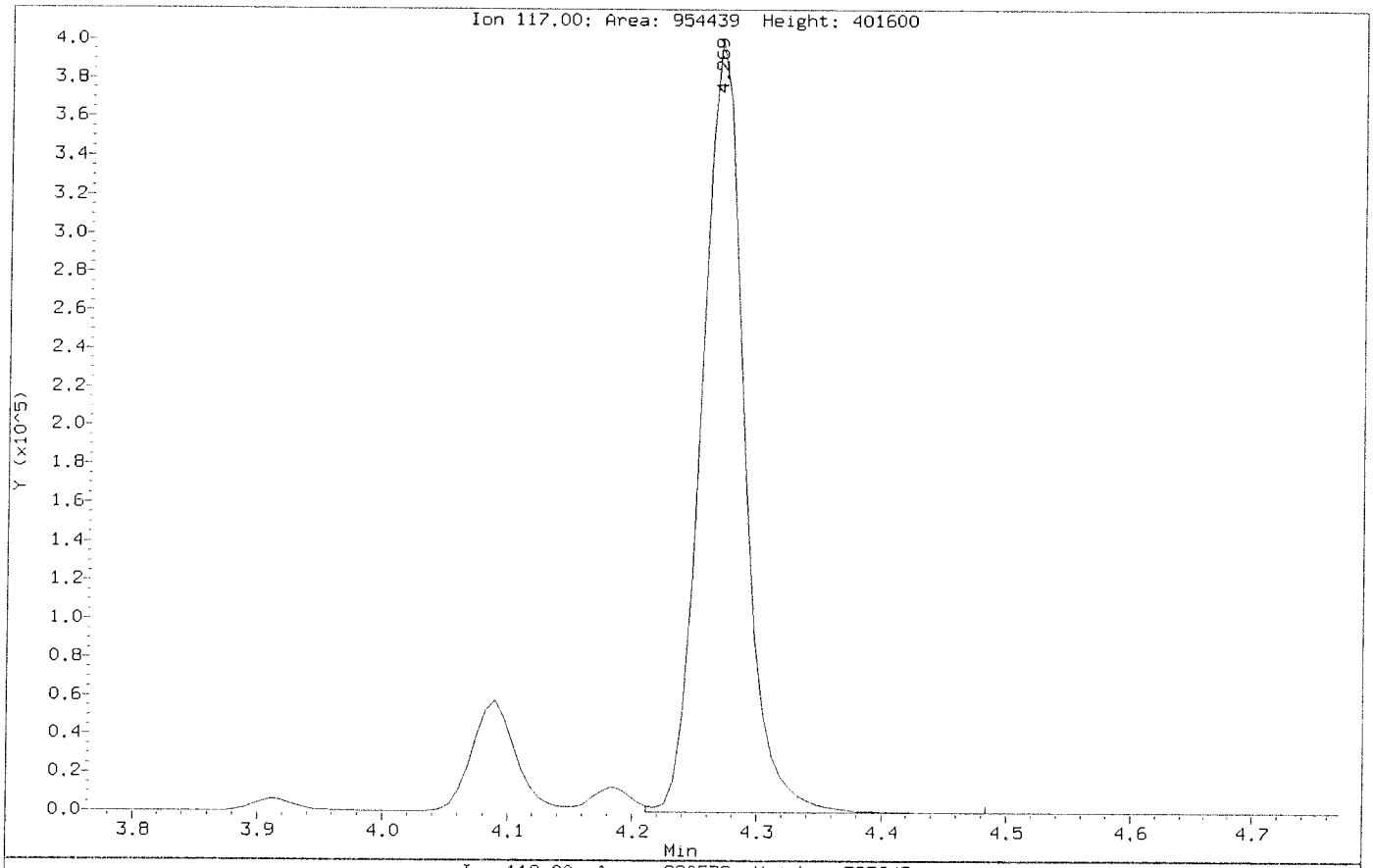
Compound: Bromomethane
CAS Number: 74-83-9

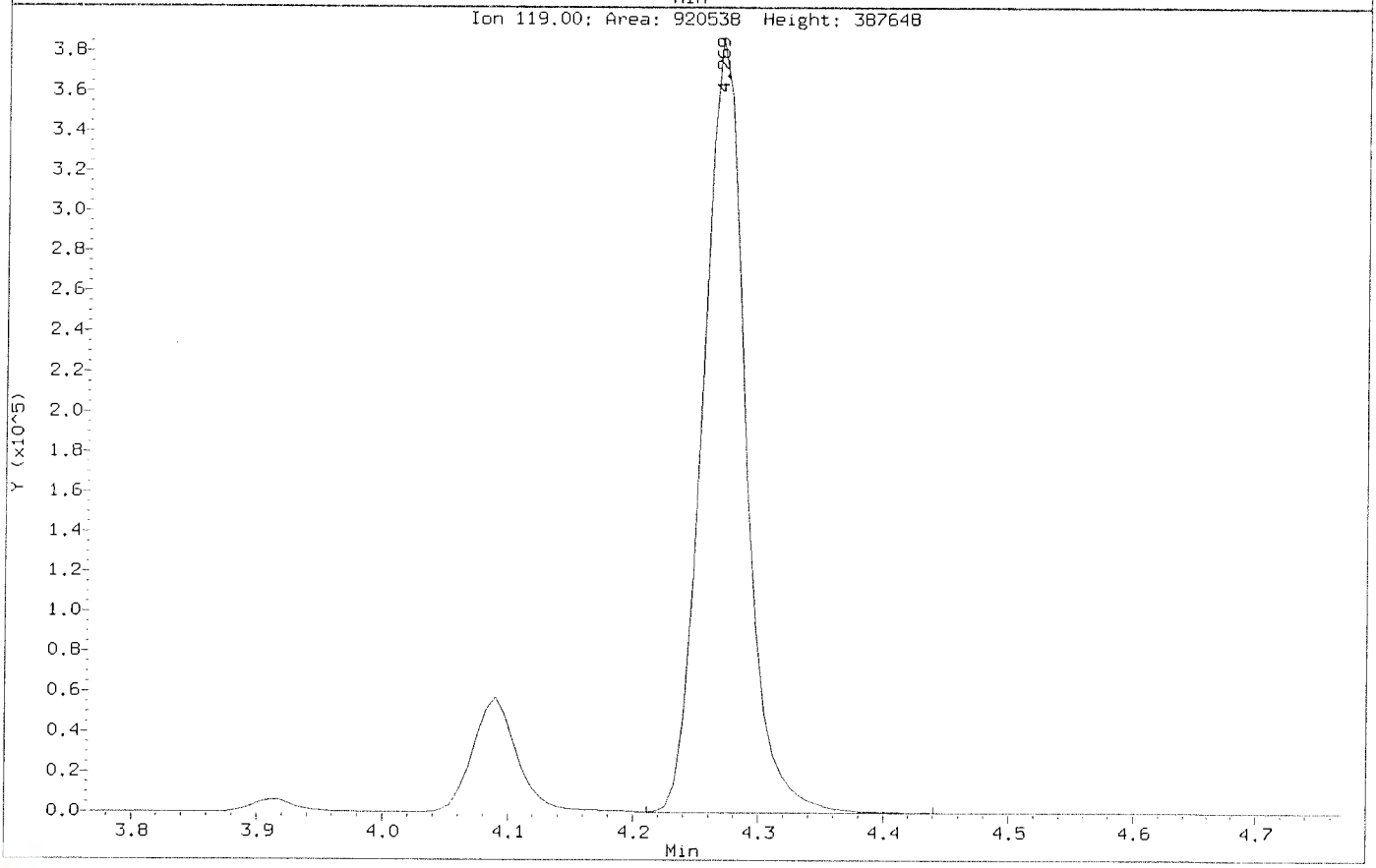




Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111811.D
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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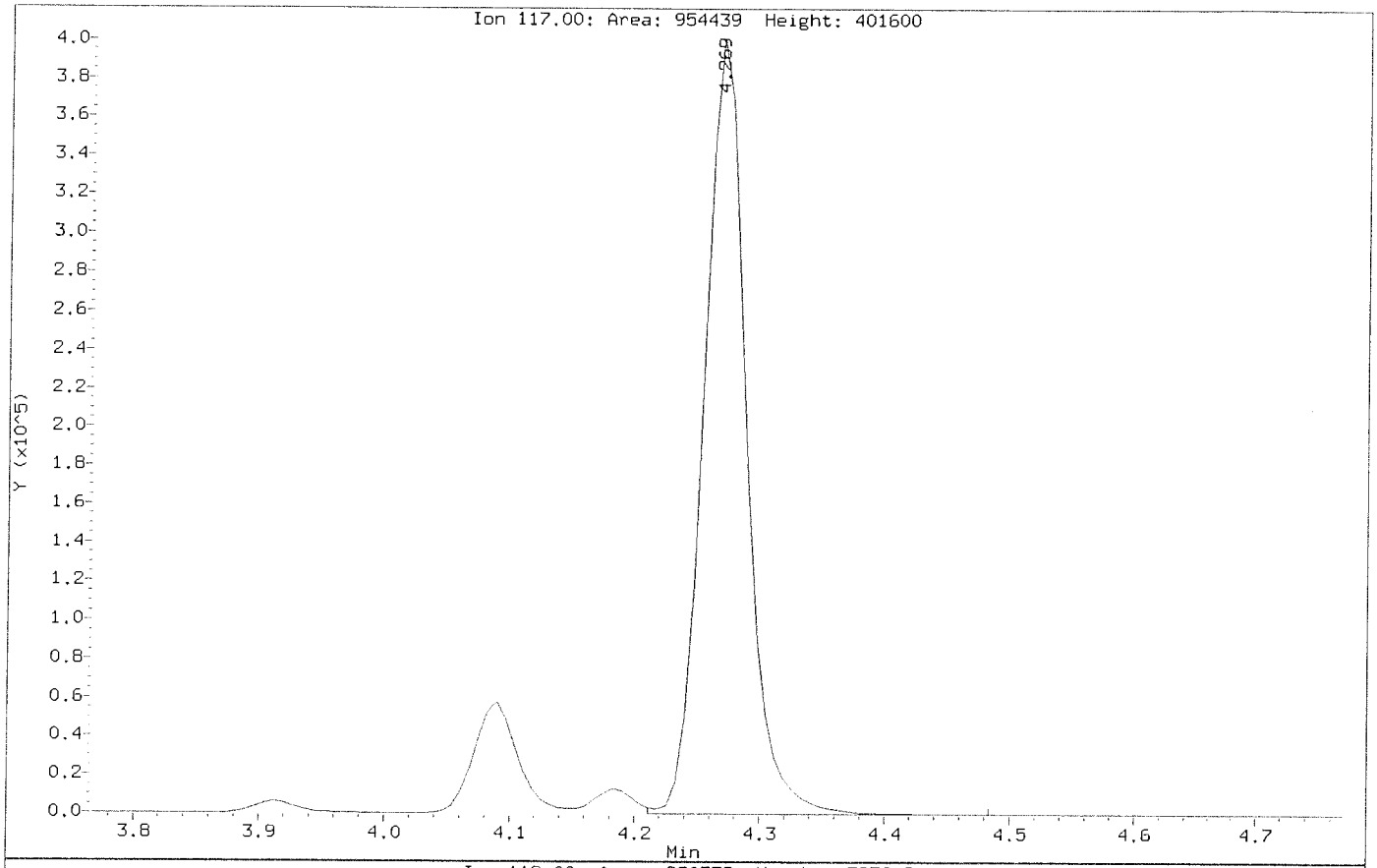
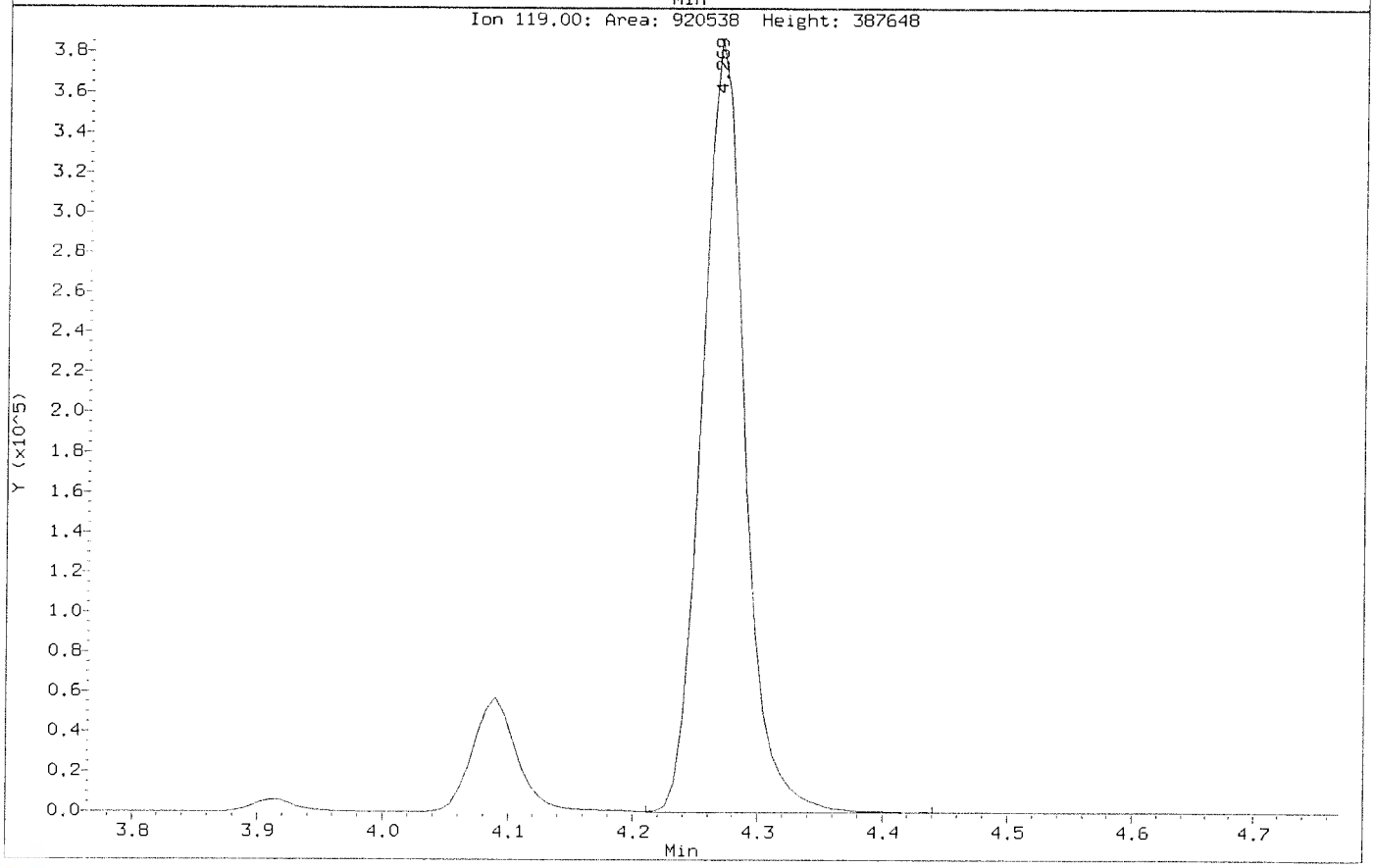
Injection Date: 18-NOV-2019 17:46
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 1
Report Date: 06-Dec-2019 19:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 18-NOV-2019 18:58
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191118.b\8260W.m
Meth Date : 06-Dec-2019 19:56 voa6.i Quant Type: ISTD
Cal Date : 18-NOV-2019 17:46 Cal File: X111811.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

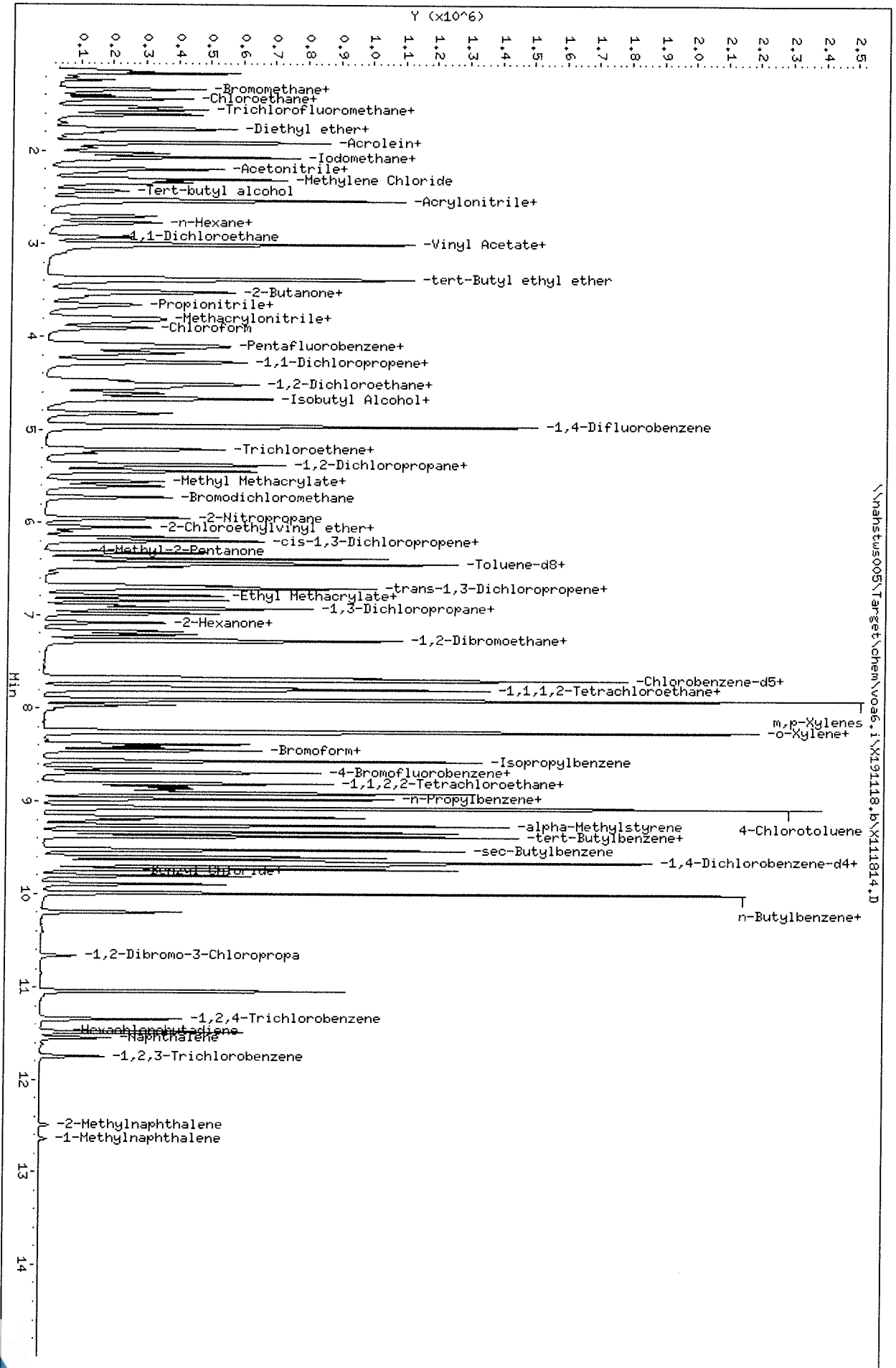
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	365284	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	526230	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	487659	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	262170	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	177715	51.6875	51.68
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	217553	47.9674	47.96
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	172534	51.9307	51.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	603087	46.9372	46.93
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	181751	51.3728	51.37
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	259914	52.7430	52.74
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	183157	49.6822	49.68
138 Freon TF	101	1.919	1.911	(0.459)	177448	55.7980	55.79
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	125473	49.2205	49.22
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	273555	51.4692	51.46
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	164159	53.0287	53.02
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	211745	49.8829	49.88
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	56746	58.2884	58.28
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	154338	49.4088	49.40(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	122229	55.3465	55.34
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	627033	50.4058	50.40
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	20914	51.3981	51.39
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	171012	50.0005	50.00

Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D Page 2
Report Date: 06-Dec-2019 19:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
88	1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	343886	49.4226	49.42
33	1,2-Dichloroethane	62	4.555	4.562	(0.916)	214666	51.3880	51.38
42	1,2-Dichloropropane	63	5.436	5.443	(1.094)	155619	49.5052	49.50
75	1,3,5-Trimethylbenzene	105	9.067	9.074	(0.938)	621241	52.0454	52.04
83	1,3-Dichlorobenzene	146	9.604	9.612	(0.993)	380305	50.5823	50.58
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	254579	49.1895	49.18
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	379206	49.6335	49.63
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	252567	52.3575	52.35
24	2-Butanone	43	3.573	3.580	(0.854)	117980	105.260	105.25
76	2-Chlorotoluene	91	8.974	8.981	(0.928)	475545	50.4166	50.41
52	2-Hexanone	43	7.090	7.090	(0.924)	192493	96.0902	96.09
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	578291	50.5814	50.58
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	664137	51.7722	51.77
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	279109	97.6823	97.68
10	Acetone	43	1.969	1.976	(0.471)	104925	111.376	111.37
37	Benzene	78	4.512	4.512	(0.908)	612198	50.8565	50.85
74	Bromobenzene	156	8.809	8.809	(0.911)	233126	51.1647	51.16
29	Bromochloromethane	128	3.795	3.795	(0.908)	101596	51.3407	51.34
39	Bromodichloromethane	83	5.729	5.729	(1.153)	222106	51.0024	51.00
66	Bromoform	173	8.415	8.415	(1.097)	142491	49.0895	49.08
6	Bromomethane	94	1.338	1.331	(0.320)	208417	57.7314	57.73
19	Carbon Disulfide	76	2.069	2.069	(0.495)	924383	109.763	109.76
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	237498	51.0754	51.07
59	Chlorobenzene	112	7.699	7.699	(1.004)	468418	49.2009	49.20
7	Chloroethane	64	1.403	1.396	(0.336)	118785	51.6484	51.64
28	Chloroform	83	3.910	3.910	(0.935)	292027	49.3641	49.36
3	Chloromethane	50	1.073	1.073	(0.257)	200113	50.4397	50.43
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	184183	53.1686	53.16
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	267228	52.0716	52.07
55	Dibromochloromethane	129	7.176	7.183	(0.936)	184910	49.9303	49.93
44	Dibromomethane	93	5.557	5.557	(1.118)	112351	50.5059	50.50
2	Dichlorodifluoromethane	85	0.973	0.966	(0.233)	176572	52.9949	52.99
61	Ethylbenzene	106	7.799	7.807	(1.017)	247055	50.2234	50.22
91	Hexachlorobutadiene	225	11.481	11.488	(1.187)	113053	61.6918	61.69(R)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	730633	50.1455	50.14
62	m,p-Xylenes	106	7.907	7.907	(1.031)	603641	101.692	101.69
17	Methylene Chloride	84	2.305	2.305	(0.551)	164000	49.6528	49.65
87	n-Butylbenzene	91	9.998	9.998	(1.034)	555875	52.0702	52.07
73	n-Propylbenzene	91	8.917	8.917	(0.922)	841108	51.9034	51.90
92	Naphthalene	128	11.546	11.546	(1.194)	144573	51.0408	51.04
63	o-Xylene	106	8.243	8.244	(1.075)	291303	49.7239	49.72
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	728868	51.7743	51.77
64	Styrene	104	8.258	8.265	(1.077)	512981	50.3548	50.35
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	525095	51.3776	51.37
56	Tetrachloroethene	164	6.933	6.933	(0.904)	169030	49.3314	49.33
50	Toluene	91	6.446	6.453	(0.840)	685240	49.5512	49.55
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	157233	52.3156	52.31
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	242451	51.8354	51.83
38	Trichloroethene	130	5.206	5.206	(1.048)	190582	51.7868	51.78
8	Trichlorofluoromethane	101	1.560	1.553	(0.373)	314898	55.5726	55.57
5	Vinyl Chloride	62	1.138	1.138	(0.272)	193522	51.9818	51.98

QC Flag Legend

R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.



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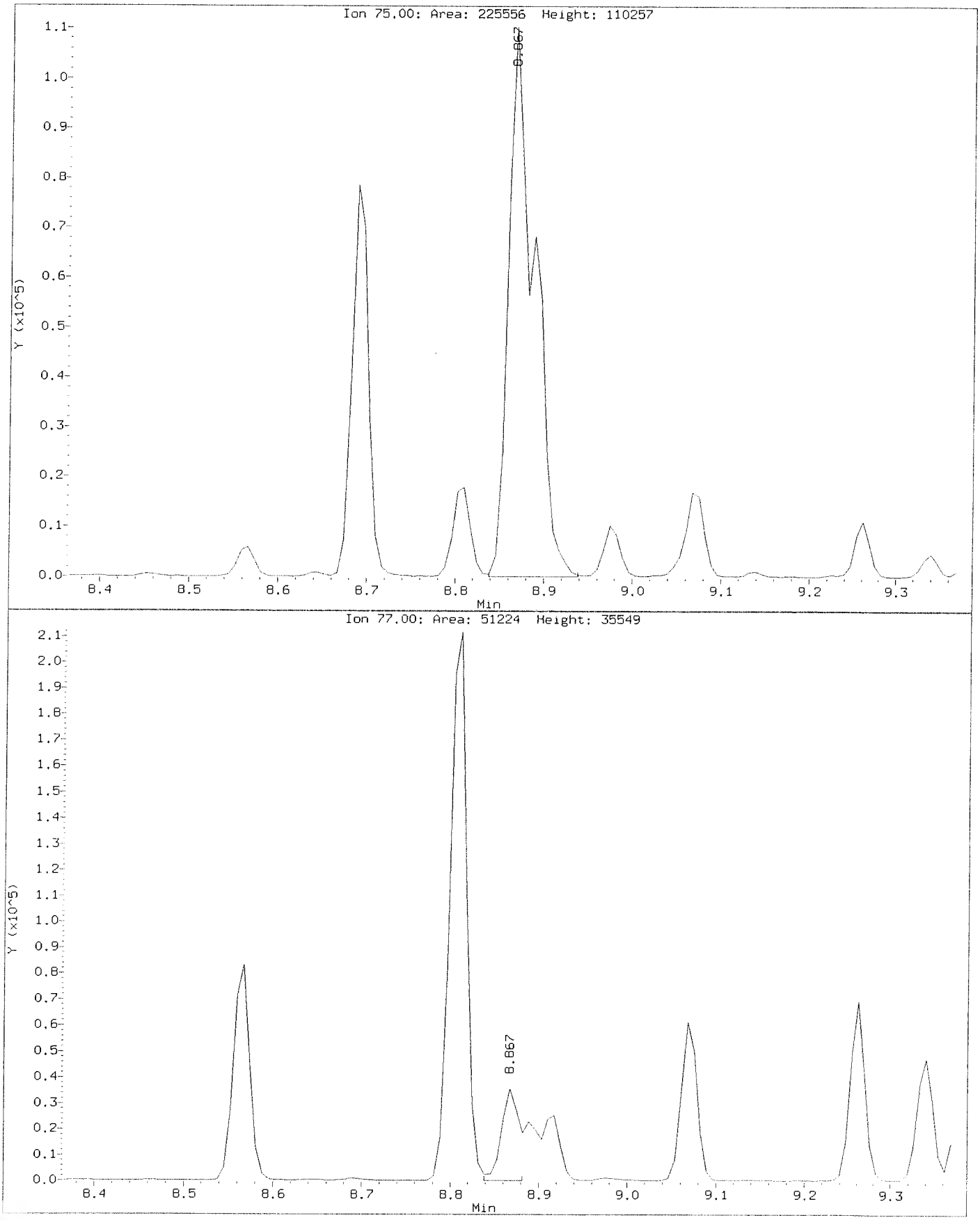
Date : 18-NOV-2019 18:58
Client ID: ICV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

\\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D

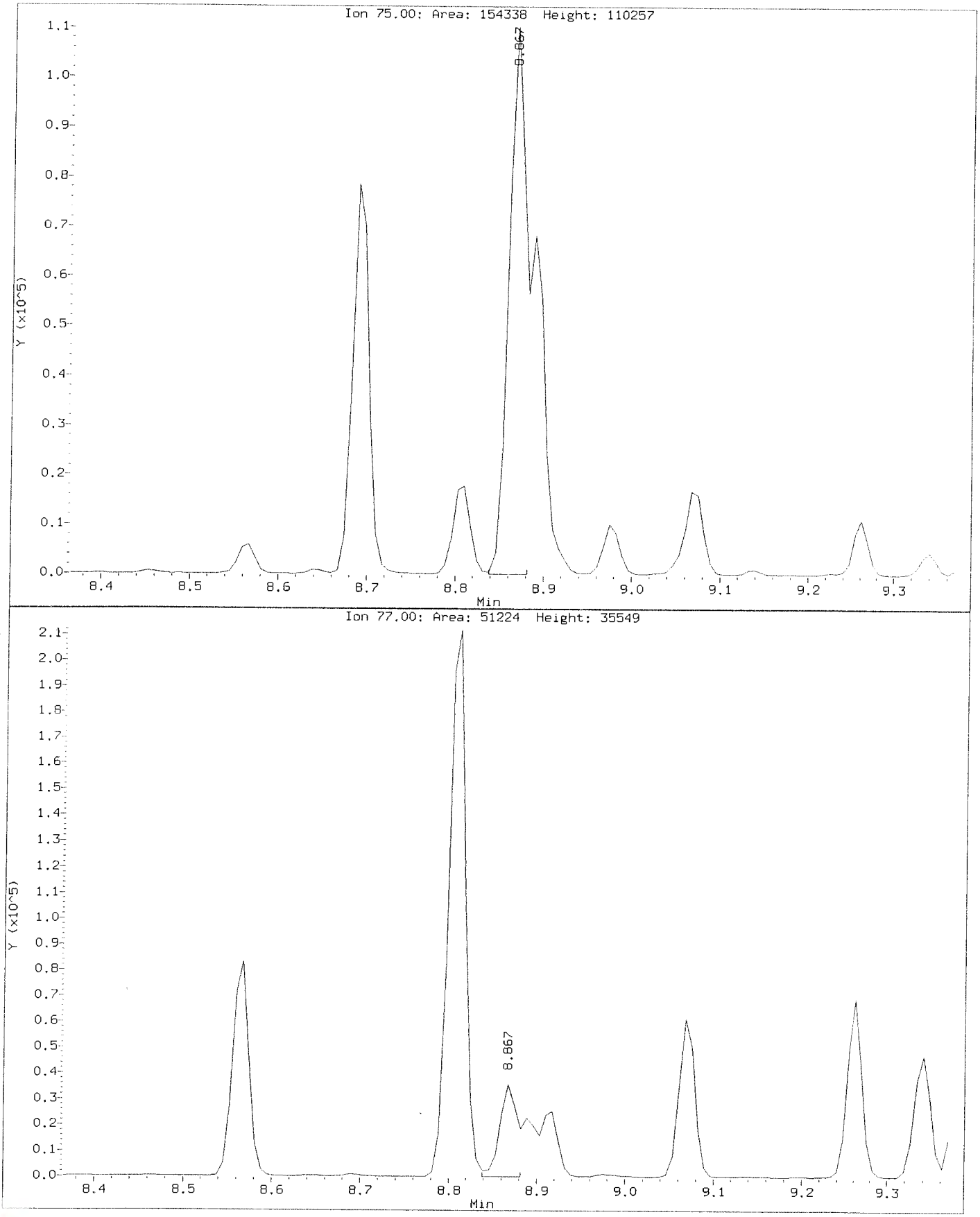
Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\BEFORE\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



Data File: \\nahstws005\Target\chem\voa6.i\X191118.b\X111814.D
Injection Date: 18-NOV-2019 18:58
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



MSVOA06 -Logbook

Batch: 38420 **Analyst:** Devak Giga

Date: 12-03-2019 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	12-03-2019 10:05 am	1.00	0.00 mL	0.00 mL	X120301a.D	Liquid	Y	NA
	Auto find/ purged									
2	BFB	TUNE	12-03-2019 10:29 am	1.00	0.00 mL	0.00 mL	X120302.D	Liquid	Y	NA
	Auto find/ purged									
3	CCV	CCV	12-03-2019 10:53 am	1.00	5.00 mL	0.00 mL	X120303.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
4	CCB	SAMP	12-03-2019 11:17 am	1.00	5.00 mL	0.00 mL	X120304.D	Liquid	Y	NA
	CCB									
5	BLANK	SAMP	12-03-2019 11:41 am	1.00	5.00 mL	0.00 mL	X120305.D	Liquid	Y	NA
6	BLK	SAMP	12-03-2019 12:05 pm	1.00	5.00 mL	0.00 mL	X120306.D	Liquid	Y	NA
7	VBLKW-191203	MBLK	12-03-2019 12:29 pm	1.00	5.00 mL	0.00 mL	X120307.D	Liquid	Y	NA
8	VLCSW-191203	LCS	12-03-2019 12:53 pm	1.00	5.00 mL	0.00 mL	X120308.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
9	HS19120051-06	SAMP	12-03-2019 01:17 pm	1.00	5.00 mL	0.00 mL	X120309.D	Liquid	Y	NA
10	HS19111401-02	SAMP	12-03-2019 01:41 pm	1.00	5.00 mL	0.00 mL	X120310.D	Liquid	Y	NA
11	HS19111401-01	SAMP	12-03-2019 02:05 pm	1.00	5.00 mL	0.00 mL	X120311.D	Liquid	Y	NA
12	HS19111401-01MS	MS	12-03-2019 02:29 pm	1.00	5.00 mL	0.00 mL	X120312.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
13	HS19111401-01MSD	MSD	12-03-2019 02:53 pm	1.00	5.00 mL	0.00 mL	X120313.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
14	HS19111359-01	SAMP	12-03-2019 03:17 pm	5.00	5.00 mL	0.00 mL	X120314.D	Liquid	Y	NA
15	HS19111443-05	SAMP	12-03-2019 03:41 pm	1.00	5.00 mL	0.00 mL	X120315.D	Liquid	Y	NA
16	HS19111443-01	SAMP	12-03-2019 04:05 pm	1.00	5.00 mL	0.00 mL	X120316.D	Liquid	Y	NA
17	HS19111443-02	SAMP	12-03-2019 04:29 pm	1.00	5.00 mL	0.00 mL	X120317.D	Liquid	Y	NA
18	HS19111443-03	SAMP	12-03-2019 04:54 pm	1.00	5.00 mL	0.00 mL	X120318.D	Liquid	Y	NA
19	HS19111443-04	SAMP	12-03-2019 05:18 pm	1.00	5.00 mL	0.00 mL	X120319.D	Liquid	Y	NA
20	CCV-END	CCV	12-03-2019 05:41 pm	1.00	5.00 mL	0.00 mL	X120320.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
21	HS19120060-01	SAMP	12-03-2019 06:05 pm	1.00	5.00 mL	0.00 mL	X120321.D	Liquid	Y	NA
22	HS19120061-01	SAMP	12-03-2019 06:30 pm	1.00	5.00 mL	0.00 mL	X120322.D	Liquid	Y	NA
23	HS19120055-01	SAMP	12-03-2019 06:54 pm	1.00	5.00 mL	0.00 mL	X120323.D	Liquid	Y	NA
24	HS19120055-02	SAMP	12-03-2019 07:18 pm	1.00	5.00 mL	0.00 mL	X120324.D	Liquid	Y	NA
25	MBLK-148171	MBLK	12-03-2019 07:42 pm	20.00	5.00 mL	0.00 mL	X120325.D	Liquid	Y	NA
26	HS19111417-02	SAMP	12-03-2019 08:06 pm	20.00	5.00 mL	0.00 mL	X120326.D	Liquid	Y	NA
27	HS19111417-03	SAMP	12-03-2019 08:30 pm	20.00	5.00 mL	0.00 mL	X120327.D	Liquid	Y	NA
28	HS19111417-04	SAMP	12-03-2019 08:54 pm	20.00	5.00 mL	0.00 mL	X120328.D	Liquid	Y	NA
29	HS19111417-05	SAMP	12-03-2019 09:18 pm	20.00	5.00 mL	0.00 mL	X120329.D	Liquid	Y	NA
30	HS19111425-01	SAMP	12-03-2019 09:42 pm	20.00	5.00 mL	0.00 mL	X120330.D	Liquid	Y	NA
31	HS19111447-01	SAMP	12-03-2019 10:06 pm	20.00	5.00 mL	0.00 mL	X120331.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-06-03
IS ID	31106-06-04
LCS/MS ID	30603-94-01
CAL STD ID	31106-06-01/02
BFB ID	31106-06-03
pH Paper	634-64-11

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111443

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL) #	OTHER (DCE) #	TOT OUT
01	VBLKW-191203	97	99	96	101	0
02	VLCSW-19203	96	104	90	114	0
03	HS19111443-05	98	101	97	102	0
04	HS19111443-01	98	99	96	100	0
05	HS19111443-02	96	100	95	101	0
06	HS19111443-03	97	99	97	100	0
07	HS19111443-04	98	99	97	103	0
08						
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		QC LIMITS
SMC1	= 4-Bromofluorobenzene	(70-130)
SMC2	= Dibromofluoromethane	(70-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER(DCE)	= 1,2-Dichloroethane-d4	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-191203

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111443

Lab File ID: X120307 Lab Sample ID: VBLKW-191203

Date Analyzed: 12/03/19 Time Analyzed: 1229

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-19203	VLCSW-191203	X120308	1253
02	HS19111401-0	HS19111401-01M	X120312	1429
03	HS19111401-0	HS19111401-01M	X120313	1453
04	HS19111443-0	HS19111443-05	X120315	1541
05	HS19111443-0	HS19111443-01	X120316	1605
06	HS19111443-0	HS19111443-02	X120317	1629
07	HS19111443-0	HS19111443-03	X120318	1654
08	HS19111443-0	HS19111443-04	X120319	1718
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COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111443

Lab File ID: X120302 BFB Injection Date: 12/03/19

Instrument ID: VOA6 BFB Injection Time: 1029

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.1
75	30.0 - 60.0% of mass 95	51.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	58.7
175	5.0 - 9.0% of mass 174	4.8 (8.1)1
176	95.0 - 101.0% of mass 174	56.2 (95.8)1
177	5.0 - 9.0% of mass 176	4.5 (8.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X120303	12/03/19	1053
02	VBLKW-191203	VBLKW-191203	X120307	12/03/19	1229
03	VLCSW-19203	VLCSW-191203	X120308	12/03/19	1253
04	HS19111401-0	HS19111401-01M	X120312	12/03/19	1429
05	HS19111401-0	HS19111401-01M	X120313	12/03/19	1453
06	HS19111443-0	HS19111443-05	X120315	12/03/19	1541
07	HS19111443-0	HS19111443-01	X120316	12/03/19	1605
08	HS19111443-0	HS19111443-02	X120317	12/03/19	1629
09	HS19111443-0	HS19111443-03	X120318	12/03/19	1654
10	HS19111443-0	HS19111443-04	X120319	12/03/19	1718
11	CCV-END	CCV-END	X120320	12/03/19	1741
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111443

Instrument ID: VOA6 Calibration Date: 12/03/19 Time: 1053

Lab File ID: X120303 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	0.4880000	0.5411615	0.5411615	0.2	-10.89	20.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.4998308	0.4998308	0.1	-12.57	20.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.5818994	1.5818994	0.6	-10.31	20.00	AVRG
2,2-Dichloropropane	0.6600000	0.7295885	0.7295885	0.1	-10.54	20.00	AVRG
1,1-Dichloropropene	0.4030000	0.4027312	0.4027312	0.1	0.07	20.00	AVRG
Dibromomethane	0.2110000	0.2344746	0.2344746	0.1	-11.12	20.00	AVRG
1,2-Dibromoethane	0.3510000	0.3887118	0.3887118	0.1	-10.74	20.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4554380	0.4554380	0.1	-10.81	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3915815	0.3915815	0.1	-7.87	20.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.7519412	0.7519412	0.1	-11.56	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.8132185	0.8132185	0.3	-15.68	20.00	AVRG
Toluene	1.4180000	1.5049935	1.5049935	0.4	-6.13	20.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2853795	0.2853795	0.1	-9.34	20.00	AVRG
1,1-Dichloroethane	0.7270000	0.8070116	0.8070116	0.2	-11.00	20.00	AVRG
1,1-Dichloroethene	0.4240000	0.4019426	0.4019426	0.1	5.20	20.00	AVRG
Trichlorofluoromethane	0.7760000	0.7481837	0.7481837	0.1	3.58	20.00	AVRG
1,2,3-Trichlorobenzene	57.759287	50.000000	0.2144982	0.1	-15.52	20.00	2RDR
Tetrachloroethene	0.3510000	0.3358597	0.3358597	0.2	4.31	20.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.4358319	0.4358319	0.2	-3.52	20.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.5946926	2.5946926	0.1	-9.39	20.00	AVRG
tert-Butylbenzene	1.9490000	2.0205791	2.0205791	0.1	-3.67	20.00	AVRG
Trichloroethene	0.3500000	0.3762511	0.3762511	0.2	-7.50	20.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.4553148	1.4553148	0.4	-9.67	20.00	AVRG
1,2-Dichloroethane	0.3970000	0.4595486	0.4595486	0.1	-15.76	20.00	AVRG
1,2-Dichloropropane	0.2990000	0.3130251	0.3130251	0.1	-4.69	20.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.4720520	2.4720520	0.1	-8.61	20.00	AVRG
1,3-Dichloropropane	0.5310000	0.5742571	0.5742571	0.1	-8.15	20.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.6132287	1.6132287	0.4	-10.72	20.00	AVRG
2-Butanone	0.1530000	0.1761983	0.1761983	0.1	-15.16	20.00	AVRG
2-Chlorotoluene	1.7990000	2.0701568	2.0701568	0.1	-15.07	20.00	AVRG
2-Hexanone	0.2050000	0.2165674	0.2165674	0.1	-5.64	20.00	AVRG
4-Chlorotoluene	2.1800000	2.4482609	2.4482609	0.1	-12.30	20.00	AVRG
Styrene	1.0440000	1.1230565	1.1230565	0.3	-7.57	20.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.3192277	0.3192277	0.1	-8.95	20.00	AVRG
Acetone	100.67855	100.00000	0.1302887	0.1	-0.68	20.00	LINR
Benzene	1.1440000	1.2316747	1.2316747	0.5	-7.66	20.00	AVRG
Bromobenzene	0.8690000	0.9830043	0.9830043	0.1	-13.12	20.00	AVRG
Bromochloromethane	0.2710000	0.3031450	0.3031450	0.1	-11.86	20.00	AVRG
Bromodichloromethane	0.4140000	0.4593213	0.4593213	0.2	-10.95	20.00	AVRG
Bromoform	53.346826	50.000000	0.3180607	0.1	-6.69	20.00	LINR
Bromomethane	50.702116	50.000000	0.5038166	0.1	-1.40	20.00	LINR
Carbon Disulfide	1.1530000	1.2173775	1.2173775	0.1	-5.58	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911144

Instrument ID: VOA6 Calibration Date: 12/03/19 Time: 1053

Lab File ID: X120303 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4420000	0.4321257	0.4321257	0.1	2.23	20.00	AVRG
Chlorobenzene	0.9760000	1.0242085	1.0242085	0.5	-4.94	20.00	AVRG
Chloroethane	0.3150000	0.3081804	0.3081804	0.1	2.16	20.00	AVRG
Chloroform	0.8100000	0.8985730	0.8985730	0.2	-10.93	20.00	AVRG
Chloromethane	40.919862	50.000000	0.4440474	0.1	18.16	20.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5453981	0.5453981	0.1	-15.06	20.00	AVRG
Dibromochloromethane	0.3800000	0.4204522	0.4204522	0.1	-10.64	20.00	AVRG
Dichlorodifluoromethane	52.210044	50.000000	0.4761026	0.1	-4.42	20.00	LINR
Ethylbenzene	0.5040000	0.5284126	0.5284126	0.1	-4.84	20.00	AVRG
Hexachlorobutadiene	0.4020000	0.3230966	0.3230966	0.1	19.63	20.00	AVRG
Isopropylbenzene	1.4940000	1.5101063	1.5101063	0.1	-1.08	20.00	AVRG
m,p-Xylenes	0.6080000	0.6365066	0.6365066	0.1	-4.69	20.00	AVRG
Methylene Chloride	0.4520000	0.4765522	0.4765522	0.1	-5.43	20.00	AVRG
n-Butylbenzene	2.0360000	2.0791372	2.0791372	0.5	-2.12	20.00	AVRG
n-Propylbenzene	3.0900000	3.3432168	3.3432168	0.1	-8.19	20.00	AVRG
Naphthalene	0.5400000	0.6014734	0.6014734	0.2	-11.38	20.00	AVRG
o-Xylene	0.6000000	0.6270259	0.6270259	0.3	-4.50	20.00	AVRG
sec-Butylbenzene	2.6850000	2.7371294	2.7371294	0.1	-1.94	20.00	AVRG
Vinyl Chloride	0.5100000	0.4831941	0.4831941	0.1	5.26	20.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.7005561	0.7005561	0.1	-17.54	20.00	AVRG
p-Isopropyltoluene	2.4460000	2.4911780	2.4911780	0.1	-1.85	20.00	AVRG
1,2-Dibromo-3-Chloropropane	59.363603	50.000000	9.21e-002	0.05	-18.73	20.00	LINR
Freon TF	0.4350000	0.3719305	0.3719305	0.1	14.50	20.00	AVRG
4-Bromofluorobenzene	51.316934	50.000000	0.4775425	0.1	-2.63	20.00	LINR
Dibromofluoromethane	54.268243	50.000000	0.4937407	0.1	-8.54	20.00	LINR
Toluene-d8	1.3170000	1.2395994	1.2395994	0.1	5.88	20.00	AVRG
1,2-Dichloroethane-d4	56.954522	50.000000	0.5368052	0.1	-13.91	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19111443

Instrument ID: VOA6 Calibration Date: 12/03/19 Time: 1741

Lab File ID: X120320 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
cis-1,3-Dichloropropene	0.4880000	0.5401167	0.5401167	0.2	-10.68	50.00	AVRG
trans-1,3-Dichloropropene	0.4440000	0.5056990	0.5056990	0.1	-13.90	50.00	AVRG
1,3-Dichlorobenzene	1.4340000	1.6103564	1.6103564	0.6	-12.30	50.00	AVRG
2,2-Dichloropropane	0.6600000	0.7078843	0.7078843	0.1	-7.26	50.00	AVRG
1,1-Dichloropropene	0.4030000	0.4206066	0.4206066	0.1	-4.37	50.00	AVRG
Dibromomethane	0.2110000	0.2408419	0.2408419	0.1	-14.14	50.00	AVRG
1,2-Dibromoethane	0.3510000	0.3920698	0.3920698	0.1	-11.70	50.00	AVRG
trans-1,2-Dichloroethene	0.4110000	0.4893798	0.4893798	0.1	-19.07	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3630000	0.3972660	0.3972660	0.1	-9.44	50.00	AVRG
1,1,1-Trichloroethane	0.6740000	0.8139912	0.8139912	0.1	-20.77	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.7030000	0.8017155	0.8017155	0.3	-14.04	50.00	AVRG
Toluene	1.4180000	1.5198790	1.5198790	0.4	-7.18	50.00	AVRG
1,1,2-Trichloroethane	0.2610000	0.2841876	0.2841876	0.1	-8.88	50.00	AVRG
1,1-Dichloroethane	0.7270000	0.8541936	0.8541936	0.2	-17.50	50.00	AVRG
1,1-Dichloroethene	0.4240000	0.4571959	0.4571959	0.1	-7.83	50.00	AVRG
Trichlorofluoromethane	0.7760000	0.8932806	0.8932806	0.1	-15.11	50.00	AVRG
1,2,3-Trichlorobenzene	46.498077	50.000000	0.1730698	0.1	7.00	50.00	2RDR
Tetrachloroethene	0.3510000	0.3501177	0.3501177	0.2	0.25	50.00	AVRG
1,2,4-Trichlorobenzene	0.4210000	0.3883539	0.3883539	0.2	7.75	50.00	AVRG
1,2,4-Trimethylbenzene	2.3720000	2.6983474	2.6983474	0.1	-13.76	50.00	AVRG
tert-Butylbenzene	1.9490000	2.2224238	2.2224238	0.1	-14.03	50.00	AVRG
Trichloroethene	0.3500000	0.3805636	0.3805636	0.2	-8.73	50.00	AVRG
1,2-Dichlorobenzene	1.3270000	1.4539091	1.4539091	0.4	-9.56	50.00	AVRG
1,2-Dichloroethane	0.3970000	0.4717672	0.4717672	0.1	-18.83	50.00	AVRG
1,2-Dichloropropane	0.2990000	0.3173681	0.3173681	0.1	-6.14	50.00	AVRG
1,3,5-Trimethylbenzene	2.2760000	2.6175147	2.6175147	0.1	-15.00	50.00	AVRG
1,3-Dichloropropane	0.5310000	0.5733989	0.5733989	0.1	-7.98	50.00	AVRG
1,4-Dichlorobenzene	1.4570000	1.6154156	1.6154156	0.4	-10.87	50.00	AVRG
2-Butanone	0.1530000	0.1808293	0.1808293	0.1	-18.19	50.00	AVRG
2-Chlorotoluene	1.7990000	2.1602980	2.1602980	0.1	-20.08	50.00	AVRG
2-Hexanone	0.2050000	0.2172445	0.2172445	0.1	-5.97	50.00	AVRG
4-Chlorotoluene	2.1800000	2.5226907	2.5226907	0.1	-15.72	50.00	AVRG
Styrene	1.0440000	1.1563439	1.1563439	0.3	-10.76	50.00	AVRG
4-Methyl-2-Pentanone	0.2930000	0.3141927	0.3141927	0.1	-7.23	50.00	AVRG
Acetone	102.67722	100.00000	0.1327798	0.1	-2.68	50.00	LINR
Benzene	1.1440000	1.2577122	1.2577122	0.5	-9.94	50.00	AVRG
Bromobenzene	0.8690000	1.0109942	1.0109942	0.1	-16.34	50.00	AVRG
Bromochloromethane	0.2710000	0.3186158	0.3186158	0.1	-17.57	50.00	AVRG
Bromodichloromethane	0.4140000	0.4737527	0.4737527	0.2	-14.43	50.00	AVRG
Bromoform	53.910474	50.000000	0.3214853	0.1	-7.82	50.00	LINR
Bromomethane	56.752747	50.000000	0.5612687	0.1	-13.50	50.00	LINR
Carbon Disulfide	1.1530000	1.3387704	1.3387704	0.1	-16.11	50.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1911144

Instrument ID: VOA6 Calibration Date: 12/03/19 Time: 1741

Lab File ID: X120320 Init. Calib. Date(s): 11/18/19 11/18/19

Init. Calib. Times: 1347 1746

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4420000	0.4609207	0.4609207	0.1	-4.28	50.00	AVRG
Chlorobenzene	0.9760000	1.0470602	1.0470602	0.5	-7.28	50.00	AVRG
Chloroethane	0.3150000	0.3342455	0.3342455	0.1	-6.11	50.00	AVRG
Chloroform	0.8100000	0.9500933	0.9500933	0.2	-17.30	50.00	AVRG
Chloromethane	42.997854	50.000000	0.4667008	0.1	14.00	50.00	LINR
cis-1,2-Dichloroethene	0.4740000	0.5761651	0.5761651	0.1	-21.55	50.00	AVRG
Dibromochloromethane	0.3800000	0.4221841	0.4221841	0.1	-11.10	50.00	AVRG
Dichlorodifluoromethane	62.786023	50.000000	0.5742012	0.1	-25.57	50.00	LINR
Ethylbenzene	0.5040000	0.5441692	0.5441692	0.1	-7.97	50.00	AVRG
Hexachlorobutadiene	0.4020000	0.3212427	0.3212427	0.1	20.09	50.00	AVRG
Isopropylbenzene	1.4940000	1.6255863	1.6255863	0.1	-8.81	50.00	AVRG
m,p-Xylenes	0.6080000	0.6579091	0.6579091	0.1	-8.21	50.00	AVRG
Methylene Chloride	0.4520000	0.5159107	0.5159107	0.1	-14.14	50.00	AVRG
n-Butylbenzene	2.0360000	2.2161081	2.2161081	0.5	-8.85	50.00	AVRG
n-Propylbenzene	3.0900000	3.5861764	3.5861764	0.1	-16.06	50.00	AVRG
Naphthalene	0.5400000	0.4866960	0.4866960	0.2	9.87	50.00	AVRG
o-Xylene	0.6000000	0.6499761	0.6499761	0.3	-8.33	50.00	AVRG
sec-Butylbenzene	2.6850000	3.0307174	3.0307174	0.1	-12.88	50.00	AVRG
Vinyl Chloride	0.5100000	0.5411464	0.5411464	0.1	-6.11	50.00	AVRG
1,2,3-Trichloropropane	0.5960000	0.7022609	0.7022609	0.1	-17.83	50.00	AVRG
p-Isopropyltoluene	2.4460000	2.7000695	2.7000695	0.1	-10.39	50.00	AVRG
1,2-Dibromo-3-Chloropropane	55.369263	50.000000	8.59e-002	0.05	-10.74	50.00	LINR
Freon TF	0.4350000	0.4520572	0.4520572	0.1	-3.92	50.00	AVRG
4-Bromofluorobenzene	51.209962	50.000000	0.4765388	0.1	-2.42	50.00	LINR
Dibromofluoromethane	54.926098	50.000000	0.4997668	0.1	-9.85	50.00	LINR
Toluene-d8	1.3170000	1.2021998	1.2021998	0.1	8.72	50.00	AVRG
1,2-Dichloroethane-d4	58.110040	50.000000	0.5478389	0.1	-16.22	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.: HS19111443

Lab File ID (Standard): X120303 Date Analyzed: 12/03/19

Instrument ID: VOA6 Time Analyzed: 1053

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	IS1(DCB) RT #	IS2(CBZ) AREA #	IS2(CBZ) RT #	IS3(DFB) AREA #	IS3(DFB) RT #
	12 HOUR STD	274599	9.66	528286	7.67	567520	4.97
	UPPER LIMIT	549198	10.16	1056572	8.17	1135040	5.47
	LOWER LIMIT	137300	9.16	264143	7.17	283760	4.47
	CLIENT SAMPLE NO.						
01	VBLKW-191203	317867	9.66	630725	7.67	700713	4.97
02	VLCSW-19203	291845	9.66	535799	7.67	567129	4.97
03	HS19111401-01	341005	9.67	634281	7.67	690280	4.97
04	HS19111401-01	343001	9.67	647407	7.67	689046	4.97
05	HS19111443-05	304929	9.67	614612	7.67	691068	4.97
06	HS19111443-01	317151	9.67	624759	7.67	696582	4.97
07	HS19111443-02	325667	9.67	642596	7.67	708526	4.97
08	HS19111443-03	321285	9.66	633549	7.67	708219	4.97
09	HS19111443-04	320374	9.66	627020	7.67	709866	4.97
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.: HS19111443

Lab File ID (Standard): X120303 Date Analyzed: 12/03/19

Instrument ID: VOA6 Time Analyzed: 1053

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	380313	4.18				
	UPPER LIMIT	760626	4.68				
	LOWER LIMIT	190157	3.68				
	CLIENT SAMPLE NO.						
01	VBLKW-191203	499984	4.18				
02	VLCSW-19203	373173	4.18				
03	HS19111401-01	489493	4.18				
04	HS19111401-01	485111	4.18				
05	HS19111443-05	488880	4.18				
06	HS19111443-01	498936	4.18				
07	HS19111443-02	498794	4.18				
08	HS19111443-03	503038	4.18				
09	HS19111443-04	503185	4.18				
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\X191203.b\X120302.D Page 1

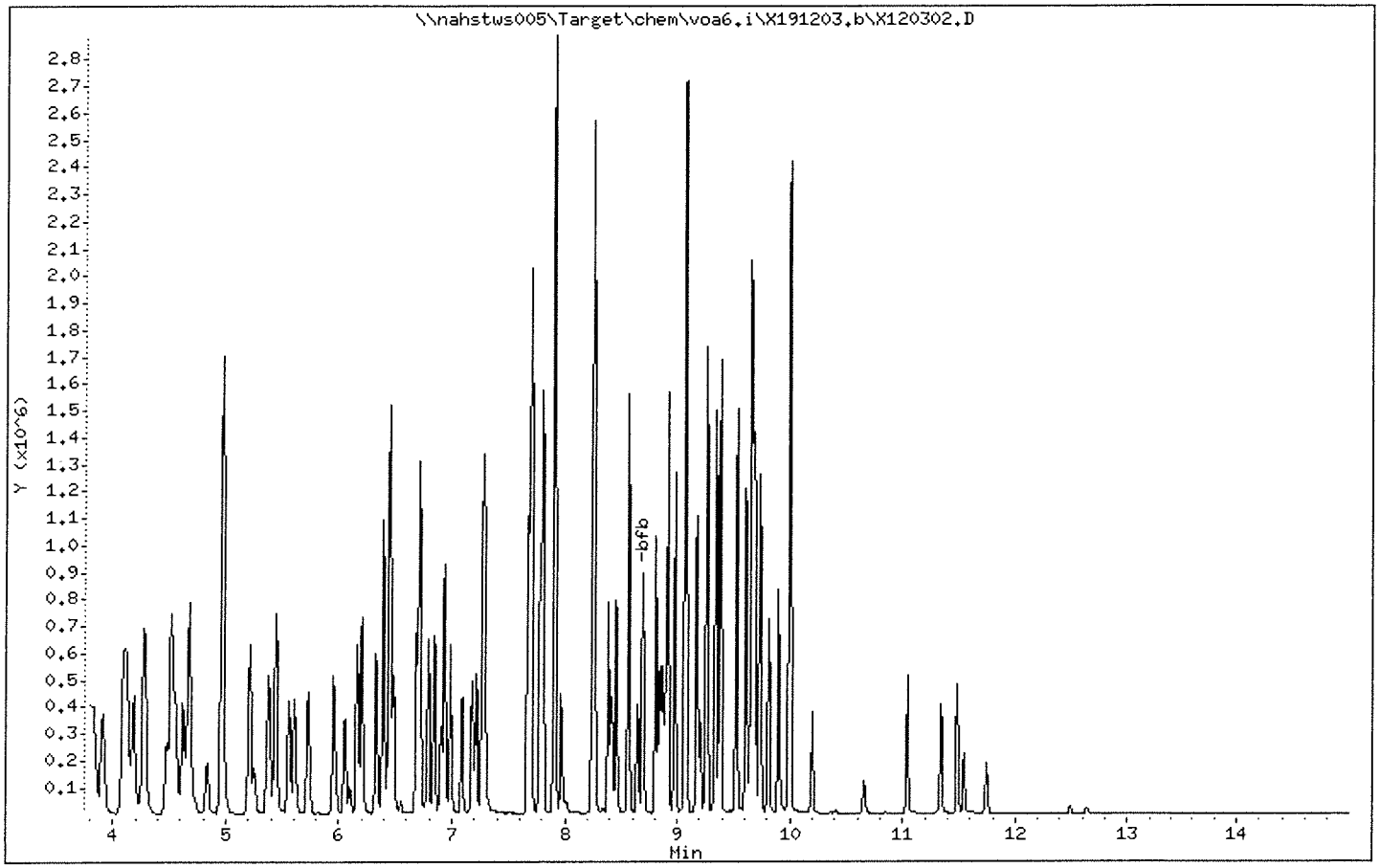
Date : 03-DEC-2019 10:29

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\X191203.b\X120302.D

Date : 03-DEC-2019 10:29

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

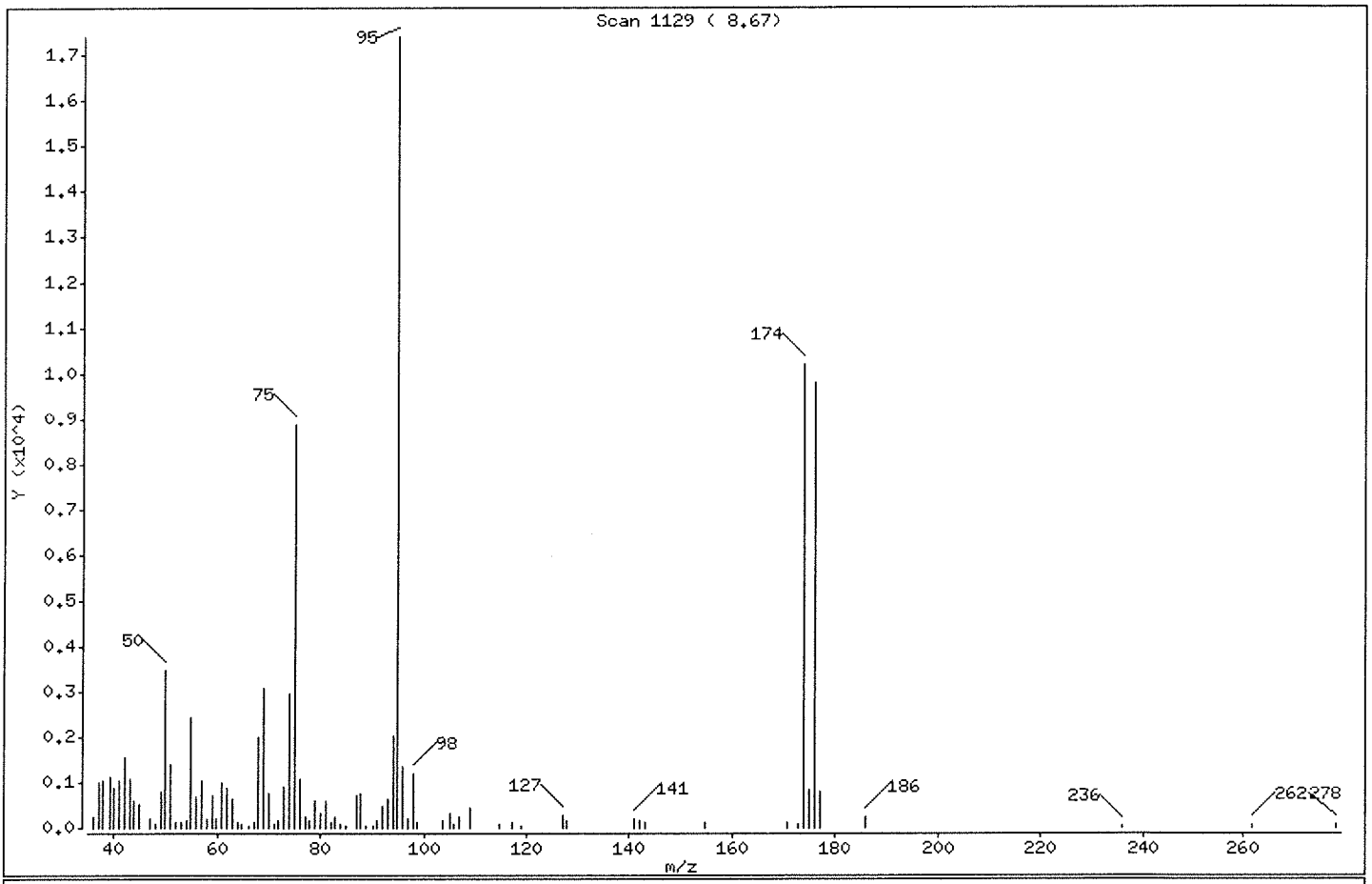
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.11
75	30.00 - 60.00% of mass 95	51.05
96	5.00 - 9.00% of mass 95	7.72
173	Less than 2.00% of mass 174	0.00 (0.00)
174	Greater than 50.00% of mass 95	58.68
175	5.00 - 9.00% of mass 174	4.77 (8.12)
176	95.00 - 101.00% of mass 174	56.22 (95.81)
177	5.00 - 9.00% of mass 176	4.50 (8.00)

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120302.D

Date : 03-DEC-2019 10:29

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: X120302.D
Spectrum: Scan 1129 (8.67)
Location of Maximum: 95.00
Number of points: 86

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	230	59.00	726	80.90	610	108.90	458
37.10	993	59.90	188	82.00	130	114.70	61
38.00	1053	60.90	1004	82.90	225	117.10	110
39.10	1139	62.00	888	84.00	74	118.90	58
40.10	868	63.00	652	85.00	51	126.90	289
41.10	1045	63.90	135	87.00	727	127.90	165
42.10	1571	64.90	100	87.90	752	140.90	196
43.00	1070	66.10	60	88.80	50	142.00	153
44.00	608	67.20	121	90.10	57	143.00	115
45.00	536	68.00	1995	91.00	142	154.80	138
47.10	183	69.00	3102	91.90	477	170.70	140
48.00	88	70.00	761	93.00	659	172.60	62
49.00	798	71.00	97	94.00	2034	173.90	10220
50.00	3502	71.80	142	95.00	17416	174.90	830
51.00	1394	73.00	913	96.00	1345	175.90	9792
51.90	127	74.00	2981	97.00	213	176.90	783
52.90	140	75.00	8891	98.00	1217	185.90	228
54.10	180	76.00	1070	98.90	106	235.90	60
55.00	2454	77.00	255	103.80	143	261.80	65
56.00	679	78.00	175	105.10	305	278.00	67
57.00	1046	78.90	607	105.90	99		
58.00	204	79.90	310	106.80	249		

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120303.D Page 1
Report Date: 07-Dec-2019 10:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120303.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 03-DEC-2019 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\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

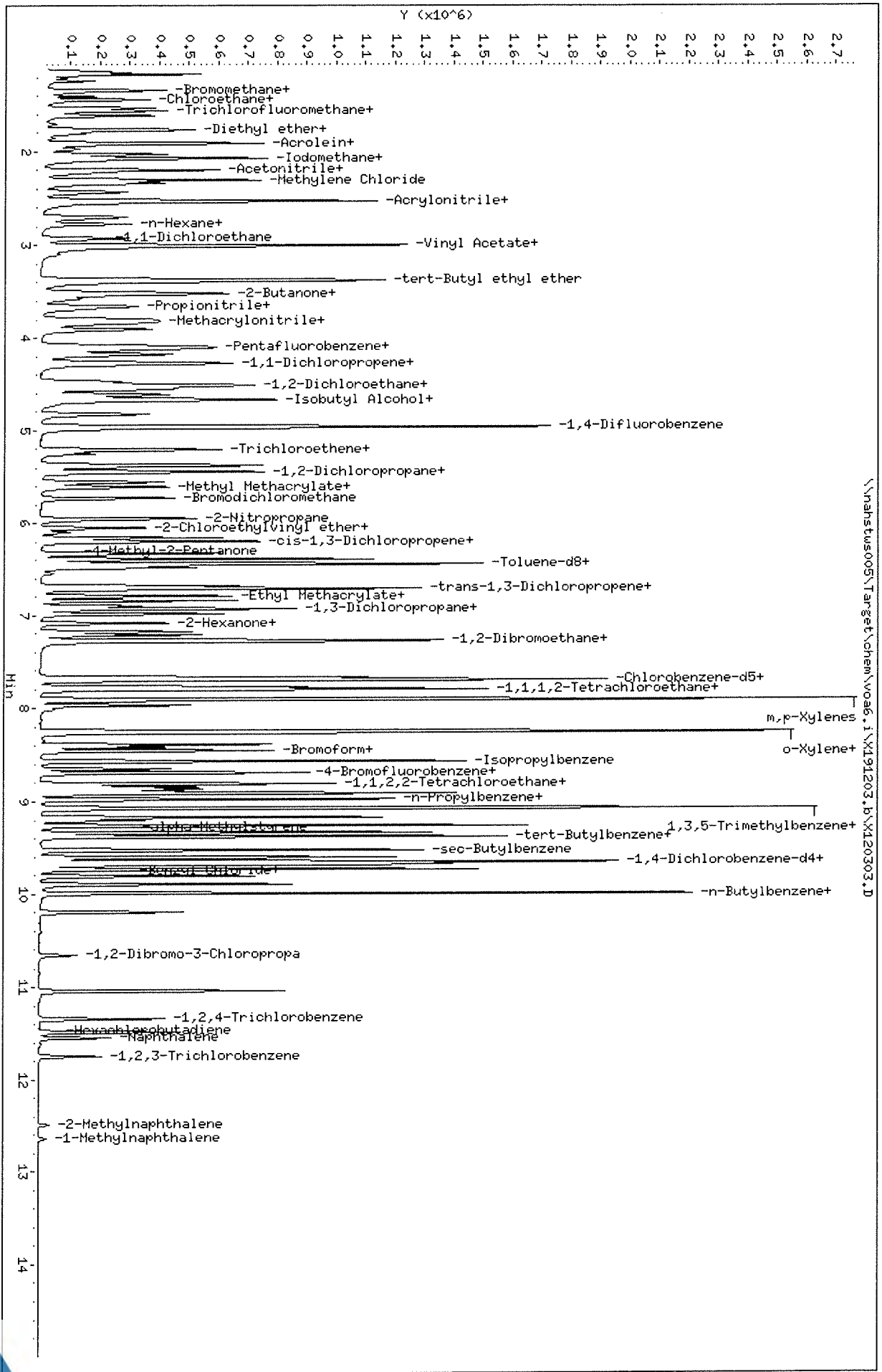
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	380313	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	567520	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	528286	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	274599	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	204154	50.0000	56.95
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	252279	50.0000	51.31
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	187776	50.0000	54.26
$	48 Toluene-d8	98	6.388	6.388	(0.833)	654863	50.0000	47.04
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	206867	50.0000	53.97
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	285973	50.0000	55.73
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	223309	50.0000	57.83
	138 Freon TF	101	1.912	1.919	(0.457)	141450	50.0000	42.72
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	150762	50.0000	54.59
	22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	306917	50.0000	55.46
	11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	152864	50.0000	47.42
	32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	228558	50.0000	49.92
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	58901	50.0000	57.75
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	192372	50.0000	58.79(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	119679	50.0000	51.73
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	712500	50.0000	54.68
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	25278	50.0000	59.36
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	205351	50.0000	55.42
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	399628	50.0000	54.83

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120303.D Page 2
Report Date: 07-Dec-2019 10:43

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	260803	50.0000	57.89
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	177648	50.0000	52.40
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	678823	50.0000	54.29
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	434388	50.0000	55.16
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	303372	50.0000	54.10
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	442991	50.0000	55.35
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	277472	50.0000	55.24
24	2-Butanone	43	3.573	3.573	(0.854)	134021	100.000	114.84
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	568463	50.0000	57.53
52	2-Hexanone	43	7.090	7.083	(0.924)	228819	100.000	105.43
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	672290	50.0000	56.14
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	684075	50.0000	50.91
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	337287	100.000	108.96
10	Acetone	43	1.976	1.969	(0.473)	99101	100.000	100.67
37	Benzene	78	4.512	4.512	(0.908)	699000	50.0000	53.84
74	Bromobenzene	156	8.810	8.809	(0.912)	269932	50.0000	56.56
29	Bromochloromethane	128	3.795	3.795	(0.908)	115290	50.0000	55.95
39	Bromodichloromethane	83	5.729	5.729	(1.153)	260674	50.0000	55.50
66	Bromoform	173	8.416	8.415	(1.097)	168027	50.0000	53.34
6	Bromomethane	94	1.338	1.338	(0.320)	191608	50.0000	50.70
19	Carbon Disulfide	76	2.069	2.069	(0.495)	925969	100.000	105.60
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	245240	50.0000	48.90
59	Chlorobenzene	112	7.699	7.699	(1.004)	541075	50.0000	52.46
7	Chloroethane	64	1.403	1.403	(0.336)	117205	50.0000	48.94
28	Chloroform	83	3.910	3.910	(0.935)	341739	50.0000	55.48
3	Chloromethane	50	1.073	1.073	(0.257)	168877	50.0000	40.91(M)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	207422	50.0000	57.51
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	307120	50.0000	55.49
55	Dibromochloromethane	129	7.176	7.176	(0.936)	222119	50.0000	55.36
44	Dibromomethane	93	5.558	5.557	(1.118)	133069	50.0000	55.46
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	181068	50.0000	52.21
61	Ethylbenzene	106	7.800	7.799	(1.017)	279153	50.0000	52.38
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	88722	50.0000	40.20(M)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	797768	50.0000	50.54
62	m,p-Xylenes	106	7.907	7.907	(1.031)	672515	100.000	104.58
17	Methylene Chloride	84	2.305	2.305	(0.551)	181239	50.0000	52.70
87	n-Butylbenzene	91	9.999	9.999	(1.035)	570929	50.0000	51.05
73	n-Propylbenzene	91	8.917	8.917	(0.923)	918044	50.0000	54.08
92	Naphthalene	128	11.546	11.546	(1.195)	165164	50.0000	55.67
63	o-Xylene	106	8.244	8.244	(1.075)	331249	50.0000	52.19
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	751613	50.0000	50.97
64	Styrene	104	8.258	8.258	(1.077)	593295	50.0000	53.75
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	554849	50.0000	51.83
56	Tetrachloroethene	164	6.933	6.933	(0.904)	177430	50.0000	47.80
50	Toluene	91	6.446	6.446	(0.840)	795067	50.0000	53.07
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	173209	50.0000	55.35
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	283664	50.0000	56.23
38	Trichloroethene	130	5.207	5.206	(1.048)	213530	50.0000	53.80
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	284544	50.0000	48.23
5	Vinyl Chloride	62	1.138	1.138	(0.272)	183765	50.0000	47.41

QC Flag Legend

M - Compound response manually integrated.



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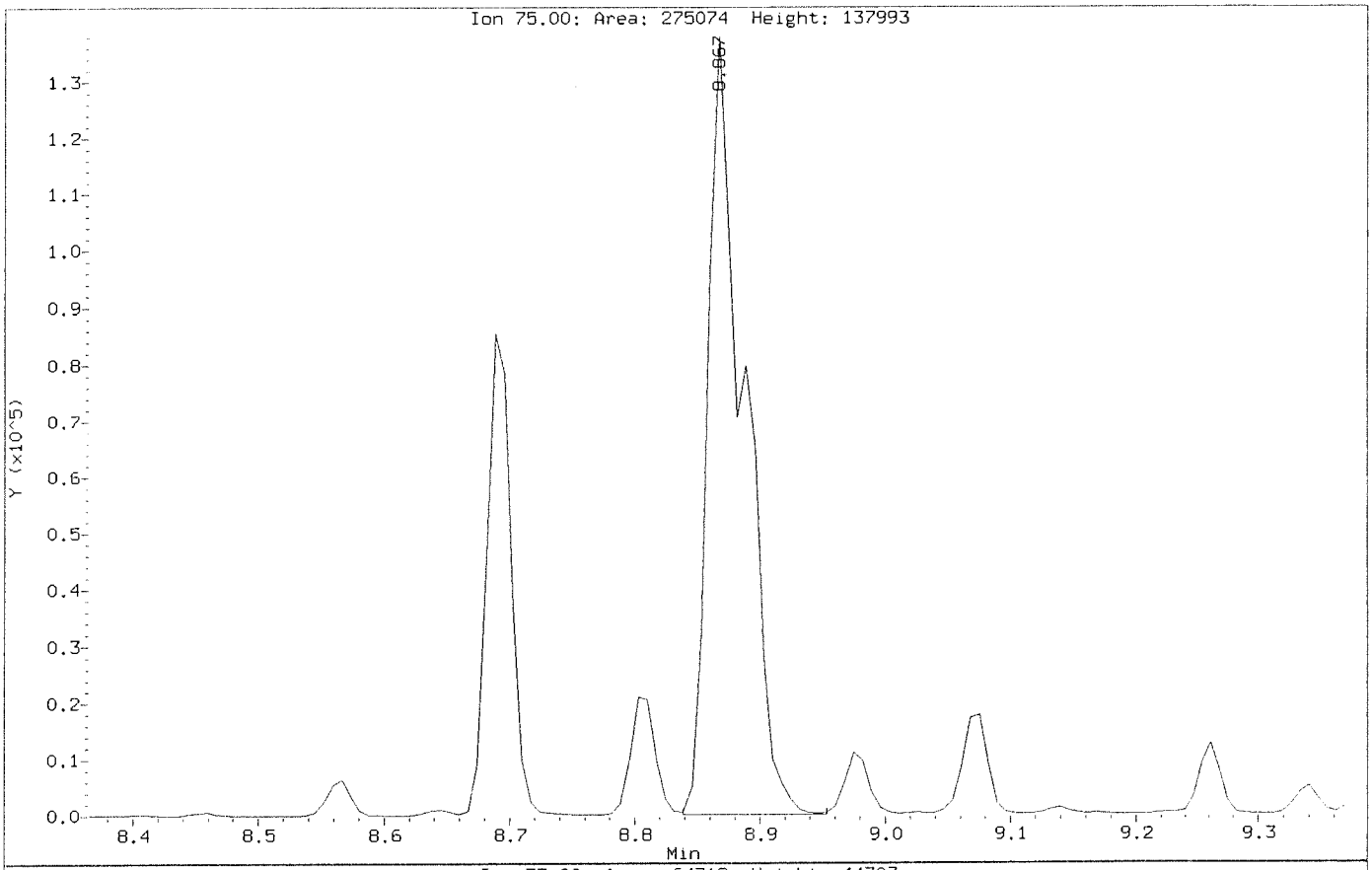
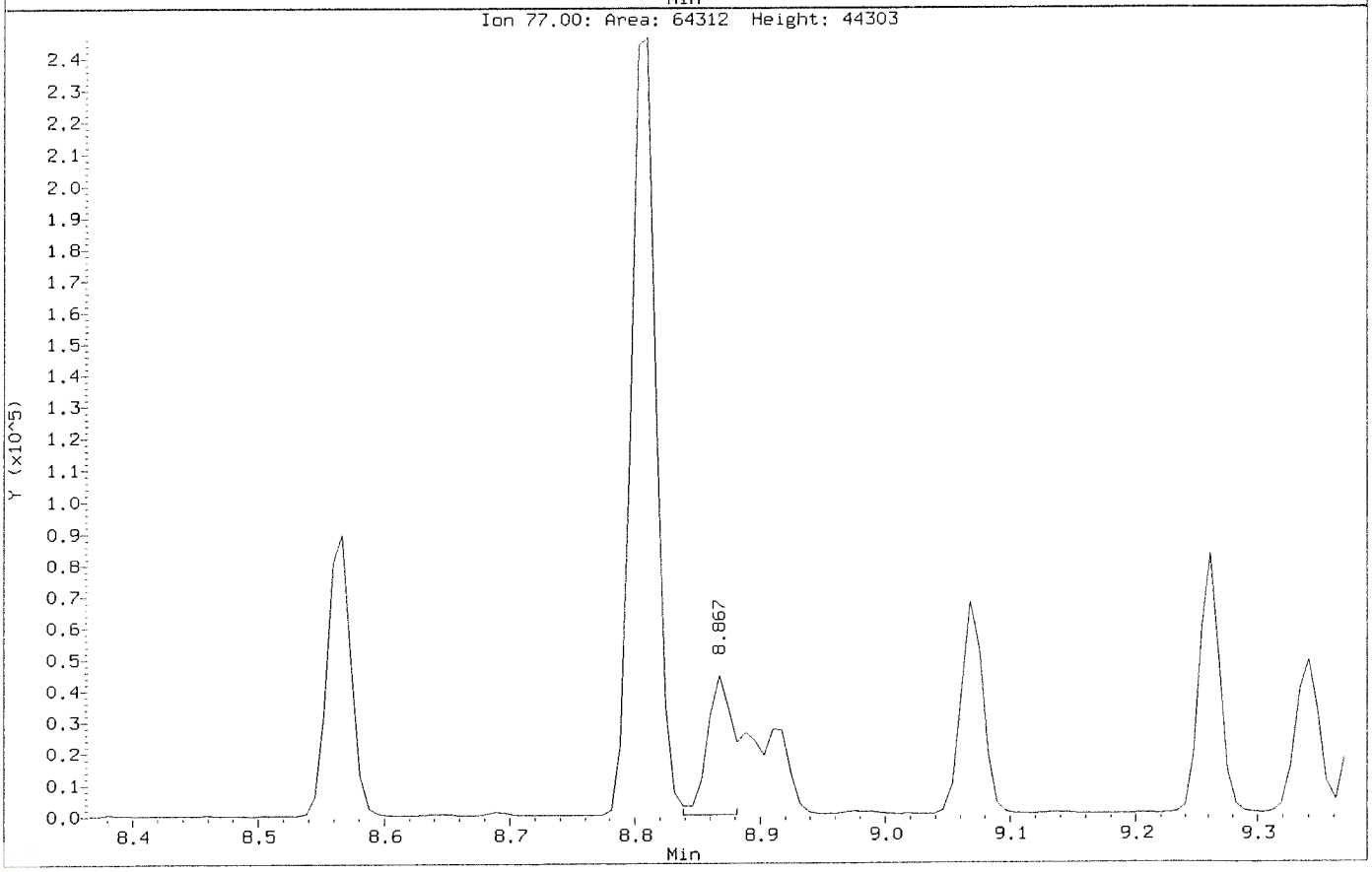
Date : 03-DEC-2019 10:53
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\BEFORE\X120303.D
Injection Date: 03-DEC-2019 10:53
Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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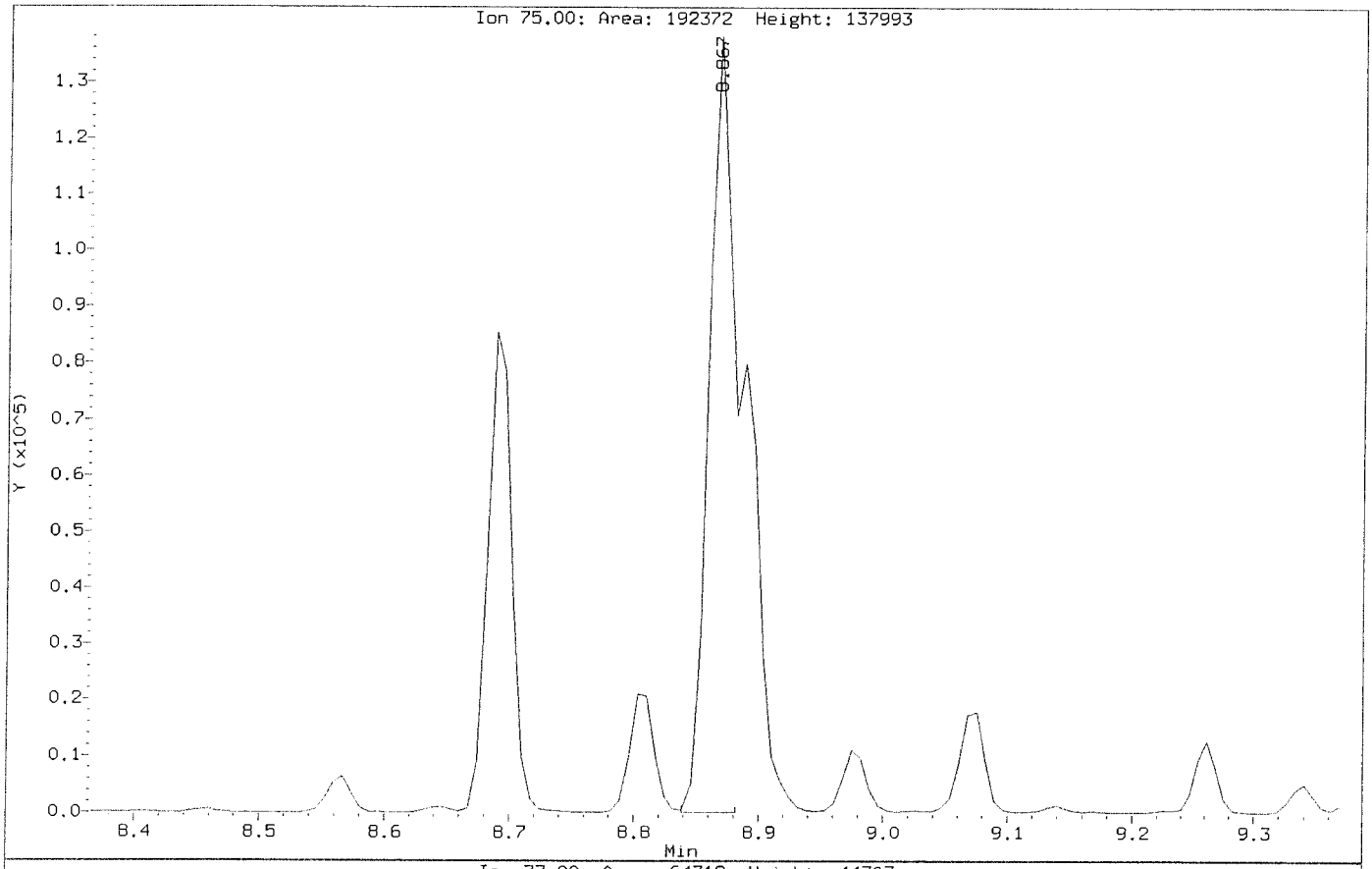
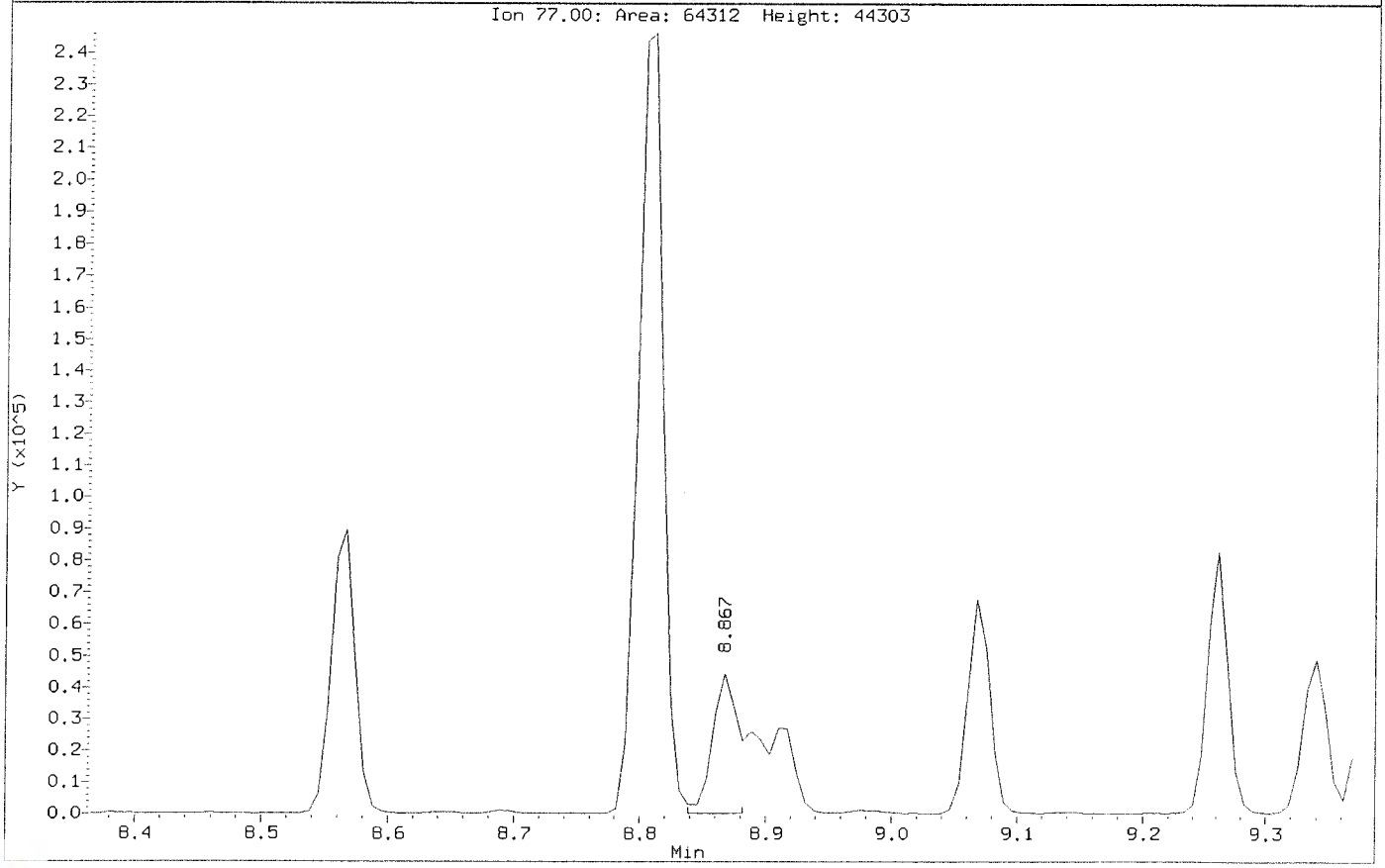
Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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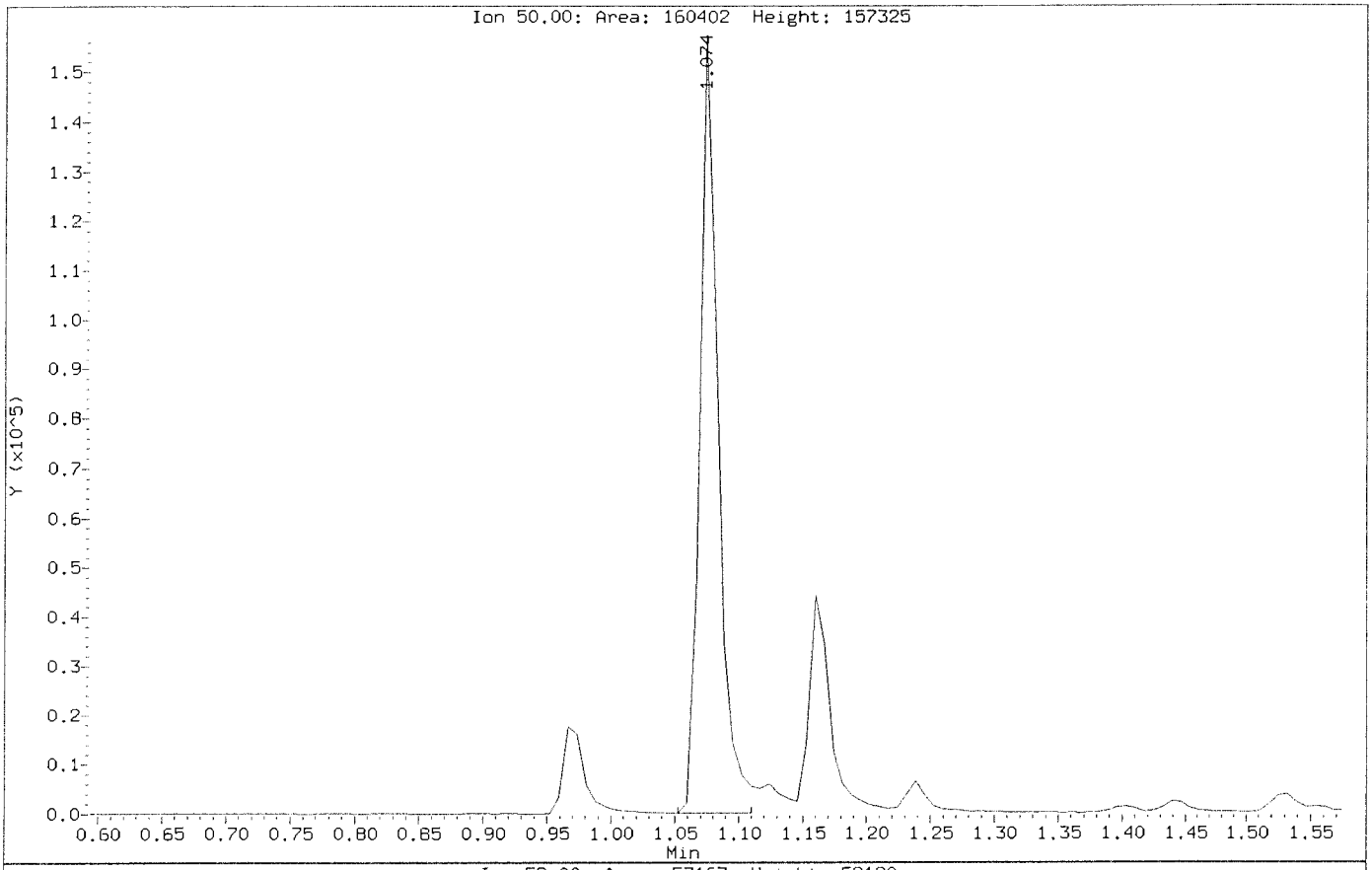
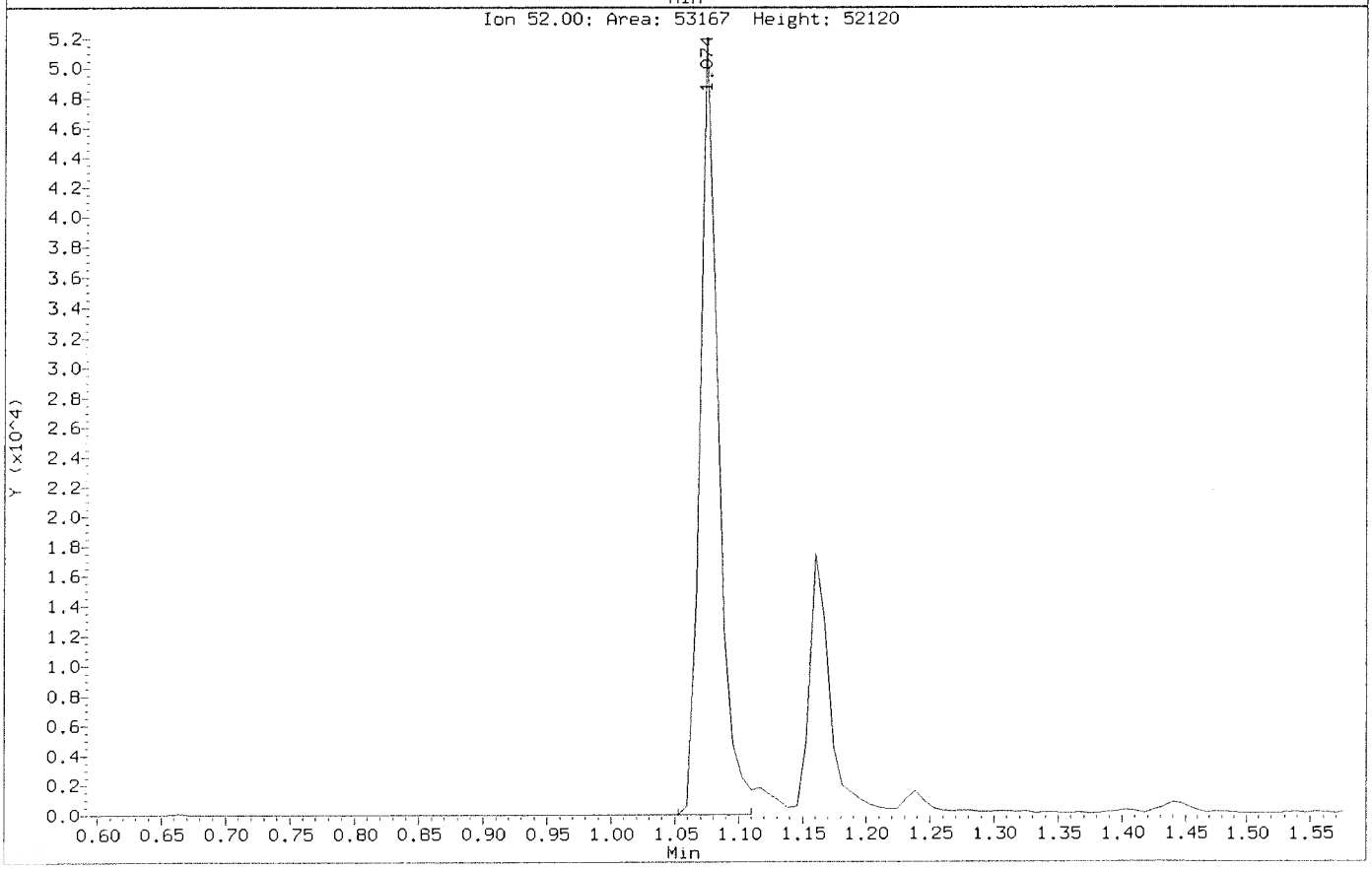
Injection Date: 03-DEC-2019 10:53
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3





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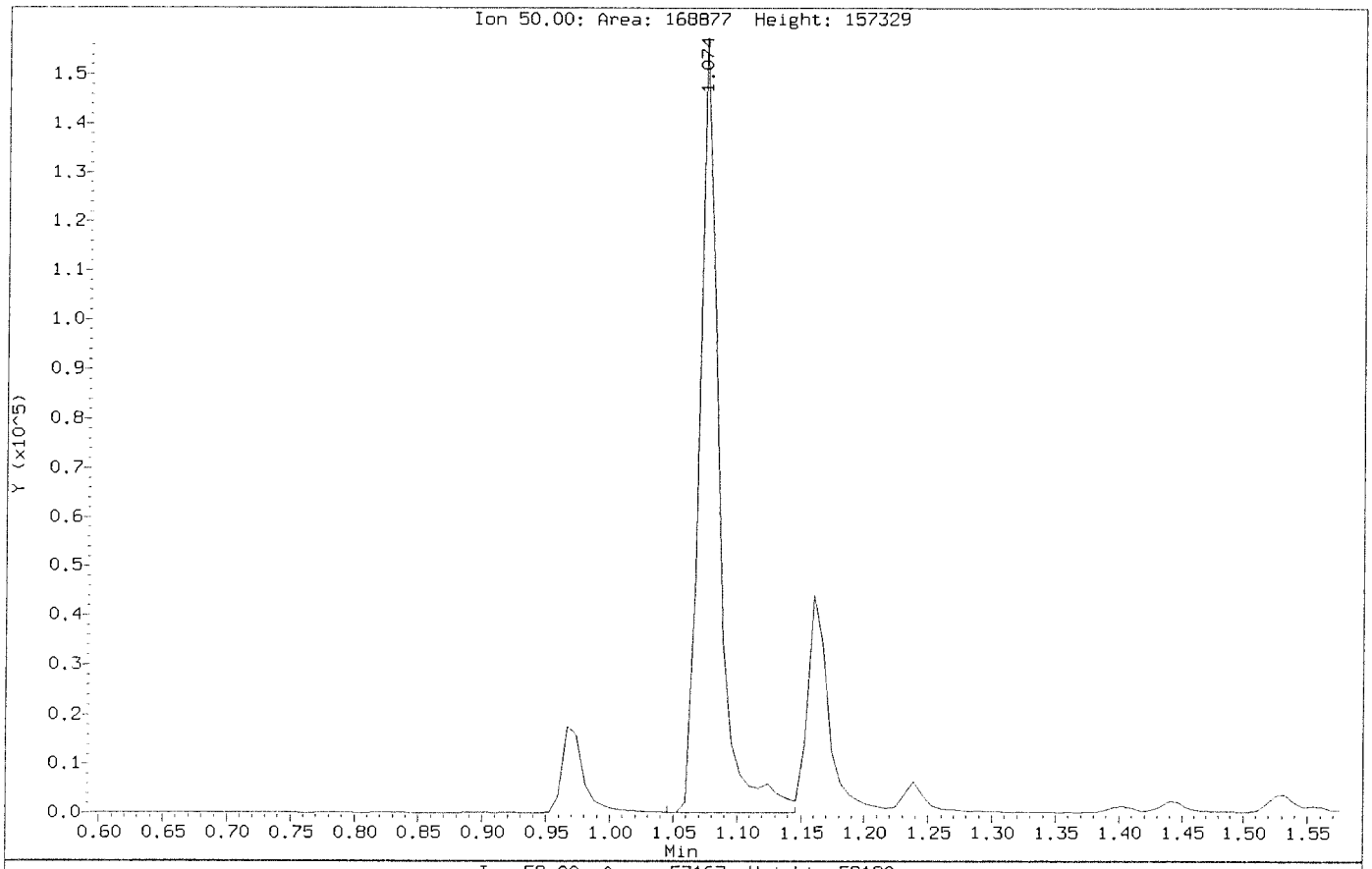
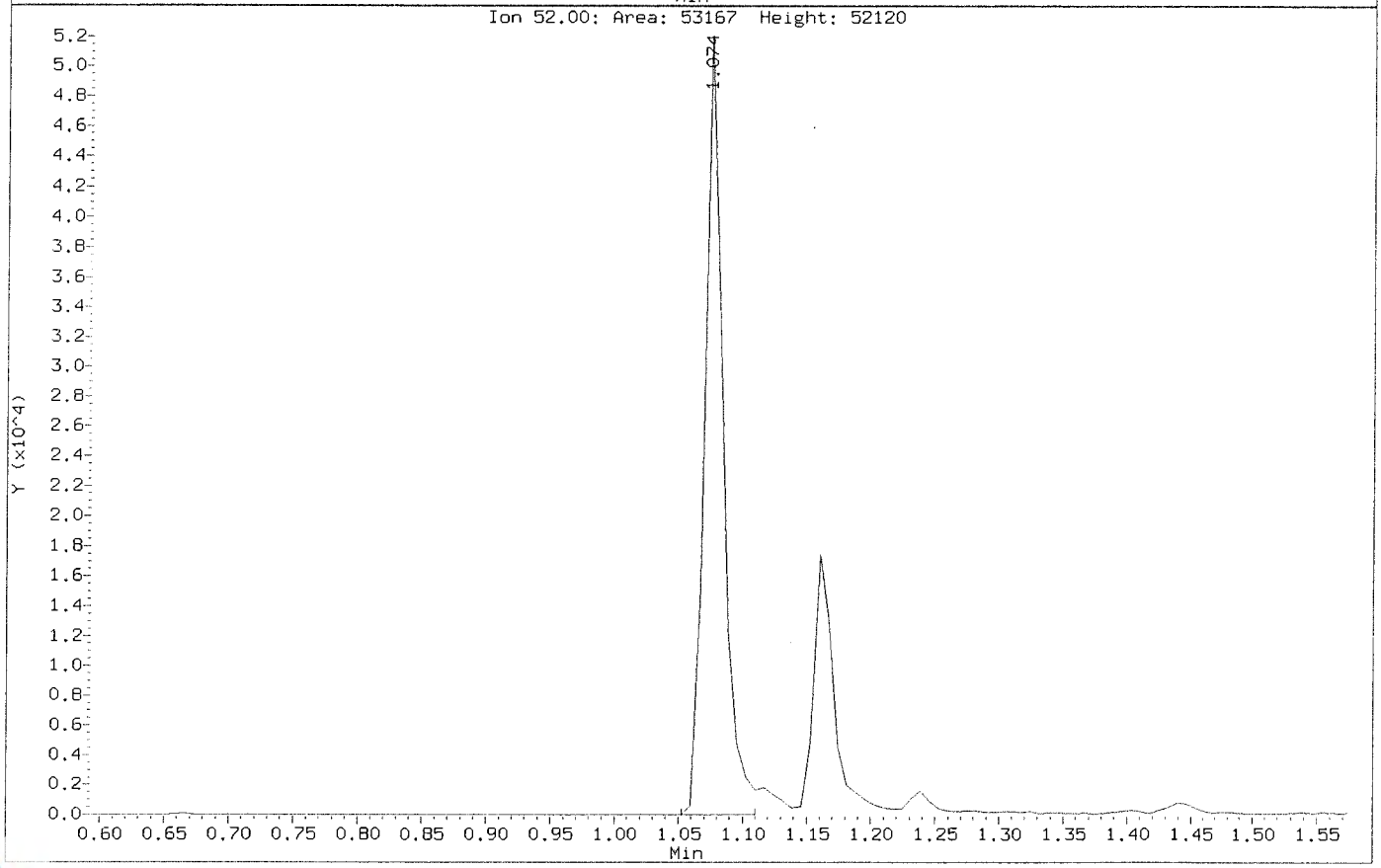
Instrument: voa6.i
Client Sample ID: CCV

Compound: Chloromethane
CAS Number: 74-87-3





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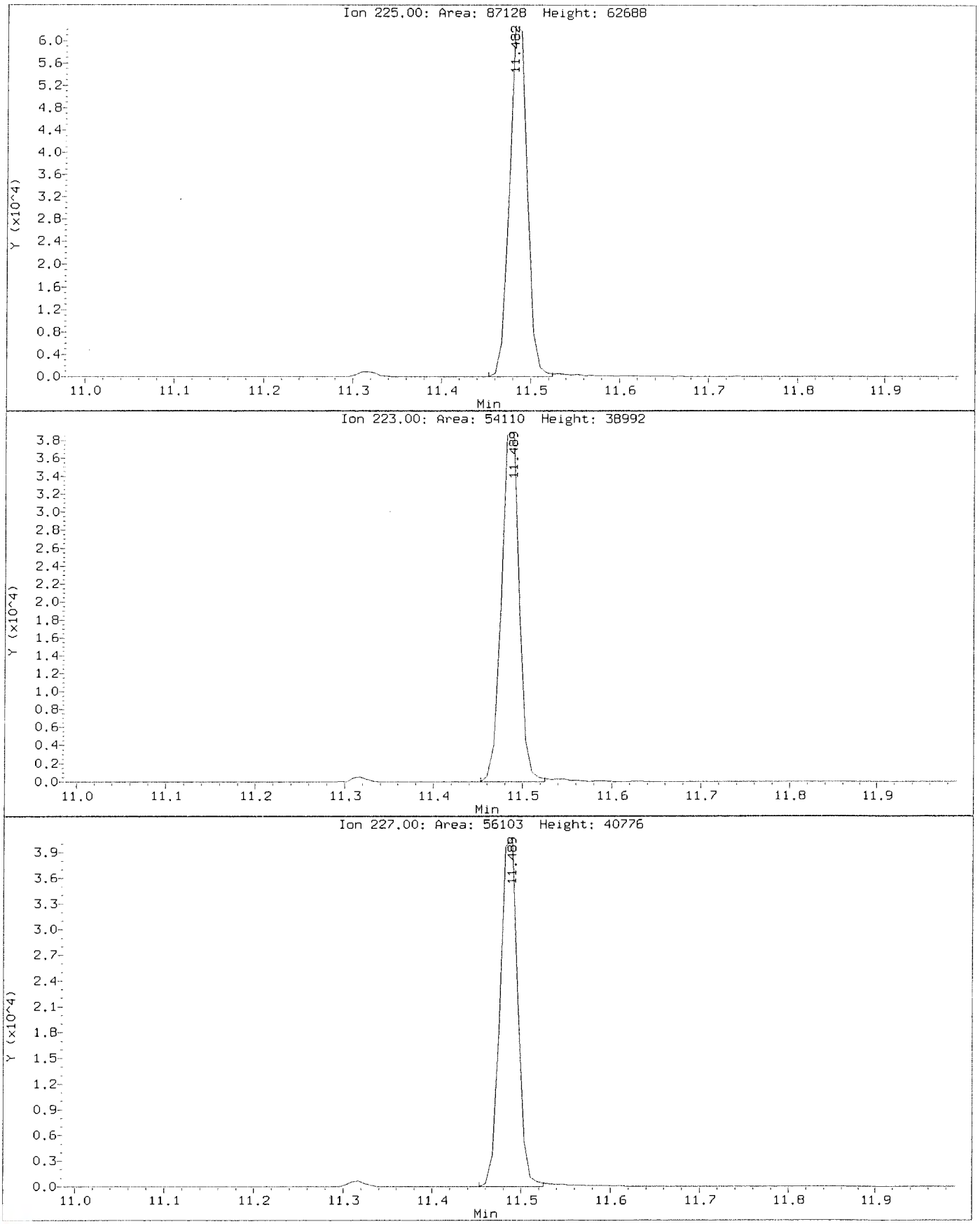
Injection Date: 03-DEC-2019 10:53
Instrument: voa6.i
Client Sample ID: CCV

Compound: Hexachlorobutadiene
CAS Number: 87-68-3



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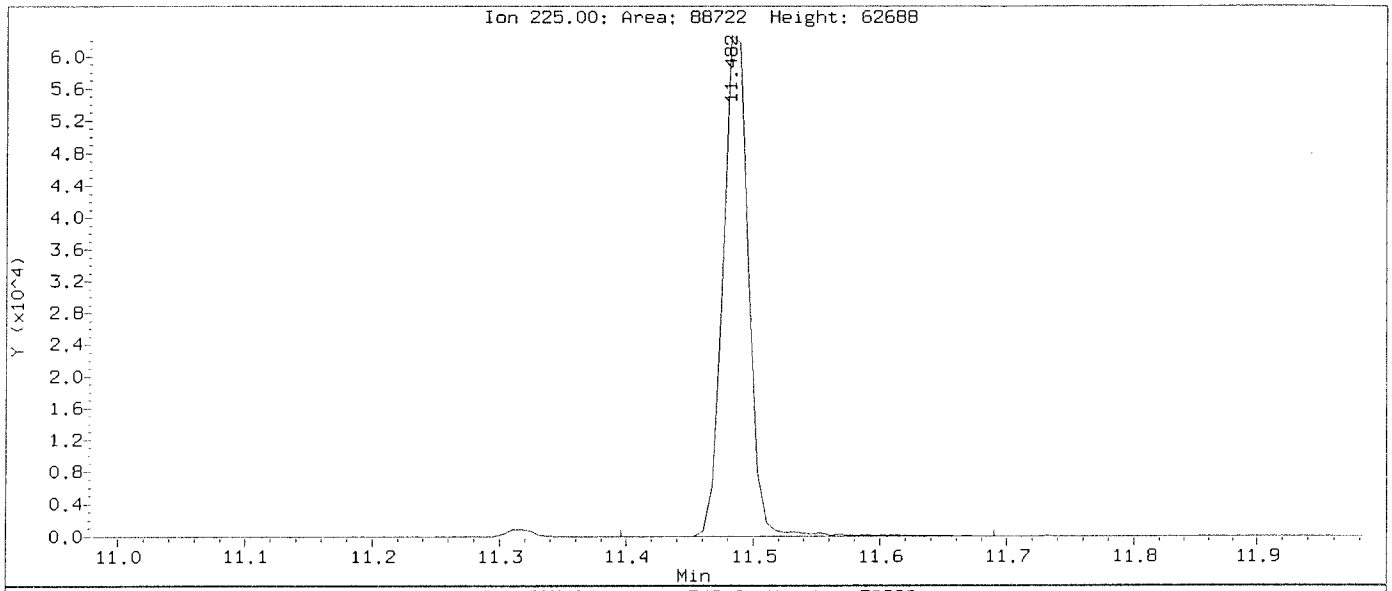
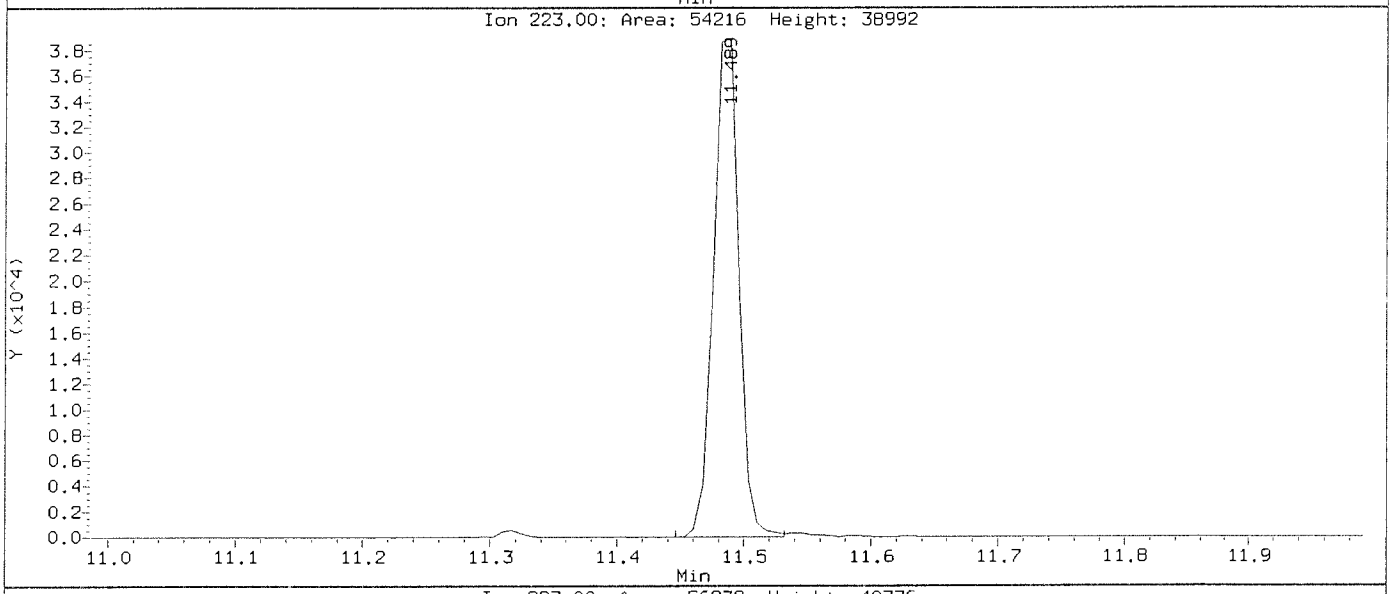
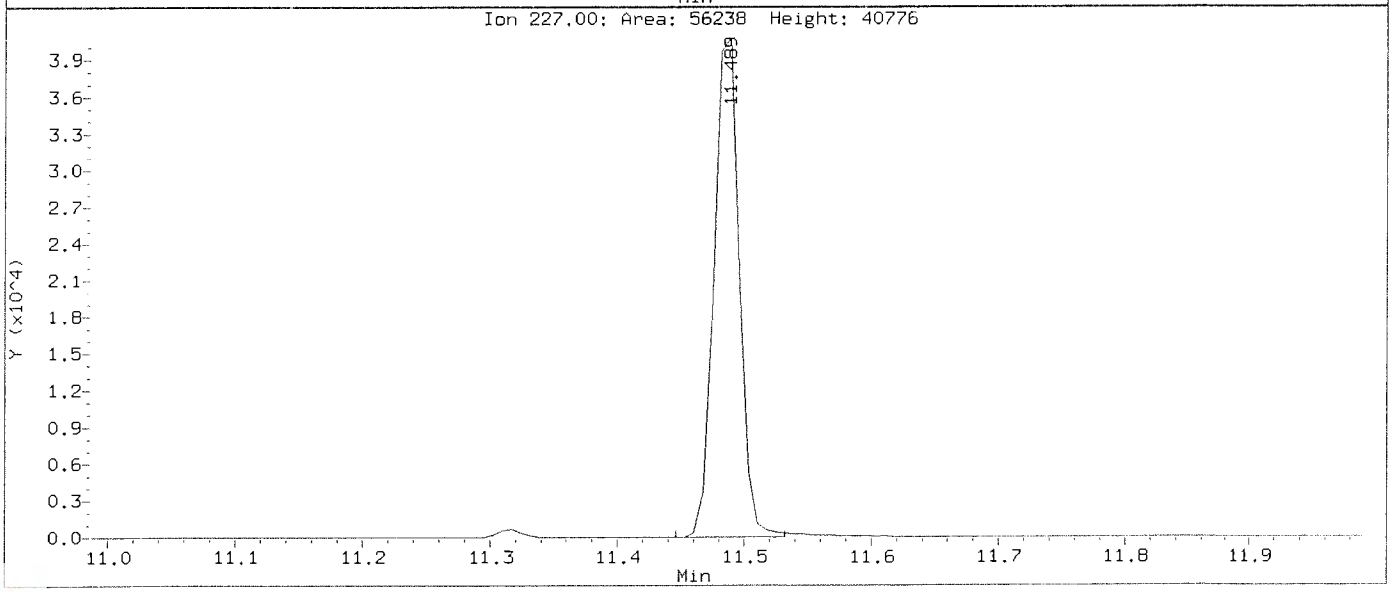
Instrument: voa6.i
Client Sample ID: CCV

Compound: Hexachlorobutadiene
CAS Number: 87-68-3







Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120307.D Page 1
Report Date: 07-Dec-2019 10:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120307.D
Lab Smp Id: VBLKW-191203 Client Smp ID: VBLKW-191203
Inj Date : 03-DEC-2019 12:29
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-191203;VBLKW-191203;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

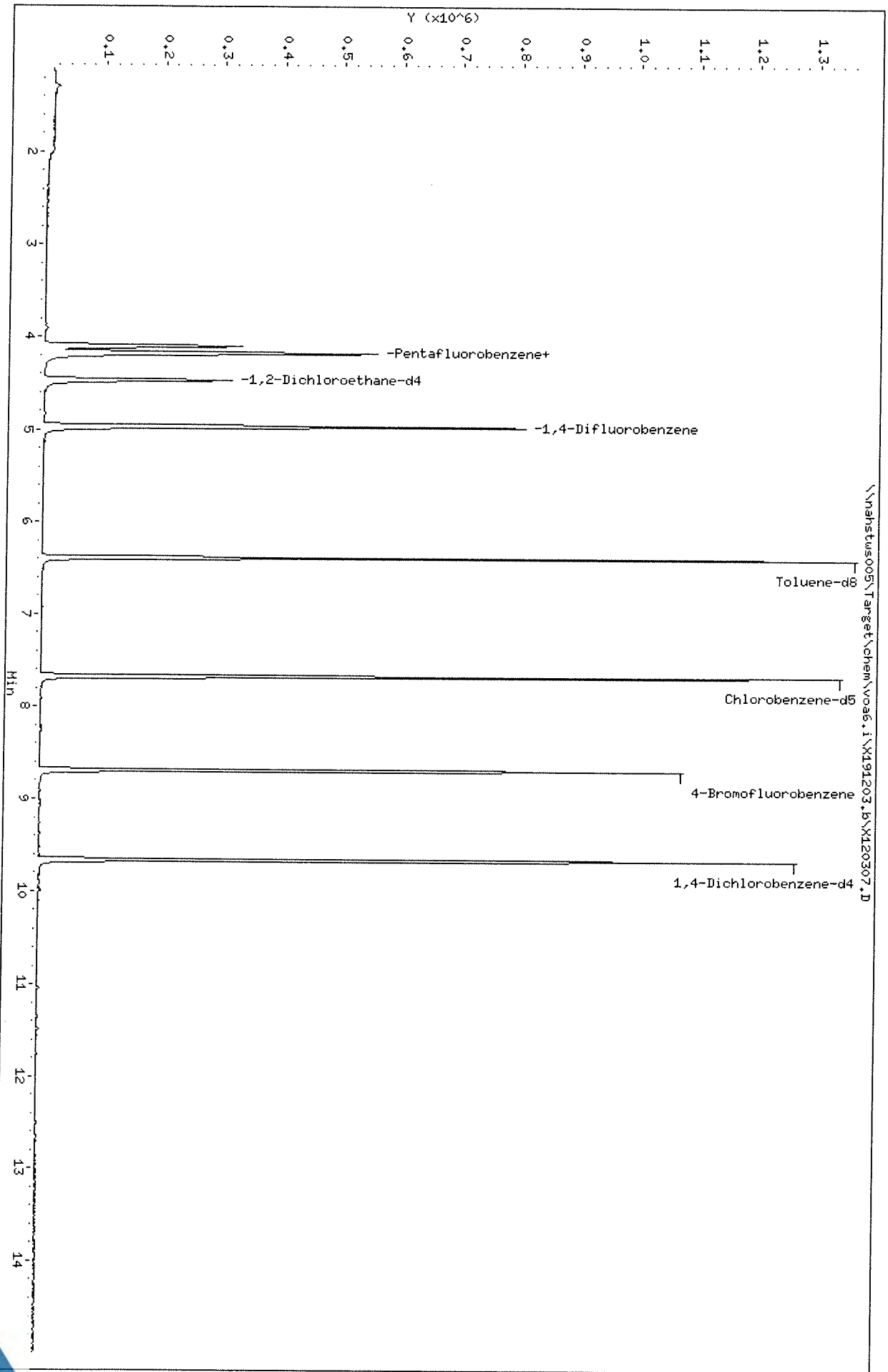
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	499984	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	700713	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	630725	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	317867	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	238701	50.7350	50.73
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	284383	48.4754	48.47
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	224673	49.4234	49.42
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	798721	48.0627	48.06

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120307.D
Date : 03-DEC-2019 12:29
Client ID: VBLKW-191203
Sample Info: VBLKW-191203;VBLKW-191203;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120308.D Page 1
Report Date: 07-Dec-2019 10:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120308.D
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Inj Date : 03-DEC-2019 12:53
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-191203;VLCSW-19203;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 8 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

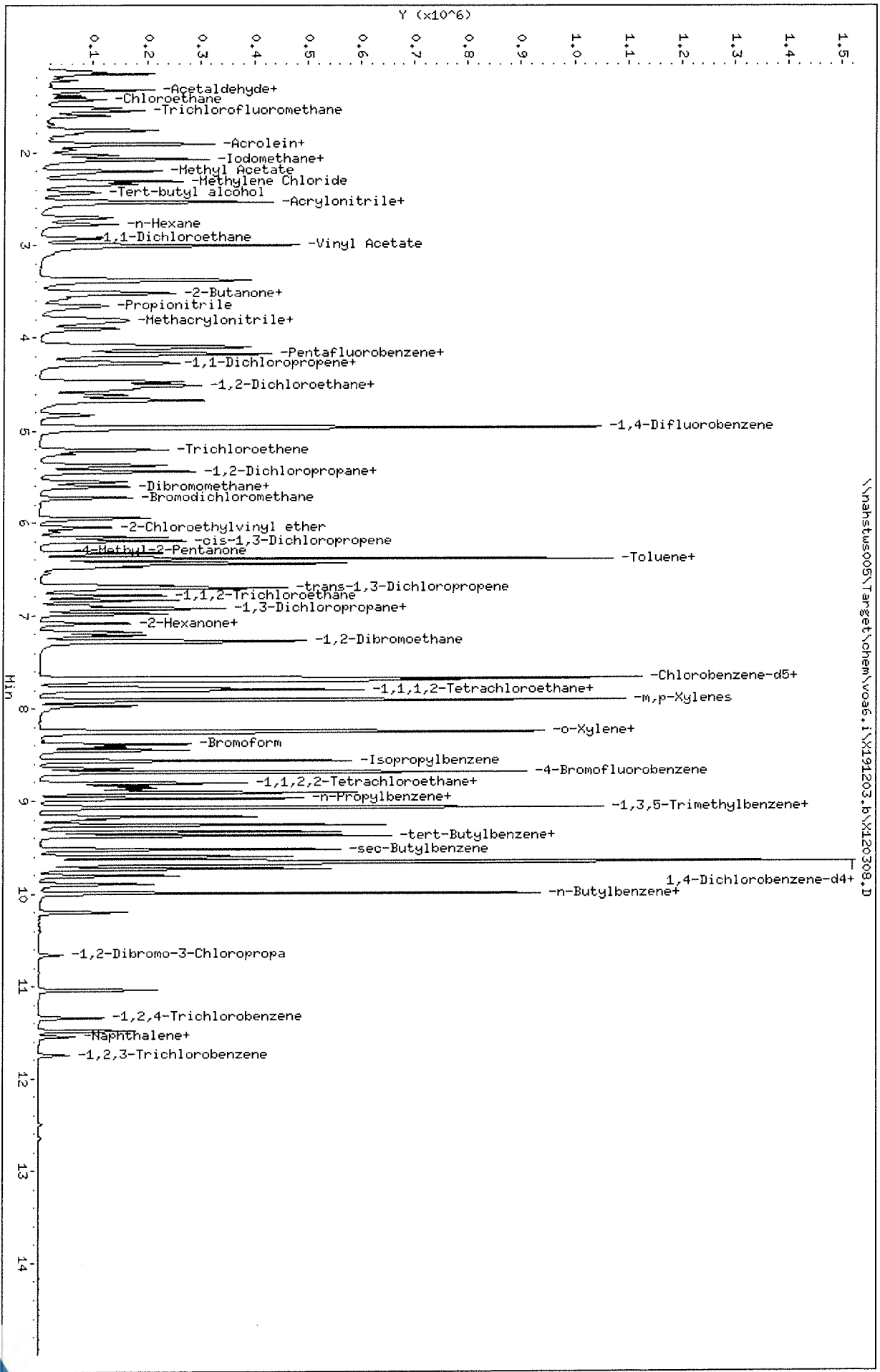
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	373173	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	567129	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	535799	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	291845	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	201240	57.2124	57.21
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	240044	48.1693	48.16
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	177424	52.2712	52.27
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	632970	44.8368	44.83(M)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	78834	20.2807	20.28
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	112192	22.2853	22.28
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	82356	20.0680	20.06
138 Freon TF	101	1.912	1.919	(0.457)	64760	19.9331	19.93
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	57966	20.6958	20.69
22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	121706	22.4148	22.41
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	63224	19.9917	19.99
32 1,1-Dichloropropene	75	4.283	4.282	(0.862)	90996	19.8909	19.89
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	15958	14.1554	14.15
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	71718	20.6248	20.62(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.174)	37935	15.4307	15.43(M)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	289179	20.8827	20.88
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	8810	19.2383	19.23
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	77784	20.6991	20.69
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	158068	20.4073	20.40

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120308.D Page 2
Report Date: 07-Dec-2019 10:43

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	100885	22.4088	22.40
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	68596	20.2479	20.24
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	276852	20.8354	20.83
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.994)	172366	20.5944	20.59
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	115880	20.3785	20.37
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	175346	20.6170	20.61
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	108454	22.0074	22.00
24	2-Butanone	43	3.581	3.573	(0.856)	53699	46.8966	46.89
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	226379	21.5600	21.56
52	2-Hexanone	43	7.090	7.083	(0.924)	91513	41.5778	41.57
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	265911	20.8935	20.89
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	289864	20.2985	20.29
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	126630	40.3360	40.33
10	Acetone	43	1.976	1.969	(0.473)	45782	45.3589	45.35
37	Benzene	78	4.512	4.512	(0.908)	271919	20.9598	20.95
74	Bromobenzene	156	8.810	8.809	(0.912)	103936	20.4916	20.49
29	Bromochloromethane	128	3.795	3.795	(0.908)	45942	22.7256	22.72
39	Bromodichloromethane	83	5.729	5.729	(1.153)	100007	21.3086	21.30
66	Bromoform	173	8.416	8.415	(1.097)	63023	20.3579	20.35
6	Bromomethane	94	1.338	1.338	(0.320)	89941	23.0251	23.02
19	Carbon Disulfide	76	2.069	2.069	(0.495)	376268	43.7342	43.73
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	98093	19.5742	19.57
59	Chlorobenzene	112	7.699	7.699	(1.004)	209262	20.0053	20.00
7	Chloroethane	64	1.403	1.403	(0.336)	49027	20.8666	20.86
28	Chloroform	83	3.910	3.910	(0.935)	135128	22.3591	22.35
3	Chloromethane	50	1.073	1.073	(0.257)	65636	16.3214	16.32
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	81315	22.9772	22.97
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	117136	21.1789	21.17
55	Dibromochloromethane	129	7.176	7.176	(0.936)	83082	20.4185	20.41
44	Dibromomethane	93	5.558	5.557	(1.118)	51621	21.5321	21.53
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	79379	23.8142	23.81
61	Ethylbenzene	106	7.800	7.799	(1.017)	109912	20.3363	20.33
91	Hexachlorobutadiene	225	11.489	11.481	(1.189)	33277	14.1882	14.18(M)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	327900	20.4828	20.48
62	m,p-Xylenes	106	7.907	7.907	(1.031)	267058	40.9477	40.94
17	Methylene Chloride	84	2.306	2.305	(0.551)	73645	21.8255	21.82
87	n-Butylbenzene	91	9.999	9.999	(1.035)	239836	20.1817	20.18
73	n-Propylbenzene	91	8.917	8.917	(0.923)	374486	20.7592	20.75
92	Naphthalene	128	11.546	11.546	(1.195)	46815	14.8472	14.84
63	o-Xylene	106	8.244	8.244	(1.075)	128894	20.0247	20.02
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	321319	20.5037	20.50
64	Styrene	104	8.258	8.258	(1.077)	225935	20.1854	20.18
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	234749	20.6334	20.63
56	Tetrachloroethene	164	6.933	6.933	(0.904)	71810	19.0747	19.07
50	Toluene	91	6.446	6.446	(0.840)	304238	20.0235	20.02
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	68832	22.4181	22.41
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	107016	21.2298	21.22
38	Trichloroethene	130	5.207	5.206	(1.048)	81687	20.5961	20.59
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	124400	21.4898	21.48
5	Vinyl Chloride	62	1.138	1.138	(0.272)	74888	19.6904	19.69

QC Flag Legend

M - Compound response manually integrated.



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Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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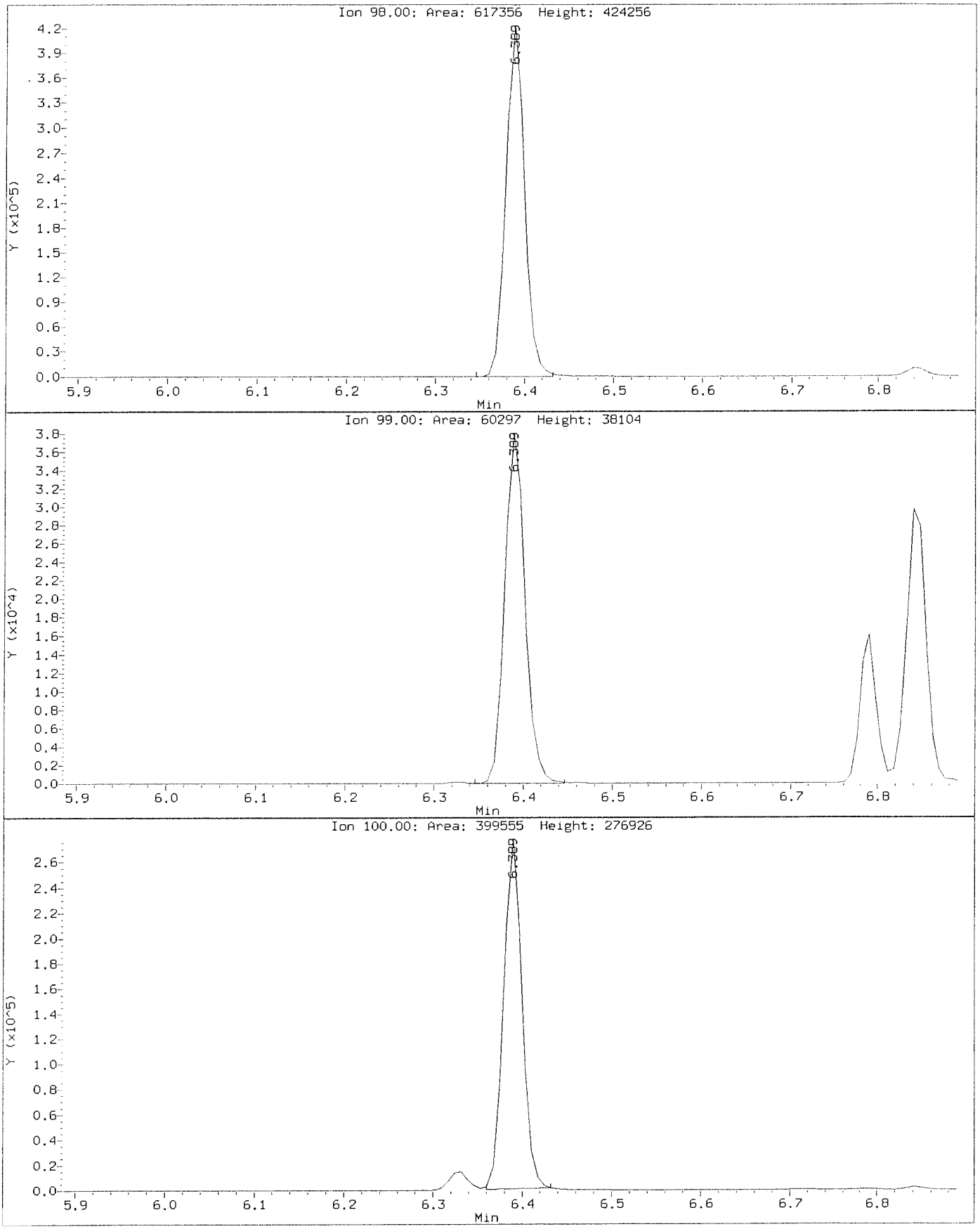
Injection Date: 03-DEC-2019 12:53
Instrument: voa6.i
Client Sample ID: VLCSW-19203

Compound: Toluene-d8
CAS Number: 2037-26-5



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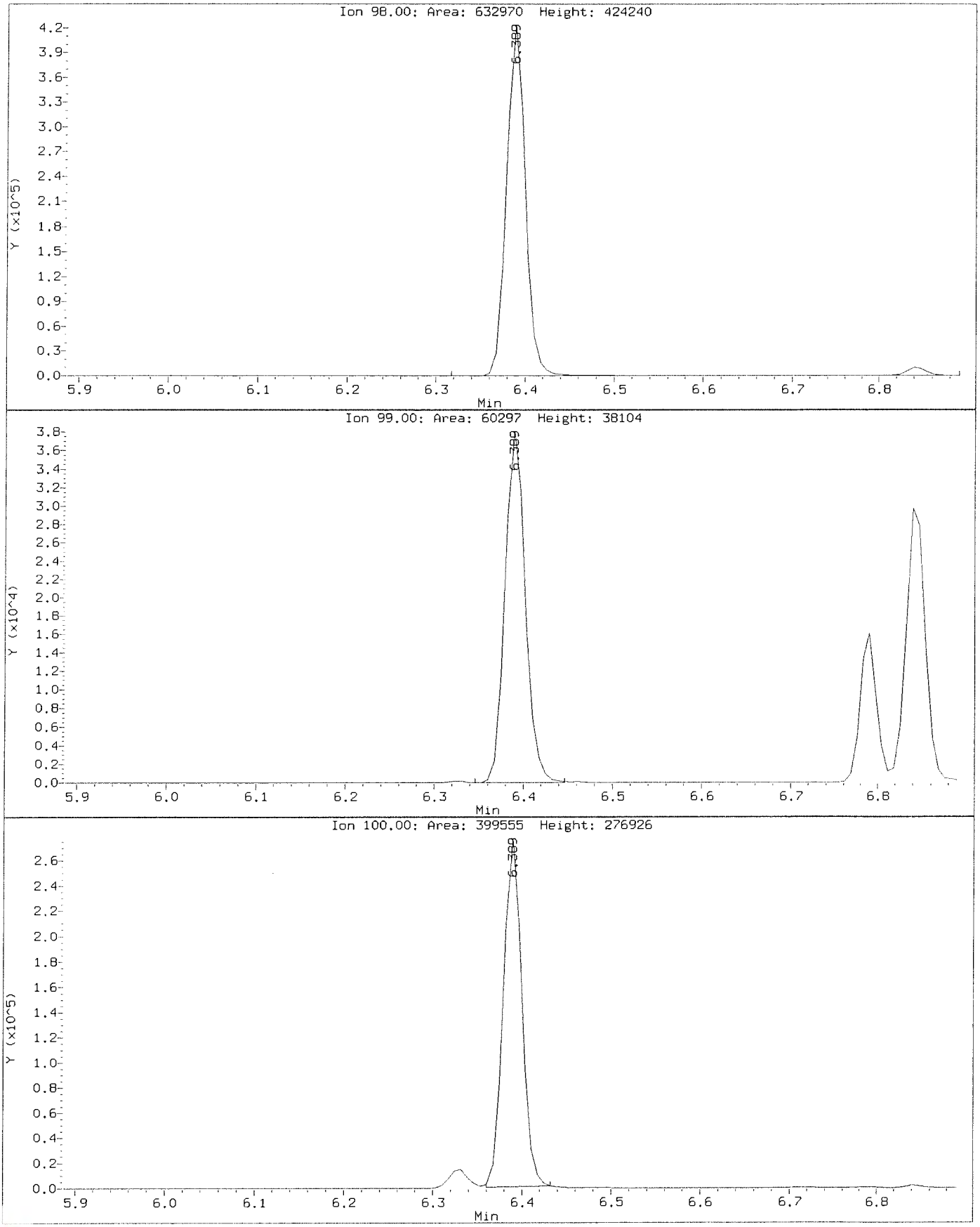
Client Sample ID: VLCSW-19203

Compound: Toluene-d8
CAS Number: 2037-26-5



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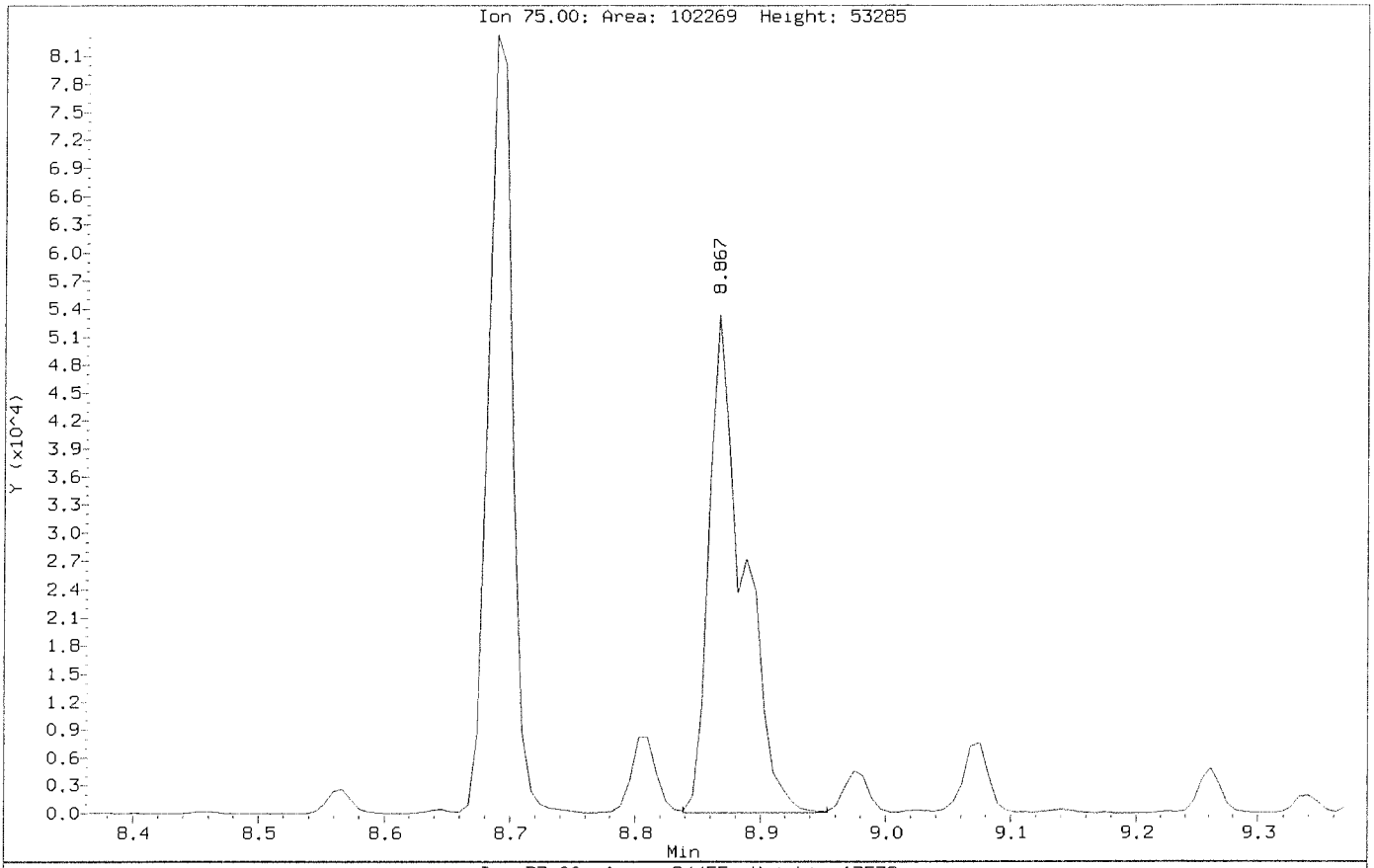
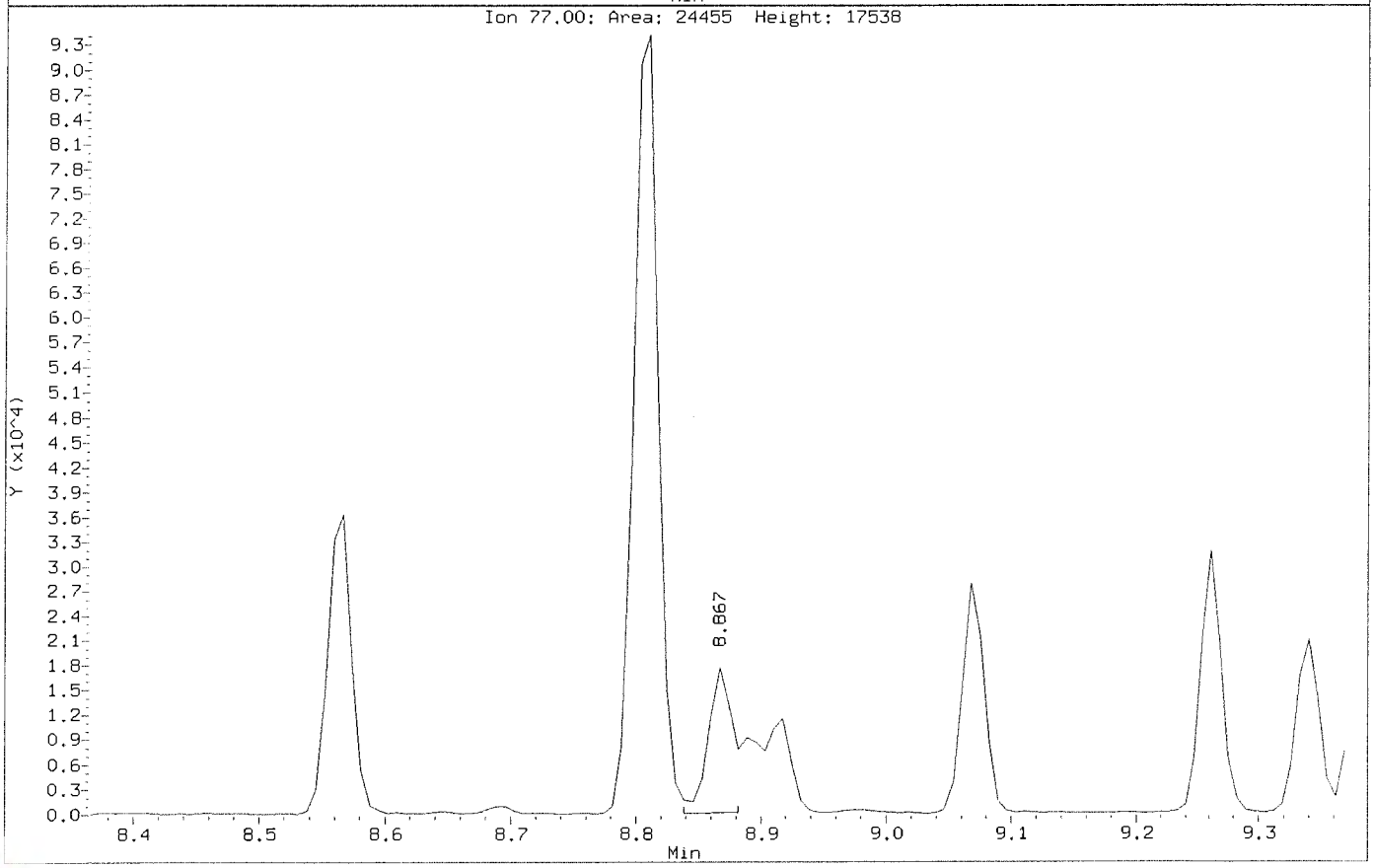
Instrument: voa6.i
Client Sample ID: VLCSW-19203

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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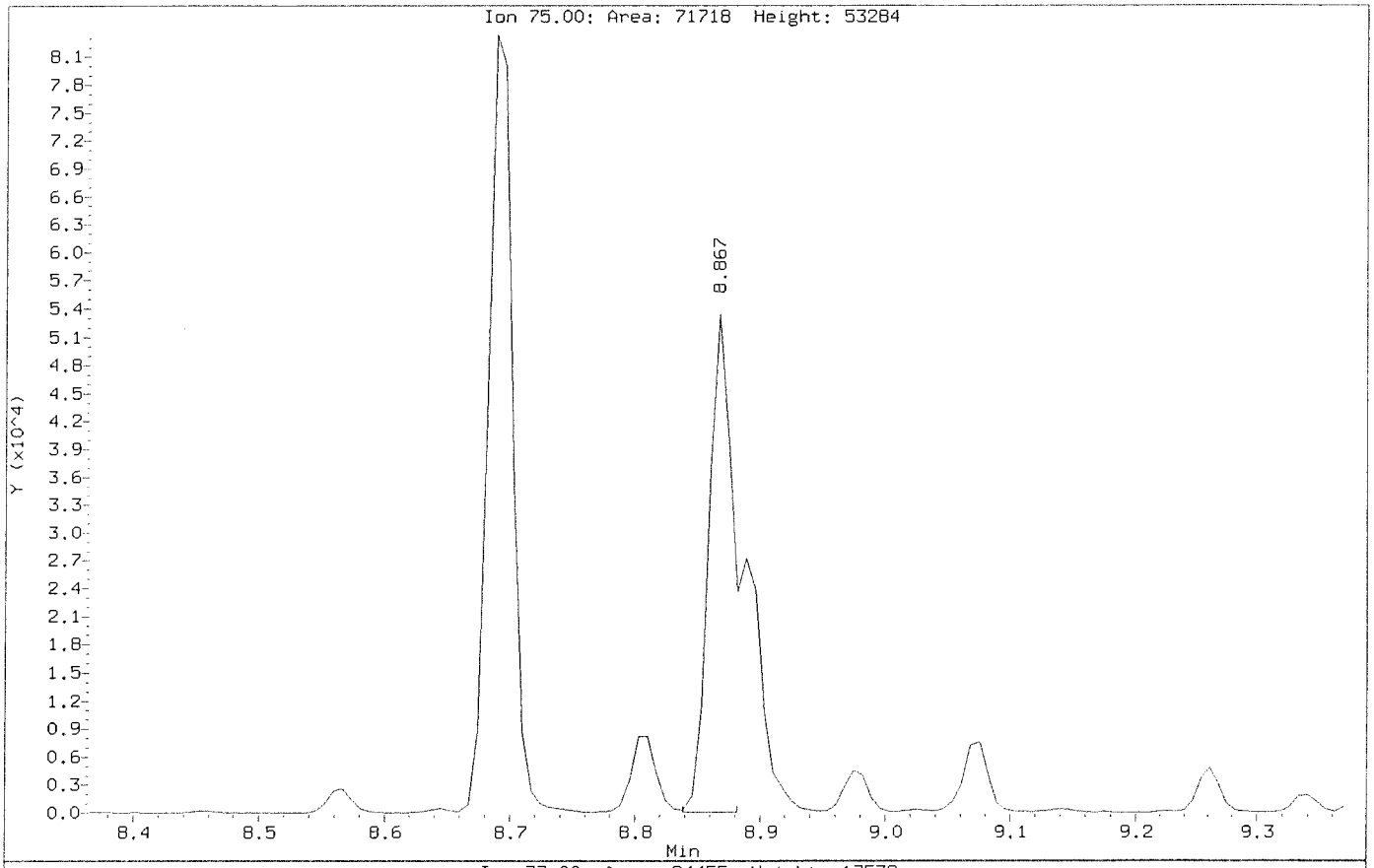
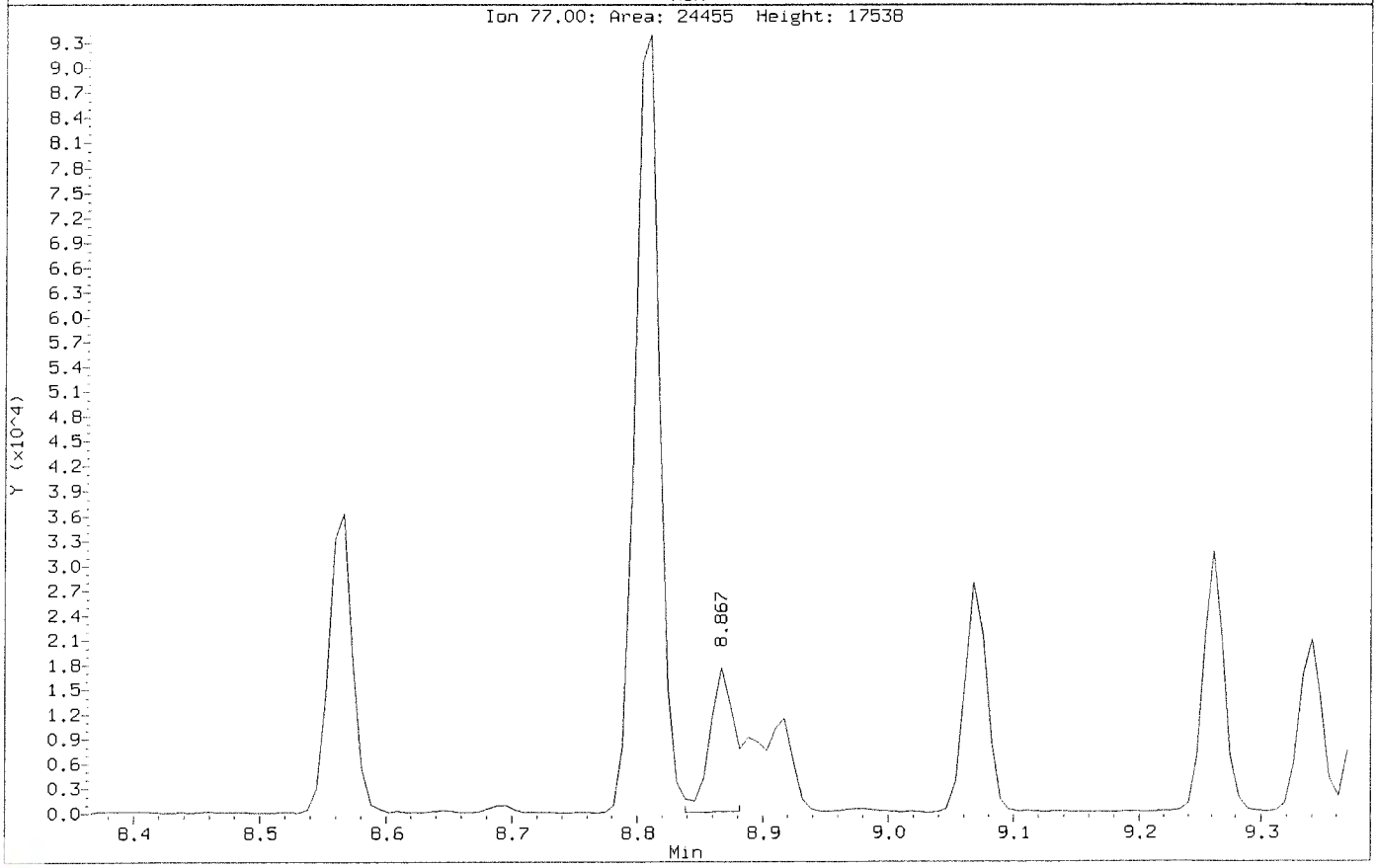
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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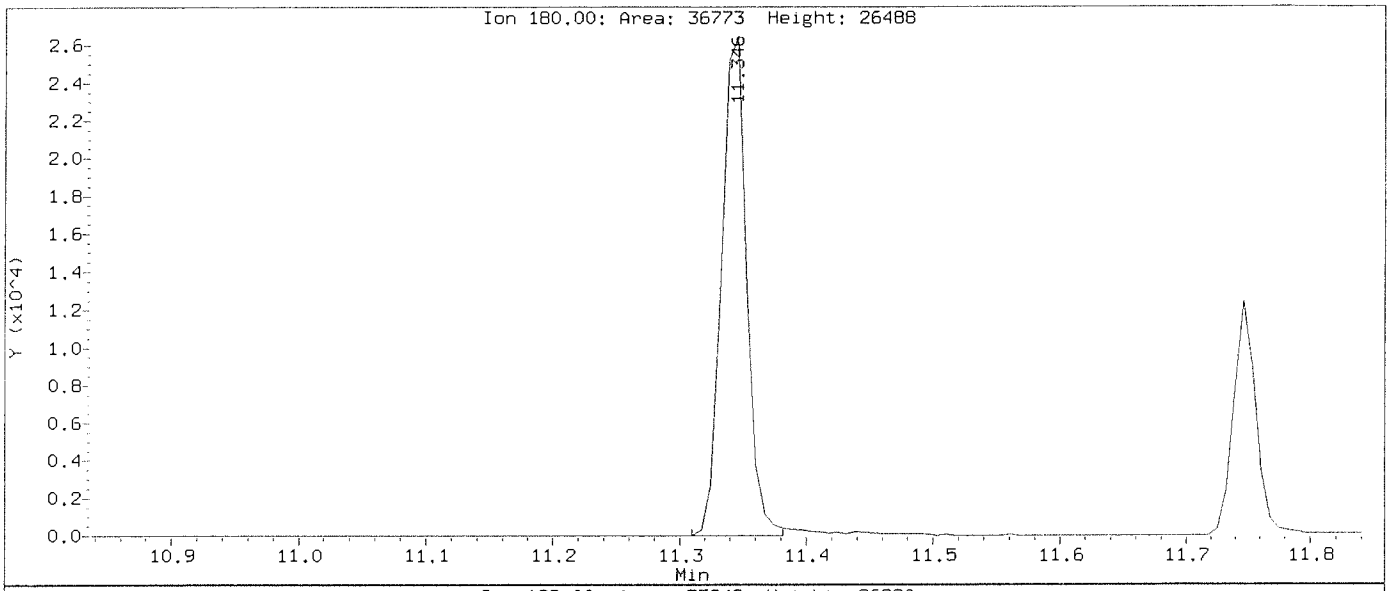
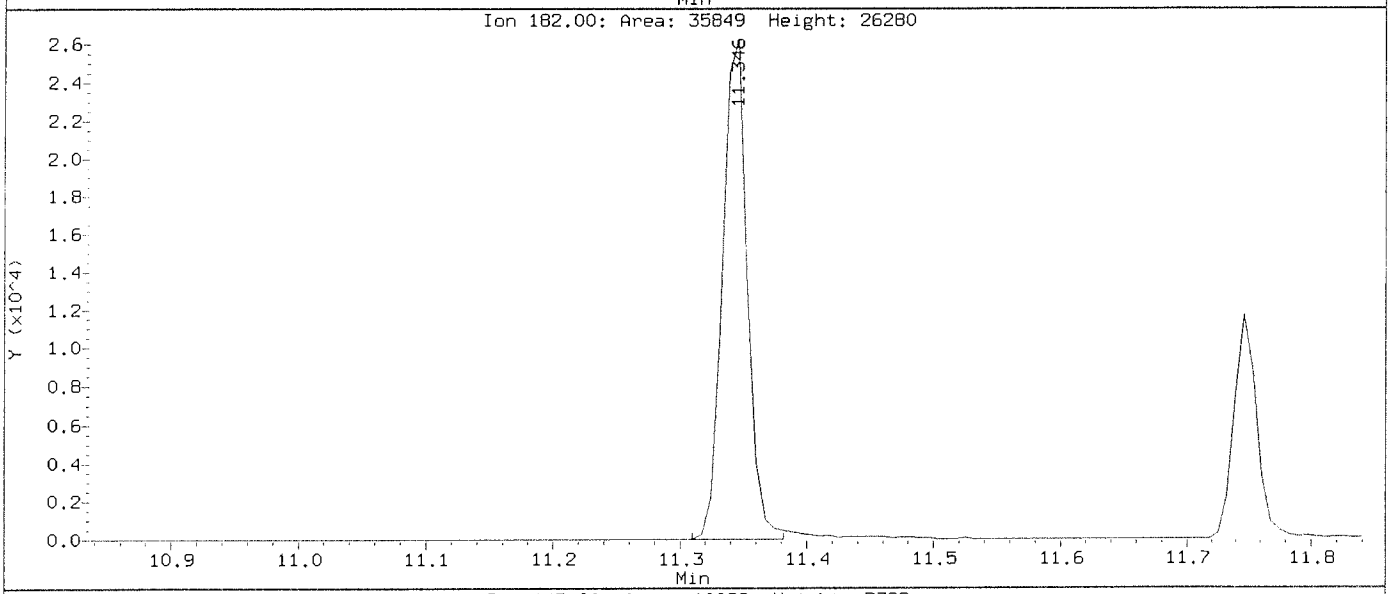
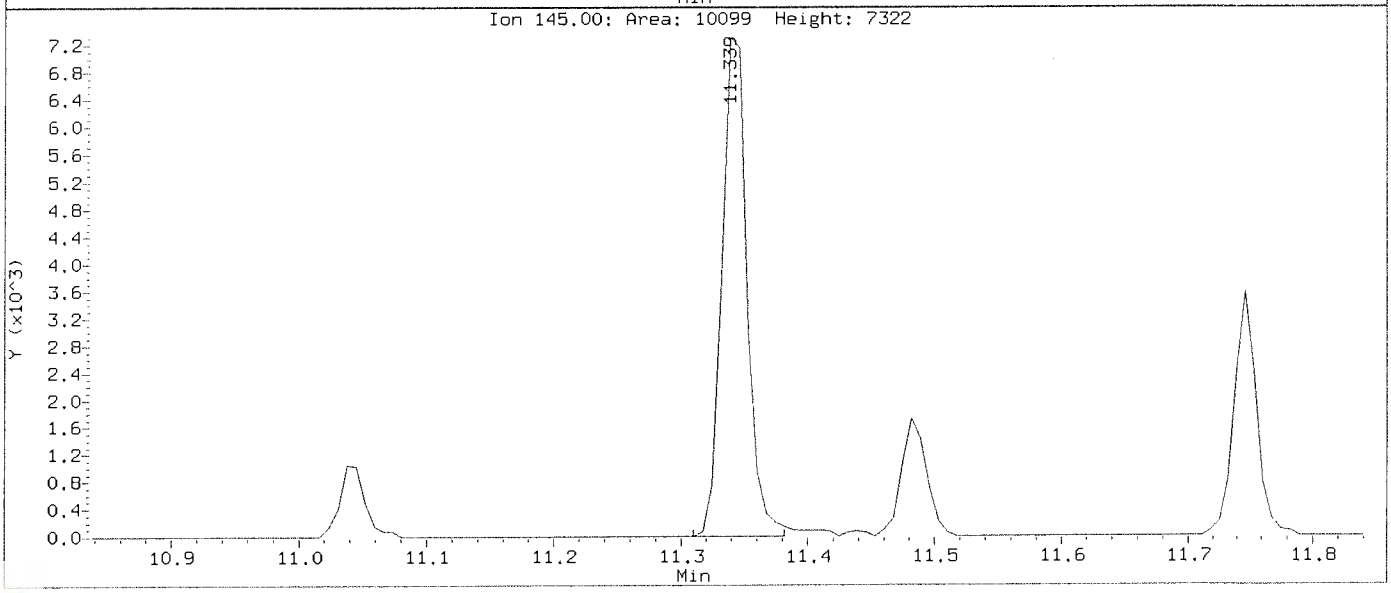
Instrument: voa6.i
Client Sample ID: VLCSW-19203

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1







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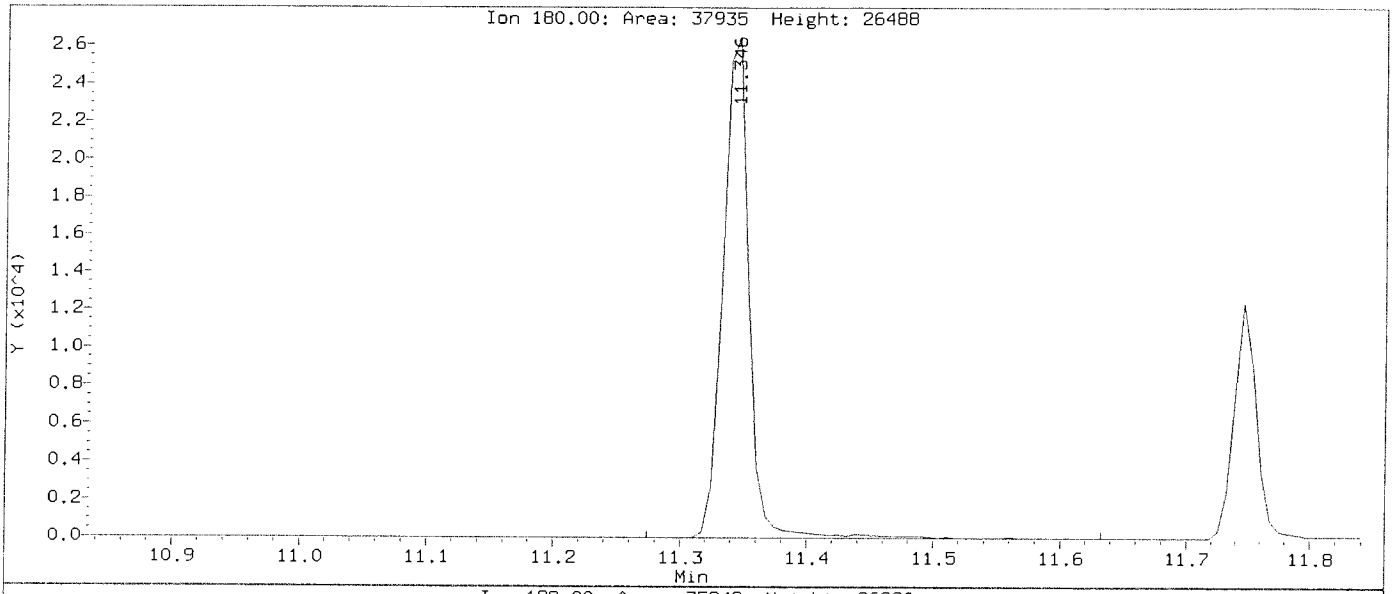
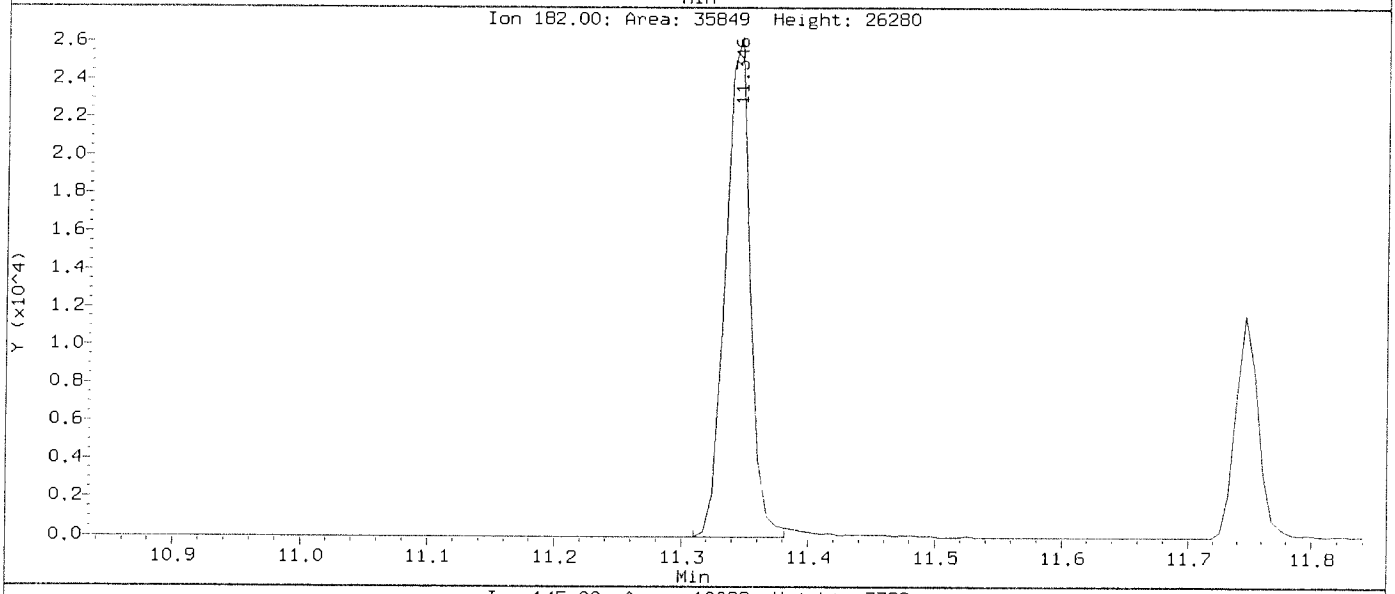
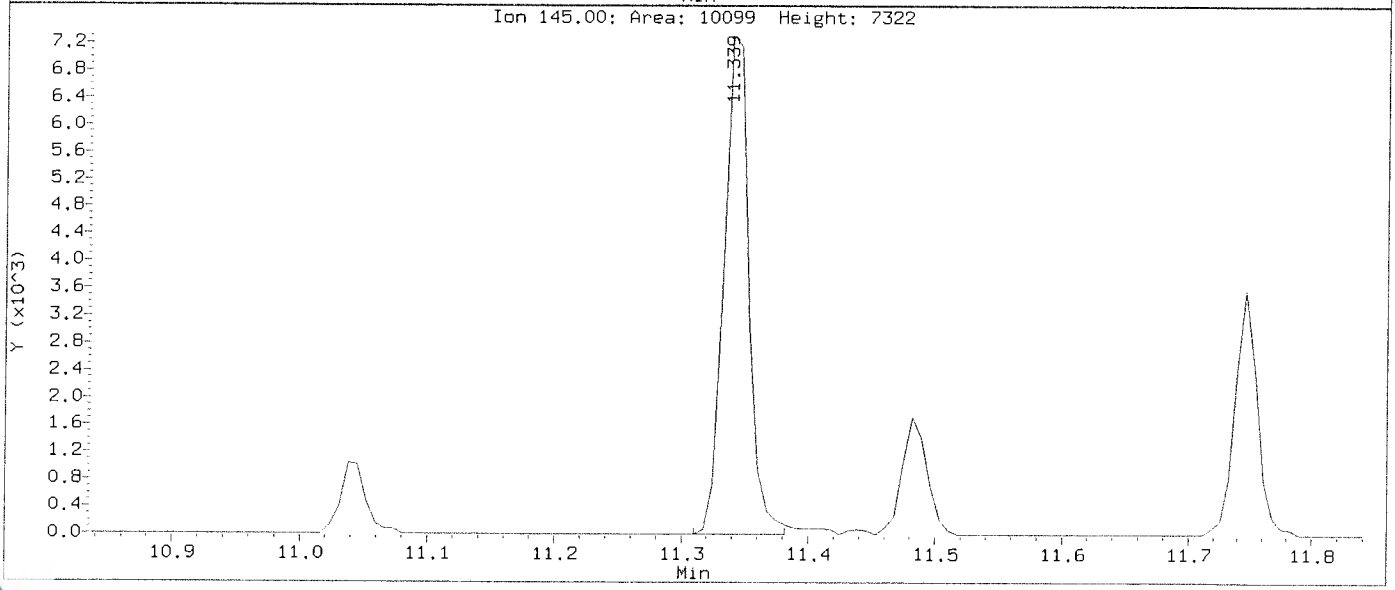
Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1







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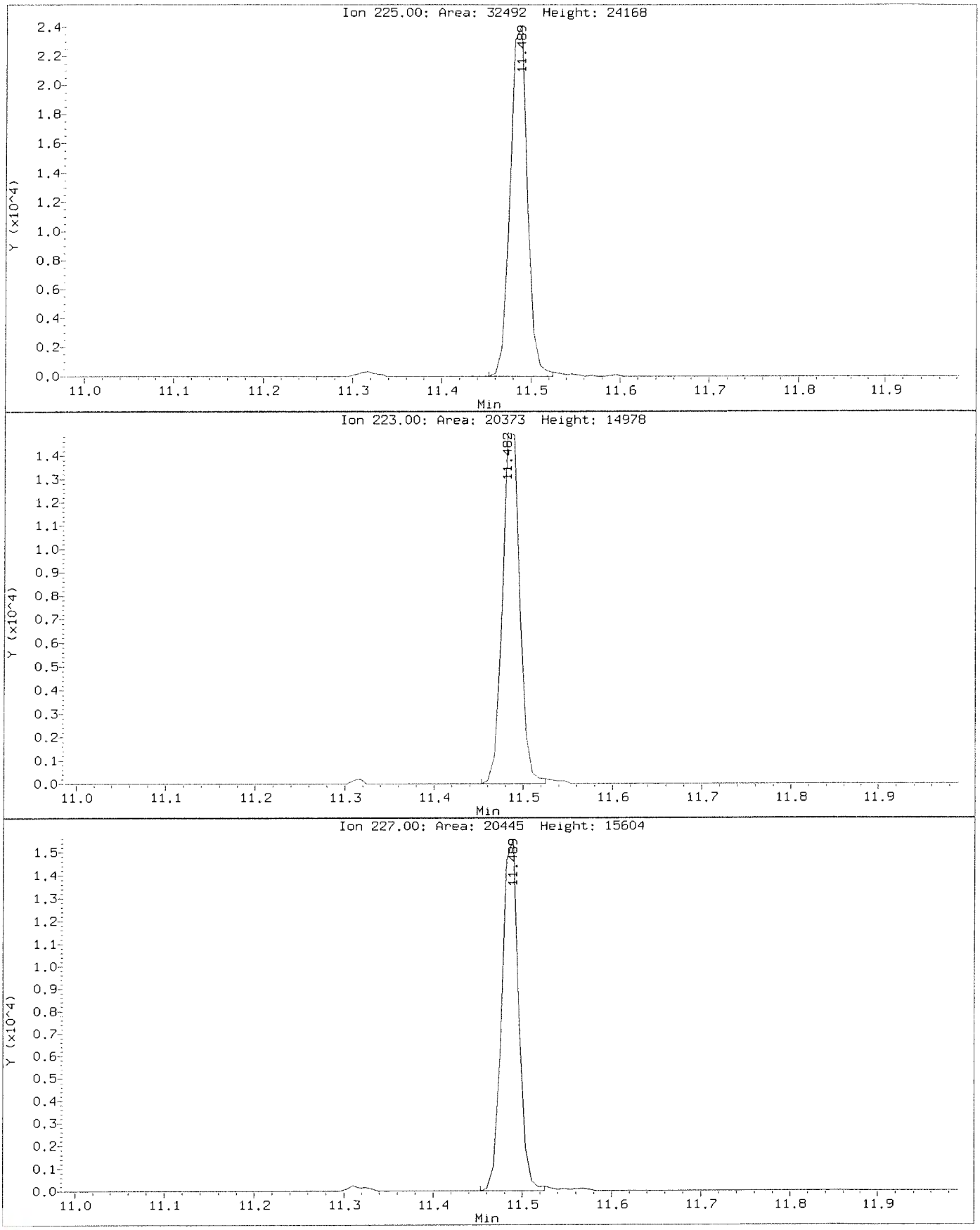
Injection Date: 03-DEC-2019 12:53
Instrument: voa6.i
Client Sample ID: VLCSW-19203

Compound: Hexachlorobutadiene
CAS Number: 87-68-3



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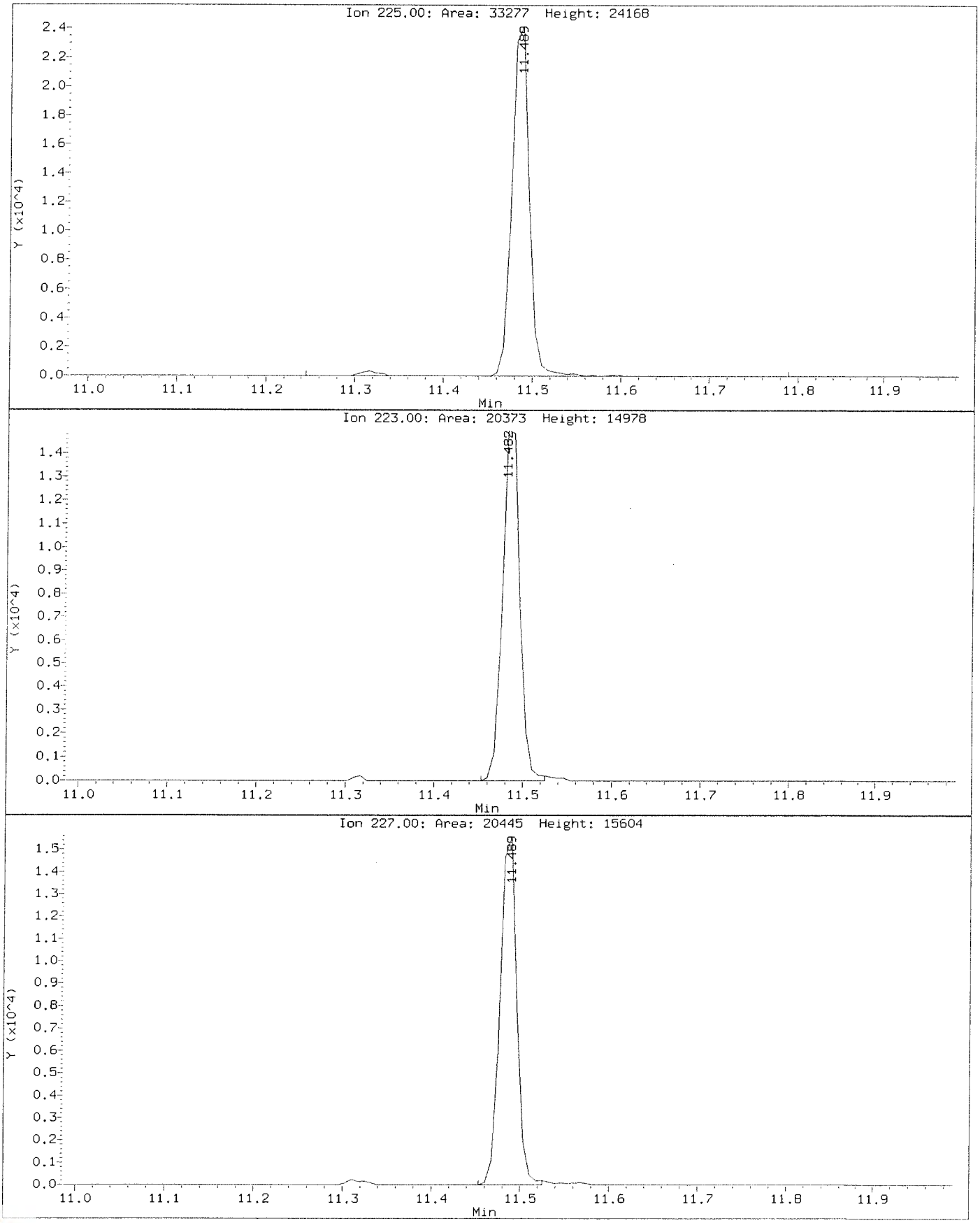
Instrument: voa6.i
Client Sample ID: VLCSW-19203

Compound: Hexachlorobutadiene
CAS Number: 87-68-3



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Report Date: 07-Dec-2019 10:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120312.D
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Inj Date : 03-DEC-2019 14:29
Operator : PC Inst ID: voa6.i
Smp Info : HS19111401-01MS;HS19111401-01MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 12 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

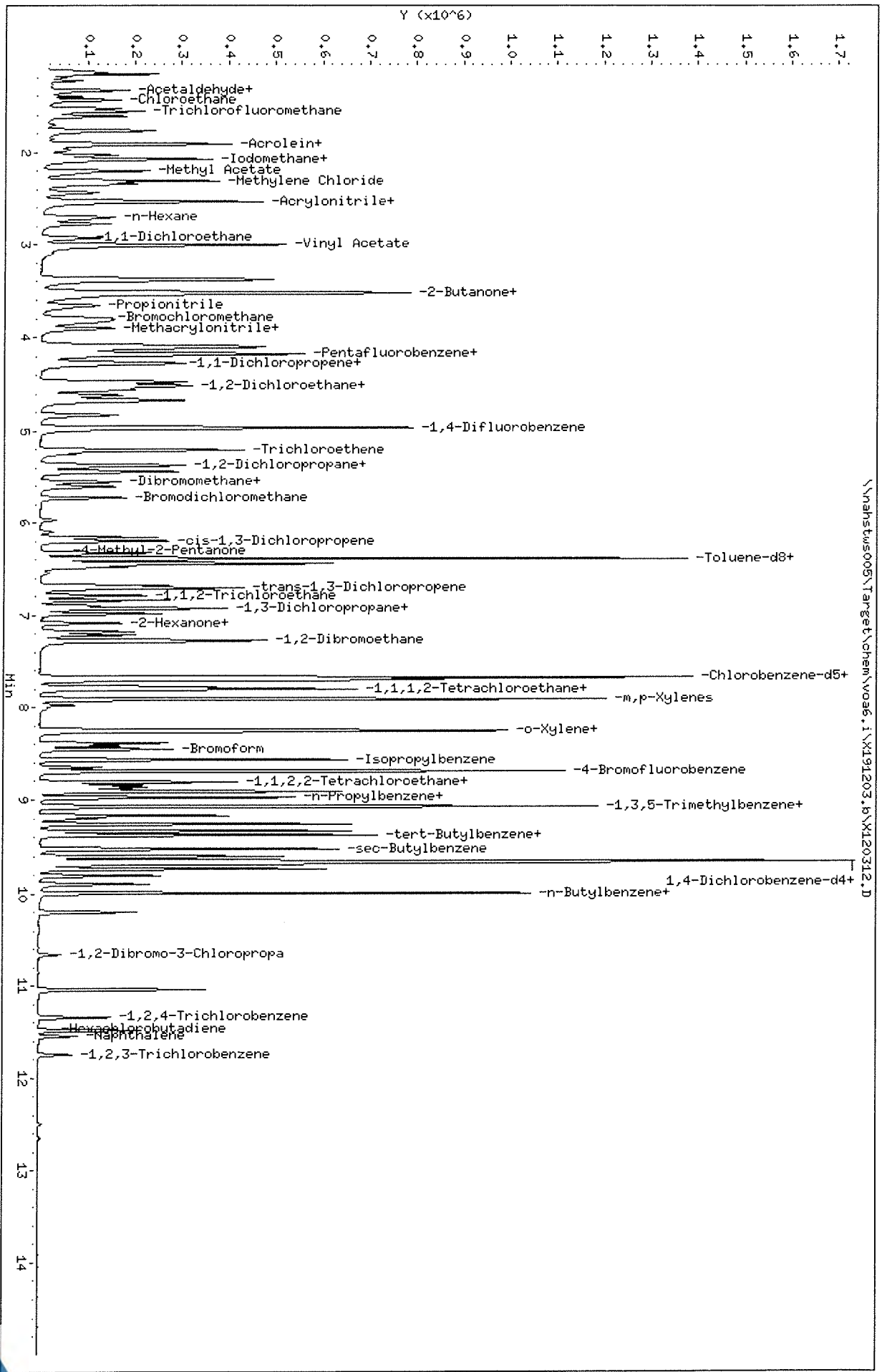
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	489493	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	690280	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	634281	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	341005	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	236765	51.3924	51.39
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	297802	50.4609	50.46
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	222024	49.8840	49.88
$	48 Toluene-d8	98	6.388	6.388	(0.833)	794870	47.5628	47.56
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	84369	18.3347	18.33
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	128987	19.5328	19.53
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	88349	18.4247	18.42
	138 Freon TF	101	1.912	1.919	(0.457)	75324	17.6752	17.67
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	60457	18.2338	18.23
	22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	134510	18.8861	18.88
	11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	74893	18.0539	18.05
	32 1,1-Dichloropropene	75	4.283	4.282	(0.862)	107048	19.2251	19.22
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	20223	15.4232	15.42
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	74993	18.4576	18.45(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	44956	15.6504	15.65
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	318508	19.6849	19.68
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	9807	18.3120	18.31
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	81763	18.3797	18.37
	98 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	171467	18.9458	18.94

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120312.D Page 2
Report Date: 07-Dec-2019 10:43

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	115077	21.0009	21.00
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	73168	17.7443	17.74
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	310105	19.9735	19.97
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	189386	19.3659	19.36
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	121936	18.1141	18.11
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	189603	19.0795	19.07
26	2,2-Dichloropropane	77	3.509	3.516	(0.839)	124763	19.3007	19.30
24	2-Butanone	43	3.581	3.573	(0.856)	52013	34.6299	34.62
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	249139	20.3070	20.30
52	2-Hexanone	43	7.090	7.083	(0.924)	92773	35.6058	35.60
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	293187	19.7157	19.71
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	329896	19.7714	19.77
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	131734	35.4466	35.44
10	Acetone	43	1.976	1.969	(0.473)	38124	27.3869	27.38
37	Benzene	78	4.512	4.512	(0.908)	297203	18.8217	18.82
74	Bromobenzene	156	8.810	8.809	(0.911)	112323	18.9527	18.95
29	Bromochloromethane	128	3.795	3.795	(0.908)	48154	18.1594	18.15
39	Bromodichloromethane	83	5.729	5.729	(1.153)	107234	18.7721	18.77
66	Bromoform	173	8.416	8.415	(1.097)	66100	18.1505	18.15
6	Bromomethane	94	1.338	1.338	(0.320)	87629	16.4958	16.49
19	Carbon Disulfide	76	2.069	2.069	(0.495)	443422	39.2921	39.29
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	116903	19.1658	19.16
59	Chlorobenzene	112	7.692	7.699	(1.003)	225005	18.1705	18.17
7	Chloroethane	64	1.403	1.403	(0.336)	50894	16.5138	16.51
28	Chloroform	83	3.910	3.910	(0.935)	143885	18.1505	18.15
3	Chloromethane	50	1.073	1.073	(0.257)	63514	12.0898	12.08
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	375344	80.8573	80.85
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	124690	18.5225	18.52
55	Dibromochloromethane	129	7.176	7.176	(0.936)	87730	18.2132	18.21
44	Dibromomethane	93	5.558	5.557	(1.118)	53722	18.4106	18.41
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	64762	15.1453	15.14
61	Ethylbenzene	106	7.800	7.799	(1.017)	121327	18.9629	18.96
91	Hexachlorobutadiene	225	11.489	11.481	(1.188)	39513	14.4183	14.41
67	Isopropylbenzene	105	8.566	8.566	(1.117)	368473	19.4434	19.44
62	m,p-Xylenes	106	7.907	7.907	(1.031)	293183	37.9737	37.97
17	Methylene Chloride	84	2.306	2.305	(0.551)	103291	23.3371	23.33
87	n-Butylbenzene	91	9.999	9.999	(1.034)	281072	20.2419	20.24
73	n-Propylbenzene	91	8.917	8.917	(0.922)	424640	20.1459	20.14
92	Naphthalene	128	11.546	11.546	(1.194)	55966	15.1907	15.19
63	o-Xylene	106	8.244	8.244	(1.075)	141213	18.5323	18.53
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	374209	20.4363	20.43
64	Styrene	104	8.258	8.258	(1.077)	248615	18.7630	18.76
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	270726	20.3652	20.36
56	Tetrachloroethene	164	6.933	6.933	(0.904)	82300	18.4669	18.46
50	Toluene	91	6.446	6.446	(0.840)	339914	18.8980	18.89
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	77111	19.1464	19.14
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	113455	18.4917	18.49
38	Trichloroethene	130	5.207	5.206	(1.048)	148144	30.6882	30.68
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	142870	18.8155	18.81
5	Vinyl Chloride	62	1.138	1.138	(0.272)	83680	16.7736	16.77

QC Flag Legend

M - Compound response manually integrated.

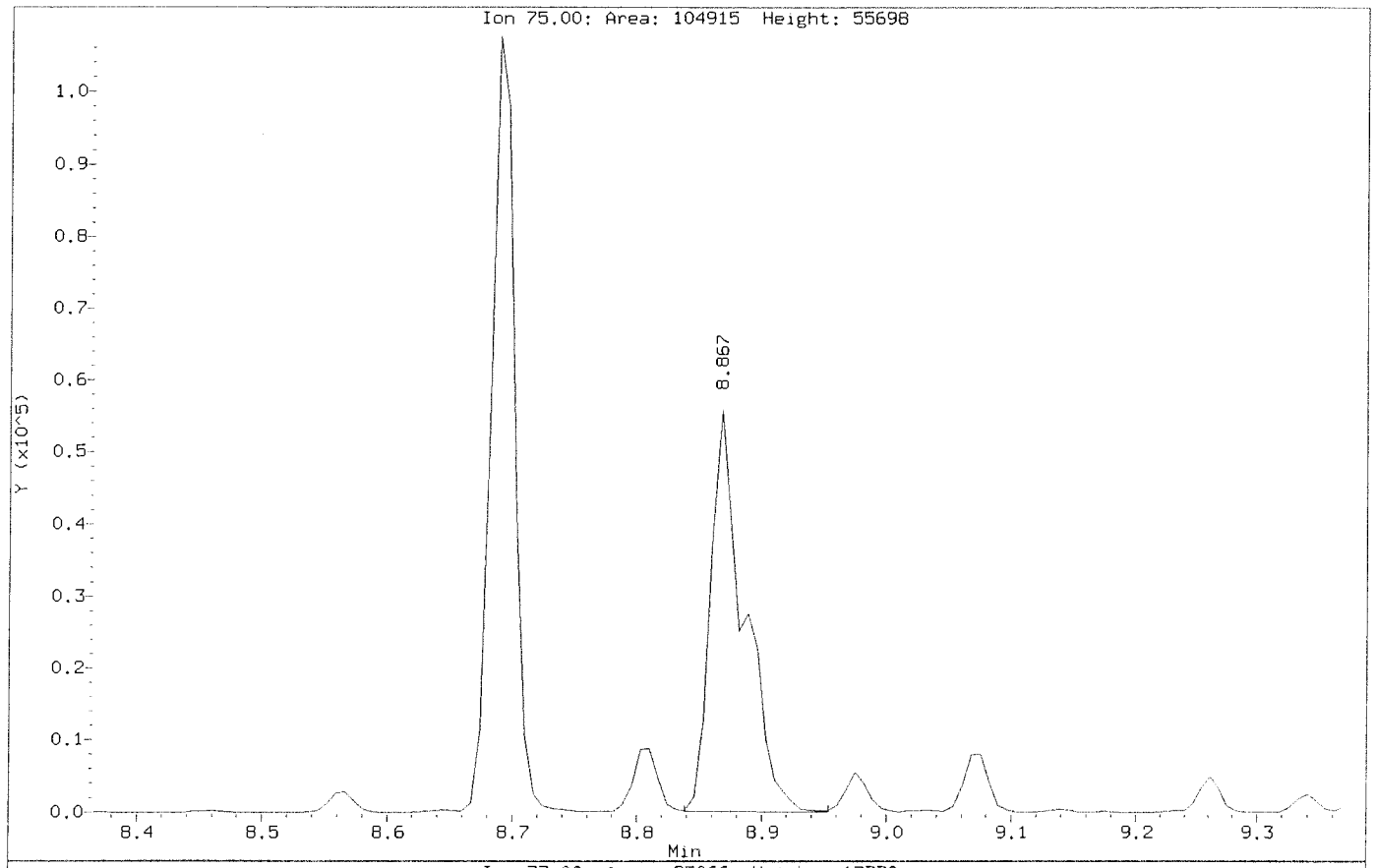


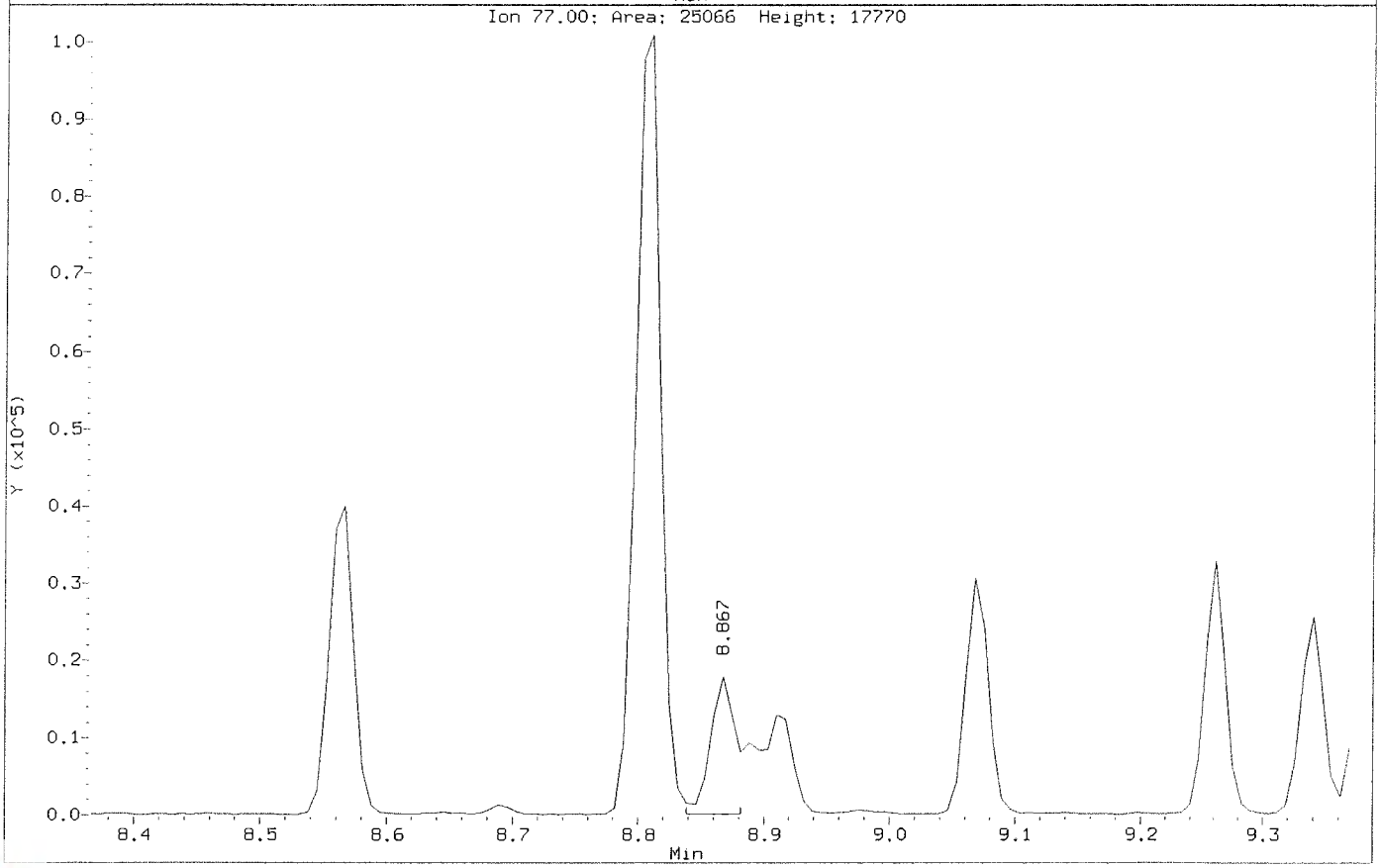
Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120312.D
Date : 03-DEC-2019 14:29
Client ID: HS19111401-01MS
Sample Info: HS19111401-01MS;HS19111401-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\BEFORE\X120312.D
Injection Date: 03-DEC-2019 14:29
Instrument: voa6.i
Client Sample ID: HS19111401-01MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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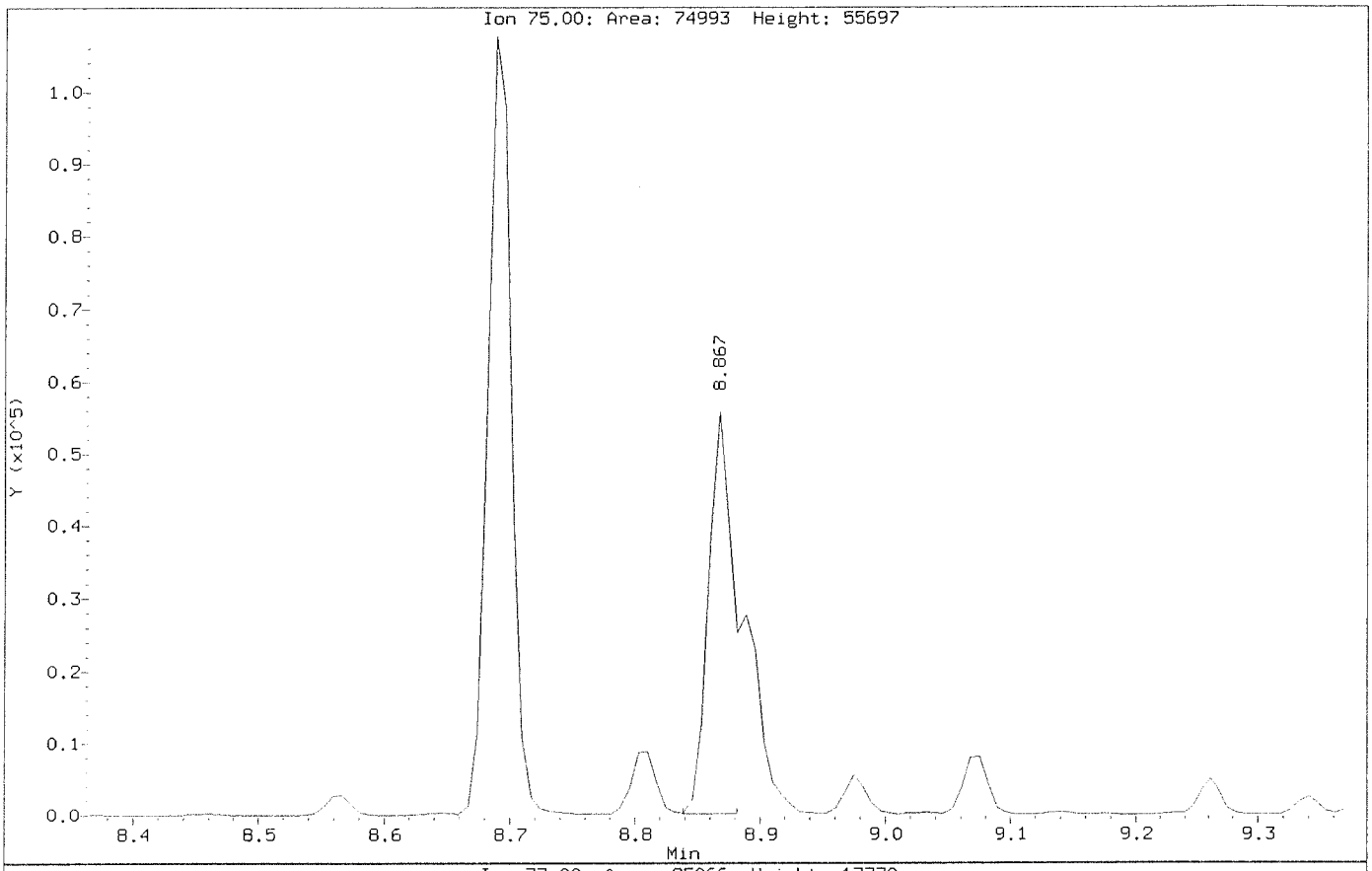
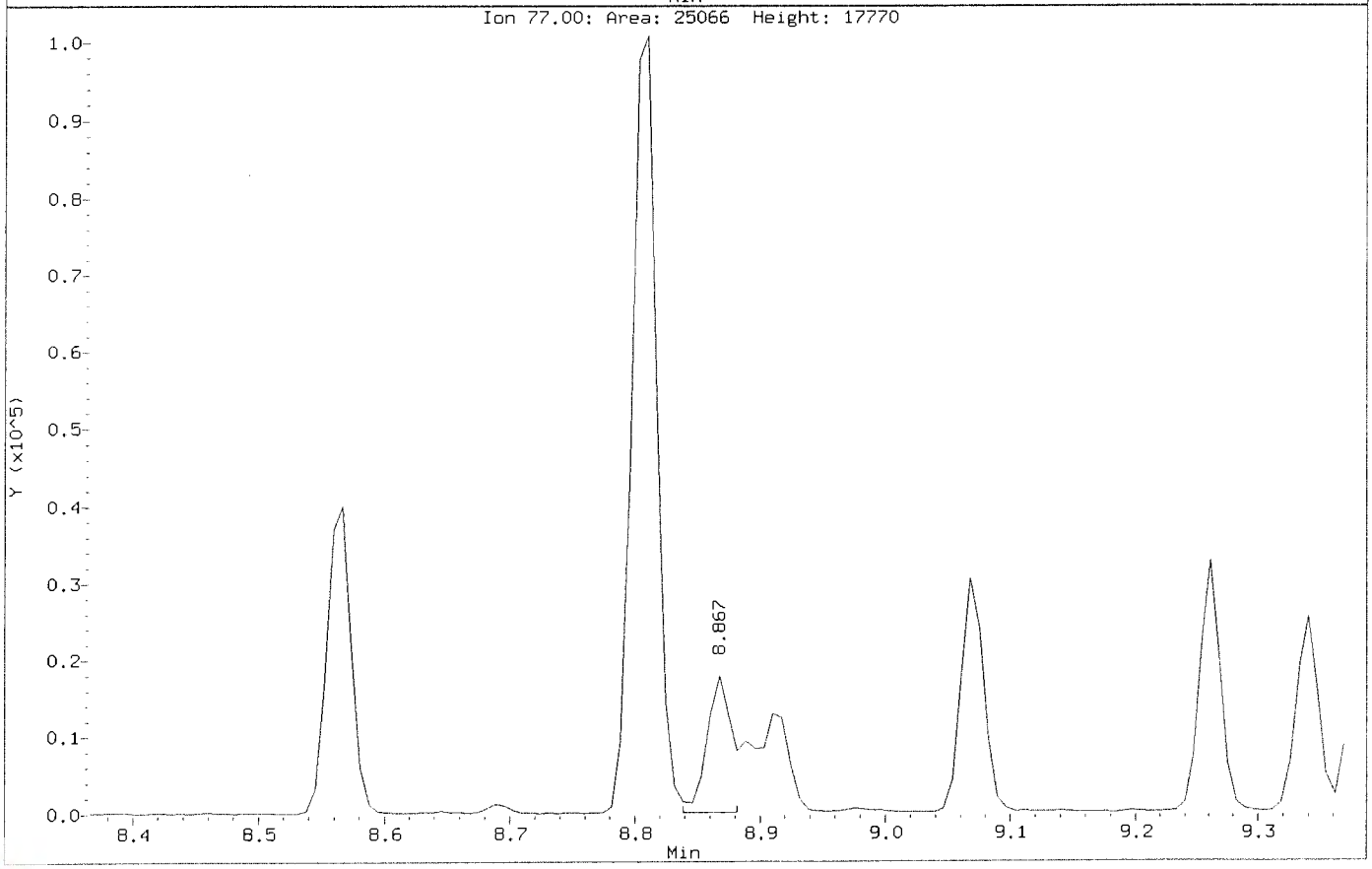
Injection Date: 03-DEC-2019 14:29
Instrument: voa6.i
Client Sample ID: HS19111401-01MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120313.D Page 1
Report Date: 07-Dec-2019 10:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120313.D
Lab Smp Id: HS19111401-01MSD Client Smp ID: HS19111401-01MSD
Inj Date : 03-DEC-2019 14:53
Operator : PC Inst ID: voa6.i
Smp Info : HS19111401-01MSD;HS19111401-01MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 12 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

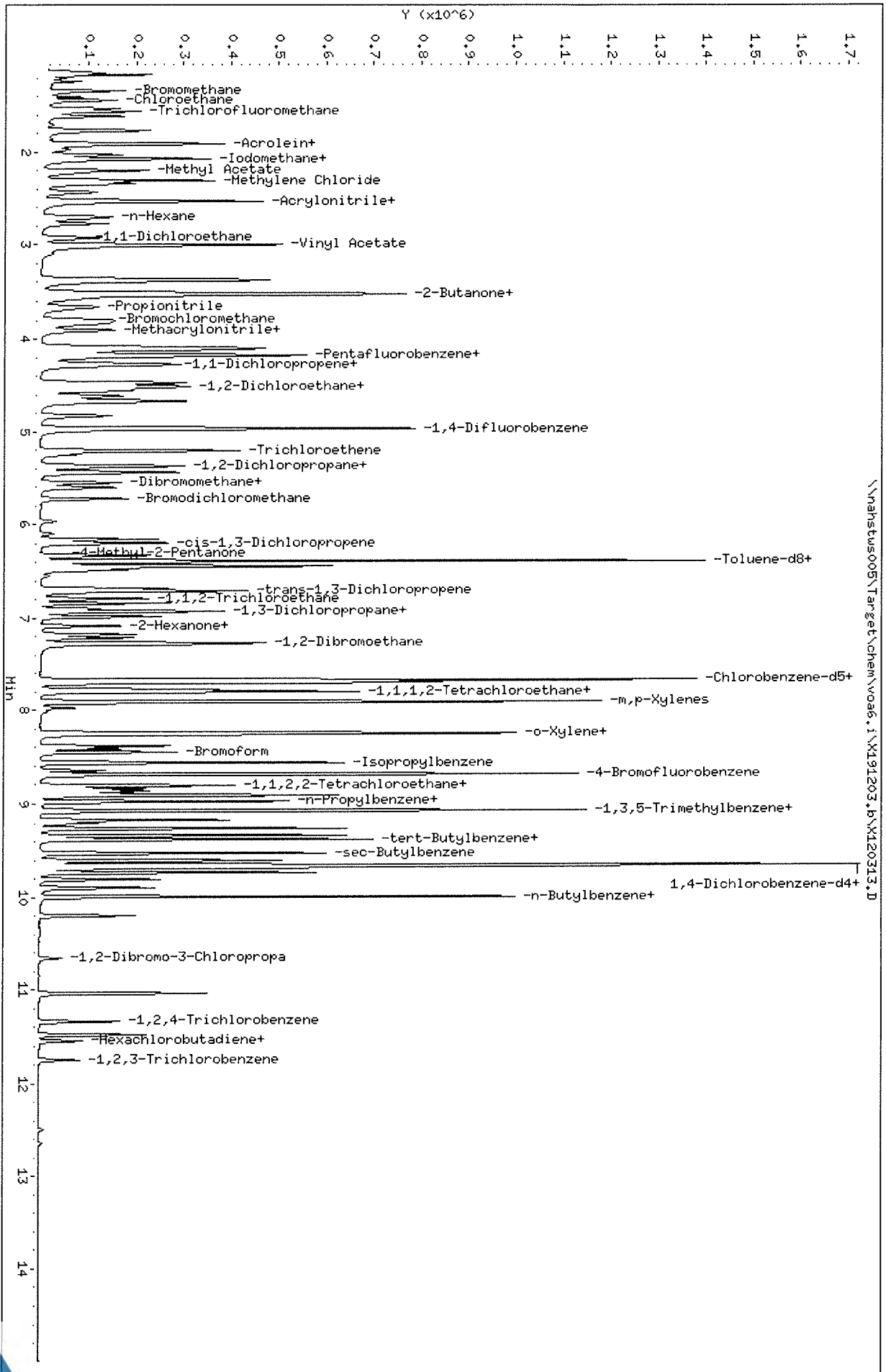
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	485111	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	689046	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	647407	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	343001	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	230648	50.5294	50.52
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	303404	50.3686	50.36
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	221699	50.2581	50.25
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	798704	46.8232	46.82
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	82640	17.5948	17.59
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	127125	19.4248	19.42
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	88381	18.3242	18.32
138 Freon TF	101	1.919	1.919	(0.459)	71193	16.8568	16.85
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	60060	17.7468	17.74
22 1,1-Dichloroethane	63	2.922	2.921	(0.699)	130886	18.5432	18.54
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	70896	17.2448	17.24
32 1,1-Dichloropropene	75	4.283	4.282	(0.862)	102770	18.4898	18.48
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	23055	17.5913	17.59
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	75613	18.5019	18.50(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	47683	16.5032	16.50
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	308389	18.9486	18.94
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	9428	17.4869	17.48
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	79789	17.5723	17.57
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	168008	18.4556	18.45

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120313.D Page 2
Report Date: 07-Dec-2019 10:43

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	114503	20.9335	20.93
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	73080	17.7547	17.75
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	300348	19.2325	19.23
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	184532	18.7597	18.75
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	121011	17.6122	17.61
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	185550	18.5630	18.56
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	122598	19.1371	19.13
24	2-Butanone	43	3.581	3.573	(0.856)	52359	35.1751	35.17
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	244316	19.7980	19.79
52	2-Hexanone	43	7.083	7.083	(0.923)	92825	34.9034	34.90
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	288474	19.2858	19.28
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	316687	18.8693	18.86
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	130864	34.4986	34.49
10	Acetone	43	1.976	1.969	(0.473)	38287	27.8040	27.80
37	Benzene	78	4.519	4.512	(0.909)	290268	18.4154	18.41
74	Bromobenzene	156	8.810	8.809	(0.911)	110817	18.5898	18.58
29	Bromochloromethane	128	3.795	3.795	(0.908)	48290	18.3752	18.37
39	Bromodichloromethane	83	5.729	5.729	(1.153)	106670	18.7068	18.70
66	Bromoform	173	8.416	8.415	(1.097)	65491	17.6479	17.64
6	Bromomethane	94	1.339	1.338	(0.320)	87060	16.5426	16.54
19	Carbon Disulfide	76	2.069	2.069	(0.495)	428421	38.3058	38.30
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	113041	18.5659	18.56
59	Chlorobenzene	112	7.699	7.699	(1.004)	225333	17.8280	17.82
7	Chloroethane	64	1.403	1.403	(0.336)	53187	17.4137	17.41
28	Chloroform	83	3.910	3.910	(0.935)	141519	18.0133	18.01
3	Chloromethane	50	1.073	1.073	(0.257)	61192	11.7582	11.75
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	368236	80.0427	80.04
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	121193	18.0353	18.03
55	Dibromochloromethane	129	7.176	7.176	(0.936)	87573	17.8120	17.81
44	Dibromomethane	93	5.558	5.557	(1.118)	54160	18.5939	18.59
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	60530	14.3336	14.33
61	Ethylbenzene	106	7.800	7.799	(1.017)	119021	18.2253	18.22
91	Hexachlorobutadiene	225	11.489	11.481	(1.188)	39990	14.5074	14.50
67	Isopropylbenzene	105	8.566	8.566	(1.117)	359115	18.5654	18.56
62	m,p-Xylenes	106	7.907	7.907	(1.031)	288619	36.6247	36.62
17	Methylene Chloride	84	2.306	2.305	(0.551)	100639	22.9433	22.94
87	n-Butylbenzene	91	9.999	9.999	(1.034)	265251	18.9914	18.99
73	n-Propylbenzene	91	8.917	8.917	(0.922)	411613	19.4143	19.41
92	Naphthalene	128	11.546	11.546	(1.194)	63197	17.0535	17.05
63	o-Xylene	106	8.244	8.244	(1.075)	139573	17.9457	17.94
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	353568	19.1967	19.19
64	Styrene	104	8.258	8.258	(1.077)	245645	18.1629	18.16
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	256802	19.2053	19.20
56	Tetrachloroethene	164	6.933	6.933	(0.904)	81210	17.8529	17.85
50	Toluene	91	6.446	6.446	(0.840)	331807	18.0732	18.07
20	trans-1,2-Dichloroethene	96	2.528	2.527	(0.604)	75157	18.8298	18.82
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	112227	18.3243	18.32
38	Trichloroethene	130	5.207	5.206	(1.048)	144691	30.0266	30.02
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	135890	18.0579	18.05
5	Vinyl Chloride	62	1.138	1.138	(0.272)	78805	15.9391	15.93

QC Flag Legend

M - Compound response manually integrated.



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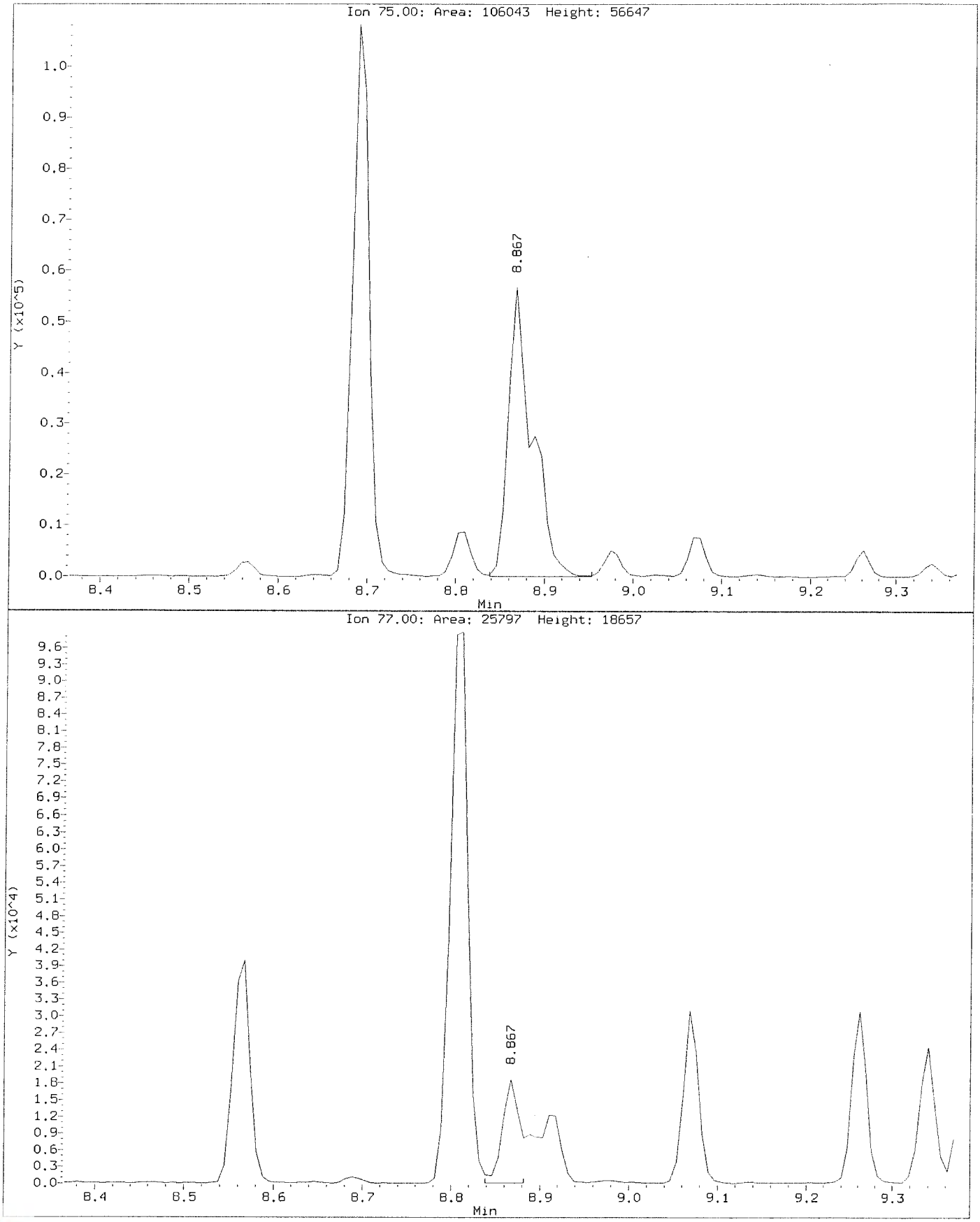
Date : 03-DEC-2019 14:53
Client ID: HS19111401-01HSD
Sample Info: HS19111401-01HSD;HS19111401-01HSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\BEFORE\X120313.D
Injection Date: 03-DEC-2019 14:53
Instrument: voa6.i
Client Sample ID: HS19111401-01MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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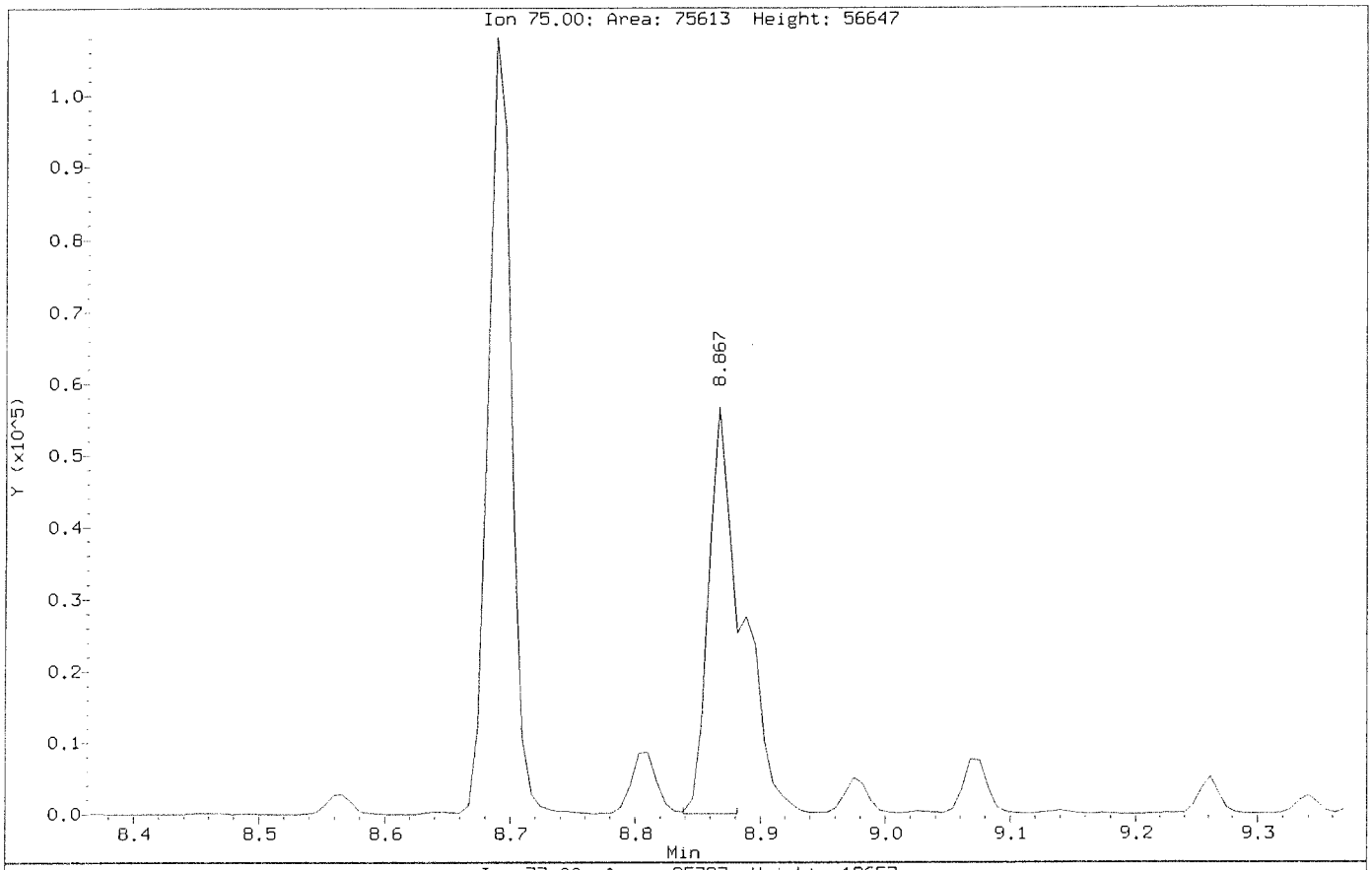
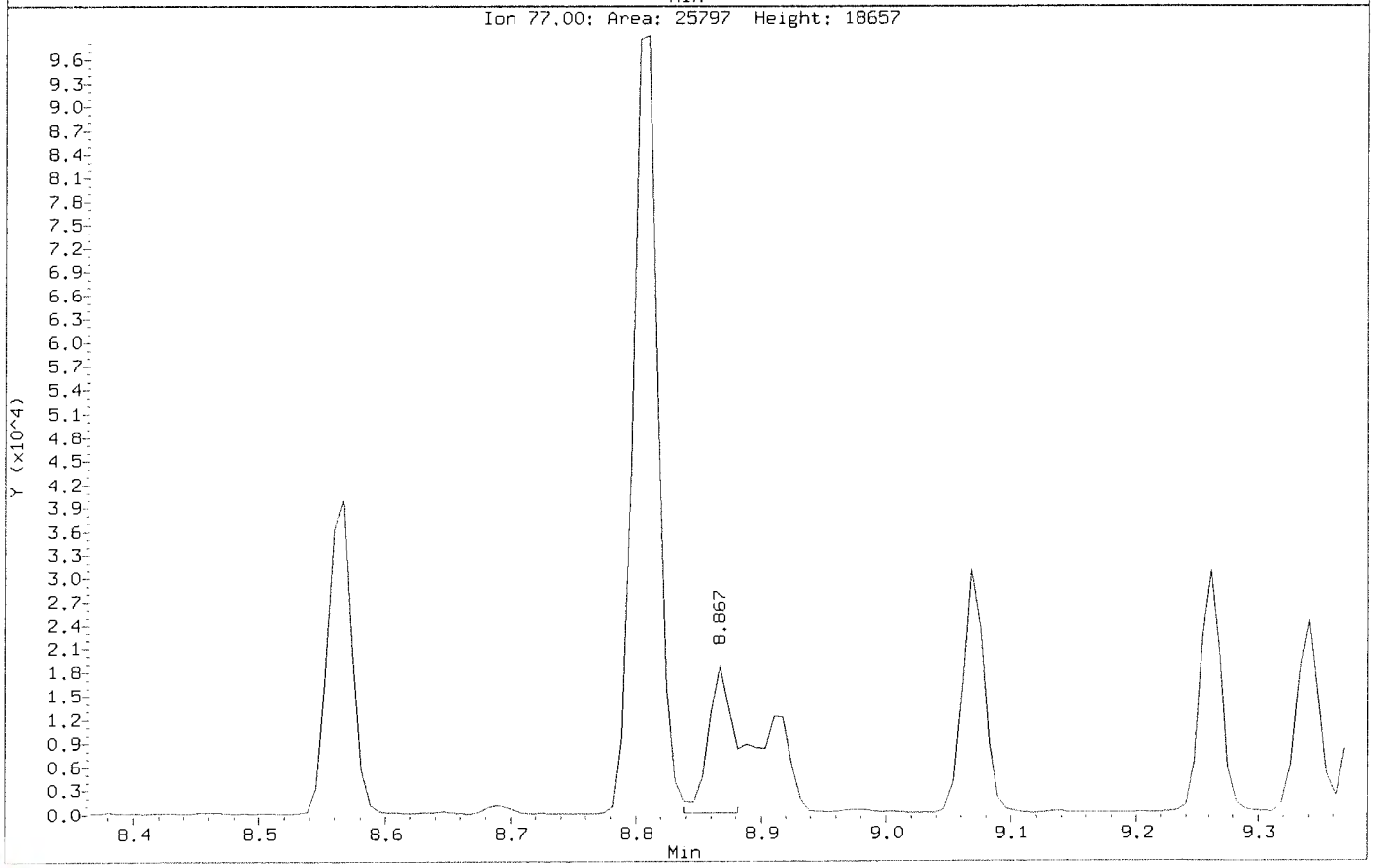
Injection Date: 03-DEC-2019 14:53
Instrument: voa6.i
Client Sample ID: HS19111401-01MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120315.D Page 1
Report Date: 07-Dec-2019 10:43

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Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120315.D
Lab Smp Id: HS19111443-05 Client Smp ID: HS19111443-05
Inj Date : 03-DEC-2019 15:41
Operator : PC Inst ID: voa6.i
Smp Info : HS19111443-05;HS19111443-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:43 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

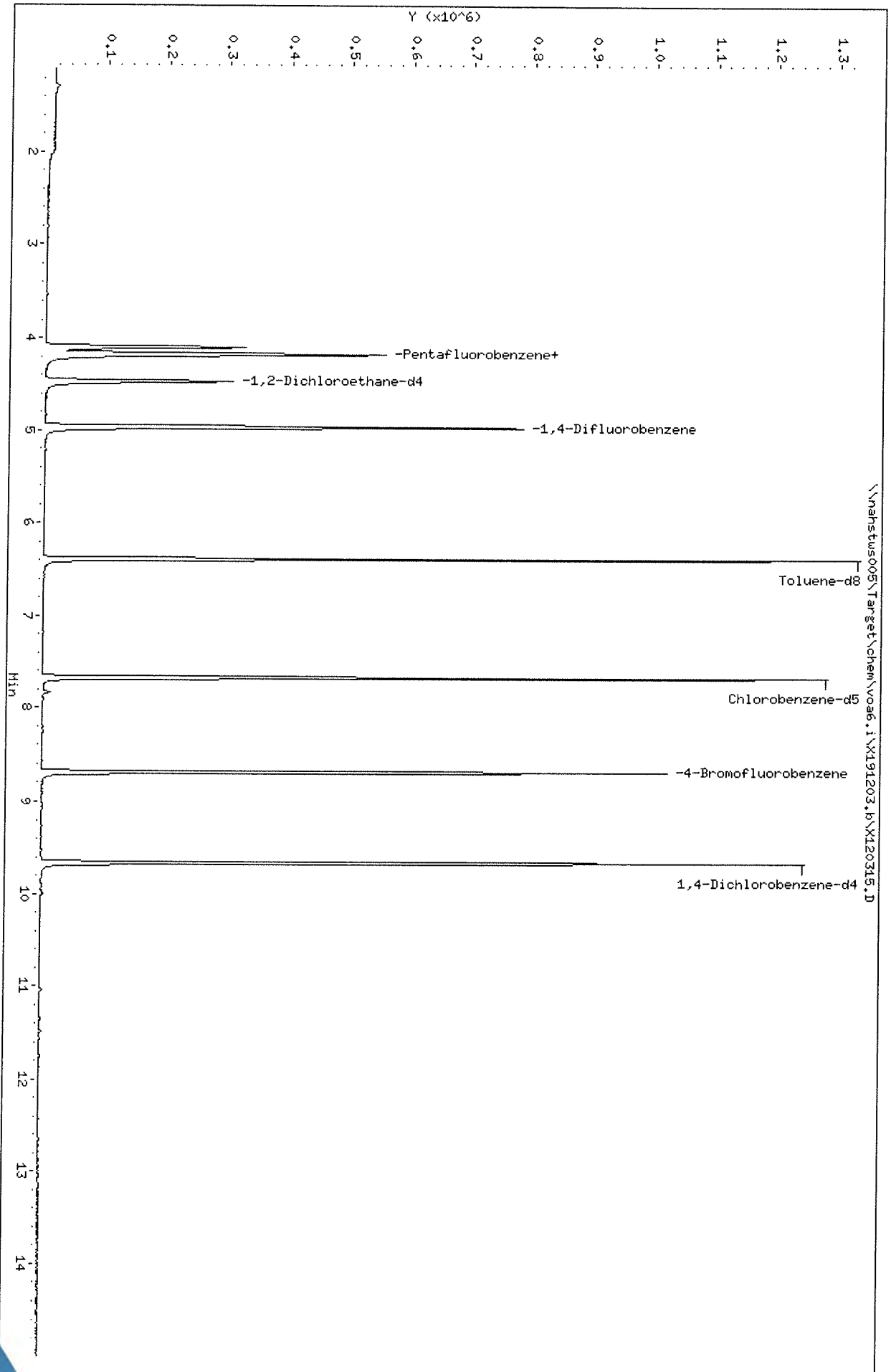
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	488880	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	691068	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	614612	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	304929	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	235761	51.2408	51.24
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	280651	49.0881	49.08
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	224329	50.4608	50.46
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	786575	48.5727	48.57

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120315.D
Date : 03-DEC-2019 15:41
Client ID: HS19111443-05
Sample Info: HS19111443-05;HS19111443-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120316.D Page 1
Report Date: 07-Dec-2019 10:44

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Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120316.D
Lab Smp Id: HS19111443-01 Client Smp ID: HS19111443-01
Inj Date : 03-DEC-2019 16:05
Operator : PC Inst ID: voa6.i
Smp Info : HS19111443-01;HS19111443-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:43 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

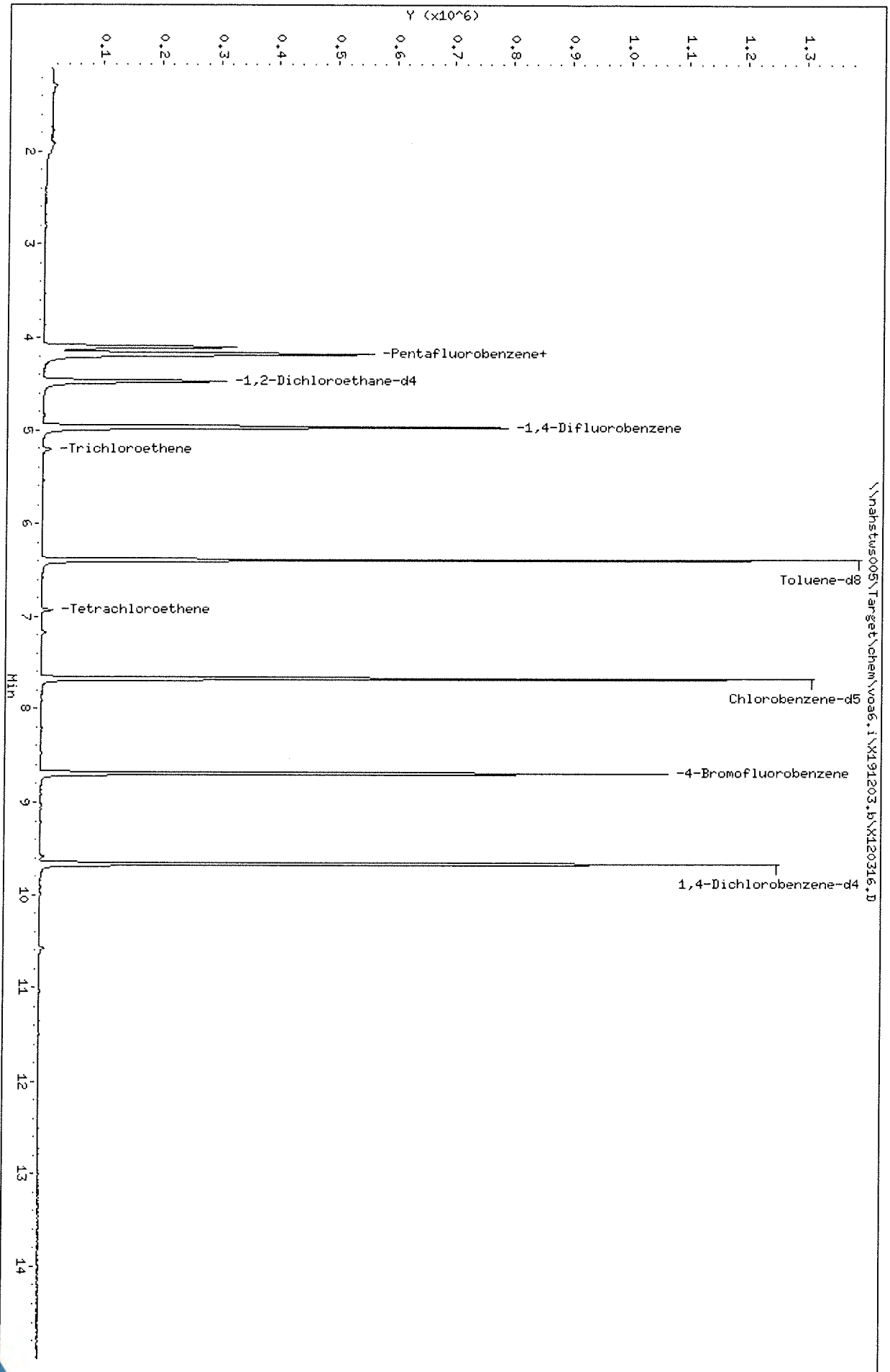
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	498936	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	696582	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	624759	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	317151	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	236089	50.2918	50.29
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	284810	49.0072	49.00
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	224237	49.4310	49.43
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	793676	48.2152	48.21
56 Tetrachloroethene	164	6.933	6.933	(0.904)	3705	0.84402	0.84(a)
38 Trichloroethene	130	5.207	5.206	(1.048)	4383	0.89973	0.89(a)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).



Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120316.D
Date : 03-DEC-2019 16:05
Client ID: HS19111443-01
Sample Info: HS19111443-01;HS19111443-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120316.D

Date : 03-DEC-2019 16:05

Client ID: HS19111443-01

Instrument: voa6.i

Sample Info: HS19111443-01;HS19111443-01;;;

Purge Volume: 5.0

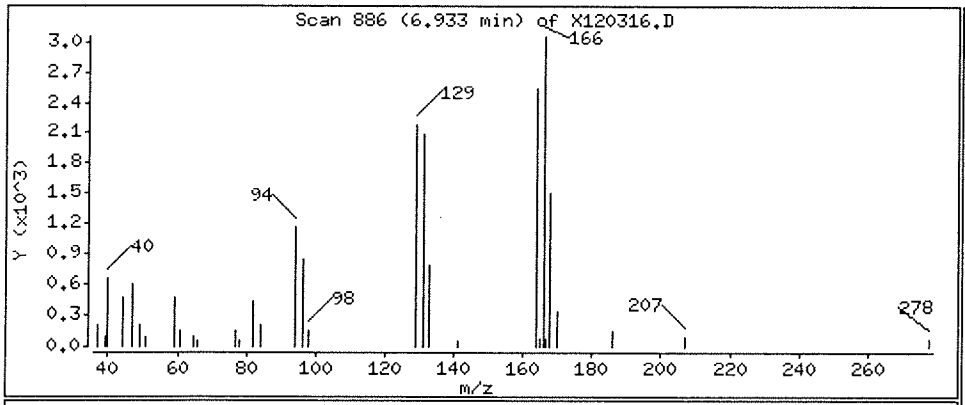
Operator: PC

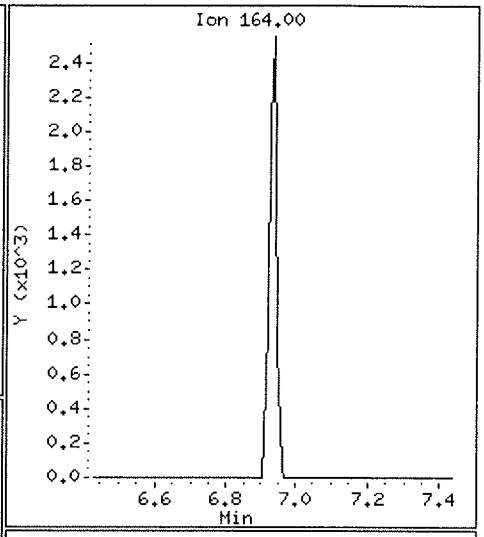
Column phase: DB624

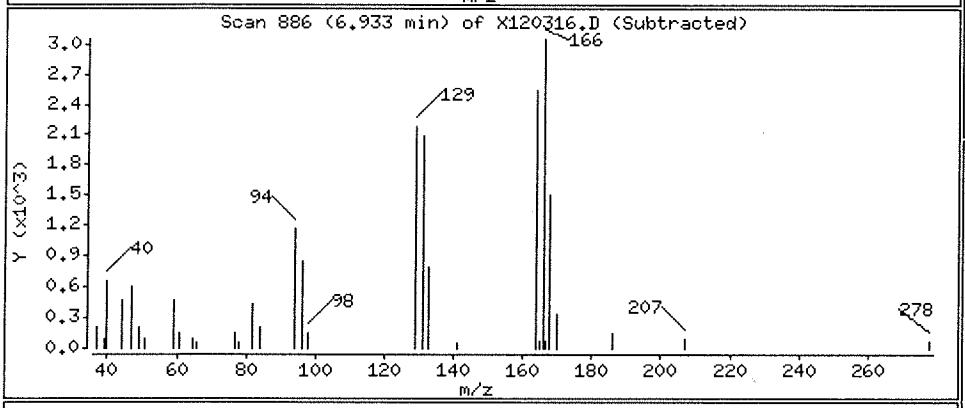
Column diameter: 0.18

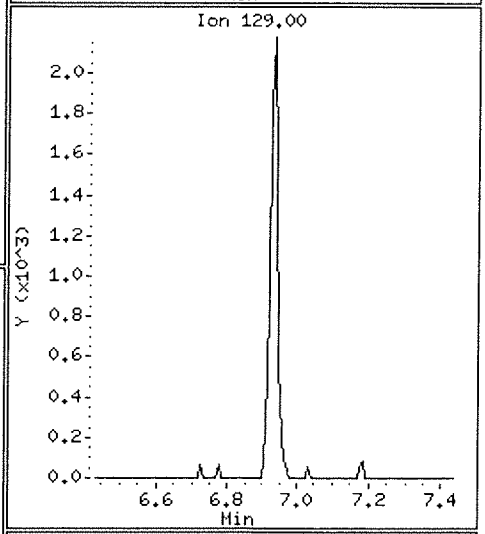
56 Tetrachloroethene

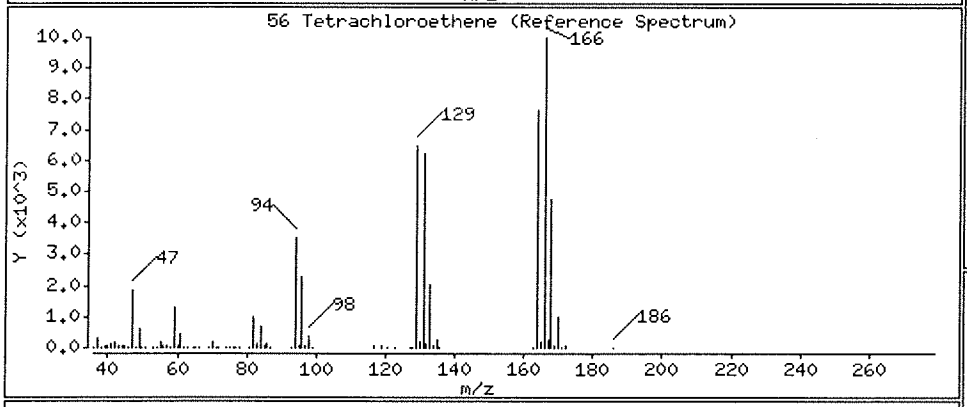
Concentration: 0.84 ug/l

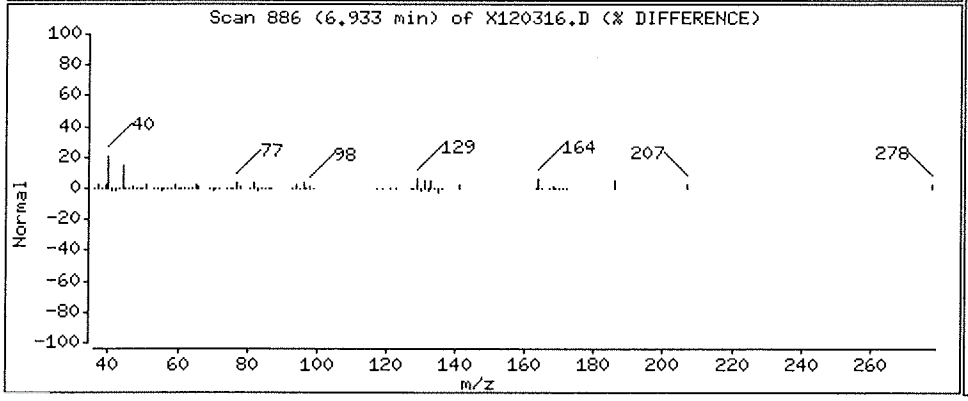


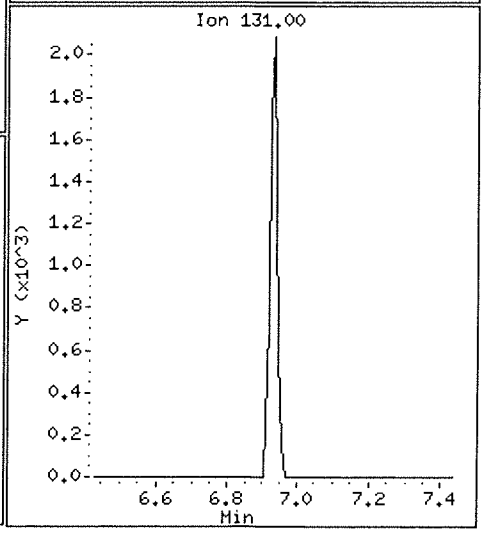












Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120316.D Page 4

Date : 03-DEC-2019 16:05

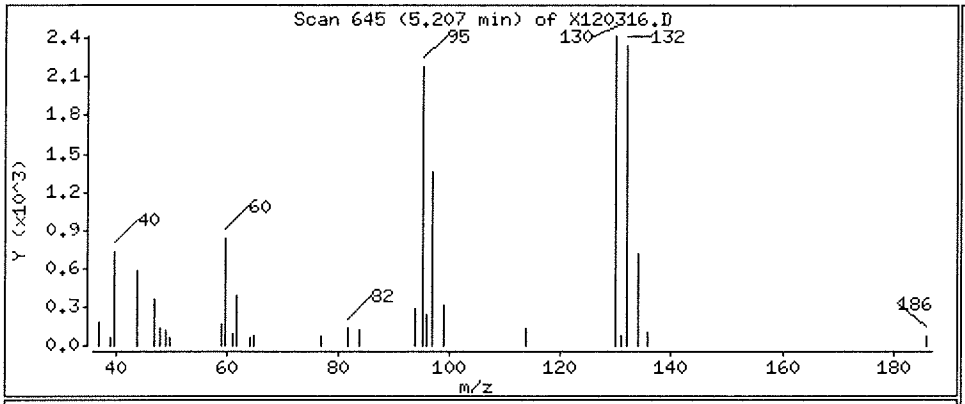
Client ID: HS19111443-01 Instrument: voa6.i

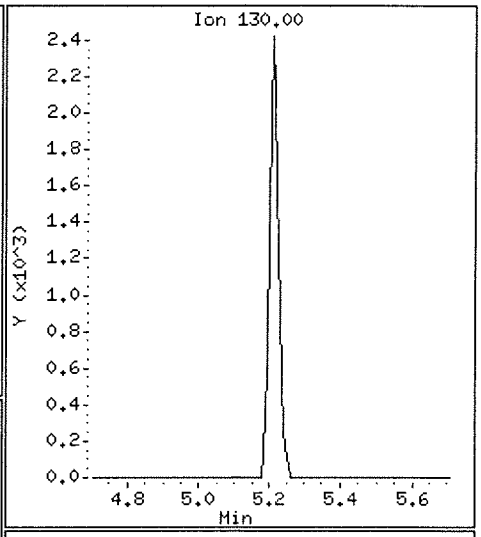
Sample Info: HS19111443-01;HS19111443-01;;;

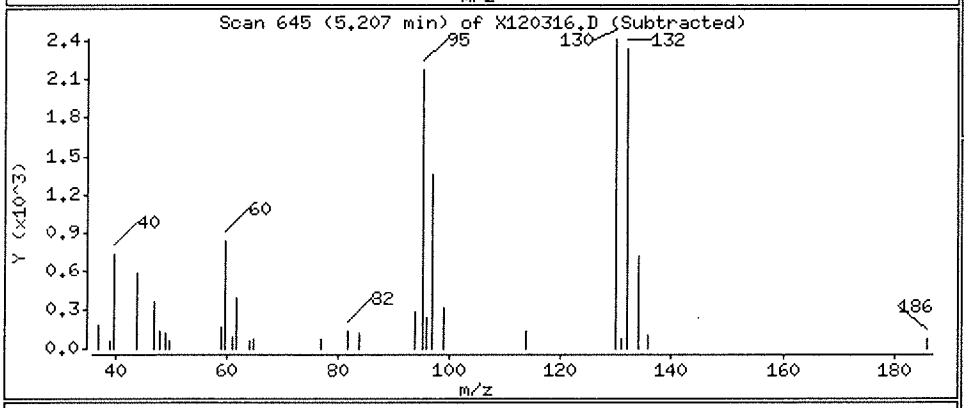
Purge Volume: 5.0 Operator: PC

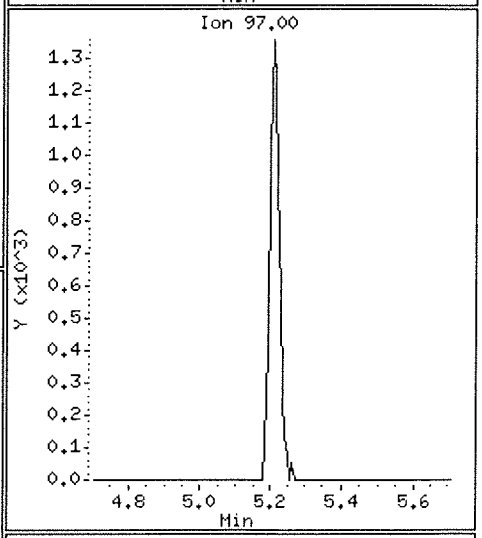
Column phase: DB624 Column diameter: 0.18

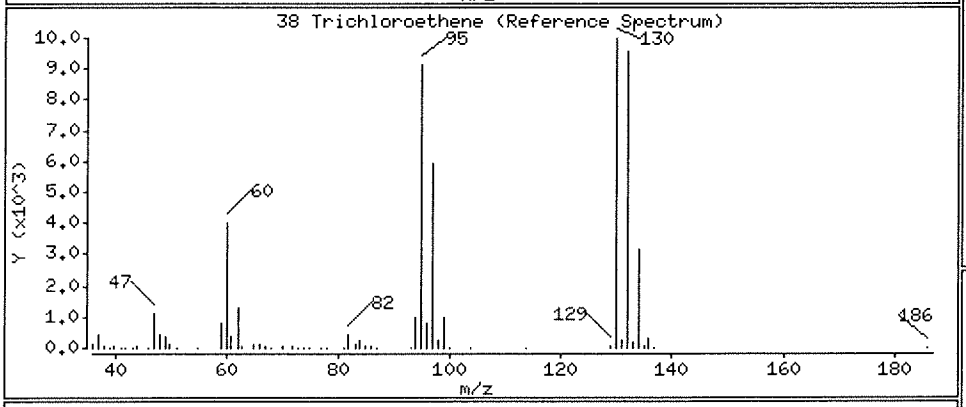
38 Trichloroethene Concentration: 0.89 ug/l

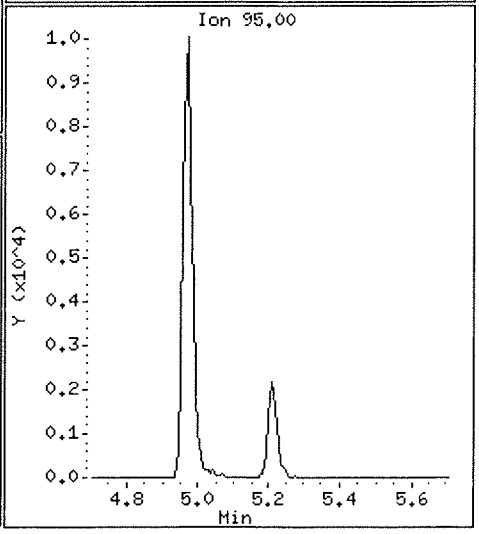


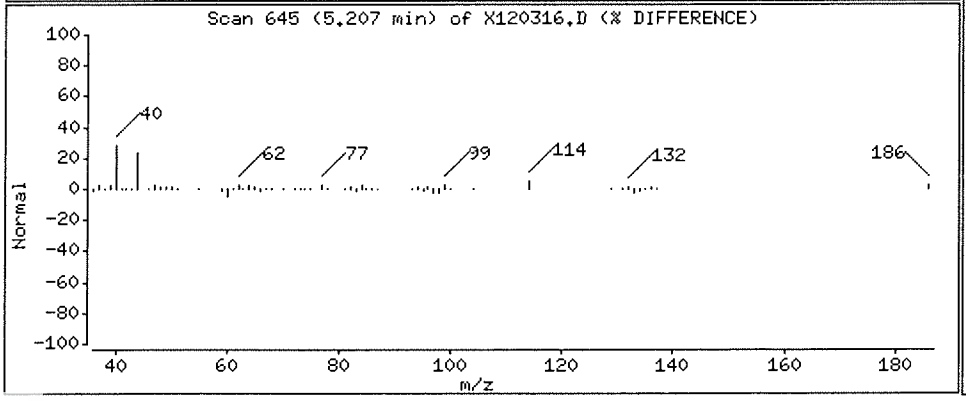












Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120317.D Page 1
Report Date: 07-Dec-2019 10:44

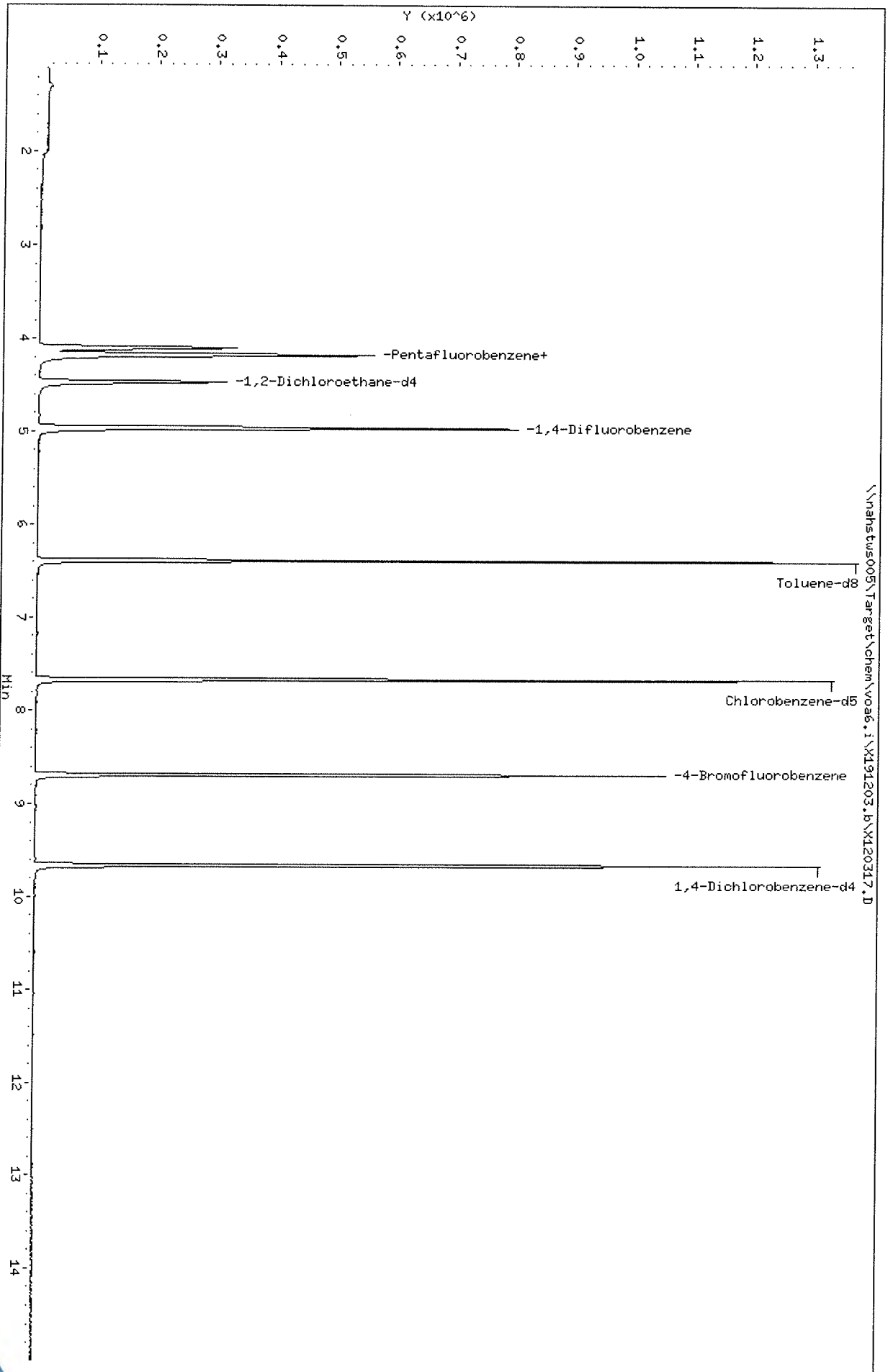
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120317.D
Lab Smp Id: HS19111443-02 Client Smp ID: HS19111443-02
Inj Date : 03-DEC-2019 16:29
Operator : PC Inst ID: voa6.i
Smp Info : HS19111443-02;HS19111443-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:43 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG 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)	498794	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	708526	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	642596	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	325667	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	237235	50.5465	50.54
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	288394	48.2529	48.25
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	227145	50.0814	50.08
$	48 Toluene-d8	98	6.389	6.388	(0.833)	805169	47.5556	47.55



Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120317.D
Date : 03-DEC-2019 16:29
Client ID: HS19111443-02
Sample Info: HS19111443-02;HS19111443-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120318.D Page 1
Report Date: 07-Dec-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120318.D
Lab Smp Id: HS19111443-03 Client Smp ID: HS19111443-03
Inj Date : 03-DEC-2019 16:54
Operator : PC Inst ID: voa6.i
Smp Info : HS19111443-03;HS19111443-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:43 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

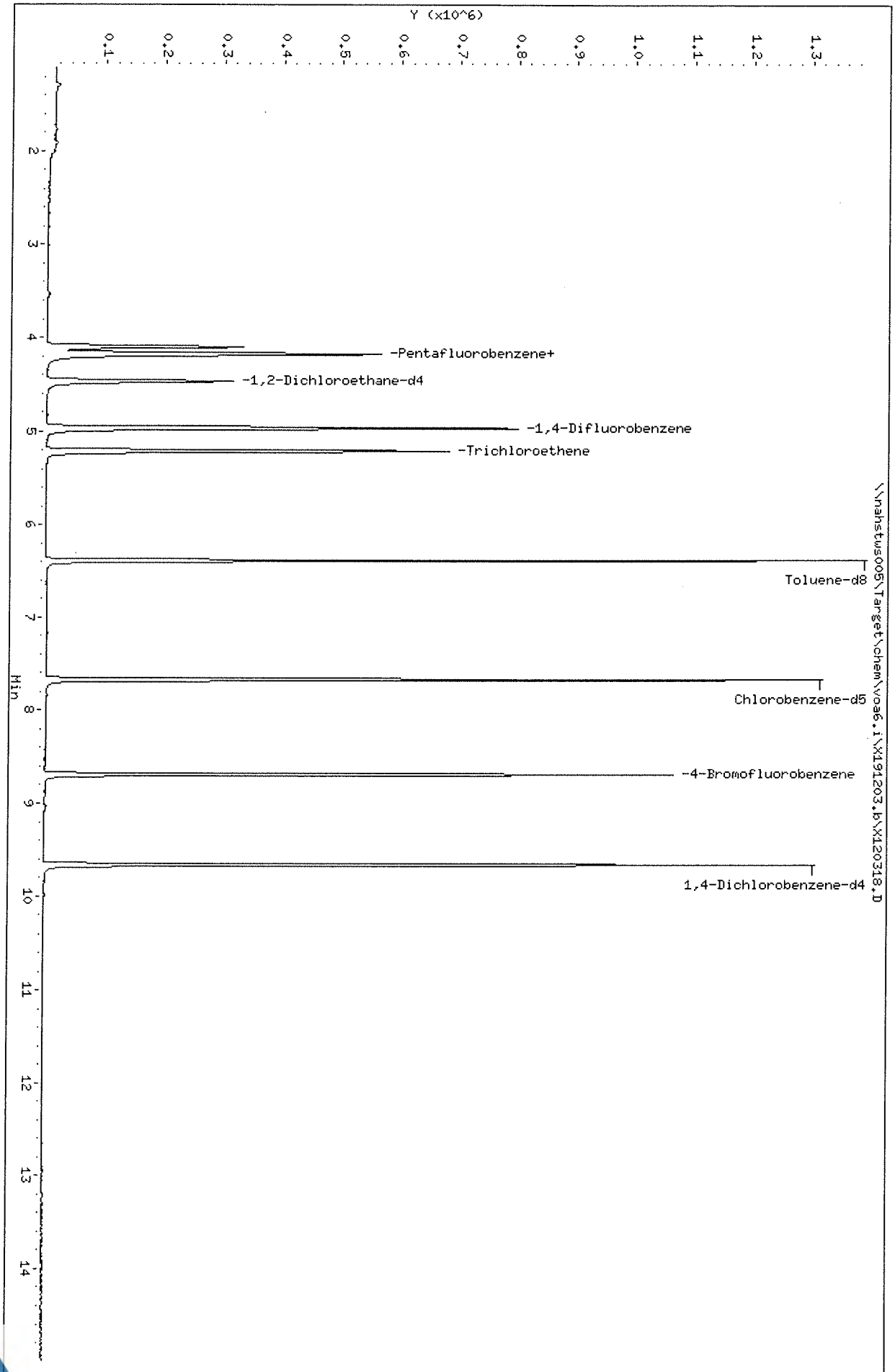
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	503038	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	708219	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	633549	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	321285	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	238047	50.2953	50.29
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	285807	48.5007	48.50
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	225734	49.3558	49.35
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	811125	48.5915	48.59
38 Trichloroethene	130	5.206	5.206	(1.048)	233658	47.1765	47.17

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120318.D
Date : 03-DEC-2019 16:54
Client ID: HS19111443-03
Sample Info: HS19111443-03,HS19111443-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120318.D Page 3

Date : 03-DEC-2019 16:54

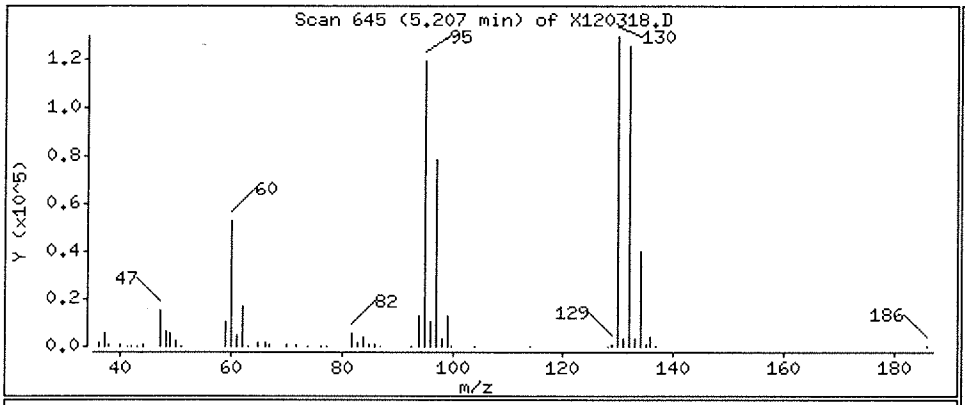
Client ID: HS19111443-03 Instrument: voa6.i

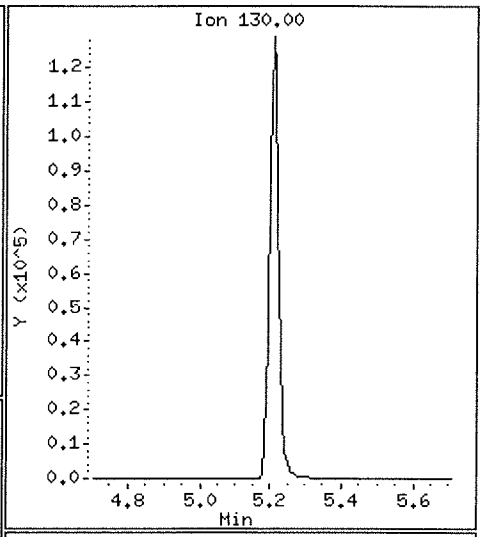
Sample Info: HS19111443-03;HS19111443-03;;;

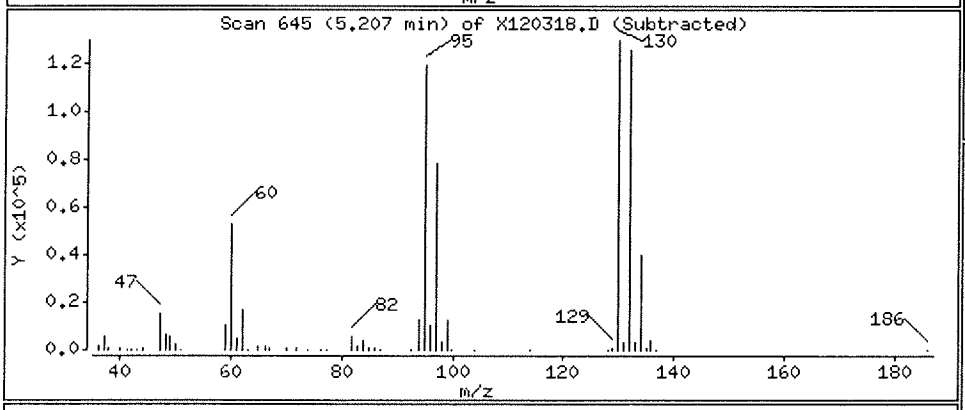
Purge Volume: 5.0 Operator: PC

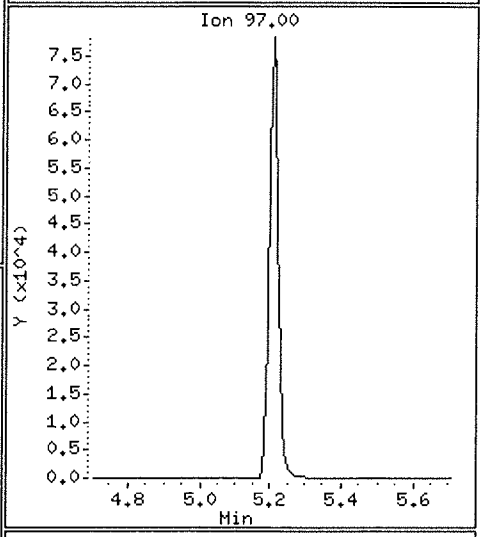
Column phase: DB624 Column diameter: 0.18

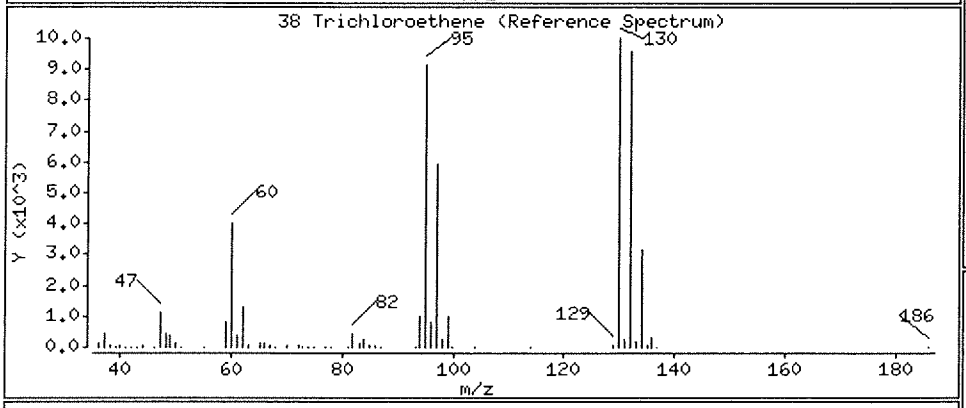
38 Trichloroethene Concentration: 47.17 ug/l

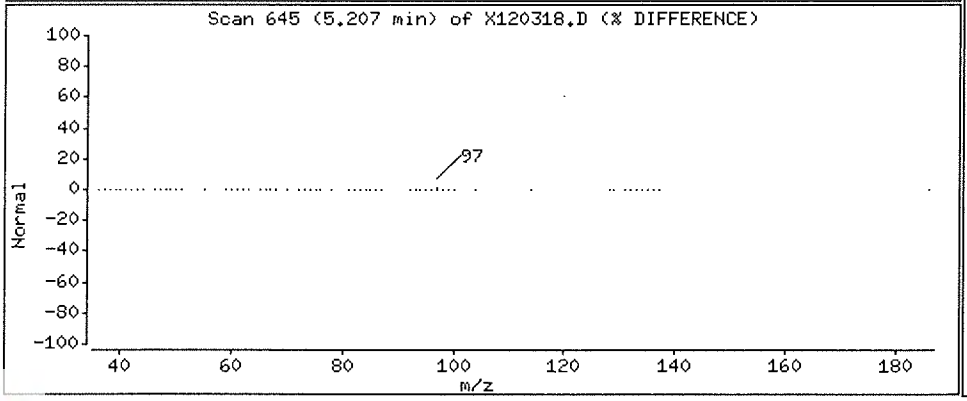


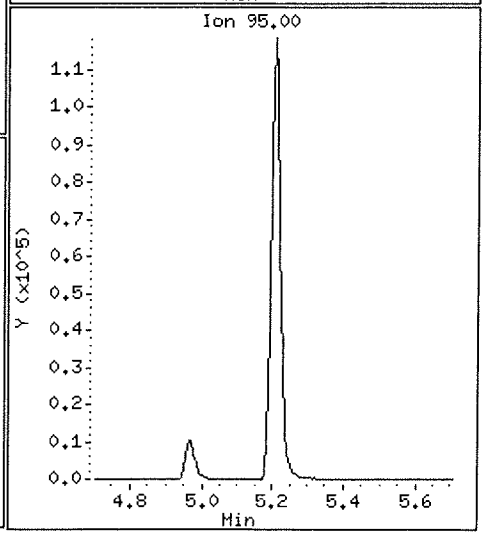












Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120319.D Page 1
Report Date: 07-Dec-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120319.D
Lab Smp Id: HS19111443-04 Client Smp ID: HS19111443-04
Inj Date : 03-DEC-2019 17:18
Operator : PC Inst ID: voa6.i
Smp Info : HS19111443-04;HS19111443-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:43 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTW7056

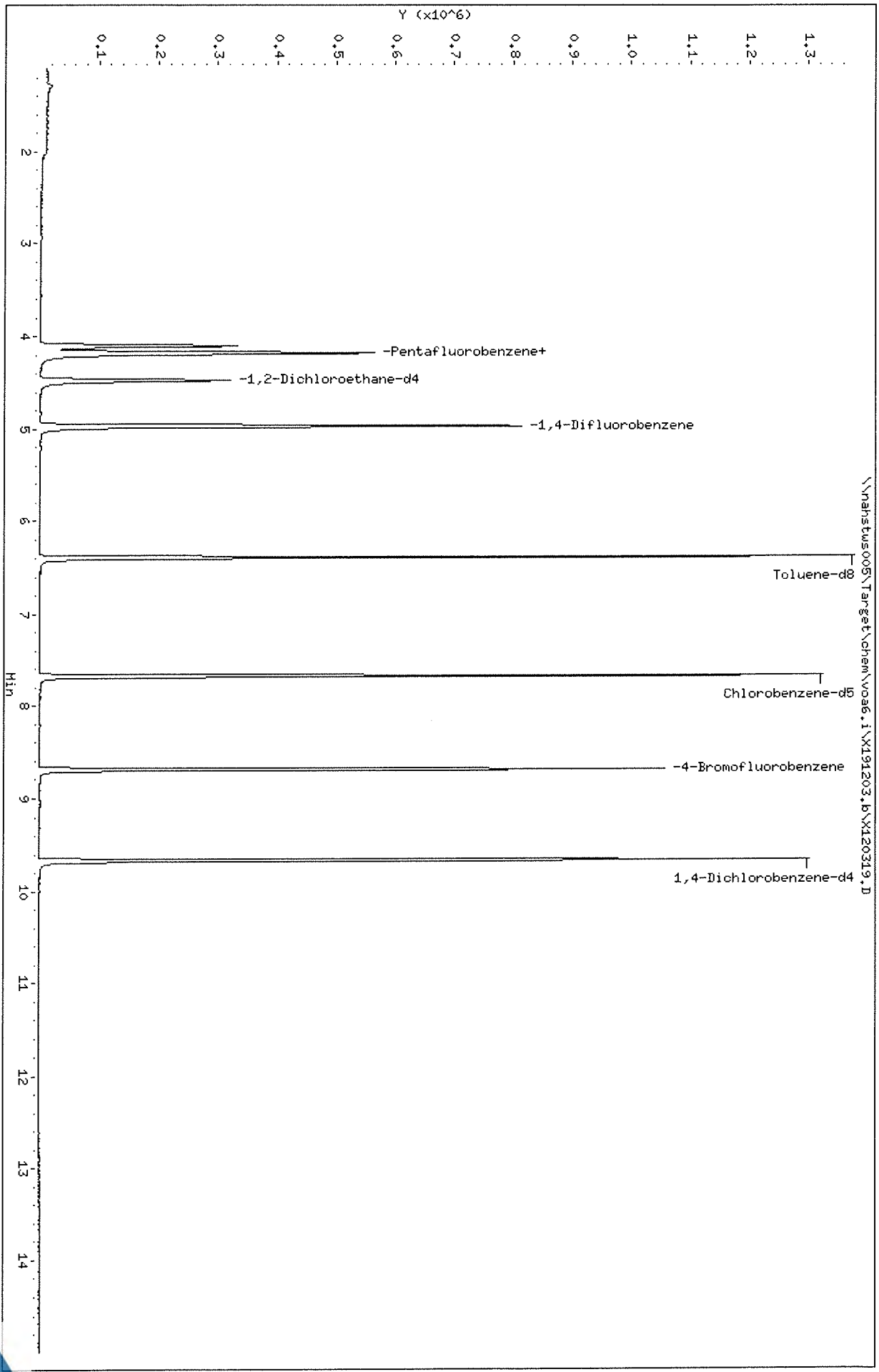
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	503185	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	709866	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	627020	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	320374	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	243641	51.4451	51.44
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	285835	49.0062	49.00
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	227099	49.6376	49.63
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	805053	48.7300	48.72

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120319.D
Date : 03-DEC-2019 17:18
Client ID: HS19111443-04
Sample Info: HS19111443-04;HS19111443-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120320.D Page 1
Report Date: 07-Dec-2019 10:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X191203.b\X120320.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 03-DEC-2019 17:41
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\X191203.b\8260W.m
Meth Date : 07-Dec-2019 10:42 DevakG Quant Type: ISTD
Cal Date : 18-NOV-2019 16:35 Cal File: X111808.D
Als bottle: 19 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

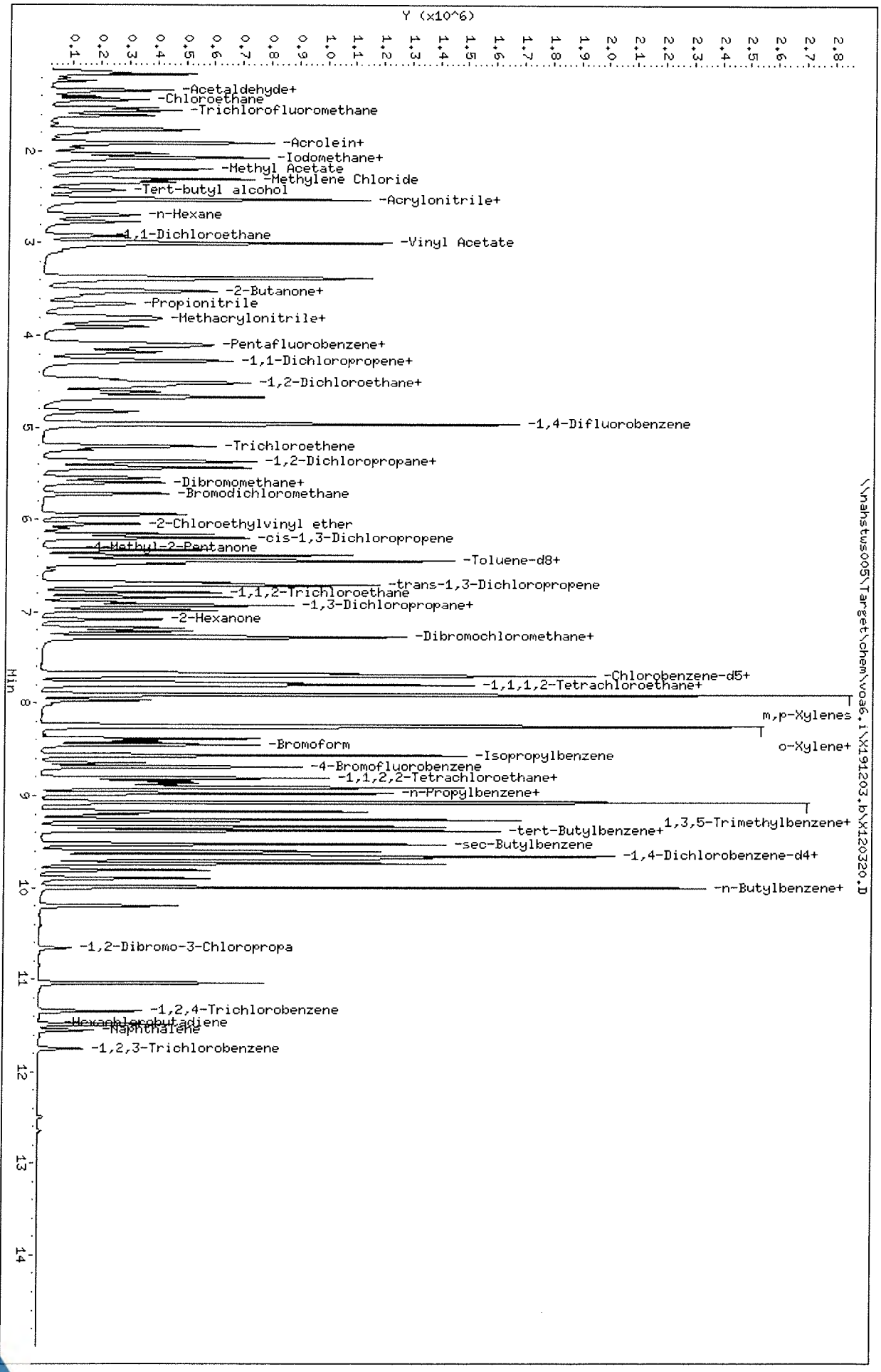
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	355924	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	549485	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	522310	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	270596	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	194989	50.0000	58.11
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	248901	50.0000	51.20
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	177879	50.0000	54.92
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	627921	50.0000	45.62
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	207496	50.0000	54.75
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.978)	289719	50.0000	60.33
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.914)	216941	50.0000	57.01
138 Freon TF	101	1.919	1.919	(0.459)	160898	50.0000	51.92
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	148434	50.0000	54.36
22 1,1-Dichloroethane	63	2.921	2.921	(0.699)	304028	50.0000	58.70
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	162727	50.0000	53.94
32 1,1-Dichloropropene	75	4.282	4.282	(0.862)	231117	50.0000	52.14
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	46832	50.0000	46.49
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	190029	50.0000	58.94(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	105087	50.0000	46.10
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	730162	50.0000	56.86
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	23243	50.0000	55.36
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	204782	50.0000	55.90
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	393422	50.0000	54.78

Data File: \\nahstws005\Target\chem\voa6.i\X191203.b\X120320.D Page 2
Report Date: 07-Dec-2019 10:43

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	259229	50.0000	59.42
42	1,2-Dichloropropane	63	5.436	5.436	(1.094)	174389	50.0000	53.12
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	708289	50.0000	57.49
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	435756	50.0000	56.15
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	299492	50.0000	54.02
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	437125	50.0000	55.43
26	2,2-Dichloropropane	77	3.516	3.516	(0.841)	251953	50.0000	53.60
24	2-Butanone	43	3.573	3.573	(0.854)	128723	100.000	117.86
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	584568	50.0000	60.04
52	2-Hexanone	43	7.083	7.083	(0.923)	226938	100.000	105.76
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	682630	50.0000	57.84
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	730628	50.0000	55.18
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	328212	100.000	107.24
10	Acetone	43	1.969	1.969	(0.471)	94519	100.000	102.67
37	Benzene	78	4.512	4.512	(0.908)	691094	50.0000	54.98
74	Bromobenzene	156	8.809	8.809	(0.911)	273571	50.0000	58.17
29	Bromochloromethane	128	3.795	3.795	(0.908)	113403	50.0000	58.81
39	Bromodichloromethane	83	5.729	5.729	(1.153)	260320	50.0000	57.24
66	Bromoform	173	8.415	8.415	(1.097)	167915	50.0000	53.91
6	Bromomethane	94	1.338	1.338	(0.320)	199769	50.0000	56.75
19	Carbon Disulfide	76	2.069	2.069	(0.495)	953001	100.000	116.13
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	253269	50.0000	52.16
59	Chlorobenzene	112	7.699	7.699	(1.004)	546890	50.0000	53.63
7	Chloroethane	64	1.403	1.403	(0.336)	118966	50.0000	53.08
28	Chloroform	83	3.910	3.910	(0.935)	338161	50.0000	58.66
3	Chloromethane	50	1.073	1.073	(0.257)	166110	50.0000	42.99
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	205071	50.0000	60.75
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	296786	50.0000	55.38
55	Dibromochloromethane	129	7.176	7.176	(0.936)	220511	50.0000	55.59
44	Dibromomethane	93	5.557	5.557	(1.118)	132339	50.0000	56.97
2	Dichlorodifluoromethane	85	0.973	0.973	(0.233)	204372	50.0000	62.78
61	Ethylbenzene	106	7.799	7.799	(1.017)	284225	50.0000	53.94
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	86927	50.0000	39.97
67	Isopropylbenzene	105	8.566	8.566	(1.117)	849060	50.0000	54.40
62	m,p-Xylenes	106	7.907	7.907	(1.031)	687265	100.000	108.09
17	Methylene Chloride	84	2.305	2.305	(0.551)	183625	50.0000	57.05
87	n-Butylbenzene	91	9.999	9.999	(1.034)	599670	50.0000	54.42
73	n-Propylbenzene	91	8.917	8.917	(0.922)	970405	50.0000	58.01
92	Naphthalene	128	11.546	11.546	(1.194)	131698	50.0000	45.04
63	o-Xylene	106	8.244	8.244	(1.075)	339489	50.0000	54.10
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	820100	50.0000	56.44
64	Styrene	104	8.258	8.258	(1.077)	603970	50.0000	55.35
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	601379	50.0000	57.00
56	Tetrachloroethene	164	6.933	6.933	(0.904)	182870	50.0000	49.82
50	Toluene	91	6.446	6.446	(0.840)	793848	50.0000	53.59
20	trans-1,2-Dichloroethene	96	2.527	2.527	(0.604)	174182	50.0000	59.47
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	277874	50.0000	56.89
38	Trichloroethene	130	5.206	5.206	(1.048)	209114	50.0000	54.41
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	317940	50.0000	57.58
5	Vinyl Chloride	62	1.138	1.138	(0.272)	192607	50.0000	53.09

QC Flag Legend

M - Compound response manually integrated.



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Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

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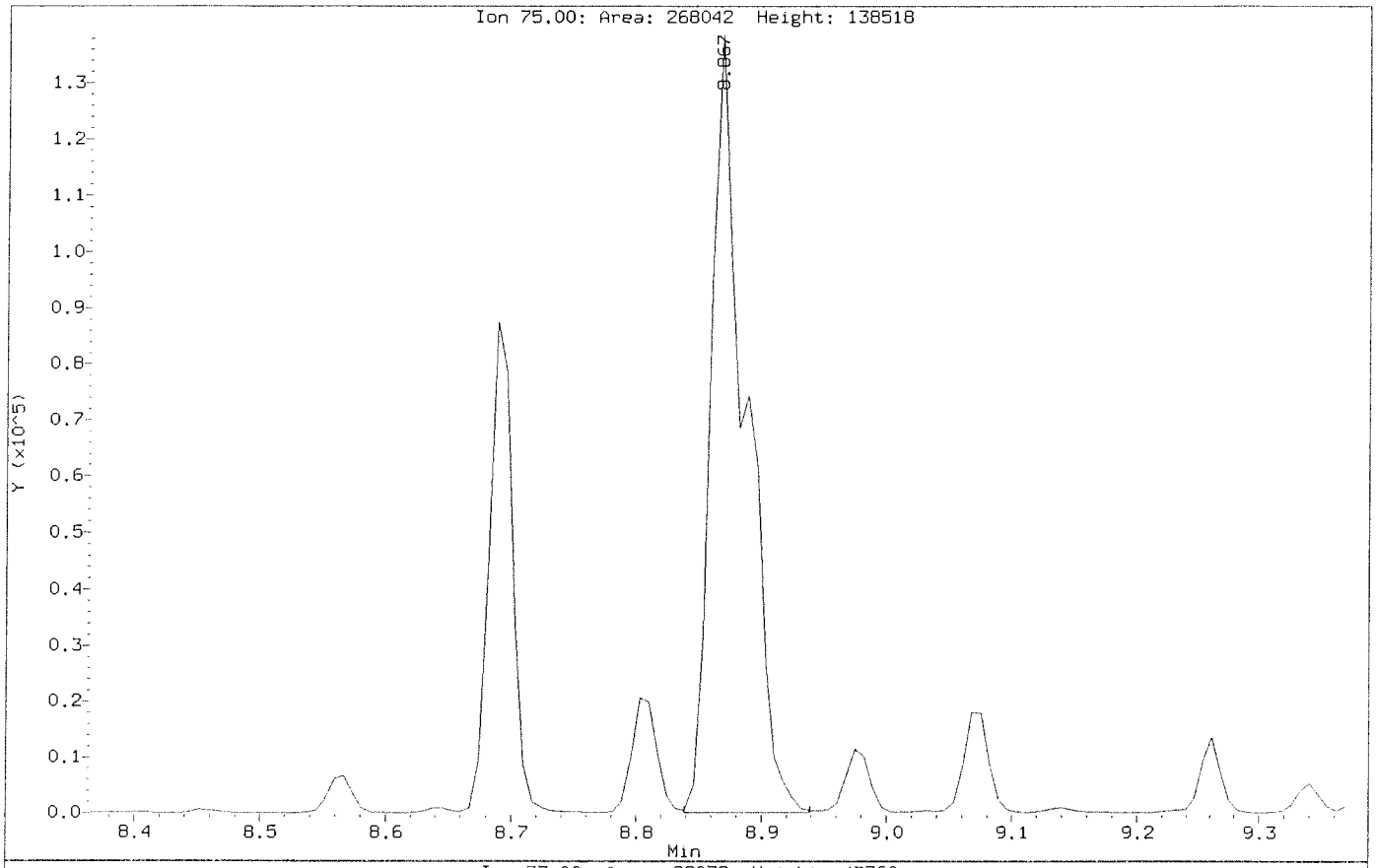
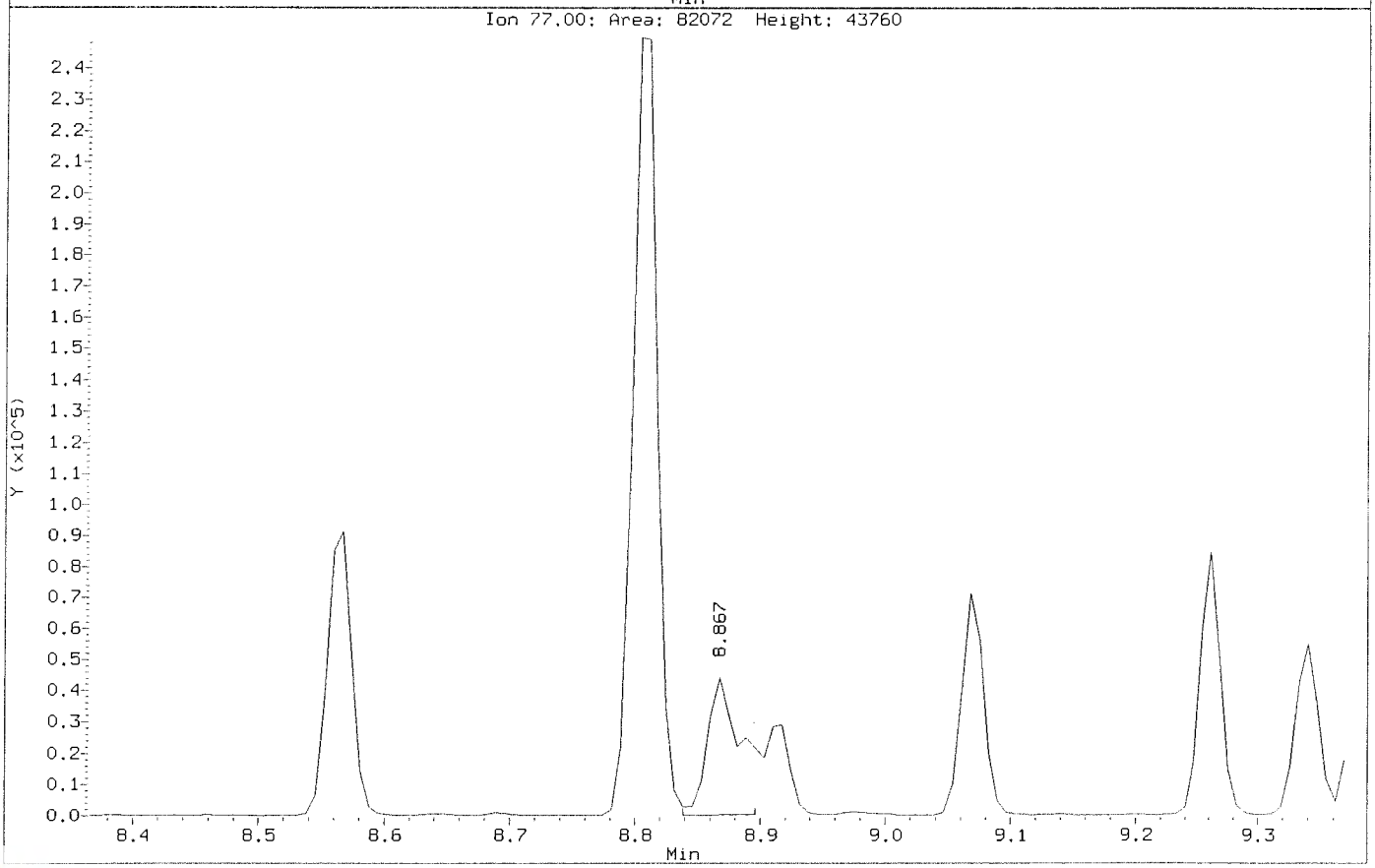
Injection Date: 03-DEC-2019 17:41
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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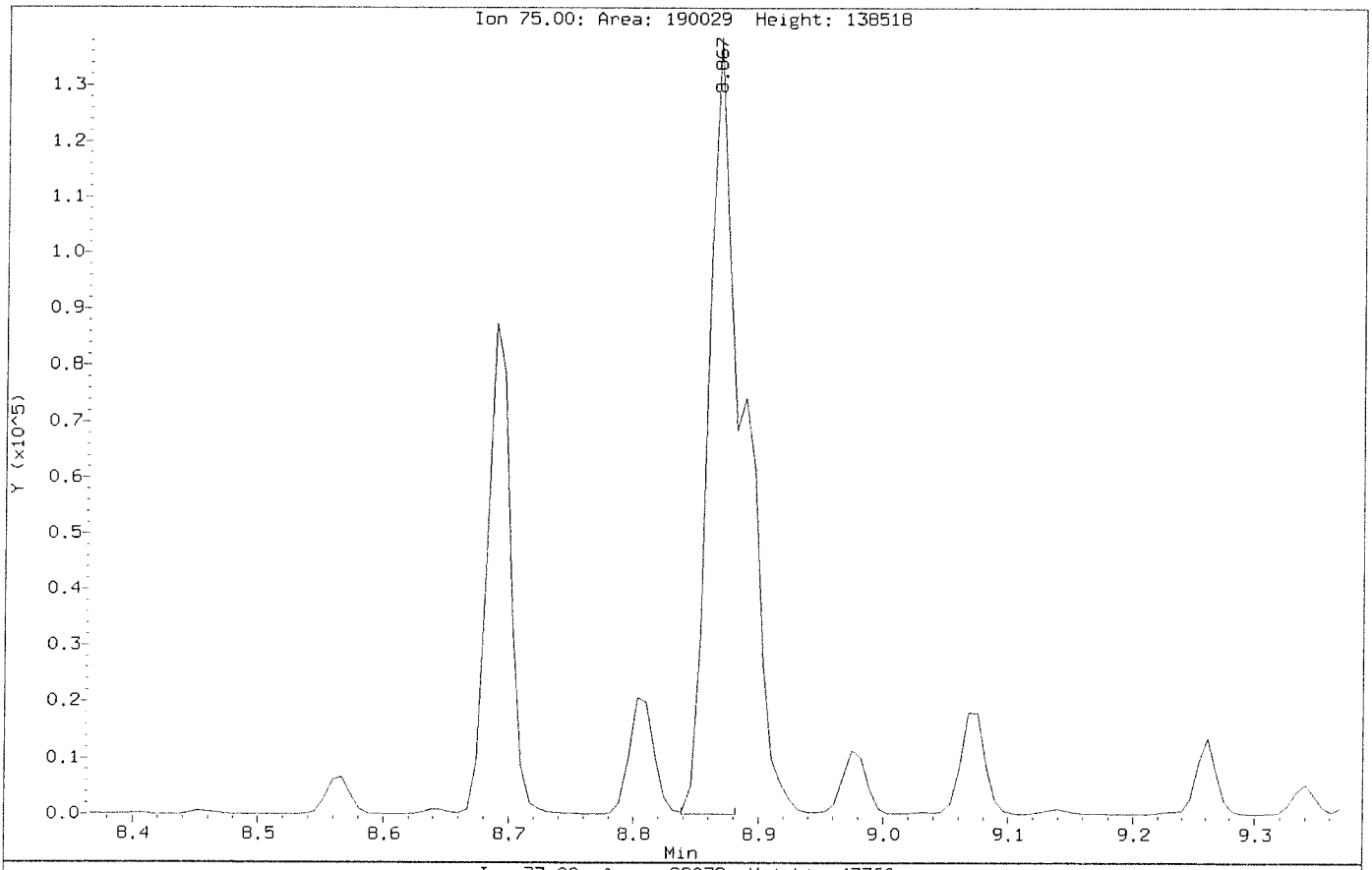
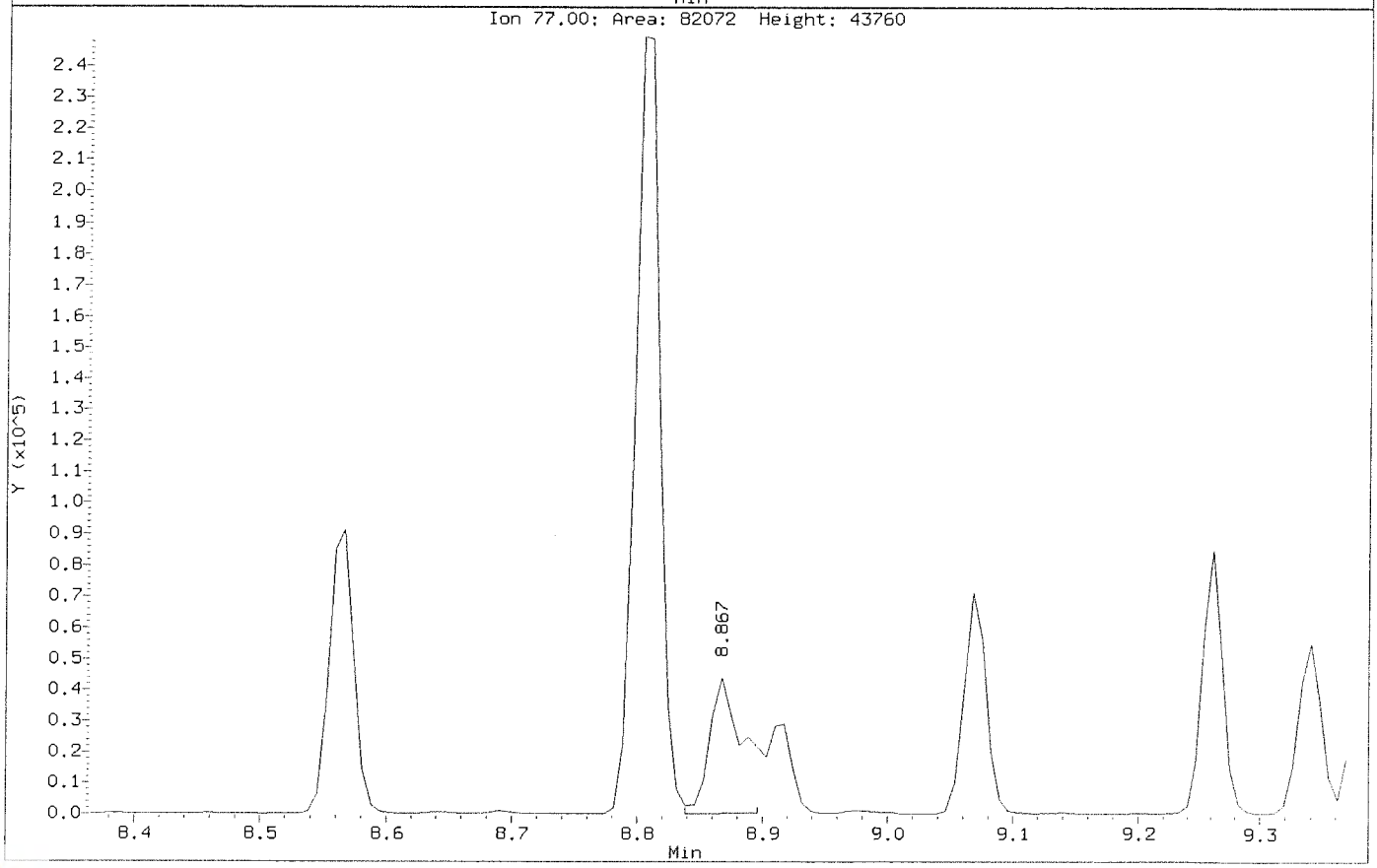
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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

WorkOrder: HS20050234

Longhorn Army Ammunition Plant

Aptim Environmental & Infrastucture, Inc.

Susan Huang
2500 City West Blvd., Suite 1700
Houston TX 77042

29-May-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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HS20050234 ALS Simi Valley Lab P2002523 Tier IV.pdf
HS20050234 8260 Raw Data
HS20050234 Wet Chem Raw Data (IC)

HS20050234

ALS WO# HS20050234

HS20050234 Longhorn Army Ammunition Plant
Final

ALS WO# HS20050234

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

May 21, 2020

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

Work Order: **HS20050234**

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

Dear Susan,

ALS Environmental received 11 sample(s) on May 07, 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: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Work Order: HS20050234

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20050234-01	35BWW10-200506	Groundwater		06-May-2020 07:40	07-May-2020 09:05	☐
HS20050234-02	35BWW05-200506	Groundwater		06-May-2020 08:25	07-May-2020 09:05	☐
HS20050234-03	35BWW11-200506	Groundwater		06-May-2020 09:10	07-May-2020 09:05	☐
HS20050234-04	35BWW01-200506	Groundwater		06-May-2020 09:55	07-May-2020 09:05	☐
HS20050234-05	35BWW01-200506-FD	Groundwater		06-May-2020 09:55	07-May-2020 09:05	☐
HS20050234-06	35BWW26-200506	Groundwater		06-May-2020 10:40	07-May-2020 09:05	☐
HS20050234-07	35BWW04-200506	Groundwater		06-May-2020 11:30	07-May-2020 09:05	☐
HS20050234-08	35BWW12-200506	Groundwater		06-May-2020 12:25	07-May-2020 09:05	☐
HS20050234-09	35BWW12-200506-FD	Groundwater		06-May-2020 12:25	07-May-2020 09:05	☐
HS20050234-10	35BWW08-200506	Groundwater		06-May-2020 13:20	07-May-2020 09:05	☐
HS20050234-11	Trip Blank	Water	CG-041420-01	06-May-2020 00:00	07-May-2020 09:05	☐

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant
Work Order: HS20050234

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for TOC was subcontracted to ALS Environmental in Kelso WA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R361452

Sample ID: 35BWW10-200506(HS20050234-01MSD)

- MS/MSD RPD recovered above the RPD limits for Naphthalene,

WetChemistry by Method SW9056

Batch ID: R361488

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW10-200506
Collection Date: 06-May-2020 07:40

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:38
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:38
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:38
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:38
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:38
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:38
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:38
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:38
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 15:38
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 15:38
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:38
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 15:38
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 15:38
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:38
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:38
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 15:38
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 15:38
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW10-200506
Collection Date: 06-May-2020 07:40

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 15:38
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 15:38
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 15:38
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 15:38
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 15:38
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
Trichloroethene	**0.64**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-May-2020 15:38
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 15:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 15:38
Surr: 1,2-Dichloroethane-d4	*88.4*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 15:38*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 15:38*
Surr: Dibromofluoromethane	*90.9*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 15:38*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 15:38*

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW05-200506
Collection Date: 06-May-2020 08:25

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:02
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:02
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:02
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:02
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:02
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:02
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:02
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:02
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:02
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 16:02
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 16:02
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:02
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 16:02
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 16:02
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:02
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:02
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:02
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 16:02
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:02
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW05-200506
Collection Date: 06-May-2020 08:25

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 16:02
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 16:02
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 16:02
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 16:02
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:02
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
Tetrachloroethene	**2.4**		**0.30**	**1.0**	**1.0**	**UG/L**	1	12-May-2020 16:02
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
Trichloroethene	**7.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-May-2020 16:02
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:02
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:02
Surr: 1,2-Dichloroethane-d4	*90.8*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 16:02*
Surr: 4-Bromofluorobenzene	*97.8*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 16:02*
Surr: Dibromofluoromethane	*91.5*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 16:02*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 16:02*

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW11-200506
Collection Date: 06-May-2020 09:10

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:26
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:26
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:26
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:26
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:26
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:26
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:26
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:26
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 16:26
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 16:26
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:26
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 16:26
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 16:26
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:26
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:26
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 16:26
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:26
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW11-200506
Collection Date: 06-May-2020 09:10

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 16:26
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 16:26
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 16:26
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 16:26
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:26
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:26
Surr: 1,2-Dichloroethane-d4	*90.6*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 16:26*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 16:26*
Surr: Dibromofluoromethane	*90.2*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 16:26*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 16:26*

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW01-200506
Collection Date: 06-May-2020 09:55

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:50
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:50
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:50
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:50
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:50
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:50
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:50
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:50
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:50
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 16:50
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 16:50
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:50
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 16:50
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 16:50
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:50
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:50
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:50
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 16:50
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 16:50
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW01-200506
Collection Date: 06-May-2020 09:55

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 16:50
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 16:50
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 16:50
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 16:50
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 16:50
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 16:50
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 16:50
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 16:50*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 16:50*
Surr: Dibromofluoromethane	*91.2*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 16:50*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 16:50*

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW01-200506-FD
Collection Date: 06-May-2020 09:55

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:14
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:14
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:14
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:14
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:14
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:14
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:14
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:14
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 17:14
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 17:14
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:14
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 17:14
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 17:14
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:14
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:14
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 17:14
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:14
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW01-200506-FD
Collection Date: 06-May-2020 09:55

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 17:14
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 17:14
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 17:14
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 17:14
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:14
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:14
Surr: 1,2-Dichloroethane-d4	*90.8*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 17:14*
Surr: 4-Bromofluorobenzene	*97.2*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 17:14*
Surr: Dibromofluoromethane	*91.3*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 17:14*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 17:14*

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW26-200506
Collection Date: 06-May-2020 10:40

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:38
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:38
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:38
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:38
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:38
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:38
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:38
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:38
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 17:38
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 17:38
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:38
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 17:38
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 17:38
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:38
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:38
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 17:38
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 17:38
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW26-200506
Collection Date: 06-May-2020 10:40

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 17:38
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 17:38
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 17:38
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 17:38
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 17:38
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 17:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 17:38
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 17:38*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 17:38*
Surr: Dibromofluoromethane	*90.2*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 17:38*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 17:38*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Chloride	**31.0**		**0.200**	**0.500**	**0.500**	**mg/L**	1	07-May-2020 22:26
Nitrogen, Nitrate (As N)	**0.133**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	07-May-2020 22:26
Sulfate	**25.3**		**0.200**	**0.500**	**0.500**	**mg/L**	1	07-May-2020 22:26
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 12:34
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	15-May-2020 15:30

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW04-200506
Collection Date: 06-May-2020 11:30

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:02
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:02
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:02
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:02
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:02
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:02
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:02
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:02
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:02
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 18:02
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 18:02
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:02
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 18:02
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 18:02
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:02
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:02
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:02
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 18:02
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:02
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW04-200506
Collection Date: 06-May-2020 11:30

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 18:02
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 18:02
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 18:02
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 18:02
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:02
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
Tetrachloroethene	**6.4**		**0.30**	**1.0**	**1.0**	**UG/L**	1	12-May-2020 18:02
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
Trichloroethene	**0.71**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-May-2020 18:02
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:02
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:02
Surr: 1,2-Dichloroethane-d4	*91.5*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 18:02*
Surr: 4-Bromofluorobenzene	*98.7*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 18:02*
Surr: Dibromofluoromethane	*91.5*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 18:02*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 18:02*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Chloride	**4.52**		**0.200**	**0.500**	**0.500**	**mg/L**	1	07-May-2020 22:44
Nitrogen, Nitrate (As N)	**0.132**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	07-May-2020 22:44
Sulfate	**26.6**		**0.200**	**0.500**	**0.500**	**mg/L**	1	07-May-2020 22:44
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 12:34
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	15-May-2020 15:30

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW12-200506
Collection Date: 06-May-2020 12:25

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:26
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:26
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:26
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:26
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:26
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:26
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:26
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:26
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 18:26
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 18:26
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:26
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 18:26
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 18:26
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:26
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:26
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 18:26
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:26
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW12-200506
Collection Date: 06-May-2020 12:25

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 18:26
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 18:26
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 18:26
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 18:26
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:26
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
Tetrachloroethene	**8.5**		**0.30**	**1.0**	**1.0**	**UG/L**	1	12-May-2020 18:26
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
Trichloroethene	**0.61**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-May-2020 18:26
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:26
Surr: 1,2-Dichloroethane-d4	*89.7*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 18:26*
Surr: 4-Bromofluorobenzene	*96.4*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 18:26*
Surr: Dibromofluoromethane	*91.0*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 18:26*
Surr: Toluene-d8	*110*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 18:26*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Chloride	**7.21**		**0.200**	**0.500**	**0.500**	**mg/L**	1	07-May-2020 23:02
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	07-May-2020 23:02
Sulfate	**41.2**		**0.200**	**0.500**	**0.500**	**mg/L**	1	07-May-2020 23:02
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 12:34
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	15-May-2020 15:30

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW12-200506-FD
Collection Date: 06-May-2020 12:25

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:50
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:50
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:50
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:50
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:50
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:50
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:50
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:50
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:50
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 18:50
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 18:50
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:50
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 18:50
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 18:50
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:50
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:50
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:50
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 18:50
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 18:50
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW12-200506-FD
Collection Date: 06-May-2020 12:25

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 18:50
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 18:50
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 18:50
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 18:50
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 18:50
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
Tetrachloroethene	**8.5**		**0.30**	**1.0**	**1.0**	**UG/L**	1	12-May-2020 18:50
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
Trichloroethene	**0.72**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-May-2020 18:50
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 18:50
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 18:50
Surr: 1,2-Dichloroethane-d4	*89.2*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 18:50*
Surr: 4-Bromofluorobenzene	*98.0*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 18:50*
Surr: Dibromofluoromethane	*91.6*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 18:50*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 18:50*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Chloride	**7.23**		**0.200**	**0.500**	**0.500**	**mg/L**	1	07-May-2020 23:21
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	07-May-2020 23:21
Sulfate	**39.4**		**0.200**	**0.500**	**0.500**	**mg/L**	1	07-May-2020 23:21
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 12:34
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	15-May-2020 15:30

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW08-200506
Collection Date: 06-May-2020 13:20

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 19:14
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 19:14
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 19:14
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 19:14
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 19:14
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 19:14
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 19:14
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 19:14
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 19:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 19:14
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 19:14
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 19:14
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 19:14
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 19:14
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 19:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 19:14
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 19:14
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 19:14
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 19:14
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: 35BWW08-200506
Collection Date: 06-May-2020 13:20

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 19:14
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 19:14
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 19:14
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 19:14
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 19:14
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 19:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 19:14
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 19:14*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 19:14*
Surr: Dibromofluoromethane	*91.9*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 19:14*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 19:14*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: JHD
Chloride	**2.38**		**0.200**	**0.500**	**0.500**	**mg/L**	1	07-May-2020 23:39
Nitrogen, Nitrate (As N)	**0.137**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	07-May-2020 23:39
Sulfate	**15.9**		**0.200**	**0.500**	**0.500**	**mg/L**	1	07-May-2020 23:39
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2020 12:34
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	15-May-2020 15:30

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: Trip Blank
Collection Date: 06-May-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-11
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:01
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:01
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:01
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:01
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:01
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:01
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:01
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 14:01
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	12-May-2020 14:01
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:01
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	12-May-2020 14:01
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 14:01
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:01
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:01
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-May-2020 14:01
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	12-May-2020 14:01
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
Sample ID: Trip Blank
Collection Date: 06-May-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20050234
Lab ID:HS20050234-11
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-May-2020 14:01
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-May-2020 14:01
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-May-2020 14:01
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-May-2020 14:01
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	12-May-2020 14:01
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	12-May-2020 14:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-May-2020 14:01
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*12-May-2020 14:01*
Surr: 4-Bromofluorobenzene	*100.0*			**0**	*85-114*	*%REC*	*1*	*12-May-2020 14:01*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*1*	*12-May-2020 14:01*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*12-May-2020 14:01*

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

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R361452 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20050234-11	Trip Blank	06 May 2020 00:00			12 May 2020 14:01	1
Batch ID: R361452 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20050234-01	35BWW10-200506	06 May 2020 07:40			12 May 2020 15:38	1
HS20050234-02	35BWW05-200506	06 May 2020 08:25			12 May 2020 16:02	1
HS20050234-03	35BWW11-200506	06 May 2020 09:10			12 May 2020 16:26	1
HS20050234-04	35BWW01-200506	06 May 2020 09:55			12 May 2020 16:50	1
HS20050234-05	35BWW01-200506-FD	06 May 2020 09:55			12 May 2020 17:14	1
HS20050234-06	35BWW26-200506	06 May 2020 10:40			12 May 2020 17:38	1
HS20050234-07	35BWW04-200506	06 May 2020 11:30			12 May 2020 18:02	1
HS20050234-08	35BWW12-200506	06 May 2020 12:25			12 May 2020 18:26	1
HS20050234-09	35BWW12-200506-FD	06 May 2020 12:25			12 May 2020 18:50	1
HS20050234-10	35BWW08-200506	06 May 2020 13:20			12 May 2020 19:14	1
Batch ID: R361488 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20050234-06	35BWW26-200506	06 May 2020 10:40			07 May 2020 22:26	1
HS20050234-07	35BWW04-200506	06 May 2020 11:30			07 May 2020 22:44	1
HS20050234-08	35BWW12-200506	06 May 2020 12:25			07 May 2020 23:02	1
HS20050234-09	35BWW12-200506-FD	06 May 2020 12:25			07 May 2020 23:21	1
HS20050234-10	35BWW08-200506	06 May 2020 13:20			07 May 2020 23:39	1
Batch ID: R361636 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20050234-06	35BWW26-200506	06 May 2020 10:40			15 May 2020 15:30	1
HS20050234-07	35BWW04-200506	06 May 2020 11:30			15 May 2020 15:30	1
HS20050234-08	35BWW12-200506	06 May 2020 12:25			15 May 2020 15:30	1
HS20050234-09	35BWW12-200506-FD	06 May 2020 12:25			15 May 2020 15:30	1
HS20050234-10	35BWW08-200506	06 May 2020 13:20			15 May 2020 15:30	1
Batch ID: R361926 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS20050234-06	35BWW26-200506	06 May 2020 10:40			21 May 2020 12:34	1
HS20050234-07	35BWW04-200506	06 May 2020 11:30			21 May 2020 12:34	1
HS20050234-08	35BWW12-200506	06 May 2020 12:25			21 May 2020 12:34	1
HS20050234-09	35BWW12-200506-FD	06 May 2020 12:25			21 May 2020 12:34	1
HS20050234-10	35BWW08-200506	06 May 2020 13:20			21 May 2020 12:34	1

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200512** Units: **UG/L** Analysis Date: **12-May-2020 12:25**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582521** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200512** Units: **UG/L** Analysis Date: **12-May-2020 12:25**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582521** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44.7*	*1.0*	*50*	*0*	*89.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.57*	*1.0*	*50*	*0*	*99.1*	*85 - 114*				
Surr: Dibromofluoromethane	*46.11*	*1.0*	*50*	*0*	*92.2*	*80 - 119*				

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200512** Units: **UG/L** Analysis Date: **12-May-2020 12:25**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582521** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*54.07*	*1.0*	*50*	*0*	*108*	*89 - 112*				

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200512** Units: **UG/L** Analysis Date: **12-May-2020 11:37**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582520** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.61	1.0	20	0	98.1	78 - 124				
1,1,1-Trichloroethane	19.19	1.0	20	0	96.0	74 - 131				
1,1,2,2-Tetrachloroethane	18.01	1.0	20	0	90.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	18.88	1.0	20	0	94.4	70 - 136				
1,1,2-Trichloroethane	18.89	1.0	20	0	94.4	80 - 119				
1,1-Dichloroethane	17.97	1.0	20	0	89.8	77 - 125				
1,1-Dichloroethene	17.66	1.0	20	0	88.3	71 - 131				
1,1-Dichloropropene	18.43	1.0	20	0	92.2	78 - 125				
1,2,3-Trichlorobenzene	22.76	1.0	20	0	114	69 - 129				
1,2,3-Trichloropropane	18.46	1.0	20	0	92.3	73 - 122				
1,2,4-Trichlorobenzene	20.84	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	19.25	1.0	20	0	96.3	76 - 124				
1,2-Dibromo-3-chloropropane	20.07	1.0	20	0	100	62 - 128				
1,2-Dibromoethane	19.75	1.0	20	0	98.7	77 - 121				
1,2-Dichlorobenzene	18.46	1.0	20	0	92.3	80 - 119				
1,2-Dichloroethane	19.71	1.0	20	0	98.6	73 - 128				
1,2-Dichloropropane	18.42	1.0	20	0	92.1	78 - 122				
1,3,5-Trimethylbenzene	19.22	1.0	20	0	96.1	75 - 124				
1,3-Dichlorobenzene	18.9	1.0	20	0	94.5	80 - 119				
1,3-Dichloropropane	18.95	1.0	20	0	94.7	80 - 119				
1,4-Dichlorobenzene	18.38	1.0	20	0	91.9	79 - 118				
2,2-Dichloropropane	19.49	1.0	20	0	97.4	60 - 139				
2-Butanone	37.8	2.0	40	0	94.5	56 - 143				
2-Chlorotoluene	18.22	1.0	20	0	91.1	79 - 122				
2-Hexanone	34.79	2.0	40	0	87.0	57 - 139				
4-Chlorotoluene	18.31	1.0	20	0	91.5	78 - 122				
4-Isopropyltoluene	19.46	1.0	20	0	97.3	77 - 127				
4-Methyl-2-pentanone	35.31	2.0	40	0	88.3	67 - 130				
Acetone	34.55	2.0	40	0	86.4	39 - 160				
Benzene	18.44	1.0	20	0	92.2	79 - 120				
Bromobenzene	18.93	1.0	20	0	94.6	80 - 120				
Bromochloromethane	19.61	1.0	20	0	98.0	78 - 123				
Bromodichloromethane	19.55	1.0	20	0	97.7	79 - 125				
Bromoform	19.43	1.0	20	0	97.2	66 - 130				

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200512** Units: **UG/L** Analysis Date: **12-May-2020 11:37**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582520** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	20.86	1.0	20	0	104	53 - 141				
Carbon disulfide	36.31	2.0	40	0	90.8	64 - 133				
Carbon tetrachloride	18.79	1.0	20	0	93.9	72 - 136				
Chlorobenzene	19.02	1.0	20	0	95.1	82 - 118				
Chloroethane	17.79	1.0	20	0	89.0	60 - 138				
Chloroform	19.41	1.0	20	0	97.0	79 - 124				
Chloromethane	16.8	1.0	20	0	84.0	50 - 139				
cis-1,2-Dichloroethene	19.12	1.0	20	0	95.6	78 - 123				
cis-1,3-Dichloropropene	19.06	1.0	20	0	95.3	75 - 124				
Dibromochloromethane	19.81	1.0	20	0	99.0	74 - 126				
Dibromomethane	19.61	1.0	20	0	98.1	79 - 123				
Dichlorodifluoromethane	18.52	1.0	20	0	92.6	32 - 152				
Ethylbenzene	19.18	1.0	20	0	95.9	79 - 121				
Hexachlorobutadiene	23.77	1.0	20	0	119	66 - 134				
Isopropylbenzene	19	1.0	20	0	95.0	72 - 131				
m,p-Xylene	38.39	2.0	40	0	96.0	80 - 121				
Methylene chloride	19.05	2.0	20	0	95.3	74 - 124				
Naphthalene	19.06	1.0	20	0	95.3	61 - 128				
n-Butylbenzene	19.91	1.0	20	0	99.5	75 - 128				
n-Propylbenzene	18.17	1.0	20	0	90.8	76 - 126				
o-Xylene	19.41	1.0	20	0	97.0	78 - 122				
sec-Butylbenzene	18.64	1.0	20	0	93.2	77 - 126				
Styrene	19.33	1.0	20	0	96.7	78 - 123				
tert-Butylbenzene	19.14	1.0	20	0	95.7	78 - 124				
Tetrachloroethene	19.03	1.0	20	0	95.2	74 - 129				
Toluene	19.1	1.0	20	0	95.5	80 - 121				
trans-1,2-Dichloroethene	19.3	1.0	20	0	96.5	75 - 124				
trans-1,3-Dichloropropene	19.62	1.0	20	0	98.1	73 - 127				
Trichloroethene	19.67	1.0	20	0	98.4	79 - 123				
Trichlorofluoromethane	18.51	1.0	20	0	92.5	65 - 141				
Vinyl chloride	16.9	1.0	20	0	84.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.11*	*1.0*	*50*	*0*	*100*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.36*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*49.47*	*1.0*	*50*	*0*	*98.9*	*80 - 119*				

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200512** Units: **UG/L** Analysis Date: **12-May-2020 11:37**
Client ID: Run ID: **VOA6_361452** SeqNo: **5582520** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.79*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050234-01MS** Units: **UG/L** Analysis Date: **12-May-2020 19:38**
Client ID: **35BWW10-200506** Run ID: **VOA6_361452** SeqNo: **5582539** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.75	1.0	20	0	104	78 - 124				
1,1,1-Trichloroethane	19.25	1.0	20	0	96.2	74 - 131				
1,1,2,2-Tetrachloroethane	19.41	1.0	20	0	97.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	20.36	1.0	20	0	102	70 - 136				
1,1,2-Trichloroethane	20.08	1.0	20	0	100	80 - 119				
1,1-Dichloroethane	17.62	1.0	20	0	88.1	77 - 125				
1,1-Dichloroethene	17.98	1.0	20	0	89.9	71 - 131				
1,1-Dichloropropene	19.69	1.0	20	0	98.5	78 - 125				
1,2,3-Trichlorobenzene	15.14	1.0	20	0	75.7	69 - 129				
1,2,3-Trichloropropane	19.47	1.0	20	0	97.3	73 - 122				
1,2,4-Trichlorobenzene	15.61	1.0	20	0	78.1	69 - 130				
1,2,4-Trimethylbenzene	21.76	1.0	20	0	109	76 - 124				
1,2-Dibromo-3-chloropropane	19.29	1.0	20	0	96.5	62 - 128				
1,2-Dibromoethane	20.53	1.0	20	0	103	77 - 121				
1,2-Dichlorobenzene	20.23	1.0	20	0	101	80 - 119				
1,2-Dichloroethane	20.36	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	18.83	1.0	20	0	94.2	78 - 122				
1,3,5-Trimethylbenzene	21.71	1.0	20	0	109	75 - 124				
1,3-Dichlorobenzene	21.2	1.0	20	0	106	80 - 119				
1,3-Dichloropropane	20.25	1.0	20	0	101	80 - 119				
1,4-Dichlorobenzene	20.3	1.0	20	0	102	79 - 118				
2,2-Dichloropropane	18.05	1.0	20	0	90.2	60 - 139				
2-Butanone	33.59	2.0	40	0	84.0	56 - 143				
2-Chlorotoluene	20.74	1.0	20	0	104	79 - 122				
2-Hexanone	35.9	2.0	40	0	89.7	57 - 139				
4-Chlorotoluene	20.73	1.0	20	0	104	78 - 122				
4-Isopropyltoluene	21.92	1.0	20	0	110	77 - 127				
4-Methyl-2-pentanone	36.78	2.0	40	0	91.9	67 - 130				
Acetone	25.1	2.0	40	0	62.8	39 - 160				
Benzene	19.33	1.0	20	0	96.7	79 - 120				
Bromobenzene	20.87	1.0	20	0	104	80 - 120				
Bromochloromethane	18.36	1.0	20	0	91.8	78 - 123				
Bromodichloromethane	19.5	1.0	20	0	97.5	79 - 125				
Bromoform	20.74	1.0	20	0	104	66 - 130				

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050234-01MS** Units: **UG/L** Analysis Date: **12-May-2020 19:38**
Client ID: **35BWW10-200506** Run ID: **VOA6_361452** SeqNo: **5582539** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	16.87	1.0	20	0	84.3	53 - 141				
Carbon disulfide	33.4	2.0	40	0	83.5	64 - 133				
Carbon tetrachloride	20.6	1.0	20	0	103	72 - 136				
Chlorobenzene	20.72	1.0	20	0	104	82 - 118				
Chloroethane	16.86	1.0	20	0	84.3	60 - 138				
Chloroform	18.61	1.0	20	0	93.1	79 - 124				
Chloromethane	13.71	1.0	20	0	68.6	50 - 139				
cis-1,2-Dichloroethene	18.56	1.0	20	0	92.8	78 - 123				
cis-1,3-Dichloropropene	19.01	1.0	20	0	95.1	75 - 124				
Dibromochloromethane	20.82	1.0	20	0	104	74 - 126				
Dibromomethane	19.08	1.0	20	0	95.4	79 - 123				
Dichlorodifluoromethane	11.71	1.0	20	0	58.5	32 - 152				
Ethylbenzene	21.47	1.0	20	0	107	79 - 121				
Hexachlorobutadiene	16.66	1.0	20	0	83.3	66 - 134				
Isopropylbenzene	21.89	1.0	20	0	109	72 - 131				
m,p-Xylene	41.88	2.0	40	0	105	80 - 121				
Methylene chloride	16.89	2.0	20	0	84.4	74 - 124				
Naphthalene	14.22	1.0	20	0	71.1	61 - 128				
n-Butylbenzene	21.73	1.0	20	0	109	75 - 128				
n-Propylbenzene	21.37	1.0	20	0	107	76 - 126				
o-Xylene	20.78	1.0	20	0	104	78 - 122				
sec-Butylbenzene	21.6	1.0	20	0	108	77 - 126				
Styrene	20.86	1.0	20	0	104	78 - 123				
tert-Butylbenzene	22.27	1.0	20	0	111	78 - 124				
Tetrachloroethene	22.57	1.0	20	0	113	74 - 129				
Toluene	20.94	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	19.22	1.0	20	0	96.1	75 - 124				
trans-1,3-Dichloropropene	19.56	1.0	20	0	97.8	73 - 127				
Trichloroethene	20.54	1.0	20	0.6405	99.5	79 - 123				
Trichlorofluoromethane	18.99	1.0	20	0	94.9	65 - 141				
Vinyl chloride	15	1.0	20	0	75.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*43.98*	*1.0*	*50*	*0*	*88.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.6*	*1.0*	*50*	*0*	*99.2*	*85 - 114*				
Surr: Dibromofluoromethane	*45.64*	*1.0*	*50*	*0*	*91.3*	*80 - 119*				

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20050234-01MS** Units: **UG/L** Analysis Date: **12-May-2020 19:38**
Client ID: **35BWW10-200506** Run ID: **VOA6_361452** SeqNo: **5582539** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.19*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050234-01MSD** Units: **UG/L** Analysis Date: **12-May-2020 20:02**
Client ID: **35BWW10-200506** Run ID: **VOA6_361452** SeqNo: **5582540** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.21	1.0	20	0	106	78 - 124	20.75	2.18	20	
1,1,1-Trichloroethane	18.87	1.0	20	0	94.4	74 - 131	19.25	1.97	20	
1,1,2,2-Tetrachloroethane	19.61	1.0	20	0	98.1	71 - 121	19.41	1.05	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	19.03	1.0	20	0	95.2	70 - 136	20.36	6.75	20	
1,1,2-Trichloroethane	20.62	1.0	20	0	103	80 - 119	20.08	2.64	20	
1,1-Dichloroethane	16.79	1.0	20	0	84.0	77 - 125	17.62	4.79	20	
1,1-Dichloroethene	17.66	1.0	20	0	88.3	71 - 131	17.98	1.75	20	
1,1-Dichloropropene	19.14	1.0	20	0	95.7	78 - 125	19.69	2.82	20	
1,2,3-Trichlorobenzene	18.48	1.0	20	0	92.4	69 - 129	15.14	19.9	20	
1,2,3-Trichloropropane	20.35	1.0	20	0	102	73 - 122	19.47	4.42	20	
1,2,4-Trichlorobenzene	17.87	1.0	20	0	89.3	69 - 130	15.61	13.5	20	
1,2,4-Trimethylbenzene	21.4	1.0	20	0	107	76 - 124	21.76	1.65	20	
1,2-Dibromo-3-chloropropane	19.54	1.0	20	0	97.7	62 - 128	19.29	1.28	20	
1,2-Dibromoethane	21.17	1.0	20	0	106	77 - 121	20.53	3.06	20	
1,2-Dichlorobenzene	20.86	1.0	20	0	104	80 - 119	20.23	3.1	20	
1,2-Dichloroethane	20.25	1.0	20	0	101	73 - 128	20.36	0.556	20	
1,2-Dichloropropane	18.51	1.0	20	0	92.5	78 - 122	18.83	1.76	20	
1,3,5-Trimethylbenzene	21.76	1.0	20	0	109	75 - 124	21.71	0.191	20	
1,3-Dichlorobenzene	21.12	1.0	20	0	106	80 - 119	21.2	0.342	20	
1,3-Dichloropropane	20.37	1.0	20	0	102	80 - 119	20.25	0.583	20	
1,4-Dichlorobenzene	20.29	1.0	20	0	101	79 - 118	20.3	0.0672	20	
2,2-Dichloropropane	17.4	1.0	20	0	87.0	60 - 139	18.05	3.62	20	
2-Butanone	36.93	2.0	40	0	92.3	56 - 143	33.59	9.47	20	
2-Chlorotoluene	20.42	1.0	20	0	102	79 - 122	20.74	1.56	20	
2-Hexanone	35.98	2.0	40	0	89.9	57 - 139	35.9	0.21	20	
4-Chlorotoluene	20.5	1.0	20	0	102	78 - 122	20.73	1.12	20	
4-Isopropyltoluene	22.16	1.0	20	0	111	77 - 127	21.92	1.09	20	
4-Methyl-2-pentanone	37.73	2.0	40	0	94.3	67 - 130	36.78	2.56	20	
Acetone	26.47	2.0	40	0	66.2	39 - 160	25.1	5.29	20	
Benzene	18.72	1.0	20	0	93.6	79 - 120	19.33	3.25	20	
Bromobenzene	20.86	1.0	20	0	104	80 - 120	20.87	0.0491	20	
Bromochloromethane	18.29	1.0	20	0	91.5	78 - 123	18.36	0.376	20	
Bromodichloromethane	19.37	1.0	20	0	96.8	79 - 125	19.5	0.682	20	
Bromoform	20.45	1.0	20	0	102	66 - 130	20.74	1.41	20	

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050234-01MSD** Units: **UG/L** Analysis Date: **12-May-2020 20:02**
Client ID: **35BWW10-200506** Run ID: **VOA6_361452** SeqNo: **5582540** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	16.43	1.0	20	0	82.2	53 - 141	16.87	2.6	20	
Carbon disulfide	32.26	2.0	40	0	80.6	64 - 133	33.4	3.46	20	
Carbon tetrachloride	19.78	1.0	20	0	98.9	72 - 136	20.6	4.07	20	
Chlorobenzene	20.5	1.0	20	0	102	82 - 118	20.72	1.06	20	
Chloroethane	15.62	1.0	20	0	78.1	60 - 138	16.86	7.59	20	
Chloroform	18.13	1.0	20	0	90.6	79 - 124	18.61	2.63	20	
Chloromethane	13.23	1.0	20	0	66.2	50 - 139	13.71	3.56	20	
cis-1,2-Dichloroethene	18.23	1.0	20	0	91.2	78 - 123	18.56	1.76	20	
cis-1,3-Dichloropropene	19.07	1.0	20	0	95.3	75 - 124	19.01	0.27	20	
Dibromochloromethane	20.58	1.0	20	0	103	74 - 126	20.82	1.13	20	
Dibromomethane	19.14	1.0	20	0	95.7	79 - 123	19.08	0.299	20	
Dichlorodifluoromethane	11.37	1.0	20	0	56.9	32 - 152	11.71	2.89	20	
Ethylbenzene	21.13	1.0	20	0	106	79 - 121	21.47	1.62	20	
Hexachlorobutadiene	20.13	1.0	20	0	101	66 - 134	16.66	18.8	20	
Isopropylbenzene	21.2	1.0	20	0	106	72 - 131	21.89	3.18	20	
m,p-Xylene	41.44	2.0	40	0	104	80 - 121	41.88	1.07	20	
Methylene chloride	16.79	2.0	20	0	83.9	74 - 124	16.89	0.578	20	
Naphthalene	17.68	1.0	20	0	88.4	61 - 128	14.22	21.7	20	R
n-Butylbenzene	21.86	1.0	20	0	109	75 - 128	21.73	0.602	20	
n-Propylbenzene	21.02	1.0	20	0	105	76 - 126	21.37	1.64	20	
o-Xylene	20.78	1.0	20	0	104	78 - 122	20.78	0.0284	20	
sec-Butylbenzene	21.63	1.0	20	0	108	77 - 126	21.6	0.146	20	
Styrene	20.76	1.0	20	0	104	78 - 123	20.86	0.473	20	
tert-Butylbenzene	21.88	1.0	20	0	109	78 - 124	22.27	1.75	20	
Tetrachloroethene	21.78	1.0	20	0	109	74 - 129	22.57	3.58	20	
Toluene	20.64	1.0	20	0	103	80 - 121	20.94	1.45	20	
trans-1,2-Dichloroethene	18.44	1.0	20	0	92.2	75 - 124	19.22	4.15	20	
trans-1,3-Dichloropropene	19.18	1.0	20	0	95.9	73 - 127	19.56	1.96	20	
Trichloroethene	20.13	1.0	20	0.6405	97.4	79 - 123	20.54	2.04	20	
Trichlorofluoromethane	18.14	1.0	20	0	90.7	65 - 141	18.99	4.57	20	
Vinyl chloride	14.43	1.0	20	0	72.1	58 - 137	15	3.91	20	
Surr: 1,2-Dichloroethane-d4	*45.01*	*1.0*	*50*	*0*	*90.0*	*81 - 118*	*43.98*	*2.31*	*20*	
Surr: 4-Bromofluorobenzene	*50.18*	*1.0*	*50*	*0*	*100*	*85 - 114*	*49.6*	*1.16*	*20*	
Surr: Dibromofluoromethane	*46.04*	*1.0*	*50*	*0*	*92.1*	*80 - 119*	*45.64*	*0.86*	*20*	

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20050234-01MSD** Units: **UG/L** Analysis Date: **12-May-2020 20:02**
Client ID: **35BWW10-200506** Run ID: **VOA6_361452** SeqNo: **5582540** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.86*	*1.0*	*50*	*0*	*108*	*89 - 112*	*53.19*	*1.24*	*20*	

The following samples were analyzed in this batch:

HS20050234-01	HS20050234-02	HS20050234-03	HS20050234-04
HS20050234-05	HS20050234-06	HS20050234-07	HS20050234-08
HS20050234-09	HS20050234-10	HS20050234-11	

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361488 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-050720** Units: **mg/L** Analysis Date: **08-May-2020 07:47**
Client ID: Run ID: **ICS-Integrion_361488** SeqNo: **5583327** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **WLCSW1-050720** Units: **mg/L** Analysis Date: **08-May-2020 08:05**
Client ID: Run ID: **ICS-Integrion_361488** SeqNo: **5583328** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.78	0.500	20	0	98.9	80 - 120				
Nitrogen, Nitrate (As N)	4.104	0.100	4	0	103	80 - 120				
Sulfate	19.53	0.500	20	0	97.7	80 - 120				

LCSD Sample ID: **WLCSDW1-050720** Units: **mg/L** Analysis Date: **08-May-2020 08:24**
Client ID: Run ID: **ICS-Integrion_361488** SeqNo: **5583329** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.75	0.500	20	0	98.7	80 - 120	19.78	0.162	20	
Nitrogen, Nitrate (As N)	4.09	0.100	4	0	102	80 - 120	4.104	0.354	20	
Sulfate	19.54	0.500	20	0	97.7	80 - 120	19.53	0.0276	20	

MS Sample ID: **HS20050230-01MS** Units: **mg/L** Analysis Date: **07-May-2020 21:32**
Client ID: Run ID: **ICS-Integrion_361488** SeqNo: **5583309** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	41.62	0.500	10	32	96.2	80 - 120				
Nitrogen, Nitrate (As N)	2.696	0.100	2	0.5868	105	80 - 120				
Sulfate	29.57	0.500	10	19.72	98.5	80 - 120				

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: HS20050234

QC BATCH REPORT

Batch ID: R361488 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20050230-01MSD** Units: **mg/L** Analysis Date: **07-May-2020 21:50**
Client ID: Run ID: **ICS-Integrion_361488** SeqNo: **5583310** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	41.17	0.500	10	32	91.8	80 - 120	41.62	1.07	20	
Nitrogen, Nitrate (As N)	2.567	0.100	2	0.5868	99.0	80 - 120	2.696	4.91	20	
Sulfate	28.98	0.500	10	19.72	92.7	80 - 120	29.57	2	20	

The following samples were analyzed in this batch: HS20050234-06 HS20050234-07 HS20050234-08 HS20050234-09 HS20050234-10

ALS Houston, US Date: 21-May-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant
WorkOrder: **HS20050234**

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
Dept of Defense	ANAB L2231 V009	22-Dec-2021
Florida	E87611-28	30-Jun-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2020	31-Dec-2020
Oklahoma	2019-141	31-Aug-2020
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 21-May-20

Sample Receipt Checklist

Work Order ID: HS20050234 **Date/Time Received:** 07-May-2020 09:05

Client Name: CBI-Houston **Received by:** Paresh M. Giga

Completed By:	/S/ Paresh M. Giga	07-May-2020 12:28	**Reviewed by:**	/S/ RJ Modashia	07-May-2020 14:23
	eSignature	Date/Time		eSignature	Date/Time

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 ☐	2 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):	1.3C U/C	IR25	
Cooler(s)/Kit(s):	Blue		
Date/Time sample(s) sent to storage:	5/7/2020 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:

CHAIN OF CUSTODY

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

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

Project No. 501032

Job: **37MAY 2020_ALS**

Prepared By: Scott Beesinger

P.O. Number

HS20050234

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175					Remarks (Preservatives, etc.)	Lab I.D.#
35BwW10-200506	WG	5/6/20/0740		3	X										
35BwW05-200506	WG	5/6/20/0825		3	X										
35BwW11-200506	WG	5/6/20/0910		3	X										
35BwW01-200506	WG	5/6/20/0955		3	X										
35BwW01-200506-FD	WG	5/6/20/0955		3	X										
35BwW26-200506	WG	5/6/20/1040		12	X	X	X	X	X						
35BwW04-200506	WG	5/6/20/1130		12	X	X	X	X	X						
35BwW12-200506	WG	5/6/20/1225		12	X	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	5/6/20	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
PG	05/07/20	09:05							

Remarks: b/UC UIC 1.03 IR25 clr-0

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: 37MAY 2020_ALS

Prepared By: Scott Beesinger

P.O. Number

HS20050234
Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant

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 (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Remarks (Preservatives, etc.)	Lab I.D.#
35BWW12-200506-FD	WG	5/6/20/1225		12	X	X	X	X	X		
35BWW08-200506	WG	5/6/20/1320		12	X	X	X	X	X		
TRIP BLANK	W	5/6/20		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	5/6/20	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
PG	05/07/20	9:05							

Remarks: blue ice 1-3 TR25 clp-0

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

Blue

CUSTODY SEAL

Date: 5/6/20 Time: 1430
Name: Scott Beesinger
Company: BHHT4

Seal Broken By: SM
Date: 05/07/20

Blue MAY 0 7 2020

Must Deliver Next Business Day
Time and Tempature Sensitive!

Blue

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

SHIP DATE: 18APR20
ACTWGT: 1.00 LB MAN
CAD: 3001307CAFE3211
DIMS: 19x16x13 IN

TO **CLIENT SERVICES**
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-37-BD.71452-RJ
RMA:

FedEx Express

FedEx
TRK# 0221 1251 0296 4935

THU - 07 MAY 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

F10 169785 06MAY20 GCGA 56BC3/2925/05A2

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

May 15, 2020

Analytical Report for Service Request No: K2003792

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

RE: ALS Houston DOD TOC / HS20050234

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory May 08, 2020
For your reference, these analyses have been assigned our service request number **K2003792.**

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

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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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
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

ALS Environmental

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

Service Request: K2003792
Date Received: 05/08/2020

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:

Five ground water samples were received for analysis at ALS Environmental on 05/08/2020. 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 Noe D. Davis Date 05/15/2020

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

K2003792

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:** **13867**

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:	HS20050234
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20050234-06**	**35BWW26-200506**	**Groundwater**	**06 May 2020 10:40**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			21 May 2020
2.	**HS20050234-07**	**35BWW04-200506**	**Groundwater**	**06 May 2020 11:30**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			21 May 2020
3.	**HS20050234-08**	**35BWW12-200506**	**Groundwater**	**06 May 2020 12:25**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			21 May 2020
4.	**HS20050234-09**	**35BWW12-200506-FD**	**Groundwater**	**06 May 2020 12:25**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			21 May 2020
5.	**HS20050234-10**	**35BWW08-200506**	**Groundwater**	**06 May 2020 13:20**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			21 May 2020

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

QC Level: DOD IV (DoD Data Package)

K2005792

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13867**

Relinquished By: J. Jumonville Date/Time: 5/7/20 18:00

Received By: Date/Time: 5/8/20 1000

Cooler ID(s): Temperature(s):

PC KL

Cooler Receipt and Preservation Form

Client AIR - HOUSTON Service Request K20 03792

Received: 5/18/20 Opened: 5/18/20 By: BR Unloaded: 5/18/20 By: BR

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

Temp Blank	Sample 1	Sample 2	Sample 3	Sample 4	IR GUN	Cooler / COC ID NA	Tracking Number NA	Filed
-	3.2	3.4	3.6	3.3	489004BB		1Z51D3968410	

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA Y N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2003792
Project:	ALS Houston DOD TOC/HS20050234	**Date Collected:**	05/6/20
Sample Matrix:	Ground Water	**Date Received:**	05/8/20
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
35BWW26-200506	K2003792-001	**2.14**	0.50	0.20	0.07	1	05/13/20 06:19	
35BWW04-200506	K2003792-002	**1.96**	0.50	0.20	0.07	1	05/13/20 06:47	
35BWW12-200506	K2003792-003	**1.40**	0.50	0.20	0.07	1	05/13/20 07:15	
35BWW12-200506-FD	K2003792-004	**1.25**	0.50	0.20	0.07	1	05/13/20 07:43	
35BWW08-200506	K2003792-005	**1.14**	0.50	0.20	0.07	1	05/13/20 09:10	
Method Blank	K2003792-MB	ND U	0.50	0.20	0.07	1	05/12/20 23:41	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2003792
Project	ALS Houston DOD TOC/HS20050234	**Date Collected:**	05/06/20
Sample Matrix:	Ground Water	**Date Received:**	05/08/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	MRL	LOQ	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
35BWW26-200506	K2003792-001DUP	0.50	0.20	0.07	2.14	1.48	1.81	37 #	10	05/13/20
35BWW04-200506	K2003792-002DUP	0.50	0.20	0.07	1.96	1.87	1.92	5	10	05/13/20
35BWW12-200506	K2003792-003DUP	0.50	0.20	0.07	1.40	1.27	1.33	10	10	05/13/20
35BWW12-200506-FD	K2003792-004DUP	0.50	0.20	0.07	1.25	1.18	1.21	6	10	05/13/20
35BWW08-200506	K2003792-005DUP	0.50	0.20	0.07	1.14	1.01	1.07	12 #	10	05/13/20

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:**	K2003792
Project:	ALS Houston DOD TOC/HS20050234	**Date Analyzed:**	05/12/20
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:	679905

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2003792-LCS	25.5	25.0	102	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2003792
Project: ALS Houston DOD TOC/HS20050234

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	679905	KQ2006459-01	05/12/20 23:11	25.0	26.0	104	90-110
CCV2	679905	KQ2006459-02	05/13/20 03:00	25.0	25.9	104	90-110
CCV3	679905	KQ2006459-03	05/13/20 08:11	25.0	25.8	103	90-110
CCV4	679905	KQ2006459-04	05/13/20 12:54	25.0	26.0	104	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K2003792
Project: ALS Houston DOD TOC/HS20050234

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	679905	KQ2006459-05	05/12/20 23:26	0.50	0.20	0.07	0.09	J
CCB2	679905	KQ2006459-06	05/13/20 03:16	0.50	0.20	0.07	ND	U
CCB3	679905	KQ2006459-07	05/13/20 08:26	0.50	0.20	0.07	0.15	J
CCB4	679905	KQ2006459-08	05/13/20 13:09	0.50	0.20	0.07	ND	U

Raw Data

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

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636-1 068
www.alsglobal.com

Work Request # Original ( ) K2003631, 3711, 3723, 3737, 3742, 3746, 3791, 3792, 3793, 3814, 3842

Tier: IV II I II II II IV IV IV IV II

Date Analyzed: 5/12/20 TOC: 629905, 629906

Analyst: BCP Run # POC: 629907

Analysis: TOC/POC

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 Blanks 5/14/20
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: K2003737-MB, 3792-1, 3792-5, 3814-1, 3814-2, 3814-3, 3842-10, 3842-4, 3842-5, 3842-6, 3842-7 and respective dups report a high %RSD. However, these samples are less than 5x the MRL.

Final Approved by: _____ Date: 5/14/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 679905 **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
K2003631-010	Carbon, Total Organic	N/A		Water	0.05 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 10:06:00	N	IV
K2003711-001	Carbon, Total Organic	N/A		Drinking Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50			5/13/20 00:39:00	N	II
K2003723-001	Carbon, Total Organic	N/A		Water	5.89 mg/L	10 mL	589 mg/L	100	7	50			5/13/20 02:04:00	N	I
K2003737-001	Carbon, Total Organic	N/A		Drinking Water	0.73 mg/L	10 mL	0.73 mg/L	1	0.07	0.50			5/13/20 02:32:00	N	II
K2003742-001	Carbon, Total Organic	N/A		Water	6.84 mg/L	10 mL	6.84 mg/L	1	0.07	0.50			5/13/20 01:36:00	N	II
K2003746-001	Carbon, Total Organic	N/A		Water	2.22 mg/L	10 mL	2.22 mg/L	1	0.07	0.50			5/13/20 03:30:00	N	II
K2003791-001	Carbon, Total Organic	N/A		Ground Water	2.64 mg/L	10 mL	2.64 mg/L	1	0.07	0.50			5/13/20 03:59:00	N	IV
K2003791-002	Carbon, Total Organic	N/A		Ground Water	16.72 mg/L	10 mL	334 mg/L	20	2	10			5/13/20 04:27:00	N	IV
K2003791-003	Carbon, Total Organic	N/A		Ground Water	4.37 mg/L	10 mL	4.37 mg/L	1	0.07	0.50			5/13/20 04:55:00	N	IV
K2003791-004	Carbon, Total Organic	N/A		Ground Water	4.52 mg/L	10 mL	4.52 mg/L	1	0.07	0.50			5/13/20 05:23:00	N	IV
K2003791-005	Carbon, Total Organic	N/A		Ground Water	24.99 mg/L	10 mL	25.0 mg/L	1	0.07	0.50			5/13/20 05:51:00	N	IV
K2003792-001	Carbon, Total Organic	N/A		Ground Water	2.14 mg/L	10 mL	2.14 mg/L	1	0.07	0.50			5/13/20 06:19:00	N	IV
K2003792-002	Carbon, Total Organic	N/A		Ground Water	1.96 mg/L	10 mL	1.96 mg/L	1	0.07	0.50			5/13/20 06:47:00	N	IV
K2003792-003	Carbon, Total Organic	N/A		Ground Water	1.40 mg/L	10 mL	1.40 mg/L	1	0.07	0.50			5/13/20 07:15:00	N	IV
K2003792-004	Carbon, Total Organic	N/A		Ground Water	1.25 mg/L	10 mL	1.25 mg/L	1	0.07	0.50			5/13/20 07:43:00	N	IV
K2003792-005	Carbon, Total Organic	N/A		Ground Water	1.14 mg/L	10 mL	1.14 mg/L	1	0.07	0.50			5/13/20 09:10:00	N	IV
K2003793-001	Carbon, Total Organic	N/A		Water	2.34 mg/L	10 mL	2.34 mg/L	1	0.07	0.50			5/13/20 09:38:00	N	IV
K2003814-001	Carbon, Total Organic	N/A		Water	0.42 mg/L	10 mL	0.42 mg/L J	1	0.07	0.50			5/13/20 10:34:00	N	IV
K2003814-002	Carbon, Total Organic	N/A		Water	0.40 mg/L	10 mL	0.40 mg/L J	1	0.07	0.50			5/13/20 11:02:00	N	IV
K2003814-003	Carbon, Total Organic	N/A		Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50			5/13/20 11:30:00	N	IV
KQ2006459-01	Carbon, Total Organic	CCV		Drinking Water	26.03 mg/L	10 mL	26.0 mg/L	1					5/12/20 23:11:00	N	II
KQ2006459-02	Carbon, Total Organic	CCV		Drinking Water	25.90 mg/L	10 mL	25.9 mg/L	1					5/13/20 03:00:00	N	II
KQ2006459-03	Carbon, Total Organic	CCV		Drinking Water	25.77 mg/L	10 mL	25.8 mg/L	1					5/13/20 08:11:00	N	II
KQ2006459-04	Carbon, Total Organic	CCV		Drinking Water	26.05 mg/L	10 mL	26.0 mg/L	1					5/13/20 12:54:00	N	II
KQ2006459-05	Carbon, Total Organic	CCB		Drinking Water	0.09 mg/L	10 mL	0.09 mg/L J	1	0.07	0.50			5/12/20 23:26:00	N	II
KQ2006459-06	Carbon, Total Organic	CCB		Drinking Water	0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 03:16:00	N	II
KQ2006459-07	Carbon, Total Organic	CCB		Drinking Water	0.15 mg/L	10 mL	0.15 mg/L J	1	0.07	0.50			5/13/20 08:26:00	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:** 679905 **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
KQ2006459-08	Carbon, Total Organic	CCB		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 13:09:00	N	II
KQ2006459-09	Carbon, Total Organic	MB		Drinking Water	0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/12/20 23:41:00	N	II
KQ2006459-10	Carbon, Total Organic	LCS		Drinking Water	25.46 mg/L	10 mL	25.5 mg/L	1	0.07	0.50	102		5/12/20 23:55:00	N	II
KQ2006459-11	Carbon, Total Organic	MS	K2003711-001	Drinking Water	26.26 mg/L	10 mL	26.3 mg/L	1	0.07	0.50	103		5/13/20 01:07:00	N	II
KQ2006459-12	Carbon, Total Organic	DUP	K2003631-010	Water	0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/13/20 10:06:00	N	IV
KQ2006459-13	Carbon, Total Organic	DUP	K2003711-001	Drinking Water	0.57 mg/L	10 mL	0.57 mg/L	1	0.07	0.50		<1	5/13/20 00:39:00	N	II
KQ2006459-14	Carbon, Total Organic	DUP	K2003723-001	Water	6.19 mg/L	10 mL	619 mg/L	100	7	50		5	5/13/20 02:04:00	N	I
KQ2006459-15	Carbon, Total Organic	DUP	K2003737-001	Drinking Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		23*	5/13/20 02:32:00	N	II
KQ2006459-16	Carbon, Total Organic	DUP	K2003742-001	Water	6.87 mg/L	10 mL	6.87 mg/L	1	0.07	0.50		<1	5/13/20 01:36:00	N	II
KQ2006459-17	Carbon, Total Organic	DUP	K2003746-001	Water	2.10 mg/L	10 mL	2.10 mg/L	1	0.07	0.50		5	5/13/20 03:30:00	N	II
KQ2006459-18	Carbon, Total Organic	DUP	K2003791-002	Ground Water	17.08 mg/L	10 mL	342 mg/L	20	2	10		2	5/13/20 04:27:00	N	IV
KQ2006459-19	Carbon, Total Organic	DUP	K2003791-001	Ground Water	2.51 mg/L	10 mL	2.51 mg/L	1	0.07	0.50		5	5/13/20 03:59:00	N	IV
KQ2006459-20	Carbon, Total Organic	DUP	K2003791-003	Ground Water	4.37 mg/L	10 mL	4.37 mg/L	1	0.07	0.50		<1	5/13/20 04:55:00	N	IV
KQ2006459-21	Carbon, Total Organic	DUP	K2003791-004	Ground Water	4.29 mg/L	10 mL	4.29 mg/L	1	0.07	0.50		5	5/13/20 05:23:00	N	IV
KQ2006459-22	Carbon, Total Organic	DUP	K2003791-005	Ground Water	25.28 mg/L	10 mL	25.3 mg/L	1	0.07	0.50		1	5/13/20 05:51:00	N	IV
KQ2006459-23	Carbon, Total Organic	DUP	K2003792-002	Ground Water	1.87 mg/L	10 mL	1.87 mg/L	1	0.07	0.50		5	5/13/20 06:47:00	N	IV
KQ2006459-24	Carbon, Total Organic	DUP	K2003792-001	Ground Water	1.48 mg/L	10 mL	1.48 mg/L	1	0.07	0.50		37*	5/13/20 06:19:00	N	IV
KQ2006459-25	Carbon, Total Organic	DUP	K2003792-003	Ground Water	1.27 mg/L	10 mL	1.27 mg/L	1	0.07	0.50		10	5/13/20 07:15:00	N	IV
KQ2006459-26	Carbon, Total Organic	DUP	K2003792-004	Ground Water	1.18 mg/L	10 mL	1.18 mg/L	1	0.07	0.50		6	5/13/20 07:43:00	N	IV
KQ2006459-27	Carbon, Total Organic	DUP	K2003792-005	Ground Water	1.01 mg/L	10 mL	1.01 mg/L	1	0.07	0.50		12*	5/13/20 09:10:00	N	IV
KQ2006459-28	Carbon, Total Organic	DUP	K2003793-001	Water	2.37 mg/L	10 mL	2.37 mg/L	1	0.07	0.50		1	5/13/20 09:38:00	N	IV
KQ2006459-29	Carbon, Total Organic	DUP	K2003814-001	Water	0.38 mg/L	10 mL	0.38 mg/L J	1	0.07	0.50		11*	5/13/20 10:34:00	N	IV
KQ2006459-30	Carbon, Total Organic	DUP	K2003814-002	Water	0.34 mg/L	10 mL	0.34 mg/L J	1	0.07	0.50		15*	5/13/20 11:02:00	N	IV
KQ2006459-31	Carbon, Total Organic	DUP	K2003814-003	Water	0.35 mg/L	10 mL	0.35 mg/L J	1	0.07	0.50		15*	5/13/20 11:30:00	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:** 679906 **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
K2003842-001	Carbon, Total Organic	N/A		Water	1.82 mg/L	10 mL	1.82 mg/L	1	0.07	0.50			5/13/20 11:58:00	N	II
K2003842-002	Carbon, Total Organic	N/A		Water	1.08 mg/L	10 mL	1.08 mg/L	1	0.07	0.50			5/13/20 12:26:00	N	II
K2003842-003	Carbon, Total Organic	N/A		Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50			5/13/20 13:24:00	N	II
K2003842-004	Carbon, Total Organic	N/A		Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50			5/13/20 13:52:00	N	II
K2003842-005	Carbon, Total Organic	N/A		Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50			5/13/20 14:20:00	N	II
K2003842-006	Carbon, Total Organic	N/A		Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50			5/13/20 14:48:00	N	II
K2003842-007	Carbon, Total Organic	N/A		Water	0.43 mg/L	10 mL	0.43 mg/L J	1	0.07	0.50			5/13/20 15:16:00	N	II
K2003842-008	Carbon, Total Organic	N/A		Water	0.59 mg/L	10 mL	0.59 mg/L	1	0.07	0.50			5/13/20 15:44:00	N	II
K2003842-009	Carbon, Total Organic	N/A		Water	0.71 mg/L	10 mL	0.71 mg/L	1	0.07	0.50			5/13/20 16:12:00	N	II
K2003842-010	Carbon, Total Organic	N/A		Water	0.18 mg/L	10 mL	0.18 mg/L J	1	0.07	0.50			5/13/20 16:40:00	N	II
K2003842-011	Carbon, Total Organic	N/A		Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50			5/13/20 17:08:00	N	II
K2003842-012	Carbon, Total Organic	N/A		Water	0.81 mg/L	10 mL	0.81 mg/L	1	0.07	0.50			5/13/20 18:50:00	N	II
K2003842-013	Carbon, Total Organic	N/A		Water	0.96 mg/L	10 mL	0.96 mg/L	1	0.07	0.50			5/13/20 19:18:00	N	II
K2003842-014	Carbon, Total Organic	N/A		Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50			5/13/20 19:46:00	N	II
K2003842-015	Carbon, Total Organic	N/A		Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50			5/13/20 20:15:00	N	II
KQ2006460-01	Carbon, Total Organic	CCV		Water	25.77 mg/L	10 mL	25.8 mg/L	1					5/13/20 08:11:00	N	II
KQ2006460-02	Carbon, Total Organic	CCV		Water	26.05 mg/L	10 mL	26.0 mg/L	1					5/13/20 12:54:00	N	II
KQ2006460-03	Carbon, Total Organic	CCV		Water	25.97 mg/L	10 mL	26.0 mg/L	1					5/13/20 18:06:00	N	II
KQ2006460-04	Carbon, Total Organic	CCV		Water	25.18 mg/L	10 mL	25.2 mg/L	1					5/13/20 22:08:00	N	II
KQ2006460-05	Carbon, Total Organic	CCB		Water	0.15 mg/L	10 mL	0.15 mg/L J	1	0.07	0.50			5/13/20 08:26:00	N	II
KQ2006460-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 13:09:00	N	II
KQ2006460-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 18:21:00	N	II
KQ2006460-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 22:23:00	N	II
KQ2006460-09	Carbon, Total Organic	MB		Water	0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 08:41:00	N	II
KQ2006460-10	Carbon, Total Organic	LCS		Water	25.27 mg/L	10 mL	25.3 mg/L	1	0.07	0.50	101		5/13/20 08:55:00	N	II
KQ2006460-11	Carbon, Total Organic	MS	K2003842-011	Water	26.42 mg/L	10 mL	26.4 mg/L	1	0.07	0.50	103		5/13/20 17:37:00	N	II
KQ2006460-12	Carbon, Total Organic	DUP	K2003842-015	Water	0.39 mg/L	10 mL	0.39 mg/L J	1	0.07	0.50		7	5/13/20 20:15:00	N	II
KQ2006460-13	Carbon, Total Organic	DUP	K2003842-001	Water	1.81 mg/L	10 mL	1.81 mg/L	1	0.07	0.50		<1	5/13/20 11:58:00	N	II
KQ2006460-14	Carbon, Total Organic	DUP	K2003842-002	Water	1.07 mg/L	10 mL	1.07 mg/L	1	0.07	0.50		<1	5/13/20 12:26:00	N	II
KQ2006460-15	Carbon, Total Organic	DUP	K2003842-003	Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		7	5/13/20 13:24:00	N	II
KQ2006460-16	Carbon, Total Organic	DUP	K2003842-004	Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		7	5/13/20 13:52:00	N	II
KQ2006460-17	Carbon, Total Organic	DUP	K2003842-005	Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50		5	5/13/20 14:20:00	N	II
KQ2006460-18	Carbon, Total Organic	DUP	K2003842-006	Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50		<1	5/13/20 14:48:00	N	II
KQ2006460-19	Carbon, Total Organic	DUP	K2003842-007	Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50		5	5/13/20 15:16:00	N	II
KQ2006460-20	Carbon, Total Organic	DUP	K2003842-008	Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50		5	5/13/20 15:44:00	N	II
KQ2006460-21	Carbon, Total Organic	DUP	K2003842-009	Water	0.69 mg/L	10 mL	0.69 mg/L	1	0.07	0.50		3	5/13/20 16:12:00	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:** 679906 **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
KQ2006460-22	Carbon, Total Organic	DUP	K2003842-010	Water	0.13 mg/L	10 mL	0.13 mg/L J	1	0.07	0.50		34*	5/13/20 16:40:00	N	II
KQ2006460-23	Carbon, Total Organic	DUP	K2003842-011	Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		7	5/13/20 17:08:00	N	II
KQ2006460-24	Carbon, Total Organic	DUP	K2003842-012	Water	0.75 mg/L	10 mL	0.75 mg/L	1	0.07	0.50		8	5/13/20 18:50:00	N	II
KQ2006460-25	Carbon, Total Organic	DUP	K2003842-013	Water	0.91 mg/L	10 mL	0.91 mg/L	1	0.07	0.50		5	5/13/20 19:18:00	N	II
KQ2006460-26	Carbon, Total Organic	DUP	K2003842-014	Water	0.44 mg/L	10 mL	0.44 mg/L J	1	0.07	0.50		4	5/13/20 19:46:00	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:** 679907 **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
K2003842-001	Carbon, Dissolved Organic (DOC)	N/A		Water	1.24 mg/L	10 mL	1.24 mg/L	1	0.07	0.50			5/13/20 21:11:00	N	II
K2003842-002	Carbon, Dissolved Organic (DOC)	N/A		Water	0.71 mg/L	10 mL	0.71 mg/L	1	0.07	0.50			5/13/20 22:37:00	N	II
K2003842-003	Carbon, Dissolved Organic (DOC)	N/A		Water	0.33 mg/L	10 mL	0.33 mg/L J	1	0.07	0.50			5/13/20 23:06:00	N	II
K2003842-004	Carbon, Dissolved Organic (DOC)	N/A		Water	0.31 mg/L	10 mL	0.31 mg/L J	1	0.07	0.50			5/13/20 23:34:00	N	II
K2003842-005	Carbon, Dissolved Organic (DOC)	N/A		Water	0.34 mg/L	10 mL	0.34 mg/L J	1	0.07	0.50			5/14/20 00:02:00	N	II
K2003842-006	Carbon, Dissolved Organic (DOC)	N/A		Water	0.28 mg/L	10 mL	0.28 mg/L J	1	0.07	0.50			5/14/20 00:30:00	N	II
K2003842-007	Carbon, Dissolved Organic (DOC)	N/A		Water	0.14 mg/L	10 mL	0.14 mg/L J	1	0.07	0.50			5/14/20 00:58:00	N	II
K2003842-008	Carbon, Dissolved Organic (DOC)	N/A		Water	0.37 mg/L	10 mL	0.37 mg/L J	1	0.07	0.50			5/14/20 01:26:00	N	II
K2003842-009	Carbon, Dissolved Organic (DOC)	N/A		Water	0.40 mg/L	10 mL	0.40 mg/L J	1	0.07	0.50			5/14/20 01:54:00	N	II
K2003842-010	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 02:22:00	N	II
K2003842-011	Carbon, Dissolved Organic (DOC)	N/A		Water	0.45 mg/L	10 mL	0.45 mg/L J	1	0.07	0.50			5/14/20 02:50:00	N	II
K2003842-012	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 03:48:00	N	II
K2003842-013	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 04:16:00	N	II
K2003842-014	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 04:44:00	N	II
K2003842-015	Carbon, Dissolved Organic (DOC)	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 05:12:00	N	II
KQ2006461-01	Carbon, Dissolved Organic (DOC)	CCV		Water	25.97 mg/L	10 mL	26.0 mg/L	1					5/13/20 17:52:00	N	II
KQ2006461-02	Carbon, Dissolved Organic (DOC)	CCV		Water	25.18 mg/L	10 mL	25.2 mg/L	1					5/13/20 22:08:00	N	II
KQ2006461-03	Carbon, Dissolved Organic (DOC)	CCV		Water	24.88 mg/L	10 mL	24.9 mg/L	1					5/14/20 03:33:00	N	II
KQ2006461-04	Carbon, Dissolved Organic (DOC)	CCV		Water	24.56 mg/L	10 mL	24.6 mg/L	1					5/14/20 05:40:00	N	II
KQ2006461-05	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 18:06:00	N	II
KQ2006461-06	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/13/20 22:23:00	N	II
KQ2006461-07	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 03:48:00	N	II
KQ2006461-08	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 05:55:00	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:** 679907 **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
KQ2006461-09	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/14/20 18:21:00	N	II
KQ2006461-10	Carbon, Dissolved Organic (DOC)	LCS		Water	25.22 mg/L	10 mL	25.2 mg/L	1	0.07	0.50	101		5/14/20 18:36:00	N	II
KQ2006461-11	Carbon, Dissolved Organic (DOC)	MS	K2003842-001	Water	26.67 mg/L	10 mL	26.7 mg/L	1	0.07	0.50	102		5/13/20 21:39:00	N	II
KQ2006461-12	Carbon, Dissolved Organic (DOC)	DUP	K2003842-015	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/14/20 05:12:00	N	II
KQ2006461-13	Carbon, Dissolved Organic (DOC)	DUP	K2003842-001	Water	1.20 mg/L	10 mL	1.20 mg/L	1	0.07	0.50		3	5/13/20 21:11:00	N	II
KQ2006461-14	Carbon, Dissolved Organic (DOC)	DUP	K2003842-002	Water	0.68 mg/L	10 mL	0.68 mg/L	1	0.07	0.50		4	5/13/20 22:37:00	N	II
KQ2006461-15	Carbon, Dissolved Organic (DOC)	DUP	K2003842-003	Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50		9	5/13/20 23:06:00	N	II
KQ2006461-16	Carbon, Dissolved Organic (DOC)	DUP	K2003842-004	Water	0.27 mg/L	10 mL	0.27 mg/L J	1	0.07	0.50		14*	5/13/20 23:34:00	N	II
KQ2006461-17	Carbon, Dissolved Organic (DOC)	DUP	K2003842-005	Water	0.27 mg/L	10 mL	0.27 mg/L J	1	0.07	0.50		23*	5/14/20 00:02:00	N	II
KQ2006461-18	Carbon, Dissolved Organic (DOC)	DUP	K2003842-006	Water	0.25 mg/L	10 mL	0.25 mg/L J	1	0.07	0.50		12*	5/14/20 00:30:00	N	II
KQ2006461-19	Carbon, Dissolved Organic (DOC)	DUP	K2003842-007	Water	0.16 mg/L	10 mL	0.16 mg/L J	1	0.07	0.50		12*	5/14/20 00:58:00	N	II
KQ2006461-20	Carbon, Dissolved Organic (DOC)	DUP	K2003842-008	Water	0.36 mg/L	10 mL	0.36 mg/L J	1	0.07	0.50		3	5/14/20 01:26:00	N	II
KQ2006461-21	Carbon, Dissolved Organic (DOC)	DUP	K2003842-009	Water	0.39 mg/L	10 mL	0.39 mg/L J	1	0.07	0.50		4	5/14/20 01:54:00	N	II
KQ2006461-22	Carbon, Dissolved Organic (DOC)	DUP	K2003842-010	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/14/20 02:22:00	N	II
KQ2006461-23	Carbon, Dissolved Organic (DOC)	DUP	K2003842-011	Water	0.42 mg/L	10 mL	0.42 mg/L J	1	0.07	0.50		5	5/14/20 02:50:00	N	II
KQ2006461-24	Carbon, Dissolved Organic (DOC)	DUP	K2003842-012	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/14/20 03:48:00	N	II
KQ2006461-25	Carbon, Dissolved Organic (DOC)	DUP	K2003842-013	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/14/20 04:16:00	N	II
KQ2006461-26	Carbon, Dissolved Organic (DOC)	DUP	K2003842-014	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/14/20 04:44:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	26.246	0.2169	26.0292	26.02924	26.0	5/12/2020
3	ccb	1	0.306	0.2169	0.0893	0.08934	<0.5	5/12/2020
4	mb	1	0.251	0.2169	0.0337	0.03374	<0.5	5/12/2020
5	lcs	1	25.675	0.2169	25.4577	25.45774	25.5	5/12/2020
6	K2003711-001	1	0.791	0.2169	0.5742	0.57424	0.57	5/13/2020
7	K2003711-001	1	0.788	0.2169	0.5707	0.57074	0.6	5/13/2020
8	K2003711-001ms	1	26.474	0.2169	26.2573	26.25734	26	5/13/2020
9	K2003742-001	1	7.054	0.2169	6.8371	6.83714	6.84	5/13/2020
10	K2003742-001	1	7.087	0.2169	6.8697	6.86974	6.87	5/13/2020
11	K2003723-001	100	6.107	0.2169	5.8905	589.054	589.1	5/13/2020
12	K2003723-001	100	6.404	0.2169	6.1867	618.674	618.67	5/13/2020
13	K2003737-001	1	0.947	0.2169	0.7300	0.73004	0.73	5/13/2020
14	K2003737-001	1	0.796	0.2169	0.5787	0.57874	0.58	5/13/2020
15	ccv	1	26.117	0.2169	25.8997	25.89974	25.9	5/13/2020
16	ccb	1	0.242	0.2169	0.0250	0.02504	<0.5	5/13/2020
17	K2003746-001	1	2.433	0.2169	2.2165	2.21654	2.22	5/13/2020
18	K2003746-001	1	2.316	0.2169	2.0995	2.09954	2.1	5/13/2020
19	K2003791-001	1	2.857	0.2169	2.6398	2.63984	2.6	5/13/2020
20	K2003791-001	1	2.728	0.2169	2.5109	2.51094	2.51	5/13/2020
21	K2003791-002	20	16.934	0.2169	16.7174	334.3488	334.35	5/13/2020
22	K2003791-002	20	17.298	0.2169	17.0808	341.6168	341.6	5/13/2020
23	K2003791-003	1	4.588	0.2169	4.3706	4.37064	4.4	5/13/2020
24	K2003791-003	1	4.588	0.2169	4.3712	4.37124	4.37	5/13/2020
25	K2003791-004	1	4.735	0.2169	4.5185	4.51854	4.52	5/13/2020

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: KP	Date Analyzed	5/12/20	
Reviewed By:	Date Reviewed	5/14/20	

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	
26	K2003791-004	1	4.506	0.2169	4.2891	4.28914	4.29	5/13/2020
27	K2003791-005	1	25.209	0.2169	24.9917	24.99174	24.99	5/13/2020
28	K2003791-005	1	25.496	0.2169	25.2794	25.27944	25.3	5/13/2020
29	K2003792-001	1	2.361	0.2169	2.1438	2.14384	2.1	5/13/2020
30	K2003792-001	1	1.697	0.2169	1.4797	1.47974	1.5	5/13/2020
31	K2003792-002	1	2.180	0.2169	1.9627	1.96274	2.0	5/13/2020
32	K2003792-002	1	2.087	0.2169	1.8704	1.87044	1.9	5/13/2020
33	K2003792-003	1	1.614	0.2169	1.3968	1.39684	1.4	5/13/2020
34	K2003792-003	1	1.486	0.2169	1.2690	1.26904	1.3	5/13/2020
35	K2003792-004	1	1.465	0.2169	1.2482	1.24824	1.2	5/13/2020
36	K2003792-004	1	1.397	0.2169	1.1798	1.17984	1.2	5/13/2020
37	ccv	1	25.990	0.2169	25.7728	25.77284	25.8	5/13/2020
38	ccb	1	0.372	0.2169	0.1549	0.15494	<0.5	5/13/2020
39	K2003792-005	1	1.353	0.2169	1.1357	1.13574	1.1	5/13/2020
40	K2003792-005	1	1.228	0.2169	1.0106	1.01064	1.0	5/13/2020
41	K2003793-001	1	2.559	0.2169	2.3419	2.34194	2.3	5/13/2020
42	K2003793-001	1	2.591	0.2169	2.3744	2.37444	2.4	5/13/2020
43	K2003631-010	1	0.267	0.2169	0.0505	0.05054	<0.5	5/13/2020
44	K2003631-010	1	0.229	0.2169	0.0124	0.01244	<0.5	5/13/2020
45	K2003814-001	1	0.636	0.2169	0.4191	0.41914	<0.5	5/13/2020
46	K2003814-001	1	0.592	0.2169	0.3750	0.37504	<0.5	5/13/2020
47	K2003814-002	1	0.618	0.2169	0.4015	0.40154	<0.5	5/13/2020
48	K2003814-002	1	0.561	0.2169	0.3439	0.34394	<0.5	5/13/2020
49	K2003814-003	1	0.624	0.2169	0.4070	0.40704	<0.5	5/13/2020
50	K2003814-003	1	0.569	0.2169	0.3518	0.35184	<0.5	5/13/2020

Analyzed By:	BCH	Date Analyzed	5/12/20
Reviewed By:	JC	Date Reviewed	5/14/20

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	
51	ccv	1	26.263	0.2169	26.0461	26.04614	26.05	5/13/2020
52	ccb	1	0.181	0.2169	-0.0363	-0.03626	<0.5	5/13/2020
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:	BW	Date Analyzed	5/12/20
Reviewed By:	JC	Date Reviewed	5/13/20 5/14/20

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	ccv	1	25.990	0.2169	25.7728	25.77284	25.8	5/13/2020
3	ccb	1	0.372	0.2169	0.1549	0.15494	<0.5	5/13/2020
4	mb	1	0.251	0.2169	0.0344	0.03444	<0.5	5/13/2020
5	lcs	1	25.492	0.2169	25.2747	25.27474	25.3	5/13/2020
6	K2003842-001	1	2.041	0.2169	1.8245	1.82454	1.82	5/13/2020
7	K2003842-001	1	2.027	0.2169	1.8102	1.81024	1.8	5/13/2020
8	K2003842-002	1	1.295	0.2169	1.0776	1.07764	1	5/13/2020
9	K2003842-002	1	1.284	0.2169	1.0672	1.06724	1.07	5/13/2020
10	ccv	1	26.263	0.2169	26.0461	26.04614	26.05	5/13/2020
11	ccb	1	0.181	0.2169	-0.0363	-0.03626	<0.5	5/13/2020
12	K2003842-003	1	0.840	0.2169	0.6233	0.62334	0.62	5/13/2020
13	K2003842-003	1	0.801	0.2169	0.5840	0.58404	0.58	5/13/2020
14	K2003842-004	1	0.780	0.2169	0.5629	0.56294	0.56	5/13/2020
15	K2003842-004	1	0.742	0.2169	0.5253	0.52534	0.5	5/13/2020
16	K2003842-005	1	0.794	0.2169	0.5773	0.57734	0.6	5/13/2020
17	K2003842-005	1	0.766	0.2169	0.5487	0.54874	0.55	5/13/2020
18	K2003842-006	1	0.755	0.2169	0.5382	0.53824	0.5	5/13/2020
19	K2003842-006	1	0.759	0.2169	0.5418	0.54184	0.5	5/13/2020
20	K2003842-007	1	0.642	0.2169	0.4254	0.42544	<0.5	5/13/2020
21	K2003842-007	1	0.623	0.2169	0.4056	0.40564	<0.5	5/13/2020
22	K2003842-008	1	0.804	0.2169	0.5870	0.58704	0.6	5/13/2020
23	K2003842-008	1	0.778	0.2169	0.5608	0.56084	0.6	5/13/2020
24	K2003842-009	1	0.924	0.2169	0.7072	0.70724	0.71	5/13/2020
25	K2003842-009	1	0.903	0.2169	0.6865	0.68654	0.69	5/13/2020

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: BCP	Date Analyzed 5/12/20	
Reviewed By: JC	Date Reviewed 5/14/20	

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	
26	K2003842-010	1	0.398	0.2169	0.1812	0.18124	<0.5	5/13/2020
27	K2003842-010	1	0.345	0.2169	0.1282	0.12824	<0.5	5/13/2020
28	K2003842-011	1	0.781	0.2169	0.5641	0.56414	0.6	5/13/2020
29	K2003842-011	1	0.745	0.2169	0.5282	0.52824	0.5	5/13/2020
30	K2003842-011ms	1	26.641	0.2169	26.4239	26.42394	26.4	5/13/2020
31	ccv	1	26.186	0.2169	25.9687	25.96874	26.0	5/13/2020
32	ccb	1	0.089	0.2169	-0.1280	-0.12796	<0.5	5/13/2020
33	K2003842-012	1	1.025	0.2169	0.8082	0.80824	0.8	5/13/2020
34	K2003842-012	1	0.966	0.2169	0.7487	0.74874	0.7	5/13/2020
35	K2003842-013	1	1.175	0.2169	0.9580	0.95804	1.0	5/13/2020
36	K2003842-013	1	1.124	0.2169	0.9072	0.90724	0.9	5/13/2020
37	K2003842-014	1	0.681	0.2169	0.4641	0.46414	<0.5	5/13/2020
38	K2003842-014	1	0.661	0.2169	0.4443	0.44434	<0.5	5/13/2020
39	K2003842-015	1	0.629	0.2169	0.4125	0.41254	<0.5	5/13/2020
40	K2003842-015	1	0.603	0.2169	0.3857	0.38574	<0.5	5/13/2020
41	ccv	1	25.401	0.2169	25.1845	25.18454	25.2	5/13/2020
42	ccb	1	0.013	0.2169	-0.2036	-0.20356	<0.5	5/13/2020
43	K2003631-010	1	0.267	0.2169	0.0505	0.05054	<0.5	5/13/2020
44	K2003631-010	1	0.229	0.2169	0.0124	0.01244	<0.5	5/13/2020
45	K2003814-001	1	0.636	0.2169	0.4191	0.41914	<0.5	5/13/2020
46	K2003814-001	1	0.592	0.2169	0.3750	0.37504	<0.5	5/13/2020
47	K2003814-002	1	0.618	0.2169	0.4015	0.40154	<0.5	5/13/2020
48	K2003814-002	1	0.561	0.2169	0.3439	0.34394	<0.5	5/13/2020
49	K2003814-003	1	0.624	0.2169	0.4070	0.40704	<0.5	5/13/2020
50	K2003814-003	1	0.569	0.2169	0.3518	0.35184	<0.5	5/13/2020

Analyzed By:	BLP	Date Analyzed	5/12/20
Reviewed By:		Date Reviewed	5/14/20

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	ccv	1	26.186	0.2169	25.9687	25.96874	26.0	5/13/2020
3	ccb	1	0.089	0.2169	-0.1280	-0.12796	<0.5	5/13/2020
4	mb	1	0.160	0.2169	-0.0570	-0.05696	<0.5	5/13/2020
5	lcs	1	25.441	0.2169	25.2239	25.22394	25.2	5/13/2020
6	K2003842-001.06 doc	1	1.456	0.2169	1.2386	1.23864	1.24	5/13/2020
7	K2003842-001.06 doc	1	1.417	0.2169	1.2003	1.20034	1.2	5/13/2020
8	2003842-001.06 ms d	1	26.884	0.2169	26.6668	26.66684	27	5/13/2020
9	ccv	1	25.401	0.2169	25.1845	25.18454	25.18	5/13/2020
10	ccb	1	0.013	0.2169	-0.2036	-0.20356	<0.5	5/13/2020
11	K2003842-002.06 doc	1	0.930	0.2169	0.7128	0.71284	0.7	5/13/2020
12	K2003842-002.06 doc	1	0.902	0.2169	0.6847	0.68474	0.68	5/13/2020
13	K2003842-003.06 doc	1	0.550	0.2169	0.3330	0.33304	<0.5	5/13/2020
14	K2003842-003.06 doc	1	0.522	0.2169	0.3047	0.30474	<0.5	5/13/2020
15	K2003842-004.06 doc	1	0.531	0.2169	0.3145	0.31454	<0.5	5/13/2020
16	K2003842-004.06 doc	1	0.491	0.2169	0.2744	0.27444	<0.5	5/13/2020
17	K2003842-005.06 doc	1	0.558	0.2169	0.3415	0.34154	<0.5	5/14/2020
18	K2003842-005.06 doc	1	0.488	0.2169	0.2706	0.27064	<0.5	5/14/2020
19	K2003842-006.06 doc	1	0.494	0.2169	0.2768	0.27684	<0.5	5/14/2020
20	K2003842-006.06 doc	1	0.463	0.2169	0.2461	0.24614	<0.5	5/14/2020
21	K2003842-007.06 doc	1	0.359	0.2169	0.1416	0.14164	<0.5	5/14/2020
22	K2003842-007.06 doc	1	0.377	0.2169	0.1601	0.16014	<0.5	5/14/2020
23	K2003842-008.06 doc	1	0.583	0.2169	0.3663	0.36634	<0.5	5/14/2020
24	K2003842-008.06 doc	1	0.572	0.2169	0.3552	0.35524	<0.5	5/14/2020
25	K2003842-009.06 doc	1	0.621	0.2169	0.4042	0.40424	<0.5	5/14/2020

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: BCD	Date Analyzed 5/12/20	
Reviewed By: JC	Date Reviewed 5/14/20	

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	
26	K2003842-009.06 doc	1	0.607	0.2169	0.3900	0.39004	<0.5	5/14/2020
27	K2003842-010.06 doc	1	0.193	0.2169	-0.0235	-0.02346	<0.5	5/14/2020
28	K2003842-010.06 doc	1	0.137	0.2169	-0.0801	-0.08006	<0.5	5/14/2020
29	K2003842-011.06 doc	1	0.662	0.2169	0.4451	0.44514	<0.5	5/14/2020
30	K2003842-011.06 doc	1	0.640	0.2169	0.4229	0.42294	<0.5	5/14/2020
31	ccv	1	25.097	0.2169	24.8796	24.87964	24.9	5/14/2020
32	ccb	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
33	K2003842-012.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
34	K2003842-012.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
35	K2003842-013.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
36	K2003842-013.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
37	K2003842-014.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
38	K2003842-014.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
39	K2003842-015.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
40	K2003842-015.06 doc	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
41	ccv	1	24.776	0.2169	24.5592	24.55924	24.6	5/14/2020
42	ccb	1	0.000	0.2169	-0.2169	-0.21686	<0.5	5/14/2020
43		1			0.0000	0	<0.5	
44		1			0.0000	0	<0.5	
45		1			0.0000	0	<0.5	
46		1			0.0000	0	<0.5	
47		1			0.0000	0	<0.5	
48		1			0.0000	0	<0.5	
49		1			0.0000	0	<0.5	
50		1			0.0000	0	<0.5	

Analyzed By: BKD	Date Analyzed 5/12/20
Reviewed By:	Date Reviewed 5/14/20

TOC: 679905, 679906
DOC: 679907

Schedule: 05122020

Version: 2
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/05/12 20:13 - Tuesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	LOT 041320-3DQL	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
4	Sample	K2003711-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K2003711-001.02 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
7	Sample	K2003742-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K2003723-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K2003737-001.01	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	K2003746-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K2003791-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K2003791-002.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K2003791-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K2003791-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K2003791-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K2003792-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K2003792-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K2003792-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K2003792-004.01	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	K2003792-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K2003793-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K2003631-010.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K2003814-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K2003814-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K2003814-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K2003842-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K2003842-002.02	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	K2003842-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K2003842-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K2003842-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K2003842-006.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K2003842-007.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K2003842-008.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K2003842-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K2003842-010.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K2003842-011.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K2003842-011.02 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 05122020

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	K2003842-012.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K2003842-013.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K2003842-014.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K2003842-015.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	FB 5/12/2020 1819	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K2003842-001.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K2003842-001.06 ms doc	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	K2003842-002.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K2003842-003.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K2003842-004.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K2003842-005.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K2003842-006.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K2003842-007.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K2003842-008.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K2003842-009.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K2003842-010.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K2003842-011.06 doc	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
58	Sample	K2003842-012.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
59	Sample	K2003842-013.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K2003842-014.06 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K2003842-015.06 doc	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 - 05122020
Tuesday, May 12, 2020 08:22 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/05/14 09:15 - Thursday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	05122020	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)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/05/12 20:22

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.91	18.44	7.53	49.78	07:58
2	TC Clean	19.05	23.51	4.47	49.55	07:17
3	TC Clean	2.85	7.17	4.32	49.56	07:02
4	TC Clean	2.04	6.17	4.13	49.57	07:02

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/05/12 20:56

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.19	5.33	4.14	49.83	07:59
2	TC Clean	5.70	9.81	4.11	49.59	07:18
3	TC Clean	2.16	6.30	4.14	49.61	07:02
4	TC Clean	1.68	5.83	4.14	49.62	07:01

Sample Type: Clean

From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/05/12 21:31

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.03	5.25	4.22	49.87	08:01
2	TC Clean	5.31	9.47	4.15	49.63	07:17
3	TC Clean	2.60	6.72	4.13	49.64	07:05
4	TC Clean	1.90	6.02	4.12	49.65	07:04

Sample Type: Blank (Creating v1382)

From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2020/05/12 22:05

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.00	5.17	4.17	49.89	08:02
2	TC Clean	5.31	9.57	4.27	49.66	07:16
3	TC Clean	2.42	6.66	4.24	49.68	07:01
4	TC Clean	2.21	6.28	4.07	49.67	07:03
5	Reagent Blank	8.08	12.04	3.97	49.70	08:11
6	Acid Blank	1.48	5.63	4.15	49.92	08:01

Sample Type: Sample

From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.5610 ppm	0.0000 ppm	0.0000%	2020/05/12 22:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5610	5.6098	10.80	15.06	4.26	49.64	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> CCV 25 ppm

From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.2461 ppm (PASS)	0.0000 ppm	0%	2020/05/12 23:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.2461	262.4610	193.46	197.82	4.36	49.68	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.3062 ppm (PASS)	0.0000 ppm	0%	2020/05/12 23:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.3062	3.0618	9.14	13.48	4.34	49.72	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.2506 ppm	0.0000 ppm	0.0000%	2020/05/12 23:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2506	2.5065	8.59	12.72	4.12	49.74	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> LCS From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.6746 ppm (PASS)	0.0000 ppm	0%	2020/05/12 23:55

Pos	Base Analysis	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

	Type									
C	TOC	25.0 ppm	1	25.6746	256.7456	189.40	193.45	4.06	49.74	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	2	TOC	ICS	0.8501 ppm	0.0000 ppm	0.0000%	2020/05/13 00:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8501	8.5005	12.85	17.07	4.22	49.77	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	3	TOC	LOT 041320-3DQL	0.2298 ppm	0.0000 ppm	0.0000%	2020/05/13 00:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2298	2.2982	8.44	12.54	4.10	49.79	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	4	TOC	K2003711-001.02	0.7893 ppm	0.0025 ppm	0.3200%	2020/05/13 00:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7911	7.9108	12.43	16.56	4.13	49.80	10:26
2	TOC	0.7876	7.8757	12.41	16.51	4.10	49.79	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	5	TOC	K2003711-001.02 ms	26.4742 ppm	0.0000 ppm	0.0000%	2020/05/13 01:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.4742	264.7415	194.92	199.03	4.11	49.81	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	6	TOC	RB	0.2847 ppm	0.0000 ppm	0.0000%	2020/05/13 01:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2847	2.8470	8.83	12.98	4.15	49.78	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	7	TOC	K2003742-001.01	7.0703 ppm	0.0231 ppm	0.3300%	2020/05/13 01:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.0540	70.5398	56.93	61.07	4.14	49.83	10:28
2	TOC	7.0866	70.8663	57.16	61.22	4.05	49.83	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	8	TOC	K2003723-001.01 100x	6.2555 ppm	0.2095 ppm	3.3500%	2020/05/13 02:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.1074	61.0737	50.20	54.35	4.15	49.84	10:28
2	TOC	6.4036	64.0362	52.31	56.53	4.22	49.83	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	9	TOC	K2003737-001.01	0.8712 ppm	0.1070 ppm	12.2800%	2020/05/13 02:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9469	9.4688	13.54	17.65	4.11	49.81	10:28
2	TOC	0.7956	7.9559	12.46	16.80	4.33	49.84	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.1166 ppm (PASS)	0.0000 ppm	0%	2020/05/13 03:00

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.1166	261.1662	192.54	196.67	4.13	49.86	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.2419 ppm (PASS)	0.0000 ppm	0%	2020/05/13 03:16

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.2419	2.4187	8.69	12.92	4.23	49.86	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	10	TOC	K2003746-001.01	2.3749 ppm	0.0827 ppm	3.4800%	2020/05/13 03:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4334	24.3337	24.10	28.15	4.05	49.88	10:28
2	TOC	2.3164	23.1641	23.27	27.58	4.31	49.88	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K2003791-001.01	2.7923 ppm	0.0912 ppm	3.2600%	2020/05/13 03:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.8567	28.5671	27.11	31.38	4.27	49.88	10:27
2	TOC	2.7278	27.2780	26.19	30.32	4.13	49.89	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	K2003791-002.01 20x	17.1160 ppm	0.2570 ppm	1.5000%	2020/05/13 04:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.9343	169.3429	127.13	131.34	4.20	49.91	10:28
2	TOC	17.2977	172.9768	129.72	133.98	4.26	49.90	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K2003791-003.01	4.5878 ppm	0.0004 ppm	0.0100%	2020/05/13 04:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.5875	45.8752	39.41	43.63	4.22	49.90	10:28
2	TOC	4.5881	45.8809	39.41	43.48	4.07	49.91	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K2003791-004.01	4.6207 ppm	0.1622 ppm	3.5100%	2020/05/13 05:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.7354	47.3544	40.46	44.52	4.07	49.92	10:27
2	TOC	4.5060	45.0604	38.83	43.02	4.19	49.94	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K2003791-005.01	25.3525 ppm	0.2034 ppm	0.8000%	2020/05/13 05:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.2086	252.0863	185.93	190.25	4.32	49.94	10:25
2	TOC	25.4963	254.9630	187.97	192.29	4.32	49.94	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K2003792-001.01	2.0287 ppm	0.4696 ppm	23.1500%	2020/05/13 06:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3607	23.6075	23.58	27.81	4.23	49.94	10:27
2	TOC	1.6966	16.9660	18.87	23.07	4.21	49.97	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC)	CAS_salt_010711	CAS_salt_010711

(v1382) (v4) (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K2003792-002.01	2.1335 ppm	0.0653 ppm	3.0600%	2020/05/13 06:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1796	21.7962	22.30	26.53	4.23	49.99	10:28
2	TOC	2.0873	20.8729	21.64	25.67	4.03	49.97	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K2003792-003.01	1.5498 ppm	0.0904 ppm	5.8300%	2020/05/13 07:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6137	16.1370	18.28	22.32	4.04	49.96	10:30
2	TOC	1.4859	14.8591	17.37	21.48	4.11	49.97	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K2003792-004.01	1.4309 ppm	0.0484 ppm	3.3800%	2020/05/13 07:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4651	14.6508	17.22	21.36	4.14	49.96	10:28
2	TOC	1.3967	13.9668	16.73	20.89	4.16	49.97	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.9897 ppm (PASS)	0.0000 ppm	0%	2020/05/13 08:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.9897	259.8968	191.63	195.74	4.11	49.96	10:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.3718 ppm (PASS)	0.0000 ppm	0%	2020/05/13 08:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.3718	3.7177	9.61	13.81	4.20	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 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.2513 ppm	0.0000 ppm	0.0000%	2020/05/13 08:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2513	2.5135	8.60	12.85	4.26	49.91	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> LCS From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.4916 ppm (PASS)	0.0000 ppm	0%	2020/05/13 08:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.4916	254.9160	188.10	192.35	4.26	49.91	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	21	TOC	K2003792-005.01	1.2901 ppm	0.0885 ppm	6.8600%	2020/05/13 09:10

Rep	Base			Adjusted		Baseline	Pressure	Run

#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	1.3526	13.5263	16.42	20.76	4.34	49.91	10:30
2	TOC	1.2275	12.2752	15.53	19.53	4.00	49.91	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	22	TOC	K2003793-001.01	2.5750 ppm	0.0230 ppm	0.8900%	2020/05/13 09:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5588	25.5877	24.99	29.15	4.15	49.88	10:26
2	TOC	2.5913	25.9128	25.22	29.33	4.11	49.92	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	23	TOC	K2003631-010.01	0.2483 ppm	0.0270 ppm	10.8600%	2020/05/13 10:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2674	2.6739	8.71	12.70	3.99	49.88	10:28
2	TOC	0.2293	2.2925	8.44	12.56	4.12	49.85	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	24	TOC	K2003814-001.01	0.6140 ppm	0.0311 ppm	5.0700%	2020/05/13 10:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6360	6.3599	11.33	15.40	4.07	49.86	10:30
2	TOC	0.5919	5.9194	11.02	15.10	4.09	49.86	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	25	TOC	K2003814-002.01	0.5896 ppm	0.0407 ppm	6.9000%	2020/05/13 11:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6184	6.1840	11.20	15.33	4.12	49.84	10:31
2	TOC	0.5608	5.6083	10.80	14.90	4.10	49.83	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6239	6.2389	11.24	15.28	4.04	49.83	10:29
2	TOC	0.5687	5.6872	10.85	15.00	4.14	49.84	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	27	TOC	K2003842-001.02	2.0342 ppm	0.0102 ppm	0.5000%	2020/05/13 11:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0414	20.4141	21.32	25.53	4.22	49.81	10:26
2	TOC	2.0271	20.2706	21.21	25.37	4.16	49.81	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	28	TOC	K2003842-002.02	1.2893 ppm	0.0074 ppm	0.5700%	2020/05/13 12:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2945	12.9451	16.01	20.17	4.16	49.78	10:26
2	TOC	1.2841	12.8409	15.93	19.92	3.98	49.79	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.2630 ppm (PASS)	0.0000 ppm	0%	2020/05/13 12:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.2630	262.6299	193.58	197.63	4.06	49.79	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.1806 ppm (PASS)	0.0000 ppm	0%	2020/05/13 13:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.1806	1.8064	8.25	12.40	4.15	49.68	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	29	TOC	K2003842-003.02	0.8206 ppm	0.0278 ppm	3.3800%	2020/05/13 13:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8402	8.4020	12.78	16.79	4.01	49.73	10:26
2	TOC	0.8009	8.0094	12.50	16.64	4.14	49.76	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	30	TOC	K2003842-004.02	0.7610 ppm	0.0266 ppm	3.4900%	2020/05/13 13:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7798	7.7982	12.35	16.48	4.12	49.71	10:31
2	TOC	0.7422	7.4225	12.08	16.16	4.08	49.74	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	31	TOC	K2003842-005.02	0.7799 ppm	0.0202 ppm	2.5900%	2020/05/13 14:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7942	7.9418	12.45	16.41	3.96	49.75	10:29
2	TOC	0.7656	7.6561	12.25	16.21	3.96	49.74	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◆	32	TOC	K2003842-006.02	0.7569 ppm	0.0026 ppm	0.3400%	2020/05/13 14:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7551	7.5505	12.18	16.24	4.07	49.69	10:28
2	TOC	0.7587	7.5871	12.20	16.30	4.10	49.72	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	33	TOC	K2003842-007.02	0.6324 ppm	0.0140 ppm	2.2200%	2020/05/13 15:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6423	6.4232	11.37	15.36	3.98	49.74	10:28
2	TOC	0.6225	6.2248	11.23	15.10	3.87	49.72	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	34	TOC	K2003842-008.02	0.7908 ppm	0.0185 ppm	2.3400%	2020/05/13 15:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8039	8.0389	12.52	16.65	4.13	49.69	10:27
2	TOC	0.7777	7.7771	12.34	16.41	4.07	49.70	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	35	TOC	K2003842-009.02	0.9137 ppm	0.0146 ppm	1.6000%	2020/05/13 16:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9241	9.2408	13.38	17.26	3.88	49.66	10:25
2	TOC	0.9034	9.0339	13.23	17.22	3.99	49.66	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	36	TOC	K2003842-010.02	0.3716 ppm	0.0375 ppm	10.1000%	2020/05/13 16:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3981	3.9814	9.64	13.65	4.01	49.64	10:31
2	TOC	0.3451	3.4508	9.26	13.32	4.06	49.64	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	37	TOC	K2003842-011.02	0.7630 ppm	0.0254 ppm	3.3300%	2020/05/13 17:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7810	7.8095	12.36	16.39	4.03	49.64	10:26
2	TOC	0.7451	7.4506	12.10	16.19	4.09	49.62	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	38	TOC	K2003842-011.02 ms	26.6408 ppm	0.0000 ppm	0.0000%	2020/05/13 17:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.6408	266.4079	196.10	200.12	4.01	49.61	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.1856 ppm (PASS)	0.0000 ppm	0%	2020/05/13 17:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.1856	261.8559	193.03	197.08	4.06	49.58	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0889 ppm (PASS)	0.0000 ppm	0%	2020/05/13 18:06

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time

D	TOC	0 ppm	1	0.0889	0.8888	7.60	11.54	3.94	49.57	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.1599 ppm	0.0000 ppm	0.0000%	2020/05/13 18:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1599	1.5987	7.95	11.94	4.00	49.54	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> LCS From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.4408 ppm (PASS)	0.0000 ppm	0%	2020/05/13 18:36

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.4408	254.4079	187.73	191.70	3.97	49.56	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	40	TOC	K2003842-012.02	0.9954 ppm	0.0421 ppm	4.2300%	2020/05/13 18:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0251	10.2513	14.09	18.39	4.30	49.58	10:28
2	TOC	0.9656	9.6560	13.67	17.71	4.03	49.59	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	41	TOC	K2003842-013.02	1.1495 ppm	0.0359 ppm	3.1300%	2020/05/13 19:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1749	11.7488	15.16	19.14	3.98	49.61	10:27
2	TOC	1.1241	11.2407	14.80	18.78	3.99	49.64	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	42	TOC	K2003842-014.02	0.6711 ppm	0.0140 ppm	2.0900%	2020/05/13 19:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6810	6.8103	11.65	15.60	3.95	49.62	10:29
2	TOC	0.6612	6.6118	11.51	15.47	3.96	49.67	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	43	TOC	K2003842-015.02	0.6160 ppm	0.0189 ppm	3.0700%	2020/05/13 20:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6294	6.2937	11.28	15.43	4.15	49.67	10:31
2	TOC	0.6026	6.0263	11.09	15.30	4.21	49.70	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	44	TOC	FB 5/12/2020 1819	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/13 20:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.32	10.50	4.17	49.70	10:25
2	TOC	0.0000	0.0000	6.23	10.23	4.00	49.71	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	45	TOC	K2003842-001.06 doc	1.4364 ppm	0.0271 ppm	1.8800%	2020/05/13 21:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4555	14.5551	17.15	21.18	4.03	49.75	10:30
2	TOC	1.4172	14.1723	16.88	20.86	3.98	49.77	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC)	CAS_salt_010711	CAS_salt_010711

(v1382) (v4) (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	46	TOC	K2003842-001.06 ms doc	26.8837 ppm	0.0000 ppm	0.0000%	2020/05/13 21:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.8837	268.8371	197.83	201.92	4.10	49.77	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	47	TOC	RB	0.0577 ppm	0.0000 ppm	0.0000%	2020/05/13 21:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0577	0.5769	7.22	11.30	4.08	49.80	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.4014 ppm (PASS)	0.0000 ppm	0%	2020/05/13 22:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4014	254.0139	187.45	191.64	4.19	49.80	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0133 ppm (PASS)	0.0000 ppm	0%	2020/05/13 22:23

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0133	0.1331	7.06	10.91	3.85	49.80	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D

Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K2003842-002.06 doc	0.9156 ppm	0.0199 ppm	2.1700%	2020/05/13 22:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9297	9.2971	13.42	17.48	4.06	49.82	10:30
2	TOC	0.9016	9.0156	13.22	17.31	4.09	49.85	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K2003842-003.06 doc	0.5357 ppm	0.0200 ppm	3.7300%	2020/05/13 23:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5499	5.4986	10.72	14.74	4.02	49.84	10:31
2	TOC	0.5216	5.2157	10.52	14.68	4.17	49.86	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K2003842-004.06 doc	0.5114 ppm	0.0284 ppm	5.5500%	2020/05/13 23:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5314	5.3142	10.59	14.80	4.22	49.86	10:27
2	TOC	0.4913	4.9131	10.30	14.46	4.16	49.86	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K2003842-005.06 doc	0.5230 ppm	0.0502 ppm	9.5900%	2020/05/14 00:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5584	5.5844	10.78	14.94	4.16	49.87	10:30
2	TOC	0.4875	4.8751	10.27	14.37	4.10	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

		Analysis			Std. Dev.		

	Pos	Type	Sample ID	Result (ppmC)	(ppmC)	RSD	Start Time
◆	52	TOC	K2003842-006.06 doc	0.4784 ppm	0.0217 ppm	4.5400%	2020/05/14 00:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4937	4.9370	10.32	14.55	4.23	49.87	10:27
2	TOC	0.4630	4.6302	10.10	14.19	4.09	49.88	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	53	TOC	K2003842-007.06 doc	0.3677 ppm	0.0131 ppm	3.5700%	2020/05/14 00:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3585	3.5845	9.36	13.52	4.16	49.91	10:28
2	TOC	0.3770	3.7703	9.49	13.59	4.10	49.89	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	54	TOC	K2003842-008.06 doc	0.5777 ppm	0.0079 ppm	1.3600%	2020/05/14 01:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5832	5.8321	10.95	15.09	4.14	49.89	10:27
2	TOC	0.5721	5.7209	10.88	14.94	4.06	49.90	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	55	TOC	K2003842-009.06 doc	0.6140 ppm	0.0101 ppm	1.6400%	2020/05/14 01:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6211	6.2107	11.22	15.39	4.17	49.93	10:29
2	TOC	0.6069	6.0686	11.12	15.29	4.16	49.92	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	56	TOC	K2003842-010.06 doc	0.1651 ppm	0.0400 ppm	24.2300%	2020/05/14 02:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1934	1.9336	8.18	12.25	4.07	49.92	10:25
2	TOC	0.1368	1.3679	7.78	11.99	4.20	49.94	10:25

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	57	TOC	K2003842-011.06 doc	0.6509 ppm	0.0157 ppm	2.4200%	2020/05/14 02:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6620	6.6203	11.51	15.65	4.14	49.95	10:26
2	TOC	0.6398	6.3979	11.36	15.34	3.99	49.96	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.0965 ppm (PASS)	0.0000 ppm	0%	2020/05/14 03:18

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0965	250.9655	185.29	189.37	4.08	49.92	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/05/14 03:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.62	10.70	4.08	49.96	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	58	TOC	K2003842-012.06 doc	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/14 03:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.27	10.10	3.83	49.97	10:27
2	TOC	0.0000	0.0000	5.89	9.90	4.00	49.98	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	59	TOC	K2003842-013.06 doc	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/14 04:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.25	10.24	4.00	49.98	10:28
2	TOC	0.0000	0.0000	5.76	9.81	4.05	50.01	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	60	TOC	K2003842-014.06 doc	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/14 04:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.64	9.81	4.17	50.00	10:28
2	TOC	0.0000	0.0000	5.67	9.69	4.02	50.01	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	61	TOC	K2003842-015.06 doc	0.0000 ppm	0.0000 ppm	0.0000%	2020/05/14 05:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.84	10.05	4.21	50.05	10:28
2	TOC	0.0000	0.0000	5.77	9.69	3.92	50.05	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8101 (IC) (v1382)	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.7761 ppm (PASS)	0.0000 ppm	0%	2020/05/14 05:40

Pos	Base Analysis	ID	Rep	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run

	Type		#							Time
B	TOC	25 ppm	1	24.7761	247.7608	183.01	187.21	4.20	50.04	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/05/14 05:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.44	10.65	4.21	50.06	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v35)	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
v1381	1.1450	0.7350	0.0000	0.0000	0.0000	2020/05/09 14:55	Fusion1 (Fusion1)
v1382	2.6923	1.4840	0.0000	0.0000	0.0000	2020/05/12 22:56	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v35	Calibration curve formula:	TOC: y = 7.105x + 6.969
Ver Creation:	2020/05/09 16:50	r^2 value:	TOC: r^2 = 0.99936
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	6.6220	0.0000		2020/05/09 15:23

0.500 ppm	9.3820	0.5000		2020/05/09 15:38
1.0 ppm	12.1910	1.0000		2020/05/09 15:52
5.0 ppm	39.9300	5.0000		2020/05/09 16:06
10 ppm	81.4900	10.0000		2020/05/09 16:20
25 ppm	190.3090	25.0000		2020/05/09 16:35
50 ppm	358.9940	50.0000		2020/05/09 16:49

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	2020/05/14 06:10

ALS Environmental

StarLIMS Run: 679905, 679906, 679907

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: 5/9/20

ICAL ID: 19-GEN-17-E->J

ICS ID: 19-GEN-8-4-G

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 19-GEN-8-15-B 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-17-K

21 % H3PO4: 19-GEN-08-17-L

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By:	Date Analyzed: 5/12/20
Reviewed By:	Date Reviewed: 5/14/20

LABORATORY REPORT

May 21, 2020

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

RE: HS20050234

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on May 8, 2020. For your reference, these analyses have been assigned our service request number P2002523.

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

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

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 9:54 am, May 21, 2020

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P2002523
Project: HS20050234

CASE NARRATIVE

The samples were received intact under chain of custody on May 8, 2020 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

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

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

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-007
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

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

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

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS20050234

Service Request: P2002523

Date Received: 5/8/2020
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35BWW26-200506	P2002523-001	Water	5/6/2020	10:40	X	X
35BWW04-200506	P2002523-002	Water	5/6/2020	11:30	X	X
35BWW12-200506	P2002523-003	Water	5/6/2020	12:25	X	X
35BWW12-200506-FD	P2002523-004	Water	5/6/2020	12:25	X	X
35BWW08-200506	P2002523-005	Water	5/6/2020	13:20	X	X

P2002523

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:** **13868**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20050234
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20050234-06**	**35BWW26-200506**	**Groundwater**	**06 May 2020 10:40**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			21 May 2020
2.	**HS20050234-07**	**35BWW04-200506**	**Groundwater**	**06 May 2020 11:30**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			21 May 2020
3.	**HS20050234-08**	**35BWW12-200506**	**Groundwater**	**06 May 2020 12:25**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			21 May 2020
4.	**HS20050234-09**	**35BWW12-200506-FD**	**Groundwater**	**06 May 2020 12:25**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			21 May 2020
5.	**HS20050234-10**	**35BWW08-200506**	**Groundwater**	**06 May 2020 13:20**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			21 May 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
VOA Neat & HCL Vials

QC Level: DOD IV (DoD Data Package)

P2002523

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **13868**

Relinquished By: J. MARTIN Date/Time: 5/7/20 18:00

Received By: Date/Time: 5-8-20 0930 3° WET

Cooler ID(s): Temperature(s):

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2002523

Project: HS20050234

Sample(s) received on: 05/08/20 Date opened: 05/08/20 by: ADAVID

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

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: 3° C Blank Temperature: ° C Thermometer ID T-111 Wet Ic			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☒	☐	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2002523-001.01	40mL VOA NP		6		A	LD 05/12/2020
P2002523-001.02	40mL VOA NP				A	
P2002523-001.03	40mL VOA NP				A	
P2002523-001.04	40ml VOA HCL		1		A	LD 05/18/20
P2002523-001.05	40ml VOA HCL				A	
P2002523-001.06	40ml VOA HCL				A	
P2002523-002.01	40mL VOA NP		6		A	LD 05/12/2020
P2002523-002.02	40mL VOA NP				A	
P2002523-002.03	40mL VOA NP				A	
P2002523-002.04	40ml VOA HCL		1		A	LD 05/18/20
P2002523-002.05	40ml VOA HCL				A	
P2002523-002.06	40ml VOA HCL				A	
P2002523-003.01	40mL VOA NP		6		A	LD 05/12/2020
P2002523-003.02	40mL VOA NP				A	
P2002523-003.03	40mL VOA NP				A	

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

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

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2002523

Project: HS20050234

Sample(s) received on: 05/08/20 Date opened: 05/08/20 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2002523-003.04	40ml VOA HCL		1		A	LD 05/18/20
P2002523-003.05	40ml VOA HCL				A	
P2002523-003.06	40ml VOA HCL				A	
P2002523-004.01	40mL VOA NP		6		A	LD 05/12/2020
P2002523-004.02	40mL VOA NP				A	
P2002523-004.03	40mL VOA NP				A	
P2002523-004.04	40ml VOA HCL		1		A	LD 05/18/20
P2002523-004.05	40ml VOA HCL				A	
P2002523-004.06	40ml VOA HCL				A	
P2002523-005.01	40mL VOA NP		6		A	LD 05/12/2020
P2002523-005.02	40mL VOA NP				A	
P2002523-005.03	40mL VOA NP				A	
P2002523-005.04	40ml VOA HCL		1		A	LD 05/18/20
P2002523-005.05	40ml VOA HCL				A	
P2002523-005.06	40ml VOA HCL				A	

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS20050234** ALS Project ID: P2002523

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Li Donghao
Matrix: Liquid
Test Notes:

Date(s) Collected: 5/6/20
Date Received: 5/8/20
Date Analyzed: 5/12/20

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35BWW26-200506	P2002523-001	0.10	**87,000**	1,000	860	370	
35BWW04-200506	P2002523-002	0.10	**46,000**	1,000	860	370	
35BWW12-200506	P2002523-003	0.10	**94,000**	1,000	860	370	
35BWW12-200506-FD	P2002523-004	0.10	**88,000**	1,000	860	370	
35BWW08-200506	P2002523-005	0.10	**11,000**	1,000	860	370	
Method Control Sample	P200512-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS20050234**

ALS Project ID: P2002523
ALS Sample ID: P200512-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Li Donghao
Matrix: Liquid
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/12/20
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	19,200	19,700	**84**	**86**	80-122	2	12	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW26-200506**
Client Project ID: **HS20050234**

ALS Project ID: P2002523
ALS Sample ID: P2002523-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 05/06/20
Date Received: 05/08/20
Date Analyzed: 05/18/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW04-200506**
Client Project ID: **HS20050234**

ALS Project ID: P2002523
ALS Sample ID: P2002523-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 05/06/20
Date Received: 05/08/20
Date Analyzed: 05/18/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW12-200506**
Client Project ID: **HS20050234**

ALS Project ID: P2002523
ALS Sample ID: P2002523-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 05/06/20
Date Received: 05/08/20
Date Analyzed: 05/18/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**0.93**	1.3	1.0	0.51	**J**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW12-200506-FD**
Client Project ID: **HS20050234**

ALS Project ID: P2002523
ALS Sample ID: P2002523-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 05/06/20
Date Received: 05/08/20
Date Analyzed: 05/18/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**0.81**	1.3	1.0	0.51	**J**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW08-200506**
Client Project ID: **HS20050234**

ALS Project ID: P2002523
ALS Sample ID: P2002523-005

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: 05/06/20
Date Received: 05/08/20
Date Analyzed: 05/18/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS20050234**

ALS Project ID: P2002523
ALS Sample ID: P200518-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/18/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS20050234**

ALS Project ID: P2002523
ALS Sample ID: P200518-LCS
P200518-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Li Donghao
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/18/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.27	2.27	**90**	**90**	73-125	0	26	
74-85-1	Ethene	4.40	4.46	4.26	**101**	**97**	72-133	4	11	
74-84-0	Ethane	4.72	4.45	4.39	**94**	**93**	74-131	1	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122008.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 17:58:30
Operator : LD
Sample : P2002523-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 18:08:01 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

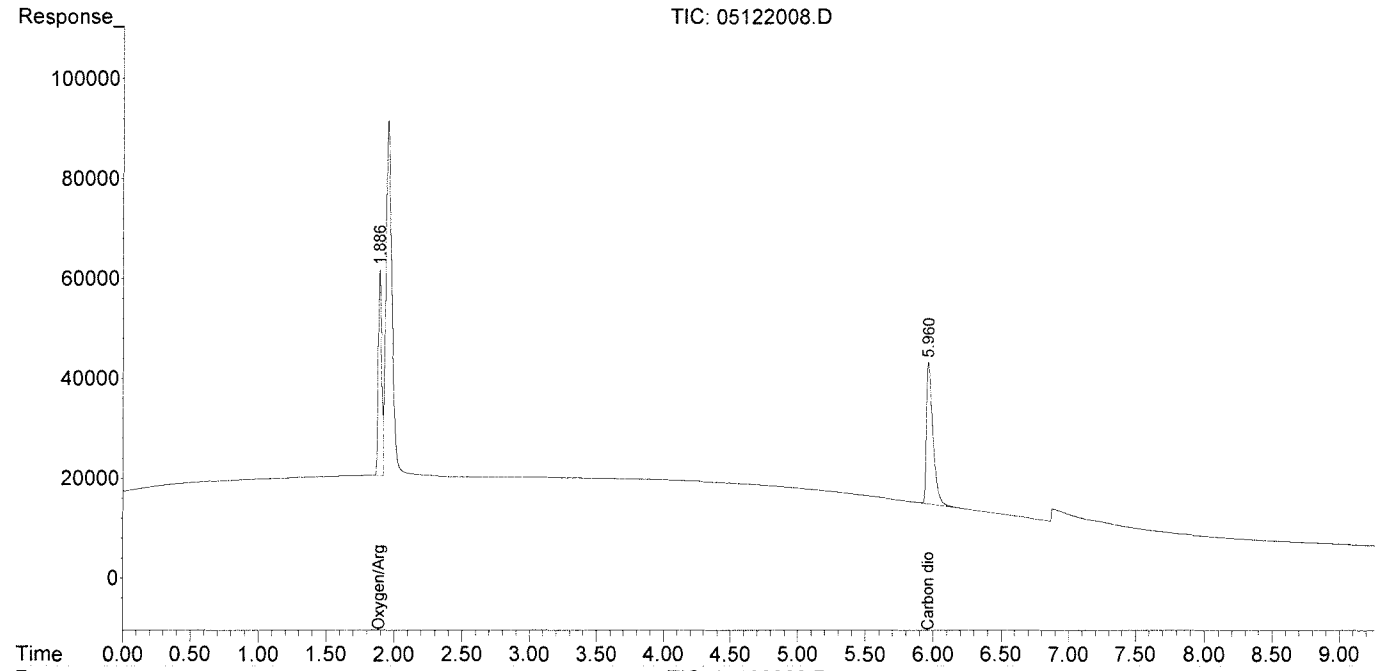
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.887	705678	0.148	ppm
2)	Carbon monoxide	1.887	705678	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.960	939358	4001.882	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

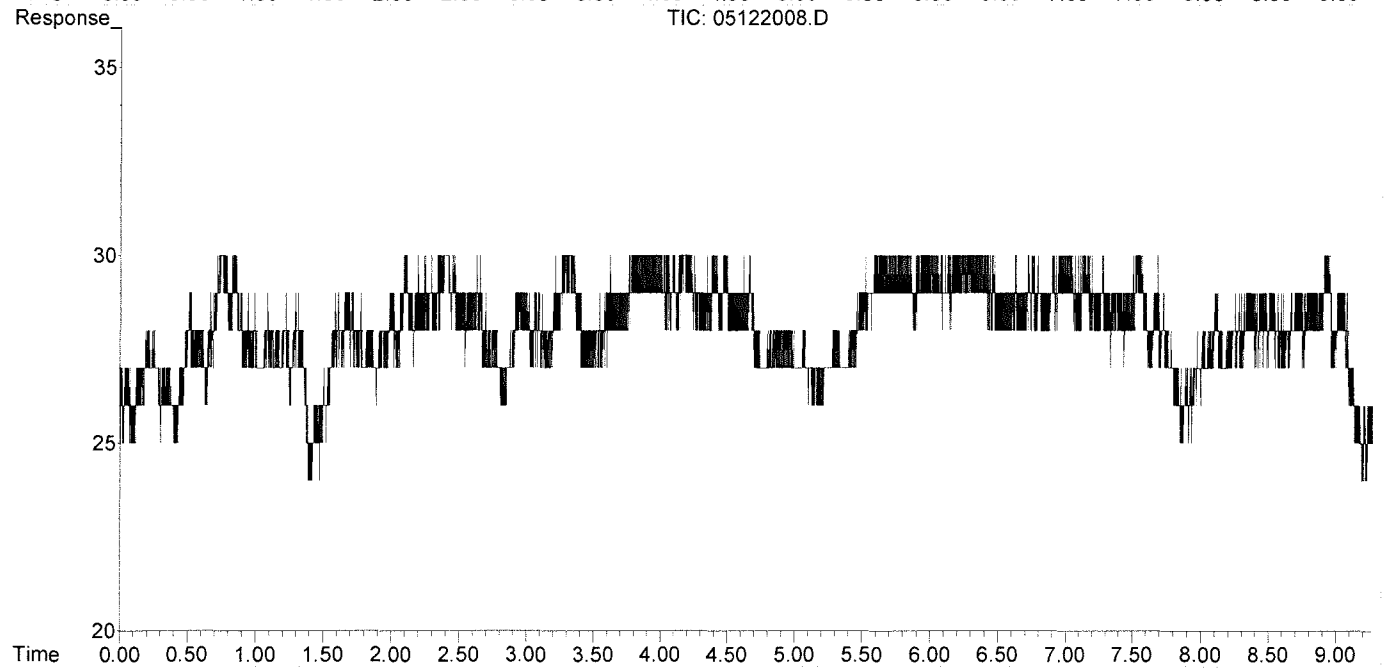
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122008.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 17:58:30
Operator : LD
Sample : P2002523-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 18:08:01 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122009.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 18:10:52
Operator : LD
Sample : P2002523-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 18:26:09 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

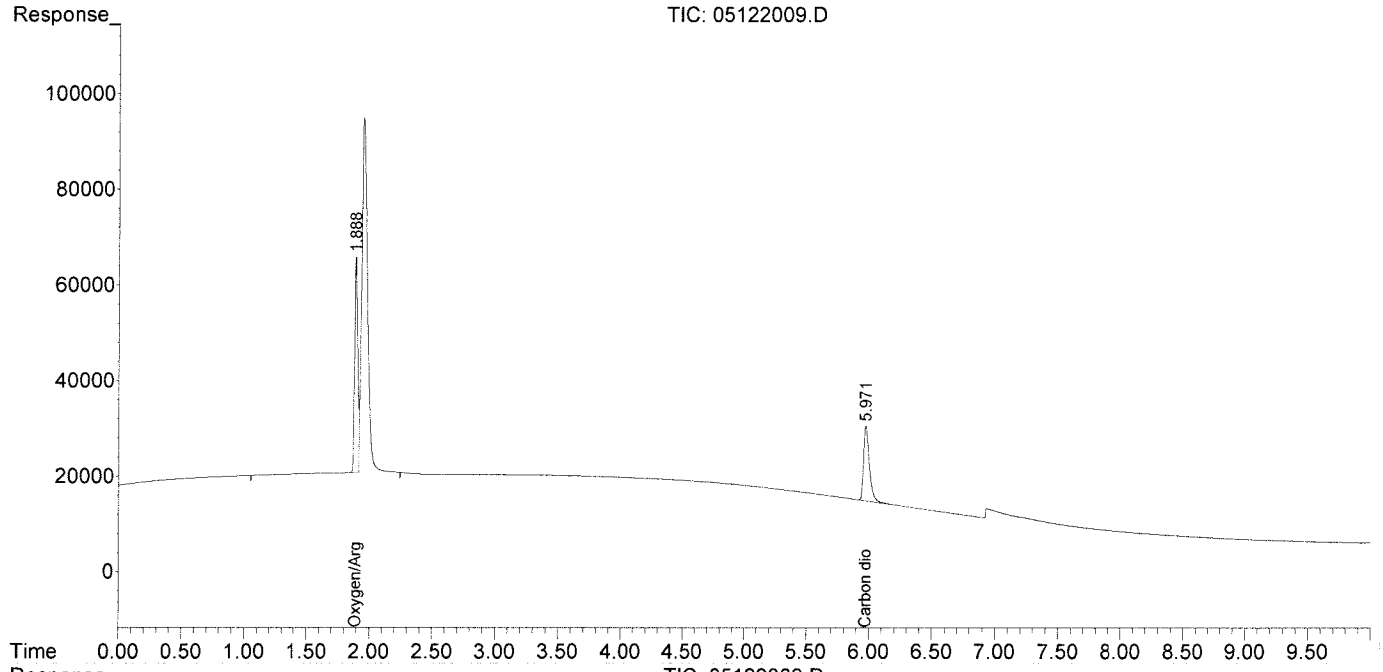
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.888	776266	0.163	ppm
2)	Carbon monoxide	1.888	776266	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.971	489597	2085.795	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

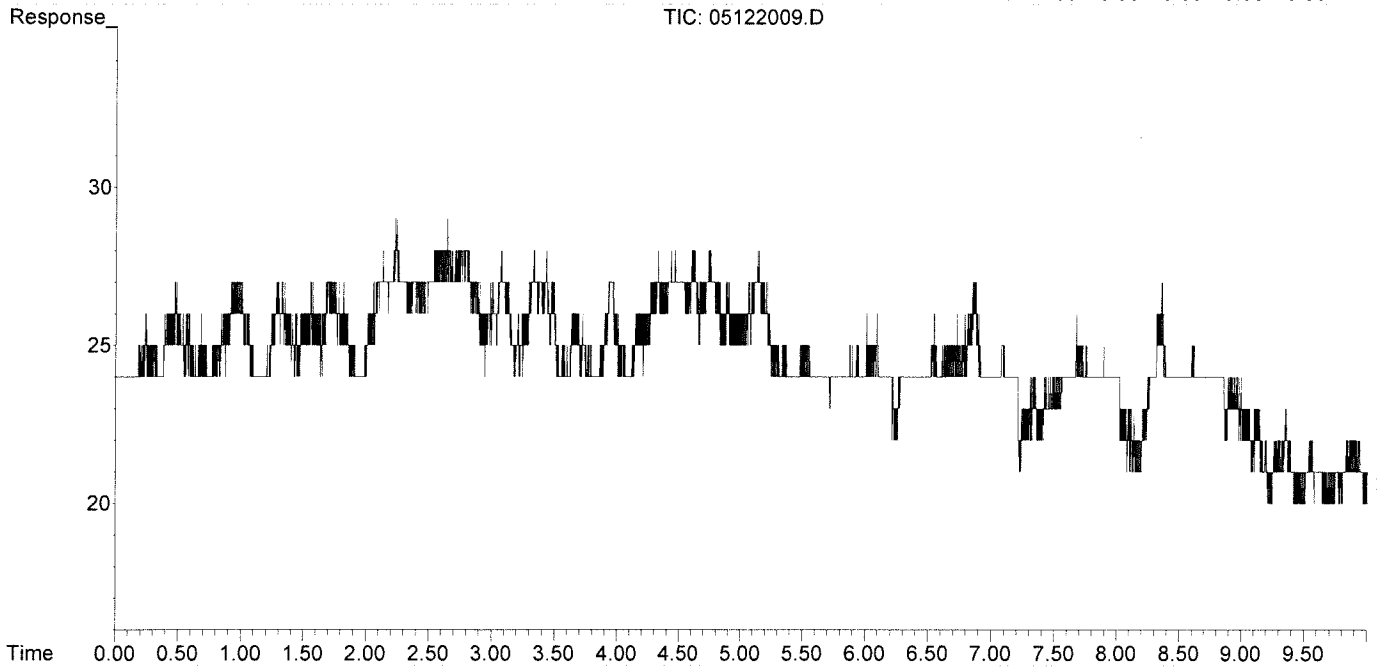
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122009.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 18:10:52
Operator : LD
Sample : P2002523-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 18:26:09 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122010.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 18:25:16
Operator : LD
Sample : P2002523-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 18:39:35 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

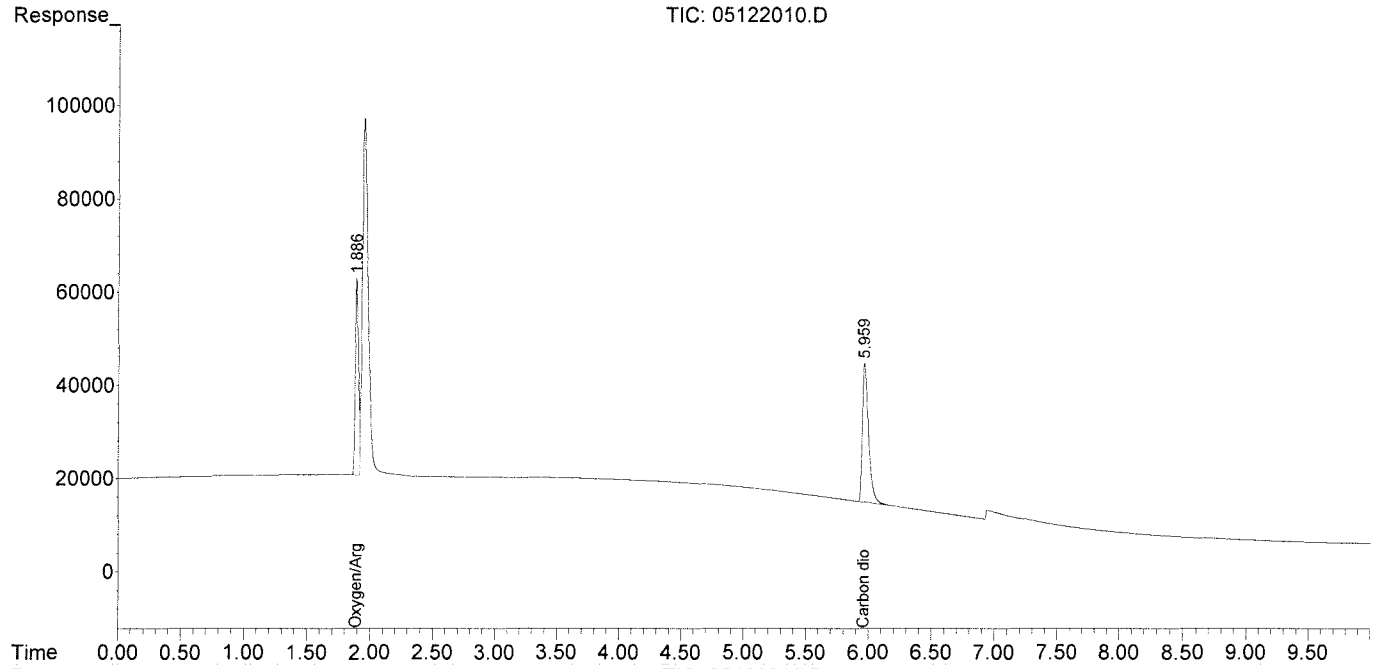
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.887	718008	0.151	ppm
2)	Carbon monoxide	1.887	718008	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.961	1010532	4305.096	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

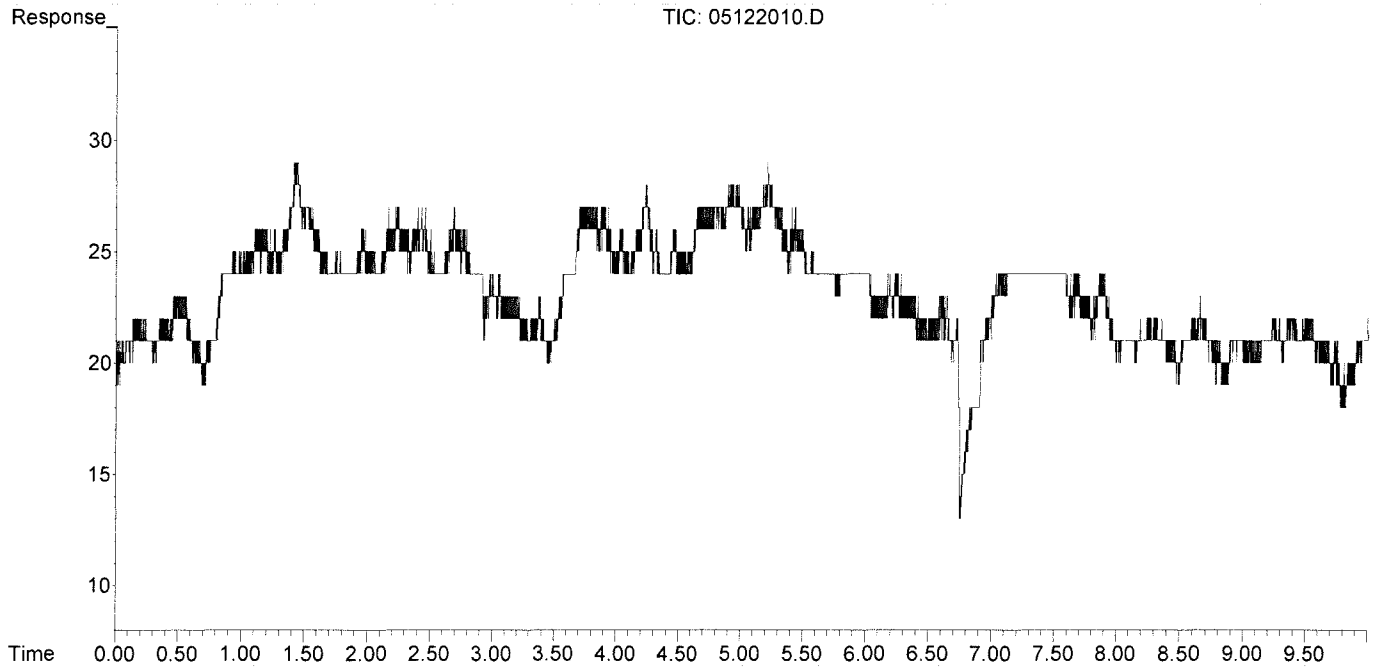
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122010.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 18:25:16
Operator : LD
Sample : P2002523-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 18:39:35 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122011.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 18:38:29
Operator : LD
Sample : P2002523-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 18:51:58 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

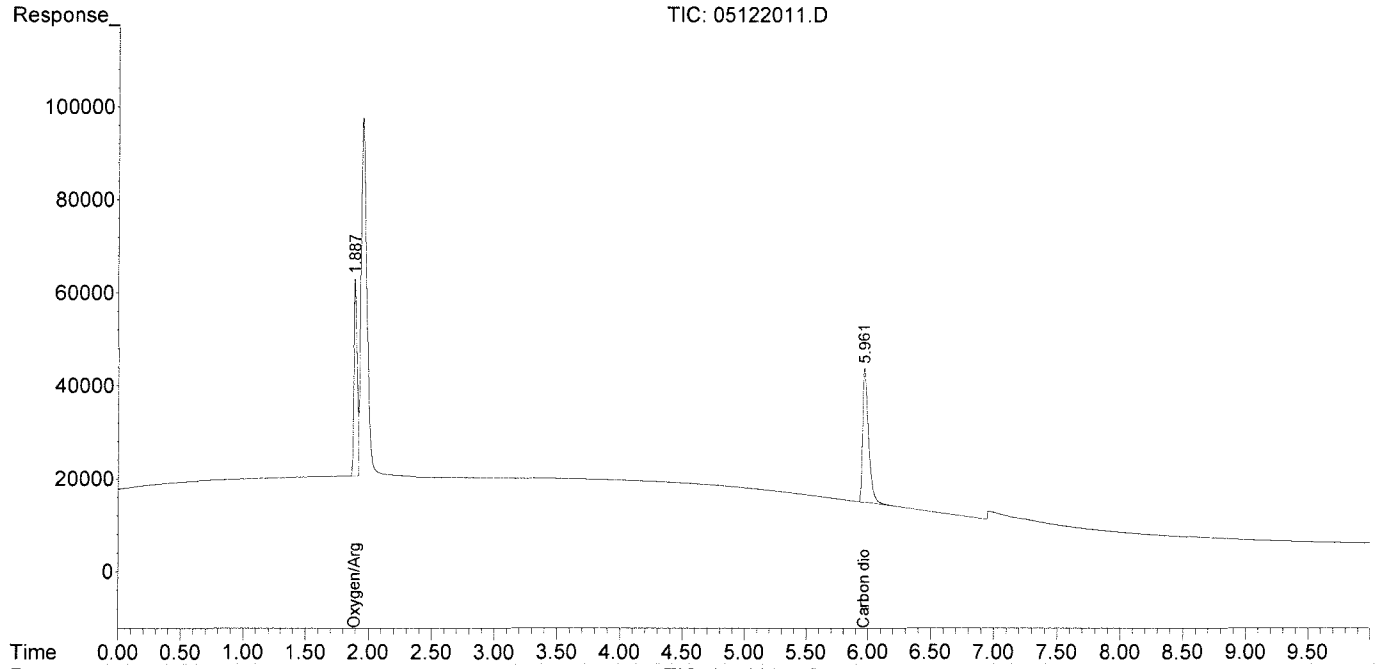
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.888	719041	0.151	ppm
2)	Carbon monoxide	1.888	719041	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.962	949651	4045.732	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

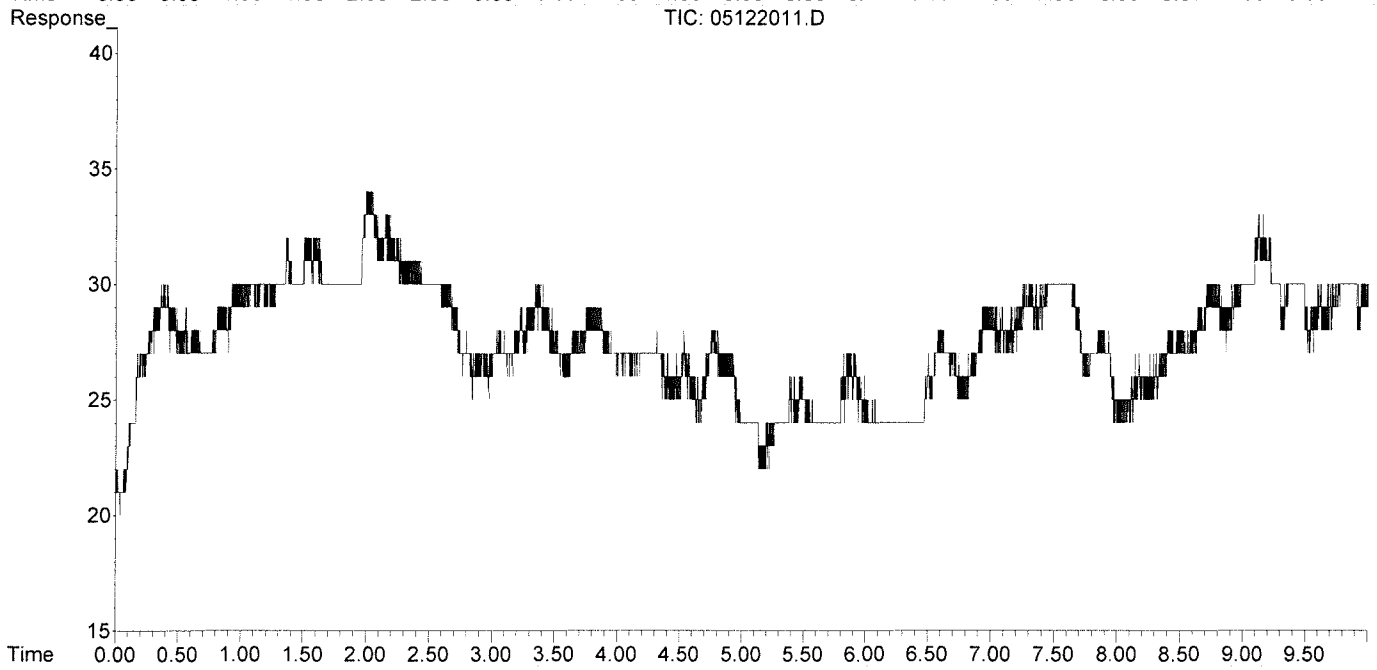
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122011.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 18:38:29
Operator : LD
Sample : P2002523-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 18:51:58 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122012.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 18:51:32
Operator : LD
Sample : P2002523-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 19:08:44 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

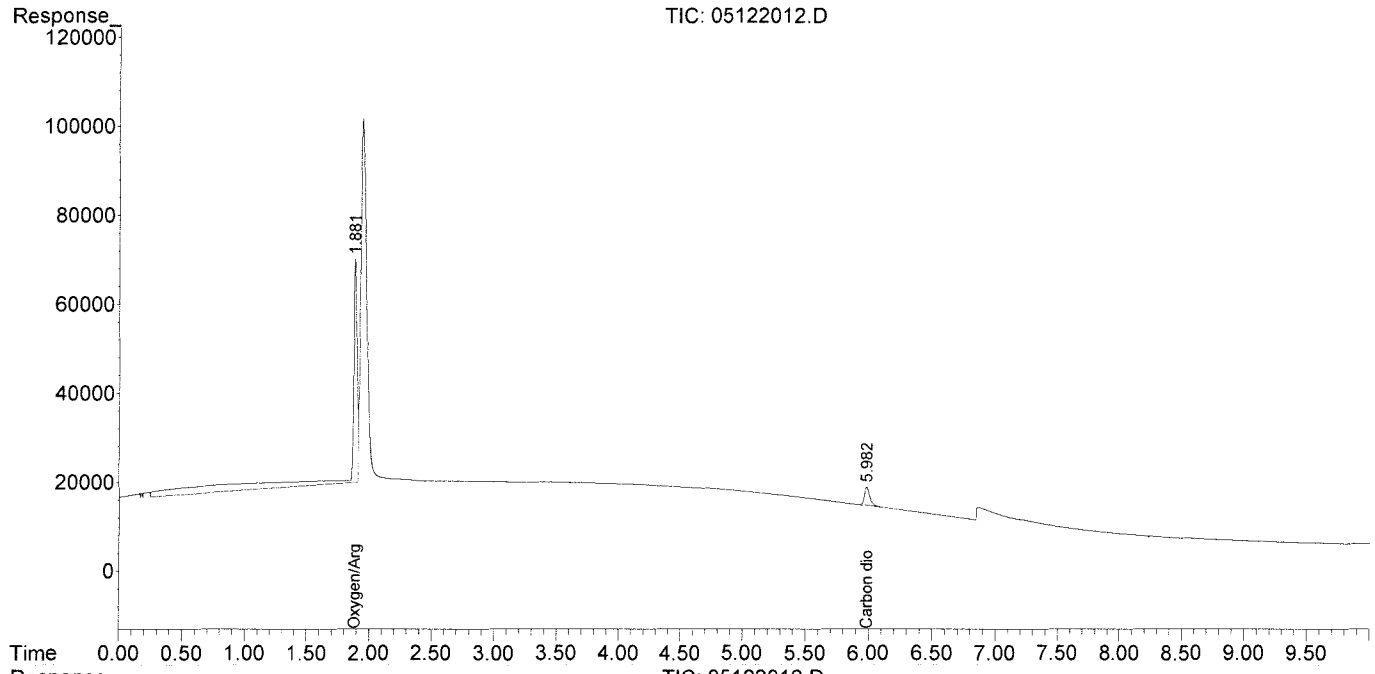
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.882	2043925	0.429	ppm
2)	Carbon monoxide	1.882	2043925	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.982	119178	507.725	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

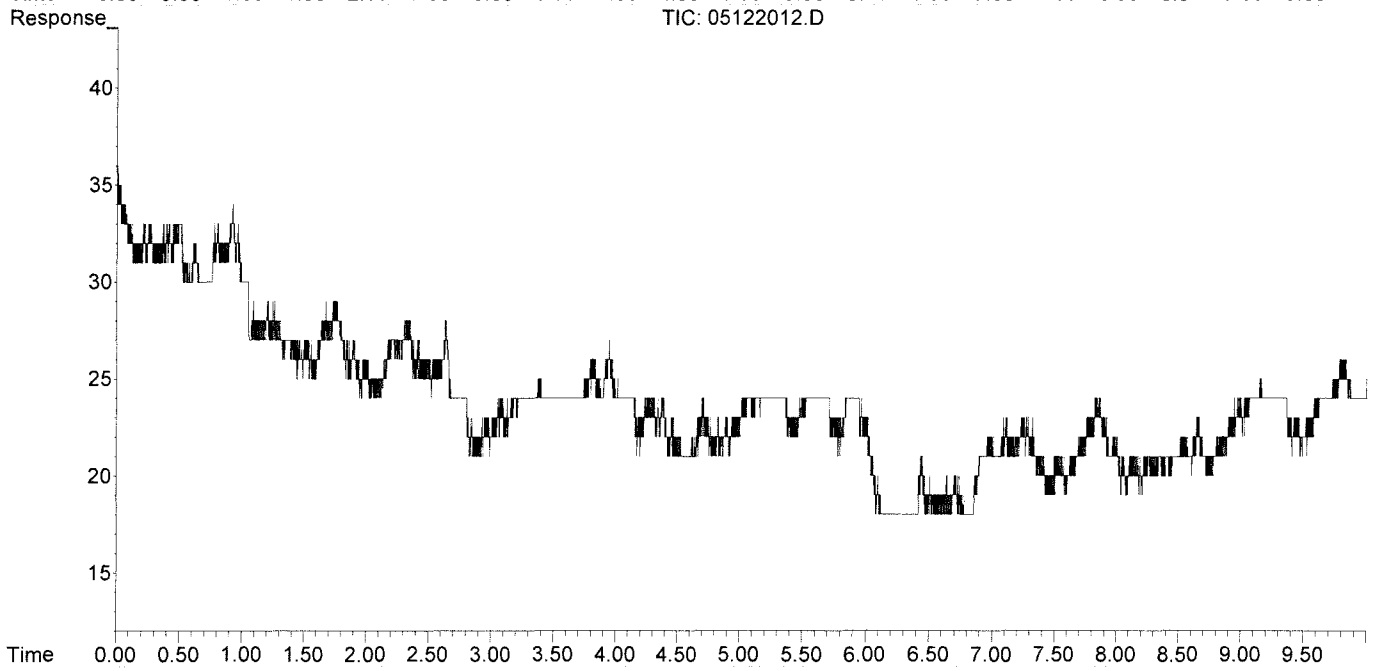
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122012.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 18:51:32
Operator : LD
Sample : P2002523-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 19:08:44 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122003.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 16:07:14
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 16:26:26 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

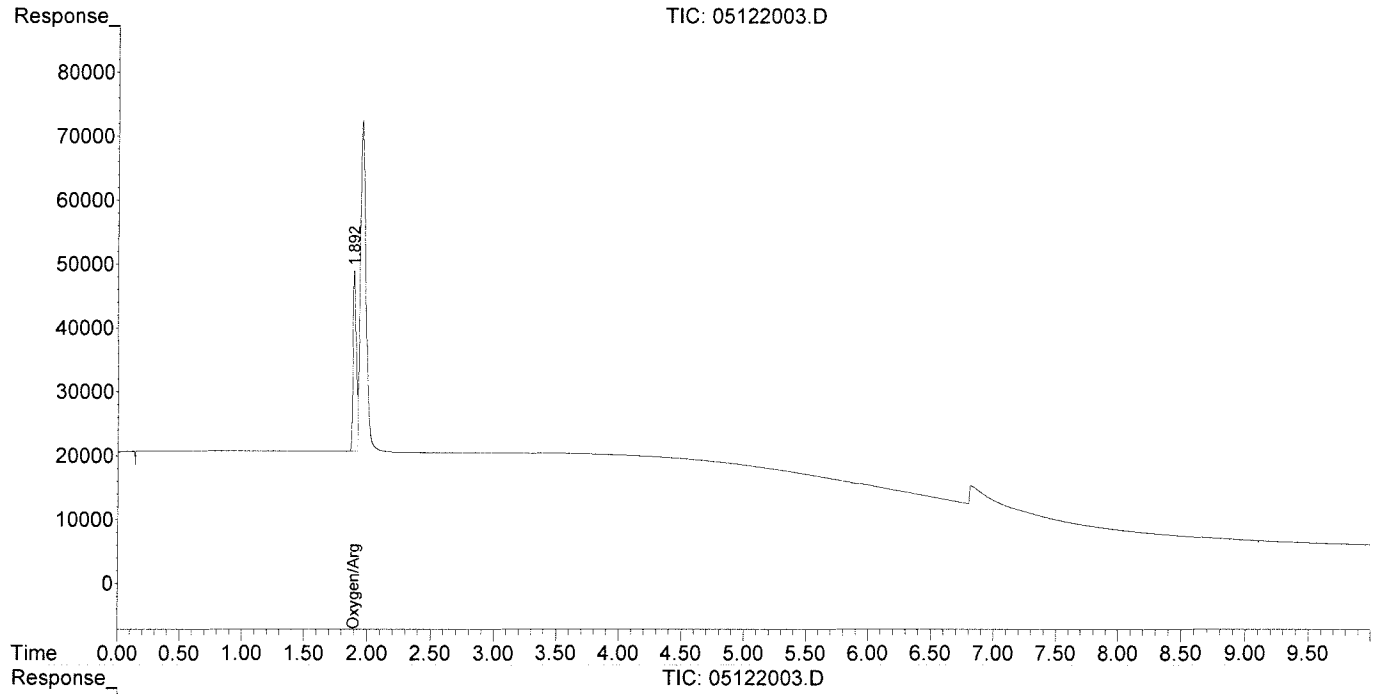
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.893	498630	0.105	ppm
2)	Carbon monoxide	1.893	498630	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

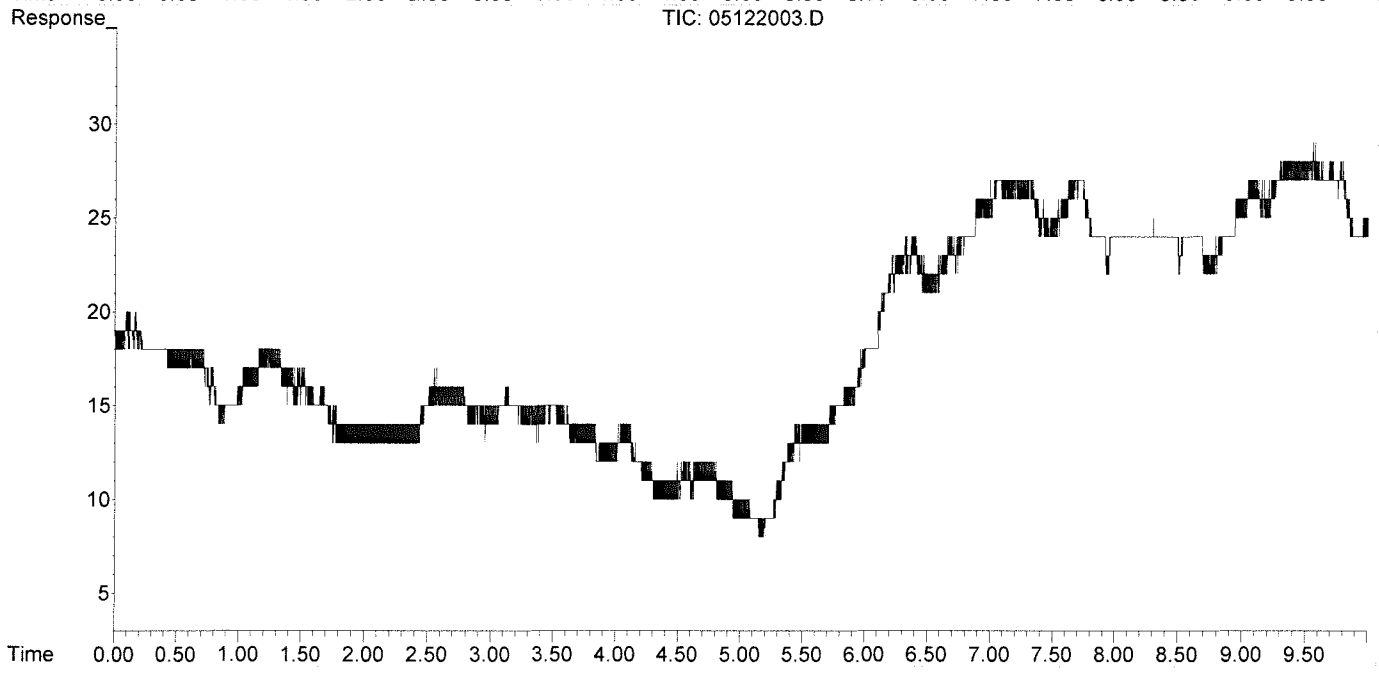
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122003.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 16:07:14
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 16:26:26 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122006.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 17:33:10
Operator : LD
Sample : LCS S32-01212003
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 17:45:37 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

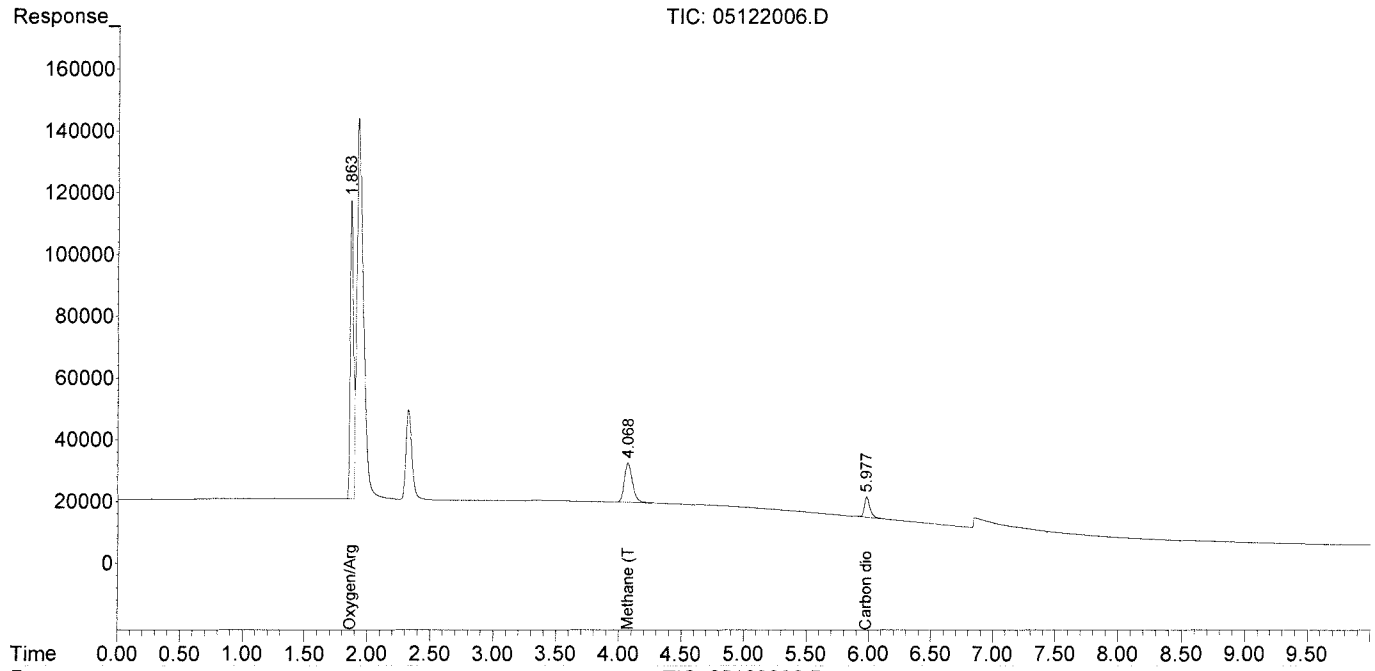
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.864	1771518	0.372	ppm
2)	Carbon monoxide	1.864	1771518	N.D.	ppm
3)	Methane (TCD)	4.069f	587276	62097.268	ppm
4)	Carbon dioxide	5.978	206701	880.595	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

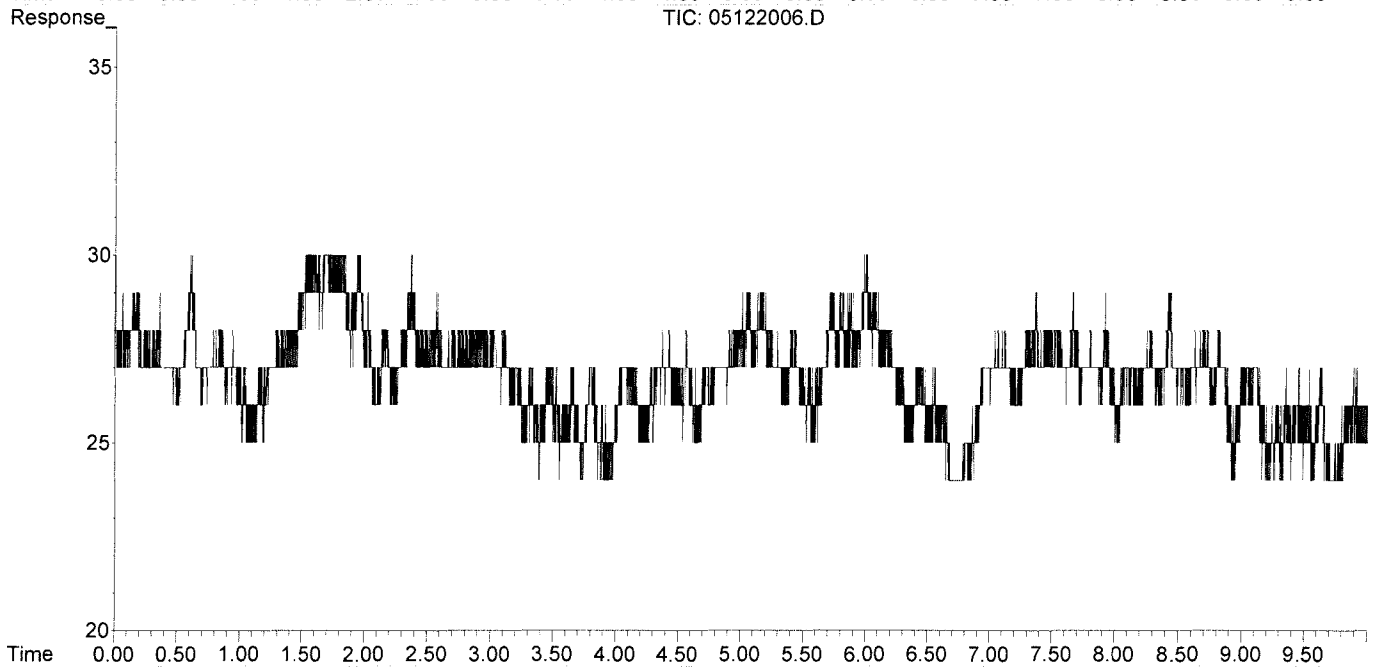
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122006.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 17:33:10
Operator : LD
Sample : LCS S32-01212003
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 17:45:37 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122007.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 17:46:54
Operator : LD
Sample : LCSD S32-01212003
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 17:55:51 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

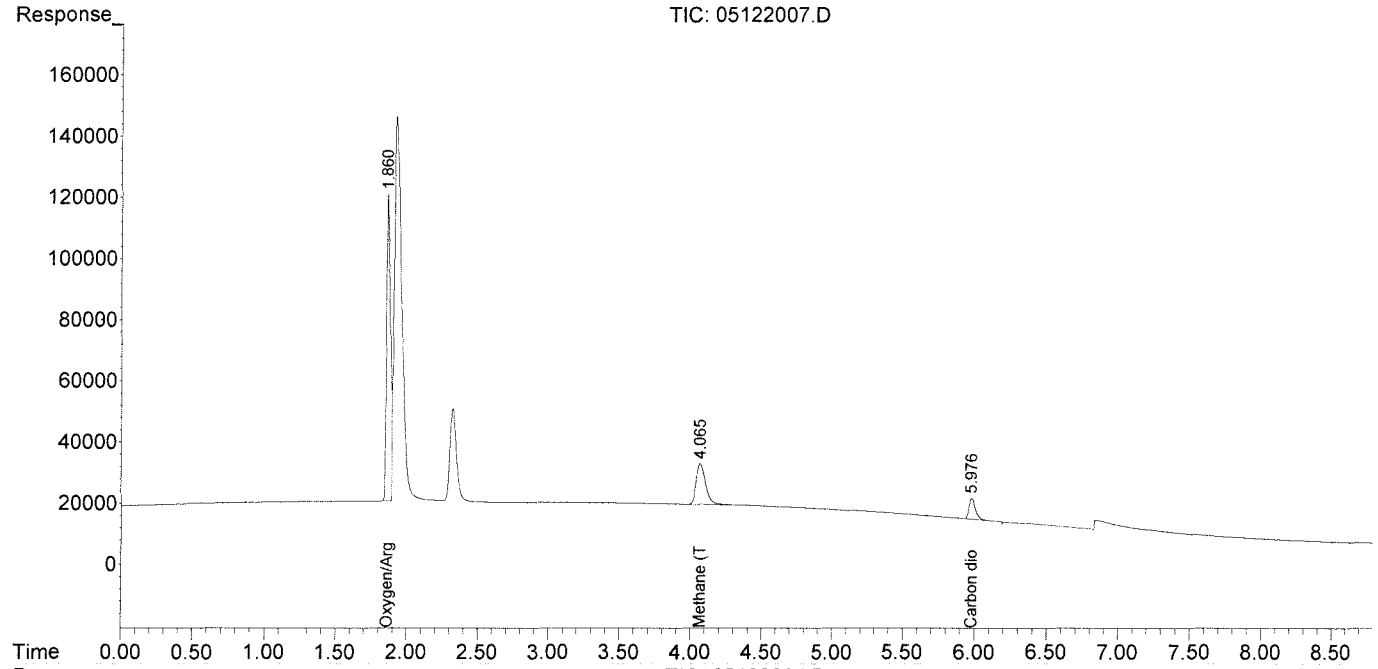
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.860	1833598	0.385	ppm
2)	Carbon monoxide	1.860	1833598	N.D.	ppm
3)	Methane (TCD)	4.066f	607463	64231.823	ppm
4)	Carbon dioxide	5.976	212434	905.016	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

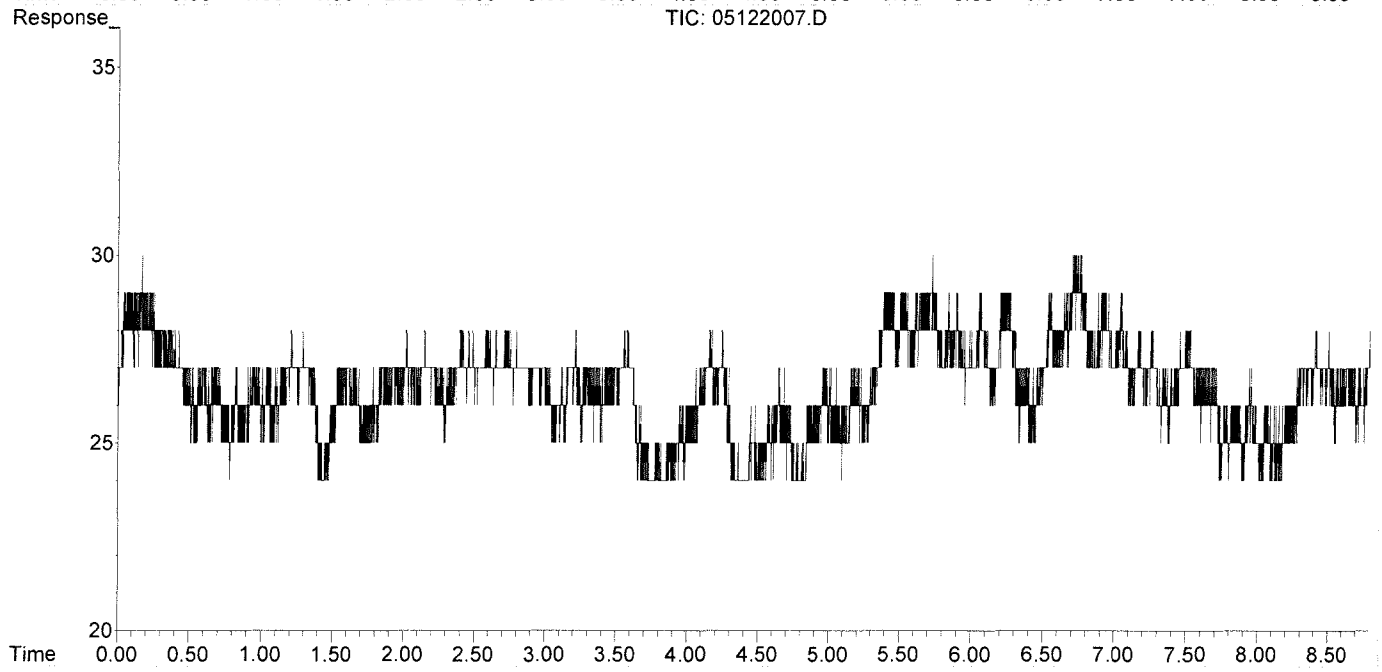
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122007.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 17:46:54
Operator : LD
Sample : LCSD S32-01212003
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 17:55:51 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	4.760						4.760	E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657	E6	170.12
3)	Methane (TCD)							9.457		0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347	E2	7.99

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945	E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684	E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723	E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449	E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655	E4	7.75
11)	Isobutylene							0.000		-1.00
12)	Isobutane							0.000		-1.00
13)	n-Butane							0.000		-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

dit Compounds -- Compound #4 -- Carbon dioxide

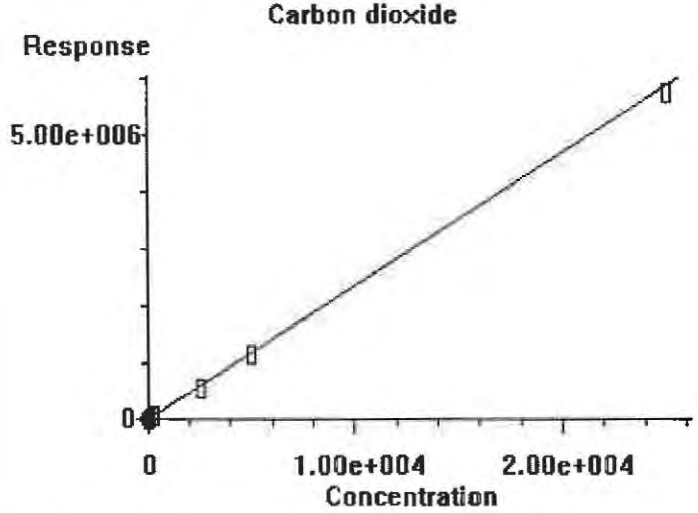
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

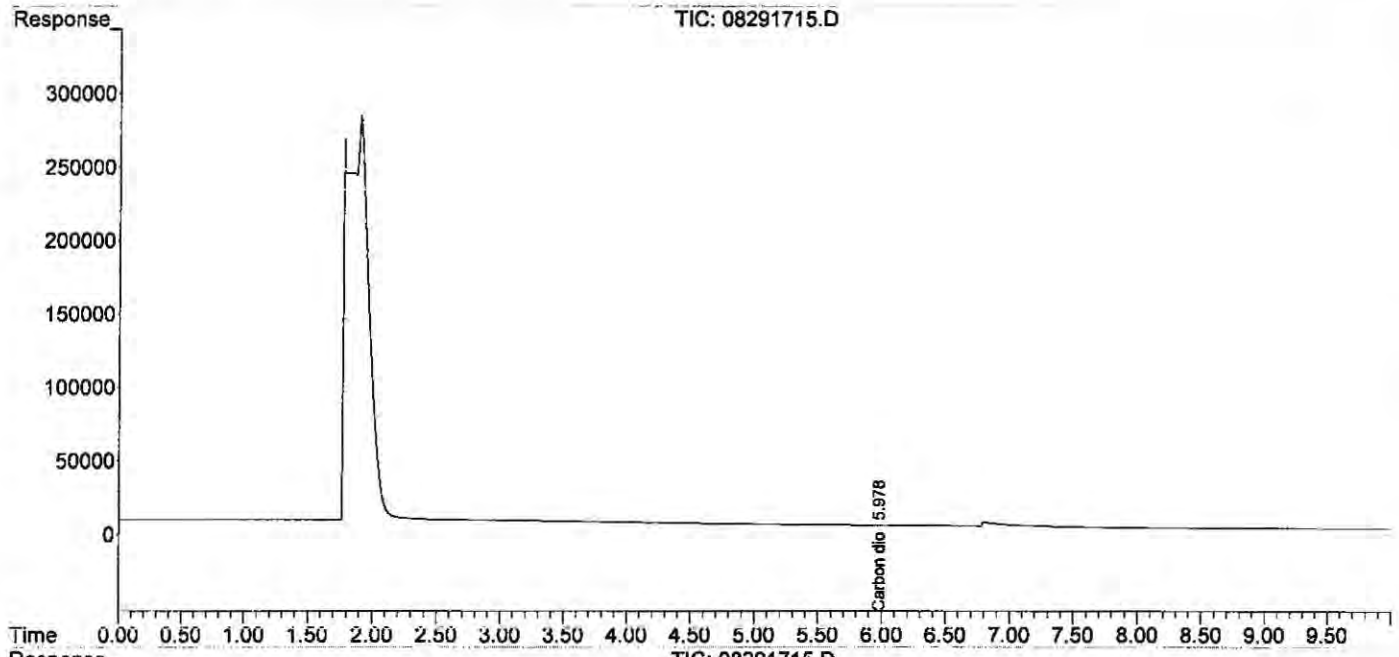
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

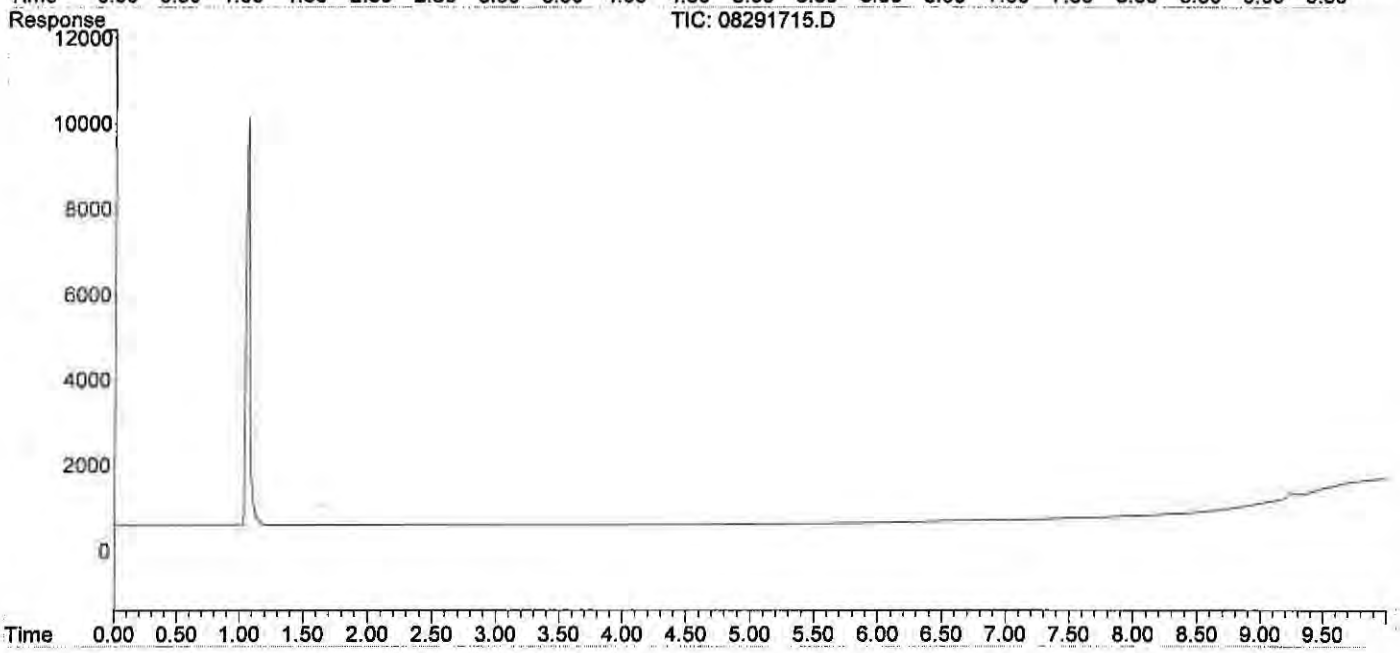
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



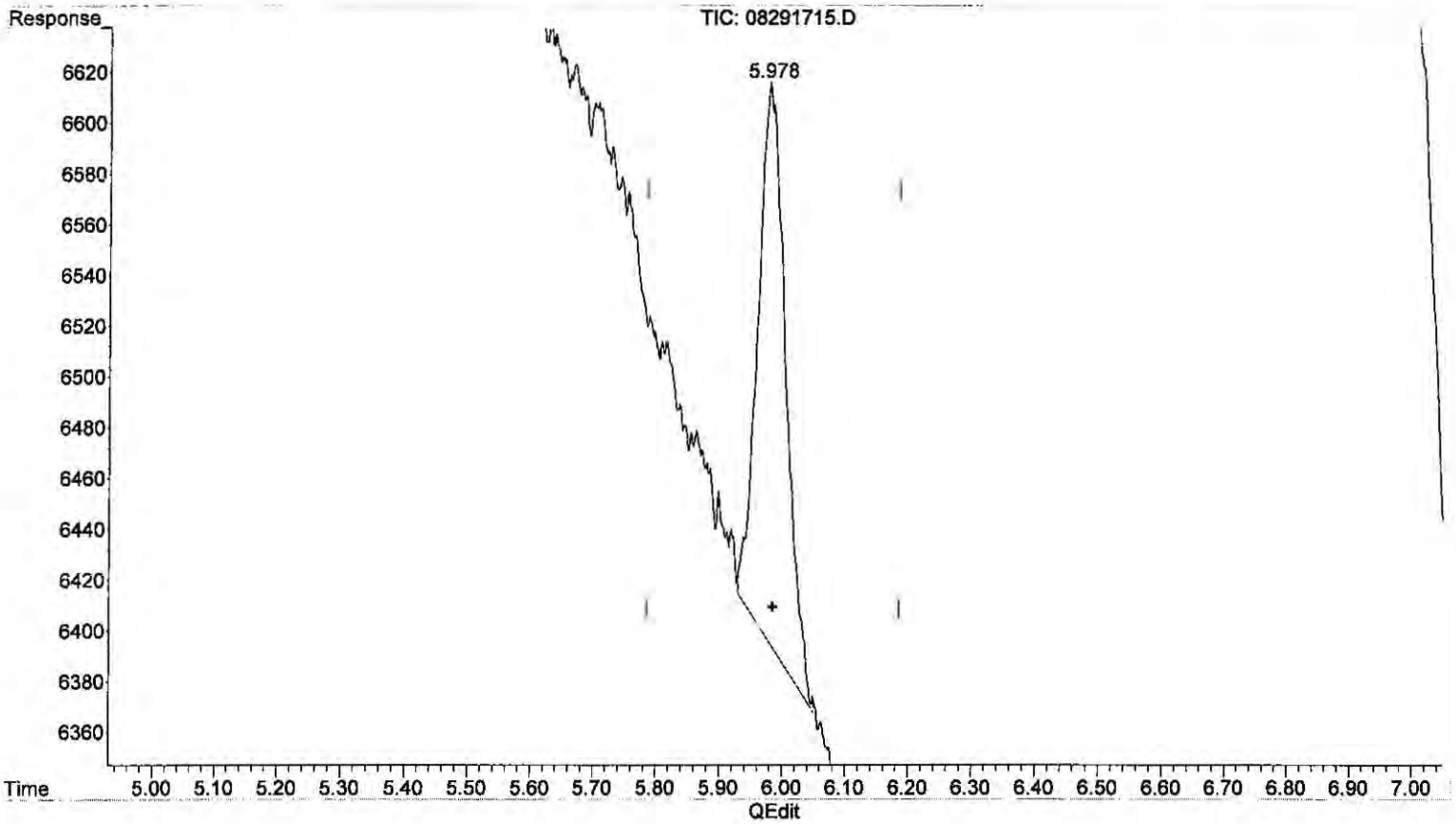


01040561

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

8/30/17
BW
M.
prelim

8/4/17

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

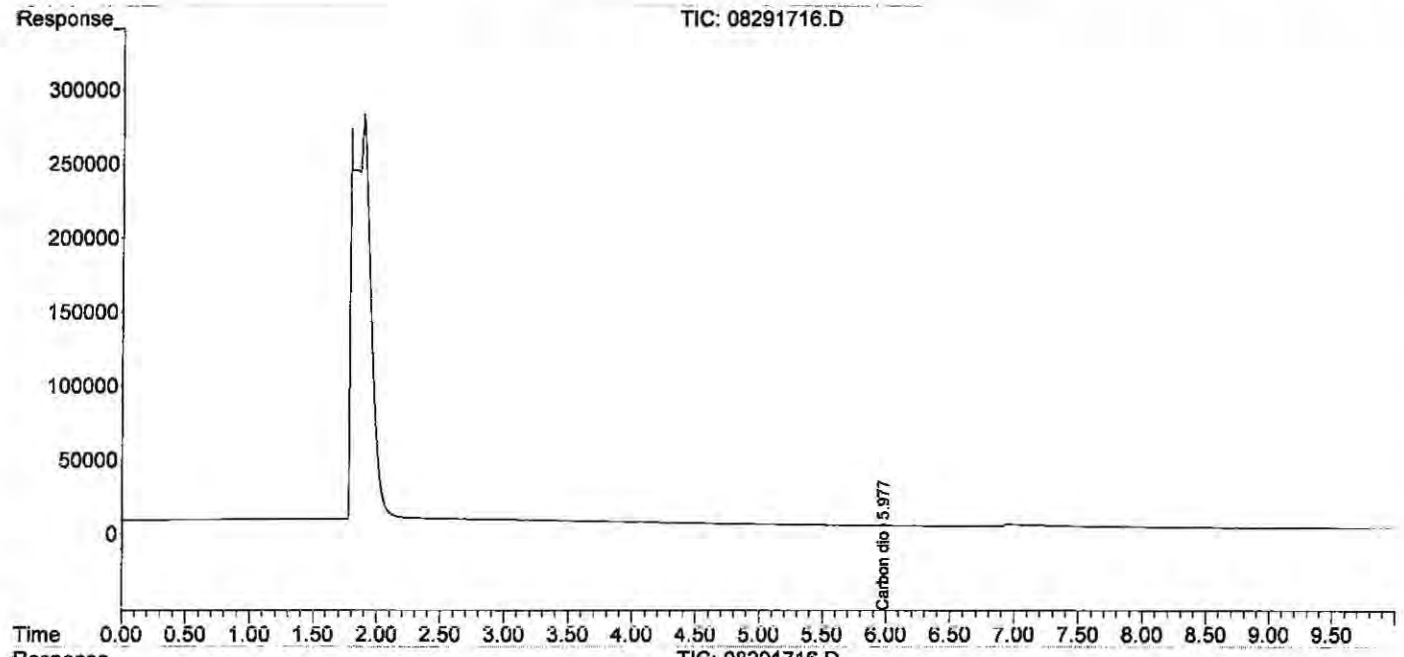
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.790	-598962	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	21932	87.858	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

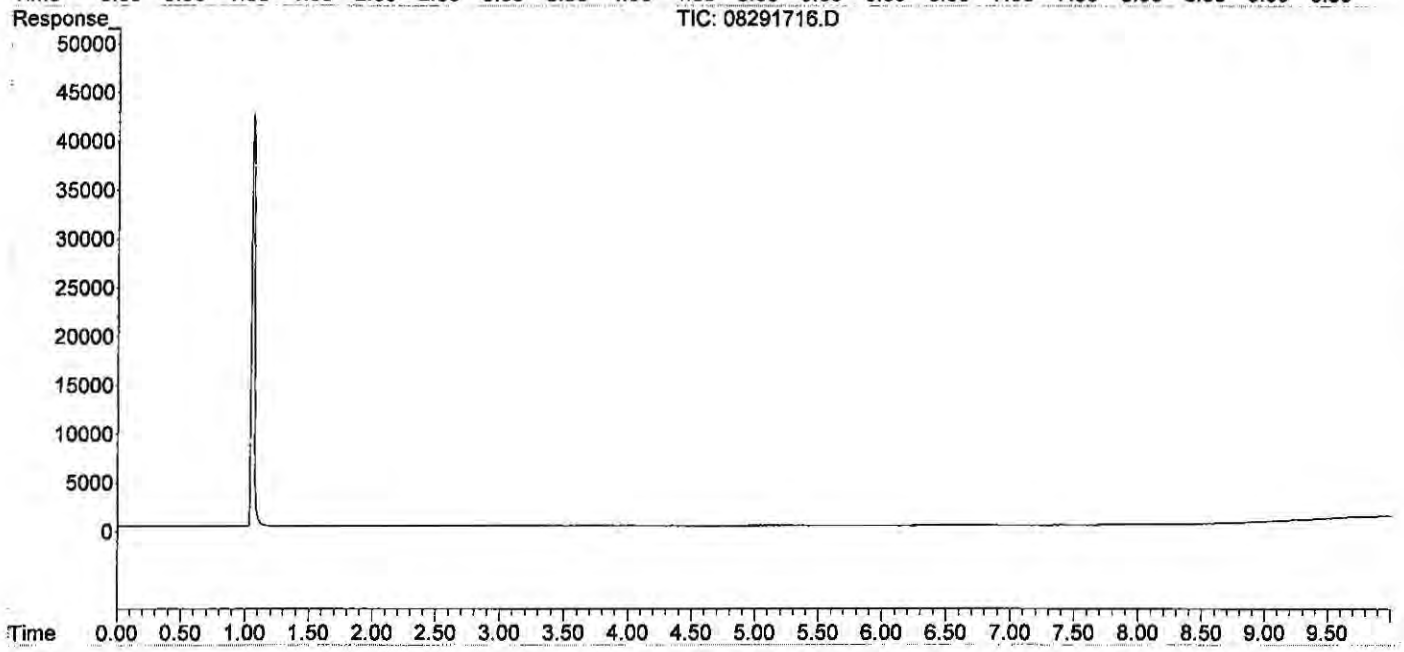
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

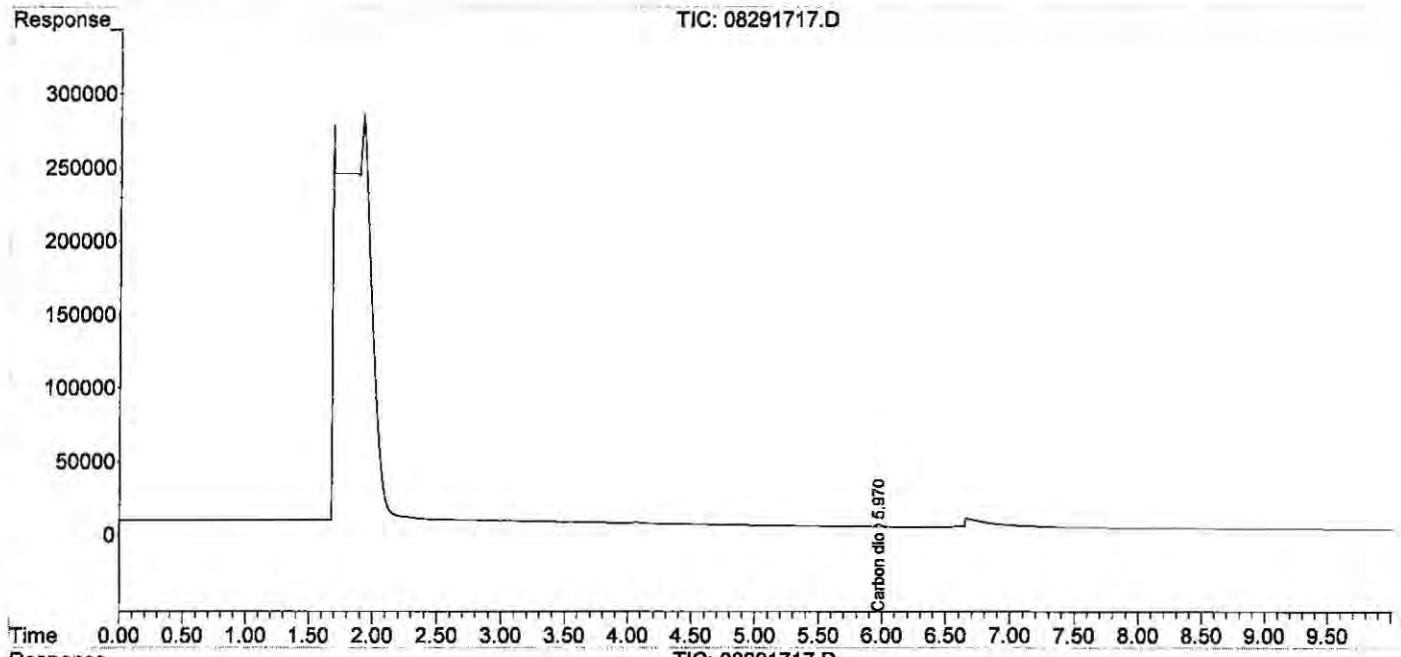
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

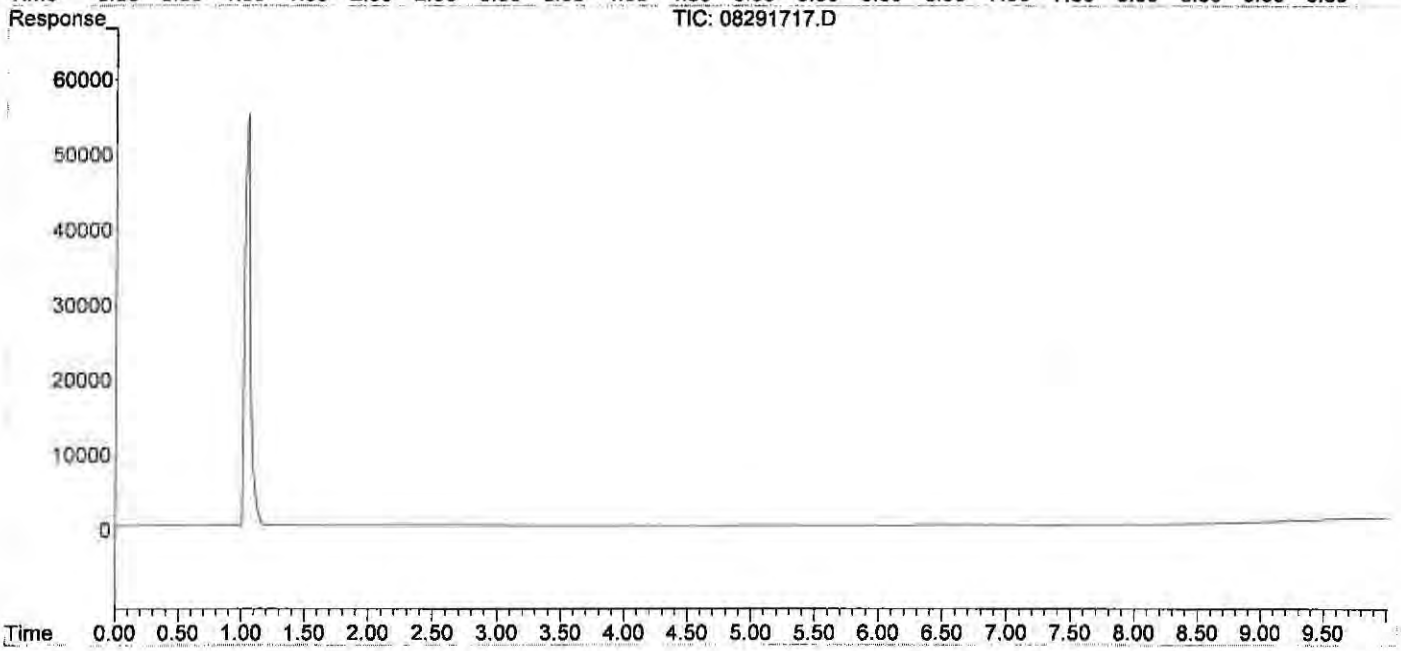
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



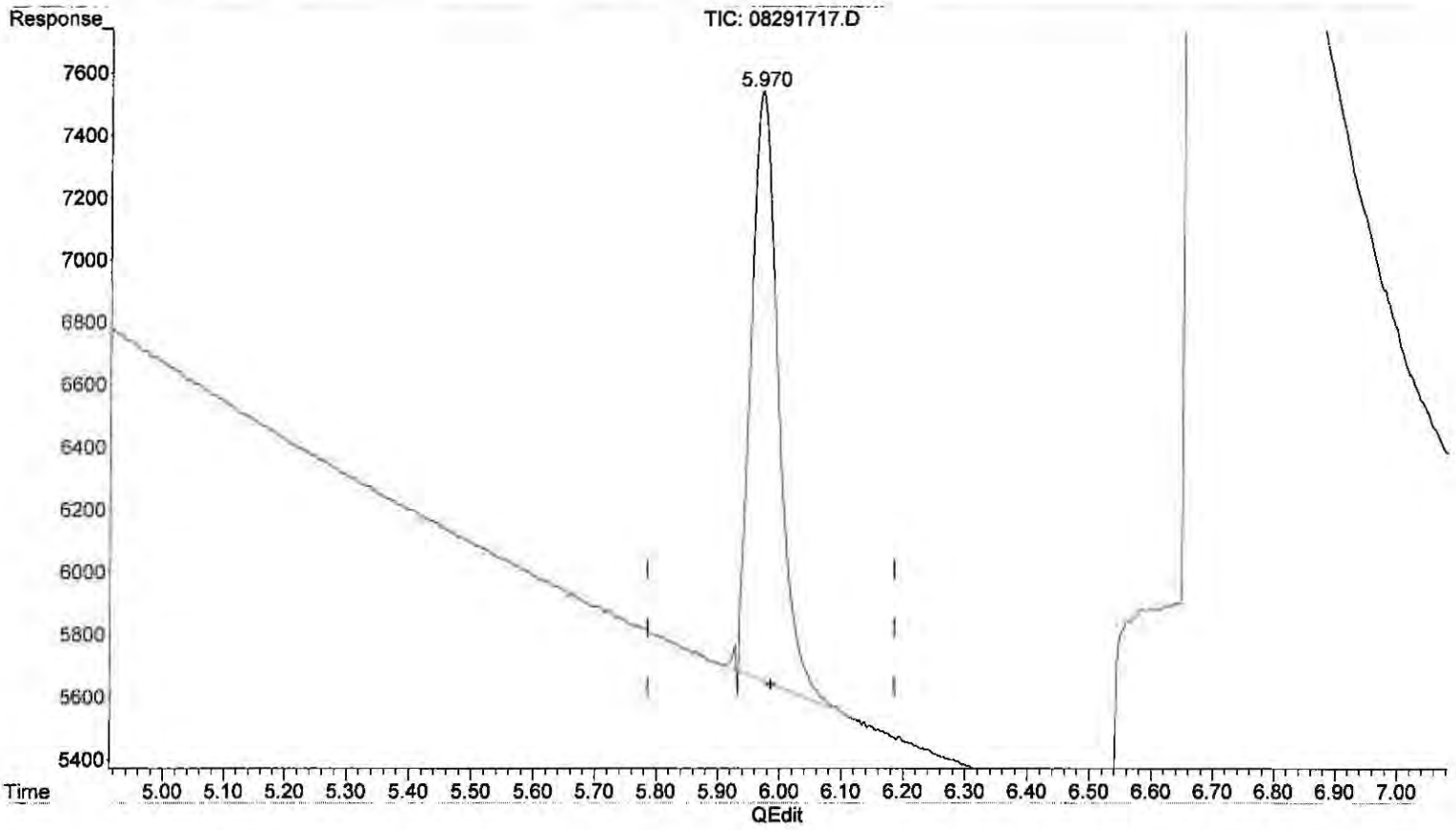


01040566

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

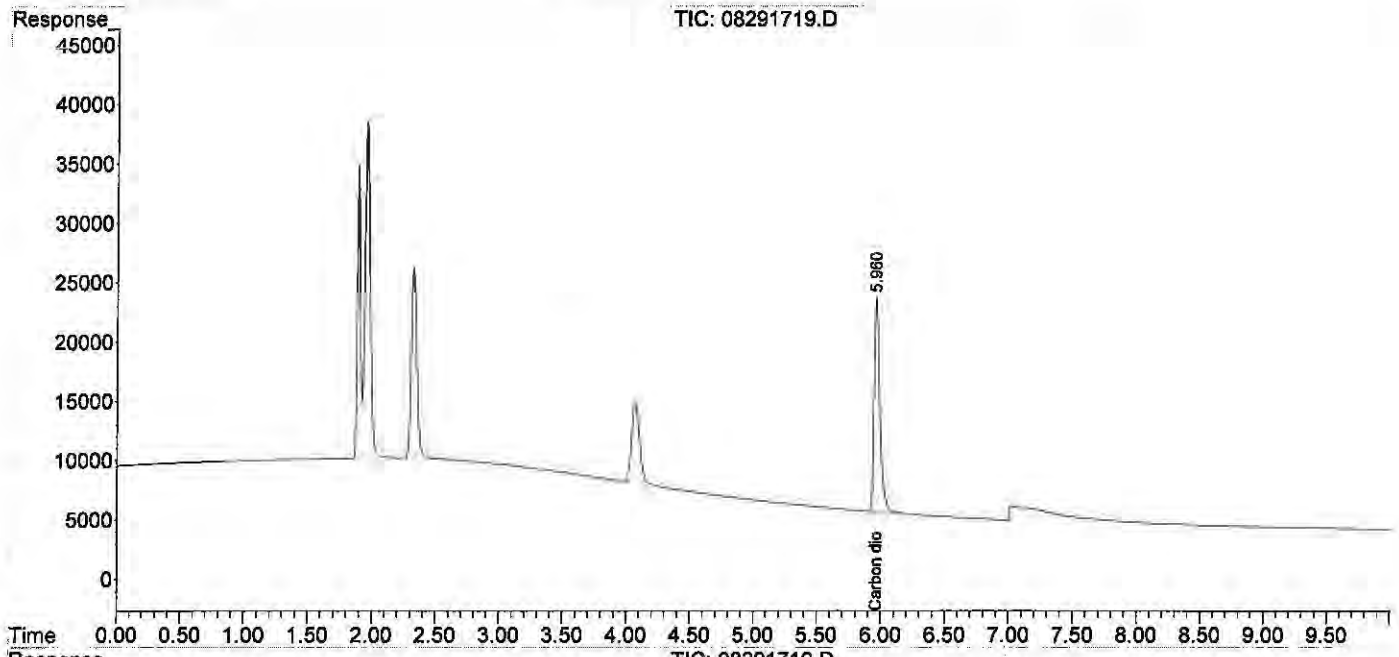
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.891	425113	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.962	568043	2369.673	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

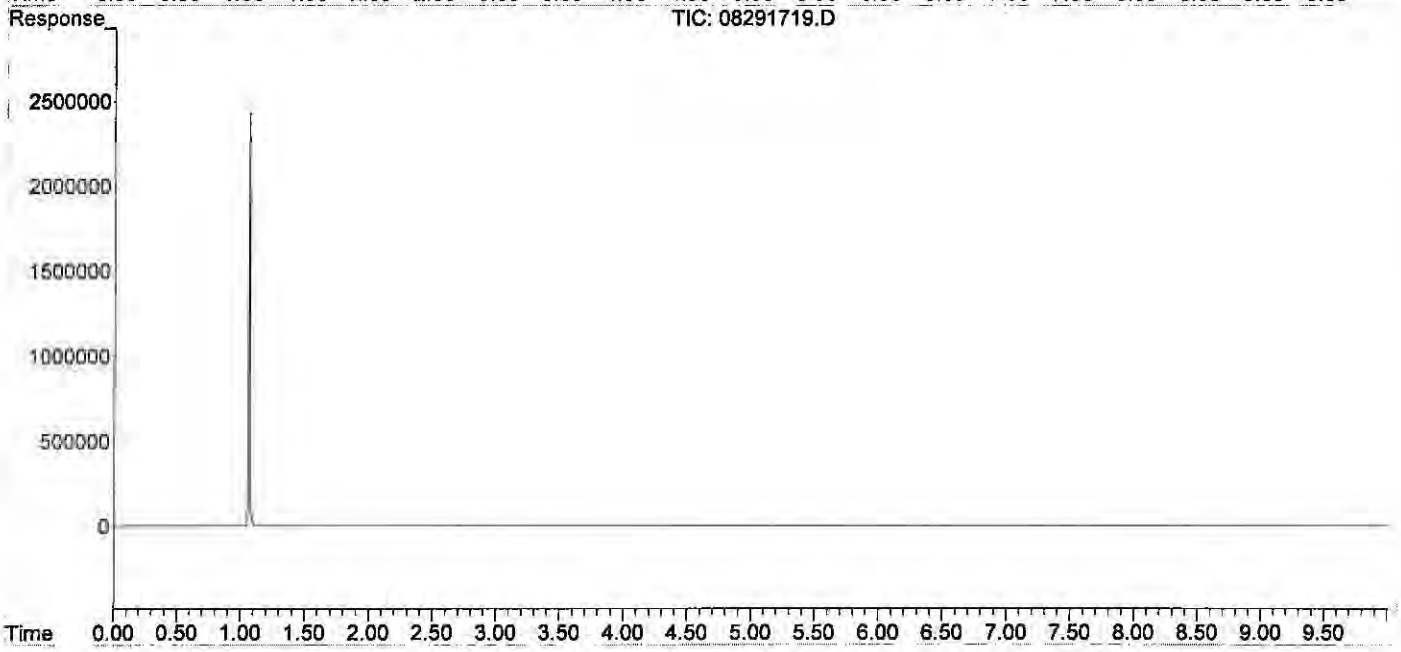
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

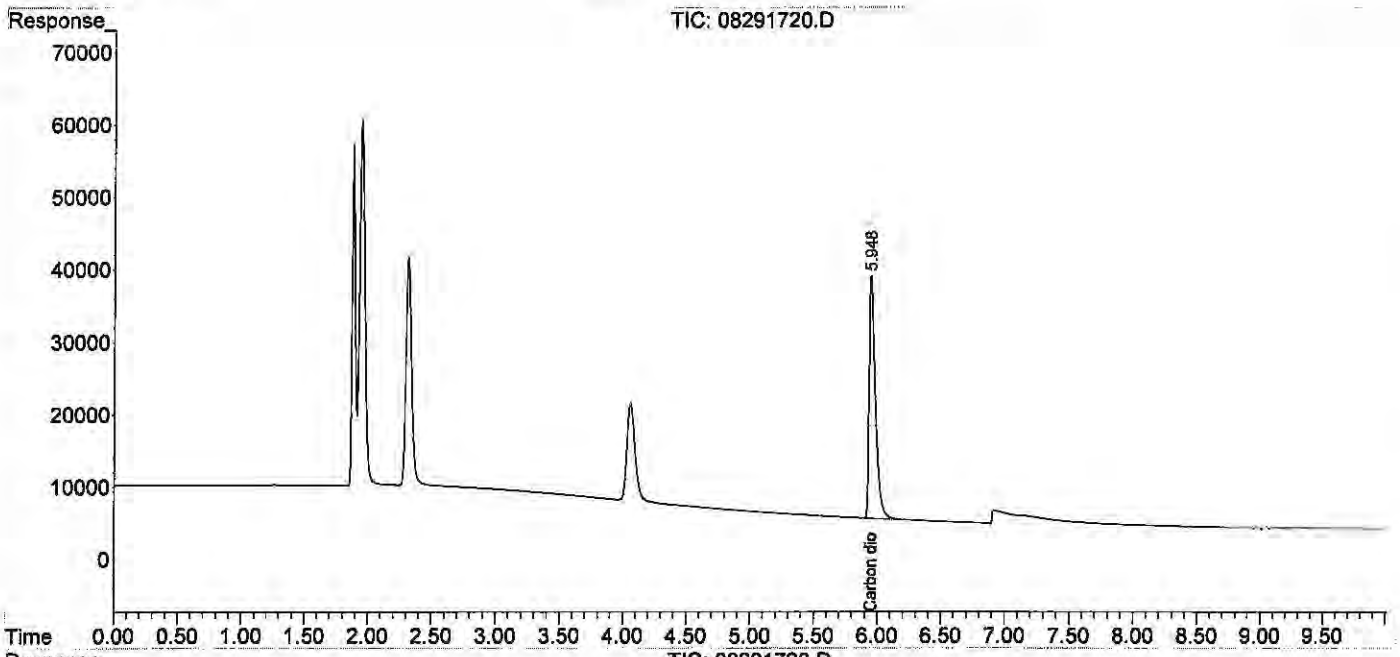
(f)=RT Delta > 1/2 Window (m)=manual int.

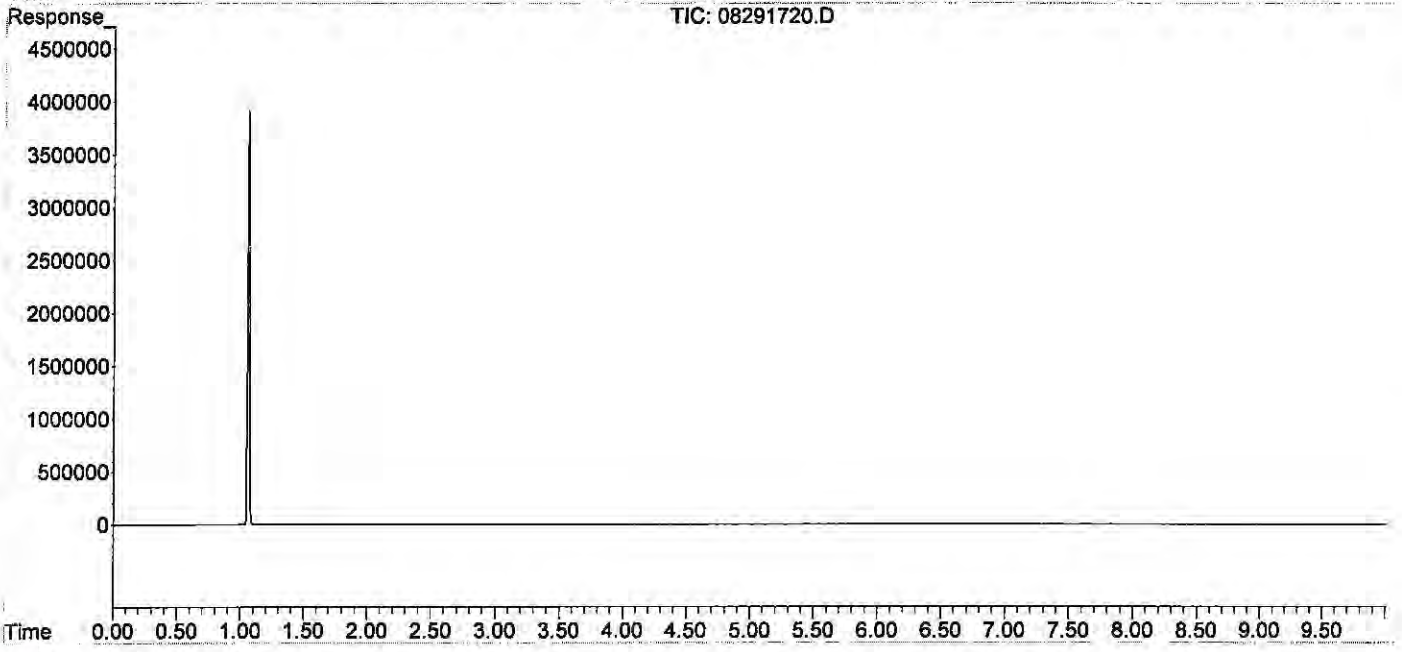
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

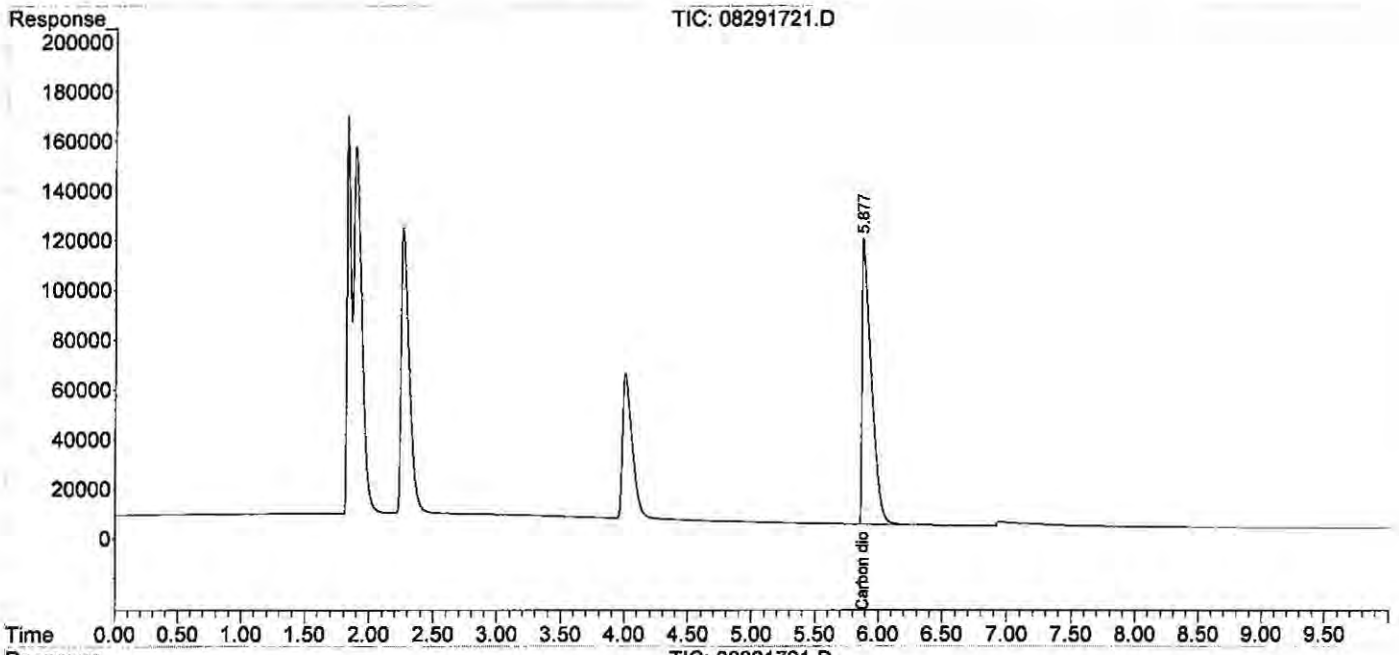
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

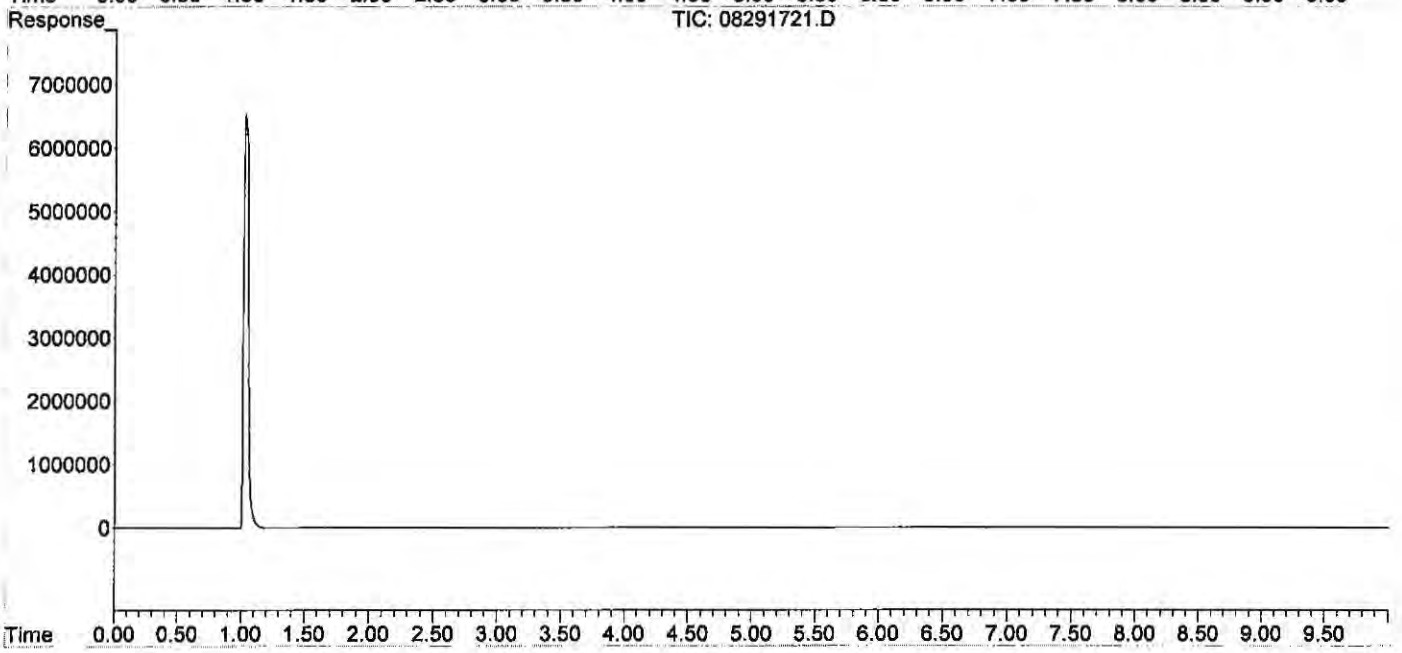
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.886	536422	0.113	ppm
2)	Carbon monoxide	1.886	536422	N.D.	ppm
3)	Methane (TCD)	4.059f	626500	66244.710	ppm
4)	Carbon dioxide	5.947	1163775	4957.948	ppm
6)	Methane (FID)	1.062	37290742	3947.023	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

Actual %D
5000 99.16

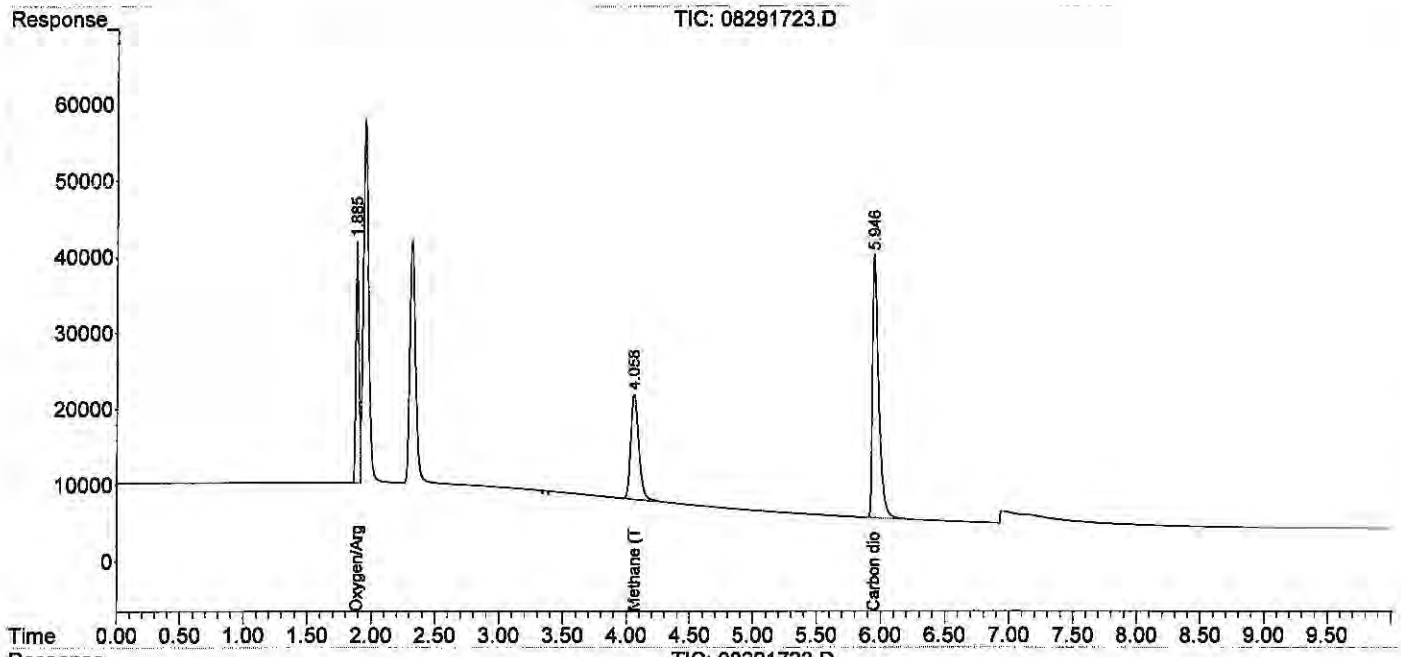
(f)=RT Delta > 1/2 Window (m)=manual int.

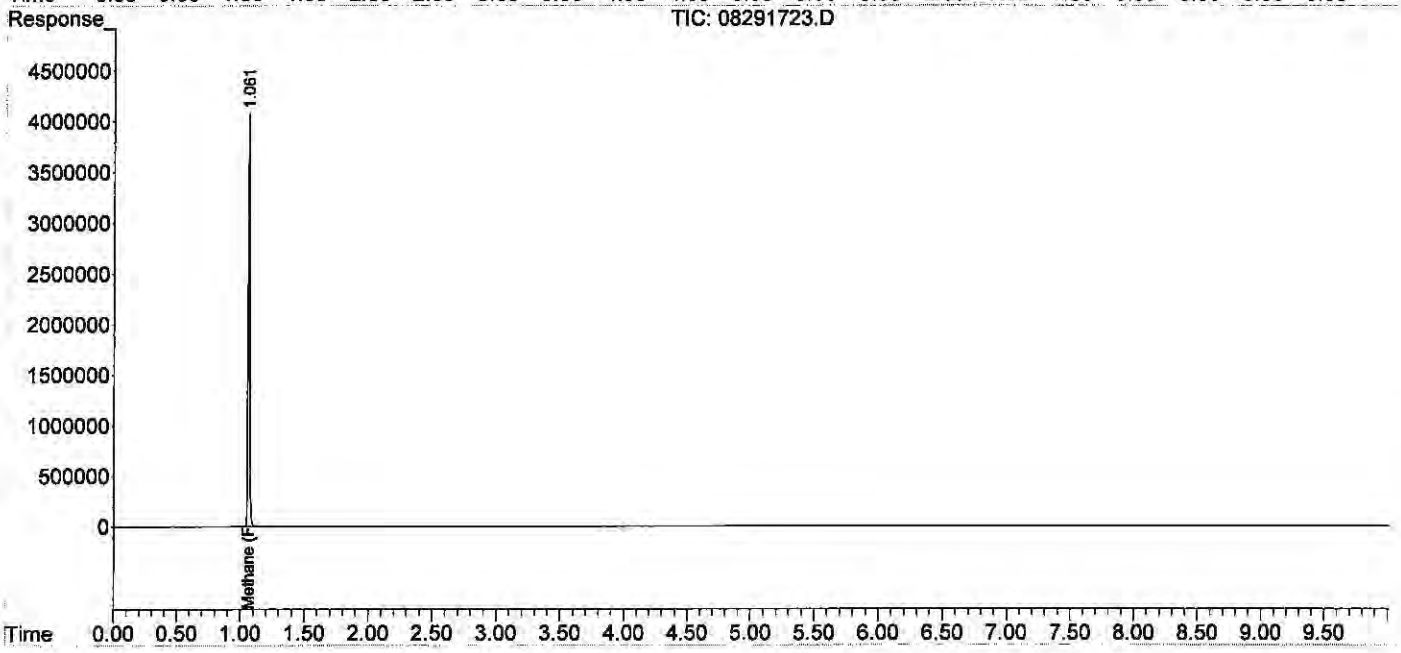
W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P2002523
Sample Vol. (ml) : 32.00 ml
Analyst : LD
Date Analysis : 05/12/20
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
STD S32-01312001	0.100	4934.504
ACTUAL		5000.00
%Difference		1.3%
MCS 0.1ml	0.100	0.000
RB 0.1ml	0.100	0.000
LCS S32-01212003	0.100	880.595
LCSD S32-01212003	0.100	905.016
P2002523-001 0.1ml	0.100	4001.882
P2002523-002 0.1ml	0.100	2085.795
P2002523-003 0.1ml	0.100	4305.096
P2002523-004 0.1ml	0.100	4045.732
P2002523-005 0.1ml	0.100	507.725

FINAL HEAD SPACE RESULT (ppm)

		Carbon Dioxide
	WWt.	44.10
	HENRY'S CONSTANT	1.42E+03
	RL	100.00
MCS 0.1ml		0.000
LCS S32-01212003		8805.950
LCSD S32-01212003		9050.160
P2002523-001 0.1ml		40018.820
P2002523-002 0.1ml		20857.950
P2002523-003 0.1ml		43050.960
P2002523-004 0.1ml		40457.320
P2002523-005 0.1ml		5077.250

STD S32-01312001	5000.533
ACTUAL	5000.00
%Difference	0.0%

LV
05/12

01040576

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122001.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 12:13:38
Operator : LD
Sample : STD S32-01312001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 12:27:53 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD 05/12

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

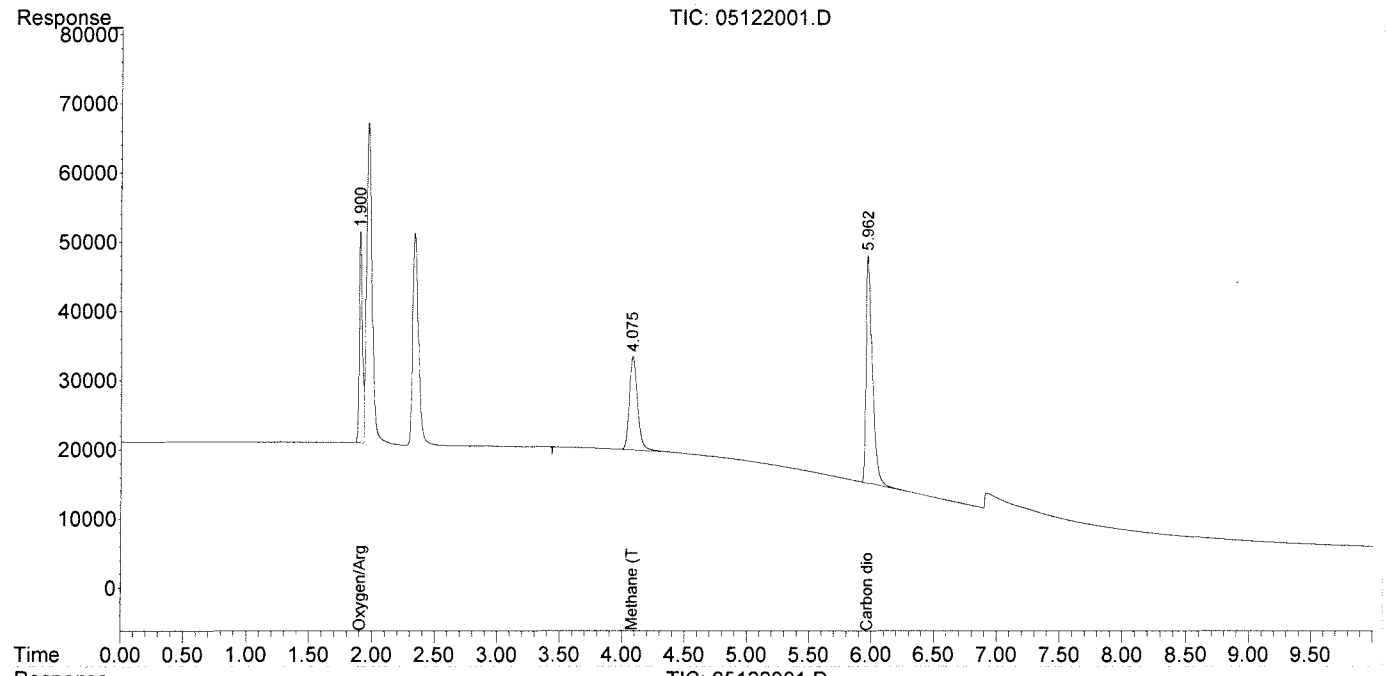
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.901	535037	0.112	ppm
2)	Carbon monoxide	1.901	535037	N.D.	ppm
3)	Methane (TCD)	4.076f	616844	65223.750	ppm
4)	Carbon dioxide	5.963	1158272	4934.504	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

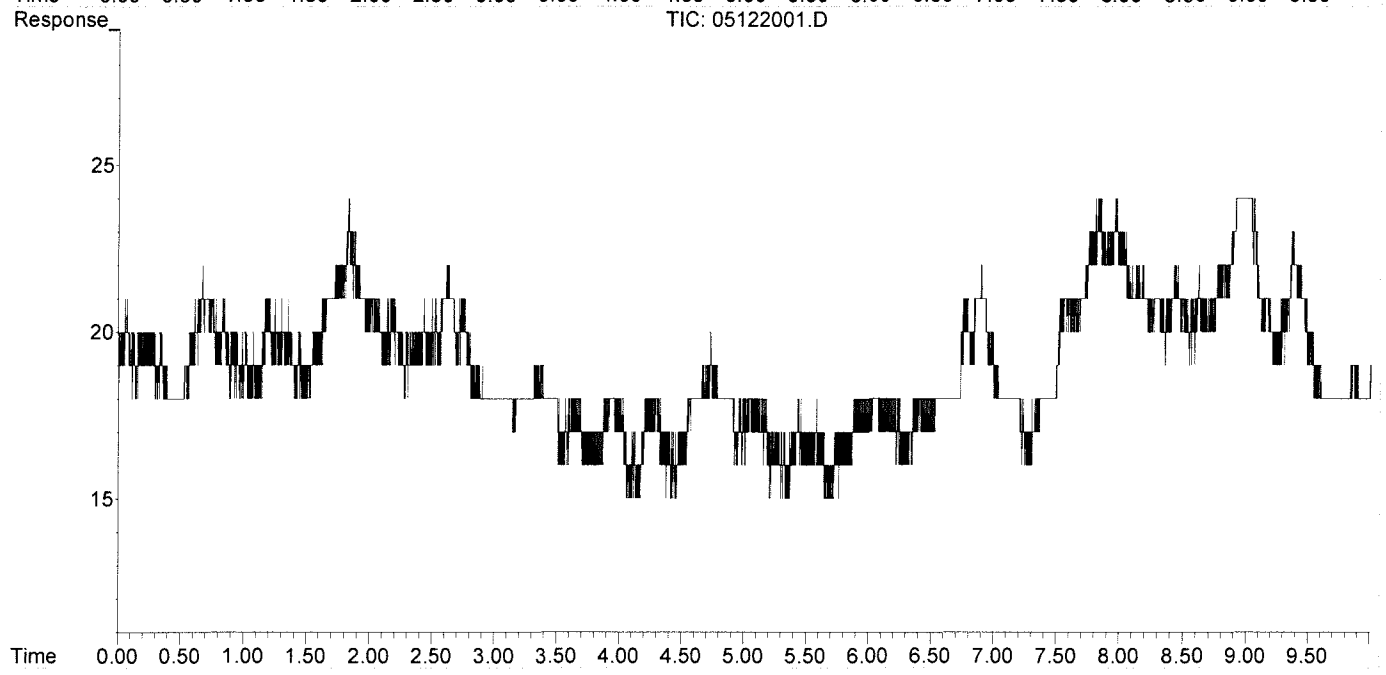
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122001.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 12:13:38
Operator : LD
Sample : STD S32-01312001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 12:27:53 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122013.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 19:04:36
Operator : LD
Sample : STD S32-01312001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 19:18:03 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

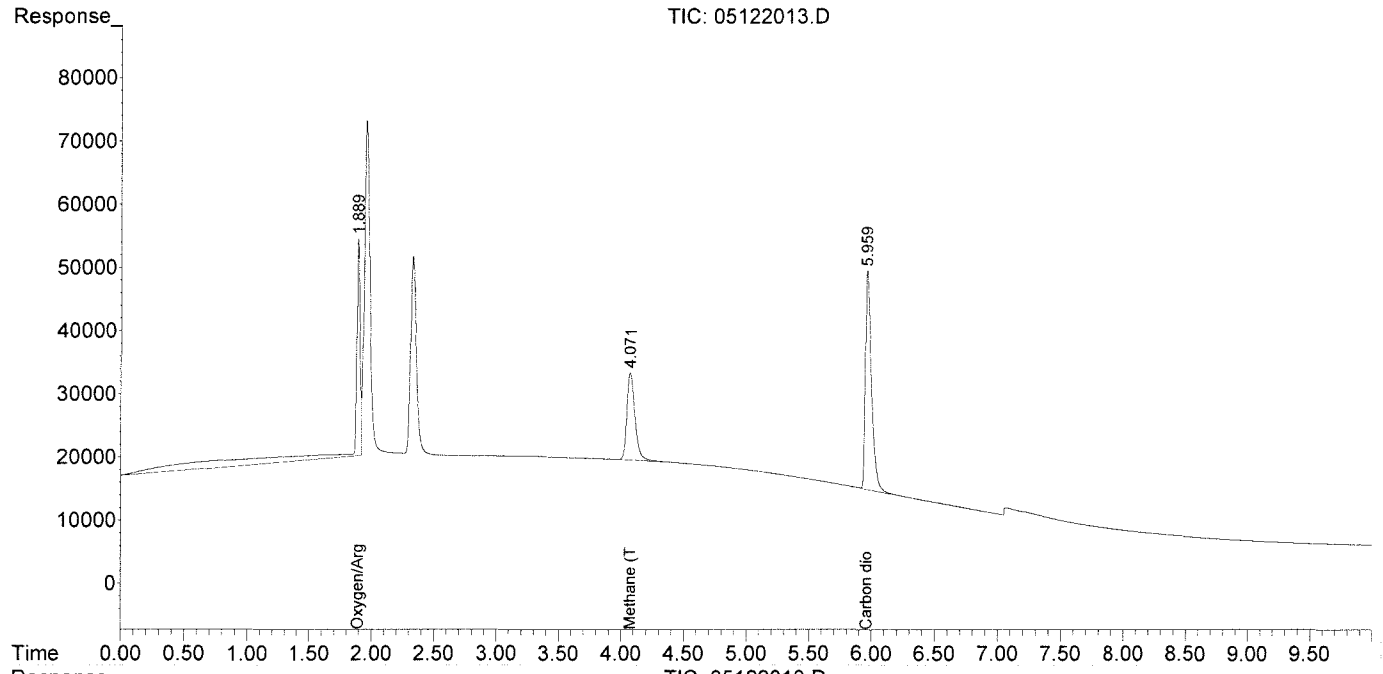
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.890	1461018	0.307	ppm
2)	Carbon monoxide	1.890	1461018	N.D.	ppm
3)	Methane (TCD)	4.072f	635758	67223.691	ppm
4)	Carbon dioxide	5.960	1173771	5000.533	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

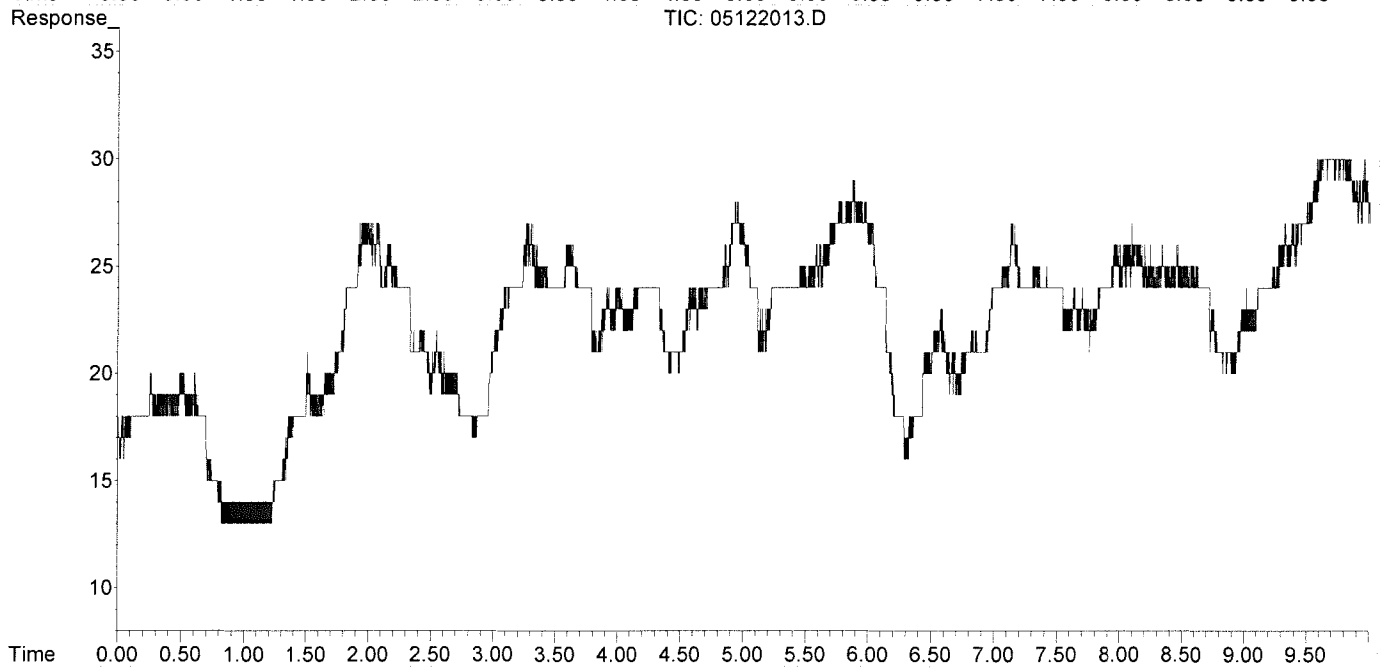
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\12CO2\
Data File : 05122013.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-May-2020, 19:04:36
Operator : LD
Sample : STD S32-01312001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 12 19:18:03 2020
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	29-Aug-17, 07:58:00	08291701.D	std s30-06161601		MC	RSKBOTH.M	Pass
2	29-Aug-17, 08:11:02	08291702.D	mb 0.5ml		MC	RSKBOTH.M	Pass
3	29-Aug-17, 08:24:13	08291703.D	4089-001 0.5ml		MC	RSKBOTH.M	
4	29-Aug-17, 08:39:29	08291704.D	4089-002 0.5ml		MC	RSKBOTH.M	
5	29-Aug-17, 08:53:38	08291705.D	4089-003 0.5ml		MC	RSKBOTH.M	
6	29-Aug-17, 09:33:52	08291706.D	4089-004 0.5ml		MC	RSKBOTH.M	
7	29-Aug-17, 09:50:51	08291707.D	4089-005 0.5ml		MC	RSKBOTH.M	
8	29-Aug-17, 10:07:54	08291708.D	4089-006 0.5ml		MC	RSKBOTH.M	
9	29-Aug-17, 10:42:34	08291709.D	4089-007 0.5ml		MC	RSKBOTH.M	
10	29-Aug-17, 11:06:01	08291710.D	4089-008 0.5ml		MC	RSKBOTH.M	
11	29-Aug-17, 11:23:53	08291711.D	4089-009 0.5ml		MC	RSKBOTH.M	
12	29-Aug-17, 11:37:17	08291712.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
13	29-Aug-17, 11:50:31	08291713.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
14	29-Aug-17, 12:29:45	08291714.D	std s30-06161601		MC	RSKBOTH.M	Pass
15	29-Aug-17, 14:07:01	08291715.D	25ppm s32-08291701 0.25ml		MC	RSKBOTH.M	Curve
16	29-Aug-17, 14:22:12	08291716.D	100ppm s32-08291702 0.2ml		MC	RSKBOTH.M	Curve
17	29-Aug-17, 14:53:00	08291717.D	250ppm s32-08291702 0.5ml		MC	RSKBOTH.M	Curve
18	29-Aug-17, 15:07:43	08291718.D	mis inject		MC	RSKBOTH.M	
19	29-Aug-17, 15:23:21	08291719.D	2500ppm s32-08231701 50ul		MC	RSKBOTH.M	Curve
20	29-Aug-17, 15:44:54	08291720.D	5000ppm s32-08231701 0.1ml		MC	RSKBOTH.M	Curve
21	29-Aug-17, 16:00:09	08291721.D	25000ppm s32-08231701 0.5ml		MC	RSKBOTH.M	Curve
22	29-Aug-17, 16:15:43	08291722.D	mb 0.1ml		MC	RSKBOTH.M	Pass
23	29-Aug-17, 16:35:37	08291723.D	lcv s30-07071701		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2020_05\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-May-20, 12:13:38	05122001.D	STD S32-01312001		LD	RSKBOTH.M	pass
2	12-May-20, 12:29:16	05122002.D	RB 0.1ml		LD	RSKBOTH.M	pass
3	12-May-20, 16:07:14	05122003.D	MCS 0.1ml		LD	RSKBOTH.M	pass
4	12-May-20, 16:27:21	05122004.D	xxxxxLCS S32-01212003		LD	RSKBOTH.M	fail
5	12-May-20, 17:00:01	05122005.D	xxxxxxxxLCS S32-01212003		LD	RSKBOTH.M	fail
6	12-May-20, 17:33:10	05122006.D	LCS S32-01212003		LD	RSKBOTH.M	pass
7	12-May-20, 17:46:54	05122007.D	LCSD S32-01212003		LD	RSKBOTH.M	pass
8	12-May-20, 17:58:30	05122008.D	P2002523-001 0.1ml		LD	RSKBOTH.M	
9	12-May-20, 18:10:52	05122009.D	P2002523-002 0.1ml		LD	RSKBOTH.M	
10	12-May-20, 18:25:16	05122010.D	P2002523-003 0.1ml		LD	RSKBOTH.M	
11	12-May-20, 18:38:29	05122011.D	P2002523-004 0.1ml		LD	RSKBOTH.M	
12	12-May-20, 18:51:32	05122012.D	P2002523-005 0.1ml		LD	RSKBOTH.M	
13	12-May-20, 19:04:36	05122013.D	STD S32-01312001		LD	RSKBOTH.M	pass

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182006.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 14:47:12
Operator : LD
Sample : P2002523-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 15:20:07 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

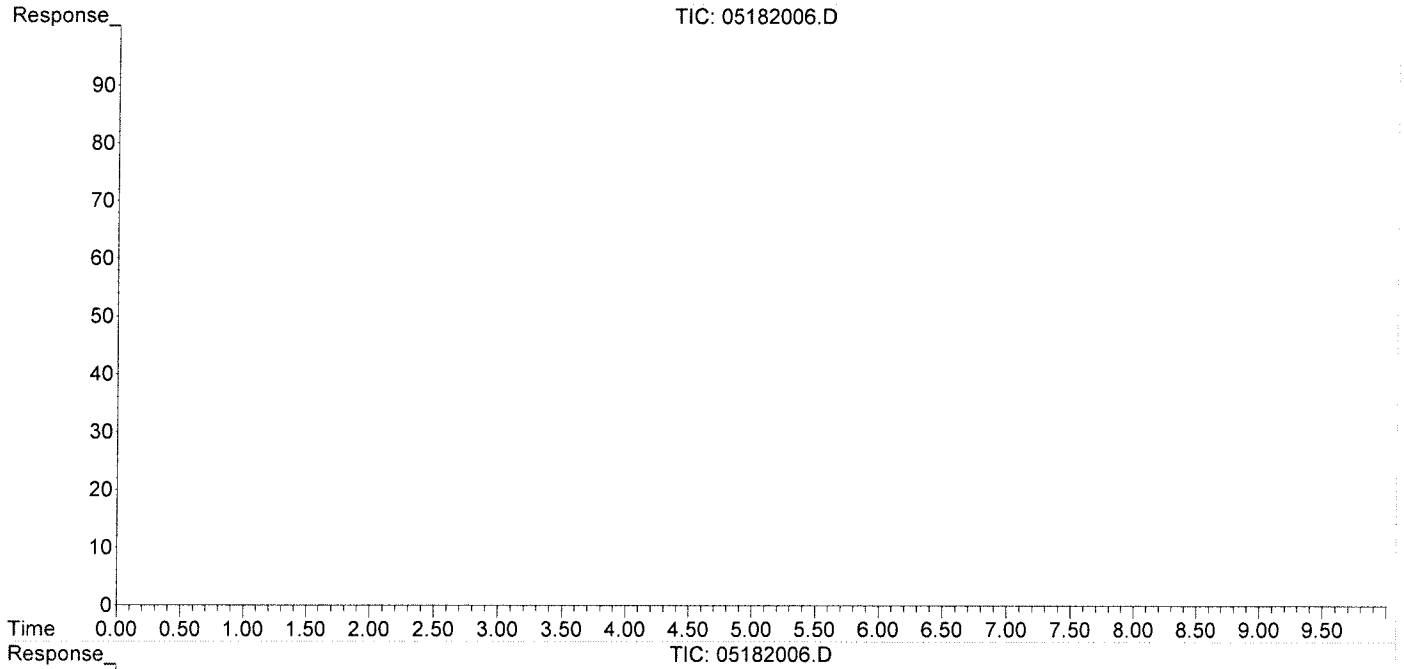
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.096	1099	0.121	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

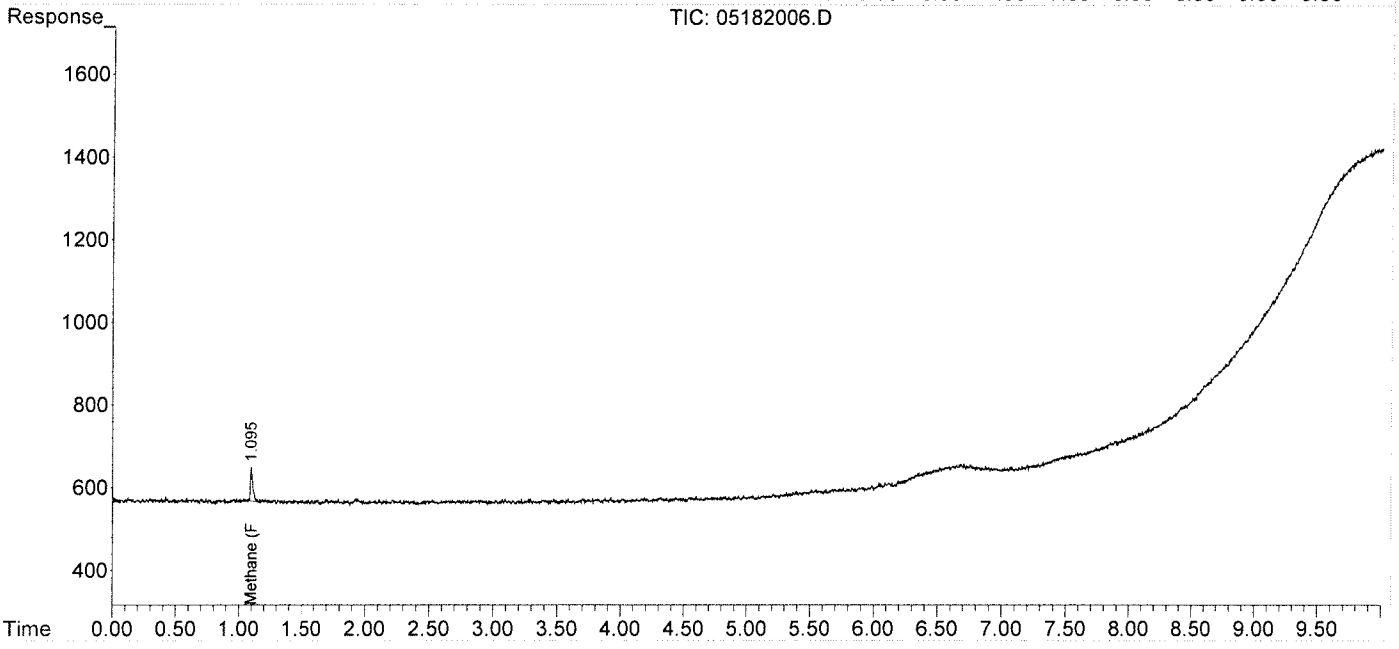
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182006.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 14:47:12
Operator : LD
Sample : P2002523-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 15:20:07 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182007.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 15:10:04
Operator : LD
Sample : P2002523-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 15:30:34 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

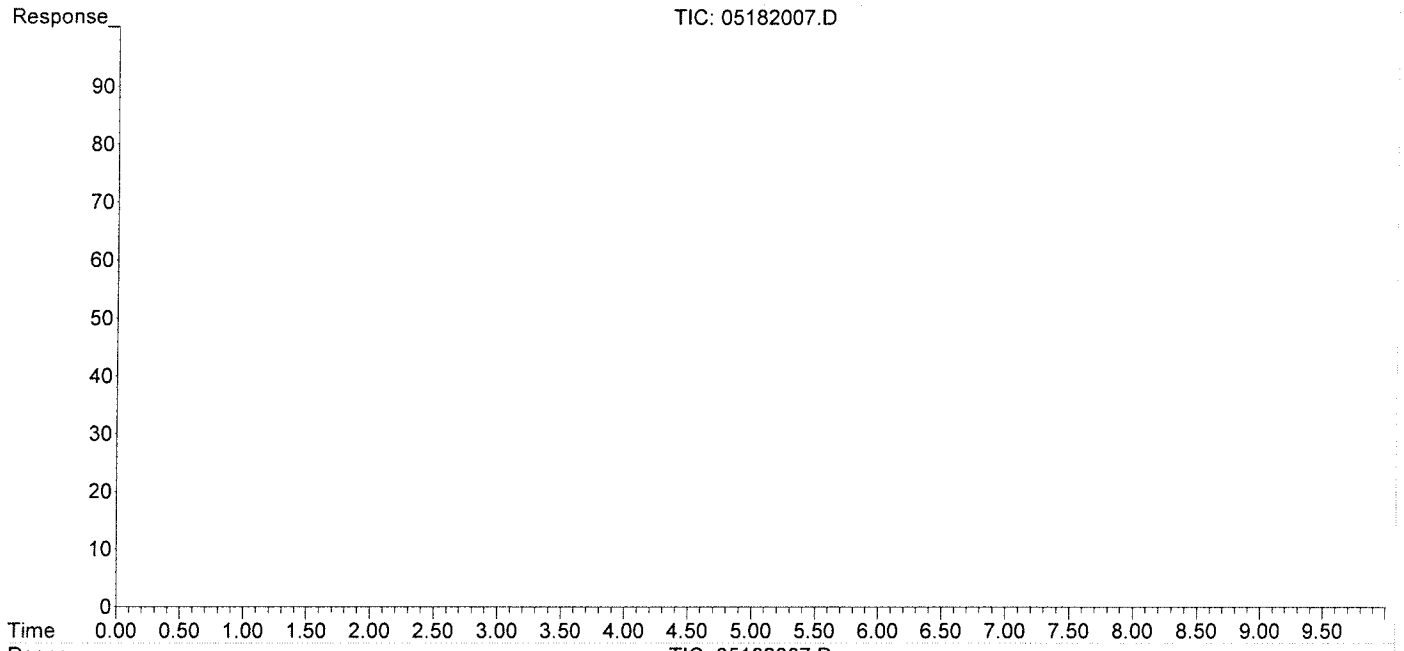
	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

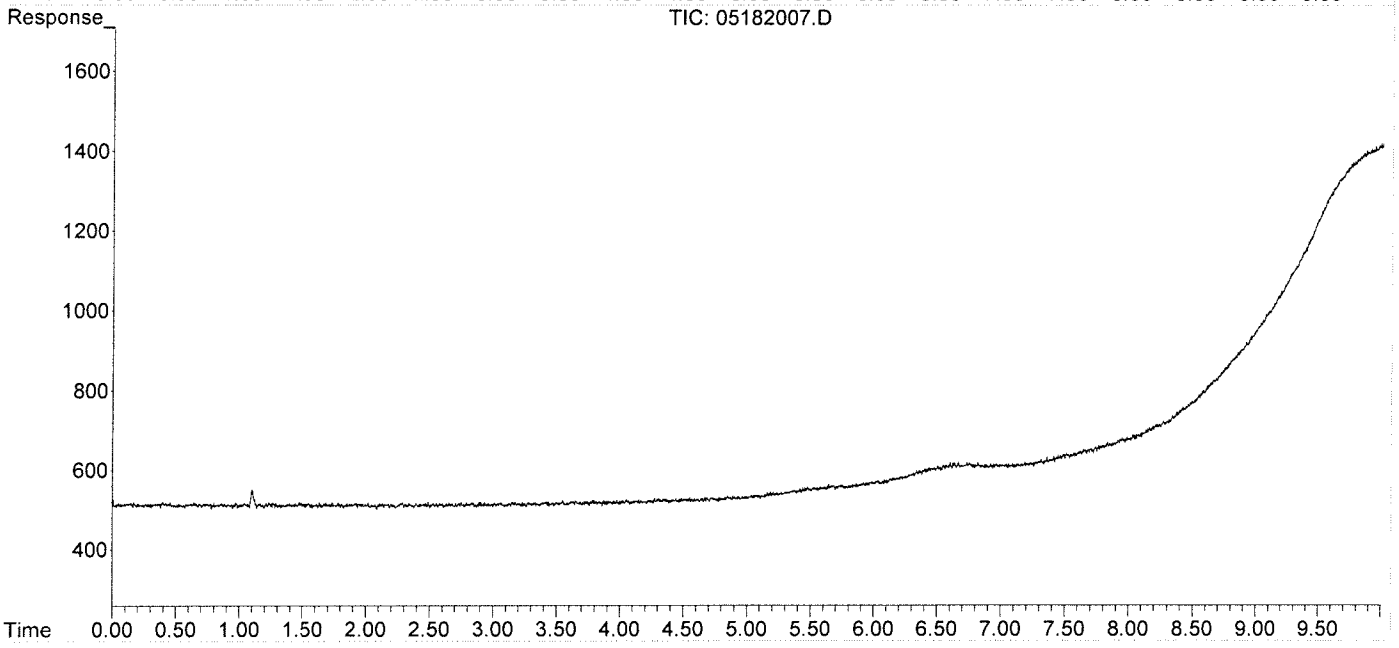
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182007.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 15:10:04
Operator : LD
Sample : P2002523-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 15:30:34 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182008.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 15:24:54
Operator : LD
Sample : P2002523-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 15:48:19 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

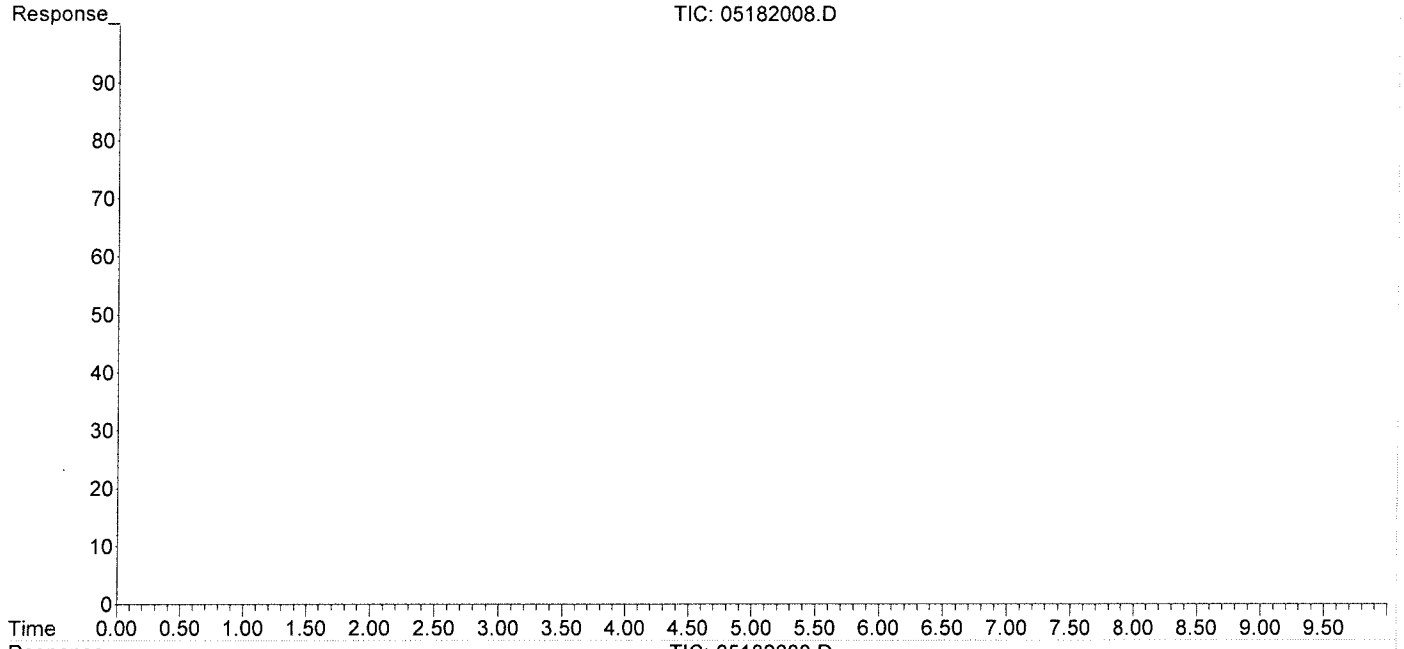
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.105	4445	0.490	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

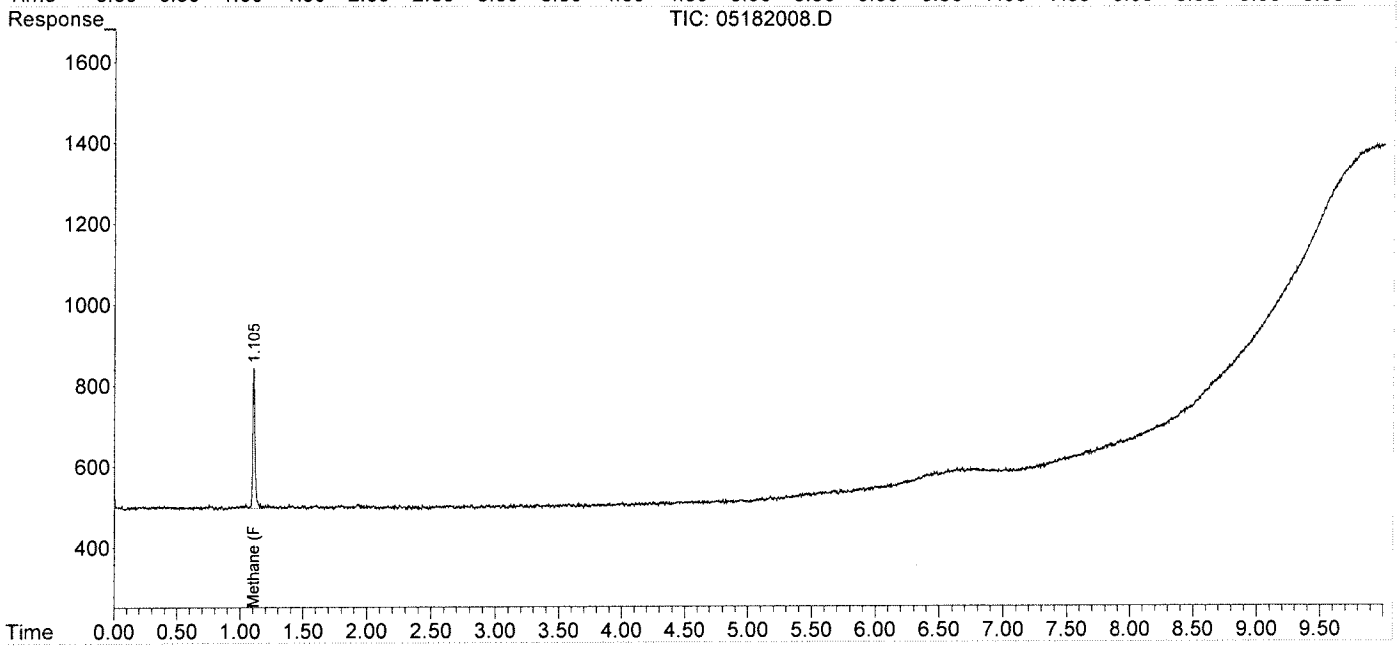
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182008.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 15:24:54
Operator : LD
Sample : P2002523-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 15:48:19 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182009.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 15:37:51
Operator : LD
Sample : P2002523-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 15:48:38 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

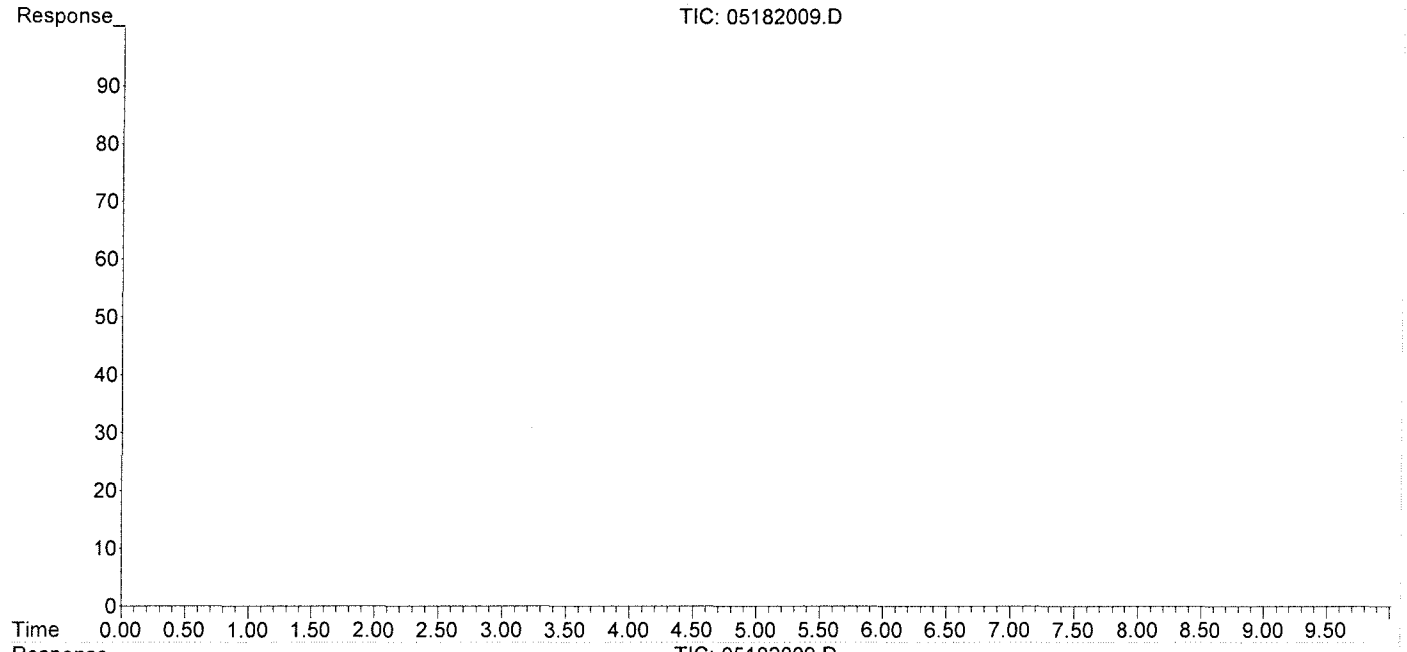
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.102	3835	0.423	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

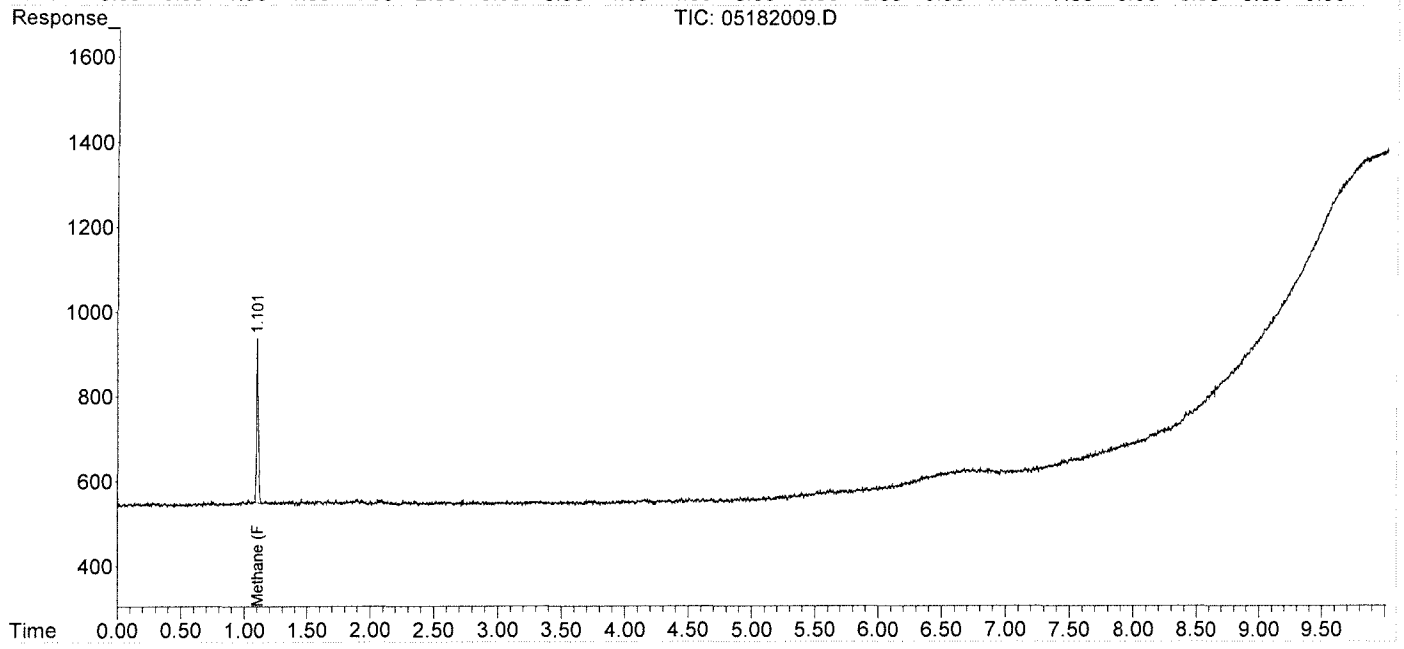
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182009.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 15:37:51
Operator : LD
Sample : P2002523-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 15:48:38 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182010.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 15:51:02
Operator : LD
Sample : P2002523-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 16:07:04 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

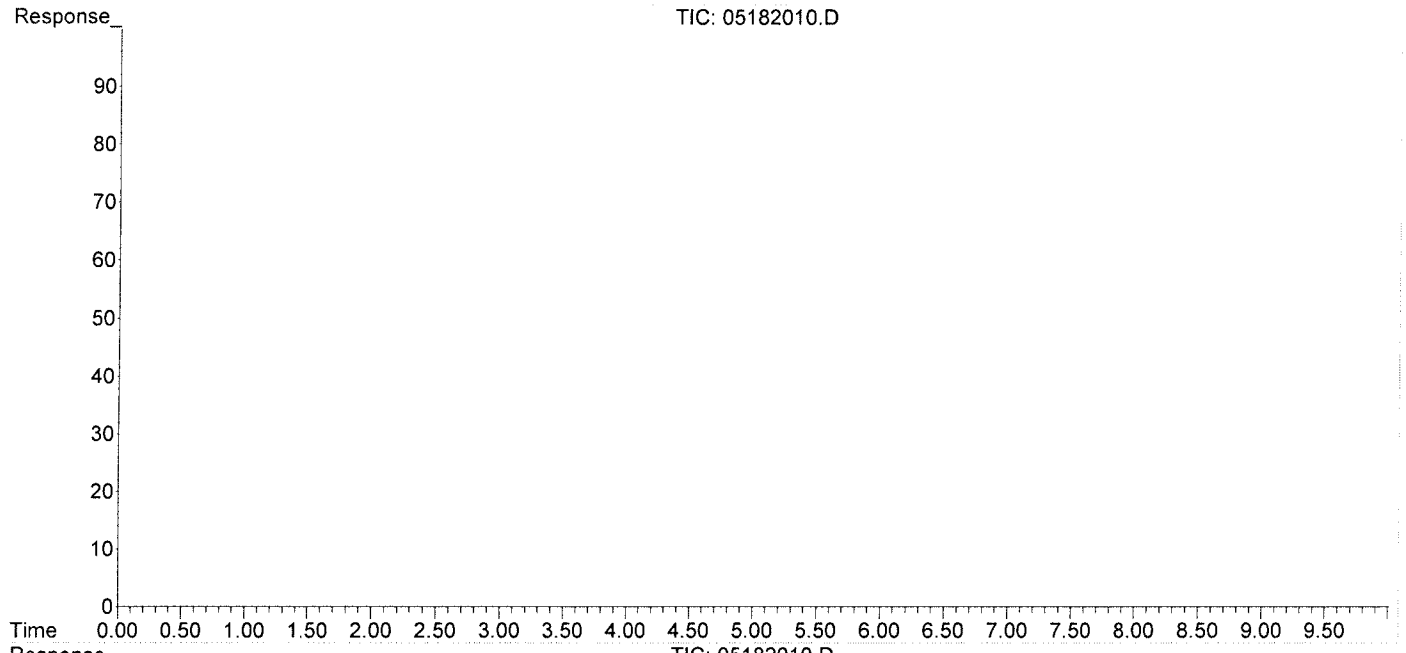
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

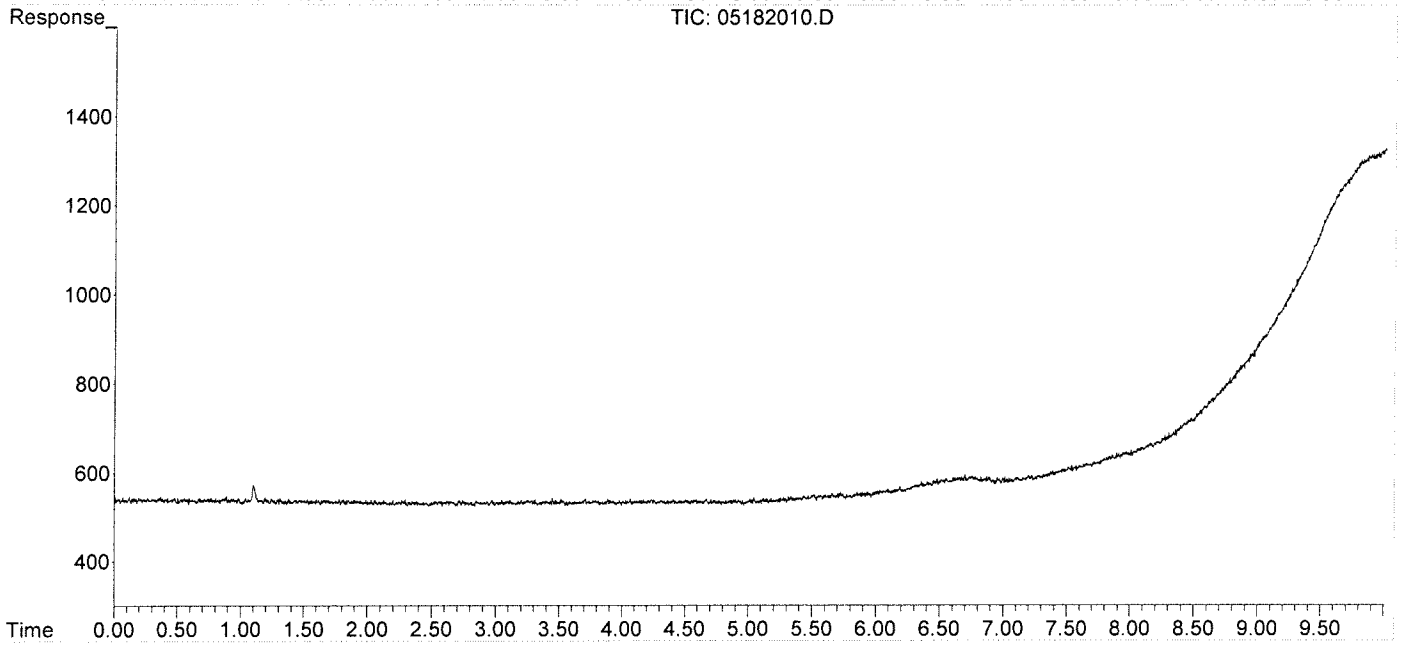
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182010.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 15:51:02
Operator : LD
Sample : P2002523-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 16:07:04 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182003.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 14:00:38
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 14:31:16 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

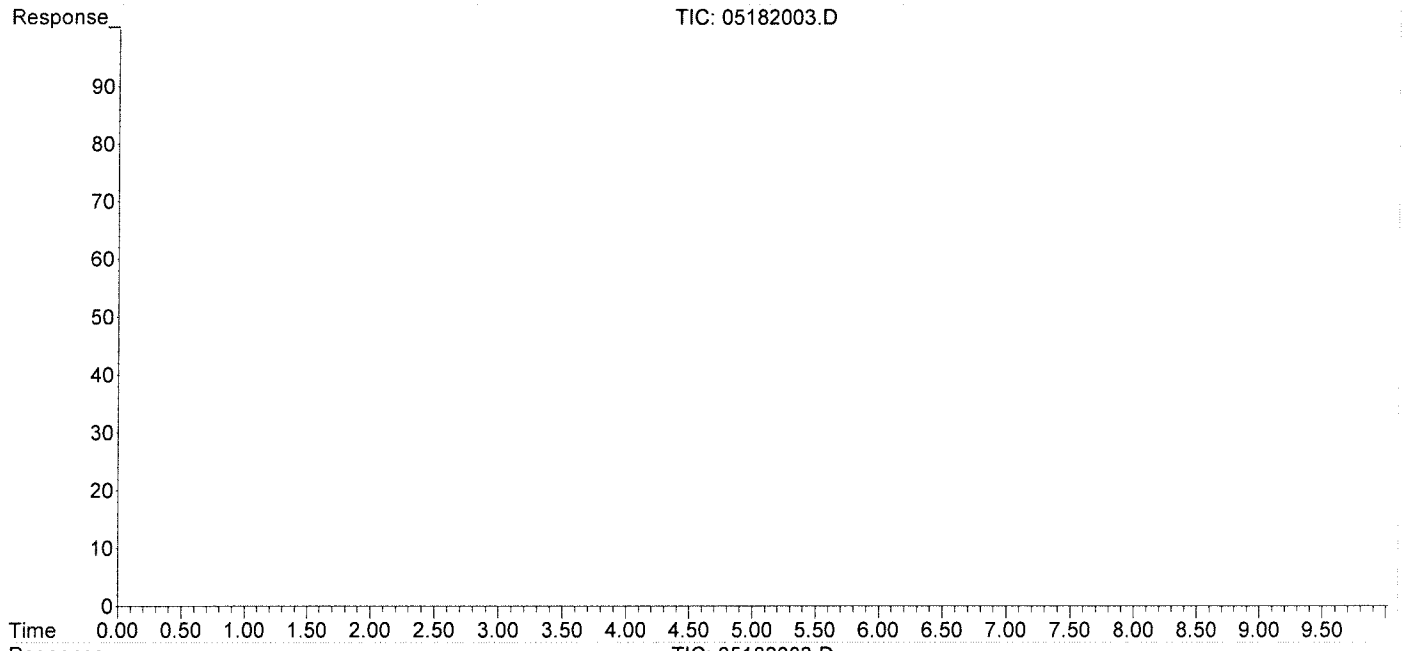
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.094	1633	0.180	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

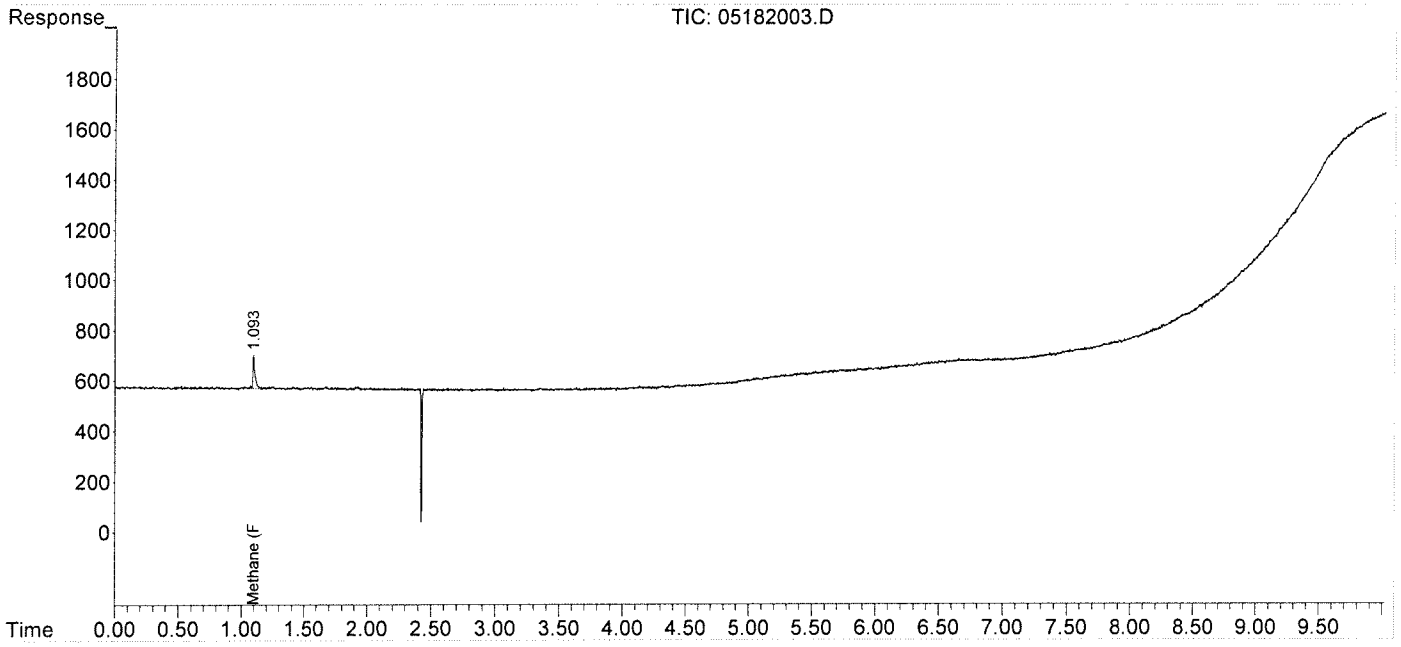
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182003.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 14:00:38
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 14:31:16 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182004.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 14:17:35
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 14:31:29 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

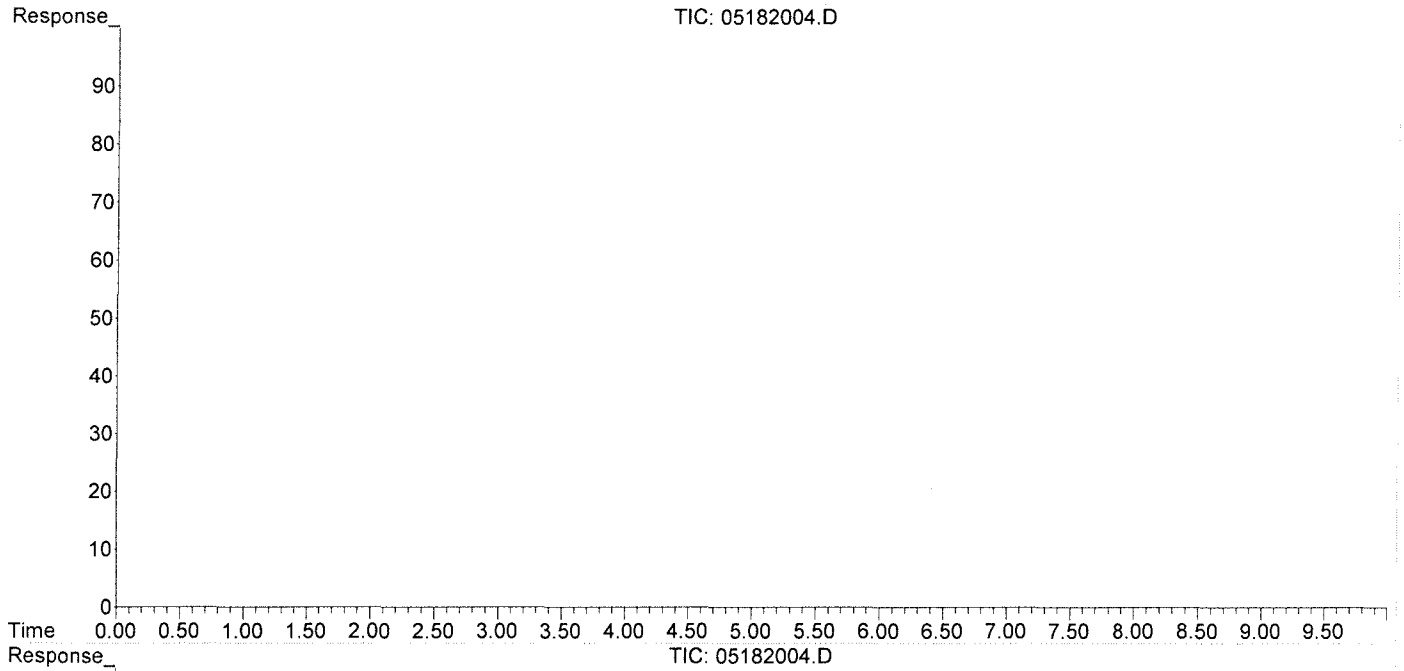
	Compound	R.T.	Response	Conc	Units	
Target	Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.094	12432	1.371	ppm	
7)	Ethylene	1.664	16806	1.004	ppm	
8)	Ethane	1.929	20066	1.184	ppm	
9)	Propylene	4.316	22598	0.964	ppm	
10)	Propane	4.438	30536	1.227	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	d
13)	n-Butane	0.000	0	N.D.	ppm	d

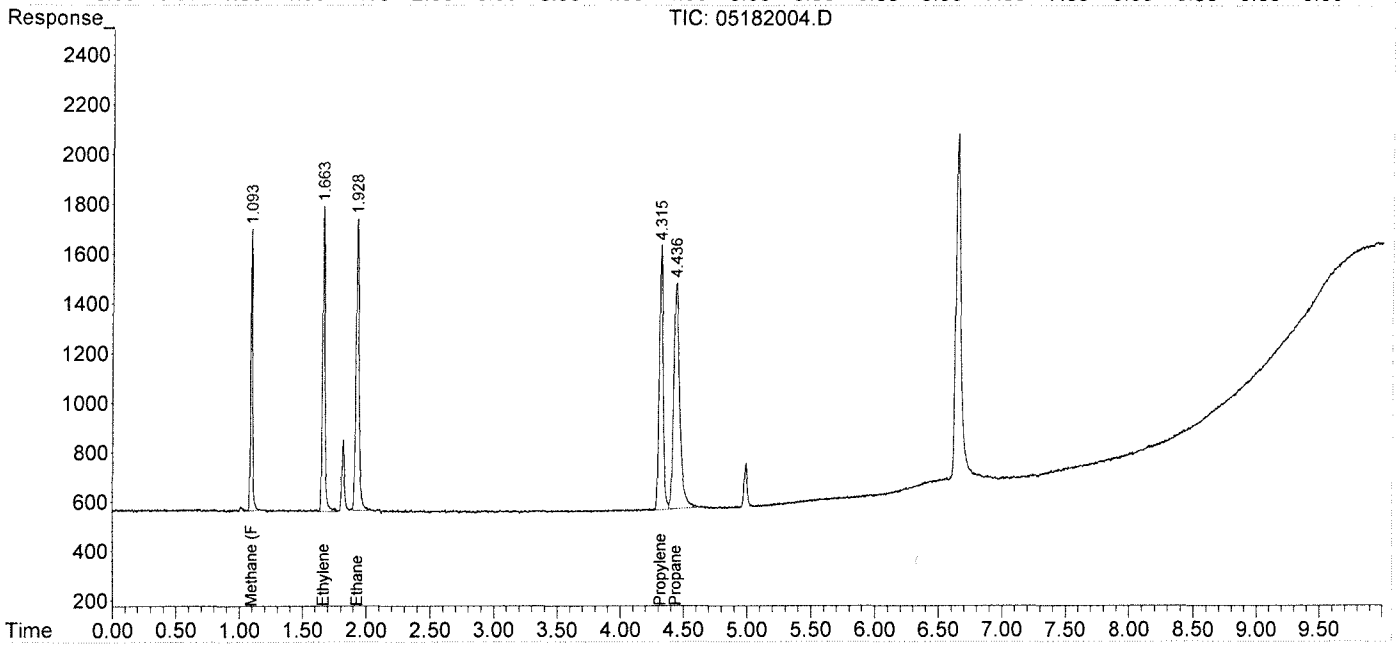
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182004.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 14:17:35
Operator : LD
Sample : LCS FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 14:31:29 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182005.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 14:31:00
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 14:46:07 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

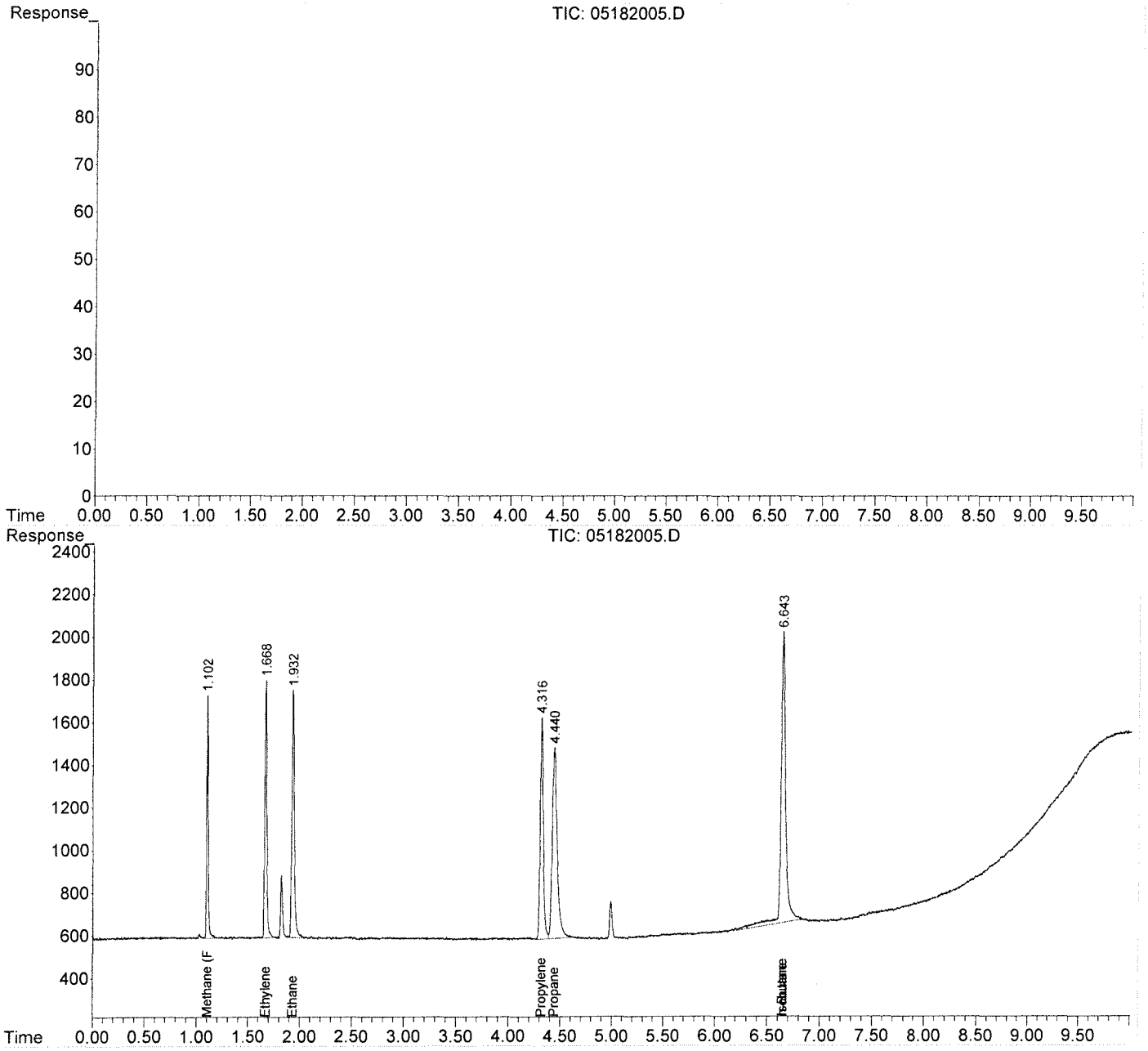
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.102	12454	1.373	ppm
7)	Ethylene	1.669	16047	0.959	ppm
8)	Ethane	1.933	19804	1.168	ppm
9)	Propylene	4.317	21906	0.935	ppm
10)	Propane	4.439	29481	1.185	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.645f	42991	1.615	ppm
13)	n-Butane	6.645f	42991	1.615	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2020_05\18\
Data File : 05182005.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 18-May-2020, 14:31:00
Operator : LD
Sample : LCSD FID 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 18 14:46:07 2020
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017

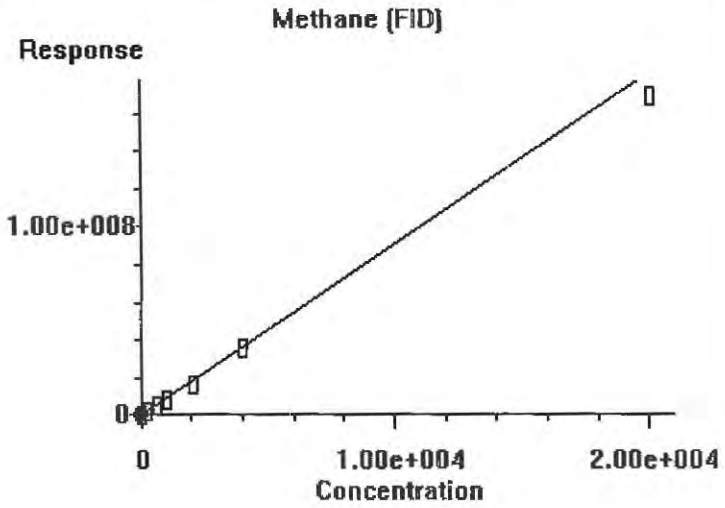
Edit Compounds -- Compound #6 -- Methane (FID)

Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response	Lvl ID	Concentration	Response
1	0.151000		11	20000.000000	169009160.49199
2	0.302000	3564.400000			
3	1.510000	14725.268625			
4	4.530000	41128.575000			
5	10.570000	91966.784531			
6	200.000000	1735997.497500			
7	600.000000	5189848.900000			
8	1000.000000	8598533.570000			
9	2000.000000	16098209.390000			
10	4000.000000	35776839.311362			



0.000e+000	Quadratic term
9.071e+003	Linear term
0.000e+000	Constant term
11.657%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

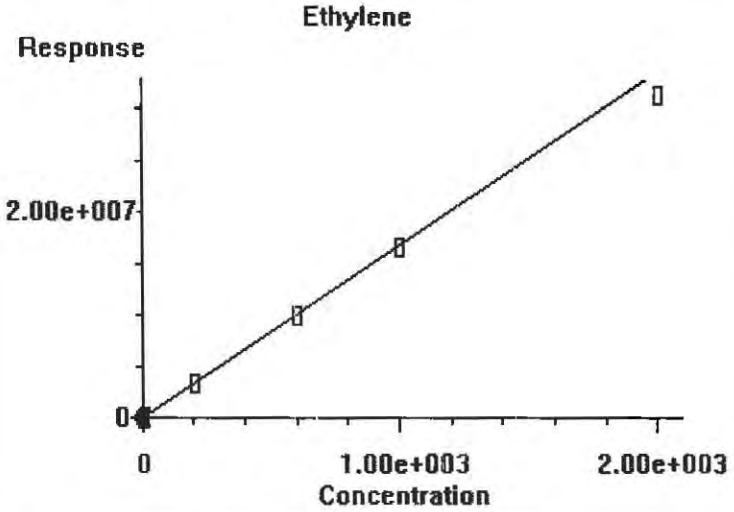
Search by: Ret Time | Name | Index | Find Compound

Compound Database
External Standard Compoun
- Oxygen/Argon
- Carbon monoxide
- Methane (TCD)
- Carbon dioxide
- Signal #2
- Methane (FID)
- Ethylene
- Ethane
- Propylene
- Propane
- Isobutylene
- Isobutane
- n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #8 -- Ethane

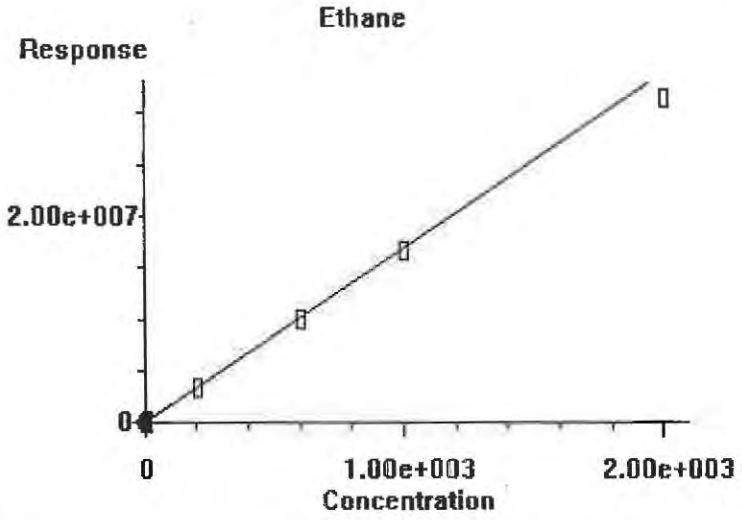
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #9 -- Propylene

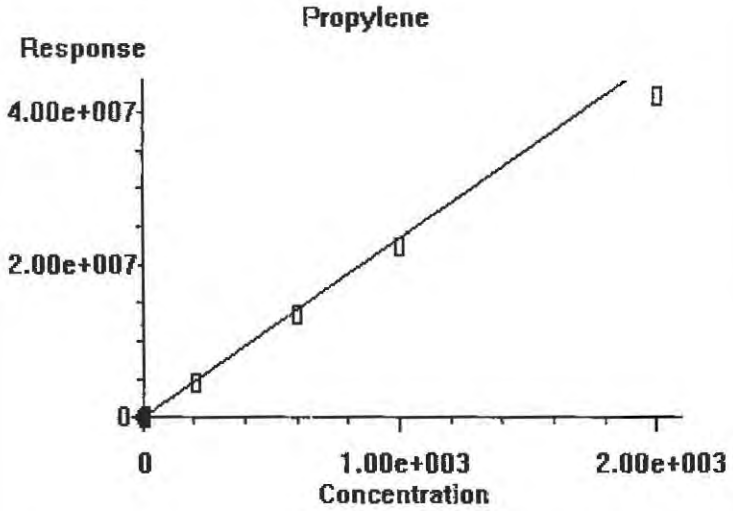
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #10 -- Propane

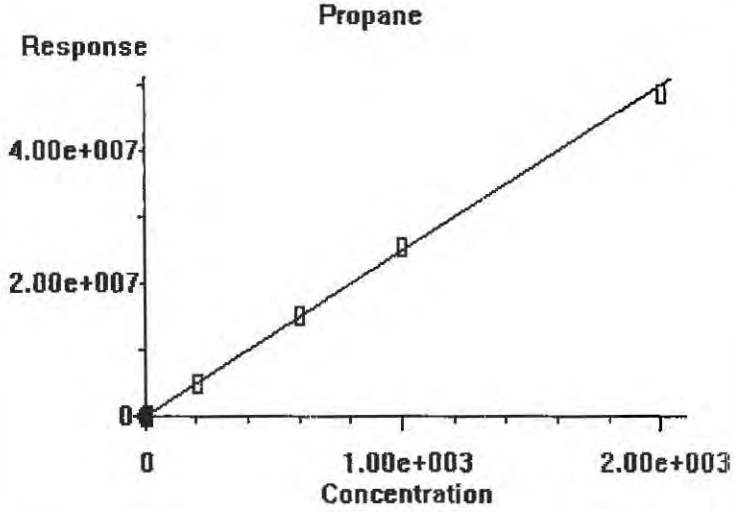
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663316
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

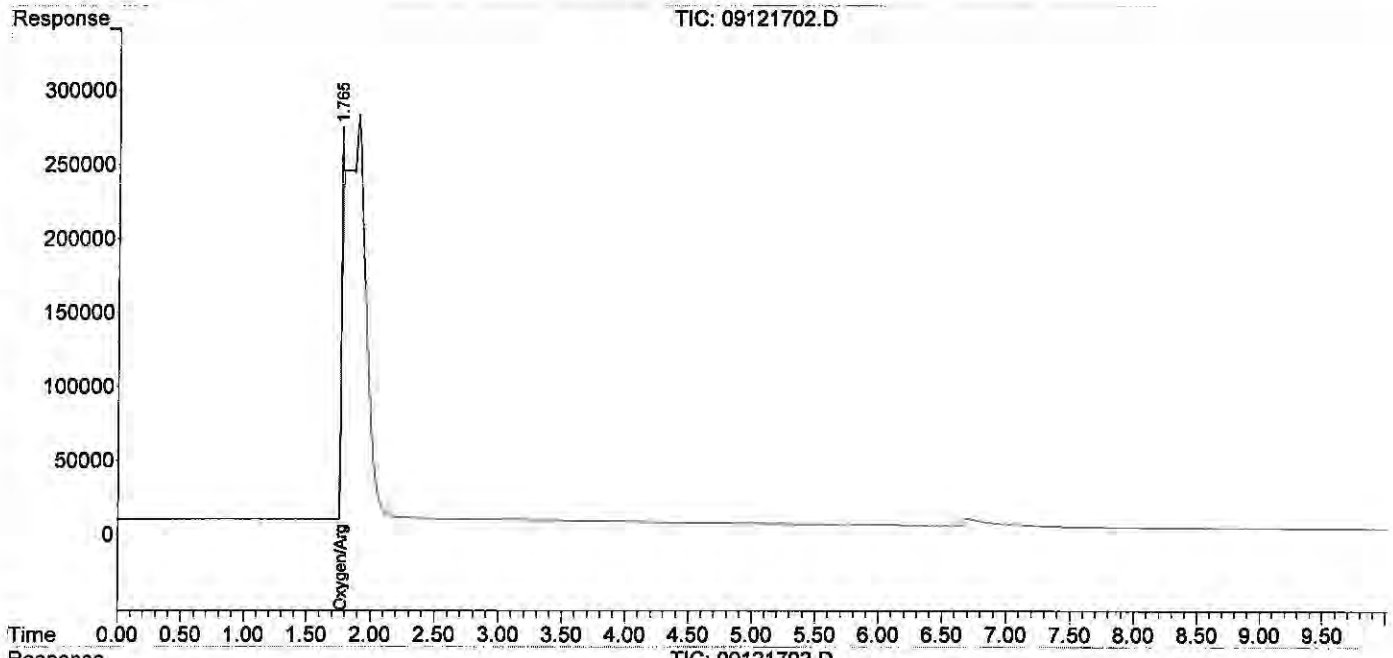
(f)=RT Delta > 1/2 Window (m)=manual int.

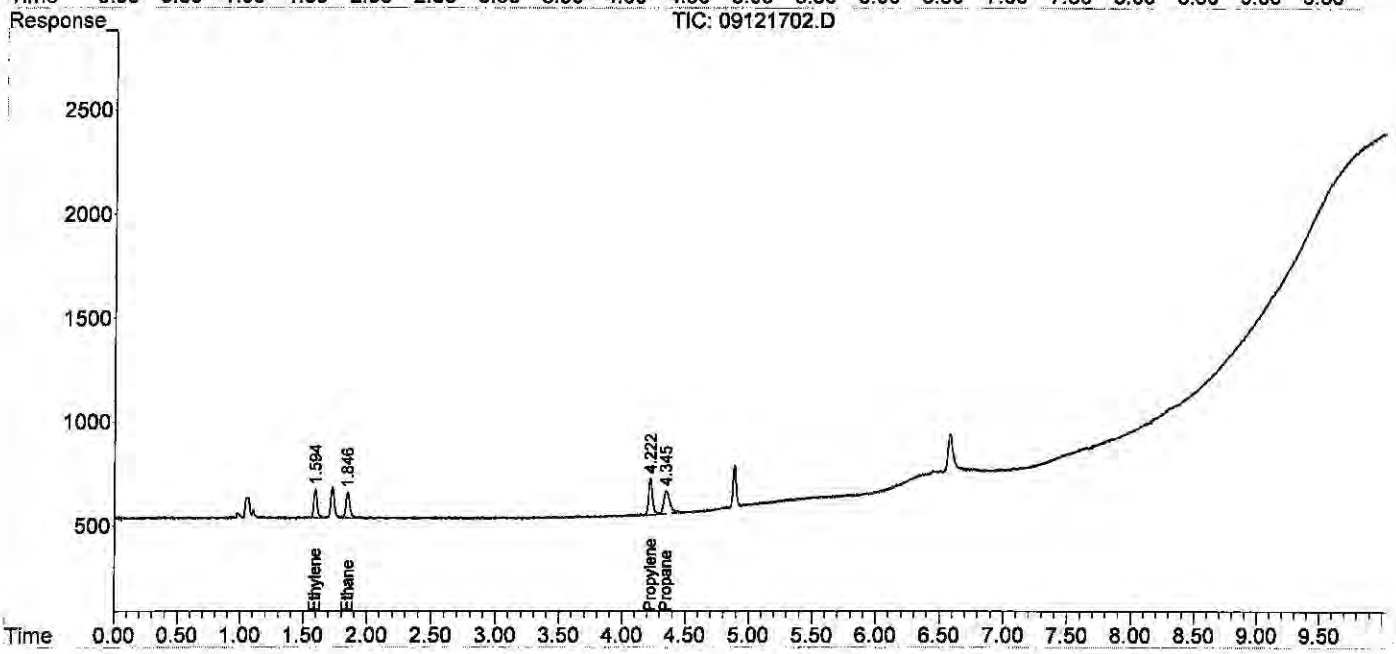
9/13/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

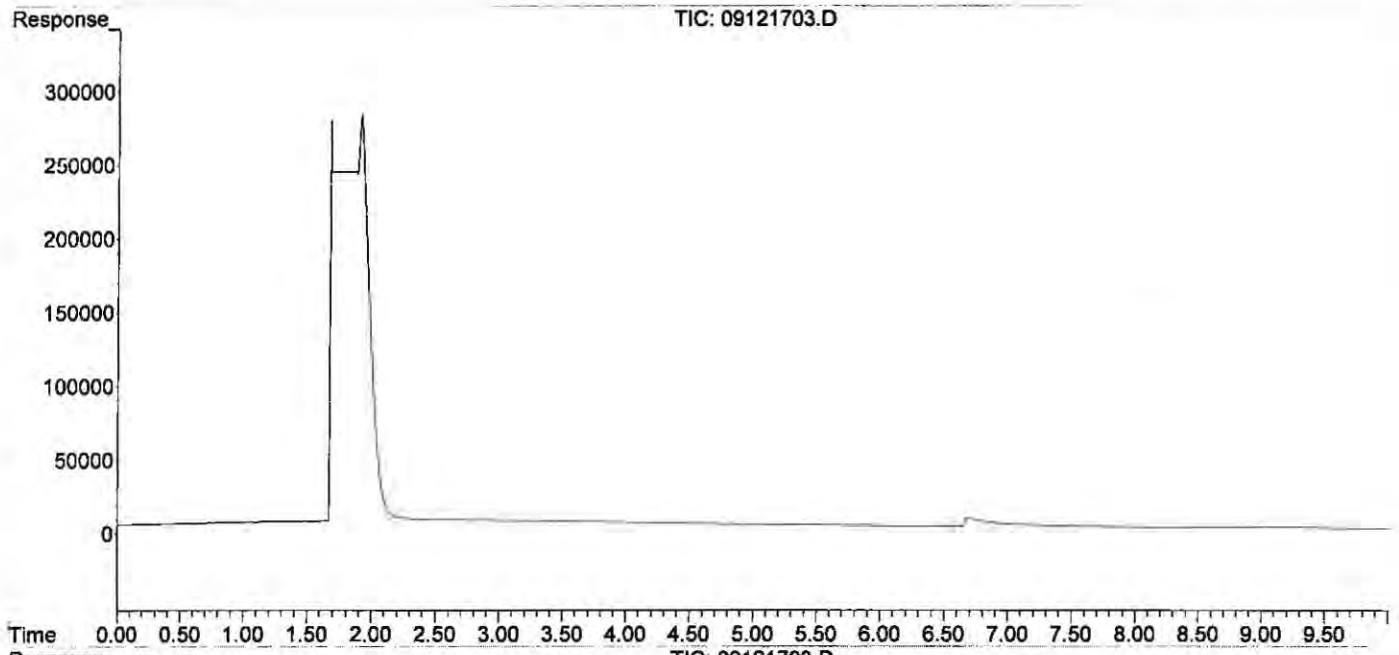
(f)=RT Delta > 1/2 Window (m)=manual int.

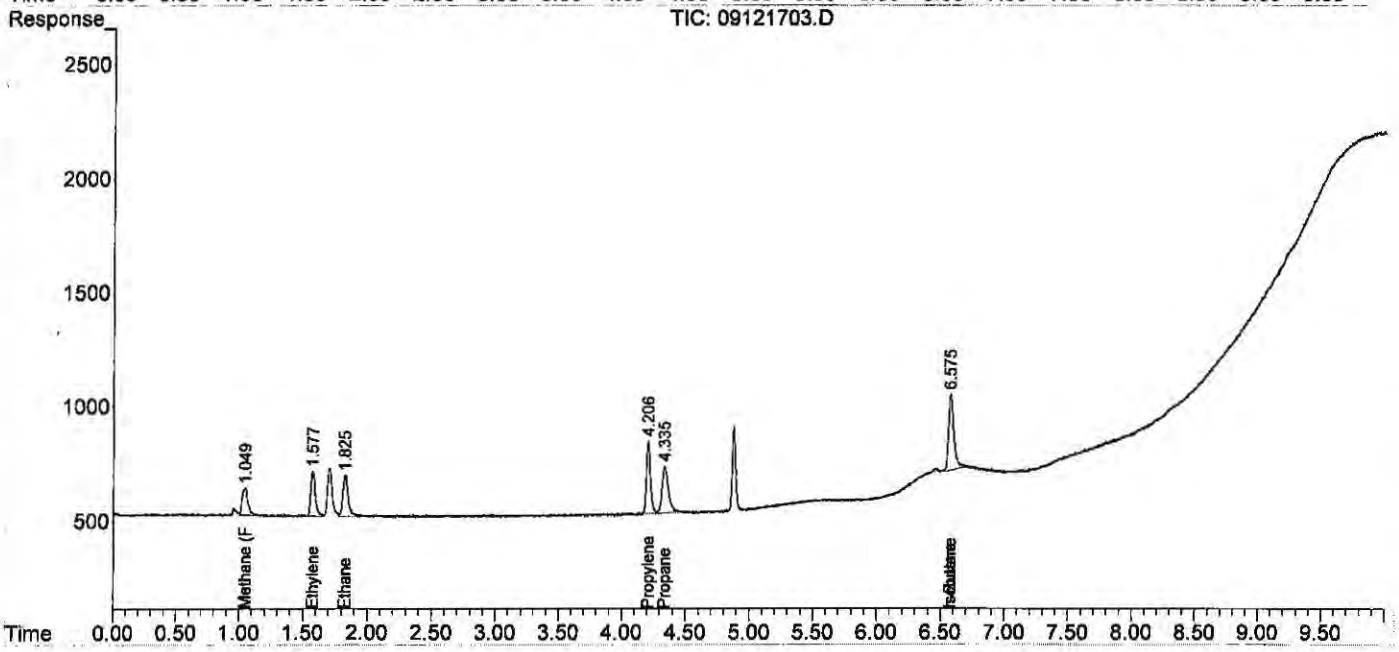
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

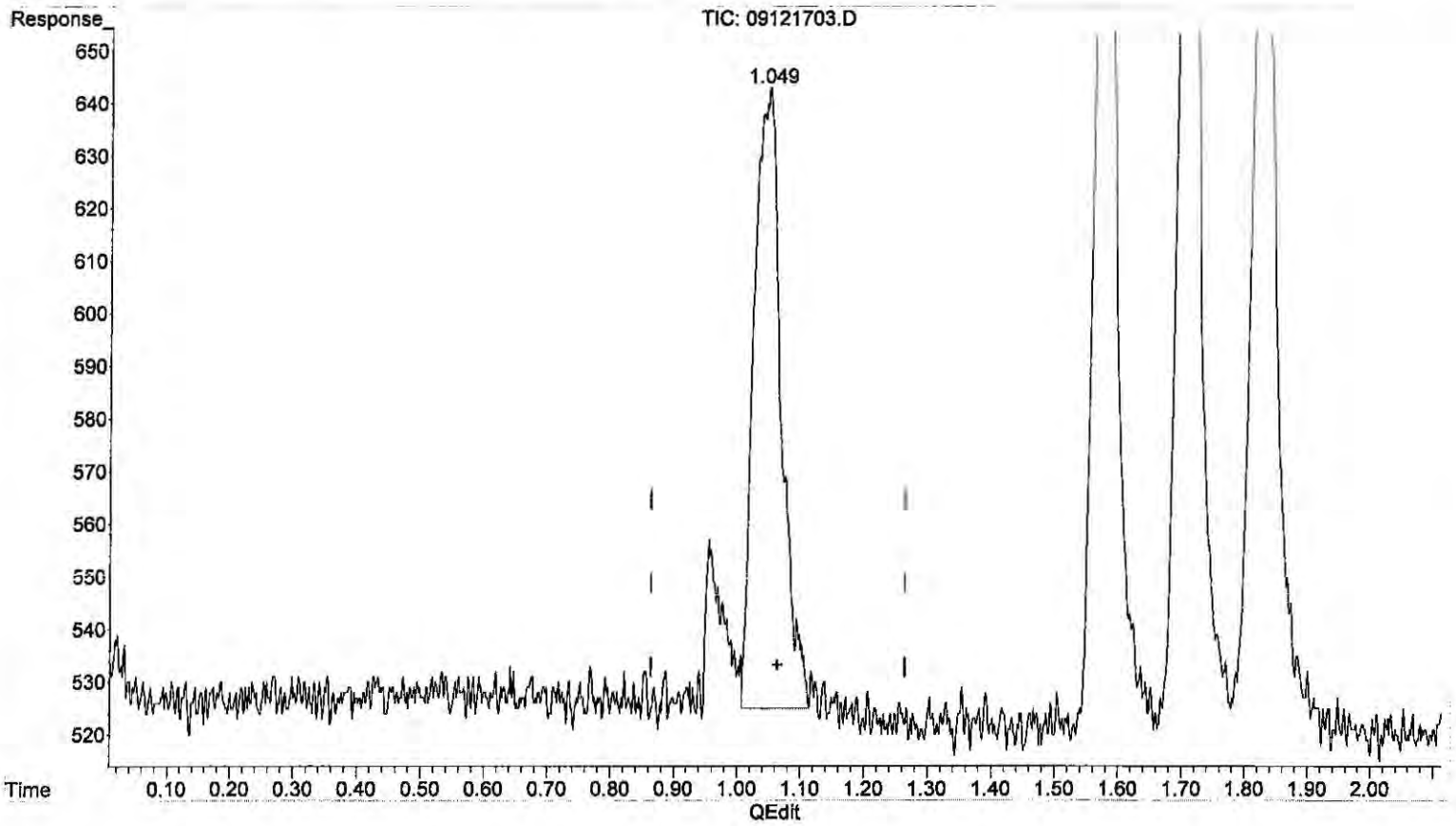




Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

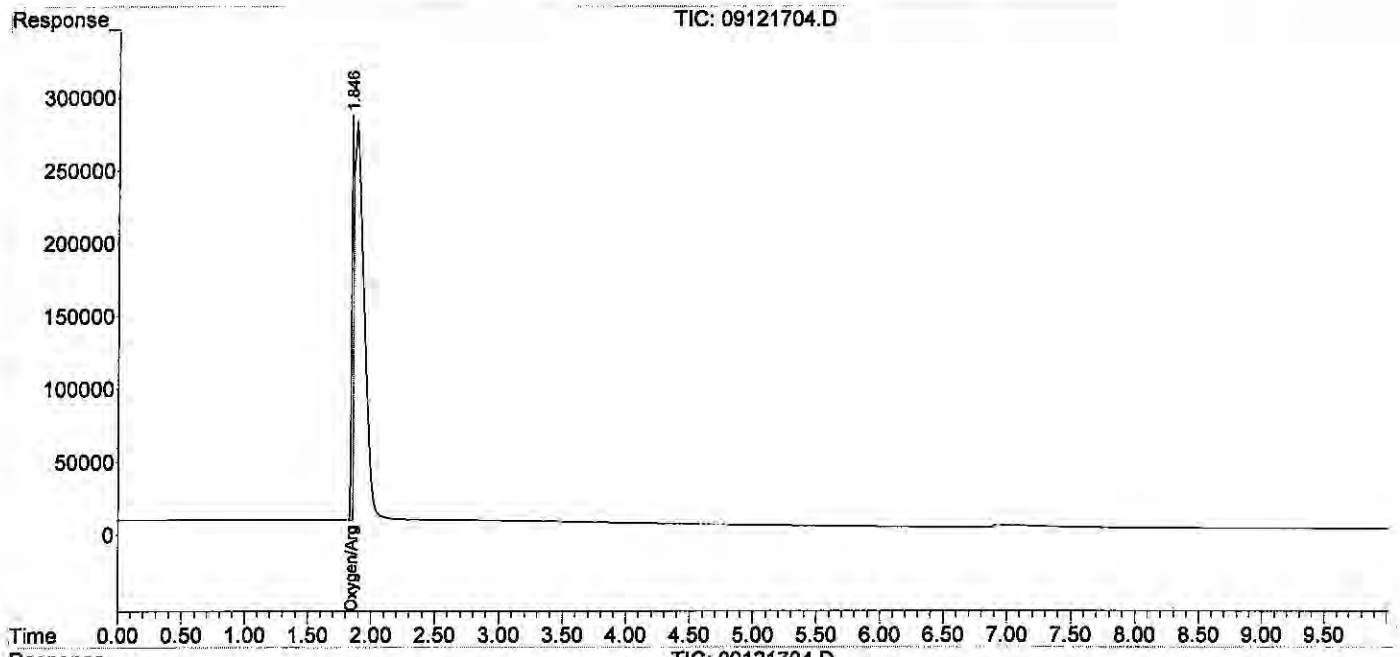
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

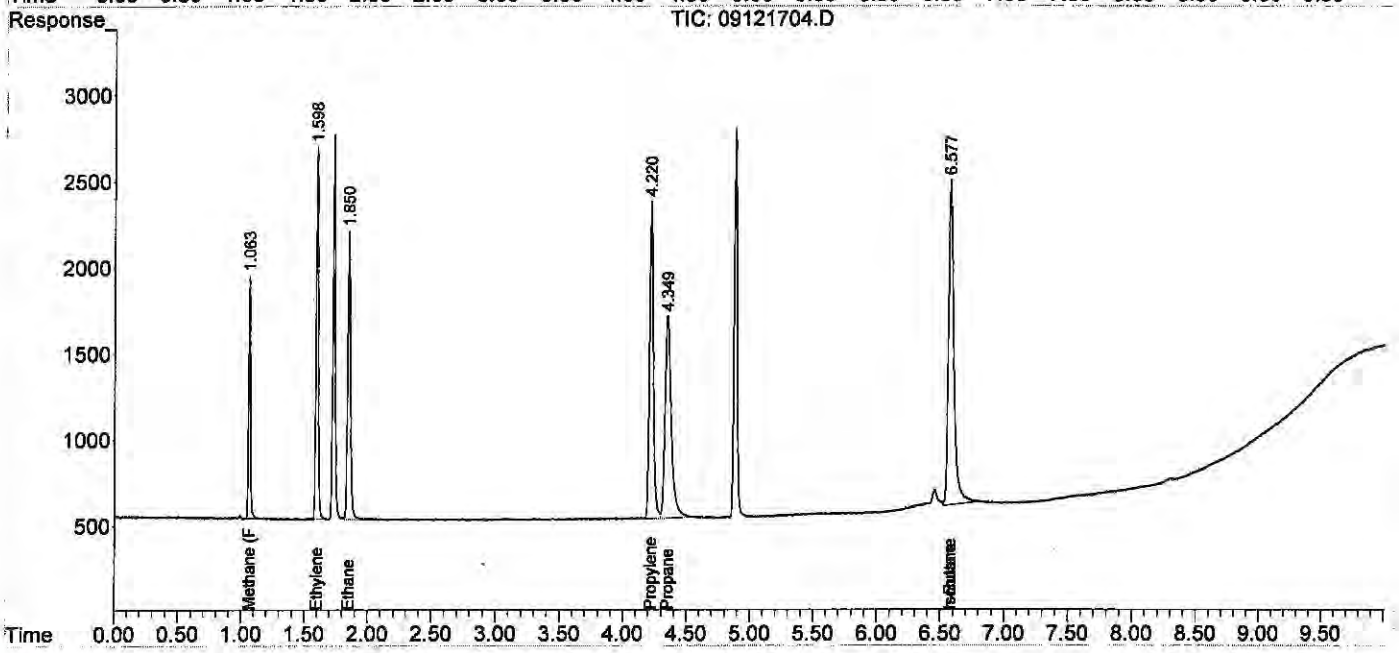
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

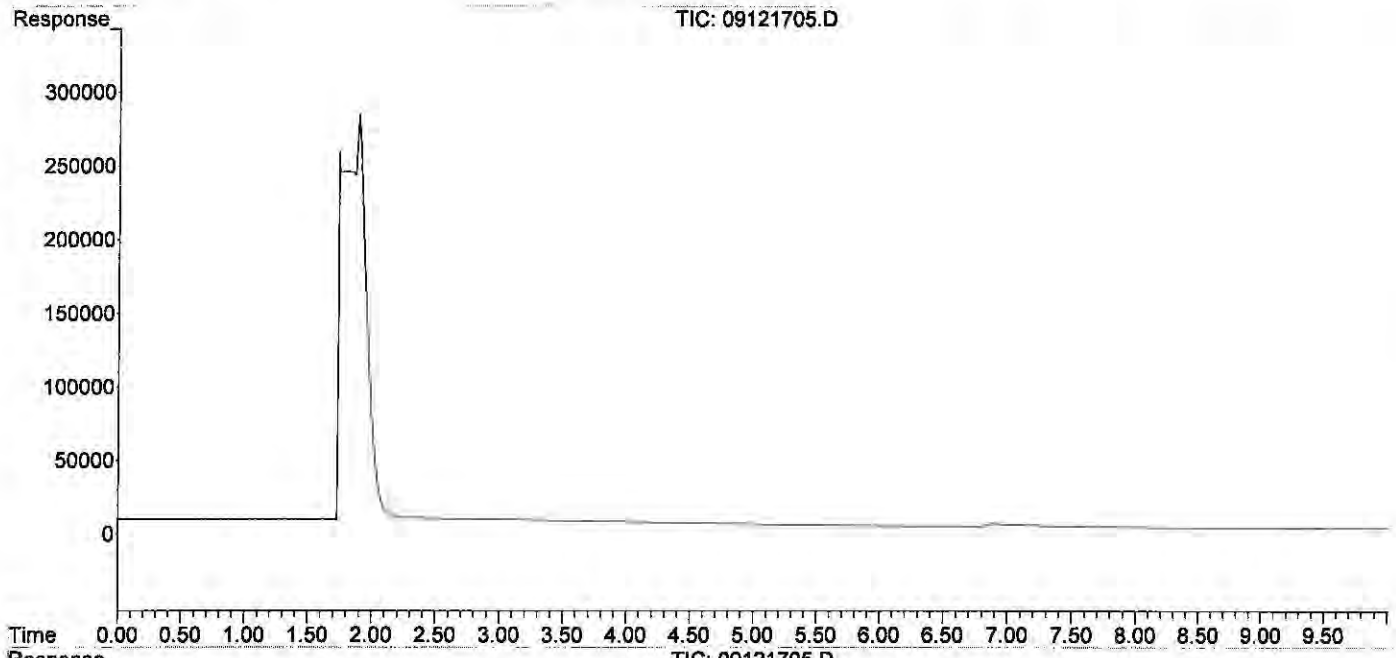
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

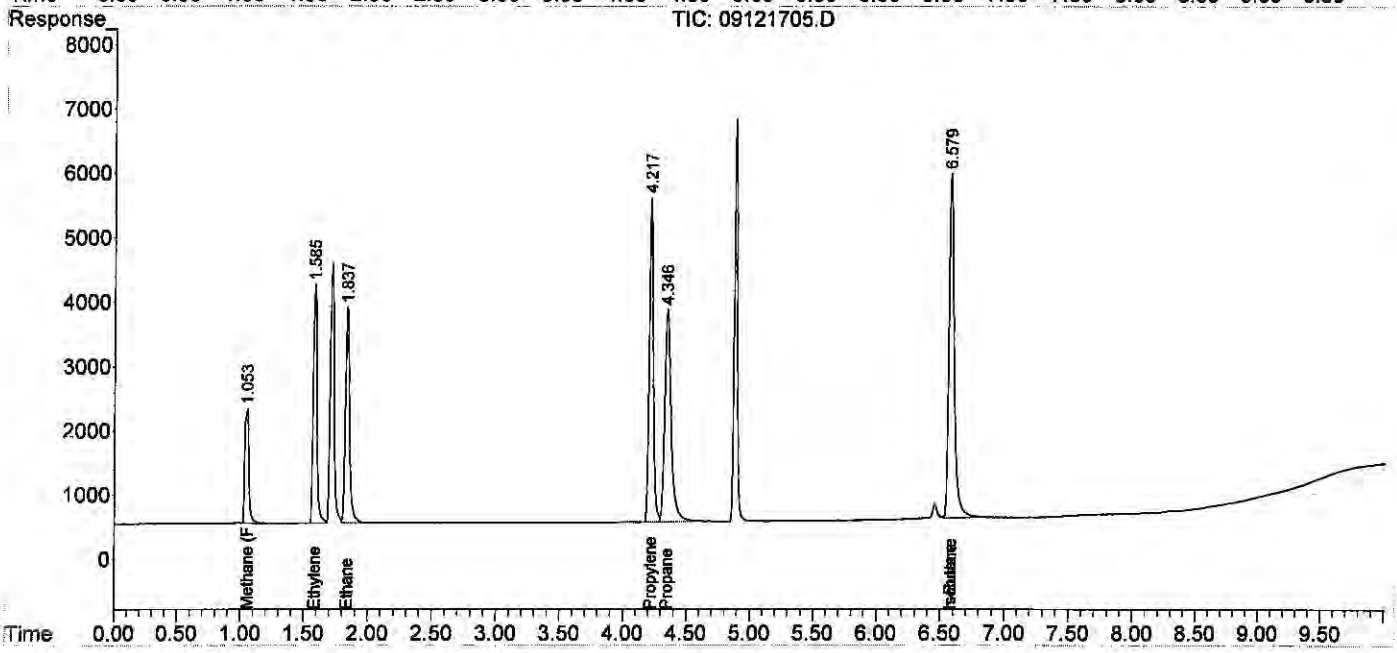
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

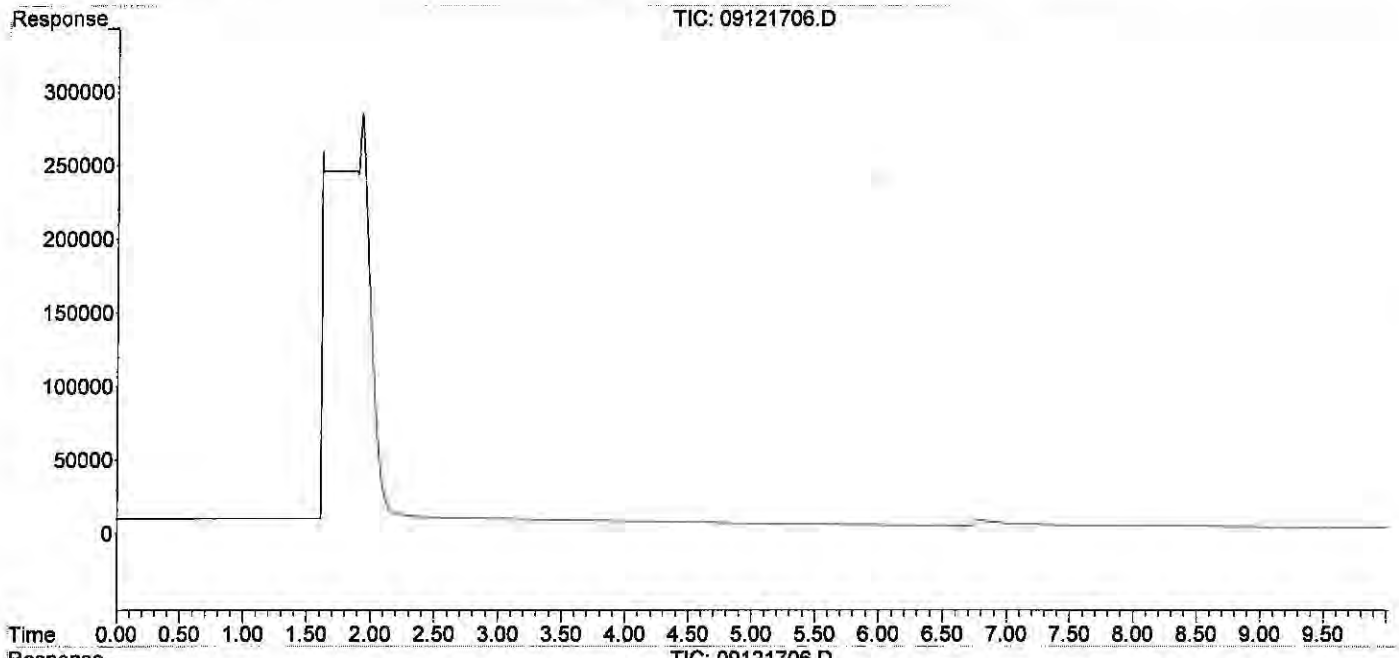
(f)=RT Delta > 1/2 Window (m)=manual int.

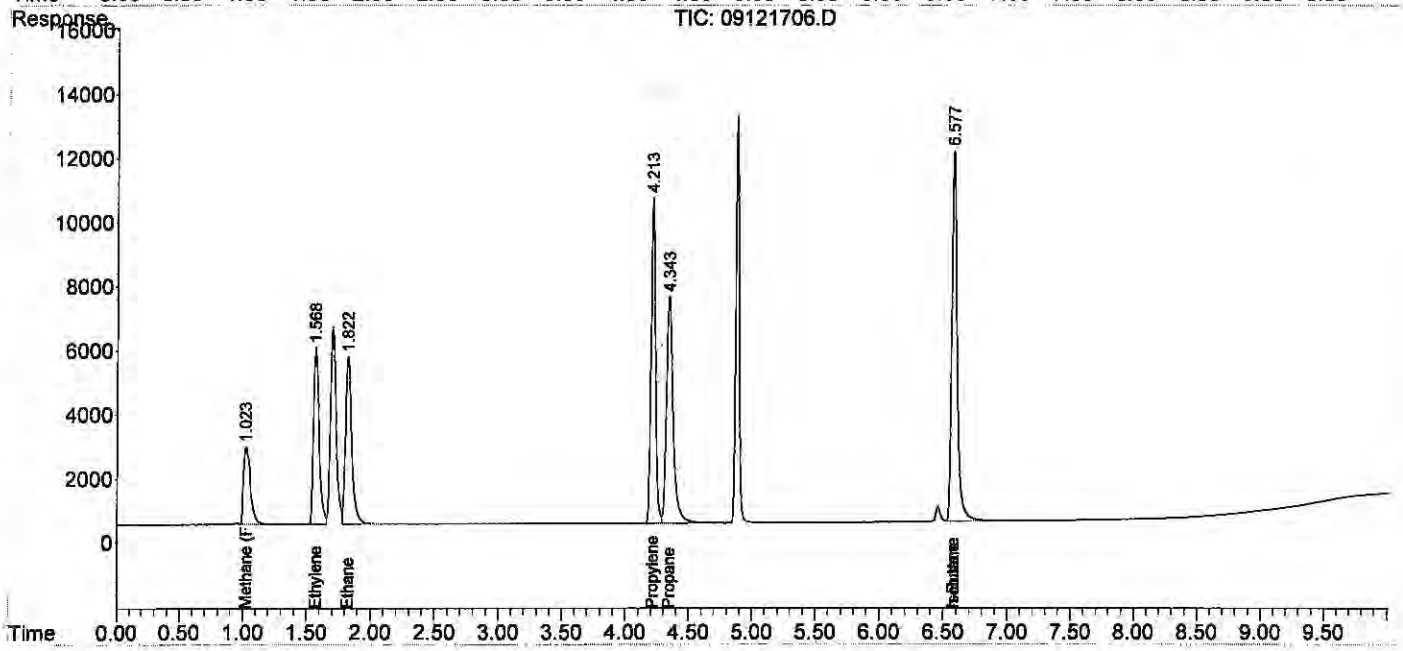
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

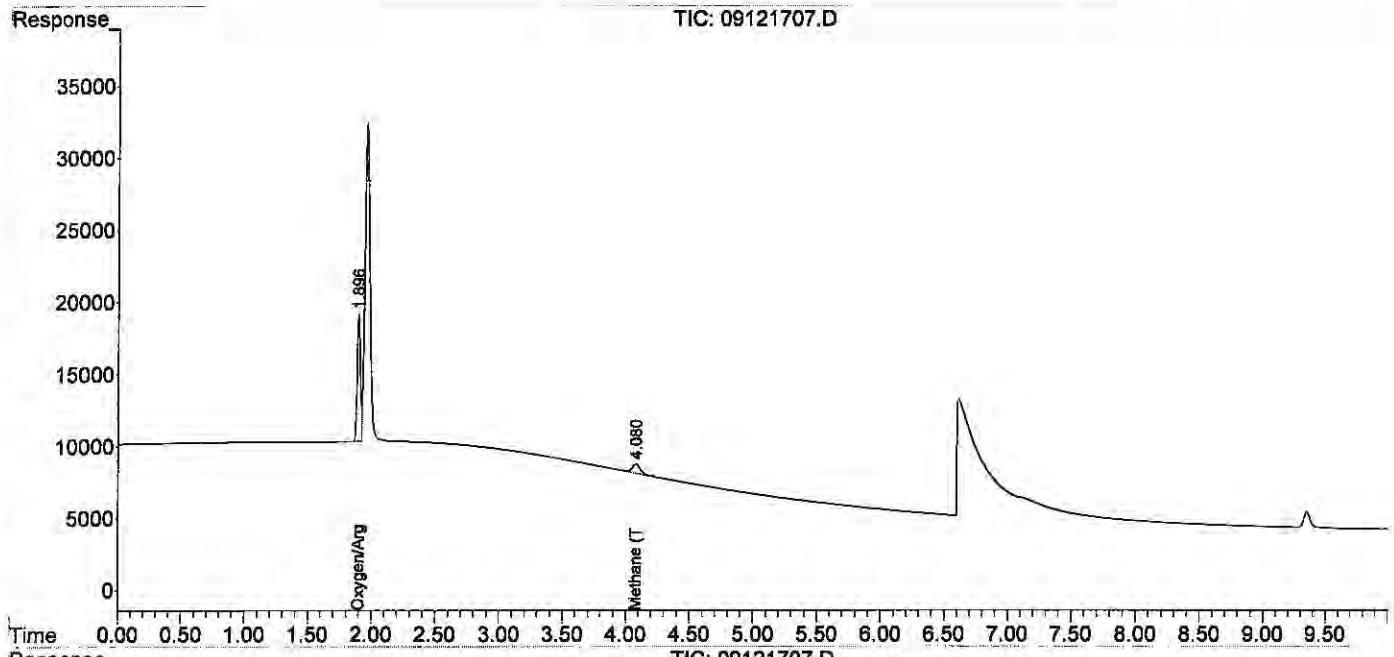
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

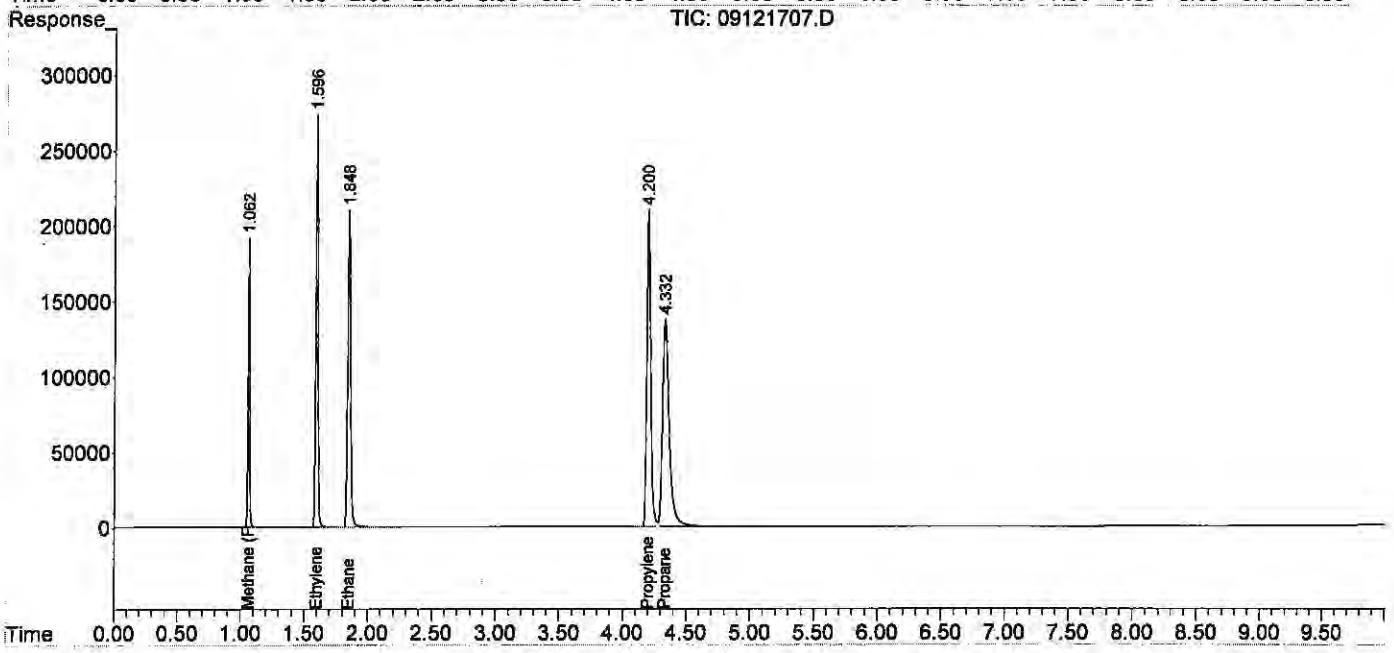
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.